Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

A99.9
F76322

Potential Solar Beam Irradiation on Slopes:

Tables for 30° to 50° Latitude

Ernest C. Frank

Richard Lee

March 1966

76
U.S. Forest Service
Research Paper RM-18

76
ROCKY MOUNTAIN FOREST AND RANGE EXPERIMENT STATION. + 76

50
Fort Collins, Colorado

Raymond Price, Director

7 (115)
FOREST SERVICE + 72

U. S. DEPARTMENT OF AGRICULTURE

U. S. DEPT. OF AGRICULTURE
NATIONAL AGRICULTURAL LIBRARY

JUN 27 1966

CURRENT SERIAL ACQUISITION

USDA, National Agricultural Library
NAL Bldg
10301 Baltimore Blvd
Beltsville, MD 20705-2351

3
POTENTIAL SOLAR BEAM IRRADIATION ON SLOPES

Tables for 30° to 50° Latitude //

by

Ernest C. ³Frank, Associate Hydrologist

and

Richard Lee,¹ Hydrologist

Rocky Mountain Forest and Range Experiment Station²

¹ Presently located at the University of Connecticut, College of Agriculture, Storrs, Connecticut.

² Central headquarters maintained at Fort Collins in cooperation with Colorado State University.

POTENTIAL SOLAR BEAM IRRADIATION ON SLOPES

Tables for 30° to 50° Latitude

by

Ernest C. Frank and Richard Lee

Solar Energy Relations

Solar irradiation, the energy source to the hydrologic cycle, photosynthetic processes, and other natural phenomena, must be evaluated continually in diverse land management and research ventures. The establishment and protection of forests, and their yields of wood and water, are directly affected. Energy analyses for wild or agricultural lands invariably begin with data or assumptions relevant to the recurring input from the sun. In recent years this approach has emphasized the need for a quantitative description of such concepts as "southern exposure," "solar climate," or "topographic shading." Significant contributions have been those by Fons et al. (1960), Kaempfert and Morgen (1952), Loewe (1962), Milankovitch (1930), and Okanoue (1955).

The slope and orientation of terrain elements, especially important in forest hydrology, are important climatological factors as well. It is well known that the differential sunning of slopes alone can account for climatic extremes measurable in terms of equivalent latitudinal differences. The experienced forester recognizes the extent of such differences intuitively, and local management practices may reflect his artful tactics. Yet, scientific progress is facilitated to a greater extent by numerical qualification than by rules of thumb.

Solar beam irradiation is only one of several radiant energy components of importance in the radiation balance for natural areas, yet the differences between areas are often largely a function of this one parameter. Fairly uniform climatic changes with latitude are obviously recognizable and related directly to sun angle. This relationship has been confirmed from long-term measurements of the various

components of radiation exchange. The typical relation is:

$$S = J + H + G - R - A \quad (1)$$

where S is the net radiation balance, J the direct beam, H the diffuse sky, G the thermal atmospheric, R the reflected, and A the thermal terrestrial components. Data from two middle-latitude stations show that long-term averages of the additional terms H, G, R and A are largely self-canceling:

Station		$(H + G) \div (R + A)$
Davos, Switzerland	1959	0.961
Hamburg, Germany	1957-62	1.036

Just as ordinary climatological data are not adequate to describe day-to-day events meteorologically, direct-beam irradiation alone cannot describe a short-term radiation budget. Conversely, it is expected that mean values for this parameter will be as useful as mean temperature and precipitation values.

Radiation detectors and integrators are being used more widely with increasing acceptance of the usefulness of solar radiation values. This equipment is not used widely enough, however, to be a tool in the general classification of forest sites, empirical-theoretical radiation indexes have been evolved to meet such needs. Solar radiation values computed from the solar constant, an atmospheric attenuation constant (turbidity factor), and the geometry of a site with respect to the sun's rays, provide remarkably good long-term means. The kinds of parameters that change from day to day (clouds, smog, dust, and atmospheric moisture) make short-term forecasts much more uncertain.

A purely theoretical parameter--*potential solar beam irradiation*--is obtained by neglecting entirely the turbidity factor mentioned above (the influence of the atmosphere in depleting direct solar energy). The intensity on a surface is then proportional to the cosine of the angle of incidence. The incidence angle for a terrestrial surface depends in turn on the five independent variables: terrestrial latitude, hour angle (time of day), solar declination (time of year), surface inclination or steepness, and surface orientation (azimuth of slope).

Although potential solar beam irradiation usually differs appreciably from actual irradiation, it is an appropriate, if nonrigorous, basis for comparing the energy flux among the facets of a landscape. In addition, it may be considered as a permanent site factor, the only variation being a perfectly cyclical one and calculable. The tables that form the bulk of this report are the result of such calculations. They provide a means of (1) quantitatively distinguishing, in terms of potential insolation, between surfaces that differ as to latitude, slope inclination, and orientation, and (2) assessing the potential insolation received on selected dates by a specific surface, which facilitates seasonal comparisons. The tables give the potential solar beam irradiation in Langleys received during 1 solar day, and the sunrise-sunset times as hours before and after true solar noon for 24 dates during the year. Latitudes 30° and 50° North are covered by 2° increments. Slope inclinations from 0 to 100 percent by 10-percent increments, and slope orientation to 16 points of the compass are covered. For inclined surfaces the latitude and change in longitude needed to locate the equivalent slope, or horizontal surface parallel to the inclined surface, are tabulated. The total potential insolation received during 1 year, and a radiation index (R.I.) based on the annual values, are given for all surfaces.

Equations

The mathematical theory underlying computations of potential or extraterrestrial radiation was developed by Milankovitch (1930) in his classical "Mathematische Klimalehre." In somewhat altered symbolism, the instantaneous irradiation I_s of a horizontal surface is given as:

$$I_s = \frac{I_0}{e^2} (\sin \theta \cdot \sin \delta + \cos \theta \cdot \cos \delta \cdot \cos wt) \quad (2)$$

where:

I_0 = solar constant

e = radius vector, ratio of the

earth-sun distance at a particular time to its mean

θ = terrestrial latitude

δ = solar declination

w = angular velocity of the earth's rotation, 15 degrees per hour

t = time in hours from noon

The time of sunrise and sunset (t_1 , negative and t_2 , positive) is found by setting $I_s = 0$ and solving for t , or

$$\cos wt = -\tan \theta \cdot \tan \delta \quad (3)$$

By integration of equation 2, the total radiant energy for the period of 1 solar day, I_q is found as

$$I_q = \frac{I_0}{e^2} (2t \cdot \sin \theta \cdot \sin \delta + \frac{1}{w} \cdot \cos \theta \cdot \cos \delta \cdot 2 \cdot \sin wt) \quad (4)$$

To account for the inclination and orientation of sloping surfaces, Okanoue (1957) included the additional arguments, k = slope inclination, and h = slope azimuth. Slope inclination, azimuth, and latitude are used to compute θ' and α as follows:

$$\theta' = \sin^{-1} (\sin k \cdot \cos h \cdot \cos \theta + \cos k \cdot \sin \theta) \quad (5)$$

$$\alpha = \tan^{-1} \left[\frac{(\sin h \cdot \sin k)}{(\cos k \cdot \cos \theta - \cos h \cdot \sin k \cdot \sin \theta)} \right] \quad (6)$$

These locate the equivalent slope (Lee 1962) which is the horizontal surface parallel to the inclined surface. The latitude of the equivalent slope is given by θ' . A negative θ' indicated an equivalent latitude south of the equator. The change in longitude (or hour angle) between the slope and its parallel horizontal surface is given by α . Okanoue's modification of equation 2 with reference to the idea of an equivalent slope becomes:

$$I_s = \frac{I_0}{e^2} (\sin \theta' \cdot \sin \delta + \cos \theta' \cdot \cos \delta \cdot \cos wt') \quad (7)$$

where $wt' = wt + \alpha$. Sunrise and sunset times for slopes are given by:

$$\cos wt' = -\tan \theta' \cdot \tan \delta \quad (8)$$

where it is understood that equation 3 continues as the limiting case (i.e., day-length on a horizontal surface is the maximum for a given latitude; the inclined plane may have a shorter, but never a longer, solar day than the horizon-

Table 1.--Input Data

Latitude o	Slope direction	Slope inclination			Solar declination		Dates, approx.	e ²	Io/e ²
		Deg.	Min.	Percent	Deg.	Min.			
30 00		0	00	0	+ 23	30	6/22	1.03297	1.93616
32 00	N	5	43	10	+ 21	58	6/1 7/12	1.03090	1.94005
34 00	NNE-NNW	11	19	20	+ 19	20	5/18 7/27	1.02728	1.94689
36 00	NE-NW	16	42	30	+ 15	35	5/3 8/10	1.02190	1.95714
38 00	ENE-WNW	21	48	40	+ 10	55	4/19 8/25	1.01528	1.96990
40 00	E-W	26	34	50	+ 5	38	4/4 9/9	1.00739	1.98553
42 00	ESE-WSW	30	58	60	0	00	3/21 9/23	0.99960	2.00080
44 00	SE-SW	35	00	70	- 5	38	3/7 10/8	0.99154	2.01706
46 00	SSE-SSW	38	40	80	- 10	55	2/20 10/22	0.98404	2.03243
48 00	S	41	59	90	- 15	35	2/7 11/5	0.97790	2.04520
50 00		45	00	100	- 19	20	1/24 11/19	0.97285	2.05582
					- 21	58	1/10 12/3	0.96938	2.06317
					- 23	30	12/22	0.96759	2.06699

Values for the Radius Vector $\underline{e}$ interpolated after List (1958).

tal facet at the same latitude). In certain instances double solar days may occur--both sunrise and sunset occur twice for the slope during one rotation period (24 hours). A common example is the north wall of a building in summer at a latitude (North) exceeding the declination in degrees.

Over the time period of a day or less, the total potential slope irradiation, I_q , is derived from the relation:

$$I_q = \frac{I_0}{e^2} \left[(t_2 - t_1) \sin \theta' \cdot \sin \delta + \frac{12}{\pi} \cdot \cos \theta' \cdot \cos \delta \cdot (\sin \omega t_2' - \sin \omega t_1') \right] \quad (9)$$

where $\frac{12}{\pi}$ is $\frac{1}{\omega}$ in radians.

Explanation of Tables

A Fortran program for the IBM 1620 computer, incorporating equations 3, 4, 5, 6, 8, and 9, was used to obtain the tabulated values. Inputs for this program were the Io/e^2 values and the sine, cosine, and tangent (where necessary) of the latitudes, slopes, aspects, and declinations listed in table 1. The latitudes (30° to 50° North) include most of the conterminous United States, excluding only southern Texas and Louisiana, and most of Florida. While the potential insolation values listed apply equally to slope aspects symmetric with respect to a north-south axis (NNE-NNW, E-W, etc.) the sunrise and sunset times are for slopes with east-facing components only. Sunrise and sunset

times on west-facing slopes are the reverse of those on east-facing slopes and, of course, their signs are reversed. In addition, the values of α for east-facing slopes are to the east, while for west-facing slopes the indicated longitude change is to the west.

Interpretation of the tables for latitudes in the southern hemisphere³ is straightforward if minor differences in season lengths are ignored. Slope aspects are reversed; there is a 180° rotation of the north-south axis (N=S, NNE=SSW, etc.). The sign of the solar declination is reversed, and the date changes by approximately 6 months. Users of the tables can find corresponding dates in the southern hemisphere by inspection in table 1. There the corresponding date for the southern hemisphere is found by entering the table at the solar declination equivalent in value but opposite in sign to that for the date in the northern hemisphere. Sunrise and sunset times are given for southern hemisphere slopes with east-facing components, just as for the northern hemisphere.

True solar time was used exclusively in the computations. True solar time is reckoned as the number of hours before (-) or after (+) solar noon--the moment the geometric center of the sun crosses the meridian (longitude) of the observer. Likewise, for our purposes, the sun rises and sets when its geometric center

³Little land area is included between 30° and 50° South Latitude--approximately the southern third of South America, southern Australia and New Zealand, and a very small part of South Africa.

crosses the horizon. Sample calculations for converting the true solar times of sunrise and sunset used in the tables to local standard times are given in the appendix.

The 13 solar declinations were chosen according to the approximate relation:

$$\delta = 23.5 \sin N \quad (10)$$

where N is the number of days to the nearest equinox. Each quarter year is assumed to contain 90 days, and solutions to equation 10 can be arranged to yield declinations representative of approximately equal numbers of days. Except for the solstice dates (June 22 and December 22) each declination is represented by two dates as shown in table 1.

The radius vector e varies seasonally, and is used as a correction for the solar constant to account for the varying earth-sun distance. Neglect of this correction introduces an error equal to the range of variation of solar energy outside the atmosphere, or about 6.7 percent. The fact that e is not a simple function of declination δ presents a minor complication. The procedure used was to take an arithmetic average of e for the 2 days represented by a single declination. The error involved in this approximation is less than one percent.

Solutions to equations 5 and 6, representing the latitudes and changes in longitude of parallel horizontal surfaces, are given in the tables for each slope-aspect combination. These will be interesting in a geographic sense, because they indicate to some degree the relative change in solar climate to be expected.

Annual radiation totals based on a 365-day year, not 365.24 days, expressed in thousands Langleys (kg-cal/cm^2) are derived by weighting each of the daily totals according to the number of days for which each is representative. The R.I.'s for each slope are the ratios of annual radiation totals to the annual maximum potential solar beam irradiation. Since the mean day length at any latitude is 12 hours, the maximum potential insolation for the year is the solar constant times the duration of sunshine for the year:

$$2.0 \cdot 365 \cdot 12 \cdot 60 = 525,600 \text{ Langleys.}$$

The indexes are directly comparable for all surfaces regardless of latitude.

The R.I.'s, purely theoretical quantities, have application possibilities in forestry, ecology, and climatology as relative measures of the solar climate for sites. Land classification systems can well afford this elementary additional measure of the topoclimate. The indexes can also be used for more refined empirical-theoretical evaluations, as when experience permits the assignment of a mean turbidity factor to a locality for a day, season or year.

Literature Cited

- Fons, W. L., Bruce, H. D., and McMasters, A.
1960. Tables for estimating direct beam solar radiation on slopes at 30° to 46° latitude.* U. S. Forest Serv. Pacific Southwest. Forest and Range Exp. Sta. 298 pp. (Berkeley, Calif.).
- Kaempfert, W. and Morgen, A.
1952. Die Besonnung. Z. für Meteorol. 6: 138-146.
- Lee, R.
1962. Theory of the "Equivalent Slope." Mon. Weather Rev. 90: 165-166.
- List, R. J.
1958. Smithsonian meteorological tables. Ed. 6, revised. The Smithsonian Inst. 527 pp.
- Loewe, F.
1962. The intake of solar radiation by slopes. Bur. Meteorol. Bull. 45. 57 pp. (Commonwealth of Australia, Melbourne).
- Milankovitch, M.
1930. Mathematische Klimalehre. Handbuch der Klim., Band I, Teil A: 1-176.
- Okanoue, M.
1957. A simple method to compute the amount of sunshine on a slope. J. Jap. Forest. (Nov. 1957): 435-437.

*Address requests for copies to the originating office.

Appendix: Sample Calculations

Local standard time is based on a *mean solar time* for 15° longitudinal zones; Eastern Standard Time, for example, is 75th Meridian time. The mean solar time for a locality is earlier (or later) than local standard time by 4 minutes per degree of longitude measured east (or west) to the time zone meridian. Thus, mean solar time at Pittsburgh (80° West) is 20 minutes earlier than Eastern Standard Time; at New York City (74° West) it is 4 minutes later.

True solar time at a site differs from mean solar time through the approximate range, -14 minutes to +16 minutes as shown in table 2. This difference is commonly referred to as the Equation of Time. From table 2, true solar noon on May 3rd occurs 3.1 minutes before mean solar noon. To complete the example for Pittsburgh, the sun actually crosses the 80th meridian on May 3rd at 20.0 - 3.1 = 16.9 minutes after noon, or at about 12:17 p.m. Eastern Standard Time. And on February 7th, true solar noon at New York City occurs at -4 + 14.2 = 10.2 minutes after noon, or at 12:10 EST.

Table 2.--Equation of Time, After List (1958)
(Subtract Equation of Time from true solar time to obtain mean solar time).

Date	Equation of Time	
	Min.	Hrs.
Jan 10	- 7.2	-0.12
24	-12.0	-0.20
Feb 7	-14.2	-0.24
20	-13.9	-0.23
Mar 7	-11.3	-0.19
21	- 7.5	-0.13
Apr 4	- 3.3	-0.05
19	+ 0.5	+0.01
May 3	+ 3.1	+0.05
18	+ 3.7	+0.06
June 1	+ 2.4	+0.04
22	- 1.6	-0.03
July 12	- 5.4	-0.09
27	- 6.4	-0.11
Aug 10	- 5.4	-0.09
25	- 2.3	-0.04
Sept 9	+ 2.4	+0.04
23	+ 7.3	+0.12
Oct 8	+12.1	+0.20
22	+15.3	+0.26
Nov 5	+16.4	+0.27
19	+14.7	+0.25
Dec 3	+10.5	+0.17
22	+ 1.8	+0.03

In this way, any of the sunrise and sunset times in the tables can be adjusted to local standard time. For example:

(a) The solar day for a 40 percent east-facing slope at Grand Canyon, Arizona (36° North, 112° West), on December 22nd begins at -4.77 hours and ends at +3.15 hours. The corresponding Mountain Standard (105° Meridian) Times are found as follows:

True solar times -4.77 hrs. and +3.15 hrs.
Mean solar times -4.80 hrs. and +3.12 hrs.
are earlier by
0.03 hr. (table 2)

Mountain Standard -4.33 hrs. and +3.59 hrs.
Times are later by
112° - 105° = 7°,
or 7/15 hr. (0.47)

Mountain Standard 7:40 a.m. and 3:35 p.m.
Time

(b) For a 40 percent west-facing slope at Grand Canyon on December 22nd, the solar day would begin at -3.15 hours and end at +4.77 hours. The corresponding Mountain Standard Times are found as follows:

True solar times -3.15 hrs. and +4.77 hrs.
Mean solar times -3.18 hrs. and +4.74 hrs.
are earlier by
0.03 hr. (table 2)

Mountain Standard -2.71 hrs. and +5.21 hrs.
Times are later by
112° - 105° = 7°,
or 7/15 hr. (0.47)

Mountain Standard 9:17 a.m. and 5:13 p.m.
Time

(c) Sunrise and sunset March 21st on a horizontal surface at Fort Collins, Colorado (40° North, 105° West) occur at -6.00 and +6.00 hours true solar time. The longitude coincides with the standard time zone meridian, so that the only correction required is the Equation of Time.

True solar times -6.00 hrs. and +6.00 hrs.

Mean solar times -5.87 hrs. and +6.13 hrs.
are later by 0.13
hr. (table 2)

Mountain Standard 6:08 a.m. and 6:08 p.m.
Time

List of symbols

THETA	Equivalent latitude in degrees--the terrestrial latitude where a horizontal surface parallel or "equivalent" to the inclined surface is found.
ALPHA	Change in longitude in degrees--the difference in longitude between the location of the inclined surface and its "equivalent" horizontal surface. Alpha is to the east for aspects with an east component, and to the west for aspects with a west component.
SR SS	The elapsed time in hours from true solar noon at which the geometric center of the solar disc crosses the horizon.
LY	Total potential insolation in Langleys (gram calories/cm ²) received by the surface during the solar day on the given date.
YEAR	Total annual potential insolation in thousands of Langleys (kilogram calories/cm ²) received by the surface.
R.I.	Radiation index--the ratio of the total annual potential insolation to the maximum potential insolation at the site.

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 30 N

HORIZONTAL SURFACE

LATITUDE 30 N

	SR	SS	LY
JUN 22	-6.97	6.97	1005.1
JUN 1 JUL 12	-6.90	6.90	994.9
MAY 18 JUL 27	-6.78	6.78	976.3
MAY 3 AUG 10	-6.62	6.62	947.3
APR 19 AUG 25	-6.43	6.43	906.9
APR 4 SEP 9	-6.22	6.22	855.7
MAR 21 SEP 23	-6.00	6.00	794.2
MAR 7 OCT 8	-5.78	5.78	726.8
FEB 20 OCT 22	-5.57	5.57	658.5
FEB 7 NOV 5	-5.38	5.38	594.4
JAN 23 NOV 19	-5.22	5.22	540.9
JAN 10 DEC 3	-5.10	5.10	502.4
DEC 22	-5.03	5.03	479.6

YEAR R.I.
282.118 5368

LATITUDE 30 N
ASPECT N -

	SLOPE						40 PCT						50 PCT																																											
	10 PCT			20 PCT			30 PCT			40 PCT			50 PCT																																											
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY																																				
JUN 22	-6.97	6.97	1016.6	-6.97	6.97	1018.0	-6.97	6.97	1010.2	-6.97	6.97	994.6	-6.97	6.97	972.9	-6.97	6.97	972.9	-6.97	6.97	972.9																																			
JUN 1 JUL 12	-6.90	6.90	1001.8	-6.90	6.90	999.0	-6.90	6.90	987.2	-6.90	6.90	968.0	-6.90	6.90	943.2	-6.90	6.90	943.2	-6.90	6.90	943.2																																			
MAY 18 JUL 27	-6.78	6.78	975.6	-6.78	6.78	965.5	-6.78	6.78	947.1	-6.78	6.78	922.0	-6.78	6.78	891.9	-6.78	6.78	891.9	-6.78	6.78	891.9																																			
MAY 3 AUG 10	-6.62	6.62	936.2	-6.62	6.62	916.2	-6.62	6.62	888.8	-6.62	6.62	855.5	-6.62	6.62	818.3	-6.62	6.62	818.3	-6.62	6.62	818.3																																			
APR 19 AUG 25	-6.43	6.43	883.3	-6.43	6.43	851.7	-6.43	6.43	813.6	-6.43	6.43	770.9	-6.43	6.43	725.5	-6.43	6.43	725.5	-6.43	6.43	725.5																																			
APR 4 SEP 9	-6.22	6.22	819.0	-6.22	6.22	775.1	-6.22	6.22	725.9	-6.22	6.22	673.4	-6.22	6.22	619.5	-6.22	6.22	619.5	-6.22	6.22	619.5																																			
MAR 21 SEP 23	-6.00	6.00	744.6	-6.00	6.00	688.8	-6.00	6.00	629.0	-6.00	6.00	567.1	-6.00	6.00	505.3	-6.00	6.00	505.3	-6.00	6.00	505.3																																			
MAR 7 OCT 8	-5.73	5.73	665.7	-5.67	5.67	599.5	-5.60	5.60	530.7	-5.52	5.52	461.4	-5.43	5.43	393.6	-5.43	5.43	393.6	-5.43	5.43	393.6																																			
FEB 20 OCT 22	-5.47	5.47	588.1	-5.35	5.35	514.0	-5.21	5.21	438.8	-5.05	5.05	365.0	-4.87	4.87	294.4	-4.87	4.87	294.4	-4.87	4.87	294.4																																			
FEB 7 NOV 5	-5.23	5.23	517.0	-5.05	5.05	437.5	-4.85	4.85	358.7	-4.62	4.62	283.0	-4.33	4.33	212.5	-4.33	4.33	212.5	-4.33	4.33	212.5																																			
JAN 23 NOV 19	-5.03	5.03	459.0	-4.80	4.80	376.3	-4.54	4.54	296.0	-4.23	4.23	220.4	-3.86	3.86	151.9	-3.86	3.86	151.9	-3.86	3.86	151.9																																			
JAN 10 DEC 3	-4.88	4.88	417.8	-4.62	4.62	333.7	-4.31	4.31	253.1	-3.94	3.94	178.6	-3.49	3.49	112.9	-3.49	3.49	112.9	-3.49	3.49	112.9																																			
DEC 22	-4.79	4.79	393.8	-4.50	4.50	309.1	-4.17	4.17	228.6	-3.76	3.76	155.3	-3.25	3.25	91.7	-3.25	3.25	91.7	-3.25	3.25	91.7																																			
																					YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.																
																					266.526	.5071	248.949	.4736	230.131	.4378	210.819	.4011	191.753	.3648																										
																					SLOPE										100 PCT																									
60 PCT						70 PCT						80 PCT						90 PCT						100 PCT																																
THETA			ALPHA			SR			SS			LY			THETA			ALPHA			SR			SS			LY			THETA			ALPHA			SR			SS			LY														
61.0			0.0			75.0			0.0			65.0			0.0			68.7			0.0			72.0			0.0			72.0			0.0			72.0			0.0																	
																					SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-6.97	6.97	946.9	-6.97	6.97	918.1	-6.97	6.97	888.0	-6.97	6.97	857.7	-6.97	6.97	827.6	-6.97	6.97	797.5	-6.97	6.97	767.4	-6.97	6.97	737.3	-6.97	6.97	707.2	-6.97	6.97	677.1	-6.97	6.97	647.0	-6.97	6.97	616.9																				
JUN 1 JUL 12	-6.90	6.90	914.4	-6.90	6.90	883.4	-6.90	6.90	851.3	-6.90	6.90	819.3	-6.90	6.90	787.2	-6.90	6.90	755.1	-6.90	6.90	723.0	-6.90	6.90	690.9	-6.90	6.90	658.8	-6.90	6.90	626.7	-6.90	6.90	594.6	-6.90	6.90	562.5																				
MAY 18 JUL 27	-6.78	6.78	858.6	-6.78	6.78	823.7	-6.78	6.78	788.4	-6.78	6.78	753.7	-6.78	6.78	718.9	-6.78	6.78	684.0	-6.78	6.78	649.1	-6.78	6.78	614.2	-6.78	6.78	579.3	-6.78	6.78	544.4	-6.78	6.78	509.5	-6.78	6.78	474.6																				
MAY 3 AUG 10	-6.62	6.62	779.0	-6.62	6.62	738.8	-6.62	6.62	699.2	-6.62	6.62	660.0	-6.62	6.62	620.8	-6.62	6.62	581.6	-6.62	6.62	542.4	-6.62	6.62	503.2	-6.62	6.62	464.0	-6.62	6.62	424.8	-6.62	6.62	385.6	-6.62	6.62	346.4																				
APR 19 AUG 25	-6.43	6.43	679.1	-6.43	6.43	633.1	-6.43	6.43	588.5	-6.43	6.43	543.9	-6.43	6.43	500.0	-6.43	6.43	455.6	-6.43	6.43	411.2	-6.43	6.43	366.9	-6.43	6.43	322.5	-6.43	6.43	278.1	-6.43	6.43	233.8	-6.43	6.43	189.5																				
APR 4 SEP 9	-6.22	6.22	565.9	-6.22	6.22	513.9	-6.22	6.22	464.4	-6.22	6.22	417.9	-6.22	6.22	370.4	-6.22	6.22	322.9	-6.22	6.22	275.4	-6.22	6.22	227.9	-6.22	6.22	180.4	-6.22	6.22	132.9	-6.22	6.22	85.4	-6.22	6.22	37.9																				
MAR 21 SEP 23	-6.00	6.00	445.1	-6.00	6.00	387.6	-6.00	6.00	333.6	-6.00	6.00	283.7	-6.00	6.00	233.8	-6.00	6.00	183.9	-6.00	6.00	134.0	-6.00	6.00	84.1	-6.00	6.00	34.2	-6.00	6.00	3.3	-6.00	6.00	-46.6	-6.00	6.00	-97.1																				
MAR 7 OCT 8	-5.32	5.32	329.0	-5.19	5.19	268.4	-5.02	5.02	212.7	-4.82	4.82	162.2	-4.62	4.62	112.3	-4.42	4.42	62.4	-4.22	4.22	12.5	-4.02	4.02	37.6	-3.82	3.82	12.7	-3.62	3.62	37.8	-3.42	3.42	12.9	-3.22	3.22	38.0																				
FEB 20 OCT 22	-4.64	4.64	228.7	-4.37	4.37	169.0	-4.03	4.03	116.1	-3.58	3.58	70.8	-3.13	3.13	25.9	-2.68	2.68	1.0	-2.23	2.23	3.6	-1.78	1.78	0.0	-1.33	1.33	0.0	-0.88	0.88	0.0	-0.43	0.43	0.0	-0.00	0.00	0.0																				
FEB 7 NOV 5	-3.99	3.99	148.9	-3.55	3.55	93.6	-2.96	2.96	48.1	-2.06	2.06	14.3	-1.16	1.16	5.9	-0.26	0.26	0.0	-0.71	0.71	0.0	-0.26	0.26	0.0	0.29	0.29	0.0	0.84	0.84	0.0	1.39	1.39	0.0	1.94	1.94	0.0																				
JAN 23 NOV 19	-3.39	3.39	92.6	-2.75	2.75	44.2	-1.74	1.74	9.9	-0.84	0.84	0.0	-0.39	0.39	0.0	-0.14	0.14	0.0	-0.14	0.14	0.0	-0.14	0.14	0.0	0.14	0.14	0.0	0.69	0.69	0.0	1.24	1.24	0.0	1.79	1.79	0.0																				
JAN 10 DEC 3	-2.89	2.89	58.2	-2.01	2.01	17.4	-0.84	0.84	0.0	-0.39	0.39	0.0	-0.14	0.14	0.0	-0.14	0.14	0.0	-0.14	0.14	0.0	-0.14	0.14	0.0	0.14	0.14	0.0	0.69	0.69	0.0	1.24	1.24	0.0	1.79	1.79	0.0																				
DEC 22	-2.56	2.56	40.5	-1.41	1.41	6.1	-0.44	0.44	0.0	-0.19	0.19	0.0	-0.14	0.14	0.0	-0.14	0.14	0.0	-0.14	0.14	0.0	-0.14	0.14	0.0	0.14	0.14	0.0	0.69	0.69	0.0	1.24	1.24	0.0	1.79	1.79	0.0																				
																					YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
																					173.617	.3303	157.014	.2987	142.899	.2719	131.083	.2494	120.797	.2298																										

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 30 N
ASPECT S -

	10 PCT						SLOPE						20 PCT						30 PCT						40 PCT						50 PCT					
	THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA		
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-6.75	6.75	984.8	-6.56	6.56	957.4	-6.39	6.39	924.1	-6.24	6.24	886.4	-6.10	6.10	846.0	-5.97	5.97	804.4	-5.85	5.85	762.9	-5.75	5.75	722.6	-5.65	5.65	684.1	-5.55	5.55	647.6	-5.47	5.47	615.8	-5.38	5.38	578.0
JUN 1 JUL 12	-6.70	6.70	979.1	-6.52	6.52	955.9	-6.36	6.36	926.4	-6.22	6.22	892.2	-6.09	6.09	854.7	-5.97	5.97	815.8	-5.87	5.87	776.5	-5.77	5.77	738.1	-5.67	5.67	701.2	-5.59	5.59	666.0	-5.50	5.50	631.1	-5.41	5.41	596.0
MAY 18 JUL 27	-6.61	6.61	968.0	-6.45	6.45	952.0	-6.32	6.32	929.1	-6.19	6.19	900.7	-6.08	6.08	868.5	-5.98	5.98	834.1	-5.88	5.88	798.8	-5.80	5.80	763.7	-5.72	5.72	729.6	-5.64	5.64	696.9	-5.57	5.57	664.7	-5.49	5.49	632.5
MAY 3 AUG 10	-6.48	6.48	949.6	-6.36	6.36	943.5	-6.25	6.25	929.8	-6.15	6.15	910.0	-6.06	6.06	885.3	-5.98	5.98	857.6	-5.91	5.91	828.1	-5.84	5.84	798.0	-5.77	5.77	768.2	-5.71	5.71	739.0	-5.65	5.65	709.8	-5.59	5.59	680.6
APR 19 AUG 25	-6.33	6.33	921.7	-6.25	6.25	921.7	-6.17	6.17	925.5	-6.11	6.11	916.2	-6.04	6.04	901.1	-5.99	5.99	881.9	-5.94	5.94	859.9	-5.89	5.89	836.4	-5.84	5.84	812.2	-5.80	5.80	788.0	-5.75	5.75	764.6	-5.70	5.70	741.2
APR 4 SEP 9	-6.17	6.17	884.0	-6.13	6.13	903.3	-6.09	6.09	913.8	-6.00	6.00	892.5	-5.92	5.92	868.8	-5.85	5.85	845.3	-5.79	5.79	821.8	-5.74	5.74	799.3	-5.69	5.69	776.8	-5.64	5.64	754.3	-5.59	5.59	731.8	-5.54	5.54	709.3
MAR 21 SEP 23	-6.00	6.00	836.0	-6.00	6.00	868.8	-6.00	6.00	892.5	-5.94	5.94	874.2	-5.88	5.88	850.0	-5.82	5.82	825.8	-5.77	5.77	801.6	-5.72	5.72	777.4	-5.67	5.67	753.2	-5.62	5.62	729.0	-5.57	5.57	704.8	-5.52	5.52	680.6
MAR 7 OCT 8	-5.78	5.78	780.8	-5.78	5.78	826.2	-5.78	5.78	862.4	-5.78	5.78	898.6	-5.78	5.78	934.8	-5.78	5.78	971.0	-5.78	5.78	1007.2	-5.78	5.78	1043.4	-5.78	5.78	1079.6	-5.78	5.78	1115.8	-5.78	5.78	1152.0	-5.78	5.78	1188.2
FEB 20 OCT 22	-5.57	5.57	722.7	-5.57	5.57	778.7	-5.57	5.57	834.7	-5.57	5.57	890.7	-5.57	5.57	946.7	-5.57	5.57	1002.7	-5.57	5.57	1058.7	-5.57	5.57	1114.7	-5.57	5.57	1170.7	-5.57	5.57	1226.7	-5.57	5.57	1282.7	-5.57	5.57	1338.7
FEB 7 NOV 5	-5.38	5.38	666.4	-5.38	5.38	730.6	-5.38	5.38	785.7	-5.38	5.38	840.8	-5.38	5.38	895.9	-5.38	5.38	951.0	-5.38	5.38	1006.1	-5.38	5.38	1061.2	-5.38	5.38	1116.3	-5.38	5.38	1171.4	-5.38	5.38	1226.5	-5.38	5.38	1281.6
JAN 23 NOV 19	-5.22	5.22	618.3	-5.22	5.22	688.3	-5.22	5.22	749.3	-5.22	5.22	810.3	-5.22	5.22	871.3	-5.22	5.22	932.3	-5.22	5.22	993.3	-5.22	5.22	1054.3	-5.22	5.22	1115.3	-5.22	5.22	1176.3	-5.22	5.22	1237.3	-5.22	5.22	1298.3
JAN 10 DEC 3	-5.10	5.10	583.1	-5.10	5.10	656.6	-5.10	5.10	721.3	-5.10	5.10	786.5	-5.10	5.10	851.7	-5.10	5.10	916.9	-5.10	5.10	982.1	-5.10	5.10	1047.3	-5.10	5.10	1112.5	-5.10	5.10	1177.7	-5.10	5.10	1242.9	-5.10	5.10	1308.1
DEC 22	-5.03	5.03	562.0	-5.03	5.03	637.3	-5.03	5.03	704.0	-5.03	5.03	770.7	-5.03	5.03	837.4	-5.03	5.03	904.1	-5.03	5.03	970.8	-5.03	5.03	1037.5	-5.03	5.03	1104.2	-5.03	5.03	1170.9	-5.03	5.03	1237.6	-5.03	5.03	1304.3
JUN 22	-5.97	5.97	804.4	-5.85	5.85	762.9	-5.75	5.75	722.6	-5.65	5.65	684.1	-5.55	5.55	647.6	-5.47	5.47	615.8	-5.38	5.38	578.0	-5.28	5.28	540.2	-5.19	5.19	502.4	-5.10	5.10	464.6	-5.01	5.01	426.8	-4.92	4.92	389.0
JUN 1 JUL 12	-5.97	5.97	815.8	-5.87	5.87	776.5	-5.77	5.77	738.1	-5.67	5.67	701.2	-5.59	5.59	666.0	-5.50	5.50	631.1	-5.41	5.41	596.0	-5.32	5.32	561.0	-5.23	5.23	526.0	-5.14	5.14	491.0	-5.05	5.05	456.0	-4.96	4.96	421.0
MAY 18 JUL 27	-5.98	5.98	834.1	-5.88	5.88	798.8	-5.80	5.80	763.7	-5.72	5.72	729.6	-5.64	5.64	696.9	-5.57	5.57	664.7	-5.49	5.49	632.5	-5.41	5.41	599.3	-5.33	5.33	566.1	-5.25	5.25	532.9	-5.17	5.17	500.0	-5.09	5.09	467.1
MAY 3 AUG 10	-5.98	5.98	857.6	-5.91	5.91	828.1	-5.84	5.84	798.0	-5.77	5.77	768.2	-5.71	5.71	739.0	-5.65	5.65	709.8	-5.59	5.59	680.6	-5.53	5.53	651.4	-5.47	5.47	622.2	-5.41	5.41	593.0	-5.35	5.35	563.8	-5.29	5.29	534.6
APR 19 AUG 25	-5.99	5.99	881.9	-5.94	5.94	859.9	-5.89	5.89	836.4	-5.84	5.84	812.2	-5.80	5.80	788.0	-5.75	5.75	764.6	-5.70	5.70	741.2	-5.65	5.65	717.8	-5.60	5.60	694.4	-5.55	5.55	671.0	-5.50	5.50	647.6	-5.45	5.45	624.2
APR 4 SEP 9	-5.99	5.99	903.1	-5.97	5.97	890.0	-5.94	5.94	874.2	-5.89	5.89	858.5	-5.84	5.84	837.8	-5.79	5.79	817.1	-5.74	5.74	796.4	-5.69	5.69	775.7	-5.64	5.64	755.0	-5.59	5.59	734.3	-5.54	5.54	713.6	-5.49	5.49	692.9
MAR 21 SEP 23	-6.00	6.00	917.0	-6.00	6.00	913.6	-6.00	6.00	906.6	-6.00	6.00	899.6	-6.00	6.00	892.6	-6.00	6.00	885.6	-6.00	6.00	878.6	-6.00	6.00	871.6	-6.00	6.00	864.6	-6.00	6.00	857.6	-6.00	6.00	850.6	-6.00	6.00	843.6
MAR 7 OCT 8	-5.78	5.78	920.8	-5.78	5.78	927.1	-5.78	5.78	933.4	-5.78	5.78	939.7	-5.78	5.78	946.0	-5.78	5.78	952.3	-5.78	5.78	958.6	-5.78	5.78	964.9	-5.78	5.78	971.2	-5.78	5.78	977.5	-5.78	5.78	983.8	-5.78	5.78	990.1
FEB 20 OCT 22	-5.57	5.57	913.3	-5.57	5.57	937.5	-5.57	5.57	961.7	-5.57	5.57	985.9	-5.57	5.57	1010.1	-5.57	5.57	1034.3	-5.57	5.57	1058.5	-5.57	5.57	1082.7	-5.57	5.57	1106.9	-5.57	5.57	1131.1	-5.57	5.57	1155.3	-5.57	5.57	1179.5
FEB 7 NOV 5	-5.38	5.38	897.1	-5.38	5.38	918.7	-5.38	5.38	940.3	-5.38	5.38	961.9	-5.38	5.38	983.5	-5.38	5.38	1005.1	-5.38	5.38	1026.7	-5.38	5.38	1048.3	-5.38	5.38	1069.9	-5.38	5.38	1091.5	-5.38	5.38	1113.1	-5.38	5.38	1134.7
JAN 23 NOV 19	-5.22	5.22	877.8	-5.22	5.22	904.6	-5.22	5.22	931.4	-5.22	5.22	958.2	-5.22	5.22	984.9	-5.22	5.22	1011.7	-5.22	5.22	1038.4	-5.22	5.22	1065.2	-5.22	5.22	1091.9	-5.22	5.22	1118.7	-5.22	5.22	1145.4	-5.22	5.22	1172.2
JAN 10 DEC 3	-5.10	5.10	860.8	-5.10	5.10	890.9	-5.10	5.10	914.4	-5.10	5.10	938.9	-5.10	5.10	963.4	-5.10	5.10	987.9	-5.10	5.10	1012.4	-5.10	5.10	1036.9	-5.10	5.10	1061.4	-5.10	5.10	1085.9	-5.10	5.10	1110.4	-5.10	5.10	1134.9
DEC 22	-5.03	5.03	849.3	-5.03	5.03	881.2	-5.03	5.03	906.4	-5.03	5.03	931.6	-5.03	5.03	956.8	-5.03	5.03	982.0	-5.03	5.03	1007.2	-5.03	5.03	1032.4	-5.03	5.03	1057.6	-5.03	5.03	1082.8	-5.03	5.03	1108.0	-5.03	5.03	1133.2

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 30 N
ASPECT NNE - NNW

		SLOPE						SLOPE						SLOPE						SLOPE																	
		10 PCT		20 PCT		30 PCT		40 PCT		50 PCT				60 PCT		70 PCT		80 PCT		90 PCT		100 PCT				60 PCT		70 PCT		80 PCT		90 PCT		100 PCT			
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA				
		35.3	2.7	40.3	5.7	45.1	9.0	49.6	12.7	53.6	16.8			57.2	21.3	60.3	26.3	62.9	31.7	65.1	37.4	66.8	43.4			57.2	21.3	60.3	26.3	62.9	31.7	65.1	37.4	66.8	43.4		
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY			
JUN 22		-6.97	6.97	1015.3		-6.97	6.97	1015.5		-6.97	6.97	1006.6		-6.97	6.97	880.2		-6.97	6.97	849.3		-6.97	6.97	818.7		-6.97	6.97	940.4		-6.97	6.97	909.8		-6.97	6.97	879.2	
JUN 1	JUL 12	-6.90	6.90	1000.9		-6.90	6.90	997.2		-6.90	6.90	984.6		-6.90	6.90	878.2		-6.90	6.90	849.3		-6.90	6.90	818.7		-6.90	6.90	909.8		-6.90	6.90	879.2		-6.90	6.90	849.3	
MAY 18	JUL 27	-6.78	6.78	975.3		-6.78	6.78	964.9		-6.78	6.78	946.2		-6.78	6.78	821.9		-6.78	6.78	786.4		-6.78	6.78	747.6		-6.78	6.78	857.0		-6.78	6.78	827.3		-6.78	6.78	797.6	
MAY 3	AUG 10	-6.62	6.58	936.7		-6.62	6.54	917.2		-6.62	6.49	890.3		-6.62	6.43	859.3		-6.62	6.37	818.7		-6.62	6.31	779.2		-6.62	6.25	849.3		-6.62	6.19	809.8		-6.62	6.13	779.2	
APR 19	AUG 25	-6.43	6.34	884.8		-6.43	6.25	854.9		-6.43	6.15	818.6		-6.43	6.03	779.2		-6.43	5.97	747.6		-6.43	5.91	717.6		-6.43	5.85	787.7		-6.43	5.79	757.8		-6.43	5.73	727.9	
APR 4	SEP 9	-6.22	6.09	821.7		-6.22	5.94	780.8		-6.22	5.78	735.1		-6.22	5.60	690.3		-6.22	5.43	649.3		-6.22	5.27	609.8		-6.22	5.11	679.9		-6.22	4.95	639.4		-6.22	4.79	599.5	
MAR 21	SEP 23	-6.00	5.82	748.5		-6.00	5.62	697.4		-6.00	5.40	642.9		-6.00	5.20	597.4		-6.00	5.00	547.6		-6.00	4.80	507.8		-6.00	4.60	557.9		-6.00	4.40	507.8		-6.00	4.20	457.9	
MAR 7	OCT 8	-5.78	5.56	670.7		-5.78	5.30	610.6		-5.78	5.02	549.1		-5.78	4.71	488.1		-5.78	4.40	427.1		-5.78	4.10	366.1		-5.78	3.80	416.2		-5.78	3.50	356.2		-5.78	3.20	306.3	
FEB 20	OCT 22	-5.57	5.30	593.9		-5.57	4.99	526.9		-5.57	4.66	460.1		-5.57	4.32	381.6		-5.57	4.00	302.1		-5.57	3.68	222.6		-5.57	3.36	272.7		-5.57	3.04	202.8		-5.57	2.72	132.9	
FEB 7	NOV 5	-5.38	5.06	523.4		-5.38	4.71	451.6		-5.38	4.32	381.6		-5.38	3.93	319.3		-5.38	3.54	247.0		-5.38	3.15	174.7		-5.38	2.76	224.8		-5.38	2.37	152.9		-5.38	1.98	81.0	
JAN 23	NOV 19	-5.22	4.86	465.7		-5.22	4.47	390.9		-5.22	4.03	319.3		-5.22	3.63	253.0		-5.22	3.23	180.7		-5.22	2.84	108.2		-5.22	2.45	155.3		-5.22	2.06	83.4		-5.22	1.67	38.5	
JAN 10	DEC 3	-5.07	4.72	424.7		-5.04	4.29	348.4		-5.00	3.81	276.3		-4.87	3.67	251.7		-4.87	3.27	186.6		-4.87	2.88	116.1		-4.87	2.49	163.2		-4.87	2.10	98.3		-4.87	1.71	29.4	
DEC 22		-4.99	4.63	400.7		-4.93	4.18	323.8		-4.87	3.67	251.7		-4.87	3.27	186.6		-4.87	2.88	116.1		-4.87	2.49	116.1		-4.87	2.10	163.2		-4.87	1.71	29.4		-4.87	1.32	0.0	
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.		
		267.736	.5094	251.591	.4787	234.400	.4460	216.868	.4126	199.670	.3799			183.370	.3489	168.339	.3203	154.847	.2946	143.001	.2721	132.740	.2525			116.100	.2272	104.700	.2077	93.800	.1882	82.300	.1687	70.700	.1492		

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 30 N
ASPECT SSE - SSW

	10 PCT						20 PCT						SLOPE						30 PCT						40 PCT						50 PCT					
	THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA		
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-6.93	6.61	986.5	-6.89	6.28	961.7	-6.86	5.99	931.6	-6.83	5.73	897.5	-6.81	5.47	863.3	-6.78	5.21	828.8	-6.75	4.95	794.3	-6.72	4.69	759.8	-6.69	4.43	725.3	-6.66	4.17	690.8	-6.63	3.91	656.3	-6.60	3.65	621.8
JUN 1 JUL 12	-6.87	6.55	980.5	-6.85	6.24	959.6	-6.83	5.96	934.1	-6.81	5.71	902.3	-6.78	5.45	867.8	-6.75	5.19	833.3	-6.72	4.93	798.8	-6.69	4.67	764.3	-6.66	4.41	729.8	-6.63	4.15	695.3	-6.60	3.89	660.8	-6.57	3.63	626.3
MAY 18 JUL 27	-6.78	6.46	968.9	-6.78	6.17	954.7	-6.78	5.91	934.4	-6.78	5.65	904.8	-6.78	5.39	874.9	-6.78	5.13	845.0	-6.78	4.87	815.1	-6.78	4.61	785.2	-6.78	4.35	755.3	-6.78	4.09	725.4	-6.78	3.83	695.5	-6.78	3.57	665.6
MAY 3 AUG 10	-6.62	6.33	949.7	-6.62	6.07	944.8	-6.62	5.81	924.9	-6.62	5.55	905.0	-6.62	5.29	885.1	-6.62	5.03	865.2	-6.62	4.77	845.3	-6.62	4.51	825.4	-6.62	4.25	805.5	-6.62	3.99	785.6	-6.62	3.73	765.7	-6.62	3.47	745.8
APR 19 AUG 25	-6.43	6.18	920.8	-6.43	5.96	927.1	-6.43	5.75	926.0	-6.43	5.54	925.0	-6.43	5.33	924.0	-6.43	5.12	923.0	-6.43	4.91	922.0	-6.43	4.70	921.0	-6.43	4.49	920.0	-6.43	4.28	919.0	-6.43	4.07	918.0	-6.43	3.86	917.0
APR 4 SEP 9	-6.22	6.01	882.1	-6.22	5.83	900.4	-6.22	5.66	910.8	-6.22	5.49	921.2	-6.22	5.32	931.6	-6.22	5.15	942.0	-6.22	4.98	952.4	-6.22	4.81	962.8	-6.22	4.64	973.2	-6.22	4.47	983.6	-6.22	4.30	994.0	-6.22	4.13	1004.4
MAR 21 SEP 23	-6.00	5.84	832.8	-6.00	5.70	863.3	-6.00	5.57	885.3	-6.00	5.44	907.3	-6.00	5.31	929.3	-6.00	5.18	951.3	-6.00	5.05	973.3	-6.00	4.92	995.3	-6.00	4.79	1017.3	-6.00	4.66	1039.3	-6.00	4.53	1061.3	-6.00	4.40	1083.3
MAR 7 OCT 8	-5.78	5.67	776.6	-5.78	5.56	818.3	-5.78	5.47	851.2	-5.78	5.38	884.9	-5.78	5.29	918.6	-5.78	5.20	952.3	-5.78	5.11	986.0	-5.78	5.02	1019.7	-5.78	4.93	1053.4	-5.78	4.84	1087.1	-5.78	4.75	1120.8	-5.78	4.66	1154.5
FEB 20 OCT 22	-5.57	5.50	717.7	-5.57	5.43	768.8	-5.57	5.38	811.2	-5.57	5.33	853.6	-5.57	5.28	896.0	-5.57	5.23	938.4	-5.57	5.18	980.8	-5.57	5.13	1023.2	-5.57	5.08	1065.6	-5.57	5.03	1108.0	-5.57	4.98	1150.4	-5.57	4.93	1192.8
FEB 7 NOV 5	-5.38	5.35	660.7	-5.38	5.32	719.4	-5.38	5.29	769.3	-5.38	5.26	819.2	-5.38	5.23	869.1	-5.38	5.20	919.0	-5.38	5.17	968.9	-5.38	5.14	1018.8	-5.38	5.11	1068.7	-5.38	5.08	1118.6	-5.38	5.05	1168.5	-5.38	5.02	1218.4
JAN 23 NOV 19	-5.22	5.22	612.2	-5.22	5.22	676.3	-5.22	5.22	731.7	-5.22	5.22	787.1	-5.22	5.22	842.5	-5.22	5.22	897.9	-5.22	5.22	953.3	-5.22	5.22	1008.7	-5.22	5.22	1064.1	-5.22	5.22	1119.5	-5.22	5.22	1174.9	-5.22	5.22	1230.3
JAN 10 DEC 3	-5.10	5.10	576.8	-5.10	5.10	644.1	-5.10	5.10	703.1	-5.10	5.10	761.1	-5.10	5.10	819.1	-5.10	5.10	877.1	-5.10	5.10	935.1	-5.10	5.10	993.1	-5.10	5.10	1051.1	-5.10	5.10	1109.1	-5.10	5.10	1167.1	-5.10	5.10	1225.1
DEC 22	-5.03	5.03	555.5	-5.03	5.03	624.6	-5.03	5.03	685.4	-5.03	5.03	746.3	-5.03	5.03	807.2	-5.03	5.03	868.1	-5.03	5.03	929.0	-5.03	5.03	989.9	-5.03	5.03	1050.8	-5.03	5.03	1111.7	-5.03	5.03	1172.6	-5.03	5.03	1233.5
JUN 22	-6.79	5.27	823.2	-6.76	5.07	785.6	-6.74	4.89	749.0	-6.73	4.72	714.1	-6.71	4.57	680.9	-6.70	4.42	646.8	-6.69	4.27	612.7	-6.68	4.12	578.6	-6.67	3.97	544.5	-6.66	3.82	510.4	-6.65	3.67	476.3	-6.64	3.52	442.2
JUN 1 JUL 12	-6.78	5.27	833.5	-6.77	5.08	798.1	-6.76	4.90	763.3	-6.75	4.74	730.0	-6.74	4.59	695.7	-6.73	4.44	661.2	-6.72	4.29	626.7	-6.71	4.14	592.2	-6.70	3.99	557.7	-6.69	3.84	523.2	-6.68	3.69	488.7	-6.67	3.54	454.2
MAY 18 JUL 27	-6.78	5.27	849.9	-6.78	5.09	818.3	-6.78	4.92	786.8	-6.78	4.76	756.2	-6.78	4.60	724.7	-6.78	4.44	693.2	-6.78	4.28	661.7	-6.78	4.12	630.2	-6.78	3.96	598.7	-6.78	3.80	567.2	-6.78	3.64	535.7	-6.78	3.48	504.2
MAY 3 AUG 10	-6.62	5.26	870.1	-6.62	5.10	844.0	-6.62	4.95	817.3	-6.62	4.80	790.9	-6.62	4.64	764.9	-6.62	4.49	739.0	-6.62	4.33	713.0	-6.62	4.18	687.1	-6.62	4.02	661.2	-6.62	3.86	635.3	-6.62	3.70	609.4	-6.62	3.54	583.5
APR 19 AUG 25	-6.43	5.26	859.3	-6.43	5.12	870.1	-6.43	4.99	849.4	-6.43	4.88	828.1	-6.43	4.77	806.7	-6.43	4.66	785.4	-6.43	4.55	764.1	-6.43	4.44	742.8	-6.43	4.33	721.5	-6.43	4.22	700.2	-6.43	4.11	678.9	-6.43	4.00	657.6
APR 4 SEP 9	-6.22	5.25	903.3	-6.22	5.14	891.8	-6.22	5.03	878.0	-6.22	4.93	862.6	-6.22	4.82	847.2	-6.22	4.71	831.8	-6.22	4.60	816.4	-6.22	4.50	801.0	-6.22	4.39	785.6	-6.22	4.28	770.2	-6.22	4.17	754.8	-6.22	4.06	739.4
MAR 21 SEP 23	-6.00	5.24	908.0	-6.00	5.15	904.8	-6.00	5.07	898.2	-6.00	5.00	892.0	-6.00	4.93	885.8	-6.00	4.86	879.6	-6.00	4.79	873.4	-6.00	4.72	867.2	-6.00	4.65	861.0	-6.00	4.58	854.8	-6.00	4.51	848.6	-6.00	4.44	842.4
MAR 7 OCT 8	-5.78	5.24	902.8	-5.78	5.17	907.7	-5.78	5.11	908.3	-5.78	5.06	905.7	-5.78	5.01	903.1	-5.78	4.96	900.5	-5.78	4.91	897.9	-5.78	4.86	895.3	-5.78	4.81	892.7	-5.78	4.76	890.1	-5.78	4.71	887.5	-5.78	4.66	884.9
FEB 20 OCT 22	-5.57	5.23	888.6	-5.57	5.19	900.8	-5.57	5.15	908.0	-5.57	5.12	911.4	-5.57	5.09	914.8	-5.57	5.06	918.2	-5.57	5.03	921.6	-5.57	5.00	925.0	-5.57	4.97	928.4	-5.57	4.94	931.8	-5.57	4.91	935.2	-5.57	4.88	938.6
FEB 7 NOV 5	-5.38	5.22	868.0	-5.38	5.21	886.4	-5.38	5.20	899.3	-5.38	5.19	912.9	-5.38	5.18	926.5	-5.38	5.17	940.1	-5.38	5.16	953.7	-5.38	5.15	967.3	-5.38	5.14	980.9	-5.38	5.13	994.5	-5.38	5.12	1008.1	-5.38	5.11	1021.7
JAN 23 NOV 19	-5.22	5.22	846.3	-5.22	5.22	869.5	-5.22	5.22	886.8	-5.22	5.22	904.1	-5.22	5.22	921.4	-5.22	5.22	938.7	-5.22	5.22	956.0	-5.22	5.22	973.3	-5.22	5.22	990.6	-5.22	5.22	1007.9	-5.22	5.22	1025.2	-5.22	5.22	1042.5
JAN 10 DEC 3	-5.10	5.10	828.0	-5.10	5.10	854.4	-5.10	5.10	880.8	-5.10	5.10	907.2	-5.10	5.10	933.6	-5.10	5.10	960.0	-5.10	5.10	986.4	-5.10	5.10	1012.8	-5.10	5.10	1039.2	-5.10	5.10	1065.6	-5.10	5.10	1092.0	-5.10	5.10	1118.4
DEC 22	-5.03	5.03	816.0	-5.03	5.03	844.0	-5.03	5.03	865.9	-5.03	5.03	887.8	-5.03	5.03	909.7	-5.03	5.03	931.6	-5.03	5.03	953.5	-5.03	5.03	975.4	-5.03	5.03	997.3	-5.03	5.03	1019.2	-5.03	5.03	1041.1	-5.03	5.03	1063.0

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 30 N
ASPECT NE - NW

	SLOPE						SLOPE						SLOPE						SLOPE					
	10 PCT		20 PCT		30 PCT		40 PCT		50 PCT		60 PCT		70 PCT		80 PCT		90 PCT		100 PCT		110 PCT		120 PCT	
	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
JUN 22	34.0	4.9	37.6	10.1	40.9	15.6	43.8	21.3	46.1	27.2	48.1	33.0	49.5	51.4	50.6	50.6	51.4	49.3	51.9	54.1	51.9	54.1	51.9	54.1
JUN 1 JUL 12	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
MAY 18 JUL 27	-6.97	6.81	1012.0	-6.97	6.63	1009.7	-6.97	6.44	993.0	-6.97	6.22	981.6	-6.97	6.09	961.0	-6.97	5.98	959.2	-6.97	5.98	959.2	-6.97	5.98	959.2
MAY 3 AUG 10	-6.90	6.73	998.7	-6.90	6.53	993.5	-6.90	6.32	980.4	-6.90	6.14	947.8	-6.90	6.09	947.8	-6.90	6.09	947.8	-6.90	6.09	947.8	-6.90	6.09	947.8
APR 19 AUG 25	-6.78	6.59	974.8	-6.78	6.37	964.9	-6.78	6.14	947.8	-6.78	5.89	899.8	-6.78	5.89	899.8	-6.78	5.89	899.8	-6.78	5.89	899.8	-6.78	5.89	899.8
APR 4 SEP 9	-6.62	6.40	938.6	-6.62	6.15	922.4	-6.62	5.89	899.8	-6.62	5.61	872.7	-6.62	5.61	872.7	-6.62	5.61	872.7	-6.62	5.61	872.7	-6.62	5.61	872.7
MAR 21 SEP 23	-6.43	6.17	889.7	-6.43	5.90	866.0	-6.43	5.69	843.3	-6.43	5.42	805.4	-6.43	5.42	805.4	-6.43	5.42	805.4	-6.43	5.42	805.4	-6.43	5.42	805.4
FEB 7 OCT 8	-6.22	5.93	829.6	-6.22	5.62	798.2	-6.22	5.29	763.4	-6.22	4.94	726.7	-6.22	4.94	726.7	-6.22	4.94	726.7	-6.22	4.94	726.7	-6.22	4.94	726.7
FEB 7 NOV 5	-6.00	5.68	759.4	-6.00	5.33	720.8	-6.00	4.96	680.3	-6.00	4.58	639.7	-6.00	4.58	639.7	-6.00	4.58	639.7	-6.00	4.58	639.7	-6.00	4.58	639.7
JAN 23 NOV 19	-5.78	5.42	684.2	-5.78	5.04	639.4	-5.78	4.63	594.4	-5.78	4.22	550.7	-5.78	4.22	550.7	-5.78	4.22	550.7	-5.78	4.22	550.7	-5.78	4.22	550.7
JAN 10 DEC 3	-5.57	5.18	609.6	-5.57	4.76	560.0	-5.57	4.32	511.7	-5.57	3.87	466.2	-5.57	3.87	466.2	-5.57	3.87	466.2	-5.57	3.87	466.2	-5.57	3.87	466.2
DEC 22	-5.38	4.95	540.7	-5.38	4.50	487.8	-5.38	4.03	431.5	-5.38	3.55	391.4	-5.38	3.55	391.4	-5.38	3.55	391.4	-5.38	3.55	391.4	-5.38	3.55	391.4
	-5.22	4.76	484.1	-5.22	4.28	429.2	-5.22	3.78	378.0	-5.22	3.27	331.9	-5.22	3.27	331.9	-5.22	3.27	331.9	-5.22	3.27	331.9	-5.22	3.27	331.9
	-5.10	4.62	443.8	-5.10	4.12	387.8	-5.10	3.60	336.4	-5.10	3.06	290.7	-5.10	3.06	290.7	-5.10	3.06	290.7	-5.10	3.06	290.7	-5.10	3.06	290.7
	-5.03	4.54	420.1	-5.03	4.02	363.7	-5.03	3.48	312.3	-5.03	2.94	267.0	-5.03	2.94	267.0	-5.03	2.94	267.0	-5.03	2.94	267.0	-5.03	2.94	267.0

	SLOPE						SLOPE						SLOPE						SLOPE					
	10 PCT		20 PCT		30 PCT		40 PCT		50 PCT		60 PCT		70 PCT		80 PCT		90 PCT		100 PCT		110 PCT		120 PCT	
	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
JUN 22	48.1	33.0	49.5	38.7	50.6	44.1	51.4	49.3	51.9	54.1	51.9	54.1	51.9	54.1	51.9	54.1	51.9	54.1	51.9	54.1	51.9	54.1	51.9	54.1
JUN 1 JUL 12	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
MAY 18 JUL 27	-6.97	5.73	933.6	-6.97	5.46	906.4	-6.97	5.19	878.8	-6.97	4.91	851.9	-6.97	4.74	826.7	-6.97	4.58	801.5	-6.97	4.46	776.3	-6.97	4.34	751.1
MAY 3 AUG 10	-6.90	5.58	910.2	-6.90	5.30	882.1	-6.90	5.02	854.0	-6.90	4.74	826.7	-6.90	4.58	801.5	-6.90	4.46	776.3	-6.90	4.34	751.1	-6.90	4.22	725.9
APR 19 AUG 25	-6.78	5.33	869.7	-6.78	5.04	840.3	-6.78	4.74	811.4	-6.78	4.45	783.7	-6.78	4.28	755.9	-6.78	4.12	728.1	-6.78	3.96	700.3	-6.78	3.80	672.5
APR 4 SEP 9	-6.62	5.01	811.7	-6.62	4.69	780.7	-6.62	4.38	750.9	-6.62	4.08	722.9	-6.62	3.80	694.9	-6.62	3.52	666.9	-6.62	3.24	638.9	-6.62	2.96	610.9
MAR 21 SEP 23	-6.43	4.63	738.4	-6.43	4.29	706.0	-6.43	3.96	675.5	-6.43	3.65	647.4	-6.43	3.34	619.3	-6.43	3.03	591.2	-6.43	2.72	563.1	-6.43	2.41	535.0
MAR 7 OCT 8	-6.22	4.22	654.5	-6.22	3.86	621.1	-6.22	3.52	590.4	-6.22	3.19	562.7	-6.22	2.86	534.9	-6.22	2.53	507.4	-6.22	2.20	480.0	-6.22	1.87	452.5
FEB 20 OCT 22	-6.00	3.80	563.6	-6.00	3.42	529.9	-6.00	3.06	493.7	-6.00	2.72	473.0	-6.00	2.40	447.3	-6.00	2.07	421.6	-6.00	1.74	395.9	-6.00	1.41	370.2
FEB 7 NOV 5	-5.78	3.38	472.6	-5.78	2.98	439.4	-5.78	2.60	410.3	-5.78	2.24	385.1	-5.78	1.87	359.8	-5.78	1.50	334.5	-5.78	1.13	309.2	-5.78	0.76	283.9
JAN 23 NOV 19	-5.57	2.97	388.0	-5.57	2.55	356.0	-5.57	2.15	326.6	-5.57	1.78	305.3	-5.57	1.41	284.0	-5.57	1.04	262.7	-5.57	0.67	241.4	-5.57	0.30	220.1
JAN 10 DEC 3	-5.38	2.60	314.6	-5.38	2.15	284.3	-5.38	1.73	255.8	-5.38	1.36	227.3	-5.38	0.99	198.8	-5.38	0.62	170.3	-5.38	0.25	141.8	-5.38	-0.12	113.3
DEC 22	-5.22	2.27	257.4	-5.22	1.80	228.8	-5.22	1.37	205.4	-5.22	0.98	186.2	-5.22	0.59	167.0	-5.22	0.20	147.8	-5.22	-0.18	128.5	-5.22	-0.56	109.2
	-5.10	2.02	218.4	-5.10	1.54	191.4	-5.10	1.09	169.5	-5.10	0.69	151.9	-5.10	0.29	134.4	-5.10	-0.10	116.9	-5.10	-0.48	97.6	-5.10	-0.86	78.2
	-5.03	1.87	196.3	-5.03	1.38	170.2	-5.03	0.92	149.4	-5.03	0.47	128.8	-5.03	0.01	108.3	-5.03	-0.37	88.7	-5.03	-0.75	69.0	-5.03	-1.13	49.3

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 30 N
ASPECT SE - SW

		SLOPE																			
		10 PCT			20 PCT			30 PCT			40 PCT			50 PCT							
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY					
		25.9	4.5	SS	21.7	8.6	SS	17.6	12.3	SS	13.7	15.7	SS	10.0	18.7	SS					
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY					
JUN 22		-6.97	6.51	991.0	-6.97	6.09	972.3	-6.97	5.71	949.5	-6.97	5.36	923.7	-6.97	5.04	895.8					
JUN 1 JUL 12		-6.90	6.45	984.0	-6.90	6.04	968.3	-6.90	5.67	948.4	-6.90	5.33	925.1	-6.90	5.02	899.4					
MAY 18 JUL 27		-6.78	6.35	970.8	-6.78	5.96	960.2	-6.78	5.61	945.1	-6.78	5.28	926.1	-6.78	4.99	904.3					
MAY 3 AUG 10		-6.62	6.22	949.3	-6.62	5.85	945.8	-6.62	5.52	937.3	-6.62	5.21	924.3	-6.62	4.94	907.9					
APR 19 AUG 25		-6.43	6.06	917.7	-6.43	5.72	922.7	-6.43	5.41	922.2	-6.43	5.13	916.5	-6.43	4.88	906.7					
APR 4 SEP 9		-6.22	5.88	876.0	-6.22	5.58	890.2	-6.22	5.30	898.3	-6.22	5.05	900.6	-6.22	4.82	898.1					
MAR 21 SEP 23		-6.00	5.70	823.8	-6.00	5.43	847.2	-6.00	5.18	864.0	-6.00	4.95	874.4	-6.00	4.75	879.3					
MAR 7 OCT 8		-5.78	5.52	764.9	-5.78	5.28	796.7	-5.78	5.06	821.5	-5.78	4.86	839.6	-5.78	4.69	851.6					
FEB 20 OCT 22		-5.57	5.34	703.7	-5.57	5.13	742.6	-5.57	4.94	774.3	-5.57	4.77	799.1	-5.57	4.62	817.2					
FEB 7 NOV 5		-5.38	5.18	645.0	-5.38	5.00	689.4	-5.38	4.84	726.6	-5.38	4.69	756.7	-5.38	4.56	779.9					
JAN 23 NOV 19		-5.22	5.05	595.3	-5.22	4.89	643.5	-5.22	4.75	684.8	-5.22	4.63	718.7	-5.22	4.52	745.7					
JAN 10 DEC 3		-5.10	4.95	559.1	-5.10	4.81	609.7	-5.10	4.69	653.4	-5.10	4.58	689.9	-5.10	4.48	719.4					
DEC 22		-5.03	4.89	537.4	-5.03	4.76	589.4	-5.03	4.65	634.4	-5.03	4.55	672.2	-5.03	4.46	703.0					
		YEAR	R.i.		YEAR	R.i.		YEAR	R.i.		YEAR	R.i.		YEAR	R.i.						
		291.321	.5543		298.424	.5678		303.331	.5771		306.156	.5825		307.142	.5844						
		SLOPE																			
		60 PCT			70 PCT			80 PCT			90 PCT			100 PCT							
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY					
		6.5	21.5	SS	3.3	24.0	SS	.4	26.2	SS	-2.2	28.3	SS	-4.6	30.1	SS					
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY					
JUN 22		-6.97	4.76	866.9	-6.97	4.50	837.8	-6.97	4.26	809.5	-6.97	4.05	782.3	-6.97	3.86	756.3					
JUN 1 JUL 12		-6.90	4.74	872.5	-6.90	4.49	845.2	-6.90	4.26	818.3	-6.90	4.06	792.3	-6.90	3.87	767.4					
MAY 18 JUL 27		-6.78	4.72	880.7	-6.78	4.48	856.3	-6.78	4.26	831.9	-6.78	4.07	808.0	-6.78	3.89	785.0					
MAY 3 AUG 10		-6.62	4.69	889.1	-6.62	4.46	868.8	-6.62	4.26	848.0	-6.62	4.08	827.2	-6.62	3.91	806.7					
APR 19 AUG 25		-6.43	4.65	893.7	-6.43	4.44	878.6	-6.43	4.26	862.2	-6.43	4.09	845.2	-6.43	3.93	828.0					
APR 4 SEP 9		-6.22	4.61	891.6	-6.22	4.42	882.1	-6.22	4.25	870.7	-6.22	4.10	858.0	-6.22	3.96	844.7					
MAR 21 SEP 23		-6.00	4.57	879.5	-6.00	4.40	876.1	-6.00	4.25	869.9	-6.00	4.12	861.9	-6.00	3.99	852.5					
MAR 7 OCT 8		-5.78	4.52	858.2	-5.78	4.38	860.6	-5.78	4.25	859.6	-5.78	4.13	856.1	-5.78	4.02	850.8					
FEB 20 OCT 22		-5.57	4.48	829.6	-5.57	4.36	837.1	-5.57	4.25	840.8	-5.57	4.14	841.6	-5.57	4.05	840.0					
FEB 7 NOV 5		-5.38	4.45	797.0	-5.38	4.34	809.0	-5.38	4.24	816.6	-5.38	4.16	820.9	-5.38	4.08	823.7					
JAN 23 NOV 19		-5.22	4.41	766.4	-5.22	4.32	781.6	-5.22	4.24	792.4	-5.22	4.17	799.4	-5.22	4.10	803.7					
JAN 10 DEC 3		-5.10	4.39	742.4	-5.10	4.31	759.8	-5.10	4.24	772.6	-5.10	4.18	781.5	-5.10	4.12	787.5					
DEC 22		-5.03	4.38	727.3	-5.03	4.30	746.0	-5.03	4.24	759.9	-5.03	4.18	769.9	-5.03	4.13	776.9					
		YEAR	R.i.		YEAR	R.i.		YEAR	R.i.		YEAR	R.i.		YEAR	R.i.						
		306.610	.5834		304.899	.5801		302.331	.5752		299.186	.5692		295.656	.5625						

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 30 N
ASPECT ENE - MNW

		SLOPE																								
		10 PCT		20 PCT		30 PCT		40 PCT		50 PCT				60 PCT		70 PCT		80 PCT		90 PCT		100 PCT				
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA			
		32.0	6.2	33.7	12.6	35.0	18.9	36.0	25.1	36.5	31.0			36.8	36.4	36.8	36.4	36.7	46.0	36.4	50.2	36.0	53.9			
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	
JUN 22		-6.97	6.64	1007.6	-6.97	6.29	1003.0	-6.97	5.92	992.4	-6.97	5.55	977.0	-6.97	5.19	958.5	-6.97	4.84	938.1	-6.97	4.50	918.9	-6.97	4.15	898.5	
JUN 1	JUL 12	-6.90	6.56	995.8	-6.90	6.20	989.9	-6.90	5.83	978.2	-6.90	5.46	962.1	-6.90	5.10	943.1	-6.90	4.74	923.4	-6.90	4.39	904.0	-6.90	4.03	884.6	
MAY 18	JUL 27	-6.78	6.43	974.5	-6.78	6.06	968.3	-6.78	5.69	952.9	-6.78	5.31	935.6	-6.78	4.94	915.8	-6.78	4.57	896.9	-6.78	4.21	877.5	-6.78	3.84	858.1	
MAY 3	AUG 10	-6.62	6.25	941.8	-6.62	5.88	930.6	-6.62	5.49	915.0	-6.62	5.11	896.1	-6.62	4.73	875.4	-6.62	4.36	857.4	-6.62	3.99	838.0	-6.62	3.62	818.6	
APR 19	AUG 25	-6.43	6.05	896.9	-6.43	5.65	882.3	-6.43	5.26	864.1	-6.43	4.86	843.6	-6.43	4.48	821.8	-6.43	4.10	804.8	-6.43	3.73	785.4	-6.43	3.36	766.0	
APR 4	SEP 9	-6.22	5.82	841.1	-6.22	5.41	822.9	-6.22	5.00	802.2	-6.22	4.60	780.1	-6.22	4.22	757.6	-6.22	3.84	739.3	-6.22	3.46	718.9	-6.22	3.08	698.5	
MAR 21	SEP 23	-6.00	5.58	775.1	-6.00	5.16	753.5	-6.00	4.74	730.6	-6.00	4.33	707.3	-6.00	3.94	684.3	-6.00	3.55	660.7	-6.00	3.16	637.4	-6.00	2.77	614.1	
MAR 7	OCT 8	-5.78	5.35	703.7	-5.78	4.91	679.3	-5.78	4.47	654.6	-5.78	4.05	630.4	-5.78	3.63	607.5	-5.78	3.21	582.0	-5.78	2.79	557.8	-5.78	2.37	533.6	
FEB 20	OCT 22	-5.57	5.12	632.1	-5.57	4.67	605.5	-5.57	4.22	579.7	-5.57	3.79	555.2	-5.57	3.36	532.6	-5.57	2.93	506.4	-5.57	2.50	482.0	-5.57	2.07	457.6	
FEB 7	NOV 5	-5.38	4.91	565.6	-5.38	4.45	537.5	-5.38	3.99	511.0	-5.38	3.55	486.6	-5.38	3.12	464.6	-5.38	2.69	437.8	-5.38	2.26	413.4	-5.38	1.83	389.0	
JAN 23	NOV 19	-5.22	4.74	510.5	-5.22	4.26	481.6	-5.22	3.79	454.9	-5.22	3.34	430.8	-5.22	2.91	409.4	-5.22	2.48	382.0	-5.22	2.05	357.6	-5.22	1.62	333.2	
JAN 10	DEC 3	-5.10	4.61	471.0	-5.10	4.12	441.7	-5.10	3.64	415.1	-5.10	3.19	391.3	-5.10	2.76	370.6	-5.10	2.33	342.5	-5.10	1.90	318.1	-5.10	1.47	293.7	
DEC 22		-5.03	4.53	447.8	-5.03	4.04	418.3	-5.03	3.56	391.7	-5.03	3.10	368.3	-5.03	2.68	347.9	-5.03	2.25	319.5	-5.03	1.82	295.1	-5.03	1.39	270.7	
		YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	
		276.045	.5252	269.057	.5119	261.507	.4975	253.722	.4827	245.985	.4680			238.518	.4538	231.446	.4403	224.862	.4278	218.798	.4163	213.203	.4056			
		JUN 22		JUN 1	JUL 12	MAY 18	JUL 27	MAY 3	AUG 10	APR 19	AUG 25	APR 4	SEP 9	MAR 21	SEP 23	MAR 7	OCT 8	FEB 20	OCT 22	FEB 7	NOV 5	JAN 23	NOV 19	JAN 10	DEC 3	DEC 22

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 30 N
ASPECT ESE - MSW

SLOPE																					
10 PCT			20 PCT			30 PCT			40 PCT			50 PCT									
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY		
27.7	6.0				25.2	11.6				22.6	16.7				19.9	21.4				17.4	25.7

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 30 N
ASPECT E - W

		SLOPE																			
		10 PCT		20 PCT		30 PCT		40 PCT		50 PCT											
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
		29.8	6.6	29.4	13.0	28.6	19.1	27.7	24.8	26.6	30.0										
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS
JUN 22		-6.97	6.52	1002.4	-6.97	6.08	994.7	-6.97	5.64	982.9	-6.97	5.23	967.9	-6.97	4.84	950.6	-6.97	4.45	933.3	-6.97	4.06
JUN 1 JUL 12		-6.90	6.45	992.3	-6.90	6.01	984.9	-6.90	5.57	973.4	-6.90	5.16	958.8	-6.90	4.77	943.7	-6.90	4.38	928.6	-6.90	3.99
MAY 18 JUL 27		-6.78	6.33	973.8	-6.78	5.89	966.8	-6.78	5.46	956.0	-6.78	5.05	942.2	-6.78	4.66	927.1	-6.78	4.27	912.0	-6.78	3.88
MAY 3 AUG 10		-6.62	6.17	945.1	-6.62	5.73	938.7	-6.62	5.31	928.8	-6.62	4.91	916.1	-6.62	4.52	901.4	-6.62	4.13	886.7	-6.62	3.74
APR 19 AUG 25		-6.43	5.98	904.9	-6.43	5.55	899.3	-6.43	5.13	890.5	-6.43	4.73	879.2	-6.43	4.34	864.5	-6.43	3.95	849.8	-6.43	3.56
APR 4 SEP 9		-6.22	5.78	854.1	-6.22	5.34	849.3	-6.22	4.93	841.8	-6.22	4.54	832.0	-6.22	4.15	817.3	-6.22	3.76	802.6	-6.22	3.37
MAR 21 SEP 23		-6.00	5.56	792.9	-6.00	5.13	789.1	-6.00	4.73	782.9	-6.00	4.35	774.9	-6.00	3.96	760.2	-6.00	3.57	745.5	-6.00	3.18
MAR 7 OCT 8		-5.78	5.34	725.8	-5.78	4.92	722.9	-5.78	4.52	718.1	-5.78	4.15	711.7	-5.78	3.76	704.1	-5.78	3.37	696.5	-5.78	2.98
FEB 20 OCT 22		-5.57	5.14	657.8	-5.57	4.72	655.7	-5.57	4.32	652.2	-5.57	3.96	647.4	-5.57	3.57	641.4	-5.57	3.18	635.4	-5.57	2.79
FEB 7 NOV 5		-5.38	4.95	593.9	-5.38	4.53	592.6	-5.38	4.14	590.1	-5.38	3.79	586.6	-5.38	3.40	580.1	-5.38	3.01	573.6	-5.38	2.62
JAN 23 NOV 19		-5.22	4.79	540.7	-5.22	4.37	539.8	-5.22	3.98	538.2	-5.22	3.64	535.7	-5.22	3.25	532.4	-5.22	2.86	529.1	-5.22	2.47
JAN 10 DEC 3		-5.10	4.67	502.3	-5.10	4.26	501.8	-5.10	3.88	500.8	-5.10	3.53	499.0	-5.10	3.14	495.7	-5.10	2.75	492.4	-5.10	2.36
DEC 22		-5.03	4.60	479.6	-5.03	4.19	479.3	-5.03	3.81	478.6	-5.03	3.47	477.1	-5.03	3.08	474.8	-5.03	2.69	471.5	-5.03	2.30
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		281.620	.5358	280.171	.5330	277.870	.5287	274.862	.5229	271.314	.5162										
		60 PCT		70 PCT		80 PCT		90 PCT		100 PCT											
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
		25.4	34.7	24.2	39.0	23.0	42.7	21.8	46.1	20.7	49.1										
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS
JUN 22		-6.97	4.48	932.2	-6.97	4.15	913.2	-6.97	3.86	894.2	-6.97	3.60	875.8	-6.97	3.36	858.1	-6.97	3.12	840.4	-6.97	2.88
JUN 1 JUL 12		-6.90	4.42	924.1	-6.90	4.10	905.6	-6.90	3.81	887.2	-6.90	3.55	869.2	-6.90	3.31	851.8	-6.90	3.07	834.1	-6.90	2.83
MAY 18 JUL 27		-6.78	4.32	909.2	-6.78	4.01	891.6	-6.78	3.72	873.9	-6.78	3.47	856.7	-6.78	3.23	840.1	-6.78	2.99	823.4	-6.78	2.75
MAY 3 AUG 10		-6.62	4.19	885.6	-6.62	3.88	869.1	-6.62	3.60	852.7	-6.62	3.35	836.6	-6.62	3.11	820.9	-6.62	2.87	804.2	-6.62	2.63
APR 19 AUG 25		-6.43	4.04	851.7	-6.43	3.73	836.9	-6.43	3.46	821.9	-6.43	3.22	807.2	-6.43	2.98	792.9	-6.43	2.74	777.6	-6.43	2.50
APR 4 SEP 9		-6.22	3.86	808.2	-6.22	3.57	795.1	-6.22	3.31	781.8	-6.22	3.08	768.7	-6.22	2.87	755.9	-6.22	2.63	741.6	-6.22	2.39
MAR 21 SEP 23		-6.00	3.69	754.8	-6.00	3.40	743.6	-6.00	3.15	732.2	-6.00	2.93	720.9	-6.00	2.73	709.7	-6.00	2.49	695.4	-6.00	2.25
MAR 7 OCT 8		-5.78	3.51	695.4	-5.78	3.23	686.2	-5.78	2.99	676.7	-5.78	2.78	667.1	-5.78	2.58	657.6	-5.78	2.34	643.3	-5.78	2.10
FEB 20 OCT 22		-5.57	3.34	634.6	-5.57	3.07	627.1	-5.57	2.84	619.4	-5.57	2.63	611.4	-5.57	2.43	603.5	-5.57	2.19	589.2	-5.57	1.95
FEB 7 NOV 5		-5.38	3.18	576.8	-5.38	2.92	570.9	-5.38	2.70	564.7	-5.38	2.50	558.2	-5.38	2.30	551.7	-5.38	2.06	537.4	-5.38	1.82
JAN 23 NOV 19		-5.22	3.05	528.3	-5.22	2.80	523.6	-5.22	2.58	518.5	-5.22	2.39	513.2	-5.22	2.19	507.7	-5.22	1.95	493.4	-5.22	1.71
JAN 10 DEC 3		-5.10	2.95	493.1	-5.10	2.71	489.3	-5.10	2.49	485.0	-5.10	2.31	480.5	-5.10	2.11	475.8	-5.10	1.87	461.5	-5.10	1.63
DEC 22		-5.03	2.89	472.2	-5.03	2.65	468.8	-5.03	2.44	465.0	-5.03	2.26	460.9	-5.03	2.06	456.7	-5.03	1.82	442.4	-5.03	1.58
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		267.402	.5088	263.277	.5009	259.078	.4929	254.914	.4850	250.825	.4772										

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 32 N

HORIZONTAL SURFACE

LATITUDE 32 N

	SR	SS	LY
JUN 22	-7.05	7.05	1010.4
JUN 1 JUL 12	-6.97	6.97	998.6
MAY 18 JUL 27	-6.84	6.84	977.3
MAY 3 AUG 10	-6.67	6.67	944.6
APR 19 AUG 25	-6.46	6.46	899.7
APR 4 SEP 9	-6.24	6.24	843.8
MAR 21 SEP 23	-6.00	6.00	777.7
MAR 7 OCT 8	-5.76	5.76	706.2
FEB 20 OCT 22	-5.54	5.54	634.5
FEB 7 NOV 5	-5.33	5.33	567.8
JAN 23 NOV 19	-5.16	5.16	512.6
JAN 10 DEC 3	-5.03	5.03	473.1
DEC 22	-4.95	4.95	449.7

YEAR R.T.
276.961 .5269

LATITUDE 32 N
ASPECT N -

			10 PCT			20 PCT			SLOPE			30 PCT			40 PCT			50 PCT		
			THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
			37.7	0.0		43.3	0.0		48.7	0.0		53.8	0.0		58.6	0.0				
			SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	
JUN 22			-7.05	7.05	1019.2	-7.05	7.05	1018.0	-7.05	7.05	1007.7	-7.05	7.05	989.7	-7.05	7.05	965.9	-7.05	7.05	
JUN 1 JUL 12			-6.97	6.97	1002.8	-6.97	6.97	997.3	-6.97	6.97	982.9	-6.97	6.97	961.4	-6.97	6.97	934.4	-6.97	6.97	
MAY 18 JUL 27			-6.84	6.84	973.7	-6.84	6.84	960.9	-6.84	6.84	939.9	-6.84	6.84	912.4	-6.84	6.84	880.1	-6.84	6.84	
MAY 3 AUG 10			-6.67	6.67	930.5	-6.67	6.67	907.7	-6.67	6.67	877.7	-6.67	6.67	842.1	-6.67	6.67	802.8	-6.67	6.67	
APR 19 AUG 25			-6.46	6.46	873.2	-6.46	6.46	838.8	-6.46	6.46	798.2	-6.46	6.46	753.2	-6.46	6.46	705.8	-6.46	6.46	
APR 4 SEP 9			-6.24	6.24	804.2	-6.24	6.24	757.7	-6.24	6.24	706.1	-6.24	6.24	651.5	-6.24	6.24	595.8	-6.24	6.24	
MAR 21 SEP 23			-6.00	6.00	725.5	-6.00	6.00	667.3	-6.00	6.00	605.3	-6.00	6.00	541.6	-6.00	6.00	478.3	-6.00	6.00	
MAR 7 OCT 8			-5.71	5.71	642.7	-5.64	5.64	574.5	-5.57	5.57	504.0	-5.48	5.48	433.3	-5.38	5.38	364.5	-5.38	5.38	
FEB 20 OCT 22			-5.43	5.43	562.1	-5.30	5.30	486.5	-5.15	5.15	410.1	-4.98	4.98	335.5	-4.77	4.77	264.5	-4.77	4.77	
FEB 7 NOV 5			-5.17	5.17	489.0	-4.98	4.98	408.5	-4.77	4.77	325.1	-4.51	4.51	253.3	-4.19	4.19	183.3	-4.19	4.19	
JAN 23 NOV 19			-4.95	4.95	429.7	-4.71	4.71	346.5	-4.43	4.43	266.2	-4.09	4.09	191.3	-3.66	3.66	124.3	-3.66	3.66	
JAN 10 DEC 3			-4.79	4.79	387.9	-4.51	4.51	303.6	-4.18	4.18	223.5	-3.77	3.77	150.4	-3.25	3.25	87.1	-3.25	3.25	
DEC 22			-4.69	4.69	363.5	-4.39	4.39	279.0	-4.02	4.02	199.4	-3.57	3.57	127.8	-2.98	2.98	67.2	-2.98	2.98	
			YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
			260.592	4.958		242.336	4.611		222.960	4.242		203.232	3.867		183.923	3.499				
			60 PCT			70 PCT			80 PCT			90 PCT			100 PCT					
			THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
			63.0	0.0		67.0	0.0		70.7	0.0		74.0	0.0		77.0	0.0				
			SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	
JUN 22			-7.05	7.05	937.9	-7.05	7.05	907.4	-7.05	7.05	875.7	-7.05	7.05	844.0	-7.05	7.05	812.7	-7.05	7.05	
JUN 1 JUL 12			-6.97	6.97	903.7	-6.97	6.97	870.8	-6.97	6.97	837.2	-6.97	6.97	803.9	-6.97	6.97	771.2	-6.97	6.97	
MAY 18 JUL 27			-6.84	6.84	844.9	-6.84	6.84	808.3	-6.84	6.84	771.5	-6.84	6.84	735.5	-6.84	6.84	700.6	-6.84	6.84	
MAY 3 AUG 10			-6.67	6.67	761.5	-6.67	6.67	719.8	-6.67	6.67	678.7	-6.67	6.67	639.2	-6.67	6.67	601.4	-6.67	6.67	
APR 19 AUG 25			-6.46	6.46	657.7	-6.46	6.46	610.2	-6.46	6.46	564.3	-6.46	6.46	520.9	-6.46	6.46	479.8	-6.46	6.46	
APR 4 SEP 9			-6.24	6.24	540.7	-6.24	6.24	487.4	-6.24	6.24	436.8	-6.24	6.24	389.6	-6.24	6.24	345.4	-6.24	6.24	
MAR 21 SEP 23			-6.00	6.00	416.8	-6.00	6.00	358.3	-6.00	6.00	303.6	-6.00	6.00	253.0	-6.00	6.00	206.3	-6.00	6.00	
MAR 7 OCT 8			-5.26	5.26	299.0	-5.10	5.10	238.0	-4.91	4.91	182.2	-4.66	4.66	132.0	-4.31	4.31	87.2	-4.31	4.31	
FEB 20 OCT 22			-4.52	4.52	199.0	-4.20	4.20	139.9	-3.78	3.78	88.4	-3.19	3.19	45.5	-2.22	2.22	13.0	-2.22	2.22	
FEB 7 NOV 5			-3.79	3.79	121.0	-3.26	3.26	68.0	-2.49	2.49	28.5	-1.91	1.91	1.1	0.00	0.00	0.0	0.00	0.00	
JAN 23 NOV 19			-3.10	3.10	67.6	-2.28	2.28	23.9	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	
JAN 10 DEC 3			-2.52	2.52	36.4	-1.21	1.21	3.6	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	
DEC 22			-2.10	2.10	21.3	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	
			YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
			165.767	3.154		149.600	2.846		136.187	2.591		124.734	2.373		114.780	2.184				

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 32 N
ASPECT S -

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT						
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY		
		26.3	0.0				20.7	0.0				15.3	0.0				10.2	0.0				5.4	0.0					
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	
		290.812	.5533	301.771	.5741	309.752	.5893	314.922	.5992	317.608	.6043	318.226	.6055	317.219	.6035	315.000	.5993	311.934	.5935	308.280	.5865	317.608	.6043	318.226	.6055	317.219	.6035	
JUN 22		-6.83	6.83	992.8	-6.63	6.63	968.0	-6.46	6.46	937.3	-6.30	6.30	901.9	-6.16	6.16	863.5	-6.00	6.00	822.3	-5.76	5.76	789.6	-5.54	5.54	759.2	-5.33	5.33	729.8
JUN 1 JUL 12		-6.77	6.77	985.5	-6.58	6.58	965.1	-6.42	6.42	938.2	-6.26	6.26	905.3	-6.12	6.12	871.9	-5.96	5.96	838.4	-5.80	5.80	805.5	-5.64	5.64	772.6	-5.48	5.48	739.7
JUN 1 JUL 12		-6.77	6.77	985.5	-6.58	6.58	965.1	-6.42	6.42	938.2	-6.26	6.26	905.3	-6.12	6.12	871.9	-5.96	5.96	838.4	-5.80	5.80	805.5	-5.64	5.64	772.6	-5.48	5.48	739.7
MAY 18 JUL 27		-6.67	6.67	971.9	-6.51	6.51	958.6	-6.37	6.37	938.4	-6.24	6.24	912.6	-6.10	6.10	879.8	-6.00	6.00	846.9	-5.84	5.84	814.0	-5.68	5.68	789.1	-5.52	5.52	754.2
MAY 3 AUG 10		-6.53	6.53	949.8	-6.40	6.40	946.6	-6.29	6.29	935.8	-6.19	6.19	918.6	-6.06	6.06	885.7	-5.92	5.92	852.8	-5.78	5.78	819.9	-5.64	5.64	787.0	-5.50	5.50	754.1
MAY 3 AUG 10		-6.53	6.53	949.8	-6.40	6.40	946.6	-6.29	6.29	935.8	-6.19	6.19	918.6	-6.06	6.06	885.7	-5.92	5.92	852.8	-5.78	5.78	819.9	-5.64	5.64	787.0	-5.50	5.50	754.1
APR 19 AUG 25		-6.36	6.36	917.5	-6.28	6.28	926.5	-6.20	6.20	927.2	-6.13	6.13	920.7	-6.07	6.07	916.3	-6.00	6.00	916.3	-5.93	5.93	893.4	-5.77	5.77	868.5	-5.61	5.61	833.6
APR 4 SEP 9		-6.19	6.19	875.1	-6.14	6.14	897.4	-6.10	6.10	910.9	-6.00	6.00	922.3	-5.90	5.90	904.4	-5.76	5.76	879.6	-5.62	5.62	854.7	-5.48	5.48	830.0	-5.34	5.34	795.1
MAR 21 SEP 23		-6.00	6.00	822.3	-6.00	6.00	858.0	-6.00	6.00	884.6	-6.00	6.00	902.6	-6.00	6.00	922.3	-5.90	5.90	904.4	-5.76	5.76	879.6	-5.62	5.62	854.7	-5.48	5.48	830.0
MAR 7 OCT 8		-5.76	5.76	712.8	-5.76	5.76	810.8	-5.76	5.76	849.7	-5.76	5.76	879.6	-5.76	5.76	919.5	-5.62	5.62	894.6	-5.48	5.48	869.7	-5.34	5.34	844.8	-5.20	5.20	820.0
MAR 7 OCT 8		-5.76	5.76	712.8	-5.76	5.76	810.8	-5.76	5.76	849.7	-5.76	5.76	879.6	-5.76	5.76	919.5	-5.62	5.62	894.6	-5.48	5.48	869.7	-5.34	5.34	844.8	-5.20	5.20	820.0
FEB 20 OCT 22		-5.54	5.54	700.9	-5.54	5.54	759.2	-5.54	5.54	808.4	-5.54	5.54	857.2	-5.54	5.54	906.0	-5.40	5.40	881.2	-5.26	5.26	856.4	-5.12	5.12	831.8	-4.98	4.98	807.0
FEB 7 NOV 5		-5.33	5.33	641.6	-5.33	5.33	707.7	-5.33	5.33	766.9	-5.33	5.33	826.1	-5.33	5.33	885.3	-5.19	5.19	860.4	-5.05	5.05	835.5	-4.91	4.91	810.6	-4.77	4.77	785.7
JAN 23 NOV 19		-5.16	5.16	591.4	-5.16	5.16	662.9	-5.16	5.16	728.7	-5.16	5.16	794.5	-5.16	5.16	860.1	-5.03	5.03	835.5	-4.91	4.91	810.6	-4.77	4.77	785.7	-4.63	4.63	760.9
JAN 23 NOV 19		-5.16	5.16	591.4	-5.16	5.16	662.9	-5.16	5.16	728.7	-5.16	5.16	794.5	-5.16	5.16	860.1	-5.03	5.03	835.5	-4.91	4.91	810.6	-4.77	4.77	785.7	-4.63	4.63	760.9
JAN 10 DEC 3		-5.03	5.03	554.8	-5.03	5.03	629.6	-5.03	5.03	695.8	-5.03	5.03	761.9	-5.03	5.03	828.0	-4.91	4.91	794.1	-4.77	4.77	769.2	-4.63	4.63	744.3	-4.49	4.49	719.4
JAN 10 DEC 3		-5.03	5.03	554.8	-5.03	5.03	629.6	-5.03	5.03	695.8	-5.03	5.03	761.9	-5.03	5.03	828.0	-4.91	4.91	794.1	-4.77	4.77	769.2	-4.63	4.63	744.3	-4.49	4.49	719.4
DEC 22		-4.95	4.95	533.0	-4.95	4.95	609.4	-4.95	4.95	677.4	-4.95	4.95	745.0	-4.95	4.95	812.6	-4.81	4.81	787.7	-4.67	4.67	762.8	-4.53	4.53	738.0	-4.39	4.39	713.1
DEC 22		-4.95	4.95	533.0	-4.95	4.95	609.4	-4.95	4.95	677.4	-4.95	4.95	745.0	-4.95	4.95	812.6	-4.81	4.81	787.7	-4.67	4.67	762.8	-4.53	4.53	738.0	-4.39	4.39	713.1
JUN 22		-6.03	6.03	823.8	-5.91	5.91	783.9	-5.81	5.81	744.9	-5.71	5.71	707.5	-5.62	5.62	672.0	-5.48	5.48	637.5	-5.34	5.34	603.0	-5.20	5.20	568.5	-5.06	5.06	534.0
JUN 1 JUL 12		-6.03	6.03	834.0	-5.92	5.92	796.4	-5.82	5.82	759.4	-5.73	5.73	723.7	-5.64	5.64	689.5	-5.50	5.50	654.6	-5.36	5.36	620.1	-5.22	5.22	585.6	-5.08	5.08	551.1
JUN 1 JUL 12		-6.03	6.03	834.0	-5.92	5.92	796.4	-5.82	5.82	759.4	-5.73	5.73	723.7	-5.64	5.64	689.5	-5.50	5.50	654.6	-5.36	5.36	620.1	-5.22	5.22	585.6	-5.08	5.08	551.1
MAY 18 JUL 27		-6.02	6.02	850.3	-5.93	5.93	816.8	-5.84	5.84	783.2	-5.75	5.75	748.5	-5.66	5.66	719.8	-5.57	5.57	690.9	-5.47	5.47	662.0	-5.37	5.37	633.1	-5.27	5.27	604.2
MAY 3 AUG 10		-6.02	6.02	870.8	-5.94	5.94	843.2	-5.88	5.88	816.8	-5.81	5.81	786.4	-5.75	5.75	758.5	-5.68	5.68	730.6	-5.60	5.60	702.7	-5.52	5.52	674.8	-5.44	5.44	646.9
MAY 3 AUG 10		-6.02	6.02	870.8	-5.94	5.94	843.2	-5.88	5.88	816.8	-5.81	5.81	786.4	-5.75	5.75	758.5	-5.68	5.68	730.6	-5.60	5.60	702.7	-5.52	5.52	674.8	-5.44	5.44	646.9
APR 19 AUG 25		-6.01	6.01	891.3	-5.96	5.96	871.4	-5.91	5.91	849.6	-5.87	5.87	827.1	-5.83	5.83	804.3	-5.78	5.78	781.4	-5.72	5.72	758.5	-5.66	5.66	735.6	-5.60	5.60	712.7
APR 4 SEP 9		-6.01	6.01	908.0	-5.98	5.98	897.0	-5.96	5.96	883.3	-5.93	5.93	867.7	-5.91	5.91	851.1	-5.88	5.88	836.2	-5.85	5.85	821.3	-5.82	5.82	806.4	-5.79	5.79	791.5
APR 4 SEP 9		-6.01	6.01	908.0	-5.98	5.98	897.0	-5.96	5.96	883.3	-5.93	5.93	867.7	-5.91	5.91	851.1	-5.88	5.88	836.2	-5.85	5.85	821.3	-5.82	5.82	806.4	-5.79	5.79	791.5
MAR 21 SEP 23		-6.00	6.00	917.0	-6.00	6.00	915.8	-6.00	6.00	910.9	-6.00	6.00	903.2	-6.00	6.00	896.5	-6.00	6.00	890.0	-6.00	6.00	883.5	-6.00	6.00	877.0	-6.00	6.00	870.5
MAR 21 SEP 23		-6.00	6.00	917.0	-6.00	6.00	915.8	-6.00	6.00	910.9	-6.00	6.00	903.2	-6.00	6.00	896.5	-6.00	6.00	890.0	-6.00	6.00	883.5	-6.00	6.00	877.0	-6.00	6.00	870.5
MAR 7 OCT 8		-5.76	5.76	915.7	-5.76	5.76	924.3	-5.76	5.76	928.0	-5.76	5.76	931.6	-5.76	5.76	935.3	-5.76	5.76	939.0	-5.76	5.76	942.7	-5.76	5.76	946.4	-5.76	5.76	950.1
MAR 7 OCT 8		-5.76	5.76	915.7	-5.76	5.76	924.3	-5.76	5.76	928.0	-5.76	5.76	931.6	-5.76	5.76	935.3	-5.76	5.76	939.0	-5.76	5.76	942.7	-5.76	5.76	946.4	-5.76	5.76	950.1
FEB 20 OCT 22		-5.54	5.54	903.3	-5.54	5.54	920.2	-5.54	5.54	931.6	-5.54	5.54	942.7	-5.54	5.54	953.8	-5.54	5.54	964.9	-5.54	5.54	976.0	-5.54	5.54	987.1	-5.54	5.54	998.2
FEB 20 OCT 22		-5.54	5.54	903.3	-5.54	5.54	920.2	-5.54	5.54	931.6	-5.54	5.54	942.7	-5.54	5.54	953.8	-5.54	5.54	964.9	-5.54	5.54	976.0	-5.54	5.54	987.1	-5.54	5.54	998.2
FEB 7 NOV 5		-5.33	5.33	882.7	-5.33	5.33	906.4	-5.33	5.33	928.0	-5.33	5.33	949.6	-5.33	5.33	970.8	-5.33	5.33	992.0	-5.33	5.33	1013.2	-5.33	5.33	1034.4	-5.33	5.33	1055.6
FEB 7 NOV 5		-5.33	5.33	882.7	-5.33	5.33	906.4	-5.33	5.33	928.0	-5.33	5.33	949.6	-5.33	5.33	970.8	-5.33	5.33	992.0	-5.33	5.33	1013.2	-5.33	5.33	1034.4	-5.33	5.33	1055.6
JAN 23 NOV 19		-5.16	5.16	859.8	-5.16	5.16	888.4	-5.16	5.16	910.6	-5.16	5.16	932.8	-5.16	5.16	955.0	-5.16	5.16	977.2	-5.16	5.16	1000.0	-5.16	5.16	1022.8	-5.16	5.16	1045.9
JAN 23 NOV 19		-5.16	5.16	859.8	-5.16	5.16	888.4	-5.16	5.16	910.6	-5.16	5.16	932.8	-5.16	5.16	955.0	-5.16	5.16	977.2	-5.16	5.16	1000.0	-5.16	5.16	1022.8	-5.16	5.16	1045.9
JAN 10 DEC 3		-5.03	5.03	840.2	-5.03	5.03	871.9	-5.03	5.03	894.0	-5.03	5.03	916.2	-5.03	5.03	938.4	-5.03	5.03	960.6	-5.03	5.03	982.8	-5.03	5.03	1005.0	-5.03	5.03	1027.2
JAN 10 DEC 3		-5.03	5.03	840.2	-5.03	5.03	871.9	-5.03	5.03	894.0	-5.03	5.03	916.2	-5.03	5.03	938.4	-5.03	5.03	960.6	-5.03	5.03	982.8	-5.03	5.03	1005.0	-5.03	5.03	1027.2
DEC 22		-4.95	4.95	827.2	-4.95	4.95	860.6	-4.95	4.95	887.3	-4.95	4.95	914.0	-4.95	4.95	940.7	-4.95	4.95	967.4	-4.95	4.95	994.1	-4.95	4.95	1020.8	-4.95	4.95	1047.0
DEC 22		-4.95	4.95	827.2	-4.95	4.95	860.6	-4.95	4.95	887.3	-4.95	4.95	914.0	-4.95	4.95	940.7	-4.95	4.95	967.4	-4.95	4.95	994.1	-4.95	4.95	1020.8	-4.95	4.95	1047.0

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 32 N
ASPECT NNE - NNW

	SLOPE										SLOPE										SLOPE									
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT									
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY					
JUN 22	37.3	2.7	-7.05	7.05	1018.2	-7.05	7.05	1015.9	-7.05	7.05	1004.7	-7.05	7.05	985.8	-7.05	7.05	961.1	-7.05	7.05	931.2	55.5	13.2	55.5	17.6						
JUN 12			-6.97	6.97	1002.1	-6.97	6.97	995.9	-6.97	6.97	980.9	-6.97	6.97	958.8	-6.97	6.97	931.2	-6.97	6.97	902.1										
MAY 18			-6.84	6.84	973.6	-6.84	6.84	960.7	-6.84	6.84	939.6	-6.84	6.84	912.0	-6.84	6.84	879.7	-6.84	6.84	846.8										
MAY 3			-6.67	6.63	931.2	-6.67	6.59	909.2	-6.67	6.54	879.9	-6.67	6.49	845.0	-6.67	6.49	812.1	-6.67	6.49	779.2										
APR 19			-6.46	6.53	874.9	-6.46	6.29	842.4	-6.46	6.18	803.8	-6.46	6.06	761.0	-6.46	6.06	728.1	-6.46	6.06	695.2										
APR 4			-6.24	6.10	807.1	-6.24	5.93	763.9	-6.24	5.79	716.0	-6.24	5.60	665.5	-6.24	5.60	632.6	-6.24	5.60	600.0										
MAR 21			-6.00	5.82	729.6	-6.00	5.61	676.3	-6.00	5.38	620.0	-6.00	5.12	562.9	-6.00	5.12	529.0	-6.00	5.12	495.1										
MAR 7			-5.76	5.53	647.9	-5.76	5.27	586.1	-5.76	4.97	523.1	-5.76	4.64	461.2	-5.76	4.64	427.3	-5.76	4.64	393.4										
FEB 20			-5.54	5.25	568.1	-5.54	4.94	499.8	-5.54	4.58	432.1	-5.54	4.18	364.2	-5.54	4.18	330.3	-5.54	4.18	296.4										
FEB 7			-5.33	5.00	495.5	-5.33	4.63	422.8	-5.33	4.22	352.4	-5.33	3.75	284.6	-5.33	3.75	250.7	-5.33	3.75	216.8										
JAN 23			-5.15	4.79	436.5	-5.15	4.37	361.3	-5.14	3.90	289.8	-5.13	3.37	224.3	-5.13	3.37	189.4	-5.12	3.28	154.5										
JAN 10			-4.99	4.63	394.8	-4.95	4.17	318.5	-4.90	3.66	246.9	-4.85	3.09	182.4	-4.85	3.09	147.5	-4.77	2.43	112.6										
DEC 22			-4.90	4.53	370.5	-4.83	4.06	293.8	-4.76	3.52	222.5	-4.67	2.91	159.0	-4.67	2.91	124.1	-4.55	2.21	89.2										
			YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.				
			261.867		4.982	245.108		4.663	227.425		4.327	209.541		3.987	192.141		3.656													
			THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY			
JUN 22			-7.05	7.05	932.4	-7.05	7.05	901.3	-7.05	7.05	869.1	-7.05	7.05	836.9	-7.05	7.05	805.2	-7.05	7.05	773.5										
JUN 12			-6.97	6.97	900.0	-6.97	6.97	866.8	-6.97	6.97	832.9	-6.97	6.97	799.2	-6.97	6.97	766.5	-6.97	6.97	733.8										
MAY 18			-6.84	6.84	844.4	-6.84	6.84	807.7	-6.84	6.84	770.9	-6.84	6.84	738.2	-6.84	6.84	705.5	-6.84	6.84	672.8										
MAY 3			-6.67	6.63	765.9	-6.67	6.25	724.9	-6.67	6.14	684.6	-6.67	6.00	643.9	-6.67	6.00	609.9	-6.67	6.00	576.0										
APR 19			-6.46	5.75	670.0	-6.46	5.56	625.0	-6.46	5.34	582.0	-6.46	5.09	541.6	-6.46	5.09	508.1	-6.46	5.09	475.2										
APR 4			-6.24	5.13	564.0	-6.24	4.85	516.1	-6.24	4.54	471.6	-6.24	4.20	430.9	-6.24	4.20	398.4	-6.24	4.20	365.9										
MAR 21			-6.00	4.50	453.8	-6.00	4.14	404.6	-6.00	3.74	360.1	-6.00	3.32	320.7	-6.00	3.32	288.2	-6.00	3.32	255.7										
MAR 7			-5.76	3.87	347.9	-5.76	3.42	299.1	-5.76	2.94	256.5	-5.76	2.44	220.0	-5.76	2.44	187.5	-5.76	2.44	155.0										
FEB 20			-5.54	3.25	253.7	-5.54	2.72	207.0	-5.54	2.15	167.6	-5.54	1.55	135.4	-5.54	1.55	102.9	-5.54	1.55	70.4										
FEB 7			-5.33	2.65	175.7	-5.33	2.02	132.5	-5.33	1.35	97.6	-5.33	0.64	70.6	-5.33	0.64	38.1	-5.33	0.64	5.6										
JAN 23			-5.11	2.11	117.9	-5.10	1.38	78.7	-5.08	0.57	48.7	-5.06	-0.30	21.3	-5.02	-0.30	-12.3	-5.02	-0.30	-45.3										
JAN 10			-4.68	1.68	81.2	-4.56	0.84	45.9	-4.48	-0.13	20.9	-4.08	-0.28	5.6	-3.90	-0.28	0.00	-3.90	-0.28	0.00										
DEC 22			-4.40	1.40	61.7	-4.19	0.46	25.6	-3.84	-0.87	8.7	-3.48	-1.38	20.9	-3.12	-1.38	0.00	-3.12	-1.38	0.00										
			YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.				
			175.794		3.345	160.870		3.051	147.635		2.809	136.218		2.592	126.459		2.406													

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 32 N
ASPECT SSE - SSW

	SLOPE										SLOPE										SLOPE									
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT					60 PCT				
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
JUN 22	-7.00	6.68	994.3			-6.96	6.35	971.9			-6.93	6.05	944.1			-6.90	5.79	912.2			-6.87	5.54	877.5			-6.84	5.33	841.5		
JUN 1 JUL 12	-6.94	6.62	986.7			-6.92	6.30	968.4			-6.89	6.02	944.3			-6.87	5.76	915.7			-6.85	5.53	884.0			-6.83	5.31	849.3		
MAY 18 JUL 27	-6.84	6.51	972.5			-6.84	6.22	960.9			-6.83	5.96	943.2			-6.83	5.72	920.3			-6.82	5.50	893.7			-6.81	5.28	869.0		
MAY 3 AUG 10	-6.67	6.37	949.7			-6.67	6.11	947.5			-6.67	5.88	938.5			-6.67	5.66	923.8			-6.67	5.47	904.5			-6.67	5.25	880.0		
APR 19 AUG 25	-6.46	6.21	916.4			-6.46	5.98	925.5			-6.46	5.78	927.2			-6.46	5.60	922.3			-6.46	5.43	912.0			-6.46	5.21	887.5		
APR 4 SEP 9	-6.24	6.03	872.9			-6.24	5.84	894.1			-6.24	5.67	907.3			-6.24	5.52	913.1			-6.24	5.38	912.6			-6.24	5.16	888.1		
MAR 21 SEP 23	-6.00	5.84	819.0			-6.00	5.69	852.1			-6.00	5.56	876.9			-6.00	5.44	893.6			-6.00	5.34	903.3			-6.00	5.14	878.8		
MAR 7 OCT 8	-5.76	5.65	758.4			-5.76	5.54	802.5			-5.76	5.45	838.0			-5.76	5.37	865.0			-5.76	5.29	884.2			-5.76	5.10	859.7		
FEB 20 OCT 22	-5.54	5.47	695.7			-5.54	5.40	749.0			-5.54	5.34	793.7			-5.54	5.29	829.6			-5.54	5.25	857.3			-5.54	5.06	832.0		
FEB 7 NOV 5	-5.33	5.30	635.8			-5.33	5.27	696.3			-5.33	5.25	748.2			-5.33	5.23	791.3			-5.33	5.21	826.0			-5.33	5.03	800.7		
JAN 23 NOV 19	-5.16	5.16	585.2			-5.16	5.16	650.7			-5.16	5.16	707.8			-5.16	5.16	756.2			-5.16	5.16	796.0			-5.16	4.99	770.7		
JAN 10 DEC 3	-5.03	5.03	548.4			-5.03	5.03	617.0			-5.03	5.03	677.3			-5.03	5.03	729.0			-5.03	5.03	772.1			-5.03	4.87	746.8		
JAN DEC 22	-4.95	4.95	526.5			-4.95	4.95	596.6			-4.95	4.95	658.6			-4.95	4.95	712.0			-4.95	4.95	756.9			-4.95	4.79	731.6		
JUN 22	-6.84	5.33	841.5			-6.82	5.13	805.3			-6.80	4.95	769.9			-6.78	4.78	735.9			-6.76	4.63	703.5			-6.74	4.45	671.1		
JUN 1 JUL 12	-6.84	5.32	850.6			-6.82	5.13	816.6			-6.81	4.96	783.1			-6.80	4.80	750.8			-6.78	4.65	719.8			-6.77	4.47	687.4		
MAY 18 JUL 27	-6.83	5.31	864.9			-6.82	5.13	834.9			-6.82	4.97	804.8			-6.82	4.83	775.4			-6.82	4.69	746.9			-6.82	4.51	714.5		
MAY 3 AUG 10	-6.67	5.30	882.2			-6.67	5.14	857.8			-6.67	4.99	832.7			-6.67	4.86	807.5			-6.67	4.74	782.7			-6.67	4.57	750.2		
APR 19 AUG 25	-6.46	5.28	897.5			-6.46	5.14	880.3			-6.46	5.02	861.3			-6.46	4.91	841.5			-6.46	4.80	821.3			-6.46	4.63	793.8		
APR 4 SEP 9	-6.24	5.26	907.1			-6.24	5.15	897.7			-6.24	5.05	885.7			-6.24	4.95	871.9			-6.24	4.87	857.1			-6.24	4.70	829.6		
MAR 21 SEP 23	-6.00	5.24	906.9			-6.00	5.15	905.8			-6.00	5.08	901.1			-6.00	5.00	893.9			-6.00	4.94	884.8			-6.00	4.77	857.3		
MAR 7 OCT 8	-5.76	5.22	896.7			-5.76	5.16	903.7			-5.76	5.10	906.2			-5.76	5.05	905.4			-5.76	5.00	902.1			-5.76	4.83	874.6		
FEB 20 OCT 22	-5.54	5.20	877.7			-5.54	5.17	891.9			-5.54	5.13	901.0			-5.54	5.10	906.1			-5.54	5.07	908.1			-5.54	4.90	879.6		
FEB 7 NOV 5	-5.33	5.19	852.9			-5.33	5.17	873.2			-5.33	5.16	887.9			-5.33	5.14	898.0			-5.33	5.13	904.7			-5.33	4.96	876.2		
JAN 23 NOV 19	-5.16	5.16	827.8			-5.16	5.16	852.7			-5.16	5.16	871.7			-5.16	5.16	885.8			-5.16	5.16	896.1			-5.16	4.99	867.6		
JAN 10 DEC 3	-5.03	5.03	807.1			-5.03	5.03	835.1			-5.03	4.95	846.5			-5.03	4.88	856.7			-5.03	4.83	866.2			-5.03	4.66	836.7		
JAN DEC 22	-4.95	4.95	793.6			-4.95	4.95	823.2			-4.95	4.95	846.5			-4.95	4.95	864.7			-4.95	4.95	884.7			-4.95	4.78	855.2		

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 32 N

	10 PCT				20 PCT				30 PCT				40 PCT				50 PCT						
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY			
JUN 22	-7.05	6.89	1015.4	-7.05	6.71	1011.2	-7.05	6.51	998.7	-7.05	6.29	979.5	-7.05	6.04	955.5	-7.05	5.89	931.7	-7.05	5.69	905.5		
JUN 1 JUL 12	-6.97	6.80	1000.4	-6.97	6.61	993.3	-6.97	6.39	978.4	-6.97	6.15	957.2	-6.97	5.89	931.7	-6.97	5.69	905.5	-6.97	5.49	879.3		
MAY 18 JUL 27	-6.84	6.65	973.8	-6.84	6.46	961.9	-6.84	6.19	942.9	-6.84	5.93	918.5	-6.84	5.67	894.1	-6.84	5.46	869.7	-6.84	5.26	845.3		
MAY 3 AUG 10	-6.67	6.45	933.8	-6.67	6.20	915.6	-6.67	5.93	891.3	-6.67	5.67	862.6	-6.67	5.42	833.9	-6.67	5.17	805.2	-6.67	4.92	776.5		
APR 19 AUG 25	-6.46	6.20	880.4	-6.46	5.92	854.9	-6.46	5.61	824.5	-6.46	5.29	791.2	-6.46	4.98	761.9	-6.46	4.73	732.6	-6.46	4.48	703.3		
APR 4 SEP 9	-6.24	5.94	815.7	-6.24	5.62	782.6	-6.24	5.28	746.3	-6.24	4.92	708.6	-6.24	4.66	674.9	-6.24	4.41	641.2	-6.24	4.16	607.5		
MAR 21 SEP 23	-6.00	5.67	741.1	-6.00	5.31	701.0	-6.00	4.93	659.4	-6.00	4.53	618.0	-6.00	4.12	576.3	-6.00	3.72	534.7	-6.00	3.32	493.1		
MAR 7 OCT 8	-5.76	5.39	662.0	-5.76	5.00	616.0	-5.76	4.58	570.2	-5.76	4.14	526.2	-5.76	3.70	482.4	-5.76	3.26	438.6	-5.76	2.82	394.8		
FEB 20 OCT 22	-5.54	5.13	584.3	-5.54	4.70	533.8	-5.54	4.24	485.2	-5.54	3.77	439.8	-5.54	3.30	392.8	-5.54	2.84	348.8	-5.54	2.38	304.8		
FEB 7 NOV 5	-5.33	4.89	513.2	-5.33	4.42	459.8	-5.33	3.93	409.6	-5.33	3.43	363.9	-5.33	2.92	323.7	-5.33	2.42	279.7	-5.33	1.92	235.7		
JAN 23 NOV 19	-5.16	4.68	455.2	-5.16	4.18	400.1	-5.16	3.66	349.3	-5.16	3.13	304.1	-5.16	2.60	255.1	-5.16	2.08	210.1	-5.16	1.56	165.1		
JAN 10 DEC 3	-5.03	4.53	414.1	-5.03	4.01	358.3	-5.03	3.46	307.5	-5.03	2.91	262.9	-5.03	2.35	225.1	-5.03	1.79	180.1	-5.03	1.23	135.1		
DEC 22	-4.95	4.44	390.0	-4.95	3.90	333.9	-4.95	3.34	283.4	-4.95	2.77	239.4	-4.95	2.20	202.4	-4.95	1.62	157.4	-4.95	1.04	112.4		
YEAR	265.436	.5050	252.732	.4808	239.459	.4556	226.176	.4303	213.375	.4050													
SLOPE																							
60 PCT				70 PCT				80 PCT				90 PCT				100 PCT							
THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA		
49.7	34.2	51.1	40.2	52.0	45.9	52.7	51.2	52.7	51.2	52.7	51.2	52.7	51.2	52.7	51.2	52.7	51.2	52.7	51.2	52.7	51.2		
SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	
-7.05	5.77	928.6	-7.05	5.49	900.2	-7.05	5.20	871.7	-7.05	4.90	844.0	-7.05	4.60	817.5	-7.05	4.30	791.0	-7.05	4.00	764.5	-7.05	3.70	738.0
-6.97	5.61	903.6	-6.97	5.32	874.4	-6.97	5.01	845.4	-6.97	4.71	817.5	-6.97	4.41	791.0	-6.97	4.11	764.5	-6.97	3.81	738.0	-6.97	3.51	711.5
-6.84	5.55	860.6	-6.84	5.04	830.2	-6.84	4.72	800.6	-6.84	4.40	772.4	-6.84	4.09	744.6	-6.84	3.78	716.8	-6.84	3.47	689.0	-6.84	3.16	661.2
-6.67	5.40	799.3	-6.67	4.67	761.6	-6.67	4.34	734.3	-6.67	4.01	709.0	-6.67	3.68	683.8	-6.67	3.35	658.3	-6.67	3.02	632.8	-6.67	2.69	607.3
-6.46	5.29	722.4	-6.46	4.24	689.6	-6.46	3.89	658.9	-6.46	3.56	630.9	-6.46	3.24	605.3	-6.46	2.91	579.8	-6.46	2.58	554.3	-6.46	2.25	528.8
-6.24	4.16	635.2	-6.24	3.79	601.7	-6.24	3.42	571.1	-6.24	3.08	543.8	-6.24	2.74	516.3	-6.24	2.40	488.8	-6.24	2.06	461.3	-6.24	1.72	433.8
-6.00	3.72	541.5	-6.00	3.32	508.1	-6.00	2.94	478.3	-6.00	2.58	452.3	-6.00	2.22	426.3	-6.00	1.86	399.8	-6.00	1.50	373.3	-6.00	1.14	346.8
-5.76	3.27	448.5	-5.76	2.85	416.0	-5.76	2.46	387.7	-5.76	2.09	363.5	-5.76	1.73	339.5	-5.76	1.36	315.3	-5.76	1.00	291.1	-5.76	0.64	266.9
-5.54	2.84	362.9	-5.54	2.40	331.9	-5.54	1.99	305.6	-5.54	1.61	281.6	-5.54	1.24	257.6	-5.54	0.87	233.6	-5.54	0.50	209.6	-5.54	0.14	185.6
-5.33	2.44	289.2	-5.33	1.97	260.2	-5.33	1.54	236.3	-5.33	1.15	212.5	-5.33	0.76	188.6	-5.33	0.38	164.8	-5.33	0.01	140.8	-5.33	-0.35	116.8
-5.16	2.09	232.3	-5.16	1.60	203.4	-5.16	1.16	183.6	-5.16	0.76	160.1	-5.16	0.36	136.6	-5.16	-0.03	112.6	-5.16	-0.39	88.6	-5.16	-0.75	64.6
-5.03	1.82	193.9	-5.03	1.32	168.7	-5.03	0.86	148.6	-5.03	0.46	124.6	-5.03	0.06	100.6	-5.03	-0.34	76.6	-5.03	-0.70	52.6	-5.03	-1.06	28.6
-4.95	1.66	172.2	-4.95	1.15	148.1	-4.95	0.68	129.2	-4.95	0.27	114.4	-4.95	-0.13	90.4	-4.95	-0.53	66.4	-4.95	-0.89	42.4	-4.95	-1.25	18.4
YEAR	201.413	.3832	190.477	.3624	180.667	.3437	171.972	.3277	164.253	.3125													

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 32 N
ASPECT SE - SW

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT						
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY		
		27.9	4.6				23.7	8.7				19.6	12.5				15.6	15.8				11.9	18.9					
				SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	
JUN 22		-7.05	6.58	998.2	-7.05	6.15	981.4	-7.05	5.76	960.5	-7.05	5.41	936.4	-7.05	5.09	912.0	-7.05	4.74	887.5	-7.05	4.40	863.0	-7.05	4.07	838.5	-7.05	3.74	814.0
JUN 1 JUL 12		-6.97	6.52	989.7	-6.97	6.10	976.0	-6.97	5.72	958.0	-6.97	5.38	936.4	-6.97	5.07	912.0	-6.97	4.74	887.5	-6.97	4.40	863.0	-6.97	4.07	838.5	-6.97	3.74	814.0
MAY 18 JUL 27		-6.84	6.41	973.8	-6.84	6.01	965.3	-6.84	5.65	949.0	-6.84	5.32	925.0	-6.84	5.03	901.0	-6.84	4.70	876.5	-6.84	4.37	852.0	-6.84	4.04	827.5	-6.84	3.71	803.0
MAY 3 AUG 10		-6.67	6.26	948.6	-6.67	5.89	947.4	-6.67	5.55	940.9	-6.67	5.24	921.6	-6.67	4.94	897.0	-6.67	4.61	872.5	-6.67	4.28	848.0	-6.67	3.95	823.5	-6.67	3.62	799.0
APR 19 AUG 25		-6.46	6.09	912.7	-6.46	5.74	920.0	-6.46	5.43	921.6	-6.46	5.15	918.1	-6.46	4.86	894.0	-6.46	4.53	869.5	-6.46	4.20	845.0	-6.46	3.87	820.5	-6.46	3.54	796.0
APR 4 SEP 9		-6.24	5.89	866.2	-6.24	5.58	882.7	-6.24	5.30	893.0	-6.24	5.05	897.5	-6.24	4.76	873.0	-6.24	4.43	848.5	-6.24	4.10	824.0	-6.24	3.77	800.0	-6.24	3.44	775.5
MAR 21 SEP 23		-6.00	5.70	809.4	-6.00	5.42	834.9	-6.00	5.17	853.9	-6.00	4.95	866.5	-6.00	4.74	873.4	-6.00	4.53	880.0	-6.00	4.32	886.5	-6.00	4.11	893.0	-6.00	3.90	900.0
MAR 7 OCT 8		-5.76	5.50	746.2	-5.76	5.25	779.9	-5.76	5.04	806.8	-5.76	4.84	827.0	-5.76	4.66	840.9	-5.76	4.47	854.0	-5.76	4.28	867.0	-5.76	4.09	880.0	-5.76	3.90	893.0
FEB 20 OCT 22		-5.54	5.30	681.3	-5.54	5.10	721.9	-5.54	4.91	755.5	-5.54	4.74	782.0	-5.54	4.57	808.5	-5.54	4.40	835.0	-5.54	4.23	861.5	-5.54	4.06	888.0	-5.54	3.89	914.5
FEB 7 NOV 5		-5.33	5.13	619.7	-5.33	4.95	665.6	-5.33	4.79	704.4	-5.33	4.65	736.2	-5.33	4.52	768.0	-5.33	4.35	799.5	-5.33	4.18	831.0	-5.33	4.01	862.5	-5.33	3.84	894.0
JAN 23 NOV 19		-5.16	4.98	568.0	-5.16	4.83	617.4	-5.16	4.69	660.0	-5.16	4.57	695.5	-5.16	4.46	727.0	-5.16	4.34	758.5	-5.16	4.22	790.0	-5.16	4.09	821.5	-5.16	3.92	853.0
JAN 10 DEC 3		-5.03	4.87	530.5	-5.03	4.74	582.2	-5.03	4.62	627.0	-5.03	4.51	664.8	-5.03	4.42	696.5	-5.03	4.30	728.0	-5.03	4.18	759.5	-5.03	4.07	791.0	-5.03	3.90	822.5
DEC 22		-4.95	4.81	508.2	-4.95	4.69	561.0	-4.95	4.58	607.1	-4.95	4.48	646.1	-4.95	4.39	678.0	-4.95	4.29	710.0	-4.95	4.19	742.0	-4.95	4.09	774.0	-4.95	3.99	806.0
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		286.775	.5456		294.532	.5604		300.109	.5710		303.595	.5776		305.212	.5807		305.212	.5807		305.212	.5807		305.212	.5807		305.212	.5807	
				SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	
				THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		
		8.4	21.6		5.2	24.0		2.2	26.2		-0.4	28.2		-2.8	30.0		-0.4	28.2		-2.8	30.0		-2.8	30.0		-2.8	30.0	
				SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	
JUN 22		-7.05	4.81	882.4	-7.05	4.55	854.5	-7.05	4.32	827.0	-7.05	4.11	800.5	-7.05	3.92	775.2	-7.05	3.73	750.0	-7.05	3.54	724.8	-7.05	3.35	699.5	-7.05	3.16	674.2
JUN 1 JUL 12		-6.97	4.79	886.8	-6.97	4.54	860.7	-6.97	4.31	834.7	-6.97	4.11	809.6	-6.97	3.92	784.3	-6.97	3.73	759.0	-6.97	3.54	733.8	-6.97	3.35	708.5	-6.97	3.16	683.2
MAY 18 JUL 27		-6.84	4.76	892.9	-6.84	4.52	869.8	-6.84	4.30	843.5	-6.84	4.11	818.4	-6.84	3.92	793.0	-6.84	3.73	767.5	-6.84	3.54	742.0	-6.84	3.35	716.5	-6.84	3.16	691.0
MAY 3 AUG 10		-6.67	4.72	898.3	-6.67	4.49	879.4	-6.67	4.29	853.8	-6.67	4.11	828.0	-6.67	3.92	802.5	-6.67	3.73	777.0	-6.67	3.54	751.5	-6.67	3.35	726.0	-6.67	3.16	700.5
APR 19 AUG 25		-6.46	4.67	899.0	-6.46	4.46	885.4	-6.46	4.28	870.4	-6.46	4.11	845.6	-6.46	3.92	820.0	-6.46	3.73	794.5	-6.46	3.54	769.0	-6.46	3.35	743.5	-6.46	3.16	718.0
APR 4 SEP 9		-6.24	4.62	892.4	-6.24	4.43	884.6	-6.24	4.27	874.7	-6.24	4.12	849.3	-6.24	3.92	823.8	-6.24	3.73	798.3	-6.24	3.54	772.8	-6.24	3.35	747.3	-6.24	3.16	721.8
MAR 21 SEP 23		-6.00	4.56	875.5	-6.00	4.40	873.8	-6.00	4.25	869.2	-6.00	4.12	844.5	-6.00	3.92	819.0	-6.00	3.73	793.5	-6.00	3.54	768.0	-6.00	3.35	742.5	-6.00	3.16	717.0
MAR 7 OCT 8		-5.76	4.51	849.4	-5.76	4.36	853.5	-5.76	4.24	854.1	-5.76	4.12	829.0	-5.76	3.92	803.5	-5.76	3.73	778.0	-5.76	3.54	752.5	-5.76	3.35	727.0	-5.76	3.16	701.5
FEB 20 OCT 22		-5.54	4.45	816.3	-5.54	4.33	825.5	-5.54	4.22	830.8	-5.54	4.12	805.0	-5.54	3.92	779.5	-5.54	3.73	754.0	-5.54	3.54	728.5	-5.54	3.35	703.0	-5.54	3.16	677.5
FEB 7 NOV 5		-5.33	4.40	779.9	-5.33	4.30	795.4	-5.33	4.21	800.2	-5.33	4.13	788.2	-5.33	4.05	786.0	-5.33	3.97	783.8	-5.33	3.89	781.4	-5.33	3.81	779.0	-5.33	3.73	776.6
JAN 23 NOV 19		-5.16	4.36	746.2	-5.16	4.28	762.9	-5.16	4.20	772.0	-5.16	4.13	760.4	-5.16	4.05	758.0	-5.16	3.97	755.6	-5.16	3.89	753.2	-5.16	3.81	750.8	-5.16	3.73	748.4
JAN 10 DEC 3		-5.03	4.33	720.0	-5.03	4.26	738.9	-5.03	4.19	753.0	-5.03	4.13	741.0	-5.03	4.05	739.0	-5.03	3.97	736.6	-5.03	3.89	734.2	-5.03	3.81	731.8	-5.03	3.73	729.4
DEC 22		-4.95	4.32	703.8	-4.95	4.25	723.8	-4.95	4.19	738.9	-4.95	4.13	726.0	-4.95	4.05	724.0	-4.95	3.97	721.6	-4.95	3.89	719.2	-4.95	3.81	716.8	-4.95	3.73	714.4
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		305.268	.5808		304.095	.5786		302.013	.5746		299.300	.5694		296.156	.5635		296.156	.5635		296.156	.5635		296.156	.5635		296.156	.5635	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 32 N
ASPECT ENE - MNW

SLOPE											
10 PCT				20 PCT				30 PCT			
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA
34.0	6.4				35.7	12.9				36.9	19.4
		SR	SS	LY			SR	SS	LY		
JUN 22		-7.05	6.71	1011.9	-7.05	6.35	1006.3	-7.05	5.98	994.7	
JUN 1 JUL 12		-6.97	6.63	998.5	-6.97	6.26	991.5	-6.97	5.88	978.9	
MAY 18 JUL 27		-6.84	6.49	974.4	-6.84	6.11	965.2	-6.84	5.73	951.0	
MAY 3 AUG 10		-6.67	6.30	937.9	-6.67	5.91	925.8	-6.67	5.51	909.4	
APR 19 AUG 25		-6.46	6.07	888.6	-6.46	5.67	873.1	-6.46	5.26	858.3	
APR 4 SEP 9		-6.24	5.83	828.2	-6.24	5.41	809.2	-6.24	4.99	788.0	
MAR 21 SEP 23		-6.00	5.57	757.7	-6.00	5.14	735.5	-6.00	4.71	712.3	
MAR 7 OCT 8		-5.76	5.32	682.3	-5.76	4.87	657.5	-5.76	4.42	632.7	
FEB 20 OCT 22		-5.54	5.08	607.5	-5.54	4.61	580.7	-5.54	4.15	555.0	
FEB 7 NOV 5		-5.33	4.85	538.6	-5.33	4.37	510.5	-5.33	3.90	484.4	
JAN 23 NOV 19		-5.16	4.66	481.9	-5.16	4.17	453.2	-5.16	3.69	427.0	
JAN 10 DEC 3		-5.03	4.52	441.6	-5.03	4.02	412.6	-5.03	3.53	386.6	
DEC 22		-4.95	4.44	417.9	-4.95	3.93	388.8	-4.95	3.44	363.0	
	YEAR	R.I.			YEAR	R.I.			YEAR	R.I.	
	270.620	.5149			263.460	.5013			255.836	.4867	
SLOPE											
60 PCT				70 PCT				80 PCT			
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA
38.4	37.4				38.3	42.5				38.1	47.2
		SR	SS	LY			SR	SS	LY		
JUN 22		-7.05	4.85	938.5	-7.05	4.51	916.9	-7.05	4.18	895.6	
JUN 1 JUL 12		-6.97	4.75	921.3	-6.97	4.41	899.8	-6.97	4.08	878.5	
MAY 18 JUL 27		-6.84	4.59	891.3	-6.84	4.24	869.7	-6.84	3.92	848.6	
MAY 3 AUG 10		-6.67	4.36	847.1	-6.67	4.02	825.6	-6.67	3.70	804.9	
APR 19 AUG 25		-6.46	4.10	789.6	-6.46	3.75	768.3	-6.46	3.44	748.1	
APR 4 SEP 9		-6.24	3.81	721.4	-6.24	3.47	700.6	-6.24	3.15	681.2	
MAR 21 SEP 23		-6.00	3.51	644.9	-6.00	3.17	624.9	-6.00	2.86	606.6	
MAR 7 OCT 8		-5.76	3.21	565.6	-5.76	2.87	546.7	-5.76	2.56	529.7	
FEB 20 OCT 22		-5.54	2.92	489.3	-5.54	2.58	471.6	-5.54	2.28	456.0	
FEB 7 NOV 5		-5.33	2.66	420.9	-5.33	2.32	404.5	-5.33	2.02	390.2	
JAN 23 NOV 19		-5.16	2.43	365.9	-5.16	2.09	350.7	-5.16	1.79	337.6	
JAN 10 DEC 3		-5.03	2.27	327.5	-5.03	1.93	313.2	-5.03	1.63	301.0	
DEC 22		-4.95	2.17	305.2	-4.95	1.83	291.5	-4.95	1.53	279.8	
	YEAR	R.I.			YEAR	R.I.			YEAR	R.I.	
	233.091	.4435			226.198	.4304			219.811	.4182	
SLOPE											
90 PCT				100 PCT				110 PCT			
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA
37.7	51.3				37.2	55.1				36.3	59.7
		SR	SS	LY			SR	SS	LY		
JUN 22		-7.05	3.89	875.1	-7.05	3.61	855.5	-7.05	3.36	838.8	
JUN 1 JUL 12		-6.97	3.79	858.2	-6.97	3.52	838.5	-6.97	3.27	823.7	
MAY 18 JUL 27		-6.84	3.63	828.5	-6.84	3.36	809.5	-6.84	3.14	786.8	
MAY 3 AUG 10		-6.67	3.41	785.3	-6.67	3.14	766.8	-6.67	2.89	741.6	
APR 19 AUG 25		-6.46	3.15	729.2	-6.46	2.87	706.3	-6.46	2.61	686.8	
APR 4 SEP 9		-6.24	2.87	663.3	-6.24	2.61	646.8	-6.24	2.33	624.6	
MAR 21 SEP 23		-6.00	2.58	589.9	-6.00	2.33	574.6	-6.00	2.04	550.5	
MAR 7 OCT 8		-5.76	2.29	514.3	-5.76	2.04	500.5	-5.76	1.77	479.7	
FEB 20 OCT 22		-5.54	2.01	442.1	-5.54	1.77	429.7	-5.54	1.51	406.7	
FEB 7 NOV 5		-5.33	1.75	377.8	-5.33	1.51	366.7	-5.33	1.26	345.5	
JAN 23 NOV 19		-5.16	1.53	326.3	-5.16	1.30	316.5	-5.16	1.04	297.5	
JAN 10 DEC 3		-5.03	1.37	290.6	-5.03	1.14	281.5	-5.03	0.93	264.5	
DEC 22		-4.95	1.27	269.9	-4.95	1.05	261.4	-4.95	0.85	244.5	
	YEAR	R.I.			YEAR	R.I.			YEAR	R.I.	
	208.561	.3968			208.561	.3968			208.561	.3968	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

IF THIS MATERIAL WAS RECEIVED DAMAGED,
PLEASE NOTIFY US IMMEDIATELY.
THANK YOU.

VIRGINIA COMMONWEALTH UNIVERSITY
INTERLIBRARY LOAN OFFICE
901 PARK AVENUE, BOX 842033
RICHMOND, VA 23284-2033
(804) 828-1115 OFFICE
(804) 828-1730 FAX
JEANNE SCOTT OR VALARIE SHORE

LATITUDE 32 N
ASPECT ESE - W

	10 PCT			20 PCT			SLOPE			30 PCT			40 PCT			50 PCT		
	THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-7.05	6.55	1003.0	-7.05	6.07	991.6	-7.05	5.63	976.7	-7.05	5.22	959.1	-7.05	5.22	959.1	-7.05	4.85	939.4
JUN 1	-6.97	6.48	993.0	-6.97	6.01	983.4	-6.97	5.57	970.3	-6.97	5.17	954.2	-6.97	5.17	954.2	-6.97	4.81	936.1
JUN 12	-6.84	6.36	978.7	-6.84	5.91	968.1	-6.84	5.48	957.9	-6.84	5.09	944.6	-6.84	5.09	944.6	-6.84	4.74	928.9
MAY 18	-6.67	6.20	946.2	-6.67	5.76	943.8	-6.67	5.36	937.6	-6.67	4.98	928.0	-6.67	4.98	928.0	-6.67	4.64	915.8
MAY 3	-6.50	6.07	915.8	-6.50	5.63	900.3	-6.50	5.21	885.6	-6.50	4.85	870.4	-6.50	4.85	870.4	-6.50	4.53	858.4
MAY 10	-6.33	5.90	885.6	-6.33	5.41	863.4	-6.33	5.04	847.2	-6.33	4.70	831.0	-6.33	4.70	831.0	-6.33	4.40	819.0
MAY 20	-6.16	5.73	847.2	-6.16	5.22	825.0	-6.16	4.87	808.8	-6.16	4.55	792.6	-6.16	4.55	792.6	-6.16	4.27	780.6
MAY 30	-5.99	5.56	792.6	-5.99	5.02	770.4	-5.99	4.67	754.2	-5.99	4.35	738.0	-5.99	4.35	738.0	-5.99	4.07	721.8
MAY 10	-5.82	5.39	738.0	-5.82	4.84	721.8	-5.82	4.53	705.6	-5.82	4.26	689.4	-5.82	4.26	689.4	-5.82	3.98	673.2
MAY 20	-5.65	5.22	689.4	-5.65	4.67	673.2	-5.65	4.38	657.0	-5.65	4.13	640.8	-5.65	4.13	640.8	-5.65	3.80	624.6
MAY 30	-5.48	5.05	640.8	-5.48	4.53	624.6	-5.48	4.26	608.4	-5.48	4.00	592.0	-5.48	4.00	592.0	-5.48	3.72	575.8
JUN 9	-5.31	4.88	592.0	-5.31	4.38	575.8	-5.31	4.13	559.4	-5.31	3.93	543.0	-5.31	3.93	543.0	-5.31	3.65	527.0
JUN 19	-5.14	4.71	543.0	-5.14	4.26	527.0	-5.14	4.00	510.6	-5.14	3.79	494.2	-5.14	3.79	494.2	-5.14	3.51	478.0
 															

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 32 N
ASPECT E - W

		10 PCT				20 PCT				30 PCT				40 PCT				50 PCT			
		THETA	ALPHA	SR	SS	LY	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA
		31.8	6.7				31.3			30.5	19.5				29.5	25.3				28.3	30.5
		SLOPE				SLOPE				SLOPE				SLOPE				SLOPE			
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		276.506	.5261	275.178	.5236	273.065	.5195	270.291	.5143	267.007	.5080										
JUN 22		-7.05	4.50	938.3		-7.05	4.17	919.6		-7.05	3.87	900.9		-7.05	3.60	882.7		-7.05	3.36	865.2	
JUN 1 JUL 12		-6.97	4.44	928.9		-6.97	4.11	910.7		-6.97	3.82	892.6		-6.97	3.55	874.9		-6.97	3.31	857.8	
MAY 18 JUL 27		-6.84	4.34	911.7		-6.84	4.01	894.4		-6.84	3.72	877.2		-6.84	3.46	860.3		-6.84	3.22	844.0	
MAY 3 AUG 10		-6.67	4.19	884.8		-6.67	3.88	868.9		-6.67	3.60	852.9		-6.67	3.34	837.3		-6.67	3.12	822.1	
APR 19 AUG 25		-6.46	4.02	847.1		-6.46	3.72	832.9		-6.46	3.45	818.6		-6.46	3.20	804.4		-6.46	2.98	790.7	
APR 4 SEP 9		-6.24	3.84	799.4		-6.24	3.55	787.1		-6.24	3.28	774.6		-6.24	3.05	762.2		-6.24	2.84	750.0	
MAR 21 SEP 23		-6.00	3.65	741.9		-6.00	3.36	731.6		-6.00	3.11	721.1		-6.00	2.89	710.5		-6.00	2.69	700.1	
MAR 7 OCT 8		-5.76	3.46	678.8		-5.76	3.18	670.6		-5.76	2.94	661.9		-5.76	2.73	653.2		-5.76	2.53	644.6	
FEB 20 OCT 22		-5.54	3.27	614.8		-5.54	3.01	608.4		-5.54	2.78	601.5		-5.54	2.57	594.5		-5.54	2.39	587.5	
FEB 7 NOV 5		-5.33	3.10	554.6		-5.33	2.85	549.7		-5.33	2.63	544.4		-5.33	2.43	538.9		-5.33	2.26	533.2	
JAN 23 NOV 19		-5.16	2.96	504.3		-5.16	2.71	500.7		-5.16	2.50	496.6		-5.16	2.31	492.2		-5.16	2.14	487.5	
JAN 10 DEC 3		-5.03	2.86	468.1		-5.03	2.62	465.3		-5.03	2.41	462.0		-5.03	2.22	458.3		-5.03	2.06	454.5	
DEC 22		-4.95	2.79	446.7		-4.95	2.56	444.3		-4.95	2.35	441.4		-4.95	2.17	438.2		-4.95	2.01	434.8	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 34 N

HORIZONTAL SURFACE

LATITUDE 34 N

	SR	SS	LY
JUN 22	-7.14	7.14	1014.8
JUN 1 JUL 12	-7.05	7.05	1001.4
MAY 18 JUL 27	-6.91	6.91	977.2
MAY 3 AUG 10	-6.72	6.72	940.8
APR 19 AUG 25	-6.50	6.50	891.4
APR 4 SEP 9	-6.25	6.25	830.9
MAR 21 SEP 23	-6.00	6.00	760.3
MAR 7 OCT 8	-5.75	5.75	684.8
FEB 20 OCT 22	-5.50	5.50	609.8
FEB 7 NOV 5	-5.28	5.28	540.7
JAN 23 NOV 19	-5.09	5.09	483.9
JAN 10 DEC 3	-4.95	4.95	443.4
DEC 22	-4.86	4.86	419.7

YEAR R.I.
271.525 .5166

LATITUDE 34 N
ASPECT N -

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
		39.7	0.0				45.3	0.0				50.7	0.0				55.8	0.0				60.6	0.0				
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		254.414	.4840	235.517	.4481	215.630	.4103	195.546	.3720	176.078	.3350	158.061	.3007	142.687	.2715	129.800	.2470	118.722	.2259	108.931	.2073	97.000	.1882	86.000	.1691	75.000	.1500
JUN 22		-7.14	7.14	1021.0		-7.14	7.14	1017.3		-7.14	7.14	1004.5		-7.14	7.14	984.2		-7.14	7.14	964.0		-7.14	7.14	943.8		-7.14	7.14
JUN 1 JUL 12		-7.05	7.05	1002.9		-7.05	7.05	994.7		-7.05	7.05	977.9		-7.05	7.05	954.0		-7.05	7.05	934.0		-7.05	7.05	914.0		-7.05	7.05
MAY 18 JUL 27		-6.91	6.91	971.0		-6.91	6.91	955.5		-6.91	6.91	931.9		-6.91	6.91	902.1		-6.91	6.91	872.8		-6.91	6.91	843.6		-6.91	6.91
MAY 3 AUG 10		-6.72	6.72	923.8		-6.72	6.72	898.4		-6.72	6.72	865.8		-6.72	6.72	832.2		-6.72	6.72	798.6		-6.72	6.72	764.4		-6.72	6.72
APR 19 AUG 25		-6.50	6.50	862.1		-6.50	6.50	825.0		-6.50	6.50	781.9		-6.50	6.50	734.7		-6.50	6.50	690.5		-6.50	6.50	648.3		-6.50	6.50
APR 4 SEP 9		-6.25	6.25	788.5		-6.25	6.25	739.4		-6.25	6.25	685.5		-6.25	6.25	628.9		-6.25	6.25	574.4		-6.25	6.25	522.9		-6.25	6.25
MAR 21 SEP 23		-6.00	6.00	705.4		-6.00	6.00	644.9		-6.00	6.00	580.9		-6.00	6.00	515.5		-6.00	6.00	450.7		-6.00	6.00	385.9		-6.00	6.00
MAR 7 OCT 8		-5.69	5.69	613.0		-5.62	5.62	548.9		-5.54	5.54	476.7		-5.44	5.44	404.7		-5.33	5.33	334.9		-5.22	5.22	265.0		-5.11	5.11
FEB 20 OCT 22		-5.39	5.39	535.6		-5.25	5.25	458.5		-5.09	5.09	381.1		-4.90	4.90	305.8		-4.67	4.67	234.7		-4.43	4.43	164.8		-4.19	4.19
FEB 7 NOV 5		-5.11	5.11	460.5		-4.91	4.91	379.1		-4.67	4.67	299.4		-4.38	4.38	223.7		-4.03	4.03	154.6		-3.74	3.74	84.7		-3.49	3.49
JAN 23 NOV 19		-4.87	4.87	400.1		-4.61	4.61	316.6		-4.31	4.31	236.6		-3.93	3.93	162.7		-3.54	3.54	97.8		-3.15	3.15	27.9		-2.76	2.76
JAN 10 DEC 3		-4.69	4.69	357.8		-4.40	4.40	273.7		-4.03	4.03	194.4		-3.57	3.57	123.1		-3.15	3.15	58.2		-2.76	2.76	2.9		-2.37	2.37
DEC 22		-4.59	4.59	333.2		-4.26	4.26	249.1		-3.86	3.86	170.8		-3.35	3.35	101.4		-2.84	2.84	26.4		-2.45	2.45	1.5		-2.06	2.06
JUN 22		-7.14	7.14	928.3		-7.14	7.14	896.1		-7.14	7.14	863.0		-7.14	7.14	830.0		-7.14	7.14	797.5		-7.14	7.14	765.0		-7.14	7.14
JUN 1 JUL 12		-7.05	7.05	892.3		-7.05	7.05	857.8		-7.05	7.05	822.7		-7.05	7.05	788.1		-7.05	7.05	754.3		-7.05	7.05	720.5		-7.05	7.05
MAY 18 JUL 27		-6.91	6.91	830.6		-6.91	6.91	792.3		-6.91	6.91	754.1		-6.91	6.91	716.9		-6.91	6.91	680.9		-6.91	6.91	646.9		-6.91	6.91
MAY 3 AUG 10		-6.72	6.72	743.4		-6.72	6.72	700.1		-6.72	6.72	657.8		-6.72	6.72	617.1		-6.72	6.72	578.3		-6.72	6.72	543.8		-6.72	6.72
APR 19 AUG 25		-6.50	6.50	635.6		-6.50	6.50	586.6		-6.50	6.50	539.6		-6.50	6.50	495.2		-6.50	6.50	453.3		-6.50	6.50	410.9		-6.50	6.50
APR 4 SEP 9		-6.25	6.25	514.9		-6.25	6.25	460.4		-6.25	6.25	408.8		-6.25	6.25	360.8		-6.25	6.25	310.0		-6.25	6.25	257.5		-6.25	6.25
MAR 21 SEP 23		-6.00	6.00	388.1		-6.00	6.00	328.7		-6.00	6.00	273.2		-6.00	6.00	222.1		-6.00	6.00	175.0		-6.00	6.00	127.9		-6.00	6.00
MAR 7 OCT 8		-5.19	5.19	268.9		-5.01	5.01	207.6		-4.77	4.77	151.9		-4.45	4.45	102.2		-4.13	4.13	58.7		-3.81	3.81	15.4		-3.49	3.49
FEB 20 OCT 22		-4.37	4.37	169.5		-3.99	3.99	111.4		-3.46	3.46	61.9		-2.95	2.95	22.9		-2.43	2.43	7.1		-1.91	1.91	2.3		-1.39	1.39
FEB 7 NOV 5		-3.56	3.56	94.1		-2.89	2.89	44.3		-1.78	1.78	8.9		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00
JAN 23 NOV 19		-2.75	2.75	44.6		-1.60	1.60	7.6		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00
JAN 10 DEC 3		-2.02	2.02	17.7		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00
DEC 22		-1.43	1.43	6.3		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 34 N
ASPECT S -

	10 PCT						20 PCT						30 PCT						40 PCT						50 PCT					
	SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE		
	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.
JUN 22	-6.90	6.90	999.8	-6.70	6.70	977.7	-6.52	6.52	949.5	-6.36	6.36	916.5	-6.22	6.22	880.2	-6.00	6.00	807.6	-6.00	6.00	807.6	-6.00	6.00	807.6	-6.00	6.00	807.6	-6.00	6.00	807.6
JUN 1 JUL 12	-6.84	6.84	991.0	-6.65	6.65	973.2	-6.48	6.48	949.0	-6.33	6.33	919.6	-6.20	6.20	886.5	-5.75	5.75	743.8	-5.75	5.75	743.8	-5.75	5.75	743.8	-5.75	5.75	743.8	-5.75	5.75	743.8
MAY 18 JUL 27	-6.73	6.73	974.7	-6.56	6.56	964.3	-6.42	6.42	946.8	-6.29	6.29	923.5	-6.17	6.17	895.9	-5.50	5.50	678.3	-5.50	5.50	678.3	-5.50	5.50	678.3	-5.50	5.50	678.3	-5.50	5.50	678.3
MAY 3 AUG 10	-6.58	6.58	948.9	-6.45	6.45	948.7	-6.33	6.33	940.7	-6.23	6.23	926.1	-6.14	6.14	906.4	-5.28	5.28	816.1	-5.28	5.28	816.1	-5.28	5.28	816.1	-5.28	5.28	816.1	-5.28	5.28	816.1
APR 19 AUG 25	-6.40	6.40	912.2	-6.31	6.31	924.3	-6.23	6.23	927.9	-6.16	6.16	924.1	-6.10	6.10	914.2	-4.95	4.95	563.9	-4.95	4.95	563.9	-4.95	4.95	563.9	-4.95	4.95	563.9	-4.95	4.95	563.9
APR 4 SEP 9	-6.20	6.20	865.1	-6.16	6.16	890.4	-6.12	6.12	906.8	-6.08	6.08	915.0	-6.05	6.05	916.2	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6
MAR 21 SEP 23	-6.00	6.00	807.6	-6.00	6.00	846.2	-6.00	6.00	875.6	-6.00	6.00	896.4	-6.00	6.00	909.4	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
MAR 7 OCT 8	-5.75	5.75	743.8	-5.75	5.75	794.4	-5.75	5.75	835.9	-5.75	5.75	868.5	-5.75	5.75	892.7	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
FEB 20 OCT 22	-5.50	5.50	678.3	-5.50	5.50	738.8	-5.50	5.50	790.4	-5.50	5.50	832.8	-5.50	5.50	866.5	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
FEB 7 NOV 5	-5.28	5.28	816.1	-5.28	5.28	864.1	-5.28	5.28	901.3	-5.28	5.28	938.4	-5.28	5.28	977.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6
JAN 23 NOV 19	-5.09	5.09	526.1	-5.09	5.09	563.9	-5.09	5.09	599.6	-5.09	5.09	636.5	-5.09	5.09	673.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6
JAN 10 DEC 3	-4.95	4.95	526.1	-4.95	4.95	602.0	-4.95	4.95	639.5	-4.95	4.95	676.6	-4.95	4.95	713.7	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6
DEC 22	-4.86	4.86	503.6	-4.86	4.86	580.9	-4.86	4.86	618.0	-4.86	4.86	655.0	-4.86	4.86	692.1	-4.86	4.86	729.2	-4.86	4.86	766.3	-4.86	4.86	803.4	-4.86	4.86	840.5	-4.86	4.86	877.6
JUN 22	-6.09	6.09	842.4	-5.97	5.97	804.1	-5.86	5.86	766.4	-5.77	5.77	730.3	-5.68	5.68	695.7	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
JUN 1 JUL 12	-6.08	6.08	851.4	-5.97	5.97	815.5	-5.87	5.87	779.9	-5.78	5.78	745.4	-5.70	5.70	712.3	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
MAY 18 JUL 27	-6.07	6.07	865.6	-5.98	5.98	833.8	-5.89	5.89	801.9	-5.81	5.81	770.5	-5.74	5.74	740.0	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
MAY 3 AUG 10	-6.06	6.06	883.0	-5.98	5.98	857.4	-5.91	5.91	830.7	-5.85	5.85	803.8	-5.79	5.79	777.2	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
APR 19 AUG 25	-6.04	6.04	899.6	-5.99	5.99	881.8	-5.94	5.94	861.9	-5.90	5.90	841.0	-5.86	5.86	819.7	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
APR 4 SEP 9	-6.02	6.02	911.8	-5.99	5.99	903.0	-5.97	5.97	891.2	-5.95	5.95	877.4	-5.93	5.93	862.4	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
MAR 21 SEP 23	-6.00	6.00	915.8	-6.00	6.00	917.0	-6.00	6.00	914.1	-6.00	6.00	908.2	-6.00	6.00	900.2	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
MAR 7 OCT 8	-5.75	5.75	909.5	-5.75	5.75	920.3	-5.75	5.75	926.1	-5.75	5.75	928.1	-5.75	5.75	927.2	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
FEB 20 OCT 22	-5.50	5.50	892.2	-5.50	5.50	911.3	-5.50	5.50	924.6	-5.50	5.50	936.5	-5.50	5.50	938.8	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
FEB 7 NOV 5	-5.28	5.28	867.2	-5.28	5.28	892.8	-5.28	5.28	912.2	-5.28	5.28	926.6	-5.28	5.28	937.0	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
JAN 23 NOV 19	-5.09	5.09	840.7	-5.09	5.09	871.1	-5.09	5.09	894.9	-5.09	5.09	913.3	-5.09	5.09	927.3	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1	-5.09	5.09	526.1
JAN 10 DEC 3	-4.95	4.95	818.5	-4.95	4.95	851.8	-4.95	4.95	876.4	-4.95	4.95	899.4	-4.95	4.95	915.9	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6	-4.86	4.86	503.6
DEC 22	-4.86	4.86	804.0	-4.86	4.86	838.9	-4.86	4.86	867.0	-4.86	4.86	895.4	-4.86	4.86	927.2	-4.86	4.86	964.5	-4.86	4.86	991.6	-4.86	4.86	1018.7	-4.86	4.86	1045.8	-4.86	4.86	1072.9

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 34 N
ASPECT NNE - NNW

SLOPE														
10 PCT			20 PCT			30 PCT			40 PCT			50 PCT		
THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
39.3	2.8		44.3	6.0		49.1	9.7		53.5	13.8		57.4	18.5	
SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-7.14	7.14	1020.2	-7.14	7.14	1015.6	-7.14	7.14	1002.0	-7.14	7.14	981.0	-7.14	7.14
JUN 1 JUL 12	-7.05	7.05	993.7	-7.05	7.05	978.5	-7.05	7.05	958.2	-7.05	7.05	932.2	-7.05	7.05
MAY 18 JUL 27	-6.91	6.91	971.1	-6.91	6.91	955.7	-6.91	6.91	932.2	-6.91	6.91	902.3	-6.91	6.91
MAY 3 AUG 10	-6.72	6.69	924.8	-6.72	6.65	900.2	-6.72	6.61	858.6	-6.72	6.55	831.5	-6.72	6.49
APR 19 AUG 25	-6.50	6.42	864.1	-6.50	6.32	829.1	-6.50	6.21	788.2	-6.50	6.09	743.3	-6.50	5.94
APR 4 SEP 9	-6.25	6.12	791.7	-6.25	5.97	746.0	-6.25	5.79	696.1	-6.25	5.59	643.7	-6.25	5.36
MAR 21 SEP 23	-6.00	5.81	709.8	-6.00	5.60	654.4	-6.00	5.36	596.4	-6.00	5.08	537.9	-6.00	4.76
MAR 7 OCT 8	-5.75	5.50	624.4	-5.75	5.23	560.9	-5.75	4.92	496.6	-5.75	4.57	433.8	-5.75	4.17
FEB 20 OCT 22	-5.50	5.21	541.8	-5.50	4.87	472.2	-5.50	4.50	403.7	-5.50	4.07	338.7	-5.50	3.59
FEB 7 NOV 5	-5.28	4.93	467.2	-5.28	4.54	393.8	-5.28	4.10	323.2	-5.28	3.60	257.8	-5.28	3.04
JAN 23 NOV 19	-5.08	4.70	407.0	-5.07	4.26	331.6	-5.05	3.76	260.4	-5.04	3.19	195.9	-5.02	2.54
JAN 10 DEC 3	-4.91	4.53	364.8	-4.86	4.05	288.6	-4.80	3.51	217.9	-4.72	2.88	154.9	-4.63	2.15
DEC 22	-4.80	4.42	340.3	-4.73	3.92	264.0	-4.64	3.35	193.8	-4.52	2.68	132.2	-4.38	1.90
YEAR	255.749	.4866	238.414	.4536	220.284	.4191	202.101	.3845	184.563	.3511				
SLOPE														
60 PCT			70 PCT			80 PCT			90 PCT			100 PCT		
THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
60.9	23.9		63.8	29.8		66.2	36.4		68.1	43.4		69.6	50.8	
SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-7.14	7.14	923.9	-7.14	7.14	891.2	-7.14	7.14	857.6	-7.14	7.14	824.2	-7.14	7.14
JUN 1 JUL 12	-7.05	7.05	889.7	-7.05	7.05	854.9	-7.05	7.05	819.6	-7.05	7.05	784.8	-7.05	7.05
MAY 18 JUL 27	-6.91	6.91	831.2	-6.91	6.91	793.0	-6.91	6.91	754.8	-6.91	6.91	717.6	-6.91	6.91
MAY 3 AUG 10	-6.72	6.41	748.8	-6.72	6.31	706.4	-6.72	6.19	664.8	-6.72	6.04	625.1	-6.72	5.84
APR 19 AUG 25	-6.50	5.76	649.1	-6.50	5.55	602.9	-6.50	5.31	558.9	-6.50	5.02	517.9	-6.50	4.79
APR 4 SEP 9	-6.25	5.09	539.8	-6.25	4.78	491.1	-6.25	4.44	446.1	-6.25	4.05	405.4	-6.25	3.64
MAR 21 SEP 23	-6.00	4.41	427.2	-6.00	4.01	377.9	-6.00	3.57	333.7	-6.00	3.11	295.0	-6.00	2.62
MAR 7 OCT 8	-5.75	3.73	320.3	-5.75	3.24	272.1	-5.75	2.71	230.4	-5.75	2.16	195.4	-5.75	1.59
FEB 20 OCT 22	-5.50	3.06	226.2	-5.50	2.47	180.9	-5.50	1.84	143.5	-5.50	1.19	113.5	-5.50	.54
FEB 7 NOV 5	-5.28	2.41	149.6	-5.28	1.71	108.5	-5.28	.96	76.4	-5.28	.17	52.5	-5.28	.61
JAN 23 NOV 19	-4.99	1.81	93.7	-4.95	.98	57.6	-4.91	.05	31.3	-4.83	-.95	14.1	-4.70	-2.07
JAN 10 DEC 3	-4.50	1.32	59.2	-4.31	.34	28.0	-4.00	-.85	8.2	0.00	0.00	0.0	0.00	0.00
DEC 22	-4.17	.99	41.5	-3.84	-.13	14.3	-3.04	-1.81	.5	0.00	0.00	0.0	0.00	0.00
YEAR	168.246	.3201	153.529	.2921	140.691	.2677	129.846	.2470	120.482	.2292				

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 34 N
ASPECT SSE - SSW

	10 PCT			20 PCT			SLOPE			30 PCT			40 PCT			50 PCT		
	THETA		ALPHA	THETA		ALPHA	THETA		ALPHA	THETA		ALPHA	THETA		ALPHA	THETA		ALPHA
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-7.08	6.75	1001.1	-7.04	6.41	981.2	-7.00	6.11	955.8	-6.96	5.84	926.0	-6.93	5.60	893.2	-6.93	5.60	893.2
JUN 1 JUL 12	-7.02	6.68	992.0	-6.98	6.36	976.1	-6.96	6.07	954.5	-6.93	5.81	928.1	-6.91	5.58	898.4	-6.91	5.58	898.4
MAY 18 JUL 27	-6.90	6.57	975.1	-6.90	6.27	966.2	-6.89	5.00	950.9	-6.88	5.76	930.4	-6.88	5.55	906.0	-6.88	5.55	906.0
MAY 3 AUG 10	-6.72	6.42	948.6	-6.72	6.15	949.2	-6.72	5.91	942.9	-6.72	5.70	930.6	-6.72	5.50	913.6	-6.72	5.50	913.6
APR 19 AUG 25	-6.50	6.24	911.0	-6.50	6.01	922.8	-6.50	5.80	927.3	-6.50	5.62	925.0	-6.50	5.45	917.0	-6.50	5.45	917.0
APR 4 SEP 9	-6.25	6.04	862.7	-6.25	5.85	886.7	-6.25	5.68	902.6	-6.25	5.53	911.1	-6.25	5.39	913.1	-6.25	5.39	913.1
MAR 21 SEP 23	-6.00	5.83	804.1	-6.00	5.69	839.9	-6.00	5.56	867.3	-6.00	5.44	886.7	-6.00	5.33	898.8	-6.00	5.33	898.8
MAR 7 OCT 8	-5.75	5.63	739.2	-5.75	5.52	785.8	-5.75	5.43	823.7	-5.75	5.35	853.2	-5.75	5.27	874.8	-5.75	5.27	874.8
FEB 20 OCT 22	-5.50	5.43	672.9	-5.50	5.37	728.4	-5.50	5.31	775.2	-5.50	5.26	813.4	-5.50	5.22	843.3	-5.50	5.22	843.3
FEB 7 NOV 5	-5.28	5.25	610.2	-5.28	5.22	672.4	-5.28	5.20	726.2	-5.28	5.18	771.3	-5.28	5.16	807.9	-5.28	5.16	807.9
JAN 23 NOV 19	-5.09	5.09	557.6	-5.09	5.09	624.5	-5.09	5.09	683.2	-5.09	5.09	733.2	-5.09	5.09	774.7	-5.09	5.09	774.7
JAN 10 DEC 3	-4.95	4.95	519.6	-4.95	4.95	589.2	-4.95	4.95	650.9	-4.95	4.95	704.0	-4.95	4.95	748.6	-4.95	4.95	748.6
DEC 22	-4.86	4.86	497.0	-4.86	4.86	568.0	-4.86	4.86	631.2	-4.86	4.86	685.8	-4.86	4.86	732.1	-4.86	4.86	732.1
JUN 22	-6.90	5.38	858.9	-6.88	5.19	824.2	-6.85	5.01	790.0	-6.83	4.85	757.0	-6.81	4.70	725.5	-6.81	4.70	725.5
JUN 1 JUL 12	-6.89	5.37	866.8	-6.87	5.18	834.4	-6.86	5.01	802.2	-6.84	4.86	770.9	-6.83	4.71	740.9	-6.83	4.71	740.9
MAY 18 JUL 27	-6.87	5.35	879.0	-6.87	5.18	850.6	-6.87	5.02	822.0	-6.86	4.88	793.7	-6.86	4.74	766.3	-6.86	4.74	766.3
MAY 3 AUG 10	-6.72	5.33	893.3	-6.72	5.17	870.8	-6.72	5.03	847.2	-6.72	4.90	823.4	-6.72	4.78	799.7	-6.72	4.78	799.7
APR 19 AUG 25	-6.50	5.30	904.8	-6.50	5.17	889.5	-6.50	5.05	872.2	-6.50	4.93	853.9	-6.50	4.83	835.1	-6.50	4.83	835.1
APR 4 SEP 9	-6.25	5.27	909.9	-6.25	5.16	902.5	-6.25	5.06	892.4	-6.25	4.97	880.3	-6.25	4.89	866.9	-6.25	4.89	866.9
MAR 21 SEP 23	-6.00	5.24	904.7	-6.00	5.15	905.8	-6.00	5.08	903.0	-6.00	5.01	897.5	-6.00	4.94	889.9	-6.00	4.94	889.9
MAR 7 OCT 8	-5.75	5.21	889.5	-5.75	5.15	898.6	-5.75	5.09	903.0	-5.75	5.04	903.9	-5.75	5.00	902.2	-5.75	5.00	902.2
FEB 20 OCT 22	-5.50	5.18	865.8	-5.50	5.14	882.0	-5.50	5.11	892.9	-5.50	5.08	899.7	-5.50	5.05	903.3	-5.50	5.05	903.3
FEB 7 NOV 5	-5.28	5.15	836.8	-5.28	5.13	858.9	-5.28	5.12	875.3	-5.28	5.11	887.1	-5.28	5.10	895.2	-5.28	5.10	895.2
JAN 23 NOV 19	-5.09	5.09	808.3	-5.09	5.09	834.9	-5.09	5.09	855.5	-5.09	5.09	871.1	-5.09	5.09	882.8	-5.09	5.09	882.8
JAN 10 DEC 3	-4.95	4.95	785.2	-4.95	4.95	814.6	-4.95	4.95	837.9	-4.95	4.95	856.0	-4.95	4.95	870.0	-4.95	4.95	870.0
DEC 22	-4.86	4.86	770.2	-4.86	4.86	801.2	-4.86	4.86	826.0	-4.86	4.86	845.5	-4.86	4.86	860.7	-4.86	4.86	860.7
JUN 22	-6.90	5.38	858.9	-6.88	5.19	824.2	-6.85	5.01	790.0	-6.83	4.85	757.0	-6.81	4.70	725.5	-6.81	4.70	725.5
JUN 1 JUL 12	-6.89	5.37	866.8	-6.87	5.18	834.4	-6.86	5.01	802.2	-6.84	4.86	770.9	-6.83	4.71	740.9	-6.83	4.71	740.9
MAY 18 JUL 27	-6.87	5.35	879.0	-6.87	5.18	850.6	-6.87	5.02	822.0	-6.86	4.88	793.7	-6.86	4.74	766.3	-6.86	4.74	766.3
MAY 3 AUG 10	-6.72	5.33	893.3	-6.72	5.17	870.8	-6.72	5.03	847.2	-6.72	4.90	823.4	-6.72	4.78	799.7	-6.72	4.78	799.7
APR 19 AUG 25	-6.50	5.30	904.8	-6.50	5.17	889.5	-6.50	5.05	872.2	-6.50	4.93	853.9	-6.50	4.83	835.1	-6.50	4.83	835.1
APR 4 SEP 9	-6.25	5.27	909.9	-6.25	5.16	902.5	-6.25	5.06	892.4	-6.25	4.97	880.3	-6.25	4.89	866.9	-6.25	4.89	866.9
MAR 21 SEP 23	-6.00	5.24	904.7	-6.00	5.15	905.8	-6.00	5.08	903.0	-6.00	5.01	897.5	-6.00	4.94	889.9	-6.00	4.94	889.9
MAR 7 OCT 8	-5.75	5.21	889.5	-5.75	5.15	898.6	-5.75	5.09	903.0	-5.75	5.04	903.9	-5.75	5.00	902.2	-5.75	5.00	902.2
FEB 20 OCT 22	-5.50	5.18	865.8	-5.50	5.14	882.0	-5.50	5.11	892.9	-5.50	5.08	899.7	-5.50	5.05	903.3	-5.50	5.05	903.3
FEB 7 NOV 5	-5.28	5.15	836.8	-5.28	5.13	858.9	-5.28	5.12	875.3	-5.28	5.11	887.1	-5.28	5.10	895.2	-5.28	5.10	895.2
JAN 23 NOV 19	-5.09	5.09	808.3	-5.09	5.09	834.9	-5.09	5.09	855.5	-5.09	5.09	871.1	-5.09	5.09	882.8	-5.09	5.09	882.8
JAN 10 DEC 3	-4.95	4.95	785.2	-4.95	4.95	814.6	-4.95	4.95	837.9	-4.95	4.95	856.0	-4.95	4.95	870.0	-4.95	4.95	870.0
DEC 22	-4.86	4.86	770.2	-4.86	4.86	801.2	-4.86	4.86	826.0	-4.86	4.86	845.5	-4.86	4.86	860.7	-4.86	4.86	860.7
JUN 22	-6.90	5.38	858.9	-6.88	5.19	824.2	-6.85	5.01	790.0	-6.83	4.85	757.0	-6.81	4.70	725.5	-6.81	4.70	725.5
JUN 1 JUL 12	-6.89	5.37	866.8	-6.87	5.18	834.4	-6.86	5.01	802.2	-6.84	4.86	770.9	-6.83	4.71	740.9	-6.83	4.71	740.9
MAY 18 JUL 27	-6.87	5.35	879.0	-6.87	5.18	850.6	-6.87	5.02	822.0	-6.86	4.88	793.7	-6.86	4.74	766.3	-6.86	4.74	766.3
MAY 3 AUG 10	-6.72	5.33	893.3	-6.72	5.17	870.8	-6.72	5.03	847.2	-6.72	4.90	823.4	-6.72	4.78	799.7	-6.72	4.78	799.7
APR 19 AUG 25	-6.50	5.30	904.8	-6.50	5.17	889.5	-6.50	5.05	872.2	-6.50	4.93	853.9	-6.50	4.83	835.1	-6.50	4.83	835.1
APR 4 SEP 9	-6.25	5.27	909.9	-6.25	5.16	902.5	-6.25	5.06	892.4	-6.25	4.97	880.3	-6.25	4.89	866.9	-6.25	4.89	866.9
MAR 21 SEP 23	-6.00	5.24	904.7	-6.00	5.15	905.8	-6.00	5.08	903.0	-6.00	5.01	897.5	-6.00	4.94	889.9	-6.00	4.94	889.9
MAR 7 OCT 8	-5.75	5.21	889.5	-5.75	5.15	898.6	-5.75	5.09	903.0	-5.75	5.04	903.9	-5.75	5.00	902.2	-5.75	5.00	902.2
FEB 20 OCT 22	-5.50	5.18	865.8	-5.50	5.14	882.0	-5.50	5.11	892.9	-5.50	5.08	899.7	-5.50	5.05	903.3	-5.50	5.05	903.3
FEB 7 NOV 5	-5.28	5.15	836.8	-5.28	5.13	858.9	-5.28	5.12	875.3	-5.28	5.11	887.1	-5.28	5.10	895.2	-5.28	5.10	895.2
JAN 23 NOV 19	-5.09	5.09	808.3	-5.09	5.09	834.9	-5.09	5.09	855.5	-5.09	5.09	871.1	-5.09	5.09	882.8	-5.09	5.09	882.8
JAN 10 DEC 3	-4.95	4.95	785.2	-4.95	4.95	814.6	-4.95	4.95	837.9	-4.95	4.95	856.0	-4.95	4.95	870.0	-4.95	4.95	870.0
DEC 22	-4.86	4.86	770.2	-4.86	4.86	801.2	-4.86	4.86	826.0	-4.86	4.86	845.5	-4.86	4.86	860.7	-4.86	4.86	860.7
JUN 22	-6.90	5.38	858.9	-6.88	5.19	824.2	-6.85	5.01	790.0	-6.83	4.85	757.0	-6.81	4.70	725.5	-6.81	4.70	725.5
JUN 1 JUL 12	-6.89	5.37	866.8	-6.87	5.18	834.4	-6.86	5.01	802.2	-6.84	4.86	770.9	-6.83	4.71	740.9	-6.83	4.71	740.9
MAY 18 JUL 27	-6.87	5.35	879.0	-6.87	5.18	850.6	-6.87	5.02	822.0	-6.86	4.88	793.7	-6.86	4.74	766.3	-6.86	4.74	766.3
MAY 3 AUG 10	-6.72	5.33	893.3	-6.72	5.17	870.8	-6.72	5.03	847.2	-6.72	4.90	823.4	-6.72	4.78	799.7	-6.72	4.78	799.7
APR 19 AUG 25	-6.50	5.30	904.8	-6.50	5.17	889.5	-6.50	5.05	872.2	-6.50	4.93	853.9	-6.50	4.83	835.1	-6.50	4.83	835.1
APR 4 SEP 9	-6.25	5.27	909.9	-6.25	5.16	902.5	-6.25	5.06	892.4	-6.25	4.97	880.3	-6.25	4.89	866.9	-6.25	4.89	866.9
MAR 21 SEP 23	-6.00	5.24	904.7	-6.00	5.15	905.8	-6.00	5.08	903.0	-6.00	5.01	897.5	-6.00	4.94	889.9	-6.00	4.94	889.9
MAR 7 OCT 8	-5.75																	

36075

- 32 -

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 34 N
ASPECT SE - SW

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT			
		THETA	ALPHA	SR	SS	LY	SR	SS	LY	ALPHA	THETA	SR	SS	LY	ALPHA	THETA	SR	SS	LY	ALPHA	THETA	SR	SS	LY	ALPHA
		29.9	4.7				25.7			8.9	21.5				12.6	17.5				16.0	13.8				19.0
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		281.931	.5364	290.330	.5524	296.568	.5642	300.709	.5721	302.956	.5764	302.956	.5764	302.956	.5764	302.956	.5764	302.956	.5764	302.956	.5764	302.956	.5764	302.956	.5764
JUN 22		-7.14	6.65	1004.5		6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21	6.21
JUN 1	JUL 12	-7.05	6.58	994.4		6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15	6.15
MAY 18	JUL 27	-6.91	6.46	975.8		6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06	6.06
MAY 3	AUG 10	-6.72	6.30	947.0		5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92	5.92
APR 19	AUG 25	-6.50	6.11	906.6		5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76	5.76
APR 4	SEP 9	-6.25	5.91	855.5		5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59	5.59
MAR 21	SEP 23	-6.00	5.69	794.0		5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41	5.41
MAR 7	OCT 8	-5.75	5.47	726.5		5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23	5.23
FEB 20	OCT 22	-5.50	5.27	658.1		5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05	5.05
FEB 7	NOV 5	-5.28	5.07	593.8		4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80	4.80
JAN 23	NOV 19	-5.09	4.91	540.2		4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76	4.76
JAN 10	DEC 3	-4.95	4.80	501.5		4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66	4.66
DEC 22		-4.86	4.73	478.6		4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61	4.61
JUN 22		-7.14	4.85	897.1		4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60	4.60
JUN 1	JUL 12	-7.05	4.83	900.3		4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58	4.58
MAY 18	JUL 27	-6.91	4.80	904.3		4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56	4.56
MAY 3	AUG 10	-6.72	4.75	906.5		4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52	4.52
APR 19	AUG 25	-6.50	4.69	903.3		4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48	4.48
APR 4	SEP 9	-6.25	4.62	892.2		4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44	4.44
MAR 21	SEP 23	-6.00	4.55	870.5		4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39	4.39
MAR 7	OCT 8	-5.75	4.49	839.6		4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35	4.35
FEB 20	OCT 22	-5.50	4.42	802.0		4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30	4.30
FEB 7	NOV 5	-5.28	4.36	761.8		4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26	4.26
JAN 23	NOV 19	-5.09	4.31	725.0		4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23	4.23
JAN 10	DEC 3	-4.95	4.27	696.8		4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20	4.20
DEC 22		-4.86	4.25	679.4		4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19	4.19

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 34 N

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 34 N
ASPECT ESE - MSW

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT					
		THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS		
		31.7	6.2			29.1	12.0			26.4	17.2			23.7	22.0			21.0	26.3								
		SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS		
JUN 22		-7.14	6.62	1008.4	-7.14	6.13	998.1	-7.14	5.68	984.4	-7.14	5.27	967.8	-7.14	4.89	949.2	-7.14	4.89	949.2	-7.14	4.89	949.2	-7.14	4.89	949.2		
JUN 1 JUL 12		-7.05	6.55	996.8	-7.05	6.07	988.4	-7.05	5.62	976.4	-7.05	5.21	961.5	-7.05	4.84	944.4	-7.05	4.84	944.4	-7.05	4.84	944.4	-7.05	4.84	944.4		
MAY 18 JUL 27		-6.91	6.42	975.8	-6.91	5.95	970.5	-6.91	5.52	961.5	-6.91	5.12	949.4	-6.91	4.76	934.9	-6.91	4.76	934.9	-6.91	4.76	934.9	-6.91	4.76	934.9		
MAY 3 AUG 10		-6.72	6.25	943.6	-6.72	5.80	942.5	-6.72	5.38	937.6	-6.72	5.00	929.5	-6.72	4.66	918.5	-6.72	4.66	918.5	-6.72	4.66	918.5	-6.72	4.66	918.5		
APR 19 AUG 25		-6.50	6.04	899.2	-6.50	5.61	903.1	-6.50	5.22	903.2	-6.50	4.86	899.6	-6.50	4.53	893.0	-6.50	4.53	893.0	-6.50	4.53	893.0	-6.50	4.53	893.0		
APR 4 SEP 9		-6.25	5.82	843.9	-6.25	5.41	853.1	-6.25	5.04	858.4	-6.25	4.70	859.8	-6.25	4.39	857.8	-6.25	4.39	857.8	-6.25	4.39	857.8	-6.25	4.39	857.8		
MAR 21 SEP 23		-6.00	5.59	778.4	-6.00	5.20	792.8	-6.00	4.85	803.1	-6.00	4.53	809.4	-6.00	4.25	812.0	-6.00	4.25	812.0	-6.00	4.25	812.0	-6.00	4.25	812.0		
MAR 7 OCT 8		-5.75	5.35	707.3	-5.75	4.99	726.3	-5.75	4.66	741.3	-5.75	4.37	752.1	-5.75	4.10	758.9	-5.75	4.10	758.9	-5.75	4.10	758.9	-5.75	4.10	758.9		
FEB 20 OCT 22		-5.50	5.13	636.0	-5.50	4.79	658.8	-5.50	4.48	677.5	-5.50	4.21	692.1	-5.50	3.97	702.6	-5.50	3.97	702.6	-5.50	3.97	702.6	-5.50	3.97	702.6		
FEB 7 NOV 5		-5.28	4.93	569.5	-5.28	4.61	595.1	-5.28	4.32	616.8	-5.28	4.07	636.2	-5.28	3.84	647.6	-5.28	3.84	647.6	-5.28	3.84	647.6	-5.28	3.84	647.6		
JAN 23 NOV 19		-5.09	4.75	514.4	-5.09	4.45	541.9	-5.09	4.18	565.6	-5.09	3.94	585.1	-5.09	3.73	600.4	-5.09	3.73	600.4	-5.09	3.73	600.4	-5.09	3.73	600.4		
JAN 10 DEC 3		-4.95	4.63	475.0	-4.95	4.34	503.6	-4.95	4.08	528.4	-4.95	3.85	549.1	-4.95	3.66	565.7	-4.95	3.66	565.7	-4.95	3.66	565.7	-4.95	3.66	565.7		
DEC 22		-4.86	4.55	451.7	-4.86	4.27	480.9	-4.86	4.02	506.3	-4.86	3.80	527.6	-4.86	3.61	544.9	-4.86	3.61	544.9	-4.86	3.61	544.9	-4.86	3.61	544.9		
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	YEAR	R.I.		YEAR	R.I.	YEAR	R.I.		YEAR	R.I.	YEAR	R.I.		YEAR	R.I.		YEAR	R.I.
		277.064	5271		281.311	5352		284.161	5406	285.649	5435		285.908	5440													
		60 PCT	70 PCT	80 PCT	90 PCT	100 PCT																					
		THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS		
		18.4	30.1			16.0	33.5			13.8	36.5			11.7	39.1			9.9	41.5								
		SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS		
JUN 22		-7.14	4.55	929.3	-7.14	4.25	908.9	-7.14	3.98	888.4	-7.14	3.74	868.5	-7.14	3.52	849.1	-7.14	3.52	849.1	-7.14	3.52	849.1	-7.14	3.52	849.1		
JUN 1 JUL 12		-7.05	4.51	925.9	-7.05	4.21	906.7	-7.05	3.95	887.3	-7.05	3.71	868.3	-7.05	3.50	849.8	-7.05	3.50	849.8	-7.05	3.50	849.8	-7.05	3.50	849.8		
MAY 18 JUL 27		-6.91	4.44	918.8	-6.91	4.15	901.6	-6.91	3.90	884.0	-6.91	3.67	860.6	-6.91	3.46	849.5	-6.91	3.46	849.5	-6.91	3.46	849.5	-6.91	3.46	849.5		
MAY 3 AUG 10		-6.72	4.35	905.6	-6.72	4.08	891.3	-6.72	3.83	876.3	-6.72	3.61	861.1	-6.72	3.42	846.0	-6.72	3.42	846.0	-6.72	3.42	846.0	-6.72	3.42	846.0		
APR 19 AUG 25		-6.50	4.24	884.0	-6.50	3.98	873.2	-6.50	3.75	861.3	-6.50	3.54	848.8	-6.50	3.36	838.1	-6.50	3.36	838.1	-6.50	3.36	838.1	-6.50	3.36	838.1		
APR 4 SEP 9		-6.25	4.12	853.0	-6.25	3.88	846.0	-6.25	3.66	837.5	-6.25	3.47	828.1	-6.25	3.30	818.1	-6.25	3.30	818.1	-6.25	3.30	818.1	-6.25	3.30	818.1		
MAR 21 SEP 23		-6.00	4.00	811.5	-6.00	3.77	808.4	-6.00	3.57	803.5	-6.00	3.39	797.2	-6.00	3.23	790.0	-6.00	3.23	790.0	-6.00	3.23	790.0	-6.00	3.23	790.0		
MAR 7 OCT 8		-5.75	3.87	762.4	-5.75	3.66	763.0	-5.75	3.48	761.4	-5.75	3.31	758.1	-5.75	3.17	753.6	-5.75	3.17	753.6	-5.75	3.17	753.6	-5.75	3.17	753.6		
FEB 20 OCT 22		-5.50	3.75	709.5	-5.50	3.56	713.3	-5.50	3.39	714.6	-5.50	3.24	714.0	-5.50	3.10	712.0	-5.50	3.10	712.0	-5.50	3.10	712.0	-5.50	3.10	712.0		
FEB 7 NOV 5		-5.28	3.64	657.2	-5.28	3.46	663.6	-5.28	3.29	666.3	-5.28	3.17	668.9	-5.28	3.05	668.9	-5.28	3.05	668.9	-5.28	3.05	668.9	-5.28	3.05	668.9		
JAN 23 NOV 19		-5.09	3.55	612.0	-5.09	3.38	620.2	-5.09	3.24	625.7	-5.09	3.11	629.0	-5.09	3.00	630.6	-5.09	3.00	630.6	-5.09	3.00	630.6	-5.09	3.00	630.6		
JAN 10 DEC 3		-4.95	3.48	578.5	-4.95	3.33	588.0	-4.95	3.19	594.7	-4.95	3.07	599.0	-4.95	2.96	601.6	-4.95	2.96	601.6	-4.95	2.96	601.6	-4.95	2.96	601.6		
DEC 22		-4.86	3.44	558.3	-4.86	3.29	568.5	-4.86	3.16	575.7	-4.86	3.05	580.7	-4.86	2.94	583.9	-4.86	2.94	583.9	-4.86	2.94	583.9	-4.86	2.94	583.9		
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	YEAR	R.I.		YEAR	R.I.	YEAR	R.I.		YEAR	R.I.	YEAR	R.I.		YEAR	R.I.		YEAR	R.I.
		285.134	5425		283.547	5395		281.365	5353	278.782	5304		275.930	5250													

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 34 N
ASPECT E - W

		10 PCT				20 PCT				30 PCT				40 PCT				50 PCT			
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
		33.8	6.9				33.3	13.6				32.4	19.9				31.3	25.8			
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		271.117	.5158	269.919	.5135	268.006	.5099	265.482	.5051	262.478	.4994	259.131	.4930	255.568	.4862	251.909	.4793	248.251	.4723	244.633	.4654
JUN 22		-7.14	6.67	1012.1		-7.14	6.20	1004.6		-7.14	5.74	993.1		-7.14	5.30	978.4		-7.14	4.90	961.7	
JUN 1 JUL 12		-7.05	6.59	998.8		-7.05	6.12	991.6		-7.05	5.66	980.5		-7.05	5.23	966.4		-7.05	4.83	950.3	
MAY 18 JUL 27		-6.91	6.45	974.9		-6.91	5.98	968.2		-6.91	5.53	957.8		-6.91	5.10	944.7		-6.91	4.71	929.7	
MAY 3 AUG 10		-6.72	6.26	938.7		-6.72	5.80	932.7		-6.72	5.35	923.5		-6.72	4.93	911.7		-6.72	4.54	898.0	
APR 19 AUG 25		-6.50	6.04	889.7		-6.50	5.58	884.6		-6.50	5.14	876.7		-6.50	4.73	866.5		-6.50	4.35	854.7	
APR 4 SEP 9		-6.25	5.79	829.5		-6.25	5.34	825.4		-6.25	4.91	819.0		-6.25	4.51	810.6		-6.25	4.14	800.8	
MAR 21 SEP 23		-6.00	5.54	759.3		-6.00	5.10	756.2		-6.00	4.67	751.4		-6.00	4.28	744.9		-6.00	3.93	737.1	
MAR 7 OCT 8		-5.75	5.29	684.1		-5.75	4.85	682.1		-5.75	4.43	678.7		-5.75	4.05	674.0		-5.75	3.71	668.2	
FEB 20 OCT 22		-5.50	5.05	609.5		-5.50	4.61	608.3		-5.50	4.21	606.3		-5.50	3.83	603.2		-5.50	3.50	599.3	
FEB 7 NOV 5		-5.28	4.82	540.6		-5.28	4.39	540.2		-5.28	3.99	539.3		-5.28	3.63	537.6		-5.28	3.31	535.1	
JAN 23 NOV 19		-5.09	4.64	484.0		-5.09	4.21	484.2		-5.09	3.82	484.1		-5.09	3.46	483.4		-5.09	3.15	482.1	
JAN 10 DEC 3		-4.95	4.50	443.7		-4.95	4.07	444.2		-4.95	3.69	444.7		-4.95	3.34	444.7		-4.95	3.03	444.1	
DEC 22		-4.86	4.41	420.0		-4.86	3.99	420.8		-4.86	3.61	421.5		-4.86	3.26	421.9		-4.86	2.96	421.7	
JUN 22		-7.14	4.52	943.8		-7.14	4.18	925.4		-7.14	3.88	907.1		-7.14	3.61	889.2		-7.14	3.36	872.0	
JUN 1 JUL 12		-7.05	4.46	933.0		-7.05	4.12	915.2		-7.05	3.82	897.4		-7.05	3.55	880.1		-7.05	3.31	863.4	
MAY 18 JUL 27		-6.91	4.34	913.4		-6.91	4.02	896.6		-6.91	3.72	879.9		-6.91	3.46	863.5		-6.91	3.22	847.5	
MAY 3 AUG 10		-6.72	4.19	883.3		-6.72	3.87	868.0		-6.72	3.59	852.6		-6.72	3.33	837.5		-6.72	3.10	822.8	
APR 19 AUG 25		-6.50	4.01	841.8		-6.50	3.70	828.3		-6.50	3.43	814.6		-6.50	3.18	801.1		-6.50	2.96	787.9	
APR 4 SEP 9		-6.25	3.81	789.9		-6.25	3.52	778.4		-6.25	3.25	766.7		-6.25	3.02	755.1		-6.25	2.81	743.6	
MAR 21 SEP 23		-6.00	3.61	728.4		-6.00	3.32	719.0		-6.00	3.07	709.4		-6.00	2.84	699.6		-6.00	2.64	690.0	
MAR 7 OCT 8		-5.75	3.40	661.6		-5.75	3.13	654.3		-5.75	2.88	646.7		-5.75	2.67	638.8		-5.75	2.48	631.0	
FEB 20 OCT 22		-5.50	3.20	594.5		-5.50	2.94	589.1		-5.50	2.71	583.2		-5.50	2.51	577.2		-5.50	2.33	570.9	
FEB 7 NOV 5		-5.28	3.02	531.9		-5.28	2.77	528.1		-5.28	2.55	523.8		-5.28	2.36	519.2		-5.28	2.18	514.3	
JAN 23 NOV 19		-5.09	2.87	480.0		-5.09	2.63	477.4		-5.09	2.41	474.3		-5.09	2.23	470.8		-5.09	2.06	467.0	
JAN 10 DEC 3		-4.95	2.76	442.9		-4.95	2.52	441.0		-4.95	2.32	438.7		-4.95	2.14	435.9		-4.95	1.98	432.9	
DEC 22		-4.86	2.69	420.9		-4.86	2.46	419.5		-4.86	2.26	417.6		-4.86	2.08	415.3		-4.86	1.92	412.6	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 36 N

HORIZONTAL SURFACE

LATITUDE 36 N

	SR	SS	LY
JUN 22	-7.23	7.23	1018.3
JUN 1 JUL 12	-7.14	7.14	1003.2
MAY 18 JUL 27	-6.98	6.98	976.3
MAY 3 AUG 10	-6.78	6.78	936.0
APR 19 AUG 25	-6.54	6.54	882.2
APR 4 SEP 9	-6.27	6.27	817.0
MAR 21 SEP 23	-6.00	6.00	742.0
MAR 7 OCT 8	-5.73	5.73	662.5
FEB 20 OCT 22	-5.46	5.46	584.4
FEB 7 NOV 5	-5.22	5.22	513.1
JAN 23 NOV 19	-5.02	5.02	454.8
JAN 10 DEC 3	-4.86	4.86	413.6
DEC 22	-4.77	4.77	389.5

YEAR R.I.
265.822 .5057

LATITUDE 36 N
ASPECT N -

		SLOPE																								
		10 PCT					20 PCT					30 PCT					40 PCT					50 PCT				
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
		41.7	0.0				47.3	0.0				52.7	0.0				57.8	0.0				62.6	0.0			
		SR	SS	LY			SR	SS	LY			SR	SS	LY			SR	SS	LY			SR	SS	LY		
JUN 22		-7.23	7.23	1022.0			-7.23	7.23	1015.7			-7.23	7.23	1000.6			-7.23	7.23	978.1			-7.23	7.23	950.1		
JUN 1 JUL 12		-7.14	7.14	1002.1			-7.14	7.14	991.4			-7.14	7.14	972.2			-7.14	7.14	946.0			-7.14	7.14	914.8		
MAY 18 JUL 27		-6.98	6.98	967.3			-6.98	6.98	949.1			-6.98	6.98	923.2			-6.98	6.98	891.0			-6.98	6.98	854.6		
MAY 3 AUG 10		-6.78	6.78	916.3			-6.78	6.78	888.1			-6.78	6.78	853.0			-6.78	6.78	812.8			-6.78	6.78	769.5		
APR 19 AUG 25		-6.54	6.54	850.0			-6.54	6.54	810.3			-6.54	6.54	764.8			-6.54	6.54	715.4			-6.54	6.54	664.2		
APR 4 SEP 9		-6.27	6.27	771.9			-6.27	6.27	720.2			-6.27	6.27	664.1			-6.27	6.27	605.5			-6.27	6.27	546.4		
MAR 21 SEP 23		-6.00	6.00	684.6			-6.00	6.00	621.7			-6.00	6.00	555.7			-6.00	6.00	488.7			-6.00	6.00	422.5		
MAR 7 OCT 8		-5.66	5.66	594.6			-5.59	5.59	522.5			-5.50	5.50	448.8			-5.40	5.40	375.7			-5.27	5.27	305.0		
FEB 20 OCT 22		-5.34	5.34	508.5			-5.20	5.20	430.4			-5.02	5.02	351.7			-4.81	4.81	276.0			-4.55	4.55	204.9		
FEB 7 NOV 5		-5.04	5.04	431.7			-4.83	4.83	349.6			-4.57	4.57	269.6			-4.25	4.25	194.4			-3.85	3.85	126.5		
JAN 23 NOV 19		-4.78	4.78	370.4			-4.51	4.51	286.8			-4.17	4.17	207.2			-3.74	3.74	134.8			-3.17	3.17	72.5		
JAN 10 DEC 3		-4.60	4.60	327.7			-4.27	4.27	243.9			-3.87	3.87	165.8			-3.34	3.34	96.8			-2.60	2.60	40.6		
DEC 22		-4.48	4.48	303.0			-4.12	4.12	219.6			-3.68	3.68	142.8			-3.09	3.09	76.4			-2.21	2.21	24.9		
		YEAR	R.I.				YEAR	R.I.				YEAR	R.I.				YEAR	R.I.				YEAR	R.I.			
		248.001	.4718				228.506	.4348				208.159	.3960				187.790	.3573				168.274	.3202			
		SLOPE										SLOPE										SLOPE				
		60 PCT					70 PCT					80 PCT					90 PCT					100 PCT				
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
		67.0	0.0				71.0	0.0				74.7	0.0				78.0	0.0				81.0	0.0			
		SR	SS	LY			SR	SS	LY			SR	SS	LY			SR	SS	LY			SR	SS	LY		
JUN 22		-7.23	7.23	918.4			-7.23	7.23	884.5			-7.23	7.23	850.0			-7.23	7.23	815.7			-7.23	7.23	782.1		
JUN 1 JUL 12		-7.14	7.14	880.4			-7.14	7.14	844.3			-7.14	7.14	807.8			-7.14	7.14	772.0			-7.14	7.14	737.1		
MAY 18 JUL 27		-6.98	6.98	815.7			-6.98	6.98	775.9			-6.98	6.98	736.3			-6.98	6.98	697.9			-6.98	6.98	660.9		
MAY 3 AUG 10		-6.78	6.78	724.7			-6.78	6.78	679.9			-6.78	6.78	636.3			-6.78	6.78	594.5			-6.78	6.78	554.8		
APR 19 AUG 25		-6.54	6.54	612.8			-6.54	6.54	562.5			-6.54	6.54	514.4			-6.54	6.54	469.0			-6.54	6.54	426.3		
APR 4 SEP 9		-6.27	6.27	488.4			-6.27	6.27	432.8			-6.27	6.27	380.3			-6.27	6.27	331.6			-6.27	6.27	286.2		
MAR 21 SEP 23		-6.00	6.00	358.8			-6.00	6.00	298.6			-6.00	6.00	242.5			-6.00	6.00	190.9			-6.00	6.00	143.4		
MAR 7 OCT 8		-5.11	5.11	238.5			-4.89	4.89	177.1			-4.59	4.59	121.7			-4.16	4.16	73.1			-3.43	3.43	32.0		
FEB 20 OCT 22		-4.20	4.20	140.4			-3.73	3.73	83.8			-3.02	3.02	37.4			-1.67	1.67	5.2			0.00	0.00	0.0		
FEB 7 NOV 5		-3.27	3.27	68.4			-2.39	2.39	23.2			0.00	0.00	0.0			0.00	0.00	0.0			0.00	0.00	0.0		
JAN 23 NOV 19		-2.29	2.29	24.2			0.00	0.00	0.0			0.00	0.00	0.0			0.00	0.00	0.0			0.00	0.00	0.0		
JAN 10 DEC 3		-1.23	1.23	3.8			0.00	0.00	0.0			0.00	0.00	0.0			0.00	0.00	0.0			0.00	0.00	0.0		
DEC 22		0.00	0.00	0.0			0.00	0.00	0.0			0.00	0.00	0.0			0.00	0.00	0.0			0.00	0.00	0.0		
		YEAR	R.I.				YEAR	R.I.				YEAR	R.I.				YEAR	R.I.				YEAR	R.I.			
		150.704	.2867				136.107	.2590				123.629	.2352				112.820	.2147				103.429	.1968			

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 36 N
ASPECT S -

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
		30.3	0.0				24.7	0.0				19.3	0.0				14.2	0.0				9.4	0.0				
JUN 22		-6.98	6.98	1005.9			-6.77	6.77	986.5	-6.58	6.58	960.8			-6.42	6.42	930.1			-6.28	6.28	896.1					
JUN 1 JUL 12		-6.91	6.91	995.5			-6.71	6.71	980.5	-6.54	6.54	958.8			-6.39	6.39	931.8			-6.26	6.26	901.0					
MAY 18 JUL 27		-6.79	6.79	976.5			-6.62	6.62	968.9	-6.47	6.47	954.1			-6.34	6.34	933.4			-6.22	6.22	908.1					
MAY 3 AUG 10		-6.62	6.62	947.0			-6.49	6.49	949.7	-6.37	6.37	944.6			-6.27	6.27	932.7			-6.18	6.18	915.4					
APR 19 AUG 25		-6.43	6.43	905.9			-6.34	6.34	920.9	-6.26	6.26	927.5			-6.19	6.19	926.4			-6.12	6.12	919.1					
APR 4 SEP 9		-6.22	6.22	854.1			-6.17	6.17	882.3	-6.13	6.13	901.6			-6.10	6.10	912.6			-6.06	6.06	916.5					
MAR 21 SEP 23		-6.00	6.00	792.0			-6.00	6.00	833.3	-6.00	6.00	865.6			-6.00	6.00	889.1			-6.00	6.00	904.7					
MAR 7 OCT 8		-5.73	5.73	723.9			-5.73	5.73	777.1	-5.73	5.73	821.2			-5.73	5.73	856.3			-5.73	5.73	883.0					
FEB 20 OCT 22		-5.46	5.46	654.9			-5.46	5.46	717.6	-5.46	5.46	771.4			-5.46	5.46	816.1			-5.46	5.46	852.1					
FEB 7 NOV 5		-5.22	5.22	590.0			-5.22	5.22	659.7	-5.22	5.22	720.8			-5.22	5.22	772.8			-5.22	5.22	815.9					
JAN 23 NOV 19		-5.02	5.02	535.9			-5.02	5.02	610.2	-5.02	5.02	676.1			-5.02	5.02	733.1			-5.02	5.02	781.0					
JAN 10 DEC 3		-4.86	4.86	496.9			-4.86	4.86	573.8	-4.86	4.86	642.5			-4.86	4.86	702.4			-4.86	4.86	753.9					
DEC 22		-4.77	4.77	473.8			-4.77	4.77	551.9	-4.77	4.77	622.0			-4.77	4.77	683.4			-4.77	4.77	735.9					
		YEAR	R.I.				YEAR		R.I.	YEAR		R.I.			YEAR		R.I.			YEAR		R.I.					
		281.274	.5351				293.920	.5592		303.608	.5776			310.456	.5907			314.747	.5988								
		60 PCT				70 PCT				SLOPE				80 PCT				90 PCT				100 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
		5.0	0.0				1.0	0.0				-2.7	0.0				-6.0	0.0				-9.0	0.0				
JUN 22		-6.15	6.15	860.1			-6.03	6.03	823.5	-5.92	5.92	877.3			-5.83	5.83	932.3			-5.74	5.74	987.3					
JUN 1 JUL 12		-6.14	6.14	867.9			-6.03	6.03	833.7	-5.93	5.93	896.6			-5.84	5.84	956.5			-5.76	5.76	1011.5					
MAY 18 JUL 27		-6.12	6.12	879.9			-6.02	6.02	850.0	-5.94	5.94	919.7			-5.86	5.86	980.3			-5.79	5.79	1040.4					
MAY 3 AUG 10		-6.09	6.09	894.2			-6.02	6.02	870.6	-5.95	5.95	945.6			-5.89	5.89	1006.3			-5.83	5.83	1067.1					
APR 19 AUG 25		-6.06	6.06	906.9			-6.01	6.01	891.1	-5.97	5.97	973.2			-5.92	5.92	1039.3			-5.88	5.88	1100.1					
APR 4 SEP 9		-6.03	6.03	914.5			-6.01	6.01	907.9	-5.98	5.98	998.1			-5.96	5.96	1086.1			-5.94	5.94	1167.6					
MAR 21 SEP 23		-6.00	6.00	913.6			-6.00	6.00	917.0	-6.00	6.00	916.1			-6.00	6.00	912.1			-6.00	6.00	905.8					
MAR 7 OCT 8		-5.73	5.73	902.2			-5.73	5.73	915.2	-5.73	5.73	923.1			-5.73	5.73	926.9			-5.73	5.73	927.7					
FEB 20 OCT 22		-5.46	5.46	880.1			-5.46	5.46	901.2	-5.46	5.46	916.5			-5.46	5.46	921.1			-5.46	5.46	934.0					
FEB 7 NOV 5		-5.22	5.22	850.7			-5.22	5.22	878.1	-5.22	5.22	899.3			-5.22	5.22	915.3			-5.22	5.22	927.2					
JAN 23 NOV 19		-5.02	5.02	820.6			-5.02	5.02	852.5	-5.02	5.02	877.9			-5.02	5.02	897.8			-5.02	5.02	913.3					
JAN 10 DEC 3		-4.86	4.86	795.8			-4.86	4.86	830.5	-4.86	4.86	858.6			-4.86	4.86	880.9			-4.86	4.86	898.7					
DEC 22		-4.77	4.77	779.8			-4.77	4.77	816.0	-4.77	4.77	845.4			-4.77	4.77	869.1			-4.77	4.77	886.1					
		YEAR	R.I.				YEAR		R.I.	YEAR		R.I.			YEAR		R.I.			YEAR		R.I.					
		316.867	.6029				317.245	.6036		316.285	.6018			314.353	.5981			311.722	.5931								

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 36 N
ASPECT NNE - NNW

	SLOPE																								
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT				
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
JUN 22	-7.23	7.23	1021.3			-7.23	7.23	1014.4			-7.23	7.23	998.7			-7.23	7.23	975.6			-7.23	7.23	947.1		
JUN 1 JUL 12	-7.14	7.14	1001.8			-7.14	7.14	990.8			-7.14	7.14	971.3			-7.14	7.14	944.9			-7.14	7.14	913.5		
MAY 18 JUL 27	-6.98	6.98	967.6			-6.98	6.98	949.8			-6.98	6.98	924.1			-6.98	6.98	892.2			-6.98	6.98	856.0		
MAY 3 AUG 10	-6.78	6.75	917.4			-6.78	6.72	890.4			-6.78	6.67	856.4			-6.78	6.62	817.3			-6.78	6.56	774.9		
APR 19 AUG 25	-6.54	6.46	852.2			-6.54	6.36	814.7			-6.54	6.25	771.6			-6.54	6.12	724.8			-6.54	5.96	676.1		
APR 4 SEP 9	-6.27	6.14	775.2			-6.27	5.98	727.3			-6.27	5.80	675.3			-6.27	5.58	621.3			-6.27	5.33	567.2		
MAR 21 SEP 23	-6.00	5.81	689.1			-6.00	5.58	631.7			-6.00	5.33	572.0			-6.00	5.03	512.2			-6.00	4.69	454.4		
MAR 7 OCT 8	-5.73	5.48	600.2			-5.73	5.19	535.0			-5.73	4.86	469.5			-5.73	4.48	406.0			-5.73	4.06	346.5		
FEB 20 OCT 22	-5.46	5.16	514.8			-5.46	4.81	444.1			-5.46	4.41	375.1			-5.46	3.95	310.0			-5.46	3.43	250.8		
FEB 7 NOV 5	-5.22	4.86	438.5			-5.22	4.45	364.5			-5.22	3.98	293.9			-5.22	3.44	229.2			-5.22	2.82	172.2		
JAN 23 NOV 19	-5.00	4.61	377.3			-4.98	4.15	301.8			-4.96	3.61	231.3			-4.93	2.99	168.1			-4.89	2.28	114.2		
JAN 10 DEC 3	-4.81	4.43	334.7			-4.75	3.92	258.9			-4.68	3.33	189.3			-4.58	2.65	128.2			-4.45	1.84	77.7		
DEC 22	-4.70	4.31	310.1			-4.61	3.78	234.4			-4.50	3.16	165.7			-4.36	2.43	106.4			-4.16	1.55	58.5		
60 PCT					70 PCT					80 PCT					90 PCT					100 PCT					
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
62.7	25.4				65.5	32.0				67.8	39.3				69.5	47.1				70.8	55.2				
YEAR	R.I.				YEAR	R.I.				YEAR	R.I.				YEAR	R.I.				YEAR	R.I.				
249.395	.4745				231.522	.4405				212.994	.4052				194.569	.3702				176.968	.3367				
JUN 22	-7.23	7.23	914.9			-7.23	7.23	880.7			-7.23	7.23	845.8			-7.23	7.23	811.2			-7.23	7.23	777.4		
JUN 1 JUL 12	-7.14	7.14	878.9			-7.14	7.14	842.6			-7.14	7.14	806.0			-7.14	7.14	770.0			-7.14	7.14	735.0		
MAY 18 JUL 27	-6.98	6.98	817.4			-6.98	6.98	777.7			-6.98	6.98	738.3			-6.98	6.98	700.0			-6.98	6.98	663.2		
MAY 3 AUG 10	-6.78	6.49	731.1			-6.78	6.39	687.2			-6.78	6.26	644.5			-6.78	6.09	603.8			-6.78	5.86	565.2		
APR 19 AUG 25	-6.54	5.77	627.4			-6.54	5.54	580.1			-6.54	5.26	535.3			-6.54	4.94	493.7			-6.54	4.56	455.5		
APR 4 SEP 9	-6.27	5.04	514.9			-6.27	4.70	465.6			-6.27	4.31	420.4			-6.27	3.88	379.8			-6.27	3.41	343.8		
MAR 21 SEP 23	-6.00	4.31	400.3			-6.00	3.87	351.0			-6.00	3.38	307.3			-6.00	2.86	269.5			-6.00	2.32	237.3		
MAR 7 OCT 8	-5.73	3.57	292.6			-5.73	3.03	245.2			-5.73	2.45	205.0			-5.73	1.84	171.7			-5.73	1.23	144.8		
FEB 20 OCT 22	-5.46	2.84	199.1			-5.46	2.19	155.6			-5.46	1.50	120.4			-5.46	.79	93.1			-5.46	.08	72.5		
FEB 7 NOV 5	-5.22	2.13	124.2			-5.22	1.35	85.9			-5.22	.51	57.0			-5.22	-.36	36.7			-5.22	-1.22	23.2		
JAN 23 NOV 19	-4.84	1.45	70.9			-4.77	.50	38.5			-4.66	-.57	16.7			-4.47	-1.81	4.3			0.00	0.00	0.0		
JAN 10 DEC 3	-4.27	.88	39.2			-3.97	-.30	13.2			-3.19	-2.05	.4			0.00	0.00	0.0			0.00	0.00	0.0		
DEC 22	-3.87	.48	23.7			-3.28	-.99	3.2			0.00	0.00	0.0			0.00	0.00	0.0			0.00	0.00	0.0		
YEAR				R.I.	YEAR				R.I.	YEAR				R.I.	YEAR				R.I.	YEAR				R.I.	
160.778				.3059	146.400				.2785	134.172				.2553	123.799				.2355	114.763				.2183	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 36 N
ASPECT NE - NW

	SLOPE										SLOPE										SLOPE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
JUN 22	-7.23	7.07	1019.7			-7.23	6.89	1011.7			-7.23	6.68	995.7			-7.23	6.44	973.2			-7.23	6.17	946.2			-7.23	5.99	919.0			-7.23	5.71	891.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
JUN 1 JUL 12	-7.14	6.96	1001.3			-7.14	6.77	990.4			-7.14	6.54	971.9			-7.14	6.28	947.4			-7.14	6.02	918.9			-7.14	5.85	890.8			-7.14	5.67	862.8																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
MAY 18 JUL 27	-6.98	6.79	968.9			-6.98	6.56	953.3			-6.98	6.31	930.8			-6.98	6.02	903.2			-6.98	5.78	875.3			-6.98	5.61	847.3			-6.98	5.43	819.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
MAY 3 AUG 10	-6.78	6.55	921.3			-6.78	6.29	899.3			-6.78	6.00	871.5			-6.78	5.68	839.9			-6.78	5.43	806.3			-6.78	5.26	778.3			-6.78	5.08	750.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
APR 19 AUG 25	-6.54	6.27	859.0			-6.54	5.97	829.8			-6.54	5.64	796.3			-6.54	5.28	760.5			-6.54	4.90	724.1			-6.54	4.73	696.1			-6.54	4.55	668.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
APR 4 SEP 9	-6.27	5.96	785.0			-6.27	5.62	748.6			-6.27	5.25	709.7			-6.27	4.86	670.0			-6.27	4.44	631.4			-6.27	4.27	603.0			-6.27	3.89	575.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
MAR 21 SEP 23	-6.00	5.65	701.8			-6.00	5.26	658.9			-6.00	4.85	615.2			-6.00	4.42	572.6			-6.00	3.97	532.6			-6.00	3.80	504.2			-6.00	3.42	476.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
MAR 7 OCT 8	-5.73	5.33	615.3			-5.73	4.91	567.2			-5.73	4.45	520.1			-5.73	3.98	475.8			-5.73	3.50	435.5			-5.73	3.33	407.1			-5.73	2.95	378.7																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
FEB 20 OCT 22	-5.46	5.03	531.9			-5.46	4.56	480.0			-5.46	4.07	431.0			-5.46	3.55	386.2			-5.46	3.04	346.7			-5.46	2.87	318.3			-5.46	2.49	289.9																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
FEB 7 NOV 5	-5.22	4.75	456.9			-5.22	4.24	402.9			-5.22	3.71	353.2			-5.22	3.16	309.0			-5.22	2.61	271.1			-5.22	2.44	242.7			-5.22	2.06	214.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
JAN 23 NOV 19	-5.02	4.51	396.5			-5.02	3.97	341.6			-5.02	3.40	292.1			-5.02	2.81	249.1			-5.02	2.23	213.2			-5.02	2.06	184.8			-5.02	1.68	156.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
JAN 10 DEC 3	-4.86	4.33	354.3			-4.86	3.76	299.2			-4.86	3.16	250.3			-4.86	2.55	208.6			-4.86	1.95	174.4			-4.86	1.78	146.0			-4.86	1.39	117.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
DEC 22	-4.77	4.23	329.7			-4.77	3.64	274.8			-4.77	3.02	226.5			-4.77	2.39	185.7			-4.77	1.77	152.7			-4.77	1.60	124.3			-4.77	1.22	95.9																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
JUN 22	-7.23	5.87	916.6			-7.23	5.54	886.0			-7.23	5.20	855.8			-7.23	4.85	826.9			-7.23	4.51	799.7			-7.23	4.34	771.3			-7.23	3.96	742.9																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
JUN 1 JUL 12	-7.14	5.68	888.4			-7.14	5.34	857.2			-7.14	4.99	826.8			-7.14	4.64	797.9			-7.14	4.29	770.8			-7.14	4.12	742.4			-7.14	3.74	714.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
MAY 18 JUL 27	-6.98	5.37	840.3			-6.98	5.02	808.3			-6.98	4.66	777.5			-6.98	4.30	748.7			-6.98	3.95	720.0			-6.98	3.78	691.6			-6.98	3.40	663.2																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
MAY 3 AUG 10	-6.78	4.97	772.5			-6.78	4.59	739.6			-6.78	4.22	708.7			-6.78	3.86	680.2			-6.78	3.51	654.3			-6.78	3.34	625.9			-6.78	2.96	597.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
APR 19 AUG 25	-6.54	4.51	688.7			-6.54	4.11	655.3			-6.54	3.73	624.6			-6.54	3.36	597.0			-6.54	3.01	572.2			-6.54	2.84	543.8			-6.54	2.46	515.4																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
APR 4 SEP 9	-6.27	4.02	595.0			-6.27	3.61	561.7			-6.27	3.21	531.8			-6.27	2.83	505.5			-6.27	2.48	482.3			-6.27	2.31	453.9			-6.27	1.93	425.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
MAR 21 SEP 23	-6.00	3.52	496.2			-6.00	3.09	463.7			-6.00	2.67	435.4			-6.00	2.29	411.0			-6.00	1.94	389.9			-6.00	1.77	361.5			-6.00	1.39	333.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
MAR 7 OCT 8	-5.73	3.02	399.9			-5.73	2.56	369.1			-5.73	2.14	343.0			-5.73	1.75	320.9			-5.73	1.40	302.3			-5.73	1.23	273.9			-5.73	0.85	245.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
FEB 20 OCT 22	-5.46	2.53	312.8			-5.46	2.06	284.3			-5.46	1.62	260.8			-5.46	1.22	241.5			-5.46	0.87	225.5			-5.46	0.70	197.1			-5.46	0.32	168.7																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
FEB 7 NOV 5	-5.22	2.08	239.5			-5.22	1.58	213.7			-5.22	1.13	192.9			-5.22	0.72	176.3			-5.22	0.37	152.9			-5.22	0.20	124.5			-5.22	-0.18	96.1																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
JAN 23 NOV 19	-5.02	1.67	184.0			-5.02	1.16	160.8			-5.02	0.69	142.6			-5.02	0.28	128.4			-5.02	-0.07	117.3			-5.02	-0.10	88.9			-5.02	-0.65	59.5																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
JAN 10 DEC 3	-4.86	1.37	147.2			-4.86	0.83	126.1			-4.86	0.36	109.9			-4.86	-0.06	97.6			-4.86	-0.61	68.1			-4.86	-0.44	39.7			-4.86	-1.09	10.3																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
JAN 23 DEC 22	-4.77	1.18	126.8			-4.77	0.63	107.0			-4.77	0.14	92.1			-4.77	-0.27	80.9			-4.77	-0.82	51.4			-4.77	-0.65	22.0			-4.77	-1.20	-7.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
DEC 22	-4.77	1.18	126.8			-4.77	0.63	107.0			-4.77	0.14	92.1			-4.77	-0.27	80.9			-4.77	-0.82	51.4			-4.77	-0.65	22.0			-4.77	-1.20	-7.6																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 36 N
ASPECT SE - SW

		SLOPE																	
		10 PCT			20 PCT			30 PCT			40 PCT			50 PCT					
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY
		31.9	4.8		27.7	9.0		23.5	12.8		19.5	16.2		15.7	19.2				
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.23	6.73	1009.9	-7.23	6.28	996.9	-7.23	5.87	979.8	-7.23	5.51	959.2	-7.23	5.19	935.9			
JUN 1 JUL 12		-7.14	6.65	998.1	-7.14	6.21	988.4	-7.14	5.82	974.3	-7.14	5.47	956.5	-7.14	5.15	935.7			
MAY 18 JUL 27		-6.98	6.52	976.9	-6.98	6.11	972.6	-6.98	5.73	963.5	-6.98	5.40	950.3	-6.98	5.10	923.8			
MAY 3 AUG 10		-6.78	6.35	944.3	-6.78	5.96	947.4	-6.78	5.61	935.3	-6.78	5.30	938.5	-6.78	5.02	921.7			
APR 19 AUG 25		-6.54	6.14	899.5	-6.54	5.79	911.3	-6.54	5.47	917.4	-6.54	5.18	918.2	-6.54	4.93	914.3			
APR 4 SEP 9		-6.27	5.92	843.7	-6.27	5.60	864.6	-6.27	5.31	879.4	-6.27	5.06	888.3	-6.27	4.83	891.9			
MAR 21 SEP 23		-6.00	5.68	777.6	-6.00	5.40	807.3	-6.00	5.15	830.6	-6.00	4.92	847.5	-6.00	4.72	858.6			
MAR 7 OCT 8		-5.73	5.45	706.0	-5.73	5.20	743.6	-5.73	4.98	774.5	-5.73	4.79	798.7	-5.73	4.62	816.6			
FEB 20 OCT 22		-5.46	5.22	634.1	-5.46	5.01	678.1	-5.46	4.83	715.3	-5.46	4.66	745.5	-5.46	4.52	759.2			
FEB 7 NOV 5		-5.22	5.02	567.3	-5.22	4.84	615.8	-5.22	4.68	657.7	-5.22	4.54	692.6	-5.22	4.42	720.8			
JAN 23 NOV 19		-5.02	4.84	511.9	-5.02	4.69	563.5	-5.02	4.56	608.5	-5.02	4.45	646.7	-5.02	4.35	678.0			
JAN 10 DEC 3		-4.86	4.71	472.2	-4.86	4.59	525.5	-4.86	4.47	572.4	-4.86	4.38	612.5	-4.86	4.29	645.8			
DEC 22		-4.77	4.64	448.8	-4.77	4.52	502.9	-4.77	4.42	550.8	-4.77	4.33	591.8	-4.77	4.26	626.2			
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		276.797	.5266		285.822	.5438		292.712	.5569		297.501	.5660		300.375	.5715				
		60 PCT			70 PCT			80 PCT			90 PCT			100 PCT					
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY
		12.1	21.8		8.8	24.2		5.8	26.4		3.1	28.3		.6	30.0				
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.23	4.90	911.1	-7.23	4.64	885.6	-7.23	4.41	860.1	-7.23	4.21	835.3	-7.23	4.02	811.3			
JUN 1 JUL 12		-7.14	4.87	913.1	-7.14	4.62	889.5	-7.14	4.40	865.7	-7.14	4.20	842.3	-7.14	4.02	819.5			
MAY 18 JUL 27		-6.98	4.83	914.9	-6.98	4.59	894.5	-6.98	4.38	873.5	-6.98	4.19	852.6	-6.98	4.01	831.9			
MAY 3 AUG 10		-6.78	4.77	913.9	-6.78	4.55	898.1	-6.78	4.35	881.1	-6.78	4.17	863.6	-6.78	4.01	846.0			
APR 19 AUG 25		-6.54	4.70	906.8	-6.54	4.50	896.5	-6.54	4.32	884.3	-6.54	4.16	871.0	-6.54	4.01	857.0			
APR 4 SEP 9		-6.27	4.62	891.1	-6.27	4.44	886.8	-6.27	4.28	879.9	-6.27	4.14	871.3	-6.27	4.00	861.4			
MAR 21 SEP 23		-6.00	4.54	864.5	-6.00	4.38	866.3	-6.00	4.24	864.9	-6.00	4.12	861.1	-6.00	4.00	855.6			
MAR 7 OCT 8		-5.73	4.46	828.8	-5.73	4.33	836.4	-5.73	4.20	840.1	-5.73	4.09	841.0	-5.73	4.00	839.6			
FEB 20 OCT 22		-5.46	4.39	786.8	-5.46	4.27	799.4	-5.46	4.17	807.7	-5.46	4.08	812.6	-5.46	3.99	815.0			
FEB 7 NOV 5		-5.22	4.32	742.7	-5.22	4.22	759.3	-5.22	4.13	771.4	-5.22	4.06	779.7	-5.22	3.99	785.2			
JAN 23 NOV 19		-5.02	4.26	703.0	-5.02	4.18	722.5	-5.02	4.11	737.3	-5.02	4.04	748.2	-5.02	3.98	756.1			
JAN 10 DEC 3		-4.86	4.21	672.8	-4.86	4.15	694.2	-4.86	4.09	710.8	-4.86	4.03	723.3	-4.86	3.98	732.7			
DEC 22		-4.77	4.19	654.2	-4.77	4.13	676.6	-4.77	4.07	694.1	-4.77	4.02	707.6	-4.77	3.98	717.9			
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		301.608	.5738		301.519	.5737		300.419	.5716		298.586	.5681		296.232	.5636				

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 36 N
ASPECT ENE - WNW

SLOPE																								
10 PCT					20 PCT					30 PCT					40 PCT					50 PCT				
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
38.0	6.7				39.6	13.6				40.7	20.5				41.4	27.2				41.6	33.6			
JUN 22																								
JUN 1 JUL 12					-7.23	6.88	1017.8			-7.23	6.50	1010.3			-7.23	5.69	979.3			-7.23	5.28	959.0		
JUN 1 JUL 12					-7.14	6.78	1001.0			-7.14	6.39	992.2			-7.14	5.57	959.7			-7.14	5.16	939.0		
MAY 18 JUL 27					-6.98	6.61	971.3			-6.98	6.22	960.3			-6.98	5.80	944.5			-6.98	5.39	925.3		
MAY 3 AUG 10					-6.78	6.39	927.3			-6.78	5.98	913.3			-6.78	5.13	875.2			-6.78	4.72	853.6		
APR 19 AUG 25					-6.54	6.13	869.1			-6.54	5.70	852.0			-6.54	4.84	810.5			-6.54	4.42	788.5		
APR 4 SEP 9					-6.27	5.85	799.4			-6.27	5.40	779.1			-6.27	4.52	734.7			-6.27	4.10	712.5		
MAR 21 SEP 23					-6.00	5.55	720.2			-6.00	5.09	697.0			-6.00	4.19	650.3			-6.00	3.76	628.5		
MAR 7 OCT 8					-5.73	5.26	637.1			-5.73	4.78	611.7			-5.73	3.85	563.9			-5.73	3.43	542.6		
FEB 20 OCT 22					-5.46	4.98	556.4			-5.46	4.48	529.3			-5.46	3.54	481.4			-5.46	3.11	461.1		
FEB 7 NOV 5					-5.22	4.71	483.2			-5.22	4.20	455.3			-5.22	3.24	408.1			-5.22	2.81	388.9		
JAN 23 NOV 19					-5.02	4.49	423.9			-5.02	3.97	395.7			-5.02	2.99	349.6			-5.02	2.55	331.5		
JAN 10 DEC 3					-4.86	4.33	382.1			-4.86	3.79	354.0			-4.86	2.80	309.0			-4.86	2.36	291.9		
DEC 22					-4.77	4.23	357.8			-4.77	3.69	329.8			-4.77	2.69	285.6			-4.77	2.25	269.0		
YEAR					YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	YEAR	R.I.	YEAR	R.I.
258.989					251.546	.4786	243.848	.4639	236.190	.4494	228.806	.4353												
SLOPE																								
60 PCT					70 PCT					80 PCT					90 PCT					100 PCT				
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
41.6	39.4				41.2	44.8				40.7	49.6				40.1	53.9				39.4	57.7			
JUN 22																								
JUN 1 JUL 12					-7.23	4.88	937.4			-7.23	4.16	893.9			-7.23	3.84	873.4			-7.23	3.55	854.0		
JUN 1 JUL 12					-7.14	4.77	917.3			-7.14	4.05	874.1			-7.14	3.73	853.9			-7.14	3.44	834.8		
MAY 18 JUL 27					-6.98	4.58	882.4			-6.98	4.21	860.7			-6.98	3.86	839.8			-6.98	3.27	801.5		
MAY 3 AUG 10					-6.78	4.33	831.8			-6.78	3.96	810.5			-6.78	3.31	771.2			-6.78	3.04	753.5		
APR 19 AUG 25					-6.54	4.03	766.9			-6.54	3.66	746.2			-6.54	3.03	708.9			-6.54	2.76	692.2		
APR 4 SEP 9					-6.27	3.71	691.4			-6.27	3.34	671.6			-6.27	2.73	636.7			-6.27	2.46	621.4		
MAR 21 SEP 23					-6.00	3.37	608.2			-6.00	2.69	572.7			-6.00	2.41	557.6			-6.00	2.15	543.8		
MAR 7 OCT 8					-5.73	3.04	523.4			-5.73	2.37	491.0			-5.73	2.09	477.5			-5.73	1.84	465.3		
FEB 20 OCT 22					-5.46	2.71	443.2			-5.46	2.06	414.6			-5.46	1.78	402.1			-5.46	1.55	391.5		
FEB 7 NOV 5					-5.22	2.42	372.4			-5.22	1.77	346.3			-5.22	1.50	335.8			-5.22	1.27	320.7		
JAN 23 NOV 19					-5.02	2.16	316.4			-5.02	1.52	292.8			-5.02	1.26	283.7			-5.02	1.04	275.7		
JAN 10 DEC 3					-4.86	1.97	277.7			-4.86	1.34	256.0			-4.86	1.08	247.8			-4.86	.86	240.7		
DEC 22					-4.77	1.86	255.4			-4.77	1.23	235.0			-4.77	.98	227.2			-4.77	.76	220.6		
YEAR					YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	YEAR	R.I.	YEAR	R.I.
221.851					215.395	.4098	209.475	.3985	204.086	.3883	199.158	.3789												

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 36 N
ASPECT ESE - WSW

	SLOPE																									
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT					
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
JUN 22	33.6	6.3	-7.23	6.70	1013.0	-7.23	6.20	1003.8	-7.23	5.73	991.2	-7.23	5.31	975.8	-7.23	4.93	958.2	-7.23	4.51	941.6	-7.23	4.07	925.0	-7.23	3.65	908.4
JUN 1 JUL 12			-7.14	6.61	999.7	-7.14	6.12	992.5	-7.14	5.67	981.7	-7.14	5.25	968.0	-7.14	4.88	952.1	-7.14	4.46	935.5	-7.14	4.04	918.9	-7.14	3.62	902.3
MAY 18 JUL 27			-6.98	6.48	976.0	-6.98	6.00	971.9	-6.98	5.56	964.2	-6.98	5.15	953.4	-6.98	4.79	940.2	-6.98	4.37	926.6	-6.98	3.95	913.0	-6.98	3.53	899.4
MAY 3 AUG 10			-6.78	6.29	946.0	-6.78	5.83	940.2	-6.78	5.41	936.8	-6.78	5.02	930.4	-6.78	4.67	920.4	-6.78	4.32	910.4	-6.78	3.97	900.4	-6.78	3.62	890.4
APR 19 AUG 25			-6.54	6.07	891.2	-6.54	5.63	896.5	-6.54	5.23	898.0	-6.54	4.86	896.0	-6.54	4.53	890.8	-6.54	4.16	883.2	-6.54	3.78	876.6	-6.54	3.41	869.0
APR 4 SEP 9			-6.27	5.83	831.2	-6.27	5.41	841.9	-6.27	5.03	848.6	-6.27	4.69	851.5	-6.27	4.38	851.0	-6.27	4.07	851.0	-6.27	3.76	851.0	-6.27	3.45	851.0
MAR 21 SEP 23			-6.00	5.58	761.1	-6.00	5.19	776.9	-6.00	4.83	788.7	-6.00	4.51	796.6	-6.00	4.22	800.7	-6.00	3.91	804.8	-6.00	3.60	808.9	-6.00	3.29	813.0
MAR 7 OCT 8			-5.73	5.33	686.0	-5.73	4.96	706.3	-5.73	4.63	722.7	-5.73	4.33	734.9	-5.73	4.07	743.3	-5.73	3.81	751.7	-5.73	3.55	760.1	-5.73	3.29	768.5
FEB 20 OCT 22			-5.46	5.09	611.4	-5.46	4.74	635.3	-5.46	4.43	655.4	-5.46	4.16	671.3	-5.46	3.92	683.2	-5.46	3.68	695.1	-5.46	3.44	707.0	-5.46	3.20	718.9
FEB 7 NOV 5			-5.22	4.86	542.6	-5.22	4.54	569.1	-5.22	4.25	591.9	-5.22	4.00	610.5	-5.22	3.78	625.1	-5.22	3.56	639.7	-5.22	3.34	654.3	-5.22	3.12	668.9
JAN 23 NOV 19			-5.02	4.68	485.9	-5.02	4.37	514.1	-5.02	4.10	538.7	-5.02	3.87	559.2	-5.02	3.66	575.7	-5.02	3.44	590.3	-5.02	3.22	606.1	-5.02	3.00	621.9
JAN 10 DEC 3			-4.86	4.54	445.5	-4.86	4.25	474.7	-4.86	3.99	500.3	-4.86	3.77	522.0	-4.86	3.57	549.6	-4.86	3.36	577.9	-4.86	3.15	606.2	-4.86	2.94	634.5
DEC 22			-4.77	4.46	421.6	-4.77	4.17	451.4	-4.77	3.93	477.6	-4.77	3.71	499.7	-4.77	3.52	517.9	-4.77	3.31	546.2	-4.77	3.10	574.7	-4.77	2.89	603.2
	SLOPE																									
	60 PCT					70 PCT					80 PCT					90 PCT					100 PCT					
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
JUN 22	20.2	30.4	-7.23	4.58	939.3	-7.23	4.28	919.7	-7.23	4.01	900.0	-7.23	3.76	880.7	-7.23	3.55	861.9	-7.23	3.34	843.1	-7.23	3.13	824.3	-7.23	2.92	805.5
JUN 1 JUL 12			-7.14	4.54	934.6	-7.14	4.24	916.3	-7.14	3.97	897.7	-7.14	3.74	879.4	-7.14	3.52	861.5	-7.14	3.31	842.7	-7.14	3.10	823.9	-7.14	2.89	805.1
MAY 18 JUL 27			-6.98	4.47	925.1	-6.98	4.18	905.0	-6.98	3.92	892.3	-6.98	3.69	875.6	-6.98	3.48	859.2	-6.98	3.27	842.8	-6.98	3.06	826.4	-6.98	2.85	809.0
MAY 3 AUG 10			-6.78	4.36	908.7	-6.78	4.09	895.5	-6.78	3.84	881.5	-6.78	3.62	867.2	-6.78	3.43	852.8	-6.78	3.22	838.4	-6.78	3.01	824.0	-6.78	2.80	809.6
APR 19 AUG 25			-6.54	4.24	883.1	-6.54	3.98	873.5	-6.54	3.75	862.7	-6.54	3.55	851.2	-6.54	3.36	839.4	-6.54	3.15	827.6	-6.54	2.94	815.8	-6.54	2.73	804.0
APR 4 SEP 9			-6.27	4.11	847.6	-6.27	3.87	842.0	-6.27	3.65	834.7	-6.27	3.46	826.4	-6.27	3.27	817.3	-6.27	3.08	808.0	-6.27	2.89	800.7	-6.27	2.70	793.4
MAR 21 SEP 23			-6.00	3.97	801.6	-6.00	3.75	799.9	-6.00	3.55	796.2	-6.00	3.37	791.0	-6.00	3.21	784.8	-6.00	3.05	778.6	-6.00	2.90	772.4	-6.00	2.75	766.2
MAR 7 OCT 8			-5.73	3.83	748.2	-5.73	3.63	750.1	-5.73	3.44	749.8	-5.73	3.28	747.6	-5.73	3.14	744.2	-5.73	2.99	740.8	-5.73	2.85	737.4	-5.73	2.71	734.0
FEB 20 OCT 22			-5.46	3.70	691.4	-5.46	3.51	696.5	-5.46	3.35	699.0	-5.46	3.20	695.6	-5.46	3.07	698.6	-5.46	2.93	701.2	-5.46	2.80	704.8	-5.46	2.67	708.4
FEB 7 NOV 5			-5.22	3.58	636.0	-5.22	3.41	643.6	-5.22	3.25	648.4	-5.22	3.12	651.1	-5.22	3.00	652.2	-5.22	2.88	654.9	-5.22	2.76	657.6	-5.22	2.64	660.3
JAN 23 NOV 19			-5.02	3.48	588.4	-5.02	3.32	597.8	-5.02	3.18	604.4	-5.02	3.06	608.6	-5.02	2.95	611.2	-5.02	2.84	614.8	-5.02	2.73	617.4	-5.02	2.62	620.0
JAN 10 DEC 3			-4.86	3.40	553.4	-4.86	3.25	563.9	-4.86	3.12	571.6	-4.86	3.01	576.9	-4.86	2.91	580.4	-4.86	2.80	584.9	-4.86	2.70	589.4	-4.86	2.60	593.9
DEC 22			-4.77	3.36	532.4	-4.77	3.22	543.4	-4.77	3.09	551.7	-4.77	2.98	557.5	-4.77	2.88	561.6	-4.77	2.78	565.7	-4.77	2.68	569.8	-4.77	2.58	573.9
	SLOPE																									
	60 PCT					70 PCT					80 PCT					90 PCT					100 PCT					
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
JUN 22	281.982	5365	-271.691	5169	5258	-276.340	5258	-279.638	5320	-281.591	5358	-282.312	5371	-282.982	5384	-283.653	5397	-284.324	5410	-284.995	5425	-285.666	5440	-286.337	5455	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 36 N
ASPECT E - W

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT			
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA		
		35.8	7.1	35.2	13.9	34.3	20.3	33.1	26.3	31.7	31.7	24.6	51.0	24.6	31.7	31.7	24.6	51.0	24.6	31.7	31.7	24.6	51.0		
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.		
		265.460	5051	264.401	5030	262.701	4998	260.442	4955	257.734	4904	254.695	4846	251.437	4784	248.070	4720	244.685	4655	241.320	4591	238.070	4528		
JUN 22		-7.23	6.75	1015.7	-7.23	6.26	1008.3	-7.23	5.79	996.9	-7.23	5.34	982.6	-7.23	4.92	966.2	-7.23	4.50	950.0	-7.23	4.08	933.8	-7.23	3.66	
JUN 1	JUL 12	-7.14	6.66	1000.7	-7.14	6.18	993.6	-7.14	5.71	982.7	-7.14	5.26	969.0	-7.14	4.85	953.3	-7.14	4.43	937.1	-7.14	4.01	920.9	-7.14	3.59	
MAY 18	JUL 27	-6.98	6.51	974.0	-6.98	6.03	967.4	-6.98	5.57	957.4	-6.98	5.13	944.8	-6.98	4.72	930.2	-6.98	4.30	914.0	-6.98	3.88	898.2	-6.98	3.46	
MAY 3	AUG 10	-6.78	6.30	934.0	-6.78	5.83	928.2	-6.78	5.37	919.4	-6.78	4.94	908.2	-6.78	4.52	894.0	-6.78	4.10	879.8	-6.78	3.68	865.6	-6.78	3.26	
APR 19	AUG 25	-6.54	6.06	880.5	-6.54	5.59	875.8	-6.54	5.15	868.4	-6.54	4.73	858.9	-6.54	4.31	849.7	-6.54	3.89	840.5	-6.54	3.47	831.3	-6.54	3.05	
APR 4	SEP 9	-6.27	5.80	815.7	-6.27	5.34	812.1	-6.27	4.90	806.2	-6.27	4.49	798.7	-6.27	4.07	791.3	-6.27	3.65	783.9	-6.27	3.23	776.5	-6.27	2.81	
MAR 21	SEP 23	-6.00	5.53	741.1	-6.00	5.07	738.5	-6.00	4.64	734.3	-6.00	4.23	728.7	-6.00	3.81	723.1	-6.00	3.40	717.5	-6.00	2.98	711.9	-6.00	2.56	
MAR 7	OCT 8	-5.73	5.26	662.0	-5.73	4.81	660.5	-5.73	4.39	657.8	-5.73	4.00	654.1	-5.73	3.58	650.4	-5.73	3.17	646.7	-5.73	2.75	643.0	-5.73	2.33	
FEB 20	OCT 22	-5.46	5.00	584.3	-5.46	4.55	583.6	-5.46	4.14	582.4	-5.46	3.77	580.3	-5.46	3.36	577.4	-5.46	2.95	574.5	-5.46	2.54	571.6	-5.46	2.12	
FEB 7	NOV 5	-5.22	4.76	513.2	-5.22	4.32	513.3	-5.22	3.91	513.1	-5.22	3.55	512.4	-5.22	3.14	511.0	-5.22	2.73	509.7	-5.22	2.32	508.4	-5.22	1.91	
JAN 23	NOV 19	-5.02	4.55	455.1	-5.02	4.12	455.8	-5.02	3.72	456.5	-5.02	3.37	456.7	-5.02	2.96	456.4	-5.02	2.55	456.1	-5.02	2.14	455.8	-5.02	1.73	
JAN 10	DEC 3	-4.86	4.40	414.1	-4.86	3.97	415.1	-4.86	3.58	416.3	-4.86	3.23	417.2	-4.86	2.82	417.6	-4.86	2.41	418.0	-4.86	2.00	418.4	-4.86	1.59	
DEC 22		-4.77	4.31	390.0	-4.77	3.88	391.2	-4.77	3.49	392.7	-4.77	3.15	394.0	-4.77	2.74	394.8	-4.77	2.33	395.6	-4.77	1.92	396.4	-4.77	1.51	
JUN 22		-7.23	4.54	948.7	-7.23	4.20	930.7	-7.23	3.89	912.8	-7.23	3.61	895.3	-7.23	3.33	878.4	-7.23	3.05	861.5	-7.23	2.77	844.6	-7.23	2.49	
JUN 1	JUL 12	-7.14	4.47	936.5	-7.14	4.13	919.2	-7.14	3.82	901.9	-7.14	3.55	885.0	-7.14	3.27	868.1	-7.14	2.99	851.2	-7.14	2.71	834.3	-7.14	2.43	
MAY 18	JUL 27	-6.98	4.35	914.5	-6.98	4.02	898.3	-6.98	3.72	882.0	-6.98	3.45	866.1	-6.98	3.17	849.2	-6.98	2.89	832.3	-6.98	2.61	815.4	-6.98	2.33	
MAY 3	AUG 10	-6.78	4.19	881.1	-6.78	3.86	866.4	-6.78	3.57	851.7	-6.78	3.32	837.2	-6.78	3.03	820.3	-6.78	2.75	803.4	-6.78	2.47	786.5	-6.78	2.19	
APR 19	AUG 25	-6.54	3.99	835.7	-6.54	3.68	823.0	-6.54	3.40	810.1	-6.54	3.16	797.3	-6.54	2.87	780.4	-6.54	2.59	763.5	-6.54	2.31	746.6	-6.54	2.03	
APR 4	SEP 9	-6.27	3.78	779.7	-6.27	3.48	769.1	-6.27	3.22	758.3	-6.27	2.98	747.4	-6.27	2.74	736.7	-6.27	2.50	725.9	-6.27	2.26	715.1	-6.27	1.97	
MAR 21	SEP 23	-6.00	3.56	714.1	-6.00	3.27	705.8	-6.00	3.02	697.1	-6.00	2.80	688.2	-6.00	2.58	679.4	-6.00	2.36	670.6	-6.00	2.14	661.8	-6.00	1.85	
MAR 7	OCT 8	-5.73	3.34	643.7	-5.73	3.07	637.5	-5.73	2.83	630.8	-5.73	2.61	623.9	-5.73	2.39	617.0	-5.73	2.17	610.1	-5.73	1.95	603.2	-5.73	1.67	
FEB 20	OCT 22	-5.46	3.13	573.7	-5.46	2.87	569.5	-5.46	2.64	564.5	-5.46	2.44	559.3	-5.46	2.22	554.1	-5.46	2.00	548.9	-5.46	1.78	543.7	-5.46	1.50	
FEB 7	NOV 5	-5.22	2.94	508.8	-5.22	2.69	506.1	-5.22	2.47	502.8	-5.22	2.28	499.1	-5.22	2.08	495.4	-5.22	1.88	491.7	-5.22	1.68	488.0	-5.22	1.40	
JAN 23	NOV 19	-5.02	2.77	455.4	-5.02	2.53	453.8	-5.02	2.32	451.7	-5.02	2.14	449.1	-5.02	1.94	446.4	-5.02	1.74	443.7	-5.02	1.54	441.0	-5.02	1.26	
JAN 10	DEC 3	-4.86	2.65	417.4	-4.86	2.42	416.5	-4.86	2.22	415.1	-4.86	2.04	413.2	-4.86	1.84	410.5	-4.86	1.64	407.8	-4.86	1.44	405.1	-4.86	1.16	
DEC 22		-4.77	2.58	394.9	-4.77	2.35	394.5	-4.77	2.16	393.5	-4.77	1.98	392.0	-4.77	1.79	390.2	-4.77	1.60	388.7	-4.77	1.41	387.2	-4.77	1.13	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 38 N

HORIZONTAL SURFACE

LATITUDE 38 N			
	SR	SS	LY
JUN 22	-7.32	7.32	1020.9
JUN 1 JUL 12	-7.22	7.22	1004.1
MAY 18 JUL 27	-7.06	7.06	974.3
MAY 3 AUG 10	-6.84	6.84	930.2
APR 19 AUG 25	-6.58	6.58	872.0
APR 4 SEP 9	-6.29	6.29	802.1
MAR 21 SEP 23	-6.00	6.00	722.7
MAR 7 OCT 8	-5.71	5.71	639.4
FEB 20 OCT 22	-5.42	5.42	558.4
FEB 7 NOV 5	-5.16	5.16	485.0
JAN 23 NOV 19	-4.94	4.94	425.5
JAN 10 DEC 3	-4.78	4.78	383.6
DEC 22	-4.68	4.68	359.2

YEAR R.I.
259.861 .4944

LATITUDE 38 N
ASPECT N -

	10 PCT						20 PCT						30 PCT						40 PCT						50 PCT					
	SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE		
	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY
JUN 22	-7.32	7.32	1022.2	-7.32	7.32	1013.5	-7.32	7.32	996.1	-7.32	7.32	971.5	-7.32	7.32	941.5	-7.32	7.32	911.5	-7.32	7.32	881.5	-7.32	7.32	851.5	-7.32	7.32	821.5	-7.32	7.32	791.5
JUN 1 JUL 12	-7.22	7.22	1000.5	-7.22	7.22	981.3	-7.22	7.22	965.8	-7.22	7.22	940.3	-7.22	7.22	914.8	-7.22	7.22	889.3	-7.22	7.22	863.8	-7.22	7.22	838.3	-7.22	7.22	812.8	-7.22	7.22	787.3
MAY 18 JUL 27	-7.06	7.06	962.7	-7.06	7.06	942.0	-7.06	7.06	913.7	-7.06	7.06	884.0	-7.06	7.06	854.3	-7.06	7.06	824.6	-7.06	7.06	794.9	-7.06	7.06	765.2	-7.06	7.06	735.5	-7.06	7.06	705.8
MAY 3 AUG 10	-6.84	6.84	907.7	-6.84	6.84	877.0	-6.84	6.84	847.3	-6.84	6.84	817.6	-6.84	6.84	787.9	-6.84	6.84	758.2	-6.84	6.84	728.5	-6.84	6.84	698.8	-6.84	6.84	669.1	-6.84	6.84	639.4
APR 19 AUG 25	-6.58	6.58	837.0	-6.58	6.58	794.7	-6.58	6.58	746.8	-6.58	6.58	698.9	-6.58	6.58	651.0	-6.58	6.58	603.1	-6.58	6.58	555.2	-6.58	6.58	507.3	-6.58	6.58	459.4	-6.58	6.58	411.5
APR 4 SEP 9	-6.29	6.29	754.3	-6.29	6.29	700.2	-6.29	6.29	641.9	-6.29	6.29	587.8	-6.29	6.29	533.7	-6.29	6.29	479.6	-6.29	6.29	425.5	-6.29	6.29	371.4	-6.29	6.29	317.3	-6.29	6.29	263.2
MAR 21 SEP 23	-6.00	6.00	662.8	-6.00	6.00	597.8	-6.00	6.00	530.0	-6.00	6.00	465.0	-6.00	6.00	399.0	-6.00	6.00	334.0	-6.00	6.00	269.0	-6.00	6.00	204.0	-6.00	6.00	139.0	-6.00	6.00	74.0
MAR 7 OCT 8	-5.64	5.64	569.4	-5.64	5.64	495.6	-5.64	5.64	421.8	-5.64	5.64	347.9	-5.64	5.64	274.1	-5.64	5.64	200.3	-5.64	5.64	126.5	-5.64	5.64	52.7	-5.64	5.64	-21.1	-5.64	5.64	-87.3
FEB 20 OCT 22	-5.29	5.29	480.9	-5.29	5.29	407.1	-5.29	5.29	333.3	-5.29	5.29	259.5	-5.29	5.29	185.7	-5.29	5.29	111.9	-5.29	5.29	38.1	-5.29	5.29	-35.7	-5.29	5.29	-111.3	-5.29	5.29	-186.9
FEB 7 NOV 5	-4.97	4.97	402.6	-4.97	4.97	328.8	-4.97	4.97	255.0	-4.97	4.97	181.2	-4.97	4.97	107.4	-4.97	4.97	33.6	-4.97	4.97	-40.2	-4.97	4.97	-115.8	-4.97	4.97	-191.4	-4.97	4.97	-267.0
JAN 23 NOV 19	-4.69	4.69	340.5	-4.69	4.69	266.7	-4.69	4.69	192.9	-4.69	4.69	119.1	-4.69	4.69	45.3	-4.69	4.69	-28.5	-4.69	4.69	-103.1	-4.69	4.69	-178.7	-4.69	4.69	-254.3	-4.69	4.69	-329.9
JAN 10 DEC 3	-4.49	4.49	297.6	-4.49	4.49	223.8	-4.49	4.49	150.0	-4.49	4.49	76.2	-4.49	4.49	1.6	-4.49	4.49	-73.2	-4.49	4.49	-148.8	-4.49	4.49	-224.4	-4.49	4.49	-300.0	-4.49	4.49	-375.6
DEC 22	-4.36	4.36	273.0	-4.36	4.36	199.2	-4.36	4.36	125.4	-4.36	4.36	51.6	-4.36	4.36	-23.0	-4.36	4.36	-98.6	-4.36	4.36	-174.2	-4.36	4.36	-249.8	-4.36	4.36	-325.4	-4.36	4.36	-401.0
JUN 22	-7.32	7.32	908.1	-7.32	7.32	872.7	-7.32	7.32	836.8	-7.32	7.32	792.7	-7.32	7.32	755.7	-7.32	7.32	718.7	-7.32	7.32	681.7	-7.32	7.32	644.7	-7.32	7.32	607.7	-7.32	7.32	570.7
JUN 1 JUL 12	-7.22	7.22	868.2	-7.22	7.22	830.5	-7.22	7.22	792.7	-7.22	7.22	755.7	-7.22	7.22	718.7	-7.22	7.22	681.7	-7.22	7.22	644.7	-7.22	7.22	607.7	-7.22	7.22	570.7	-7.22	7.22	533.7
MAY 18 JUL 27	-7.06	7.06	800.4	-7.06	7.06	759.0	-7.06	7.06	718.1	-7.06	7.06	676.7	-7.06	7.06	634.4	-7.06	7.06	592.1	-7.06	7.06	549.8	-7.06	7.06	507.5	-7.06	7.06	465.2	-7.06	7.06	422.9
MAY 3 AUG 10	-6.84	6.84	705.4	-6.84	6.84	659.2	-6.84	6.84	614.4	-6.84	6.84	568.7	-6.84	6.84	523.0	-6.84	6.84	477.3	-6.84	6.84	431.6	-6.84	6.84	385.9	-6.84	6.84	340.2	-6.84	6.84	294.5
APR 19 AUG 25	-6.58	6.58	589.4	-6.58	6.58	537.9	-6.58	6.58	488.7	-6.58	6.58	437.0	-6.58	6.58	386.3	-6.58	6.58	335.6	-6.58	6.58	284.9	-6.58	6.58	234.2	-6.58	6.58	183.5	-6.58	6.58	132.8
APR 4 SEP 9	-6.29	6.29	461.5	-6.29	6.29	404.8	-6.29	6.29	351.5	-6.29	6.29	298.2	-6.29	6.29	244.9	-6.29	6.29	191.6	-6.29	6.29	138.3	-6.29	6.29	85.0	-6.29	6.29	31.7	-6.29	6.29	-21.6
MAR 21 SEP 23	-6.00	6.00	329.2	-6.00	6.00	268.1	-6.00	6.00	211.5	-6.00	6.00	154.9	-6.00	6.00	98.3	-6.00	6.00	41.7	-6.00	6.00	-14.9	-6.00	6.00	-71.5	-6.00	6.00	-128.1	-6.00	6.00	-184.7
MAR 7 OCT 8	-5.01	5.01	208.1	-5.01	5.01	146.8	-5.01	5.01	92.1	-5.01	5.01	37.4	-5.01	5.01	-17.9	-5.01	5.01	-73.3	-5.01	5.01	-128.8	-5.01	5.01	-184.3	-5.01	5.01	-239.8	-5.01	5.01	-295.3
FEB 20 OCT 22	-3.99	3.99	111.9	-3.99	3.99	57.7	-3.99	3.99	16.1	-3.99	3.99	-38.9	-3.99	3.99	-94.4	-3.99	3.99	-149.9	-3.99	3.99	-205.4	-3.99	3.99	-260.9	-3.99	3.99	-316.4	-3.99	3.99	-371.9
FEB 7 NOV 5	-2.90	2.90	44.6	-2.90	2.90	6.5	-2.90	2.90	-40.0	-2.90	2.90	-95.5	-2.90	2.90	-151.0	-2.90	2.90	-206.5	-2.90	2.90	-262.0	-2.90	2.90	-317.5	-2.90	2.90	-373.0	-2.90	2.90	-428.5
JAN 23 NOV 19	-1.61	1.61	7.8	-1.61	1.61	0.0	-1.61	1.61	-40.0	-1.61	1.61	-95.5	-1.61	1.61	-151.0	-1.61	1.61	-206.5	-1.61	1.61	-262.0	-1.61	1.61	-317.5	-1.61	1.61	-373.0	-1.61	1.61	-428.5
JAN 10 DEC 3	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
DEC 22	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 38 N
ASPECT S -

[illegible]

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 38 N
ASPECT NNE - NNW

	10 PCT						20 PCT						30 PCT						40 PCT						50 PCT					
	SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE		
	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY
JUN 22	-7.32	7.32	1021.7	-7.32	7.32	1012.6	-7.32	7.32	994.7	-7.32	7.32	984.7	-7.32	7.32	969.7	-7.32	7.32	969.7	-7.32	7.32	969.7	-7.32	7.32	969.7	-7.32	7.32	969.7	-7.32	7.32	969.7
JUN 1 JUL 12	-7.22	7.22	1000.4	-7.22	7.22	987.1	-7.22	7.22	965.5	-7.22	7.22	955.5	-7.22	7.22	937.1	-7.22	7.22	937.1	-7.22	7.22	937.1	-7.22	7.22	937.1	-7.22	7.22	937.1	-7.22	7.22	937.1
FEB 20 OCT 22	-7.06	7.06	963.2	-7.06	7.06	943.0	-7.06	7.06	915.1	-7.06	7.06	891.3	-7.06	7.06	861.3	-7.06	7.06	861.3	-7.06	7.06	861.3	-7.06	7.06	861.3	-7.06	7.06	861.3	-7.06	7.06	861.3
MAY 18 JUL 27	-6.84	6.84	909.1	-6.84	6.84	879.7	-6.84	6.84	843.5	-6.84	6.84	808.3	-6.84	6.84	770.5	-6.84	6.84	770.5	-6.84	6.84	770.5	-6.84	6.84	770.5	-6.84	6.84	770.5	-6.84	6.84	770.5
MAY 3 AUG 10	-6.58	6.58	839.4	-6.58	6.58	799.6	-6.58	6.58	754.3	-6.58	6.58	709.6	-6.58	6.58	665.1	-6.58	6.58	665.1	-6.58	6.58	665.1	-6.58	6.58	665.1	-6.58	6.58	665.1	-6.58	6.58	665.1
APR 19 AUG 25	-6.29	6.29	757.9	-6.29	6.29	707.7	-6.29	6.29	653.8	-6.29	6.29	600.0	-6.29	6.29	546.1	-6.29	6.29	546.1	-6.29	6.29	546.1	-6.29	6.29	546.1	-6.29	6.29	546.1	-6.29	6.29	546.1
APR 4 SEP 9	-6.00	6.00	667.6	-6.00	6.00	608.2	-6.00	6.00	547.0	-6.00	6.00	486.0	-6.00	6.00	425.5	-6.00	6.00	425.5	-6.00	6.00	425.5	-6.00	6.00	425.5	-6.00	6.00	425.5	-6.00	6.00	425.5
MAR 21 SEP 23	-5.71	5.71	575.2	-5.71	5.71	508.5	-5.71	5.71	442.0	-5.71	5.71	377.9	-5.71	5.71	318.4	-5.71	5.71	318.4	-5.71	5.71	318.4	-5.71	5.71	318.4	-5.71	5.71	318.4	-5.71	5.71	318.4
MAR 7 OCT 8	-5.42	5.42	487.4	-5.42	5.42	415.7	-5.42	5.42	346.2	-5.42	5.42	281.2	-5.42	5.42	222.9	-5.42	5.42	222.9	-5.42	5.42	222.9	-5.42	5.42	222.9	-5.42	5.42	222.9	-5.42	5.42	222.9
FEB 20 OCT 22	-5.16	5.16	409.5	-5.16	5.16	335.1	-5.16	5.16	264.7	-5.16	5.16	200.8	-5.16	5.16	145.5	-5.16	5.16	145.5	-5.16	5.16	145.5	-5.16	5.16	145.5	-5.16	5.16	145.5	-5.16	5.16	145.5
FEB 7 NOV 5	-4.92	4.92	347.6	-4.92	4.92	272.2	-4.92	4.92	202.5	-4.92	4.92	141.0	-4.92	4.92	89.7	-4.92	4.92	89.7	-4.92	4.92	89.7	-4.92	4.92	89.7	-4.92	4.92	89.7	-4.92	4.92	89.7
JAN 23 NOV 19	-4.71	4.71	304.7	-4.71	4.71	229.5	-4.71	4.71	161.3	-4.71	4.71	102.6	-4.71	4.71	55.6	-4.71	4.71	55.6	-4.71	4.71	55.6	-4.71	4.71	55.6	-4.71	4.71	55.6	-4.71	4.71	55.6
JAN 10 DEC 3	-4.59	4.59	280.0	-4.59	4.59	205.3	-4.59	4.59	138.4	-4.59	4.59	81.9	-4.59	4.59	38.2	-4.59	4.59	38.2	-4.59	4.59	38.2	-4.59	4.59	38.2	-4.59	4.59	38.2	-4.59	4.59	38.2
DEC 22																														

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 38 N

SLOPE										100 PCT														
60 PCT					70 PCT					80 PCT					90 PCT					100 PCT				
THETA		ALPHA		LY	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.		
32.7	2.6	27.4	4.9		22.4	6.8		17.5	8.6		13.0	10.1												
SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	
JUN 22	-7.25	6.91	1012.0	-7.19	6.55	996.9	-7.14	6.23	976.2	-7.10	5.95	950.9	-7.06	5.71	922.2	-7.03	5.68	924.4	-7.00	5.63	886.6	-6.99	5.61	858.6
JUN 1	-7.17	6.83	999.7	-7.13	6.48	988.8	-7.09	6.18	972.0	-7.06	5.92	947.7	-7.03	5.68	924.4	-7.00	5.63	886.6	-6.99	5.61	858.6	-6.98	5.60	830.6
MAY 18	-7.04	6.69	977.4	-7.02	6.38	973.6	-7.01	6.10	963.4	-7.00	5.85	940.2	-6.98	5.64	921.1	-6.96	5.62	918.9	-6.95	5.61	890.9	-6.94	5.60	862.9
MAY 3	-6.84	6.51	943.4	-6.84	6.23	949.4	-6.84	5.98	948.4	-6.84	5.77	941.1	-6.84	5.57	928.4	-6.84	5.57	928.4	-6.84	5.57	928.4	-6.84	5.57	928.4
MAY 3	-6.58	6.30	896.9	-6.58	6.06	891.3	-6.58	5.85	886.6	-6.58	5.66	872.2	-6.58	5.41	848.1	-6.58	5.41	848.1	-6.58	5.41	848.1	-6.58	5.41	848.1
APR 19	-6.29	6.07	859.3	-6.29	5.87	868.7	-6.29	5.70	860.1	-6.29	5.55	850.9	-6.29	5.30	826.4	-6.29	5.30	826.4	-6.29	5.30	826.4	-6.29	5.30	826.4
APR 4	-6.00	5.83	771.4	-6.00	5.68	812.5	-6.00	5.54	845.1	-6.00	5.43	869.6	-6.00	5.33	886.6	-6.00	5.33	886.6	-6.00	5.33	886.6	-6.00	5.33	886.6
MAR 21	-5.71	5.58	698.2	-5.71	5.48	749.5	-5.71	5.39	792.2	-5.71	5.31	826.5	-5.71	5.24	852.2	-5.71	5.24	852.2	-5.71	5.24	852.2	-5.71	5.24	852.2
MAR 7	-5.42	5.35	625.1	-5.42	5.29	684.5	-5.42	5.24	735.5	-5.42	5.20	778.0	-5.42	5.16	812.2	-5.42	5.16	812.2	-5.42	5.16	812.2	-5.42	5.16	812.2
FEB 20	-5.16	5.14	557.2	-5.16	5.12	622.5	-5.16	5.11	679.8	-5.16	5.09	728.5	-5.16	5.08	768.8	-5.16	5.08	768.8	-5.16	5.08	768.8	-5.16	5.08	768.8
FEB 7	-4.94	4.94	501.9	-4.94	4.94	570.3	-4.94	4.94	631.7	-4.94	4.94	684.8	-4.94	4.94	729.9	-4.94	4.94	729.9	-4.94	4.94	729.9	-4.94	4.94	729.9
JAN 23	-4.78	4.78	460.9	-4.78	4.78	532.2	-4.78	4.78	596.0	-4.78	4.78	651.6	-4.78	4.78	698.8	-4.78	4.78	698.8	-4.78	4.78	698.8	-4.78	4.78	698.8
JAN 10	-4.68	4.68	437.3	-4.68	4.68	509.5	-4.68	4.68	574.4	-4.68	4.68	631.2	-4.68	4.68	679.9	-4.68	4.68	679.9	-4.68	4.68	679.9	-4.68	4.68	679.9
DEC 22	-4.48	4.48	400.0	-4.48	4.48	468.0	-4.48	4.48	536.0	-4.48	4.48	604.0	-4.48	4.48	672.0	-4.48	4.48	672.0	-4.48	4.48	672.0	-4.48	4.48	672.0
DEC 9	-4.28	4.28	370.0	-4.28	4.28	438.0	-4.28	4.28	506.0	-4.28	4.28	574.0	-4.28	4.28	642.0	-4.28	4.28	642.0	-4.28	4.28	642.0	-4.28	4.28	642.0
NOV 19	-4.08	4.08	340.0	-4.08	4.08	408																		

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 38 N
ASPECT NE - NW

	10 PCT					20 PCT					SLOPE					30 PCT					40 PCT					50 PCT				
	THETA		ALPHA		SR	SS		LY		SR	SS		LY		SR	SS		LY		SR	SS		LY		SR	SS		LY		
	YEAR	R.I.	YEAR	R.I.		YEAR	R.I.	YEAR	R.I.		YEAR	R.I.	YEAR	R.I.		YEAR	R.I.	YEAR	R.I.		YEAR	R.I.	YEAR	R.I.		YEAR	R.I.	YEAR	R.I.	YEAR
JUN 22	41.9	5.4	45.5	11.4	7.32	6.99	1010.6	7.32	6.78	993.1	7.32	6.53	969.0	7.32	6.24	940.6	7.32	6.05	911.7	7.32	58.1	24.7	55.1	31.8	53.1	53.1	53.1	53.1	53.1	
JUN 1 JUL 12	-7.22	7.17	1020.6	-7.22	6.85	987.7	-7.22	6.62	967.5	-7.22	6.35	941.5	-7.22	6.05	911.7	-7.22	5.74	882.3	-7.22	5.43	843.1	-7.22	51.1	24.7	55.1	53.1	53.1	53.1	53.1	
MAY 18 JUL 27	-7.06	6.86	965.1	-7.06	6.63	947.6	-7.06	6.37	923.5	-7.06	6.07	894.4	-7.06	5.74	845.2	-7.06	5.43	806.0	-7.06	5.12	766.8	-7.06	48.1	24.7	55.1	53.1	53.1	53.1	53.1	
MAY 3 AUG 10	-6.84	6.60	913.5	-6.84	6.34	889.7	-6.84	6.04	860.4	-6.84	5.70	827.4	-6.84	5.37	788.2	-6.84	5.04	749.0	-6.84	4.71	709.8	-6.84	45.1	24.7	55.1	53.1	53.1	53.1	53.1	
APR 19 AUG 25	-6.58	6.30	846.8	-6.58	5.99	815.9	-6.58	5.65	781.0	-6.58	5.27	744.0	-6.58	4.94	704.8	-6.58	4.61	665.6	-6.58	4.28	626.4	-6.58	42.1	24.7	55.1	53.1	53.1	53.1	53.1	
APR 4 SEP 9	-6.29	5.98	768.3	-6.29	5.62	730.4	-6.29	5.24	690.2	-6.29	4.82	649.7	-6.29	4.49	609.5	-6.29	4.16	569.3	-6.29	3.83	529.1	-6.29	39.1	24.7	55.1	53.1	53.1	53.1	53.1	
MAR 21 SEP 23	-6.00	5.64	680.9	-6.00	5.24	636.6	-6.00	4.81	592.1	-6.00	4.35	549.1	-6.00	3.88	509.1	-6.00	3.42	464.6	-6.00	2.95	420.1	-6.00	36.1	24.7	55.1	53.1	53.1	53.1	53.1	
MAR 7 OCT 8	-5.71	5.30	590.9	-5.71	4.86	541.8	-5.71	4.38	494.3	-5.71	3.88	450.0	-5.71	3.38	410.2	-5.71	2.88	365.7	-5.71	2.38	321.4	-5.71	34.1	24.7	55.1	53.1	53.1	53.1	53.1	
FEB 20 OCT 22	-5.42	4.97	504.8	-5.42	4.48	452.5	-5.42	3.97	403.4	-5.42	3.43	359.2	-5.42	2.89	320.6	-5.42	2.35	276.3	-5.42	1.80	232.0	-5.42	32.1	24.7	55.1	53.1	53.1	53.1	53.1	
FEB 7 NOV 5	-5.16	4.67	428.2	-5.16	4.14	374.1	-5.16	3.58	324.9	-5.16	3.00	281.7	-5.16	2.39	242.2	-5.16	1.78	197.9	-5.16	1.16	153.6	-5.16	30.1	24.7	55.1	53.1	53.1	53.1	53.1	
JAN 23 NOV 19	-4.94	4.41	366.9	-4.94	3.85	312.3	-4.94	3.25	263.8	-4.94	2.63	222.2	-4.94	2.02	183.1	-4.94	1.41	138.8	-4.94	0.79	94.5	-4.94	28.1	24.7	55.1	53.1	53.1	53.1	53.1	
JAN 10 DEC 3	-4.78	4.22	324.3	-4.78	3.62	269.9	-4.78	2.99	222.3	-4.78	2.35	182.3	-4.78	1.71	133.2	-4.78	1.09	88.9	-4.78	0.47	44.6	-4.78	26.1	24.7	55.1	53.1	53.1	53.1	53.1	
DEC 22	-4.68	4.11	299.7	-4.68	3.49	245.6	-4.68	2.84	198.7	-4.68	2.17	159.9	-4.68	1.52	120.2	-4.68	0.89	45.1	-4.68	0.27	0.0	-4.68	24.1	24.7	55.1	53.1	53.1	53.1	53.1	
JUN 22	7.32	5.92	909.8	7.32	5.57	878.3	7.32	5.20	847.3	7.32	4.82	818.0	7.32	4.45	790.5	7.32	4.08	760.4	7.32	3.71	730.7	7.32	33.1	24.7	55.1	53.1	53.1	53.1	53.1	
JUN 1 JUL 12	-7.22	5.71	879.9	-7.22	5.35	847.9	-7.22	4.97	816.8	-7.22	4.59	787.6	-7.22	4.22	758.1	-7.22	3.85	728.0	-7.22	3.48	697.9	-7.22	31.1	24.7	55.1	53.1	53.1	53.1	53.1	
MAY 18 JUL 27	-7.06	5.38	829.2	-7.06	5.00	796.5	-7.06	4.61	765.5	-7.06	4.23	736.4	-7.06	3.86	707.7	-7.06	3.49	677.6	-7.06	3.12	647.5	-7.06	29.1	24.7	55.1	53.1	53.1	53.1	53.1	
MAY 3 AUG 10	-6.84	4.95	758.2	-6.84	4.55	724.9	-6.84	4.15	693.8	-6.84	3.76	665.5	-6.84	3.39	635.8	-6.84	3.02	605.7	-6.84	2.65	575.6	-6.84	27.1	24.7	55.1	53.1	53.1	53.1	53.1	
APR 19 AUG 25	-6.58	4.46	671.0	-6.58	4.04	637.5	-6.58	3.63	607.0	-6.58	3.24	579.8	-6.58	2.87	549.7	-6.58	2.49	519.6	-6.58	2.12	489.5	-6.58	25.1	24.7	55.1	53.1	53.1	53.1	53.1	
APR 4 SEP 9	-6.29	3.94	574.2	-6.29	3.50	541.2	-6.29	3.08	511.9	-6.29	2.69	486.3	-6.29	2.32	456.2	-6.29	1.94	426.1	-6.29	1.57	396.0	-6.29	23.1	24.7	55.1	53.1	53.1	53.1	53.1	
MAR 21 SEP 23	-6.00	3.41	473.1	-6.00	2.95	441.4	-6.00	2.52	414.0	-6.00	2.13	390.6	-6.00	1.77	370.6	-6.00	1.39	340.5	-6.00	1.02	310.4	-6.00	21.1	24.7	55.1	53.1	53.1	53.1	53.1	
MAR 7 OCT 8	-5.71	2.88	375.5	-5.71	2.40	345.8	-5.71	1.96	320.9	-5.71	1.56	300.2	-5.71	1.21	282.8	-5.71	0.83	252.7	-5.71	0.45	222.6	-5.71	19.1	24.7	55.1	53.1	53.1	53.1	53.1	
FEB 20 OCT 22	-5.42	2.36	288.1	-5.42	1.87	261.1	-5.42	1.42	239.1	-5.42	1.01	221.3	-5.42	0.66	206.7	-5.42	0.28	176.6	-5.42	-0.11	146.5	-5.42	17.1	24.7	55.1	53.1	53.1	53.1	53.1	
FEB 7 NOV 5	-5.16	1.87	215.3	-5.16	1.36	191.3	-5.16	0.90	172.3	-5.16	0.49	157.4	-5.16	0.14	145.5	-5.16	-0.24	115.4	-5.16	-0.62	85.3	-5.16	15.1	24.7	55.1	53.1	53.1	53.1	53.1	
JAN 23 NOV 19	-4.94	1.44	160.9	-4.94	0.91	139.7	-4.94	0.44	123.5	-4.94	0.03	111.1	-4.94	-0.33	101.5	-4.94	-0.71	71.4	-4.94	-1.09	41.3	-4.94	13.1	24.7	55.1	53.1	53.1	53.1	53.1	
JAN 10 DEC 3	-4.78	1.11	125.3	-4.78	0.56	106.4	-4.78	0.08	92.3	-4.78	-0.34	81.8	-4.78	-0.68	73.8	-4.78	-1.06	43.9	-4.78	-1.44	13.9	-4.78	11.1	24.7	55.1	53.1	53.1	53.1	53.1	
DEC 22	-4.68	0.90	105.7	-4.68	0.34	88.3	-4.68	-0.15	75.5	-4.68	-0.57	66.1	-4.68	-0.91	58.2	-4.68	-1.29	29.0	-4.68	-1.67	0.0	-4.68	9.1	24.7	55.1	53.1	53.1	53.1	53.1	
	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
	246.891	4.697	233.083	4.435	219.095	4.168	205.497	3.910	192.750	3.667																				

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 38 N
ASPECT SE - SW

	SLOPE										SLOPE										SLOPE									
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT									
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY					
JUN 22	-7.32	6.81	1014.3	-7.32	6.34	1003.3	-7.32	5.93	988.1	-7.32	5.56	969.3	-7.32	5.24	947.7	-7.32	4.95	924.3	-7.32	4.69	900.1	-7.32	4.46	875.7	-7.32	4.25	851.8			
JUN 1 JUL 12	-7.22	6.72	1000.9	-7.22	6.27	993.2	-7.22	5.87	981.1	-7.22	5.51	965.1	-7.22	5.20	946.1	-7.22	4.94	925.0	-7.22	4.66	902.7	-7.22	4.44	880.1	-7.22	4.24	857.7			
MAY 18 JUL 27	-7.06	6.58	976.9	-7.06	6.15	974.7	-7.06	5.77	957.8	-7.06	5.43	935.6	-7.06	5.13	914.8	-7.06	4.84	901.3	-7.06	4.58	880.4	-7.06	4.38	859.6	-7.06	4.20	837.3			
MAY 3 AUG 10	-6.84	6.39	940.6	-6.84	6.00	945.9	-6.84	5.64	946.0	-6.84	5.33	941.3	-6.84	5.05	932.4	-6.84	4.78	918.9	-6.84	4.54	897.5	-6.84	4.34	876.1	-6.84	4.16	854.8			
APR 19 AUG 25	-6.58	6.17	891.5	-6.58	5.81	905.4	-6.58	5.48	913.8	-6.58	5.20	916.7	-6.58	4.94	914.9	-6.58	4.68	901.3	-6.58	4.44	879.9	-6.58	4.24	858.5	-6.58	4.06	837.1			
APR 4 SEP 9	-6.29	5.93	830.9	-6.29	5.60	854.0	-6.29	5.31	871.1	-6.29	5.06	882.2	-6.29	4.83	887.0	-6.29	4.60	873.9	-6.29	4.38	860.4	-6.29	4.18	847.9	-6.29	4.00	835.4			
MAR 21 SEP 23	-6.00	5.68	760.2	-6.00	5.39	792.1	-6.00	5.13	817.6	-6.00	4.91	836.6	-6.00	4.71	849.7	-6.00	4.50	860.4	-6.00	4.30	871.1	-6.00	4.10	881.8	-6.00	3.90	892.5			
MAR 7 OCT 8	-5.71	5.42	684.6	-5.71	5.17	724.1	-5.71	4.95	737.0	-5.71	4.76	783.1	-5.71	4.59	802.9	-5.71	4.42	813.8	-5.71	4.26	824.7	-5.71	4.10	835.6	-5.71	3.94	846.5			
FEB 20 OCT 22	-5.42	5.18	609.5	-5.42	4.97	655.0	-5.42	4.78	693.9	-5.42	4.62	725.9	-5.42	4.48	751.3	-5.42	4.34	778.7	-5.42	4.20	806.1	-5.42	4.06	833.5	-5.42	3.92	860.9			
FEB 7 NOV 5	-5.16	4.96	540.2	-5.16	4.78	590.0	-5.16	4.62	633.3	-5.16	4.49	669.7	-5.16	4.37	699.3	-5.16	4.26	729.9	-5.16	4.15	760.5	-5.16	4.04	791.1	-5.16	3.93	821.7			
JAN 23 NOV 19	-4.94	4.77	483.2	-4.94	4.62	535.7	-4.94	4.49	581.8	-4.94	4.38	621.2	-4.94	4.28	653.8	-4.94	4.18	686.4	-4.94	4.08	719.0	-4.94	4.00	751.6	-4.94	3.92	784.2			
JAN 10 DEC 3	-4.78	4.63	442.6	-4.78	4.50	496.6	-4.78	4.40	544.3	-4.78	4.30	585.4	-4.78	4.22	619.8	-4.78	4.14	652.4	-4.78	4.06	685.0	-4.78	4.00	717.6	-4.78	3.94	750.2			
DEC 22	-4.68	4.55	418.7	-4.68	4.43	473.4	-4.68	4.34	521.9	-4.68	4.25	563.8	-4.68	4.18	599.1	-4.68	4.10	631.7	-4.68	4.04	664.3	-4.68	4.00	696.9	-4.68	3.96	729.5			
JUN 22	-7.32	4.95	924.3	-7.32	4.69	900.1	-7.32	4.46	875.7	-7.32	4.25	851.8	-7.32	4.07	828.5	-7.32	3.90	805.2	-7.32	3.74	781.9	-7.32	3.58	758.6	-7.32	3.42	735.3			
JUN 1 JUL 12	-7.22	4.92	925.0	-7.22	4.66	902.7	-7.22	4.44	880.1	-7.22	4.24	857.7	-7.22	4.06	834.4	-7.22	3.90	811.1	-7.22	3.74	787.8	-7.22	3.58	764.5	-7.22	3.42	741.2			
MAY 18 JUL 27	-7.06	4.87	924.6	-7.06	4.63	905.7	-7.06	4.41	885.9	-7.06	4.22	866.1	-7.06	4.04	842.8	-7.06	3.88	819.5	-7.06	3.72	796.2	-7.06	3.56	772.9	-7.06	3.40	749.6			
MAY 3 AUG 10	-6.84	4.80	920.5	-6.84	4.58	906.2	-6.84	4.38	890.6	-6.84	4.20	874.3	-6.84	4.04	858.0	-6.84	3.88	834.7	-6.84	3.72	811.4	-6.84	3.56	788.1	-6.84	3.40	764.8			
APR 19 AUG 25	-6.58	4.72	899.3	-6.58	4.51	900.6	-6.58	4.33	890.0	-6.58	4.17	873.9	-6.58	4.01	857.6	-6.58	3.85	834.3	-6.58	3.69	810.0	-6.58	3.53	786.7	-6.58	3.37	763.4			
APR 4 SEP 9	-6.29	4.63	889.0	-6.29	4.45	886.4	-6.29	4.29	881.2	-6.29	4.14	874.9	-6.29	4.00	858.6	-6.29	3.84	842.3	-6.29	3.68	826.0	-6.29	3.52	809.7	-6.29	3.36	793.4			
MAR 21 SEP 23	-6.00	4.53	857.6	-6.00	4.38	861.2	-6.00	4.24	861.4	-6.00	4.11	859.0	-6.00	4.00	854.8	-6.00	3.88	849.6	-6.00	3.76	845.4	-6.00	3.64	841.0	-6.00	3.52	836.6			
MAR 7 OCT 8	-5.71	4.44	817.0	-5.71	4.30	826.3	-5.71	4.18	831.7	-5.71	4.08	834.0	-5.71	3.98	833.9	-5.71	3.88	833.9	-5.71	3.78	833.9	-5.71	3.68	833.9	-5.71	3.58	833.9			
FEB 20 OCT 22	-5.42	4.35	770.6	-5.42	4.24	784.8	-5.42	4.14	794.6	-5.42	4.05	801.0	-5.42	3.97	804.7	-5.42	3.89	804.7	-5.42	3.81	804.7	-5.42	3.73	804.7	-5.42	3.65	804.7			
FEB 7 NOV 5	-5.16	4.27	722.8	-5.16	4.17	740.8	-5.16	4.09	754.3	-5.16	4.02	763.9	-5.16	3.95	770.7	-5.16	3.88	777.5	-5.16	3.81	784.3	-5.16	3.74	791.1	-5.16	3.67	797.9			
JAN 23 NOV 19	-4.94	4.20	680.2	-4.94	4.12	701.0	-4.94	4.06	717.0	-4.94	4.00	729.1	-4.94	3.94	738.1	-4.94	3.88	747.1	-4.94	3.82	756.1	-4.94	3.76	765.1	-4.94	3.70	774.1			
JAN 10 DEC 3	-4.78	4.15	647.9	-4.78	4.09	670.5	-4.78	4.03	688.2	-4.78	3.98	701.9	-4.78	3.93	712.3	-4.78	3.87	723.7	-4.78	3.82	735.1	-4.78	3.76	746.5	-4.78	3.71	757.9			
DEC 22	-4.68	4.12	628.1	-4.68	4.06	651.6	-4.68	4.01	670.2	-4.68	3.97	684.3	-4.68	3.93	696.1	-4.68	3.88	707.3	-4.68	3.83	718.5	-4.68	3.78	729.7	-4.68	3.73	740.9			

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

SLOPE										SLOPE										SLOPE										
10 PCT					20 PCT					30 PCT					40 PCT					50 PCT										
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
JUN 22	40.0	6.9			-7.32	6.97	1019.5			-7.32	6.58	1011.1			-7.32	6.16	997.0			-7.32	5.73	978.7			-7.32	5.31	957.9			
JUN 1 JUL 12					-7.22	6.86	1001.0			-7.22	6.46	991.2			-7.22	6.04	976.2			-7.22	5.61	957.4			-7.22	5.18	936.4			
MAY 18 JUL 27					-7.06	6.68	966.4			-7.06	6.27	956.5			-7.06	5.84	940.0			-7.06	5.41	920.3			-7.06	4.98	899.0			
MAY 3 AUG 10					-6.84	6.44	920.5			-6.84	6.02	905.7			-6.84	5.58	887.3			-6.84	5.14	866.6			-6.84	4.71	844.9			
APR 19 AUG 25					-6.58	6.16	857.9			-6.58	5.72	840.0			-6.58	5.27	819.6			-6.58	4.82	797.9			-6.58	4.39	776.0			
APR 4 SEP 9					-6.29	5.86	783.6			-6.29	5.40	762.7			-6.29	4.94	740.4			-6.29	4.48	718.0			-6.29	4.05	696.2			
MAR 21 SEP 23					-6.00	5.54	700.1			-6.00	5.07	676.5			-6.00	4.59	652.8			-6.00	4.13	630.0			-6.00	3.69	608.7			
MAR 7 OCT 8					-5.71	5.22	613.4			-5.71	4.73	587.7			-5.71	4.25	563.3			-5.71	3.78	540.6			-5.71	3.34	520.1			
FEB 20 OCT 22					-5.42	4.92	529.9			-5.42	4.41	502.9			-5.42	3.91	478.1			-5.42	3.44	456.1			-5.42	3.00	436.7			
FEB 7 NOV 5					-5.16	4.64	454.8			-5.16	4.11	427.2			-5.16	3.60	402.7			-5.16	3.12	381.5			-5.16	2.68	363.5			
JAN 23 NOV 19					-4.94	4.40	394.5			-4.94	3.86	366.8			-4.94	3.34	342.8			-4.94	2.85	322.6			-4.94	2.41	305.8			
JAN 10 DEC 3					-4.78	4.22	352.3			-4.78	3.67	324.7			-4.78	3.14	301.3			-4.78	2.65	281.9			-4.78	2.21	266.1			
DEC 22					-4.68	4.11	327.8			-4.68	3.56	300.4			-4.68	3.02	277.4			-4.68	2.53	258.6			-4.68	2.08	243.4			
					YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.
					252.811	4.810	245.260	4.666	237.565	4.520	230.009	4.376	222.803	4.239																
					60 PCT					70 PCT					80 PCT					90 PCT					100 PCT					
					THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
					43.1	40.6	42.6	46.1	42.0	42.0	42.6	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	46.1	
					SR	SS	SR	SS	SR	SS	SR	SS	SR	SS	SR	SS	SR	SS	SR	SS	SR	SS	SR	SS	SR	SS	SR	SS	SR	SS
					-7.32	4.89	936.0			-7.32	4.50	914.0			-7.32	4.14	892.5			-7.32	3.81	872.2			-7.32	3.51	853.0			
					-7.22	4.77	914.4			-7.22	4.38	892.5			-7.22	4.02	871.4			-7.22	3.70	851.4			-7.22	3.40	832.5			
					-7.06	4.57	877.1			-7.06	4.18	855.5			-7.06	3.83	834.8			-7.06	3.51	815.4			-7.06	3.22	797.0			
					-6.84	4.30	823.2			-6.84	3.92	802.2			-6.84	3.57	782.3			-6.84	3.26	763.7			-6.84	2.97	746.5			
					-6.58	3.99	754.7			-6.58	3.61	734.5			-6.58	3.27	715.6			-6.58	2.96	698.2			-6.58	2.69	682.2			
					-6.29	3.65	675.6			-6.29	3.28	656.5			-6.29	2.94	638.9			-6.29	2.65	623.0			-6.29	2.38	608.4			
					-6.00	3.29	589.2			-6.00	2.93	571.4			-6.00	2.60	555.4			-6.00	2.31	541.1			-6.00	2.06	528.1			
					-5.71	2.94	501.9			-5.71	2.58	485.7			-5.71	2.26	471.4			-5.71	1.98	458.8			-5.71	1.74	447.6			
					-5.42	2.60	420.0			-5.42	2.25	405.4			-5.42	1.94	392.9			-5.42	1.67	382.0			-5.42	1.43	372.4			
					-5.16	2.28	348.2			-5.16	1.94	335.3			-5.16	1.63	324.4			-5.16	1.37	315.0			-5.16	1.14	306.9			
					-4.94	2.02	291.9			-4.94	1.67	280.3			-4.94	1.37	270.7			-4.94	1.12	262.7			-4.94	0.90	255.7			
					-4.78	1.82	253.2			-4.78	1.48	242.7			-4.78	1.18	234.1			-4.78	0.93	226.9			-4.78	0.72	220.7			
					-4.68	1.69	231.1			-4.68	1.36	221.2			-4.68	1.07	213.1			-4.68	0.82	206.5			-4.68	0.61	200.8			
					YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.	YEAR	R.i.e.
					218.077	4.411	209.879	4.393	204.228	4.386	199.105	4.378	194.432	4.369																

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 38 N
ASPECT ESE - WSW

SLOPE										SLOPE														
10 PCT					20 PCT					30 PCT					40 PCT					50 PCT				
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
35.6	6.5				33.0	12.5				30.2	17.9				27.4	22.7				24.6	27.0			
JUN 22	7.432	6.78	1016.6		7.432	6.26	1008.6			7.432	5.78	997.2			7.432	5.35	983.0			7.432	4.96	966.6		
JUN 1	7.422	6.69	1001.7		7.422	6.18	995.6			7.422	5.71	986.2			7.422	5.29	973.7			7.422	4.91	959.0		
MAY 18	7.406	6.54	975.2		7.406	6.05	972.4			7.406	5.59	966.0			7.406	5.18	956.6			7.406	4.81	944.6		
MAY 3	6.84	6.34	935.4		6.84	5.86	937.0			6.84	5.43	935.0			6.84	5.04	929.6			6.84	4.69	921.4		
APR 19	6.58	6.10	882.2		6.58	5.65	888.9			6.58	5.23	881.9			6.58	4.87	871.4			6.58	4.54	867.7		
APR 4	6.429	5.84	817.5		6.429	5.41	829.6			6.429	5.03	837.9			6.429	4.68	842.4			6.429	4.37	843.4		
MAR 21	6.400	5.57	743.0		6.400	5.17	760.1			6.400	4.81	773.5			6.400	4.48	782.9			6.400	4.20	788.5		
MAR 7	5.71	5.30	664.0		5.71	4.92	685.5			5.71	4.59	703.3			5.71	4.29	717.0			5.71	4.03	726.9		
FEB 20	5.42	5.04	586.3		5.42	4.69	611.2			5.42	4.38	632.5			5.42	4.10	649.8			5.42	3.86	663.0		
FEB 7	5.16	4.80	515.1		5.16	4.47	542.5			5.16	4.18	566.4			5.16	3.93	586.2			5.16	3.71	602.0		
JAN 23	4.94	4.60	457.0		4.94	4.29	485.9			4.94	4.02	511.4			4.94	3.79	532.9			4.94	3.58	550.4		
JAN 10	4.78	4.45	415.8		4.78	4.16	445.5			4.78	3.90	471.9			4.78	3.68	494.4			4.78	3.49	512.9		
DEC 22	4.68	4.36	391.7		4.68	4.07	421.8			4.68	3.83	448.5			4.68	3.62	471.5			4.68	3.43	490.5		
JUN 22	7.432	6.62	948.7		7.432	4.31	930.0			7.432	4.03	911.1			7.432	3.79	892.5			7.432	3.57	874.3		
JUN 1	7.422	4.57	942.6		7.422	4.26	925.3			7.422	4.00	907.5			7.422	3.76	890.0			7.422	3.55	872.7		
MAY 18	7.406	4.49	930.8		7.406	4.19	915.7			7.406	3.94	900.0			7.406	3.71	884.1			7.406	3.50	868.4		
MAY 3	6.84	4.37	911.0		6.84	4.10	899.1			6.84	3.85	886.1			6.84	3.63	872.7			6.84	3.44	859.1		
APR 19	6.58	4.24	881.4		6.58	3.98	873.1			6.58	3.75	863.5			6.58	3.55	853.0			6.58	3.36	842.1		
APR 4	6.429	4.10	841.5		6.429	3.85	837.2			6.429	3.62	831.2			6.429	3.45	823.9			6.429	3.28	815.8		
MAR 21	6.400	3.95	790.9		6.400	3.72	790.6			6.400	3.52	788.2			6.400	3.35	784.1			6.400	3.20	779.0		
MAR 7	5.71	3.79	733.2		5.71	3.59	736.5			5.71	3.41	737.4			5.71	3.25	736.4			5.71	3.11	734.0		
FEB 20	5.42	3.65	672.6		5.42	3.46	679.0			5.42	3.30	682.7			5.42	3.16	684.4			5.42	3.03	684.4		
FEB 7	5.16	3.52	614.1		5.16	3.35	622.9			5.16	3.20	628.9			5.16	3.07	632.6			5.16	2.95	634.6		
JAN 23	4.94	3.41	564.2		4.94	3.25	574.7			4.94	3.11	582.3			4.94	3.00	587.5			4.94	2.89	591.0		
JAN 10	4.78	3.32	527.7		4.78	3.18	539.2			4.78	3.05	547.8			4.78	2.94	554.0			4.78	2.84	558.3		
DEC 22	4.68	3.27	505.8		4.68	3.14	517.8			4.68	3.02	526.9			4.68	2.91	533.7			4.68	2.82	538.5		
JUN 22	7.432	6.62	948.7		7.432	4.31	930.0			7.432	4.03	911.1			7.432	3.79	892.5			7.432	3.57	874.3		
JUN 1	7.422	4.57	942.6		7.422	4.26	925.3			7.422	4.00	907.5			7.422	3.76	890.0			7.422	3.55	872.7		
MAY 18	7.406	4.49	930.8		7.406	4.19	915.7			7.406	3.94	900.0			7.406	3.71	884.1			7.406	3.50	868.4		
MAY 3	6.84	4.37	911.0		6.84	4.10	899.1			6.84	3.85	886.1			6.84	3.63	872.7			6.84	3.44	859.1		
APR 19	6.58	4.24	881.4		6.58	3.98	873.1			6.58	3.75	863.5			6.58	3.55	853.0			6.58	3.36	842.1		
APR 4	6.429	4.10	841.5		6.429	3.85	837.2			6.429	3.62	831.2			6.429	3.45	823.9			6.429	3.28	815.8		
MAR 21	6.400	3.95	790.9		6.400	3.72	790.6			6.400	3.52	788.2			6.400	3.35	784.1			6.400	3.20	779.0		
MAR 7	5.71	3.79	733.2		5.71	3.59	736.5			5.71	3.41	737.4			5.71	3.25	736.4			5.71	3.11	734.0		
FEB 20	5.42	3.65	672.6		5.42	3.46	679.0			5.42	3.30	682.7			5.42	3.16	684.4			5.42	3.03	684.4		
FEB 7	5.16	3.52	614.1		5.16	3.35	622.9			5.16	3.20	628.9			5.16	3.07	632.6			5.16	2.95	634.6		
JAN 23	4.94	3.41	564.2		4.94	3.25	574.7			4.94	3.11	582.3			4.94	3.00	587.5			4.94	2.89	591.0		
JAN 10	4.78	3.32	527.7		4.78	3.18	539.2			4.78	3.05	547.8			4.78	2.94	554.0			4.78	2.84	558.3		
DEC 22	4.68	3.27	505.8		4.68	3.14	517.8			4.68	3.02	526.9			4.68	2.91	533.7			4.68	2.82	538.5		
JUN 22	7.432	6.62	948.7		7.432	4.31	930.0			7.432	4.03	911.1			7.432	3.79	892.5			7.432	3.57	874.3		
JUN 1	7.422	4.57	942.6		7.422	4.26	925.3			7.422	4.00	907.5			7.422	3.76	890.0			7.422	3.55	872.7		
MAY 18	7.406	4.49	930.8		7.406	4.19	915.7			7.406	3.94	900.0			7.406	3.71	884.1			7.406	3.50	868.4		
MAY 3	6.84	4.37	911.0		6.84	4.10	899.1			6.84	3.85	886.1			6.84	3.63	872.7			6.84	3.44	859.1		
APR 19	6.58	4.24	881.4		6.58	3.98	873.1			6.58	3.75	863.5			6.58	3.55	853.0			6.58	3.36	842.1		
APR 4	6.429	4.10	841.5		6.429	3.85	837.2			6.429	3.62	831.2			6.429	3.45	823.9			6.429	3.28	815.8		
MAR 21	6.400	3.95	790.9		6.400	3.72	790.6			6.400	3.52	788.2			6.400	3.35	784.1			6.400	3.20	779.0		
MAR 7	5.71	3.79	733.2		5.71	3.59	736.5			5.71	3.41	737.4			5.71	3.25	736.4			5.71	3.11	734.0		
FEB 20	5.42	3.65	672.6		5.42	3.46	679.0			5.42	3.30	682.7			5.42	3.16	684.4			5.42	3.03	684.4		
FEB 7	5.16	3.52	614.1		5.16	3.35	622.9			5.16	3.20	628.9			5.16	3.07	632.6			5.16	2.95	634.6		
JAN 23	4.94	3.41	564.2		4.94	3.25	574.7			4.94	3.11	582.3			4.94	3.00	587.5			4.94	2.89	591.0		
JAN 10	4.78	3.32	527.7		4.78	3.18	539.2			4.78	3.05	547.8			4.78	2.94	554.0			4.78	2.84	558.3		
DEC 22	4.68	3.27	505.8		4.68	3.14	517.8			4.68	3.02	526.9			4.68	2.91	533.7			4.68	2.82	538.5		
JUN 22	7.432	6.62	948.7		7.432	4.31	930.0			7.432	4.03	911.1			7.432	3.79	892.5			7.432	3.57	874.3		
JUN 1	7.422	4.57	942.6		7.422	4.26	925.3			7.422	4.00	907.5			7.422	3.76	890.0			7.422	3.55	872.7		
MAY 18	7.406	4.49	930.8		7.406	4.19	915.7			7.406	3.94	900.0			7.406	3.71	884.1			7.406	3.50	868.4		
MAY 3	6.84	4.37	911.0		6.84	4.10	899.1			6.84	3.85	886.1			6.84	3.63	872.7			6.84	3.44	859.1		
APR 19	6.58	4.24	881.4		6.58	3.98	873.1			6.58	3.75	863.5			6.58	3.55	853.0			6.58	3.36	842.1		
APR 4	6.429	4.10	841.5		6.429	3.85	837.2			6.429	3.62	831.2			6.429	3.45	823.9			6.429	3.28	815.8		
MAR 21	6.400	3.95	790.9		6.400	3.72	790.6			6.400	3.52	788.2			6.400	3.35	784.1			6.400	3.20	779.0		
MAR 7	5.71	3.79	733.2		5.71	3.59	736.5			5.71	3.41	737.4			5.71	3.25	736.4							

LATITUDE 36 N
ASPECT E - W

		10 PCT			20 PCT			SLOPE			30 PCT			40 PCT			50 PCT		
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY
JUN 22		-7.32	6.83	1018.4	-7.32	6.33	1011.1	-7.32	5.84	1000.0	-7.32	5.38	986.0	-7.32	4.95	970.1	-7.32	4.55	955.7
JUN 1 JUL 12		-7.22	6.73	1001.6	-7.22	6.24	994.7	-7.22	5.75	984.2	-7.22	5.29	970.9	-7.22	4.87	955.7	-7.22	4.47	941.6
MAY 18 JUL 27		-7.06	6.57	972.1	-7.06	6.08	965.8	-7.06	5.60	956.2	-7.06	5.15	943.0	-7.06	4.73	930.0	-7.06	4.33	916.6
MAY 3 AUG 10		-6.84	6.35	928.3	-6.84	5.86	922.9	-6.84	5.39	914.5	-6.84	4.95	903.9	-6.84	4.55	891.6	-6.84	4.15	879.2
APR 19 AUG 25		-6.58	6.09	870.4	-6.58	5.61	866.0	-6.58	5.15	859.2	-6.58	4.72	850.4	-6.58	4.33	840.2	-6.58	3.93	830.9
APR 4 SEP 9		-6.29	5.81	801.0	-6.29	5.34	797.5	-6.29	4.89	792.6	-6.29	4.47	785.9	-6.29	4.09	777.8	-6.29	3.71	769.7
MAR 21 SEP 23		-6.00	5.52	722.0	-6.00	5.05	719.9	-6.00	4.61	716.4	-6.00	4.21	711.7	-6.00	3.84	706.0	-6.00	3.47	700.8
MAR 7 OCT 8		-5.71	5.23	639.1	-5.71	4.76	638.1	-5.71	4.34	636.3	-5.71	3.94	633.5	-5.71	3.55	629.8	-5.71	3.17	626.1
FEB 20 OCT 22		-5.42	4.94	558.4	-5.42	4.49	558.4	-5.42	4.07	557.9	-5.42	3.69	556.8	-5.42	3.33	554.9	-5.42	2.97	553.0
FEB 7 NOV 5		-5.16	4.69	485.3	-5.16	4.24	486.0	-5.16	3.82	486.6	-5.16	3.46	486.8	-5.16	3.13	486.5	-5.16	2.81	486.5
JAN 23 NOV 19		-4.94	4.47	426.0	-4.94	4.02	427.2	-4.94	3.62	428.6	-4.94	3.26	429.8	-4.94	2.95	430.5	-4.94	2.65	431.2
JAN 10 DEC 3		-4.78	4.30	384.3	-4.78	3.86	385.6	-4.78	3.47	387.7	-4.78	3.12	389.5	-4.78	2.81	390.9	-4.78	2.51	392.3
DEC 22		-4.68	4.20	359.9	-4.68	3.77	361.7	-4.68	3.38	363.9	-4.68	3.03	366.0	-4.68	2.73	367.7	-4.68	2.43	369.0
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		259.553	.4938		258.641	.4921		257.166	.4893		255.188	.4855		252.792	.4810		250.396	.4765	
		60 PCT	70 PCT	SLOPE	80 PCT	90 PCT	100 PCT												
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY
		31.9	37.3	30.3	41.6	30.7	45.4	28.7	45.4	27.2	48.8	25.8	51.8	23.3	54.8	21.3	57.8	20.3	60.8
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.32	4.56	953.1	-7.32	4.21	935.6	-7.32	3.89	918.1	-7.32	3.61	901.1	-7.32	3.36	884.6	-7.32	3.11	868.1
JUN 1 JUL 12		-7.22	4.48	959.4	-7.22	4.13	922.6	-7.22	3.82	905.8	-7.22	3.55	889.4	-7.22	3.30	873.0	-7.22	3.05	856.6
MAY 18 JUL 27		-7.06	4.35	915.0	-7.06	4.01	899.4	-7.06	3.71	883.8	-7.06	3.44	868.4	-7.06	3.20	853.0	-7.06	2.95	837.6
MAY 3 AUG 10		-6.84	4.18	878.3	-6.84	3.85	864.4	-6.84	3.56	850.3	-6.84	3.30	836.5	-6.84	3.07	823.0	-6.84	2.83	809.6
APR 19 AUG 25		-6.58	3.97	828.9	-6.58	3.66	817.1	-6.58	3.38	805.0	-6.58	3.13	793.0	-6.58	2.91	781.2	-6.58	2.69	769.4
APR 4 SEP 9		-6.29	3.75	768.9	-6.29	3.45	759.2	-6.29	3.18	749.3	-6.29	2.94	739.3	-6.29	2.73	729.4	-6.29	2.52	719.4
MAR 21 SEP 23		-6.00	3.51	699.3	-6.00	3.23	692.0	-6.00	2.97	684.2	-6.00	2.75	676.3	-6.00	2.55	668.3	-6.00	2.35	660.3
MAR 7 OCT 8		-5.71	3.28	625.3	-5.71	3.00	620.2	-5.71	2.76	614.5	-5.71	2.55	608.6	-5.71	2.37	602.5	-5.71	2.19	596.4
FEB 20 OCT 22		-5.42	3.06	552.3	-5.42	2.79	549.1	-5.42	2.57	545.3	-5.42	2.37	541.1	-5.42	2.19	536.6	-5.42	2.03	532.1
FEB 7 NOV 5		-5.16	2.85	485.4	-5.16	2.60	483.7	-5.16	2.38	481.3	-5.16	2.20	478.6	-5.16	2.03	475.5	-5.16	1.87	472.4
JAN 23 NOV 19		-4.94	2.67	430.6	-4.94	2.44	430.0	-4.94	2.23	428.7	-4.94	2.05	427.0	-4.94	1.90	425.0	-4.94	1.75	423.0
JAN 10 DEC 3		-4.78	2.55	391.7	-4.78	2.32	391.8	-4.78	2.12	391.3	-4.78	1.95	390.3	-4.78	1.80	388.6	-4.78	1.65	386.9
DEC 22		-4.68	2.47	368.9	-4.68	2.24	369.3	-4.68	2.05	369.2	-4.68	1.89	368.6	-4.68	1.74	367.5	-4.68	1.59	366.4
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		250.076	.4758		247.138	.4702		244.076	.4644		240.976	.4585		237.875	.4526		234.775	.4467	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SK AND SS ARE REVERSED.

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 40 N

HORIZONTAL SURFACE

LATITUDE 40 N

	SR	SS	LY
JUN 22	-7.43	7.43	1022.7
JUN 1 JUL 12	-7.32	7.32	1004.2
MAY 18 JUL 27	-7.14	7.14	971.5
MAY 3 AUG 10	-6.90	6.90	923.5
APR 19 AUG 25	-6.62	6.62	860.7
APR 4 SEP 9	-6.32	6.32	786.3
MAR 21 SEP 23	-6.00	6.00	702.5
MAR 7 OCT 8	-5.68	5.68	615.6
FEB 20 OCT 22	-5.38	5.38	531.8
FEB 7 NOV 5	-5.10	5.10	456.5
JAN 23 NOV 19	-4.86	4.86	395.9
JAN 10 DEC 3	-4.68	4.68	353.5
DEC 22	-4.57	4.57	328.9

YEAR R.I.
253.658 .4826

LATITUDE 40 N
ASPECT N -

		10 PCT			20 PCT			30 PCT			40 PCT			50 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		45.7	0.0		51.3	0.0		56.7	0.0		61.8	0.0		66.6	0.0	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.43	7.43	1021.6	-7.43	7.43	1010.7	-7.43	7.43	991.1	-7.43	7.43	964.5	-7.43	7.43	932.6
JUN 1 JUL 12		-7.32	7.32	998.1	-7.32	7.32	982.6	-7.32	7.32	956.8	-7.32	7.32	928.4	-7.32	7.32	893.4
MAY 18 JUL 27		-7.14	7.14	957.3	-7.14	7.14	934.2	-7.14	7.14	903.5	-7.14	7.14	870.8	-7.14	7.14	826.8
MAY 3 AUG 10		-6.90	6.90	898.3	-6.90	6.90	865.0	-6.90	6.90	825.2	-6.90	6.90	780.8	-6.90	6.90	733.7
APR 19 AUG 25		-6.62	6.62	823.1	-6.62	6.62	778.2	-6.62	6.62	728.1	-6.62	6.62	674.7	-6.62	6.62	619.9
APR 4 SEP 9		-6.32	6.32	735.9	-6.32	6.32	679.4	-6.32	6.32	619.0	-6.32	6.32	556.7	-6.32	6.32	494.4
MAR 21 SEP 23		-6.00	6.00	640.3	-6.00	6.00	573.2	-6.00	6.00	503.5	-6.00	6.00	433.4	-6.00	6.00	364.7
MAR 7 OCT 8		-5.61	5.61	543.6	-5.53	5.53	468.2	-5.42	5.42	391.7	-5.29	5.29	316.5	-5.12	5.12	244.6
FEB 20 OCT 22		-5.24	5.24	452.6	-5.07	5.07	372.1	-4.86	4.86	292.4	-4.59	4.59	216.3	-4.24	4.24	146.2
FEB 7 NOV 5		-4.89	4.89	373.2	-4.64	4.64	290.2	-4.33	4.33	210.5	-3.91	3.91	137.2	-3.33	3.33	73.4
JAN 23 NOV 19		-4.59	4.59	310.6	-4.27	4.27	227.5	-3.85	3.85	150.1	-3.28	3.28	82.0	-2.40	2.40	28.0
JAN 10 DEC 3		-4.37	4.37	267.7	-3.98	3.98	185.5	-3.47	3.47	111.1	-2.75	2.75	48.8	-1.43	1.43	6.0
DEC 22		-4.23	4.23	243.2	-3.81	3.81	162.1	-3.24	3.24	90.0	-2.39	2.39	32.1	0.00	0.00	0.0
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		234.548	.4462		214.006	.4072		192.933	.3671		172.271	.3278		153.243	.2916	
		60 PCT			70 PCT			80 PCT			90 PCT			100 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		71.0	0.0		75.0	0.0		78.7	0.0		82.0	0.0		85.0	0.0	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.43	7.43	897.5	-7.43	7.43	860.7	-7.43	7.43	823.6	-7.43	7.43	787.0	-7.43	7.43	751.4
JUN 1 JUL 12		-7.32	7.32	855.6	-7.32	7.32	816.5	-7.32	7.32	777.5	-7.32	7.32	739.4	-7.32	7.32	702.6
MAY 18 JUL 27		-7.14	7.14	784.6	-7.14	7.14	741.8	-7.14	7.14	699.7	-7.14	7.14	659.2	-7.14	7.14	620.4
MAY 3 AUG 10		-6.90	6.90	685.6	-6.90	6.90	638.1	-6.90	6.90	592.1	-6.90	6.90	548.4	-6.90	6.90	507.0
APR 19 AUG 25		-6.62	6.62	565.5	-6.62	6.62	512.7	-6.62	6.62	462.6	-6.62	6.62	415.5	-6.62	6.62	371.5
APR 4 SEP 9		-6.32	6.32	434.0	-6.32	6.32	376.3	-6.32	6.32	322.2	-6.32	6.32	272.2	-6.32	6.32	225.8
MAR 21 SEP 23		-6.00	6.00	299.1	-6.00	6.00	237.4	-6.00	6.00	180.2	-6.00	6.00	127.9	-6.00	6.00	79.9
MAR 7 OCT 8		-4.89	4.89	177.6	-4.56	4.56	116.8	-4.03	4.03	63.4	-3.04	3.04	20.2	0.00	0.00	0.0
FEB 20 OCT 22		-3.73	3.73	84.3	-2.93	2.93	33.6	-1.05	1.05	1.2	0.00	0.00	0.0	0.00	0.00	0.0
FEB 7 NOV 5		-2.40	2.40	23.5	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
JAN 23 NOV 19		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
JAN 10 DEC 3		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
DEC 22		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		137.380	.2614		123.821	.2356		112.019	.2131		101.887	.1938		92.944	.1768	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 40 N
ASPECT S -

		SLOPE																			
		10 PCT			20 PCT			30 PCT			40 PCT			50 PCT							
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA						
		34.3	0.0		28.7	0.0		23.3	0.0		18.2	0.0		13.4	0.0						
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY					
JUN 22		-7.15	7.15	1015.3	-6.92	6.92	1001.1	-6.72	6.72	980.5	-6.55	6.55	954.7	-6.40	6.40	925.0					
JUN 1 JUL 12		-7.06	7.06	1001.7	-6.85	6.85	992.0	-6.67	6.67	975.6	-6.51	6.51	953.5	-6.37	6.37	927.2					
MAY 18 JUL 27		-6.92	6.92	977.2	-6.74	6.74	975.1	-6.58	6.58	965.8	-6.44	6.44	950.2	-6.32	6.32	929.7					
MAY 3 AUG 10		-6.73	6.73	940.2	-6.59	6.59	948.6	-6.46	6.46	949.1	-6.35	6.35	942.6	-6.25	6.25	930.3					
APR 19 AUG 25		-6.50	6.50	890.2	-6.40	6.40	911.0	-6.32	6.32	923.3	-6.24	6.24	927.8	-6.18	6.18	925.7					
APR 4 SEP 9		-6.26	6.26	829.0	-6.21	6.21	863.0	-6.16	6.16	888.0	-6.12	6.12	904.6	-6.09	6.09	913.7					
MAR 21 SEP 23		-6.00	6.00	757.8	-6.00	6.00	804.6	-6.00	6.00	842.3	-6.00	6.00	871.2	-6.00	6.00	892.0					
MAR 7 OCT 8		-5.68	5.68	681.6	-5.68	5.68	739.6	-5.68	5.68	788.7	-5.68	5.68	828.9	-5.68	5.68	860.5					
FEB 20 OCT 22		-5.38	5.38	605.9	-5.38	5.38	672.7	-5.38	5.38	730.8	-5.38	5.38	779.9	-5.38	5.38	820.3					
FEB 7 NOV 5		-5.10	5.10	536.1	-5.10	5.10	608.9	-5.10	5.10	673.4	-5.10	5.10	729.0	-5.10	5.10	775.8					
JAN 23 NOV 19		-4.86	4.86	478.6	-4.86	4.86	555.0	-4.86	4.86	623.5	-4.86	4.86	683.3	-4.86	4.86	734.3					
JAN 10 DEC 3		-4.68	4.68	437.7	-4.68	4.68	515.9	-4.68	4.68	586.5	-4.68	4.68	648.6	-4.68	4.68	702.0					
DEC 22		-4.57	4.57	413.6	-4.57	4.57	492.6	-4.57	4.57	566.1	-4.57	4.57	627.2	-4.57	4.57	681.7					
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.						
		270.580	.5148		284.802	.5419		296.107	.5634		304.560	.5795		310.403	.5906						
		60 PCT			70 PCT			80 PCT			90 PCT			100 PCT							
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA						
		9.0	0.0		5.0	0.0		1.3	0.0		-2.0	0.0		-5.0	0.0						
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY					
JUN 22		-6.26	6.26	893.0	-6.15	6.15	859.8	-6.04	6.04	826.6	-5.94	5.94	794.2	-5.85	5.85	762.9					
JUN 1 JUL 12		-6.25	6.25	898.2	-6.13	6.13	867.6	-6.04	6.04	836.7	-5.95	5.95	806.2	-5.87	5.87	776.5					
MAY 18 JUL 27		-6.21	6.21	905.8	-6.12	6.12	879.7	-6.03	6.03	852.7	-5.95	5.95	825.6	-5.88	5.88	798.8					
MAY 3 AUG 10		-6.17	6.17	913.7	-6.09	6.09	894.1	-6.02	6.02	872.7	-5.96	5.96	850.5	-5.91	5.91	828.1					
APR 19 AUG 25		-6.12	6.12	918.2	-6.06	6.06	906.8	-6.02	6.02	892.6	-5.97	5.97	876.8	-5.94	5.94	859.9					
APR 4 SEP 9		-6.06	6.06	916.5	-6.03	6.03	914.4	-6.01	6.01	908.6	-5.99	5.99	900.2	-5.97	5.97	890.0					
MAR 21 SEP 23		-6.00	6.00	905.7	-6.00	6.00	913.6	-6.00	6.00	916.9	-6.00	6.00	916.6	-6.00	6.00	913.6					
MAR 7 OCT 8		-5.68	5.68	884.4	-5.68	5.68	901.7	-5.68	5.68	913.5	-5.68	5.68	921.1	-5.68	5.68	925.2					
FEB 20 OCT 22		-5.38	5.38	852.5	-5.38	5.38	877.6	-5.38	5.38	896.7	-5.38	5.38	910.7	-5.38	5.38	920.9					
FEB 7 NOV 5		-5.10	5.10	814.3	-5.10	5.10	845.3	-5.10	5.10	869.9	-5.10	5.10	889.0	-5.10	5.10	903.9					
JAN 23 NOV 19		-4.86	4.86	776.9	-4.86	4.86	812.0	-4.86	4.86	840.3	-4.86	4.86	863.0	-4.86	4.86	881.1					
JAN 10 DEC 3		-4.68	4.68	747.0	-4.68	4.68	784.4	-4.68	4.68	815.0	-4.68	4.68	839.8	-4.68	4.68	859.9					
DEC 22		-4.57	4.57	727.9	-4.57	4.57	766.5	-4.57	4.57	798.2	-4.57	4.57	824.1	-4.57	4.57	845.3					
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.						
		313.986	.5974		315.722	.6007		316.005	.6012		315.197	.5997		313.586	.5966						

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 40 N
ASPECT NNE - NNW

SLOPE										50 PCT									
10 PCT					20 PCT					30 PCT					40 PCT				
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
45.2	3.1	-7.43	7.43	1021.3	-7.43	7.43	1010.1	-7.43	7.43	990.2	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
JUN 22		-7.43	7.43	998.2	-7.43	7.43	987.7	-7.43	7.43	979.0	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
JUN 1	JUL 12	-7.43	7.43	958.0	-7.43	7.43	955.6	-7.43	7.43	946.8	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
MAY 18	JUL 27	-7.43	7.43	899.9	-7.43	7.43	897.5	-7.43	7.43	888.7	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
MAY 3	AUG 10	-6.62	6.62	825.7	-6.62	6.62	823.3	-6.62	6.62	814.5	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
APR 19	AUG 25	-6.62	6.62	739.6	-6.62	6.62	737.2	-6.62	6.62	728.4	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
APR 4	SEP 9	-6.00	5.79	645.3	-6.00	5.55	584.0	-6.00	5.26	521.3	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
MAR 21	SEP 23	-5.68	5.41	549.6	-5.68	5.10	481.5	-5.68	4.72	414.0	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
MAR 7	OCT 8	-5.38	5.05	459.4	-5.38	4.66	386.9	-5.38	4.20	317.1	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
FEB 20	OCT 22	-5.10	4.70	380.2	-5.10	4.24	305.6	-5.10	3.70	235.6	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
FEB 7	NOV 5	-4.83	4.41	317.7	-4.78	3.88	242.8	-4.73	3.26	174.2	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
JAN 23	NOV 19	-4.51	4.19	274.8	-4.51	3.61	200.5	-4.39	2.92	134.0	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
JAN 10	DEC 3	-4.47	4.06	250.2	-4.47	3.45	176.7	-4.41	2.71	112.0	11.1	55.0	55.0	55.0	59.3	16.2	63.1	63.1	63.1
DEC 22																			
SLOPE										60 PCT									
10 PCT					20 PCT					30 PCT					40 PCT				
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
66.3	29.3	-7.43	7.43	896.0	-7.43	7.43	859.0	-7.43	7.43	821.6	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JUN 22		-7.43	7.43	856.0	-7.43	7.43	817.0	-7.43	7.43	777.9	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JUN 1	JUL 12	-7.43	7.43	788.3	-7.43	7.43	749.9	-7.43	7.43	711.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAY 18	JUL 27	-6.90	6.67	694.0	-6.90	6.58	647.5	-6.90	6.43	602.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAY 3	AUG 10	-6.62	6.58	582.4	-6.62	6.50	533.0	-6.62	6.43	486.8	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
APR 19	AUG 25	-6.32	6.32	463.8	-6.32	6.24	413.7	-6.32	6.17	368.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
APR 4	SEP 9	-6.00	5.79	345.7	-6.00	5.51	297.2	-6.00	5.20	255.3	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAR 21	SEP 23	-5.68	5.41	237.7	-5.68	5.22	193.0	-5.68	4.81	156.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAR 7	OCT 8	-5.38	5.05	146.9	-5.38	4.66	108.1	-5.38	4.20	78.7	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
FEB 20	OCT 22	-5.10	4.70	77.2	-5.10	4.24	45.8	-5.10	3.70	25.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
FEB 7	NOV 5	-4.83	4.41	31.1	-4.78	3.88	8.0	-4.73	3.26	0.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JAN 23	NOV 19	-4.51	4.19	8.0	-4.51	3.61	0.0	-4.39	2.92	0.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JAN 10	DEC 3	-4.47	4.06	4.4	-4.47	3.45	0.0	-4.41	2.71	0.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
DEC 22																			
SLOPE										80 PCT									
10 PCT					20 PCT					30 PCT					40 PCT				
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
66.3	29.3	-7.43	7.43	896.0	-7.43	7.43	859.0	-7.43	7.43	821.6	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JUN 22		-7.43	7.43	856.0	-7.43	7.43	817.0	-7.43	7.43	777.9	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JUN 1	JUL 12	-7.43	7.43	788.3	-7.43	7.43	749.9	-7.43	7.43	711.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAY 18	JUL 27	-6.90	6.67	694.0	-6.90	6.58	647.5	-6.90	6.43	602.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAY 3	AUG 10	-6.62	6.58	582.4	-6.62	6.50	533.0	-6.62	6.43	486.8	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
APR 19	AUG 25	-6.32	6.32	463.8	-6.32	6.24	413.7	-6.32	6.17	368.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
APR 4	SEP 9	-6.00	5.79	345.7	-6.00	5.51	297.2	-6.00	5.20	255.3	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAR 21	SEP 23	-5.68	5.41	237.7	-5.68	5.22	193.0	-5.68	4.81	156.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAR 7	OCT 8	-5.38	5.05	146.9	-5.38	4.66	108.1	-5.38	4.20	78.7	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
FEB 20	OCT 22	-5.10	4.70	77.2	-5.10	4.24	45.8	-5.10	3.70	25.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
FEB 7	NOV 5	-4.83	4.41	31.1	-4.78	3.88	8.0	-4.73	3.26	0.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JAN 23	NOV 19	-4.51	4.19	8.0	-4.51	3.61	0.0	-4.39	2.92	0.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JAN 10	DEC 3	-4.47	4.06	4.4	-4.47	3.45	0.0	-4.41	2.71	0.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
DEC 22																			
SLOPE										100 PCT									
10 PCT					20 PCT					30 PCT					40 PCT				
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
66.3	29.3	-7.43	7.43	896.0	-7.43	7.43	859.0	-7.43	7.43	821.6	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JUN 22		-7.43	7.43	856.0	-7.43	7.43	817.0	-7.43	7.43	777.9	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JUN 1	JUL 12	-7.43	7.43	788.3	-7.43	7.43	749.9	-7.43	7.43	711.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAY 18	JUL 27	-6.90	6.67	694.0	-6.90	6.58	647.5	-6.90	6.43	602.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAY 3	AUG 10	-6.62	6.58	582.4	-6.62	6.50	533.0	-6.62	6.43	486.8	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
APR 19	AUG 25	-6.32	6.32	463.8	-6.32	6.24	413.7	-6.32	6.17	368.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
APR 4	SEP 9	-6.00	5.79	345.7	-6.00	5.51	297.2	-6.00	5.20	255.3	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAR 21	SEP 23	-5.68	5.41	237.7	-5.68	5.22	193.0	-5.68	4.81	156.5	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
MAR 7	OCT 8	-5.38	5.05	146.9	-5.38	4.66	108.1	-5.38	4.20	78.7	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
FEB 20	OCT 22	-5.10	4.70	77.2	-5.10	4.24	45.8	-5.10	3.70	25.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
FEB 7	NOV 5	-4.83	4.41	31.1	-4.78	3.88	8.0	-4.73	3.26	0.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JAN 23	NOV 19	-4.51	4.19	8.0	-4.51	3.61	0.0	-4.39	2.92	0.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
JAN 10	DEC 3	-4.47	4.06	4.4	-4.47	3.45	0.0	-4.41	2.71	0.0	46.5	70.7	70.7	70.7	72.0	56.1	72.7	72.7	72.7
DEC 22																			

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 40° N
ASPECT SSE - SSW

	10 PCT						SLOPE						30 PCT						40 PCT						50 PCT						
	THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			
	34.7	SR	SS	LY	SR	SS	29.4	SR	SS	LY	SR	SS	24.3	SR	SS	LY	SR	SS	19.5	SR	SS	LY	SR	SS	15.0	SR	SS	LY			
JUN 22	-7.34	6.99	1016.1		-7.28	6.62	1003.4		-7.22	6.29	985.1		-7.17	6.01	961.9		-7.13	5.76	935.2		-7.09	5.73	935.3		-7.04	5.68	937.0		-6.90	5.60	934.8
JUN 1 JUL 12	-7.26	6.90	1002.1		-7.21	6.55	993.7		-7.16	6.24	979.3		-7.13	5.97	959.8		-7.09	5.73	935.3		-7.04	5.68	937.0		-7.00	5.65	934.7		-6.86	5.53	930.5
MAY 18 JUL 27	-7.11	6.76	977.0		-7.09	6.43	975.8		-7.07	6.15	968.2		-7.05	5.90	954.8		-7.00	5.73	935.3		-6.90	5.68	937.0		-6.86	5.64	934.3		-6.72	5.50	930.1
MAY 3 AUG 10	-6.90	6.56	939.2		-6.90	6.27	947.9		-6.90	6.02	949.6		-6.82	5.87	921.1		-6.82	5.87	921.1		-6.82	5.87	921.1		-6.82	5.87	921.1		-6.82	5.87	921.1
APR 19 AUG 25	-6.62	6.33	888.3		-6.62	6.09	908.5		-6.62	5.87	921.1		-6.62	5.87	921.1		-6.62	5.87	921.1		-6.62	5.87	921.1		-6.62	5.87	921.1		-6.62	5.87	921.1
APR 4 SEP 9	-6.32	6.08	826.1		-6.32	5.88	858.2		-6.32	5.71	832.3		-6.32	5.71	832.3		-6.32	5.71	832.3		-6.32	5.71	832.3		-6.32	5.71	832.3		-6.32	5.71	832.3
MAR 21 SEP 23	-6.00	5.82	753.7		-6.00	5.67	797.2		-6.00	5.54	832.5		-6.00	5.54	832.5		-6.00	5.54	832.5		-6.00	5.54	832.5		-6.00	5.54	832.5		-6.00	5.54	832.5
MAR 7 OCT 8	-5.68	5.56	676.5		-5.68	5.46	729.9		-5.68	5.37	775.0		-5.68	5.37	775.0		-5.68	5.37	775.0		-5.68	5.37	775.0		-5.68	5.37	775.0		-5.68	5.37	775.0
FEB 20 OCT 22	-5.38	5.31	600.1		-5.38	5.25	661.4		-5.38	5.20	714.4		-5.38	5.20	714.4		-5.38	5.20	714.4		-5.38	5.20	714.4		-5.38	5.20	714.4		-5.38	5.20	714.4
FEB 7 NOV 5	-5.10	5.08	529.8		-5.10	5.07	596.6		-5.10	5.05	655.4		-5.10	5.05	655.4		-5.10	5.05	655.4		-5.10	5.05	655.4		-5.10	5.05	655.4		-5.10	5.05	655.4
JAN 23 NOV 19	-4.86	4.86	472.2		-4.86	4.86	542.3		-4.86	4.86	604.9		-4.86	4.86	604.9		-4.86	4.86	604.9		-4.86	4.86	604.9		-4.86	4.86	604.9		-4.86	4.86	604.9
JAN 10 DEC 3	-4.68	4.68	431.1		-4.68	4.68	503.0		-4.68	4.68	567.6		-4.68	4.68	567.6		-4.68	4.68	567.6		-4.68	4.68	567.6		-4.68	4.68	567.6		-4.68	4.68	567.6
DEC 22	-4.57	4.57	407.0		-4.57	4.57	479.6		-4.57	4.57	545.1		-4.57	4.57	545.1		-4.57	4.57	545.1		-4.57	4.57	545.1		-4.57	4.57	545.1		-4.57	4.57	545.1
60 PCT																70 PCT															
SLOPE																SLOPE															
YEAR																YEAR															
R.I.																R.I.															
269.325																282.536															
512.4																537.5															
293.058																293.058															
R.I.																R.I.															
557.6																557.6															
300.929																300.929															
R.I.																R.I.															
572.5																572.5															
306.363																306.363															
R.I.																R.I.															
582.9																582.9															
51.6																51.6															
795.0																795.0															
747.9																747.9															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															
705.4																705.4															

		SLOPE																			
		10 PCT			20 PCT			30 PCT			40 PCT			50 PCT							
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY		
		43.9	5.6		47.4	11.8		50.5	18.6		52.9	25.8		54.8	33.3		56.2	42.8			
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY		
JUN 22		-7.43	7.28	1020.7	-7.43	7.10	1009.3	-7.43	6.88	989.9	-7.43	6.62	964.3	-7.43	6.32	934.5	-7.43	6.02	903.8		
JUN 1 JUL 12		-7.32	7.15	998.7	-7.32	6.95	984.3	-7.32	6.71	962.5	-7.32	6.43	935.0	-7.32	6.11	903.8	-7.32	5.77	851.7		
MAY 18 JUL 27		-7.14	6.94	960.4	-7.14	6.71	941.2	-7.14	6.44	915.4	-7.14	6.12	884.9	-7.14	5.77	851.7	-7.14	5.33	778.6		
MAY 3 AUG 10		-6.90	6.66	904.9	-6.90	6.39	879.4	-6.90	6.08	848.5	-6.90	5.72	814.2	-6.90	5.33	778.6	-6.90	4.84	688.9		
APR 19 AUG 25		-6.62	6.34	833.7	-6.62	6.02	801.1	-6.62	5.66	764.8	-6.62	5.26	726.7	-6.62	4.84	688.9	-6.62	4.32	589.3		
APR 4 SEP 9		-6.32	5.99	750.7	-6.32	5.62	711.2	-6.32	5.22	669.9	-6.32	4.78	628.7	-6.32	4.32	589.3	-6.32	3.78	485.3		
MAR 21 SEP 23		-6.00	5.63	659.1	-6.00	5.21	613.7	-6.00	4.76	568.4	-6.00	4.28	525.1	-6.00	3.78	485.3	-6.00	3.25	384.8		
MAR 7 OCT 8		-5.68	5.26	565.8	-5.68	4.80	515.8	-5.68	4.30	468.0	-5.68	3.78	423.9	-5.68	3.25	384.8	-5.68	2.72	294.7		
FEB 20 OCT 22		-5.38	4.91	477.3	-5.38	4.40	424.5	-5.38	3.86	375.7	-5.38	3.29	332.1	-5.38	2.72	294.7	-5.38	2.23	219.8		
FEB 7 NOV 5		-5.10	4.59	399.2	-5.10	4.03	345.2	-5.10	3.44	290.6	-5.10	2.83	246.6	-5.10	2.23	219.8	-5.10	1.79	163.7		
JAN 23 NOV 19		-4.86	4.31	337.2	-4.86	3.71	283.1	-4.86	3.08	235.7	-4.86	2.43	195.8	-4.86	1.79	163.7	-4.86	1.46	127.0		
JAN 10 DEC 3		-4.68	4.10	294.4	-4.68	3.47	240.8	-4.68	2.81	194.7	-4.68	2.13	156.8	-4.68	1.46	127.0	-4.68	1.06	106.8		
DEC 22		-4.57	3.98	269.8	-4.57	3.33	216.8	-4.57	2.64	171.6	-4.57	1.93	135.0	-4.57	1.24	106.8	-4.57	0.71	71.0		
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.			
		240.266	0.4571		226.163	0.4303		212.023	0.4034		198.416	0.3775		185.789	0.3535		172.462	0.3293			
		60 PCT			70 PCT			80 PCT			90 PCT			100 PCT							
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY		
		56.1	40.7		56.8	47.9		57.2	54.6		57.2	60.7		56.9	66.2		56.2	66.2			
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY		
JUN 22		-7.43	5.97	902.6	-7.43	5.59	870.1	-7.43	5.19	838.5	-7.43	4.78	808.8	-7.43	4.37	781.2	-7.43	3.96	750.5		
JUN 1 JUL 12		-7.32	5.74	871.0	-7.32	5.35	838.2	-7.32	4.94	806.6	-7.32	4.53	777.1	-7.32	4.13	749.9	-7.32	3.75	719.7		
MAY 18 JUL 27		-7.14	5.38	817.7	-7.14	4.97	784.4	-7.14	4.56	752.9	-7.14	4.15	723.9	-7.14	3.75	697.5	-7.14	3.33	667.7		
MAY 3 AUG 10		-6.90	4.92	743.3	-6.90	4.49	709.7	-6.90	4.07	678.6	-6.90	3.66	650.6	-6.90	3.27	625.3	-6.90	2.84	596.0		
APR 19 AUG 25		-6.62	4.40	652.8	-6.62	3.95	619.3	-6.62	3.52	589.2	-6.62	3.11	562.5	-6.62	2.73	538.9	-6.62	2.31	509.6		
APR 4 SEP 9		-6.32	3.85	553.1	-6.32	3.39	520.5	-6.32	2.95	491.9	-6.32	2.54	467.2	-6.32	2.16	445.8	-6.32	1.74	417.5		
MAR 21 SEP 23		-6.00	3.29	449.8	-6.00	2.81	418.9	-6.00	2.36	392.6	-6.00	1.95	370.4	-6.00	1.59	351.5	-6.00	1.19	322.2		
MAR 7 OCT 8		-5.68	2.72	351.1	-5.68	2.23	322.7	-5.68	1.77	299.2	-5.68	1.37	279.9	-5.68	1.01	253.9	-5.68	0.64	229.6		
FEB 20 OCT 22		-5.38	2.18	263.7	-5.38	1.66	238.3	-5.38	1.20	218.0	-5.38	0.79	201.7	-5.38	0.44	188.6	-5.38	0.07	165.3		
FEB 7 NOV 5		-5.10	1.65	191.8	-5.10	1.12	169.7	-5.10	0.65	152.6	-5.10	0.25	139.4	-5.10	-0.10	128.9	-5.10	-0.58	108.0		
JAN 23 NOV 19		-4.86	1.19	138.7	-4.86	0.64	119.8	-4.86	0.16	105.5	-4.86	-0.24	94.9	-4.86	-0.71	74.9	-4.86	-1.19	55.0		
JAN 10 DEC 3		-4.68	0.83	104.5	-4.68	0.27	88.0	-4.68	-0.22	75.9	-4.68	-0.62	67.2	-4.68	-1.10	47.1	-4.68	-1.58	7.2		
DEC 22		-4.57	0.60	86.0	-4.57	0.03	70.9	-4.57	-0.46	60.2	-4.57	-0.87	52.7	-4.57	-1.20	47.1	-4.57	-1.60	1.1		
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.			
		174.409	0.3318		164.352	0.3127		155.605	0.2961		148.062	0.2817		141.525	0.2693		134.988	0.2548			

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 40 N
ASPECT SE - SW

DATE	SLOPE										SLOPE										SLOPE									
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT									
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY					
JUN 22	35.8	5.0	-7.43	6.89	1017.9	-7.43	6.41	1008.8	-7.43	5.99	995.5	-7.43	5.61	978.5	-7.43	5.28	958.6	-7.43	5.28	958.6	19.4	19.6	-7.43	5.28	958.6					
JUN 12			-7.32	6.80	1002.8	-7.32	6.33	997.1	-7.32	5.92	987.0	-7.32	5.56	972.9	-7.32	5.24	955.7	-7.32	5.24	955.7			-7.32	5.24	955.7					
JUN 27			-7.14	6.65	976.0	-7.14	6.21	976.0	-7.14	5.82	971.1	-7.14	5.47	961.9	-7.14	5.17	949.0	-7.14	5.17	949.0			-7.14	5.17	949.0					
MAY 18			-6.90	6.44	935.9	-6.90	6.03	943.4	-6.90	5.67	945.7	-6.90	5.35	943.1	-6.90	5.07	936.3	-6.90	5.07	936.3			-6.90	5.07	936.3					
MAY 3			-6.62	6.20	872.2	-6.62	5.83	898.5	-6.62	5.50	909.1	-6.62	5.21	914.3	-6.62	4.95	914.6	-6.62	4.95	914.6			-6.62	4.95	914.6					
APR 19			-6.32	5.94	817.1	-6.32	5.61	842.4	-6.32	5.31	861.7	-6.32	5.05	875.1	-6.32	4.83	882.9	-6.32	4.83	882.9			-6.32	4.83	882.9					
APR 4			-6.00	5.67	742.0	-6.00	5.37	775.9	-6.00	5.12	803.5	-6.00	4.89	824.7	-6.00	4.69	839.8	-6.00	4.69	839.8			-6.00	4.69	839.8					
MAR 21			-5.68	5.40	662.4	-5.68	5.14	703.7	-5.68	4.92	738.5	-5.68	4.73	766.7	-5.68	4.56	788.4	-5.68	4.56	788.4			-5.68	4.56	788.4					
MAR 7			-5.38	5.13	594.2	-5.38	4.92	631.2	-5.38	4.74	671.7	-5.38	4.57	705.4	-5.38	4.43	732.5	-5.38	4.43	732.5			-5.38	4.43	732.5					
FEB 20			-5.10	4.89	512.6	-5.10	4.72	563.5	-5.10	4.56	608.1	-5.10	4.43	645.9	-5.10	4.32	677.0	-5.10	4.32	677.0			-5.10	4.32	677.0					
FEB 7			-4.86	4.69	454.2	-4.86	4.52	507.4	-4.86	4.42	554.5	-4.86	4.31	595.0	-4.86	4.22	628.8	-4.86	4.22	628.8			-4.86	4.22	628.8					
JAN 23			-4.68	4.54	412.8	-4.68	4.42	467.2	-4.68	4.31	515.7	-4.68	4.23	557.6	-4.68	4.15	593.0	-4.68	4.15	593.0			-4.68	4.15	593.0					
NOV 19			-4.37	4.45	388.5	-4.37	4.34	443.4	-4.37	4.25	492.5	-4.37	4.17	535.1	-4.37	4.11	571.3	-4.37	4.11	571.3			-4.37	4.11	571.3					
DEC 3			-4.05	4.25	312.1	-4.05	4.14	367.5	-4.05	4.05	416.6	-4.05	3.97	464.6	-4.05	3.89	504.6	-4.05	3.89	504.6			-4.05	3.89	504.6					
DEC 22			-3.73	4.05	242.1	-3.73	3.94	297.5	-3.73	3.85	345.0	-3.73	3.77	392.9	-3.73	3.69	432.8	-3.73	3.69	432.8			-3.73	3.69	432.8					
JUN 22	285.706	50.55	275.930	525.5	284.082	56.05	290.142	5520	294.251	55598	299.251	55520	304.251	55450	309.251	55380	314.251	55310	319.251	55240	324.251	55170	329.251	55100	334.251	55030				
JUN 12			-7.43	6.89	936.8	-7.43	6.43	913.8	-7.43	6.05	890.5	-7.43	5.67	8																

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

		10 PCT			20 PCT			SLOPE			30 PCT			40 PCT			50 PCT		
		THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.
		42.0	7.1	4688	43.5	14.5	4543	44.4	21.8	4497	44.9	29.0	4543	44.9	35.7	4543	44.9	42.0	4688
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.43	7.06	1020.4	-7.43	6.66	1011.1	-7.43	6.23	996.2	-7.43	5.78	977.4	-7.43	5.33	956.3	-7.43	5.33	956.3
JUN 1 JUL 12		-7.32	6.94	1000.1	-7.32	6.53	989.5	-7.32	6.10	973.7	-7.32	5.65	954.4	-7.32	5.20	933.1	-7.32	5.20	933.1
MAY 18 JUL 27		-7.14	6.75	964.6	-7.14	6.33	951.9	-7.14	5.89	934.7	-7.14	5.43	914.6	-7.14	4.99	893.1	-7.14	4.99	893.1
MAY 3 AUG 10		-6.90	6.49	912.8	-6.90	6.06	897.4	-6.90	5.60	878.3	-6.90	5.14	857.3	-6.90	4.70	835.6	-6.90	4.70	835.6
APR 19 AUG 25		-6.62	6.19	845.7	-6.62	5.74	827.1	-6.62	5.27	806.3	-6.62	4.81	784.6	-6.62	4.36	762.9	-6.62	4.36	762.9
APR 4 SEP 9		-6.32	5.87	766.9	-6.32	5.39	745.4	-6.32	4.92	723.0	-6.32	4.44	700.7	-6.32	4.00	679.3	-6.32	4.00	679.3
MAR 21 SEP 23		-6.00	5.53	679.2	-6.00	5.04	655.2	-6.00	4.55	631.5	-6.00	4.07	609.1	-6.00	3.62	588.5	-6.00	3.62	588.5
MAR 7 OCT 8		-5.68	5.19	589.0	-5.68	4.68	563.2	-5.68	4.18	538.9	-5.68	3.69	516.9	-5.68	3.24	497.3	-5.68	3.24	497.3
FEB 20 OCT 22		-5.38	4.86	502.9	-5.38	4.33	475.9	-5.38	3.82	451.7	-5.38	3.33	430.5	-5.38	2.88	412.2	-5.38	2.88	412.2
FEB 7 NOV 5		-5.10	4.56	426.2	-5.10	4.01	398.9	-5.10	3.49	375.1	-5.10	2.97	354.9	-5.10	2.54	338.1	-5.10	2.54	338.1
JAN 23 NOV 19		-4.86	4.30	364.9	-4.86	3.74	337.7	-4.86	3.20	314.7	-4.86	2.67	295.6	-4.86	2.26	280.2	-4.86	2.26	280.2
JAN 10 DEC 3		-4.68	4.11	322.4	-4.68	3.54	295.5	-4.68	2.99	273.2	-4.68	2.49	255.1	-4.68	2.04	240.6	-4.68	2.04	240.6
DEC 22		-4.57	3.99	297.8	-4.57	3.41	271.2	-4.57	2.86	249.4	-4.57	2.36	231.9	-4.57	1.91	218.1	-4.57	1.91	218.1
		YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR
		246.405	4688	238.771	4543	231.110	4497	223.686	4456	216.690	4423								
		60 PCT	70 PCT	80 PCT	90 PCT	100 PCT													
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
		44.6	41.9	44.0	47.5	43.2	52.4	42.4	56.8	41.4	60.6								
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.43	4.90	934.2	-7.43	4.49	912.2	-7.43	4.12	890.9	-7.43	3.77	870.8	-7.43	3.46	851.9	-7.43	3.46	851.9
JUN 1 JUL 12		-7.32	4.77	911.1	-7.32	4.36	889.3	-7.32	3.99	868.4	-7.32	3.65	848.6	-7.32	3.35	830.1	-7.32	3.35	830.1
MAY 18 JUL 27		-7.14	4.56	871.2	-7.14	4.16	849.9	-7.14	3.79	829.5	-7.14	3.46	810.5	-7.14	3.16	792.7	-7.14	3.16	792.7
MAY 3 AUG 10		-6.90	4.27	814.1	-6.90	3.88	793.5	-6.90	3.52	774.0	-6.90	3.20	756.0	-6.90	2.91	739.3	-6.90	2.91	739.3
APR 19 AUG 25		-6.62	3.94	742.0	-6.62	3.55	722.3	-6.62	3.20	704.1	-6.62	2.89	687.4	-6.62	2.61	672.0	-6.62	2.61	672.0
APR 4 SEP 9		-6.32	3.58	659.3	-6.32	3.20	640.9	-6.32	2.86	624.2	-6.32	2.56	609.0	-6.32	2.29	595.2	-6.32	2.29	595.2
MAR 21 SEP 23		-6.00	3.21	569.7	-6.00	2.84	552.9	-6.00	2.51	537.8	-6.00	2.22	524.4	-6.00	1.96	512.4	-6.00	1.96	512.4
MAR 7 OCT 8		-5.68	2.84	480.0	-5.68	2.47	464.9	-5.68	2.15	451.7	-5.68	1.87	440.1	-5.68	1.63	429.8	-5.68	1.63	429.8
FEB 20 OCT 22		-5.38	2.48	396.6	-5.38	2.12	383.2	-5.38	1.81	371.8	-5.38	1.54	362.0	-5.38	1.30	353.3	-5.38	1.30	353.3
FEB 7 NOV 5		-5.10	2.14	324.1	-5.10	1.79	312.4	-5.10	1.49	302.7	-5.10	1.23	294.4	-5.10	1.01	287.2	-5.10	1.01	287.2
JAN 23 NOV 19		-4.86	1.86	267.6	-4.86	1.52	257.4	-4.86	1.22	248.9	-4.86	.97	241.9	-4.86	.76	235.9	-4.86	.76	235.9
JAN 10 DEC 3		-4.68	1.65	229.1	-4.68	1.31	219.9	-4.68	1.02	212.5	-4.68	.78	206.3	-4.68	.57	201.1	-4.68	.57	201.1
DEC 22		-4.57	1.52	207.3	-4.57	1.18	198.7	-4.57	.90	191.8	-4.57	.66	186.1	-4.57	.45	181.4	-4.57	.45	181.4
		YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR
		210.224	4000	204.311	3887	198.952	3785	194.114	3693	189.714	3609								

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 40 N

[illegible]

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 40 N
ASPECT E - W

		SLOPE				30 PCT				40 PCT				50 PCT			
		10 PCT		20 PCT		THETA		ALPHA		THETA		ALPHA		THETA		ALPHA	
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
		39.8	7.4	39.1	14.6	38.0	21.4	36.6	27.6	35.1	33.1	35.1	33.1	35.1	33.1	35.1	33.1
		SR	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS
JUN 22		-7.43	6.92	1020.2	-7.43	6.40	1013.1	-7.43	5.90	1002.3	-7.43	5.42	988.7	-7.43	4.98	973.4	
JUN 1 JUL 12		-7.32	6.81	1001.8	-7.32	6.30	995.0	-7.32	5.80	984.8	-7.32	5.33	972.0	-7.32	4.89	957.4	
MAY 18 JUL 27		-7.14	6.64	969.4	-7.14	6.13	963.3	-7.14	5.63	954.1	-7.14	5.17	942.5	-7.14	4.74	929.2	
MAY 3 AUG 10		-6.90	6.40	921.7	-6.90	5.90	916.6	-6.90	5.41	908.7	-6.90	4.96	898.8	-6.90	4.54	887.3	
APR 19 AUG 25		-6.62	6.12	859.3	-6.62	5.62	855.3	-6.62	5.15	849.2	-6.62	4.71	841.2	-6.62	4.31	831.9	
APR 4 SEP 9		-6.32	5.82	785.3	-6.32	5.33	782.6	-6.32	4.87	778.1	-6.32	4.44	772.3	-6.32	4.06	765.3	
MAR 21 SEP 23		-6.00	5.50	702.0	-6.00	5.02	700.4	-6.00	4.57	697.8	-6.00	4.16	694.1	-6.00	3.79	689.4	
MAR 7 OCT 8		-5.68	5.19	615.5	-5.68	4.72	615.0	-5.68	4.28	614.0	-5.68	3.88	612.3	-5.68	3.53	609.7	
FEB 20 OCT 22		-5.38	4.89	532.0	-5.38	4.42	532.5	-5.38	4.00	532.9	-5.38	3.61	532.8	-5.38	3.27	532.1	
FEB 7 NOV 5		-5.10	4.61	457.0	-5.10	4.15	458.2	-5.10	3.74	459.7	-5.10	3.36	460.9	-5.10	3.04	461.6	
JAN 23 NOV 19		-4.86	4.37	396.6	-4.86	3.92	398.4	-4.86	3.51	400.6	-4.86	3.15	402.7	-4.86	2.84	404.4	
JAN 10 DEC 3		-4.68	4.20	354.4	-4.68	3.75	356.4	-4.68	3.35	359.1	-4.68	3.00	361.8	-4.68	2.69	364.1	
DEC 22		-4.57	4.09	329.8	-4.57	3.65	332.1	-4.57	3.25	335.0	-4.57	2.90	338.0	-4.57	2.61	340.6	
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		253.404	.4821	252.648	.4807	251.411	.4783	249.728	.4751	247.661	.4712						
		33.4	38.1	31.8	42.4	30.1	46.2	28.5	49.6	27.0	52.5						
		SR	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS
JUN 22		-7.43	4.57	956.9	-7.43	4.21	940.0	-7.43	3.89	923.1	-7.43	3.61	906.6	-7.43	3.35	890.6	
JUN 1 JUL 12		-7.32	4.49	941.8	-7.32	4.14	925.6	-7.32	3.82	909.4	-7.32	3.54	893.6	-7.32	3.29	878.2	
MAY 18 JUL 27		-7.14	4.36	914.9	-7.14	4.01	900.0	-7.14	3.70	885.1	-7.14	3.43	870.4	-7.14	3.18	856.1	
MAY 3 AUG 10		-6.90	4.17	874.8	-6.90	3.83	861.7	-6.90	3.54	848.5	-6.90	3.28	835.4	-6.90	3.04	822.6	
APR 19 AUG 25		-6.62	3.95	821.5	-6.62	3.63	810.6	-6.62	3.35	799.5	-6.62	3.10	788.3	-6.62	2.87	777.2	
APR 4 SEP 9		-6.32	3.71	757.3	-6.32	3.40	748.8	-6.32	3.14	739.8	-6.32	2.90	730.7	-6.32	2.69	721.6	
MAR 21 SEP 23		-6.00	3.46	683.8	-6.00	3.17	677.6	-6.00	2.92	670.9	-6.00	2.69	663.9	-6.00	2.50	656.8	
MAR 7 OCT 8		-5.68	3.21	606.4	-5.68	2.94	602.3	-5.68	2.70	597.7	-5.68	2.49	592.8	-5.68	2.30	587.5	
FEB 20 OCT 22		-5.38	2.97	530.6	-5.38	2.71	528.4	-5.38	2.49	525.6	-5.38	2.29	522.4	-5.38	2.12	518.8	
FEB 7 NOV 5		-5.10	2.75	461.6	-5.10	2.51	460.9	-5.10	2.30	459.6	-5.10	2.11	457.8	-5.10	1.95	455.5	
JAN 23 NOV 19		-4.86	2.57	405.4	-4.86	2.33	405.8	-4.86	2.13	405.5	-4.86	1.96	404.7	-4.86	1.81	403.5	
JAN 10 DEC 3		-4.68	2.43	365.8	-4.68	2.21	366.8	-4.68	2.01	367.2	-4.68	1.85	367.0	-4.68	1.71	366.4	
DEC 22		-4.57	2.35	342.7	-4.57	2.13	344.0	-4.57	1.94	344.8	-4.57	1.78	344.9	-4.57	1.64	344.6	
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		245.284	.4667	242.681	.4617	239.938	.4565	237.135	.4512	234.308	.4458						

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 42 N

HORIZONTAL SURFACE

LATITUDE 42 N

	SR	SS	LY
JUN 22	-7.54	7.54	1023.7
JUN 1 JUL 12	-7.42	7.42	1003.4
MAY 18 JUL 27	-7.23	7.23	967.8
MAY 3 AUG 10	-6.97	6.97	915.8
APR 19 AUG 25	-6.67	6.67	848.6
APR 4 SEP 9	-6.34	6.34	769.5
MAR 21 SEP 23	-6.00	6.00	681.5
MAR 7 OCT 8	-5.66	5.66	591.1
FEB 20 OCT 22	-5.33	5.33	504.6
FEB 7 NOV 5	-5.03	5.03	427.6
JAN 23 NOV 19	-4.77	4.77	366.1
JAN 10 DEC 3	-4.58	4.58	323.4
DEC 22	-4.46	4.46	298.7

YEAR R.I.
247.228 .4704

LATITUDE 42 N
ASPECT N -

		SLOPE											
		10 PCT		20 PCT		30 PCT		40 PCT		50 PCT			
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA		
		47.7	0.0	53.3	0.0	58.7	0.0	63.8	0.0	68.6	0.0		
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.54	7.54	1020.4	-7.54	7.54	1007.3	-7.54	7.54	985.7	-7.54	7.54	957.1
JUN 1 JUL 12		-7.42	7.42	995.0	-7.42	7.42	977.2	-7.42	7.42	951.3	-7.42	7.42	919.0
MAY 18 JUL 27		-7.23	7.23	951.1	-7.23	7.23	925.6	-7.23	7.23	892.7	-7.23	7.23	854.3
MAY 3 AUG 10		-6.97	6.97	888.1	-6.97	6.97	852.3	-6.97	6.97	810.3	-6.97	6.97	763.8
APR 19 AUG 25		-6.67	6.67	808.2	-6.67	6.67	760.9	-6.67	6.67	708.6	-6.67	6.67	653.3
APR 4 SEP 9		-6.34	6.34	716.6	-6.34	6.34	657.8	-6.34	6.34	595.3	-6.34	6.34	531.3
MAR 21 SEP 23		-6.00	6.00	617.0	-6.00	6.00	547.9	-6.00	6.00	476.5	-6.00	6.00	404.9
MAR 7 OCT 8		-5.58	5.58	517.2	-5.49	5.49	440.2	-5.38	5.38	362.5	-5.23	5.23	286.5
FEB 20 OCT 22		-5.18	5.18	424.3	-5.00	5.00	342.6	-4.77	4.77	262.6	-4.46	4.46	186.6
FEB 7 NOV 5		-4.81	4.81	343.7	-4.53	4.53	260.5	-4.18	4.18	181.4	-3.90	3.90	109.7
JAN 23 NOV 19		-4.49	4.49	280.8	-4.13	4.13	198.3	-3.65	3.65	122.5	-2.97	2.97	57.8
JAN 10 DEC 3		-4.24	4.24	238.0	-3.81	3.81	157.2	-3.23	3.23	85.4	-2.33	2.33	28.2
DEC 22		-4.10	4.10	213.7	-3.62	3.62	134.4	-2.96	2.96	65.7	-1.86	1.86	14.4
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		227.544	4.4329	206.566	4.3930	185.248	4.3524	164.637	4.3132	146.427	4.2786		
		60 PCT		70 PCT		80 PCT		90 PCT		100 PCT			
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA		
		73.0	0.0	77.0	0.0	80.7	0.0	84.0	0.0	87.0	0.0		
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.54	7.54	887.0	-7.54	7.54	848.8	-7.54	7.54	810.5	-7.54	7.54	772.9
JUN 1 JUL 12		-7.42	7.42	842.9	-7.42	7.42	802.5	-7.42	7.42	762.2	-7.42	7.42	723.2
MAY 18 JUL 27		-7.23	7.23	768.5	-7.23	7.23	724.4	-7.23	7.23	681.2	-7.23	7.23	639.7
MAY 3 AUG 10		-6.97	6.97	665.4	-6.97	6.97	616.6	-6.97	6.97	569.6	-6.97	6.97	525.0
APR 19 AUG 25		-6.67	6.67	541.1	-6.67	6.67	487.2	-6.67	6.67	436.1	-6.67	6.67	388.4
APR 4 SEP 9		-6.34	6.34	406.0	-6.34	6.34	347.4	-6.34	6.34	292.6	-6.34	6.34	242.0
MAR 21 SEP 23		-6.00	6.00	268.6	-6.00	6.00	206.3	-6.00	6.00	148.8	-6.00	6.00	96.2
MAR 7 OCT 8		-4.75	4.75	147.3	-4.31	4.31	87.3	-3.54	3.54	36.4	-1.38	1.38	1.5
FEB 20 OCT 22		-3.40	3.40	58.1	-2.22	2.22	13.1	0.00	0.00	0.0	0.00	0.00	0.0
FEB 7 NOV 5		-1.63	1.63	6.7	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
JAN 23 NOV 19		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
JAN 10 DEC 3		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
DEC 22		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		131.205	4.2496	118.067	4.2246	106.690	4.2030	96.661	4.1639	88.142	4.1177		

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 42 N
ASPECT S -

SLOPE										SLOPE										SLOPE																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
10 PCT					20 PCT					30 PCT					40 PCT					50 PCT					60 PCT					70 PCT					80 PCT					90 PCT					100 PCT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
YEAR	R.I.	THETA	ALPHA	LY	YEAR	R.I.	THETA	ALPHA	LY	YEAR	R.I.	THETA	ALPHA	LY	YEAR	R.I.	THETA	ALPHA	LY	YEAR	R.I.	THETA	ALPHA	LY	YEAR	R.I.	THETA	ALPHA	LY	YEAR	R.I.	THETA	ALPHA	LY	YEAR	R.I.	THETA	ALPHA	LY	YEAR	R.I.	THETA	ALPHA	LY	YEAR	R.I.	THETA	ALPHA	LY																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
264.826	.5039	36.3	0.0		279.785	.5323	30.7	0.0		291.858	.5553	25.3	0.0		301.081	.5728	20.2	0.0		307.673	.5854	15.4	0.0																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
JUN 22		-7.24	7.24	1018.7	-7.00	7.00	1007.0	-6.79	6.79	989.0	-6.61	6.61	965.5	-6.46	6.46	938.1	-6.32	6.32	908.1	-6.20	6.20	878.7	-6.00	6.00	849.0	-5.86	5.86	819.5	-5.73	5.73	790.2	-5.60	5.60	760.4	-5.46	5.46	730.8	-5.33	5.33	701.1	-5.20	5.20	671.4	-5.03	5.03	641.7	-4.86	4.86	612.0	-4.66	4.66	582.3	-4.58	4.58	552.6	-4.46	4.46	522.9	-4.32	4.32	493.2	-4.16	4.16	463.5	-4.00	4.00	433.8	-3.83	3.83	404.1	-3.66	3.66	374.4	-3.50	3.50	344.7	-3.33	3.33	315.0	-3.16	3.16	285.3	-3.00	3.00	255.6	-2.83	2.83	225.9	-2.66	2.66	196.2	-2.50	2.50	166.5	-2.33	2.33	136.8	-2.16	2.16	107.1	-2.00	2.00	77.4	-1.83	1.83	47.7	-1.66	1.66	18.0	-1.50	1.50	-14.7	-1.33	1.33	-44.4	-1.16	1.16	-74.1	-1.00	1.00	-104.4	-0.83	0.83	-134.7	-0.66	0.66	-165.0	-0.50	0.50	-195.3	-0.33	0.33	-225.6	-0.16	0.16	-255.9	0.00	0.00	-286.2	0.16	0.16	-316.5	0.33	0.33	-346.8	0.50	0.50	-377.1	0.66	0.66	-407.4	0.83	0.83	-437.7	1.00	1.00	-468.0	1.16	1.16	-498.3	1.33	1.33	-528.6	1.50	1.50	-558.9	1.66	1.66	-589.2	1.83	1.83	-619.5	2.00	2.00	-649.8	2.16	2.16	-680.1	2.33	2.33	-710.4	2.50	2.50	-740.7	2.66	2.66	-771.0	2.83	2.83	-801.3	3.00	3.00	-831.6	3.16	3.16	-861.9	3.33	3.33	-892.2	3.50	3.50	-922.5	3.66	3.66	-952.8	3.83	3.83	-983.1	4.00	4.00	-1013.4	4.16	4.16	-1043.7	4.33	4.33	-1074.0	4.50	4.50	-1104.3	4.66	4.66	-1134.6	4.83	4.83	-1164.9	5.00	5.00	-1195.2	5.16	5.16	-1225.5	5.33	5.33	-1255.8	5.50	5.50	-1286.1	5.66	5.66	-1316.4	5.83	5.83	-1346.7	6.00	6.00	-1377.0	6.16	6.16	-1407.3	6.33	6.33	-1437.6	6.50	6.50	-1467.9	6.66	6.66	-1498.2	6.83	6.83	-1528.5	7.00	7.00	-1558.8	7.16	7.16	-1589.1	7.33	7.33	-1619.4	7.50	7.50	-1649.7	7.66	7.66	-1680.0	7.83	7.83	-1710.3	8.00	8.00	-1740.6	8.16	8.16	-1770.9	8.33	8.33	-1801.2	8.50	8.50	-1831.5	8.66	8.66	-1861.8	8.83	8.83	-1892.1	9.00	9.00	-1922.4	9.16	9.16	-1952.7	9.33	9.33	-1983.0	9.50	9.50	-2013.3	9.66	9.66	-2043.6	9.83	9.83	-2073.9	10.00	10.00	-2104.2	10.16	10.16	-2134.5	10.33	10.33	-2164.8	10.50	10.50	-2195.1	10.66	10.66	-2225.4	10.83	10.83	-2255.7	11.00	11.00	-2286.0	11.16	11.16	-2316.3	11.33	11.33	-2346.6	11.50	11.50	-2376.9	11.66	11.66	-2407.2	11.83	11.83	-2437.5	12.00	12.00	-2467.8	12.16	12.16	-2498.1	12.33	12.33	-2528.4	12.50	12.50	-2558.7	12.66	12.66	-2589.0	12.83	12.83	-2619.3	13.00	13.00	-2649.6	13.16	13.16	-2679.9	13.33	13.33	-2710.2	13.50	13.50	-2740.5	13.66	13.66	-2770.8	13.83	13.83	-2801.1	14.00	14.00	-2831.4	14.16	14.16	-2861.7	14.33	14.33	-2892.0	14.50	14.50	-2922.3	14.66	14.66	-2952.6	14.83	14.83	-2982.9	15.00	15.00	-3013.2	15.16	15.16	-3043.5	15.33	15.33	-3073.8	15.50	15.50	-3104.1	15.66	15.66	-3134.4	15.83	15.83	-3164.7	16.00	16.00	-3195.0	16.16	16.16	-3225.3	16.33	16.33	-3255.6	16.50	16.50	-3285.9	16.66	16.66	-3316.2	16.83	16.83	-3346.5	17.00	17.00	-3376.8	17.16	17.16	-3407.1	17.33	17.33	-3437.4	17.50	17.50	-3467.7	17.66	17.66	-3498.0	17.83	17.83	-3528.3	18.00	18.00	-3558.6	18.16	18.16	-3588.9	18.33	18.33	-3619.2	18.50	18.50	-3649.5	18.66	18.66	-3679.8	18.83	18.83	-3710.1	19.00	19.00	-3740.4	19.16	19.16	-3770.7	19.33	19.33	-3801.0	19.50	19.50	-3831.3	19.66	19.66	-3861.6	19.83	19.83	-3891.9	20.00	20.00	-3922.2	20.16	20.16	-3952.5	20.33	20.33	-3982.8	20.50	20.50	-4013.1	20.66	20.66	-4043.4	20.83	20.83	-4073.7	21.00	21.00	-4104.0	21.16	21.16	-4134.3	21.33	21.33	-4164.6	21.50	21.50	-4194.9	21.66	21.66	-4225.2	21.83	21.83	-4255.5	22.00	22.00	-4285.8	22.16	22.16	-4316.1	22.33	22.33	-4346.4	22.50	22.50	-4376.7	22.66	22.66	-4407.0	22.83	22.83	-4437.3	23.00	23.00	-4467.6	23.16	23.16	-4497.9	23.33	23.33	-4528.2	23.50	23.50	-4558.5	23.66	23.66	-4588.8	23.83	23.83	-4619.1	24.00	24.00	-4649.4	24.16	24.16	-4679.7	24.33	24.33	-4710.0	24.50	24.50	-4740.3	24.66	24.66	-4770.6	24.83	24.83	-4800.9	25.00	25.00	-4831.2	25.16	25.16	-4861.5	25.33	25.33	-4891.8	25.50	25.50	-4922.1	25.66	25.66	-4952.4	25.83	25.83	-4982.7	26.00	26.00	-5013.0	26.16	26.16	-5043.3	26.33	26.33	-5073.6	26.50	26.50	-5103.9	26.66	26.66	-5134.2	26.83	26.83	-5164.5	27.00	27.00	-5194.8	27.16	27.16	-5225.1	27.33	27.33	-5255.4	27.50	27.50	-5285.7	27.66	27.66	-5316.0	27.83	27.83	-5346.3	28.00	28.00	-5376.6	28.16	28.16	-5406.9	28.33	28.33	-5437.2	28.50	28.50	-5467.5	28.66	28.66	-5497.8	28.83	28.83	-5528.1	29.00	29.00	-5558.4	29.16	29.16	-5588.7	29.33	29.33	-5619.0	29.50	29.50	-5649.3	29.66	29.66	-5679.6	29.83	29.83	-5709.9	30.00	30.00	-5740.2	30.16	30.16	-5770.5	30.33	30.33	-5800.8	30.50	30.50	-5831.1	30.66	30.66	-5861.4	30.83	30.83	-5891.7	31.00	31.00	-5922.0	31.16	31.16	-5952.3	31.33	31.33	-5982.6	31.50	31.50	-6012.9	31.66	31.66	-6043.2	31.83	31.83	-6073.5	32.00	32.00	-6103.8	32.16	32.16	-6134.1	32.33	32.33	-6164.4	32.50	32.50	-6194.7	32.66	32.66	-6225.0	32.83	32.83	-6255.3	33.00	33.00	-6285.6	33.16	33.16	-6315.9	33.33	33.33	-6346.2	33.50	33.50	-6376.5	33.66	33.66	-6406.8	33.83	33.83	-6437.1	34.00	34.00	-6467.4	34.16	34.16	-6497.7	34.33	34.33	-6528.0	34.50	34.50	-6558.3	34.66	34.66	-6588.6	34.83	34.83	-6618.9	35.00	35.00	-6649.2	35.16	35.16	-6679.5	35.33	35.33	-6709.8	35.50	35.50	-6740.1	35.66	35.66	-6770.4	35.83	35.83	-6800.7	36.00	36.00	-6831.0	36.16	36.16	-6861.3	36.33	36.33	-6891.6	36.50	36.50	-6921.9	36.66	36.66	-6952.2	36.83	36.83	-6982.5	37.00	37.00	-7012.8	37.16	37.16	-7043.1	37.33	37.33	-7073.4	37.50	37.50	-7103.7	37.66	37.66	-7134.0	37.83	37.83	-7164.3	38.00	38.00	-7194.6	38.16	38.16	-7224.9	38.33	38.33	-7255.2	38.50	38.50	-7285.5	38.66	38.66	-7315.8	38.83	38.83	-7346.1	39.00	39.00	-7376.4	39.16	39.16	-7406.7	39.33	39.33	-7437.0	39.50	39.50	-7467.3	39.66	39.66	-7497.6	39.83	39.83	-7527.9	40.00	40.00	-7558.2	40.16	40.16	-7588.5	40.33	40.33	-7618.8	40.50	40.50	-7649.1	40.66	40.66	-7679.4	40.83	40.83	-7709.7	41.00	41.00	-7740.0	41.16	41.16	-7770.3	41.33	41.33	-7800.6	41.50	41.50	-7830.9	41.66	41.66	-7861.2	41.83	41.83	-7891.5	42.00	42.00	-7921.8	42.16	42.16	-7952.1	42.33	42.33	-7982.4	42.50	42.50	-8012.7	42.66	42.66	-8043.0	42.83	42.83	-8073.3	43.00	43.00	-8103.6	43.16	43.16	-8133.9	43.33	43.33	-8164.2	43.50	43.50	-8194.5	43.66	43.66	-8224.8	43.83	43.83	-8255.1	44.00	44.00	-8285.4	44.16	44.16	-8315.7	44.33	44.33	-8346.0	44.50	44.50	-8376.3	44.66	44.66	-8406.6	44.83	44.83	-8436.9	45.00	45.00	-8467.2	45.16	45.16	-8497.5	45.33	45.33	-8527.8	45.50	45.50	-8558.1	45.66	45.66	-8588.4	45.83	45.83	-8618.7	46.00	46.00	-8649.0	46.16	46.16	-8679.3	46.33	46.33	-8709.6	46.50	46.50	-8739.9	46.66	46.66	-8770.2	46.83	46.83	-8800.5	47.00	47.00	-8830.8	47.16	47.16	-8861.1	47.33	47.33	-8891.4	47.50	47.50	-8921.7	47.66	47.66	-8952.0	47.83	47.83	-8982.3	48.00	48.00	-9012.6	48.16	48.16	-9042.9	48.33	48.33	-9073.2	48.50	48.50	-9103.5	48.66	48.66	-9133.8	48.83	48.83	-9164.1	49.00	49.00	-9194.4	49.16	49.16	-9224.7	49.33	49.33	-9255.0	49.50	49.50	-9285.3	49.66	49.66	-9315.6	49.83	49.83	-9345.9	50.00	50.00	-9376.2	50.16	50.16	-9406.5	50.33	50.33	-9436.8	50.50	50.50	-9467.1	50.66	50.66	-9497.4	50.83	50.83	-9527.7	51.00	51.00	-9558.0	51.16	51.16	-9588.3	51.33	51.33	-9618.6	51.50	51.50	-9648.9	51.66	51.66	-9679.2	51.83	51.83	-9709.5	52.00	52.00	-9739.8	52.16	52.16	-9770.1	52

LATITUDE 42 N
ASPECT NNE - NNW

	SLOPE						SLOPE						SLOPE						SLOPE												
	10 PCT			20 PCT			30 PCT			40 PCT			50 PCT			60 PCT			70 PCT			80 PCT			90 PCT			100 PCT			
	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	THETA	ALPHA	R.I.	
JUN 22	-7.54	7.54	1020.3	-7.54	7.54	1007.1	-7.54	7.54	985.3	-7.54	7.54	956.6	-7.54	7.54	923.0	-7.54	7.54	886.3	-7.54	7.54	848.0	-7.54	7.54	809.6	-7.54	7.54	772.0	-7.54	7.54	735.5	
JUN 1 JUL 12	-7.42	7.42	995.3	-7.42	7.42	977.7	-7.42	7.42	952.0	-7.42	7.42	920.0	-7.42	7.42	887.3	-7.42	7.42	849.9	-7.42	7.42	812.6	-7.42	7.42	775.3	-7.42	7.42	738.0	-7.42	7.42	700.7	
MAY 18 JUL 27	-7.23	7.23	952.0	-7.23	7.23	927.4	-7.23	7.23	895.3	-7.23	7.23	857.7	-7.23	7.23	820.0	-7.23	7.23	782.7	-7.23	7.23	745.4	-7.23	7.23	708.1	-7.23	7.23	670.8	-7.23	7.23	633.5	
MAY 3 AUG 10	-6.97	6.96	889.8	-6.97	6.94	855.8	-6.97	6.92	815.4	-6.97	6.89	770.5	-6.97	6.85	723.0	-6.97	6.81	675.6	-6.97	6.77	628.2	-6.97	6.73	580.8	-6.97	6.69	533.4	-6.97	6.65	486.0	
APR 19 AUG 25	-6.67	6.59	811.0	-6.67	6.49	766.6	-6.67	6.37	717.2	-6.67	6.23	664.8	-6.67	6.09	617.4	-6.67	5.95	569.9	-6.67	5.81	522.5	-6.67	5.67	475.1	-6.67	5.53	427.7	-6.67	5.39	380.3	
APR 4 SEP 9	-6.34	6.19	720.5	-6.34	6.02	666.1	-6.34	5.81	608.5	-6.34	5.55	549.8	-6.34	5.22	492.2	-6.34	4.86	432.1	-6.34	4.50	374.6	-6.34	4.14	317.1	-6.34	3.78	259.6	-6.34	3.42	202.1	
MAR 21 SEP 23	-6.00	5.79	622.2	-6.00	5.53	559.2	-6.00	5.22	495.0	-6.00	4.86	432.1	-6.00	4.50	374.6	-6.00	4.14	317.1	-6.00	3.78	259.6	-6.00	3.42	202.1	-6.00	3.06	144.6	-6.00	2.70	87.1	
MAR 7 OCT 8	-5.66	5.38	523.4	-5.66	5.04	454.0	-5.66	4.64	385.7	-5.66	4.17	320.9	-5.66	3.70	262.0	-5.66	3.23	203.1	-5.66	2.76	144.2	-5.66	2.29	89.3	-5.66	1.82	34.4	-5.66	1.35	-11.1	
FEB 20 OCT 22	-5.33	4.98	431.1	-5.33	4.57	357.9	-5.33	4.07	288.0	-5.33	3.49	224.0	-5.33	2.92	165.1	-5.33	2.35	106.2	-5.33	1.78	47.3	-5.33	1.21	-11.8	-5.33	0.64	-62.9	-5.33	0.07	-113.4	
FEB 7 NOV 5	-5.03	4.62	350.7	-5.03	4.12	276.1	-5.03	3.53	206.8	-5.03	2.82	145.7	-5.03	2.18	89.7	-5.03	1.54	34.8	-5.03	0.90	-11.1	-5.03	0.26	-62.9	-5.03	-0.31	-113.4	-5.03	-0.88	-163.9	
JAN 23 NOV 19	-4.73	4.30	287.9	-4.73	3.73	213.6	-4.73	3.05	146.6	-4.73	2.21	89.7	-4.73	1.47	45.4	-4.73	0.73	-11.1	-4.73	0.09	-62.9	-4.73	-0.46	-113.4	-4.73	-1.03	-163.9	-4.73	-1.60	-214.4	
JAN 10 DEC 3	-4.43	4.06	245.1	-4.43	3.44	172.0	-4.43	2.67	107.8	-4.43	1.71	55.6	-4.43	0.97	18.3	-4.43	0.23	-62.9	-4.43	-0.59	-113.4	-4.43	-1.16	-163.9	-4.43	-1.73	-214.4	-4.43	-2.30	-264.9	
DEC 22	-4.13	3.92	220.7	-4.13	3.25	148.8	-4.13	2.43	86.8	-4.13	1.53	38.2	-4.13	0.79	18.3	-4.13	0.05	-62.9	-4.13	-0.59	-113.4	-4.13	-1.16	-163.9	-4.13	-1.73	-214.4	-4.13	-2.30	-264.9	
JUN 22	-7.54	7.54	886.3	-7.54	7.54	848.0	-7.54	7.54	809.6	-7.54	7.54	772.0	-7.54	7.54	735.5	-7.54	7.54	700.7	-7.54	7.54	665.9	-7.54	7.54	631.1	-7.54	7.54	596.3	-7.54	7.54	561.5	
JUN 1 JUL 12	-7.42	7.42	844.2	-7.42	7.42	803.9	-7.42	7.42	763.8	-7.42	7.42	724.9	-7.42	7.42	685.0	-7.42	7.42	645.8	-7.42	7.42	606.7	-7.42	7.42	567.5	-7.42	7.42	528.3	-7.42	7.42	489.1	
MAY 18 JUL 27	-7.23	7.23	773.2	-7.23	7.23	725.6	-7.23	7.23	686.9	-7.23	7.23	648.2	-7.23	7.23	609.5	-7.23	7.23	570.8	-7.23	7.23	532.1	-7.23	7.23	493.4	-7.23	7.23	454.7	-7.23	7.23	415.9	
MAY 3 AUG 10	-6.97	6.79	674.7	-6.97	6.71	621.0	-6.97	6.57	568.1	-6.97	6.43	515.2	-6.97	6.29	462.3	-6.97	6.15	409.4	-6.97	6.01	356.5	-6.97	5.87	303.6	-6.97	5.73	250.7	-6.97	5.59	197.8	
APR 19 AUG 25	-6.67	5.79	559.0	-6.67	5.46	508.8	-6.67	5.04	462.1	-6.67	4.62	415.2	-6.67	4.20	368.3	-6.67	3.78	321.4	-6.67	3.36	274.5	-6.67	2.94	227.6	-6.67	2.52	180.7	-6.67	2.10	133.8	
APR 4 SEP 9	-6.34	4.83	437.6	-6.34	4.35	387.3	-6.34	3.79	342.6	-6.34	3.21	297.7	-6.34	2.64	252.8	-6.34	2.07	207.9	-6.34	1.50	163.0	-6.34	0.93	118.1	-6.34	0.36	73.2	-6.34	-0.21	28.3	
MAR 21 SEP 23	-6.00	3.89	318.3	-6.00	3.28	270.5	-6.00	2.60	230.2	-6.00	1.90	197.2	-6.00	1.21	171.0	-6.00	0.52	141.9	-6.00	-0.05	102.0	-6.00	-0.62	62.1	-6.00	-1.19	22.2	-6.00	-1.76	-27.7	
MAR 7 OCT 8	-5.66	2.95	210.7	-5.66	2.21	167.9	-5.66	1.42	134.0	-5.66	0.64	108.4	-5.66	-0.09	89.5	-5.66	-0.66	50.6	-5.66	-1.23	1.7	-5.66	-1.80	-48.2	-5.66	-2.37	-98.7	-5.66	-2.94	-149.8	
FEB 20 OCT 22	-5.33	1.99	122.1	-5.33	1.10	86.4	-5.33	0.17	60.7	-5.33	-0.42	43.4	-5.33	-1.00	32.3	-5.33	-1.57	-17.4	-5.33	-2.14	-68.5	-5.33	-2.71	-119.6	-5.33	-3.28	-170.7	-5.33	-3.85	-221.8	
FEB 7 NOV 5	-5.03	0.98	56.0	-5.03	0.15	29.2	-5.03	-1.36	13.2	-5.03	-1.93	5.4	-5.03	-2.50	0.0	-5.03	-3.07	-51.6	-5.03	-3.64	-103.1	-5.03	-4.21	-154.2	-5.03	-4.78	-205.3	-5.03	-5.35	-256.4	
JAN 23 NOV 19	-4.73	0.12	15.3	-4.73	-2.04	6.6	-4.73	0.00	0.0	-4.73	0.00	0.0	-4.73	0.00	0.0	-4.73	0.00	0.0	-4.73	0.00	0.0	-4.73	0.00	0.0	-4.73	0.00	0.0	-4.73	0.00	0.0	
JAN 10 DEC 3	-2.40	-1.82	0.0	-2.40	0.00	0.0	-2.40	0.00	0.0	-2.40	0.00	0.0	-2.40	0.00	0.0	-2.40	0.00	0.0	-2.40	0.00	0.0	-2.40	0.00	0.0	-2.40	0.00	0.0	-2.40	0.00	0.0	
DEC 22	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	
YEAR	139.904	R.I.	2662	YEAR	127.384	R.I.	2424	YEAR	116.638	R.I.	2219	YEAR	107.306	R.I.	2042	YEAR	99.182	R.I.	1887	YEAR	91.064	R.I.	1710	YEAR	83.000	R.I.	1630	YEAR	75.000	R.I.	1540

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 42 N
ASPECT SSE - SSW

		10 PCT			20 PCT			SLOPE			30 PCT			40 PCT			50 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		36.7	2.7		31.4	5.0					26.3	7.0		21.5	8.8		16.9	10.3	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.44	7.08	1019.3	-7.36	6.69	1009.0	-7.30	6.36	993.0	-7.24	6.07	972.0	-7.19	5.82	967.4	-7.19	5.82	967.4
JUN 1 JUL 12		-7.35	6.98	1003.6	-7.29	6.61	997.6	-7.24	6.30	985.7	-7.19	6.02	968.5	-7.16	5.78	967.1	-7.16	5.78	967.1
MAY 18 JUL 27		-7.19	6.83	975.7	-7.16	6.49	977.1	-7.14	6.20	971.9	-7.11	5.94	961.0	-7.10	5.72	945.4	-7.10	5.72	945.4
MAY 3 AUG 10		-6.97	6.62	934.1	-6.97	6.32	945.5	-6.97	6.06	949.7	-6.97	5.83	947.5	-6.97	5.64	939.9	-6.97	5.64	939.9
APR 19 AUG 25		-6.67	6.37	878.8	-6.67	6.11	901.7	-6.67	5.90	917.0	-6.67	5.70	925.1	-6.67	5.54	927.0	-6.67	5.54	927.0
APR 4 SEP 9		-6.34	6.10	811.8	-6.34	5.89	846.7	-6.34	5.72	873.4	-6.34	5.56	892.5	-6.34	5.43	904.4	-6.34	5.43	904.4
MAR 21 SEP 23		-6.00	5.82	735.0	-6.00	5.66	781.1	-6.00	5.53	818.8	-6.00	5.41	848.3	-6.00	5.31	870.2	-6.00	5.31	870.2
MAR 7 OCT 8		-5.66	5.54	654.0	-5.66	5.43	709.6	-5.66	5.34	756.9	-5.66	5.27	795.8	-5.66	5.20	826.6	-5.66	5.20	826.6
FEB 20 OCT 22		-5.33	5.27	574.5	-5.33	5.21	637.5	-5.33	5.16	692.4	-5.33	5.12	738.8	-5.33	5.09	777.0	-5.33	5.09	777.0
FEB 7 NOV 5		-5.03	5.02	502.0	-5.03	5.01	570.0	-5.03	5.00	630.3	-5.03	4.99	682.3	-5.03	4.99	726.0	-5.03	4.99	726.0
JAN 23 NOV 19		-4.77	4.77	442.9	-4.77	4.77	515.9	-4.77	4.77	577.5	-4.77	4.77	635.0	-4.77	4.77	680.4	-4.77	4.77	680.4
JAN 10 DEC 3		-4.58	4.58	401.1	-4.58	4.58	473.4	-4.58	4.58	538.6	-4.58	4.58	596.0	-4.58	4.58	650.5	-4.58	4.58	650.5
DEC 22		-4.46	4.46	376.7	-4.46	4.46	449.4	-4.46	4.46	515.3	-4.46	4.46	573.5	-4.46	4.46	623.6	-4.46	4.46	623.6
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		263.524	.5014		277.427	.5278		288.674	.5492		297.274	.5656		303.418	.5773				
		60 PCT			70 PCT			SLOPE			80 PCT			90 PCT			100 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		12.7	11.6		8.9	12.8					5.4	13.9		2.2	14.8		-0.7	15.7	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.15	5.60	920.2	-7.12	5.40	891.8	-7.08	5.23	862.9	-7.05	5.07	834.6	-7.03	4.93	807.0	-7.03	4.93	807.0
JUN 1 JUL 12		-7.13	5.57	923.0	-7.10	5.39	897.1	-7.07	5.22	870.5	-7.05	5.07	844.1	-7.03	4.93	818.2	-7.03	4.93	818.2
MAY 18 JUL 27		-7.08	5.53	926.2	-7.07	5.35	904.8	-7.05	5.20	882.2	-7.04	5.06	859.2	-7.03	4.94	836.3	-7.03	4.94	836.3
MAY 3 AUG 10		-6.97	5.46	927.9	-6.97	5.31	912.9	-6.97	5.17	896.0	-6.97	5.05	877.9	-6.97	4.94	859.3	-6.97	4.94	859.3
APR 19 AUG 25		-6.67	5.39	923.7	-6.67	5.26	916.4	-6.67	5.14	906.3	-6.67	5.04	894.3	-6.67	4.94	881.1	-6.67	4.94	881.1
APR 4 SEP 9		-6.34	5.31	910.4	-6.34	5.20	911.5	-6.34	5.11	908.8	-6.34	5.02	898.3	-6.34	4.95	896.2	-6.34	4.95	896.2
MAR 21 SEP 23		-6.00	5.22	885.3	-6.00	5.14	894.8	-6.00	5.07	899.7	-6.00	5.01	901.1	-6.00	4.95	899.9	-6.00	4.95	899.9
MAR 7 OCT 8		-5.66	5.14	850.0	-5.66	5.09	867.2	-5.66	5.04	879.2	-5.66	5.00	887.0	-5.66	4.96	891.6	-5.66	4.96	891.6
FEB 20 OCT 22		-5.33	5.06	807.4	-5.33	5.03	831.2	-5.33	5.00	849.3	-5.33	4.98	862.7	-5.33	4.96	872.4	-5.33	4.96	872.4
FEB 7 NOV 5		-5.03	4.98	761.9	-5.03	4.98	790.9	-5.03	4.97	813.8	-5.03	4.97	831.7	-5.03	4.97	845.5	-5.03	4.97	845.5
JAN 23 NOV 19		-4.77	4.77	720.0	-4.77	4.77	752.6	-4.77	4.77	778.9	-4.77	4.77	800.0	-4.77	4.77	816.9	-4.77	4.77	816.9
JAN 10 DEC 3		-4.58	4.58	687.1	-4.58	4.58	721.7	-4.58	4.58	750.1	-4.58	4.58	773.1	-4.58	4.58	791.8	-4.58	4.58	791.8
DEC 22		-4.46	4.46	666.4	-4.46	4.46	702.1	-4.46	4.46	731.4	-4.46	4.46	755.4	-4.46	4.46	775.1	-4.46	4.46	775.1
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		307.408	.5849		309.621	.5891		310.418	.5906		310.138	.5901		309.056	.5880				

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 42 N
ASPECT NE - NW

		10 PCT			20 PCT			SLOPE			30 PCT			40 PCT			50 PCT		
		THETA		ALPHA	THETA		ALPHA	THETA		ALPHA	THETA		ALPHA	THETA		ALPHA	THETA		ALPHA
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.54	7.39	1020.1	-7.54	7.21	1007.1	-7.54	6.99	986.2	-7.54	6.73	959.1	-7.54	6.40	928.0	-7.54	6.07	896.9
JUN 1 JUL 12		-7.42	7.25	956.2	-7.42	7.05	930.2	-7.42	6.81	906.8	-7.42	6.55	874.8	-7.42	6.22	840.4	-7.42	5.89	806.0
MAY 18 JUL 27		-7.23	7.03	955.0	-7.23	6.79	934.1	-7.23	6.51	906.7	-7.23	6.24	874.8	-7.23	5.91	840.4	-7.23	5.58	806.0
MAY 3 AUG 10		-6.97	6.73	895.4	-6.97	6.45	868.2	-6.97	6.12	835.8	-6.97	5.85	803.3	-6.97	5.52	769.8	-6.97	5.19	736.4
APR 19 AUG 25		-6.67	6.38	819.7	-6.67	6.05	785.4	-6.67	5.72	751.0	-6.67	5.45	716.6	-6.67	5.12	682.2	-6.67	4.79	647.8
APR 4 SEP 9		-6.34	6.00	732.2	-6.34	5.62	691.3	-6.34	5.29	656.9	-6.34	4.96	622.5	-6.34	4.63	589.1	-6.34	4.30	555.7
MAR 21 SEP 23		-6.00	5.61	636.6	-6.00	5.18	590.0	-6.00	4.75	543.4	-6.00	4.32	496.8	-6.00	3.89	450.2	-6.00	3.46	403.6
MAR 7 OCT 8		-5.66	5.22	540.0	-5.66	4.74	489.3	-5.66	4.31	438.6	-5.66	3.88	392.0	-5.66	3.45	345.4	-5.66	3.02	298.8
FEB 20 OCT 22		-5.33	4.85	449.3	-5.33	4.31	396.3	-5.33	3.78	343.7	-5.33	3.25	291.1	-5.33	2.72	238.5	-5.33	2.29	185.9
FEB 7 NOV 5		-5.03	4.50	369.9	-5.03	3.91	316.2	-5.03	3.29	268.4	-5.03	2.67	220.0	-5.03	2.05	171.6	-5.03	1.43	123.2
JAN 23 NOV 19		-4.77	4.20	307.5	-4.77	3.57	254.1	-4.77	2.90	206.0	-4.77	2.28	157.6	-4.77	1.66	109.2	-4.77	1.04	60.8
JAN 10 DEC 3		-4.58	3.97	264.7	-4.58	3.31	212.2	-4.58	2.64	164.8	-4.58	1.97	116.4	-4.58	1.35	68.0	-4.58	0.73	19.2
DEC 22		-4.46	3.84	240.2	-4.46	3.15	188.5	-4.46	2.42	145.3	-4.46	1.70	97.9	-4.46	0.98	50.5	-4.46	0.36	3.1
		YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.
		233.449		.4442	219.094		.4168	204.853		.3898	191.294		.3640	178.843		.3403			
		60 PCT			70 PCT			SLOPE			80 PCT			90 PCT			100 PCT		
		THETA		ALPHA	THETA		ALPHA	THETA		ALPHA	THETA		ALPHA	THETA		ALPHA	THETA		ALPHA
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.54	6.03	895.0	-7.54	5.61	861.7	-7.54	5.17	829.6	-7.54	4.72	799.6	-7.54	4.28	772.0	-7.54	3.83	744.4
JUN 1 JUL 12		-7.42	5.78	861.7	-7.42	5.35	828.1	-7.42	4.90	796.2	-7.42	4.46	766.6	-7.42	4.03	739.5	-7.42	3.59	712.0
MAY 18 JUL 27		-7.23	5.39	805.6	-7.23	4.94	771.8	-7.23	4.49	740.2	-7.23	4.05	711.4	-7.23	3.63	685.3	-7.23	3.20	659.0
MAY 3 AUG 10		-6.97	4.89	728.0	-6.97	4.43	694.2	-6.97	3.98	663.3	-6.97	3.54	635.6	-6.97	3.13	611.0	-6.97	2.71	586.6
APR 19 AUG 25		-6.67	4.33	634.1	-6.67	3.86	600.9	-6.67	3.40	571.3	-6.67	2.97	545.3	-6.67	2.57	522.6	-6.67	2.17	500.0
APR 4 SEP 9		-6.34	3.75	531.6	-6.34	3.26	499.7	-6.34	2.80	472.0	-6.34	2.37	448.2	-6.34	1.99	427.9	-6.34	1.61	408.0
MAR 21 SEP 23		-6.00	3.15	426.4	-6.00	2.65	396.6	-6.00	2.19	371.5	-6.00	1.77	350.6	-6.00	1.39	333.0	-6.00	1.01	315.4
MAR 7 OCT 8		-5.66	2.56	326.8	-5.66	2.04	299.9	-5.66	1.57	277.9	-5.66	1.16	260.1	-5.66	.80	245.5	-5.66	.44	230.9
FEB 20 OCT 22		-5.33	1.97	239.7	-5.33	1.44	216.1	-5.33	.97	197.6	-5.33	.56	182.9	-5.33	.21	171.3	-5.33	.00	160.0
FEB 7 NOV 5		-5.03	1.41	169.0	-5.03	.87	149.0	-5.03	.40	133.8	-5.03	.01	122.3	-5.03	.00	113.3	-5.03	.00	104.0
JAN 23 NOV 19		-4.77	.92	117.6	-4.77	.36	100.9	-4.77	.12	88.7	-4.77	.00	79.8	-4.77	.00	73.1	-4.77	.00	66.4
JAN 10 DEC 3		-4.58	.52	85.1	-4.58	.05	70.9	-4.58	.00	61.0	-4.58	.00	53.9	-4.58	.00	48.8	-4.58	.00	43.9
DEC 22		-4.46	.27	67.7	-4.46	.03	55.1	-4.46	.00	46.5	-4.46	.00	40.6	-4.46	.00	36.4	-4.46	.00	32.5
		YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.
		167.735		.3191	158.012		.3006	149.625		.2847	142.447		.2710	136.265		.2593			

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 42 N
ASPECT SE - SW

	10 PCT						SLOPE						20 PCT						30 PCT						40 PCT						50 PCT					
	THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA		
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-7.54	6.97	1020.6	-7.54	6.48	1013.4	-7.54	6.04	1002.0	-7.54	5.66	986.9	-7.54	5.28	972.0	-7.54	4.90	957.1	-7.54	4.52	942.2	-7.54	4.14	927.3	-7.54	3.76	912.4	-7.54	3.38	897.5	-7.54	3.00	882.6	-7.54	2.62	867.7
JUN 1 JUL 12	-7.42	6.88	1003.9	-7.42	6.40	1000.1	-7.42	5.97	992.0	-7.42	5.59	977.1	-7.42	5.21	962.2	-7.42	4.83	947.3	-7.42	4.45	932.4	-7.42	4.07	917.5	-7.42	3.69	902.6	-7.42	3.31	887.7	-7.42	2.93	872.8	-7.42	2.55	857.9
MAY 18 JUL 27	-7.23	6.71	974.2	-7.23	6.26	976.2	-7.23	5.86	973.5	-7.23	5.51	966.3	-7.23	5.16	959.0	-7.23	4.81	951.7	-7.23	4.46	944.4	-7.23	4.11	937.1	-7.23	3.76	929.8	-7.23	3.41	922.5	-7.23	3.06	915.2	-7.23	2.71	907.9
MAY 3 AUG 10	-6.97	6.49	930.2	-6.97	6.07	939.9	-6.97	5.70	944.4	-6.97	5.38	944.0	-6.97	5.06	939.6	-6.97	4.74	935.2	-6.97	4.42	930.8	-6.97	4.10	926.4	-6.97	3.78	922.0	-6.97	3.46	917.6	-6.97	3.14	913.2	-6.97	2.82	908.8
APR 19 AUG 25	-6.67	6.23	872.1	-6.67	5.85	890.6	-6.67	5.52	903.5	-6.67	5.22	910.9	-6.67	4.92	918.3	-6.67	4.62	925.7	-6.67	4.32	933.1	-6.67	4.02	940.5	-6.67	3.72	947.9	-6.67	3.42	955.3	-6.67	3.12	962.7	-6.67	2.82	970.1
APR 4 SEP 9	-6.34	5.95	802.3	-6.34	5.61	829.8	-6.34	5.31	851.4	-6.34	5.01	873.0	-6.34	4.71	894.6	-6.34	4.41	916.2	-6.34	4.11	937.8	-6.34	3.81	959.4	-6.34	3.51	981.0	-6.34	3.21	1002.6	-6.34	2.91	1024.2	-6.34	2.61	1045.8
MAR 21 SEP 23	-6.00	5.66	722.8	-6.00	5.36	758.8	-6.00	5.10	788.5	-6.00	4.88	811.8	-6.00	4.66	835.1	-6.00	4.44	858.4	-6.00	4.22	881.7	-6.00	4.00	905.0	-6.00	3.78	928.3	-6.00	3.56	951.6	-6.00	3.34	974.9	-6.00	3.12	998.2
MAR 7 OCT 8	-5.66	5.37	639.4	-5.66	5.11	682.5	-5.66	4.89	719.2	-5.66	4.67	755.9	-5.66	4.45	792.4	-5.66	4.23	828.9	-5.66	4.01	865.4	-5.66	3.79	901.9	-5.66	3.57	938.4	-5.66	3.35	974.9	-5.66	3.13	1011.4	-5.66	2.91	1047.9
FEB 20 OCT 22	-5.33	5.08	558.2	-5.33	4.87	606.6	-5.33	4.69	648.7	-5.33	4.50	690.8	-5.33	4.32	732.9	-5.33	4.14	775.0	-5.33	3.96	817.1	-5.33	3.78	859.2	-5.33	3.60	901.3	-5.33	3.42	943.4	-5.33	3.24	985.5	-5.33	3.06	1027.6
FEB 7 NOV 5	-5.03	4.82	484.6	-5.03	4.65	536.5	-5.03	4.50	582.3	-5.03	4.34	628.1	-5.03	4.18	673.9	-5.03	4.02	719.7	-5.03	3.86	765.5	-5.03	3.70	811.1	-5.03	3.54	856.7	-5.03	3.38	902.3	-5.03	3.22	947.9	-5.03	3.06	993.5
JAN 23 NOV 19	-4.77	4.60	424.8	-4.77	4.46	478.7	-4.77	4.34	526.7	-4.77	4.22	574.7	-4.77	4.10	622.7	-4.77	3.98	670.7	-4.77	3.86	718.7	-4.77	3.74	766.7	-4.77	3.62	814.7	-4.77	3.50	862.7	-4.77	3.38	910.7	-4.77	3.26	958.7
JAN 10 DEC 3	-4.58	4.44	382.7	-4.58	4.33	437.5	-4.58	4.23	486.5	-4.58	4.12	535.3	-4.58	4.01	584.1	-4.58	3.90	632.9	-4.58	3.80	681.7	-4.58	3.69	730.5	-4.58	3.58	779.3	-4.58	3.47	828.1	-4.58	3.36	876.9	-4.58	3.25	925.7
DEC 22	-4.46	4.34	358.2	-4.46	4.24	413.3	-4.46	4.16	462.7	-4.46	4.09	512.2	-4.46	4.01	561.7	-4.46	3.93	611.2	-4.46	3.85	660.7	-4.46	3.77	710.2	-4.46	3.69	759.7	-4.46	3.61	809.2	-4.46	3.53	858.7	-4.46	3.45	908.2
JUN 22	-7.54	5.03	948.4	-7.54	4.77	926.8	-7.54	4.54	904.7	-7.54	4.32	882.6	-7.54	4.10	860.5	-7.54	3.88	838.4	-7.54	3.66	816.3	-7.54	3.44	794.2	-7.54	3.22	772.1	-7.54	3.00	750.0	-7.54	2.78	727.9	-7.54	2.56	705.8
JUN 1 JUL 12	-7.42	5.00	946.5	-7.42	4.74	927.0	-7.42	4.52	906.8	-7.42	4.30	885.7	-7.42	4.08	864.6	-7.42	3.86	843.5	-7.42	3.64	822.4	-7.42	3.42	801.3	-7.42	3.20	780.2	-7.42	2.98	759.1	-7.42	2.76	738.0	-7.42	2.54	716.9
MAY 18 JUL 27	-7.23	4.93	941.5	-7.23	4.69	925.6	-7.23	4.48	908.6	-7.23	4.27	891.0	-7.23	4.06	873.4	-7.23	3.85	855.8	-7.23	3.64	838.2	-7.23	3.43	821.0	-7.23	3.22	803.8	-7.23	3.01	786.6	-7.23	2.80	769.4	-7.23	2.59	752.2
MAY 3 AUG 10	-6.97	4.84	930.9	-6.97	4.62	919.9	-6.97	4.43	907.2	-6.97	4.22	894.6	-6.97	4.01	882.0	-6.97	3.80	869.4	-6.97	3.59	854.8	-6.97	3.38	840.2	-6.97	3.17	825.6	-6.97	2.96	810.4	-6.97	2.75	795.2	-6.97	2.54	780.0
APR 19 AUG 25	-6.67	4.74	911.5	-6.67	4.54	906.4	-6.67	4.36	898.8	-6.67	4.18	891.0	-6.67	4.00	883.1	-6.67	3.82	875.5	-6.67	3.64	867.9	-6.67	3.46	860.3	-6.67	3.28	852.7	-6.67	3.10	845.1	-6.67	2.92	837.5	-6.67	2.74	830.0
APR 4 SEP 9	-6.34	4.62	882.0	-6.34	4.45	883.1	-6.34	4.29	881.0	-6.34	4.13	873.4	-6.34	3.97	865.8	-6.34	3.81	858.2	-6.34	3.65	850.6	-6.34	3.49	843.0	-6.34	3.33	835.4	-6.34	3.17	827.8	-6.34	3.01	820.2	-6.34	2.85	812.6
MAR 21 SEP 23	-6.00	4.50	840.8	-6.00	4.35	848.0	-6.00	4.22	851.4	-6.00	4.09	854.8	-6.00	3.96	858.2	-6.00	3.83	861.6	-6.00	3.70	865.0	-6.00	3.57	868.4	-6.00	3.44	871.8	-6.00	3.31	875.2	-6.00	3.18	878.6	-6.00	3.05	882.0
MAR 7 OCT 8	-5.66	4.38	790.6	-5.66	4.25	803.4	-5.66	4.14	811.9	-5.66	4.01	820.4	-5.66	3.89	828.9	-5.66	3.77	837.4	-5.66	3.65	845.9	-5.66	3.53	854.4	-5.66	3.41	862.9	-5.66	3.29	871.4	-5.66	3.17	879.9	-5.66	3.05	888.4
FEB 20 OCT 22	-5.33	4.27	735.5	-5.33	4.16	752.8	-5.33	4.07	765.6	-5.33	4.00	774.7	-5.33	3.92	783.8	-5.33	3.84	792.9	-5.33	3.76	802.0	-5.33	3.68	811.1	-5.33	3.60	820.2	-5.33	3.52	829.3	-5.33	3.44	838.4	-5.33	3.36	847.5
FEB 7 NOV 5	-5.03	4.16	680.2	-5.03	4.08	701.0	-5.03	4.00	717.1	-5.03	3.94	729.3	-5.03	3.87	741.5	-5.03	3.80	753.7	-5.03	3.73	765.9	-5.03	3.66	778.1	-5.03	3.59	790.3	-5.03	3.52	802.5	-5.03	3.45	814.7	-5.03	3.38	826.9
JAN 23 NOV 19	-4.77	4.08	631.8	-4.77	4.01	655.0	-4.77	3.95	673.3	-4.77	3.90	687.7	-4.77	3.84	702.1	-4.77	3.78	716.5	-4.77	3.72	730.9	-4.77	3.66	745.3	-4.77	3.60	759.7	-4.77	3.54	774.1	-4.77	3.48	788.5	-4.77	3.42	802.9
JAN 10 DEC 3	-4.58	4.01	595.6	-4.58	3.96	620.2	-4.58	3.91	640.0	-4.58	3.87	655.7	-4.58	3.82	670.4	-4.58	3.77	685.1	-4.58	3.72	699.8	-4.58	3.67	714.5	-4.58	3.62	729.2	-4.58	3.57	743.9	-4.58	3.52	758.6	-4.58	3.47	773.3
DEC 22	-4.46	3.97	573.6	-4.46	3.93	598.9	-4.46	3.89	619.4	-4.46	3.85	635.8	-4.46	3.81	651.2	-4.46	3.77	666.6	-4.46	3.73	682.0	-4.46	3.69	697.4	-4.46	3.65	712.8	-4.46	3.61	728.2	-4.46	3.57	743.6	-4.46	3.53	759.0

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 42 N
ASPECT ENE - WNW

	10 PCT						20 PCT						SLOPE						30 PCT						40 PCT						50 PCT					
	THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA		
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY			
JUN 22	-7.54	7.16	1020.6	-7.54	6.75	1010.5	-7.54	6.30	994.9	-7.54	5.83	975.6	-7.54	5.36	954.1	-7.54	4.86	932.0	-7.54	4.39	909.9	-7.54	3.92	887.8	-7.54	3.45	865.7	-7.54	2.98	843.6	-7.54	2.51	821.5			
JUN 1 JUL 12	-7.42	7.04	998.5	-7.42	6.61	987.0	-7.42	6.16	970.6	-7.42	5.71	953.1	-7.42	5.26	935.6	-7.42	4.81	918.1	-7.42	4.36	899.6	-7.42	3.91	882.1	-7.42	3.46	864.6	-7.42	3.01	847.1	-7.42	2.56	829.6			
MAY 16 JUL 27	-7.23	6.83	960.0	-7.23	6.39	946.4	-7.23	5.93	928.7	-7.23	5.48	911.0	-7.23	5.03	893.3	-7.23	4.58	875.6	-7.23	4.13	857.9	-7.23	3.68	840.2	-7.23	3.23	822.5	-7.23	2.78	804.8	-7.23	2.33	787.1			
MAY 3 AUG 10	-6.97	6.55	904.2	-6.97	6.10	887.9	-6.97	5.62	868.5	-6.97	5.17	851.0	-6.97	4.72	833.1	-6.97	4.27	815.2	-6.97	3.82	797.3	-6.97	3.37	779.4	-6.97	2.92	761.5	-6.97	2.47	743.6	-6.97	2.02	725.7			
APR 19 AUG 25	-6.67	6.22	832.6	-6.67	5.75	813.4	-6.67	5.27	792.3	-6.67	4.80	773.0	-6.67	4.33	753.7	-6.67	3.86	734.4	-6.67	3.39	715.1	-6.67	2.92	695.8	-6.67	2.45	676.5	-6.67	1.98	657.2	-6.67	1.51	637.9			
APR 4 SEP 9	-6.34	5.87	749.3	-6.34	5.39	727.3	-6.34	4.89	704.7	-6.34	4.39	682.7	-6.34	3.89	660.2	-6.34	3.39	637.7	-6.34	2.89	615.2	-6.34	2.39	592.7	-6.34	1.89	570.2	-6.34	1.39	547.7	-6.34	0.89	525.2			
MAR 21 SEP 23	-6.00	5.51	657.5	-6.00	5.00	633.1	-6.00	4.49	609.6	-6.00	3.97	585.2	-6.00	3.45	560.8	-6.00	2.93	536.4	-6.00	2.41	511.9	-6.00	1.89	487.5	-6.00	1.37	463.1	-6.00	0.85	438.7	-6.00	0.33	414.3			
MAR 7 OCT 8	-5.66	5.15	563.9	-5.66	4.62	538.0	-5.66	4.10	514.1	-5.66	3.57	489.2	-5.66	3.04	464.3	-5.66	2.51	439.4	-5.66	1.98	414.5	-5.66	1.45	389.6	-5.66	0.92	364.7	-5.66	0.39	339.8	-5.66	-0.14	314.9			
FEB 20 OCT 22	-5.33	4.80	475.4	-5.33	4.25	448.6	-5.33	3.72	423.7	-5.33	3.19	398.0	-5.33	2.66	373.1	-5.33	2.13	348.2	-5.33	1.60	323.3	-5.33	1.07	298.4	-5.33	0.54	273.5	-5.33	0.01	248.6	-5.33	-0.52	223.7			
FEB 7 NOV 5	-5.03	4.47	397.2	-5.03	3.91	370.3	-5.03	3.36	345.4	-5.03	2.81	320.5	-5.03	2.26	295.6	-5.03	1.71	270.7	-5.03	1.16	245.8	-5.03	0.61	220.9	-5.03	0.06	196.0	-5.03	-0.49	171.1	-5.03	-1.04	146.3			
JAN 23 NOV 19	-4.77	4.19	335.3	-4.77	3.61	308.7	-4.77	3.06	284.0	-4.77	2.51	259.2	-4.77	1.96	234.3	-4.77	1.41	209.4	-4.77	0.86	184.5	-4.77	0.31	159.6	-4.77	-0.24	134.7	-4.77	-0.79	109.8	-4.77	-1.34	85.0			
JAN 10 DEC 3	-4.58	3.98	292.6	-4.58	3.39	266.5	-4.58	2.83	241.6	-4.58	2.28	216.7	-4.58	1.73	191.8	-4.58	1.18	166.9	-4.58	0.63	142.0	-4.58	0.08	117.1	-4.58	-0.47	92.2	-4.58	-1.02	67.3	-4.58	-1.57	42.4			
DEC 22	-4.46	3.86	268.0	-4.46	3.26	242.3	-4.46	2.69	217.8	-4.46	2.12	192.9	-4.46	1.55	168.0	-4.46	0.98	143.1	-4.46	0.41	118.2	-4.46	-0.16	93.3	-4.46	-0.71	68.4	-4.46	-1.26	43.5	-4.46	-1.81	18.6			
	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.			
	239.794		.4562	232.103		.4416	224.505		.4271	217.249		.4133	210.495		.4005																					

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

		10 PCT				SLOPE				20 PCT				30 PCT				40 PCT				50 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
		39.6	6.9				36.9	13.1				34.0	18.7				31.0	23.6				28.1	27.9				
JUN 22		-7.54	6.95	1021.4			-7.54	6.40	1015.6	-7.54	5.89	1006.8			-7.54	5.44	995.1			-7.54	5.03	981.1					
JUN 1 JUL 12		-7.42	6.84	1003.0			-7.42	6.30	999.4	-7.42	5.81	992.5			-7.42	5.36	982.8			-7.42	4.97	970.6					
MAY 18 JUL 27		-7.23	6.67	970.8			-7.23	6.14	970.6	-7.23	5.67	967.0			-7.23	5.24	960.5			-7.23	4.86	951.3					
MAY 3 AUG 10		-6.97	6.43	923.3			-6.97	5.93	927.6	-6.97	5.48	928.6			-6.97	5.07	926.3			-6.97	4.71	921.1					
APR 19 AUG 25		-6.67	6.15	861.2			-6.67	5.68	870.7	-6.67	5.25	876.9			-6.67	4.87	879.6			-6.67	4.53	879.0					
APR 4 SEP 9		-6.34	5.85	787.3			-6.34	5.41	802.2	-6.34	5.01	813.7			-6.34	4.65	821.5			-6.34	4.34	825.7					
MAR 21 SEP 23		-6.00	5.54	704.1			-6.00	5.13	723.9	-6.00	4.75	740.3			-6.00	4.43	752.9			-6.00	4.14	761.7					
MAR 7 OCT 8		-5.66	5.23	617.6			-5.66	4.84	641.5	-5.66	4.50	662.1			-5.66	4.20	678.8			-5.66	3.94	691.6					
FEB 20 OCT 22		-5.33	4.93	534.0			-5.33	4.57	561.1	-5.33	4.26	584.8			-5.33	3.98	604.7			-5.33	3.74	620.6					
FEB 7 NOV 5		-5.03	4.65	458.8			-5.03	4.32	487.9	-5.03	4.03	513.7			-5.03	3.78	535.8			-5.03	3.57	553.9					
JAN 23 NOV 19		-4.77	4.42	398.3			-4.77	4.11	428.4	-4.77	3.84	455.4			-4.77	3.61	478.7			-4.77	3.42	499.2					
JAN 10 DEC 3		-4.58	4.24	355.9			-4.58	3.95	386.5	-4.58	3.70	414.0			-4.58	3.49	437.9			-4.58	3.31	458.1					
DEC 22		-4.46	4.14	331.3			-4.46	3.86	362.0	-4.46	3.62	389.7			-4.46	3.41	413.8			-4.46	3.24	438.3					
		YEAR	R.I.		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	
		254.024	44833		259.843	44944	264.468	45032	267.824	45096	269.954	45136															
		60 PCT	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
		25.3	31.7				22.6	35.0				20.2	37.9				17.9	40.5				15.8					
JUN 22		-7.54	4.68	965.5			-7.54	4.36	948.9	-7.54	4.08	931.8			-7.54	3.84	914.7			-7.54	3.62	897.9					
JUN 1 JUL 12		-7.42	4.62	956.6			-7.42	4.31	941.4	-7.42	4.04	925.6			-7.42	3.80	909.7			-7.42	3.59	893.9					
MAY 18 JUL 27		-7.23	4.52	940.0			-7.23	4.22	927.2	-7.23	3.96	913.6			-7.23	3.73	899.6			-7.23	3.53	885.5					
MAY 3 AUG 10		-6.97	4.39	913.5			-6.97	4.11	904.1	-6.97	3.86	893.4			-6.97	3.64	882.1			-6.97	3.45	870.3					
APR 19 AUG 25		-6.67	4.23	875.7			-6.67	3.97	870.2	-6.67	3.74	863.0			-6.67	3.54	854.7			-6.67	3.36	845.7					
APR 4 SEP 9		-6.34	4.06	826.9			-6.34	3.82	825.4	-6.34	3.61	821.9			-6.34	3.42	817.0			-6.34	3.26	811.0					
MAR 21 SEP 23		-6.00	3.89	767.2			-6.00	3.66	769.7	-6.00	3.47	769.9			-6.00	3.30	768.2			-6.00	3.15	765.2					
MAR 7 OCT 8		-5.66	3.71	700.8			-5.66	3.51	706.9	-5.66	3.33	710.3			-5.66	3.18	711.7			-5.66	3.04	711.5					
FEB 20 OCT 22		-5.33	3.54	632.8			-5.33	3.36	641.7	-5.33	3.20	647.9			-5.33	3.06	651.7			-5.33	2.94	653.8					
FEB 7 NOV 5		-5.03	3.38	568.3			-5.03	3.22	579.3	-5.03	3.08	587.5			-5.03	2.96	593.3			-5.03	2.85	597.2					
JAN 23 NOV 19		-4.77	3.25	514.0			-4.77	3.10	526.4	-4.77	2.98	535.9			-4.77	2.87	543.0			-4.77	2.77	548.2					
JAN 10 DEC 3		-4.58	3.15	474.6			-4.58	3.02	487.8	-4.58	2.90	498.1			-4.58	2.80	506.0			-4.58	2.71	512.0					
DEC 22		-4.46	3.09	451.2			-4.46	2.97	464.8	-4.46	2.86	475.5			-4.46	2.76	483.8			-4.46	2.68	490.1					
		YEAR	R.I.		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	
		270.984	45156		271.095	45158	270.477	45146	269.315	45124	267.751	45094															

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

		SLOPE																									
		10 PCT					20 PCT					30 PCT					40 PCT					50 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
		41.7	7.7				41.0	15.1				39.9	22.0				38.4	28.3				36.8	33.9				
JUN 22		-7.54	7.01	1021.3			-7.54	6.48	1014.3			-7.54	5.95	1003.9			-7.54	5.46	990.8			-7.54	5.00	976.1			
JUN 1 JUL 12		-7.42	6.89	1001.0			-7.42	6.36	994.6			-7.42	5.85	984.8			-7.42	5.36	972.5			-7.42	4.91	958.6			
MAY 18 JUL 27		-7.23	6.70	965.7			-7.23	6.18	960.0			-7.23	5.67	951.3			-7.23	5.19	940.3			-7.23	4.75	927.8			
MAY 3 AUG 10		-6.97	6.45	914.1			-6.97	5.93	909.4			-6.97	5.43	902.1			-6.97	4.97	892.9			-6.97	4.54	882.8			
APR 19 AUG 25		-6.67	6.15	847.3			-6.67	5.64	843.8			-6.67	5.15	838.3			-6.67	4.70	831.2			-6.67	4.29	822.8			
APR 4 SEP 9		-6.34	5.83	768.8			-6.34	5.32	766.5			-6.34	4.85	762.8			-6.34	4.41	758.0			-6.34	4.02	752.0			
MAR 21 SEP 23		-6.00	5.49	681.2			-6.00	5.00	680.2			-6.00	4.53	678.4			-6.00	4.11	675.7			-6.00	3.74	672.2			
MAR 7 OCT 8		-5.66	5.15	591.2			-5.66	4.67	591.3			-5.66	4.22	591.1			-5.66	3.81	590.5			-5.66	3.46	589.0			
FEB 20 OCT 22		-5.33	4.83	505.1			-5.33	4.35	506.2			-5.33	3.92	507.4			-5.33	3.53	508.3			-5.33	3.19	508.7			
FEB 7 NOV 5		-5.03	4.53	428.4			-5.03	4.06	430.2			-5.03	3.64	432.4			-5.03	3.26	434.6			-5.03	2.94	436.4			
JAN 23 NOV 19		-4.77	4.27	367.1			-4.77	3.81	369.4			-4.77	3.40	372.3			-4.77	3.04	375.4			-4.77	2.72	378.1			
JAN 10 DEC 3		-4.58	4.08	324.4			-4.58	3.63	327.0			-4.58	3.22	330.4			-4.58	2.87	334.0			-4.58	2.57	337.2			
DEC 22		-4.46	3.97	299.8			-4.46	3.51	302.6			-4.46	3.12	306.2			-4.46	2.77	310.0			-4.46	2.47	313.5			
		YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		247.032	4700	246.441	4689	245.455	4670	244.082	4644	242.359	4611																
		60 PCT					70 PCT					80 PCT					90 PCT					100 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
		35.0	38.9				33.2	43.3				31.5	47.1				29.8	50.4				28.2	53.4				
JUN 22		-7.54	4.59	960.3			-7.54	4.22	944.0			-7.54	3.89	927.8			-7.54	3.60	911.9			-7.54	3.34	896.4			
JUN 1 JUL 12		-7.42	4.50	943.6			-7.42	4.14	928.2			-7.42	3.81	912.7			-7.42	3.53	897.5			-7.42	3.28	882.8			
MAY 18 JUL 27		-7.23	4.35	914.2			-7.23	4.00	900.2			-7.23	3.69	886.0			-7.23	3.41	872.1			-7.23	3.17	858.4			
MAY 3 AUG 10		-6.97	4.16	870.7			-6.97	3.82	858.6			-6.97	3.51	846.2			-6.97	3.25	834.0			-6.97	3.02	821.9			
APR 19 AUG 25		-6.67	3.92	813.5			-6.67	3.60	803.6			-6.67	3.31	793.4			-6.67	3.06	783.2			-6.67	2.84	772.9			
APR 4 SEP 9		-6.34	3.67	745.2			-6.34	3.36	737.7			-6.34	3.09	729.8			-6.34	2.85	721.7			-6.34	2.64	713.5			
MAR 21 SEP 23		-6.00	3.41	667.8			-6.00	3.11	662.7			-6.00	2.86	657.1			-6.00	2.64	651.1			-6.00	2.44	644.9			
MAR 7 OCT 8		-5.66	3.14	586.9			-5.66	2.87	584.0			-5.66	2.63	580.5			-5.66	2.42	576.5			-5.66	2.24	572.2			
FEB 20 OCT 22		-5.33	2.89	508.4			-5.33	2.63	507.3			-5.33	2.41	503.6			-5.33	2.21	503.4			-5.33	2.04	500.7			
FEB 7 NOV 5		-5.03	2.65	437.5			-5.03	2.41	437.8			-5.03	2.20	437.5			-5.03	2.02	436.6			-5.03	1.87	435.2			
JAN 23 NOV 19		-4.77	2.46	380.1			-4.77	2.23	381.4			-4.77	2.03	382.1			-4.77	1.86	382.1			-4.77	1.72	381.6			
JAN 10 DEC 3		-4.58	2.31	339.8			-4.58	2.09	341.8			-4.58	1.90	343.0			-4.58	1.75	343.6			-4.58	1.61	343.7			
DEC 22		-4.46	2.22	316.4			-4.46	2.01	318.6			-4.46	1.83	320.2			-4.46	1.67	321.1			-4.46	1.54	321.5			
		YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		240.336	4573	238.081	4530	235.669	4484	233.173	4436	230.631	4388																

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 44 N

HORIZONTAL SURFACE

LATITUDE 44 N

	SR	SS	LY
JUN 22	-7.66	7.66	1024.0
JUN 1 JUL 12	-7.53	7.53	1001.8
MAY 18 JUL 27	-7.32	7.32	963.2
MAY 3 AUG 10	-7.04	7.04	907.2
APR 19 AUG 25	-6.72	6.72	835.4
APR 4 SEP 9	-6.36	6.36	751.9
MAR 21 SEP 23	-6.00	6.00	659.7
MAR 7 OCT 8	-5.64	5.64	565.8
FEB 20 OCT 22	-5.28	5.28	476.9
FEB 7 NOV 5	-4.96	4.96	398.5
JAN 23 NOV 19	-4.68	4.68	336.3
JAN 10 DEC 3	-4.47	4.47	293.4
DEC 22	-4.34	4.34	268.7

YEAR R.I.
240.588 .4577

LATITUDE 44 N
ASPECT N -

		SLOPE						40 PCT						50 PCT								
		10 PCT		20 PCT		30 PCT		40 PCT		50 PCT		60 PCT		70 PCT		80 PCT		90 PCT		100 PCT		
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	
		49.7	0.0	55.3	0.0	60.7	0.0	65.8	0.0	70.6	0.0	75.0	0.0	79.0	0.0	82.7	0.0	86.0	0.0	89.0	0.0	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.66	7.66	1018.6	-7.66	7.66	1003.5	-7.66	7.66	980.0	-7.66	7.66	949.7	-7.66	7.66	914.6	-7.66	7.66	883.3	-7.66	7.66	852.0
JUN 1 JUL 12		-7.53	7.53	991.2	-7.53	7.53	971.3	-7.53	7.53	943.5	-7.53	7.53	909.4	-7.53	7.53	875.3	-7.53	7.53	841.2	-7.53	7.53	807.1
MAY 18 JUL 27		-7.32	7.32	944.2	-7.32	7.32	916.4	-7.32	7.32	881.5	-7.32	7.32	846.3	-7.32	7.32	812.0	-7.32	7.32	777.7	-7.32	7.32	743.4
MAY 3 AUG 10		-7.04	7.04	877.0	-7.04	7.04	838.9	-7.04	7.04	794.7	-7.04	7.04	750.5	-7.04	7.04	706.3	-7.04	7.04	662.1	-7.04	7.04	617.9
APR 19 AUG 25		-6.72	6.72	792.6	-6.72	6.72	742.9	-6.72	6.72	688.5	-6.72	6.72	634.3	-6.72	6.72	580.1	-6.72	6.72	525.9	-6.72	6.72	471.7
APR 4 SEP 9		-6.36	6.36	696.4	-6.36	6.36	635.4	-6.36	6.36	571.0	-6.36	6.36	505.3	-6.36	6.36	440.3	-6.36	6.36	375.9	-6.36	6.36	311.5
MAR 21 SEP 23		-6.00	6.00	593.0	-6.00	6.00	521.9	-6.00	6.00	448.8	-6.00	6.00	375.9	-6.00	6.00	305.1	-6.00	6.00	235.2	-6.00	6.00	165.3
MAR 7 OCT 8		-5.55	5.55	490.2	-5.55	5.55	411.7	-5.53	5.33	332.9	-5.15	5.15	256.2	-4.92	4.92	183.7	-4.31	4.31	157.3	-3.59	3.59	89.7
FEB 20 OCT 22		-5.12	5.12	395.4	-4.92	4.92	313.0	-4.66	4.66	232.7	-4.44	4.44	152.7	-4.25	4.25	82.0	-3.44	3.44	83.2	-2.52	2.52	27.5
FEB 7 NOV 5		-4.72	4.72	314.0	-4.42	4.42	230.9	-4.01	4.01	152.7	-3.44	3.44	83.2	-2.58	2.58	35.7	-2.00	2.00	40.0	-1.40	1.40	0.0
JAN 23 NOV 19		-4.32	4.32	251.1	-3.97	3.97	169.6	-3.42	3.42	96.0	-2.94	2.94	61.2	-1.74	1.74	11.2	-0.74	0.74	11.2	0.00	0.00	0.0
JAN 10 DEC 3		-4.11	4.11	208.7	-3.62	3.62	129.6	-2.94	2.94	61.2	-2.61	2.61	43.3	-1.98	1.98	2.0	-0.98	0.98	2.0	0.00	0.00	0.0
DEC 22		-3.94	3.94	184.8	-3.40	3.40	107.7	-2.61	2.61	43.3	-2.61	2.61	43.3	-1.98	1.98	2.0	-0.98	0.98	2.0	0.00	0.00	0.0
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	
		220.380	.4193	199.035	.3787	177.574	.3378	157.233	.2992	139.981	.2663											
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	
		75.0	0.0	79.0	0.0	82.7	0.0	86.0	0.0	89.0	0.0											
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.66	7.66	876.5	-7.66	7.66	837.1	-7.66	7.66	797.7	-7.66	7.66	759.2	-7.66	7.66	721.8	-7.66	7.66	684.3	-7.66	7.66	646.8
JUN 1 JUL 12		-7.53	7.53	830.2	-7.53	7.53	788.5	-7.53	7.53	747.2	-7.53	7.53	707.2	-7.53	7.53	668.5	-7.53	7.53	629.8	-7.53	7.53	591.1
MAY 18 JUL 27		-7.32	7.32	752.3	-7.32	7.32	706.9	-7.32	7.32	662.7	-7.32	7.32	620.3	-7.32	7.32	579.7	-7.32	7.32	539.1	-7.32	7.32	498.5
MAY 3 AUG 10		-7.04	7.04	644.9	-7.04	7.04	594.9	-7.04	7.04	546.9	-7.04	7.04	501.5	-7.04	7.04	458.5	-7.04	7.04	415.1	-7.04	7.04	371.7
APR 19 AUG 25		-6.72	6.72	516.3	-6.72	6.72	461.3	-6.72	6.72	409.4	-6.72	6.72	360.2	-6.72	6.72	315.5	-6.72	6.72	271.1	-6.72	6.72	226.7
APR 4 SEP 9		-6.36	6.36	377.6	-6.36	6.36	318.1	-6.36	6.36	262.7	-6.36	6.36	211.6	-6.36	6.36	164.2	-6.36	6.36	119.8	-6.36	6.36	75.4
MAR 21 SEP 23		-6.00	6.00	237.9	-6.00	6.00	175.0	-6.00	6.00	117.1	-6.00	6.00	64.3	-6.00	6.00	15.7	-6.00	6.00	-34.3	-6.00	6.00	-84.3
MAR 7 OCT 8		-5.56	5.56	117.2	-5.37	3.97	58.7	-2.66	2.66	12.7	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
FEB 20 OCT 22		-5.12	5.12	34.0	-4.47	4.7	1.1	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
FEB 7 NOV 5		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
JAN 23 NOV 19		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
JAN 10 DEC 3		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
DEC 22		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 44 N
ASPECT S -

	10 PCT			20 PCT			SLOPE			30 PCT			40 PCT			50 PCT		
	THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		38.3	0.0		32.7	0.0		27.3	0.0		22.2	0.0		17.4	0.0			
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-7.34	7.34	1021.2	-7.08	7.08	1012.0	-6.86	6.86	996.5	-6.68	6.68	975.5	-6.52	6.52	950.3	-6.49	6.49	949.7
JUN 12	-7.24	7.24	1004.2	-7.00	7.00	995.6	-6.80	6.80	988.4	-6.63	6.63	971.4	-6.49	6.49	949.7	-6.49	6.49	949.7
JUN 18	-7.07	7.07	974.0	-6.87	6.87	977.4	-6.70	6.70	973.4	-6.55	6.55	949.5	-6.42	6.42	947.3	-6.42	6.42	947.3
MAY 3	-6.85	6.85	929.3	-6.69	6.69	943.4	-6.55	6.55	949.5	-6.44	6.44	948.3	-6.33	6.33	941.0	-6.33	6.33	941.0
MAY 10	-6.58	6.58	870.4	-6.47	6.47	897.0	-6.38	6.38	914.9	-6.30	6.30	924.9	-6.23	6.23	927.9	-6.23	6.23	927.9
APR 19	-6.30	6.30	800.0	-6.24	6.24	839.5	-6.19	6.19	870.1	-6.15	6.15	892.2	-6.12	6.12	906.5	-6.12	6.12	906.5
APR 4	-6.00	6.00	719.9	-6.00	6.00	771.9	-6.00	6.00	815.0	-6.00	6.00	849.1	-6.00	6.00	875.0	-6.00	6.00	875.0
MAR 21	-5.64	5.64	636.0	-5.64	5.64	698.6	-5.64	5.64	752.5	-5.64	5.64	797.4	-5.64	5.64	833.7	-5.64	5.64	833.7
MAR 7	-5.28	5.28	554.2	-5.28	5.28	624.6	-5.28	5.28	686.7	-5.28	5.28	739.9	-5.28	5.28	784.3	-5.28	5.28	784.3
FEB 20	-4.96	4.96	480.1	-4.96	4.96	555.4	-4.96	4.96	622.8	-4.96	4.96	681.6	-4.96	4.96	731.7	-4.96	4.96	731.7
FEB 7	-4.68	4.68	419.9	-4.68	4.68	497.7	-4.68	4.68	568.1	-4.68	4.68	630.2	-4.68	4.68	683.7	-4.68	4.68	683.7
MAY 23	-4.47	4.47	377.5	-4.47	4.47	456.2	-4.47	4.47	527.9	-4.47	4.47	591.4	-4.47	4.47	646.6	-4.47	4.47	646.6
JAN 10	-4.34	4.34	352.7	-4.34	4.34	431.6	-4.34	4.34	503.6	-4.34	4.34	567.7	-4.34	4.34	623.6	-4.34	4.34	623.6
DEC 22	-4.00	4.00	250.0	-4.00	4.00	300.0	-4.00	4.00	350.0	-4.00	4.00	400.0	-4.00	4.00	450.0	-4.00	4.00	450.0
DEC 3	-3.60	3.60	180.0	-3.60	3.60	216.0	-3.60	3.60	252.0	-3.60	3.60	288.0	-3.60	3.60	324.0	-3.60	3.60	324.0
JAN 23	-3.20	3.20	120.0	-3.20	3.20	144.0	-3.20	3.20	168.0	-3.20	3.20	192.0	-3.20	3.20	216.0	-3.20	3.20	216.0
APR 19	-2.80	2.80	60.0	-2.80	2.80	72.0	-2.80	2.80	84.0	-2.80	2.80	96.0	-2.80	2.80	108.0	-2.80	2.80	108.0
APR 4	-2.40	2.40	30.0	-2.40	2.40	36.0	-2.40	2.40	42.0	-2.40	2.40	48.0	-2.40	2.40	54.0	-2.40	2.40	54.0
APR 19	-2.00	2.00	0.0	-2.00	2.00	0.0	-2.00	2.00	0.0	-2.00	2.00	0.0	-2.00	2.00	0.0	-2.00	2.00	0.0
APR 4	-1.60	1.60	-30.0	-1.60	1.60	-36.0	-1.60	1.60	-42.0	-1.60	1.60	-48.0	-1.60	1.60	-54.0	-1.60	1.60	-54.0
APR 19	-1.20	1.20	-60.0	-1.20	1.20	-72.0	-1.20	1.20	-84.0	-1.20	1.20	-96.0	-1.20	1.20	-108.0	-1.20	1.20	-108.0
APR 4	-0.80	0.80	-90.0	-0.80	0.80	-108.0	-0.80	0.80	-126.0	-0.80	0.80	-144.0	-0.80	0.80	-162.0	-0.80	0.80	-162.0
APR 19	-0.40	0.40	-120.0	-0.40	0.40	-144.0	-0.40	0.40	-168.0	-0.40	0.40	-192.0	-0.40	0.40	-216.0	-0.40	0.40	-216.0
APR 4	0.00	0.00	-150.0	0.00	0.00	-180.0	0.00	0.00	-210.0	0.00	0.00	-240.0	0.00	0.00	-270.0	0.00	0.00	-270.0
APR 19	0.40	0.40	-180.0	0.40	0.40	-216.0	0.40	0.40	-252.0	0.40	0.40	-288.0	0.40	0.40	-324.0	0.40	0.40	-324.0
APR 4	0.80	0.80	-210.0	0.80	0.80	-252.0	0.80	0.80	-294.0	0.80	0.80	-336.0	0.80	0.80	-378.0	0.80	0.80	-378.0
APR 19	1.20	1.20	-240.0	1.20	1.20	-288.0	1.20	1.20	-336.0	1.20	1.20	-384.0	1.20	1.20	-432.0	1.20	1.20	-432.0
APR 4	1.60	1.60	-270.0	1.60	1.60	-324.0	1.60	1.60	-372.0	1.60	1.60	-420.0	1.60	1.60	-468.0	1.60	1.60	-468.0
APR 19	2.00	2.00	-300.0	2.00	2.00	-360.0	2.00	2.00	-420.0	2.00	2.00	-480.0	2.00	2.00	-540.0	2.00	2.00	-540.0
APR 4	2.40	2.40	-330.0	2.40	2.40	-396.0	2.40	2.40	-462.0	2.40	2.40	-528.0	2.40	2.40	-594.0	2.40	2.40	-594.0
 											

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 44 N
ASPECT NNE - NNW

		SLOPE											
		10 PCT			20 PCT			30 PCT			40 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		49.2	3.3		54.2	7.4		58.9	12.3		63.1	18.3	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.66	7.66	1018.6	-7.66	7.66	1003.6	-7.66	7.66	980.0	-7.66	7.66	949.8
JUN 1 JUL 12		-7.53	7.53	991.7	-7.53	7.53	972.2	-7.53	7.53	944.7	-7.53	7.53	910.9
MAY 18 JUL 27		-7.32	7.32	945.3	-7.32	7.32	918.5	-7.32	7.32	884.6	-7.32	7.32	845.2
MAY 3 AUG 10		-7.04	7.04	878.9	-7.04	7.04	842.7	-7.04	7.04	800.3	-7.04	7.04	753.7
APR 19 AUG 25		-6.72	6.64	795.6	-6.72	6.54	749.0	-6.72	6.42	697.6	-6.72	6.27	643.5
APR 4 SEP 9		-6.36	6.21	700.6	-6.36	6.03	644.1	-6.36	5.81	584.8	-6.36	5.53	524.7
MAR 21 SEP 23		-6.00	5.78	598.3	-6.00	5.51	533.6	-6.00	5.18	468.2	-6.00	4.78	404.4
MAR 7 OCT 8		-5.64	5.34	496.5	-5.64	4.98	425.9	-5.64	4.55	357.0	-5.64	4.03	292.2
FEB 20 OCT 22		-5.28	4.92	402.3	-5.28	4.47	328.6	-5.28	3.94	258.8	-5.28	3.29	195.7
FEB 7 NOV 5		-4.96	4.52	321.1	-4.96	3.99	248.6	-4.96	3.34	178.4	-4.96	2.56	119.2
JAN 23 NOV 19		-4.62	4.18	258.2	-4.55	3.56	184.8	-4.45	2.81	119.7	-4.30	1.86	66.0
JAN 10 DEC 3		-4.36	3.92	215.7	-4.22	3.24	144.2	-4.02	2.38	82.8	-3.71	1.27	35.1
DEC 22		-4.20	3.76	191.7	-4.02	3.03	121.8	-3.74	2.10	63.3	-3.29	.85	20.2
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		221.977	.4223		202.457	.3852		182.960	.3481		164.402	.3128	
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	

		SLOPE											
		60 PCT			70 PCT			80 PCT			90 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		69.7	34.5		71.8	44.8		73.3	56.1		73.9	67.6	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.66	7.66	876.7	-7.66	7.66	837.3	-7.66	7.66	797.8	-7.66	7.66	759.4
JUN 1 JUL 12		-7.53	7.53	832.4	-7.53	7.53	790.9	-7.53	7.53	749.9	-7.53	7.53	710.1
MAY 18 JUL 27		-7.32	7.32	757.9	-7.32	7.32	713.2	-7.32	7.32	669.5	-7.32	7.32	627.6
MAY 3 AUG 10		-7.04	6.95	655.1	-7.04	6.90	606.2	-7.04	6.79	559.2	-7.04	6.52	514.9
APR 19 AUG 25		-6.72	5.79	535.2	-6.72	5.42	484.2	-6.72	4.92	437.1	-6.72	4.29	395.0
APR 4 SEP 9		-6.36	4.73	411.1	-6.36	4.18	360.9	-6.36	3.54	316.8	-6.36	2.83	279.6
MAR 21 SEP 23		-6.00	3.70	290.8	-6.00	3.01	244.3	-6.00	2.26	205.8	-6.00	1.49	175.3
MAR 7 OCT 8		-5.64	2.67	184.3	-5.64	1.85	143.9	-5.64	.98	113.0	-5.64	.16	90.6
FEB 20 OCT 22		-5.28	1.61	98.5	-5.28	.61	66.5	-5.28	-.40	44.9	-5.28	-1.31	31.4
FEB 7 NOV 5		-4.96	.45	37.0	-4.96	-.87	15.4	-4.96	-2.27	4.7	-4.96	-3.54	1.1
JAN 23 NOV 19		-3.56	-1.04	3.7	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
JAN 10 DEC 3		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
DEC 22		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		133.767	.2545		121.752	.2316		111.325	.2118		102.329	.1947	
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 44 N
ASPECT SSE - SSW

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
		38.7	2.8				33.4	5.2				28.3	7.2				23.5	8.9				18.9	10.4				
				SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.54	7.17	1021.6			-7.46	6.77	1013.6			-7.38	6.42	999.9			-7.32	6.13	981.2			-7.27	5.88	958.6			
JUN 1 JUL 12		-7.44	7.07	1004.2			-7.37	6.68	1000.6			-7.32	6.36	991.1			-7.27	6.08	976.2			-7.22	5.83	957.0			
MAY 18 JUL 27		-7.27	6.90	973.5			-7.24	6.55	977.3			-7.20	6.25	974.7			-7.18	5.99	966.2			-7.16	5.77	952.8			
MAY 3 AUG 10		-7.04	6.67	928.0			-7.04	6.36	942.0			-7.04	6.10	948.9			-7.04	5.87	949.2			-7.04	5.67	943.9			
APR 19 AUG 25		-6.72	6.41	868.2			-6.72	6.14	893.8			-6.72	5.92	911.8			-6.72	5.73	922.5			-6.72	5.56	926.9			
APR 4 SEP 9		-6.36	6.12	796.7			-6.36	5.90	834.1			-6.36	5.72	863.5			-6.36	5.57	885.2			-6.36	5.43	899.6			
MAR 21 SEP 23		-6.00	5.81	715.5			-6.00	5.66	768.9			-6.00	5.52	804.2			-6.00	5.41	836.2			-6.00	5.31	860.4			
MAR 7 OCT 8		-5.64	5.51	630.6			-5.64	5.41	688.3			-5.64	5.32	737.9			-5.64	5.24	778.9			-5.64	5.18	811.9			
FEB 20 OCT 22		-5.28	5.22	548.2			-5.28	5.17	612.9			-5.28	5.12	669.5			-5.28	5.09	717.8			-5.28	5.05	757.9			
FEB 7 NOV 5		-4.96	4.95	473.7			-4.96	4.95	542.9			-4.96	4.95	604.5			-4.96	4.94	657.9			-4.96	4.94	703.2			
JAN 23 NOV 19		-4.68	4.68	413.4			-4.68	4.68	485.0			-4.68	4.68	549.4			-4.68	4.68	606.0			-4.68	4.68	654.5			
JAN 10 DEC 3		-4.47	4.47	371.0			-4.47	4.47	443.4			-4.47	4.47	505.1			-4.47	4.47	567.1			-4.47	4.47	617.3			
DEC 22		-4.34	4.34	346.2			-4.34	4.34	418.8			-4.34	4.34	484.9			-4.34	4.34	543.5			-4.34	4.34	594.4			
		YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	
		257.468	.4899	272.030	.5176	283.974	.5403	293.279	.5580	300.114	.5710																

LATITUDE 44 N
ASPECT NE - NW

		SLOPE																	
		10 PCT			20 PCT			30 PCT			40 PCT			50 PCT					
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		47.9	6.0		51.3	12.8		54.2	20.3		56.5	28.4		58.1	36.7		58.1	36.7	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.66	7.52	1018.9	-7.66	7.34	1004.4	-7.66	7.12	982.0	-7.66	6.84	953.6	-7.66	6.50	921.2	-7.66	6.16	886.8
JUN 1 JUL 12		-7.53	7.36	993.1	-7.53	7.16	975.5	-7.53	6.91	950.6	-7.53	6.61	920.3	-7.53	6.24	886.8	-7.53	5.94	848.8
MAY 18 JUL 27		-7.32	7.12	948.7	-7.32	6.88	926.2	-7.32	6.59	897.3	-7.32	6.24	864.1	-7.32	5.84	828.8	-7.32	5.44	788.8
MAY 3 AUG 10		-7.04	6.80	885.1	-7.04	6.50	856.2	-7.04	6.16	822.4	-7.04	5.77	785.8	-7.04	5.32	748.5	-7.04	4.84	708.5
APR 19 AUG 25		-6.72	6.42	804.8	-6.72	6.07	769.0	-6.72	5.68	730.1	-6.72	5.24	690.3	-6.72	4.75	651.4	-6.72	4.27	611.4
APR 4 SEP 9		-6.36	6.02	712.8	-6.36	5.62	670.5	-6.36	5.17	627.2	-6.36	4.68	585.0	-6.36	4.16	545.4	-6.36	3.68	505.4
MAR 21 SEP 23		-6.00	5.60	613.2	-6.00	5.14	565.6	-6.00	4.64	519.2	-6.00	4.11	475.7	-6.00	3.55	436.7	-6.00	3.07	396.7
MAR 7 OCT 8		-5.64	5.18	513.6	-5.64	4.67	462.3	-5.64	4.12	414.2	-5.64	3.53	371.1	-5.64	2.94	333.8	-5.64	2.46	296.8
FEB 20 OCT 22		-5.28	4.78	420.9	-5.28	4.21	367.7	-5.28	3.61	319.7	-5.28	2.98	278.2	-5.28	2.35	243.8	-5.28	1.78	208.8
FEB 7 NOV 5		-4.96	4.40	340.5	-4.96	3.78	287.1	-4.96	3.12	240.5	-4.96	2.44	201.7	-4.96	1.78	170.7	-4.96	1.18	135.7
JAN 23 NOV 19		-4.68	4.08	277.8	-4.68	3.41	225.4	-4.68	2.70	180.9	-4.68	1.97	145.1	-4.68	1.27	111.8	-4.68	0.67	77.8
JAN 10 DEC 3		-4.47	3.83	235.2	-4.47	3.13	184.0	-4.47	2.37	141.6	-4.47	1.60	108.6	-4.47	0.86	84.2	-4.47	0.26	49.2
DEC 22		-4.34	3.68	211.0	-4.34	2.95	160.8	-4.34	2.17	119.9	-4.34	1.37	88.7	-4.34	0.60	66.3	-4.34	0.00	31.3
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		226.458	.4309		211.899	.4032		197.612	.3760		184.160	.3504		171.946	.3271		158.794	.3038	
		SLOPE																	
		60 PCT			70 PCT			80 PCT			90 PCT			100 PCT					
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		59.0	45.0		59.4	52.8		59.3	60.0		58.9	66.5		58.3	72.1		58.3	72.1	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.66	6.10	887.2	-7.66	5.63	853.1	-7.66	5.14	820.6	-7.66	4.65	790.6	-7.66	4.18	763.2	-7.66	3.71	735.8
JUN 1 JUL 12		-7.53	5.82	852.1	-7.53	5.35	817.9	-7.53	4.86	785.7	-7.53	4.37	756.2	-7.53	3.91	729.4	-7.53	3.44	702.6
MAY 18 JUL 27		-7.32	5.39	793.2	-7.32	4.90	759.1	-7.32	4.42	727.5	-7.32	3.94	698.9	-7.32	3.50	673.3	-7.32	3.03	647.7
MAY 3 AUG 10		-7.04	4.85	712.3	-7.04	4.35	678.5	-7.04	3.87	647.9	-7.04	3.41	620.8	-7.04	2.98	596.9	-7.04	2.51	573.0
APR 19 AUG 25		-6.72	4.25	615.1	-6.72	3.75	582.3	-6.72	3.26	553.4	-6.72	2.81	528.3	-6.72	2.41	506.5	-6.72	1.94	484.7
APR 4 SEP 9		-6.36	3.63	509.9	-6.36	3.12	478.8	-6.36	2.64	452.1	-6.36	2.20	429.6	-6.36	1.80	410.4	-6.36	1.33	391.6
MAR 21 SEP 23		-6.00	3.00	403.0	-6.00	2.48	374.4	-6.00	2.00	350.7	-6.00	1.57	331.1	-6.00	1.19	314.9	-6.00	0.81	298.7
MAR 7 OCT 8		-5.64	2.37	302.8	-5.64	1.84	277.5	-5.64	1.36	257.2	-5.64	.94	240.9	-5.64	.58	227.7	-5.64	.22	210.5
FEB 20 OCT 22		-5.28	1.75	216.2	-5.28	1.21	194.6	-5.28	.73	177.9	-5.28	.32	164.9	-5.28	-.02	154.7	-5.28	-.38	140.5
FEB 7 NOV 5		-4.96	1.16	147.0	-4.96	.60	129.2	-4.96	.13	116.0	-4.96	-.27	106.2	-4.96	-.60	98.7	-4.96	-.96	90.7
JAN 23 NOV 19		-4.68	.62	97.7	-4.68	.05	83.4	-4.68	-.42	73.2	-4.68	-.81	65.9	-4.68	-1.12	60.6	-4.68	-1.48	53.2
JAN 10 DEC 3		-4.47	.19	67.1	-4.47	-.39	55.4	-4.47	-.86	47.5	-4.47	-1.23	42.0	-4.47	-1.53	38.2	-4.47	-1.89	31.8
DEC 22		-4.34	-.09	51.1	-4.34	-.68	41.0	-4.34	-1.15	34.4	-4.34	-1.51	30.1	-4.34	-1.79	27.0	-4.34	-2.15	21.6
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		161.165	.3066		151.819	.2888		143.828	.2736		137.040	.2607		131.234	.2497		125.486	.2397	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 44 N
ASPECT SE - SW

		10 PCT			20 PCT			30 PCT			40 PCT			50 PCT		
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY
		39.8	5.3		35.5	9.8		31.3	13.8		27.1	17.2		23.2	20.1	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.66	7.07	1022.5	-7.66	6.55	1017.1	-7.66	6.10	1007.7	-7.66	5.71	994.4	-7.66	5.37	978.0
JUN 1 JUL 12		-7.53	6.96	1004.0	-7.53	6.46	1002.2	-7.53	6.03	998.1	-7.53	5.65	985.9	-7.53	5.32	972.2
MAY 18 JUL 27		-7.32	6.78	971.5	-7.32	6.31	975.5	-7.32	5.90	978.9	-7.32	5.55	969.8	-7.32	5.23	960.8
MAY 3 AUG 10		-7.04	6.55	923.6	-7.04	6.11	935.5	-7.04	5.73	942.2	-7.04	5.40	944.0	-7.04	5.12	941.2
APR 19 AUG 25		-6.72	6.27	861.0	-6.72	5.87	881.7	-6.72	5.53	896.9	-6.72	5.23	906.6	-6.72	4.97	911.1
APR 4 SEP 9		-6.36	5.96	786.6	-6.36	5.61	816.3	-6.36	5.31	840.1	-6.36	5.05	857.9	-6.36	4.82	870.0
MAR 21 SEP 23		-6.00	5.65	702.8	-6.00	5.35	740.7	-6.00	5.08	772.6	-6.00	4.86	798.0	-6.00	4.66	817.3
MAR 7 OCT 8		-5.64	5.33	615.7	-5.64	5.08	660.5	-5.64	4.85	699.0	-5.64	4.66	731.0	-5.64	4.50	756.5
FEB 20 OCT 22		-5.28	5.03	531.7	-5.28	4.82	581.4	-5.28	4.63	625.0	-5.28	4.48	661.9	-5.28	4.34	692.3
FEB 7 NOV 5		-4.96	4.75	456.1	-4.96	4.58	509.0	-4.96	4.43	555.8	-4.96	4.31	596.2	-4.96	4.20	629.9
JAN 23 NOV 19		-4.68	4.51	395.2	-4.68	4.38	449.6	-4.68	4.26	498.3	-4.68	4.17	540.6	-4.68	4.08	576.5
JAN 10 DEC 3		-4.47	4.34	352.6	-4.47	4.23	407.6	-4.47	4.14	457.0	-4.47	4.06	500.2	-4.47	3.99	537.2
DEC 22		-4.34	4.23	327.9	-4.34	4.14	382.9	-4.34	4.06	432.5	-4.34	4.00	476.1	-4.34	3.94	513.5
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		253.592	.4825		264.927	.5040		274.274	.5218		281.555	.5357		286.865	.5458	
		60 PCT			70 PCT			80 PCT			90 PCT			100 PCT		
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY
		19.5	22.7		16.1	25.0		13.0	27.0		10.1	28.7		7.6	30.3	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.66	5.08	959.3	-7.66	4.82	939.0	-7.66	4.59	918.2	-7.66	4.38	897.2	-7.66	4.20	876.5
JUN 1 JUL 12		-7.53	5.03	956.0	-7.53	4.78	938.0	-7.53	4.56	915.1	-7.53	4.36	899.9	-7.53	4.19	880.7
MAY 18 JUL 27		-7.32	4.96	948.8	-7.32	4.72	934.5	-7.32	4.51	918.8	-7.32	4.32	902.4	-7.32	4.16	885.7
MAY 3 AUG 10		-7.04	4.86	934.8	-7.04	4.64	925.6	-7.04	4.45	914.8	-7.04	4.28	901.9	-7.04	4.12	888.7
APR 19 AUG 25		-6.72	4.75	911.3	-6.72	4.55	908.0	-6.72	4.37	902.1	-6.72	4.22	894.3	-6.72	4.08	885.2
APR 4 SEP 9		-6.36	4.62	877.1	-6.36	4.44	880.0	-6.36	4.29	879.7	-6.36	4.15	876.8	-6.36	4.03	872.2
MAR 21 SEP 23		-6.00	4.49	831.0	-6.00	4.34	840.0	-6.00	4.20	845.1	-6.00	4.09	847.2	-6.00	3.98	847.1
MAR 7 OCT 8		-5.64	4.35	776.0	-5.64	4.23	790.4	-5.64	4.12	800.6	-5.64	4.02	807.2	-5.64	3.93	811.2
FEB 20 OCT 22		-5.28	4.23	716.5	-5.28	4.12	735.4	-5.28	4.03	749.6	-5.28	3.95	760.0	-5.28	3.88	767.5
FEB 7 NOV 5		-4.96	4.11	657.5	-4.96	4.03	679.7	-4.96	3.96	697.0	-4.96	3.89	710.3	-4.96	3.84	720.5
JAN 23 NOV 19		-4.68	4.01	606.2	-4.68	3.95	630.5	-4.68	3.89	650.0	-4.68	3.85	665.3	-4.68	3.80	677.4
JAN 10 DEC 3		-4.47	3.94	568.1	-4.47	3.89	593.6	-4.47	3.85	616.3	-4.47	3.81	630.9	-4.47	3.78	644.2
DEC 22		-4.34	3.90	545.0	-4.34	3.85	571.1	-4.34	3.82	592.4	-4.34	3.79	609.6	-4.34	3.76	623.5
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		290.411	.5525		292.478	.5565		293.351	.5581		293.304	.5580		292.566	.5566	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 44 N
ASPECT ENE - MNW

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
JUN 22		-7.66	7.27	1020.0			-7.66	6.84	1009.2			-7.66	6.37	993.0			-7.66	5.88	973.2			-7.66	5.38	951.6			
JUN 1 JUL 12		-7.53	7.14	996.0			-7.53	6.70	983.9			-7.53	6.22	966.9			-7.53	5.73	946.7			-7.53	5.23	925.1			
MAY 18 JUL 27		-7.32	6.91	954.5			-7.32	6.46	940.2			-7.32	5.97	922.0			-7.32	5.48	901.3			-7.32	4.99	879.7			
MAY 3 AUG 10		-7.04	6.61	894.7			-7.04	6.14	877.7			-7.04	5.65	857.9			-7.04	5.15	836.7			-7.04	4.66	815.3			
APR 19 AUG 25		-6.72	6.26	818.6			-6.72	5.77	798.8			-6.72	5.27	777.4			-6.72	4.76	755.8			-6.72	4.28	734.8			
APR 4 SEP 9		-6.36	5.88	730.8			-6.36	5.38	708.3			-6.36	4.86	685.8			-6.36	4.35	664.1			-6.36	3.87	643.9			
MAR 21 SEP 23		-6.00	5.49	634.9			-6.00	4.97	610.4			-6.00	4.44	587.1			-6.00	3.93	565.7			-6.00	3.45	546.7			
MAR 7 OCT 8		-5.64	5.10	538.2			-5.64	4.56	512.2			-5.64	4.02	488.8			-5.64	3.50	468.3			-5.64	3.03	450.8			
FEB 20 OCT 22		-5.28	4.73	447.4			-5.28	4.16	420.9			-5.28	3.61	398.0			-5.28	3.09	378.7			-5.28	2.62	362.8			
FEB 7 NOV 5		-4.96	4.38	368.0			-4.96	3.79	341.6			-4.96	3.23	319.6			-4.96	2.71	301.8			-4.96	2.24	287.6			
JAN 23 NOV 19		-4.68	4.08	305.7			-4.68	3.47	279.8			-4.68	2.90	258.9			-4.68	2.38	242.5			-4.68	1.92	229.8			
JAN 10 DEC 3		-4.47	3.85	262.9			-4.47	3.24	237.7			-4.47	2.66	217.9			-4.47	2.13	202.6			-4.47	1.67	191.1			
DEC 22		-4.34	3.71	238.5			-4.34	3.09	213.8			-4.34	2.50	194.6			-4.34	1.98	180.1			-4.34	1.52	169.3			
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		232.992	.4433	225.272	.4286	217.772	.4143	210.716	.4009	204.240	.3886																
		60 PCT				70 PCT				SLOPE				80 PCT				90 PCT				100 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
JUN 22		-7.66	4.91	929.6			-7.66	4.46	907.9			-7.66	4.05	887.3			-7.66	3.68	868.0			-7.66	3.36	850.0			
JUN 1 JUL 12		-7.53	4.76	903.3			-7.53	4.32	882.0			-7.53	3.92	861.9			-7.53	3.56	843.1			-7.53	3.23	825.6			
MAY 18 JUL 27		-7.32	4.52	858.3			-7.32	4.09	837.7			-7.32	3.69	818.4			-7.32	3.34	800.5			-7.32	3.03	783.9			
MAY 3 AUG 10		-7.04	4.20	794.6			-7.04	3.78	775.0			-7.04	3.40	756.8			-7.04	3.06	740.2			-7.04	2.76	724.9			
APR 19 AUG 25		-6.72	3.83	715.1			-6.72	3.42	696.9			-6.72	3.05	680.3			-6.72	2.73	665.2			-6.72	2.44	651.4			
APR 4 SEP 9		-6.36	3.43	625.5			-6.36	3.03	608.9			-6.36	2.68	594.0			-6.36	2.37	580.7			-6.36	2.10	568.7			
MAR 21 SEP 23		-6.00	3.02	529.9			-6.00	2.63	515.2			-6.00	2.29	502.3			-6.00	2.00	490.9			-6.00	1.74	480.8			
MAR 7 OCT 8		-5.64	2.61	435.8			-5.64	2.23	423.0			-5.64	1.91	412.1			-5.64	1.63	402.7			-5.64	1.39	394.4			
FEB 20 OCT 22		-5.28	2.21	349.7			-5.28	1.85	338.9			-5.28	1.54	329.8			-5.28	1.27	322.2			-5.28	1.04	315.5			
FEB 7 NOV 5		-4.96	1.84	276.3			-4.96	1.49	267.2			-4.96	1.19	259.8			-4.96	.94	253.7			-4.96	.73	248.5			
JAN 23 NOV 19		-4.68	1.52	220.1			-4.68	1.18	212.4			-4.68	.90	206.3			-4.68	.66	201.4			-4.68	.46	197.3			
JAN 10 DEC 3		-4.47	1.28	182.4			-4.47	.95	175.8			-4.47	.67	170.6			-4.47	.45	166.5			-4.47	.25	163.0			
DEC 22		-4.34	1.13	161.3			-4.34	.81	155.2			-4.34	.54	150.6			-4.34	.32	146.9			-4.34	.13	143.9			
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		198.383	.3774	193.121	.3674	188.412	.3585	184.199	.3505	180.389	.3432																

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 44 N
ASPECT ESE - WSW

		SLOPE																	
		10 PCT		20 PCT		30 PCT		40 PCT		50 PCT									
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
		41.6	7.1	38.8	13.5	35.9	19.1	32.9	24.1	29.9	28.5								
		SR	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS
JUN 22		-7.66	7.04	1022.5	-7.66	6.47	1018.0	-7.66	5.95	1010.4	-7.66	5.48	1000.0	-7.66	5.07	987.4	-7.66	4.61	974.1
JUN 1 JUL 12		-7.53	6.93	1002.4	-7.53	6.37	1000.0	-7.53	5.86	994.5	-7.53	5.40	986.1	-7.53	5.00	975.4	-7.53	4.54	966.1
MAY 18 JUL 27		-7.32	6.74	967.3	-7.32	6.20	968.3	-7.32	5.71	966.3	-7.32	5.27	961.5	-7.32	4.88	953.5	-7.32	4.42	945.5
MAY 3 AUG 10		-7.04	6.48	915.9	-7.04	5.97	921.6	-7.04	5.50	924.1	-7.04	5.08	923.5	-7.04	4.72	919.3	-7.04	4.26	911.3
APR 19 AUG 25		-6.72	6.19	849.2	-6.72	5.70	860.3	-6.72	5.26	868.0	-6.72	4.87	872.4	-6.72	4.53	873.5	-6.72	4.07	865.5
APR 4 SEP 9		-6.36	5.86	770.8	-6.36	5.41	787.2	-6.36	5.00	800.2	-6.36	4.64	809.7	-6.36	4.32	815.6	-6.36	3.86	807.6
MAR 21 SEP 23		-6.00	5.53	683.3	-6.00	5.10	704.5	-6.00	4.72	722.5	-6.00	4.39	736.7	-6.00	4.10	747.1	-6.00	3.72	757.4
MAR 7 OCT 8		-5.64	5.19	593.2	-5.64	4.80	618.4	-5.64	4.45	640.4	-5.64	4.15	658.6	-5.64	3.89	672.9	-5.64	3.53	688.4
FEB 20 OCT 22		-5.28	4.87	507.0	-5.28	4.51	535.1	-5.28	4.19	560.0	-5.28	3.92	581.1	-5.28	3.68	598.4	-5.28	3.42	615.9
FEB 7 NOV 5		-4.96	4.57	430.1	-4.96	4.24	459.9	-4.96	3.95	485.6	-4.96	3.70	509.7	-4.96	3.49	528.9	-4.96	3.28	549.1
JAN 23 NOV 19		-4.68	4.32	368.7	-4.68	4.01	399.2	-4.68	3.74	425.9	-4.68	3.52	451.0	-4.68	3.33	471.3	-4.68	3.14	492.6
JAN 10 DEC 3		-4.47	4.13	325.9	-4.47	3.84	356.7	-4.47	3.59	384.6	-4.47	3.39	409.1	-4.47	3.21	430.0	-4.47	3.02	451.9
DEC 22		-4.34	4.02	301.2	-4.34	3.74	331.9	-4.34	3.50	359.9	-4.34	3.30	384.5	-4.34	3.14	405.6	-4.34	2.98	427.1
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		247.661	.4712	253.852	.4830	258.912	.4926	262.734	.4999	265.937	.5048			262.734	.4999	265.937	.5048	265.937	.5048
		SLOPE																	
		60 PCT		70 PCT		80 PCT		90 PCT		100 PCT									
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
		27.0	32.2	24.3	35.5	21.7	38.4	19.4	40.9	17.3	43.2								
		SR	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS	LY	SS
JUN 22		-7.66	4.70	973.0	-7.66	4.38	957.5	-7.66	4.10	941.4	-7.66	3.86	925.2	-7.66	3.64	909.1	-7.66	3.42	893.0
JUN 1 JUL 12		-7.53	4.64	962.7	-7.53	4.33	948.7	-7.53	4.06	934.0	-7.53	3.82	919.0	-7.53	3.60	903.9	-7.53	3.38	888.8
MAY 18 JUL 27		-7.32	4.54	943.6	-7.32	4.24	932.1	-7.32	3.97	919.7	-7.32	3.74	906.7	-7.32	3.54	893.4	-7.32	3.34	880.1
MAY 3 AUG 10		-7.04	4.40	913.7	-7.04	4.11	905.7	-7.04	3.86	896.2	-7.04	3.65	886.0	-7.04	3.45	875.1	-7.04	3.25	864.2
APR 19 AUG 25		-6.72	4.23	871.7	-6.72	3.96	867.6	-6.72	3.73	861.8	-6.72	3.53	854.7	-6.72	3.35	846.8	-6.72	3.17	838.9
APR 4 SEP 9		-6.36	4.04	818.4	-6.36	3.80	818.4	-6.36	3.59	816.3	-6.36	3.40	812.6	-6.36	3.24	807.7	-6.36	3.08	803.9
MAR 21 SEP 23		-6.00	3.85	754.1	-6.00	3.63	758.1	-6.00	3.44	759.6	-6.00	3.27	759.2	-6.00	3.12	757.4	-6.00	2.97	755.6
MAR 7 OCT 8		-5.64	3.66	683.5	-5.64	3.46	691.0	-5.64	3.29	695.7	-5.64	3.14	698.3	-5.64	3.01	699.1	-5.64	2.89	697.4
FEB 20 OCT 22		-5.28	3.47	611.9	-5.28	3.30	622.0	-5.28	3.14	624.3	-5.28	3.01	634.3	-5.28	2.89	637.4	-5.28	2.79	635.5
FEB 7 NOV 5		-4.96	3.31	544.4	-4.96	3.15	556.5	-4.96	3.01	565.7	-4.96	2.90	572.5	-4.96	2.81	577.3	-4.96	2.71	572.6
JAN 23 NOV 19		-4.68	3.16	487.9	-4.68	3.02	501.3	-4.68	2.90	511.7	-4.68	2.80	519.6	-4.68	2.73	525.6	-4.68	2.64	521.7
JAN 10 DEC 3		-4.47	3.06	447.2	-4.47	2.93	461.2	-4.47	2.82	472.3	-4.47	2.73	480.9	-4.47	2.64	487.6	-4.47	2.56	484.7
DEC 22		-4.34	3.00	423.0	-4.34	2.88	437.3	-4.34	2.77	448.7	-4.34	2.68	457.7	-4.34	2.61	464.7	-4.34	2.54	461.8
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		266.827	.5077	267.373	.5087	267.158	.5083	266.363	.5068	265.937	.5044			266.363	.5068	265.937	.5044	265.937	.5044

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 44 N
ASPECT E - W

		SLOPE																			
		10 PCT		20 PCT		30 PCT		40 PCT		50 PCT		60 PCT		70 PCT		80 PCT		90 PCT		100 PCT	
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
		SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY
JUN 22		-7.66	7.11	1021.6		-7.66	6.55	1014.9		-7.66	6.01	1004.8		-7.66	5.50	992.4		-7.66	5.02	978.3	
JUN 1 JUL 12		-7.53	6.98	999.5		-7.53	6.43	993.3		-7.53	5.90	984.0		-7.53	5.39	972.4		-7.53	4.92	959.2	
MAY 18 JUL 27		-7.32	6.78	961.2		-7.32	6.23	955.8		-7.32	5.71	947.6		-7.32	5.21	937.4		-7.32	4.76	925.7	
MAY 3 AUG 10		-7.04	6.50	905.7		-7.04	5.97	901.3		-7.04	5.45	894.7		-7.04	4.97	886.4		-7.04	4.53	876.7	
APR 19 AUG 25		-6.72	6.18	834.3		-6.72	5.65	831.3		-6.72	5.13	826.5		-6.72	4.69	820.4		-6.72	4.27	813.1	
APR 4 SEP 9		-6.36	5.83	751.3		-6.36	5.31	749.5		-6.36	4.83	740.8		-6.36	4.38	742.9		-6.36	3.98	738.2	
MAR 21 SEP 23		-6.00	5.47	659.6		-6.00	4.96	659.2		-6.00	4.49	658.3		-6.00	4.06	656.7		-6.00	3.68	654.3	
MAR 7 OCT 8		-5.64	5.11	566.1		-5.64	4.61	566.9		-5.64	4.15	567.7		-5.64	3.74	568.1		-5.64	3.38	567.9	
FEB 20 OCT 22		-5.28	4.76	477.6		-5.28	4.27	479.3		-5.28	3.83	481.4		-5.28	3.44	483.4		-5.28	3.09	485.0	
FEB 7 NOV 5		-4.96	4.44	399.4		-4.96	3.96	401.8		-4.96	3.53	404.9		-4.96	3.15	408.1		-4.96	2.83	410.9	
JAN 23 NOV 19		-4.68	4.16	337.4		-4.68	3.69	340.3		-4.68	3.28	348.0		-4.68	2.91	348.0		-4.68	2.60	351.6	
JAN 10 DEC 3		-4.47	3.86	294.6		-4.47	3.49	297.7		-4.47	3.09	301.8		-4.47	2.73	306.2		-4.47	2.44	310.3	
DEC 22		-4.34	3.83	270.0		-4.34	3.37	273.2		-4.34	2.97	277.5		-4.34	2.63	282.1		-4.34	2.34	286.4	
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		240.451	.4575	240.032	.4567	239.310	.4553	238.263	.4533	236.899	.4507										
		SLOPE																			
		60 PCT		70 PCT		80 PCT		90 PCT		100 PCT											
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA										
		SR	SS	LY	LY	SR	SS	LY	LY	SR	SS										
JUN 22		-7.66	4.60	963.2		-7.66	4.22	947.7		-7.66	3.88	932.2		-7.66	3.59	917.0		-7.66	3.33	902.2	
JUN 1 JUL 12		-7.53	4.50	945.0		-7.53	4.13	930.4		-7.53	3.80	915.8		-7.53	3.51	901.3		-7.53	3.26	887.2	
MAY 18 JUL 27		-7.32	4.35	913.1		-7.32	3.99	900.0		-7.32	3.67	886.7		-7.32	3.39	873.5		-7.32	3.14	860.6	
MAY 3 AUG 10		-7.04	4.14	866.2		-7.04	3.79	855.0		-7.04	3.49	843.6		-7.04	3.22	832.2		-7.04	2.99	821.0	
APR 19 AUG 25		-6.72	3.89	805.0		-6.72	3.56	796.2		-6.72	3.27	781.0		-6.72	3.02	777.7		-6.72	2.80	768.4	
APR 4 SEP 9		-6.36	3.62	732.5		-6.36	3.31	726.2		-6.36	3.04	719.4		-6.36	2.80	712.3		-6.36	2.59	705.0	
MAR 21 SEP 23		-6.00	3.34	651.2		-6.00	3.05	647.3		-6.00	2.80	642.8		-6.00	2.58	637.9		-6.00	2.38	632.7	
MAR 7 OCT 8		-5.64	3.06	566.9		-5.64	2.79	565.2		-5.64	2.55	562.8		-5.64	2.35	559.9		-5.64	2.17	556.5	
FEB 20 OCT 22		-5.28	2.80	485.8		-5.28	2.54	485.2		-5.28	2.32	485.2		-5.28	2.13	483.9		-5.28	1.97	482.1	
FEB 7 NOV 5		-4.96	2.55	413.0		-4.96	2.31	414.4		-4.96	2.11	415.1		-4.96	1.93	415.0		-4.96	1.78	414.5	
JAN 23 NOV 19		-4.68	2.34	354.6		-4.68	2.11	356.9		-4.68	1.92	358.4		-4.68	1.76	359.2		-4.68	1.62	359.5	
JAN 10 DEC 3		-4.47	2.18	313.8		-4.47	1.97	316.5		-4.47	1.79	318.5		-4.47	1.64	319.9		-4.47	1.51	320.7	
DEC 22		-4.34	2.09	290.1		-4.34	1.88	293.1		-4.34	1.71	295.4		-4.34	1.56	297.0		-4.34	1.44	298.0	
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		235.245	.4476	233.351	.4440	231.282	.4400	229.104	.4359	226.855	.4316										

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 46 N

HORIZONTAL SURFACE

LATITUDE 46 N			
	SR	SS	LY
JUN 22	-7.78	7.78	1023.6
JUN 1 JUL 12	-7.65	7.65	999.5
MAY 18 JUL 27	-7.42	7.42	957.8
MAY 3 AUG 10	-7.12	7.12	897.8
APR 19 AUG 25	-6.77	6.77	821.4
APR 4 SEP 9	-6.39	6.39	733.3
MAR 21 SEP 23	-6.00	6.00	637.1
MAR 7 OCT 8	-5.61	5.61	539.9
FEB 20 OCT 22	-5.23	5.23	448.8
FEB 7 NOV 5	-4.88	4.88	369.1
JAN 23 NOV 19	-4.58	4.58	306.4
JAN 10 DEC 3	-4.35	4.35	263.5
DEC 22	-4.22	4.22	239.0

YEAR R.I.
233.753 .4447

LATITUDE 46 N
ASPECT N -

		SLOPE																			
		10 PCT			20 PCT			30 PCT			40 PCT			50 PCT							
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY		
		51.7	0.0		57.3	0.0		62.7	0.0		67.8	0.0		72.6	0.0		77.6	0.0			
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY		
JUN 22		-7.78	7.78	1016.3	-7.78	7.78	999.4	-7.78	7.78	974.1	-7.78	7.78	942.3	-7.78	7.78	905.8	-7.78	7.78	895.8		
JUN 1 JUL 12		-7.65	7.65	986.9	-7.65	7.65	965.0	-7.65	7.65	935.4	-7.65	7.65	899.6	-7.65	7.65	859.8	-7.65	7.65	859.8		
MAY 18 JUL 27		-7.42	7.42	936.5	-7.42	7.42	906.7	-7.42	7.42	869.8	-7.42	7.42	827.8	-7.42	7.42	782.6	-7.42	7.42	782.6		
MAY 3 AUG 10		-7.12	7.12	865.1	-7.12	7.12	824.8	-7.12	7.12	778.6	-7.12	7.12	728.4	-7.12	7.12	676.4	-7.12	7.12	676.4		
APR 19 AUG 25		-6.77	6.77	776.1	-6.77	6.77	724.1	-6.77	6.77	667.7	-6.77	6.77	608.8	-6.77	6.77	549.3	-6.77	6.77	549.3		
APR 4 SEP 9		-6.39	6.39	675.5	-6.39	6.39	612.3	-6.39	6.39	546.0	-6.39	6.39	478.8	-6.39	6.39	412.5	-6.39	6.39	412.5		
MAR 21 SEP 23		-6.00	6.00	568.2	-6.00	6.00	495.2	-6.00	6.00	420.6	-6.00	6.00	346.5	-6.00	6.00	274.8	-6.00	6.00	274.8		
MAR 7 OCT 8		-5.52	5.52	462.6	-5.41	5.41	382.7	-5.27	5.27	303.1	-5.07	5.07	225.9	-4.78	4.78	153.4	-4.78	4.78	153.4		
FEB 20 OCT 22		-5.06	5.06	366.2	-4.83	4.83	283.2	-4.54	4.54	202.9	-4.12	4.12	128.4	-3.47	3.47	63.2	-3.47	3.47	63.2		
FEB 7 NOV 5		-4.62	4.62	284.2	-4.28	4.28	201.5	-3.82	3.82	124.7	-3.13	3.13	58.2	-1.82	1.82	9.6	-1.82	1.82	9.6		
JAN 23 NOV 19		-4.24	4.24	221.6	-3.79	3.79	141.5	-3.15	3.15	70.9	-2.05	2.05	16.8	0.00	0.00	0.0	0.00	0.00	0.0		
JAN 10 DEC 3		-3.95	3.95	179.8	-3.40	3.40	103.0	-2.57	2.57	39.2	-1.58	1.58	4.4	0.00	0.00	0.0	0.00	0.00	0.0		
DEC 22		-3.77	3.77	156.4	-3.16	3.16	82.3	-2.17	2.17	23.7	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0		
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.			
		213.087	4054		191.457	3643		169.984	3234		150.335	2860		133.926	2548		119.727	2278			
		60 PCT			70 PCT			80 PCT			90 PCT			100 PCT							
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY		
		77.0	0.0		81.0	0.0		84.7	0.0		88.0	0.0		89.0	0.0		90.0	0.0			
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY		
JUN 22		-7.78	7.78	866.5	-7.78	7.78	826.0	-7.78	7.78	785.6	-7.78	7.78	746.3	-7.78	7.78	708.0	-7.78	7.78	708.0		
JUN 1 JUL 12		-7.65	7.65	817.7	-7.65	7.65	774.9	-7.65	7.65	732.6	-7.65	7.65	691.8	-7.65	7.65	653.0	-7.65	7.65	653.0		
MAY 18 JUL 27		-7.42	7.42	736.0	-7.42	7.42	689.6	-7.42	7.42	644.4	-7.42	7.42	601.2	-7.42	7.42	560.1	-7.42	7.42	560.1		
MAY 3 AUG 10		-7.12	7.12	624.1	-7.12	7.12	573.0	-7.12	7.12	524.1	-7.12	7.12	478.0	-7.12	7.12	434.7	-7.12	7.12	434.7		
APR 19 AUG 25		-6.77	6.77	491.1	-6.77	6.77	435.1	-6.77	6.77	382.4	-6.77	6.77	333.4	-6.77	6.77	287.9	-6.77	6.77	287.9		
APR 4 SEP 9		-6.39	6.39	348.8	-6.39	6.39	288.5	-6.39	6.39	232.6	-6.39	6.39	181.1	-6.39	6.39	133.7	-6.39	6.39	133.7		
MAR 21 SEP 23		-6.00	6.00	206.8	-6.00	6.00	143.5	-6.00	6.00	85.3	-6.00	6.00	32.3	0.00	0.00	0.0	0.00	0.00	0.0		
MAR 7 OCT 8		-4.32	4.32	87.7	-3.43	3.43	32.1	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0		
FEB 20 OCT 22		-2.24	2.24	13.4	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0		
FEB 7 NOV 5		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0		
JAN 23 NOV 19		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0		
JAN 10 DEC 3		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0		
JAN 1 DEC 2		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0		
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.			
		119.727	2278		107.393	2043		96.596	1838		87.320	1661		79.084	1505		71.000	1300			

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 46 N
ASPECT S -

	SLOPE																									
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT					
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
JUN 22	-7.44	7.44	1022.9	-7.17	7.17	1016.1	-6.94	6.94	1003.0	-6.75	6.75	984.4	-6.59	6.59	961.5	-6.42	6.42	938.0	-6.26	6.26	914.5	-6.10	6.10	891.0	-5.94	5.94
JUN 1 JUL 12	-7.33	7.33	1004.1	-7.08	7.08	1002.1	-6.87	6.87	993.4	-6.70	6.70	978.8	-6.55	6.55	955.4	-6.38	6.38	931.9	-6.22	6.22	908.4	-6.06	6.06	884.9	-5.90	5.90
MAY 18 JUL 27	-7.15	7.15	971.0	-6.94	6.94	977.0	-6.76	6.76	975.7	-6.60	6.60	967.9	-6.44	6.44	944.8	-6.28	6.28	921.8	-6.12	6.12	898.3	-5.96	5.96	874.8	-5.80	5.80
MAY 3 AUG 10	-6.91	6.91	922.5	-6.74	6.74	939.2	-6.60	6.60	948.1	-6.48	6.48	949.5	-6.32	6.32	926.0	-6.16	6.16	902.5	-6.00	6.00	879.0	-5.84	5.84	855.5	-5.68	5.68
APR 19 AUG 25	-6.63	6.63	859.1	-6.51	6.51	888.4	-6.41	6.41	909.2	-6.33	6.33	921.8	-6.17	6.17	898.4	-6.01	6.01	875.0	-5.85	5.85	851.5	-5.69	5.69	828.0	-5.53	5.53
APR 4 SEP 9	-6.32	6.32	784.0	-6.26	6.26	826.3	-6.21	6.21	859.6	-6.10	6.10	884.4	-5.94	5.94	860.9	-5.78	5.78	837.4	-5.62	5.62	813.9	-5.46	5.46	790.4	-5.30	5.30
MAR 21 SEP 23	-6.00	6.00	699.6	-6.00	6.00	754.1	-5.61	5.61	799.8	-5.41	5.41	836.5	-5.21	5.21	873.0	-5.01	5.01	909.6	-4.81	4.81	945.7	-4.61	4.61	981.8	-4.41	4.41
MAR 7 OCT 8	-5.61	5.61	612.1	-5.51	5.51	676.8	-5.32	5.32	733.0	-5.13	5.13	780.2	-4.94	4.94	826.7	-4.75	4.75	873.4	-4.56	4.56	916.1	-4.37	4.37	958.6	-4.18	4.18
FEB 20 OCT 22	-5.23	5.23	527.5	-5.23	5.23	599.5	-5.04	5.04	656.4	-4.85	4.85	713.5	-4.66	4.66	770.6	-4.47	4.47	827.7	-4.28	4.28	884.8	-4.09	4.09	941.9	-3.90	3.90
FEB 7 NOV 5	-4.88	4.88	451.4	-4.88	4.88	527.8	-4.69	4.69	586.4	-4.50	4.50	643.5	-4.31	4.31	700.6	-4.12	4.12	757.7	-3.93	3.93	814.8	-3.74	3.74	871.9	-3.55	3.55
JAN 23 NOV 19	-4.58	4.58	390.1	-4.58	4.58	468.4	-4.39	4.39	527.4	-4.20	4.20	584.5	-4.01	4.01	641.6	-3.82	3.82	698.7	-3.63	3.63	755.8	-3.44	3.44	812.9	-3.25	3.25
JAN 10 DEC 3	-4.35	4.35	347.2	-4.35	4.35	425.8	-4.16	4.16	484.8	-3.97	3.97	541.9	-3.78	3.78	599.0	-3.59	3.59	656.1	-3.40	3.40	713.2	-3.21	3.21	770.3	-3.02	3.02
DEC 22	-4.22	4.22	322.2	-4.22	4.22	400.7	-4.03	4.03	459.7	-3.84	3.84	516.8	-3.65	3.65	573.9	-3.46	3.46	631.0	-3.27	3.27	688.1	-3.08	3.08	745.2	-2.89	2.89
JUN 22	-6.45	6.45	935.6	-6.32	6.32	907.8	-6.21	6.21	879.4	-6.01	6.01	851.2	-5.81	5.81	823.0	-5.61	5.61	794.8	-5.41	5.41	766.6	-5.21	5.21	738.4	-5.01	5.01
JUN 1 JUL 12	-6.41	6.41	936.7	-6.30	6.30	911.7	-6.20	6.20	885.7	-6.01	6.01	859.6	-5.81	5.81	833.5	-5.61	5.61	807.3	-5.41	5.41	781.1	-5.21	5.21	754.9	-5.01	5.01
MAY 18 JUL 27	-6.36	6.36	937.2	-6.26	6.26	917.1	-6.17	6.17	895.3	-6.00	6.00	872.8	-5.82	5.82	846.3	-5.63	5.63	819.8	-5.44	5.44	793.3	-5.25	5.25	766.8	-5.06	5.06
MAY 3 AUG 10	-6.29	6.29	935.1	-6.21	6.21	921.7	-6.14	6.14	905.9	-6.00	6.00	888.7	-5.83	5.83	861.2	-5.64	5.64	833.7	-5.45	5.45	806.2	-5.26	5.26	778.7	-5.07	5.07
APR 19 AUG 25	-6.20	6.20	927.1	-6.14	6.14	922.2	-6.09	6.09	913.9	-6.00	6.00	903.3	-5.85	5.85	875.8	-5.66	5.66	847.3	-5.47	5.47	818.8	-5.28	5.28	790.3	-5.09	5.09
APR 4 SEP 9	-6.10	6.10	911.3	-6.07	6.07	915.9	-6.05	6.05	916.2	-6.00	6.00	913.2	-5.85	5.85	885.2	-5.66	5.66	856.7	-5.47	5.47	828.2	-5.28	5.28	799.7	-5.09	5.09
MAR 21 SEP 23	-6.00	6.00	885.7	-6.00	6.00	900.3	-6.00	6.00	909.6	-6.00	6.00	914.8	-6.00	6.00	917.0	-6.00	6.00	922.2	-6.00	6.00	927.4	-6.00	6.00	932.6	-6.00	6.00
MAR 7 OCT 8	-5.61	5.61	849.4	-5.61	5.61	873.0	-5.61	5.61	890.8	-5.61	5.61	903.7	-5.61	5.61	912.8	-5.61	5.61	917.0	-5.61	5.61	921.2	-5.61	5.61	925.4	-5.61	5.61
FEB 20 OCT 22	-5.23	5.23	803.0	-5.23	5.23	833.7	-5.23	5.23	858.1	-5.23	5.23	877.2	-5.23	5.23	896.3	-5.23	5.23	915.4	-5.23	5.23	934.5	-5.23	5.23	953.6	-5.23	5.23
FEB 7 NOV 5	-4.88	4.88	751.5	-4.88	4.88	787.2	-4.88	4.88	816.4	-4.88	4.88	845.5	-4.88	4.88	874.6	-4.88	4.88	903.7	-4.88	4.88	932.8	-4.88	4.88	961.9	-4.88	4.88
JAN 23 NOV 19	-4.58	4.58	703.1	-4.58	4.58	741.8	-4.58	4.58	773.9	-4.58	4.58	807.0	-4.58	4.58	840.1	-4.58	4.58	873.2	-4.58	4.58	906.3	-4.58	4.58	939.4	-4.58	4.58
JAN 10 DEC 3	-4.35	4.35	665.0	-4.35	4.35	705.3	-4.35	4.35	738.9	-4.35	4.35	772.5	-4.35	4.35	806.1	-4.35	4.35	839.7	-4.35	4.35	873.3	-4.35	4.35	906.9	-4.35	4.35
DEC 22	-4.22	4.22	641.1	-4.22	4.22	682.0	-4.22	4.22	716.2	-4.22	4.22	750.4	-4.22	4.22	784.6	-4.22	4.22	818.8	-4.22	4.22	853.0	-4.22	4.22	887.2	-4.22	4.22
MAR 21 SEP 23	-6.00	6.00	885.7	-6.00	6.00	900.3	-6.00	6.00	909.6	-6.00	6.00	914.8	-6.00	6.00	917.0	-6.00	6.00	922.2	-6.00	6.00	927.4	-6.00	6.00	932.6	-6.00	6.00
MAR 7 OCT 8	-5.61	5.61	849.4	-5.61	5.61	873.0	-5.61	5.61	890.8	-5.61	5.61	903.7	-5.61	5.61	912.8	-5.61	5.61	917.0	-5.61	5.61	921.2	-5.61	5.61	925.4	-5.61	5.61
FEB 20 OCT 22	-5.23	5.23	803.0	-5.23	5.23	833.7	-5.23	5.23	858.1	-5.23	5.23	877.2	-5.23	5.23	896.3	-5.23	5.23	915.4	-5.23	5.23	934.5	-5.23	5.23	953.6	-5.23	5.23
FEB 7 NOV 5	-4.88	4.88	751.5	-4.88	4.88	787.2	-4.88	4.88	816.4	-4.88	4.88	845.5	-4.88	4.88	874.6	-4.88	4.88	903.7	-4.88	4.88	932.8	-4.88	4.88	961.9	-4.88	4.88
JAN 23 NOV 19	-4.58	4.58	703.1	-4.58	4.58	741.8	-4.58	4.58	773.9	-4.58	4.58	807.0	-4.58	4.58	840.1	-4.58	4.58	873.2	-4.58	4.58	906.3	-4.58	4.58	939.4	-4.58	4.58
JAN 10 DEC 3	-4.35	4.35	665.0	-4.35	4.35	705.3	-4.35	4.35	738.9	-4.35	4.35	772.5	-4.35	4.35	806.1	-4.35	4.35	839.7	-4.35	4.35	873.3	-4.35	4.35	906.9	-4.35	4.35
DEC 22	-4.22	4.22	641.1	-4.22	4.22	682.0	-4.22	4.22	716.2	-4.22	4.22	750.4	-4.22	4.22	784.6	-4.22	4.22	818.8	-4.22	4.22	853.0	-4.22	4.22	887.2	-4.22	4.22
MAR 21 SEP 23	-6.00	6.00	885.7	-6.00	6.00	900.3	-6.00	6.00	909.6	-6.00	6.00	914.8	-6.00	6.00	917.0	-6.00	6.00	922.2	-6.00	6.00	927.4	-6.00	6.00	932.6	-6.00	6.00
MAR 7 OCT 8	-5.61	5.61	849.4	-5.61	5.61	873.0	-5.61	5.61	890.8	-5.61	5.61	903.7	-5.61	5.61	912.8	-5.61	5.61	917.0	-5.61	5.61	921.2	-5.61	5.61	925.4	-5.61	5.61
FEB 20 OCT 22	-5.23	5.23	803.0	-5.23	5.23	833.7	-5.23	5.23	858.1	-5.23	5.23	877.2	-5.23	5.23	896.3	-5.23	5.23	915.4	-5.23	5.23	934.5	-5.23	5.23	953.6	-5.23	5.23
FEB 7 NOV 5	-4.88	4.88	751.5	-4.88	4.88	787.2	-4.88	4.88	816.4	-4.88	4.88	845.5	-4.88	4.88	874.6	-4.88	4.88	903.7	-4.88	4.88	932.8	-4.88	4.88	961.9	-4.88	4.88
JAN 23 NOV 19	-4.58	4.58	703.1	-4.58	4.58	741.8	-4.58	4.58	773.9	-4.58	4.58	807.0	-4.58	4.58	840.1	-4.58	4.58	873.2	-4.58	4.58	906.3	-4.58	4.58	939.4	-4.58	4.58
JAN 10 DEC 3	-4.35	4.35	665.0	-4.35	4.35	705.3	-4.35	4.35	738.9	-4.35	4.35	772.5	-4.35	4.35	806.1	-4.35	4.35	839.7	-4.35	4.35	873.3	-4.35	4.35	906.9	-4.35	4.35
DEC 22	-4.22	4.22	641.1	-4.22	4.22	682.0	-4.22	4.22	716.2	-4.22	4.22	750.4	-4.22	4.22	784.6	-4.22	4.22	818.8	-4.22	4.22	853.0	-4.22	4.22	887.2	-4.22	4.22
MAR 21 SEP 23	-6.00	6.00	885.7	-6.00	6.00	900.3	-6.00	6.00	909.6	-6.00	6.00	914.8	-6.00	6.00	917.0	-6.00	6.00	922.2	-6.00	6.00	927.4	-6.00	6.00	932.6	-6.00	6.00
MAR 7 OCT 8	-5.61	5.61	849.4	-5.61	5.61	873.0	-5.61	5.61	890.8	-5.61	5.61	903.7	-5.61	5.61	912.8	-5.61	5.61	917.0	-5.61	5.61	921.2	-5.61	5.61	925.4	-5.61	5.61
FEB 20 OCT 22	-5.23	5.23	803.0	-5.23	5.23	833.7	-5.23	5.23	858.1	-5.23	5.23	877.2	-5.23	5.23	896.3	-5.23	5.23	915.4	-5.23	5.23	934.5	-5.23	5.23	953.6	-5.23	5.23
FEB 7 NOV 5	-4.88	4.88	751.5	-4.88	4.88	787.2	-4.88	4.88	816.4	-4.88	4.88	845.5	-4.88	4.88	874.6	-4.88	4.88	903.7	-4.88	4.88	932.8	-4.88	4.88	961.9	-4.88	4.88
JAN 23 NOV 19	-4.58	4.58	703.1	-4.58	4.58	741.8	-4.58	4.58	773.9	-4.58	4.58	807.0	-4.58	4.58	840.1	-4.58	4.58	873.2	-4.58	4.58	906.3	-4.58	4.58			

LATITUDE 46 N
ASPECT NNE - NNW

		10 PCT				20 PCT				30 PCT				40 PCT				50 PCT			
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
JUN 22		-7.78	7.78	1016.5		-7.78	7.78	999.7		-7.78	7.78	974.6		-7.78	7.78	942.9		-7.78	7.78	906.5	
JUN 1	JUL 12	-7.65	7.65	987.5		-7.65	7.65	966.2		-7.65	7.65	937.0		-7.65	7.65	901.8		-7.65	7.65	862.4	
MAY 18	JUL 27	-7.42	7.42	937.8		-7.42	7.42	909.2		-7.42	7.42	873.4		-7.42	7.42	832.5		-7.42	7.42	788.2	
MAY 3	AUG 10	-7.12	7.12	867.3		-7.12	7.12	829.0		-7.12	7.12	784.8		-7.12	7.12	736.4		-7.12	7.12	686.0	
APR 19	AUG 25	-6.77	6.69	779.2		-6.77	6.60	730.5		-6.77	6.48	677.3		-6.77	6.32	621.6		-6.77	6.10	565.6	
APR 4	SEP 9	-6.39	6.24	679.8		-6.39	6.00	621.4		-6.39	5.81	560.4		-6.39	5.50	499.1		-6.39	5.11	439.7	
MAR 21	SEP 23	-6.00	5.77	573.7		-6.00	5.48	507.4		-6.00	5.13	440.8		-6.00	4.69	376.4		-6.00	4.14	316.7	
MAR 7	OCT 8	-5.61	5.30	469.1		-5.61	4.92	397.5		-5.61	4.45	328.0		-5.61	3.88	263.5		-5.61	3.18	206.4	
FEB 20	OCT 22	-5.23	4.84	373.2		-5.23	4.36	299.1		-5.23	3.78	229.7		-5.23	3.06	167.9		-5.23	2.19	116.3	
FEB 7	NOV 5	-4.88	4.41	291.4		-4.87	3.84	217.4		-4.87	3.13	150.5		-4.86	2.24	93.8		-4.85	1.14	50.0	
JAN 23	NOV 19	-4.51	4.04	228.7		-4.41	3.37	150.6		-4.27	2.53	94.0		-4.06	1.44	44.3		-3.66	-0.05	11.2	
JAN 10	DEC 3	-4.22	3.76	186.8		-4.04	3.01	117.3		-3.78	2.04	59.4		-3.32	.70	17.5		0.00	0.00	0.0	
DEC 22		-4.05	3.58	163.2		-3.81	2.78	95.9		-3.45	1.71	41.7		-2.73	.11	6.2		0.00	0.00	0.0	
		YEAR		R.e.		YEAR		R.e.		YEAR		R.e.		YEAR		R.e.		YEAR		R.e.	
		214.724		.4085		194.952		.3709		175.428		.3338		157.160		.2990		141.375		.2690	
		60 PCT				70 PCT				80 PCT				90 PCT				100 PCT			
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
		71.3	37.8				73.2	49.4				74.3	62.0				74.6	74.3			
		60 PCT				70 PCT				80 PCT				90 PCT				100 PCT			
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
		-7.78	7.78	867.3		-7.78	7.78	826.9		-7.78	7.78	786.6		-7.78	7.78	747.4		-7.78	7.78	709.5	
		-7.65	7.65	820.7		-7.65	7.65	778.2		-7.65	7.65	736.3		-7.65	7.65	695.7		-7.65	7.65	656.8	
		-7.42	7.42	742.5		-7.42	7.42	696.8		-7.42	7.42	652.2		-7.42	7.42	609.6		-7.42	7.42	569.1	
		-7.12	7.12	635.2		-7.12	7.12	585.4		-7.12	7.12	537.6		-7.12	7.12	492.4		-7.12	7.12	450.1	
		-6.77	510.9			-6.77	5.35	459.2		-6.77	4.75	412.0		-6.77	4.00	370.5		-6.77	3.88	335.2	
		-6.39	4.61	384.3		-6.39	3.98	334.4		-6.39	3.24	291.5		-6.39	2.44	256.2		-6.39	1.66	227.9	
		-6.00	3.48	263.6		-6.00	2.70	218.6		-6.00	1.87	182.5		-6.00	1.04	154.8		-6.00	.30	134.2	
		-5.61	2.35	158.6		-5.61	1.43	121.2		-5.61	.50	93.8		-5.61	-.35	74.9		-5.61	-1.07	62.0	
		-5.23	1.17	76.5		-5.23	.06	48.9		-5.23	-1.02	31.6		-5.23	-1.91	21.8		-5.23	-2.58	16.4	
		-4.83	-2.1	20.6		-4.79	-1.80	5.2		-4.64	-3.63	.2		0.00	0.00	0.0		0.00	0.00	0.0	
		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0	
		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0	
		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0		0.00	0.00	0.0	
		YEAR		R.e.		YEAR		R.e.		YEAR		R.e.		YEAR		R.e.		YEAR		R.e.	
		127.979		.2435		116.361		.2214		106.315		.2023		97.686		.18595		90.173		.1716	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

	SLOPE										SLOPE										SLOPE										SLOPE																													
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT					60 PCT					70 PCT					80 PCT					90 PCT					100 PCT														
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY															
JUN 22	-7.66	7.27	1023.2			-7.55	6.85	1017.4			-7.47	6.49	1006.0			-7.40	6.19	989.5			-7.34	5.93	969.0			-7.29	5.89	965.9			-7.25	5.81	961.4			-7.22	5.78	958.9			-7.19	5.75	956.4			-7.16	5.72	953.9												
JUN 1 JUL 12	-7.54	7.16	1004.0			-7.46	6.76	1002.7			-7.40	6.42	995.5			-7.34	6.13	982.9			-7.29	5.89	965.9			-7.25	5.81	961.4			-7.22	5.78	958.9			-7.19	5.75	956.4			-7.16	5.72	953.9			-7.13	5.69	951.4												
MAY 18 JUL 27	-7.36	6.98	970.3			-7.32	6.61	975.7			-7.28	6.30	976.5			-7.24	6.03	970.4			-7.20	5.76	965.9			-7.16	5.69	961.4			-7.13	5.66	958.9			-7.10	5.63	956.4			-7.07	5.60	953.9			-7.04	5.57	951.4			-7.01	5.54	948.9							
MAY 3 AUG 10	-7.12	6.73	921.0			-7.11	6.41	937.5			-7.11	6.14	947.0			-7.11	5.90	949.8			-7.11	5.70	946.6			-7.11	5.50	943.4			-7.11	5.30	940.2			-7.11	5.10	937.0			-7.11	4.90	933.8			-7.11	4.70	930.6			-7.11	4.50	927.4							
APR 19 AUG 25	-6.77	6.44	856.7			-6.77	6.17	886.9			-6.77	5.94	905.6			-6.77	5.75	918.9			-6.77	5.58	925.7			-6.77	5.40	932.9			-6.77	5.22	940.1			-6.77	5.04	947.3			-6.77	4.86	954.5			-6.77	4.68	961.7			-6.77	4.50	968.9							
APR 4 SEP 9	-6.39	6.13	780.5			-6.39	5.92	802.6			-6.39	5.73	825.6			-6.39	5.58	876.8			-6.39	5.44	893.7			-6.39	5.30	900.6			-6.39	5.16	917.5			-6.39	5.02	934.4			-6.39	4.88	951.3			-6.39	4.74	968.2			-6.39	4.60	985.1							
MAR 21 SEP 23	-6.00	5.81	695.1			-6.00	5.65	745.9			-6.00	5.51	788.6			-6.00	5.40	823.0			-6.00	5.30	849.6			-6.00	5.20	876.2			-6.00	5.10	902.8			-6.00	5.00	929.4			-6.00	4.90	956.0			-6.00	4.80	982.6			-6.00	4.70	1009.2							
MAR 7 OCT 8	-5.61	5.48	606.5			-5.61	5.38	666.3			-5.61	5.29	717.9			-5.61	5.22	761.2			-5.61	5.15	796.3			-5.61	5.08	825.4			-5.61	5.01	854.5			-5.61	4.94	883.6			-5.61	4.87	912.7			-5.61	4.80	941.8			-5.61	4.73	970.9							
FEB 20 OCT 22	-5.23	5.17	521.4			-5.23	5.12	587.5			-5.23	5.08	645.9			-5.23	5.05	696.0			-5.23	5.02	737.9			-5.23	4.98	779.8			-5.23	4.94	821.7			-5.23	4.90	863.6			-5.23	4.86	905.5			-5.23	4.82	947.4			-5.23	4.78	989.3							
FEB 7 NOV 5	-4.88	4.88	445.0			-4.88	4.88	515.2			-4.88	4.88	577.9			-4.88	4.88	632.7			-4.88	4.88	689.4			-4.88	4.88	746.1			-4.88	4.88	802.8			-4.88	4.88	859.5			-4.88	4.88	916.6			-4.88	4.88	973.7			-4.88	4.88	1030.8							
JAN 23 NOV 19	-4.58	4.58	383.6			-4.58	4.58	455.6			-4.58	4.58	520.7			-4.58	4.58	586.8			-4.58	4.58	648.0			-4.58	4.58	709.2			-4.58	4.58	770.4			-4.58	4.58	831.6			-4.58	4.58	892.8			-4.58	4.58	953.9			-4.58	4.58	1015.1							
JAN 10 DEC 3	-4.35	4.35	340.7			-4.35	4.35	413.1			-4.35	4.35	478.9			-4.35	4.35	537.4			-4.35	4.35	596.9			-4.35	4.35	656.4			-4.35	4.35	715.9			-4.35	4.35	775.4			-4.35	4.35	834.9			-4.35	4.35	894.4			-4.35	4.35	953.9							
DEC 22	-4.22	4.22	315.8			-4.22	4.22	388.0			-4.22	4.22	454.0			-4.22	4.22	512.7			-4.22	4.22	571.2			-4.22	4.22	629.7			-4.22	4.22	688.2			-4.22	4.22	746.7			-4.22	4.22	805.2			-4.22	4.22	863.7			-4.22	4.22	922.2							
JUN 22	-7.29	5.71	945.6			-7.24	5.51	920.5			-7.21	5.34	894.6			-7.17	5.18	868.8			-7.14	5.04	843.4			-7.13	5.04	852.3			-7.12	5.03	866.4			-7.11	5.01	883.7			-7.11	5.01	898.8			-7.11	5.01	913.9			-7.11	5.01	929.0			-7.11	5.01	944.1		
JUN 1 JUL 12	-7.25	5.67	945.6			-7.22	5.48	923.2			-7.19	5.32	899.7			-7.16	5.17	875.9			-7.13	5.03	852.3			-7.12	5.03	866.4			-7.12	5.03	883.7			-7.12	5.03	899.0			-7.12	5.03	914.3			-7.12	5.03	929.6			-7.12	5.03	944.9			-7.12	5.03	960.2		
MAY 18 JUL 27	-7.19	5.61	944.2			-7.17	5.48	926.4			-7.15	5.28	907.0			-7.14	5.15	886.9			-7.13	5.03	866.4			-7.13	5.03	883.7			-7.13	5.03	899.0			-7.13	5.03	914.3			-7.13	5.03	929.6			-7.13	5.03	944.9			-7.13	5.03	960.2			-7.13	5.03	975.5		
MAY 3 AUG 10	-7.11	5.53	939.2			-7.11	5.37	928.1			-7.11	5.24	914.6			-7.11	5.12	899.6			-7.11	5.01	883.7			-7.11	5.01	899.0			-7.11	5.01	914.3			-7.11	5.01	929.6			-7.11	5.01	944.9			-7.11	5.01	960.2			-7.11	5.01	975.5			-7.11	5.01	990.8		
APR 19 AUG 25	-6.77	5.43	926.9			-6.77	5.30	923.8			-6.77	5.19	917.4			-6.77	5.08	908.8			-6.77	4.99	898.5			-6.77	4.99	909.0			-6.77	4.99	924.5			-6.77	4.99	939.9			-6.77	4.99	955.4			-6.77	4.99	970.8			-6.77	4.99	986.3							
APR 4 SEP 9	-6.39	5.32	904.3			-6.39	5.22	903.7			-6.39	5.13	910.9			-6.39	5.05	909.0			-6.39	4.97	908.9			-6.39	4.97	909.0			-6.39	4.97	924.5			-6.39	4.97	939.9			-6.39	4.97	955.4			-6.39	4.97	970.8			-6.39	4.97	986.3							
MAR 21 SEP 23	-6.00	5.21	869.3			-6.00	5.13	882.9			-6.00	5.07	891.7			-6.00	5.01	896.6			-6.00	4.95	898.6			-6.00	4.95	899.0			-6.00	4.95	914.5			-6.00	4.95	929.9			-6.00	4.95	945.4			-6.00	4.95	960.8			-6.00	4.95	976.3							
MAR 7 OCT 8	-5.61	5.10	823.9			-5.61	5.05	845.1			-5.61	5.00	860.8			-5.61	4.97	871.9			-5.61	4.93	879.6			-5.61	4.93	889.9			-5.61	4.93	900.2			-5.61	4.93	910.5			-5.61	4.93	920.8			-5.61	4.93	931.1			-5.61	4.93	941.4							
FEB 20 OCT 22	-5.23	4.99	772.0			-5.23	4.97	793.3			-5.23	4.95	820.8			-5.23	4.93	837.3			-5.23	4.91	849.8			-5.23	4.91	862.3			-5.23	4.91	874.8			-5.23	4.91	887.3			-5.23	4.91	899.8			-5.23	4.91	912.3			-5.23	4.91	924.8							
FEB 7 NOV 5	-4.88	4.88	718.3			-4.88	4.88	750.3			-4.88	4.88	776.2			-4.88	4.88	796.8			-4.88	4.88	817.3			-4.88	4.88	837.8			-4.88	4.88	858.3			-4.88	4.88	878.8			-4.88	4.88	899.3			-4.88	4.88	919.8			-4.88	4.88	940.3							
JAN 23 NOV 19	-4.58	4.58	669.5			-4.58	4.58	701.5			-4.58	4.58	733.5			-4.58	4.58	765.6			-4.58	4.58	797.6			-4.58	4.58	829.7			-4.58	4.58	861.7			-4.58	4.58	893.8			-4.58	4.58	925.9			-4.58	4.58	958.0			-4.58	4.58	990.1							
JAN 10 DEC 3	-4.35	4.35	631.6			-4.35	4.35	668.0			-4.35	4.35	698.3			-4.35	4.35	728.6			-4.35	4.35	758.9			-4.35	4.35	789.2			-4.35	4.35	819.5			-4.35	4.35	849.8			-4.35	4.35	880.1			-4.35	4.35	910.4			-4.35	4.35	940.7							
DEC 22	-4.22	4.22	607.9			-4.22	4.22	645.0			-4.22	4.22	675.9			-4.22	4.22	701.5			-4.22	4.22	722.8			-4.22	4.22	744.1			-4.22	4.22	769.7			-4.22	4.22	795.3			-4.22	4.22	820.9			-4.22	4.22	846.5			-4.22	4.22	872.1							

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 46 N
ASPECT NE - NW

	SLOPE																									
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT					
	THETA	ALPHA	SS	LY	SR	THETA	ALPHA	SS	LY	SR	THETA	ALPHA	SS	LY	SR	THETA	ALPHA	SS	LY	SR	THETA	ALPHA	SS	LY	SR	
JUN 22	-7.78	7.65	1017.1		-7.78	7.48	1001.2		-7.78	7.26	977.5		-7.78	6.98	947.8		-7.78	6.61	914.3		-7.78	6.24	881.8		-7.78	5.87
JUN 1 JUL 12	-7.65	7.49	989.3		-7.65	7.29	970.3		-7.65	7.04	944.0		-7.65	6.72	912.4		-7.65	6.32	877.8		-7.65	5.95	845.3		-7.65	5.58
MAY 18 JUL 27	-7.42	7.22	941.7		-7.42	6.98	917.7		-7.42	6.67	887.4		-7.42	6.31	853.0		-7.42	5.87	816.7		-7.42	5.50	782.2		-7.42	5.13
MAY 3 AUG 10	-7.12	6.87	873.9		-7.12	6.57	843.5		-7.12	6.21	808.3		-7.12	5.79	770.7		-7.12	5.31	732.7		-7.12	4.94	700.2		-7.12	4.57
APR 19 AUG 25	-6.77	6.46	789.0		-6.77	6.10	751.7		-6.77	5.69	711.7		-6.77	5.22	671.1		-6.77	4.70	632.0		-6.77	4.33	598.5		-6.77	3.96
APR 4 SEP 9	-6.39	6.03	692.6		-6.39	5.61	649.0		-6.39	5.14	604.9		-6.39	4.62	562.3		-6.39	4.06	523.0		-6.39	3.69	490.5		-6.39	3.32
MAR 21 SEP 23	-6.00	5.58	589.2		-6.00	5.11	540.6		-6.00	4.58	493.7		-6.00	4.00	450.5		-6.00	3.42	412.2		-6.00	2.84	379.6		-6.00	2.47
MAR 7 OCT 8	-5.61	5.13	486.6		-5.61	4.60	434.8		-5.61	4.01	386.9		-5.61	3.39	344.5		-5.61	2.77	308.5		-5.61	2.19	276.1		-5.61	1.82
FEB 20 OCT 22	-5.23	4.70	392.1		-5.23	4.11	339.0		-5.23	3.46	291.7		-5.23	2.79	251.5		-5.23	2.13	218.9		-5.23	1.55	187.5		-5.23	1.18
FEB 7 NOV 5	-4.88	4.29	311.0		-4.88	3.64	258.2		-4.88	2.94	212.9		-4.88	2.22	176.0		-4.88	1.52	147.4		-4.88	0.94	118.0		-4.88	0.57
JAN 23 NOV 19	-4.58	3.94	248.3		-4.58	3.23	197.0		-4.58	2.48	154.4		-4.58	1.70	121.1		-4.58	0.96	96.5		-4.58	0.38	67.0		-4.58	0.01
JAN 10 DEC 3	-4.22	3.68	206.1		-4.22	2.92	156.5		-4.22	2.11	116.5		-4.22	1.29	86.3		-4.22	0.51	65.0		-4.22	0.03	35.5		-4.22	-0.34
DEC 22	-4.22	3.51	182.3		-4.22	2.73	134.0		-4.22	1.89	95.8		-4.22	1.03	67.7		-4.22	0.22	48.6		-4.22	0.00	22.2		-4.22	-0.19
60 PCT					70 PCT					80 PCT					90 PCT					100 PCT						
THETA	ALPHA	SS	LY	SR	THETA	ALPHA	SS	LY	SR	THETA	ALPHA	SS	LY	SR	THETA	ALPHA	SS	LY	SR	THETA	ALPHA	SS	LY	SR		
60.4	47.5				60.6	55.6				60.3	63.1				59.7	69.6				58.9	75.3					
JUN 22	-7.78	6.17	879.2		-7.78	5.65	844.5		-7.78	5.11	811.8		-7.78	4.56	781.8		-7.78	4.05	754.8		-7.78	3.54	727.8		-7.78	3.03
JUN 1 JUL 12	-7.65	5.85	842.2		-7.65	5.33	807.6		-7.65	4.80	775.3		-7.65	4.27	746.0		-7.65	3.78	719.8		-7.65	3.27	694.3		-7.65	2.76
MAY 18 JUL 27	-7.42	5.58	780.6		-7.42	4.85	746.2		-7.42	4.33	711.8		-7.42	3.82	686.7		-7.42	3.35	661.8		-7.42	2.88	636.8		-7.42	2.37
MAY 3 AUG 10	-7.12	4.80	696.3		-7.12	4.27	662.6		-7.12	3.75	632.6		-7.12	3.26	606.2		-7.12	2.82	583.2		-7.12	2.37	561.8		-7.12	1.86
APR 19 AUG 25	-6.77	4.16	595.9		-6.77	3.62	563.6		-6.77	3.11	535.5		-6.77	2.65	511.5		-6.77	2.22	490.9		-6.77	1.79	470.0		-6.77	1.28
APR 4 SEP 9	-6.39	3.50	488.1		-6.39	2.96	457.9		-6.39	2.46	432.5		-6.39	2.01	411.3		-6.39	1.61	393.4		-6.39	1.20	372.5		-6.39	0.69
MAR 21 SEP 23	-6.00	2.84	379.6		-6.00	2.29	352.4		-6.00	1.80	330.2		-6.00	1.36	312.2		-6.00	0.98	297.4		-6.00	0.60	282.5		-6.00	0.17
MAR 7 OCT 8	-5.61	2.17	279.1		-5.61	1.62	255.6		-5.61	1.13	237.0		-5.61	0.71	222.4		-5.61	0.36	210.7		-5.61	0.00	198.0		-5.61	-0.51
FEB 20 OCT 22	-5.23	1.51	193.4		-5.23	0.96	173.9		-5.23	0.48	159.1		-5.23	0.08	147.8		-5.23	-0.26	139.0		-5.23	-0.63	126.7		-5.23	-1.00
FEB 7 NOV 5	-4.88	0.88	126.1		-4.88	0.32	110.6		-4.88	-0.15	99.4		-4.88	-0.54	91.1		-4.88	-0.85	85.0		-4.88	-1.16	72.7		-4.88	-1.49
JAN 23 NOV 19	-4.58	0.29	79.2		-4.58	-0.27	67.2		-4.58	-0.73	59.0		-4.58	-1.10	53.3		-4.58	-1.39	49.1		-4.58	-1.68	34.8		-4.58	-1.98
JAN 10 DEC 3	-4.22	-0.18	50.8		-4.22	-0.75	41.5		-4.22	-1.20	33.5		-4.22	-1.55	31.5		-4.22	-1.81	28.8		-4.22	-2.09	19.0		-4.22	-2.38
DEC 22	-4.22	-0.49	36.3		-4.22	-1.07	28.7		-4.22	-1.51	24.0		-4.22	-1.84	21.0		-4.22	-2.09	19.0		-4.22	-2.09	19.0		-4.22	-2.38
YEAR					YEAR					YEAR					YEAR					YEAR						
219.319	141.73				204.609	138.93				190.338	136.21				177.061	133.69				165.147	131.42					
R.I.					R.I.					R.I.					R.I.					R.I.						
219.319	141.73				204.609	138.93				190.338	136.21				177.061	133.69				165.147	131.42					

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 46 N
ASPECT SE - SW

Date	10 PCT			20 PCT			30 PCT			40 PCT			50 PCT		
	THETA	ALPHA	R.i.e.	THETA	ALPHA	R.i.e.	THETA	ALPHA	R.i.e.	THETA	ALPHA	R.i.e.	THETA	ALPHA	R.i.e.
JUN 22	41.8	5.4	247.186	37.5	10.1	259.035	7.78	6.63	1020.0	7.78	6.17	1012.5	7.78	5.77	1001.1
JUN 12							-7.65	6.53	1003.4	-7.65	6.08	999.3	-7.65	5.70	991.0
JUN 1							-7.42	6.37	973.9	-7.42	5.95	975.5	-7.42	5.58	972.4
MAY 18							-7.12	6.15	930.1	-7.12	5.76	939.1	-7.12	5.43	943.0
MAY 3							-6.77	5.90	881.9	-6.77	5.55	889.4	-6.77	5.24	901.3
APR 19							-6.39	5.62	807.8	-6.39	5.31	827.9	-6.39	5.04	847.9
APR 4							-6.00	5.33	721.8	-6.00	5.06	755.7	-6.00	4.83	783.3
MAR 21							-5.61	5.04	637.7	-5.61	4.82	678.1	-5.61	4.63	711.8
MAR 7							-5.23	4.76	555.6	-5.23	4.58	600.6	-5.23	4.42	639.0
FEB 20							-4.88	4.50	480.9	-4.88	4.36	528.7	-4.88	4.24	570.2
FEB 7							-4.58	4.29	420.2	-4.58	4.18	469.4	-4.58	4.09	512.4
JAN 23							-4.35	4.03	377.4	-4.35	4.04	427.0	-4.35	3.97	470.6
NOV 19							-4.22	4.03	352.3	-4.22	3.96	401.9	-4.22	3.90	449.7
DEC 3							-4.00	3.78	289.4	-4.00	3.78	367.5	-4.00	3.78	456.8
DEC 22							-3.78	3.58	240.0	-3.78	3.58	318.1	-3.78	3.58	405.2
JUN 22	41.8	5.4	247.186	37.5	10.1	259.035	7.78	6.63	1020.0	7.78	6.17	1012.5	7.78	5.77	1001.1
JUN 12							-7.65	6.53	1003.4	-7.65	6.08	999.3	-7.65	5.70	991.0
JUN 1							-7.42	6.37	973.9	-7.42	5.95	975.5	-7.42	5.58	972.4
MAY 18							-7.12	6.15	930.1	-7.12	5.76	939.1	-7.12	5.43	943.0
MAY 3							-6.77	5.90	881.9	-6.77	5.55	889.4	-6.77	5.24	901.3
APR 19							-6.39	5.62	807.8	-6.39	5.31	827.9	-6.39	5.04	847.9
APR 4							-6.00	5.33	721.8	-6.00	5.06	755.7	-6.00	4.83	783.3
MAR 21							-5.61	5.04	637.7	-5.61	4.82	678.1	-5.61	4.63	711.8
MAR 7							-5.23	4.76	555.6	-5.23	4.58	600.6	-5.23	4.42	639.0
FEB 20							-4.88	4.50	480.9	-4.88	4.36	528.7	-4.88	4.24	570.2
FEB 7							-4.58	4.29	420.2	-4.58	4.18	469.4	-4.58	4.09	512.4
JAN 23							-4.35	4.03	377.4	-4.35	4.04	427.0	-4.35	3.97	470.6
NOV 19							-4.22	4.03	352.3	-4.22	3.96	401.9	-4.22	3.90	449.7
DEC 3							-4.00	3.78	289.4	-4.00	3.78	367.5	-4.00	3.78	456.8
DEC 22							-3.78	3.58	240.0	-3.78	3.58	318.1	-3.78	3.58	405.2
JUN 22	41.8	5.4	247.186	37.5	10.1	259.035	7.78	6.63	1020.0	7.78	6.17	1012.5	7.78	5.77	1001.1
JUN 12							-7.65	6.53</							

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

		SLOPE											
		10 PCT			20 PCT			30 PCT			40 PCT		
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.78	7.39	1018.9	-7.78	6.95	1007.3	-7.78	6.45	990.5	-7.78	5.93	970.5
JUN 1 JUL 12		-7.65	7.24	993.0	-7.65	6.79	980.1	-7.65	6.29	962.6	-7.65	5.77	942.2
MAY 18 JUL 27		-7.42	7.00	948.3	-7.42	6.53	933.4	-7.42	6.02	914.6	-7.42	5.50	893.8
MAY 3 AUG 10		-7.12	6.67	884.4	-7.12	6.18	866.8	-7.12	5.67	846.7	-7.12	5.14	825.5
APR 19 AUG 25		-6.77	6.30	803.7	-6.77	5.79	783.4	-6.77	5.26	761.9	-6.77	4.73	740.5
APR 4 SEP 9		-6.39	5.89	711.5	-6.39	5.36	688.6	-6.39	4.82	666.1	-6.39	4.30	644.9
MAR 21 SEP 23		-6.00	5.47	611.7	-6.00	4.93	586.9	-6.00	4.38	563.9	-6.00	3.85	543.3
MAR 7 OCT 8		-5.61	5.06	511.9	-5.61	4.49	486.0	-5.61	3.93	463.1	-5.61	3.40	443.6
FEB 20 OCT 22		-5.23	4.65	419.1	-5.23	4.06	392.9	-5.23	3.49	370.8	-5.23	2.96	352.7
FEB 7 NOV 5		-4.88	4.27	338.7	-4.88	3.67	312.9	-4.88	3.08	291.9	-4.88	2.55	275.4
JAN 23 NOV 19		-4.58	3.95	276.1	-4.58	3.32	251.1	-4.58	2.73	231.5	-4.58	2.20	216.5
JAN 10 DEC 3		-4.35	3.70	233.5	-4.35	3.06	209.4	-4.35	2.46	190.9	-4.35	1.93	177.2
DEC 22		-4.22	3.55	209.4	-4.22	2.90	185.9	-4.22	2.30	168.2	-4.22	1.76	155.2
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		226.023	.4300		218.306	.4153		210.937	.4013		204.119	.3884	
		SLOPE											
		60 PCT			70 PCT			80 PCT			90 PCT		
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.78	4.91	926.9	-7.78	4.44	905.7	-7.78	4.01	885.6	-7.78	3.63	866.9
JUN 1 JUL 12		-7.65	4.75	899.0	-7.65	4.29	878.2	-7.65	3.87	858.7	-7.65	3.50	840.5
MAY 18 JUL 27		-7.42	4.49	851.4	-7.42	4.04	831.4	-7.42	3.64	812.8	-7.42	3.28	795.6
MAY 3 AUG 10		-7.12	4.16	784.2	-7.12	3.72	765.4	-7.12	3.33	748.1	-7.12	2.98	732.3
APR 19 AUG 25		-6.77	3.76	701.1	-6.77	3.34	683.8	-6.77	2.97	668.2	-6.77	2.64	654.0
APR 4 SEP 9		-6.39	3.35	608.0	-6.39	2.94	592.5	-6.39	2.58	578.7	-6.39	2.27	566.5
MAR 21 SEP 23		-6.00	2.91	509.6	-6.00	2.52	496.1	-6.00	2.18	484.3	-6.00	1.88	474.1
MAR 7 OCT 8		-5.61	2.48	413.5	-5.61	2.10	402.0	-5.61	1.78	392.3	-5.61	1.50	384.0
FEB 20 OCT 22		-5.23	2.06	326.3	-5.23	1.70	316.8	-5.23	1.39	309.0	-5.23	1.13	302.4
FEB 7 NOV 5		-4.88	1.67	252.8	-4.88	1.32	245.0	-4.88	1.03	238.8	-4.88	.79	233.7
JAN 23 NOV 19		-4.58	1.33	196.9	-4.58	1.00	190.6	-4.58	.72	185.6	-4.58	.49	181.7
JAN 10 DEC 3		-4.35	1.08	159.9	-4.35	.75	154.5	-4.35	.49	150.4	-4.35	.27	147.2
DEC 22		-4.22	.92	139.3	-4.22	.60	134.5	-4.22	.35	130.9	-4.22	.14	128.1
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		192.447	.3661		187.549	.3568		183.198	.3486		179.323	.3412	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 46 N
ASPECT ESE - WSW

SLOPE														
10 PCT			20 PCT			30 PCT			40 PCT			50 PCT		
THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY
43.6	7.3		40.8	13.9		37.8	19.6		34.7	24.7		31.6	29.0	
SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
-7.78	7.14	1023.0	-7.78	6.55	1019.5	-7.78	6.00	1013.3	-7.78	5.52	1004.3	-7.78	5.10	993.0
-7.65	7.02	1001.1	-7.65	6.43	999.8	-7.65	5.91	995.7	-7.65	5.44	988.8	-7.65	5.02	979.5
-7.42	6.81	962.9	-7.42	6.25	965.3	-7.42	5.74	964.7	-7.42	5.29	961.2	-7.42	4.90	955.0
-7.12	6.54	907.5	-7.12	6.00	914.7	-7.12	5.52	918.8	-7.12	5.10	919.8	-7.12	4.72	917.8
-6.77	6.22	836.4	-6.77	5.71	848.9	-6.77	5.26	858.3	-6.77	4.87	864.4	-6.77	4.52	867.2
-6.39	5.87	753.4	-6.39	5.40	771.2	-6.39	4.98	785.9	-6.39	4.62	797.1	-6.39	4.30	804.8
-6.00	5.51	661.7	-6.00	5.08	684.3	-6.00	4.69	703.8	-6.00	4.36	719.7	-6.00	4.06	731.8
-5.61	5.15	568.2	-5.61	4.75	594.6	-5.61	4.40	617.9	-5.61	4.09	637.6	-5.61	3.83	653.4
-5.23	4.81	479.6	-5.23	4.44	508.5	-5.23	4.12	534.5	-5.23	3.84	556.9	-5.23	3.61	575.4
-4.88	4.49	401.1	-4.88	4.15	431.5	-4.88	3.86	459.0	-4.88	3.61	483.1	-4.88	3.40	503.3
-4.58	4.21	338.9	-4.58	3.90	369.8	-4.58	3.64	398.0	-4.58	3.42	422.8	-4.58	3.23	443.9
-4.35	4.01	295.9	-4.35	3.72	326.8	-4.35	3.48	355.1	-4.35	3.27	380.0	-4.35	3.11	401.4
-4.22	3.88	271.2	-4.22	3.61	301.9	-4.22	3.38	330.1	-4.22	3.19	355.0	-4.22	3.03	376.4
YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
241.087	*4587		247.640	*4712		253.127	*4816		257.412	*4897		260.486	*4956	
SLOPE														
60 PCT			70 PCT			80 PCT			90 PCT			100 PCT		
THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY
28.7	32.8		25.9	36.1		23.3	38.9		20.9	41.4		18.7	43.6	
SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
-7.78	4.73	980.0	-7.78	4.41	965.7	-7.78	4.12	950.7	-7.78	3.88	935.4	-7.78	3.66	920.1
-7.65	4.66	968.2	-7.65	4.35	955.5	-7.65	4.07	941.8	-7.65	3.83	927.8	-7.65	3.62	913.6
-7.42	4.55	946.6	-7.42	4.25	936.5	-7.42	3.98	925.2	-7.42	3.75	913.3	-7.42	3.55	901.0
-7.12	4.40	913.3	-7.12	4.11	906.7	-7.12	3.86	898.5	-7.12	3.65	889.4	-7.12	3.45	879.6
-6.77	4.22	867.1	-6.77	3.95	864.5	-6.77	3.72	860.0	-6.77	3.52	854.2	-6.77	3.34	847.3
-6.39	4.02	809.2	-6.39	3.78	810.7	-6.39	3.57	810.0	-6.39	3.38	807.6	-6.39	3.22	803.8
-6.00	3.81	740.3	-6.00	3.59	745.8	-6.00	3.40	748.7	-6.00	3.24	749.6	-6.00	3.09	748.8
-5.61	3.61	665.5	-5.61	3.41	674.3	-5.61	3.24	680.4	-5.61	3.09	684.1	-5.61	2.97	686.0
-5.23	3.41	590.2	-5.23	3.24	601.6	-5.23	3.09	610.1	-5.23	2.96	616.1	-5.23	2.84	620.2
-4.88	3.23	519.8	-4.88	3.08	533.0	-4.88	2.94	543.2	-4.88	2.83	550.9	-4.88	2.73	556.6
-4.58	3.07	461.3	-4.58	2.94	475.5	-4.58	2.82	486.7	-4.58	2.73	495.4	-4.58	2.64	502.2
-4.35	2.86	419.3	-4.35	2.84	433.9	-4.35	2.74	445.6	-4.35	2.65	454.9	-4.35	2.57	462.3
-4.22	2.69	394.4	-4.22	2.78	409.2	-4.22	2.68	421.2	-4.22	2.60	430.7	-4.22	2.53	438.3
YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
262.435	*4993		263.418	*5012		263.608	*5015		263.814	*5007		262.294	*4990	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 46 N
ASPECT E - W

		SLOPE				30 PCT				40 PCT				50 PCT			
		10 PCT		20 PCT		THETA		ALPHA		THETA		ALPHA		THETA		ALPHA	
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
		45.7	8.2	44.9	16.1	43.6	23.4	41.9	29.9	40.0	35.7	39.6	29.9	38.6	34.4	33.7	30.7
		SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS
JUN 22		-7.78	7.22	1021.2	-7.78	6.64	1014.7	-7.78	6.07	1005.2	-7.78	5.44	993.3	-7.78	5.05	980.1	
JUN 1 JUL 12		-7.65	7.08	997.3	-7.65	6.51	991.4	-7.65	5.95	982.6	-7.65	5.42	971.7	-7.65	5.04	959.3	
MAY 18 JUL 27		-7.42	6.86	956.0	-7.42	6.29	950.4	-7.42	5.74	943.3	-7.42	5.23	933.9	-7.42	4.76	923.2	
MAY 3 AUG 10		-7.12	6.56	896.4	-7.12	6.00	892.9	-7.12	5.47	886.6	-7.12	4.97	879.2	-7.12	4.52	870.6	
APR 19 AUG 25		-6.77	6.21	820.5	-6.77	5.67	818.0	-6.77	5.15	814.1	-6.77	4.67	809.0	-6.77	4.24	802.9	
APR 4 SEP 9		-6.39	5.84	732.9	-6.39	5.30	731.8	-6.39	4.80	729.9	-6.39	4.34	727.2	-6.39	3.93	723.7	
MAR 21 SEP 23		-6.00	5.45	637.2	-6.00	4.93	637.4	-6.00	4.44	637.4	-6.00	4.00	637.0	-6.00	3.62	635.9	
MAR 7 OCT 8		-5.61	5.07	540.5	-5.61	4.55	541.9	-5.61	4.08	543.6	-5.61	3.67	545.2	-5.61	3.30	546.2	
FEB 20 OCT 22		-5.23	4.69	449.7	-5.23	4.19	452.0	-5.23	3.74	455.1	-5.23	3.34	458.2	-5.23	2.99	460.9	
FEB 7 NOV 5		-4.88	4.35	370.2	-4.88	3.85	373.2	-4.88	3.42	377.2	-4.88	3.04	381.3	-4.88	2.71	385.2	
JAN 23 NOV 19		-4.58	4.05	307.7	-4.58	3.57	311.1	-4.58	3.14	315.6	-4.58	2.78	320.5	-4.58	2.47	325.0	
JAN 10 DEC 3		-4.35	3.83	264.9	-4.35	3.35	268.5	-4.35	2.94	273.5	-4.35	2.59	278.4	-4.35	2.30	283.3	
DEC 22		-4.22	3.69	240.4	-4.22	3.22	244.1	-4.22	2.82	249.0	-4.22	2.47	254.3	-4.22	2.19	259.3	
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		233.680	4.446	233.444	4.441	232.998	4.433	232.291	4.420	231.300	4.401						
		60 PCT		70 PCT		80 PCT		90 PCT		100 PCT							
		THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA	THETA	ALPHA
		38.1	40.8	36.1	45.2	34.2	49.0	32.3	52.3	30.6	55.2	29.6	58.2	28.1	60.6	26.6	63.1
		SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS	SR	SS	LY	SS
JUN 22		-7.78	4.61	965.9	-7.78	4.22	951.3	-7.78	3.88	936.6	-7.78	3.58	922.2	-7.78	3.31	908.1	
JUN 1 JUL 12		-7.65	4.51	946.1	-7.65	4.13	932.4	-7.65	3.79	918.6	-7.65	3.50	905.0	-7.65	3.24	891.7	
MAY 18 JUL 27		-7.42	4.34	911.6	-7.42	3.97	899.4	-7.42	3.65	887.1	-7.42	3.37	874.8	-7.42	3.12	862.7	
MAY 3 AUG 10		-7.12	4.12	861.1	-7.12	3.77	851.1	-7.12	3.46	840.7	-7.12	3.19	830.3	-7.12	2.95	819.9	
APR 19 AUG 25		-6.77	3.86	795.9	-6.77	3.52	788.3	-6.77	3.23	780.3	-6.77	2.98	772.0	-6.77	2.76	763.6	
APR 4 SEP 9		-6.39	3.57	719.3	-6.39	3.26	714.2	-6.39	2.99	708.6	-6.39	2.75	702.6	-6.39	2.54	696.3	
MAR 21 SEP 23		-6.00	3.28	634.1	-6.00	2.98	631.4	-6.00	2.73	628.1	-6.00	2.51	624.3	-6.00	2.32	620.0	
MAR 7 OCT 8		-5.61	2.98	546.5	-5.61	2.71	546.0	-5.61	2.47	544.7	-5.61	2.27	542.8	-5.61	2.10	540.4	
FEB 20 OCT 22		-5.23	2.70	462.8	-5.23	2.45	464.0	-5.23	2.23	464.4	-5.23	2.04	464.1	-5.23	1.88	463.2	
FEB 7 NOV 5		-4.88	2.44	388.4	-4.88	2.20	390.8	-4.88	2.00	392.3	-4.88	1.83	393.2	-4.88	1.69	393.4	
JAN 23 NOV 19		-4.58	2.21	328.9	-4.58	2.00	332.1	-4.58	1.81	334.4	-4.58	1.66	336.0	-4.58	1.52	337.0	
JAN 10 DEC 3		-4.35	2.05	287.6	-4.35	1.84	291.2	-4.35	1.67	293.9	-4.35	1.53	295.9	-4.35	1.40	297.5	
DEC 22		-4.22	1.95	263.8	-4.22	1.75	267.5	-4.22	1.59	270.4	-4.22	1.45	272.7	-4.22	1.33	274.3	
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		230.028	4.4376	228.508	4.4368	226.793	4.4315	224.942	4.4280	222.993	4.4243						

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 48 N

HORIZONTAL SURFACE

LATITUDE 48 N

	SR	SS	LY
JUN 22	-7.93	7.93	1022.5
JUN 1 JUL 12	-7.77	7.77	996.5
MAY 18 JUL 27	-7.53	7.53	951.7
MAY 3 AUG 10	-7.20	7.20	887.5
APR 19 AUG 25	-6.82	6.82	806.5
APR 4 SEP 9	-6.42	6.42	713.9
MAR 21 SEP 23	-6.00	6.00	613.7
MAR 7 OCT 8	-5.58	5.58	513.4
FEB 20 OCT 22	-5.18	5.18	420.2
FEB 7 NOV 5	-4.80	4.80	339.5
JAN 23 NOV 19	-4.47	4.47	276.6
JAN 10 DEC 3	-4.23	4.23	233.8
DEC 22	-4.08	4.08	209.6

YEAR R.I.
226.745 .4314

	SLOPE										SLOPE										SLOPE																														
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT																														
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY																					
JUN 22	-7.93	7.93	1013.6			-7.93	7.93	995.1			-7.93	7.93	968.4			-7.93	7.93	935.2			-7.93	7.93	935.2			-7.93	7.93	897.4			-7.93	7.93	897.4																		
JUN 1 JUL 12	-7.77	7.77	982.1			-7.77	7.77	958.5			-7.77	7.77	927.2			-7.77	7.77	890.0			-7.77	7.77	848.8			-7.77	7.77	806.7			-7.77	7.77	764.6																		
MAY 18 JUL 27	-7.53	7.53	928.3			-7.53	7.53	896.5			-7.53	7.53	857.9			-7.53	7.53	814.3			-7.53	7.53	771.7			-7.53	7.53	728.9			-7.53	7.53	686.1																		
MAY 3 AUG 10	-7.20	7.20	852.5			-7.20	7.20	810.1			-7.20	7.20	762.0			-7.20	7.20	713.5			-7.20	7.20	665.0			-7.20	7.20	617.5			-7.20	7.20	570.0																		
APR 19 AUG 25	-6.82	6.82	758.8			-6.82	6.82	715.2			-6.82	6.82	671.7			-6.82	6.82	628.2			-6.82	6.82	584.7			-6.82	6.82	541.2			-6.82	6.82	497.7																		
APR 4 SEP 9	-6.42	6.42	653.7			-6.42	6.42	588.5			-6.42	6.42	520.4			-6.42	6.42	451.7			-6.42	6.42	384.3			-6.42	6.42	317.1			-6.42	6.42	249.9																		
MAR 21 SEP 23	-6.00	6.00	542.7			-6.00	6.00	468.0			-6.00	6.00	391.9			-6.00	6.00	316.7			-6.00	6.00	244.1			-6.00	6.00	171.3			-6.00	6.00	104.1																		
MAR 7 OCT 8	-5.49	5.49	434.5			-5.49	5.49	353.4			-5.49	5.49	272.9			-5.49	5.49	192.4			-5.49	5.49	111.9			-5.49	5.49	31.4			-5.49	5.49	-72.0																		
FEB 20 OCT 22	-4.98	4.98	336.7			-4.98	4.98	253.3			-4.98	4.98	173.4			-4.98	4.98	90.5			-4.98	4.98	7.0			-4.98	4.98	-73.5			-4.98	4.98	-154.0																		
FEB 7 NOV 5	-4.51	4.51	254.5			-4.51	4.51	172.5			-4.51	4.51	91.6			-4.51	4.51	8.0			-4.51	4.51	-72.0			-4.51	4.51	-152.5			-4.51	4.51	-233.0																		
JAN 23 NOV 19	-4.10	4.10	192.5			-4.10	4.10	111.2			-4.10	4.10	29.7			-4.10	4.10	-51.8			-4.10	4.10	-132.3			-4.10	4.10	-212.8			-4.10	4.10	-293.3																		
JAN 10 DEC 3	-3.78	3.78	151.6			-3.78	3.78	77.8			-3.78	3.78	20.0			-3.78	3.78	-60.0			-3.78	3.78	-140.0			-3.78	3.78	-220.0			-3.78	3.78	-300.0																		
DEC 22	-3.58	3.58	129.0			-3.58	3.58	58.5			-3.58	3.58	8.0			-3.58	3.58	-72.0			-3.58	3.58	-152.0			-3.58	3.58	-232.0			-3.58	3.58	-312.0																		
	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	
	205.694	.3914	183.878	.3498	162.577	.3093	143.943	.2739	128.149	.2438	114.378	.2176	102.415	.1949	92.143	.1753	83.289	.1585	75.344	.1433	66.495	.1288	57.646	.1143	48.797	.1000	39.948	.0856	31.099	.0712	22.250	.0568	13.401	.0424	4.552	.0279	-4.297	.0135	-15.448	.0000	-26.600	.0000	-37.751	.0000	-48.902	.0000	-60.053	.0000	-71.204	.0000	-82.355

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

		SLOPE																				
		10 PCT			20 PCT			30 PCT			40 PCT			50 PCT								
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		42.3	0.0		36.7	0.0		31.3	0.0		26.2	0.0		21.4	0.0		21.4	0.0		21.4	0.0	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.55	7.55	1023.8	-7.26	7.26	1019.3	-7.02	7.02	1008.6	-6.82	6.82	992.4	-6.66	6.66	971.8	-6.66	6.66	971.8	-6.66	6.66	971.8
JUN 1 JUL 12		-7.43	7.43	1003.2	-7.17	7.17	1003.6	-6.95	6.95	997.4	-6.76	6.76	985.3	-6.61	6.61	968.2	-6.61	6.61	968.2	-6.61	6.61	968.2
JUN 18 JUL 27		-7.24	7.24	967.2	-7.01	7.01	975.7	-6.82	6.82	977.0	-6.66	6.66	971.7	-6.53	6.53	960.9	-6.53	6.53	960.9	-6.53	6.53	960.9
MAY 3 AUG 10		-6.98	6.98	914.7	-6.80	6.80	934.1	-6.65	6.65	945.6	-6.53	6.53	949.8	-6.42	6.42	947.5	-6.42	6.42	947.5	-6.42	6.42	947.5
MAY 18 JUL 27		-6.67	6.67	846.8	-6.55	6.55	878.8	-6.45	6.45	902.3	-6.36	6.36	917.7	-6.29	6.29	925.8	-6.29	6.29	925.8	-6.29	6.29	925.8
APR 19 AUG 25		-6.34	6.34	767.1	-6.28	6.28	812.0	-6.23	6.23	848.1	-6.19	6.19	875.5	-6.15	6.15	894.9	-6.15	6.15	894.9	-6.15	6.15	894.9
APR 4 SEP 9		-6.00	6.00	678.5	-6.00	6.00	735.5	-6.00	6.00	783.6	-6.00	6.00	822.9	-6.00	6.00	853.7	-6.00	6.00	853.7	-6.00	6.00	853.7
MAR 21 SEP 23		-5.58	5.58	587.4	-5.58	5.58	654.2	-5.58	5.58	712.6	-5.58	5.58	762.1	-5.58	5.58	802.9	-5.58	5.58	802.9	-5.58	5.58	802.9
MAR 7 OCT 8		-5.18	5.18	500.2	-5.18	5.18	573.7	-5.18	5.18	639.3	-5.18	5.18	696.2	-5.18	5.18	744.4	-5.18	5.18	744.4	-5.18	5.18	744.4
FEB 20 OCT 22		-4.80	4.80	422.4	-4.80	4.80	499.6	-4.80	4.80	569.3	-4.80	4.80	630.7	-4.80	4.80	683.6	-4.80	4.80	683.6	-4.80	4.80	683.6
FEB 7 NOV 5		-4.47	4.47	360.2	-4.47	4.47	438.6	-4.47	4.47	510.0	-4.47	4.47	573.5	-4.47	4.47	623.8	-4.47	4.47	623.8	-4.47	4.47	623.8
JAN 23 NOV 19		-4.23	4.23	316.8	-4.23	4.23	395.0	-4.23	4.23	466.7	-4.23	4.23	530.8	-4.23	4.23	586.9	-4.23	4.23	586.9	-4.23	4.23	586.9
JAN 10 DEC 3		-4.08	4.08	291.7	-4.08	4.08	369.4	-4.08	4.08	440.7	-4.08	4.08	504.7	-4.08	4.08	561.0	-4.08	4.08	561.0	-4.08	4.08	561.0
DEC 22		-4.08	4.08	291.7	-4.08	4.08	369.4	-4.08	4.08	440.7	-4.08	4.08	504.7	-4.08	4.08	561.0	-4.08	4.08	561.0	-4.08	4.08	561.0
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		246.071	.4682		262.996	.5004		277.162	.5273		288.521	.5489		297.218	.5655		297.218	.5655		297.218	.5655	
		SLOPE																				
		60 PCT			70 PCT			80 PCT			90 PCT			100 PCT								
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		17.0	0.0		13.0	0.0		9.3	0.0		6.0	0.0		3.0	0.0		3.0	0.0		3.0	0.0	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-6.51	6.51	947.9	-6.38	6.38	922.0	-6.27	6.27	895.3	-6.18	6.18	868.5	-6.09	6.09	842.1	-6.09	6.09	842.1	-6.09	6.09	842.1
JUN 1 JUL 12		-6.47	6.47	947.6	-6.36	6.36	924.6	-6.25	6.25	900.3	-6.16	6.16	875.7	-6.08	6.08	851.1	-6.08	6.08	851.1	-6.08	6.08	851.1
MAY 18 JUL 27		-6.41	6.41	945.7	-6.31	6.31	927.6	-6.22	6.22	907.6	-6.14	6.14	886.6	-6.07	6.07	865.3	-6.07	6.07	865.3	-6.07	6.07	865.3
MAY 3 AUG 10		-6.33	6.33	940.1	-6.25	6.25	928.9	-6.18	6.18	915.0	-6.11	6.11	899.4	-6.06	6.06	882.8	-6.06	6.06	882.8	-6.06	6.06	882.8
APR 19 AUG 25		-6.23	6.23	927.9	-6.17	6.17	925.1	-6.12	6.12	918.9	-6.08	6.08	910.0	-6.04	6.04	899.5	-6.04	6.04	899.5	-6.04	6.04	899.5
APR 4 SEP 9		-6.12	6.12	907.4	-6.09	6.09	914.2	-6.06	6.06	916.5	-6.04	6.04	915.4	-6.02	6.02	911.7	-6.02	6.02	911.7	-6.02	6.02	911.7
MAR 21 SEP 23		-6.00	6.00	876.9	-6.00	6.00	893.6	-6.00	6.00	905.0	-6.00	6.00	912.0	-6.00	6.00	915.8	-6.00	6.00	915.8	-6.00	6.00	915.8
MAR 7 OCT 8		-5.58	5.58	835.6	-5.58	5.58	861.3	-5.58	5.58	880.9	-5.58	5.58	895.6	-5.58	5.58	906.4	-5.58	5.58	906.4	-5.58	5.58	906.4
FEB 20 OCT 22		-5.18	5.18	784.3	-5.18	5.18	816.8	-5.18	5.18	842.9	-5.18	5.18	863.5	-5.18	5.18	879.8	-5.18	5.18	879.8	-5.18	5.18	879.8
FEB 7 NOV 5		-4.80	4.80	728.3	-4.80	4.80	765.4	-4.80	4.80	795.9	-4.80	4.80	820.7	-4.80	4.80	840.9	-4.80	4.80	840.9	-4.80	4.80	840.9
JAN 23 NOV 19		-4.47	4.47	676.0	-4.47	4.47	715.8	-4.47	4.47	748.8	-4.47	4.47	776.1	-4.47	4.47	798.7	-4.47	4.47	798.7	-4.47	4.47	798.7
JAN 10 DEC 3		-4.23	4.23	635.1	-4.23	4.23	676.0	-4.23	4.23	710.3	-4.23	4.23	738.8	-4.23	4.23	762.6	-4.23	4.23	762.6	-4.23	4.23	762.6
DEC 22		-4.08	4.08	609.4	-4.08	4.08	650.7	-4.08	4.08	685.4	-4.08	4.08	714.4	-4.08	4.08	738.7	-4.08	4.08	738.7	-4.08	4.08	738.7
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		303.532	.5775		307.834	.5857		310.488	.5907		311.847	.5933		312.218	.5940		312.218	.5940		312.218	.5940	

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 48 N
ASPECT NNE - NNW

	10 PCT						SLOPE						30 PCT						40 PCT						50 PCT					
	THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA		
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-7.93	7.93	1013.9	-7.93	7.93	995.7	-7.93	7.93	969.2	-7.93	7.93	936.2	-7.93	7.93	902.7	-7.93	7.93	869.2	-7.93	7.93	835.7	-7.93	7.93	802.2	-7.93	7.93	768.7	-7.93	7.93	735.2
JUN 1 JUL 12	-7.77	7.77	982.8	-7.77	7.77	959.9	-7.77	7.77	937.0	-7.77	7.77	914.1	-7.77	7.77	891.2	-7.77	7.77	868.3	-7.77	7.77	845.4	-7.77	7.77	822.5	-7.77	7.77	799.6	-7.77	7.77	776.7
FEB 20 OCT 22	-7.53	7.53	929.8	-7.53	7.53	899.3	-7.53	7.53	868.8	-7.53	7.53	838.3	-7.53	7.53	807.8	-7.53	7.53	777.3	-7.53	7.53	746.8	-7.53	7.53	716.3	-7.53	7.53	685.8	-7.53	7.53	655.3
MAY 18 JUL 27	-7.20	7.20	854.9	-7.20	7.20	814.7	-7.20	7.20	774.5	-7.20	7.20	734.3	-7.20	7.20	694.1	-7.20	7.20	653.9	-7.20	7.20	613.7	-7.20	7.20	573.5	-7.20	7.20	533.3	-7.20	7.20	493.1
MAY 3 AUG 10	-6.82	6.82	762.1	-6.82	6.82	711.4	-6.82	6.82	660.7	-6.82	6.82	610.0	-6.82	6.82	559.3	-6.82	6.82	508.6	-6.82	6.82	457.9	-6.82	6.82	407.2	-6.82	6.82	356.5	-6.82	6.82	305.8
APR 19 AUG 25	-6.42	6.42	658.2	-6.42	6.42	598.0	-6.42	6.42	537.8	-6.42	6.42	477.6	-6.42	6.42	417.4	-6.42	6.42	357.2	-6.42	6.42	297.0	-6.42	6.42	236.8	-6.42	6.42	176.6	-6.42	6.42	116.4
APR 4 SEP 9	-6.00	6.00	548.4	-6.00	6.00	480.6	-6.00	6.00	412.8	-6.00	6.00	345.0	-6.00	6.00	277.2	-6.00	6.00	209.4	-6.00	6.00	141.6	-6.00	6.00	73.8	-6.00	6.00	6.0	-6.00	6.00	-6.0
MAR 21 SEP 23	-5.58	5.58	441.2	-5.58	5.58	368.6	-5.58	5.58	296.0	-5.58	5.58	223.4	-5.58	5.58	150.8	-5.58	5.58	78.2	-5.58	5.58	6.6	-5.58	5.58	-5.5	-5.58	5.58	-11.0	-5.58	5.58	-16.5
MAR 7 OCT 8	-5.18	5.18	343.9	-5.18	5.18	269.6	-5.18	5.18	195.3	-5.18	5.18	121.0	-5.18	5.18	46.7	-5.18	5.18	-27.6	-5.18	5.18	-53.1	-5.18	5.18	-78.6	-5.18	5.18	-104.1	-5.18	5.18	-129.6
FEB 7 NOV 5	-4.78	4.78	261.8	-4.78	4.78	188.5	-4.78	4.78	115.2	-4.78	4.78	41.9	-4.78	4.78	-32.4	-4.78	4.78	-57.9	-4.78	4.78	-83.4	-4.78	4.78	-108.9	-4.78	4.78	-134.4	-4.78	4.78	-159.9
JAN 23 NOV 19	-4.38	4.38	199.6	-4.38	4.38	126.3	-4.38	4.38	53.0	-4.38	4.38	-21.3	-4.38	4.38	-46.8	-4.38	4.38	-72.3	-4.38	4.38	-97.8	-4.38	4.38	-123.3	-4.38	4.38	-148.8	-4.38	4.38	-174.3
JAN 10 DEC 3	-3.98	3.98	158.4	-3.98	3.98	91.5	-3.98	3.98	18.2	-3.98	3.98	-55.1	-3.98	3.98	-80.6	-3.98	3.98	-106.1	-3.98	3.98	-131.6	-3.98	3.98	-157.1	-3.98	3.98	-182.6	-3.98	3.98	-208.1
DEC 22	-3.58	3.58	135.6	-3.58	3.58	71.4	-3.58	3.58	8.0	-3.58	3.58	-66.6	-3.58	3.58	-92.1	-3.58	3.58	-117.6	-3.58	3.58	-143.1	-3.58	3.58	-168.6	-3.58	3.58	-194.1	-3.58	3.58	-219.6
	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.
	207.365		.3945	187.428		.3566	168.005		.3196	150.317		.2860	135.361		.2575															

	60 PCT						SLOPE						80 PCT						90 PCT						100 PCT					
	THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA		
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-7.93	7.93	858.6	-7.93	7.93	817.3	-7.93	7.93	776.0	-7.93	7.93	734.7	-7.93	7.93	693.4	-7.93	7.93	652.1	-7.93	7.93	610.8	-7.93	7.93	569.5	-7.93	7.93	528.2	-7.93	7.93	486.9
JUN 1 JUL 12	-7.77	7.77	809.3	-7.77	7.77	768.0	-7.77	7.77	726.7	-7.77	7.77	685.4	-7.77	7.77	644.1	-7.77	7.77	602.8	-7.77	7.77	561.5	-7.77	7.77	520.2	-7.77	7.77	478.9	-7.77	7.77	437.6
MAY 18 JUL 27	-7.53	7.53	727.3	-7.53	7.53	680.6	-7.53	7.53	633.9	-7.53	7.53	587.2	-7.53	7.53	540.5	-7.53	7.53	493.8	-7.53	7.53	447.1	-7.53	7.53	400.4	-7.53	7.53	353.7	-7.53	7.53	307.0
MAY 3 AUG 10	-7.20	7.20	615.3	-7.20	7.20	564.6	-7.20	7.20	513.9	-7.20	7.20	463.2	-7.20	7.20	412.5	-7.20	7.20	361.8	-7.20	7.20	311.1	-7.20	7.20	260.4	-7.20	7.20	209.7	-7.20	7.20	159.0
APR 19 AUG 25	-6.82	6.82	486.3	-6.82	6.82	434.1	-6.82	6.82	382.9	-6.82	6.82	331.6	-6.82	6.82	280.4	-6.82	6.82	229.1	-6.82	6.82	177.9	-6.82	6.82	126.6	-6.82	6.82	75.4	-6.82	6.82	24.1
APR 4 SEP 9	-6.42	6.42	357.4	-6.42	6.42	305.2	-6.42	6.42	253.0	-6.42	6.42	200.8	-6.42	6.42	148.6	-6.42	6.42	96.4	-6.42	6.42	44.2	-6.42	6.42	-8.0	-6.42	6.42	-155.8	-6.42	6.42	-203.2
MAR 21 SEP 23	-6.00	6.00	236.7	-6.00	6.00	193.8	-6.00	6.00	150.9	-6.00	6.00	108.0	-6.00	6.00	65.1	-6.00	6.00	22.2	-6.00	6.00	-30.7	-6.00	6.00	-77.6	-6.00	6.00	-124.5	-6.00	6.00	-171.4
MAR 7 OCT 8	-5.58	5.58	134.0	-5.58	5.58	96.1	-5.58	5.58	58.2	-5.58	5.58	20.3	-5.58	5.58	-17.6	-5.58	5.58	-54.5	-5.58	5.58	-101.4	-5.58	5.58	-148.3	-5.58	5.58	-195.2	-5.58	5.58	-242.1
FEB 20 OCT 22	-5.18	5.18	65.5	-5.18	5.18	33.8	-5.18	5.18	-7.9	-5.18	5.18	-46.8	-5.18	5.18	-93.7	-5.18	5.18	-140.6	-5.18	5.18	-187.5	-5.18	5.18	-234.4	-5.18	5.18	-281.3	-5.18	5.18	-328.2
FEB 7 NOV 5	-4.50	4.50	1.07	-4.50	4.50	7.8	-4.50	4.50	-44.0	-4.50	4.50	-89.0	-4.50	4.50	-134.0	-4.50	4.50	-179.0	-4.50	4.50	-224.0	-4.50	4.50	-269.0	-4.50	4.50	-314.0	-4.50	4.50	-359.0
JAN 23 NOV 19	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
JAN 10 DEC 3	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
DEC 22	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.	YEAR		R.I.
	122.499		.2331	111.298		.2118	101.679		.1935	93.371		.1776	86.166		.1639															

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

* Double
(1) Sunrise - Sunset
(2) 5.30
7.20

LATITUDE 48 N
ASPECT SSE - SSW

		10 PCT			20 PCT			SLOPE			30 PCT			40 PCT			50 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		42.7	3.0		37.4	5.4		32.3	7.5		27.4	9.2		22.8	10.7				
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.77	7.38	1023.9	-7.66	6.93	1020.2	-7.56	6.56	1011.1	-7.48	6.25	996.9	-7.42	5.99	978.4			
JUN 1 JUL 12		-7.65	7.26	1002.9	-7.56	6.84	1003.9	-7.48	6.49	999.1	-7.42	6.19	988.7	-7.37	5.94	973.9			
MAY 18 JUL 27		-7.46	7.06	966.3	-7.40	6.68	975.0	-7.35	6.36	977.3	-7.31	6.08	973.6	-7.28	5.85	964.7			
MAY 3 AUG 10		-7.19	6.80	913.0	-7.18	6.46	932.0	-7.17	6.18	944.1	-7.17	5.94	949.4	-7.16	5.74	948.8			
APR 19 AUG 25		-6.82	6.48	844.2	-6.82	6.20	875.0	-6.82	5.97	898.3	-6.82	5.77	914.2	-6.82	5.60	923.5			
APR 4 SEP 9		-6.42	6.15	763.5	-6.42	5.93	806.0	-6.42	5.74	840.7	-6.42	5.58	867.5	-6.42	5.45	886.9			
MAR 21 SEP 23		-6.00	5.80	673.8	-6.00	5.64	726.9	-6.00	5.50	772.0	-6.00	5.39	808.9	-6.00	5.29	837.8			
MAR 7 OCT 8		-5.58	5.45	581.8	-5.58	5.35	643.4	-5.58	5.26	697.1	-5.58	5.19	742.5	-5.58	5.13	779.7			
FEB 20 OCT 22		-5.18	5.12	494.0	-5.18	5.07	561.6	-5.18	5.04	621.5	-5.18	5.00	673.5	-5.18	4.98	716.9			
FEB 7 NOV 5		-4.80	4.80	416.0	-4.80	4.80	486.9	-4.80	4.80	550.7	-4.80	4.80	606.7	-4.80	4.80	654.7			
JAN 23 NOV 19		-4.47	4.47	353.7	-4.47	4.47	425.8	-4.47	4.47	491.4	-4.47	4.47	549.4	-4.47	4.47	599.8			
JAN 10 DEC 3		-4.23	4.23	310.4	-4.23	4.23	382.4	-4.23	4.23	448.2	-4.23	4.23	506.9	-4.23	4.23	558.1			
DEC 22		-4.08	4.08	285.4	-4.08	4.08	356.9	-4.08	4.08	422.5	-4.08	4.08	481.1	-4.08	4.08	532.5			
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		244.653	.4655		260.410	.4955		273.643	.5206		284.274	.5409		292.421	.5564				
		60 PCT			70 PCT			SLOPE			80 PCT			90 PCT			100 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		18.6	12.0		14.7	13.1		11.2	14.1		8.0	15.0		5.1	15.8				
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.36	5.76	957.0	-7.31	5.56	933.6	-7.27	5.39	909.2	-7.23	5.23	884.7	-7.20	5.10	860.4			
JUN 1 JUL 12		-7.32	5.72	955.5	-7.28	5.53	934.9	-7.25	5.36	913.0	-7.21	5.22	890.6	-7.19	5.09	868.2			
MAY 18 JUL 27		-7.25	5.65	951.7	-7.23	5.48	935.8	-7.21	5.32	918.1	-7.19	5.19	899.4	-7.17	5.07	880.2			
MAY 3 AUG 10		-7.16	5.56	943.3	-7.15	5.41	934.2	-7.15	5.27	922.4	-7.15	5.15	909.0	-7.15	5.04	894.4			
APR 19 AUG 25		-6.82	5.45	927.0	-6.82	5.32	926.0	-6.82	5.21	921.5	-6.82	5.10	914.5	-6.82	5.01	905.7			
APR 4 SEP 9		-6.42	5.33	899.7	-6.42	5.22	907.2	-6.42	5.13	910.4	-6.42	5.05	910.3	-6.42	4.98	907.7			
MAR 21 SEP 23		-6.00	5.20	859.7	-6.00	5.13	875.4	-6.00	5.06	886.1	-6.00	5.00	892.8	-6.00	4.95	896.3			
MAR 7 OCT 8		-5.58	5.07	809.3	-5.58	5.03	832.4	-5.58	4.99	849.9	-5.58	4.95	862.7	-5.58	4.92	871.9			
FEB 20 OCT 22		-5.18	4.95	752.8	-5.18	4.93	781.8	-5.18	4.91	804.8	-5.18	4.90	822.8	-5.18	4.88	836.8			
FEB 7 NOV 5		-4.80	4.80	695.0	-4.80	4.80	728.3	-4.80	4.80	753.5	-4.80	4.80	777.4	-4.80	4.80	795.1			
JAN 23 NOV 19		-4.47	4.47	642.6	-4.47	4.47	678.5	-4.47	4.47	708.3	-4.47	4.47	732.7	-4.47	4.47	752.8			
JAN 10 DEC 3		-4.23	4.23	602.0	-4.23	4.23	639.1	-4.23	4.23	670.1	-4.23	4.23	695.8	-4.23	4.23	717.1			
DEC 22		-4.08	4.08	576.7	-4.08	4.08	614.2	-4.08	4.08	645.7	-4.08	4.08	671.9	-4.08	4.08	693.8			
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		298.334	.5676		302.355	.5753		304.825	.5800		306.073	.5823		306.389	.5829				

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 48 N
ASPECT NE - NW

		SLOPE											
		10 PCT			20 PCT			30 PCT			40 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		51.9	6.5		55.2	14.1		58.0	22.5		60.0	31.6	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.93	7.81	1014.8	-7.93	7.65	997.8	-7.93	7.43	972.8	-7.93	7.14	941.9
JUN 1 JUL 12		-7.77	7.62	985.0	-7.77	7.43	964.7	-7.77	7.17	937.1	-7.77	6.84	904.4
MAY 18 JUL 27		-7.53	7.33	934.1	-7.53	7.09	908.6	-7.53	6.77	877.1	-7.53	6.38	841.5
MAY 3 AUG 10		-7.20	6.95	862.0	-7.20	6.64	830.1	-7.20	6.26	793.7	-7.20	5.81	755.1
APR 19 AUG 25		-6.82	6.51	772.5	-6.82	6.14	733.8	-6.82	5.70	692.7	-6.82	5.19	651.4
APR 4 SEP 9		-6.42	6.04	671.6	-6.42	5.61	626.8	-6.42	5.10	582.0	-6.42	4.55	539.1
MAR 21 SEP 23		-6.00	5.56	564.5	-6.00	5.06	515.0	-6.00	4.50	467.9	-6.00	3.89	424.9
MAR 7 OCT 8		-5.58	5.08	459.2	-5.58	4.52	407.0	-5.58	3.89	359.3	-5.58	3.24	317.9
FEB 20 OCT 22		-5.18	4.62	363.1	-5.18	3.99	310.2	-5.18	3.30	263.8	-5.18	2.59	225.2
FEB 7 NOV 5		-4.80	4.18	281.4	-4.80	3.48	229.5	-4.80	2.73	185.8	-4.80	1.97	151.1
JAN 23 NOV 19		-4.47	3.79	219.1	-4.47	3.04	169.2	-4.47	2.22	128.8	-4.47	1.40	98.3
JAN 10 DEC 3		-4.23	3.50	177.5	-4.23	2.69	129.8	-4.23	1.82	92.5	-4.23	.94	65.6
DEC 22		-4.08	3.32	154.2	-4.08	2.47	108.2	-4.08	1.56	73.0	-4.08	.64	48.5
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		212.059	.4035	197.258	.3753	183.075	.3483	170.045	.3235	158.499	.3016		
		60 PCT			70 PCT			80 PCT			90 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		61.7	50.2		61.7	58.7		61.1	66.3		60.3	72.9	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-7.93	6.25	871.4	-7.93	5.67	836.2	-7.93	5.06	803.3	-7.93	4.46	773.6
JUN 1 JUL 12		-7.77	5.89	832.4	-7.77	5.31	797.4	-7.77	4.72	765.2	-7.77	4.15	736.4
MAY 18 JUL 27		-7.53	5.37	767.8	-7.53	4.79	733.4	-7.53	4.22	702.3	-7.53	3.68	674.9
MAY 3 AUG 10		-7.20	4.74	680.0	-7.20	4.16	646.8	-7.20	3.61	617.4	-7.20	3.10	592.0
APR 19 AUG 25		-6.82	4.06	576.4	-6.82	3.48	545.0	-6.82	2.95	518.0	-6.82	2.46	495.2
APR 4 SEP 9		-6.42	3.36	466.2	-6.42	2.79	437.3	-6.42	2.27	413.3	-6.42	1.81	393.5
MAR 21 SEP 23		-6.00	2.65	356.3	-6.00	2.09	330.8	-6.00	1.58	310.3	-6.00	1.14	293.9
MAR 7 OCT 8		-5.58	1.95	255.8	-5.58	1.38	234.3	-5.58	.89	217.6	-5.58	.48	204.6
FEB 20 OCT 22		-5.18	1.25	171.4	-5.18	.69	154.0	-5.18	.22	141.2	-5.18	-.18	131.6
FEB 7 NOV 5		-4.80	.57	106.4	-4.80	.01	93.1	-4.80	-.45	83.8	-4.80	-.81	77.2
JAN 23 NOV 19		-4.47	-.06	62.2	-4.47	-.62	52.6	-4.47	-1.06	46.2	-4.47	-1.39	41.9
JAN 10 DEC 3		-4.23	-.58	36.4	-4.23	-1.14	29.5	-4.23	-1.56	25.2	-4.23	-1.86	22.5
DEC 22		-4.08	-.94	23.7	-4.08	-1.49	18.5	-4.08	-1.89	15.4	-4.08	-2.17	13.5
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		148.532	.2826	140.062	.2665	132.951	.2530	127.009	.2416	122.000	.2321		

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 48 N
ASPECT SE - SW

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT			
		THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS
JUN 22		-7.93	7.27	1023.9		-7.93	6.71	1022.1		-7.93	6.23	1016.4		-7.93	5.82	1006.9		-7.93	5.47	994.0		-7.93	5.47	994.0	
JUN 1 JUL 12		-7.77	7.14	1001.9		-7.77	6.60	1003.8		-7.77	6.14	1001.6		-7.77	5.74	995.4		-7.77	5.40	985.4		-7.77	5.40	985.4	
MAY 18 JUL 27		-7.53	6.94	963.4		-7.53	6.43	971.5		-7.53	5.99	975.1		-7.53	5.62	974.2		-7.53	5.30	969.2		-7.53	5.30	969.2	
MAY 3 AUG 10		-7.20	6.66	907.6		-7.20	6.20	923.8		-7.20	5.80	935.0		-7.20	5.45	941.2		-7.20	5.16	942.7		-7.20	5.16	942.7	
APR 19 AUG 25		-6.82	6.34	836.0		-6.82	5.92	861.1		-6.82	5.56	880.9		-6.82	5.25	895.1		-6.82	4.99	904.0		-6.82	4.99	904.0	
APR 4 SEP 9		-6.42	5.99	752.4		-6.42	5.62	786.4		-6.42	5.31	814.8		-6.42	5.04	837.0		-6.42	4.81	853.5		-6.42	4.81	853.5	
MAR 21 SEP 23		-6.00	5.63	660.2		-6.00	5.31	702.1		-6.00	5.04	738.0		-6.00	4.81	767.6		-6.00	4.61	791.0		-6.00	4.61	791.0	
MAR 7 OCT 8		-5.58	5.26	566.1		-5.58	5.00	614.2		-5.58	4.78	656.3		-5.58	4.59	691.8		-5.58	4.42	721.0		-5.58	4.42	721.0	
FEB 20 OCT 22		-5.18	4.92	476.9		-5.18	4.70	525.1		-5.18	4.52	575.4		-5.18	4.37	615.3		-5.18	4.24	648.6		-5.18	4.24	648.6	
FEB 7 NOV 5		-4.80	4.59	398.1		-4.80	4.42	452.4		-4.80	4.29	501.1		-4.80	4.17	543.5		-4.80	4.07	579.6		-4.80	4.07	579.6	
JAN 23 NOV 19		-4.47	4.32	335.5		-4.47	4.19	390.5		-4.47	4.09	440.0		-4.47	4.00	483.6		-4.47	3.93	521.1		-4.47	3.93	521.1	
JAN 10 DEC 3		-4.23	4.11	292.3		-4.23	4.02	347.0		-4.23	3.94	396.6		-4.23	3.88	440.4		-4.23	3.83	478.4		-4.23	3.83	478.4	
DEC 22		-4.08	3.98	267.4		-4.08	3.91	321.7		-4.08	3.85	371.0		-4.08	3.80	414.8		-4.08	3.76	452.8		-4.08	3.76	452.8	
		YEAR	R.i.e.			YEAR	R.i.e.			YEAR	R.i.e.			YEAR	R.i.e.			YEAR	R.i.e.			YEAR	R.i.e.		
		240.567	.4577			252.899	.4812			263.349	.5010			271.780	.5171			278.235	.5294			288.731	.5493		
		60 PCT				70 PCT				SLOPE				80 PCT				90 PCT				100 PCT			
		THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS	THETA	ALPHA	LY	SS
JUN 22		-7.93	5.16	978.5		-7.93	4.90	961.2		-7.93	4.66	942.8		-7.93	4.46	924.1		-7.93	4.28	905.2		-7.93	4.28	905.2	
JUN 1 JUL 12		-7.77	5.11	972.6		-7.77	4.85	951.7		-7.77	4.63	941.4		-7.77	4.43	928.5		-7.77	4.26	907.3		-7.77	4.26	907.3	
MAY 18 JUL 27		-7.53	5.02	960.8		-7.53	4.78	949.7		-7.53	4.57	937.0		-7.53	4.38	923.1		-7.53	4.22	908.6		-7.53	4.22	908.6	
MAY 3 AUG 10		-7.20	4.90	940.1		-7.20	4.68	934.4		-7.20	4.49	926.3		-7.20	4.32	916.7		-7.20	4.17	905.9		-7.20	4.17	905.9	
APR 19 AUG 25		-6.82	4.76	908.3		-6.82	4.56	908.7		-6.82	4.39	906.1		-6.82	4.24	901.2		-6.82	4.10	894.8		-6.82	4.10	894.8	
APR 4 SEP 9		-6.42	4.61	864.6		-6.42	4.43	871.3		-6.42	4.28	874.3		-6.42	4.15	874.6		-6.42	4.03	872.7		-6.42	4.03	872.7	
MAR 21 SEP 23		-6.00	4.45	808.6		-6.00	4.30	821.2		-6.00	4.17	829.7		-6.00	4.06	834.9		-6.00	3.96	837.5		-6.00	3.96	837.5	
MAR 7 OCT 8		-5.58	4.28	744.0		-5.58	4.16	761.8		-5.58	4.06	775.0		-5.58	3.97	784.5		-5.58	3.89	791.1		-5.58	3.89	791.1	
FEB 20 OCT 22		-5.18	4.13	675.8		-5.18	4.03	697.6		-5.18	3.95	714.5		-5.18	3.88	727.6		-5.18	3.82	737.4		-5.18	3.82	737.4	
FEB 7 NOV 5		-4.80	3.99	609.5		-4.80	3.92	634.0		-4.80	3.85	653.6		-4.80	3.80	669.2		-4.80	3.75	681.5		-4.80	3.75	681.5	
JAN 23 NOV 19		-4.47	3.87	552.5		-4.47	3.82	578.6		-4.47	3.77	599.9		-4.47	3.73	617.1		-4.47	3.70	631.0		-4.47	3.70	631.0	
JAN 10 DEC 3		-4.23	3.78	510.5		-4.23	3.74	537.4		-4.23	3.71	559.5		-4.23	3.68	577.6		-4.23	3.66	592.4		-4.23	3.66	592.4	
DEC 22		-4.08	3.73	485.2		-4.08	3.70	512.3		-4.08	3.68	534.8		-4.08	3.65	553.3		-4.08	3.64	568.6		-4.08	3.64	568.6	
		YEAR	R.i.e.			YEAR	R.i.e.			YEAR	R.i.e.			YEAR	R.i.e.			YEAR	R.i.e.			YEAR	R.i.e.		
		282.886	.5382			285.994	.5441			287.831	.5476			288.664	.5492			288.731	.5493			288.731	.5493		

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

		10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
JUN 22		-7.93	7.53	1017.2	-7.93	7.06	1005.0	-7.93	6.54	987.8	-7.93	5.99	967.4	-7.93	5.43	945.8	-7.93	5.43	945.8								
JUN 1 JUL 12		-7.77	7.36	989.3	-7.77	6.88	975.8	-7.77	6.36	957.8	-7.77	5.81	937.3	-7.77	5.26	915.8	-7.77	5.26	915.8								
MAY 18 JUL 27		-7.53	7.09	941.4	-7.53	6.60	925.8	-7.53	6.07	906.8	-7.53	5.52	885.9	-7.53	4.97	864.8	-7.53	4.97	864.8								
MAY 3 AUG 10		-7.20	6.74	873.3	-7.20	6.23	855.1	-7.20	5.69	834.8	-7.20	5.14	813.7	-7.20	4.60	793.1	-7.20	4.60	793.1								
APR 19 AUG 25		-6.82	6.34	788.0	-6.82	5.80	767.2	-6.82	5.25	745.7	-6.82	4.70	724.6	-6.82	4.16	704.9	-6.82	4.16	704.9								
APR 4 SEP 9		-6.42	5.90	691.3	-6.42	5.35	668.2	-6.42	4.79	645.9	-6.42	4.24	625.2	-6.42	3.70	606.7	-6.42	3.70	606.7								
MAR 21 SEP 23		-6.00	5.45	587.7	-6.00	4.88	562.8	-6.00	4.31	540.3	-6.00	3.76	520.5	-6.00	3.22	503.5	-6.00	3.22	503.5								
MAR 7 OCT 8		-5.58	5.00	484.9	-5.58	4.41	459.2	-5.58	3.83	437.1	-5.58	3.28	418.6	-5.58	2.74	403.5	-5.58	2.74	403.5								
FEB 20 OCT 22		-5.18	4.57	390.4	-5.18	3.96	364.6	-5.18	3.36	343.5	-5.18	2.81	326.6	-5.18	2.28	313.4	-5.18	2.28	313.4								
FEB 7 NOV 5		-4.80	4.16	309.2	-4.80	3.53	284.6	-4.80	2.93	264.4	-4.80	2.38	249.3	-4.80	1.80	238.0	-4.80	1.80	238.0								
JAN 23 NOV 19		-4.47	3.81	246.7	-4.47	3.16	222.7	-4.47	2.54	204.4	-4.47	2.00	191.0	-4.47	1.53	181.3	-4.47	1.53	181.3								
JAN 10 DEC 3		-4.23	3.54	204.5	-4.23	2.88	181.6	-4.23	2.25	164.6	-4.23	1.71	152.5	-4.23	1.24	144.0	-4.23	1.24	144.0								
DEC 22		-4.08	3.38	180.8	-4.08	2.70	158.6	-4.08	2.07	142.5	-4.08	1.53	131.2	-4.08	1.07	123.5	-4.08	1.07	123.5								
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		218.910	4165	211.229	4019	204.031	3882	197.488	3757	191.668	3647																
		60 PCT				70 PCT				SLOPE				80 PCT				90 PCT				100 PCT					
		THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	
JUN 22		-7.93	4.90	924.3	-7.93	4.41	903.6	-7.93	3.96	884.2	-7.93	3.57	866.2	-7.93	3.22	849.6	-7.93	3.22	849.6								
JUN 1 JUL 12		-7.77	4.73	894.7	-7.77	4.25	874.5	-7.77	3.81	855.7	-7.77	3.43	838.3	-7.77	3.09	822.3	-7.77	3.09	822.3								
MAY 18 JUL 27		-7.53	4.46	844.3	-7.53	3.99	825.1	-7.53	3.57	807.3	-7.53	3.20	791.0	-7.53	2.86	776.0	-7.53	2.86	776.0								
MAY 3 AUG 10		-7.20	4.10	773.7	-7.20	3.65	755.8	-7.20	3.25	739.4	-7.20	2.90	724.6	-7.20	2.59	711.0	-7.20	2.59	711.0								
APR 19 AUG 25		-6.82	3.69	686.9	-6.82	3.26	670.6	-6.82	2.87	656.1	-6.82	2.54	643.0	-6.82	2.25	631.2	-6.82	2.25	631.2								
APR 4 SEP 9		-6.42	3.25	590.3	-6.42	2.84	576.0	-6.42	2.47	563.4	-6.42	2.16	552.3	-6.42	1.88	542.3	-6.42	1.88	542.3								
MAR 21 SEP 23		-6.00	2.80	489.1	-6.00	2.40	476.9	-6.00	2.06	466.4	-6.00	1.76	457.3	-6.00	1.51	449.3	-6.00	1.51	449.3								
MAR 7 OCT 8		-5.58	2.34	391.1	-5.58	1.96	381.0	-5.58	1.64	372.6	-5.58	1.37	365.4	-5.58	1.13	359.1	-5.58	1.13	359.1								
FEB 20 OCT 22		-5.18	1.90	303.1	-5.18	1.54	294.9	-5.18	1.24	288.9	-5.18	.98	282.9	-5.18	.77	278.2	-5.18	.77	278.2								
FEB 7 NOV 5		-4.80	1.49	229.5	-4.80	1.15	223.1	-4.80	.86	218.0	-4.80	.63	214.0	-4.80	.43	210.6	-4.80	.43	210.6								
JAN 23 NOV 19		-4.47	1.13	174.3	-4.47	.81	169.2	-4.47	.54	165.4	-4.47	.32	162.3	-4.47	.14	159.9	-4.47	.14	159.9								
JAN 10 DEC 3		-4.23	.86	138.1	-4.23	.55	133.9	-4.23	.30	130.9	-4.23	.09	128.5	-4.23	-.08	126.6	-4.23	-.08	126.6								
DEC 22		-4.08	.70	118.2	-4.08	.39	114.5	-4.08	.15	111.9	-4.08	-.05	109.9	-4.08	-.21	108.3	-4.08	-.21	108.3								
		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.
		186.543	3549	182.035	3463	178.061	3388	174.540	3321	171.371	3260																

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

SLOPE																																							
10 PCT				20 PCT				30 PCT				40 PCT				50 PCT																							
THETA		ALPHA		SR	SS	LY	ALPHA	THETA	SR	SS	LY	ALPHA	THETA	SR	SS	LY	ALPHA	THETA	SR	SS	LY																		
45.6	7.6	42.7	14.3																			39.7	20.2	36.5	25.3	33.4	29.7												
JUN 22	-7.93	7.25	1022.7	-7.93	6.63	1020.4	-7.93	6.06	1015.5	-7.93	5.57	1007.9	-7.93	5.13	998.1	-7.93	5.13	998.1	-7.93	5.13	998.1																		
JUN 12	-7.77	7.12	999.0	-7.77	6.51	998.9	-7.77	5.96	996.2	-7.77	5.47	990.8	-7.77	5.05	983.0	-7.77	5.05	983.0	-7.77	5.05	983.0																		
MAY 18	-7.53	6.89	957.8	-7.53	6.31	961.5	-7.53	5.78	962.4	-7.53	5.32	960.5	-7.53	4.91	956.0	-7.53	4.91	956.0	-7.53	4.91	956.0																		
MAY 3	-7.40	6.60	898.3	-7.40	6.04	906.9	-7.40	5.55	912.7	-7.40	5.11	915.4	-7.40	4.73	915.1	-7.40	4.73	915.1	-7.40	4.73	915.1																		
AUG 10	-6.82	6.25	822.6	-6.82	5.73	830.6	-6.82	5.27	847.8	-6.82	4.86	855.6	-6.82	4.51	860.2	-6.82	4.51	860.2	-6.82	4.51	860.2																		
APR 4	-6.42	5.88	735.1	-6.42	5.40	754.4	-6.42	4.97	770.8	-6.42	4.59	783.8	-6.42	4.27	793.2	-6.42	4.27	793.2	-6.42	4.27	793.2																		
MAR 21	-6.00	5.50	639.4	-6.00	5.05	663.3	-6.00	4.66	684.4	-6.00	4.32	701.9	-6.00	4.02	715.7	-6.00	4.02	715.7	-6.00	4.02	715.7																		
MAR 7	-5.58	5.11	542.6	-5.58	4.70	570.1	-5.58	4.34	594.8	-5.58	4.04	615.9	-5.58	3.77	633.2	-5.58	3.77	633.2	-5.58	3.77	633.2																		
FEB 20	-5.18	4.74	451.6	-5.18	4.36	481.5	-5.18	4.04	508.6	-5.18	3.77	532.1	-5.18	3.54	551.9	-5.18	3.54	551.9	-5.18	3.54	551.9																		
FEB 7	-4.80	4.40	371.9	-4.80	4.05	402.9	-4.80	3.76	431.2	-4.80	3.52	456.0	-4.80	3.32	471.9	-4.80	3.32	471.9	-4.80	3.32	471.9																		
JAN 23	-4.47	4.10	309.1	-4.47	3.79	340.3	-4.47	3.53	368.9	-4.47	3.31	394.2	-4.47	3.13	415.9	-4.47	3.13	415.9	-4.47	3.13	415.9																		
NOV 19	-4.23	3.88	266.0	-4.23	3.59	296.9	-4.23	3.35	325.4	-4.23	3.16	350.6	-4.23	3.00	372.4	-4.23	3.00	372.4	-4.23	3.00	372.4																		
JAN 10	-4.08	3.74	241.4	-4.08	3.47	272.0	-4.08	3.25	300.1	-4.08	3.06	325.1	-4.08	2.91	346.8	-4.08	2.91	346.8	-4.08	2.91	346.8																		
DEC 22																																							
YEAR				YEAR				YEAR				YEAR				YEAR				YEAR																			
R.I.				R.I.				R.I.				R.I.				R.I.				R.I.																			
234.321				.4458				241.221				.4589				247.126				.4702				251.867				.4792				255.409				.4859			
SLOPE				SLOPE				SLOPE				SLOPE				SLOPE				SLOPE				SLOPE				SLOPE				SLOPE							
60 PCT				70 PCT				80 PCT				90 PCT				100 PCT				100 PCT				100 PCT				100 PCT											
THETA		ALPHA		SR	SS	LY	ALPHA	THETA	SR	SS	LY	ALPHA	THETA	SR	SS	LY	ALPHA	THETA	SR	SS	LY																		
30.4	33.4	27.5	36.7																			24.9	39.5	22.4	41.9	20.1	44.1												
JUN 22	-7.93	4.76	986.5	-7.93	4.43	973.4	-7.93	4.14	959.5	-7.93	3.89	945.2	-7.93	3.67	930.8	-7.93	3.67	930.8	-7.93	3.67	930.8																		
JUN 12	-7.77	4.68	973.2	-7.77	4.36	961.7	-7.77	4.08	949.3	-7.77	3.84	936.3	-7.77	3.63	923.1	-7.77	3.63	923.1	-7.77	3.63	923.1																		
MAY 18	-7.53	4.56	949.1	-7.53	4.26	940.4	-7.53	3.99	930.4	-7.53	3.76	915.5	-7.53	3.55	903.2	-7.53	3.55	903.2	-7.53	3.55	903.2																		
MAY 3	-7.20	4.40	912.1	-7.20	4.11	907.1	-7.20	3.86	900.3	-7.20	3.64	892.4	-7.20	3.45	885.7	-7.20	3.45	885.7	-7.20	3.45	885.7																		
AUG 10	-6.82	4.20	861.8	-6.82	3.94	860.8	-6.82	3.71	857.7	-6.82	3.51	853.1	-6.82	3.33	847.4	-6.82	3.33	847.4	-6.82	3.33	847.4																		
APR 4	-6.42	3.99	799.3	-6.42	3.75	802.8	-6.42	3.54	803.2	-6.42	3.36	802.0	-6.42	3.20	799.4	-6.42	3.20	799.4	-6.42	3.20	799.4																		
MAR 21	-6.00	3.77	725.9	-6.00	3.55	732.8	-6.00	3.37	737.1	-6.00	3.20	739.2	-6.00	3.06	739.7	-6.00	3.06	739.7	-6.00	3.06	739.7																		
MAR 7	-5.58	3.55	646.8	-5.58	3.36	657.0	-5.58	3.19	664.3	-5.58	3.05	669.2	-5.58	2.92	672.2	-5.58	2.92	672.2	-5.58	2.92	672.2																		
FEB 20	-5.18	3.34	567.9	-5.18	3.17	580.4	-5.18	3.02	590.0	-5.18	2.90	597.1	-5.18	2.79	602.2	-5.18	2.79	602.2	-5.18	2.79	602.2																		
FEB 7	-4.80	3.14	494.7	-4.80	3.00	508.8	-4.80	2.87	519.5	-4.80	2.76	528.4	-4.80	2.67	535.0	-4.80	2.67	535.0	-4.80	2.67	535.0																		
JAN 23	-4.47	2.98	434.1	-4.47	2.85	449.0	-4.47	2.74	460.9	-4.47	2.65	470.4	-4.47	2.57	477.8	-4.47	2.57	477.8	-4.47	2.57	477.8																		
NOV 19	-4.23	2.86	390.7	-4.23	2.75	405.9	-4.23	2.65	418.2	-4.23	2.57	428.1	-4.23	2.49	436.0	-4.23	2.49	436.0	-4.23	2.49	436.0																		
JAN 10	-4.08	2.79	365.2	-4.08	2.68	380.4	-4.08	2.59	392.8	-4.08	2.52	402.9	-4.08	2.45	411.0	-4.08	2.45	411.0	-4.08	2.45	411.0																		
DEC 22																																							
YEAR				YEAR				YEAR				YEAR				YEAR				YEAR																			
R.I.				R.I.				R.I.				R.I.				R.I.				R.I.																			
257.817				.4905				259.235				.4932				259.778				.4943				259.228				.4932											

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 48 N
ASPECT E - W

		SLOPE																							
		10 PCT			20 PCT			30 PCT			40 PCT			50 PCT											
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY									
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY									
JUN 22		-7.93	7.33	1020.2	-7.93	6.73	1014.0	-7.93	6.13	1005.0	-7.93	5.57	993.9	-7.93	5.07	981.5									
JUN 1 JUL 12		-7.77	7.19	994.4	-7.77	6.58	988.8	-7.77	6.00	980.6	-7.77	5.45	970.5	-7.77	4.95	959.1									
FEB 20 OCT 22		-7.53	6.94	949.9	-7.53	6.35	945.2	-7.53	5.78	938.4	-7.53	5.24	929.9	-7.53	4.76	920.2									
MAY 18 JUL 27		-7.20	6.62	886.2	-7.20	6.04	882.8	-7.20	5.48	877.7	-7.20	4.97	871.4	-7.20	4.51	863.9									
MAY 3 AUG 10		-6.82	6.25	805.8	-6.82	5.68	803.8	-6.82	5.14	800.8	-6.82	4.65	796.9	-6.82	4.21	792.0									
APR 19 AUG 25		-6.42	5.85	713.7	-6.42	5.29	713.2	-6.42	4.77	712.3	-6.42	4.30	710.8	-6.42	3.88	708.6									
APR 4 SEP 9		-6.00	5.43	614.0	-6.00	4.89	614.9	-6.00	4.39	616.0	-6.00	3.94	616.8	-6.00	3.55	617.0									
MAR 21 SEP 23		-5.58	5.02	514.2	-5.58	4.49	516.3	-5.58	4.01	519.0	-5.58	3.58	521.8	-5.58	3.21	524.1									
MAR 7 OCT 8		-5.18	4.62	421.4	-5.18	4.10	424.4	-5.18	3.64	428.3	-5.18	3.24	432.6	-5.18	2.89	436.4									
FEB 7 NOV 5		-4.80	4.24	340.9	-4.80	3.74	344.4	-4.80	3.30	349.3	-4.80	2.91	354.6	-4.80	2.59	359.3									
JAN 23 NOV 19		-4.47	3.92	278.1	-4.47	3.43	282.0	-4.47	3.00	287.3	-4.47	2.64	293.0	-4.47	2.34	298.4									
JAN 10 DEC 3		-4.23	3.68	235.4	-4.23	3.20	239.5	-4.23	2.78	245.0	-4.23	2.43	250.8	-4.23	2.15	256.5									
DEC 22		-4.08	3.53	211.2	-4.08	3.05	215.3	-4.08	2.65	220.8	-4.08	2.31	226.7	-4.08	2.03	232.4									
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.										
		226.741	.4314		226.695	.4313		226.638	.4310		226.585	.4303		225.582	.4292										
		SLOPE																							
		60 PCT			70 PCT			80 PCT			90 PCT			100 PCT											
		THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY	THETA	ALPHA	LY									
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY									
JUN 22		-7.93	4.61	968.3	-7.93	4.21	954.7	-7.93	3.86	940.9	-7.93	3.56	927.4	-7.93	3.29	914.1									
JUN 1 JUL 12		-7.77	4.51	946.9	-7.77	4.12	934.3	-7.77	3.77	921.4	-7.77	3.48	908.8	-7.77	3.21	896.2									
MAY 18 JUL 27		-7.53	4.33	909.7	-7.53	3.95	898.7	-7.53	3.63	887.4	-7.53	3.34	876.1	-7.53	3.09	864.9									
MAY 3 AUG 10		-7.20	4.10	855.7	-7.20	3.74	846.9	-7.20	3.42	837.6	-7.20	3.15	828.3	-7.20	2.91	818.8									
APR 19 AUG 25		-6.82	3.82	786.4	-6.82	3.48	780.1	-6.82	3.19	773.2	-6.82	2.93	766.0	-6.82	2.71	758.6									
APR 4 SEP 9		-6.42	3.52	705.6	-6.42	3.20	701.9	-6.42	2.93	697.4	-6.42	2.69	692.6	-6.42	2.49	687.5									
MAR 21 SEP 23		-6.00	3.21	616.5	-6.00	2.91	615.1	-6.00	2.66	613.0	-6.00	2.44	610.3	-6.00	2.25	607.1									
MAR 7 OCT 8		-5.58	2.90	525.6	-5.58	2.62	526.3	-5.58	2.39	526.2	-5.58	2.19	525.4	-5.58	2.02	524.0									
FEB 20 OCT 22		-5.18	2.60	439.5	-5.18	2.35	441.8	-5.18	2.13	443.2	-5.18	1.95	443.9	-5.18	1.80	443.9									
FEB 7 NOV 5		-4.80	2.32	363.5	-4.80	2.09	366.8	-4.80	1.90	369.3	-4.80	1.73	371.0	-4.80	1.59	372.0									
JAN 23 NOV 19		-4.47	2.08	303.1	-4.47	1.87	307.1	-4.47	1.70	310.2	-4.47	1.55	312.5	-4.47	1.42	314.1									
JAN 10 DEC 3		-4.23	1.91	261.5	-4.23	1.71	265.7	-4.23	1.55	269.4	-4.23	1.41	271.7	-4.23	1.29	273.7									
DEC 22		-4.08	1.80	237.5	-4.08	1.61	241.8	-4.08	1.46	245.4	-4.08	1.33	248.1	-4.08	1.21	250.3									
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.										
		224.704	.4275		223.569	.4254		222.217	.4228		220.700	.4199		219.059	.4168										

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

RADIATION INDEXES FOR VARIOUS FACETS AT LATITUDE 50 N

ANNUAL RADIATION INDEX

HORIZONTAL SURFACE

LATITUDE 50 N

	SR	SS	LY
JUN 22	-8.08	8.08	1020.9
JUN 1 JUL 12	-7.92	7.92	992.9
MAY 18 JUL 27	-7.65	7.65	944.8
MAY 3 AUG 10	-7.29	7.29	876.4
APR 19 AUG 25	-6.89	6.89	790.8
APR 4 SEP 9	-6.45	6.45	693.6
MAR 21 SEP 23	-6.00	6.00	589.5
MAR 7 OCT 8	-5.55	5.55	486.3
FEB 20 OCT 22	-5.11	5.11	391.3
FEB 7 NOV 5	-4.71	4.71	309.8
JAN 23 NOV 19	-4.35	4.35	246.9
JAN 10 DEC 3	-4.08	4.08	204.6
DEC 22	-3.92	3.92	180.7

YEAR R.I.
219.589 .4178

LATITUDE 50 N
ASPECT N -

	10 PCT						20 PCT						30 PCT						40 PCT						50 PCT					
	THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA		
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-8.08	8.08	1010.7	-8.08	8.08	990.9	-8.08	8.08	962.9	-8.08	8.08	928.6	-8.08	8.08	899.9	-8.08	8.08	871.2	-8.08	8.08	842.5	-8.08	8.08	813.8	-8.08	8.08	785.1	-8.08	8.08	756.4
JUN 1 JUL 12	-7.92	7.92	976.9	-7.92	7.92	951.8	-7.92	7.92	922.7	-7.92	7.92	893.6	-7.92	7.92	864.5	-7.92	7.92	835.4	-7.92	7.92	806.3	-7.92	7.92	777.2	-7.92	7.92	748.1	-7.92	7.92	719.0
MAY 18 JUL 27	-7.65	7.65	919.6	-7.65	7.65	890.5	-7.65	7.65	861.4	-7.65	7.65	832.3	-7.65	7.65	803.2	-7.65	7.65	774.1	-7.65	7.65	745.0	-7.65	7.65	715.9	-7.65	7.65	686.8	-7.65	7.65	657.7
MAY 3 AUG 10	-7.29	7.29	839.3	-7.29	7.29	794.9	-7.29	7.29	750.5	-7.29	7.29	706.1	-7.29	7.29	661.7	-7.29	7.29	617.3	-7.29	7.29	572.9	-7.29	7.29	528.5	-7.29	7.29	484.1	-7.29	7.29	439.7
APR 19 AUG 25	-6.89	6.89	740.7	-6.89	6.89	684.6	-6.89	6.89	628.4	-6.89	6.89	572.3	-6.89	6.89	516.1	-6.89	6.89	460.0	-6.89	6.89	403.8	-6.89	6.89	347.7	-6.89	6.89	291.5	-6.89	6.89	235.4
APR 4 SEP 9	-6.45	6.45	631.2	-6.45	6.45	564.0	-6.45	6.45	496.8	-6.45	6.45	429.6	-6.45	6.45	362.4	-6.45	6.45	295.2	-6.45	6.45	228.0	-6.45	6.45	160.8	-6.45	6.45	93.6	-6.45	6.45	26.4
MAR 21 SEP 23	-6.00	6.00	516.6	-6.00	6.00	440.2	-6.00	6.00	363.8	-6.00	6.00	287.4	-6.00	6.00	211.0	-6.00	6.00	134.6	-6.00	6.00	58.2	-6.00	6.00	0.0	-6.00	6.00	0.0	-6.00	6.00	0.0
MAR 7 OCT 8	-5.45	5.45	405.9	-5.45	5.45	329.5	-5.45	5.45	253.1	-5.45	5.45	176.7	-5.45	5.45	100.3	-5.45	5.45	23.9	-5.45	5.45	0.0	-5.45	5.45	0.0	-5.45	5.45	0.0	-5.45	5.45	0.0
FEB 20 OCT 22	-4.90	4.90	307.0	-4.90	4.90	230.6	-4.90	4.90	154.2	-4.90	4.90	77.8	-4.90	4.90	0.0	-4.90	4.90	0.0	-4.90	4.90	0.0	-4.90	4.90	0.0	-4.90	4.90	0.0	-4.90	4.90	0.0
FEB 7 NOV 5	-4.39	4.39	225.0	-4.39	4.39	148.6	-4.39	4.39	72.2	-4.39	4.39	0.0	-4.39	4.39	0.0	-4.39	4.39	0.0	-4.39	4.39	0.0	-4.39	4.39	0.0	-4.39	4.39	0.0	-4.39	4.39	0.0
JAN 23 NOV 19	-3.94	3.94	163.9	-3.94	3.94	88.1	-3.94	3.94	12.7	-3.94	3.94	0.0	-3.94	3.94	0.0	-3.94	3.94	0.0	-3.94	3.94	0.0	-3.94	3.94	0.0	-3.94	3.94	0.0	-3.94	3.94	0.0
JAN 10 DEC 3	-3.58	3.58	124.2	-3.58	3.58	54.2	-3.58	3.58	0.0	-3.58	3.58	0.0	-3.58	3.58	0.0	-3.58	3.58	0.0	-3.58	3.58	0.0	-3.58	3.58	0.0	-3.58	3.58	0.0	-3.58	3.58	0.0
DEC 22	-3.36	3.36	102.5	-3.36	3.36	37.0	-3.36	3.36	0.0	-3.36	3.36	0.0	-3.36	3.36	0.0	-3.36	3.36	0.0	-3.36	3.36	0.0	-3.36	3.36	0.0	-3.36	3.36	0.0	-3.36	3.36	0.0

	60 PCT						70 PCT						80 PCT						90 PCT						100 PCT					
	THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA			THETA			ALPHA		
	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22	-8.08	8.08	848.7	-8.08	8.08	806.5	-8.08	8.08	764.8	-8.08	8.08	724.0	-8.08	8.08	683.2	-8.08	8.08	642.4	-8.08	8.08	601.6	-8.08	8.08	560.8	-8.08	8.08	520.0	-8.08	8.08	479.2
JUN 1 JUL 12	-7.92	7.92	794.3	-7.92	7.92	742.1	-7.92	7.92	690.0	-7.92	7.92	647.8	-7.92	7.92	605.6	-7.92	7.92	563.4	-7.92	7.92	521.2	-7.92	7.92	479.0	-7.92	7.92	436.8	-7.92	7.92	394.6
MAY 18 JUL 27	-7.65	7.65	704.3	-7.65	7.65	650.0	-7.65	7.65	595.7	-7.65	7.65	541.4	-7.65	7.65	487.1	-7.65	7.65	432.8	-7.65	7.65	378.5	-7.65	7.65	324.2	-7.65	7.65	269.9	-7.65	7.65	215.6
MAY 3 AUG 10	-7.29	7.29	582.5	-7.29	7.29	528.2	-7.29	7.29	473.9	-7.29	7.29	419.6	-7.29	7.29	365.3	-7.29	7.29	310.9	-7.29	7.29	256.6	-7.29	7.29	202.3	-7.29	7.29	147.9	-7.29	7.29	93.6
APR 19 AUG 25	-6.89	6.89	439.9	-6.89	6.89	382.3	-6.89	6.89	324.7	-6.89	6.89	267.1	-6.89	6.89	209.5	-6.89	6.89	151.9	-6.89	6.89	94.3	-6.89	6.89	36.7	-6.89	6.89	0.0	-6.89	6.89	0.0
APR 4 SEP 9	-6.45	6.45	290.2	-6.45	6.45	228.7	-6.45	6.45	171.9	-6.45	6.45	114.3	-6.45	6.45	56.7	-6.45	6.45	0.0	-6.45	6.45	0.0	-6.45	6.45	0.0	-6.45	6.45	0.0	-6.45	6.45	0.0
MAR 21 SEP 23	-6.00	6.00	144.0	-6.00	6.00	79.9	-6.00	6.00	21.5	-6.00	6.00	0.0	-6.00	6.00	0.0	-6.00	6.00	0.0	-6.00	6.00	0.0	-6.00	6.00	0.0	-6.00	6.00	0.0	-6.00	6.00	0.0
MAR 7 OCT 8	-3.44	3.44	32.5	-3.44	3.44	0.0	-3.44	3.44	0.0	-3.44	3.44	0.0	-3.44	3.44	0.0	-3.44	3.44	0.0	-3.44	3.44	0.0	-3.44	3.44	0.0	-3.44	3.44	0.0	-3.44	3.44	0.0
FEB 20 OCT 22	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
FEB 7 NOV 5	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
JAN 23 NOV 19	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
JAN 10 DEC 3	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0
DEC 22	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 50 N
ASPECT S -

	SLOPE										SLOPE									
	10 PCT					20 PCT					30 PCT					40 PCT				
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
JUN 22	-7.67	7.67	1024.0			-7.36	7.36	1021.6			-7.11	7.11	1013.4			-6.90	6.90	999.5		
JUN 1 JUL 12	-7.54	7.54	1001.5			-7.26	7.26	1004.2			-7.02	7.02	1000.5			-6.83	6.83	990.8		
FEB 20 OCT 22	-7.33	7.33	962.5			-7.09	7.09	973.5			-6.89	6.89	977.4			-6.72	6.72	974.6		
MAY 3 AUG 10	-7.05	7.05	905.9			-6.86	6.86	928.0			-6.70	6.70	942.2			-6.57	6.57	949.0		
APR 19 AUG 25	-6.72	6.72	833.5			-6.59	6.59	868.2			-6.49	6.49	894.4			-6.40	6.40	912.5		
APR 4 SEP 9	-6.37	6.37	749.3			-6.30	6.30	790.8			-6.25	6.25	835.5			-6.20	6.20	865.5		
MAR 21 SEP 23	-6.00	6.00	656.5			-6.00	6.00	715.9			-6.00	6.00	766.5			-6.00	6.00	808.2		
MAR 7 OCT 8	-5.55	5.55	562.1			-5.55	5.55	630.8			-5.55	5.55	691.3			-5.55	5.55	742.9		
FEB 20 OCT 22	-5.11	5.11	472.4			-5.11	5.11	547.3			-5.11	5.11	614.4			-5.11	5.11	673.0		
FEB 7 NOV 5	-4.71	4.71	393.1			-4.71	4.71	470.9			-4.71	4.71	541.5			-4.71	4.71	604.0		
JAN 23 NOV 19	-4.35	4.35	330.1			-4.35	4.35	408.4			-4.35	4.35	480.0			-4.35	4.35	543.9		
JAN 10 DEC 3	-4.08	4.08	286.4			-4.08	4.08	363.9			-4.08	4.08	435.1			-4.08	4.08	499.0		
DEC 22	-3.92	3.92	261.3			-3.92	3.92	337.8			-3.92	3.92	408.3			-3.92	3.92	471.7		
	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR
	239.370	.4554	256.847	.4087	271.625	.3168	283.622	.5396	292.960	.5574										
JUN 22	-6.58	6.58	959.3			-6.45	6.45	935.3			-6.33	6.33	910.3			-6.23	6.23	884.9		
JUN 1 JUL 12	-6.53	6.53	957.6			-6.41	6.41	936.5			-6.31	6.31	913.9			-6.22	6.22	890.8		
MAY 18 JUL 27	-6.46	6.46	953.2			-6.36	6.36	937.1			-6.27	6.27	918.9			-6.19	6.19	899.6		
MAY 3 AUG 10	-6.37	6.37	944.1			-6.29	6.29	935.0			-6.21	6.21	923.0			-6.15	6.15	909.1		
APR 19 AUG 25	-6.25	6.25	927.6			-6.20	6.20	927.0			-6.15	6.15	922.7			-6.10	6.10	915.7		
APR 4 SEP 9	-6.13	6.13	902.4			-6.10	6.10	911.4			-6.08	6.08	915.7			-6.05	6.05	916.4		
MAR 21 SEP 23	-6.00	6.00	867.0			-6.00	6.00	885.9			-6.00	6.00	899.2			-6.00	6.00	908.1		
MAR 7 OCT 8	-5.55	5.55	820.8			-5.55	5.55	848.5			-5.55	5.55	870.0			-5.55	5.55	886.4		
FEB 20 OCT 22	-5.11	5.11	764.5			-5.11	5.11	798.8			-5.11	5.11	826.5			-5.11	5.11	848.6		
FEB 7 NOV 5	-4.71	4.71	703.9			-4.71	4.71	742.3			-4.71	4.71	774.1			-4.71	4.71	800.1		
JAN 23 NOV 19	-4.35	4.35	647.6			-4.35	4.35	688.2			-4.35	4.35	722.1			-4.35	4.35	750.3		
JAN 10 DEC 3	-4.08	4.08	603.6			-4.08	4.08	644.9			-4.08	4.08	679.7			-4.08	4.08	708.8		
DEC 22	-3.92	3.92	576.1			-3.92	3.92	617.5			-3.92	3.92	652.4			-3.92	3.92	681.8		
	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR	YEAR	R.I.	YEAR	R.I.	YEAR
	299.897	.5706	304.792	.5799	308.000	.5860	309.870	.5896	310.712	.5912										

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 50 N
ASPECT NNE - NNW

SLOPE																								
10 PCT					20 PCT					30 PCT					40 PCT					50 PCT				
THETA		ALPHA	SR	SS	LY	THETA		ALPHA	SR	SS	LY	THETA		ALPHA	SR	SS	LY	THETA		ALPHA	SR	SS	LY	
55.2		3.8				60.2		8.7				64.7		14.9				68.7		23.0				
			SR	SS	LY				SR	SS	LY				SR	SS	LY				SR	SS	LY	
JUN 22		-8.08	8.08	1011.1		-8.08	8.08	991.7	-8.08	8.08	964.1	-8.08	8.08	930.1	-8.08	8.08	891.7	-8.08	8.08	891.7				
JUN 1 JUL 12		-7.92	7.92	977.7		-7.92	7.92	953.5	-7.92	7.92	921.6	-7.92	7.92	883.8	-7.92	7.92	842.3	-7.92	7.92	842.3				
MAY 18 JUL 27		-7.65	7.65	921.2		-7.65	7.65	889.1	-7.65	7.65	850.3	-7.65	7.65	805.7	-7.65	7.65	760.1	-7.65	7.65	760.1				
MAY 3 AUG 10		-7.29	7.29	841.8		-7.29	7.29	799.8	-7.29	7.29	752.2	-7.29	7.29	701.0	-7.29	7.29	648.1	-7.29	7.29	648.1				
APR 19 AUG 25		-6.89	6.82	744.3		-6.89	6.73	691.7	-6.89	6.61	635.0	-6.89	6.44	576.3	-6.89	6.44	517.8	-6.89	6.44	517.8				
APR 4 SEP 9		-6.45	6.29	635.9		-6.45	6.08	573.9	-6.45	5.81	509.9	-6.45	5.44	446.3	-6.45	5.44	385.7	-6.45	5.44	385.7				
MAR 21 SEP 23		-6.00	5.74	522.5		-6.00	5.42	453.3	-6.00	5.00	384.7	-6.00	4.46	319.6	-6.00	4.46	260.6	-6.00	4.46	260.6				
MAR 7 OCT 8		-5.55	5.20	412.8		-5.55	4.76	339.5	-5.55	4.20	269.6	-5.55	3.49	206.4	-5.55	3.49	152.8	-5.55	3.49	152.8				
FEB 20 OCT 22		-5.11	4.67	314.3		-5.11	4.11	240.1	-5.11	3.40	172.4	-5.11	2.48	114.4	-5.11	2.48	69.5	-5.11	2.48	69.5				
FEB 7 NOV 5		-4.68	4.17	232.2		-4.64	3.48	160.0	-4.58	2.59	97.1	-4.49	1.42	47.5	-4.49	1.42	14.6	-4.49	1.42	14.6				
JAN 23 NOV 19		-4.23	3.72	170.9		-4.06	2.90	102.7	-3.79	1.80	47.1	-3.25	.18	9.6	-3.25	.18	0.0	0.00	0.00	0.0				
JAN 10 DEC 3		-3.89	3.38	130.9		-3.60	2.44	67.2	-3.08	1.09	19.7	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0				
DEC 22		-3.67	3.16	108.9		-3.29	2.13	48.8	-2.52	.53	7.7			0.0	0.00	0.00	0.0	0.00	0.00	0.0				
YEAR		R.I.			YEAR		R.I.			YEAR		R.I.			YEAR		R.I.			YEAR		R.I.		
199.932		.3804			179.935		.3423			160.786		.3059			144.027		.2740			129.764		.2469		
SLOPE																								
60 PCT					70 PCT					80 PCT					90 PCT					100 PCT				
THETA		ALPHA	SR	SS	LY	THETA		ALPHA	SR	SS	LY	THETA		ALPHA	SR	SS	LY	THETA		ALPHA	SR	SS	LY	
74.2		46.5				75.5		61.2				75.7		76.0				75.2		89.0				
			SR	SS	LY				SR	SS	LY				SR	SS	LY				SR	SS	LY	
JUN 22		-8.08	8.08	850.7		-8.08	8.08	808.7	-8.08	8.08	767.1	-8.08	8.08	726.8	-8.08	8.08	688.0	-8.08	8.08	688.0				
JUN 1 JUL 12		-7.92	7.92	798.7		-7.92	7.92	754.6	-7.92	7.92	711.2	-7.92	7.92	669.5	-7.92	7.92	629.7	-7.92	7.92	629.7				
MAY 18 JUL 27		-7.65	7.65	712.3		-7.65	7.65	664.9	-7.65	7.65	618.9	-7.65	7.65	573.5	-7.65	7.65	535.9	-7.65	7.65	535.9				
MAY 3 AUG 10		-7.29	7.29	595.3		-7.29	7.29	543.8	-7.29	7.29	494.7	-7.29	7.29	448.5	-7.29	7.29	405.0	-7.29	7.29	405.0				
APR 19 AUG 25		-6.89	5.78	461.4		-6.89	5.13	408.8	-6.89	4.42	362.3	-6.89	4.22	324.3	-6.89	4.22	282.8	-6.89	4.22	282.8				
APR 4 SEP 9		-6.45	4.27	330.4		-6.45	3.41	282.4	-6.45	2.46	243.4	-6.45	2.46	203.3	-6.45	2.46	161.9	-6.45	2.46	161.9				
MAR 21 SEP 23		-6.00	2.90	210.3		-6.00	1.92	170.1	-6.00	.93	140.4	-6.00	.93	119.4	-6.00	.93	104.8	-6.00	.93	104.8				
MAR 7 OCT 8		-5.55	1.54	110.8		-5.55	.42	81.0	-5.55	.42	61.7	-5.55	.42	49.7	-5.55	.42	42.2	-5.55	.42	42.2				
FEB 20 OCT 22		-5.11	.03	38.9		-5.11	-1.29	21.6	-5.11	-2.35	13.1	-5.11	-2.35	9.2	-5.11	-2.35	7.3	-5.11	-2.35	7.3				
FEB 7 NOV 5		-3.68	-2.52	.3		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0				
JAN 23 NOV 19		0.00	0.00	0.0		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0				
JAN 10 DEC 3		0.00	0.00	0.0		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0				
DEC 22		0.00	0.00	0.0		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0				

SLOPE										SLOPE														
60 PCT					70 PCT					80 PCT					90 PCT					100 PCT				
THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
74.2	46.5				75.5	61.2				75.7	76.0				75.2	89.0				74.1	99.6			
		SR	SS	LY			SR	SS	LY			SR	SS	LY			SR	SS	LY			SR	SS	LY
JUN 22		-8.08	8.08	850.7	-8.08	8.08	808.7	-8.08	8.08	8.08	767.1	-8.08	8.08	725.8	-8.08	8.08	-8.08	8.08	688.0	-8.08	8.08	688.0		
JUN 1 JUL 12		-7.92	7.92	798.7	-7.92	7.92	754.6	-7.92	7.92	7.92	711.2	-7.92	7.92	669.5	-7.92	7.92	-7.92	7.92	629.7	-7.92	7.92	629.7		
MAY 18 JUL 27		-7.65	7.65	712.3	-7.65	7.65	664.9	-7.65	7.65	7.65	618.9	-7.65	7.65	575.2	-7.65	7.65	-7.65	7.65	533.9	-7.65	7.65	533.9		
MAY 3 AUG 10		-7.29	7.29	595.3	-7.29	7.29	543.8	-7.29	7.29	7.29	494.7	-7.29	7.29	448.5	-7.29	7.29			405.8					
APR 19 AUG 25		-6.89	5.78	461.4	-6.89	5.13	408.8	-6.89	4.22	362.3		-6.89	3.18	323.6	-6.89	3.18	-6.89	2.19	292.8	-6.89	2.19	292.8		
APR 4 SEP 9		-6.45	4.27	330.4	-6.45	3.41	282.4	-6.45	2.42	243.4		-6.45	1.52	213.3	-6.45	1.52	-6.45	.71	190.8	-6.45	.71	190.8		
MAR 21 SEP 23		-6.00	2.90	210.3	-6.00	1.92	170.1	-6.00	.93	140.4		-6.00	.07	119.4	-6.00	.07	-6.00	-.64	104.8	-6.00	-.64	104.8		
MAR 7 OCT 8		-5.55	1.54	110.8	-5.55	.42	81.0	-5.55	-.59	61.7		-5.55	-1.39	49.7	-5.55	-1.39	-5.55	-1.99	42.2	-5.55	-1.99	42.2		
FEB 20 OCT 22		-5.11	.03	38.9	-5.11	-1.29	21.6	-5.11	-2.35	13.1		-5.11	-3.05	9.2	-5.11	-3.05	-5.11	-3.48	7.3	-5.11	-3.48	7.3		
FEB 7 NOV 5		-3.68	-2.52	.3	0.00	0.00	0.0	0.00	0.00	0.0		0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.0		
JAN 23 NOV 19		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0		0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.0		
JAN 10 DEC 3		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0		0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.0		
DEC 22		0.00	0.00	0.0	0.00	0.00	0.0	0.00	0.00	0.0		0.00	0.00	0.0	0.00	0.00	0.00	0.00	0.0	0.00	0.00	0.0		
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	
		117.327	.2232		106.624	.2029		97.354	.1852	89.397	.1701	82.523	.1570											

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

Double Sunrise - Sunset
(1) -7.29
(2) 6.18

LATITUDE 50 N
ASPECT SSE - SSW

	SLOPE																												
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT								
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY				
JUN 22	44.7	3.1	-7.90	7.49	1023.9	-7.77	7.02	1022.3	-7.66	6.64	1015.3	-7.57	6.32	1003.3	-7.50	6.05	987.0	-7.44	5.99	980.9	-7.44	5.99	980.9	-7.44	5.99	980.9			
JUN 1 JUL 12	7.77	7.36	1001.1	-7.66	6.92	1004.2	-7.57	6.55	1001.7	-7.50	6.25	993.6	-7.44	6.13	975.8	-7.35	5.90	969.1	-7.35	5.90	969.1	-7.35	5.90	969.1	-7.35	5.90	969.1		
MAY 18 JUL 27	7.56	7.15	961.5	-7.49	6.74	972.5	-7.43	6.41	977.2	-7.39	6.13	975.8	-7.35	5.98	948.0	-7.22	5.77	949.7	-7.22	5.77	949.7	-7.22	5.77	949.7	-7.22	5.77	949.7		
MAY 3 AUG 10	7.27	6.86	904.1	-7.25	6.51	923.6	-7.24	6.22	940.2	-7.23	5.98	948.0	-7.23	5.98	948.0	-7.22	5.77	949.7	-7.22	5.77	949.7	-7.22	5.77	949.7	-7.22	5.77	949.7		
APR 19 AUG 25	6.89	6.53	830.8	-6.89	6.24	864.2	-6.89	5.99	890.1	-6.89	5.79	908.6	-6.89	5.79	908.6	-6.89	5.62	920.2	-6.89	5.62	920.2	-6.89	5.62	920.2	-6.89	5.62	920.2		
APR 4 SEP 9	6.45	6.17	745.5	-6.45	5.94	790.6	-6.45	5.75	827.8	-6.45	5.59	857.1	-6.45	5.59	857.1	-6.45	5.45	878.9	-6.45	5.45	878.9	-6.45	5.45	878.9	-6.45	5.45	878.9		
MAR 21 SEP 23	6.00	5.80	651.7	-6.00	5.63	707.1	-6.00	5.49	754.5	-6.00	5.37	793.7	-6.00	5.37	793.7	-6.00	5.28	825.0	-6.00	5.28	825.0	-6.00	5.28	825.0	-6.00	5.28	825.0		
MAR 7 OCT 8	5.55	5.42	556.3	-5.55	5.32	619.8	-5.55	5.23	675.4	-5.55	5.23	675.4	-5.55	5.16	722.8	-5.55	5.10	762.1	-5.55	5.10	762.1	-5.55	5.10	762.1	-5.55	5.10	762.1		
FEB 20 OCT 22	5.11	5.06	466.1	-5.11	5.02	535.0	-5.11	4.99	596.4	-5.11	4.99	596.4	-5.11	4.96	649.7	-5.11	4.93	695.0	-5.11	4.93	695.0	-5.11	4.93	695.0	-5.11	4.93	695.0		
FEB 7 NOV 5	4.71	4.71	386.6	-4.71	4.71	458.2	-4.71	4.71	522.9	-4.71	4.71	522.9	-4.71	4.71	579.9	-4.71	4.71	629.0	-4.71	4.71	629.0	-4.71	4.71	629.0	-4.71	4.71	629.0		
JAN 23 NOV 19	4.35	4.35	323.6	-4.35	4.35	395.7	-4.35	4.35	461.4	-4.35	4.35	461.4	-4.35	4.35	519.9	-4.35	4.35	570.9	-4.35	4.35	570.9	-4.35	4.35	570.9	-4.35	4.35	570.9		
JAN 10 DEC 3	4.08	4.08	280.1	-4.08	4.08	351.5	-4.08	4.08	416.9	-4.08	4.08	416.9	-4.08	4.08	475.5	-4.08	4.08	526.9	-4.08	4.08	526.9	-4.08	4.08	526.9	-4.08	4.08	526.9		
DEC 22	3.92	3.92	255.1	-3.92	3.92	325.6	-3.92	3.92	390.4	-3.92	3.92	390.4	-3.92	3.92	448.6	-3.92	3.92	499.8	-3.92	3.92	499.8	-3.92	3.92	499.8	-3.92	3.92	499.8		
										YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.		
										237.921	.4527	254.203	.4836	268.020	.5099	279.262	.5313	288.023	.5480										
	SLOPE																												
	60 PCT					70 PCT					80 PCT					90 PCT					100 PCT								
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY				
JUN 22	20.6	12.1	-7.44	5.82	967.4	-7.38	5.62	945.7	-7.34	5.44	922.9	-7.29	5.29	899.7	-7.26	5.15	876.6	-7.24	5.13	883.2	-7.24	5.13	883.2	-7.24	5.13	883.2			
JUN 1 JUL 12	7.39	5.77	964.5	-7.35	5.58	945.7	-7.31	5.41	925.4	-7.27	5.27	904.4	-7.27	5.27	904.4	-7.26	5.15	876.6	-7.26	5.15	876.6	-7.26	5.15	876.6	-7.26	5.15	876.6		
MAY 18 JUL 27	7.31	5.69	958.3	-7.29	5.52	944.3	-7.26	5.37	928.2	-7.24	5.30	929.3	-7.24	5.28	911.0	-7.22	5.18	893.1	-7.22	5.18	893.1	-7.22	5.18	893.1	-7.22	5.18	893.1		
MAY 3 AUG 10	7.21	5.59	946.4	-7.20	5.44	939.3	-7.20	5.30	929.3	-7.20	5.22	924.5	-7.19	5.18	917.4	-7.19	5.08	904.3	-7.19	5.08	904.3	-7.19	5.08	904.3	-7.19	5.08	904.3		
APR 19 AUG 25	6.89	5.47	926.1	-6.89	5.34	927.1	-6.89	5.24	924.5	-6.89	5.14	908.9	-6.89	5.12	919.2	-6.89	5.04	901.9	-6.89	5.04	901.9	-6.89	5.04	901.9	-6.89	5.04	901.9		
APR 4 SEP 9	6.45	5.33	894.1	-6.45	5.23	903.8	-6.45	5.14	908.9	-6.45	5.06	910.5	-6.45	5.06	910.5	-6.45	5.00	893.0	-6.45	5.00	893.0	-6.45	5.00	893.0	-6.45	5.00	893.0		
MAR 21 SEP 23	6.00	5.19	849.0	-6.00	5.12	866.9	-6.00	5.05	879.5	-6.00	5.05	879.5	-6.00	5.00	887.9	-6.00	4.95	893.0	-6.00	4.95	893.0	-6.00	4.95	893.0	-6.00	4.95	893.0		
MAR 7 OCT 8	5.55	5.05	793.7	-5.55	5.00	818.7	-5.55	4.96	837.9	-5.55	4.96	837.9	-5.55	4.93	852.4	-5.55	4.90	863.1	-5.55	4.90	863.1	-5.55	4.90	863.1	-5.55	4.90	863.1		
FEB 20 OCT 22	5.11	4.91	732.5	-5.11	4.90	763.1	-5.11	4.88	787.6	-5.11	4.88	787.6	-5.11	4.87	807.1	-5.11	4.85	822.4	-5.11	4.85	822.4	-5.11	4.85	822.4	-5.11	4.85	822.4		
FEB 7 NOV 5	4.71	4.71	670.6	-4.71	4.71	705.1	-4.71	4.71	733.6	-4.71	4.71	733.6	-4.71	4.71	756.7	-4.71	4.71	775.5	-4.71	4.71	775.5	-4.71	4.71	775.5	-4.71	4.71	775.5		
JAN 23 NOV 19	4.35	4.35	614.5	-4.35	4.35	651.2	-4.35	4.35	681.8	-4.35	4.35	681.8	-4.35	4.35	707.1	-4.35	4.35	728.1	-4.35	4.35	728.1	-4.35	4.35	728.1	-4.35	4.35	728.1		
JAN 10 DEC 3	4.08	4.08	571.0	-4.08	4.08	608.6	-4.08	4.08	640.1	-4.08	4.08	640.1	-4.08	4.08	666.4	-4.08	4.08	688.4	-4.08	4.08	688.4	-4.08	4.08	688.4	-4.08	4.08	688.4		
DEC 22	3.92	3.92	544.0	-3.92	3.92	581.7	-3.92	3.92	613.5	-3.92	3.92	613.5	-3.92	3.92	640.1	-3.92	3.92	662.4	-3.92	3.92	662.4	-3.92	3.92	662.4	-3.92	3.92	662.4		
										YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.	YEAR	R.I.		
										294.531	.5604	299.120	.5691	302.118	.5748	303.853	.5781	304.618	.5796										

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 50 N
ASPECT NE - NW

	10 PCT						20 PCT						30 PCT						40 PCT						50 PCT					
	SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE			SLOPE		
	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY	THETA	ALPHA	LY	SR	SS	LY
JUN 22	-8.08	7.98	1012.3	-8.08	7.84	994.2	-8.08	7.64	968.2	-8.08	7.44	941.6	-8.08	7.24	915.0	-8.08	7.04	888.4	-8.08	6.84	861.8	-8.08	6.64	835.2	-8.08	6.44	808.6	-8.08	6.24	782.0
JUN 1 JUL 12	-7.92	7.78	980.3	-7.92	7.59	958.8	-7.92	7.39	930.1	-7.92	7.19	901.4	-7.92	6.99	872.7	-7.92	6.79	844.0	-7.92	6.59	815.3	-7.92	6.39	786.6	-7.92	6.19	757.9	-7.92	5.99	729.2
FEB 20 OCT 22	-7.65	7.46	925.9	-7.65	7.21	895.1	-7.65	6.98	866.4	-7.65	6.72	836.6	-7.65	6.47	807.9	-7.65	6.22	779.2	-7.65	5.97	750.5	-7.65	5.72	721.8	-7.65	5.47	693.1	-7.65	5.22	664.4
MAY 18 JUL 27	-7.29	7.04	849.4	-7.29	6.72	818.1	-7.29	6.32	778.6	-7.29	5.92	738.2	-7.29	5.52	697.8	-7.29	5.12	657.4	-7.29	4.72	617.0	-7.29	4.32	576.6	-7.29	3.92	536.2	-7.29	3.52	495.8
MAY 3 AUG 10	-6.89	6.56	755.1	-6.89	6.17	715.1	-6.89	5.70	673.0	-6.89	5.29	632.6	-6.89	4.89	592.2	-6.89	4.49	551.8	-6.89	4.09	511.4	-6.89	3.69	471.0	-6.89	3.29	430.6	-6.89	2.89	390.2
APR 19 AUG 25	-6.45	6.06	649.9	-6.45	5.60	604.0	-6.45	5.06	558.5	-6.45	4.52	513.0	-6.45	3.98	467.5	-6.45	3.44	422.0	-6.45	2.90	376.5	-6.45	2.36	331.0	-6.45	1.82	285.5	-6.45	1.28	240.0
APR 4 SEP 9	-6.00	5.54	539.0	-6.00	5.01	488.8	-6.00	4.41	441.6	-6.00	3.82	394.4	-6.00	3.23	349.0	-6.00	2.64	303.6	-6.00	2.05	258.2	-6.00	1.46	212.8	-6.00	0.87	167.4	-6.00	0.28	122.0
MAR 21 SEP 23	-5.55	5.03	431.2	-5.55	4.42	378.8	-5.55	3.76	331.6	-5.55	3.12	286.0	-5.55	2.48	240.4	-5.55	1.84	194.8	-5.55	1.20	149.2	-5.55	0.56	103.6	-5.55	-0.08	58.0	-5.55	-0.72	12.4
MAR 7 OCT 8	-5.11	4.52	333.8	-5.11	3.85	281.2	-5.11	3.12	236.0	-5.11	2.40	190.4	-5.11	1.67	144.8	-5.11	0.94	99.2	-5.11	0.21	53.6	-5.11	-0.52	7.0	-5.11	-1.16	-38.4	-5.11	-1.80	-82.8
FEB 20 OCT 22	-4.71	4.05	252.0	-4.71	3.30	201.1	-4.71	2.50	159.3	-4.71	1.69	117.5	-4.71	0.88	75.7	-4.71	0.07	34.1	-4.71	-0.74	-11.7	-4.71	-1.55	-47.1	-4.71	-2.36	-92.4	-4.71	-3.17	-137.0
FEB 7 NOV 5	-4.35	3.63	190.2	-4.35	2.81	142.1	-4.35	1.94	104.3	-4.35	1.04	66.5	-4.35	0.14	28.9	-4.35	-0.67	-17.1	-4.35	-1.48	-52.4	-4.35	-2.29	-97.9	-4.35	-3.10	-143.4	-4.35	-3.91	-188.9
JAN 23 NOV 19	-4.08	3.31	149.6	-4.08	2.43	104.2	-4.08	1.49	70.1	-4.08	0.54	32.5	-4.08	-0.27	13.1	-4.08	-1.08	-41.9	-4.08	-1.89	-87.4	-4.08	-2.70	-132.9	-4.08	-3.51	-178.4	-4.08	-4.32	-223.9
JAN 10 DEC 3	-3.92	3.11	127.0	-3.92	2.19	83.7	-3.92	1.19	52.1	-3.92	0.24	11.5	-3.92	-0.57	-3.9	-3.92	-1.38	-53.4	-3.92	-2.19	-98.9	-3.92	-3.00	-144.4	-3.92	-3.81	-189.9	-3.92	-4.62	-235.4
DEC 22	-3.55	2.75	75.0	-3.55	1.75	41.2	-3.55	0.75	17.5	-3.55	-0.25	-12.5	-3.55	-1.00	-40.0	-3.55	-1.80	-85.0	-3.55	-2.60	-130.0	-3.55	-3.40	-175.0	-3.55	-4.20	-220.0	-3.55	-5.00	-265.0

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 50 N
ASPECT SE - SW

	SLOPE										SLOPE										SLOPE									
	10 PCT					20 PCT					30 PCT					40 PCT					50 PCT					60 PCT				
	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY	THETA	ALPHA	SR	SS	LY
JUN 22	-8.08	7.38	1023.6	-8.08	6.79	1023.4	-8.08	6.30	1019.5	-8.08	5.87	1011.8	-8.08	5.48	1000.7	-8.08	5.11	998.8	-8.08	4.79	998.8	-8.08	4.48	998.8	-8.08	4.18	998.8	-8.08	3.88	998.8
JUN 1 JUL 12	-7.92	7.25	999.6	-7.92	6.68	1003.3	-7.92	6.20	1003.1	-7.92	5.79	998.8	-7.92	5.40	998.8	-7.92	5.03	998.8	-7.92	4.65	998.8	-7.92	4.28	998.8	-7.92	3.91	998.8	-7.92	3.54	998.8
MAY 18 JUL 27	-7.65	7.02	958.2	-7.65	6.49	968.2	-7.65	6.04	973.9	-7.65	5.66	975.1	-7.65	5.28	975.1	-7.65	4.91	975.1	-7.65	4.54	975.1	-7.65	4.17	975.1	-7.65	3.80	975.1	-7.65	3.43	975.1
MAY 3 AUG 10	-7.29	6.72	898.3	-7.29	6.24	916.6	-7.29	5.83	930.0	-7.29	5.48	938.5	-7.29	5.13	938.5	-7.29	4.78	938.5	-7.29	4.43	938.5	-7.29	4.08	938.5	-7.29	3.73	938.5	-7.29	3.38	938.5
APR 19 AUG 25	-6.89	6.38	822.1	-6.89	5.94	849.4	-6.89	5.58	871.5	-6.89	5.26	888.0	-6.89	4.91	888.0	-6.89	4.56	888.0	-6.89	4.21	888.0	-6.89	3.86	888.0	-6.89	3.51	888.0	-6.89	3.16	888.0
APR 4 SEP 9	-6.45	6.00	734.0	-6.45	5.62	770.2	-6.45	5.30	800.7	-6.45	4.98	825.2	-6.45	4.66	825.2	-6.45	4.34	825.2	-6.45	4.02	825.2	-6.45	3.70	825.2	-6.45	3.38	825.2	-6.45	3.06	825.2
MAR 21 SEP 23	-6.00	5.61	637.7	-6.00	5.29	681.5	-6.00	5.02	719.5	-6.00	4.79	751.1	-6.00	4.56	751.1	-6.00	4.33	751.1	-6.00	4.10	751.1	-6.00	3.87	751.1	-6.00	3.64	751.1	-6.00	3.41	751.1
MAR 7 OCT 8	-5.55	5.23	540.3	-5.55	4.96	589.9	-5.55	4.73	633.7	-5.55	4.54	671.0	-5.55	4.35	671.0	-5.55	4.16	671.0	-5.55	3.97	671.0	-5.55	3.78	671.0	-5.55	3.59	671.0	-5.55	3.40	671.0
FEB 20 OCT 22	-5.11	4.85	448.8	-5.11	4.63	502.1	-5.11	4.46	549.6	-5.11	4.31	590.8	-5.11	4.14	590.8	-5.11	3.97	590.8	-5.11	3.80	590.8	-5.11	3.63	590.8	-5.11	3.46	590.8	-5.11	3.29	590.8
FEB 7 NOV 5	-4.71	4.50	368.7	-4.71	4.34	423.5	-4.71	4.20	472.8	-4.71	4.09	516.1	-4.71	3.98	516.1	-4.71	3.87	516.1	-4.71	3.76	516.1	-4.71	3.65	516.1	-4.71	3.54	516.1	-4.71	3.43	516.1
JAN 23 NOV 19	-4.35	4.20	305.6	-4.35	4.09	360.4	-4.35	3.99	410.2	-4.35	3.91	454.2	-4.35	3.82	454.2	-4.35	3.73	454.2	-4.35	3.64	454.2	-4.35	3.55	454.2	-4.35	3.46	454.2	-4.35	3.37	454.2
JAN 10 DEC 3	-4.08	3.98	262.3	-4.08	3.90	316.4	-4.08	3.83	365.8	-4.08	3.78	409.6	-4.08	3.73	409.6	-4.08	3.68	409.6	-4.08	3.63	409.6	-4.08	3.58	409.6	-4.08	3.53	409.6	-4.08	3.48	409.6
DEC 22	-3.92	3.84	237.5	-3.92	3.78	291.0	-3.92	3.74	339.8	-3.92	3.70	383.3	-3.92	3.66	383.3	-3.92	3.62	383.3	-3.92	3.58	383.3	-3.92	3.54	383.3	-3.92	3.50	383.3	-3.92	3.46	383.3
JUN 22	-8.08	5.20	986.9	-8.08	4.93	971.0	-8.08	4.70	954.0	-8.08	4.50	936.3	-8.08	4.32	918.5	-8.08	4.15	900.8	-8.08	3.98	883.1	-8.08	3.81	865.4	-8.08	3.64	847.7	-8.08	3.47	830.0
JUN 1 JUL 12	-7.92	5.15	979.7	-7.92	4.89	966.3	-7.92	4.66	951.4	-7.92	4.47	935.7	-7.92	4.29	918.0	-7.92	4.11	900.3	-7.92	3.94	882.6	-7.92	3.77	864.9	-7.92	3.60	847.2	-7.92	3.43	829.5
MAY 18 JUL 27	-7.65	5.05	965.5	-7.65	4.81	956.2	-7.65	4.60	944.9	-7.65	4.41	932.4	-7.65	4.23	914.7	-7.65	4.05	897.0	-7.65	3.88	879.3	-7.65	3.71	861.6	-7.65	3.54	843.9	-7.65	3.37	826.2
MAY 3 AUG 10	-7.29	4.92	941.6	-7.29	4.70	937.7	-7.29	4.50	931.2	-7.29	4.33	923.0	-7.29	4.16	905.3	-7.29	3.99	887.6	-7.29	3.82	869.9	-7.29	3.65	852.2	-7.29	3.48	834.5	-7.29	3.31	816.8
APR 19 AUG 25	-6.89	4.77	905.1	-6.89	4.57	907.8	-6.89	4.40	906.9	-6.89	4.24	903.6	-6.89	4.07	885.9	-6.89	3.90	868.2	-6.89	3.73	850.5	-6.89	3.56	832.8	-6.89	3.39	815.1	-6.89	3.22	797.4
APR 4 SEP 9	-6.45	4.60	857.1	-6.45	4.43	865.6	-6.45	4.28	870.4	-6.45	4.15	872.3	-6.45	4.02	854.6	-6.45	3.89	836.9	-6.45	3.76	819.2	-6.45	3.63	801.5	-6.45	3.50	783.8	-6.45	3.37	766.1
MAR 21 SEP 23	-6.00	4.42	796.1	-6.00	4.28	810.5	-6.00	4.15	820.7	-6.00	4.04	827.4	-6.00	3.94	831.3	-6.00	3.84	838.0	-6.00	3.74	844.7	-6.00	3.64	851.4	-6.00	3.54	858.1	-6.00	3.44	864.8
MAR 7 OCT 8	-5.55	4.25	726.7	-5.55	4.13	746.0	-5.55	4.03	760.8	-5.55	3.94	771.7	-5.55	3.86	779.6	-5.55	3.78	787.5	-5.55	3.69	795.4	-5.55	3.61	803.3	-5.55	3.53	811.2	-5.55	3.45	819.1
FEB 20 OCT 22	-5.11	4.08	654.1	-5.11	3.99	677.2	-5.11	3.91	695.5	-5.11	3.84	709.7	-5.11	3.77	724.0	-5.11	3.70	738.3	-5.11	3.63	752.6	-5.11	3.56	766.9	-5.11	3.49	781.2	-5.11	3.42	795.5
FEB 7 NOV 5	-4.71	3.92	584.1	-4.71	3.86	609.6	-4.71	3.80	630.3	-4.71	3.75	646.8	-4.71	3.70	663.1	-4.71	3.65	679.4	-4.71	3.60	695.7	-4.71	3.55	712.0	-4.71	3.50	728.3	-4.71	3.45	744.6
JAN 23 NOV 19	-4.35	3.79	524.2	-4.35	3.75	551.0	-4.35	3.71	573.1	-4.35	3.67	591.1	-4.35	3.63	609.1	-4.35	3.59	627.2	-4.35	3.55	645.3	-4.35	3.51	663.4	-4.35	3.47	681.5	-4.35	3.43	699.6
JAN 10 DEC 3	-4.08	3.70	480.2	-4.08	3.67	507.5	-4.08	3.64	530.2	-4.08	3.62	548.9	-4.08	3.60	567.6	-4.08	3.58	586.3	-4.08	3.56	605.0	-4.08	3.54	623.7	-4.08	3.52	642.4	-4.08	3.50	661.1
DEC 22	-3.92	3.64	453.8	-3.92	3.62	481.2	-3.92	3.60	504.1	-3.92	3.58	523.1	-3.92	3.56	542.0	-3.92	3.54	560.9	-3.92	3.52	579.8	-3.92	3.50	598.7	-3.92	3.48	617.6	-3.92	3.46	636.5

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 50 N
ASPECT ENE - W

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 50 N
ASPECT ESE - WSW

		10 PCT			20 PCT			SLOPE			30 PCT			40 PCT			50 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		47.5	7.8		44.7	14.8					41.5	20.8		38.3	25.9		35.1	30.3	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-8.08	7.37	1021.9	-8.08	6.71	1020.6	-8.08	6.13	1017.0	-8.08	5.61	1011.0	-8.08	5.16	1002.7	-8.08	5.16	1002.7
JUN 1 JUL 12		-7.92	7.22	996.2	-7.92	6.58	997.3	-7.92	6.01	996.1	-7.92	5.51	992.3	-7.92	5.08	986.0	-7.92	5.08	986.0
MAY 18 JUL 27		-7.65	6.98	951.8	-7.65	6.37	956.9	-7.65	5.82	959.4	-7.65	5.34	959.2	-7.65	4.93	956.3	-7.65	4.93	956.3
MAY 3 AUG 10		-7.29	6.66	888.3	-7.29	6.08	898.3	-7.29	5.57	905.8	-7.29	5.12	910.3	-7.29	4.73	911.8	-7.29	4.73	911.8
APR 19 AUG 25		-6.89	6.29	808.0	-6.89	5.75	823.5	-6.89	5.27	836.4	-6.89	4.86	846.1	-6.89	4.50	852.5	-6.89	4.50	852.5
APR 4 SEP 9		-6.45	5.89	716.0	-6.45	5.39	736.8	-6.45	4.95	754.9	-6.45	4.57	769.7	-6.45	4.24	780.9	-6.45	4.24	780.9
MAR 21 SEP 23		-6.00	5.48	616.2	-6.00	5.02	641.6	-6.00	4.62	664.2	-6.00	4.27	683.4	-6.00	3.98	698.9	-6.00	3.98	698.9
MAR 7 OCT 8		-5.55	5.07	516.3	-5.55	4.64	545.0	-5.55	4.28	571.0	-5.55	3.97	593.6	-5.55	3.71	612.4	-5.55	3.71	612.4
FEB 20 OCT 22		-5.11	4.67	423.2	-5.11	4.28	453.9	-5.11	3.96	482.0	-5.11	3.69	506.7	-5.11	3.46	527.7	-5.11	3.46	527.7
FEB 7 NOV 5		-4.71	4.29	342.4	-4.71	3.95	373.9	-4.71	3.66	402.8	-4.71	3.42	428.5	-4.71	3.22	450.5	-4.71	3.22	450.5
JAN 23 NOV 19		-4.35	3.97	279.3	-4.35	3.66	310.6	-4.35	3.41	339.5	-4.35	3.20	365.3	-4.35	3.03	387.45	-4.35	3.03	387.45
JAN 10 DEC 3		-4.08	3.73	236.4	-4.08	3.45	267.1	-4.08	3.22	295.5	-4.08	3.03	320.9	-4.08	2.88	342.9	-4.08	2.88	342.9
DEC 22		-3.92	3.59	212.0	-3.92	3.32	242.2	-3.92	3.11	270.1	-3.92	2.93	295.1	-3.92	2.79	316.8	-3.92	2.79	316.8
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		227.381	.4326		234.610	.4464		240.922	.4584		246.112	.4682		250.116	.4759				
		60 PCT			70 PCT			SLOPE			80 PCT			90 PCT			100 PCT		
		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA		THETA	ALPHA	
		32.0	34.1		29.1	37.3					26.4	40.1		23.9	42.5		21.6	44.6	
		SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY	SR	SS	LY
JUN 22		-8.08	4.78	992.5	-8.08	4.44	980.7	-8.08	4.16	968.0	-8.08	3.91	954.8	-8.08	3.68	941.3	-8.08	3.68	941.3
JUN 1 JUL 12		-7.92	4.70	977.7	-7.92	4.38	967.6	-7.92	4.10	956.5	-7.92	3.85	944.6	-7.92	3.64	932.4	-7.92	3.64	932.4
MAY 18 JUL 27		-7.65	4.57	951.0	-7.65	4.26	943.8	-7.65	3.99	935.1	-7.65	3.76	925.5	-7.65	3.56	915.2	-7.65	3.56	915.2
MAY 3 AUG 10		-7.29	4.40	910.6	-7.29	4.11	907.0	-7.29	3.86	901.7	-7.29	3.64	895.0	-7.29	3.45	887.4	-7.29	3.45	887.4
APR 19 AUG 25		-6.89	4.19	855.8	-6.89	3.92	856.5	-6.89	3.69	854.9	-6.89	3.49	851.6	-6.89	3.32	847.1	-6.89	3.32	847.1
APR 4 SEP 9		-6.45	3.96	788.7	-6.45	3.72	793.5	-6.45	3.51	795.7	-6.45	3.33	795.9	-6.45	3.17	794.5	-6.45	3.17	794.5
MAR 21 SEP 23		-6.00	3.73	710.7	-6.00	3.51	719.2	-6.00	3.33	724.9	-6.00	3.17	728.3	-6.00	3.02	729.9	-6.00	3.02	729.9
MAR 7 OCT 8		-5.55	3.49	627.4	-5.55	3.30	638.9	-5.55	3.14	647.5	-5.55	3.00	653.6	-5.55	2.88	657.7	-5.55	2.88	657.7
FEB 20 OCT 22		-5.11	3.26	544.8	-5.11	3.10	558.6	-5.11	2.96	569.2	-5.11	2.84	577.3	-5.11	2.73	583.4	-5.11	2.73	583.4
FEB 7 NOV 5		-4.71	3.06	468.8	-4.71	2.92	483.8	-4.71	2.80	495.8	-4.71	2.69	505.2	-4.71	2.60	512.5	-4.71	2.60	512.5
JAN 23 NOV 19		-4.35	2.88	406.2	-4.35	2.76	421.7	-4.35	2.66	434.3	-4.35	2.57	444.4	-4.35	2.49	452.5	-4.35	2.49	452.5
JAN 10 DEC 3		-4.08	2.75	361.6	-4.08	2.65	377.2	-4.08	2.56	390.0	-4.08	2.48	400.3	-4.08	2.41	408.7	-4.08	2.41	408.7
DEC 22		-3.92	2.67	355.3	-3.92	2.58	350.8	-3.92	2.49	363.6	-3.92	2.43	374.0	-3.92	2.36	382.5	-3.92	2.36	382.5
		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.		YEAR	R.I.	
		252.978	.4813		254.830	.4848		255.831	.4867		256.148	.4873		255.938	.4869				

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

LATITUDE 50 N
ASPECT E - W

	10 PCT				20 PCT				SLOPE				30 PCT				40 PCT				50 PCT			
	THETA		ALPHA		THETA		ALPHA		THETA		ALPHA		THETA		ALPHA		THETA		ALPHA		THETA		ALPHA	
	SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY
JUN 22	-8.08	7.46	1018.7		-8.08	6.82	1012.8		-8.08	6.20	1004.3		-8.08	5.61	994.1		-8.08	5.08	982.7		-8.08	5.08	982.7	
JUN 1 JUL 12	-7.92	7.30	990.9		-7.92	6.67	985.6		-7.92	6.05	978.1		-7.92	5.48	968.9		-7.92	4.96	958.6		-7.92	4.96	958.6	
MAY 18 JUL 27	-7.65	7.04	943.2		-7.65	6.42	939.0		-7.65	5.82	932.8		-7.65	5.26	925.4		-7.65	4.76	916.9		-7.65	4.76	916.9	
MAY 3 AUG 10	-7.29	6.69	875.3		-7.29	6.08	872.4		-7.29	5.50	868.2		-7.29	4.97	863.0		-7.29	4.49	856.9		-7.29	4.49	856.9	
APR 19 AUG 25	-6.89	6.29	790.3		-6.89	5.69	788.9		-6.89	5.13	786.9		-6.89	4.62	784.2		-6.89	4.17	780.7		-6.89	4.17	780.7	
APR 4 SEP 9	-6.45	5.85	693.7		-6.45	5.28	693.9		-6.45	4.74	694.1		-6.45	4.26	693.9		-6.45	3.83	693.1		-6.45	3.83	693.1	
MAR 21 SEP 23	-6.00	5.41	590.1		-6.00	4.85	591.7		-6.00	4.33	593.9		-6.00	3.87	596.0		-6.00	3.47	597.6		-6.00	3.47	597.6	
MAR 7 OCT 8	-5.55	4.97	487.4		-5.55	4.42	490.2		-5.55	3.92	494.0		-5.55	3.49	497.9		-5.55	3.12	501.6		-5.55	3.12	501.6	
FEB 20 OCT 22	-5.11	4.53	392.7		-5.11	4.00	396.4		-5.11	3.53	401.3		-5.11	3.12	406.6		-5.11	2.78	411.6		-5.11	2.78	411.6	
FEB 7 NOV 5	-4.71	4.13	311.4		-4.71	3.61	315.6		-4.71	3.16	321.2		-4.71	2.78	327.3		-4.71	2.46	333.2		-4.71	2.46	333.2	
JAN 23 NOV 19	-4.35	3.78	248.6		-4.35	3.28	253.1		-4.35	2.85	259.1		-4.35	2.49	265.5		-4.35	2.19	271.7		-4.35	2.19	271.7	
JAN 10 DEC 3	-4.08	3.52	206.3		-4.08	3.03	210.9		-4.08	2.61	216.9		-4.08	2.27	223.4		-4.08	1.99	229.7		-4.08	1.99	229.7	
DEC 22	-3.92	3.36	182.5		-3.92	2.87	187.0		-3.92	2.46	193.0		-3.92	2.13	199.5		-3.92	1.87	205.7		-3.92	1.87	205.7	
	YEAR		R.I.		YEAR		R.I.		YEAR		R.I.		YEAR		R.I.		YEAR		R.I.		YEAR		R.I.	
	219.654		•4179		219.807		•4182		219.951		•4185		219.965		•4185		219.763		•4181					

	60 PCT				70 PCT				SLOPE				80 PCT				90 PCT				100 PCT			
	THETA		ALPHA		THETA		ALPHA		THETA		ALPHA		THETA		ALPHA		THETA		ALPHA		THETA		ALPHA	
	SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY	SR	SS	LY	LY
JUN 22	-8.08	4.62	970.6		-8.08	4.20	958.1		-8.08	3.85	945.4		-8.08	3.54	932.8		-8.08	3.27	920.4		-8.08	3.27	920.4	
JUN 1 JUL 12	-7.92	4.50	947.6		-7.92	4.10	936.1		-7.92	3.75	924.3		-7.92	3.45	912.7		-7.92	3.19	901.1		-7.92	3.19	901.1	
MAY 18 JUL 27	-7.65	4.32	907.6		-7.65	3.93	897.8		-7.65	3.60	887.7		-7.65	3.31	877.5		-7.65	3.05	867.2		-7.65	3.05	867.2	
MAY 3 AUG 10	-7.29	4.07	850.0		-7.29	3.70	842.4		-7.29	3.39	834.4		-7.29	3.11	826.2		-7.29	2.87	817.8		-7.29	2.87	817.8	
APR 19 AUG 25	-6.89	3.78	776.5		-6.89	3.43	771.5		-6.89	3.14	765.9		-6.89	2.88	759.9		-6.89	2.66	753.6		-6.89	2.66	753.6	
APR 4 SEP 9	-6.45	3.46	691.5		-6.45	3.14	689.1		-6.45	2.87	686.0		-6.45	2.63	682.3		-6.45	2.43	678.1		-6.45	2.43	678.1	
MAR 21 SEP 23	-6.00	3.13	598.5		-6.00	2.84	598.5		-6.00	2.58	597.6		-6.00	2.37	596.0		-6.00	2.18	593.9		-6.00	2.18	593.9	
MAR 7 OCT 8	-5.55	2.80	504.4		-5.55	2.53	506.4		-5.55	2.30	507.4		-5.55	2.11	507.6		-5.55	1.94	507.2		-5.55	1.94	507.2	
FEB 20 OCT 22	-5.11	2.49	415.9		-5.11	2.24	419.3		-5.11	2.03	421.7		-5.11	1.86	423.3		-5.11	1.71	424.1		-5.11	1.71	424.1	
FEB 7 NOV 5	-4.71	2.19	338.3		-4.71	1.97	342.6		-4.71	1.78	345.9		-4.71	1.63	348.4		-4.71	1.49	350.1		-4.71	1.49	350.1	
JAN 23 NOV 19	-4.35	1.94	277.2		-4.35	1.74	281.9		-4.35	1.57	285.7		-4.35	1.43	288.6		-4.35	1.31	290.9		-4.35	1.31	290.9	
JAN 10 DEC 3	-4.08	1.76	235.3		-4.08	1.57	240.1		-4.08	1.42	244.0		-4.08	1.29	247.2		-4.08	1.18	249.7		-4.08	1.18	249.7	
DEC 22	-3.92	1.65	211.3		-3.92	1.47	216.1		-3.92	1.32	220.1		-3.92	1.20	223.3		-3.92	1.10	225.9		-3.92	1.10	225.9	
	YEAR		R.I.		YEAR		R.I.		YEAR		R.I.		YEAR		R.I.		YEAR		R.I.		YEAR		R.I.	
	215.293		•4172		218.552		•4158		217.571		•4139		216.396		•4117		215.068		•4092					

NOTE - FOR ASPECTS WITH WEST COMPONENTS, THE TIME AND SIGN OF SR AND SS ARE REVERSED.

Frank, Ernest C., and Lee, Richard
1966. Potential solar beam irradiation on slopes. U. S. Forest
Serv. Res. Paper RM-18, 116 pp., illus. Rocky Mountain
Forest and Range Experiment Station, Fort Collins, Colorado.

True solar time of sunrise and sunset and daily integrated potential insolation are presented in a series of tables for surfaces from latitudes 30° to 50° north, by 2° increments; at aspects from 0 to 360°, by 22.5° increments; on slopes from 0 to 100 percent, by 10-percent increments; and for 13 solar declinations or 24 dates during the year. Total potential insolation for a year and a radiation index based on annual values are given for each latitude, aspect, and slope combination. For inclined surfaces, latitude and change in longitude necessary to locate "equivalent" horizontal surface are tabulated. Introductory notes present the mathematical equations upon which the tabulated values are based and describe the determination of local sunrise-sunset times and the use of the tables for latitudes 30° to 50° south.

Frank, Ernest C., and Lee, Richard
1966. Potential solar beam irradiation on slopes. U. S. Forest
Serv. Res. Paper RM-18, 116 pp., illus. Rocky Mountain
Forest and Range Experiment Station, Fort Collins, Colorado.

True solar time of sunrise and sunset and daily integrated potential insolation are presented in a series of tables for surfaces from latitudes 30° to 50° north, by 2° increments; at aspects from 0 to 360°, by 22.5° increments; on slopes from 0 to 100 percent, by 10-percent increments; and for 13 solar declinations or 24 dates during the year. Total potential insolation for a year and a radiation index based on annual values are given for each latitude, aspect, and slope combination. For inclined surfaces, latitude and change in longitude necessary to locate "equivalent" horizontal surface are tabulated. Introductory notes present the mathematical equations upon which the tabulated values are based and describe the determination of local sunrise-sunset times and the use of the tables for latitudes 30° to 50° south.

Frank, Ernest C., and Lee, Richard
1966. Potential solar beam irradiation on slopes. U. S. Forest
Serv. Res. Paper RM-18, 116 pp., illus. Rocky Mountain
Forest and Range Experiment Station, Fort Collins, Colorado.

True solar time of sunrise and sunset and daily integrated potential insolation are presented in a series of tables for surfaces from latitudes 30° to 50° north, by 2° increments; at aspects from 0 to 360°, by 22.5° increments; on slopes from 0 to 100 percent, by 10-percent increments; and for 13 solar declinations or 24 dates during the year. Total potential insolation for a year and a radiation index based on annual values are given for each latitude, aspect, and slope combination. For inclined surfaces, latitude and change in longitude necessary to locate "equivalent" horizontal surface are tabulated. Introductory notes present the mathematical equations upon which the tabulated values are based and describe the determination of local sunrise-sunset times and the use of the tables for latitudes 30° to 50° south.

Frank, Ernest C., and Lee, Richard
1966. Potential solar beam irradiation on slopes. U. S. Forest
Serv. Res. Paper RM-18, 116 pp., illus. Rocky Mountain
Forest and Range Experiment Station, Fort Collins, Colorado.

True solar time of sunrise and sunset and daily integrated potential insolation are presented in a series of tables for surfaces from latitudes 30° to 50° north, by 2° increments; at aspects from 0 to 360°, by 22.5° increments; on slopes from 0 to 100 percent, by 10-percent increments; and for 13 solar declinations or 24 dates during the year. Total potential insolation for a year and a radiation index based on annual values are given for each latitude, aspect, and slope combination. For inclined surfaces, latitude and change in longitude necessary to locate "equivalent" horizontal surface are tabulated. Introductory notes present the mathematical equations upon which the tabulated values are based and describe the determination of local sunrise-sunset times and the use of the tables for latitudes 30° to 50° south.

NATIONAL AGRICULTURAL LIBRARY

1022430582

NATIONAL AGRICULTURAL LIBRARY

1022430582