12
4-3-92 JSD

UCRL-ID-105890

Modeling Earthquake Ground Motion with an Earthquake Simulation Program (EMPSYN) that Utilizes Empirical Green's Functions

Lawrence Hutchings

1992

This is an informal report intended primarily for internal or limited external distribution. The opinions and conclusions stated are those of the author and may or may not be those of the Laboratory.

Work performed under the auspices of the U.S. Department of Energy by the Lawrence Livermore National Laboratory under Contract W-7405-Eng-48.

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

DISCLAIMER

This document was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor the University of California nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately own rights. Reference herein to any specific commercial products, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or the University of California. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or the University of California, and shall not be used for advertising or product endorsement purposes.

This report has been reproduced
directly from the best available copy.

Available to DOE and DOE contractors from the
Office of Scientific and Technical Information
P.O. Box 62, Oak Ridge, TN 37831
Prices available from (615) 576-8401, FTS 626-8401

Available to the public from the
National Technical Information Service
U.S. Department of Commerce
5285 Port Royal Rd.,
Springfield, VA 22161

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

**Modeling Earthquake Ground Motion with an
Earthquake Simulation Program (EMPSYN) that Utilizes
Empirical Green's Functions**

Lawrence Hutchings
Lawrence Livermore National Laboratory
Earth Sciences Department
P.O. Box 808
Livermore, California 94550

UCRL-ID--105890

DE92 010358

Abstract

This report outlines a method of using empirical Green's functions in an earthquake simulation program EMPSYN that provides realistic seismograms from potential earthquakes. The theory for using empirical Green's functions is developed, implementation of the theory in EMPSYN is outlined, and an example is presented where EMPSYN is used to synthesize observed records from the 1971 San Fernando earthquake.

To provide useful synthetic ground motion data from potential earthquakes, synthetic seismograms should model frequencies from 0.5 to 15.0 Hz, the full wave-train energy distribution, and absolute amplitudes. However, high-frequency arrivals are stochastically dependent upon the inhomogeneous geologic structure and irregular fault rupture. The fault rupture can be modeled, but the stochastic nature of faulting is largely an unknown factor in the earthquake process. The effect of inhomogeneous geology can readily be incorporated into synthetic seismograms by using small earthquakes to obtain empirical Green's functions.

Small earthquakes with source corner frequencies higher than the site recording limit f_{max} , or much higher than the frequency of interest, effectively have impulsive point-fault dislocation sources, and their recordings are used as empirical Green's functions. Since empirical Green's functions are actual recordings at a site, they include the effects on seismic waves from all geologic inhomogeneities and include all recordable frequencies, absolute amplitudes, and all phases. They scale only in amplitude with differences in seismic moment. They can provide nearly the exact integrand to the representation relation. Furthermore, since their source events have spatial extent, they can be summed to simulate fault rupture without loss of information, thereby potentially computing the exact representation relation for an extended source earthquake.

University of California, Lawrence Livermore National Laboratory, UCRL-ID-105890, 1988.

MASTER

Introduction

To provide useful synthetic ground motion data from potential earthquakes synthetic seismograms should model frequencies from 0.5 to 15.0 Hz, the full wave-train energy distribution, and absolute amplitudes. However, high-frequency arrivals are stochastically dependent upon the inhomogeneous geologic structure and irregular fault rupture. The fault rupture can be modeled, but the stochastic nature of faulting is largely an unknown factor in the earthquake process. The effect of inhomogeneous geology can readily be incorporated into synthetic seismograms by using small earthquakes to obtain empirical Green's functions. This report outlines a method of using empirical Green's functions in an earthquake simulation program EMPSYN, which provides realistic seismograms from potential earthquakes. Appendix A demonstrates the use of EMPSYN by synthesizing observed seismograms from the 1971 San Fernando earthquake. Appendix B lists the computer code.

Hutchings (1987) showed that aftershocks of the San Fernando earthquake recorded in the near-source region with moment below about $1.5 \cdot 10^{21}$ dyne-cm ($M_L \cong 2.5$) effectively have impulsive point fault dislocation sources. Seismograms of these aftershocks include the full frequency range of effects from geologic structures and inhomogeneities, source-station geometry, and site-response that can be obtained at a recording site from an elemental source. It is not possible to decompose recordings of small earthquakes into their Green's function tensor components, so the empirical Green's functions used here refer to the sum of the tensor components as recorded on three component seismograms. Thus, exact modeling for different focal mechanism solutions of these earthquakes is not possible, so the source events used for empirical Green's functions should have nearly the same focal mechanism as the elemental source. Hutchings (1987) found that when focal mechanism solutions differ by less than 15° in either strike, dip, or slip vector, very similar waveforms are preserved for frequencies up to 10 Hz and spatial separations up to 3.0 km, depending on the recording site's geology. However, the dominating effect of recording site geology ensures

that a consistent frequency content, amplification, and energy distribution is recorded from elemental sources regardless of their focal mechanism or hypocenter. Empirical Green's functions can then be normalized and used as site-response functions.

Theory

No earthquake has an actual step-impulsive point source, but if the source is small enough, the rupture duration is too short to affect seismograms. The only effect on seismograms, then, is linear amplification from the scalar seismic moment and the radiation pattern of the focal mechanism solution. From the representation relation (Aki and Richards, 1980), this is expressed as (Hutchings, 1987)

$$(1) \quad e_n(X, t) = M_{pq} H(t') * G_{np,q}(X', t'; X, t),$$

where M_{pq} is the scalar moment tensor, $H(t')$ is the step source time function, and G_{np} is the elastodynamic Green's function. Primed terms refer to descriptions of the source.

Unfortunately, a further decomposition of the seismograms to obtain individual Green's function tensor components is not possible. If the Cartesian coordinates are rotated so that $X = (x_1, x_2, x_3)$ is in the radial, tangential, and vertical direction, several spatial derivatives of the Green's function tensor components are equal to zero (Johnson, 1974). Then, the time derivative of Equation 1, for a double-couple source, can be expressed as:

(2)

$$\dot{e}_1(X, t) = M_o \left\{ B_1(G_{11,1} - G_{12,2}) - B_2(G_{11,3} + G_{13,1}) + B_3(.5G_{11,1} + .5G_{12,2} - G_{13,3}) \right\}$$

$$\dot{e}_2(X, t) = M_o \left\{ B_4(G_{21,2} + G_{22,1}) - B_5(G_{23,2} + G_{22,3}) \right\}$$

$$\dot{e}_3(X, t) = M_o \left\{ B_1(G_{31,1} - G_{32,2}) - B_2(G_{31,3} + G_{33,1}) + B_3(.5G_{31,1} + .5G_{32,2} - G_{33,3}) \right\}$$

for the constants B_1 through B_5 ,

$$B_1 = -\sin\delta\cos\lambda\sin2\phi + .5\sin2\delta\sin\lambda\cos2\phi$$

$$B_2 = \cos2\delta\sin\lambda\sin\phi + \cos\delta\cos\lambda\cos\phi$$

(3)

$$B_3 = -\sin2\delta\sin\lambda$$

$$B_4 = \sin\delta\cos\lambda\cos2\phi + .5\sin2\delta\sin\lambda\sin2\phi$$

$$B_5 = -\cos2\delta\sin\lambda\cos\phi + \cos\delta\cos\lambda\sin\phi,$$

are obtained from the fault geometry and slip vector description for λ, δ , and ϕ of Aki and Richards (1980, sec. 4.5). The constant B_1 through B_5 along with the three recorded components of the recorded seismograms are insufficient to solve the set of linear equations for the fourteen Green's functions tensor components. Several events at the same location, with different focal mechanism solutions, would have to be recorded to determine all the Green's functions components for a particular source-station pair. For purposes of obtaining Green's functions from actual recordings, only the summed effect of Green's functions tensor components can be obtained. This means that displacement from different focal mechanism solutions cannot be explicitly obtained.

When empirical Green's functions are not obtained for all possible elemental source locations, an approximation must be made. From Hutchings (1987), the empirical Green's function for the elemental source can be approximated as

$$(4) \quad e_n(X, \omega)_i \cong \frac{\bar{X}_o B_i}{\bar{X}_i B_o} \exp\left(\frac{\omega(\bar{X}_o - \bar{X}_i)}{2cQ}\right) e_n(X_o; X, \omega)$$

where $\bar{X}$ is hypocentral distance, and B is the radiation coefficient; subscripts i and o refer values for the elemental source and the source event, respectively. ω is angular frequency, c is seismic velocity of the structure, and Q is the seismic quality quotient. For near-source seismograms, secondary arrivals result from transmission from many incident orientations, and the focal mechanism correction factor is inappropriate for the entire wavetrain. Hutchings (1987) suggests that the correction factor be restricted to $-0.25 \leq B_o \leq 0.25$ as a reasonable approximation of the effect of the focal mechanism on the entire empirical Green's function. Hutchings showed that empirical Green's functions corrected in this way are consistent in amplitude, frequency content, and energy distribution even for source events located up to 20.0 km apart. Empirical Green's functions, then, represent site response functions.

Empirical Green's functions can be combined with synthetic slip functions, and summed to synthesize an extended source earthquake. Because their source events have spatial extent, they can be summed to simulate fault rupture without loss of information, thereby potentially exactly computing the representation relation.

This is expressed as

$$(5) \quad u_n(X, t) = \sum_i \frac{\mu A_i S(t'_i)_i}{M_{oi}} * e_n(X, t'_i - \frac{\bar{X}_i}{v})_i.$$

Here, $S(t'_i)_i$ is the desired slip function analytically deconvolved with the step function, and t'_i is relative to origin time of source event corrected for element location. $e_n(X, t'_i)_i$ is the recorded displacement from the small earthquake used as an elemental source for the i^{th} element. $\bar{\chi}_i$ is the radial distance from the hypocenter to the elemental source, and v is rupture velocity. M_{oi} is the static seismic moment of the empirical Green's function. A_i is an elemental area such that $\sum A_i$ equals total area, and μ is rigidity. Since empirical Green's functions scale linearly only in amplitude with differences in seismic moment, they can provide the contribution from any appropriate discretized elemental source area.

Computation of Synthetic Seismograms

Program EMPSYN is a seismogram synthesis program that utilizes empirical Green's functions. A discretized algorithm of the representation relation using empirical Green's functions is programmed in FORTRAN 77 (Appendix B). Appendix A provides an example of using Empsyn to synthesize the observed ground motion from the 1971 San Fernando earthquake.

In EMPSYN equation 5 is computed in the time domain by (Hutchings, 1987):

$$(6) \quad u_n(X, t) = \sum_i \sum_j \frac{\mu A_i \bar{s}_j}{M_{oi}} e_n(X, t'_i - \frac{\chi_i}{v} - j \Delta t')_i,$$

where t'_i is relative to the origin time of the empirical Green's function corrected for location of the elemental source. The summation j follows the desired slip function at an element, and the summation over i follows the rupture front. In the frequency domain Equation 5 is computed by:

$$(7) \quad u_n(X, \omega) = \sum_i \frac{\mu A_i S(\omega)_i \bar{\chi}_o B_i}{M_{oi} \bar{\chi}_i B_o} \exp\left(\frac{\omega(\bar{\chi}_o - \bar{\chi}_i)}{2cQ}\right) \exp\left(\frac{-\chi_i}{v}\right) e_n(X_o; X, \omega).$$

The second exponential is phase shift due to time delays for the rupture front. It is apparent that Equation 7 is equal to Equation 5 if the elemental source and source event have the same location. If no source event has a location near elemental sources, the computation is equivalent to that with only site response functions. Equation 7 then becomes a synthetic solution for a homogeneous whole space convolved with a site response function.

Computationally EMPSYN first sets up an array of source elements for any specified fault rupture surface shape. Each element is assigned the empirical Green's function from the closest source event. Appropriate time shifts are applied to the empirical Green's function to account for the difference in distances between the actual event and the elemental source location. This correction is already incorporated in the t_{oi} in Equation 6 and as a phase shift for $e_n(X, \omega)$ in Equation 7. An additional time delay is applied for the rupture propagation as $\frac{\Delta x_i}{v}$ in Equation 6 and an additional phase shift in Equation 7. An additional time delay or phase shift is added to the S-wave portion of empirical Green's functions to account for adjustments to S-P time. Radiation correction factors are applied to the empirical Green's that account for the source-station geometry from each elemental source location. P-wave radiation correction factor is applied to the portion of seismograms up to about 0.5 s before the S-arrival. SV-wave correction factors are applied to the remaining portion of the vertical and radial components, and the SH-wave correction factor is applied to the remaining portion of the tangential component. An option not to include a radiation correction factors is available. Computations with the time domain are only for exact synthesis and do not include attenuation and geometrical spreading corrections, but do include mechanism correction factors.

The discretized source area is limited by the source dimension for small earthquakes that provide empirical Green's functions. Using the Brune (1970) source model, the largest source area for events providing empirical Green's functions for a moment of 1.0×10^{21} dyne-cm (used in Hutchings, 1987) is about 0.1 km^2 . However, care must be taken that the radially symmetric source elements have center points with distances less than about

0.15 km to ensure frequency integrity below 15 Hz. This corresponds to elemental source areas of about 0.05 km².

The Kostrov slip model (Kostrov, 1964; Buridge and Willis, 1969), a Kostrov-ramp, and the two-dimensional Haskel model (Dahlen, 1974; Savage, 1972) with both step and ramp displacement are used by EMPSYN. Surface rupture is modeled by terminating synthesis at the free surface, with slip at the surface being that originally specified for the surface element. For example, a circular fault rupture with the Kostrov slip function that encounters the free surface will have displacement at the surface element as if the fault extended to the originally specified rupture area.

The Kostrov slip model is an exact solution for a circular crack propagation in a homogeneous medium

$$(8) \quad S(X', t') = \frac{c\sigma\beta}{\mu} \left(t'^2 - \frac{\chi_i^2}{V_r^2} \right)^{\frac{1}{2}} H\left(t' - \frac{\chi_i}{V_r}\right),$$

where χ_i is position vector from hypocenter, t' is relative to origin time of the earthquake, V_r is rupture velocity, β is shear wave velocity, c is a constant equal to 0.81 for V_r equal to 0.9β , μ is rigidity assumed equal to $3.0 \cdot 10^{11}$, and σ is stress drop.

In EMPSYN the Kostrov slip function is time shifted to element time:

$$t'_i = t' - \frac{\chi_i}{V_r},$$

Then the Kostrov slip function for time relative to rupture at the element is

$$(9) \quad S(t'_i)_i = \frac{0.81\sigma\beta}{\mu} \left(t_i'^2 + \frac{2\bar{\chi}_i t'_i}{V_r} \right)^{\frac{1}{2}} H(t'),$$

where t'_i goes from 0 to the rise time τ_i . β is shear wave velocity and is calculated from the velocity model.

EMPSYN uses Equation 9 directly for time-domain computations (Equation 6), where $H(t')$ is provided by the slip function of the empirical Green's function. For frequency domain computations, EMPSYN uses a ramp slip function deconvolved with a step function (described below), with displacement at each element designated by the Kostrov slip function. Both the Kostrov and Kostrov-ramp models have rise time at an element determined by the time from the arrival time of the rupture front until the rupture front reaches the closest fault edge and a "healing phase" travels back to the element at the P- or S-wave velocity.

The healing velocity is calculated from the rupture velocity: $V_h = V_r \times 1.76/0.9$. The rise time is then

$$(10) \quad \tau_i = \frac{X'_{oi}}{V_r} + \frac{(X'_{oi} - \chi_i)}{V_h},$$

where X_{oi} is the closest point on the rupture perimeter to the element. Then,

$$(11) \quad \tau_i = (\chi_i - X'_i) \left(\frac{1}{V_R} + \frac{1}{\alpha} \right).$$

The Haskell models have the same fault displacement for all elements, and only the rise time and rupture velocity are varied.

The ramp slip function, for both the Kostrov-ramp and Haskell models, is applied only in the spectral domain. It is the sum of a positive and negative infinite ramp displaced by the rise time. The slope ASLP is equal to the desired amplitude divided by the rise-time.

The infinite ramp can be expressed as the integral of the step function. In the frequency domain

$$(12) \quad \begin{aligned} R(\omega) &= \frac{-i\pi ASLP\delta(\omega)}{\omega}, \quad \omega = 0 \\ &= \frac{-ASLP}{\omega^2}, \quad \omega \neq 0. \end{aligned}$$

The negative ramp then is

$$(13) \quad R'(\omega) = -R(\omega)e^{-i\omega\tau_o},$$

where τ_o is the rise time. The slip function used in EMPSYN is the ramp deconvolved by the unit step function

$$(14) \quad \begin{aligned} S(\omega) &= ASLP\left(\frac{-i}{\omega} + \frac{ie^{-i\omega\tau_o}}{\omega}\right), \quad \omega \neq 0 \\ &= 0, \quad \omega = 0. \end{aligned}$$

For the Haskel slip models ASLP is the same for each element; for the Kostrov-ramp it varies as described above.

Program EMPSYN Documentation

Input Parameters

Two input files and empirical Green's functions data files are necessary:

FAULT- provides an array of distances from the hypocenter to the edge of the fault rupture area at equal angles. Number of values on first line (IP) and distances in free

format stating on line 2 (FL(I)). If the number of distances is set at 1, then the distance is the radius of a circular fault, and 300 radial distances are created for computations. If IP is set to 3 then an elliptical fault area is used and values on line 2 are the eccentricity, length of major axis and the rake of the major axis from the hypocenter. An array of 300 fault distances from the hypocenter to the ellipse edge is calculated (updip first, clockwise for others) for use in the program. If IP is 4, then a rectangular fault with distances from the hypocenter to the four sides specified by the distances is setup with 300 radial distances.

SOURCES- a list of source events, their location, moment, focal mechanism solution, and a time to split P- and S-wave portion of their seismograms. Values are listed in free format on a single line for each event. Variables in order are: EAA, EBB, SPP, BLAT, BLON, BH, BM, BSTR, BDP, BSV for days, hours-mins, split time, latitude, longitude, depth, moment w/o factor 10^{20} , strike, dip, and slip vector respectively. Focal mechanism solutions are described as convention of Aki and Richard (1980).

EMPIRICAL GREEN'S FUNCTIONS Time series used for empirical Green's functions stored in either SAC (LLNL, Seismic Analysis Code) or formatted ASCII files. The three component files have been rotated into radial, tangential (90° clockwise from radial), and vertical (up for compression) components relative to the source event. The first point of the data file has time relative to origin time of the source event.

Other Input values (input from terminal)

STK,DP,SV: strike, dip, slip vector of event to be modeled.

MO: moment of modeled event in dyne-cm. This is used only for the Haskell rupture models.

ELA: area of elemental sources in km^2 .

STD: stress drop in Bars. This is only used for Kostrov slip functions.

VR: rupture velocity in km/s.

VD: P velocity at 10.0 km for determining velocity gradient VPP. $VPP = (VD - 3.0)/10.0$

VP: velocity for travel time correction due to difference in location of element and source event. VP set for each source event: $VP = 3.0 + BH1 * VPP$

ALAT, ALON, AH: Hypocenter location of event to be modeled in deg and decmil degrees.

SB: two-digit identification of station for synthesized seismogram corresponding to the station where empirical Green's functions recorded,

SLAT, SLON: location of station SB.

RTMHSK: Rise time for Haskell-ramp slip function.

Source elements

Source elements are in concentric rings from hypocenter, divided into equal area segments. The thickness and arc length of each element is determined by finding an integer multiple number of elements of specified source area with arc length closest to ring width. Each element is checked to determine whether the center of the element is outside the rupture perimeter. The elements are assigned a sequential number (KK). Rings are added until no elements are assigned to the last ring.

Figure 1 shows output for a synthesis using the Kostrov-ramp slip function. Following the printout of input parameters is the description of elements. The number of elements for each ring is listed for the specified fault parameters. Individual element parameters are listed for ring 3 (elements 9 through 22). ANG4 is the angle in the fault plane, from 0.0°

up dip from the hypocenter to the center of the element. ANG5 is the angle to the element in the horizontal plane. AZMM is the azimuth from north for the element, followed by the event identification. DIS is hypocentral distance from the source event to the element. DTIMP is the travel time delay for the empirical Green's function due to the difference between the element to the station and the source event location and the element. RDPP is the total displacement for the element. RISTM is the rise time of the element. Here they are equal since it is circular rupture.

Rotation and Correction for Focal Mechanism Solution

Figures 2 and 3 show the plot and printout of a unit impulse seismogram that has been rotated from (UP,320.4,050.4) for Z,R,T to (UP,000,090), and whose focal mechanism solution has been corrected from 270,045,+90 for (STK,DP,SV) to 180,090,+00. The P,SV,SH correction factors are

$$FFPP = 0.4; \quad FFSV = -0.4; \quad FFSH = -0.4$$

for the focal mechanism solution of the source event, and

$$ELPP = -0.511; \quad ELSV = -0.491; \quad ELSH = 0.4$$

for the element. Then the P- and S-wave amplitudes on the vertical trace are

$$P_{amp} = 1.0(ELPP/FFPP) = -1.28; \quad S_{amp} = 1.0(ELSV/FFSV) = 1.23$$

The P and S-wave amplitude on the 000° component are

$$P_{amp} = ELPP/FFPP(\cos 320 + \cos 50) = -1.80$$

$$S_{amp} = ELSV/FFSV \cos 320 + ELSH/FFSH \cos 50 = 0.30.$$

The P and S-wave amplitudes on the 090° component are

$$P_{amp} = ELPP/FFPP(\sin 320 + \sin 50) = -0.17$$

$$S_{amp} = ELSV/FFSV \sin 320 + ELSH/FFSH \sin 50 = -1.55.$$

If the element and the source event had different locations, initially there would be a rotation of the source event to the radial and tangential components of the element before these corrections were applied.

Test Runs

To test the slip functions consider a single element circular fault model with radius 0.1 km, and a unit Dirac delta function “empirical Green’s function.” The P and S pulses have width 0.01 s, equal to the digitizing rate, and model a far-field displacement seismogram.

Figures 4 through 7 show the plot and printout of synthesized seismograms for the Haskell-step (HSKS), Haskell-ramp (HSKR) with rise time of .001, Kostrov-ramp (KSR) with rise time of .001, and the Kostrov (KOS) with rise time of .001 second. Here, the source event and synthesized event have the same hypocenter, focal mechanism solution, and moment; and, the empirical Green’s function and the synthesized seismogram have the same orientation. That all seismograms are exactly equal shows that correct computations for several factors: geometrical spreading and Q due to differences in location of the source event and element for the spectral domain computation; rotation due to differences in orientation of station to source event and station to element; and corrections for differences in radiation pattern due to focal mechanism solutions, and; correction factors for adjusting element contribution due to differences in desired moment and that obtained by incremental stacking (FAC1, FAC2) for time-domain computations. In addition, the fact that the time difference between the P and S pulse is identical shows that the splitting of the seismograms for spectral domain processing, and reconnection for the synthesis are done correctly.

Figures 8 through 10 show synthesized seismograms for a point source (a single element is specified, but the center point of the element is used for rupture propagation calculations) with rise time 1.0 s for the same orientations and moment as the source event, using the Haskell-ramp, Kostrov-ramp, and Kostrov slip functions. The function appear as boxcars because the slip functions are deconvolved with the step function (Equation 14), which results in a differentiation of the slip function. The Kostrov time domain slip function is a ramp slip function in this case because χ_i in Equation 9 is zero, which results in a

ramp function. Since the source event and synthesized seismogram have the same moment, the integral of their pulses should be the same: 0.01 cm-sec. This remains constant since the source event has amplitude 1.0 and width .01, and the synthesized seismogram has amplitude 0.01 and width 1.0 s. I have no explanation for the negative DC offset of the spectral computations of Haskell-Ramp and Kostrov-ramp slip functions. These tests confirm the basic workings of the slip function computations.

Figures 11 through 14 show synthesized seismograms for a circular fault of radius 1.0 km and moment 1.0×10^{23} dyne-cm, and synthesis using the Haskell-step, Haskell-ramp, Kostrov-step, and Kostrov slip functions. The elemental source size is 0.01 km^2 and the focal mechanism solution is the same as the source event. The shapes and durations of the synthesized seismograms are different, but the areas under the pulses are equal. The finite dimensions of the fault result in a variation in rotation and radiation correction factors and a diminished amplitude of S-waves relative to P-waves.

Synthesized seismograms for an extended source with an irregular fault shape and asymmetric rupture greatly affect seismograms. Here, a synthesis is done using computed "empirical Green's functions" from a half-space Green's function computation (Johnson, 1975). P- and S-wave velocities are 4.5 and 2.55 km/s, and density is 2.2 gm/cm^3 . Table 1 shows the location parameters for the synthesized "empirical Green's functions." They are computed for fault orientation STK,DP,SV (090,090,00) and a moment of 1.0×10^{20} dyne-cm. Table 2 shows the location parameters for the stations. Figures 15, 16, and 17 show the vertical, radial (320.4°), and tangential (50.4°) components for the synthesized "empirical Green's functions" at station 01.

Table 1

Source Events Parameters

Station I.D.	Latitude ($^{\circ}$ W)	Longitude ($^{\circ}$ N)	Depth (km)
000 0001	34.5000	118.5437	1.0
000 0002	34.5000	118.5220	1.0
000 0003	34.5000	118.5000	1.0
000 0004	34.5000	118.4780	1.0
000 0005	34.5000	118.4563	1.0
000 0006	34.5000	118.5437	3.0
000 0007	34.5000	118.5220	3.0
000 0008	34.5000	118.5000	3.0
000 0009	34.5000	118.4780	3.0
000 0010	34.5000	118.4563	3.0
000 0011	34.5000	118.5437	5.0
000 0012	34.5000	118.5220	5.0
000 0013	34.5000	118.5000	5.0
000 0014	34.5000	118.4780	5.0
000 0015	34.5000	118.4563	5.0

Table 2

Stations for Seismogram Synthesis

Station I.D.	Latitude ($^{\circ}$ N)	Longitude ($^{\circ}$ W)
01	34.5451 $^{\circ}$	118.5000 $^{\circ}$
02	34.5000 $^{\circ}$	118.3911 $^{\circ}$
03	34.4549 $^{\circ}$	118.5000 $^{\circ}$
04	34.5000 $^{\circ}$	118.6089 $^{\circ}$

The extended source being modeled has dimensions 6x10 km, Moment: 1.0×10^{25} dyne/cm, Strike: $N090^{\circ}E$, Dip: $90^{\circ}N$, and Slip vector: 0° . Figure 18 shows the synthesized seismogram for hypocenter located at the center of the fault: $34.5000^{\circ}N$, $118.5000^{\circ}W$, depth 3.0 km. The discrete pulses in the synthesis is a result of the elemental size being large enough that the delay time between elements is greater than the source event pulse widths. Figure 19 shows extended output for all the 1,207 elements used in the computation: for each element, the angle from the hypocenter in fault plane (ANG4), angle and azimuth in

the horizontal plane (ANG5, AZMM), identification of source event assigned (here they print out as 0 1 through 0 15), the distance from the element to the source event (DIS), the delay time added to the elemental source due to the difference in location (DTIMP), and the location of the element.

For the first five rings (ring identification is listed after the element information), the same source event is used for all the elements. The distance from source event to the element is the same as the radius of the ring of elements, since the source event has the same location as the hypocenter of fault rupture. Starting with ring 6, different source events are appropriate for some elements and DIS varies from the ring radius.

SYNTHESIS OF EVENT 0000 AT STATION 0

HYPOCENTER LOCATION
 34.4000 118.4000 10.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 270.0 45.0 90.0 0.100000E+24 0.0100
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

STRESS DROP 100.0

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
 1.00

SOURCE EVENTS LOCATION MOMENT
 580 1 34.4000 118.4000 10.00 0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

VH = 4.8, RUPTURE HEALING AT P VELOCITY
 RING: 2, 7 ELEMENTS RADIUS= 0.11

Element Description

ELEM	ANG4	ANG5	AZMM	EVENT	DIS	DTIMP	RDPP	RISTM
9	25.7	34.3	214.3	580	0.21	-0.02	42.	0.48
10	51.4	60.6	240.6	580	0.21	-0.02	42.	0.48
11	77.1	80.8	260.8	580	0.21	-0.02	42.	0.48
12	102.9	99.2	279.2	580	0.21	-0.01	42.	0.48
13	128.6	119.4	299.4	580	0.21	-0.01	42.	0.48
14	154.3	145.7	325.7	580	0.21	0.00	42.	0.48
15	180.0	180.0	360.0	580	0.21	0.01	42.	0.48
16	205.7	214.3	34.3	580	0.21	0.02	42.	0.48
17	231.4	240.6	60.6	580	0.21	0.02	42.	0.48
18	257.1	260.8	80.8	580	0.21	0.02	42.	0.48
19	282.9	279.2	99.2	580	0.21	0.01	42.	0.48
20	308.6	299.4	119.4	580	0.21	0.01	42.	0.48
21	334.3	325.7	145.7	580	0.21	-0.00	42.	0.48
22	360.0	360.0	180.0	580	0.21	-0.01	42.	0.48

ROTATE AND CORRECT FOR FOCAL MECHANISM

SYNTHESIS OF EVENT 0001 AT STATION 0

P.

SYNTHESIS OF EVENT 0001 AT STATION 0

figure 3

HYPOCENTER LOCATION
 34.4000 118.4000 10.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 180.0 90.0 0.0 0.100000E+22 0.0500
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 0.0, 90.0 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
 0.10

SOURCE EVENTS	LOCATION	MOMENT
580 1	34.4000 118.4000 10.00	0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

TOTAL NUMBER OF ELEMENTAL AREAS IS 1 MAXIMUM RADIUS 0.13 KM

TWO DIMENSIONAL HASKEL RUPTURE MODEL WITH STEP SLIP FUNCTION

EACH ELEMENT HAS THE SAME DISPLACEMENT: 6.7 CM
 TOTAL FAULTING DURATION 0.04 SECONDS
 SLIP FUNCTION INCREMENTED BY DIGITIZING RATE
 SOURCE EVENTS AND SYNTHESIZED OUTPUT LIMITED TO 1000 POINTS

** SOURCE EVENT (058 0001) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 50.4 45.0 90.0 46.2 25.3 14.1
 RADIATION CORRECTION FACTORS P SV SH
 0.400 -.400 -.400
 SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300
 SAMPLE RADIATION CORRECTION FACS, 10 ELEMS AT HYPOCENTER
 ELPP ELSV ELSH
 -.511 -.491 0.400
 MOMENT OF ACTUAL EVENT 0.100000E+22
 MOMENT OF MODELED EVENT 0.100000E+22

Figure 4

SYNTHESIS OF EVENT 0001 AT STATION 0

HYPOCENTER LOCATION

34.4000 118.4000 10.00

SYNTHESIZED FAULT PARAMETERS

STRIKE	DIP	SLIP VECTOR	MOMENT	ELEM AREA (KM**2)
270.0	45.0	90.0	0.100000E+22	0.0500

RUPTURE VELOCITY: 2.50

P VELOCITY: $VP = 3.0 + H \cdot 0.20$ FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES

POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -0.4 TO $+0.4$ PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
0.10

SOURCE EVENTS	LOCATION	MOMENT
58 1	34.4000 118.4000 10.00	0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

TOTAL NUMBER OF ELEMENTAL AREAS IS 1 MAXIMUM RADIUS 0.13 KM

TWO DIMENSIONAL HASKEL RUPTURE MODEL WITH STEP SLIP FUNCTION

EACH ELEMENT HAS THE SAME DISPLACEMENT: 6.7 CM

TOTAL FAULTING DURATION 0.04 SECONDS

SLIP FUNCTION INCREMENTED BY DIGITIZING RATE

SOURCE EVENTS AND SYNTHESIZED OUTPUT LIMITED TO 2000 POINTS

*** SOURCE EVENT (058 0001) ***

ULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
50.4	45.0	90.0	46.2	25.3 14.1	

RADIATION CORRECTION FACTORS	P	SV	SH
	0.400	-0.400	-0.400

SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300

SAMPLE RADIATION CORRECTION FACS, 10 ELEMS AT HYPOCENTER

ELPP	ELSV	ELSH
0.400	-0.400	-0.400

MOMENT OF ACTUAL EVENT 0.100000E+22

MOMENT OF MODELED EVENT 0.100000E+22

HASKEL RAMP SLIP FUNCTION

figure 5

SYNTHESIS OF EVENT 0002 AT STATION 0

HYPOCENTER LOCATION
 34.4000 118.4000 10.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 270.0 45.0 90.0 0.100000E+22 0.0500
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
 0.10

SOURCE EVENTS	LOCATION	MOMENT
58 1	34.4000 118.4000 10.00	0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

TOTAL NUMBER OF ELEMENTAL AREAS IS 1 MAXIMUM RADIUS 0.13 KM

SYNTHESIS IS BY CONVOLUTION OF SOURCE EVENTS WITH SLIP FUNCTION,
 DECONVOLVED WITH STEP FUNCTION. EACH SOURCE EVENT IS SPLIT BETWEEN P AND S,
 AND COMPUTATION IS DONE IN FREQUENCY DOMAIN. FFT FOR EACH SOURCE EVENT ONCE.

TWO DIMENSIONAL HASKEL RUPTURE MODEL WITH RAMP SLIP FUNCTION

EACH ELEMENT HAS SAME DISPLACEMENT: 6.7 CM
 RISE TIME = 0.00 TOTAL FAULTING DURATION 0.04
 SPECTRAL DIMENSION IS 2048 POINTS, IF TRACES ARE GREATER THAN -5 SECONDS
 YOU GET WRAP-AROUND IN MAIN SEISMOGRAM

*** SOURCE EVENT (058 0001) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 50.4 45.0 90.0 46.2 25.3 14.1
 RADIATION CORRECTION FACTORS P SV SH
 0.400 -0.400 -0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300
 SAMPLE RADIATION CORRECTION FACS, 10 ELEMS AT HYPOCENTER
 ELPP ELSV ELSH
 0.400 -0.400 -0.400

MOMENT OF ACTUAL EVENT 0.100000E+22
 MOMENT OF MODELED EVENT 0.100000E+22

MODIFIED KOSTROV SLIP FUNCTION

f: 000

SYNTHESIS OF EVENT 0003 AT STATION 0

F

Figure C

SYNTHESIS OF EVENT 0003 AT STATION 0

HYPOCENTER LOCATION
 34.4000 118.4000 10.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 270.0 45.0 90.0 0.100000E+22 0.0003
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

STRESS DROP 1592983.227

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
 0.01

SOURCE EVENTS LOCATION MOMENT
 58 1 34.4000 118.4000 10.00 0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

VH = 4.8, RUPTURE HEALING AT P VELOCITY

TOTAL NUMBER OF ELEMENTAL AREAS IS 1 MAXIMUM RADIUS 0.01 KM
 TOTAL FAULTING DURATION: 0.00

***** ELEMENTS *****

HYPOCENTER: RISTM = 0.00 DISP= 1111.11 CM

SYNTHESIS IS BY CONVOLUTION OF SOURCE EVENTS WITH SLIP FUNCTION,
 DECONVOLVED WITH STEP FUNCTION. EACH SOURCE EVENT IS SPLIT BETWEEN P AND S,
 AND COMPUTATION IS DONE IN FREQUENCY DOMAIN. FFT FOR EACH SOURCE EVENT ONCE.
 RAMP DISPLACEMENT FUNCTION - MODIFIED KOSTROV

SLIP AMPLITUDE AND RISE TIME CONSTRAINED BY SELF-SIMILAR KOSTROV SLIP,
 MULTIPLIED BY FACTOR 0.3 TO LIMIT SLIP
 ELEMENT DISPLACEMENT (LEFT TO RIGHT)
 FIRST 1 ELEMENTS
 1111.111

SPECTRAL DIMENSION IS 2048 POINTS. IF TRACES ARE GREATER THAN 15 SECONDS
 YOU GET WRAP-AROUND IN MAIN SEISMOGRAM

*** SOURCE EVENT (058 0001) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 50.4 45.0 90.0 48.2 25.3 14.1
 RADIATION CORRECTION FACTORS P SV SH
 0.400 -0.400 -0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300
 SAMPLE RADIATION CORRECTION FACTS, 10 ELEMS AT HYPOCENTER

ELPP ELSV ELSH
 0.400 -0.400 -0.400

MOMENT OF ACTUAL EVENT 0.100000E+22
 MOMENT OF MODELED EVENT 0.100000E+22

figure 7

SYNTHESIS OF EVENT 0004 AT STATION 0

HYPOCENTER LOCATION
 34.4000 118.4000 10.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 270.0 45.0 90.0 0.100000E+22 0.0025
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

STRESS DROP 18450.35471

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
 0.03

SOURCE EVENTS	LOCATION	MOMENT
58 1 34.4000 118.4000 10.00		0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

VH = 4.8, RUPTURE HEALING AT P VELOCITY

TOTAL NUMBER OF ELEMENTAL AREAS IS 1 MAXIMUM RADIUS 0.03 KM
 TOTAL FAULTING DURATION: 0.02

***** ELEMENTS *****

HYPOCENTER: RISTM = 0.01 DISP= 133.33 CM
 SYNTHESIS IS BY INCREMENTING SLIP FUNCTION AND DELAYED STACKING

..STROY SLIP MODEL WITH HEALING
 ELEMENT DISPLACEMENT (LEFT TO RIGHT)
 133.333

SLIP FUNCTION INCREMENTED BY DIGITIZING RATE
 SOURCE EVENTS AND SYNTHESIZED OUTPUT LIMITED TO 2000 POINTS

*** SOURCE EVENT (058 0001) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 50.4 45.0 90.0 46.2 25.3 14.1
 RADIATION CORRECTION FACTORS P SV SH
 0.400 -0.400 -0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300
 SAMPLE RADIATION CORRECTION FACS, 10 ELEMS AT HYPOCENTER
 ELPP ELSV ELSH
 0.400 -0.400 -0.400

MOMENT OF ACTUAL EVENT 0.100000E+22
 MOMENT OF MODELED EVENT 0.100000E+22

HASKEL RAMP SLIP FUNCTION

LJH <USER29>KKN>EMPTST>F001.LP

07/22/87.10:39:48.Wed

Figure 8

figure 8

SYNTHESIS OF EVENT 0005 AT STATION 0

HYPOCENTER LOCATION
 34.4000 118.4000 10.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 270.0 45.0 90.0 0.100000E+22 0.0500
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS
 ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH
 RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4
 PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
 0.10

SOURCE EVENTS	LOCATION	MOMENT
58 1	34.4000 118.4000 10.00	0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

TOTAL NUMBER OF ELEMENTAL AREAS IS 1 MAXIMUM RADIUS 0.13 KM

SYNTHESIS IS BY CONVOLUTION OF SOURCE EVENTS WITH SLIP FUNCTION,
 DECONVOLVED WITH STEP FUNCTION. EACH SOURCE EVENT IS SPLIT BETWEEN P AND S,
 AND COMPUTATION IS DONE IN FREQUENCY DOMAIN. FFT FOR EACH SOURCE EVENT ONCE.

TWO DIMENSIONAL HASKEL RUPTURE MODEL WITH RAMP SLIP FUNCTION

EACH ELEMENT HAS SAME DISPLACEMENT: 0.7 CM
 RISE TIME = 1.00 TOTAL FAULTING DURATION 1.04
 SPECTRAL DIMENSION IS 2048 POINTS, IF TRACES ARE GREATER THAN 15 SECONDS
 YOU GET WRAP-AROUND IN MAIN SEISMOGRAM

*** SOURCE EVENT (058 0001) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 50.4 45.0 90.0 48.2 25.3 14.1
 RADIATION CORRECTION FACTORS P SV SH
 0.400 -.400 -.400
 SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300
 SAMPLE RADIATION CORRECTION FACS, 10 ELEMS AT HYPOCENTER
 ELPP ELSV ELSH
 0.400 -.400 -.400
 MOMENT OF ACTUAL EVENT 0.100000E+22
 MOMENT OF MODELED EVENT 0.100000E+22

MODIFIED KOSTROV SLIP FUNCTION

LJH <USER29>KKN>EMPTST>F001.LP

07/25/87.10:44:08.Sat

figure 9

Figure 9

SYNTHESIS OF EVENT 0006 AT STATION 0

HYPOCENTER LOCATION
 34.4000 118.4000 10.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 270.0 45.0 90.0 0.100000E+22 380.0
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

STRESS DROP 0.00116915

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
 11.00

SOURCE EVENTS	LOCATION	MOMENT
58 1	34.4000 118.4000 10.00	0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

VH = 4.8, RUPTURE HEALING AT P VELOCITY

TOTAL NUMBER OF ELEMENTAL AREAS IS 1 MAXIMUM RADIUS 11.00 KM
 TOTAL FAULTING DURATION: 5.40

***** ELEMENTS *****

HYPOCENTER: RISTM = 1.00 DISP= 0.00 CM

SYNTHESIS IS BY CONVOLUTION OF SOURCE EVENTS WITH SLIP FUNCTION,
 DECONVOLVED WITH STEP FUNCTION. EACH SOURCE EVENT IS SPLIT BETWEEN P AND S,
 AND COMPUTATION IS DONE IN FREQUENCY DOMAIN. FFT FOR EACH SOURCE EVENT ONCE.
 RAMP DISPLACEMENT FUNCTION - MODIFIED KOSTROV

SLIP AMPLITUDE AND RISE TIME CONSTRAINED BY SELF-SIMILAR KOSTROV SLIP,
 MULTIPLIED BY FACTOR 0.3 TO LIMIT SLIP
 ELEMENT DISPLACEMENT (LEFT TO RIGHT)
 FIRST 1 ELEMENTS
 0.001

SPECTRAL DIMENSION IS 2048 POINTS, IF TRACES ARE GREATER THAN 15 SECONDS
 YOU GET WRAP-AROUND IN MAIN SEISMOGRAM

*** SOURCE EVENT (058 0001) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 50.4 45.0 90.0 46.2 25.3 14.1
 RADIATION CORRECTION FACTORS P SV SH
 0.400 -0.400 -0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300
 SAMPLE RADIATION CORRECTION FACTS, 10 ELEMS AT HYPOCENTER

ELPP	ELSV	ELSH
0.400	-0.400	-0.400

MOMENT OF ACTUAL EVENT 0.100000E+22
 MOMENT OF MODELED EVENT 0.100000E+22

KOSTROV SLIP FUNCTION

LJH <USER29>KKND>EMPTST>F001.LP

07/22/87.17:18:12.Wed

figure 10

Figure 10

SYNTHESIS OF EVENT 0007 AT STATION 0

HYPOCENTER LOCATION
 34.4000 118.4000 10.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 270.0 45.0 90.0 0.100000E+22 34.00
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

STRESS DROP 0.0/3

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
 3.30

SOURCE EVENTS	LOCATION	MOMENT
58 1	34.4000 118.4000 10.00	0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

VH = 4.8, RUPTURE HEALING AT P VELOCITY

TOTAL NUMBER OF ELEMENTAL AREAS IS 1 MAXIMUM RADIUS 3.29 KM
 TOTAL FAULTING DURATION: 2.32

***** ELEMENTS *****

HYPOCENTER: RISTM = 1.00 DISP= 0.01 CM
 SYNTHESIS IS BY INCREMENTING SLIP FUNCTION AND DELAYED STACKING

JSTROY SLIP MODEL WITH HEALING
 ELEMENT DISPLACEMENT (LEFT TO RIGHT)
 0.010

SLIP FUNCTION INCREMENTED BY DIGITIZING RATE
 SOURCE EVENTS AND SYNTHESIZED OUTPUT LIMITED TO 2000 POINTS

*** SOURCE EVENT (058 0001) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 50.4 45.0 90.0 46.2 25.3 14.1
 RADIATION CORRECTION FACTORS P SV SH
 0.400 -0.400 -0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300
 SAMPLE RADIATION CORRECTION FACTS, 10 ELEMS AT HYPOCENTER
 ELPP ELSV ELSH
 0.400 -0.400 -0.400

MOMENT OF ACTUAL EVENT 0.100000E+22
 MOMENT OF MODELED EVENT 0.100000E+22

LJH <USER29>KKK>EMPTST>F001.LP

07/29/87.11:19:12.Wed

figure 11

SYNTHESIS OF EVENT 0008 AT STATION 0

figure 11

HYPOCENTER LOCATION
 34.4000 118.4000 10.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 270.0 45.0 90.0 0.100000E+24 0.0100
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
 1.00

SOURCE EVENTS	LOCATION	MOMENT
580 1	34.4000 118.4000 10.00	0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

RING	ELEMENTS	RADIUS
RING: 2,	7 ELEMENTS	RADIUS= 0.11
RING: 3,	14 ELEMENTS	RADIUS= 0.21
RING: 4,	20 ELEMENTS	RADIUS= 0.32
RING: 5,	27 ELEMENTS	RADIUS= 0.42
RING: 6,	33 ELEMENTS	RADIUS= 0.52
RING: 7,	39 ELEMENTS	RADIUS= 0.62
RING: 8,	46 ELEMENTS	RADIUS= 0.72
RING: 9,	52 ELEMENTS	RADIUS= 0.82
RING: 10,	58 ELEMENTS	RADIUS= 0.92

TOTAL NUMBER OF ELEMENTAL AREAS IS 297 MAXIMUM RADIUS 0.97 KM

TWO DIMENSIONAL HASKEL RUPTURE MODEL WITH STEP SLIP FUNCTION

EACH ELEMENT HAS THE SAME DISPLACEMENT: 11.2 CM
 TOTAL FAULTING DURATION 0.37 SECONDS
 SLIP FUNCTION INCREMENTED BY DIGITIZING RATE
 SOURCE EVENTS AND SYNTHESIZED OUTPUT LIMITED TO 1000 POINTS

*** SOURCE EVENT (0\$5 0001) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 50.4 45.0 90.0 46.2 25.3 14.1

RADIATION CORRECTION FACTORS P SV SH
 0.400 -0.400 -0.400

SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300
 SAMPLE RADIATION CORRECTION FACS, 10 ELEMS AT HYPOCENTER

ELPP	ELSV	ELSH
0.400	-0.400	-0.400
0.400	-0.400	-0.400
0.400	-0.400	-0.400
0.400	-0.400	-0.400
0.400	-0.400	-0.400
0.400	-0.400	-0.400
0.400	-0.400	-0.400
0.400	-0.400	-0.400
0.400	-0.400	-0.400
0.400	-0.400	-0.400

MOMENT OF ACTUAL EVENT 0.100000E+24
 MOMENT OF MODELED EVENT 0.999990E+23

SYNTHESIS OF EVENT 0009 AT STATION 0

figure 12

HYPOCENTER LOCATION
 34.4000 118.4000 10.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 270.0 45.0 90.0 0.100000E+24 0.0100
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
 1.00

SOURCE EVENTS	LOCATION	MOMENT
580 1	34.4000 118.4000 10.00	0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

RING	ELEMENTS	RADIUS
RING: 2,	7 ELEMENTS	RADIUS= 0.11
RING: 3,	14 ELEMENTS	RADIUS= 0.21
RING: 4,	20 ELEMENTS	RADIUS= 0.32
RING: 5,	27 ELEMENTS	RADIUS= 0.42
RING: 6,	33 ELEMENTS	RADIUS= 0.52
RING: 7,	39 ELEMENTS	RADIUS= 0.62
RING: 8,	46 ELEMENTS	RADIUS= 0.72
RING: 9,	52 ELEMENTS	RADIUS= 0.82
RING: 10,	58 ELEMENTS	RADIUS= 0.92

TOTAL NUMBER OF ELEMENTAL AREAS IS 297 MAXIMUM RADIUS 0.97 KM

SYNTHESIS IS BY CONVOLUTION OF SOURCE EVENTS WITH SLIP FUNCTION,
 DECONVOLVED WITH STEP FUNCTION. EACH SOURCE EVENT IS SPLIT BETWEEN P AND S,
 AND COMPUTATION IS DONE IN FREQUENCY DOMAIN. FFT FOR EACH SOURCE EVENT ONCE.

TWO DIMENSIONAL HASKEL RUPTURE MODEL WITH RAMP SLIP FUNCTION

EACH ELEMENT HAS SAME DISPLACEMENT: 11.2 CM
 RISE TIME = 0.30 TOTAL FAULTING DURATION 0.67
 SPECTRAL DIMENSION IS 1024 POINTS, IF TRACES ARE GREATER THAN 5 SECONDS
 YOU GET WRAP-AROUND IN MAIN SEISMOGRAM

*** SOURCE EVENT (0\$5 0001) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 50.4 45.0 90.0 46.2 25.3 14.1
 RADIATION CORRECTION FACTORS P SV SH
 0.400 -.400 -.400
 SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300
 SAMPLE RADIATION CORRECTION FACS, 10 ELEMS AT HYPOCENTER

ELPP	ELSV	ELSH
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400

MOMENT OF ACTUAL EVENT	MOMENT OF MODELED EVENT
0.100000E+24	0.999990E+23

MODIFIED KOSTROV SLIP FUNCTION

LJH <USER29>KKK>EMPTST>F001.LP

07/29/87.13:53:36.Wed

Figure 1.2

SYNTHESIS OF EVENT 0010 AT STATION 0

Figure 13

HYPOCENTER LOCATION

34.4000 118.4000 10.00

SYNTHESIZED FAULT PARAMETERS

STRIKE	DIP	SLIP VECTOR	MOMENT	ELEM AREA (KM**2)
270.0	45.0	90.0	0.100000E+24	0.0100

RUPTURE VELOCITY: 2.50

P VELOCITY: $VP = 3.0 + H \cdot 0.20$ FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES

POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

STRESS DROP 86.64535191

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS
1.00

SOURCE EVENTS	LOCATION	MOMENT
580 1	34.4000 118.4000 10.00	0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

VH = 4.8, RUPTURE HEALING AT P VELOCITY

RING	ELEMENTS	RADIUS
2,	7	0.11
3,	14	0.21
4,	20	0.32
5,	27	0.42
6,	33	0.52
7,	39	0.62
8,	46	0.72
9,	52	0.82
10,	58	0.92

TOTAL NUMBER OF ELEMENTAL AREAS IS 297 MAXIMUM RADIUS 0.97 KM
TOTAL FAULTING DURATION: 0.40

***** ELEMENTS *****

HYPOCENTER: RISTM = 0.18 DISP= 11.48 CM

SYNTHESIS IS BY CONVOLUTION OF SOURCE EVENTS WITH SLIP FUNCTION,
DECONVOLVED WITH STEP FUNCTION. EACH SOURCE EVENT IS SPLIT BETWEEN P AND S,
AND COMPUTATION IS DONE IN FREQUENCY DOMAIN. FFT FOR EACH SOURCE EVENT ONCE.
RAMP DISPLACEMENT FUNCTION - MODIFIED KOSTROVSLIP AMPLITUDE AND RISE TIME CONSTRAINED BY SELF-SIMILAR KOSTROV SLIP,
MULTIPLIED BY FACTOR 0.3 TO LIMIT SLIP
ELEMENT DISPLACEMENT (LEFT TO RIGHT)
FIRST 160 ELEMENTS

11.484 11.352 11.352 11.352 11.352 11.352 11.352 11.352

Figure 13 cont.

Pc

10.839	10.839	10.839	10.839	10.839	10.839	10.840	10.839
10.839	10.839	10.839	10.839	10.839	10.840	10.261	10.261
10.261	10.261	10.261	10.261	10.261	10.261	10.261	10.261
10.261	10.261	10.261	10.261	10.261	10.261	10.261	10.261
10.261	10.261	9.605	9.605	9.604	9.604	9.604	9.604
9.605	9.605	9.605	9.605	9.605	9.604	9.604	9.604
9.604	9.605	9.605	9.605	9.605	9.605	9.604	9.604
9.604	9.604	9.605	9.605	9.605	8.848	8.848	8.848
8.848	8.847	8.847	8.848	8.848	8.848	8.848	8.848
8.848	8.848	8.848	8.848	8.847	8.847	8.848	8.848
8.848	8.848	8.848	8.848	8.848	8.848	8.848	8.847
8.847	8.848	8.848	8.848	8.848	8.848	7.975	7.975
7.975	7.975	7.975	7.975	7.975	7.975	7.975	7.975
7.975	7.975	7.976	7.975	7.975	7.975	7.975	7.975
7.975	7.975	7.975	7.975	7.975	7.975	7.975	7.976
7.975	7.975	7.975	7.975	7.975	7.975	7.975	7.975
7.975	7.975	7.975	7.975	7.976	6.927	6.927	6.927
6.927	6.927	6.927	6.927	6.927	6.927	6.927	6.927
6.927	6.927	6.927	6.927	6.927	6.927	6.927	6.927

SPECTRAL DIMENSION IS 1024 POINTS, IF TRACES ARE GREATER THAN -5 SECONDS
YOU GET WRAP-AROUND IN MAIN SEISMOGRAM

*** SOURCE EVENT (0\$5 0001) ***

FAULT-STAT AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
50.4	45.0	90.0	46.2	25.3 14.1

RADIATION CORRECTION FACTORS	P	SV	SH
	0.400	-.400	-.400

SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300

SAMPLE RADIATION CORRECTION FACS, 10 ELEMS AT HYPOCENTER

ELPP	ELSV	ELSH
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400

MOMENT OF ACTUAL EVENT 0.100000E+24

MOMENT OF MODELED EVENT 0.100000E+24

SYNTHESIS OF EVENT 0011 AT STATION 0

Figure 14

HYPOCENTER LOCATION

34.4000 118.4000 10.00

SYNTHESIZED FAULT PARAMETERS

STRIKE	DIP	SLIP VECTOR	MOMENT	ELEM AREA (KM**2)
270.0	45.0	90.0	0.100000E+24	0.0100

RUPTURE VELOCITY: 2.50

P VELOCITY: $VP = 3.0 + H \cdot 0.20$ FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES

POSITIVE ON OUTPUT: UPP, 320.4, 50.4 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

STRESS DROP 40.53242596

PARAMETERS FOR FAULT SHAPE: 1 VALUES, IN KILOMETERS

1.00

SOURCE EVENTS	LOCATION	MOMENT
580 1	34.4000 118.4000 10.00	0.100000E+22

STATION: 0 SLAT= 34.4500 SLON= 118.4500

VH = 4.8, RUPTURE HEALING AT P VELOCITY

RING	ELEMENTS	RADIUS
2	7	0.11
3	14	0.21
4	20	0.32
5	27	0.42
6	33	0.52
7	39	0.62
8	46	0.72
9	52	0.82
10	58	0.92

TOTAL NUMBER OF ELEMENTAL AREAS IS 297 MAXIMUM RADIUS 0.97 KM
TOTAL FAULTING DURATION: 0.61

***** ELEMENTS *****

HYPOCENTER: RISTM = 0.59 DISP= 17.91 CM
SYNTHESIS IS BY INCREMENTING SLIP FUNCTION AND DELAYED STACKING

KOSTROV SLIP MODEL WITH HEALING

ELEMENT DISPLACEMENT (LEFT TO RIGHT)

17.908	17.702	17.701	17.701	17.701	17.701	17.702	17.702
16.902	16.902	16.902	16.902	16.902	16.902	16.903	16.902
16.902	16.902	16.902	16.902	16.902	16.903	16.000	16.000
16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000
16.000	16.000	16.000	16.000	16.000	16.000	16.000	16.000
16.000	16.000	14.977	14.977	14.976	14.976	14.976	14.976
14.977	14.977	14.977	14.977	14.977	14.976	14.976	14.976
14.976	14.977	14.977	14.977	14.977	14.977	14.976	14.976

figure 14 (con)

14.976	14.976	14.977	14.977	14.977	13.797	13.797	13.796
13.796	13.796	13.796	13.796	13.796	13.797	13.797	13.797
13.797	13.797	13.796	13.796	13.796	13.796	13.796	13.796
13.797	13.797	13.797	13.797	13.797	13.796	13.796	13.796
13.796	13.796	13.796	13.797	13.797	13.797	12.435	12.435
12.436	12.436	12.435	12.436	12.436	12.435	12.436	12.436
12.435	12.435	12.436	12.436	12.435	12.436	12.436	12.435
12.436	12.436	12.435	12.436	12.436	12.435	12.435	12.436
12.435	12.435	12.436	12.436	12.435	12.436	12.436	12.435
12.436	12.436	12.435	12.435	12.436	10.801	10.802	10.801
10.802	10.801	10.802	10.801	10.801	10.801	10.801	10.801
10.801	10.801	10.801	10.801	10.801	10.802	10.801	10.802
10.801	10.802	10.801	10.802	10.801	10.802	10.801	10.802
10.801	10.802	10.801	10.801	10.801	10.801	10.801	10.801
10.801	10.801	10.801	10.801	10.802	10.801	10.802	10.801
10.802	10.801	10.802	8.739	8.738	8.739	8.739	8.739
8.738	8.738	8.739	8.739	8.739	8.738	8.739	8.740
8.739	8.738	8.739	8.739	8.739	8.738	8.738	8.739
8.739	8.739	8.738	8.739	8.740	8.739	8.738	8.739
8.739	8.739	8.738	8.738	8.739	8.739	8.739	8.738
8.739	8.740	8.739	8.738	8.739	8.739	8.739	8.738
8.738	8.739	8.739	8.739	8.738	8.739	8.740	5.845
5.845	5.844	5.845	5.846	5.846	5.845	5.845	5.844
5.845	5.846	5.846	5.845	5.844	5.844	5.845	5.846
5.846	5.845	5.844	5.845	5.845	5.846	5.846	5.845
5.844	5.845	5.845	5.847	5.845	5.845	5.844	5.845
5.846	5.846	5.845	5.845	5.844	5.845	5.846	5.846
5.845	5.844	5.844	5.845	5.846	5.846	5.845	5.844
5.845	5.845	5.846	5.846	5.845	5.844	5.845	5.845
5.847							

SLIP FUNCTION INCREMENTED BY DIGITIZING RATE

SOURCE EVENTS AND SYNTHESIZED OUTPUT LIMITED TO 1000 POINTS

*** SOURCE EVENT (0\$5 0001) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P	S	INCID ANGLES
50.4	45.0	90.0		46.2	25.3	14.1	

RADIATION CORRECTION FACTORS	P	SV	SH
	0.400	-.400	-.400

SOURCE EVENT SPLIT FOR ANALYSIS 3.00 SEC FROM ORIGIN ISS = 300

SAMPLE RADIATION CORRECTION FACS, 10 ELEMS AT HYPOCENTER

ELPP	ELSV	ELSH
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400
0.400	-.400	-.400

MOMENT OF ACTUAL EVENT 0.100000E+24

MOMENT OF MODELED EVENT 0.100000E+24

LJH <USER29>KKND-EMPTST>F001.LP

$M_0 = 1.0 \times 10^{20}$
 $V_0 = 4.5$
 $V_1 = 0.55$
 $P = 0.1$

07/27/87.09:46:44.Mon

Figure 15

LJH <USER29>KKND>EMPTST>F003.LP

$M_0 = 1.0 \times 10^2$
 $V_p = 4.5$
 $V_s = 2.55$
 $\nu = 0.2$

07/27/87.09:55:40.Mon

figure 16

GREENS FUNCTIONS

LJH <USER29>KKIN>EMPTST>F004.LP

$M_0 = 1.0 \times 10^{20}$
 $V_p = 4.5$
 $V_c = 0.55$

07/27/87.10:00:32.Mon

Figure 17

HYPO: 34.5 118.5 3.0 STAT 01: 34.5451 118.5 STK,DP,SV (090,090,00)

LJH <USER29>KKN>EMPTST>F002.LP

07/29/87.10:12:24.Wed

SYNTHESIS OF EVENT 0012 AT STATION 1

SYNTHESIS OF EVENT 0012 AT STATION 1

figure 19

HYPOCENTER LOCATION
 34.5000 118.5000 3.00
 SYNTHESIZED FAULT PARAMETERS
 STRIKE DIP SLIP VECTOR MOMENT ELEM AREA (KM**2)
 90.0 90.0 0.0 0.100000E+26 0.0500
 RUPTURE VELOCITY: 2.50
 P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES
 POSITIVE ON OUTPUT: UPP, 0.0, 90.0 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
 SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

PARAMETERS FOR FAULT SHAPE: 4 VALUES, IN KILOMETERS
 3.00 5.00 3.00 5.00

SOURCE EVENTS	LOCATION	MOMENT
0 1	34.5000 118.5437	1.00 0.100000E+21
0 2	34.5000 118.5220	1.00 0.100000E+21
0 3	34.5000 118.5000	1.00 0.100000E+21
0 4	34.5000 118.4780	1.00 0.100000E+21
0 5	34.5000 118.4563	1.00 0.100000E+21
0 6	34.5000 118.5437	3.00 0.100000E+21
0 7	34.5000 118.5220	3.00 0.100000E+21
0 8	34.5000 118.5000	3.00 0.100000E+21
0 9	34.5000 118.4780	3.00 0.100000E+21
0 10	34.5000 118.4563	3.00 0.100000E+21
0 11	34.5000 118.5437	5.00 0.100000E+21
0 12	34.5000 118.5220	5.00 0.100000E+21
0 13	34.5000 118.5000	5.00 0.100000E+21
0 14	34.5000 118.4780	5.00 0.100000E+21
0 15	34.5000 118.4563	5.00 0.100000E+21

STATION: 1 SLAT= 34.5451 SLON= 118.5000

ELEM	ANG4	ANG5	AZM4	AZM5	EVENT	DIS	DTIMP	34.5000	118.4979	2.85
ELEM 2	ANG4= 51.4	ANG5= 90.0	AZM4= 90.0	AZM5= 90.0	EVENT 0	DIS= 0.24	DTIMP= 0.02	34.5000	118.4979	2.85
ELEM 3	ANG4=102.9	ANG5= 90.0	AZM4= 90.0	AZM5= 90.0	EVENT 0	DIS= 0.24	DTIMP= 0.01	34.5000	118.4974	3.05
ELEM 4	ANG4=154.3	ANG5= 90.0	AZM4= 90.0	AZM5= 90.0	EVENT 0	DIS= 0.24	DTIMP= 0.03	34.5000	118.4989	3.22
ELEM 5	ANG4=205.7	ANG5=270.0	AZM4=270.0	AZM5=270.0	EVENT 0	DIS= 0.24	DTIMP= 0.03	34.5000	118.5011	3.22
ELEM 6	ANG4=257.1	ANG5=270.0	AZM4=270.0	AZM5=270.0	EVENT 0	DIS= 0.24	DTIMP= 0.01	34.5000	118.5026	3.05
ELEM 7	ANG4=308.8	ANG5=270.0	AZM4=270.0	AZM5=270.0	EVENT 0	DIS= 0.24	DTIMP= 0.02	34.5000	118.5020	2.85
ELEM 8	ANG4=360.0	ANG5=273.4	AZM4=273.4	AZM5=273.4	EVENT 0	DIS= 0.24	DTIMP= 0.03	34.5000	118.5000	2.76
RING: 2, 7 ELEMENTS RADIUS= 0.24										
ELEM 9	ANG4= 25.7	ANG5= 90.0	AZM4= 90.0	AZM5= 90.0	EVENT 0	DIS= 0.47	DTIMP= 0.06	34.5000	118.4978	2.57
ELEM 10	ANG4= 51.4	ANG5= 90.0	AZM4= 90.0	AZM5= 90.0	EVENT 0	DIS= 0.47	DTIMP= 0.04	34.5000	118.4960	2.70
ELEM 11	ANG4= 77.1	ANG5= 90.0	AZM4= 90.0	AZM5= 90.0	EVENT 0	DIS= 0.47	DTIMP= 0.01	34.5000	118.4950	2.89
ELEM 12	ANG4=102.9	ANG5= 90.0	AZM4= 90.0	AZM5= 90.0	EVENT 0	DIS= 0.47	DTIMP= 0.02	34.5000	118.4950	3.11
ELEM 13	ANG4=128.8	ANG5= 90.0	AZM4= 90.0	AZM5= 90.0	EVENT 0	DIS= 0.47	DTIMP= 0.05	34.5000	118.4960	3.30
ELEM 14	ANG4=154.3	ANG5= 90.0	AZM4= 90.0	AZM5= 90.0	EVENT 0	DIS= 0.47	DTIMP= 0.07	34.5000	118.4978	3.43
ELEM 15	ANG4=180.0	ANG5= 96.9	AZM4= 96.9	AZM5= 96.9	EVENT 0	DIS= 0.47	DTIMP= 0.07	34.5000	118.5000	3.47
ELEM 16	ANG4=205.7	ANG5=270.0	AZM4=270.0	AZM5=270.0	EVENT 0	DIS= 0.47	DTIMP= 0.07	34.5000	118.5022	3.43
ELEM 17	ANG4=231.4	ANG5=270.0	AZM4=270.0	AZM5=270.0	EVENT 0	DIS= 0.47	DTIMP= 0.05	34.5000	118.5040	3.30
ELEM 18	ANG4=257.1	ANG5=270.0	AZM4=270.0	AZM5=270.0	EVENT 0	DIS= 0.47	DTIMP= 0.02	34.5000	118.5050	3.11

ELEM 19	ANG4=282.9	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.47	DTIMP=0.01	34.5000	118.5050	2.89
ELEM 20	ANG4=308.6	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.47	DTIMP=0.04	34.5000	118.5040	2.70
ELEM 21	ANG4=334.3	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.47	DTIMP=0.06	34.5000	118.5022	2.57
ELEM 22	ANG4=360.0	ANG5=273.4	AZIM=273.4	EVENT	0	8	DIS= 0.47	DTIMP=0.06	34.5000	118.5000	2.53

RING: 3, 14 ELEMENTS RADIUS= 0.47

ELEM 23	ANG4= 18.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.70	DTIMP=0.09	34.5000	118.4976	2.33
ELEM 24	ANG4= 36.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.70	DTIMP=0.07	34.5000	118.4955	2.43
ELEM 25	ANG4= 54.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.70	DTIMP=0.05	34.5000	118.4938	2.59
ELEM 26	ANG4= 72.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.70	DTIMP=0.02	34.5000	118.4927	2.78
ELEM 27	ANG4= 90.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.71	DTIMP= 0.01	34.5000	118.4923	3.00
ELEM 28	ANG4=108.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.70	DTIMP= 0.04	34.5000	118.4927	3.22
ELEM 29	ANG4=126.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.70	DTIMP= 0.07	34.5000	118.4938	3.41
ELEM 30	ANG4=144.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.70	DTIMP= 0.09	34.5000	118.4955	3.57
ELEM 31	ANG4=162.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.70	DTIMP= 0.10	34.5000	118.4976	3.67
ELEM 32	ANG4=180.0	ANG5= 96.9	AZIM= 96.9	EVENT	0	8	DIS= 0.70	DTIMP= 0.11	34.5000	118.5000	3.70
ELEM 33	ANG4=198.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.70	DTIMP= 0.10	34.5000	118.5024	3.67
ELEM 34	ANG4=216.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.70	DTIMP= 0.09	34.5000	118.5045	3.57
ELEM 35	ANG4=234.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.70	DTIMP= 0.07	34.5000	118.5062	3.41
ELEM 36	ANG4=252.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.70	DTIMP= 0.04	34.5000	118.5073	3.22
ELEM 37	ANG4=270.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.71	DTIMP= 0.01	34.5000	118.5077	3.00
ELEM 38	ANG4=288.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.70	DTIMP=0.02	34.5000	118.5073	2.78
ELEM 39	ANG4=306.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.70	DTIMP=0.05	34.5000	118.5062	2.59
ELEM 40	ANG4=324.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.70	DTIMP=0.07	34.5000	118.5045	2.43
ELEM 41	ANG4=342.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.70	DTIMP=0.09	34.5000	118.5024	2.33
ELEM 42	ANG4=360.0	ANG5=273.4	AZIM=273.4	EVENT	0	8	DIS= 0.70	DTIMP=0.09	34.5000	118.5000	2.30

RING: 4, 20 ELEMENTS RADIUS= 0.70

ELEM 43	ANG4= 13.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP=0.11	34.5000	118.4977	2.09
ELEM 44	ANG4= 26.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP=0.10	34.5000	118.4954	2.17
ELEM 45	ANG4= 40.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP=0.08	34.5000	118.4935	2.29
ELEM 46	ANG4= 53.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP=0.06	34.5000	118.4919	2.44
ELEM 47	ANG4= 66.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP=0.03	34.5000	118.4907	2.63
ELEM 48	ANG4= 80.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP=0.00	34.5000	118.4890	2.84
ELEM 49	ANG4= 93.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.03	34.5000	118.4899	3.05
ELEM 50	ANG4=106.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.06	34.5000	118.4903	3.27
ELEM 51	ANG4=120.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.09	34.5000	118.4912	3.47
ELEM 52	ANG4=133.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.11	34.5000	118.4926	3.64
ELEM 53	ANG4=146.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.13	34.5000	118.4944	3.78
ELEM 54	ANG4=160.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.14	34.5000	118.4965	3.88
ELEM 55	ANG4=173.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.15	34.5000	118.4988	3.93
ELEM 56	ANG4=186.7	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.15	34.5000	118.5012	3.93
ELEM 57	ANG4=200.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.14	34.5000	118.5035	3.88
ELEM 58	ANG4=213.3	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.13	34.5000	118.5056	3.78
ELEM 59	ANG4=226.7	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.11	34.5000	118.5074	3.64
ELEM 60	ANG4=240.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.09	34.5000	118.5088	3.47
ELEM 61	ANG4=253.3	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.06	34.5000	118.5097	3.27
ELEM 62	ANG4=266.7	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP= 0.03	34.5000	118.5101	3.05
ELEM 63	ANG4=280.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP=0.00	34.5000	118.5100	2.84
ELEM 64	ANG4=293.3	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP=0.03	34.5000	118.5093	2.63
ELEM 65	ANG4=306.7	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP=0.06	34.5000	118.5081	2.44
ELEM 66	ANG4=320.0	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP=0.08	34.5000	118.5065	2.29
ELEM 67	ANG4=333.3	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP=0.10	34.5000	118.5045	2.17
ELEM 68	ANG4=346.7	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 0.93	DTIMP=0.11	34.5000	118.5023	2.09
ELEM 69	ANG4=360.0	ANG5=273.4	AZIM=273.4	EVENT	0	8	DIS= 0.93	DTIMP=0.12	34.5000	118.5000	2.07

RING: 5, 27 ELEMENTS RADIUS= 0.93

ELEM 70	ANG4= 10.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.89	DTIMP= 0.08	34.5000	118.4976	1.86
ELEM 71	ANG4= 21.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 1.02	DTIMP= 0.09	34.5000	118.4953	1.92
ELEM 72	ANG4= 32.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	8	DIS= 1.16	DTIMP=0.11	34.5000	118.4932	2.02

ELEM 73	ANG4= 43.6	ANG5= 90.0	AZMA= 90.0	EVENT	0	8	DIS= 1.16	DTIMP=0.09	34.5000	118.4913	2.16
ELEM 74	ANG4= 54.5	ANG5= 90.0	AZMA= 90.0	EVENT	0	8	DIS= 1.16	DTIMP=0.07	34.5000	118.4897	2.33
ELEM 75	ANG4= 65.5	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 1.08	DTIMP=0.13	34.5000	118.4885	2.52
ELEM 76	ANG4= 76.4	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 0.93	DTIMP=0.10	34.5000	118.4877	2.73
ELEM 77	ANG4= 87.3	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 0.86	DTIMP=0.07	34.5000	118.4874	2.94
ELEM 78	ANG4= 98.2	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 0.89	DTIMP=0.04	34.5000	118.4875	3.17
ELEM 79	ANG4=109.1	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 1.00	DTIMP=0.01	34.5000	118.4881	3.38
ELEM 80	ANG4=120.0	ANG5= 90.0	AZMA= 90.0	EVENT	0	8	DIS= 1.13	DTIMP= 0.11	34.5000	118.4890	3.58
ELEM 81	ANG4=130.9	ANG5= 90.0	AZMA= 90.0	EVENT	0	8	DIS= 1.16	DTIMP= 0.14	34.5000	118.4904	3.76
ELEM 82	ANG4=141.8	ANG5= 90.0	AZMA= 90.0	EVENT	0	8	DIS= 1.16	DTIMP= 0.16	34.5000	118.4922	3.91
ELEM 83	ANG4=152.7	ANG5= 90.0	AZMA= 90.0	EVENT	0	13	DIS= 1.10	DTIMP=0.18	34.5000	118.4942	4.03
ELEM 84	ANG4=163.6	ANG5= 90.0	AZMA= 90.0	EVENT	0	13	DIS= 0.94	DTIMP=0.15	34.5000	118.4964	4.11
ELEM 85	ANG4=174.5	ANG5= 90.0	AZMA= 90.0	EVENT	0	13	DIS= 0.85	DTIMP=0.14	34.5000	118.4988	4.16
ELEM 86	ANG4=185.5	ANG5=270.0	AZMA=270.0	EVENT	0	13	DIS= 0.85	DTIMP=0.14	34.5000	118.5012	4.16
ELEM 87	ANG4=196.4	ANG5=270.0	AZMA=270.0	EVENT	0	13	DIS= 0.94	DTIMP=0.15	34.5000	118.5036	4.11
ELEM 88	ANG4=207.3	ANG5=270.0	AZMA=270.0	EVENT	0	13	DIS= 1.10	DTIMP=0.18	34.5000	118.5058	4.03
ELEM 89	ANG4=218.2	ANG5=270.0	AZMA=270.0	EVENT	0	8	DIS= 1.16	DTIMP= 0.16	34.5000	118.5078	3.91
ELEM 90	ANG4=229.1	ANG5=270.0	AZMA=270.0	EVENT	0	8	DIS= 1.16	DTIMP= 0.14	34.5000	118.5096	3.76
ELEM 91	ANG4=240.0	ANG5=270.0	AZMA=270.0	EVENT	0	8	DIS= 1.13	DTIMP= 0.11	34.5000	118.5109	3.58
ELEM 92	ANG4=250.9	ANG5=270.0	AZMA=270.0	EVENT	0	7	DIS= 1.00	DTIMP=0.01	34.5000	118.5119	3.38
ELEM 93	ANG4=261.8	ANG5=270.0	AZMA=270.0	EVENT	0	7	DIS= 0.89	DTIMP=0.04	34.5000	118.5125	3.17
ELEM 94	ANG4=272.7	ANG5=270.0	AZMA=270.0	EVENT	0	7	DIS= 0.86	DTIMP=0.07	34.5000	118.5126	2.94
ELEM 95	ANG4=283.6	ANG5=270.0	AZMA=270.0	EVENT	0	7	DIS= 0.93	DTIMP=0.10	34.5000	118.5123	2.73
ELEM 96	ANG4=294.5	ANG5=270.0	AZMA=270.0	EVENT	0	7	DIS= 1.08	DTIMP=0.13	34.5000	118.5115	2.52
ELEM 97	ANG4=305.5	ANG5=270.0	AZMA=270.0	EVENT	0	8	DIS= 1.16	DTIMP=0.07	34.5000	118.5103	2.33
ELEM 98	ANG4=316.4	ANG5=270.0	AZMA=270.0	EVENT	0	8	DIS= 1.16	DTIMP=0.09	34.5000	118.5087	2.16
ELEM 99	ANG4=327.3	ANG5=270.0	AZMA=270.0	EVENT	0	8	DIS= 1.16	DTIMP=0.11	34.5000	118.5068	2.02
ELEM100	ANG4=338.2	ANG5=270.0	AZMA=270.0	EVENT	0	3	DIS= 1.02	DTIMP= 0.09	34.5000	118.5047	1.92
ELEM101	ANG4=349.1	ANG5=270.0	AZMA=270.0	EVENT	0	3	DIS= 0.89	DTIMP= 0.08	34.5000	118.5024	1.86
ELEM102	ANG4=360.0	ANG5=273.4	AZMA=273.4	EVENT	0	3	DIS= 0.84	DTIMP= 0.07	34.5000	118.5000	1.84

RING: 6, 33 ELEMENTS RADIUS= 1.16

ELEM103	ANG4= 9.2	ANG5= 90.0	AZMA= 90.0	EVENT	0	3	DIS= 0.67	DTIMP= 0.05	34.5000	118.4976	1.63
ELEM104	ANG4= 18.5	ANG5= 90.0	AZMA= 90.0	EVENT	0	3	DIS= 0.81	DTIMP= 0.06	34.5000	118.4952	1.69
ELEM105	ANG4= 27.7	ANG5= 90.0	AZMA= 90.0	EVENT	0	3	DIS= 1.01	DTIMP= 0.08	34.5000	118.4930	1.77
ELEM106	ANG4= 36.9	ANG5= 90.0	AZMA= 90.0	EVENT	0	3	DIS= 1.22	DTIMP= 0.10	34.5000	118.4909	1.89
ELEM107	ANG4= 46.2	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 1.37	DTIMP= 0.19	34.5000	118.4891	2.04
ELEM108	ANG4= 55.4	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 1.18	DTIMP=0.16	34.5000	118.4876	2.21
ELEM109	ANG4= 64.6	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 0.97	DTIMP=0.13	34.5000	118.4884	2.41
ELEM110	ANG4= 73.8	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 0.79	DTIMP=0.10	34.5000	118.4855	2.61
ELEM111	ANG4= 83.1	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 0.67	DTIMP=0.07	34.5000	118.4850	2.83
ELEM112	ANG4= 92.3	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 0.64	DTIMP=0.04	34.5000	118.4840	3.06
ELEM113	ANG4=101.5	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 0.72	DTIMP=0.01	34.5000	118.4852	3.28
ELEM114	ANG4=110.8	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 0.88	DTIMP= 0.02	34.5000	118.4859	3.49
ELEM115	ANG4=120.0	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 1.07	DTIMP= 0.04	34.5000	118.4869	3.69
ELEM116	ANG4=129.2	ANG5= 90.0	AZMA= 90.0	EVENT	0	9	DIS= 1.29	DTIMP= 0.07	34.5000	118.4883	3.88
ELEM117	ANG4=138.5	ANG5= 90.0	AZMA= 90.0	EVENT	0	13	DIS= 1.33	DTIMP=0.14	34.5000	118.4900	4.04
ELEM118	ANG4=147.7	ANG5= 90.0	AZMA= 90.0	EVENT	0	13	DIS= 1.11	DTIMP=0.13	34.5000	118.4919	4.17
ELEM119	ANG4=156.9	ANG5= 90.0	AZMA= 90.0	EVENT	0	13	DIS= 0.91	DTIMP=0.12	34.5000	118.4941	4.28
ELEM120	ANG4=166.2	ANG5= 90.0	AZMA= 90.0	EVENT	0	13	DIS= 0.73	DTIMP=0.11	34.5000	118.4964	4.35
ELEM121	ANG4=175.4	ANG5= 90.0	AZMA= 90.0	EVENT	0	13	DIS= 0.63	DTIMP=0.11	34.5000	118.4988	4.38
ELEM122	ANG4=184.6	ANG5=270.0	AZMA=270.0	EVENT	0	13	DIS= 0.63	DTIMP=0.11	34.5000	118.5012	4.38
ELEM123	ANG4=193.8	ANG5=270.0	AZMA=270.0	EVENT	0	13	DIS= 0.73	DTIMP=0.11	34.5000	118.5036	4.35
ELEM124	ANG4=203.1	ANG5=270.0	AZMA=270.0	EVENT	0	13	DIS= 0.91	DTIMP=0.12	34.5000	118.5059	4.28
ELEM125	ANG4=212.3	ANG5=270.0	AZMA=270.0	EVENT	0	13	DIS= 1.11	DTIMP=0.13	34.5000	118.5081	4.17
ELEM126	ANG4=221.5	ANG5=270.0	AZMA=270.0	EVENT	0	13	DIS= 1.33	DTIMP=0.14	34.5000	118.5100	4.04
ELEM127	ANG4=230.8	ANG5=270.0	AZMA=270.0	EVENT	0	7	DIS= 1.29	DTIMP= 0.07	34.5000	118.5117	3.88
ELEM128	ANG4=240.0	ANG5=270.0	AZMA=270.0	EVENT	0	7	DIS= 1.07	DTIMP= 0.04	34.5000	118.5131	3.69
ELEM129	ANG4=249.2	ANG5=270.0	AZMA=270.0	EVENT	0	7	DIS= 0.88	DTIMP= 0.02	34.5000	118.5141	3.49
ELEM130	ANG4=258.5	ANG5=270.0	AZMA=270.0	EVENT	0	7	DIS= 0.72	DTIMP=0.01	34.5000	118.5148	3.28

ELEM131	ANG4=267.7	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.64	DTIMP=0.04	34.5000	118.5151	3.06
ELEM132	ANG4=276.9	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.67	DTIMP=0.07	34.5000	118.5150	2.83
ELEM133	ANG4=286.2	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.79	DTIMP=0.10	34.5000	118.5145	2.61
ELEM134	ANG4=295.4	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.97	DTIMP=0.13	34.5000	118.5136	2.41
ELEM135	ANG4=304.6	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.18	DTIMP=0.16	34.5000	118.5124	2.21
ELEM136	ANG4=313.8	ANG5=270.0	AZIM=270.0	EVENT	0	8	DIS= 1.36	DTIMP=0.09	34.5000	118.5109	2.04
ELEM137	ANG4=323.1	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 1.22	DTIMP= 0.10	34.5000	118.5091	1.89
ELEM138	ANG4=332.3	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 1.01	DTIMP= 0.08	34.5000	118.5070	1.77
ELEM139	ANG4=341.5	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.81	DTIMP= 0.06	34.5000	118.5048	1.69
ELEM140	ANG4=350.8	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.67	DTIMP= 0.05	34.5000	118.5024	1.63
ELEM141	ANG4=360.0	ANG5=273.4	AZIM=273.4	EVENT	0	3	DIS= 0.61	DTIMP= 0.05	34.5000	118.5000	1.61

RING: 7, 39 ELEMENTS RADIUS= 1.39

ELEM142	ANG4= 7.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.46	DTIMP= 0.03	34.5000	118.4976	1.40
ELEM143	ANG4= 15.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.62	DTIMP= 0.04	34.5000	118.4953	1.45
ELEM144	ANG4= 23.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.83	DTIMP= 0.05	34.5000	118.4930	1.52
ELEM145	ANG4= 31.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 1.04	DTIMP= 0.07	34.5000	118.4909	1.62
ELEM146	ANG4= 39.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.22	DTIMP=0.03	34.5000	118.4889	1.75
ELEM147	ANG4= 47.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.23	DTIMP=0.00	34.5000	118.4872	1.90
ELEM148	ANG4= 54.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 1.17	DTIMP=0.17	34.5000	118.4857	2.07
ELEM149	ANG4= 62.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.95	DTIMP=0.14	34.5000	118.4844	2.26
ELEM150	ANG4= 70.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.74	DTIMP=0.11	34.5000	118.4835	2.46
ELEM151	ANG4= 78.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.55	DTIMP=0.08	34.5000	118.4828	2.67
ELEM152	ANG4= 86.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.43	DTIMP=0.05	34.5000	118.4825	2.89
ELEM153	ANG4= 93.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.43	DTIMP=0.02	34.5000	118.4825	3.11
ELEM154	ANG4=101.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.55	DTIMP= 0.01	34.5000	118.4828	3.33
ELEM155	ANG4=109.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.74	DTIMP= 0.04	34.5000	118.4835	3.54
ELEM156	ANG4=117.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.95	DTIMP= 0.07	34.5000	118.4844	3.74
ELEM157	ANG4=125.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 1.17	DTIMP= 0.09	34.5000	118.4857	3.93
ELEM158	ANG4=133.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.23	DTIMP=0.20	34.5000	118.4872	4.10
ELEM159	ANG4=140.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.22	DTIMP=0.18	34.5000	118.4889	4.25
ELEM160	ANG4=148.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 1.04	DTIMP=0.09	34.5000	118.4909	4.38
ELEM161	ANG4=156.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.83	DTIMP=0.08	34.5000	118.4930	4.48
ELEM162	ANG4=164.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.62	DTIMP=0.07	34.5000	118.4953	4.55
ELEM163	ANG4=172.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.46	DTIMP=0.07	34.5000	118.4976	4.60
ELEM164	ANG4=180.0	ANG5= 96.9	AZIM= 96.9	EVENT	0	13	DIS= 0.39	DTIMP=0.07	34.5000	118.5000	4.61
ELEM165	ANG4=187.8	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.46	DTIMP=0.07	34.5000	118.5024	4.60
ELEM166	ANG4=195.7	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.62	DTIMP=0.07	34.5000	118.5047	4.55
ELEM167	ANG4=203.5	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.83	DTIMP=0.08	34.5000	118.5070	4.48
ELEM168	ANG4=211.3	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 1.04	DTIMP=0.09	34.5000	118.5091	4.38
ELEM169	ANG4=219.1	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.22	DTIMP=0.18	34.5000	118.5111	4.25
ELEM170	ANG4=227.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.23	DTIMP=0.20	34.5000	118.5128	4.10
ELEM171	ANG4=234.8	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.17	DTIMP= 0.09	34.5000	118.5143	3.93
ELEM172	ANG4=242.6	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.95	DTIMP= 0.07	34.5000	118.5156	3.74
ELEM173	ANG4=250.4	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.74	DTIMP= 0.04	34.5000	118.5165	3.54
ELEM174	ANG4=258.3	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.55	DTIMP= 0.01	34.5000	118.5172	3.33
ELEM175	ANG4=266.1	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.43	DTIMP=0.02	34.5000	118.5175	3.11
ELEM176	ANG4=273.9	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.43	DTIMP=0.05	34.5000	118.5175	2.89
ELEM177	ANG4=281.7	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.55	DTIMP=0.08	34.5000	118.5172	2.67
ELEM178	ANG4=289.6	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.74	DTIMP=0.11	34.5000	118.5165	2.46
ELEM179	ANG4=297.4	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.95	DTIMP=0.14	34.5000	118.5156	2.26
ELEM180	ANG4=305.2	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.17	DTIMP=0.17	34.5000	118.5143	2.07
ELEM181	ANG4=313.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.23	DTIMP=0.00	34.5000	118.5128	1.90
ELEM182	ANG4=320.9	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.22	DTIMP=0.03	34.5000	118.5111	1.75
ELEM183	ANG4=328.7	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 1.04	DTIMP= 0.07	34.5000	118.5091	1.62
ELEM184	ANG4=336.5	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.83	DTIMP= 0.05	34.5000	118.5070	1.52
ELEM185	ANG4=344.3	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.62	DTIMP= 0.04	34.5000	118.5047	1.45
ELEM186	ANG4=352.2	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.46	DTIMP= 0.03	34.5000	118.5024	1.40
ELEM187	ANG4=360.0	ANG5=273.4	AZIM=273.4	EVENT	0	3	DIS= 0.39	DTIMP= 0.03	34.5000	118.5000	1.39

RING: 8, 46 ELEMENTS RADIUS= 1.61

ELEM188	ANG4= 6.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.28	DTIMP= 0.01	34.5000	118.4976	1.18
ELEM189	ANG4= 13.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.49	DTIMP= 0.02	34.5000	118.4952	1.22
ELEM190	ANG4= 20.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.71	DTIMP= 0.03	34.5000	118.4929	1.28
ELEM191	ANG4= 27.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.93	DTIMP= 0.05	34.5000	118.4907	1.37
ELEM192	ANG4= 34.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.09	DTIMP= 0.05	34.5000	118.4886	1.49
ELEM193	ANG4= 41.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.02	DTIMP= 0.03	34.5000	118.4867	1.62
ELEM194	ANG4= 48.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.01	DTIMP= 0.00	34.5000	118.4850	1.78
ELEM195	ANG4= 55.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.08	DTIMP= 0.03	34.5000	118.4835	1.96
ELEM196	ANG4= 62.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.94	DTIMP= 0.14	34.5000	118.4823	2.15
ELEM197	ANG4= 69.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.72	DTIMP= 0.11	34.5000	118.4813	2.35
ELEM198	ANG4= 76.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.50	DTIMP= 0.08	34.5000	118.4806	2.56
ELEM199	ANG4= 83.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.30	DTIMP= 0.05	34.5000	118.4801	2.78
ELEM200	ANG4= 90.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.18	DTIMP= 0.02	34.5000	118.4800	3.00
ELEM201	ANG4= 96.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.30	DTIMP= 0.01	34.5000	118.4801	3.22
ELEM202	ANG4= 103.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.50	DTIMP= 0.04	34.5000	118.4806	3.44
ELEM203	ANG4= 110.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.72	DTIMP= 0.07	34.5000	118.4813	3.65
ELEM204	ANG4= 117.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.94	DTIMP= 0.10	34.5000	118.4823	3.85
ELEM205	ANG4= 124.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.08	DTIMP= 0.19	34.5000	118.4835	4.04
ELEM206	ANG4= 131.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.01	DTIMP= 0.17	34.5000	118.4850	4.22
ELEM207	ANG4= 138.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.02	DTIMP= 0.15	34.5000	118.4867	4.38
ELEM208	ANG4= 145.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.09	DTIMP= 0.13	34.5000	118.4886	4.51
ELEM209	ANG4= 152.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.93	DTIMP= 0.05	34.5000	118.4907	4.63
ELEM210	ANG4= 159.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.71	DTIMP= 0.04	34.5000	118.4929	4.72
ELEM211	ANG4= 166.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.49	DTIMP= 0.03	34.5000	118.4952	4.78
ELEM212	ANG4= 173.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.28	DTIMP= 0.03	34.5000	118.4976	4.82
ELEM213	ANG4= 180.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.18	DTIMP= 0.03	34.5000	118.5000	4.84
ELEM214	ANG4= 186.9	ANG5= 270.0	AZIM= 270.0	EVENT	0	13	DIS= 0.28	DTIMP= 0.03	34.5000	118.5024	4.82
ELEM215	ANG4= 193.8	ANG5= 270.0	AZIM= 270.0	EVENT	0	13	DIS= 0.49	DTIMP= 0.03	34.5000	118.5048	4.78
ELEM216	ANG4= 200.8	ANG5= 270.0	AZIM= 270.0	EVENT	0	13	DIS= 0.71	DTIMP= 0.04	34.5000	118.5071	4.72
ELEM217	ANG4= 207.7	ANG5= 270.0	AZIM= 270.0	EVENT	0	13	DIS= 0.93	DTIMP= 0.05	34.5000	118.5093	4.63
ELEM218	ANG4= 214.6	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 1.09	DTIMP= 0.13	34.5000	118.5114	4.51
ELEM219	ANG4= 221.5	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 1.02	DTIMP= 0.15	34.5000	118.5133	4.38
ELEM220	ANG4= 228.5	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 1.01	DTIMP= 0.17	34.5000	118.5150	4.22
ELEM221	ANG4= 235.4	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 1.08	DTIMP= 0.19	34.5000	118.5165	4.04
ELEM222	ANG4= 242.3	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.94	DTIMP= 0.10	34.5000	118.5177	3.85
ELEM223	ANG4= 249.2	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.72	DTIMP= 0.07	34.5000	118.5187	3.65
ELEM224	ANG4= 256.2	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.50	DTIMP= 0.04	34.5000	118.5194	3.44
ELEM225	ANG4= 263.1	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.30	DTIMP= 0.01	34.5000	118.5199	3.22
ELEM226	ANG4= 270.0	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.18	DTIMP= 0.02	34.5000	118.5200	3.00
ELEM227	ANG4= 276.9	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.30	DTIMP= 0.05	34.5000	118.5199	2.78
ELEM228	ANG4= 283.8	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.50	DTIMP= 0.08	34.5000	118.5194	2.56
ELEM229	ANG4= 290.8	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.72	DTIMP= 0.11	34.5000	118.5187	2.35
ELEM230	ANG4= 297.7	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.94	DTIMP= 0.14	34.5000	118.5177	2.15
ELEM231	ANG4= 304.6	ANG5= 270.0	AZIM= 270.0	EVENT	0	2	DIS= 1.08	DTIMP= 0.03	34.5000	118.5165	1.96
ELEM232	ANG4= 311.5	ANG5= 270.0	AZIM= 270.0	EVENT	0	2	DIS= 1.01	DTIMP= 0.00	34.5000	118.5150	1.78
ELEM233	ANG4= 318.5	ANG5= 270.0	AZIM= 270.0	EVENT	0	2	DIS= 1.02	DTIMP= 0.03	34.5000	118.5133	1.62
ELEM234	ANG4= 325.4	ANG5= 270.0	AZIM= 270.0	EVENT	0	2	DIS= 1.09	DTIMP= 0.05	34.5000	118.5114	1.49
ELEM235	ANG4= 332.3	ANG5= 270.0	AZIM= 270.0	EVENT	0	3	DIS= 0.93	DTIMP= 0.05	34.5000	118.5093	1.37
ELEM236	ANG4= 339.2	ANG5= 270.0	AZIM= 270.0	EVENT	0	3	DIS= 0.71	DTIMP= 0.03	34.5000	118.5071	1.28
ELEM237	ANG4= 346.2	ANG5= 270.0	AZIM= 270.0	EVENT	0	3	DIS= 0.49	DTIMP= 0.02	34.5000	118.5048	1.22
ELEM238	ANG4= 353.1	ANG5= 270.0	AZIM= 270.0	EVENT	0	3	DIS= 0.28	DTIMP= 0.01	34.5000	118.5024	1.18
ELEM239	ANG4= 360.0	ANG5= 273.4	AZIM= 273.4	EVENT	0	3	DIS= 0.16	DTIMP= 0.01	34.5000	118.5000	1.16
RING: 9, 52 ELEMENTS RADIUS= 1.84											
ELEM240	ANG4= 6.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.23	DTIMP= 0.00	34.5000	118.4976	0.95
ELEM241	ANG4= 12.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.44	DTIMP= 0.01	34.5000	118.4952	0.99
ELEM242	ANG4= 18.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.66	DTIMP= 0.02	34.5000	118.4928	1.05
ELEM243	ANG4= 24.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.88	DTIMP= 0.03	34.5000	118.4906	1.13
ELEM244	ANG4= 31.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.98	DTIMP= 0.07	34.5000	118.4884	1.23

ELEM245	ANG4= 37.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.85	DTIMP=0.05	34.5000	118.4864	1.36
ELEM246	ANG4= 43.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.78	DTIMP=0.02	34.5000	118.4848	1.50
ELEM247	ANG4= 49.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.80	DTIMP= 0.00	34.5000	118.4829	1.66
ELEM248	ANG4= 55.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.90	DTIMP= 0.03	34.5000	118.4814	1.84
ELEM249	ANG4= 62.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.99	DTIMP=0.13	34.5000	118.4801	2.03
ELEM250	ANG4= 68.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.77	DTIMP=0.10	34.5000	118.4791	2.24
ELEM251	ANG4= 74.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.55	DTIMP=0.07	34.5000	118.4784	2.45
ELEM252	ANG4= 80.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.33	DTIMP=0.04	34.5000	118.4778	2.67
ELEM253	ANG4= 86.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.12	DTIMP=0.01	34.5000	118.4776	2.89
ELEM254	ANG4= 93.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.12	DTIMP= 0.02	34.5000	118.4776	3.11
ELEM255	ANG4= 99.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.33	DTIMP= 0.05	34.5000	118.4778	3.33
ELEM256	ANG4=105.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.55	DTIMP= 0.08	34.5000	118.4784	3.55
ELEM257	ANG4=111.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.77	DTIMP= 0.10	34.5000	118.4791	3.76
ELEM258	ANG4=117.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.99	DTIMP= 0.13	34.5000	118.4801	3.97
ELEM259	ANG4=124.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.90	DTIMP=0.16	34.5000	118.4814	4.16
ELEM260	ANG4=130.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.80	DTIMP=0.14	34.5000	118.4829	4.34
ELEM261	ANG4=136.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.78	DTIMP=0.12	34.5000	118.4848	4.50
ELEM262	ANG4=142.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.85	DTIMP=0.10	34.5000	118.4864	4.64
ELEM263	ANG4=149.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.98	DTIMP=0.09	34.5000	118.4884	4.77
ELEM264	ANG4=155.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.88	DTIMP=0.01	34.5000	118.4906	4.87
ELEM265	ANG4=161.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.66	DTIMP=0.00	34.5000	118.4928	4.95
ELEM266	ANG4=167.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.44	DTIMP= 0.01	34.5000	118.4952	5.01
ELEM267	ANG4=173.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.23	DTIMP= 0.01	34.5000	118.4976	5.05
ELEM268	ANG4=180.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.06	DTIMP= 0.01	34.5000	118.5000	5.06
ELEM269	ANG4=186.2	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.23	DTIMP= 0.01	34.5000	118.5024	5.05
ELEM270	ANG4=192.4	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.44	DTIMP= 0.01	34.5000	118.5048	5.01
ELEM271	ANG4=198.6	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.66	DTIMP=0.00	34.5000	118.5072	4.95
ELEM272	ANG4=204.8	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.88	DTIMP=0.01	34.5000	118.5094	4.87
ELEM273	ANG4=211.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.98	DTIMP=0.09	34.5000	118.5116	4.77
ELEM274	ANG4=217.2	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.85	DTIMP=0.10	34.5000	118.5136	4.64
ELEM275	ANG4=223.4	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.78	DTIMP=0.12	34.5000	118.5154	4.50
ELEM276	ANG4=229.7	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.80	DTIMP=0.14	34.5000	118.5171	4.34
ELEM277	ANG4=235.9	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.90	DTIMP=0.16	34.5000	118.5186	4.16
ELEM278	ANG4=242.1	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.99	DTIMP= 0.13	34.5000	118.5198	3.97
ELEM279	ANG4=248.3	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.77	DTIMP= 0.10	34.5000	118.5209	3.76
ELEM280	ANG4=254.5	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.55	DTIMP= 0.08	34.5000	118.5216	3.55
ELEM281	ANG4=260.7	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.33	DTIMP= 0.05	34.5000	118.5222	3.33
ELEM282	ANG4=266.9	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.12	DTIMP= 0.02	34.5000	118.5224	3.11
ELEM283	ANG4=273.1	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.12	DTIMP=0.01	34.5000	118.5224	2.89
ELEM284	ANG4=279.3	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.33	DTIMP=0.04	34.5000	118.5222	2.67
ELEM285	ANG4=285.5	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.55	DTIMP=0.07	34.5000	118.5216	2.45
ELEM286	ANG4=291.7	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.77	DTIMP=0.10	34.5000	118.5209	2.24
ELEM287	ANG4=297.9	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.99	DTIMP=0.13	34.5000	118.5198	2.03
ELEM288	ANG4=304.1	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.90	DTIMP= 0.03	34.5000	118.5186	1.84
ELEM289	ANG4=310.3	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.80	DTIMP= 0.00	34.5000	118.5171	1.66
ELEM290	ANG4=316.6	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.78	DTIMP=0.02	34.5000	118.5154	1.50
ELEM291	ANG4=322.8	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.85	DTIMP=0.05	34.5000	118.5136	1.36
ELEM292	ANG4=329.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.98	DTIMP=0.07	34.5000	118.5116	1.23
ELEM293	ANG4=335.2	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.88	DTIMP= 0.03	34.5000	118.5094	1.13
ELEM294	ANG4=341.4	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.66	DTIMP= 0.02	34.5000	118.5072	1.05
ELEM295	ANG4=347.6	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.44	DTIMP= 0.01	34.5000	118.5048	0.99
ELEM296	ANG4=353.8	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.23	DTIMP=0.00	34.5000	118.5024	0.95
ELEM297	ANG4=360.0	ANG5=273.4	AZIM=273.4	EVENT	0	3	DIS= 0.06	DTIMP=0.00	34.5000	118.5000	0.94
RING: 10, 58 ELEMENTS RADIUS= 2.06											
ELEM298	ANG4= 5.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.35	DTIMP=0.01	34.5000	118.4976	0.72
ELEM299	ANG4= 11.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.50	DTIMP=0.01	34.5000	118.4952	0.76
ELEM300	ANG4= 16.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.68	DTIMP= 0.00	34.5000	118.4929	0.81
ELEM301	ANG4= 22.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.87	DTIMP= 0.02	34.5000	118.4906	0.88
ELEM302	ANG4= 27.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.96	DTIMP=0.09	34.5000	118.4884	0.97

ELEM303	ANG4= 33.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.77	DTIMP=0.07	34.5000	118.4863	1.09
ELEM304	ANG4= 38.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.63	DTIMP=0.04	34.5000	118.4844	1.22
ELEM305	ANG4= 44.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.58	DTIMP=0.02	34.5000	118.4826	1.36
EM306	ANG4= 49.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.59	DTIMP= 0.01	34.5000	118.4810	1.53
EM307	ANG4= 55.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.71	DTIMP= 0.04	34.5000	118.4795	1.70
ELEM308	ANG4= 60.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.89	DTIMP= 0.07	34.5000	118.4782	1.89
ELEM309	ANG4= 66.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.92	DTIMP=0.10	34.5000	118.4772	2.09
ELEM310	ANG4= 72.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.72	DTIMP=0.07	34.5000	118.4763	2.29
ELEM311	ANG4= 77.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.54	DTIMP=0.04	34.5000	118.4757	2.51
ELEM312	ANG4= 83.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.37	DTIMP=0.01	34.5000	118.4753	2.72
ELEM313	ANG4= 88.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.27	DTIMP= 0.02	34.5000	118.4751	2.94
ELEM314	ANG4= 94.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.31	DTIMP= 0.05	34.5000	118.4752	3.17
ELEM315	ANG4= 99.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.45	DTIMP= 0.08	34.5000	118.4754	3.39
ELEM316	ANG4=105.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.63	DTIMP= 0.10	34.5000	118.4760	3.60
ELEM317	ANG4=110.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.82	DTIMP= 0.13	34.5000	118.4767	3.81
ELEM318	ANG4=116.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.99	DTIMP=0.16	34.5000	118.4777	4.01
ELEM319	ANG4=121.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.80	DTIMP=0.13	34.5000	118.4788	4.21
ELEM320	ANG4=127.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.64	DTIMP=0.11	34.5000	118.4802	4.39
ELEM321	ANG4=132.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.56	DTIMP=0.10	34.5000	118.4818	4.56
ELEM322	ANG4=138.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.58	DTIMP=0.08	34.5000	118.4835	4.71
ELEM323	ANG4=144.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.69	DTIMP=0.06	34.5000	118.4854	4.85
ELEM324	ANG4=149.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.86	DTIMP=0.05	34.5000	118.4874	4.97
ELEM325	ANG4=155.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.97	DTIMP= 0.03	34.5000	118.4895	5.07
ELEM326	ANG4=160.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.77	DTIMP= 0.04	34.5000	118.4917	5.16
ELEM327	ANG4=166.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.59	DTIMP= 0.04	34.5000	118.4940	5.22
ELEM328	ANG4=171.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.42	DTIMP= 0.05	34.5000	118.4964	5.26
ELEM329	ANG4=177.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.31	DTIMP= 0.05	34.5000	118.4988	5.28
ELEM330	ANG4=182.8	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.31	DTIMP= 0.05	34.5000	118.5012	5.28
ELEM331	ANG4=188.3	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.42	DTIMP= 0.05	34.5000	118.5036	5.26
ELEM332	ANG4=193.8	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.59	DTIMP= 0.04	34.5000	118.5060	5.22
ELEM333	ANG4=199.4	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.77	DTIMP= 0.04	34.5000	118.5083	5.16
ELEM334	ANG4=204.9	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.97	DTIMP= 0.03	34.5000	118.5105	5.07
ELEM335	ANG4=210.5	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.86	DTIMP=0.05	34.5000	118.5126	4.97
ELEM336	ANG4=216.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.69	DTIMP=0.06	34.5000	118.5146	4.85
ELEM337	ANG4=221.5	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.58	DTIMP=0.08	34.5000	118.5165	4.71
ELEM338	ANG4=227.1	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.56	DTIMP=0.10	34.5000	118.5182	4.56
ELEM339	ANG4=232.6	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.64	DTIMP=0.11	34.5000	118.5198	4.39
ELEM340	ANG4=238.2	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.80	DTIMP=0.13	34.5000	118.5211	4.21
EM341	ANG4=243.7	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.99	DTIMP=0.16	34.5000	118.5223	4.01
EM342	ANG4=249.2	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.82	DTIMP= 0.13	34.5000	118.5233	3.81
ELEM343	ANG4=254.8	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.63	DTIMP= 0.10	34.5000	118.5240	3.60
ELEM344	ANG4=260.3	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.45	DTIMP= 0.08	34.5000	118.5245	3.39
ELEM345	ANG4=265.8	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.31	DTIMP= 0.05	34.5000	118.5248	3.17
ELEM346	ANG4=271.4	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.27	DTIMP= 0.02	34.5000	118.5249	2.94
ELEM347	ANG4=276.9	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.37	DTIMP=0.01	34.5000	118.5247	2.72
ELEM348	ANG4=282.5	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.54	DTIMP=0.04	34.5000	118.5243	2.51
ELEM349	ANG4=288.0	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.72	DTIMP=0.07	34.5000	118.5237	2.29
ELEM350	ANG4=293.5	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.92	DTIMP=0.10	34.5000	118.5228	2.09
ELEM351	ANG4=299.1	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.89	DTIMP= 0.07	34.5000	118.5218	1.89
ELEM352	ANG4=304.6	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.71	DTIMP= 0.04	34.5000	118.5205	1.70
ELEM353	ANG4=310.2	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.59	DTIMP= 0.01	34.5000	118.5190	1.53
ELEM354	ANG4=315.7	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.56	DTIMP=0.02	34.5000	118.5174	1.36
ELEM355	ANG4=321.2	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.63	DTIMP=0.04	34.5000	118.5156	1.22
ELEM356	ANG4=326.8	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.77	DTIMP=0.07	34.5000	118.5136	1.09
ELEM357	ANG4=332.3	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.96	DTIMP=0.09	34.5000	118.5116	0.97
ELEM358	ANG4=337.8	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.87	DTIMP= 0.02	34.5000	118.5094	0.88
ELEM359	ANG4=343.4	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.68	DTIMP= 0.00	34.5000	118.5071	0.81
ELEM360	ANG4=348.9	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.50	DTIMP=0.01	34.5000	118.5048	0.76
ELEM361	ANG4=354.5	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.35	DTIMP=0.01	34.5000	118.5024	0.72
ELEM362	ANG4=360.0	ANG5=273.4	AZIM=273.4	EVENT	0	3	DIS= 0.29	DTIMP=0.02	34.5000	118.5000	0.71

RING: 11, 65 ELEMENTS RADIUS= 2.29

ELEM363	ANG4= 5.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.55	DTIMP= 0.02	34.5000	118.4976	0.50
ELEM364	ANG4= 10.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.65	DTIMP= 0.02	34.5000	118.4952	0.53
ELEM365	ANG4= 15.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.78	DTIMP= 0.01	34.5000	118.4928	0.58
ELEM366	ANG4= 20.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.94	DTIMP= 0.01	34.5000	118.4905	0.64
ELEM367	ANG4= 25.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.98	DTIMP= 0.10	34.5000	118.4883	0.73
ELEM368	ANG4= 30.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.77	DTIMP= 0.08	34.5000	118.4861	0.83
ELEM369	ANG4= 35.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.56	DTIMP= 0.06	34.5000	118.4841	0.95
ELEM370	ANG4= 40.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.40	DTIMP= 0.04	34.5000	118.4822	1.09
ELEM371	ANG4= 45.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.33	DTIMP= 0.01	34.5000	118.4804	1.24
ELEM372	ANG4= 50.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.42	DTIMP= 0.02	34.5000	118.4788	1.41
ELEM373	ANG4= 55.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.59	DTIMP= 0.05	34.5000	118.4774	1.59
ELEM374	ANG4= 60.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.79	DTIMP= 0.08	34.5000	118.4761	1.78
ELEM375	ANG4= 65.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.01	DTIMP= 0.11	34.5000	118.4750	1.97
ELEM376	ANG4= 71.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.89	DTIMP= 0.06	34.5000	118.4741	2.18
ELEM377	ANG4= 76.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.74	DTIMP= 0.03	34.5000	118.4734	2.39
ELEM378	ANG4= 81.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.60	DTIMP= 0.00	34.5000	118.4730	2.61
ELEM379	ANG4= 86.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.51	DTIMP= 0.03	34.5000	118.4727	2.83
ELEM380	ANG4= 91.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.49	DTIMP= 0.06	34.5000	118.4726	3.06
ELEM381	ANG4= 96.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.55	DTIMP= 0.09	34.5000	118.4728	3.28
ELEM382	ANG4= 101.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.67	DTIMP= 0.11	34.5000	118.4732	3.50
ELEM383	ANG4= 106.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.81	DTIMP= 0.14	34.5000	118.4738	3.71
ELEM384	ANG4= 111.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.98	DTIMP= 0.17	34.5000	118.4745	3.92
ELEM385	ANG4= 116.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.90	DTIMP= 0.12	34.5000	118.4755	4.13
ELEM386	ANG4= 121.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.69	DTIMP= 0.10	34.5000	118.4767	4.32
ELEM387	ANG4= 126.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.50	DTIMP= 0.08	34.5000	118.4781	4.50
ELEM388	ANG4= 131.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.36	DTIMP= 0.06	34.5000	118.4796	4.68
ELEM389	ANG4= 136.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.35	DTIMP= 0.05	34.5000	118.4813	4.83
ELEM390	ANG4= 142.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.47	DTIMP= 0.03	34.5000	118.4831	4.98
ELEM391	ANG4= 147.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.66	DTIMP= 0.02	34.5000	118.4851	5.11
ELEM392	ANG4= 152.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.87	DTIMP= 0.01	34.5000	118.4872	5.22
ELEM393	ANG4= 157.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 1.02	DTIMP= 0.07	34.5000	118.4894	5.32
ELEM394	ANG4= 162.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.86	DTIMP= 0.08	34.5000	118.4917	5.39
ELEM395	ANG4= 167.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.71	DTIMP= 0.09	34.5000	118.4940	5.45
ELEM396	ANG4= 172.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.59	DTIMP= 0.09	34.5000	118.4964	5.49
ELEM397	ANG4= 177.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.52	DTIMP= 0.09	34.5000	118.4988	5.51
ELEM398	ANG4= 182.5	ANG5= 270.0	AZIM= 270.0	EVENT	0	13	DIS= 0.52	DTIMP= 0.09	34.5000	118.5012	5.51
ELEM399	ANG4= 187.6	ANG5= 270.0	AZIM= 270.0	EVENT	0	13	DIS= 0.59	DTIMP= 0.09	34.5000	118.5036	5.49
ELEM400	ANG4= 192.7	ANG5= 270.0	AZIM= 270.0	EVENT	0	13	DIS= 0.71	DTIMP= 0.09	34.5000	118.5060	5.45
ELEM401	ANG4= 197.7	ANG5= 270.0	AZIM= 270.0	EVENT	0	13	DIS= 0.86	DTIMP= 0.08	34.5000	118.5083	5.39
ELEM402	ANG4= 202.8	ANG5= 270.0	AZIM= 270.0	EVENT	0	13	DIS= 1.02	DTIMP= 0.07	34.5000	118.5106	5.32
ELEM403	ANG4= 207.9	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 0.87	DTIMP= 0.01	34.5000	118.5128	5.22
ELEM404	ANG4= 213.0	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 0.66	DTIMP= 0.02	34.5000	118.5149	5.11
ELEM405	ANG4= 218.0	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 0.47	DTIMP= 0.03	34.5000	118.5168	4.98
ELEM406	ANG4= 223.1	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 0.35	DTIMP= 0.05	34.5000	118.5187	4.83
ELEM407	ANG4= 228.2	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 0.36	DTIMP= 0.06	34.5000	118.5204	4.68
ELEM408	ANG4= 233.2	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 0.50	DTIMP= 0.08	34.5000	118.5219	4.50
ELEM409	ANG4= 238.3	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 0.69	DTIMP= 0.10	34.5000	118.5233	4.32
ELEM410	ANG4= 243.4	ANG5= 270.0	AZIM= 270.0	EVENT	0	12	DIS= 0.90	DTIMP= 0.12	34.5000	118.5244	4.13
ELEM411	ANG4= 248.5	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.98	DTIMP= 0.17	34.5000	118.5254	3.92
ELEM412	ANG4= 253.5	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.81	DTIMP= 0.14	34.5000	118.5262	3.71
ELEM413	ANG4= 258.6	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.67	DTIMP= 0.11	34.5000	118.5268	3.50
ELEM414	ANG4= 263.7	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.55	DTIMP= 0.09	34.5000	118.5272	3.28
ELEM415	ANG4= 268.7	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.49	DTIMP= 0.06	34.5000	118.5273	3.06
ELEM416	ANG4= 273.8	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.51	DTIMP= 0.03	34.5000	118.5273	2.83
ELEM417	ANG4= 278.9	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.60	DTIMP= 0.06	34.5000	118.5270	2.61
ELEM418	ANG4= 283.9	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.74	DTIMP= 0.03	34.5000	118.5266	2.39
ELEM419	ANG4= 289.0	ANG5= 270.0	AZIM= 270.0	EVENT	0	7	DIS= 0.89	DTIMP= 0.06	34.5000	118.5259	2.18
ELEM420	ANG4= 294.1	ANG5= 270.0	AZIM= 270.0	EVENT	0	2	DIS= 1.01	DTIMP= 0.11	34.5000	118.5250	1.97

ELEM421	ANG4=299.2	ANG5=270.0	AZM4=270.0	EVENT	0	2	DIS= 0.79	DTIMP= 0.08	34.5000	118.5239	1.78
ELEM422	ANG4=304.2	ANG5=270.0	AZM4=270.0	EVENT	0	2	DIS= 0.59	DTIMP= 0.05	34.5000	118.5226	1.59
ELEM423	ANG4=309.3	ANG5=270.0	AZM4=270.0	EVENT	0	2	DIS= 0.42	DTIMP= 0.02	34.5000	118.5212	1.41
ELEM424	ANG4=314.4	ANG5=270.0	AZM4=270.0	EVENT	0	2	DIS= 0.33	DTIMP= 0.01	34.5000	118.5195	1.24
ELEM425	ANG4=319.4	ANG5=270.0	AZM4=270.0	EVENT	0	2	DIS= 0.40	DTIMP= 0.04	34.5000	118.5178	1.09
ELEM426	ANG4=324.5	ANG5=270.0	AZM4=270.0	EVENT	0	2	DIS= 0.56	DTIMP= 0.06	34.5000	118.5159	0.95
ELEM427	ANG4=329.6	ANG5=270.0	AZM4=270.0	EVENT	0	2	DIS= 0.77	DTIMP= 0.08	34.5000	118.5138	0.83
ELEM428	ANG4=334.6	ANG5=270.0	AZM4=270.0	EVENT	0	2	DIS= 0.98	DTIMP= 0.10	34.5000	118.5117	0.73
ELEM429	ANG4=339.7	ANG5=270.0	AZM4=270.0	EVENT	0	3	DIS= 0.94	DTIMP= 0.01	34.5000	118.5095	0.64
ELEM430	ANG4=344.8	ANG5=270.0	AZM4=270.0	EVENT	0	3	DIS= 0.78	DTIMP= 0.01	34.5000	118.5072	0.58
ELEM431	ANG4=349.9	ANG5=270.0	AZM4=270.0	EVENT	0	3	DIS= 0.65	DTIMP= 0.02	34.5000	118.5048	0.53
ELEM432	ANG4=354.9	ANG5=270.0	AZM4=270.0	EVENT	0	3	DIS= 0.55	DTIMP= 0.02	34.5000	118.5024	0.50
ELEM433	ANG4=360.0	ANG5=273.4	AZM4=273.4	EVENT	0	3	DIS= 0.51	DTIMP= 0.02	34.5000	118.5000	0.49

RING: 12, 71 ELEMENTS RADIUS= 2.51

ELEM434	ANG4= 4.7	ANG5= 90.0	AZM4= 90.0	EVENT	0	3	DIS= 0.76	DTIMP= 0.03	34.5000	118.4976	0.27
ELEM435	ANG4= 9.4	ANG5= 90.0	AZM4= 90.0	EVENT	0	3	DIS= 0.83	DTIMP= 0.02	34.5000	118.4951	0.30
ELEM436	ANG4= 14.0	ANG5= 90.0	AZM4= 90.0	EVENT	0	3	DIS= 0.93	DTIMP= 0.01	34.5000	118.4928	0.34
ELEM437	ANG4= 18.7	ANG5= 90.0	AZM4= 90.0	EVENT	0	3	DIS= 1.06	DTIMP= 0.00	34.5000	118.4904	0.41
ELEM438	ANG4= 23.4	ANG5= 90.0	AZM4= 90.0	EVENT	0	4	DIS= 1.06	DTIMP= 0.11	34.5000	118.4882	0.49
ELEM439	ANG4= 28.1	ANG5= 90.0	AZM4= 90.0	EVENT	0	4	DIS= 0.84	DTIMP= 0.09	34.5000	118.4860	0.58
ELEM440	ANG4= 32.7	ANG5= 90.0	AZM4= 90.0	EVENT	0	4	DIS= 0.62	DTIMP= 0.07	34.5000	118.4839	0.70
ELEM441	ANG4= 37.4	ANG5= 90.0	AZM4= 90.0	EVENT	0	4	DIS= 0.40	DTIMP= 0.05	34.5000	118.4819	0.83
ELEM442	ANG4= 42.1	ANG5= 90.0	AZM4= 90.0	EVENT	0	4	DIS= 0.19	DTIMP= 0.02	34.5000	118.4800	0.97
ELEM443	ANG4= 46.8	ANG5= 90.0	AZM4= 90.0	EVENT	0	4	DIS= 0.13	DTIMP= 0.00	34.5000	118.4783	1.12
ELEM444	ANG4= 51.4	ANG5= 90.0	AZM4= 90.0	EVENT	0	4	DIS= 0.32	DTIMP= 0.03	34.5000	118.4767	1.29
ELEM445	ANG4= 56.1	ANG5= 90.0	AZM4= 90.0	EVENT	0	4	DIS= 0.54	DTIMP= 0.06	34.5000	118.4753	1.47
ELEM446	ANG4= 60.8	ANG5= 90.0	AZM4= 90.0	EVENT	0	4	DIS= 0.76	DTIMP= 0.09	34.5000	118.4740	1.66
ELEM447	ANG4= 65.5	ANG5= 90.0	AZM4= 90.0	EVENT	0	4	DIS= 0.98	DTIMP= 0.13	34.5000	118.4729	1.86
ELEM448	ANG4= 70.1	ANG5= 90.0	AZM4= 90.0	EVENT	0	9	DIS= 1.08	DTIMP= 0.05	34.5000	118.4720	2.07
ELEM449	ANG4= 74.8	ANG5= 90.0	AZM4= 90.0	EVENT	0	9	DIS= 0.95	DTIMP= 0.02	34.5000	118.4712	2.28
ELEM450	ANG4= 79.5	ANG5= 90.0	AZM4= 90.0	EVENT	0	9	DIS= 0.84	DTIMP= 0.01	34.5000	118.4707	2.50
ELEM451	ANG4= 84.2	ANG5= 90.0	AZM4= 90.0	EVENT	0	9	DIS= 0.76	DTIMP= 0.04	34.5000	118.4704	2.72
ELEM452	ANG4= 88.8	ANG5= 90.0	AZM4= 90.0	EVENT	0	9	DIS= 0.72	DTIMP= 0.07	34.5000	118.4702	2.94
ELEM453	ANG4= 93.5	ANG5= 90.0	AZM4= 90.0	EVENT	0	9	DIS= 0.73	DTIMP= 0.10	34.5000	118.4702	3.17
ELEM454	ANG4= 98.2	ANG5= 90.0	AZM4= 90.0	EVENT	0	9	DIS= 0.79	DTIMP= 0.12	34.5000	118.4705	3.39
ELEM455	ANG4=102.9	ANG5= 90.0	AZM4= 90.0	EVENT	0	9	DIS= 0.89	DTIMP= 0.15	34.5000	118.4709	3.61
ELEM456	ANG4=107.5	ANG5= 90.0	AZM4= 90.0	EVENT	0	9	DIS= 1.01	DTIMP= 0.18	34.5000	118.4716	3.82
ELEM457	ANG4=112.2	ANG5= 90.0	AZM4= 90.0	EVENT	0	14	DIS= 1.09	DTIMP= 0.11	34.5000	118.4724	4.03
ELEM458	ANG4=116.9	ANG5= 90.0	AZM4= 90.0	EVENT	0	14	DIS= 0.87	DTIMP= 0.09	34.5000	118.4734	4.24
ELEM459	ANG4=121.6	ANG5= 90.0	AZM4= 90.0	EVENT	0	14	DIS= 0.65	DTIMP= 0.07	34.5000	118.4746	4.43
ELEM460	ANG4=126.2	ANG5= 90.0	AZM4= 90.0	EVENT	0	14	DIS= 0.43	DTIMP= 0.05	34.5000	118.4760	4.62
ELEM461	ANG4=130.9	ANG5= 90.0	AZM4= 90.0	EVENT	0	14	DIS= 0.21	DTIMP= 0.03	34.5000	118.4775	4.79
ELEM462	ANG4=135.6	ANG5= 90.0	AZM4= 90.0	EVENT	0	14	DIS= 0.11	DTIMP= 0.01	34.5000	118.4791	4.96
ELEM463	ANG4=140.3	ANG5= 90.0	AZM4= 90.0	EVENT	0	14	DIS= 0.29	DTIMP= 0.00	34.5000	118.4809	5.10
ELEM464	ANG4=144.9	ANG5= 90.0	AZM4= 90.0	EVENT	0	14	DIS= 0.51	DTIMP= 0.01	34.5000	118.4829	5.24
ELEM465	ANG4=149.6	ANG5= 90.0	AZM4= 90.0	EVENT	0	14	DIS= 0.73	DTIMP= 0.03	34.5000	118.4849	5.36
ELEM466	ANG4=154.3	ANG5= 90.0	AZM4= 90.0	EVENT	0	14	DIS= 0.95	DTIMP= 0.04	34.5000	118.4871	5.47
ELEM467	ANG4=159.0	ANG5= 90.0	AZM4= 90.0	EVENT	0	13	DIS= 1.13	DTIMP= 0.12	34.5000	118.4893	5.55
ELEM468	ANG4=163.6	ANG5= 90.0	AZM4= 90.0	EVENT	0	13	DIS= 0.99	DTIMP= 0.12	34.5000	118.4916	5.63
ELEM469	ANG4=168.3	ANG5= 90.0	AZM4= 90.0	EVENT	0	13	DIS= 0.88	DTIMP= 0.13	34.5000	118.4940	5.68
ELEM470	ANG4=173.0	ANG5= 90.0	AZM4= 90.0	EVENT	0	13	DIS= 0.79	DTIMP= 0.13	34.5000	118.4964	5.72
ELEM471	ANG4=177.7	ANG5= 90.0	AZM4= 90.0	EVENT	0	13	DIS= 0.74	DTIMP= 0.13	34.5000	118.4988	5.73
ELEM472	ANG4=182.3	ANG5=270.0	AZM4=270.0	EVENT	0	13	DIS= 0.74	DTIMP= 0.13	34.5000	118.5012	5.73
ELEM473	ANG4=187.0	ANG5=270.0	AZM4=270.0	EVENT	0	13	DIS= 0.79	DTIMP= 0.13	34.5000	118.5036	5.72
ELEM474	ANG4=191.7	ANG5=270.0	AZM4=270.0	EVENT	0	13	DIS= 0.88	DTIMP= 0.13	34.5000	118.5060	5.68
ELEM475	ANG4=196.4	ANG5=270.0	AZM4=270.0	EVENT	0	13	DIS= 0.99	DTIMP= 0.12	34.5000	118.5084	5.63
ELEM476	ANG4=201.0	ANG5=270.0	AZM4=270.0	EVENT	0	13	DIS= 1.13	DTIMP= 0.12	34.5000	118.5107	5.55
ELEM477	ANG4=205.7	ANG5=270.0	AZM4=270.0	EVENT	0	12	DIS= 0.95	DTIMP= 0.04	34.5000	118.5129	5.47
ELEM478	ANG4=210.4	ANG5=270.0	AZM4=270.0	EVENT	0	12	DIS= 0.73	DTIMP= 0.03	34.5000	118.5151	5.36

ELEM479	ANG4=215.1	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.51	DTIMP= 0.01	34.5000	118.5171	5.24
ELEM480	ANG4=219.7	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.29	DTIMP= 0.00	34.5000	118.5190	5.10
ELEM481	ANG4=224.4	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.11	DTIMP= 0.01	34.5000	118.5208	4.96
ELEM482	ANG4=229.1	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.21	DTIMP= 0.03	34.5000	118.5225	4.79
ELEM483	ANG4=233.8	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.43	DTIMP= 0.05	34.5000	118.5240	4.62
ELEM484	ANG4=238.4	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.65	DTIMP= 0.07	34.5000	118.5254	4.43
ELEM485	ANG4=243.1	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.87	DTIMP= 0.09	34.5000	118.5266	4.24
ELEM486	ANG4=247.8	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.09	DTIMP= 0.11	34.5000	118.5276	4.03
ELEM487	ANG4=252.5	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.01	DTIMP= 0.18	34.5000	118.5284	3.82
ELEM488	ANG4=257.1	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.89	DTIMP= 0.15	34.5000	118.5291	3.61
ELEM489	ANG4=261.8	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.79	DTIMP= 0.13	34.5000	118.5295	3.39
ELEM490	ANG4=266.5	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.73	DTIMP= 0.10	34.5000	118.5297	3.17
ELEM491	ANG4=271.2	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.72	DTIMP= 0.07	34.5000	118.5298	2.94
ELEM492	ANG4=275.8	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.76	DTIMP= 0.04	34.5000	118.5296	2.72
ELEM493	ANG4=280.5	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.84	DTIMP= 0.01	34.5000	118.5293	2.50
ELEM494	ANG4=285.2	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.95	DTIMP= 0.02	34.5000	118.5287	2.28
ELEM495	ANG4=289.9	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.08	DTIMP= 0.05	34.5000	118.5280	2.07
ELEM496	ANG4=294.5	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.98	DTIMP= 0.13	34.5000	118.5271	1.86
ELEM497	ANG4=299.2	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.76	DTIMP= 0.09	34.5000	118.5260	1.66
ELEM498	ANG4=303.9	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.54	DTIMP= 0.06	34.5000	118.5247	1.47
ELEM499	ANG4=308.6	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.32	DTIMP= 0.03	34.5000	118.5233	1.29
ELEM500	ANG4=313.2	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.13	DTIMP= 0.00	34.5000	118.5217	1.12
ELEM501	ANG4=317.9	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.19	DTIMP= 0.02	34.5000	118.5200	0.97
ELEM502	ANG4=322.6	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.40	DTIMP= 0.05	34.5000	118.5181	0.83
ELEM503	ANG4=327.3	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.62	DTIMP= 0.07	34.5000	118.5161	0.70
ELEM504	ANG4=331.9	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.84	DTIMP= 0.09	34.5000	118.5140	0.58
ELEM505	ANG4=336.6	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.06	DTIMP= 0.11	34.5000	118.5118	0.49
ELEM506	ANG4=341.3	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 1.06	DTIMP= 0.00	34.5000	118.5096	0.41
ELEM507	ANG4=346.0	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.93	DTIMP= 0.01	34.5000	118.5072	0.34
ELEM508	ANG4=350.6	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.83	DTIMP= 0.02	34.5000	118.5048	0.30
ELEM509	ANG4=355.3	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.76	DTIMP= 0.03	34.5000	118.5024	0.27
ELEM510	ANG4=360.0	ANG5=273.4	AZIM=273.4	EVENT	0	3	DIS= 0.74	DTIMP= 0.03	34.5000	118.5000	0.26

RING: 13, 77 ELEMENTS RADIUS= 2.74

ELEM511	ANG4= 4.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 0.98	DTIMP= 0.03	34.5000	118.4976	0.05
ELEM512	ANG4= 8.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 1.03	DTIMP= 0.02	34.5000	118.4952	0.07
ELEM513	ANG4= 12.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 1.11	DTIMP= 0.02	34.5000	118.4928	0.11
ELEM514	ANG4= 17.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	3	DIS= 1.20	DTIMP= 0.01	34.5000	118.4905	0.17
ELEM515	ANG4= 21.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.21	DTIMP= 0.11	34.5000	118.4882	0.24
ELEM516	ANG4= 25.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.99	DTIMP= 0.10	34.5000	118.4860	0.33
ELEM517	ANG4= 30.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.78	DTIMP= 0.08	34.5000	118.4839	0.43
ELEM518	ANG4= 34.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.57	DTIMP= 0.06	34.5000	118.4818	0.55
ELEM519	ANG4= 38.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.36	DTIMP= 0.03	34.5000	118.4799	0.68
ELEM520	ANG4= 42.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.17	DTIMP= 0.01	34.5000	118.4781	0.83
ELEM521	ANG4= 47.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.15	DTIMP= 0.02	34.5000	118.4763	0.99
ELEM522	ANG4= 51.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.33	DTIMP= 0.05	34.5000	118.4748	1.15
ELEM523	ANG4= 55.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.54	DTIMP= 0.07	34.5000	118.4733	1.33
ELEM524	ANG4= 60.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.75	DTIMP= 0.11	34.5000	118.4721	1.52
ELEM525	ANG4= 64.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.97	DTIMP= 0.14	34.5000	118.4709	1.71
ELEM526	ANG4= 68.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.18	DTIMP= 0.17	34.5000	118.4700	1.92
ELEM527	ANG4= 72.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 1.19	DTIMP= 0.01	34.5000	118.4692	2.13
ELEM528	ANG4= 77.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 1.09	DTIMP= 0.02	34.5000	118.4686	2.34
ELEM529	ANG4= 81.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 1.01	DTIMP= 0.05	34.5000	118.4681	2.56
ELEM530	ANG4= 85.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.96	DTIMP= 0.07	34.5000	118.4678	2.78
ELEM531	ANG4= 90.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.94	DTIMP= 0.10	34.5000	118.4677	3.00
ELEM532	ANG4= 94.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 0.96	DTIMP= 0.13	34.5000	118.4678	3.22
ELEM533	ANG4= 98.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 1.01	DTIMP= 0.16	34.5000	118.4681	3.44
ELEM534	ANG4=102.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 1.09	DTIMP= 0.18	34.5000	118.4686	3.66
ELEM535	ANG4=107.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 1.19	DTIMP= 0.21	34.5000	118.4692	3.87
ELEM536	ANG4=111.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.18	DTIMP= 0.08	34.5000	118.4700	4.08

ELEM537	ANG4=115.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.97	DTIMP=0.06	34.5000	118.4709	4.29
ELEM538	ANG4=120.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.75	DTIMP=0.04	34.5000	118.4721	4.48
ELEM539	ANG4=124.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.54	DTIMP=0.02	34.5000	118.4733	4.67
ELEM540	ANG4=128.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.33	DTIMP=0.00	34.5000	118.4748	4.85
ELEM541	ANG4=132.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.15	DTIMP=0.01	34.5000	118.4763	5.01
ELEM542	ANG4=137.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.17	DTIMP=0.03	34.5000	118.4781	5.17
ELEM543	ANG4=141.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.36	DTIMP=0.04	34.5000	118.4799	5.32
ELEM544	ANG4=145.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.57	DTIMP=0.06	34.5000	118.4818	5.45
ELEM545	ANG4=150.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.78	DTIMP=0.07	34.5000	118.4839	5.57
ELEM546	ANG4=154.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.99	DTIMP=0.08	34.5000	118.4860	5.67
ELEM547	ANG4=158.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.21	DTIMP=0.09	34.5000	118.4882	5.76
ELEM548	ANG4=162.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 1.20	DTIMP=0.16	34.5000	118.4905	5.83
ELEM549	ANG4=167.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 1.11	DTIMP=0.17	34.5000	118.4928	5.89
ELEM550	ANG4=171.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 1.03	DTIMP=0.17	34.5000	118.4952	5.93
ELEM551	ANG4=175.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.98	DTIMP=0.18	34.5000	118.4976	5.95
ELEM552	ANG4=180.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	13	DIS= 0.96	DTIMP=0.18	34.5000	118.5000	5.96
ELEM553	ANG4=184.3	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 0.98	DTIMP=0.18	34.5000	118.5024	5.95
ELEM554	ANG4=188.6	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 1.03	DTIMP=0.17	34.5000	118.5048	5.93
ELEM555	ANG4=192.9	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 1.11	DTIMP=0.17	34.5000	118.5072	5.89
ELEM556	ANG4=197.1	ANG5=270.0	AZIM=270.0	EVENT	0	13	DIS= 1.20	DTIMP=0.16	34.5000	118.5095	5.83
ELEM557	ANG4=201.4	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.21	DTIMP=0.09	34.5000	118.5118	5.76
ELEM558	ANG4=205.7	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.99	DTIMP=0.08	34.5000	118.5140	5.67
ELEM559	ANG4=210.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.78	DTIMP=0.07	34.5000	118.5161	5.57
ELEM560	ANG4=214.3	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.57	DTIMP=0.06	34.5000	118.5182	5.45
ELEM561	ANG4=218.6	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.36	DTIMP=0.04	34.5000	118.5201	5.32
ELEM562	ANG4=222.9	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.17	DTIMP=0.03	34.5000	118.5219	5.17
ELEM563	ANG4=227.1	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.15	DTIMP=0.01	34.5000	118.5236	5.01
ELEM564	ANG4=231.4	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.33	DTIMP=0.00	34.5000	118.5252	4.85
ELEM565	ANG4=235.7	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.54	DTIMP=0.02	34.5000	118.5266	4.67
ELEM566	ANG4=240.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.75	DTIMP=0.04	34.5000	118.5279	4.48
ELEM567	ANG4=244.3	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.97	DTIMP=0.06	34.5000	118.5291	4.29
ELEM568	ANG4=248.6	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.18	DTIMP=0.08	34.5000	118.5306	4.08
ELEM569	ANG4=252.9	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.19	DTIMP=0.21	34.5000	118.5308	3.87
ELEM570	ANG4=257.1	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.09	DTIMP=0.18	34.5000	118.5314	3.66
ELEM571	ANG4=261.4	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.01	DTIMP=0.16	34.5000	118.5319	3.44
ELEM572	ANG4=265.7	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.96	DTIMP=0.13	34.5000	118.5322	3.22
ELEM573	ANG4=270.0	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.94	DTIMP=0.10	34.5000	118.5322	3.00
ELEM574	ANG4=274.3	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 0.96	DTIMP=0.07	34.5000	118.5322	2.78
ELEM575	ANG4=278.6	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.01	DTIMP=0.05	34.5000	118.5319	2.56
ELEM576	ANG4=282.9	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.09	DTIMP=0.02	34.5000	118.5314	2.34
ELEM577	ANG4=287.1	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.19	DTIMP=0.01	34.5000	118.5308	2.13
ELEM578	ANG4=291.4	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.18	DTIMP=0.17	34.5000	118.5306	1.92
ELEM579	ANG4=295.7	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.97	DTIMP=0.14	34.5000	118.5291	1.71
ELEM580	ANG4=300.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.75	DTIMP=0.11	34.5000	118.5279	1.52
ELEM581	ANG4=304.3	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.54	DTIMP=0.07	34.5000	118.5266	1.33
ELEM582	ANG4=308.6	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.33	DTIMP=0.05	34.5000	118.5252	1.15
ELEM583	ANG4=312.9	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.15	DTIMP=0.02	34.5000	118.5236	0.99
ELEM584	ANG4=317.1	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.17	DTIMP=0.01	34.5000	118.5219	0.83
ELEM585	ANG4=321.4	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.36	DTIMP=0.03	34.5000	118.5201	0.68
ELEM586	ANG4=325.7	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.57	DTIMP=0.06	34.5000	118.5182	0.55
ELEM587	ANG4=330.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.78	DTIMP=0.08	34.5000	118.5161	0.43
ELEM588	ANG4=334.3	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.99	DTIMP=0.10	34.5000	118.5140	0.33
ELEM589	ANG4=338.6	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.21	DTIMP=0.11	34.5000	118.5118	0.24
ELEM590	ANG4=342.9	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 1.20	DTIMP=0.01	34.5000	118.5095	0.17
ELEM591	ANG4=347.1	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 1.11	DTIMP=0.02	34.5000	118.5072	0.11
ELEM592	ANG4=351.4	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 1.03	DTIMP=0.02	34.5000	118.5048	0.07
ELEM593	ANG4=355.7	ANG5=270.0	AZIM=270.0	EVENT	0	3	DIS= 0.98	DTIMP=0.03	34.5000	118.5024	0.05
ELEM594	ANG4=360.0	ANG5=273.4	AZIM=273.4	EVENT	0	3	DIS= 0.96	DTIMP=0.03	34.5000	118.5000	0.04

RING: 14, 84 ELEMENTS RADIUS= 2.96

ELEM595	ANG4= 20.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.36	DTIMP=0.11	34.5000	118.4881	0.01
ELEM596	ANG4= 24.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.16	DTIMP=0.10	34.5000	118.4859	0.09
ELEM597	ANG4= 28.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.97	DTIMP=0.08	34.5000	118.4837	0.19
ELEM598	ANG4= 32.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.78	DTIMP=0.06	34.5000	118.4816	0.30
ELEM599	ANG4= 36.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.60	DTIMP=0.04	34.5000	118.4796	0.42
ELEM600	ANG4= 40.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.44	DTIMP=0.02	34.5000	118.4777	0.56
ELEM601	ANG4= 44.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.35	DTIMP=0.01	34.5000	118.4759	0.71
ELEM602	ANG4= 48.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.37	DTIMP=0.04	34.5000	118.4742	0.87
ELEM603	ANG4= 52.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.49	DTIMP=0.06	34.5000	118.4726	1.04
ELEM604	ANG4= 56.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.66	DTIMP=0.09	34.5000	118.4712	1.22
ELEM605	ANG4= 60.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.84	DTIMP=0.12	34.5000	118.4699	1.41
ELEM606	ANG4= 64.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.04	DTIMP=0.16	34.5000	118.4688	1.60
ELEM607	ANG4= 68.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.24	DTIMP=0.19	34.5000	118.4678	1.81
ELEM608	ANG4= 72.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 1.38	DTIMP=0.00	34.5000	118.4670	2.02
ELEM609	ANG4= 76.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 1.20	DTIMP=0.22	34.5000	118.4663	2.23
ELEM610	ANG4= 80.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 1.03	DTIMP=0.19	34.5000	118.4658	2.45
ELEM611	ANG4= 84.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.91	DTIMP=0.16	34.5000	118.4655	2.67
ELEM612	ANG4= 88.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.84	DTIMP=0.13	34.5000	118.4653	2.89
ELEM613	ANG4= 92.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.84	DTIMP=0.11	34.5000	118.4653	3.11
ELEM614	ANG4= 96.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.91	DTIMP=0.08	34.5000	118.4655	3.33
ELEM615	ANG4=100.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 1.03	DTIMP=0.05	34.5000	118.4658	3.55
ELEM616	ANG4=104.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 1.20	DTIMP=0.03	34.5000	118.4663	3.77
ELEM617	ANG4=108.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	9	DIS= 1.38	DTIMP=0.25	34.5000	118.4670	3.98
ELEM618	ANG4=112.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.24	DTIMP=0.05	34.5000	118.4678	4.19
ELEM619	ANG4=116.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.04	DTIMP=0.03	34.5000	118.4688	4.40
ELEM620	ANG4=120.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.84	DTIMP=0.01	34.5000	118.4699	4.59
ELEM621	ANG4=124.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.66	DTIMP=0.01	34.5000	118.4712	4.78
ELEM622	ANG4=128.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.49	DTIMP=0.03	34.5000	118.4726	4.96
ELEM623	ANG4=132.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.37	DTIMP=0.05	34.5000	118.4742	5.13
ELEM624	ANG4=136.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.35	DTIMP=0.06	34.5000	118.4759	5.29
ELEM625	ANG4=140.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.44	DTIMP=0.08	34.5000	118.4777	5.44
ELEM626	ANG4=144.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.60	DTIMP=0.09	34.5000	118.4796	5.58
ELEM627	ANG4=148.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.78	DTIMP=0.10	34.5000	118.4816	5.70
ELEM628	ANG4=152.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.97	DTIMP=0.11	34.5000	118.4837	5.81
ELEM629	ANG4=156.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.16	DTIMP=0.12	34.5000	118.4859	5.91
ELEM630	ANG4=160.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.36	DTIMP=0.13	34.5000	118.4881	5.99
ELEM631	ANG4=200.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.38	DTIMP=0.13	34.5000	118.5119	5.99
ELEM632	ANG4=204.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.16	DTIMP=0.12	34.5000	118.5141	5.91
ELEM633	ANG4=208.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.97	DTIMP=0.11	34.5000	118.5163	5.81
ELEM634	ANG4=212.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.78	DTIMP=0.10	34.5000	118.5184	5.70
ELEM635	ANG4=216.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.60	DTIMP=0.09	34.5000	118.5204	5.58
ELEM636	ANG4=220.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.44	DTIMP=0.08	34.5000	118.5223	5.44
ELEM637	ANG4=224.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.35	DTIMP=0.06	34.5000	118.5241	5.29
ELEM638	ANG4=228.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.37	DTIMP=0.05	34.5000	118.5258	5.13
ELEM639	ANG4=232.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.49	DTIMP=0.03	34.5000	118.5273	4.96
ELEM640	ANG4=236.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.66	DTIMP=0.01	34.5000	118.5288	4.78
ELEM641	ANG4=240.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.84	DTIMP=0.01	34.5000	118.5300	4.59
ELEM642	ANG4=244.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.04	DTIMP=0.03	34.5000	118.5312	4.40
ELEM643	ANG4=248.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.24	DTIMP=0.05	34.5000	118.5322	4.19
ELEM644	ANG4=252.0	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.38	DTIMP=0.25	34.5000	118.5330	3.98
ELEM645	ANG4=256.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.20	DTIMP=0.03	34.5000	118.5337	3.77
ELEM646	ANG4=260.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.03	DTIMP=0.05	34.5000	118.5342	3.55
ELEM647	ANG4=264.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.91	DTIMP=0.08	34.5000	118.5345	3.33
ELEM648	ANG4=268.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.84	DTIMP=0.11	34.5000	118.5347	3.11
ELEM649	ANG4=272.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.84	DTIMP=0.13	34.5000	118.5347	2.89
ELEM650	ANG4=276.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.91	DTIMP=0.16	34.5000	118.5345	2.67
ELEM651	ANG4=280.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.03	DTIMP=0.19	34.5000	118.5342	2.45
ELEM652	ANG4=284.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.20	DTIMP=0.22	34.5000	118.5337	2.23
ELEM653	ANG4=288.0	ANG5=270.0	AZIM=270.0	EVENT	0	7	DIS= 1.38	DTIMP=0.00	34.5000	118.5330	2.02
ELEM654	ANG4=292.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.24	DTIMP=0.19	34.5000	118.5322	1.81

ELEM655	ANG4=296.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.04	DTIMP= 0.16	34.5000	118.5312	1.60
ELEM656	ANG4=300.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.84	DTIMP= 0.12	34.5000	118.5300	1.41
ELEM657	ANG4=304.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.66	DTIMP= 0.09	34.5000	118.5288	1.22
ELEM658	ANG4=308.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.49	DTIMP= 0.06	34.5000	118.5273	1.04
ELEM659	ANG4=312.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.37	DTIMP= 0.04	34.5000	118.5258	0.87
ELEM660	ANG4=316.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.35	DTIMP= 0.01	34.5000	118.5241	0.71
ELEM661	ANG4=320.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.44	DTIMP= 0.02	34.5000	118.5223	0.56
ELEM662	ANG4=324.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.60	DTIMP= 0.04	34.5000	118.5204	0.42
ELEM663	ANG4=328.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.78	DTIMP= 0.06	34.5000	118.5184	0.30
ELEM664	ANG4=332.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.97	DTIMP= 0.08	34.5000	118.5163	0.19
ELEM665	ANG4=336.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.16	DTIMP= 0.10	34.5000	118.5141	0.09
ELEM666	ANG4=340.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.36	DTIMP= 0.11	34.5000	118.5119	0.01

RING: 15. 72 ELEMENTS RADIUS= 3.19

ELEM667	ANG4= 30.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.00	DTIMP= 0.06	34.5000	118.4814	0.05
ELEM668	ANG4= 33.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.85	DTIMP= 0.04	34.5000	118.4794	0.16
ELEM669	ANG4= 37.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.71	DTIMP= 0.02	34.5000	118.4774	0.29
ELEM670	ANG4= 41.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.61	DTIMP= 0.00	34.5000	118.4755	0.44
ELEM671	ANG4= 45.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.57	DTIMP= 0.03	34.5000	118.4737	0.59
ELEM672	ANG4= 48.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.60	DTIMP= 0.06	34.5000	118.4721	0.75
ELEM673	ANG4= 52.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.69	DTIMP= 0.09	34.5000	118.4705	0.92
ELEM674	ANG4= 56.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.82	DTIMP= 0.12	34.5000	118.4691	1.10
ELEM675	ANG4= 60.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.98	DTIMP= 0.15	34.5000	118.4678	1.29
ELEM676	ANG4= 63.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 1.07	DTIMP= 0.14	34.5000	118.4667	1.49
ELEM677	ANG4= 67.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 1.11	DTIMP= 0.11	34.5000	118.4657	1.69
ELEM678	ANG4= 71.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 1.19	DTIMP= 0.07	34.5000	118.4648	1.90
ELEM679	ANG4= 75.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 1.14	DTIMP= 0.20	34.5000	118.4641	2.12
ELEM680	ANG4= 78.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.94	DTIMP= 0.17	34.5000	118.4636	2.33
ELEM681	ANG4= 82.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.77	DTIMP= 0.15	34.5000	118.4632	2.55
ELEM682	ANG4= 86.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.65	DTIMP= 0.12	34.5000	118.4629	2.78
ELEM683	ANG4= 90.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.60	DTIMP= 0.09	34.5000	118.4628	3.00
ELEM684	ANG4= 93.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.65	DTIMP= 0.06	34.5000	118.4629	3.22
ELEM685	ANG4= 97.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.77	DTIMP= 0.04	34.5000	118.4632	3.45
ELEM686	ANG4=101.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.94	DTIMP= 0.01	34.5000	118.4636	3.67
ELEM687	ANG4=105.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 1.14	DTIMP= 0.02	34.5000	118.4641	3.88
ELEM688	ANG4=108.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.19	DTIMP= 0.23	34.5000	118.4648	4.10
ELEM689	ANG4=112.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.11	DTIMP= 0.20	34.5000	118.4657	4.31
ELEM690	ANG4=116.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.07	DTIMP= 0.18	34.5000	118.4667	4.51
ELEM691	ANG4=120.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.98	DTIMP= 0.03	34.5000	118.4678	4.71
ELEM692	ANG4=123.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.82	DTIMP= 0.05	34.5000	118.4691	4.90
ELEM693	ANG4=127.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.69	DTIMP= 0.07	34.5000	118.4705	5.08
ELEM694	ANG4=131.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.60	DTIMP= 0.08	34.5000	118.4721	5.25
ELEM695	ANG4=135.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.57	DTIMP= 0.10	34.5000	118.4737	5.41
ELEM696	ANG4=138.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.61	DTIMP= 0.11	34.5000	118.4755	5.56
ELEM697	ANG4=142.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.71	DTIMP= 0.13	34.5000	118.4774	5.71
ELEM698	ANG4=146.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.85	DTIMP= 0.14	34.5000	118.4794	5.84
ELEM699	ANG4=150.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.00	DTIMP= 0.15	34.5000	118.4814	5.95
ELEM700	ANG4=210.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.00	DTIMP= 0.15	34.5000	118.5186	5.95
ELEM701	ANG4=213.7	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.85	DTIMP= 0.14	34.5000	118.5206	5.84
ELEM702	ANG4=217.5	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.71	DTIMP= 0.13	34.5000	118.5226	5.71
ELEM703	ANG4=221.2	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.61	DTIMP= 0.11	34.5000	118.5245	5.56
ELEM704	ANG4=225.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.57	DTIMP= 0.10	34.5000	118.5263	5.41
ELEM705	ANG4=228.7	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.60	DTIMP= 0.08	34.5000	118.5279	5.25
ELEM706	ANG4=232.5	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.69	DTIMP= 0.07	34.5000	118.5295	5.08
ELEM707	ANG4=236.2	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.82	DTIMP= 0.05	34.5000	118.5309	4.90
ELEM708	ANG4=240.0	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.98	DTIMP= 0.03	34.5000	118.5322	4.71
ELEM709	ANG4=243.7	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.07	DTIMP= 0.18	34.5000	118.5333	4.51
ELEM710	ANG4=247.5	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.11	DTIMP= 0.20	34.5000	118.5343	4.31
ELEM711	ANG4=251.2	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.19	DTIMP= 0.23	34.5000	118.5352	4.10
ELEM712	ANG4=255.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.14	DTIMP= 0.02	34.5000	118.5359	3.88

ELEM713	ANG4=258.7	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.94	DTIMP=0.01	34.5000	118.5364	3.67
ELEM714	ANG4=262.5	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.77	DTIMP=0.04	34.5000	118.5368	3.45
ELEM715	ANG4=266.2	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.65	DTIMP=0.06	34.5000	118.5371	3.22
EM716	ANG4=270.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.60	DTIMP=0.09	34.5000	118.5371	3.00
EM717	ANG4=273.7	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.65	DTIMP=0.12	34.5000	118.5371	2.78
ELEM718	ANG4=277.5	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.77	DTIMP=0.15	34.5000	118.5368	2.55
ELEM719	ANG4=281.2	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.94	DTIMP=0.17	34.5000	118.5364	2.33
ELEM720	ANG4=285.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.14	DTIMP=0.20	34.5000	118.5359	2.12
ELEM721	ANG4=288.7	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 1.19	DTIMP=0.07	34.5000	118.5352	1.90
ELEM722	ANG4=292.5	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 1.11	DTIMP=0.11	34.5000	118.5343	1.69
ELEM723	ANG4=296.2	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 1.07	DTIMP=0.14	34.5000	118.5333	1.49
ELEM724	ANG4=300.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.98	DTIMP= 0.15	34.5000	118.5322	1.29
ELEM725	ANG4=303.7	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.82	DTIMP= 0.12	34.5000	118.5309	1.10
ELEM726	ANG4=307.5	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.69	DTIMP= 0.09	34.5000	118.5295	0.92
ELEM727	ANG4=311.2	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.60	DTIMP= 0.06	34.5000	118.5279	0.75
ELEM728	ANG4=315.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.57	DTIMP= 0.03	34.5000	118.5263	0.59
ELEM729	ANG4=318.7	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.61	DTIMP= 0.00	34.5000	118.5245	0.44
ELEM730	ANG4=322.5	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.71	DTIMP=0.02	34.5000	118.5226	0.29
ELEM731	ANG4=326.2	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.85	DTIMP=0.04	34.5000	118.5206	0.16
ELEM732	ANG4=330.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.00	DTIMP=0.06	34.5000	118.5186	0.05

RING: 16, 66 ELEMENTS RADIUS= 3.41

ELEM733	ANG4= 35.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.98	DTIMP=0.02	34.5000	118.4773	0.02
ELEM734	ANG4= 38.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.88	DTIMP= 0.00	34.5000	118.4754	0.15
ELEM735	ANG4= 41.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.82	DTIMP= 0.03	34.5000	118.4735	0.30
ELEM736	ANG4= 45.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.79	DTIMP= 0.05	34.5000	118.4718	0.45
ELEM737	ANG4= 48.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.82	DTIMP= 0.08	34.5000	118.4701	0.61
ELEM738	ANG4= 52.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 0.89	DTIMP= 0.11	34.5000	118.4686	0.78
ELEM739	ANG4= 55.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.96	DTIMP=0.18	34.5000	118.4672	0.96
ELEM740	ANG4= 59.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.90	DTIMP=0.15	34.5000	118.4659	1.15
ELEM741	ANG4= 62.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.85	DTIMP=0.12	34.5000	118.4647	1.34
ELEM742	ANG4= 66.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.87	DTIMP=0.09	34.5000	118.4637	1.54
ELEM743	ANG4= 69.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.96	DTIMP=0.06	34.5000	118.4628	1.75
ELEM744	ANG4= 73.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 1.10	DTIMP=0.03	34.5000	118.4621	1.96
ELEM745	ANG4= 76.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.95	DTIMP=0.16	34.5000	118.4614	2.17
ELEM746	ANG4= 80.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.74	DTIMP=0.13	34.5000	118.4610	2.38
ELEM747	ANG4= 83.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.55	DTIMP=0.10	34.5000	118.4606	2.59
ELEM748	ANG4= 87.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.42	DTIMP=0.08	34.5000	118.4604	2.80
EM749	ANG4= 90.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.38	DTIMP=0.05	34.5000	118.4604	3.00
EM750	ANG4= 94.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.48	DTIMP=0.02	34.5000	118.4605	3.28
ELEM751	ANG4= 97.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.64	DTIMP= 0.00	34.5000	118.4608	3.50
ELEM752	ANG4=101.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.84	DTIMP= 0.03	34.5000	118.4612	3.72
ELEM753	ANG4=104.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 1.06	DTIMP= 0.05	34.5000	118.4617	3.93
ELEM754	ANG4=108.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.02	DTIMP=0.19	34.5000	118.4624	4.14
ELEM755	ANG4=111.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.91	DTIMP=0.17	34.5000	118.4632	4.35
ELEM756	ANG4=115.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.85	DTIMP=0.15	34.5000	118.4642	4.56
ELEM757	ANG4=118.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.86	DTIMP=0.13	34.5000	118.4653	4.75
ELEM758	ANG4=122.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.94	DTIMP=0.11	34.5000	118.4665	4.94
ELEM759	ANG4=125.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.94	DTIMP= 0.10	34.5000	118.4679	5.13
ELEM760	ANG4=129.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.85	DTIMP= 0.11	34.5000	118.4694	5.30
ELEM761	ANG4=132.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.80	DTIMP= 0.13	34.5000	118.4709	5.47
ELEM762	ANG4=136.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.80	DTIMP= 0.15	34.5000	118.4726	5.63
ELEM763	ANG4=139.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.84	DTIMP= 0.16	34.5000	118.4744	5.78
ELEM764	ANG4=143.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 0.93	DTIMP= 0.17	34.5000	118.4763	5.92
ELEM765	ANG4=216.7	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.93	DTIMP= 0.17	34.5000	118.5237	5.92
ELEM766	ANG4=220.2	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.84	DTIMP= 0.16	34.5000	118.5255	5.78
ELEM767	ANG4=223.7	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.80	DTIMP= 0.15	34.5000	118.5273	5.63
ELEM768	ANG4=227.2	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.80	DTIMP= 0.13	34.5000	118.5290	5.47
ELEM769	ANG4=230.7	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.85	DTIMP= 0.11	34.5000	118.5306	5.30
ELEM770	ANG4=234.2	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 0.94	DTIMP= 0.10	34.5000	118.5321	5.13

ELEM771	ANG4=237.7	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.94	DTIMP=0.11	34.5000	118.5334	4.94
ELEM772	ANG4=241.2	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.86	DTIMP=0.13	34.5000	118.5347	4.75
ELEM773	ANG4=244.7	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.85	DTIMP=0.15	34.5000	118.5358	4.56
ELEM774	ANG4=248.2	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.91	DTIMP=0.17	34.5000	118.5367	4.35
ELEM775	ANG4=251.7	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.02	DTIMP=0.19	34.5000	118.5376	4.14
ELEM776	ANG4=255.1	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.06	DTIMP=0.05	34.5000	118.5383	3.93
ELEM777	ANG4=258.6	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.84	DTIMP=0.03	34.5000	118.5388	3.72
ELEM778	ANG4=262.1	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.64	DTIMP=0.00	34.5000	118.5392	3.50
ELEM779	ANG4=265.6	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.48	DTIMP=0.02	34.5000	118.5395	3.28
ELEM780	ANG4=269.1	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.38	DTIMP=0.05	34.5000	118.5398	3.06
ELEM781	ANG4=272.6	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.42	DTIMP=0.08	34.5000	118.5395	2.83
ELEM782	ANG4=276.1	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.55	DTIMP=0.10	34.5000	118.5394	2.61
ELEM783	ANG4=279.6	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.74	DTIMP=0.13	34.5000	118.5390	2.39
ELEM784	ANG4=283.1	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.95	DTIMP=0.16	34.5000	118.5386	2.18
ELEM785	ANG4=286.6	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 1.10	DTIMP=0.03	34.5000	118.5379	1.96
ELEM786	ANG4=290.1	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.96	DTIMP=0.06	34.5000	118.5372	1.75
ELEM787	ANG4=293.6	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.87	DTIMP=0.09	34.5000	118.5363	1.54
ELEM788	ANG4=297.1	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.85	DTIMP=0.12	34.5000	118.5352	1.34
ELEM789	ANG4=300.6	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.90	DTIMP=0.15	34.5000	118.5341	1.15
ELEM790	ANG4=304.1	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.99	DTIMP=0.14	34.5000	118.5328	0.96
ELEM791	ANG4=307.6	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.89	DTIMP=0.11	34.5000	118.5314	0.78
ELEM792	ANG4=311.1	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.82	DTIMP=0.08	34.5000	118.5298	0.61
ELEM793	ANG4=314.6	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.79	DTIMP=0.05	34.5000	118.5282	0.45
ELEM794	ANG4=318.1	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.82	DTIMP=0.03	34.5000	118.5265	0.30
ELEM795	ANG4=321.6	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.88	DTIMP=0.00	34.5000	118.5246	0.15
ELEM796	ANG4=325.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 0.98	DTIMP=0.02	34.5000	118.5227	0.02

RING: 17, 64 ELEMENTS RADIUS= 3.64

ELEM797	ANG4= 39.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.07	DTIMP= 0.03	34.5000	118.4732	0.03
ELEM798	ANG4= 42.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.03	DTIMP= 0.05	34.5000	118.4714	0.17
ELEM799	ANG4= 46.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.02	DTIMP= 0.08	34.5000	118.4696	0.33
ELEM800	ANG4= 49.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.05	DTIMP= 0.11	34.5000	118.4680	0.49
ELEM801	ANG4= 52.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.99	DTIMP=0.18	34.5000	118.4665	0.67
ELEM802	ANG4= 56.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.82	DTIMP=0.15	34.5000	118.4651	0.85
ELEM803	ANG4= 59.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.69	DTIMP=0.12	34.5000	118.4638	1.04
ELEM804	ANG4= 62.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.62	DTIMP=0.09	34.5000	118.4626	1.23
ELEM805	ANG4= 66.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.65	DTIMP=0.06	34.5000	118.4616	1.43
ELEM806	ANG4= 69.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.75	DTIMP=0.03	34.5000	118.4606	1.64
ELEM807	ANG4= 72.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.91	DTIMP=0.00	34.5000	118.4599	1.85
ELEM808	ANG4= 76.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.97	DTIMP=0.14	34.5000	118.4592	2.06
ELEM809	ANG4= 79.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.75	DTIMP=0.11	34.5000	118.4587	2.28
ELEM810	ANG4= 82.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.53	DTIMP=0.08	34.5000	118.4583	2.50
ELEM811	ANG4= 85.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.32	DTIMP=0.06	34.5000	118.4581	2.72
ELEM812	ANG4= 89.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.16	DTIMP=0.03	34.5000	118.4580	2.94
ELEM813	ANG4= 92.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.23	DTIMP=0.00	34.5000	118.4580	3.17
ELEM814	ANG4= 95.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.42	DTIMP=0.02	34.5000	118.4582	3.39
ELEM815	ANG4= 99.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.64	DTIMP=0.05	34.5000	118.4585	3.61
ELEM816	ANG4=102.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.86	DTIMP=0.07	34.5000	118.4589	3.83
ELEM817	ANG4=105.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.00	DTIMP=0.18	34.5000	118.4595	4.04
ELEM818	ANG4=109.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.83	DTIMP=0.15	34.5000	118.4602	4.26
ELEM819	ANG4=112.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.69	DTIMP=0.13	34.5000	118.4611	4.48
ELEM820	ANG4=115.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.62	DTIMP=0.11	34.5000	118.4621	4.67
ELEM821	ANG4=118.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.65	DTIMP=0.09	34.5000	118.4632	4.87
ELEM822	ANG4=122.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.75	DTIMP=0.08	34.5000	118.4644	5.06
ELEM823	ANG4=125.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.90	DTIMP=0.06	34.5000	118.4658	5.24
ELEM824	ANG4=128.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.05	DTIMP=0.04	34.5000	118.4672	5.42
ELEM825	ANG4=132.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.03	DTIMP=0.17	34.5000	118.4688	5.59
ELEM826	ANG4=135.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.02	DTIMP=0.18	34.5000	118.4705	5.75
ELEM827	ANG4=138.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.04	DTIMP=0.20	34.5000	118.4723	5.90
ELEM828	ANG4=221.3	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.04	DTIMP=0.20	34.5000	118.5277	5.90

ELEM829	ANG4=224.6	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.02	DTIMP= 0.18	34.5000	118.5295	5.75
ELEM830	ANG4=227.9	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.03	DTIMP= 0.17	34.5000	118.5312	5.59
ELEM831	ANG4=231.2	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.05	DTIMP= 0.04	34.5000	118.5327	5.42
ELEM832	ANG4=234.5	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.90	DTIMP= 0.08	34.5000	118.5342	5.24
ELEM833	ANG4=237.8	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.75	DTIMP= 0.08	34.5000	118.5356	5.06
ELEM834	ANG4=241.1	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.65	DTIMP= 0.09	34.5000	118.5368	4.87
ELEM835	ANG4=244.4	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.62	DTIMP= 0.11	34.5000	118.5379	4.67
ELEM836	ANG4=247.7	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.69	DTIMP= 0.13	34.5000	118.5389	4.46
ELEM837	ANG4=251.0	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.83	DTIMP= 0.15	34.5000	118.5397	4.26
ELEM838	ANG4=254.3	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.00	DTIMP= 0.18	34.5000	118.5405	4.04
ELEM839	ANG4=257.6	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.86	DTIMP= 0.07	34.5000	118.5411	3.83
ELEM840	ANG4=260.9	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.64	DTIMP= 0.05	34.5000	118.5415	3.61
ELEM841	ANG4=264.2	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.42	DTIMP= 0.02	34.5000	118.5418	3.39
ELEM842	ANG4=267.5	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.23	DTIMP= 0.00	34.5000	118.5420	3.17
ELEM843	ANG4=270.8	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.16	DTIMP= 0.03	34.5000	118.5420	2.94
ELEM844	ANG4=274.1	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.32	DTIMP= 0.06	34.5000	118.5419	2.72
ELEM845	ANG4=277.4	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.53	DTIMP= 0.08	34.5000	118.5417	2.50
ELEM846	ANG4=280.7	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.75	DTIMP= 0.11	34.5000	118.5413	2.28
ELEM847	ANG4=284.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.97	DTIMP= 0.14	34.5000	118.5408	2.06
ELEM848	ANG4=287.3	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.91	DTIMP= 0.00	34.5000	118.5401	1.85
ELEM849	ANG4=290.6	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.75	DTIMP= 0.03	34.5000	118.5393	1.64
ELEM850	ANG4=293.9	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.65	DTIMP= 0.06	34.5000	118.5384	1.43
ELEM851	ANG4=297.2	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.62	DTIMP= 0.09	34.5000	118.5374	1.23
ELEM852	ANG4=300.6	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.69	DTIMP= 0.12	34.5000	118.5362	1.04
ELEM853	ANG4=303.9	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.82	DTIMP= 0.15	34.5000	118.5349	0.85
ELEM854	ANG4=307.2	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.99	DTIMP= 0.18	34.5000	118.5335	0.67
ELEM855	ANG4=310.5	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.05	DTIMP= 0.11	34.5000	118.5320	0.49
ELEM856	ANG4=313.8	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.02	DTIMP= 0.08	34.5000	118.5303	0.33
ELEM857	ANG4=317.1	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.03	DTIMP= 0.05	34.5000	118.5286	0.17
ELEM858	ANG4=320.4	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.07	DTIMP= 0.03	34.5000	118.5268	0.03

RING: 18, 62 ELEMENTS RADIUS= 3.86

ELEM859	ANG4= 43.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.25	DTIMP= 0.08	34.5000	118.4692	0.05
ELEM860	ANG4= 47.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	4	DIS= 1.25	DTIMP= 0.11	34.5000	118.4675	0.21
ELEM861	ANG4= 50.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 1.08	DTIMP= 0.18	34.5000	118.4659	0.38
ELEM862	ANG4= 53.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.86	DTIMP= 0.15	34.5000	118.4644	0.55
ELEM863	ANG4= 56.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.67	DTIMP= 0.12	34.5000	118.4630	0.74
ELEM864	ANG4= 59.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.50	DTIMP= 0.09	34.5000	118.4617	0.93
ELEM865	ANG4= 62.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.40	DTIMP= 0.07	34.5000	118.4605	1.12
ELEM866	ANG4= 65.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.43	DTIMP= 0.04	34.5000	118.4594	1.32
ELEM867	ANG4= 68.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.56	DTIMP= 0.01	34.5000	118.4585	1.53
ELEM868	ANG4= 72.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.75	DTIMP= 0.02	34.5000	118.4577	1.74
ELEM869	ANG4= 75.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.95	DTIMP= 0.05	34.5000	118.4570	1.95
ELEM870	ANG4= 78.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.83	DTIMP= 0.09	34.5000	118.4564	2.17
ELEM871	ANG4= 81.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.61	DTIMP= 0.06	34.5000	118.4560	2.39
ELEM872	ANG4= 84.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.39	DTIMP= 0.03	34.5000	118.4557	2.61
ELEM873	ANG4= 87.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.18	DTIMP= 0.01	34.5000	118.4556	2.83
ELEM874	ANG4= 90.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.09	DTIMP= 0.02	34.5000	118.4555	3.06
ELEM875	ANG4= 93.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.29	DTIMP= 0.04	34.5000	118.4556	3.28
ELEM876	ANG4= 97.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.50	DTIMP= 0.07	34.5000	118.4558	3.50
ELEM877	ANG4=100.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.72	DTIMP= 0.09	34.5000	118.4562	3.72
ELEM878	ANG4=103.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.94	DTIMP= 0.12	34.5000	118.4567	3.94
ELEM879	ANG4=106.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.85	DTIMP= 0.13	34.5000	118.4573	4.16
ELEM880	ANG4=109.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.65	DTIMP= 0.11	34.5000	118.4581	4.37
ELEM881	ANG4=112.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.49	DTIMP= 0.09	34.5000	118.4590	4.58
ELEM882	ANG4=115.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.40	DTIMP= 0.07	34.5000	118.4599	4.78
ELEM883	ANG4=119.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.44	DTIMP= 0.06	34.5000	118.4611	4.98
ELEM884	ANG4=122.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.58	DTIMP= 0.04	34.5000	118.4623	5.17
ELEM885	ANG4=125.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.76	DTIMP= 0.02	34.5000	118.4637	5.36
ELEM886	ANG4=128.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.97	DTIMP= 0.00	34.5000	118.4651	5.53

ELEM887	ANG4=131.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.18	DTIMP= 0.01	34.5000	118.4667	5.71
ELEM888	ANG4=134.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	14	DIS= 1.24	DTIMP= 0.22	34.5000	118.4683	5.87
ELEM889	ANG4=225.4	ANG5=270.0	AZIM=270.0	EVENT	0	12	DIS= 1.24	DTIMP= 0.22	34.5000	118.5317	5.87
ELEM890	ANG4=228.5	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.18	DTIMP= 0.01	34.5000	118.5333	5.71
ELEM891	ANG4=231.7	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.97	DTIMP= 0.00	34.5000	118.5349	5.53
ELEM892	ANG4=234.8	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.78	DTIMP= 0.02	34.5000	118.5363	5.36
ELEM893	ANG4=237.9	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.58	DTIMP= 0.04	34.5000	118.5377	5.17
ELEM894	ANG4=241.0	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.44	DTIMP= 0.06	34.5000	118.5389	4.98
ELEM895	ANG4=244.2	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.40	DTIMP= 0.07	34.5000	118.5400	4.78
ELEM896	ANG4=247.3	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.49	DTIMP= 0.09	34.5000	118.5410	4.58
ELEM897	ANG4=250.4	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.65	DTIMP= 0.11	34.5000	118.5419	4.37
ELEM898	ANG4=253.6	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.85	DTIMP= 0.13	34.5000	118.5427	4.16
ELEM899	ANG4=256.7	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.94	DTIMP= 0.12	34.5000	118.5433	3.94
ELEM900	ANG4=259.8	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.72	DTIMP= 0.09	34.5000	118.5438	3.72
ELEM901	ANG4=263.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.50	DTIMP= 0.07	34.5000	118.5441	3.50
ELEM902	ANG4=266.1	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.29	DTIMP= 0.04	34.5000	118.5444	3.28
ELEM903	ANG4=269.2	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.09	DTIMP= 0.02	34.5000	118.5445	3.06
ELEM904	ANG4=272.3	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.18	DTIMP= 0.01	34.5000	118.5444	2.83
ELEM905	ANG4=275.5	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.39	DTIMP= 0.03	34.5000	118.5443	2.61
ELEM906	ANG4=278.6	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.61	DTIMP= 0.06	34.5000	118.5440	2.39
ELEM907	ANG4=281.7	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.83	DTIMP= 0.09	34.5000	118.5435	2.17
ELEM908	ANG4=284.9	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.95	DTIMP= 0.05	34.5000	118.5430	1.95
ELEM909	ANG4=288.0	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.75	DTIMP= 0.02	34.5000	118.5423	1.74
ELEM910	ANG4=291.1	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.56	DTIMP= 0.01	34.5000	118.5415	1.53
ELEM911	ANG4=294.3	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.43	DTIMP= 0.04	34.5000	118.5405	1.32
ELEM912	ANG4=297.4	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.40	DTIMP= 0.07	34.5000	118.5395	1.12
ELEM913	ANG4=300.5	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.50	DTIMP= 0.09	34.5000	118.5383	0.93
ELEM914	ANG4=303.7	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.67	DTIMP= 0.12	34.5000	118.5370	0.74
ELEM915	ANG4=306.8	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.86	DTIMP= 0.15	34.5000	118.5356	0.55
ELEM916	ANG4=309.9	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 1.08	DTIMP= 0.18	34.5000	118.5341	0.38
ELEM917	ANG4=313.0	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.25	DTIMP= 0.11	34.5000	118.5325	0.21
ELEM918	ANG4=316.2	ANG5=270.0	AZIM=270.0	EVENT	0	2	DIS= 1.25	DTIMP= 0.08	34.5000	118.5308	0.05
RING: 19, 60 ELEMENTS RADIUS= 4.09											
ELEM919	ANG4= 47.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 1.26	DTIMP= 0.18	34.5000	118.4655	0.07
ELEM920	ANG4= 50.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 1.04	DTIMP= 0.15	34.5000	118.4640	0.24
ELEM921	ANG4= 53.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.81	DTIMP= 0.13	34.5000	118.4625	0.41
ELEM922	ANG4= 56.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.60	DTIMP= 0.10	34.5000	118.4611	0.59
ELEM923	ANG4= 59.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.39	DTIMP= 0.07	34.5000	118.4598	0.78
ELEM924	ANG4= 62.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.21	DTIMP= 0.04	34.5000	118.4586	0.97
ELEM925	ANG4= 64.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.20	DTIMP= 0.01	34.5000	118.4575	1.17
ELEM926	ANG4= 67.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.38	DTIMP= 0.02	34.5000	118.4565	1.38
ELEM927	ANG4= 70.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.59	DTIMP= 0.05	34.5000	118.4557	1.58
ELEM928	ANG4= 73.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.81	DTIMP= 0.08	34.5000	118.4549	1.80
ELEM929	ANG4= 76.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 1.01	DTIMP= 0.07	34.5000	118.4543	2.01
ELEM930	ANG4= 79.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.81	DTIMP= 0.04	34.5000	118.4538	2.23
ELEM931	ANG4= 82.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.61	DTIMP= 0.02	34.5000	118.4534	2.45
ELEM932	ANG4= 85.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.44	DTIMP= 0.01	34.5000	118.4532	2.67
ELEM933	ANG4= 88.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.32	DTIMP= 0.04	34.5000	118.4531	2.89
ELEM934	ANG4= 91.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.32	DTIMP= 0.06	34.5000	118.4531	3.11
ELEM935	ANG4= 94.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.44	DTIMP= 0.09	34.5000	118.4532	3.33
ELEM936	ANG4= 97.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.61	DTIMP= 0.11	34.5000	118.4534	3.55
ELEM937	ANG4=100.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.81	DTIMP= 0.14	34.5000	118.4538	3.77
ELEM938	ANG4=103.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 1.01	DTIMP= 0.16	34.5000	118.4543	3.99
ELEM939	ANG4=106.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.81	DTIMP= 0.10	34.5000	118.4549	4.20
ELEM940	ANG4=109.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.59	DTIMP= 0.08	34.5000	118.4557	4.42
ELEM941	ANG4=112.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.38	DTIMP= 0.06	34.5000	118.4565	4.62
ELEM942	ANG4=115.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.20	DTIMP= 0.04	34.5000	118.4575	4.83
ELEM943	ANG4=118.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.21	DTIMP= 0.02	34.5000	118.4586	5.03
ELEM944	ANG4=121.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.39	DTIMP= 0.00	34.5000	118.4598	5.22

ELEM945	ANG4=123.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.60	DTIMP= 0.01	34.5000	118.4611	5.41
ELEM946	ANG4=126.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.81	DTIMP= 0.03	34.5000	118.4625	5.59
ELEM947	ANG4=129.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.04	DTIMP= 0.05	34.5000	118.4640	5.76
ELEM948	ANG4=132.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.26	DTIMP= 0.06	34.5000	118.4655	5.93
ELEM949	ANG4=227.2	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.26	DTIMP= 0.06	34.5000	118.5344	5.93
ELEM950	ANG4=230.2	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.04	DTIMP= 0.05	34.5000	118.5360	5.76
ELEM951	ANG4=233.1	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.81	DTIMP= 0.03	34.5000	118.5375	5.59
ELEM952	ANG4=236.1	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.60	DTIMP= 0.01	34.5000	118.5389	5.41
ELEM953	ANG4=239.0	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.38	DTIMP= 0.00	34.5000	118.5402	5.22
ELEM954	ANG4=242.0	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.21	DTIMP= 0.02	34.5000	118.5414	5.03
ELEM955	ANG4=244.9	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.20	DTIMP= 0.04	34.5000	118.5425	4.83
ELEM956	ANG4=247.9	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.38	DTIMP= 0.06	34.5000	118.5435	4.62
ELEM957	ANG4=250.8	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.59	DTIMP= 0.08	34.5000	118.5443	4.42
ELEM958	ANG4=253.8	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.81	DTIMP= 0.10	34.5000	118.5450	4.20
ELEM959	ANG4=256.7	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.01	DTIMP= 0.16	34.5000	118.5457	3.99
ELEM960	ANG4=259.7	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.81	DTIMP= 0.14	34.5000	118.5462	3.77
ELEM961	ANG4=262.6	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.61	DTIMP= 0.11	34.5000	118.5465	3.55
ELEM962	ANG4=265.6	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.44	DTIMP= 0.09	34.5000	118.5468	3.33
ELEM963	ANG4=268.5	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.32	DTIMP= 0.06	34.5000	118.5469	3.11
ELEM964	ANG4=271.5	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.32	DTIMP= 0.04	34.5000	118.5469	2.89
ELEM965	ANG4=274.4	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.44	DTIMP= 0.01	34.5000	118.5468	2.67
ELEM966	ANG4=277.4	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.61	DTIMP= 0.02	34.5000	118.5465	2.45
ELEM967	ANG4=280.3	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.81	DTIMP= 0.04	34.5000	118.5462	2.23
ELEM968	ANG4=283.3	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.01	DTIMP= 0.07	34.5000	118.5457	2.01
ELEM969	ANG4=286.2	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.81	DTIMP= 0.08	34.5000	118.5450	1.80
ELEM970	ANG4=289.2	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.59	DTIMP= 0.05	34.5000	118.5443	1.58
ELEM971	ANG4=292.1	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.38	DTIMP= 0.02	34.5000	118.5435	1.38
ELEM972	ANG4=295.1	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.20	DTIMP= 0.01	34.5000	118.5425	1.17
ELEM973	ANG4=298.0	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.21	DTIMP= 0.04	34.5000	118.5414	0.97
ELEM974	ANG4=301.0	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.38	DTIMP= 0.07	34.5000	118.5402	0.78
ELEM975	ANG4=303.9	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.60	DTIMP= 0.10	34.5000	118.5389	0.59
ELEM976	ANG4=306.8	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.81	DTIMP= 0.13	34.5000	118.5375	0.41
ELEM977	ANG4=309.8	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 1.04	DTIMP= 0.15	34.5000	118.5360	0.24
ELEM978	ANG4=312.8	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 1.26	DTIMP= 0.18	34.5000	118.5344	0.07
RING: 20, 60 ELEMENTS RADIUS= 4.31											

ELEM979	ANG4= 50.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 1.01	DTIMP= 0.12	34.5000	118.4618	
ELEM980	ANG4= 53.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.79	DTIMP= 0.09	34.5000	118.4603	
ELEM981	ANG4= 56.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.57	DTIMP= 0.06	34.5000	118.4589	
ELEM982	ANG4= 59.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.35	DTIMP= 0.04	34.5000	118.4576	0.67
ELEM983	ANG4= 61.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.14	DTIMP= 0.01	34.5000	118.4565	0.86
ELEM984	ANG4= 64.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.11	DTIMP= 0.02	34.5000	118.4554	1.06
ELEM985	ANG4= 67.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.32	DTIMP= 0.05	34.5000	118.4544	1.26
ELEM986	ANG4= 70.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.54	DTIMP= 0.08	34.5000	118.4535	1.47
ELEM987	ANG4= 73.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.76	DTIMP= 0.11	34.5000	118.4527	1.68
ELEM988	ANG4= 75.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.98	DTIMP= 0.14	34.5000	118.4521	1.90
ELEM989	ANG4= 78.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.99	DTIMP= 0.02	34.5000	118.4516	2.12
ELEM990	ANG4= 81.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.82	DTIMP= 0.01	34.5000	118.4511	2.33
ELEM991	ANG4= 84.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.67	DTIMP= 0.04	34.5000	118.4509	2.56
ELEM992	ANG4= 87.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.56	DTIMP= 0.06	34.5000	118.4507	2.78
ELEM993	ANG4= 90.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.52	DTIMP= 0.09	34.5000	118.4506	3.00
ELEM994	ANG4= 92.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.58	DTIMP= 0.11	34.5000	118.4507	3.22
ELEM995	ANG4= 95.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.67	DTIMP= 0.14	34.5000	118.4509	3.44
ELEM996	ANG4= 98.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.82	DTIMP= 0.16	34.5000	118.4511	3.67
ELEM997	ANG4=101.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	10	DIS= 0.99	DTIMP= 0.18	34.5000	118.4516	3.88
ELEM998	ANG4=104.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.98	DTIMP= 0.08	34.5000	118.4521	4.10
ELEM999	ANG4=106.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.76	DTIMP= 0.06	34.5000	118.4527	4.32
ELEM100	ANG4=109.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.54	DTIMP= 0.04	34.5000	118.4535	4.53
ELEM101	ANG4=112.5	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.32	DTIMP= 0.02	34.5000	118.4544	4.74
ELEM102	ANG4=115.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.11	DTIMP= 0.00	34.5000	118.4554	4.94

ELEM\$10	ANG4=118.1	ANG5= 90.0	AZMA= 90.0	EVENT	0	15	DIS= 0.14	DTIMP= 0.02	34.5000	118.4565	5.14
ELEM\$10	ANG4=120.9	ANG5= 90.0	AZMA= 90.0	EVENT	0	15	DIS= 0.35	DTIMP= 0.04	34.5000	118.4576	5.33
ELEM\$10	ANG4=123.7	ANG5= 90.0	AZMA= 90.0	EVENT	0	15	DIS= 0.57	DTIMP= 0.05	34.5000	118.4589	5.52
ELEM\$10	ANG4=126.6	ANG5= 90.0	AZMA= 90.0	EVENT	0	15	DIS= 0.79	DTIMP= 0.07	34.5000	118.4603	5.70
ELEM\$10	ANG4=129.4	ANG5= 90.0	AZMA= 90.0	EVENT	0	15	DIS= 1.01	DTIMP= 0.09	34.5000	118.4618	5.88
ELEM\$10	ANG4=230.6	ANG5=270.0	AZMA=270.0	EVENT	0	11	DIS= 1.01	DTIMP= 0.09	34.5000	118.5382	5.88
ELEM\$10	ANG4=233.4	ANG5=270.0	AZMA=270.0	EVENT	0	11	DIS= 0.79	DTIMP= 0.07	34.5000	118.5397	5.70
ELEM\$10	ANG4=236.2	ANG5=270.0	AZMA=270.0	EVENT	0	11	DIS= 0.57	DTIMP= 0.05	34.5000	118.5410	5.52
ELEM\$10	ANG4=239.1	ANG5=270.0	AZMA=270.0	EVENT	0	11	DIS= 0.35	DTIMP= 0.04	34.5000	118.5423	5.33
ELEM\$10	ANG4=241.9	ANG5=270.0	AZMA=270.0	EVENT	0	11	DIS= 0.14	DTIMP= 0.02	34.5000	118.5435	5.14
ELEM\$10	ANG4=244.7	ANG5=270.0	AZMA=270.0	EVENT	0	11	DIS= 0.11	DTIMP= 0.00	34.5000	118.5446	4.94
ELEM\$10	ANG4=247.5	ANG5=270.0	AZMA=270.0	EVENT	0	11	DIS= 0.32	DTIMP= 0.02	34.5000	118.5456	4.74
ELEM\$10	ANG4=250.3	ANG5=270.0	AZMA=270.0	EVENT	0	11	DIS= 0.54	DTIMP= 0.04	34.5000	118.5465	4.53
ELEM\$10	ANG4=253.1	ANG5=270.0	AZMA=270.0	EVENT	0	11	DIS= 0.76	DTIMP= 0.06	34.5000	118.5472	4.32
ELEM\$10	ANG4=255.9	ANG5=270.0	AZMA=270.0	EVENT	0	11	DIS= 0.98	DTIMP= 0.08	34.5000	118.5479	4.10
ELEM\$10	ANG4=258.7	ANG5=270.0	AZMA=270.0	EVENT	0	6	DIS= 0.99	DTIMP= 0.18	34.5000	118.5484	3.88
ELEM\$10	ANG4=261.6	ANG5=270.0	AZMA=270.0	EVENT	0	6	DIS= 0.82	DTIMP= 0.16	34.5000	118.5488	3.67
ELEM\$10	ANG4=264.4	ANG5=270.0	AZMA=270.0	EVENT	0	6	DIS= 0.67	DTIMP= 0.14	34.5000	118.5491	3.44
ELEM\$10	ANG4=267.2	ANG5=270.0	AZMA=270.0	EVENT	0	6	DIS= 0.56	DTIMP= 0.11	34.5000	118.5493	3.22
ELEM\$10	ANG4=270.0	ANG5=270.0	AZMA=270.0	EVENT	0	6	DIS= 0.52	DTIMP= 0.09	34.5000	118.5494	3.00
ELEM\$10	ANG4=272.8	ANG5=270.0	AZMA=270.0	EVENT	0	6	DIS= 0.56	DTIMP= 0.06	34.5000	118.5493	2.78
ELEM\$10	ANG4=275.6	ANG5=270.0	AZMA=270.0	EVENT	0	6	DIS= 0.67	DTIMP= 0.04	34.5000	118.5491	2.56
ELEM\$10	ANG4=278.4	ANG5=270.0	AZMA=270.0	EVENT	0	6	DIS= 0.82	DTIMP= 0.01	34.5000	118.5488	2.33
ELEM\$10	ANG4=281.2	ANG5=270.0	AZMA=270.0	EVENT	0	6	DIS= 0.99	DTIMP= 0.02	34.5000	118.5484	2.12
ELEM\$10	ANG4=284.1	ANG5=270.0	AZMA=270.0	EVENT	0	1	DIS= 0.98	DTIMP= 0.14	34.5000	118.5479	1.90
ELEM\$10	ANG4=286.9	ANG5=270.0	AZMA=270.0	EVENT	0	1	DIS= 0.76	DTIMP= 0.11	34.5000	118.5472	1.68
ELEM\$10	ANG4=289.7	ANG5=270.0	AZMA=270.0	EVENT	0	1	DIS= 0.54	DTIMP= 0.08	34.5000	118.5465	1.47
ELEM\$10	ANG4=292.5	ANG5=270.0	AZMA=270.0	EVENT	0	1	DIS= 0.32	DTIMP= 0.05	34.5000	118.5456	1.26
ELEM\$10	ANG4=295.3	ANG5=270.0	AZMA=270.0	EVENT	0	1	DIS= 0.11	DTIMP= 0.02	34.5000	118.5446	1.06
ELEM\$10	ANG4=298.1	ANG5=270.0	AZMA=270.0	EVENT	0	1	DIS= 0.14	DTIMP= 0.01	34.5000	118.5435	0.86
ELEM\$10	ANG4=300.9	ANG5=270.0	AZMA=270.0	EVENT	0	1	DIS= 0.35	DTIMP= 0.04	34.5000	118.5423	0.67
ELEM\$10	ANG4=303.7	ANG5=270.0	AZMA=270.0	EVENT	0	1	DIS= 0.57	DTIMP= 0.06	34.5000	118.5410	0.48
ELEM\$10	ANG4=306.6	ANG5=270.0	AZMA=270.0	EVENT	0	1	DIS= 0.79	DTIMP= 0.09	34.5000	118.5397	0.30
ELEM\$10	ANG4=309.4	ANG5=270.0	AZMA=270.0	EVENT	0	1	DIS= 1.01	DTIMP= 0.12	34.5000	118.5382	0.12

RING: 21, 58 ELEMENTS RADIUS= 4.53

ELEM\$10	ANG4= 51.0	ANG5= 90.0	AZMA= 90.0	EVENT	0	5	DIS= 1.04	DTIMP= 0.08	34.5000	118.4597	0.01
ELEM\$10	ANG4= 53.7	ANG5= 90.0	AZMA= 90.0	EVENT	0	5	DIS= 0.83	DTIMP= 0.06	34.5000	118.4582	0.18
ELEM\$10	ANG4= 56.4	ANG5= 90.0	AZMA= 90.0	EVENT	0	5	DIS= 0.63	DTIMP= 0.03	34.5000	118.4568	0.37
ELEM\$10	ANG4= 59.1	ANG5= 90.0	AZMA= 90.0	EVENT	0	5	DIS= 0.45	DTIMP= 0.00	34.5000	118.4555	0.56
ELEM\$10	ANG4= 61.8	ANG5= 90.0	AZMA= 90.0	EVENT	0	5	DIS= 0.31	DTIMP= 0.03	34.5000	118.4543	0.75
ELEM\$10	ANG4= 64.5	ANG5= 90.0	AZMA= 90.0	EVENT	0	5	DIS= 0.29	DTIMP= 0.05	34.5000	118.4532	0.95
ELEM\$10	ANG4= 67.2	ANG5= 90.0	AZMA= 90.0	EVENT	0	5	DIS= 0.40	DTIMP= 0.08	34.5000	118.4522	1.15
ELEM\$10	ANG4= 69.9	ANG5= 90.0	AZMA= 90.0	EVENT	0	5	DIS= 0.58	DTIMP= 0.11	34.5000	118.4513	1.36
ELEM\$10	ANG4= 72.5	ANG5= 90.0	AZMA= 90.0	EVENT	0	5	DIS= 0.78	DTIMP= 0.14	34.5000	118.4506	1.57
ELEM\$10	ANG4= 75.2	ANG5= 90.0	AZMA= 90.0	EVENT	0	5	DIS= 0.98	DTIMP= 0.17	34.5000	118.4499	1.79
ELEM\$10	ANG4= 77.9	ANG5= 90.0	AZMA= 90.0	EVENT	0	10	DIS= 1.18	DTIMP= 0.01	34.5000	118.4493	2.00
ELEM\$10	ANG4= 80.6	ANG5= 90.0	AZMA= 90.0	EVENT	0	10	DIS= 1.03	DTIMP= 0.04	34.5000	118.4489	2.22
ELEM\$10	ANG4= 83.3	ANG5= 90.0	AZMA= 90.0	EVENT	0	10	DIS= 0.91	DTIMP= 0.06	34.5000	118.4485	2.44
ELEM\$10	ANG4= 86.0	ANG5= 90.0	AZMA= 90.0	EVENT	0	10	DIS= 0.81	DTIMP= 0.09	34.5000	118.4483	2.67
ELEM\$10	ANG4= 88.7	ANG5= 90.0	AZMA= 90.0	EVENT	0	10	DIS= 0.75	DTIMP= 0.11	34.5000	118.4482	2.89
ELEM\$10	ANG4= 91.3	ANG5= 90.0	AZMA= 90.0	EVENT	0	10	DIS= 0.75	DTIMP= 0.14	34.5000	118.4482	3.11
ELEM\$10	ANG4= 94.0	ANG5= 90.0	AZMA= 90.0	EVENT	0	10	DIS= 0.81	DTIMP= 0.16	34.5000	118.4483	3.33
ELEM\$10	ANG4= 96.7	ANG5= 90.0	AZMA= 90.0	EVENT	0	10	DIS= 0.91	DTIMP= 0.19	34.5000	118.4485	3.56
ELEM\$10	ANG4= 99.4	ANG5= 90.0	AZMA= 90.0	EVENT	0	10	DIS= 1.03	DTIMP= 0.21	34.5000	118.4489	3.78
ELEM\$10	ANG4=102.1	ANG5= 90.0	AZMA= 90.0	EVENT	0	10	DIS= 1.18	DTIMP= 0.23	34.5000	118.4493	4.00
ELEM\$10	ANG4=104.8	ANG5= 90.0	AZMA= 90.0	EVENT	0	15	DIS= 0.98	DTIMP= 0.03	34.5000	118.4499	4.21
ELEM\$10	ANG4=107.5	ANG5= 90.0	AZMA= 90.0	EVENT	0	15	DIS= 0.78	DTIMP= 0.01	34.5000	118.4506	4.43
ELEM\$10	ANG4=110.1	ANG5= 90.0	AZMA= 90.0	EVENT	0	15	DIS= 0.58	DTIMP= 0.01	34.5000	118.4513	4.64
ELEM\$10	ANG4=112.8	ANG5= 90.0	AZMA= 90.0	EVENT	0	15	DIS= 0.40	DTIMP= 0.02	34.5000	118.4522	4.85

ELEM\$10	ANG4=115.5	ANG5= 90.0	AZM4= 90.0	EVENT	0	15	DIS= 0.29	DTIMP= 0.04	34.5000	118.4532	5.05
ELEM\$10	ANG4=118.2	ANG5= 90.0	AZM4= 90.0	EVENT	0	15	DIS= 0.31	DTIMP= 0.06	34.5000	118.4543	5.25
ELEM\$10	ANG4=120.9	ANG5= 90.0	AZM4= 90.0	EVENT	0	15	DIS= 0.45	DTIMP= 0.08	34.5000	118.4555	5.44
ELEM\$10	ANG4=123.6	ANG5= 90.0	AZM4= 90.0	EVENT	0	15	DIS= 0.63	DTIMP= 0.10	34.5000	118.4568	5.63
ELEM\$10	ANG4=126.3	ANG5= 90.0	AZM4= 90.0	EVENT	0	15	DIS= 0.83	DTIMP= 0.11	34.5000	118.4582	5.82
ELEM\$10	ANG4=129.0	ANG5= 90.0	AZM4= 90.0	EVENT	0	15	DIS= 1.04	DTIMP= 0.13	34.5000	118.4597	5.99
ELEM\$10	ANG4=231.0	ANG5=270.0	AZM4=270.0	EVENT	0	11	DIS= 1.04	DTIMP= 0.13	34.5000	118.5403	5.99
ELEM\$10	ANG4=233.7	ANG5=270.0	AZM4=270.0	EVENT	0	11	DIS= 0.83	DTIMP= 0.11	34.5000	118.5418	5.82
ELEM\$10	ANG4=236.4	ANG5=270.0	AZM4=270.0	EVENT	0	11	DIS= 0.63	DTIMP= 0.10	34.5000	118.5432	5.63
ELEM\$10	ANG4=239.1	ANG5=270.0	AZM4=270.0	EVENT	0	11	DIS= 0.45	DTIMP= 0.08	34.5000	118.5445	5.44
ELEM\$10	ANG4=241.8	ANG5=270.0	AZM4=270.0	EVENT	0	11	DIS= 0.31	DTIMP= 0.06	34.5000	118.5457	5.25
ELEM\$10	ANG4=244.5	ANG5=270.0	AZM4=270.0	EVENT	0	11	DIS= 0.29	DTIMP= 0.04	34.5000	118.5468	5.05
ELEM\$10	ANG4=247.2	ANG5=270.0	AZM4=270.0	EVENT	0	11	DIS= 0.40	DTIMP= 0.03	34.5000	118.5477	4.85
ELEM\$10	ANG4=249.9	ANG5=270.0	AZM4=270.0	EVENT	0	11	DIS= 0.58	DTIMP= 0.01	34.5000	118.5486	4.64
ELEM\$10	ANG4=252.5	ANG5=270.0	AZM4=270.0	EVENT	0	11	DIS= 0.78	DTIMP= 0.01	34.5000	118.5494	4.43
ELEM\$10	ANG4=255.2	ANG5=270.0	AZM4=270.0	EVENT	0	11	DIS= 0.98	DTIMP= 0.03	34.5000	118.5501	4.21
ELEM\$10	ANG4=257.9	ANG5=270.0	AZM4=270.0	EVENT	0	6	DIS= 1.19	DTIMP= 0.23	34.5000	118.5507	4.00
ELEM\$10	ANG4=260.6	ANG5=270.0	AZM4=270.0	EVENT	0	6	DIS= 1.03	DTIMP= 0.21	34.5000	118.5511	3.78
ELEM\$10	ANG4=263.3	ANG5=270.0	AZM4=270.0	EVENT	0	6	DIS= 0.91	DTIMP= 0.19	34.5000	118.5515	3.56
ELEM\$10	ANG4=266.0	ANG5=270.0	AZM4=270.0	EVENT	0	6	DIS= 0.81	DTIMP= 0.16	34.5000	118.5517	3.33
ELEM\$10	ANG4=268.7	ANG5=270.0	AZM4=270.0	EVENT	0	6	DIS= 0.75	DTIMP= 0.14	34.5000	118.5518	3.11
ELEM\$10	ANG4=271.3	ANG5=270.0	AZM4=270.0	EVENT	0	6	DIS= 0.75	DTIMP= 0.11	34.5000	118.5518	2.89
ELEM\$10	ANG4=274.0	ANG5=270.0	AZM4=270.0	EVENT	0	6	DIS= 0.81	DTIMP= 0.09	34.5000	118.5517	2.67
ELEM\$10	ANG4=276.7	ANG5=270.0	AZM4=270.0	EVENT	0	6	DIS= 0.91	DTIMP= 0.06	34.5000	118.5515	2.44
ELEM\$10	ANG4=279.4	ANG5=270.0	AZM4=270.0	EVENT	0	6	DIS= 1.03	DTIMP= 0.04	34.5000	118.5511	2.22
ELEM\$10	ANG4=282.1	ANG5=270.0	AZM4=270.0	EVENT	0	6	DIS= 1.19	DTIMP= 0.01	34.5000	118.5507	2.00
ELEM\$10	ANG4=284.8	ANG5=270.0	AZM4=270.0	EVENT	0	1	DIS= 0.98	DTIMP= 0.17	34.5000	118.5501	1.79
ELEM\$10	ANG4=287.5	ANG5=270.0	AZM4=270.0	EVENT	0	1	DIS= 0.78	DTIMP= 0.14	34.5000	118.5494	1.57
ELEM\$10	ANG4=290.1	ANG5=270.0	AZM4=270.0	EVENT	0	1	DIS= 0.58	DTIMP= 0.11	34.5000	118.5486	1.36
ELEM\$10	ANG4=292.8	ANG5=270.0	AZM4=270.0	EVENT	0	1	DIS= 0.40	DTIMP= 0.08	34.5000	118.5477	1.15
ELEM\$10	ANG4=295.5	ANG5=270.0	AZM4=270.0	EVENT	0	1	DIS= 0.29	DTIMP= 0.05	34.5000	118.5468	0.95
ELEM\$10	ANG4=298.2	ANG5=270.0	AZM4=270.0	EVENT	0	1	DIS= 0.31	DTIMP= 0.03	34.5000	118.5457	0.75
ELEM\$10	ANG4=300.9	ANG5=270.0	AZM4=270.0	EVENT	0	1	DIS= 0.45	DTIMP= 0.00	34.5000	118.5445	0.56
ELEM\$10	ANG4=303.6	ANG5=270.0	AZM4=270.0	EVENT	0	1	DIS= 0.63	DTIMP= 0.03	34.5000	118.5432	0.37
ELEM\$10	ANG4=306.3	ANG5=270.0	AZM4=270.0	EVENT	0	1	DIS= 0.83	DTIMP= 0.06	34.5000	118.5418	0.18
ELEM\$10	ANG4=309.0	ANG5=270.0	AZM4=270.0	EVENT	0	1	DIS= 1.04	DTIMP= 0.08	34.5000	118.5403	0.01

RING: 22, 60 ELEMENTS RADIUS= 4.76

ELEM\$10	ANG4= 53.6	ANG5= 90.0	AZM4= 90.0	EVENT	0	5	DIS= 0.96	DTIMP= 0.02	34.5000	118.4563	0.04
ELEM\$10	ANG4= 56.2	ANG5= 90.0	AZM4= 90.0	EVENT	0	5	DIS= 0.79	DTIMP= 0.00	34.5000	118.4549	0.23
ELEM\$10	ANG4= 58.7	ANG5= 90.0	AZM4= 90.0	EVENT	0	5	DIS= 0.64	DTIMP= 0.03	34.5000	118.4536	0.41
ELEM\$11	ANG4= 61.3	ANG5= 90.0	AZM4= 90.0	EVENT	0	5	DIS= 0.53	DTIMP= 0.06	34.5000	118.4524	0.60
ELEM\$11	ANG4= 63.8	ANG5= 90.0	AZM4= 90.0	EVENT	0	5	DIS= 0.50	DTIMP= 0.08	34.5000	118.4513	0.80
ELEM\$11	ANG4= 66.4	ANG5= 90.0	AZM4= 90.0	EVENT	0	5	DIS= 0.55	DTIMP= 0.11	34.5000	118.4503	1.00
ELEM\$11	ANG4= 68.9	ANG5= 90.0	AZM4= 90.0	EVENT	0	5	DIS= 0.67	DTIMP= 0.14	34.5000	118.4494	1.21
ELEM\$11	ANG4= 71.5	ANG5= 90.0	AZM4= 90.0	EVENT	0	5	DIS= 0.83	DTIMP= 0.17	34.5000	118.4485	1.42
ELEM\$11	ANG4= 74.0	ANG5= 90.0	AZM4= 90.0	EVENT	0	5	DIS= 1.00	DTIMP= 0.20	34.5000	118.4478	1.63
ELEM\$11	ANG4= 76.6	ANG5= 90.0	AZM4= 90.0	EVENT	0	5	DIS= 1.19	DTIMP= 0.22	34.5000	118.4472	1.84
ELEM\$11	ANG4= 79.1	ANG5= 90.0	AZM4= 90.0	EVENT	0	10	DIS= 1.29	DTIMP= 0.06	34.5000	118.4467	2.06
ELEM\$11	ANG4= 81.7	ANG5= 90.0	AZM4= 90.0	EVENT	0	10	DIS= 1.17	DTIMP= 0.09	34.5000	118.4463	2.28
ELEM\$11	ANG4= 84.3	ANG5= 90.0	AZM4= 90.0	EVENT	0	10	DIS= 1.07	DTIMP= 0.11	34.5000	118.4460	2.50
ELEM\$11	ANG4= 86.8	ANG5= 90.0	AZM4= 90.0	EVENT	0	10	DIS= 1.00	DTIMP= 0.13	34.5000	118.4458	2.72
ELEM\$11	ANG4= 89.4	ANG5= 90.0	AZM4= 90.0	EVENT	0	10	DIS= 0.97	DTIMP= 0.16	34.5000	118.4457	2.94
ELEM\$11	ANG4= 91.9	ANG5= 90.0	AZM4= 90.0	EVENT	0	10	DIS= 0.98	DTIMP= 0.18	34.5000	118.4458	3.17
ELEM\$11	ANG4= 94.5	ANG5= 90.0	AZM4= 90.0	EVENT	0	10	DIS= 1.03	DTIMP= 0.21	34.5000	118.4459	3.39
ELEM\$11	ANG4= 97.0	ANG5= 90.0	AZM4= 90.0	EVENT	0	10	DIS= 1.11	DTIMP= 0.23	34.5000	118.4461	3.61
ELEM\$11	ANG4= 99.6	ANG5= 90.0	AZM4= 90.0	EVENT	0	10	DIS= 1.22	DTIMP= 0.25	34.5000	118.4465	3.83
ELEM\$11	ANG4=102.1	ANG5= 90.0	AZM4= 90.0	EVENT	0	15	DIS= 1.28	DTIMP= 0.02	34.5000	118.4469	4.05
ELEM\$11	ANG4=104.7	ANG5= 90.0	AZM4= 90.0	EVENT	0	15	DIS= 1.10	DTIMP= 0.01	34.5000	118.4475	4.26
ELEM\$11	ANG4=107.2	ANG5= 90.0	AZM4= 90.0	EVENT	0	15	DIS= 0.91	DTIMP= 0.02	34.5000	118.4482	4.48

ELEM\$11	ANG4=109.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.75	DTIMP= 0.04	34.5000	118.4489	4.69
ELEM\$11	ANG4=112.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.61	DTIMP= 0.06	34.5000	118.4498	4.89
ELEM\$11	ANG4=114.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.52	DTIMP= 0.08	34.5000	118.4508	5.10
ELEM\$11	ANG4=117.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.51	DTIMP= 0.10	34.5000	118.4518	5.30
ELEM\$11	ANG4=120.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.58	DTIMP= 0.12	34.5000	118.4530	5.49
ELEM\$11	ANG4=122.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.71	DTIMP= 0.13	34.5000	118.4543	5.68
ELEM\$11	ANG4=125.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.87	DTIMP= 0.15	34.5000	118.4556	5.87
ELEM\$11	ANG4=234.9	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.87	DTIMP= 0.15	34.5000	118.5444	5.87
ELEM\$11	ANG4=237.4	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.71	DTIMP= 0.13	34.5000	118.5457	5.68
ELEM\$11	ANG4=240.0	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.58	DTIMP= 0.12	34.5000	118.5470	5.49
ELEM\$11	ANG4=242.6	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.51	DTIMP= 0.10	34.5000	118.5482	5.30
ELEM\$11	ANG4=245.1	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.52	DTIMP= 0.08	34.5000	118.5492	5.10
ELEM\$11	ANG4=247.7	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.61	DTIMP= 0.06	34.5000	118.5502	4.89
ELEM\$11	ANG4=250.2	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.75	DTIMP= 0.04	34.5000	118.5511	4.69
ELEM\$11	ANG4=252.8	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.91	DTIMP= 0.02	34.5000	118.5518	4.48
ELEM\$11	ANG4=255.3	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.10	DTIMP= 0.01	34.5000	118.5525	4.26
ELEM\$11	ANG4=257.9	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.28	DTIMP= 0.01	34.5000	118.5531	4.05
ELEM\$11	ANG4=260.4	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.22	DTIMP= 0.25	34.5000	118.5535	3.83
ELEM\$11	ANG4=263.0	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.11	DTIMP= 0.23	34.5000	118.5538	3.61
ELEM\$11	ANG4=265.5	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.03	DTIMP= 0.21	34.5000	118.5541	3.39
ELEM\$11	ANG4=268.1	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.98	DTIMP= 0.18	34.5000	118.5542	3.17
ELEM\$11	ANG4=270.6	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 0.97	DTIMP= 0.16	34.5000	118.5543	2.94
ELEM\$11	ANG4=273.2	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.00	DTIMP= 0.13	34.5000	118.5542	2.72
ELEM\$11	ANG4=275.7	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.07	DTIMP= 0.11	34.5000	118.5540	2.50
ELEM\$11	ANG4=278.3	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.17	DTIMP= 0.09	34.5000	118.5537	2.28
ELEM\$11	ANG4=280.9	ANG5=270.0	AZIM=270.0	EVENT	0	6	DIS= 1.29	DTIMP= 0.06	34.5000	118.5533	2.06
ELEM\$11	ANG4=283.4	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 1.19	DTIMP= 0.22	34.5000	118.5528	1.84
ELEM\$11	ANG4=286.0	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 1.00	DTIMP= 0.20	34.5000	118.5522	1.63
ELEM\$11	ANG4=288.5	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.83	DTIMP= 0.17	34.5000	118.5515	1.42
ELEM\$11	ANG4=291.1	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.67	DTIMP= 0.14	34.5000	118.5508	1.21
ELEM\$11	ANG4=293.6	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.55	DTIMP= 0.11	34.5000	118.5497	1.00
ELEM\$11	ANG4=296.2	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.50	DTIMP= 0.08	34.5000	118.5487	0.80
ELEM\$11	ANG4=298.7	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.53	DTIMP= 0.06	34.5000	118.5476	0.60
ELEM\$11	ANG4=301.3	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.64	DTIMP= 0.03	34.5000	118.5464	0.41
ELEM\$11	ANG4=303.8	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.79	DTIMP= 0.00	34.5000	118.5451	0.23
ELEM\$11	ANG4=306.4	ANG5=270.0	AZIM=270.0	EVENT	0	1	DIS= 0.96	DTIMP= 0.02	34.5000	118.5437	0.04

RING: 23, 58 ELEMENTS RADIUS= 4.98

ELEM\$11	ANG4= 56.3	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.95	DTIMP= 0.04	34.5000	118.4528	0.11
ELEM\$11	ANG4= 58.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.83	DTIMP= 0.07	34.5000	118.4515	0.30
ELEM\$11	ANG4= 61.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.75	DTIMP= 0.09	34.5000	118.4503	0.49
ELEM\$11	ANG4= 63.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.73	DTIMP= 0.12	34.5000	118.4492	0.69
ELEM\$11	ANG4= 66.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.76	DTIMP= 0.15	34.5000	118.4481	0.89
ELEM\$11	ANG4= 68.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.84	DTIMP= 0.18	34.5000	118.4472	1.10
ELEM\$11	ANG4= 71.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	5	DIS= 0.96	DTIMP= 0.20	34.5000	118.4464	1.31
ELEM\$11	ANG4=107.8	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.03	DTIMP= 0.07	34.5000	118.4460	4.59
ELEM\$11	ANG4=110.2	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.90	DTIMP= 0.09	34.5000	118.4468	4.80
ELEM\$11	ANG4=112.7	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.80	DTIMP= 0.11	34.5000	118.4476	5.01
ELEM\$11	ANG4=115.1	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.74	DTIMP= 0.12	34.5000	118.4486	5.21
ELEM\$11	ANG4=117.6	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.73	DTIMP= 0.14	34.5000	118.4497	5.41
ELEM\$11	ANG4=120.0	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.78	DTIMP= 0.16	34.5000	118.4509	5.60
ELEM\$11	ANG4=122.4	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 0.88	DTIMP= 0.17	34.5000	118.4521	5.79
ELEM\$11	ANG4=124.9	ANG5= 90.0	AZIM= 90.0	EVENT	0	15	DIS= 1.01	DTIMP= 0.19	34.5000	118.4535	5.98
ELEM\$11	ANG4=235.1	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 1.01	DTIMP= 0.19	34.5000	118.5465	5.98
ELEM\$11	ANG4=237.6	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.88	DTIMP= 0.17	34.5000	118.5479	5.79
ELEM\$11	ANG4=240.0	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.78	DTIMP= 0.16	34.5000	118.5491	5.60
ELEM\$11	ANG4=242.4	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.73	DTIMP= 0.14	34.5000	118.5503	5.41
ELEM\$11	ANG4=244.9	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.74	DTIMP= 0.12	34.5000	118.5513	5.21
ELEM\$11	ANG4=247.3	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.80	DTIMP= 0.11	34.5000	118.5523	5.01
ELEM\$11	ANG4=249.8	ANG5=270.0	AZIM=270.0	EVENT	0	11	DIS= 0.90	DTIMP= 0.09	34.5000	118.5532	4.80

ELEM\$11	ANG4=	ANG5=	AZM=	EVENT	0	11	DIS=	DTIMP=	34.5000	118.5540	4.59
ELEM\$11	ANG4=252.2	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 1.11	DTIMP= 0.23	34.5000	118.5544	1.52
ELEM\$11	ANG4=289.0	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 0.96	DTIMP= 0.20	34.5000	118.5536	1.31
ELEM\$11	ANG4=291.4	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 0.84	DTIMP= 0.18	34.5000	118.5528	1.10
ELEM\$11	ANG4=293.9	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 0.76	DTIMP= 0.15	34.5000	118.5518	0.89
ELEM\$11	ANG4=296.3	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 0.73	DTIMP= 0.12	34.5000	118.5508	0.69
ELEM\$11	ANG4=298.8	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 0.75	DTIMP= 0.09	34.5000	118.5497	0.49
ELEM\$11	ANG4=301.2	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 0.83	DTIMP= 0.07	34.5000	118.5485	0.30
ELEM\$11	ANG4=303.7	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 0.95	DTIMP= 0.04	34.5000	118.5472	0.11

RING: 24, 31 ELEMENTS RADIUS= 5.21

ELEM\$11	ANG4=	ANG5=	AZM=	EVENT	0	5	DIS=	DTIMP=	34.5000	118.4494	0.19
ELEM\$11	ANG4= 58.8	ANG5= 90.0	AZM= 90.0	EVENT	0	5	DIS= 0.97	DTIMP= 0.13	34.5000	118.4482	0.38
ELEM\$11	ANG4= 61.2	ANG5= 90.0	AZM= 90.0	EVENT	0	5	DIS= 0.95	DTIMP= 0.16	34.5000	118.4470	0.58
ELEM\$11	ANG4= 63.5	ANG5= 90.0	AZM= 90.0	EVENT	0	5	DIS= 0.97	DTIMP= 0.19	34.5000	118.4460	0.78
ELEM\$11	ANG4= 65.9	ANG5= 90.0	AZM= 90.0	EVENT	0	5	DIS= 0.96	DTIMP= 0.17	34.5000	118.4465	5.32
ELEM\$11	ANG4=115.3	ANG5= 90.0	AZM= 90.0	EVENT	0	15	DIS= 0.96	DTIMP= 0.18	34.5000	118.4476	5.52
ELEM\$11	ANG4=117.6	ANG5= 90.0	AZM= 90.0	EVENT	0	15	DIS= 1.00	DTIMP= 0.20	34.5000	118.4488	5.72
ELEM\$11	ANG4=120.0	ANG5= 90.0	AZM= 90.0	EVENT	0	15	DIS= 1.08	DTIMP= 0.22	34.5000	118.4500	5.91
ELEM\$11	ANG4=122.4	ANG5= 90.0	AZM= 90.0	EVENT	0	15	DIS= 1.08	DTIMP= 0.22	34.5000	118.4500	5.91
ELEM\$11	ANG4=237.6	ANG5=270.0	AZM=270.0	EVENT	0	11	DIS= 1.00	DTIMP= 0.20	34.5000	118.5512	5.72
ELEM\$11	ANG4=240.0	ANG5=270.0	AZM=270.0	EVENT	0	11	DIS= 0.96	DTIMP= 0.18	34.5000	118.5524	5.52
ELEM\$11	ANG4=242.4	ANG5=270.0	AZM=270.0	EVENT	0	11	DIS= 0.96	DTIMP= 0.17	34.5000	118.5535	5.32
ELEM\$11	ANG4=244.7	ANG5=270.0	AZM=270.0	EVENT	0	11	DIS= 0.97	DTIMP= 0.19	34.5000	118.5540	0.78
ELEM\$11	ANG4=249.1	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 0.95	DTIMP= 0.16	34.5000	118.5529	0.58
ELEM\$11	ANG4=296.5	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 0.97	DTIMP= 0.13	34.5000	118.5518	0.38
ELEM\$12	ANG4=298.8	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 1.03	DTIMP= 0.11	34.5000	118.5506	0.19

RING: 25, 16 ELEMENTS RADIUS= 5.43

ELEM\$12	ANG4=	ANG5=	AZM=	EVENT	0	5	DIS=	DTIMP=	34.5000	118.4473	0.08
ELEM\$12	ANG4= 58.9	ANG5= 90.0	AZM= 90.0	EVENT	0	5	DIS= 1.19	DTIMP= 0.17	34.5000	118.4460	0.27
ELEM\$12	ANG4= 61.1	ANG5= 90.0	AZM= 90.0	EVENT	0	5	DIS= 1.21	DTIMP= 0.24	34.5000	118.4467	5.83
ELEM\$12	ANG4=120.0	ANG5= 90.0	AZM= 90.0	EVENT	0	15	DIS= 1.21	DTIMP= 0.24	34.5000	118.5533	5.83
ELEM\$12	ANG4=240.0	ANG5=270.0	AZM=270.0	EVENT	0	11	DIS= 1.19	DTIMP= 0.17	34.5000	118.5539	0.27
ELEM\$12	ANG4=298.9	ANG5=270.0	AZM=270.0	EVENT	0	1	DIS= 1.24	DTIMP= 0.15	34.5000	118.5527	0.08

RING: 26, 6 ELEMENTS RADIUS= 5.66

TAL NUMBER OF ELEMENTAL AREAS IS 1207 MAXIMUM RADIUS 5.77 KM

TWO DIMENSIONAL HASKEL RUPTURE MODEL WITH STEP SLIP FUNCTION

EACH ELEMENT HAS THE SAME DISPLACEMENT: 55.2 CM

TOTAL FAULTING DURATION 2.26 SECONDS

SLIP FUNCTION INCREMENTED BY DIGITIZING RATE

SOURCE EVENTS AND SYNTHESIZED OUTPUT LIMITED TO 1000 POINTS

*** SOURCE EVENT (0 0 0001) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-51.3	90.0	0.0	86.9	69.1	32.1

RADIATION CORRECTION FACTORS	P	SV	SH
-.973	-.400	-.400	

SOURCE EVENT SPLIT FOR ANALYSIS 2.00 SEC FROM ORIGIN ISS = 200

*** SOURCE EVENT (0 0 0002) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-68.0	90.0	0.0	89.6	69.3	32.1

RADIATION CORRECTION FACTORS P SV SH
 -0.694 -0.400 -0.720
 SOURCE EVENT SPLIT FOR ANALYSIS 1.80 SEC FROM ORIGIN ISS = 179

*** SOURCE EVENT (0 0 0003) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -90.0 90.0 0.0 88.1 69.3 32.1
 RADIATION CORRECTION FACTORS P SV SH
 -0.400 -0.400 -0.999
 SOURCE EVENT SPLIT FOR ANALYSIS 1.80 SEC FROM ORIGIN ISS = 179

*** SOURCE EVENT (0 0 0004) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 248.0 90.0 0.0 89.6 69.3 32.1
 RADIATION CORRECTION FACTORS P SV SH
 0.694 0.400 -0.720
 SOURCE EVENT SPLIT FOR ANALYSIS 1.80 SEC FROM ORIGIN ISS = 179

*** SOURCE EVENT (0 0 0005) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 231.3 90.0 0.0 86.9 69.1 32.1
 RADIATION CORRECTION FACTORS P SV SH
 0.973 0.400 -0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 2.00 SEC FROM ORIGIN ISS = 200

*** SOURCE EVENT (0 0 0006) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -51.3 90.0 0.0 76.2 53.6 27.2
 RADIATION CORRECTION FACTORS P SV SH
 -0.920 -0.400 -0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 2.00 SEC FROM ORIGIN ISS = 200

*** SOURCE EVENT (0 0 0007) ***
 JLT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -68.0 90.0 0.0 70.4 51.4 26.3
 RADIATION CORRECTION FACTORS P SV SH
 -0.616 -0.400 -0.678
 SOURCE EVENT SPLIT FOR ANALYSIS 2.00 SEC FROM ORIGIN ISS = 200

*** SOURCE EVENT (0 0 0008) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -90.0 90.0 0.0 67.9 50.2 25.9
 RADIATION CORRECTION FACTORS P SV SH
 -0.400 -0.400 -0.928
 SOURCE EVENT SPLIT FOR ANALYSIS 1.80 SEC FROM ORIGIN ISS = 179
 SAMPLE RADIATION CORRECTION FACTS, 10 ELEMS AT HYPOCENTER

ELPP	ELSV	ELSH
-0.400	-0.400	-0.928
0.400	0.400	-0.932
0.400	0.400	-0.919
0.400	0.400	-0.913
-0.400	-0.400	-0.913
-0.400	-0.400	-0.919
-0.400	-0.400	-0.932

SYNTHESIS OF EVENT 0012 AT STATION 1

- .400 - .400 - .940
0.400 0.400 -.946

..* SOURCE EVENT (0 0 0009) ***
FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 248.0 90.0 0.0 70.4 51.4 26.3
RADIATION CORRECTION FACTORS P SV SH
 0.616 0.400 -.678
SOURCE EVENT SPLIT FOR ANALYSIS 2.00 SEC FROM ORIGIN ISS = 200

*** SOURCE EVENT (0 0 0010) ***
FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 231.3 90.0 0.0 76.2 53.6 27.2
RADIATION CORRECTION FACTORS P SV SH
 0.920 0.400 -.400
SOURCE EVENT SPLIT FOR ANALYSIS 2.00 SEC FROM ORIGIN ISS = 200

*** SOURCE EVENT (0 0 0011) ***
FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -51.3 90.0 0.0 62.7 41.4 22.1
RADIATION CORRECTION FACTORS P SV SH
 -.770 -.400 -.400
SOURCE EVENT SPLIT FOR ANALYSIS 2.20 SEC FROM ORIGIN ISS = 219

*** SOURCE EVENT (0 0 0012) ***
FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -68.0 90.0 0.0 56.1 38.2 20.5
RADIATION CORRECTION FACTORS P SV SH
 -.478 -.400 -.598
SOURCE EVENT SPLIT FOR ANALYSIS 2.20 SEC FROM ORIGIN ISS = 219

*** SOURCE EVENT (0 0 0013) ***
FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -90.0 90.0 0.0 53.3 36.6 19.8
RADIATION CORRECTION FACTORS P SV SH
 -.400 -.400 -.802
SOURCE EVENT SPLIT FOR ANALYSIS 2.20 SEC FROM ORIGIN ISS = 219

*** SOURCE EVENT (0 0 0014) ***
FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 248.0 90.0 0.0 56.1 38.2 20.5
RADIATION CORRECTION FACTORS P SV SH
 0.478 0.400 -.598
SOURCE EVENT SPLIT FOR ANALYSIS 2.20 SEC FROM ORIGIN ISS = 219

*** SOURCE EVENT (0 0 0015) ***
FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 231.3 90.0 0.0 62.7 41.4 22.1
RADIATION CORRECTION FACTORS P SV SH
 0.770 0.400 -.400
SOURCE EVENT SPLIT FOR ANALYSIS 2.20 SEC FROM ORIGIN ISS = 219

MOMENT OF ACTUAL EVENT 0.100000E+26

MOMENT OF MODELED EVENT 0.999966E+25

Appendix A

Modeling the Main San Fernando Earthquake

Results from independent studies are used to constrain the rupture area, fault attitude, slip vector, moment, and hypocenter of the $M = 6.4$, 1971 San Fernando earthquake. Then, only the stress drop, slip model, slip distribution, and rupture velocity are specified for a fault rupture model. Twenty seconds of ground acceleration are modeled, which includes all significant arrivals for the stations used.

Data

Digitized seismograms of aftershocks to the 1971 San Fernando earthquake recorded in the epicentral area are used as empirical Green's functions (Hutchings, 1987). Instrument response is removed from both the strong motion recordings modeled (CIT, 1973) and the empirical Green's functions. Accelerograph sites where ground motion is modeled are listed in Table A1 along with I.D. of the associated NOAA aftershock recording site. Table A2 lists location and geology of the recording sites. Figure A1 shows the geology of the epicentral area, and locations of aftershock recording sites and sites listed in Table A1.

Synthesis

The spatial extent of modeled rupture for the San Fernando earthquake is an area that generally outlines the location of aftershocks (Allen *et al.*, 1971) and intersects the surface along the observed surface fault rupture. It is an elliptical rupture area with major and minor axes of 25 and 10 km, and ellipticity 0.6. The strike, dip, and slip vector are 280° , 38° , and 100° , respectively. Figure A2 shows the fault rupture area and Figure A3 shows the location of aftershocks used as empirical Green's functions for each station. The hypocentral location of the main event has been estimated to be in the general vicinity

area void of aftershocks (Allen *et al.*, 1971; Hanks *et al.*, 1974), and is shown in Figure A2. A moment of $0.86 \cdot 10^{26}$ dyne-cm is used.

Figures A4-A6 show the observed and synthesized seismograms at the three stations for the Haskell-step slip function described above along with the printout of the computer run. A rupture velocity of 2.1 km/s was used. The absolute amplitude, energy distribution and frequency content is modeled for most components. At Pacoima Dam the absolute amplitude does not fit as well as at the other stations, but the waveforms match better. At Pacoima Dam the synthesized records are shown for frequency bands 0.0-5.0, 0.0-10.0, and 0.0-15.0 Hz.

Conclusions

A fairly good fit to observed seismograms in the frequency range 0.5 to 15.0 Hz was obtained by using a simple rupture model that might be assumed prior to the occurrence of an earthquake. The fit in absolute amplitude, frequency content, and energy distribution suggests that earthquake hazard at near-source locations can be predicted by synthesis of ground motion. Directly above the faulting, a match to amplitudes was not achieved. Here, the complexity of rupture has a much stronger effect on seismograms, and predicting ground motion is much less reliable.

Using empirical Green's functions allows one to account for many of the inhomogeneities when modeling earthquakes. However, none of the models provided a good waveform for waveform match. This is presumably due to not accurately modeling the slip function. Even so, modeled absolute amplitudes, frequency content, and energy distribution are quite good for this large earthquake. This suggests that a fairly simple rupture model can account for most of the high-frequency arrivals generated by large earthquakes. High-frequency arrivals may thus be due primarily to the constructive and destructive interference of near-source arrivals, rather than to the complexity of rupture.

Table A1

SEISMOGRAPH RECORDING SITES

STATION	LAT N	LONG W	ELEV	SITE GEOLOGY
ST15	34-13.25	118-28.23	245	alluvium 200 m
ST21	34-09.20	118-27.82	225	alluvium 50 m
ST24	34-20.03	118-23.92	509	fractured diorite gneiss

Table A2

MAIN EVENT ACCELEROGRAPH RECORDING SITES

Station Name	ref no	Accel id	NOAA stat
Holiday Inn (HOI)	241	C048	ST15
Bank of Cal(15250)	446	H115	ST21
Pacoima Dam (PAC)	279	C041	ST25

FigA1. Geology of the study area (modified from Jennings and Strand [1969]).

80

34 50
110 50

34 50
110 50

0 1 2 3 4 5

★ EPICENTER
○ SOURCE EVENTS

..... MODIFIED SOURCE NOT FOUND
- - - - - MODIFIED SOURCE FOUND
X MODIFIED SOURCE NOT FOUND
- - - - - MODIFIED SOURCE NOT FOUND

stations

Figure A3 Location of source events used to obtain empirical Green's functions

Fig A3

81

Fig A4

SYNTHESIS OF EVENT 1401 AT STATION 15

HYPOCENTER LOCATION

34.4040 118.4098 10.00

SYNTHESIZED FAULT PARAMETERS

STRIKE	DIP	SLIP VECTOR	MOMENT	ELEM AREA (KM**2)
280.0	38.0	100.0	0.860000E+26	0.0250

RUPTURE VELOCITY: 2.10

P VELOCITY: $VP = 3.0 + H \cdot 0.20$ FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES

POSITIVE ON OUTPUT: DWN, 270.0, 360.0 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

STRESS DROP 46.5

SOURCE EVENTS	LOCATION	MOMENT	STRIKE	DIP	SV
58 1226	34.3600 118.3073 9.07	0.506000E+21	276.	24.	90.
58 1556	34.2785 118.2698 2.26	0.875800E+21	271.	50.	73.
58 1742	34.4053 118.4577 9.55	0.149050E+22	257.	52.	68.
59 716	34.3300 118.3613 1.26	0.520700E+21	218.	58.	46.
59 1101	34.4263 118.4450 10.84	0.174460E+22	242.	36.	83.
60 234	34.4523 118.4508 11.14	0.200150E+22	238.	32.	90.
60 816	34.4072 118.3622 13.03	0.154870E+22	253.	38.	90.
60 1424	34.4123 118.3923 10.46	0.153650E+22	268.	52.	141.
60 2008	34.3917 118.3673 9.96	0.273750E+22	262.	30.	42.
60 2201	34.3768 118.4413 7.61	0.922200E+21	275.	50.	-24.

STATION: 15 SLAT= 34.2208 SLON= 118.4706

RUPTURE AREA IS ELLIPTICAL: MAJOR AXIS 25.0 KM, MINOR AXIS 10.0 KM,
ECCENTRICITY IS 0.60 ANGLE OF PERHELION OF MAJOR AXIS CLOCKWISE FROM STRIKE OF
FAULT IS 285.0. FOUR POINTS ON ELLIPSE AT 90 DEG INTEVERALS FROM 0 DEG UP DIP:
19.0 6.9 5.1 9.5 KM.

VH = 4.1, RUPTURE HEALING AT P VELOCITY

RING	ELEMENTS	RADIUS
2.	7	0.17
3.	14	0.34
4.	20	0.50
5.	27	0.66
6.	33	0.82
7.	39	0.98
8.	46	1.14
9.	52	1.30
10.	58	1.46
11.	65	1.62
12.	71	1.78
13.	77	1.94
14.	84	2.09
15.	90	2.25
16.	96	2.41
17.	103	2.57
18.	109	2.73

RING: 19,	115 ELEMENTS	RADIUS=	2.89
RING: 20,	122 ELEMENTS	RADIUS=	3.05
RING: 21,	127 ELEMENTS	RADIUS=	3.21
RING: 22,	134 ELEMENTS	RADIUS=	3.37
RING: 23,	141 ELEMENTS	RADIUS=	3.52
RING: 24,	147 ELEMENTS	RADIUS=	3.68
RING: 25,	153 ELEMENTS	RADIUS=	3.84
RING: 26,	159 ELEMENTS	RADIUS=	4.00
RING: 27,	166 ELEMENTS	RADIUS=	4.16
RING: 28,	172 ELEMENTS	RADIUS=	4.32
RING: 29,	178 ELEMENTS	RADIUS=	4.48
RING: 30,	185 ELEMENTS	RADIUS=	4.63
RING: 31,	191 ELEMENTS	RADIUS=	4.79
RING: 32,	197 ELEMENTS	RADIUS=	4.95
RING: 33,	182 ELEMENTS	RADIUS=	5.11
RING: 34,	175 ELEMENTS	RADIUS=	5.27
RING: 35,	171 ELEMENTS	RADIUS=	5.43
RING: 36,	168 ELEMENTS	RADIUS=	5.59
RING: 37,	166 ELEMENTS	RADIUS=	5.74
RING: 38,	165 ELEMENTS	RADIUS=	5.90
RING: 39,	163 ELEMENTS	RADIUS=	6.06
RING: 40,	163 ELEMENTS	RADIUS=	6.22
RING: 41,	162 ELEMENTS	RADIUS=	6.38
RING: 42,	161 ELEMENTS	RADIUS=	6.54
RING: 43,	161 ELEMENTS	RADIUS=	6.69
RING: 44,	161 ELEMENTS	RADIUS=	6.85
RING: 45,	160 ELEMENTS	RADIUS=	7.01
RING: 46,	160 ELEMENTS	RADIUS=	7.17
RING: 47,	160 ELEMENTS	RADIUS=	7.33
RING: 48,	160 ELEMENTS	RADIUS=	7.49
RING: 49,	160 ELEMENTS	RADIUS=	7.64
RING: 50,	159 ELEMENTS	RADIUS=	7.80
RING: 51,	159 ELEMENTS	RADIUS=	7.96
RING: 52,	159 ELEMENTS	RADIUS=	8.12
RING: 53,	159 ELEMENTS	RADIUS=	8.28
RING: 54,	159 ELEMENTS	RADIUS=	8.44
RING: 55,	158 ELEMENTS	RADIUS=	8.59
RING: 56,	158 ELEMENTS	RADIUS=	8.75
RING: 57,	158 ELEMENTS	RADIUS=	8.91
RING: 58,	157 ELEMENTS	RADIUS=	9.07
RING: 59,	157 ELEMENTS	RADIUS=	9.23
RING: 60,	158 ELEMENTS	RADIUS=	9.39
RING: 61,	157 ELEMENTS	RADIUS=	9.55
RING: 62,	157 ELEMENTS	RADIUS=	9.70
RING: 63,	156 ELEMENTS	RADIUS=	9.86
RING: 64,	156 ELEMENTS	RADIUS=	10.02
RING: 65,	155 ELEMENTS	RADIUS=	10.18
RING: 66,	155 ELEMENTS	RADIUS=	10.34
RING: 67,	154 ELEMENTS	RADIUS=	10.49
RING: 68,	154 ELEMENTS	RADIUS=	10.65
RING: 69,	153 ELEMENTS	RADIUS=	10.81
RING: 70,	153 ELEMENTS	RADIUS=	10.97
RING: 71,	152 ELEMENTS	RADIUS=	11.13
RING: 72,	152 ELEMENTS	RADIUS=	11.29
RING: 73,	151 ELEMENTS	RADIUS=	11.44
RING: 74,	151 ELEMENTS	RADIUS=	11.60
RING: 75,	150 ELEMENTS	RADIUS=	11.76
RING: 76,	149 ELEMENTS	RADIUS=	11.92
RING: 77,	149 ELEMENTS	RADIUS=	12.08
RING: 78,	148 ELEMENTS	RADIUS=	12.24

Fig A4

RING: 79,	148 ELEMENTS	RADIUS= 12.39
RING: 80,	146 ELEMENTS	RADIUS= 12.55
RING: 81,	145 ELEMENTS	RADIUS= 12.71
RING: 82,	144 ELEMENTS	RADIUS= 12.87
RING: 83,	144 ELEMENTS	RADIUS= 13.03
RING: 84,	143 ELEMENTS	RADIUS= 13.19
RING: 85,	142 ELEMENTS	RADIUS= 13.34
RING: 86,	141 ELEMENTS	RADIUS= 13.50
RING: 87,	140 ELEMENTS	RADIUS= 13.66
RING: 88,	139 ELEMENTS	RADIUS= 13.82
RING: 89,	137 ELEMENTS	RADIUS= 13.98
RING: 90,	136 ELEMENTS	RADIUS= 14.14
RING: 91,	135 ELEMENTS	RADIUS= 14.29
RING: 92,	133 ELEMENTS	RADIUS= 14.45
RING: 93,	133 ELEMENTS	RADIUS= 14.61
RING: 94,	132 ELEMENTS	RADIUS= 14.77
RING: 95,	130 ELEMENTS	RADIUS= 14.93
RING: 96,	129 ELEMENTS	RADIUS= 15.08
RING: 97,	127 ELEMENTS	RADIUS= 15.24
RING: 98,	126 ELEMENTS	RADIUS= 15.40
RING: 99,	123 ELEMENTS	RADIUS= 15.56
RING: 100,	121 ELEMENTS	RADIUS= 15.72
RING: 101,	120 ELEMENTS	RADIUS= 15.88
RING: 102,	118 ELEMENTS	RADIUS= 16.03
RING: 103,	116 ELEMENTS	RADIUS= 16.19
RING: 104,	92 ELEMENTS	RADIUS= 16.35
RING: 105,	75 ELEMENTS	RADIUS= 16.51
RING: 106,	63 ELEMENTS	RADIUS= 16.67
RING: 107,	53 ELEMENTS	RADIUS= 16.83
RING: 108,	49 ELEMENTS	RADIUS= 16.98
RING: 109,	45 ELEMENTS	RADIUS= 17.14
RING: 110,	41 ELEMENTS	RADIUS= 17.30
RING: 111,	36 ELEMENTS	RADIUS= 17.46
RING: 112,	32 ELEMENTS	RADIUS= 17.62
RING: 113,	28 ELEMENTS	RADIUS= 17.77
RING: 114,	25 ELEMENTS	RADIUS= 17.93
RING: 115,	21 ELEMENTS	RADIUS= 18.09
RING: 116,	17 ELEMENTS	RADIUS= 18.25
RING: 117,	13 ELEMENTS	RADIUS= 18.41
RING: 118,	9 ELEMENTS	RADIUS= 18.57
RING: 119,	5 ELEMENTS	RADIUS= 18.72
RING: 120,	1 ELEMENTS	RADIUS= 18.88

TOTAL NUMBER OF ELEMENTAL AREAS IS 14423 MAXIMUM RADIUS 18.96 KM
 TOTAL FAULTING DURATION: 11.50

***** ELEMENTS *****

HYPOCENTER: RISTM = 3.61 DISP= 128.74 CM

SYNTHESIS IS BY CONVOLUTION OF SOURCE EVENTS WITH SLIP FUNCTION,
 DECONVOLVED WITH STEP FUNCTION. EACH SOURCE EVENT IS SPLIT BETWEEN P AND S.
 AND COMPUTATION IS DONE IN FREQUENCY DOMAIN. FFT FOR EACH SOURCE EVENT ONCE.
 RAMP DISPLACEMENT FUNCTION - MODIFIED KOSTROV

SLIP AMPLITUDE AND RISE TIME CONSTRAINED BY SELF-SIMILAR KOSTROV SLIP
 ELEMENT DISPLACEMENT (LEFT TO RIGHT)

FIRST 160 ELEMENTS

128.741 129.044 128.204 127.725 128.099 128.962 129.615 129.611

130.046 129.431 128.573 127.702 127.013 126.667 126.832 127.442
 128.327 129.269 130.059 130.482 130.545 130.390 130.908 130.506
 129.789 128.889 127.993 127.010 126.185 125.685 125.548 125.802
 126.412 127.325 128.370 129.403 130.405 130.947 131.315 131.357
 131.285 131.139 131.756 131.509 131.055 130.374 129.486 128.577
 127.449 126.545 125.603 124.908 124.484 124.349 124.508 124.955
 125.669 126.623 127.667 128.820 129.890 130.934 131.593 132.123
 132.245 132.260 132.070 131.934 131.809 132.565 132.420 132.224
 131.797 130.929 130.007 129.061 127.811 126.787 125.735 124.737
 123.959 123.467 123.153 123.093 123.318 123.796 124.515 125.367
 126.481 127.631 128.874 130.008 131.312 132.206 132.633 133.122
 133.312 133.243 133.000 132.674 132.533 132.497 133.359 133.484
 133.424 133.103 132.486 131.580 130.626 129.448 128.288 127.008
 125.971 124.762 123.838 122.988 122.413 121.974 121.765 121.789
 122.045 122.529 123.231 124.139 125.239 126.373 127.616 128.941
 130.133 131.322 132.481 133.362 133.927 134.376 134.701 134.334
 133.970 133.535 133.197 133.107 133.169 134.164 134.420 134.481
 134.268 133.989 133.136 132.472 131.270 130.289 129.078 127.697
 126.573 125.345 124.226 123.108 122.262 121.481 120.954 120.543
 SPECTRAL DIMENSION IS 4096 POINTS, IF TRACES ARE GREATER THAN -5 SECONDS
 YOU GET WRAP-AROUND IN MAIN SEISMOGRAM

*** SOURCE EVENT (058 1226) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -51.8 24.0 90.0 83.4 37.7 20.3
 RADIATION CORRECTION FACTORS P SV SH
 -.563 0.883 0.407
 SOURCE EVENT SPLIT FOR ANALYSIS 6.50 SEC FROM ORIGIN ISS = 396

*** SOURCE EVENT (058 1556) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -20.1 50.0 73.0 64.6 51.4 26.4
 RADIATION CORRECTION FACTORS P SV SH
 -.400 -.400 0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 7.00 SEC FROM ORIGIN ISS = 543

*** SOURCE EVENT (058 1742) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -73.7 52.0 68.0 87.0 37.1 20.0
 RADIATION CORRECTION FACTORS P SV SH
 -.967 0.400 -.400
 SOURCE EVENT SPLIT FOR ANALYSIS 8.00 SEC FROM ORIGIN ISS = 400

*** SOURCE EVENT (058 0716) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 1.7 58.0 46.0 67.2 58.0 28.8
 RADIATION CORRECTION FACTORS P SV SH
 -.400 0.400 0.406
 SOURCE EVENT SPLIT FOR ANALYSIS 8.00 SEC FROM ORIGIN ISS = 847

*** SOURCE EVENT (058 1101) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -56.1 36.0 83.0 85.5 34.8 18.9
 RADIATION CORRECTION FACTORS P SV SH
 -.755 0.748 0.416

SOURCE EVENT SPLIT FOR ANALYSIS 8.50 SEC FROM ORIGIN ISS = 550

*** SOURCE EVENT (058 0234) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-53.9	32.0	90.0	80.8	34.0 18.5	

RADIATION CORRECTION FACTORS	P	SV	SH
	-.661	0.785	0.463

SOURCE EVENT SPLIT FOR ANALYSIS 9.00 SEC FROM ORIGIN ISS = 500

*** SOURCE EVENT (058 0816) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-47.2	38.0	90.0	89.0	31.8 17.4	

RADIATION CORRECTION FACTORS	P	SV	SH
	-.529	0.661	0.486

SOURCE EVENT SPLIT FOR ANALYSIS 7.00 SEC FROM ORIGIN ISS = 396

*** SOURCE EVENT (058 1424) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-69.3	52.0	141.0	85.4	35.4 19.2	

RADIATION CORRECTION FACTORS	P	SV	SH
	-.400	-.400	0.690

SOURCE EVENT SPLIT FOR ANALYSIS 8.00 SEC FROM ORIGIN ISS = 500

SAMPLE RADIATION CORRECTION FACTS, 10 ELEMS AT HYPOCENTER

ELPP	ELSV	ELSH
-.945	0.400	0.400
-.947	0.400	0.400
-.948	0.400	0.400
-.947	0.400	0.400
-.944	0.400	0.400
-.942	0.400	0.400
-.943	0.400	0.400
-.945	0.400	0.400
-.947	0.400	0.400

*** SOURCE EVENT (058 2008) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-55.4	30.0	42.0	86.7	36.3 19.7	

RADIATION CORRECTION FACTORS	P	SV	SH
	-.810	0.888	0.400

SOURCE EVENT SPLIT FOR ANALYSIS 8.00 SEC FROM ORIGIN ISS = 500

*** SOURCE EVENT (058 2201) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-86.1	50.0	-24.0	88.0	41.0 21.9	

RADIATION CORRECTION FACTORS	P	SV	SH
	0.400	0.400	-.740

SOURCE EVENT SPLIT FOR ANALYSIS 5.50 SEC FROM ORIGIN ISS = 450

MOMENT OF ACTUAL EVENT 0.860000E+26

MOMENT OF MODELED EVENT 0.119901E+27

SLAT= 34.2208 SLON= 118.4706 DIS= 19.23 AZINV= 207.2

0.29 -0.29 -1.01 0.72 203 LOOP

0.26 0.33 1.26 -1.83 202 LOOP

IA= 64 AB= 2.967 ADIS= 2.592

Harshley

$U = 2.1$

M1401S21 BP 0.5 15.0 HZ

87

F1AAS

SYNTHESIS OF EVENT 1401 AT STATION 21

HYPOCENTER LOCATION

34.4040 118.4098 10.00

SYNTHESIZED FAULT PARAMETERS

STRIKE	DIP	SLIP VECTOR	MOMENT	ELEM AREA (KM**2)
280.0	38.0	100.0	0.860000E+26	0.0250

RUPTURE VELOCITY: 2.10

P VELOCITY: $VP = 3.0 + H*0.20$ FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES

POSITIVE ON OUTPUT: DWN, 11.0, 101.0 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

STRESS DROP 46.5

SOURCE EVENTS	LOCATION	MOMENT	STRIKE	DIP	SV
59 1101	34.4263 118.4450 10.84	0.174460E+22	242.	36.	83.
59 2251	34.3078 118.3075 10.09	0.126150E+22	326.	66.	147.
60 816	34.4072 118.3622 13.03	0.154870E+22	253.	38.	90.
60 1424	34.4123 118.3923 10.46	0.153650E+22	268.	52.	141.
60 2008	34.3917 118.3673 9.96	0.273750E+22	262.	30.	42.
60 2201	34.3768 118.4413 7.61	0.922200E+21	275.	50.	-24.
61 302	34.3950 118.4160 7.89	0.377390E+22	300.	70.	142.

STATION: 21 SLAT= 34.1533 SLON= 118.4636

RUPTURE AREA IS ELLIPTICAL: MAJOR AXIS 25.0 KM, MINOR AXIS 10.0 KM,
ECCENTRICITY IS 0.60 ANGLE OF PERHELION OF MAJOR AXIS CLOCKWISE FROM STRIKE OF
FAULT IS 285.0. FOUR POINTS ON ELLIPSE AT 90 DEG INTERVALS FROM 0 DEG UP DIP:
19.0 6.9 5.1 9.5 KM.

VH = 4.1, RUPTURE HEALING AT P VELOCITY

RING	ELEMENTS	RADIUS
RING: 2,	7 ELEMENTS	RADIUS= 0.17
RING: 3,	14 ELEMENTS	RADIUS= 0.34
RING: 4,	20 ELEMENTS	RADIUS= 0.50
RING: 5,	27 ELEMENTS	RADIUS= 0.66
RING: 6,	33 ELEMENTS	RADIUS= 0.82
RING: 7,	39 ELEMENTS	RADIUS= 0.98
RING: 8,	46 ELEMENTS	RADIUS= 1.14
RING: 9,	52 ELEMENTS	RADIUS= 1.30
RING: 10,	58 ELEMENTS	RADIUS= 1.46
RING: 11,	65 ELEMENTS	RADIUS= 1.62
RING: 12,	71 ELEMENTS	RADIUS= 1.78
RING: 13,	77 ELEMENTS	RADIUS= 1.94
RING: 14,	84 ELEMENTS	RADIUS= 2.09
RING: 15,	90 ELEMENTS	RADIUS= 2.25
RING: 16,	96 ELEMENTS	RADIUS= 2.41
RING: 17,	103 ELEMENTS	RADIUS= 2.57
RING: 18,	109 ELEMENTS	RADIUS= 2.73
RING: 19,	115 ELEMENTS	RADIUS= 2.89
RING: 20,	122 ELEMENTS	RADIUS= 3.05
RING: 21,	127 ELEMENTS	RADIUS= 3.21

RING: 22,	134	ELEMENTS	RADIUS=	3.37
RING: 23,	141	ELEMENTS	RADIUS=	3.52
RING: 24,	147	ELEMENTS	RADIUS=	3.68
RING: 25,	153	ELEMENTS	RADIUS=	3.84
RING: 26,	159	ELEMENTS	RADIUS=	4.00
RING: 27,	166	ELEMENTS	RADIUS=	4.16
RING: 28,	172	ELEMENTS	RADIUS=	4.32
RING: 29,	178	ELEMENTS	RADIUS=	4.48
RING: 30,	185	ELEMENTS	RADIUS=	4.63
RING: 31,	191	ELEMENTS	RADIUS=	4.79
RING: 32,	197	ELEMENTS	RADIUS=	4.95
RING: 33,	182	ELEMENTS	RADIUS=	5.11
RING: 34,	175	ELEMENTS	RADIUS=	5.27
RING: 35,	171	ELEMENTS	RADIUS=	5.43
RING: 36,	168	ELEMENTS	RADIUS=	5.59
RING: 37,	166	ELEMENTS	RADIUS=	5.74
RING: 38,	165	ELEMENTS	RADIUS=	5.90
RING: 39,	163	ELEMENTS	RADIUS=	6.06
RING: 40,	163	ELEMENTS	RADIUS=	6.22
RING: 41,	162	ELEMENTS	RADIUS=	6.38
RING: 42,	161	ELEMENTS	RADIUS=	6.54
RING: 43,	161	ELEMENTS	RADIUS=	6.69
RING: 44,	161	ELEMENTS	RADIUS=	6.85
RING: 45,	160	ELEMENTS	RADIUS=	7.01
RING: 46,	160	ELEMENTS	RADIUS=	7.17
RING: 47,	160	ELEMENTS	RADIUS=	7.33
RING: 48,	160	ELEMENTS	RADIUS=	7.49
RING: 49,	160	ELEMENTS	RADIUS=	7.64
RING: 50,	159	ELEMENTS	RADIUS=	7.80
RING: 51,	159	ELEMENTS	RADIUS=	7.96
RING: 52,	159	ELEMENTS	RADIUS=	8.12
RING: 53,	159	ELEMENTS	RADIUS=	8.28
RING: 54,	159	ELEMENTS	RADIUS=	8.44
RING: 55,	158	ELEMENTS	RADIUS=	8.59
RING: 56,	158	ELEMENTS	RADIUS=	8.75
RING: 57,	158	ELEMENTS	RADIUS=	8.91
RING: 58,	157	ELEMENTS	RADIUS=	9.07
RING: 59,	157	ELEMENTS	RADIUS=	9.23
RING: 60,	158	ELEMENTS	RADIUS=	9.39
RING: 61,	157	ELEMENTS	RADIUS=	9.55
RING: 62,	157	ELEMENTS	RADIUS=	9.70
RING: 63,	156	ELEMENTS	RADIUS=	9.86
RING: 64,	156	ELEMENTS	RADIUS=	10.02
RING: 65,	155	ELEMENTS	RADIUS=	10.18
RING: 66,	155	ELEMENTS	RADIUS=	10.34
RING: 67,	154	ELEMENTS	RADIUS=	10.49
RING: 68,	154	ELEMENTS	RADIUS=	10.65
RING: 69,	153	ELEMENTS	RADIUS=	10.81
RING: 70,	153	ELEMENTS	RADIUS=	10.97
RING: 71,	152	ELEMENTS	RADIUS=	11.13
RING: 72,	152	ELEMENTS	RADIUS=	11.29
RING: 73,	151	ELEMENTS	RADIUS=	11.44
RING: 74,	151	ELEMENTS	RADIUS=	11.60
RING: 75,	150	ELEMENTS	RADIUS=	11.76
RING: 76,	149	ELEMENTS	RADIUS=	11.92
RING: 77,	149	ELEMENTS	RADIUS=	12.08
RING: 78,	148	ELEMENTS	RADIUS=	12.24
RING: 79,	148	ELEMENTS	RADIUS=	12.39
RING: 80,	146	ELEMENTS	RADIUS=	12.55
RING: 81,	145	ELEMENTS	RADIUS=	12.71

RING: 82,	144 ELEMENTS	RADIUS= 12.87
RING: 83,	144 ELEMENTS	RADIUS= 13.03
RING: 84,	143 ELEMENTS	RADIUS= 13.19
RING: 85,	142 ELEMENTS	RADIUS= 13.34
RING: 86,	141 ELEMENTS	RADIUS= 13.50
RING: 87,	140 ELEMENTS	RADIUS= 13.66
RING: 88,	139 ELEMENTS	RADIUS= 13.82
RING: 89,	137 ELEMENTS	RADIUS= 13.98
RING: 90,	136 ELEMENTS	RADIUS= 14.14
RING: 91,	135 ELEMENTS	RADIUS= 14.29
RING: 92,	133 ELEMENTS	RADIUS= 14.45
RING: 93,	133 ELEMENTS	RADIUS= 14.61
RING: 94,	132 ELEMENTS	RADIUS= 14.77
RING: 95,	130 ELEMENTS	RADIUS= 14.93
RING: 96,	129 ELEMENTS	RADIUS= 15.08
RING: 97,	127 ELEMENTS	RADIUS= 15.24
RING: 98,	126 ELEMENTS	RADIUS= 15.40
RING: 99,	123 ELEMENTS	RADIUS= 15.56
RING: 100,	121 ELEMENTS	RADIUS= 15.72
RING: 101,	120 ELEMENTS	RADIUS= 15.88
RING: 102,	118 ELEMENTS	RADIUS= 16.03
RING: 103,	116 ELEMENTS	RADIUS= 16.19
RING: 104,	92 ELEMENTS	RADIUS= 16.35
RING: 105,	75 ELEMENTS	RADIUS= 16.51
RING: 106,	63 ELEMENTS	RADIUS= 16.67
RING: 107,	53 ELEMENTS	RADIUS= 16.83
RING: 108,	49 ELEMENTS	RADIUS= 16.98
RING: 109,	45 ELEMENTS	RADIUS= 17.14
RING: 110,	41 ELEMENTS	RADIUS= 17.30
RING: 111,	36 ELEMENTS	RADIUS= 17.46
RING: 112,	32 ELEMENTS	RADIUS= 17.62
RING: 113,	28 ELEMENTS	RADIUS= 17.77
RING: 114,	25 ELEMENTS	RADIUS= 17.93
RING: 115,	21 ELEMENTS	RADIUS= 18.09
RING: 116,	17 ELEMENTS	RADIUS= 18.25
RING: 117,	13 ELEMENTS	RADIUS= 18.41
RING: 118,	9 ELEMENTS	RADIUS= 18.57
RING: 119,	5 ELEMENTS	RADIUS= 18.72
RING: 120,	1 ELEMENTS	RADIUS= 18.88

TOTAL NUMBER OF ELEMENTAL AREAS IS 14423 MAXIMUM RADIUS 18.96 KM
 TOTAL FAULTING DURATION: 11.50

***** ELEMENTS *****

HYPOCENTER: RISTM = 3.61 DISP= 128.74 CM

SYNTHESIS IS BY CONVOLUTION OF SOURCE EVENTS WITH SLIP FUNCTION,
 DECONVOLVED WITH STEP FUNCTION. EACH SOURCE EVENT IS SPLIT BETWEEN P AND S,
 AND COMPUTATION IS DONE IN FREQUENCY DOMAIN. FFT FOR EACH SOURCE EVENT ONCE.
 RAMP DISPLACEMENT FUNCTION - MODIFIED KOSTROV

SLIP AMPLITUDE AND RISE TIME CONSTRAINED BY SELF-SIMILAR KOSTROV SLIP
 ELEMENT DISPLACEMENT (LEFT TO RIGHT)

FIRST 160 ELEMENTS

128.741	129.044	128.204	127.725	128.099	128.962	129.615	129.611
130.046	129.431	128.573	127.702	127.013	126.667	126.832	127.442
128.327	129.269	130.059	130.482	130.545	130.390	130.908	130.506
129.789	128.889	127.993	127.010	126.185	125.685	125.548	125.802

126.412	127.325	128.370	129.403	130.405	130.947	131.315	131.357
131.285	131.139	131.756	131.509	131.055	130.374	129.486	128.577
127.449	126.545	125.603	124.908	124.484	124.349	124.508	124.955
125.669	126.623	127.667	128.820	129.890	130.934	131.593	132.123
132.245	132.260	132.070	131.934	131.809	132.565	132.420	132.224
131.797	130.929	130.007	129.061	127.811	126.787	125.735	124.737
123.959	123.467	123.153	123.093	123.318	123.796	124.515	125.367
126.481	127.631	128.874	130.008	131.312	132.206	132.633	133.122
133.312	133.243	133.000	132.674	132.533	132.497	133.359	133.484
133.424	133.103	132.486	131.580	130.626	129.448	128.288	127.008
125.971	124.762	123.838	122.988	122.413	121.974	121.765	121.789
122.045	122.529	123.231	124.139	125.239	126.373	127.616	128.941
130.133	131.322	132.481	133.362	133.927	134.376	134.701	134.334
133.970	133.535	133.197	133.107	133.169	134.164	134.420	134.481
134.268	133.989	133.136	132.472	131.270	130.289	129.078	127.697
126.573	125.345	124.226	123.108	122.262	121.481	120.954	120.543

SPECTRAL DIMENSION IS 4096 POINTS, IF TRACES ARE GREATER THAN 35 SECONDS
YOU GET WRAP-AROUND IN MAIN SEISMOGRAM

*** SOURCE EVENT (059 1101) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P	S	INCID ANGLES
	-58.8	36.0	83.0	55.2			28.1 15.5
RADIATION CORRECTION FACTORS				P	SV	SH	
				-0.495	0.400	0.400	

SOURCE EVENT SPLIT FOR ANALYSIS 9.50 SEC FROM ORIGIN ISS = 651

*** SOURCE EVENT (059 2251) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P	S	INCID ANGLES
	-106.0	66.0	147.0	84.6			36.0 19.5
RADIATION CORRECTION FACTORS				P	SV	SH	
				-0.721	-0.400	0.581	

SOURCE EVENT SPLIT FOR ANALYSIS 7.00 SEC FROM ORIGIN ISS = 382

*** SOURCE EVENT (059 0816) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P	S	INCID ANGLES
	-54.7	38.0	90.0	63.1			28.1 15.5
RADIATION CORRECTION FACTORS				P	SV	SH	
				-0.475	0.400	0.472	

SOURCE EVENT SPLIT FOR ANALYSIS 8.50 SEC FROM ORIGIN ISS = 535

*** SOURCE EVENT (059 1424) ***

FAULT-STAT	AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P	S	INCID ANGLES
	-75.1	52.0	141.0	54.0			28.1 15.5
RADIATION CORRECTION FACTORS				P	SV	SH	
				0.400	0.400	0.802	

SOURCE EVENT SPLIT FOR ANALYSIS 8.00 SEC FROM ORIGIN ISS = 388

SAMPLE RADIATION CORRECTION FACTS, 10 ELEMS AT HYPOCENTER

ELPP	ELSV	ELSH
-0.479	0.400	0.400
-0.474	0.400	0.400
-0.483	0.400	0.400
-0.489	0.400	0.400
-0.487	0.400	0.400
-0.480	0.400	0.400
-0.472	0.400	0.400
-0.469	0.400	0.400

*** SOURCE EVENT (059 2008) ***

FAULT-STAT AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-63.5	30.0	42.0	74.1	34.8 18.9

RADIATION CORRECTION FACTORS	P	SV	SH
	-0.969	0.710	-0.400

SOURCE EVENT SPLIT FOR ANALYSIS 8.00 SEC FROM ORIGIN ISS = 403

*** SOURCE EVENT (059 2201) ***

FAULT-STAT AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-90.3	50.0	-24.0	72.9	38.9 20.9

RADIATION CORRECTION FACTORS	P	SV	SH
	0.400	-0.400	-0.840

SOURCE EVENT SPLIT FOR ANALYSIS 8.00 SEC FROM ORIGIN ISS = 400

*** SOURCE EVENT (059 0302) ***

FAULT-STAT AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-110.7	70.0	142.0	69.9	37.5 20.2

RADIATION CORRECTION FACTORS	P	SV	SH
	-0.467	-0.400	0.542

SOURCE EVENT SPLIT FOR ANALYSIS 8.00 SEC FROM ORIGIN ISS = 426

	-0.933	0.636	0.400
--	--------	-------	-------

MOMENT OF ACTUAL EVENT 0.860000E+26

MOMENT OF MODELED EVENT 0.119903E+27

SLAT= 34.1533 SLON= 118.4636 DIS= 25.91 AZINV= 198.4

0.29 -0.29 -1.01 0.72 203 LOOP

0.26 0.33 1.26 -1.83 202 LOOP

IA= 64 AB= 2.967 ADIS= 2.592

Harshel-step

M1401S24 BP 0.5 5.0HZ

93

Fig A6

94

SYNTHESIS OF EVENT 1401 AT STATION 24

HYPOCENTER LOCATION

34.4040 118.4098 10.00

SYNTHESIZED FAULT PARAMETERS

STRIKE	DIP	SLIP VECTOR	MOMENT	ELEM AREA (KM**2)
280.0	38.0	100.0	0.860000E+26	0.0250

RUPTURE VELOCITY: 2.10

P VELOCITY: VP = 3.0 + H*0.20 FOR TT CORR OF SOURCE EVENTS

ORIENTATION OF SYNTHESIZED TRACES

POSITIVE ON OUTPUT: DWN,164.0,254.0 DEGREES FROM NORTH

RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETWEEN
SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4

STRESS DROP 46.5

SOURCE EVENTS	LOCATION	MOMENT	STRIKE	DIP	SV
57 2336	34.3553 118.3360	7.24	0.692000E+21	262.	30. 90.
59 2251	34.3078 118.3075	10.09	0.126150E+22	326.	66. 147.
60 816	34.4072 118.3622	13.03	0.154870E+22	253.	38. 90.
60 1023	34.3313 118.3665	1.49	0.530000E+20	213.	62. 49.
60 1115	34.2995 118.4723	6.65	0.554000E+20	296.	29. 118.
60 1153	34.4202 118.4677	9.51	0.476470E+22	235.	28. 80.
60 1424	34.4123 118.3923	10.46	0.153650E+22	268.	52. 141.
60 1451	34.3565 118.3003	8.54	0.849300E+21	279.	24. 90.
60 2008	34.3917 118.3673	9.96	0.273750E+22	262.	30. 42.
60 2201	34.3768 118.4413	7.61	0.922200E+21	275.	50. -24.
61 302	34.3950 118.4160	7.89	0.377390E+22	300.	70. 142.
60 234	34.4523 118.4508	11.14	0.200150E+22	238.	32. 90.

STATION: 24 SLAT= 34.3333 SLON= 118.3986

RUPTURE AREA IS ELLIPTICAL: MAJOR AXIS 25.0 KM, MINOR AXIS 10.0 KM,
ECCENTRICITY IS 0.60 ANGLE OF PERHELION OF MAJOR AXIS CLOCKWISE FROM STRIKE OF
FAULT IS 285.0. FOUR POINTS ON ELLIPSE AT 90 DEG INTEVERALS FROM 0 DEG UP DIP:
19.0 6.9 5.1 9.5 KM.

VH = 4.1, RUPTURE HEALING AT P VELOCITY

RING:	ELEMENTS	RADIUS=
2,	7	0.17
3,	14	0.34
4,	20	0.50
5,	27	0.66
6,	33	0.82
7,	39	0.98
8,	46	1.14
9,	52	1.30
10,	58	1.46
11,	65	1.62
12,	71	1.78
13,	77	1.94
14,	84	2.09
15,	90	2.25
16,	96	2.41

RING: 17,	103 ELEMENTS	RADIUS=	2.57
RING: 18,	109 ELEMENTS	RADIUS=	2.73
RING: 19,	115 ELEMENTS	RADIUS=	2.89
RING: 20,	122 ELEMENTS	RADIUS=	3.05
RING: 21,	127 ELEMENTS	RADIUS=	3.21
RING: 22,	134 ELEMENTS	RADIUS=	3.37
RING: 23,	141 ELEMENTS	RADIUS=	3.52
RING: 24,	147 ELEMENTS	RADIUS=	3.68
RING: 25,	153 ELEMENTS	RADIUS=	3.84
RING: 26,	159 ELEMENTS	RADIUS=	4.00
RING: 27,	166 ELEMENTS	RADIUS=	4.16
RING: 28,	172 ELEMENTS	RADIUS=	4.32
RING: 29,	178 ELEMENTS	RADIUS=	4.48
RING: 30,	185 ELEMENTS	RADIUS=	4.63
RING: 31,	191 ELEMENTS	RADIUS=	4.79
RING: 32,	197 ELEMENTS	RADIUS=	4.95
RING: 33,	182 ELEMENTS	RADIUS=	5.11
RING: 34,	175 ELEMENTS	RADIUS=	5.27
RING: 35,	171 ELEMENTS	RADIUS=	5.43
RING: 36,	168 ELEMENTS	RADIUS=	5.59
RING: 37,	166 ELEMENTS	RADIUS=	5.74
RING: 38,	165 ELEMENTS	RADIUS=	5.90
RING: 39,	163 ELEMENTS	RADIUS=	6.06
RING: 40,	163 ELEMENTS	RADIUS=	6.22
RING: 41,	162 ELEMENTS	RADIUS=	6.38
RING: 42,	161 ELEMENTS	RADIUS=	6.54
RING: 43,	161 ELEMENTS	RADIUS=	6.69
RING: 44,	161 ELEMENTS	RADIUS=	6.85
RING: 45,	160 ELEMENTS	RADIUS=	7.01
RING: 46,	160 ELEMENTS	RADIUS=	7.17
RING: 47,	160 ELEMENTS	RADIUS=	7.33
RING: 48,	160 ELEMENTS	RADIUS=	7.49
RING: 49,	160 ELEMENTS	RADIUS=	7.64
RING: 50,	159 ELEMENTS	RADIUS=	7.80
RING: 51,	159 ELEMENTS	RADIUS=	7.96
RING: 52,	159 ELEMENTS	RADIUS=	8.12
RING: 53,	159 ELEMENTS	RADIUS=	8.28
RING: 54,	159 ELEMENTS	RADIUS=	8.44
RING: 55,	158 ELEMENTS	RADIUS=	8.59
RING: 56,	158 ELEMENTS	RADIUS=	8.75
RING: 57,	158 ELEMENTS	RADIUS=	8.91
RING: 58,	157 ELEMENTS	RADIUS=	9.07
RING: 59,	157 ELEMENTS	RADIUS=	9.23
RING: 60,	158 ELEMENTS	RADIUS=	9.39
RING: 61,	157 ELEMENTS	RADIUS=	9.55
RING: 62,	157 ELEMENTS	RADIUS=	9.70
RING: 63,	156 ELEMENTS	RADIUS=	9.86
RING: 64,	156 ELEMENTS	RADIUS=	10.02
RING: 65,	155 ELEMENTS	RADIUS=	10.18
RING: 66,	155 ELEMENTS	RADIUS=	10.34
RING: 67,	154 ELEMENTS	RADIUS=	10.49
RING: 68,	154 ELEMENTS	RADIUS=	10.65
RING: 69,	153 ELEMENTS	RADIUS=	10.81
RING: 70,	153 ELEMENTS	RADIUS=	10.97
RING: 71,	152 ELEMENTS	RADIUS=	11.13
RING: 72,	152 ELEMENTS	RADIUS=	11.29
RING: 73,	151 ELEMENTS	RADIUS=	11.44
RING: 74,	151 ELEMENTS	RADIUS=	11.60
RING: 75,	150 ELEMENTS	RADIUS=	11.76
RING: 76,	149 ELEMENTS	RADIUS=	11.92

RING: 77,	149 ELEMENTS	RADIUS= 12.08
RING: 78,	148 ELEMENTS	RADIUS= 12.24
RING: 79,	148 ELEMENTS	RADIUS= 12.39
RING: 80,	146 ELEMENTS	RADIUS= 12.55
RING: 81,	145 ELEMENTS	RADIUS= 12.71
RING: 82,	144 ELEMENTS	RADIUS= 12.87
RING: 83,	144 ELEMENTS	RADIUS= 13.03
RING: 84,	143 ELEMENTS	RADIUS= 13.19
RING: 85,	142 ELEMENTS	RADIUS= 13.34
RING: 86,	141 ELEMENTS	RADIUS= 13.50
RING: 87,	140 ELEMENTS	RADIUS= 13.66
RING: 88,	139 ELEMENTS	RADIUS= 13.82
RING: 89,	137 ELEMENTS	RADIUS= 13.98
RING: 90,	136 ELEMENTS	RADIUS= 14.14
RING: 91,	135 ELEMENTS	RADIUS= 14.29
RING: 92,	133 ELEMENTS	RADIUS= 14.45
RING: 93,	133 ELEMENTS	RADIUS= 14.61
RING: 94,	132 ELEMENTS	RADIUS= 14.77
RING: 95,	130 ELEMENTS	RADIUS= 14.93
RING: 96,	129 ELEMENTS	RADIUS= 15.08
RING: 97,	127 ELEMENTS	RADIUS= 15.24
RING: 98,	126 ELEMENTS	RADIUS= 15.40
RING: 99,	123 ELEMENTS	RADIUS= 15.56
RING: 100,	121 ELEMENTS	RADIUS= 15.72
RING: 101,	120 ELEMENTS	RADIUS= 15.88
RING: 102,	118 ELEMENTS	RADIUS= 16.03
RING: 103,	116 ELEMENTS	RADIUS= 16.19
RING: 104,	92 ELEMENTS	RADIUS= 16.35
RING: 105,	75 ELEMENTS	RADIUS= 16.51
RING: 106,	63 ELEMENTS	RADIUS= 16.67
RING: 107,	53 ELEMENTS	RADIUS= 16.83
RING: 108,	49 ELEMENTS	RADIUS= 16.98
RING: 109,	45 ELEMENTS	RADIUS= 17.14
RING: 110,	41 ELEMENTS	RADIUS= 17.30
RING: 111,	36 ELEMENTS	RADIUS= 17.46
RING: 112,	32 ELEMENTS	RADIUS= 17.62
RING: 113,	28 ELEMENTS	RADIUS= 17.77
RING: 114,	25 ELEMENTS	RADIUS= 17.93
RING: 115,	21 ELEMENTS	RADIUS= 18.09
RING: 116,	17 ELEMENTS	RADIUS= 18.25
RING: 117,	13 ELEMENTS	RADIUS= 18.41
RING: 118,	9 ELEMENTS	RADIUS= 18.57
RING: 119,	5 ELEMENTS	RADIUS= 18.72
RING: 120,	1 ELEMENTS	RADIUS= 18.88

TOTAL NUMBER OF ELEMENTAL AREAS IS 14423 MAXIMUM RADIUS 18.96 KM
 TOTAL FAULTING DURATION: 11.50

***** ELEMENTS *****

HYPOCENTER: RISTM = 3.61 DISP= 128.74 CM

SYNTHESIS IS BY CONVOLUTION OF SOURCE EVENTS WITH SLIP FUNCTION,
 DECONVOLVED WITH STEP FUNCTION. EACH SOURCE EVENT IS SPLIT BETWEEN P AND S,
 AND COMPUTATION IS DONE IN FREQUENCY DOMAIN. FFT FOR EACH SOURCE EVENT ONCE.
 RAMP DISPLACEMENT FUNCTION - MODIFIED KOSTROV

SLIP AMPLITUDE AND RISE TIME CONSTRAINED BY SELF-SIMILAR KOSTROV SLIP
 ELEMENT DISPLACEMENT (LEFT TO RIGHT)

FIRST 160 ELEMENTS

128.741	129.044	128.204	127.725	128.099	128.962	129.615	129.611
130.046	129.431	128.573	127.702	127.013	126.667	126.832	127.442
128.327	129.269	130.059	130.482	130.545	130.390	130.908	130.506
129.789	128.889	127.993	127.010	126.185	125.685	125.548	125.802
126.412	127.325	128.370	129.403	130.405	130.947	131.315	131.357
131.285	131.139	131.756	131.509	131.055	130.374	129.486	128.577
127.449	126.545	125.603	124.908	124.484	124.349	124.508	124.955
125.669	126.623	127.667	128.820	129.890	130.934	131.593	132.123
132.245	132.260	132.070	131.934	131.809	132.565	132.420	132.224
131.797	130.929	130.007	129.061	127.811	126.787	125.735	124.737
123.959	123.467	123.153	123.093	123.318	123.796	124.515	125.367
126.481	127.631	128.874	130.008	131.312	132.206	132.633	133.122
133.312	133.243	133.000	132.674	132.533	132.497	133.359	133.484
133.424	133.103	132.486	131.580	130.626	129.448	128.288	127.008
125.971	124.762	123.838	122.988	122.413	121.974	121.765	121.789
122.045	122.529	123.231	124.139	125.239	126.373	127.616	128.941
130.133	131.322	132.481	133.362	133.927	134.376	134.701	134.334
133.970	133.535	133.197	133.107	133.169	134.164	134.420	134.481
134.268	133.989	133.136	132.472	131.270	130.289	129.078	127.697
126.573	125.345	124.226	123.108	122.262	121.481	120.954	120.543

SPECTRAL DIMENSION IS 4096 POINTS, IF TRACES ARE GREATER THAN 35 SECONDS
YOU GET WRAP-AROUND IN MAIN SEISMOGRAM

*** SOURCE EVENT (060 2336) ***

FAULT-STAT AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-15.0	30.0	90.0	50.6	31.0 17.0

RADIATION CORRECTION FACTORS P SV SH
 0.400 -.400 0.474

SOURCE EVENT SPLIT FOR ANALYSIS 3.75 SEC FROM ORIGIN ISS = 175

*** SOURCE EVENT (060 2251) ***

FAULT-STAT AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-37.4	66.0	147.0	54.0	28.5 15.7

RADIATION CORRECTION FACTORS P SV SH
 0.994 0.400 -.400

SOURCE EVENT SPLIT FOR ANALYSIS 4.75 SEC FROM ORIGIN ISS = 265

*** SOURCE EVENT (060 0816) ***

FAULT-STAT AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-50.8	38.0	90.0	46.0	22.3 12.5

RADIATION CORRECTION FACTORS P SV SH
 -.400 -.400 0.448

SOURCE EVENT SPLIT FOR ANALYSIS 5.50 SEC FROM ORIGIN ISS = 346

*** SOURCE EVENT (060 1023) ***

FAULT-STAT AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
61.3	62.0	40.0	68.7	57.7 28.7

RADIATION CORRECTION FACTORS P SV SH
 -.400 0.826 -.512

SOURCE EVENT SPLIT FOR ANALYSIS 2.85 SEC FROM ORIGIN ISS = 184

*** SOURCE EVENT (060 1115) ***

FAULT-STAT AZI	DIP	SLIP VECTOR	TAKEOFF ANGLE	P S INCID ANGLES
-234.9	29.0	118.0	61.6	37.1 20.1

A6

RADIATION CORRECTION FACTORS P SV SH
 0.400 0.400 0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 4.00 SEC FROM ORIGIN ISS = 310

*** SOURCE EVENT (060 1153) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -88.4 28.0 80.0 67.2 33.9 18.5
 RADIATION CORRECTION FACTORS P SV SH
 -0.971 0.794 -0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 5.50 SEC FROM ORIGIN ISS = 370

*** SOURCE EVENT (060 1424) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -84.2 52.0 141.0 52.5 27.5 15.2
 RADIATION CORRECTION FACTORS P SV SH
 0.400 0.400 0.805
 SOURCE EVENT SPLIT FOR ANALYSIS 5.00 SEC FROM ORIGIN ISS = 298
 SAMPLE RADIATION CORRECTION FACTS, 10 ELEMS AT HYPOCENTER

ELPP	ELSV	ELSH
-0.408	0.400	-0.400
-0.405	0.400	-0.400
-0.415	0.400	-0.400
-0.419	0.400	-0.400
-0.415	0.400	-0.400
-0.406	0.400	-0.400
-0.400	0.400	-0.400
-0.400	0.400	-0.400

*** SOURCE EVENT (060 1451) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -24.9 24.0 90.0 61.8 33.7 18.4
 RADIATION CORRECTION FACTORS P SV SH
 -0.400 -0.400 0.537
 SOURCE EVENT SPLIT FOR ANALYSIS 4.50 SEC FROM ORIGIN ISS = 280

*** SOURCE EVENT (060 2008) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -58.0 30.0 42.0 45.7 25.1 14.0
 RADIATION CORRECTION FACTORS P SV SH
 -0.726 -0.400 -0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 4.75 SEC FROM ORIGIN ISS = 360

*** SOURCE EVENT (060 2201) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -134.2 50.0 -24.0 48.9 29.6 16.3
 RADIATION CORRECTION FACTORS P SV SH
 0.696 0.405 -0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 4.20 SEC FROM ORIGIN ISS = 310

*** SOURCE EVENT (060 0302) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -133.2 70.0 142.0 52.4 30.9 17.0
 RADIATION CORRECTION FACTORS P SV SH
 -0.400 -0.464 0.400

SOURCE EVENT SPLIT FOR ANALYSIS 4.20 SEC FROM ORIGIN ISS = 202
 -.400 0.400 -.400

*** SOURCE EVENT (060 0234) ***
 FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE P S INCID ANGLES
 -78.0 32.0 90.0 70.8 32.3 17.7
 RADIATION CORRECTION FACTORS P SV SH
 -.936 0.782 0.400
 SOURCE EVENT SPLIT FOR ANALYSIS 6.00 SEC FROM ORIGIN ISS = 300

MOMENT OF ACTUAL EVENT 0.860000E+26
 MOMENT OF MODELED EVENT 0.119899E+27
 SLAT= 34.3333 SLON= 118.3986 DIS= 5.10 AZINV= 205.1
 0.29 -0.29 -1.01 0.72 203 LOOP
 0.26 0.33 1.26 -1.83 202 LOOP
 IA= 64 AB= 2.967 ADIS= 2.592

APPENDIX B

Following is a partial listing of the code for EMPSYN
and is not sufficient to synthesize seismograms.

88/08/21

08:15:47

Appendix B

hutchs
empsyn.f

1

PROGRAM EMPSYN

```

C
  CHARACTER AMIN*1,BMIN*1,ADAY*2,ASTA*1,BSTA*1,ASB*2,AEB*4,SSC*3,
  *AHOUR*1,BHOUR*1,FNSF1*17,FNSF2*17,FNSF3*17,BLANK*1,ZERO*1,ANS2*3,
  *ANS1*1,ALPN*80,ANS*3,NNSF*16,NNSF1*30,NNSF2*8,NNSF3*30,DWN*3,RDC*3
  *,SLP*3,ANS3*3,ANS4*3,ANS5*3,ANS6*3,SLM*3,ALPHSYN*4,COMP*3
  DIMENSION BLAT(60),BLON(60),BH(60),BM(60),EA(60),EB(60),SPT(60),
  *BSTR(60),BDP(60),BSV(60),FL(301),RDIS(30000),RDPP(30000),
  *RLON(30000),RH(30000),RAZM(30000),TRAZ(9000),TRAR(9000),TRAT(9000)
  *,RISTM(30000),INEL(30000),ELTIM(30000),DTIMP(30000),RLAT(30000),
  *ETRZ(9000),ETRR(9000),ETRT(9000),TRZ(9000),TRR(9000),TRT(9000),
  *TZPZ(9000),TZPR(9000),TZPT(9000),TZSZ(9000),TZSR(9000),TZST(9000)
  COMMON TRAZ,TRAR,TRAT,ETRZ,ETRR,ETRT,TRZ,TRR,TRT,TZPZ,TZPR,
  *TZPT,TZSZ,TZSR,TZST,RLON,RLAT,RH,RAZM,RISTM,INEL,ELTIM,DTIMP,
  *RDIS,RDPP
  INTEGER SB,EA,EB,EAA,EBB
  INTEGER*2 SYM1,SYM2,SYM3,SYM6,SYM11,SYM15,SYM16
  REAL LN,ML,INT,MO
  COMPLEX TZPZ,TZPR,TZPT,TZSZ,TZSR,TZST,ESLP,ZPHP,ZPHS,ETRZ,ETRR,
  *ETRT,TRZ,TRR,TRT,ETRA1,ETRA2,ETRA3,TR1,TR2,TR3,FFAC1,FFAC2,FFAC3,
  *ELAC1,ELAC2,ELAC3,RPFAC,RRFAC,RTFAC
  DATA ANS1,ANS2,BLANK,ZERO,'Y','YES',' ','0'/
  DATA ANS3,ANS4,ANS5,ANS6/'KSV','HSK','SPC','TTM'/

C
C
  PI2 = 6.28318531
C SEISMIC QUALITY QUOTIENT
  Q = 250.0
  GC = (1.-1./297.)**2
  DR = PI2/360.
  MAX = 10000

C
  WMINY=0.0
  WMAXY=10.75
  WMAXX=14.4275
  WMINX=0.0
  CALL PLOTS(WMAXX,WMAXY,1)

C
C FILTER FOR CONVOLVED TRACE
  CPLT = 0.0
  rtmhsk = 1.0
  FILOW = 0.0
  FILHI = 100.0
  PRINT *,'***** PROGRAM EMPSYN *****'
  WRITE(6,302)
302 FORMAT(//)
304 FORMAT(A3)
  PRINT *,'SYNTHESIZES EARTHQUAKES WITH EMPIRICAL GREEN FUNCTIONS'
  PRINT *,' '
  PRINT *,'PARAMETERS NEEDED FOR SYNTHESIS:'
  PRINT *,' '
  PRINT *,'FL:  ARRAY OF DISTANCES FROM HYPO TO EDGE OF RUPTURE'
  PRINT *,'        IN KILOMETERS CLOCKWISE FROM 0 DEG UPDIP'
  PRINT *,' '
  PRINT *,'IP:  NUMBER OF VALUES FOR FL'
  PRINT *,'IP = 1 FOR CIRCULAR RUPTURE, UNLESS ENCOUNTERS SURFACE'
  WRITE(6,997)
997 FORMAT(//  IP = 3 FOR ELLIPTICAL RUPTURE AREA - INPUT IN ORDER:/'
  *'        LENGTH OF MAJOR AXIS, ECCENTRICITY, AND ANGLE CLOCKWISE'
  */, '        FROM DIRECTION OF STRIKE FOR PERIHELION OF MAJOR AXIS'//)
  PRINT *,'IP = 4 FOR RECTANGULAR RUPTURE AREA'
  PRINT *,' '
  PRINT *,' INPUT VALUES FOR FL ARE IN FILE: FAULT'
  PRINT *,' FORMAT FOR FILE IS FREE FORMAT: IP FIRST LINE'

```

88/08/21
08:15:07

hutchs
empsyn.f

4

```
112 FORMAT(/,'STRESS DROP ',F5.1)
113 FORMAT(1X,F5.1,5X,F5.1,8X,F6.1,7X,E13.6,9X,F6.4)
121 FORMAT(1X,6E13.6)
123 FORMAT(1X)
124 FORMAT(/,'TOTAL NUMBER OF ELEMENTAL AREAS IS ',I5,
*4X,'MAXIMUM RADIUS ',F5.2,' KM')
129 FORMAT(8F9.3)
130 FORMAT('SAMPLE RADIATION CORRECTION FACTS, 10 ELEMS AT HYPOCENTER'
* /,' ELPP      ELSV      ELSH')
131 FORMAT(3X,F5.3,6X,F5.3,6X,F5.3)
132 FORMAT('SLIP FUNCTION INCREMENTED BY DIGITIZING RATE'//,
*'SOURCE EVENTS AND SYNTHESIZED OUTPUT LIMITED TO ',I4,' POINTS')
125 FORMAT(i1,i1,i1,i1)
126 FORMAT('MO ',E13.6/,'AMO ',1X,E13.6)
127 FORMAT('TOTAL FAULTING DURATION: ',F6.2//,'***** ELEMENTS ****',//
*,'HYPOCENTER:',15X,'RISTM = ',F6.2,'      DISP= ',F7.2,' CM'//,
*'STATION SOURCE PULSE DURATION: ',F5.2)
128 FORMAT('RING:',I3,' ',2X,I4,' ELEMENTS      RADIUS= ',F5.2)
133 FORMAT(//,'VH = ',F3.1,' ', RUPTURE HEALING AT S VELOCITY')
134 FORMAT(//,'VH = ',F3.1,' ', RUPTURE HEALING AT P VELOCITY')
135 FORMAT('ELEMENT DISPLACEMENT (LEFT TO RIGHT)'//,
*' FIRST ',I3,' ELEMENTS')
418 FORMAT('RAMP DISPLACEMENT FUNCTION - MODIFIED KOSTROV'//,'SLIP AMP
* LITUTE AND RISE TIME CONSTRAINED BY SELF-SIMILAR KOSTROV SLIP')
419 FORMAT(//'TWO DIMENSIONAL HASKEL RUPTURE MODEL WITH RAMP SLIP FUNC
* TION'//'EACH ELEMENT HAS SAME DISPLACEMENT:',F5.1,' CM'/'RISE TIME
* =',F5.2,' TOTAL FAULTING DURATION ',F5.2/,
*'STATION SOURCE PULSE DURATION: ',F5.2)
```

```
C
C
C EA(I),EB(I) DAYS HRS MINS OF SOURCE EVENTS
C EAA,EBB TEMPORARY USAGE OF EA(I) AND EB(I)
C SPT(I) TIME TO SPLIT SEISMOGRAM BETWEEN P AND S WAVES
C ALAT,ALON,AH:      HYPOCENTER LOCATION
C SLAT,SLON:        STATION LOCATION
C BLAT(I),BLON(I),BH(I):  ARRAY OF SOURCE EVENTS
C BLAT1,BLON1,BH1:  TEMPORARY VALUES FOR SOURCE EVENTS
C BAZM,BDIS: NOT INDEXED, RESET FOR EACH SOURCE EVENT
C RLAT(KK),RLON(KK),RH(KK): ELEMENTAL LOCATIONS
C RDIS(KK),RAZM(KK): ELEMENT-STATION EPICENTRAL VALUES
C RDPP(KK): FAULT DISPLACEMENT AT ELEMENT
C
C INEL(KK):  INDICE VALUE OF SOURCE EVENT FOR ELEMENT KK
C DTIMP(KK): IS DELAY TIME OF ELEMENTAL SOURCE P ARRIVALS DUE TO
C            DIFFERENCE IN LOCATION OF SOURCE EVENT AND ELEMENT
C ELTIM(KK): IS ELEMENT DELAY TIME DUE TO RUPTURE TIME TO ELEMENT
C RISTM(KK): IS RISE TIME OF ELEMENT, COMPUTED FOR KOSTROV SLIP FUNC
C            SFO: TIME DELAY FROM ORIGIN FOR BEGINING OUT SYNTHESIZED TRACE
C            STD: STRESS DROP, computed to fit requested moment
C
C BSTR,BDP,BSV,BM: FAULT PARAMETERS FOR SOURCE EVENT, FROM CATLOG
C            STK,DP,SV: FAULT PARAMETER FOR EVENT TO BE MODELED
C
C
C TRAZ,TRAR,TRAT:  SOURCE EVENT. TRACES READ IN ONE AT A TIME AND USED
C            FOR ALL ELEMENTS USING THIS SOURCE EVENT.
C ETRZ,ETRR,ETRT: ELEMENTAL SOURCE TRACE AFTER TIME FUNCTION STACKING
C
C TZPZ,TZPR,TZPT: P PORTION OF SEISMOGRAM USED IN CONVOLUTION
C TZSZ,TZSR,TZST: S PORTION OF SEISMOGRAM
C            AFTER CONVOLUTION THESE ARE PHASE SHIFTED BEFOR ADDING TO FINAL
C
C TRZ,TRR,TRT:      SYNTHESIZED SEISMOGRAMS
C
```

88/08/21
08:15:07

hutchs
empsyn.f

5

```
C  SOURCE EVENTS AND ELEMENTAL SOURCES ARE CORRECTED FOR DIFFERENCES
C  IN GEOMETRICAL SPREADING AND ATTENUATION:  THIS ALLOWS A SINGLE
C  EVENT TO BE USED AS A SITE RESPONSE FUNCTION; AND CORRECTS FOR LARGE
C  SPATIAL DIFFERENCES OF SOURCE EVENTS AND ELEMENTAL SOURCES
C  IF RDC = NO THEN THERE IS NO RADIATION CORRECTION FACTOR APPLIED
C  FOR DIFFERENCES BETWEEN SOURCE EVENTS AND ELEMENTS
C  IF RDC = YES THEN RADIATION CORRECTION FACTOR APPLIED BUT LIMITED TO
C  -.4 TO + .4
C
C  CHARACTERS SPECIFIED FOR NNSF MUST BE EXACT
      NNSF1 = 'fault'
      OPEN (UNIT = 10, FILE=NNSF1)
      NNSF1 = 'synout'
      OPEN (UNIT = 11, FILE=NNSF1)
      NNSF1 = 'sources'
      OPEN (UNIT = 7, FILE=NNSF1)
      PRINT *, 'WHAT IS THE HOURS-MINS (A4) OF MAIN EVENT'
      READ(5,125) 11,12,13,14
      ALPHSYN = char(11+48)//char(12+48)//char(13+48)//char(14+48)
C  NNSF3 = 'm'//ALPHSYN//'s'//ASB
C  OPEN (UNIT = 9, FILE=NNSF3)
      READ(10,*) IP
      READ(10,*) (FL(I), I = 1,IP)
      CLOSE (10)
      WRITE(11,102) ALPHSYN,SB
      WRITE(11,101) ALAT,ALON,AH
      WRITE(11,104)
      WRITE(11,113) STK,DP,SV,MO,ELA
      WRITE(11,111) VR,VPP,COMP,SAZM,SAZMM
      IF(RDC.EQ.ANS1.OR.RDC.EQ.ANS2) WRITE(11,196)
      IF(RDC.NE.ANS1.AND.RDC.NE.ANS2) WRITE(11,197)
196 FORMAT(/,'RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES BETW
      *EEN'//,'SOURCE EVENTS AND ELEMENTS, BUT LIMITED TO -.4 TO +.4'/)
197 FORMAT(/,'NO RADIATION CORRECTION FACTOR APPLIED FOR DIFFERENCES B
      *ETWEEN'//,'SOURCE EVENTS AND ELEMENTS.  THIS THEN USES EMPIRICAL GR
      *EEN'//,'FUNCTIONS AS SITE RESPONSE FUNCTIONS'/)
      if(SLP.EQ.ANS6) write(11,198)
      if(SLP.EQ.ANS5) write(11,199)
198 format('NO CORRECTION MADE FOR GEOMETRICAL SPREADING OR ATTENUATIO
      *N'/)
199 FORMAT('CORRECTIONS APPLIED FOR GEOMETRICAL SPREADING AND ATTENUAT
      *ION'/)
      IF(IP.GT.4) WRITE(11,109) IP
      IF(IP.GT.4) WRITE(11,108) (FL(I), I = 1,IP)
      IF(IP.EQ.1) WRITE(11,995) FL(1)
      IF(IP.EQ.4) WRITE(11,994) FL(1),FL(2),FL(3),FL(4)
994 FORMAT('RECTANGULAR FAULT RUPTURE.  DISTANCES TO EDGE CLOCKWISE FR
      *OM HYPOCENTER: 'F4.1,1X,F4.1,1X,F4.1,1X,F4.1)
995 FORMAT('CIRCULAR FAULT RUPTURE.  RADIUS: ',F4.1)
      WRITE(11,107)
      DP1 = (DP/360.)*PI2
      STK1 = (STK/360.)*PI2
      NE = 0
C
C  SET PARAMETERS FOR SOURCE EVENTS
C
      DO 10 I = 1,60
      READ(7,*,END=11) EAA,EBB,SPP,BLAT1,BLON1,BH1,BM1,BSTR1,BDP1,BSV1
      IF(SPP.LT.1..OR.SPP.GT.20.) PRINT *, 'BAD S-P SPLIT TIME'
      IF(SPP.LT.1..OR.SPP.GT.20.) GO TO 2000
      BM(I) = BM1* 1.0E+20
      WRITE(11,106) EAA,EBB,BLAT1,BLON1,BH1,BM(I),BSTR1,BDP1,BSV1
      BLAT(I) = BLAT1
      BLON(I) = BLON1
```

88/08/21
08:15:07

hutchs
empsyn.f

6

```
BH(I) = BH1
EA(I) = EAA
EB(I) = EBB
SPT(I) = SPP
BSTR(I) = BSTR1
BDP(I) = BDP1
BSV(I) = BSV1
NE = NE + 1
10 CONTINUE
11 CLOSE (7)
WRITE(11,110) SB,SLAT,SLON
C
C INDEX ELEMENTAL AREAS, IDENTIFY SOURCE EVENTS, SET DELAY TIMES
C
IF(IP.EQ.1) GO TO 116
IF(IP.EQ.3) GO TO 114
IF(IP.EQ.4) GO TO 117
IPA = 0
GO TO 118
116 IP = 300
DO 115 I = 2, IP
115 FL(I) = FL(1)
IPA = 1
GO TO 118
114 IP = 300
AAA = FL(1)
AA = FL(1)/2.
EC = FL(2)
ANN1 = FL(3)
ANN2 = FL(3)*.01745329
BB = AA*SQRT(1.0 - EC**2)
BBB = 2.0*BB
DO 122 I = 1, IP
ANN = PI2/4. - ANN2 - FLOAT(I-1)*PI2/300.0
122 FL(I) = AA*(1.-EC**2)/(1.+EC*COS(ANN))
IPA = 3
WRITE(6,999) AAA,BBB,EC,ANN1,FL(1),FL(76),FL(151),FL(226)
WRITE(11,999) AAA,BBB,EC,ANN1,FL(1),FL(76),FL(151),FL(226)
999 FORMAT('RUPTURE AREA IS ELLIPTICAL: MAJOR AXIS ',F4.1,' KM, MINOR
* AXIS ',F4.1,' KM, ',',', 'ECCENTRICITY IS ',F4.2,' ANGLE OF PERHELION
* OF MAJOR AXIS CLOCKWISE FROM STRIKE OF',',',
*'FAULT IS ',F5.1,'. FOUR POINTS ON ELLIPSE AT 90 DEG INTEVERALS F
*ROM 0 DEG UP DIP: ',F4.1,1X,F4.1,1X,F4.1,1X,F4.1,' KM.'/)
C WRITE(11,998) (FL(I), I = 1, IP)
998 FORMAT (16F5.1)
GO TO 118
117 IP = 300
FL1 = FL(1)
FL2 = FL(2)
FL3 = FL(3)
FL4 = FL(4)
ANN1 = ATAN2(FL2,FL1)
ANN2 = PI2/4. + ATAN2(FL3,FL2)
ANN3 = PI2/2. + ATAN2(FL4,FL3)
ANN4 = .75*PI2 + ATAN2(FL1,FL4)
DO 119 I = 1, IP
ANN = FLOAT(I-1) * PI2/300.0
IF(ANN.GE.ANN4.OR.ANN.LE.ANN1) FL(I) = ABS(FL1/COS(ANN))
IF(ANN.GT.ANN1.AND.ANN.LE.ANN2) FL(I) = ABS(FL2/SIN(ANN))
IF(ANN.GT.ANN2.AND.ANN.LE.ANN3) FL(I) = ABS(FL3/COS(ANN))
IF(ANN.GT.ANN3.AND.ANN.LT.ANN4) FL(I) = ABS(FL4/SIN(ANN))
119 CONTINUE
IPA = 4
118 ANG = PI2/FLOAT(IP)
```

88/08/21
08:15:07

hutchs
empsyn.f

7

```
R1 = 0.0
R2 = SQRT(ELA*2./PI2)
R3 = 0.0
ANG4 = PI2/4.0

C
C GO TO 160 FOR EACH RING
C
C KI INDEX DO LOOP 140 TO GO FROM NEXT ELEMENT IN RING
C KKI SETS VALUE OF KI FOR DO LOOP
C JI INDEX FOR FL(JI) AND ANG1, ANG2
C KJ LIMITS CHECK ON ELEMENTS, ENDS GO TO 160 LOOP
C KK NUMBER OF ELEMENTAL AREAS
C
    KK = 1
    DH1 = 100.0
C
C FACTORS TO GET LATITUDE LONGITUDE OF ELEMENTS FROM R3:
    TRIG=SQRT(1.0-(6.76866E-3*SIN(ALAT*PI2/360.))**2))
    RHOM=6.3782E+3*(1.0-6.76866E-3)/TRIG**3
    RHON=6.3782E+3/TRIG
C
C SET VALUES FOR FIRST ELEMENTAL AREA, GET AZIMUTHAL DISTANCE
C
    DO 1001 I = 1,NE
    CALL DISAZM(AZM,AZINV,DIS,HDIS,BLAT(I),BLON(I),BH(I),ALAT,ALON)
    HDIS = SQRT(DIS**2 + (BH(I) - AH)**2)
    IF(HDIS.GT.DH1) GO TO 1001
    DH1 = HDIS
    EAA = EA(I)
    EBB = EB(I)
    BLAT1= BLAT(I)
    BLON1 = BLON(I)
    BH1 = BH(I)
    INEL(1) = I
1001 CONTINUE
C COMPUTE P AND S DELAY TIME DUE TO LOCATION OF SOURCE EVENT
C COMPUTE RISE TIME FOR HYPOCENTER ELEMENT
C COMPUTE TIME SHIFT FOR SYNTHESIZED SEISMOGRAM
C COMPUTE TIME SHIFT FOR MAIN SEISMOGRAM: SECONDS FROM ORIGIN (SFO)
C
    CALL DISAZM(AZM,AZINV,DIS,HDIS1,BLAT1,BLON1,BH1,SLAT,SLON)
    CALL DISAZM(EZM,AZINV,DIS,HDIS2,ALAT,ALON,AH,SLAT,SLON)
    RDIS(1) = DIS
    ADIS = HDIS2
    SFO = HDIS2/6.0 - 3.0
    IF(SFO.LT.0.) SFO = 0.0
    VP = 3.0 + AH*VPP
    VS = VP/1.76
    DTIMP(1) = (HDIS2 - HDIS1)/VP
    RAZM(1) = EZM
c rigidity eq to vs
    rgd = vs
    dishsk = ela*rgd*1.0e+21
    IF(SLM.NE.ANS3) GO TO 12
C
C RISE TIME COMPUTED FOR KOSTROV SLIP FUNCTION
C
C HEALING AT P VELOCITY
    VH = VR*1.94
C HEALING AT S VELOCITY
    VH = VR*1.1
    VH1 = VR*1.1
    VH2 = VR*1.94
    IF(VH.EQ.VH1.AND.SLM.EQ.ANS3) WRITE(11,133) VH
```

88/08/21
08:15:07

hutchs
empsyn.f

8

```
IF (VH.EQ.VH2.AND.SLM.EQ.ANS3) WRITE(11,134) VH
IF (IPA.NE.1.and.ipa.ne.3) CALL RISTIM(VR,VH,FL,IP,R3,ANG4,RSTM)
if (ipa.eq.3) rstm = (1./vr + 1./vh)*(aa*(1.-ec**2)-r3*ec*
* cos(pi2/4.-ang4-ann2)-r3)
IF (IPA.NE.1) RISTM(1) = RSTM
IF (IPA.EQ.1) RISTM(1) = FL(1)*(1./VR + 1./VH)
RDPP(1) = 0.81*STD*SQRT(RISTM(1)**2)
amo = rdpp(1)*rgd*ela
IF (RDPP(1).GT.CPLT) ICPLT = 1
IF (RDPP(1).GT.CPLT) CPLT = RDPP(1)
12 if (slm.ne.ans3) rstm(1) = rtmhsk
DURTIM = RISTM(1)
sdur = r2/vr + rstm(1)
RH(1) = AH
RLAT(1) = ALAT
RLON(1) = ALON
KKII = 0
KKIII = 1
160 KKI = 1
KKKII = KK - KKII
IF (KKII.NE.0) WRITE(11,128) KKIII, KKKII, R3
IF (KKII.NE.0) WRITE(6,128) KKIII, KKKII, R3
KI = 1
KJ = 0
R1 = R1 + R2

C
C R1 IS RADIUS OF PREVIOUS EXTENT OF SOURCE AREA
C R2 IS THICKNESS OF CURRENT RING BEING EXAMINED
C R3 IS FIRST ARC LENGTH OF ELEMENT THEN BECOMES RADIUS TO CENTER OF ELEMENT
c r33 is radial distance to edge of element
C JN IS NUMBER OF ELEMENTS PER RING
C INT IS DISTANCE TO EDGE OF FAULT IN RADIAL DIRECTION OF ELEMENT
C
DO 120 JN = 1,1000
R2 = -R1 + SQRT(R1**2 + (ELA*2.*FLOAT(JN)/PI2))
R3 = PI2*(R1 + R2/2.0)/FLOAT(JN)
IF (R2.GT.R3) GO TO 30
120 CONTINUE
30 ANG3 = PI2/FLOAT(JN)
R3 = R1 + R2/2.0
r33 = r1 + r2
KKIII = KKIII + 1
KKII = KK

C
C GO THROUGH 210 LOOP FOR EACH PORTION OF RING BETWEEN FL(JI) AND FL(JI+1)
C
DO 210 JI = 1,IP
JJI = JI + 1
IF (JJI.GT.IP) JJI = 1
ANG1 = FLOAT(JI-1)*ANG
ANG2 = FLOAT(JI)*ANG
AM111 = FL(JJI)*SIN(ANG2)-FL(JI)*SIN(ANG1)
IF (AM111.EQ.0.0) GO TO 205
AM11 = FL(JJI)*COS(ANG2)-FL(JI)*COS(ANG1)
AM1 = AM11/AM111
B1 = FL(JI)*(COS(ANG1)-AM1*SIN(ANG1))
205 KI = KKI

C
C GO THROUGH 140 FOR ALL ELEMENTS BETWEEN FL(JI) AND FL(JI+1)
C
DO 140 JJ = KI, JN
ANG4 = FLOAT(JJ)*ANG3
IF (ANG4.GT.ANG2.OR.ANG4.LE.ANG1) GO TO 210
KKI = KKI + 1
```

88/08/21
08:15:07

hutchs
empsyn.f

9

```
      IF(R33.GT.FL(JI).AND.R33.GT.FL(JJI)) GO TO 140
C
C INTERCEPT BETWEEN FAULT PARAMETERS
C
      IF(ANG4.EQ.PI2.OR.ANG4.EQ.(PI2/2.0)) GO TO 202
      AM2 = COS(ANG4)/SIN(ANG4)
      IF(AM111.NE.0.0) X1 = B1/(AM2-AM1)
      IF(AM111.NE.0.0) Y1 = AM1*X1 + B1
      IF(AM111.EQ.0.0) X1 = FL(JI)*SIN(ANG1)
      IF(AM111.EQ.0.0) Y1 = AM2*X1
      GO TO 203
202  X1 = 0.0
      Y1 = B1
203  INT = SQRT(X1**2 + Y1**2)
      IF(R33.GT.INT) GO TO 140
      IF(ANG4.GE.(PI2/4.).AND.ANG4.LE.(.75*PI2)) GO TO 141
      SURF = ABS(AH/(SIN(DP1)*COS(ANG4)))
      IF(R33.GT.SURF) GO TO 140
C
C *****
C ELEMENT WILL BE USED
C
      141  KJ = KJ + 1
           KK = KK + 1
C
C LOCATION OF ELEMENT
C
C AZMM IS HORIZONTAL PROJECTION OF AZIMUTH ALONG FAULT
C CAREFUL, ATAN GOES FROM 0 TO PI/2, -PI/2 TO PI/2, AND -PI/2 TO 0
C ATAN2 GO FROM 0 TO PI AND -PI TO 0
C ANG5 IS HORIZONTAL PROJECTION OF ANG4
C R4 IS HORIZONTAL LENGTH OF R3
C
      ANG5 = ATAN2(SIN(ANG4),COS(ANG4)*COS(DP1))
      R4 = R3*SQRT(SIN(ANG4)**2+COS(ANG4)**2*COS(DP1)**2)
      AZMM = STK1 - PI2/4. + ANG5
      RH(KK) = AH - R3*COS(ANG4)*SIN(DP1)
      RLAT(KK) = ALAT + COS(AZMM)*R4*360./(RHOM*PI2)
      RLON(KK) = ALON - SIN(AZMM)*R4*360./(RHON*PI2*COS(ALAT*PI2/360.))
      RLAT1 = RLAT(KK)
      RLON1 = RLON(KK)
      RH1 = RH(KK)
      ANG44 = ANG4*360./PI2
      IF(ANG44.LT.0.0) ANG44 = 360.0 + ANG44
      ANG55 = ANG5*360./PI2
      IF(ANG55.LT.0.0) ANG55 = 360.0 + ANG55
      AZMM1 = AZMM*360./PI2
      IF(AZMM1.LT.0.0) AZMM1 = 360. + AZMM1
C
C FIND SOURCE EVENT
C
      DH1 = 100.0
      DO 144 II = 1,NE
      CALL DISAZM(AZM,AZINV,DIS,HDIS,BLAT(II),BLON(II),H,RLAT1,RLON1)
      HDIS = SQRT(DIS**2 + (BH(II) - RH1)**2)
      IF(HDIS.GT.DH1) GO TO 144
      DH1 = HDIS
      EAA = EA(II)
      EBB = EB(II)
      INEL(KK) = II
144  CONTINUE
C
C COMPUTE P AND S DELAY TIME DUE TO LOCATION OF SOURCE EVENT
C
```



```

BLAT1 = BLAT(INEL(KK))
BLON1 = BLON(INEL(KK))
BH1 = BH(INEL(KK))
CALL DISAZM(AZM,AZINV,DIS,HDIS1,BLAT1,BLON1,BH1,SLAT,SLON)
CALL DISAZM(EZM,AZINV,DIS,HDIS2,RLAT1,RLON1,RH1,SLAT,SLON)
RDIS(KK) = DIS
VP = 3.0 + RH1*VPP
VS = VP/1.76
rgd = vs
DTIMP(KK) = (HDIS2 - HDIS1)/VP
ELTIM(KK) = R3/VR
RAZM(KK) = EZM
IF(SLM.NE.ANS3) GO TO 142
IF(IPA.EQ.1) RSTM = (1.0/VR + 1.0/VH)*(FL(1)-R3)
if(ipa.eq.3) rstm=(1./vr + 1./vh)*(aa*(1.-ec**2)-r3*ec*
*cos(pi2/4.-ang4-ann2)-r3)
IF(IPA.NE.1.and.ipa.ne.3) CALL RISTIM(VR,VH,FL,IP,R3,ANG4,RSTM)
RISTM(KK) = RSTM
RDPP(KK) = 0.81*STD*SQRT(RISTM(KK)**2 +
* 2.0*(R3/VR)*RISTM(KK))
amo = amo + rdpp(kk)*rgd*ela
IF(RDPP(KK).GT.CPLT) ICPLT = KK
IF(RDPP(KK).GT.CPLT) CPLT = RDPP(KK)
>142 IF(SLM.EQ.ANS4) RISTM(KK) = RTMHSK ←
DURTIM1 = RISTM(KK) + (R1+R2)/VR
IF(DURTIM1.GT.DURTIM) DURTIM = DURTIM1
sdurl = r33/vr + rstm(kk) + (hdis2 - adis)/vp
if(sdurl.lt.sdur) go to 143
sdur = sdurl
143 dishsk = dishsk + ela*rgd*1.0e+21
C 146 IF(KKIII.EQ.3.AND.SLM.EQ.ANS4) WRITE(11,666) KK,ANG44,ANG55,
C 146 WRITE(11,666) KK,ANG44,ANG55,
C *AZMM1,EAA,EBB,DH1,DTIMP(KK),RLAT1,RLON1,RH1
C IF(KKIII.EQ.3.AND.SLM.EQ.ANS3) WRITE(11,667) KK,ANG44,ANG55,
C *AZMM1,EAA,EBB,DH1,DTIMP(KK),RDPP(KK),RISTM(KK)
140 CONTINUE
210 CONTINUE
666 FORMAT('ELEM',I3,' ANG4=',F5.1,' ANG5=',F5.1,' AZMM=',F5.1,3X,
*'EVENT ',I3,1X,I4,' DIS=',F5.2,' DTIMP=',F5.2,2X,
*'F7.4,2X,F8.4,2X,F5.2)
667 FORMAT('/ELEM',I3,' ANG4=',F5.1,' ANG5=',F5.1,' AZMM=',F5.1,3X,
*'EVENT ',I3,1X,I4,' DIS=',F5.2,' DTIMP=',F5.2,
*' RDPP=',F5.0,' RISTM=',F5.2)
IF(KJ.NE.0) GO TO 160
if(slm.ne.ans3) go to 145
amo = amo*1.0e+21
std = std*mo/amo
write(11,1113) mo,amo
1113 format('mo=',e10.3,' amo=',e10.3)
cplt = cplt*mo/amo
do 1111 i = 1, kk
1111 rdpp(i) = mo*rdpp(i)/amo
WRITE(11,112) STD
1112 format(f4.1,7x,f4.1,5x,f4.1,5x,f5.1,6x,f5.1)
WRITE(6,127) DURTIM,RISTM(1),RDPP(1),sdur
WRITE(11,127) DURTIM,RISTM(1),RDPP(1),sdur
WRITE(6,123)
WRITE(6,126) MO,amo
145 DISHSC = MO/dishsk
IF(SLM.ne.ANS3) WRITE(6,419) DISHSC,RTMHSK,DURTIM,SDUR
IF(SLM.ne.ANS3) WRITE(11,419) DISHSC,RTMHSK,DURTIM,SDUR
WRITE(6,124) KK,R1
WRITE(11,124) KK,R1

```

88/08/21
08:15:07

hutchs
empsyn.f

11

```
C CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC
C
C BEGIN SYNTHESIS
C
C READ IN EACH FILE
C
  PRINT *, '*****'
  WRITE(6,302)
  PRINT *, '*** READY TO BEGIN SYNTHESIS ***'
  IF(SLP.EQ.ANS6) GO TO 416
  WRITE(11,423)
423 FORMAT('/', 'SYNTHESIS IS BY CONVOLUTION OF SOURCE EVENTS WITH SLIP
*FUNCTION, '/', 'DECONVOLVED WITH STEP FUNCTION. EACH SOURCE EVENT IS
* SPLIT BETWEEN P AND S, '/', 'AND COMPUTATION IS DONE IN FREQUENCY DO
*MAIN. FFT FOR EACH SOURCE EVENT ONCE.')
  IF(SLM.EQ.ANS3) WRITE(6,418)
  IF(SLM.EQ.ANS3) WRITE(11,418)
  KK1 = AMIN0(KK,160)
  IF(SLM.EQ.ANS3) WRITE(11,135) KK1
  IF(SLM.EQ.ANS3) WRITE(11,129) (RDPP(I), I = 1, KK1)
  IF(SLM.EQ.ANS3) WRITE(6,129) (RDPP(I), I = 1, KK1)
  PRINT *, ' '
  IF(FILOW.NE.0.0.AND.FILHI.NE.100.0) WRITE(6,427) FILOW, FILHI
  IF(FILOW.NE.0.0.AND.FILHI.NE.100.0) WRITE(11,427) FILOW, FILHI
427 FORMAT('OUTPUT BAND PASSED BETWEEN ', F4.1, ' AND ', F5.1, ' HZ')
  PRINT *, ' '
  K = 8192
  N = 13
431 FORMAT('SPECTRAL DIMENSION IS ', I4, ' POINTS, IF TRACES ARE GREATER
* THAN ', I2, ' SECONDS'// ' YOU GET WRAP-AROUND IN MAIN SEISMOGRAM')
  GO TO 411
416 WRITE(6,302)
  IF(SLM.NE.ANS4) WRITE(6,422)
  IF(SLM.NE.ANS4) WRITE(11,422)
422 FORMAT('SYNTHESIS IS BY INCREMENTING SLIP FUNCTION AND DELAYED STA
*CKING')
  IF(SLM.EQ.ANS3) WRITE(11,417)
  IF(SLM.EQ.ANS3) WRITE(6,417)
417 FORMAT('/', 'KOSTROV SLIP MODEL WITH HEALING'//, 'DISPLACEMENT FIRST 1
*60 ELEMENTS (LEFT TO RIGHT)')
  KK1 = AMIN0(KK,160)
  IF(SLM.EQ.ANS3) WRITE(11,129) (RDPP(I), I = 1, KK1)
  IF(SLM.EQ.ANS3) WRITE(6,129) (RDPP(I), I = 1, KK1)
  PRINT *, ' '
  IF(SLM.EQ.ANS3) PRINT *, 'INTERVAL FOR INCREMENTING SLIP IS DT'
  IF(SLM.EQ.ANS4) RRISS = R1/VR
  IF(SLM.EQ.ANS4) WRITE(6,414) DISHSK, RRISS, sdur
  IF(SLM.EQ.ANS4) WRITE(11,414) DISHSK, RRISS, sdur
414 FORMAT('//' 'TWO DIMENSIONAL HASKEL RUPTURE MODEL WITH STEP SLIP FUNC
*TION'// 'EACH ELEMENT HAS THE SAME DISPLACEMENT:', F5.1, ' CM'// 'TOTAL
* FAULTING DURATION', F5.2, ' SECONDS'//, 'STATION SOURCE PULSE DURATIO
*N: ', F5.2)
  K = 4000
  WRITE(11,132) K
C
C SET SYNTHESIZED TRACE TO ZERO
C
411 DO 150 I = 1, 9000
  TRZ(I) = CMPLX(0.0, 0.0)
  TRR(I) = CMPLX(0.0, 0.0)
150 TRT(I) = CMPLX(0.0, 0.0)
C
C PARAMETERS FROM SOURCE FILE:
C
```

88/08/21
08:15:07

hutchs
empsyn.f

12

```
C TAM1: REAL TIME OF FIRST DATA POINT
C TAM2: SECONDS FROM ORIGIN OF FIRST DATA POINT
C LN: SECONDS OF RECORD IN ORIGINAL DATA FILE
C BAZM: BACK-AZIMUTH OF STATION FROM SOURCE EVENT
C SAZM: ORIENTATION OF TRACE TWO IN OUTPUT
C ROT: ROTATION OF STATION COORD W.R.T. NORTH (= BAZM)
C NP: LENGTH IN POINTS OF EACH TRACE
C DT: SAMPLING INTERVAL IN SECONDS
C SAZM: ORIENTATION OF TRACE TWO IN OUTPUT FILE
C EPI: EPICENTRAL DISTANCE
C ML: LOCAL RICHTER MAGNITUDE
C H: DEPTH OF EVENT
C
C CCCCCCCCCCCCCC
C
C GO THROUGH 400 LOOP ONCE FOR EACH SOURCE EVENT, APPLY TO ALL
C ELEMENTS USING THE EVENT
C
C JJK TO COUNT ELEMENTS DURING COMPUTATION
  JJK = 0
  DO 400 JI = 1,NE
    DO 410 I = 1,k
      traz(i) = 0.0
      trar(i) = 0.0
410   trat(i) = 0.0
      VQP = 3.0 + BH(JI)*VPP
      VQS = VQP/1.76
      IF(EB(JI).LE.999) I11 = 0
      IF(EB(JI).GT.999) I11 = EB(JI)/1000
      I12 = EB(JI) - I11 * 1000
      IF(I12.LE.99) I12 = 0
      IF(I12.GT.99) I12 = I12/100
      I13 = EB(JI) - I11 * 1000 - I12 * 100
      IF(I13.LE.9) I13 = 0
      IF(I13.GT.9) I13 = I13/10
      I14 = EB(JI) - I11 * 1000 - I12 * 100 - I13 * 10
      AEB = CHAR(I11+48)//CHAR(I12+48)//CHAR(I13+48)//CHAR(I14+48)
      NNSF1 = 'e'//AEB//s'//ASB
      IF(SSC.EQ.ANS1.OR.SSC.EQ.ANS2) GO TO 412
      OPEN (UNIT = 8, FILE = NNSF1)
      READ(8,401) ADAY,AHOUR,BHOUR,AMIN,BMIN,ASTA,BSTA,LN,TAM1
401  FORMAT(9X,A2,1X,A1,A1,A1,A1,12X,A1,A1,18X,F5.2,14X,F5.2)
      IF(AHOUR.EQ.BLANK) AHOUR = ZERO
      IF(AMIN.EQ.BLANK) AMIN = ZERO
      IF(ASTA.EQ.BLANK) ASTA = ZERO
      WRITE(6,407)
407  FORMAT(///)
      PRINT *,'          ***** HEADING INFORMATION FROM INPUT FILE *****'
      WRITE(6,408) ASTA,BSTA,ADAY,AHOUR,BHOUR,AMIN,BMIN
      READ(8,402) EPI,BAZM
402  FORMAT(22X,F5.2,19X,F5.1///)
      READ(8,405) ML
405  FORMAT(28X,F3.1/)
      WRITE(6,403) EPI,BAZM
      WRITE(6,406) ML
406  FORMAT('LOCAL RICHTER MAGNITUDE ',F3.1)
403  FORMAT('EPICENTRAL DISTANCE ',F5.2,'      EVENT-STAT AZIMU ',F5.1)
      READ(8,404) NP,DT,TAM2
404  FORMAT(15X,I4,20X,F6.4,17X,F4.2//)
      WRITE(6,409) NP,DT,TAM2
409  FORMAT(/,'PTS = ',I4,'      SAMPLING INTERVAL ',F6.4/,
      *'FIRST DATA POINT SECONDS FROM ORIGIN ',F4.2//)
408  FORMAT(/,'STA ',A1,A1,'      SAN FERNANDO 1971 0',A2,1X,
      *A1,A1,A1,A1)
```

```
      READ(8,121) (TRAZ(I), I = 1,NP)
      READ(8,123)
      READ(8,121) (TRAR(I), I = 1,NP)
      READ(8,123)
      READ(8,121) (TRAT(I), I = 1,NP)
      GO TO 413
412 NNSF1 = 'e'//AEB//'s'//ASB//'.zzz'
      CALL RSAC1(NNSF1,TRAZ,NP,TAM2,DT,MAX,NERR)
      NNSF1 = 'e'//AEB//'s'//ASB//'.rad'
      CALL RSAC1(NNSF1,TRAR,NP,TAM2,DT,MAX,NERR)
      NNSF1 = 'e'//AEB//'s'//ASB//'.tan'
      CALL RSAC1(NNSF1,TRAT,NP,TAM2,DT,MAX,NERR)
      ITK = IFIX(FLOAT(K)*DT - 5.0)
      WRITE(11,431) K,ITK
C
C CCCCCCCCCCCCCCCCCCCC
C
C COMPUTE RADIATION FACTOR FOR SOURCE EVENT
C
413 CALL DISAZM(BAZM,AZINV,BDIS,HDIS,BLAT(JI),BLON(JI),BH(JI),SLAT
*,SLON)
      CALL LINVEL(BLAT(JI),BLON(JI),SLAT,SLON,BH(JI),BDIS,RP,ANGI,
*VSP,AINP,VZF)
      BZMM = BAZM - BSTR(JI)
      AANGI = 360.*ANGI/PI2
      AAINP = 360.*AINP/PI2
      AINS = ASIN(SIN(AINP)/1.76)
      VSS = VSP/1.76
      AAINS = 360.*AINS/PI2
      BSV1 = (BSV(JI)/360.)*PI2
      BZM1 = (BZMM/360.)*PI2
      BDP1 = (BDP(JI)/360.)*PI2
C
      FFPP = COS(BSV1)*SIN(BDP1)*(SIN(ANGI)**2)*SIN(2.*BZM1) -
* COS(BSV1)*COS(BDP1)*SIN(2.*ANGI)*COS(BZM1) + SIN(BSV1)*SIN(2.*BDP1)
** ((COS(ANGI)**2) - (SIN(ANGI)**2)*(SIN(BZM1)**2)) +
* SIN(BSV1)*COS(2.*BDP1)*SIN(2.*ANGI)*SIN(BZM1)
      IF(FFPP.LT.0..AND.FFPP.GT.-.4) FFPP = -.4
      IF(FFPP.GE.0..AND.FFPP.LT..4) FFPP = .4
      IF(RDC.NE.ANS1.AND.RDC.NE.ANS2) FFPP = 1.0
C
      FFSV = SIN(BSV1)*COS(2.*BDP1)*COS(2.*ANGI)*SIN(BZM1) - COS(BSV1)
* COS(BDP1)*COS(2.*ANGI)*COS(BZM1) + .5*COS(BSV1)*SIN(BDP1)*
* SIN(2.*ANGI)*SIN(2.*BZM1) - .5*SIN(BSV1)*SIN(2.*BDP1)*
* SIN(2.*ANGI)*(1.+SIN(BZM1)**2))
      IF(FFSV.LT.0..AND.FFSV.GT.-.4) FFSV = -.4
      IF(FFSV.GE.0..AND.FFSV.LT..4) FFSV = .4
      IF(RDC.NE.ANS1.AND.RDC.NE.ANS2) FFSV = 1.0
C
      FFSH = COS(BSV1)*COS(BDP1)*COS(ANGI)*SIN(BZM1) +
* COS(BSV1)*SIN(BDP1)*SIN(ANGI)*COS(2.*BZM1) + SIN(BSV1)*COS(2.*BDP1)
* COS(ANGI)*COS(BZM1) - .5*SIN(BSV1)*SIN(2.*BDP1)*SIN(ANGI)*
* SIN(2.*BZM1)
      IF(FFSH.LT.0..AND.FFSH.GT.-.4) FFSH = -.4
      IF(FFSH.GE.0..AND.FFSH.LT..4) FFSH = .4
      IF(RDC.NE.ANS1.AND.RDC.NE.ANS2) FFSH = 1.0
C
      WRITE(6,305) EAA,AEB,BZMM,BDP(JI),BSV(JI),AANGI,AAINP,AAINS,
*FFPP,FFSV,FFSH
      WRITE(11,305) EAA,AEB,BZMM,BDP(JI),BSV(JI),AANGI,AAINP,AAINS,
*FFPP,FFSV,FFSH
305 FORMAT(/,'*** SOURCE EVENT (0',I2,1X,A4,') ***'/,
*'FAULT-STAT AZI DIP SLIP VECTOR TAKEOFF ANGLE',
*' P S INCID ANGLES'/,6X,F6.1,5X,F4.1,4X,F6.1,11X,F4.1,11X,
```

88/08/21
08:15:07

hutchs
empsyn.f

14

```
*F4.1,2X,F4.1/'RADIATION CORRECTION FACTORS      P      SV      SH',
*/ ,30X,F5.3,3X,F5.3,3X,F5.3)

C
C  ISS: POINTS INTO TRACE TO SPLIT P AND S ARRIVALS
C
      BHDIS = SQRT(BDIS**2+BH(JI)**2)
      ISS = IFIX((SPT(JI)-TAM2)/DT)
      WRITE(11,424) SPT(JI),ISS
424  FORMAT('SOURCE EVENT SPLIT FOR ANALYSIS ',F5.2,' SEC FROM ORIGIN',
* ' ISS = ',I4)
      IF(SLP.EQ.ANS6) GO TO 435
      LT = IFIX(.5/DT)
      NT1 = LT + 1
      NT2 = ISS - LT
      NT3 = ISS
      NT4 = NP - LT
C BOTH TRACES MUST HAVE SAME K VALUE FOR CONVOLUTION WITH SLIP FUNCTION
C MP AND MS ARE POINT SHIFTS OF TRACES AFTER TAPERING
C
C AMPLITUDE FACTORS FOR COOL ARE APPLIED IN SUBROUTINE TAPER
      SIGNI = -1.0
      CALL TAPER(NP,NT1,NT2,TRAZ,TZPZ,N,LT,MP,M1,K)
      CALL COOL(N,TZPZ,SIGNI)
      CALL TAPER(NP,NT1,NT2,TRAR,TZPR,N,LT,MP,M1,K)
      CALL COOL(N,TZPR,SIGNI)
      CALL TAPER(NP,NT1,NT2,TRAT,TZPT,N,LT,MP,M1,K)
      MP1 = M1
      CALL COOL(N,TZPT,SIGNI)
      CALL TAPER(NP,NT3,NT4,TRAZ,TZSZ,N,LT,MS,M1,K)
      CALL COOL(N,TZSZ,SIGNI)
      CALL TAPER(NP,NT3,NT4,TRAR,TZSR,N,LT,MS,M1,K)
      CALL COOL(N,TZSR,SIGNI)
      CALL TAPER(NP,NT3,NT4,TRAT,TZST,N,LT,MS,M1,K)
      MS1 = M1
      CALL COOL(N,TZST,SIGNI)
C
C NOW USE SOURCE EVENT FOR ALL ELEMENTS SPECIFYING THIS EVENT
435  DO 450 JK = 1,KK
      IIN = INEL(JK)
      IF(IIN.NE.JI) GO TO 450
      VP = 3.0 + RH(JK)*VPP
      VS = VP/1.76
      RGD = VS
      IF(SLM.EQ.ANS4) RGD = 3.0
      IF(SLM.EQ.ANS3) SELM = RDPP(JK)
      IF(SLM.EQ.ANS4) SELM = DISHSK
      JJK = JJK + 1
      AJK = FLOAT(JJK)/10.0 - FLOAT(IFIX(FLOAT(JJK)/10.0))
      IF(AJK.EQ.0.0) WRITE(6,436) JJK,KK,JI,NE
436  FORMAT(I5,' ELEMENTS OF TOTAL ',I5,' SOURCE EVENT ',I2,' OF ',I2)
C
C IDEL: TOTAL DELAY IN POINTS FOR STACKING IN P PHASES
C IDELS: ADDITIONAL DELAY FOR S PHASES
C
      IDEL = IFIX(ELTIM(JK)/DT + DTIMP(JK)/DT + TAM2/DT - SFO/DT)
      IF(IDEL.LT.0) WRITE(6,425)
      IF(IDEL.LT.0) WRITE(11,425)
425  FORMAT('WARNING: IDEL LT 0, SFO TOO LARGE, DISTANCE CORRECTION',//
* 'FACTOR WRONG, PROBABLEY VELOCITY USED FOR CORRECTION TOO SMALL'//
* , '***** TERMINATE PROGRAM *****')
      IF(IDEL.LT.0) GO TO 2000
      IDELS = IFIX((DTIMP(JK)/DT)*(1.76-1.0))

C
C
```

88/08/21
08:15:07

hutchs
empsyn.f

15

```
C SET ELEMENT TRACE TO ZERO
C
  DO 445 I = 1,K
    ETRZ(I) = CMPLX(0.0,0.0)
    ETRR(I) = CMPLX(0.0,0.0)
  445 ETRT(I) = CMPLX(0.0,0.0)
C
  IF(SLP.EQ.ANS5) GO TO 455
C
C KOSTROV SLIP FUNCTION
C
C KR: NUMBER OF INCREMENTS TO GET DESIRED RISE TIME. RISETIME
C INCREMENTED AT DIGITIZING RATE
C SELM: TOTAL SLIP DESIRED FOR ELEMENT (NORMALIZED TO 1./(.3*STD*VR)
C SSEM: TOTAL SLIP OBTAINED FROM INCREMENTING (NORMALIZED)
C FAC1: SELM/SSEM TO GET DESIRED SLIP FOR ELEMENT
C FAC2: SCALE SEISMOGRAM FOR INCREMENT OF SLIP FUNCTION
C SS: PARTIAL SLIP AT ELEMENT
C DELSS: INCREMENTAL STEP IN SLIP
C
C
  IF(SLM.EQ.ANS3) SINC = DT
  IF(SLM.EQ.ANS4) SINC = 0.0
  IF(SLM.EQ.ANS3) KR = IFIX(RISTM(JK)/SINC + .01)
  IF(SLM.EQ.ANS4) KR = 1
  IF(KR.EQ.0) KR = 1
C
C INCREMENTAL VALUES ARE SCALED TO PROVIDE EXACT DESIRED OFFSET
C
  SSEM = 0.81*STD*SQRT((FLOAT(KR)*SINC)**2 + 2.0*FLOAT(KR)*
* SINC*ELTIM(JK))
  IF(SLM.EQ.ANS3) FAC1 = SELM/SSEM
  IF(SLM.EQ.ANS4) FAC1 = 1.0
  IF(SLM.EQ.ANS4) FAC2 = RGD*1.0E+11*ELA*1.0E+10*DISHSK/BM(JI)
  SUM = 0.0
  TIM = 0.0
  DO 460 I = 1,KR
    IF(SLM.EQ.ANS4) GO TO 90
    TIM = TIM + SINC
    SS = FAC1*0.81*STD*SQRT(TIM**2 + 2.0*TIM*ELTIM(JK))
    DELSS = SS - SUM
    SUM = SUM + DELSS
C REMEMBER ELA(KM**2) = ELA(CM**2 * 1.0E+10)
  FAC2 = RGD*1.0E+11*ELA*1.0E+10*DELSS/BM(JI)
  NR = IFIX(TIM/DT + .001)
  90 IF(SLM.EQ.ANS4) NR = 1
  KKI = 0
  NRR = NR + NP - 1
  DO 470 IK = NR,NRR
    KKI = KKI + 1
    ETRZ(IK) = ETRZ(IK) + CMPLX(TRAZ(KKI)*FAC2,0.0)
    ETRR(IK) = ETRR(IK) + CMPLX(TRAR(KKI)*FAC2,0.0)
  470 ETRT(IK) = ETRT(IK) + CMPLX(TRAT(KKI)*FAC2,0.0)
  460 CONTINUE
C
C APPLY RADIATION CORRECTION FOR ELEMENT
C
  455 DP1 = (DP/360.)*PI2
  EZM1 = ((RAZM(JK) - STK)/360.)*PI2
  SV1 = (SV/360.)*PI2
C
C NOW OTHER PARAMETERS
C
  CALL LINVEL(RLAT(JK),RLON(JK),SLAT,SLON,RH(JK),RDIS(JK),RP,ANGI,
```

88/08/21
08:15:07

hutchs
empsyn.f

16

```
*VSP,AINP,VZF)
  ELPP = COS(SV1)*SIN(DP1)*(SIN(ANGI)**2)*SIN(2.*EZM1) -
  *COS(SV1)*COS(DP1)*SIN(2.*ANGI)*COS(EZM1) + SIN(SV1)*SIN(DP1)*
  **((COS(ANGI)**2)-(SIN(ANGI)**2)*(SIN(EZM1)**2)) +
  *SIN(SV1)*COS(2.*DP1)*SIN(2.*ANGI)*SIN(EZM1)
  IF(ELPP.LT.0..AND.ELPP.GT.-.4) ELPP = -.4
  IF(ELPP.GE.0..AND.ELPP.LT..4) ELPP = .4
  IF(RDC.NE.ANS1.AND.RDC.NE.ANS2) ELPP = 1.0
C
  ELSV = SIN(SV1)*COS(2.*DP1)*COS(2.*ANGI)*SIN(EZM1)-COS(SV1)*
  *COS(DP1)*COS(2.*ANGI)*COS(EZM1) + .5*COS(SV1)*SIN(DP1)*
  *SIN(2.*ANGI)*SIN(2.*EZM1) - .5*SIN(SV1)*SIN(2.*DP1)*
  *SIN(2.*ANGI*(1.+SIN(EZM1)**2))
  IF(ELSV.LT.0..AND.ELSV.GT.-.4) ELSV = -.4
  IF(ELSV.GE.0..AND.ELSV.LT..4) ELSV = .4
  IF(RDC.NE.ANS1.AND.RDC.NE.ANS2) ELSV = 1.0
C
  ELSH = COS(SV1)*COS(DP1)*COS(ANGI)*SIN(EZM1) +
  *COS(SV1)*SIN(DP1)*SIN(ANGI)*COS(2.*EZM1) + SIN(SV1)*COS(2.*DP1)*
  *COS(ANGI)*COS(EZM1) - .5*SIN(SV1)*SIN(2.*DP1)*SIN(ANGI)*
  *SIN(2.*EZM1)
  IF(ELSH.LT.0..AND.ELSH.GT.-.4) ELSH = -.4
  IF(ELSH.GE.0..AND.ELSH.LT..4) ELSH = .4
  IF(RDC.NE.ANS1.AND.RDC.NE.ANS2) ELSH = 1.0
  IF(JK.EQ.1) WRITE(11,130)
  IF(JK.LT.10) WRITE(11,131) ELPP,ELSV,ELSH
C
C
C ROTATE ETRZ(I),ETRR(I),ETRT(I) INTO STATION COORDINATES:
C      TRZ(I) UP-COMP, TRR(I) NORTH, TRT(I) WEST
C
C PUT IN P AND S DELAY, SOURCE EVENT OT DELAY, RUPTURE DELAY, AND
C ADD INTO SYNTHETIC SEISMOGRAM
C
C RAZM(JK): AZIMUTH FROM ELEMENT TO STATION
C BAZM:      AZIMUTH FROM SOURCE EVENT TO STATION
C
  AZM1 = (RAZM(JK) - BAZM) * 0.017453
  SAZM1 = (SAZM - RAZM(JK)) * 0.017453
  IF(SLP.EQ.ANS6) GO TO 420
C
C CONVOLVE SLIP FUNCTION APPLY PHASE DELAYS
C
C PHASE DELAY
  APHP = -1.*FLOAT(IDEL - MP)*DT
  APHS = -1.*FLOAT(IDEL + IDELS + (MS1-MP1+1) - MS)*DT
C
C RADIATION CORRECTION
C
  FAC4 = ELA*RGD*1.0E+11*1.0E+10/BM(JI)
  FFAC1 = CMPLX(FAC4*ELPP/FFPP,0.0)
  FFAC2 = CMPLX(FAC4*ELSV/FFSV,0.0)
  FFAC3 = CMPLX(FAC4*ELSH/FFSH,0.0)
  F1 = REAL(FFAC1)
  F2 = REAL(FFAC2)
  F3 = REAL(FFAC3)
C  WRITE(11,426) FAC4,F1,F2,F3
426 FORMAT('FAC4=',F7.3,' FFAC1=',F7.3,' FFAC2=',F7.3,' FFAC3=',F7.3)
C
  IF(SLM.EQ.ANS4) RDPP(JK) = DISHKS
  IF(RTMHKS.NE.0.0) ASLP = RDPP(JK)/RISTM(JK)
IF(RTMHKS.EQ.0.0) ASLP = 0.0
C
C RAMP SOURCE-TIME FUNCTION, DECONVOLVED WITH STEP FUNCTION OF GREEN'S
```

```
C
      J1 = IFIX(FLOAT(K)/2. + 1.001)
C
C CORRECTION FACTORS FOR GEOMETRICAL SPREADING AND ATTENUATION
C
      RHDIS = SQRT(RH(JK)**2 + RDIS(JK)**2)
C
C REMEMBER WS IN LINEAR FREQUENCY
C WW IS ANGULAR FREQUENCY
C
C SLIP FUNCTION IS ANALYTICALLY DECONVOLVED WITH A STEP FUNCTION
C
      DO 430 IS = 1,J1
      WW = PI2*FLOAT(IS-1)/(FLOAT(K)*DT)
      RPFAC = FFAC1*(BHDIS/RHDIS)*EXP(WW*(BHDIS-RHDIS)/(2.*VQP*Q))
      RRFAC = FFAC2*(BHDIS/RHDIS)*EXP(WW*(BHDIS-RHDIS)/(2.*VQS*Q))
      RTFAC = FFAC3*(BHDIS/RHDIS)*EXP(WW*(BHDIS-RHDIS)/(2.*VQS*Q))
      ZPHP = CMPLX(COS(WW*APHP),SIN(WW*APHP))
      ZPHS = CMPLX(COS(WW*APHS),SIN(WW*APHS))
      IF(WW.NE.0.0) ESLP = CMPLX(0.0,(ASLP/WW))*CMPLX(COS(WW*RISTM(JK)),
*-SIN(WW*RISTM(JK))) - CMPLX(0.0,(ASLP/WW))
      IF(WW.EQ.0.0) ESLP = CMPLX(0.0,0.0)
C NEXT FOR STEP FUNCTION
      IF(RTMHSE.EQ.0.0) ESLP = CMPLX(RDPP(JK),0.0)
      ETRZ(IS) = TZPZ(IS)*ESLP*ZPHP*RRFAC + TZSZ(IS)*ESLP*ZPHS*RRFAC
      ETRR(IS) = TZPR(IS)*ESLP*ZPHP*RRFAC + TZSR(IS)*ESLP*ZPHS*RRFAC
      ETRT(IS) = TZPT(IS)*ESLP*ZPHP*RRFAC + TZST(IS)*ESLP*ZPHS*RRFAC
C NOW ROTATE TO RADIAL AND TANGENTIAL OF STATION
      ETRA2=ETRT(IS)*CMPLX(SIN(AZM1),0.0)+ETRR(IS)*CMPLX(COS(AZM1),0.0)
      ETRA3=ETRT(IS)*CMPLX(COS(AZM1),0.0)-ETRR(IS)*CMPLX(SIN(AZM1),0.0)
C
C NOW ROTATE TO SAZM FOR TRACE 2 AND SAZM + 90.0 FOR TRACE 3
      TR2=ETRA3*CMPLX(SIN(SAZM1),0.0)+ETRA2*CMPLX(COS(SAZM1),0.0)
      TR3=ETRA3*CMPLX(COS(SAZM1),0.0)-ETRA2*CMPLX(SIN(SAZM1),0.0)
C
C
      TRZ(IS) = TRZ(IS) + ETRZ(IS)
      TRR(IS) = TRR(IS) + TR2
      430 TRT(IS) = TRT(IS) + TR3
C
C CONJUGATE OF TRZ,TRR,TRT DONE IN SUBROUTINE FILTER
C
      GO TO 450
C
C APPLY RADIATION CORRECTION FOR ELEMENT
C
C
      420 DO 480 I = 1,K
      IF(I.LT.ISS) FFAC1 = CMPLX(FFPP,0.0)
      IF(I.GE.ISS) FFAC1 = CMPLX(FFSH,0.0)
      IF(I.LT.ISS) FFAC2 = CMPLX(FFPP,0.0)
      IF(I.GE.ISS) FFAC2 = CMPLX(FFSV,0.0)
      IF(I.LT.ISS) ELAC1 = CMPLX(ELPP,0.0)
      IF(I.GE.ISS) ELAC1 = CMPLX(ELSH,0.0)
      IF(I.LT.ISS) ELAC2 = CMPLX(ELPP,0.0)
      IF(I.GE.ISS) ELAC2 = CMPLX(ELSV,0.0)
      ETRA1 = ETRZ(I)/FFAC2
C
C ROTATE TO STATION RADIAL AND TANGENTIAL
      ETRA2=ETRT(I)*CMPLX(SIN(AZM1),0.0)/FFAC1
      * + ETRR(I)*CMPLX(COS(AZM1),0.0)/FFAC2
      ETRA3=ETRT(I)*CMPLX(COS(AZM1),0.0)/FFAC1
      * - ETRR(I)*CMPLX(SIN(AZM1),0.0)/FFAC2
C
```


08/08/21
08:15:47

hutchs
empsyn.f

18

```
C NOW ROTATE TO SAZM AND SAZM + 90.0
  TR1 = ETRA1*ELAC2
  TR2 = ETRA3*ELAC1*CMPLX(SIN(SAZM1),0.0)
  * + ETRA2*ELAC2*CMPLX(COS(SAZM1),0.0)
  TR3 = ETRA3*ELAC1*CMPLX(COS(SAZM1),0.0)
  * - ETRA2*ELAC2*CMPLX(SIN(SAZM1),0.0)

C
C
  IDEL = IDEL + 1
  IF(I.EQ.ISS) IDEL = IDEL + IDELS
  TRZ(IDEL) = TRZ(IDEL) + TR1
  TRR(IDEL) = TRR(IDEL) + TR2
480 TRT(IDEL) = TRT(IDEL) + TR3
450 CONTINUE
400 CONTINUE
  IF(SLP.EQ.ANS5) GO TO 485
  GO TO 490
485 CALL FILTER(TRZ,K,DT,FILOW,FILHI)
  CALL FILTER(TRR,K,DT,FILOW,FILHI)
  CALL FILTER(TRT,K,DT,FILOW,FILHI)
  SIGNI = 1.0
  CALL COOL(N,TRZ,SIGNI)
  CALL COOL(N,TRR,SIGNI)
  CALL COOL(N,TRT,SIGNI)
C IF DWN IS YES, THEN DOWN FOR COMPRESSION AND TRAZ IS REVERSED
490 DO 486 I = 1,K
  IF(DWN.EQ.ANS1.OR.DWN.EQ.ANS2) TRZ(I) = -TRZ(I)
  TRAZ(I) = REAL(TRZ(I))
  TRAR(I) = REAL(TRR(I))
486 TRAT(I) = REAL(TRT(I))
  NNSF2 = 'm'//ALPHSYN// 's'//ASB
  NNSF3 = NNSF2// ' .zzz'
  IF(DWN.EQ.ANS1.OR.DWN.EQ.ANS2) NNSF3 = NNSF2// ' .dwn'
  CALL WSAC1(NNSF3,TRAZ,K,SFO,DT,NERR)
  ICMP1 = IFIX(SAZM/100.)
  ICMP2 = IFIX((SAZM-FLOAT(ICMP1*100))/10.)
  ICMP3 = IFIX(SAZM-FLOAT(ICMP1*100)-FLOAT(ICMP2*10))
  NNSF3 = NNSF2// ' .'//CHAR(ICMP1+48)//CHAR(ICMP2+48)//
  *CHAR(ICMP3+48)
  CALL WSAC1(NNSF3,TRAR,K,SFO,DT,NERR)
  ICMP1 = IFIX(SAZMM/100.)
  ICMP2 = IFIX((SAZMM-FLOAT(ICMP1*100))/10.)
  ICMP3 = IFIX(SAZMM-FLOAT(ICMP1*100)-FLOAT(ICMP2*10))
  NNSF3 = NNSF2// ' .'//CHAR(ICMP1+48)//CHAR(ICMP2+48)//
  *CHAR(ICMP3+48)
  CALL WSAC1(NNSF3,TRAT,K,SFO,DT,NERR)
  CALL PLOTA(STK,DP,RLAT,RLON,RH,ALAT,ALON,AH,FL,IP,CPLT,ICPLT,
  *VR,VP,STD,RDPP,KK,aaa,ec,ann1,sb,11,12,13,14)
  IF(DP.LT.45.) CALL PLOTB(STK,DP,RLAT,RLON,RH,ALAT,ALON,AH,FL,IP,
  *CPLT,ICPLT,VR,VP,STD,RDPP,KK,inv)
  CALL PLOTB(STK,DP,FL,IP,BLAT,BLON,ALAT,ALON,NE,SLAT,SLON,SB,AH)
  CALL PLOT(9.0,9.0,999)
2000 STOP
END
```

Bibliography

- Aki, Keiiti and Paul G. Richards (1980) Quantitative Seismology, *Theory and Methods*, Volumes I and II, W. H. Freeman and Company, San Francisco.
- Allen, Clarence R., Thomas C. Hanks, and James H. Whitcomb (1973) San Fernando earthquake: seismological studies and their tectonic implications; in San Fernando, California, Earthquake of February 9, 1971, Vol III Geological and Geophysical Studies, U.S. Department of Commerce, pp 13-22.
- Brune, J.N. (1970) Tectonic stress and the spectra of seismic shear waves from earthquakes, *J. Geophys. Res.* 75, pp 4997-5010.
- Brune, J.N. (1971) Correction, *J. Geophys. Res.* 76, no 20.
- Burridge, R. and J.R. Willis (1969) The self-similar problem of the expanding crack in an anisotropic solid, *Proc Cambridge Phil Soc*, Vol 66, pp 443-468.
- CIT (1972) Strong motion earthquake accelerograms, Vol II corrected, corrected accelerograms; Engineering Research Laboratory, California Institute of Technology (1969-1975).
- Dahlen, F. A. (1974) On the ratio of P-wave to S-wave corner frequencies for shallow earthquake sources, *Bull Seis Soc of Am*, Vol 64, pp 1159-1180.
- Hadley, D.M. and D.V. Helmberger (1980) Simulation of strong ground motion. *Bull Seis Soc of Am*, Vol 70, no. 2.
- Hanks, T.C. (1974) The faulting mechanism of the San Fernando earthquake, *J Geophys Res*, Vol 79, pp 1215-1229.
- Hartzel, S. H. (1978) Earthquake Aftershocks as Green's Functions, Geophysical Research Letters, Vol 5, No 1
- Hartzel, S. H. (1982) Simulation of ground accelerations for May 1980 Mammoth Lakes, California, earthquakes, *Bull Seis Soc of Am*, Vol 72, pp 2381-2387.
- Heaton, T. H. (1978) Generalized Ray Models of Strong Ground Motion, Ph.D. thesis, Calif. Instit. of Tech., Pasadena, California.
- Heaton, T. H. (1982) The 1971 San Fernando Earthquake: A Double Event?, *Bull Seis Soc m*, Vol 72, pp 2037-2062.
- Hutchings, L. J. (1987), Modeling near-source earthquake ground motion with empirical Green's functions. Ph.D. Dissertation. Department of Geological Sciences, State University of New York, Binghamton, New York, 180 pp.
- Irikura, K., and I. Muramatsu (1983), Synthesis of strong ground motion from large earthquakes using observed seismograms of small events, Proc. 3rd International Earthquake Microzonation Conf., Seattle, 447-458.
- Johnson, L. R. (1974) Green's Function for Lamb's Problem, *Geophy. Jour Roy Astro Soc*, Vol 37, pp 99-131.
- Kostrov, B.V. (1964) Selfsimilar problems of propagation of shear cracks, *J Appl Math Mech (PMM)*, Vol 28, pp 1077-1087.
- Langston, Charles A. (1978) The February 9. 1971 San Fernando earthquake: a study of source finiteness in teleseismic body waves, *Bull Seis Soc of Am*, Vol 68, pp 1-29.

Munguia, L. and Brune, N. B. (1984) Simulation of strong ground motion for earthquakes in the Mexicali-Imperial Valley region. *Geophys. J. R. astr. Soc.* 79, 747-771.

Savage, J. C. (1972) Relation of corner frequencies to fault dimensions, *J Geophys Res*, Vol 77, pp 3788-3795.

Wu, F. T. (1978) Prediction of Strong Ground Motion using Small Earthquakes, *Proceedings of the 2nd International Microzonation Conference*, Vol 2, 701-704.