Microseismic Monitoring of the
Sweet Lake, Louisiana
MagmaGulf-Technadril/D.O.E./Amoco Fee No. 1
Geopressured/Geothermal Energy
Test Well Program

FINAL REPORT
COVERING THE PERIOD
20 May 1980 - 31 May 1984

Prepared for:

The Louisiana Geological Survey and the Louisiana
State University Department of Geology
Baton Rouge, Louisiana 70893

Presented:

31 May 1984

Our File No.: 80C5030

Woodward-Clyde Consultants

Consulting Engineers, Geologists, and Environmental Scientists
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DEPT. of NATURAL RESOURCES
LAND, WATER and RESEARCH

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Woodward-Clyde Consultants

31 May 1984

Dr. C. G. Groat
Louisiana Geological Survey
P. O. Box G, LSU Station
Baton Rouge, Louisiana 70893

Re: Final Report
Sweet Lake Seismic Monitoring Network
20 May 1980 - 31 May 1984
Our File No.: 80C5030

Dear Dr. Groat:

We are pleased to submit our final report concerning the seismic monitoring network in the vicinity of the Magma Gulf - Technadri/D.O.E./Amoco Fee No. 1 Geopressed-Geothermal Energy Test Well Program at Sweet Lake, Louisiana. Data recording continued through May 1, 1984, at which time the Sweet Lake Seismic Monitoring Network was shut down and the telephone company was notified to discontinue line service.

As we understand it, the Amoco Fee No. 1 well has been permanently shut in with no plans for renewal of testing. However, all eight geophones have been left in place should you desire to continue monitoring of seismic data. All other equipment related to this project was removed on May 10, 1984.

Please do not hesitate to contact us should you have any questions or comments concerning any aspect of this monitoring program.

Very truly yours,

C. Thomas Statton
Vice President

James D. Agnew
Project Seismologist

JDA:kmp

Consulting Engineers, Geologists
and Environmental Scientists

Offices in Other Principal Cities

PROJECT OBJECTIVES

The overall objective of the project was to study the seismic effects of fluid withdrawal from deep reservoirs and its subsequent reinjection closer to the surface. This effort included the design and installation of a hardware system and development of a study approach to monitor dynamic deformation in the Gulf Coast environment. Over the long term, insight gained into the ground deformation process (specifically ground subsidence) may potentially allow the integration of observations of individual phenomena into predictive tools for future use in ground subsidence studies. The value of a seismic monitoring network as a predictive tool can only be evaluated by an integrated program to study ground and instrument performance with time. Integrating extended real time monitoring of potential seismic precursors to significant displacements may represent the first integrated study of subsidence undertaken in the Gulf Coast region.

SPECIFIC OBJECTIVES

Specific objectives of this program included design, procurement and installation of an instrument array to monitor seismicity at the Sweet Lake deep gas well site. Data were collected with an array of instruments designed and continually calibrated to operate in the harsh Gulf Coast environment. The instrumentation array was to be broad in its range of sensitivities, flexible in terms of data collection, and stable in terms of the site conditions encountered in the well vicinity. These objectives were met by using an eight-station array of borehole geophones and appropriate electronics and telemetry. The data were collected in real time and continuously recorded on drum recorders and a tape recorder at our Baton Rouge office. Data from this seismic monitoring array were collected from mid-May, 1980 to April 30, 1984, at the Sweet Lake site.

Data were collected for purposes of monitoring seismic deformation as potentially induced by flow testing activities at the well. This collection process was to begin as early as possible, to establish a knowledge of natural background seismicity prior to the initiation of test activities at the Sweet Lake deep gas well. Collection of preliminary data was underway by May, 1980 at the Sweet Lake site, approximately one year prior to full scale test activities late in June

1981. This provides a significant lead time prior to the production of significant fluid quantities from the reservoir.

SUMMARY OF WORK

During the course of this study, a multi-instrument array to monitor seismicity was designed, installed, and operated at the Sweet Lake site. The Sweet Lake array was periodically serviced and continued to operate well throughout the contract period. This array was designed to detect microseismicity before, during and after initial flow testing of the Sweet Lake geopressured/geothermal energy test well.

Technical problems that were encountered ranged from overall system design to hardware maintenance and telephone line stability. Most time and effort expended over the course of the contract was spent to solve satisfactorily problems related to telephone line performance and reliability.

Major accomplishments are both technical and informational in nature. Technically, instrument packages of high sensitivity were designed such that seismicity could be monitored in a hostile environment with acceptable long term stability and performance. Informationally, seismicity near the Sweet Lake well exhibits correlations with tilt events and local weather patterns. These findings lead to several conclusions regarding the direction in which future work should proceed.

First, the poor understanding and documentation of the natural background seismicity made it necessary that background data be carefully collected prior to significant long term well withdrawal activities. This was important in determining the interaction between well testing activities and seismic phenomena in an area where the level of historical seismicity is low (i.e. the Gulf Coast Region). This lack of understanding and documentation of the natural seismicity in the area leads to the recommendation that monitoring activity be continued. These supplemental data can be used to characterize the natural seismic background level, and thus enable the industry to assess in a more knowledgeable fashion its liability with regard to pumping activities.

WORK PLAN

The work plan for the contract study was to design, install and operate an instrument array to monitor seismicity at the Sweet Lake site, and continue operation of the array at Sweet Lake.

WORK PERFORMED

Work performed during the contract program included: 1) installation, operation and maintenance of instrumentation at the Sweet Lake test well site, and analyses of all data collected on a daily basis and reported monthly, quarterly and yearly.

BACKGROUND SITE CHARACTERISTICS

Regional Geology

The Gulf Coast geosyncline is defined by a large linear trough extending from the northeastern part of Mexico to Alabama. It contains a succession of Mesozoic and Cenozoic sediments approximately 60,000 feet in thickness that are underlain by Paleozoic and Precambrian rocks. Five major structures aligned transverse to the axis of the geosyncline reflect underlying Paleozoic and Precambrian structure and have influenced subsequent development of the regional geology of the southern portion of the Texas-Louisiana-Mississippi area (Figure 1). These structures are referred to as the Rio Grande embayment, San Marcos arch, East Texas and Houston embayments, Sabine uplift and arch, and Mississippi embayment.

During the geologic history of the Gulf Coast geosyncline the uplifted areas or arches were stable elements relative to subsiding adjacent embayments. This is indicated by thicker sediment sequences in embayment areas as opposed to arches. Cenozoic sediments reflect cyclic deposition of marine transgressive and non-marine regressive phases. In general, massive sands of relatively even thickness and gentle slope characterized shallow water areas, while shales and sands of variable thickness typified deep basin environments. Sedimentation across shelf breaks resulted in gigantic slumps or flexures that resulted in contemporaneous growth faults of regional extent. Depositional processes caused

intermittent extension of the land mass progressively seaward with continental facies superimposed on already faulted and tilted deeper water facies. Migration of deeply buried salt deposits enhanced the development of embayments bounded by contemporaneous growth faults.

Local Geology

The Sweet Lake deep well site is located within a basin north of the Hackberry-Big Lake-Sweet Lake salt ridge. An east-west trending fault displaying a down to north sense of motion forms the southern boundary of the basin complex. This structure converges eastward with another east-west trending fault downthrown to the south. The dip is northwesterly in direction toward the basin.

The surface and subsurface terrain of the Sweet Lake region were formed by the deposition of Late Pleistocene deltaic sediments. These deposits, which consist of both massive sands and clays, extend to a depth of approximately 9000 feet and overlie the Anahuac formation.

The Anahuac formation is underlain by the Frio formation; the Camerina zone is the upper member of this formation. Although several sands occur within this sequence, the basal Miogypinoides sand is the thickest and is the most significant member within the deep geothermal-geopressured aquifer.

Figure 2 is a structure map of the Sweet Lake area contoured on the top of the Miogypinoides sand. Both structures and contours were derived primarily from seismic interpretation. The Miogypinoides sand is structurally lower in the graben and dips strongly to the northwest from the well site area. It occurs below 18,000 feet in depth in the northwest portion of the map. The well penetrates the Miogypinoides sand at a depth of 15,000 feet.

An alternate structure map of the same area based primarily on well-logging data is shown in Figure 3. The structures are derived from mapped horizons of Camerina A and Siphonina davisii.

INSTRUMENTATION PLAN AND DATA ACQUISITION

The environmental monitoring of the Sweet Lake deep gas well site represents part of a program funded by the U. S. Department of Energy. This monitoring effort includes the operation of a microseismic monitoring network (funded directly by DOE and administered through the program designed and managed by LSU), along with a broader program of supplementary studies including both subsidence monitoring and synthesis of the microseismic and subsidence data that are obtained, funded by the Gas Research Institute. Although this final report is only for the seismic monitoring contract with LSU, reference will be made to data obtained with tiltmeters and first-order level lines from time to time within this report.

The microseismic network was operated in conjunction with the projects to monitor ground deformation. Initial data collection using portable instruments began in May, 1980. The eight station array was functional at Sweet Lake from July of 1980, through April, 1984. Data from the microseismic network were transmitted via phone line to a central recording facility located at our Baton Rouge office. The seismic data were recorded on a continuous basis on magnetic tape, along with a time code. Three stations were also recorded on visible drum recorders for daily analysis.

The visible drum records were reviewed daily to detect any seismic activity that may have occurred. When seismic activity was identified, data from the appropriate stations were played back from the magnetic tape through an instrument that provides a hard copy of the seismograms. Station data were then analyzed for hypocenter locations and other seismic parameters.

Field Stations

The remote instrumentation packages at the Sweet Lake network consisted of a geophone, an interface and transmitting package, and a power supply. The geophone used in this network was a Mark Products L4A 2-Hz borehole seismometer with a calibration coil. The geophone is approximately seven inches high, three inches in diameter and weights about five pounds. These geophones are installed in cased boreholes that range in depth from sixty to ninety feet.

The interface and transmitting, or telemetry package, was manufactured by Sprengnether Instruments, Inc. This package consists of four parts: an amplifier, a voltage controlled oscillator, a timing board, and a lightning protection system.

The amplifier amplifies the seismic signal from the geophone in a series of precise steps as selected from the control panel. These steps are calibrated in 6 db increments starting at 60 db and continuing to 120 db. Also included in this amplification package is a filtering network that allows for certain parts of the signal to be filtered out. This is useful in areas where there is excessive background noise that could mask seismic events.

The voltage controlled oscillator (VCO) produces a constant frequency at a constant amplitude. The signal from the amplifier, which varies in amplitude, is fed into the VCO where it is imposed on the constant frequency signal. This causes the signal from the amplifier to be carried by the constant frequency, which is referred to as a carrier frequency. The carrier frequency is a frequency modulated (FM) signal that is needed to transmit data any distance along a phone line. The carrier frequency for each field station is different. This allows them to be mixed on a single phone line for transmission to the recording site where they are separated or discriminated. The frequencies used (680 Hz, 1020 Hz, 1360 Hz, 1700 Hz, 2040 Hz, 2380 Hz, 2720 Hz, and 3060 Hz) can be transmitted over structural voice-grade phone lines.

The timing card of the telemetry unit, by providing a calibration pulse every twenty-four hours, makes it possible to ascertain whether or not the unit is functioning. The pulse from the timing card is fed into the cal coil of the geophone, and the geophone responds to the pulse with a larger output pulse of its own. The geophone pulse is fed through the amplifier into the VCO, and from there onto the phone lines and into the central recording office. This timed cal pulse tests every part of the microseismic network.

The lightning protection system (LPS) provides protection for the telemetry unit from any power surges that occur along the phone lines. When a power surge occurs, two transorbs on the LPS funnel the surge to ground and then blow two fuses in the LPS for further protection.

The final component of a field station is the power supply. The power was supplied to the telemetry package by four Edison batteries. These batteries are high capacity, water filled batteries that have an expected life span, for the Sweet Lake field sites, of two years. These batteries are primary cells that are delivered dry and filled with water for use. In about two years they are depleted and must be replaced; they cannot be recharged.

The outputs of these stations were connected directly to a multi-point phone line, which transmitted the data to our office in Baton Rouge.

Central Recording Facilities

The central recording facilities included a 1/2-inch magnetic tape recorder that recorded forty-eight hours of continuous data on a single tape. The data from all network stations were recorded in a mixed form on a single channel of the tape recorder. Therefore, one track was used for data and one track was used for time code. A second recorder was used for playing data back through signal discriminators, and onto a visicorder, which provides a hard copy of the data.

Three drum recorders provided visible monitoring of certain stations for daily analysis. A time code generator provided a time signal that was recorded onto the magnetic tape to provide a common time base for all stations. When playing back an event from tape the time signal was fed through a time code reader, while the data, in mixed form, were sent through discriminators to separate out the carrier frequencies corresponding to stations. Once the mixed data were separated into their individual components they were fed into the visicorder to produce a hard copy (Figure 4).

COLLECTION OF RAINFALL DATA

Rainfall data were accumulated to determine if they could be correlated with any seismic events. The source of the data was the Local Climatological Data reports published by the National Oceanic and Atmospheric Administration for the Lake Charles, Louisiana municipal airport. Lake Charles is located about 15 kilometers from the Sweet Lake site. While rainfall amounts can vary substantially over short distances in this area, no other data were available. To remedy this

situation, a rain gauge was installed in January, 1983, to monitor rainfall data near the well site. These data were transmitted digitally to the Woodward-Clyde office in Baton Rouge, Louisiana, as part of the tiltmeter program funded by Gas Research Institute.

WELL TEST DATA

A flow test of the Sweet Lake well, with related re-injection of brine waste water in the disposal well, was conducted during the period June, 1981 through February, 1982. Pertinent data collected during the well test program include flow volume and surface pressure at both the test well and injection well. These data are typically recorded on data logs every two hours. Although gaps exist in the pressure and flow volume data, they represent a reasonably complete record. These data were received from Dr. Clay Durham and Ms. Karen Hoffman of MagmaGulf-Technadril. Over one million barrels were flowed during the period June, 1981 through February, 1982.

On February 10, 1982, the flow testing of the Sweet Lake prospect ended when the disposal well became plugged with sand. Summaries of well activity continued to be made, however, in a letter format. These summaries include some reports of well pressure increases that cannot be related to any specific cause. New perforations were made in the disposal well on April 5-7, 1982, and the production well was flowed briefly on April 27, 1982, in order to check for leaks in the tubing. The production well was plugged on May 20, 1982, so that the leaks could be repaired, and remained shut in until August, 1983 at which time the well was cleaned out in preparation for continued flow testing. New perforations were made on November 11, 1983, and the well was flowed briefly until November 13, 1983. A reservoir limit test began on November 22, 1983, and continued through March 13, 1984, at flow rates varying from 2,000 to 6,000 barrels per day, with an average flow rate of approximately 2,500 barrels per day. Since March 14, 1984, the production well has been shut in. As we understand it, there are currently no plans to continue testing the Sweet Lake production well, and the well is to be plugged and abandoned.

DATA PRESENTATION AND ANALYSIS

Preliminary data collection for the Sweet Lake site began with portable instruments in May, 1980. The installation of the eight-station microseismic monitoring network was completed by July, 1980.

Characteristics of Seismic Wave Arrivals

Most seismic events recorded by the seismic monitoring network at Sweet Lake were not representative of microearthquakes recorded by networks in other environments. Microearthquakes in other environments are typically characterized by a P-wave arrival, an S-wave arrival and, in some instances, a surface wave arrival. At Sweet Lake, however, typically only one arrival was observed. This arrival was usually impulsive and had a frequency of 5 to 15 Hz (Figure 5). The arrival appeared to be travelling with a velocity of about 0.35 km/sec. This velocity is similar to the velocity of fundamental mode Rayleigh waves computed by Ebeniro et al. (1983) using a velocity model derived for a portion of the Gulf Coast in Texas. As the sediment velocities in southern Louisiana are similar to those in coastal Texas, it is concluded that the recorded arrivals are most likely fundamental mode Rayleigh waves.

P- and S-wave arrivals were observed for seismic events that can be identified as explosions detonated for geophysical surveys. The P-wave velocity determined from these near-surface events is about 1.5 km/sec. In addition, an earthquake was felt by local Lake Charles, Louisiana residents on October 16, 1983. Both P- and S-wave arrivals were present on the seismograms of this event as well as on records of several small aftershocks of the main shock. From the data gathered on the October 16, 1983 event and its subsequent aftershocks, we conclude that both P- and S-wave arrivals can be observed for at least some microearthquakes in the Gulf Coast environment. Since most events observed lacked definite body wave arrivals (P- and S-waves), we cannot say with certainty whether those events lacking body-wave arrivals are actual microearthquakes or some other type of phenomena. As discussed below, we believe at least some of these events may be weather-related.

Magnitudes

Magnitudes were calculated on the basis of event duration. Duration, in seconds, is measured as the time from the onset of the arrival to the point at which the arrival recedes into background noise. The formula used for magnitude calculation is:

$$m_D = -2.22 + 2.28 \log(D)$$

D = duration (sec)

This formula was derived for use in the Mississippi embayment by the Tennessee Earthquake Information Center. Its applicability to the southern Louisiana region has not been tested. While magnitudes that are computed may not be valid in terms of their absolute values, they do give a sense of the relative size of events. Figure 6 shows a graphic representation of duration magnitude for increasing event duration.

Magnitudes calculated for microearthquakes recorded by the Sweet Lake network indicate that all detected events were small. Calculated magnitudes were typically less than 1 (m_D) for the events detected.

Another measure of the size of microseismicity recorded at the Sweet Lake site may be found in felt reports of the local residents. Local blasts, using charges of up to twenty-five pounds of explosives are routinely detonated in the course of seismic prospecting in the immediate site area. These blasts are often felt by local residents. Felt reports consist of both an awareness of the seismic waves by residents in the course of daily activities, and effects on household objects coinciding with that awareness. There do not appear to be any felt reports for the microearthquakes occurring at the Sweet Lake site, except for one known earthquake which occurred on October 16, 1983, in the Lake Charles area. For this event, felt reports ranged from "felt slight bump" to "ran out of house; thought house was falling down." Maximum Mercalli Intensities for this event approach VI in Lake Charles.

Temporal Distribution of Microearthquakes

Microearthquakes were first detected by the monitoring network at Sweet Lake in June, 1981. This activity followed approximately one year of seismic quiescence as observed on network records. The detection level of the network may, however, have changed during that time. In late May and early June of 1981, station gains and filter settings were adjusted to increase the sensitivity of the network. While some very small events may have been missed prior to June, 1981, activity similar to that detected beginning in June, 1981 would have been evident on the records if it occurred. Little, if any, activity was detected in a detailed review of the network drum records.

The time history of seismic activity at Sweet Lake is characterized by a constant background level of seismicity that is punctuated by bursts of microevents (Figure 7). These bursts usually consist of at least five events, and in one case fifty-five events, that occur within 15 kilometers of the wells during one day. The first such burst of activity occurred four days prior to perforation of the disposal well (Figure 8). The next burst occurred two days after the disposal well was perforated. No activity occurred near the time of perforation of the production well.

Other bursts of activity correlate in time with large rapid changes in the fluid pressure as measured at the wellhead of the production and disposal wells (Figures 8 through 17). Most of these bursts occur with a time delay of two to three days with respect to the measured pressure change, but some precede the change by less than a day. There is also a strong correlation between seismic activity and tilt events. This observation is discussed in more detail in a later section of this report.

There is an obvious correlation between the increase in the level of seismic activity in June, 1981 and the activity at the wells (perforation, flow and reservoir limit testing)(Figure 18). However, seismic activity continues beyond the end of the initial flow test in February of 1982. In fact, some of the largest bursts of activity occurred after the reservoir limit test ended (Figure 18). Letter reports describing activity at the wells subsequent to the termination of the flow test (MagmaGulf-Technadril, 1982) suggest that some of the bursts of seismicity

were related to well activity (Figure 19). While the largest burst of seismicity, on Julian Day 107, is not related to drilling or flow activity, a large unexplained pressure increase was noted at the wellhead of the disposal well on the next day (day 108). The correlation between seismicity bursts and well activity after April, 1982 cannot be ascertained because no record of well activity for that period is available to us.

Spatial Distribution of Microearthquakes

The spatial distribution of all earthquakes within about 10 kilometers of the wells does not show any clear relation to the locations of growth faults inferred for depths of 12,000 to 15,000 feet (Figure 20). Examination of only events that occurred during the reservoir limit test leads to the same conclusion (Figure 21). Even the bursts of seismicity that are tightly clustered in time do not show distinct spatial clustering about or along known structures, but they do appear to be distributed in spatial clusters about the well and within the area covered by the network (Figures 29 through 34). There does not appear to be any overall spatial migration of activity with time (Figures 35 through 52), however, the spatial clustering of activity occurring as bursts of seismicity could indicate potential locational constraints or preferences possibly defined by specific changes occurring in the subsurface.

Assuming that the computed depths are meaningful in at least a relative sense for events recorded by five or more stations, the deeper events have been selectively sorted from the data set of all seismicity. These events, occurring at depths of 3 kilometers to 8 kilometers as shown on Figure 53 appear to be located near the features interpreted as growth faults. Thus, the deeper events may be the result of the slip along these faults. Shallower events, on the other hand, show no such spatial relation (Figure 54).

All well recorded events within 6 kilometers of the wells have computed depths between 0 and 8 kilometers (Figure 55). This suggests that microearthquakes may be occurring within the range of depths at which the influence of fluid withdrawal and injection is to be expected. The spatial distribution of the microearthquakes as a function of depth may be due to relative confinement of the reservoir fluids at both the depths of the withdrawal and injection. The geopressured/geothermal

brine that is being withdrawn from the production well occurs in a graben that is bounded by growth faults. Withdrawal from this reservoir will affect the fluid pressures at the graben boundaries, and perhaps of other aquifers at similar depths. On the other hand, the injection of fluid in the disposal well occurs in relatively unbounded sands. Faults at this level are thought to have significantly smaller displacements with respect to the reservoir thickness. Hence, the more dispersed distribution of the shallower activity may be the result of its unbounded character.

Tilt and Rainfall

The instrumentation for the Sweet Lake site included various types of tiltmeters to measure ground deformation. The array of seismometers monitored the local microseismic activity. The tiltmeter arrays were made up of Kinometrics TM-1 tiltmeters, Okubo tiltmeters and RocTest vibrating wire clinometers that were read about once per month. Thus, ground deformation of various wave lengths and time periods was monitored.

Initial observations of tilt data suggested that a strong correlation might exist between tilt and heavy rainfall events at the site. As site specific rainfall data are not readily available, data collected by the meteorological station located at the Lake Charles airport (some 15 kilometers distant from the site) were obtained. Figures 56 and 57 show a coincidence between heavy rainfall and tilt excursions over some portions of the record, but show a lack of coincidence over other portions. When analog tilt records are reviewed, small tilt excursions characteristically correspond to rainfall events, but these events are typically only one to three microradians in amplitude. Such small excursions are minimized by the scale used in the plots.

Tilt and Seismicity

Figure 58 presents cumulative tilt data along with seismicity data. Seismicity is plotted as the number of events per day occurring within a 6 kilometer radius of the well and includes only events located by four or more seismic stations. The

coincidence between tilt excursions and the occurrence of seismicity appears to be good over much of the record, although gaps in the tilt data resulting from equipment failure occur at inopportune times.

Narrowing the seismicity data set to events located within three kilometers of the well using four or more stations, we can observe the activity in the immediate area about both the wells and the tiltmeter. In addition, only events calculated to be within 3.5 kilometers of the surface are considered. These data are shown on Figure 59. There appears to be a coincidence between the occurrence of shallow seismic events close to the well, and larger excursions in tilt data. Plotting all seismic events located within three kilometers of the well and within 3.5 kilometers of the surface (Figure 60) adds a few events, but suggests that the constraint of four recording stations does not influence the correlation.

An interesting observation is the coincidence of the onset of seismicity, prior to the flow testing activities at the well, and tilt excursions. To highlight this occurrence, Figures 61 and 62 present the same data for both cumulative tilt and daily tilt differences, respectively, at an expanded time scale covering only the approximate period of flow testing. Specifically, Figure 62 highlights the stability of daily tilt differences for the approximately twenty day period prior to the onset of seismicity. Just prior to the first seismicity at the site, large excursions in tilt are recorded.

The data are presented for increasingly smaller distances about the well (i.e. a 2 kilometer radius and a 1 kilometer radius) on Figures 63 through 89. The 66 quakes are included. Although the tiltmeter is located approximately 1 kilometer west of the well, the occurrence of microseismicity still appears to correspond in time to noted periods of tilt for a 1 kilometer radius about the wells.

Both tilt data and microseismicity were recorded continuously and can be resolved beyond the scale of average daily occurrence. The analog record of tilt can be resolved to time increments of several minutes, and seismicity data are recorded accurately to fractions of a second in universal time coordinated (UTC). Therefore, we can compare short period tilt excursions measured in minutes and hours with the occurrence time of microseisms. The following discussion results from a detailed review of these data.

On 5 June 1981 (Julian day 156) the first microseismicity at the Sweet Lake site was recorded. The onset of seismicity was marked by the occurrence of six microseisms within a few minutes at about 1700 (UTC). Review of the tilt data for June, 1981 shows that day on 156 the first significant tilt excursion was recorded at the site since tiltmeter installation. The tilt excursion began at approximately 0400 (UTC) with a magnitude of approximately 4 microradians over about four hours. This marked the beginning of an increased noise level in tilt data (Figure 67). A second sharp tilt excursion of about 3 microradians occurred at about 1700 (UTC). This tilt excursion is coincident in time with the occurrence of the six microseisms recorded by the seismic network.

On 11 June 1981, two days after perforation of the disposal well, some thirty microseisms were recorded by the Sweet Lake seismic network. This day also marks the second major tilt excursion recorded by the tiltmeter (Figure 68). Twenty events occurred coincident with the initial tilt excursion of approximately 6 microradians, beginning with a single microseism almost 1.5 hours prior to the major excursion. Although the noise level remained extremely high, the displacement or tilt event stabilized for approximately 8 hours before gradually continuing. The tilt then continued until the recorder went off scale. Shortly after the tilt record went off scale, another cluster of twelve microseisms occurred in about a 1.5 hour period (Figure 68).

On day 195 (14 July 1981), a single microseism occurred. The corresponding tilt record indicates that a tilt event of 5 to 6 microradians began approximately thirty minutes in advance of the microseism (Figure 69). Three additional local microseisms occurred during the next two days with no significant corresponding tilt events.

The next sequence of local seismicity began on day 206 (25 July 1981) with a single event. Again the microseismic event occurs during a 5 to 6 microradian tilt excursion (Figure 70). The following day, twelve additional microseisms were detected, ten of which were local to the well. Again, these events occur during a corresponding tilt excursion of almost 8 microradians (Figure 71).

This pattern continues as tilt records through August and September 1981 are examined. On 8 August 1981 (day 220), the next occurrence of microseismicity

was recorded. Seven events were detected within a thirty minute period. Figure 72 shows the corresponding tilt excursion during which these events occurred.

Two days later (day 225) two microseismic events were detected. Review of the analog tilt data shows only a slightly increased noise level occurring on that day, and reveals no tilt excursion (Figure 73). The following day (day 226), a single microseismic event was detected. Review of the analog tilt data again reveals no immediately corresponding tilt events at the time of the event. However, a 5 microradian tilt excursion is found approximately ten hours later (Figure 74). The coincidence in time between tilt excursions and the occurrence of microseismicity remains good.

On 29 August 1982 (day 241) another tilt excursion is found in the analog tilt data. The tilt excursion represents an approximately 4 microradian tilt event over a 1.5 hour period, preceded by an increase in noise level beginning about eight hours earlier (Figure 75). Review of seismicity data identifies four microseisms that occur coincident with the gradual increase in noise level, but occur ten to eleven hours in advance of the tilt event itself. These four microseismic events are calculated to have depths of greater than four kilometers. Whether depth can be found to be a factor in the time coincidence between microseismicity and tilt has not been examined in detail.

Four days later (day 245) a sharp tilt excursion is found on the analog tilt records (Figure 76). Review of seismicity data reveals that this day represents the next occurrence of microseismicity at the site. On that day, fifteen events were recorded by the microseismic network during a two hour period. As shown on the figure, these correspond to the exact time of the recorded tilt excursion of about 6 microradians.

The following day (day 246) another tilt excursion is found of about 2 microradians. Review of seismicity data reveal two events occurred at the onset of the tilt event, and one additional event occurs four hours later after the tilt event has concluded (Figure 77).

On day 257, ten microseisms were detected. No tilt event is found, but a strong noise event occurs about three hours later (Figure 78). Although the noise event has the onset signature of a teleseism, the following noise signature is that of a local event.

Based on the review of tiltmeter data, a strong correlation exists between tilt excursions and microseismicity (Figures 67 through 78). Tilt events and microseismicity coincide in time for more than 75% of their observed occurrences. That is, few events (either microseismic or tilt excursions) appear to occur independent of each other. Both types of events have been shown to correlate well with pressure excursions in the Sweet Lake wells, for cases in which all three data sets mutually provide sufficient data.

Validity of Tilt Data

Tiltmeter data of high sensitivity and resolution are often questioned as to their overall accuracy. They are influenced strongly by many factors, ranging from rainfall, ambient air pressure, and ground temperatures to earth tides.

Seismicity, Tilt and Rainfall

A strong correlation was found in the records of seismicity when compared to the records of thunderstorm activity and rainfall, as reported by the N.O.A.A. National Weather Service Office in Lake Charles, Louisiana, and also by our digital rain gauge installed at the tiltmeter site on Precht Road, about one mile west of the well site. For the period of data collection beginning in January, 1981, a complete history of weather activity shows that days in which large numbers of small microseisms were detected correspond well in time to thunderstorm activity and/or rainfall. In fact, it is quite apparent from the weather data that the sudden onset of microseismic activity in June, 1981 could be a result of the violent thunderstorms and heavy rainfall that began to occur then. We speculate that the "microseismicity" detected during these violent thunderstorms is caused by the coupling of loud air waves with the ground. In addition, for many of these suspect events, a "glitch", or sudden offset in the seismic traces, occurs

simultaneously across all stations just prior to the event traces, suggesting that electromagnetic interference from lightning is causing the glitch and thunder is causing the "microevent." This hypothesis seems to agree well with the tilt data as well, since rainfall is a major contaminant of tilt data, and both seismicity and tilt are shown to occur coincident with periods of thunderstorms and/or rainfall (see Figures 67 through 78.) Figures 79a and b show the rainfall as recorded at Lake Charles Municipal Airport through January, 1984, the last month for which data has been issued. We have separated non-thunder related local events from the rest of the existing data set in Figures 80a, b and c, and Figures 81a and b show all events occurring on days when neither thunder nor rain were detected. We cannot be certain that all events which occurred during thunderstorms are in fact caused by thunder. However, during the time period June to September, 1983, 88.4% of all detected events were coincident in time with periods of thunderstorms and/or rain, and none of these had detectable P- or S-wave arrivals, leading us to believe that none of them were tectonic in nature. [We must conclude, therefore, that although seismic events of curious character have occurred in or near the seismic network on days when it was not raining, the exact number of naturally occurring events cannot be determined due to the above-mentioned contamination of the data set by weather-related "pseudo-events." [Most of the events which occurred on days having good weather appear on the seismograms as Rayleigh waves traversing the network from origins far outside the network. Indeed, the only events that can be definitely attributed to local earthquakes are the October 16, 1983, Lake Charles event, which was widely felt by the local residents, its associated foreshock of September 11, 1983, and the aftershocks of December 4 and 5, 1983, and January 14, 1984. None of these appear to be related to the activities at the MagmaGulf-Technadril/D.O.E./Amoco Fee No. 1 test well, since their computed focal depths are much deeper than the bottom of the well.

TECHNICAL PROBLEMS

During the installation of seismometers at Sweet Lake, certain technical problems were foreseen, and plans were made to circumvent them. As is normal, however, when new equipment is installed in an environment where it has not operated before, unforeseen problems can occur and these problems may require significant alterations of equipment or installation procedure to eliminate them. As these

problems occurred, the failures were repaired and corrective measures were implemented to prevent their reoccurrence.

Battery failures occurred at the Sweet Lake site. One failure was caused by brackish water being used to fill some of the batteries. These batteries worked fine for two to three months and then failed. They were replaced with new batteries filled with fresh tap water. The next battery failure was caused by ants building nests inside the equipment housings. These nests covered the air vents causing the batteries to suffocate. The ant nests were removed from the equipment housings, the housings were better sealed, treated with ant poison, and the batteries were replaced.

The final problem, phone line interference, occurred from time to time and was difficult to correct as it was out of our control. When received data was garbled the first step was to check the field equipment for possible failures. When this was done and the field equipment was found to be functioning properly, the phone line was then checked for interference. If interference was found on the phone line it was reported to the phone company and it was left up to them to repair the problem. Approximately 90% of the technical problems associated with the seismic network were phone line related.

OBSERVED ACTIVITY FOR APRIL, 1984, SWEET LAKE SEISMIC MONITORING NETWORK

During the month of April, 1984 the Sweet Lake Seismic Monitoring Network (SLSMN) was operative and incoming data were recorded on visible paper records and on magnetic tape in the central recording facility located in our Baton Rouge, Louisiana office.

Three (3) events were recorded by the SLSMN during this period. All three events were longer-period in character than is typical of local events, and they were located to the northeast of the network, too far away to be associated with the test well reservoir. No events were detected inside the SLSMN.

The SLSMN operated satisfactorily during the month of April, 1984. On May 1, 1984, the telephone company was notified to cancel service as of midnight May 1, 1984, but service was not actually cancelled until later in May.

Although the SLSMN data continued to be recorded on magnetic tape through the first week of May, visible paper recording ended on May 1, 1984. All field equipment related to the SLSMN was removed on May 10, 1984, with the exception of the geophones. These were left in place should LSU or D.O.E. desire to resume seismic monitoring at some future date.

REGIONAL GEOLOGIC SETTING

STRUCTURE MAP OF THE SWEET LAKE AREA CONTOURED ON THE TOP OF THE MIOGYPSOIDEOS SAND (FROM MAGMA GULF COMPANY, 1983, GEOPRESSURED WELL PROJECT. SWEET LAKE, CAMERON PARISH, LOUISIANA

STRUCTURE MAP OF THE SWEET LAKE AREA DERIVED FROM MAPPED HORIZONS CAMERINA A AND SIPHONINA DAVISI (BASED ON CAMBE GEOLOGICAL SERVICES MAP OF THE SWEET LAKE AREA).

BLOCK DIAGRAM OF
TELEMETERED SEISMIC NETWORK

**STATION
DESIGNATIONS**

HWS

SFY

JCF

HWN

**CHARACTERISTIC SEISMOGRAMS
RECORDED BY SWEET LAKE NETWORK**

FIGURE 6

FIGURE 6

ALL EVENTS, 1981 - 1983
LOCATED WITH 3 OR MORE STATIONS
WITHIN 15 KM OF WELL SITE

FIGURE 7a

**ALL EVENTS, 1984
LOCATED WITH 3 OR MORE STATIONS
WITHIN 15 KM OF WELL SITE**

FIGURE 7b

ALL EVENTS, 1981 - 1983
LOCATED WITH 5 OR MORE STATIONS
WITHIN 15 KM OF WELL SITE

FIGURE 7c

**ALL EVENTS, 1984
LOCATED WITH 5 OR MORE STATIONS
WITHIN 15 KM OF WELL SITE**

FIGURE 7d

FIGURE 8

SEISMIC ACTIVITY AND CHANGES IN WELL PRESSURE
SWEET LAKE TEST WELL

FIGURE 6

SEISMIC ACTIVITY AND CHANGES IN WELL PRESSURE SWEET LAKE TEST WELL

FIGURE 10

FIGURE 11

SEISMIC ACTIVITY AND CHANGES IN WELL PRESSURE SWEET LAKE TEST WELL

ALL EVENTS WITHIN 15km OF WELL

FIGURE 12

FIGURE 13

FIGURE 14

FIGURE 15

FIGURE 17

FIGURE 18

SEISMIC ACTIVITY AFTER RESERVOIR LIMIT TESTING SWEET LAKE TEST WELL

FIGURE 19

SWEET LAKE EVENTS - 1981

LOCATED WITH 5 OR MORE STATIONS

FIGURE 20a

SWEET LAKE EVENTS - 1982

LOCATED WITH 5 OR MORE STATIONS

FIGURE 20b

SWEET LAKE EVENTS - 1983

LOCATED WITH 5 OR MORE STATIONS

FIGURE 20c

SWEET LAKE EVENTS - 1984

LOCATED WITH 5 OR MORE STATIONS

FIGURE 20d

Sweet Lake, MO
5 or more stations
100 - 200 km

LOCATIONS OF SEISMIC ACTIVITY DURING RESERVOIR LIMIT TEST
SWEET LAKE TEST WELL

JUNE 1981 – FEBRUARY 1982

FIGURE 21

SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON
5 JUNE 1981 (JULIAN DAY 156)

WEATHER: THUNDERSTORMS AND RAIN

**SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON
11 JUNE 1981 (JULIAN DAY 162)**

FIGURE 23

SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON
5 JULY 1981 (JULIAN DAY 186)

FIGURE 24

SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON

26 JULY 1981 (JULIAN DAY 207)

FIGURE 25

SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON
2 FEBRUARY 1982 (JULIAN DAY 033)

FIGURE 27

SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON 23 MARCH 1982 (JULIAN DAY 082)

FIGURE 28

SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON 17 APRIL 1982 (JULIAN DAY 107)

FIGURE 29

SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON

14 MAY 1982 (JULIAN DAY 134)

FIGURE 30

**SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON
17 JULY 1982 (JULIAN DAY 198)**

WEATHER: THUNDERSTORMS AND RAIN

SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON 18 JULY 1982 (JULIAN DAY 199)

SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON 9 AUGUST 1982 (JULIAN DAY 221)

FIGURE 33

SPATIAL DISTRIBUTION OF MICROSEISMIC SEQUENCE ON

16 AUGUST 1982 (JULIAN DAY 228)

FIGURE 34

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING JUNE 1981

FIGURE 35

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING JULY 1981

FIGURE 36

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING SEPTEMBER 1981

FIGURE 37

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING NOVEMBER 1981

FIGURE 38

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING DECEMBER 1981

FIGURE 39

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING JANUARY 1982

FIGURE 40

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING FEBRUARY 1982

FIGURE 41

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING MARCH 1982

FIGURE 42

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING APRIL 1982

FIGURE 43

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING MAY 1982

FIGURE 44

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING JUNE 1982

FIGURE 45

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING JULY 1982

FIGURE 46

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING AUGUST 1982

FIGURE 47

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING SEPTEMBER 1982

FIGURE 48

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING OCTOBER 1982

FIGURE 49

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING NOVEMBER 1982

FIGURE 50

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING DECEMBER 1982

FIGURE 51

SPATIAL DISTRIBUTION OF MICROSEISMICITY DURING JANUARY 1983

FIGURE 52

SPATIAL DISTRIBUTION OF MICROSEISMICITY WITH COMPUTED DEPTHS BETWEEN 3km AND 8km SWEET LAKE TEST WELL

FIGURE 53

SPATIAL DISTRIBUTION OF MICROSEISMICITY WITH COMPUTED DEPTHS BETWEEN 0 AND 3km SWEET LAKE TEST WELL

FIGURE 54

CUMULATIVE TILT AND RAIN FALL DATA SWEET LAKE TEST WELL

FIGURE 56

DAILY CHANGE IN TILT AND RAINFALL SWEET LAKE TEST WELL

FIGURE 57

FIGURE 58

MICROSEISMICITY, CHANGE IN TILT AND CHANGES IN WELL PRESSURE SWEET LAKE TEST WELL

FIGURE 59

FIGURE 60

FIGURE 61

FIGURE 62

FIGURE 63

FIGURE 64

FIGURE 65

MICROSEISMICITY AND CHANGE IN TILT SWEET LAKE TEST WELL

ALL LOCATED EVENTS WITHIN 1km OF WELL
COMPUTED DEPTHS BETWEEN 0 AND 3.5km

FIGURE 66

TILT EVENTS OF 5 JUNE 1981 (DAY 156)
AND COINCIDENT SEISMICITY

WEATHER: THUNDERSTORMS AND RAIN

FIGURE 67

TILT EVENT OF 11 JUNE 1981 (JULIAN DAY 162)
AND COINCIDENT SEISMICITY

WEATHER: THUNDERSTORMS AND RAIN

FIGURE 68

TILT EVENT OF 14 JULY 1981 (DAY 195)
AND COINCIDENT SEISMICITY

WEATHER: NO THUNDERSTORMS, NO RAIN

FIGURE 69

TILT EVENT OF 25 JULY 1981 (JULIAN DAY 206)
AND COINCIDENT SEISMICITY

WEATHER: THUNDERSTORMS AND RAIN

FIGURE 70

TILT EVENT OF 26 JULY 1981 (JULIAN DAY 207)
AND COINCIDENT SEISMICITY

WEATHER: THUNDERSTORMS AND RAIN

FIGURE 71

**TILT EVENT OF 8 AUGUST 1981 (DAY 220)
AND COINCIDENT SEISMICITY**

WEATHER: THUNDERSTORMS AND RAIN

TILT RECORD FOR 13 AUGUST 1981 (DAY 225)
SHOWING PERIOD OF RECORDED SEISMIC EVENTS

WEATHER: THUNDERSTORMS, NO RAIN

FIGURE 73

TILT EVENT OF 14 AUGUST 1981 (JULIAN DAY 226)
AND COINCIDENT SEISMICITY

WEATHER: THUNDERSTORMS, NO RAIN

FIGURE 74

TILT EVENT FOR 29 AUGUST 1981 (DAY 241)
AND COINCIDENT SEISMICITY

WEATHER: THUNDERSTORMS AND RAIN

FIGURE 75

TILT EVENT OF 2 SEPTEMBER 1981 (DAY 245)
AND COINCIDENT SEISMICITY

WEATHER: THUNDERSTORMS AND RAIN

FIGURE 76

TILT EVENT OF 3 SEPTEMBER 1981 (JULIAN DAY 246)
AND COINCIDENT SEISMICITY

WEATHER: THUNDERSTORMS AND RAIN

FIGURE 77

TILT RECORD OF 14 SEPTEMBER 1981 (DAY 257)
AND COINCIDENT SEISMICITY

WEATHER: THUNDERSTORMS, NO RAIN

FIGURE 78

RAINFALL AT LAKE CHARLES AIRPORT, JUNE 1981 - DECEMBER 1983

FIGURE 79a

RAINFALL AT LAKE CHARLES AIRPORT, JANUARY, 1984

FIGURE 79b

**EVENTS ON NON-THUNDER DAYS, 1981 - 1983
LOCATED WITH 3 OR MORE STATIONS
WITHIN 15 KM OF WELL SITE**

FIGURE 80a

**EVENTS ON NON-THUNDER DAYS, 1981 - 1983
LOCATED WITH 5 OR MORE STATIONS
WITHIN 15 KM OF WELL SITE**

FIGURE 80b

**EVENTS ON NON-THUNDER DAYS, 1984
LOCATED WITH 5 OR MORE STATIONS
WITHIN 15 KM OF WELL SITE**

FIGURE 80c

EVENTS ON NON-THUNDER, NON-RAIN DAYS, 1981 - 1983
LOCATED WITH 3 OR MORE STATIONS
WITHIN 15 KM OF WELL SITE

FIGURE 81a

EVENTS ON NON-THUNDER, NON-RAIN DAYS, 1981 - 1983
LOCATED WITH 5 OR MORE STATIONS
WITHIN 15 KM OF WELL SITE

FIGURE 81b

TABLE I

SWEET LAKE SEISMIC MONITORING NETWORK
STATION COORDINATES

	<u>Latitude</u>	<u>Longitude</u>
CPT	30°N02'37"	93°W12'47"
CPF	30°N00'04"	93°W08'02"
CLB	30°N01'16"	93°W08'43"
SFY	30°N00'50"	93°W10'56"
HWN	30°N01'05"	93°W05'19"
WLR	30°N03'34"	93°W07'41"
JCF	30°N02'16"	93°W07'01"
HWS	29°N59'33"	93°W05'17"

TABLE 2

**Catalog of Microearthquakes
Sweet Lake Site**

81	156:17:06:20.83	30 00 20.16	93 06 11.16	03.44	N		3	E7, ,10.342,31
81	156:17:07:45.31	30 00 44.28	93 07 24.24	06.83 01.66	N	00.28 KM X 00.48 KM	56.56 5	E7, ,10.342,51
81	156:17:08:39.07	30 00 52.2	93 07 14.16	01.26 00.77	N	00.09 KM X 00.13 KM	58.41 5	E7, ,10.342,51
81	156:17:10:19.29	30 03 39.96	93 07 17.76	07.23 00.65	N	00.10 KM X 00.45 KM	90.97 5	E7, ,10.342,51
81	156:17:11:22.02	30 01 56.28	93 06 07.56	00.00 00.31	N	00.13 KM X 00.30 KM	118.94 5	E7, ,10.342,51
81	156:17:12:40.69	30 06 19.44	93 05 40.56	00.00 00.35	N	01.45 KM X 07.68 KM	118.53 6	E7,O,10.342,61 POOR SOL'N
81	160:19:00:22.5	29 52 44.	92 27 42.10	00.00	N		3	E7,O,C,P,10.342,31
81	161:20:42:05.09	30 03 34.92	93 07 39.72	00.29 00.37	N	00.07 KM X 00.19 KM	106.90	B7, ,1P-WAVE, 1
81	161:21:23:33.38	30 03 24.48	93 07 40.08	00.09 00.39	N	00.07 KM X 00.14 KM	106.85	B7, ,1P-WAVE, 1
81	162:01:08:19.99	30 00 13.32	93 09 53.64	00.00 00.26	N	00.07 KM X 00.20 KM	102.85 6	E, ,10.342,61
81	162:01:54:56.50	30 06 30.96	93 09 43.56	03.98 08.03	N	00.82 KM X 05.39 KM	87.64 5	E7,O,P,10.342,51
81	162:02:04:43.57	30 00 32.4	93 07 59.16	01.32 00.05	N	00.01 KM X 00.02 KM	76.85 4	E,1,10.342,41SMALL
81	162:02:05:15.83	30 07 24.6	93 10 30.0	00.23 04.93	N	00.05 KM X 00.33 KM	81.13 5	E,O,10.342,51SMALL
81	162:02:57:49.07	30 00 33.48	93 11 01.32	00.00 00.02	N	00.01 KM X 00.06 KM	145.14 5	E, ,10.342,51SMALL
81	162:04:12:59.77	30 06 10.44	93 07 25.68	01.47 01.46	N	00.06 KM X 00.30 KM	104.85 5	E,O,10.342,51SMALL
81	162:04:52:48.08	30 03 51.12	93 40 32.8	00.00 00.0	N		4	E7,O,P,10.342,41SMALL
81	162:04:55:56.25	29 59 05.64	93 12 15.40	00.00 00.06	N		4	E7,O,10.342,41SMALL
81	162:05:22:47.70	30 12 21.2	92 59 58.5	07.89 01.22	N	00.20 KM X 01.61 KM	126.45 5	E7,O,10.342,51
81	162:05:45:21.63	30 03 16.92	93 03 15.48	03.12 00.91	N	00.24 KM X 01.63 KM	150.49 5	E, ,10.342,51
81	162:05:47:59.68	30 01 06.96	93 05 03.48	00.55 00.09	+0.06	00.02 KM X 00.17 KM	5.98 5	E, ,10.342,51
81	162:06:01:37.78	30 02 16.08	93 09 15.84	01.94 00.00	N		4	E, ,10.342,41
81	162:06:03:31.05	30 06 14.4	92 52 39.7	07.96 01.14	N	00.48 KM X 02.44 KM	159.51 5	E7,O,10.342,51
81	162:06:04:31.23	30 06 05.4	92 52 52.3	08.97 00.07	N	00.03 KM X 00.15 KM	159.78 5	E,O,10.342,51EXC. SOL'N
81	162:06:10:53.48	30 10 02.28	92 56 56.0	08.02 00.77	N	00.21 KM X 01.49 KM	138.37 5	U,O,10.342,51
81	162:06:52:50.47	29 54 45.3	93 07 17.04	03.39 00.67	N	00.09 KM X 00.93 KM	82.15 5	E,O,10.342,51
81	162:06:52:38.98	30 16 24.2	92 59 47.4	03.98 00.28	N	00.02 KM X 00.18 KM	119.11 6	E,O,10.342,61
81	162:06:57:36.63	29 53 55.6	93 08 43.44	01.03 00.03	N		4	E,O,10.342,41
81	162:07:04:14.04	29 58 52.6	93 08 05.28	02.65 00.06	N		4	E, ,10.342,41
81	162:08:04:25.33	29 47 17.8	93 06 43.92	10.64 01.07	N	00.18 KM X 02.34 KM	87.73 6	E7,O,10.342,61
81	162:20:44:54.58	29 59 23.2	93 07 22.44	00.42 00.28	N	00.03 KM X 00.10 KM	81.11 5	E,O,10.342,51EXC. SOL'N

81	162:21:17:56.54	29 37 44.7	93 12 32.4	18.50	03.26	N	00.73 KM X 03.10 KM	96.09 5	U,O,P,(10.342,5)
81	162:21:25:50.21	30 06 17.28	93 06 17.64	01.27	01.49	N	00.08 KM X 00.33 KM	114.40 5	E,O,(10.342,5)GOOD SOL'N
81	162:21:28:05.75	29 48 16.2	93 07 51.6	00.00	00.00	N	00.36 KM X 04.04 KM	88.77 5	E?,O,(10.342,5)FAIR SOL'N
81	162:21:28:56.05	29 53 51.3	93 07 17.04	00.73		N		3	E?,O,(10.342,3)SMALL
81	162:21:29:04.88	30 09 45.72	93 05 10.32	02.69	01.02	N	00.07 KM X 00.48 KM	113.02 5	E,O,(10.342,5)
81	162:21:55:37.95	30 01 14.52	93 02 22.92	03.02		N		3	E?, , (10.342,3)
81	162:21:56:18.84	30 01 17.76	93 01 25.68	04.05	00.11	N	00.02 KM X 00.26 KM	00.13 5	E, , (10.342,5)EXC. SOL'N
81	162:21:56:43.05	29 51 43.20	93 04 56.28	01.43	04.60	N	00.20 KM X 02.09 KM	75.59 5	E,O,(10.342,5)GOOD SOL'N
81	162:21:58:52.39	30 07 15.96	92 43 47.6	11.03	01.26	N	00.37 KM X 00.78 KM	85.14 5	E?,O,P,(10.330,5)
81	162:22:02:01.87	30 03 00.36	93 01 36.12	03.89	00.11	N	00.03 KM X 00.21 KM	153.29 7	E, , (10.342,7)EXC. SOL'N
81	162:22:19:46.13	30 01 51.6	93 09 38.88	00.28	00.36	+0.01	00.02 KM X 00.05 KM	73.07 6	E, , (10.342,6)EXC. SOL'N
81	162:23:09:43.76	30 02 45.96	93 13 41.5	00.65	00.26	N	00.08 KM X 00.96 KM	21.37 6	E, , (10.342,6)GOOD SOL'N
81	186:14:20:30.13	30 03 15.12	93 06 42.48	00.90	0.92	N	00.13 KM X 00.59 KM	100.32 5	E?,O,(10.342,5)
81	186:14:21:32.49	30 00 47.16	93 06 15.12	00.00	0.07	N	00.06 KM X 00.11 KM	70.56 5	E?,I,(10.342,5)
81	186:14:26:10.23	29 59 10.3	92 59 39.4	00.00	0.04	N		4	E?,O,(10.342,4)
81	186:14:28:26.07	29 57 53.6	93 05 34.8	00.89	2.81	N	00.21 KM X 01.22 KM	63.99 5	E,O,(10.342,5)
81	186:14:46:16.77	30 01 03.00	93 03 59.40	00.00	0.70	N	00.55 KM X 04.27 KM	5.29 5	E?,O,(10.342,5)
81	186:14:47:33.45	29 57 38.50	93 04 27.84	02.25	1.46	N	00.29 KM X 02.20 KM	55.11 5	E?,O,(10.342,5)
81	186:14:49:35.21	29 59 57.10	93 04 45.84	00.00	0.08	N	00.19 KM X 01.12 KM	31.96 5	E?,O,(10.342,5)
81	186:15:25:30.00	29 56 00.60	93 09 51.84	02.35	1.06	N	00.12 KM X 00.86 KM	99.86 5	E?,O,(10.342,5)
81	186:18:41:36.53	29 52 03.00	93 08 54.24	03.77	1.03	N	00.12 KM X 01.13 KM	91.26 5	E?,O,(10.342,5)
81	186:19:03:33.09	29 55 32.50	93 15 08.28	02.28	1.63	N	00.23 KM X 02.16 KM	136.76 5	E?,O,(10.342,5)
81	186:20:28:36.41	29 53 28.30	93 05 53.52	00.00	0.04	N	00.05 KM X 00.47 KM	74.92 6	E?,O,(10.342,6)
81	186:21:01:20.65	29 47 30.10	93 33 31.60	08.79	5.54	N	01.42 KM X 04.05 KM	142.86 6	U,O,P,(10.342,6)
81	186:21:17:29.77	29 58 36.80	93 11 14.60	00.00		N		3	E?,O,(10.342,3)
81	189:12:24:36.14	29 49 54.40	93 07 23.16	05.93	0.64	N	00.14 KM X 01.50 KM	81.72 5	E?,O,(10.342,5)
81	189:12:34:58.70	29 50 16.40	93 06 41.40	00.00	0.19	N	01.17 KM X 11.31 KM	85.13 5	E?,O,(10.342,5)
81	189:12:47:54.97	29 49 35.70	93 06 55.80	06.25	1.56	N	00.30 KM X 02.64 KM	84.78 5	E?,O,(10.342,5)
81	189:12:50:35.36	29 51 00.36	93 06 57.96	03.83	4.05	N	00.44 KM X 04.49 KM	87.01 5	E?,O,(10.342,5)
81	189:14:15:11.31	30 01 14.88	93 05 34.80	00.00		N		3	E?,I,(10.342,3)

81 192:00:45:50.95	30 07 48.0	92 45 42.1	11.34	0.22	N	00.09 KM X 00.22 KM	159.05 5	E7,O,(10.342,5)
81 192:01:08:51.38	30 05 03.84	93 18 20.5	02.73	0.94	N	00.16 KM X 01.30 KM	23.26 5	E7,O,(10.342,5)
81 193:13:11:26.09	30 01 23.88	93 10 49.4	00.08	4.32	N	00.06 KM X 00.20 KM	115.42 7	E,I,(10.342,6)
81 195:21:46:01.80	30 00 03.24	93 07 38.28	00.00		N		3	E,I,P,(10.342,3)
81 196:18:56:17.03	29 53 33.70	92 51 47.10	09.90	1.11	N	00.78 KM X 01.62 KM	32.21 5	E7,O,P,(10.342,5)
81 196:18:58:31.28	29 59 11.0	93 04 46.2	00.00		N		3	E7,O,(10.342,3)
81 197:18:15:53.01	30 00 07.2	93 08 04.2	00.00		N		3	E,I,(10.342,3)
81 197:18:16:15.72	30 00 11.52	93 08 12.84	00.00		N		3	E,I,(10.342,3)
81 206:19:23:49.06	30 00 07.56	93 08 16.8	00.52		N		3	E,I,(10.342,3)
81 207:17:13:22.81	30 09 39.6	93 14 31.2	00.00		N		3	E7,O,(10.342,3)
81 207:18:25:41.95	30 02 29.76	93 09 59.04	01.02	0.69	N	00.05 KM X 00.15 KM	107.72 5	E,I,(10.342,5)
81 207:18:28:16.67	30 02 28.68	93 10 30.7	01.35	0.71	N	00.10 KM X 00.18 KM	108.59 5	E,I,(10.342,5)
81 207:18:29:00.04	30 01 13.44	93 09 50.76	00.85	0.01	N	00.00 KM X 00.00 KM	108.50 5	E,I,(10.342,5)
81 207:18:29:42.45	30 00 52.92	93 10 11.2	00.62	0.09	N	00.01 KM X 00.04 KM	106.13 5	E,I,(10.342,5)
81 207:18:46:01.68	30 02 25.80	92 57 05.4	03.99		N		3	E,O,(10.342,3)NOISY
81 207:18:49:07.36	29 55 48.7	93 06 25.56	01.69		N		3	E,O,(10.342,3)
81 207:18:49:56.55	29 58 25.6	93 06 12.24	00.00		N		3	E,O,(10.342,3)
81 207:18:50:35.56	30 00 38.16	93 08 19.32	00.26	0.26	N	00.02 KM X 00.04 KM	117.17 5	E,I,(10.342,5)
81 207:18:51:56.78	29 59 15.70	93 08 30.12	00.00		N		3	E,O,(10.342,3)
81 207:18:52:26.41	30 02 13.56	93 07 48.0	4.98	1.20	N	00.26 KM X 00.69 KM	95.06 5	E,I,(10.342,5)
81 207:18:53:19.31	30 00 01.44	93 08 48.48	00.00	0.77	N	00.09 KM X 00.41 KM	98.60 5	E,O,(10.342,5)
81 208:19:37:11.46	30 00 26.64	93 08 07.8	00.06		N		3	E7,I,(10.342,3)
81 208:19:44:02.39	29 43 26.4	93 14 26.50	10.51	0.22	N	00.02 KM X 00.25 KM	104.23 5	E7,O,(10.342,5)
81 208:19:47:38.71	29 51 45.0	93 12 23.70	00.00		N		3	E7,O,(10.342,3)
81 211:23:53:33.72	30 06 00.72	93 08 35.52	01.07	1.35	N	00.03 KM X 00.12 KM	99.43 5	E,O,(10.342,5)
81 212:00:36:48.69	29 59 22.2	92 48 47.1	08.13	0.58	N	00.48 KM X 00.58 KM	178.23 5	U,O,P,(10.342,5)
81 212:01:10:20.64	30 10 03.36	93 14 40.5	00.00	0.01	N	00.76 KM X 10.15 KM	59.19 5	E7,O,P,(10.342,5)
81 212:01:14:24.52	30 09 45.36	93 14 20.4	00.00	0.06	N	00.30 KM X 03.47 KM	64.28 5	E7,O,(10.342,5)
81 214:00:37:13.09	29 59 42.00	93 09 31.32	01.23		0.00		3	E7, ,(10.342,3)
81 220:01:44:18.03	30 00 11.16	93 09 49.32	00.73		-1.0		3	E7, ,(10.342,3)

81 220:01:53:10.66	29 57 15.40	93 08 17.52	03.06	-1.0	4	E7,O,(10.342,4)
81 220:02:02:46.77	29 58 54.10	93 07 26.04	00.88	-1.0	4	E7,O,(10.342,4)
81 220:02:04:14.72	29 59 34.80	93 09 25.56	01.27	-1.0	4	E7, ,(10.342,4)
81 220:02:08:09.81	29 59 20.70	93 08 46.32	01.26	-1.0	4	E7, ,(10.342,4)
81 220:02:09:20.28	29 59 41.20	93 08 14.28	00.83 00.13	-0.85 00.06 KM X 00.14 KM	88.70 5	E7, ,(10.342,5)
81 220:02:12:23.62	29 57 33.40	93 08 00.24	00.82	-0.56	4	E7, ,(10.342,4)
81 225:18:29:30.69	29 58 03.72	93 06 13.32	03.35	-1.0	3	E7, ,(10.342,3)
81 225:18:39:15.53	29 58 08.76	93 10 26.40	02.20 00.11	-0.41 00.02 KM X 00.10 KM	107.41 5	E7, ,(10.342,5)
81 226:10:41:16.27	29 56 07.80	93 04 36.48	02.70	-1.0	4	E7,O,(10.342,4)
81 233:13:39:40.34	30 58 06.24	92 43 17.00	00.00 00.00	01.40 KM X 01.70 KM	113.83 6	E7,O,(10.342,6)
81 241:09:44:03.58	29 58 19.20	93 10 33.90	05.92	-1.0	3	E7, ,(10.342,3)
81 241:10:35:25.34	30 00 10.08	93 07 00.84	04.29	0.00	3	E7, ,(10.342,3)
81 241:10:36:21.36	29 51 49.60	93 04 04.80	06.22	-1.0	4	E7,O,(10.342,4)
81 241:10:39:58.28	29 59 23.20	93 06 38.52	05.06	0.00	3	E7, ,(10.342,3)
81 245:18:12:01.43	30 00 34.92	93 07 49.80	01.02 0.20	N		
81 245:18:13:06.09	30 01 42.96	93 08 15.00	00.43 0.10	N		
81 245:18:13:34.90	30 01 32.16	93 08 35.52	00.00 0.00	N		
81 245:18:14:16.77	30 04 48.36	93 10 39.30	05.92 0.40	N		
81 245:18:14:28.02	30 02 19.68	93 08 23.28	00.00	N		
81 245:18:15:17.29	30 03 57.96	93 08 24.44	08.04 00.00	N		
81 245:18:16:01.92	30 03 29.52	93 03 33.48	05.28 0.00	N		
81 245:18:26:34.14	30 02 56.40	92 57 47.10	03.28	N		
81 245:19:15:02.51	29 59 36.60	93 06 57.24	00.54	N		
81 245:19:18:09.79	29 59 33.00	93 05 59.28	00.22 0.9	N		
81 245:19:19:12.12	30 00 42.48	93 05 25.08	00.00	N		
81 245:19:20:17.74	29 59 48.40	93 05 25.08	00.00	N		
81 245:19:21:28.57	30 00 54.72	93 05 32.28	00.41 0.80	N		
81 245:20:15:23.78	29 57 12.60	93 00 26.64	00.00	N		
81 246:14:44:25.76	29 58 42.60	93 07 54.12	02.14 0.20	N		
81 246:14:48:25.95	30 00 37.08	93 07 40.44	01.26 0.10	N		

81 246:18:50:06.45	30 04 18.84	93 02 39.48	07.16	0.10	N							
81 257:08:10:24.49	29 57 51.10	93 09 59.40	00.01		N							
81 257:08:23:36.19	30 00 43.56	93 07 32.16	01.13	0.30	N							
81 257:08:39:02.75	30 00 13.32	93 06 53.28	00.00		N							
81 257:08:42:24.02	30 00 06.12	93 06 04.14	00.42		N							
81 257:09:16:40.88	29 59 51.70	93 10 16.30	00.00		N							
81 257:09:22:06.06	29 57 26.20	93 13 21.70	00.00		N							
81 257:10:03:49.99	30 00 57.96	93 06 08.28	00.00		N							
81 257:10:16:03.72	29 57 54.00	93 10 18.80	00.00		N							
81 257:10:18:33.29	29 57 05.40	93 10 21.00	02.39	0.3	N							
81 257:10:21:28.92	29 48 12.60	93 10 17.40	06.33	0.00	N							
81 276:12:19:23.33	30 11 38.40	93 12 13.30	00.00	0.00	0.00 00.10 01.10 KM	69.94 5	E7,O,I0.342,5)					
81 305:19:03:55.72	29 25 43.30	94 06 24.12	00.00	0.00 --	N	00.68 KM x 01.85 KM	54.49 5	U,C,O,F,.342,5				
81 309:09:54:37.51	29 55 37.50	93 23 59.20	01.29	3.96 --	N	00.47 KM x 01.27 KM	155.00 5	E7,O,F,.342,5				
81 309:09:56:55.83	29 59 29.70	93 11 18.60	00.00	0.09 --	N	00.17 KM x 01.04 KM	131.54 5	E7,O .342,5				
81 310:16:10:59.47	29 03 52.20	94 07 18.12	00.00	0.00 --	N	00.22 KM x 00.71 KM	38.47 5	U,C,O,F,.343,5				
81 313:00:10:00.38	30 00 24.84	93 15 05.04	01.62	0.00 --	N	00.00 KM x 00.01 KM	170.97 5	E7,O ,.339,5				
81 313:00:11:45.02	29 58 15.90	93 27 36.00	02.07	1.55 --	N	00.23 KM x 00.79 KM	164.07 5	E7,O .342,5				
81 313:00:11:47.42	29 58 53.40	93 27 10.40	06.72	0.29 --	N	00.14 KM x 00.46 KM	166.03 5	E7,O .342,5				
81 313:00:12:59.56	30 04 11.64	93 18 21.60	03.34		N		4	E7,O .342,4				
81 313:00:14:48.74	30 00 22.68	93 11 37.30	01.34		N		3	E7,O .342,3				
81 313:00:19:18.47	30 01 01.56	93 12 53.20	00.98	0.23 --	N	00.02 KM x 00.23 KM	140.93 5	E7,O .342,5				
81 313:00:23:15.08	30 01 26.04	93 10 54.80	01.38	0.27 --	N	00.03 KM x 00.15 KM	113.27 5	E7,I .342,5				
81 313:00:25:56.22	30 01 38.64	93 09 39.96	02.35	0.19 --	N	00.04 KM x 00.12 KM	92.37 5	E7,I .342,5				
81 313:00:36:13.60	30 06 51.48	93 04 48.00	00.00	0.02 --	N	00.16 KM x 00.99 KM	121.51 5	E7,O .342,5				
81 313:00:40:09.88	30 07 28.92	93 09 00.72	00.00	0.04 --	N	00.38 KM x 02.29 KM	93.36 5	E7,O .335,5				
81 313:01:09:59.37	29 59 10.30	93 03 50.40	04.32		N		4	E7,O .342,4				
81 321:00:03:22.34	30 09 22.32	92 58 58.40	00.35	0.98 --	N	00.03 KM x 00.24 KM	134.09 5	E7,O .342,5				
81 326:13:53:19.00	30 57 21.20	92 40 30.30	00.42		N		4	E7,O,F .342,4				
81 331:21:27:15.45	30 02 11.76	93 07 37.56	00.00		N		4	E7,I,C .342,4				

81 332:18:35:07.28	30 00 47.52	93 06 41.04	00.03	N		3	B7,C,1 .342,3
81 332:19:05:42.89	30 00 45.36	93 06 38.16	00.03	N		3	B7,C,1 .342,3
81 332:19:13:19.40	30 00 47.88	93 06 41.04	00.03	N		3	B7,C,1 .342,3
81 335:20:14:19.70	28 53 58.50	93 50 44.50	00.20	0.08 -- N	00.36 KM x 00.62 KM	26.92 5	U,O,F,0.335,5
81 338:01:40:08.63	28 52 03.00	93 57 03.60	00.00	0.00 -- N	00.82 KM x 11.46 km	32.63 5	U,O,C,F,.330,5
81 338:02:00:49.93	29 02 12.84	93 34 38.60	00.00	0.00 -- N	01.00 KM x 01.14 KM	100.07 5	U,O,C,F,.320,5
81 342:20:13:01.38	29 59 59.20	93 07 59.52	01.84	0.02 -- N	00.07 KM x 0.001 KM	106.13 6	E7,O,0.342,6
81 342:20:24:38.03	30 00 03.96	93 07 59.88	01.89	0.10 -- N	00.02 KM x 00.05 KM	78.77 5	E7,O,0.342,5
81 343:13:47:01.14	30 00 07.92	93 08 43.80	04.88	0.07 -- N	00.02 KM x 00.04 KM	98.84 7	E7,I,0.342,7
81 353:07:32:34.78	30 03 51.84	93 10 37.50	01.68	0.15 -- N	00.05 KM x 00.11 KM	91.07 5	E7,O,1.53,5*
81 358:08:10:33.67	29 55 59.10	92 56 08.52	00.00	0.01 -- N	00.53 KM x 04.88 KM	27.42 5	E7,O,.342,5
81 358:08:16:13.39	29 58 09.12	92 53 18.90	00.00	0.01 -- N	00.43 KM x 02.16 KM	13.67 6	E7,O,.342,6
81 358:08:27:40.40	29 58 04.08	92 53 35.80	00.00	0.01 -- N	00.50 KM x 02.61 KM	14.61 6	E7,O,.342,6
81 365:07:40:46.69	29 54 45.00	93 06 16.92	08.01	0.01 -- N	00.44 KM x 00.02 KM	80.38 4	E7,O,.342,4
82 004:11:00:24.97	29 53 43.8	93 22 52.3	00.00	0.00 -- N	00.13 KM x 01.57 KM	146.26 5	U,O,C,(10.342,5)
82 008:19:44:12.17	29 27 27.3	93 52 20.6	00.00	0.00 -- N	00.14 KM x 13.99 KM	48.07 3	U,O,C,P,(10.342,3)
82 013:20:26:26.15	31 22 39.0	94 42 02.52	00.00	0.00 -- N	58.25 KM x 02.37 KM	45.62 5	U,O,C,P,(10.342,5)
82 013:20:56:31.52	31 12 51.8	92 34 58.0	00.00	0.00 -- N	01.46 KM x 06.00 KM	21.07 5	U,O,C,P,(10.342,5)
82 013:21:03:30.66	30 23 22.9	91 15 36.3	00.00	0.00 -- N	06.33 KM x 00.34 KM	167.57 5	U,O,C,P,(10.330,5)
82 014:19:09:23.66	31 24 10.0	92 30 03.6	00.00	0.00 -- N	01.76 KM x 05.06 KM	22.34 5	U,O,C,P,(10.342,5)
82 014:20:21:16.13	29 34 33.2	93 29 35.1	00.00	0.00 -- N	00.23 KM x 00.95 KM	35.23 3	U,O,C,(10.330,3)
82 014:20:38:47.25	29 49 33.6	93 21 45.0	00.00	0.00 -- N	00.55 KM x 00.88 KM	45.89 3	U,O,C,(10.342,3)
82 014:21:42:57.67	29 44 53.1	90 59 53.5	00.00	0.00 -- N	08.65 KM x 00.42 KM	08.46 3	U,O,C,(10.342,3)
82 015:01:44:05.08	29 25 36.8	94 07 54.48	00.00	0.00 -- N	00.56 KM x 00.91 KM	55.52 6	U,O,C,(10.342,6)
82 017:19:53:56.82	31 00 22.32	92 38 38.0	00.03	0.06 -- N	00.66 KM x 01.60 KM	25.15 5	U,O,C,(10.330,5)
82 021:15:01:44.75	30 05 11.4	93 09 53.64	00.00	6.87 -- -1.53	01.89 KM x 08.41 KM	88.36 5	E7,O,C,P,(10.342,5)
82 031:01:55:54.96	29 06 47.52	93 23 23.6	00.00	0.00 -- N	00.65 KM x 00.85 KM	105.70 5	U,O,C,F,(10.342,5)
82 031:02:02:01.37	30 04 47.28	93 05 49.2	06.36	0.32 -- -1.02	00.06 KM x 00.58 KM	107.70 5	E7,O,(10.342,5)
82 031:01:59:58.95	29 18 09.0	93 15 56.5	13.26	2.72 -- N	00.18 KM x 00.75 KM	100.54 6	U,O,(10.342,6)
82 031:02:12:11.41	29 56 38.4	93 09 33.48	00.49	0.00 -- -0.77	00.00 KM x 00.00 KM	93.11 3	E7,O,(10.342,3)

82 033:20:51:41.23	30 02 15.72	93 11 33.3	00.00	0.05 -- +0.85	00.03 km X 00.08 km	115.22 5	E7,I,(10.342,5)
82 033:20:52:12.53	30 00 14.4	93 09 37.8	00.00	0.00 -- -0.70	00.02 km X 00.06 km	101.34 3	E7,O,P,(10.342,3)
82 033:20:52:38.47	30 07 41.16	93 22 25.6	00.03	0.00 -- N	01.54 km X 02.19 km	125.11 6	B,O,(P,6)
82 033:21:16:08.85	29 46 27.8	93 27 36	00.00	0.02 -- N	00.81 km X 02.95 km	141.64 5	E7,O,C,(10.342,5)
82 033:21:25:26.30	30 31 19.2	93 24 38.5	00.00	0.03 -- N	01.99 km X 04.40 km	154.70 5	E7,O,C,(10.342,5)
82 033:21:30:36.92	30 03 02.16	93 12 01.08	00.03	4.35 -- N	00.35 km X 00.67 km	130.29 5	B,O,C,(P,5)
82 033:21:47:48.91	30 00 37.08	93 16 24.6	00.00	0.01 -- -0.19	00.10 km X 00.84 km	166.90 6	E7,O,(10.342,6)
82 033:22:09:12.84	29 59 18.6	93 09 16.56	02.51	0.20 -- -0.64	00.08 km X 00.18 km	114.10 6	E7,O,(10.342,6)
82 033:22:15:44.28	30 02 15.72	93 12 11.5	01.27	0.48 -- -0.65	00.04 km X 00.19 km	173.31 6	E7,I,(10.342,6)
82 033:22:30:26.74	30 01 57.36	93 00 27.72	00.00	0.12 -- -1.27	00.09 km X 00.99 km	165.98 6	E7,O,(10.342,6)
82 034:00:31:11.23	29 52 07.68	93 13 27.8	00.00	0.00 -- N	00.35 km X 00.44 km	31.20 3	E7,O,(10.342,3)
82 034:00:59:29.30	29 51 16.2	93 00 05.4	00.00	0.00 -- -1.53	00.14 km X 02.12 km	55.12 6	E7,O,(10.342,6)
82 034:01:09:29.12	30 00 10.8	92 56 30.1	01.85	0.07 -- N	00.01 km X 00.00 km	175.34 3	E7,O,(10.342,3)
82 034:01:09:08.74	30 02 11.04	92 48 54.7	00.00	0.00 -- -1.33	00.07 km X 00.24 km	87.38 3	E7,O,(10.342,3)
82 034:01:10:27.25	30 01 56.64	92 46 17.0	00.00	0.00 -- -1.55	00.12 km X 00.37 km	88.64 3	E7,O,C,(10.342,3)
82 034:01:13:02.45	30 01 02.28	93 02 40.92	00.56	0.02 -- -1.94	00.00 km X 00.00 km	138.73 3	E7,O,(10.342,3)
82 034:01:13:26.68	30 01 20.28	93 02 21.84	00.00	0.00 -- -1.80		4	E7,O,(10.342,4)
82 034:01:59:07.76	29 43 51.60	93 27 47.5	00.00	0.00 -- N	00.15 km X 10.28 km	43.27 3	U,O,(10.342,3)
82 034:02:41:26.69	29 59 02.04	93 12 15.4	00.00	0.45 -- -1.07	00.63 km X 02.35 km	128.39 6	E7,O,(10.342,6)
82 034:14:46:07.69	30 02 21.48	93 10 20.6	00.00	0.00 -- -1.01	00.00 km X 00.00 km	104.26 3	E7,I,(10.342,3)
82 034:18:51:33.88	30 07 10.56	93 11 34.8	00.00	0.00 -- N		3	U,O,(10.342,3)
82 035:02:08:16.01	29 19 29.20	93 58 57.3	00.00	0.00 -- N	02.44 km X 02.50 km	45.00 5	U,O,C,(10.342,5)
82 044:17:41:06.23	31 00 02.88	92 39 49.3	00.00	0.00 -- N	01.44 km X 00.15 km	111.40 5	U,O,C,(10.342,5)
82 047:13:25:11.69	30 06 24.48	94 44 30.1	03.35	1.44 -- N	54.50 km X 01.23 km	3.53 5	U,O,(P,5)
82 048:01:51:00.61	29 51 23.70	93 25 36.8	01.24	0.18 -- N	01.17 km X 02.42 km	147.26 7	E7,O,(P,7)
82 053:21:48:05.70	29 24 45.00	93 34 43.3	00.00	0.01 -- N	01.27 km X 01.62 km	32.89 5	U,C,O,(10.342,5)
82 054:14:15:14.61	30 10 11.2	93 02 49.56	03.19	1.06 -- N	00.11 km X 01.83 km	111.78 6	U,O,(10.330,6)
82 061:21:33:03.90	29 48 06.1	93 18 20.5	05.06	0.11 -0.06	00.01 KM X 00.12 KM	117.04 5	S7,O,(10.342,5)
82 062:01:57:15.98	29 26 03.48	93 49 41.5	00.00	0.01 N	01.31 KM X 06.23 KM	45.38 5	U,C,O,(10.342,5)
82 081:21:51:25.77	28 49 20.6	94 56 53.8	00.00	0.00 N	04.20 KM X 00.32 KM	143.42 7	U,C,O,(10.342,7)

82 082:03:39:49.53	29 59 52.8	93 08 31.56	01.55	1.86	-0.86	00.64 KM X 01.24 KM	107.96 5	E7,U,(10.342,5)
82 082:03:47:46.45	29 51 49.6	93 17 48.4	00.00		-2.25		3	E7,C,O,(10.342,3)
82 082:03:51:33.26	30 00 55.8	93 07 41.16	00.00		-0.26		3	E7,I,C,(10.342,3)
82 082:04:01:02.96	28 26 53.8	92 07 57.72	00.00		N		3	U,C,O,(10.342,3)
82 082:04:03:14.04	28 26 45.9	92 10 52.60	00.00		N		3	U,C,O,(10.342,3)
82 082:04:05:23.34	29 46 31.8	91 25 47.20	12.15		N		6	U,O,P,(10.342,6)
82 082:04:22:09.55	29 59 08.88	93 10 07.32	00.00		-2.53		3	E7,O,C,(10.342,3)
82 082:09:06:45.47	30 08 09.6	93 28 43.3	00.00		-1.52		3	E7,O,(10.342,3)
82 082:09:11:11.18	30 24 20.8	93 52 11.2	00.00	0.00	N	01.08 KM X 02.78 KM	120.28 7	E7,P,O,(10.342,7)
82 082:09:19:31.12	29 57 43.9	93 09 43.92	00.00		-0.56		3	E7,O,C,(10.342,3)
82 082:09:23:06.23	30 10 14.1	93 10 28.9	00.00	0.02	+0.55	00.30 KM X 02.60 KM	81.75 7	E7,O,(10.342,7)
82 082:09:58:17.32	29 58 17.7	93 10 26.7	00.00	0.15	-1.50	00.19 KM X 00.79 KM	110.87 6	E7,O,(10.342,6)
82 082:10:18:02.33	29 35 43.8	93 13 30.3	00.00	0.00	N	01.17 KM X 07.48 KM	101.06 6	E7,O,P,(10.342,6)
82 082:10:23:18.27	29 15 20.8	93 08 22.92	00.00	0.01	N	03.52 KM X 04.55 KM	179.92 5	E7,O,P,(10.342,5)
82 082:11:02:02.12	29 38 13.2	93 06 05.04	00.00		N		3	E7,C,O,(10.342,3)
82 082:21:04:17.92	29 52 46.9	93 07 03.36	04.77	0.16	-0.92	00.03 KM X 00.30 KM	80.66 6	E7,O,(10.342,6)***
82 082:21:08:04.81	29 59 15.3	93 07 04.08	00.00		-0.83		3	E7,O,(10.342,3)***
82 082:21:12:37.82	29 57 27.7	93 06 35.64	08.43		-1.03		3	E7,O,P,(10.342,3)
82 082:21:13:24.40	29 51 09.36	93 16 08.4	00.00	0.01	-1.21	00.66 KM X 06.02 KM	127.11 5	E7,O,P,(10.342,5)
82 082:21:24:26.73	29 48 12.20	93 16 28.2	05.53	1.24	-1.33	00.17 KM X 01.48 KM	113.81 5	E7,O,(10.342,5)
82 082:21:27:00.34	29 46 09.48	93 00 04.04	07.46		-0.57		3	E7,O,P,(10.342,3)
82 082:21:43:53.13	29 59 14.60	92 57 55.0	02.70	0.86	-0.79	00.19 KM X 02.20 KM	12.41 6	E7,O,(10.342,6)
82 082:22:00:18.21	29 49 44.7	93 00 22.32	00.00	0.00	-0.74	00.31 KM X 03.35 KM	60.21 6	E7,O,(10.342,6)
82 082:22:04:31.56	29 55 12.7	93 05 47.4	03.91	0.02	-1.24		3	E7,O,(10.342,3)
82 082:22:21:09.96	29 58 32.1	93 12 22.6	00.00	0.03	-0.96	00.09 KM X 00.38 KM	124.81 5	E7,O,(10.342,5)
82 082:22:30:21.22	29 35 00.96	93 44 18.9	14.26	10.51	-0.75	01.68 KM X 02.53 KM	103.23 6	E7,O,P,(10.330,6)
82 082:23:09:42.63	29 51 50.0	92 54 43.5	00.00	0.00	-1.18	00.18 KM X 01.25 KM	39.02 5	E7,O,(10.342,5)
82 082:23:11:20.80	30 00 47.88	93 09 26.64	00.00	0.44	+0.19	00.05 KM X 00.09 KM	86.43 5	E,I,(10.342,5)***
82 082:23:13:34.48	29 56 00.6	92 56 32.6	00.00		N		3	E7,O,(10.342,3)
82 082:23:19:43.72	29 49 33.6	93 14 27.9	00.00	0.00	-0.78	00.32 KM X 03.00 KM	117.41 6	E7,O,(10.342,6)

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82 082:23:33:21.19	29 45 01.44	93 14 54.6	05.09		N		3	E7,0,(10.342,3)
82 094:03:15:46.49	29 27 05.4	93 05 17.88	07.50	11.41	N	01.20 KM X 01.59 KM	111.86 5	S7,0,P,(10.342,5)
82 094:03:23:59.19	29 30 30.9	93 07 04.44	20.82	0.61	N	00.16 KM X 00.31 KM	83.33 5	S7,0,P,(10.342,5)
82 094:12:57:17.44	29 38 20.7	93 10 01.92	10.71		N		3	S7,0,P,(10.342,3)
82 100:03:14:10.50	30 02 24.36	93 08 02.40	00.00	0.49		+0.17 0.09 KM X 00.34 KM	69.65 6	E,1,(10.342,6)
82 100:03:17:30.28	29 59 55.60	93 06 51.12	00.64			-0.56	3	E,1,(10.342,3)
82 100:03:24:30.07	30 02 14.28	93 06 37.8	00.72	0.41		+0.36 00.08 KM X 00.35 KM	104.98 6	E,1,(10.342,6)
82 100:03:24:19.69	29 59 59.6	93 13 05.52	00.00			+0.06	3	E,0,(10.342,3)
82 100:04:09:14.29	29 58 08.4	93 03 37.08	01.40	0.90		+0.04 00.11 KM X 00.94 KM	41.41 5	E,0,(10.342,5)
82 100:04:08:24.69	28 04 27.84	94 09 55.44	00.52	0.74		-0.24 01.16 KM X 05.92 KM	23.89 7	U,0,P,(10.342,7)
82 100:04:27:47.79	29 51 00.36	93 03 38.52	00.00	0.01		+0.05 00.33 KM X 03.94 KM	69.20 7	E7,0,(10.342,7)
82 100:04:39:21.55	29 49 07.32	93 09 03.24	00.00	0.00		+0.50 00.05 KM X 00.63 KM	92.40 7	E,0,(10.342,7)**
82 100:04:41:23.46	29 47 45.60	93 09 05.04	00.00	0.00		-0.04 00.42 KM X 04.99 KM	93.45 5	E7,0,(10.345,5)
82 100:06:36:29.99	29 27 33.40	92 52 13.80	00.00	0.00		+0.01 01.78 KM X 02.42 KM	61.33 5	E7,0,(10.342,5)
82 100:06:43:01.12	29 59 40.20	93 09 42.84	02.83			+0.09	4	E,0,(11.342,4)
82 107:12:05:59.49	30 00 46.08	93 08 33.36	05.64			-0.10	3	E7,1,(10.342,3)
82 107:12:08:40.93	30 03 08.28	93 09 38.52	02.14	00.05		-0.04 00.01 KM X 00.01 KM	82.72 5	E,1,(10.342,5)
82 107:12:09:13.52	30 02 28.68	93 09 27.72	03.18	00.74		-0.48 00.17 KM X 00.42 KM	60.37 5	E,1,(10.342,5)
82 107:12:10:12.15	30 01 40.80	93 07 17.04	02.63			-0.91	3	E7,1,(10.342,3)
82 107:12:10:01.58	30 11 18.20	93 14 15.70	00.00	00.01	N	01.10 KM X 12.11 KM	62.49 5	E7,0,P,(10.342,5)
82 107:12:11:17.79	30 04 30.00	93 07 08.40	00.00			-1.0	3	E7,0,(10.342,3)
82 107:12:11:37.54	30 04 34.32	93 07 56.28	01.89	01.16		-0.27 00.23 KM X 01.33 KM	83.66 5	E,0,(10.342,5)
82 107:12:12:19.24	30 02 27.24	93 08 44.16	00.00			-1.0	4	E7,1,(10.342,4)
82 107:12:13:51.57	29 59 50.20	93 07 49.44	00.00	00.57		+0.11 00.03 KM X 00.08 KM	112.68 6	E,0,(10.342,6)
82 107:12:17:47.24	30 04 28.56	93 07 41.88	06.60	8.83		0.00 00.61 KM X 07.53 KM	80.55 5	E,0,(10.342,5)
82 107:12:18:01.62	30 02 21.84	93 11 04.56	05.10		N		3	E,1,(10.342,3)
82 107:12:18:34.89	30 02 10.68	93 07 04.80	06.04	0.35		0.00 00.03 KM X 00.13 KM	81.87 5	E,1,(10.342,5)
82 107:12:20:24.05	30 01 32.88	93 09 57.60	00.26	0.27		0.00 00.01 KM X 00.03 KM	88.01 7	E,1,(10.342,7)
82 107:12:24:06.19	30 04 26.04	93 06 42.12	00.93	0.81		-1.25 00.12 KM X 00.59 KM	104.75 6	E,0,(10.342,6)
82 107:12:24:09.38	30 05 18.24	93 04 14.16	01.82	0.16		-1.41 00.03 KM X 00.22 KM	120.45 5	E,0,(10.342,5)

82 107:12:24:30.74	30 02 22.56	93 06 05.04	05.00	0.10	-0.89	00.02 KM X 00.07 KM	119.35	6	E,O,I(0.342,6)
82 107:12:25:16.93	30 01 50.16	93 09 15.12	00.00	0.16	+0.07	00.03 KM X 00.06 KM	71.67	5	E,I(0.342,5)
82 107:12:26:02.74	30 00 46.80	93 09 07.92	01.67	0.24	+0.05	00.10 KM X 00.12 KM	166.30	6	E,I(0.342,6)
82 107:12:27:00.84	30 01 26.40	93 08 56.04	01.61		0.00				E,I(0.342,3)
82 107:12:27:11.90	30 00 14.04	93 13 08.76	00.87		0.00				E,O(0.342,3)
82 107:12:29:01.39	30 01 32.16	93 09 29.16	03.57		+0.36				E7,I(0.342,3)
82 107:12:29:32.11	29 59 32.20	93 11 44.80	00.46	00.02	+0.45	00.00 KM X 00.01 KM	125.22	5	E,O(0.342,5)
82 107:12:30:02.37	30 02 56.04	93 10 57.70	05.27		-1.0			3	E7,I(0.342,3)
82 107:12:30:25.70	30 00 08.64	93 09 48.96	02.02	00.37	0.00	00.08 KM X 00.16 KM	106.64	6	E,O(0.342,6)
82 107:12:30:59.43	30 02 42.72	93 09 51.12	01.62	00.60	-1.0	00.08 KM X 00.17 KM	94.83	5	E,I(0.342,5)
82 107:12:31:01.64	30 00 03.96	93 11 26.50	05.13		-1.0			3	E7,O(0.342,3)
82 107:12:31:42.53	30 00 50.40	93 04 50.52	00.69		-1.0			3	E7,O(0.342,3)
82 107:12:32:04.04	30 03 51.48	93 08 13.20	05.63	00.38	-1.0	00.08 KM X 00.38 KM	85.40	5	E,O(0.342,5)
82 107:12:34:02.25	30 00 45.00	93 09 41.76	05.50		-1.0			3	E7,I(0.342,3)
82 107:12:34:00.54	30 04 54.84	93 00 27.00	02.35		-1.0			3	E7,O(0.342,3)
82 107:12:35:01.04	30 01 46.56	93 06 02.88	05.71		-1.0			3	E7,I(0.342,3)
82 107:12:36:53.57	29 59 17.80	93 10 22.80	01.26	01.46	-1.0	00.29 KM X 02.43 KM	148.92	5	E,O,P(0.342,5)
82 107:12:37:01.95	30 01 44.04	93 09 44.64	05.71		-1.0			3	E7,I(0.342,3)
82 107:12:40:44.95	30 01 43.32	93 09 16.56	05.48		-1.0			3	E7,I(0.342,3)
82 107:12:43:08.98	29 59 29.70	93 08 58.92	03.24		+0.19	71 POSSIBLY A MULTIPLE EVENT		3	E,O(0.342,3)
82 107:12:44:57.87	29 55 18.40	93 11 32.2	00.82	2.23	+0.12	00.12 KM X 01.04 KM		5	E,O(0.342,5)
82 107:12:45:37.25	29 56 33.3	93 13 05.88	00.00		-0.16			3	E,O(0.342,3)
82 107:12:47:56.79	29 59 42.7	93 13 08.76	00.00	0.03	+0.35	00.11 KM X 01.41 KM	163.76	5	E,O(0.342,5)
82 107:12:51:39.33	30 08 17.16	93 07 58.44	01.83	0.97	-0.26	00.09 KM X 00.84 KM	86.92	6	E,O(0.342,6)
82 107:12:55:22.59	30 01 04.44	93 10 09.48	00.94		-0.67	00.04 KM X 00.07 KM	70.61	5	E,I(0.342,5)
82 107:12:56:01.20	29 58 53.7	93 10 10.50	02.63	0.30	-0.23	00.06 KM X 00.33 KM	99.80	5	E,O(0.342,5)
82 107:12:55:51.01	29 52 55.2	93 13 17.7	14.08	1.09	N	00.12 KM X 01.31 KM	113.03	5	E7,O(0.342,5)
82 107:13:00:02.68	29 58 33.9	93 10 08.4	01.36	0.29	+0.27	00.03 KM X 00.07 KM	119.82	6	E,O(0.342,6)
82 107:13:01:09.24	30 01 11.64	93 07 22.8	01.18	0.84	0.00	00.13 KM X 00.33 KM	107.89	5	E,I(0.342,5)
82 107:13:01:16.05	30 00 48.6	93 07 22.44	00.00	0.22	-0.56	00.06 KM X 00.09 KM	109.03	5	E,I(0.342,5)

82 107:13:01:34.24	30 01 26.76	92 52 26.0	00.00	-1.00	3	E,O,P,(10.342,3)
82 107:13:02:34.95	29 57 20.10	93 16 44.00	00.00 0.01	-1.00 00.40 KM X 04.83 KM 155.03	5	E,O,(10.342,5)
82 107:13:07:31.92	29 59 45.90	92 55 10.50	01.88 2.18	-0.30 00.44 KM X 02.77 KM 05.17	6	E,O,(10.342,6)
82 107:13:09:02.04	30 03 28.80	93 05 51.72	01.84 0.45	-0.07 00.13 KM X 00.44 KM 120.66	7	E,I,(10.342,7)
82 107:13:08:50.08	29 53 42.70	93 18 04.32	00.00 0.01	N 00.30 KM X 04.05 KM 142.39	5	E7,O,P,(10.342,5)
82 107:13:10:14.52	29 59 05.28	93 10 11.60	01.15 0.19	+0.25 00.02 KM X 00.09 KM 110.55	7	E,O,(10.342,7)
82 107:13:13:	30 04 21.36	92 56 39.40	04.14	-1.00	3	E,O,(10.342,3)
82 107:13:17:21.33	30 03 20.16	93 03 16.56	01.82 0.50	-0.55 00.12 KM X 01.19 KM 140.31	5	E,O,(10.342,5)
82 107:13:22:03.97	30 00 38.52	93 08 03.84	01.56	-0.01	3	E,I,(10.342,3)CLOSE TO WE
82 107:13:23:47.77	30 03 16.56	93 02 46.68	03.25	+0.60(?)POSSIBLY A MULTIPLE EVENT	3	E,O,(10.342,3)
82 107:13:26:07.88	30 05 12.48	93 07 14.52	08.39	-1.00	3	E,O,(10.342,3)
82 107:13:28:05.56	29 59 52.4	93 06 55.08	01.41	-0.04	3	E,I,(10.342,3)
82 107:13:32:50.25	29 57 24.10	93 13 59.10	00.00	-1.0	3	E,O,(10.342,3)
82 107:13:39:46.49	30 00 04.32	93 06 54.72	00.52 0.76	-0.26 00.03 KM X 00.11 KM 111.71	5	E,I,(10.342,5)
82 107:13:46:57.88	30 05 06.72	93 04 23.52	01.32 0.41	-0.78 00.05 KM X 00.27 KM 121.43	5	E,O,(10.342,5)
82 107:13:47:35.46	29 57 02.16	92 49 46.90	05.70 0.77	-0.94 00.40 KM X 00.70 KM 13.49	6	E7,O,(10.342,6)
82 107:14:05:09.79	30 00 14.04	93 08 32.64	02.27	-1.00	3	E,I,(10.342,3)CLOSE TO WEI
82 107:14:48:26.94	29 59 39.80	93 03 34.56	00.00	-1.00	3	E,O,(10.342,3)
82 111:13:07:21.36	30 03 37.80	93 05 55.68	01.49 0.65	+0.03 00.08 KM X 00.36 KM 110.00	5	E,O,(10.342,5)
82 111:13:12:55.08	29 58 39.30	93 07 09.84	00.44	+0.05	4	E,O,(10.342,4)
82 111:13:27:54.00	29 58 07.40	93 07 23.52	00.00	-0.55	3	E,O,(10.342,3)
82 112:03:57:31.12	30 07 39.72	93 01 58.44	01.85 3.95	-0.71 00.34 KM X 02.58 KM 124.46	5	E,O,(10.342,5)
82 117:15:20:04.41	29 59 24.00	93 06 37.44	00.00	+0.14	3	E,O,(10.342,3)
82 117:15:23:00.10	29 59 07.44	93 04 43.32	02.70	+0.14	3	E,O,(10.342,3)
82 119:03:17:38.75	30 01 01.20	93 05 48.48	03.59	-0.06	3	E,I,(10.342,3)
82 134:00:10:55.51	30 01 33.60	93 10 30.00	01.08 00.85	-0.12 00.11 KM X 00.26 KM 118.66	5	E,I,(10.342,5)
82 134:00:13:16.06	30 01 40.08	93 09 56.16	00.88 01.59	-0.14 00.19 KM X 00.24 KM 107.81	5	E,I,(10.342,5)
82 134:00:13:57.30	30 26 25.40	93 42 08.64	00.00 00.00	N 01.40 KM X 01.67 KM 140.65	6	E7,O,(10.342,6)
82 134:00:30:42.39	30 02 05.28	93 17 41.60	00.00	-1.0	3	E7,O,(10.342,3)
82 134:00:52:31.81	30 11 56.40	93 32 26.10	00.00 00.00	N 00.43 KM X 00.74 KM 28.21	6	E7,O,(10.342,6)

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82 134:00:57:02.47	30 02 25.80	93 16 31.00	00.00 00.10	N	00.96 KM X 10.91 KM	10.59	5	E7,O,(10.342,5)
82 134:01:13:26.23	29 58 03.36	93 08 04.2	00.99	-1.0			4	E7,O,(10.342,4)
82 134:01:20:16.24	30 03 47.88	93 09 10.44	00.98 00.17	-0.16	00.01 KM X 00.05 KM	78.32	5	E7,O,(10.342,5)
82 134:01:28:23.86	30 09 31.68	93 06 13.32	01.22 07.62	-1.0	00.23 KM X 01.84 KM	108.10	5	E7,O,(10.342,5)
82 134:01:37:04.50	30 00 09.72	93 08 54.24	00.13 00.38	+0.12	00.01 KM X 00.03 KM	105.29	6	E,O,(10.342,6)
82 134:01:39:25.56	30 01 37.56	93 09 22.68	01.57 00.14	-1.15	00.04 KM X 00.11 KM	93.18	6	E,I,(10.342,6)
82 134:02:49:22.30	30 02 11.4	93 10 08.76	00.00 00.07	+0.10	00.03 KM X 00.05 KM	90.36	7	E,I,(10.342,7)
82 134:02:49:20.92	30 13 31.8	93 09 45.0	00.00 00.01	0.00	00.49 KM X 05.75 KM	86.72	6	E7,O,(10.342,6)
82 134:02:55:10.90	30 02 32.64	93 05 46.32	00.00 00.21	+0.24	00.06 KM X 00.29 KM	119.77	7	E,O,(10.342,7)
82 134:02:59:31.17	30 04 09.84	93 05 26.88	00.72 00.51	+0.42	00.06 KM X 00.55 KM	109.61	5	E,O,(10.342,5)
82 134:03:13:56.41	29 44 48.4	93 05 32.28	08.06 02.51	N	00.28 KM X 03.58 KM	81.17	6	E7,O,(10.342,6)
82 134:04:00:07.59	29 46 57.7	93 14 18.2	00.00 00.00	N	00.14 KM X 01.84 KM	108.72	6	E7,O,(10.342,6)
82 134:04:53:00.17	30 00 33.84	93 05 33.72	00.00 00.07	+0.03	00.02 KM X 00.02 KM	174.90	6	E,I,(10.342,6)
82 170:20:06:23.03	30 02 16.8	93 08 58.2	00.48 00.24	-0.13	00.02 KM X 00.05 KM	103.75	6	E,I,(10.342,6)
82 180:19:12:14.64	29 54 53.2	92 56 40.9	07.00 00.21	N	00.09 KM X 00.53 KM	34.17	6	E7,O,(10.342,6)
66 82 180:19:16:55.54	29 58 07.68	93 00 03.6	02.28 00.32	N	00.10 KM X 01.13 KM	23.85	6	E7,O,(10.342,6)
82 180:19:17:09.35	29 58 31.4	93 01 13.8	04.24 00.19	N	00.04 KM X 00.44 KM	24.52	5	E7,O,(10.342,5)
82 180:19:17:31.47	29 58 01.2	93 00 42.84	03.66 00.90	N	00.24 KM X 02.48 KM	26.87	6	E7,O,(10.342,6)
82 181:19:56:40.29	30 00 11.88	93 05 21.84	02.68 00.75	+1.04	00.20 KM X 00.45 KM	12.95	6	E7,I,P,(10.342,6)
82 183:15:00:32.40	29 59 50.60	92 55 32.50	09.90 04.09	N	01.59 KM X 07.46 KM	5.14	5	U,O,P,(10.342,5)
82 183:19:46:44.31	30 02 08.88	92 56 38.40	00.00	N			3	U,O,P,(10.342,3)
82 196:19:25:15.15	30 01 17.04	93 09 21.24	04.92	+0.01			3	E7,I,(10.342,3)
82 196:19:29:17.42	30 01 14.16	93 08 39.12	04.99	-0.56			3	E7,I,(10.342,3)
82 196:19:44:10.41	29 57 56.50	93 10 38.60	06.52	-0.67			3	E7,O,(10.342,3)
82 196:19:46:16.19	29 59 18.90	93 06 25.20	00.00	-0.59			3	E7,O,(10.342,3)
82 197:09:06:03.33	29 57 53.60	93 03 39.96	02.33 00.44	+0.56	00.11 KM X 02.00 KM	47.84	6	E7,O,(10.342,6)
82 197:09:15:54.72	29 58 03.72	93 03 42.12	01.90 00.43	+1.12	00.15 KM X 02.43 KM	46.61	5	E7,O,(10.342,5)
82 197:09:27:08.19	29 57 36.70	93 04 26.04	02.00 01.15	+0.47	00.37 KM X 04.62 KM	56.27	5	E7,O,(10.342,5)
82 197:19:44:11.57	29 54 10.80	92 55 38.20	04.11 03.49	N	01.53 KM X 07.12 KM	33.88	6	U,O,P,(10.342,6)
82 198:15:22:07.12	29 58 56.20	93 04 46.20	00.00 00.85	+0.77	00.47 KM X 04.09 KM	48.98	5	E7,O,(10.342,5)

82 198:15:28:11.32	30 03 24.84	93 07 51.96	00.00 00.08	+0.11 00.10 KM X 00.44 KM	92.18	5	E7,1,10.342,51
82 198:15:28:51.99	30 02 44.16	93 06 12.60	00.55	+0.11		3	E7,0,10.342,31
82 198:15:29:17.63	30 04 54.48	93 06 14.04	06.89 00.33	+0.03 00.06 KM X 00.16 KM	111.33	5	E7,0,10.342,51
82 198:15:29:42.24	29 58 18.40	93 10 59.80	02.33 03.56	+0.13 00.68 KM X 01.70 KM	125.63	5	E7,0,10.342,51
82 198:15:30:25.30	30 03 54.36	93 07 33.24	02.49 00.49	-0.25 00.06 KM X 00.17 KM	102.10	5	E7,0,10.342,51
82 198:15:33:38.55	30 02 40.92	93 06 57.24	00.85 01.49	+0.14 00.11 KM X 00.31 KM	107.76	6	E7,1,10.342,61
82 198:15:36:39.17	30 01 31.80	93 07 13.44	00.00 00.26	+0.41 00.07 KM X 00.18 KM	97.72	6	E7,1,10.342,61
82 198:15:40:49.36	30 00 10.80	93 05 20.76	00.00 00.06	+0.24 00.05 KM X 00.07 KM	166.60	6	E7,1,10.342,61
82 198:15:42:22.93	30 02 31.92	93 07 15.96	02.12 01.16	+0.43 00.19 KM X 00.51 KM	98.97	5	E7,1,10.342,51
82 198:15:47:12.98	30 02 09.60	93 05 58.92	03.52	-0.56		3	E7,0,10.342,31
82 198:15:49:22.28	30 00 14.40	93 05 00.96	00.00	+0.24		3	E7,0,10.342,31
82 198:15:51:39.44	30 00 10.08	93 03 57.60	00.00 00.00	+0.27 00.00 KM X 00.02 KM	5.43	5	E7,0,10.342,51
82 198:15:52:33.76	30 00 02.52	93 04 50.16	00.51 01.91	+0.39 00.04 KM X 00.91 KM	19.72	5	E7,0,10.342,51
82 198:15:53:36.07	30 00 13.68	93 04 04.80	00.00 00.02	+0.07 00.03 KM X 00.14 KM	1.89	6	E7,0,10.342,61
82 198:15:54:19.24	30 00 46.08	93 03 15.84	00.17	-0.29		3	E7,0,10.342,31
82 198:15:59:51.12	29 58 40.00	93 04 28.92	03.96	+0.59		3	E7,0,10.342,31
82 198:16:03:49.67	30 01 39.72	93 03 49.32	01.09	+0.44		3	E7,0,10.342,31
82 198:16:12:12.31	30 02 19.32	93 04 51.24	01.81 00.05	+1.13 00.02 KM X 00.06 KM	132.63	5	E7,0,10.342,51
82 198:20:15:15.53	30 05 26.16	93 03 14.76	00.03 04.35	N 00.48 KM X 01.96 KM	134.46	6	B,0,(P,6)
82 199:13:14:25.27	30 03 20.16	93 07 57.72	00.00 00.07	-0.15 00.07 KM X 00.19 KM	105.55	6	E7,1,10.342,61
82 199:13:16:02.00	30 03 27.36	93 10 03.72	00.92 00.79	+0.12 00.06 KM X 00.13 KM	96.58	6	E7,0,10.342,61
82 199:13:19:54.78	30 03 27.36	93 10 03.72	00.92 00.79	+0.12 00.06 KM X 00.13 KM	96.58	6	E7,0,10.342,61
82 199:13:21:03.55	30 01 53.40	93 10 05.52	00.00 00.02	+0.28 00.00 KM X 00.01 KM	114.12	6	E7,1,10.342,61
82 199:13:22:09.74	30 03 23.76	93 09 19.80	00.91 00.46	+0.09 00.02 KM X 00.08 KM	109.65	5	E7,0,10.342,51
82 199:13:28:17.09	30 01 32.88	93 10 53.70	02.76	-0.22		3	E7,1,10.342,31
82 199:14:24:17.36	30 09 06.48	93 04 32.16	05.92 00.14	+0.31 00.02 KM X 00.12 KM	110.73	6	E7,0,10.342,61
82 199:14:25:45.59	30 03 54.00	93 07 08.04	03.44 00.01	-0.18 00.00 KM X 00.00 KM	110.95	5	E7,0,10.342,51
82 199:14:27:01.55	30 09 57.96	93 04 22.08	02.77 02.98	+0.39 00.12 KM X 00.98 KM	113.57	6	E7,0,10.342,61
82 199:14:31:36.28	30 09 16.56	93 05 31.92	00.00 00.00	+0.21 00.09 KM X 00.65 KM	109.24	6	E7,0,10.342,61
82 199:14:49:59.74	29 54 12.60	93 03 54.72	05.52	-0.89		3	E7,0,10.342,31

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82 199:14:52:13.53	29 58 01.56	93 07 13.08	00.89 01.09	-0.10 00.08 KM X 00.43 KM	97.08	5	E7,0,(10.342,5)
82 199:14:54:33.46	29 59 24.00	93 04 46.20	02.67	N		3	E7,0,(10.342,3)
82 199:14:55:00.40	29 58 28.50	93 05 13.20	03.46	N		3	E7,0,(10.342,3)
82 199:14:55:32.29	29 51 29.80	93 12 17.20	00.00	N		3	E7,0,(10.342,3)
82 199:14:57:00.35	29 59 53.50	93 03 50.76	02.72	+0.27		3	E7,0,(10.342,3)
82 199:14:57:37.85	30 02 27.96	93 09 56.16	00.00	-0.09		3	E7,1,(10.342,3)
82 199:15:00:33.31	29 59 13.90	93 03 40.32	04.65	-0.27		3	E7,0,(10.342,3)
82 199:15:02:29.88	29 55 08.40	93 00 39.60	01.97 00.14	-0.34 00.03 KM X 00.30 KM	47.47	5	E7,0,(10.342,5)
82 199:15:06:46.15	29 58 23.50	93 04 22.44	00.00 00.00	+0.34 00.14 KM X 01.22 KM	49.50	6	E7,0,(10.342,6)
82 199:15:09:41.24	30 01 22.44	93 07 17.76	03.32	+0.35		3	E7,1,(10.342,3)
82 199:15:13:20.46	30 00 45.00	93 06 09.00	03.12	N		3	E7,1,(10.342,3)
82 199:15:13:25.86	30 00 55.80	93 06 01.80	03.44	-0.11		3	E7,1,(10.342,3)
82 199:15:14:57.40	30 01 02.28	93 06 16.20	02.18	+0.60(7POSSIBLE MULTIPLE EVENT)		3	E7,1,(10.342,3)
82 199:15:21:52.88	30 03 38.52	93 03 38.16	00.00	-1.13		3	E7,0,(10.342,3)
82 199:15:24:14.41	30 03 30.60	93 03 24.84	00.00	-1.45		3	E7,0,(10.342,3)
82 199:15:34:03.04	29 59 23.60	93 09 29.16	02.45 00.11	-0.01 00.03 KM X 00.11 KM	104.80	5	E7,0,(10.342,5)
82 199:15:36:30.54	29 59 33.00	93 08 21.48	03.66	-0.38		3	E7,0,(10.342,3)
82 199:15:37:55.02	30 00 14.04	93 06 16.92	02.35	-0.66		3	E7,1,(10.342,3)
82 199:15:38:24.85	29 56 27.90	93 11 25.80	02.91 03.27	N 00.26 KM X 01.59 KM	112.08	5	E7,0,(10.342,5)
82 199:15:38:27.93	29 52 19.20	93 14 58.50	01.01	N		4	E7,0,(10.342,4)
82 199:15:39:28.59	29 52 50.10	93 14 55.30	04.16 00.24	+0.56 00.02 KM X 00.26 KM	116.45	5	E7,0,(10.342,5)
82 199:15:43:18.27	29 53 34.80	93 13 59.80	00.00 00.00	+0.73 00.04 KM X 00.32 KM	117.81	5	E7,0,(10.342,5)
82 199:15:51:13.07	29 53 40.90	93 10 28.20	00.00	N		3	E7,0,(10.342,3)
82 199:15:55:24.22	30 02 08.88	93 07 17.40	02.67	-0.93		3	E7,1,(10.342,3)
82 199:15:59:45.34	29 57 08.64	93 10 33.60	03.43	0.00		3	E7,0,(10.342,3)
82 199:16:10:18.75	29 49 35.00	92 48 18.00	00.00 00.00	N 00.66 KM X 01.31 KM	34.59	5	U,0,P,(10.342,5)
82 199:16:44:41.10	29 52 46.50	93 01 01.20	05.86 00.96	N 00.28 KM X 02.20 KM	57.26	5	U,0,(10.342,5)
82 199:16:53:36.41	29 55 03.72	93 02 53.88	03.67 02.83	N 00.72 KM X 07.46 KM	58.91	5	E7,0,(10.342,5)
82 202:00:10:05.70	30 07 35.04	93 02 11.04	05.37	+0.09		3	E7,0,(10.342,3)
82 202:00:32:34.63	30 05 39.84	93 05 57.12	00.00 00.02	N 00.15 KM X 01.30 KM	105.66	3	E7,0,(10.342,3)

82 202:00:33:56.07	30 07 02.28	93 04 28.20	00.00	N		3	E7,0,(10.342,3)
82 202:01:11:45.68	29 58 09.84	93 04 36.84	00.27 01.77	+0.35 00.16 KM X 01.03 KM	53.41	6	E,0,(10.342,6)
82 206:15:38:37.42	29 59 51.70	93 08 57.12	01.26 00.79	0.00 00.22 KM X 00.41 KM	103.93	5	E,0,(10.342,5)
82 206:15:43:02.06	29 59 17.50	93 10 53.40	03.80	-1.0		3	E7,0,(10.342,3)
82 206:15:43:30.90	30 00 38.88	93 11 54.60	01.43	-1.0		3	E7,0,(10.342,3)
82 206:15:46:22.37	30 01 05.88	93 06 58.68	00.00 00.12	-0.44 00.04 KM X 00.09 KM	95.53	5	E,1,(10.342,5)
82 206:15:46:25.61	29 59 25.00	93 12 51.80	03.42	-0.56		3	E7,0,(10.342,3)
82 206:15:46:51.98	30 01 36.84	93 09 48.60	00.09	0.02		3	E7,1,(10.342,3)
82 206:15:48:44.23	30 00 26.28	93 10 48.30	00.55 00.91	0.00 00.30 KM X 01.01 KM	110.37	5	E7,0,(10.342,5)
82 206:15:49:42.29	30 00 37.44	93 11 40.50	01.71 00.80	+0.15 00.14 KM X 01.13 KM	1.80	5	E7,0,(10.342,5)
82 206:15:52:03.47	30 03 14.04	93 05 15.72	06.36	+0.21		3	E7,0,(10.342,3)
82 206:15:54:27.56	30 02 35.52	93 07 42.24	04.39	-0.31		3	E7,1,(10.342,3)
82 206:20:24:02.88	29 56 53.80	93 08 11.04	00.00	+0.32		3	E7,0,(10.342,3)
82 206:20:26:43.38	29 55 43.60	93 09 25.20	04.92	+0.25		3	E7,0,(10.342,3)
82 208:06:34:09.79	30 03 10.44	93 14 06.72	10.94	N		3	E7,0,(10.342,3)
82 208:08:31:10.54	30 00 27.72	93 08 43.80	03.77	-1.31		3	E7,1,(10.342,3)
82 208:18:23:43.30	29 59 53.50	93 02 19.32	09.27	+0.44		3	E7,0,(10.342,3)
82 210:23:47:44.81	30 00 48.60	93 06 31.68	01.30	-0.55 00.09 KM X 00.14 KM	91.03	5	E,1,(10.342,5)
82 211:17:44:28.54	30 02 48.84	93 05 27.24	04.63	-0.79		3	E7,0,(10.342,3)
82 211:17:46:01.19	30 05 17.88	93 00 55.80	04.37	-1.0		3	E7,0,(10.342,3)
82 211:17:47:20.32	30 04 11.64	93 03 42.48	01.80 00.10	-0.10 00.01 KM X 00.05 KM	134.24	5	E7,0,(10.342,5)
82 211:17:48:54.26	30 04 58.80	93 02 26.16	00.50 02.41	+0.01 00.07 KM X 00.29 KM	141.70	6	E7,0,(10.342,6)
82 211:17:50:10.94	30 04 32.16	93 01 53.40	04.37 02.59	0.00 00.59 KM X 02.81 KM	156.91	5	E7,0,(10.342,5)
82 211:18:30:02.17	30 02 13.56	93 16 32.80	04.68	N		3	E7,0,(10.342,3)
82 211:18:36:45.89	29 55 02.64	93 06 42.48	01.18 03.78	-0.04 00.22 KM X 01.13 KM	81.96	5	E7,0,(10.342,5)
82 211:18:45:59.72	29 55 26.70	93 04 12.72	02.04	0.00		3	E7,0,(10.342,3)
82 212:12:37:01.09	29 51 03.96	93 10 36.10	05.72 00.57	N 00.05 KM X 00.38 KM	103.72	5	E7,0,(10.342,5)
82 212:12:39:05.22	29 50 32.60	93 04 33.24	04.85	N		4	E7,0,(10.342,4)
82 212:12:55:45.88	29 47 07.08	93 05 43.08	00.00	N		4	E7,0,(10.342,4)
82 212:13:26:54.64	29 54 21.60	93 07 15.24	00.00 00.02	N 00.15 KM X 01.21 KM	88.15	6	E7,0,(10.342,6)

82 212:13:34:57.60	29 56 42.70	93 11 21.80	00.00	N		3	E7,0,(10.342,3)
82 212:13:46:38.11	29 55 57.70	93 10 28.50	00.00 00.03	N	00.23 KM X 01.14 KM	106.58 5	E7,0,(10.342,5)
82 212:13:54:08.21	29 58 29.60	93 08 06.72	00.94 00.08	+0.63	00.01 KM X 00.04 KM	98.60 5	E7,0,(10.342,5)
82 212:13:56:48.14	29 58 33.20	93 10 46.20	00.00	+0.76		3	E7,0,(10.342,3)
82 217:15:21:37.49	29 59 50.60	93 01 37.56	00.00 01.33	+0.39	01.67 KM X 16.39 KM	9.67 5	E7,C,O,P,(10.342,5)
82 217:17:01:42.37	29 56 55.30	92 47 15.00	13.21 02.02	N	02.19 KM X 02.30 KM	143.86 5	E7,O,P,(10.342,5)
82 217:21:44:53.75	29 57 12.20	93 01 18.12	00.00 00.12	+0.89	00.85 KM X 10.52 KM	37.21 6	E7,O,P,(10.342,6)
82 219:00:59:35.33	29 56 36.20	93 04 17.76	05.48	-1.02		4	E7,0,(10.342,4)
82 219:01:01:16.01	30 00 57.96	93 08 04.20	01.40 00.21	+0.29	00.07 KM X 00.11 KM	120.43 5	E7, ,(10.342,5)
82 219:01:01:25.00	30 04 05.52	93 10 27.10	10.54(7)	-0.80		3	E7, ,(10.342,3)
82 219:01:02:40.05	29 59 54.90	93 07 19.56	03.63	-0.32		3	E7, ,(10.342,3)
82 219:01:02:53.23	29 56 07.08	93 08 06.36	14.30 00.73	+0.39	00.08 KM X 00.49 KM	96.34 5	E7, ,(10.342,5)
82 219:01:04:28.72	29 59 16.40	93 06 55.80	00.84 00.56	+0.23	00.08 KM X 00.29 KM	97.04 5	E7, ,(10.342,5)
82 219:03:58:07.15	29 59 35.80	93 07 59.52	02.27	-0.24		3	E7, ,(10.342,3)
82 219:21:15:55.51	30 00 38.52	93 08 05.28	04.42	0.00		3	E7, ,P,(10.342,3)
82 219:23:01:28.95	29 59 00.96	93 05 13.56	03.45	-0.96		3	E7, ,(10.342,3)
82 220:07:03:43.97	29 48 19.80	93 10 26.40	00.91 31.65	+0.25	00.66 KM X 08.53 KM	100.33 5	E7,O,P,(10.342,5)
82 220:07:06:58.74	30 01 06.60	93 07 34.32	00.75	0.00		3	E7, ,(10.342,3)
82 220:07:11:24.73	29 49 42.90	93 09 12.24	03.78 02.95	+0.23	00.02 KM X 02.13 KM	96.18 6	E7, ,(10.342,6)
82 220:07:21:42.36	30 02 01.32	93 04 31.44	06.72	-0.77		3	E7, ,(10.342,3)
82 220:15:17:15.82	30 00 13.32	93 05 25.44	00.00 00.47	+0.73	00.33 KM X 00.43 KM	157.97 5	E7, ,P,(10.342,5)
82 221:04:14:11.33	30 00 25.20	93 09 43.56	01.42	-1.0		4	E7, ,(10.342,4)
82 221:04:43:54.25	30 03 02.16	93 06 30.60	10.65(7)	-0.14		3	E7, ,(10.342,3)
82 221:07:46:36.88	29 59 43.00	93 09 10.44	02.52	-1.0		3	E7, ,(10.342,3)
82 221:07:47:22.48	29 56 30.40	93 09 05.76	05.47	-1.0		3	E7, ,(10.342,3)
82 221:07:51:14.86	29 59 16.40	93 11 03.12	02.12 00.79	0.00	00.20 KM X 00.77 KM	116.69 5	E7, ,(10.342,5)
82 221:07:59:31.54	29 59 42.30	93 06 34.20	00.00 00.33	-0.63	00.11 KM X 00.28 KM	95.21 5	E7, ,(10.342,5)
82 221:08:01:04.75	29 59 35.10	93 06 26.64	00.00	+0.03		4	E7, ,(10.342,4)
82 221:08:02:57.98	30 00 00.36	93 06 19.08	00.74 00.04	+0.48	00.00 KM X 00.01 KM	67.91 5	E7, ,(10.342,5)
82 221:08:06:19.97	29 58 29.60	93 07 34.68	00.00 00.06	+0.55	00.04 KM X 00.14 KM	91.12 5	E7, ,(10.342,5)

82 221:08:10:22.31	30 00 51.84	93 06 15.84	00.64 01.04	+0.15 00.09 KM X 00.14 KM	124.56	5	E7, ,10.342,51
82 221:08:10:52.07	29 53 23.60	93 02 21.48	09.48	+0.25		3	E7,O,P,10.342,31
82 221:08:28:54.64	30 02 51.72	93 04 50.88	04.90 02.30	N 00.75 KM X 01.36 KM	157.26	5	E7, ,10.342,51
82 221:09:48:49.04	29 50 08.16	93 09 10.80	05.58 01.90	-1.0 00.23 KM X 01.53 KM	93.43	5	E7,O,10.342,51
82 221:09:51:22.87	29 51 40.30	93 04 39.00	00.00 00.01	-1.0 00.32 KM X 04.08 KM	75.20	5	E7,O,10.342,51
82 221:09:55:47.63	29 46 40.40	93 06 43.92	00.00 00.03	-0.96 00.31 KM X 03.55 KM	87.25	5	E7,O,10.342,51
82 221:09:58:05.18	29 55 57.30	93 07 37.92	04.02 01.69	0.00 00.33 KM X 01.95 KM	90.10	6	E7,O,10.342,61
82 221:09:58:47.58	29 49 22.80	93 06 44.64	00.00 00.01	0.00 00.36 KM X 03.84 KM	84.86	6	E7,O,10.342,61
82 221:10:05:43.00	29 48 25.20	93 05 16.80	03.33	0.00		3	E7,O,10.342,31
82 221:10:35:46.33	29 47 04.56	93 13 44.40	08.95 01.51	-1.0 00.17 KM X 01.79 KM	107.06	6	E7,O,10.342,61
82 221:10:40:10.70	29 50 13.50	93 11 16.40	06.05 04.44	-1.0 00.50 KM X 05.98 KM	99.62	5	E7,O,10.342,51
82 221:10:46:07.54	29 42 45.30	93 12 42.80	09.60	-1.0		4	E7,O,10.342,41
82 221:10:56:09.51	29 53 22.20	93 09 02.52	00.00	-1.0		3	E7,O,10.342,31
82 221:10:57:19.09	29 53 13.90	93 08 40.56	00.00	-1.0		3	E7,O,10.342,31
82 221:10:58:04.39	29 55 00.12	93 09 24.84	00.00	-1.0		3	E7,O,10.342,31
82 221:11:11:03.60	30 00 09.36	93 08 18.60	01.70	-1.0		3	E7, ,10.342,31
82 222:16:48:08.13	30 00 16.56	93 00 56.88	06.95	+0.42		3	E7,O,10.342,31
82 223:07:29:23.05	29 52 37.90	93 03 05.40	00.00 00.01	-0.14 00.22 KM X 02.83 KM	66.37	6	E7,O,10.342,61
82 223:07:31:54.08	29 52 05.16	93 04 03.00	00.00 00.01	+0.36 00.23 KM X 03.01 KM	72.46	6	E7,O,10.342,61
82 226:15:17:11.86	29 59 45.90	93 08 47.76	00.00	-1.0		3	E7, ,10.342,31
82 228:18:21:20.00	29 59 32.60	93 04 32.52	00.79 00.59	-0.34 00.07 KM X 00.92 KM	35.63	5	E7, ,10.342,51
82 228:18:29:48.58	30 03 55.44	93 03 39.24	00.00	0.00		4	E7, ,P,10.342,41
82 228:18:31:44.26	29 59 42.00	93 05 42.36	01.10	-0.12		3	E7, ,10.342,31
82 228:18:40:12.45	29 58 54.40	93 08 15.00	01.96	0.00		4	E7, ,10.342,41
82 228:18:41:02.96	30 06 53.28	93 05 49.92	00.00	0.00		3	E7, ,10.342,31
82 228:18:41:27.72	30 06 24.84	93 24 12.60	00.00	-1.0		3	E7, ,10.342,31
82 228:18:44:18.68	30 04 27.84	93 07 49.08	02.39	+0.13		3	E7, ,10.342,31
82 228:18:47:09.82	30 03 44.64	93 09 06.84	05.40	0.00		3	E7, ,10.342,31
82 228:18:47:51.34	30 01 17.76	93 09 01.08	00.52	-0.71		4	E7, ,10.342,41
82 228:18:48:08.00	30 01 18.12	93 08 41.64	02.87	0.00		4	E7, ,10.342,41

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82 228:18:48:27.03	30 00 46.80	93 09 33.84	00.36	0.00	4	E7, ,10.342,4)
82 228:18:50:13.91	30 01 22.08	93 08 40.56	00.00	0.00	3	E7, ,10.342,3)
82 228:18:50:21.60	30 02 26.88	93 09 00.72	02.12	-1.0	3	E7, ,10.342,3)
82 228:18:50:37.98	30 04 02.64	93 07 15.24	00.00 00.34	0.00 00.28 KM X 01.46 KM	96.91 6	E7, ,10.342,6)
82 228:18:51:59.99	30 07 21.00	93 08 32.64	01.31	0.00	3	E7, ,10.342,3)
82 228:18:52:57.00	30 04 22.08	93 08 42.00	01.52 02.24	0.00 00.18 KM X 00.46 KM	99.12 5	E7, ,10.342,5)
82 228:18:55:32.08	29 55 41.10	93 13 22.40	00.00	-1.0	4	E7,0,10.342,4)
82 228:18:55:59.64	29 58 19.90	93 12 45.30	03.00	0.00	3	E7,0,10.342,3)
82 228:18:57:14.13	30 00 31.68	93 07 05.52	00.00 00.15	0.00 00.06 KM X 00.12 KM	74.33 5	E7, ,10.342,5)
82 228:18:58:15.72	30 01 49.08	93 09 29.52	03.39	0.00	3	E7, ,10.342,3)
82 228:18:59:28.25	29 56 57.40	93 12 30.90	03.16 02.47	0.00 00.47 KM X 02.45 KM	138.79 6	E7,0,10.342,6)
82 228:19:00:09.16	29 56 31.20	93 13 44.00	03.58 01.51	0.00 00.32 KM X 02.39 KM	139.93 6	E7,0,10.342,6)
82 228:19:01:10.16	29 50 41.20	93 18 12.20	00.00	0.00	3	E7,0,10.342,3)
82 228:19:06:41.25	30 00 01.44	93 10 32.80	00.78 00.03	-1.0 00.00 KM X 00.01 KM	150.74 5	E7, ,10.342,5)
82 228:19:07:39.33	29 56 45.90	93 09 55.44	00.00	0.00	3	E7, ,10.342,3)
82 228:19:08:51.81	30 00 27.72	93 09 40.32	00.79	-0.64	4	E7, ,10.342,4)
82 228:19:12:02.86	29 57 46.00	93 12 43.90	00.00	0.00	3	E7, ,10.342,3)
82 228:19:13:43.48	30 00 36.72	93 12 22.30	00.00	-1.0	3	E7, ,10.342,3)
82 228:19:15:05.72	30 00 43.92	93 14 03.48	00.00 00.01	0.00 00.09 KM X 00.92 KM	1.06 5	E7, ,10.342,5)
82 228:19:49:28.63	29 56 54.60	93 21 02.88	02.77 01.07	0.00 00.31 KM X 00.58 KM	163.15 5	E7, ,10.342,5)
82 229:14:57:21.78	31 10 13.00	92 37 41.80	00.00 00.00	N 00.83 KM X 00.89 KM	20.30 7	E7,0,P,10.342,7)TELESEISM
82 238:15:10:32.73	30 36 54.30	92 52 40.40	00.00 00.00	N 01.47 KM X 02.14 KM	110.25 5	E7,0,P,10.342,5)TELESEISM
82 240:22:26:04.56	29 55 13.80	93 12 16.50	07.45	N	3	E7,0,10.342,3)
82 243:13:56:06.59	29 53 42.00	93 18 02.88	00.00	N	3	E7,0,P,10.342,3)
82 243:17:24:43.94	30 03 07.56	93 08 20.76	10.71	-1.0	3	E7, ,P,10.342,3)
82 243:17:25:54.08	30 01 35.04	93 03 47.16	00.00 00.07	0.00 00.05 KM X 00.23 KM	164.66 6	E7, ,10.342,6)
82 243:17:26:38.58	29 58 39.00	93 05 24.72	02.03	0.00	3	E7, ,10.342,3)
82 243:17:27:00.49	29 56 26.10	93 06 09.72	04.25	0.00	3	E7,0,10.342,3)
82 243:18:56:44.73	30 02 46.32	93 00 33.12	02.95 00.38	+0.91 00.11 KM X 00.83 KM	159.83 6	E,0,10.342,6)
82 246:21:56:00.25	30 07 58.08	93 05 53.88	03.97	+0.02	3	E7,0,10.342,3)

82 246:22:01:11.46	30 02 16.80	93 07 06.96	00.28	0.00	4	E7, , (0.342,4)
82 246:22:04:01.75	30 07 59.52	92 59 18.60	04.10	0.00	3	E7,0, (0.342,3)
82 246:22:09:01.11	29 59 48.10	93 08 34.44	04.90	+0.06	3	E7, , (0.342,3)
82 250:19:15:39.77	29 57 59.40	93 12 04.68	01.14	+0.55	3	E7, , (0.342,3)
82 252:00:50:44.65	29 48 19.80	93 23 14.60	00.00	N	4	E7,0, (0.342,4)
82 259:23:52:53.56	30 05 18.96	93 10 31.40	03.66	N	3	E7,0, (0.342,3)
82 260:01:34:37.45	29 58 54.40	93 01 42.24	03.05 00.90	+1.11 00.15 KM X 02.40 KM	23.15 5	E7,0, (0.342,5)
82 263:03:20:58.14	30 09 05.40	93 12 19.80	05.34 04.04	+0.26 00.48 KM X 03.44 KM	68.87 6	E7,0, (0.342,6)
82 263:03:30:03.89	30 01 17.04	93 14 41.20	02.37 00.48	+0.27 00.14 KM X 01.65 KM	1.75 6	E7,0, (0.342,6)
82 263:03:36:15.02	30 10 19.90	93 27 25.20	04.58 04.36	N 01.45 KM X 02.61 KM	29.57 5	E7,0,P, (0.342,5)
82 263:03:37:54.02	30 08 03.48	93 17 11.00	02.90	N	3	E7,0, (0.342,3)
82 263:03:39:16.93	30 04 30.00	93 12 10.80	02.06 26.19	N 02.82 KM X 17.53 KM	43.72 5	E7,0,P, (0.342,5)
82 263:04:10:48.90	29 58 43.30	93 16 34.60	00.03	-1.0	3	E7,0, (0.342,3)
82 263:04:15:01.80	30 06 07.92	93 08 27.60	02.11	+0.06	3	E7,0, (0.342,3)
82 263:16:47:39.06	30 00 28.80	93 10 36.40	01.10 00.38	+0.12 00.08 KM X 00.19 KM	162.73 5	E7, , (0.342,5)
82 266:14:09:23.78	30 35 05.64	92 52 34.60	00.00 00.00	N 00.86 KM X 01.96 KM	110.17 6	E7,0,P, (0.342,6)
82 270:14:01:36.02	30 05 07.08	93 06 33.84	01.81 01.63	+0.44 00.32 KM X 01.02 KM	111.52 5	E7,0, (0.342,5)
82 278:21:27:12.73	30 04 53.40	93 09 21.60	06.61	-1.0	3	E7,0, (0.342,3)
82 278:21:28:13.66	30 05 16.44	93 07 29.64	00.00	-1.0	4	E7,0, (0.342,4)
82 278:21:29:20.09	30 04 58.44	93 09 08.28	02.16	-1.0	3	E7,0, (0.342,3)
82 278:21:30:22.48	30 04 16.68	93 07 02.28	06.24	-1.0	3	E7,0, (0.342,3)
82 278:21:36:05.99	29 59 48.40	93 06 21.96	00.00 00.11	N 00.06 KM X 00.13 KM	111.73 5	E7, , (0.342,5)
82 290:14:19:56.13	30 02 17.16	93 14 42.70	06.65	N	3	E7,0, (0.342,3)
82 302:16:40:51.90	29 56 22.90	93 13 21.00	04.54	-1.0	3	E7,0, (0.342,3)
82 302:17:01:54.08	29 58 18.80	93 10 18.80	01.16	-1.0	3	E7, , (0.342,3)
82 302:17:05:06.76	29 53 39.40	93 14 40.90	01.38	0.00	3	E7,0, (0.342,3)
82 302:17:10:37.01	29 48 55.00	93 16 44.40	00.00	-1.0	3	E7,0, (0.342,3)
82 302:17:11:59.93	29 45 21.20	93 19 49.80	00.00	0.00	3	E7,0, (0.342,3)
82 302:17:18:52.05	29 55 40.80	93 11 39.40	00.00 00.02	-0.45 00.14 KM X 01.35 KM	106.42 5	E7,0, (0.342,5)
82 302:17:22:14.78	29 48 33.10	93 15 13.30	00.00	-1.0	3	E7,0,P, (0.342,3)

82 302:17:26:41.95	29 52 56.60	93 11 27.20	00.00	-1.0	3	E7,O,P,(10.342,3)
82 311:12:46:55.52	30 00 23.76	93 11 05.28	02.15	-0.20	3	E7, ,(10.342,3)
82 311:12:47:59.59	30 00 05.76	93 12 41.40	03.73	0.00	3	E7, ,(10.342,3)
82 311:18:06:46.96	30 00 42.12	93 05 20.76	00.00	N	4	E7, ,(10.342,4)
82 316:20:17:44.64	29 56 22.50	93 13 55.90	00.00	N	3	E7,O,(10.342,3)
82 317:07:16:31.16	29 57 12.90	93 14 33.70	07.00 00.00	+0.71 03.02 KM X 16.69 KM	132.95 6	E7,O,(P,6)
82 319:06:45:13.94	30 12 30.90	93 15 38.10	00.00 00.00	N 00.20 KM X 02.81 KM	65.09 6	E7,O,(10.342,6)
82 320:14:00:35.34	30 25 54.80	92 57 12.90	00.00	N	4	E7,O,C,P,(10.342,4)
82 323:02:05:25.08	29 54 45.00	93 09 37.44	02.12 00.68	0.00 00.07 KM X 01.02 KM	90.79 5	E7,O,(10.342,5)
82 323:02:37:46.93	29 59 01.32	93 08 18.60	04.40	0.00	3	E7,O,(10.342,3)
82 323:02:45:25.23	30 04 04.08	92 57 59.70	03.05 01.83	+0.33 00.45 KM X 04.83 KM	163.59 5	E7,O,(10.342,5)
82 323:02:50:50.85	29 54 04.32	93 04 39.00	13.30 08.42	N 01.25 KM X 11.28 KM	63.70 5	E7,O,P,(10.342,5)
82 323:02:56:08.38	30 02 01.32	93 09 24.48	12.12	N	3	E7, ,P,(10.342,3)
82 323:03:29:44.15	30 00 24.12	92 54 55.40	00.00	N	3	E7,O,P,(10.342,3)
82 328:20:49:19.59	29 45 22.60	93 39 51.40	06.29	N	4	E7,O,P,(10.342,4)
82 331:10:37:16.86	29 47 59.20	93 26 43.40	18.01 02.86	N 00.85 KM X 03.78 KM	133.62 5	E7,O,P,(10.342,5)
82 331:10:38:02.50	29 52 00.12	93 22 45.10	00.00 00.02	N 01.59 KM X 15.34 KM	138.28 5	E7,O,P,(10.342,5)
82 331:11:32:07.55	30 04 20.28	93 10 03.72	11.08	0.00	3	E7, ,(10.342,3)
82 334:14:12:58.03	29 42 09.72	93 25 05.52	00.00	N	3	E7,O,P,(10.342,3)
82 334:14:17:54.79	29 51 40.60	93 18 39.90	00.00	N	3	E7,O,P,(10.342,3)
82 334:18:43:54.45	30 07 41.18	93 01 31.44	06.73 00.24	0.00 00.06 KM X 00.60 KM	123.06 5	E7,O,(10.342,5)
82 334:19:49:00.58	29 55 48.30	93 10 42.20	08.57	N	3	E7,O,(10.342,3)
82 334:19:50:57.17	29 59 30.80	93 05 02.40	04.30	+0.31	3	E7, ,(10.342,3)
82 334:20:38:53.75	29 59 00.06	93 11 24.70	02.50	0.00	4	E7, ,(10.342,4)
82 334:21:36:00.00	30 07 58.80	93 09 00.00	00.00	N	3	E7,O,(10.342,3)
82 336:01:49:42.60	29 56 18.20	93 18 45.70	00.00 00.03	+0.46 01.38 KM X 12.75 KM	154.61 5	E7,O,P,(10.342,5)
82 337:12:48:44.57	29 53 58.90	93 13 00.84	05.49 02.92	0.00 00.52 KM X 05.74 KM	109.29 5	E7,O,(10.342,5)
82 337:13:12:53.48	29 58 01.92	93 10 00.12	02.93 00.27	0.00 00.05 KM X 00.34 KM	95.82 5	E7,O,(10.342,5)
82 337:13:19:00.14	30 02 19.62	93 11 43.80	05.67	0.00	3	E7, ,(10.342,3)
82 337:13:20:01.77	30 04 54.12	93 10 09.12	00.00	-0.00	3	E7,O,P,(10.342,3))

82 337:13:21:22.07	29 58 13.00	93 11 16.00	00.00	0.00	4	E7,O,(10.342,4)
82 337:13:23:18.42	30 14 08.16	93 17 16.00	07.02 04.77	N 01.28 KM X 05.16 KM 65.42	5	E7,O,(10.342,5)
82 337:14:27:00.58	29 45 43.90	92 57 11.80	19.91 05.10	-1.0 02.12 KM X 07.78 KM 59.79	5	E7,O,P,(10.342,5)
82 337:14:52:13.02	30 07 44.40	93 07 24.96	11.95(7)	0.00	4	E7,O,(10.342,4)
82 337:14:59:31.63	30 01 56.64	93 00 51.48	00.00	-0.18	4	E7, ,(10.342,4)
82 339:16:50:58.61	29 53 58.50	93 13 30.00	03.95 07.23	+0.74 01.00 KM X 07.60 KM 124.90	5	E7,O,(10.342,5)
82 340:16:16:07.88	29 58 28.50	93 07 43.32	11.62	0.00	3	E7, ,P,(10.342,3)
82 340:19:45:29.92	30 01 09.12	93 16 23.50	00.00	N	3	E7,O,P,(10.342,3)
82 340:21:45:06.75	29 50 52.40	93 09 35.64	05.64	N	3	E7,O,(10.342,3)
82 340:21:46:13.45	29 58 36.10	93 17 20.00	10.32	N	3	E7,O,(10.342,3)
82 342:16:04:10.59	29 11 31.20	93 53 57.10	17.98 30.72	N 02.80 KM X 05.86 KM 113.49	5	E7,O,P,(10.342,5)
82 342:16:09:22.14	29 47 54.90	93 25 19.90	00.00	N	3	E7,O,P,(10.342,3)
82 342:16:11:57.48	29 56:04.56	93 08 51.00	03.85	N	3	E7,O,(10.342,3)
82 342:16:32:09.83	29 55 46.20	93 13 45.40	10.23	N	3	E7,O,(10.342,3)
82 342:17:01:46.02	29 57 15.10	93 12 31.30	02.85 01.03	N 00.20 KM X 01.11 KM 137.26	5	E7,O,(10.342,5)
82 343:15:50:56.61	30 05 26.16	93 06 05.40	01.50	+0.87	3	E7,O,(10.342,3)
82 350:20:15:22.31	29 56 04.56	93 12 41.70	00.63	N	4	E7,O,(10.342,4)
82 351:22:54:56.46	30 03 41.04	93 09 30.60	06.80	-1.0	3	E7, ,(10.342,3)
82 356:13:41:00.03	30 00 02.16	93 12 45.00	01.97 00.05	0.00 00.02 KM X 00.17 KM 126.03	5	E7, ,(10.342,5)
82 360:11:04:54.91	30 01 40.80	93 08 47.04	10.26	-1.0	4	E7, ,(10.342,4)
82 360:11:05:01.09	29 57 33.80	93 13 28.90	04.59	-1.0	3	E7, ,(10.342,3)
82 360:11:48:52.16	29 59 17.10	93 04 15.60	03.08 01.63	-1.0 00.28 KM X 02.00 KM 32.46	5	E7, ,(10.342,5)
82 360:11:48:54.70	29 59 04.92	93 04 03.72	01.05	0.00	4	E7, ,(10.342,4)
82 360:13:19:38.69	29 48 12.90	92 56 28.60	00.00	N	4	E7,O,(10.342,4)
82 360:18:06:06.00	29 56 31.90	93 14 44.50	11.30	N	3	E7,O,(10.342,3)
82 360:20:14:21.61	29 44 51.00	93 00 08.64	05.13	N	4	E7,O,(10.342,4)
82 360:20:44:16.96	29 48 15.10	93 06 38.88	07.86 01.13	0.00 00.13 KM X 01.44 KM 86.34	5	E7,O,(10.342,5)
82 360:21:44:43.25	30 06 10.08	93 05 16.44	03.14	N	4	E7,O,(10.342,4)
82 360:23:08:51.90	29 57 34.20	93 05 45.96	01.02	0.00	3	E7,O,(10.342,3)
82 361:00:21:49.07	30 12 28.40	93 20 16.00	00.00	N	3	E7,O,(10.342,3)

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82 361:00:34:33.54	30 16 09.48	93 56 27.90	00.00 00.00	N	00.93 KM X 08.02 KM	109.64	5	E7,O,(10.342,5)
82 361:00:58:21.82	30 20 11.40	92 58 49.00	06.76	-1.0			4	E7,O,(10.342,4)
82 361:07:31:32.08	29 58 43.60	93 19 55.90	08.12 02.48	0.00	00.97 KM X 05.17 KM	156.23	5	E7,O,(10.342,5)
82 361:14:29:03.65	29 57 28.00	93 20 58.20	04.11	-1.0			3	E7,O,(10.342,3)
82 361:14:56:53.63	29 58 50.50	93 10 17.40	06.21	0.00			3	E7,O,(10.342,3)
82 361:15:03:46.74	30 02 57.48	93 09 40.68	00.00	0.00			3	E7, , (10.342,3)
82 361:15:38:56.91	30 05 35.16	93 15 04.68	02.97	-1.0			3	E7,O,(10.342,3)
82 361:15:49:51.69	30 01 51.60	93 15 18.70	02.77	0.00			3	E7,O,(10.342,3)
82 361:15:51:08.46	29 56 55.60	93 04 02.28	13.68	-1.0			3	E7,O,(10.342,3)
82 361:15:51:09.35	29 56 10.60	93 02 44.52	14.24(?)	-1.0			3	E7,O,(10.342,3)
82 361:15:59:01.41	30 06 50.76	93 17 21.10	00.41	-1.0			3	E7,O,(10.342,3)
82 361:16:44:33.55	29 50 52.00	92 46 59.80	00.00	N			3	U,O,P,(10.342,3)
82 361:16:58:59.99	29 55 39.70	93 02 21.12	05.70	0.00			3	E7,O,(10.342,3)
82 361:17:01:09.67	29 59 23.20	93 18 31.30	05.11	0.00			3	E7,O,(10.342,3)
82 361:17:03:15.74	30 06 34.92	93 06 39.96	00.00	N			3	E7,O,(10.342,3)
82 363:16:25:38.53	29 51 48.60	93 13 48.00	00.00	N			3	E7,O,(10.342,3)
82 364:16:35:45.41	29 42 45.30	94 14 23.60	00.00	N			4	E7,O,F,(10.342,4)
82 364:19:42:37.64	29 32 05.64	93 55 12.70	22.55 05.41	N	00.73 KM X 01.96 KM	93.71	5	E7,O,F,(10.342,5)
83 003:20:44:12.69	30 02 05.64	93 15 09.72	08.49	+0.47			3	E7, , (10.342,3)
83 003:20:46:04.30	29 57 26.20	93 11 54.60	00.00	-0.52			4	E7,C, ,P,(10.342,4)
83 003:20:53:25.24	30 01 04.80	93 08 38.96	00.00	0.00			4	E7, , (10.342,4)
83 003:21:53:49.28	29 59 28.60	93 12 35.60	00.00	+0.25			4	E7,C,P, , (10.342,4)
83 003:22:18:06.02	29 56 42.00	93 17 49.20	03.78	1.00			4	E7,O,(10.342,4)
83 004:21:21:47.51	30 00 14.76	93 11 29.00	01.31	-0.28			4	E7, , (10.342,4)
83 010:17:02:16.83	30 02 33.72	93 09 52.92	04.85	N			4	E7, , (10.342,4)
83 011:16:03:43.69	29 44 44.80	93 23 56.70	06.41	1.00			4	E7,O,(10.342,4)
83 012:02:14:30.53	29 40 54.40	93 24 24.10	00.00	N			3	E7,C,O,(10.342,3)
83 012:18:01:55.71	30 46 47.20	93 03 15.48	00.00	1.00	02.20 KM X 05.24 KM	95.78	5	E7,C,O,P,(10.342,5)
83 013:02:11:27.01	29 56 00.24	93 15 29.50	05.82	+0.25			3	E7,O,(10.342,3)
83 013:16:26:24.55	29 22 56.60	93 54 15.10	00.00	1.00	01.55 KM X 01.94 KM	135.68	5	E7,C,O,P,(10.342,5)

83 017:20:37:09.49	29 59 03.12	93 11 53.50	05.55	+0.35	3	E?, (0.342,3)
83 017:21:37:43.73	29 39 46.40	93 30 30.60	00.00	-0.03	3	E?, (0.342,3)
83 031:21:21:51.52	30 02 42.00	93 01 06.24	00.00	-0.58		
83 031:22:05:16.82	30 01 22.80	93 09 49.68	01.08	-0.61		
83 032:00:22:49.55	30 02 25.44	93 09 39.24	00.00	-0.72		E?, I, (0.342,4)
83 032:02:35:01.47	29 58 43.30	93 04 21.72	08.94(?)	-1.0		E?, 0, (0.342,3)
83 032:02:47:08.45	29 59 23.20	93 05 20.40	00.00	-0.31		E?, 0, (0.342,3)
83 032:14:24:55.20	29 58 46.50	93 05 58.56	02.93	+0.67		E, 0, (0.342,3)
83 033:02:14:54.84	29 53 46.60	93 16 30.00	00.01	N		E?, 0, (0.342,3)
83 036:18:55:28.99	29 59 41.20	93 15 57.90	00.00	N		E?, 0, (0.342,3)
83 036:19:01:41.07	30 18 05.76	93 13 18.40	00.00	N		E?, 0, (0.342,3)
83 036:19:07:49.15	29 59 51.70	93 08 48.84	01.00	-1.0		E?, 0, (0.342,3)
83 036:19:10:06.96	30 00 54.00	93 08 38.40	01.73	-1.0		E?, I, (0.342,3)
83 036:19:21:49.59	29 59 52.40	93 07 48.72	01.20	0.00		E?, 0, (0.342,3)
83 036:20:02:24.35	29 57 46.80	93 05 38.04	02.11	0.00		E?, 0, (0.342,3)
83 040:23:45:57.25	29 52 50.90	93 28 52.30	00.00 00.00	N	00.60 KM X 03.53 KM	150.33 E?, 0, (0.342,5)
83 041:00:18:47.55	30 03 06.84	93 06 36.36	02.90 01.85	0.00	00.41 KM X 03.13 KM	103.06 E?, 0, (0.342,5)
83 041:00:18:43.63	30 04 38.28	93 02 58.56	00.72 00.90	+1.0	00.06 KM X 00.82 KM	130.50 E?, 0, (0.342,6)
83 041:00:23:58.09	30 07 38.28	93 14 35.50	00.01	N		E?, 0, (0.342,3)
83 041:00:39:54.45	29 57 58.60	93 06 54.72	00.00 00.02	0.00	00.08 KM X 00.40 KM	96.64 E?, 0, (0.342,5)
83 041:00:39:42.18	29 53 17.80	93 06 25.20	00.00 00.01	0.00	00.12 KM X 01.14 KM	83.75 E?, 0, (0.342,6)
83 041:22:25:00.76	30 04 46.92	93 08 15.00	04.33	N		E?, 0, (0.342,3)
83 046:00:57:01.86	29 41 07.44	93 28 45.40	09.40 26.73	N	02.63 KM X 13.89 KM	130.72 E?, 0, F, F, (0.342,5)
83 046:00:59:26.64	29 53 02.04	93 19 57.70	06.56	N		E?, 0, (0.342,3)
83 049:16:10:05.13	29 49 53.40	93 15 20.80	09.19(?)	N		E?, 0, (0.342,4)
83 053:20:06:17.15	29 57 01.08	93 14 04.20	05.07	N		E?, 0, (0.342,3)
83 054:18:29:56.74	30 05 09.60	93 04 43.32	03.34	N		E?, 0, (0.342,3)

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	MODE	X AXIS	Y AXIS	ALMUTH	RMS	V	NS	L	TF	COMMENTS	
1	1983	060	15	38	00.63	02.02	31.0936	92.6239	00.00	00.00	00.9	00.72	01.62	19.82	0.291	2	06	0	E?	DISTANT EVENT	
2	1983	063	17	06															P	POSSIBLE EVENT	
3	1983	064	06	53	04.28		30.0216	93.2235	04.53		-1.0				0.003	2	03	0	E?		
4	1983	064	07	00													2		E?	NO GOOD LOCATION	
5	1983	064	07	03	07.83		30.0526	93.0471	00.00		-0.0						2	04	0	E?	
6	1983	064	16	48	56.84	16.14	29.9342	93.2169	00.00	00.28	01.5	00.75	05.66	130.85	1.064	2	05	0	LP	EMERGENT L.F.	
7	1983	064	16	59													02		P	POSSIBLE EMERGENT	
8	1983	064	17	28	30.19		29.9669	93.1824	00.00		00.4						2	04	0	LP	LONG PERIOD
9	1983	064	17	49	34.00	35.21	29.8869	93.2201	00.00	00.02	01.2	01.23	12.23	121.87	1.417	2	05	0	U	EMERGENT	
10	1983	064	17	52													05		U	EMERGENT, NOISY	
11	1983	064	20	26	31.78	31.03	29.6911	93.4411	00.00	00.01		02.75	10.82	130.27	1.166	2	05	0	U	EMERGENT	
12	1983	064	20	24	53.32	02.49	29.3904	93.6210	00.00	00.00		00.83	00.92	018.01	0.208	2	06	0	U	EMERGENT	
13	1983	064	20	24	31.34		29.2989	93.6867	00.00								2	06	0	U	POOR EMERGENT
14	1983	065	07	42													02		P	POSSIBLE EVENT	
15	1983	069	15	41	49.45	03.38	30.6743	92.8365	00.00	00.00		01.17	01.30	025.82	0.290	2	05	0	LP	EMERGENT L.F.	
16	1983	069	22	12	26.24		29.5285	93.5436	00.00								2	04	0	LP	CONSTRAINED
17	1983	074	01	14	03.74		29.9601	93.1997	00.00		00.3						2	04	0	E?	
18	1983	075	02	13													02		P	POSSIBLE EVENT	
19	1983	078	00	27	23.20	02.19	30.0163	93.1532	00.00	00.01	(-1.	00.08	00.93	167.12	0.232	2	03	I	LP	EMERGENT, NOISY	
20	1983	078	03	37													02		P	POSSIBLE EVENT	
21	1983	079	10	19	42.08		29.8706	93.1540	10.12								02	03	0	U	EMERGENT
22	1983	080	18	52	35.48	22.23	30.1847	93.0963	00.00	00.01		00.62	07.91	076.28	0.490	2	05	0	LP	VERY NOISY	
23	1983	081	07	07	27.08		30.0165	93.1268	02.26		00.3						1	03	I	E	FWAVE AT 3 STA.
24	1983	081	16	41	55.53		29.4673	93.8042	00.00								2	03	0	LP	NOISY+EMERGENT
25	1983	082	21	46	46.06		29.9726	93.3008	00.00		(-1.						2	04	0	E?	VERY SMALL
26	1983	082	21	49	46.63		29.8256	93.6236	00.00		(-1.						2	05	0	E?	DISTANT EVENT?

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	EAT	N. LAT	W. LONG	DEPTH	ERI	Mooda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
27	1983	082	21	08	47.87	27.05	29.8399	93.4451	00.00	00.01	<-1.	02.65	09.21	156.85	1.050	2	06	0	E?	
28	1983	082	22	39	05.52		29.9808	93.1902	07.26		<-1.					2	03	0	E?	VERY SMALL
29	1983	082	22	45	01.82	18.55	29.9093	93.0173	00.00	00.03	-0.3	00.50	06.40	048.64	0.452	2	05	0	E?	
30	1983	083	15	39	58.84		30.0862	93.1757	00.00		<-1.					2	03	0	E?	VERY SMALL
31	1983	083	16	44	14.40		30.0818	93.1921	00.00		<-1.					2	03	0	E?	VERY SMALL
32	1983	083	16	48	28.62		30.0849	93.1943	00.00		<-1.					2	03	0	E?	VERY SMALL
33	1983	083	16	52	43.95		30.0832	93.1944	00.00		<-1.					2	03	0	E?	VERY SMALL
34	1983	083	16	56	50.32		30.0947	93.2007	00.00		<-1.					2	03	0	E?	VERY SMALL
35	1983	083	17	19	30.12		30.0972	93.2024	00.00		<-1.					2	03	0	E?	VERY SMALL
36	1983	083	17	23	46.59		30.0620	93.1707	00.00		<-1.					2	03	0	E?	VERY SMALL
37	1983	083	17	32	55.69		30.0828	93.1925	00.00		<-1.					2	03	0	E?	VERY SMALL
38	1983	083	17	37	27.58		30.0633	93.1704	00.00		<-1.					2	03	0	E?	VERY SMALL
39	1983	083	18	01	35.60		30.0503	93.1711	00.07		<-1.					2	03	1	E?	VERY SMALL
40	1983	083	18	13							<-1.					02			E?	VERY SMALL
41	1983	083	18	27	50.95		30.1021	93.2063	01.61		<-1.					03	0	E?	VERY SMALL	
42	1983	089	05	59	23.41		30.0470	93.1381	03.03	-0.5						2	03	1	E?	
43	1983	089	06	24	53.11		29.9565	93.2155	06.24		<-1.					2	03	0	U	VERY SMALL
44	1983	089	06	27	35.27	12.13	29.9429	93.3615	00.00	00.01	<-1.	00.44	04.18	154.90	0.377	2	06	0	E?	
45	1983	089	06	30	30.92		29.9872	93.2047	04.56		<-1.					2	03	0	E?	
46	1983	089	06	32	11.14	01.81	29.9139	93.3432	02.90	00.73	<0.0	00.09	00.60	146.44	0.065	2	07	0	E?	NOISY
47	1983	089	06	35	18.77	08.46	29.9924	93.2388	00.00	00.23	00.6	00.64	03.08	143.51	1.171	2	06	0	E?	
48	1983	089	06	40	13.43	00.98	30.0175	93.1509	00.00		-0.4					2	02	0	E?	NOISY
49	1983	089	06	42												02			E?	TOO SMALL
50	1983	089	06	53	39.36		29.9133	93.3072	00.00		0.3					2	03	0	E?	POOR SOLUTION
51	1983	089	06	56	11.25		29.9590	93.2406	00.00		-0.3					2	03	0	E?	
52	1983	089	06	57												02		P		TOO SMALL

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Medda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
53	1983	089	06	56	00.09		29.8085	93.4867	00.00		(0.0					2	03	0	E?	POOR SOLUTION
54	1983	089	06	55	43.14		29.9959	93.1981	00.00		(-1.					2	03	0	E?	
55	1983	089	06	58													02	F		POSSIBLE EVENT
56	1983	089	07	05	02.99		30.0032	93.1440	00.00		(-1.					2	03	I	E?	VERY SMALL
57	1983	089	07	06	00.86		29.9804	93.1657	02.15		(-1.					2	03	0	E?	
58	1983	089	07	08	26.38	00.38	29.9705	93.1415	00.00	00.05	-0.5	00.05	00.15	100.73	0.182	2	06	E	E?	
59	1983	089	07	11	01.97	00.57	29.9815	93.1245	00.00	00.07	(0.0	00.09	00.24	89.74	0.346	2	05	0	E?	VERY SMALL
60	1983	089	07	11	20.43		29.9130	93.2661	00.00		(0.0					2	03	0	E?	NOISEY
61	1983	089	07	13	15.17		29.9971	93.1409	01.05		(-1.					2	03	0	E?	VERY SMALL
62	1983	089	07	13	06.76	13.31	29.8125	93.3597	00.00	00.00		00.44	04.58	130.85	0.346	2	06	D	E?	POOR SOLUTION
63	1983	089	07	16	32.58		30.0840	93.2104	07.00		(-1.					2	03	0	E?	NOISEY
64	1983	089	07	29	49.23		30.0565	93.1738	00.06		(0.0					2	03	E	E?	
65	1983	089	07	40	00.86		29.9438	93.0940	00.66		(0.0					2	03	0	E?	
66	1983	089	07	40	20.69		30.0238	93.2088	02.57		(0.0					2	03	0	E?	
67	1983	089	07	49	14.75		29.9741	93.1329	09.96		(0.0					2	03	0	E?	
68	1983	089	07	52	47.65		30.0573	93.1669	00.27		(0.0					2	03	0	E?	
69	1983	089	08	01	08.09		30.0057	93.1806	05.53		(-1.					2	03	0	E?	VERY SMALL
70	1983	089	08	02	09.92		29.6702	93.1764	00.00		(-1.					2	03	0	E?	CONSTRAINED
71	1983	089	08	10	45.27		29.6742	93.0622	00.00		(0.0					2	03	0	E?	CONSTRAINED
72	1983	089	08	14	18.94		29.8658	93.1883	06.31		(-1.					2	03	0	E?	
73	1983	089	08	16																P 2 POSSIBLE EVTS
74	1983	089	08	18	06.77		29.9827	93.1416	09.00		(0.0					2	03	0	E?	VERY SMALL
75	1983	089	08	25	56.41		30.0558	93.1553	00.00		(0.0					2	03	I	E?	
76	1983	089	08	27	05.21		30.0579	93.1543	00.00		0.1					2	03	0	E?	
77	1983	089	08	29	17.59		29.8994	93.2468	06.67		(0.0					2	03	0	E?	
78	1983	089	08	31	22.24		29.9832	93.0788	11.00		(-1.					2	03	0	E?	NOISY

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TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Mode	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
77	1983	089	08	32	33.19		29.9307	93.2100	00.00		<-1.					2	03	0	E?	
80	1983	089	08	35	02.04		29.8302	93.2402	00.06		<-1.					2	03	0	E?	VERY SMALL
81	1983	089	18	21	55.35		30.0490	93.1890	00.00		<0.0					2	03	1	E?	
82	1983	089	18	22	40.90	00.47	30.0503	93.1302	00.00	00.11	<0.0	00.04	00.21	90.28	0.173	2	05	1	E?	IMPULSIVE
83	1983	089	18	27	51.15	02.53	30.0411	93.0605	00.00	00.11	-0.2	00.12	00.96	145.79	0.299	2	05	0	E?	
84	1983	089	18	28	49.08		29.9758	92.8804	00.00		<-1.					2	03	0	E?	CONSTRAINED
85	1983	089	12	48	10.06		30.2384	93.0240	00.00		<0.0					2	03	0	E?	NOISY
86	1983	089	18	53	09.19	01.11	29.9985	93.1170	02.43	00.72	0.9	00.12	00.18	100.42	0.327	2	05	1	E	IMPULSIVE
87	1983	089	18	55																P POSSIBLE EVENT
88	1983	089	18	54	55.34		29.7747	93.2663	00.00		<0.0					2	03	0	E?	
89	1983	089	19	00																02 P POSSIBLE EVENT
90	1983	089	19	03	44.42		30.0244	92.9802	00.00		<0.0					2	04	0	E?	
91	1983	089	19	16	57.70	04.72	30.1528	93.0828	00.00	00.00	<0.0	00.17	01.63	105.41	0.166	2	05	0	E?	NOISY
92	1983	089	19	36	02.33		30.6997	92.9266	00.00		<0.0					2	03	0	E?	
93	1983	089	22	46																02 P POSSIBLE EVENT
94	1983	089	23	23	03.28	05.23	29.5185	93.8580	00.00	00.00		00.98	01.62	140.37	0.282	2	06	0	LP	
95	1983	090	01	49	00.34	04.75	29.2208	94.0377	00.00	00.00		01.71	02.39	45.00	0.434	2	05	0	LP	
96	1983	090	23	29	29.81		30.3257	93.1187	00.00							2	04	0	LP	
1983	000	00	00	00	00000															
98	1983	095	14	06	39.53	00.05	30.1049	-93.2245	00.60	00.01	<-1.					2	3	0	E?	VERY SMALL
99	1983	095	14	36	14.43	00.25	30.0283	-93.1428	00.59	00.22	0.05	00.05	00.10	61.83	0.252	2	5	1	E?	
100	1983	095	14	38	29.35		30.0804	-93.1498	03.82		-1.18					2	4	0	E?	VERY SMALL
101	1983	095	14	40	13.57	01.91	30.1542	-93.5327	00.00						0.149	2	3	0	E?	VERY SMALL
102	1983	095	14	41	53.08	00.07	30.0809	-93.2855	00.41						0.002	2	3	0	E?	EXTREMELY SMALL
103	1983	095	14	42	56.51		30.0131	-93.2123	03.53		<-1.				0.001	2	3	0	E?	EXTREMELY SMALL
104	1983	095	14	57	20.59	00.03	29.9779	-93.1776	04.16	00.04	<-1.				0.009	2	3	0	E?	VERY SMALL

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event

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Moeda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
105	1983	095	15	16	40.61	04.62	29.9382	-93.0650	00.00	00.02	<-1.				0.298	2	3	0	E?	EXTREMELY SMALL
106	1983	099	16	04	00.31	46.41	29.9156	-93.2660	00.00	00.05		01.25	16.12	140.43	1.552	2	6	0	E?	EMERGENT
107	1983	099	19	42	10.59	37.85	29.5214	-93.5839	00.00	00.00		03.37	13.07	126.91	1.237	2	5	0	U	EMERGENT
108	1983	099	20	18	41.27	03.72	30.0191	-92.8948	03.68	00.59		00.19	01.27	178.80	0.084	2	5	0	U	EMERGENT
109	1983	099	20	18	47.57	00.17	30.0099	-92.8699	05.74	00.92					0.042	2	3	0	U	EMERGENT
110	1983	099	20	28	50.75	06.53	30.0033	-92.7361	00.00	00.01		02.31	01.92	050.00	0.545	2	6	0	U	EMERGENT
111	1983	099	20	16	45.60	03.95	29.7652	-93.4682	00.00						0.987	2	3	0	U	EMERGENT
112	1982	102	00	45	15.45	01.41	29.5045	-93.3221	00.00						0.129	2	3	0	U	EMERGENT
113	1983	107	18	04	01.85	00.01	30.0919	-93.2091	07.35		<-1.					2	3	0	U	EMERGENT
114	1983	117	16	30	02.02	01.07	30.1124	-93.1021	00.03	01.80		00.20	00.76	117.25	0.049	1	5	0	B	BLAST,CONSTRAINED
115	1983	117	16	31	49.26	00.01	30.1808	-93.0335	00.03							1	3	0	B	BLAST,CONSTRAINED
116	1983	118	13	36	15.33	02.69	30.1408	-93.1504	00.03	04.01		00.45	03.07	092.01	0.121	1	6	0	B	BLAST,CONSTRAINED
117	1983	118	13	43	22.50	00.48	30.0979	-93.1380	00.03	00.49		00.34	01.69	094.34	0.142	1	6	0	B	BLAST,CONSTRAINED
118	1983	118	13	55	25.78	00.24	30.1197	-93.1609	05.39	01.01		00.13	00.76	090.39	0.032	1	6	0	B	BLAST
119	1983	118	14	29	00.68	00.46	30.1667	-93.1785	06.76	00.06		00.25	01.75	086.18	0.037	1	5	0	B	LAST IN SERIES
120	1983	130	07	27	57.67		29.8798	-93.1746	04.19		0.05					2	04	0	E?	
121	1983	130	07	32	05.00	11.53	29.9317	-93.0708	00.81	03.57	-0.23	00.24	03.91	064.52	0.284	2	05	0	E?	
122	1983	130	07	38	58.89		29.7327	-93.0086	00.00		<-1.					2	04	0	E?	NOISY DATA
123	1983	130	07	44	34.49		29.9596	-93.0381	00.00		<-1.					2	03	0	E?	NOISY DATA
124	1983	130	07	55	12.65		29.9877	-93.0193	01.15		<-1.					2	04	0	E?	VERY SMALL
125	1983	130	08	05	03.32		29.9703	-92.8894	01.59		<-1.					02	04	0	E?	VERY SMALL
126	1983	130	09	20	28.23	06.46	29.9145	-93.0848	01.73	01.22	-0.34	00.13	02.14	075.22	0.144	2	05	0	E?	
127	1980	130	09	39	17.75		29.8477	-93.2653	00.00		<-1.					2	03	0	E?	VERY SMALL
128	1982	130	09	42												02		P		POSSIBLE EVENT
129	1983	130	11	49	58.66		30.0302	-93.1329	02.88		0.01					2	03	I	E?	NOISY DATA
130	1983	130	12	16	57.65	00.33	30.0581	-93.1694	00.00	00.06	0.55	00.06	00.17	096.62	0.281	2	05	0	E?	IMPULSIVE

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Mode	X AXIS	Y AXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
131	1983	135	18	53	27.37		30.0281	-93.1148	02.24		--.39					2	03	I	E?	IMPULSIVE
132	1983	135	19	15	19.99		29.9614	-93.1583	00.00		(-1.					2	03	D	E?	EMERGENT, SMALL
133	1983	135	19	17	59.40		29.9763	-93.1126	01.29		--.85					2	03	D	E?	SMALL IMPULSIVE
134	1983	135	19	22												02			E?	POSSIBLE EVENT
135	1983	135	19	33												02				POSSIBLE EVENT
136	1983	135	19	40												02				POSSIBLE EVENT
137	1983	135	20	27																POSSIBLE EVENT
138	1983	135	20	38																POSSIBLE EVENT
139	1983	135	20	29	00.33		29.9584	-93.1502	04.69		(-1.				0.017	2	03	D	E?	SMALL IMPULSIVE
140	1983	135	20	30	50.74		30.0079	-93.1785	00.00		--.52					2	04	D	E?	IMPULSIVE
141	1983	135	20	52	46.97		30.0152	-93.1725	03.01		0.11					2	03	I	E?	SMALL IMPULSIVE
142	1983	135	20	32																POSSIBLE EVENT
143	1983	135	20	52	37.82		29.9753	-93.1536	01.33		--.04					2	03	D	E?	NOISY DATA
144	1983	135	20	33	10.33		30.0033	-93.1448	02.37		****					2	03	I	E?	****DOUBLE EVTT
145	1983	135	20	33																POSSIBLE EVENT
146	1983	135	20	42																POSSIBLE EVENT
147	1983	135	20	43																POSSIBLE EVENT
148	1983	135	21	03																POSSIBLE EVENT
149	1983	137	04	39	29.82		30.1733	-93.1710	00.00							2	03	D	U	LONG PERIOD
150	1983	137	04	41																POSSIBLE EVENT
151	1983	139	11	37																POSSIBLE EVENT?
152	1983	139	11	44																POSSIBLE EVENT?
153	1983	139	11	55																POSSIBLE EVENT?
154	1983	139	12	01																POSSIBLE EVENT?
155	1983	139	12	07	15.65	27.74	29.8675	-93.1908	02.74	11.50	****	00.94	09.63	103.62	0.812	2	05	D	E?	****NOISY DATA
156	1983	139	12	16	04.03	27.81	29.9463	-93.1978	00.00	00.17		01.17	09.79	121.40	1.503	2	05	D	E?	NOISY DATA

TABLE 2. SWEET LAKE AFRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERT	Mooda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
157	1983	139	12	01	17.20	28.04	29.8779	-93.2190	00.00	00.02		01.02	09.65	116.30	0.791	2	05	0	E?	EMERGENT, SMALL
158	1983	139	12	40																POSSIBLE EVENT?
159	1983	140	09	43												04				POSSIBLE EVENT
160	1983	140	11	12	00.79		29.9267	-93.2043	03.48	(0.0						2	03	0	U	SMALL EMERGENT
161	1983	140	17	31																POSSIBLE EVENT?
162	1983	140	17	54	25.29		29.9981	-93.1523	01.77	-.54						2	03	0	E?	EMERGENT OFF, EFF
163	1983	140	18	12																POSSIBLE EVENT?
164	1983	140	18	54	00.32		29.9475	-93.1229	01.42							2	03	0	E?	EMERGENT
165	1983	140	18	56	00.33		29.9453	-93.1486	01.78							2	03	0	E?	VERY SMALL
166	1983	140	19	01	30.19		29.9960	-93.1300	02.21							2	03	0	U	LIGHTNING?
167	1983	140	21	30	22.19		29.9940	-92.9802	00.00							2	03	0	U	POSSIBLE EVENT
168	1983	141	00	55																POSSIBLE EVENT?
169	1983	141	00	57	48.96	00.13	30.0009	-93.1338	00.00	04.07	0.07	00.03	00.05	085.93	0.083	2	05	1	E?	IMPULSIVE
170	1983	141	01	24	00.12		30.0038	-93.1222	01.93	(-1.						2	03	1	E?	SMALL IMPULSIVE
171	1983	141	02	07	38.25	00.38	30.0151	-93.1169	00.91	00.39	(-1.	00.05	00.08	070.26	0.205	2	05	1	E?	NOISY DATA
172	1983	141	02	17	50.23		30.0029	-93.1523	01.58	****						2	03	0	E?	****NOISY DATA
173	1983	141	02	28	54.45		29.9667	-93.2624	00.00	(-1.						2	03	0	E?	
174	1983	141	02	32	50.33	02.37	29.9948	-93.1562	01.56	01.28	-.15	00.25	00.64	101.67	0.873	2	05	0	E?	IMPULSIVE
175	1983	141	02	34																POSSIBLE EVENT?
176	1983	141	02	35	16.64	00.42	29.9903	-93.1665	00.00	00.06	-.63	00.06	00.17	116.79	0.169	2	05	0	E?	IMPULSIVE
177	1983	141	02	35	53.64	02.22	29.9885	-93.0943	00.00	00.12		00.16	00.89	059.59	0.456	2	05	0	E?	POOR SOLUTION
178	1983	141	02	37	48.73	00.29	30.0128	-93.1155	00.59	00.39	(-1.	00.03	00.06	044.49	0.125	2	05	1	E?	IMPULSIVE
179	1983	141	02	38	15.73		29.9971	-93.1595	02.22	(-1.						2	03	0	E?	VERY SMALL
180	1983	141	02	38	40.04		29.9769	-93.1690	01.34	-.73						2	03	0	E?	
181	1983	141	02	45	00.59	04.38	30.0746	-92.9810	04.66	00.58	(-1.	00.13	01.44	157.77	0.110	2	06	0	E?	
182	1983	141	23	04	51.06		29.9806	-93.1617	02.99	(-1.						2	03	0	E?	EXTREMELY SMALL

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Moda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TF	COMMENTS
183	1983	141	23	10	51.14	00.07	30.0339	-93.1428	00.65	00.09	0.15	00.01	00.02	061.97	0.070	2	06	I	E?	OR LIGHTNING?
184	1983	141	23	39	50.66		29.6679	-93.3762	00.00							2	04	D	U	
185	1983	141	23	43	40.99	00.41	30.0344	-93.1628	00.74	00.67	0.35	00.06	00.14	096.84	0.313	2	06	I	E?	OR LIGHTNING?
186	1983	141	23	45	57.43	00.11	30.0197	-93.1580	00.00	00.26	-1.16	00.04	00.09	083.70	0.200	2	05	I	E?	
187	1983	141	23	48	21.05		30.0324	-93.1409	01.72		-1.21					2	03	I	E?	SMALL
188	1983	141	23	49	24.27	00.06	30.0185	-93.1346	00.17	00.21	-1.75	00.01	00.02	077.39	0.061	2	05	I	E?	OR LIGHTNING???
189	1983	141	23	51	51.46		30.0424	-93.1438	01.93		<-1.					2	03	I	E?	VERY SMALL
190	1983	142	00	09	53.65		30.1898	-93.1122	00.00		<-1.					2	03	D	E?	VERY SMALL
191	1983	142	00	15	21.24		30.0143	-93.1797	03.67		<-1.					2	03	I	E?	EXTREMELY SMALL
192	1983	142	00	17	11.01	00.18	29.9954	-93.1147	00.00	00.06	-1.58	00.03	00.08	071.51	0.088	2	05	D	E?	IMPULSIVE
193	1983	142	00	18												02				POSSIBLE EVENT
194	1983	142	00	23	55.12		29.9612	-93.0729	00.00		-1.39					2	04	D	E?	
195	1983	142	00	25	14.88		29.9843	-93.1082	00.00		<-1.					2	03	D	E?	EXTREMELY SMALL
196	1983	142	00	27												02				POSSIBLE EVENT
197	1983	142	00	29	00.50		29.9908	-93.1522	01.34		-1.37					2	03	D	E?	POORLY CONSTRD
198	1983	142	00	29	22.90		30.0013	-93.1123	00.07		<-1.					2	03	I	E?	EXTREMELY SMALL
199	1983	142	00	30	33.40		30.0355	-92.9921	02.93		<-1.					2	03	D	E?	EXTREMELY SMALL
200	1983	142	00	36	36.06		30.0196	-93.0043	00.00		<-1.					2	03	D	E?	EXTREMELY SMALL
201	1983	142	00	46												02				POSSIBLE EVENT
202	1983	142	01	02	52.34	00.56	29.9959	-93.1656	00.50	00.85	-1.59	00.05	00.17	107.15	0.237	2	06	D	E?	IMPULSIVE, SHORT
203	1983	142	01	06	16.78	00.59	29.9856	-93.1299	01.75	00.18	-1.15	00.08	00.24	073.63	0.202	2	05	D	E?	IMPULSIVE, SHORT
204	1983	142	01	07	55.06	00.05	30.0038	-93.1394	00.00	00.20	-1.46	00.02	00.03	115.32	0.091	2	05	I	E?	OR LIGHTNING???
205	1983	144	20	47												02				POSSIBLE EVENT
206	1983	147	17	17												02				TELESEISM ?
207	1983	159	15	01	32.57	09.49	30.0002	-92.6664	14.38	11.77		04.78	05.16	028.82	1.269	2	05	D	U	POOR SOLUTION
208	1983	162	19	28	00.49		30.0088	-92.6069	00.00							2	03	D	U	POOR SOLUTION

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Mcode	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS	
209	1983	162	19	30	46.40		30.0051	-92.7728	00.00								2	03	0	U	POOR SOLUTION
210	1983	162	21	52	50.45	07.47	30.0299	-93.0677	00.00	00.19		00.31	02.65	169.53	0.528		2	05	0	U	POOR SOLUTION
211	1983	162	21	54	53.23		30.0121	-93.0540	00.00								2	03	0	U	EMERGENT L.P.
212	1983	166	20	06	54.18		29.8223	-94.0104	03.84								2	03	0	U	LIGHTNING ?
213	1983	167	23	40	16.53		29.7239	-92.3966	00.00								2	05	0	U	EMERGENT L.P.
214	1983	168	17	00	57.50		30.0101	-92.3051	00.00								2	03	0	U	EMERGENT L.P.
215	1983	169	11	31	04.65	09.30	29.3509	-93.3157	00.00	00.00	<-1.	00.49	03.18	132.72	0.221		2	05	0	U	LIGHTNING?
216	1983	169	11	34	22.32		29.6060	-93.2712	06.94	05.66							2	03	0	U	LIGHTNING ?
217	1983	169	11	38	59.81		29.8932	-93.3443	00.00								2	03	0	U	LIGHTNING ?
218	1983	169	11	59	50.39	05.78	29.8452	-93.0463	00.00	00.00	<0.0	00.20	01.99	065.27	0.145		2	05	0	U	LIGHTNING ?
219	1983	174	07	44	18.76		29.9652	-93.1825	00.00		<-1.						2	03	0	U	LIGHTNING ?
220	1983	174	08	55	54.32		29.9453	-93.1835	00.00		<0.0						2	03	0	U	LIGHTNING ?
221	1983	174	09	04	34.78		29.8365	-93.1655	13.03		<-1.						2	03	0	U	EMRGNT. LIGHTNING
222	1983	174	09	41	26.23		29.9166	-93.2270	00.00		<0.0						2	03	0	U	LIGHTNING?
223	1983	174	09	47	03.13		29.8988	-93.1741	00.00		<-1.						2	03	0	U	LIGHTNING?
224	1983	174	09	51	21.71		29.9286	-93.1604	00.00		<0.0						2	03	0	U	LIGHTNING?
225	1983	174	10	05	07.46		29.9480	-93.1826	00.00		<0.0						2	03	0	U	LIGHTNING?
226	1983	174	10	20	14.09		29.9228	-93.1126	04.38		<-1.						2	03	0	U	LIGHTNING?
227	1983	174	10	24	05.07		30.0989	-93.2697	03.47		<0.0						2	03	0	U	LIGHTNING?
228	1983	174	10	24	42.10		29.8039	-93.0492	04.82		<0.0						2	04	0	U	LIGHTNING?
229	1983	174	10	26	50.37		30.0183	-93.1286	04.60		<-1.						2	03	1	U	LIGHTNING?
230	1983	174	10	32	47.83		29.8483	-93.1004	01.82		<0.0						2	03	0	U	LIGHTNING?
231	1983	174	11	13	13.29		30.2045	-93.0442	00.00		<0.0						2	05	0	U	LIGHTNING?
232	1983	174	11	15	13.76		30.1207	-93.0820	00.00		<0.0						2	03	0	U	LIGHTNING?
233	1983	174	11	21	54.60		30.1164	-93.0804	00.00		<0.0						2	03	0	U	LIGHTNING?
234	1983	174	11	27	21.25		30.0322	-93.0836	00.00		<0.0						2	03	0	U	LIGHTNING?

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERI	Moda	X AXIS	Y AXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
235	1983	174	21	32	05.37		30.0291	-93.0515	00.00							2	03	0	U	EMERGENT L.P.
236	1983	176	06	11	04.99	15.02	29.8913	-93.2284	04.23	03.39	(-1.	00.52	04.97	118.75	0.382	2	05	0	U	LIGHTNING?
237	1983	176	08	54	18.80		29.9337	-93.2561	00.00		(-1.					2	03	0	U	LIGHTNING?
238	1983	177	03	14	38.81	27.14	29.8428	-93.1123	00.00	00.02	(-1.	01.03	09.34	083.89	0.771	2	05	0	U	LIGHTNING?
239	1983	177	07	43	41.79		30.0341	-93.1461	01.19		(-1.					2	03	I	U	LIGHTNING?
240	1983	177	07	44	12.19		30.0335	-93.1415	01.58		(-1.					2	03	I	U	LIGHTNING?
241	1983	177	07	47	00.13		30.0358	-93.1488	02.02		(0.0					2	03	I	U	LIGHTNING?
242	1983	177	07	48	14.45		30.0390	-93.1414	01.99		(0.0					2	03	I	U	LIGHTNING?
243	1983	177	08	07	37.10	03.97	29.9952	-93.1873	00.84	02.01		00.20	01.13	154.48	0.273	2	05	0	U	LIGHTNING?
244	1983	177	08	04	20.04		29.9600	-93.1917	00.00		(0.0					2	03	0	U	LIGHTNING?
245	1983	177	08	06	52.83	00.79	29.9743	-93.1613	00.00	00.06		00.06	00.31	102.55	0.192	2	05	0	U	LIGHTNING?
246	1983	177	08	07	37.90	06.98	29.9184	-93.2488	03.16	01.54		00.25	02.28	132.85	0.160	2	05	0	U	LIGHTNING?
247	1983	177	08	11	26.61	00.33	29.9954	-93.1667	00.37	00.67		00.03	00.08	115.75	0.084	2	05	0	U	LIGHTNING?
248	1983	177	08	13	34.08		30.1738	-93.0813	04.09		(0.0					2	03	0	U	LIGHTNING?
249	1983	177	08	15	17.82		29.9667	-93.1838	00.00							2	03	0	U	LIGHTNING?
250	1983	177	08	17	20.57	02.37	29.9994	-93.1907	01.59	00.67		00.15	00.69	160.84	0.162	2	05	0	U	LIGHTNING?
251	1983	177	08	18	43.93	00.33	29.9589	-93.1731	00.84	00.29		00.02	00.11	107.11	0.035	2	05	0	U	LIGHTNING?
252	1983	177	08	28	39.52		30.0572	-93.0646	00.00							2	03	0	U	
253	1983	177	08	30	25.78	00.24	30.0545	-93.0781	01.52	00.05		00.01	00.08	131.16	0.018	2	05	0	U	LIGHTNING?
254	1983	177	08	32	25.06	02.33	30.0588	-93.0902	01.35	00.49		00.17	00.84	121.65	0.263	2	05	0	U	LIGHTNING?
255	1983	177	08	32	44.20		29.8986	-93.1154	02.95							2	03	0	U	LIGHTNING?
256	1983	177	08	33	40.31		30.0081	-93.1922	04.32							2	03	0	U	LIGHTNING?
257	1983	177	08	40	19.93		30.0074	-93.1461	00.00							2	03	I	U	LIGHTNING?
258	1983	177	08	42	20.72		29.9922	-93.1354	00.00							2	03	0	U	LIGHTNING?
259	1983	177	08	43	23.23	00.78	29.9792	-93.1341	00.00	00.14		00.09	00.30	077.15	0.259	2	05	0	U	LIGHTNING?
260	1983	177	08	45	54.02		29.9534	-93.1387	07.91							2	03	0	U	LIGHTNING?

TABLE 2. SWEET LAKE ARRAY EVENT LOG :

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Noda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
261	1983	177	08	47	47.91	02.08	29.9752	-93.1559	00.46	02.95		00.18	00.75	097.78	0.466	2	05	0	U	LIGHTNING?
262	1983	177	08	48	50.58		29.9794	-93.1476	03.06							2	03	0	U	LIGHTNING?
263	1983	177	08	51	27.56	00.75	29.9815	-93.1500	00.86	00.55		00.07	00.28	090.31	0.218	2	05	0	U	LIGHTNING?
264	1983	177	08	53	56.83	00.05	30.0287	-93.1312	00.00							2	03	1	U	LIGHTNING?
265	1983	177	08	54	11.50	00.29	29.9924	-93.1212	00.63	00.22		00.04	00.13	081.47	0.144	2	05	0	U	LIGHTNING?
266	1983	177	08	57	53.50	00.36	30.0042	-93.1013	01.39	00.21		00.03	00.08	042.46	0.076	2	05	1	U	LIGHTNING?
267	1983	177	09	03	24.10	00.28	30.0357	-93.0932	00.86	00.14		00.01	00.08	135.58	0.032	2	05	0	U	LIGHTNING?
268	1983	177	09	16	34.80		30.0575	-93.1856	00.00							2	03	0	U	LIGHTNING?
269	1983	177	09	25	25.39	00.04	30.0331	-93.1442	00.39	00.08		00.01	00.02	083.62	0.037	2	05	1	U	LIGHTNING?
270	1983	177	09	26	50.37	00.04	30.0395	-93.1485	00.55	00.07		00.01	00.02	070.08	0.026	2	05	0	U	LIGHTNING?
271	1983	177	09	27	53.30		30.0426	-93.1571	00.72							2	04	0	U	LIGHTNING?
272	1983	177	09	29	23.54	00.06	30.0393	-93.1465	00.82	00.07		00.01	00.02	070.25	0.040	2	05	0	U	LIGHTNING?
273	1983	177	09	30	26.03	00.11	30.0393	-93.1453	00.66	00.16		00.02	00.04	070.10	0.074	2	05	0	U	LIGHTNING?
274	1983	177	10	11	22.26	09.17	30.1291	-93.2275	00.00	00.01		00.35	03.17	057.10	0.324	2	05	0	U	BLAST?
275	1983	177	10	58	47.36		29.9721	-93.2526	00.00							2	03	0	U	
276	1983	177	10	59	18.79		29.9574	-93.2297	00.00							2	03	0	U	
277	1983	177	11	01	53.91		29.9452	-93.2469	00.00							2	03	0	U	
278	1983	177	11	02	40.83		29.9554	-93.2381	00.00							2	03	0	U	
279	1983	177	11	04	57.79	15.00	29.9303	-93.2965	00.00	00.01		00.49	05.15	147.24	0.342	2	05	0	U	
280	1983	177	11	25	48.45		29.9811	-93.2484	00.00							2	03	0	U	
281	1983	177	11	28	58.87		29.9929	-93.2356	00.00							02	03	0	U	
282	1983	178	17	14	42.93		30.0402	-93.1548	00.00							2	03	0	U	
283	1983	196	02	32	58.12		29.9857	-93.0266	03.54							2	03	0	U	LONG-PERIOD
284	1983	196	12	59	29.96		29.9916	-92.6585	00.00							2	03	0	U	LONG-PERIOD
285	1983	197	14	18	24.53	08.37	29.6976	-92.7855	00.00	00.00		01.59	02.74	047.04	0.487	2	05	0	U	LONG-PERIOD
286	1983	197	20	35	03.63		29.9498	-93.0342	04.80							2	04	0	U	EMERGENT

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MM	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Modda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
287	1983	198	12	21												05	U			NO GOOD LOCAT'N
288	1983	199	09	36	29.65	00.09	30.0265	-93.1173	00.00	00.11		00.04	00.04	101.46	0.203	2	06	I	U	LIGHTNING?
289	1983	199	09	37	43.22	00.09	30.0185	-93.1264	00.00	00.08		00.03	00.05	107.87	0.133	2	05	I	U	LIGHTNING?
290	1983	199	09	38	47.81	00.19	30.0252	-93.1225	00.00	00.23		00.07	00.09	074.72	0.265	2	05	I	U	LIGHTNING?
291	1983	199	09	39	48.03	00.12	30.0132	-93.1410	00.21	00.27		00.02	00.03	159.61	0.099	2	06	I	U	LIGHTNING?
292	1983	199	12	06	55.44		29.8992	-93.2528	00.00							2	03	D	U	POOR SOLUTION
293	1983	199	12	09	00.96	04.67	29.8724	-93.2757	03.30	01.50		00.21	01.57	127.70	0.099	2	05	D	U	LIGHTNING?
294	1983	199	12	10	38.43		29.9380	-93.2333	04.13							2	03	D	U	VERY SMALL
295	1983	199	12	12	54.27		29.9255	-93.2165	00.00							2	03	D	U	RAINING
296	1983	199	12	16	45.32	15.24	29.8626	-93.2969	05.53	04.25		00.70	04.88	133.61	0.327	2	05	D	U	RAINING
297	1983	199	12	17	57.42	12.37	29.8592	-93.3284	06.23	03.29		00.60	04.13	138.22	0.264	2	05	D	U	RAINING
298	1983	199	12	51	54.47		29.9864	-93.2002	00.00							2	03	D	U	CONSTRD. RAINING
299	1983	201	21	20	12.73	00.15	30.0359	-93.1318	00.46	00.26		00.02	00.05	084.24	0.071	2	05	I	U	LIGHTNING? RAINING
300	1983	201	21	23	25.90		30.0717	-93.1200	05.54							2	03	D	U	LIGHTNING?
301	1983	201	21	24	32.42		30.0554	-93.1294	00.00							2	03	I	U	LIGHTNING?
302	1983	201	21	25	01.14	00.58	30.0911	-93.1734	02.85	00.30		00.04	00.23	072.19	0.058	2	05	D	U	LIGHTNING?
303	1983	201	21	37	42.74	01.90	30.0008	-93.1373	02.55	00.79		00.30	00.50	087.70	0.962	2	05	I	U	LIGHTNING?
304	1983	201	21	37	46.27		30.1389	-93.3113	11.28							2	03	D	U	LIGHTNING? POOR
305	1983	201	21	40	41.58		30.0175	-93.1389	00.01							2	03	I	U	LIGHTNING?
306	1983	201	21	41	10.57	00.18	30.0188	-93.1430	00.18	00.30		00.06	00.08	079.34	0.264	2	05	I	U	LIGHTNING? RAINING
307	1983	201	21	42	31.33		29.9693	-93.1847	00.00							2	03	D	U	LIGHTNING?
308	1983	201	21	51	23.21	00.30	30.0118	-93.1090	00.32	00.84		00.03	00.05	075.46	0.113	2	05	I	U	LIGHTNING?
309	1983	201	21	56	25.22		30.0037	-93.1525	01.29			00.01	00.02	114.60	0.038	2	05	D	U	LIGHTNING?
310	1983	204	19	43	24.98		29.9893	-92.3979	16.97							2	04	D	U	LONG PERIOD
311	1983	208	19	37	54.54	01.81	29.9038	-92.8385	10.19	00.76		00.28	00.63	028.15	0.089	2	05	D	U	LONGER PERIOD
312	1983	210	02	11	18.05		30.0243	-93.1319	00.00							2	03	I	U	LIGHTNING?

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Moda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
313	1983	210	02	17	38.14		30.0226	-93.1448	01.98							2	04	I	U	LIGHTNING?
314	1983	210	02	19	17.66		30.0075	-93.1201	01.42							2	04	I	U	LIGHTNING?
315	1983	210	02	19	22.80		30.0114	-93.1224	00.24							2	04	I	U	LIGHTNING?
316	1983	210	02	21	05.84	00.25	30.0051	-93.1258	00.64	00.22	00.03	00.07	097.17	0.119		2	05	I	U	LIGHTNING?
317	1983	210	02	21	36.00	00.95	29.9698	-93.1413	00.00	00.11	00.10	00.37	112.50	0.341		2	06	O	U	LIGHTNING?
318	1983	210	02	23	27.42	01.12	29.9416	-93.1465	01.16	01.39	00.05	00.41	096.06	0.197		2	06	O	U	LIGHTNING?
319	1983	210	02	27	22.00	00.54	30.0017	-93.1574	01.08	00.49	00.06	00.14	102.52	0.277		2	05	O	U	LIGHTNING?
320	1983	210	02	28	41.41		30.0018	-93.1350	00.00							2	03	I	U	LIGHTNING?
321	1983	210	02	30	15.96		30.0011	-93.1387	00.00							2	03	I	U	LIGHTNING?
322	1983	210	02	30	14.36	02.96	29.9429	-93.1402	02.04	02.23	00.21	01.19	094.69	0.481		2	05	O	U	LIGHTNING?
323	1983	210	10	04	00.47		29.8576	-93.2924	00.00							2	03	O	U	
324	1983	210	10	11	17.32		29.9678	-93.1755	00.00							2	03	O	U	STORM-RELATED?
325	1983	210	10	12	26.86	02.91	29.8110	-93.3981	00.00	00.00	00.35	01.00	138.04	0.113		2	05	O	U	STORM-RELATED?
326	1983	215	14	41	04.15		30.1516	-92.9806	11.04							3	04	O	U	VERY SMALL
327	1983	215	14	44												04		U		LIGHTNING?NOSLN
328	1983	216	15	50	38.61	23.13	29.9993	-92.9149	00.00	00.21	01.44	07.99	007.00	0.612		2	05	O	U	LONG-PERIOD
329	1983	216	18	27												05		U		LIGHTNING?NOSLN
330	1983	216	18	29												05		U		LIGHTNING?
331	1983	216	18	30	15.00		29.9917	-93.1123	00.00							2	03	O	U	LIGHTNING?
332	1983	216	18	34	44.31		30.0127	-93.1757	03.26							2	03	I	U	LIGHTNING?
333	1983	216	18	48	32.94		29.9834	-93.1323	00.44							01	03	O	U	LIGHTNING?
334	1983	216	18	49												02		U		LIGHTNING?NOSLN
335	1983	216	18	53	58.05		30.0065	-93.0982	02.26							2	03	I	U	LIGHTNING?
336	1983	216	18	58	57.12		29.9999	-93.1900	00.00							2	03	O	U	LIGHTNING?
337	1983	216	18	59	13.37		29.9929	-93.1593	02.75							2	03	O	U	LIGHTNING?
338	1983	216	18	59	49.93		30.0298	-93.1504	02.87							2	03	I	U	LIGHTNING?

TABLE 2. SWEET LAKE ARRAY EVENT LOG :

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Moda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
339	1983	216	19	04	31.04		30.0104	-93.1136	00.00							2	03	I	U	LIGHTNING?ENSTD
340	1983	216	19	10	25.33		30.0307	-93.1347	00.01							2	03	I	U	LIGHTNING?
341	1983	216	19	14	08.24		29.9925	-93.1348	09.58							2	03	O	U	LIGHTNING? POOR
342	1983	216	19	16	23.29		30.0275	-93.2389	00.31							2	04	O	U	LIGHTNING?
343	1983	217	00	00	25.41		29.8853	-93.1758	00.00							2	03	O	U	POOR SOLUTION
344	1983	217	10	02	25.19	10.39	29.8109	-93.2427	02.25	05.96		00.45	03.61	112.88	0.221	2	05	O	U	POOR SOLUTION
345	1983	217	10	04	40.26	16.46	29.8293	-93.2457	03.05	06.52		00.69	05.62	115.85	0.361	2	05	O	U	POOR SOLUTION
346	1983	218	18	22	40.87		30.0111	-93.1689	02.05							2	03	O	U	LIGHTNING? RAIN
347	1983	218	18	25												03		U		LIGHTNING? RAIN
348	1983	218	18	03	27.89	07.42	30.0201	-93.0833	00.75	01.55		00.27	02.52	002.95	0.602	2	05	O	U	LIGHTNING? RAIN
349	1983	218	18	36	31.98		29.9924	-93.1543	00.00							2	03	O	U	LIGHTNING? RAIN
350	1983	218	18	40	01.91		29.9922	-93.1760	03.81							2	03	O	U	LIGHTNING? RAIN
351	1983	218	18	41	25.43		29.9993	-93.1401	00.11							2	03	O	U	LIGHTNING? RAIN
352	1983	219	15	05												05	O	U		TELESEISM?
353	1983	219	18	08												04	O	U		L.P. EMERGENT
354	1983	219	18	10												04	O	U		L.P. EMERGENT
355	1983	221	08	39	07.83		29.9803	-93.1087	00.00							2	03	O	U	VERY SMALL
356	1983	221	08	49	11.01		29.9586	-93.0820	00.00							2	03	O	U	VERY SMALL
357	1983	221	08	52	19.03		29.9560	-93.0561	02.69							2	04	O	U	VERY SMALL
358	1983	221	08	54	00.11	00.82	29.9547	-93.0817	00.81	00.58		00.03	00.28	063.04	0.055	2	05	O	U	LIGHTNING? RAIN
359	1983	221	08	54	56.89		29.9440	-93.0683	01.40							2	03	O	U	LIGHTNING? RAIN
360	1983	221	11	31	07.65		29.8304	-93.3085	00.00							2	03	O	U	LIGHTNING?
361	1983	223	10	14	28.60		29.9060	-93.1732	00.00							2	03	O	U	LIGHTNING? RAIN
362	1983	223	10	22	17.38	16.35	29.8830	-93.1713	00.00	00.02		00.69	05.64	101.85	0.610	2	05	O	U	LIGHTNING? RAIN
363	1983	223	10	23	51.65		29.9623	-93.1568	00.00							2	03	O	U	LIGHTNING? RAIN
364	1983	223	10	26	51.55	13.31	29.8462	-93.1750	00.00	00.09		00.50	04.58	100.39	0.368	2	05	O	U	LIGHTNING?ENSTD

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Mode	X AXIS	Y AXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
365	1983	223	10	46	05.71		29.9467	-93.2563	00.00							2	03	0	U	LIGHTNING?
366	1983	223	11	32	03.94		30.0140	-93.1210	07.52							2	03	1	U	LIGHTNING? RAIN
367	1983	223	11	32	51.47	00.42	29.9967	-93.1604	00.00	01.56		00.08	00.20	110.27	0.295	2	05	0	U	LIGHTNING? RAIN
368	1983	223	11	49	01.85	15.94	30.0275	-93.2692	00.00	00.29		00.53	05.50	004.05	0.351	2	05	0	U	LIGHTNING? RAIN
369	1983	223	12	07	24.20		30.0028	-93.1360	00.00							2	03	1	U	LIGHTNING? RAIN
370	1983	223	12	11	32.40	05.11	29.9386	-93.1823	00.00	00.04		00.28	01.79	115.76	0.387	2	05	0	U	LIGHTNING? RAIN
371	1983	223	12	17	57.97	01.33	29.9847	-93.1592	02.58	00.45		00.09	00.42	100.15	0.279	2	05	0	U	LIGHTNING? RAIN
372	1983	223	12	22	35.96		29.9563	-93.0535	00.00							2	03	0	U	LIGHTNING? RAIN
373	1983	223	13	00	37.15	00.67	29.9697	-93.1268	00.33	01.35		00.06	00.28	076.77	0.149	2	05	0	U	LIGHTNING? RAIN
374	1983	223	15	17												03		U		WEATHER-INDUCED
375	1983	223	15	47	44.63		30.0334	-93.2108	01.41							2	03	0	U	LIGHTNING? RAIN
376	1983	223	15	57	19.33	00.92	30.0017	-93.0879	00.00	00.06		00.08	00.38	043.45	0.238	2	05	1	U	LIGHTNING? RAIN
377	1983	223	16	55	41.06		29.9485	-93.2302	00.00							2	03	0	U	LIGHTNING? RAIN
378	1983	224	12	48	11.19		29.9048	-93.1242	03.21							2	03	0	U	LIGHTNING? RAIN
379	1983	223	12	49	26.30		29.9548	-93.1344	00.00							2	03	0	U	LIGHTNING? RAIN
380	1983	223	12	56	31.95		29.9716	-93.0968	00.44							2	03	0	U	LIGHTNING? RAIN
381	1983	223	12	59	01.60		29.9259	-93.0810	02.71							04	0	U		LIGHTNING? RAIN
382	1983	223	13	01	44.65	03.06	29.9258	-93.0819	02.07	01.48		00.14	01.13	067.78	0.196	2	05	0	U	LIGHTNING? RAIN
383	1983	223	13	03	21.02		29.8998	-93.1036	02.66							2	04	0	U	LIGHTNING? RAIN
384	1983	224	13	31	28.64		30.0595	-93.1515	00.00							2	03	0	U	LIGHTNING? RAIN
385	1983	224	13	32	46.59		30.0210	-93.1451	00.45							2	05	1	U	LIGHTNING? RAIN
386	1983	224	13	35	03.29		30.0864	-93.1572	00.00							2	03	0	U	LIGHTNING? RAIN
387	1983	224	13	41	51.64		30.0484	-93.1643	00.00							2	03	1	U	LIGHTNING? RAIN
388	1983	224	13	43	29.08		30.0902	-93.1585	01.85							2	04	0	U	LIGHTNING? RAIN
389	1983	224	13	45	01.58	00.29	30.0718	-93.1571	01.79	00.21		00.02	00.11	075.51	0.055	2	05	0	U	LIGHTNING? RAIN
390	1983	224	13	49	04.12		30.0372	-93.1892	02.36							2	03	1	U	LIGHTNING? RAIN

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Mcode	X AXIS	Y AXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
391	1983	228	12	45	55.50		30.2731	-93.0030	00.00											
																				2 03 0 U SMALL
392	1983	242	14	41	05.45	02.47	30.5992	-92.8329	00.00	00.00		00.82	01.26	020.97	0.242	2	05	0	U	TO NORTHEAST
393	1983	245	21	06	59.39		30.0316	-93.0778	00.00											2 03 0 E? POSSIBLE EVENT
394	1983	245	11	54	03.20		30.0154	-93.0732	00.00											2 02 0 U LIGHTNING? RAIN
395	1983	249	11	57	33.89	12.13	29.9895	-93.0978	02.20	04.28		00.75	03.63	059.56	1.927	2	05	0	U	LIGHTNING? RAIN
396	1983	249	11	58	02.73		30.0227	-92.9707	06.37											2 03 0 U LIGHTNING? RAIN
397	1983	249	12	18	10.41		30.0246	-93.0886	00.00											2 03 0 U LIGHTNING? RAIN
398	1983	249	12	20	21.05		29.9937	-93.1406	00.00											2 03 0 U LIGHTNING? RAIN
399	1983	249	12	25	25.34		30.0781	-93.0766	02.09											2 03 0 U LIGHTNING? RAIN
400	1983	249	12	27	52.08		30.0211	-93.0618	01.15											2 04 0 U LIGHTNING? RAIN
401	1983	249	12	30	03.49		30.0170	-93.0830	00.00											2 03 0 U LIGHTNING? RAIN
402	1983	249	12	36	46.45		30.0520	-93.1375	00.00											2 03 1 U LIGHTNING? RAIN
403	1983	249	12	40	12.71	02.96	29.9908	-93.0543	00.00	00.02		00.06	01.05	026.00	0.095	2	05	0	U	LIGHTNING? RAIN
404	1983	249	12	42	46.21		29.9769	-93.1802	00.00											2 03 0 U LIGHTNING? RAIN
405	1983	249	12	43	57.02		30.0967	-93.1049	00.76											2 04 0 U LIGHTNING? RAIN
406	1983	249	12	45	37.50		29.9591	-93.1297	01.53											2 04 0 U LIGHTNING? RAIN
407	1983	249	12	51	47.93		30.0066	-93.1461	00.00											2 04 1 U LIGHTNING? RAIN
408	1983	249	12	53	34.81	00.06	29.9981	-93.1739	01.16	00.04		00.01	00.01	137.06	0.011	2	05	0	U	LIGHTNING? RAIN
409	1983	249	12	59	16.25	02.51	30.0786	-93.2425	03.77	00.68		00.13	00.76	033.02	0.083	2	05	0	U	LIGHTNING? RAIN
410	1983	249	13	01	12.21		30.0059	-93.1393	00.00											2 03 1 U LIGHTNING? RAIN
411	1983	249	13	02	40.04	07.17	30.0741	-93.2067	02.89	02.29		00.28	02.10	043.50	0.253	2	05	0	U	LIGHTNING? RAIN
412	1983	249	13	15	54.45	00.19	30.0529	-93.2166	01.18	00.08		00.01	00.06	027.34	0.010	2	05	0	U	LIGHTNING? RAIN
413	1983	249	13	18	25.05	00.87	30.0506	-93.2463	02.53	00.15		00.03	00.25	017.22	0.023	2	05	0	U	LIGHTNING? RAIN
414	1983	249	13	19	19.56		30.0270	-93.2190	00.83											2 04 0 U LIGHTNING? RAIN
415	1983	249	13	21	30.17		30.0236	-93.1609	01.28											2 04 1 U LIGHTNING? RAIN
416	1983	249	13	22	15.57		30.0491	-93.2287	00.00											2 03 0 U LIGHTNING? RAIN

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Moda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TF	COMMENTS
417	1983	249	13	28	30.00	08.08	30.0500	-93.2457	00.96	02.34		00.28	02.67	017.46	0.198	2	05	0	U	LIGHTNING? RAIN
418	1983	249	13	33	25.83	06.04	29.9440	-93.1336	02.42	02.14		00.39	02.17	093.41	0.646	2	05	0	U	LIGHTNING? RAIN
419	1983	249	15	41	20.01		29.6853	-93.4245	00.00							2	03	0	U	LIGHTNING? POOR
420	1983	249	15	56	24.25		29.3605	-93.4762	00.00							2	03	0	U	LIGHTNING? POOR
421	1983	249	16	04	03.06		29.8245	-93.3186	00.00							2	03	0	U	LIGHTNING? RAIN
422	1983	249	16	21	20.55		29.9645	-93.1573	02.92							2	02	0	U	LIGHTNING? RAIN
423	1983	249	16	36	55.87		29.9150	-93.1179	00.00							2	03	0	U	LIGHTNING? RAIN
424	1983	249	16	49	37.97		29.9321	-93.1108	00.00							2	03	0	U	LIGHTNING? RAIN
425	1983	249	16	52	09.70		29.9581	-93.1060	01.45							2	03	0	U	LIGHTNING? RAIN
426	1983	249	16	54	58.23		29.9023	-93.1105	02.41							2	04	0	U	LIGHTNING? RAIN
427	1983	249	16	56	00.45		30.0635	-93.3171	03.07							2	03	0	U	LIGHTNING? POOR
428	1983	249	17	19	24.91		30.0131	-93.1479	00.00							2	03	I	U	LIGHTNING? RAIN
429	1983	249	17	20	00.03		30.0482	-93.1840	02.25							2	03	I	U	LIGHTNING? RAIN
430	1983	249	17	23	42.45	08.95	29.9544	-93.1594	01.23	04.93		00.65	03.20	101.33	1.086	2	05	0	U	LIGHTNING? RAIN
431	1983	249	17	29	40.94	00.45	29.9890	-93.1084	01.03	00.27		00.03	00.17	073.11	0.128	2	05	0	U	LIGHTNING? RAIN
432	1983	249	17	43																LIGHTNING? POOR
433	1983	249	18	17	08.95		29.9517	-93.0322	00.01							2	03	0	U	LIGHTNING? RAIN
434	1983	249	18	23	52.17		30.0316	-93.0580	01.41							2	03	0	U	LIGHTNING? RAIN
435	1983	249	18	36	32.82		29.9919	-93.0924	00.00							1	04	0	B	BLAST, OIL EXPL.
436	1983	249	18	37	38.52		29.9545	-93.0031	00.00							2	03	0	U	BLAST? OR LIGHT
437	1983	249	18	56	41.82		29.9879	-93.2019	04.76							2	03	0	U	BLAST OR LIGHTN
438	1983	249	23	54	18.49		30.0071	-93.1448	01.16							2	04	I	U	LIGHTNING?
439	1983	250	14	42	36.89		30.4846	-92.8883	10.05							2	04	0	U	POSSIB. REGIONAL
440	1983	254	15	51	21.96	00.86	30.0294	-93.1717	08.46	03.21		00.94	01.43	042.94	0.117	1	05	I	E?	EARTHQUAKE?? *
441	1983	254	15	51	23.27		30.0290	-93.1721	05.76	03.06		01.28	01.92	044.20	0.150	3	05	I	E?	SAME EVENT(440)
442	1983	256	14	12	45.96		30.3105	-93.0019	00.00							2	04	0	U	REGIONAL EVENT?

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Moda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
443	1983	258	10	42	15.18		30.0173	-93.1237	00.00							2	03	I	E?	EMERGENT EVENT
444	1983	258	15	19	44.46		29.9173	-93.2908	00.00							2	03	O	U	REGIONAL EVENT?
445	1983	258	16	11	57.40	02.27	30.6940	-92.7905	00.00	00.00	00.78	01.30	018.90	0.254	2	05	O	U	REGIONAL EVENT?	
446	1983	259	17	53	29.45		29.9379	-93.1184	01.72							2	03	O	U	LIGHTNING? RAIN
447	1983	259	17	54																LIGHTNING? RAIN
448	1983	259	17	55	29.99		29.9717	-93.1193	01.22							2	04	O	U	LIGHTNING? RAIN
449	1983	259	18	11	00.50		30.0259	-93.1078	00.17							2	04	I	U	LIGHTNING? RAIN
450	1983	261	20	26	45.48	10.44	29.9301	-93.0157	03.85	01.68	00.30	03.49	042.95	0.237	2	05	O	U	LIGHTNING? RAIN	
451	1983	261	20	45	51.74	10.33	29.9908	-93.0244	00.87	02.30	00.32	03.50	016.25	0.244	2	05	O	U	LIGHTNING? RAIN	
452	1983	262	11	41	09.82		30.0292	-93.1456	05.37							2	03	I	U	WELL NOISE ???
453	1983	262	17	17												04		U		LIGHTNING?NOISLN
454	1983	262	17	18												04		U		LIGHTNING?NOISLN
455	1983	262	17	21	59.08		29.9915	-93.2045	03.28							2	03	O	U	LIGHTNING? RAIN
456	1983	262	17	32	58.68		29.9855	-93.1649	00.00							2	05	O	U	LIGHTNING? RAIN
457	1983	262	18	15	13.15	01.94	29.9161	-93.2111	03.89	00.70	00.09	00.59	122.76	0.097	2	05	O	U	LIGHTNING? RAIN	
458	1983	262	18	25	43.95		29.9909	-93.1445	01.23							2	04	O	U	LIGHTNING? RAIN
459	1983	262	18	30	28.19	00.50	29.9757	-93.1582	01.70	00.23	00.02	00.17	097.39	0.100	2	05	O	U	LIGHTNING? RAIN	
460	1983	262	18	31	05.81	00.18	30.0267	-93.1589	00.36	00.35	00.03	00.09	081.13	0.153	2	05	I	U	LIGHTNING? RAIN	
461	1983	262	18	44	34.04		29.9970	-93.1258	00.00							2	03	O	U	LIGHTNING? RAIN
462	1983	262	18	59	31.24		29.9871	-93.1404	00.00							2	03	O	U	LIGHTNING? RAIN
463	1983	263	17	45	28.86		30.2863	-92.9878	00.00							2	04	O	U	REGIONAL EVENT?
464	1983	264	00	00	18.28		30.0734	-93.1636	02.73							2	03	O	U	LIGHTNING? RAIN
465	1983	264	00	30	42.74		30.1304	-93.0681	03.42							2	04	O	U	LIGHTNING? RAIN
466	1983	264	00	37	55.78		29.9432	-93.1641	00.00							2	03	O	U	LIGHTNING? RAIN
467	1983	279	13	28	30.05		30.0663	-93.0939	00.02							2	03	O	U	FOOR SOLUTION
468	1983	280	22	28												02		U		CPF,CLB ONLY

TABLE 2. SWEET LAKE ARRAY EVENT LOG :

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Mode	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
469	1983	285	08	18	37.37		30.0188	-93.1717	01.24							2	04	I	U	LIGHTNING? RAIN
470	1983	285	08	19	05.95	00.41	30.0557	-93.1430	01.01	00.37		00.04	00.16	078.92	0.126	2	05	I	U	LIGHTNING? RAIN
471	1983	285	08	31	19.90		30.0286	-93.0959	01.12							2	03	O	U	LIGHTNING? RAIN
472	1983	285	08	39	21.33	00.08	30.0816	-93.1120	01.59	00.03		00.01	00.03	059.76	0.010	2	05	O	U	LIGHTNING? RAIN
473	1983	285	08	42	03.33		30.0050	-93.1356	00.00							2	04	I	U	LIGHTNING? RAIN
474	1983	285	08	45	06.95	00.03	30.0063	-93.1184	00.00	00.06		00.01	00.03	074.96	0.078	2	05	I	U	LIGHTNING? RAIN
475	1983	285	08	49	50.62	00.09	30.0071	-93.1397	00.74	00.08		00.02	00.03	103.51	0.087	2	05	I	U	LIGHTNING? RAIN
476	1983	286	15	48																U EMERGENT L.P.
477	1983	286	16	13																U EMERGENT L.P.
478	1983	288	00	15	27.73	02.67	30.2092	-93.5372	00.00	00.00		00.70	00.87	024.88	0.180	2	05	O	U	IMPULSIVE L.P.
479	1983	289	19	40	55.22	00.11	30.1174	-93.2658	12.97	00.24	2.80	00.63	01.29	131.95	0.076	3	11	O	E	Mblq=3.8, MNI= V
480	1983	292	01	28																U EMERGENT L.P.
481	1983	292	16	03	48.42		29.9589	-93.1947	08.51							2	03	O	U	EMERGENT L.P.
482	1983	295	14	09	37.16	01.42	30.9603	-92.7045	00.00	00.00		00.68	01.70	020.73	0.291	2	06	O	U	IMPULSIVE L.P.
483	1983	296	23	54	43.64	29.96	30.1886	-93.0402	06.28	05.46		00.98	09.92	109.05	0.682	2	05	O	U	EMERGENT L.P.
484	1983	297	15	45	24.19		30.6051	-92.6522	00.02							2	03	O	U	EMERGENT L.P.
485	1983	297	19	36	21.31		29.9494	-93.1099	04.52							2	03	O	U	EMERGENT L.P.
486	1983	298	16	40	22.56		31.3199	-92.2998	00.00							2	03	O	U	EMERGENT L.P.
487	1983	299	16	14	25.13	11.12	31.9426	-92.0210	00.00	00.00		01.70	04.36	114.12	0.926	2	05	O	U	IMPULSIVE L.P.
488	1983	301	23	38	55.34		30.0218	-93.1700	02.07							2	03	I	U	EMERGENT L.P.
489	1983	301	23	38	09.14		30.0938	-93.4382	16.30							2	03	O	U	POOR SOLUTION
490	1983	306	17	18																U EMERGENT L.P.
491	1983	307	21	56	04.04		29.9236	-93.2336	01.98							2	03	O	U	EMERGENT L.P.
492	1983	310	13	44	56.63	05.32	29.3057	-93.2465	00.00	00.00		01.75	01.82	161.83	0.384	2	06	O	U	IMPULSIVE(RAIN)
493	1983	310	14	09	58.36	06.04	29.3741	-93.5603	00.00	00.00		01.84	01.95	121.72	0.419	2	06	O	U	LIGHTNING? RAIN
494	1983	310	14	32	46.50	05.23	29.5479	-93.2510	00.00	00.00		00.73	01.85	101.42	0.219	2	05	O	U	LIGHTNING? RAIN

TABLE 2. SWEET LAKE ARRAY EVENT LOG :

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Mode	X AXIS	Y AXIS	AZMUTH	RMS	V	NS	L	TF	COMMENTS
495	1983	310	14	45	21.34	01.85	29.8079	-93.1120	00.00	00.00		00.06	00.64	084.17	0.047	2	05	D	U	LIGHTNING? RAIN
496	1983	310	17	32	38.73	06.60	29.9959	-92.9726	02.50	01.08		00.18	02.19	009.02	0.140	2	05	D	U	LIGHTNING? RAIN
497	1983	313	00	26														U		BLAST? EMERGENT
498	1983	314	14	07	48.17	00.74	29.7217	-93.2325	00.00	00.09		00.42	05.64	143.38	0.124	3	07	D	U	BLAST?
499	1983	314	14	07	45.50	03.46	29.7271	-93.1962	00.00	00.00		00.10	01.51	140.32	0.307	2	05	D	U	SAME AS #498 ??
500	1983	316	02	02	40.46	01.76	29.7192	-93.2191	00.19	01.14		01.35	14.19	143.32	0.463	3	09	D	U	BLAST?POORSDLN
501	1983	316	02	02	38.54	00.73	29.7404	-93.1953	02.44	03.28		00.02	00.15	138.72	0.063	2	05	D	U	SAME AS #500 ??
502	1983	317	10	36														U		BLAST?TAFEMALFN
503	1983	317	10	39														U		SAME AS #502 ??
504	1983	318	23	41	27.99	00.72	29.8146	-93.0820	01.39	00.36		00.67	08.31	144.47	0.287	3	07	D	U	BLAST? EMERGENT
505	1983	318	23	41	20.11	02.40	29.7499	-93.1894	06.35	03.40		00.04	00.47	142.61	0.235	2	09	D	U	SAME AS #504 ??
506	1983	319	12	10														U		BLAST? EMERGENT
507	1983	319	14	07	40.7		30.3555	-92.9505	15.88							2	04	D	U	EMERGENT L.P.
508	1983	320	11	04	37.76	00.84	29.7144	-93.2418	00.03	00.50		00.63	06.56	144.43	0.203	3	09	D	U	BLAST? EMERGENT
509	1983	321	09	10	09.50	00.07	29.7720	-93.1526	02.29	00.15		00.03	00.25	142.70	0.014	1	05	D	U	BLAST? EMERGENT
510	1983	321	09	08	59.43		29.5347	-93.2426	00.00							2	03	D	U	SAME AS #509 ??
511	1983	322	01	24	11.32	01.74	29.7397	-93.1899	00.25	01.35		00.83	09.78	140.53	0.428	1	08	D	U	BLAST? EMERGENT
512	1983	322	01	24	10.33	06.89	29.7447	-93.1947	00.00	00.00		00.23	02.37	102.52	0.146	2	06	D	U	SAME AS #511 ??
513	1983	325	12	16	46.24	04.49	29.6688	-93.2911	01.72	01.16		01.32	20.30	141.55	0.508	1	08	D	U	BLAST? EMERGENT
514	1983	325	12	17	11.51		29.8202	-93.1832	03.77							2	03	D	U	SAME AS #513 ??
515	1983	326	00	18	51.68	00.50	29.4694	-93.5157	03.07	00.13		00.41	01.96	138.06	0.069	1	05	D	U	BLAST? EMERGENT
516	1983	326	00	19	11.01	18.28	29.7837	-93.1999	03.23	08.03		00.86	06.32	102.48	0.368	2	05	D	U	SAME AS #515 ??
517	1983	327	11	52	17.45		29.8166	-93.3576	04.94							2	04	D	U	LIGHTNING? RAIN
518	1983	327	12	00	37.68	06.13	29.9927	-93.1879	00.00	01.90		00.40	02.34	136.25	1.150	2	05	D	U	LIGHTNING? RAIN
519	1983	327	12	06	30.87	03.32	30.0374	-93.1697	00.00	06.79		00.40	01.43	069.83	1.533	2	05	I	U	LIGHTNING? RAIN
520	1983	328	18	32	09.73	01.27	29.7252	-93.2420	00.00	00.90		00.56	07.80	145.64	0.240	1	08	D	U	BLAST? EMERGENT

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Moda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS			
521	1983	329	22	47															U	BLAST? EMERGENT			
522	1983	329	22	48															U	EMERGENT L.P.			
523	1983	333	18	25	46.11	02.82	29.7091	-93.2429	00.00	02.67		01.33	16.09	141.30	0.582	1	08	0	U	BLAST? EMERGENT			
524	1983	336	03	12																TELE-GUATEMALA			
525	1983	338	03	52	32.22	00.26	30.0918	-93.2457	07.85	01.10	1.43	01.31	01.82	006.85	0.117	3	08	0	E	AFTERSHOCK ???			
526	1983	339	04	45	18.45	00.26	30.1016	-93.2648	07.29	01.57	0.75	01.53	01.76	031.06	0.133	3	09	0	E	AFTERSHOCK ???			
527	1983	340	17	26	42.75		30.2653	-92.4965	00.12										2	03	0	U	IMPULSIVE L.P.
528	1983	342	16	20	14.80		29.2161	-93.9266	00.00										2	03	0	U	EMERGENT L.P.
529	1983	343	16	22																U	EMERGENT L.P.		
530	1983	343	16	24																U	EMERGENT L.P.		
531	1983	343	20	10	21.24		29.7297	-93.4583	14.79	34.70									2	03	0	U	EMERGENT L.P.
532	1983	343	22	27																U	EMERGENT L.P.		
533	1983	348	17	28	39.45	11.56	31.4764	-92.9479	00.00	00.00		00.76	03.77	092.09	0.352	2	07	0	U	LONG PERIOD			
534	1983	348	20	06	38.35	84.16	29.6129	-93.5144	17.06	111.0		29.89	46.64	092.25	6.344	2	05	0	U	POOR, EMERGENT			
535	1983	348	20	19	09.80		29.5177	-93.6144	00.00										2	03	0	U	EMERGENT, POOR
536	1983	349	15	15	36.57	01.71	30.7999	-92.5285	00.00										2	03	0	U	VR60 REC'S USED
537	1983	355	12	14	22.62	06.83	29.3199	-93.4875	00.83	02.41		05.40	28.46	129.36	0.803	1	06	0	U	LONG-PERIOD			
538	1983	355	12	24	12.01		31.0699	-93.2132	00.00										1	03	0	U	LONG-PERIOD

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MM	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Moda	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS	
539	1984	004	17	35	27.93	12.61	29.3786	-93.9860	00.00	00.00		00.37	04.41	150.31	0.287	2	05	0	U	CONSTRAINED @ 0	
540	1984	005	13	18	14.83	03.15	32.7392	-91.8305	00.00	00.00		13.33	00.18	112.22	0.787	2	05	0	U	CONSTRAINED @ 0	
541	1984	005	22	13													05	0	U	EMERGENT L.P.	
542	1984	009	11	37	53.56		29.9331	-93.4637	00.00								2	03	0	U	VERY SMALL
543	1984	009	11	43	22.23		29.7674	-93.3512	00.00								2	03	0	U	BLAST-LIKE
544	1984	009	11	51													06	U	U	EMERGENT	
545	1984	009	12	11	13.08		30.0184	-93.4909	00.00								2	04	0	U	EMERGENT L.P.
546	1984	009	12	17													06	U	U	EMERGENT L.P.	
547	1984	009	12	33	27.21		29.2552	-93.6498	00.00								2	03	0	U	EMERGENT, SMALL
548	1984	009	14	47														U	U	EMERGENT L.P.	
549	1984	009	15	48	02.50	01.86	29.8782	-93.1333	00.00	00.00		00.06	00.65	088.02	0.086	2	05	0	U	LIGHTNING?	
550	1984	009	16	42	34.60		30.0370	-93.1076	00.00								2	05	I	U	POOR, EMERGENT
551	1984	009	23	26	23.42	08.11	29.9762	-93.9054	00.00	00.01		03.59	14.74	026.39	1.656	2	05	0	U	EMERGENT L.P.	
552	1984	009	23	43	00.76		30.1195	-93.1777	01.30								2	03	0	U	LIGHTNING?
553	1984	009	23	45													03	U	U	LIGHTNING? POOR	
554	1984	009	23	49	01.11		30.1483	-93.2172	00.00						0.428	2	03	0	U	LIGHTNING?	
555	1984	009	23	59	11.86		29.9541	-93.5571	00.00								2	03	0	U	LIGHTNING? POOR
556	1984	010	00	06	49.47		30.3768	-93.9264	00.00						0.299	2	03	0	U	EMERGENT	
557	1984	010	00	11	37.61		30.0142	-93.4068	03.16								2	03	0	U	
558	1984	010	00	13	47.46	04.81	29.9953	-93.3251	00.00	00.01		00.25	01.65	174.10	0.120	2	05	0	U	LIGHTNING?	
559	1984	010	00	17													03	U	U	EMERGENT L.P.	
560	1984	010	00	27													06	U	U	LIGHTNING? POOR	
561	1984	010	00	34													06	U	U	LIGHTNING? POOR	
562	1984	010	00	39													06	U	U	LIGHTNING? POOR	
563	1984	010	00	45	32.33	13.75	30.1162	-93.0877	00.00	00.64		00.53	04.83	105.95	0.831	2	06	0	U	LIGHTNING? POOR	
564	1984	010	00	49													06	U	U	LIGHTNING? POOR	

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Mode	X AXIS	Y AXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS	
565	1984	010	00	53													06	U	U	LIGHTNING? POOR	
566	1984	010	00	11													06	U	U	LIGHTNING? POOR	
567	1984	012	20	14													05	U	U	EMERGENT L.P.	
568	1984	014	00	18	47.65	00.17	30.0264	-93.1897	11.22	00.57	0.73	01.04	01.61	094.86	0.179	3	06	I	E	AFTERSHOCK ???	
569	1984	015	18	17	22.62		29.7523	-93.4796	00.00						0.373	2	03	O	U	EMERGENT L.P.	
570	1984	018	14	25	36.00		29.4326	-93.7779	00.00								2	03	O	U	LIGHTNING?
571	1984	018	14	26	43.74		29.4645	-93.7053	00.00								2	03	O	U	LIGHTNING?
572	1984	018	14	33	11.01		29.4667	-93.5763	00.00								2	05	O	U	LIGHTNING? POOR
573	1984	018	14	39	13.05		29.9818	-93.1492	00.00								2	04	O	U	LIGHTNING?
575	1984	018	14	40													04	U	U	LIGHTNING?	
575	1984	018	15	02													04	U	U	LIGHTNING?	
576	1984	019	03	50													06	U	U	EMERGENT L.P.	
577	1984	024	10	23	26.34	03.62	29.3221	-93.7189	00.00	00.00		01.15	02.42	035.78	0.453	2	06	O	U	EMERGENT, SMALL	
578	1984	025	17	14	08.63		30.5668	-92.8411	00.00								2	04	O	U	L.P.
579	1984	025	19	09	41.30	05.39	30.6993	-93.0704	00.00	00.01		01.78	01.74	090.00	0.389	2	05	O	U	L.P.	
580	1984	025	21	07	55.31		29.3282	-94.0046	00.00								2	03	O	U	L.P.
581	1984	027	16	12	57.03	02.40	29.5689	-93.6096	00.00	00.01		00.89	01.66	044.25	0.321	2	05	O	U	L.P.	
582	1984	027	17	25	55.01		30.3990	-92.7475	00.00								2	04	O	U	L.P.
583	1984	030	20	15													06	U	U	EMERGENT L.P.	
584	1984	031	16	11													03	U	U	EMERGENT L.P.	
585	1984	034	19	18	03.32	05.73	29.9585	-93.4599	15.07	02.31		01.80	02.01	145.18	0.437	2	05	O	U	L.P.	
586	1984	035	14	04	48.48	05.24	32.2912	-91.7900	02.96	04.28		01.94	02.14	011.98	0.829	2	05	O	U	L.P.	
587	1984	037	19	20	43.04	02.82	30.8018	-93.0577	00.00	00.00		00.88	00.88	090.00	0.208	2	06	O	U	LONG-PERIOD	
588	1984	039	00	25	26.37		29.4137	-93.9354	00.00								2	05	O	U	L.P., EMERGENT
589	1984	044	14	13	18.62		30.6065	-92.8326	00.00								2	04	O	U	L.P.
590	1984	055	19	51	57.71		31.6350	-92.3631	00.00								2	04	O	U	L.P.

TABLE 2. SWEET LAKE ARRAY EVENT LOG

NO.	YEAR	DAY	HR	MIN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Mcode	XAXIS	YAXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
591	1984	056	17	25	15.47		29.7822	-93.3166	00.00							2	03	0	U	L.P.
592	1984	059	14	27	16.43		30.5827	-92.8924	00.00							2	03	0	U	L.P.
593	1984	059	19	07	30.69	10.70	30.5609	-93.0146	00.00	00.01		01.64	03.66	100.67	0.535	2	05	0	U	L.F.
594	1984	061	01	53	03.50	08.25	29.3044	-93.8278	00.00	00.01		00.84	09.78	040.32	1.459	2	05	0	U	EMERGENT LP
595	1984	061	01	55	53.31		29.5800	-93.7077	00.00							2	05	0	U	
596	1984	067	01	50	01.92	00.00	29.3437	-93.9055	00.00	00.01		00.85	04.84	045.76	0.695	2	05	0	U	EMERGENT LP
597	1984	068	20	35	33.76		29.5538	-93.6023	00.00							2	04	0	U	EMERGENT LP
598	1984	072	11	40	17.33	04.97	29.9426	-93.0892	00.00	00.43		00.23	01.76	066.62	0.384	2	04	0	U	LIGHTNING? RAIN
599	1984	080	22	35	49.41		29.4611	-93.4070	00.00							2	04	0	U	
600	1984	082	00	21	11.79	00.54	29.4300	-93.2704	03.64	00.17		01.98	08.10	011.10	0.279	1	06	0	U	
601	1984	082	20	46	02.86	03.39	29.7983	-93.4113	05.05	03.73		00.66	01.44	127.98	0.170	2	05	0	U	
602	1984	089	15	09	08.49	04.80	31.9629	-91.9851	00.00	CNSTR		00.54	01.25	115.57	0.333	*	06	0	U	L.P.

SWEET LAKE ARRAY EVENT LOG FOR APRIL, 1984

NO.	YEAR	DAY	HR	MN	SEC	ERT	N. LAT	W. LONG	DEPTH	ERZ	Node	X AXIS	Y AXIS	AZMUTH	RMS	V	NS	L	TP	COMMENTS
602	1984	099	17	50	29.77		30.6831	-92.7830	00.00							2	03	0	U	L.P.
604	1984	102	22	17	34.97		30.5292	-92.8682	00.00							2	05	0	U	L.P.
605	1984	108	18	45	22.56	00.94	30.6970	-92.8191	00.00			01.49	00.03	111.69	0.166	2	05	0	U	L.P.

TABLE 3

VELOCITY MODEL #1
SWEET LAKE
SEISMIC MONITORING NETWORK

Velocity (km/sec)	Depth Interval (km)
1.530	0.00 - 0.08
1.710	0.08 - 0.15
1.800	0.15 - 0.27
2.050	0.27 - 0.60
2.257	0.60 - 1.20
2.620	1.20 - 2.28
2.891	2.28 - 4.99
3.182	4.99 - 6.00
3.409	6.00 - 7.00
3.636	7.00 +

P-Wave: S-wave velocity ratio equals 1.66:1.00.

ALTERNATIVE "SLOW WAVE"*
VELOCITY MODEL #2 FOR
THE SLSMN

Wave Velocity (km/sec)	Depth Interval (km)
0.342	0.00+

* slow waves are assumed to be long-period Rayleigh (L_R) waves.

TABLE 3 (cont'd)

1.732

1.66

VELOCITY MODEL #3

EAST TEXAS BASIN

AS USED AT UNIVERSITY OF TEXAS - AUSTIN

Velocity <u>(km/sec)</u>	Depth Interval <u>(km)</u>
2.2	0.0 - 1.0
3.4	1.0 - 3.0
4.5	3.0 - 5.0
5.4	5.0 - 15.0
6.8	15.0 - 35.0
8.2	35.0 +

TABLE 4

KEY TO EVENT LOG INFORMATION

NO.	Reference number of the event for a given month.
YEAR	Year of occurrence.
DAY	Julian day of the event.
HR MIN SEC	Hour, minute and second of the origin time, expressed in Universal Time Coordinated (UTC). (6 p.m. CST = 00:00.00 UTC).
ERT	Standard deviation of the origin time, in seconds. Given for all event locations using 5 or more stations.
N. LAT	North latitude of event, in degrees.
W. LONG	West longitude of event, in degrees.
DEPTH	Depth to focus, in km.
ERZ	Standard deviation of focal depth in km. Given for all events located with 5 or more stations.
M coda	Computed duration (coda) magnitude of event: $M_{\text{coda}} = 2.28 \log(T) - 2.22$ T = average duration of event.
XAXIS	Coordinates of the error ellipse of one standard deviation about the
YAXIS	calculated epicenter), in km.
AZMUTH	Orientation (degrees clockwise from north) of the XAXIS of the error ellipse.
RMS	Root-mean-square travel time error, in seconds.
V	Velocity model used for event location. (1 or 2) See Table 3.
NS	Number of stations used to locate event (up to 8).
L	Location of event with respect to the seismometer network, I = inside network O = outside network
TP	Type of event: E Earthquake E? Possible earthquake B Blast P Possible event, not located LP Long period event, usually emergent arrival U Unknown source
Comments	Additional information for the event.

APPENDIX A

LIST OF EVENTS PLOTTED ON FIGURES 20a,b,c,d

ALL SWEET LAKE EVENTS

THAT ARE PLOTTED

HEADER	LAT.	LONG.	DEPTH	MAGNITUDE	STATIONS
81 156 17 7 45.31	30 0 44.28	93 7 24.24	6.83	.00	5
81 156 17 8 39.07	30 0 52.20	93 7 14.16	1.26	.00	5
81 156 17 10 19.29	30 3 39.96	93 7 17.76	7.23	.00	5
81 156 17 11 22.02	30 1 56.28	93 6 7.56	.00	.00	5
81 162 1 8 19.99	30 0 13.32	93 9 53.64	.00	.00	5
81 162 2 57 49.07	30 0 33.48	93 11 1.32	.00	.00	6
81 162 5 45 21.63	30 3 16.92	93 3 15.48	3.12	.00	5
81 162 5 47 59.68	30 1 6.96	93 5 3.48	.55	.06	5
81 162 20 44 54.58	29 59 23.20	93 7 22.44	.42	.00	5
81 162 21 56 18.84	30 1 17.76	93 1 25.68	4.05	.00	5
81 162 22 2 1.87	30 3 .36	93 1 36.12	3.89	.00	5
81 162 22 19 46.13	30 1 51.60	93 9 38.88	.28	.01	7
81 162 23 9 43.76	30 2 45.96	93 13 41.50	.65	.00	6
81 186 14 20 30.13	30 3 15.12	93 6 42.48	.90	.00	6
81 186 14 21 32.49	30 0 47.16	93 6 15.12	.00	.00	5
81 186 14 28 26.07	29 57 53.60	93 5 34.80	.89	.00	5
81 186 14 46 16.77	30 1 3.00	93 3 59.40	.00	.00	5
81 186 14 47 33.45	29 57 38.50	93 4 27.84	2.25	.00	5
81 186 14 49 35.21	29 59 57.10	93 4 45.84	.00	.00	5
81 193 13 11 26.09	30 1 23.88	93 10 49.40	.08	.00	5
81 207 18 25 41.95	30 2 29.76	93 9 59.04	1.02	.00	7
81 207 18 28 16.67	30 2 28.68	93 10 30.70	1.35	.00	5
81 207 18 29 .04	30 1 13.44	93 9 50.76	.85	.00	5
81 207 18 29 42.45	30 0 52.92	93 10 11.20	.62	.00	5
81 207 18 50 35.56	30 0 38.16	93 8 19.32	.26	.00	5
81 207 18 52 26.41	30 2 13.56	93 7 48.00	4.98	.00	5
81 207 18 53 19.31	30 0 1.44	93 8 48.48	.00	.00	5
81 220 2 9 20.28	29 59 41.20	93 8 14.28	.83	.85	5
81 225 18 39 15.53	29 58 8.76	93 10 26.40	2.20	.41	5
81 309 9 56 55.83	29 59 29.70	93 11 18.60	.00	.00	5
81 313 0 19 18.47	30 1 1.56	93 12 53.20	.98	.00	5
81 313 0 23 15.08	30 1 26.04	93 10 54.80	1.38	.00	5
81 313 0 25 56.22	30 1 38.64	93 9 39.96	2.35	.00	5
81 342 20 13 1.38	29 59 59.20	93 7 59.52	1.84	.00	5
81 342 20 24 38.03	30 0 3.96	93 7 59.88	1.89	.00	6
81 343 13 47 1.14	30 0 7.92	93 8 43.80	4.88	.00	5
81 353 7 32 34.78	30 3 51.84	93 10 37.50	1.68	.00	7
82 33 20 51 41.23	30 2 15.72	93 11 33.30	.00	.85	5
82 33 21 30 36.92	30 3 2.16	93 12 1.08	.03	.00	5
82 33 22 9 12.84	29 59 18.60	93 9 16.56	2.51	.64	5
82 33 22 15 44.28	30 2 15.72	93 12 11.50	1.27	.65	6
82 34 2 41 26.69	29 59 2.04	93 12 15.40	.00	1.07	6
82 82 3 39 49.53	29 59 52.80	93 8 31.56	1.55	.86	6
82 82 9 58 17.32	29 58 17.70	93 10 26.70	.00	1.50	5
82 82 22 21 9.96	29 58 32.10	93 12 22.60	.00	.96	6
82 82 23 11 20.80	30 0 47.88	93 9 26.64	.00	.19	5
82 100 3 14 10.50	30 2 24.36	93 8 2.40	.00	.17	5
82 100 3 24 30.07	30 2 14.28	93 6 37.80	.72	.36	6
82 100 4 9 14.29	29 58 8.40	93 3 37.08	1.40	.04	6
82 107 12 8 40.93	30 3 8.28	93 9 38.52	2.14	.04	5
82 107 12 9 13.52	30 2 28.68	93 9 27.72	3.18	.48	5
82 107 12 11 37.54	30 4 34.32	93 7 56.28	1.89	.27	5
82 107 12 13 51.57	29 59 50.20	93 7 49.44	.00	.11	5
82 107 12 17 47.24	30 4 28.56	93 7 41.88	6.60	.00	6
82 107 12 18 34.89	30 2 10.68	93 7 4.80	6.04	.00	5
82 107 12 20 24.05	30 1 32.88	93 9 57.60	.26	.00	5
82 107 12 24 6.19	30 4 26.04	93 6 42.12	.93	1.25	7
82 107 12 24 30.74	30 2 22.56	93 6 5.04	5.00	.89	6
82 107 12 25 16.93	30 1 50.16	93 9 15.12	.00	.07	6
82 107 12 26 2.74	30 0 46.80	93 9 7.92	1.67	.05	5

82 107 12 29 32.11	29 59 32.20	93 11 44.80	.46	.45	5
82 107 12 30 25.70	30 0 8.64	93 9 48.94	2.02	.00	6
82 107 12 30 59.43	30 2 42.72	93 9 51.12	1.62	1.00	5
82 107 12 32 4.04	30 3 51.48	93 8 13.20	5.63	1.00	5
82 107 12 36 53.57	29 59 17.80	93 10 22.80	1.26	1.00	5
82 107 12 47 56.79	29 59 42.70	93 13 8.74	.00	.35	5
82 107 12 55 22.59	30 1 4.44	93 10 9.48	.94	.67	5
82 107 12 56 1.20	29 58 53.70	93 10 10.50	2.63	.23	5
82 107 13 0 2.68	29 58 33.90	93 10 8.40	1.36	.27	6
82 107 13 1 9.24	30 1 11.64	93 7 22.80	1.18	.00	5
82 107 13 1 16.05	30 0 48.60	93 7 22.44	.00	.56	5
82 107 13 9 2.04	30 3 28.80	93 5 51.72	1.84	.07	7
82 107 13 10 14.52	29 59 5.28	93 10 11.60	1.15	.25	7
82 107 13 17 21.33	30 3 20.16	93 3 16.56	1.82	.55	5
82 107 13 39 46.49	30 0 4.32	93 6 54.72	.52	.26	5
82 111 13 7 21.36	30 3 37.80	93 5 55.68	1.49	.03	5
82 134 0 10 55.51	30 1 33.60	93 10 30.00	1.08	.12	5
82 134 0 13 16.06	30 1 40.08	93 9 56.16	.88	.14	5
82 134 1 20 16.24	30 3 47.88	93 9 10.44	.98	.16	5
82 134 1 37 4.50	30 0 9.72	93 8 54.24	.13	.12	6
82 134 1 39 25.56	30 1 37.56	93 9 22.68	1.57	1.15	6
82 134 2 49 22.30	30 2 11.40	93 10 8.76	.00	.10	7
82 134 2 55 10.90	30 2 32.64	93 5 46.32	.00	.24	7
82 134 2 59 31.17	30 4 9.84	93 5 26.88	.72	.42	5
82 134 4 53 .17	30 0 33.84	93 5 33.72	.00	.03	6
82 170 20 6 23.03	30 2 16.80	93 8 58.20	.48	.13	6
82 180 19 17 9.35	29 58 31.40	93 1 13.80	4.24	.00	5
82 181 19 56 40.29	30 0 11.88	93 5 21.84	2.68	1.04	6
82 197 9 6 3.33	29 57 53.60	93 3 39.96	2.33	.56	6
82 197 9 15 54.72	29 58 3.72	93 3 42.12	1.90	1.12	5
82 197 9 27 8.19	29 57 36.70	93 4 26.04	2.00	.47	5
82 198 15 22 7.12	29 58 56.20	93 4 46.20	.00	.77	5
82 198 15 28 11.32	30 3 24.84	93 7 51.96	.00	.11	5
82 198 15 29 42.24	29 58 18.40	93 10 59.80	2.33	.13	5
82 198 15 30 25.30	30 3 54.36	93 7 33.24	2.49	.25	5
82 198 15 33 38.55	30 2 40.92	93 6 57.24	.85	.14	6
82 198 15 36 39.17	30 1 31.80	93 7 13.44	.00	.41	6
82 198 15 40 49.36	30 0 10.80	93 5 20.76	.00	.24	6
82 198 15 42 22.93	30 2 31.92	93 7 15.96	2.12	.43	5
82 198 15 51 39.44	30 0 10.08	93 3 57.60	.00	.27	5
82 198 15 52 33.76	30 0 2.52	93 4 50.16	.51	.39	5
82 198 15 53 36.07	30 0 13.68	93 4 4.80	.00	.07	6
82 198 16 12 12.31	30 2 19.32	93 4 51.24	1.81	1.13	5
82 199 13 14 25.27	30 3 20.16	93 7 57.72	.00	.15	6
82 199 13 16 39.03	30 3 57.96	93 10 41.10	2.07	.01	6
82 199 13 19 54.78	30 3 27.36	93 10 3.72	.92	.12	6
82 199 13 21 3.55	30 1 53.40	93 10 5.52	.00	.28	6
82 199 13 22 9.74	30 3 23.76	93 9 19.80	.91	.09	5
82 199 14 25 45.59	30 3 54.00	93 7 8.04	3.44	.18	5
82 199 14 52 13.53	29 58 1.56	93 7 13.08	.89	.10	5
82 199 15 6 46.15	29 58 23.50	93 4 22.44	.00	.34	6
82 199 15 34 3.04	29 59 23.60	93 9 29.16	2.45	.01	5
82 202 1 11 45.68	29 58 9.84	93 4 36.84	.27	.35	6
82 206 15 38 37.42	29 59 51.70	93 8 57.12	1.26	.00	5
82 206 15 46 22.37	30 1 5.88	93 6 58.68	.00	.44	5
82 206 15 48 44.23	30 0 26.28	93 10 48.30	.55	.00	5
82 206 15 49 42.29	30 0 37.44	93 11 40.50	1.71	.15	5
82 210 23 47 44.81	30 0 48.60	93 6 31.68	1.30	.55	5
82 211 17 47 20.32	30 4 11.64	93 3 42.48	1.80	.10	5
82 211 17 50 10.94	30 4 32.16	93 1 53.40	4.37	.00	5

82	212	13	54	8.21	29	58	29.60	93	8	6.72	.94	.63
82	217	15	21	37.49	29	59	50.60	93	1	37.56	.00	.39
82	217	21	44	53.75	29	57	12.20	93	1	18.12	.00	.89
82	219	1	1	16.01	30	0	57.96	93	8	4.20	1.40	.29
82	219	1	4	28.72	29	59	16.40	93	6	55.80	.84	.23
82	220	15	17	15.82	30	0	13.32	93	5	25.44	.00	.73
82	221	7	51	14.86	29	59	16.40	93	11	3.12	2.12	.00
82	221	7	59	31.54	29	59	42.30	93	6	34.20	.00	.63
82	221	8	2	57.98	30	0	.36	93	6	19.08	.74	.48
82	221	8	6	19.97	29	58	29.60	93	7	34.68	.00	.55
82	221	8	10	22.31	30	0	51.84	93	6	15.84	.64	.15
82	221	8	28	54.64	30	2	51.72	93	4	50.88	4.90	.00
82	228	18	21	20.00	29	59	32.60	93	4	32.52	.79	.34
82	228	18	50	37.98	30	4	2.64	93	7	15.24	.00	.00
82	228	18	52	57.00	30	4	22.08	93	8	42.00	1.52	.00
82	228	18	57	14.13	30	0	31.68	93	7	5.52	.00	.00
82	228	19	6	41.25	30	0	1.44	93	10	32.80	.78	1.00
82	228	19	15	5.72	30	0	43.92	93	14	3.48	.00	.00
82	243	17	25	54.08	30	1	35.04	93	3	47.16	.00	.00
82	260	1	34	37.45	29	58	54.40	93	1	42.24	3.05	1.11
82	263	3	30	3.89	30	1	17.04	93	14	41.20	2.37	.27
82	263	3	39	16.93	30	4	30.00	93	12	10.80	2.06	.00
82	263	16	47	39.06	30	0	28.80	93	10	36.40	1.10	.12
82	278	21	36	5.99	29	59	48.40	93	6	21.96	.00	.00
82	317	7	16	31.16	29	57	12.90	93	14	33.70	7.00	.71
82	337	13	12	53.48	29	58	1.92	93	10	.12	2.93	.00
82	342	17	1	46.02	29	57	15.10	93	12	31.30	2.85	.00
82	356	13	41	.03	30	0	2.16	93	12	45.00	1.97	.00
82	360	11	48	52.16	29	59	17.10	93	4	15.60	3.08	1.00
83	89	6	35	18.77	29	59	32.64	93	14	19.68	.00	.60
83	89	7	8	26.38	29	58	13.80	93	8	29.41	.00	.50
83	89	7	11	1.97	29	58	53.40	93	7	28.19	.00	.00
83	89	18	22	40.90	30	3	1.08	93	7	48.73	.00	.00
83	89	18	27	51.15	30	2	27.96	93	3	37.80	.00	.20
83	89	18	53	9.19	29	59	54.60	93	7	1.19	2.43	.90
83	95	14	36	14.43	30	1	41.88	93	8	34.08	.59	.05
83	130	12	16	57.65	30	3	29.16	93	10	9.85	.00	.55
83	141	0	57	48.96	30	0	3.24	93	8	1.67	.00	.07
83	141	2	7	38.25	30	0	54.36	93	7	.83	.91	1.00
83	141	2	32	50.33	29	59	41.28	93	9</			

83 177	8 47	47.91	29 58	30.72	93 9	21.24	.46	.00	5
83 177	8 51	27.56	29 58	53.40	93 9	.01	.86	.00	5
83 177	8 54	11.50	29 59	32.64	93 7	16.32	.63	.00	5
83 177	8 57	53.50	30 0	15.48	93 6	4.69	1.39	.00	5
83 177	9 3	24.10	30 2	8.52	93 5	35.52	.86	.00	5
83 177	9 25	25.39	30 1	59.16	93 8	39.13	.39	.00	5
83 177	9 29	23.54	30 2	21.48	93 8	47.40	.82	.00	5
83 177	9 30	26.03	30 2	21.48	93 8	43.09	.66	.00	5
83 199	9 36	29.65	30 1	35.40	93 7	2.29	.00	.00	6
83 199	9 37	43.22	30 1	6.60	93 7	35.05	.00	.00	5
83 199	9 38	47.81	30 1	30.72	93 7	20.99	.00	.00	5
83 199	9 39	48.03	30 0	47.52	93 8	27.60	.21	.00	6
83 201	21 20	12.73	30 2	9.24	93 7	54.47	.46	.00	5
83 201	21 37	42.74	30 0	2.88	93 8	14.27	2.55	.00	5
83 201	21 41	10.57	30 1	7.68	93 8	34.79	.18	.00	5
83 201	21 56	25.22	30 0	13.32	93 9	8.99	1.29	.00	5
83 210	2 21	5.84	30 0	18.36	93 7	32.88	.64	.00	5
83 210	2 21	36.00	29 58	11.28	93 8	28.67	.00	.00	6
83 210	2 27	22.00	30 0	6.12	93 9	26.65	1.08	.00	5
83 218	18 5	27.89	30 1	12.36	93 4	59.87	.75	.00	5
83 221	8 54	.11	29 57	16.92	93 4	54.13	.81	.00	5
83 223	11 32	31.47	29 59	48.12	93 9	37.44	.00	.00	5
83 223	13 0	37.15	29 58	10.92	93 7	36.48	.33	.00	5
83 223	15 57	19.33	30 0	6.12	93 5	16.43	.00	.00	5
83 224	13 45	1.58	30 4	18.48	93 9	25.55	1.79	.00	5
83 249	11 57	33.89	29 59	22.20	93 5	52.08	2.20	.00	5
83 285	8 19	5.95	30 3	20.52	93 8	34.79	1.01	.00	5
83 285	8 45	6.95	30 0	22.68	93 7	6.24	.00	.00	5
83 285	8 49	50.62	30 0	25.56	93 8	22.93	.74	.00	5
83 327	12 0	37.68	29 59	37.32	93 11	16.43	.00	.00	5
83 327	12 6	30.87	30 2	14.64	93 10	10.92	.00	.00	5
24 014	0 18	47.65	30 1	35.04	93 11	22.91	11.22	.73	8

APPENDIX B

DISTANCE OF EACH LOCATED EVENT
FROM THE SWEET LAKE AMOCO FEE #1
TEST WELL

DISTANCE OF ALL EVENTS FROM SWEET LAKE WELL SITE, IN KM

YR	DAY	HR	MIN	SEC	DIST	YR	DAY	HR	MIN	SEC	DIST	YR	DAY	HR	MIN	SEC	DIST
81	156	17	7	45.31	1.27 KM	81	156	17	8	39.07	1.54 KM	81	156	17	12	40.69	10.93 KM
81	156	17	10	19.29	5.44 KM	81	156	17	11	22.02	3.90 KM	81	156	17	12	40.69	10.93 KM
81	160	19	0	22.50	66.84 KM	81	161	20	42	5.09	5.16 KM	81	161	21	23	33.38	4.84 KM
81	162	1	8	19.99	2.96 KM	81	162	1	54	56.50	10.79 KM	81	162	2	4	43.57	.63 KM
81	162	2	5	15.83	12.71 KM	81	162	2	57	49.07	4.58 KM	81	162	4	12	59.77	9.95 KM
81	162	4	52	48.08	52.31 KM	81	162	4	55	56.25	7.28 KM	81	162	5	22	47.70	25.05 KM
81	162	5	45	21.63	9.13 KM	81	162	5	47	59.68	5.06 KM	81	162	6	1	37.78	3.17 KM
81	162	6	3	31.05	26.89 KM	81	162	6	4	31.23	26.47 KM	81	162	6	10	53.48	24.83 KM
81	162	6	52	50.47	11.32 KM	81	162	6	52	38.98	31.78 KM	81	162	6	57	36.63	12.78 KM
81	162	7	4	14.04	3.61 KM	81	162	8	4	25.33	25.11 KM	81	162	20	44	54.58	2.97 KM
81	162	21	17	56.54	43.22 KM	81	162	21	25	50.21	10.54 KM	81	162	21	28	5.75	23.21 KM
81	162	21	28	56.05	12.97 KM	81	162	21	29	4.88	17.20 KM	81	162	21	55	37.95	9.37 KM
81	162	21	56	18.04	10.91 KM	81	162	21	56	43.05	17.62 KM	81	162	21	58	52.39	40.97 KM
81	162	22	2	1.87	11.33 KM	81	162	22	19	46.13	3.02 KM	81	162	23	9	43.76	9.54 KM
81	186	14	20	30.13	5.07 KM	81	186	14	21	32.49	3.12 KM	81	186	14	26	10.23	14.06 KM
81	186	14	28	26.07	6.86 KM	81	186	14	46	16.77	6.77 KM	81	186	14	47	33.45	8.40 KM
81	186	14	49	35.21	5.74 KM	81	186	15	25	30.00	9.30 KM	81	186	18	41	36.53	16.26 KM
81	186	19	3	33.09	14.84 KM	81	186	20	28	36.41	14.09 KM	81	186	21	1	20.65	47.64 KM
81	186	21	17	29.77	6.39 KM	81	189	12	24	36.14	20.22 KM	81	189	12	34	58.70	19.65 KM
81	189	12	47	54.97	20.85 KM	81	189	12	50	35.36	18.25 KM	81	189	14	15	11.31	4.27 KM
81	192	0	45	50.95	38.36 KM	81	192	1	8	51.38	18.10 KM	81	193	13	11	26.09	4.36 KM
81	195	21	46	1.80	1.68 KM	81	196	18	56	17.03	29.61 KM	81	196	18	58	31.28	6.28 KM
81	197	18	15	53.01	1.32 KM	81	197	18	16	15.72	1.18 KM	81	206	19	23	49.06	1.31 KM
81	207	17	13	22.81	19.23 KM	81	207	18	25	41.95	4.22 KM	81	207	18	28	16.67	4.82 KM
81	207	18	29	.04	2.76 KM	81	207	18	29	42.45	3.21 KM	81	207	18	46	1.68	18.09 KM
81	207	18	49	7.36	9.69 KM	81	207	18	49	56.55	5.47 KM	81	207	18	50	35.56	.41 KM
81	207	18	51	56.78	2.94 KM	81	207	18	52	26.41	2.66 KM	81	207	18	53	19.31	1.79 KM
81	208	19	37	11.46	.72 KM	81	208	19	44	2.39	33.66 KM	81	208	19	47	38.71	18.09 KM
81	211	23	53	33.72	9.60 KM	81	212	0	36	48.69	31.32 KM	81	212	1	10	20.64	19.98 KM
81	212	1	14	24.52	19.23 KM	81	214	0	37	13.09	2.99 KM	81	220	1	44	18.03	2.88 KM
81	220	1	53	10.66	6.60 KM	81	220	2	2	46.77	3.76 KM	81	220	2	4	14.72	3.04 KM
81	220	2	8	9.81	2.90 KM	81	220	2	9	20.28	2.11 KM	81	220	2	12	23.62	6.05 KM
81	225	18	29	30.69	6.01 KM	81	225	18	39	15.53	6.14 KM	81	226	10	41	16.27	10.42 KM
81	233	13	39	40.34	113.08 KM	81	241	9	44	3.58	6.01 KM	81	241	10	35	25.34	2.25 KM
81	241	10	36	21.36	17.90 KM	81	241	10	39	58.28	3.65 KM	81	245	18	12	1.43	.74 KM
81	245	18	13	6.09	1.64 KM	81	245	18	13	34.90	1.46 KM	81	245	18	14	16.77	8.35 KM
81	245	18	14	28.02	2.79 KM	81	245	18	15	17.29	5.81 KM	81	245	18	16	1.92	8.92 KM
81	245	18	26	34.14	17.18 KM	81	245	19	15	2.51	3.00 KM	81	245	19	18	9.79	4.26 KM
81	245	19	17	12.12	4.46 KM	81	245	19	20	17.74	4.84 KM	81	245	19	21	28.57	4.27 KM
81	245	20	15	23.78	14.14 KM	81	246	14	44	25.76	3.94 KM	81	246	14	48	25.95	.92 KM
81	246	18	50	6.45	10.98 KM	81	257	8	10	24.49	6.22 KM	81	257	8	23	36.19	1.07 KM
81	257	8	39	2.75	2.37 KM	81	257	8	42	24.02	3.67 KM	81	257	9	16	40.88	3.79 KM
81	257	9	22	6.06	10.41 KM	81	257	10	3	49.99	3.31 KM	81	257	10	16	3.72	6.40 KM
81	257	10	18	33.29	7.73 KM	81	257	10	21	28.92	23.56 KM	81	276	12	19	23.33	21.00 KM
81	305	19	3	55.72	114.10 KM	81	309	9	54	37.51	27.17 KM	81	309	9	56	55.83	5.59 KM
81	310	16	10	59.47	142.10 KM	81	313	0	10	.38	11.11 KM	81	313	0	11	45.02	31.57 KM
81	313	0	11	47.42	30.74 KM	81	313	0	12	59.56	17.49 KM	81	313	0	14	48.74	5.58 KM
81	313	0	19	18.47	7.56 KM	81	313	0	23	15.08	4.52 KM	81	313	0	25	56.22	2.81 KM
81	313	0	36	13.60	12.40 KM	81	313	0	40	9.88	12.36 KM	81	313	1	9	59.37	7.64 KM
81	321	0	3	22.34	21.64 KM	81	326	13	53	19.00	113.45 KM	81	331	21	27	15.45	2.68 KM
81	332	18	35	7.28	2.42 KM	81	332	19	5	42.89	2.50 KM	81	332	19	13	19.40	2.42 KM
81	335	20	14	19.70	141.37 KM	81	338	1	40	8.63	149.63 KM	81	338	2	0	49.93	116.41 KM
81	342	20	13	1.38	1.59 KM	81	342	20	24	38.03	1.44 KM	81	343	13	47	1.14	1.55 KM
81	353	7	32	34.78	6.84 KM	81	358	8	10	33.67	21.35 KM	81	358	8	16	13.39	24.43 KM
81	358	8	27	40.40	24.02 KM	81	365	7	40	46.69	11.64 KM	82	4	11	0	24.97	27.02 KM
82	8	19	44	12.17	94.18 KM	82	13	20	26	26.15	212.87 KM	82	13	20	56	31.52	143.30 KM
82	13	21	3	30.66	185.43 KM	82	14	19	9	23.66	165.58 KM	82	14	20	21	16.13	59.54 KM
82	14	20	38	47.25	30.16 KM	82	14	21	42	57.67	208.66 KM	82	15	1	44	5.08	116.22 KM
82	17	19	53	56.82	119.75 KM	82	21	15	1	44.75	8.51 KM	82	31	1	55	54.96	102.80 KM
82	31	2	2	1.37	8.25 KM	82	31	1	59	58.95	79.83 KM	82	31	2	12	11.41	8.05 KM
82	33	20	52	12.53	2.54 KM	82	33	20	52	12.53	2.54 KM	82	33	20	52	12.53	2.54 KM

82 33 21 47 48.91 13.22 KM	82 33 22 9 12.84 3.30 KM	82 33 22 15 44.23 6.78 KM
82 33 22 30 26.74 12.60 KM	82 34 0 31 11.23 18.18 KM	82 34 0 59 29.30 21.95 KM
82 34 1 9 29.12 18.83 KM	82 34 1 9 0.74 31.10 KM	82 34 1 10 27.25 35.28 KM
82 34 1 13 2.45 8.86 KM	82 34 1 13 26.68 9.41 KM	82 34 1 59 7.76 44.49 KM
82 34 2 41 26.69 7.33 KM	82 34 14 46 7.69 4.47 KM	82 34 18 51 33.88 12.93 KM
82 35 2 8 16.01 111.99 KM	82 44 17 41 6.23 118.46 KM	82 47 13 25 11.69 155.13 KM
82 48 1 51 .61 33.01 KM	82 53 21 48 5.70 79.20 KM	82 54 14 15 14.61 19.32 KM
82 61 21 33 3.90 28.63 KM	82 62 1 57 15.98 92.76 KM	82 81 21 51 25.77 219.90 KM
82 82 3 39 49.53 1.83 KM	82 82 3 47 46.45 22.72 KM	82 82 3 51 33.26 .83 KM
82 82 4 1 2.96 199.08 KM	82 82 4 3 14.04 197.02 KM	82 82 4 5 23.34 166.96 KM
82 82 4 22 9.55 4.39 KM	82 82 9 6 45.47 35.67 KM	82 82 9 11 11.18 82.90 KM
82 82 9 19 31.12 6.24 KM	82 82 9 23 6.23 17.76 KM	82 82 9 58 17.32 5.92 KM
82 82 10 18 2.33 47.15 KM	82 82 10 23 18.27 84.02 KM	82 82 11 2 2.12 41.91 KM
82 82 21 4 17.92 14.98 KM	82 82 21 8 4.81 3.42 KM	82 82 21 12 37.82 6.73 KM
82 82 21 13 24.40 21.98 KM	82 82 21 24 26.73 26.86 KM	82 82 21 27 .36 27.14 KM
82 82 21 43 53.13 16.78 KM	82 82 22 0 18.21 24.03 KM	82 82 22 4 31.56 11.07 KM
82 82 22 21 9.96 7.96 KM	82 82 22 30 21.22 75.25 KM	82 82 23 9 42.63 27.31 KM
82 82 23 11 20.80 2.02 KM	82 82 23 13 34.48 20.74 KM	82 82 23 19 43.72 23.14 KM
82 82 23 33 21.19 31.14 KM	82 94 3 15 46.49 62.50 KM	82 94 3 23 59.19 56.03 KM
82 94 12 57 17.44 41.64 KM	82 100 3 14 10.50 2.92 KM	82 100 3 17 30.28 2.72 KM
82 100 3 24 30.07 3.62 KM	82 100 3 24 19.69 8.03 KM	82 100 4 9 14.29 8.87 KM
82 100 4 8 24.69 237.16 KM	82 100 4 27 47.79 19.57 KM	82 100 4 39 21.55 21.67 KM
82 100 4 41 23.46 24.19 KM	82 100 6 36 29.99 66.64 KM	82 100 6 43 1.12 3.25 KM
82 107 12 5 59.49 .60 KM	82 107 12 8 40.93 4.86 KM	82 107 12 9 13.52 3.67 KM
82 107 12 10 12.15 2.14 KM	82 107 12 10 1.58 21.67 KM	82 107 12 11 17.79 6.99 KM
82 107 12 11 37.54 6.93 KM	82 107 12 12 19.24 3.13 KM	82 107 12 13 51.57 1.92 KM
82 107 12 17 47.24 6.78 KM	82 107 12 18 1.62 5.44 KM	82 107 12 18 34.89 3.07 KM
82 107 12 20 24.05 3.14 KM	82 107 12 24 6.19 7.08 KM	82 107 12 24 9.38 10.43 KM
82 107 12 24 30.74 4.43 KM	82 107 12 25 16.93 2.53 KM	82 107 12 26 2.74 1.52 KM
82 107 12 27 .84 1.65 KM	82 107 12 27 11.90 8.04 KM	82 107 12 29 1.39 2.46 KM
82 107 12 29 32.11 6.20 KM	82 107 12 30 2.37 5.91 KM	82 107 12 30 25.70 2.90 KM
82 107 12 30 59.43 4.39 KM	82 107 12 31 1.64 5.42 KM	82 107 12 31 42.53 5.38 KM
82 107 12 32 4.04 5.60 KM	82 107 12 34 2.25 2.43 KM	82 107 12 34 .54 14.55 KM
82 107 12 35 1.04 3.86 KM	82 107 12 36 53.57 4.52 KM	82 107 12 37 1.95 3.01 KM
82 107 12 40 44.95 2.40 KM	82 107 12 43 8.98 2.77 KM	82 107 12 44 57.87 11.54 KM
82 107 12 45 37.25 11.17 KM	82 107 12 47 56.79 8.23 KM	82 107 12 51 39.33 13.78 KM
82 107 12 55 22.59 3.20 KM	82 107 12 56 1.20 4.79 KM	82 107 12 55 51.01 ***** KM
82 107 13 0 2.68 5.23 KM	82 107 13 1 9.24 1.47 KM	82 107 13 1 16.05 1.31 KM
82 107 13 1 34.24 25.36 KM	82 107 13 2 34.95 15.18 KM	82 107 13 7 31.92 21.02 KM
82 107 13 9 2.04 6.16 KM	82 107 13 8 50.08 20.63 KM	82 107 13 10 14.52 4.55 KM
82 107 13 13 .00 19.65 KM	82 107 13 17 21.33 9.16 KM	82 107 13 22 3.97 .40 KM
82 107 13 23 47.77 9.80 KM	82 107 13 26 7.88 8.23 KM	82 107 13 28 5.56 2.70 KM
82 107 13 32 50.25 11.27 KM	82 107 13 39 46.49 2.49 KM	82 107 13 46 57.88 9.99 KM
82 107 13 47 35.46 30.43 KM	82 107 14 5 9.79 1.24 KM	82 107 14 48 26.94 7.73 KM
82 111 13 7 21.36 6.33 KM	82 111 13 12 55.08 4.34 KM	82 111 13 29 54.08 5.10 KM
82 112 3 57 31.12 16.10 KM	82 117 15 20 4.41 3.65 KM	82 117 15 23 .10 6.40 KM
82 119 3 17 38.75 3.85 KM	82 134 0 10 55.51 3.95 KM	82 134 0 13 16.06 3.21 KM
82 134 0 13 57.30 72.14 KM	82 134 0 30 42.39 15.46 KM	82 134 0 52 31.81 44.03 KM
82 134 0 57 2.47 13.71 KM	82 134 1 13 26.23 5.13 KM	82 134 1 20 16.24 5.71 KM
82 134 1 28 23.86 16.38 KM	82 134 1 37 4.50 1.68 KM	82 134 1 39 25.56 2.41 KM
82 134 2 49 22.30 4.03 KM	82 134 2 49 20.92 23.60 KM	82 134 2 55 10.90 5.02 KM
82 134 2 59 31.17 7.58 KM	82 134 3 13 56.41 29.91 KM	82 134 4 0 7.59 27.44 KM
82 134 4 53 .17 4.25 KM	82 170 20 6 23.03 2.96 KM	82 180 19 12 14.64 21.52 KM
82 180 19 16 55.54 13.99 KM	82 180 19 17 9.35 11.98 KM	82 180 19 17 31.47 13.10 KM
82 181 19 56 40.29 4.69 KM	82 183 15 0 32.40 20.42 KM	82 183 19 46 44.31 18.73 KM
82 196 19 25 15.15 2.05 KM	82 196 19 29 17.42 1.06 KM	82 196 19 44 10.41 6.63 KM
82 196 19 46 16.19 3.99 KM	82 197 9 6 3.33 9.07 KM	82 197 9 15 54.72 8.84 KM
82 197 9 27 8.19 8.47 KM	82 197 19 44 11.57 23.64 KM	82 198 15 22 7.12 6.52 KM
82 198 15 28 11.32 4.80 KM	82 198 15 28 51.99 4.75 KM	82 198 15 29 17.63 8.17 KM
82 198 15 29 42.24 6.49 KM	82 198 15 30 25.30 5.78 KM	82 198 15 33 38.55 3.96 KM
82 198 15 36 39.17 2.02 KM	82 198 15 40 49.36 4.73 KM	82 198 15 42 22.93 3.48 KM
82 198 15 47 12.98 4.32 KM	82 198 15 49 22.28 5.22 KM	82 198 15 51 39.44 6.91 KM
82 198 15 52 33.76 5.59 KM	82 198 15 53 36.07 6.70 KM	82 198 15 54 19.24 7.92 KM
82 198 15 59 51.12 7.18 KM	82 198 16 3 49.67 7.19 KM	82 198 16 12 12.31 6.03 KM
82 198 20 15 15.53 11.64 KM	82 199 13 14 25.27 4.65 KM	82 199 13 16 39.03 7.05 KM

82 197 13 20 17.07	4.55 KM	82 199 14 24 17.33	16.33 KM
82 199 14 27 1.55	17.96 KM	82 199 14 31 33.20	16.10 KM
82 199 14 52 13.53	5.41 KM	82 199 14 54 33.46	6.10 KM
82 199 14 55 32.29	18.46 KM	82 199 14 57 3.35	7.20 KM
82 199 15 0 33.31	7.84 KM	82 199 15 2 29.88	16.04 KM
82 199 15 9 41.24	1.76 KM	82 199 15 13 20.46	3.28 KM
82 199 15 14 57.40	3.11 KM	82 199 15 21 52.88	8.98 KM
82 199 15 34 3.04	3.37 KM	82 199 15 36 30.54	2.38 KM
82 199 15 38 24.85	9.60 KM	82 199 15 38 27.93	19.14 KM
82 199 15 43 18.27	16.33 KM	82 199 15 51 13.07	13.70 KM
82 199 15 59 45.34	7.80 KM	82 199 16 10 18.75	38.16 KM
82 199 16 53 38.41	13.64 KM	82 202 0 10 5.70	15.78 KM
82 202 0 33 56.07	12.94 KM	82 202 1 11 45.68	7.57 KM
82 206 15 43 2.06	5.19 KM	82 206 15 43 30.90	5.99 KM
82 206 15 46 25.61	7.96 KM	82 206 15 46 51.98	2.98 KM
82 206 15 49 42.29	5.62 KM	82 206 15 52 3.47	6.47 KM
82 206 20 24 2.08	7.26 KM	82 206 20 26 43.38	9.63 KM
82 203 8 31 10.54	1.10 KM	82 208 18 23 43.30	9.59 KM
82 211 17 44 28.54	5.73 KM	82 211 17 46 1.19	14.29 KM
82 211 17 43 54.26	12.01 KM	82 211 17 50 10.94	12.23 KM
82 211 18 36 45.89	10.95 KM	82 211 18 45 59.72	11.83 KM
82 212 12 39 5.22	19.88 KM	82 212 12 55 45.88	25.64 KM
82 212 13 34 57.60	9.16 KM	82 212 13 46 38.11	9.71 KM
82 212 13 56 48.14	5.91 KM	82 217 15 21 37.49	10.71 KM
82 217 21 44 53.75	12.95 KM	82 219 0 59 35.33	10.01 KM
82 219 1 1 25.00	7.04 KM	82 219 1 2 40.05	2.19 KM
82 219 1 4 28.72	3.52 KM	82 219 3 58 7.15	2.30 KM
82 219 23 1 28.95	5.83 KM	82 220 7 3 43.97	23.37 KM
82 220 7 11 24.73	20.60 KM	82 220 7 21 42.36	6.29 KM
82 221 4 14 11.33	2.58 KM	82 221 4 43 54.25	4.89 KM
82 221 7 47 22.48	8.12 KM	82 221 7 51 14.86	5.43 KM
82 221 8 1 4.75	3.63 KM	82 221 8 2 57.98	3.37 KM
82 221 8 10 22.31	3.10 KM	82 221 8 10 52.07	16.64 KM
82 221 9 48 49.04	19.82 KM	82 221 9 51 22.87	17.85 KM
82 221 9 58 5.18	9.05 KM	82 221 9 58 47.58	21.28 KM
82 221 10 35 46.33	26.93 KM	82 221 10 40 10.70	20.21 KM
82 221 10 56 9.51	13.85 KM	82 221 10 57 19.09	14.06 KM
82 221 11 11 3.60	1.26 KM	82 222 16 48 8.13	11.69 KM
82 223 7 31 54.08	17.47 KM	82 226 15 17 11.86	2.19 KM
82 228 18 29 48.58	9.27 KM	82 228 18 31 44.26	4.51 KM
82 228 18 41 2.96	11.82 KM	82 228 18 41 27.72	27.74 KM
82 228 18 47 9.82	5.59 KM	82 228 18 47 51.34	1.59 KM
82 228 18 48 27.03	2.21 KM	82 228 18 50 13.91	1.27 KM
82 228 18 50 37.98	6.13 KM	82 228 18 51 59.99	12.06 KM
82 228 18 55 32.08	12.64 KM	82 228 18 55 59.64	8.67 KM
82 228 18 58 15.72	2.78 KM	82 228 18 59 28.25	9.98 KM
82 228 19 1 10.16	24.71 KM	82 228 19 6 41.25	4.07 KM
82 228 19 8 51.81	2.48 KM	82 228 19 12 2.86	9.24 KM
82 228 19 15 5.72	9.44 KM	82 228 19 49 28.63	21.91 KM
82 238 15 10 32.73	71.14 KM	82 240 22 26 4.56	12.25 KM
82 243 17 24 43.94	4.25 KM	82 243 17 25 54.08	7.22 KM
82 243 17 27 .49	8.75 KM	82 243 18 56 44.73	12.79 KM
82 246 22 1 11.46	3.19 KM	82 246 22 4 1.75	19.46 KM
82 250 19 15 39.77	8.16 KM	82 252 0 50 44.65	33.47 KM
82 260 1 34 37.45	11.02 KM	82 263 3 20 58.14	***** KM
82 263 3 36 15.02	35.54 KM	82 263 3 37 54.02	19.68 KM
82 263 4 10 48.90	14.04 KM	82 263 4 15 1.80	9.81 KM
82 266 14 9 23.78	68.08 KM	82 270 14 1 36.02	8.34 KM
82 278 21 28 13.66	8.29 KM	82 278 21 29 20.09	7.81 KM
82 278 21 36 5.99	3.49 KM	82 290 14 19 56.13	10.83 KM
82 302 17 1 54.08	5.77 KM	82 302 17 5 6.76	16.87 KM
82 302 17 11 59.93	34.18 KM	82 302 17 18 52.05	11.03 KM
82 302 17 26 41.95	15.49 KM	82 311 12 46 55.52	4.73 KM
82 311 18 6 46.96	4.58 KM	82 316 20 17 44.64	12.37 KM
82 319 6 45 13.94	24.68 KM	82 320 14 0 35.34	49.58 KM

82 197 14 20 45.59	5.92 KM
82 199 14 49 59.74	14.03 KM
82 199 14 55 .40	6.46 KM
82 199 14 57 37.85	4.13 KM
82 199 15 6 46.15	7.61 KM
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82 199 15 37 55.02	3.26 KM
82 199 15 39 28.59	18.31 KM
82 199 15 55 24.22	2.83 KM
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82 208 6 34 9.79	10.46 KM
82 210 23 47 44.81	2.67 KM
82 211 17 47 20.32	9.52 KM
82 211 18 30 2.17	13.68 KM
82 212 12 37 1.09	18.45 KM
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82 212 13 54 8.21	4.32 KM
82 217 17 1 42.37	34.45 KM
82 219 1 1 16.01	.32 KM
82 219 1 2 53.23	8.70 KM
82 219 21 15 55.51	.38 KM
82 220 7 6 58.74	1.12 KM
82 220 15 17 15.82	4.59 KM
82 221 7 46 36.88	2.59 KM
82 221 7 59 31.54	3.33 KM
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82 221 9 55 47.63	26.26 KM
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82 221 10 58 4.39	10.94 KM
82 223 7 29 23.05	17.22 KM
82 228 18 21 20.00	6.33 KM
82 228 18 40 12.45	3.55 KM
82 228 18 44 18.68	6.74 KM
82 228 18 48 8.00	1.19 KM
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82 243 17 26 38.58	6.01 KM
82 246 21 56 .25	13.69 KM
82 246 22 9 1.11	2.00 KM
82 259 23 52 53.56	9.10 KM
82 263 3 30 3.89	10.48 KM
82 263 3 39 16.93	9.34 KM
82 263 16 47 39.06	3.94 KM
82 278 21 27 12.73	7.74 KM
82 278 21 30 22.48	6.64 KM
82 302 16 40 51.90	11.68 KM
82 302 17 10 37.01	25.96 KM
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82 311 12 47 59.59	7.36 KM
82 317 7 16 31.16	12.23 KM
82 323 2 5 25.00	11.46 KM

82 323 2 58 8.58 2.93 KM	82 323 3 29 44.15 21.35 KM	82 323 20 47 17.07 30.75 KM
82 331 10 37 16.86 39.12 KM	82 331 10 38 2.50 28.55 KM	82 331 11 32 7.55 7.15 KM
82 334 14 12 53.03 43.93 KM	82 334 14 17 54.79 23.87 KM	82 334 18 43 54.45 16.59 KM
82 334 19 49 .58 10.12 KM	82 334 19 50 57.17 5.62 KM	82 334 20 38 53.75 6.18 KM
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82 337 14 52 13.02 12.83 KM	82 337 14 59 31.63 11.97 KM	82 339 16 50 58.61 15.27 KM
82 340 16 16 7.88 4.41 KM	82 340 19 45 29.92 13.20 KM	82 340 21 45 6.75 18.53 KM
82 340 21 46 13.45 15.27 KM	82 342 16 4 10.59 117.29 KM	82 342 16 9 22.14 36.48 KM
82 342 16 11 57.48 8.84 KM	82 342 16 32 9.83 12.94 KM	82 342 17 1 46.02 9.60 KM
82 343 15 50 56.61 9.16 KM	82 350 20 15 22.31 11.38 KM	82 351 22 54 56.46 5.69 KM
82 353 13 41 .03 7.48 KM	82 360 11 4 54.91 1.84 KM	82 360 11 5 1.09 10.43 KM
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82 360 18 6 6.00 13.19 KM	82 360 20 14 21.61 32.24 KM	82 360 20 44 16.96 23.37 KM
82 360 21 44 43.25 10.92 KM	82 360 23 8 51.90 7.17 KM	82 361 0 21 49.07 28.97 KM
82 361 0 34 33.54 82.53 KM	82 361 0 58 21.82 38.81 KM	82 361 7 31 32.08 19.28 KM
82 361 14 29 3.65 21.47 KM	82 361 14 56 53.63 4.99 KM	82 361 15 3 46.74 4.60 KM
82 361 15 38 56.91 14.14 KM	82 361 15 49 51.69 11.61 KM	82 361 15 51 8.46 9.83 KM
82 361 15 51 9.35 12.27 KM	82 361 15 59 1.41 18.45 KM	82 361 16 44 33.55 38.75 KM
82 361 16 58 59.99 13.39 KM	82 361 17 1 9.67 16.83 KM	82 361 17 3 15.74 10.91 KM
82 363 16 25 38.53 18.95 KM	82 364 16 35 45.41 111.72 KM	82 364 19 42 37.64 92.53 KM
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83 3 21 53 49.28 7.51 KM	83 3 22 18 6.02 17.27 KM	83 4 21 21 47.51 5.40 KM
83 10 17 2 16.83 4.20 KM	83 11 16 3 43.69 39.07 KM	83 12 2 14 30.53 45.13 KM
83 12 18 1 55.71 85.28 KM	83 13 2 11 27.01 14.74 KM	83 13 16 26 24.55 102.07 KM
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83 32 2 47 8.45 5.30 KM	83 32 14 24 55.20 5.20 KM	83 33 2 14 54.84 18.67 KM
83 36 18 55 28.99 12.68 KM	83 36 19 1 41.07 32.94 KM	83 36 19 7 49.15 2.05 KM
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83 40 23 45 57.25 36.40 KM	83 41 0 18 47.55 4.93 KM	83 41 0 18 43.63 10.94 KM
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83 41 22 25 .76 7.30 KM	83 46 0 57 1.86 49.22 KM	83 46 0 59 26.64 23.79 KM
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83 64 20 26 31.78 46.32 KM	83 64 20 24 53.32 83.51 KM	83 64 20 24 31.84 95.48 KM
83 69 15 41 49.45 78.70 KM	83 69 22 12 26.24 66.66 KM	83 74 1 14 3.74 8.52 KM
83 78 0 27 23.20 1.63 KM	83 79 10 19 42.08 15.96 KM	83 80 18 52 35.48 19.34 KM
83 81 7 7 27.08 .98 KM	83 81 16 41 55.53 88.55 KM	83 82 21 46 46.06 16.50 KM
83 82 21 49 46.63 51.46 KM	83 82 22 8 47.87 32.80 KM	83 82 22 39 5.52 6.34 KM
83 82 22 45 1.32 16.33 KM	83 83 16 39 58.84 9.85 KM	83 83 16 44 14.60 9.25 KM
83 83 16 48 28.82 9.65 KM	83 83 16 52 43.95 9.51 KM	83 83 16 56 50.32 10.90 KM
83 83 17 19 30.12 11.22 KM	83 83 17 23 46.59 6.28 KM	83 83 17 32 55.69 9.36 KM
83 83 17 37 27.58 6.39 KM	83 83 18 1 35.60 5.24 KM	83 83 18 27 50.95 11.88 KM
83 89 5 59 23.41 3.68 KM	83 89 6 24 58.11 9.92 KM	83 89 6 27 36.27 23.09 KM
83 89 6 30 30.92 7.21 KM	83 89 6 32 11.14 22.82 KM	83 89 6 35 18.77 10.15 KM
83 89 6 40 13.43 1.45 KM	83 89 6 53 39.36 19.89 KM	83 89 6 56 11.25 11.74 KM
83 89 6 56 .09 40.76 KM	83 89 6 58 43.14 5.36 KM	83 89 7 5 2.99 1.38 KM
83 89 7 6 .86 4.65 KM	83 89 7 8 26.38 4.82 KM	83 89 7 11 1.97 3.76 KM
83 89 7 11 20.43 16.77 KM	83 89 7 13 15.17 1.90 KM	83 89 7 13 6.76 31.03 KM
83 89 7 16 32.58 10.55 KM	83 89 7 29 49.23 5.94 KM	83 89 7 40 .86 8.78 KM
83 89 7 40 20.69 7.06 KM	83 89 7 49 14.75 4.42 KM	83 89 7 52 47.65 5.64 KM
83 89 8 1 8.09 4.35 KM	83 89 8 2 9.92 38.28 KM	83 89 8 10 45.27 38.32 KM
83 89 8 14 18.94 17.15 KM	83 89 8 18 6.77 3.48 KM	83 89 8 25 56.41 5.00 KM
83 89 8 27 5.21 5.18 KM	83 89 8 29 17.59 16.56 KM	83 89 8 31 22.24 6.52 KM
83 89 8 32 33.19 11.63 KM	83 89 8 35 2.04 22.68 KM	83 89 10 21 55.35 6.39 KM
83 89 18 22 40.90 4.09 KM	83 89 18 27 51.15 7.93 KM	83 89 18 28 49.08 25.07 KM
83 89 18 48 10.06 27.15 KM	83 89 18 53 9.19 2.53 KM	83 89 18 54 55.34 29.32 KM
83 89 19 3 44.42 15.12 KM	83 89 19 16 57.70 16.25 KM	83 89 19 38 2.33 78.67 KM
83 89 23 23 3.28 88.79 KM	83 90 1 49 .34 123.88 KM	83 90 23 29 29.01 34.62 KM
83 95 14 6 39.53 13.19 KM	83 95 14 36 14.43 1.72 KM	83 95 14 38 39.35 7.49 KM
83 95 14 40 13.57 41.25 KM	83 95 14 41 53.08 16.18 KM	83 95 14 42 56.51 7.31 KM
83 95 14 57 20.59 5.62 KM	83 95 15 16 40.61 10.86 KM	83 99 16 4 .31 16.58 KM

83 77 20 28 50.75	50.75 KM	83 77 20 16 45.60	42.26 KM	83 102 0 45 15.45	29.36 KM
83 107 18 4 1.95	11.13 KM	83 117 16 30 2.02	11.42 KM	83 117 16 31 49.26	21.01 KM
83 118 13 39 15.33	14.14 KM	83 118 13 43 22.50	9.55 KM	83 118 13 55 25.78	11.97 KM
83 118 14 29 .68	17.43 KM	83 130 7 27 57.67	15.30 KM	83 130 7 32 5.00	11.09 KM
83 130 7 38 58.89	33.52 KM	83 130 7 44 34.49	11.24 KM	83 130 7 55 12.65	11.67 KM
83 130 8 5 3.32	24.33 KM	83 130 9 20 28.23	12.09 KM	83 130 9 39 17.75	22.22 KM
83 130 11 49 58.66	1.85 KM	83 130 12 16 57.65	5.85 KM	83 135 18 53 27.37	2.62 KM
83 135 19 15 19.99	6.18 KM	83 135 19 17 59.40	4.75 KM	83 135 20 29 .33	6.28 KM
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83 135 20 33 10.33	1.41 KM	83 137 4 39 29.82	17.99 KM	83 139 12 7 15.65	17.04 KM
83 139 12 16 4.03	9.54 KM	83 139 12 1 17.20	17.04 KM	83 140 11 12 .79	11.66 KM
83 140 17 54 25.29	2.31 KM	83 140 18 54 .32	7.36 KM	83 140 18 56 .33	7.63 KM
83 140 19 1 30.19	2.07 KM	83 140 21 30 22.19	15.24 KM	83 141 0 57 48.96	1.45 KM
83 141 1 24 .12	1.77 KM	83 141 2 7 38.25	1.90 KM	83 141 2 17 50.23	1.95 KM
83 141 2 28 54.45	13.22 KM	83 141 2 32 50.33	2.84 KM	83 141 2 35 16.64	3.86 KM
83 141 2 35 53.64	4.94 KM	83 141 2 37 48.73	2.03 KM	83 141 2 38 15.78	2.89 KM
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83 141 23 10 31.14	2.31 KM	83 141 23 39 50.66	28.23 KM	83 141 23 43 40.99	3.41 KM
83 141 23 45 57.43	2.17 KM	83 141 23 48 21.05	2.10 KM	83 141 23 49 24.27	.55 KM
83 141 23 51 51.46	3.25 KM	83 142 0 9 53.65	19.65 KM	83 142 0 15 21.24	4.17 KM
83 142 0 17 11.01	2.93 KM	83 142 0 23 55.12	8.47 KM	83 142 0 25 14.88	4.26 KM
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83 142 1 7 55.06	1.14 KM	83 159 15 1 32.57	45.38 KM	83 162 19 28 .49	51.10 KM
83 162 19 30 46.40	35.10 KM	83 162 21 52 50.45	6.87 KM	83 162 21 54 53.28	7.96 KM
83 166 20 6 54.18	87.02 KM	83 167 23 40 26.53	78.38 KM	83 168 17 0 57.50	80.21 KM
83 169 11 31 4.65	25.01 KM	83 169 11 34 22.32	47.04 KM	83 169 11 38 59.81	24.11 KM
83 169 11 59 50.39	20.62 KM	83 174 7 44 18.76	6.98 KM	83 174 8 55 54.32	8.83 KM
83 174 9 4 34.78	19.85 KM	83 174 9 41 28.23	13.87 KM	83 174 9 47 3.13	13.26 KM
83 174 9 51 21.71	9.72 KM	83 174 10 5 7.46	8.54 KM	83 174 10 20 14.09	10.35 KM
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83 174 11 21 54.60	12.59 KM	83 174 11 27 21.25	5.49 KM	83 174 21 32 5.87	8.35 KM
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83 177 7 43 41.79	2.43 KM	83 177 7 44 12.19	2.24 KM	83 177 7 47 .15	2.71 KM
83 177 7 48 14.45	2.83 KM	83 177 8 7 37.10	5.32 KM	83 177 8 4 20.04	8.00 KM
83 177 8 6 52.83	4.99 KM	83 177 8 7 37.90	15.14 KM	83 177 8 11 26.61	3.56 KM
83 177 8 13 34.08	18.52 KM	83 177 8 15 17.82	6.94 KM	83 177 8 17 20.57	5.47 KM
83 177 8 18 43.93	7.04 KM	83 177 8 28 39.52	8.44 KM	83 177 8 30 25.78	7.22 KM
83 177 8 32 25.06	6.69 KM	83 177 8 32 44.20	12.93 KM	83 177 8 33 40.31	5.41 KM
83 177 8 40 19.93	1.17 KM	83 177 8 42 20.72	2.40 KM	83 177 8 43 23.23	3.84 KM
83 177 8 45 54.02	6.70 KM	83 177 8 47 47.91	4.67 KM	83 177 8 48 50.58	3.96 KM
83 177 8 51 27.56	3.81 KM	83 177 8 53 38.83	1.73 KM	83 177 8 54 11.50	2.79 KM
83 177 8 57 53.50	3.56 KM	83 177 9 3 24.10	4.83 KM	83 177 9 16 34.80	6.77 KM
83 177 9 25 25.39	2.26 KM	83 177 9 26 50.37	3.07 KM	83 177 9 27 53.30	3.76 KM
83 177 9 29 23.54	2.99 KM	83 177 9 30 26.03	2.95 KM	83 177 10 11 22.26	15.50 KM
83 177 10 58 47.36	12.12 KM	83 177 10 59 18.79	10.95 KM	83 177 11 1 53.91	13.09 KM
83 177 11 2 40.83	11.75 KM	83 177 11 4 57.79	18.00 KM	83 177 11 25 48.45	11.39 KM
83 177 11 28 58.87	9.84 KM	83 178 17 14 42.93	3.42 KM	83 196 2 32 58.12	11.05 KM
83 196 12 59 29.96	48.11 KM	83 197 14 18 24.53	48.77 KM	83 197 20 35 3.63	12.16 KM
83 199 9 36 29.65	2.33 KM	83 199 9 37 43.22	1.10 KM	83 199 9 38 47.81	1.85 KM
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83 199 12 10 38.43	12.57 KM	83 199 12 12 54.27	12.47 KM	83 199 12 16 45.32	22.95 KM
83 199 12 17 57.42	25.24 KM	83 199 12 51 54.47	6.86 KM	83 201 21 20 12.73	2.49 KM
83 201 21 23 25.90	6.61 KM	83 201 21 24 32.42	4.66 KM	83 201 21 25 1.14	9.28 KM
83 201 21 37 42.74	1.44 KM	83 201 21 37 46.27	21.82 KM	83 201 21 40 41.58	.47 KM
83 201 21 41 10.57	.84 KM	83 201 21 42 31.33	6.78 KM	83 201 21 51 23.21	2.66 KM
83 201 21 56 25.22	1.91 KM	83 204 19 43 24.98	71.32 KM	83 208 19 37 54.54	31.24 KM
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83 210 2 30 15.96	1.42 KM	83 210 2 30 14.36	7.87 KM	83 210 10 4 .47	22.94 KM
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83 216 15 50 38.61	21.44 KM	83 216 18 30 15.00	3.39 KM	83 216 18 34 44.31	3.78 KM
83 216 18 40 33.96	3.40 KM	83 216 18 53 58.05	3.78 KM	83 216 18 59 57.12	5.78 KM

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83 217 0 0 25.41 14.74 KM
83 218 18 22 40.87 3.14 KM
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83 224 13 32 46.59 1.15 KM
83 224 13 43 29.08 8.73 KM
83 228 12 45 55.50 31.49 KM
83 249 11 54 3.20 6.11 KM
83 249 12 18 10.41 4.77 KM
83 285 8 19 5.95 4.69 KM
83 285 8 42 3.53 .98 KM
83 288 0 15 27.73 44.28 KM
83 295 14 9 37.16 112.83 KM
83 297 19 36 21.81 7.59 KM
83 301 23 38 55.36 3.35 KM
83 310 13 44 56.63 79.21 KM
83 310 14 45 21.34 22.95 KM
83 314 14 7 45.50 32.30 KM
83 318 23 41 27.99 22.70 KM
83 321 9 10 9.50 26.85 KM
83 325 12 16 46.24 41.06 KM
83 326 0 19 11.01 26.23 KM
83 327 12 6 30.87 4.13 KM
83 338 3 52 32.22 13.63 KM
83 342 16 20 14.80 116.94 KM
83 348 20 6 38.35 57.53 KM
83 355 12 14 22.62 84.09 KM

83 216 19 14 8.24 2.37 KM
83 217 10 2 25.19 24.72 KM
83 218 18 5 27.89 5.18 KM
83 218 18 41 25.43 1.65 KM
83 221 8 52 19.03 10.06 KM
83 221 11 31 7.65 26.25 KM
83 223 10 23 51.65 6.04 KM
83 223 11 32 3.94 1.50 KM
83 223 12 7 24.20 1.22 KM
83 223 13 0 37.15 4.98 KM
83 223 16 55 41.06 11.58 KM
83 223 12 56 31.95 6.05 KM
83 223 13 3 21.02 13.03 KM
83 224 13 35 3.29 8.29 KM
83 224 13 45 1.58 6.73 KM
83 242 14 41 5.46 81.39 KM
83 249 11 57 33.89 4.60 KM
83 249 12 20 21.05 2.26 KM
83 285 8 31 19.90 4.25 KM
83 285 8 45 6.95 1.93 KM
83 289 19 40 55.22 16.95 KM
83 296 23 54 43.64 21.48 KM
83 298 16 40 22.58 165.52 KM
83 301 23 38 9.14 30.42 KM
83 310 14 9 58.36 81.92 KM
83 310 17 32 38.73 15.94 KM
83 316 2 2 40.46 33.62 KM
83 318 23 41 20.11 29.70 KM
83 321 9 8 59.43 54.09 KM
83 325 12 17 11.51 21.93 KM
83 327 11 52 17.45 30.56 KM
83 328 18 32 9.73 33.61 KM
83 339 4 45 18.45 15.74 KM
83 343 20 10 21.24 44.25 KM
83 348 20 19 9.80 71.84 KM
83 355 12 24 13.01 117.31 KM

83 216 19 16 23.77 10.03 KM
83 217 10 4 40.86 23.01 KM
83 218 18 36 31.98 2.93 KM
83 221 8 39 7.83 4.58 KM
83 221 8 54 .11 8.42 KM
83 223 10 14 20.60 12.46 KM
83 223 10 26 51.55 18.95 KM
83 223 11 32 31.47 2.99 KM
83 223 12 11 32.40 9.45 KM
83 223 15 47 44.63 7.67 KM
83 224 12 48 11.19 12.14 KM
83 223 12 59 1.60 11.12 KM
83 224 13 31 28.64 5.27 KM
83 224 13 41 51.64 4.68 KM
83 224 13 49 4.12 5.71 KM
83 245 21 6 39.39 6.00 KM
83 249 11 58 2.73 16.02 KM
83 249 12 25 25.34 9.17 KM
83 285 8 39 21.38 7.88 KM
83 285 8 49 50.62 .81 KM
83 292 16 3 48.42 8.28 KM
83 297 15 45 24.19 80.41 KM
83 299 16 14 25.13 238.92 KM
83 307 21 56 4.04 13.70 KM
83 310 14 32 46.50 52.82 KM
83 314 14 7 48.17 33.68 KM
83 316 2 2 38.54 30.83 KM
83 319 14 7 40.70 41.90 KM
83 322 1 24 11.32 30.82 KM
83 326 0 18 51.68 70.62 KM
83 327 12 0 37.68 5.44 KM
83 333 18 25 46.11 35.31 KM
83 340 17 26 42.75 67.68 KM
83 348 17 28 39.45 163.15 KM
83 349 15 15 36.57 104.92 KM

84 4 17 35 27.93 108.24 KM
84 9 11 43 22.23 34.29 KM
84 9 15 48 2.50 15.04 KM
84 9 23 43 .76 12.37 KM
84 10 0 6 49.47 86.05 KM
84 10 0 45 32.33 12.29 KM
84 18 14 25 36.00 89.45 KM
84 18 14 39 13.05 3.75 KM
84 25 19 9 41.30 76.26 KM
84 27 17 25 55.01 56.80 KM
84 37 19 20 43.04 87.68 KM
84 55 19 51 57.71 194.37 KM
84 59 19 7 30.69 61.77 KM
84 67 1 50 1.92 105.16 KM
84 80 22 35 49.41 66.62 KM
84 89 15 9 8.49 242.47 KM

84 5 13.18 14.83 326.72 KM
84 9 12 11 13.08 34.19 KM
84 9 16 42 36.80 3.79 KM
84 9 23 49 1.11 16.82 KM
84 10 0 11 37.61 26.08 KM
84 14 0 18 47.65 5.32 KM
84 18 14 26 43.74 82.07 KM
84 24 10 23 26.34 95.17 KM
84 25 21 7 55.31 113.30 KM
84 34 19 18 3.32 31.81 KM
84 39 0 25 26.37 101.98 KM
84 56 17 25 15.47 31.01 KM
84 61 1 53 3.90 103.26 KM
84 68 20 35 33.76 68.03 KM
84 82 0 21 11.79 66.00 KM

84 9 11 37 53.56 22.57 KM
84 9 12 33 27.21 97.68 KM
84 9 23 26 23.62 74.31 KM
84 9 23 59 11.86 41.13 KM
84 10 0 13 47.46 18.31 KM
84 15 10 17 22.62 44.03 KM
84 18 14 35 11.01 74.08 KM
84 25 17 14 8.63 67.57 KM
84 27 16 12 57.03 67.27 KM
84 35 14 4 48.48 283.26 KM
84 44 14 13 18.62 71.91 KM
84 59 14 27 16.43 67.29 KM
84 61 1 55 53.31 73.23 KM
84 72 11 40 17.33 9.12 KM
84 82 20 46 2.86 35.71 KM

APPENDIX C

RAINFALL DATA COLLECTED AT LAKE

CHARLES, LA AIRPORT, 1981 - 1984

LAKE CHARLE
RAIN DAT.
1981 - JAN

81 006	0.36	06 JAN 81
81 008	0.05	08 JAN 81
81 014	0.04	14 JAN 81
81 019	1.37	19 JAN 81
81 020	0.24	20 JAN 81
81 032	0.38	01 FEB 81
81 036	2.43	05 FEB 81
81 040	0.04	09 FEB 81
81 041	0.09	10 FEB 81
81 049	0.09	18 FEB 81
81 053	0.10	22 FEB 81
81 060	0.02	01 MAR 81
81 063	0.45	04 MAR 81
81 066	0.15	07 MAR 81
81 071	0.12	12 MAR 81
81 072	0.05	13 MAR 81
81 080	0.25	21 MAR 81
81 088	0.66	29 MAR 81
81 092	0.02	02 APR 81
81 094	0.04	04 APR 81
81 113	1.09	23 APR 81
81 117	0.02	27 APR 81
81 118	0.06	28 APR 81
81 124	0.17	04 MAY 81
81 125	0.05	05 MAY 81
81 129	0.54	09 MAY 81
81 134	0.34	14 MAY 81
81 136	0.17	16 MAY 81
81 139	0.01	19 MAY 81
81 144	0.17	24 MAY 81
81 145	0.03	25 MAY 81
81 151	4.40	31 MAY 81
81 154	0.14	03 JUN 81
81 155	1.57	04 JUN 81
81 156	1.72	05 JUN 81
81 161	4.94	10 JUN 81
81 162	2.32	11 JUN 81
81 167	0.78	16 JUN 81
81 168	0.03	17 JUN 81
81 174	0.67	23 JUN 81
81 175	0.74	24 JUN 81
81 177	0.83	26 JUN 81
81 178	0.53	27 JUN 81
81 180	0.15	29 JUN 81
81 183	0.17	02 JUL 81
81 185	0.36	04 JUL 81
81 186	1.41	05 JUL 81
81 187	1.25	06 JUL 81
81 189	0.14	08 JUL 81
81 191	0.09	10 JUL 81
81 193	0.01	12 JUL 81
81 194	0.15	13 JUL 81
81 206	0.26	25 JUL 81
81 207	2.26	26 JUL 81
81 208	0.45	27 JUL 81
81 209	0.54	28 JUL 81
81 211	0.56	30 JUL 81
81 214	0.09	02 AUG 81
81 215	0.65	03 AUG 81
81 216	0.17	04 AUG 81

81 217	0.02	05 AUG 81
81 219	0.40	07 AUG 81
81 223	0.41	11 AUG 81
81 231	0.02	19 AUG 81
81 235	0.01	23 AUG 81
81 239	1.22	27 AUG 81
81 241	0.43	29 AUG 81
81 243	0.09	31 AUG 81
81 245	1.92	02 SEP 81
81 246	0.13	03 SEP 81
81 255	0.37	12 SEP 81
81 256	0.11	13 SEP 81
81 258	0.03	15 SEP 81
81 274	0.27	01 OCT 81
81 280	0.20	07 OCT 81
81 281	0.08	08 OCT 81
81 282	0.01	09 OCT 81
81 286	0.07	13 OCT 81
81 287	1.85	14 OCT 81
81 290	0.01	17 OCT 81
81 291	0.54	18 OCT 81
81 296	0.39	23 OCT 81
81 298	0.25	25 OCT 81
81 304	0.05	31 OCT 81
81 305	0.13	01 NOV 81
81 312	0.97	08 NOV 81
81 330	0.21	26 NOV 81
81 331	0.01	27 NOV 81
81 334	0.18	30 NOV 81
81 346	0.58	12 DEC 81
81 347	0.04	13 DEC 81
81 348	0.35	14 DEC 81
81 351	0.03	17 DEC 81
81 354	0.16	20 DEC 81
81 355	0.10	21 DEC 81
81 356	0.06	22 DEC 81
81 358	0.11	24 DEC 81
81 364	0.51	30 DEC 81
81 365	0.59	31 DEC 81
82 007	0.30	07 JAN 82
82 012	0.98	12 JAN 82
82 013	0.38	13 JAN 82
82 021	0.02	21 JAN 82
82 022	0.15	22 JAN 82
82 030	0.29	30 JAN 82
82 033	0.54	02 FEB 82
82 037	0.02	06 FEB 82
82 040	0.03	09 FEB 82
82 043	0.08	12 FEB 82
82 045	0.36	14 FEB 82
82 046	0.31	15 FEB 82
82 047	0.11	16 FEB 82
82 051	0.02	20 FEB 82
82 056	0.06	25 FEB 82
82 057	0.81	26 FEB 82
82 065	0.17	06 MAR 82
82 079	0.02	20 MAR 82
82 081	0.12	22 MAR 82
82 082	0.56	23 MAR 82
82 086	1.76	27 MAR 82

82 089	0.10	30 MAR 82
82 098	0.01	08 APR 82
82 099	0.22	09 APR 82
82 100	0.25	10 APR 82
82 107	1.77	17 APR 82
82 111	0.71	21 APR 82
82 112	0.22	22 APR 82
82 114	0.86	24 APR 82
82 122	0.08	02 MAY 82
82 126	1.37	06 MAY 82
82 127	0.53	07 MAY 82
82 132	0.11	12 MAY 82
82 133	2.97	13 MAY 82
82 138	0.01	18 MAY 82
82 144	0.54	24 MAY 82
82 164	0.10	13 JUN 82
82 166	0.03	15 JUN 82
82 167	2.40	16 JUN 82
82 170	0.14	19 JUN 82
82 171	0.21	20 JUN 82
82 175	0.02	24 JUN 82
82 177	1.14	26 JUN 82
82 178	0.41	27 JUN 82
82 179	0.45	28 JUN 82
82 188	0.13	07 JUL 82
82 191	0.02	10 JUL 82
82 193	0.06	12 JUL 82
82 195	0.09	14 JUL 82
82 196	0.06	15 JUL 82
82 197	0.10	16 JUL 82
82 198	0.03	17 JUL 82
82 201	0.22	20 JUL 82
82 204	0.01	23 JUL 82
82 207	0.17	26 JUL 82
82 209	0.13	28 JUL 82
82 210	1.58	29 JUL 82
82 211	0.20	30 JUL 82
82 212	0.23	31 JUL 82
82 213	0.09	01 AUG 82
82 218	0.26	06 AUG 82
82 219	2.31	07 AUG 82
82 220	0.03	08 AUG 82
82 221	0.03	09 AUG 82
82 222	0.05	10 AUG 82
82 223	0.02	11 AUG 82
82 224	0.21	12 AUG 82
82 228	0.82	16 AUG 82
82 231	0.12	19 AUG 82
82 232	0.05	20 AUG 82
82 242	2.50	30 AUG 82
82 243	0.64	31 AUG 82
82 249	0.06	06 SEP 82
82 254	6.63	11 SEP 82
82 257	0.04	14 SEP 82
82 259	1.53	16 SEP 82
82 261	0.03	18 SEP 82
82 262	0.15	19 SEP 82
82 263	0.07	20 SEP 82
82 278	1.06	05 OCT 82
82 279	0.06	06 OCT 82

0.182
82

SL-4

82	280		1.38
82	285		0.16
82	295		0.01
82	302		0.15
82	307		0.21
82	315		0.01
82	316		0.12
82	320		0.18
82	321		0.32
82	322		0.38
82	323		0.25
82	325		0.29
82	327		0.63
82	328		0.18
82	330		0.02
82	331		2.72
82	334		1.10
82	337		1.03
82	344		0.13
82	345		0.17
82	348		0.56
82	349		0.16
82	356		1.54
82	359		0.26
82	360		4.79
82	361		1.44
82	365	12 00	0.66
83	1	12 00	.69
83	7	12 00	.72
83	8	12 00	.27
83	19	12 00	1.29
83	20	12 00	.16
83	24	12 00	.19
83	29	12 00	.04
83	31	12 00	2.49
83	36	12 00	2.24
83	39	12 00	.23
83	40	12 00	.72
83	47	12 00	.33
83	52	12 00	.52
83	58	12 00	.32
83	63	12 00	.04
83	64	12 00	.23
83	75	12 00	.02
83	79	12 00	.11
83	82	12 00	1.22
83	85	12 00	.39
83	89	12 00	.63
83	91	12 00	.01
83	94	12 00	.04
83	95	12 00	1.44
83	96	12 00	.08
83	97	12 00	.01
83	103	12 00	.08
83	109	12 00	.04
83	111	12 00	.03
83	123	12 00	.25
83	128	12 00	.05
83	129	12 00	.02
83	130	12 00	.89

07	OCT	82
12	OCT	82
22	OCT	82
29	OCT	82
03	NOV	82
11	NOV	82
12	NOV	82
16	NOV	82
17	NOV	82
18	NOV	82
19	NOV	82
21	NOV	82
23	NOV	82
24	NOV	82
26	NOV	82
27	NOV	82
30	NOV	82
03	DEC	82
10	DEC	82
11	DEC	82
14	DEC	82
15	DEC	82
22	DEC	82
25	DEC	82
26	DEC	82
27	DEC	82
31	DEC	82

Lake Charles rain data format:
 yr, day, hour/min, rain in inches

83	135	12	00	1.65
83	138	12	00	.01
83	139	12	00	.81
83	140	12	00	4.82
83	141	12	00	1.68
83	150	12	00	.01
83	153	12	00	.18
83	157	12	00	.30
83	163	12	00	.38
83	168	12	00	.30
83	170	12	00	.06
83	173	12	00	.01
83	174	12	00	.94
83	175	12	00	.03
83	176	12	00	.15
83	177	12	00	1.43
83	178	12	00	.01
83	179	12	00	.34
83	183	12	00	.08
83	195	12	00	1.13
83	196	12	00	.25
83	197	12	00	.02
83	198	12	00	.11
83	199	12	00	.03
83	201	12	00	.10
83	209	12	00	.04
83	210	12	00	.09
83	212	12	00	.02
83	213	12	00	.31
83	214	12	00	.03
83	215	12	00	.16
83	216	12	00	.08
83	218	12	00	1.85
83	219	12	00	.29
83	220	12	00	.08
83	221	12	00	.03
83	222	12	00	.03
83	223	12	00	.05
83	224	12	00	2.31
83	226	12	00	1.84
83	228	12	00	.16
83	229	12	00	.10
83	230	12	00	.26
83	239	12	00	.70
83	240	12	00	.01
83	244	12	00	.06
83	248	12	00	.49
83	249	12	00	2.52
83	253	12	00	.65
83	254	12	00	.08
83	256	12	00	.21
83	259	12	00	.07
83	260	12	00	.45
83	261	12	00	.40
83	262	12	00	2.12
83	263	12	00	1.50
83	264	12	00	.09
83	277	12	00	.01
83	285	12	00	.08
83	288	12	00	.05

83	290	12	00	.03
83	294	12	00	.06
83	303	12	00	.38
83	310	12	00	.78
83	313	12	00	.12
83	319	12	00	.04
83	322	12	00	.41
83	326	12	00	.04
83	327	12	00	.63
83	330	12	00	.12
83	331	12	00	.61
83	334	12	00	.43
83	335	12	00	.30
83	337	12	00	.60
83	344	12	00	.92
83	347	12	00	.24
83	350	12	00	.26
83	355	12	00	.37
83	361	12	00	.34
84	8	12	00	.04
84	9	12	00	2.59
84	10	12	00	.01
84	12	12	00	.10
84	13	12	00	.09
84	14	12	00	.44
84	15	12	00	.30
84	17	12	00	.28
84	18	12	00	.17
84	23	12	00	.20
84	24	12	00	.29
84	25	12	00	.03

end 1983 rain data
start 1984 data

APPENDIX D

ALL EVENTS OCCURRING ON DAYS HAVING
NO RAIN AND NO THUNDER, 1981 - 1984

81	195:21:46:01.80	30 00 03.24	93 07 38.28	00.00	N		3	E,I,P,(0.342,3)
81	196:18:58:31.28	29 59 11.0	93 04 46.2	00.00	N		3	E?,0,(0.342,3)
81	197:18:15:53.01	30 00 07.2	93 08 04.2	00.00	N		3	E,I,(0.342,3)
81	197:18:16:15.72	30 00 11.52	93 08 12.84	00.00	N		3	E,I,(0.342,3)
81	332:18:35:07.28	30 00 47.52	93 06 41.04	00.03	N		3	B?,C,I .342,3
81	332:19:05:42.89	30 00 45.36	93 06 38.16	00.03	N		3	B?,C,I .342,3
81	332:19:13:19.40	30 00 47.88	93 06 41.04	00.03	N		3	B?,C,I .342,3
81	342:20:13:01.38	29 59 59.20	93 07 59.52	01.84	0.02 -- N	00.07 KM x 0.001 KM	106.13 6	E?,0,0.342,6
81	342:20:24:38.03	30 00 03.96	93 07 59.88	01.89	0.10 -- N	00.02 KM x 00.05 KM	78.77 5	E?,0,0.342,5
81	343:13:47:01.14	30 00 07.92	93 08 43.80	04.88	0.07 -- N	00.02 KM x 00.04 KM	98.84 7	E?,I,0.342,7
81	353:07:32:34.78	30 03 51.84	93 10 37.50	01.68	0.15 -- N	00.05 KM x 00.11 KM	91.07 5	E?,0,1.53,5*
82	034:14:46:07.69	30 02 21.48	93 10 20.6	00.00	0.00 -- -1.01	00.00 km X 00.00 km	104.26 3	E?,I,(0.342,3)
82	034:18:51:33.88	30 07 10.56	93 11 34.8	00.00	0.00 -- N		3	U,0,(0.342,3)
82	117:15:20:04.41	29 59 24.00	93 06 37.44	00.00	+0.14		3	E,0,(0.342,3)
82	117:15:23:00.10	29 59 07.44	93 04 43.32	02.70	+0.14		3	E,0,(0.342,3)
82	119:03:17:38.75	30 01 01.20	93 05 48.48	03.59	-0.06		3	E,I,(0.342,3)
82	180:19:16:55.54	29 58 07.68	93 00 03.6	02.28 00.32	N	00.10 KM X 01.13 KM	23.85 6	E?,0,(0.342,6)
82	180:19:17:09.35	29 58 31.4	93 01 13.8	04.24 00.19	N	00.04 KM X 00.44 KM	24.52 5	E?,0,(0.342,5)
82	180:19:17:31.47	29 58 01.2	93 00 42.84	03.66 00.90	N	00.24 KM X 02.48 KM	26.87 6	E?,0,(0.342,6)
82	208:06:34:09.79	30 03 10.44	93 14 06.72	10.94	N		3	E?,0,(0.342,3)
82	208:08:31:10.54	30 00 27.72	93 08 43.80	03.77	-1.31		3	E?,I,(0.342,3)
82	208:18:23:43.30	29 59 53.50	93 02 19.32	09.27	+0.44		3	E?,0,(0.342,3)
82	217:15:21:37.49	29 59 50.60	93 01 37.56	00.00 01.33	+0.39	01.67 KM X 16.39 KM	9.67 5	E?,C,0,P,(0.342,5)
82	217:21:44:53.75	29 57 12.20	93 01 18.12	00.00 00.12	+0.89	00.85 KM X 10.52 KM	37.21 6	E?,0,P,(0.342,6)
82	226:15:17:11.86	29 59 45.90	93 08 47.76	00.00	-1.0		3	E?, ,(0.342,3)
82	240:22:26:04.56	29 55 13.80	93 12 16.50	07.45	N		3	E?,0,(0.342,3)
82	250:19:15:39.77	29 57 59.40	93 12 04.68	01.14	+0.55		3	E?, ,(0.342,3)
82	270:14:01:36.02	30 05 07.08	93 06 33.84	01.81 01.63	+0.44	00.32 KM X 01.02 KM	111.52 5	E?,0,(0.342,5)
82	290:14:19:56.13	30 02 17.16	93 14 42.70	06.65	N		3	E?,0,(0.342,3)
82	311:12:46:55.52	30 00 23.76	93 11 05.28	02.15	-0.20		3	E?, ,(0.342,3)

NO RAW - NO THUNDER SEISMIC DATA

311:12:47:59.59	30 00 05.76	93 12 41.40	03.73
82 311:18:06:46.96	30 00 42.12	93 05 20.76	00.00
82 317:07:16:31.16	29 57 12.90	93 14 33.70	07.00 00.00
82 340:16:16:07.88	29 58 28.50	93 07 43.32	11.62
82 340:19:45:29.92	30 01 09.12	93 16 23.50	00.00
82 340:21:46:13.45	29 58 36.10	93 17 20.00	10.32
82 342:16:11:57.48	29 56:04.56	93 08 51.00	03.85
82 342:16:32:09.83	29 55 46.20	93 13 45.40	10.23
82 342:17:01:46.02	29 57 15.10	93 12 31.30	02.85 01.03
82 343:15:50:56.61	30 05 26.16	93 06 05.40	01.50
82 350:20:15:22.31	29 56 04.56	93 12 41.70	00.63
82 351:22:54:56.46	30 03 41.04	93 09 30.60	06.80
83 003:20:44:12.69	30 02 05.64	93 15 09.72	08.49
83 003:20:46:04.30	29 57 26.20	93 11 54.60	00.00
83 003:20:53:25.24	30 01 04.80	93 08 36.96	00.00
83 003:21:53:49.28	29 59 28.60	93 12 35.60	00.00
83 004:21:21:47.51	30 00 14.76	93 11 29.00	01.31
83 010:17:02:16.83	30 02 33.72	93 09 52.92	04.85
83 017:20:37:09.49	29 59 03.12	93 11 53.50	05.55
83 041:22:25:00.76	30 04 46.92	93 08 15.00	04.33
83 053:20:06:17.15	29 57 01.08	93 14 04.20	05.07
83 74 1 14 3.74	29 57 36.36	93 11 58.92	.00
83 78 0 27 23.20	30 0 58.68	93 9 11.51	.00
83 81 7 7 27.08	30 0 59.40	93 7 36.48	2.26
83 107 18 4 1.85	30 5 30.84	93 12 32.76	7.35
83 117 16 30 2.02	30 6 44.64	93 6 7.55	.03
83 118 13 38 15.33	30 8 26.88	93 9 1.43	.03
83 118 13 43 22.50	30 5 52.44	93 9 28.79	.03
83 118 13 55 25.78	30 7 10.92	93 9 39.23	5.39
83 162 21 52 50.45	30 1 47.64	93 4 3.73	.00

0.00	3	E?, ,(0.342,3)
N	4	E?, ,(0.342,4)
+0.71 03.02 KM X 16.69 KM 132.95	6	E?,0,(P,6)
0.00	3	E?, ,P,(0.342,3)
N	3	E?,0,P,(0.342,3)
N	3	E?,0,(0.342,3)
N	3	E?,0,(0.342,3>)
N	3	E?,0,(0.342,3)
N 00.20 KM X 01.11 KM 137.26	5	E?,0,(0.342,5)
+0.87	3	E?,0,(0.342,3)
N	4	E?,0,(0.342,4)
-1.0	3	E?, ,(0.342,3)
+0.47	3	E?, ,(0.342,3)
-0.52	4	E?,C, ,P,(0.342,4)
0.03	4	E?, ,(0.342,4)
+0.25	4	E?,C,P, ,(0.342,4)
-0.28	4	E?, ,(0.342,4)
N	4	E?, ,(0.342,4)
+0.35	3	E?, ,(0.342,3)
N		
N		
00.3	4	
-1.	3	
00.3	3	
-1.	3	
N	5	
N	6	
N	6	
N	6	
N	5	

83 162 21 54 53.28	30 0 43.56	93 3 14.40	.00
83 292 16 3 48.42	29 57 32.04	93 11 40.93	8.51
83 297 19 36 21.81	29 56 57.84	93 6 35.65	4.52
83 301 23 38 55.36	30 1 18.48	93 10 11.99	2.07
83 307 21 56 4.04	29 55 24.96	93 14 .95	1.98
83 338 3 52 32.22	30 5 30.48	93 14 44.51	7.85

N

3

N

3

N

3

N

3

N

3

1.43

8