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CONTROLLED-SOURCE ELECTROMAGNETIC SURVEY AT SODA LAKES GEOTHERMAL AREA, NEVADA

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Abstract

The EM-60 system, a large-moment frequency-domain electromagnetic loop prospecting system, was operated in the Soda Lakes geothermal area, Nevada. Thirteen stations were occupied at distances ranging from 0.5-3.0 km from two transmitter sites. These yielded four sounding curves--the normalized amplitudes and phases of the vertical and radial magnetic fields as a function of frequency--at each station. In addition, two polarization ellipse parameters, ellipticity and tilt angle, were calculated at each frequency. The data were interpreted by means of a least-squares inversion procedure which fits a layered resistivity model to the data. A three-layer structure is indicated, with a near-surface 10 ohm-m layer of 100-400 m thickness, a middle 2 ohm-m layer of approximately 1 km thickness, and a "basement" of greater than 10 ohm-m. The models indicate a northwesterly structural strike; the top and middle layers seem to thicken from northeast to southwest. The results agree quite well with previous results of dipole-dipole and magnetotelluric (MT) surveys. The EM-60 survey provided greater depth penetration (1 - 1.5 km) than dipole-dipole, but MT far surpassed both in its depth of exploration. One advantage of EM in this area is its ease and speed of operation. Another advantage, its relative insensitivity to lateral inhomogeneities, is not as pronounced here as it would be in areas of more complex geology.

Introduction

As part of the Department of Energy's industry-coupled program in northern Nevada, Lawrence Berkeley Laboratory has made electromagnetic surveys using its newly-developed controlled-source EM system (EM-60) at several geothermal prospects. The EM-60 is a large-moment frequency-domain electromagnetic system, described in Appendix A.

The Soda Lakes area is located in west-central Nevada about 80 km east of Reno and 10 km northwest of Fallon. A variety of geophysical surveys, including magnetotelluric and dipole-dipole resistivity have been carried out in the area, and three intermediate to deep holes have been drilled. The wells have not pierced a producible reservoir, but the prospect is still under exploration.

We brought the EM-60 system to Soda Lakes to compare the results with the dipole-dipole and the magnetelluric data and to better define, if possible, the resistivity structure of the prospect.

Hydrology and Geology

Garside and Schilling (1979) have described the hydrology, geology, and geothermal activity of the Soda Lakes area. It lies near the southwestern margin of the Carson Sink, a major hydrologic basin. Groundwater, therefore, tends to flow northeast.

The Soda Lakes thermal anomaly was discovered accidentally in 1903 when drillers found boiling water 60 ft below the surface. The results of a shallow temperature survey are reported in Olmsted et al. (1975) (Figure 1). The plume-like temperature distribution suggests hot water ascending to the hottest points, and diffusing out in the direction of the regional groundwater flow (northeast).

Soda Lake is thought to fill an explosion crater and is rimmed by basaltic debris; this activity probably ceased within the last 7000 years. Basaltic ridges outcrop 10-20 km to the north. Elsewhere, exposures of unconsolidated lake sediments dominate. Hydrothermal alteration products, such as kaolinite and iron minerals, have been found in the surface sediments. A few northeast-trending faults have been mapped, but these are poorly exposed.

The topography is flat to hummocky. The soil is very sandy, but vegetation is relatively lush due to extensive surface irrigation. Small ponds and dry lake beds dot the area, remnants of ancient Lake Lahontan.

Previous Geophysical Work

The results of the shallow-hole temperature study are mentioned above. Other geophysical work has included shallow and deep seismic reflection, dipole-dipole resistivity, and magnetotellurics.

The shallow weight-drop reflection survey covered 40 line km in the area mapped in Figure 1. The survey revealed numerous short (1-2 km) northwest-trending normal faults, with displacements on the order of tens of meters. The deep reflection survey detected a deeper (>1 km) northeast-trending normal fault displacing beds a few hundred meters.

The dipole-dipole survey covered the area mapped in Figure 1. The maximum spacing used was 4 dipole lengths (n = 4), a distance of 2.4 km. In most cases, however, reliable data were obtained only up to n = 2 or 3, giving an effective penetration of 250-400 m. The apparent resistivities, presented in pseudosections, indicate a generally conductive section. In a few areas the contractor interpreted the data with a simple two-layer curve-matching

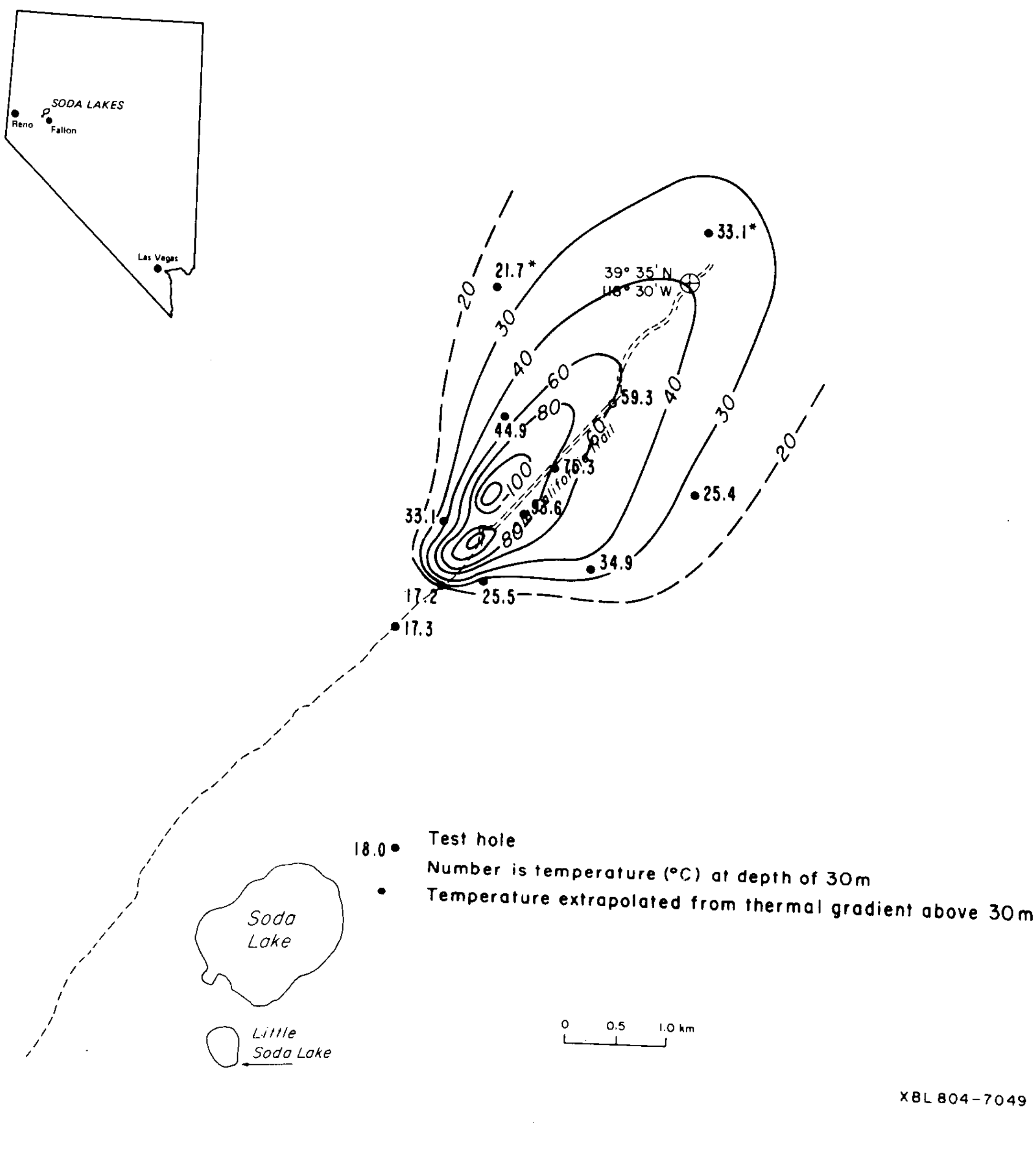

Fig. 1. Location map and shallow temperature survey results.

procedure. These all indicated true resistivities decreasing from about 10 ohm-m near the surface to 2 ohm-m at depths of a few hundred meters; nothing different was interpreted within the thermal anomaly.

MT surveys were conducted in 1973 and in 1977 to explore the deeper resistivity structure. Measurements were made at frequencies ranging from .001 to 100 Hz, allowing interpretation from a few hundred meters down to tens of kilometers depth. The interpretation was carried out by fitting layered models to the data, or by direct inversion to a continuous resistivity-depth function. Most of the interpretations indicated a four-layer resistivity structure: a surface layer of 10 ohm-m extending to a depth of a few hundred meters, a conductive (~2 ohm-m) zone down to 1 km, a relatively resistive zone (>10 ohm-m) extending to 5-10 km, and a conductor of about 1 ohm-m at depth. Correlations were sought between similar units at different stations, and resistivity profiles were constructed. Figure 4b shows the near-surface portion of one such interpreted resistivity profile, along Line A-A' (Figure 2).

Well Logs

Lithologic and driller's logs were available to us for three holes, all of which were collared within .5 km of Line A-A'. A generalized summary of the lithologic information is given in Figure 4c. Unconsolidated sands and clays dominate the uppermost kilometer of the sedimentary section. These yield to volcanic sandstones and siltstones characterized by secondary mineralization at depth.

EM-60 Survey

Figure 2 shows the locations of the two transmitter sites and the 13 plotting points for the data. These plotting points are mapped at points midway between the transmitter and the actual receiver locations, using a convention which is explained below. Interpretable data were obtained at all 13 stations; in most cases we covered at least three frequency decades. At the higher frequencies we could not obtain absolute amplitude and phase data (see Appendix A); only polarization parameters such as ellipticity and tilt angle could be reliably measured in this range. Receiver stations 1-5 and 2-1 were located at the same site, detecting signals from transmitters 1 and 2 respectively. The 13 soundings were obtained by a crew of four during one week of field work.

Data reduction and interpretation

The data were brought back to the office and entered into a small computer. Segments obviously contaminated by noise were edited out, gains corrections were made, and consecutive segments corresponding to identical frequencies and stations were averaged together to obtain standard error estimates. These procedures yielded a working data set, which is tabulated in Appendix B.

For interpretation, we relied on an automatic Marquardt least-squares inversion (e.g., Inman et al., 1973). This inversion uses a "forward" modeling program as its kernel to calculate the fields due to a finite a.c. loop source above an arbitrarily layered earth. The inversion seeks a best-fitting earth model by changing the resistivities and thicknesses of the

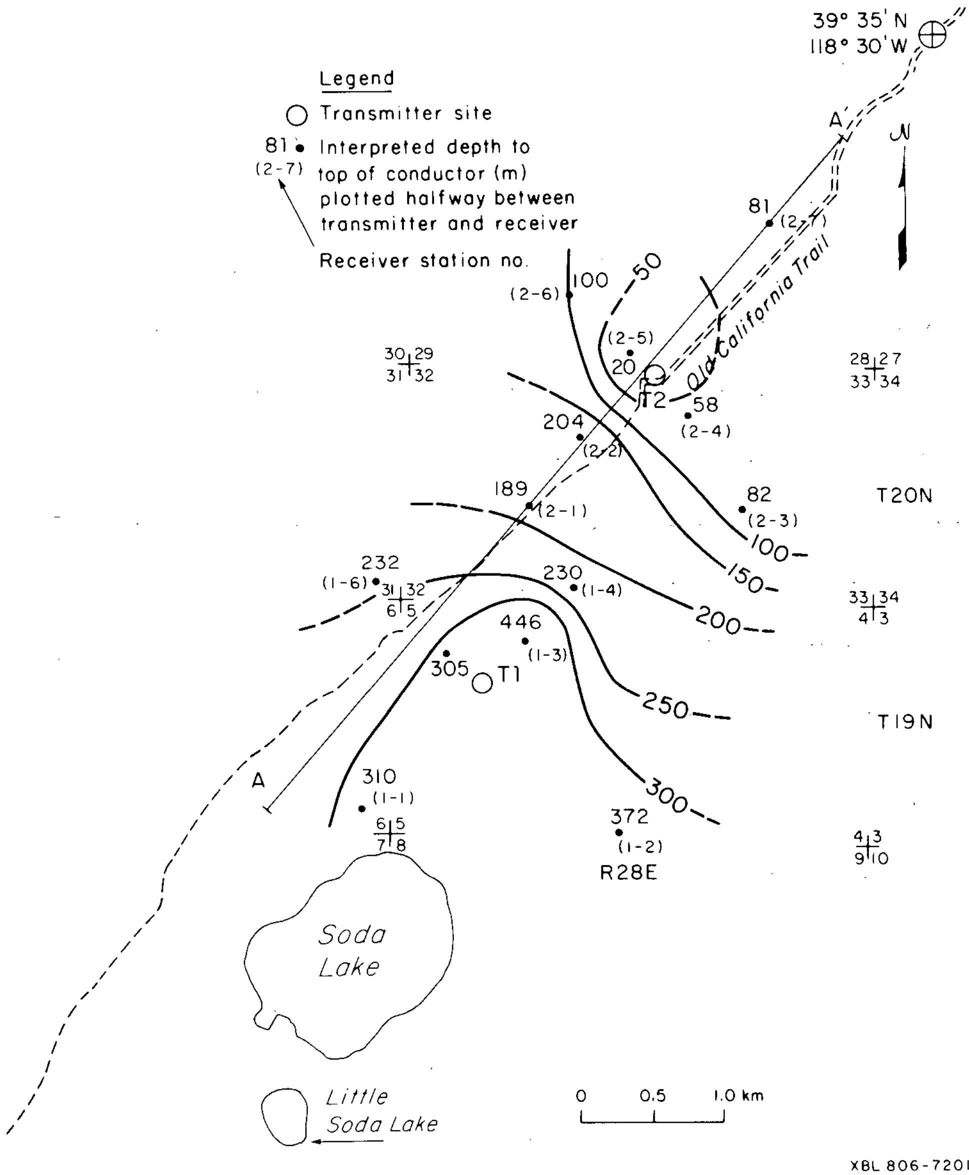

Fig. 2 Contours on interpreted depth to top of conductive second layer.

layers in an iterative least-squares procedure. Each data point can be weighted according to the operator's confidence in it. In general, the standard errors listed in Appendix B were not relied on in this regard because they reflect only random sampling error, not systematic noise. Instead, a rather subjective weighting scheme was used, based on our confidence in the data, and its importance in resolving certain features of the models. With such highly nonlinear curves, it may be appropriate to include a weighting factor proportional to the slope of the sounding curve at each point. In any case, the error estimates and model parameter confidence bounds are questionable.

The results are shown in Appendix C. For each station, the observed amplitude, phase, ellipticity, and tilt angle data are plotted against curves calculated for the best-fitting earth models. The layer thicknesses and resistivities are also listed, with an estimate of the resolution of these properties.

Most of the soundings yielded two- or three-layer models, with a near-surface layer of about 10 ohm-m, a deeper conductive (~2 ohm-m) unit, and (in some cases) a relatively resistive "basement" whose resistivity could not be well resolved. Drawing correlations between units of similar resistivity from different stations enabled us to construct the resistivity structure contour maps in Figures 2 and 3 and the cross section in Figure 4a.

Figure 2 shows the top surface of the conductive second layer as interpreted from the soundings. Depth points are plotted midway between the receiver and transmitter; this convention is used in lieu of a rigorous 2-D or 3-D interpretation.

The contours show a northwesterly trend, with a steep gradient near Transmitter 2 (T2). This is roughly consistent with the shallow seismic results, which indicated a set of northwest-trending faults. However, Figure 2 suggests vertical displacement of 100-200 m along a fault near T2, whereas a more gradual en echelon faulting pattern is inferred from the seismic data. Figure 2 also agrees roughly with the few quantitative interpretations made from the dipole-dipole data southwest of T2. However, we see a definite difference inside the thermal anomaly. Our soundings there indicate a much shallower depth to the conductor.

Figure 3 shows the interpreted depth to the base of this conductor. It should be noted that fewer than half of the soundings responded to the resistive unit beneath the conductor; none were able to resolve its resistivity. The depths are not well resolved either, so Figure 3 should be regarded as a very rough estimate of the depth to the resistor. The pattern is similar to Figure 2 insofar as the base of the conductor is shallower north and east of T2.

We also constructed a profile along Line A-A' (Figure 4a). The profile is lined up with a similar MT profile (Figure 4b) and the generalized lithologic logs (Figure 4c). The agreement between the EM and MT profiles is good, but there were no MT stations northeast of T2, so we cannot corroborate the change in thickness of the top two layers there. The EM profile shows that the top of the conductor drops 200-300 m southwest of T2 while its base drops more than 500 m. This may indicate that faulting was contemporaneous with deposition of the conductive layer.

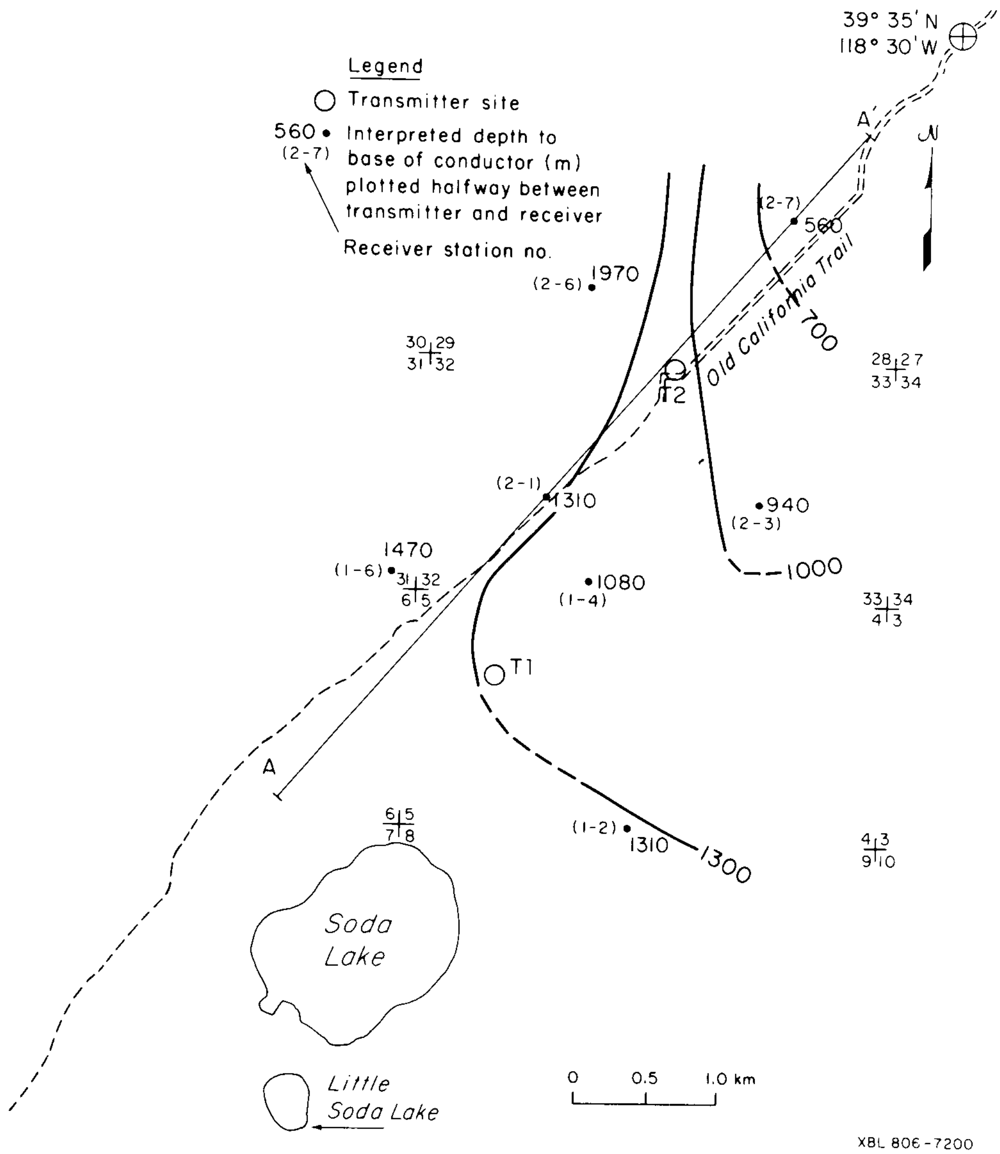

Fig. 3. Contours on interpreted depth to base of conductive second layer.

Fig. 4a

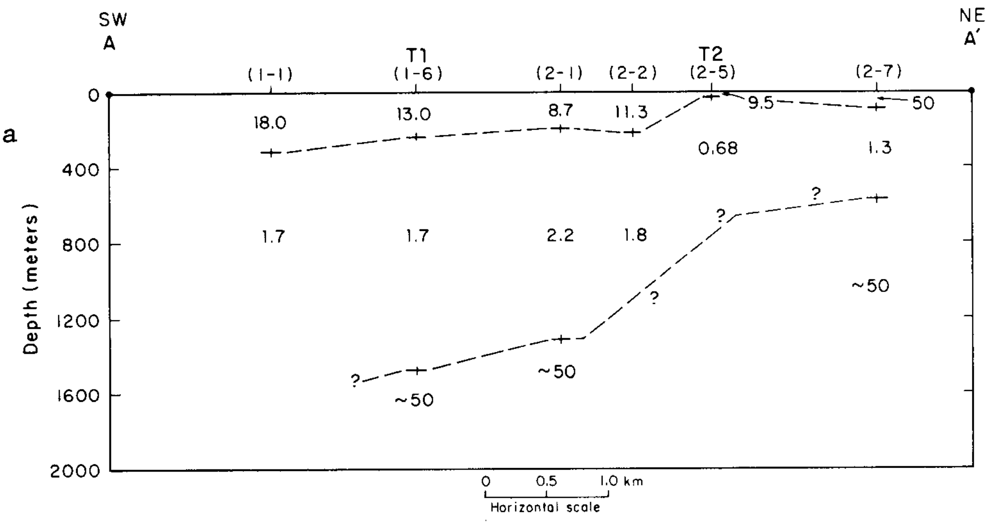

Fig. 4b

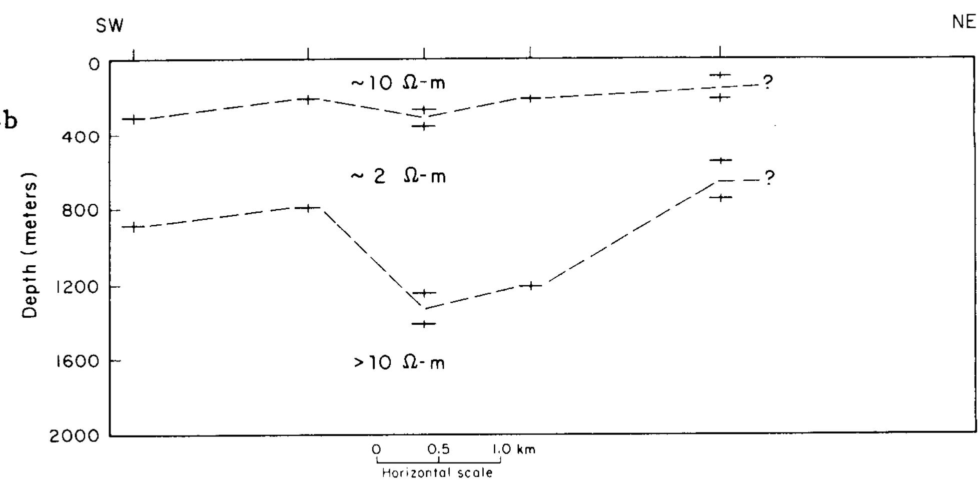

Fig. 4c

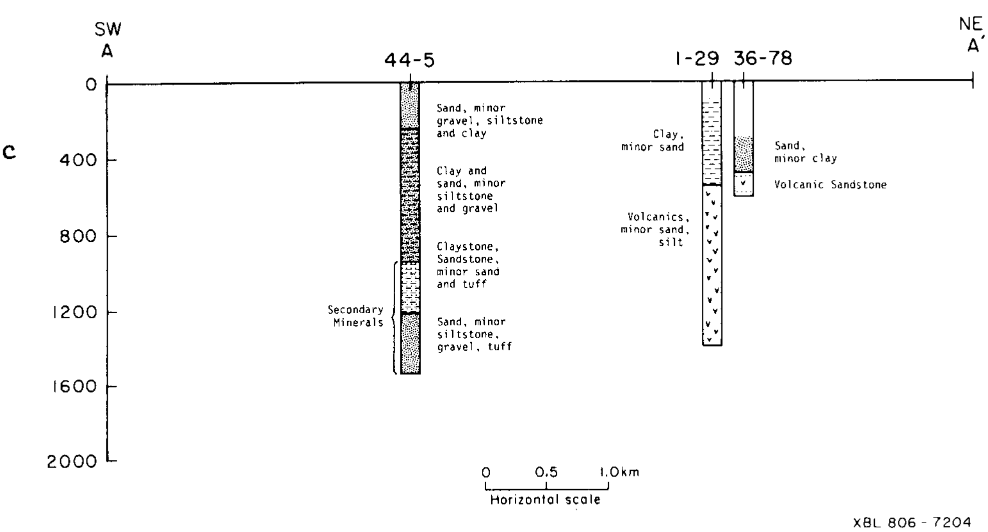

Fig. 4a. Interpreted EM resistivity cross section, Line A-A'.
4b. Interpreted MT resistivity cross section, Line A-A'.
4c. Generalized lithologic logs for three wells along Line A-A'.

The lithologic log from Well 44-5 helps explain the EM sounding interpretation. The transition from the surface layer to the conductor appears to correspond to the lithologic transition from predominantly unconsolidated sands to a clay-dominated sequence at about 250 m. Clays are well known for their low resistivities. The deeper transition to high resistivities probably represents the reemergence of sand as the dominant material at about 1300 m. This compares with the EM estimate of 1500 m and the MT estimates of 1300 and 1400 m. The lithification and secondary mineralization noted below 1000 m in the log are apparently not expressed in either the MT or the EM data.

The two well logs near T2 (1-29 and 36-78) are not as obviously correlated with the resistivity profiles (nor are they especially well correlated with each other), but they can be reconciled. The surface layer is not expressed in either log, because no rock descriptions were reported above about 100 m. Both logs contain sand and clay sediments down to about 600 m; volcanic rock fragments (VRF's) prevail at greater depth. The volcanics may be detrital; the logs are unclear in this regard. In any case, the sand and clay unit appears to correspond to the conductive second layer in the EM profile, while the volcanic material below 600 m corresponds to the resistive "basement."

Thus it appears that the conductive zone is caused at least in part by clay. The deeper resistive zone may be caused by the absence of clay, increasing lithification, secondary mineralization, and/or massive volcanics. The shallowing of the conductive unit appears to correlate directly with the thermal anomaly.

The shallow geothermal system may occur because hot water is rising along a northwest-trending fault passing near T2, and diffusing out to the northeast with the regional groundwater flow. However, this scenario does not tell us where the hot water is coming from, nor does it explain the role (if any) of the major northeast-trending fault noted in the deep seismic profile.

EM-60 Survey Evaluation

The goals of the survey were to obtain data in an efficient manner, to compare the results with those from other geophysical surveys, and, if possible, to add new information to guide exploration planners in the area.

We obtained 13 soundings in one week with a crew of four, covering an area of 30 km^2 with depth penetration of about 1.5 km. Data quality was good-to-excellent throughout. Somewhat disappointing was the rather shallow depth of exploration achieved. The EM method is not well suited to resolution of resistive bodies beneath conductive overburden. Nonetheless, we achieved two-to-three times deeper penetration than the dipole-dipole survey and were able to develop a more quantitative idea of the resistivity structure.

As expected, the MT survey provided much greater depth of exploration than EM or dipole-dipole resistivity. The EM-60 system will be tested soon in a deeper application; in any case, MT is unique in its resolution of the resistivity structure down to several tens or hundreds of kilometers. Lateral inhomogeneities, which can often hamper MT interpretation, were not a serious difficulty at Soda Lake. Therefore, the major intrinsic advantages of EM over MT here were the improvement in near-surface resolution and the lower cost of data acquisition. In addition, we obtained more information northeast of T2, because there were no MT stations there.

We believe that the EM results have clearly demonstrated that the shallow thermal anomaly is associated with a shallowing of the low-resistivity second layer. They also suggest the importance of the northwest-trending fault set in controlling the shallow geothermal regime. Finally, the survey has corroborated many of the findings from the MT and dipole-dipole studies; no serious discrepancies were found between data sets.

Acknowledgment

This work was supported by the Division of Geothermal Energy of the U.S. Department of Energy under Contract No. W-7405-ENG-48.

References

Garside, L. J., and J. H. Schilling, 1979. Thermal waters of Nevada. Nevada Bureau Mines and Geology, bulletin 91.

Inman, J. R., J. Ryu and S. H. Ward, 1973. Resistivity inversion: Geophysics 38, 6, pp. 1088-1108.

Olmsted, F. H., P. A. Glancy, J. R. Harrill, F. E. Rush, and A. S. VanDenburgh. 1975. Preliminary hydrogeologic appraisal of selected hydrothermal systems in northern and central Nevada: U.S. Geological Survey, open-file report 75-56.

APPENDIX A

Description of EM-60 System

APPENDIX A

EM-60 ELECTROMAGNETIC SYSTEM

In 1976, Lawrence Berkeley Laboratory, in conjunction with the University of California Berkeley, made preliminary measurements with a prototype large-moment, horizontal-loop EM prospecting system (Jain, 1978) in a geothermal area in Nevada. Encouraging results from this work led to the development of the EM-60 horizontal-loop system (Morrison et al., 1978), which has now been operated for more than 500 hr at various geothermal sites in Nevada and Oregon.

The EM method offers the following advantages over dc resistivity and magnetotellurics in geothermal exploration: (1) The maximum depth of exploration with EM is approximately equal to the distance between the transmitter and receiver; this compares to about one-fifth the source-receiver separation for dc resistivity. (2) The EM method is faster and less expensive than dc resistivity or MT. (3) Distant lateral inhomogeneities, which often affect MT data, have relatively minor significance for EM, because the strength of the fields strongly decreases with increasing distance from the transmitter.

System Description

The system, as shown schematically in Figure A-1 consists of two sections: (a) a transmitter section consisting of the power source, control electronics, timing, and a transistorized switch capable of handling large current; and (b) a receiver section consisting of magnetic or a combination of magnetic and electric field detectors, signal conditioning amplifiers and anti-alias filters, and a multichannel programmable receiver (spectrum analyzer).

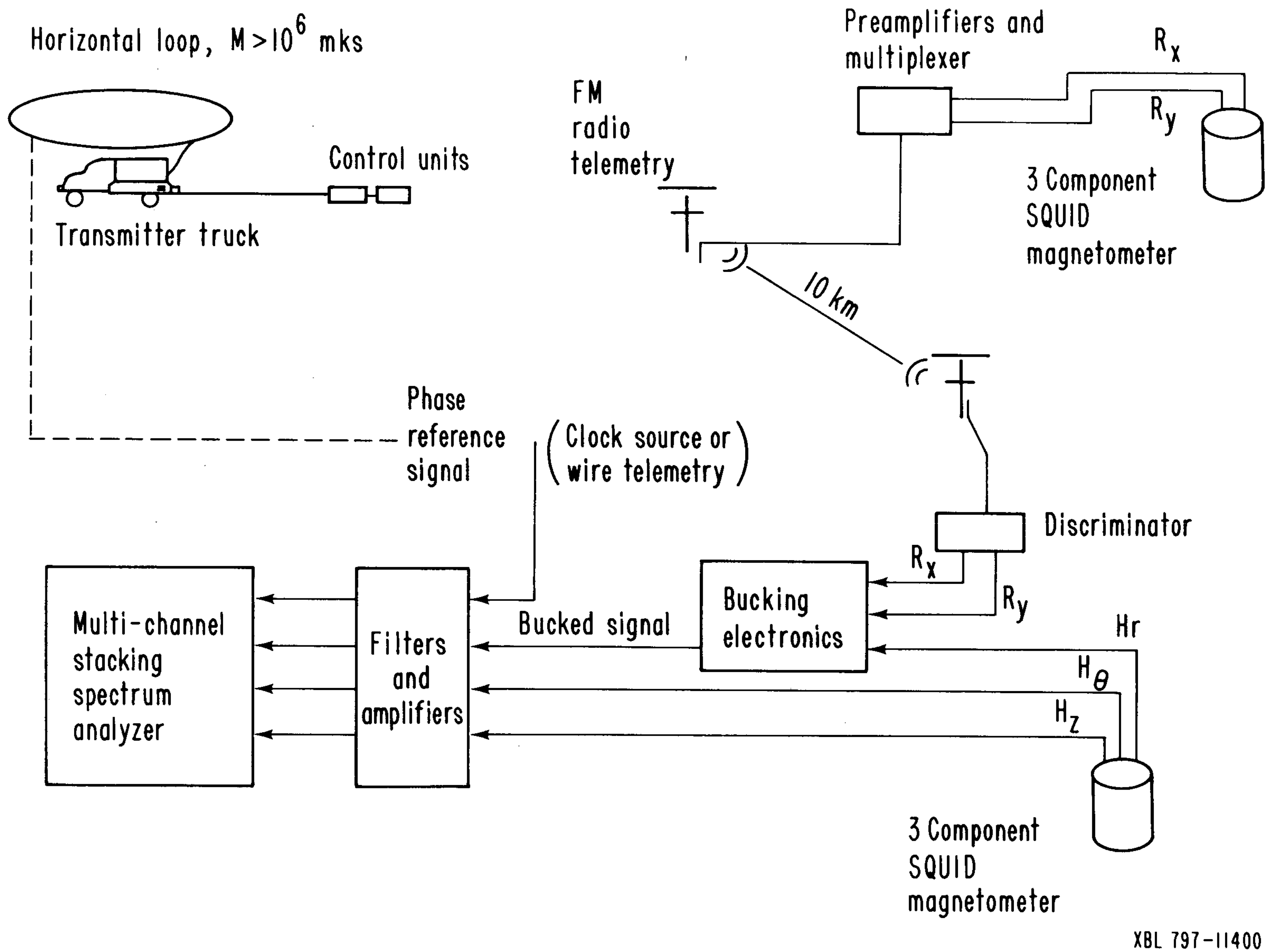

Figure A-1. Schematic diagram of the EM-60 system.

Transmitter System

The EM-60 transmitter is powered by a Hercules gasoline engine linked to an aircraft 60-kW, 400-Hz, 3ϕ alternator. These two components are mounted in the bed of a one-ton, four-wheel-drive truck. The output is full-wave rectified and capable of providing $\pm$150 V at up to 400 A to the horizontal coil. The square-wave current pulses are created by means of a transistorized switch, which consists of two parallel arrays of from 6 to 60 transistors in interchangeable modules within the "crate" (the lower outward pivoting box in Figure A-2). The upper unit contains array-driving electronics and timing circuitry. The transmitter is operated by one man who controls the frequency of the primary magnetic field over the range of 10^{-3} to 10^3 Hz by means of switches on a remote control box which contains a crystal-controlled oscillator and dividers (Morrison et al., 1978).

The dipole moment, which is a measure of the strength of the signal, is determined by the resistance and inductance of the loop. At frequencies below 50 Hz, inductive reactance is negligible and the dipole moment is governed by the load resistance. Four turns of no. 6 wire in a square or circular loop, 50 m in radius, will yield a dipole moment of about 3 x 10^6 mks. This provides adequate signal for soundings where transmitter-receiver separations are less than about 5 km, which corresponds to a maximum depth of exploration of about 5 km. At frequencies above about 100 Hz, the inductance causes the moment to decrease and the current waveform to become quasisinusoidal. High-frequency information is thus more difficult to obtain at large transmitter-receiver separations.

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Figure A-2. The EM-60 transmitter section.

Receiver Section

The fields are detected at a point 1-4 km distant from the transmitter by means of a three-component SQUID magnetometer oriented to measure the vertical, radial, and tangential components with respect to the loop. Signals are amplified, anti-alias filtered and inputted to a six-channel, programmable, multifrequency phase-sensitive receiver (Figure A-1). Through the receiver key-pad, the operator sets parameters controlling signal processing: (a) fundamental period of the waveform to be processed; (b) maximum number of harmonics to be analyzed, up to 15; (c) number of cycles in increments of 2^N to be stacked prior to Fourier decomposition; and (d) number of input channels of data to be processed. Processing results in a raw amplitude estimate for each component and a phase estimate relative to the phase of the current in the loop. Phase referencing is maintained with a hard-wire link between a shunt on the loop and the receiver; this reference voltage is applied directly to channel 1 of the receiver for phase comparison. Raw amplitude estimates must be later corrected for dipole moment and distance between loop and magnetometer.

In practice, the hard-wire link was found to be a source of noise, particularly above 50 Hz. This has required the elimination of the absolute phase reference at high frequencies in favor of relative phase measurements between vertical and radial components. With relative phase measurements, interpretation is based on the ellipticity and tilt angle of magnetic field rather than amplitude-phase of the vertical and radial fields. At low frequencies ($<.1$ Hz) natural geomagnetic signal amplitude increases roughly as

1/f while the signal sought decreases as 1/f. The net result is an effective signal-to-noise ratio that decreases as $1/f^2$, making noise cancellation imperative for recovery of low-frequency information. To cancel geomagnetic noise, a reference magnetometer is placed far enough from the transmitter loop, (10-12 km) so that the observed fields will consist only of the geomagnetic fluctuations. Once installed, the reference magnetometer can often remain fixed over the course of a survey. The remote signals are transmitted to the mobile receiver station from the transmitter via FM radio telemetry. Before the loop is energized, the remote signals are inverted, adjusted in amplitude, and then added to the base station geomagnetic signal to produce essentially a null signal. A good example of this simple noise cancellation scheme is shown in Figure A-3. The resulting signal-to-noise improvement of roughly 20 dB has allowed us to obtain reliable data to 0.05 Hz, a gain of three or four important data points on the sounding curve. These points are invaluable for resolving deeper horizons.

Data Interpretation

Basic interpretation is accomplished by direct inversion of observed data to fit one-dimensional models. The program used fits amplitude-phase and/or ellipse polarization parameters jointly or separately to fit arbitrarily layered models. This program allows the use of ellipse polarization parameters to separately fit high frequency points, where absolute phase data is much noisier, while simultaneously using absolute phase data at the lower frequencies, where the phase reference may allow for better parameter resolution. Two-dimensional modeling, although possible, is currently

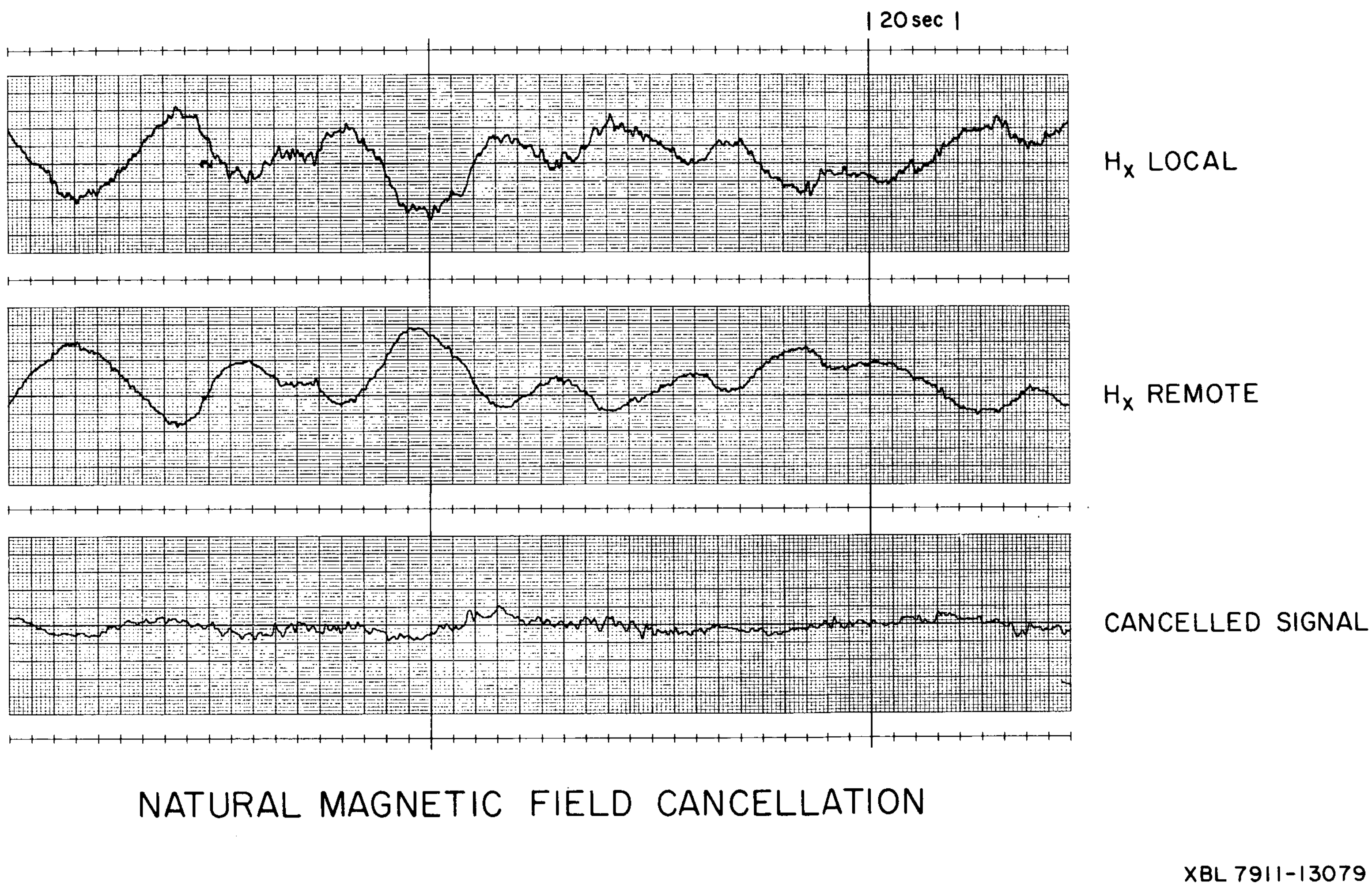


Figure A-3. Field records of telluric noise cancellation.

cumbersome and prohibitively expensive (Lee, 1979).

Samples of EM-60 amplitude-phase spectra soundings are given in Figures A-4 and A-5; the error bars signify one standard deviation. The fit to a three-layer model is fairly good, but note that data were interpreted only to 50 Hz because high noise, due to the use of the reference wire, prohibited obtaining higher frequency amplitude-phase data. Ellipticity data, however, could usually be interpreted to 500 Hz.

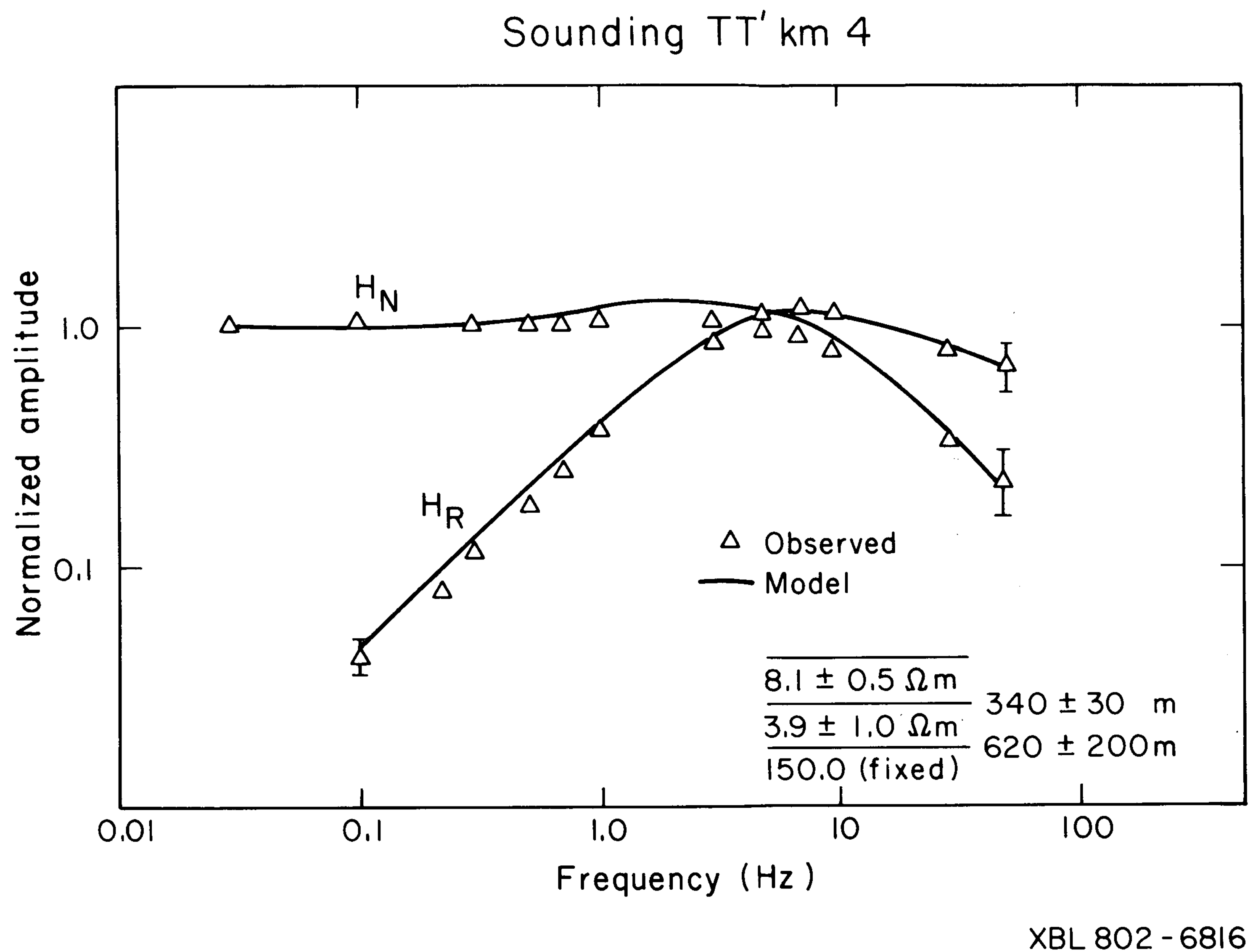


Figure A-4. Example of EM amplitude spectra.

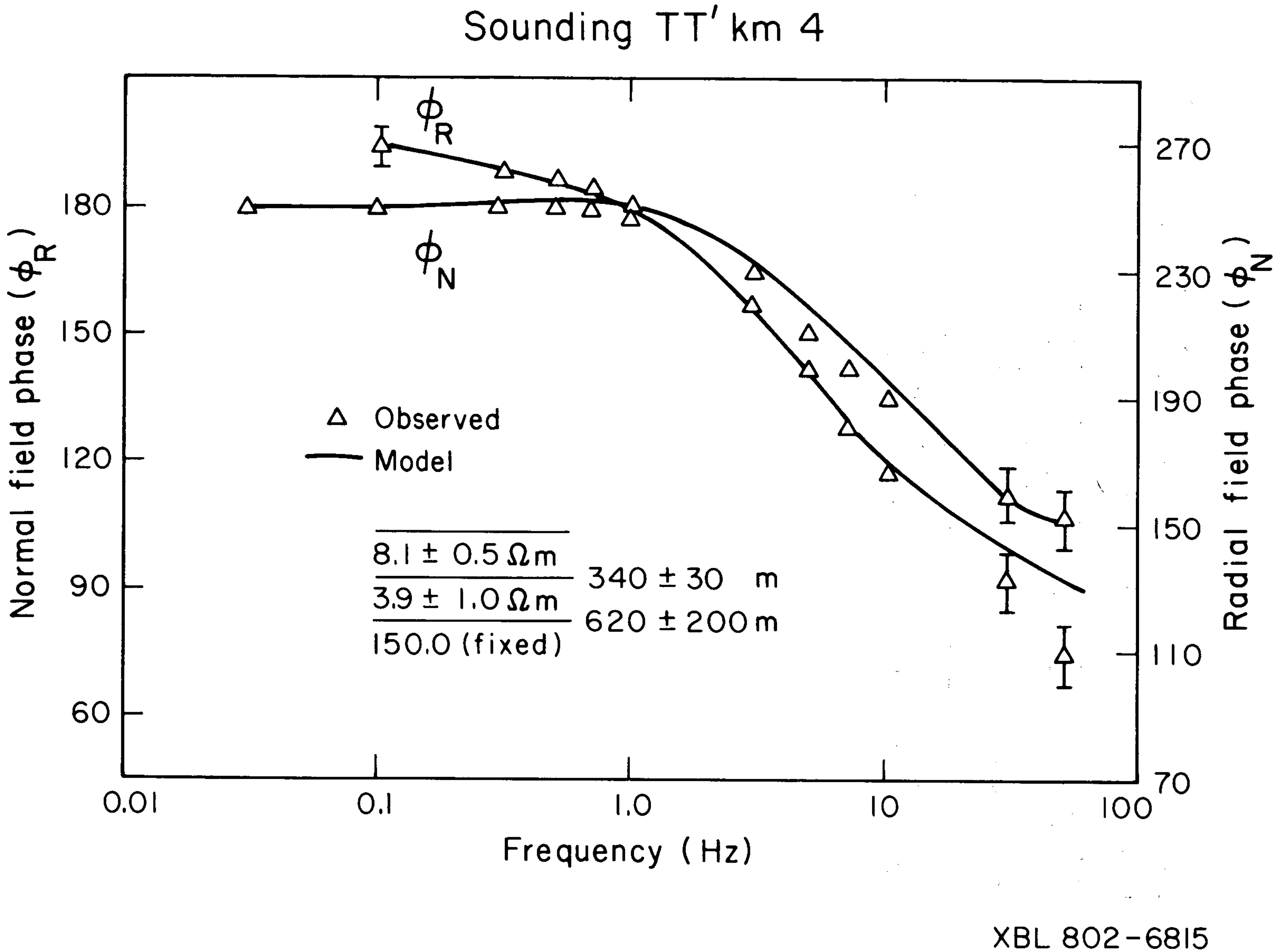


Figure A-5. Example of EM phase spectra.

References

Jain, B., 1978. A low frequency electromagnetic prospecting system, Ph.D. dissertation, University of California, Berkeley, Department of Engineering Geosciences, Lawrence Berkeley Laboratory, LBL-7042.

Lee, K. H., 1978, Electromagnetic scattering by a two-dimensional inhomogeneity due to an oscillating magnetic dipole, Ph.D. dissertation, University of California, Berkeley, Department of Engineering Geosciences, Lawrence Berkeley Laboratory, LBL-8275.

Morrison, H. F., Goldstein, N. E. Hoversten, N., Oppliger, G., and Riveros, C., 1978. Description, field test and data analysis of a controlled-source EM system EM-60, Lawrence Berkeley Laboratory, LBL-7088.

APPENDIX B

Final Working Data Set

station: soda lake a-a' 0.5km north t1   separation=960 meters
number of turns=4   loop radius=50 meters
hr mag const=7.936   hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
1.000	1.008	0.002	185.047	0.257
3.000	1.114	0.006	178.554	0.585
5.000	1.117	0.004	174.294	1.003
7.000	1.119	0.005	168.093	1.444
10.000	1.112	0.001	164.439	0.037
30.000	0.878	0.000	136.973	0.120
50.000	0.648	0.000	89.219	0.087
50.000	0.692	0.001	120.567	0.197
100.000	0.250	0.000	350.330	0.095
150.000	0.146	0.001	299.279	0.145
200.000	0.014	0.000	286.829	0.171
500.000	0.004	0.000	177.597	0.192

frequency	hr amp	amp err	hr phase	phase err
1.000	0.160	0.013	280.607	5.587
3.000	0.322	0.010	237.196	2.451
5.000	0.435	0.012	225.107	2.495
7.000	0.499	0.007	217.218	1.246
10.000	0.631	0.005	207.222	0.345
30.000	0.779	0.004	177.491	0.197
50.000	0.752	0.003	129.344	0.126
50.000	0.782	0.006	164.590	0.457
100.000	0.439	0.001	35.397	0.121
150.000	0.397	0.004	354.911	0.247
200.000	0.058	0.001	299.003	40.283
500.000	0.010	0.001	352.383	1.064

frequency	ellipticity	ellip err	tilt angle	tilt err
1.000	-0.154	0.015	90.613	0.637
3.000	-0.239	0.008	80.917	0.793
5.000	-0.281	0.006	74.957	0.858
7.000	-0.305	0.011	72.136	1.024
10.000	-0.322	0.001	64.564	0.319
30.000	-0.366	0.001	49.463	0.202
50.000	-0.360	0.001	39.480	0.127
50.000	-0.400	0.003	40.155	0.371
100.000	-0.340	0.000	25.047	0.092
150.000	-0.290	0.001	12.842	0.069
200.000	-0.237	0.004	4.670	0.162
500.000	-0.035	0.008	-24.561	2.016

station: soda lake a-a′ 1.5km north t1 separation=1956 meters
number of turns=4 loop radius=50 meters
hr mag const=7.936 hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.100	1.090	0.005	188.927	0.292
0.300	1.270	0.001	185.251	0.051
0.500	1.369	0.001	177.789	0.102
1.000	1.445	0.002	166.823	0.027
3.000	1.027	0.003	139.310	0.171
5.000	0.773	0.003	129.246	0.328
7.000	0.638	0.003	123.910	0.274
10.000	0.521	0.001	118.127	0.077
30.000	0.247	0.003	98.513	0.645
50.000	0.191	0.004	87.232	1.735

frequency	hr amp	amp err	hr phase	phase err
0.100	0.217	0.003	269.079	0.907
0.300	0.552	0.003	243.843	0.291
0.500	0.780	0.003	229.534	0.364
1.000	1.074	0.002	209.806	0.333
3.000	1.195	0.005	177.246	0.282
5.000	1.088	0.003	165.456	0.194
7.000	1.029	0.010	159.123	0.622
10.000	0.899	0.012	154.095	0.245
30.000	0.455	0.011	139.227	0.719
50.000	0.175	0.009	155.133	3.447

frequency	ellipticity	ellip err	tilt angle	tilt err
0.100	-0.196	0.002	87.970	0.140
0.300	-0.350	0.002	75.398	0.148
0.500	-0.389	0.003	66.891	0.098
1.000	-0.371	0.003	56.202	0.062
3.000	-0.339	0.002	39.524	0.253
5.000	-0.305	0.002	33.344	0.115
7.000	-0.278	0.004	29.342	0.229
10.000	-0.274	0.003	27.391	0.351
30.000	-0.298	0.007	24.849	0.732
50.000	-0.648	0.039	53.866	4.000
50.000	-0.147	0.002	15.430	0.155
100.000	-0.114	0.004	12.586	0.291
150.000	-0.089	0.017	11.438	0.704
200.000	-0.064	0.021	11.695	1.284
500.000	0.048	0.044	15.961	5.991

station: soda lake A-A' 2.3 km sw t1   separation=2268 meters
number of turns=4   loop radius=50 meters
hr mag const=7.936   hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.100	1.063	0.003	187.613	0.267
0.300	1.148	0.042	188.237	4.394
0.500	1.232	0.002	170.925	0.221
0.700	1.173	0.002	163.822	0.245
1.000	1.077	0.002	157.687	0.293
3.000	5.092	0.014	143.153	0.179
5.000	0.594	0.004	136.709	0.343
7.000	0.515	0.005	132.053	0.321
10.000	0.431	0.001	138.072	0.209

frequency	hr amp	amp err	hr phase	phase err
0.100	0.318	0.006	253.658	0.901
0.300	0.655	0.026	235.687	3.964
0.500	0.895	0.012	213.863	0.427
0.700	0.984	0.038	206.322	0.775
1.000	0.957	0.027	193.221	0.402
3.000	7.184	0.202	195.034	25.570
5.000	0.827	0.019	160.034	0.581
7.000	0.770	0.022	154.280	1.002
10.000	0.865	0.015	163.414	0.859

frequency	ellipticity	ellip err	tilt angle	tilt err
0.100	-0.269	0.006	82.542	0.358
0.300	-0.357	0.006	65.586	0.915
0.500	-0.368	0.006	56.964	0.408
0.700	-0.380	0.009	51.762	1.389
1.000	-0.317	0.003	49.201	1.053
3.000	-0.159	0.061	25.199	9.624
5.000	-0.194	0.005	34.982	0.785
7.000	-0.180	0.008	33.036	0.889
10.000	-0.176	0.006	25.112	0.368
30.000	-0.092	0.004	3.152	0.372
50.000	-0.006	0.003	79.158	0.138
100.000	-0.150	0.010	13.383	0.979
200.000	-0.109	0.022	10.714	1.301

station: soda lake C-C' .6 km nw t2   separation=552 meters
number of turns=4   loop radius=50 meters
hr mag const=7.936   hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.100	0.993	0.004	181.467	0.333
0.300	1.024	0.007	183.000	0.000
0.500	1.084	0.010	179.600	3.400
0.700	1.105	0.005	182.440	0.223
1.000	1.168	0.000	180.000	0.000
3.000	1.241	0.000	158.770	0.000
5.000	1.113	0.000	141.600	0.000
7.000	0.946	0.001	129.011	0.308
10.000	0.541	0.001	122.000	0.000
30.000	0.188	0.003	123.440	6.240

frequency	hr amp	amp err	hr phase	phase err
0.100	0.078	0.016	271.000	5.196
0.300	0.145	0.003	263.500	0.645
0.500	0.249	0.004	251.200	3.308
0.700	0.311	0.006	249.200	0.872
1.000	0.423	0.003	241.500	0.500
3.000	0.856	0.004	210.020	0.250
5.000	1.003	0.005	189.600	0.000
7.000	1.013	0.004	175.300	0.200
10.000	0.700	0.002	167.250	0.250
30.000	0.375	0.005	155.440	6.240

frequency	ellipticity	ellip err	tilt angle	tilt err
0.100	-0.077	0.015	90.195	0.475
0.300	-0.139	0.003	88.633	0.111
0.500	-0.217	0.003	85.639	0.078
0.700	-0.255	0.002	83.210	0.365
1.000	-0.308	0.004	79.166	0.077
3.000	-0.433	0.002	60.603	0.227
5.000	-0.442	0.000	49.427	0.220
7.000	-0.426	0.004	42.181	0.101
10.000	-0.398	0.002	34.795	0.042
30.000	-0.223	0.000	24.290	0.047
50.000	-0.168	0.003	20.085	0.074
100.000	-0.171	0.001	17.843	0.037
200.000	-0.162	0.002	12.219	0.258
500.000	-0.112	0.007	9.688	0.877

station: soda lake C-C′ 1.8km nw t2   separation=1764 meters
number of turns=4   loop radius=50 meters
hr mag const=7.936   hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.050	1.049	0.016	185.933	2.836
0.050	1.042	0.015	185.029	1.043
0.100	1.141	0.006	184.300	0.224
0.150	1.103	0.009	185.567	0.167
0.300	1.275	0.005	184.200	0.200
0.500	1.402	0.004	180.160	0.068
0.700	1.459	0.006	174.460	0.183
1.000	1.433	0.001	166.964	0.036
3.000	1.061	0.001	125.770	0.000
5.000	0.670	0.001	105.600	0.000
7.000	0.448	0.001	101.300	0.200

frequency	hr amp	amp err	hr phase	phase err
0.050	0.147	0.012	280.433	20.027
0.050	0.113	0.017	262.271	15.830
0.100	0.167	0.002	261.800	0.683
0.150	0.235	0.001	257.400	1.438
0.300	0.446	0.002	246.020	0.020
0.500	0.660	0.004	234.400	0.400
0.700	0.821	0.009	225.400	0.400
1.000	0.944	0.005	215.000	0.000
3.000	1.160	0.012	170.970	0.200
5.000	0.990	0.013	149.600	0.000
7.000	0.807	0.009	140.300	0.374

frequency	ellipticity	ellip err	tilt angle	tilt err
0.050	-0.087	0.014	90.351	2.762
0.050	-0.087	0.018	89.133	1.505
0.100	-0.143	0.002	88.142	0.120
0.150	-0.201	0.003	86.061	0.311
0.300	-0.300	0.001	79.675	0.056
0.500	-0.351	0.003	72.371	0.167
0.700	-0.380	0.004	66.967	0.389
1.000	-0.395	0.001	61.385	0.198
3.000	-0.414	0.002	41.425	0.405
5.000	-0.365	0.003	30.475	0.495
7.000	-0.289	0.004	25.623	0.235
10.000	-0.209	0.003	22.518	0.357
30.000	-0.153	0.002	18.909	0.677
50.000	-0.121	0.002	16.140	0.390
100.000	-0.115	0.005	14.782	0.981
200.000	-0.146	0.016	12.345	2.003

station: soda lake d-d′ 0.5km w t2   separation=720 meters
number of turns=4   loop radius=50 meters
hr mag const=7.936   hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.100	1.007	0.000	183.825	0.009
0.300	1.010	0.000	183.460	0.013
0.500	1.034	0.000	183.383	0.025
0.700	1.048	0.000	183.163	0.026
1.000	1.105	0.000	184.190	0.000
3.000	1.208	0.000	179.640	0.011
5.000	1.245	0.000	174.542	0.023
7.000	1.259	0.000	170.554	0.023
10.000	1.270	0.000	165.817	0.029
30.000	1.116	0.000	132.733	0.105
50.000	0.857	0.002	82.630	0.077
50.000	0.956	0.001	106.122	0.170
50.000	266.634	0.120	192.541	48.976
100.000	0.163	0.000	196.231	0.038
100.000	109.301	0.018	266.964	45.439
200.000	0.022	0.000	130.591	0.241

frequency	hr amp	amp err	hr phase	phase err
0.100	0.027	0.003	252.357	2.525
0.300	0.063	0.002	253.930	2.098
0.500	0.102	0.001	248.372	1.537
0.700	0.131	0.000	247.472	1.003
1.000	0.176	0.001	242.544	0.227
3.000	0.362	0.001	228.052	0.294
5.000	0.477	0.001	219.686	0.141
7.000	0.561	0.001	213.896	0.156
10.000	0.671	0.000	208.427	0.026
30.000	0.947	0.000	176.224	0.100
50.000	0.951	0.002	127.536	0.080
50.000	1.046	0.001	153.174	0.161
50.000	287.902	0.180	237.578	48.965
100.000	0.273	0.000	248.999	0.037
100.000	162.997	0.037	245.912	43.322
200.000	0.086	0.000	216.017	0.264

frequency	ellipticity	ellip err	tilt angle	tilt err
0.100	-0.025	0.003	89.438	0.079
0.300	-0.058	0.002	88.786	0.149
0.500	-0.089	0.001	87.600	0.165
0.700	-0.113	0.001	86.852	0.118
1.000	-0.135	0.000	85.130	0.049
3.000	-0.215	0.001	78.214	0.067
5.000	-0.252	0.001	73.830	0.022
7.000	-0.275	0.001	70.503	0.062
10.000	-0.306	0.000	66.413	0.002
30.000	-0.392	0.000	51.439	0.006
50.000	-0.410	0.000	40.816	0.015
50.000	-0.433	0.000	41.206	0.014
50.000	-0.413	0.000	41.898	0.009
100.000	-0.409	0.000	24.187	0.009
100.000	-0.424	0.000	28.461	0.017
200.000	-0.256	0.000	1.255	0.013
200.000	-0.339	0.000	15.581	0.011
500.000	-0.173	0.005	9.580	0.283

station: soda lake D-D′ 2.0km ne t1   separation=2028 meters
number of turns=4   loop radius=50 meters
hr mag const=7.936   hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.050	1.024	0.009	186.231	1.866
0.100	1.116	0.001	187.168	0.202
0.150	1.136	0.004	186.510	0.489
0.300	1.286	0.002	180.235	0.129
0.500	1.322	0.002	170.674	0.098
0.700	1.267	0.003	162.502	0.116
1.000	1.170	0.001	154.695	0.046
3.000	0.707	0.002	140.418	0.134
5.000	0.553	0.002	135.080	0.165
7.000	0.464	0.004	132.553	0.463
10.000	0.386	0.000	306.444	0.052
30.000	0.074	0.002	264.687	1.315
50.000	0.170	0.002	117.710	1.361

frequency	hr amp	amp err	hr phase	phase err
0.050	0.159	0.026	248.888	9.776
0.100	0.328	0.005	252.555	0.729
0.150	0.446	0.012	243.850	4.938
0.300	0.748	0.007	230.188	0.346
0.500	0.969	0.006	213.717	0.641
0.700	1.072	0.010	204.112	0.354
1.000	1.158	0.003	193.105	0.048
3.000	1.040	0.004	170.413	0.336
5.000	0.966	0.008	164.020	0.339
7.000	0.919	0.018	160.013	1.195
10.000	0.904	0.001	335.490	0.080
30.000	0.806	0.001	313.121	0.518

frequency	ellipticity	ellip err	tilt angle	tilt err
0.050	-0.133	0.030	86.638	0.762
0.100	-0.263	0.005	82.498	0.251
0.150	-0.314	0.027	77.138	0.873
0.300	-0.381	0.004	65.727	0.270
0.500	-0.370	0.005	56.699	0.291
0.700	-0.373	0.004	51.322	0.269
1.000	-0.348	0.001	45.362	0.069
3.000	-0.247	0.003	32.732	0.172
5.000	-0.219	0.004	28.075	0.213
7.000	-0.193	0.011	25.147	0.460
10.000	-0.181	0.000	21.229	0.031
30.000	-0.068	0.003	3.495	0.104
50.000	0.002	0.004	-11.085	0.171
50.000	-0.167	0.001	13.251	0.068
100.000	-0.125	0.003	8.450	0.178

station: soda lake D-D′ 2.8 km se t1   separation=2796 meters
number of turns=4   loop radius=50 meters
hr mag const=7.936   hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.050	1.048	0.097	188.843	2.650
0.100	1.261	0.035	185.229	1.325
0.150	1.246	0.013	182.000	0.510
0.300	1.383	0.018	168.600	1.288
0.300	2.884	1.519	169.400	4.400
0.500	1.302	0.060	161.000	4.211
0.700	1.148	0.058	151.550	4.655
1.000	0.958	0.004	141.286	0.286
3.000	0.530	0.005	134.570	1.020
5.000	0.399	0.013	134.800	1.800
7.000	0.349	0.016	130.500	2.983
10.000	0.280	0.003	126.667	0.955
10.000	2517.613	7.013	344.000	3.000
30.000	0.085	0.011	93.400	4.140

frequency	hr amp	amp err	hr phase	phase err
0.050	0.281	0.063	260.027	6.104
0.100	0.463	0.082	244.371	31.379
0.150	0.620	0.017	242.400	3.256
0.300	0.957	0.088	221.600	4.273
0.300	1.069	0.331	206.000	28.000
0.500	1.281	0.082	205.500	4.410
0.700	1.575	0.182	193.038	4.205
1.000	1.103	0.135	178.143	2.790
3.000	0.839	0.035	160.970	1.114
5.000	0.820	0.027	155.800	4.903
7.000	0.730	0.042	162.500	7.043
10.000	0.641	0.012	151.667	0.803
10.000	5632.999	118.872	373.000	2.000
30.000	0.481	0.030	140.600	2.839

frequency	ellipticity	ellip err	tilt angle	tilt err
0.050	-0.317	0.084	82.505	3.299
0.100	-0.224	0.114	88.519	3.338
0.150	-0.400	0.016	73.486	1.692
0.300	-0.427	0.025	61.822	4.668
0.300	-0.251	0.230	74.019	1.616
0.500	-0.396	0.023	45.811	3.939
0.700	-0.344	0.025	35.793	4.055
1.000	-0.297	0.025	42.119	5.696
3.000	-0.210	0.015	31.107	1.041
5.000	-0.143	0.035	24.695	0.710
7.000	-0.213	0.042	23.069	2.054
10.000	-0.159	0.005	22.215	0.330
10.000	-0.187	0.009	22.171	0.255
30.000	-0.133	0.033	6.819	0.944
30.000	-0.215	0.022	14.101	0.121
100.000	-0.088	0.013	7.614	1.613

station: soda lake E-E' 1.3km sw t2 separation=1260 meters
number of turns=4 loop radius=50 meters
hr mag const=7.936 hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.100	1.118	0.001	185.817	0.065
0.300	1.124	0.049	185.108	0.066
0.500	1.290	0.000	182.180	0.111
0.700	1.316	0.022	178.782	0.142
1.000	1.407	0.001	175.920	0.080
3.000	1.249	0.001	149.170	0.245
5.000	0.959	0.001	134.200	0.245
7.000	0.713	0.002	126.500	0.000

frequency	hr amp	amp err	hr phase	phase err
0.100	0.103	0.005	271.967	1.579
0.300	0.259	0.012	253.940	0.267
0.500	0.429	0.006	241.850	0.247
0.700	0.530	0.008	234.919	0.601
1.000	0.672	0.001	225.000	0.000
3.000	0.992	0.001	189.370	0.245
5.000	0.979	0.002	170.600	0.000
7.000	0.887	0.007	160.250	0.250

frequency	ellipticity	ellip err	tilt angle	tilt err
0.100	-0.092	0.004	89.617	0.150
0.300	-0.213	0.002	85.020	0.113
0.500	-0.278	0.004	79.656	0.162
0.700	-0.316	0.002	75.907	0.264
1.000	-0.325	0.000	70.474	0.031
3.000	-0.354	0.003	53.468	0.085
5.000	-0.329	0.002	44.272	0.114
7.000	-0.295	0.003	37.609	0.323
10.000	-0.330	0.003	33.944	0.048
30.000	-0.252	0.001	23.759	0.314
50.000	-0.249	0.001	18.855	0.112
50.000	-0.239	0.002	19.025	0.097
100.000	-0.210	0.014	13.910	0.728

station: soda lake E-E′ 2.8km ne t2   separation=2760 meters
number of turns=4   loop radius=50 meters
hr mag const=7.936   hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.100	1.191	0.008	181.386	0.568
0.300	1.322	0.010	159.194	0.612
0.500	1.263	0.011	147.450	0.284
0.700	1.093	0.014	120.800	1.517
1.000	0.797	0.001	97.667	0.211
3.000	0.095	0.004	111.145	2.556
5.000	0.105	0.002	108.236	0.742
5.000	0.101	0.004	108.457	4.672
7.000	0.085	0.007	88.300	3.718
10.000	0.057	0.001	107.600	0.812

frequency	hr amp	amp err	hr phase	phase err
0.100	0.388	0.019	255.943	4.345
0.300	0.913	0.016	223.429	1.875
0.500	1.143	0.013	194.338	1.117
0.700	1.196	0.012	178.000	0.860
1.000	1.127	0.017	157.500	0.992
3.000	0.412	0.025	140.645	2.973
5.000	0.365	0.011	141.145	1.713
5.000	0.443	0.038	144.457	3.979
7.000	0.465	0.036	108.425	6.420
10.000	0.337	0.007	133.600	1.400

frequency	ellipticity	ellip err	tilt angle	tilt err
0.100	-0.304	0.016	84.480	1.563
0.300	-0.546	0.021	65.945	1.335
0.500	-0.431	0.012	49.172	0.376
0.700	-0.541	0.010	40.206	0.901
1.000	-0.516	0.009	27.440	0.793
3.000	-0.110	0.007	11.752	0.929
5.000	-0.147	0.007	13.987	0.644
5.000	-0.133	0.020	10.795	0.994
7.000	-0.064	0.021	9.660	1.010
10.000	-0.072	0.003	8.643	0.179
10.000	-0.083	0.003	10.631	0.270
30.000	0.005	0.022	9.738	0.631
50.000	-0.025	0.020	6.375	3.480

station: soda lake e-e' 2.2km. sw separation=2304 meters
number of turns=4 loop radius=50 meters
hr mag const=7.936 hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.050	1.066	0.024	189.078	1.214
0.100	1.159	0.008	188.179	0.463
0.150	1.170	0.014	187.894	0.553
0.300	1.314	0.055	183.820	3.106
0.500	1.442	0.002	169.255	0.089
0.700	1.412	0.002	159.155	0.096
1.000	1.324	0.001	148.970	0.029
3.000	0.661	0.002	114.091	0.142
5.000	0.404	0.003	103.991	0.350
7.000	0.275	0.006	98.602	0.733
10.000	0.177	0.007	93.521	0.190
10.000	178.496	0.373	330.163	7.691
30.000	0.147	0.010	109.617	8.007
30.000	21.468	0.219	228.749	45.325
50.000	15.247	0.177	252.541	31.414
50.000	0.368	0.012	85.283	5.873

frequency	hr amp	amp err	hr phase	phase err
0.050	0.195	0.019	260.155	8.708
0.100	0.285	0.023	249.840	2.521
0.150	0.398	0.004	250.462	0.468
0.300	0.666	0.043	239.376	4.268
0.500	0.954	0.008	214.475	2.549
0.700	1.160	0.049	205.303	0.330
1.000	1.230	0.005	192.114	0.159
3.000	1.029	0.006	150.537	0.214
5.000	0.792	0.008	136.811	0.950
7.000	0.660	0.009	130.576	1.558
10.000	0.572	0.008	126.444	0.964
10.000	376.873	6.267	239.606	69.684
30.000	0.536	0.020	110.410	3.340
30.000	58.941	2.222	204.780	47.775
50.000	57.135	0.882	202.856	30.742
50.000	0.746	0.026	95.534	5.072

frequency	ellipticity	ellip err	tilt angle	tilt err
0.050	-0.156	0.022	87.390	1.345
0.100	-0.213	0.018	83.249	0.614
0.150	-0.294	0.005	80.215	0.278
0.300	-0.369	0.017	71.826	1.413
0.500	-0.373	0.022	60.733	0.199
0.700	-0.410	0.005	53.103	1.450
1.000	-0.394	0.002	47.896	0.179
3.000	-0.293	0.002	30.218	0.202
5.000	-0.231	0.007	24.581	0.318
7.000	-0.195	0.011	20.241	0.366
10.000	-0.158	0.011	14.927	0.665
10.000	-0.198	0.003	23.412	0.433
30.000	0.007	0.020	-14.936	0.572
30.000	-0.198	0.013	17.169	0.504
50.000	-0.166	0.005	11.876	0.297
50.000	0.071	0.008	-26.022	0.266
50.000	-0.091	0.019	11.551	0.900
100.000	-0.361	0.043	67.030	2.255

station: sl f-f .6km south   separation=612 meters
number of turns=4   loop radius=50 meters
hr mag const=7.936   hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
1.000	0.952	0.001	176.000	0.000
3.000	0.855	0.002	170.937	0.167
5.000	0.879	0.002	169.800	0.200
7.000	0.888	0.003	165.833	0.333
10.000	0.600	0.030	144.000	0.408
30.000	0.366	0.027	108.500	2.173
50.000	0.222	0.010	71.200	5.721

frequency	hr amp	amp err	hr phase	phase err
1.000	0.272	0.001	251.733	0.267
3.000	0.609	0.002	223.770	0.000
5.000	0.765	0.002	206.100	0.289
7.000	0.820	0.004	194.167	0.333
10.000	1.060	0.001	189.000	0.000
30.000	0.933	0.002	162.200	0.000

frequency	ellipticity	ellip err	tilt angle	tilt err
1.000	-0.275	0.000	85.640	0.086
3.000	-0.454	0.002	59.937	0.075
5.000	-0.324	0.004	49.918	0.061
7.000	-0.252	0.003	47.570	0.043
10.000	-0.336	0.008	24.866	1.487
30.000	-0.299	0.030	14.278	0.620
50.000	-0.206	0.015	3.081	1.128
50.000	-0.248	0.000	17.306	0.002
100.000	-0.180	0.001	12.809	0.041
150.000	-0.153	0.001	10.827	0.035
200.000	-0.135	0.000	9.574	0.004

station: soda lake F-F′ 2.1 km se t2   separation=2136 meters
number of turns=4   loop radius=50 meters
hr mag const=7.936   hz mag const=7.092

frequency	hz amp	amp err	hz phase	phase err
0.050	0.999	0.024	186.225	0.263
0.100	1.018	0.005	184.400	0.400
0.150	0.999	0.004	181.400	0.000
0.300	1.131	0.003	172.000	0.000
0.500	1.127	0.001	158.580	0.116
0.700	1.056	0.001	146.000	0.200
1.000	0.912	0.000	133.250	0.250
3.000	0.304	0.001	111.548	5.965
5.000	0.204	0.003	111.400	0.490
7.000	0.179	0.003	114.100	0.678

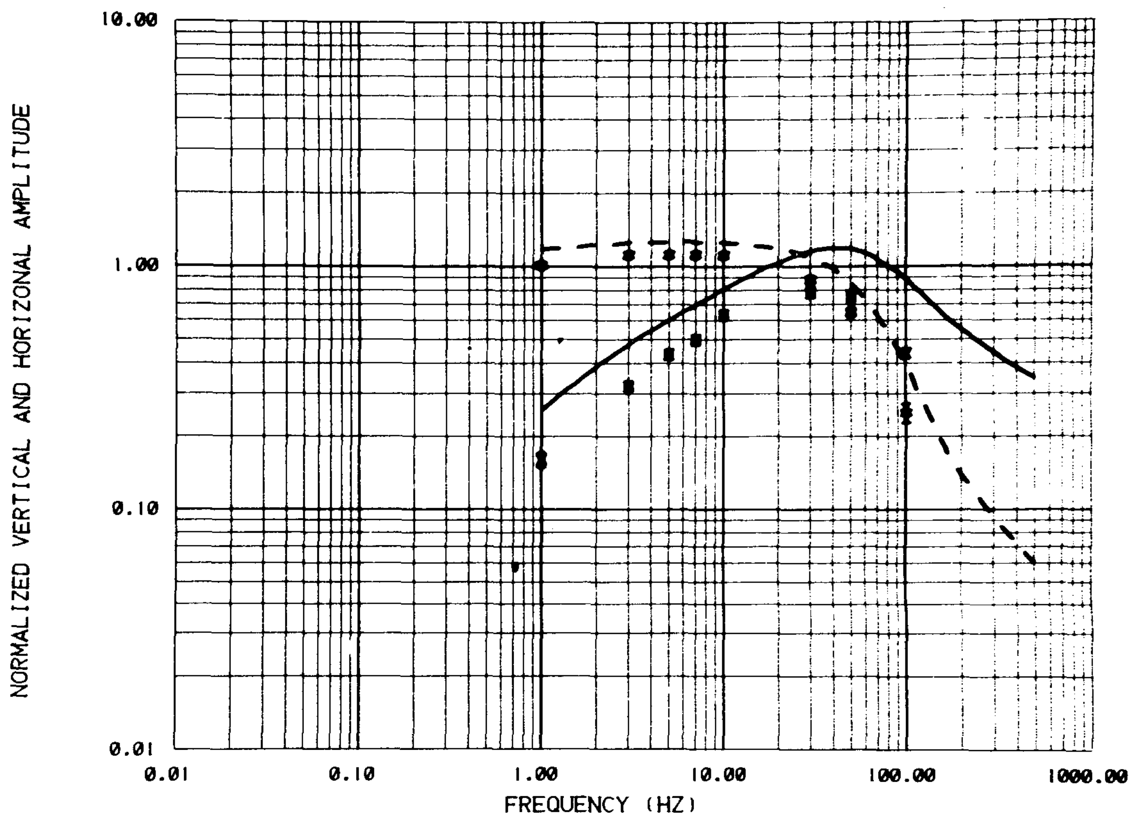
frequency	hr amp	amp err	hr phase	phase err
0.050	0.170	0.013	248.475	15.591
0.100	0.262	0.003	256.600	0.735
0.150	0.349	0.007	246.040	0.933
0.300	0.630	0.004	228.000	0.316
0.500	0.816	0.023	207.960	0.838
0.700	0.879	0.021	193.000	1.463
1.000	0.937	0.003	178.545	0.130
3.000	0.554	0.003	137.860	0.411
5.000	0.406	0.013	138.000	0.510
7.000	0.342	0.009	135.100	2.112

frequency	ellipticity	ellip err	tilt angle	tilt err
0.050	-0.125	0.035	87.270	1.279
0.100	-0.244	0.002	85.205	0.187
0.150	-0.308	0.007	80.619	0.221
0.300	-0.412	0.003	68.963	0.295
0.500	-0.425	0.005	58.438	1.161
0.700	-0.424	0.014	52.618	1.016
1.000	-0.417	0.004	43.916	0.139
3.000	-0.194	0.042	26.997	0.538
5.000	-0.186	0.008	25.226	1.042
7.000	-0.150	0.017	26.594	0.656
10.000	-0.296	0.005	41.132	0.354
30.000	-0.295	0.018	27.290	0.867
50.000	-0.264	0.008	54.829	2.224
100.000	-0.073	0.003	6.908	0.443

APPENDIX C

Results of Inversions

COMPARSION OF CALCULATED AND MEASURED DATA



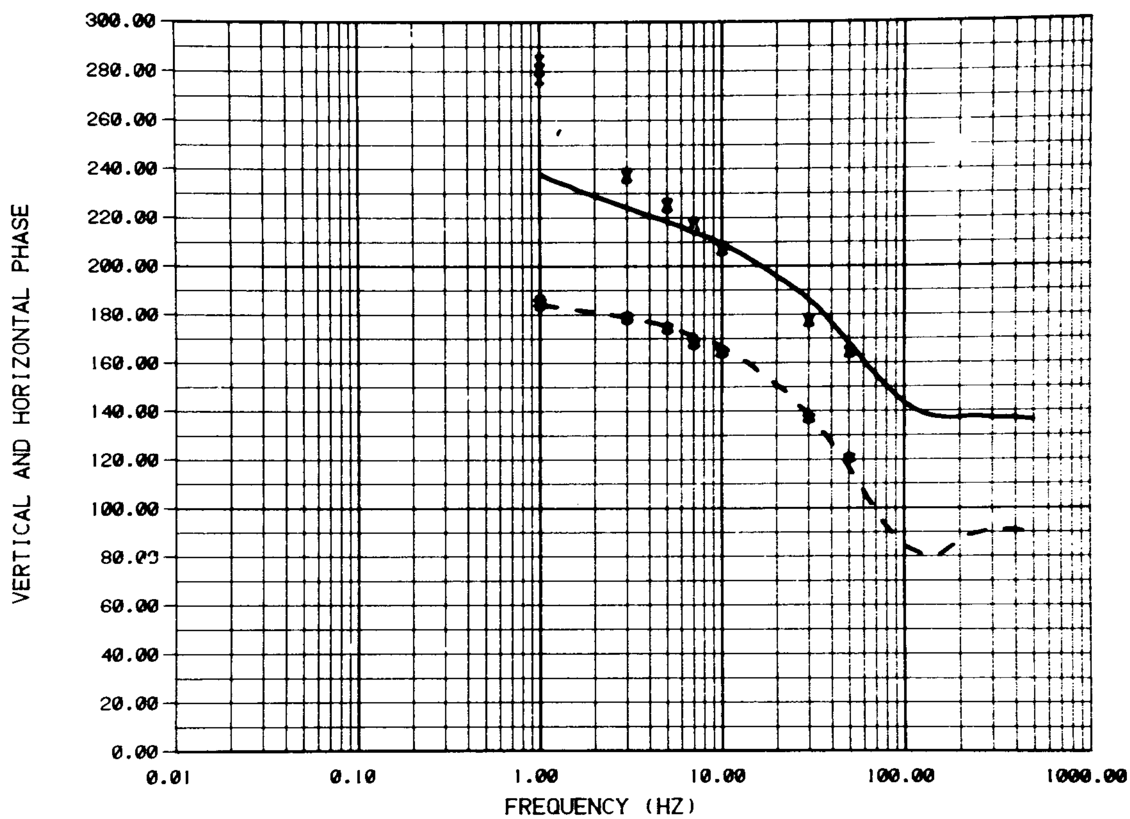
SODA LAKE A-A .96 KM NE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	12.04±	.00	446.1 ±	4.
HZ	—— —— —	HZ	*	2	1.62±	.05	.1000E+11±	0.

DATA VARIENCE ESTIMATE 510.2

XBL 806-10122

COMPARSION OF CALCULATED AND MEASURED DATA



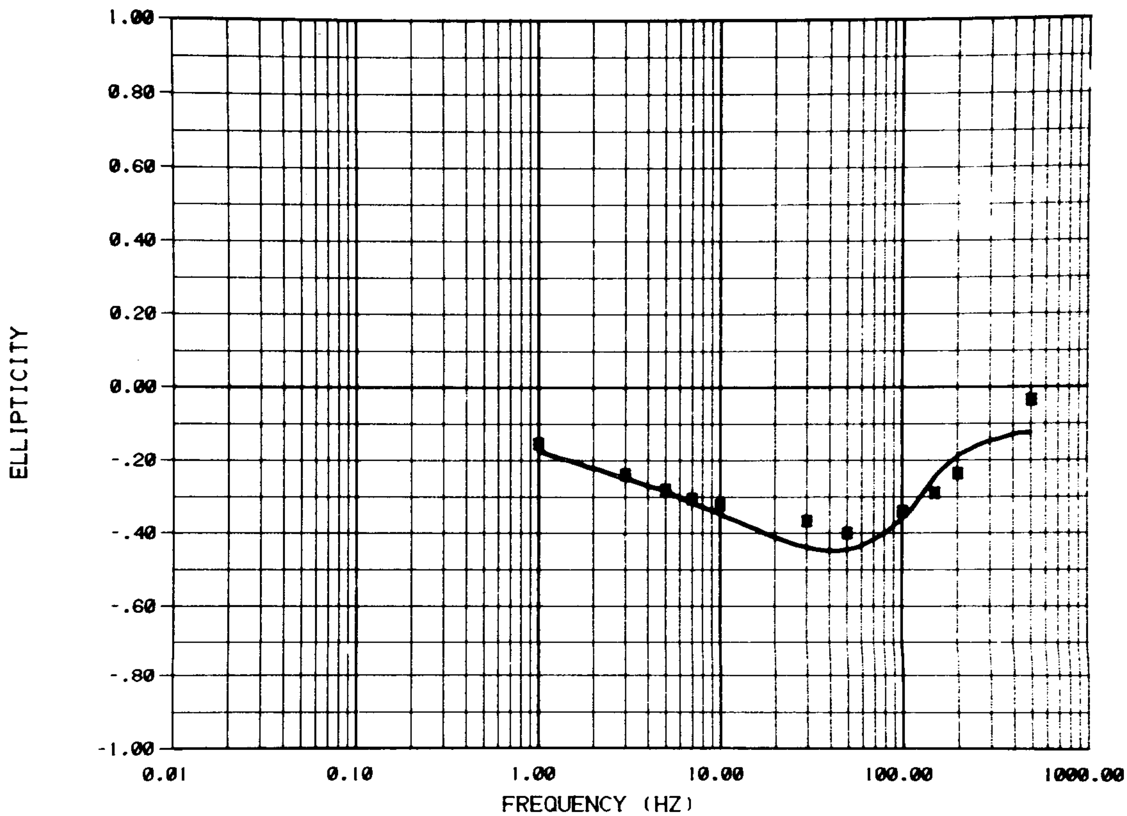
SODA LAKE A-A .96 KM NE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	12.04±	.00	446.1 ±	4.
HZ	— — —	HZ	*	2	1.62±	.05	.1000E+11±	0.

DATA VARIENCE ESTIMATE 510.2

XBL 806-10121

COMPARSION OF CALCULATED AND MEASURED DATA

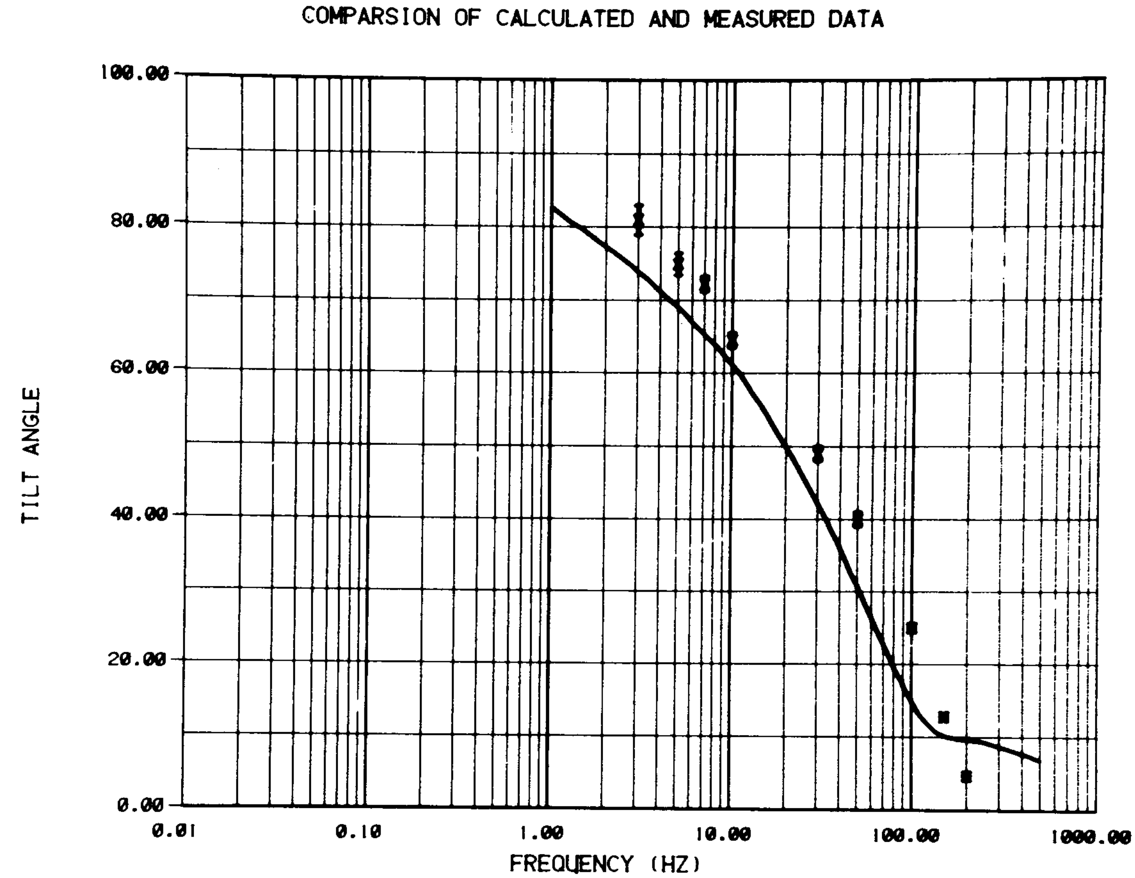


SODA LAKE A-A .96 KM NE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	12.04±	.00	446.1 ±	4.
				2	1.62±	.05	.1000E+11±	0.

DATA VARIENCE ESTIMATE 510.2

XBL 806-10119



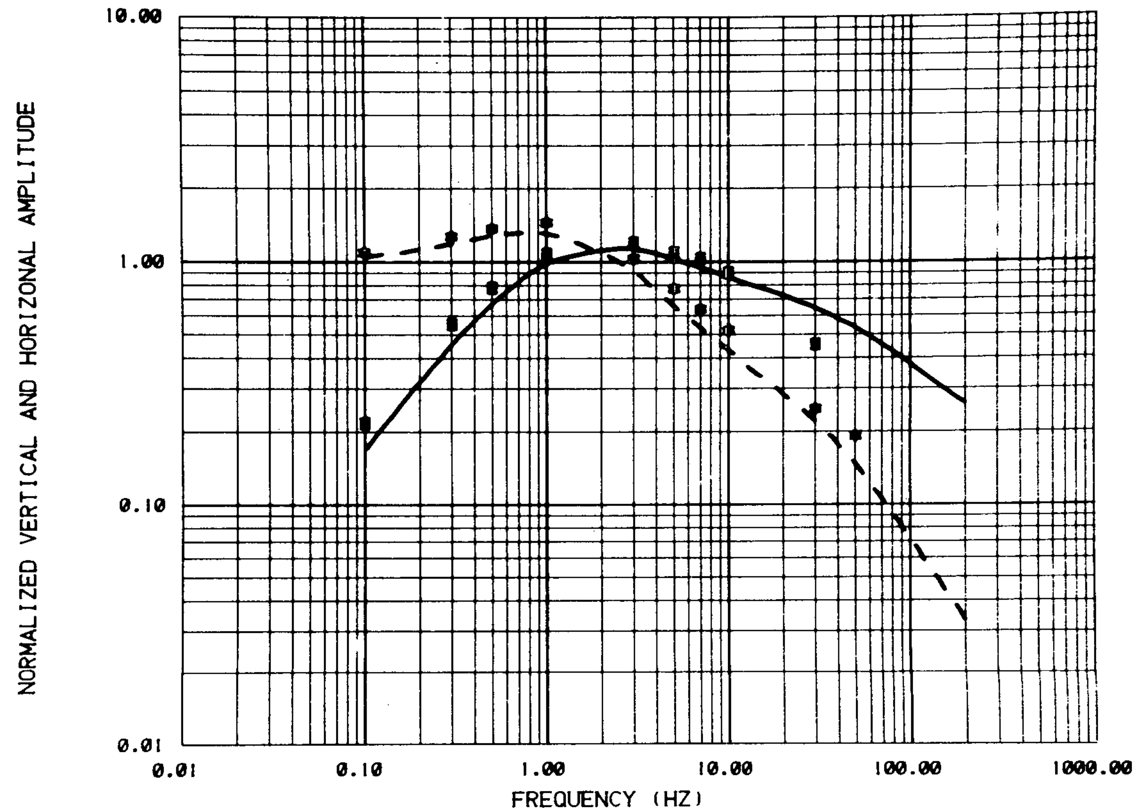
SODA LAKE A-A .96 KM NE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	———	TILT ANGLE	X	1	12.04±	.00	446.1 ±	4.
				2	1.62±	.05	.1000E+11±	0.

DATA VARIENCE ESTIMATE 510.2

XBL 806-10120

COMPARSION OF CALCULATED AND MEASURED DATA



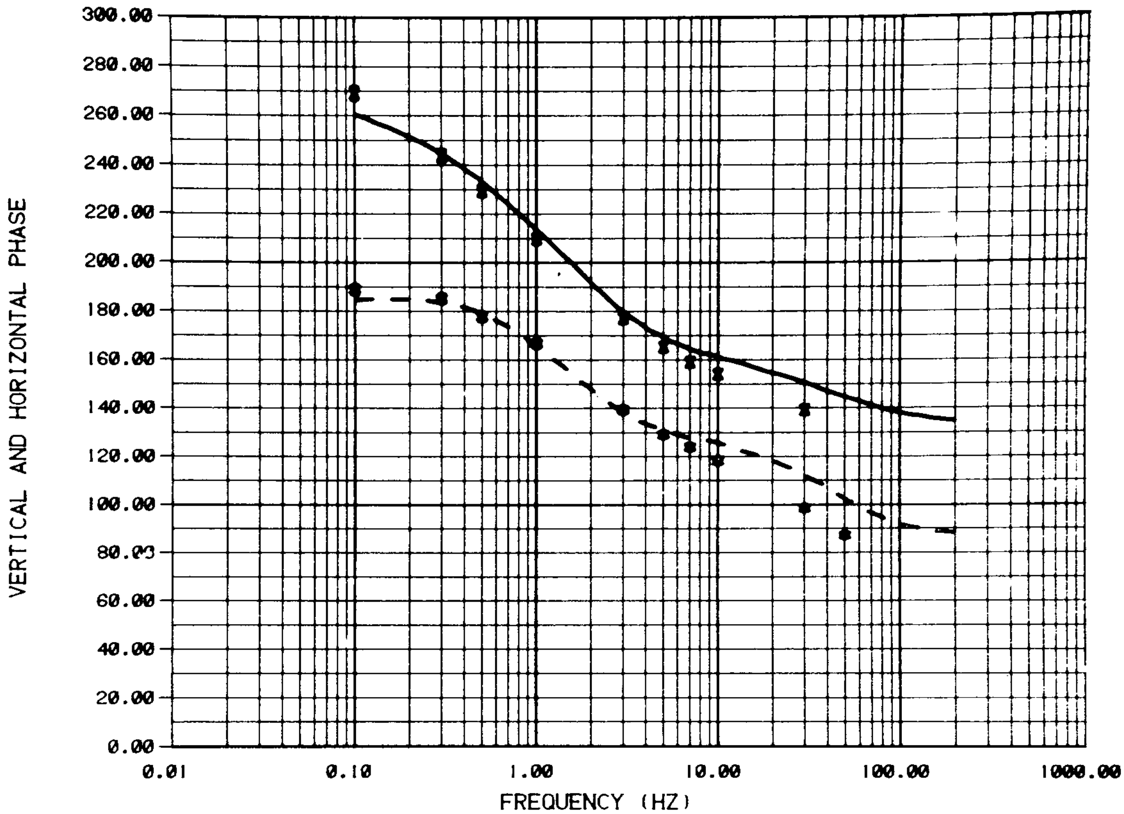
SODA LAKE A-A 2.0 KM NE TI

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	11.00±	.00	230.0 ±	0.
HZ	— — —	HZ	*	2	2.50±	.00	850.0 ±	50.
				3	50.00±	77.00	.1000E+11±	0.

DATA VARIENCE ESTIMATE .1397E+08

XBL 806-10278

COMPARSION OF CALCULATED AND MEASURED DATA



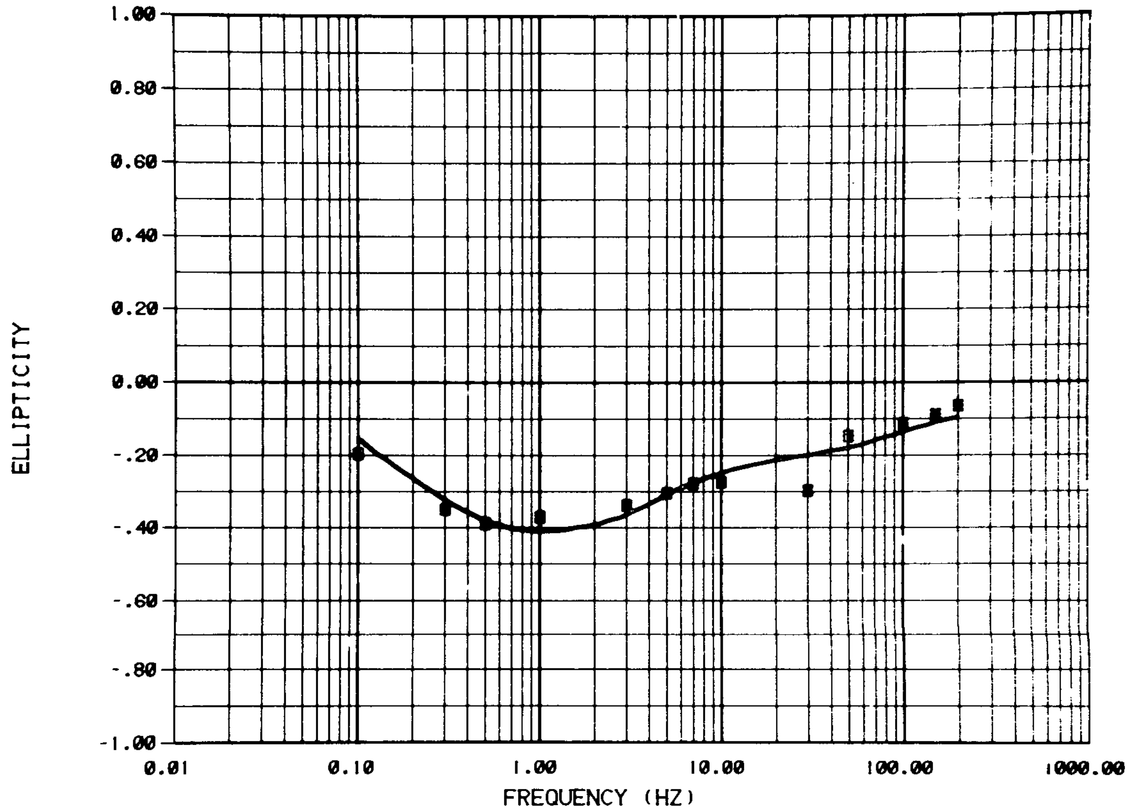
SODA LAKE A-A 2.0 KM NE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	11.00±	.00	230.0	± 0.
HZ	—— —— ——	HZ	*	2	2.50±	.00	850.0	± 50.
				3	50.00±	77.00	.1000E+11±	0.

DATA VARIENCE ESTIMATE .1397E+08

XBL 806-10257

COMPARSION OF CALCULATED AND MEASURED DATA



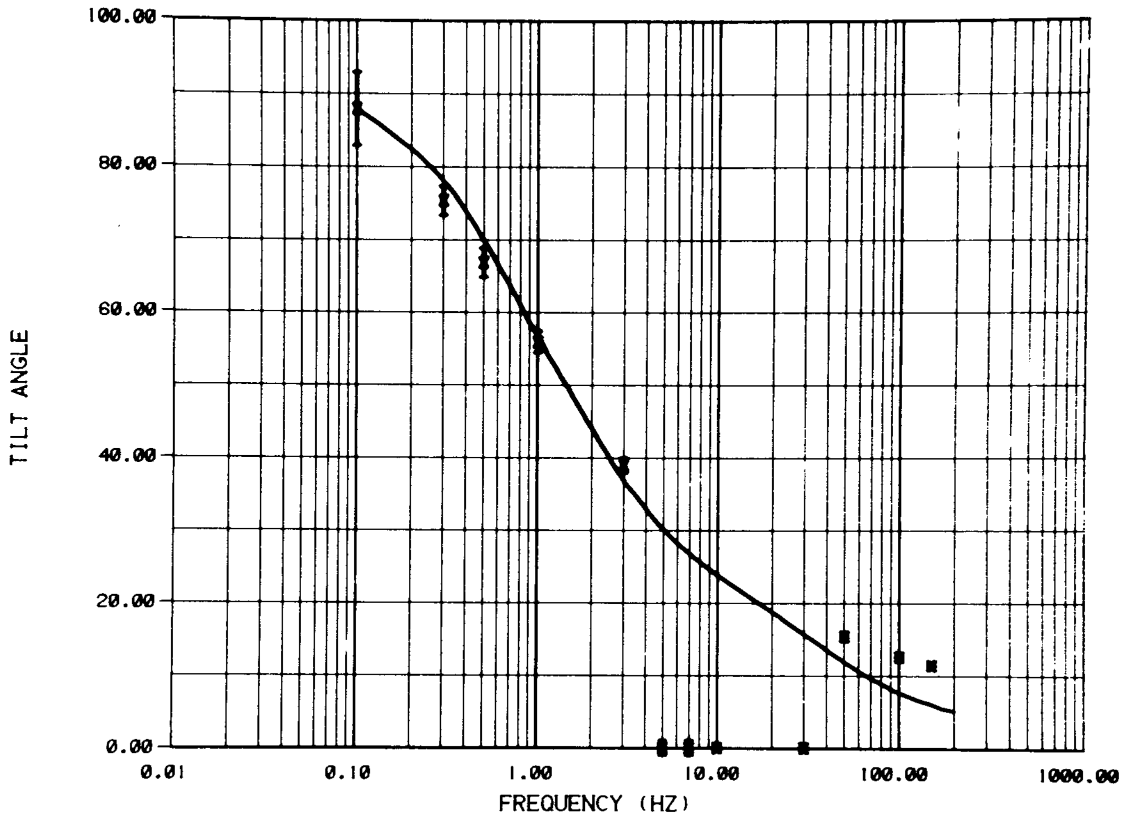
SODA LAKE A-A 2.0 KM NE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	11.00±	.00	230.0 ±	0.
				2	2.50±	.00	850.0 ±	50.
				3	50.00±	77.00	.1000E+11±	0.

DATA VARIENCE ESTIMATE .1397E+08

XBL 806-10258

COMPARSION OF CALCULATED AND MEASURED DATA



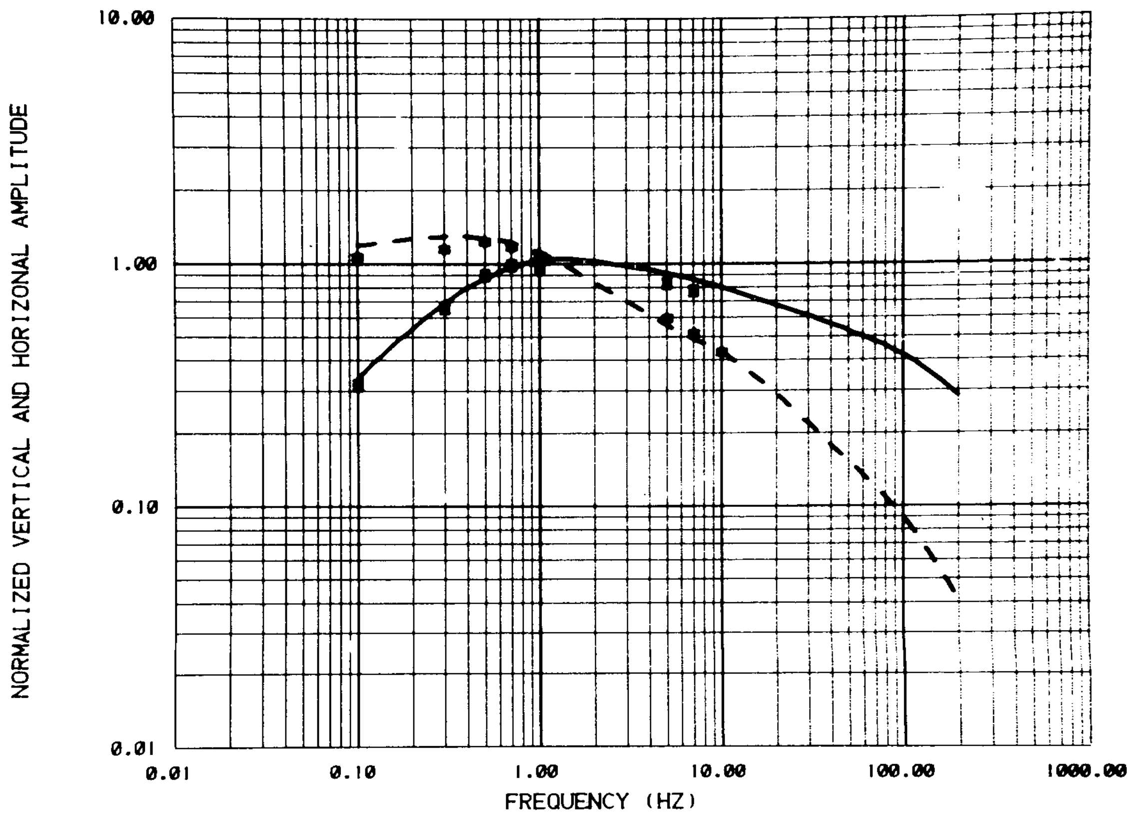
SODA LAKE A-A 2.0 KM NE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	————	TILT ANGLE	X	1	11.00±	.00	230.0	± 0.
				2	2.50±	.00	850.0	± 50.
				3	50.00±	77.00	.1000E+11±	0.

DATA VARIENCE ESTIMATE .1397E+08

XBL 806-10259

COMPARSION OF CALCULATED AND MEASURED DATA



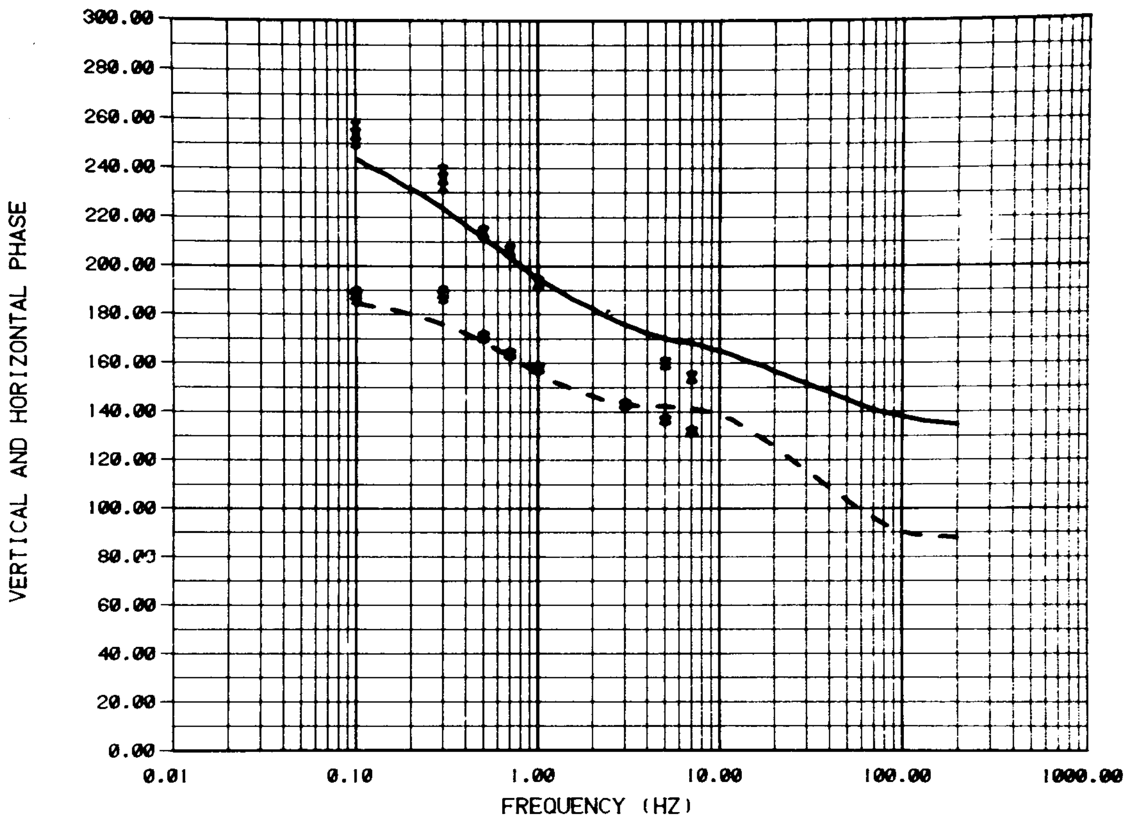
SODA LAKE 2.3 KM SW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	———————	HR	X	1	17.64±	.00	310.0 ±	2.
HZ	— — —	HZ	*	2	1.66±	.02	.1000E+11±	0.

DATA VARIENCE ESTIMATE 32.61

XBL 806-10130

COMPARSION OF CALCULATED AND MEASURED DATA



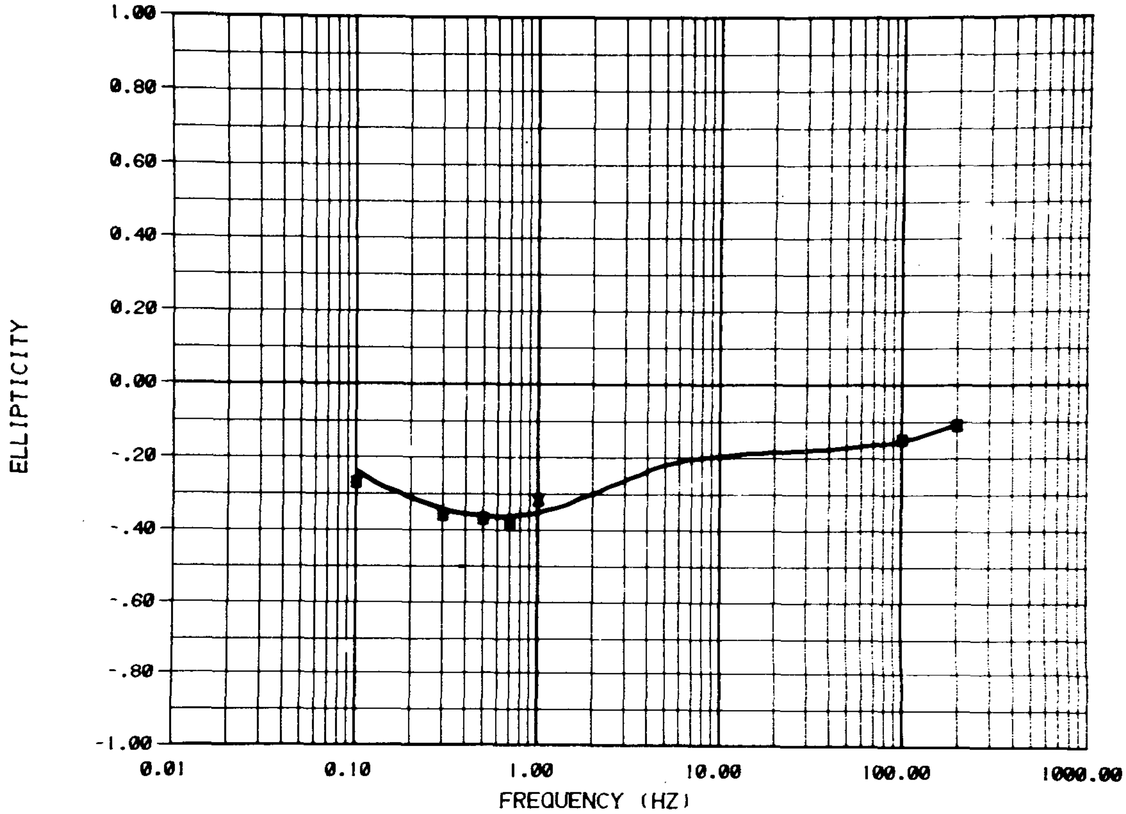
SODA LAKE 2.3 KM SW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	17.64±	.00	310.0 ±	2.
HZ	—— —— ——	HZ	*	2	1.66±	.02	.1000E+11±	0.

DATA VARIENCE ESTIMATE 32.61

XBL 806-10129

COMPARSION OF CALCULATED AND MEASURED DATA



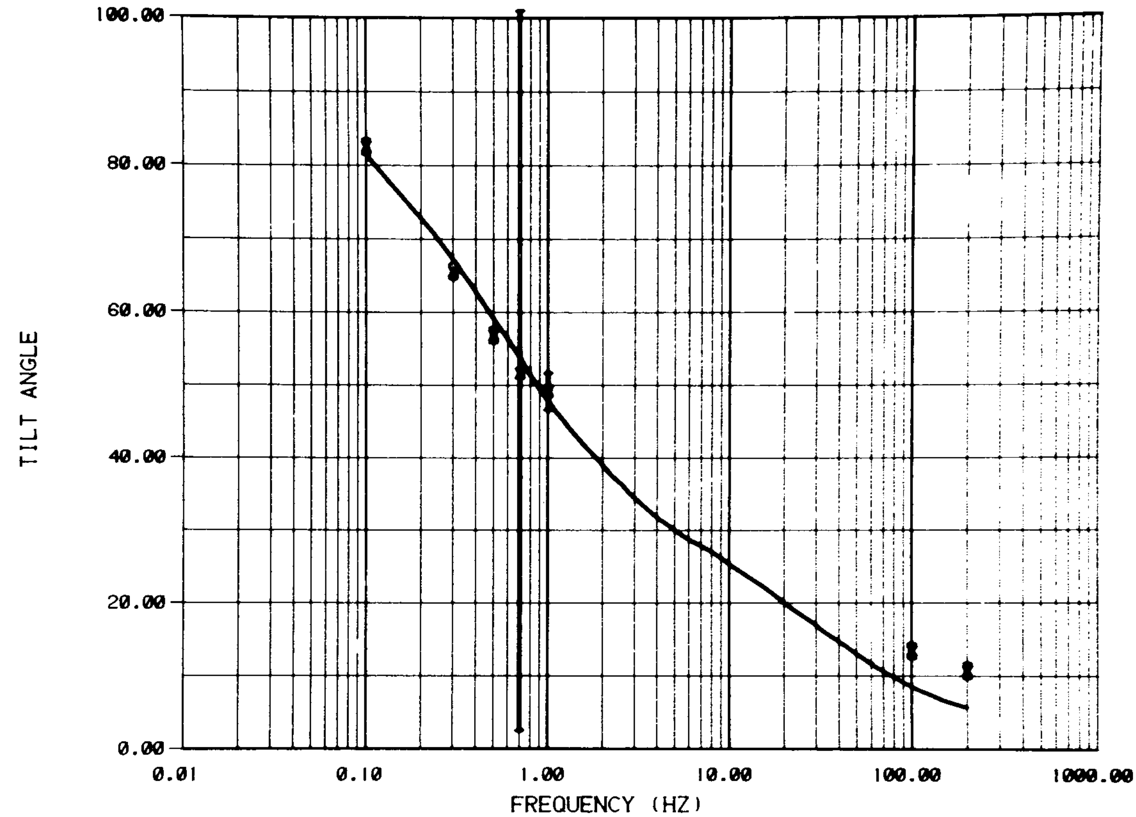
SODA LAKE 2.3 KM SW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	17.64±	.00	310.0 ±	2.
				2	1.66±	.02	.1000E+11±	0.

DATA VARIENCE ESTIMATE 32.61

XBL 806-10128

COMPARSION OF CALCULATED AND MEASURED DATA



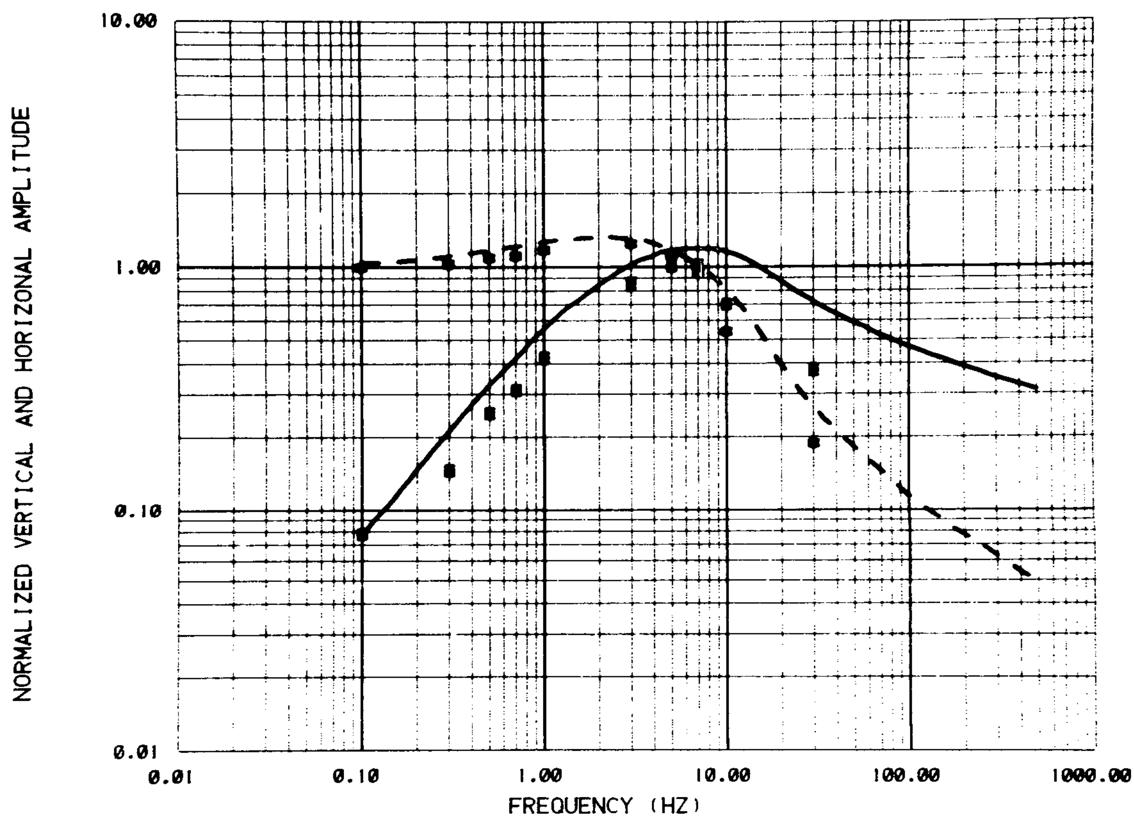
SODA LAKE 2.3 KM SW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	————	TILT ANGLE	X	1	17.64±	.00	310.0 ±	2.
				2	1.66±	.02	.1000E+11±	0.

DATA VARIENCE ESTIMATE 32.61

XBL 806-10127

COMPARSION OF CALCULATED AND MEASURED DATA



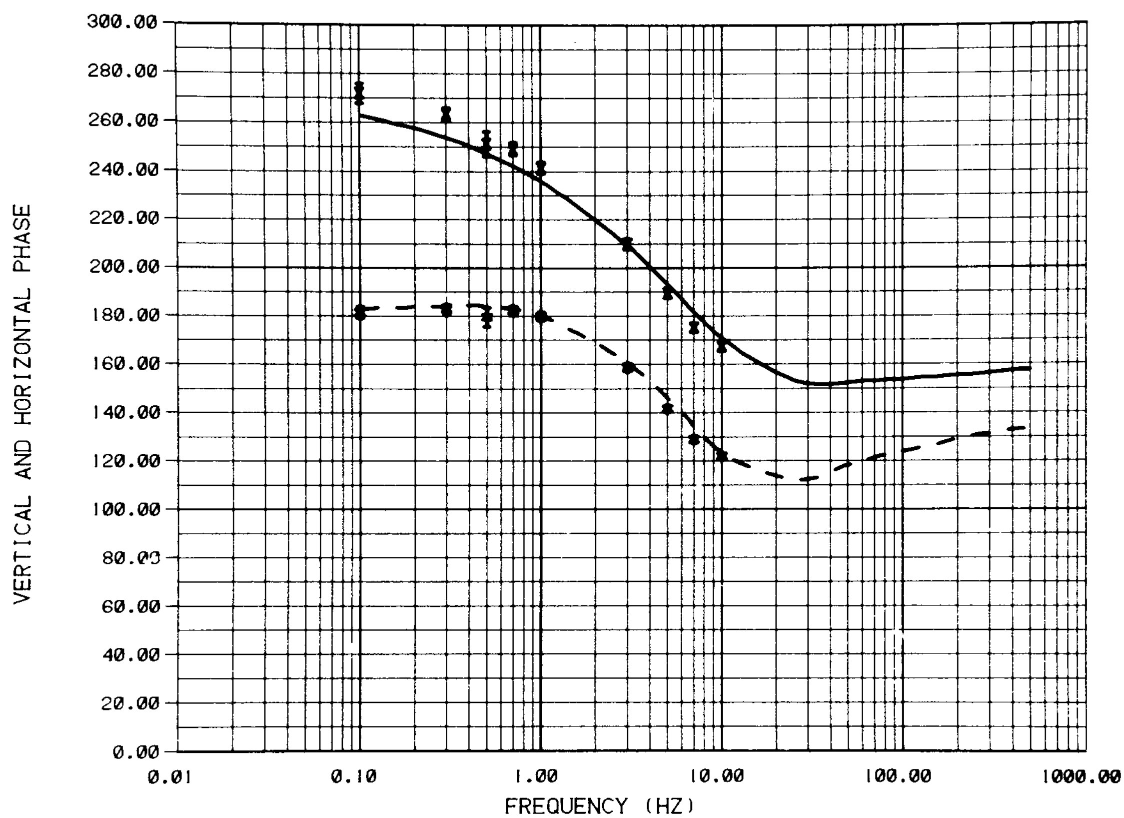
SODA LAKE 0.6 KM NW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	9.50±	.00	20.00 ±	0.
HZ	— — —	HZ	*	2	.68±	.00	.1000E+11±	0.

DATA VARIENCE ESTIMATE 500.0

XBL 806-10135

COMPARSION OF CALCULATED AND MEASURED DATA



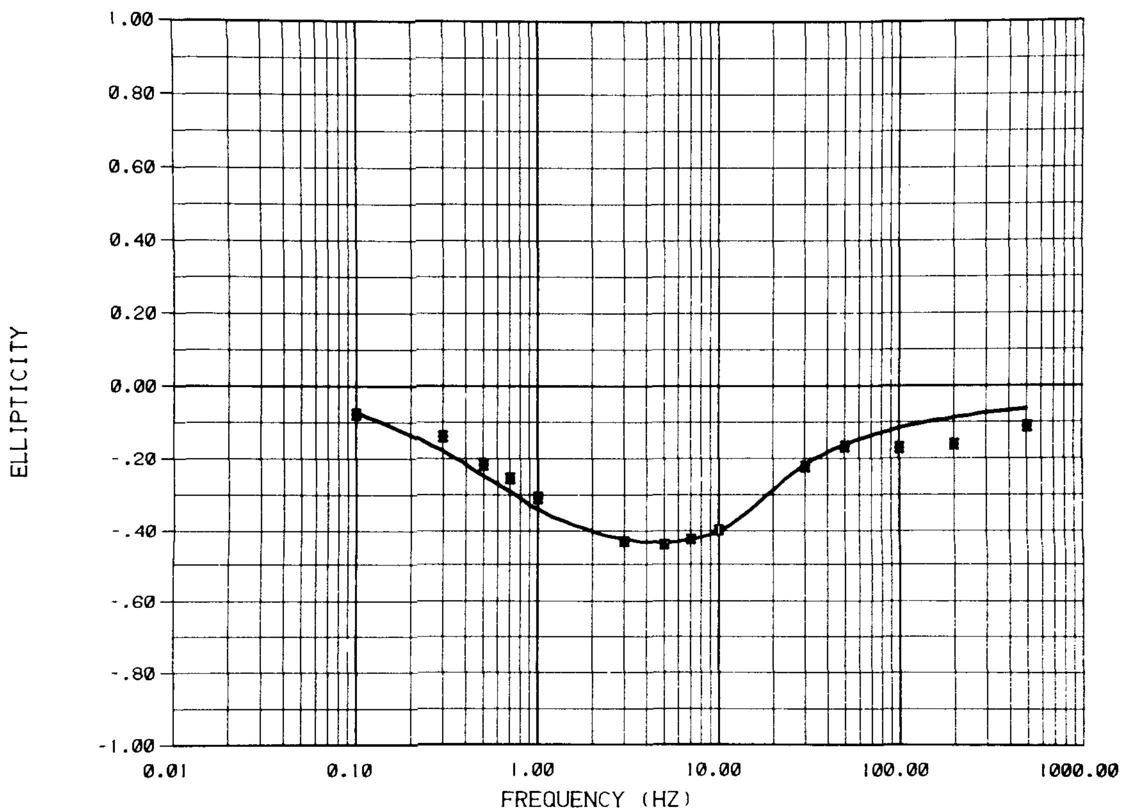
SODA LAKE 0.6 KM NW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	———————	HR	X	1	9.50±	.00	20.00 ±	0.
HZ	— — —	HZ	*	2	.68±	.00	.1000E+11±	0.

DATA VARIENCE ESTIMATE 500.0

XBL 806-10136

COMPARSION OF CALCULATED AND MEASURED DATA



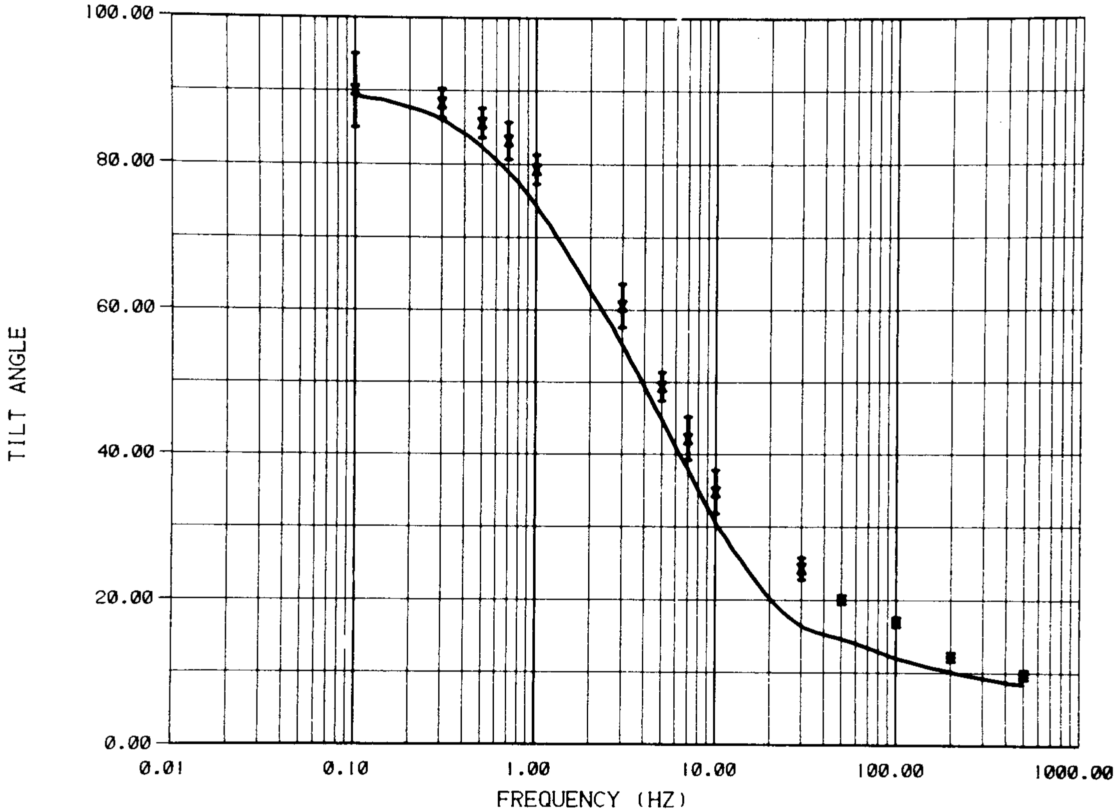
SODA LAKE 0.6 KM NW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	9.50±	.00	20.00 ±	0.
				2	.68±	.00	.1000E+11±	0.

DATA VARIENCE ESTIMATE 500.0

XBL 806-10138

COMPARSION OF CALCULATED AND MEASURED DATA

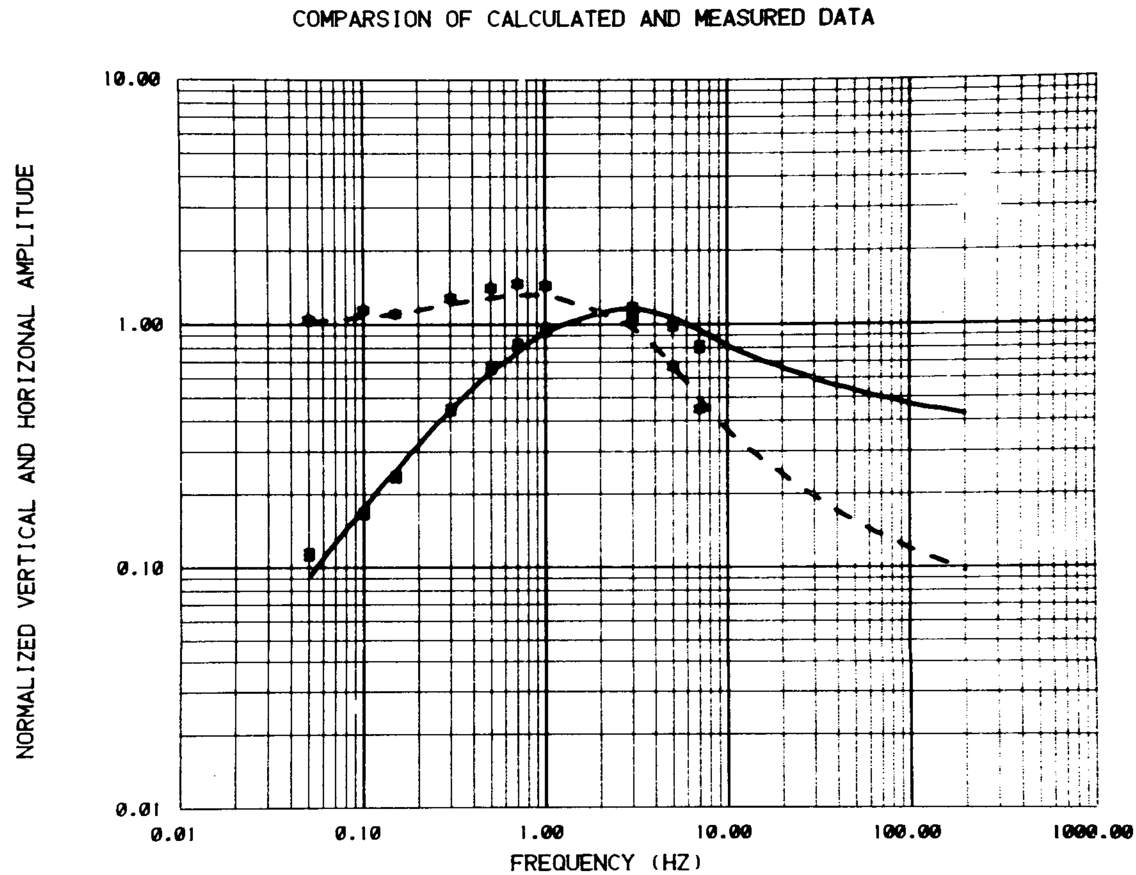


SODA LAKE 0.6 KM NW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	————	TILT ANGLE	X	1	9.50±	.00	20.00 ±	0.
				2	.68±	.00	.1000E+11±	0.

DATA VARIENCE ESTIMATE 500.0

XBL 806-10137



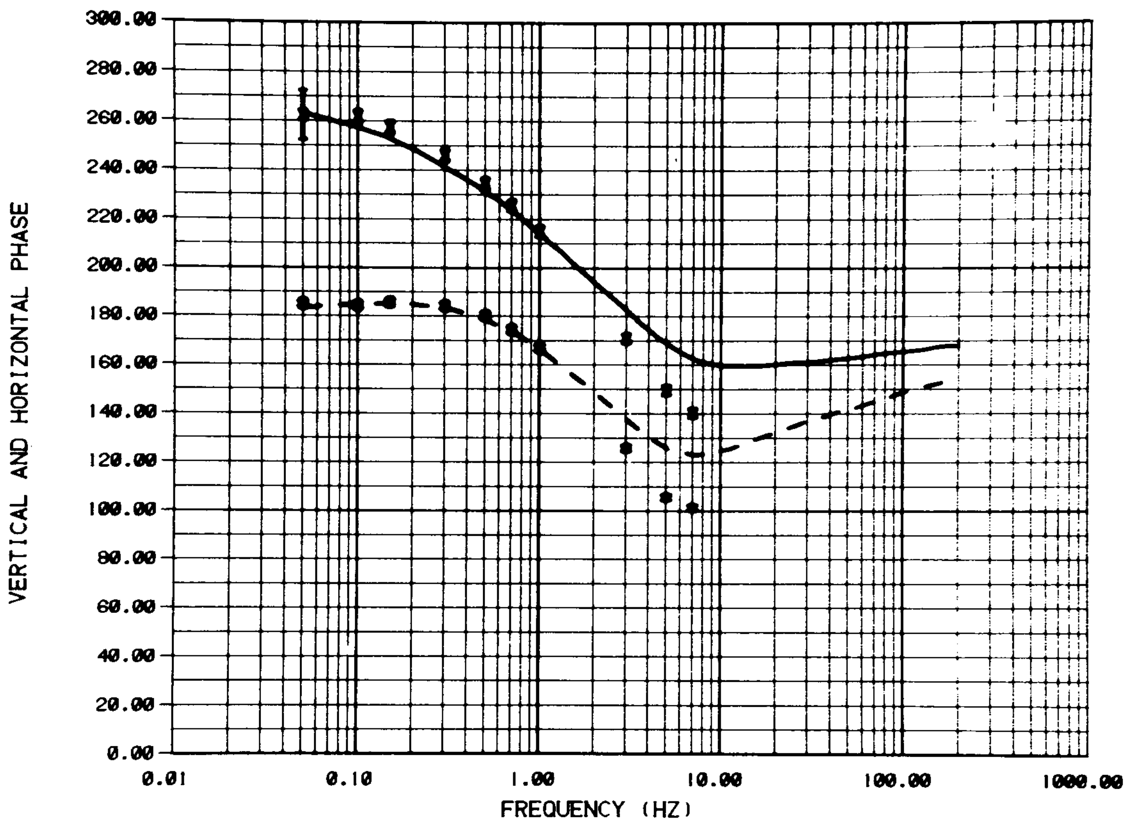
SODA LAKE 1.8 KM NW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	———————	HR	X	1	1000.00±	0.	100.3 ±	0.
HZ	— — —	HZ	*	2	2.63±	.01	1875. ±	96.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 55.15

XBL 806-10142

COMPARSION OF CALCULATED AND MEASURED DATA



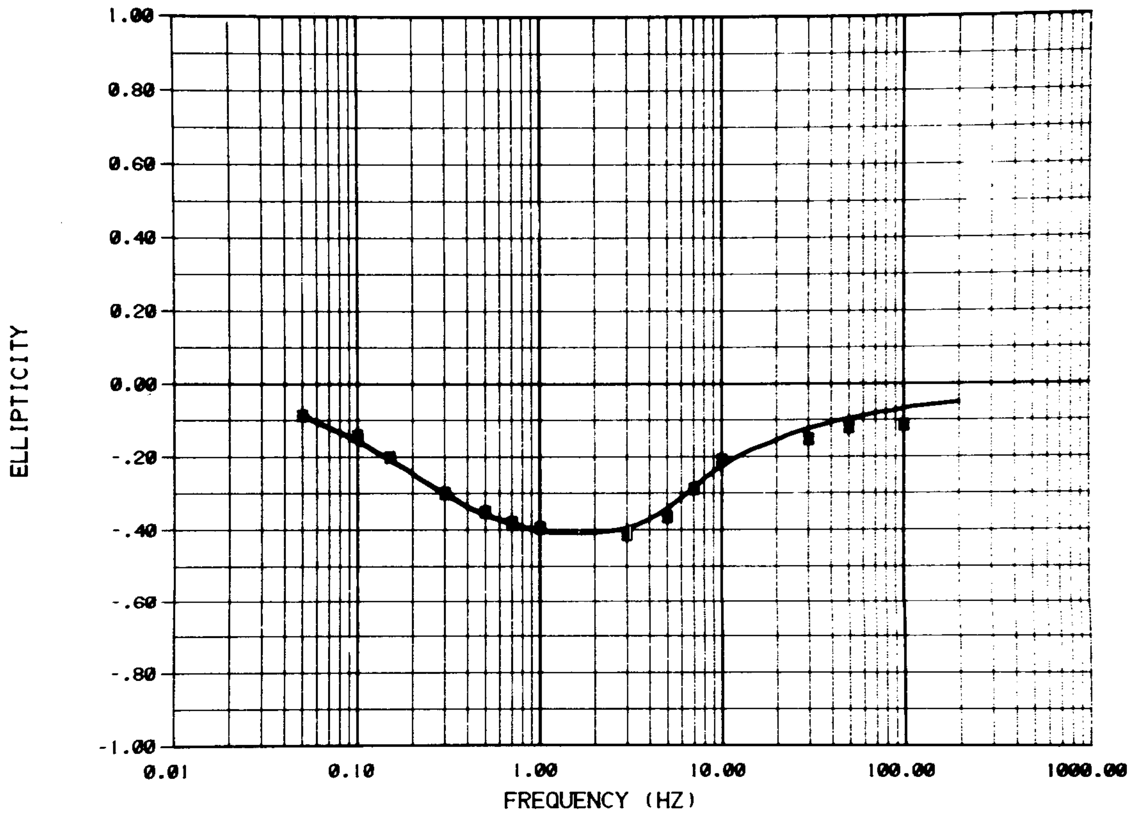
SODA LAKE 1.8 KM NW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	———————	HR	X	1	1000.00±	0.	100.3 ±	0.
HZ	— — —	HZ	*	2	2.63±	.01	1875. ±	96.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 55.15

XBL 806-10141

COMPARSION OF CALCULATED AND MEASURED DATA

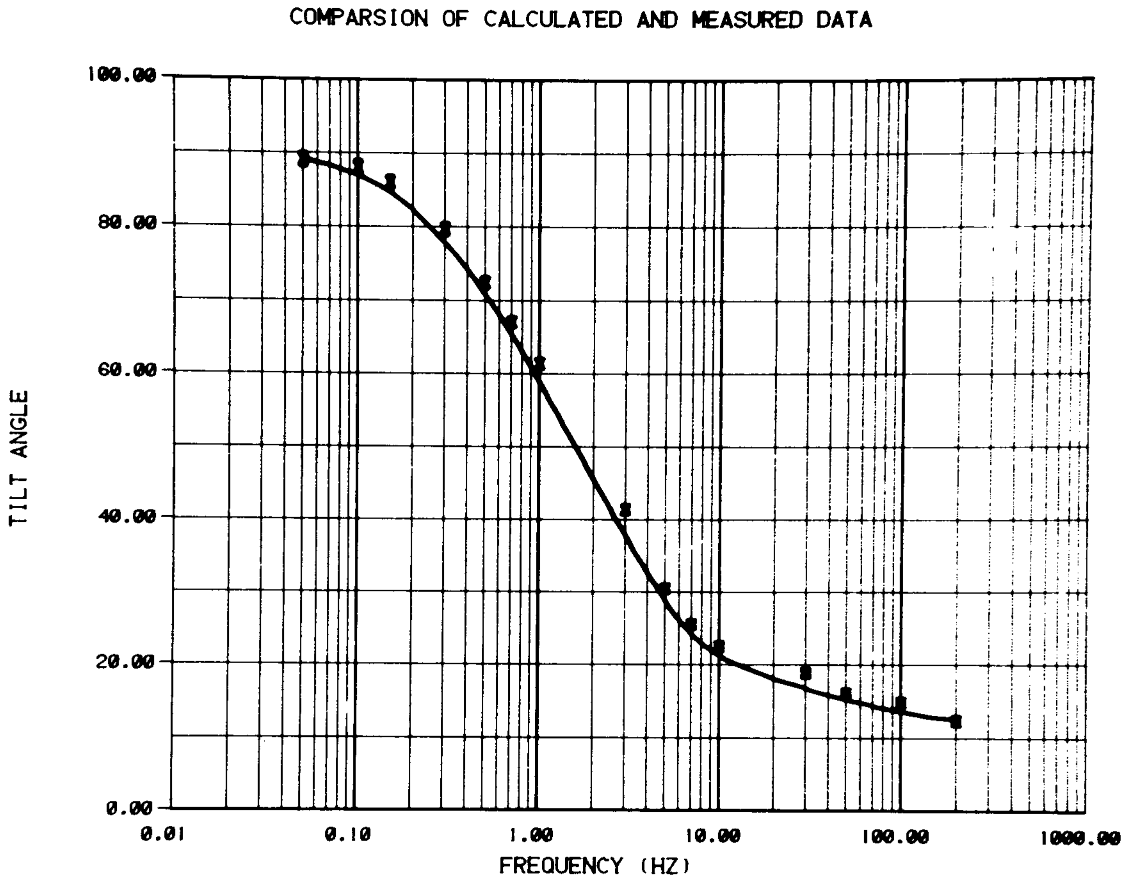


SODA LAKE 1.8 KM NW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	1000.00±	0.	100.3 ±	0.
				2	2.63±	.01	1875. ±	96.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 55.15

XBL 806-10139



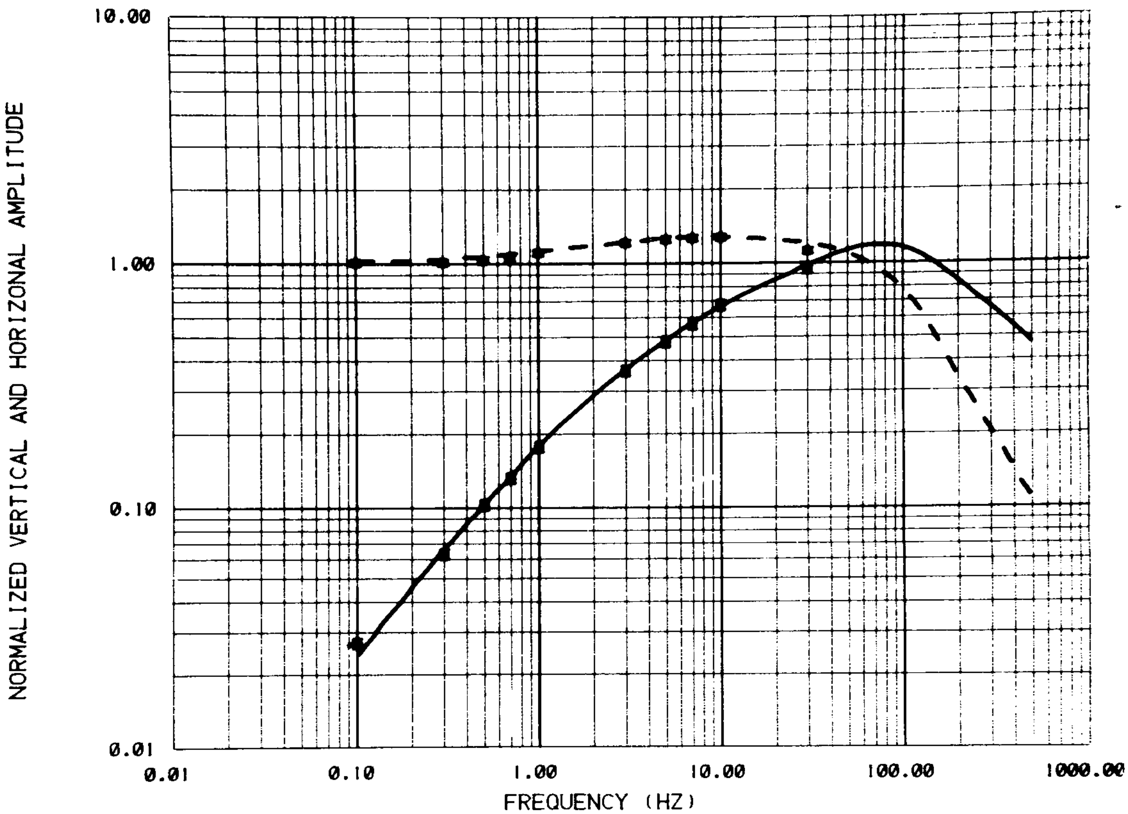
SODA LAKE 1.8 KM NW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	————	TILT ANGLE	X	1	1000.00±	0.	100.3 ±	0.
				2	2.63±	.01	1875. ±	96.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 55.15

XBL 806-10140

COMPARSION OF CALCULATED AND MEASURED DATA



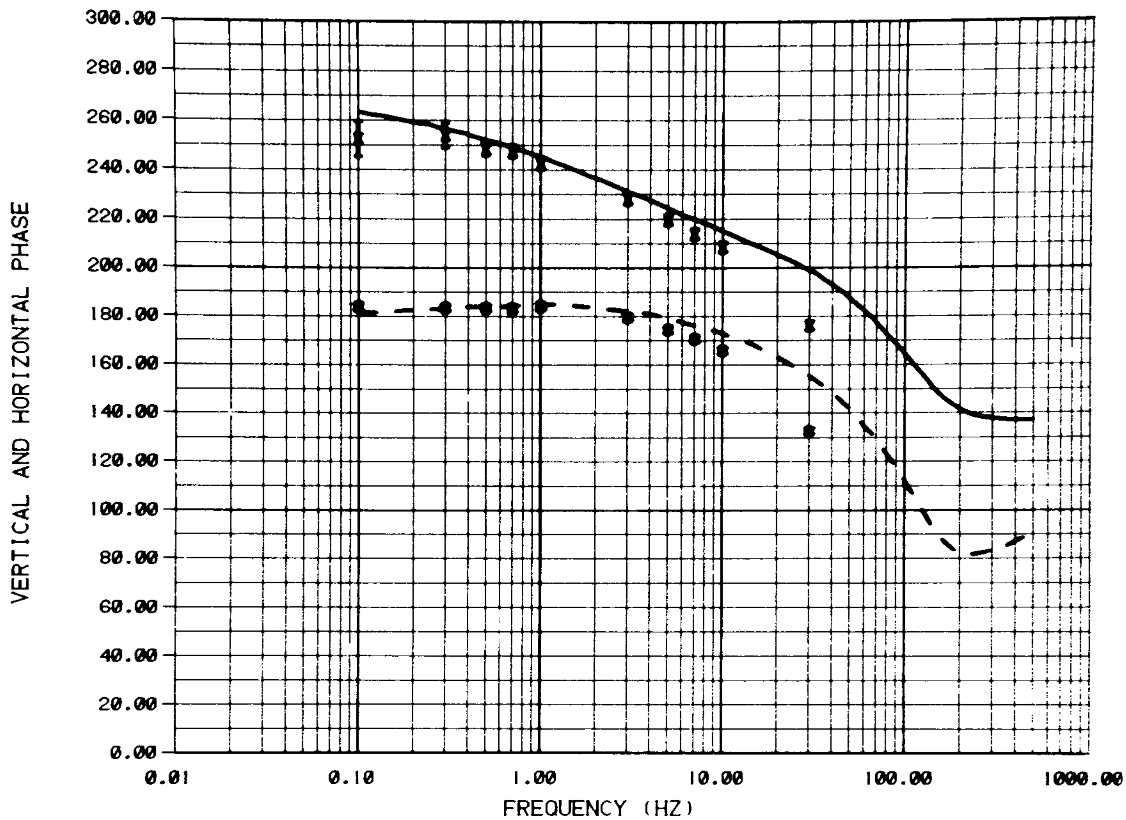
SODA LAKE .72 KM NW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	12.11±	.00	305.4 ±	2.
HZ	— — —	HZ	*	2	1.77±	.02	.1000E+11±	0.

DATA VARIENCE ESTIMATE 15.23

XBL 806-10148

COMPARSION OF CALCULATED AND MEASURED DATA



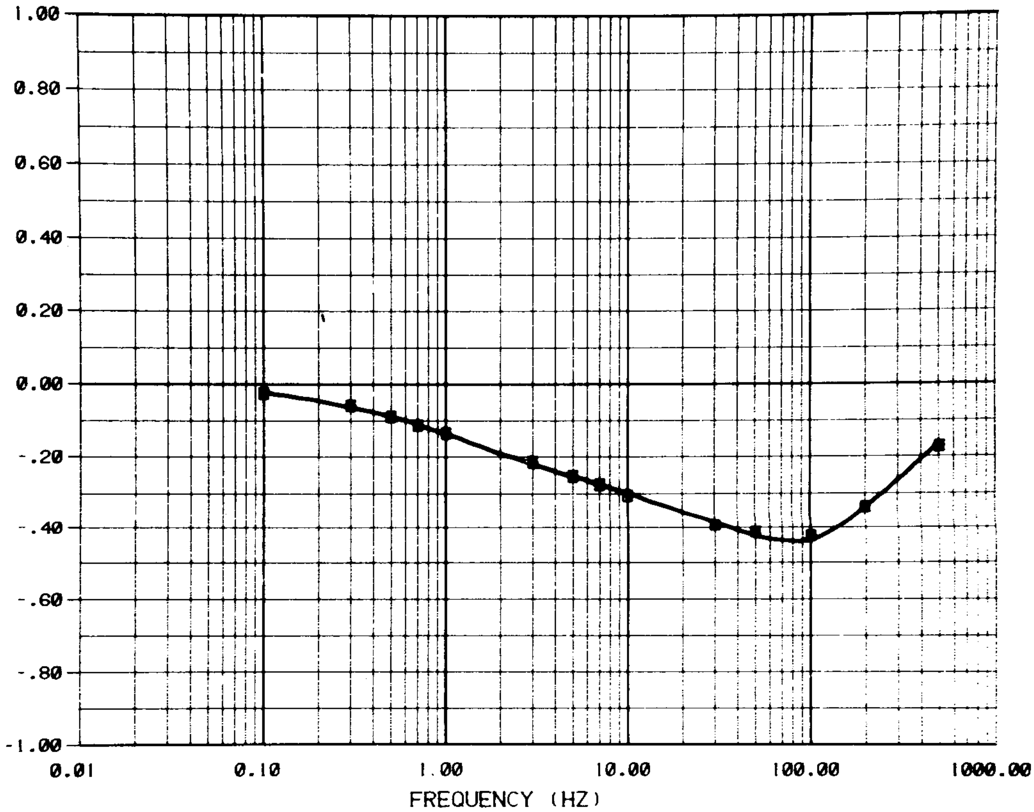
SODA LAKE .72 KM NW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	12.11±	.00	305.4 ±	2.
HZ	— — —	HZ	*	2	1.77±	.02	.1000E+11±	0.

DATA VARIENCE ESTIMATE 15.23

XBL 806-10147

COMPARSION OF CALCULATED AND MEASURED DATA



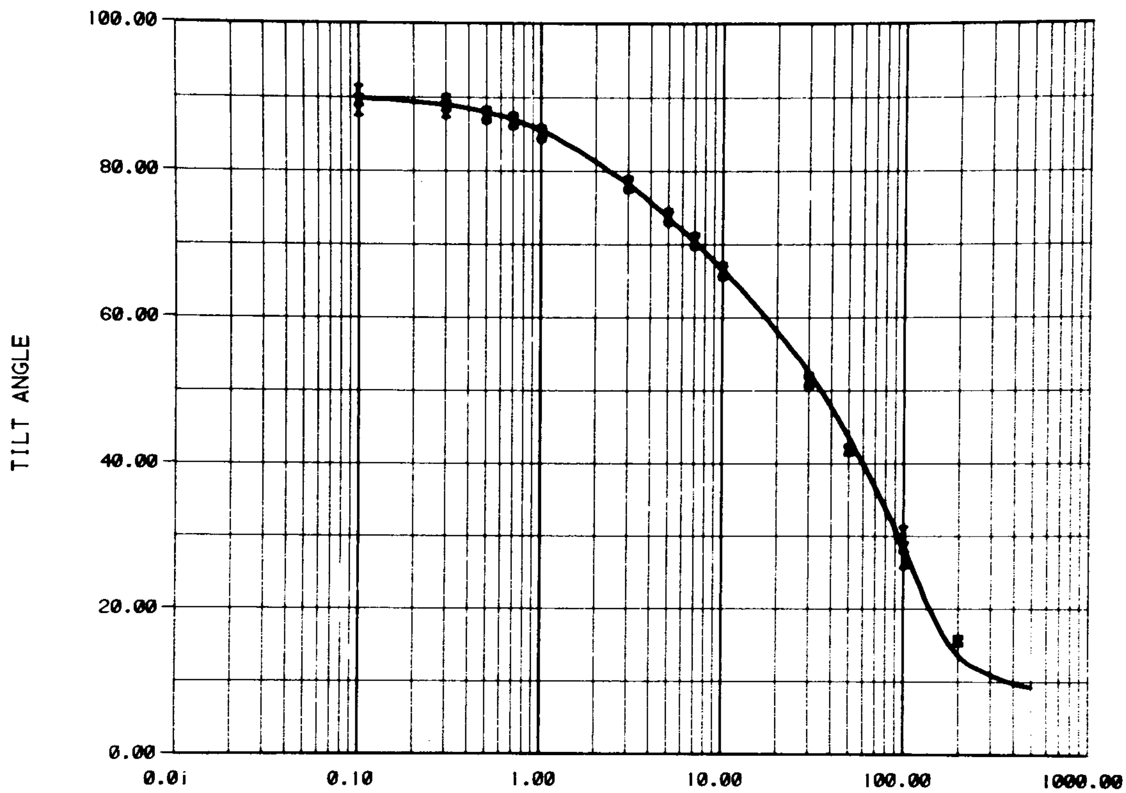
SODA LAKE .72 KM NW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	12.11±	.00	305.4 ±	2.
				2	1.77±	.02	.1000E+11±	0.

DATA VARIENCE ESTIMATE 15.23

XBL 806-10150

COMPARSION OF CALCULATED AND MEASURED DATA



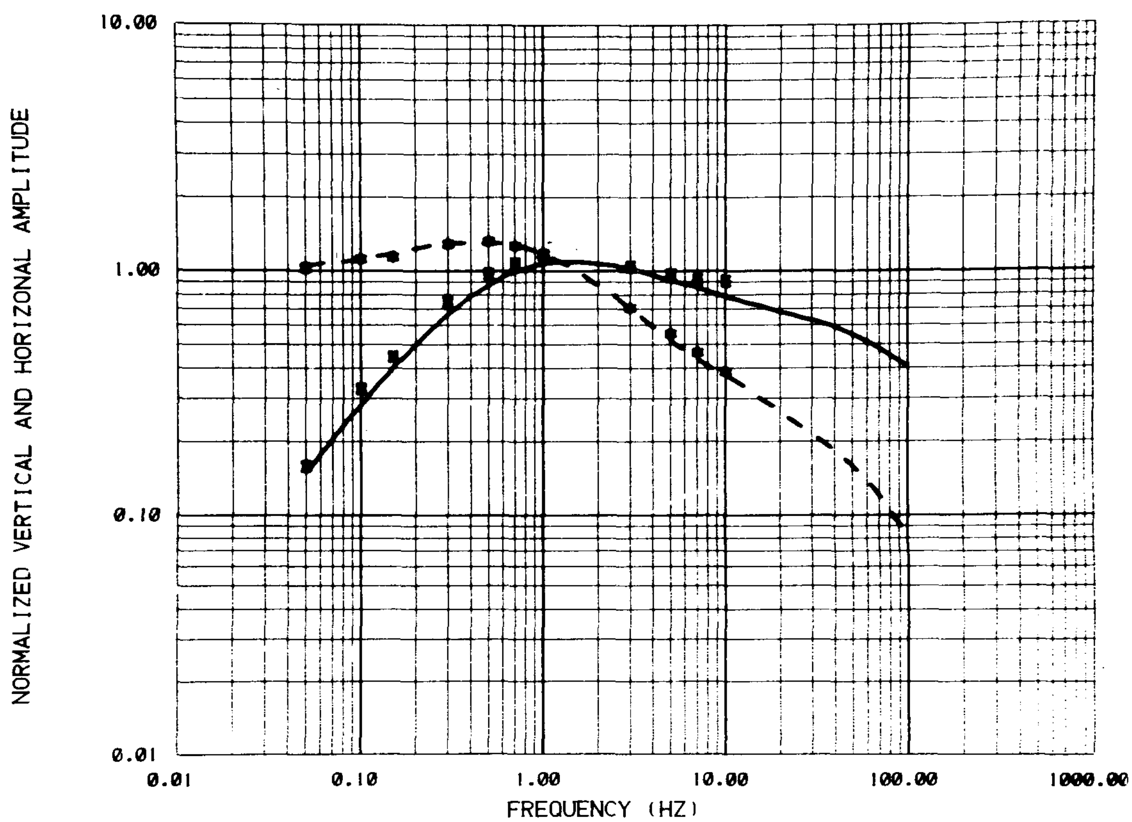
SODA LAKE .72 KM NW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	———	TILT ANGLE	X	1	12.11±	.00	305.4 ±	2.
				2	1.77±	.02	.1000E+11±	0.

DATA VARIENCE ESTIMATE 15.23

XBL 806-10149

COMPARSION OF CALCULATED AND MEASURED DATA



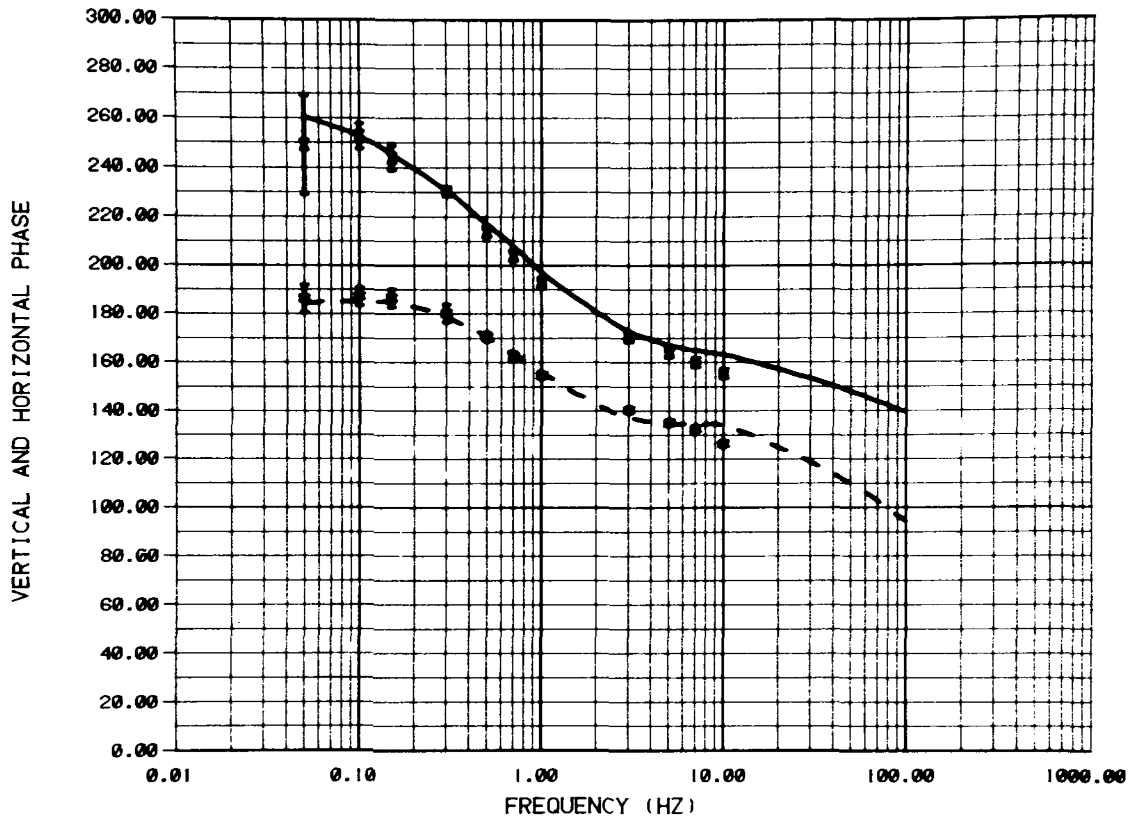
SODA LAKE 2.0 KM NW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	12.90±	.00	232.3 ±	1.
HZ	— — —	HZ	*	2	1.66±	.01	1236. ±	35.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 45.89

XBL 806-10153

COMPARSION OF CALCULATED AND MEASURED DATA



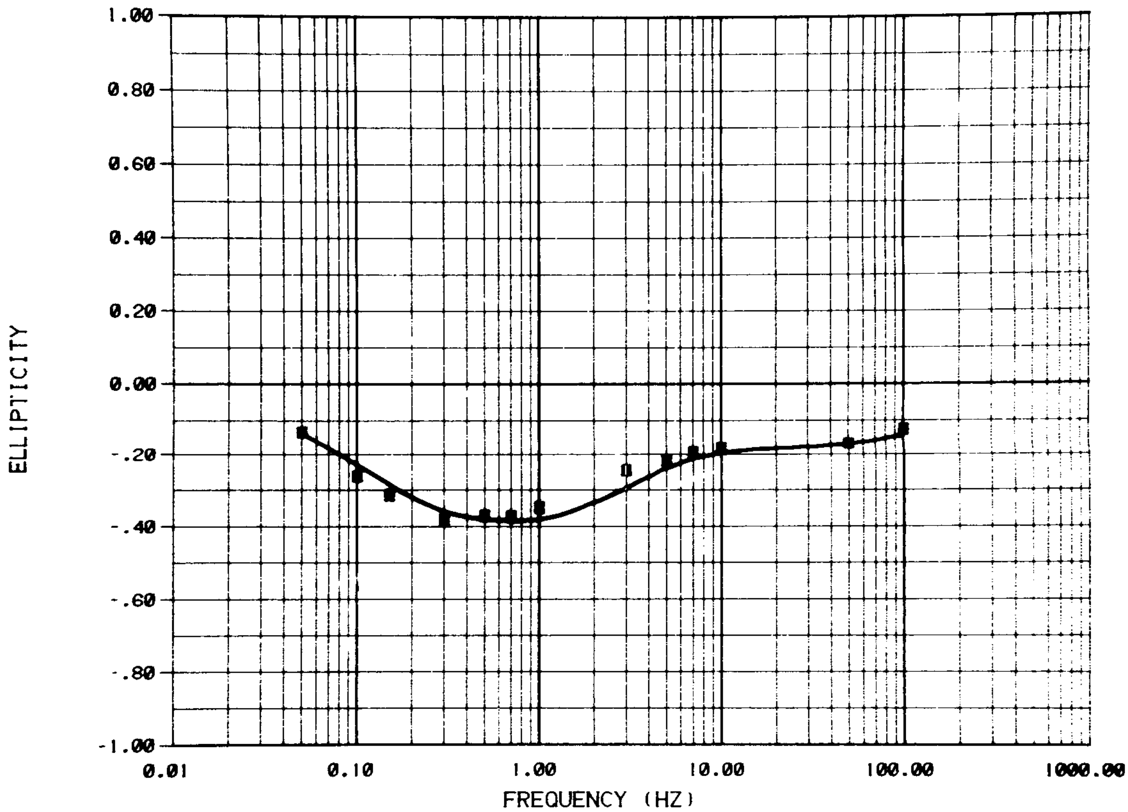
SODA LAKE 2.0 KM NW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	12.90±	.00	232.3	± 1.
HZ	— — —	HZ	*	2	1.66±	.01	1236.	± 35.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 45.89

XBL 806-10245

COMPARSION OF CALCULATED AND MEASURED DATA



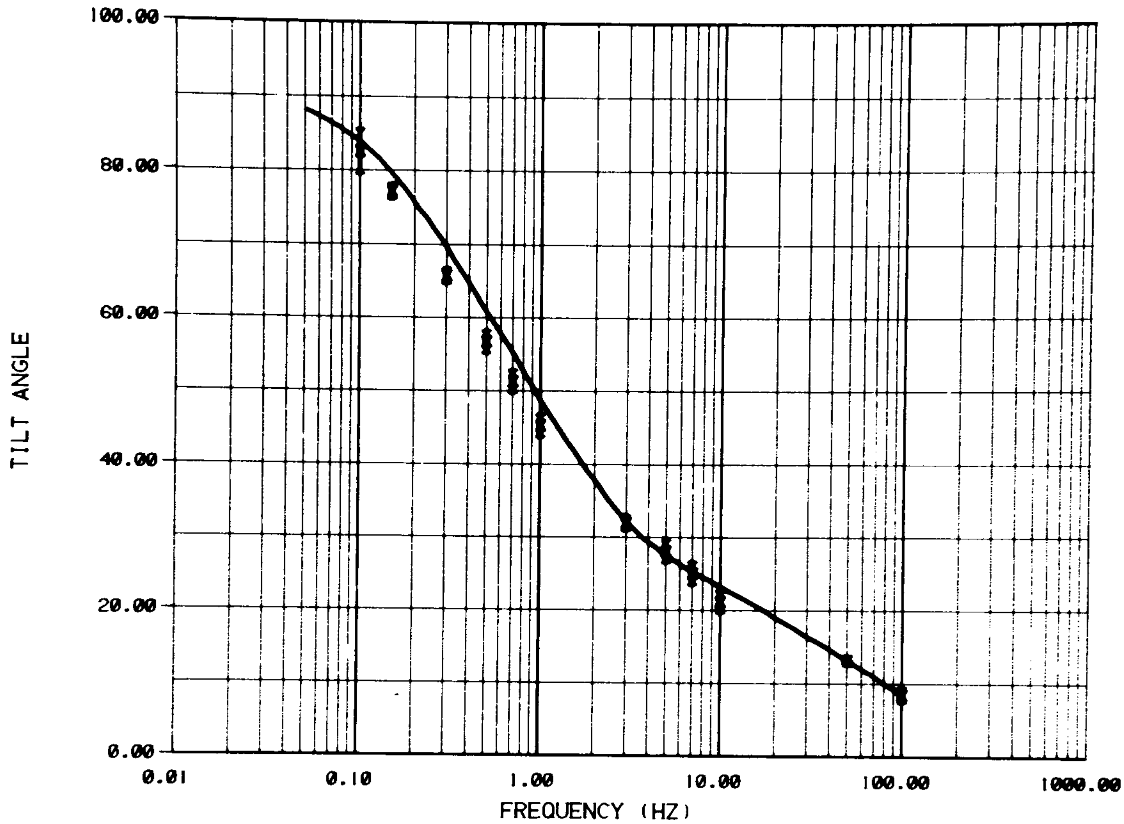
SODA LAKE 2.0 KM NW T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	12.90±	.00	232.3 ±	1.
				2	1.66±	.01	1236. ±	35.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 45.89

XBL 806-10248

COMPARSION OF CALCULATED AND MEASURED DATA



SODA LAKE 2.0 KM NW T1

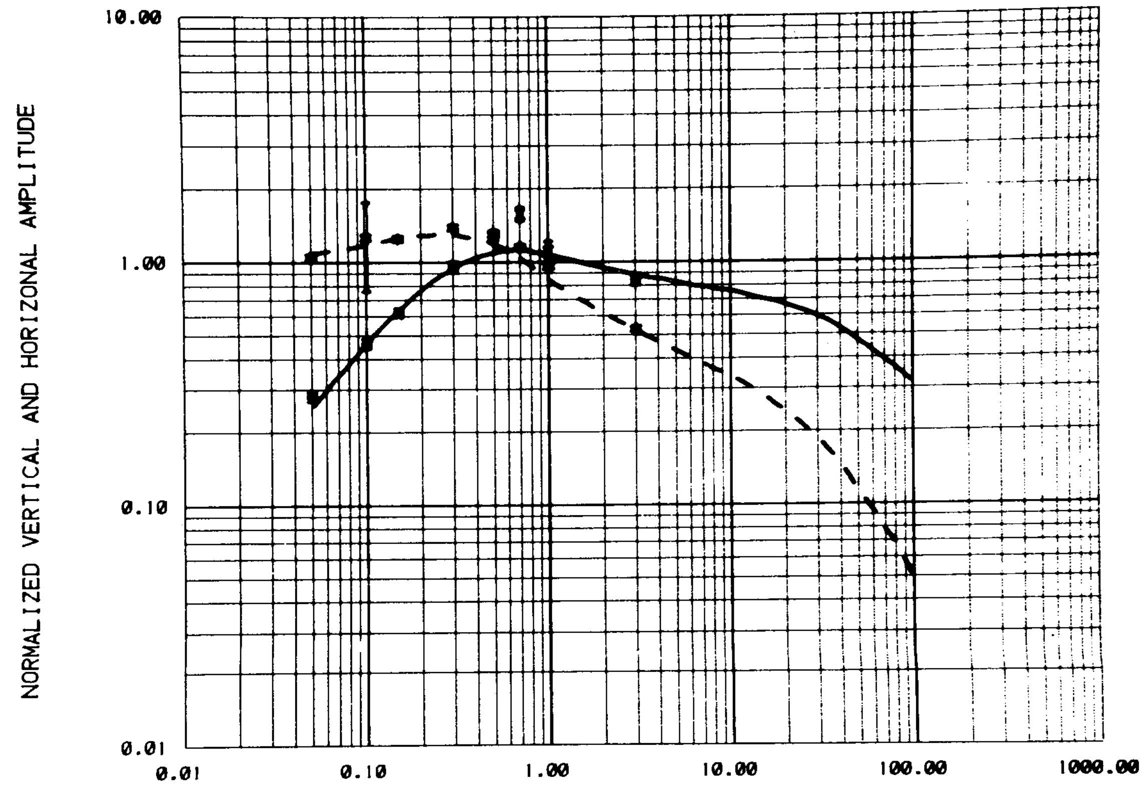
CALCULATED DATA	MEASURED DATA	LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE ———	TILT ANGLE X	1	12.90±	.00	232.3 ±	1.
		2	1.66±	.01	1236. ±	35.
		3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 45.89

L

XBL 806-10246

COMPARSION OF CALCULATED AND MEASURED DATA



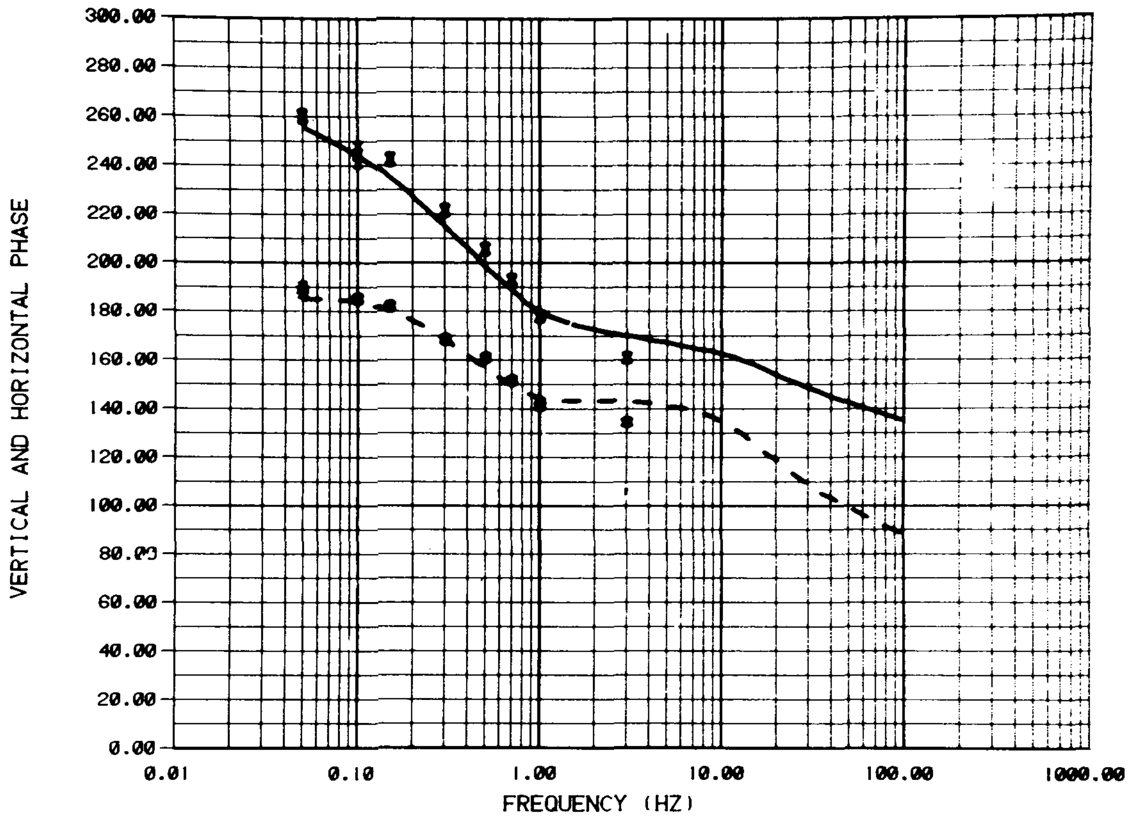
SODA LAKE D-D 2.8 KM SE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	16.19±	.00	371.8 ±	3.
HZ	— — —	HZ	*	2	1.31±	.02	939.5 ±	24.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 45.64

XBL 806-10126

COMPARSION OF CALCULATED AND MEASURED DATA



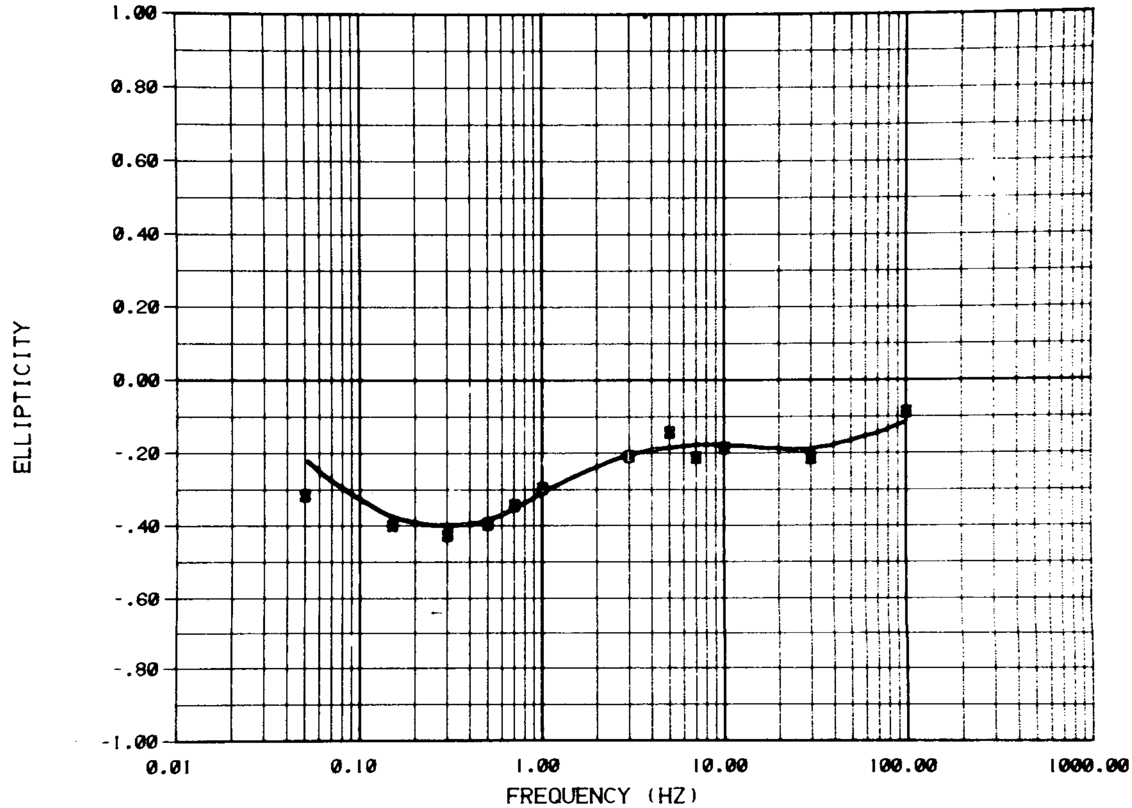
SODA LAKE D-D 2.8 KM SE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	16.19±	.00	371.8 ±	3.
HZ	— — —	HZ	*	2	1.31±	.02	939.5 ±	24.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 45.64

XBL 806-10125

COMPARSION OF CALCULATED AND MEASURED DATA



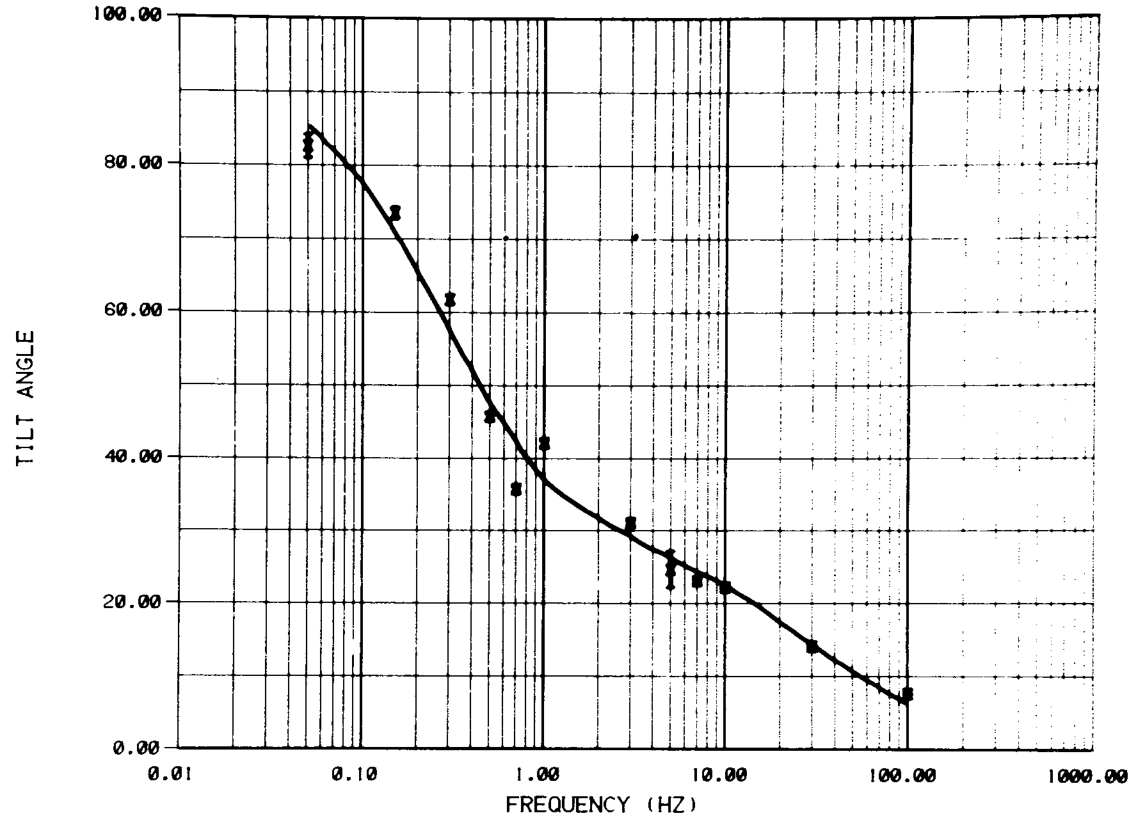
SODA LAKE D-D 2.8 KM SE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	16.19±	.00	371.8 ±	3.
				2	1.31±	.02	939.5 ±	24.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 45.64

XBL 806-10124

COMPARSION OF CALCULATED AND MEASURED DATA



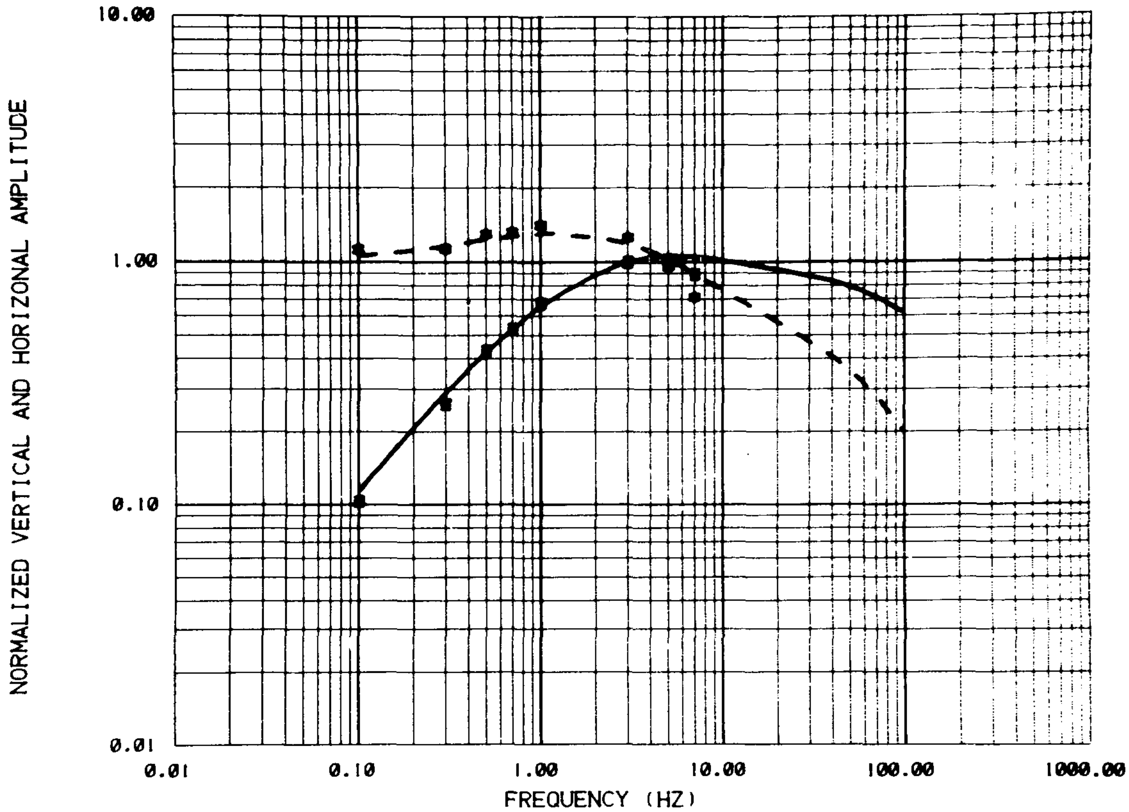
SODA LAKE D-D 2.8 KM SE T1

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	————	TILT ANGLE	X	1	16.19±	.00	371.8 ±	3.
				2	1.31±	.02	939.5 ±	24.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 45.64

XBL 806-10123

COMPARSION OF CALCULATED AND MEASURED DATA



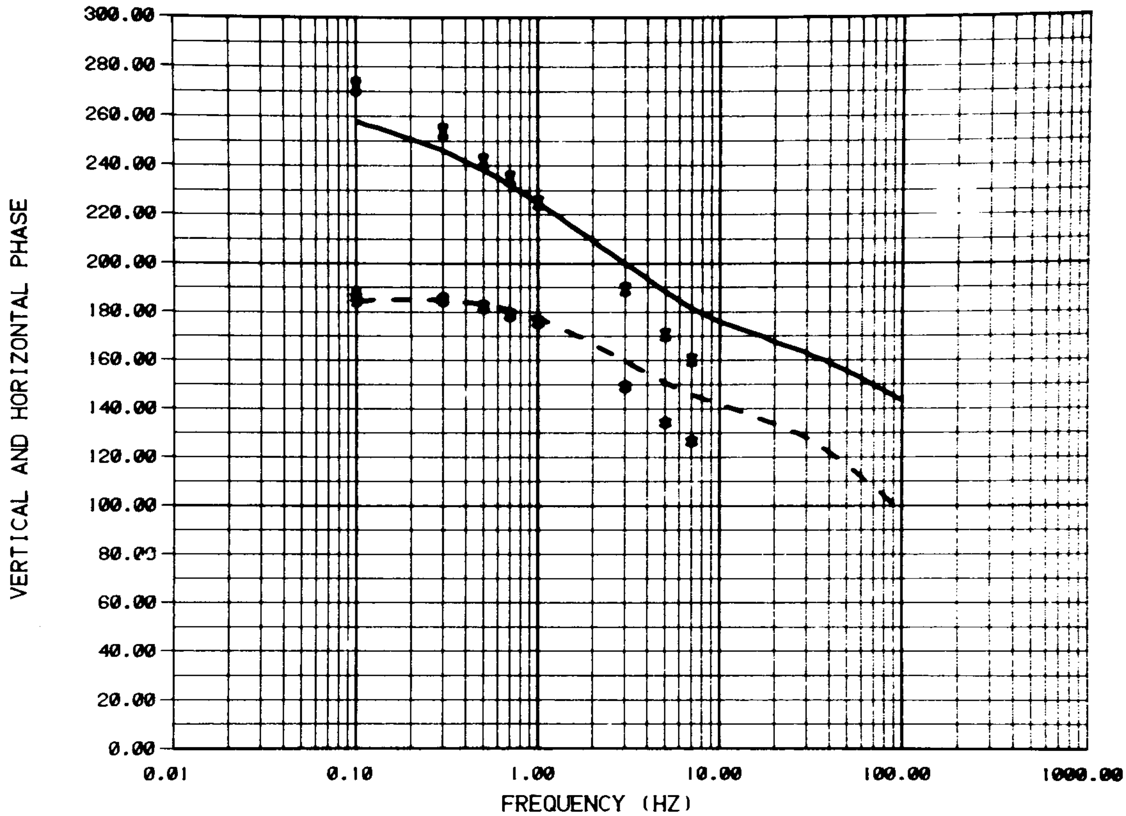
SODA LAKE E-E 1.3 KM SW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	11.30±	.00	204.0 ±	1.
HZ	— — —	HZ	*	2	1.80±	.01	.1000E+11±	0.

DATA VARIENCE ESTIMATE 52.81

XBL 806-10134

COMPARSION OF CALCULATED AND MEASURED DATA



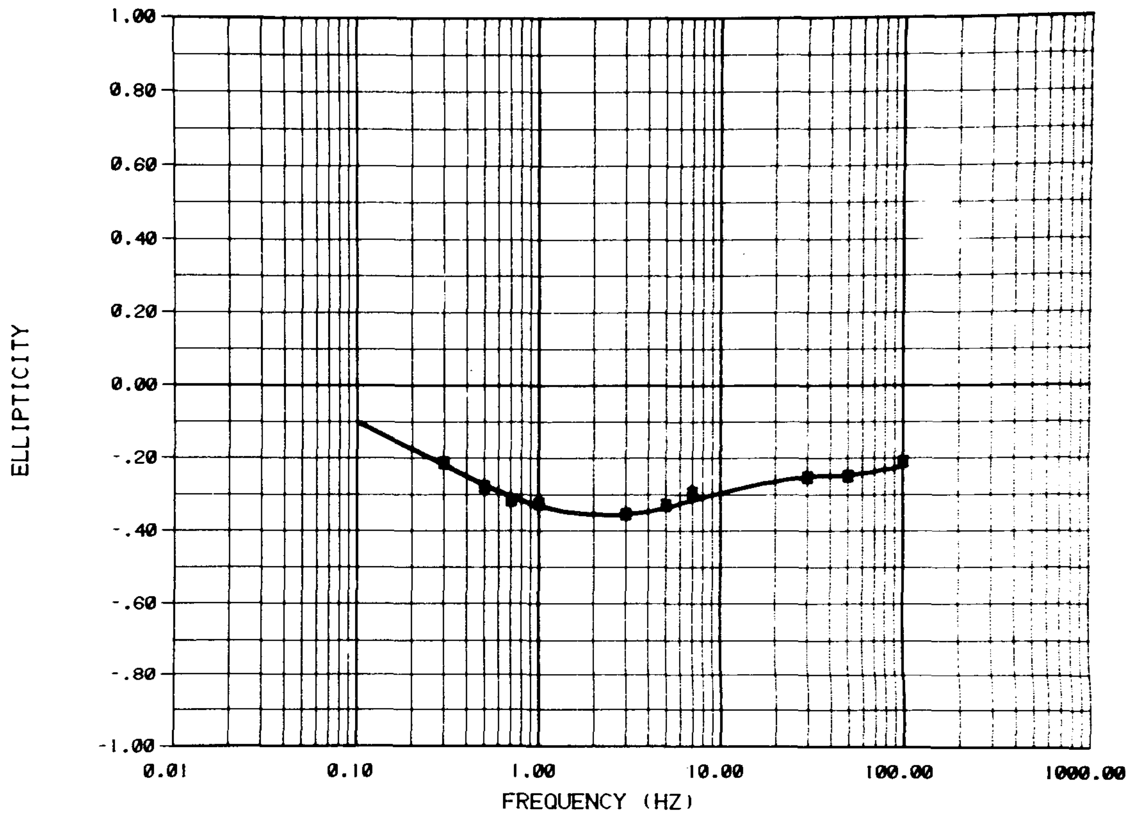
SODA LAKE E-E 1.3 KM SW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	11.30±	.00	204.0 ±	1.
HZ	—— —— ——	HZ	*	2	1.80±	.01	.1000E+11±	0.

DATA VARIENCE ESTIMATE 52.81

XBL 806-10133

COMPARSION OF CALCULATED AND MEASURED DATA



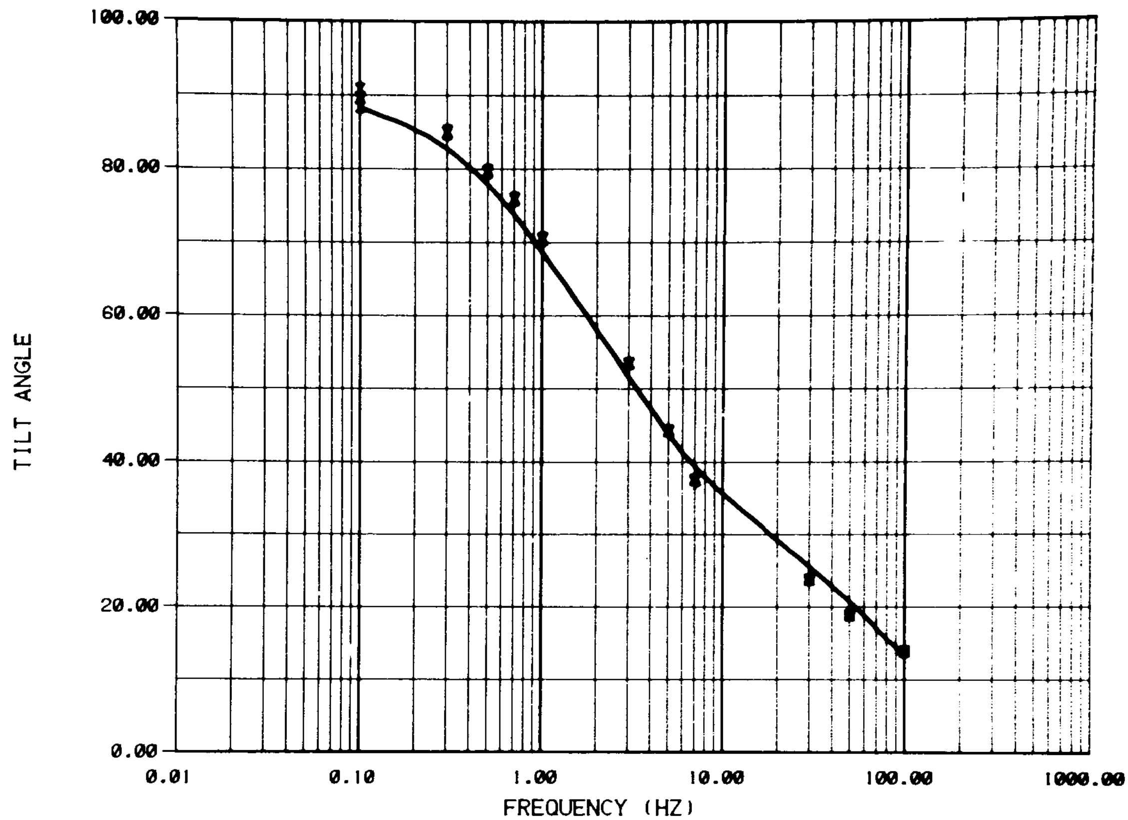
SODA LAKE E-E 1.3 KM SW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	11.30±	.00	204.0 ±	1.
				2	1.80±	.01	.1000E+11±	0.

DATA VARIENCE ESTIMATE 52.81

XBL 806-10131

COMPARSION OF CALCULATED AND MEASURED DATA



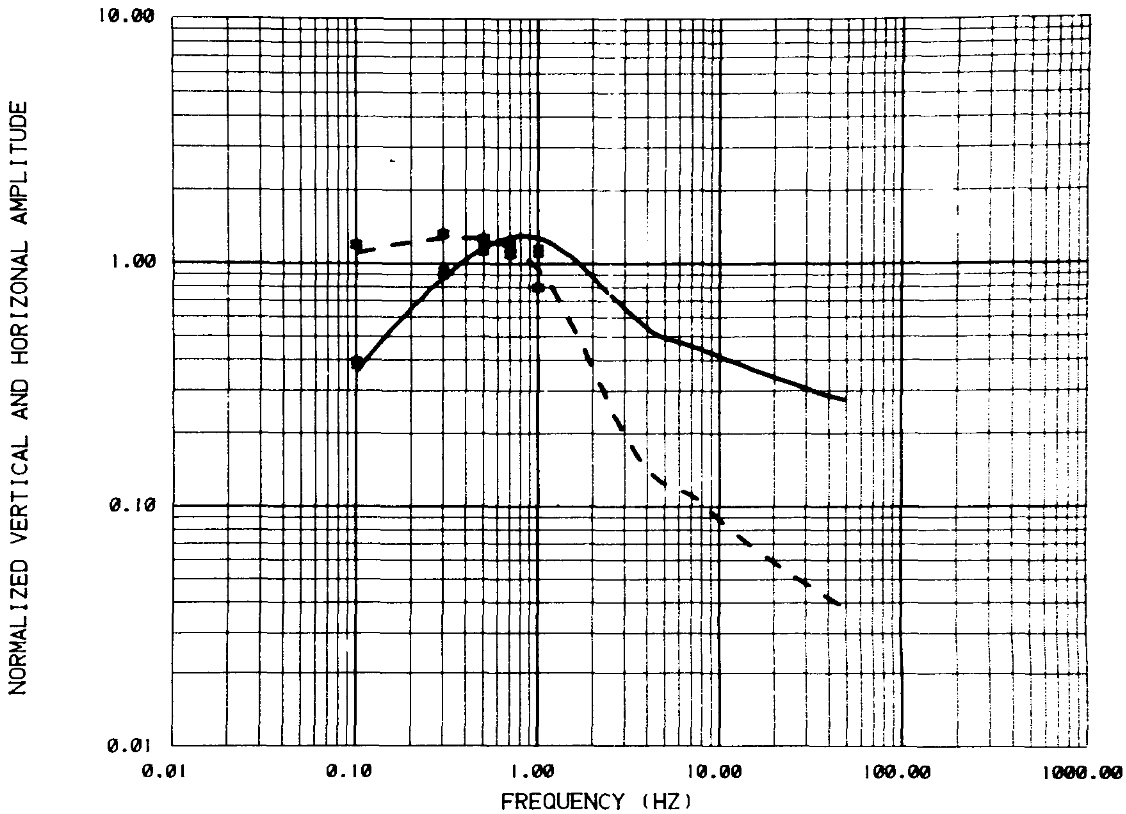
SODA LAKE E-E 1.3 KM SW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	————	TILT ANGLE	X	1	11.30±	.00	204.0 ±	1.
				2	1.80±	.01	.1000E+11±	0.

DATA VARIENCE ESTIMATE 52.81

XBL 806-10132

COMPARSION OF CALCULATED AND MEASURED DATA



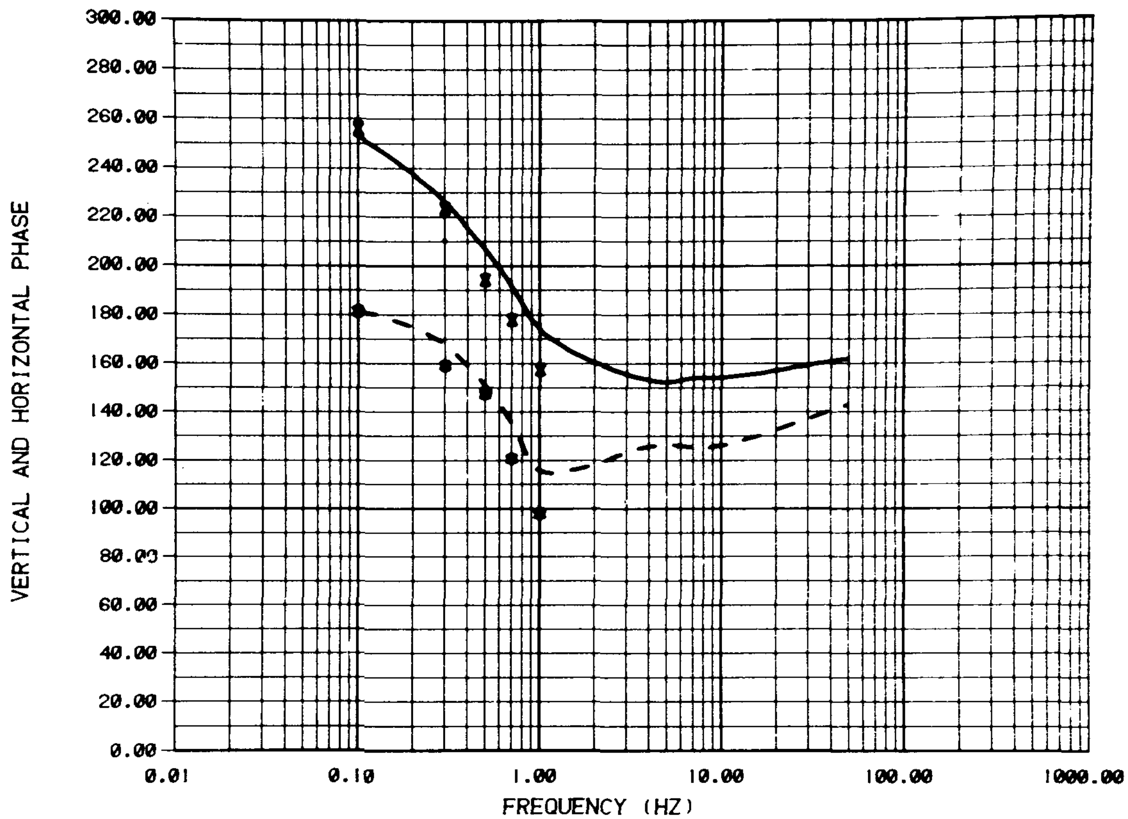
SODA LAKE E-E 2.8 KM NE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	*********±	.00	80.63 ±	0.
HZ	—— —— —	HZ	*	2	1.32±	.02	474.6 ±	6.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 7464.

XBL 806-10107

COMPARSION OF CALCULATED AND MEASURED DATA



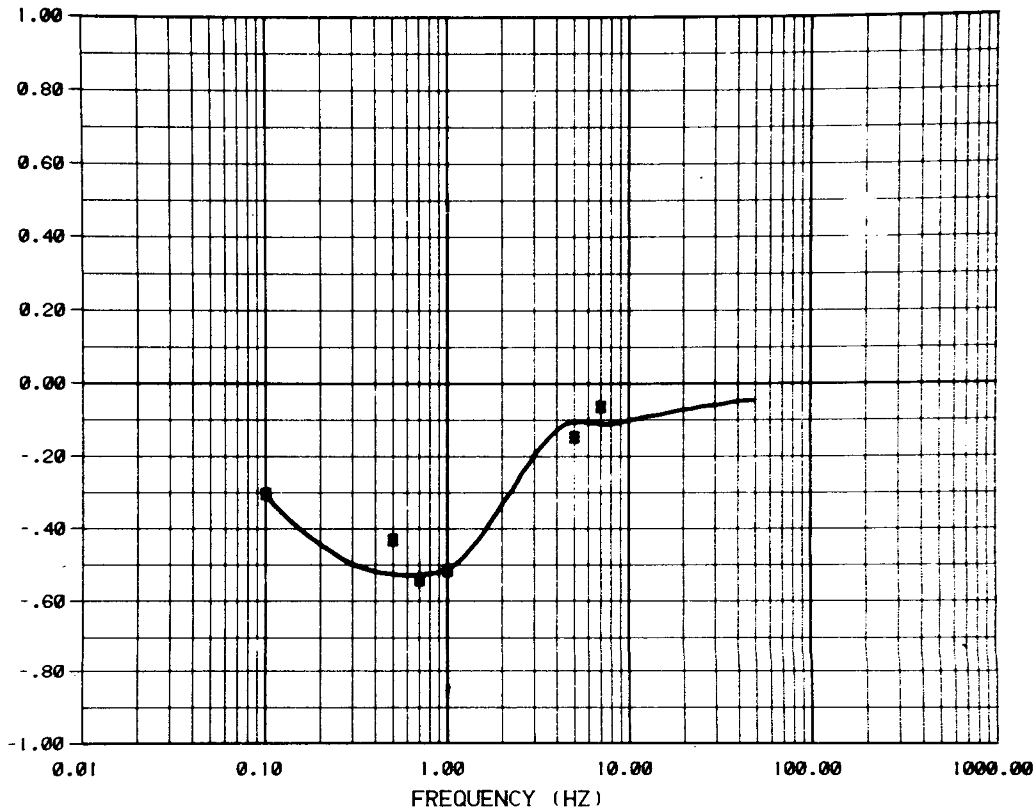
SODA LAKE E-E 2.8 KM NE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	———————	HR	X	1	*********±	.00	80.63 ±	0.
HZ	— — —	HZ	*	2	1.32±	.02	474.6 ±	6.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 7464.

XBL 806-10108

COMPARSION OF CALCULATED AND MEASURED DATA



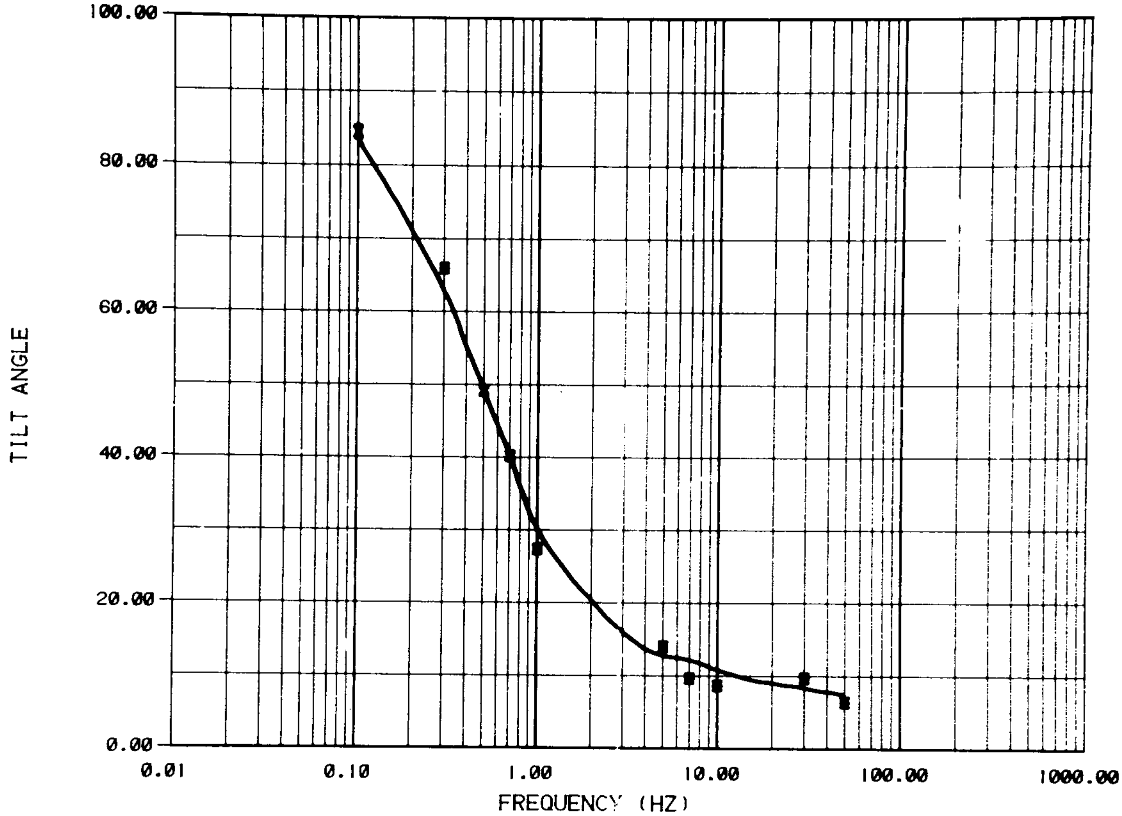
SODA LAKE E-E 2.8 KM NE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	————	ELLIPTICITY	X	1	*********±	.00	80.63 ±	0.
				2	1.32±	.02	474.6 ±	6.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 7464.

XBL 806-10110

COMPARSION OF CALCULATED AND MEASURED DATA



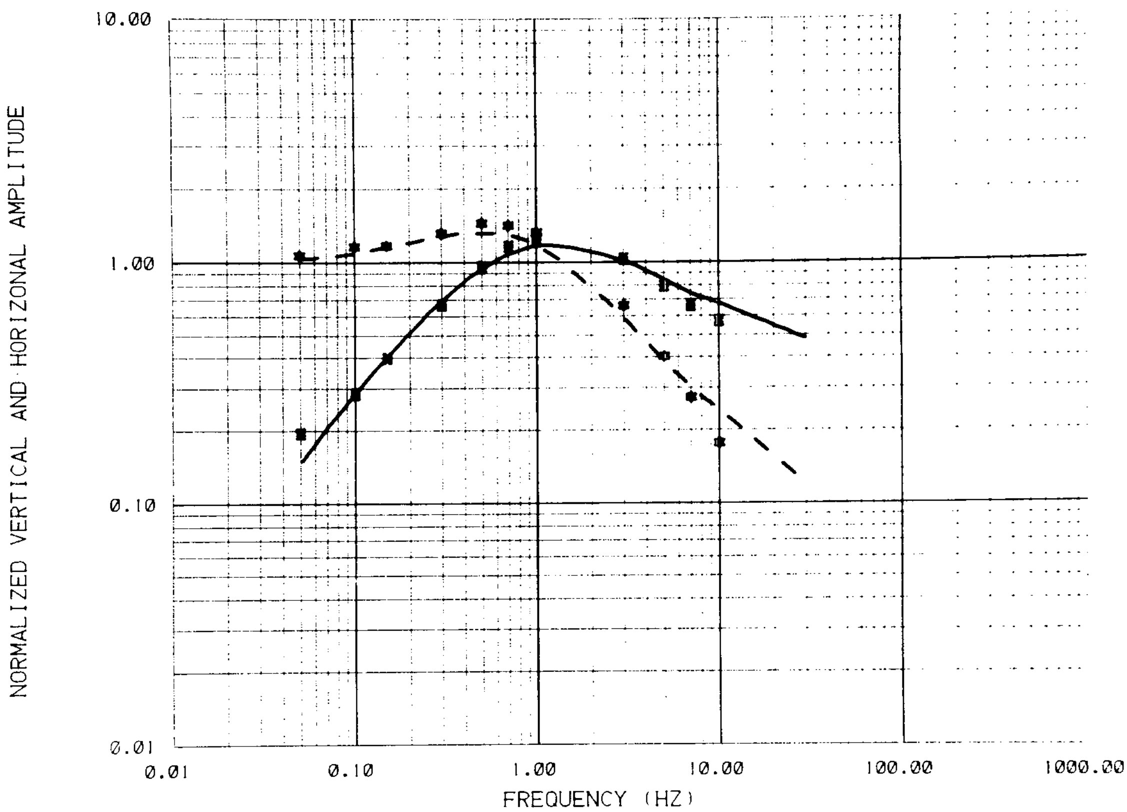
SODA LAKE E-E 2.8 KM NE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	————	TILT ANGLE	X	1	*********±	.00	80.63 ±	0.
				2	1.32±	.02	474.6 ±	6.
				3	50.00±	0.	.1000E+11±	0.

DATA VARIENCE ESTIMATE 7464.

XBL 806-10109

COMPARSION OF CALCULATED AND MEASURED DATA

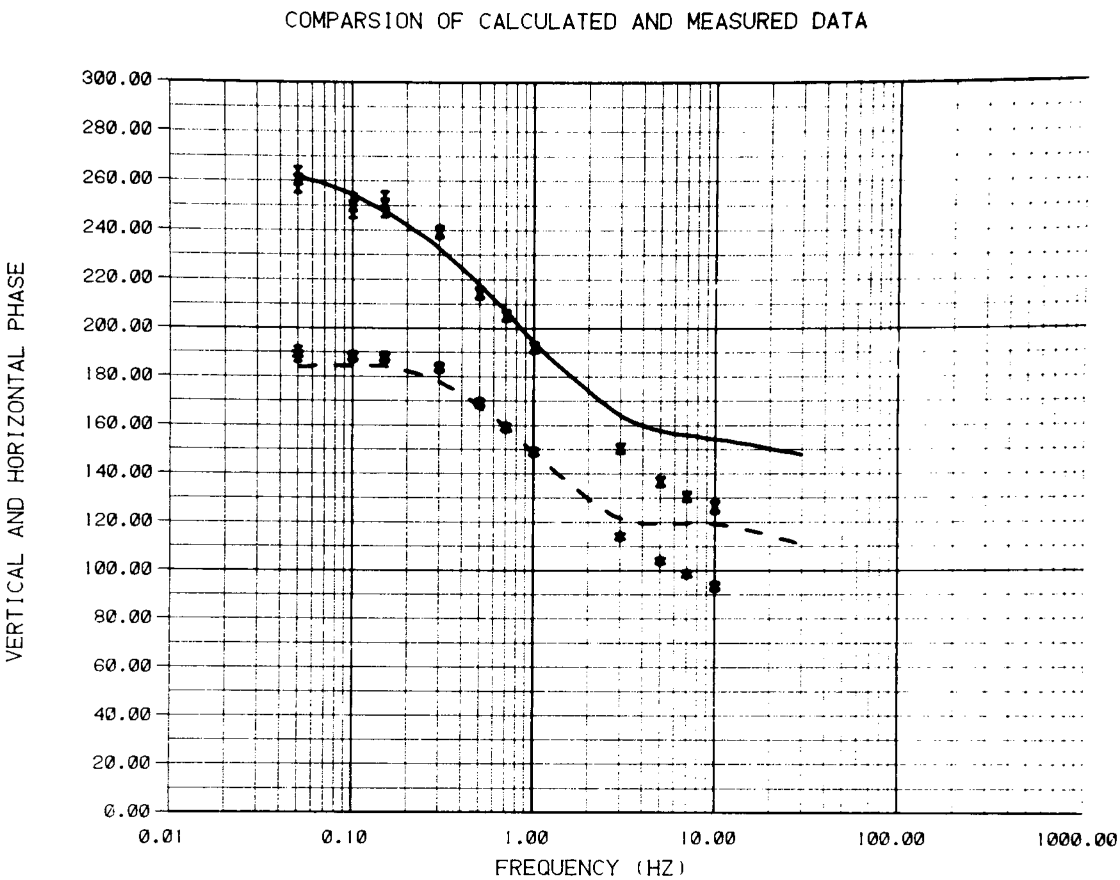


SODA LAKE E-E 2.3 KM SW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	8.70±	.00	189.0	± 2.
HZ	— — —	HZ	*	2	2.20±	.01	1119.	± 52.
				3	52.00±	83.67	.1000E+11±	0.

DATA VARIENCE ESTIMATE 105.1

XBL 806-10146

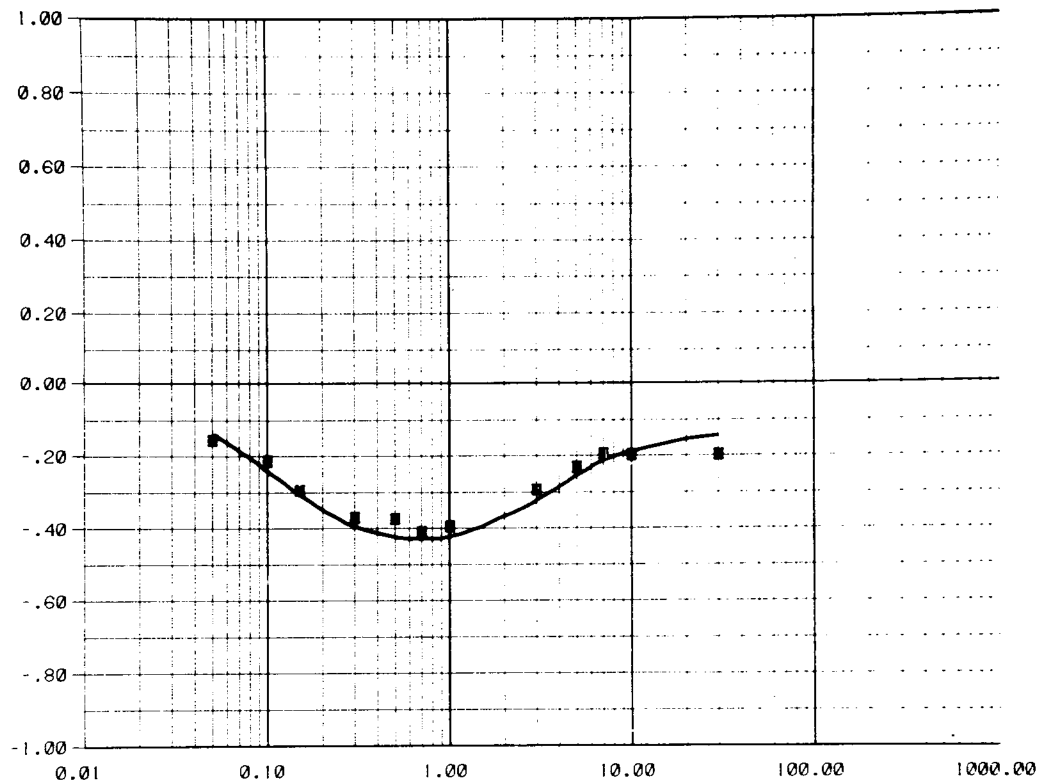


SODA LAKE E-E 2.3 KM SW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	8.70±	.00	189.0	± 2.
HZ	— — —	HZ	*	2	2.20±	.01	1119.	± 52.
				3	52.00±	83.67	.1000E+11±	0.

DATA VARIENCE ESTIMATE 105.1

XBL 806-10143



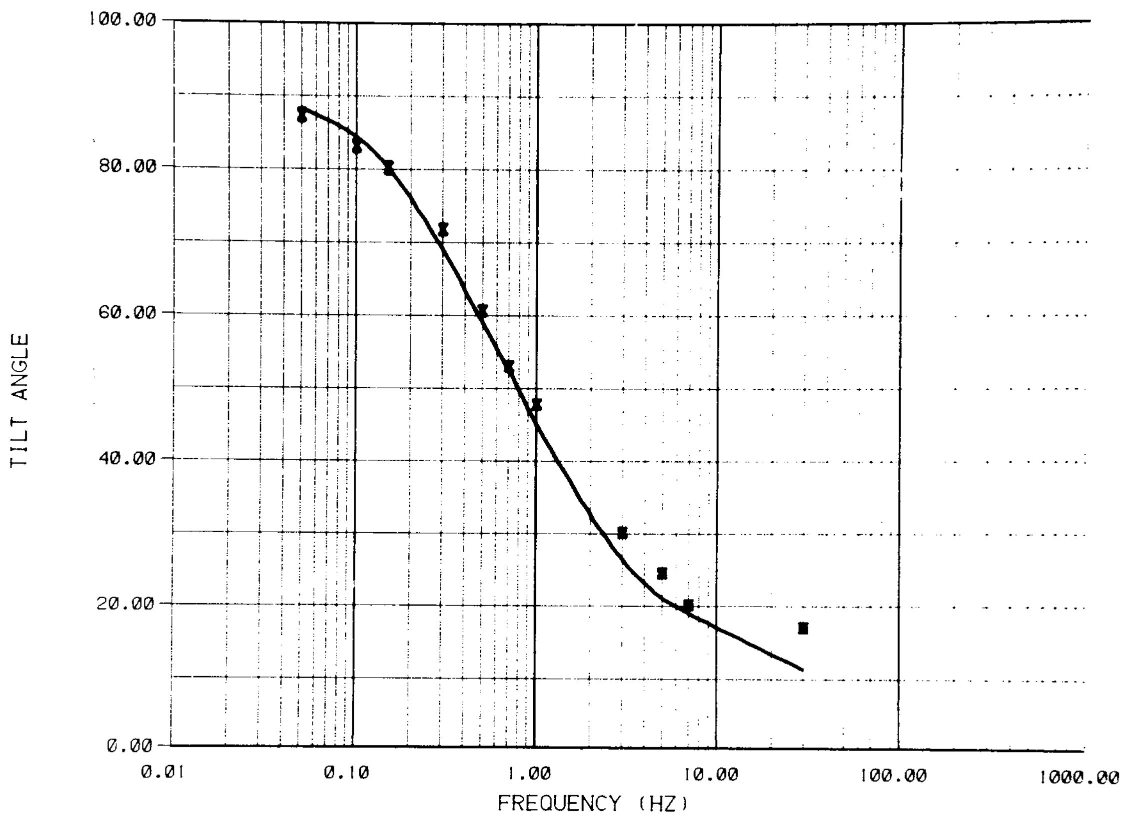
SODA LAKE E-E 2.3 KM SW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	8.70±	.00	189.0 ±	2.
				2	2.20±	.01	1119. ±	52.
				3	52.00±	83.67	.1000E+11±	0.

DATA VARIENCE ESTIMATE 105.1

XBL 806-10145

COMPARSION OF CALCULATED AND MEASURED DATA

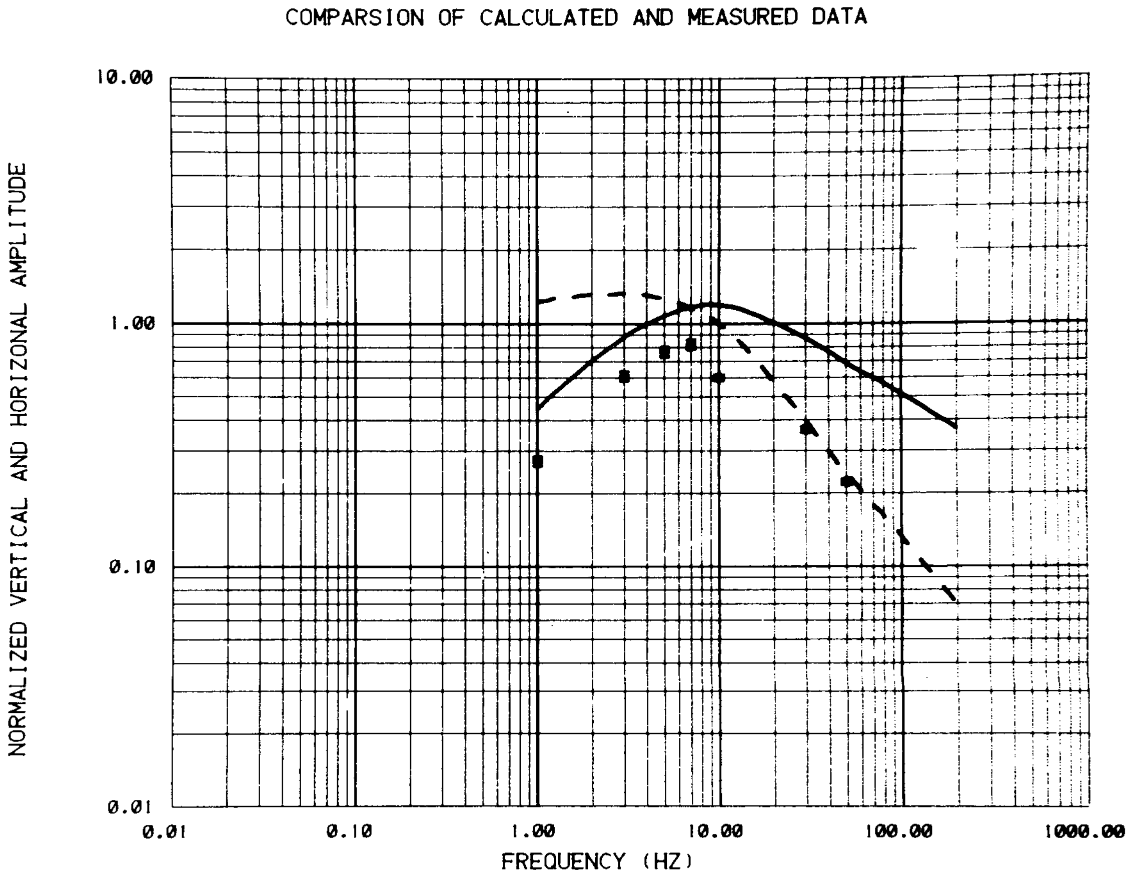


SODA LAKE E-E 2.3 KM SW T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	———	TILT ANGLE	X	1	8.70±	.00	189.0 ±	2.
				2	2.20±	.01	1119. ±	52.
				3	52.00±	83.67	.1000E+11±	0.

DATA VARIENCE ESTIMATE 105.1

XBL 806-10144



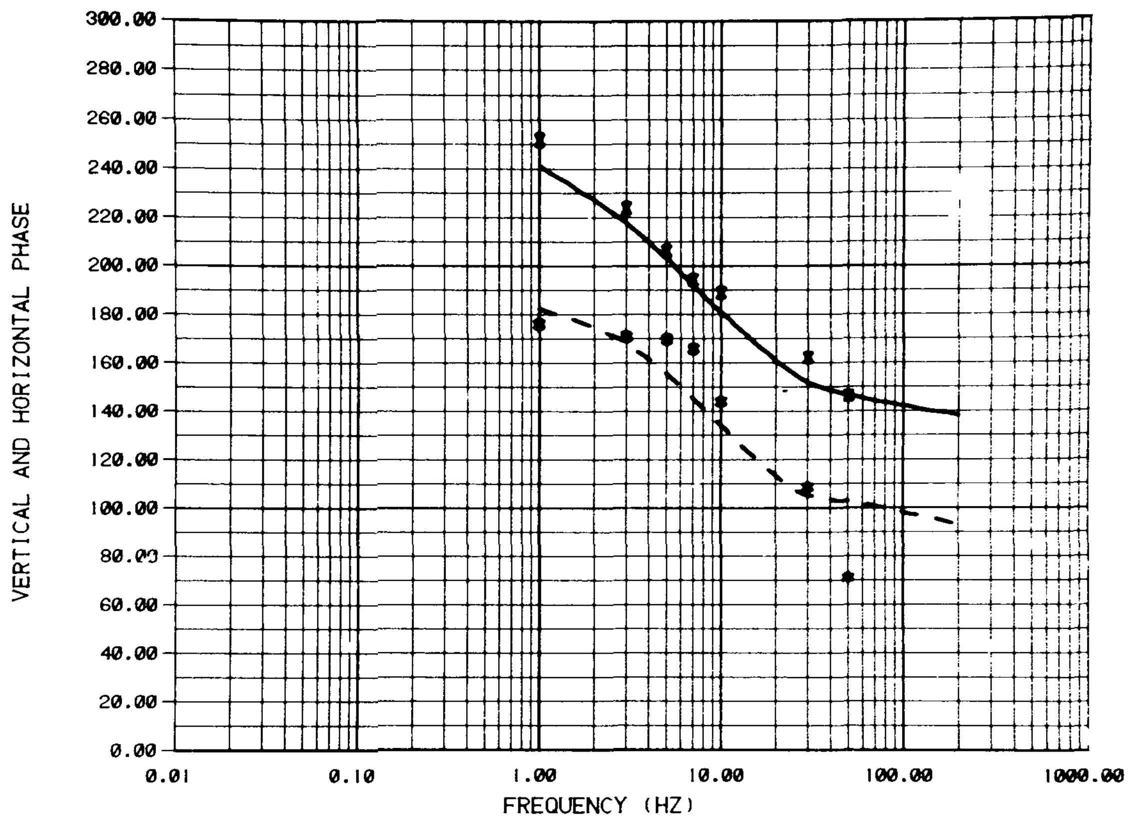
SODA LAKE F-F 0.6 KM SE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	———————	HR	X	1	2.10±	.00	58.00 ±	1.
HZ	— — —	HZ	*	2	1.10±	.01	.1000E+11±	0.

DATA VARIENCE ESTIMATE 578.1

XBL 806-10111

COMPARSION OF CALCULATED AND MEASURED DATA



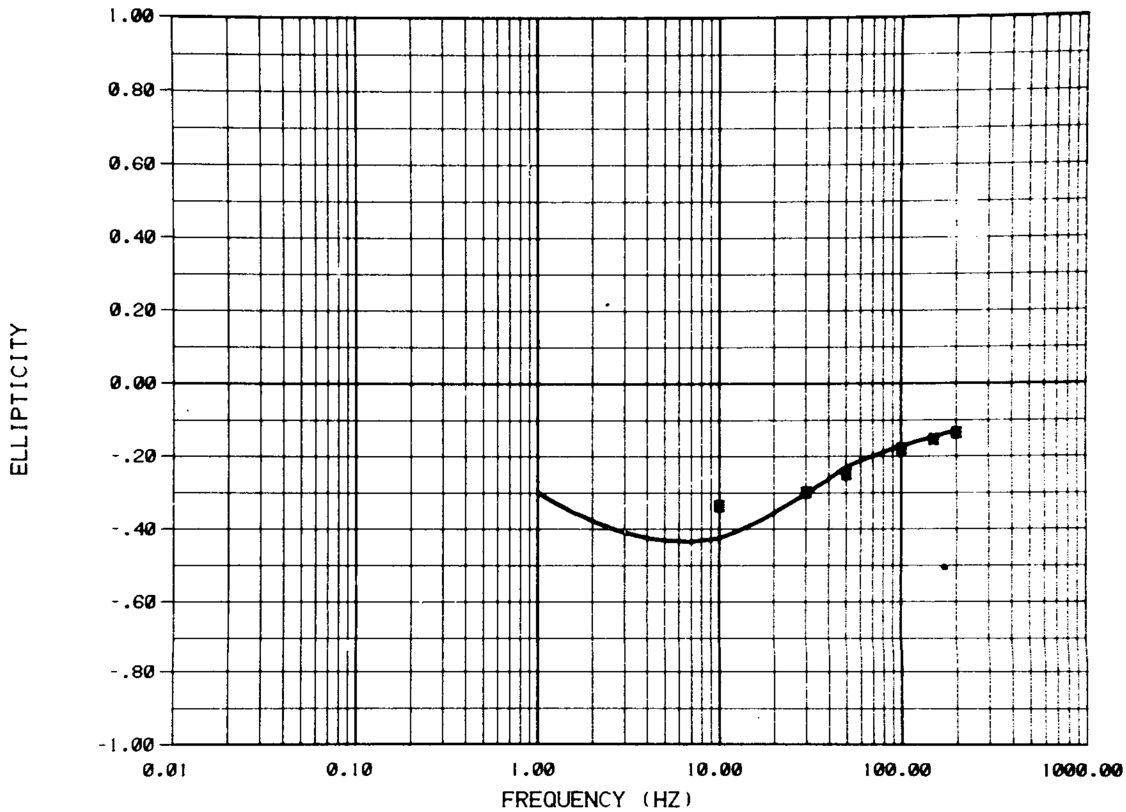
SODA LAKE F-F 0.6 KM SE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	2.10±	.00	58.00 ±	1.
HZ	— — —	HZ	*	2	1.10±	.01	.1000E+11±	0.

DATA VARIENCE ESTIMATE 578.1

XBL 806-10118

COMPARSION OF CALCULATED AND MEASURED DATA



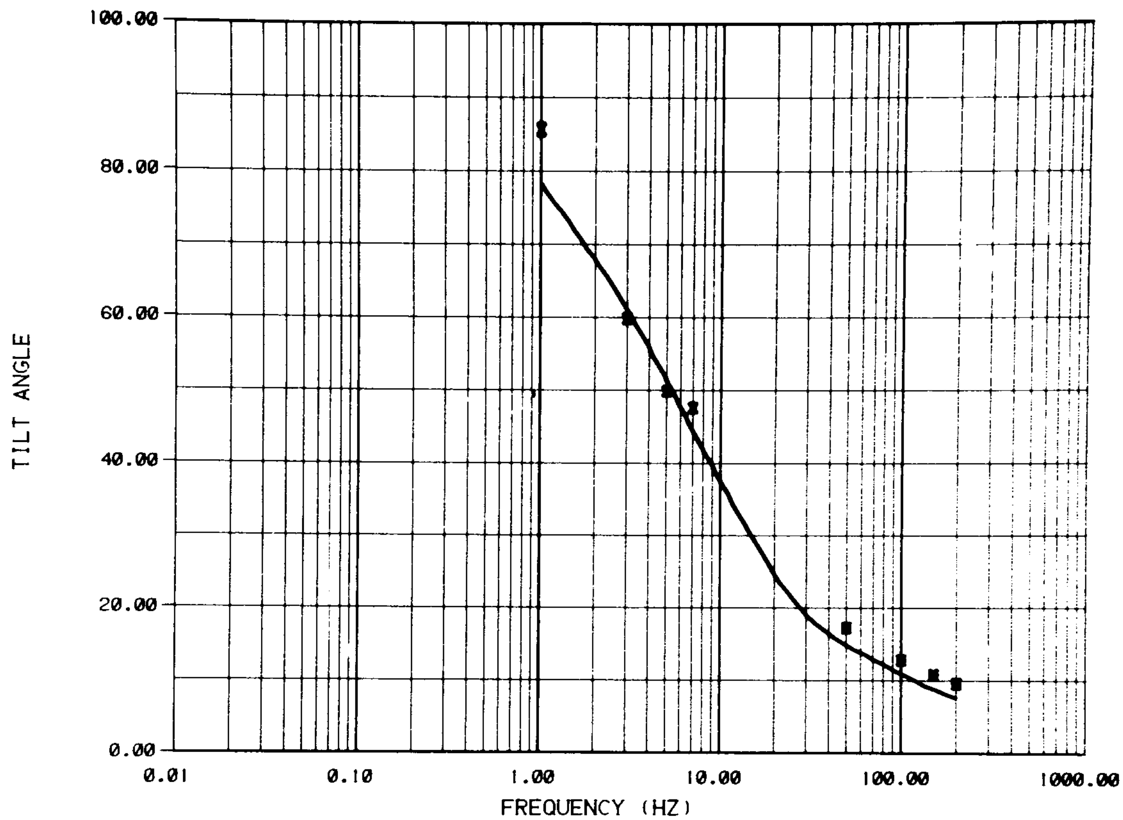
SODA LAKE F-F 0.6 KM SE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	2.10±	.00	58.00 ±	1.
				2	1.10±	.01	.1000E+11±	0.

DATA VARIENCE ESTIMATE 578.1

XBL 806-10116

COMPARSION OF CALCULATED AND MEASURED DATA



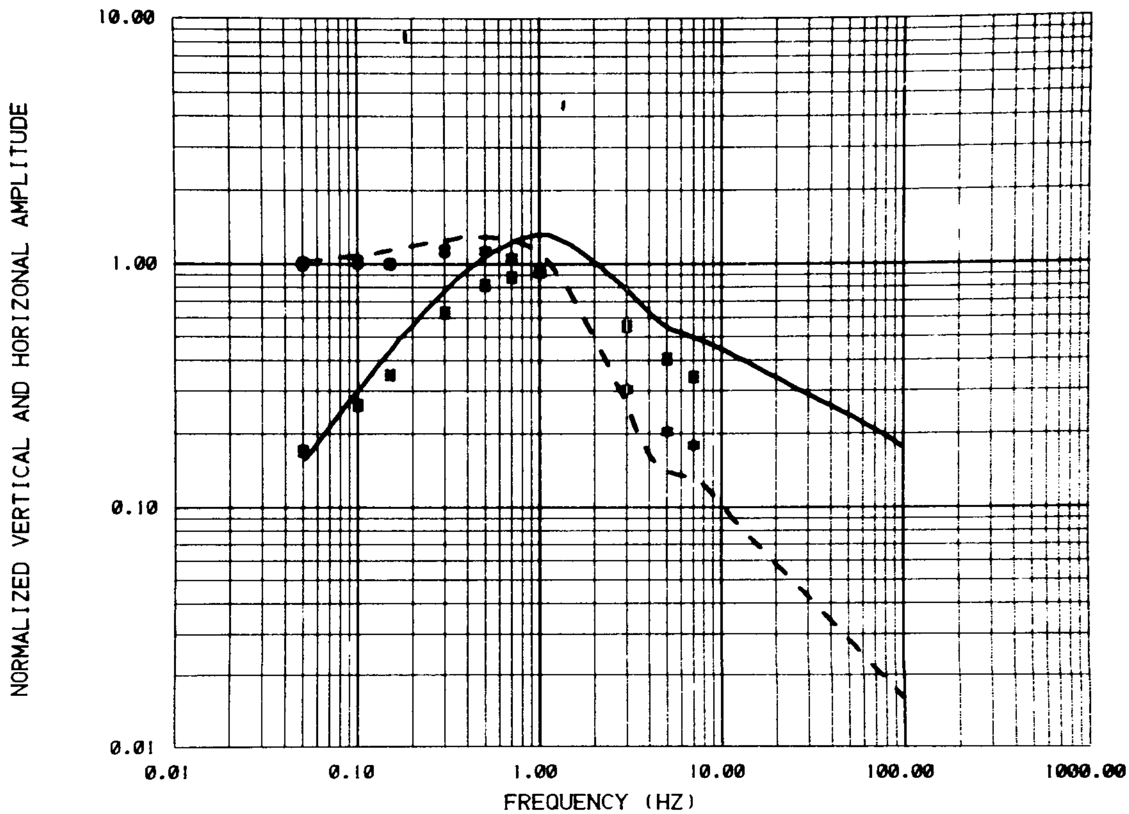
SODA LAKE F-F 0.6 KM SE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	———	TILT ANGLE	X	1	2.10±	.00	58.00 ±	1.
				2	1.10±	.01	.1000E+11±	0.

DATA VARIENCE ESTIMATE 578.1

XBL 806-10117

COMPARSION OF CALCULATED AND MEASURED DATA



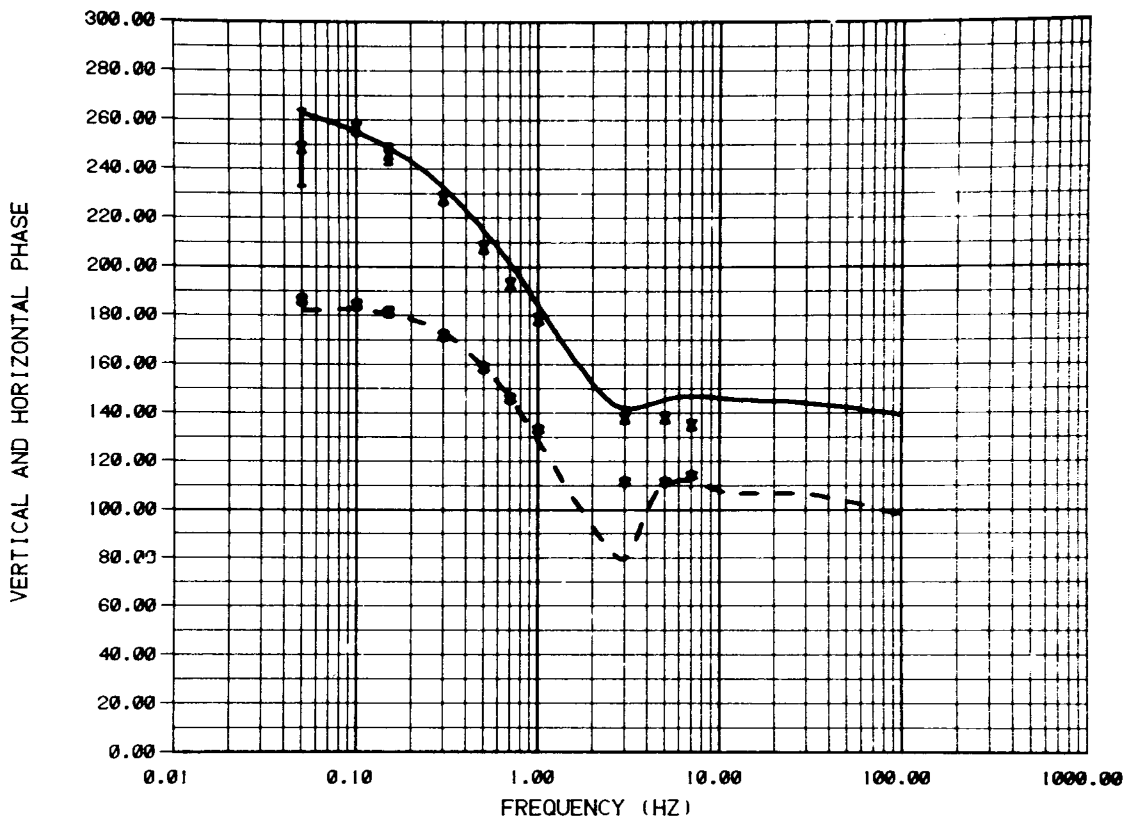
SODA LAKE F-F 2.1 KM SE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	3.00±	.00	82.20	± 2.
HZ	— — —	HZ	*	2	1.20±	.01	460.0	± 9.
				3	50.00±	19.11	.1000E+11±	0.

DATA VARIENCE ESTIMATE 448.1

XBL 806-10106

COMPARSION OF CALCULATED AND MEASURED DATA



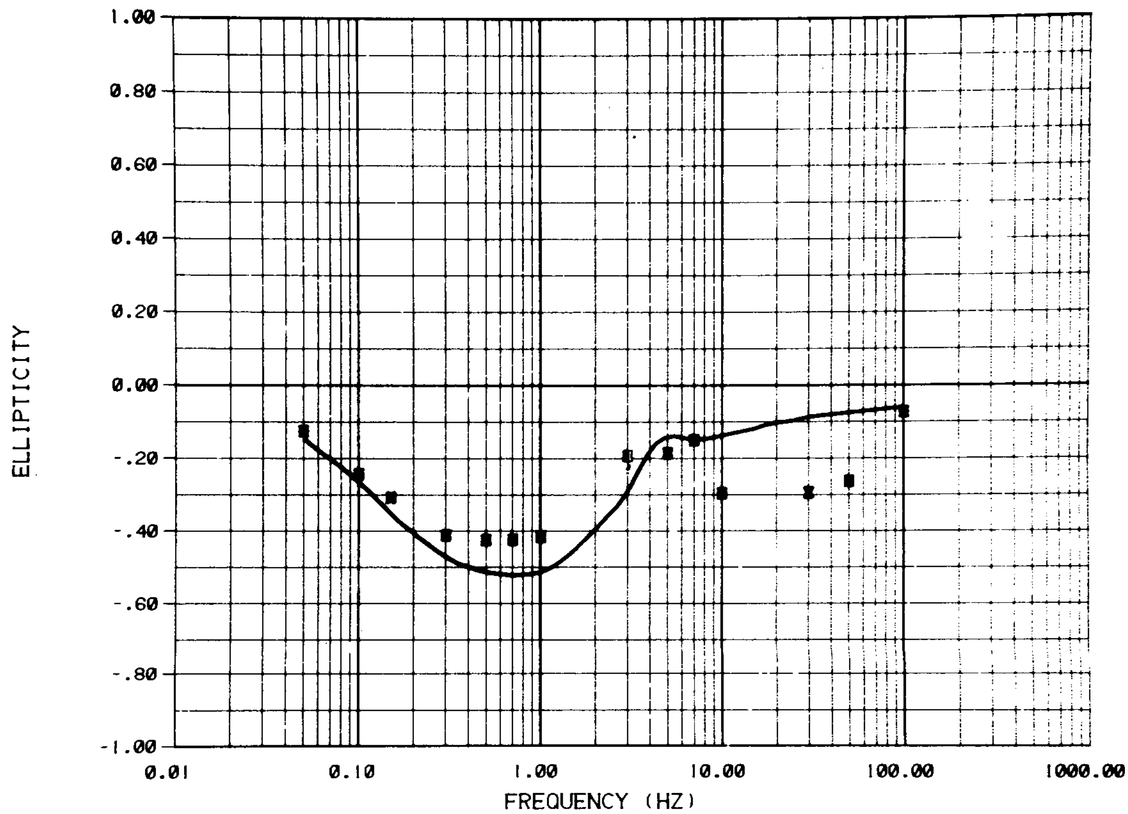
SODA LAKE F-F 2.1 KM SE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
HR	————————	HR	X	1	3.00±	.00	82.20 ±	2.
HZ	—— —— —	HZ	*	2	1.20±	.01	460.0 ±	9.
				3	50.00±	19.11	.1000E+11±	0.

DATA VARIENCE ESTIMATE 448.1

XBL 806-10105

COMPARSION OF CALCULATED AND MEASURED DATA



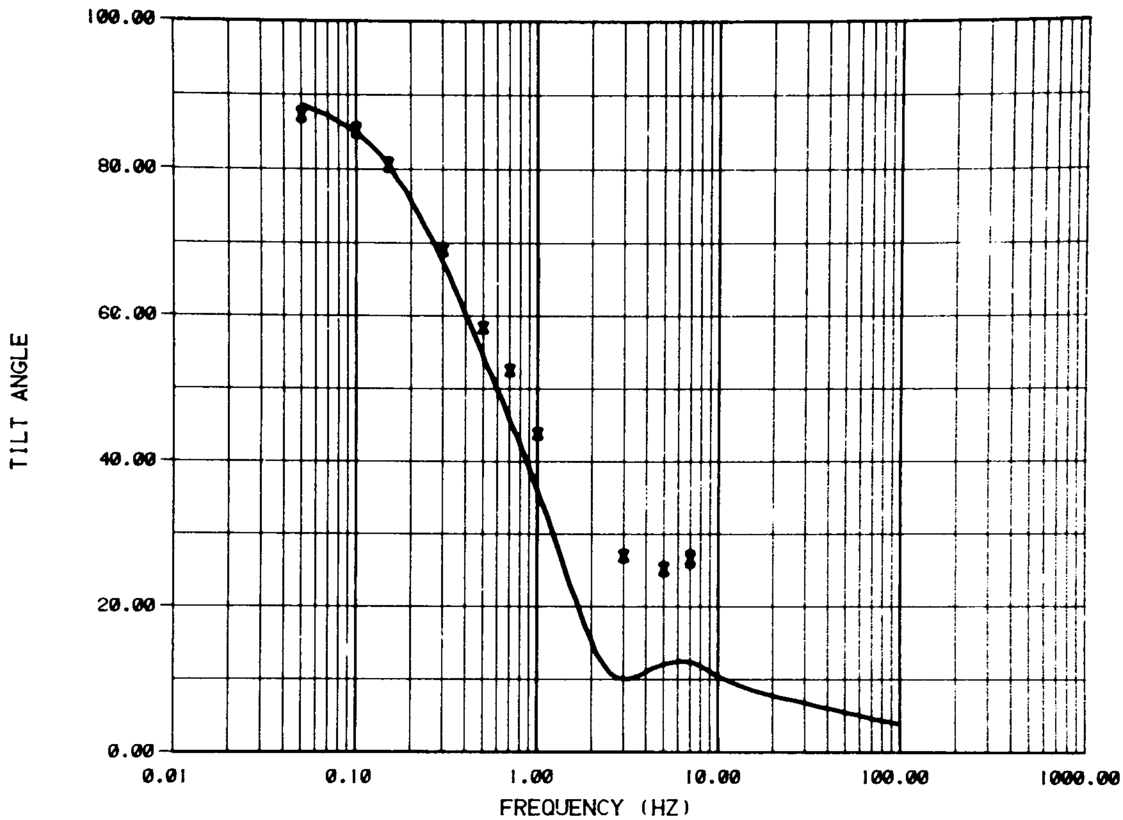
SODA LAKE F-F 2.1 KM SE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
ELLIPTICITY	———	ELLIPTICITY	X	1	3.00±	.00	82.20 ±	2.
				2	1.20±	.01	460.0 ±	9.
				3	50.00±	19.11	.1000E+11±	0.

DATA VARIENCE ESTIMATE 448.1

XBL 806-10103

COMPARSION OF CALCULATED AND MEASURED DATA



SODA LAKE F-F 2.1 KM SE T2

CALCULATED DATA		MEASURED DATA		LAYER	RESISTIVITY(OHM-M)		THICKNESS(M)	
TILT ANGLE	————	TILT ANGLE	X	1	3.00±	.00	82.20 ±	2.
				2	1.20±	.01	460.0 ±	9.
				3	50.00±	19.11	.1000E+11±	0.

DATA VARIENCE ESTIMATE 448.1

XBL 806-10104