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PHOENIX SPECTRAL IP RESEARCH PROGRAM

PHASE IV FINAL REPORT

PART D 2)

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PHOENIX SPECTRAL IP RESEARCH PROGRAM

PHASE IV FINAL REPORT

PART D.2)

FIELD RESULTS FROM ANVIL AREA, YUKON

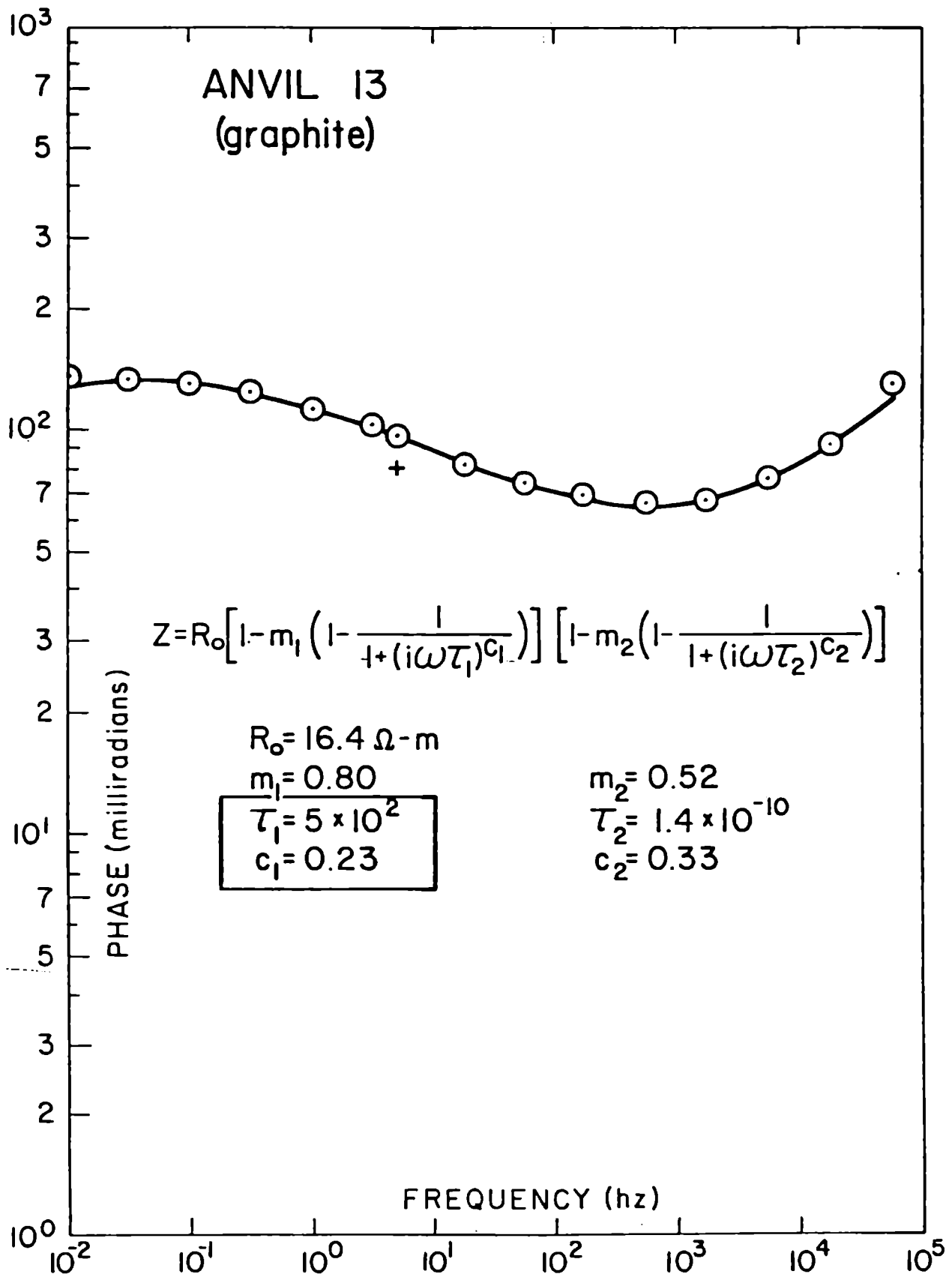
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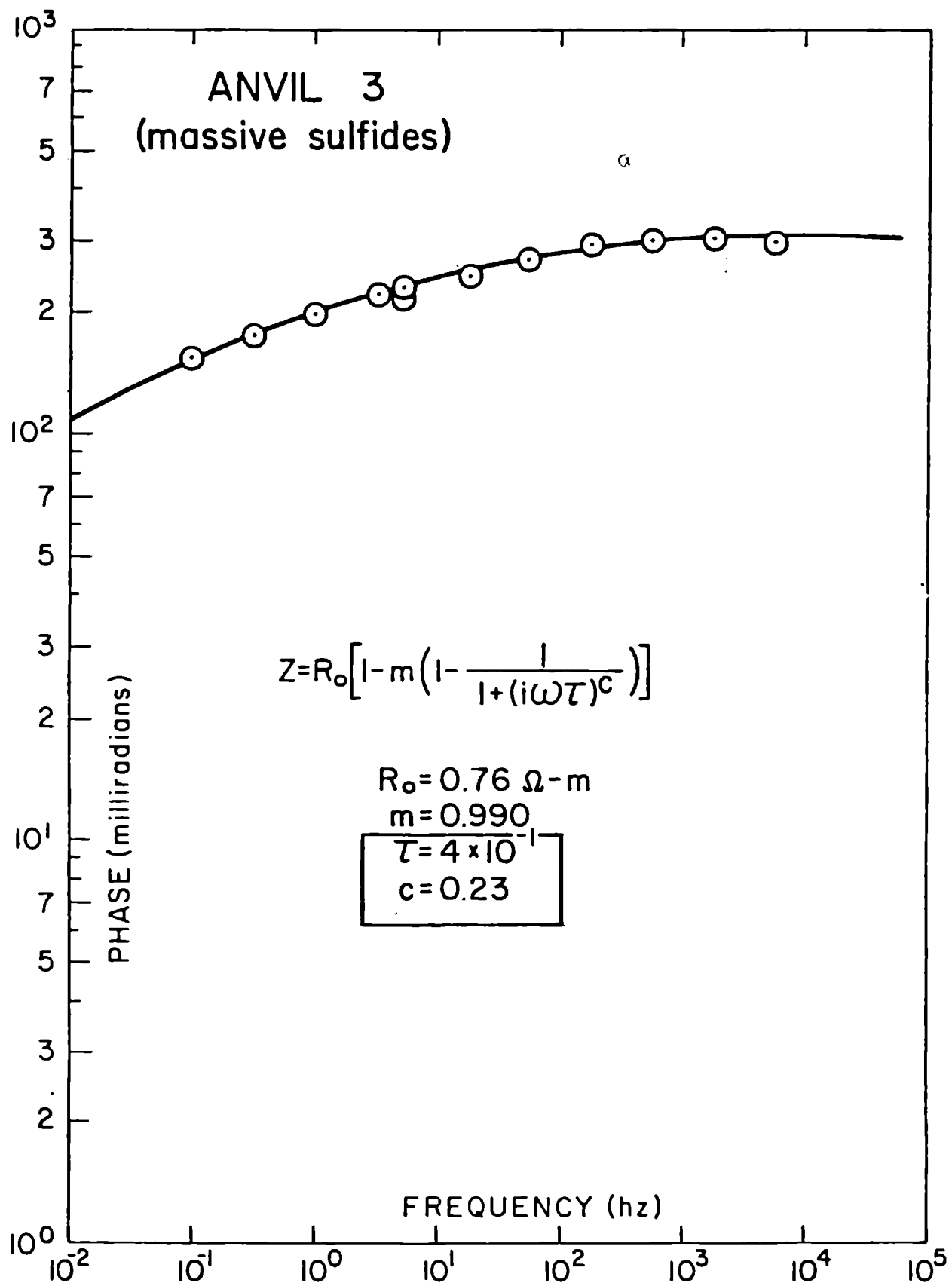
The spectral IP crew, using the IPV-3, spent a considerable time in the Anvil Area in late summer. During most of the field period, the natural electrical noise in the area was very large. The high noise levels limited the field work considerably.

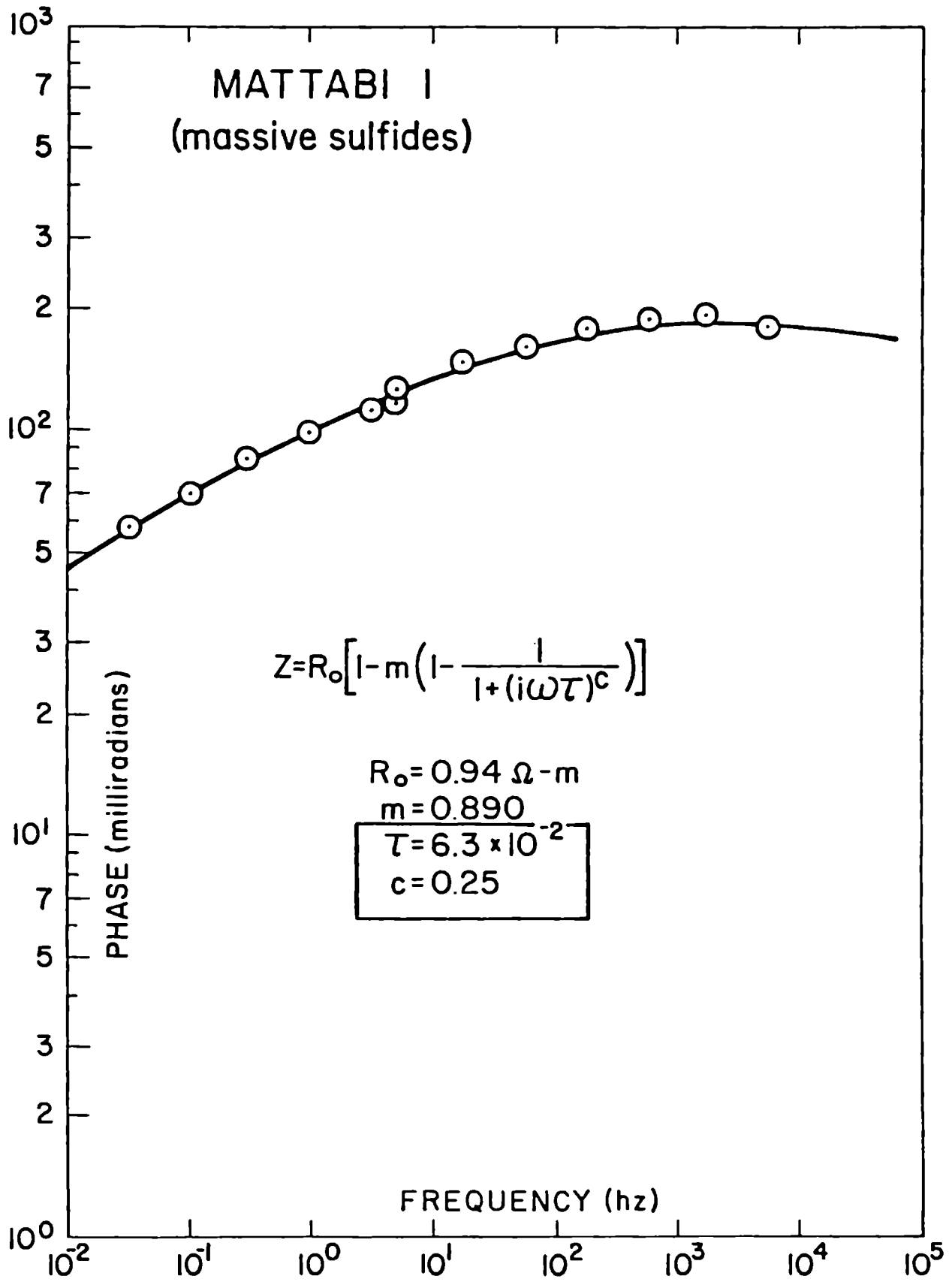
Field measurements were made in five different areas during the 1981 spectral program.

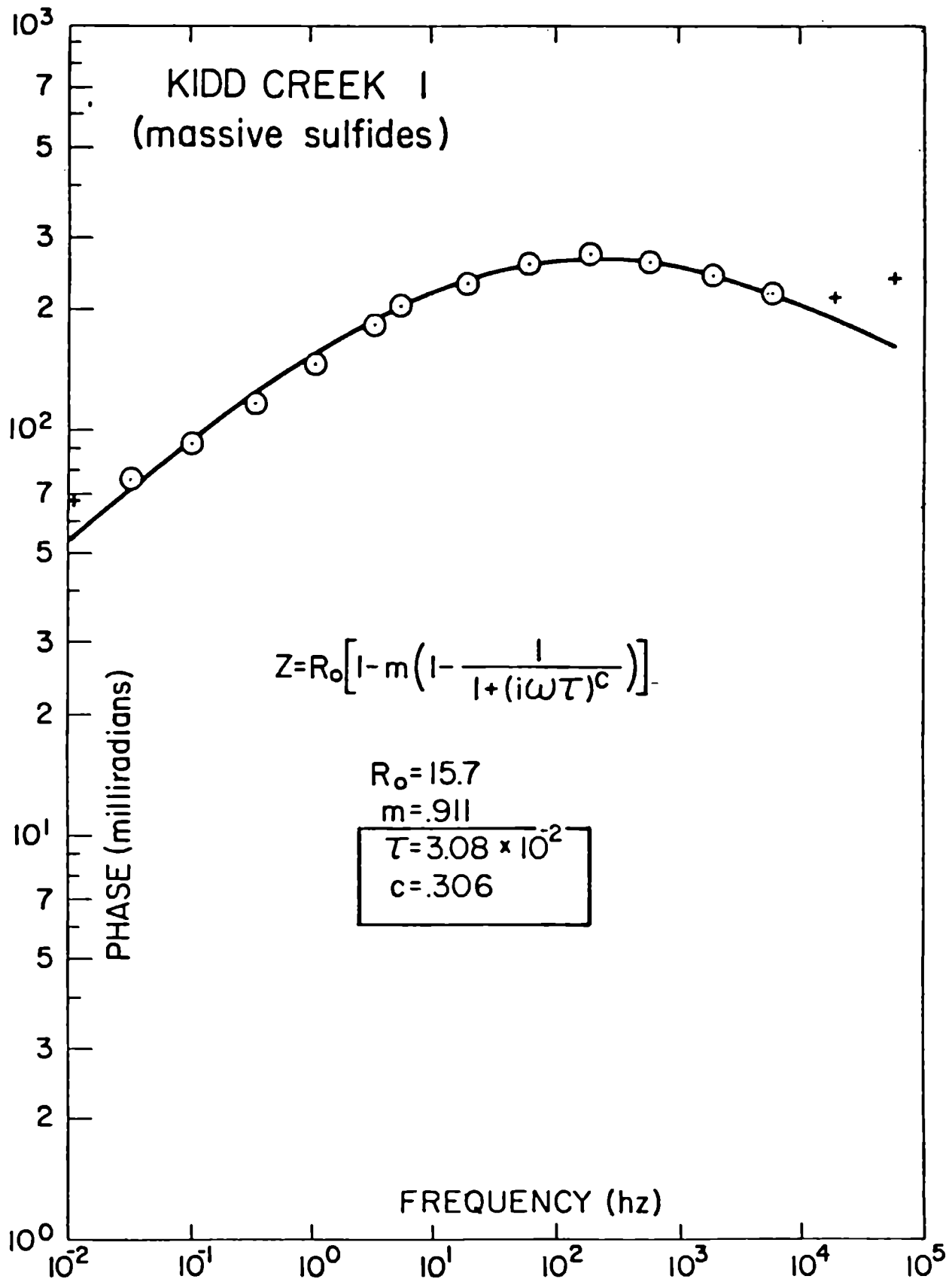
- i) Measurements in the Faro Open Pit using small intervals
- ii) Measurements with $X = 200'$ on Line 8E, at the Vangorda Deposit.
- iii) Measurements with $X = 200'$ on Line 2W, at the Vangorda Deposit.
- iv) Measurements with $X = 500'$ on Line 82W, at the Grum Deposit.
- v) Measurements with $X = 1000'$ on Line 13+50E, at the DY Deposit

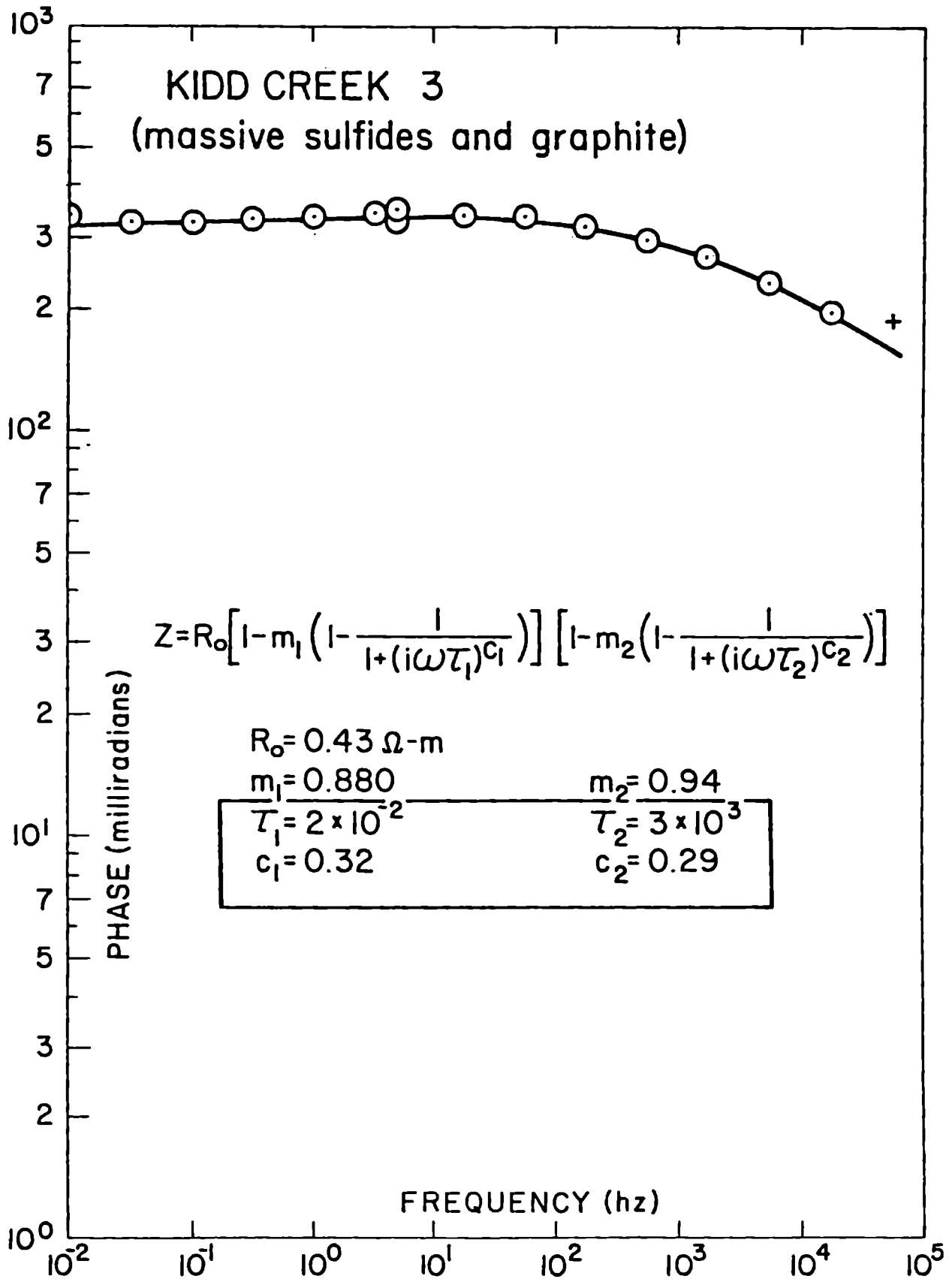
Before discussing the new field data for the 1981 spectral IP field program, it is worthwhile reviewing some previous data from massive sulphide and concentrated graphite sources. We have enclosed several spectra measured with one meter electrode intervals. The data is from Bill Pelton's thesis. These results show that if a single population of grain size is present, the spectral dispersion curve will be relatively "peaked". The value of the slope of the curve for high and low frequencies, which is the c_1 term, will have a relatively high value ($0.225 \leq c_1 \leq 0.350$). For graphite sources we expect a large grain size and a time constant (τ_1) greater than 10 seconds. For massive sulphide sources we expect a much smaller grain size and a time constant (τ_1) less than 1.0 seconds.











We have one spectral curve from a mixed graphite and sulphide source at Kidd Creek. With two populations of grain size present, the spectral curve is quite "flat". The effective value of (c_1) for the total dispersion is quite small, usually in the range of 0.110 to 0.150. If enough reliable, low frequency data is available, it is possible to invert the combined spectrum to obtain the parameters of the two different populations of grain size. When this was done with the $X =$ one meter data from Kidd Creek, the parameters for the two dispersions closely approximated those we had come to expect from graphite alone ($\tau_2 = 3 \times 10^3$ seconds) and sulphide alone ($\tau_1 = 2 \times 10^{-2}$ seconds).

During Phase II of the Spectral IP Research Program (1978), we were able to confirm these parameters at Anvil, using the truck-mounted system. We have $X = 250$ ft. data from Line A (a graphite source) and Line F (a massive sulphide source). For graphite, the time constant (τ_1) is clearly greater than fifty seconds; for the massive sulphide source all of the time constants (τ_1) are less than 1.0 seconds.

The results of some of this test work have been summarized in one of the figures from Bill Pelton's Thesis. On an M vs. τ plot, the sulphide measurements from Anvil and the graphite measurements from Anvil can be seen to occupy very different positions.

If a spectral IP measurement with a given dipole-dipole pair is sampling essentially one type of mineralization (one population of grain size), the value of c_1 for that spectral dispersion should have a value of 0.200, or greater. If this situation occurs, the value of the time constant (τ_1) for that dispersion should confirm the grain size of the source. As we get more field exposure in a given area, such as at Anvil, we will have more confidence that the larger grain size sources are due to graphites and the small grain size sources are due to sulphides.

However, it is clear that a good discrimination is only possible if a single population of grain size is present. If both sulphide and graphite are present, the spectral dispersion curve will be very flat (the value of c_1 will be in the range 0.110 to 0.150). The time constant obtained from the inversion of the combined curves, plus whatever coupling is present, will

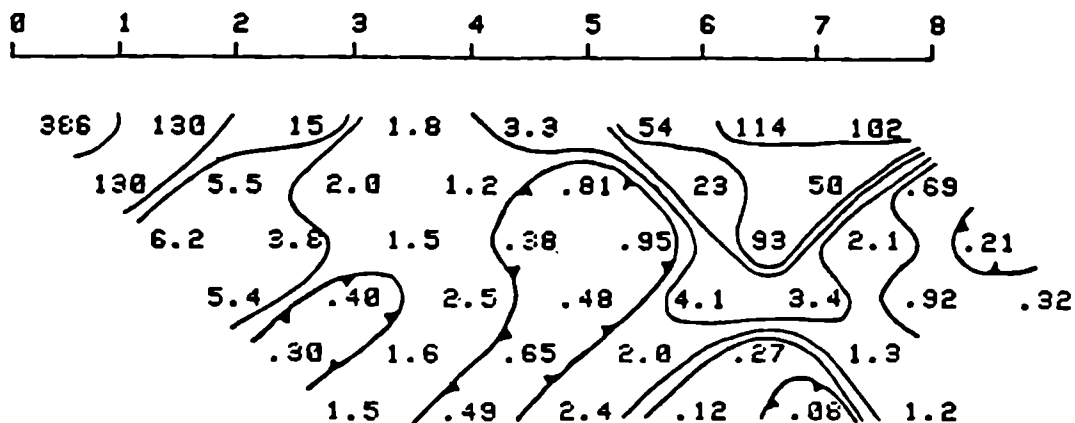
TABLE I

ANVIL AREA, YUKON TERRITORY

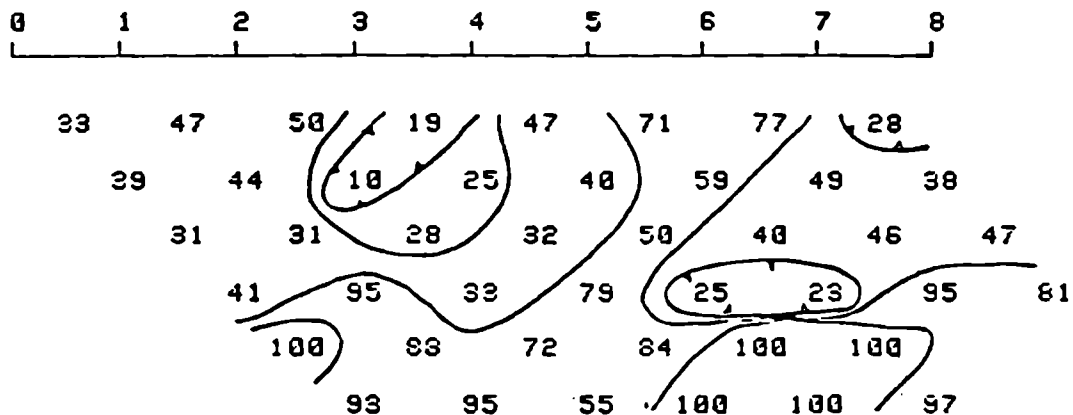
Symbols used re: sulphide vs. graphite interpretation

Symbol	Source	degree	c_1	τ_1
⊙	sulphide	definite	> 0.275	$\ll 2.0$ seconds
○	sulphide	probable	> 0.175	$\ll 5.0$ seconds
◐	sulphides with graphite	possible	$c_1 \cdot 1.25 - \cdot 1.50$	$\tau_1 \ll 2.0$ seconds
◑	mixed	probable	$c_1 \cdot 1.25 - \cdot 1.50$	$\tau_1 \approx 1.0$ to 10.0 seconds
◒	graphite with sulphides	possible	$c_1 \cdot 1.75 - \cdot 1.50$	$\tau_1 \gg 5.0$ seconds
◓	graphite	probable	> 0.175	$\gg 5.0$ seconds
◔	graphite	definite	> 0.275	$\gg 10.0$ seconds

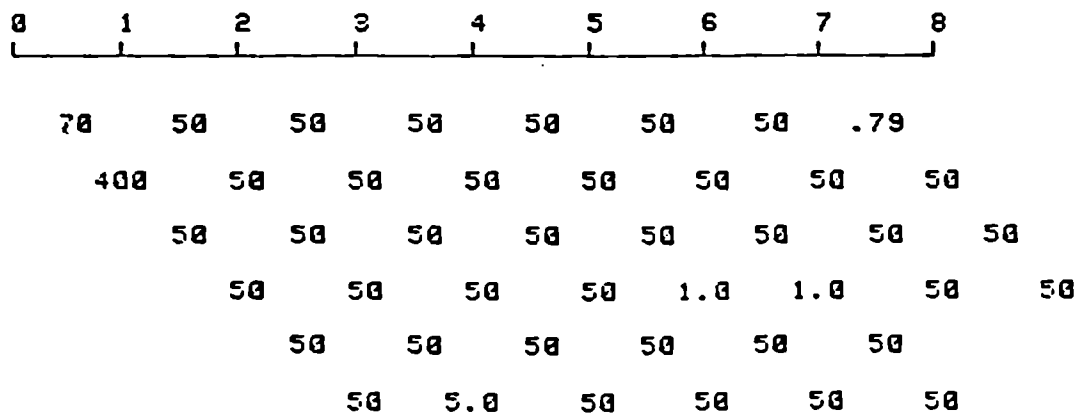
CYPRUS ANVIL LINE A GRAPHITE X=250FT AUG 1978 K8
 Apparent Resistivity(ohm-m)

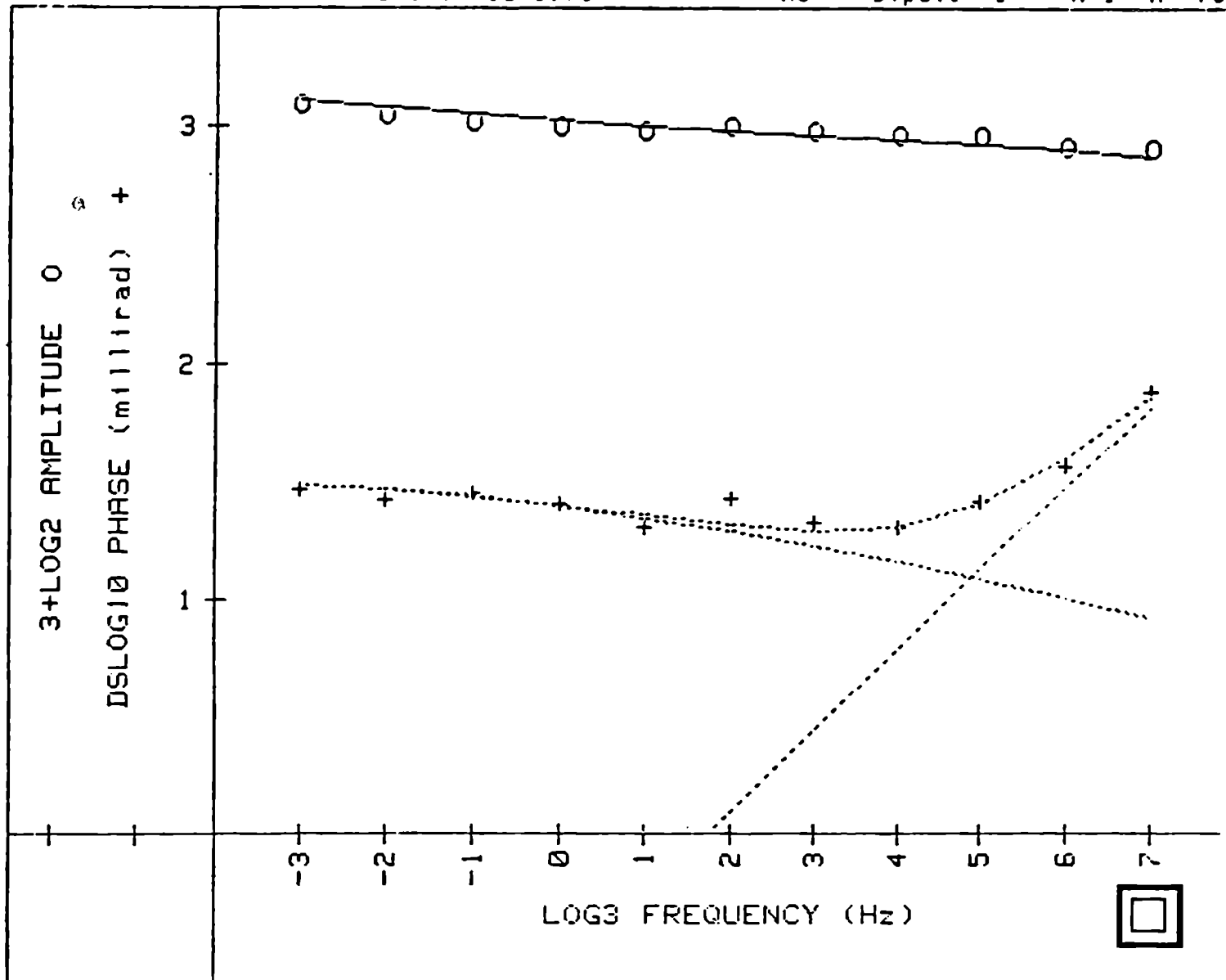


Apparent Chargeability(Vs/Vp in %)



Apparent Time Constant(sec)





Iter	Lambda	Rchsq	R0	M1	T1	C1	M2	T2	C2
0	1.E-02	.00464	1.280	.300	7.0E+01	.200	1.000	3.0E-06	.900
1	1.E-02	.00156	1.370	.334	7.0E+01	.200	1.000	2.4E-06	.763
2	1.E-03	.00153	1.371	.332	7.0E+01	.200	1.000	2.1E-06	.737
3	1.E-04	.00153	1.371	.331	7.0E+01	.200	1.000	2.0E-06	.729

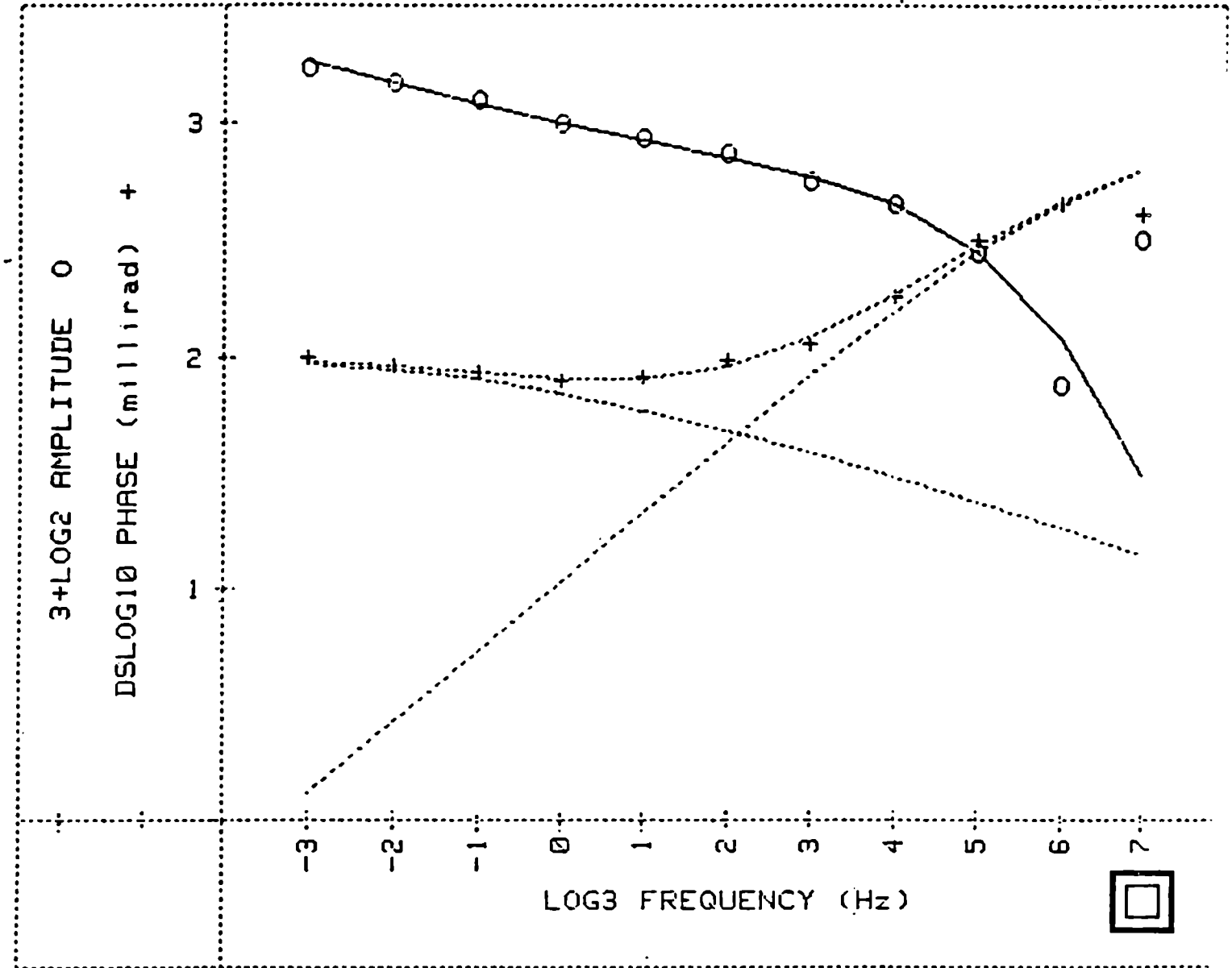
Pct Std Deviations 1.3 2.9 0.0 0.0 0.0 41.3 9.8

Correlation Matrix

1.0000									
.7709	1.0000								
0.0000	0.0000	1.0000							
0.0000	0.0000	0.0000	1.0000						
0.0000	0.0000	0.0000	0.0000	1.0000					
.2196	.3855	0.0000	0.0000	0.0000	1.0000				
.2840	.4783	0.0000	0.0000	0.0000	0.9581	1.0000			

Apparent Resistivity Measured at 1 Hz is 386

Apparent Resistivity Calculated from Inductive Coupling is 702



Iter	Lambda	Rchsq	R0	M1	T1	C1	M2	T2	C2
0	1.E-02	.00879	2.000	.600	5.0E+01	.200	1.000	2.0E-04	.650
1	1.E-02	.00056	1.936	.577	5.0E+01	.274	1.000	1.7E-04	.652
2	1.E-03	.00032	1.970	.588	5.0E+01	.272	1.000	1.7E-04	.637
3	1.E-04	.00032	1.970	.587	5.0E+01	.273	1.000	1.7E-04	.637

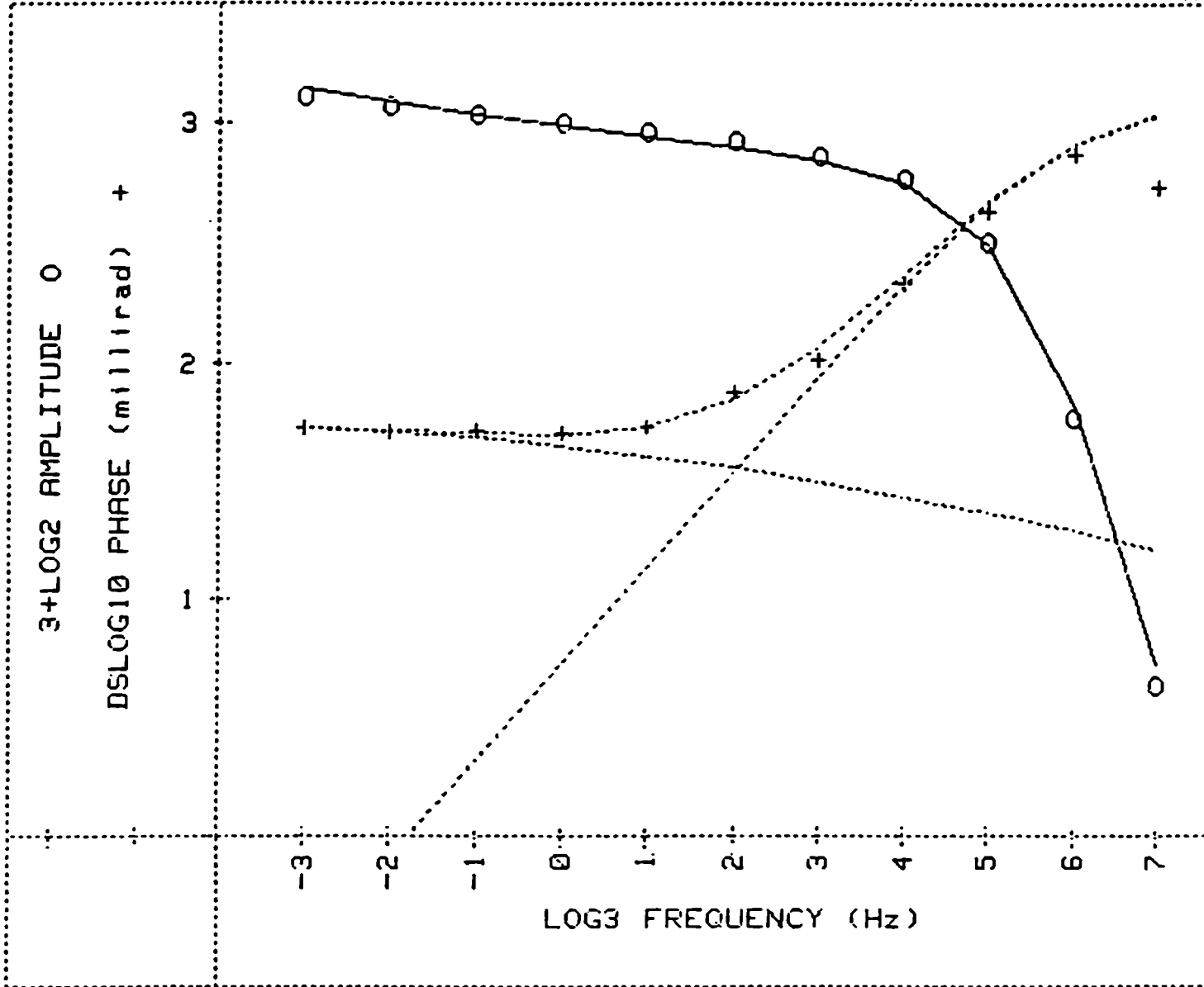
Pct Std Deviations 1.2 2.8 0.0 6.5 0.0 6.2 3.5

Correlation Matrix

1.0000									
.7304	1.0000								
0.0000	0.0000	0.0000							
-.3879	-.8679	0.0000	1.0000						
0.0000	0.0000	0.0000	0.0000	0.0000					
-.3269	-.5967	0.0000	.6149	0.0000	1.0000				
.5214	.8153	0.0000	-.7117	0.0000	-.2393	1.0000			

Apparent Resistivity Measured at 1 Hz is 23

Apparent Resistivity Calculated from Inductive Coupling is 12



Iter	Lambda	Rchsq	R0	M1	T1	C1	M2	T2	C2
0	1.E-02	.04018	1.446	.428	5.0E+01	.271	1.000	6.0E-04	.762
1	1.E-02	.00122	1.560	.473	5.0E+01	.200	1.000	3.5E-04	.821
2	1.E-03	.00107	1.581	.486	5.0E+01	.202	1.000	3.5E-04	.851
3	1.E-04	.00106	1.581	.486	5.0E+01	.202	1.000	3.6E-04	.853

Pct Std Deviations 2.7 9.3 0.0 18.0 0.0 4.4 3.6

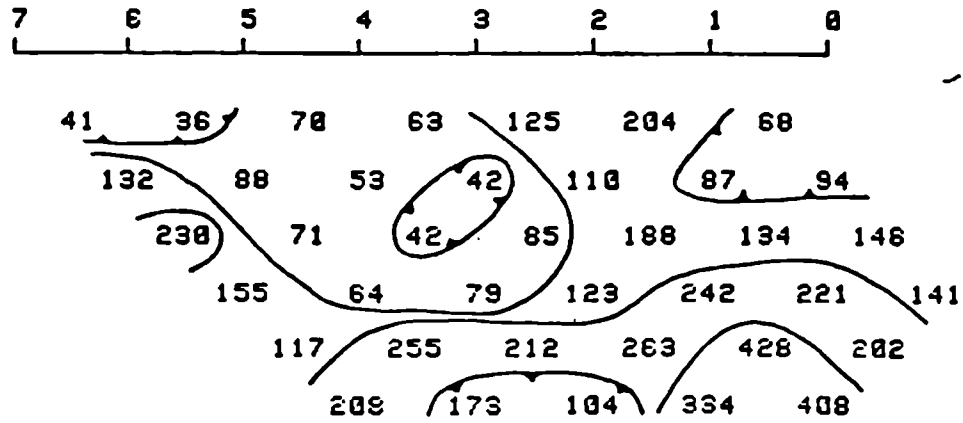
Correlation Matrix

1.0000								
.9169	1.0000							
0.0000	0.0000	0.0000						
-.8037	-.9581	0.0000	1.0000					
0.0000	0.0000	0.0000	0.0000	0.0000				
-.3349	-.4896	0.0000	.4746	0.0000	1.0000			
.6394	.7191	0.0000	-.6487	0.0000	-.0915	1.0000		

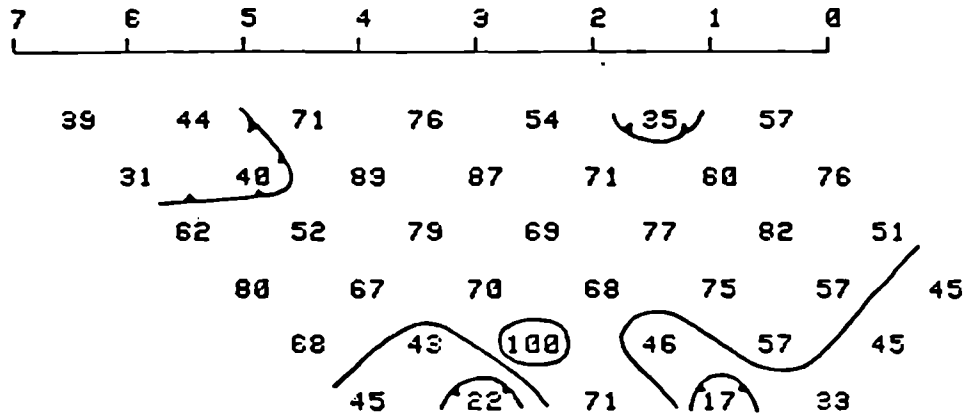
Apparent Resistivity Measured at 1 Hz is 50

Apparent Resistivity Calculated from Inductive Coupling is 19

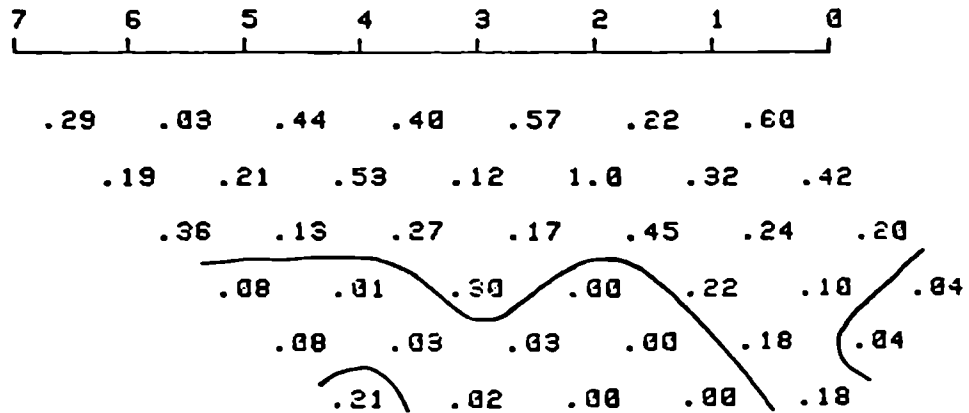
CYPRUS ANVIL FARO LINE F X=250FT AUG 1978 K13
 Apparent Resistivity(ohm-m)



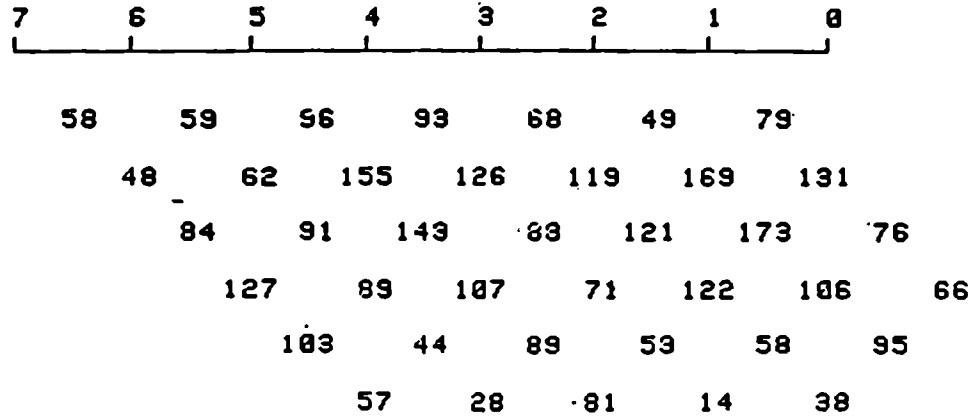
Apparent Chargeability(V_s/V_p in %)



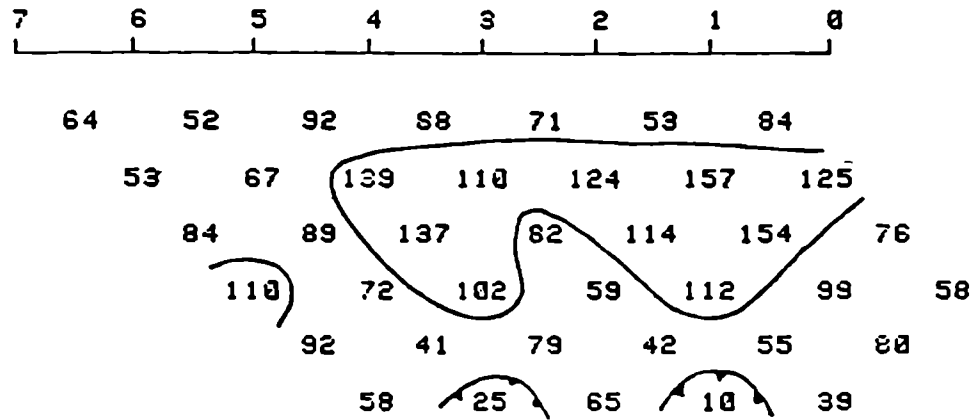
Apparent Time Constant(sec)



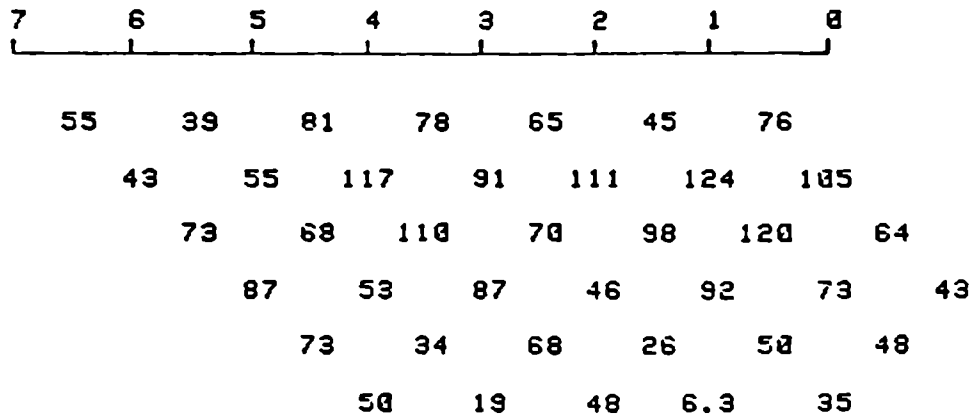
Decoupled Phase(mrad) 9 Hz

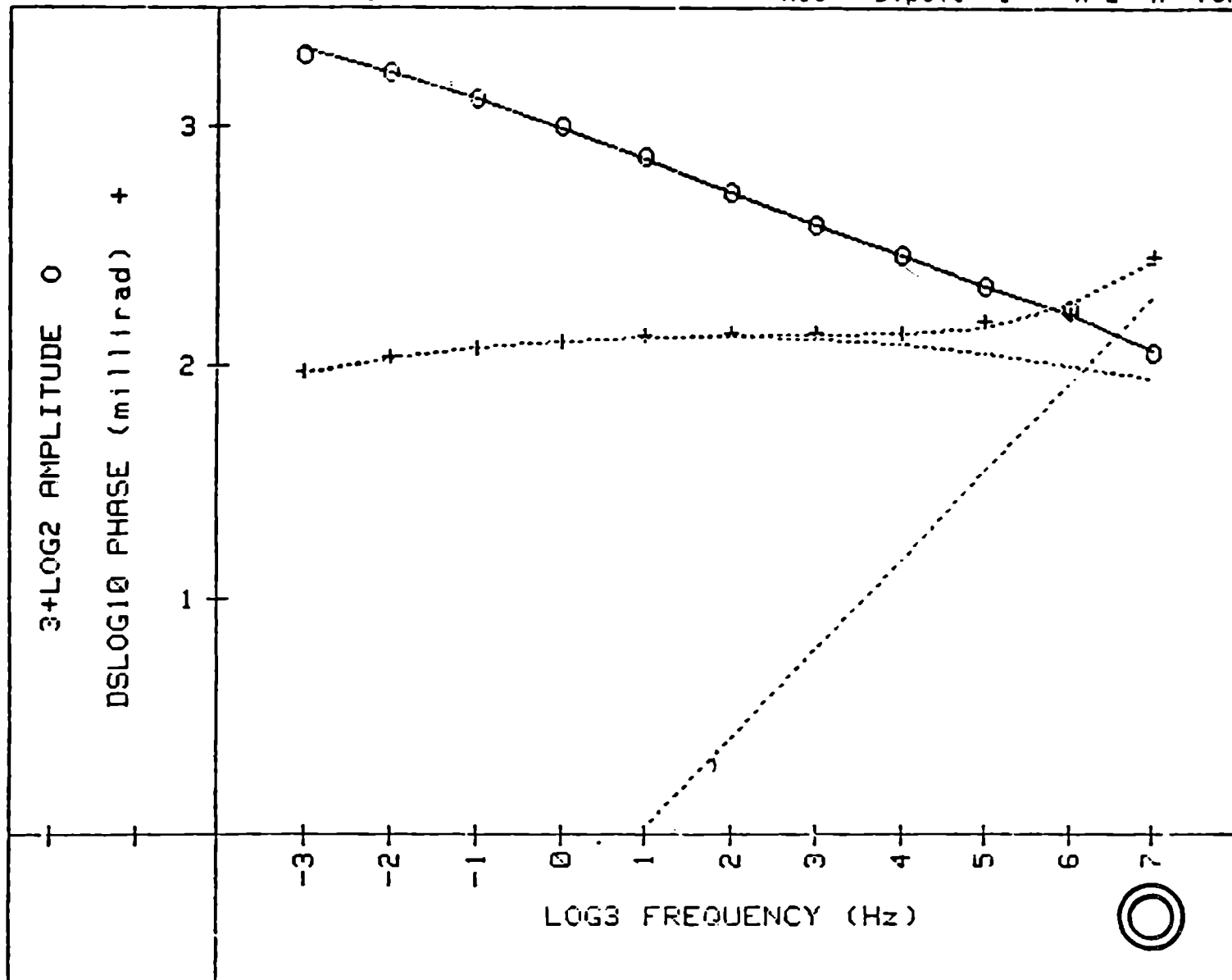


Decoupled Phase(mrad) 1 Hz



Decoupled Phase(mrad) .1111 Hz





Iter	Lambda	Rchsq	R0	M1	T1	C1	M2	T2	C2
0	1.E-02	.06179	1.537	.663	2.7E-01	.144	1.000	4.9E-05	.800
1	1.E-02	.05560	1.787	.943	2.3E-01	.199	1.000	2.0E-05	.800
2	1.E-03	.00245	1.631	.750	3.5E-01	.258	1.000	1.1E-05	.900
3	1.E-04	.00026	1.711	.756	4.1E-01	.243	1.000	1.1E-05	.800
4	1.E-05	.00026	1.716	.759	4.2E-01	.242	1.000	1.1E-05	.900

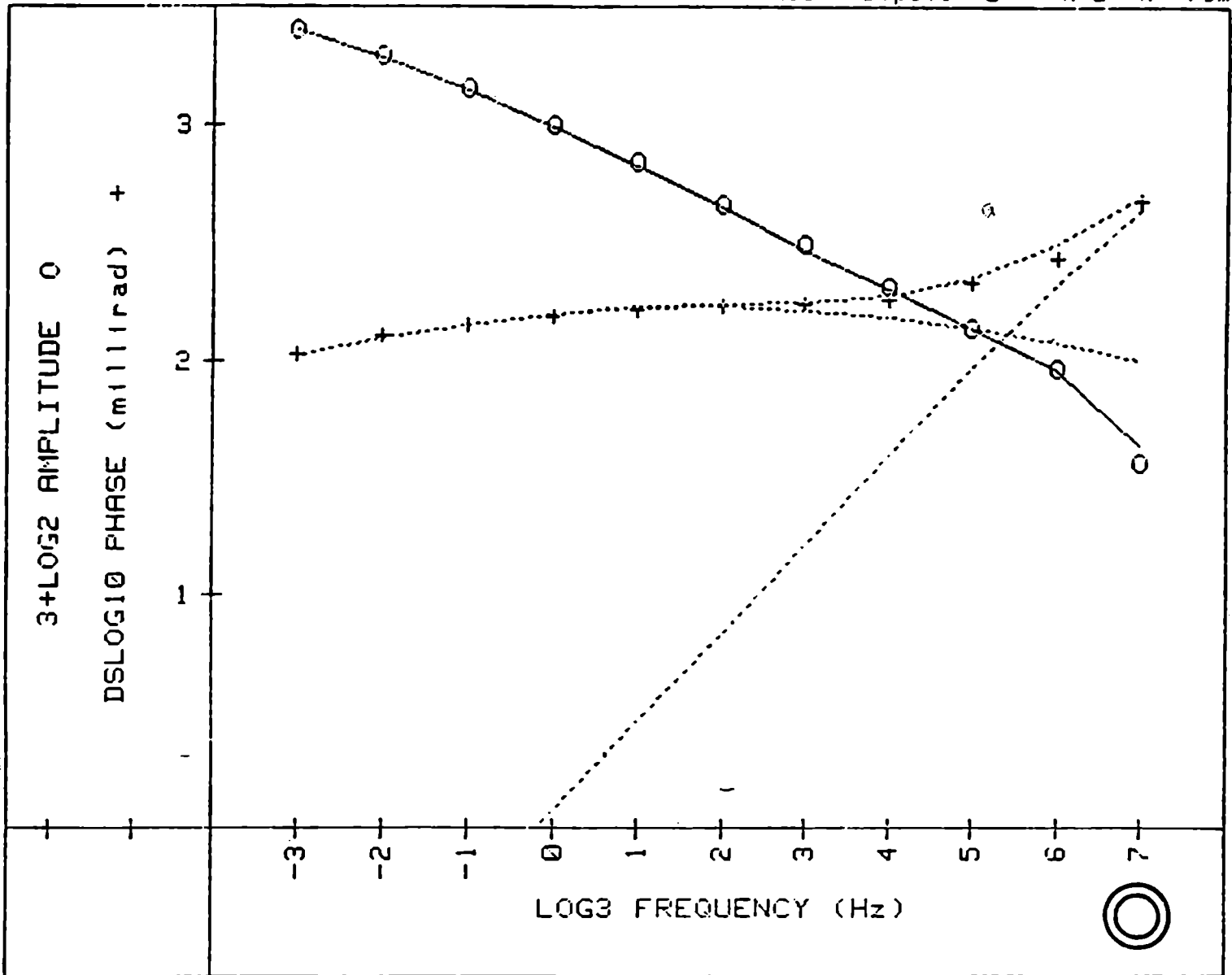
Pct Std Deviations 3.6 3.2 30.8 7.1 0.0 10.4 0.0

Correlation Matrix

1.0000									
.9295	1.0000								
.9242	.7412	1.0000							
-.9314	-.9863	-.7770	1.0000						
0.0000	0.0000	0.0000	0.0000	1.0000					
-.5652	-.7351	-.3191	.6972	0.0000	1.0000				
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	1.0000			
							1.0000		
								1.0000	
									1.0000

Apparent Resistivity Measured at 1 Hz is 94

Apparent Resistivity Calculated from Inductive Coupling is 497



Iter	Lambda	Rchsq	R0	M1	T1	C1	M2	T2	C2
0	1.E-02	.03395	1.711	.758	4.1E-01	.243	1.000	1.1E-05	.800
1	1.E-02	.00572	1.944	.927	3.9E-01	.215	1.000	2.0E-05	.800
2	1.E-03	.00127	1.788	.826	3.3E-01	.264	1.000	3.6E-05	.800
3	1.E-04	.00075	1.739	.789	3.2E-01	.287	1.000	3.6E-05	.800
4	1.E-05	.00074	1.755	.795	3.2E-01	.282	1.000	3.7E-05	.800

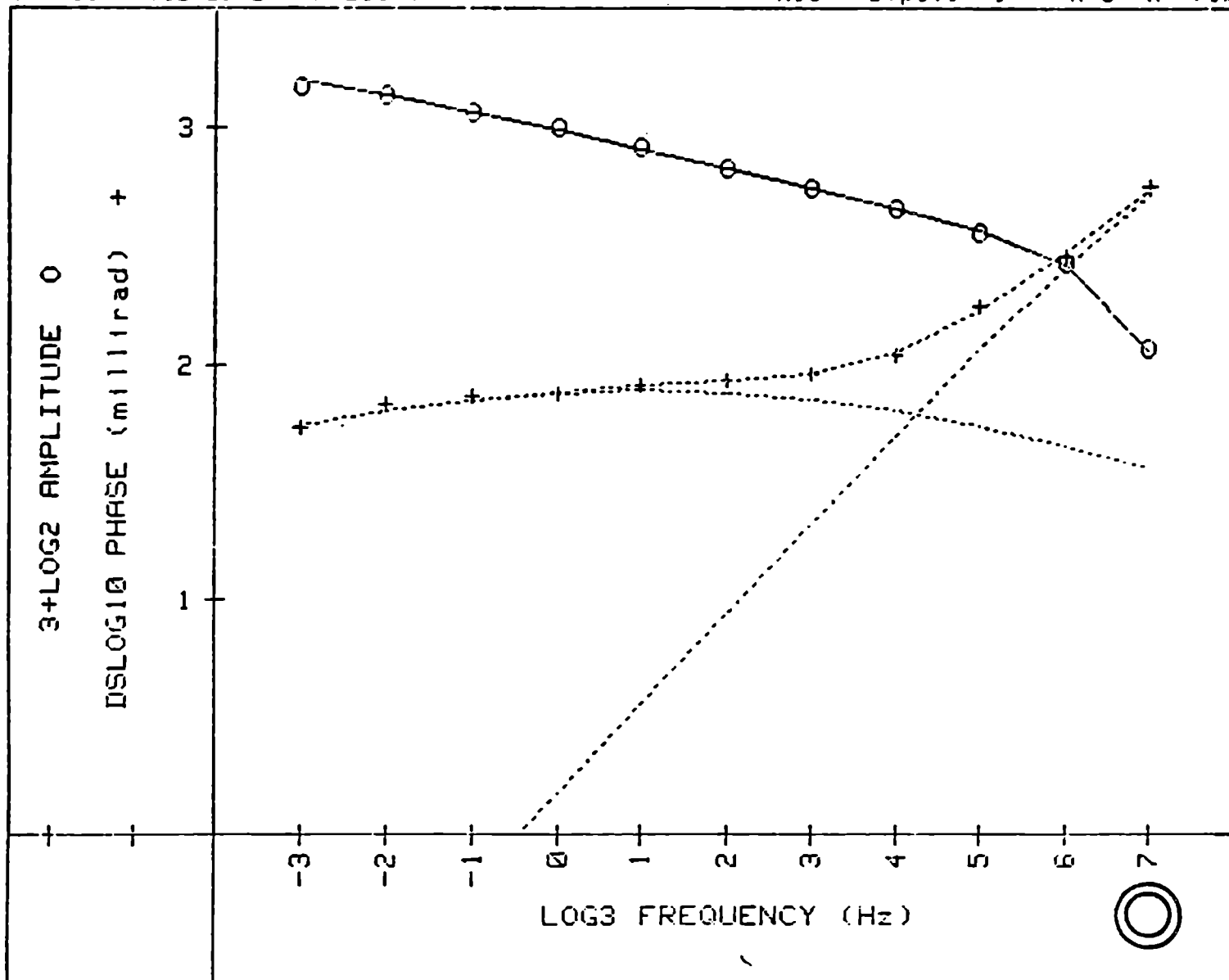
Pct Std Deviations 4.7 4.1 33.2 9.5 0.0 11.9 0.0

Correlation Matrix

1.0000								
.8871	1.0000							
.8675	.5751	1.0000						
-.8997	-.9777	-.6509	1.0000					
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
-.4858	-.7264	-.1329	.6400	0.0000	1.0000			
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Apparent Resistivity Measured at 1 Hz is 87

Apparent Resistivity Calculated from Inductive Coupling is 146



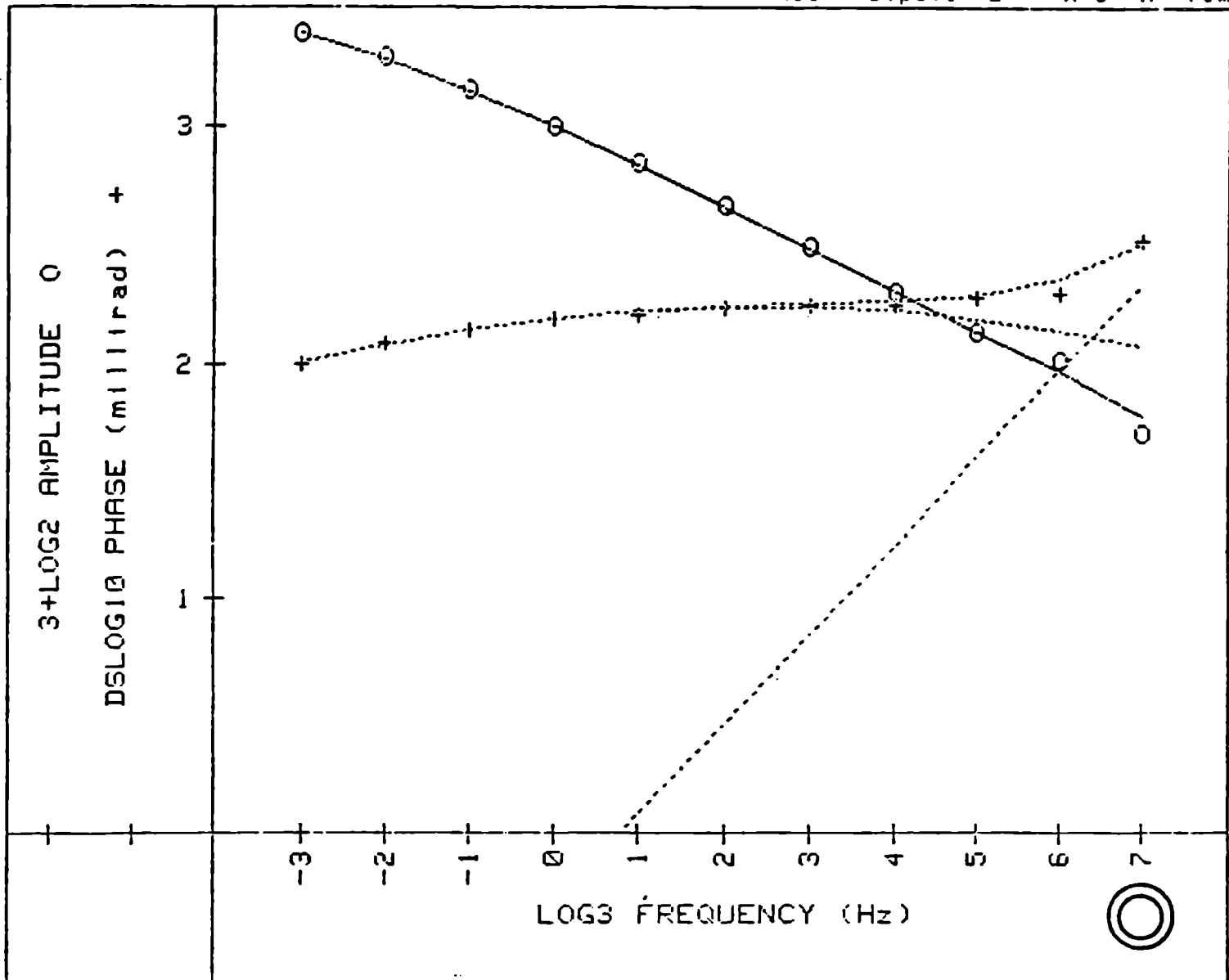
Iter	Lambda	Rchsq	R0	M1	T1	C1	M2	T2	C2
0	1.E-02	.01672	1.191	.312	1.9E-01	.353	1.000	9.8E-05	.900
1	1.E-02	.00676	1.208	.529	1.5E-01	.297	1.000	5.9E-05	.800
2	1.E-03	.00021	1.341	.511	1.9E-01	.276	1.000	5.0E-05	.800
3	1.E-04	.00021	1.344	.511	2.0E-01	.276	1.000	5.0E-05	.800

Pct Std. Deviations 1.8 4.7 16.7 7.3 0.0 3.9 0.0

Correlation Matrix	1.0000								
	.9082	1.0000							
	.4027	.0322	1.0000						
	-.9116	-.9779	-.1188	1.0000					
	0.0000	0.0000	0.0000	0.0000	0.0000				
	-.4551	-.6741	.3255	.5955	0.0000	1.0000			
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		

Apparent Resistivity Measured at 1 Hz is 148

Apparent Resistivity Calculated from Inductive Coupling is 202



Iter	Lambda	Rchsq	R0	M1	T1	C1	M2	T2	C2
0	1.E-02	.08715	1.341	.511	1.9E-01	.276	1.000	5.0E-05	.800
1	1.E-01	.05454	1.522	.808	1.7E-01	.345	1.000	3.2E-05	.900
2	1.E-02	.00137	1.647	.781	1.9E-01	.307	1.000	2.0E-05	.900
3	1.E-03	.00073	1.713	.809	2.2E-01	.280	1.000	1.5E-05	.900
4	1.E-04	.00069	1.737	.817	2.4E-01	.273	1.000	1.3E-05	.800
5	1.E-05	.00069	1.742	.819	2.4E-01	.271	1.000	1.3E-05	.800

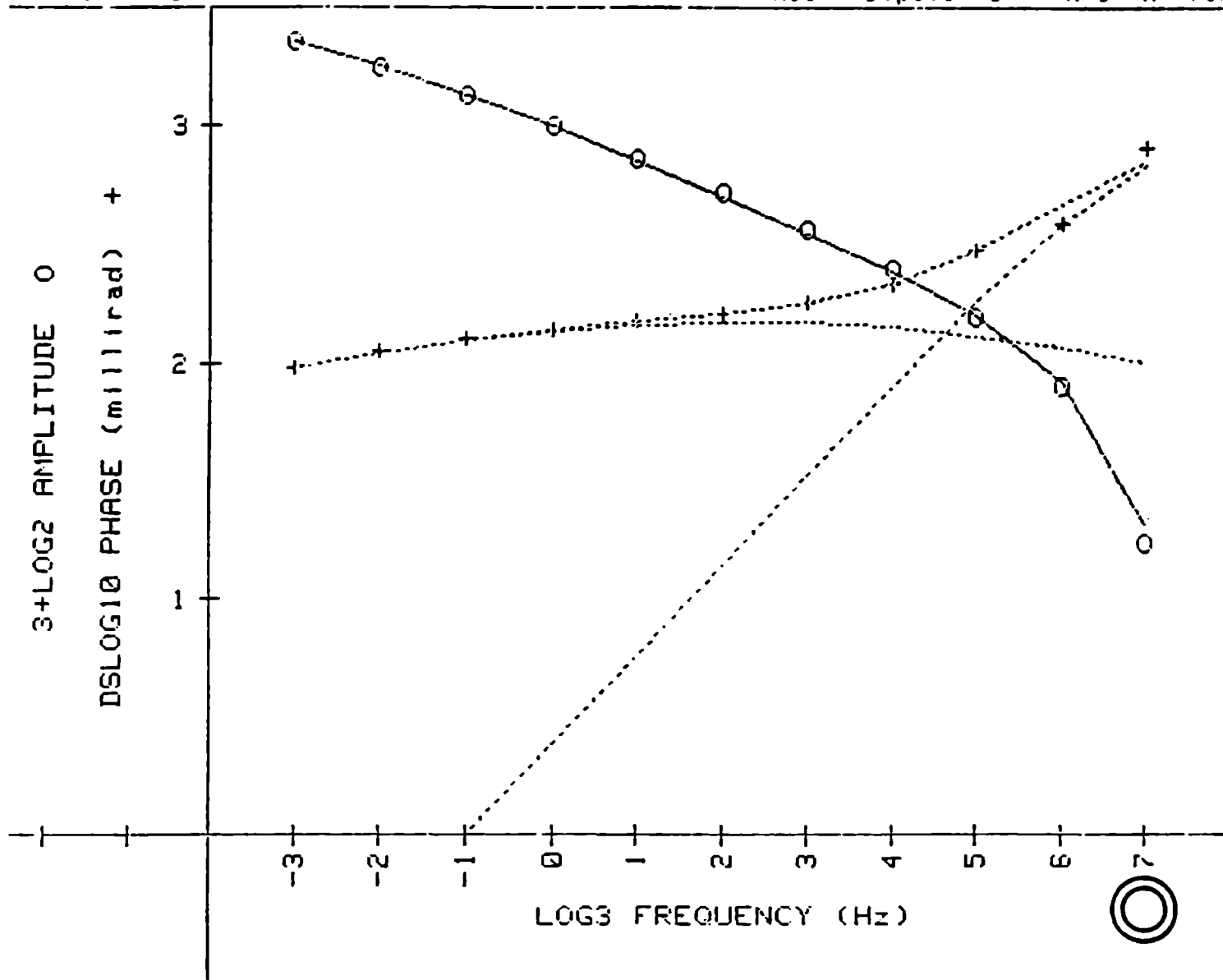
Fct Std Deviations 4.4 3.5 31.3 8.7 0.0 19.5 0.0

Correlation Matrix

1.0000								
.8846	1.0000							
.8751	.5849	1.0000						
-.9008	-.9788	-.6824	1.0000					
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			
-.5310	-.7494	-.1961	.6802	0.0000	1.0000			
0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Apparent Resistivity Measured at 1 Hz is 134

Apparent Resistivity Calculated from Inductive Coupling is 798



Iter	Lambda	Rchsq	R0	M1	T1	C1	M2	T2	C2
0	1.E-02	.03744	1.427	.518	5.2E-01	.272	1.000	1.9E-04	.900
1	1.E-01	.01324	1.623	.737	4.8E-01	.301	1.000	1.5E-04	.900
2	1.E-02	.00030	1.742	.730	3.9E-01	.253	1.000	1.0E-04	.900
3	1.E-03	.00066	1.725	.792	2.9E-01	.251	1.000	9.1E-05	.900
4	1.E-04	.00066	1.708	.796	2.7E-01	.256	1.000	9.0E-05	.900

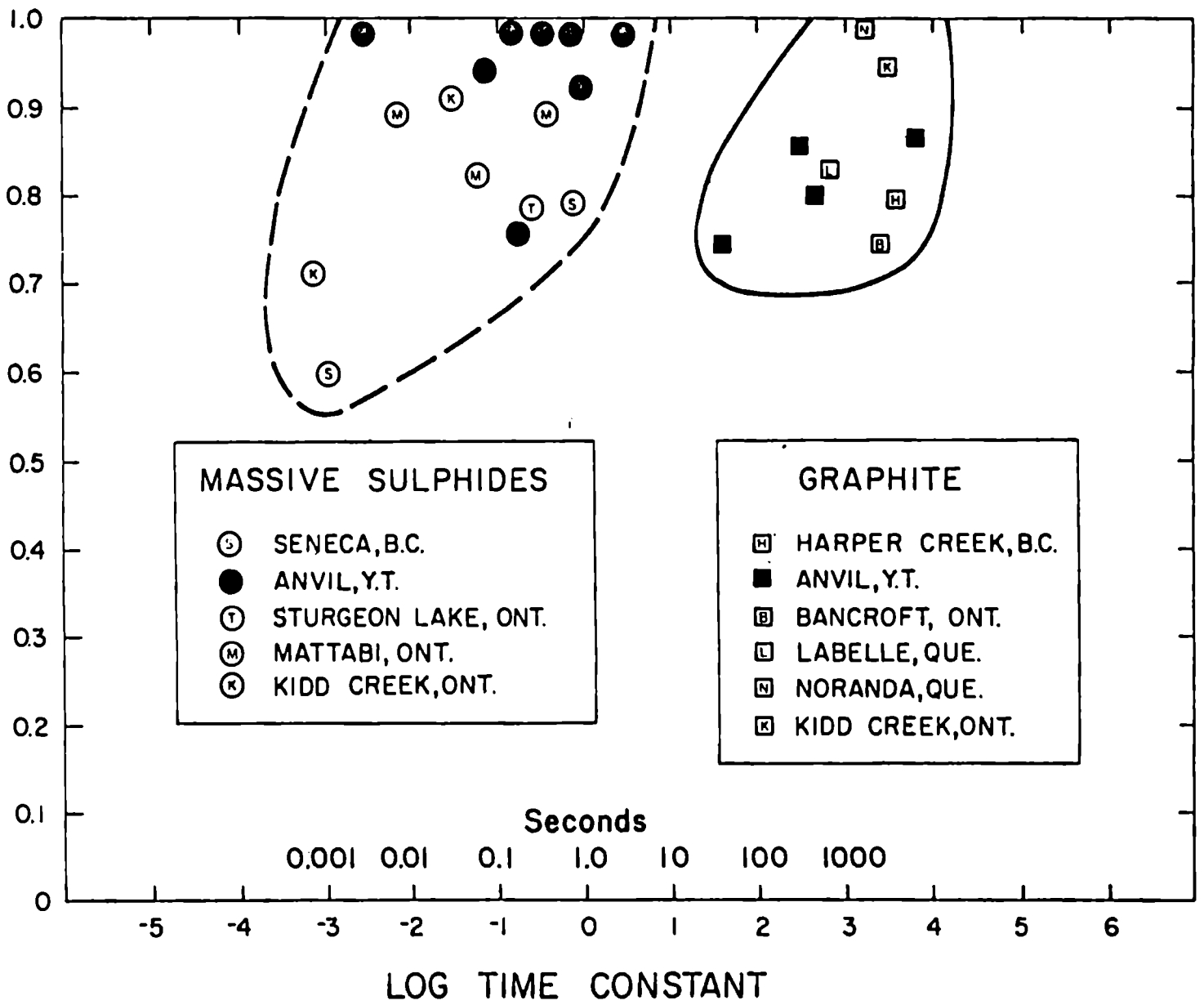
Std Deviations 6.4 7.5 41.7 15.2 0.0 12.6 0.0

Correlation Matrix	1.0000								
	.9077	1.0000							
	.6903	.3392	1.0000						
	-.9394	-.9839	-.4543	1.0000					
	0.0000	0.0000	0.0000	0.0000	0.0000				
	-.5290	-.7321	.0598	.6495	0.0000	1.0000			
	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	

Apparent Resistivity Measured at 1 Hz is 42

Apparent Resistivity Calculated from Inductive Coupling is 113

CHARGEABILITY



have very little meaning. Further, unless the field data is of unusually good quality, it would not be possible to accurately invert the combined dispersion curve to obtain the parameters of the two separate populations.

However, if the spectral signature of the graphite source alone can be successfully distinguished from the sulphide source alone and also from the mixed source, it may be possible to answer the most pressing geological question "is there sulphide mineralization present?". This interpretation must be made on each spectral dispersion curve. For some dipole-dipole pairs, particularly if a large component of electrical noise and/or inductive coupling is present, no interpretation may be possible. However, if the symbols shown on Table I are placed on the pseudosection on which the IP anomalies are interpreted, zoning often occurs.

i) Measurements with short electrode intervals
in the Faro Pit

Before beginning the field surveys at Anvil, a few days were taken by the Spectral IP crew to make measurements with short electrode intervals in three different environments.

In all three areas in which short interval measurements were made, the Spectral Crew were able to obtain rock samples of the various metallic sources. Laboratory measurements will be made on these rocks as soon as they arrive in Toronto. When the laboratory data is available, a Supplementary Report will be prepared comparing this data with the appropriate field data.

ia) Line 1 - Faro Pit X = Two Meters

As shown in the sketch on Figure A, this line in the Faro Pit passes along a bench that lies on a half-space of the graphitic phyllite (GP) that is the host rock in much of the Anvil Area. The apparent resistivity and IP pseudosection shows that the electrical parameters of the GP are not uniform. The IP effects increase and the apparent resistivities decrease near the center of the line.

The effect of the resistivity low can be seen by the increased inductive

FARO PIT

ZONE I

LINE I

X = 2 m.

E →

W

12W

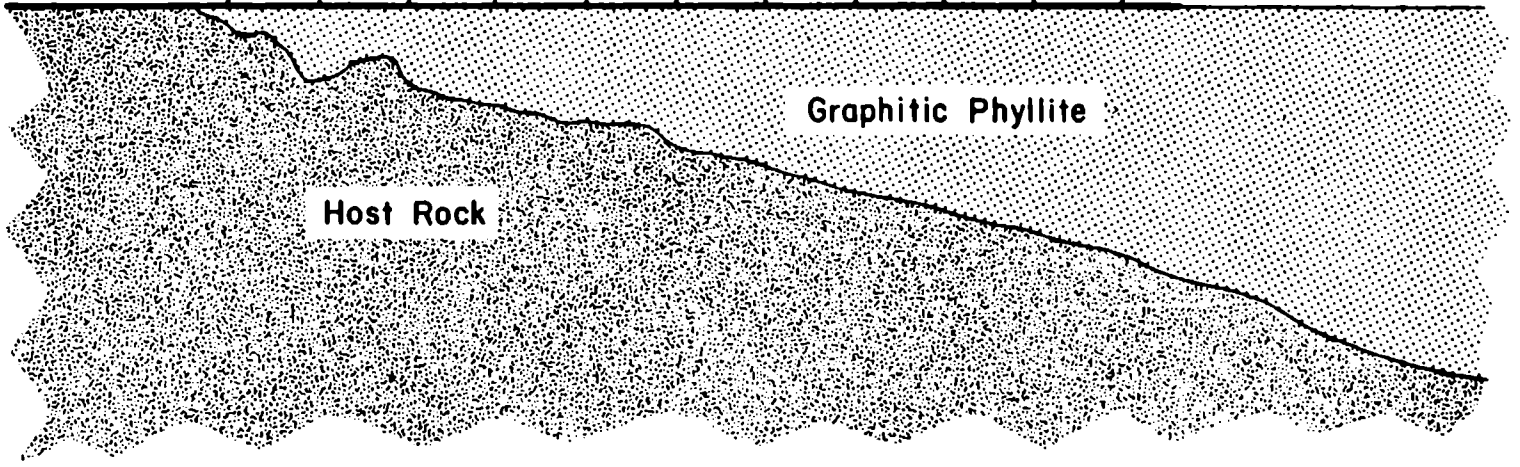
32W

RXI

0 1 2 3 4 5 6 7 8 9 10

Graphitic Phyllite

Host Rock



coupling for D5,N3.

I have enclosed the dipole-dipole spectra for all of the $n = 3$ measurements. They are typical of all of the measurements. The spectral curves are very "flat", with (c_1) values averaging about 0.13. Our experience in field data and theoretical developments indicates that this is possible only if two populations of grain-size are present.

Several of the $X =$ Two Meter dipole-dipole spectra have been inverted using two Cole-Cole dispersions to determine the electrical parameters of the two populations of grain-size present. It can be seen that one population has a large IP effect and a time-constant (τ_1) of about 10 seconds to 100 seconds. This closely approximates what we have come to expect from graphite in the Anvil Area. The other dispersion has a large IP effect and a very small time-constant (τ) value. This must be a source with a very small grain-size. The interpretation of these results would be that near the ore zones, there is fine grained sulphide mineralization with the (GP). It should be possible to check this possibility, when we have the rock samples to work with.

ib) Line 2 - Faro Pit $X =$ Two Meters

This line passes along one edge of a bench in the pit. At the south end of the line there was massive sulphide ore, beside, and beneath the line surveyed. At the north end there was massive sulphide beside the line, but graphitic phyllite was probably beneath the line. Some rubble was present on the bench, so that for the $X =$ Two meters measurement there may have been some depth to the source.

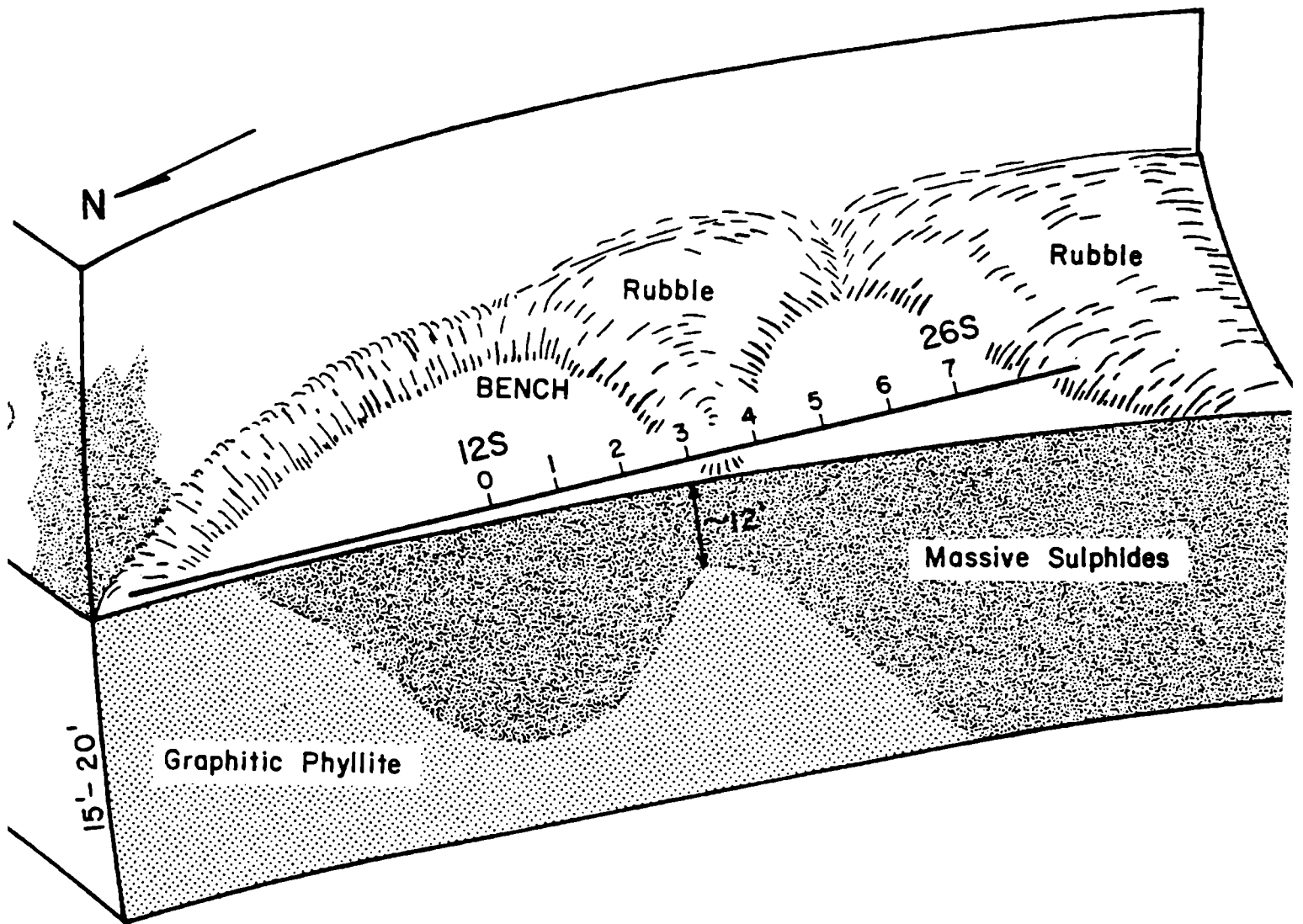
The pseudosections for the apparent resistivity and the IP effect show two strong anomalies. At the south end of the line there is a strong anomaly at depth (or to the side of the line); at the north end of the line there is a very strong anomaly at still greater depth (or to the side of the line).

In the strong anomalies, at the north and south end of the line surveyed, the values of (c_1) and (τ) for N4, N5, N6, all suggest that the

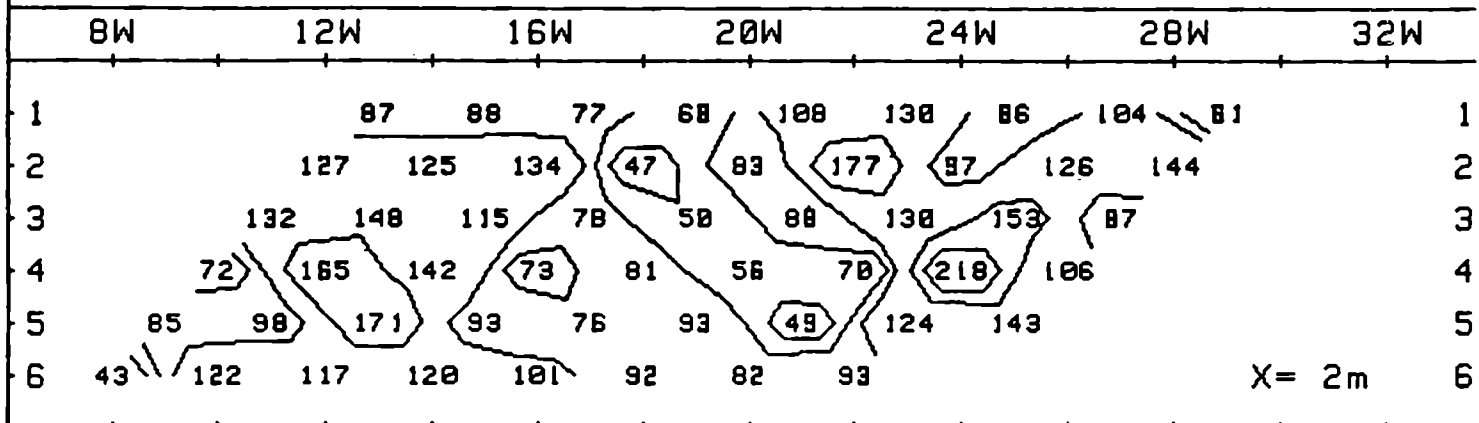
FARO PIT ZONE 1

LINE 2

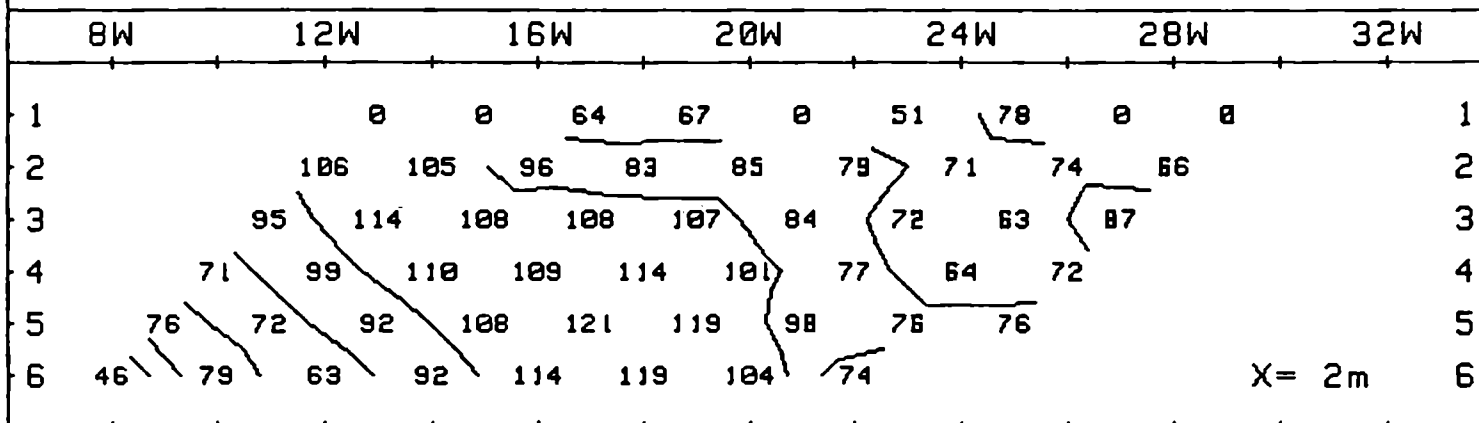
X = 2 m.



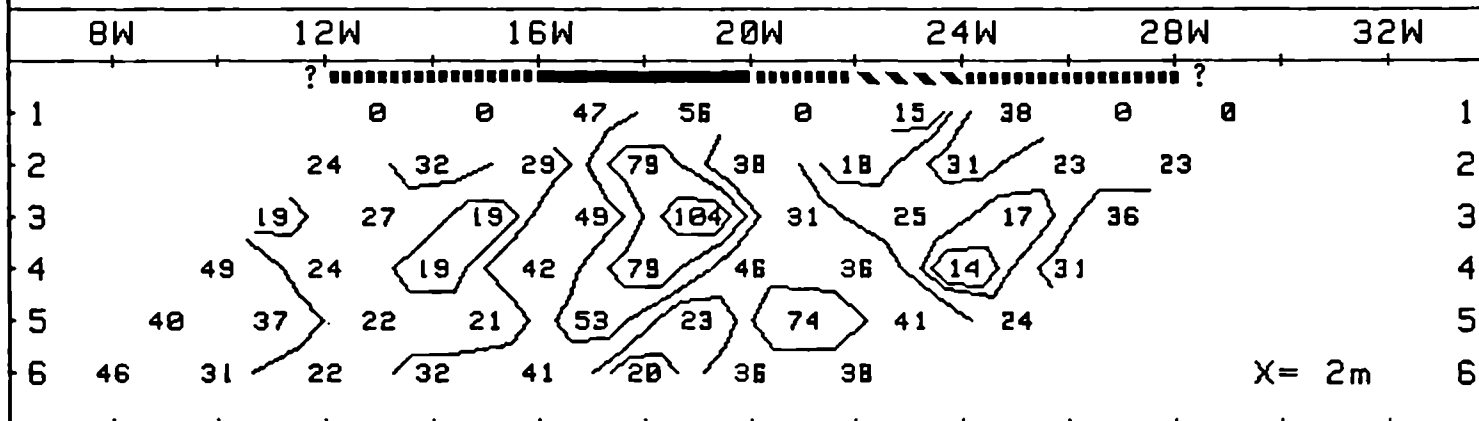
PHOENIX SPECTRAL IP OBS. RESISTIVITY (ohm-m) 1 Hz
 CYPRUS ANVIL FARO MINE FARO, YT LINE 1 2m 3/7/81 L306

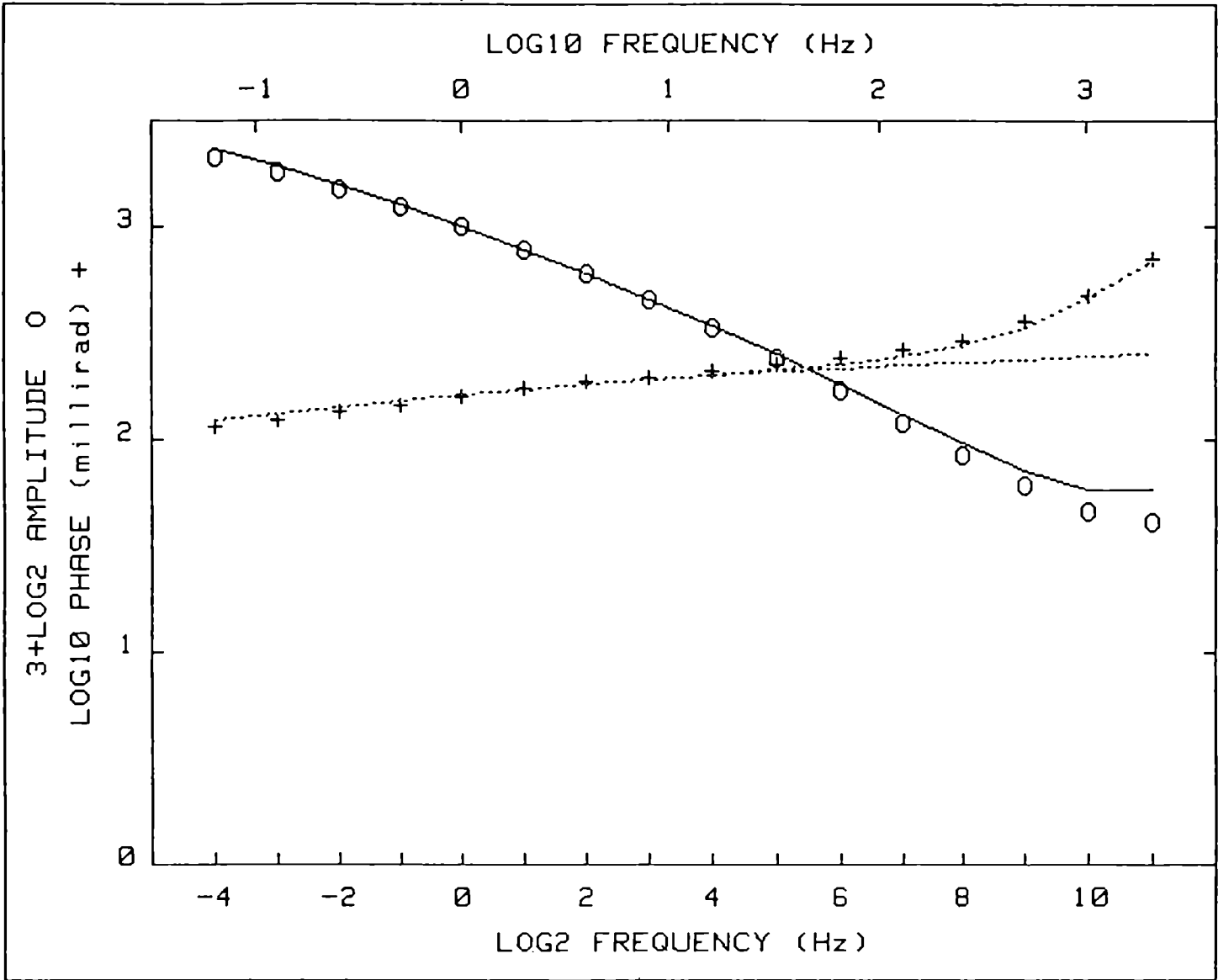


PHOENIX SPECTRAL IP DECOUPLED PHASE (mrad) 1 Hz
 CYPRUS ANVIL FARO MINE FARO, YT LINE 1 2m 3/7/81 L306



PHOENIX SPECTRAL IP DECOUPLED METAL FACTOR 1Hz
 CYPRUS ANVIL FARO MINE FARO, YT LINE 1 2m 3/7/81 L306





CRL: Number of dispersions= 2
M2=1 C2=1 fixed

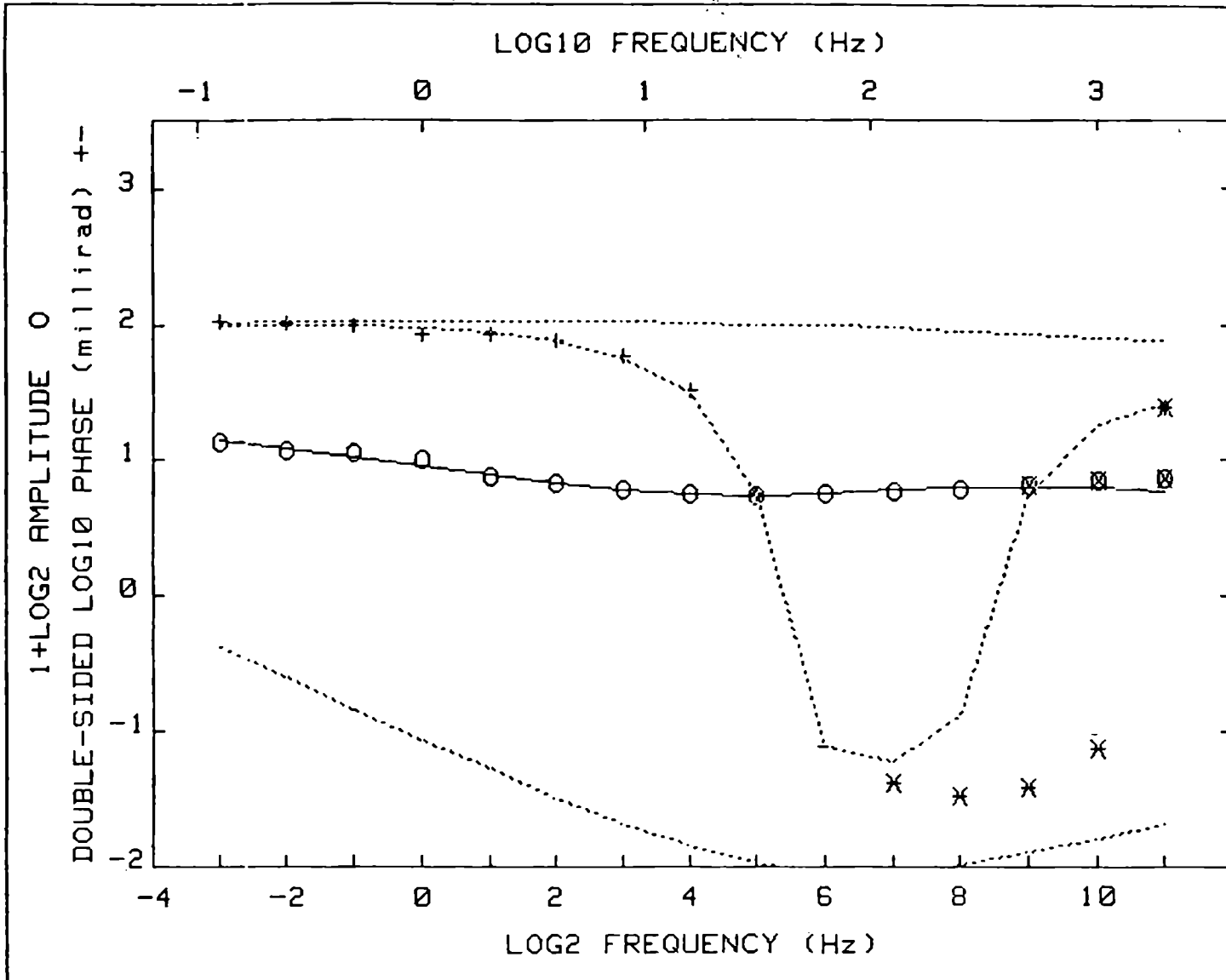


Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.01968	1.830	1.000	3.9E-01	.170	7.2E-06
1	1.E+00	.00570	2.164	1.000	3.8E-01	.184	6.9E-06
2	1.E+01	.00499	2.169	1.000	3.8E-01	.186	6.9E-06
3	1.E+01	.00430	2.170	1.000	3.8E-01	.187	6.9E-06
4	1.E+01	.00369	2.168	1.000	3.8E-01	.188	6.8E-06
5	1.E+01	.00320	2.166	1.000	3.8E-01	.189	6.8E-06
6	1.E+01	.00280	2.164	1.000	3.8E-01	.190	6.8E-06
7	1.E+01	.00249	2.162	1.000	3.8E-01	.191	6.8E-06
8	1.E+01	.00224	2.161	1.000	3.8E-01	.192	6.7E-06
9	1.E+01	.00205	2.159	1.000	3.8E-01	.192	6.7E-06

Pct Std Deviations 17.9 6.5 221.5 24.0 27.1

Correlation Matrix

	1.000				
	.905	1.000			
	.973	.791	1.000		
	-.964	-.979	-.891	1.000	
	-.907	-.868	-.855	.903	1.000



CRL: Number of dispersions= 2 Negative.
 C1=.18 M2=.13 C2=.7 fixed

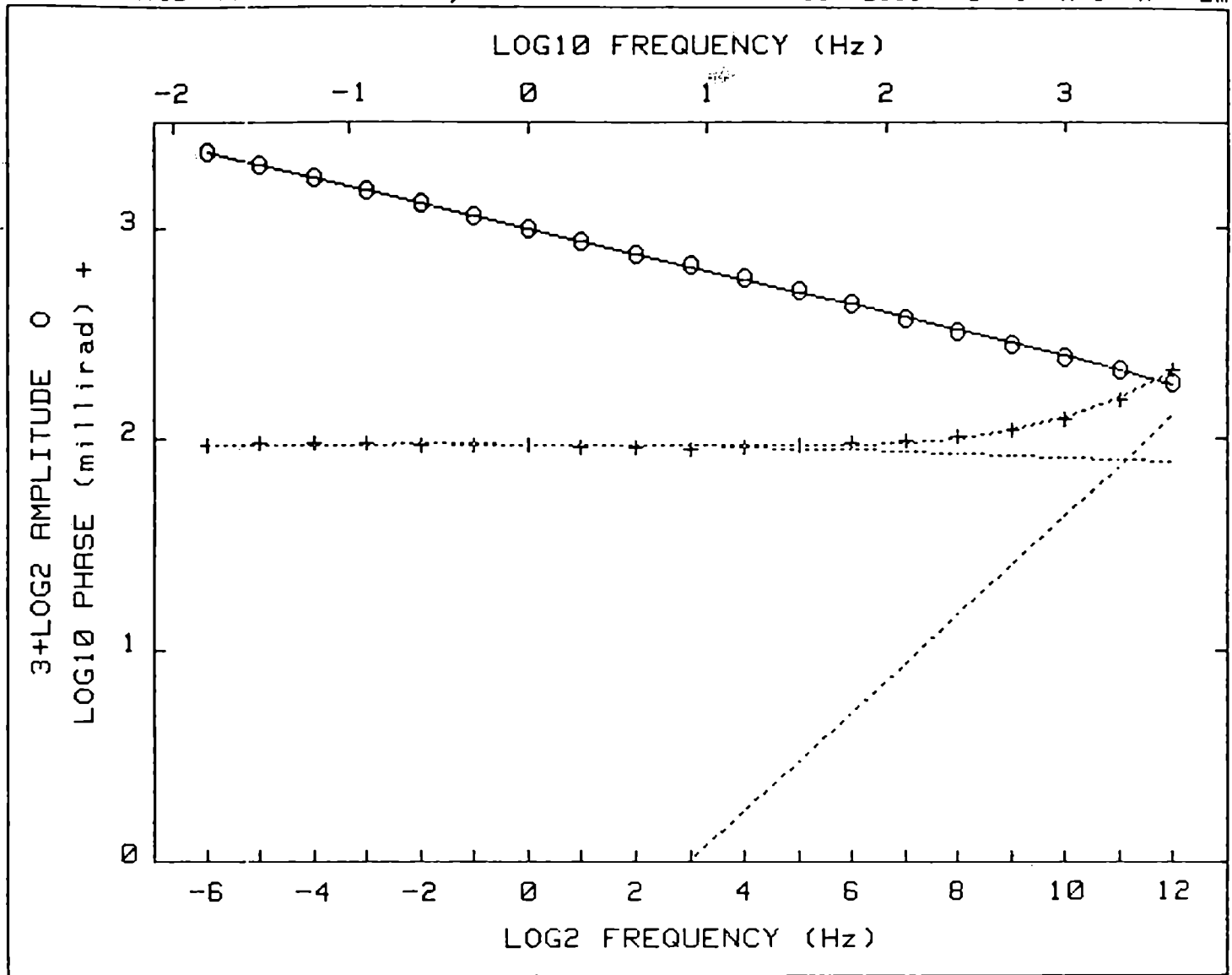
Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.00047	2.048	.793	7.9E+00	2.0E-03
1	1.E-02	.00047	2.049	.794	7.9E+00	2.0E-03

Pct Std Deviations 1.4 1.0 8.7 4.9

Correlation Matrix

	1.000			
	.861	1.000		
	.603	.240	1.000	
	.365	.733	-.445	1.000

Apparent Resistivity Measured at 1 Hz is 50.07
 Apparent Resistivity Calculated from Inductive Coupling is .016



CRL: Number of dispersions= 2
M2=1 T2=.0000002 C2=.72 fixed

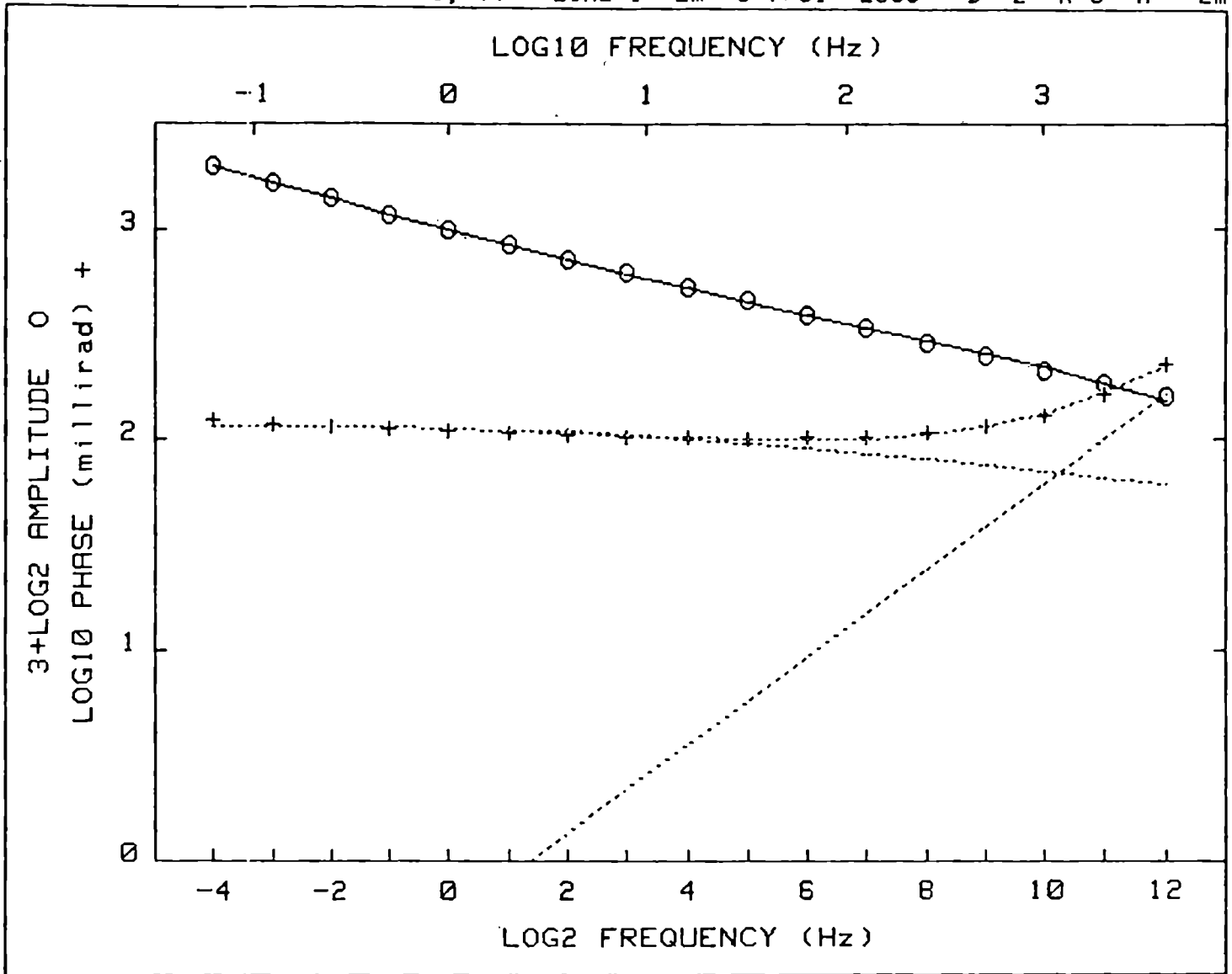
Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00007	3.723	.916	4.6E+04	.110
1	1.E-02	.00007	3.723	.916	4.6E+04	.110

Pct Std Deviations 2.5 .3 49.9 1.3

Correlation Matrix

	1.000			
	.541	1.000		
	.986	.605	1.000	
	-.322	-.934	-.431	1.000

Apparent Resistivity Measured at 1 Hz is 132.1
Apparent Resistivity Calculated from Inductive Coupling is 23.12



CRL: Number of dispersions= 2
M2=1 T2=.00000022 C2=.63 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00010	2.891	.836	2.4E+02	.175
1	1.E-02	.00009	2.896	.836	2.4E+02	.175

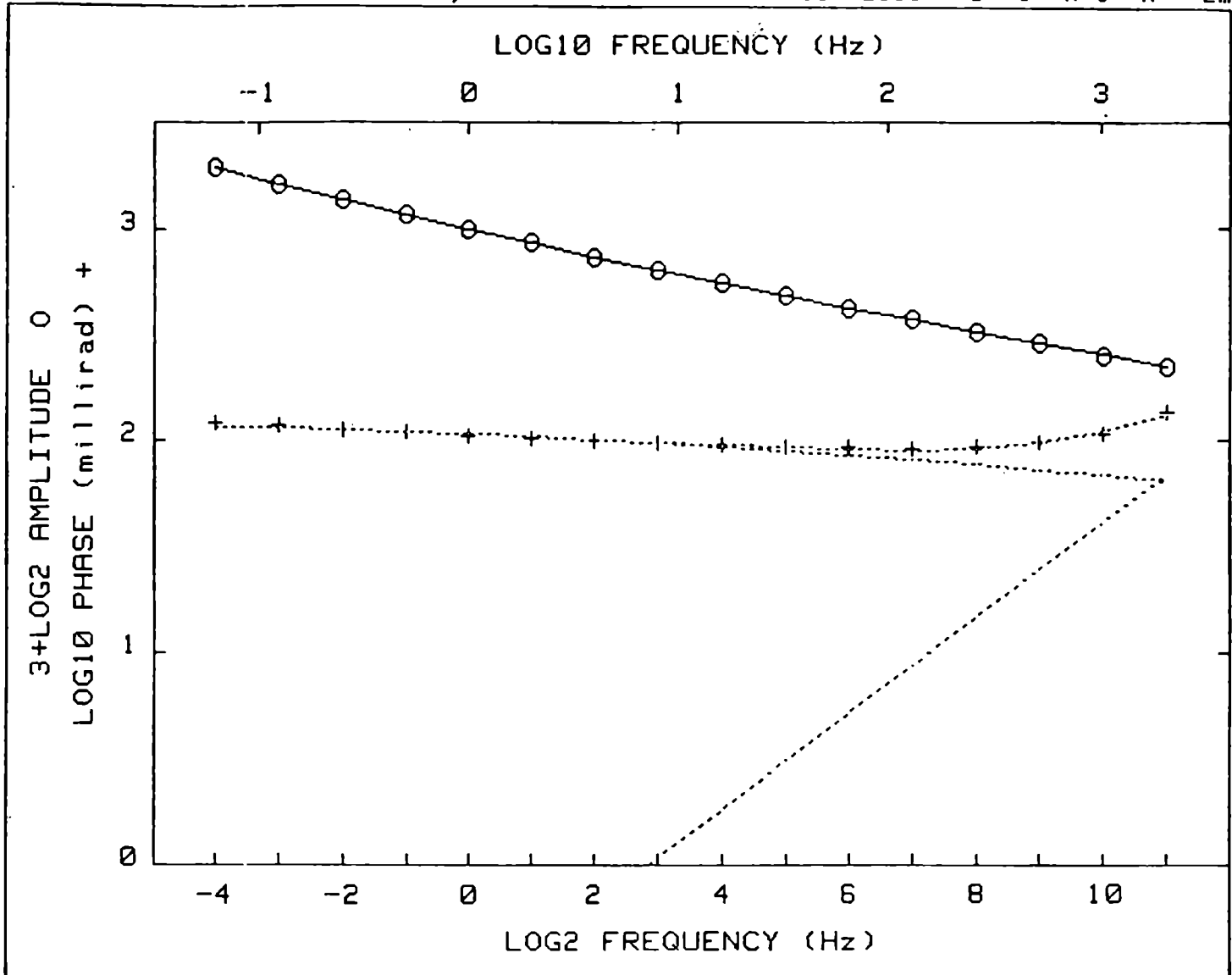
Pct Std Deviations 2.3 .4 30.0 1.3

Correlation Matrix

	1.000			
	.866	1.000		
	.977	.892	1.000	
	-.288	-.684	-.427	1.000

Apparent Resistivity Measured at 1 Hz is 147.9
Apparent Resistivity Calculated from Inductive Coupling is 11.72

CYPRUS ANVIL FARO MINE FARO, YT LINE 1 2m 3/7/81 L306 D= 3 N=3 X= 2m



CRL: Number of dispersions= 2
M2=.36 T2=.00000048 C2=.7 fixed

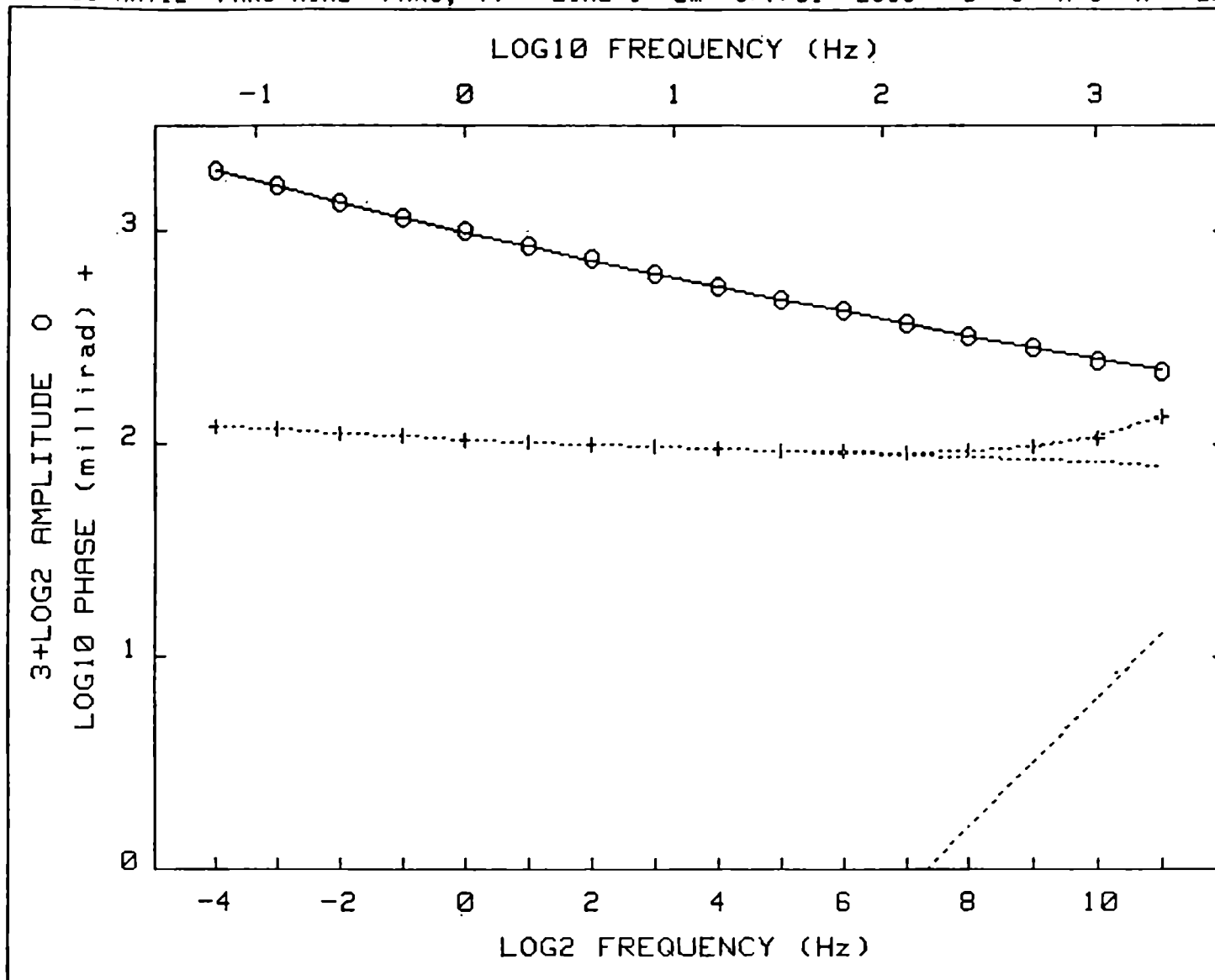
Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00004	4.797	.905	1.1E+05	.144
1	1.E-02	.00003	4.801	.905	1.1E+05	.144
2	1.E-03	.00003	4.816	.905	1.2E+05	.144

Pct Std Deviations 2.5 .2 29.6 .9

Correlation Matrix 1.000
 .924 1.000
 .957 .971 1.000
 .020 -0.338 -0.254 1.000

Apparent Resistivity Measured at 1 Hz is 115.1

Apparent Resistivity Calculated from Inductive Coupling is 23.88



CRL: Number of dispersions= 3
 C1=.25 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	M2	T2	T3
0	1.E-02	.11763	2.600	.670	7.9E+02	.210	1.1E-02	1.6E-06
1	1.E-02	.00128	2.756	.652	7.8E+02	.171	1.0E-02	1.3E-06
2	1.E-03	.00090	2.960	.696	9.5E+02	.140	4.9E-03	1.1E-06
3	1.E-04	.00021	3.102	.723	1.0E+03	.125	1.4E-03	1.0E-06
4	1.E-05	.00002	2.832	.705	4.6E+02	.134	6.2E-04	1.0E-06
5	1.E-06	.00001	2.808	.704	4.1E+02	.135	4.9E-04	1.0E-06
6	1.E-02	.00001	2.807	.704	4.1E+02	.135	4.9E-04	1.0E-06
7	1.E-02	.00001	2.805	.704	4.0E+02	.135	5.0E-04	1.0E-06
8	1.E-02	.00001	2.803	.704	4.0E+02	.135	5.0E-04	1.0E-06
9	1.E-02	.00001	2.802	.703	4.0E+02	.135	5.0E-04	1.0E-06

Pct Std Deviations 4.6 1.2 51.9 2.4 52.1 4.4

Correlation Matrix

	1.000							
	.957	1.000						
	.995	.924	1.000					
	-.906	-.893	-.886	1.000				
	.823	.633	.866	-.775	1.000			
	-.597	-.713	-.552	.378	-.139	1.000		

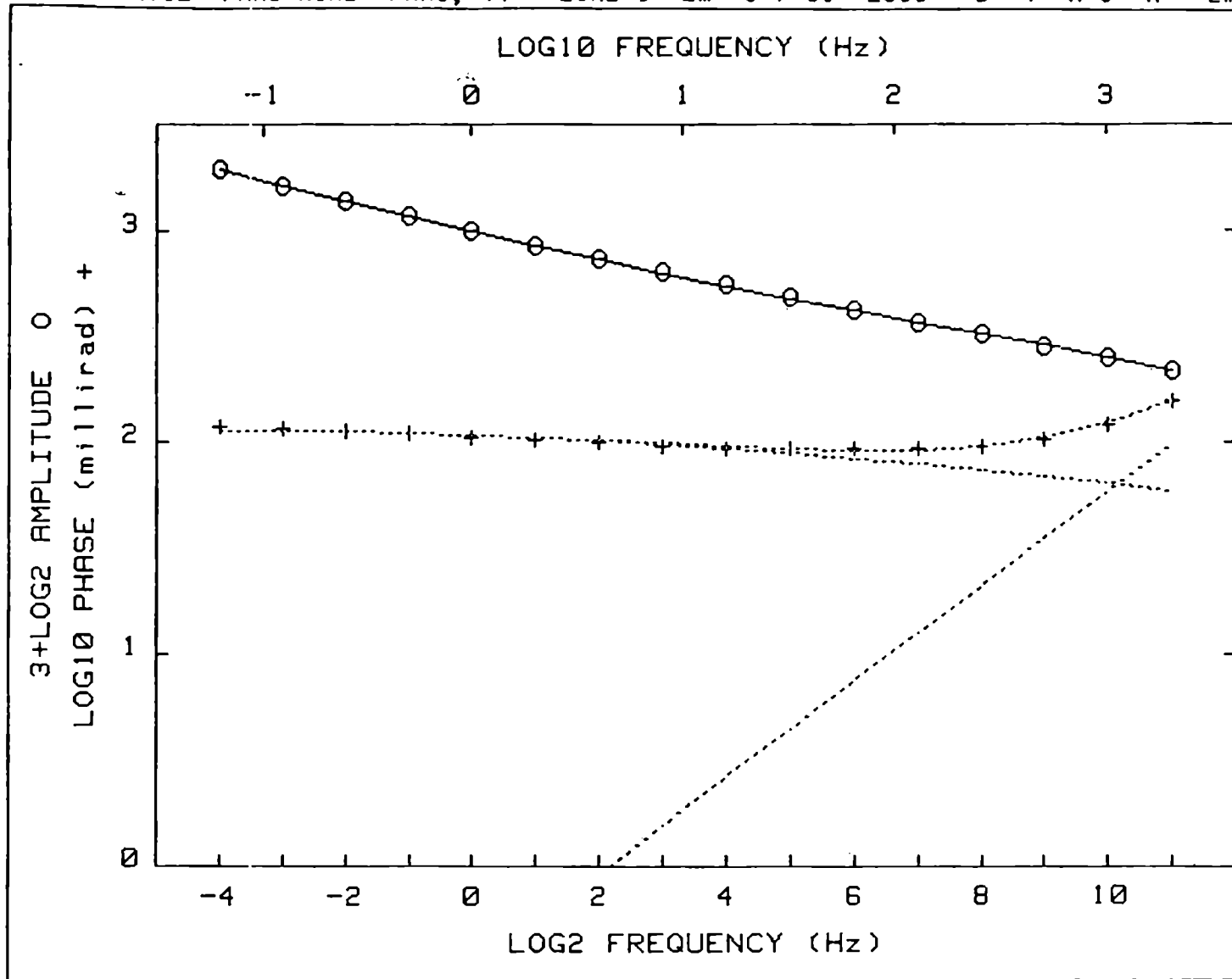
2nd Attempt

CYPRUS ANVIL FARO MINE FARO, YT LINE 1 2m 3/7/81 L306 D= 3 N=3 X= 2m

Apparent Resistivity Measured at 1 Hz is 115.1

Apparent Resistivity Calculated from Inductive Coupling is 14.76

F	ObsAmp	CalAmp	PctDif	ASD%	Wts	ObsPhz	CalPhz	PctDif	PSD%	Wts
11	.6367	.6401	-.5	.0	1	135.2	136.1	-.7	.1	1
10	.6605	.6619	-.2	.1	1	108.5	110.2	-1.6	.0	1
9	.6858	.6864	-.1	.1	1	98.1	98.8	-.7	.0	1
8	.7126	.7130	-.1	.0	1	93.5	94.2	-.7	.1	1
7	.7416	.7414	.0	.0	1	91.8	92.8	-1.1	.0	1
6	.7719	.7716	.0	.0	1	93.1	92.9	.2	.0	1
5	.8040	.8036	.0	.0	1	93.4	93.9	-.5	.0	1
4	.8382	.8375	.1	.0	1	95.4	95.4	-.0	.0	1
3	.8741	.8735	.1	.0	1	97.5	97.5	.0	.1	1
2	.9131	.9121	.1	.0	1	100.0	100.0	-.0	.0	1
1	.9544	.9536	.1	.0	1	102.6	103.0	-.4	.0	1
0	1.0000	.9984	.2	.0	1	105.8	106.4	-.6	.1	1
-1	1.0482	1.0472	.1	.0	1	109.7	110.1	-.4	.1	1
-2	1.1014	1.1002	.1	.0	1	113.7	113.8	-.1	.1	1
-3	1.1585	1.1581	.0	.0	1	117.9	117.4	.4	.1	1
-4	1.2210	1.2211	-.0	.0	1	120.8	120.5	.2	.0	1



CRL: Number of dispersions= 2
M2=.86 T2=.00000049 C2=.7 fixed

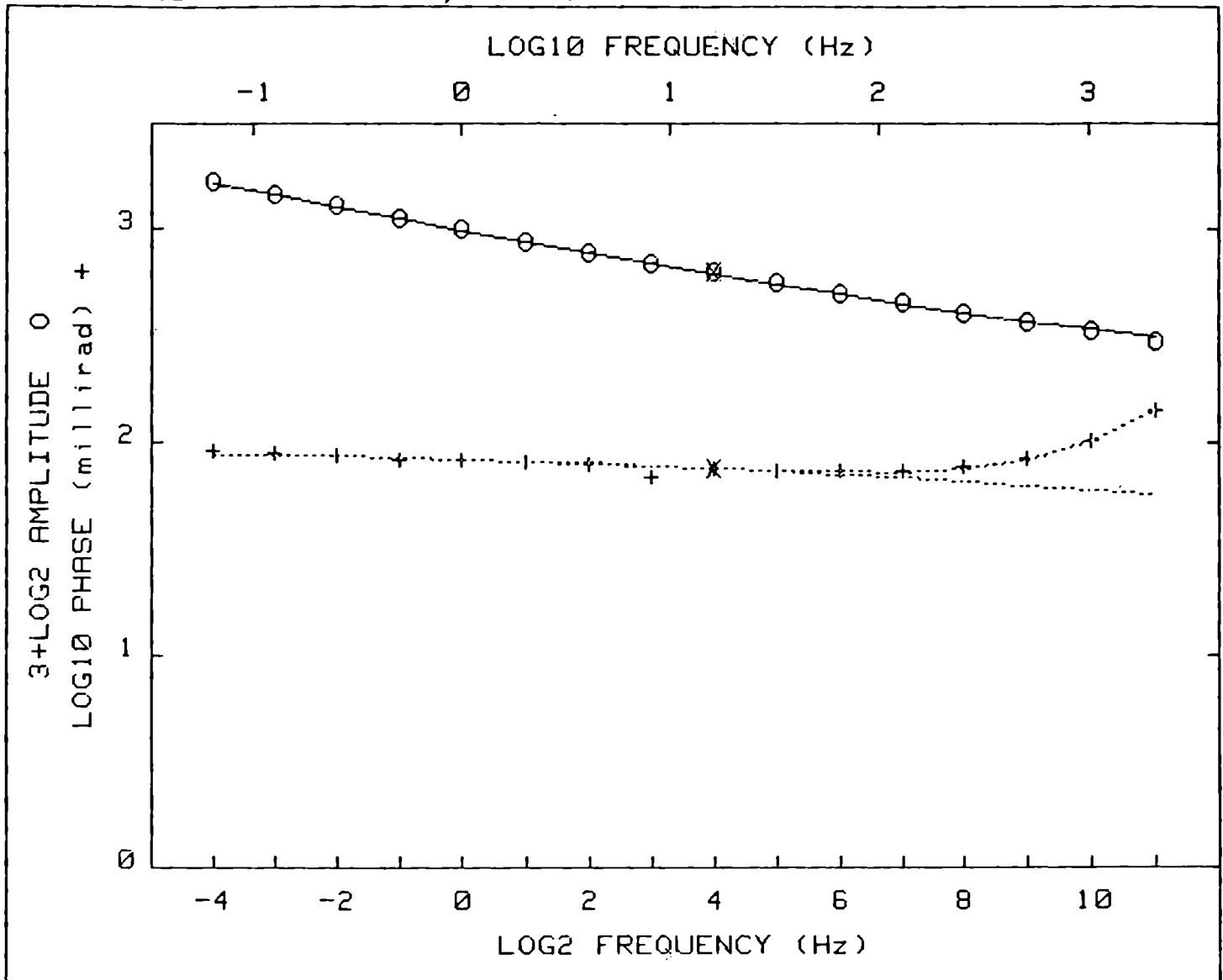
Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00007	2.830	.819	2.5E+02	.178
1	1.E-02	.00006	2.836	.819	2.6E+02	.178

Pct Std Deviations 2.4 .5 30.1 1.2

Correlation Matrix

	1.000			
	.933	1.000		
	.984	.946	1.000	
	-.453	-.712	-.562	1.000

Apparent Resistivity Measured at 1 Hz is 77.81
Apparent Resistivity Calculated from Inductive Coupling is 9.765



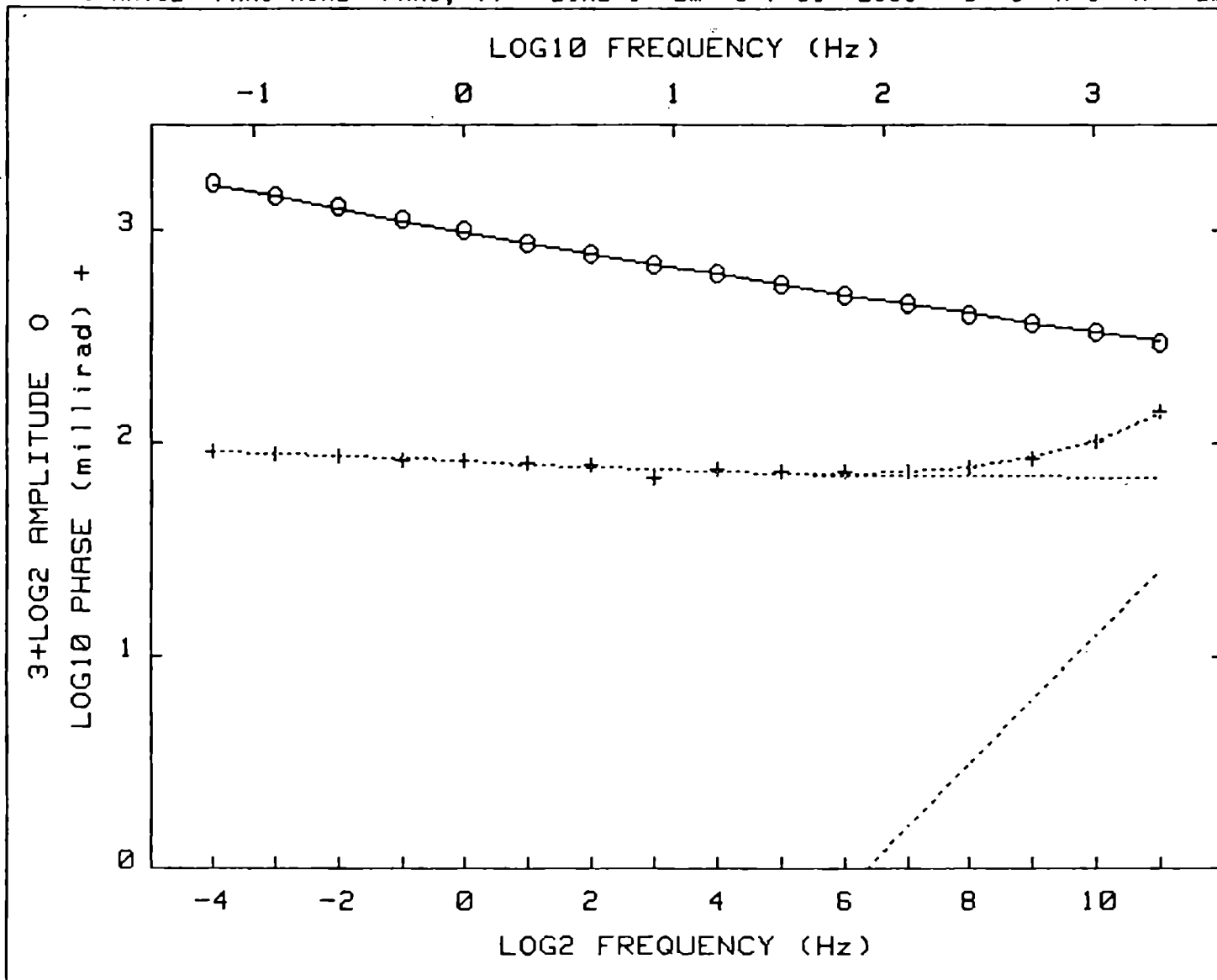
CRL: Number of dispersions= 2
 C1=.13 M2=1 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.01107	3.990	.885	4.0E+05	1.2E-06
1	1.E-02	.00032	4.240	.878	3.7E+05	1.2E-06
2	1.E-03	.00028	3.985	.871	1.9E+05	1.3E-06
3	1.E-03	.00025	3.785	.866	1.0E+05	1.3E-06
4	1.E-04	.00023	3.230	.847	1.6E+04	1.5E-06
5	1.E-05	.00019	3.116	.843	9.1E+03	1.5E-06
6	1.E-06	.00019	3.114	.843	8.9E+03	1.5E-06

Pct Std Deviations 5.6 .8 103.9 5.7

Correlation Matrix 1.000
 .981 1.000
 .993 .955 1.000
 -0.602 -0.653 -0.562 1.000

Apparent Resistivity Measured at 1 Hz is 87.61
 Apparent Resistivity Calculated from Inductive Coupling is 9.673



CRL: Number of dispersions= 3
 C1=.25 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	M2	T2	T3
0	1.E-02	.00059	1.790	.543	1.5E+01	.159	4.8E-04	2.4E-06
1	1.E-02	.00017	1.783	.538	1.7E+01	.148	4.5E-04	2.6E-06
2	1.E-03	.00012	1.867	.552	3.4E+01	.157	3.2E-04	2.4E-06
3	1.E-04	.00010	1.974	.575	6.5E+01	.164	1.5E-04	2.1E-06
4	1.E-05	.00009	1.951	.578	4.9E+01	.170	6.4E-05	2.0E-06
5	1.E-06	.00009	1.946	.578	4.7E+01	.175	5.0E-05	2.0E-06
6	1.E-07	.00009	1.947	.578	4.7E+01	.175	5.0E-05	2.0E-06

Pct Std Deviations 4.7 1.5 96.0 13.3 427.7 8.9

Correlation Matrix

	1.000						
	.628	1.000					
	.986	.499	1.000				
	-.702	-.033	-.761	1.000			
	.783	.042	.855	-.962	1.000		
	.069	-.467	.157	-.695	.572	1.000	

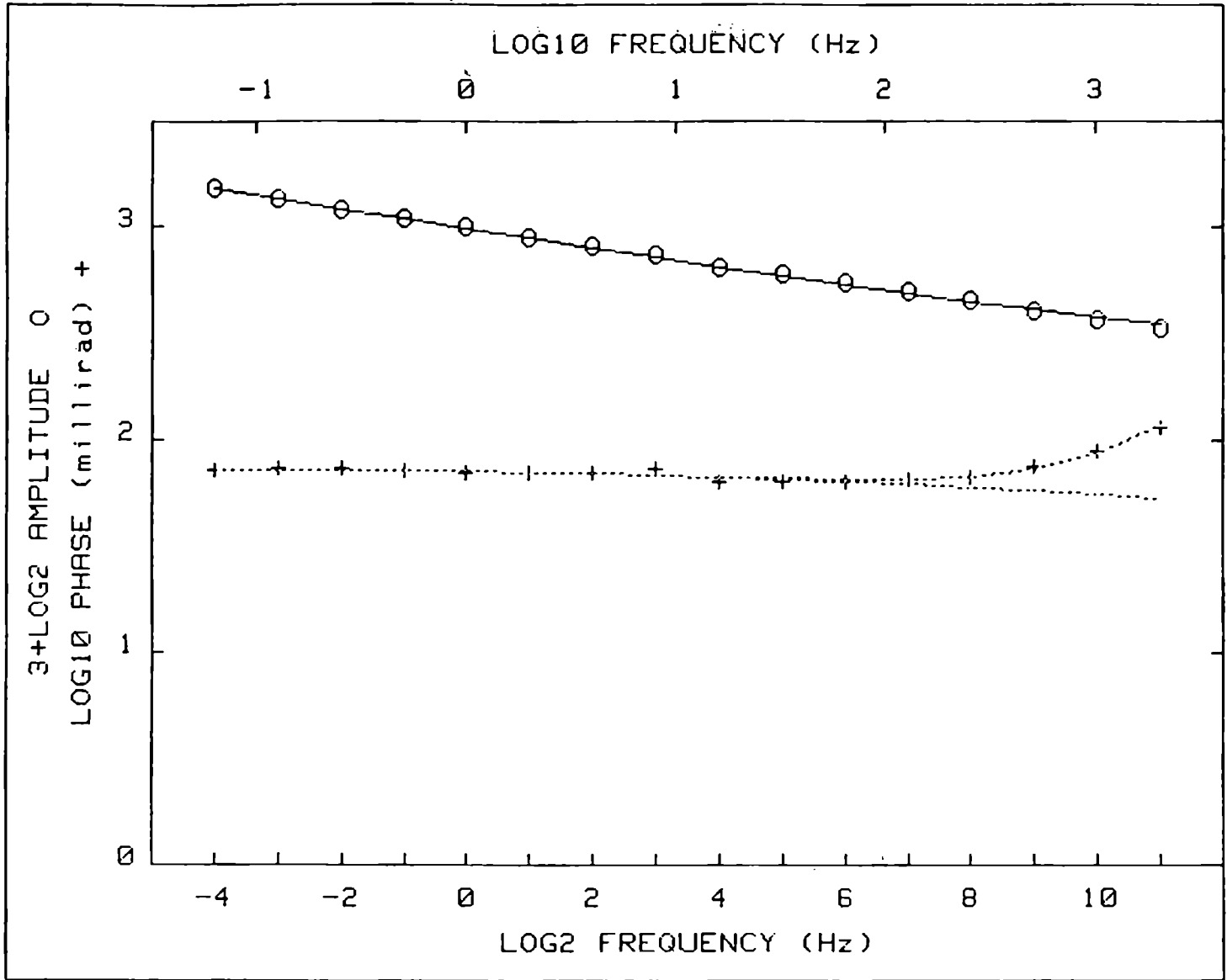
2nd Attempt

CYPRUS ANVIL FARO MINE FARO, YT LINE 1 2m 3/7/81 L306 D= 6 N=3 X= 2m

Apparent Resistivity Measured at 1 Hz is 87.61

Apparent Resistivity Calculated from Inductive Coupling is 7.517

F	ObsAmp	CalAmp	PctDif	ASD%	Wts	ObsPhz	CalPhz	PctDif	PSD%	Wts
11	.6979	.7020	-.6	.0	1	141.3	139.3	1.4	.1	1
10	.7192	.7218	-.4	.1	1	103.0	103.9	-.8	.2	1
9	.7410	.7436	-.4	.0	1	85.7	86.7	-1.2	.1	1
8	.7644	.7665	-.3	.0	1	77.3	78.5	-1.6	.1	1
7	.7891	.7905	-.2	.0	1	74.5	74.8	-.4	.3	1
6	.8139	.8154	-.2	.0	1	73.8	73.4	.5	.0	1
5	.8408	.8414	-.1	.0	1	74.2	73.5	1.0	.0	1
4	.8704	.8688	.2	.0	1	75.6	74.4	1.5	.1	1
3	.8965	.8977	-.1	.0	1	68.9	76.1	-10.4	.1	1
2	.9275	.9285	-.1	.0	1	79.9	78.2	2.2	.4	1
1	.9622	.9614	.1	.0	1	81.7	80.6	1.3	.2	1
0	1.0000	.9968	.3	.0	1	83.4	83.2	.2	.1	1
-1	1.0389	1.0348	.4	.0	1	84.4	85.7	-1.6	.2	1
-2	1.0806	1.0755	.5	.0	1	86.7	88.0	-1.5	.2	1
-3	1.1240	1.1191	.4	.0	1	90.0	89.7	.3	.1	1
-4	1.1691	1.1653	.3	.0	1	91.0	90.7	.4	.1	1



CRL: Number of dispersions= 2
 C1=.13 M2=1 C2=1 fixed

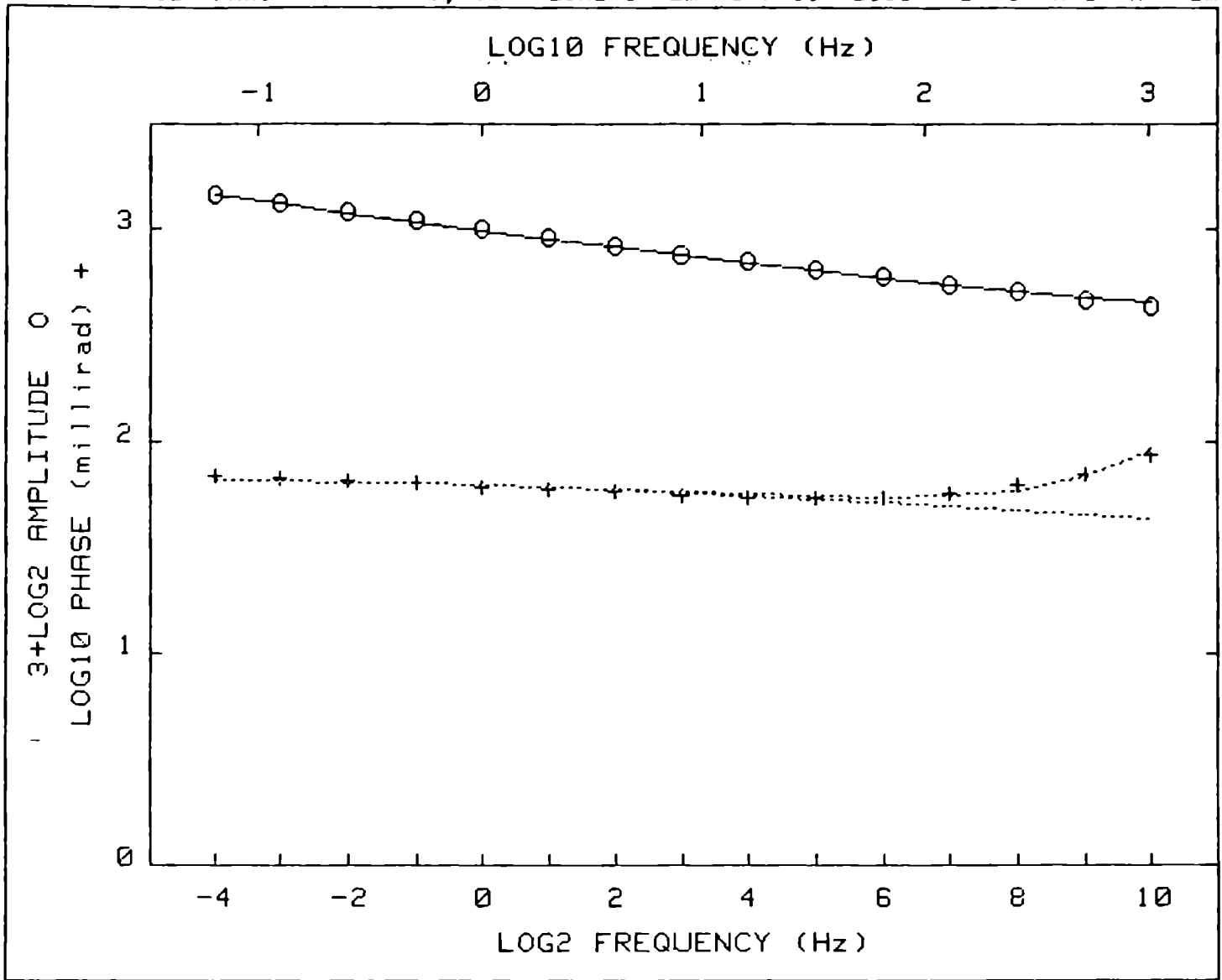
Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.00013	2.260	.776	2.4E+02	1.6E-06
1	1.E-02	.00010	2.263	.774	2.4E+02	1.6E-06
2	1.E-03	.00010	2.262	.774	2.4E+02	1.6E-06

Pct Std Deviations 2.4 .5 49.8 3.9

Correlation Matrix

	1.000			
	.918	1.000		
	.984	.847	1.000	
	-.141	-.301	-.069	1.000

Apparent Resistivity Measured at 1 Hz is 129.8
 Apparent Resistivity Calculated from Inductive Coupling is 9.148



CRL: Number of dispersions= 2
 C1=.13 M2=1 C2=1 fixed

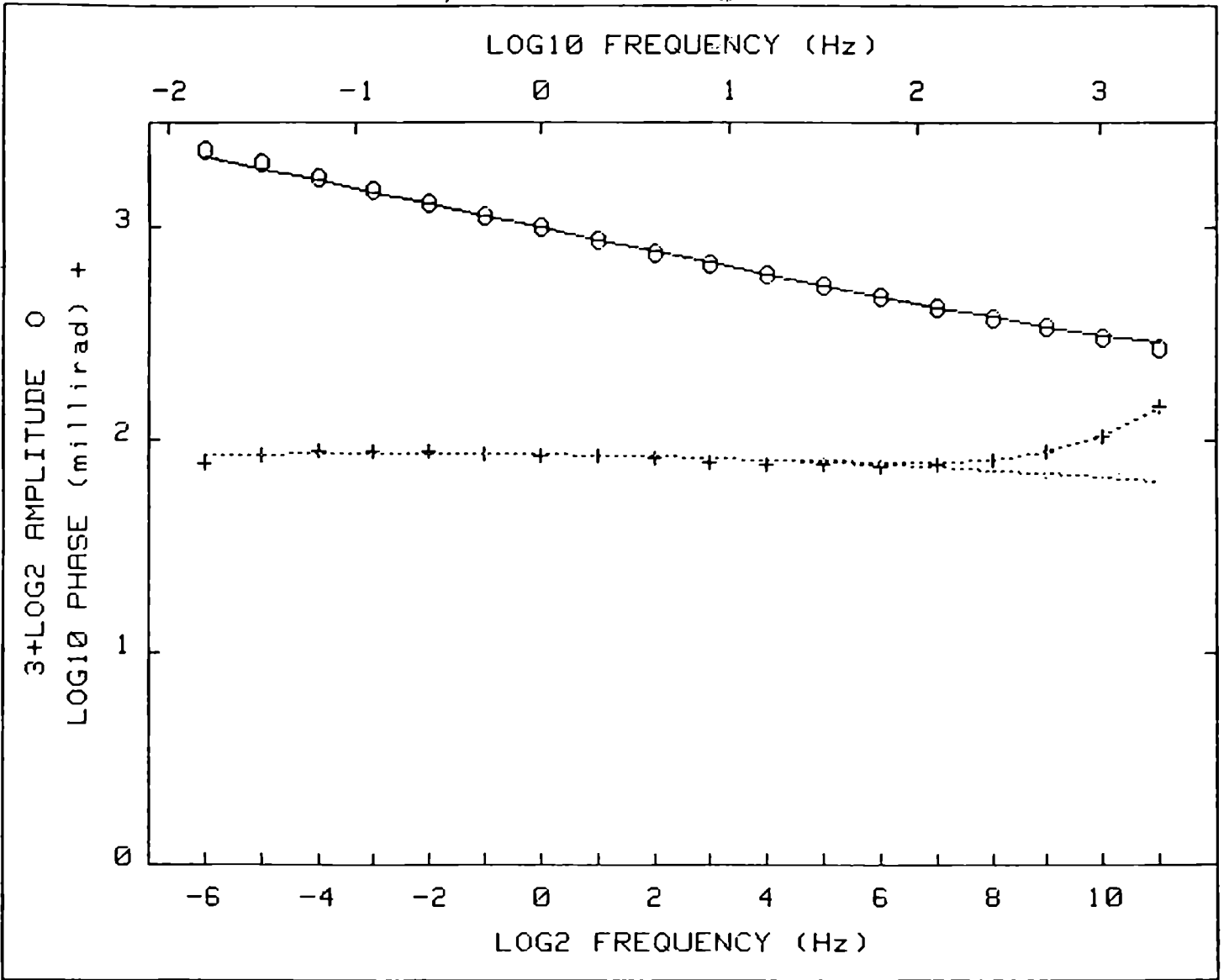
Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.00319	2.583	.793	1.9E+03	1.9E-06
1	1.E-02	.00019	2.359	.749	1.9E+03	2.4E-06
2	1.E-03	.00012	2.355	.745	1.9E+03	2.5E-06
3	1.E-04	.00012	2.356	.745	2.0E+03	2.5E-06

Pct Std Deviations: 3.5 .9 74.9 4.5

Correlation Matrix

	1.000			
	.982	1.000		
	.990	.953	1.000	
	-.270	-.343	-.213	1.000

Apparent Resistivity Measured at 1 Hz is 153.4
 Apparent Resistivity Calculated from Inductive Coupling is 5.879



CRL: Number of dispersions= 2
 C1=.13 M2=1 C2=1 fixed

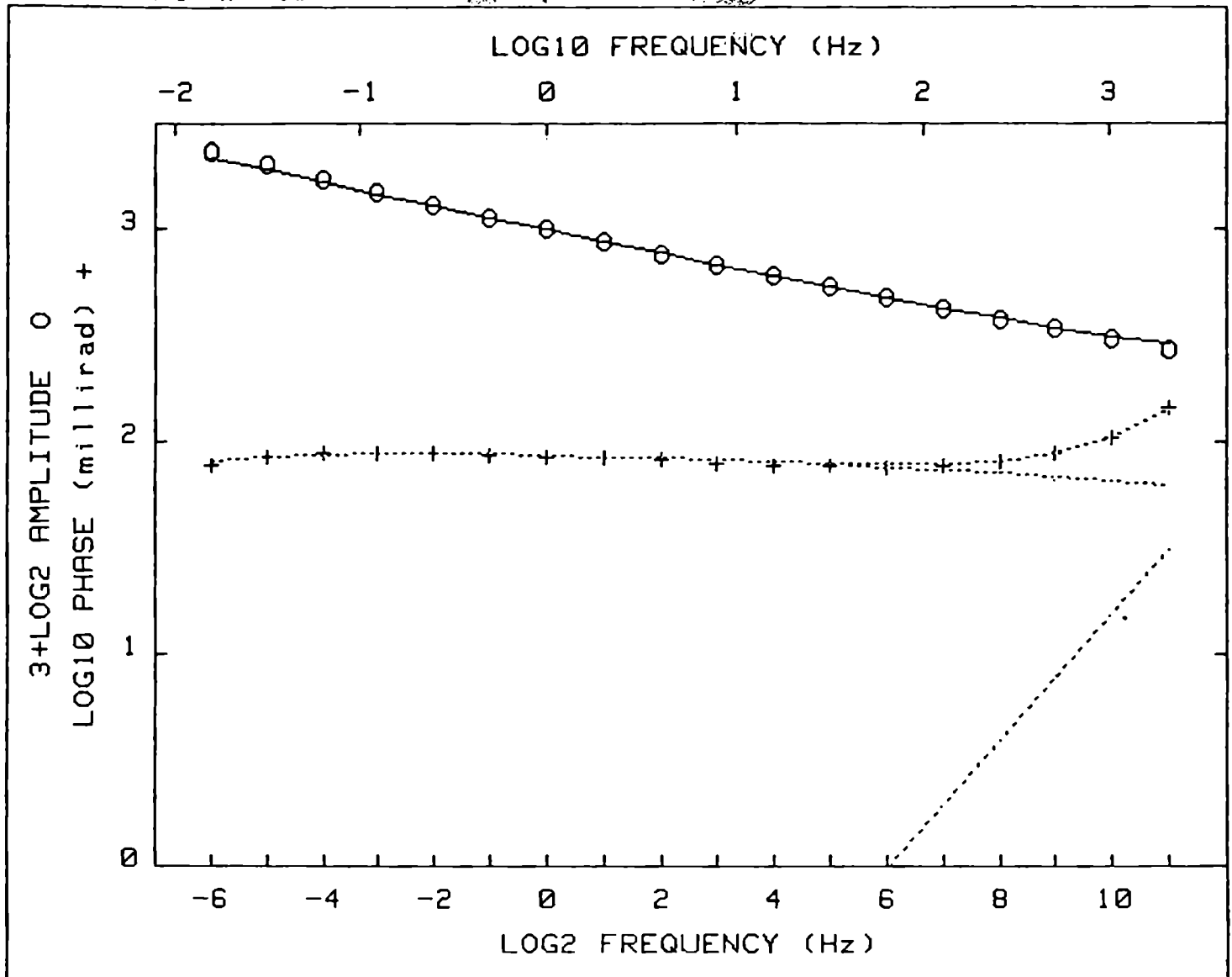
Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.00449	2.198	.770	1.6E+02	2.8E-06
1	1.E-02	.00075	2.456	.836	1.8E+02	1.8E-06
2	1.E-03	.00024	2.593	.833	4.1E+02	1.5E-06
3	1.E-04	.00022	2.715	.837	8.6E+02	1.5E-06
4	1.E-05	.00022	2.735	.838	9.4E+02	1.5E-06

Pct Std Deviations 3.2 .4 60.8 5.6

Correlation Matrix

	1.000			
	.868	1.000		
	.984	.779	1.000	
	-.172	-.348	-.103	1.000

Apparent Resistivity Measured at 1 Hz is 87.08
 Apparent Resistivity Calculated from Inductive Coupling is 9.626



CRL: Number of dispersions= 3
 C1=.25 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsqr	R0	M1	T1	M2	T2	T3
0	1.E-02	.00605	1.900	.500	4.4E+01	.190	5.4E-03	6.5E-06
1	1.E-02	.00036	1.847	.499	4.2E+01	.194	5.3E-03	3.1E-06
2	1.E-03	.00022	1.839	.510	3.4E+01	.184	3.7E-03	2.6E-06
3	1.E-03	.00020	1.829	.516	2.8E+01	.178	2.7E-03	2.6E-06
4	1.E-03	.00019	1.819	.522	2.4E+01	.172	1.9E-03	2.5E-06
5	1.E-03	.00019	1.811	.528	2.1E+01	.168	1.4E-03	2.5E-06
6	1.E-03	.00018	1.804	.532	1.9E+01	.165	1.1E-03	2.5E-06
7	1.E-03	.00017	1.799	.536	1.7E+01	.162	8.0E-04	2.5E-06
8	1.E-03	.00017	1.794	.540	1.6E+01	.160	6.1E-04	2.5E-06
9	1.E-03	.00016	1.790	.543	1.5E+01	.159	4.8E-04	2.4E-06

Pct Std Deviations 2.8 4.7 99.8 11.4 523.0 8.5

Correlation Matrix

	1.000					
	-.704	1.000				
	.959	-.866	1.000			
	.837	-.855	.922	1.000		
	.765	-.973	.887	.792	1.000	
	--	--	--	--	--	

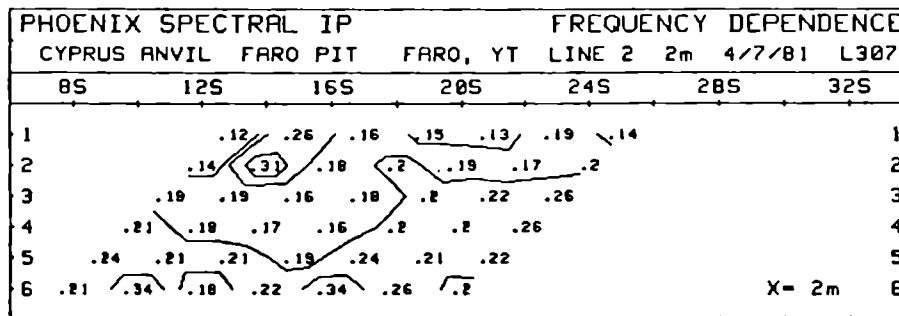
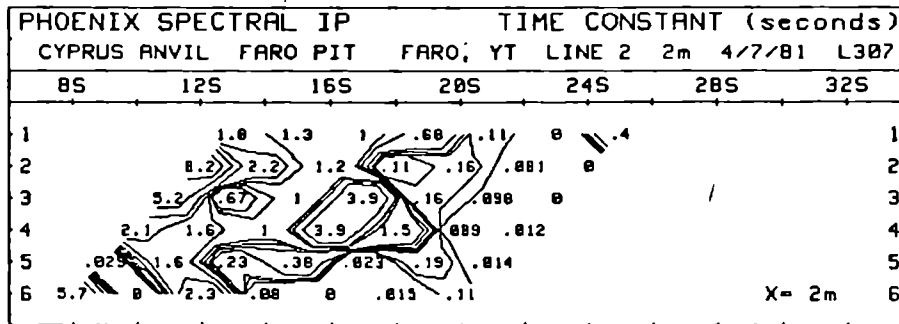
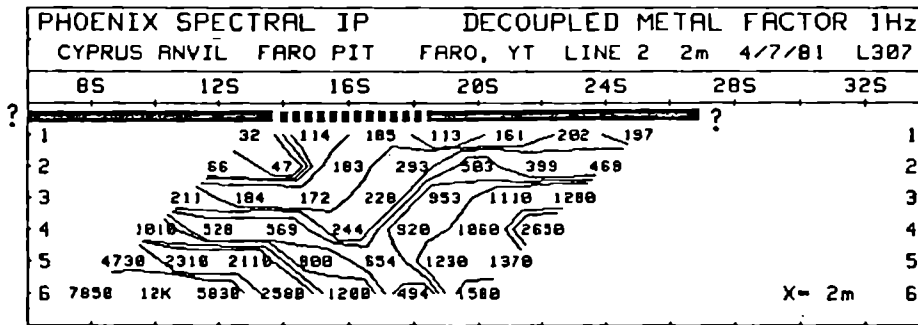
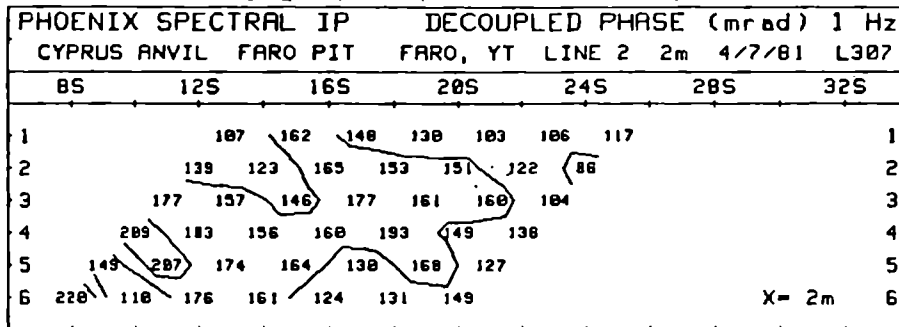
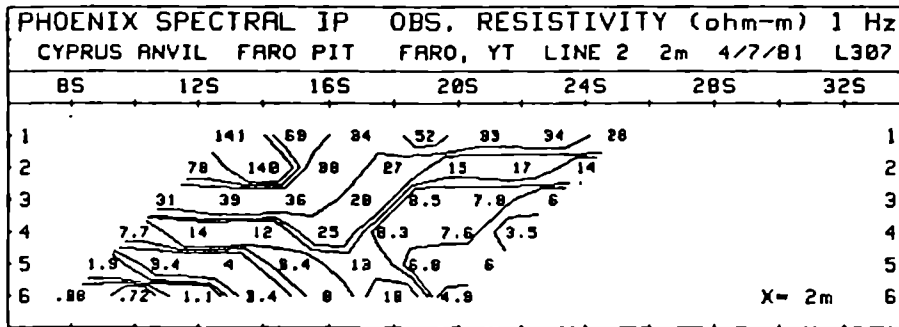
2nd Attempt

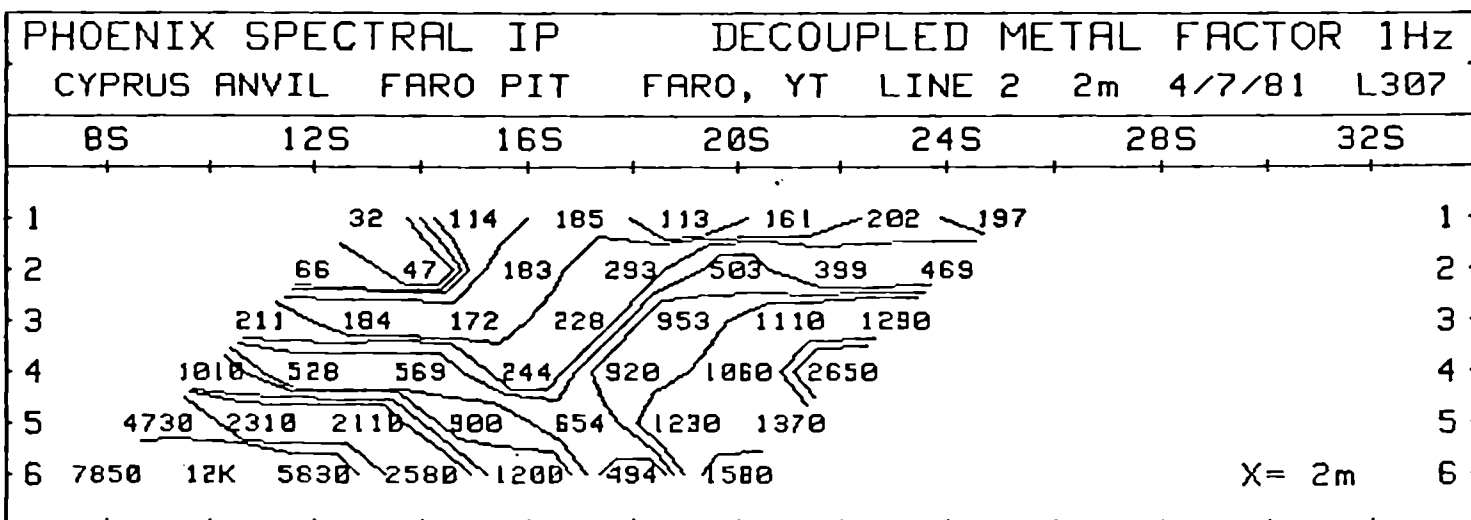
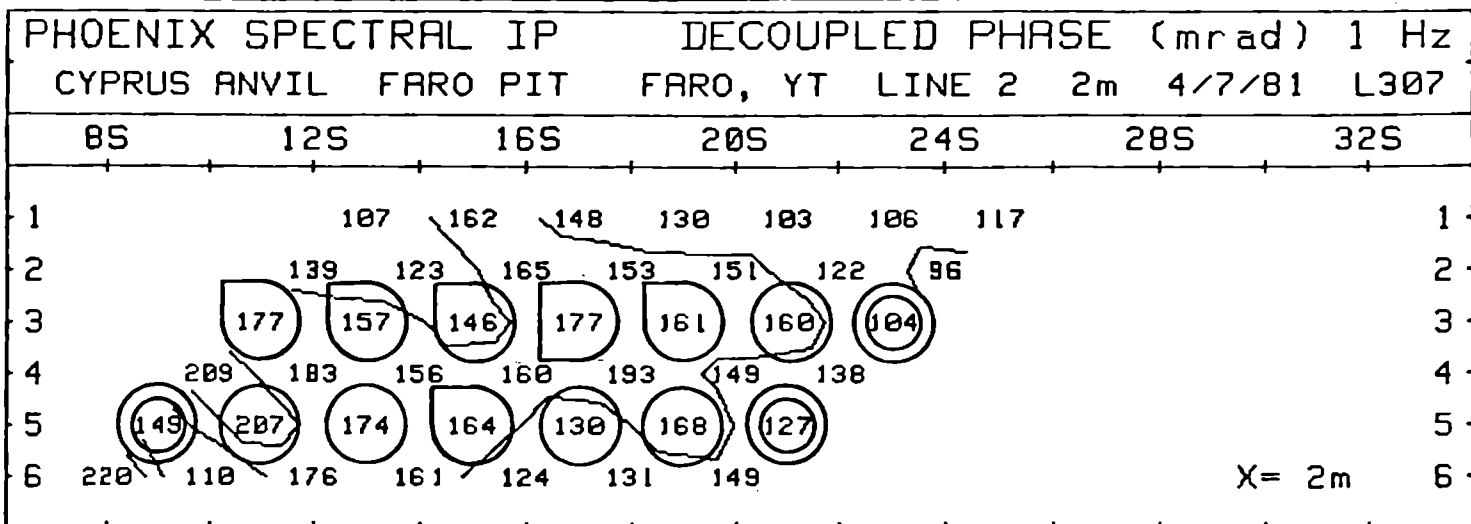
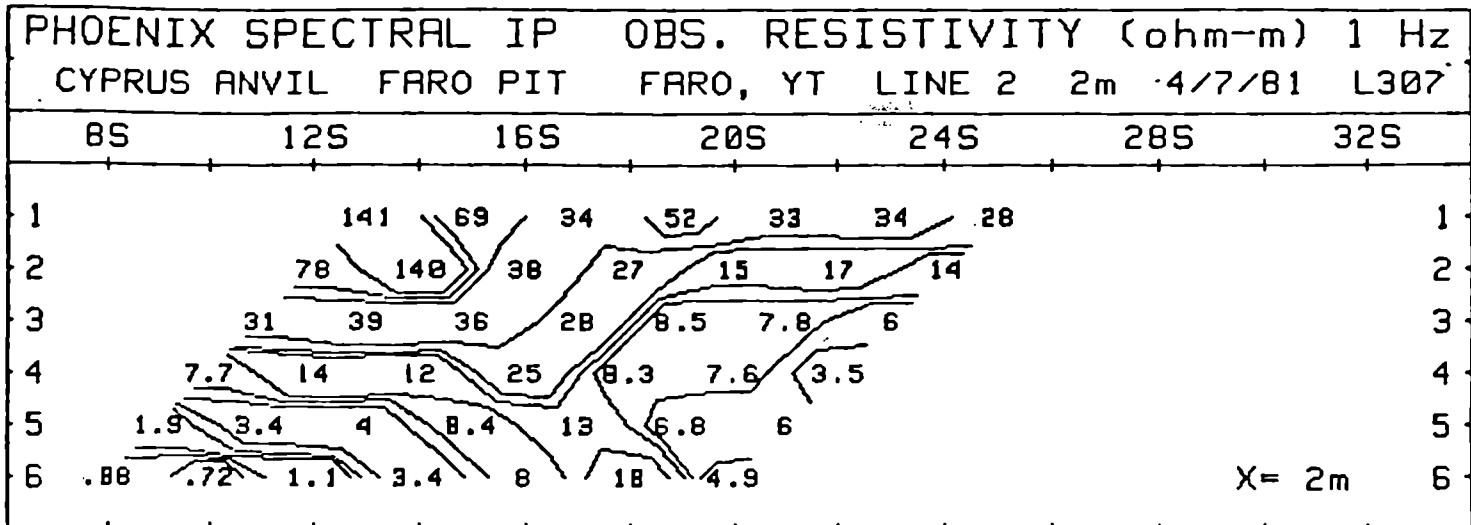
CYPRUS ANVIL FARO MINE FARO, YT LINE 1 2m 3/7/81 L306 D= 9 N=3 X= 2m

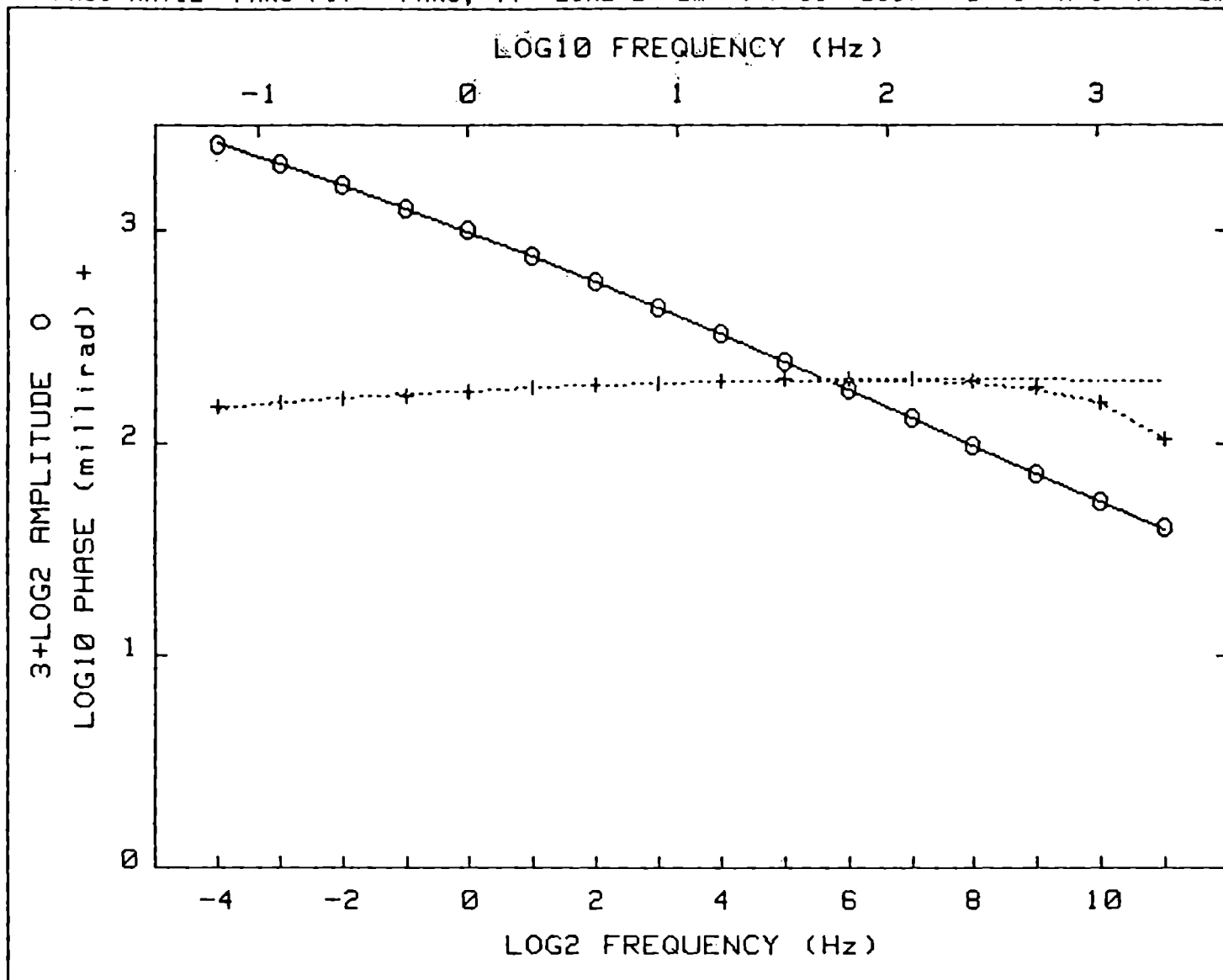
Apparent Resistivity Measured at 1 Hz is 87.08

Apparent Resistivity Calculated from Inductive Coupling is 6.066

F	ObsAmp	CalAmp	PctDif	ASD%	Wts	ObsPhz	CalPhz	PctDif	PSD%	Wts
11	.6753	.6901	-2.2	.1	1	144.7	144.1	.4	.1	1
10	.7003	.7080	-1.1	.1	1	106.6	105.8	.7	.1	1
9	.7255	.7287	-.4	.0	1	88.8	88.6	.2	.0	1
8	.7495	.7515	-.3	.0	1	81.5	81.5	.0	.2	1
7	.7742	.7761	-.2	.0	1	77.2	79.2	-2.5	.1	1
6	.8011	.8025	-.2	.0	1	76.3	79.1	-3.7	.0	1
5	.8294	.8306	-.1	.0	1	77.8	80.1	-2.9	.4	1
4	.8595	.8605	-.1	.0	1	78.0	81.6	-4.6	.4	1
3	.8913	.8923	-.1	.0	1	79.3	83.2	-4.9	.2	1
2	.9247	.9260	-.1	.0	1	83.3	84.9	-1.9	.1	1
1	.9622	.9618	.0	.0	1	84.9	86.4	-1.8	.2	1
0	1.0000	.9998	.0	.0	1	86.0	87.7	-2.0	.0	1
-1	1.0416	1.0398	.2	.0	1	88.0	88.6	-.7	.1	1
-2	1.0851	1.0819	.3	.0	1	88.8	89.0	-.2	.2	1
-3	1.1312	1.1258	.5	.0	1	89.0	88.6	.5	.3	1
-4	1.1790	1.1712	.7	.0	1	88.6	87.4	1.3	.1	1
-5	1.2336	1.2175	1.3	.0	1	84.8	85.4	-.7	.0	1
-6	1.2909	1.2643	2.1	.0	1	78.2	82.5	-5.5	.3	1







CRL: Number of dispersions= 2 Negative.
M2=1 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.84461	2.700	.693	1.0E+00	.142	9.3E-07
1	1.E-02	.00873	2.206	1.000	8.9E-01	.181	2.2E-06
2	1.E-03	.00217	2.412	.931	2.2E+00	.210	1.4E-06
3	1.E-04	.00011	2.676	.965	4.4E+00	.191	1.1E-06
4	1.E-05	.00003	2.713	.962	5.1E+00	.190	1.0E-06
5	1.E-06	.00003	2.716	.962	5.2E+00	.190	1.0E-06
6	1.E-07	.00003	2.716	.962	5.2E+00	.190	1.0E-06

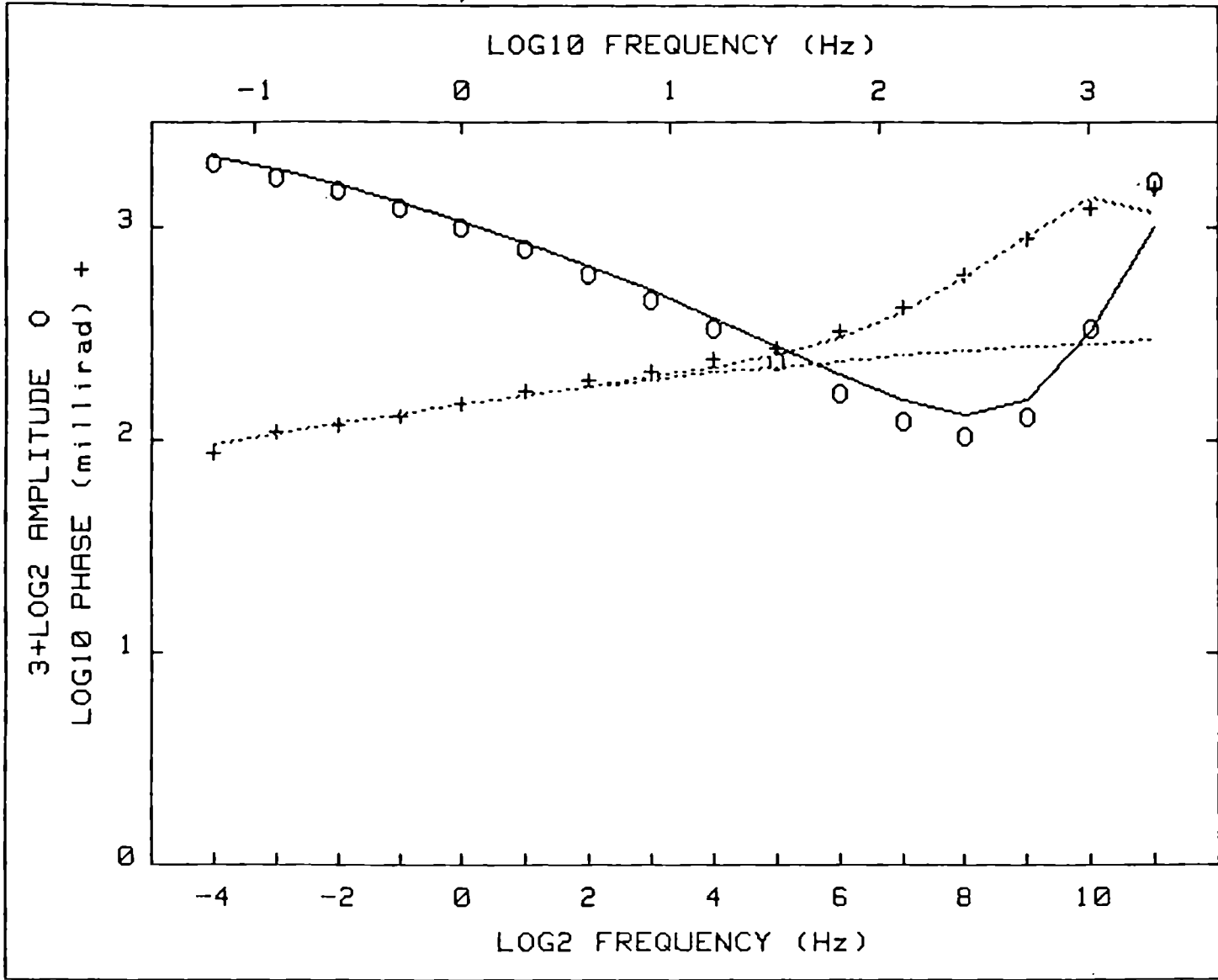


Pct Std Deviations 2.9 .5 29.4 2.3 2.3

Correlation Matrix

	1.000				
	.937	1.000			
	.998	.927	1.000		
	-.963	-.991	-.960	1.000	
	-.336	-.060	-.362	.153	1.000

Apparent Resistivity Measured at 1 Hz is 30.95
Resistivity Calculated from Inductive Coupling is 14.60



CRL: Number of dispersions= 2
M2=1 C2=1 fixed

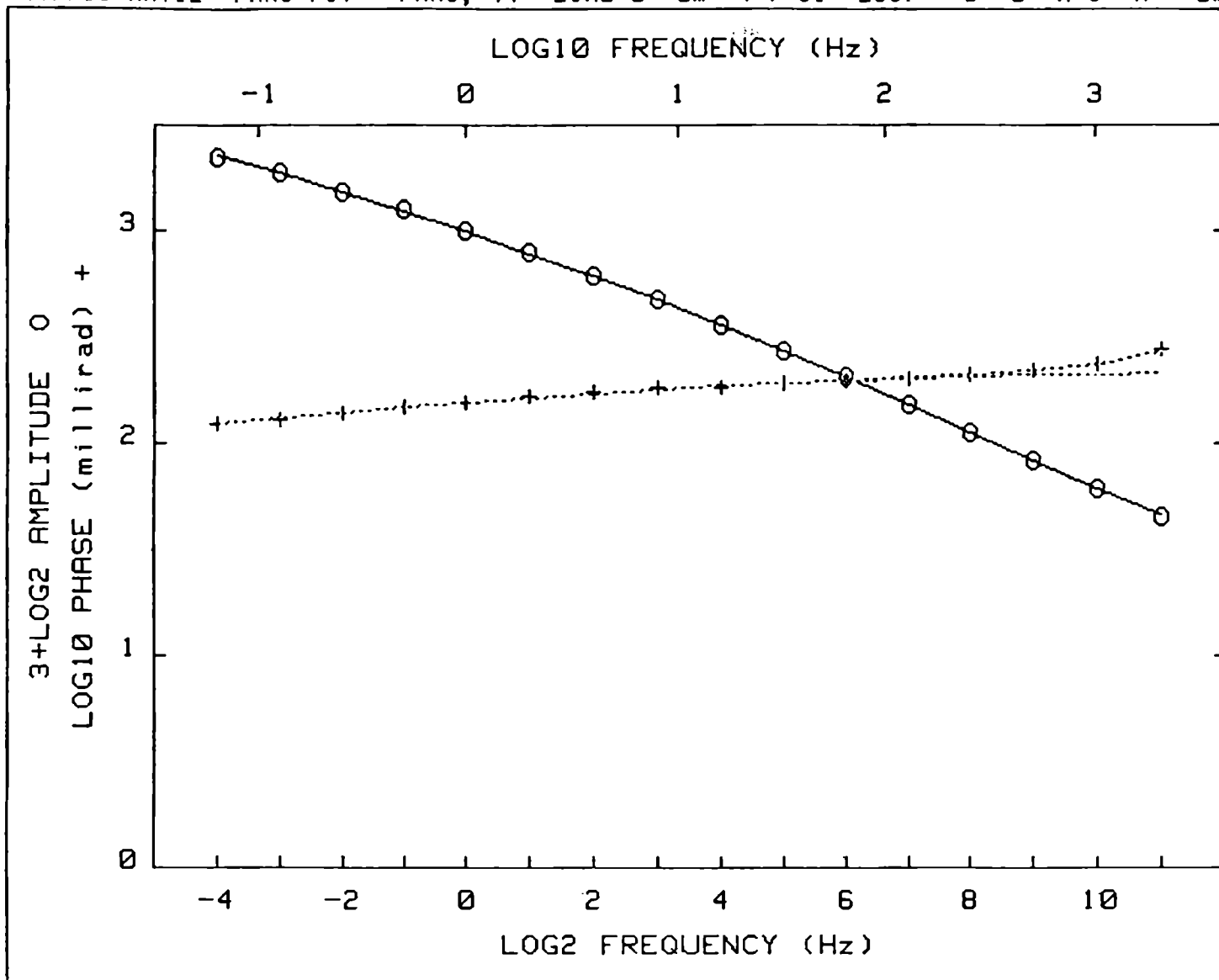
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00649	1.697	1.000	2.9E-02	.231	6.2E-05
1	1.E+01	.00629	1.697	1.000	2.9E-02	.232	6.2E-05
2	1.E+01	.00603	1.695	1.000	2.9E-02	.232	6.3E-05
3	1.E+01	.00575	1.693	1.000	2.9E-02	.233	6.3E-05
4	1.E+01	.00550	1.690	1.000	2.9E-02	.234	6.4E-05
5	1.E+01	.00527	1.688	1.000	2.9E-02	.234	6.4E-05
6	1.E+01	.00506	1.686	1.000	2.9E-02	.235	6.4E-05
7	1.E+01	.00488	1.683	1.000	2.9E-02	.236	6.5E-05
8	1.E+01	.00471	1.681	1.000	2.9E-02	.236	6.5E-05
9	1.E+01	.00456	1.680	1.000	2.9E-02	.237	6.5E-05

Pct Std Deviations 7.7 14.1 130.7 22.6 19.7

Correlation Matrix

1.000					
.701	1.000				
-.191	-.827	1.000			
-.853	-.945	.625	1.000		
-.898	-.837	.461	.901	1.000	





CRL: Number of dispersions= 2
M2=1 C2=1 fixed



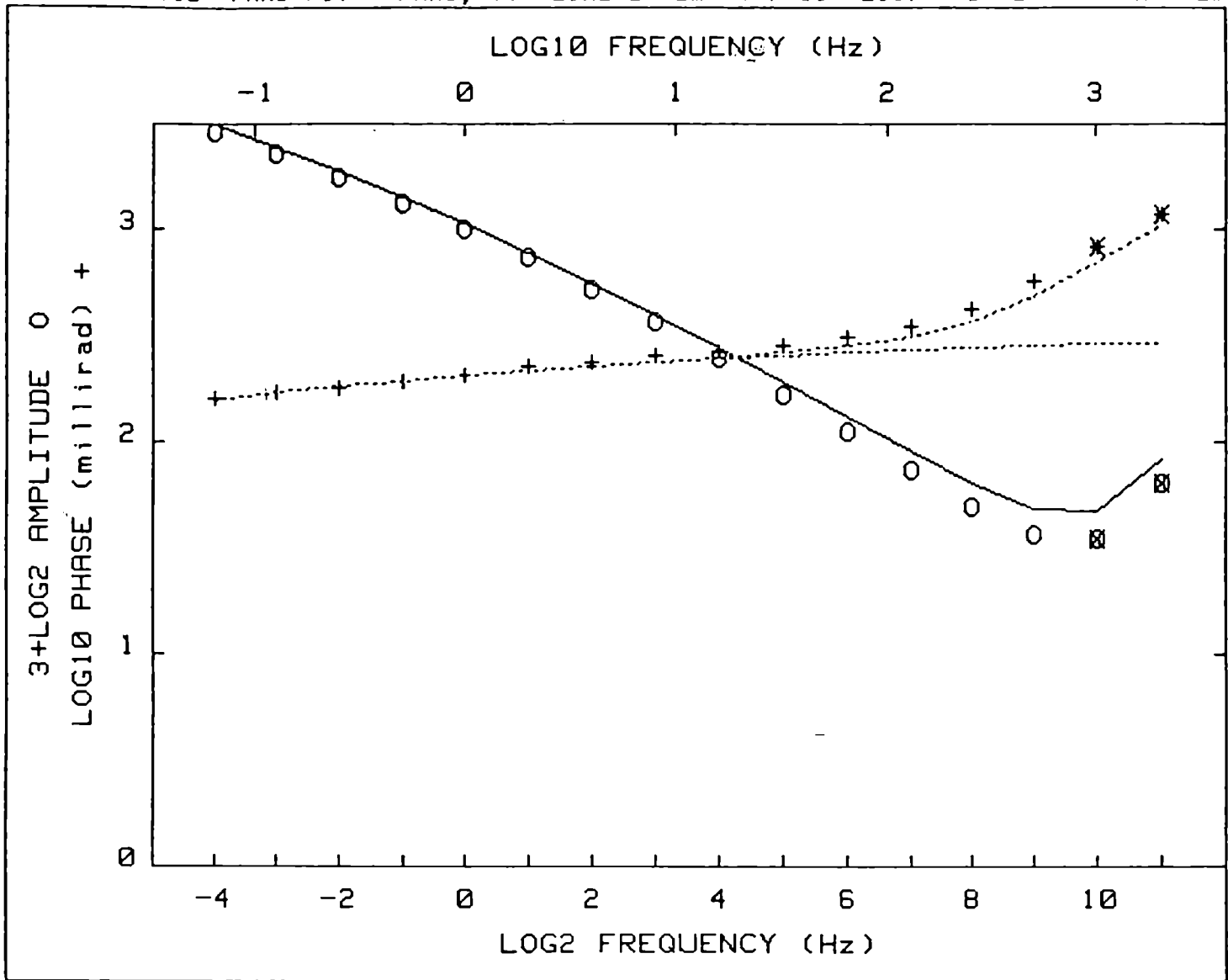
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.43389	1.050	.496	3.2E+00	.250	7.2E-06
1	1.E-02	.03035	2.116	1.000	2.4E+00	.121	3.5E-06
2	1.E-02	.00601	2.574	1.000	2.1E+00	.157	1.2E-06
3	1.E-03	.00004	2.415	.998	1.4E+00	.170	7.8E-07
4	1.E-04	.00002	2.226	.979	6.7E-01	.185	8.5E-07
5	1.E-05	.00002	2.218	.976	6.7E-01	.186	8.7E-07
6	1.E-06	.00002	2.218	.976	6.7E-01	.186	8.6E-07

Pct Std Deviations 1.6 .5 13.7 1.9 6.6

Correlation Matrix

1.000					
.913	1.000				
.986	.841	1.000			
-.963	-.983	-.918	1.000		
-.713	-.815	-.636	.779	1.000	

Apparent Resistivity Measured at 1 Hz is 38.57



CRL: Number of dispersions= 2
M2=1 C2=1 fixed

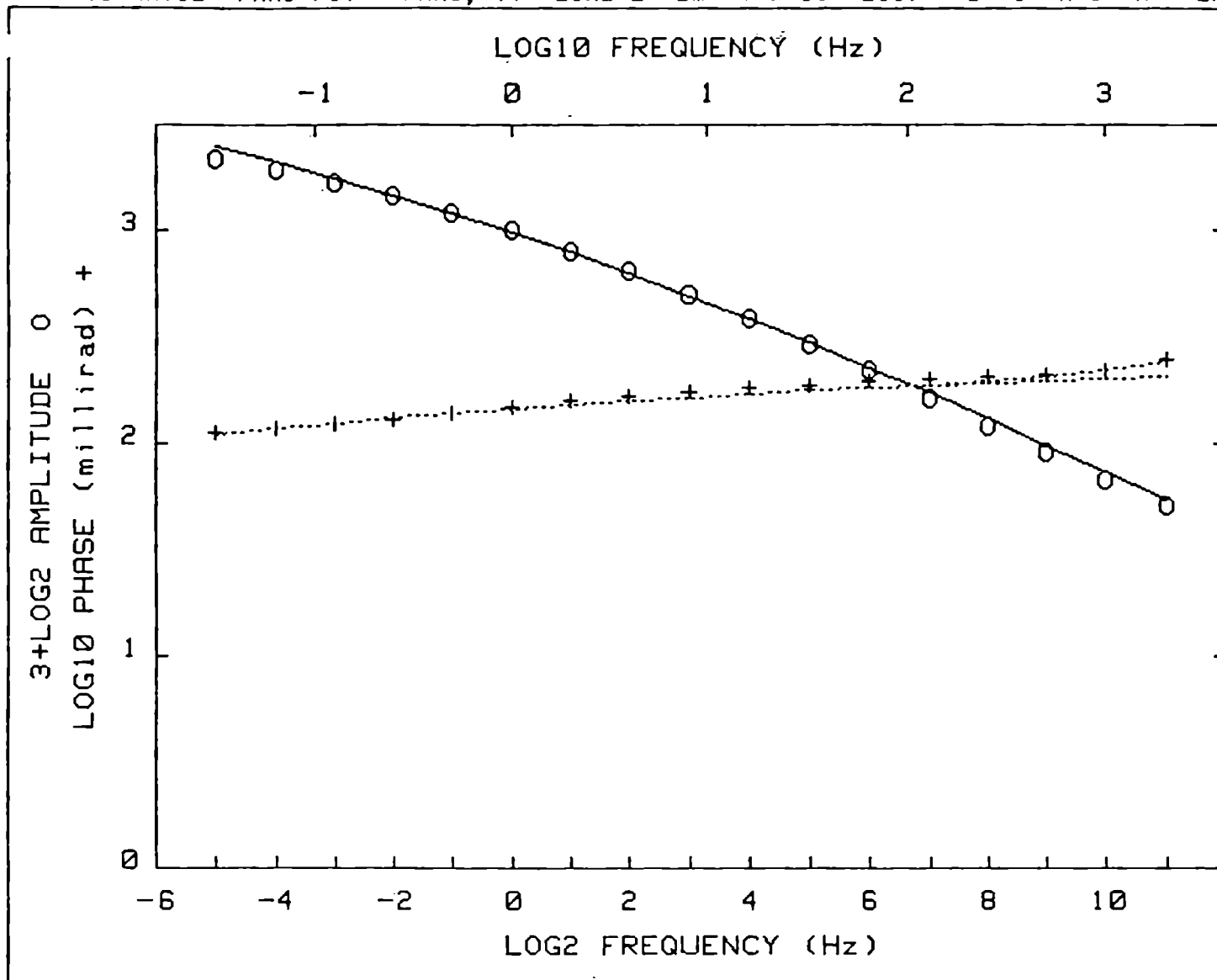
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00355	2.661	1.000	1.6E+00	.211	9.6E-06
1	1.E+01	.00345	2.659	1.000	1.6E+00	.212	9.6E-06
2	1.E+01	.00338	2.659	1.000	1.6E+00	.212	9.6E-06
3	1.E+01	.00333	2.658	1.000	1.6E+00	.212	9.7E-06
4	1.E+01	.00328	2.658	1.000	1.6E+00	.212	9.7E-06
5	1.E+01	.00324	2.657	1.000	1.6E+00	.212	9.7E-06
6	1.E+01	.00321	2.657	1.000	1.6E+00	.212	9.7E-06

Pct Std Deviations 31.4 6.5 650.8 31.4 63.7

Correlation Matrix

1.000					
.902	1.000				
.994	.859	1.000			
-.965	-.978	-.942	1.000		
-.851	-.860	-.823	.873	1.000	

Apparent Resistivity Measured at 1 Hz is 3.370
Apparent Resistivity Calculated from Inductive Coupling is 3.530



CRL: Number of dispersions= 2
M2=1 C2=1 fixed

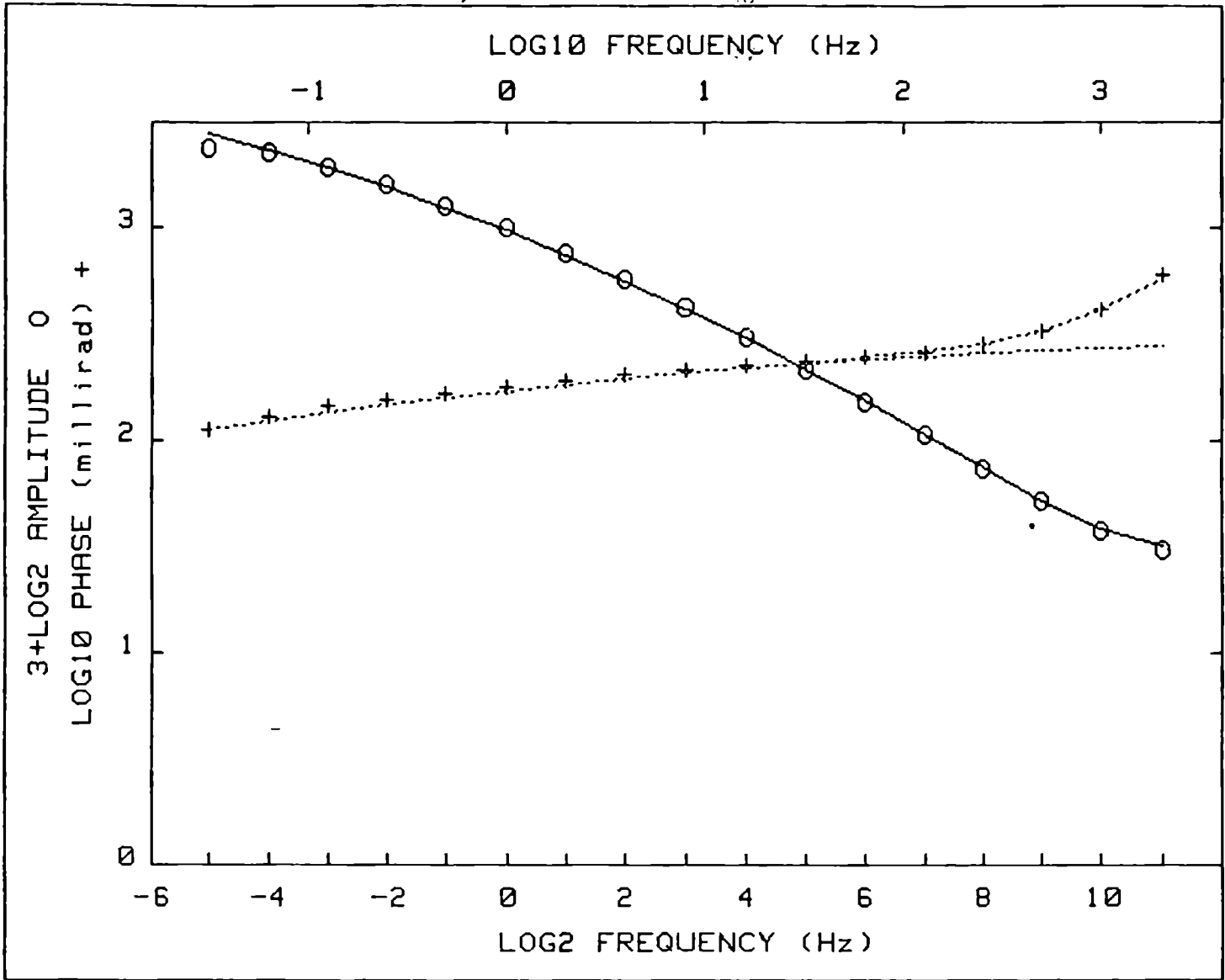
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00667	2.397	.998	1.2E+00	.179	5.7E-07
1	1.E-02	.00169	2.330	1.000	1.0E+00	.159	5.0E-07
2	1.E+01	.00151	2.330	1.000	1.0E+00	.159	5.0E-07
3	1.E+01	.00135	2.329	1.000	1.0E+00	.160	5.0E-07
4	1.E+01	.00122	2.328	1.000	1.0E+00	.160	5.0E-07
5	1.E+01	.00112	2.327	1.000	1.0E+00	.160	5.0E-07
6	1.E+01	.00103	2.326	1.000	1.0E+00	.161	5.0E-07
7	1.E+01	.00096	2.326	1.000	1.0E+00	.161	5.0E-07
8	1.E+01	.00090	2.325	1.000	1.0E+00	.161	5.0E-07
9	1.E+01	.00086	2.324	1.000	1.0E+00	.161	5.0E-07

Pct Std Deviations 13.2 4.4 195.1 16.7 103.1

Correlation Matrix

	1.000				
	.914	1.000			
	.982	.827	1.000		
	-.969	-.981	-.915	1.000	
	-.688	-.803	-.592	.757	1.000





CRL: Number of dispersions= 2
M2=1 C2=1 fixed

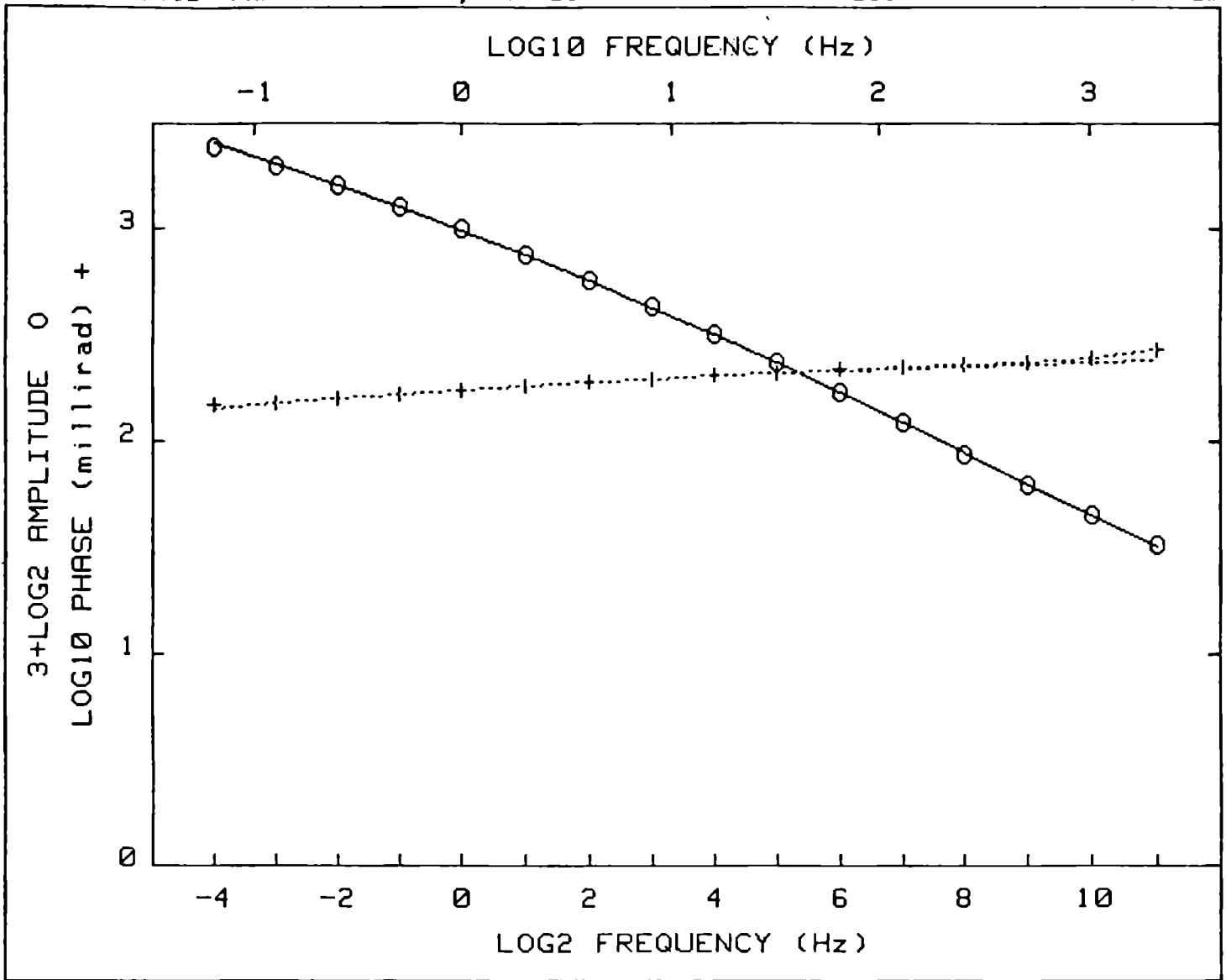
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.10939	2.360	.900	1.0E+00	.200	4.9E-06
1	1.E-02	.06565	2.446	1.000	7.3E-01	.164	3.1E-06
2	1.E-03	.01315	2.152	1.000	2.5E-01	.198	3.5E-06
3	1.E-04	.00043	2.042	1.000	2.3E-01	.213	4.1E-06
4	1.E+00	.00043	2.041	1.000	2.3E-01	.213	4.1E-06

Pct Std Deviations 4.2 1.8 30.9 6.2 10.0

Correlation Matrix

1.000					
.847	1.000				
.939	.629	1.000			
-.936	-.967	-.790	1.000		
-.716	-.718	-.596	.742	1.000	

Apparent Resistivity Measured at 1 Hz is 4.040
Apparent Resistivity Calculated from Inductive Coupling is 8.422



CRL: Number of dispersions= 2
M2=1 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00323	1.917	1.000	1.1E-01	.202	4.0E-07
1	1.E-02	.00066	1.979	.943	2.8E-01	.229	4.4E-07
2	1.E-03	.00018	2.367	.991	9.9E-01	.193	4.3E-07
3	1.E-04	.00013	2.675	1.000	3.1E+00	.177	3.4E-07
4	1.E-03	.00003	2.698	.999	3.6E+00	.178	3.4E-07
5	1.E-03	.00003	2.724	1.000	3.9E+00	.177	3.3E-07
6	1.E-02	.00003	2.726	1.000	3.9E+00	.176	3.3E-07

Pct Std Deviations 3.2 .5 34.3 2.8 17.9

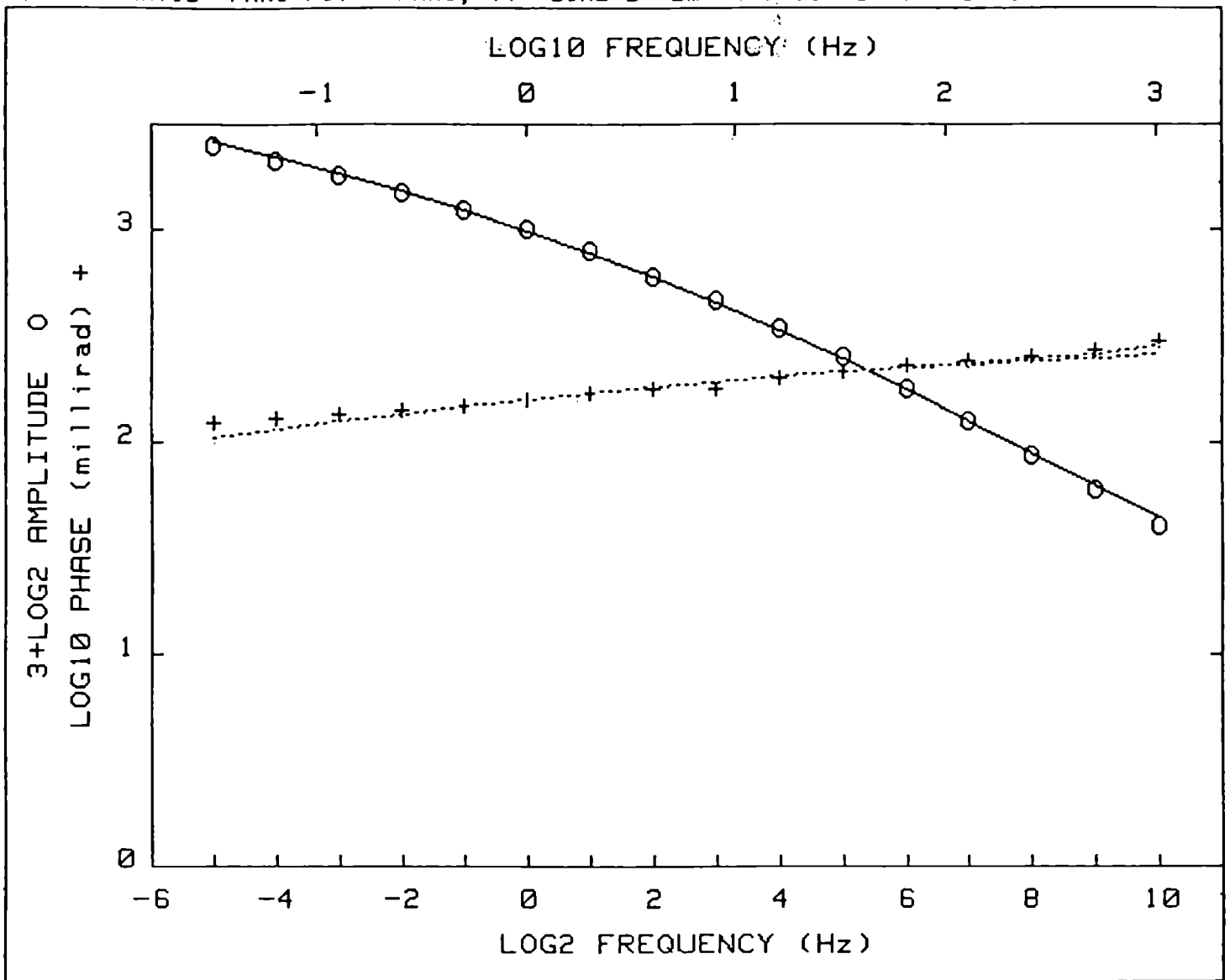
Correlation Matrix

	1.000				
	.911	1.000			
	.998	.890	1.000		
	-.969	-.980	-.959	1.000	
	-.692	-.800	-.666	.760	1.000

Apparent Resistivity Measured at 1 Hz is 28.46

Apparent Resistivity Calculated from Inductance Coefficient

D



CRL: Number of dispersions= 2
M2=1 C2=1 fixed

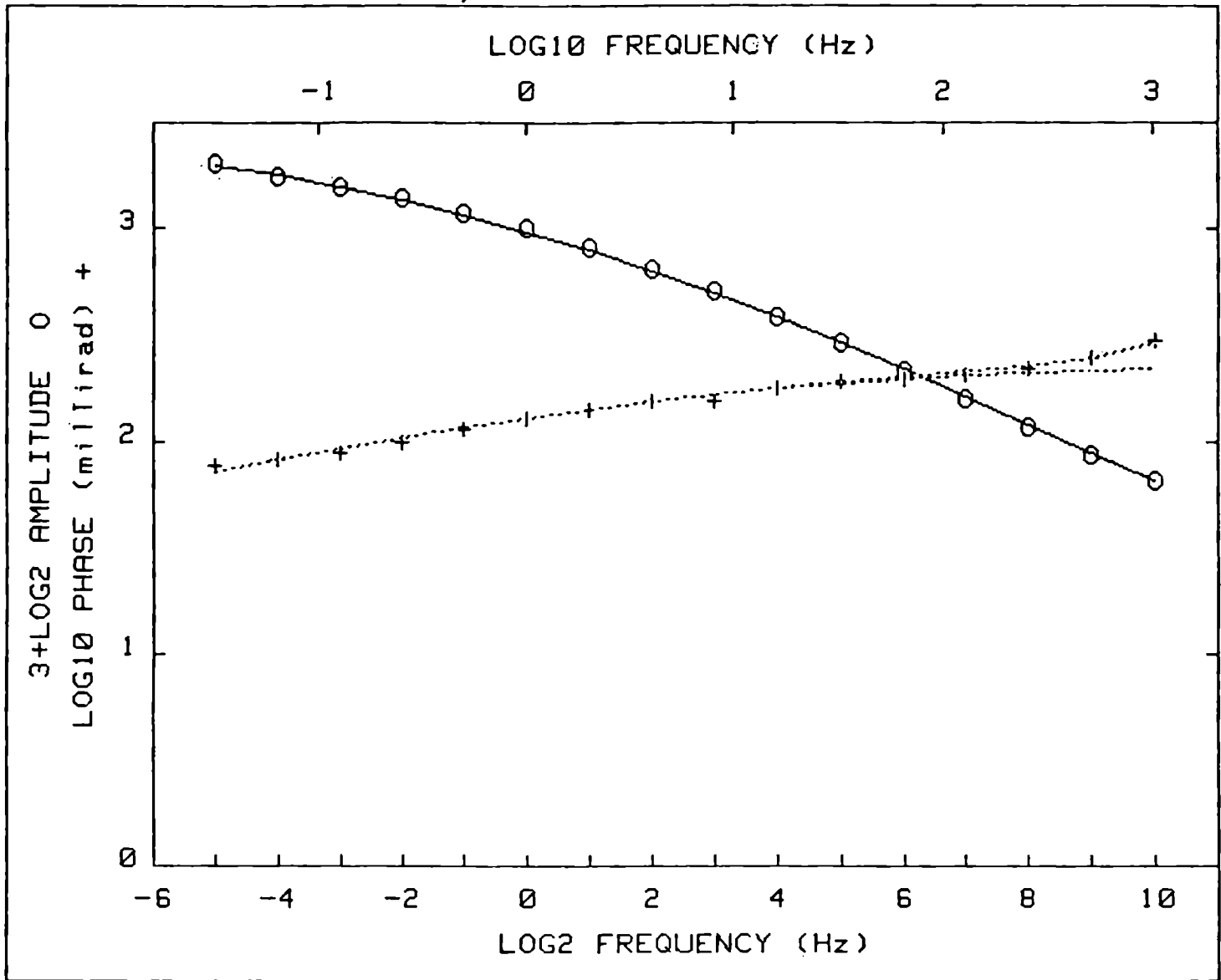
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00068	1.980	1.000	1.6E-01	.203	8.0E-07
1	1.E+02	.00065	1.978	1.000	1.6E-01	.203	8.0E-07
2	1.E+02	.00062	1.977	1.000	1.6E-01	.203	8.0E-07
3	1.E+02	.00060	1.976	1.000	1.6E-01	.204	8.0E-07
4	1.E+02	.00058	1.975	1.000	1.6E-01	.204	8.0E-07
5	1.E+02	.00057	1.975	1.000	1.6E-01	.204	8.0E-07
6	1.E+02	.00056	1.974	1.000	1.6E-01	.204	8.0E-07
7	1.E+02	.00055	1.974	1.000	1.6E-01	.204	8.0E-07
8	1.E+02	.00054	1.973	1.000	1.6E-01	.204	8.0E-07
9	1.E+02	.00053	1.973	1.000	1.6E-01	.204	8.0E-07

Pct Std Deviations 5.2 3.1 33.4 8.8 123.0

Correlation Matrix

	1.000					
	.869	1.000				
	.851	.491	1.000			
	-.946	-.973	-.665	1.000		
	-.580	-.743	-.231	.681	1.000	





CRL: Number of dispersions= 2
M2=1 C2=1 fixed

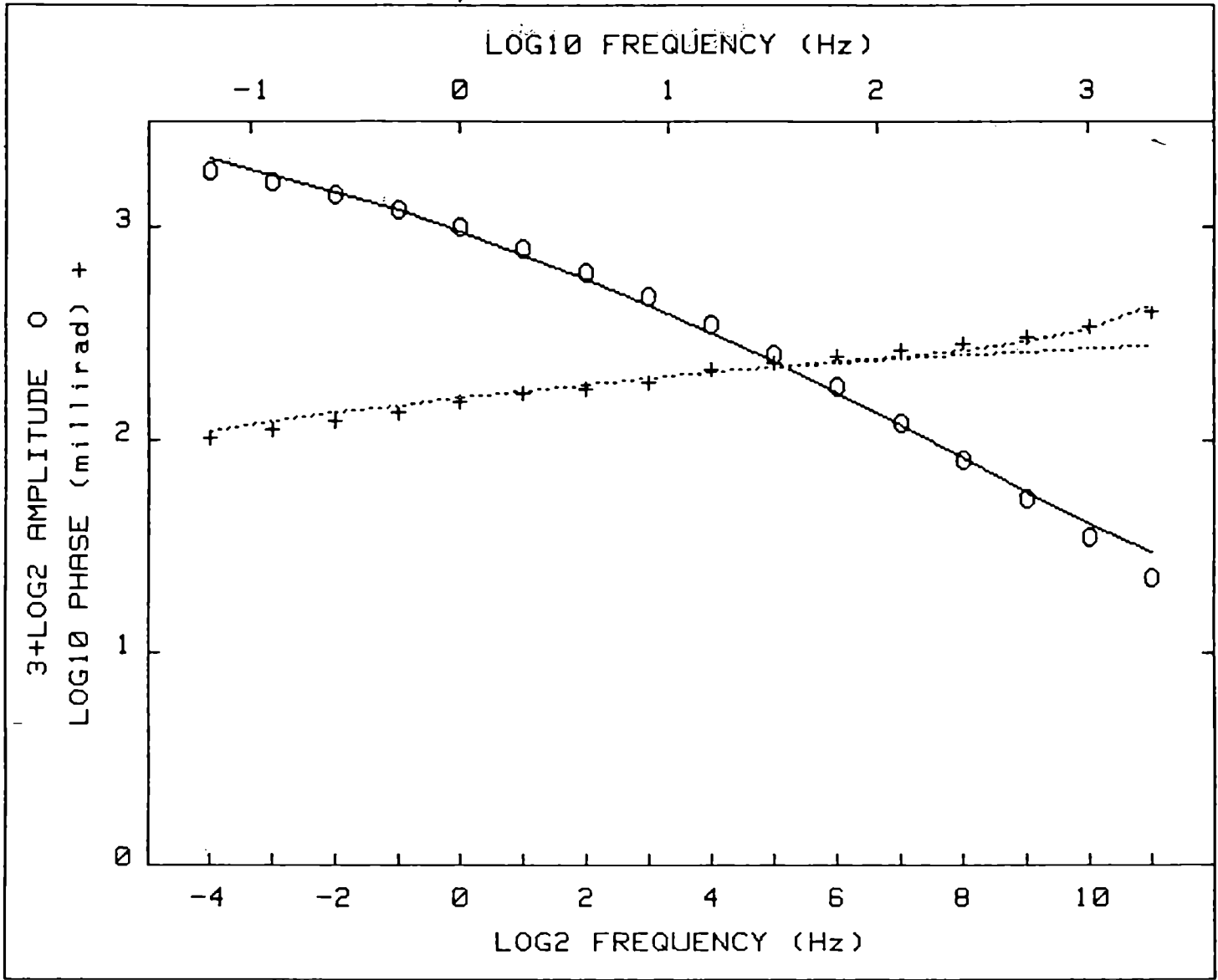
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00182	1.730	.950	5.8E-02	.208	3.8E-06
1	1.E-02	.00023	1.552	.922	3.0E-02	.238	3.8E-06
2	1.E-03	.00015	1.518	.926	2.3E-02	.243	3.5E-06
3	1.E-04	.00015	1.520	.928	2.3E-02	.242	3.4E-06

Pct Std Deviations 1.2 2.0 10.6 3.5 15.8

Correlation Matrix

	1.000				
	.812	1.000			
	-.162	-.693	1.000		
	-.893	-.967	.524	1.000	
	-.549	-.745	.606	.675	1.000

Apparent Resistivity Measured at 1 Hz is 13.08
Apparent Resistivity Calculated from Inductive Coupling is 10.10



CRL: Number of dispersions= 2
M2=1 C2=1 fixed

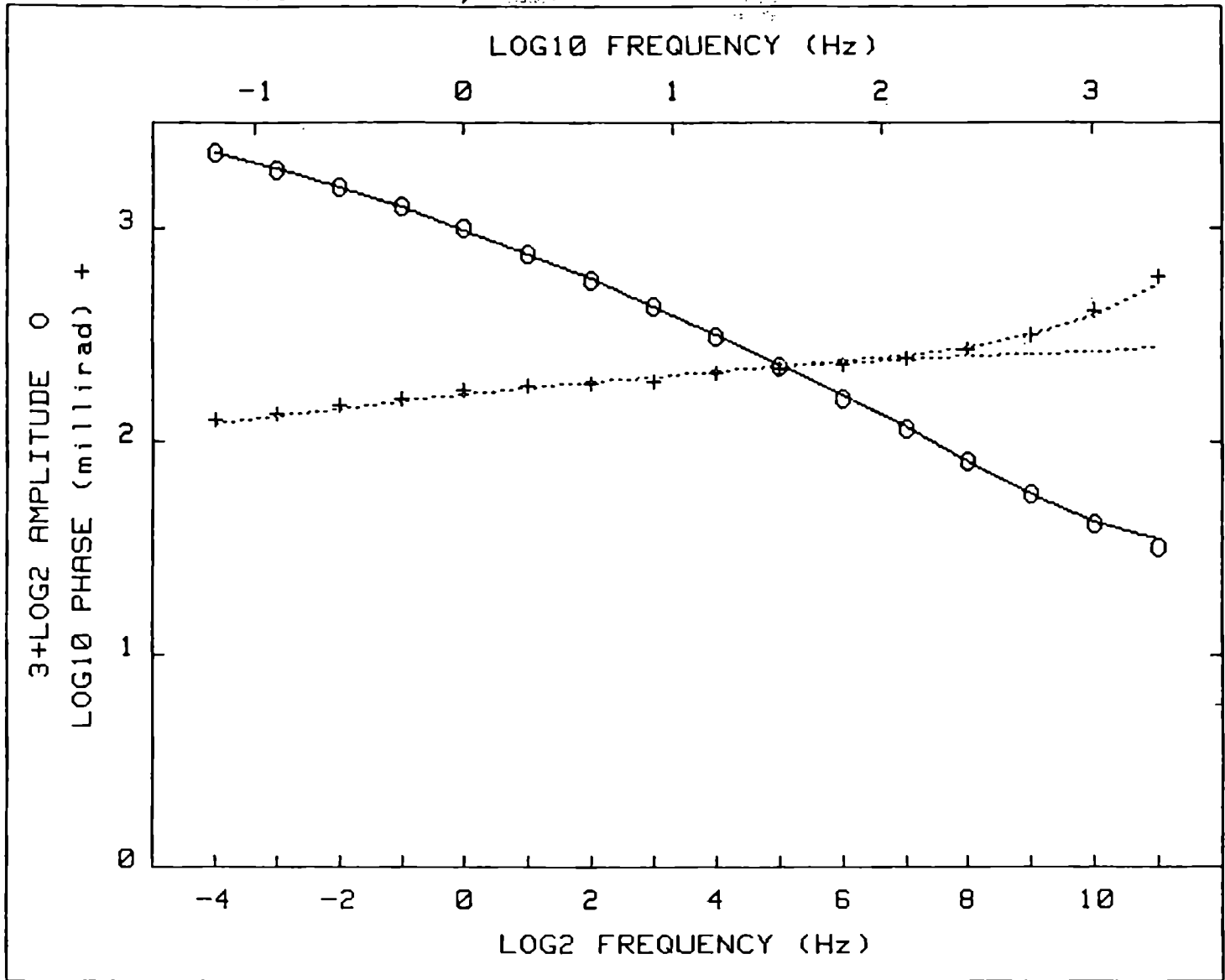
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00170	1.850	1.000	9.8E-02	.214	2.3E-06
1	1.E+02	.00168	1.850	1.000	9.8E-02	.214	2.3E-06
2	1.E+02	.00166	1.851	1.000	9.8E-02	.215	2.3E-06
3	1.E+02	.00164	1.851	1.000	9.8E-02	.215	2.3E-06
4	1.E+02	.00162	1.852	1.000	9.8E-02	.215	2.3E-06
5	1.E+02	.00161	1.852	1.000	9.8E-02	.215	2.3E-06

Pct Std Deviations 8.7 4.6 62.8 14.0 35.4

Correlation Matrix

	1.000				
	.857	1.000			
	.893	.547	1.000		
	-.940	-.970	-.718	1.000	
	-.657	-.739	-.425	.720	1.000

Apparent Resistivity Measured at 1 Hz is 7.820
Apparent Resistivity Calculated from Inductive Coupling is 6.421



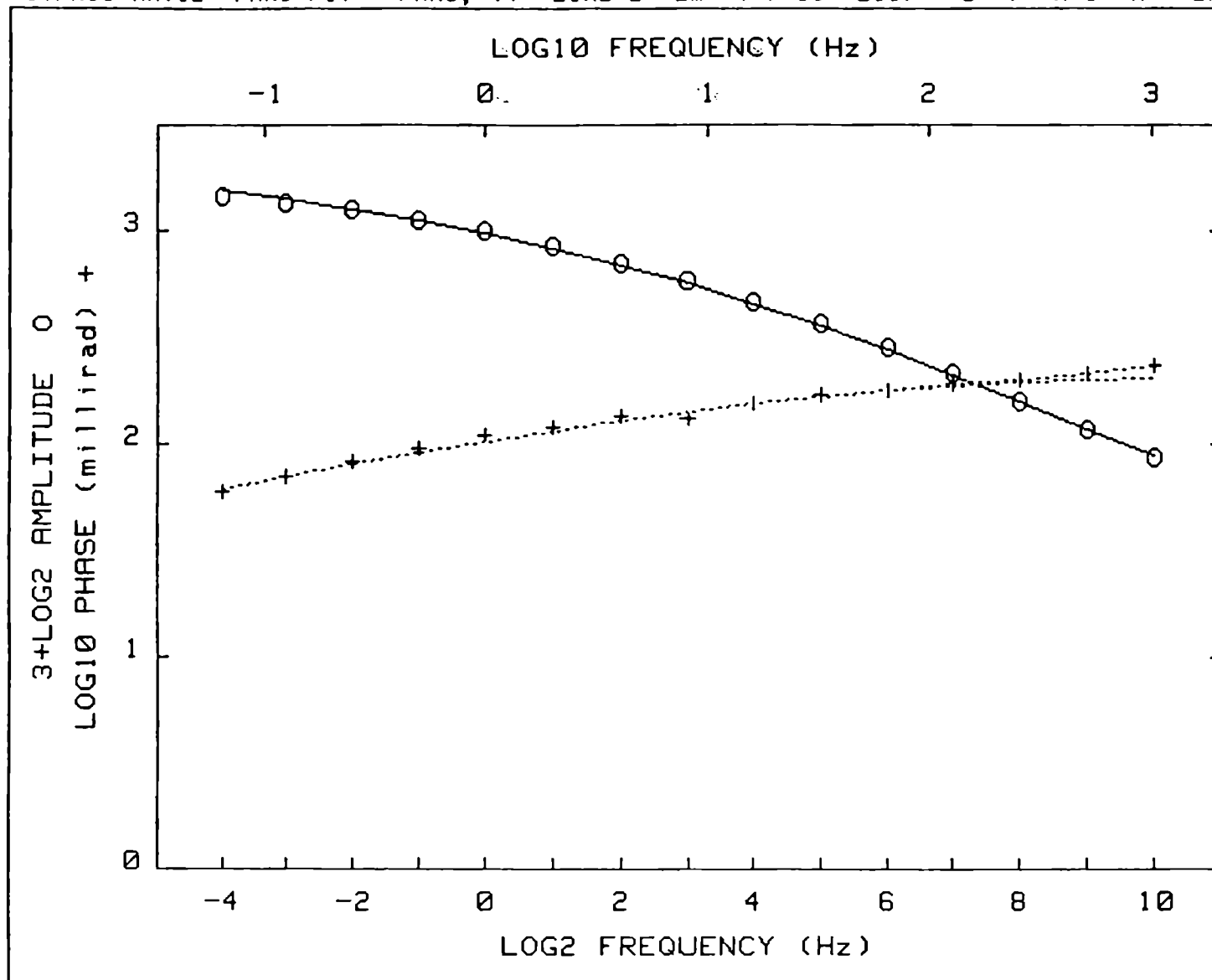
CRL: Number of dispersions= 2
M2=1 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.11735	1.550	1.000	1.6E-01	.248	4.0E-06
1	1.E-02	.00033	2.009	1.000	1.9E-01	.210	3.9E-06
2	1.E+01	.00029	2.005	1.000	1.9E-01	.210	3.9E-06
3	1.E+01	.00027	2.003	1.000	1.9E-01	.210	4.0E-06
4	1.E+01	.00026	2.003	1.000	1.9E-01	.210	4.0E-06
5	1.E+01	.00025	2.002	1.000	1.9E-01	.210	4.0E-06
6	1.E+01	.00025	2.002	1.000	1.9E-01	.210	4.0E-06
7	1.E+01	.00024	2.002	1.000	1.9E-01	.210	4.0E-06
8	1.E+01	.00024	2.002	1.000	1.9E-01	.210	4.0E-06
9	1.E+01	.00024	2.002	1.000	1.9E-01	.210	4.0E-06

Pct Std Deviations 3.9 1.7 28.2 5.6 8.6

Correlation Matrix 1.000
 .870 1.000
 .950 .685 1.000
 - .948 - .972 - .825 1.000
 - .767 .776 .656 .700 1.000





CRL: Number of dispersions= 2
M2=1 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00315	1.427	1.000	2.8E-03	.199	7.1E-07
1	1.E-02	.00026	1.373	.985	3.3E-03	.230	6.9E-07
2	1.E-03	.00022	1.365	.938	4.8E-03	.242	8.6E-07
3	1.E-04	.00020	1.352	.904	6.0E-03	.253	2.1E-06
4	1.E-05	.00020	1.349	.897	6.2E-03	.256	1.9E-06
5	1.E-04	.00020	1.349	.897	6.2E-03	.256	1.9E-06

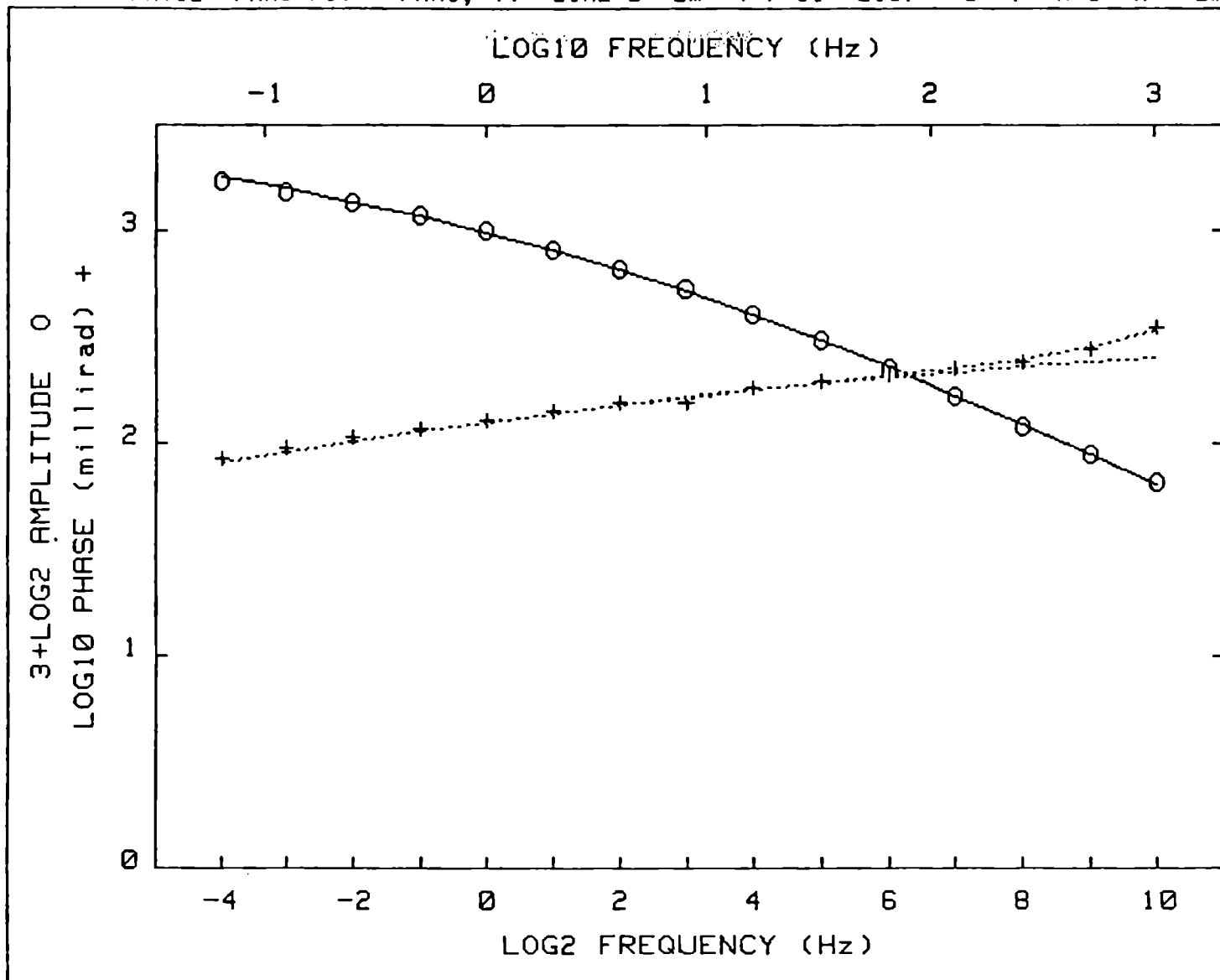


Pct Std Deviations 1.2 3.2 20.1 4.4 43.4

Correlation Matrix

	1.000				
	.802	1.000			
	-.533	-.926	1.000		
	-.881	-.966	.825	1.000	
	-.558	-.790	.786	.703	1.000

Apparent Resistivity Measured at 1 Hz is 6.010
Apparent Resistivity Calculated from Inductive Coupling is 7.934



CRL: Number of dispersions= 2
M2=1 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00786	1.472	.999	1.2E-02	.261	4.5E-06
1	1.E-02	.00014	1.555	1.000	1.4E-02	.221	4.3E-06
2	1.E+01	.00014	1.554	1.000	1.4E-02	.221	4.3E-06
3	1.E+01	.00014	1.554	1.000	1.4E-02	.221	4.3E-06

Pct Std Deviations 1.8 2.7 15.1 4.7 13.8

Correlation Matrix		1.000				
		.856	1.000			
		-.366	-.789	1.000		
		-.934	-.972	.640	1.000	
		-.624	-.770	.664	.715	1.000

Apparent Resistivity Measured at 1 Hz is 5.950
Apparent Resistivity Calculated from Inductive Coupling is 7.860

source is massive sulphide. The values of (c_1) are 0.225 - 0.25 and the values for (τ_1) are 1.0×10^{-3} to 1.0×10^{-1} seconds.

For the shallow measurements at the south end of the line (D7;N3) the parameters still suggest massive sulphides. More to the north (D3;N3 and D4;N3) the values of (c_1) are smaller in magnitude, indicating the presence of a second population of grain-size. If the spectra for D1;N2 is inverted using two Cole-Cole dispersions, one is sulphide and one is graphite.

ic) Line 3 - Faro Pit X = Ten Meters

This line was surveyed on a bench in the Faro Mine Pit in which massive sulphide mineralization was exposed. The IP and resistivity pseudo-sections show an extremely strong anomaly that extends from 60N to about 90N. To the north of that point the apparent resistivities are higher and the IP effects are lower.

The spectral curves for the southern end of the anomaly (D1, D2, D3) show typical values for Anvil Area massive sulphide mineralization. The (c_1) values are in the range 0.25 to 0.35, the chargeabilities are very high (0.75 to 0.95) and the (τ_1) values are small (i.e. less than 2×10^{-2} seconds).

However, an examination of the pseudosection for the (c_1) values shows that north of about 90N the spectral character changes sharply. For D4,N1; D5,N1; D5,N2; D6,N1; D6,N2, the value for (c_1) is less than 2.0. This change occurs at the same position that the IP effects drop in magnitude.

As expected, the small (c_1) values have been inverted from very "flat" spectral curves. The D5;N1 and the D6;N1 spectral curves have been re-inverted using two Cole-Cole dispersions to determine the parameters of the two grain-size populations that are expected to be present.

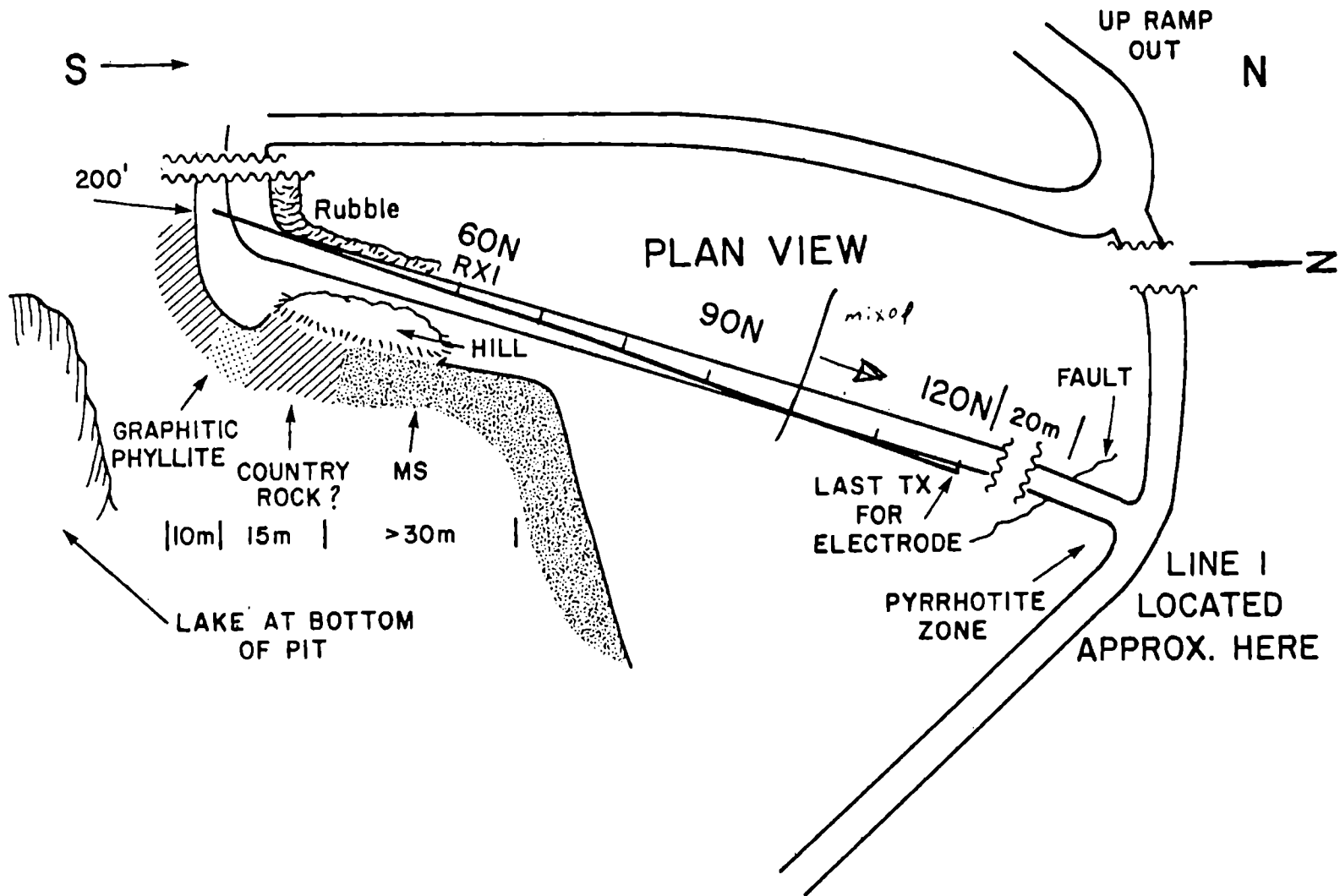
These results show that in addition to the parameters of the sulphide mineralization, we have the second dispersion with the time-constant that we expect from a graphite source. Therefore, the lower magnitude IP effects and higher resistivities north of about 90N on Line 3 are probably due to weaker metallic mineralization that contains both sulphide and graphite.

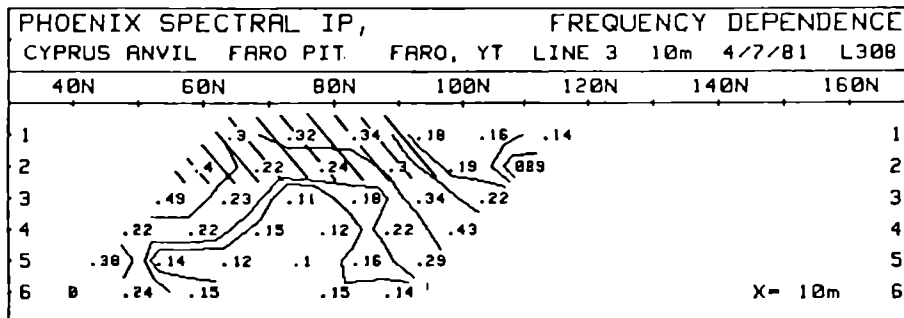
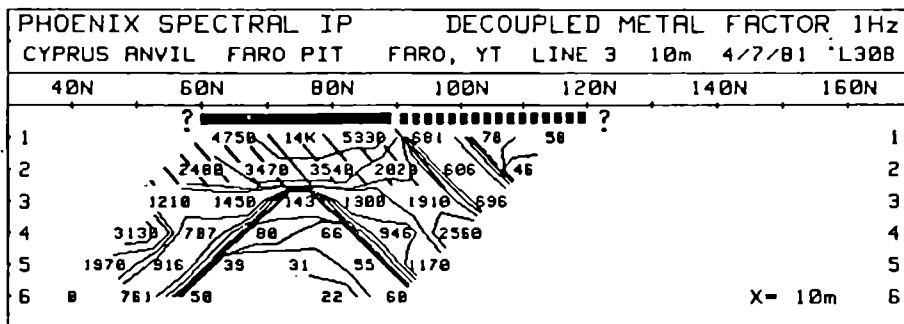
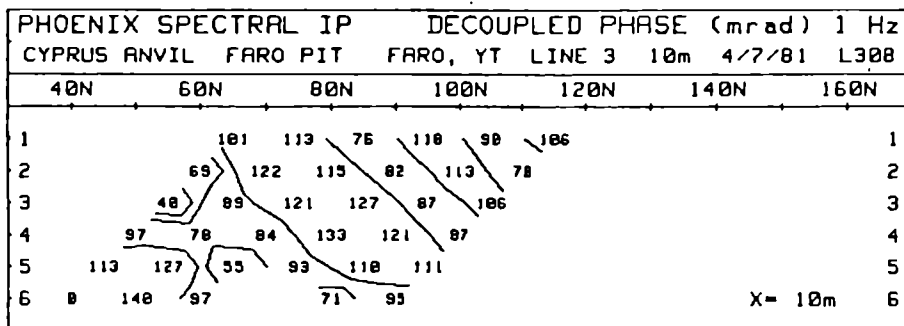
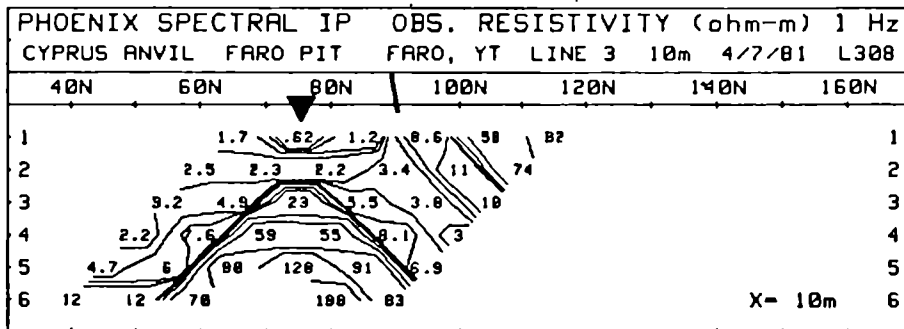
The results measured at the north end of Line 3 (D6;N2) are not unlike those measured on Line 1 (D6;N3). They both exhibit the spectral pattern

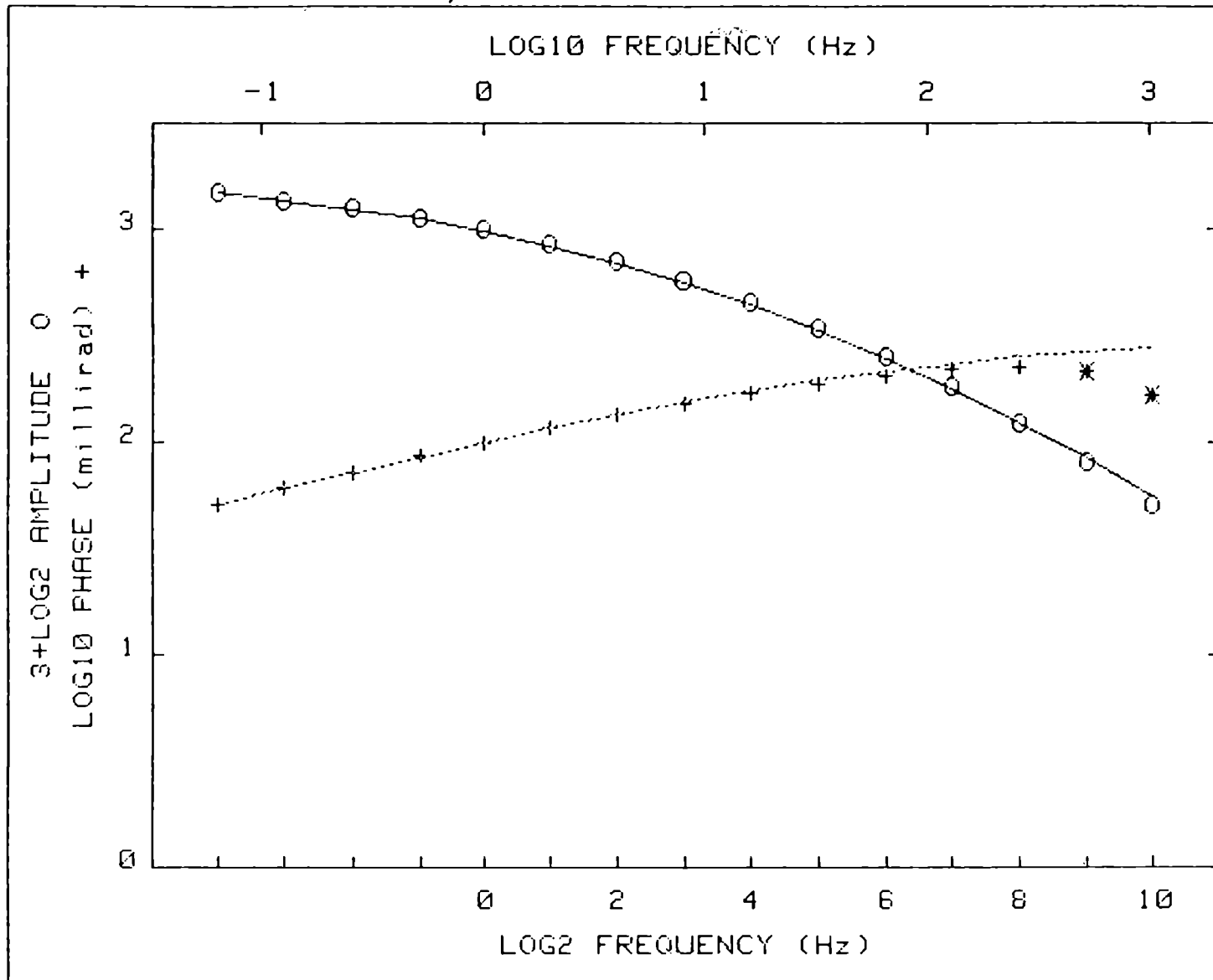
FARO PIT ZONE 1

LINE 3

X = 10m.







CRL: Number of dispersions= 2
M2=0 T2=0 C2=0 fixed

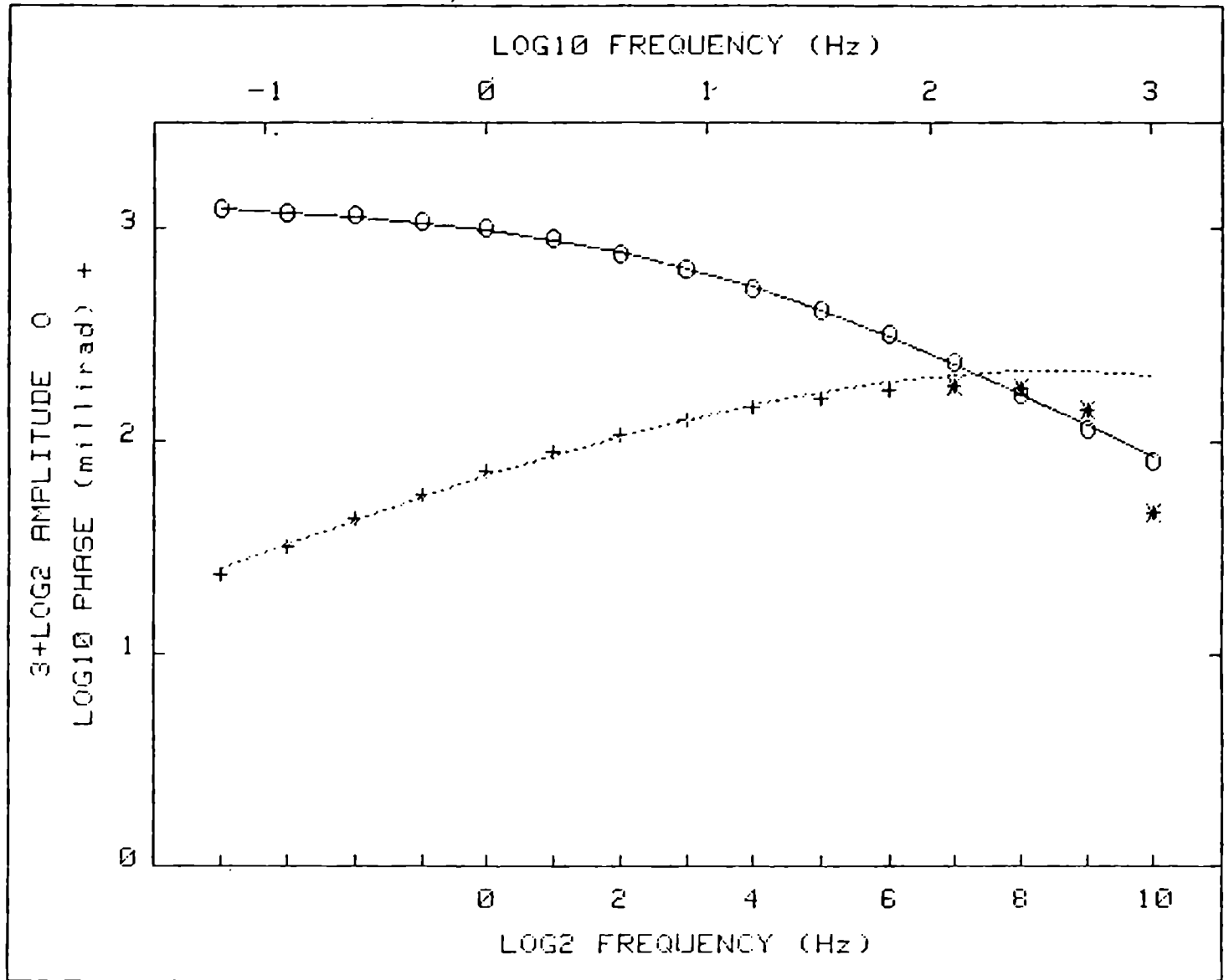
Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00025	1.260	.948	3.0E-03	.297
1	1.E-02	.00025	1.259	.948	3.0E-03	.297

Pct Std Deviations .8 3.1 19.9 3.5

Correlation Matrix:

	1.000			
	.647	1.000		
	-.457	-.967	1.000	
	-.756	-.950	.874	1.000

Apparent Resistivity Measured at 1 Hz is 1.690
Apparent Resistivity Calculated from Inductive Coupling is 0.000



CRL: Number of dispersions= 2
M2=0 T2=0 C2=0 fixed

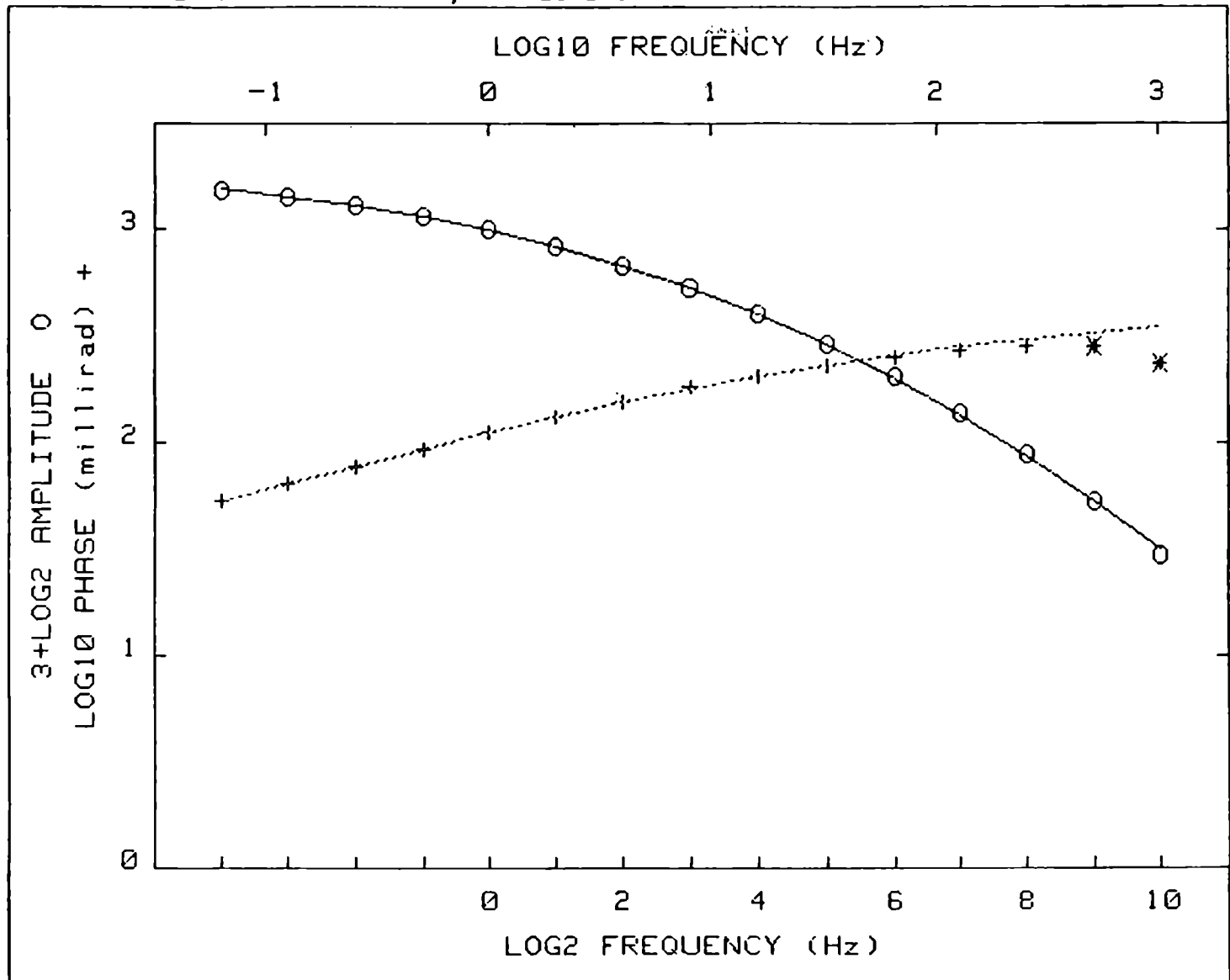
Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00263	1.170	.748	3.0E-03	.397
1	1.E-02	.00025	1.107	.737	2.7E-03	.406
2	1.E-03	.00025	1.109	.749	2.5E-03	.401
3	1.E-04	.00025	1.109	.750	2.4E-03	.401

Pct Std Deviations .4 2.8 14.5 2.2

Correlation Matrix	1.000			
	.338	1.000		
	-.186	-.973	1.000	
	-.349	-.910	.890	1.000

Apparent Resistivity Measured at 1 Hz is 2.510

Apparent Resistivity Calculated from Inductive Coupling is 0.000



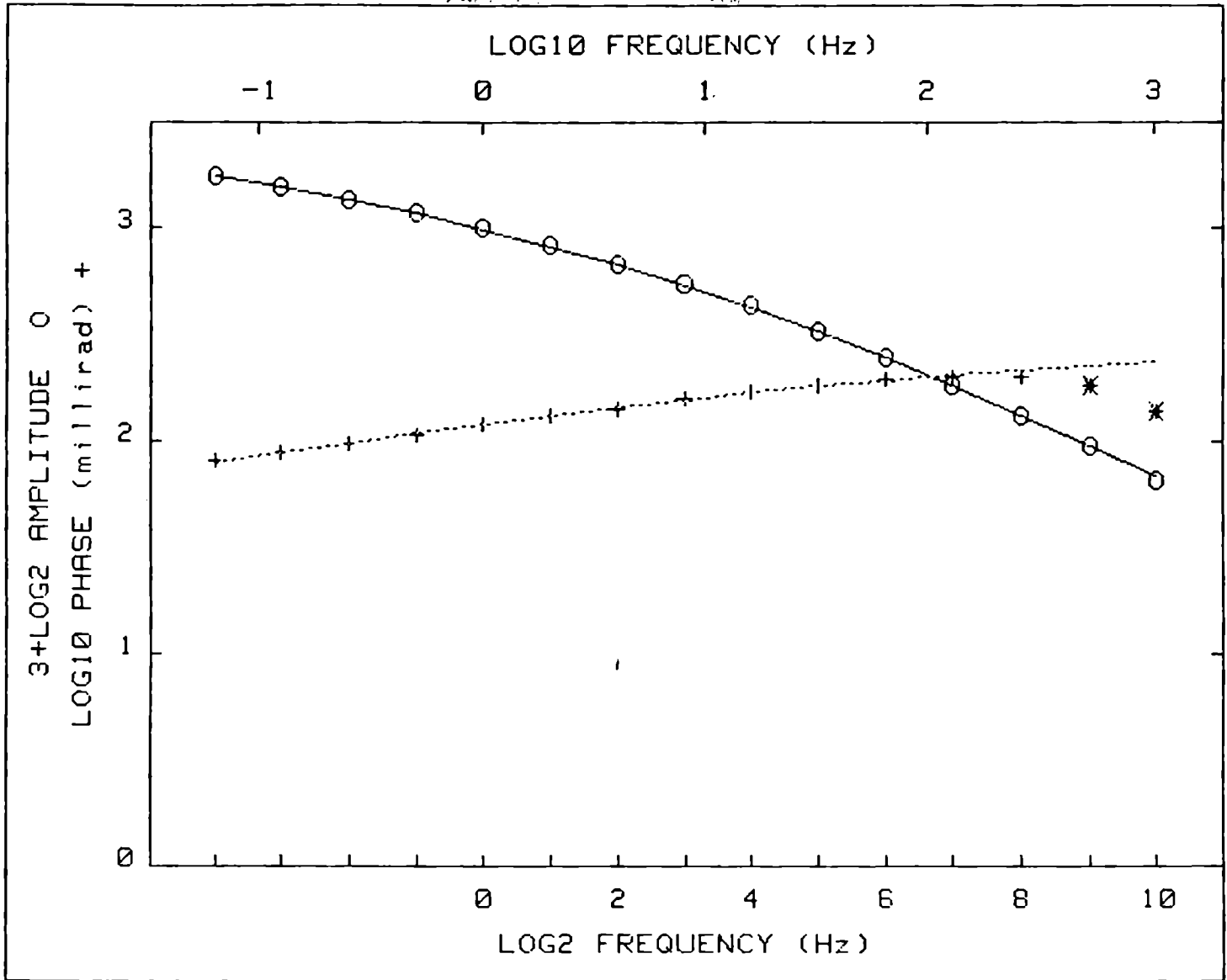
CRL: Number of dispersions= 2
M2=0 T2=0 C2=0 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00020	1.260	.981	4.0E-03	.321
1	1.E-02	.00012	1.268	.980	3.9E-03	.321
2	1.E-03	.00012	1.268	.982	3.9E-03	.321

Pct Std Deviations .5 1.6 9.5 1.9

Correlation Matrix		1.000			
		.579	1.000		
		-.340	-.954	1.000	
		-.704	-.942	.839	1.000

Apparent Resistivity Measured at 1 Hz is .620
Apparent Resistivity Calculated from Inductive Coupling is 0.000



CRL: Number of dispersions= 2
M2=0 T2=0 C2=0 fixed

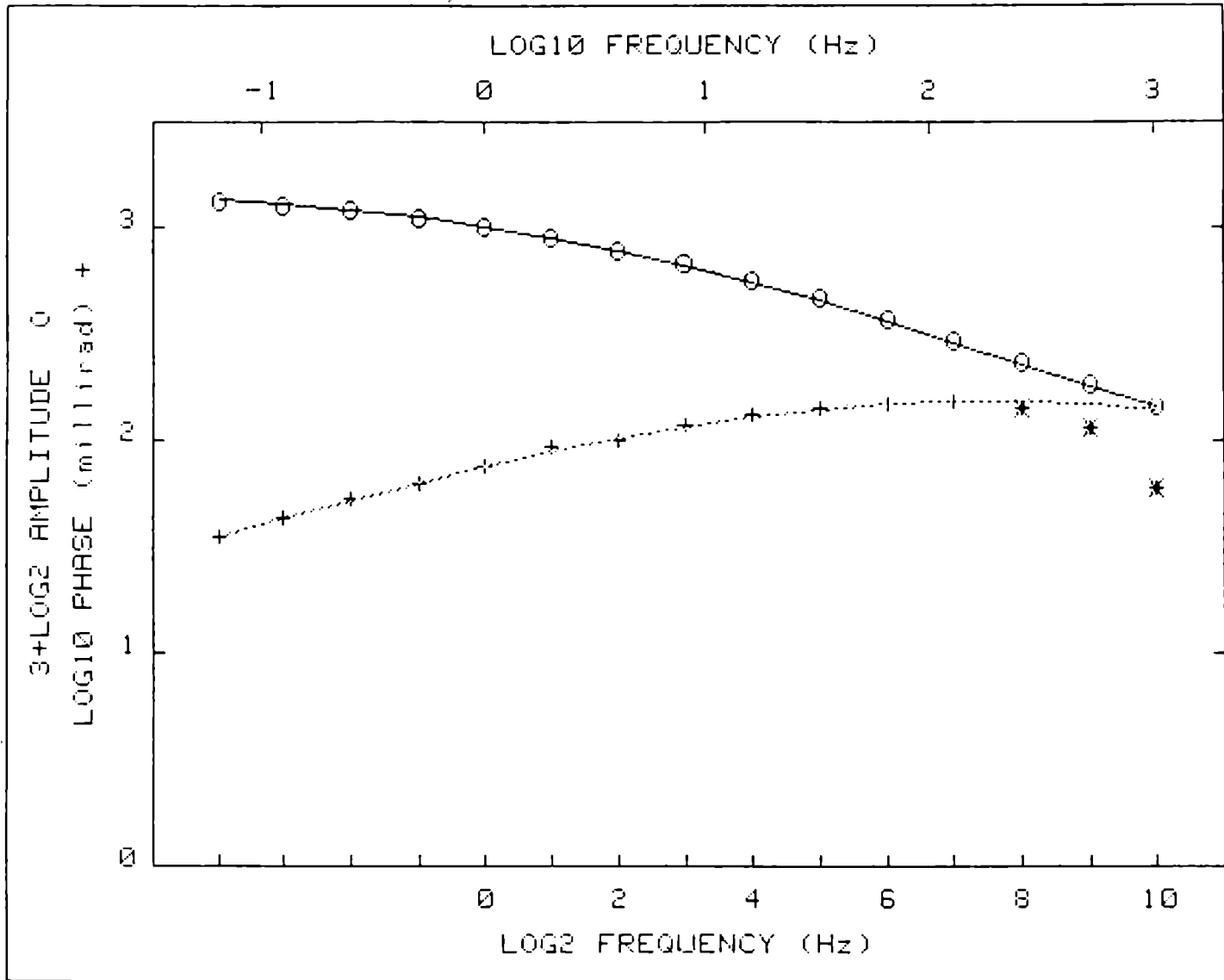
Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00157	1.570	.982	1.2E-02	.211
1	1.E-02	.00010	1.541	.991	1.2E-02	.217
2	1.E-03	.00010	1.539	.988	1.2E-02	.218

Pct Std Deviations 1.5 2.4 13.4 4.0

Correlation Matrix

	1.000			
	.855	1.000		
	-.394	-.808	1.000	
	-.933	-.972	.665	1.000

Apparent Resistivity Measured at 1 Hz is 2.280
Apparent Resistivity Calculated from Inductive Coupling is 0.000



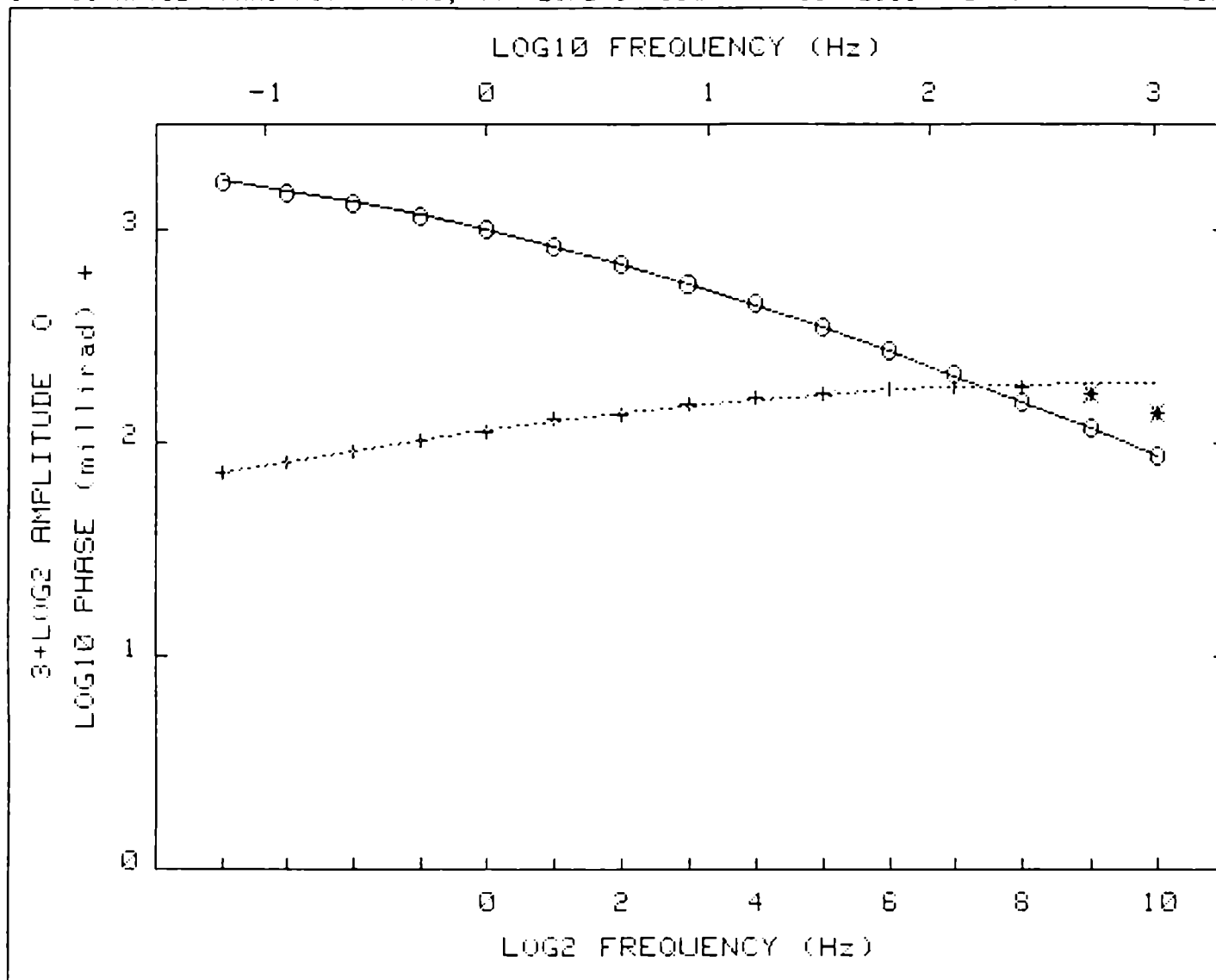
CRL: Number of dispersions= 2
M2=0 T2=0 C2=0 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00009	1.170	.676	4.8E-03	.344
1	1.E-02	.00007	1.174	.678	4.7E-03	.344
2	1.E-03	.00007	1.174	.680	4.6E-03	.343

Pct Std Deviations .3 1.6 8.5 1.7

Correlation Matrix		1.000			
		.578	1.000		
		-.366	-.953	1.000	
		-.615	-.938	.869	1.000

Apparent Resistivity Measured at 1 Hz is 1.210
Apparent Resistivity Calculated from Inductive Coupling is 0.000



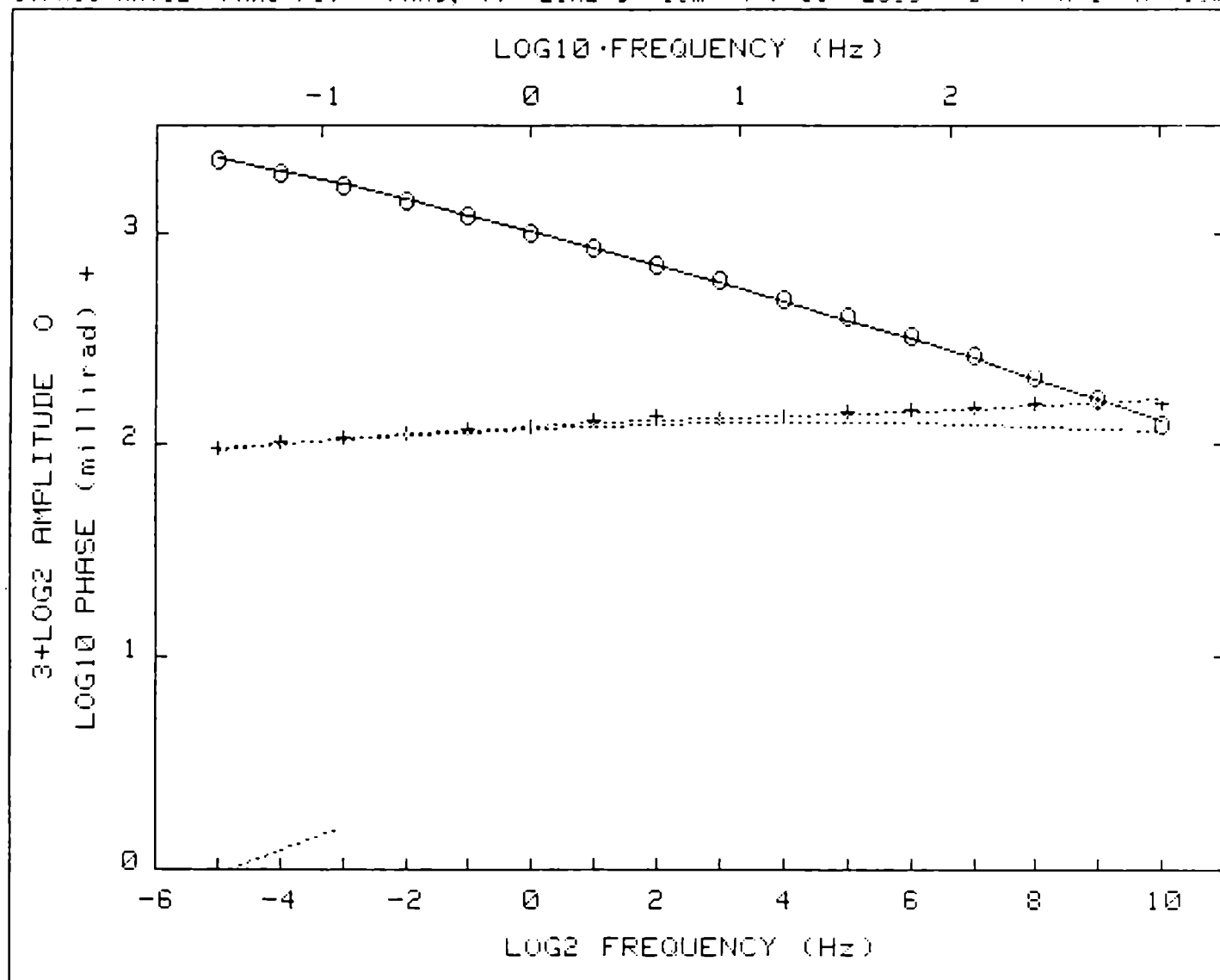
CRL: Number of dispersions= 2
M2=0 T2=0 C2=0 fixed

Iter	Lambda	Rchaq	R0	M1	T1	C1
0	1.E-02	.00017	1.450	.898	1.4E-02	.244
1	1.E-02	.00006	1.450	.891	1.4E-02	.244
2	1.E-03	.00006	1.450	.891	1.4E-02	.244

Pct Std Deviations .8 1.5 7.5 2.5

Correlation Matrix		1.000			
		.832	1.000		
		-.276	-.752	1.000	
		-.905	-.976	.604	1.000

Apparent Resistivity Measured at 1 Hz is 2.230
Apparent Resistivity Calculated from Inductive Coupling is 0.000



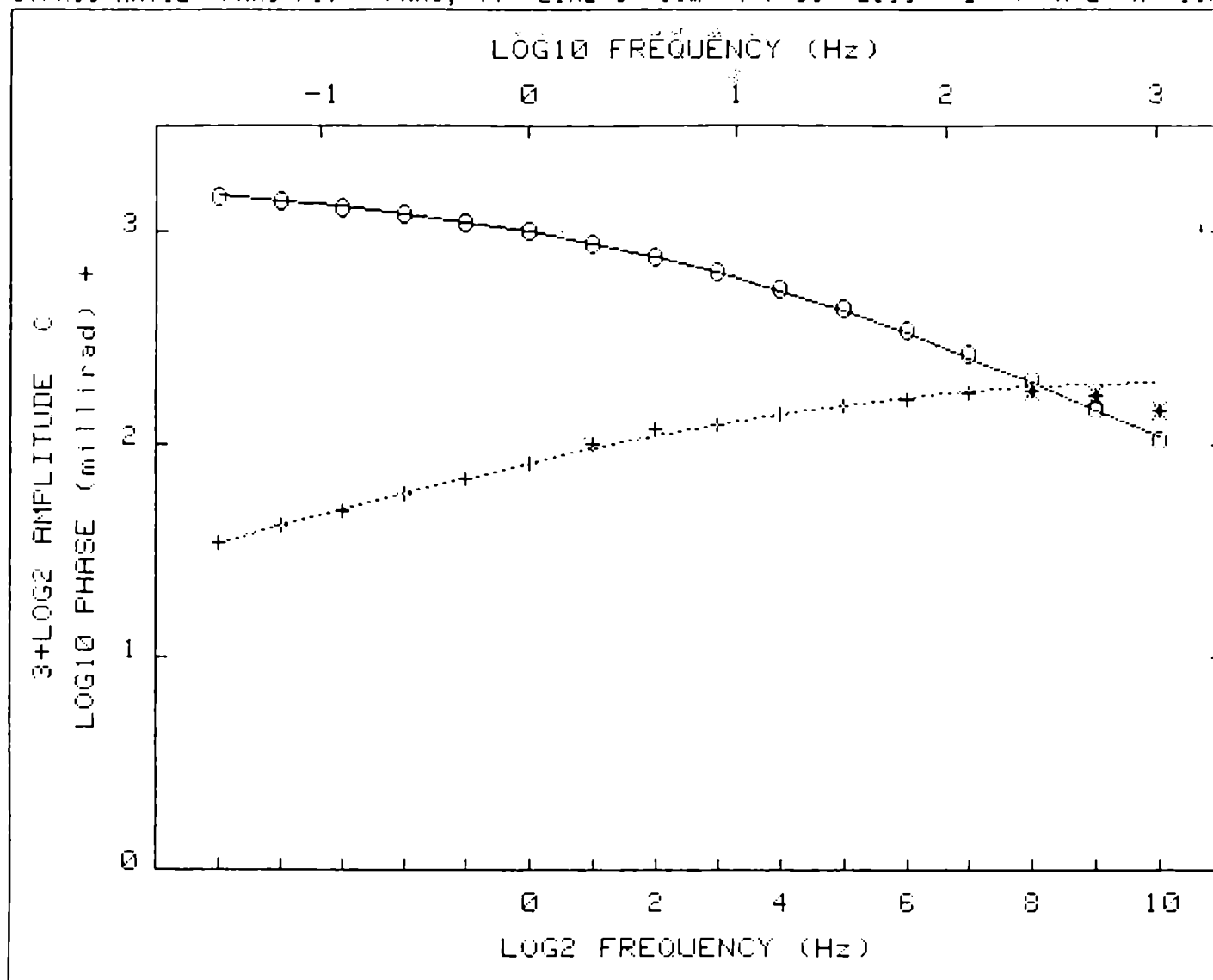
CRL: Number of dispersions= 2
M2=.9 C2=.3 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.01427	1.360	.543	5.2E-01	.296	2.2E-07
1	1.E-02	.00127	1.613	.632	5.6E-01	.298	1.6E-07
2	1.E-03	.00077	1.756	.726	7.3E-01	.239	3.1E-08
3	1.E-03	.00029	1.830	.760	8.2E-01	.222	1.3E-08
4	1.E-03	.00024	1.880	.786	9.0E-01	.209	6.3E-09
5	1.E-03	.00021	1.913	.805	9.6E-01	.201	3.9E-09
6	1.E-03	.00020	1.948	.820	1.0E+00	.194	2.6E-09
7	1.E-03	.00019	1.974	.832	1.1E+00	.189	1.8E-09
8	1.E-03	.00018	1.996	.842	1.1E+00	.185	1.4E-09
9	1.E-03	.00018	2.015	.851	1.1E+00	.182	1.1E-09

Fct Std Deviations 7.6 7.6 53.2 14.8 445.6

Correlation Matrix

1.000					
.954	1.000				
.851	.656	1.000			
-.978	-.992	-.733	1.000		
-.893	-.981	-.535	.952	1.000	



CRL: Number of dispersions= 2
M2=0 T2=0 C2=0 fixed

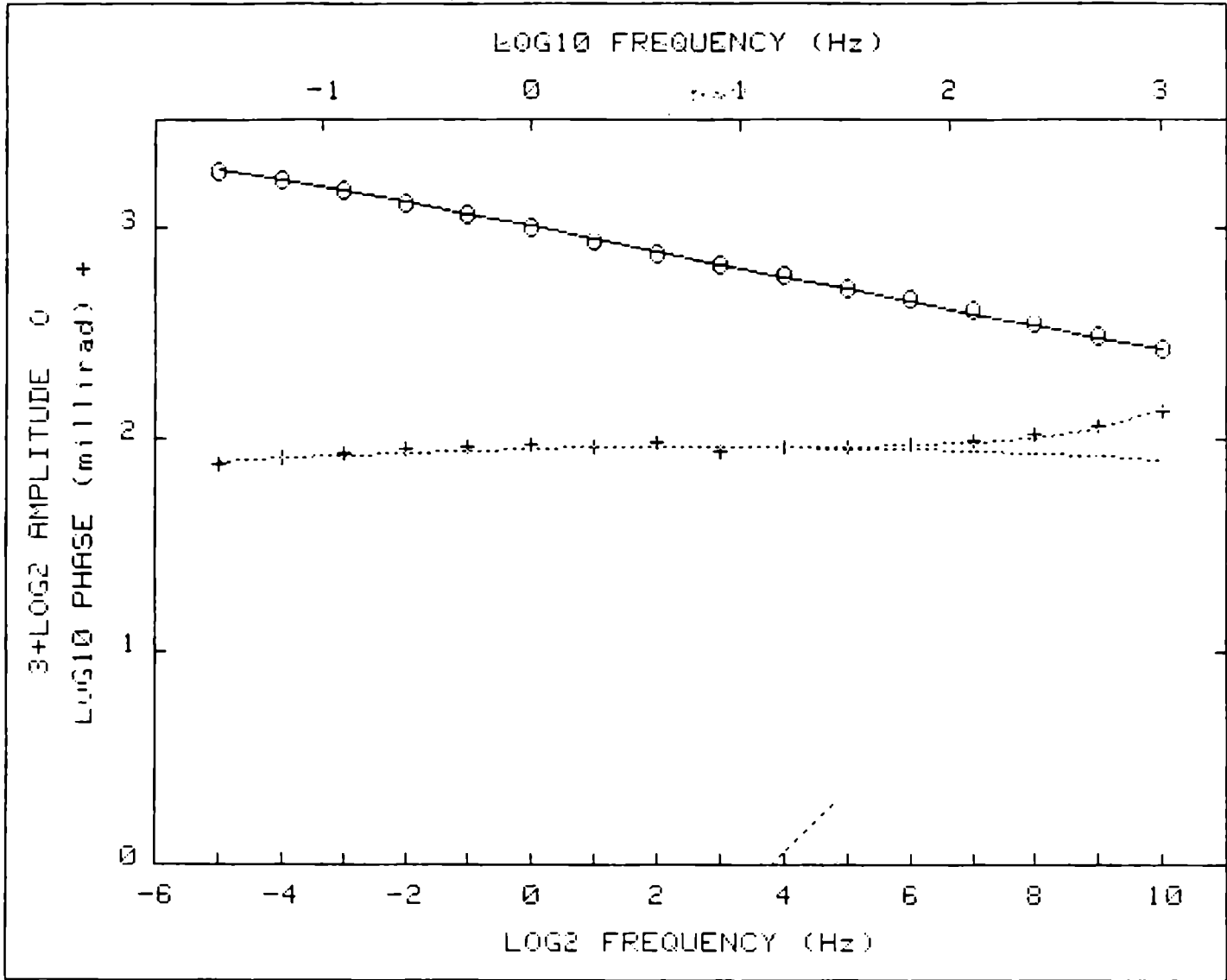
Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00337	1.270	.795	3.2E-03	.308
1	1.E-02	.00010	1.209	.805	3.0E-03	.307
2	1.E-03	.00010	1.210	.819	2.7E-03	.302
3	1.E-04	.00010	1.211	.822	2.6E-03	.301

Pct Std Deviations 2.2 14.4 2.0

Correlation Matrix

	1.000			
	.582	1.000		
	-.448	-.981	1.000	
	-.655	-.947	.910	1.000

Apparent Resistivity Measured at 1 Hz is 3.360
Apparent Resistivity Calculated from Inductive Coupling is 0.000



CRL: Number of dispersions= 2
M2=1 C2=.9 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00899	1.940	.878	6.3E-01	.145	5.4E-06
1	1.E-02	.00216	1.594	.690	7.1E-01	.216	3.4E-06
2	1.E-03	.00016	1.771	.740	1.2E+00	.181	2.7E-06
3	1.E-04	.00014	1.889	.77	2.3E+00	.164	2.3E-06
4	1.E-05	.00013	1.937	.7	3.1E+00	.159	2.2E-06
5	1.E-06	.00013	1.942	.7	3.2E+00	.158	2.1E-06

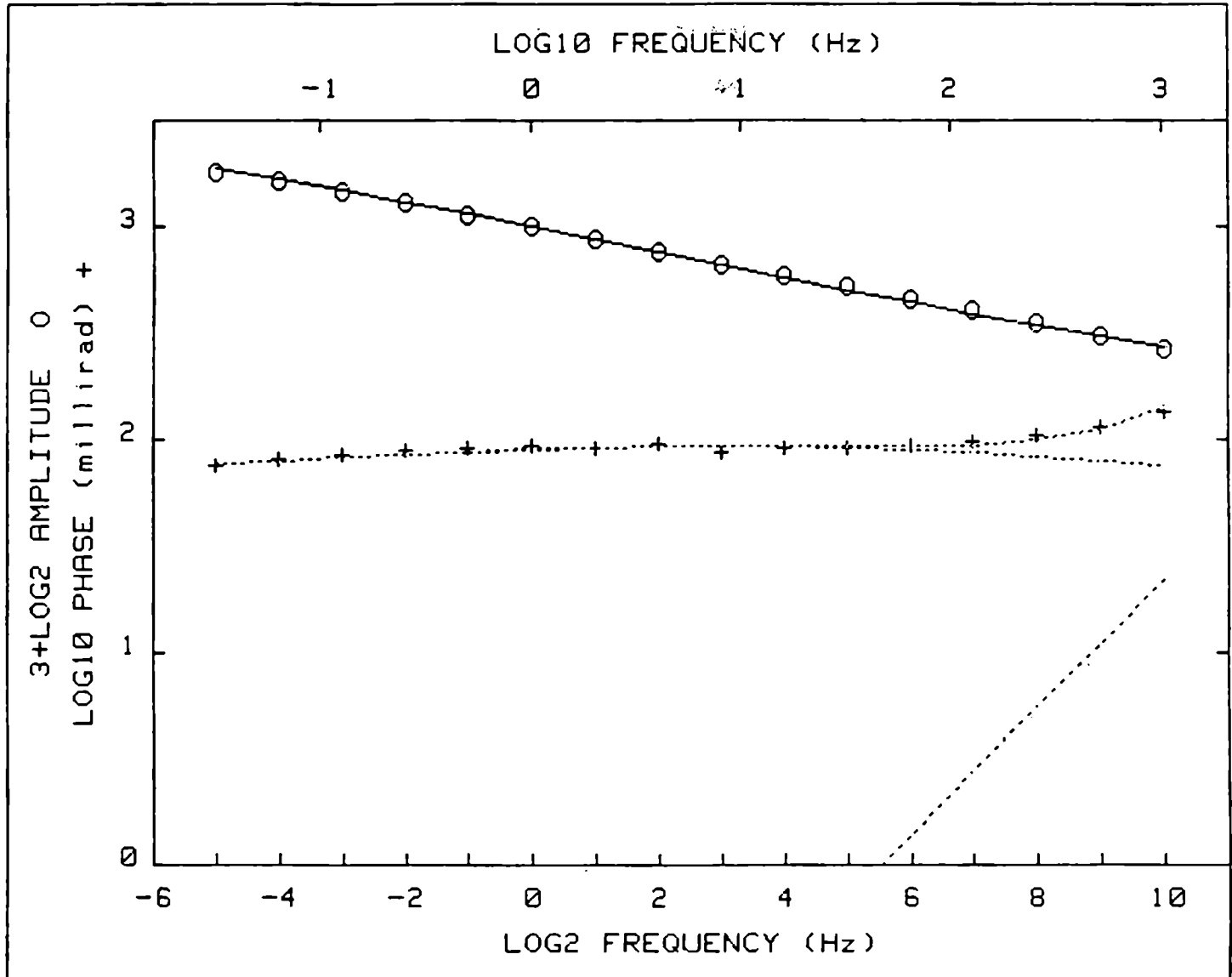
Pct Std Deviations 10.1 17.5

Correlation Matrix

1.000					
.976	1.000				
.987	.931	1.000			
-.979	-.997	.942	1.000		
-.875	-.927	-.811	.91	1.000	

Appar Resistivity Mea d at f= 59.08
Apparent Resistivity Cal ed from Inductive ling 25.07

CYPRUS ANVIL FARO PIT FARO, YT LINE 3 10m 4/7/81 L308 D= 5 N=1 X= 10m



CRL: Number of dispersions= 3
 C2=.3 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	M2	T2	T3
0	1.E-02	.10646	1.700	.430	4.9E+01	.250	.370	5.7E-02	3.7E-06
1	1.E-02	.00392	1.695	.412	5.2E+01	.201	.287	3.9E-02	4.8E-06
2	1.E-02	.00099	1.792	.475	5.2E+01	.201	.225	3.4E-02	4.9E-06
3	1.E-02	.00040	1.845	.518	5.2E+01	.189	.191	3.0E-02	4.7E-06
4	1.E-02	.00034	1.897	.561	5.3E+01	.178	.163	2.8E-02	4.4E-06
5	1.E-02	.00028	1.945	.598	5.3E+01	.169	.141	2.6E-02	4.1E-06
6	1.E-02	.00025	1.987	.628	5.3E+01	.162	.123	2.5E-02	3.9E-06
7	1.E-02	.00022	2.023	.654	5.3E+01	.157	.109	2.5E-02	3.7E-06
8	1.E-02	.00021	2.053	.674	5.3E+01	.152	.098	2.4E-02	3.6E-06
9	1.E-02	.00020	2.079	.692	5.3E+01	.149	.089	2.4E-02	3.4E-06

Pct Std Deviations 159.3 73.1 999.9 344.2 134.7 999.9 207.0

Correlation Matrix	1.000								
	.928	1.000							
	.989	.863	1.000						
	-.988	-.971	-.956	1.000					
	.240	-.137	.378	-.102	1.000				
	.953	.979	.905	-.987	-.000	1.000			
	-.991	-.964	-.963	.996	-.122	-.971	1.000		

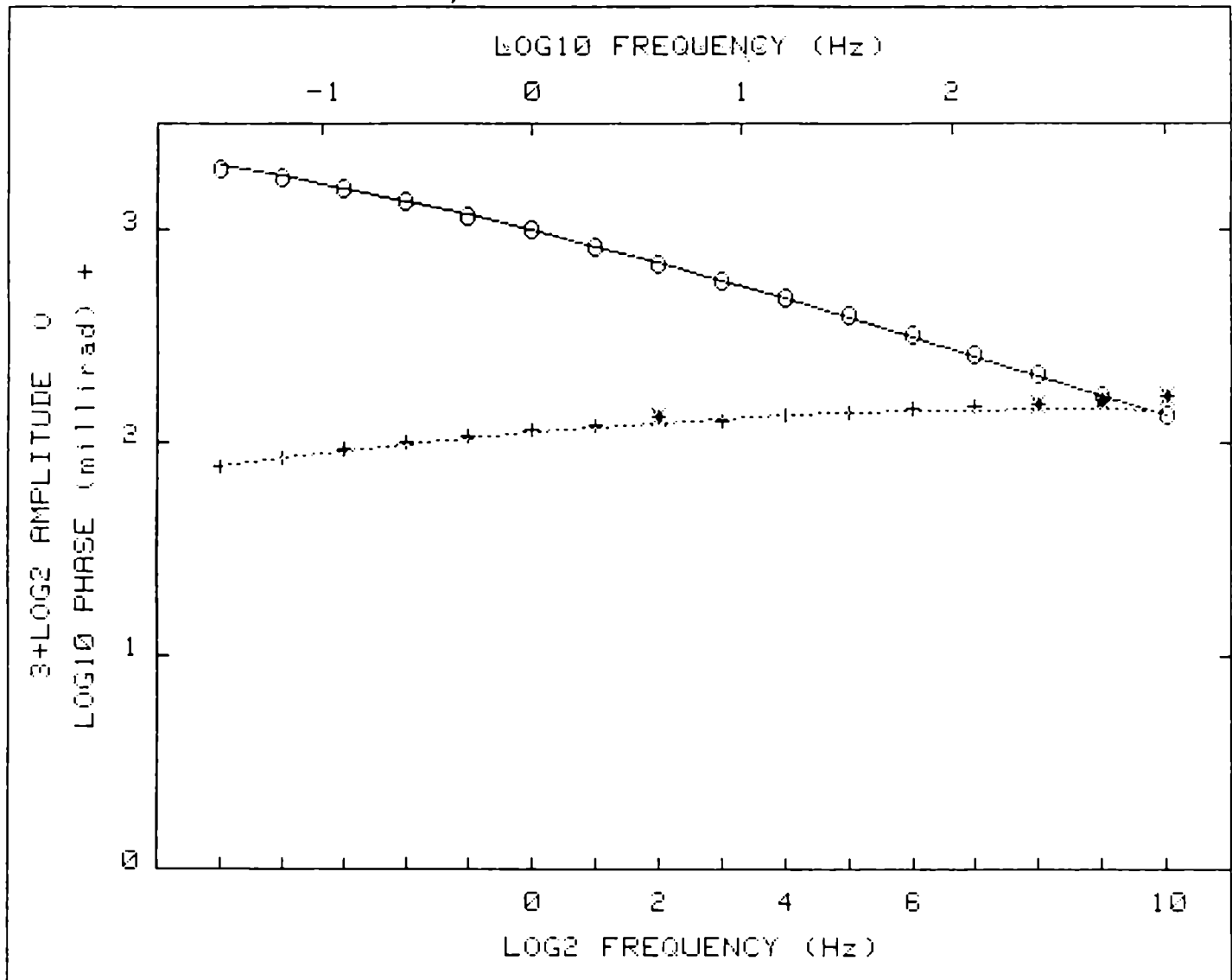
2nd Attempt

CYPRUS ANVIL FARO PIT FARO, YT LINE 3 10m 4/7/81 L308 D= 5 N=1 X= 10m

Apparent Resistivity Measured at 1 Hz is 59.08

Apparent Resistivity Calculated from Inductive Coupling is 21.75

F	ObsAmp	CalAmp	PctDif	ASD%	Wts	ObsPhz	CalPhz	PctDif	FSD%	Wts
10	.6729	.6780	-.8	.0	1	137.3	143.6	-4.6	.0	1
9	.7031	.6996	.5	0.0	1	115.4	112.8	2.3	.0	1
8	.7320	.7245	1.0	.0	1	104.7	99.7	4.8	.0	1
7	.7618	.7522	1.3	.0	1	98.0	94.9	3.2	.1	1
6	.7930	.7824	1.3	.0	1	93.9	93.7	.2	.1	1
5	.8224	.8149	.9	.0	1	92.7	93.9	-1.3	.1	1
4	.8541	.8494	.5	.0	1	91.9	94.2	-2.5	.3	1
3	.8859	.8857	.0	.0	1	87.6	94.2	-7.5	.1	1
2	.9208	.9236	-.3	.0	1	96.7	93.6	3.2	.1	1
1	.9596	.9627	-.3	.0	1	92.4	92.4	.0	.1	1
0	1.0000	1.0027	-.3	.0	1	93.1	90.7	2.6	.2	1
-1	1.0402	1.0435	-.3	.0	1	91.7	88.6	3.4	.0	1
-2	1.0816	1.0847	-.3	.0	1	88.8	86.1	3.0	.3	1
-3	1.1231	1.1262	-.3	.0	1	85.7	83.5	2.6	.1	1
-4	1.1631	1.1678	-.4	.0	1	81.6	80.7	1.1	.1	1
-5	1.1978	1.2094	-1.0	.1	1	76.3	77.8	-2.0	.1	1



CRL: Number of dispersions= 2
M2=0 T2=0 C2=0 fixed

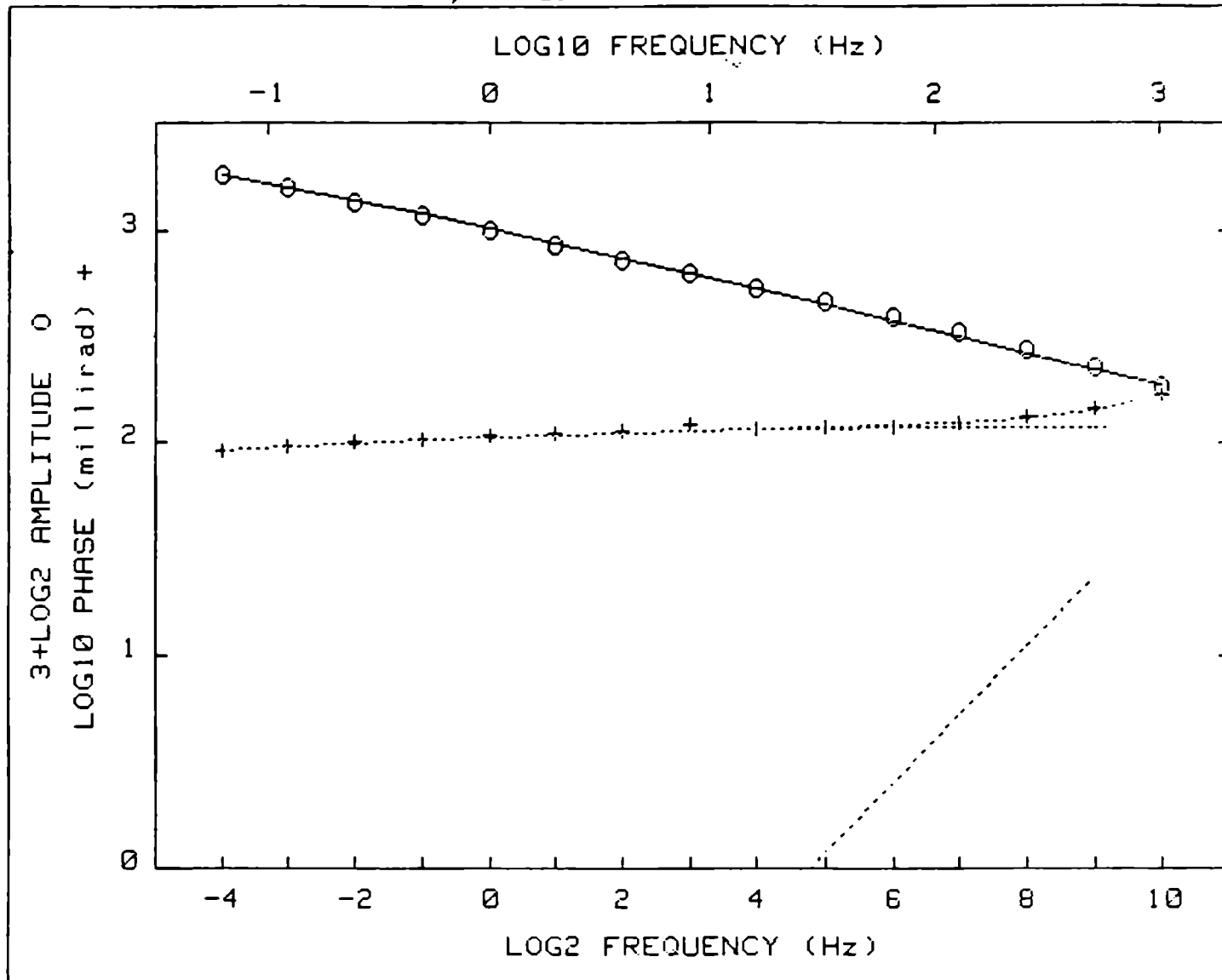
Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.02811	1.710	.822	7.5E-02	.161
1	1.E-02	.00043	1.681	.894	7.1E-02	.193
2	1.E-03	.00006	1.686	.874	8.6E-02	.193
3	1.E-04	.00006	1.687	.873	8.8E-02	.194

Pct Std Deviations 1.7 2.0 9.7 4.1

Correlation Matrix

	1.000			
	.919	1.000		
	.413	.029	1.000	
	-.957	-.986	-.169	1.000

Apparent Resistivity Measured at 1 Hz is 11.03
Apparent Resistivity Calculated from Inductive Coupling is 0.000



CRL: Number of dispersions= 2
M2=1 C2=1 fixed

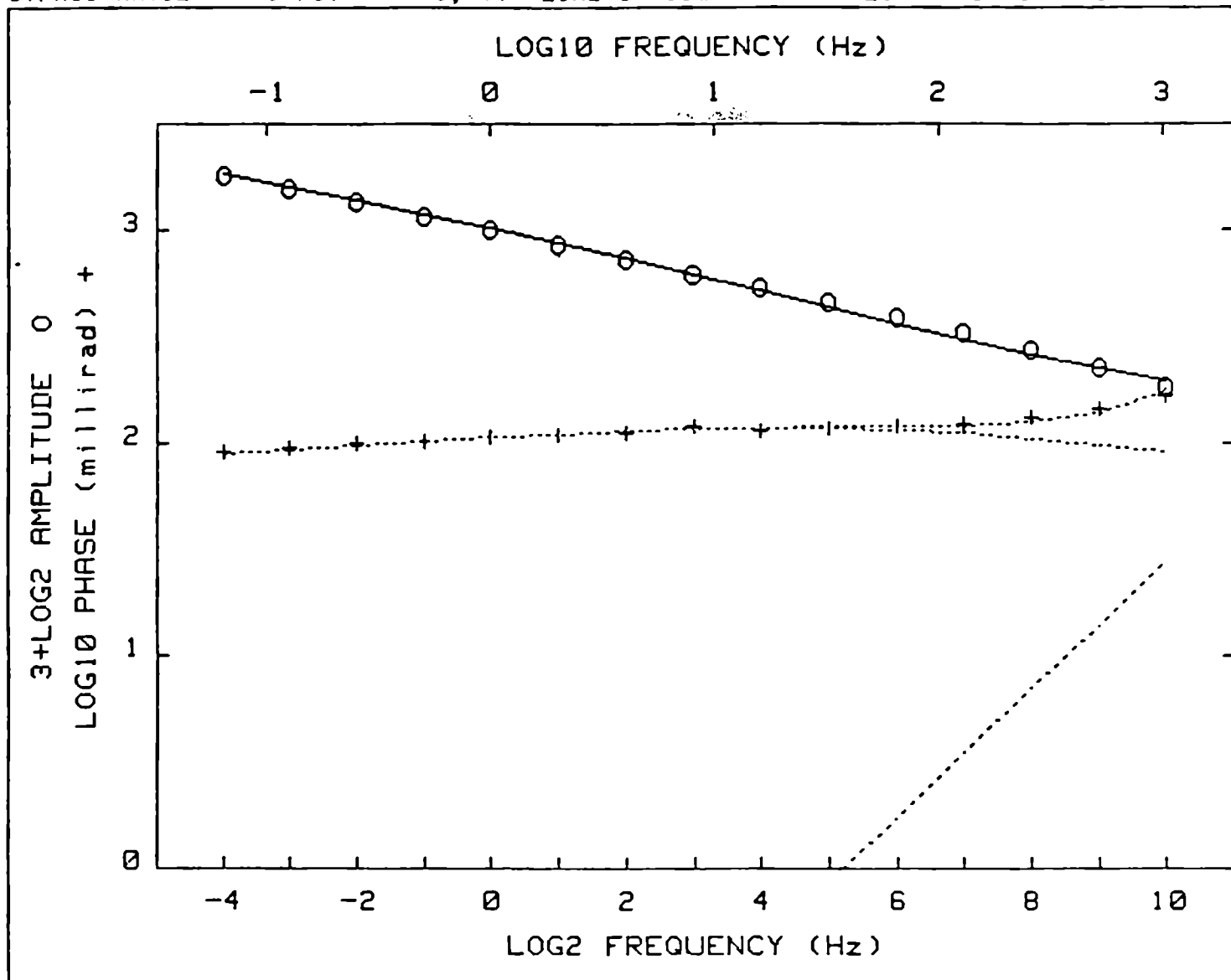
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00014	2.175	.904	2.6E+00	.141	2.3E-06
1	1.E-02	.00010	2.196	.911	2.6E+00	.140	2.2E-06
2	1.E-03	.00010	2.215	.917	2.7E+00	.138	2.1E-06

Pct Std Deviations 9.4 4.3 161.2 12.5 21.6

Correlation Matrix

	1.000				
	.971	1.000			
	.991	.930	1.000		
	-.985	-.996	-.956	1.000	
	-.885	-.933	-.634	.917	1.000

Apparent Resistivity Measured at 1 Hz is 82.34
Apparent Resistivity Calculated from Inductive Coupling is 35.31



CRL: Number of dispersions= 3
 C1=.25 C2=.3 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	M2	T2	T3
0	1.E-02	.02219	2.100	.400	5.3E+01	.400	2.4E-01	3.4E-06
1	1.E-01	.00522	1.847	.319	5.3E+01	.416	1.8E-01	4.5E-06
2	1.E-02	.00188	1.656	.243	5.4E+01	.464	8.1E-02	6.2E-06
3	1.E-02	.00071	1.674	.268	5.5E+01	.435	5.8E-02	5.9E-06
4	1.E-02	.00070	1.711	.313	5.6E+01	.403	4.4E-02	5.6E-06
5	1.E-02	.00056	1.752	.352	5.7E+01	.372	3.3E-02	5.3E-06
6	1.E-02	.00044	1.786	.383	5.8E+01	.349	2.6E-02	5.0E-06
7	1.E-02	.00037	1.815	.407	5.9E+01	.331	2.1E-02	4.7E-06
8	1.E-02	.00032	1.839	.427	6.0E+01	.317	1.7E-02	4.5E-06
9	1.E-02	.00028	1.859	.442	6.2E+01	.307	1.4E-02	4.3E-06

Pct Std Deviations 25.6 9.9 999.9 21.9 178.0 22.3

Correlation Matrix

	1.000						
	-.040	1.000					
	.993	-.158	1.000				
	.830	-.567	.890	1.000			
	.876	-.495	.922	.975	1.000		
	-.875	-.218	-.841	-.603	-.617	1.000	

2nd Attempt

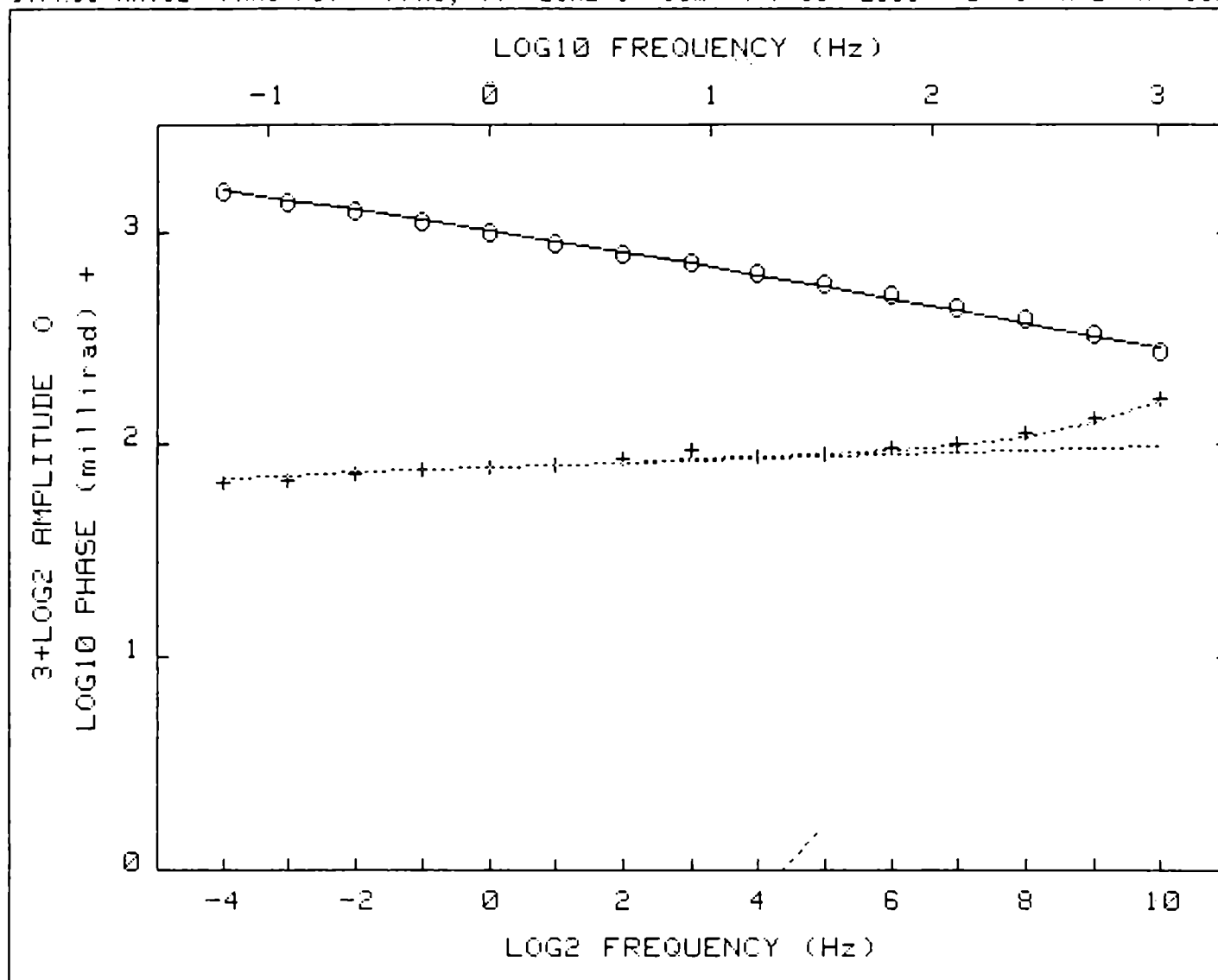
CYPRUS ANVIL FARO PIT FARO, YT LINE 3 10m 4/7/81 L308 D= 6 N=1 X= 10m

Apparent Resistivity Measured at 1 Hz is 82.34

Apparent Resistivity Calculated from Inductive Coupling is 17.24

F	ObsAmp	CalAmp	PctDif	ASD%	Wts	ObsPhz	CalPhz	PctDif	PSD%	Wts
10	.5999	.6155	-2.6	.0	1	167.3	175.7	-5.0	.1	1
9	.6414	.6394	.3	.0	1	145.8	140.0	4.0	.0	1
8	.6779	.6683	1.4	.0	1	133.3	125.9	5.5	.0	1
7	.7149	.7015	1.9	.0	1	125.0	121.5	2.8	.1	1
6	.7521	.7384	1.8	.0	1	120.0	120.6	-.5	.0	1
5	.7896	.7785	1.4	.0	1	117.4	120.5	-2.7	.2	1
4	.8283	.8213	.8	.0	1	115.2	119.8	-4.0	.0	1
3	.8682	.8662	.2	.0	1	121.3	118.0	2.7	.1	1
2	.9077	.9126	-.5	.0	1	113.4	115.2	-1.6	.4	1
1	.9532	.9600	-.7	.0	1	109.8	111.6	-1.6	.0	1
0	1.0000	1.0078	-.8	.0	1	108.2	107.4	.7	.1	1
-1	1.0489	1.0558	-.7	.0	1	104.1	103.0	1.0	.0	1
-2	1.0977	1.1038	-.6	.0	1	100.1	98.6	1.5	.2	1
-3	1.1492	1.1517	-.2	.0	1	96.1	94.3	1.9	.1	1
-4	1.1983	1.1994	-.1	.0	1	91.8	90.1	1.8	.1	1

CYPRUS ANVIL FARO PIT FARO, YT LINE 3 10m 4/7/81 L308 D= 6 N=2 X= 10m



CRL: Number of dispersions= 2

M2=1 C2=1 fixed

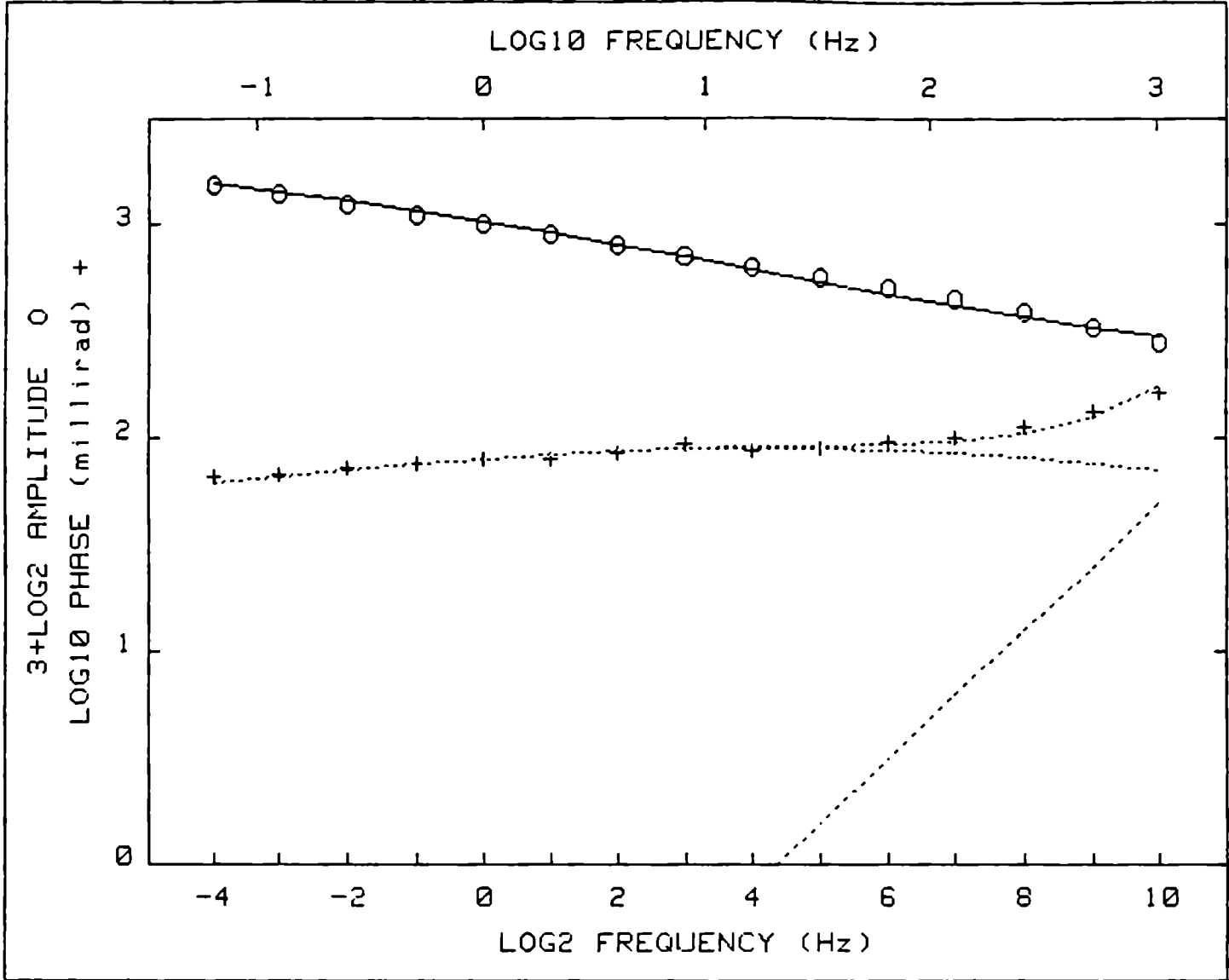
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00128	2.000	.850	2.6E+00	.124	2.6E-06
1	1.E-02	.00069	2.240	1.000	2.5E+00	.089	3.0E-06
2	1.E+00	.00022	2.282	1.000	2.4E+00	.089	3.0E-06
3	1.E+01	.00022	2.284	1.000	2.4E+00	.089	3.0E-06

Pct	Std	Deviations					
			37.9	18.4	999.9	68.0	54.9

Correlation Matrix						
		1.000				
		.982	1.000			
		.981	.927	1.000		
		-.995	-.996	-.958	1.000	
		-.973	-.984	-.926	.982	1.000

Apparent Resistivity Measured at 1 Hz is 74.16

Apparent Resistivity Calculated from Inductive Coupling is 66.00



CRL: Number of dispersions= 3
 C1=.25 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	M2	T2	T3
0	1.E-02	.05334	2.600	.400	5.2E+01	.400	3.0E-01	4.3E-06
1	1.E-01	.02099	1.679	.263	5.3E+01	.443	2.3E-01	6.1E-06
2	1.E-01	.00334	1.610	.200	5.4E+01	.446	1.9E-01	7.7E-06
3	1.E-01	.00177	1.571	.169	5.4E+01	.457	1.6E-01	8.6E-06
4	1.E-01	.00137	1.543	.150	5.5E+01	.469	1.4E-01	9.0E-06
5	1.E-02	.00097	1.457	.103	5.6E+01	.520	7.6E-02	8.9E-06
6	1.E-02	.00046	1.443	.095	5.7E+01	.522	5.6E-02	8.4E-06
7	1.E-02	.00043	1.438	.097	5.7E+01	.524	4.7E-02	8.1E-06
8	1.E-02	.00041	1.438	.103	5.8E+01	.520	4.2E-02	7.9E-06
9	1.E-02	.00040	1.442	.112	5.8E+01	.515	3.9E-02	7.8E-06

Pct Std Deviations 37.7 415.0 999.9 63.3 999.9 33.8

Correlation Matrix

	1.000						
	-.723	1.000					
	.992	-.804	1.000				
	.907	-.946	.953	1.000			
	.921	-.931	.961	.995	1.000		
	-.951	.571	-.923	-.796	-.801	1.000	

2nd Attempt

CYPRUS ANVIL FARO PIT FARO, YT LINE 3 10m 4/7/81 L308 D= 6 N=2 X= 10m

Apparent Resistivity Measured at 1 Hz is 74.16

Apparent Resistivity Calculated from Inductive Coupling is 25.06

F	ObsAmp	CalAmp	PctDif	ASD%	Wts	ObsPhz	CalPhz	PctDif	PSD%	Wts
10	.6802	.6955	-2.3	.1	1	164.4	175.5	-6.8	.0	1
9	.7186	.7161	.3	.0	1	132.2	127.0	4.0	.0	1
8	.7510	.7404	1.4	.1	1	112.7	105.4	6.5	.0	1
7	.7823	.7678	1.8	.0	1	101.2	96.6	4.6	.0	1
6	.8133	.7978	1.9	.0	1	95.6	93.2	2.5	.0	1
5	.8426	.8301	1.5	0.0	1	90.5	91.9	-1.6	.2	1
4	.8735	.8642	1.1	.0	1	87.6	90.9	-3.8	.3	1
3	.9036	.8997	.4	.0	1	93.3	89.5	4.1	.1	1
2	.9326	.9361	-.4	.0	1	85.0	87.3	-2.7	.5	1
1	.9659	.9728	-.7	.0	1	80.5	84.2	-4.6	.2	1
0	1.0000	1.0093	-.9	.0	1	78.9	80.4	-1.9	.1	1
-1	1.0345	1.0451	-1.0	.0	1	75.4	76.1	-.9	.0	1
-2	1.0695	1.0799	-1.0	.0	1	72.6	71.3	1.8	.2	1
-3	1.1052	1.1134	-.7	.0	1	68.3	66.3	3.0	.1	1
-4	1.1371	1.1451	-.7	.0	1	65.8	61.2	7.0	.2	1

for two populations of grain-size and the parameters obtained by the computer inversion for the two populations are much the same. Again, when the spectral IP data is available from the rock specimens collected on this bench, we will have a better appreciation of the two grain-size populations.

- - - - -

The remainder of the field work for Part III of the 1981 field program of the Spectral IP Research Program was carried out over the Vangorda Deposit, the Grum Deposit and the DY Deposit. The geographical position of the deposits, and the four lines surveyed (Line 8E, Line 2W, Line 82W, Line 13+50E) are shown on Figure I. Generalized geologic sections for several of the lines surveyed are also enclosed.

ii) Measurements with $X = 200'$ at Line 8E, Vangorda Deposit

From the plan map (Figure I) and the geologic section (Figure II) it can be seen that the Vangorda Deposit is a sizeable zone of massive sulphide mineralization, that lies under 150 to 200 feet of overburden. A considerable amount of graphitic material surrounds the sulphide mass, particularly to the north of the orebody.

The pseudosections enclosed are for the apparent resistivity, the decoupled phase at 1.0 Hz and the equivalent Metal Factor. The IP results show a very complex anomalous pattern that reflects the numerous sources of metallic mineralization that are shown on Figure II. There is a high background IP effect that extends from 20+00N to 14+00S.

There is a narrow source, with considerable depth to the top, centered at 12+00N to 8+00N. The broad anomaly that extends from 7+00N to 1+00S has less depth to the top; it appears to have a greater width. There is a broad source, at depth, that extends a considerable distance to the south. There is also a strong shallow, narrow source centered at 15+00S.

The spectral characteristics vary considerably along the line. To the north, the apparent resistivities are relatively high, and the spectral

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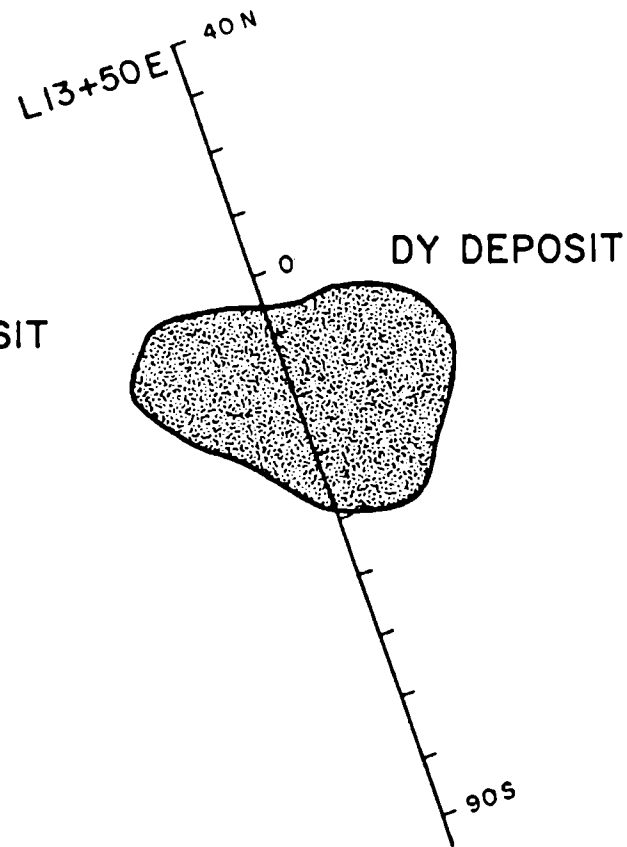
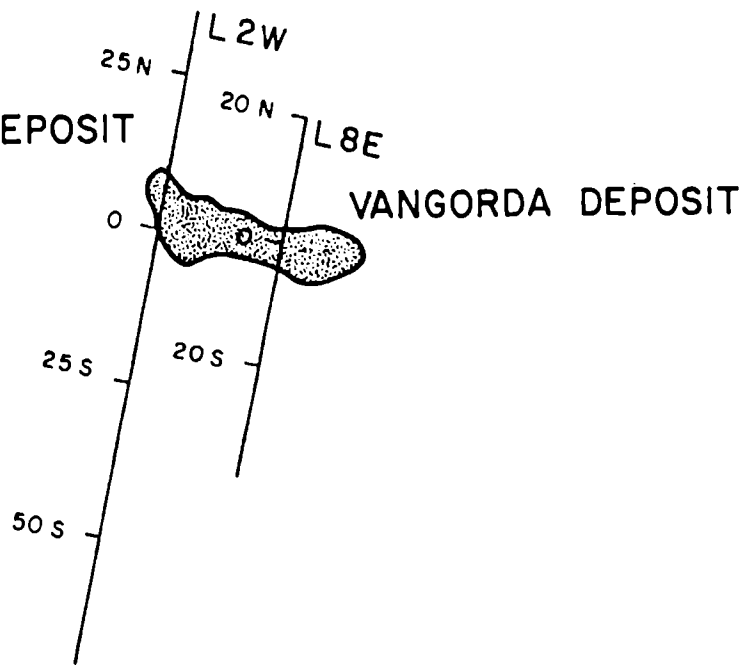
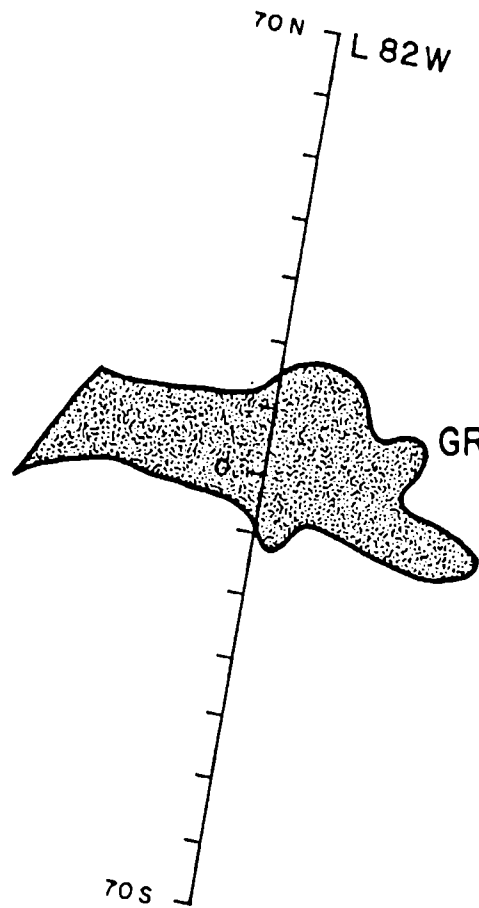
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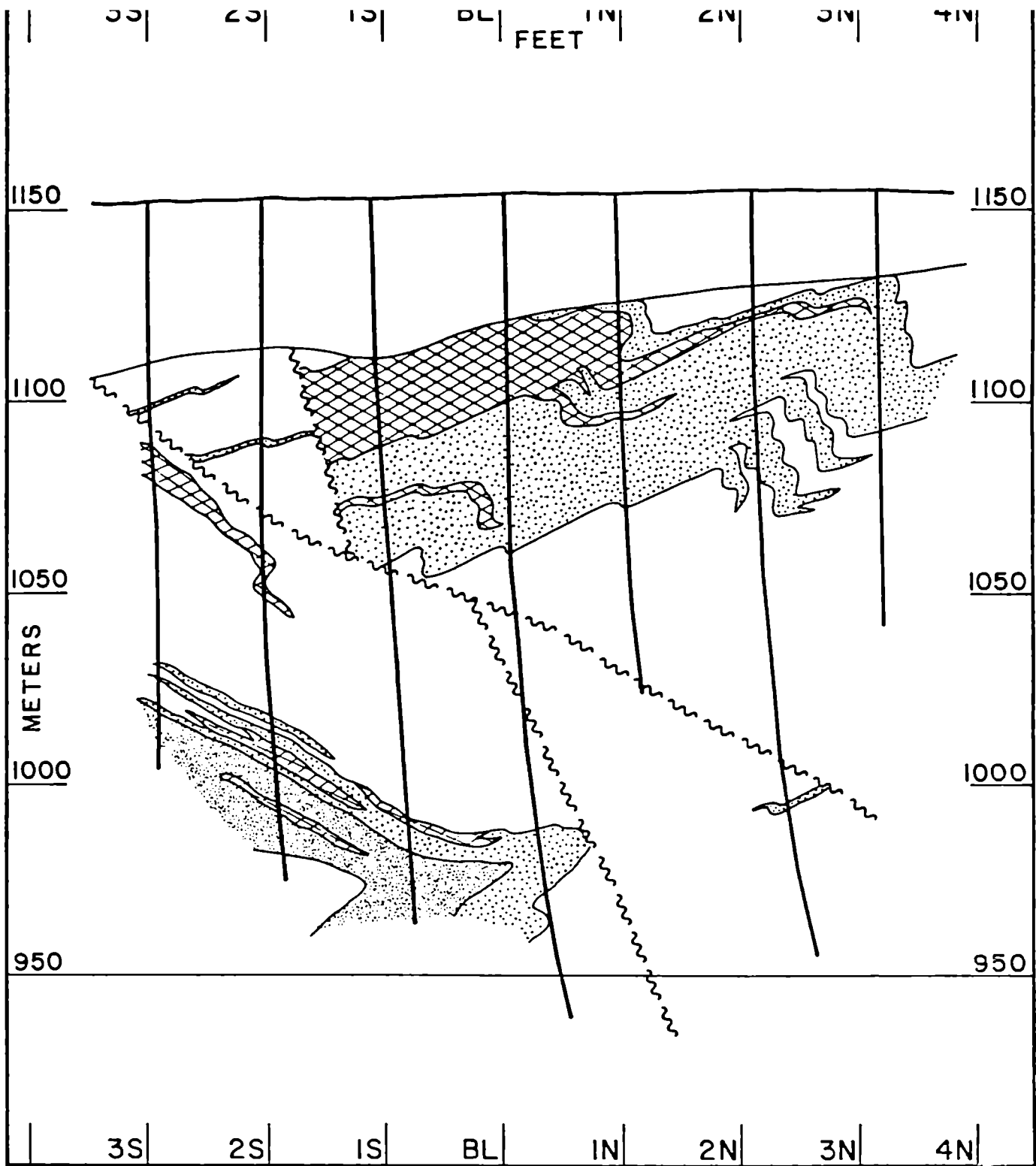
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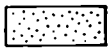
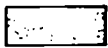

TEST LINE SURVEY POSITION
VANGORDA



VANGORDA DEPOSIT

Faro, Y.T.

Line 8E

- Massive Sulfides 
- Quartz Sulfides 
- Graphitic Phyllites 
- Sericitic Phyllites 

inversions are quite definite. The results indicate a graphite source, some quite definitely (D3;N2).

It is difficult to get a good determination within the strong, deep source centered at 10+00N. This is fairly typical; the low voltages within a strong anomaly (due to low apparent resistivities) are easily distorted by natural electrical noise. One dipole-dipole pair indicates graphite (D7;N6); the other values are noisy and give a mixed source response (D9;N6).

At about 8+00N (D7;N2), the results indicate a mixed source, and from about 6+00N to about as far south as 6+00S - 8+00S, the parameters suggest a sulphide source. Within this interval, the depth to the top of the IP anomaly varies considerably; therefore the apparent IP effects and the apparent resistivities vary considerably. However, the grain size parameters remain relatively consistent. Compare D10;N2 with D12;N2.

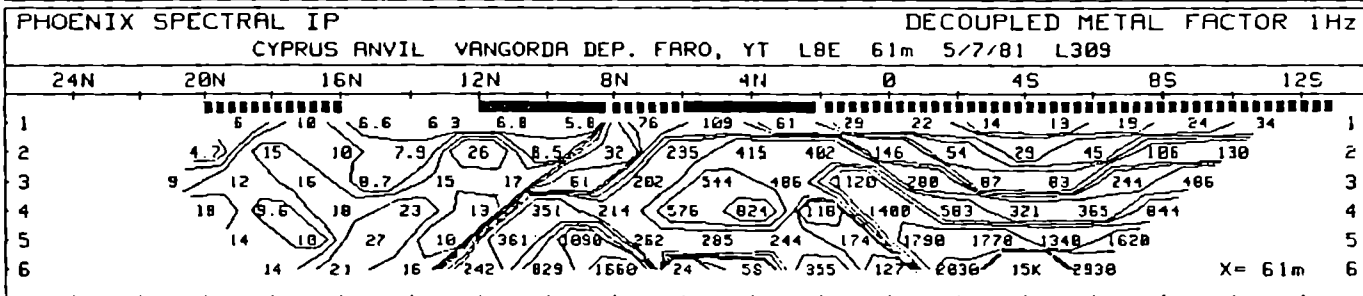
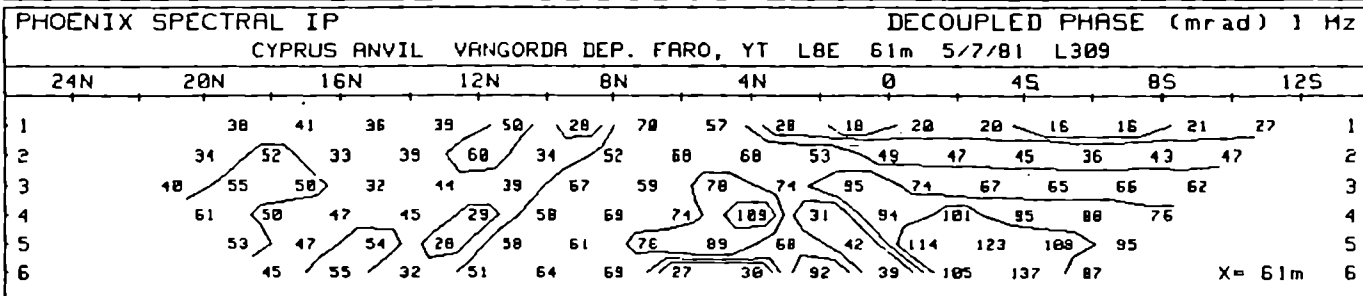
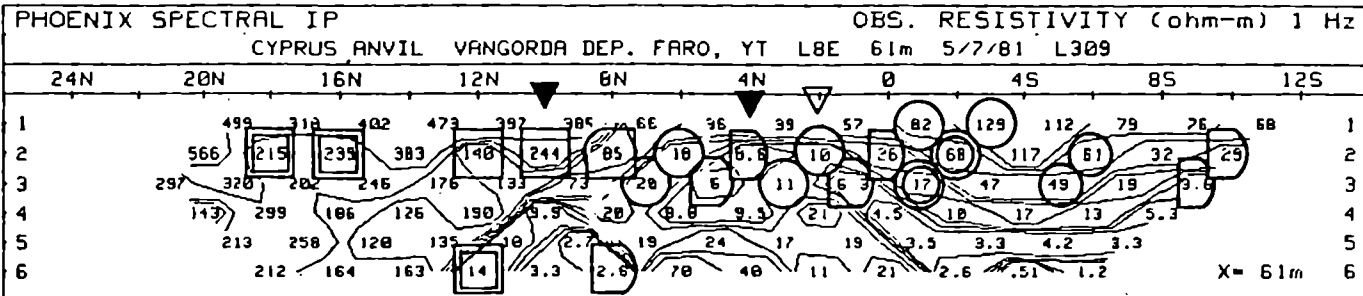
At about 8+00S to 12+00S the patterns change to very flat spectra with low values for c (see D16;N2 and D17;N3). This (c_1) value in the range from 0.10 to 0.14 suggest that at least two grain-size populations are present.

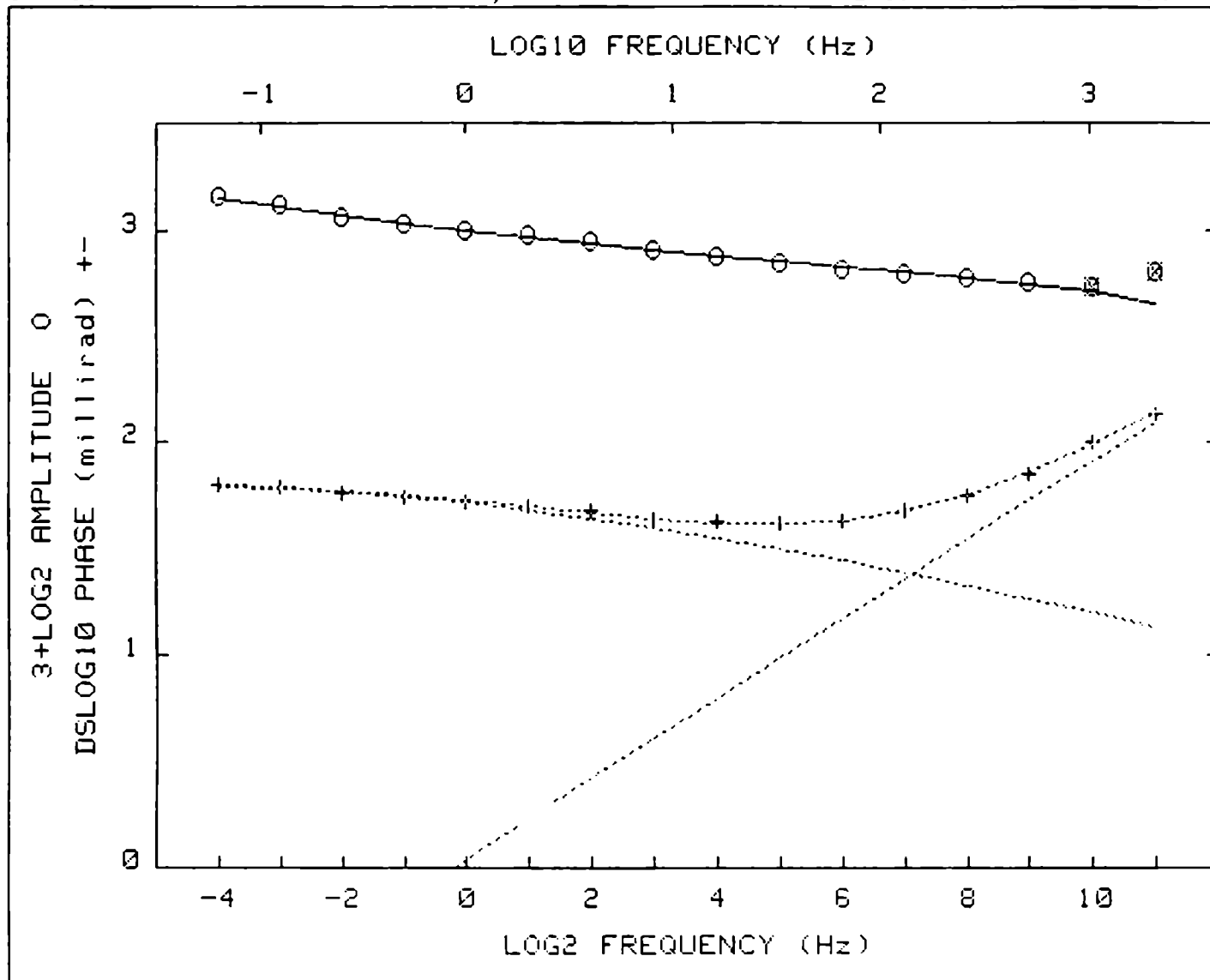
The shallow, strong anomaly centered at 15+00S is difficult to evaluate due to low voltages and noise (D18;N2). The source may be graphite or sulphide mineralization.

This latter situation presents one of the more important features to be learned re the use of spectral IP for mineral discrimination. If a complex, multiple source is present, the electrode interval to be used should be as short as possible, considering the depth of the source. The shorter values for (X) will give greater lateral selectivity and would be more likely to give single grain size spectral curves ($c_1 > 2.0$). Further, the shorter dipole lengths will result in larger signal voltages and lower noise voltages. This results in more reliable spectral data and more specific inversions.

On Line 8E, the anomaly at 6+00N to 2+00N and the anomaly at 14+00S to 16+00S could be much better evaluated using shorter electrode intervals (perhaps $X = 150'$ for 4+00N and $X = 100'$ or $X = 50'$ for 15+00S).

The above discussion indicates how difficult it is to make a judgement





CRL: Number of dispersions= 2 Initial Guess Code= 521

M2=1 fixed

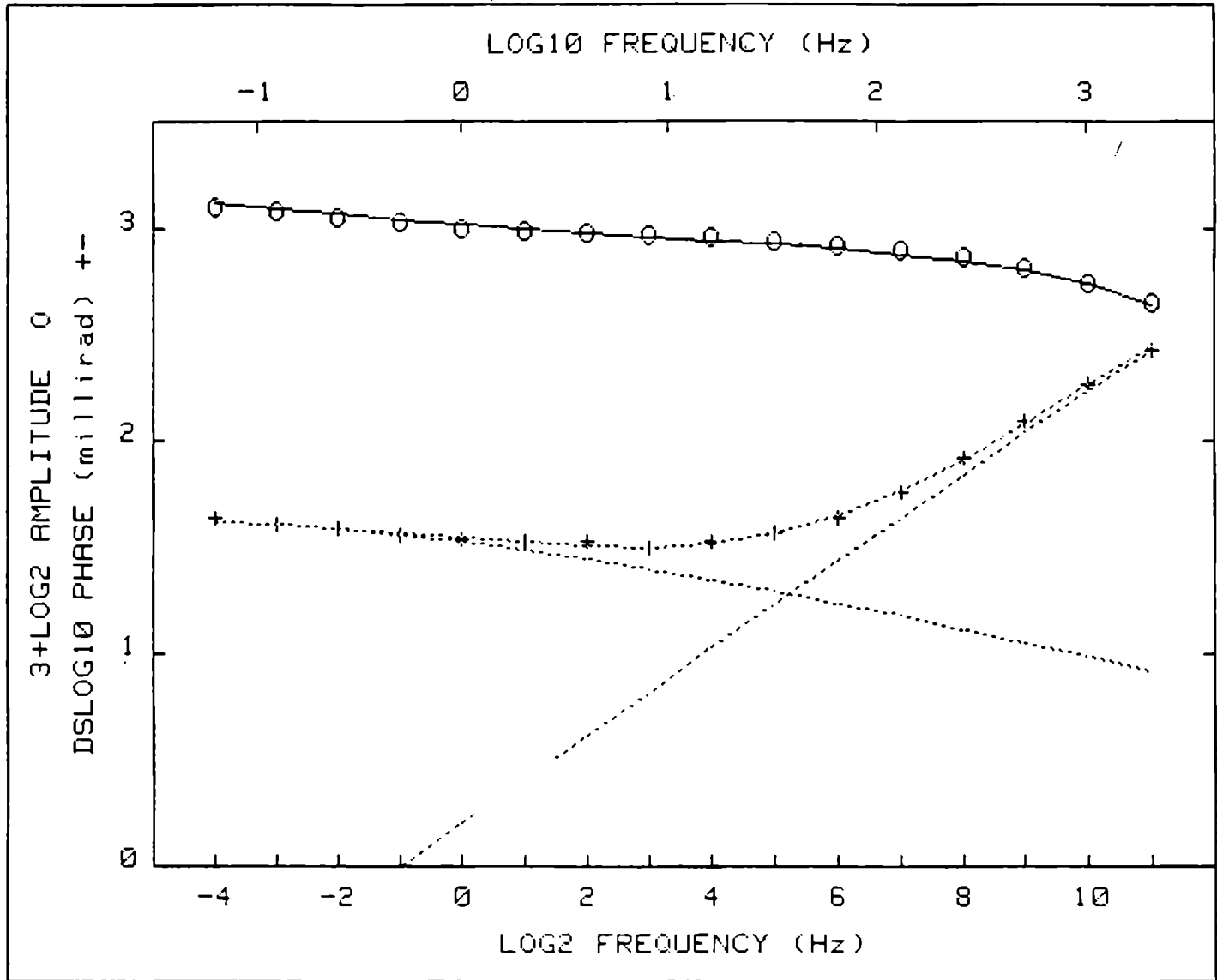


Iter	Lambda	Rchsq	R0	M1	T1	C1	T2	C2
0	1.E-02	.00852	1.296	.400	1.0E+00	.250	4.0E-06	1.000
1	1.E-02	.00082	1.374	.421	1.6E+00	.260	2.5E-06	.731
2	1.E-03	.00020	1.422	.406	5.1E+00	.281	1.5E-06	.589
3	1.E-03	.00011	1.467	.427	7.6E+00	.277	1.4E-06	.589
4	1.E-03	.00010	1.497	.441	9.9E+00	.268	1.4E-06	.594
5	1.E-03	.00010	1.519	.450	1.2E+01	.262	1.3E-06	.597
6	1.E-03	.00009	1.537	.458	1.4E+01	.258	1.3E-06	.601
7	1.E-03	.00009	1.551	.464	1.6E+01	.254	1.3E-06	.603
8	1.E-03	.00009	1.564	.469	1.8E+01	.252	1.3E-06	.605
9	1.E-03	.00009	1.575	.473	2.0E+01	.249	1.3E-06	.607

Pct Std Deviations 7.0 9.9 156.4 10.8 13.2 4.8

Correlation Matrix	1.000							
	.996	1.000						
	.998	.992	1.000					
	-.976	-.990	-.971	1.000				
	-.448	-.392	-.477	.325	1.000			
	.691	.740	.663	-.787	.312	1.000		

P = 215



CRL: Number of dispersions= 2 Initial Guess Code= 521

M2=1 fixed

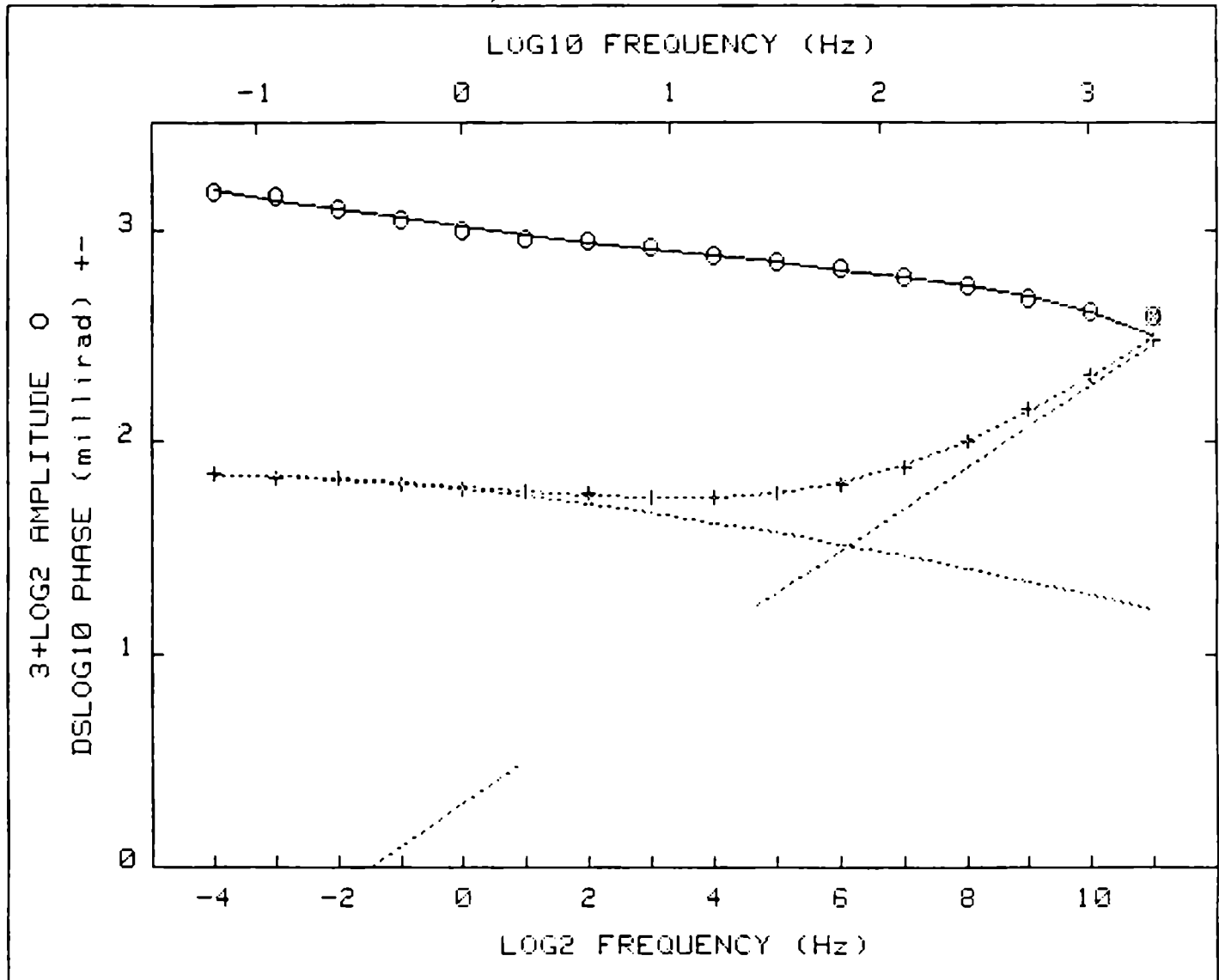


Iter	Lambda	Rchsq	R0	M1	T1	C1	T2	C2
0	1.E-02	.09038	1.357	.200	1.0E+00	.250	1.6E-05	1.000
1	1.E-02	.00113	1.209	.267	1.3E+00	.314	1.0E-05	.713
2	1.E-03	.00025	1.287	.296	4.0E+00	.279	9.4E-06	.676
3	1.E-03	.00019	1.312	.305	6.6E+00	.280	9.0E-06	.669
4	1.E-03	.00018	1.336	.320	9.1E+00	.270	8.7E-06	.670
5	1.E-03	.00017	1.353	.329	1.2E+01	.263	8.5E-06	.670
6	1.E-03	.00017	1.366	.336	1.4E+01	.258	8.3E-06	.671
7	1.E-03	.00017	1.377	.342	1.6E+01	.254	8.2E-06	.671
8	1.E-03	.00016	1.386	.348	1.9E+01	.250	8.1E-06	.671

Pct Std Deviations 6.4 15.4 229.5 14.1 13.4 2.3

Correlation Matrix		1.000						
		.995	1.000					
		.997	.989	1.000				
		-.968	-.986	-.959	1.000			
		-.912	-.891	-.920	.849	1.000		
		.308	.378	.269	-.456	.047	1.000	

$\rho = 210$



CRL: Number of dispersions= 2 Initial Guess Code= 521

C1=.25 M2=1 fixed



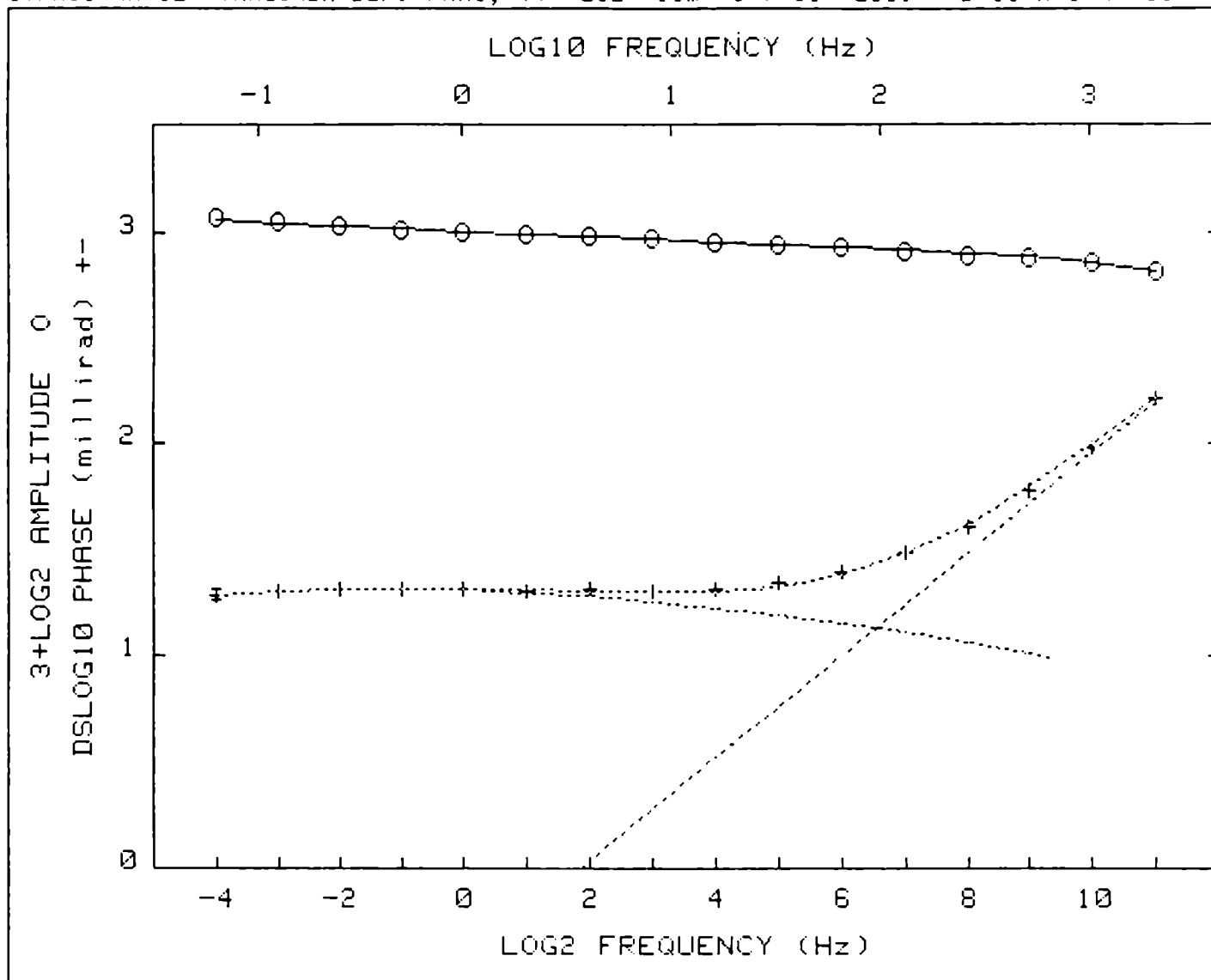
Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.16350	1.862	.400	1.0E+00	1.6E-05	1.000
1	1.E-02	.00105	1.447	.482	1.7E+00	8.9E-06	.762
2	1.E-03	.00017	1.558	.484	6.9E+00	6.1E-06	.658
3	1.E-04	.00008	1.639	.506	1.5E+01	5.2E-06	.637
4	1.E-05	.00007	1.655	.509	1.6E+01	5.0E-06	.635
5	1.E-06	.00007	1.656	.509	1.6E+01	5.0E-06	.635

Pct Std Deviations 1.4 1.1 23.2 6.4 1.8

Correlation Matrix	1.000				
	.960	1.000			
	.971	.890	1.000		
	-.721	-.602	-.757	1.000	
	-.612	-.433	-.694	.937	1.000

Apparent Resistivity Measured at 1 Hz is 140.0

Apparent Resistivity Calculated from Inductive Coupling is 260.9



CRL: Number of dispersions= 2 Initial Guess Code= 521

C1=.25 M2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.16693	1.608	.200	1.0E+00	1.6E-05	1.000
1	1.E-02	.00043	1.128	.191	7.6E-01	8.7E-06	.863
2	1.E-03	.00009	1.122	.187	5.5E-01	6.8E-06	.801
3	1.E-04	.00008	1.121	.187	5.3E-01	6.7E-06	.796
4	1.E-05	.00008	1.121	.187	5.3E-01	6.7E-06	.796

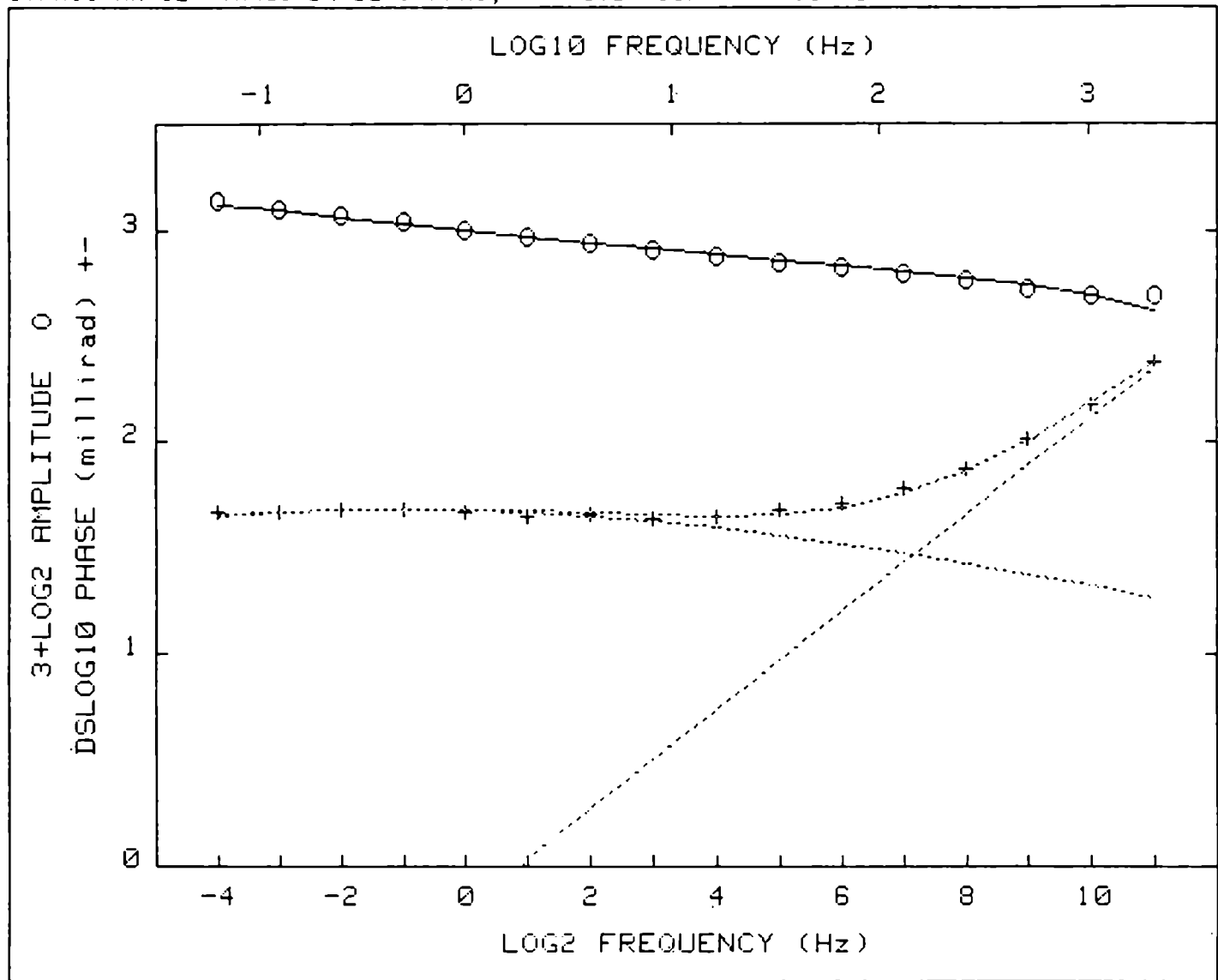
Pct Std Deviations .7 17.9 5.5 2.4

Correlation Matrix		1.000				
		.252	1.000			
		.796	.002	1.000		
		-.434	.279	-.503	1.000	
		-.518	.373	-.622	.915	1.000

Apparent Resistivity Measured at 1 Hz is 81.69

Apparent Resistivity Calculated from Inductive Coupling is 194.5





CRL: Number of dispersions= 2 Initial Guess Code= 521

C1=.25 M2=1 fixed



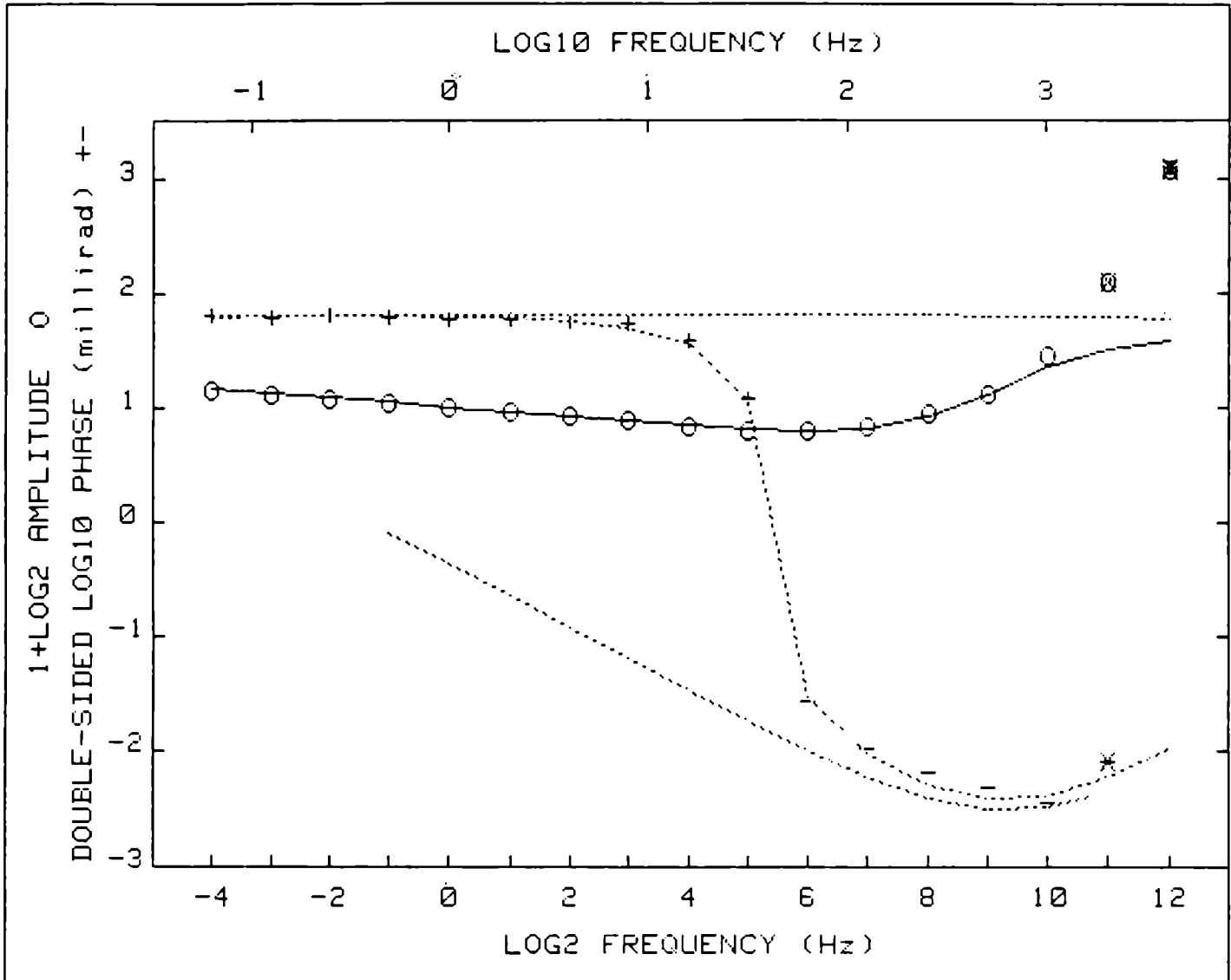
Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.06701	1.112	.200	1.0E+00	1.6E-05	1.000
1	1.E-02	.00798	1.237	.400	8.7E-01	9.0E-06	.784
2	1.E-03	.00033	1.304	.384	8.7E-01	7.0E-06	.764
3	1.E-04	.00032	1.306	.384	9.1E-01	6.8E-06	.756
4	1.E-05	.00032	1.307	.384	9.2E-01	6.7E-06	.754

Pct Std Deviations 1.1 1.2 35.7 10.6 3.8

Correlation Matrix		1.000				
		.489	1.000			
		.889	.171	1.000		
		-.467	.119	-.540	1.000	
		-.514	.253	-.655	.925	1.000

Apparent Resistivity Measured at 1 Hz is 67.61

Apparent Resistivity Calculated from Inductive Coupling is 407.7



CRL: Number of dispersions= 2 Negative.
M2=.32 C2=.88 fixed

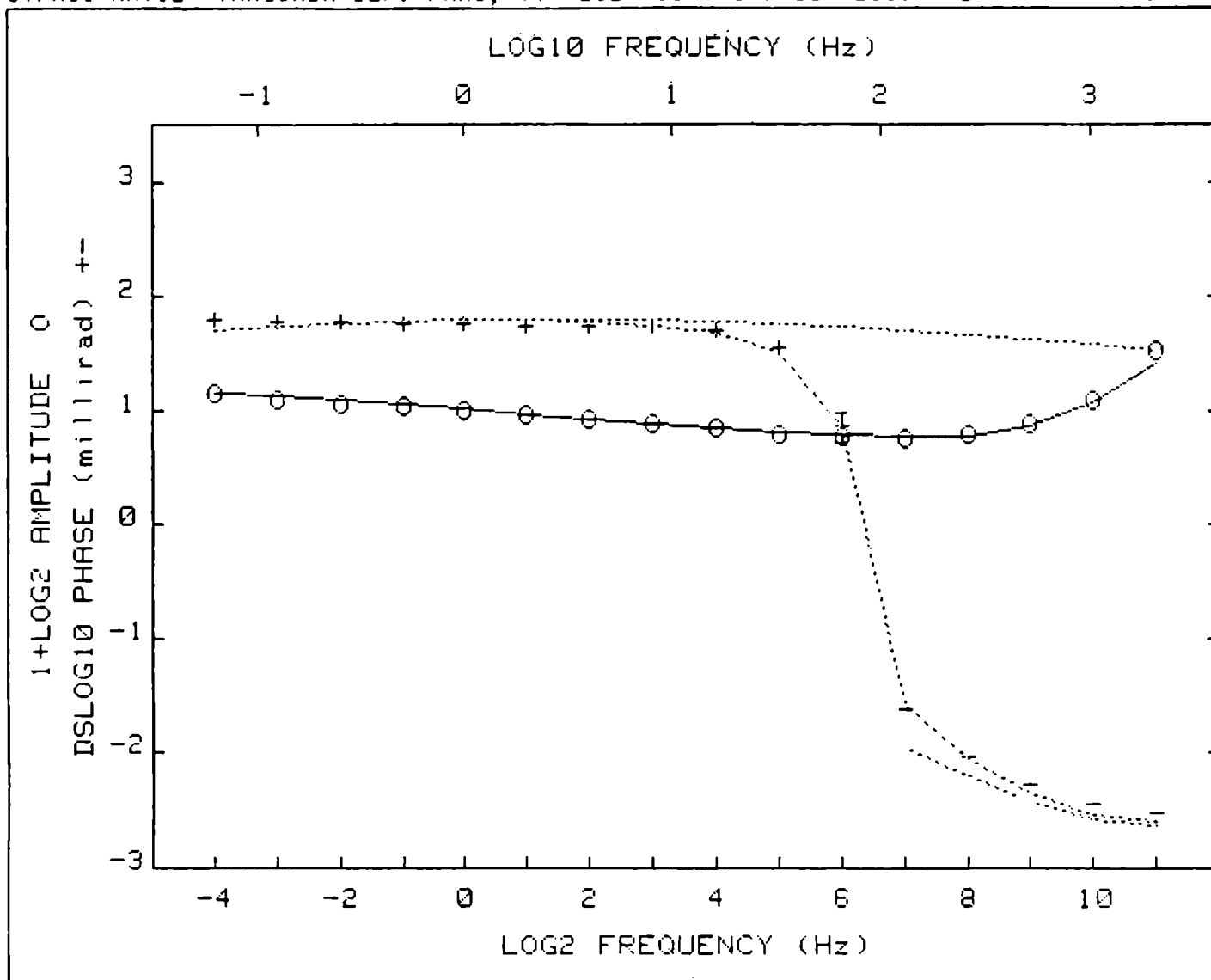
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00179	2.645	.850	5.2E+03	.095	1.8E-04
1	1.E-02	.00177	2.670	.873	5.1E+03	.038	1.9E-04

Pct Std Deviations 6.7 6.0 299.6 18.0 10.1

Correlation Matrix

	1.000				
	.436	1.000			
	.918	.115	1.000		
	-.412	-.987	-.128	1.000	
	-.772	.134	-.943	-.105	1.000

Apparent Resistivity Measured at 1 Hz is 4.400
Apparent Resistivity Calculated from Inductive Coupling is 149.5



CRL: Number of dispersions= 2 Negative. Initial Guess Code= 521

C1=.25 M2=1 fixed

D

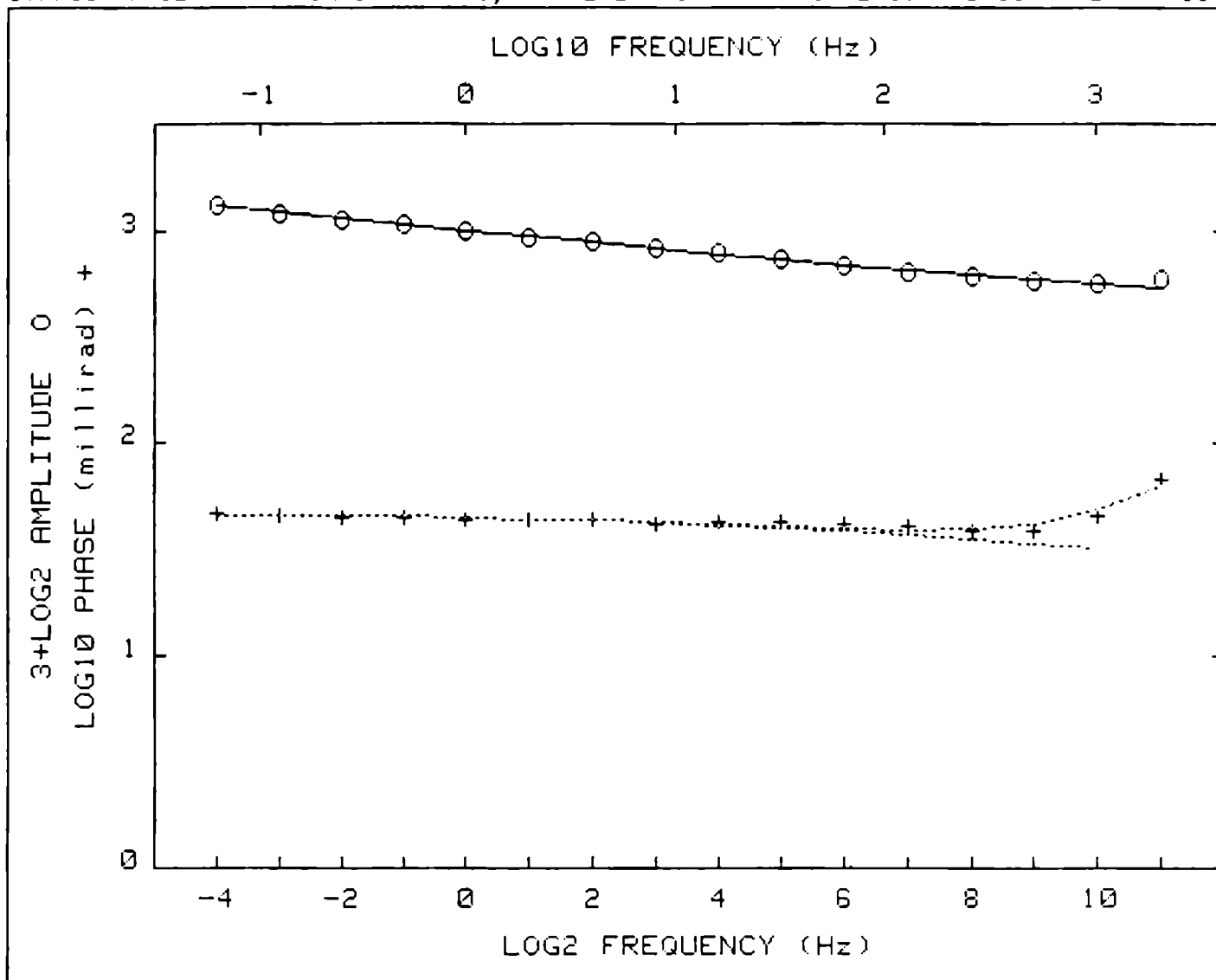
Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.09219	1.259	.400	1.0E+00	6.4E-05	1.000
1	1.E-02	.00261	1.377	.470	5.1E-01	5.0E-05	.936
2	1.E-03	.00216	1.336	.470	2.2E-01	5.1E-05	.903
3	1.E-04	.00213	1.335	.474	2.0E-01	5.1E-05	.896
4	1.E-05	.00213	1.335	.474	2.0E-01	5.1E-05	.895

Pct Std Deviations 2.3 2.7 71.6 7.0 2.8

Correlation Matrix	1.000				
	.160	1.000			
	.804	-.328	1.000		
	-.543	-.140	-.411	1.000	
	.262	-.695	.661	.332	1.000

Apparent Resistivity Measured at 1 Hz is 9.600

Apparent Resistivity Calculated from Inductive Coupling is 188.3



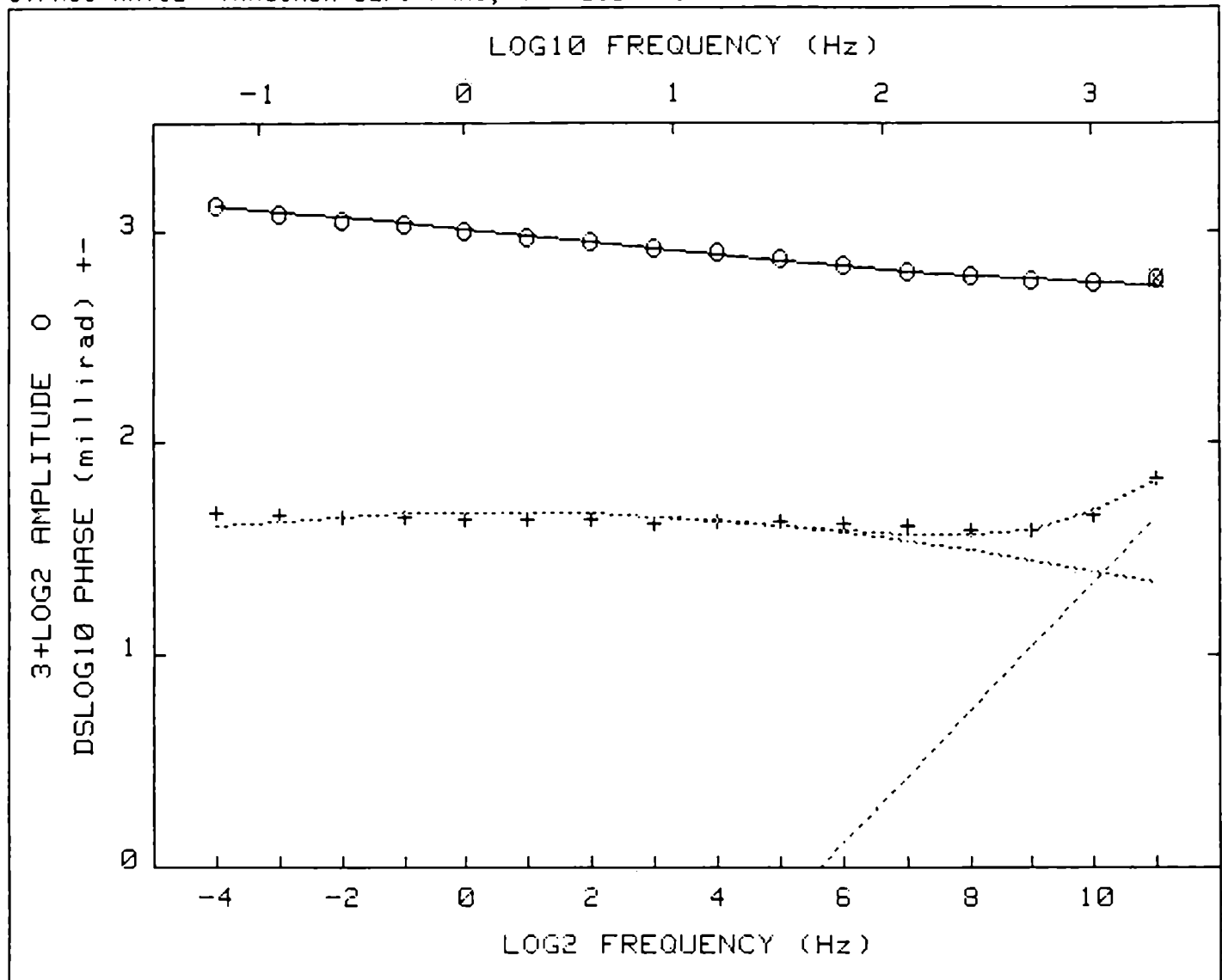
CRL: Number of dispersions= 2
M2=1 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00341	1.960	.657	5.0E+03	.104	4.6E-07
1	1.E-02	.00038	2.077	.707	5.0E+03	.098	8.0E-07
2	1.E-03	.00030	2.053	.684	4.8E+03	.106	9.8E-07
3	1.E-04	.00029	2.011	.677	2.7E+03	.108	9.9E-07
4	1.E-04	.00029	1.958	.666	1.5E+03	.111	1.0E-06
5	1.E-04	.00029	1.903	.653	7.9E+02	.114	1.1E-06
6	1.E-04	.00028	1.846	.639	4.0E+02	.118	1.1E-06
7	1.E-04	.00028	1.786	.623	2.0E+02	.122	1.2E-06
8	1.E-04	.00027	1.726	.606	9.6E+01	.127	1.2E-06
9	1.E-04	.00027	1.668	.587	4.7E+01	.133	1.3E-06

D

Pct Std Deviations 18.8 16.5 999.9 24.9 29.0

Correlation Matrix 1.000
 .997 1.000
 .999 .994 1.000
 - .988 - .997 - .984 1.000
 - .950 - .963 - .942 .966 1.000



CRL: Number of dispersions= 2 Initial Guess Code= 521

C1=.25 M2=1 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.07150	1.171	.200	1.0E+00	4.0E-06
1	1.E-02	.00518	1.229	.397	4.4E-01	3.4E-06
2	1.E-03	.00052	1.259	.378	3.1E-01	2.4E-06
3	1.E-04	.00051	1.260	.378	3.0E-01	2.3E-06
4	1.E-05	.00051	1.259	.378	3.0E-01	2.3E-06

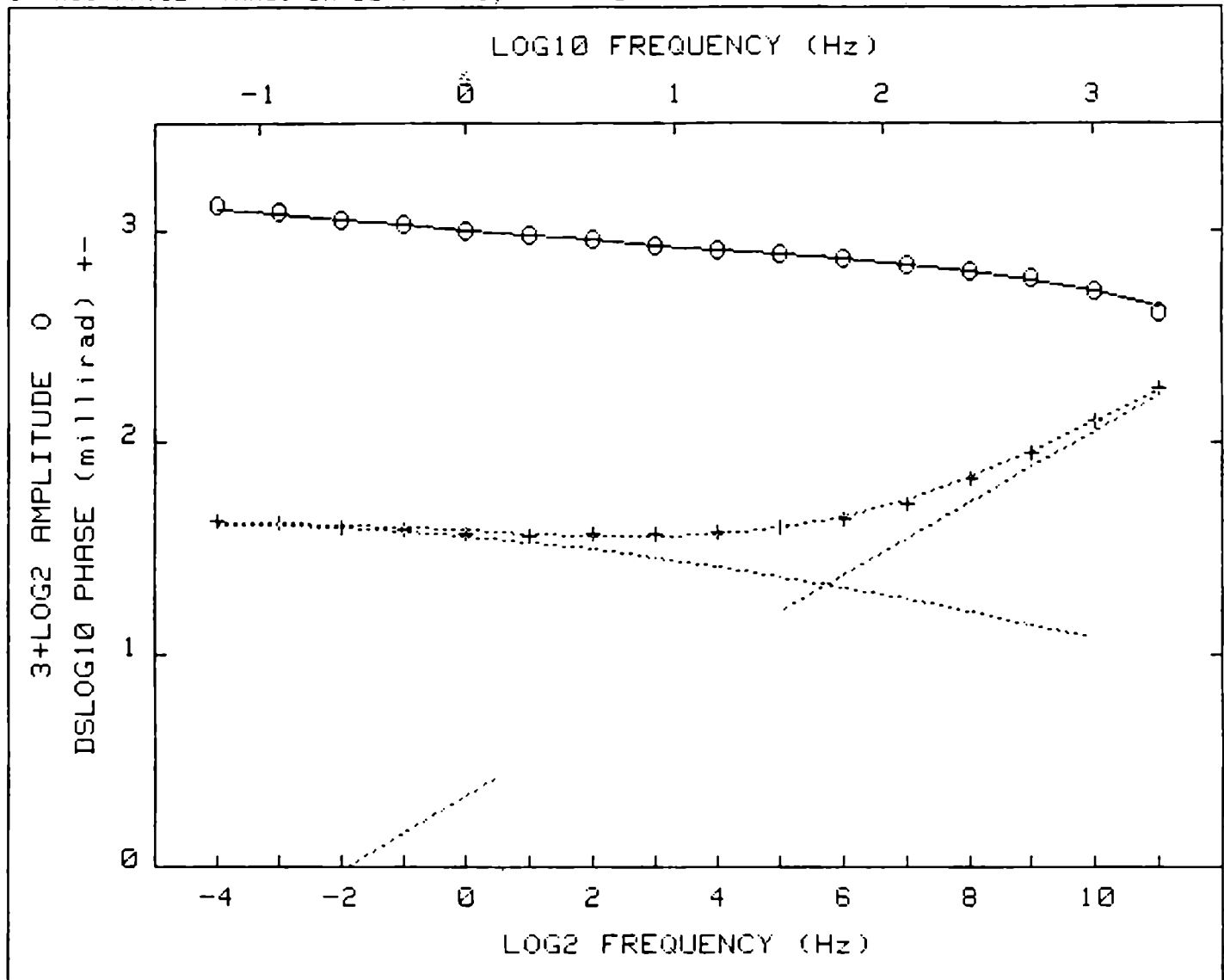
Pct Std Deviations .9 1.2 22.4 7.2

Correlation Matrix

	1.000			
	.670	1.000		
	.771	.399	1.000	
	.133	-.193	.357	1.000

Apparent Resistivity Measured at 1 Hz is 28.63

Apparent Resistivity Calculated from Inductive Coupling is 3169



CRL: Number of dispersions= 2 Initial Guess Code= 521

C1=.25 M2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.06901	1.109	.200	1.0E+00	6.4E-05	1.000
1	1.E-02	.01195	1.228	.318	1.5E+00	1.2E-05	.673
2	1.E-03	.00038	1.296	.328	3.8E+00	3.6E-06	.579
3	1.E-04	.00010	1.317	.337	5.4E+00	2.8E-06	.566
4	1.E-05	.00010	1.319	.337	5.6E+00	2.8E-06	.566

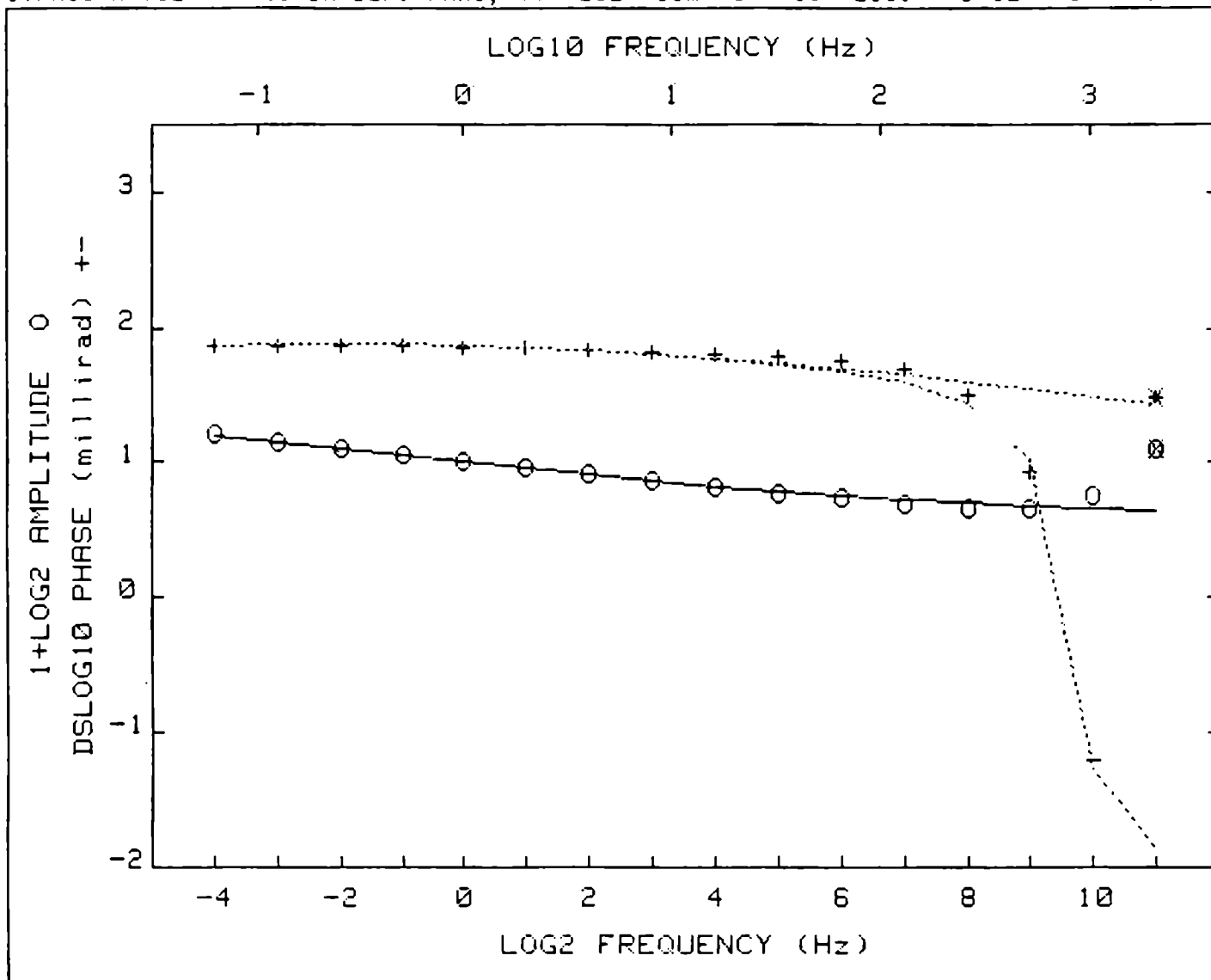
Pct Std Deviations: 1.0 1.3 30.4 8.0 2.4

Correlation Matrix

	1.000				
	.877	1.000			
	.941	.739	1.000		
	-.612	-.357	-.671	1.000	
	-.627	-.290	-.733	.946	1.000

Apparent Resistivity Measured at 1 Hz is 60.66

Apparent Resistivity Calculated from Inductive Coupling is 263.3



CRL: Number of dispersions= 2 Negative. Initial Guess Code= 521

C1=.25 M2=1 C2=1 fixed



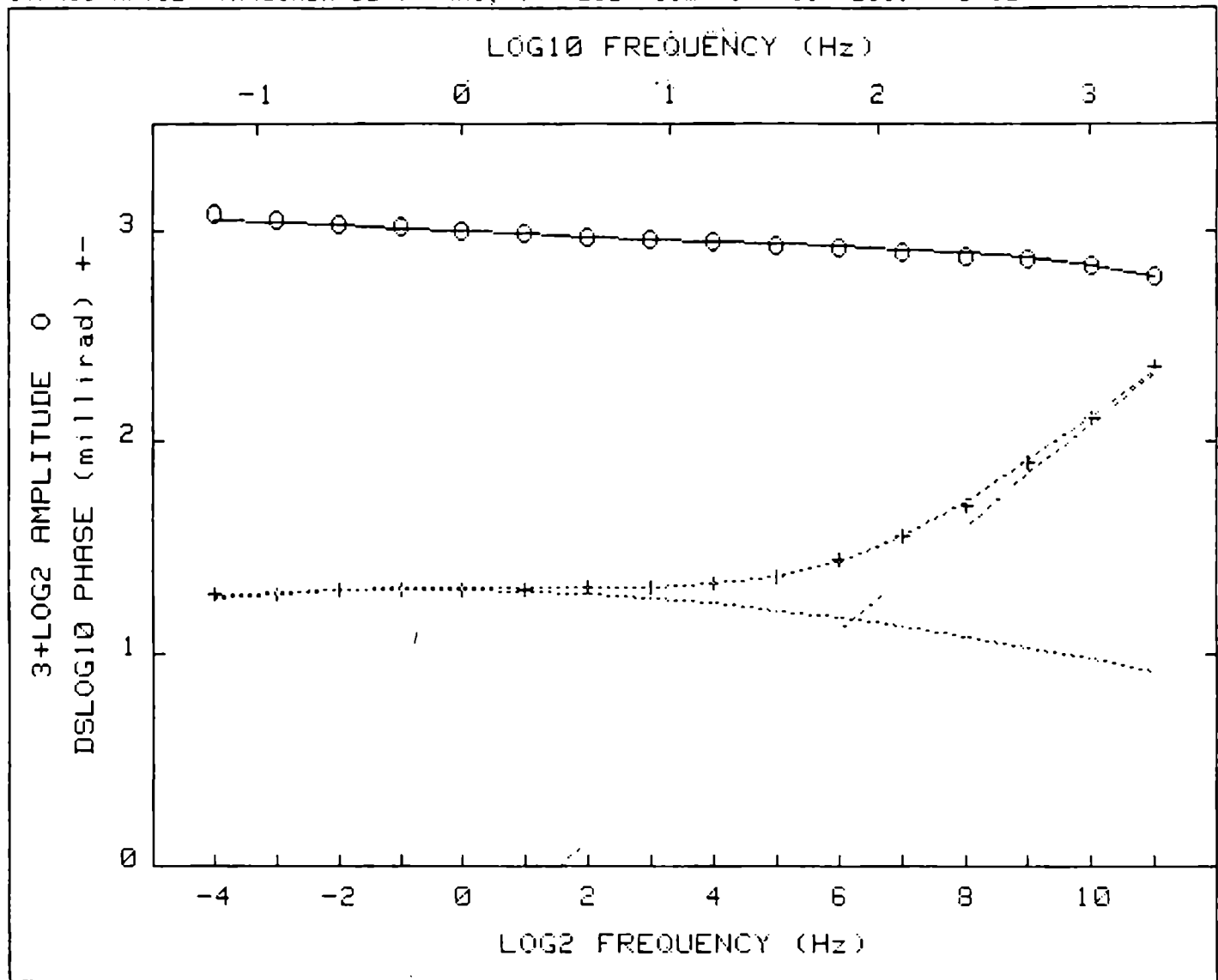
Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.02558	1.307	.400	1.0E+00	4.0E-06
1	1.E-02	.00443	1.478	.539	1.7E+00	4.5E-06
2	1.E-03	.00214	1.561	.538	2.5E+00	4.0E-06
3	1.E-04	.00213	1.565	.540	2.6E+00	3.9E-06

Pct Std Deviations 3.6 2.8 53.6 7.8

Correlation Matrix		1.000			
		.930	1.000		
		.920	.819	1.000	
		-.749	-.601	-.890	1.000

Apparent Resistivity Measured at 1 Hz is 16.97

Apparent Resistivity Calculated from Inductive Coupling is 3515



CRL: Number of dispersions= 2 Initial Guess Code= 521

C1=.25 M2=1 fixed



Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.02068	1.267	.200	1.0E+00	1.6E-05	1.000
1	1.E-02	.00021	1.123	.188	6.6E-01	1.1E-05	.826
2	1.E-03	.00011	1.114	.184	4.1E-01	1.0E-05	.811
3	1.E-04	.00011	1.112	.185	3.6E-01	1.0E-05	.817
4	1.E+00	.00011	1.112	.185	3.6E-01	1.0E-05	.817

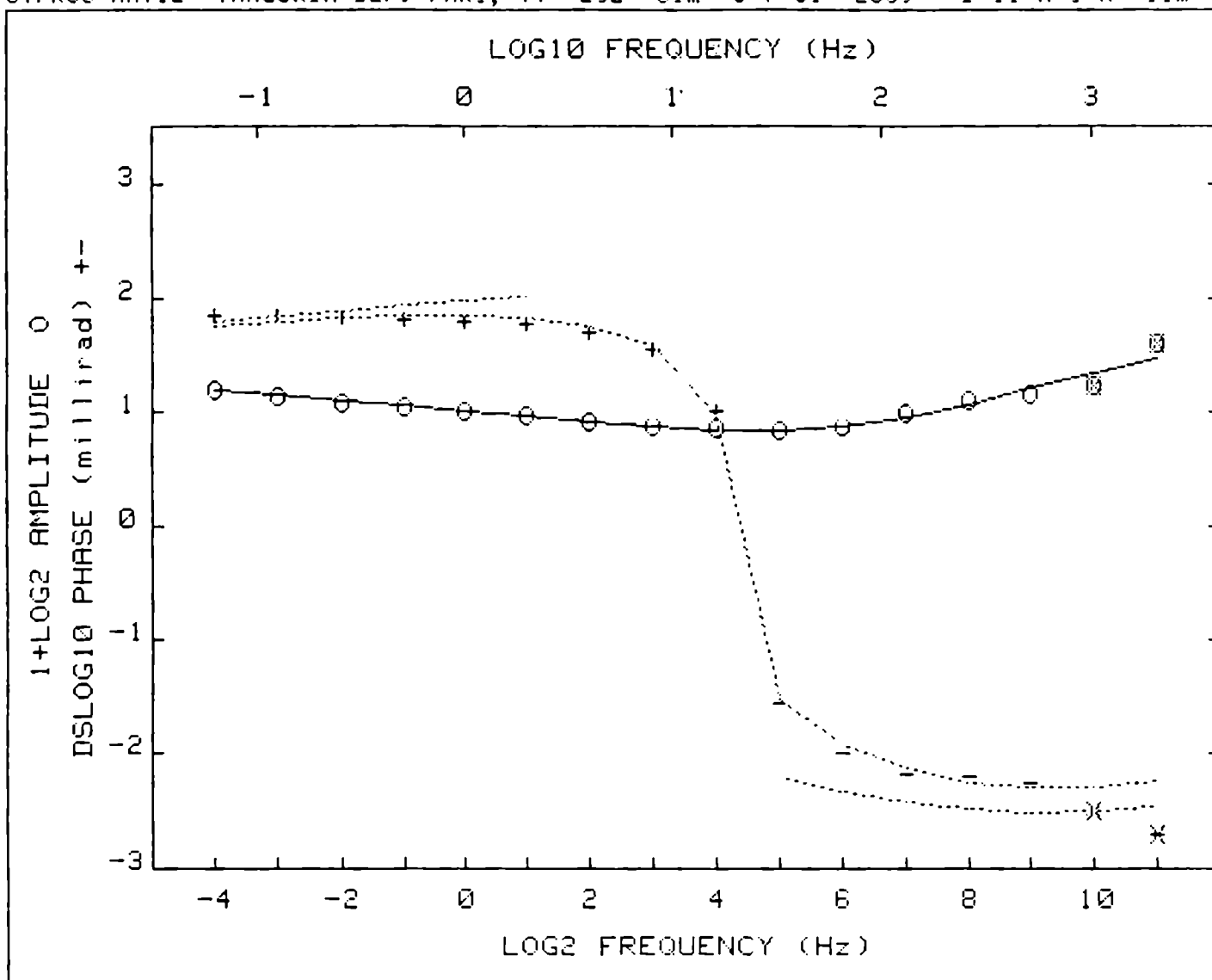
Pct Std Deviations .3 .9 20.9 4.2 1.6

Correlation Matrix

	1.000				
	.135	1.000			
	.747	-.201	1.000		
	-.368	.296	-.466	1.000	
	-.462	.445	-.641	.905	1.000

Apparent Resistivity Measured at 1 Hz is 128.8

Apparent Resistivity Calculated from Inductive Coupling is 137.3



CRL: Number of dispersions= 2 Negative. Initial Guess Code= 521

C1=.25 M2=1 fixed

D

Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.03694	1.289	.400	1.0E+00	2.5E-04	1.000
1	1.E-02	.01376	1.427	.534	4.2E-01	1.3E-04	.777
2	1.E-03	.00313	1.402	.585	1.4E-01	8.7E-05	.580
3	1.E-04	.00245	1.377	.643	6.2E-02	1.1E-04	.568
4	1.E-05	.00233	1.363	.695	3.2E-02	1.3E-04	.558
5	1.E-03	.00229	1.357	.733	2.2E-02	1.5E-04	.554
6	1.E-02	.00227	1.356	.744	2.0E-02	1.6E-04	.554

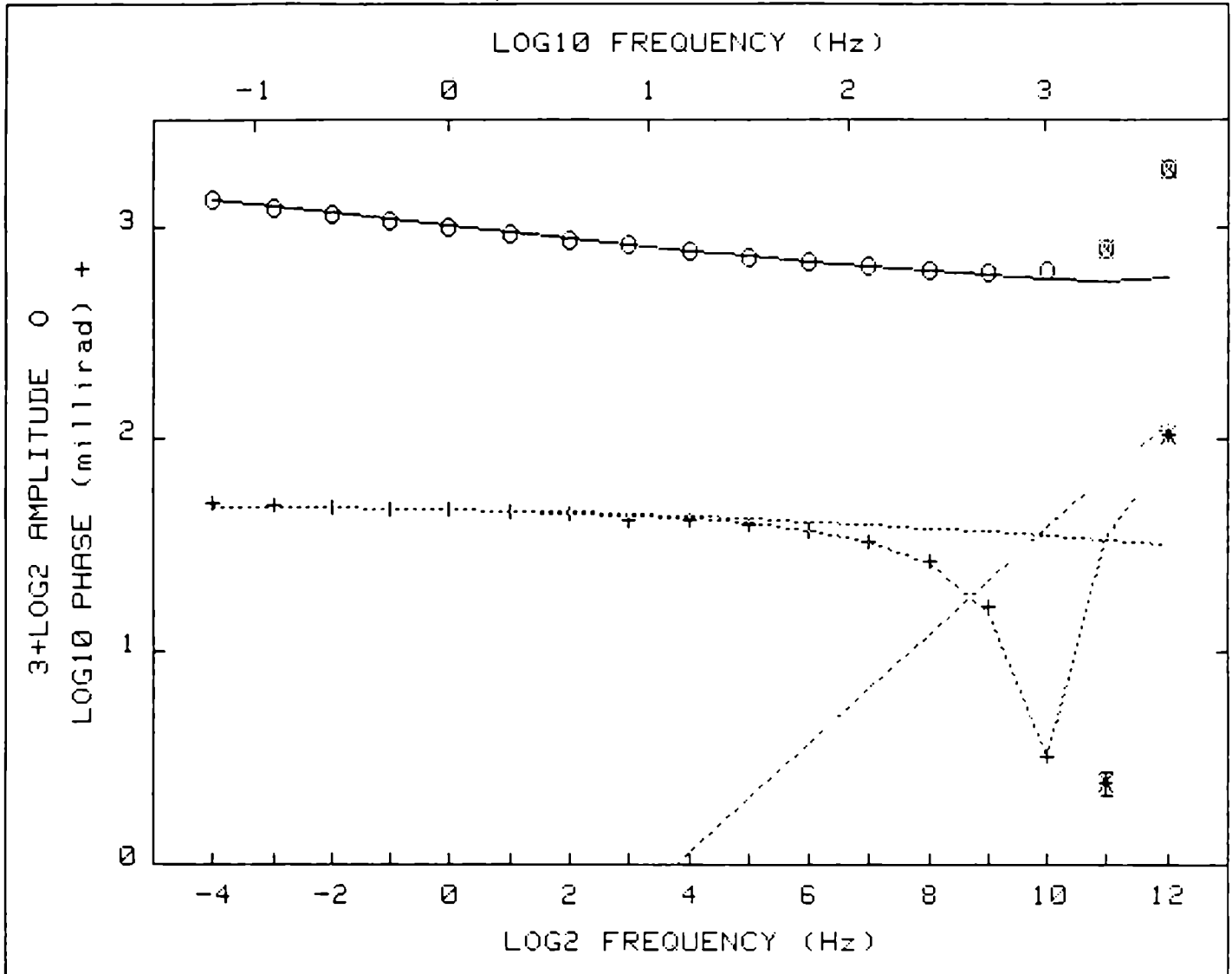
Pct Std Deviations 2.2 13.2 143.1 34.8 4.3

Correlation Matrix

	1.000				
	-.429	1.000			
	.667	-.943	1.000		
	-.555	.948	-.966	1.000	
	-.037	-.632	.437	-.358	1.000

Apparent Resistivity Measured at 1 Hz is 6.260

Apparent Resistivity Calculated from Inductive Coupling is 7.913



CRL: Number of dispersions= 2 Negative.
M2=.84 C2=.83 fixed

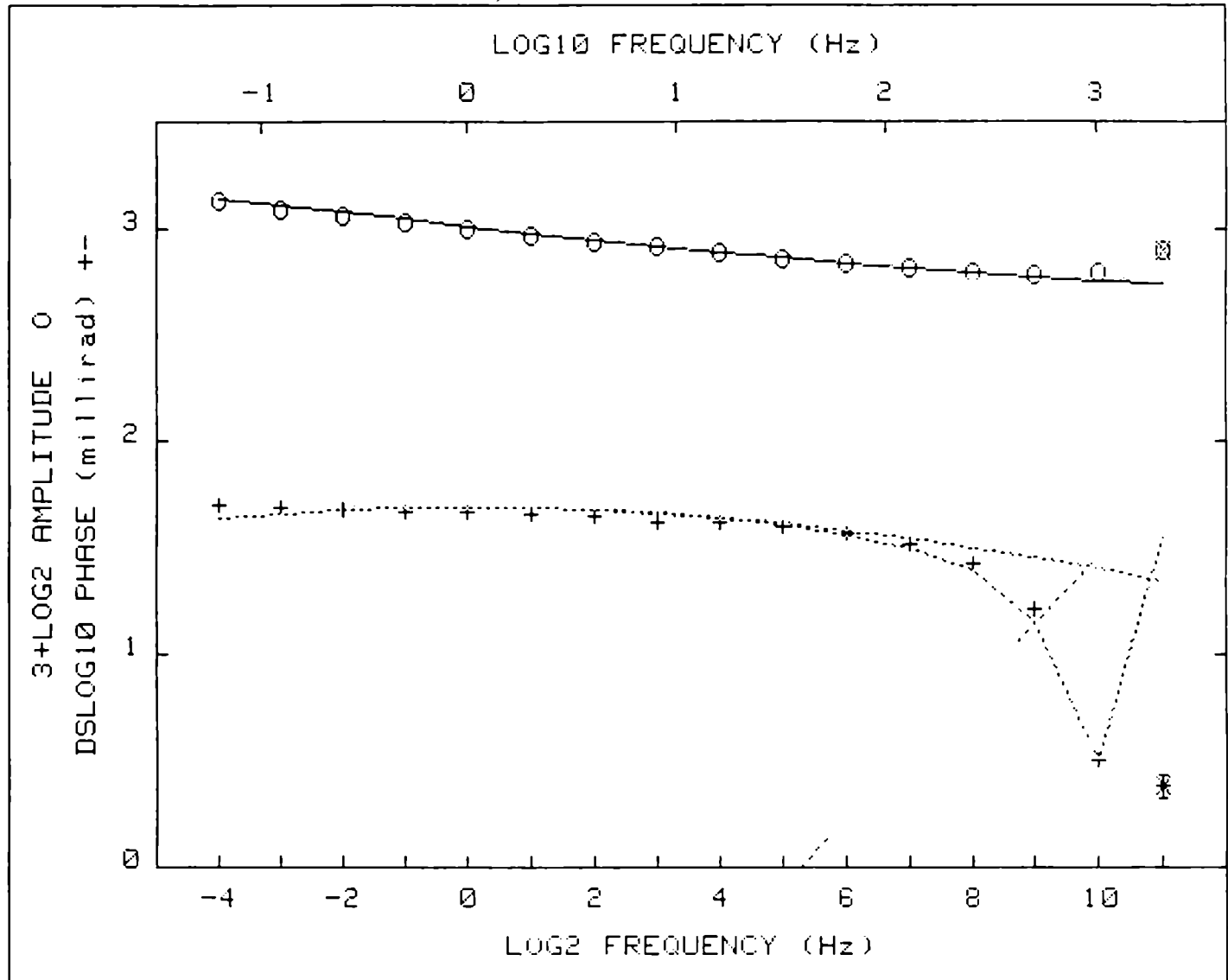
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00037	1.611	.564	1.7E+01	.150	1.6E-06
1	1.E-02	.00017	1.630	.583	1.8E+01	.140	1.7E-06
2	1.E-03	.00016	1.664	.597	2.5E+01	.134	1.7E-06
3	1.E-03	.00015	1.688	.605	3.4E+01	.132	1.7E-06
4	1.E-03	.00015	1.710	.612	4.4E+01	.130	1.7E-06
5	1.E-03	.00014	1.729	.618	5.5E+01	.128	1.7E-06
6	1.E-03	.00014	1.748	.623	6.9E+01	.126	1.6E-06
7	1.E-03	.00014	1.764	.628	8.4E+01	.125	1.6E-06
8	1.E-03	.00014	1.780	.632	1.0E+02	.123	1.6E-06
9	1.E-03	.00013	1.794	.636	1.2E+02	.122	1.6E-06

D

Pct Std Deviations 12.7 10.1 999.9 15.9 13.2

Correlation Matrix

1.000				
.997	1.000			
.999	.994	1.000		
-.988	-.997	-.985	1.000	
-.990	-.977	-.994	.962	1.000



CRL: Number of dispersions= 2 Negative. Initial Guess Code= 521

C1=.25 M2=1 C2=1 fixed

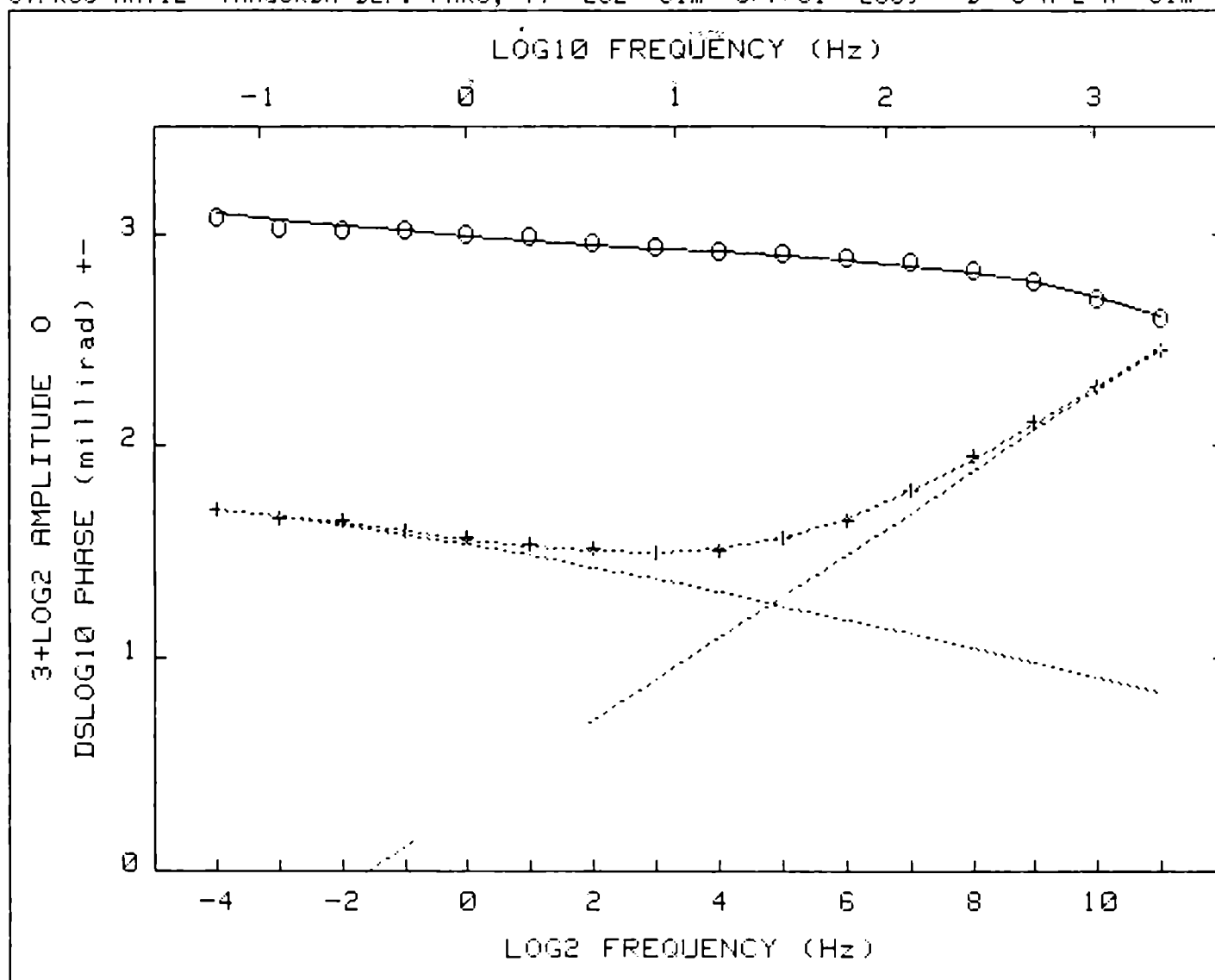
Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.07425	1.121	.400	1.0E+00	4.0E-06
1	1.E-02	.00378	1.330	.387	1.7E+00	2.2E-06
2	1.E-03	.00075	1.287	.385	4.3E-01	2.8E-06
3	1.E-04	.00066	1.290	.391	4.0E-01	2.9E-06
4	1.E-05	.00066	1.289	.391	3.9E-01	2.9E-06

Pct Std Deviations 1.1 1.4 22.9 3.1

Correlation Matrix 1.000
 .762 1.000
 .802 .596 1.000
 -0.647 -0.327 -0.936 1.000

Apparent Resistivity Measured at 1 Hz is 26.05

Apparent Resistivity Calculated from Inductive Coupling is 2529



CRL: Number of dispersions= 2 Initial Guess Code= 521

C1=.25 M2=1 fixed



Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.06411	1.231	.200	1.0E+00	1.6E-05	1.000
1	1.E-02	.00480	1.231	.340	2.6E+00	1.0E-05	.735
2	1.E-03	.00074	1.394	.358	3.2E+01	8.3E-06	.659
3	1.E-03	.00038	1.502	.412	8.6E+01	7.3E-06	.663
4	1.E-04	.00025	1.620	.449	2.4E+02	6.0E-06	.642
5	1.E-05	.00021	1.656	.458	2.9E+02	5.7E-06	.641
6	1.E-06	.00021	1.656	.458	2.9E+02	5.7E-06	.641

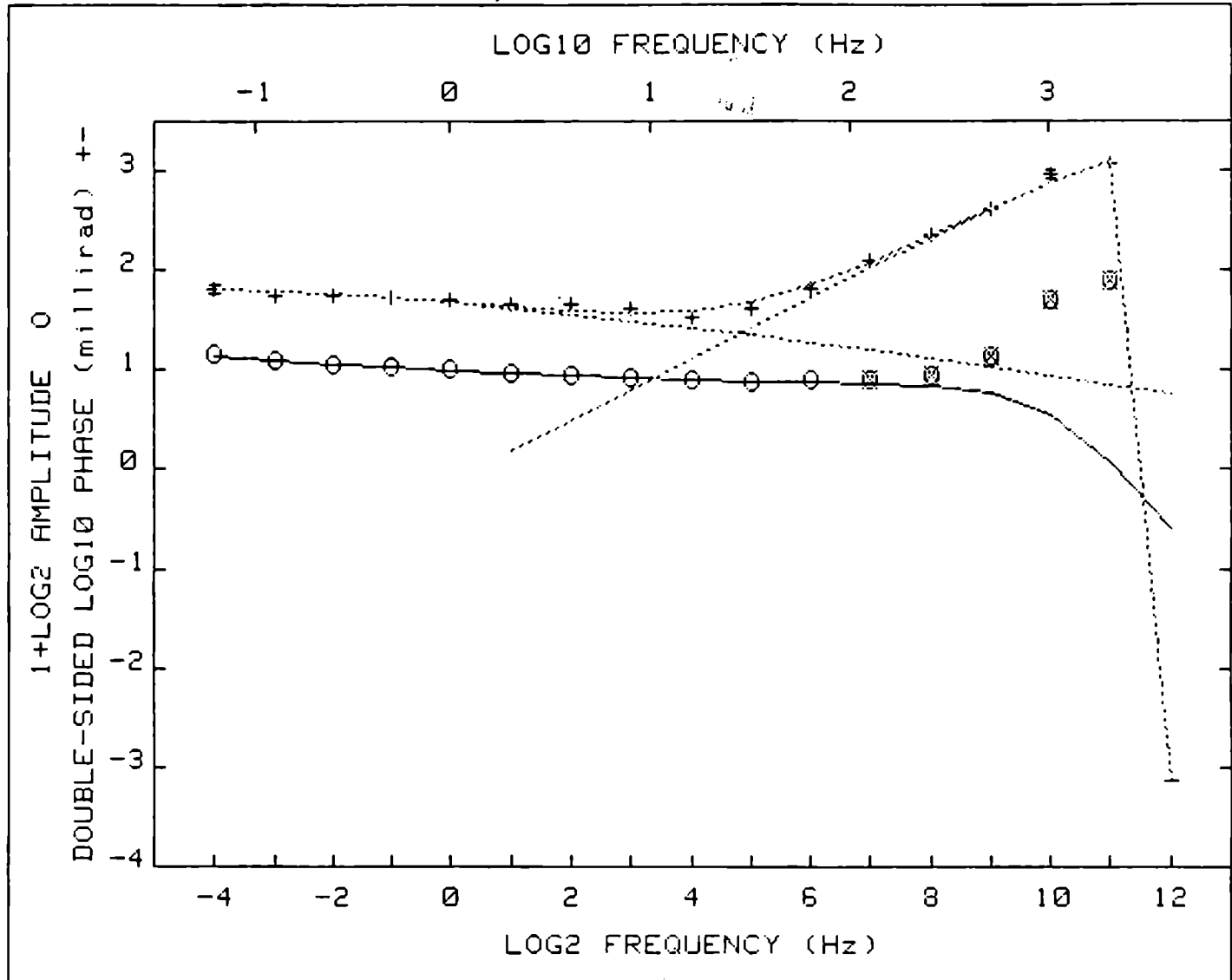
Pct Std Deviations: 5.4 6.0 92.8 15.1 2.5

Correlation Matrix

1.000					
.998	1.000				
.993	.989	1.000			
-.903	-.892	-.912	1.000		
-.698	-.670	-.729	.988	1.000	

Apparent Resistivity Measured at 1 Hz is 243.8

Apparent Resistivity Calculated from Inductive Coupling is 239.0



CRL: Number of dispersions= 2
 N2=.67 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00130	1.709	.492	7.6E+01	.269	1.0E-04
1	1.E-02	.00127	1.690	.482	6.6E+01	.278	1.0E-04
2	1.E-03	.00121	1.607	.455	3.5E+01	.292	1.1E-04
3	1.E-04	.00119	1.567	.439	2.5E+01	.301	1.1E-04
4	1.E-05	.00119	1.567	.438	2.5E+01	.301	1.1E-04

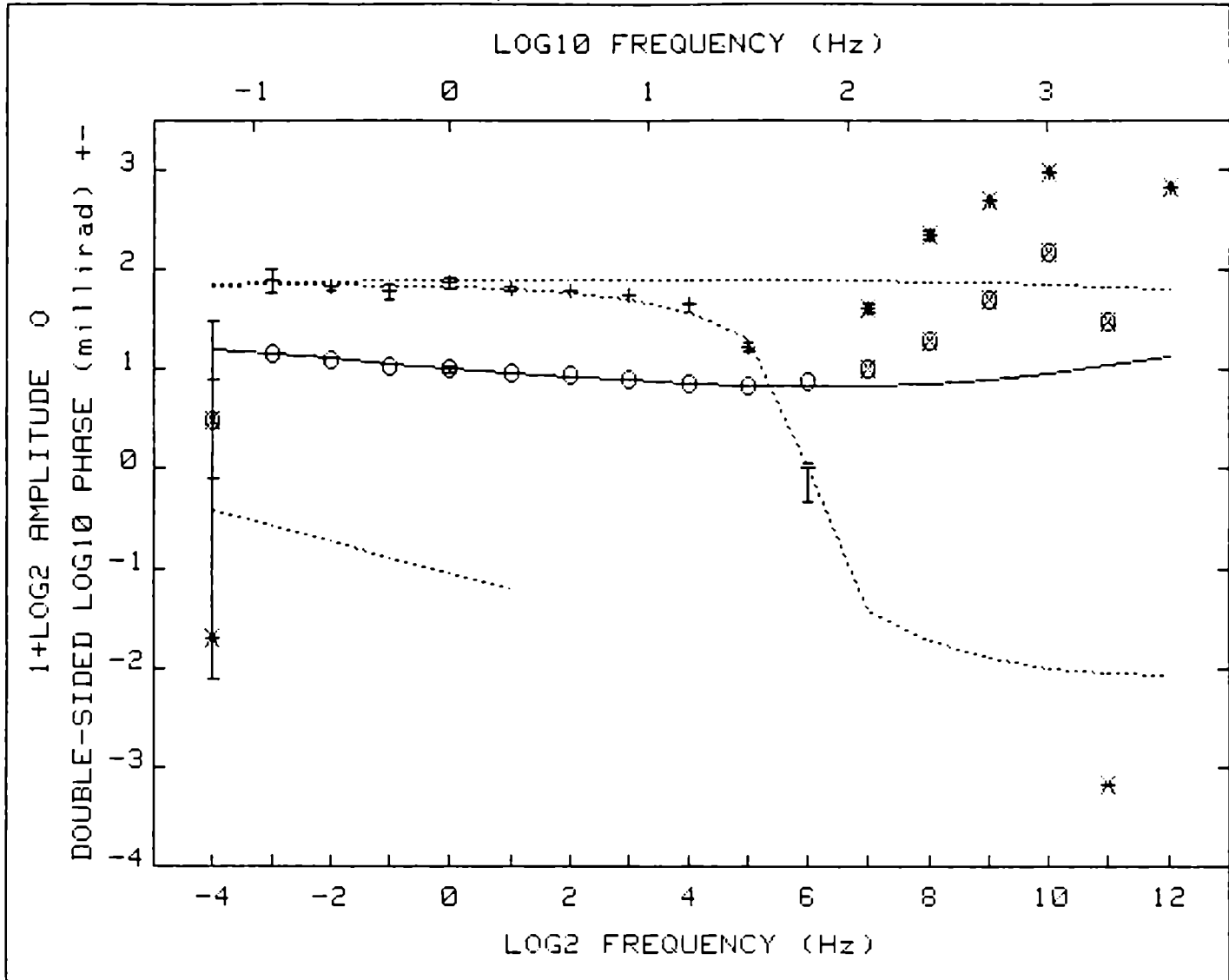


Pct Std Deviations 5.6 8.0 101.6 8.6 9.6

Correlation Matrix

	1.000					
	.980	1.000				
	.971	.970	1.000			
	-.728	-.816	-.793	1.000		
	-.869	-.906	-.856	.786	1.000	

Apparent Resistivity Measured at 1 Hz is 14.08
 Apparent Resistivity Calculated from Inductive Coupling is 577.5



CRL: Number of dispersions= 2 Negative.
M2=.48 C2=.48 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00222	1.000	.753	1.8E+00	.154	3.6E-05
1	1.E+01	.00221	1.000	.753	1.8E+00	.154	3.6E-05

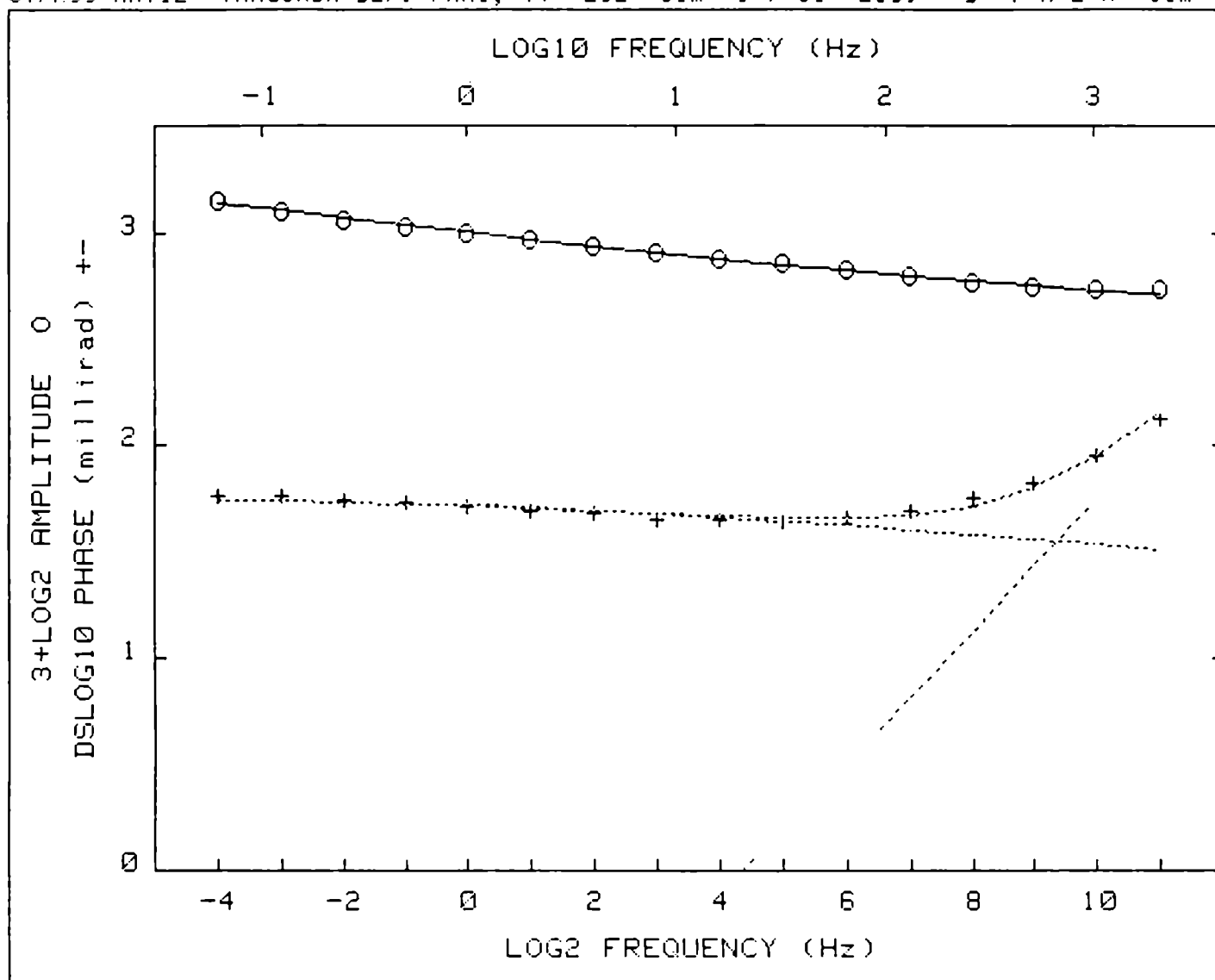
D

Pct Std Deviations 40.0 10.3 53.8 218.4

Correlation Matrix

1.000				
.981	1.000			
.998	.969	1.000		
-.981	-1.000	-.969	1.000	
-.997	-.982	-.994	.983	1.000

Apparent Resistivity Measured at 1 Hz is 2.020
Apparent Resistivity Calculated from Inductive Coupling is 98.08



CRL: Number of dispersions= 2 Initial Guess Code= 521

M2=1 C2=1 fixed

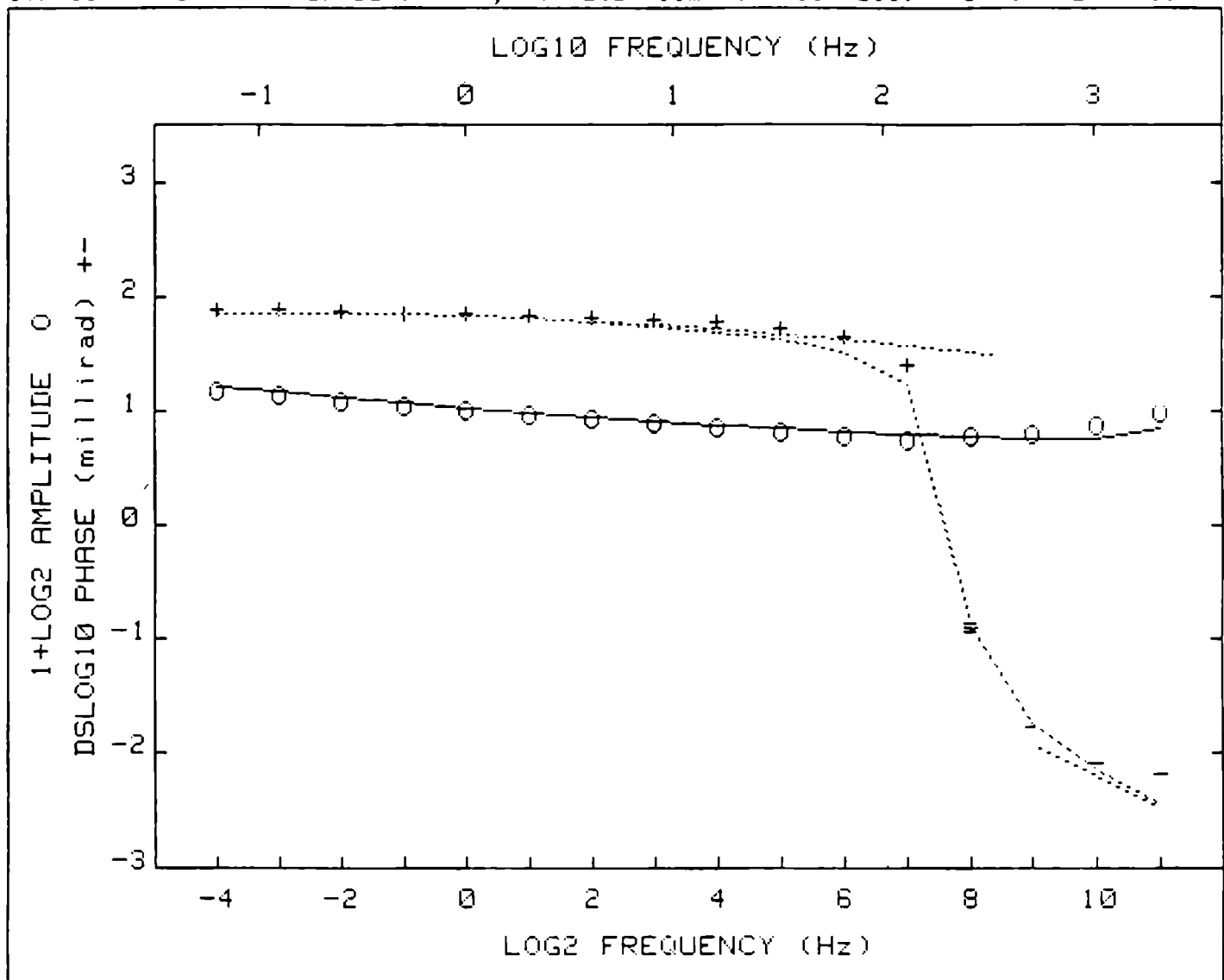
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.01726	1.405	.400	1.0E+00	.250	1.6E-05
1	1.E-02	.00146	1.417	.487	1.4E+00	.204	6.5E-06
2	1.E-03	.00061	1.538	.566	3.0E+00	.163	4.6E-06
3	1.E-03	.00039	1.648	.572	1.8E+01	.162	4.4E-06
4	1.E-03	.00036	1.709	.591	3.4E+01	.155	4.2E-06
5	1.E-03	.00034	1.757	.605	5.7E+01	.151	4.1E-06
6	1.E-03	.00033	1.793	.616	8.8E+01	.147	4.0E-06
7	1.E-03	.00032	1.834	.625	1.3E+02	.144	3.9E-06
8	1.E-03	.00031	1.868	.633	1.8E+02	.142	3.8E-06
9	1.E-03	.00030	1.898	.641	2.4E+02	.140	3.7E-06

Pct Std Deviations 22.9 16.5 4452.0 24.2 27.7

Correlation Matrix		1.000				
		.998	1.000			
		.999	.996	1.000		
		-.986	-.995	-.985	1.000	
		-.983	-.988	-.980	.984	1.000



$\rho = 86$



CRL: Number of dispersions= 2 Negative. Initial Guess Code= 521

C1=.25 M2=1 C2=1 fixed



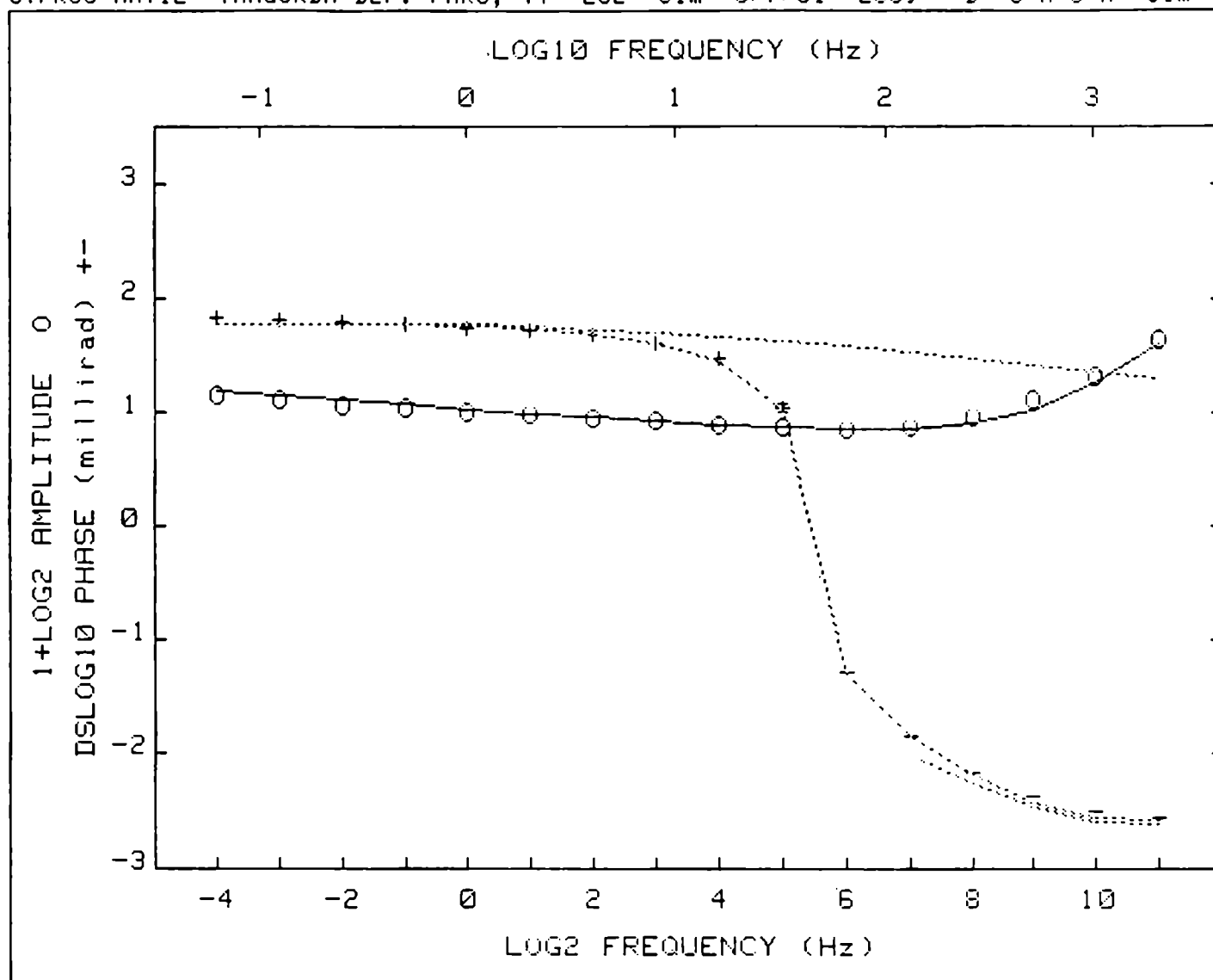
Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.03277	1.455	.400	1.0E+00	1.6E-05
1	1.E-02	.00819	1.509	.513	2.2E+00	1.4E-05
2	1.E-02	.00743	1.580	.509	3.9E+00	1.4E-05
3	1.E-02	.00740	1.615	.519	5.1E+00	1.3E-05

Pct Std Deviations 7.6 6.4 177.3 14.8

Correlation Matrix	1.000			
	.921	1.000		
	.923	.775	1.000	
	-.841	-.655	-.960	1.000

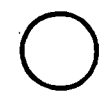
Apparent Resistivity Measured at 1 Hz is 17.79

Apparent Resistivity Calculated from Inductive Coupling is 551.1



CRL: Number of dispersions= 2 Negative. Initial Guess Code= 521

C1=.25 M2=1 fixed



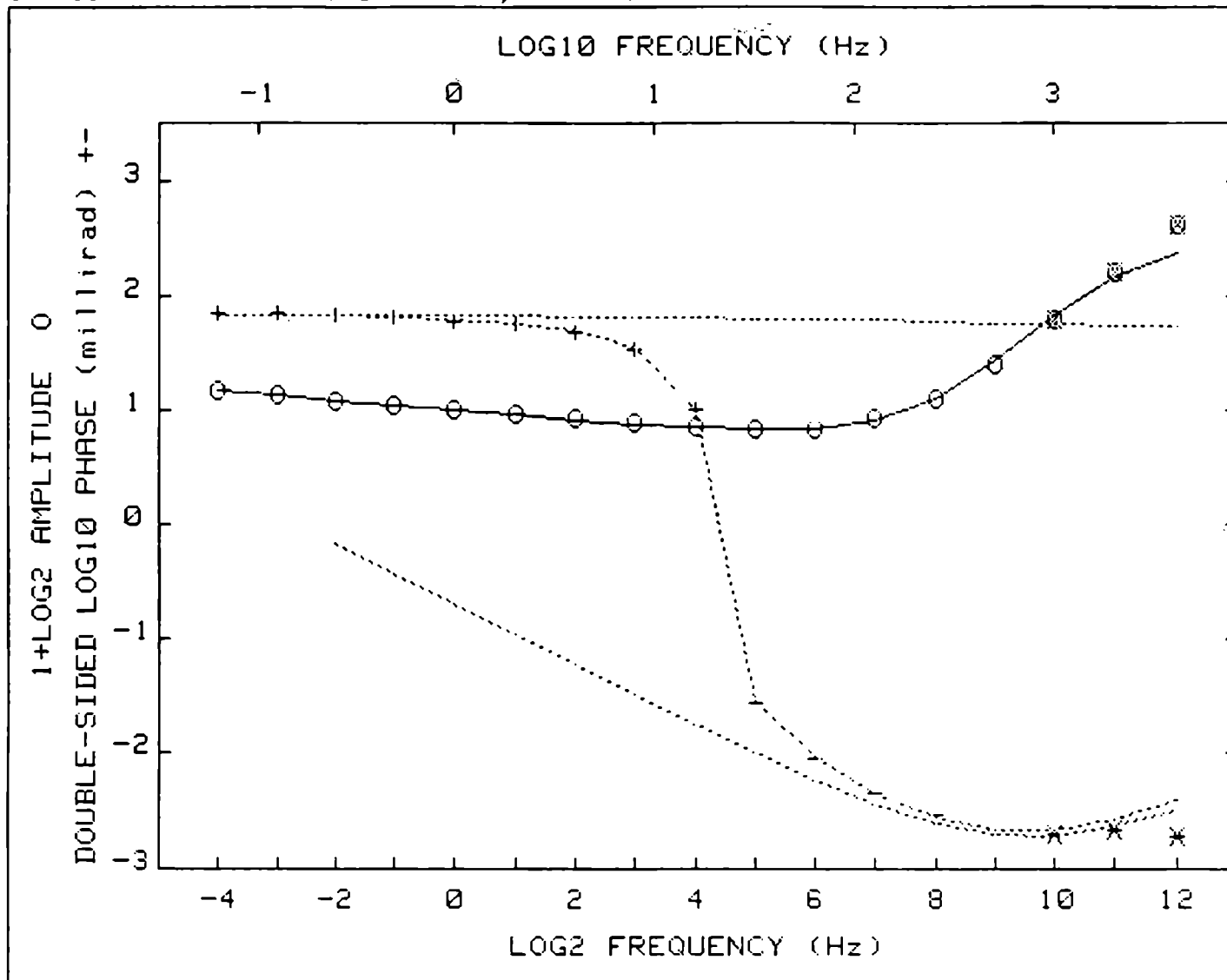
Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.06771	1.615	.400	1.0E+00	6.4E-05	1.000
1	1.E-02	.00476	1.425	.441	1.6E+00	5.6E-05	.900
2	1.E-03	.00156	1.478	.459	2.8E+00	5.5E-05	.875
3	1.E-04	.00151	1.479	.461	2.6E+00	5.6E-05	.874
4	1.E-05	.00151	1.479	.461	2.6E+00	5.6E-05	.875

Pct Std Deviations 3.0 2.8 66.6 6.7 2.3

Correlation Matrix		1.000				
		.858	1.000			
		.899	.648	1.000		
		-.630	-.591	-.539	1.000	
		.253	-.085	.531	.337	1.000

Apparent Resistivity Measured at 1 Hz is 19.65

Apparent Resistivity Calculated from Inductive Coupling is 158.7



CRL: Number of dispersions= 2 Negative.
M2=.82 C2=.83 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00021	2.859	.829	2.7E+04	.103	9.7E-05
1	1.E-02	.00014	2.860	.842	2.7E+04	.102	9.8E-05
2	1.E-03	.00014	2.856	.844	2.6E+04	.101	9.9E-05
3	1.E-04	.00014	2.821	.842	2.0E+04	.102	1.0E-04

D

Pct Std Deviations 5.9 1.9 202.0 5.5 7.6

Correlation Matrix

	1.000				
	.783	1.000			
	.996	.783	1.000		
	-.640	-.972	-.651	1.000	
	-.981	-.674	-.985	.525	1.000

Apparent Resistivity Measured at 1 Hz is 8.600
Apparent Resistivity Calculated from Inductive Coupling is 48.28



CRL: Number of dispersions= 2 Negative. Initial Guess Code= 521

C1=.25 M2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.26260	1.168	.200	1.0E+00	6.4E-05	1.000
1	1.E-02	.02693	1.370	.527	2.4E+00	1.7E-04	.977
2	1.E-03	.00385	1.736	.533	2.6E+01	1.4E-04	.936
3	1.E-04	.00257	1.869	.580	4.4E+01	1.3E-04	.931
4	1.E-05	.00255	1.898	.583	4.8E+01	1.3E-04	.930

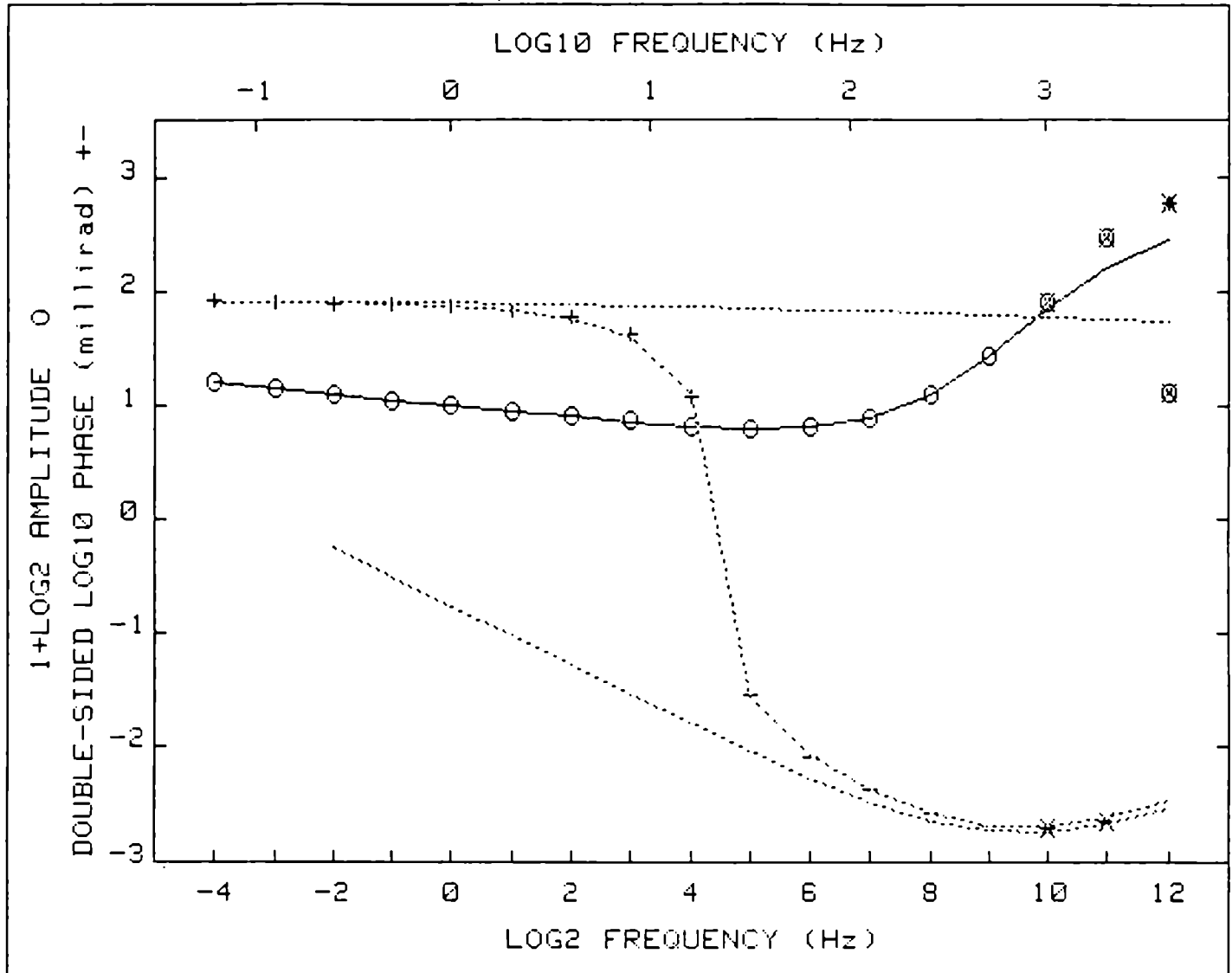
Pct Std Deviations 5.2 3.6 66.6 9.0 1.9

Correlation Matrix

	1.000				
	.953	1.000			
	.899	.805	1.000		
	-.831	-.796	-.760	1.000	
	-.160	-.295	.151	.453	1.000

Apparent Resistivity Measured at Hz is 8.600

Apparent Resistivity Calculated from Inductive Coupling is 45.77



CRL: Number of dispersions= 2 Negative.
M2=.95 C2=.81 fixed

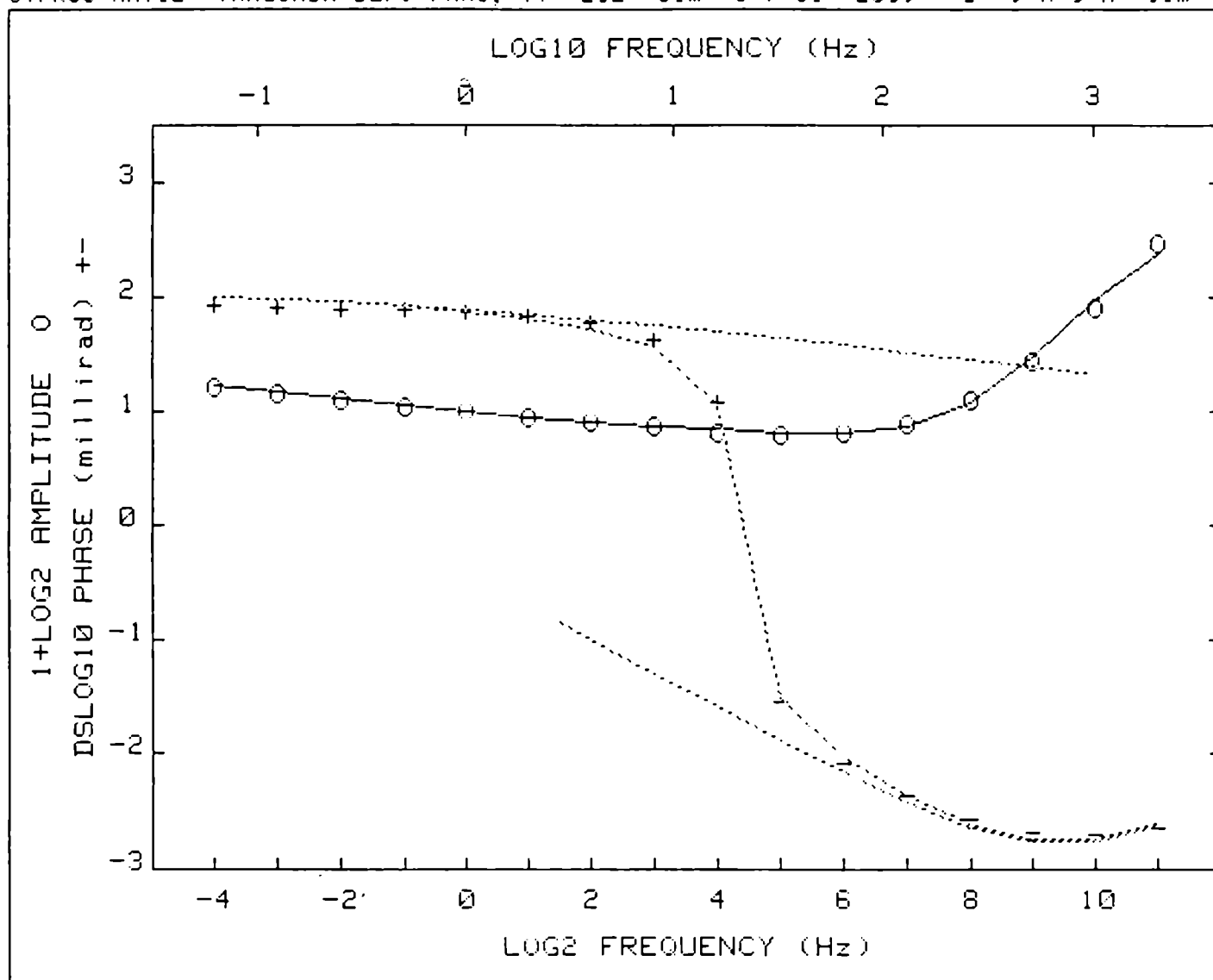
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00010	2.465	.794	4.6E+02	.138	1.0E-04
1	1.E-02	.00009	2.474	.797	4.8E+02	.136	1.0E-04
2	1.E-03	.00009	2.518	.802	6.3E+02	.134	9.9E-05
3	1.E-04	.00008	2.667	.818	1.5E+03	.129	9.2E-05
4	1.E-05	.00007	2.755	.824	2.6E+03	.127	8.8E-05
5	1.E-06	.00007	2.762	.824	2.7E+03	.127	8.8E-05

D

Pct Std Deviations 4.5 1.4 101.0 3.7 5.9

Correlation Matrix		1.000				
		.887	1.000			
		.997	.892	1.000		
		-.744	-.961	-.763	1.000	
		-.983	-.805	-.984	.648	1.000

Apparent Resistivity Measured at 1 Hz is 5.960
Apparent Resistivity Calculated from Inductive Coupling is 82.97



CRL: Number of dispersions= 2 Negative. Initial Guess Code= 521

C1=.25 M2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.20637	1.898	.400	1.0E+00	2.5E-04	1.000
1	1.E-02	.01546	1.643	.593	8.1E+00	1.7E-04	.907
2	1.E-03	.00346	2.123	.630	1.0E+02	1.3E-04	.948
3	1.E-04	.00257	2.352	.674	1.8E+02	1.2E-04	.947
4	1.E-05	.00257	2.392	.675	2.0E+02	1.1E-04	.947

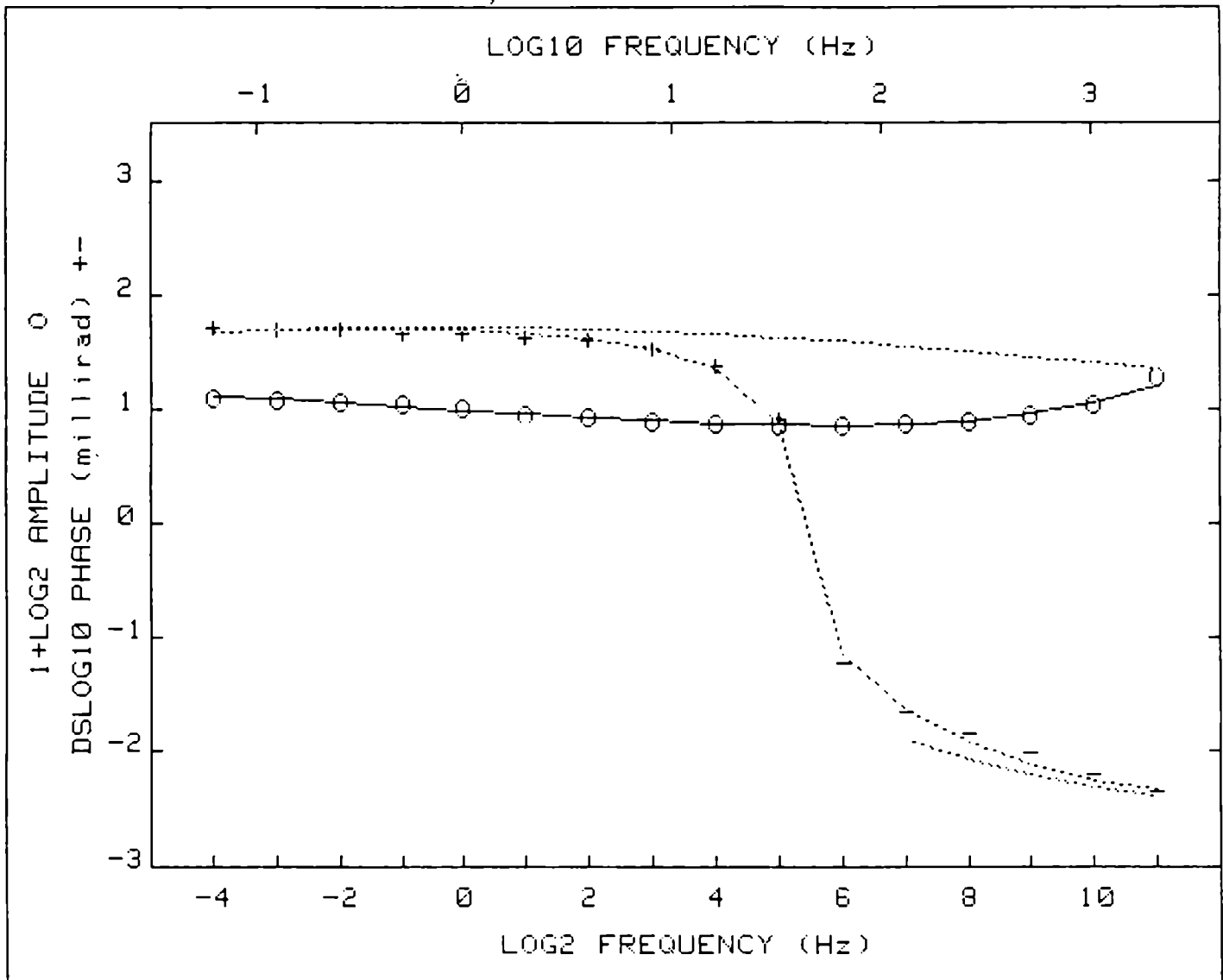
Pct Std Deviations 6.2 3.0 59.0 9.9 1.8

Correlation Matrix

	1.000				
	.967	1.000			
	.905	.829	1.000		
	-.884	-.859	-.807	1.000	
	-.303	-.405	-.002	.531	1.000

Apparent Resistivity Measured at 1 Hz is 5.960

Apparent Resistivity Calculated from Inductive Coupling is 102.3



CRL: Number of dispersions= 2 Negative. Initial Guess Code= 521

C1=.25 M2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.08595	1.104	.400	1.0E+00	6.4E-05	1.000
1	1.E-02	.00582	1.321	.386	1.3E+00	3.0E-05	.746
2	1.E-03	.00208	1.314	.413	6.3E-01	2.0E-05	.649
3	1.E-04	.00155	1.313	.419	5.9E-01	1.8E-05	.618
4	1.E-05	.00153	1.315	.418	6.3E-01	1.7E-05	.620
5	1.E-01	.00153	1.315	.418	6.3E-01	1.7E-05	.620

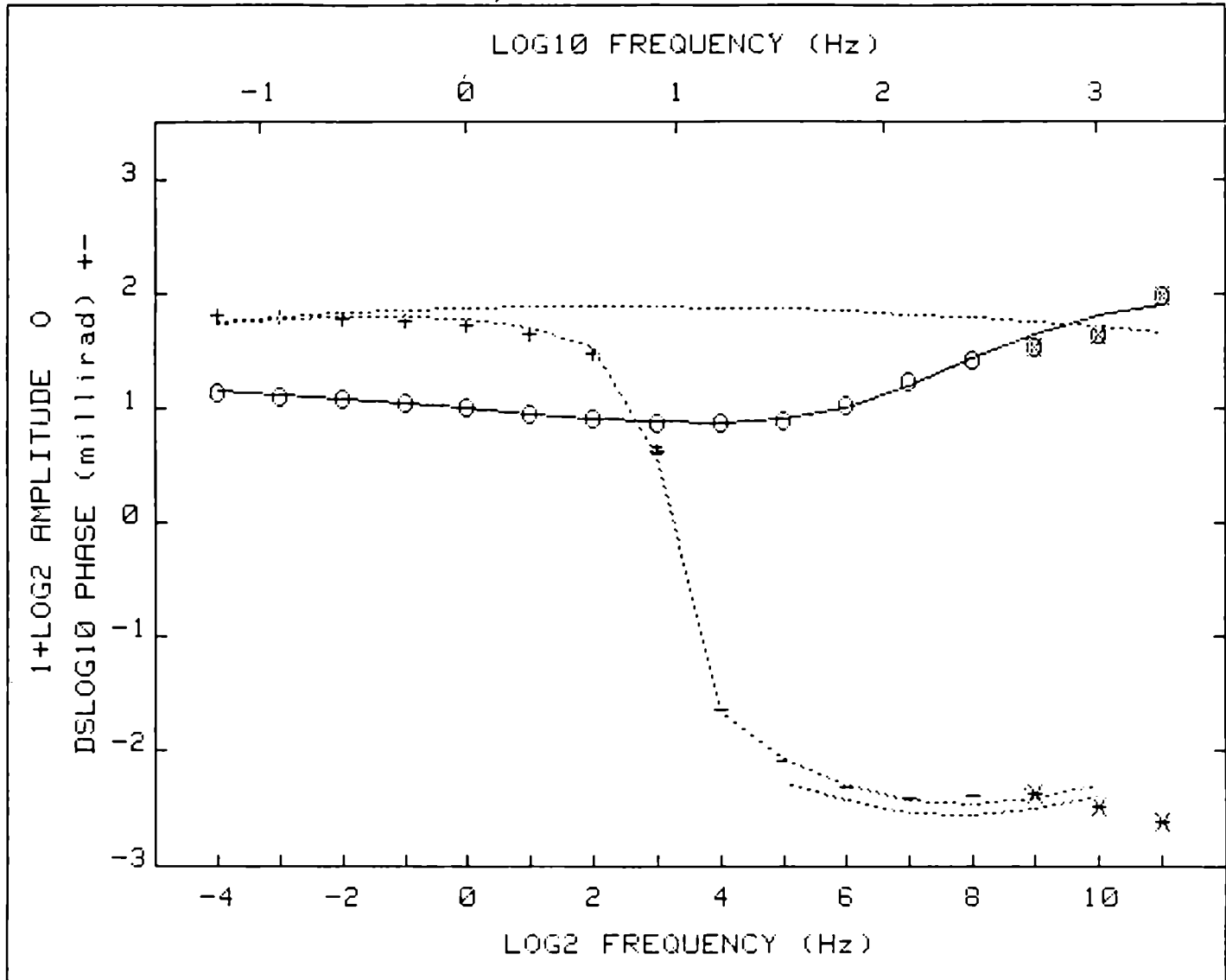
Pct Std Deviations 2.3 2.8 89.1 10.2 4.3

Correlation Matrix

1.000				
.201	1.000			
.866	-.218	1.000		
-.455	-.320	-.339	1.000	
.451	-.638	.740	.323	1.000

Apparent Resistivity Measured at 1 Hz is 10.12

Apparent Resistivity Calculated from Inductive Coupling is 67.93



CRL: Number of dispersions= 2 Negative. Initial Guess Code= 521

C1=.25 M2=1 fixed

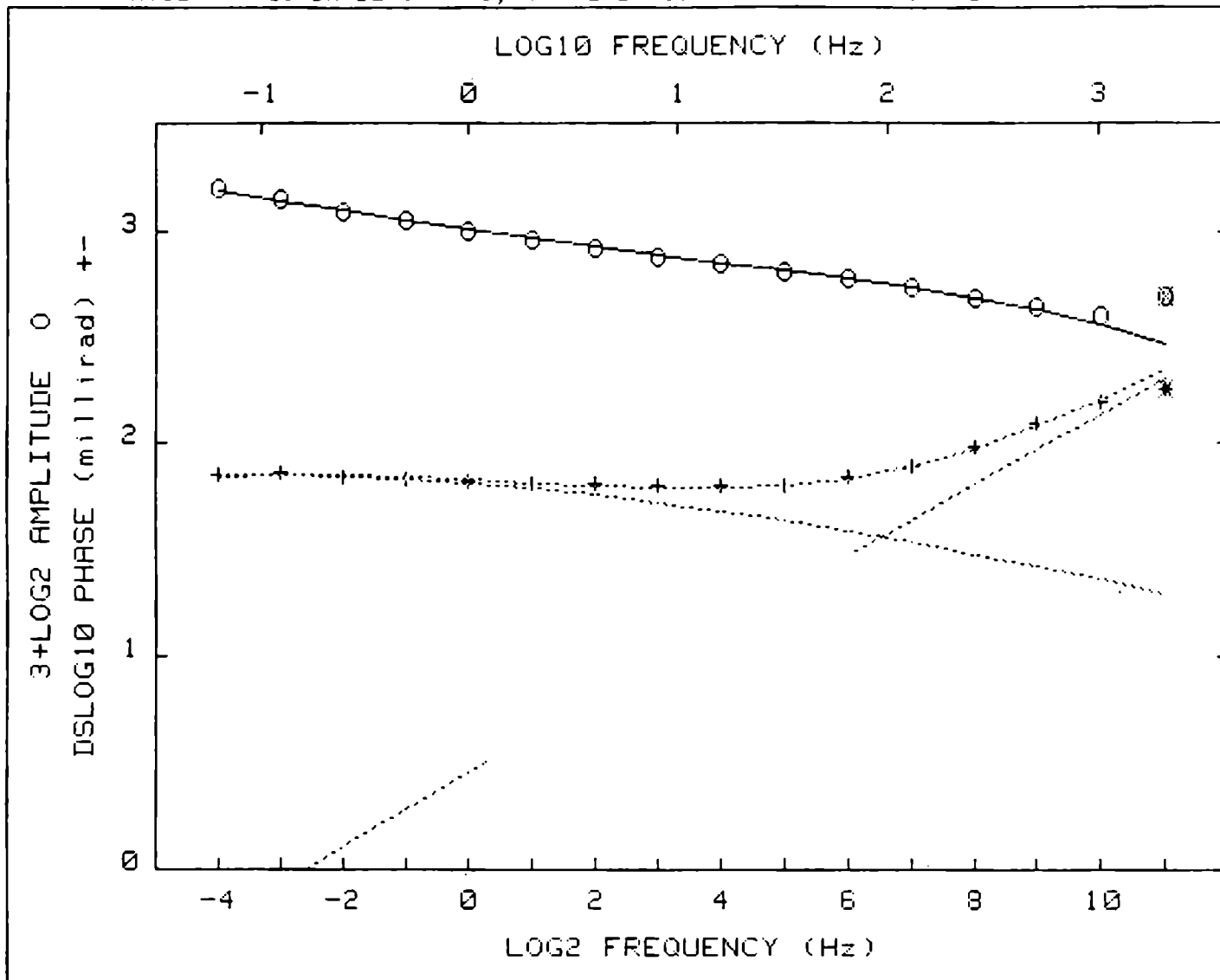
Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.17785	1.315	.600	1.0E+00	1.0E-03	1.000
1	1.E-02	.10557	1.325	.512	2.5E-01	5.6E-04	.822
2	1.E-03	.00644	1.350	.549	1.1E-01	4.2E-04	.769
3	1.E-04	.00360	1.351	.540	1.5E-01	4.1E-04	.744
4	1.E-05	.00240	1.352	.537	1.6E-01	4.1E-04	.751
5	1.E-06	.00167	1.350	.540	1.5E-01	4.1E-04	.752
6	1.E-07	.00150	1.349	.543	1.4E-01	4.1E-04	.752
7	1.E-08	.00147	1.348	.544	1.4E-01	4.1E-04	.751
8	1.E-09	.00147	1.348	.544	1.4E-01	4.1E-04	.751

Pct Std Deviations 2.4 126.2 10.6 3.0

Correlation Matrix	1.000				
	-.513	1.000			
	.826	-.883	1.000		
	-.772	.722	-.855	1.000	
	.349	-.898	.744	-.383	1.000



$\rho = 11$



CRL: Number of dispersions= 2 Initial Guess Code= 521

C1=.25 M2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2	C2
0	1.E-02	.01719	1.319	.400	1.0E+00	1.6E-05	1.000
1	1.E-02	.00171	1.450	.517	1.1E+00	7.4E-06	.787
2	1.E-03	.00023	1.521	.504	2.5E+00	3.5E-06	.634
3	1.E-04	.00014	1.573	.507	5.3E+00	2.2E-06	.556
4	1.E-05	.00013	1.594	.510	6.6E+00	2.0E-06	.540
5	1.E-06	.00013	1.597	.511	6.8E+00	1.9E-06	.538

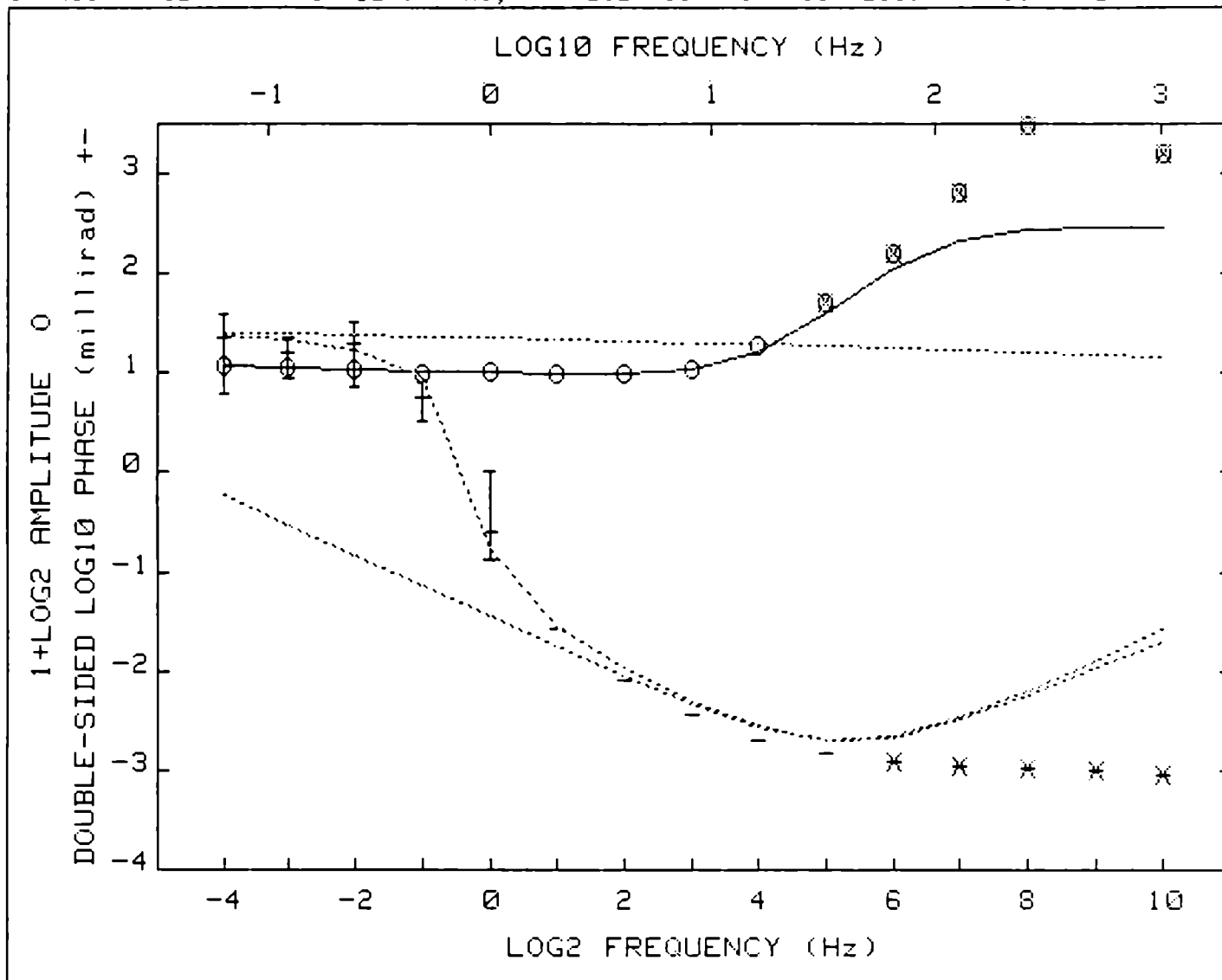
Pct Std Deviations: 1.8 1.0 36.3 19.2 4.9

Correlation Matrix

1.000				
.786	1.000			
.954	.603	1.000		
-.657	-.210	-.735	1.000	
-.655	-.134	-.769	.972	1.000

Apparent Resistivity Measured at 1 Hz is 48.55

Apparent Resistivity Calculated from Inductive Coupling is 551.7



CRL: Number of dispersions= 2 Negative.
 C1=.1 M2=1 C2=1 fixed

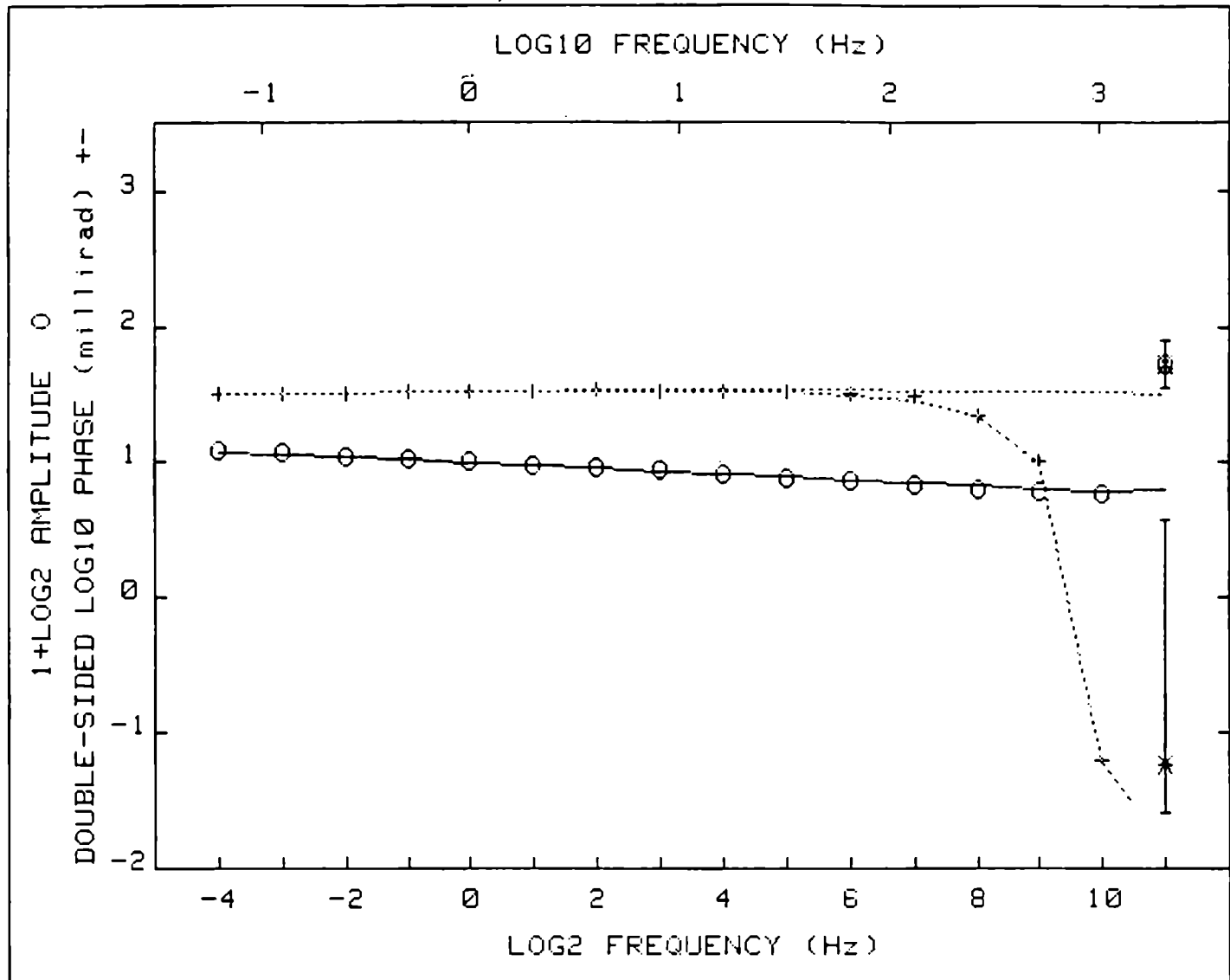
Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.06213	1.300	.401	9.5E+01	2.3E-03
1	1.E-02	.02287	1.411	.447	9.9E+01	3.9E-03
2	1.E-03	.01424	1.440	.440	4.2E+02	3.2E-03
3	1.E-04	.01373	1.632	.494	1.1E+05	2.8E-03
4	1.E-03	.01223	1.734	.523	2.6E+05	2.6E-03
5	1.E-03	.01199	1.800	.539	6.1E+05	2.5E-03
6	1.E-03	.01188	1.858	.552	1.4E+06	2.4E-03

Pct Std Deviations 54.9 37.5 999.9 62.6

Correlation Matrix

	1.000			
	.995	1.000		
	.994	.986	1.000	
	-.984	-.970	-.994	1.000

Apparent Resistivity Measured at 1 Hz is .330
 Apparent Resistivity Calculated from Inductive Coupling is 2.983



CRL: Number of dispersions= 3 Negative.
 C1=.1 C2=1 T3=.000049 fixed

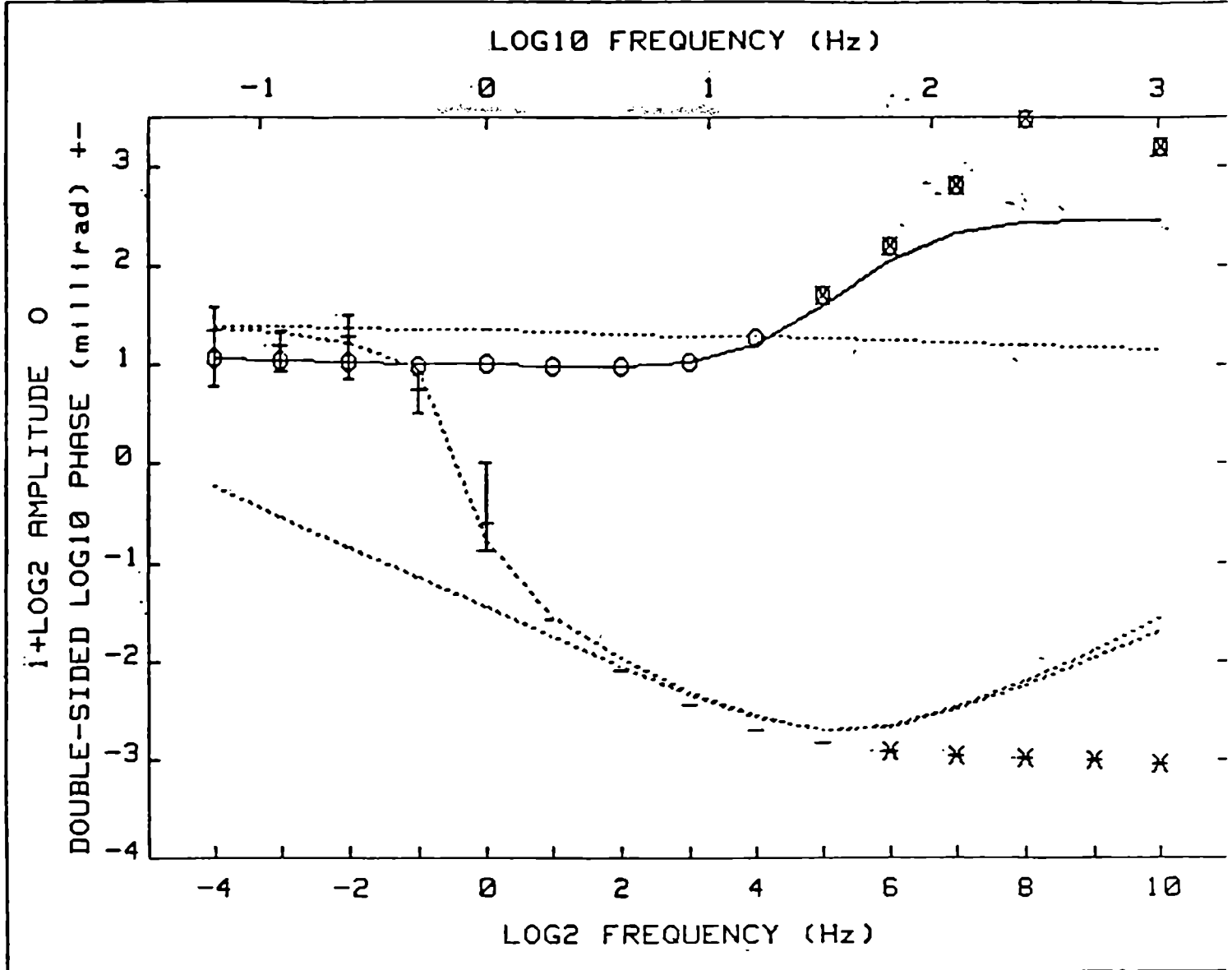
Iter	Lambda	Rchsq	R0	M1	T1	M2	T2	M3	C3
0	1.E-02	.14579	1.400	.600	8.7E+00	1.000	4.2E-05	1.000	1.000
1	1.E-02	.01408	1.517	.579	8.0E+00	.921	4.5E-05	.946	1.000
2	1.E-03	.00555	1.500	.576	4.6E+00	.702	5.7E-05	.910	1.000
3	1.E-04	.00019	1.439	.579	6.0E-01	.724	5.4E-05	.885	1.000
4	1.E+01	.00019	1.440	.580	6.0E-01	.723	5.4E-05	.885	1.000

Pct Std Deviations 2.0 1.4 226.0 12.4 13.5 1.7 1.1

Correlation Matrix

	1.000								
	-.727	1.000							
	.975	-.846	1.000						
	.196	-.291	.259	1.000					
	-.266	.383	-.337	-.988	1.000				
	-.402	.418	-.407	.609	-.485	1.000			
	.571	-.739	.662	.746	-.834	-.062	1.000		

Apparent Resistivity Measured at 1 Hz is 94.71
 Apparent Resistivity Calculated from Inductive Coupling is 71.30



CRL: Number of dispersions= 2 Negative.
 C1=.1 M2=1 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2
0	1.E-02	.06213	1.300	.401	9.5E+01	2.3E-03
1	1.E-02	.02287	1.411	.447	9.9E+01	3.9E-03
2	1.E-03	.01424	1.440	.440	4.2E+02	3.2E-03
3	1.E-04	.01373	1.632	.494	1.1E+05	2.8E-03
4	1.E-03	.01223	1.734	.523	2.6E+05	2.6E-03
5	1.E-03	.01199	1.800	.539	6.1E+05	2.5E-03
6	1.E-03	.01188	1.858	.552	1.4E+06	2.4E-03



Pct Std Deviations 54.9 37.5 999.9 62.6

Correlation Matrix 1.000
 .995 1.000
 .994 .986 1.000
 -0.984 -0.970 -0.994 1.000

Apparent Resistivity Measured at 1 Hz is .330
 Apparent Resistivity Calculated from Inductive Coupling is 2.983

regarding the spectral characteristics of a mixed source. When two populations of grain-size are present, and the (c) values from the spectral inversion is less than about .175, the interpreted time-constant (τ) has very little meaning.

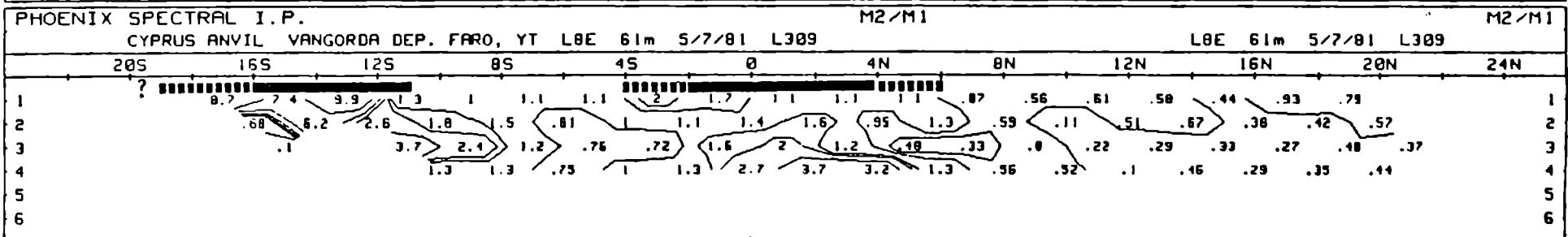
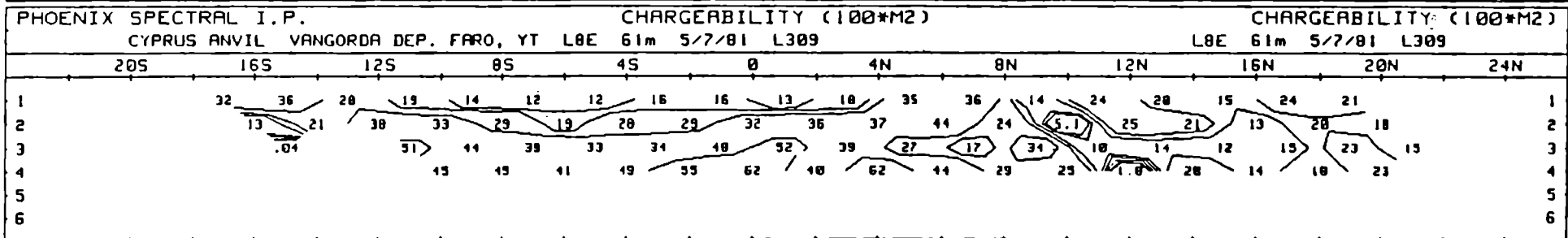
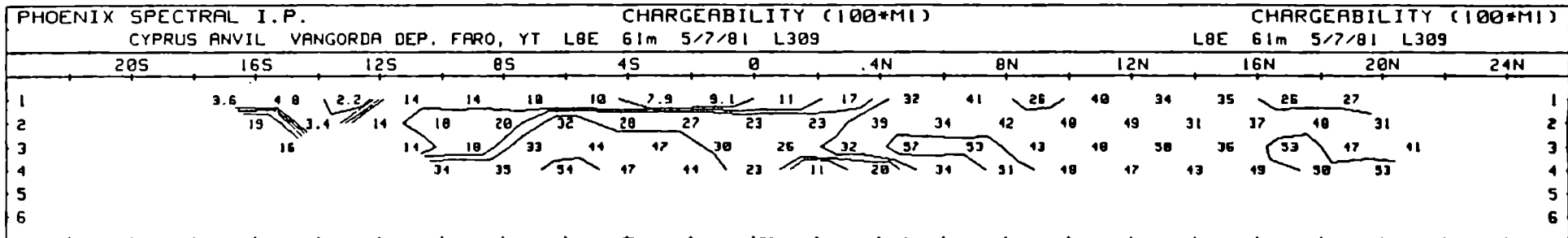
Because of our previous experience with spectral IP in the Anvil Area, we have made an attempt to make a quantitative analysis of the data from the Vangorda Deposit. Our experience from shallow sources and short electrode intervals suggests that the parameters of the two sources we can expect in this area, if they are present alone, would be:

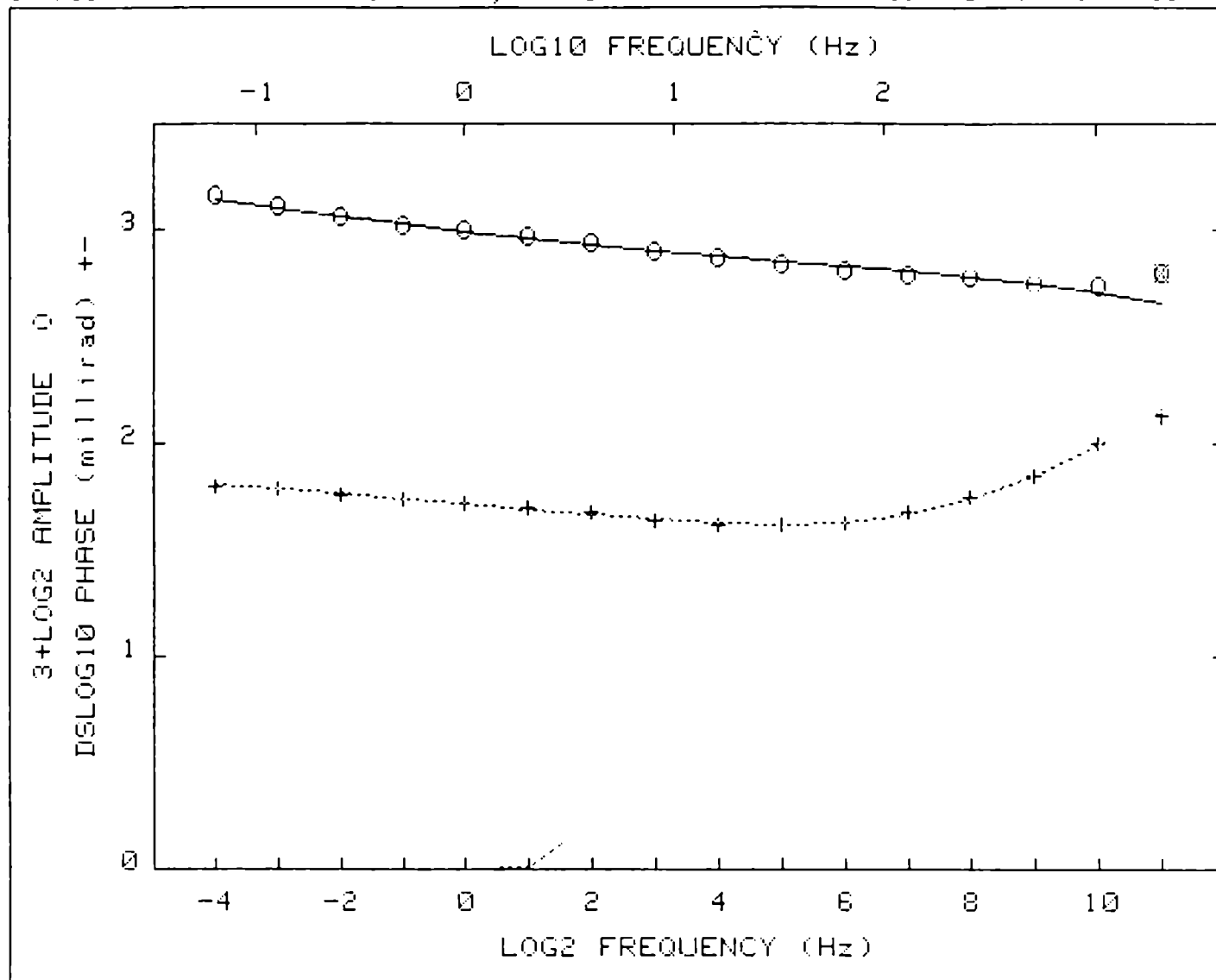
graphitic phyllite	$c_1 = 0.25$	$\tau_1 = 1000$ seconds
massive sulphides	$c_2 = 0.25$	$\tau_2 = 0.1$ seconds

The $n = 1,2,3,4$ spectral IP results from Line 8E have been reinterpreted by inversion, using three Cole-Cole Dispersions. There are two IP dispersions (with c_1, τ_1, c_2, τ_2 fixed) and the usual inductive coupling term. The output from this inversion are the chargeability values (M_1 and M_2). As shown by the enclosed examples, the "fit" to the field data is excellent, using the three dispersions.

There is a considerable range in the values for the apparent contributions from a typical graphite source and from a typical massive sulphide source. To the north of the position of the known ore zone, the contribution is largely from a graphite-type source. From approximately 1+00S to 4+00N, the contribution from a sulphide-type source is as large, or larger than, the large time-constant source. This position correlates quite well with the known ore zone shown on the geologic section.

To the south, both types of sources are present in the inverted data. The narrow, shallow source at about 15+00S gives a large sulphide zone from this theoretical interpretation. However, the field data is very noisy and poorly determined. The inversion is therefore very unreliable. We have already emphasised the need for measurements with short electrode intervals over shallow, low-resistivity anomalies. This kind of detail is needed at 16+00S to 14+00S on Line 8E.





CRL: Number of dispersions=
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.01958	1.513	.308	.176	3.0E-06	.744
1	1.E-02	.01080	1.839	.494	.217	3.3E-06	.687
2	1.E-03	.00010	1.947	.480	.200	3.6E-06	.687
3	1.E-04	.00010	1.948	.480	.200	3.6E-06	.688
4	1.E-05	.00010	1.949	.480	.200	3.6E-06	.688

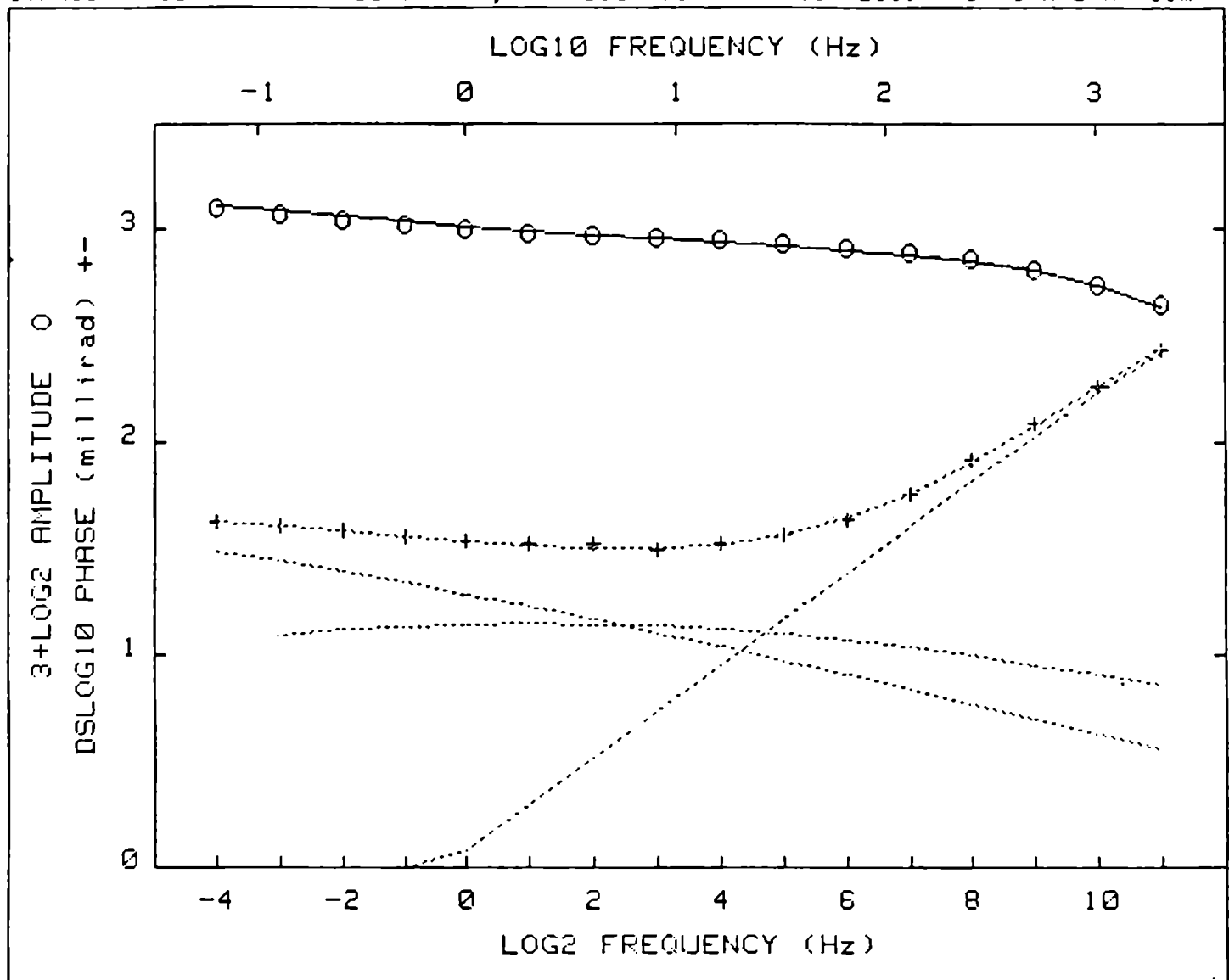
Pct Std Deviations 1.3 2.5 6.0 7.7 3.0

Correlation Matrix

	1.000				
	.976	1.000			
	-.870	-.945	1.000		
	-.216	-.266	.389	1.000	
	-.517	-.594	.730	.878	1.000

Apparent Resistivity Measured at 1 Hz is 214.7

Apparent Resistivity Calculated from Inductive Coupling is 523.5



CRL: Number of dispersions= 3
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.02037	1.949	.480	.200	3.6E-06	.688
1	1.E-02	.00824	1.556	.368	.137	7.5E-06	.534
2	1.E-03	.00051	1.595	.348	.171	1.4E-05	.758
3	1.E-04	.00019	1.619	.368	.137	1.4E-05	.716
4	1.E-05	.00014	1.620	.368	.133	1.4E-05	.719
5	1.E-06	.00014	1.620	.368	.133	1.4E-05	.719

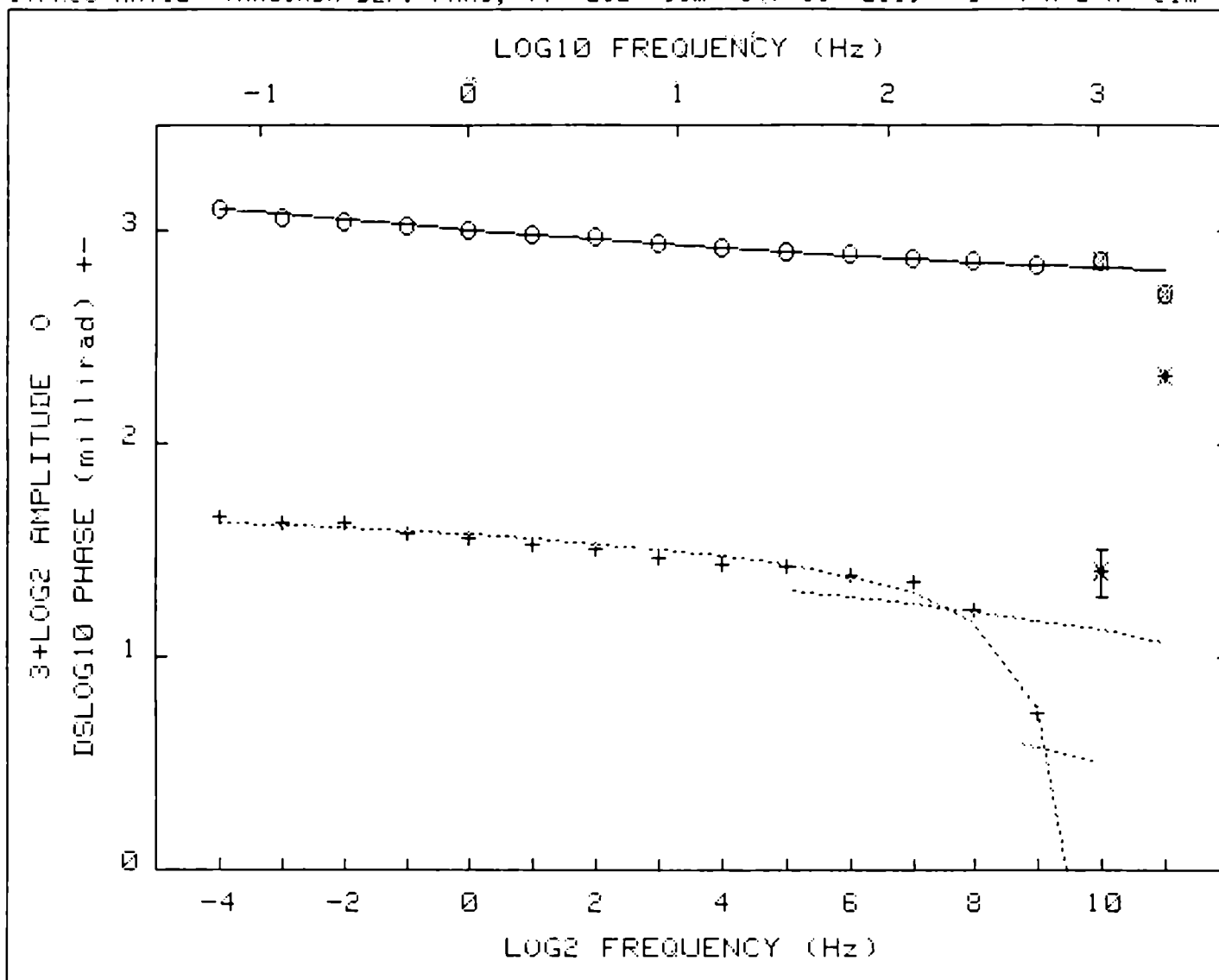
Pct Std Deviations 1.3 3.7 8.7 3.9 1.7

Correlation Matrix

	1.000				
	.978	1.000			
	-.882	-.946	1.000		
	.191	.198	-.130	1.000	
	-.453	-.496	.630	.582	1.000

Apparent Resistivity Measured at 1 Hz is 238.6

Apparent Resistivity Calculated from Inductive Coupling is 158.4



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.00069	1.540	.308	.204	3.5E-06
1	1.E-02	.00063	1.538	.306	.206	3.4E-06
2	1.E-03	.00063	1.538	.307	.206	3.4E-06

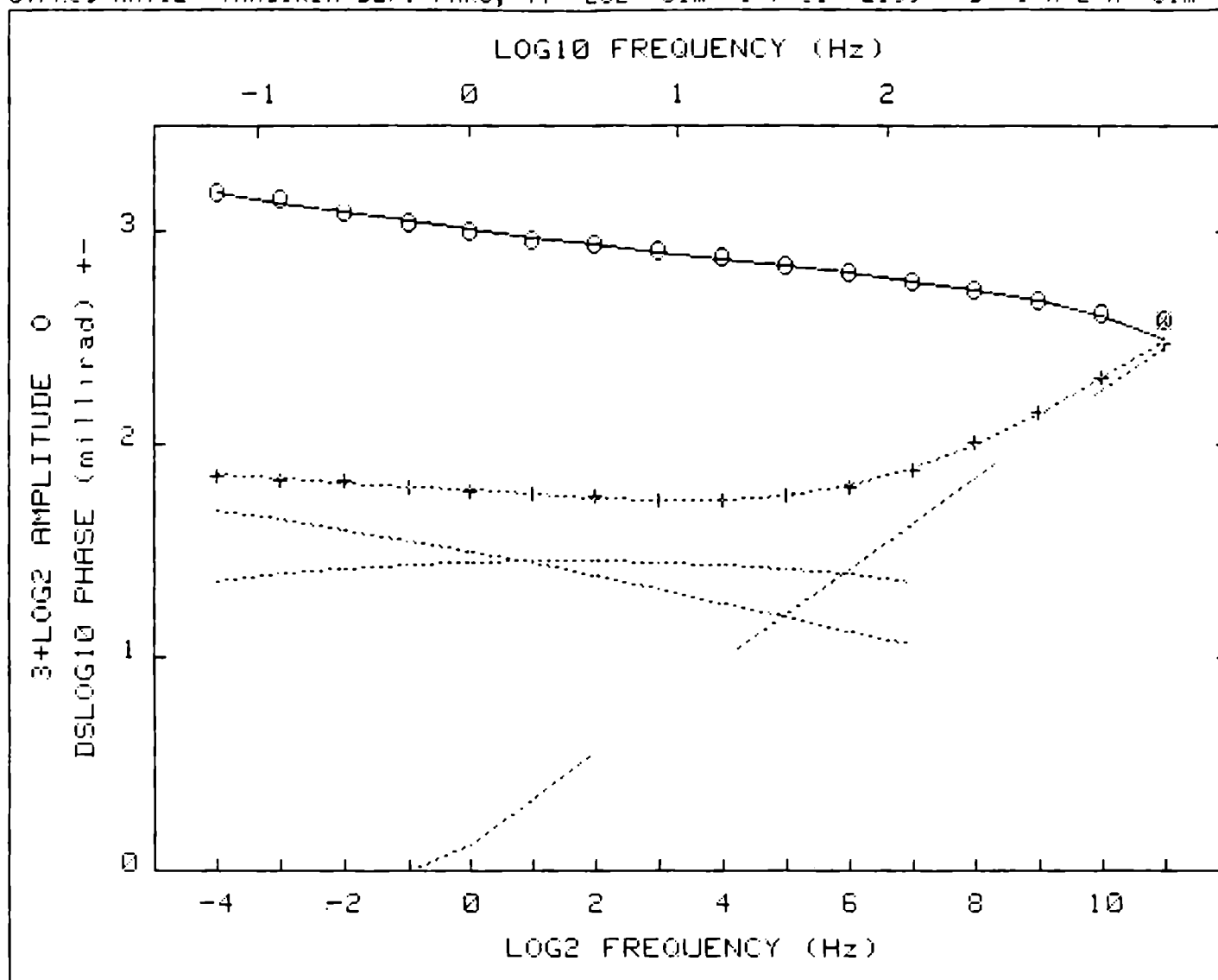
Pct Std Deviations: 2.2 7.2 5.0 4.7

Correlation Matrix

1.000				
.968	1.000			
-.804	-.893	1.000		
-.452	-.554	.777	1.000	

Apparent Resistivity Measured at 1 Hz is 383.1

Apparent Resistivity Calculated from Inductive Coupling is 2164



CPL: Number of dispersions= 3
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fi ed

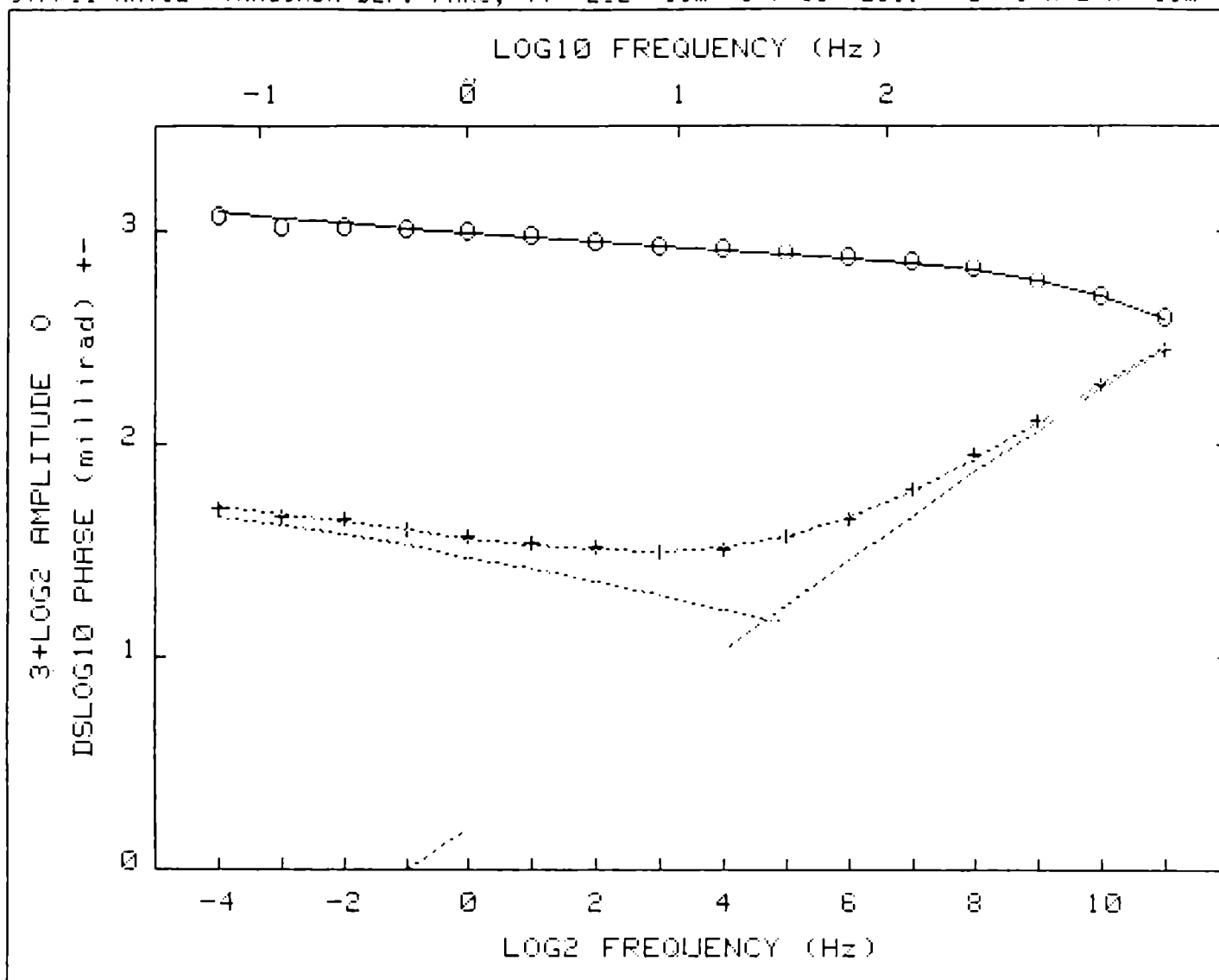
Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.00007	2.072	.495	.251	1.2E-05	.704
1	1.E-02	.00007	2.072	.495	.251	1.2E-05	.704

Pct Std Deviations 1.2 2.1 4.3 3.2 1.5

Correlation Matrix		1.000				
		.978	1.000			
		-.869	-.944	1.000		
		.335	.346	-.280	1.000	
		-.457	-.526	.668	.429	1.000

Apparent Resistivity Measured at 1 Hz is 140.0

Apparent Resistivity Calculated from Inductive Coupling is 168.



CRL: Number of dispersions= 3
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.02109	2.072	.495	.251	1.2E-05	.704
1	1.E-02	.00594	1.674	.441	.116	1.7E-05	.674
2	1.E-03	.00058	1.785	.476	.069	1.7E-05	.703
3	1.E-04	.00018	1.791	.477	.053	1.7E-05	.699
4	1.E-05	.00018	1.792	.477	.051	1.7E-05	
5	1.E-06	.00018	1.792	.477	.051	1.7E-05	.699

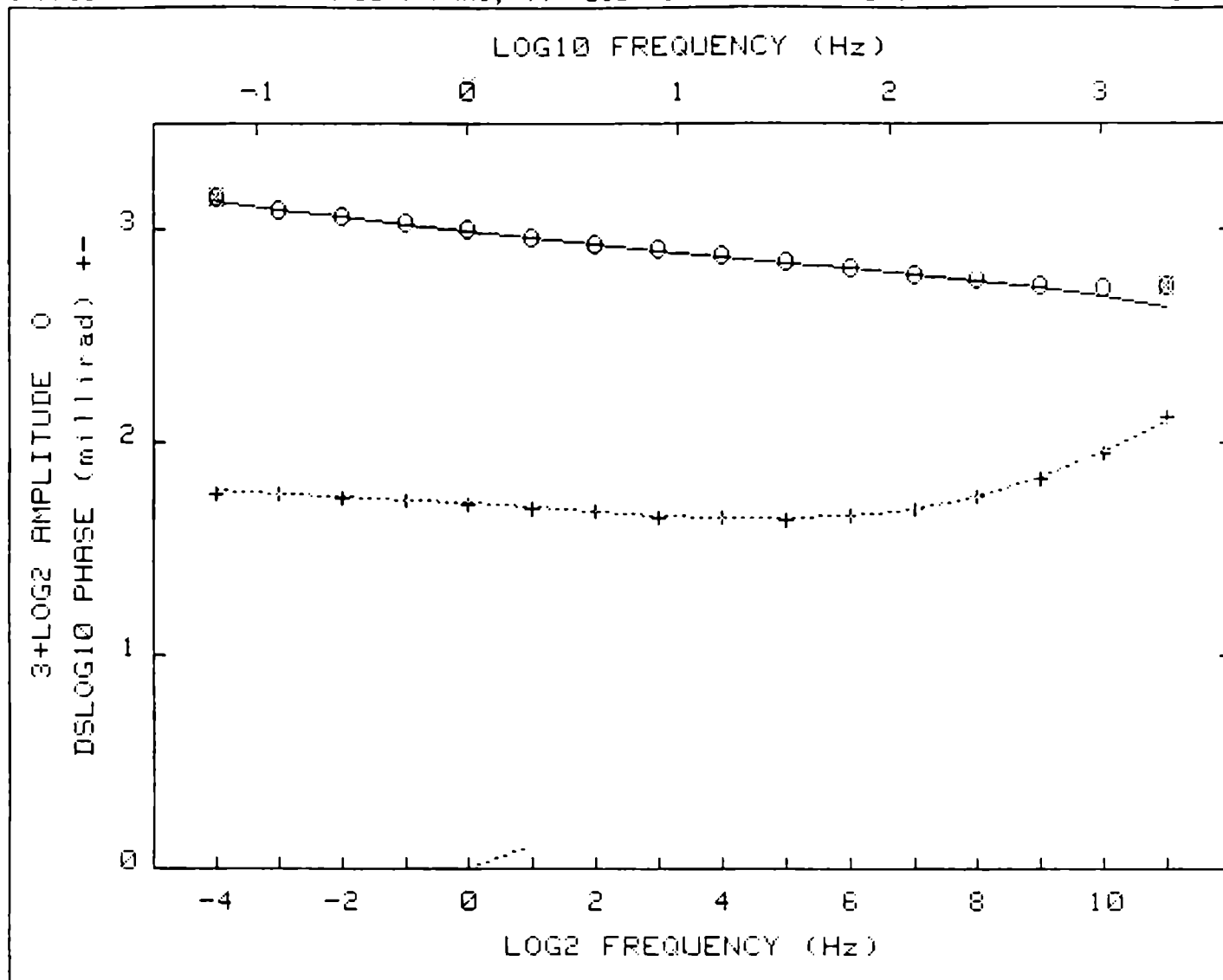
Fct Std Deviations 1.5 3.0 37.2 4.3 1.8

Correlation Matrix

	1.000				
	.975	1.000			
	-.892	-.957	1.000		
	.427	.443	-.397	1.000	
	-.418	-.473	.603	.372	1.000

Apparent Resistivity Measured at 1 Hz is 243.8

Apparent Resistivity Calculated from Inductive Coupling is 115.7



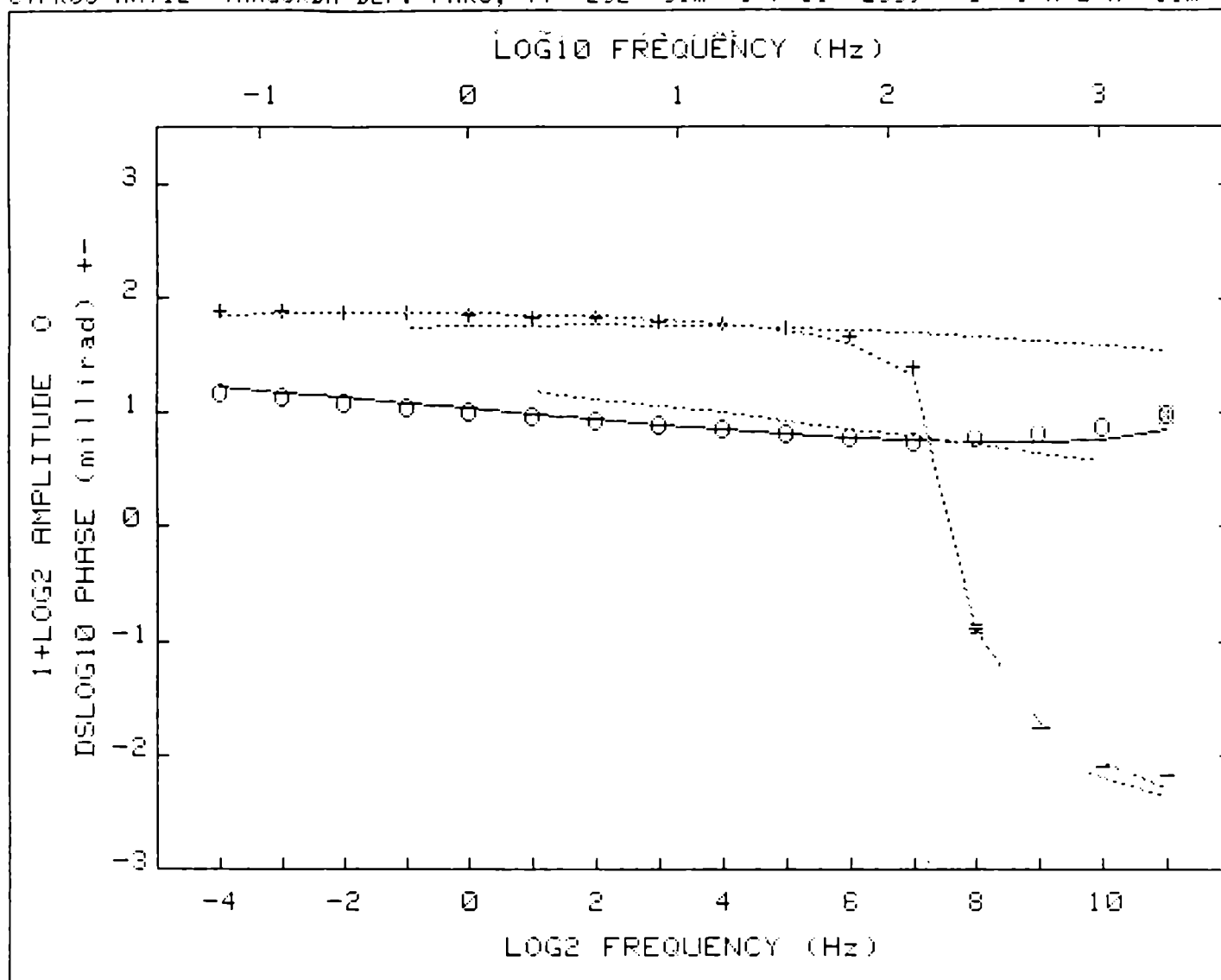
CPL: Number of dispersions= 3
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.00041	1.978	.508	.141	1.9E-06	.531
1	1.E-01	.00036	1.962	.500	.151	1.9E-06	.537
2	1.E-01	.00032	1.944	.491	.162	1.8E-06	.544
3	1.E-01	.00027	1.926	.482	.173	1.8E-06	.552
4	1.E-01	.00023	1.907	.472	.184	1.9E-06	.561
5	1.E-01	.00020	1.888	.462	.194	1.9E-06	.570
6	1.E-01	.00017	1.870	.452	.204	1.9E-06	.580
7	1.E-02	.00017	1.885	.418	.244	2.1E-06	.629

Pct Std Deviations 1.8 8.6 12.5 4.7

Correlation Matrix

	1.000				
	.977	1.000			
	-.871	-.946	1.000		
	-.244	-.299	.433	1.000	
	-.562	-.643	.782	.870	1.000



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

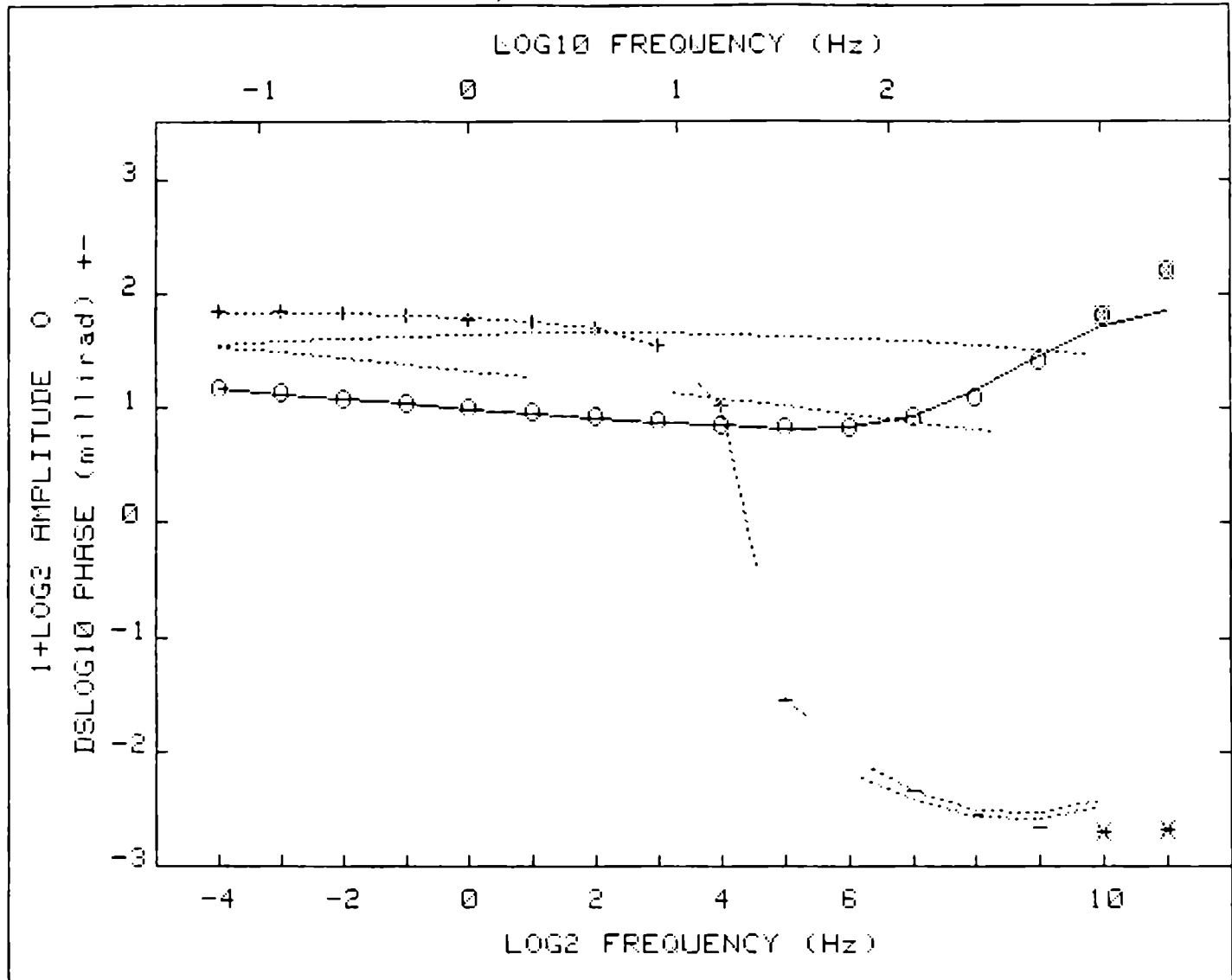
Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.00225	1.869	.338	.445	1.0E-05	.766
1	1.E-02	.00221	1.869	.342	.444	1.0E-05	.766
2	1.E-03	.00221	1.870	.342	.444	1.0E-05	.766

Pct Std Deviations 7.6 23.1 8.1 17.5

Correlation Matrix		1.000					
		.983	1.000				
		-.820	-.899	1.000			
		.546	.612	-.746	1.000		
		.560	.641	-.811	.985	1.000	

Apparent Resistivity Measured at 1 Hz is 17.79

Apparent Resistivity Calculated from Inductive Coupling is 290.0



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

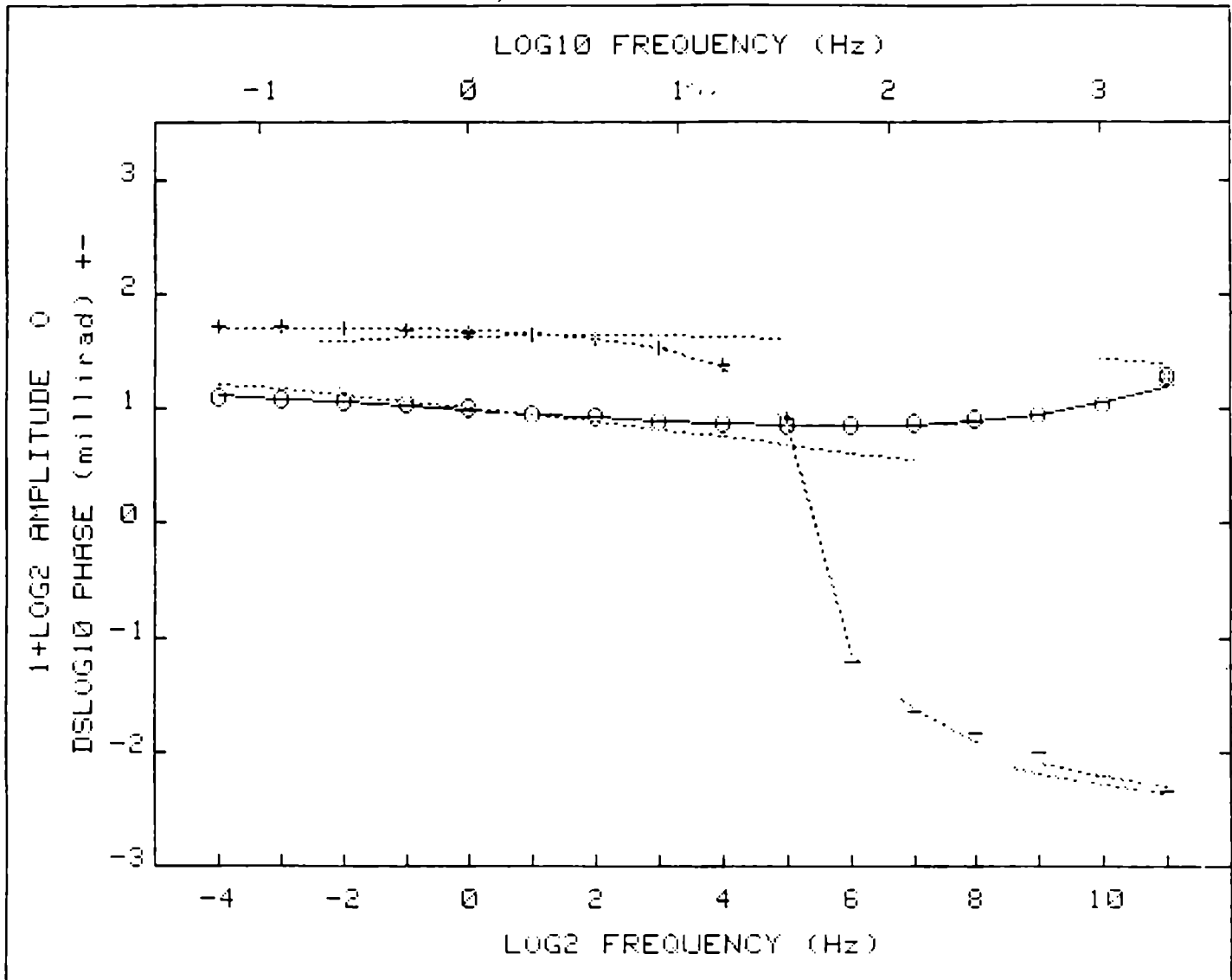
Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.00112	1.845	.387	.372	2.6E-04	.914
1	1.E-02	.00110	1.853	.389	.369	2.6E-04	.915
2	1.E-01	.00110	1.853	.389	.369	2.6E-04	.916

Pct. Std Deviations 5.8 15.4 10.9 5.6 2.8

Correlation Matrix	1.000						
	.984	1.000					
	-.882	-.942	1.000				
	.611	.664	-.692	1.000			
	.662	.748	-.867	.894	1.000		

Apparent Resistivity Measured at 1 Hz is 8.600

Apparent Resistivity Calculated from Inductive Coupling is 21.24



CRL: Number of dispersions= Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

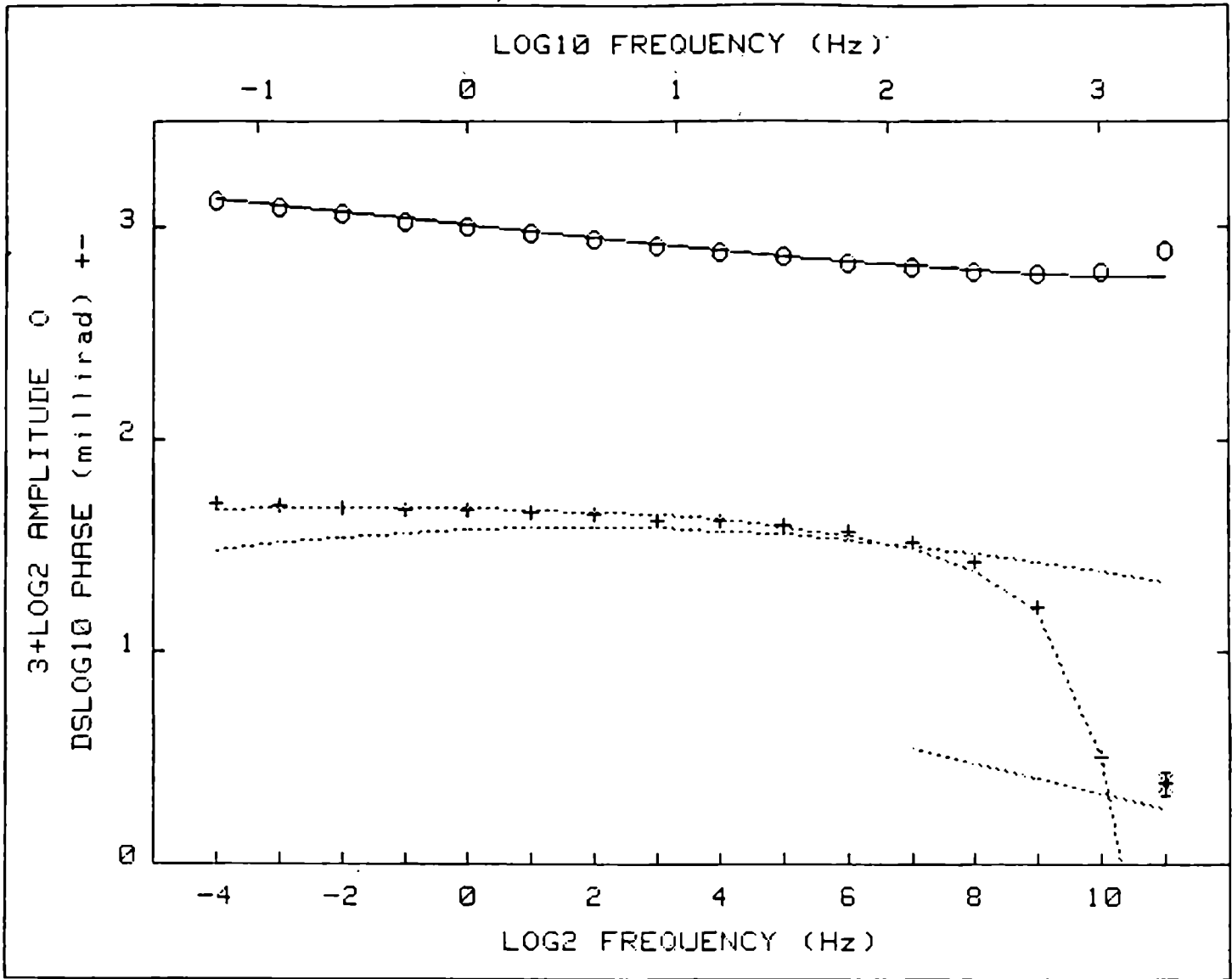
Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.00109	1.528	.258	.344	2.3E-05	.625
1	1.E-02	.00097	1.501	.237	.355	2.1E-05	.607
2	1.E-03	.00095	1.489	.227	.359	2.1E-05	.603
3	1.E-04	.00095	1.490	.227	.358	2.1E-05	.603

Pct Std Deviations 4.9 27.2 8.1 8.7 3.7

Correlation Matrix	1.000						
	.985	1.000					
	-.869	-.928	1.000				
	.557	.604	-.682	1.000			
	.671	.743	-.883	.911	1.000		

Apparent Resistivity Measured at 1 Hz is 10.12

Apparent Resistivity Calculated from Inductive Coupling is 48.65



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.00203	1.512	.247	.315	7.4E-07	.768
1	1.E-02	.00092	1.502	.231	.323	7.8E-07	.754
2	1.E-02	.00088	1.499	.228	.324	7.7E-07	.755
3	1.E-02	.00088	1.498	.228	.324	7.7E-07	.755

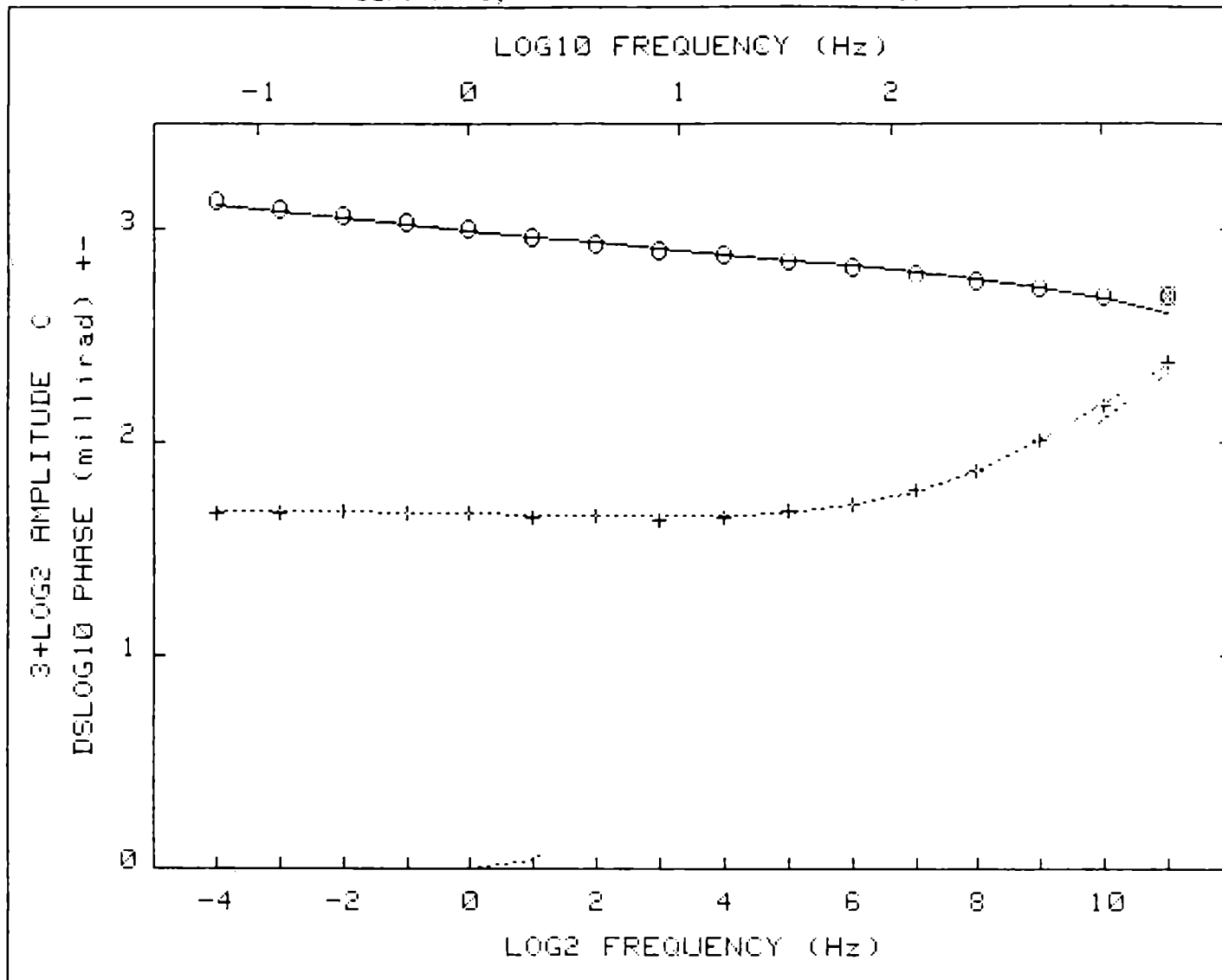
Pct Std Deviations 3.9 20.2 6.4 760.6 49.6

Correlation Matrix

	1.000				
	.982	1.000			
	-.833	-.903	1.000		
	.585	.649	-.828	1.000	
	.592	.656	-.836	1.000	1.000

Apparent Resistivity Measured at 1 Hz is 26.05

Apparent Resistivity Calculated from Inductive Coupling is 3578



CRL: Number of dispersions= 3
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.03200	1.498	.228	.324	7.7E-07	.755
1	1.E-02	.00860	1.503	.250	.303	9.0E-07	.382
2	1.E-02	.00445	1.463	.212	.372	3.8E-06	.723
3	1.E-03	.00120	1.532	.286	.298	7.5E-06	.715
4	1.E-04	.00007	1.527	.269	.292	7.9E-06	.749
5	1.E-05	.00007	1.529	.269	.292	7.9E-06	.750
6	1.E+02	.00007	1.529	.269	.292	7.9E-06	.750

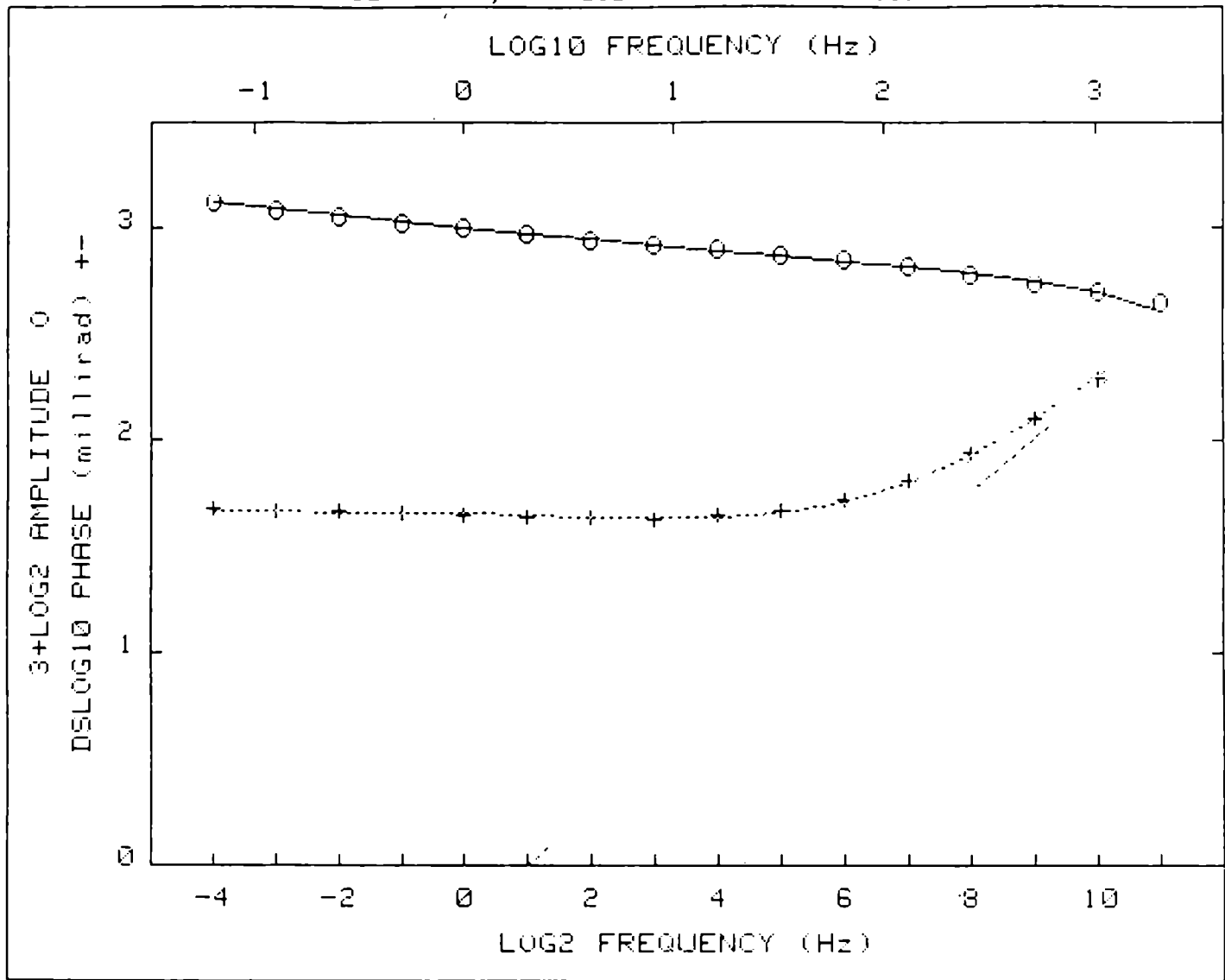
Pct Std Deviations 1.1 4.6 2. 4.0 1.8

Correlation Matrix

	1.000				
	.981	1.000			
	-.857	-.925	1.000		
	-.134	-.152	.260	1.000	
	-.493	-.543	.687	.819	1.000

Apparent Resistivity Measured at 1 Hz is 67.61

Apparent Resistivity Calculated from Inductive Coupling is 339.4



CRL: Number of dispersions= 3
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.00017	1.543	.280	.273	1.4E-05	.783
1	1.E-02	.00012	1.539	.277	.277	1.5E-05	.816
2	1.E-03	.00011	1.537	.275	.278	1.5E-05	.821

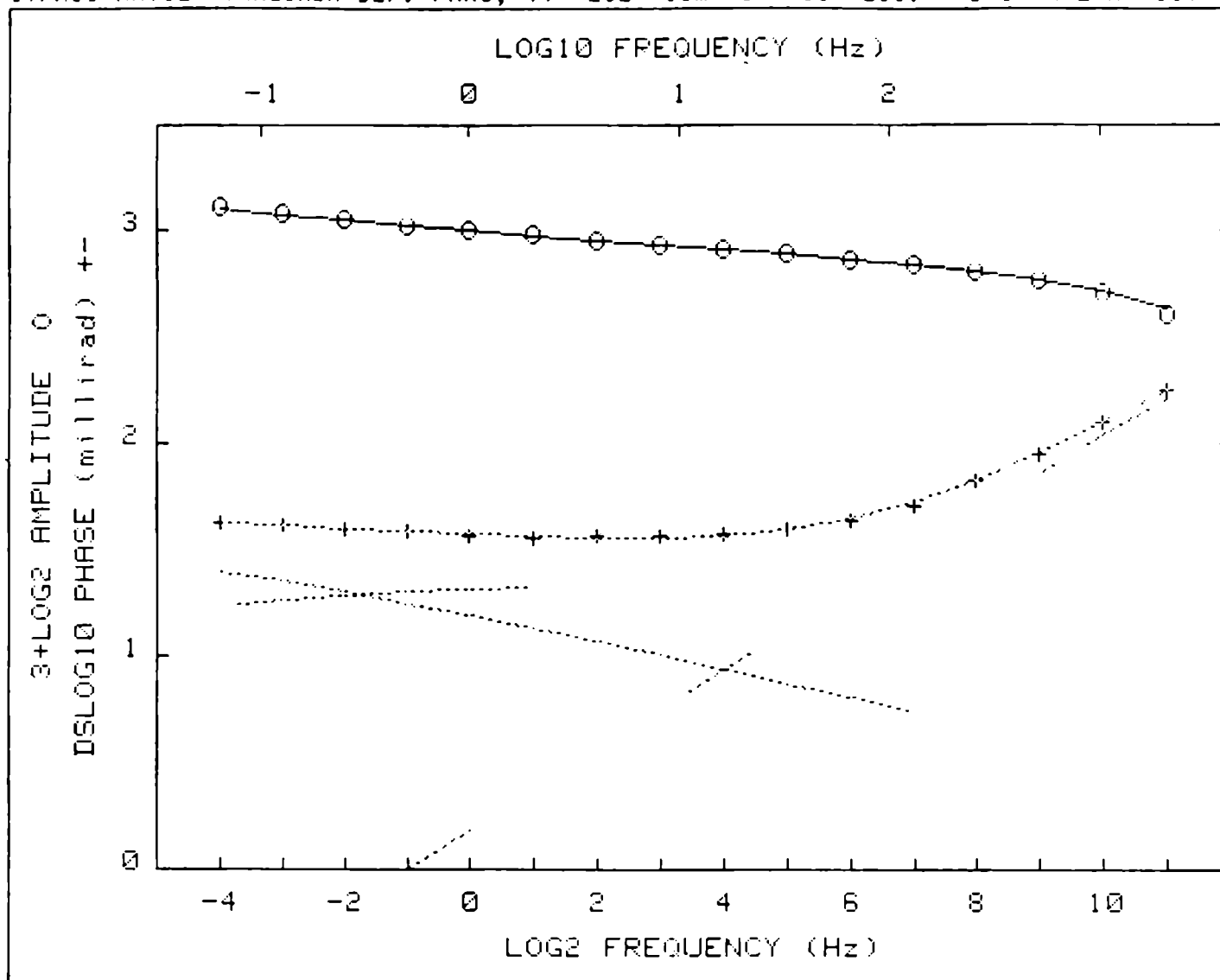
Pct Std Deviations 1.3 5.0 2.9 1.5

Correlation Matrix

	1.000						
	.988	1.000					
	-.851	-.920	1.000				
	.067	.081	-.008	1.000			
	-.410	-.440	.583	.785	1.000		

Apparent Resistivity Measured at 1 Hz is 117.2

Apparent Resistivity Calculated from Inductive Coupling is 252.9



CRL: Number of dispersions= 3
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 filed

Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.00756	1.537	.275	.278	1.5E-05	.821
1	1.E-02	.00041	1.514	.297	.216	6.7E-06	.678
2	1.E-03	.00008	1.538	.315	.194	5.0E-06	.620
3	1.E-04	.00007	1.539	.316	.191	4.9E-06	.615
4	1.E-05	.00007	1.539	.315	.191	4.9E-06	.616

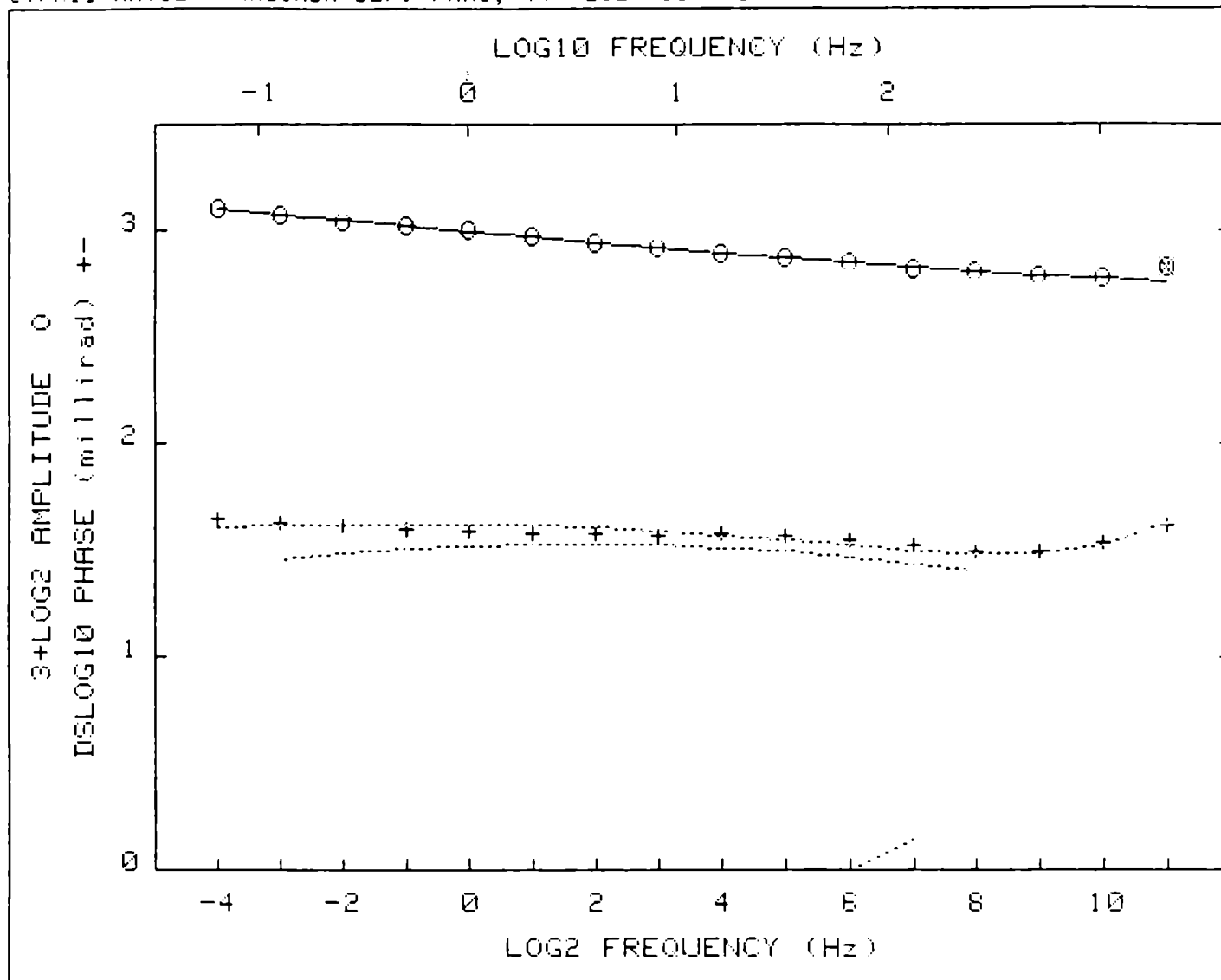
Pct Std Deviations 1.1 3.7 4.5 4.5 1.9

Correlation Matrix

1.000				
.981	1.000			
-.882	-.943	1.000		
-.064	-.081	.194	1.000	
-.541	-.593	.734	.750	1.000

Apparent Resistivity Measured at 1 Hz is 60.66

Apparent Resistivity Calculated from Inductive Coupling is 233.5



CRL: Number of dispersions= 3
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.00671	1.490	.272	.227	5.6E-07
1	1.E-02	.00151	1.402	.205	.308	1.2E-06
2	1.E-03	.00031	1.405	.197	.290	1.3E-06
3	1.E-04	.00031	1.407	.198	.289	1.3E-06

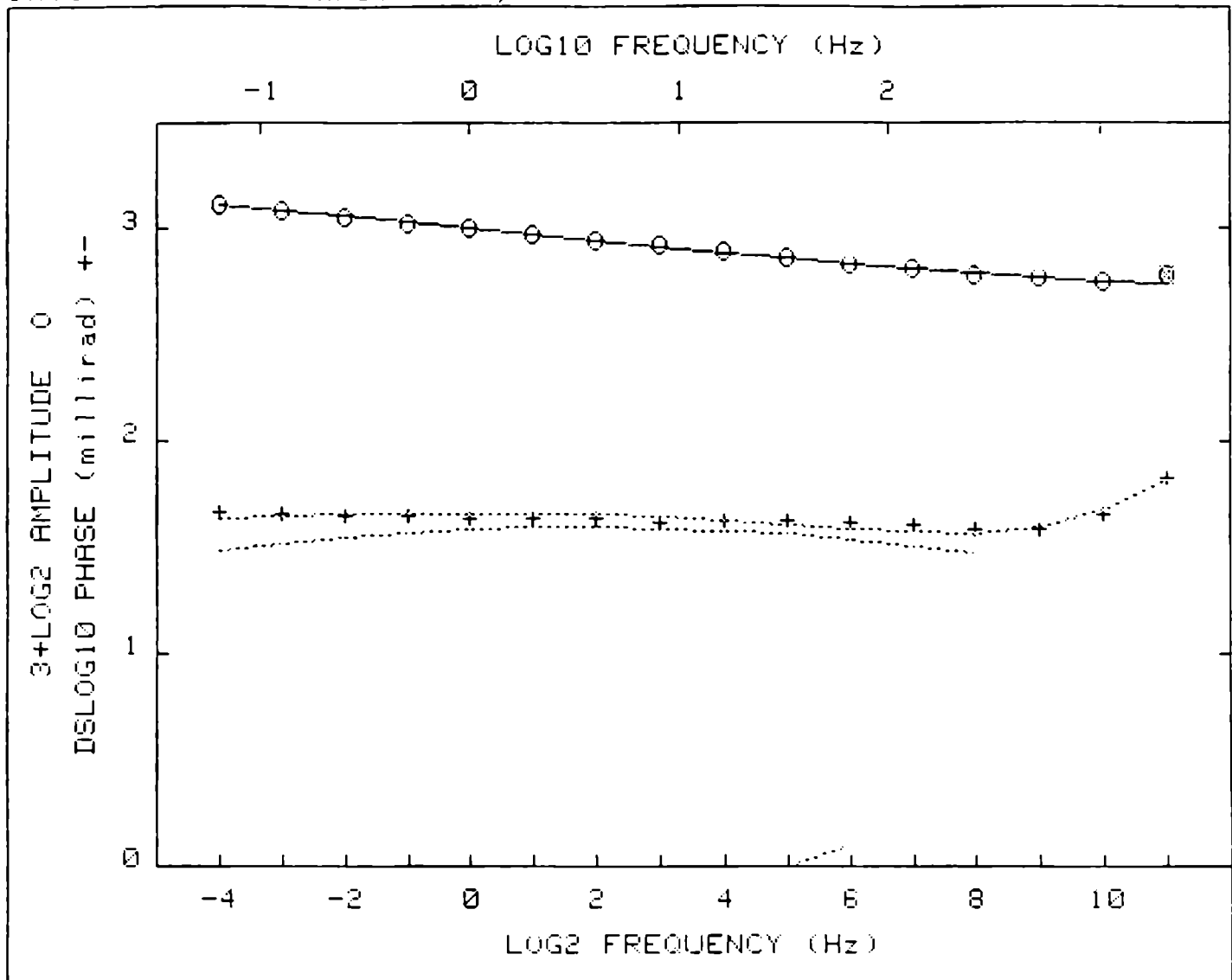
Pct Std Deviations 1.7 9.7 2.2 7.6

Correlation Matrix

	1.000			
	.973	1.000		
	-.770	-.863	1.000	
	.350	.412	-.545	1.000

Apparent Resistivity Measured at 1 Hz is 32.42

Apparent Resistivity Calculated from Inductive Coupling is 5429



CPL: Number of dispersions=
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

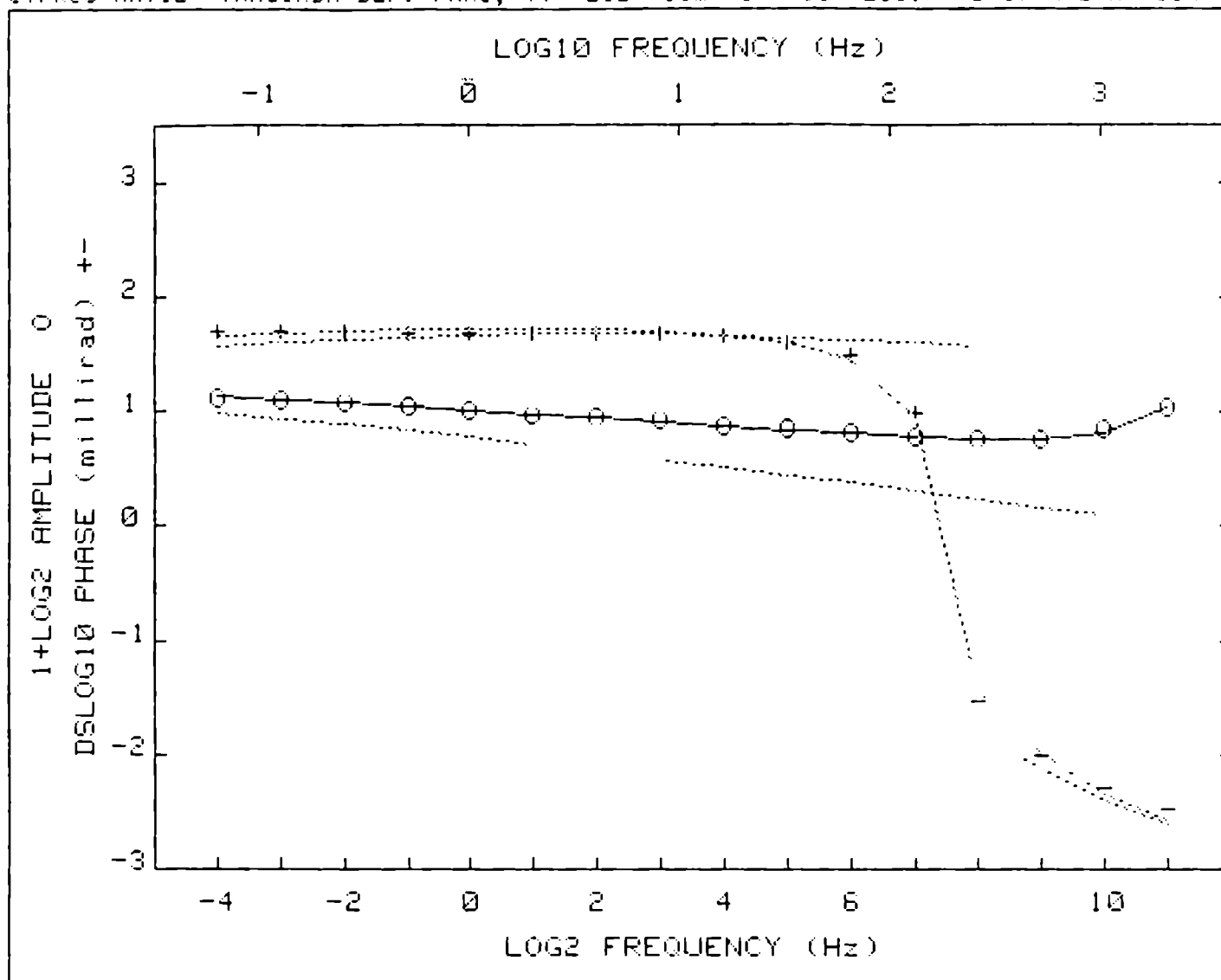
Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.00431	1.407	.198	.289	1.3E-06
1	1.E-02	.00030	1.409	.178	.334	2.3E-06
2	1.E-03	.00026	1.414	.181	.329	2.4E-06
3	1.E-04	.00026	1.414	.181	.329	2.4E-06

Pct Std Deviations 1.7 10.7 1.9 5.4

Correlation Matrix 1.000
 .976 1.000
 -0.767 -0.859 1.000
 .359 .420 -0.549 1.000

Apparent Resistivity Measured at 1 Hz is 28.63

Apparent Resistivity Calculated from Inductive Coupling is 3060



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.00114	1.406	.144	.381	2.9E-05
1	1.E-02	.00114	1.406	.144	.381	2.9E-05

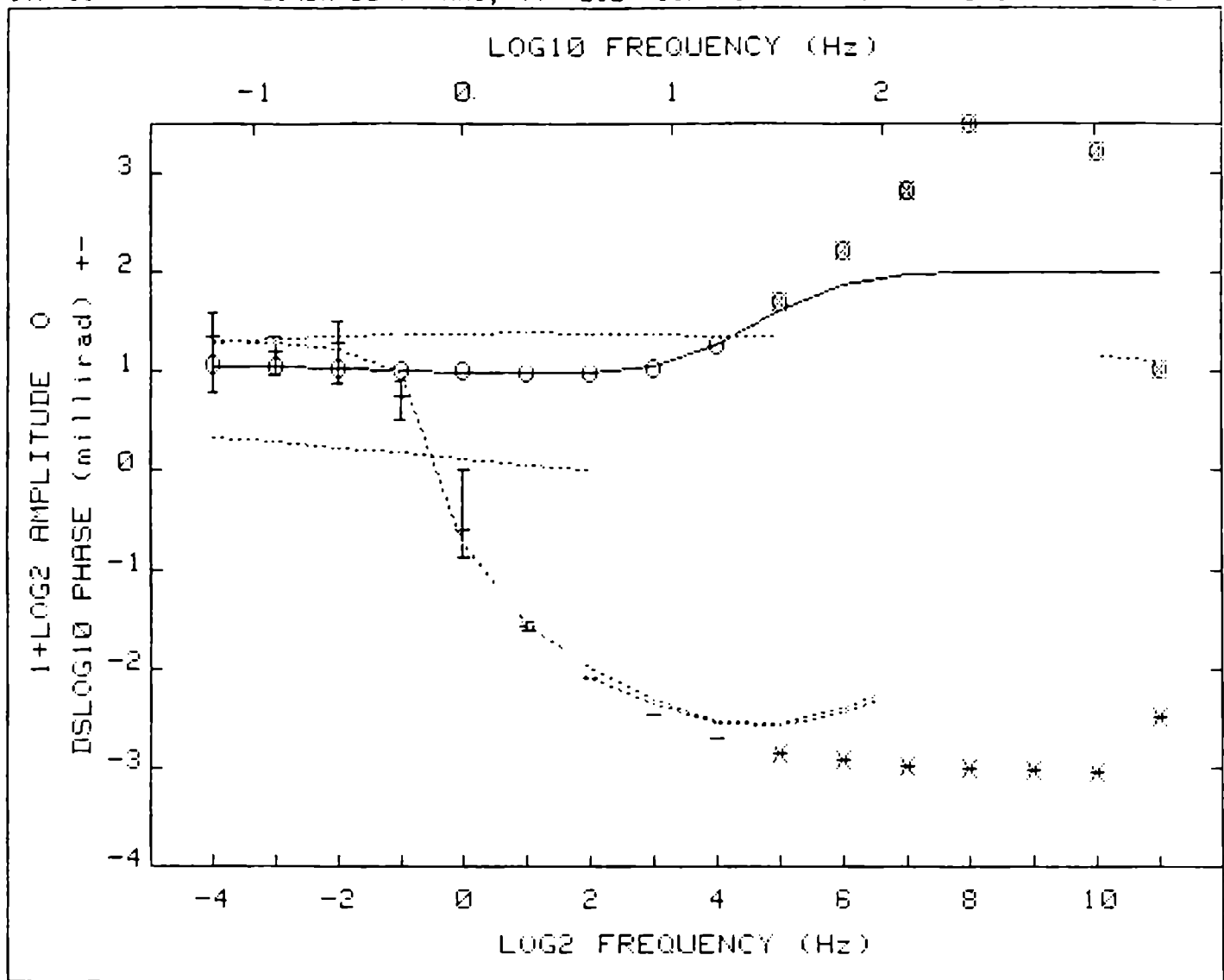
Pct Std Deviations 32.4 2.9 2.3

Correlation Matrix

	1.000			
	.981	1.000		
	-.741	-.822	1.000	
	-.169	-.239	.566	1.000

Apparent Resistivity Measured at 1 Hz is 14.22

Apparent Resistivity Calculated from Inductive Coupling is 251.1



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 filed

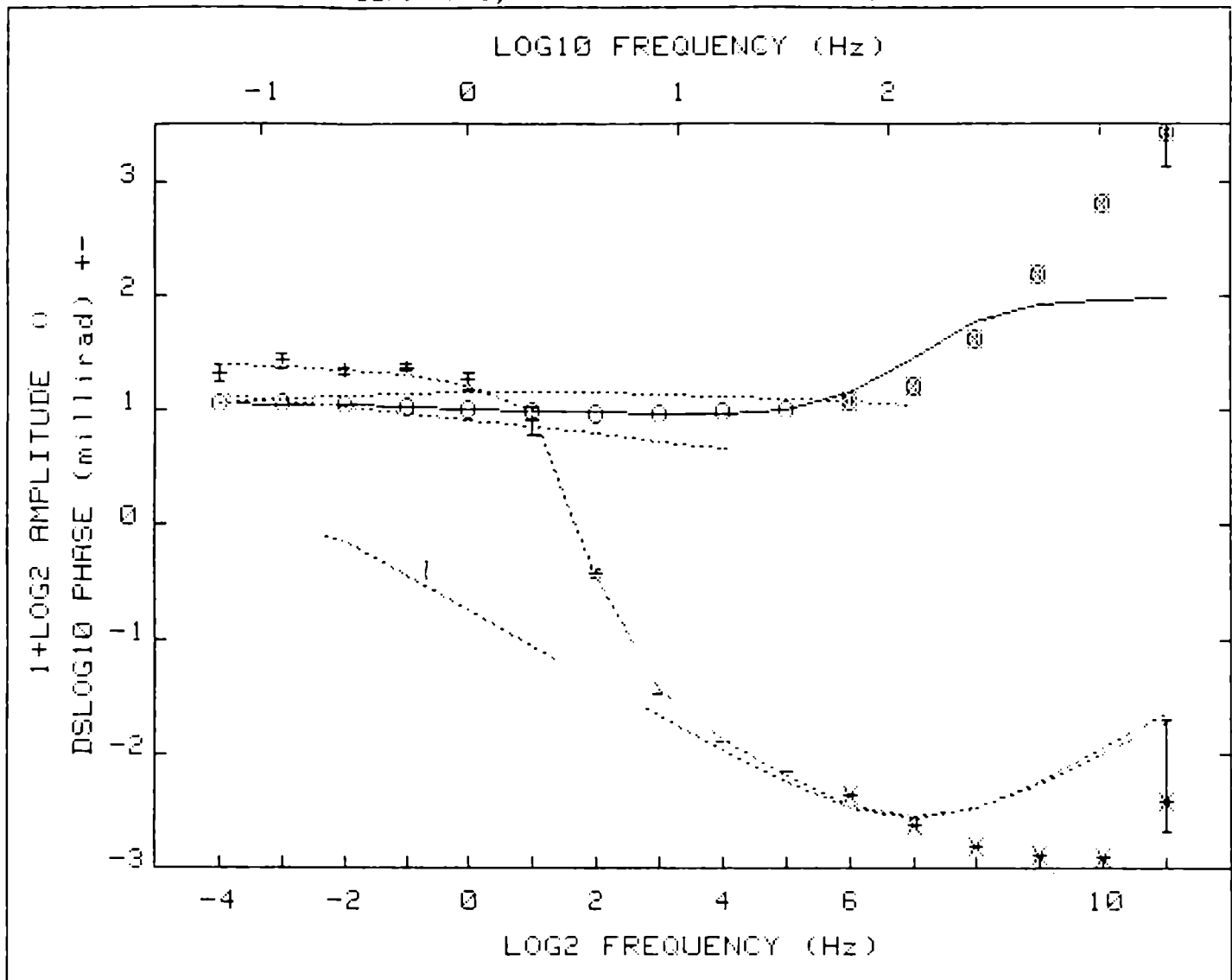
Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.79561	1.406	.144	.381	3.0E-03
1	1.E-02	.27336	.927	.018	.213	2.5E-03
2	1.E-02	.03262	1.104	.027	.154	4.1E-03
3	1.E-03	.01361	1.145	.075	.182	4.3E-03
4	1.E-02	.01117	1.158	.056	.206	4.3E-03
5	1.E-02	.01101	1.152	.043	.215	4.4E-03
6	1.E-02	.01094	1.147	.036	.218	4.4E-03

Pct. Std Deviations 13.3 5108.3 45.6 9.1

Correlation Matrix	
	1.000
	.980 1.000
	-.938 -.970 1.000
	-.486 -.528 .692 1.000

Apparent Resistivity Measured at 1 Hz .330

Apparent Resistivity Calculated from Inductive Coupling is 1.668



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 filed

Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.88553	1.144	.034	.214	4.3E-03
1	1.E-02	.92877	1.176	.224	.083	8.6E-04
2	1.E-03	.99525	1.310	.213	.118	7.8E-04
3	1.E-04	.99212	1.289	.189	.136	8.4E-04
4	1.E-05	.99143	1.293	.192	.132	8.4E-04
5	1.E-06	.99142	1.294	.193	.132	8.4E-04

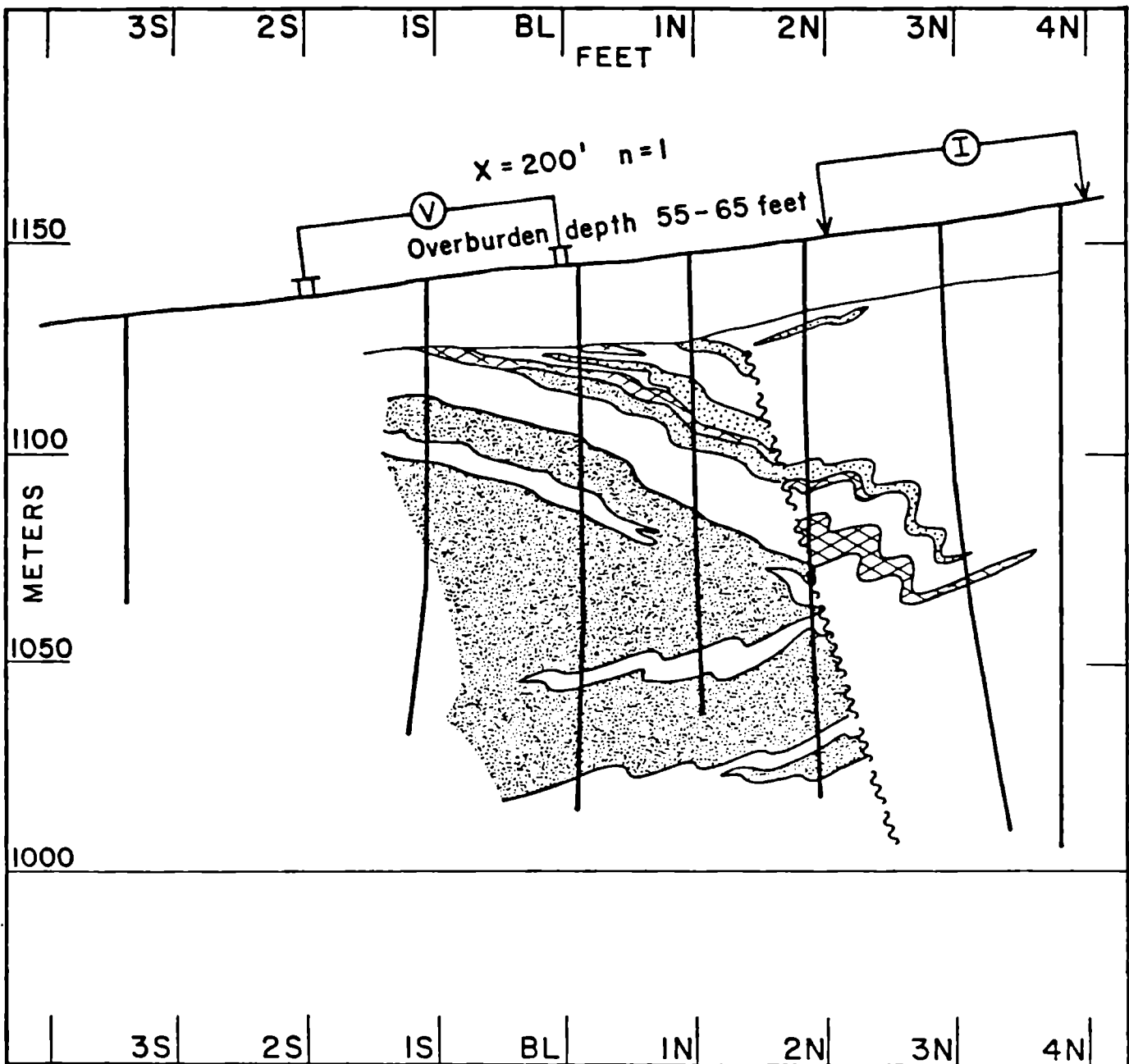
Pct Std Deviations 22.1 17.1 3.4

Correlation Matrix




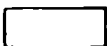
	1.000			
	.963	1.000		
	-.891	-.954	1.000	
	-.488	-.579	.782	1.000

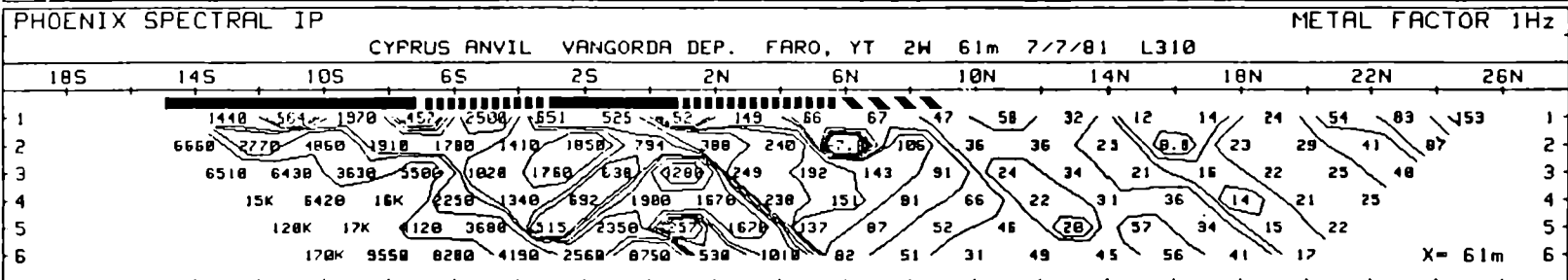
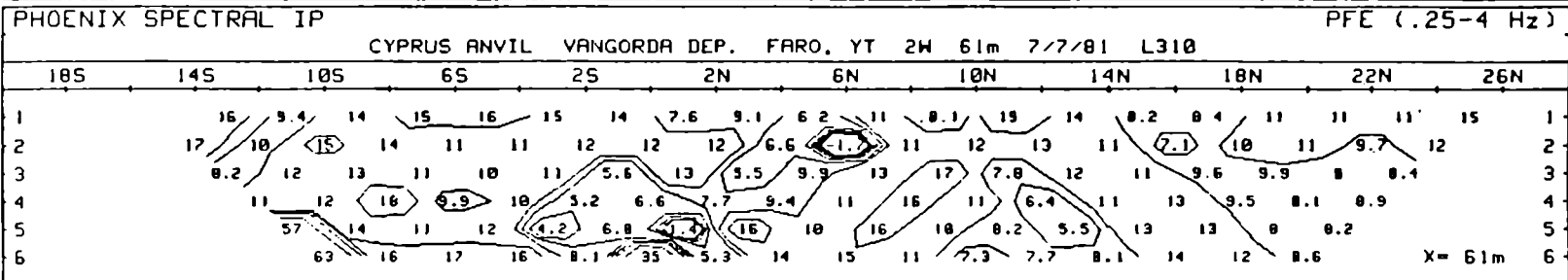
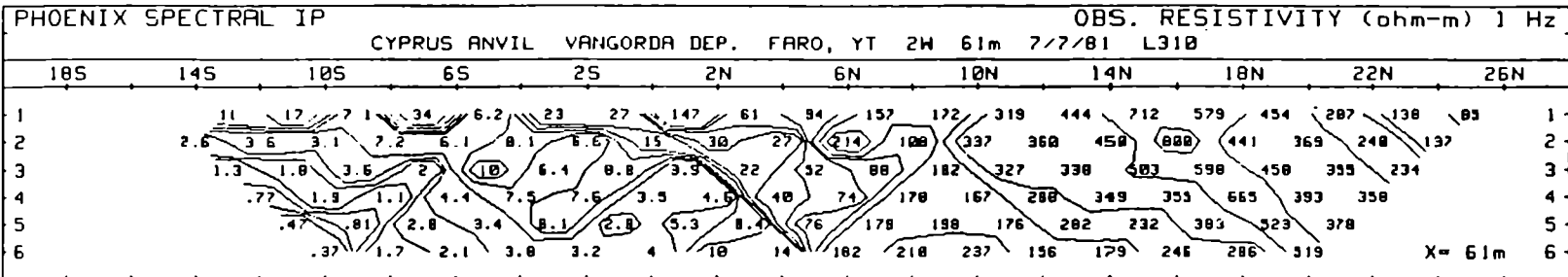
Apparent Resistivity Measured at 1 Hz is 1.220

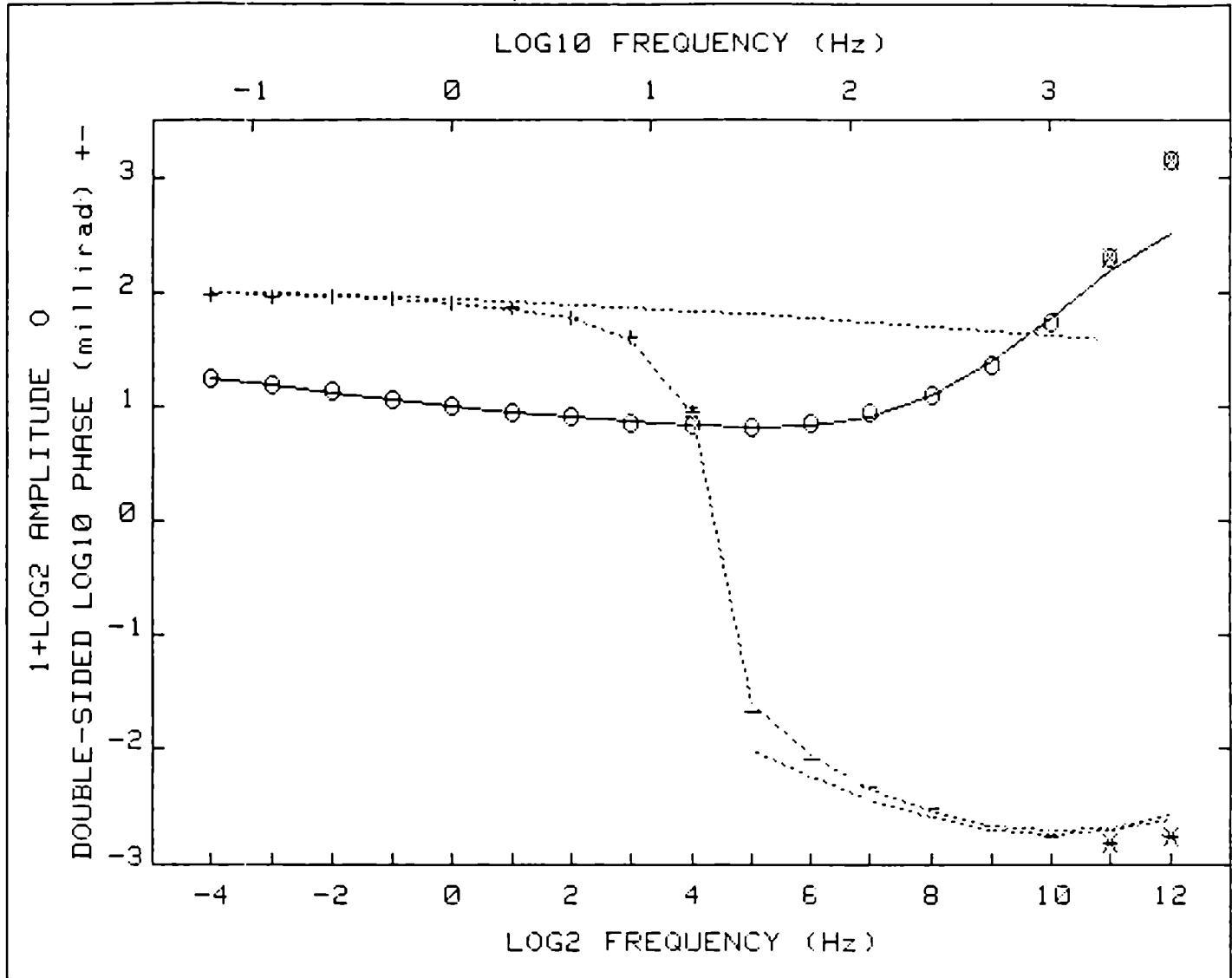
Apparent Resistivity Calculated from Inductive Coupling is 8.635



VANGORDA DEPOSIT
 Faro, Y.T.
 Line 2W

- Massive Sulfides 
- Quartz Sulfides 
- Graphitic Phyllites 
- Sericitic Phyllites 





CRL: Number of dispersions= 2 Negative.
 M2=1 C2=.77 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00196	1.925	.672	1.1E+01	.214	1.2E-04
1	1.E-02	.00162	2.005	.673	1.8E+01	.221	1.1E-04
2	1.E-02	.00140	2.094	.688	2.9E+01	.216	1.0E-04
3	1.E-02	.00126	2.167	.700	4.3E+01	.211	9.5E-05
4	1.E-03	.00122	2.516	.753	2.5E+02	.189	7.6E-05
5	1.E-04	.00085	2.971	.792	1.8E+03	.177	6.0E-05
6	1.E-05	.00067	3.167	.800	3.5E+03	.175	5.5E-05
7	1.E-06	.00067	3.204	.802	3.9E+03	.175	5.4E-05

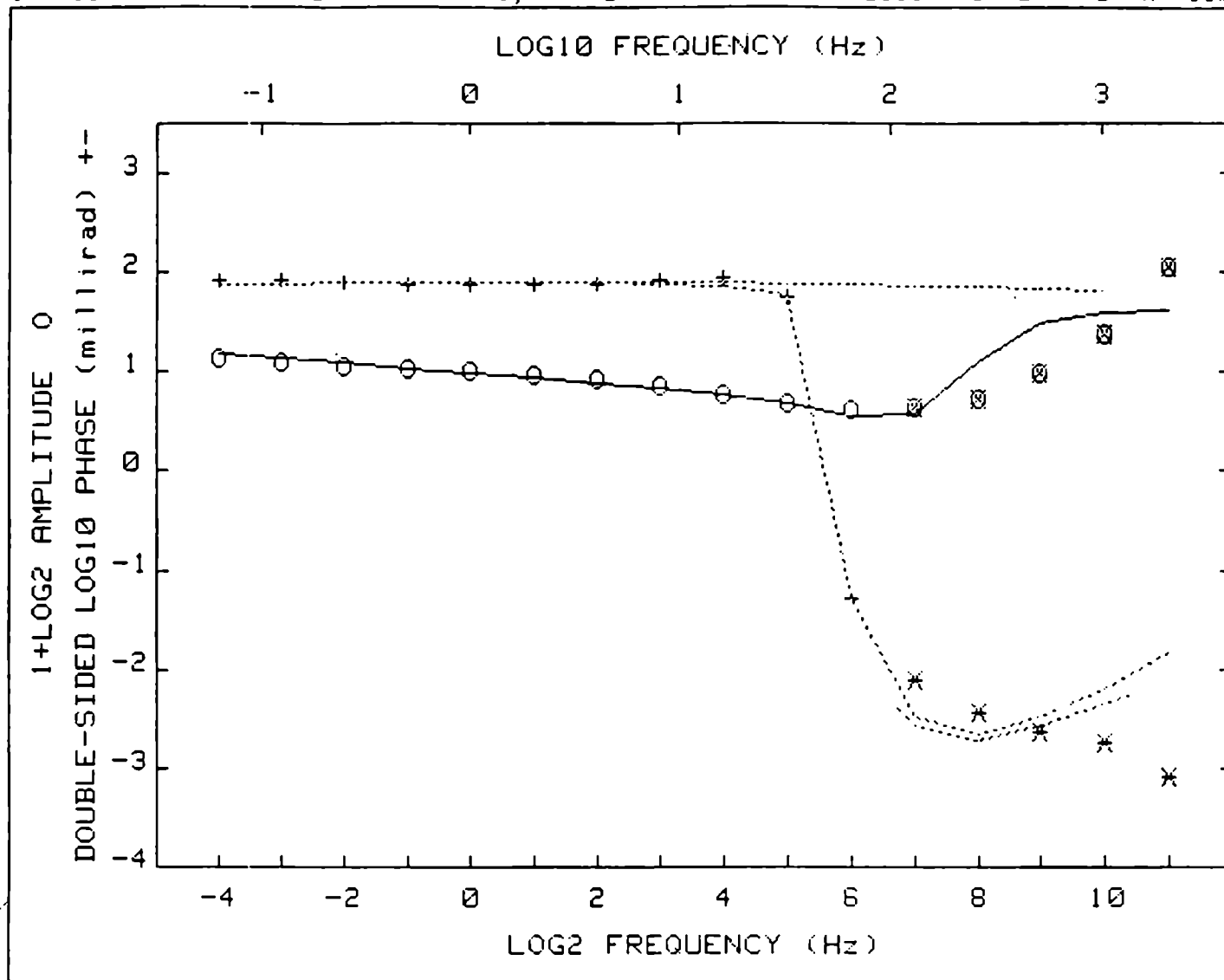


Pct Std Deviations 10.8 2.9 219.2 6.3 15.8

Correlation Matrix

	1.000				
	.959	1.000			
	.974	.986	1.000		
	-.541	-.743	-.704	1.000	
	-.980	-.894	-.937	.419	1.000

Apparent Resistivity Measured at 1 Hz is 2.560
 Apparent Resistivity Calculated from Inductive Coupling is 56.19



CRL: Number of dispersions= 3 Negative.
M2=.57 T2=.0012 C2=1 M3=1 T3=.00069 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00144	2.027	.772	1.7E+01	.143
1	1.E-02	.00144	2.023	.771	1.6E+01	.143

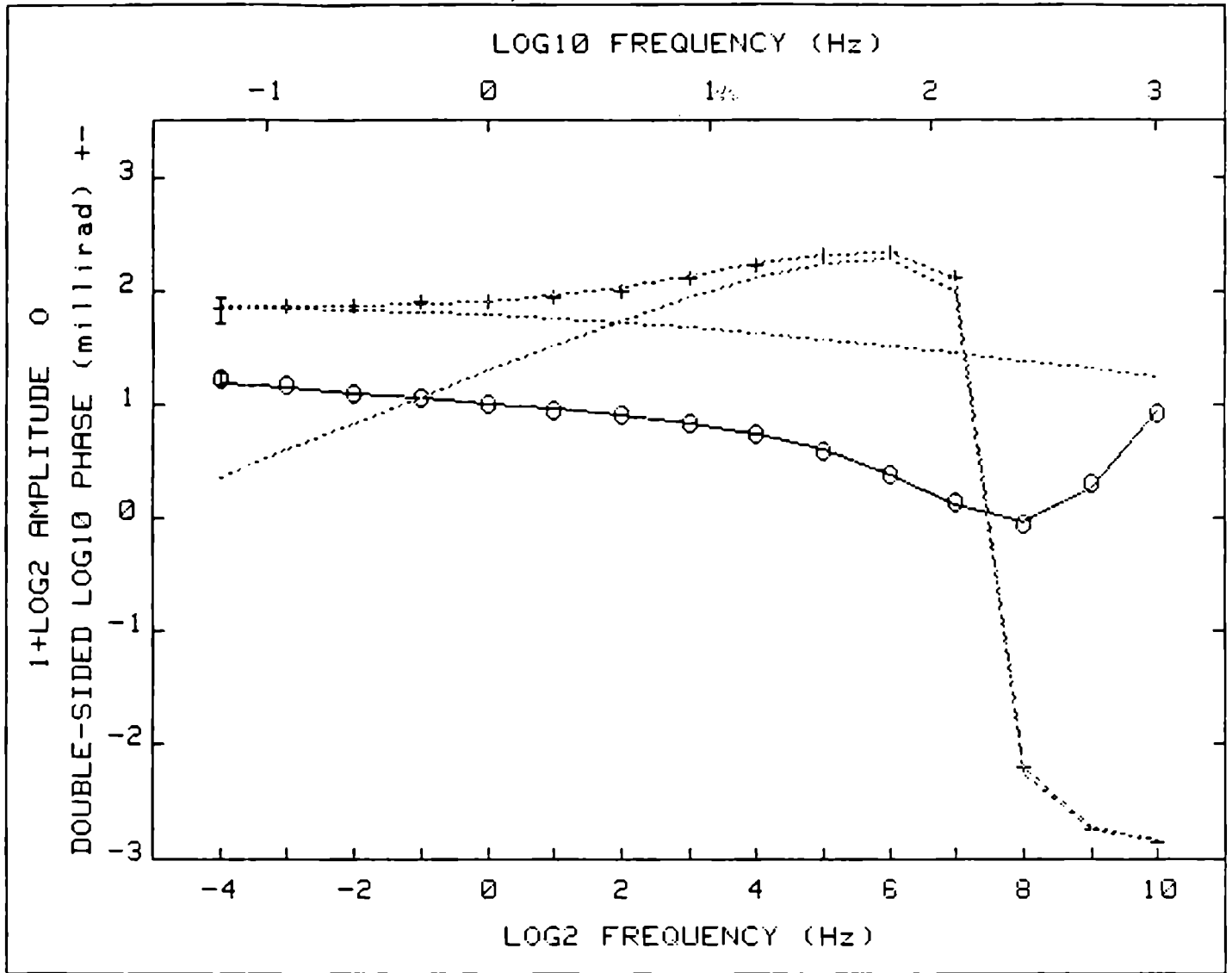


Pct Std Deviations 5.5 7.6 35.1 17.0

Correlation Matrix

	1.000			
	.951	1.000		
	.807	.658	1.000	
	-.910	-.987	-.624	1.000

Apparent Resistivity Measured at 1 Hz is 3.610
Apparent Resistivity Calculated from Inductive Coupling is 10.89



CRL: Number of dispersions= 3 Negative.
 C1=.27 M2=.33 C2=.75 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2	T3
0	1.E-02	.00028	1.581	.482	7.7E+00	2.4E-03	8.8E-05
1	1.E-02	.00028	1.581	.482	7.6E+00	2.4E-03	8.8E-05

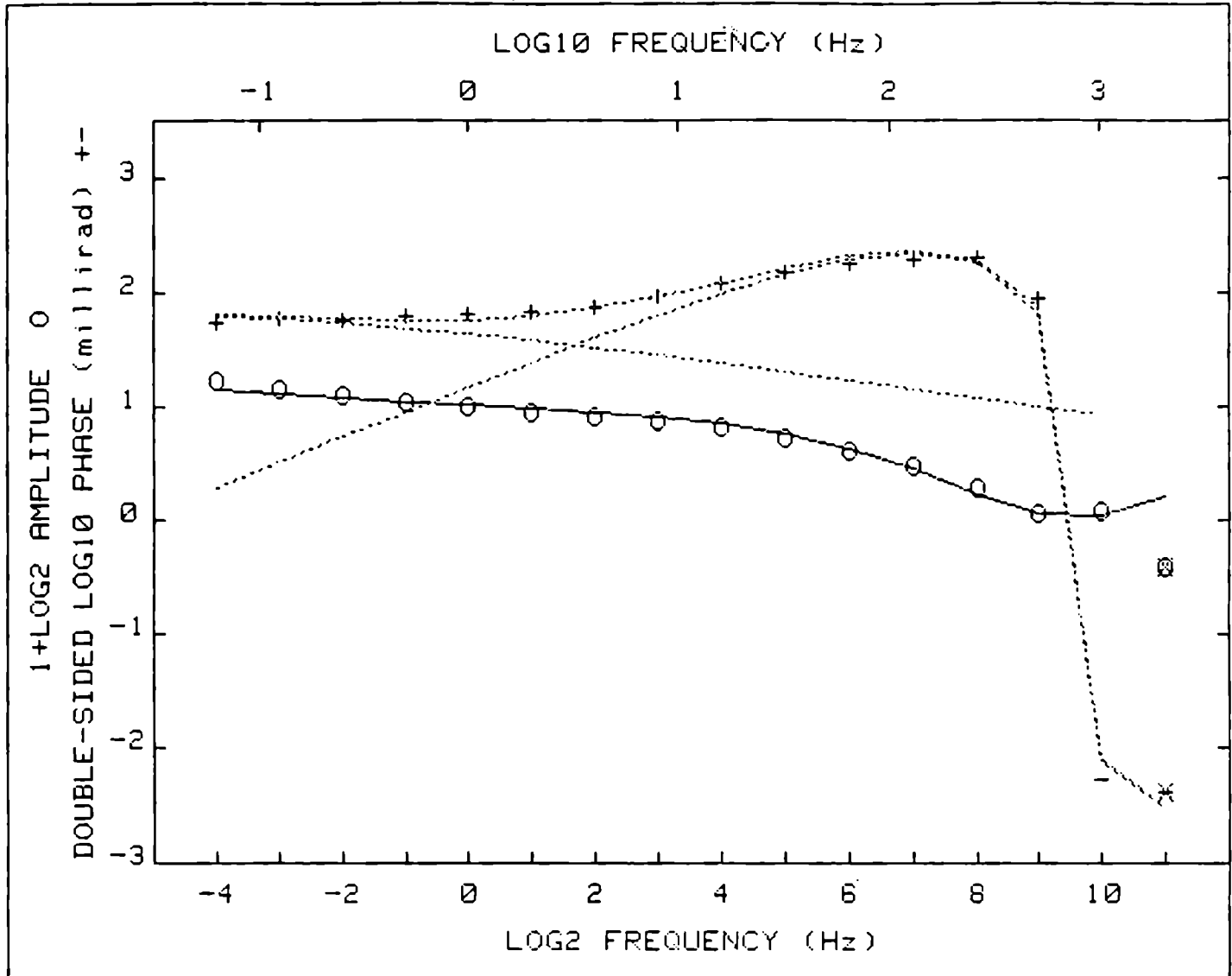
D

Pct Std Deviations 1.8 1.1 43.0 4.5 2.1

Correlation Matrix

1.000					
.559	1.000				
.936	.309	1.000			
.147	-.618	.314	1.000		
-.692	.087	-.794	-.645	1.000	

Apparent Resistivity Measured at 1 Hz is 3.090
 Apparent Resistivity Calculated from Inductive Coupling is 3.352



CRL: Number of dispersions= 3 Negative.
 M2=.34 C2=.72 M3=.8 T3=.000014 C3=.8 fixed

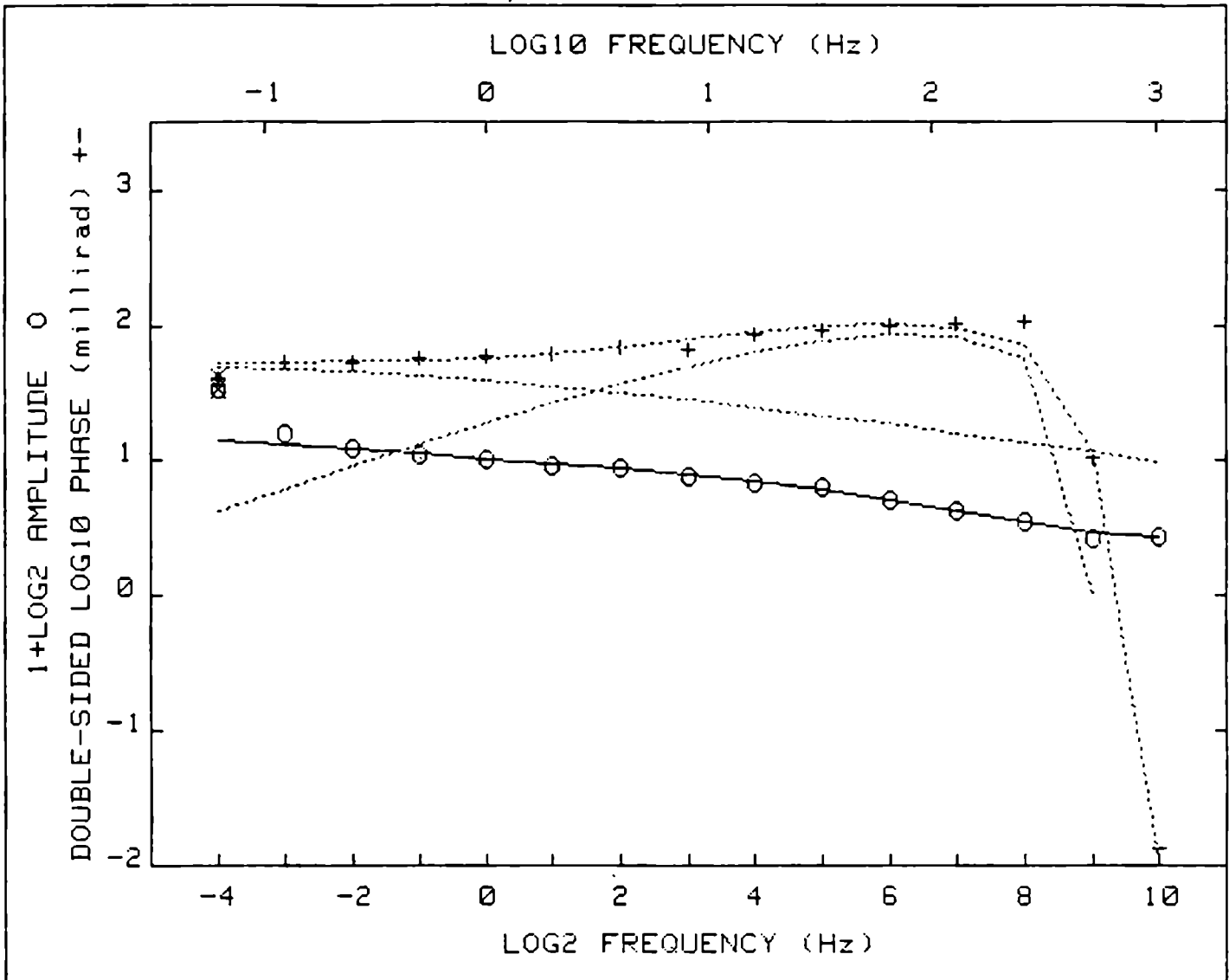
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00526	1.553	.458	2.0E+01	.250	1.2E-03
1	1.E-02	.00336	1.574	.424	3.0E+01	.296	1.3E-03
2	1.E-03	.00321	1.614	.440	4.1E+01	.290	1.3E-03
3	1.E-04	.00321	1.625	.441	4.5E+01	.293	1.3E-03

Pct Std Deviations 4.9 4.1 103.9 11.1 7.3

Correlation Matrix

	1.000				
	.879	1.000			
	.883	.792	1.000		
	.396	.042	.201	1.000	
	-.273	-.370	-.198	-.219	1.000

Apparent Resistivity Measured at 1 Hz is 7.240
 Apparent Resistivity Calculated from Inductive Coupling is 5.124



CRL: Number of dispersions= 3 Negative.
 C1=.27 M2=.23 C2=.55 M3=.99 C3=.99 fixed

Iter	Lambda	Rchsq	R0	M1	T1	T2	T3
0	1.E-02	.00287	1.452	.375	1.7E+01	1.6E-03	1.3E-05
1	1.E-02	.00287	1.455	.376	1.7E+01	1.6E-03	1.3E-05

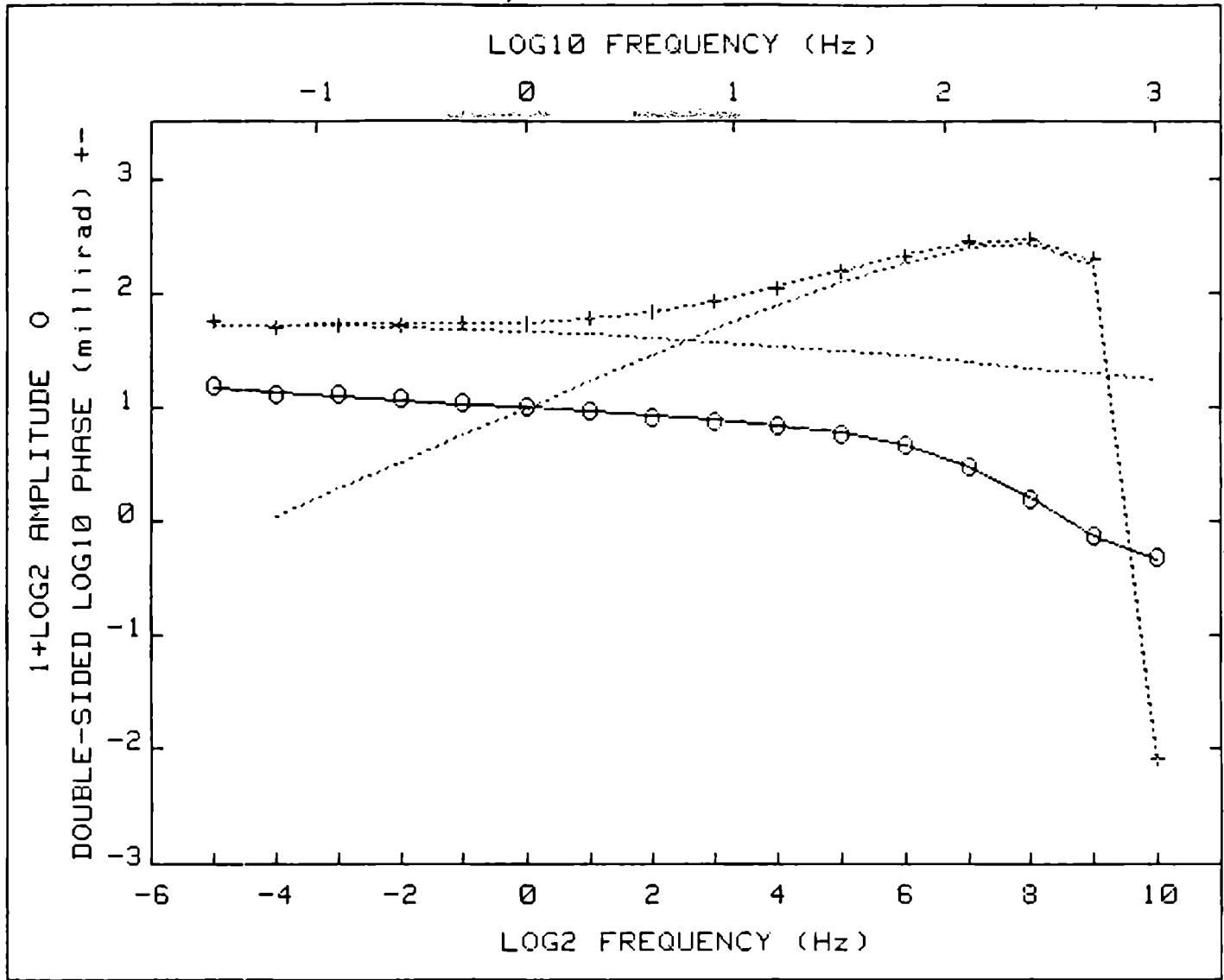


Pct Std Deviations 12.5 12.9 999.9 38.2 16.2

Correlation Matrix

1.000					
.966	1.000				
.983	.922	1.000			
.508	.304	.582	1.000		
-.791	-.628	-.854	-.909	1.000	

Apparent Resistivity Measured at 1 Hz is 6.050
 Apparent Resistivity Calculated from Inductive Coupling is 1.642



CRL: Number of dispersions= 3 Negative.
M2=.39 C2=.76 M3=.99 T3=.000019 C3=.99 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00019	1.498	.448	1.6E+01	.225	8.1E-04
1	1.E-02	.00019	1.498	.448	1.6E+01	.225	8.1E-04

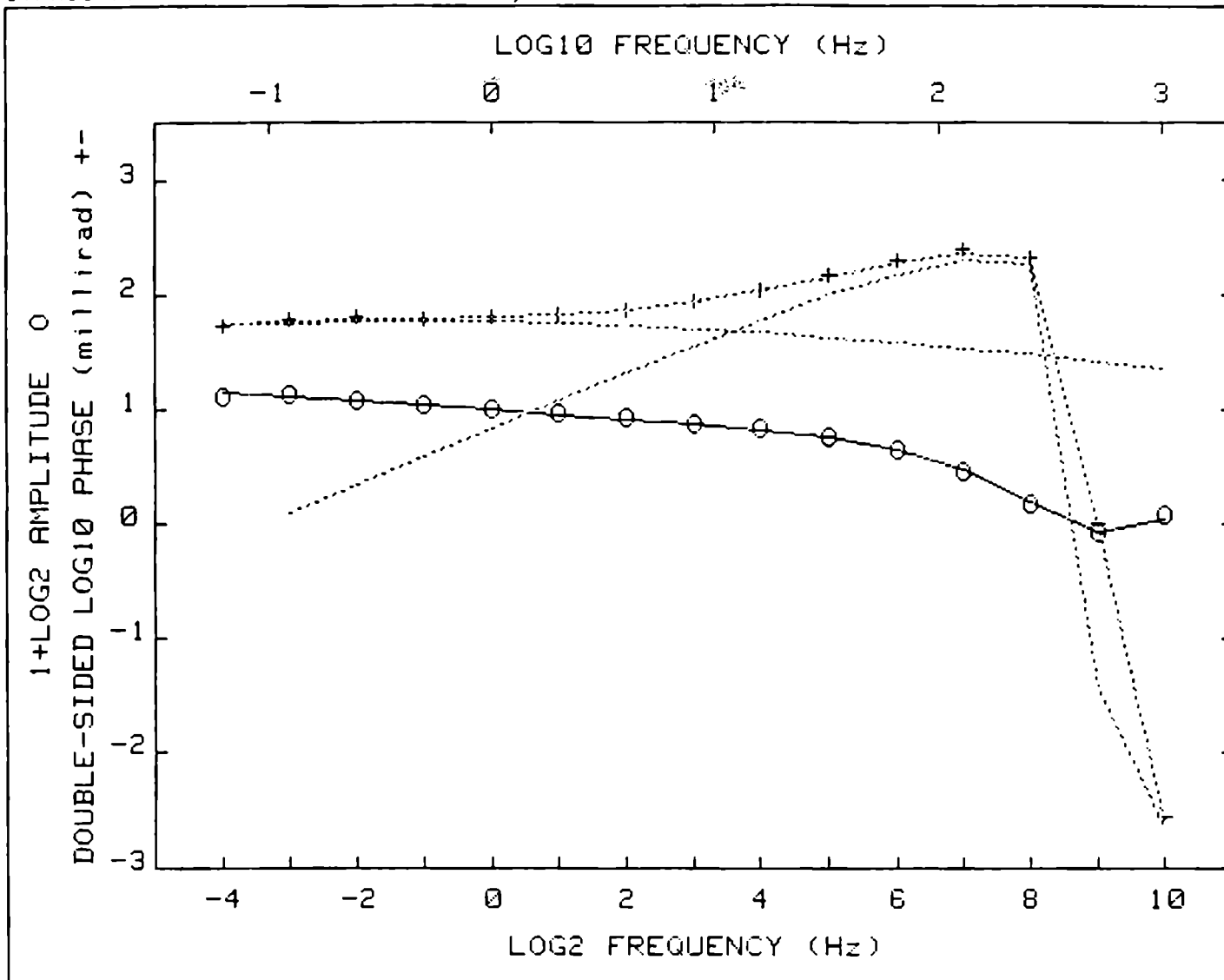


Pct Std Deviations 1.0 1.1 26.9 2.2 1.9

Correlation Matrix

1.000					
.700	1.000				
.904	.489	1.000			
-.103	-.651	-.002	1.000		
-.529	-.582	-.451	.067	1.000	

Apparent Resistivity Measured at 1 Hz is 8.140
Apparent Resistivity Calculated from Inductive Coupling is 8.969



CRL: Number of dispersions= 3 Negative.
M2=.38 C2=.79 M3=.99 T3=.000042 C3=.99 fixed

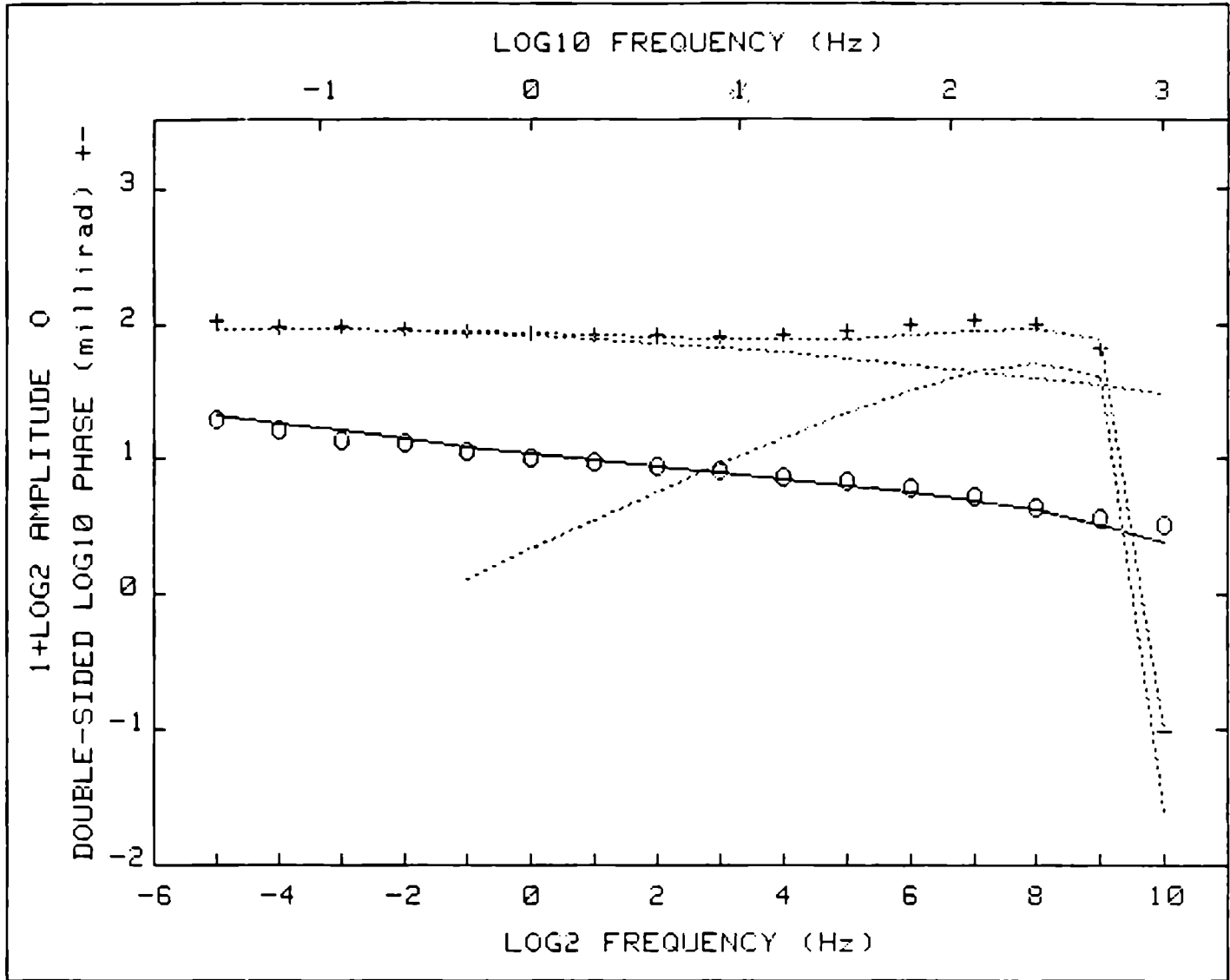
Iter	Lambda	Rchsqr	R0	M1	T1	C1	T2
0	1.E-02	.00055	1.402	.441	1.7E+00	.263	7.2E-04
1	1.E-02	.00046	1.386	.439	1.3E+00	.258	7.4E-04
2	1.E-02	.00044	1.377	.434	1.2E+00	.265	7.4E-04
3	1.E+01	.00044	1.377	.434	1.2E+00	.265	7.4E-04

Pct Std Deviations 2.0 3.4 47.3 5.1 5.7

Correlation Matrix		1.000				
		.746	1.000			
		.862	.377	1.000		
		-.671	-.911	-.377	1.000	
		-.364	-.760	-.028	.571	1.000

Apparent Resistivity Measured at 1 Hz is 6.610
Apparent Resistivity Calculated from Inductive Coupling is 11.60





CRL: Number of dispersions= 3 Negative.
M2=.75 C2=.7 M3=1 T3=.000022 C3=1 fixed

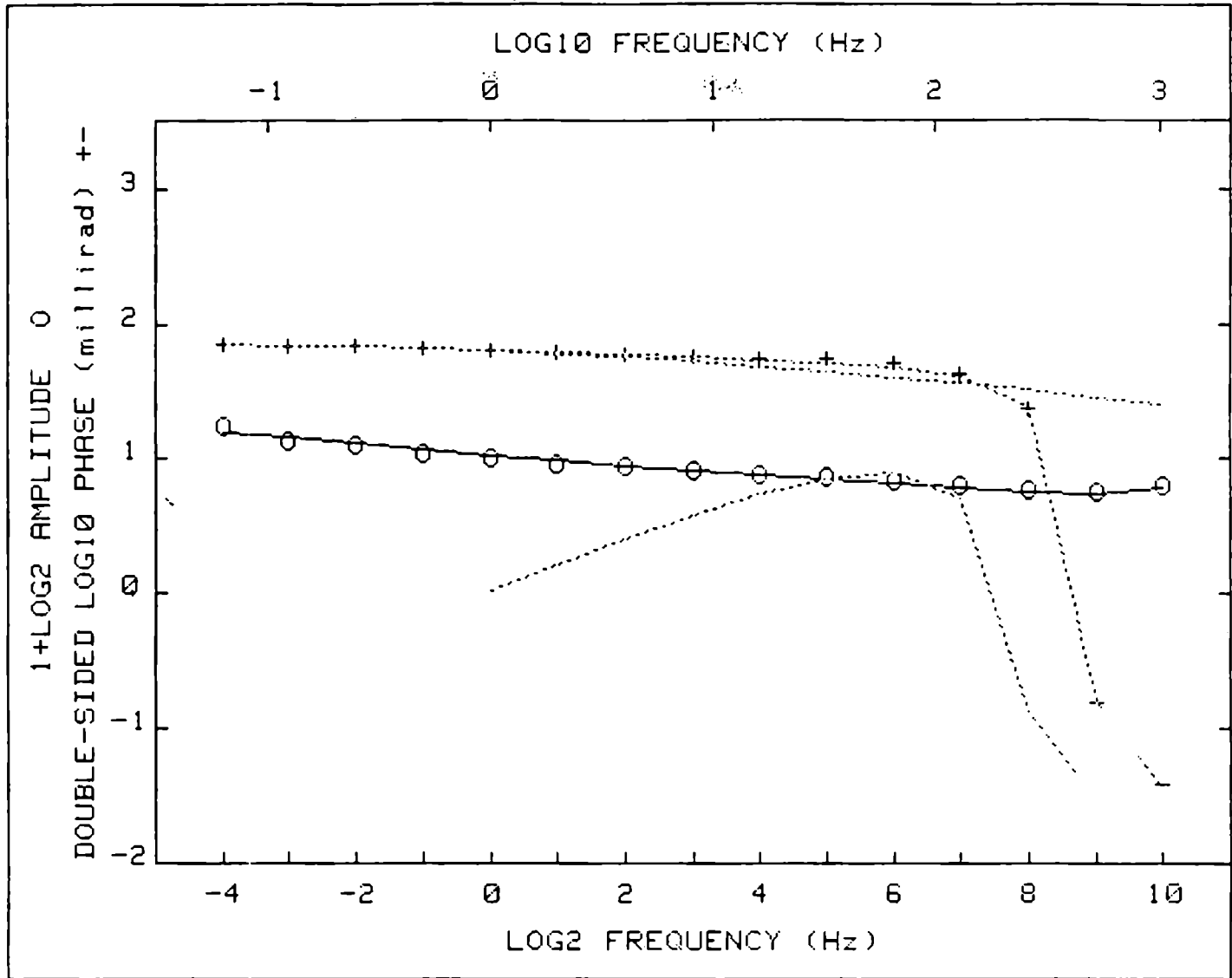
Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00231	1.856	.608	9.3E+00	.244	1.9E-05
1	1.E-02	.00227	1.888	.614	1.2E+01	.241	1.9E-05
2	1.E-03	.00223	1.964	.627	2.0E+01	.235	1.9E-05
3	1.E-04	.00222	1.977	.628	2.2E+01	.236	1.9E-05



Pct Std Deviations 6.9 4.0 139.5 8.0 3.6

Correlation Matrix	1.000					
	.891	1.000				
	.971	.849	1.000			
	-.469	-.774	-.486	1.000		
	.643	.254	.671	.302	1.000	

Apparent Resistivity Measured at 1 Hz is 15.47
Apparent Resistivity Calculated from Inductive Coupling is 139.7



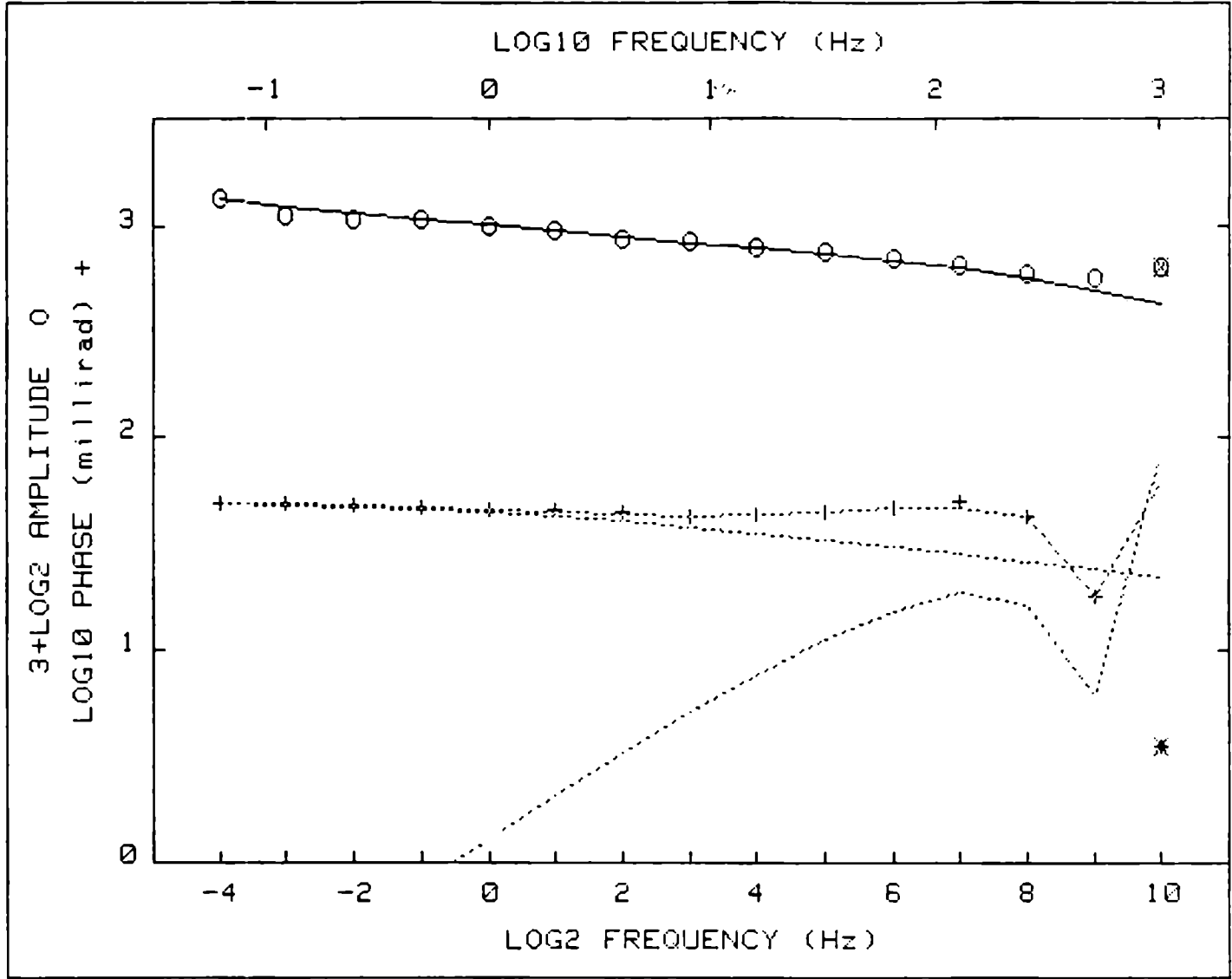
CRL: Number of dispersions= 3 Negative.
M2=.33 C2=.7 M3=.19 T3=.00012 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1	T2
0	1.E-02	.00075	1.503	.483	2.1E+00	.255	2.8E-05
1	1.E-02	.00059	1.529	.493	2.7E+00	.249	2.8E-05
2	1.E-03	.00055	1.637	.532	7.6E+00	.227	2.9E-05
3	1.E-04	.00048	1.733	.555	1.9E+01	.219	3.1E-05
4	1.E-05	.00043	1.740	.554	2.0E+01	.221	3.1E-05
5	1.E-06	.00043	1.741	.555	2.0E+01	.221	3.1E-05

Pct Std Deviations 4.8 3.9 103.1 4.9 4.9

Correlation Matrix		1.000				
		.966	1.000			
		.929	.951	1.000		
		-.690	-.834	-.695	1.000	
		.799	.631	.820	-.169	1.000





CRL: Number of dispersions= 3 Negative.
M2=.35 C2=.7 M3=1 T3=.000019 C3=1 fixed

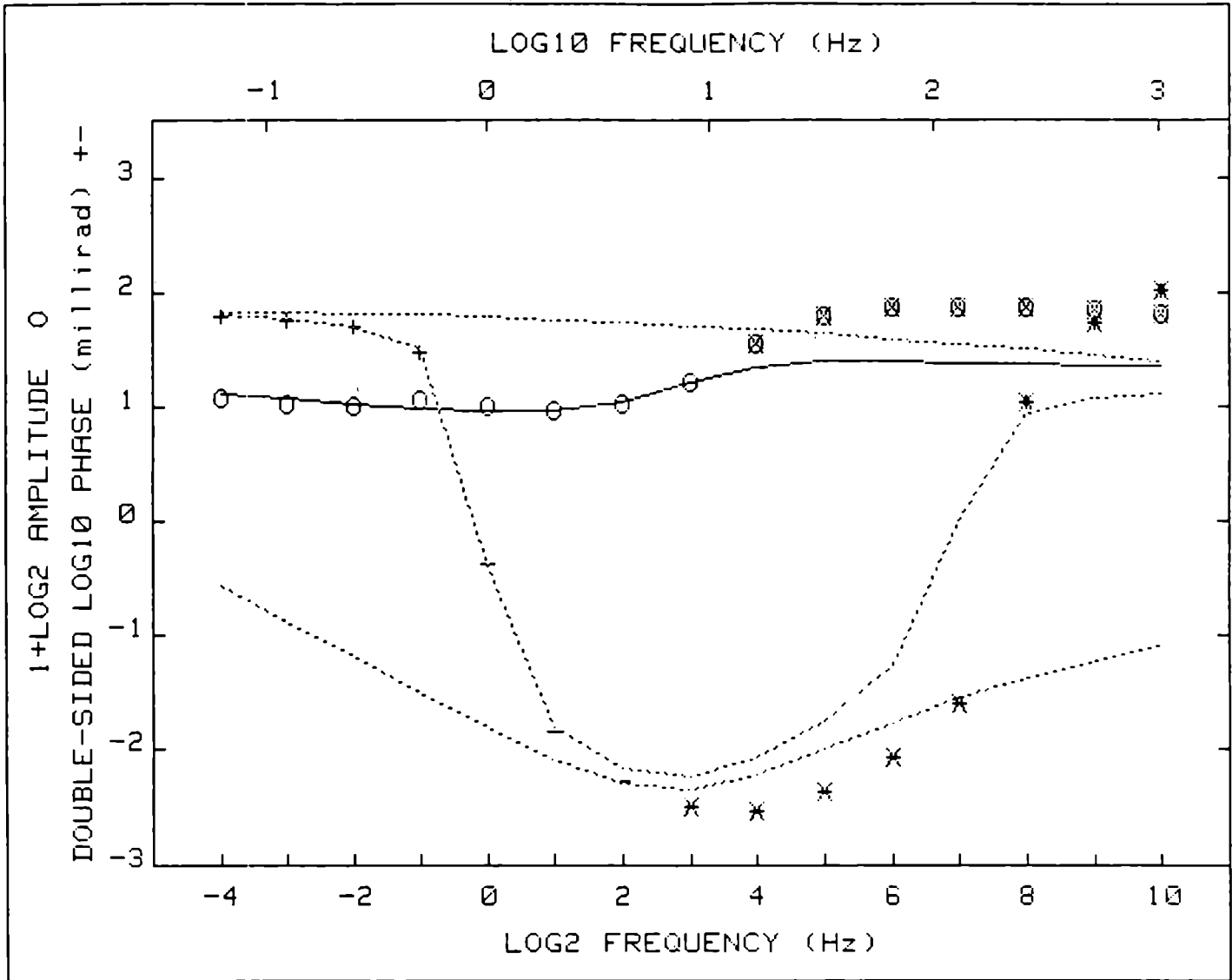
Iter	Lambda	Rchsqr	R0	M1	T1	C1	T2
0	1.E-02	.00082	1.367	.405	2.5E+00	.228	4.3E-05
1	1.E-02	.00047	1.382	.417	2.8E+00	.221	3.9E-05
2	1.E-03	.00041	1.444	.451	6.3E+00	.200	3.8E-05
3	1.E-04	.00039	1.554	.496	2.7E+01	.180	3.8E-05
4	1.E-05	.00035	1.590	.501	4.5E+01	.181	3.9E-05
5	1.E-06	.00035	1.590	.500	4.4E+01	.181	3.9E-05



Pct Std Deviations 6.1 6.6 225.7 7.6 3.1

Correlation Matrix

	1.000				
	.972	1.000			
	.993	.952	1.000		
	-.801	-.911	-.772	1.000	
	.196	-.013	.268	.331	1.000



CRL: Number of dispersions= 2 Negative.
 C1=.22 M2=.3 T2=.021 C2=1 fixed

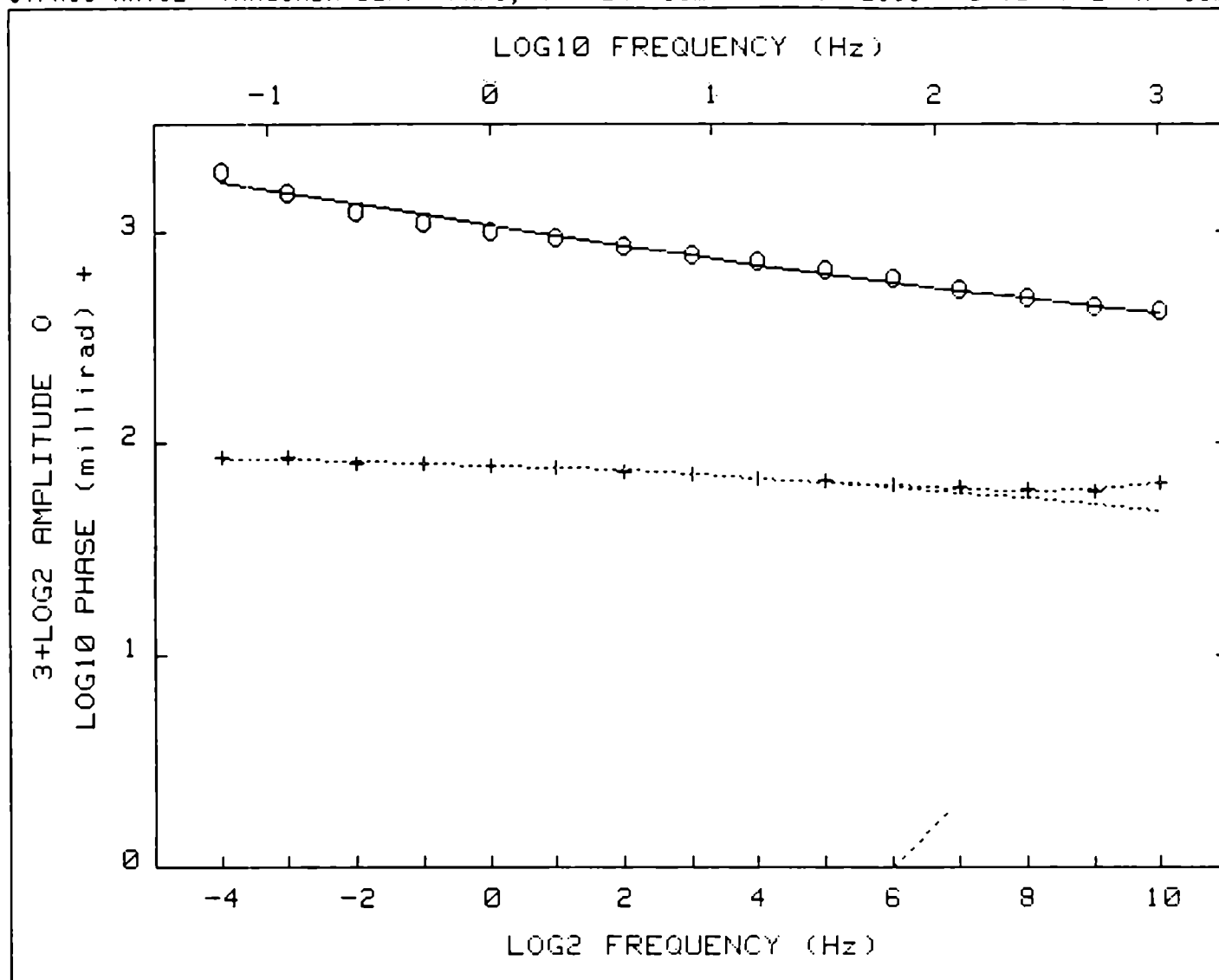
Iter	Lambda	Rchsq	R0	M1	T1
0	1.E-02	.00247	1.574	.529	1.3E+01
1	1.E-02	.00237	1.601	.540	1.5E+01
2	1.E-03	.00231	1.613	.544	1.6E+01
3	1.E-04	.00229	1.615	.544	1.7E+01



Pct Std Deviations 3.3 3.4 31.1

Correlation Matrix 1.000
 .932 1.000
 .929 .989 1.000

Apparent Resistivity Measured at 1 Hz is 214.5
 Apparent Resistivity Calculated from Inductive Coupling is 1.180



CRL: Number of dispersions= 2
M2=1 T2=.0000008 C2=.99 fixed

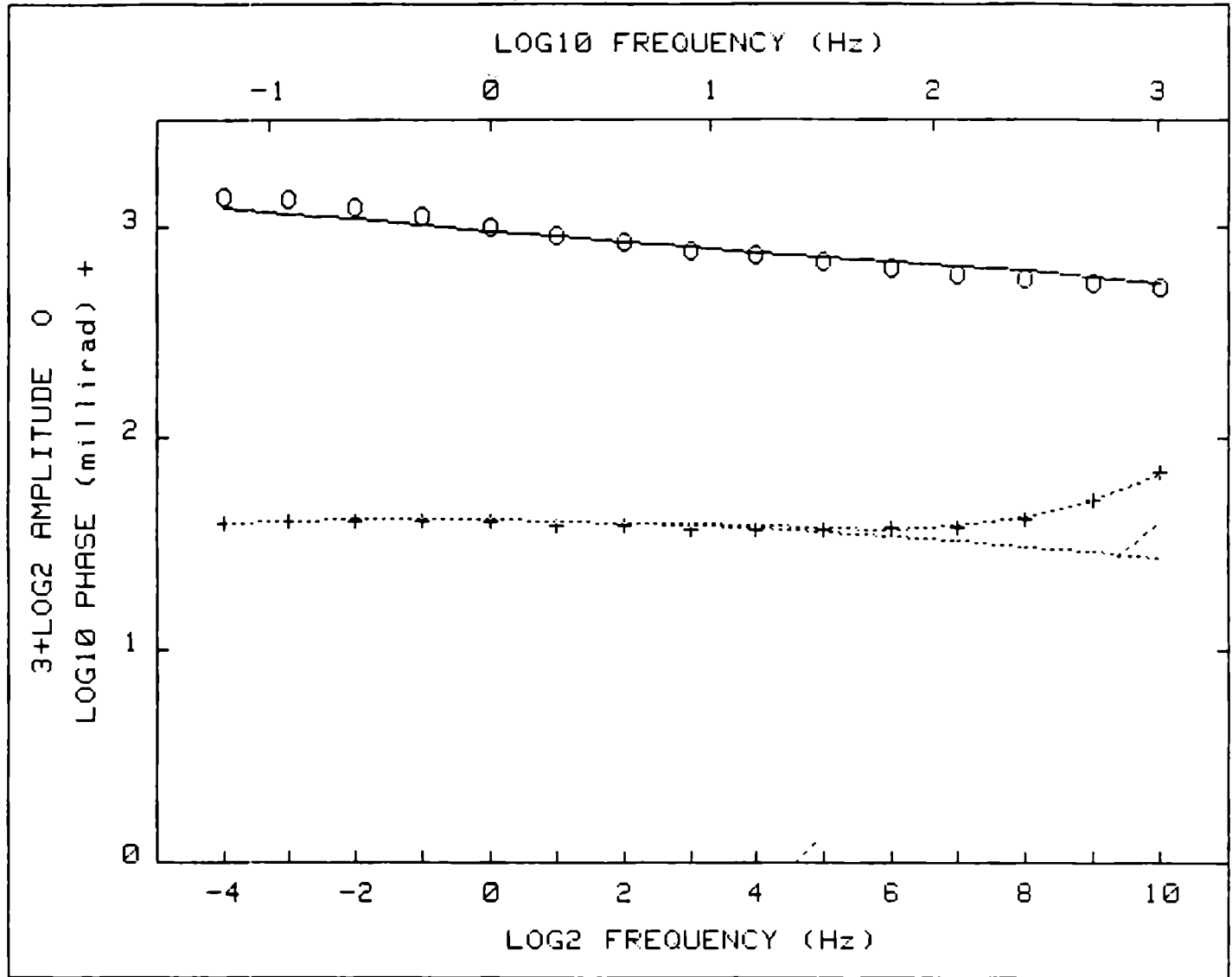
Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00055	2.385	.745	2.8E+02	.160
1	1.E-02	.00055	2.388	.746	2.8E+02	.160



Pct Std Deviations 13.8 5.1 516.8 7.9

Correlation Matrix		1.000			
		.990	1.000		
		.997	.991	1.000	
		-.902	-.947	-.920	1.000

Apparent Resistivity Measured at 1 Hz is 107.7
Apparent Resistivity Calculated from Inductive Coupling is 8820



CRL: Number of dispersions= 2
M2=.073 T2=.000061 C2=1 fixed

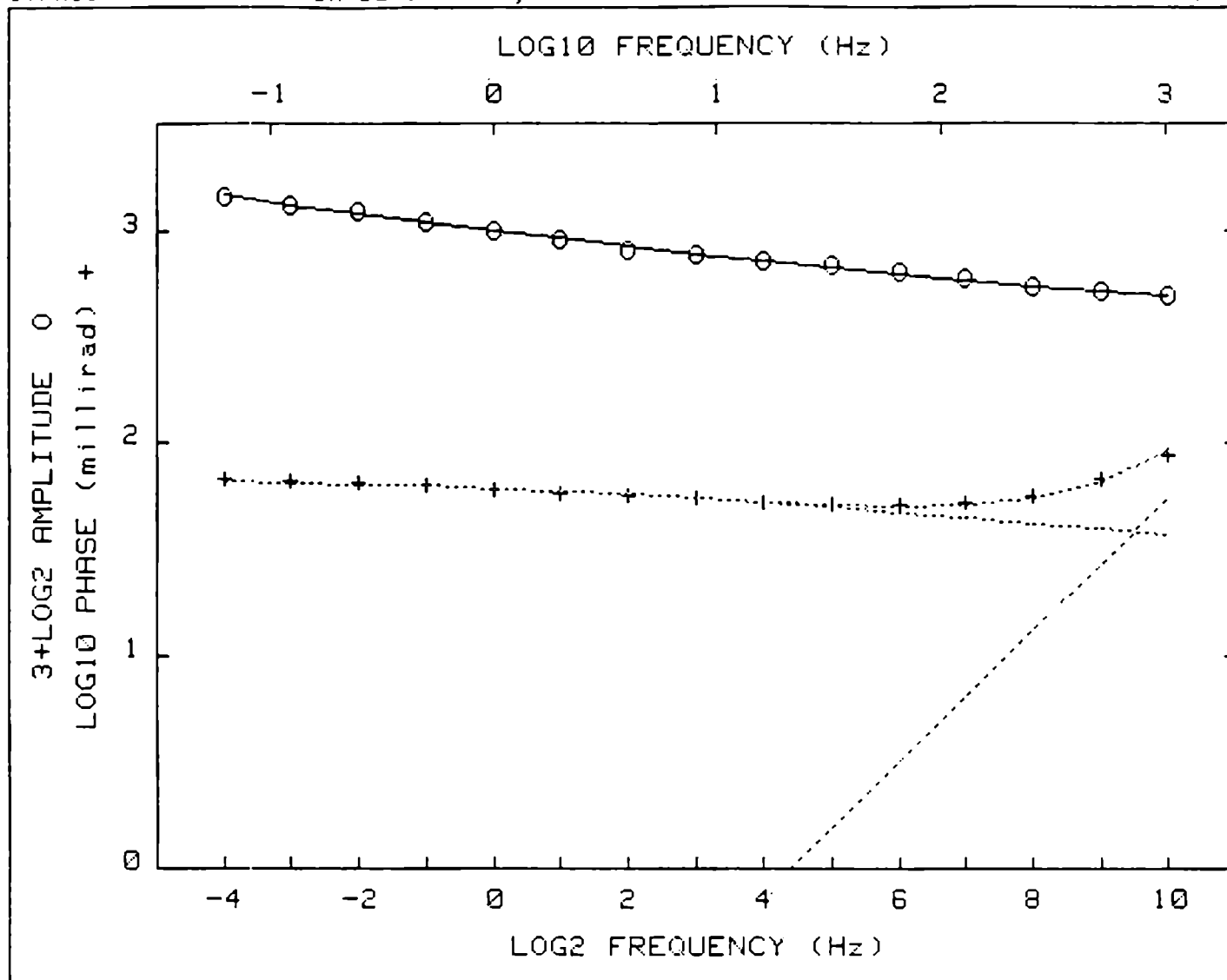
Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00086	1.353	.447	1.7E+00	.177
1	1.E-02	.00086	1.354	.448	1.7E+00	.177

Pct Std Deviations 5.2 8.6 195.7 12.1

Correlation Matrix		1.000			
		.967	1.000		
		.976	.912	1.000	
		-.917	-.977	-.855	1.000

Apparent Resistivity Measured at 1 Hz is 337.3
Apparent Resistivity Calculated from Inductive Coupling is 1629





CRL: Number of dispersions= 2
M2=.96 T2=.0000034 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.000008	2.076	.678	3.4E+02	.152
1	1.E-02	.000008	2.078	.678	3.4E+02	.152

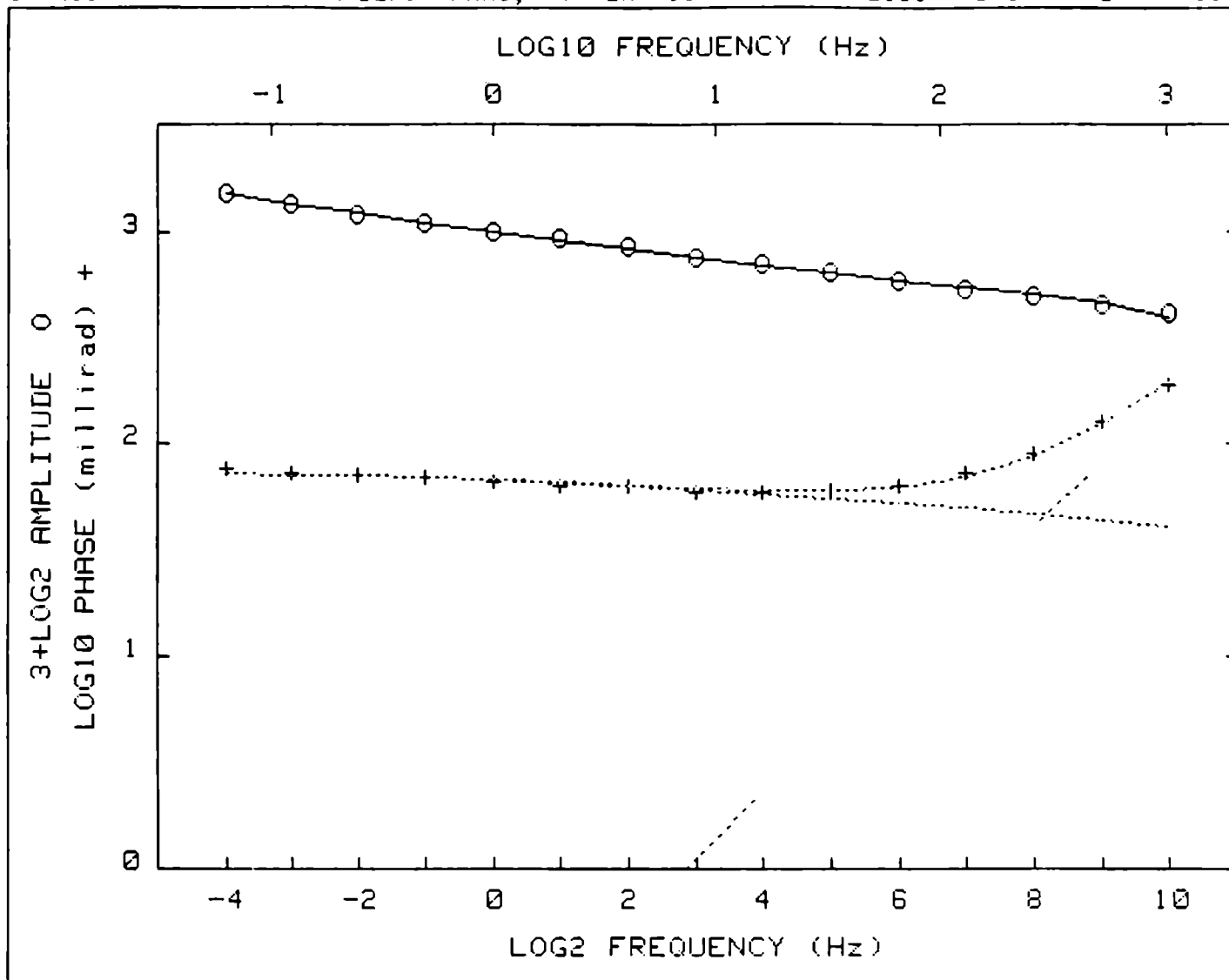


Pct Std Deviations 2.8 1.4 58.7 2.0

Correlation Matrix

	1.000			
	.969	1.000		
	.992	.968	1.000	
	-.675	-.821	-.713	1.000

Apparent Resistivity Measured at 1 Hz is 360.5
Apparent Resistivity Calculated from Inductive Coupling is 2222



CRL: Number of dispersions= 2
M2=.15 T2=.000061 C2=1 fixed

Iter	Lambda	Rchsq	R0	M1	T1	C1
0	1.E-02	.00010	2.291	.723	7.1E+02	.150
1	1.E-02	.00010	2.293	.723	7.2E+02	.150



Pct Std Deviations 2.3 .9 43.2 2.0

Correlation Matrix

	1.000			
	.874	1.000		
	.988	.884	1.000	
	-.251	-.658	-.348	1.000

Apparent Resistivity Measured at 1 Hz is 449.8
Apparent Resistivity Calculated from Inductive Coupling is 814.2

iii) Line 2W at Vaingorda with $X = 200'$

As shown on the geologic section for Line 2W, there is much less sulphide mineralization and much more graphitic material than 1000 feet to the east on Line 8E. The depth to the top of the sulphide source is also less (about 55 to 65 feet). On the geologic section we have shown a typical electrode placement for $X = 200'$; $n = 1$. It is clear that even the $n = 1$ and $n = 2$ measurements will be more influenced by the large volume of graphite material than by the sulphides. A much better separation would be achieved by using $X = 100'$, or perhaps even $X = 50'$.

The spectral IP measurements with $X = 200'$ show a complex picture. There is a strong, relatively narrow resistivity low centered at 0+00 to 2+00N. From that position to the southern end of the data, the apparent resistivities measured for $n = 2$ to $n = 6$ are all low, and variable in magnitude. There is an extremely low resistivity anomaly centered at the extreme southern end of the data (about 12+00S); the source of this strong anomaly is indicated to be at considerable depth.

The phase IP effects measured along Line 2W, using $X = 200'$, are large in magnitude, and variable. For detection depths greater than $n = 2$, or perhaps $n = 3$, the voltages measured are very low (due to the low resistivities) and noisy. There is not much spectral interpretation that can be done.

The quantitative interpretation used on the data on Line 8E has been attempted on this line. The $n = 1, 2, 3, 4$ spectral plots from the broad, complex anomaly (14+00S to 6+00N) has been inverted using two dispersions ($\tau_1 = 1000$ seconds and $\tau_2 = 0.1$ seconds). A large contribution from the graphite-type dispersion was interpreted along much of the line, except at 10+00S to 6+00S and at about 8+00N.

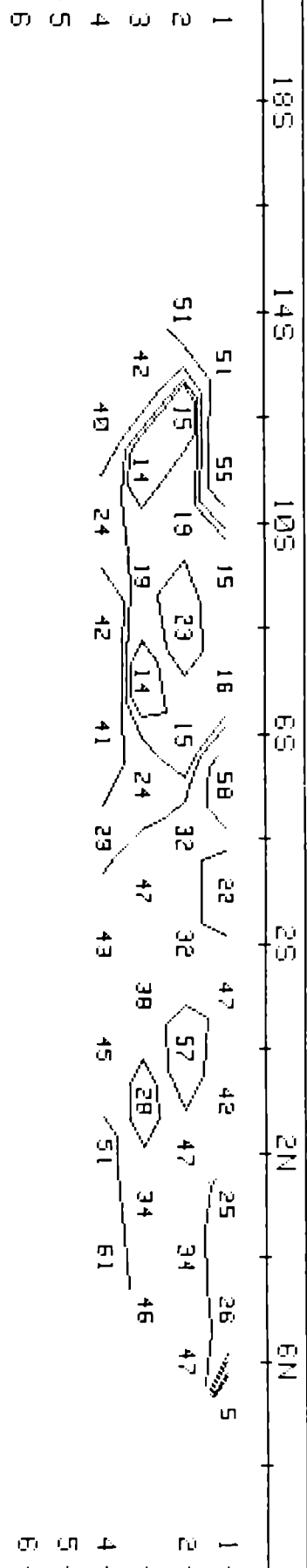
There is some sulphide contribution along most of the interval shown; there is some suggestion that the sulphide-type dispersion is limited to the upper portion of the section ($n = 1$ and $n = 2$).

There is a moderate increase in the sulphide-type dispersion in the interval from about 3+00N to 3+00S. The strongest effects are at the northern end, and this correlates in a very approximate way with the known sulphide zone; it may occur somewhat too far to the south to be an exact correlation.

PHOENIX SPECTRUM I.P

CHARGEABILITY (100*H1)

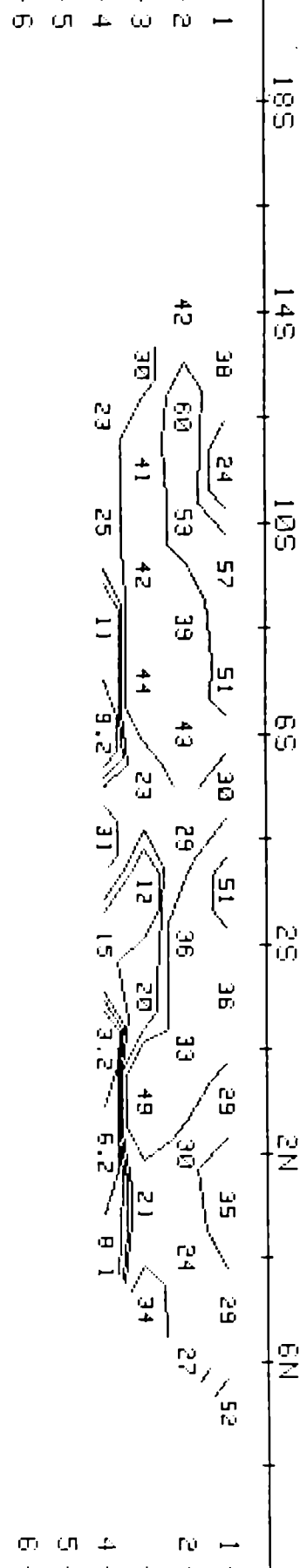
CYPRUS ANVIL VRANGORDA DEP. FARO, YT 2W 61m 7/7/81 L310



PHOENIX SPECTRUM I.P

CHARGEABILITY (100*H2)

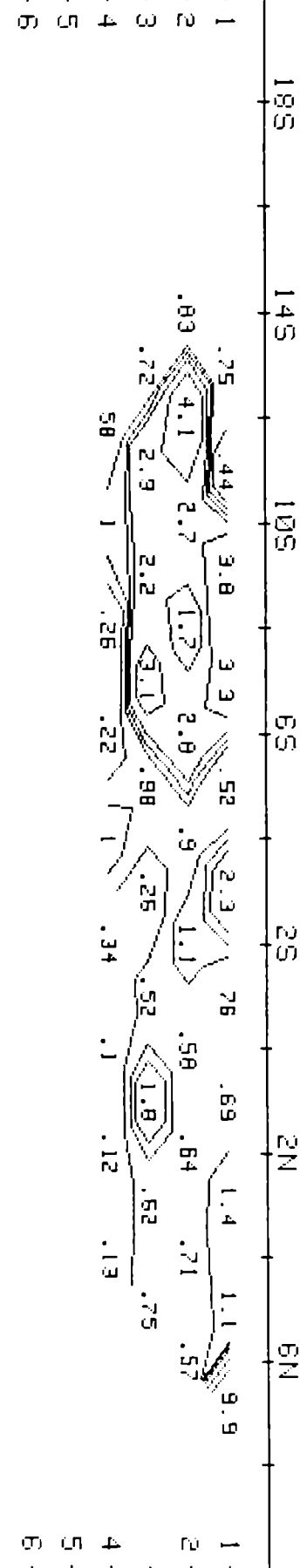
CYPRUS ANVIL VRANGORDA DEP. FARO, YT 2W 61m 7/7/81 L310

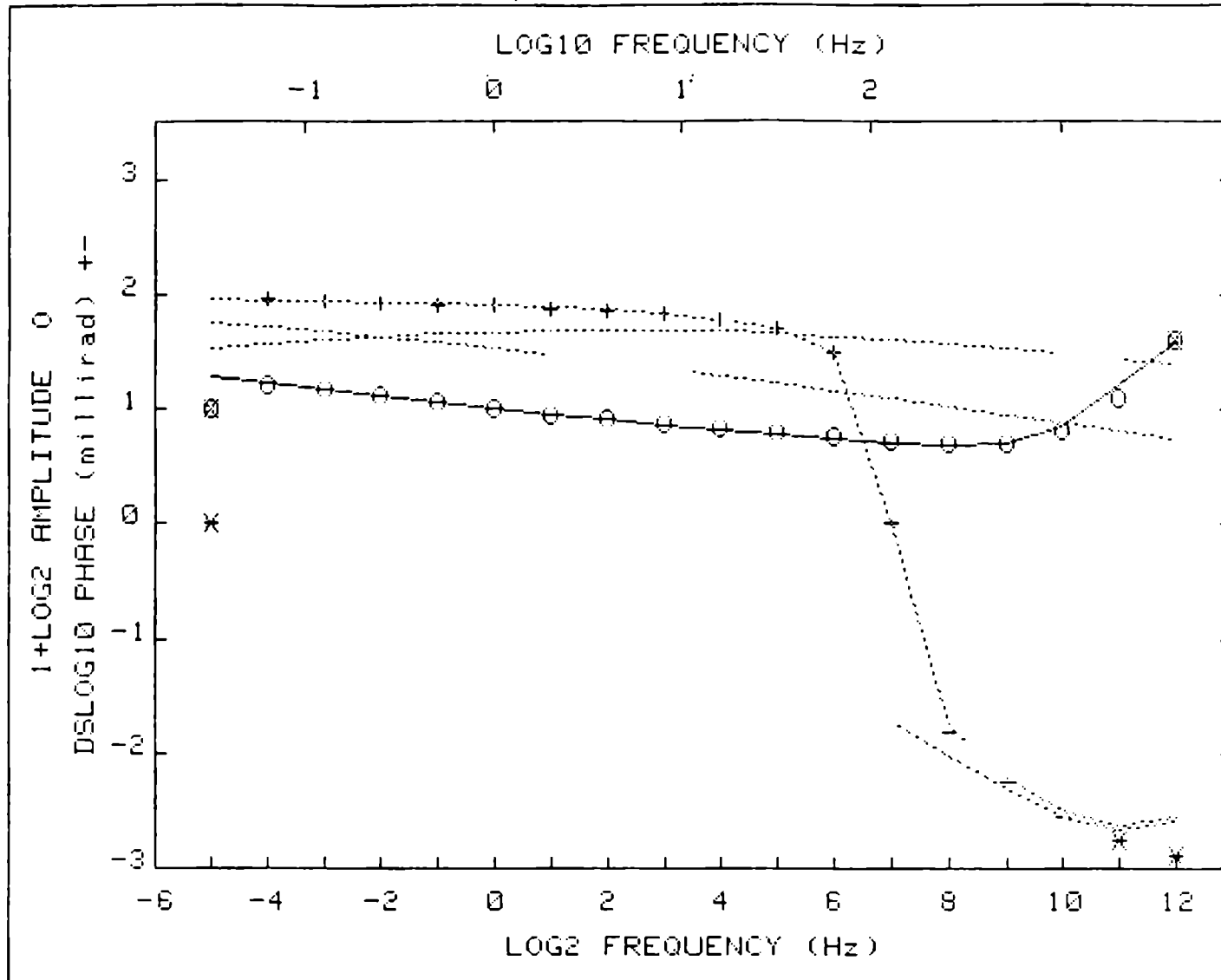


PHOENIX SPECTRUM I.P

M2 M1

CYPRUS ANVIL VRANGORDA DEP. FARO, YT 2W 61m 7/7/81 L310





CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.02261	2.684	.635	.277	4.0E-05
1	1.E-02	.00666	2.391	.564	.367	4.9E-05
2	1.E-03	.00088	2.297	.524	.379	4.7E-05
3	1.E-04	.00083	2.277	.513	.384	4.6E-05
4	1.E-05	.00083	2.277	.513	.384	4.6E-05

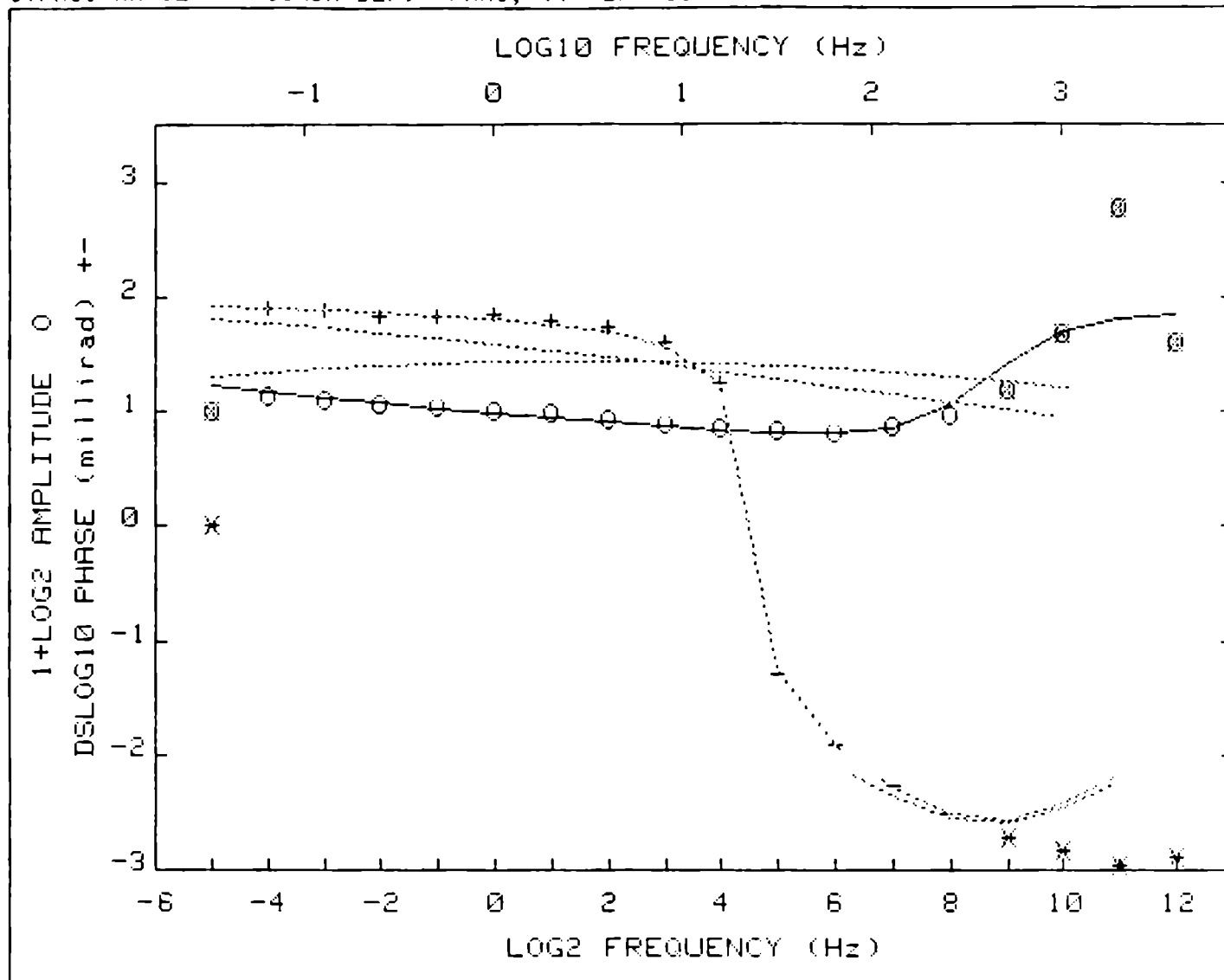
Pct Std Deviations 3.7 5.5 4.8 2.5

Correlation Matrix

	1.000			
	.977	1.000		
	-.801	-.894	1.000	
	.301	.306	-.183	1.000

Apparent Resistivity Measured at 1 Hz is 10.

Apparent Resistivity Calculated from Inductive Coupling is 60.37



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.51083	3.000	.400	.400	5.0E-04
1	1.E-01	.03345	2.213	.623	.260	3.0E-04
2	1.E-02	.00142	2.201	.556	.241	2.6E-04
3	1.E-03	.00106	2.210	.549	.241	2.6E-04
4	1.E-04	.00106	2.209	.549	.241	2.6E-04

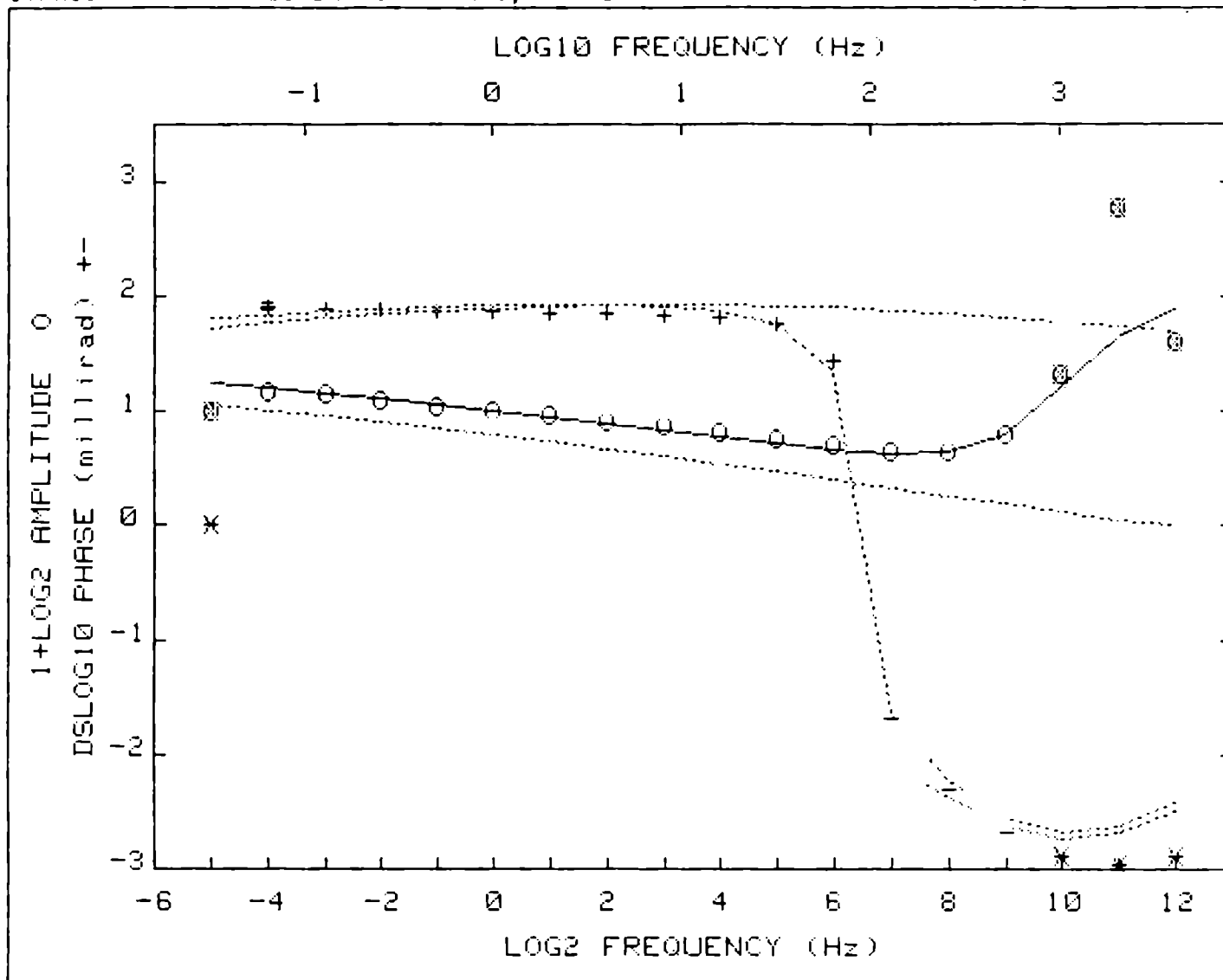
Pct Std Deviations 4.0 5.6 12.8 2.3

Correlation Matrix

	1.000			
	.976	1.000		
	-.863	-.937	1.000	
	.256	.182	.046	1.000

Apparent Resistivity Measured at 1 Hz is 16.65

Apparent Resistivity Calculated from Inductive Coupling is 10.



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.00424	1.784	.286	.551	8.6E-05
1	1.E-01	.00325	1.732	.244	.554	8.7E-05
2	1.E-01	.00313	1.696	.220	.559	8.7E-05
3	1.E-01	.00307	1.671	.204	.562	8.7E-05
4	1.E-01	.00304	1.653	.192	.564	8.7E-05
5	1.E-02	.00303	1.583	.152	.573	8.7E-05

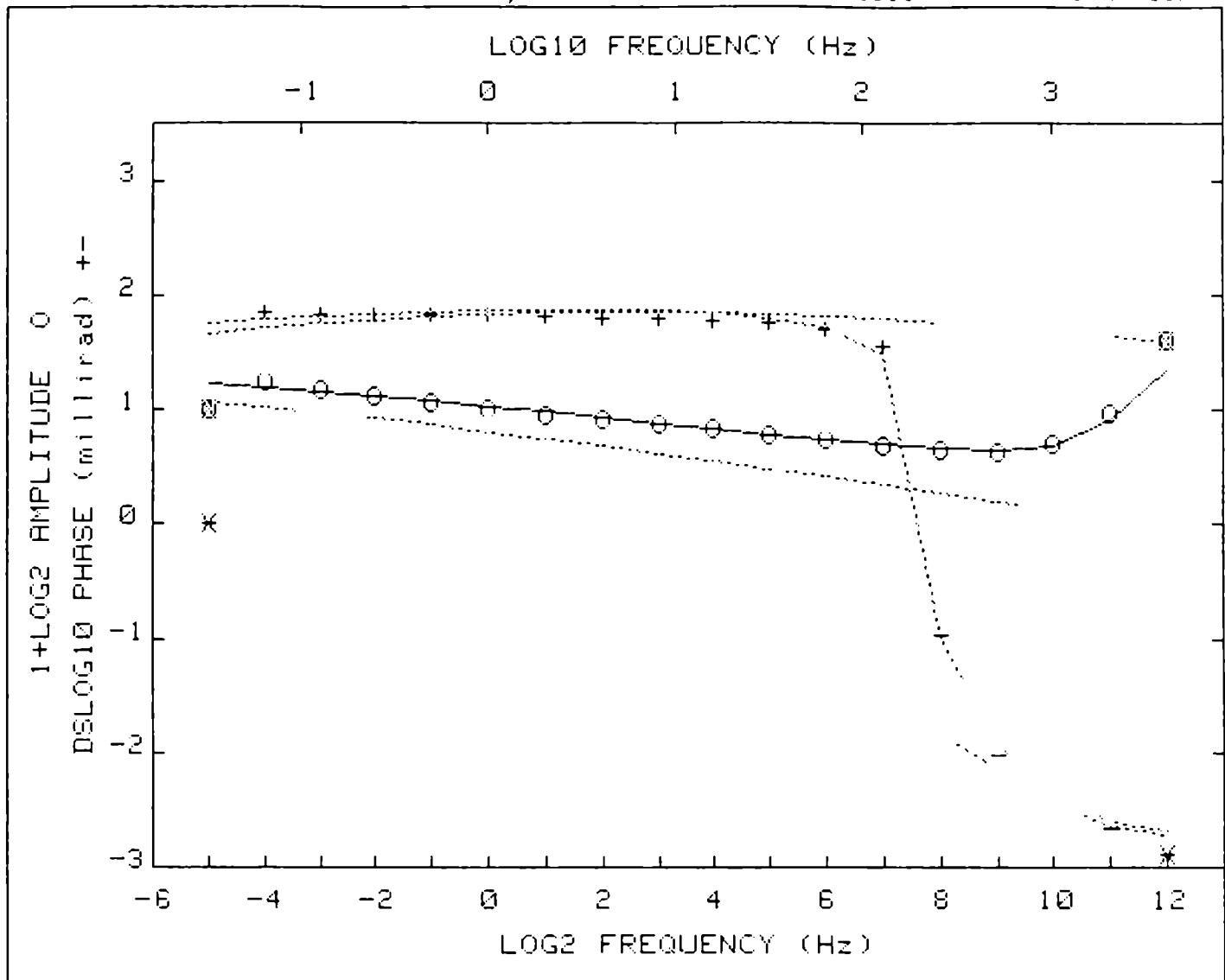
Pct Std Deviations 9.2 60.9 4.1 3.7

Correlation Matrix

	1.000			
	.986	1.000		
	-.733	-.814	1.000	
	-.050	-.110	.410	1.000

Apparent Resistivity Measured at 1 Hz is 7.100

Apparent Resistivity Calculated from Inductive Coupling is 32.13



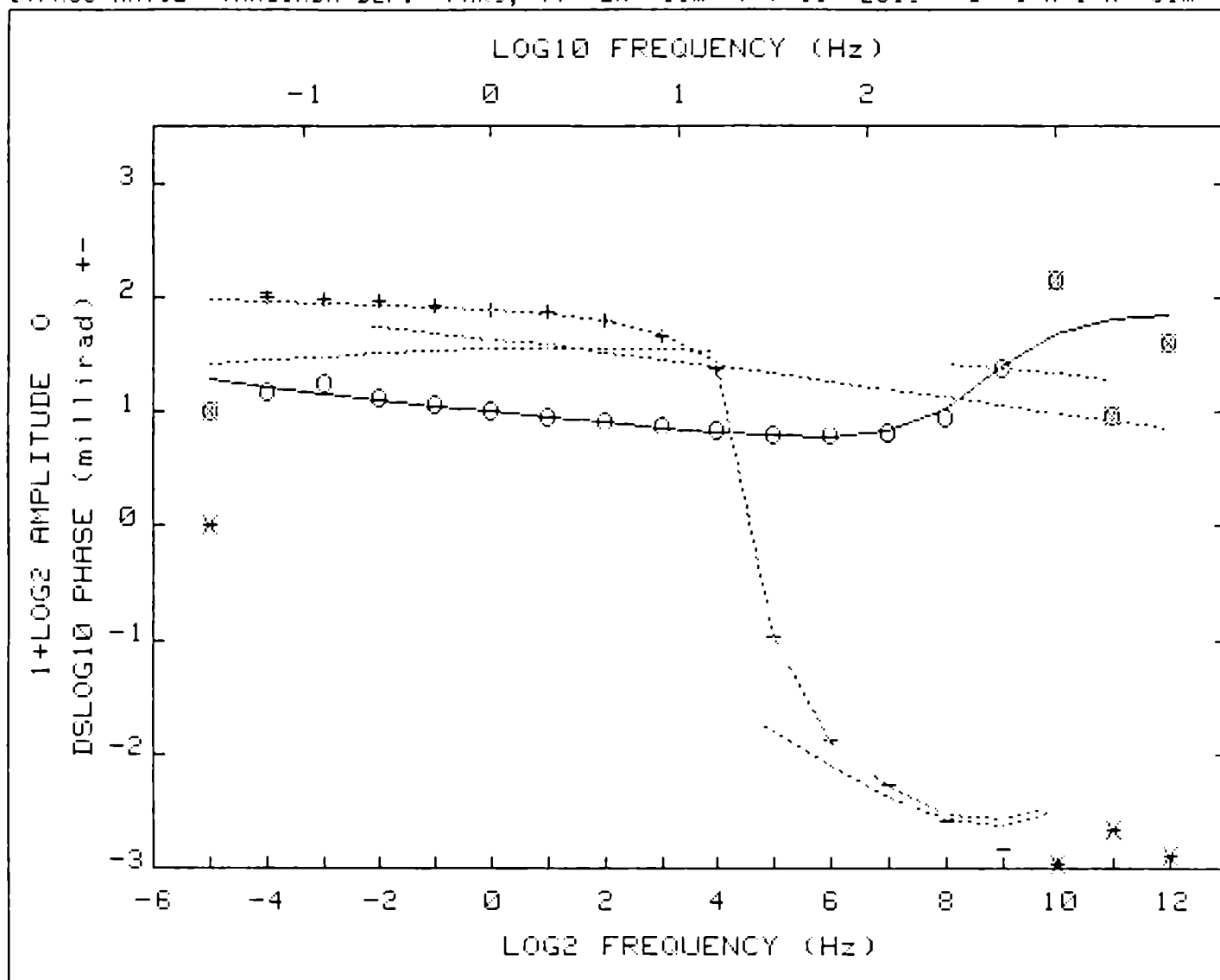
CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.46760	1.583	.152	.573	8.7E-05
1	1.E-01	.05899	1.488	.242	.354	1.6E-05
2	1.E+01	.03069	1.531	.243	.376	1.8E-05
3	1.E+00	.00831	1.632	.245	.456	2.2E-05
4	1.E-01	.00275	1.653	.223	.498	2.5E-05
5	1.E-02	.00222	1.576	.177	.509	2.6E-05
6	1.E-03	.00212	1.552	.156	.512	2.6E-05
7	1.E-04	.00211	1.553	.155	.511	2.6E-05

Fct Std Deviations 57.0 2.0

Correlation Matrix

	1.000			
	.984	1.000		
	-.718	-.806	1.000	
	-.082	-.163	.522	1.000

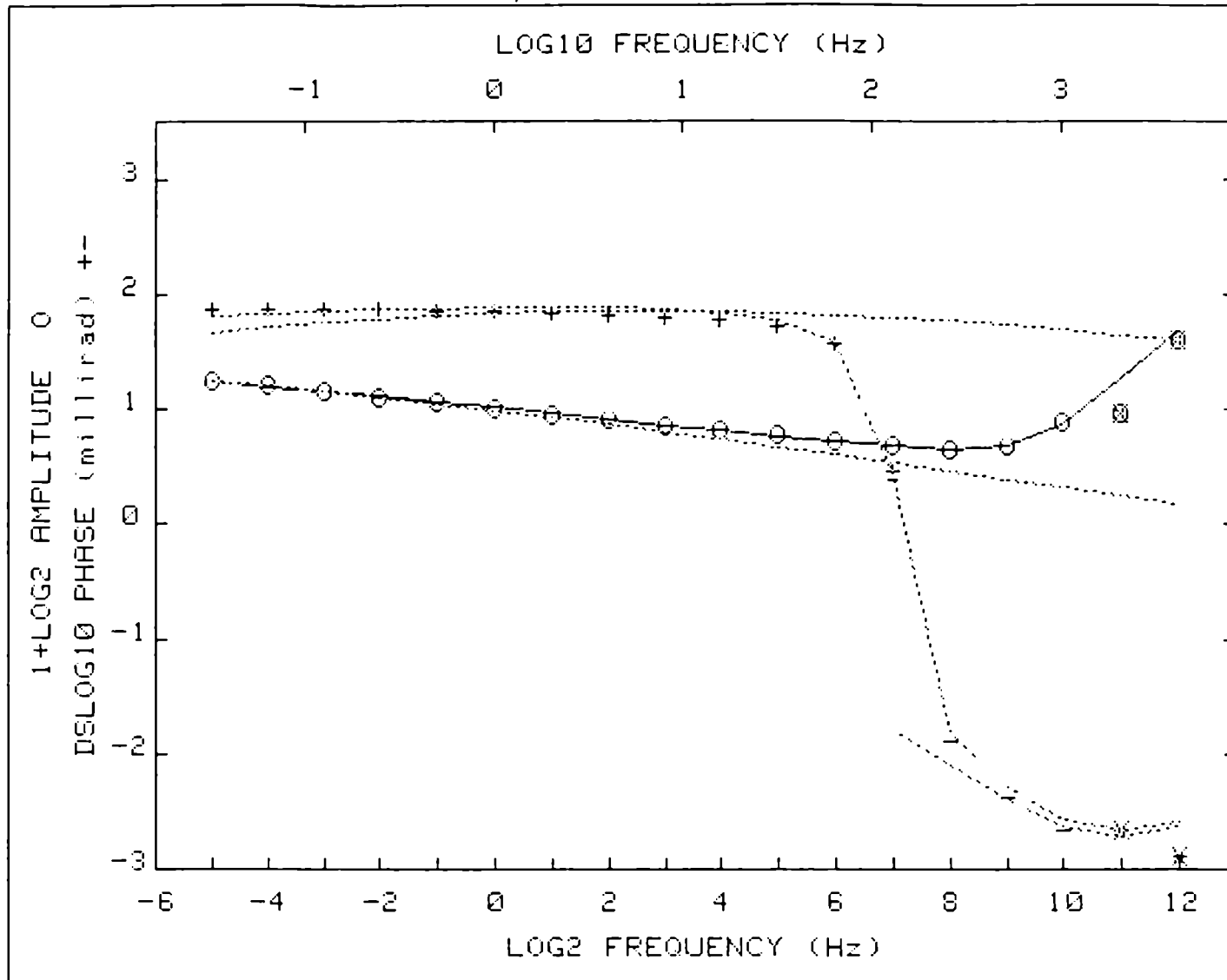


CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.56997	1.553	.155	.511	1.0E-04
1	1.E-01	.26496	1.557	.244	.396	1.2E-04
2	1.E+00	.03063	1.508	.276	.284	1.8E-04
3	1.E-01	.01734	1.911	.461	.398	2.4E-04
4	1.E-01	.00490	2.268	.534	.352	2.5E-04
5	1.E-02	.00424	2.438	.584	.305	2.5E-04
6	1.E-03	.00386	2.422	.576	.301	2.5E-04
7	1.E-04	.00386	2.427	.578	.300	2.5E-04

Pct Std Deviations 7.8 9.7 19.0 3.3

Correlation Matrix				
	1.000			
	.975	1.000		
	-.828	-.915	1.000	
	.355	.247	.085	1.000



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

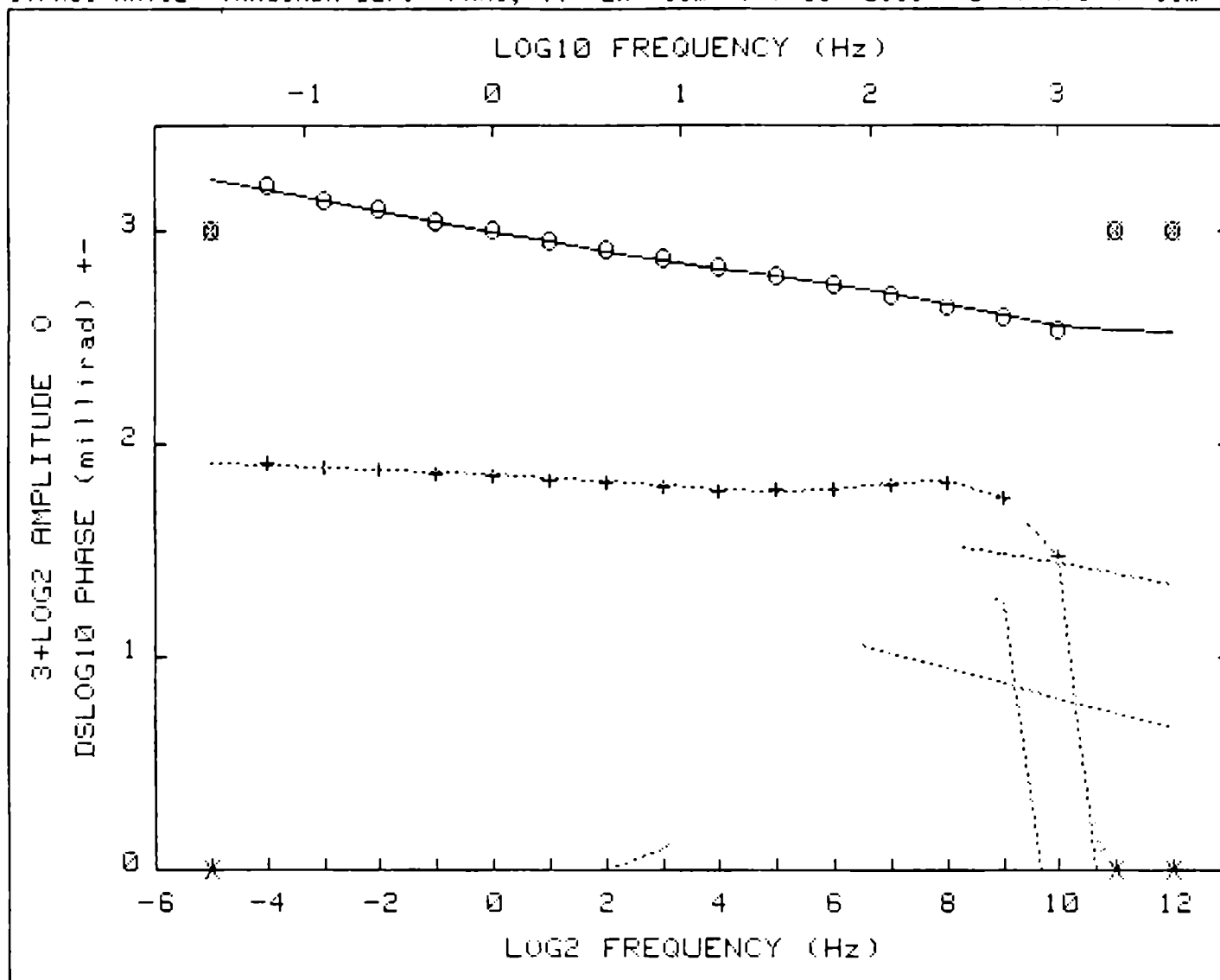
Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.00190	1.659	.221	.514	4.8E-05
1	1.E+01	.00190	1.659	.221	.514	4.8E-05

Pct Std Deviations 5.1 25.4 2.9 2.5

Correlation Matrix		1.000			
		.978	1.000		
		-.667	-.775	1.000	
		-.264	-.400	.875	1.000

Apparent Resistivity Measured at 1 Hz is 22.94

Apparent Resistivity Calculated from Inductive Coupling is 58.34



CRL: Number of dispersions= 4 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 C3=1 M4=1 C4=1 fixed

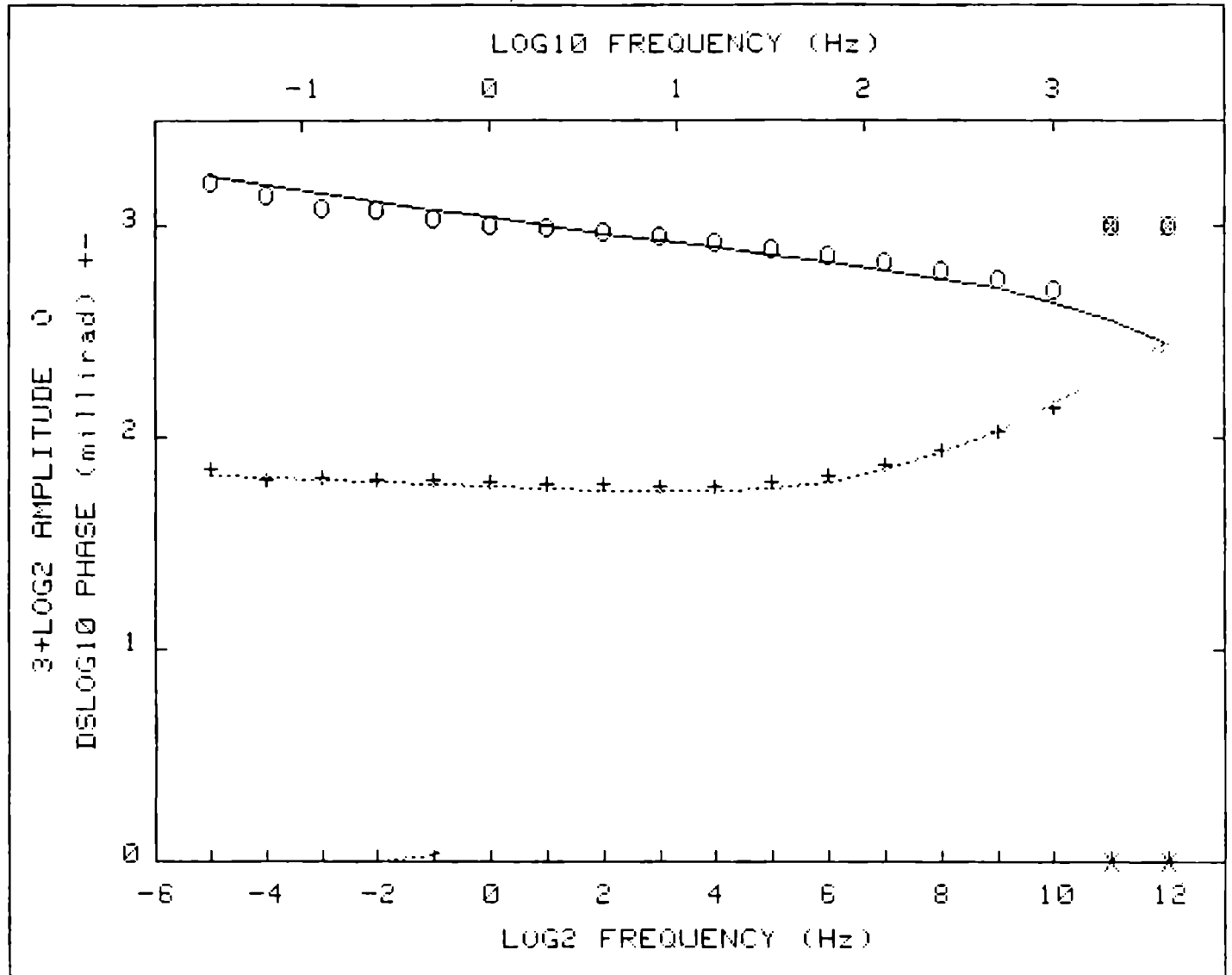
Iter	Lambda	Rchsq	R0	M1	M2	M3	T3	T4
0	1.E-02	.00011	2.101	.475	.359	.043	5.1E-04	2.5E-06
1	1.E-02	.00011	2.101	.475	.359	.043	5.1E-04	2.5E-06

Pct Std Deviations 1.6 2.8 2.0 6.0 9.0 9.9

Correlation Matrix	1.000							
	.978	1.000						
	-.843	-.926	1.000					
	.459	.512	-.587	1.000				
	.270	.321	-.417	-.201	1.000			
	-.188	-.229	.293	.476	-.865	1.000		

Apparent Resistivity Measured at 1 Hz is 27.36

Apparent Resistivity Calculated from Inductive Coupling is 1125



CRL: Number of dispersions= 3
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3	C3
0	1.E-02	.00194	1.761	.317	.391	1.4E-05	1.000
1	1.E-02	.00155	1.820	.359	.361	9.8E-06	.818
2	1.E-03	.00140	1.894	.404	.322	5.3E-06	.668
3	1.E-04	.00126	1.925	.420	.297	4.5E-06	.616
4	1.E-05	.00125	1.931	.423	.291	4.3E-06	.606

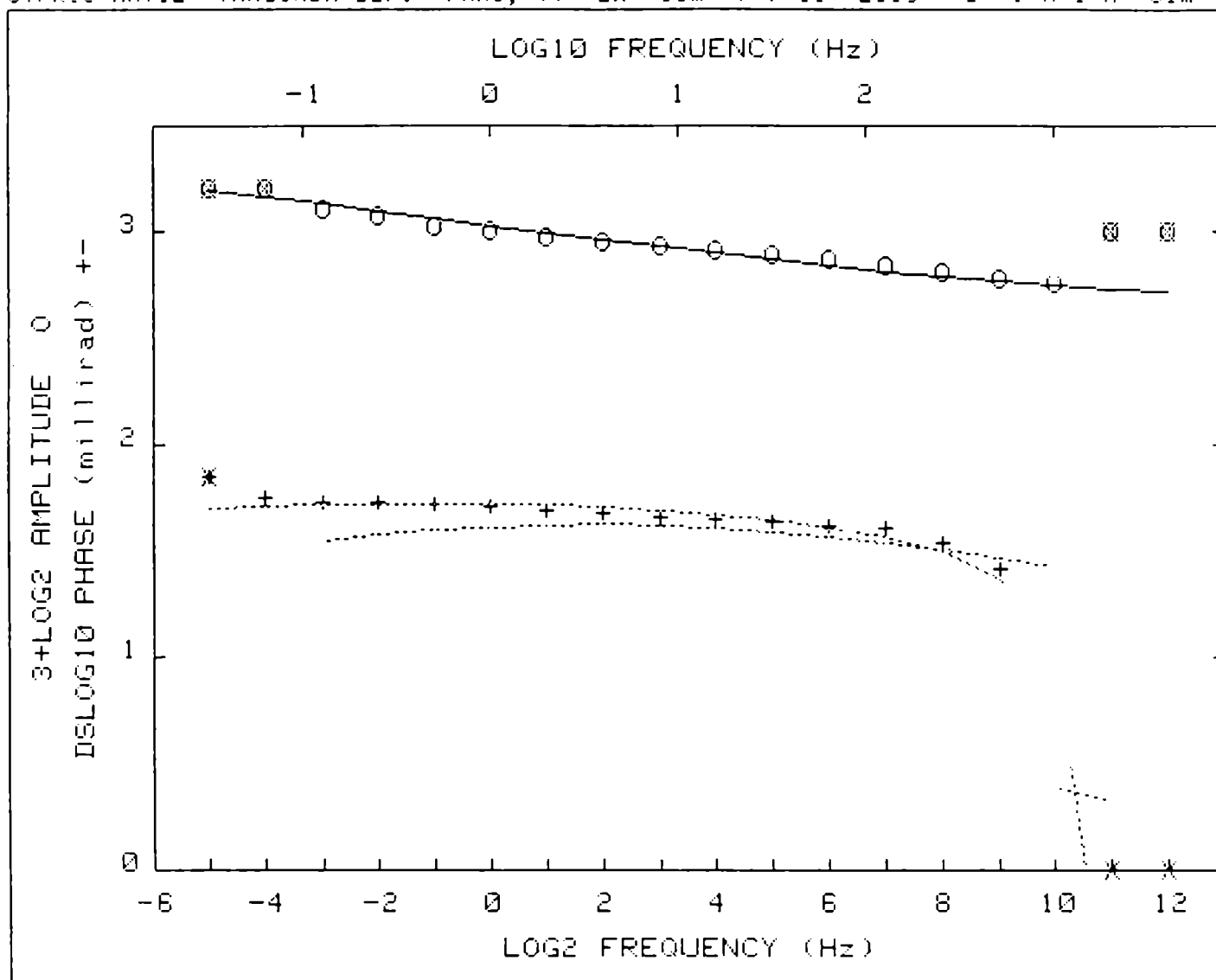
Pct Std Deviations 4.6 11.4 15.5 40.3 14.3

Correlation Matrix

	1.000				
	.974	1.000			
	-.843	-.931	1.000		
	-.257	-.309	.458	1.000	
	-.544	-.626	.783	.883	1.000

Apparent Resistivity Measured at 1 Hz is 147.3

Apparent Resistivity Calculated from Inductive Coupling is 93.05



CRL: Number of dispersions= 3 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 fixed

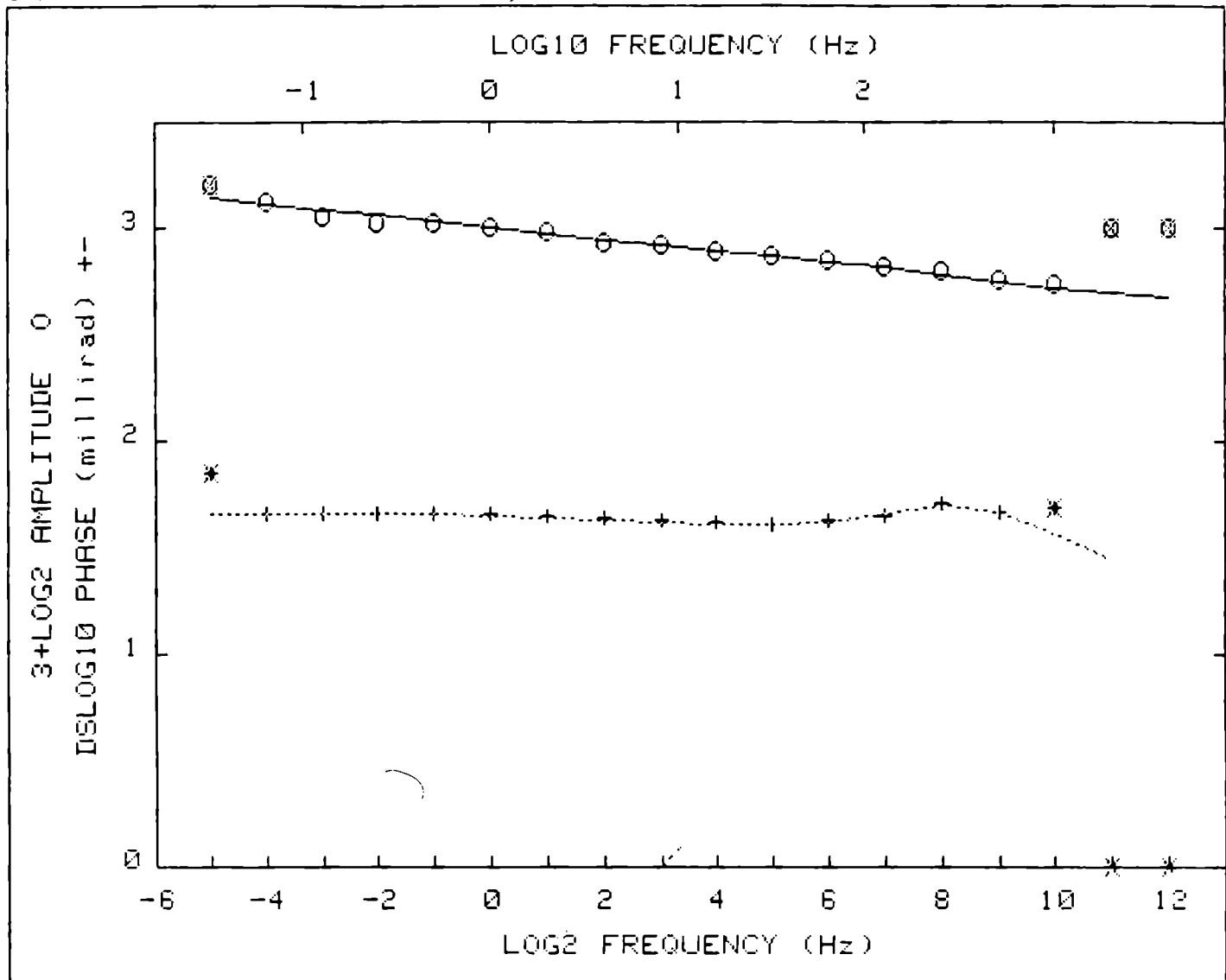
Iter	Lambda	Rchsq	R0	M1	M2	T3
0	1.E-02	.17712	1.931	.423	.291	4.3E-06
1	1.E-02	.00438	1.887	.454	.221	1.1E-06
2	1.E-01	.00261	1.793	.391	.300	1.4E-06
3	1.E-02	.00255	1.599	.290	.350	2.1E-06
4	1.E-03	.00090	1.576	.254	.347	2.0E-06
5	1.E-04	.00078	1.580	.253	.346	2.0E-06
6	1.E-05	.00078	1.580	.253	.346	2.0E-06

Pct Std Deviations 3.1 13.0 3.2 5.9

Correlation Matrix 1.000
 .975 1.000
 -.755 -.852 1.000
 -.375 -.469 .694 1.000

Apparent Resistivity Measured at 1 Hz is 60.80

Apparent Resistivity Calculated from Inductive Coupling is 1421



CRL: Number of dispersions= 4 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 C3=1 M4=1 C4=1 fixed

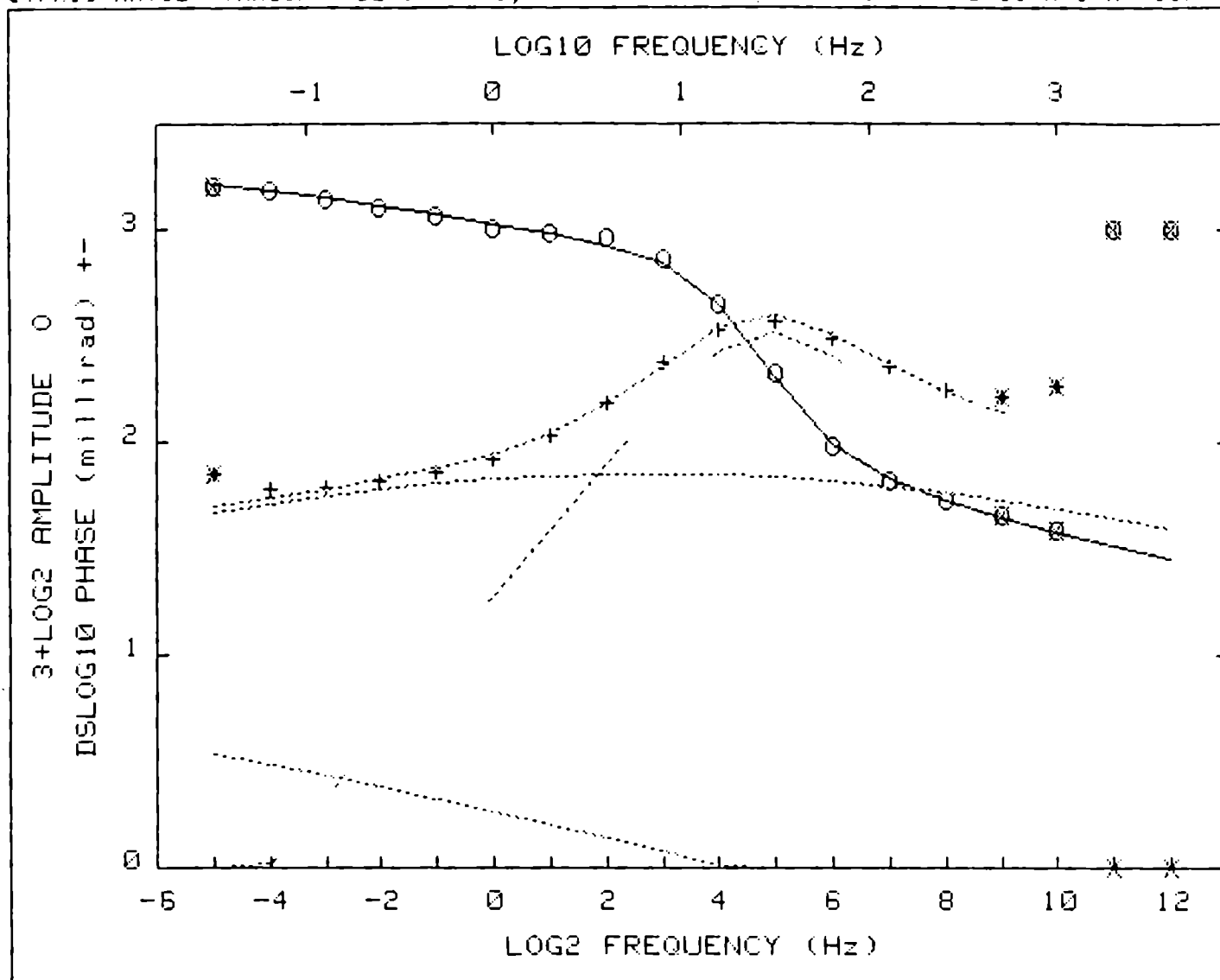
Iter	Lambda	Rchsq	R0	M1	M2	M3	T3	T4
0	1.E-02	.00045	1.461	.219	.310	.025	3.4E-04	5.9E-08
1	1.E-02	.00025	1.479	.235	.300	.031	4.2E-04	5.9E-08
2	1.E-03	.00023	1.509	.260	.287	.033	4.8E-04	5.8E-08
3	1.E-04	.00022	1.511	.259	.286	.034	4.7E-04	5.1E-08
4	1.E-05	.00022	1.511	.260	.286	.033	4.8E-04	1.7E-08

Pct Std Deviations 1.8 7.7 3.3 26.6 24.3 9999.9

Correlation Matrix

	1.000							
	.977	1.000						
	-.839	-.916	1.000					
	.087	.049	-.057	1.000				
	.185	.250	-.313	-.837	1.000			
	-.069	-.125	.147	.958	-.878	1.000		

Apparent Resistivity Measured at 1 Hz is 93.87



CRL: Number of dispersions= 4 Negative.
 T1=1000 C1=.25 T2=.1 C2=.25 M3=1 C3=1 C4=1 fixed

Iter	Lambda	Rchsq	R0	M1	M2	T3	M4	T4
0	1.E-02	.00042	1.401	.047	.516	5.9E-03	.712	5.1E-03
1	1.E-02	.00042	1.404	.050	.515	6.0E-03	.712	5.2E-03

Pct Std Deviations 6.4 524.8 6.9 8.6 2.8 11.3

Correlation Matrix

	1.000							
	.993	1.000						
	-.920	-.953	1.000					
	.604	.631	-.710	1.000				
	-.896	-.928	.987	-.736	1.000			
	.584	.612	-.684	.994	-.711	1.000		

Apparent Resistivity Measured at 1 Hz is 157.1

Apparent Resistivity Calculated from Inductive Coupling is .760