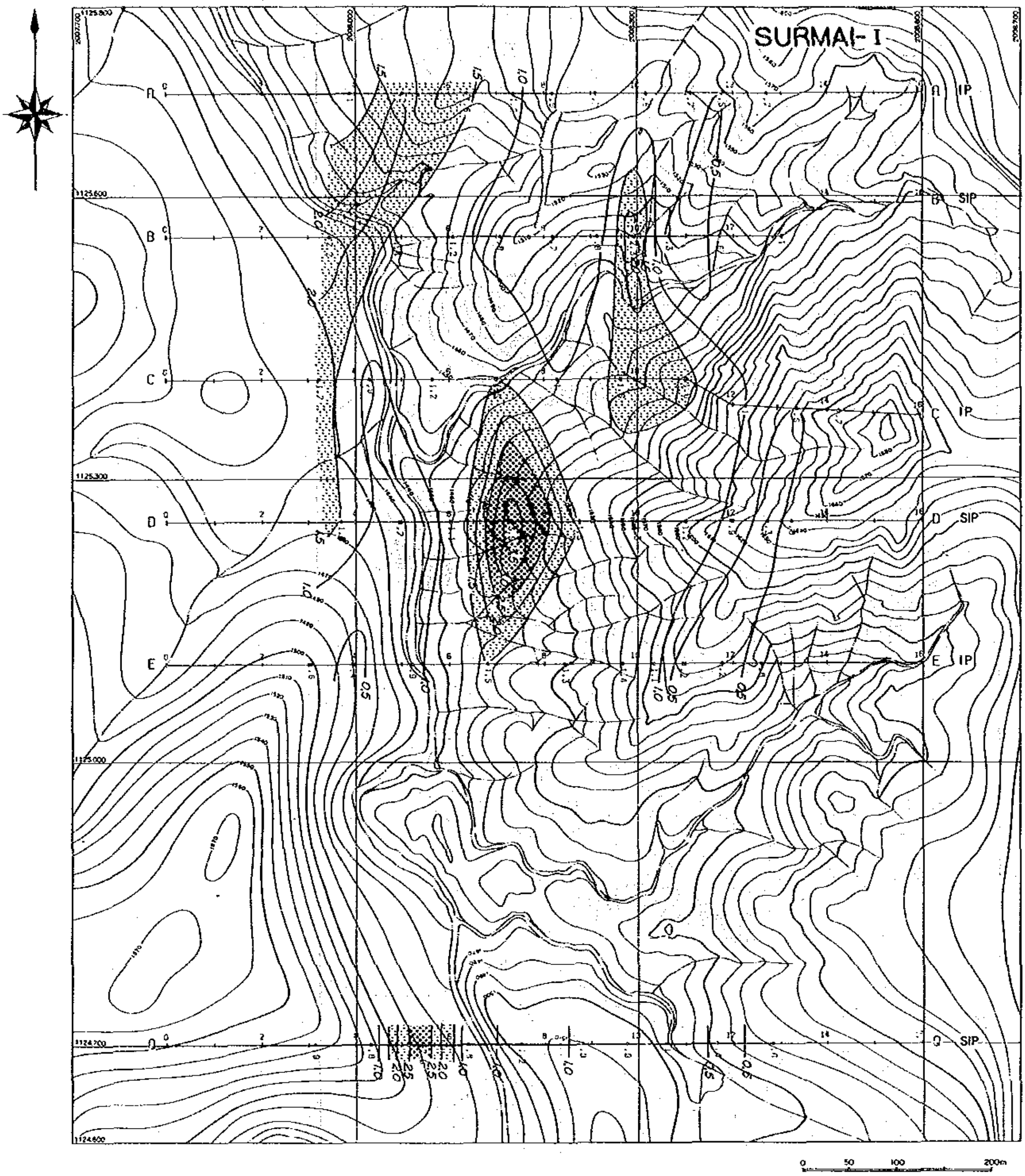


LEGEND

≥ 2.5 % | Negative FE Zone
≥ 1.5 % | Unit : %

Fig. Ⅲ-3-18(3) Plan Map (n=5) of PFE in Surmai Ⅰ Area

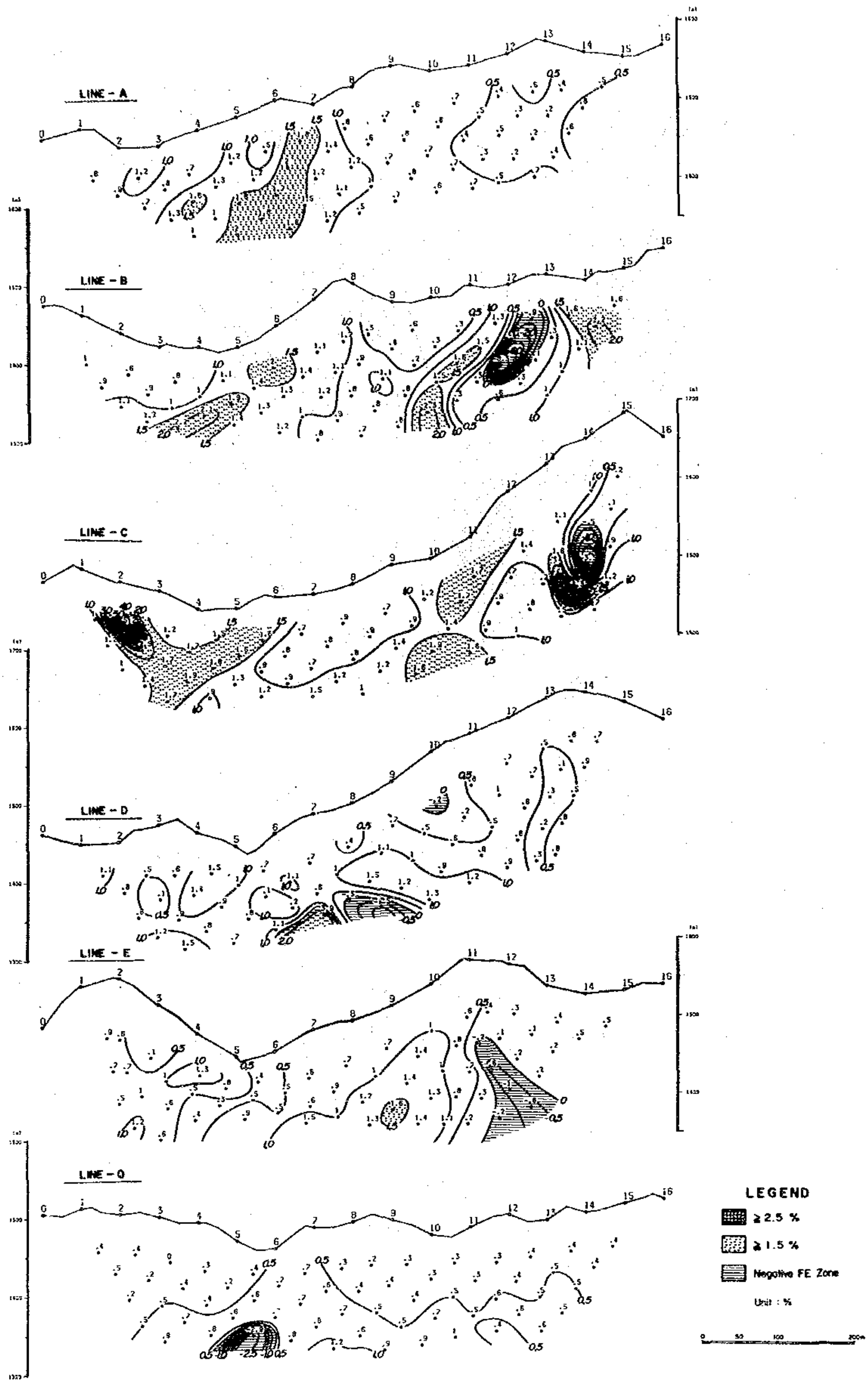


Fig. Ⅲ-3-19　　Panel Diagrm of PFE in Surmai Ⅰ Area

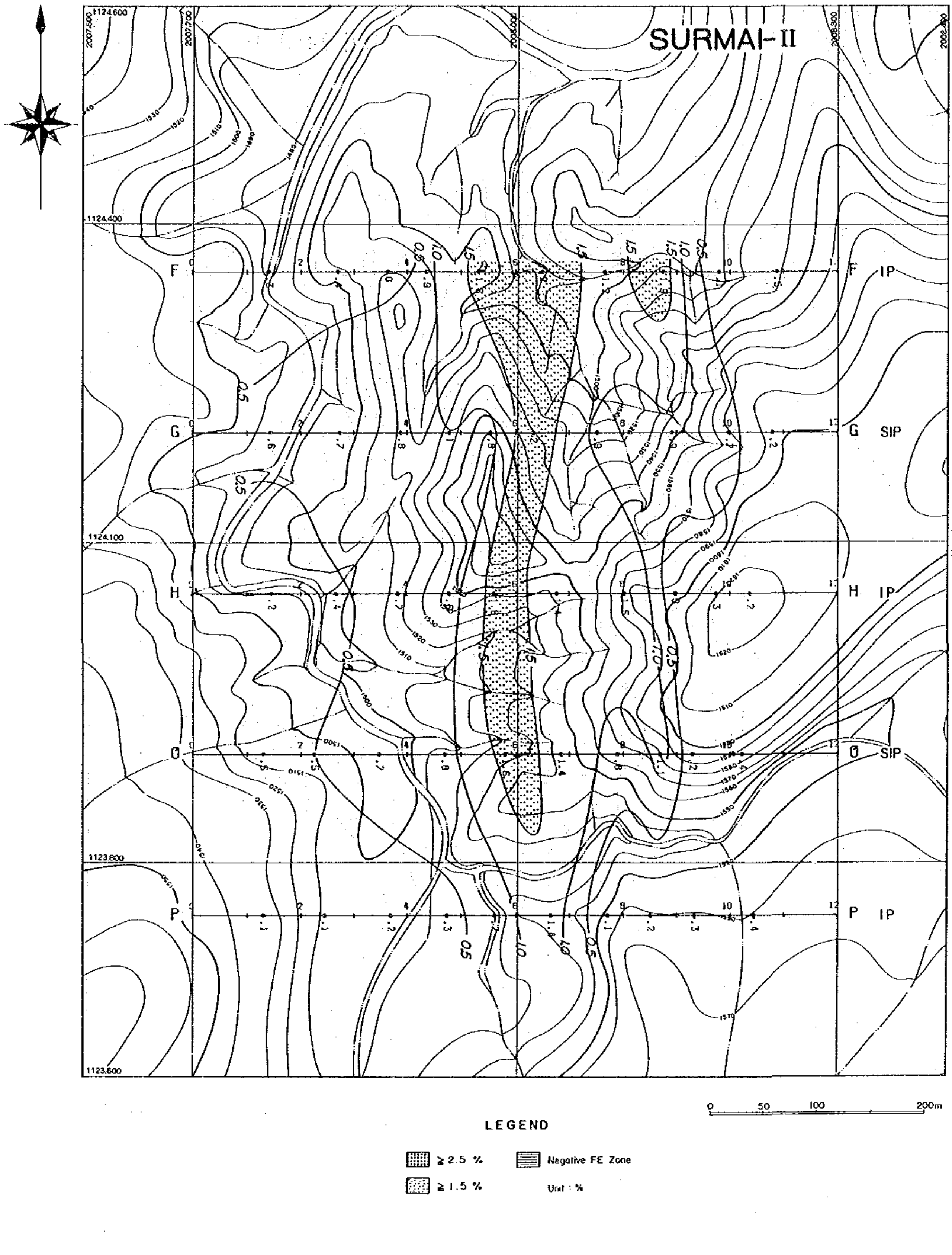


Fig. Ⅲ-3-20(1) Plan Map (n=1) of PFE in Surmai Ⅱ Area

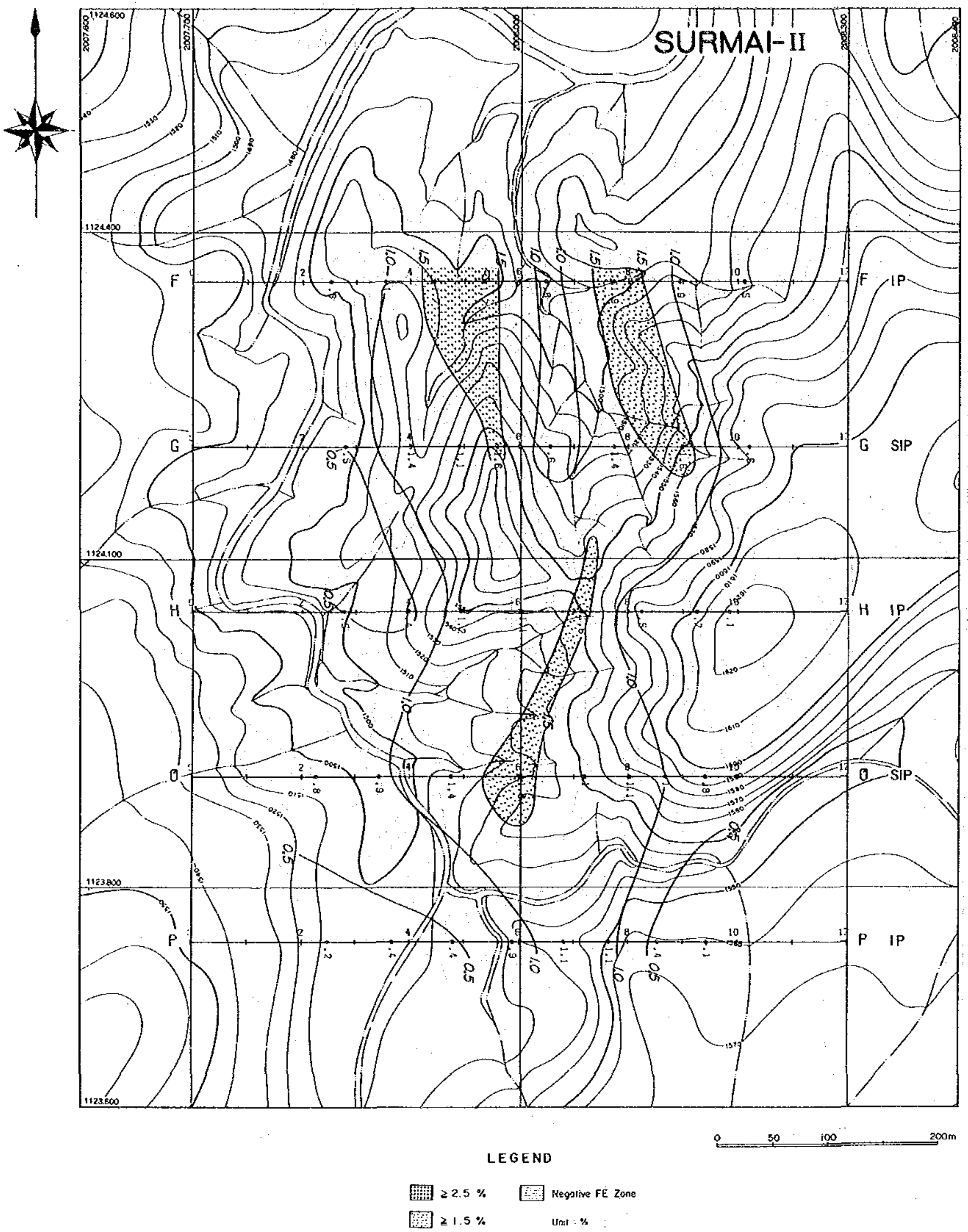


Fig. Ⅲ-3-20(2) Plan Map (n=3) of PFE in Surmai Ⅱ Area

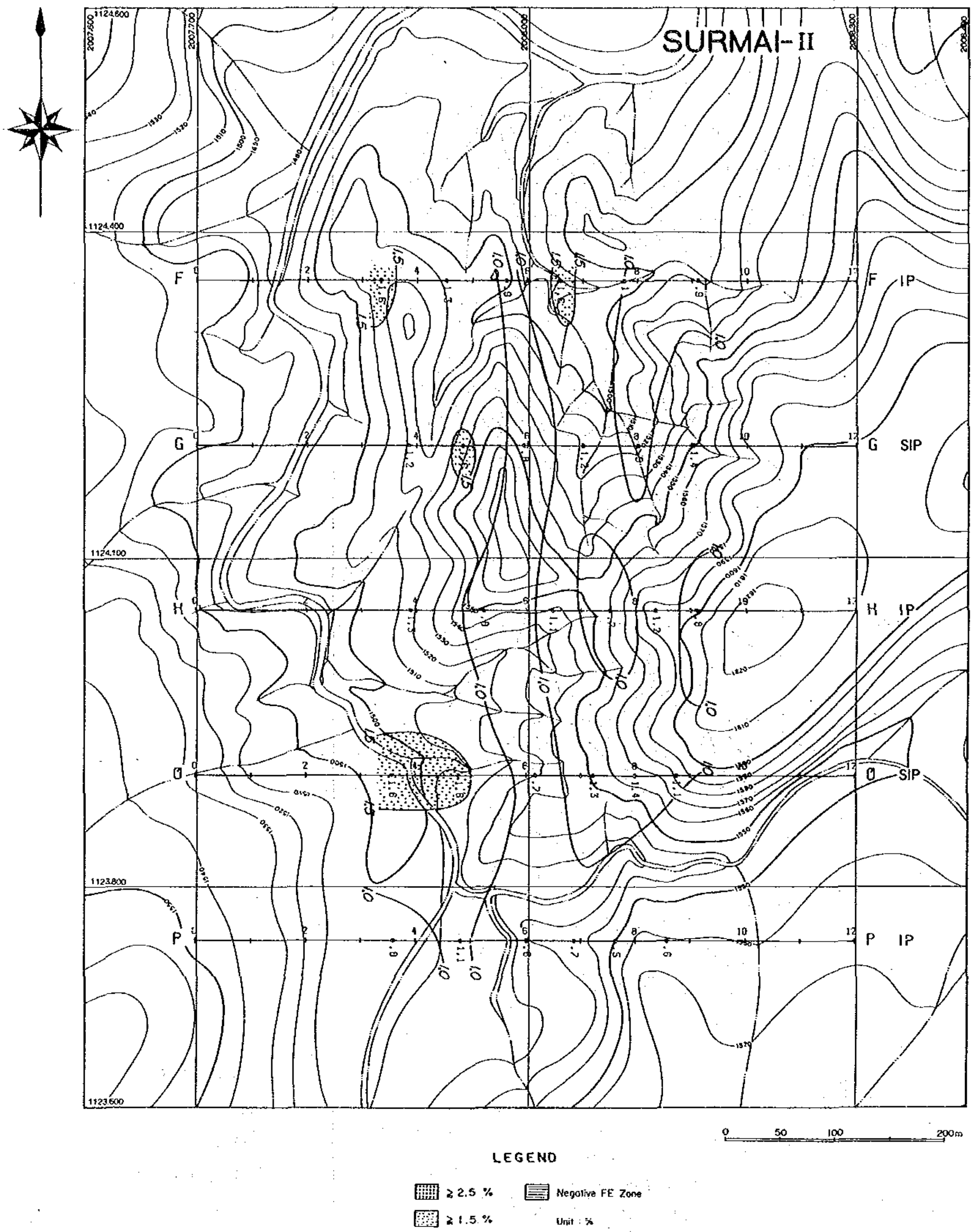


Fig. Ⅲ-3-20(3) Plan Map (n=5) of PFE in Surmai Ⅱ Area

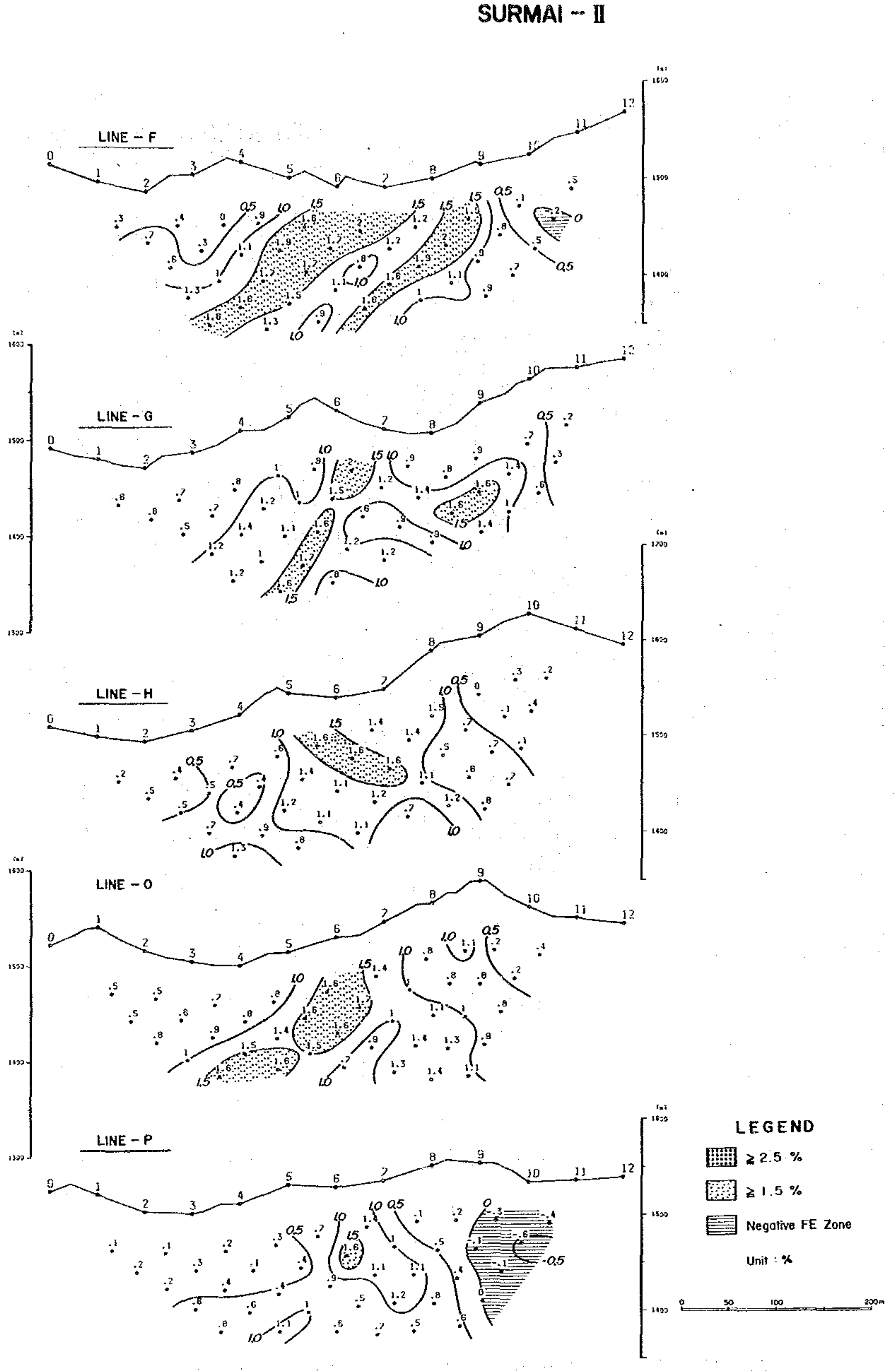
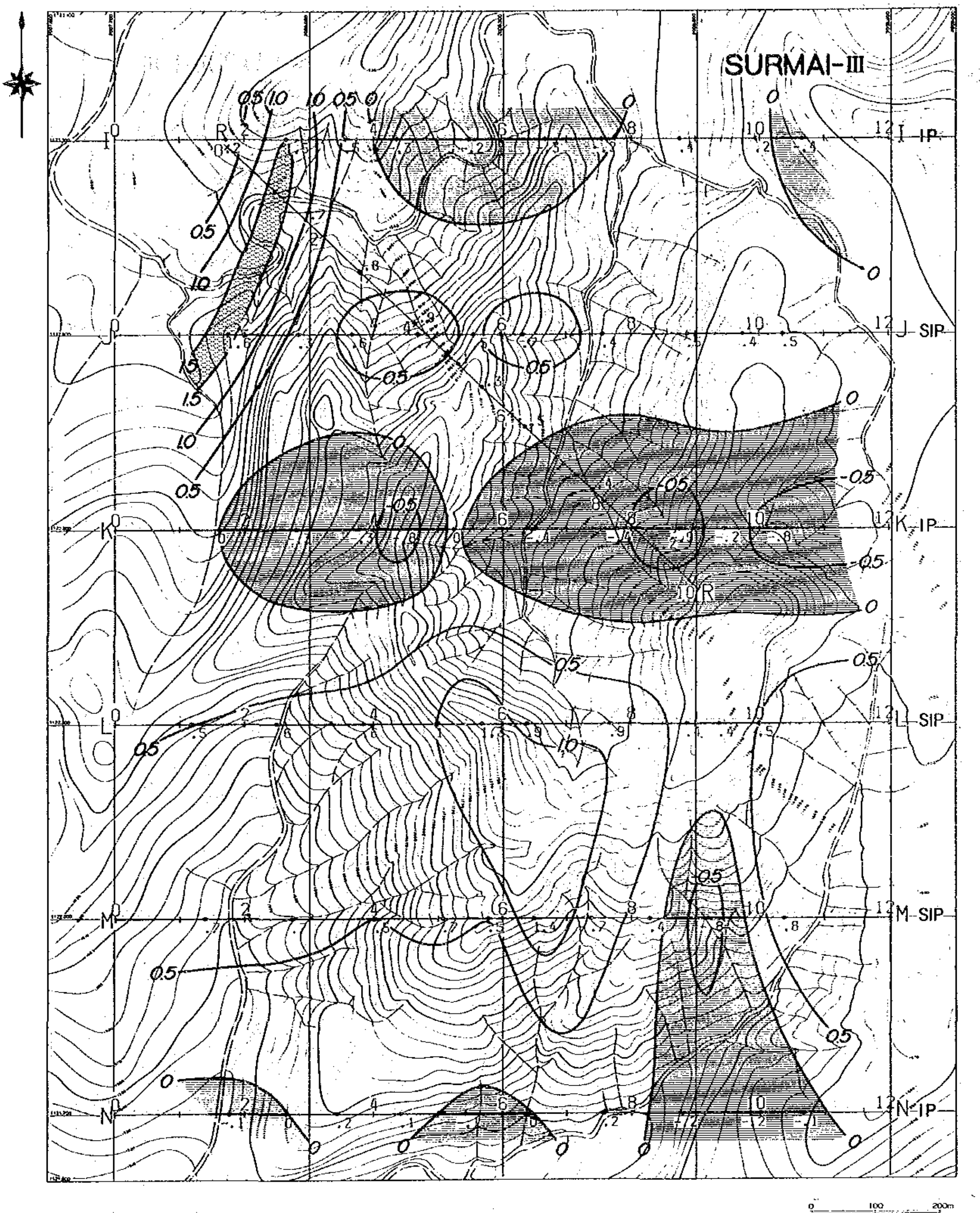


Fig. III-3-21 Panel Diagram of PFE in Surmai II Area



LEGEND

≥ 2.5 %
≥ 1.5 %
Negative FE Zone
Unit : %

Fig. III-3-22(1) Plan Map (n=1) of PFE in Surmai III Area

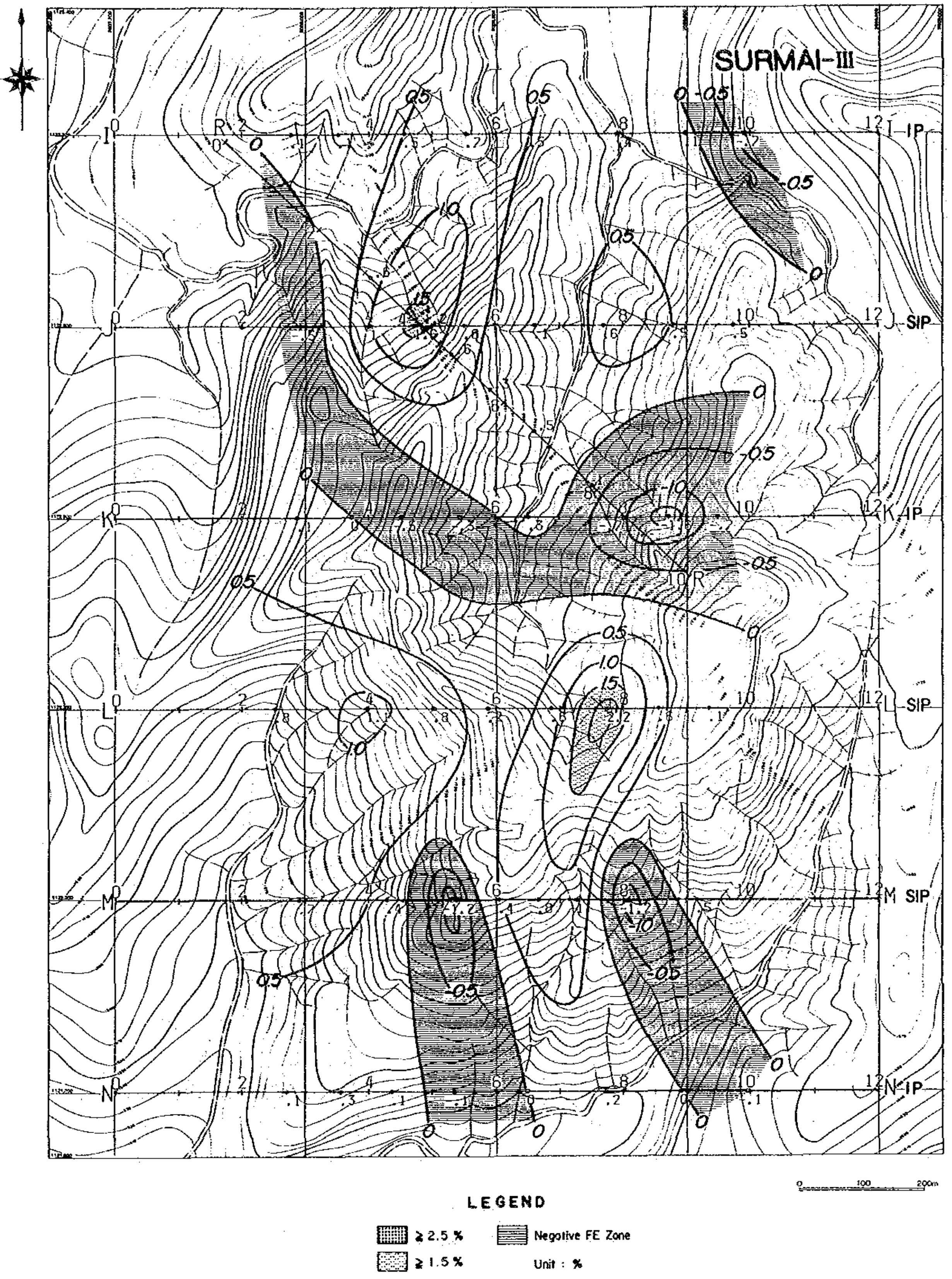


Fig. Ⅲ-3-22(2) Plan Map (n=3) of PFE in Surmai Ⅲ Area

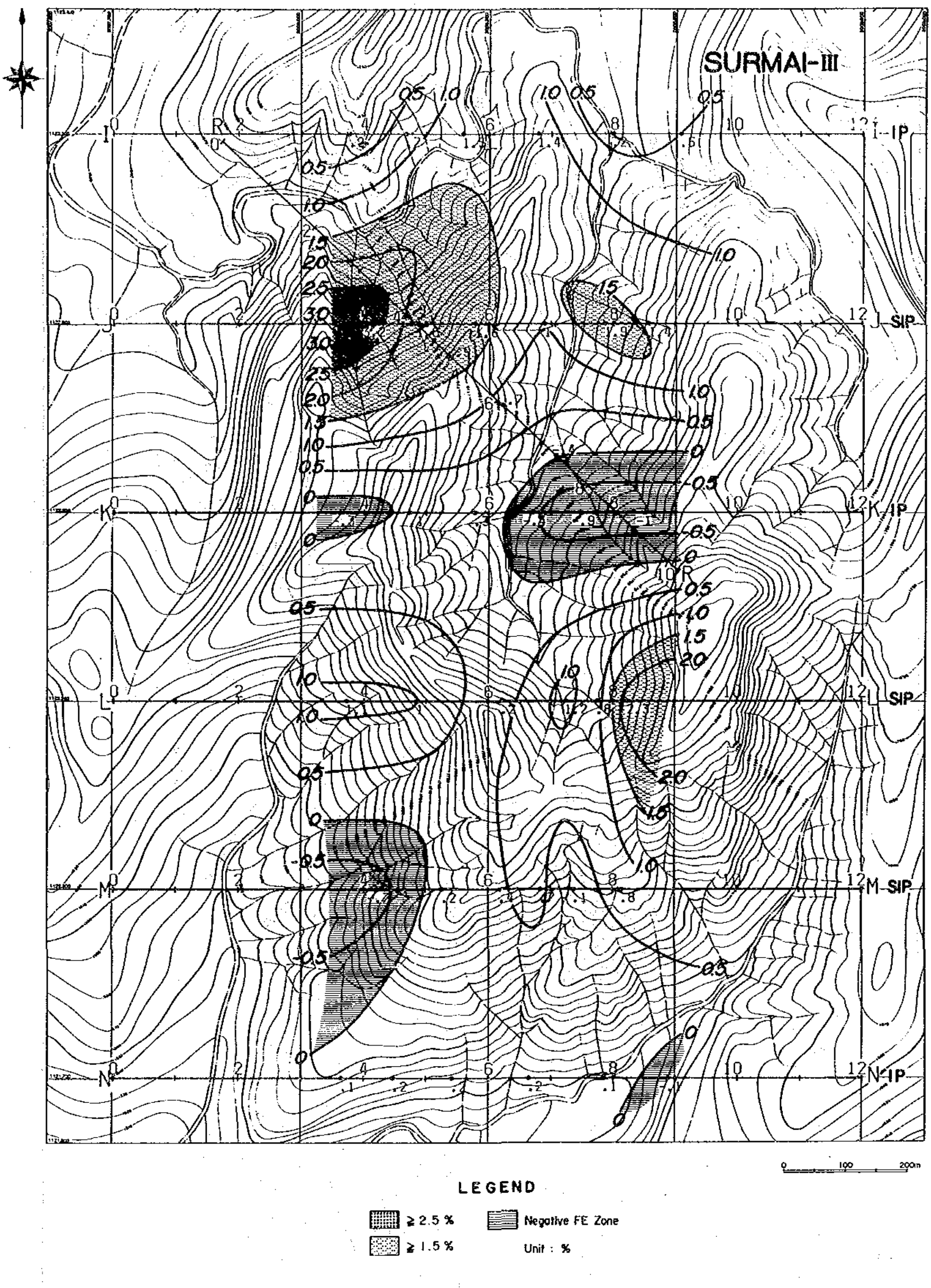


Fig. Ⅲ-3-22(3) Plan Map (n=5) of PFE in Surmai Ⅲ Area

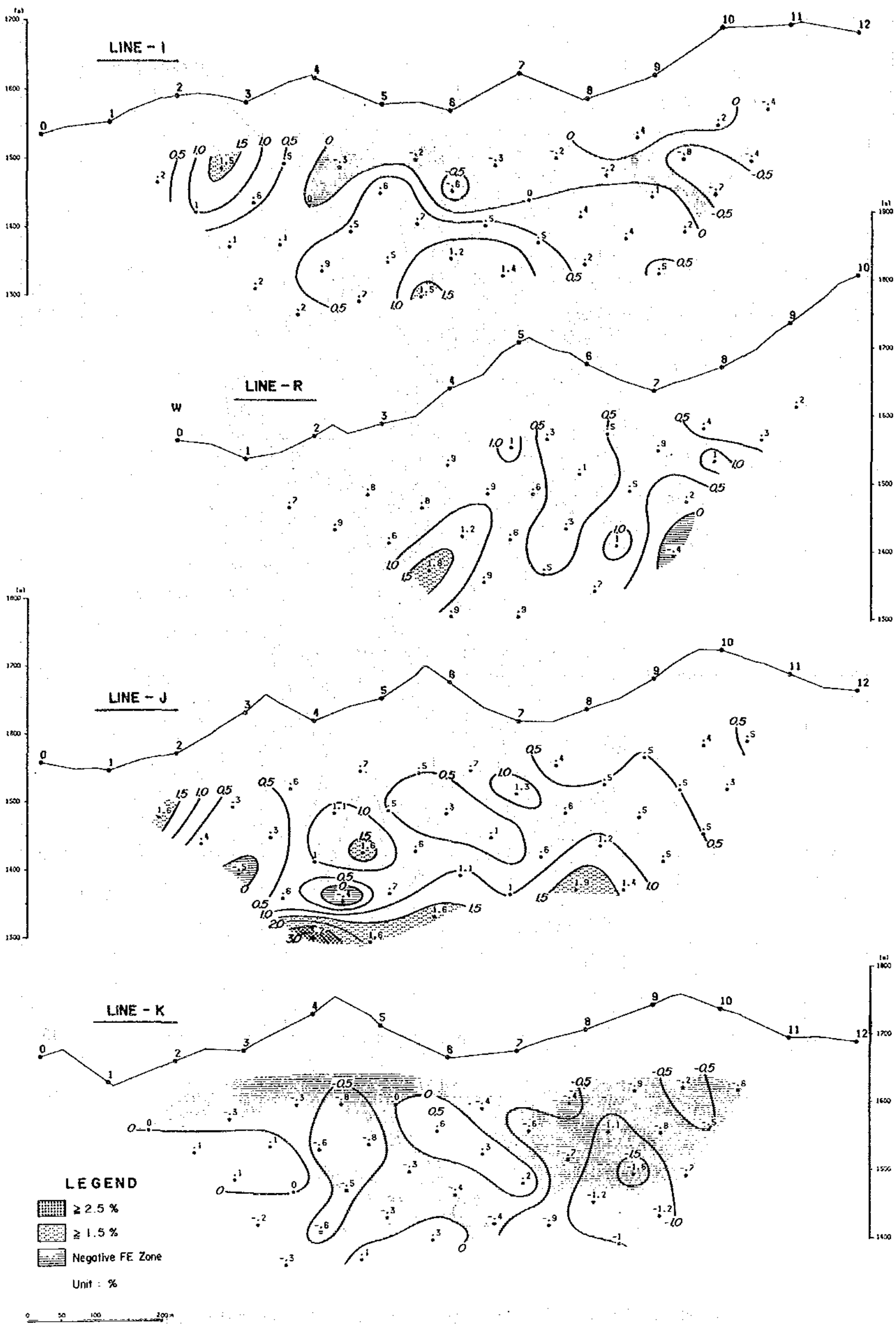


Fig. Ⅲ-3-23(1) Panel Diagram of PFE in Surmai Ⅲ Area

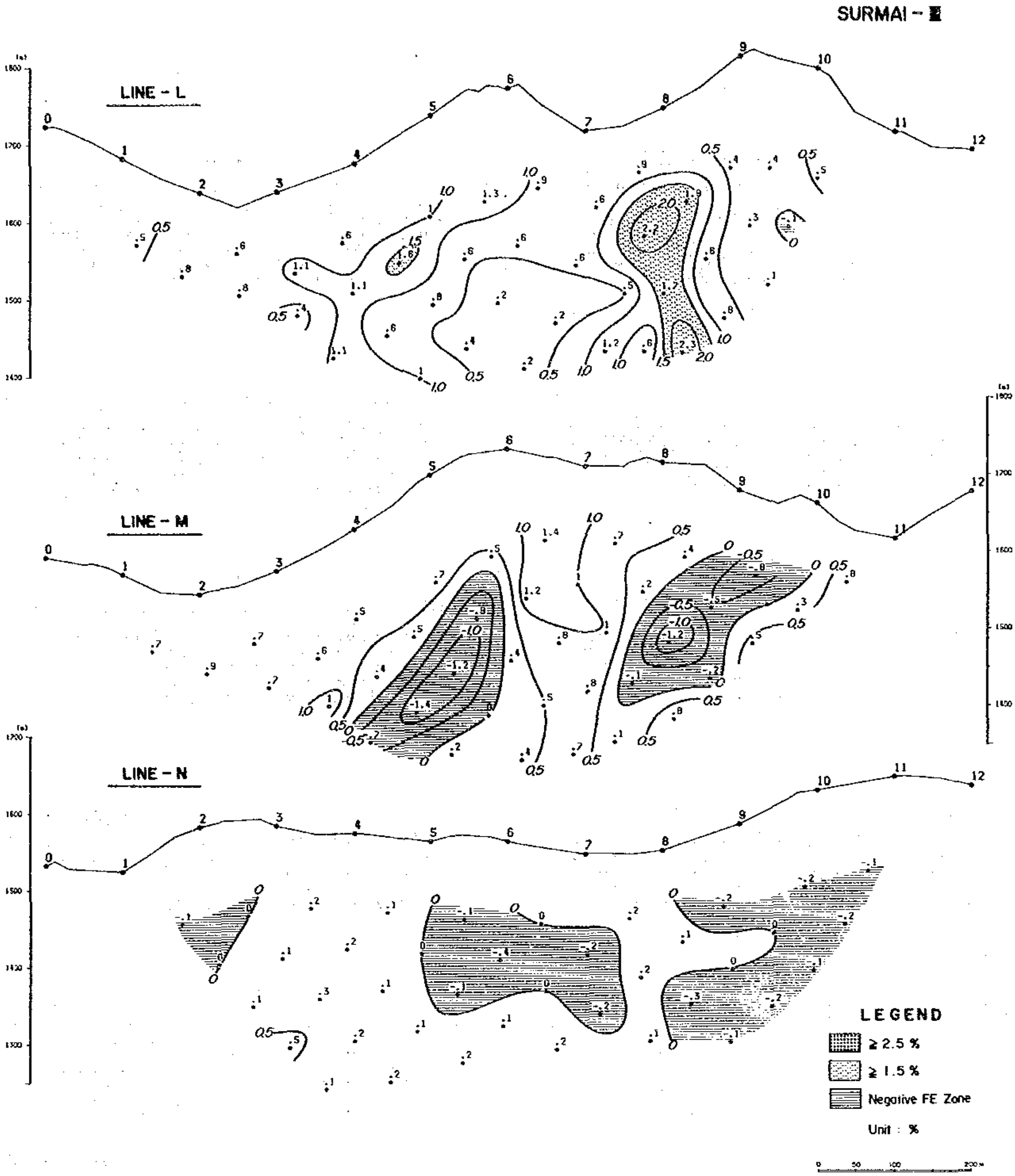


Fig. III-3-23(2) Panel Diagram of PFE in Surmai III Area

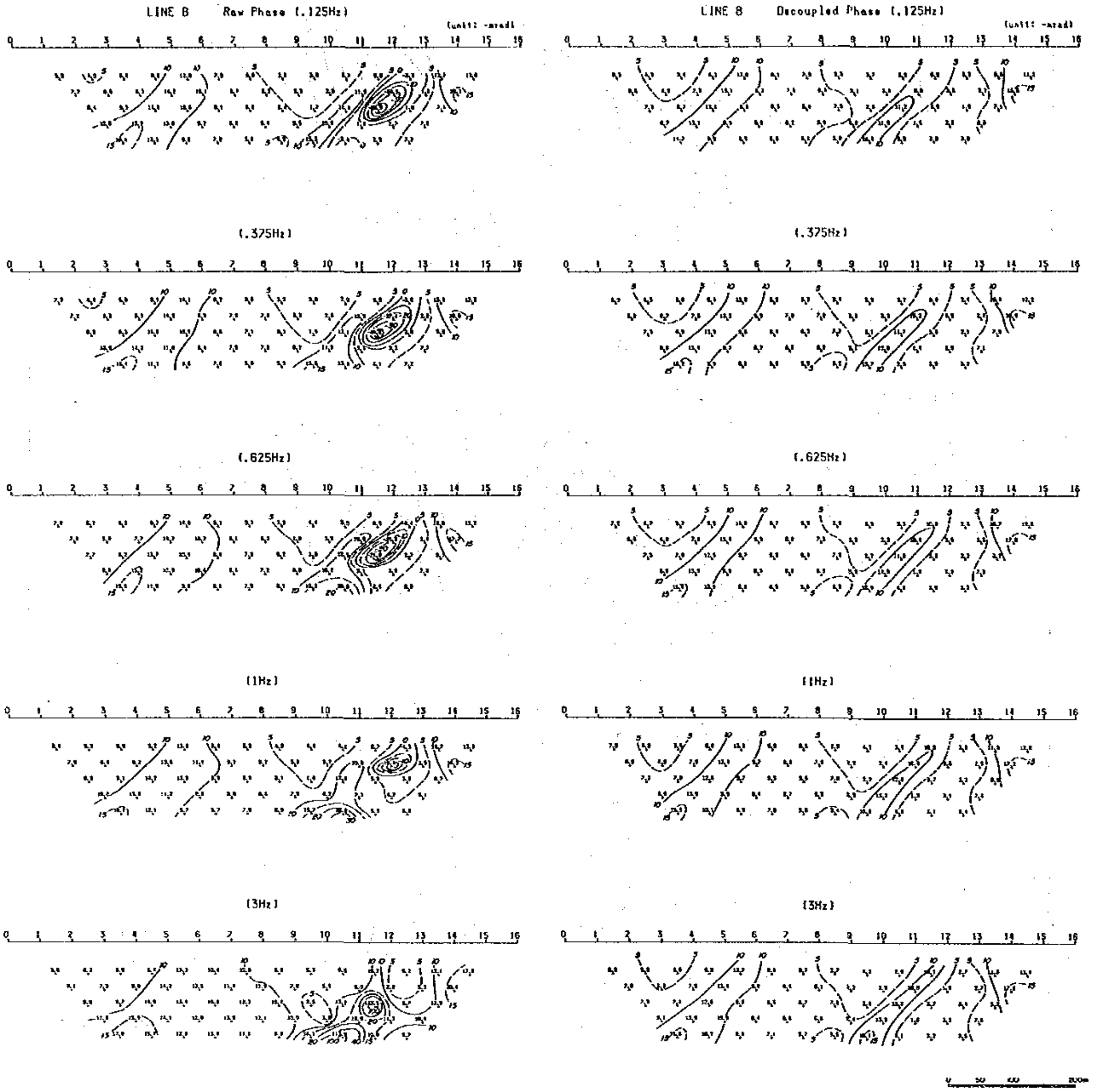


Fig. Ⅲ-3-24 Phase Sections for 5 Frequencies of Line B

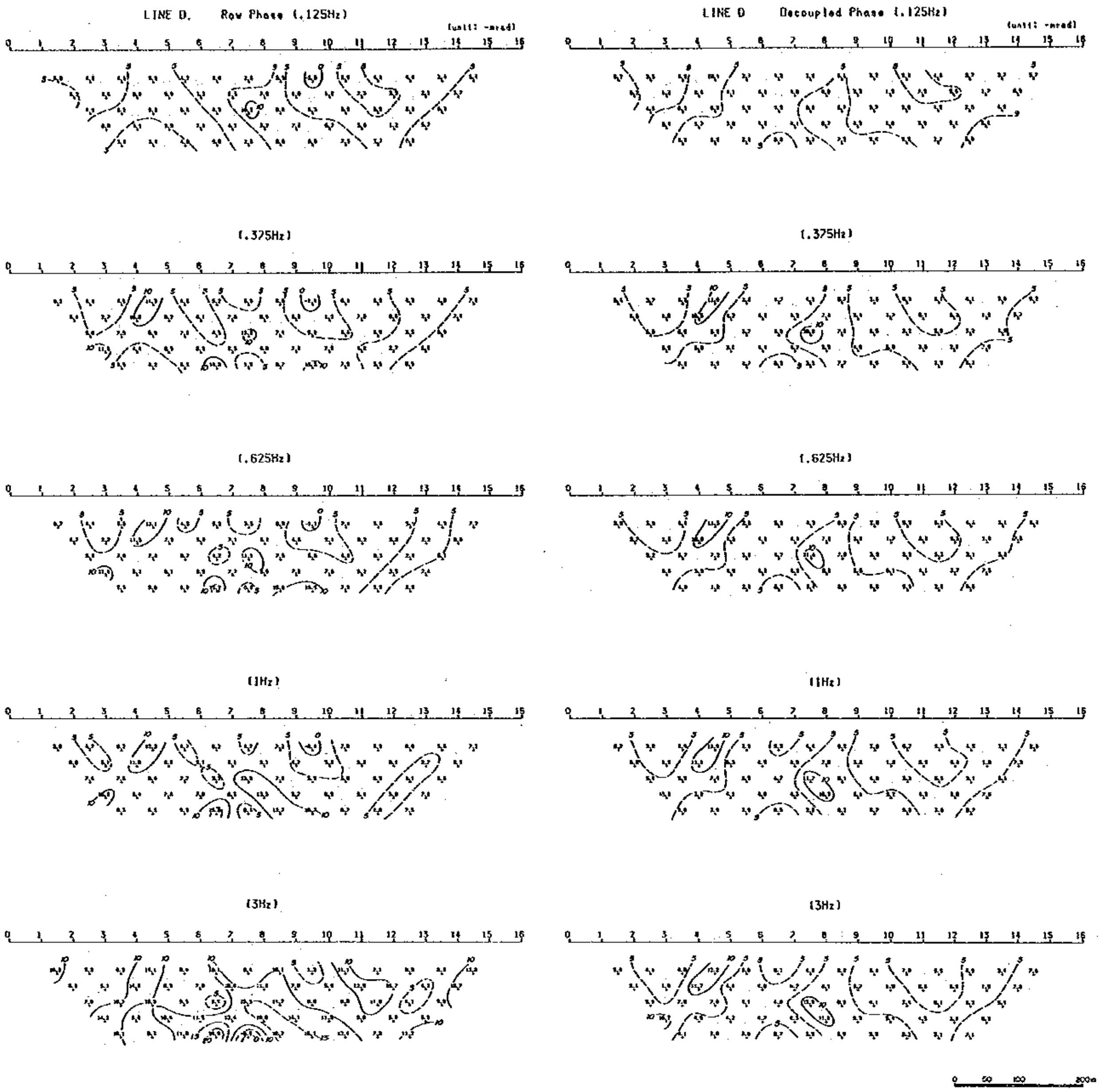


Fig. Ⅲ-3-25　Phase Sections for 5 Frequencies of Line D

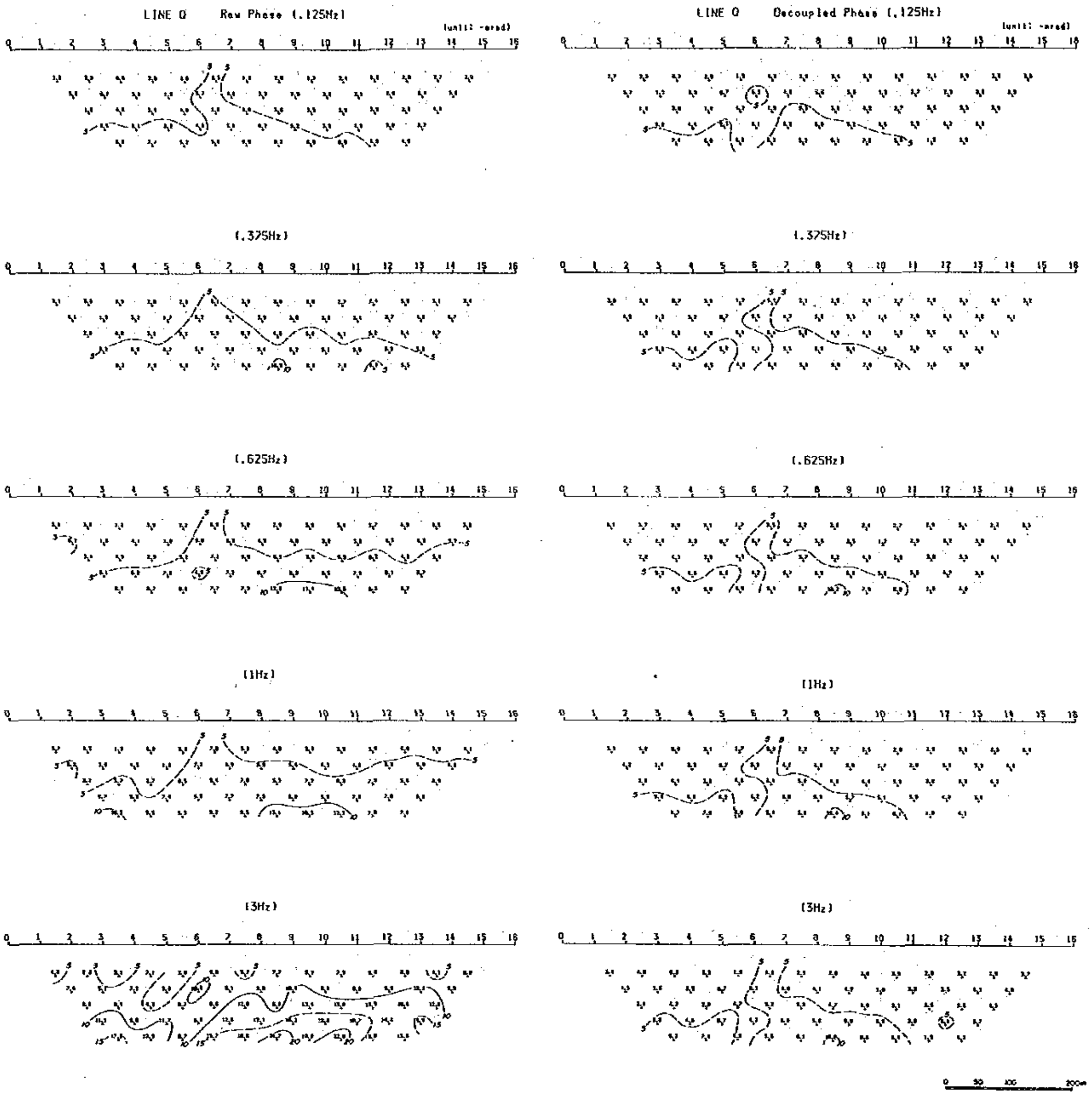


Fig. Ⅲ-3-26 Phase Sections for 5 Frequencies of Line Q

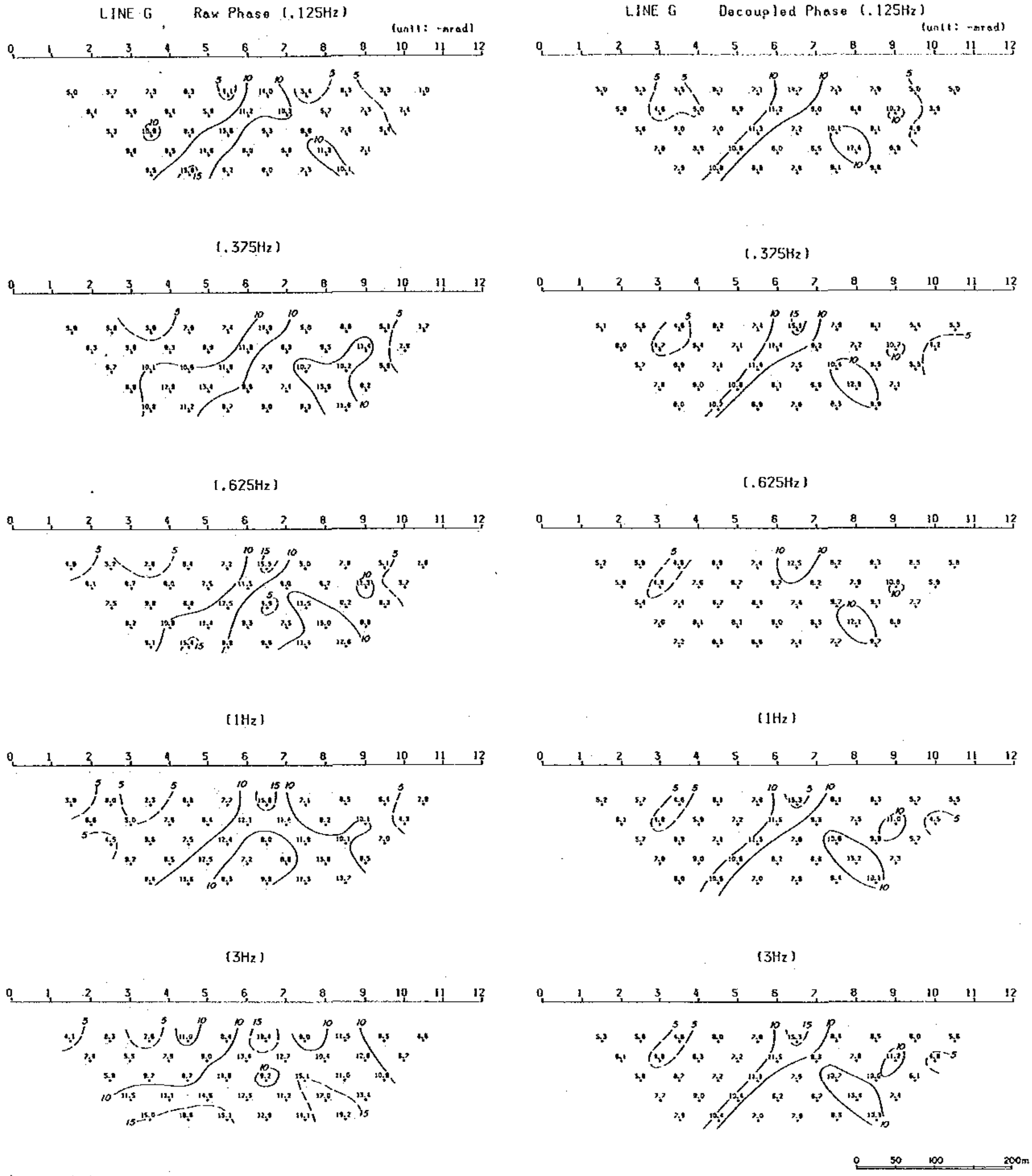


Fig. Ⅲ-3-27 Phase Sections for 5 Frequencies of Line G

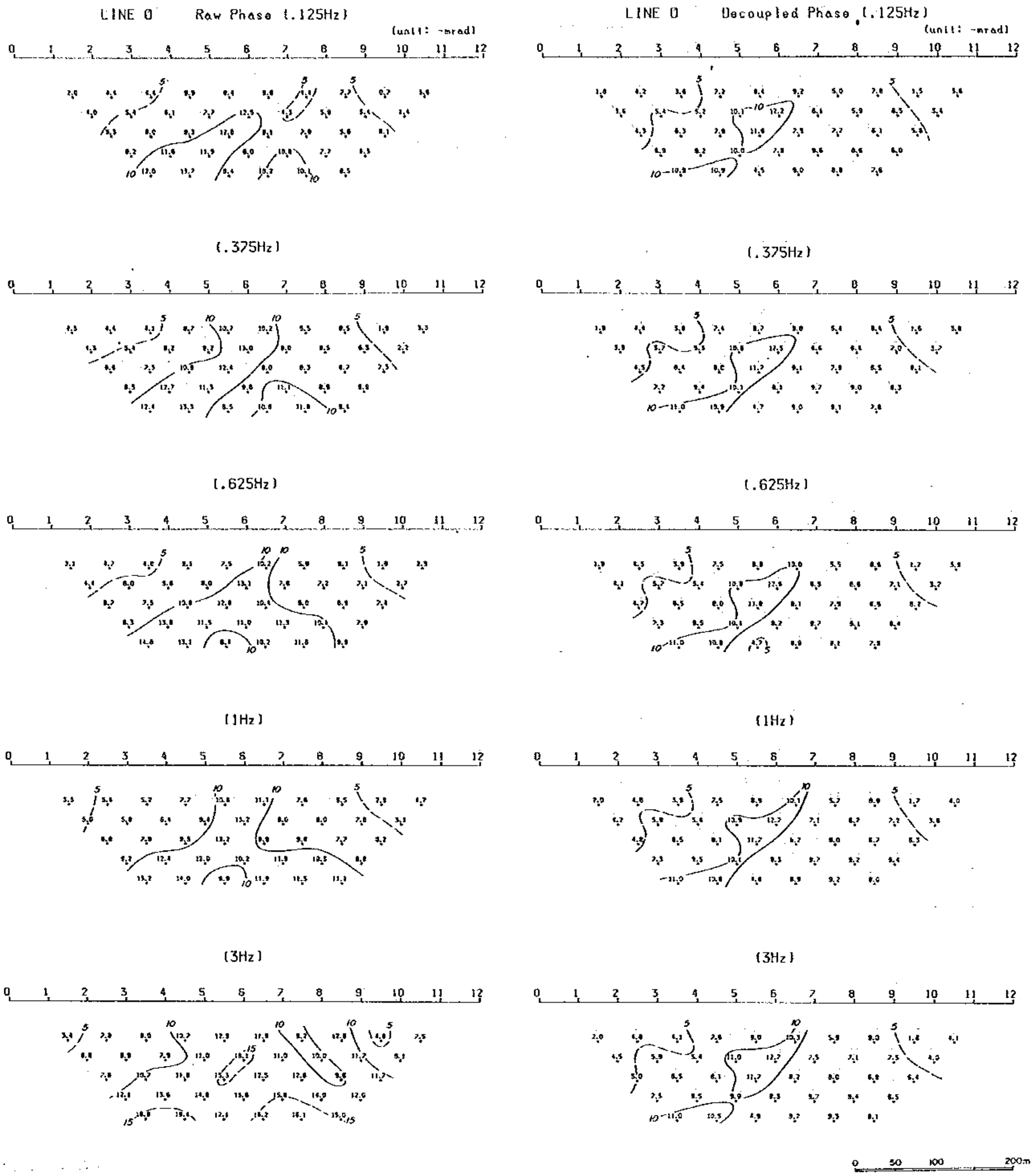


Fig. Ⅲ-3-28 Phase Sections for 5 Frequencies of Line 0

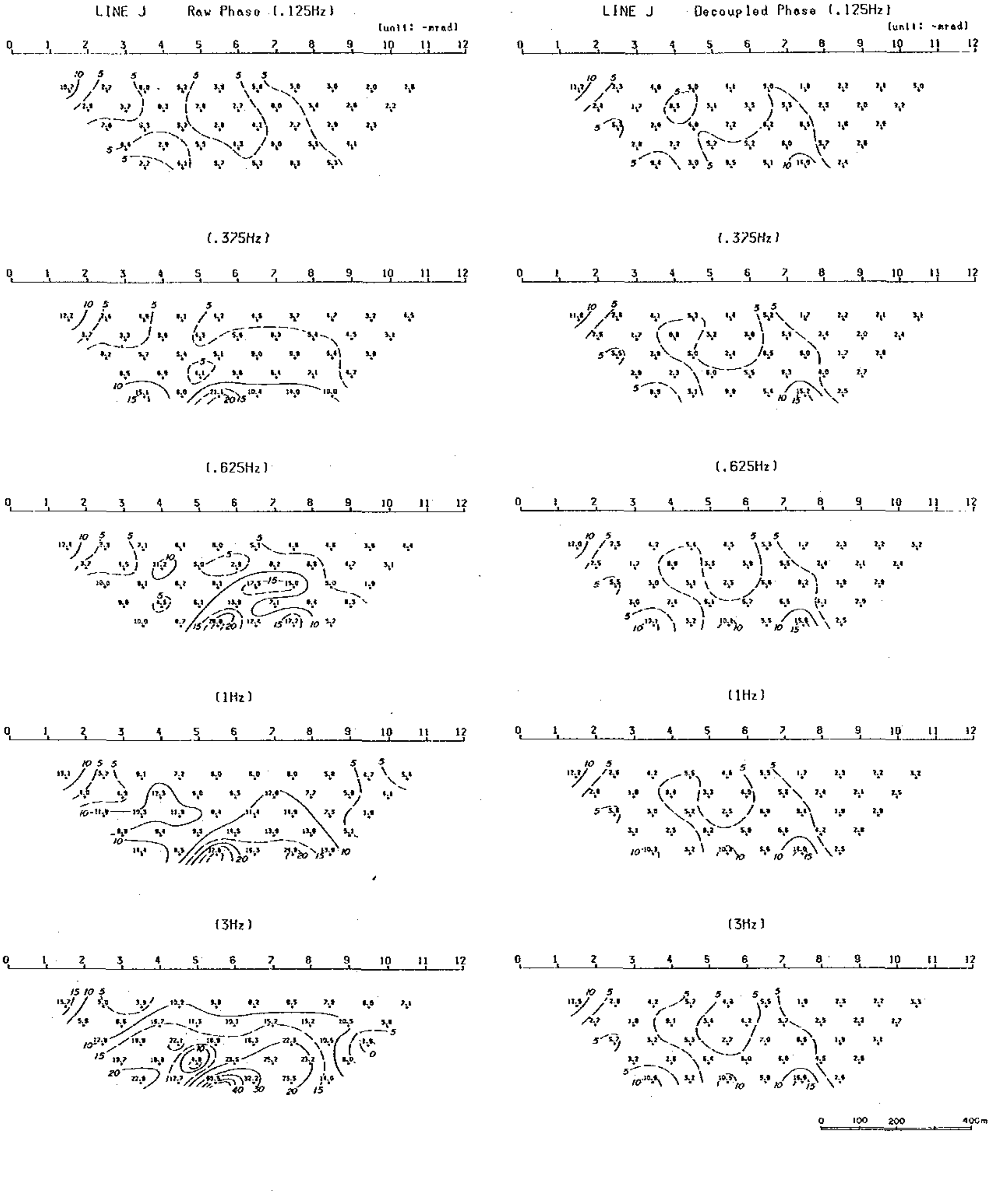


Fig. Ⅲ-3-29 Phase Sections for 5 Frequencies of Line J

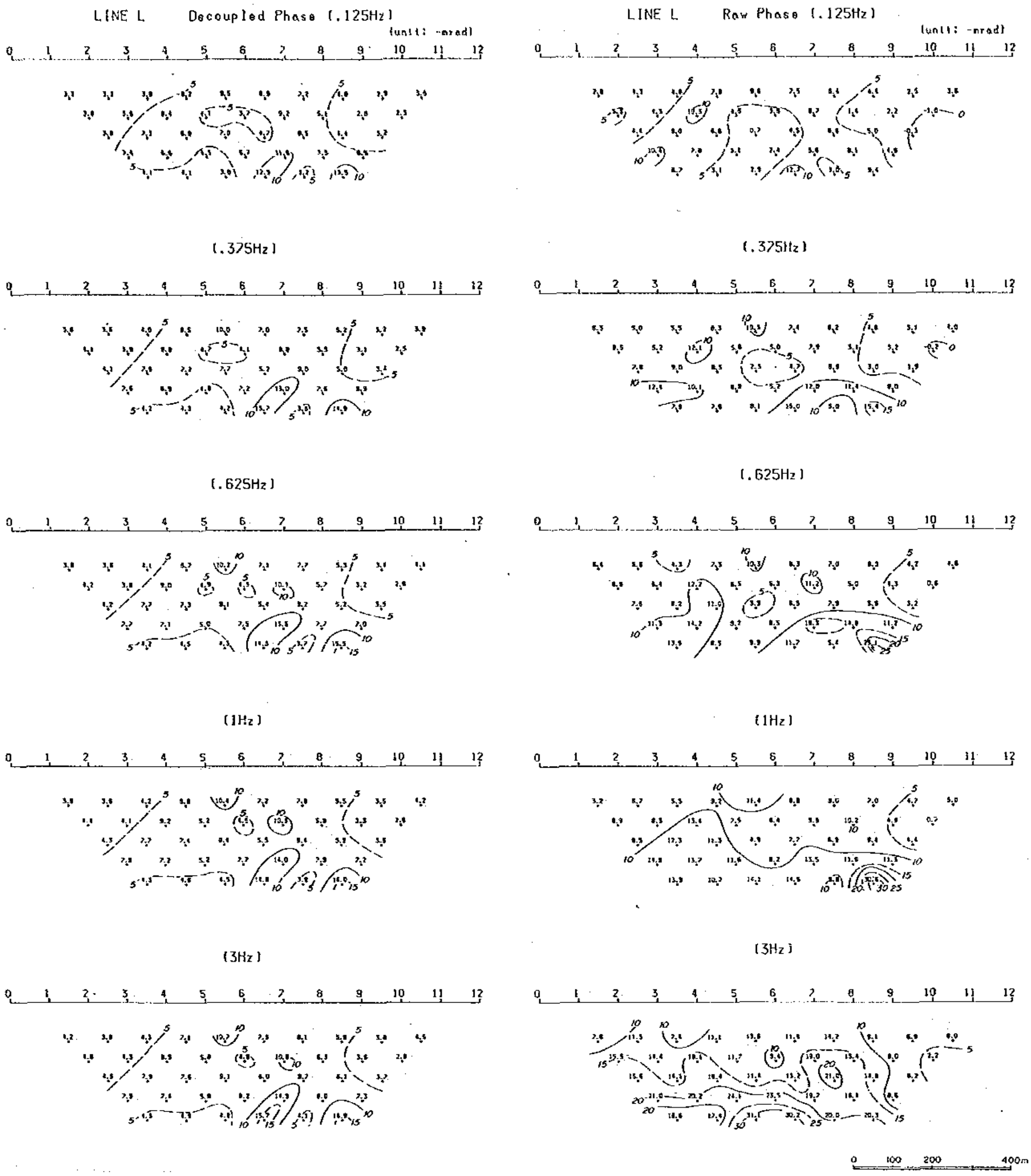


Fig. III-3-30 Phase Sections for 5 Frequencies of Line L

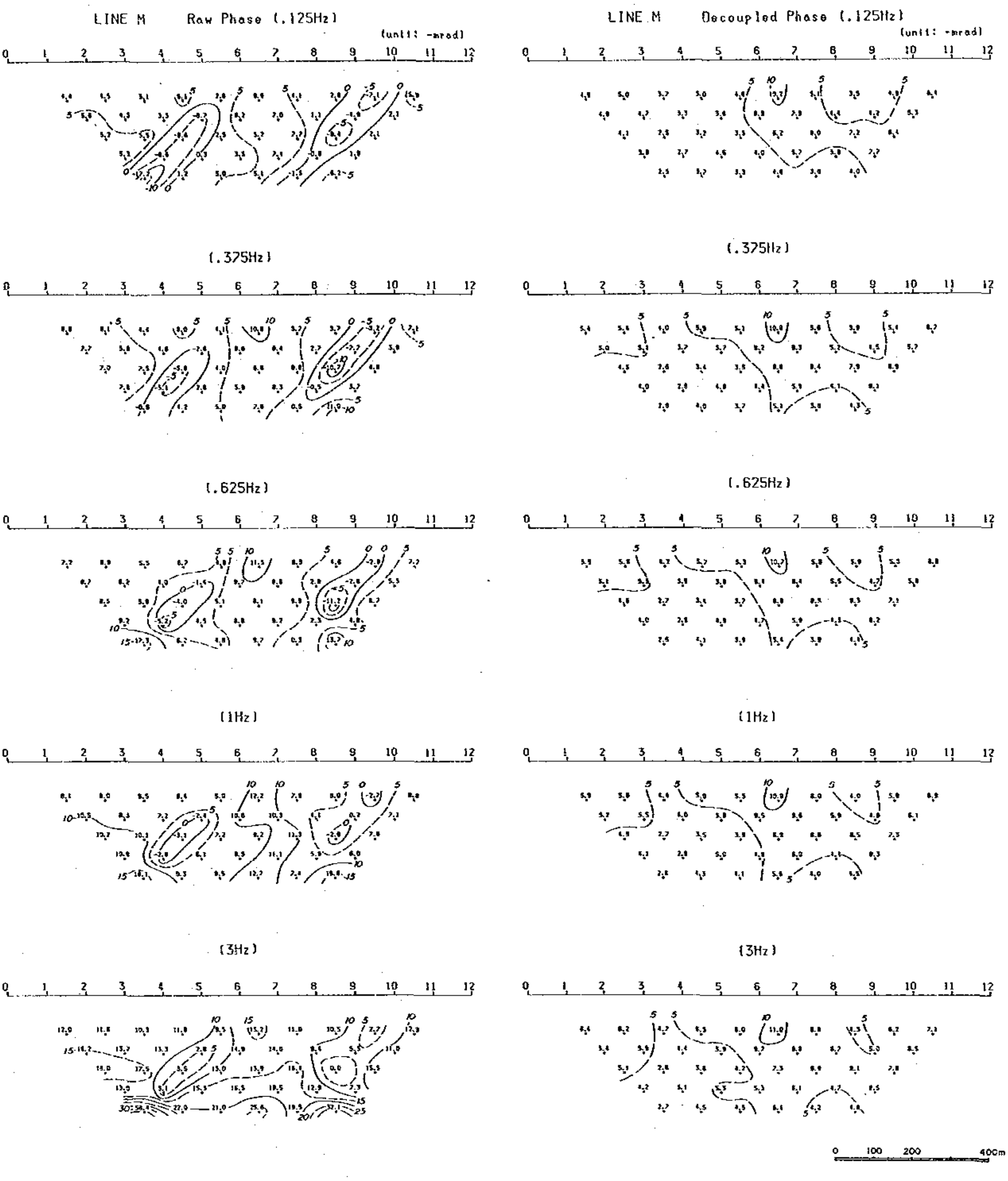


Fig. Ⅲ-3-31 Phase Sections for 5 Frequencies of Line M

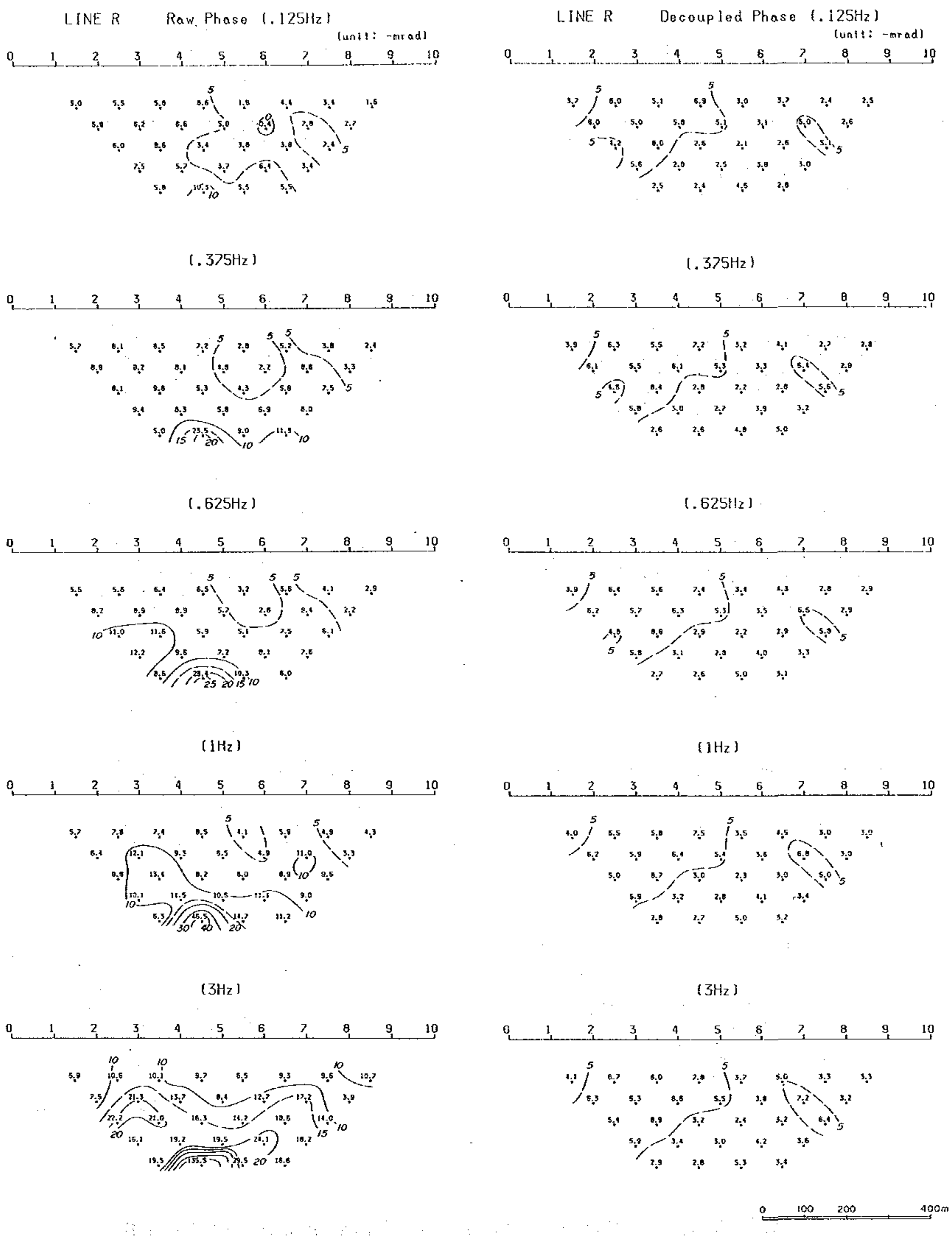


Fig. Ⅲ-3-32 Phase Sections for 5 Frequencies of Line R

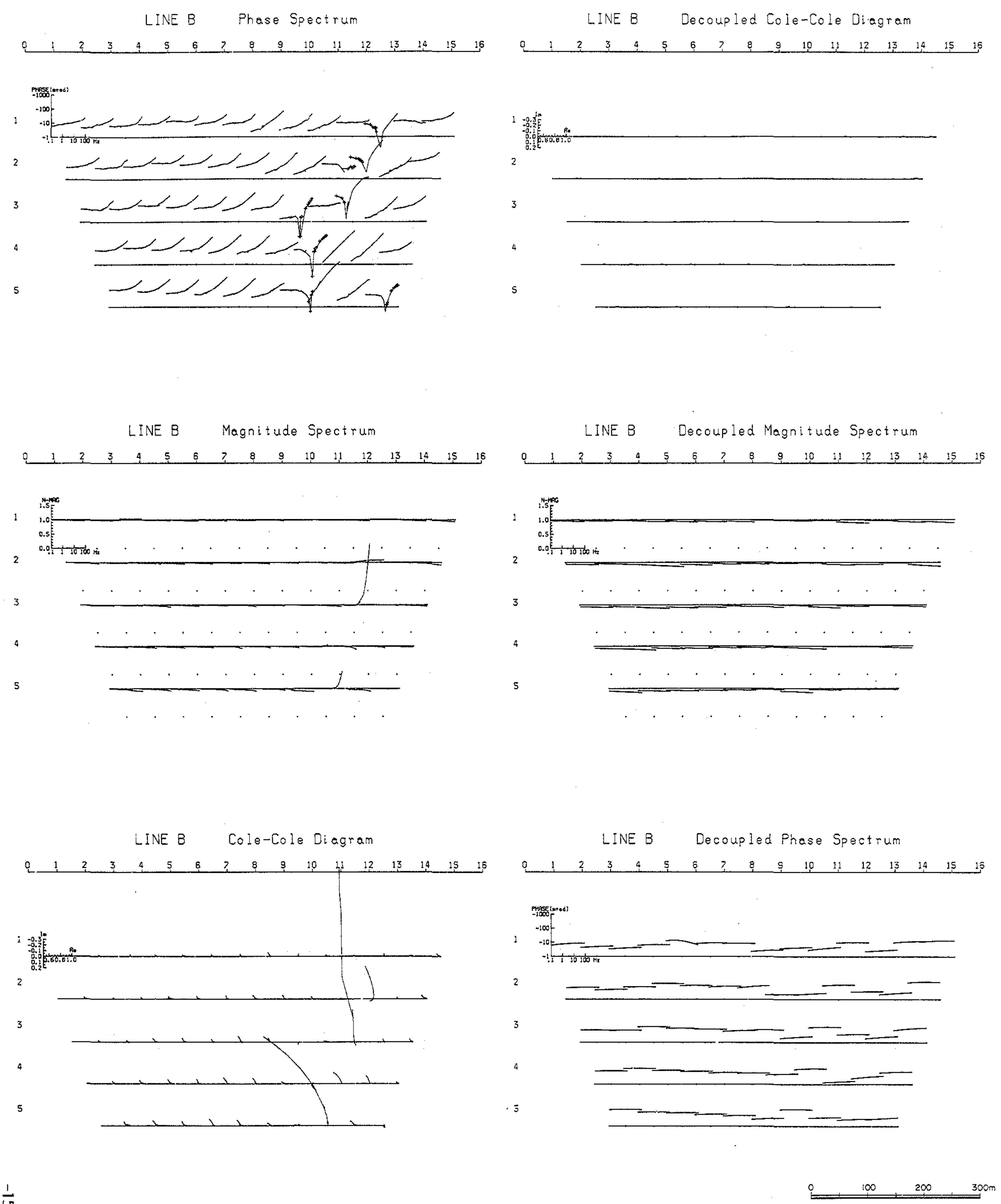


Fig. Ⅲ-3-33 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line B

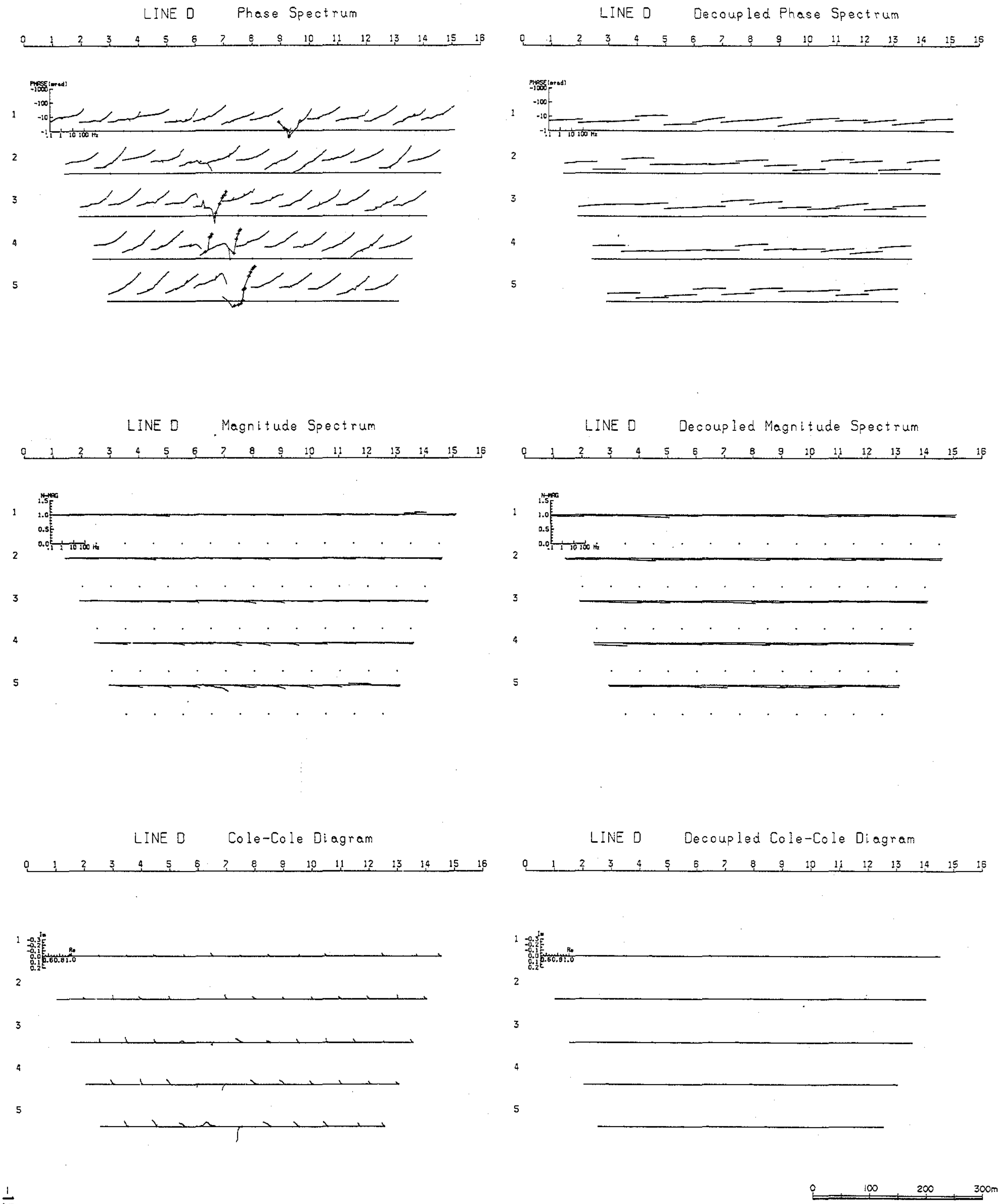


Fig. Ⅲ-3-34 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line D

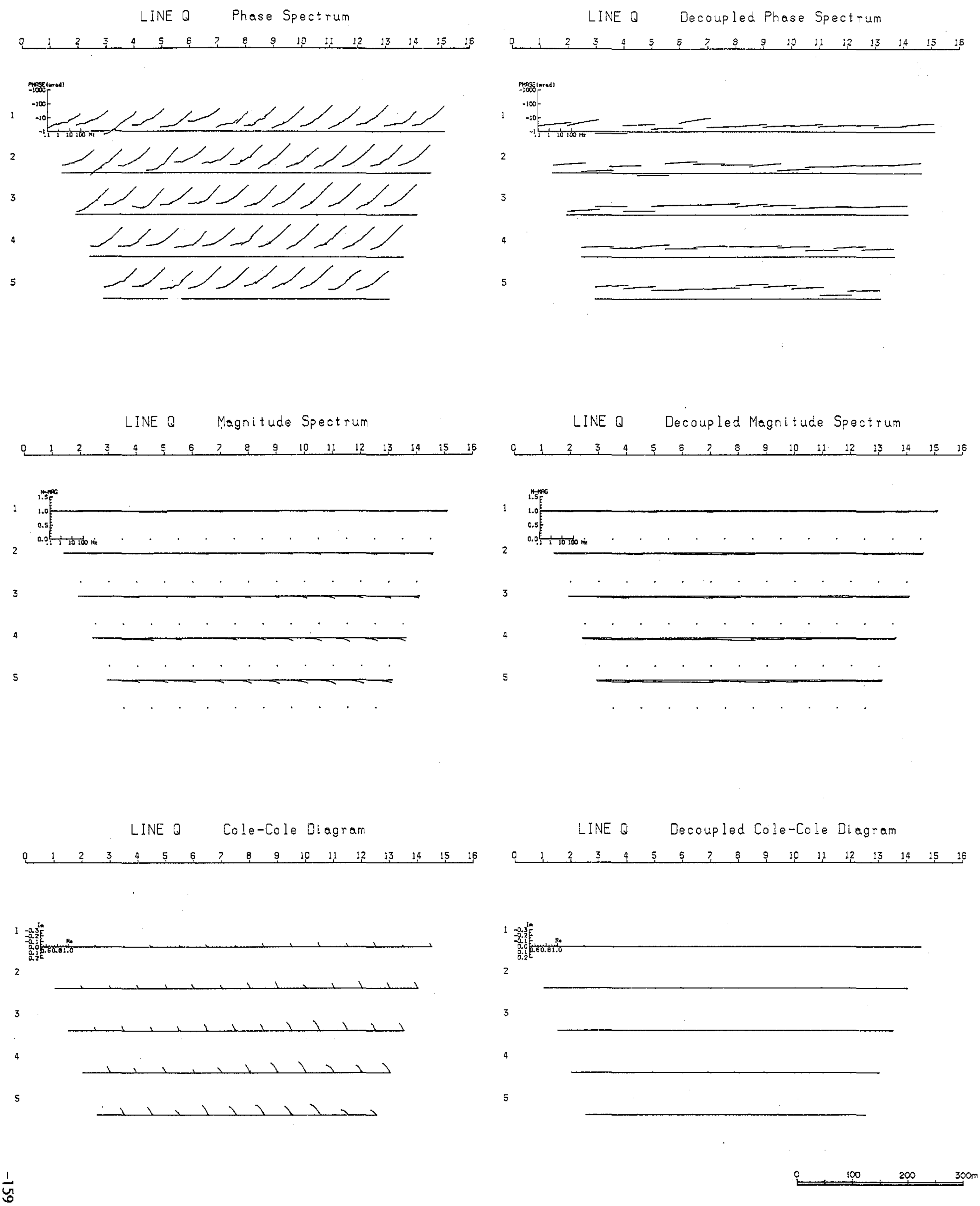


Fig. Ⅲ-3-35 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line Q

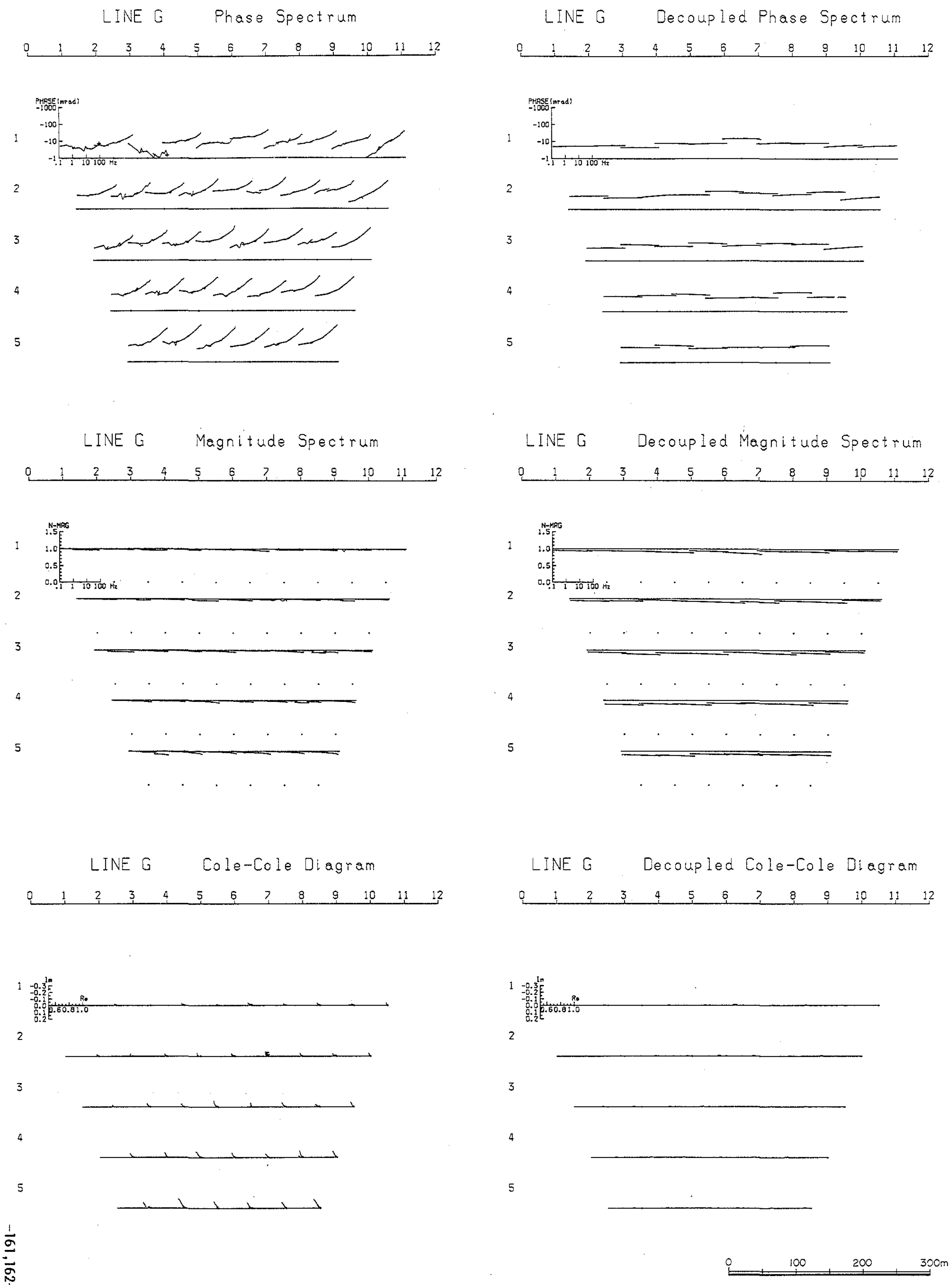


Fig. Ⅲ-3-36 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line G

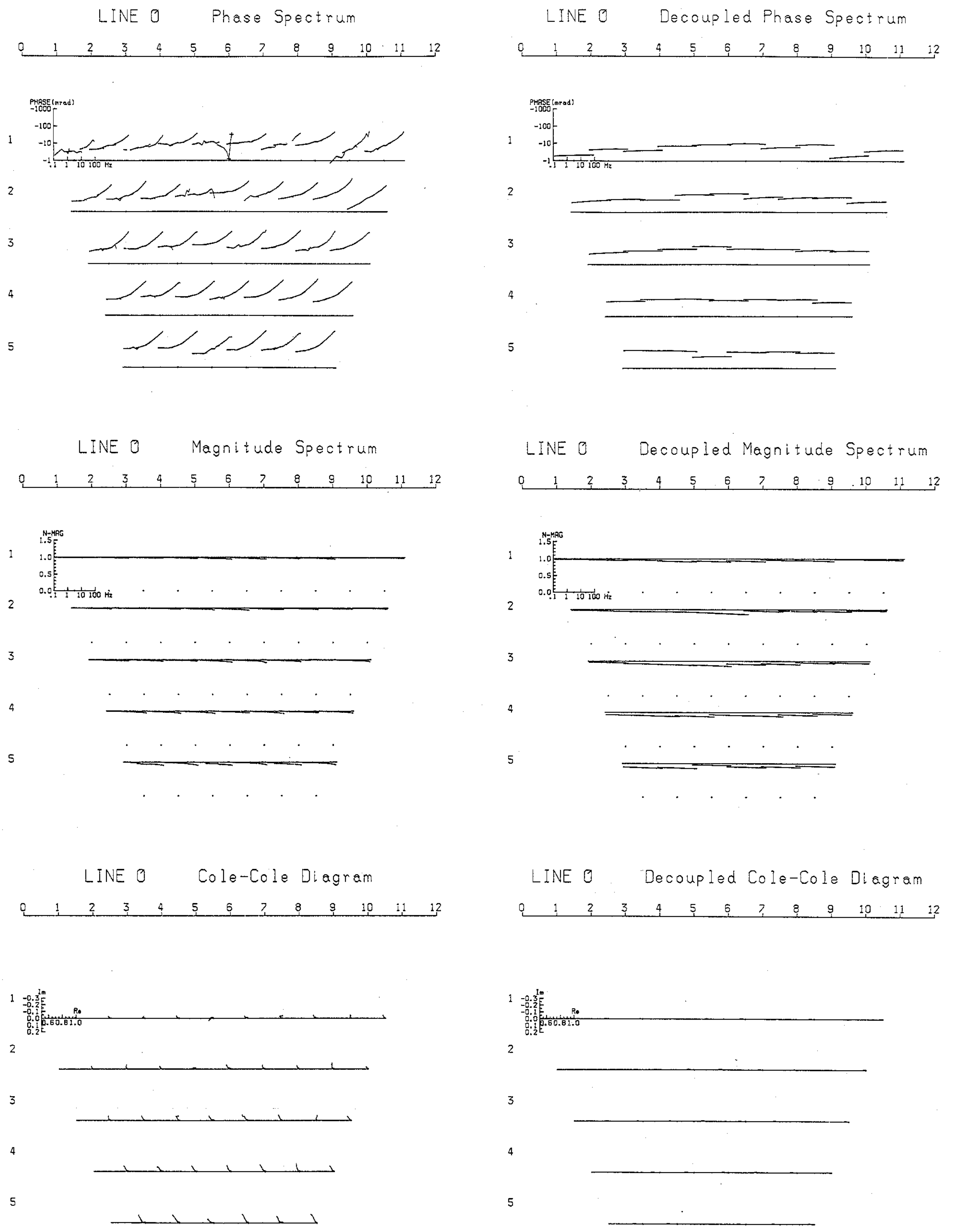


Fig. Ⅲ-3-37 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line 0

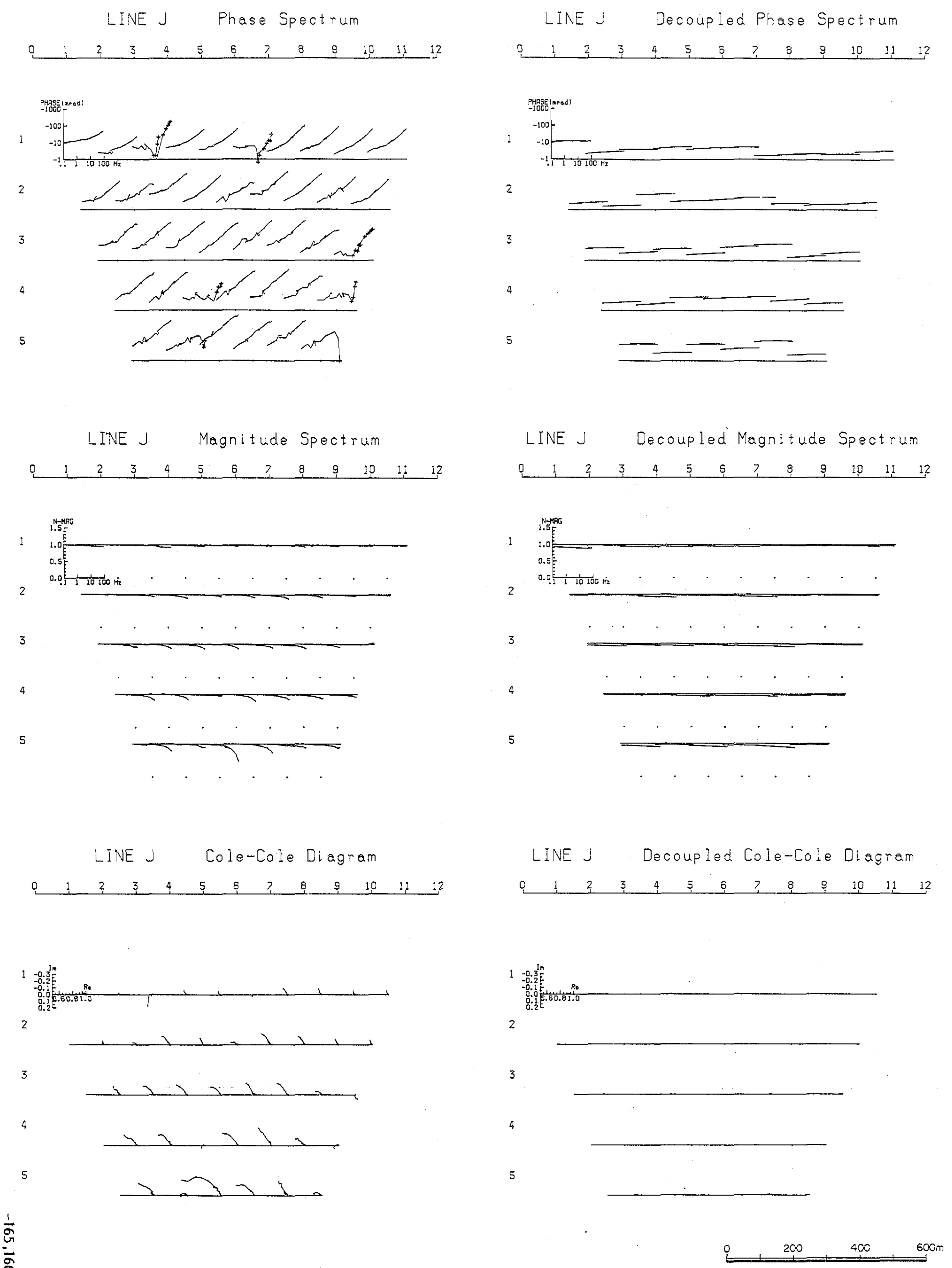


Fig. Ⅲ-3-38 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line J

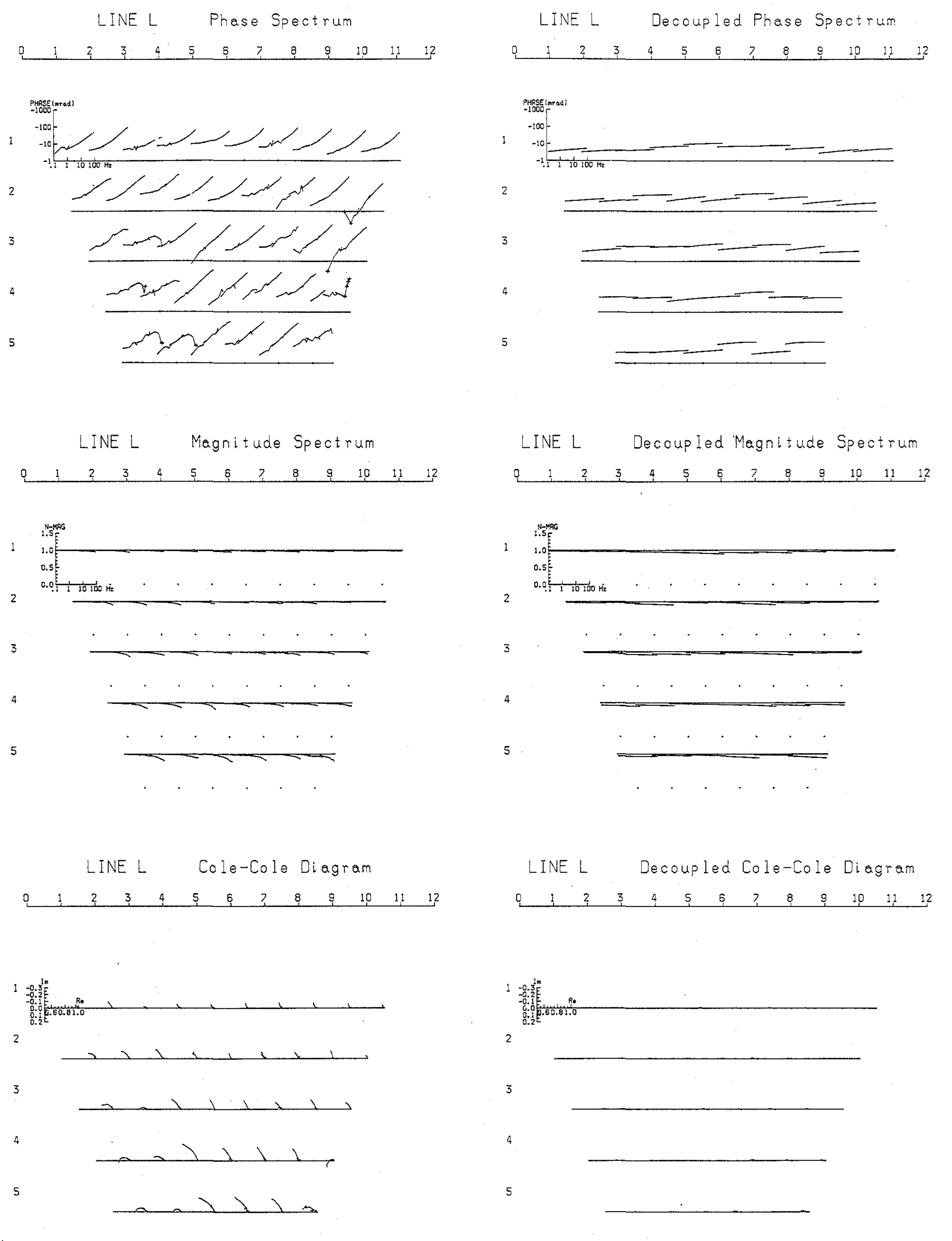


Fig. Ⅲ-3-39 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line L

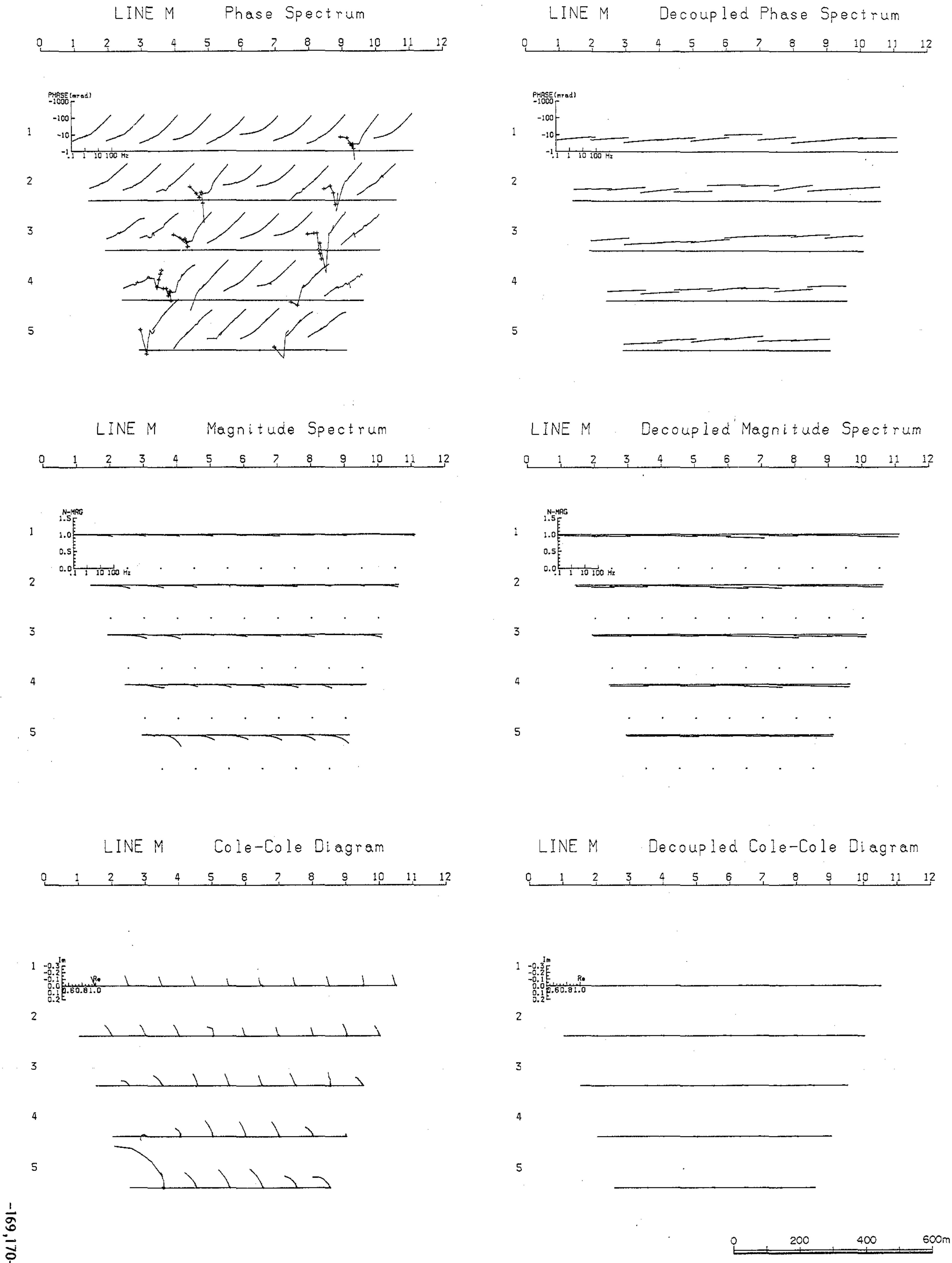


Fig. Ⅲ-3-40 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line M

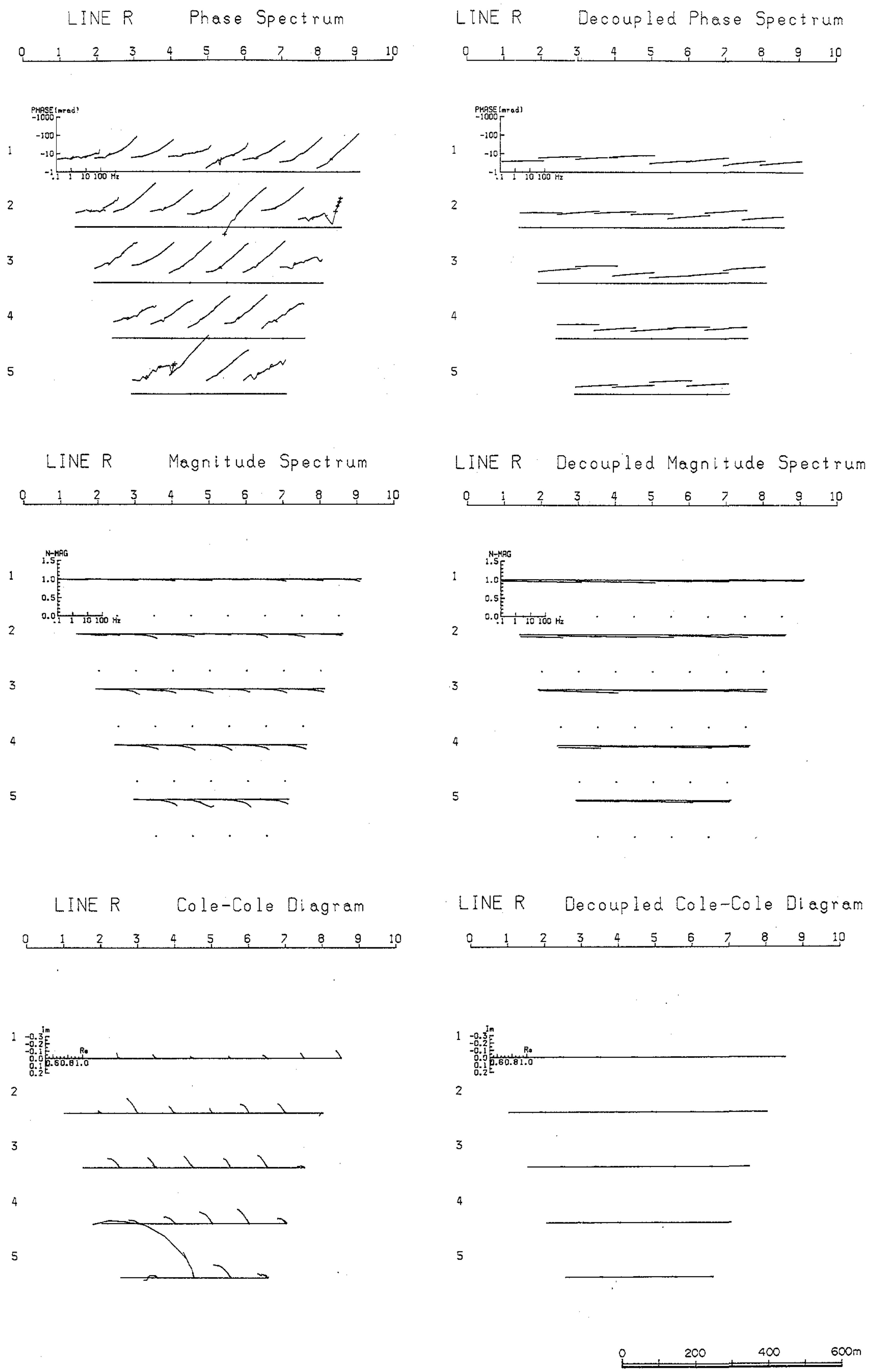
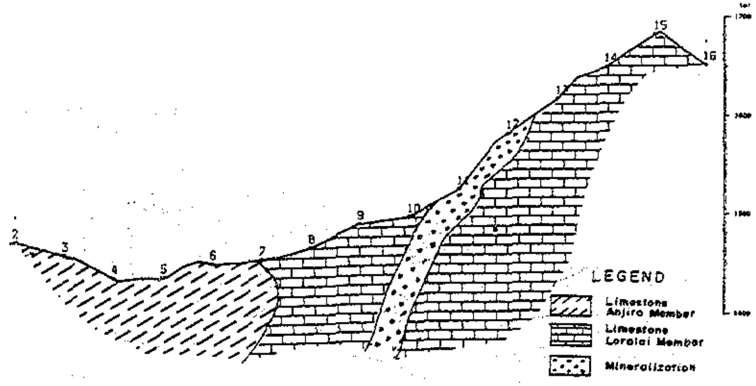


Fig. Ⅲ-3-41 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line R

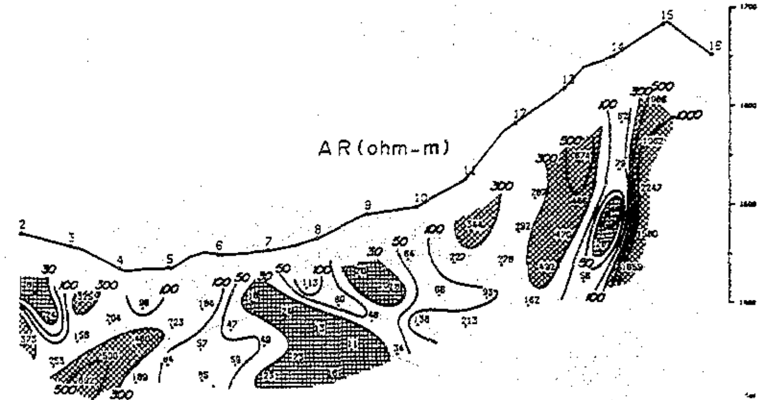
Layer	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54
1	111	211	111	111	113	344	444	444	444	444	442	266	666	666	777
2	112	211	111	111	113	344	444	444	444	444	442	266	666	666	777
3	112	211	111	111	113	344	444	444	444	444	442	266	666	666	777
4	112	211	111	111	134	444	444	444	444	444	442	266	666	666	777
5	112	211	111	111	133	444	444	444	444	444	422	666	666	666	777
6	112	211	111	111	334	444	444	444	444	444	226	666	666	666	777
7	112	211	111	113	444	444	444	444	444	666	666	666	666	666	777
8	112	211	111	133	444	444	444	444	445	666	666	666	666	666	777
9	112	211	111	134	444	444	444	444	455	566	666	666	666	666	777
10	111	111	111	144	444	444	444	444	555	556	666	666	666	666	777
11	111	111	111	144	444	444	444	444	555	556	666	666	666	666	777
12	111	111	111	144	444	444	444	444	555	556	666	666	666	666	777
13	111	111	111	144	444	444	444	444	555	556	666	666	666	666	777
14	111	111	111	144	444	444	444	444	555	556	666	666	666	666	777
15	111	111	111	144	444	444	444	444	555	556	666	666	666	666	777
16	111	111	111	144	444	444	444	444	555	556	666	666	666	666	777

CODE	RESISTIVITY OHM-M	F.E. %
1	300.	1.0
2	10.	5.0
3	200.	3.0
4	100.	0.5
5	100.	10.0
6	500.	0.5
7	1000.	1.0
8	0.	0.
9	0.	0.



DIPOLE-DIPOLE APPARENT RESISTIVITY PROFILE

N1	69.	356.	372.	224.	138.	90.	90.	90.	87.	50.	46.	480.
N2	99.	349.	218.	146.	124.	76.	74.	66.	77.	112.	54.	
N3	190.	112.	184.	147.	131.	107.	63.	52.	91.	151.	118.	108.
N4	193.	63.	117.	130.	110.	87.	42.	88.	159.	143.	219.	
N5	234.	109.	51.	106.	115.	95.	60.	88.	152.	150.	269.	237.



DIPOLE-DIPOLE APPARENT PERCENT FREQ. EFFECT

N1	2.9	0.8	1.1	1.9	1.0	0.4	0.2	0.3	0.2	1.8	2.4	0.3
N2	2.1	1.0	1.7	0.3	0.7	0.3	0.1	0.1	1.2	1.1	1.7	
N3	1.4	2.1	1.5	0.1	0.0	0.6	0.4	0.2	1.3	0.9	0.8	1.7
N4	1.5	2.0	0.0	-0.1	0.0	0.9	0.7	1.5	1.2	0.8	1.1	
N5	1.3	1.5	0.4	-0.2	-0.0	0.5	1.3	2.2	1.4	1.1	1.2	1.1

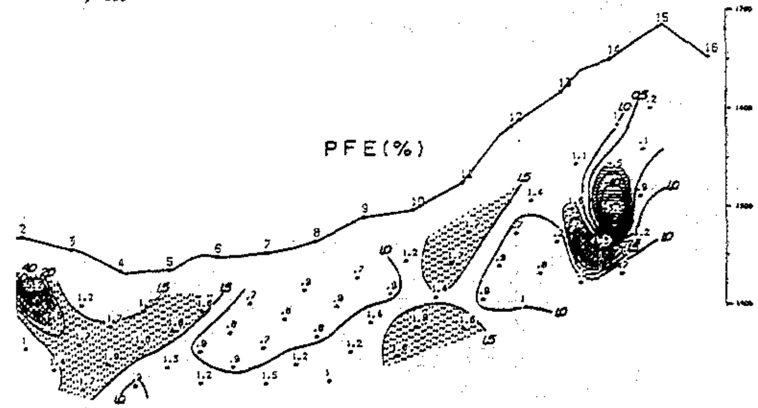
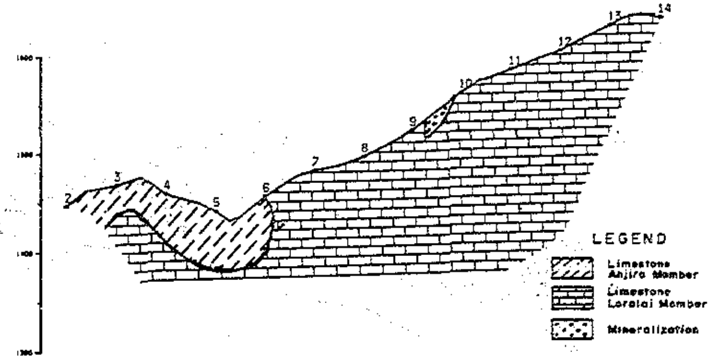


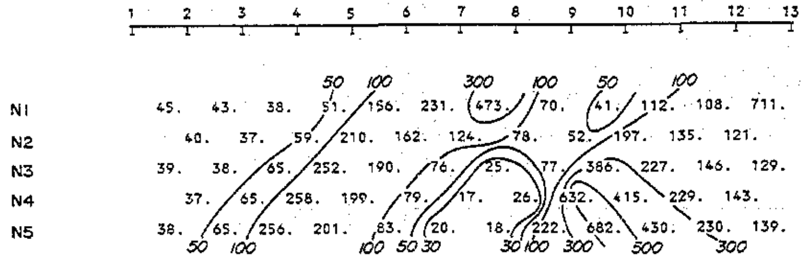
Fig. Ⅲ-3-42 Result of Model Simuration (Line C)

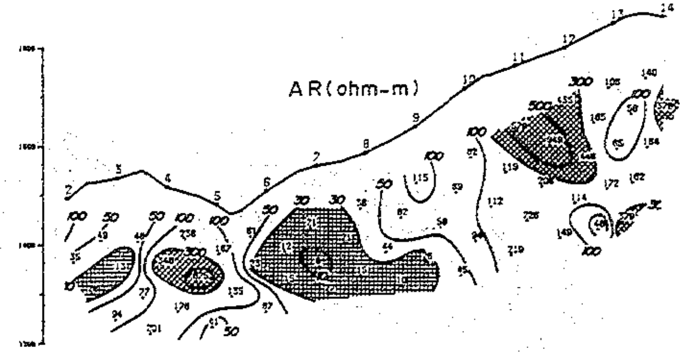
	1	2	3	4	5	6	7	8	9	10	11	12	13
	12	15	18	21	24	27	30	33	36	39	42	45	48
1	444	444	444	444	444	666	111	111	112	444	444	555	555
2	444	444	444	444	444	666	111	111	124	442	444	555	555
50m 3	444	444	444	444	444	666	111	112	244	424	444	555	555
4	444	444	444	444	444	111	111	122	244	244	555	555	555
5	444	444	444	331	111	111	112	222	442	444	555	555	555
6	444	444	441	111	331	111	112	255	424	444	555	555	555
100 7	444	444	411	111	331	111	122	555	434	555	555	555	555
8	444	444	111	111	131	222	266	335	443	555	555	555	555
150 9	444	444	411	113	131	444	666	533	444	555	555	555	555
10	444	444	444	443	344	444	666	553	344	555	555	555	555
11	444	444	444	433	444	444	666	555	444	555	555	555	555
12	444	444	443	334	433	444	666	555	444	555	555	555	555
13	444	444	444	444	335	555	666	666	444	555	555	555	555
14	444	444	444	443	355	555	444	666	444	555	555	555	555
15	444	444	444	433	555	555	444	666	444	444	555	555	555
16	444	444	444	444	555	555	444	666	444	444	555	555	555

CODE	RESISTIVITY OHM-M	F.E. %
1	500.	0.5
2	100.	1.5
3	50.	10.0
4	50.	0.5
5	500.	0.3
6	100.	0.1
7	0.	0.
8	0.	0.
9	0.	0.

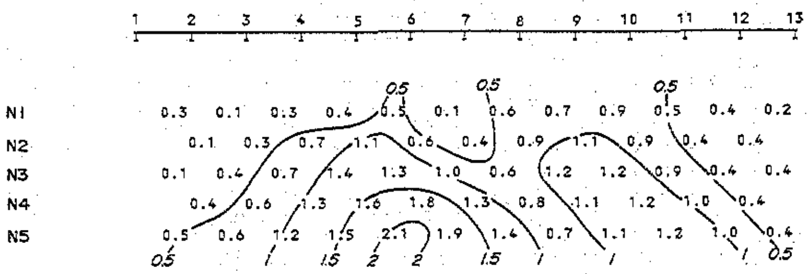


DIPOLE-DIPOLE APPARENT RESISTIVITY PROFILE





DIPOLE-DIPOLE APPARENT PERCENT FREQ. EFFECT



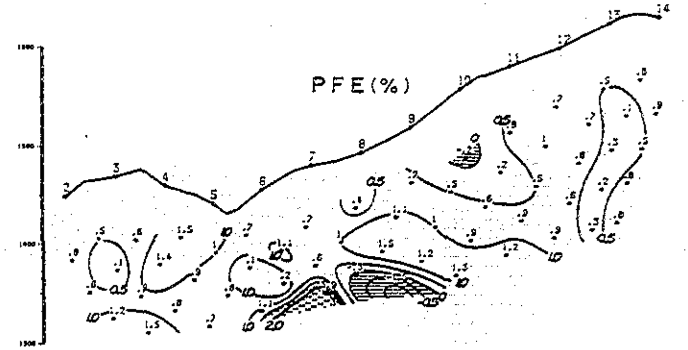
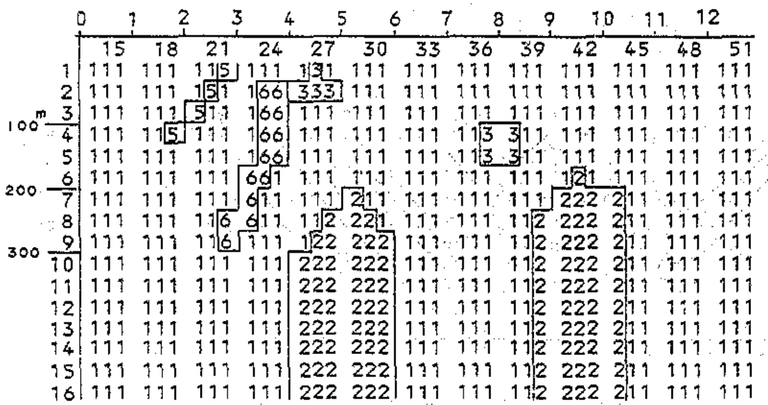
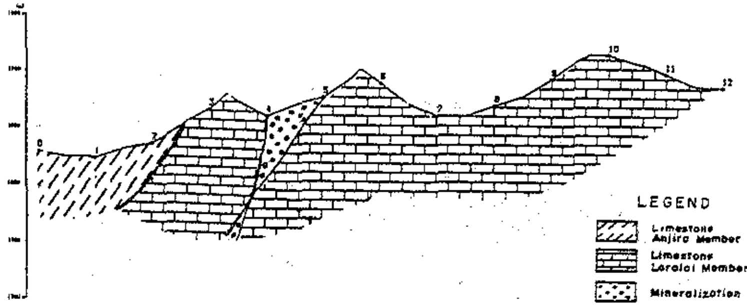
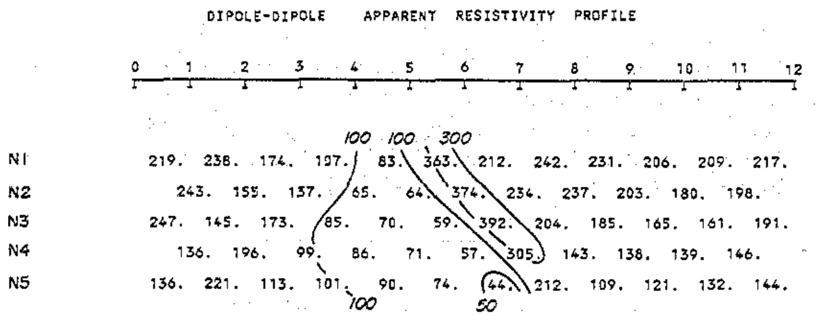


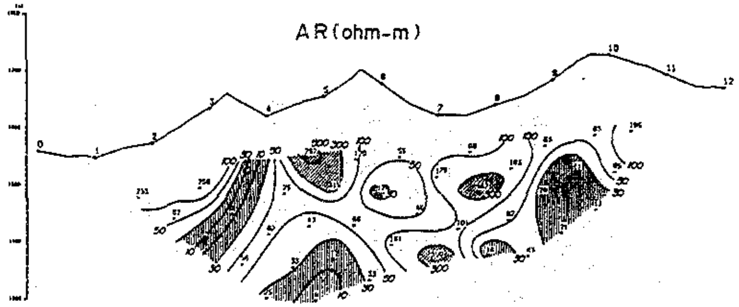
Fig. Ⅲ-3-43 Result of Model Simuration (Line D)

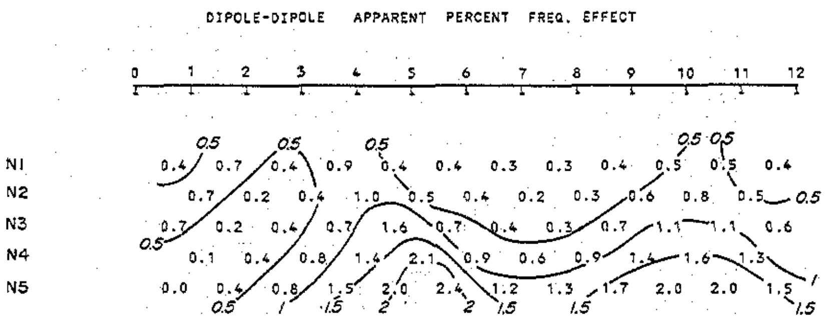


CODE	RESISTIVITY OHM-M	F.E. %
1	200.	0.5
2	10.	8.0
3	1000.	0.5
4	200.	1.0
5	200.	2.0
6	10.	0.5
7	0.	0.
8	0.	0.
9	0.	0.









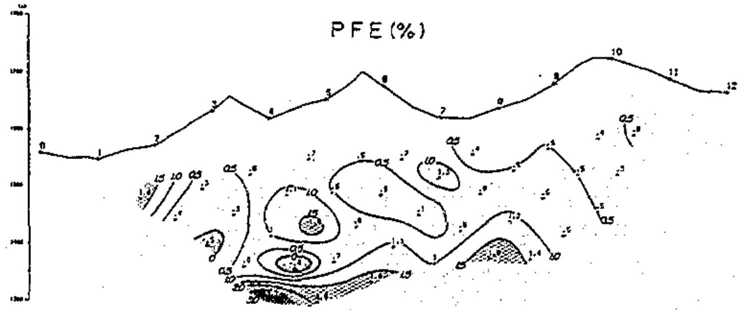


Fig. Ⅲ-3-44 Result of Model Simuration (Line J)

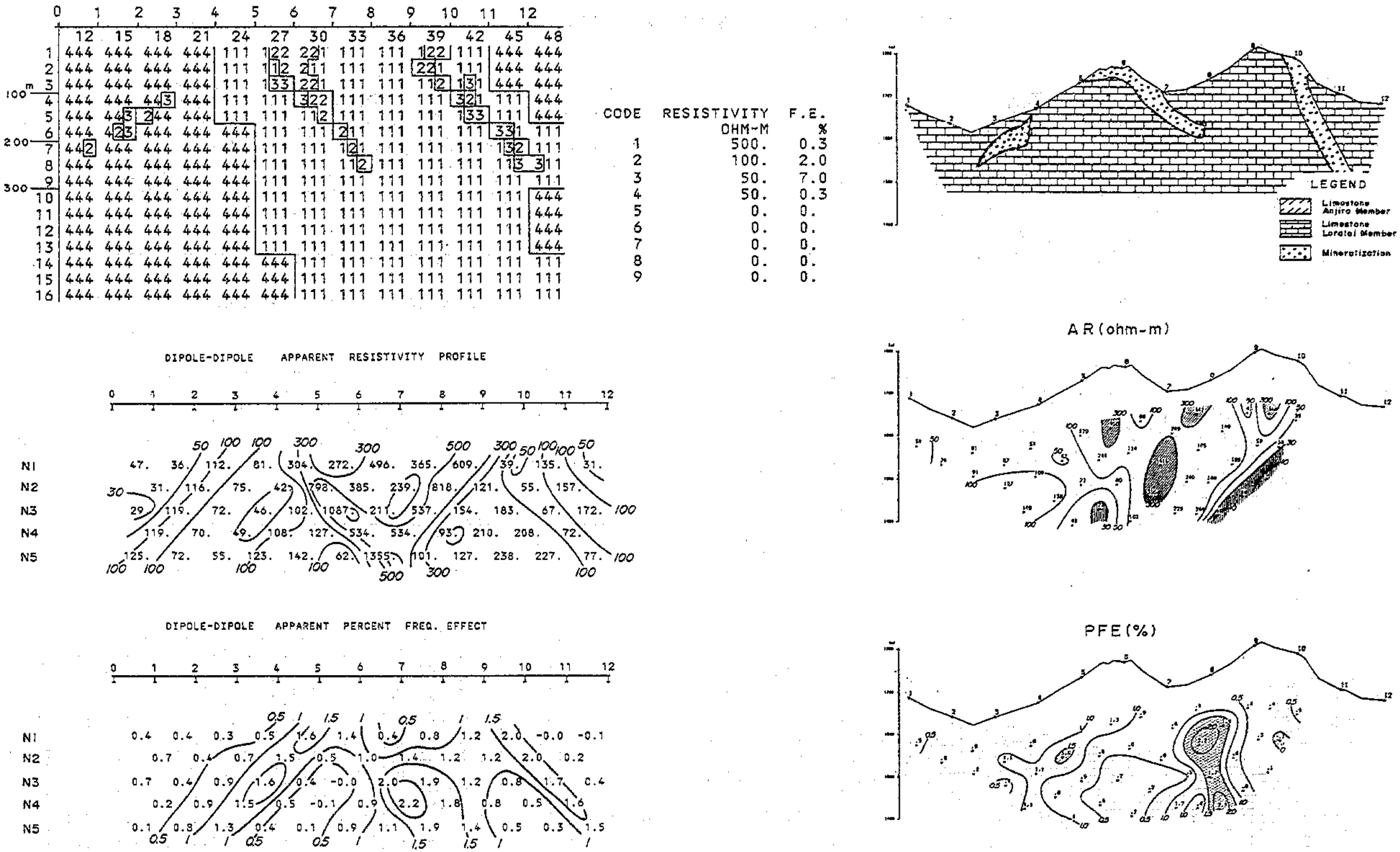
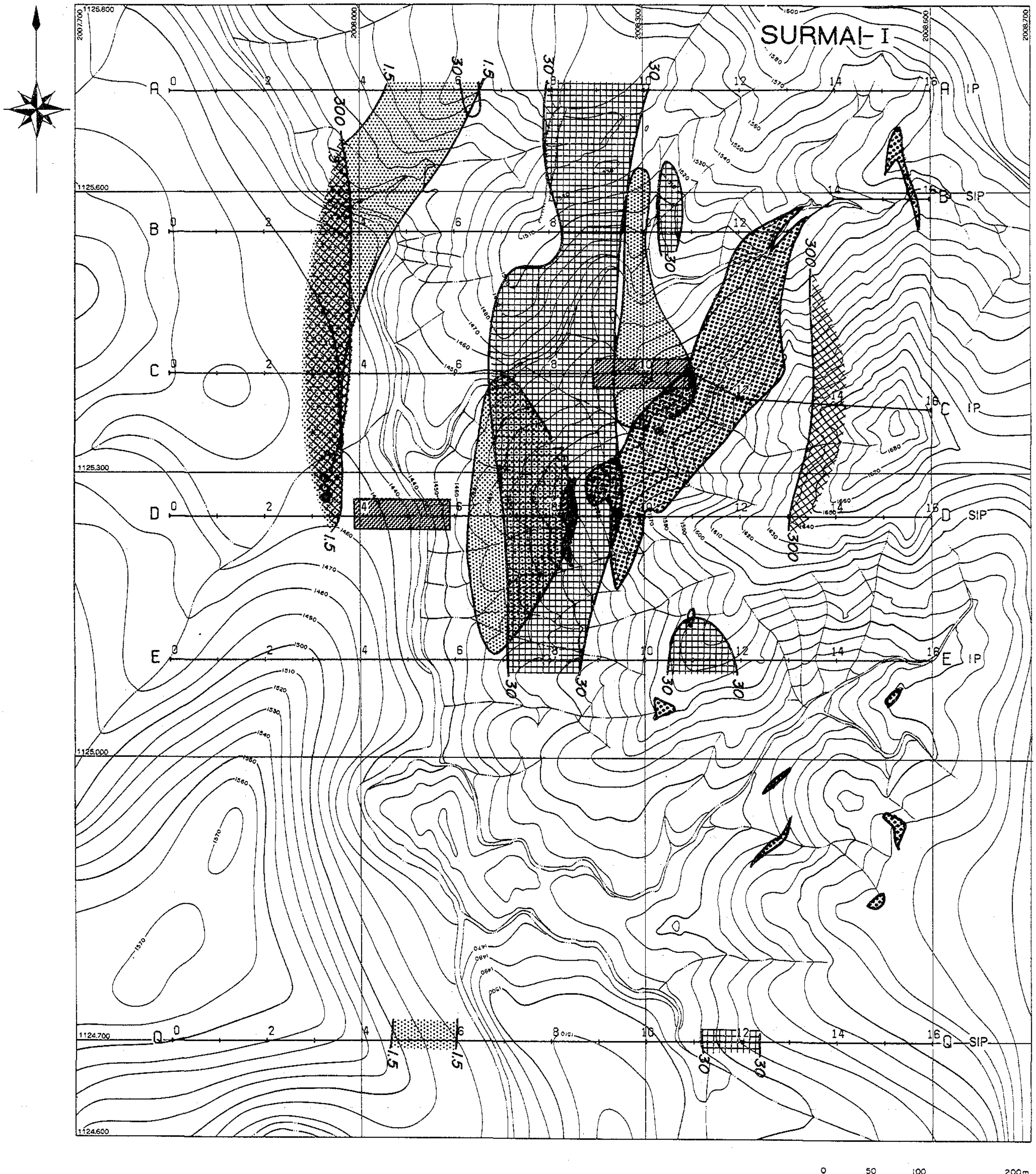


Fig. Ⅲ-3-45 Result of Model Simuration (Line L)



LEGEND

≧ 1.5 %	≧ 30 ohm-m	Mineralization
Negative FE Zone	≧ 300 ohm-m	Location of SIP·IP Anomaly Source

Fig. Ⅲ-3-46 Interpretation Map of Surmai Ⅰ Area

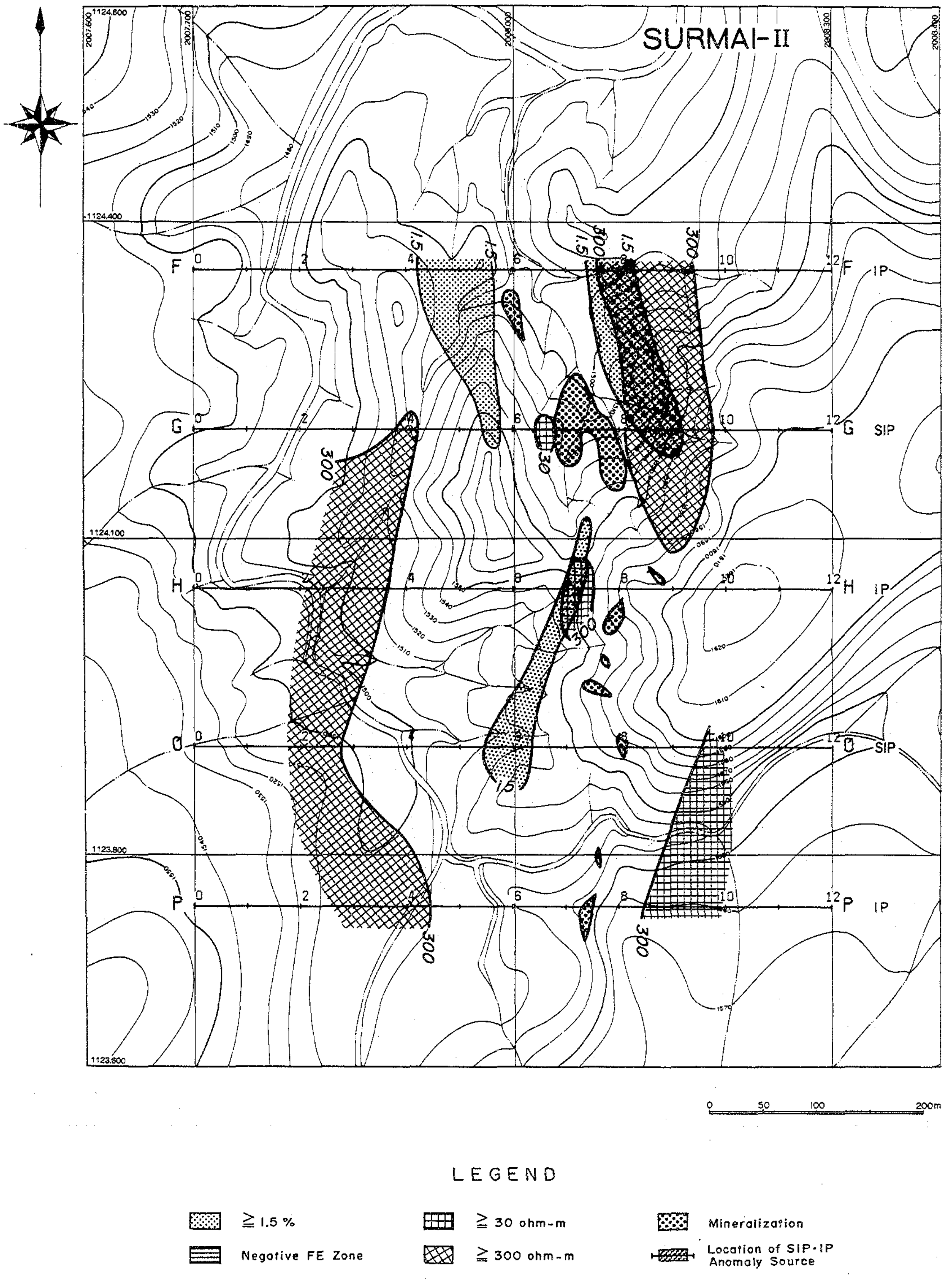


Fig. III-3-47 Interpretation Map of Surmai II Area

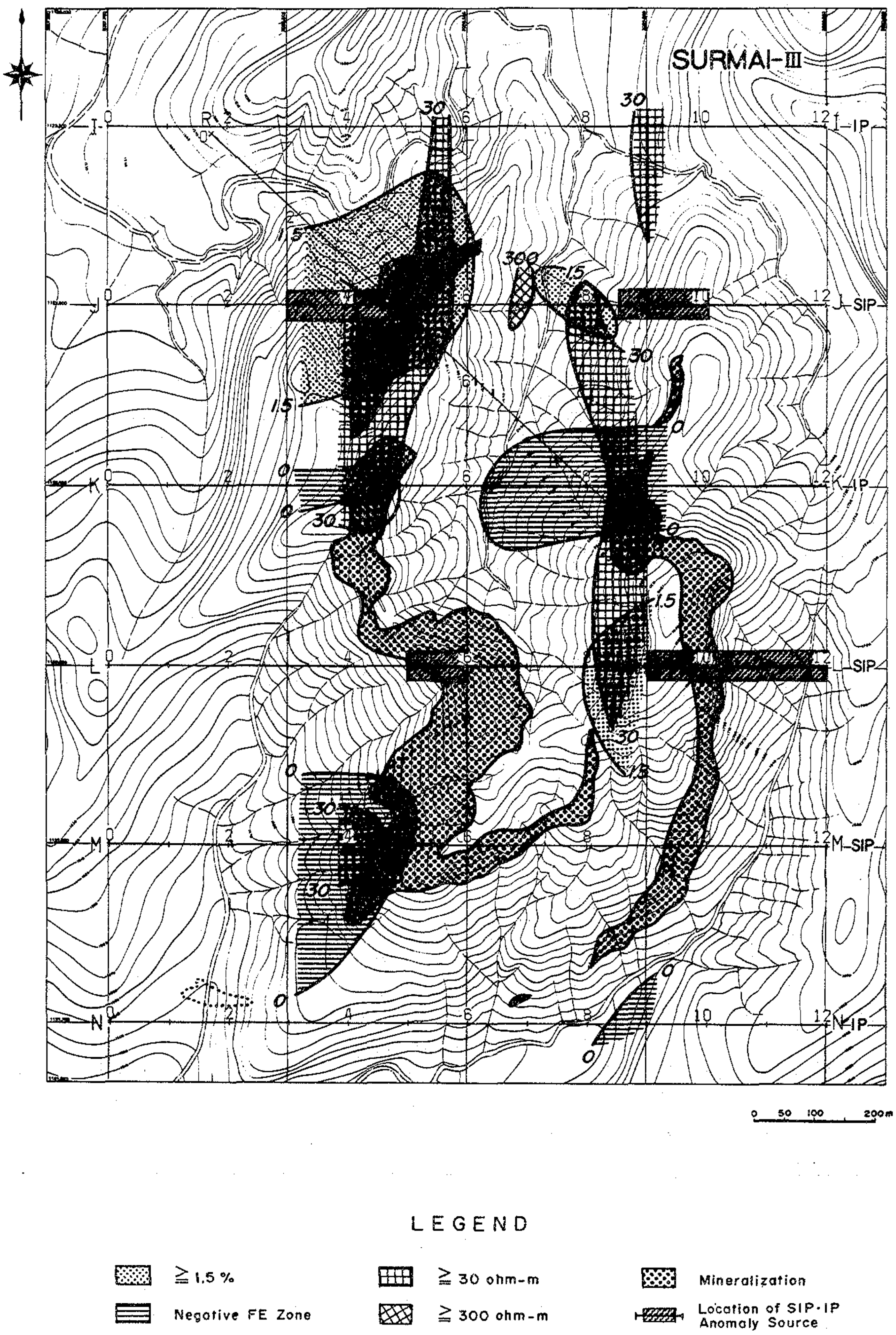


Fig. Ⅲ-3-48 Interpretation Map of Surmai Ⅲ Area

3-4 Results of Check Survey in Gunga Mine

Applicability of the SIP method was investigated on ore deposits of the Gunga Mine. Fourteen holes were drilled in the area south of the working mine, on which two lines, S and T, were set out, each 600 meters. Line S traverses the sites of Drill Holes Nos. 10, 9 and 8 and Line T passes Drill Holes Nos.2, 3, 4 and 5. Station intervals were set at 500 m with electrode separation indices of n = 1 to 5. Instruments and equipment were the same as those used in the Surmai area.

3-4-1 Pseudo-Section of Apparent Resistivity and Percent Frequency Effect

AR sections : Fig.Ⅲ-3-49

The values of AR are smaller than those of the Surmai area, with the majority of values at about 300 ohm-m. A zone of low AR (less than 30 ohm-m) is detected west of the Gunga deposits. A small area of high AR is delineated west of Line T, about 300 ohm-m, but the area does not correspond with the distribution of barite. Siliceous limestone beds, which are rich in lead and zinc, give moderate AR ranging from 50 to 100 ohm-m.

PFE sections : Fig.Ⅲ-3-49

Distinct pant-leg patterns are delineated on Lines S and T, both corresponding with the Gunga ore deposits. The values of PFE are higher on Line S in the south side, and high values of PFE are detected over broad areas of the section in accordance with surface indications.

3-4-2 Pseudo-Section of Phase

The values of phase on each frequency of 0.125, 0.375, 0.625, 1 and 3 Hz are plotted on sections, in a like manner to that of the Surmai area. Variations in phase after decoupling are also given.

The phase values seem to be independent of frequencies, showing very similar contour patterns on every frequency as seen on Line S (Fig.Ⅲ-3-50) and Line T (Fig.Ⅲ-3-51). These patterns have a close resemblance to the patterns on PFE sections (Fig.Ⅲ-3-49). Little change can be recognized between the contour pattern of 0.125 Hz before processing and the contour pattern after decoupling. From this, it is likely that the effect of electro-magnetic coupling is negligible in the field of frequency less than 3 Hz.

3-4-3 Phase, Magnitude and Cole•Cole Spectrum

Line S : Fig.Ⅲ-3-52

Phase spectra of E-type are detected in the shallow parts in the vicinity at Nos.7 to 9 to the depths at Nos.4 and 5 on the diagram of phase spectra. Down-slanting spectra of magnitude with a rather steep inclination are observed in the same position. Up-slanting spectra of A-type are delineated on the Cole•Cole diagram.

Line T : Fig.Ⅲ-3-53

Results of this line are similar to those of Line S, but inclinations of phase and magnitude spectra are smaller and B-type spectra are observed on the Cole•Cole diagram.

3-4-4 Decoupled SIP Data

Variations in phase, magnitude and spectra of Cole•Cole diagrams on five frequencies after decoupling are shown with data before processing and their features are also discussed above. Peculiar values and spectra in phase and features of various spectra are obtained, after decoupling, in a position where mineralization is delineated by drilling.

3-4-5 Model Simulation for IP Anomaly

Line S : Fig.Ⅲ-3-54

Simulation was conducted on a model in which ore deposits were given Codes 8 and 9, having 30 and 50 ohm-m with 3 and 4% PFE, and wall rocks were deemed to be 100 ohm-m in resistivity with 0.5% PFE. The pattern of PFE is similar with that of the field survey but a remarkable difference in patterns of apparent resistivity is noticed between the simulation and the results of the field survey.

Line T : Fig.Ⅲ-3-55

Simulation was made on a model in which the same codes and properties of Line S were given to ore deposits and wall rocks. The resulting contour patterns in AR and PFE are similar to those of field measurements.

The results of simulation indicate that, in general, the Gunga deposits are 30 to 50 ohm-m in resistivity with PFE ranging from 3 to 6%.

3-4-6 Discussion and Interpretation Map

The results of SIP investigations on the Gunga mine are summarized as follows.

(1) The apparent resistivity ranges from 9 to 518 ohm-m and is 57.7 ohm-m on the average. The PFE ranges from -1.0 to 6.0% and its average stands at 1.91%. The former is 30% lower than the average in AR and the latter is about three times larger than that of the Surmai area.

Gossanous ores have similar properties with those of the Surmai area, but the apparent resistivity of limestones in the Gunga mine area is lower by some 25% and their PFE is 2.5 times larger than that of the Surmai area.

(2) Specimens of barite are 13,800 ohm-m in resistivity and 0.1% PFE, giving similar properties with those of wall rocks. Consequently, it is not practical to investigate barite deposits with the IP and SIP methods.

(3) Therefore, IP anomalies detected in the field ranging from 3 to 6% PFE are thought to be due mainly to galena, and to originate from mineral deposits of lead and zinc which occur at depths of more than 50m below the surface. The drilling program delineated the mineralization of average grades of 1% Pb and 6% Zn (See Part II, 1-4-1).

The AR and PFE obtained in the field and the results of simulation are illustrated on the panel diagram (Fig. III-3-56).

GUNGA

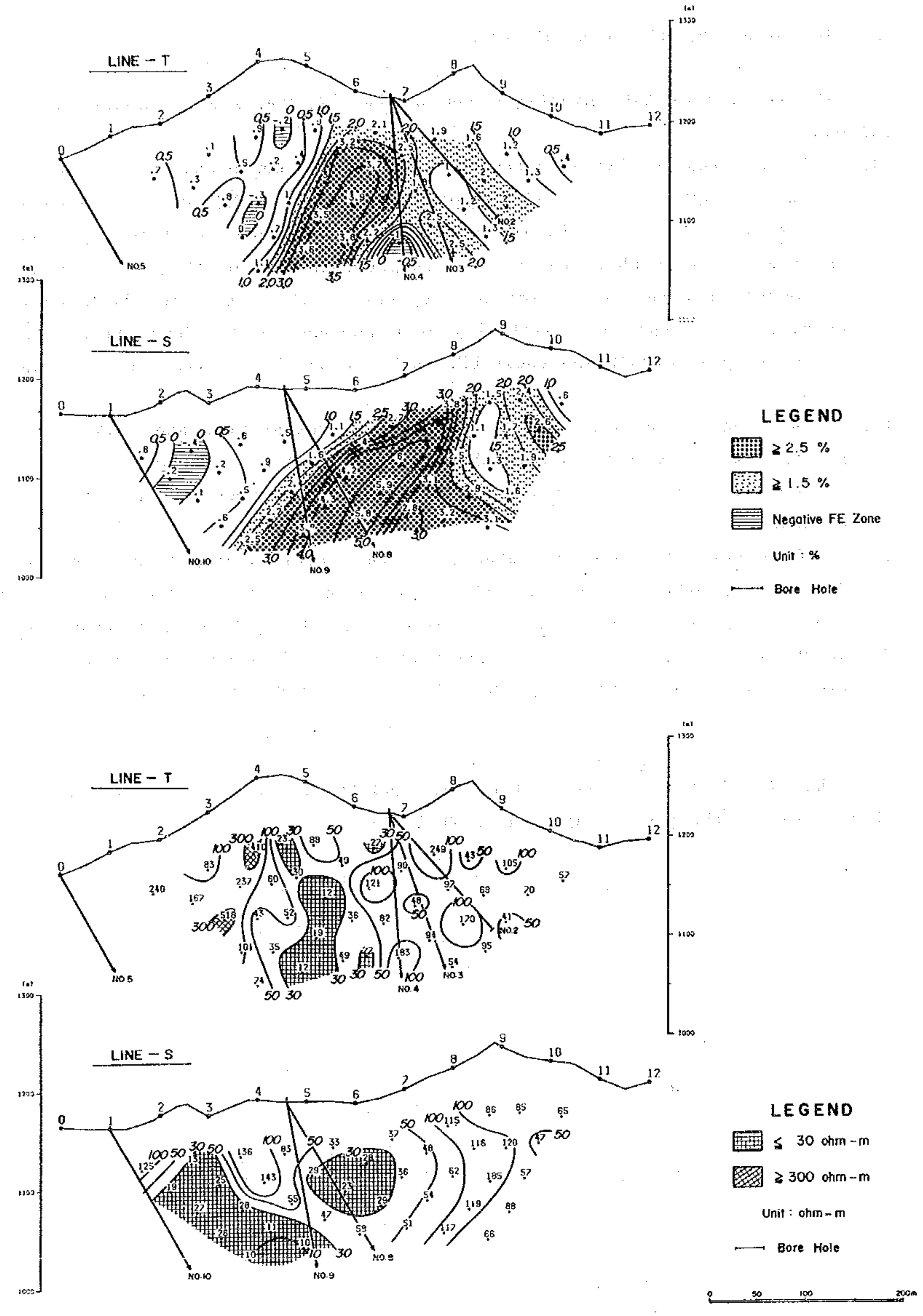


Fig. III-3-49 Apparent Resistivity and PFE Sections of Line S and T

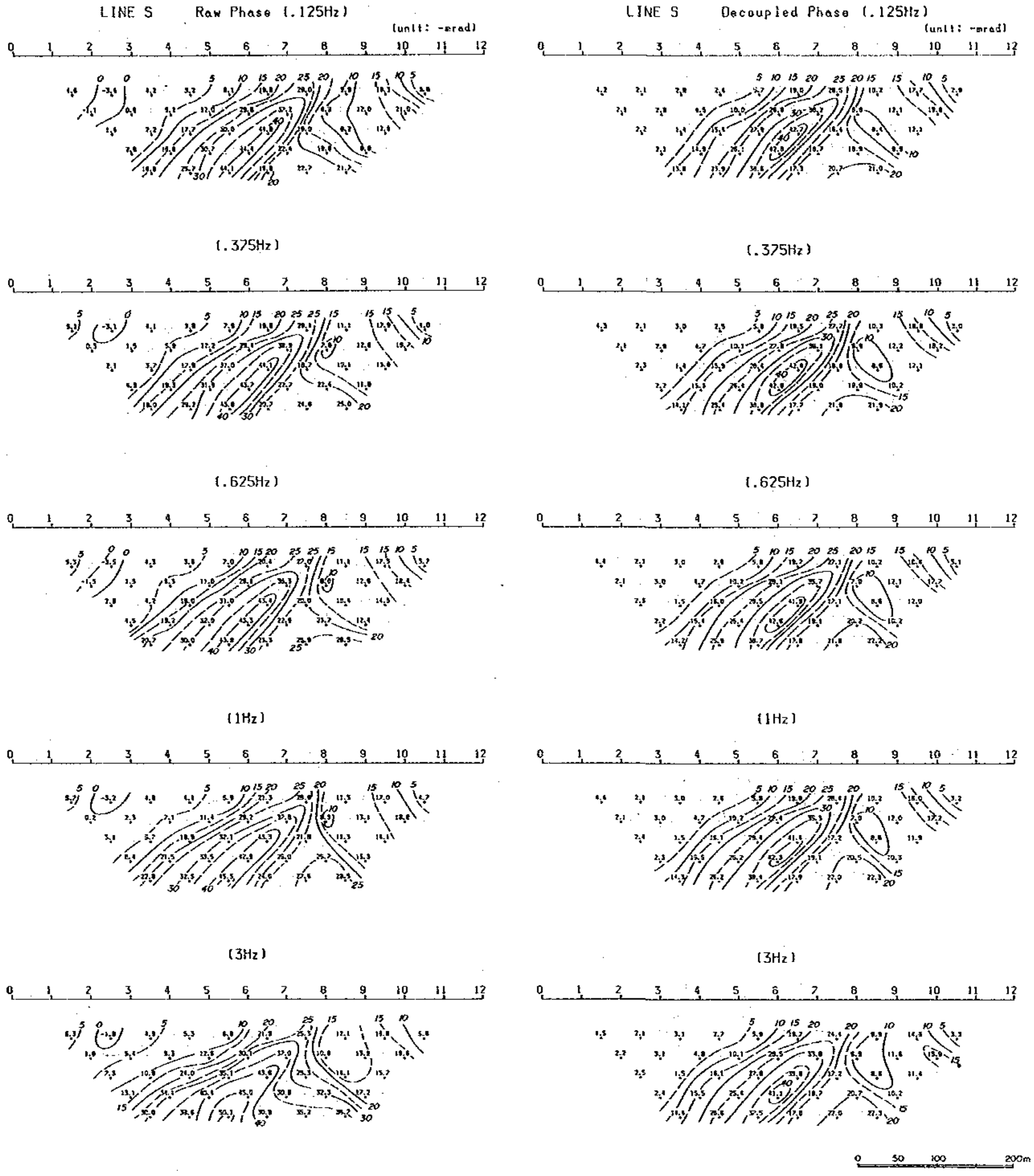


Fig. Ⅲ-3-50 Phase Sections for 5 Frequencies of Line S in Gunga Mine

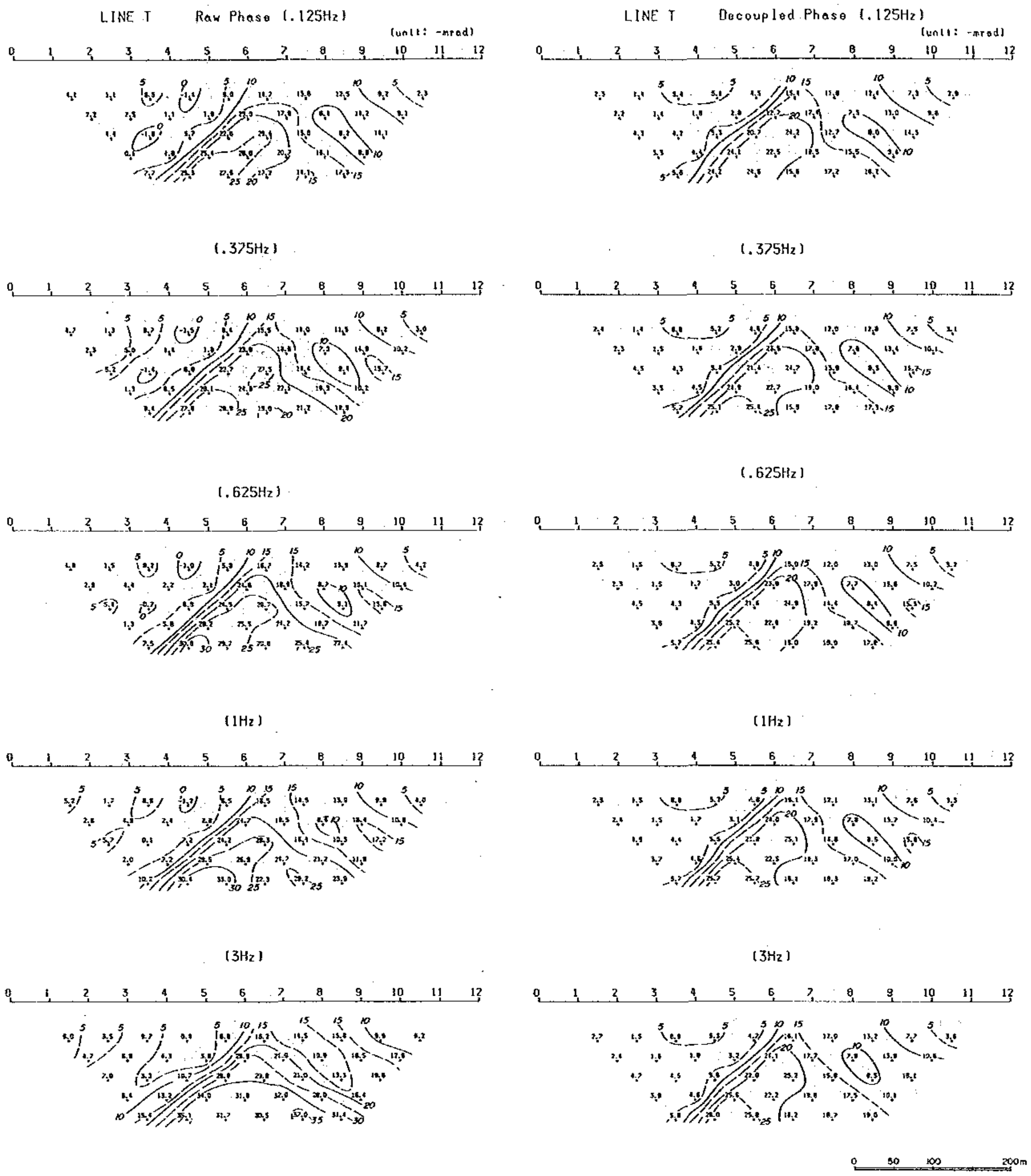


Fig. Ⅲ-3-51 Phase Sections for 5 Frequencies of Line T in Gunga Mine

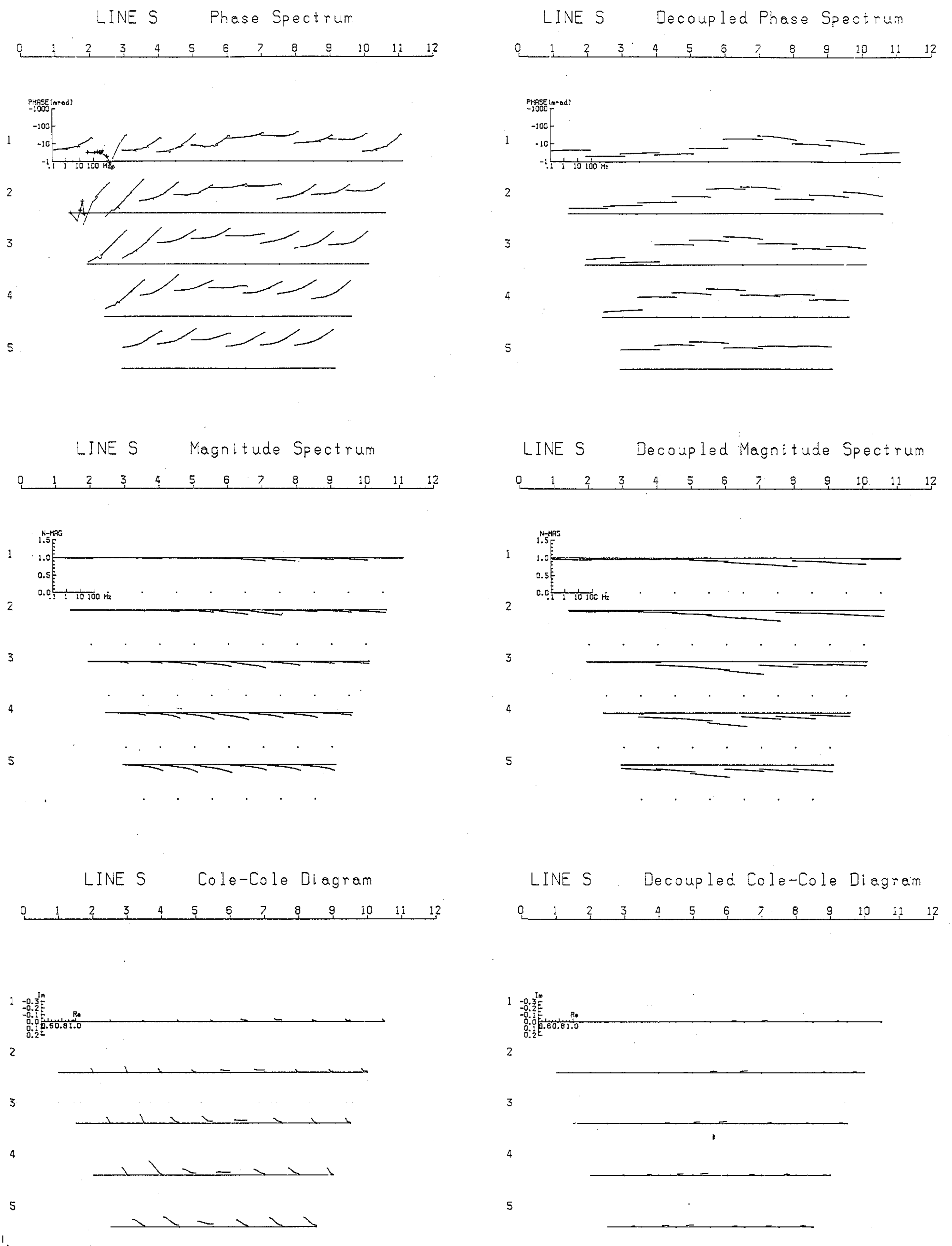


Fig. Ⅲ-3-52 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line S

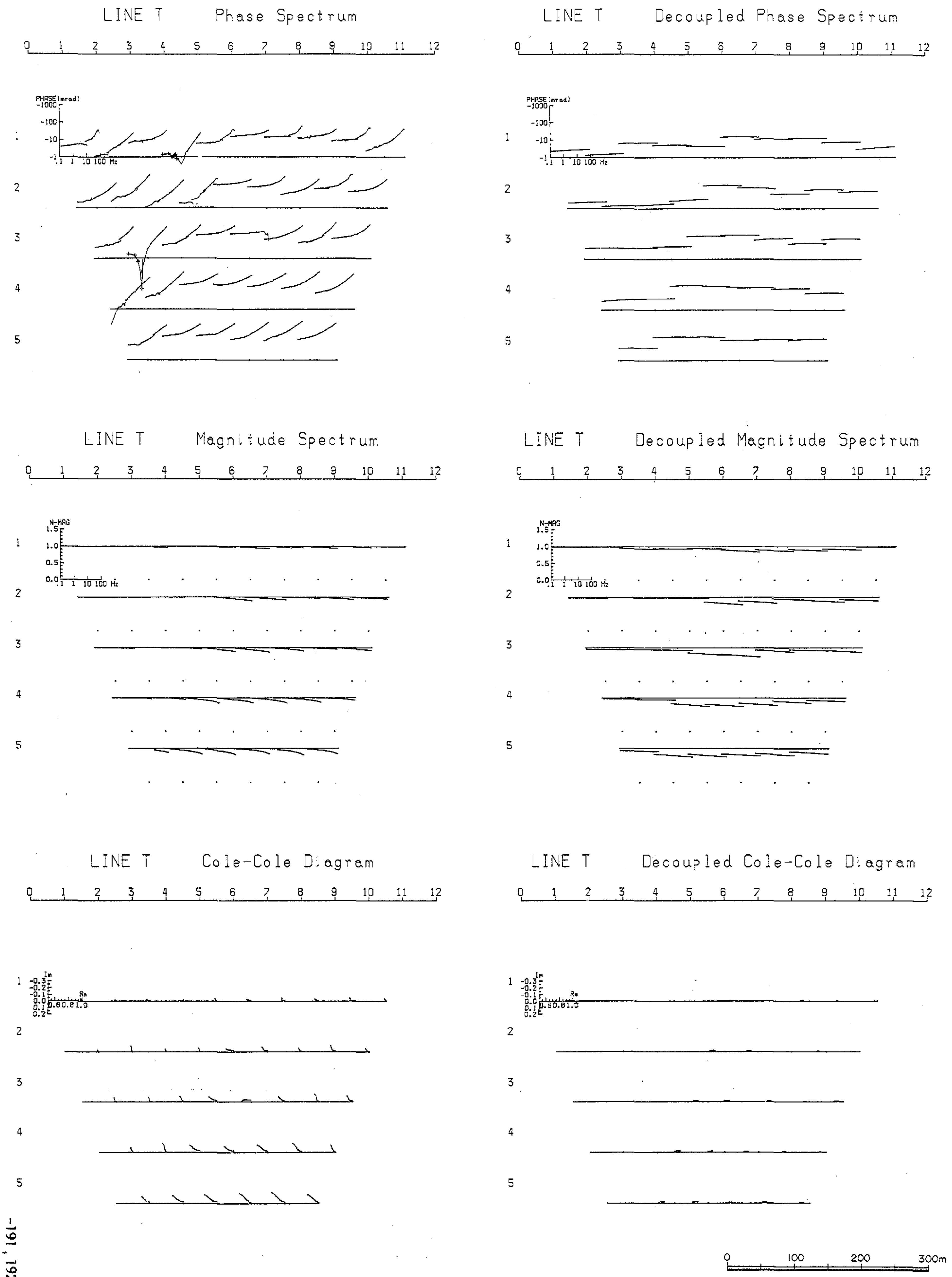
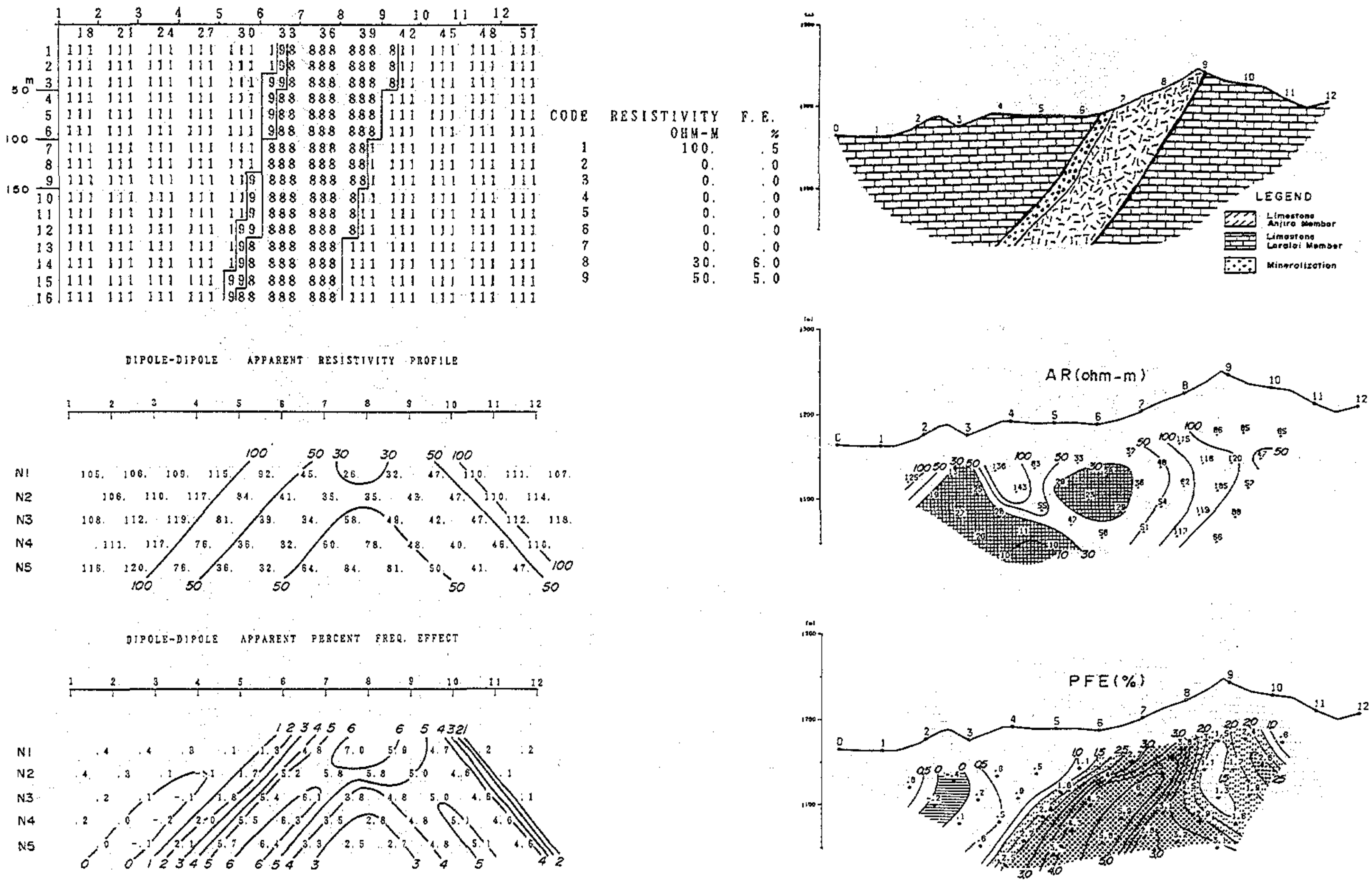
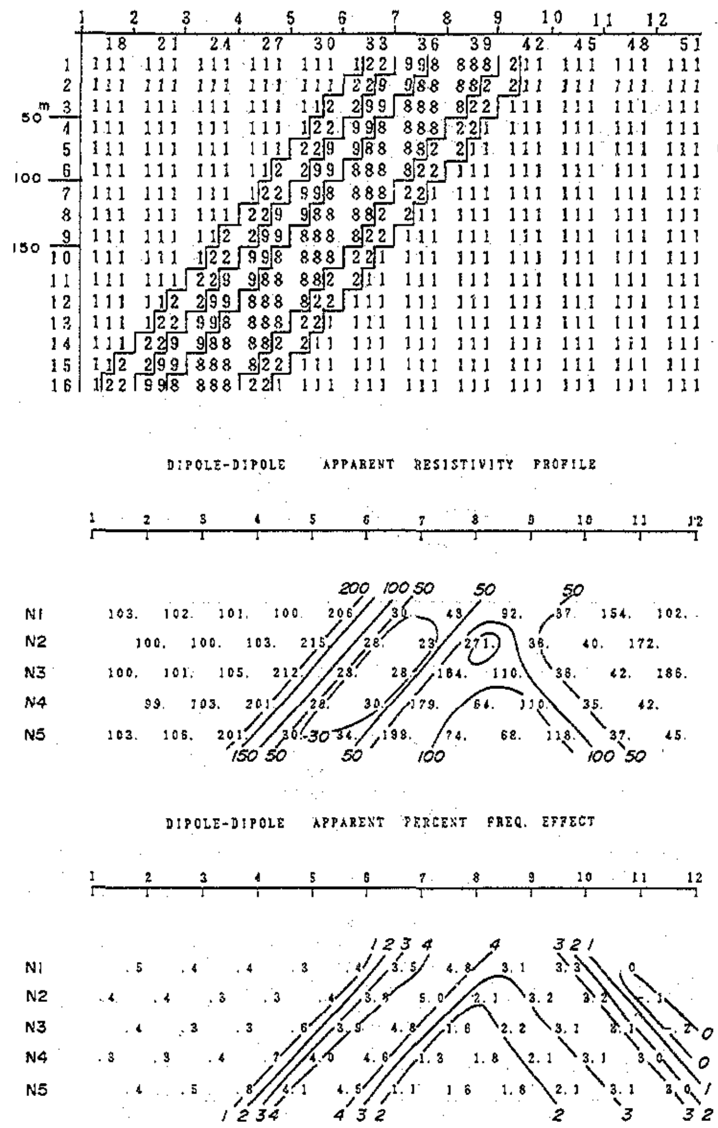


Fig. Ⅲ-3-53 Phase and Magnitude Spectrum, and Cole・Cole Diagram of Line T



CODE	RESISTIVITY OHM-M	F.E. %
1	100.	.5
2	0.	.0
3	0.	.0
4	0.	.0
5	0.	.0
6	0.	.0
7	0.	.0
8	30.	6.0
9	50.	5.0

Fig. Ⅲ-3-54 Result of Model Simuration (Line S)



CODE	RESISTIVITY OHM-M	F. E. %
1	100.	.5
2	500.	.3
3	0.	.0
4	0.	.0
5	0.	.0
6	0.	.0
7	0.	.0
8	30.	4.0
9	50.	3.0

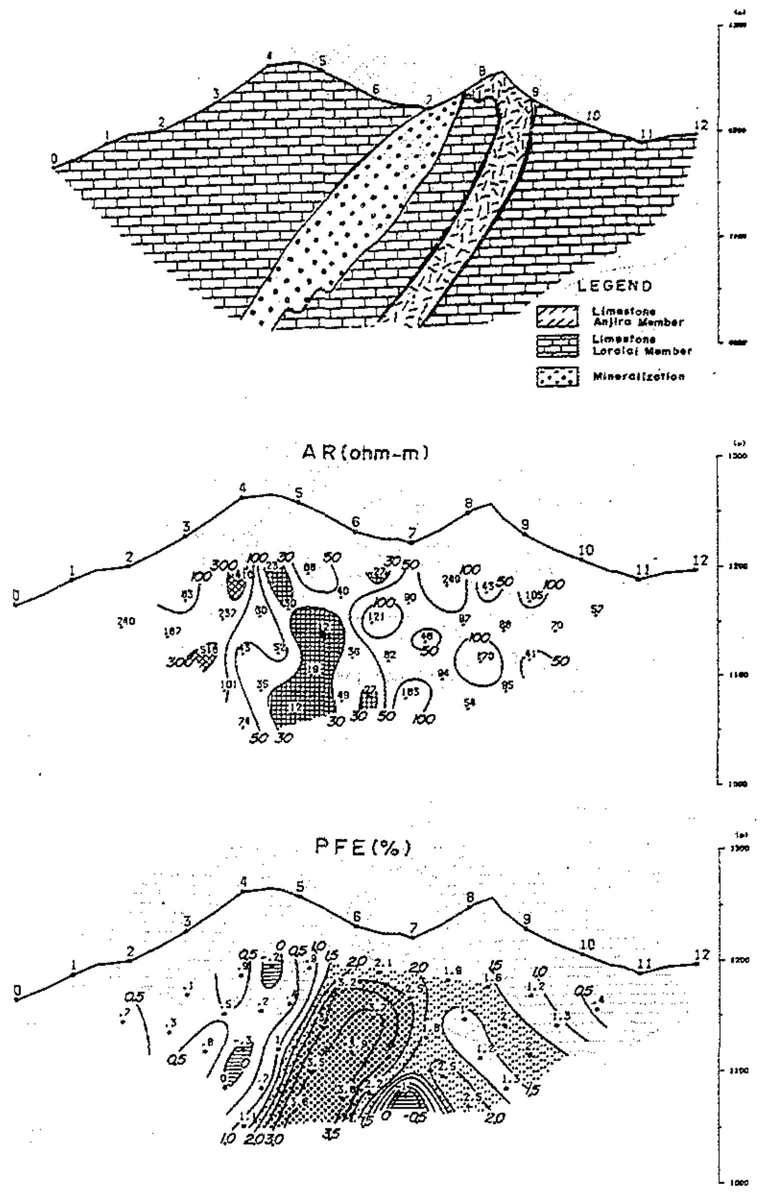


Fig. Ⅲ-3-55 Result of Model Simuration (Line T)

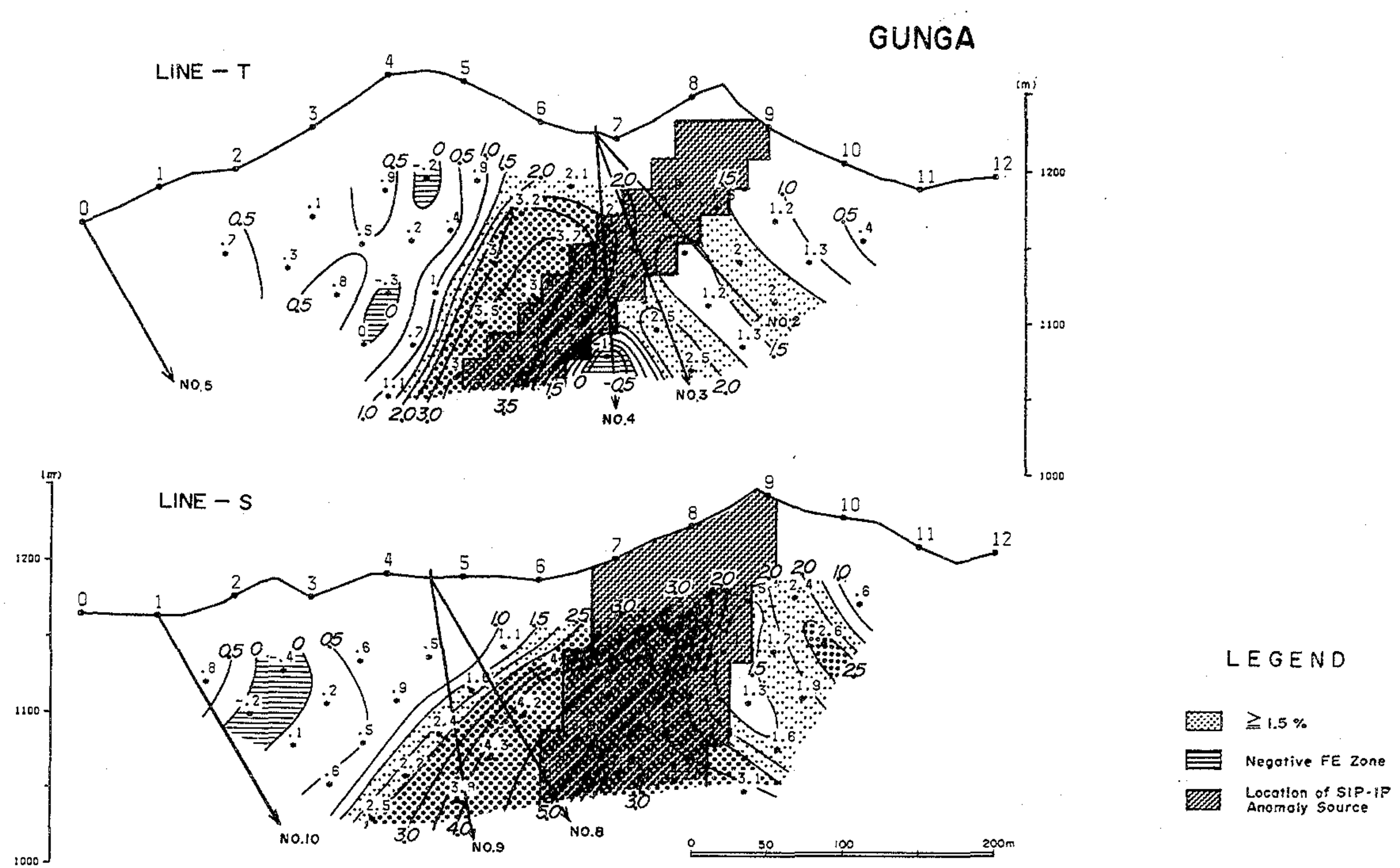


Fig. Ⅲ-3-56 Interpretation Map of Gunga Mine Area

Chapter 4 Integrated Consideration

4－1 Relationship between Geological Structure and Mineralization

As previously mentioned in this report, the geological structure trends north-south and forms the elevated hill in half the eastern area by anticlines and the subsidence by synclines in half the western area.
In between the areas, the fault zone extends north southerly. The mineral indications are arranged along the elevated hill and are divided into 2 types of mineralization, strata-bound deposits formed by replacement along beddings and vein type deposits implaced in faults and fractures. The former occurs at Surmai Ⅰ and Ⅲ mineral indications confined to Loralai Units Ⅱ and Ⅲ and is structurally concordant with host rocks. The latter, especially Surmai Ⅱ, occurs sporadically in the fault zone without any relationship to a special horizon.

4－2 Relationship between Anomalies in Geochemicl Survey and Mineralization.

The relationships between anomalies in the geochmical survey and locations of the distributed gossans are summarized as follows.

(1) The distribution of anomalies of Pb, Zn, and Hg are clearly identical with distribution of the gossans.

(2) The distribution of Ba and Mg content anomalies occur around gossans, with a small scale of gossans associated with faults and bedding, and in the faults trending north-south in the western portion of Surmai Ⅰ and Ⅲ.

(3) The sulpher content anomalies are distributed broadly and overlaps the distribution of other elements.

From these it may be inferred that the stage of mineralization of Pb-Zn-Hg is different from that of Ba and Mg, and the S mineralization stage overlaps the mineralization of other elements. The anomalies of Ba and S extending north-south on the area approximately 700～800m west of Surmai Ⅰ are presumed to be located in the same horizon as the southern extention of the Gunga mineral deposit.

4 − 3 Relationship between Anomalies of Geophysical Survey and Mineralization

Relationships between the mineralized zones and anomalies of IP and SIP delineated over the areas of Surmai and Gunga mine are summarized as follows.

(1) The test of applicability of the geophysical surveys on the area of the Gunga mine yields the pant-leg pattern of 3 to 6% PFE correlative with the ore deposits. The accompanying silicified zone has low resistivities ranging from 50 to 100 ohm-m.

(2) In the Surmai area, weak to strong PFE anomalies are delineated in the extension of gossans and originate from the primary zone assumed to be underneath the oxidized zone.
The lower portion of the Gunga mine grades 5 to 10% in total of lead and zinc. Simulation of the Gunga mine gives 3 to 6% PFE whereas the primary zone in the Surmai area is 15 to 20% PFE. Thus, an origin of anomaly which might have corresponding metal contents with those of the Gunga mine, can be expected under the Surmai Area.

(3) Weak anomalies are detected on the boundary of the Loralai Member and within Unit I of the Anjira Member. It is especially obvious in correlation with the geology of the areas of Surmai I and II. No sulphide minerals or graphite, which might yield a PFE anomaly, have been detected under the microscope and in the X-ray diffraction analysis of specimens collected from these horizons, and the anomalies are assumed to have originated from faults and fractures. The brecciated shale in Unit I of the Anjira Member might have an effect on the anomalies to a certain extent.

(4) The anomalies of PFE in the Surmai area have yet to be revealed by drilling, but the IP and SIP methods have delineated the ore body of the Gunga mine on the test of applicability in this field. Therefore, these methods are considered to be effective in exploration of the Mississippi Valley-type deposits in the area.

4－4 Forming Process of Ore Deposits

The lead-zinc-barite mineral deposits presumed to be Mississippi V alley－type mineral deposits in Pakistan occur in Jurassic carbonate rocks around an ophiolite zone extending approximately 200 km in distance from the western area of Karachi to the Khuzdar district(Fig.I-2-2). It is inferred that the genesis of ore is closely associated with ophiolite activities. The general characteristics of Mississippi Valley－type ore deposits are summarized as follows.

(1) They are strata-bound replacement deposits generally conformable with their carbonate host rocks of Palaeozic～Mesozoic age.

(2) They are epigenetic in origin in that it occurs as open-space fillings in solution collapsed breccia, shear zones, and fractures.

(3) No igneuos activities are related to ore genesis.

(4) Ore minerals consist mainly of galena and sphalerite, accompanied by a minor amount of chalcopyrite and pyrite.

(5) Fe content in sphalerite is low, and Au and Ag content in ore is low compared with those of other types of ore deposits.

(6) The study of fluid inclusions suggests that the ore minerals are precipitated at around 100°C from low temperature-brines rich in Na ～Ca chloride.

Considering all of the data, not only of geological and geochemical survey on Surmai and Malkhor～Sekran zone, but also the drilling data on the Gunga mine, these mineral indications are unquestionably Mississippi Valley-type mineralizations.

PART IV SUMMARY AND PROPOSITION

PART IV SUMMARY AND PROPOSITION

The survey has been conducted with the aim of unravelling promising areas of emplaced ore deposits by considering the integrated relationship between mineralization and geological structure of Mississippi Valley-type ore deosits embedded in Jurassic carbonate rocks that are distributed in the survey area, and the data from geochemical and geophysical surveys in the area.

The summary of survey results and the propositions for the second phase survey are as follows.

Chapter 1 Summary

1－1 Khuzdar district

(1) The District is underlain by Jurassic carbonate rocks of the Shirinab Formation which correlates to early Jurassic in age. It is divided into 3 Members in ascending order, the dominantly sandstone Spingwar, the mainly limestone Loralai, and the Anjira which is limestone intercalated with shale.

(2) The trend of the geological structure in the Shirinab Formation is N-S～NNW-SSE in the southern and eastern parts, and it progressively changes to E-W in the northern part, and then to NE-SW in the western part of the survey district. The stratified rocks are complexly folded with synclines and anticlines parallel in direction to the trend of the geological structure.

(3) The mineral indications of Gunga, Surmai Malkhor, Ranj Laki, East Sekran, and Sekran occur in a narrow zone extending approximately 25 km in length parallel to the trend of the geological structure. It is inferred that ore genesis is of Mississippi Vally-type and closely associated with ophiolite activities. Primary sulphide ores are anticipated to be embedded below the underground water table even though the mineral indications on the surface have been oxidized to gossans. Ore consists of lead, zinc, and barite in Gunga, and lead and zinc in other mineral indications.

(4) The mineralizations are devided into two types: strata-bound replacement deposits generally conformable with their carbonate host rocks

and vein type deposits filling the open spaces of faults and fractures. The mineral indications form the combination of 2 types of mineralization on the surface. The former occurs in the Anjira Member at Gunga and in the Loralai at other mineral indications. The latter occurs in the Shirinab Formation. Considering Pb and Zn in content and the scale of mineralization, the strate-bound deposits are more promising for development than the vein type deposits.

(5) Although 4 mineral indications occur in the Malkhor～Sekran zone and show a partly strong mineralization, details still remains unclear due to complicated geological structure.

(6) A rock geochemical survey revealed that Pb, Zn, and Hg mutually had a high correlation and formed anomalies on and near the gossans. Barium formed anomalies on non-mineralized rocks near gossans. The A rank anomalies defined by the combination of the anomalies of Pb, Zn, and Hg near Surmai and the Malkhor～ Sekran mineral indications area suggest that it appears to be promising not only for extention of the ore zone in the deep section, but also useful for selection of promising areas in the mineral indications.

1－2 Surmai Area

(1) The Surmai area is underlain by three Members of the Shirinab Formation in ascending order, the Spingwar, Loralai, and Anjira. The Loralai and Anjira are divided, respectively, into 4 Unit (Ⅰ～Ⅳ) and 3 Unit(Ⅰ～Ⅲ)

(2) These Jurassic beds strike N-S throughout most of the survey area and form the elevated anticlinal hill in half the eastern area and the synclinal subsidence in half the western area.

(3) The mineral indications, Surmai Ⅰ,Ⅱ and Ⅲ, distributed north-south and discontinuously, are each approximately 1 km in length along a N-S strike on the elevated zone. The occurences of the Surmai Ⅰ and Ⅲ mineral indications are confined mainly to Units Ⅱ and Ⅲ of the Loralai Member and show local high contents of zinc. On the other hand, mineral indications of Surmai Ⅱ lie sporadically and discontinuously in fault zones. Thus, it might be stated that it is of no value to further prospect Surmai Ⅱ. Therefore, it is suggested that the Surmai Ⅰ and Ⅲ

mineral indications are the most promising target areas for future prospecting of the deep part, especially at the main mineral indication of Surmai I and the northern part in the western mineral indication of Surmai III.

(4) The result of the rock geochemical survey shows the clear anomalies of Pb, Zn, and Hg on the gossans and their circumference area.

(5) The geophysical survey reveals that the promising I.P.and S.I.P anomalies that are likely due to sulphide ore have been obtained at 100 m～200 m below the gossans.

(6) Considering all the geological,geochemical,and geophysical data mentioned previously, the most promising target areas are as follows.

① The deep section below the main mineral indication of Surmai I

② The deep section below the northern part of the western mineral indication of Surmai III.

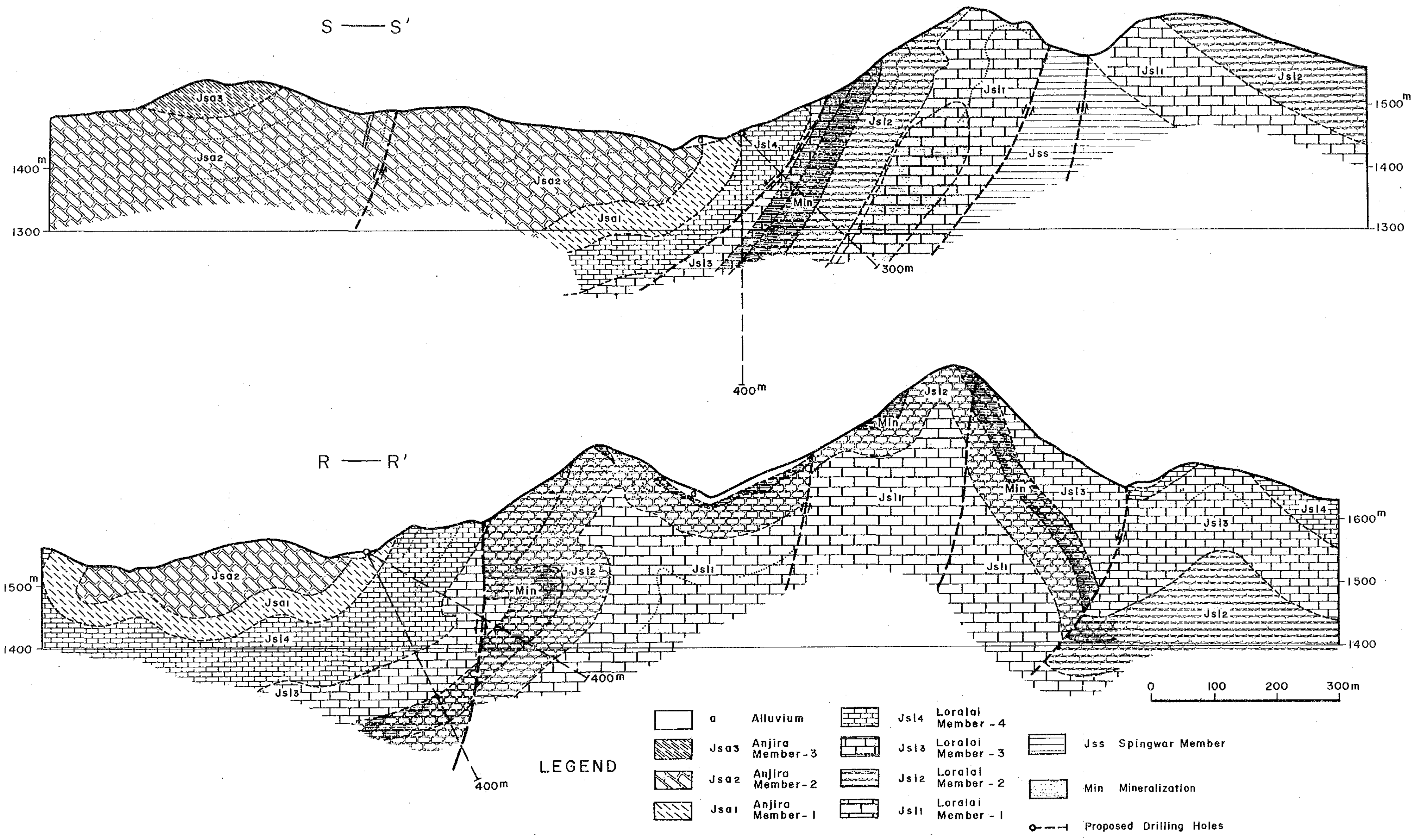


Fig. Ⅳ-1-1 Proposed Drillings in Cross-sections for the Second Phase Survey in the Surmai Area

Chapter 2. Propositions for the Second Phase Survey

2－1 Khuzdar district

(1) Geological survey and geochemical survey on Jurassic carbonate rocks in the area outside of the first phase area.

The first phase survey reveals that the geochemical survey is effective as an exploration tool for Mississippi Valley-type ore deposits.

The geochemical survey accompanied with the geological survey are recommendable for determining promising areas in the distribution area of Jurassic carbonate rocks around ophiolite zones outside the first phase area.

2－2 *Surmai Area*

(1) Drilling exploration for the deep section of Surmai I and III.

Considering all geological, geochemical and geophysical data as previously mentioned, the main mineral indication of Surmai I and the northern part of the western mineral indication of Surmai III are expected to extend to depth and also to change to sulphide ore below the underground water table.

Proposed drillings sites are shown on Fig III-1-2, and Fig III-1-3. Inferred geological cross sections and proposed drillings are shown on Fig IV-1-1.

References

[Geological & Geochemical Survey]

Asad, J. & Subhani, A. M., et al. (1986) : Zinc-lead prospect of Surmai-Garri, Khuzdar, Baluchistan. GSP.

Fatmi, A. N., et al. (1986) : Stratigraphy of "Zidi formation" (Ferozabad group) and "Parh group" (Mona Jhal group) Khuzdar district, Baluchistan, Pakistan. GSP.

Ahmed, W., et ai. (1983) : Brief report on evaluation of Gunga Pb-Zn-Ba deposit. PAK/79/016, Unpublished report. GSP.

Durrazai, M. I., et al. (1983) : Lead-zinc-barite deposit, Gunga district, Khuzdar, Baluchistan. GSP.

GSP. (1982) : Tectonic map of Pakistan. GSP.

GSP. (1979) : Geodynamics of Pakistan. GSP.

GSP. (1977) : Stratigraphy of Pakistan. GSP.

GSP. (1964) : Geological map of Pakistan. GSP.

United Nations (1984) : Strengthening the Geological Survey of Pakistan. United Nations.

Jankovic, S. (1984) : Preliminary evaluation of the lead-zinc-barite deposit at Gunga.

Jankovic, S. (1983) : Final Report on exploration & preliminary evaluation, lead-zinc-barite deposits, Lasbela-Khuzdar district, Baluchistan. United Nations.

Hunting Survey Co., Ltd. (1961) : Reconnaissance geology of part of west Pakistan (A Colombo plan co-operative project). Published for the government of Pakistan by the government of Canada.

Williams, M. D. (1959) : Stratigraphy of the Lower Indus Basin, West Pakistan. World Petroleum Cong., 5th, New York, Proc., sec. 1, Paper19, 377-390.

Vredenburg, E. W. (1909) : Report on the goelogy of Sarawan, Jhalwan, Makran and the State of Lasbela. Ibid., Recs., v. 38, pt. 3, 189-215.

Heyl, A. V. (1968) : The Upper Mississippi Valley Base-Metal District. Ore Deposits of the United States, 1933-1967. vol-1, 431-459. USGS.

Sinclair, A. J. (1974) : Selection of Threshold Values in Geochemical Data Using Probability Graphs. J. Geoch. Explor. 3, 129-149.

Lepeltier, C. (1969) : Simplified statistical treatment of geochemical data by graphical representation. Econ. Geol. 64, 538-550.

Govett, G. J. S. (1983) : Handbook of Exploration Geochemistry. Elsevier Scientific Publishing Company.

Rankama, K. K., and Sahama, T. G., (1950) : Geochemistry. Univ. ChicagoPress, 912p.

MMAJ. (1974~1977) : Report on The Overseas Geotectonic Survey (Central Iran). MMAJ. (in Japanese)

OTCA. (1971) : Report on The Plane of Mineral Resources Development in West Pakistan. OTCA. (in Japanese)

MMAJ. (1975) : Report on The Overseas Mining Circumstances. MMAJ. (in Japanese)

Nakajima, T. (1986~1987) : Himalayan Sea and Its Disappearance(1~3). Chisitu News. vol. 376, 387, 389. GSJ. (in Japanese)

Isihara, S. (1985) : Mississippi Vally Type Deposit in Tennessee State. Chisitu News, vol. 375, P6-19. GSJ. (in Japanese)

GSP : Geological Survey of Pakistan
USGS : United States Geological Survey
GSJ : Geological Survey of Japan
MMAJ : Metal Mining Agency of Japan
OTCA : Overseas Technical Cooperation Agency

【SIP Method】

Dey, A. and Morison, H. F. (1973) : Electromagnetic coupling in frequency and time-domain induced-polarization surveys over multilayered earth. Geophysics. Vol. 38, P. 380-405.

Hohmann, G. W. (1973) : Electromagnetic coupling between grounded wires at the surface of a two layered earth. Geophysics, Vol. 38, P. 854-863

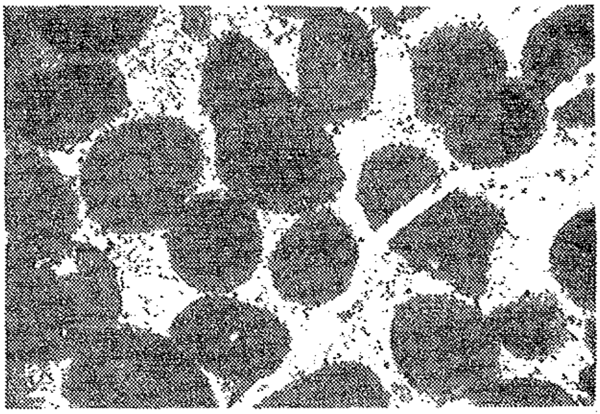
Pelton, W. H., Ward, S. H., Hallof, P. G., Sill, W. R., and Nelson, P. H. (1978) : Mineral discrimination and removal of inductive coupling with Multi-frequency IP. Geophysics, Vol. 43, P. 598-609

Hallof, P. G. and Pelton, W. H. (1980) : The removal of inductive coupling effects from spectral IP data. S. E. G. 50th Annual International Meeting in Houston

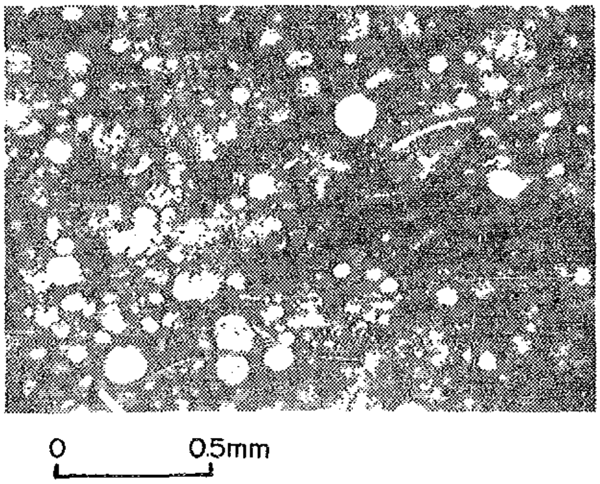
Hallof, P. G. and Klein, J. D. (1982) : Electrical parameters of volcanogenic mineral deposits. S. E. G. 52nd Annual International Meeting.

PHOTOGRAPHS

Sample No: D-1
Formation: Loralai-Ⅲ
Rock Sample: Limestone
Location: Surmai-Ⅱ～Ⅲ
Allochems: Bioclasts(Sparry Calcite)
Orthochems: Micrite

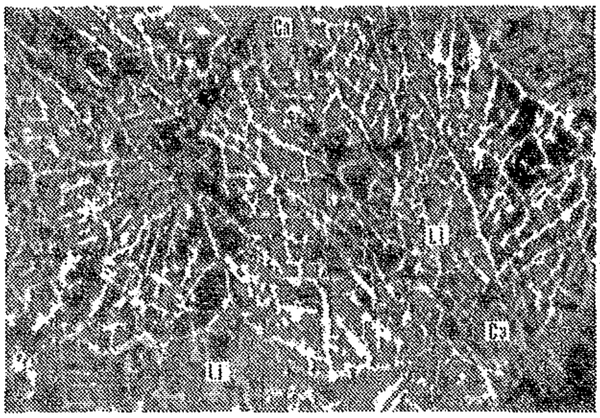


Sample No: D-60
Formation: Loralai-Ⅱ
Rock Sample: Limestone
Location: Surmai-Ⅲ
Allochems: Ooids
Orthochems: Sparite



Sample No: B-21
Formation: Anjira-Ⅱ
Rock Sample: Limestone
Location: Surmai-Ⅱ～Ⅲ
Allochems: Radiolaria(Quartz, Calcite)
Orthochems: Micrite, Limonite

Phot.1 Photomicrographs of Thin Sections



Sample No: E-26

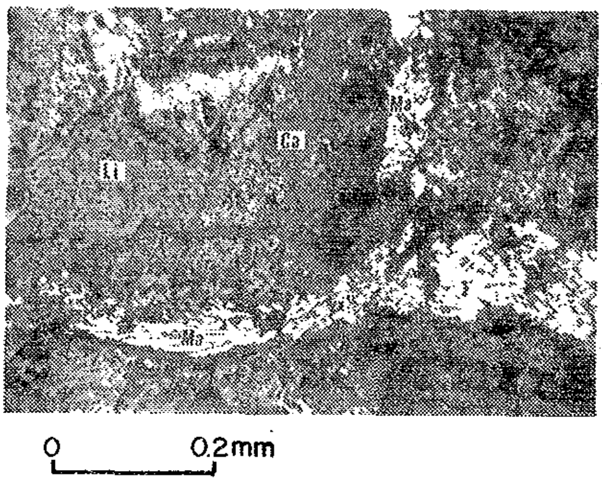
Formation: Loralai-I

Rock Name : Gossan

Location: Surmai-I

Li: Limonite

Ca: Carbonate (Gangue)



Sample No: C-20

Formation: Anjira-I

Rock Name : Gossan

Location: Surmai-II

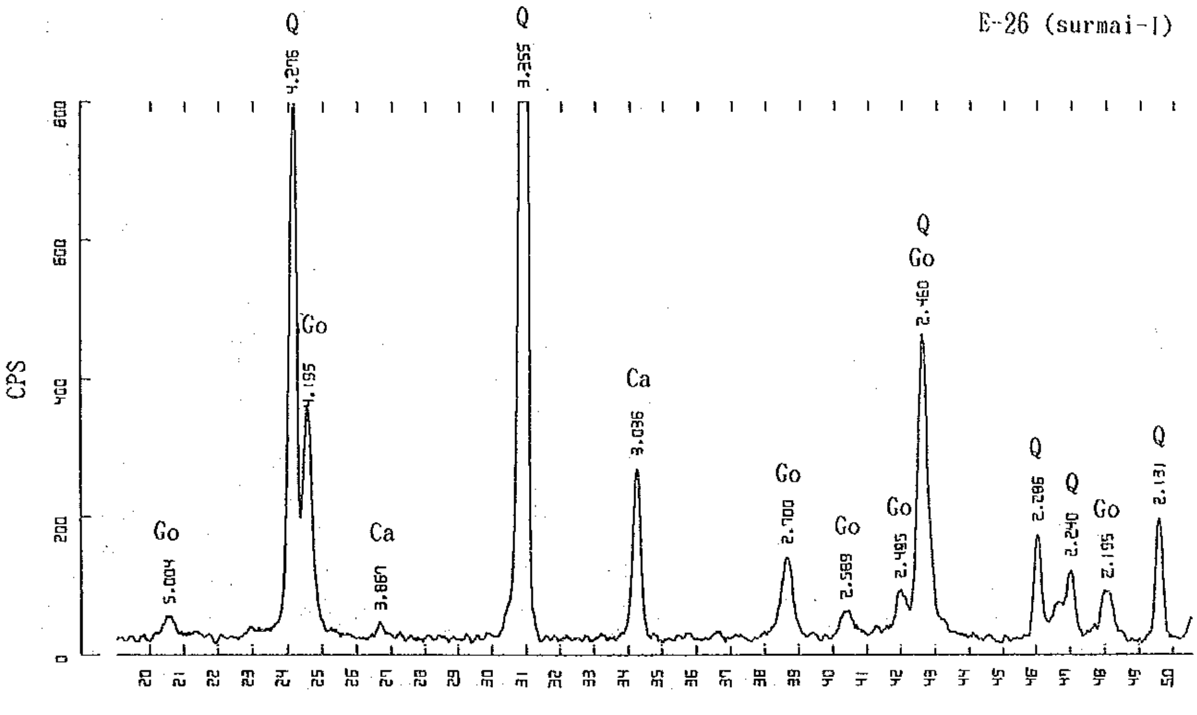
Ma: Marcasite

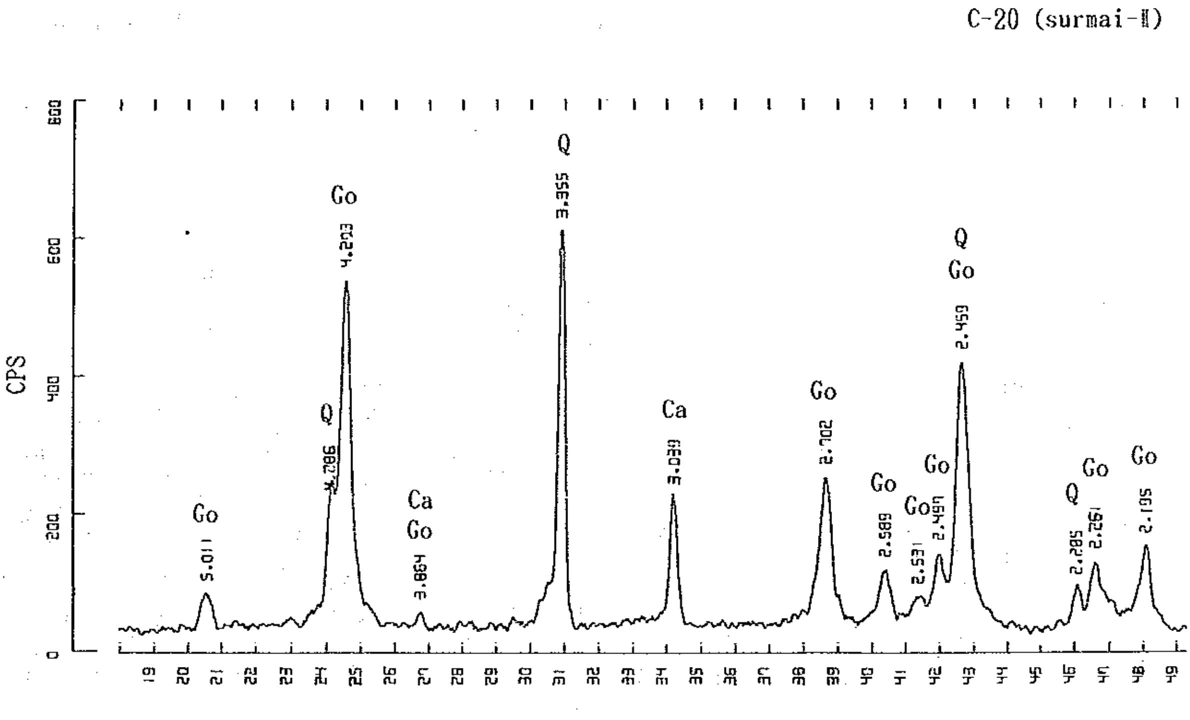
Li: Limonite

Ca: Carbonate(Gangue)

Phot.2 Photomicrographs of Polish Sections

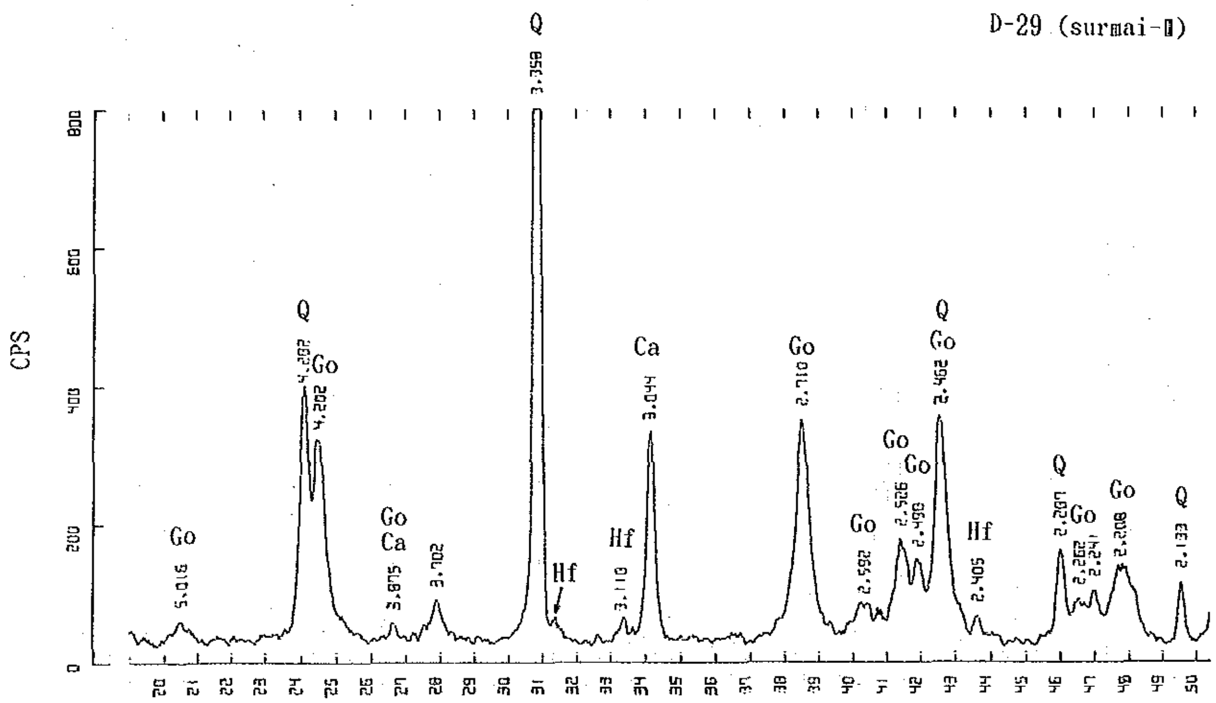
APPENDIX



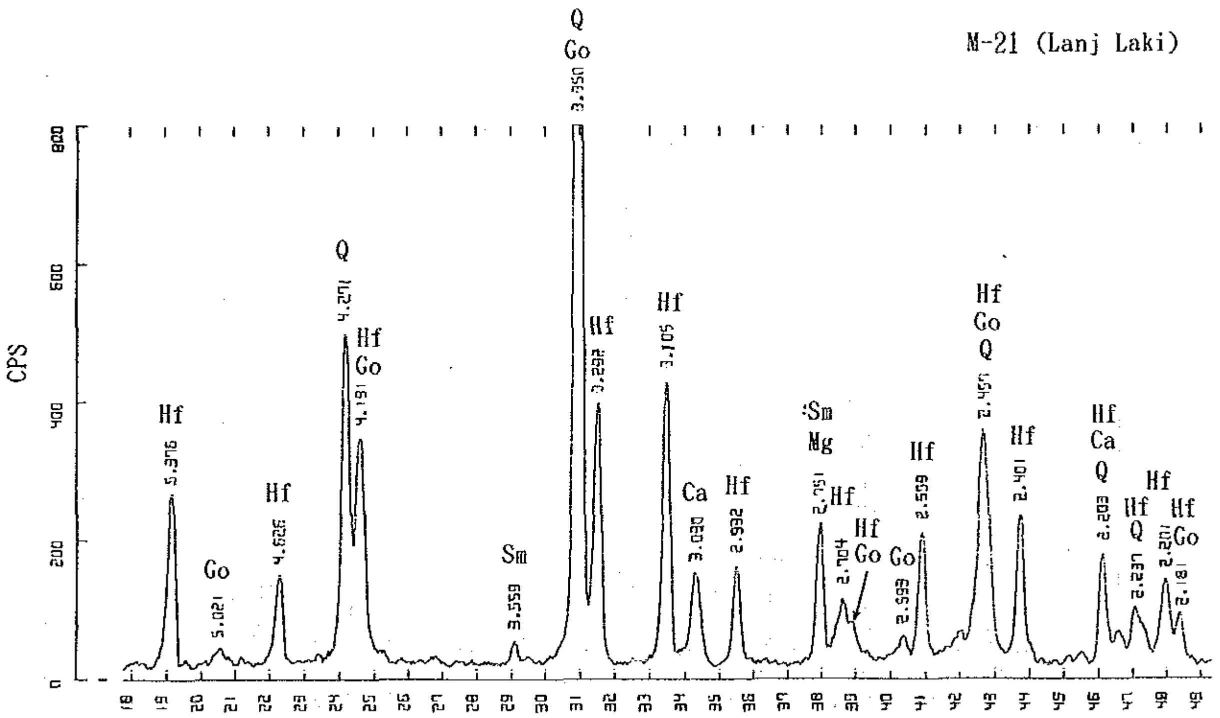


1 Chart of X-Ray Diffrection Analysis (1)

D-29 (surmai-Ⅱ)



M-21 (Lanj Laki)



1 Chart of X-Ray Diffrection Analysis (2)

Geochemical Analysis Data of Rock Samples from Khuzdar District (1)

Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %
A -29	1	33	10	210	2900	0.002
B -26	2	25	20	200	10000	0.004
F-1	3	18	50	160	1800	0.004
F-2	2	10	20	180	2800	0.008
F-3	25	255	80	180	1900	0.035
F-4	13	27	30	30	2150	0.011
F-5	50	22	30	110	1700	0.032
F-6	>10000	>10000	10000	60	1100	0.052
F-7	550	790	4000	110	1650	0.012
F-8	182	500	290	200	3150	0.012
F-9	26	66	100	180	2150	0.018
F-10	25	49	90	420	1800	0.010
F-11	16	24	50	140	4450	0.010
F-12	12	22	20	160	5000	0.025
F-13	4	35	20	120	34500	<0.001
F-14	5	20	20	140	7500	0.015
F-15	5	21	10	180	4250	0.030
F-16	7	34	50	160	2250	0.018
F-17	3	13	30	200	6500	0.006
F-18	2	11	10	160	3050	0.003
F-19	3	14	10	230	7500	0.013
F-20	2	13	10	160	3500	0.021
F-21	66	182	90	220	4000	0.017
F-22	4	13	30	700	4750	0.013
F-23	3	14	20	200	3550	0.012
F-24	3	11	10	240	3300	0.007
F-25	3	7	10	180	10500	0.007
F-26	2	13	60	180	2150	0.017
F-27	3	14	30	260	3950	0.007
F-28	2	10	20	140	2550	0.011
F-29	1	7	20	180	1200	0.003
F-30	3	9	30	160	2100	<0.001
F-31	2	14	20	160	2750	0.007
F-32	1	9	10	160	2800	<0.001
F-33	1	16	30	160	2050	0.038
F-34	1	17	80	220	15000	0.007
F-35	1	18	30	200	2500	0.014
F-36	25	69	40	180	3050	0.008
F-37	1	9	20	180	2250	0.016
F-38	1	10	20	190	3250	0.016
F-39	1	8	10	160	3000	<0.001
F-40	1	7	10	190	2900	0.009
F-41	1	8	20	180	3450	0.009
F-42	2	24	20	200	2900	0.008
F-43	1	9	20	200	3900	0.019
F-44	3	17	10	190	4500	<0.001
F-45	2	20	10	220	4050	0.016
F-46	2	20	10	220	3400	0.019
F-47	1	12	20	180	3000	0.029
F-48	1	31	10	300	3800	0.012
F-49	1	13	30	300	4850	0.007
F-50	1	12	20	220	4250	0.006
F-51	1	10	10	260	3850	0.006
F-52	1	9	10	250	2850	0.003
F-53	4	23	20	240	5000	0.007
F-55	1	10	20	200	3250	0.013
F-56	16	55	70	260	4600	0.004
F-57	1	15	20	160	3250	0.012
F-58	1	29	20	120	3950	0.008
F-59	1	9	10	200	3400	0.008
F-60	1	10	10	140	3550	0.008
F-61	1	9	80	200	2050	0.008
F-62	1	9	50	140	1900	0.003
F-63	3	13	20	80	3500	0.002
F-64	1	21	20	180	2550	0.001
F-65	6	19	70	220	4050	0.014
F-66	3	42	20	190	5250	0.001
F-67	5	29	20	740	13500	0.123
F-68	1	10	20	160	5000	0.003
F-69	4	8	10	380	1400	0.011
F-70	3	11	10	380	3350	0.007
F-71	1	26	40	160	80000	0.119
F-72	66	175	80	220	4000	0.010
F-73	2	8	30	200	7000	0.050
F-74	3	113	10	180	4200	0.004
F-75	3	9	20	180	9500	0.026
F-76	1	12	10	200	4300	0.012
F-77	1	10	10	160	2750	<0.001
F-78	4	25	10	220	4850	0.016
F-79	1	8	10	180	3050	0.007
F-80	2	19	50	540	4100	0.015
F-81	3	10	20	240	3300	0.013
F-82	4	18	60	180	4100	<0.001
F-83	1	7	80	220	1500	0.002
F-84	1	11	260	180	1250	<0.001
F-85	1	10	280	160	2500	<0.001
F-86	4	16	90	220	4850	0.011

Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %
F-87	4	11	30	180	3600	0.003
F-88	8	13	100	180	1500	0.004
F-89	10	22	100	220	10000	0.012
F-90	5	12	80	200	8000	0.004
F-91	1	11	50	220	4000	0.025
F-92	3	25	40	200	1850	0.002
F-93	6	10	30	160	3400	0.001
F-94	1	27	30	640	40000	0.031
F-95	3	13	70	140	1250	0.010
F-96	1	9	250	180	1750	0.005
F-97	1	12	120	140	9500	0.002
F-98	1	10	110	180	11500	0.006
F-99	1	6	230	170	1600	0.010
F-100	1	17	40	180	4400	0.011
F-101	1	6	30	200	5500	0.014
F-102	1	9	80	300	3200	0.006
F-103	1	8	20	220	3200	<0.001
F-104	1	15	20	200	4250	0.009
F-105	1	23	10	180	3050	0.006
F-106	1	17	10	180	3800	0.003
F-107	1	6	30	200	1750	0.010
F-108	1	12	10	180	3800	0.004
F-109	1	12	40	180	1900	0.003
F-110	5	22	30	440	19000	0.031
F-111	1	6	150	160	1400	<0.001
F-112	1	20	30	200	3750	0.002
F-113	1	17	30	180	5250	0.005
F-114	1	14	20	160	6000	0.006
F-115	1	10	10	140	4200	0.005
F-116	1	7	10	240	5000	0.002
F -117	1	10	10	140	3050	0.001
F -118	1	12	10	200	3050	0.002
F -119	1	12	140	180	1850	<0.001
F -120	1	9	30	220	9000	<0.001
F -121	1	24	30	220	4500	<0.001
F -122	1	4	110	180	2450	<0.001
F -123	1	3	40	200	1200	<0.001
F -124	1	5	140	180	1300	<0.001
F -125	1	22	20	180	2250	<0.001
F -126	2	10	40	160	4200	<0.001
F -127	1	45	60	240	2700	0.002
F -128	5	124	30	220	3150	<0.001
F -129	1	5	20	240	2250	0.007
F -130	5	54	20	170	2800	<0.001
F -131	1	14	20	160	2250	<0.001
F -132	1	20	20	200	2500	0.001
F -133	1	10	10	140	1550	<0.001
F -134	1	16	10	220	2350	<0.001
F -135	1	17	10	180	3250	0.002
F -136	1	6	10	140	1350	<0.001
F -137	1	7	10	180	2900	<0.001
F -138	1	61	10	180	1700	<0.001
F -139	1	6	10	140	2850	<0.001
F -140	1	2	10	140	1350	<0.001
F -141	1	7	10	180	1650	<0.001
F -142	1	14	10	150	2550	<0.001
F -143	1	7	10	140	3350	<0.001
F -144	1	17	10	160	10000	<0.001
F -145	1	7	20	180	4350	<0.001
F -146	1	4	30	180	3300	<0.001
F -147	1	35	10	160	1700	<0.001
F -148	1	20	20	360	3300	<0.001
F -149	1	7	30	200	2950	0.004
F -150	1	12	10	140	2456	0.002
F -151	1	45	60	1700	8000	0.037
F -152	1	15	60	300	2900	0.011
F -153	1	6	10	180	3650	0.003
F -154	1	3	20	200	1700	<0.001
F -155	1	22	10	160	3300	<0.001
F -156	1	5	10	200	2050	<0.001
F -157	1	15	10	120	3450	<0.001
F -158	1	48	80	2300	7500	0.024
F -159	1	12	10	120	1900	<0.001
F -160	1	6	30	120	1400	<0.001
F -161	2	9	10	300	4100	0.002
F -162	1	5	20	160	9500	<0.001
F -163	1	17	40	180	2200	<0.001
F -164	1	46	10	220	3850	<0.001
F -165	1	9	10	140	2750	<0.001
F -166	1	5	10	180	3400	<0.001
F -167	2	10	10	180	4350	0.003
F -168	1	9	10	220	3850	<0.001
F -169	1	13	30	180	8500	<0.001
F -170	2	17	30	170	10000	0.001
F -171	1	22	30	190	5500	<0.001
F -172	1	9	10	200	2850	<0.001
F -173	1	12	20	300	2250	<0.001

Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %
F -174	2	83	30	520	6000	0.005
F -175	1	13	30	300	6000	<0.001
F -176	2	7	10	200	4850	<0.001
F -177	1	6	10	240	5000	<0.001
F -178	1	7	10	200	1750	<0.001
F -179	1	1	10	160	3950	<0.001
F -180	4	124	10	200	3000	<0.001
F -181	1	9	10	180	4300	<0.001
F -182	1	11	20	260	3450	<0.001
F -183	4	63	160	820	3250	<0.001
F -184	1	41	30	180	5500	<0.001
F -185	2	58	30	360	10500	0.001
F -186	4	26	30	360	5500	<0.001
F -187	2	11	30	320	3200	<0.001
F -188	6	45	40	420	6000	<0.001
F -189	1	44	10	600	1900	0.003
F -190	12	20	140	280	1550	0.017
F -191	18	33	30	380	5500	0.003
F -192	1	66	30	440	3300	0.005
F -193	1	22	20	1300	3350	0.024
F -194	1	6	20	320	7000	0.001
F -195	1	8	10	180	5000	0.003
F -196	1	18	10	180	4500	0.003
F -197	1	5	10	180	3850	0.002
F -198	1	6	20	120	3200	<0.001
F -199	1	7	20	220	3100	<0.001
F -200	1	8	20	260	4450	<0.001
F -201	3	23	50	200	1300	<0.001
F -202	1	14	10	120	1250	<0.001
F -203	1	7	10	240	5000	<0.001
F -204	1	8	10	120	2850	<0.001
F -205	1	3	10	160	2100	<0.001
F -206	1	6	80	160	3700	<0.001
F -207	2	30	30	180	5500	<0.001
F -208	1	5	10	160	5250	<0.001
F -209	1	9	50	240	3800	<0.001
F -210	1	34	50	220	1460	<0.001
F -211	48	50	110	170	1650	<0.001
F -212	66	550	60	220	1250	<0.001
F -213	2	20	40	220	3750	<0.001
F -214	1	68	20	200	1800	<0.001
F -215	1	9	20	240	2850	<0.001
F -216	1	4	20	170	3400	<0.001
F -217	1	5	20	160	3250	0.003
F -218	1	3	20	220	3600	<0.001
F -219	4	21	10	200	23500	<0.001
F -220	1	11	10	100	90000	<0.001
F -221	1	5	10	180	3550	<0.001
F -222	1	9	10	200	3400	<0.001
F -223	7	44	20	280	6000	0.018
F -224	1	18	10	180	2050	<0.001
F -225	1	7	10	240	2250	<0.001
F -226	1	8	10	180	5500	<0.001
F -227	1	34	20	240	3450	<0.001
F -228	1	5	10	180	1950	<0.001
F -229	4	74	30	280	2250	0.002
F -230	1	17	20	220	3400	0.004
F -231	1	27	20	200	1800	<0.001
F -232	1	19	40	200	2600	<0.001
F -233	1	17	40	220	3100	0.039
F -234	1	10	20	200	2750	0.008
F -235	1	17	70	500	2500	0.006
F -236	78	25	60	180	3000	0.009
F -237	1	10	20	360	2700	<0.001
F -238	1	9	30	180	2450	0.025
F -239	1	14	30	1000	3900	0.013
F -240	3	38	20	200	3450	0.005
F -241	1	13	20	200	27000	0.002
F -242	1	19	20	1960	3850	0.035
F -243	1	15	20	160	4200	0.006
F -244	10	71	170	340	19500	0.011
F -245	1	36	30	220	7000	0.008
G - 1	1	11	20	320	3700	0.011
G - 2	1	10	10	260	4700	0.004
G - 3	4	18	10	800	4550	0.015
G - 4	1	11	10	220	5000	0.009
G - 5	1	8	10	220	1500	0.002
G - 6	1	18	10	460	42500	0.014
G - 7	2	8	10	140	1550	0.006
G - 8	2	9	10	600	3150	0.008
G - 9	18	17	40	340	1300	0.009
G -10	2	32	130	440	3200	0.010
G -11	4	15	20	280	3500	0.004
G -12	1	13	20	320	7000	0.004
G -13	2	9	20	200	1250	0.001
G -14	1	61	10	180	4400	<0.001
G -15	1	26	40	140	2200	0.002
G -16	1	5	10	300	4150	0.004
G -17	1	10	10	280	4450	0.015
G -18	950	5500	130	160	3750	0.008
G -19	1	33	30	220	3350	0.014
G -20	1	20	60	280	4600	0.014
G -21	1	30	30	180	1600	0.001
G -22	1	11	20	190	3400	0.006
G -23	1	10	50	160	3400	0.008
G -24	1	17	50	220	6000	0.004
G -25	2	58	50	240	1400	0.002
G -26	2	29	70	160	2500	0.006
G -27	3	148	250	140	2350	<0.001
G -28	1	67	70	200	3900	<0.001
G -29	1	5	50	140	2350	<0.001
G -30	1	27	100	200	2900	0.001
G -31	1	86	10	180	1400	<0.001
G -32	1	11	10	140	4350	0.008
G -33	1	60	50	180	1600	<0.001
G -34	1	72	10	200	4500	<0.001
G -35	1	25	30	210	1450	<0.001
G -36	10	19	150	160	1700	0.002
G -37	1	25	20	140	3900	0.005
G -38	1	8	30	180	2400	<0.001
G -40	1	7	10	160	3250	0.005
G -41	1	14	20	160	6000	0.007
G -42	1	13	10	180	7000	0.008
G -43	1	5	10	100	1400	0.002
G -44	1	3	10	140	1450	0.002
G -45	1	5	20	140	1250	0.001
G-46	1	13	10	200	1950	0.002
G-47	1	9	30	200	2200	0.002
G-48	1	9	150	180	2900	0.006
G-49	1	8	260	160	1650	0.008
G-50	1	13	20	200	1850	0.003
G-51	1	26	50	220	5500	<0.001
G-52	1	7	10	160	5500	0.005
G-53	3	31	30	400	7000	0.009
G-54	1	16	20	180	4400	0.011
G-55	1	12	20	200	3100	0.008
G-56	13	71	120	240	1600	0.005
G-57	1	5	30	140	850	<0.001
G-58	183	480	130	300	1400	0.004
G-59	1	10	20	200	1200	<0.001
G-60	2	42	70	200	1950	0.001
G-61	1	14	100	280	2400	0.014
G-62	1	8	40	200	4200	0.013
G-63	2	10	10	220	4900	<0.001
G-64	8	77	60	260	1100	<0.001
G-65	1	12	10	200	2500	0.001
G-66	1	11	10	180	3000	0.004
G-67	1	12	20	200	2850	0.008
G-68	1	11	40	160	2350	0.005
G-69	6	27	20	240	1400	<0.001
G-71	1	17	20	200	1650	<0.001
G-72	3	12	10	140	1700	0.002
G-73	2	3340	300	220	1500	<0.001
G-74	1	12	20	200	8000	0.014
G-75	5	11	20	140	3650	<0.001
G-76	1	38	20	180	8500	0.007
G-77	1	14	20	240	9500	0.010
G-78	1	9	20	220	1600	<0.001
G-79	1	21	20	180	3000	0.005
G-80	1	63	10	180	2450	0.003
G-81	1	13	20	160	1450	<0.001
G-82	1	11	20	220	1250	<0.001
G-83	1	7	10	160	1750	<0.001
G-85	1	9	10	140	1500	<0.001
G-86	1	17	10	130	1150	0.008
G-87	1	18	40	240	3800	0.014
G-88	1	8	10	160	23000	<0.001
G-89	1	7	10	160	2550	0.005
G-90	3	12	10	180	3300	0.013
G-91	10	17	20	380	3600	0.037
G-92	6	9	10	280	3850	0.019
G-93	1	11	10	200	3100	0.011
G-94	1	8	10	180	8500	0.004
G-95	1	11	10	240	4150	0.013
G-96	1	12	10	480	3400	0.013
G-97	4	22	30	720	5000	0.007
G-98	1	56	20	180	2700	0.008
G-99	1	8	10	320	2900	0.007
G-100	1	13	10	220	4400	0.008
G-101	1	8	10	240	2850	0.007
G-102	1	10	10	280	3700	0.019
G-103	4	20	20	180	1350	0.003
G-104	1	10	10	460	3500	0.009
G-105	1	9	10	260	3100	0.002

Geochemical Analysis Data of Rock Samples from Khuzdar District (3)

Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %
G-106	1	13	10	180	4300	0.025
G-107	5	19	20	240	4750	0.015
G-108	1	11	40	280	3650	0.008
G-109	2	26	30	220	7000	0.002
G-110	1	115	20	480	5500	0.012
G-111	1	19	20	320	4500	0.009
G-112	1	9	20	190	5250	0.020
G-113	1	22	10	240	1750	<0.001
G-114	1	10	10	160	3050	0.006
G-115	1	32	20	220	5000	0.009
G-116	1	13	10	180	3900	0.009
G-117	1	9	30	180	2050	0.003
G-118	1	14	20	220	4700	0.004
G-119	1	11	20	180	3100	0.007
G-120	1	9	10	180	2900	0.005
G-121	1	10	200	200	2200	<0.001
G-122	1	37	90	700	5500	0.007
G-123	2	29	40	180	6250	<0.001
G-124	1	11	230	1560	2800	0.026
G-126	1	7	290	190	3700	0.005
G-130	1	8	350	220	1300	0.002
G-131	1	8	490	180	1950	0.013
G-132	5	39	50	160	28000	0.033
G-133	3	12	210	170	11000	0.017
G-134	1	12	370	190	13500	0.007
G-135	7	13	50	1400	5250	0.022
G-136	1	8	140	180	1650	<0.001
G-137	1	14	80	190	3700	0.005
G-138	1	8	130	260	1950	0.001
G-139	1	24	130	190	2050	0.007
G-140	1	20	270	220	2850	0.006
G-141	2	15	110	240	2400	0.009
G-142	1	10	30	220	3350	0.005
G-143	1	16	30	480	3550	0.021
G-144	1	13	20	540	2700	0.013
G-145	1	10	10	280	3750	0.004
G-146	1	12	20	300	3600	0.004
G-147	1	10	10	360	2850	0.004
G-148	1	12	10	240	3200	<0.001
G-149	1	14	40	140	3900	<0.001
G-150	2	24	20	320	5500	0.016
G-151	1	14	30	180	3050	0.004
G-152	1	12	10	120	5000	<0.001
G-153	1	9	70	130	2500	<0.001
G-154	1	7	20	160	1700	<0.001
G-155	1	13	200	120	1850	<0.001
G-157	1	8	50	140	3000	<0.001
G-158	5	1	100	200	1100	<0.001
G-159	1	4	130	240	2300	<0.001
G-160	3	1	30	60	800	<0.001
G-161	1	18	70	280	23500	<0.001
G-162	1	4	50	60	1200	<0.001
G-163	2	17	160	80	30000	<0.001
G-164	1	7	100	140	8500	<0.001
G-166	1	6	110	200	1750	0.005
G-167	1	24	30	160	5000	0.003
G-168	1	70	70	320	6500	0.006
G-169	1	11	30	240	2500	0.008
G-170	1	14	200	380	3200	0.011
G-171	1	22	30	200	2500	0.007
G-172	1	11	160	160	3100	0.020
G-173	1	7	210	140	2700	0.013
G-174	1	9	220	160	2550	0.007
G-175	1	13	130	120	2300	0.007
G-176	1	6	50	200	1800	0.008
G-177	1	8	70	100	2350	0.005
G-178	1	9	30	160	2300	0.007
G-179	1	10	30	160	3100	0.009
G-180	1	5	70	180	2300	0.003
G-181	1	9	60	160	2800	0.023
G-182	1	11	100	180	2750	<0.001
G-183	1	10	80	160	2850	0.009
G-184	4	30	360	280	2550	0.006
G-185	1	27	190	280	2350	0.002
G-186	2	9	50	400	3600	0.006
G-187	14	18	30	240	4650	0.004
G-188	1	24	30	340	5500	0.006
G-189	1	6	10	180	3300	0.004
G-190	2	34	70	1500	8000	0.020
G-191	8	56	20	240	5500	0.011
G-192	1	21	20	700	4400	0.012
G-193	2	46	20	600	8500	0.008
G-194	1	65	20	420	8000	0.007
G-195	2	77	210	1220	10500	0.020
G-196	1	14	30	440	5000	0.008
G-197	1	9	30	230	3700	0.007
G-198	7	31	50	580	7000	0.043
G-199	3	26	50	1320	3460	0.038
G-200	1	81	40	300	7500	0.008
G-201	1	20	40	200	3050	0.004
G-202	1	4	20	220	3900	0.005
G-203	1	8	10	180	3050	0.002
G-204	1	8	20	120	3600	0.005
G-205	1	18	30	230	3350	0.008
G-206	1	33	10	200	4300	0.009
G-207	1	8	10	200	2350	0.005
G-208	1	8	80	220	1300	0.001
G-209	1	7	90	180	1700	<0.001
G-210	1	9	40	190	5000	0.003
G-211	1	13	40	200	5000	0.002
G-212	1	8	10	200	3450	0.005
G-213	1	5	160	160	3500	0.001
G-214	1	9	30	190	1450	<0.001
G-215	1	2	60	170	1500	0.001
G-216	1	1	60	200	1750	<0.001
G-217	1	6	30	130	1900	0.001
G-218	1	26	20	170	2250	<0.001
G-219	1	1	180	180	1200	<0.001
G-220	1	3	180	200	1000	<0.001
G-221	1	6	290	180	1250	<0.001
G-222	1	5	60	180	1500	<0.001
G-223	1	6	30	180	2950	<0.001
G-224	1	11	100	200	2250	0.001
G-225	2	2	20	220	2000	<0.001
G-226	1	16	40	260	5250	0.016
G-227	2	7	30	220	2500	0.003
G-228	3	4	10	100	1500	0.002
G-229	1	10	10	140	1800	<0.001
G-230	4	36	10	250	2000	<0.001
G-231	1	6	10	210	3500	0.006
G-232	1	18	10	140	3700	0.005
G-233	1	20	80	160	2350	0.009
G-234	2	5	10	360	2250	0.004
G-235	1	9	10	190	1600	<0.001
G-236	1	5	10	140	1800	0.002
G-237	1	3	10	140	2700	<0.001
G-238	1	9	10	220	4450	<0.001
G-239	1	10	20	220	1750	<0.001
G-240	1	19	30	180	1350	<0.001
G-241	1	9	30	300	1850	0.016
G-242	1	30	20	240	5500	0.005
G-243	1	29	30	340	2150	0.004
G-244	1	10	10	140	4900	0.001
G-245	1	10	10	140	2900	<0.001
G-246	2	27	30	200	3500	0.012
G-247	1	2	10	120	2250	0.002
G-248	3	17	10	280	4800	0.011
G-249	1	10	10	100	3850	0.004
G-250	1	11	10	120	4300	0.007
G-251	1	4	10	160	2600	0.001
G-252	1	6	10	140	1600	<0.001
G-253	1	19	10	180	2900	<0.001
G-254	1	17	20	160	5500	0.003
G-255	1	3	10	100	2550	<0.001
G-256	1	10	10	140	2500	<0.001
G-257	1	14	10	180	3750	0.002
G-258	1	11	10	160	3000	0.006
G-259	1	9	10	120	4400	0.004
G-260	1	13	10	220	3600	0.005
G-261	1	5	10	160	2300	0.001
G-262	1	11	10	100	7500	<0.001
G-263	1	6	20	140	2850	0.002
G-264	1	11	10	100	2650	<0.001
G-265	1	14	50	160	11000	0.002
G-266	1	15	10	220	3300	0.004
G-267	18	85	10	180	5000	0.013
G-268	1	6	10	100	1750	<0.001
G-269	1	41	50	160	3150	<0.001
G-270	1	11	10	120	4650	0.036
G-271	1	10	10	210	3550	0.003
G-272	1	4	10	160	3250	<0.001
G-273	1	8	30	240	8500	0.005
G-274	1	7	20	200	3850	0.002
G-275	1	18	10	200	5500	0.012
G-276	1	11	40	160	13000	0.003
G-277	2	3	10	120	3400	0.004
G-278	1	9	10	190	4200	0.002
G-279	1	15	20	240	6000	0.003
G-280	1	10	10	130	5500	0.140
G-281	4	31	20	200	4500	0.005
G-282	1	8	10	170	4050	0.010
G-283	1	4	10	160	2700	0.002
G-284	1	9	10	140	3400	0.006
G-285	1	16	10	110	2500	<0.001

Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %	Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %
G-286	3	29	20	180	5500	0.013	G-373	6	22	10	200	4550	<0.001
G-287	8	21	30	320	5500	<0.001	G-374	2	6	10	200	4400	0.005
G-288	2	37	20	200	6500	0.002	G-375	1	22	10	180	4450	<0.001
G-289	1	12	10	180	3100	0.002	G-376	2	10	10	210	8000	0.001
G-290	1	13	20	420	3350	0.005	G-377	1	15	20	210	3050	0.008
G-291	1	16	10	180	3150	0.004	G-378	4	9	20	440	1250	0.002
G-292	1	11	20	220	5500	0.028	G-379	4	3	20	280	500	0.008
G-293	1	13	20	680	3400	0.010	G-380	1	4	10	280	1500	<0.001
G-294	12	37	80	1180	10000	0.016	G-381	1	71	20	380	5000	0.001
G-295	2	58	50	280	3300	0.017	G-382	1	36	10	200	6000	0.014
G-296	1	85	40	380	13500	0.004	G-383	1	13	10	200	2250	0.003
G-297	1	26	40	600	2250	0.011	G-384	4	31	20	240	6000	0.002
G-298	1	21	20	500	4150	0.014	G-385	1	7	100	240	2550	0.003
G-299	1	24	20	300	3200	0.007	G-386	1	11	40	440	6500	0.157
G-300	10	51	40	280	13500	0.033	G-387	1	18	30	380	7000	<0.001
G-301	1	15	30	200	4850	0.023	G-388	2	30	20	280	3700	0.003
G-302	92	60	90	580	15500	0.130	G-389	2	15	30	220	8000	0.030
G-303	4	21	20	160	6000	0.013	G-390	180	1580	140	160	9000	0.023
G-304	1	16	40	200	4600	0.028	G-391	3	14	70	240	3300	0.020
G-305	1	7	10	300	4400	0.027	G-392	1	18	40	420	3550	0.019
G-306	52	91	80	340	20000	0.177	G-393	1	17	30	1600	3250	0.048
G-307	1	9	10	220	4000	0.007	G-394	3	13	60	200	4800	0.004
G-308	5	8	20	1000	4350	0.021	G-395	1	26	20	980	3500	0.031
G-309	1	24	10	240	5000	0.006	G-396	6	17	20	2400	1600	0.072
G-310	1	20	10	180	5250	0.008	G-397	1	9	20	220	3050	<0.001
G-311	2	38	50	240	6000	0.004	G-398	1	13	40	280	5250	0.017
G-312	1	7	10	180	4550	0.005	G-399	2	12	20	1420	1450	0.025
G-313	3	57	50	120	10500	<0.001	G-400	1	274	30	240	3600	0.002
G-314	1	63	20	200	9000	0.004	G-401	8	51	20	1900	1900	0.030
G-315	1	16	40	180	4050	0.008	G-402	11	19	10	680	12500	0.009
G-316	44	6	20	160	3700	0.003	G-403	4	7	10	420	2400	0.003
G-317	1	7	20	160	3250	0.001	G-404	4	15	10	540	12000	0.026
G-318	1	14	10	180	3650	0.003	G-405	2	6	10	280	800	0.001
G-319	1	9	20	240	20000	0.009	G-406	10	19	10	240	22000	0.002
G-320	1	18	10	180	4450	0.016	G-407	2	30	10	260	2150	0.002
G-321	1	17	20	170	1550	<0.001	G-408	1	11	20	250	20000	0.006
G-322	1	10	10	160	3400	<0.001	G-409	1	12	20	220	1700	0.001
G-323	1	9	10	220	3350	0.005	G-410	1	8	20	300	3350	0.004
G-324	1	36	50	280	2350	0.011	G-411	1	69	20	280	1450	<0.001
G-325	1	7	10	160	17000	<0.001	G-500	2	5	10	320	10000	0.003
G-326	2	18	30	200	4550	<0.001	G-501	1	18	10	240	5000	0.013
G-327	1	7	10	180	7500	0.002	G-502	1	4	20	220	11000	<0.001
G-328	6	26	10	240	3950	0.010	G-503	1	4	20	220	3800	<0.001
G-329	1	20	30	480	2550	0.004	G-504	1	9	40	240	2950	0.002
G-330	2	56	30	640	3300	0.001	G-505	1	7	20	180	2800	0.008
G-331	1	10	10	200	4700	0.001	G-506	4	23	30	220	22000	0.023
G-332	1	16	20	160	5500	0.004	G-507	1	25	30	360	7500	0.008
G-333	1	11	10	820	3400	<0.001	G-508	1	37	40	240	3300	0.003
G-334	3	36	10	200	4500	<0.001	G-509	2	36	90	220	2400	0.004
G-335	1	21	10	120	3500	0.001	G-510	1	18	20	200	50000	<0.001
G-336	1	2	10	160	4500	<0.001	G-511	1	4	20	250	3550	0.008
G-337	1	6	30	130	3850	0.002	G-512	1	3	10	220	3350	0.002
G-338	1	7	30	180	3600	0.002	G-513	1	25	10	240	10000	<0.001
G-339	1	14	30	240	5000	0.003	G-514	2	5	10	220	1650	0.003
G-340	2	11	20	40	450	0.002	G-515	1	11	10	280	2550	0.001
G-341	1	15	10	520	3900	0.019	G-516	1	5	10	240	1650	<0.001
G-342	8	9	10	40	3100	0.001	G-517	1	30	10	320	2250	0.005
G-343	8	62	60	100	6500	0.005	G-518	1	6	10	320	2050	0.003
G-344	2	14	10	100	24000	<0.001	G-519	1	4	10	220	1850	0.004
G-345	1	5	10	300	7000	<0.001	G-520	5	7	20	380	1400	<0.001
G-346	3	8	10	180	4800	<0.001	G-521	3	8	10	340	1450	0.002
G-347	3	14	30	220	23500	<0.001	G-522	1	13	20	820	14000	0.004
G-348	1	15	10	180	3300	<0.001	G-523	1	14	30	360	20500	0.011
G-349	1	8	10	220	2650	<0.001	G-524	1	13	30	380	12000	0.002
G-350	30	51	70	160	1050	0.002	G-525	1	5	10	220	3150	<0.001
G-351	1	10	10	180	3000	<0.001	G-526	1	12	10	320	2350	0.044
G-352	8	27	10	240	5000	<0.001	G-527	1	33	20	320	2700	0.014
G-353	2	12	10	900	5000	0.046	G-528	1	9	100	240	1950	0.003
G-354	2	11	10	80	2300	<0.001	G-529	1	6	30	220	2050	0.003
G-355	1	36	10	240	13500	0.001	G-530	1	4	90	280	6000	<0.001
G-356	2	117	60	360	4000	0.003	G-531	1	5	20	220	3200	<0.001
G-357	1	1	30	160	1700	<0.001	G-532	2	6	40	240	3150	0.005
G-358	1	6	10	500	3850	0.002	G-533	1	16	20	120	1950	0.003
G-359	8	22	50	2700	6000	0.055	G-534	1	30	140	180	2550	0.016
G-360	1	12	30	220	7000	0.001	G-535	1	12	30	220	10500	0.002
G-361	1	9	20	240	4550	<0.001	G-536	1	6	20	880	2050	0.008
G-362	1	9	10	220	950	<0.001	G-537	1	4	10	180	1850	0.002
G-363	16	11	20	720	8500	0.028	G-538	10	36	10	200	2800	0.002
G-364	1	9	10	280	9500	<0.001	G-539	1	5	20	220	5250	0.005
G-365	4	17	20	320	15000	0.003	G-540	1	4	10	180	2150	0.006
G-366	7	7	10	140	3000	0.039	G-541	1	7	10	180	10500	0.002
G-367	1	33	30	300	2650	0.007	G-542	1	25	10	200	4250	<0.001
G-368	1	18	30	220	2950	0.015	G-543	1	4	20	180	3150	<0.001
G-369	8	97	40	280	1450	<0.001	G-544	1	13	10	220	13500	0.050
G-370	3	5	20	320	8500	0.023	G-545	1	14	10	340	8000	0.012
G-371	3	6	20	140	2350	0.002	G-546	1	5	10	220	5000	0.005
G-372	5	22	10	220	12500	0.041	G-547	1	8	10	180	8500	<0.001

2 Geochemical Analysis Data of Rock Samples from Khuzdar District (5)

Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %	Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %
G-548	3	11	60	320	4550	0.002	H-33	2	36	30	220	3600	0.008
G-549	1	5	20	200	4350	0.003	H-34	1	7	10	160	3100	0.013
G-550	2	33	20	200	3900	0.008	H-35	1	11	20	180	2650	0.006
G-551	9	15	20	180	3650	<0.001	H-36	1	12	90	180	3600	0.011
G-552	3	19	10	180	8500	0.015	H-37	1	5	30	140	1450	0.005
G-553	2	13	20	200	16000	0.050	H-38	1	11	20	190	1800	0.004
G-554	1	6	30	160	4650	0.001	H-39	2	12	20	180	8500	0.005
G-555	1	4	20	180	4500	<0.001	H-40	1	17	20	180	4500	0.032
G-556	2	10	40	120	30000	0.002	H-41	3	8	20	200	1350	0.003
G-557	1	15	40	140	55000	<0.001	H-42	1	7	20	180	1400	0.002
G-558	16	80	70	240	9000	0.035	H-43	3	15	40	190	16500	0.004
G-559	9	5	20	90	3300	0.002	H-44	1	7	20	160	1850	0.002
G-560	3	9	20	100	15500	<0.001	H-45	2	12	40	300	3400	0.006
G-561	2	15	20	140	5000	<0.001	H-46	5	29	70	1800	22500	0.076
G-562	3	25	20	340	6000	0.040	H-47	2	5	50	180	4000	0.024
G-563	1	7	20	120	5000	0.015	H-48	1	8	50	200	1950	0.003
G-564	13	83	60	200	8500	0.043	H-49	1	5	50	200	1600	0.002
G-565	1	7	30	240	4250	0.024	H-50	3	14	50	180	4850	0.063
G-566	1	5	30	180	3800	0.035	H-52	1	6	40	220	1800	0.003
G-567	1	15	20	160	9500	0.014	H-53	1	11	30	160	1800	<0.001
G-568	1	125	30	140	10000	0.010	H-54	1	8	50	180	1800	<0.001
G-569	5	26	30	140	6500	0.015	H-55	1	21	20	340	1500	<0.001
G-570	2	28	20	180	6500	0.017	H-56	2	78	20	200	3350	0.010
G-571	1	13	10	120	4100	0.004	H-57	1	22	20	260	12000	<0.001
G-572	1	5	30	160	4750	0.004	H-58	2	17	180	240	3350	<0.001
G-573	1	4	20	120	4050	0.004	H-59	4	21	330	560	3350	<0.001
G-574	1	43	30	120	17500	0.005	H-60	1	9	60	180	1350	<0.001
G-575	1	19	10	140	25000	0.046	H-61	8	33	90	340	1900	0.001
G-576	1	10	10	170	9500	0.005	H-62	1	11	40	220	1600	0.002
G-577	1	12	10	160	9500	0.019	H-63	1	6	40	220	1400	<0.001
G-578	2	37	30	180	8500	0.002	H-64	1	17	40	180	3000	0.004
G-579	6	34	50	200	7000	0.021	H-65	1	6	20	160	1500	<0.001
G-580	3	35	50	180	6000	0.020	H-66	3	62	40	1200	8000	0.032
G-581	6	20	20	200	13000	<0.001	H-67	2	14	50	200	3550	0.006
G-582	6	32	20	180	13000	<0.001	H-68	1	6	400	240	1300	0.004
G-583	2	12	20	180	18500	0.009	H-69	1	20	40	200	4500	0.005
G-584	1	4	20	240	3900	<0.001	H-70	1	13	40	620	3150	0.009
G-585	4	19	10	180	4750	0.013	H-71	1	20	40	420	4100	0.006
G-586	7	27	20	240	5500	0.027	H-72	1	56	100	2700	7250	0.073
G-587	2	4	10	220	2050	<0.001	H-73	3	17	30	300	3500	0.003
G-588	1	4	30	160	7500	0.002	H-74	1	24	1800	220	1450	0.003
G-589	3	30	30	180	8000	<0.001	H-75	1	4	100	220	2750	0.009
G-590	5	29	10	40	6500	0.003	H-76	1	5	640	240	2500	0.011
G-591	1	4	10	240	1000	<0.001	H-77	1	34	50	220	15000	0.003
G-592	2	26	20	180	15000	0.031	H-78	96	49	2000	80	2000	0.014
G-600	1	28	20	240	5250	0.005	H-79	1	9	440	220	1900	0.011
G-601	1	32	30	340	7500	<0.001	H-80	1	6	220	200	2450	0.002
G-602	2	56	140	240	7000	0.038	H-81	1	15	310	230	1850	0.002
G-603	1	34	30	300	5500	0.006	H-82	4	35	220	240	1750	0.001
G-604	1	8	40	180	3200	0.013	H-83	1	7	250	230	2100	0.006
G-605	1	11	20	200	2950	0.015	H-84	2	18	150	80	600	0.005
G-606	1	8	30	140	3050	0.013	H-85	1	6	100	200	2200	0.001
G-607	1	19	40	200	4100	0.004	H-86	2	8	50	200	1750	0.003
G-608	1	8	30	220	3050	0.016	H-87	2	12	60	220	8000	0.008
G-609	1	16	20	200	5000	0.004	H-88	2	53	80	300	10000	0.013
G-610	1	4	20	180	3000	0.005	H-89	1	21	110	100	85000	0.059
H-1	1	6	10	200	15000	0.001	H-90	7	44	510	420	17000	0.015
H-2	1	9	30	200	3250	0.008	H-91	25	72	60	300	8500	0.014
H-3	1	11	60	140	1550	0.010	H-92	1	14	70	120	2800	0.027
H-4	1	10	20	220	2750	0.004	H-93	1	17	40	180	3100	0.020
H-5	1	15	20	200	2900	0.003	H-94	1	13	20	180	2550	0.011
H-6	1	18	10	200	5500	0.002	H-95	4	48	70	1060	6000	0.027
H-7	1	9	10	160	2650	0.004	H-96	1	14	40	180	1950	0.006
H-8	5	95	150	160	5000	0.037	H-97	1	26	50	1100	5500	0.033
H-9	1	18	20	140	4800	0.007	H-98	1	19	60	150	1600	0.034
H-10	1	11	20	180	9000	0.005	H-99	1	14	40	180	2800	0.021
H-11	2	14	20	200	2750	0.006	H-100	2	23	30	1020	4300	0.018
H-12	2	30	40	180	2750	0.006	H-101	1	18	30	400	9500	0.005
H-14	4	21	110	160	1350	0.004	H-102	1	4	30	200	2650	0.004
H-15	1	24	40	140	13000	0.001	H-103	1	8	20	230	4250	0.006
H-16	3	11	20	220	2500	<0.001	H-104	1	8	10	180	2950	0.005
H-17	2	13	30	200	1700	0.019	H-105	1	5	10	200	13000	0.003
H-18	1	8	30	220	1500	0.004	H-106	1	34	20	200	3450	0.001
H-19	8	13	20	160	9000	0.007	H-107	3	77	260	90	11000	0.049
H-20	8	21	30	180	30000	0.040	H-108	1	7	600	180	2150	0.007
H-21	1	28	80	240	1800	0.006	H-109	1	5	150	120	3850	0.007
H-22	1	22	40	180	1400	<0.001	H-110	4	42	70	160	4450	0.008
H-23	1	16	20	160	3150	0.008	H-111	3	29	50	400	6000	0.008
H-24	1	14	20	140	2700	0.005	H-112	1	6	10	190	2800	<0.001
H-25	7	20	30	110	800	<0.001	H-113	1	14	10	160	2400	<0.001
H-26	1	14	30	200	1800	0.002	H-114	1	9	10	160	4150	<0.001
H-27	1	22	80	180	1350	0.004	H-115	1	10	200	160	1550	<0.001
H-28	1	19	10	220	2500	0.007	H-116	1	4	130	150	1750	<0.001
H-29	1	18	10	160	3300	0.010	H-117	1	10	60	180	2000	0.002
H-30	1	16	10	160	10000	0.014	H-118	1	10	30	90	1600	<0.001
H-31	1	18	20	180	3250	0.006	H-119	1	21	10	190	2150	<0.001
H-32	1	3	30	200	1950	0.002	H-120	1	45	70	200	3600	0.016

Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %	Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %
H-121	1	8	230	160	2100	0.007	H-208	1	6	10	170	7500	<0.001
H-122	1	21	30	170	14000	<0.001	H-209	1	21	10	200	4350	0.002
H-123	1	7	100	160	2450	0.010	H-210	1	8	10	200	2700	0.011
H-124	1	11	60	140	1650	0.004	H-211	1	5	20	150	7000	0.001
H-125	1	15	10	120	2600	<0.001	H-212	1	15	20	180	3850	<0.001
H-126	1	8	10	150	1450	<0.001	H-213	7	9	60	200	13000	0.007
H-127	1	10	10	190	2200	<0.001	H-214	1	20	20	320	2900	0.006
H-128	1	13	10	180	23000	<0.001	H-215	1	7	30	220	7000	<0.001
H-129	1	10	20	180	3700	0.012	H-216	1	9	20	160	4800	0.002
H-130	1	406	380	170	1750	0.004	H-217	1	7	10	120	3000	0.002
H-131	1	4	20	140	4900	<0.001	H-218	20	18	20	140	58000	0.030
H-132	1	21	60	200	2000	0.009	H-219	8	12	60	100	1600	0.004
H-133	2	630	10	160	2750	<0.001	H-220	6	31	30	300	10000	0.020
H-134	1	6	10	220	2260	<0.001	H-221	8	4	170	80	400	0.001
H-135	1	4	10	200	2500	0.004	H-222	1	9	20	220	2300	0.003
H-136	2	63	20	160	1100	<0.001	H-223	210	12	30	240	3850	0.004
H-137	1	13	10	180	1250	<0.001	H-224	10	67	140	150	900	<0.001
H-138	1	20	10	200	3200	0.007	H-225	1	9	30	360	3000	0.006
H-139	1	9	10	220	2550	<0.001	H-226	8	3	40	100	650	<0.001
H-140	1	10	10	210	3000	<0.001	H-227	1	14	20	2500	16000	0.074
H-141	1	9	10	100	2600	0.002	H-228	2	17	40	360	38500	0.023
H-142	1	8	10	120	1850	0.002	H-229	10	77	20	180	1250	<0.001
H-143	1	4	10	150	1100	<0.001	H-230	11	13	50	160	1200	<0.001
H-144	1	10	20	120	3700	<0.001	H-231	1	7	40	150	10000	<0.001
H-145	1	6	10	140	1850	<0.001	H-232	1	7	30	180	1700	<0.001
H-146	1	24	30	1640	5500	0.026	H-233	1	59	20	150	10500	<0.001
H-147	1	10	10	160	2350	<0.001	H-234	1	5	10	180	5500	<0.001
H-148	1	5	70	170	2350	0.003	H-235	1	7	10	180	3250	0.017
H-149	1	21	50	190	5500	<0.001	H-236	1	4	10	160	3250	<0.001
H-150	1	8	10	280	2700	<0.001	H-237	1	12	10	220	9600	<0.001
H-151	1	12	30	260	2700	0.003	H-238	1	12	20	180	4700	<0.001
H-152	1	3	10	200	2900	<0.001	H-239	1	8	30	180	2900	0.006
H-153	1	8	10	200	4000	0.007	H-240	1	9	20	150	2450	0.032
H-154	1	22	20	260	5500	0.004	H-241	4	30	40	280	5500	0.002
H-155	1	19	20	320	5500	0.004	H-242	3	18	30	2800	6500	0.055
H-156	1	5	10	200	3350	<0.001	H-243	2	12	10	400	4150	0.003
H-157	1	4	10	180	2750	<0.001	H-244	2	18	20	560	4450	0.028
H-158	1	6	10	220	2500	<0.001	H-245	1	4	10	180	2550	<0.001
H-159	1	51	10	160	2800	<0.001	H-246	2	10	20	170	5500	0.018
H-160	1	24	10	160	3100	<0.001	H-247	1	6	30	170	6500	0.025
H-161	1	8	50	120	1500	<0.001	H-248	1	5	10	160	5000	0.006
H-162	1	10	20	140	2000	<0.001	H-249	1	8	30	200	3650	0.016
H-163	1	8	50	160	2100	<0.001	H-250	1	18	20	320	5500	0.002
H-164	1	66	20	140	11500	<0.001	H-251	1	16	10	1720	5000	0.032
H-165	1	14	80	90	19000	0.012	H-252	1	3	20	200	2000	<0.001
H-166	1	3	30	120	1300	0.001	H-253	1	10	10	200	3000	0.001
H-167	1	4	60	180	1700	<0.001	H-254	1	20	10	300	6000	<0.001
H-168	1	2	10	190	1800	<0.001	H-255	1	13	10	220	3300	<0.001
H-169	1	12	10	200	1400	<0.001	H-256	1	7	10	180	3250	0.001
H-170	1	8	60	240	2350	<0.001	H-257	3	53	10	200	3850	0.017
H-171	1	8	60	250	1950	0.045	H-258	1	8	10	160	1650	<0.001
H-172	1	9	50	220	1400	<0.001	H-259	2	121	10	160	14500	<0.001
H-173	1	10	60	180	1600	<0.001	H-260	1	14	10	160	3150	0.001
H-174	1	4	10	160	3500	<0.001	H-261	1	3	10	150	2000	<0.001
H-175	3	18	70	400	1750	0.016	H-262	1	8	40	190	2750	<0.001
H-176	1	28	10	400	6000	0.002	H-263	1	55	20	140	1000	<0.001
H-177	1	7	10	200	4750	<0.001	H-264	1	6	20	200	1400	<0.001
H-178	1	14	10	150	4650	0.009	H-265	1	3	10	220	1550	<0.001
H-179	1	12	10	320	1600	0.002	H-266	1	18	10	140	1900	0.004
H-180	1	47	10	200	2050	<0.001	H-267	7	16	10	220	5500	<0.001
H-181	1	12	10	180	2750	<0.001	H-268	6	9	20	420	5500	<0.001
H-182	1	15	20	160	1700	<0.001	H-269	2	9	10	200	4700	0.002
H-183	1	13	20	220	6500	0.010	H-270	16	37	20	200	4900	0.002
H-184	1	6	10	190	1750	0.002	H-271	7	19	10	340	1550	<0.001
H-185	1	77	20	220	2150	<0.001	H-272	6	8	40	740	5500	0.005
H-186	1	9	10	120	1850	<0.001	H-273	62	180	40	320	2900	0.002
H-187	1	11	10	200	1600	<0.001	H-274	1	14	110	200	1300	0.002
H-188	1	8	10	160	2400	<0.001	H-275	1	11	70	620	2900	0.008
H-189	2	14	130	160	1350	<0.001	H-276	1	13	90	240	2900	0.013
H-190	1	11	70	220	2800	<0.001	H-277	1	9	20	220	3550	0.005
H-191	1	11	20	320	2050	<0.001	H-278	1	24	30	3600	550	0.089
H-192	1	25	50	340	550	0.002	H-279	1	8	10	200	2850	0.007
H-193	1	9	20	210	3350	0.002	H-280	1	9	10	180	2300	0.005
H-194	1	4	10	150	3700	<0.001	H-281	1	8	30	160	3700	0.005
H-195	1	13	10	200	2000	<0.001	H-282	1	9	10	170	3150	0.003
H-196	1	8	10	190	1500	<0.001	H-283	1	5	10	180	3300	0.002
H-197	1	5	20	180	1650	<0.001	H-284	1	8	10	180	4350	0.017
H-198	34	90	50	150	7500	<0.001	H-285	1	8	10	150	3350	0.018
H-199	1	9	10	180	1300	<0.001	H-286	1	9	10	150	3700	<0.001
H-200	1	11	10	180	4350	0.002	H-287	1	12	20	120	3250	0.010
H-201	1	5	10	190	2350	<0.001	H-288	1	15	30	300	2850	0.004
H-202	1	7	10	160	2850	<0.001	H-289	1	13	30	140	19500	0.005
H-203	1	27	20	420	6000	<0.001	H-290	1	50	20	160	1950	<0.001
H-204	1	15	20	280	2450	0.003	H-291	1	7	30	160	4100	0.001
H-205	1	8	30	260	3100	<0.001	H-292	1	8	40	160	6500	0.002
H-206	1	2	10	150	5000	<0.001	H-293	1	5	20	130	2700	0.001
H-207	1	6	10	160	2600	<0.001	H-294	4	71	10	100	11000	0.062

Geochemical Analysis Data of Rock Samples from Khuzdar District (7)

Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %	Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %
H-300	1	5	10	160	2800	0.002	J-7	3	12	50	220	3150	0.014
H-301	1	4	10	120	22500	0.001	J-8	2	13	50	600	3500	0.019
H-302	2	21	20	220	5500	0.002	J-9	6	13	30	180	1750	0.010
H-303	1	30	40	120	2850	0.006	J-10	6	32	60	140	1750	0.013
H-304	1	3	20	180	3550	0.005	J-11	2	58	40	320	3750	0.006
H-305	1	18	20	260	4900	0.009	J-12	6	33	40	200	1550	<0.001
H-306	1	19	10	220	4200	0.003	J-13	1	9	120	320	2550	0.008
H-307	4	36	40	1040	4200	0.019	J-14	1	6	40	220	7500	0.004
H-308	2	78	20	900	5500	0.014	J-15	1	7	30	160	3200	0.013
H-309	1	59	10	400	7000	0.012	J-16	1	9	20	300	2950	0.004
H-310	1	22	30	300	4550	0.205	J-17	1	12	30	180	2750	0.012
H-311	1	16	20	220	3000	0.003	J-18	51	79	20	160	1850	0.004
H-312	1	15	20	360	3100	0.008	J-19	3	11	20	190	18500	0.004
H-313	1	58	30	420	11500	0.006	J-20	2	23	10	160	4250	0.021
H-314	1	55	30	440	6000	0.009	J-21	1	11	10	200	4200	0.007
H-315	5	61	20	600	6500	0.002	J-22	2	11	10	180	3250	0.014
H-316	1	54	20	520	5000	0.010	J-23	1	16	40	1400	2100	0.035
H-317	9	71	20	320	7500	0.012	J-24	1	11	20	220	2550	0.023
H-318	4	86	30	440	6000	0.063	J-25	1	12	20	160	3150	0.010
H-319	2	35	30	340	6000	0.011	J-26	1	23	20	180	1400	<0.001
H-320	1	11	20	180	2300	0.008	J-27	1	16	20	180	3250	0.005
H-321	7	90	40	560	8500	0.135	J-28	1	10	20	140	3450	0.001
H-322	1	74	20	460	8500	0.033	J-29	2	14	10	180	3650	0.012
H-323	1	9	20	140	800	0.004	J-30	1	7	10	140	3350	0.004
H-324	1	13	30	140	800	0.009	J-31	9	50	20	180	5500	0.028
H-325	1	46	20	500	6500	0.023	J-32	1	8	10	160	1300	0.005
H-326	7	57	120	300	7000	0.015	J-33	2	18	40	140	4000	0.010
H-327	2	89	100	640	6500	0.014	J-34	1	25	20	160	2350	0.004
H-328	2	46	50	620	6000	0.013	J-35	1	8	10	140	1250	0.003
H-329	1	13	10	190	8000	0.033	J-37	2	20	10	180	3600	0.009
H-330	3	57	30	100	31000	0.001	J-38	4	66	10	160	1600	0.012
H-331	7	14	30	220	3000	0.014	J-39	1	8	10	140	1450	<0.001
H-332	1	6	10	100	13000	<0.001	J-41	1	12	10	220	3400	0.005
H-333	9	20	60	260	3000	0.011	J-42	1	9	10	140	2750	0.008
H-334	2	8	30	160	3100	0.017	J-43	1	13	10	180	2900	0.005
H-335	10	11	20	180	3750	0.082	J-44	1	11	10	180	3250	0.007
H-336	1	10	10	960	4750	0.026	J-45	44	14	10	160	2550	0.003
H-337	10	11	20	180	6000	0.045	J-46	1	15	20	120	900	0.006
H-338	4	51	50	360	5500	0.301	J-47	295	40	180	500	1900	0.023
H-339	1	10	20	1300	2050	0.031	J-48	4	12	40	480	46500	0.042
H-340	1	19	30	680	3100	0.026	J-49	2870	1520	150	400	2500	0.042
H-341	1	12	50	220	2150	0.019	J-50	4	8	20	2600	2300	0.062
H-342	1	9	30	220	2500	0.021	J-51	10	23	20	380	1600	0.005
H-343	2	54	30	2800	5250	0.089	J-52	1	19	20	360	2400	0.021
H-344	1	13	10	190	2650	0.022	J-53	1	8	50	220	2160	0.013
H-345	1	31	30	240	4650	0.040	J-54	4	16	20	100	12500	0.006
H-346	1	11	30	200	2000	0.002	J-55	1	18	30	100	2500	0.022
H-347	1	9	20	240	2150	0.006	J-56	1	11	20	220	1000	0.003
H-348	1	13	20	260	3050	0.021	J-57	2	15	20	220	1700	0.011
H-349	3	43	30	300	5250	0.105	J-58	2	11	10	3300	1200	0.070
H-350	2	10	20	220	40000	0.009	J-59	6	7	10	500	800	0.005
H-351	27	12	30	230	52000	0.018	J-60	1	24	10	2700	2800	0.057
H-352	1	10	30	180	11000	0.008	J-61	9	15	10	180	2750	0.005
H-353	1	12	50	140	6500	0.018	J-62	3	25	10	120	2900	0.002
H-354	14	21	10	180	6000	0.018	J-63	1	9	10	140	1400	<0.001
H-355	9	27	10	180	19500	0.164	J-64	3	6	10	160	1200	0.001
H-356	4	24	10	140	6000	0.021	J-65	1	17	10	160	9500	0.011
H-357	1	6	10	180	4350	0.008	J-66	1	9	10	140	1200	<0.001
H-358	1	8	10	180	9500	<0.001	J-67	1	13	20	160	4900	0.020
H-359	1	7	50	140	3500	0.001	J-68	1	8	10	160	3500	0.002
H-360	7	16	10	220	3750	0.020	J-69	6	22	10	180	4450	0.015
H-363	23	62	50	1000	3800	0.030	J-70	1	35	20	180	2750	0.003
H-365	2	48	20	200	2500	0.018	J-71	1	9	70	200	1900	0.003
H-366	3	18	20	620	2550	0.025	J-72	1	43	40	180	2900	0.005
H-367	2	9	100	200	3500	0.011	J-73	209	940	960	80	650	0.010
H-368	1	8	20	140	28500	0.007	J-74	15	27	540	180	39000	0.046
H-369	1	7	10	210	3450	0.005	J-75	1	12	110	160	6500	0.003
H-370	1	11	10	200	4450	0.012	J-76	1	19	50	220	4550	0.016
H-373	5	15	10	420	12500	<0.001	J-77	1	14	20	180	3150	0.006
H-374	32	128	20	240	12000	0.037	J-78	1	13	20	160	3800	0.021
H-375	7	18	10	80	5500	0.017	J-79	1	19	140	190	2100	0.007
H-376	1	12	50	180	62000	0.001	J-80	3	13	30	200	4200	0.014
H-377	1	8	10	280	4350	0.008	J-81	1	11	190	180	2200	0.011
H-378	1	13	30	420	6000	0.011	J-82	1	58	50	160	4750	0.015
H-379	3	31	40	280	14000	0.017	J-83	1	82	40	150	33500	0.005
H-380	2	8	10	200	4850	0.052	J-84	2	15	20	130	2350	0.009
H-381	7	13	20	800	3750	0.015	J-85	1	21	10	180	4050	0.008
H-382	4	10	30	180	8500	0.020	J-86	1	22	10	220	3500	0.009
H-383	1	6	10	480	9000	0.003	J-87	1	44	20	200	3900	0.021
H-384	2	16	10	180	11500	0.018	J-88	2	30	40	180	4200	0.032
H-385	8	22	30	80	6500	0.141	J-89	1	10	10	140	5500	0.004
J-1	1	9	30	140	2800	0.009	J-90	4	18	10	200	4250	0.010
J-2	1	7	30	200	2850	0.014	J-91	38	117	10	200	4100	0.003
J-3	1	18	20	2400	6000	0.072	J-92	1	12	20	140	3000	0.036
J-4	2	6	20	720	900	0.011	J-93	1	13	10	160	5000	<0.001
J-5	3	8	20	400	2850	0.007	J-94	1	18	10	160	10500	0.004
J-6	1240	415	770	180	500	0.012	J-95	1	22	70	200	18000	0.066

Geochemical Analysis Data of Rock Samples from Khuzdar District (8)

Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %	Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %
J-96	1	9	30	160	2000	<0.001	J-183	1	10	10	180	3000	0.005
J-97	1	12	80	180	1900	0.015	J-184	3	128	10	100	2950	0.006
J-98	1	14	20	220	4750	0.015	J-185	1	14	20	120	3900	0.003
J-99	1	16	20	160	3800	0.010	J-186	1	11	10	140	4550	0.083
J-100	1	17	50	140	1850	0.003	J-187	1	10	20	130	3800	<0.001
J-101	1	27	30	180	1150	<0.001	J-188	1	14	10	140	3100	0.002
J-102	1	13	30	180	3350	0.005	J-189	2	22	40	620	4650	0.003
J-103	1	10	10	160	2800	<0.001	J-190	1	12	10	160	3600	0.007
J-104	5	11	20	200	2600	0.003	J-191	1	11	40	180	4900	0.011
J-105	6	29	40	120	1050	0.003	J-192	1	31	30	700	5500	0.011
J-106	4	5	20	90	450	0.001	J-193	10	105	20	380	50000	<0.001
J-107	10	127	170	200	13500	0.021	J-194	1	15	10	180	4550	0.004
J-108	3	13	130	320	6000	0.018	J-195	1	13	30	160	3100	0.004
J-109	2	10	110	220	4150	<0.001	J-196	1	41	40	120	47000	0.005
J-110	1	37	60	200	62000	0.041	J-197	1	11	40	140	3700	0.004
J-111	1	22	70	220	13500	<0.001	J-198	8	26	30	140	4150	0.019
J-112	1	14	20	140	4200	0.008	J-199	2	13	20	120	1900	0.002
J-113	1	21	10	180	3200	<0.001	J-200	2	12	20	220	20000	0.001
J-114	1	11	10	180	3250	0.009	J-201	3	11	20	120	30000	<0.001
J-115	1	13	20	260	3850	0.004	J-202	4	10	20	400	2100	0.004
J-116	1	12	30	200	3750	0.003	J-203	2	10	100	180	1200	<0.001
J-117	1	11	260	180	2600	0.011	J-204	1	13	20	160	1550	0.001
J-118	1	11	50	160	2650	0.003	J-205	1	27	20	140	1550	<0.001
J-119	1	11	20	260	4100	0.005	J-206	9	31	40	160	12000	0.010
J-120	1	9	10	240	4000	0.004	J-207	1	16	20	600	6500	0.007
J-121	2	15	30	420	4500	0.007	J-208	8	27	20	100	6500	<0.001
J-122	1	8	20	360	2650	0.009	J-209	2	17	40	320	4600	0.001
J-123	2	6	10	180	1500	0.003	J-210	11	50	30	200	6500	0.014
J-124	1	10	10	280	5250	0.007	J-211	2	8	20	260	2850	<0.001
J-125	1	13	70	200	32500	<0.001	J-212	9	153	20	220	5250	0.006
J-126	1	41	40	200	3150	0.003	J-213	4	20	10	160	32500	<0.001
J-127	1	12	20	220	6000	0.004	J-214	2	14	10	160	5000	<0.001
J-128	1	17	10	200	2460	0.015	J-215	1	16	40	160	4050	0.003
J-129	1	15	10	140	3200	<0.001	J-216	6	21	20	140	47000	0.006
J-130	1	12	10	160	4400	<0.001	J-217	8	8	10	180	3850	<0.001
J-131	3	14	40	280	3150	0.013	J-218	19	79	10	520	10000	0.060
J-132	1	11	10	280	3750	0.003	J-219	12	6	10	160	4150	<0.001
J-133	1	27	40	160	5000	0.002	J-220	5	21	10	150	2950	<0.001
J-134	1	12	10	140	2300	0.004	J-221	17	14	40	220	70000	0.054
J-135	1	31	60	200	5500	0.022	J-222	2	12	20	140	3450	0.004
J-136	1	15	30	220	4050	0.009	J-223	3	6	10	140	9000	0.003
J-137	1	10	10	140	3250	0.005	J-224	7	7	10	150	5500	0.001
J-138	1	10	10	220	4000	0.003	J-225	5	16	20	540	15500	0.002
J-139	1	16	10	180	2800	0.007	J-226	7	45	20	160	2600	0.001
J-140	1	11	10	200	4000	0.008	J-227	3	81	10	140	18500	<0.001
J-141	1	19	10	160	4350	0.004	J-228	34	10	20	400	2900	0.007
J-142	1	17	10	180	1500	<0.001	J-229	385	27	100	240	6500	0.012
J-143	1	8	10	120	3500	0.005	J-230	50	13	30	300	3550	0.008
J-144	2	10	10	640	4050	0.014	J-231	19	12	20	130	2550	0.007
J-145	2	14	10	220	3000	0.007	J-232	3	11	40	290	3300	0.030
J-146	1	10	10	180	5500	0.001	J-233	7	35	50	520	4350	0.021
J-147	2	12	10	1000	18500	0.021	J-234	9	20	60	1340	3500	0.044
J-148	2	14	20	200	51000	0.016	J-235	12	8	30	200	2800	0.031
J-149	1	15	10	200	2100	<0.001	J-236	30	7	20	130	3150	0.003
J-150	2	12	10	1800	4500	0.035	J-237	7	12	20	120	3400	0.017
J-151	1	35	10	160	4550	0.004	J-238	230	18	30	240	3650	0.003
J-152	3	15	10	200	4300	0.005	J-239	96	12	10	100	1500	0.003
J-153	1	8	20	320	3450	0.007	J-240	18	18	20	1060	2300	0.061
J-154	2	18	20	200	4300	0.040	J-241	40	16	20	160	950	<0.001
J-155	2	18	60	2100	4600	0.047	J-242	36	8	10	160	5500	0.003
J-156	17	68	30	200	7000	0.003	J-243	9	101	60	1400	8000	0.030
J-157	15	66	40	600	3050	0.003	J-244	44	24	30	180	5500	0.011
J-158	1	11	10	180	5000	0.074	J-245	7	13	10	100	1700	<0.001
J-159	1	8	10	200	3550	<0.001	J-246	468	6	40	100	850	0.005
J-160	12	42	120	280	6500	0.018	J-247	38	6	10	200	5000	0.003
J-161	2	59	30	980	12000	0.016	J-248	8	21	20	200	4900	0.007
J-162	5	56	50	2700	10500	0.229	J-249	21	10	20	140	3600	0.006
J-163	1	10	10	200	5250	0.003	J-250	156	8	20	220	7500	0.021
J-164	1	11	10	200	3600	<0.001	J-251	34	7	10	180	3100	0.004
J-165	1	11	10	180	4300	0.024	J-252	30	11	10	220	3900	0.002
J-166	1	12	10	160	3500	0.005	J-253	56	11	20	190	1700	0.002
J-167	2	24	10	240	5000	0.029	J-254	26	17	20	1240	5500	0.072
J-168	1	10	10	180	6500	0.003	J-255	197	1250	20	80	5000	0.010
J-169	1	11	30	180	2700	0.001	J-260	1	16	20	180	3950	0.008
J-170	1	10	30	180	13500	<0.001	J-261	1	14	20	100	3900	0.008
J-171	1	10	30	600	16500	0.019	J-262	1	10	10	160	7500	0.008
J-172	10	36	50	140	13500	0.003	J-263	1	9	10	120	2900	0.005
J-173	1	15	20	180	3400	0.011	J-264	1	17	10	80	3800	0.019
J-174	1	23	10	140	3050	0.011	J-265	3	20	10	100	3350	0.020
J-175	12	86	60	140	5500	0.027	J-266	3	36	10	100	3850	0.019
J-176	1	35	20	160	2050	0.003	J-267	1	9	10	120	2700	0.004
J-177	2	79	20	180	3750	0.010	J-268	1	9	10	140	2900	<0.001
J-178	1	15	20	120	2500	0.044	J-269	1	6	10	240	2550	0.003
J-179	1	41	10	900	5500	0.018	J-270	3	14	10	120	7500	0.009
J-180	10	41	80	360	19000	0.238	J-271	3	17	10	100	7500	0.002
J-181	6	26	20	220	4500	0.001	J-272	4	8	20	300	2950	0.014
J-182	2	14	30	700	6000	0.009	J-273	3	88	10	300	3950	0.002

Geochemical Analysis Data of Rock Samples from Khuzdar District (9)

Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %	Sample No.	Pb ppm	Zn ppm	Hg ppb	Ba ppm	Mg ppm	S %
J-274	3	8	50	220	4650	<0.001	K-17	5	163	260	220	1350	<0.001
J-275	13	41	70	1100	2250	0.014	K-18	>10000	530	15000	50	1650	<0.001
J-276	1	12	30	180	37500	0.021	K-19	8	51	30	220	1250	0.004
J-277	2	6	20	280	3000	<0.001	K-20	5150	>10000	1000	620	2850	<0.001
J-278	1	7	10	160	8000	0.003	K-21	2650	>10000	840	1140	2050	<0.001
J-279	2	13	40	180	3750	0.022	K-22	100	134	90	1200	4250	0.010
J-280	1	10	30	240	1000	0.002	K-23	25	177	70	480	3150	0.003
J-281	1	10	20	160	4050	0.006	K-24	2130	>10000	400	2200	2450	<0.001
J-282	1	11	10	220	3200	0.003	K-25	7	22	50	160	2250	<0.001
J-283	1	10	10	220	3850	0.004	K-26	15	85	40	200	3900	<0.001
J-284	8	11	10	400	2650	0.035	K-27	23	107	210	140	1600	0.004
J-285	1	12	10	140	3000	0.002	L-1	1	30	30	1480	3100	0.035
J-286	1	20	80	160	4300	<0.001	L-2	1	15	20	120	3450	0.019
J-287	1	7	30	100	3350	<0.001	L-3	1	14	20	120	2950	0.018
J-288	1	8	20	130	3000	<0.001	L-4	1	42	20	160	3150	0.012
J-289	6	15	30	200	6500	0.007	L-5	1	19	10	200	3400	0.021
J-290	1	5	190	140	1750	0.006	L-6	1	16	30	160	3400	0.021
J-291	1	7	50	140	2650	0.012	L-7	1	7	10	120	5500	0.007
J-292	1	4	30	150	1650	0.007	L-8	1	11	10	120	2950	<0.001
J-293	1	13	20	220	3000	0.011	L-9	1	37	10	320	6000	0.005
J-294	1	5	10	120	1400	0.001	L-10	1	12	10	200	2800	0.006
J-295	1	39	10	180	3100	<0.001	L-11	1	35	10	140	5500	0.008
J-296	1	11	10	160	2550	0.003	L-12	1	44	10	440	6000	0.016
J-297	2	18	30	140	3050	0.005	L-13	1	20	10	180	2900	0.007
J-298	1	8	20	160	2150	0.004	L-14	6	67	100	320	8000	0.035
J-299	3	37	30	160	4350	0.039	L-15	2	38	30	200	6500	0.006
J-300	1	14	20	140	1500	0.002	L-16	1	52	30	360	5000	0.025
J-301	1	10	20	130	33000	<0.001	L-19	1	9	20	140	4100	0.005
J-302	1	12	10	120	6500	0.048	L-20	1	31	10	160	4000	<0.001
J-303	1	5	10	160	3750	0.004	L-21	1	7	10	120	4100	<0.001
J-304	1	50	10	150	4000	0.002	L-22	1	12	10	180	11000	0.001
J-305	1	16	10	120	9000	0.006	L-23	1	21	10	180	3100	<0.001
J-306	1	5	10	160	2950	0.008	L-24	1	7	10	140	3250	0.008
J-307	1	5	10	160	1450	<0.001	L-25	1	15	40	120	25000	<0.001
J-308	1	7	10	180	1450	0.002	L-26	1	12	10	140	3900	<0.001
J-309	1	7	10	160	4600	0.001	L-27	3	42	10	140	4600	0.031
J-310	1	7	10	110	1400	<0.001	L-28	1	7	10	160	10000	0.003
J-311	1	6	10	120	1650	<0.001	L-29	1	6	10	160	9000	<0.001
J-312	1	9	140	140	1950	<0.001	L-30	3	36	10	140	4100	0.001
J-313	1	8	10	140	4250	0.001	L-31	3	20	10	140	7500	0.002
J-314	1	13	10	120	2250	<0.001	L-32	1	18	10	120	49000	0.017
J-315	1	6	10	140	3350	0.006	L-33	1	12	10	160	5500	<0.001
J-316	3	14	20	600	10000	0.009	L-34	1	29	10	160	3300	<0.001
J-317	1	5	40	140	1550	<0.001	L-35	1	19	10	150	5500	0.002
J-318	5	13	10	140	6500	0.053	L-36	1	7	10	120	21500	<0.001
J-319	1	6	50	220	2000	0.002	L-37	1	15	20	160	3900	0.003
J-320	1	13	30	180	4300	0.005	L-38	1	12	20	180	2950	0.005
J-321	1	8	20	180	22500	<0.001	L-39	1	22	10	140	4150	0.020
J-322	1	13	40	140	7000	0.003	L-40	1	23	20	440	4750	0.043
J-323	1	12	30	200	3000	<0.001	L-41	1	16	10	220	5250	0.124
J-324	1	17	20	140	15000	0.030	L-42	1	17	10	260	2650	0.019
J-325	5	13	10	240	3250	0.001	L-43	1	10	10	200	4600	0.012
J-326	1	8	10	160	18000	<0.001	L-44	1	9	10	180	2900	0.004
J-327	1	53	20	200	23000	0.005	L-45	1	7	10	200	2800	0.002
J-328	1	18	10	200	9000	0.004	L-46	1	10	10	200	2800	0.001
J-329	1	6	10	200	3700	<0.001	L-47	1	15	20	220	3150	0.028
J-330	1	19	20	200	37000	<0.001	L-49	1	22	10	280	4900	0.017
J-331	1	8	10	160	23000	0.002	L-50	1	39	10	460	7500	0.019
J-332	2	18	10	240	13000	0.118	L-51	1	8	10	140	3350	0.007
J-333	1	7	10	140	3500	0.002	L-52	1	10	20	180	3150	0.003
J-336	3	24	30	160	3600	0.009	L-53	1	5	10	160	3550	0.002
J-337	1	28	10	240	6000	0.005	L-54	1	26	10	200	6000	0.003
J-338	1	19	20	180	4350	0.002	L-55	1	21	10	260	5500	0.007
J-340	1	14	10	180	4350	0.004	L-56	1	21	10	3600	3000	0.084
J-341	1	11	10	140	5000	<0.001	L-57	1	37	10	240	8500	0.063
J-342	1	8	30	200	4000	0.008	L-58	1	32	10	140	5000	0.007
J-343	1	9	30	160	4400	<0.001	L-59	1	9	10	160	3800	0.006
J-344	1	12	30	180	3300	0.005	L-60	1	10	10	160	3250	0.006
J-345	1	6	20	160	4300	<0.001	L-61	1	8	10	140	3400	0.012
J-346	1	6	30	120	1800	0.001	L-62	2	16	10	150	5000	0.221
J-347	1	5	20	180	3200	0.004	L-63	1	11	20	240	4200	0.023
J-348	1	4	10	140	3800	0.002	L-64	1	6	10	160	3200	0.002
K-1	10	21	20	200	1600	0.002	M-2	300	7250	18000	50	550	0.163
K-2	2300	960	140	100	900	0.075	M-3	7	144	180	300	2050	0.007
K-3	188	210	160	160	2300	0.007	M-4	16	120	110	280	1600	0.006
K-4	5000	>10000	800	120	1300	0.012	M-5	4	48	30	300	1850	0.005
K-5	30	2250	90	920	1850	0.005	M-6	450	4450	670	220	1150	0.092
K-6	14	25	50	140	2000	0.004	M-7	4	59	120	200	2200	0.009
K-7	64	72	70	200	1600	<0.001	M-8	9	71	60	160	2200	0.022
K-8	>10000	6200	600	120	1550	0.003	M-9A	11	247	140	200	2550	0.002
K-9	200	416	230	180	1250	0.002	M 9	1690	>10000	1100	100	850	0.095
K-10	9	27	90	340	1550	0.003	M-10	7	280	160	320	1250	0.006
K-11	200	180	100	420	1250	0.002	M-11	215	>10000	1400	100	850	0.160
K-13	11	56	50	180	2600	<0.001	M-12	78	210	180	300	1100	0.005
K-14	930	770	350	200	1150	0.004	M-13	143	>10000	900	180	900	0.118
K-15	670	7150	450	1600	1650	<0.001	M-15	221	>10000	4000	480	1500	0.048
K-16	14	161	70	200	1800	0.011	M-16	12	106	110	200	1300	0.011

Sample No.	Pb	Zn	Hg	Ba	Mg	S	Sample No.	Pb	Zn	Hg	Ba	Mg	S
	ppm	ppm	ppb	ppm	ppm	%		ppm	ppm	ppb	ppm	ppm	%
M-16A	6610	>10000	55000	50	650	0.862	N-80	1	6	10	200	3850	0.004
M-17	48	530	460	200	2200	0.004	N-81	1	10	20	180	3400	0.002
M-18	2000	>10000	41000	120	2000	0.077	N-82	1	7	10	160	2400	0.001
M-19	297	650	280	280	1600	0.006	N-83	2	18	10	200	3400	0.004
M-20	14	159	250	180	1600	0.009	N-84	1	14	30	140	6000	0.042
M-21	4660	>10000	22000	80	650	0.056	N-85	1	28	20	160	3900	0.006
M-22	7	84	80	140	900	0.005	N-86	1	22	20	280	4800	0.008
M-23	5	269	400	100	1750	0.005	N-87	1	13	10	160	3250	0.004
M-24	23	>10000	540	80	5500	0.148	N-88	1	6	10	200	3000	0.005
N-1	1	12	70	340	2850	0.007	N-89	6	36	20	1000	6000	0.022
N-2	1	10	60	180	3000	0.011	N-90	1	17	10	220	5500	0.003
N-3	1	10	50	180	2750	<0.001	N-91	1	18	10	220	3600	<0.001
N-4	1	47	60	340	3300	0.013	N-92	1	9	10	260	4200	0.013
N-5	2	39	50	1040	3400	0.025	N-93	1	17	10	200	4250	0.005
N-6	1	17	30	160	2650	0.011	N-94	1	19	10	200	6000	<0.001
N-7	1	8	50	200	2250	0.011	N-95	1	11	10	200	4250	<0.001
N-8	1	11	20	220	2500	0.001	N-96	1	20	10	180	5500	0.010
N-9	6	32	20	180	5500	0.009	N-97	1	5	10	180	3700	<0.001
N-10	1	9	20	240	2900	0.010	N-98	1	7	10	140	3150	0.009
N-11	1	12	20	240	2800	0.009	N-99	1	17	10	180	5500	<0.001
N-12	1	8	20	200	4300	0.005	N-100	7	42	60	280	6500	0.007
N-13	5	20	50	500	4800	0.005	N-101	1	26	20	220	2950	0.016
N-14	1	7	10	200	3800	0.003	N-102	1	14	20	220	2950	0.018
N-15	1	17	20	200	4500	0.008	N-103	1	6	10	160	3450	0.002
N-16	1	11	10	240	4250	0.005	N-104	1	11	20	140	2450	0.003
N-17	1	6	10	140	3150	<0.001	N-105	1	20	30	160	4000	0.016
N-18	1	7	10	200	3900	<0.001	N-106	1	8	10	200	3400	0.007
N-19	5	26	30	180	6000	0.004	N-107	1	12	10	240	2850	0.006
N-20	1	10	30	240	3700	0.009	N-108	13	39	30	240	3100	0.010
N-21	3	32	40	2600	6500	0.047	N-109	1	7	10	220	2900	0.004
N-22	1	7	10	220	5500	<0.001	N-110	1	6	10	160	2950	0.005
N-23	1	11	20	180	3400	<0.001	N-111	1	6	10	180	7000	<0.001
N-24	1	11	20	540	4400	0.007	N-112	2	33	10	400	7500	0.005
N-25	1	9	10	220	3750	0.013	N-113	2	12	10	180	4750	0.006
N-26	1	10	10	260	3950	0.027	N-114	1	11	10	200	3750	0.010
N-27	1	9	10	220	3450	0.004	N-115	1	29	10	110	21000	0.016
N-28	1	11	10	250	5000	0.002	N-116	1	11	10	140	3100	0.003
N-29	1	9	10	180	4300	0.003	N-117	1	14	10	120	2750	0.005
N-30	1	10	10	220	3900	0.010	N-118	1	32	10	140	4900	0.007
N-31	1	16	20	180	6500	<0.001	N-119	1	7	10	150	6500	0.004
N-32	1	13	10	230	3600	<0.001	N-120	1	13	10	180	2450	0.005
N-33	1	9	10	180	3700	0.009	N-121	1	7	10	200	8500	0.006
N-34	1	8	10	180	3200	0.007	N-122	1	10	10	180	3100	0.004
N-35	2	24	10	240	2100	<0.001	N-123	1	14	10	140	3700	0.004
N-36	1	9	10	240	3150	<0.001	N-124	1	16	40	100	10500	0.086
N-37	1	8	10	160	4050	0.003	N-125	1	26	40	220	5500	0.005
N-38	1	11	10	200	3200	0.003	O-1	1	47	40	560	7500	0.011
N-39	1	12	10	180	3200	0.003	O-2	1	19	20	180	2600	0.011
N-40	1	13	10	180	1700	<0.001	O-3	1	12	20	160	3000	0.015
N-41	1	10	20	200	2050	<0.001	O-4	1	10	20	160	2650	0.008
N-42	1	11	10	180	6000	<0.001	O-5	1	12	10	160	2850	0.027
N-43	3	13	10	170	3450	0.003	O-6	1	29	10	900	5000	0.011
N-44	1	11	20	180	3150	0.005	P-1	1	32	40	620	6500	0.015
N-45	5	33	20	180	5000	0.011	P-2	1	11	30	200	3900	0.022
N-46	1	9	10	200	2550	0.003	P-3	1	15	30	260	5000	0.007
N-47	1	19	10	260	5500	0.005	P-4	1	10	20	180	3100	0.016
N-48	1	19	10	180	5000	<0.001	P-5	1	46	30	440	3650	0.010
N-49	2	35	20	380	5500	0.044	P-6	1	17	10	200	3150	0.010
N-50	19	30	10	160	3100	<0.001	P-7	3	30	40	400	4700	0.018
N-51	1	17	10	620	3150	0.009	P-8	1	7	10	160	3350	<0.001
N-52	1	38	30	200	5500	0.010	P-9	1	8	10	160	3650	0.012
N-53	1	21	10	200	5000	0.015	P-10	2	13	20	180	5500	0.009
N-54	1	14	10	180	3350	0.010	P-11	1	13	20	240	6000	<0.001
N-55	6	13	10	180	4700	0.003	P-12	1	7	10	180	4100	0.007
N-56	1	11	10	220	3500	0.004	P-13	3	15	60	200	8500	0.047
N-57	5	34	10	220	5500	0.006	P-14	1	10	150	160	5500	0.002
N-58	1	6	10	180	3750	0.008	P-15	1	14	50	160	2950	0.008
N-59	1	8	10	200	3750	<0.001	P-16	1	29	90	200	3900	0.010
N-60	1	45	20	420	5500	0.038	P-17	1	32	50	200	5500	0.002
N-61	1	11	10	200	4800	0.038	P-18	2	20	60	160	2300	0.018
N-62	1	6	20	140	2350	<0.001	P-19	1	22	30	150	1900	0.008
N-63	1	31	20	140	5000	0.006	P-20	1	42	50	300	2400	0.015
N-64	1	16	20	240	5500	0.005	P-21	1	9	10	180	3750	0.004
N-65	1	23	10	240	4800	0.019	P-22	1	8	20	160	3550	0.003
N-66	1	6	10	180	3600	0.008	P-23	1	11	10	240	4200	0.046
N-67	1	9	30	160	3400	0.021	P-24	1	18	50	160	3150	0.005
N-68	1	10	10	140	3000	0.002	P-25	3	15	10	120	3450	0.009
N-69	1	14	10	280	4800	0.008	P-26	1	6	10	180	9500	<0.001
N-70	1	18	10	220	5500	0.063	P-27	4	41	20	160	3050	0.017
N-71	1	21	10	340	4750	0.007	P-28	1	20	20	140	2500	0.003
N-72	1	8	10	160	4150	0.004	P-29	1	8	10	180	3100	0.007
N-73	3	56	10	160	4050	<0.001	P-30	1	9	10	80	2700	0.003
N-74	1	8	10	180	3350	0.001	P-31	1	19	20	180	5250	0.016
N-75	3	68	80	2600	13500	0.081	P-32	1	6	10	140	2950	0.008
N-76	1	9	10	150	3350	<0.001	P-33	1	22	40	300	5000	0.011
N-77	1	3	70	80	700	0.082	P-34	1	33	40	280	7000	0.006
N-79	1	6	10	120	3600	0.003	P-35	1	13	10	160	2750	0.004