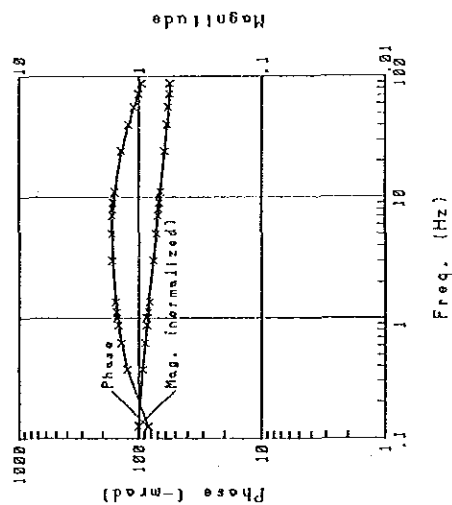


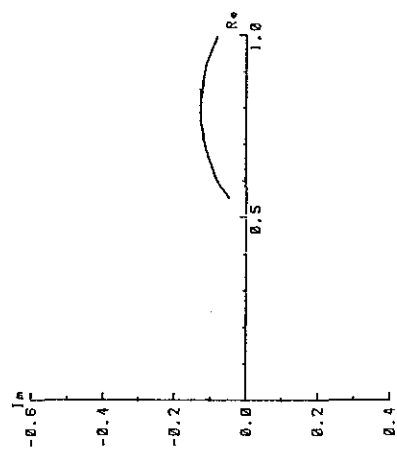
Karadag Area

Phase spectra and Cole-Cole
diagrams of Core samples

NO. 1

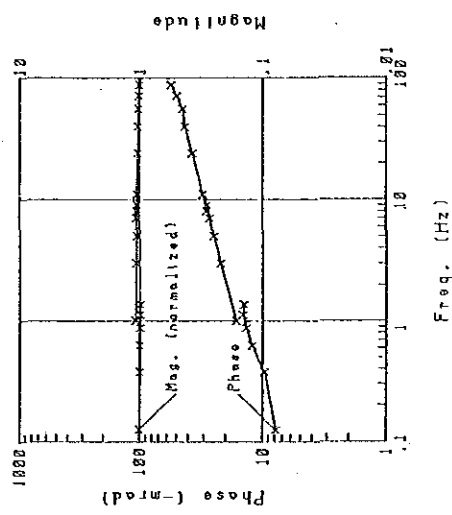


NO. 1 Cole-Cole Diagram

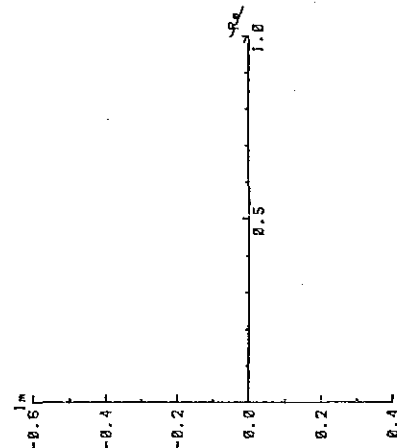


R o c k : Andesite
 Spectrum : X type
 Phase : 83.2 -m rad
 P F E : 18.1 %
 Resistivity : 454 ohm-m

NO. 2

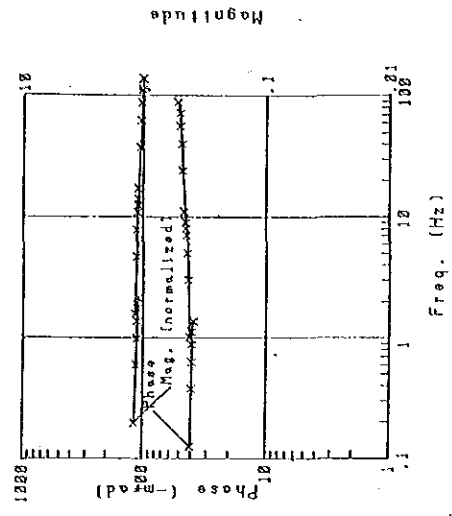


NO. 2 Cole-Cole Diagram

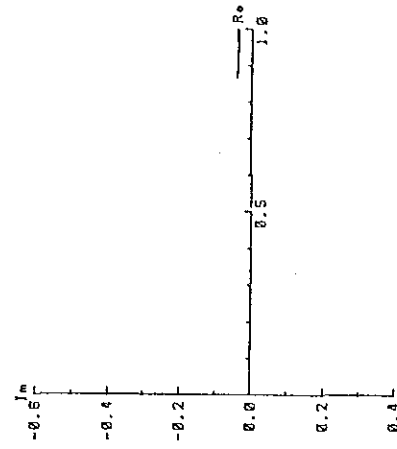


R o c k : Andesite
 Spectrum : A type
 Phase : 7.8 -m rad
 P F E : 1.4 %
 Resistivity : 18,700 ohm-m

NO. 3

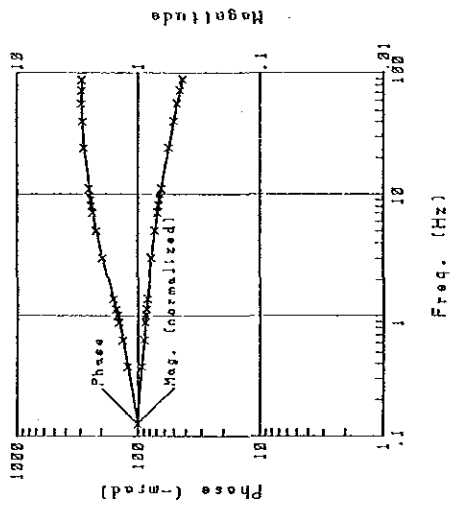


NO. 3 Cole-Cole Diagram

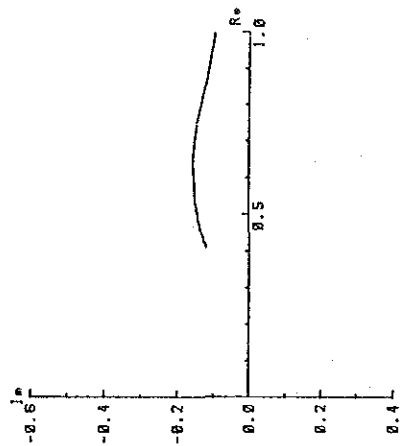


R o c k : Granodiorite
 Spectrum : B type
 Phase : 40.5 -m rad
 P F E : 5.5 %
 Resistivity : 5,260 ohm-m

NO. 4

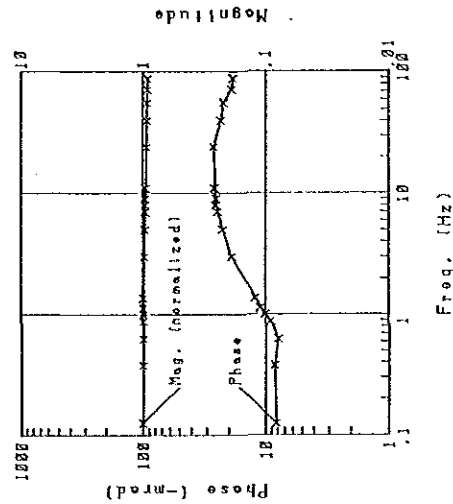


NO. 4 Cole-Cole Diagram

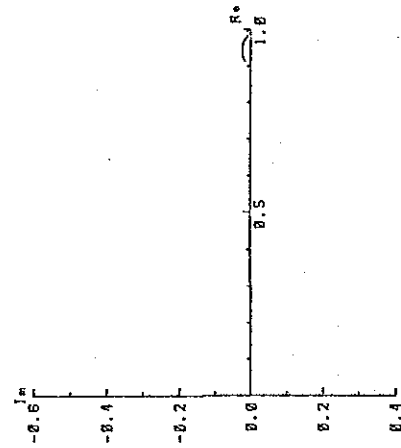


R o c k : Granodiorite
 Spectrum : D type
 Phase : 99.0 -m rad
 P F E : 16.4 %
 Resistivity : 226 ohm-m

NO. 5

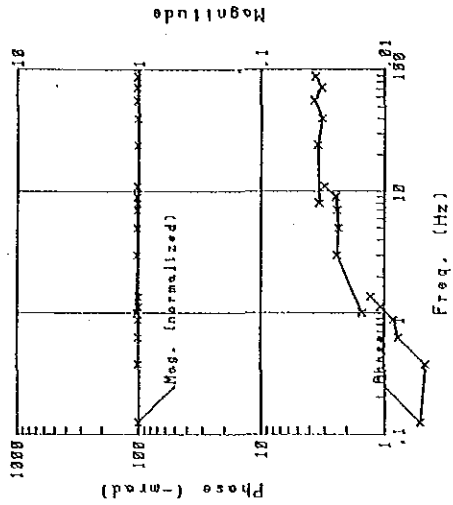


NO. 5 Cole-Cole Diagram

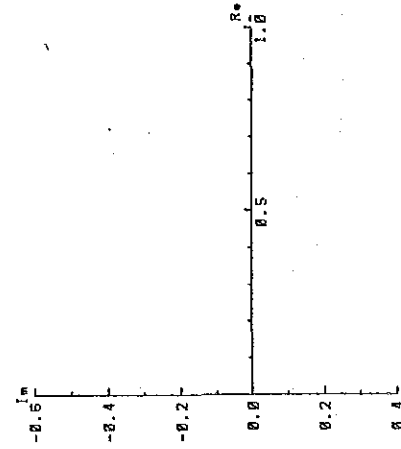


R o c k : Skarn
 Spectrum : E type
 Phase : 8.2 -m rad
 P F E : 0.7 %
 Resistivity : 499 ohm-m

NO. 6

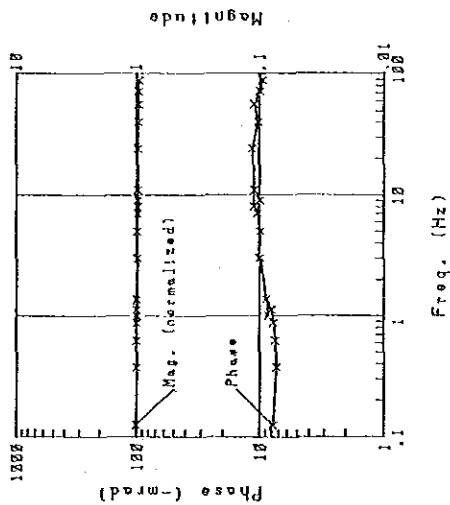


NO. 6 Cole-Cole Diagram



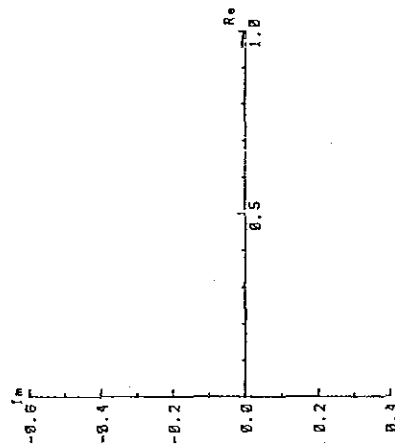
R o c k : Limestone
 Spectrum : A type
 Phase : 0.5 -m rad
 P F E : 0.1 %
 Resistivity : 8,530 ohm-m

NO. 7



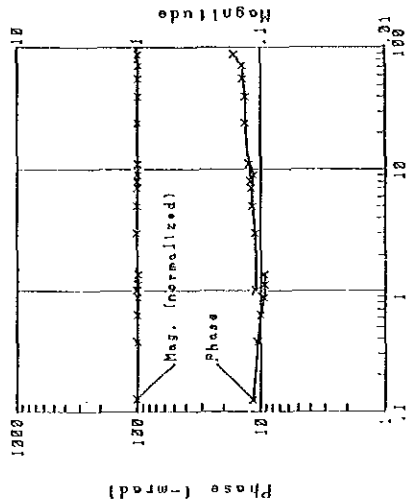
Freq. (Hz)

NO. 7 Cole-Cole Diagram



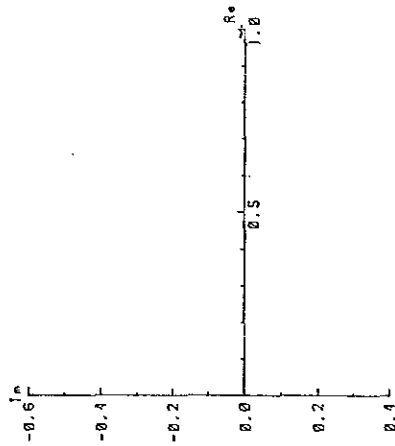
R o c k : Limestone
 Spectrum : E
 type
 P h a s e : 7.7 -m rad
 P F E : 0.9 %
 Resistivity : 4,560 ohm-m

NO. 8



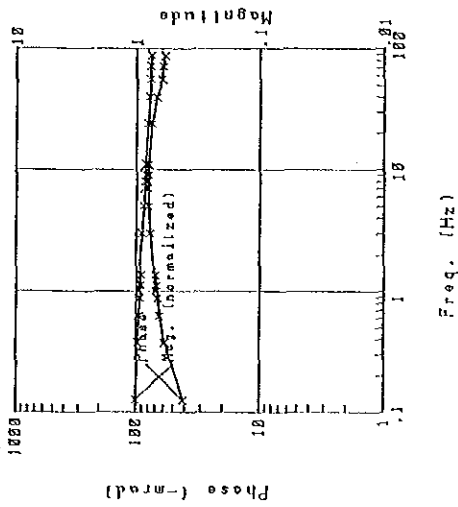
Freq. (Hz)

NO. 8 Cole-Cole Diagram



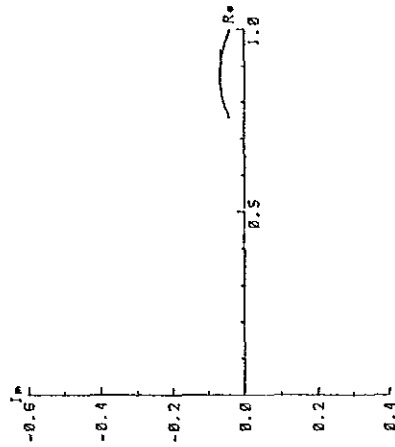
R o c k : Limestone
 Spectrum : B
 type
 P h a s e : 11.5 -m rad
 P F E : 1.4 %
 Resistivity : 3,790 ohm-m

NO. 9



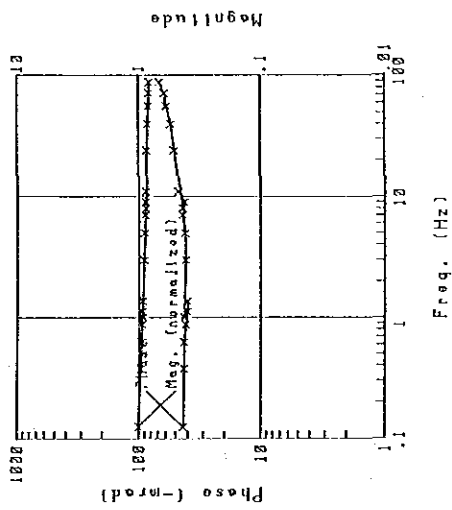
Freq. (Hz)

NO. 9 Cole-Cole Diagram

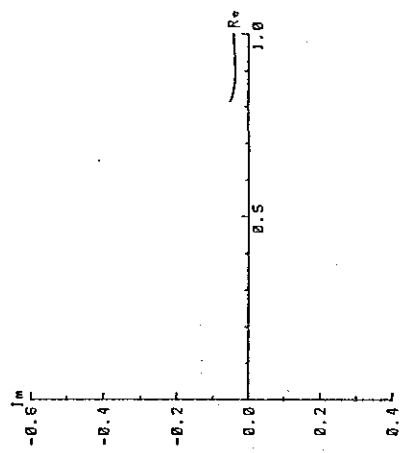


R o c k : Limestone
 Spectrum : D
 type
 P h a s e : 41.1 -m rad
 P F E : 8.2 %
 Resistivity : 1,140 ohm-m

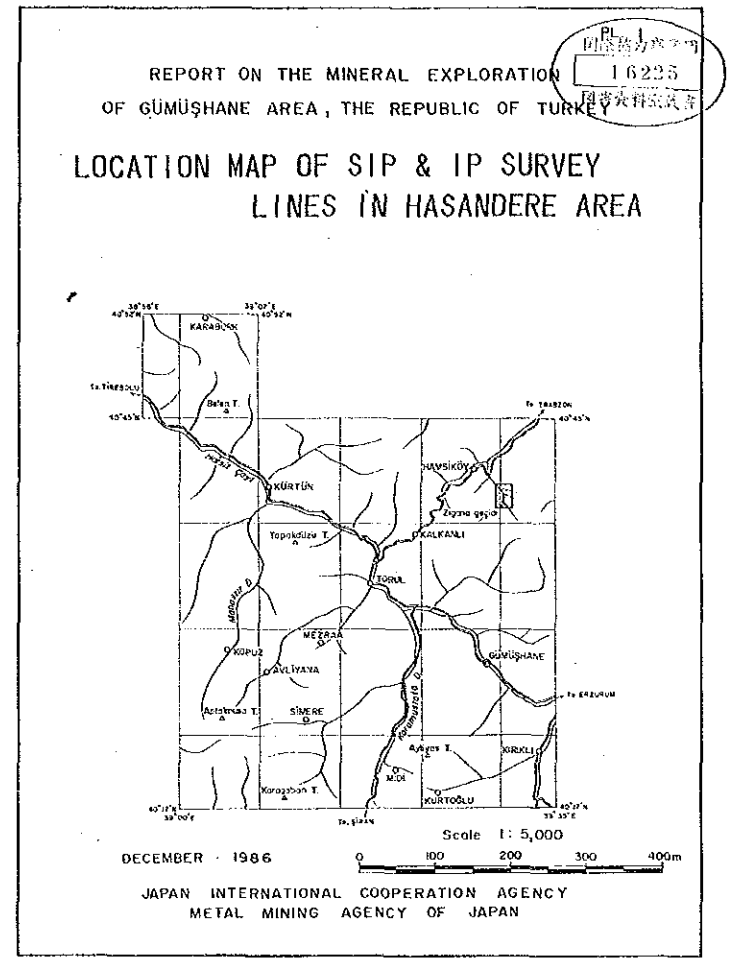
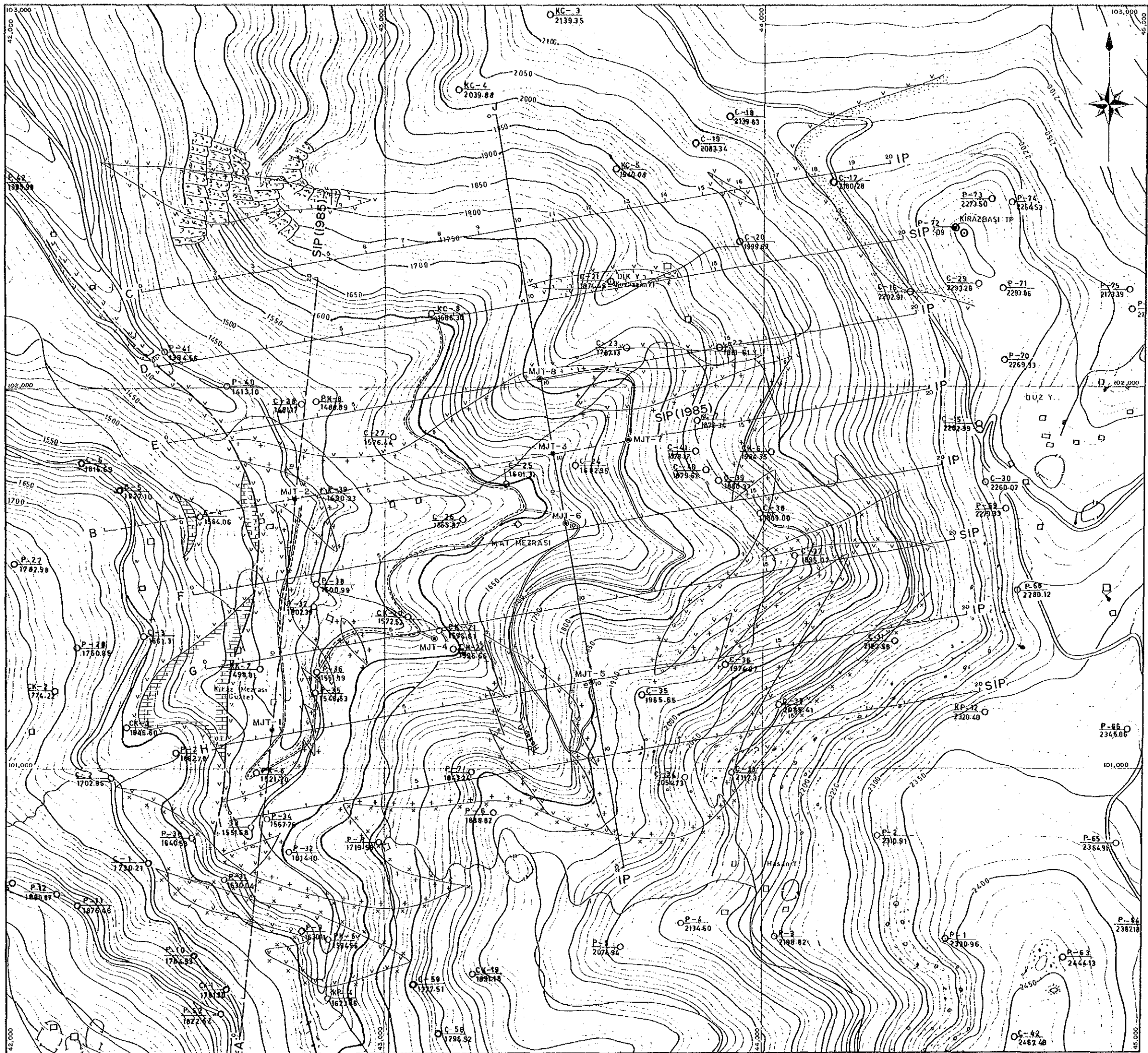
NO. 10



NO. 10 Cole-Cole Diagram



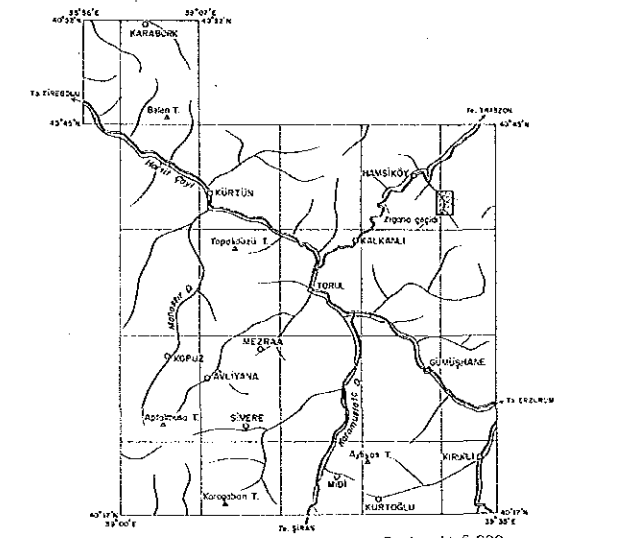
R o c k : Limestone
 Spectrum : B type
 Phase : 43.5 -m rad
 P . F : 8.2 %
 Resistivity : 21,000 ohm-m



LEGEND

- | | | |
|--------------|--|-------------------------------|
| Zigana F. | | Siltstone, Sandstone |
| Kuşekkaya F. | | Andesite |
| | | Limestone |
| | | Quartz porphyry |
| Intrusive | | Porphyritic granite (Pg-2) |
| | | Porphyritic granite (Pg-1) |
| | | Fault (inferred) |
| | | Drill Holes Performed in 1985 |
| | | Drill Holes Performed in 1986 |

PLAN MAP OF APPARENT RESISTIVITY
[0.125 Hz] (N=1)

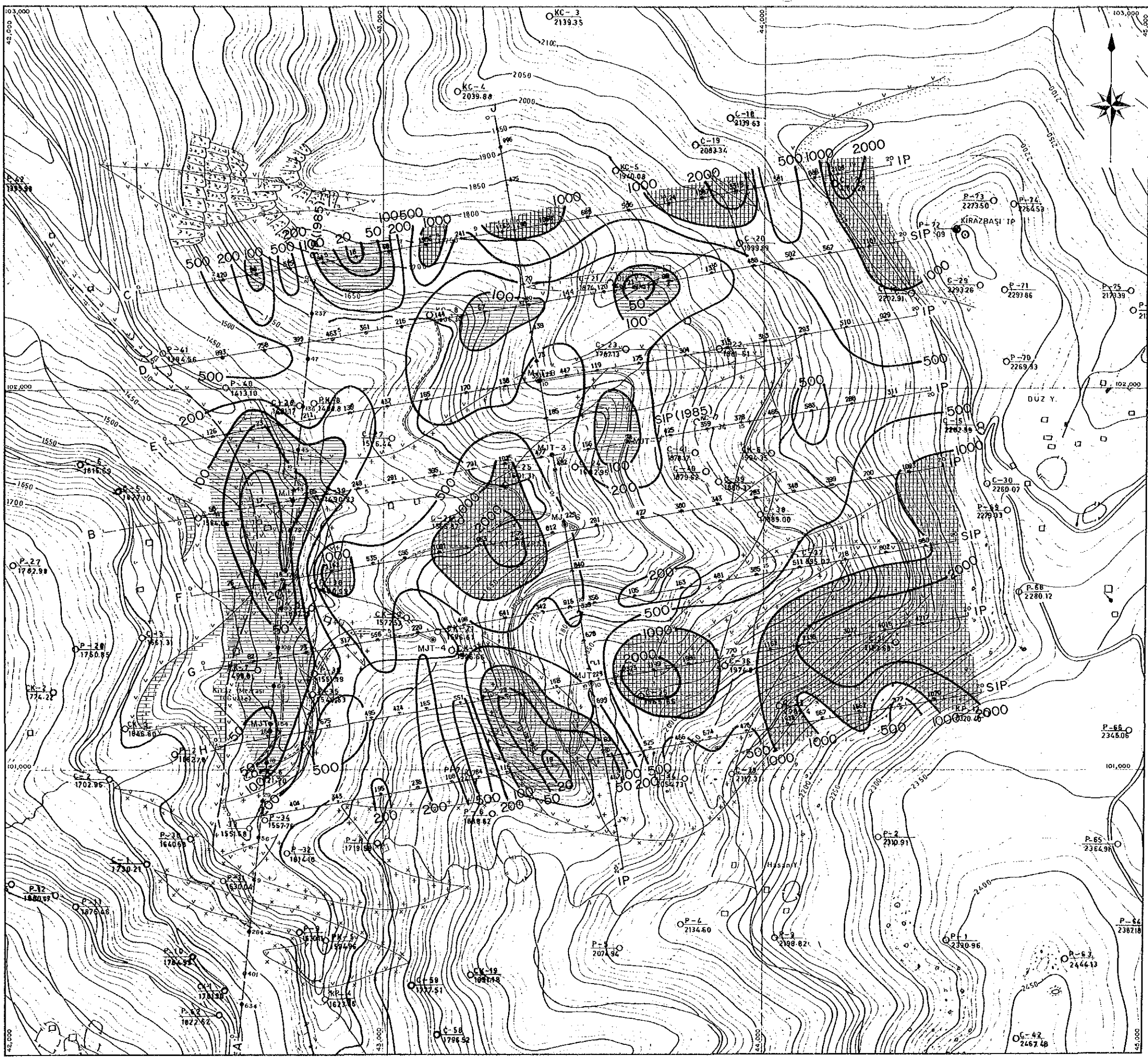


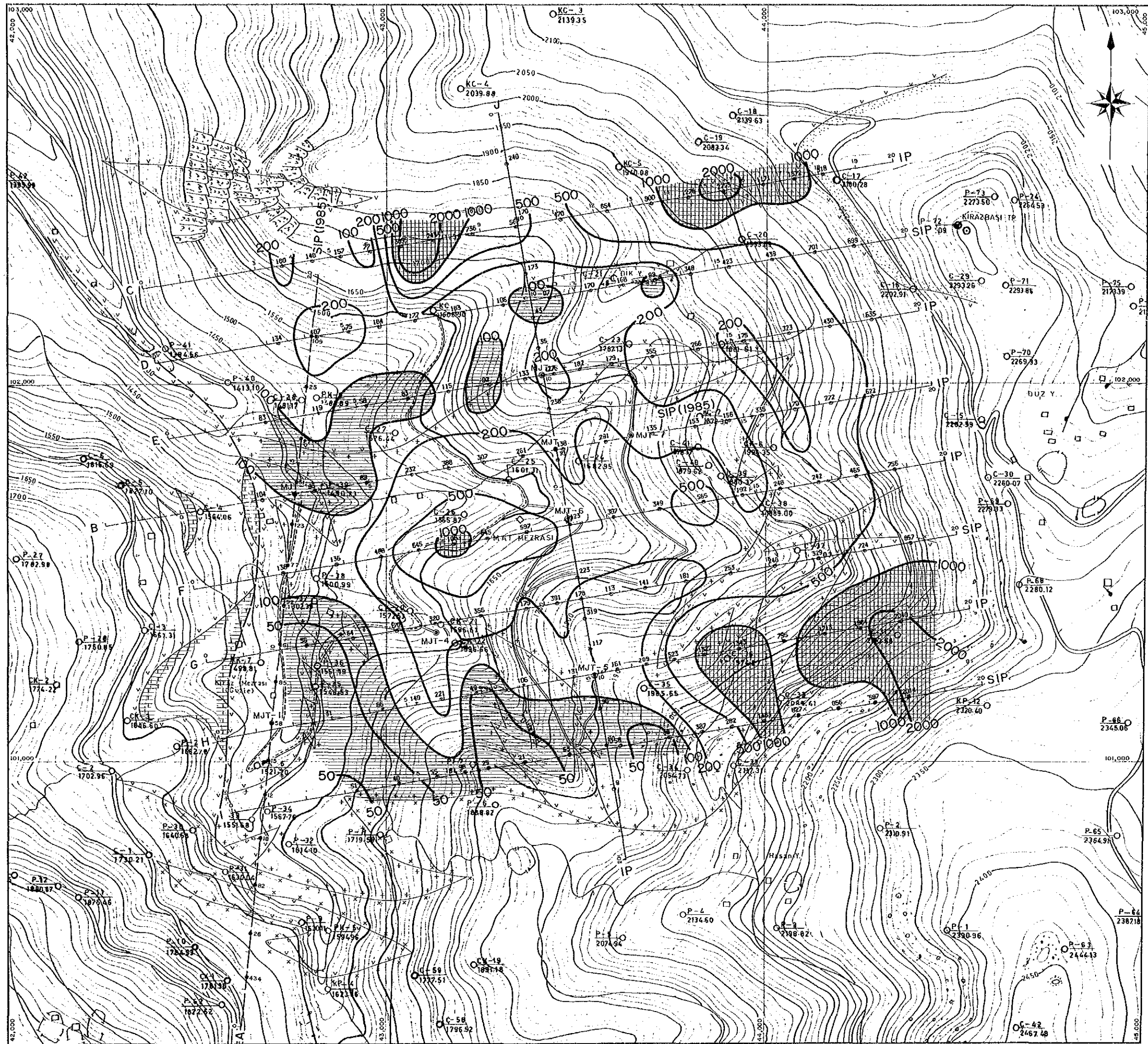
Scale 1: 5,000
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JAPAN INTERNATIONAL COOPERATION AGENCY
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LEGEND

- Zigano F. Siltstone, Sandstone
 - Andesite
 - Kuşokkaya F. Limestone
 - Quartz porphyry
 - Intrusive Porphyritic granite (Pg-2)
 - Porphyritic granite (Pg-1)
 - Fault (inferred)
 - Drill Holes Performed in 1985
 - Drill Holes Performed in 1986
 - High resistivity zone
 - Low resistivity zone
- (unit: ohm-m)





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 日本国際協力機構
 REPORT ON THE MINERAL EXPLORATION
 OF GÜMÜŞHANE AREA, THE REPUBLIC OF TURKEY

PLAN MAP OF APPARENT RESISTIVITY [0.125 Hz] (N=3)

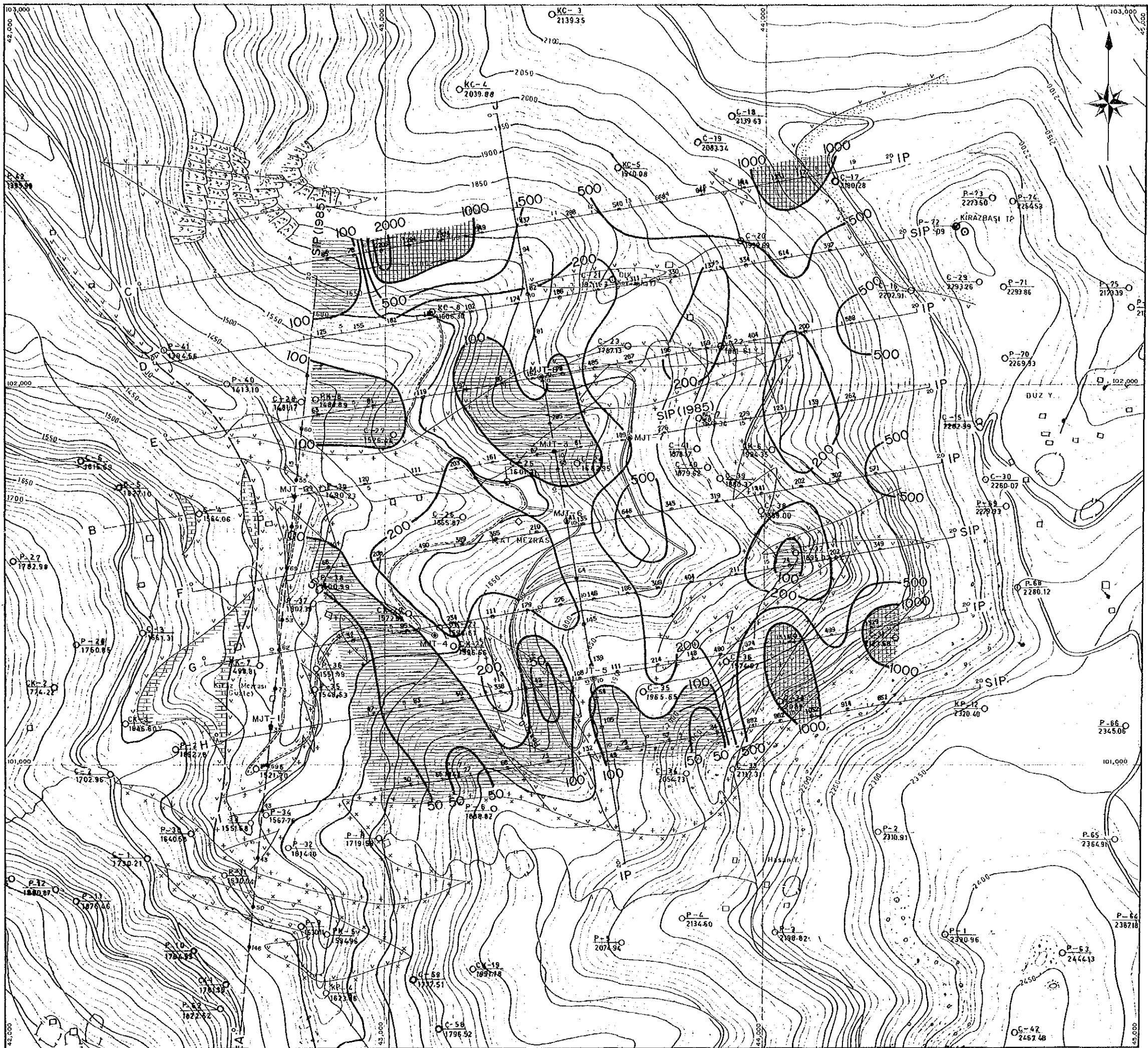
Scale 1: 5,000

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JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN

LEGEND

- Siltstone, Sandstone
 - Zigana F. Andesite
 - Kuşakkaya F. Limestone
 - Quartz porphyry
 - Intrusive Porphyritic granite (Pg-2)
 - Intrusive Porphyritic granite (Pg-1)
 - Fault (inferred)
 - Drill Holes Performed in 1985
 - Drill Holes Performed in 1986
 - High resistivity zone (>1000)
 - Low resistivity zone (<100)
- (unit: ohm-m)



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OF GÜMÜŞHANE AREA, THE REPUBLIC OF TURKEY

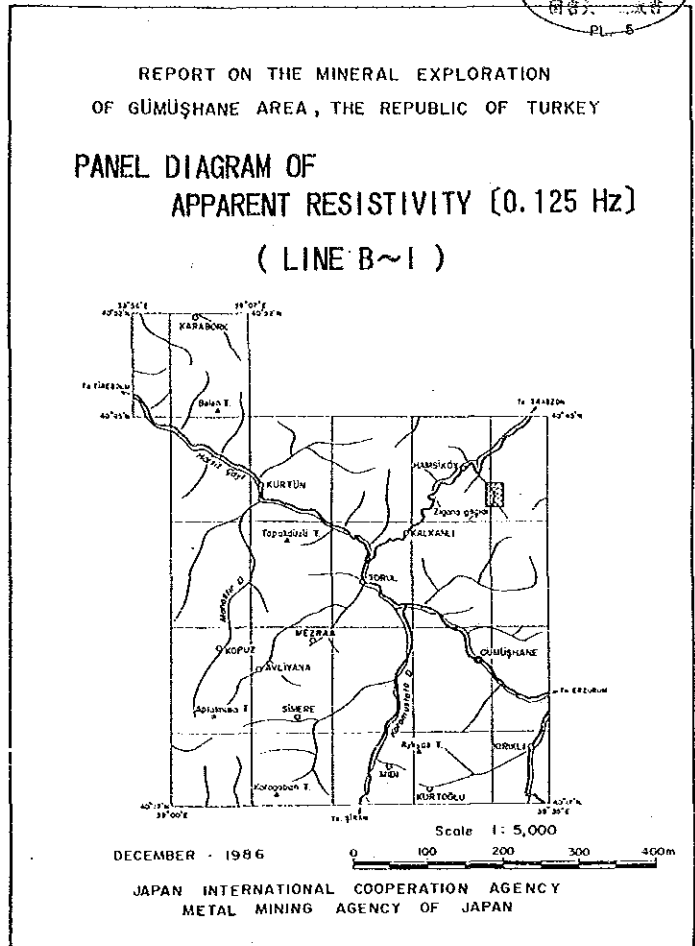
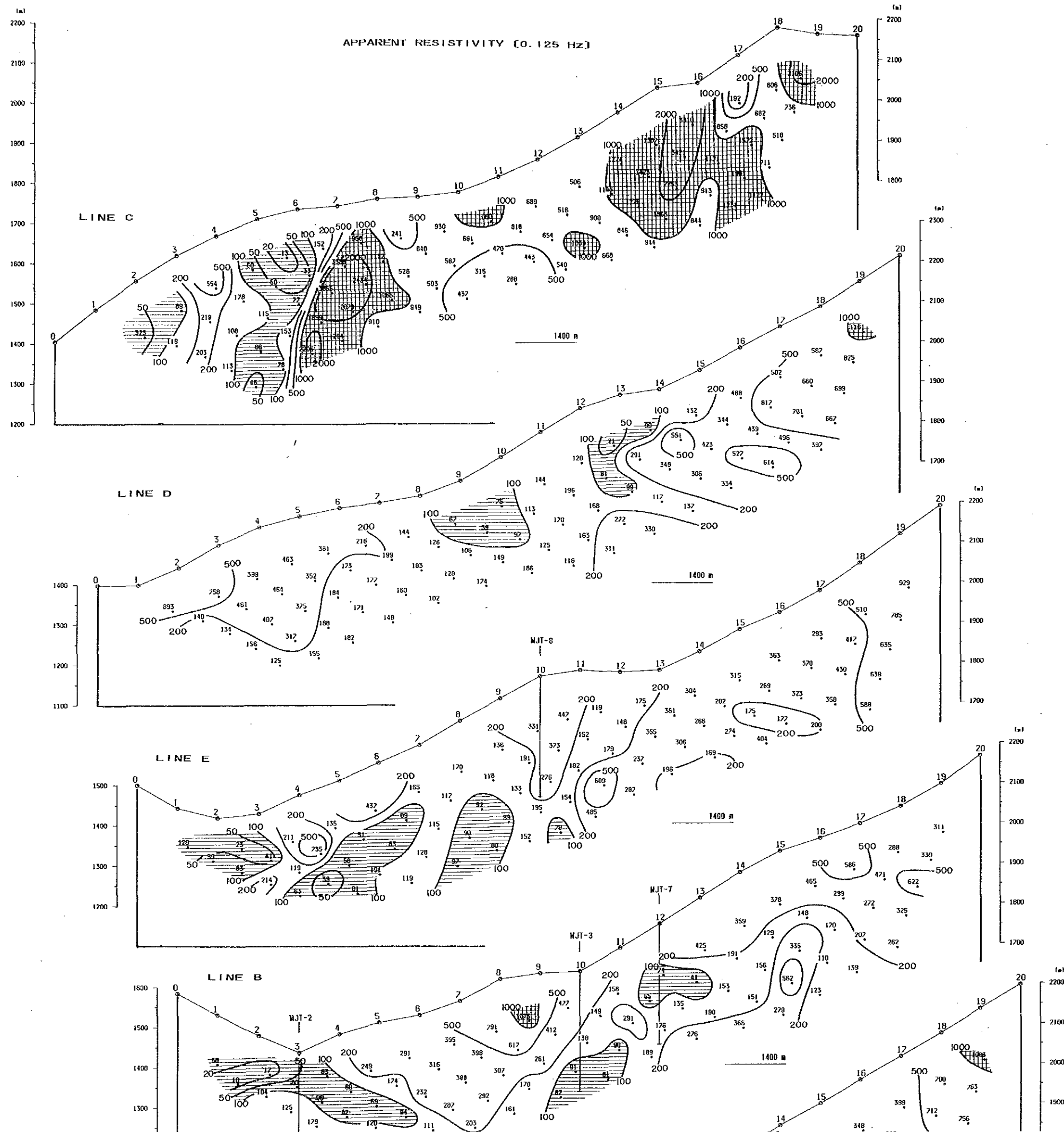
PLAN MAP OF APPARENT RESISTIVITY [0.125 Hz] (N=5)

Scale 1: 5,000
0 100 200 300 400m

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JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN

LEGEND

- Zigana F. Siltstone, Sandstone
 - Andesite
 - Kugakkaya F. Limestone
 - Quartz porphyry
 - Intrusive Porphyritic granite (Pg-2)
 - Porphyritic granite (Pg-1)
 - Fault (inferred)
 - Drill Holes Performed in 1985
 - Drill Holes Performed in 1986
 - High resistivity zone
1000
 - Low resistivity zone
<100
- (unit: ohm-m)

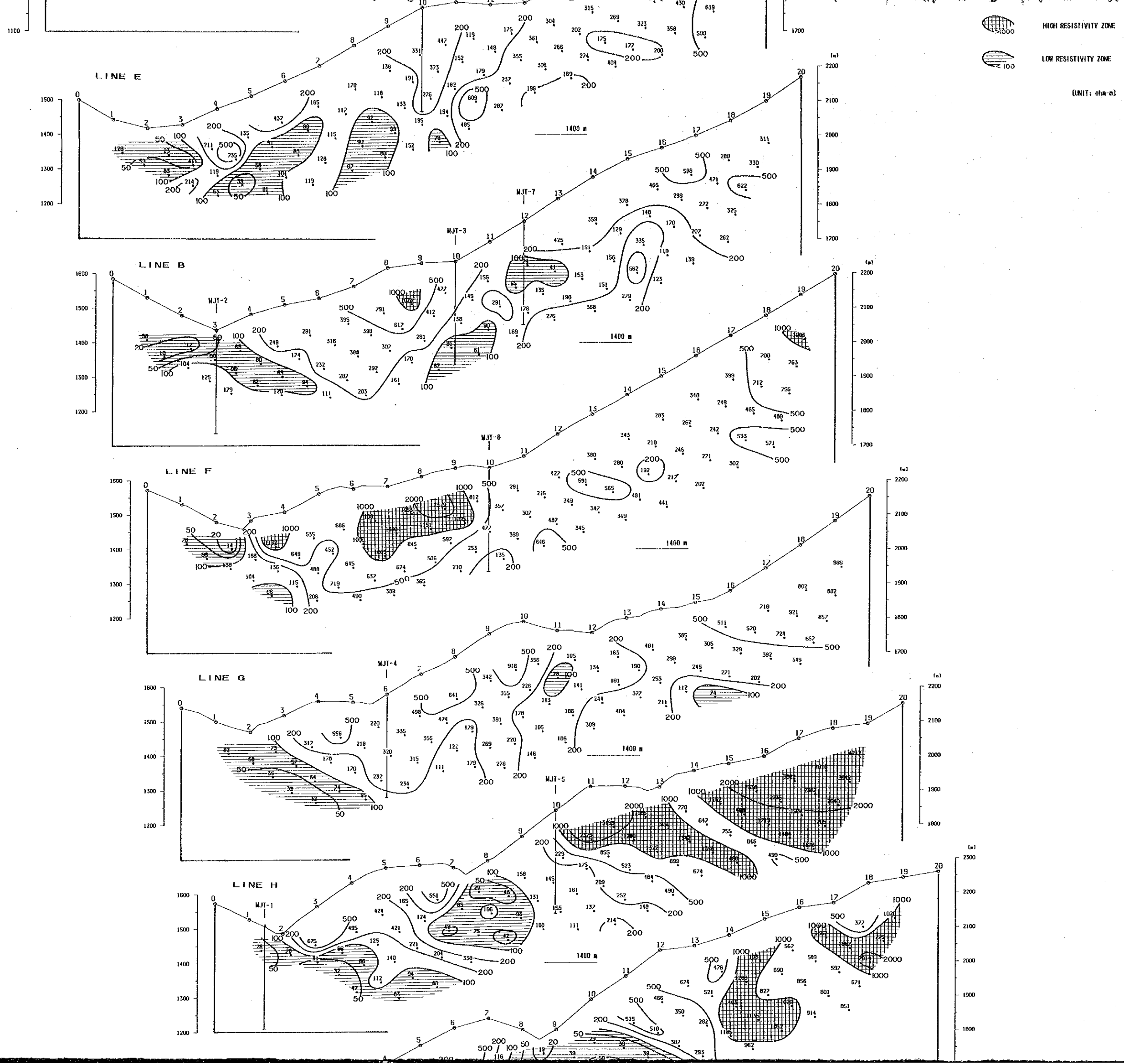


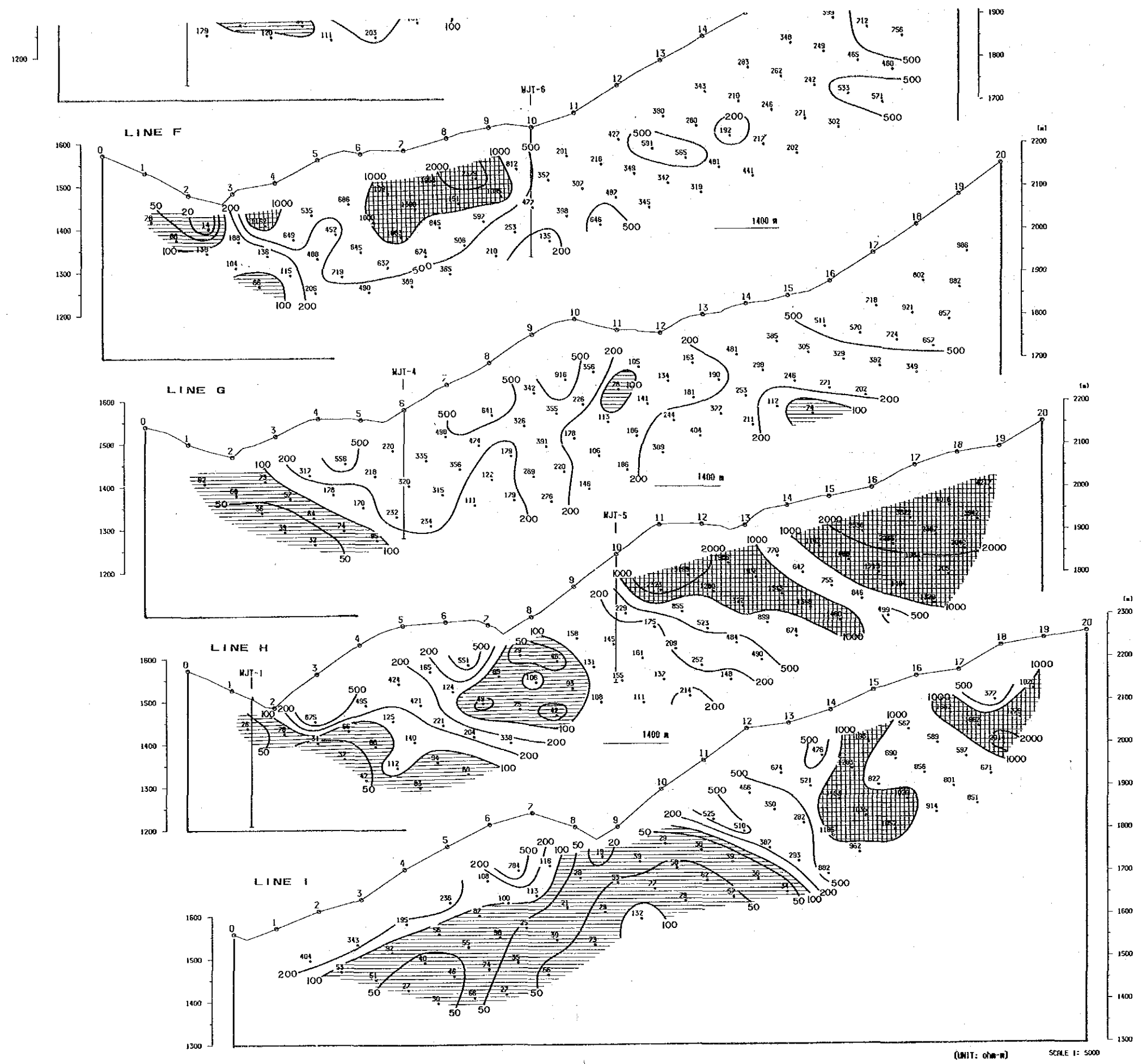
LEGEND

HIGH RESISTIVITY ZONE
>1000

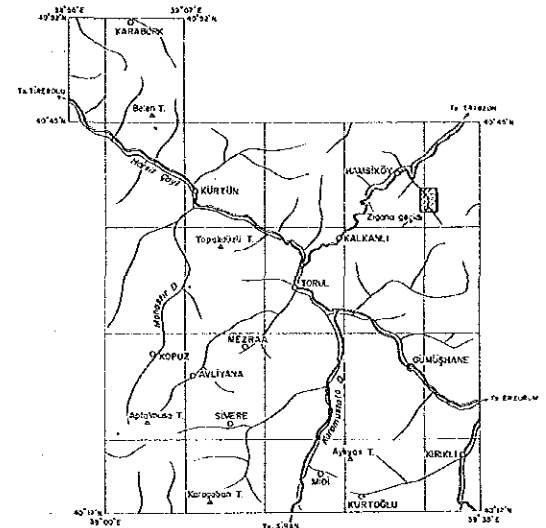
LOW RESISTIVITY ZONE
<100

(UNIT: ohm-m)

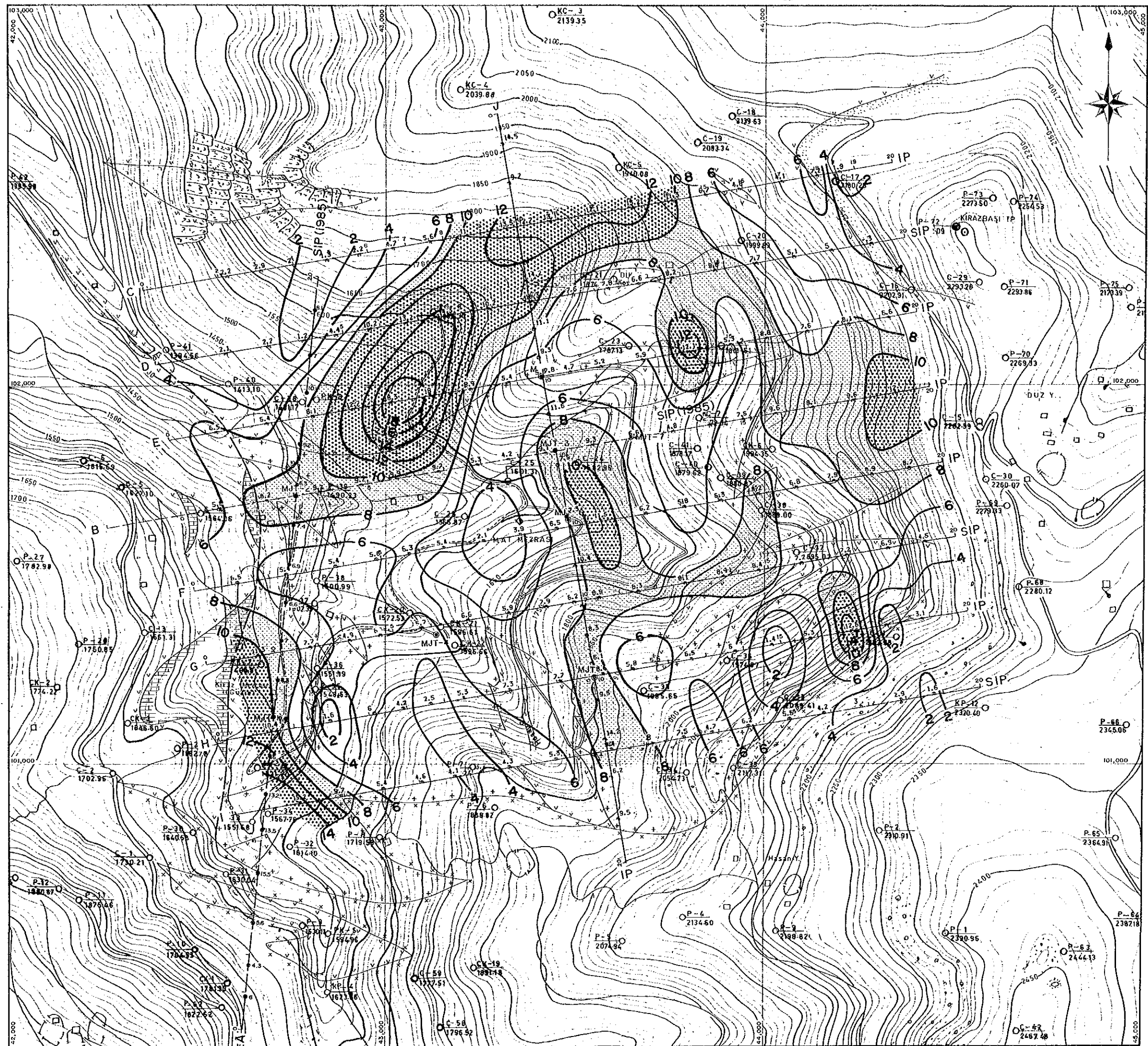




PLAN MAP OF PFE
[0.125/1.0 Hz] (N=1)

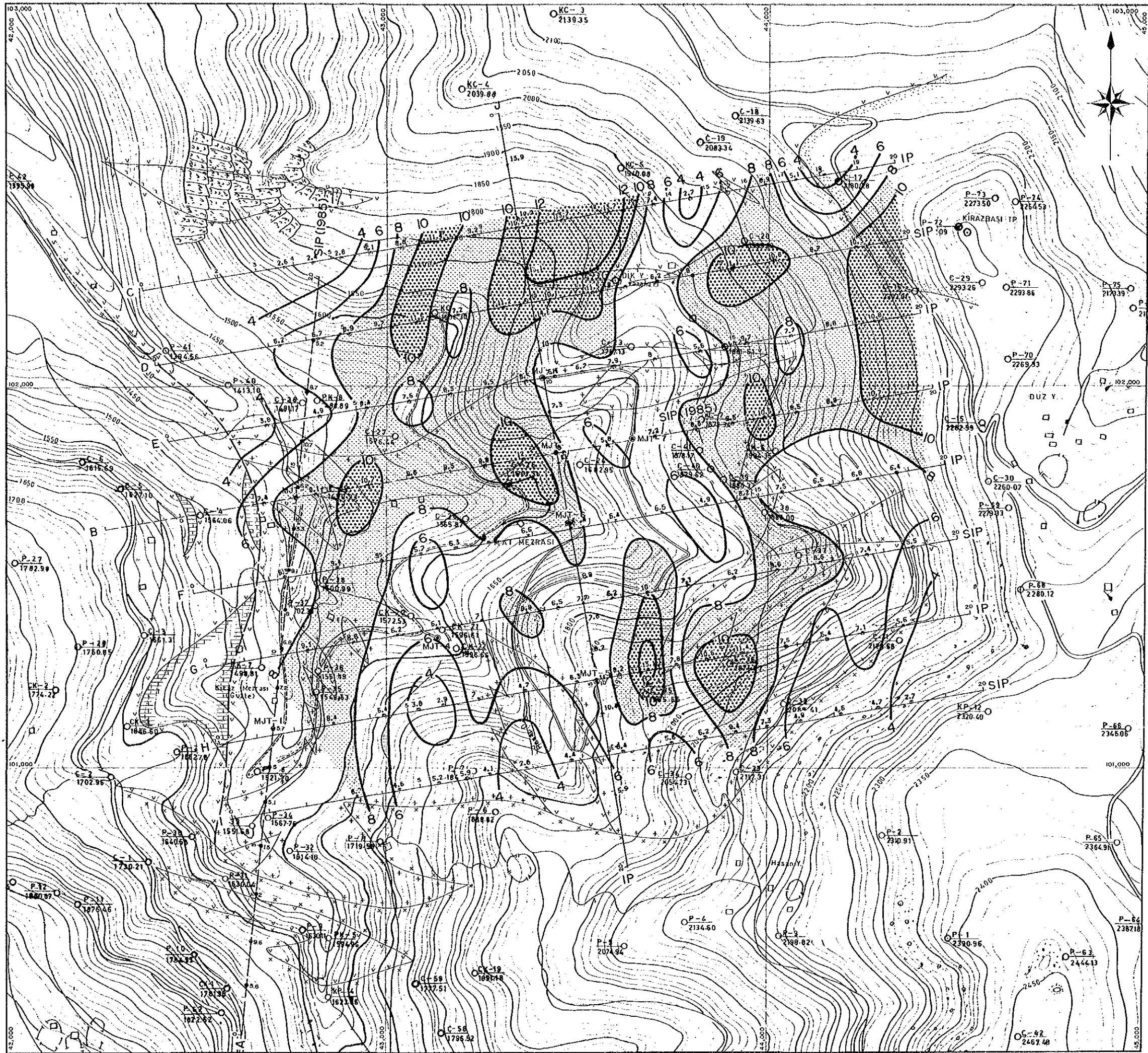


Scale 1: 5,000
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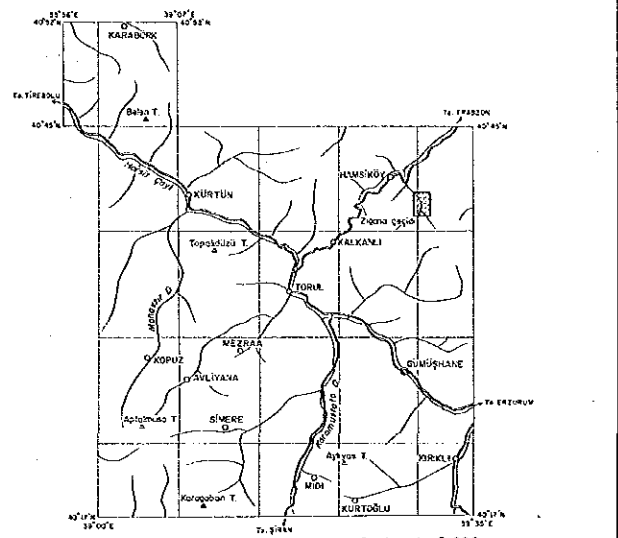
LEGEND

- Siltstone, Sandstone
 - Andesite
 - Limestone
 - Quartz porphyry
 - Porphyritic granite (Pg-2)
 - Porphyritic granite (Pg-1)
 - Fault (inferred)
 - Drill Holes Performed in 1985
 - Drill Holes Performed in 1986
 - Very high PFE zone
 - High PFE zone
- (unit: x)



REPORT ON THE MINERAL EXPLORATION
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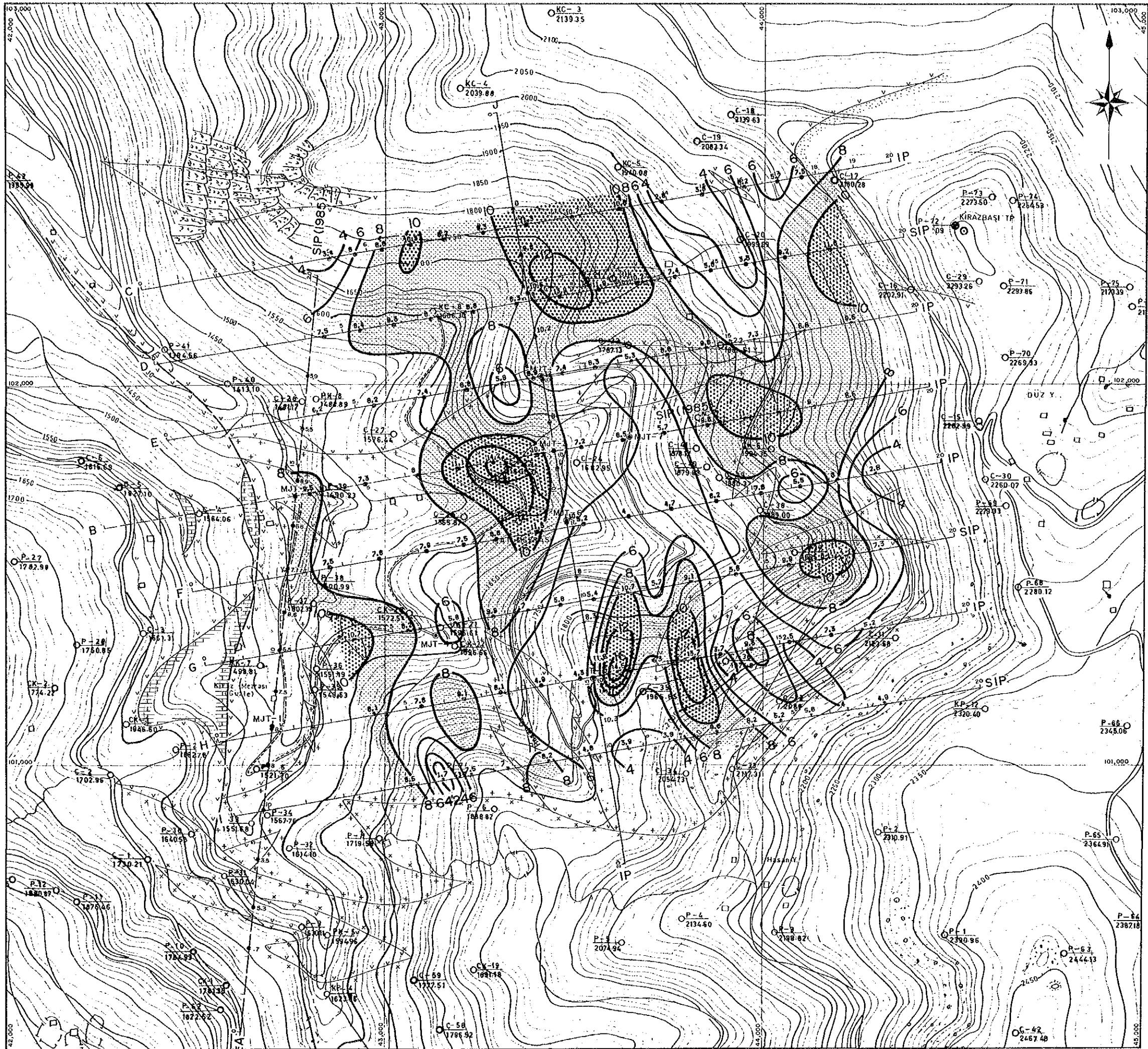
PLAN MAP OF PFE
[0.125/1.0 Hz] (N=3)



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Scale 1: 5,000
JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN

LEGEND

- Zigano F. Siltstone, Sandstone
 - Andesite
 - Kuşakkaya F. Limestone
 - Quartz porphyry
 - Intrusive Porphyritic granite (Pg-2)
 - Porphyritic granite (Pg-1)
 - Fault (inferred)
 - Drill Holes Performed in 1985
 - Drill Holes Performed in 1986
 - Very high PFE zone
 - High PFE zone
- (unit: 1)



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REPORT ON THE MINERAL EXPLORATION
OF GÜMÜŞHANE AREA, THE REPUBLIC OF TURKEY

PLAN MAP OF PFE
[0.125/1.0 Hz] (N=5)

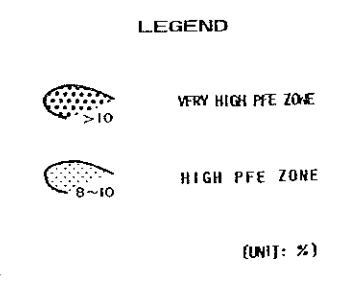
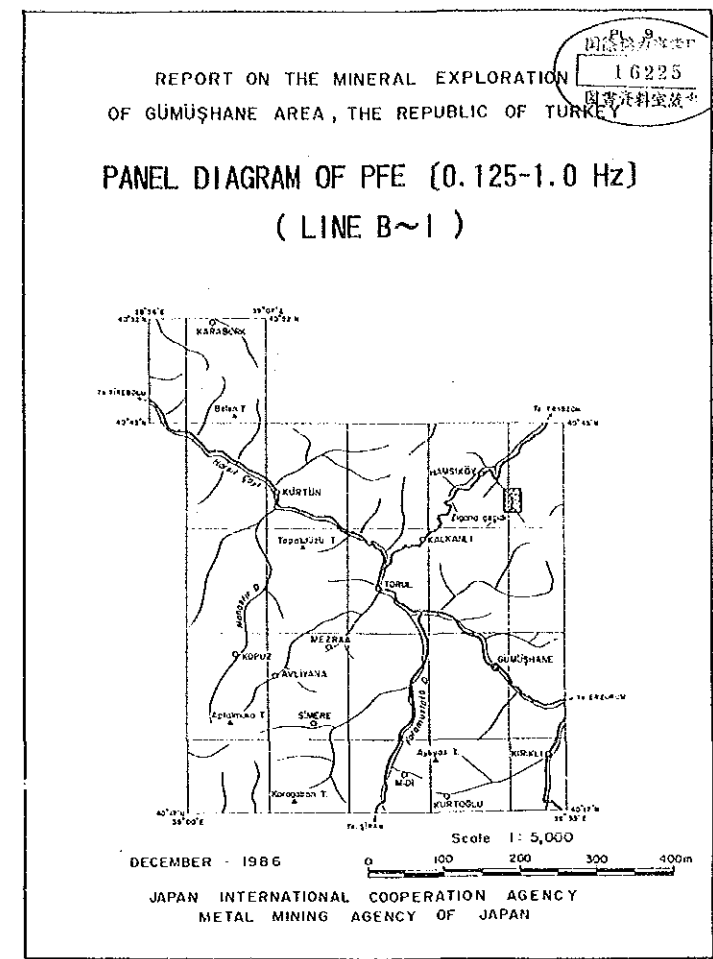
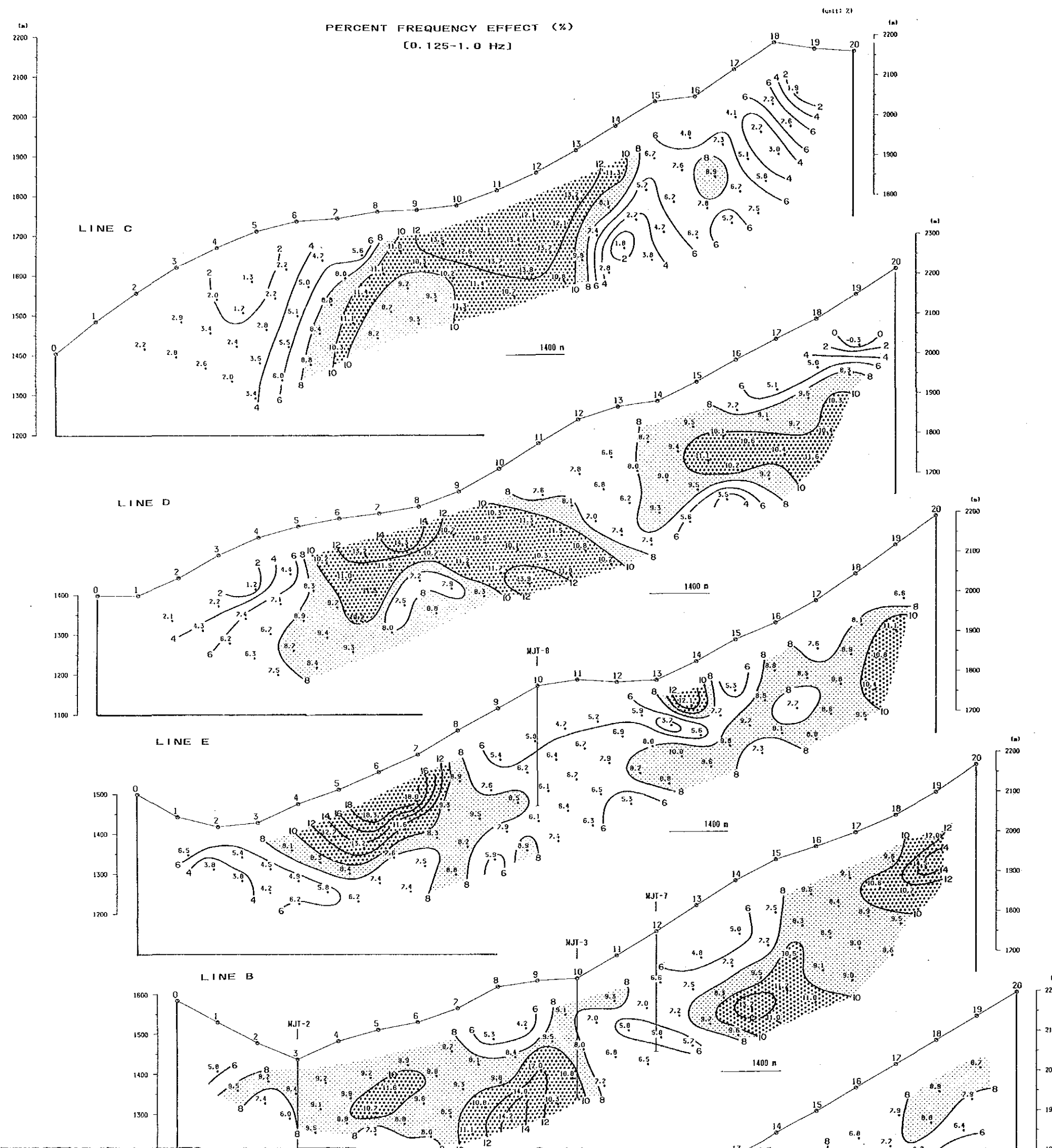
Scale 1: 5,000

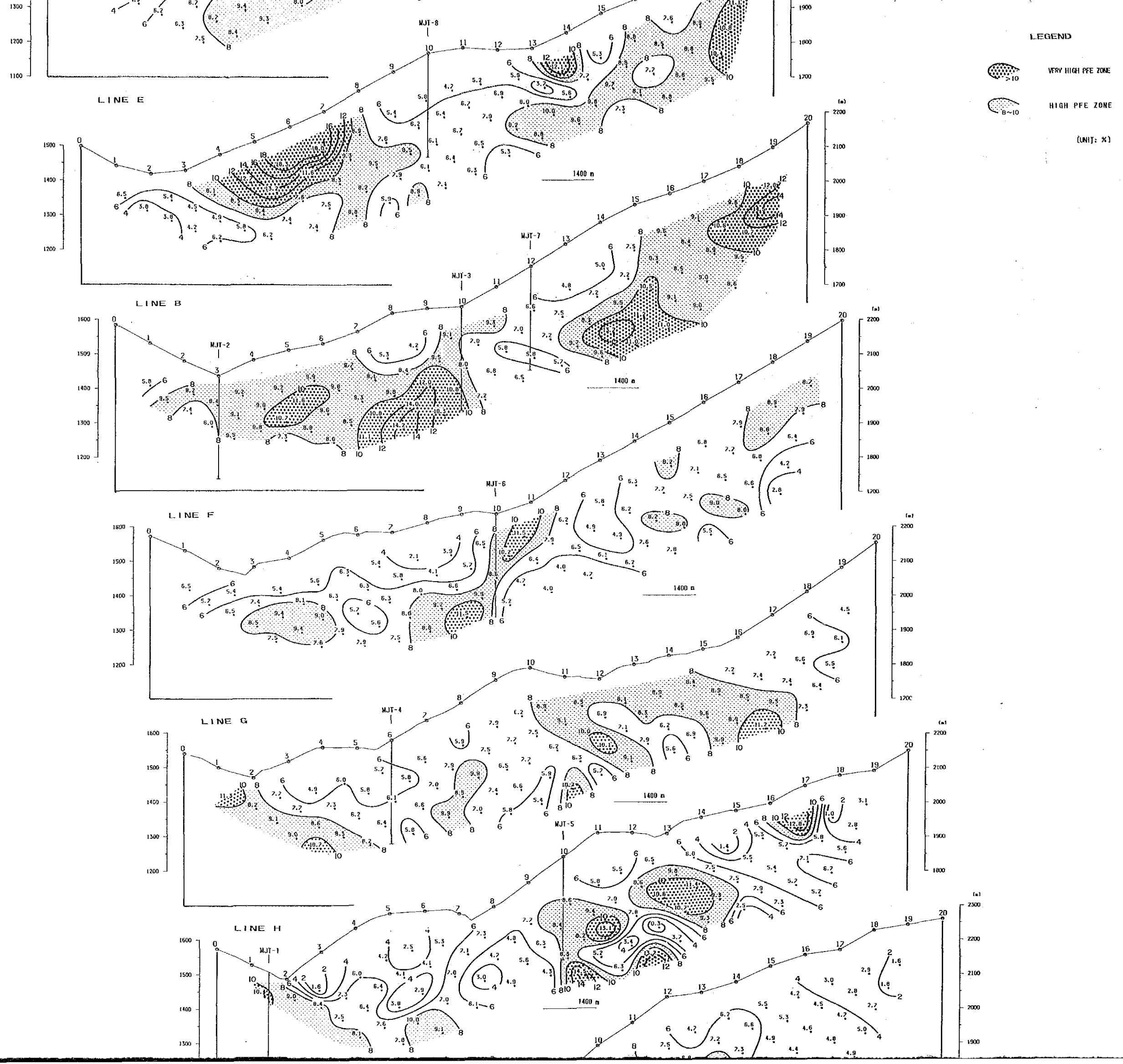
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JAPAN INTERNATIONAL COOPERATION AGENCY
METAL MINING AGENCY OF JAPAN



LEGEND

- Zigona F. Siltstone, Sandstone
 - Andesite
 - Kujakkoya F. Limestone
 - Quartz porphyry
 - Intrusive Porphyritic granite (Pg-2)
 - Porphyritic granite (Pg-1)
 - Fault (inferred)
 - Drill Holes Performed in 1985
 - Drill Holes Performed in 1986
 - Very high PFE zone (>10)
 - High PFE zone (8-10)
- (unit: %)

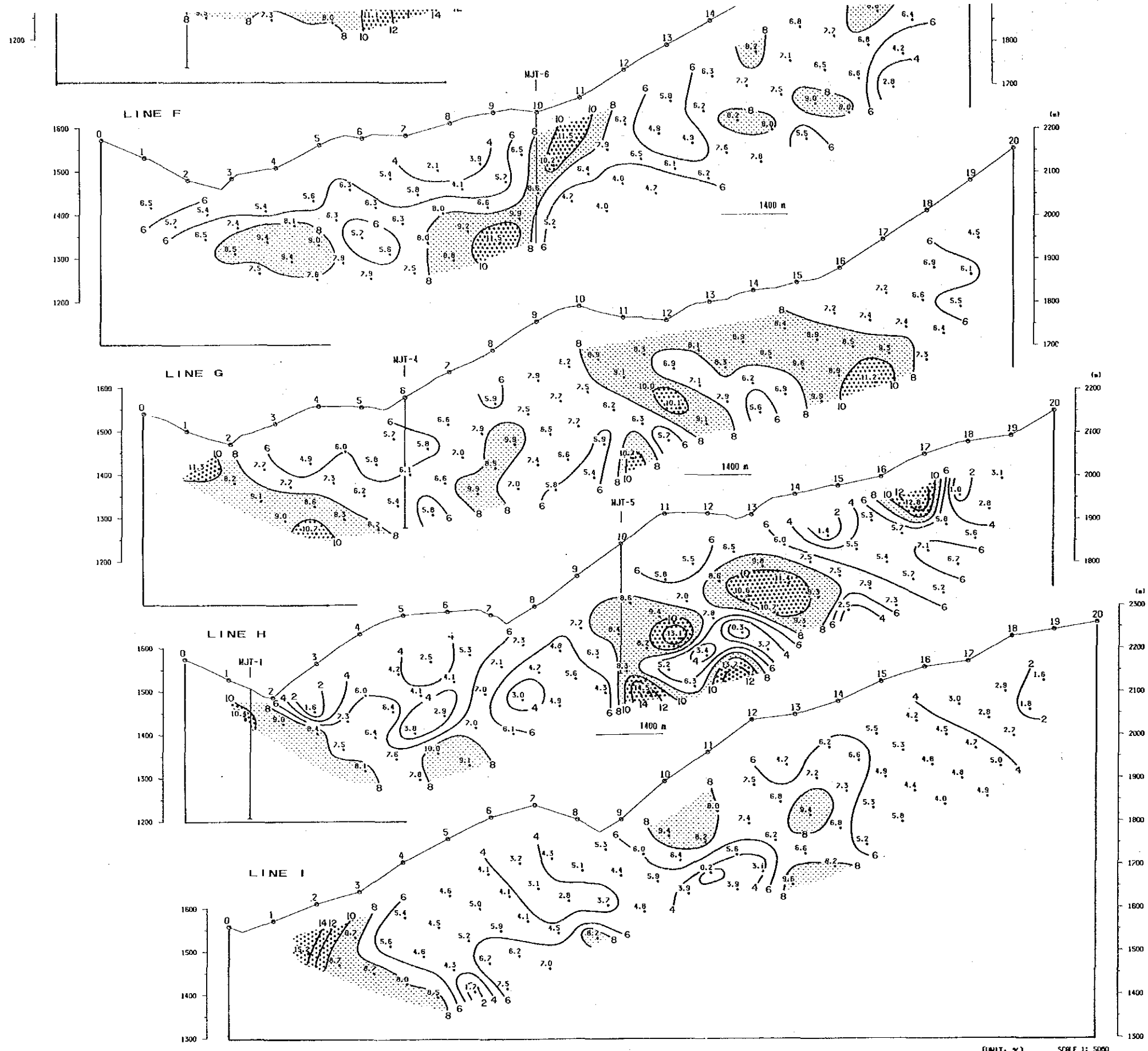




LEGEND

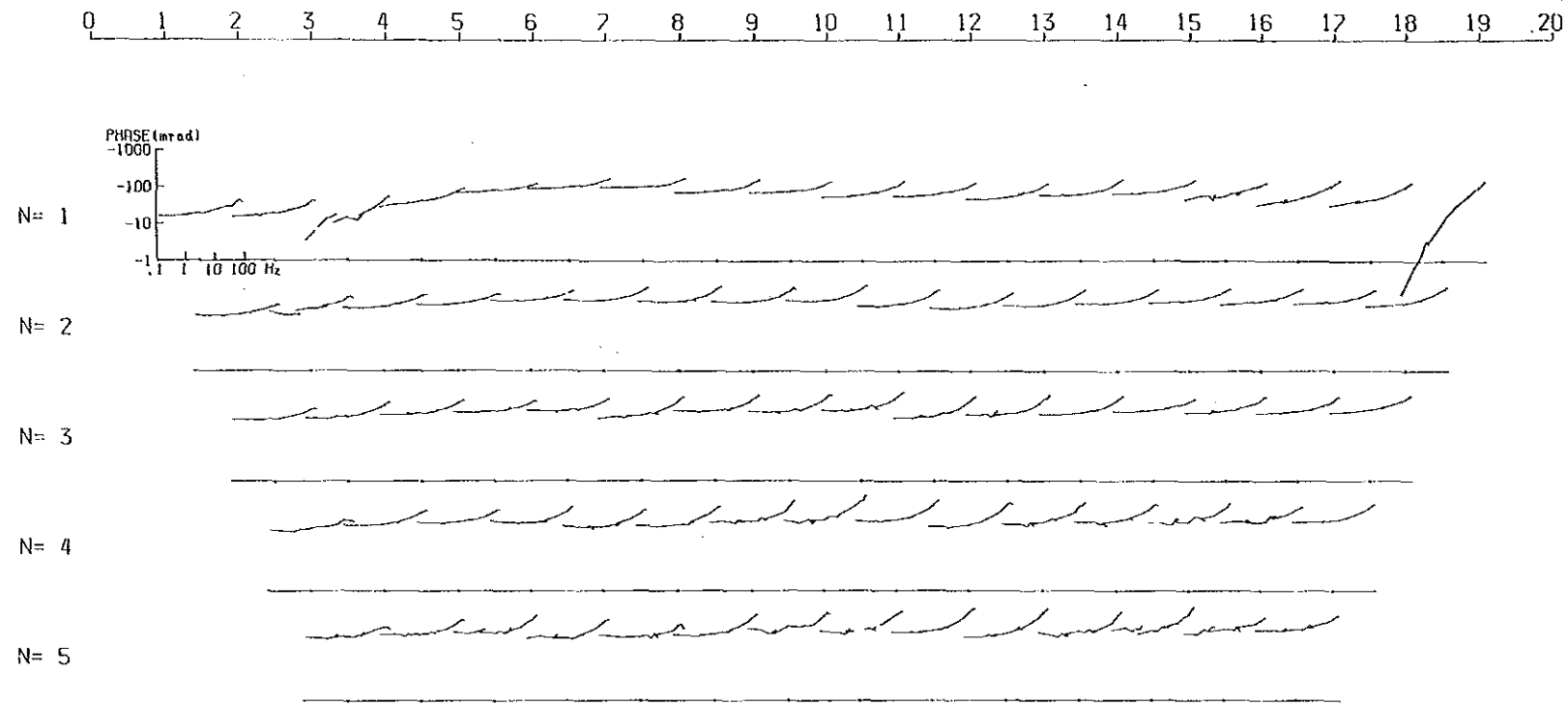
-  VERY HIGH PFE ZONE
-  HIGH PFE ZONE

(UNIT: X1)

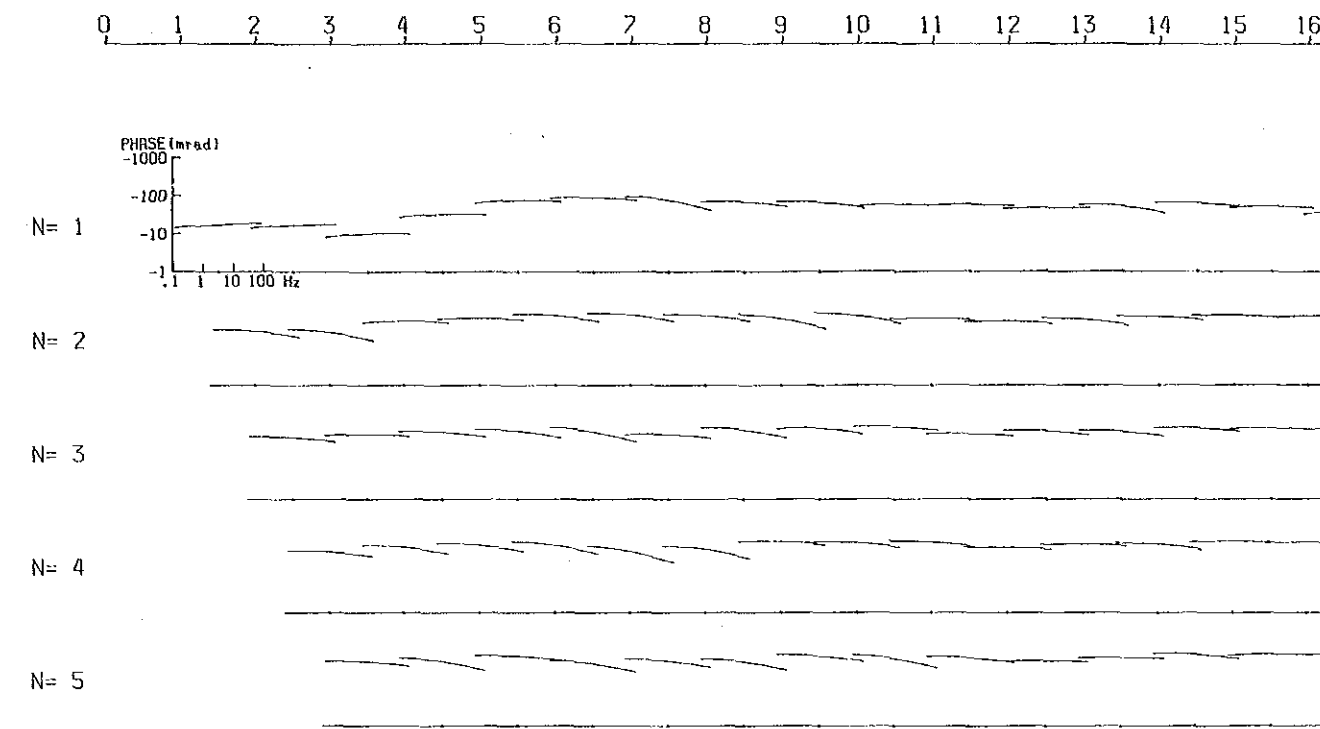


[UNIT: %] SCALE 1: 5000

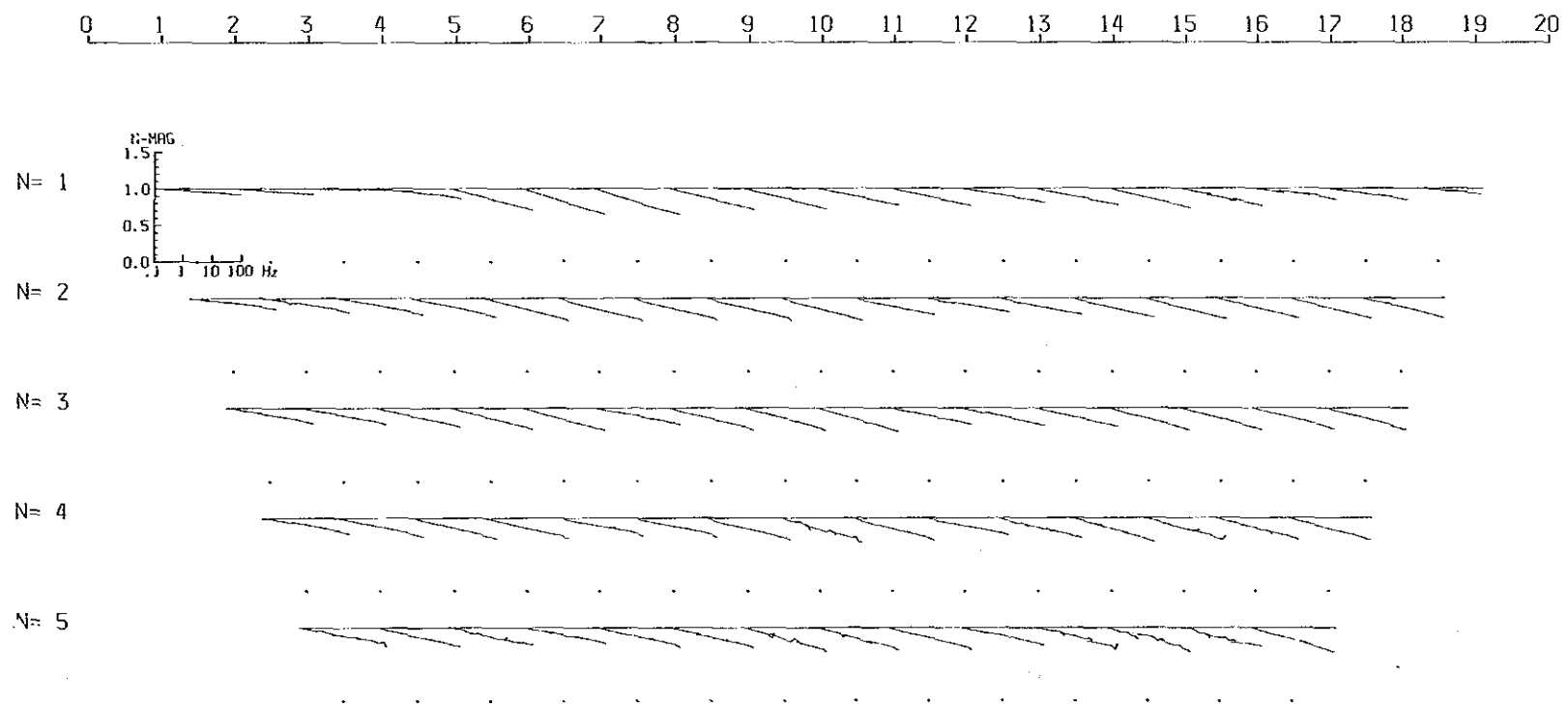
LINE D Phase Spectrum



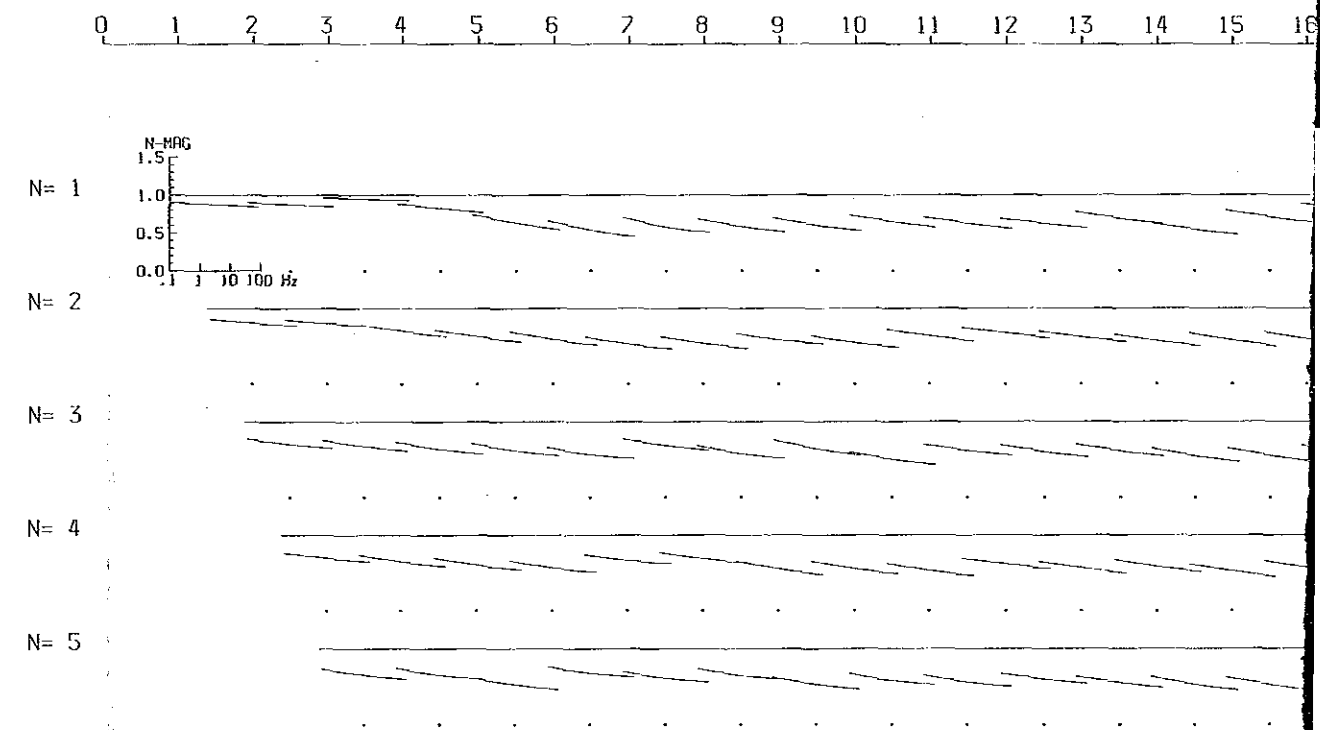
LINE D Decoupled Phase Spectrum



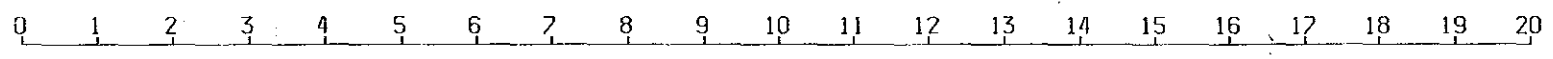
LINE D Magnitude Spectrum



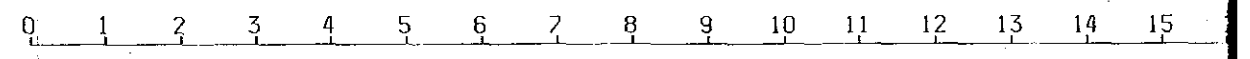
LINE D Decoupled Magnitude Spectrum



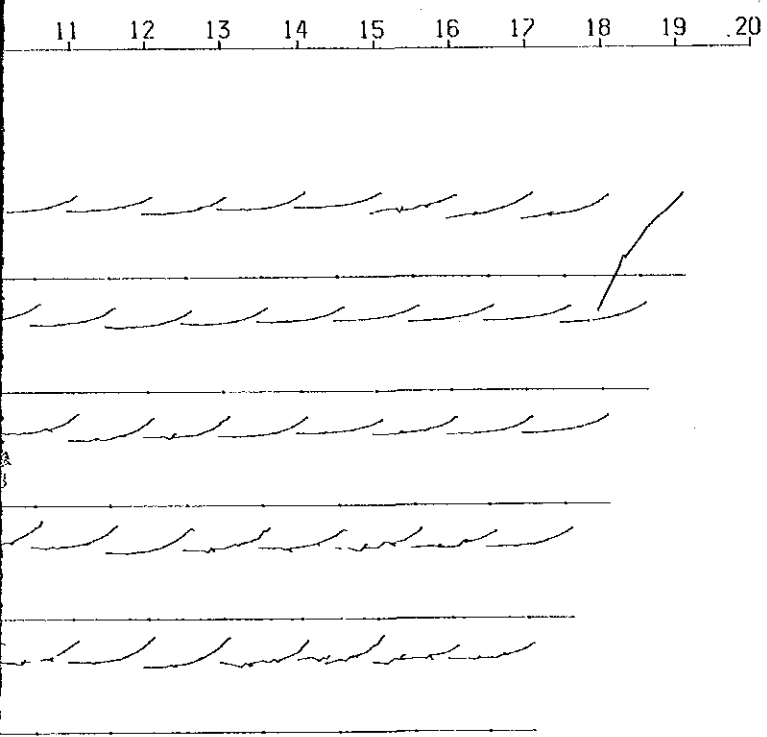
LINE D Cole-Cole Diagram



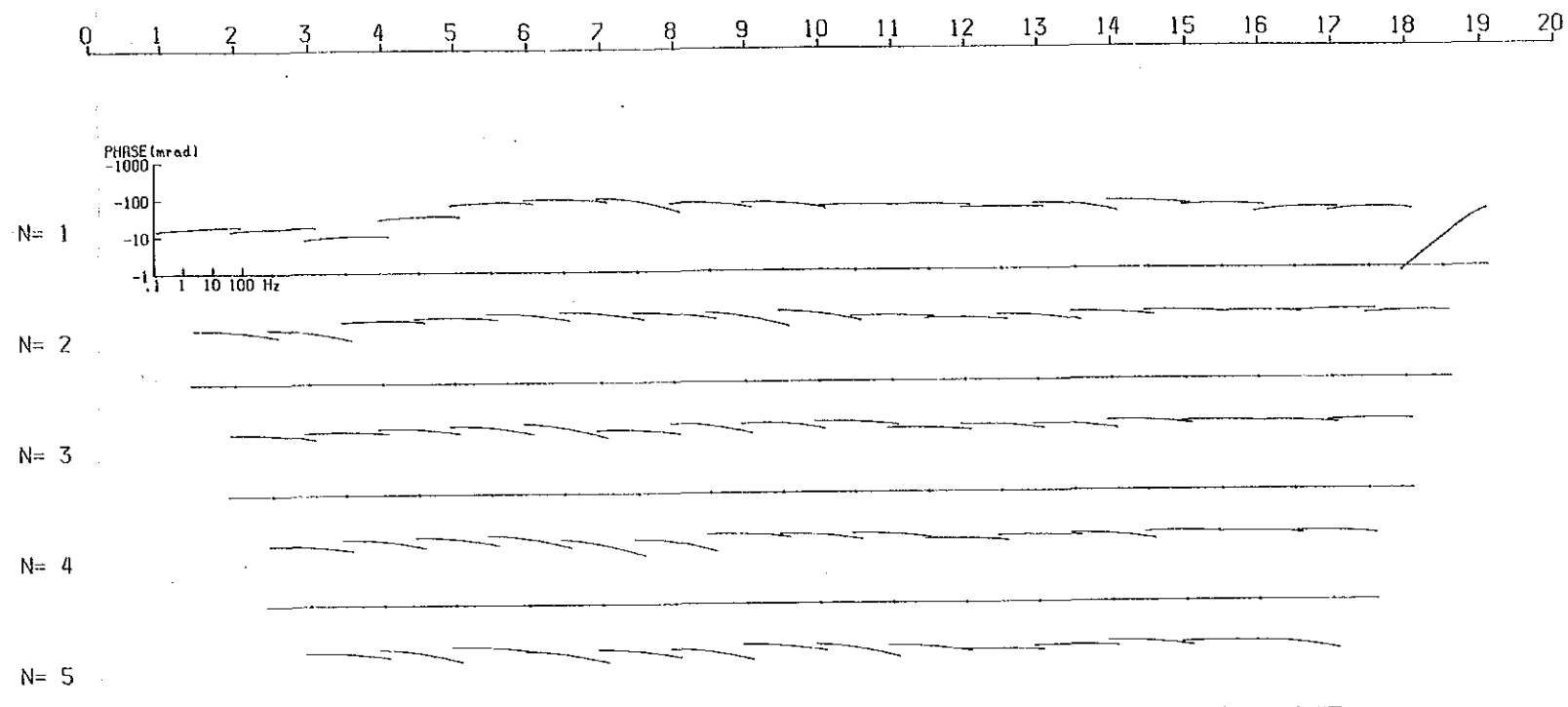
LINE D Decoupled Cole-Cole Diagram



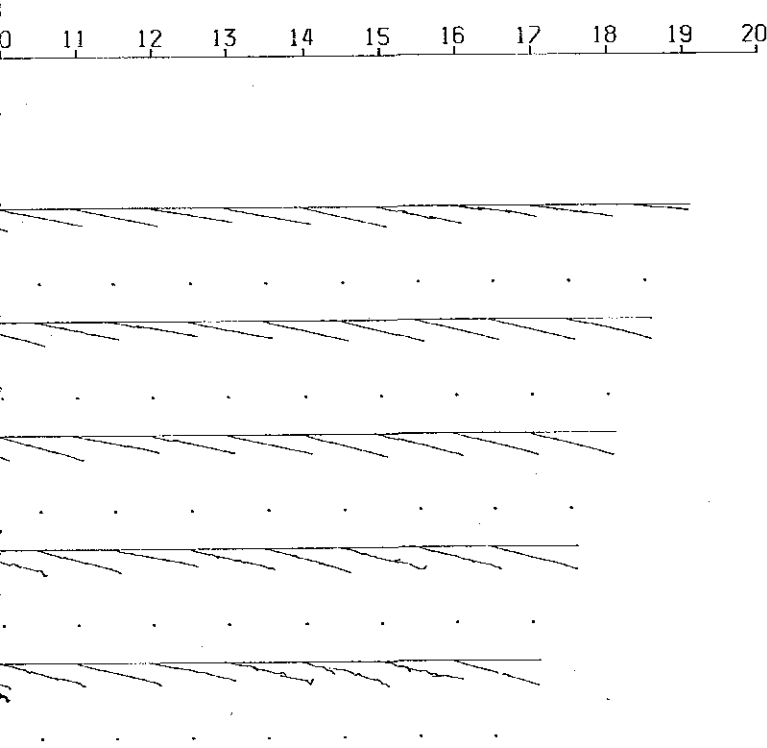
Phase Spectrum



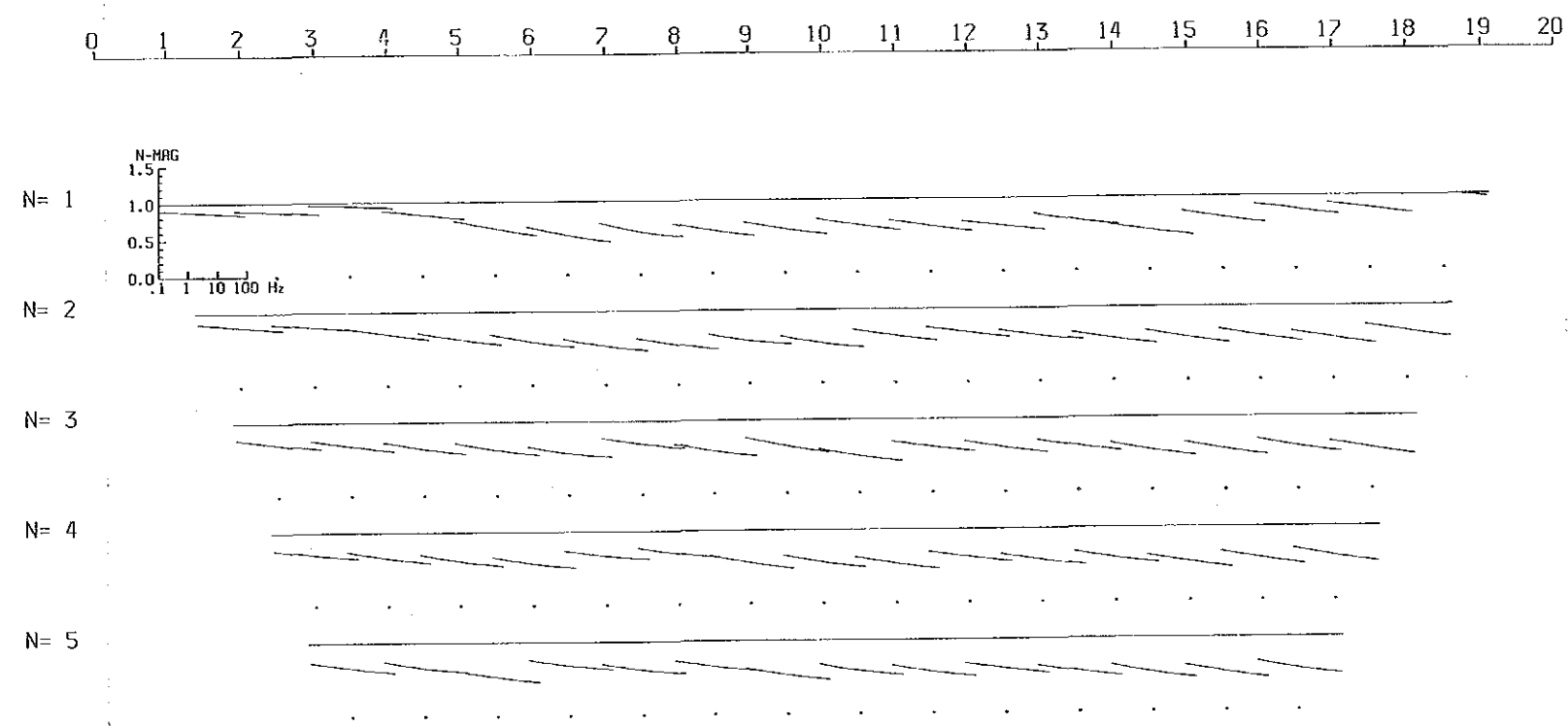
LINE D Decoupled Phase Spectrum



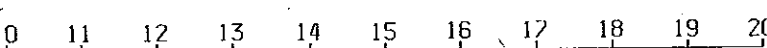
Magnitude Spectrum



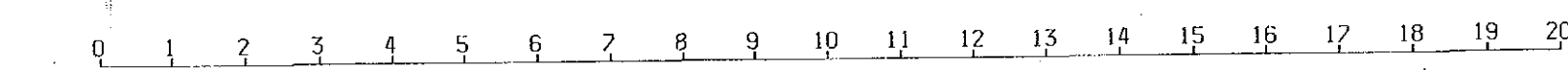
LINE D Decoupled Magnitude Spectrum



Cole-Cole Diagram



LINE D Decoupled Cole-Cole Diagram



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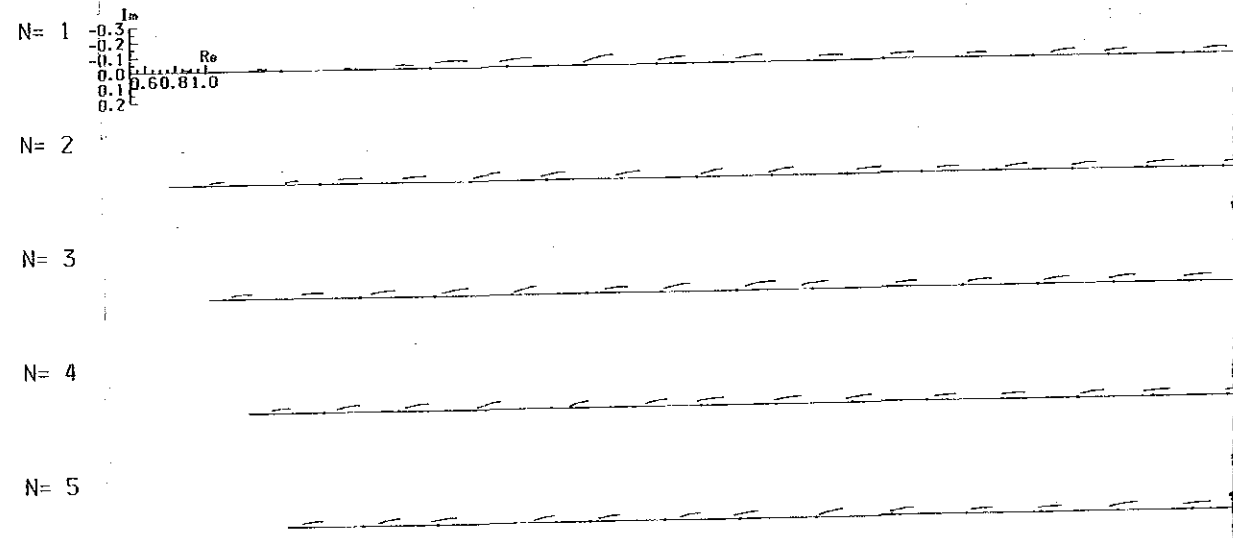
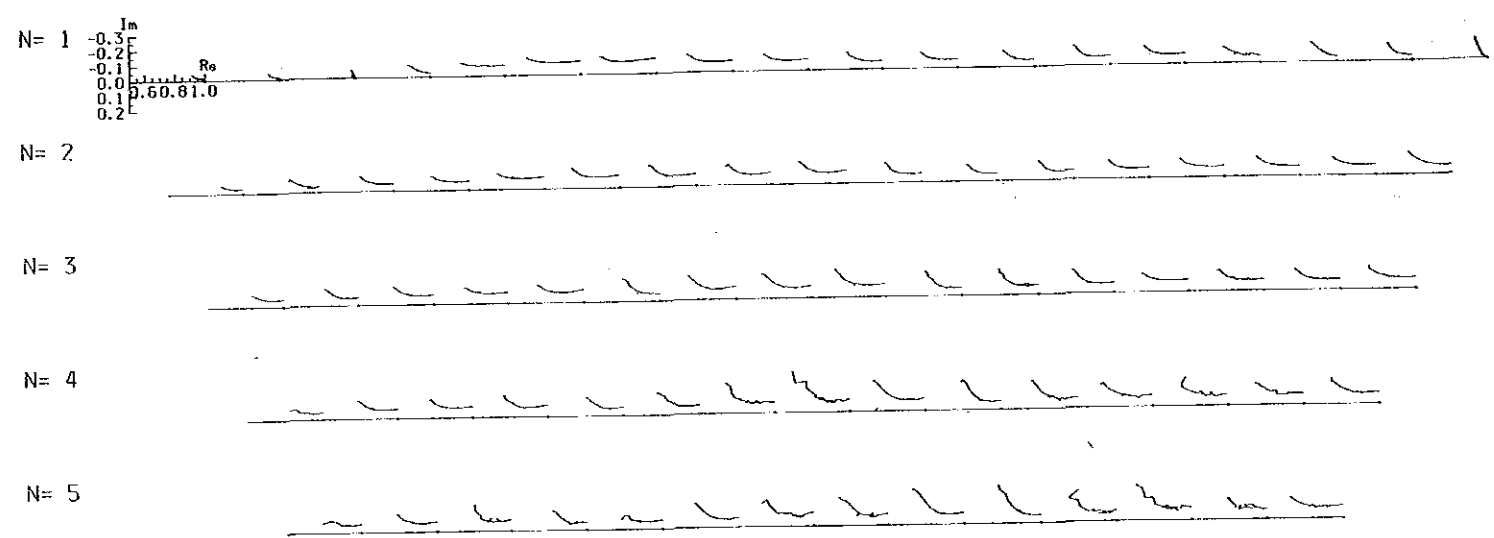
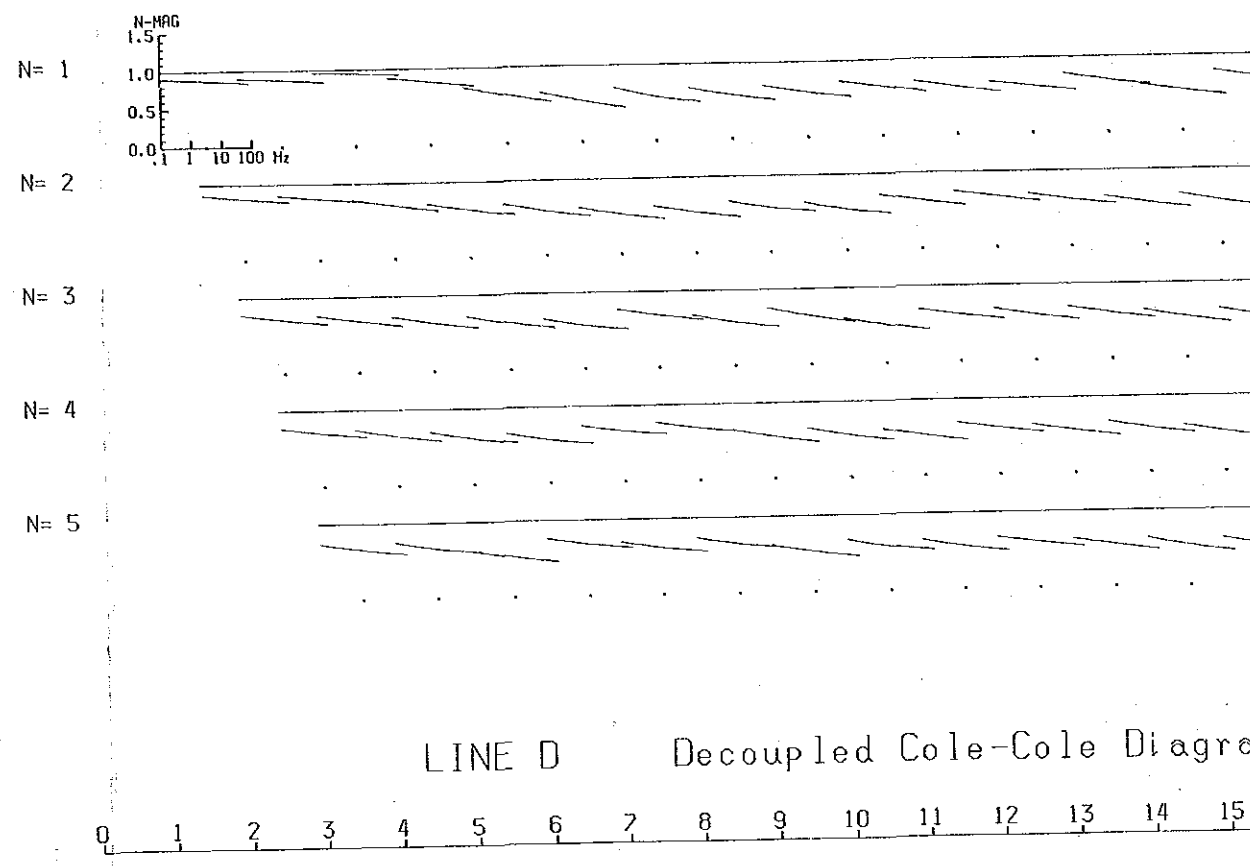
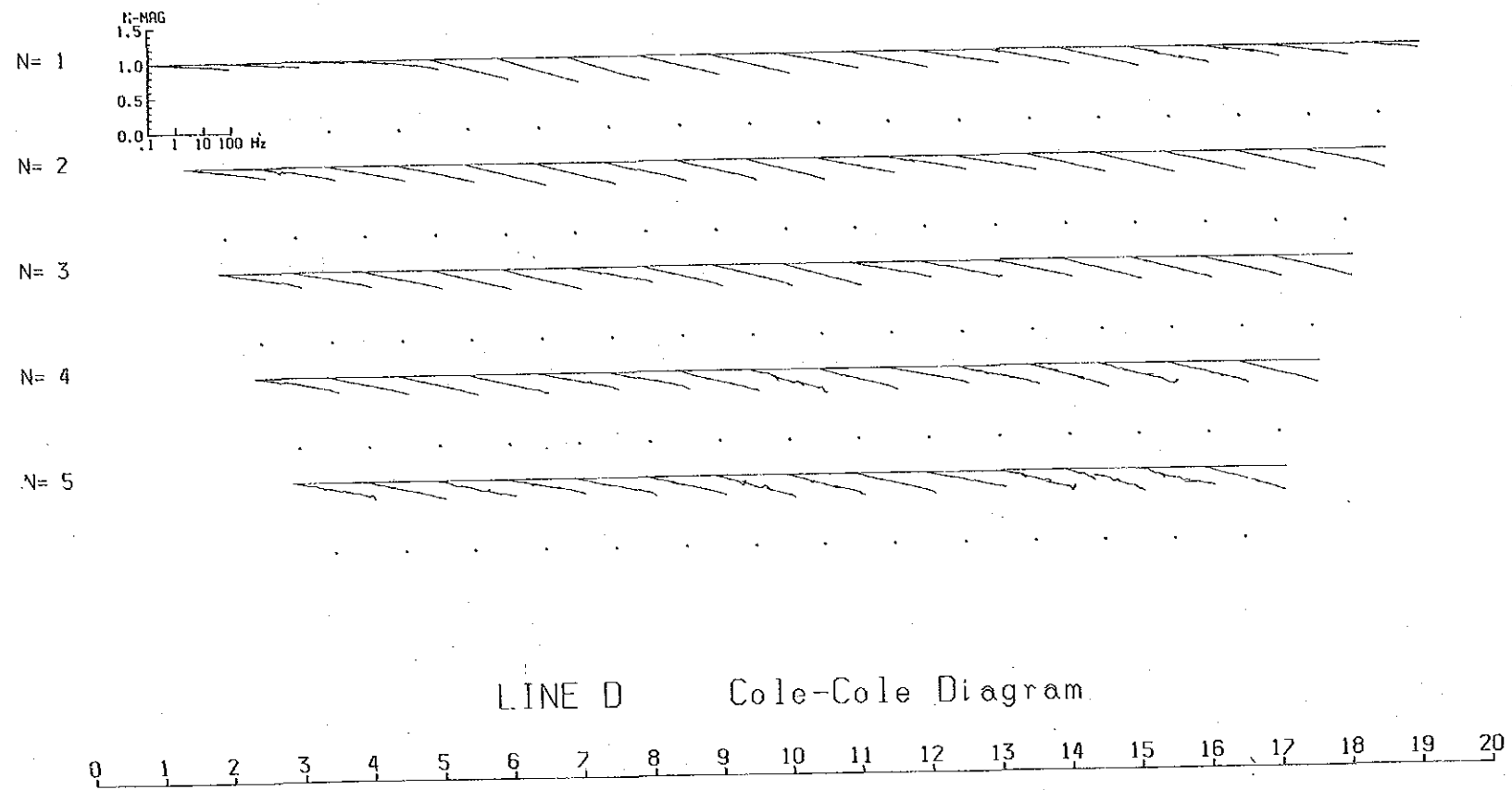
REPORT ON THE MINERAL EXPLORATION
OF GÜMÜŞHANE AREA, THE REPUBLIC OF TURKEY

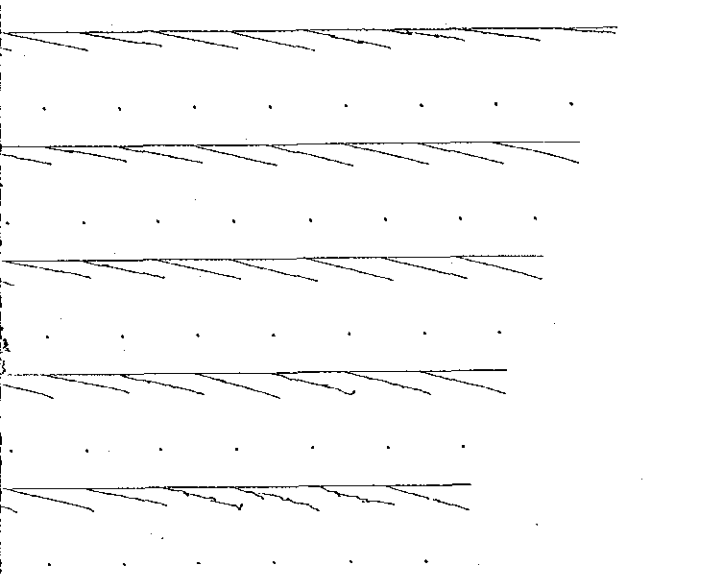
**PHASE, MAGNITUDE AND
COLE-COLE SPECTRUM
(LINE D)**

Scale 1: 5,000

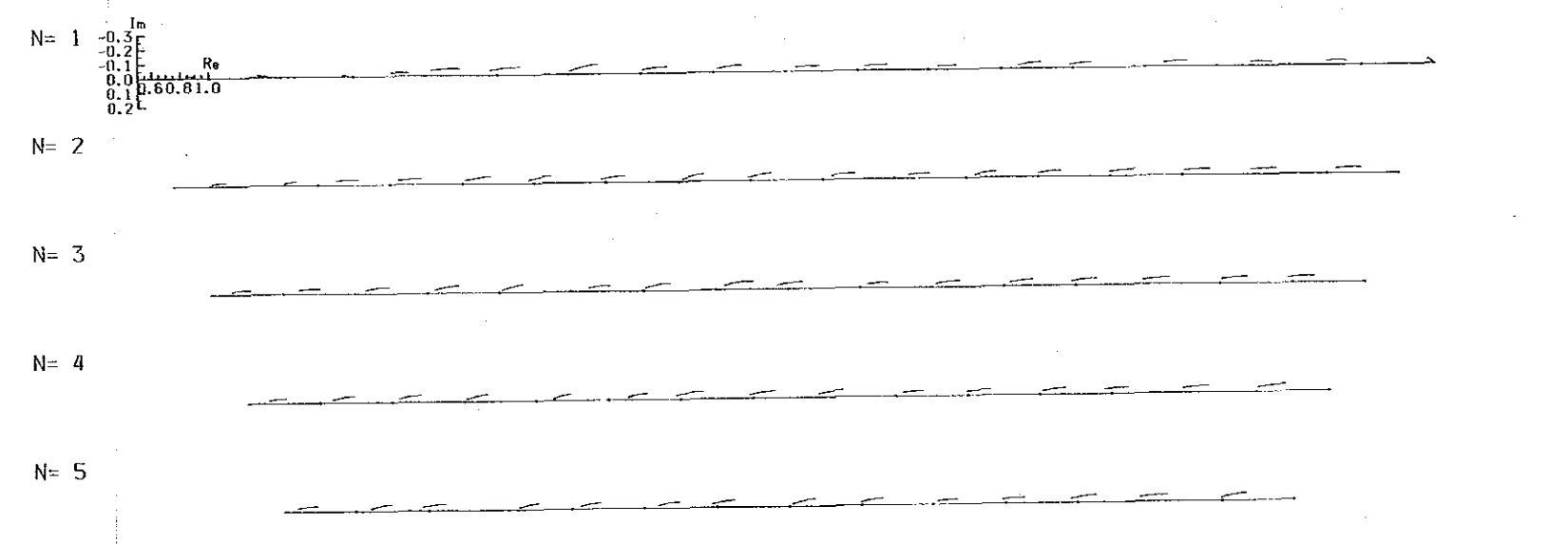
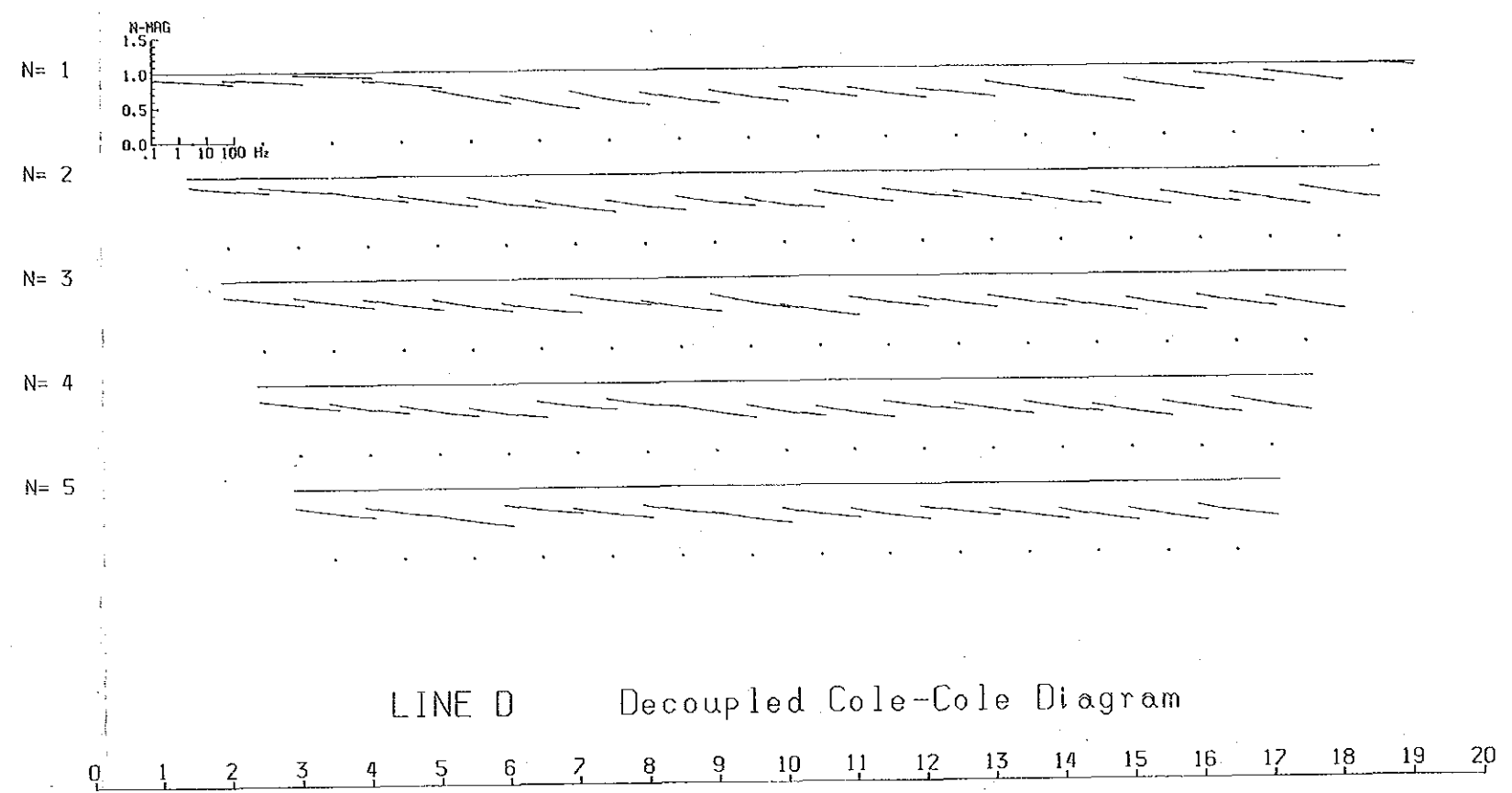
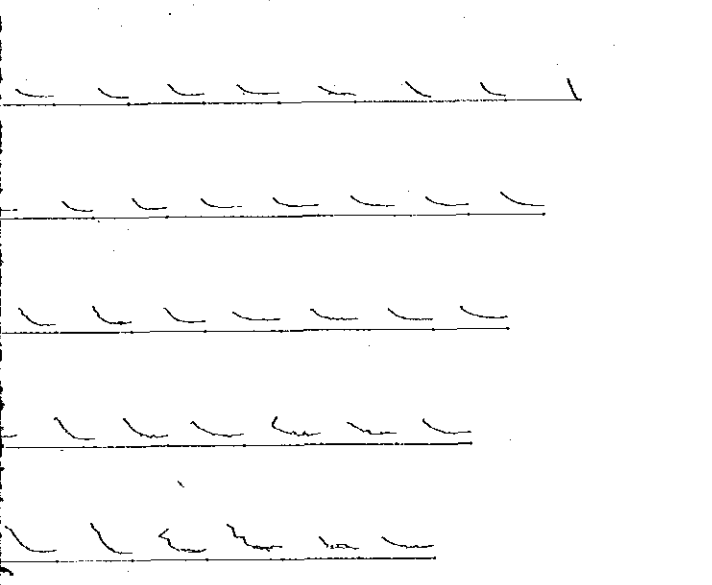
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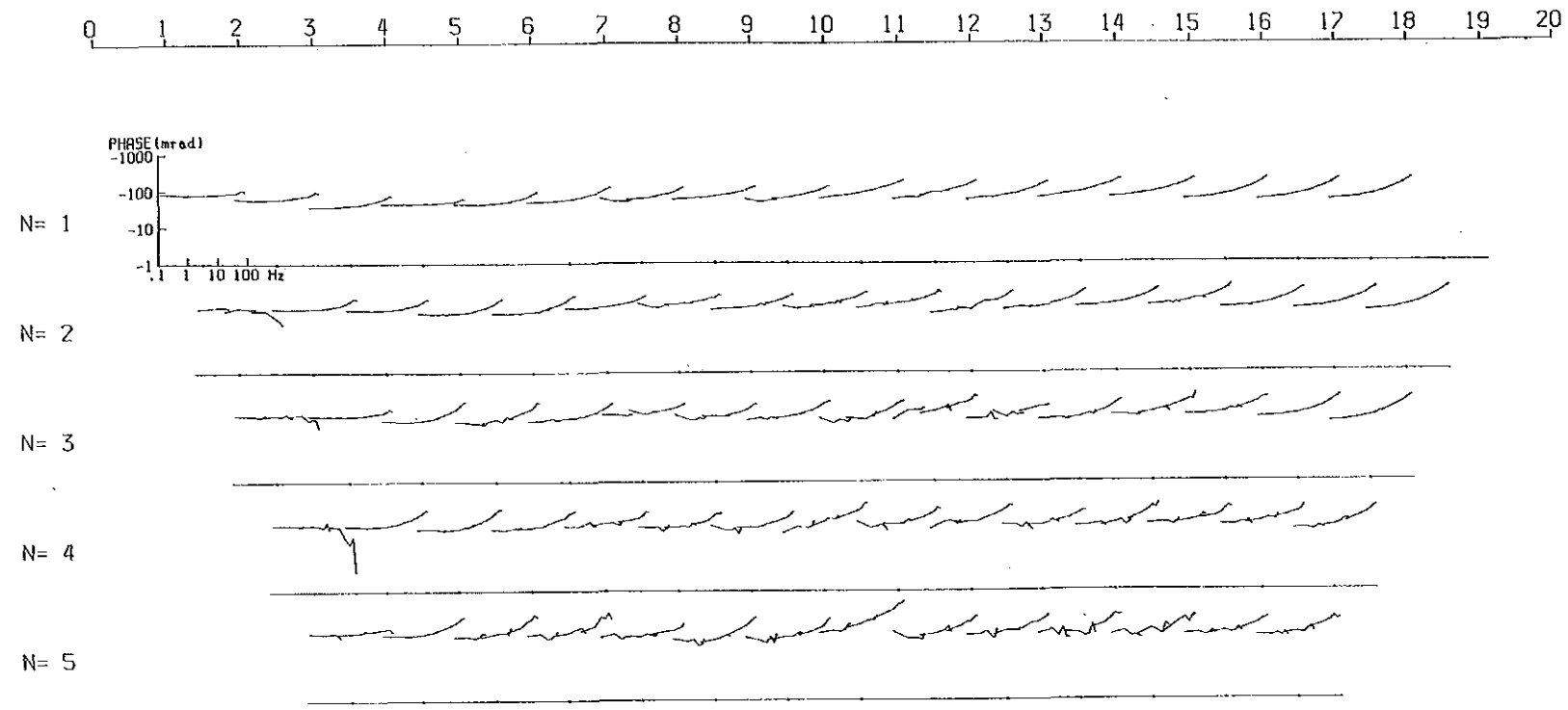




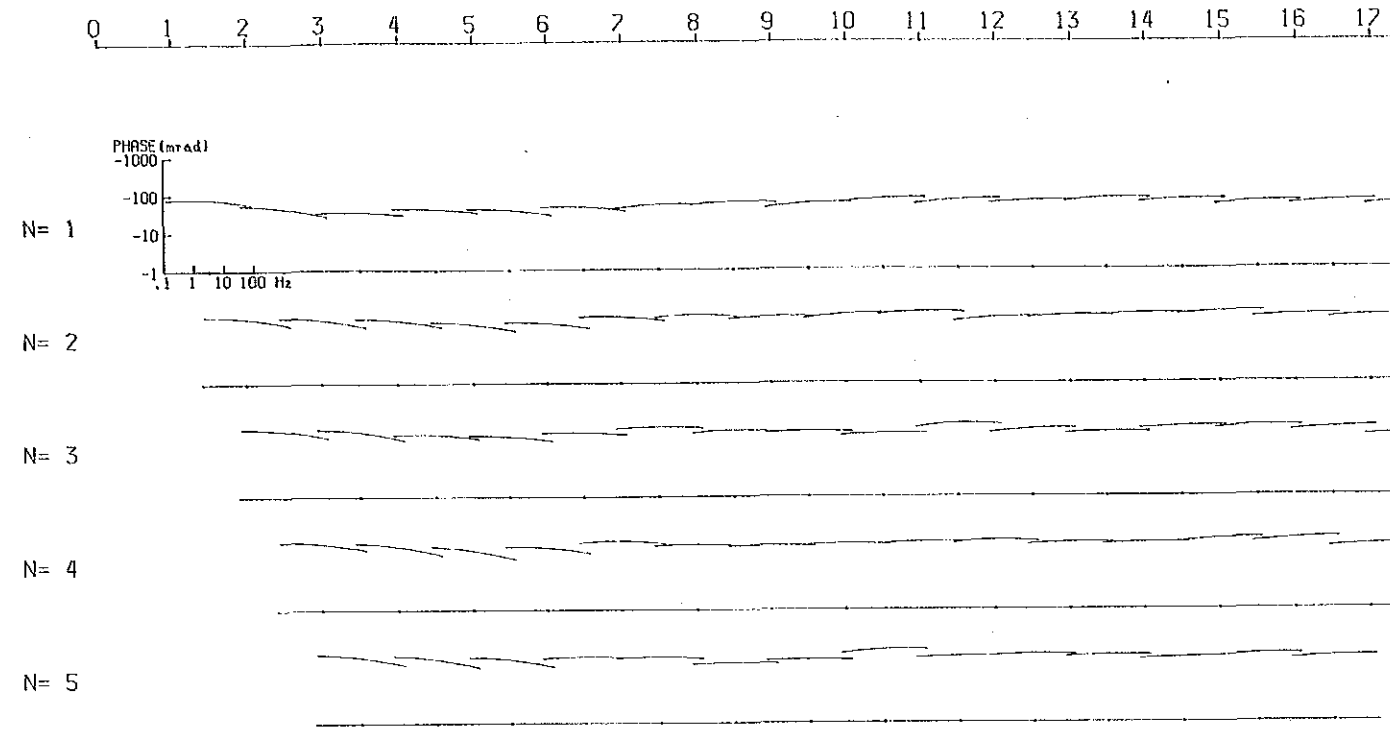
ole Diagram
11 12 13 14 15 16 17 18 19 20



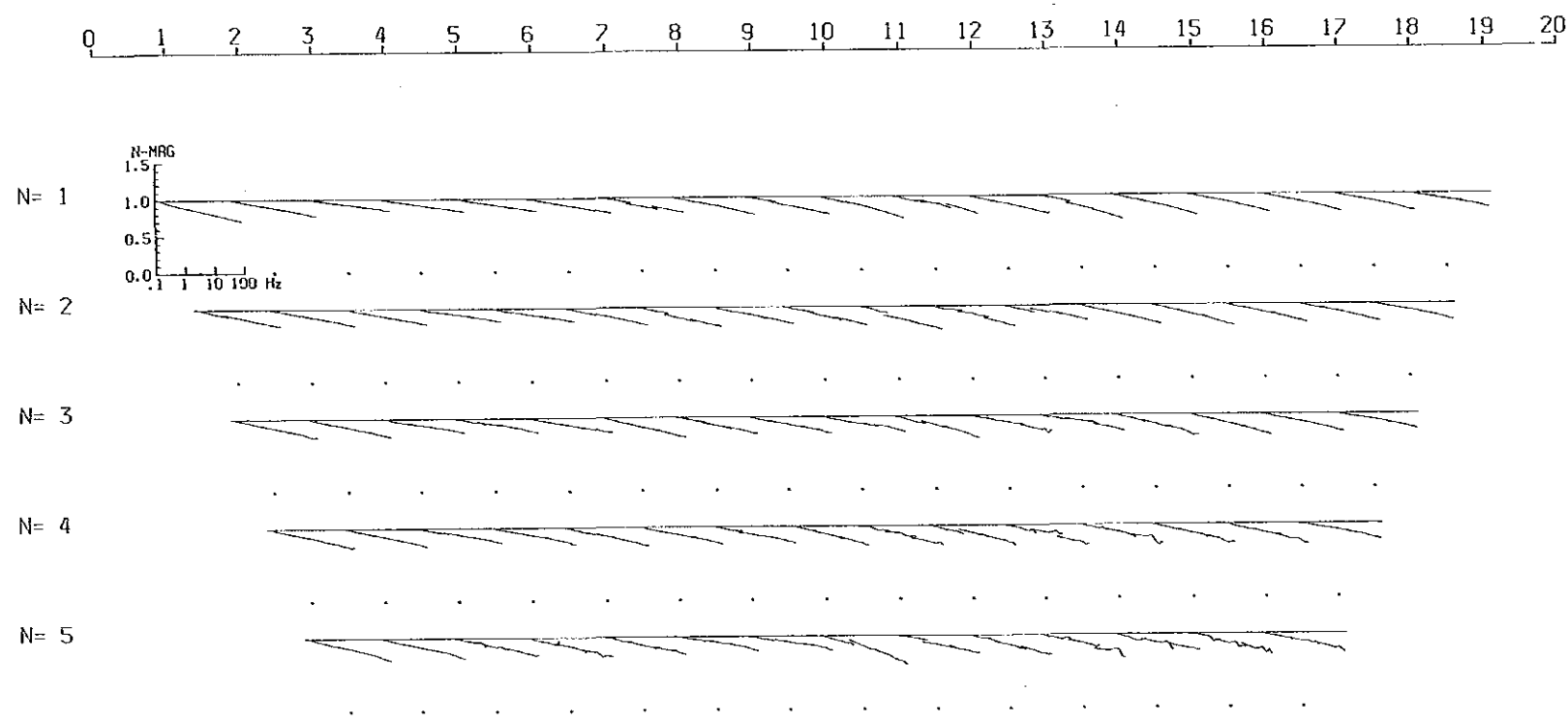
LINE G Phase Spectrum



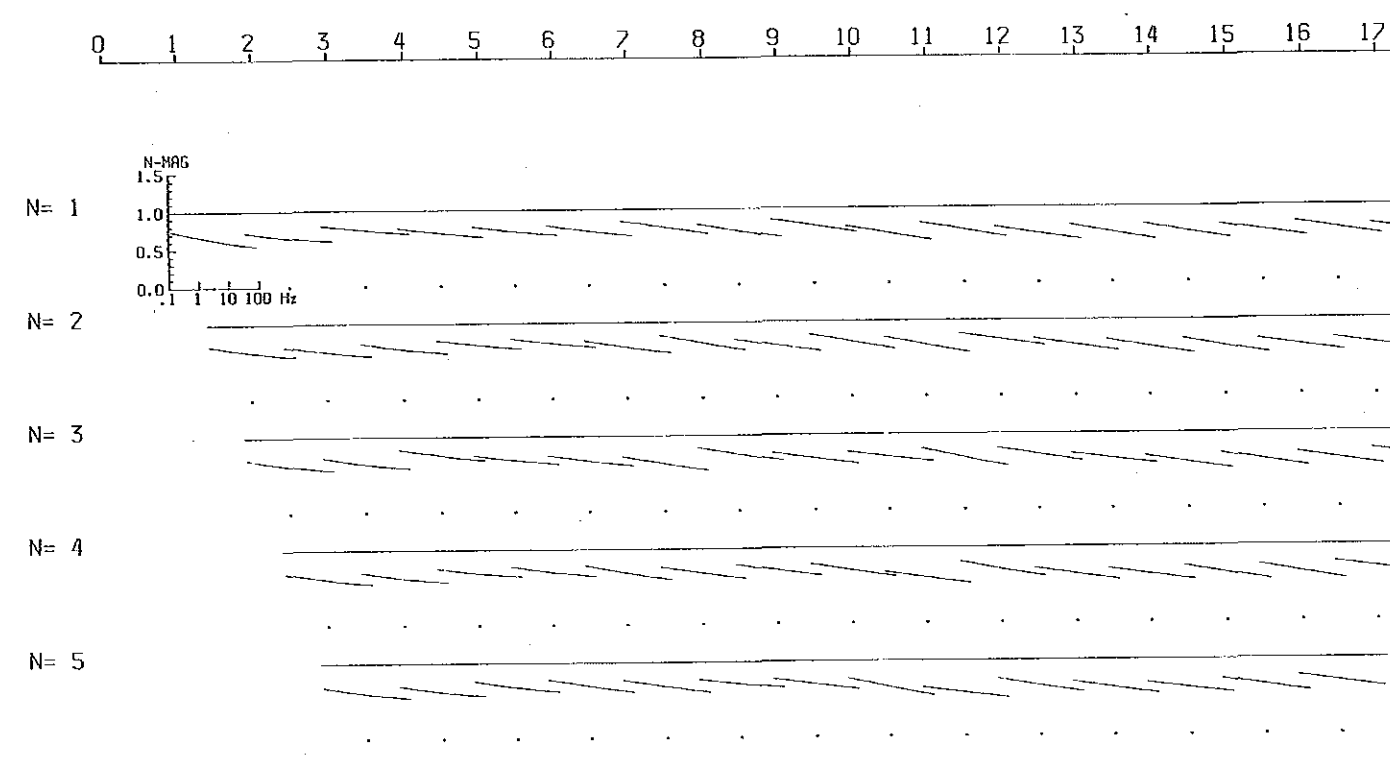
LINE G Decoupled Phase Spectrum



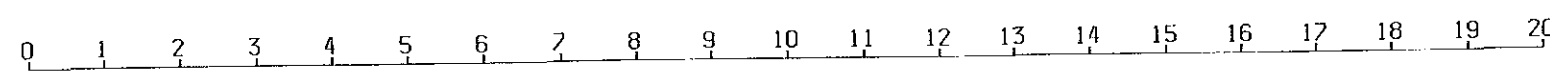
LINE G Magnitude Spectrum



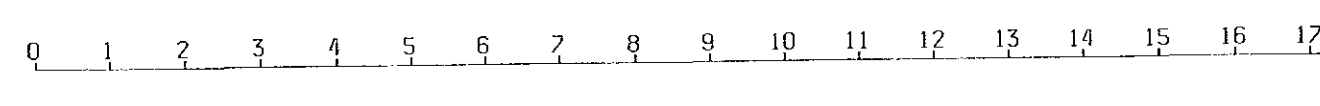
LINE G Decoupled Magnitude Spectrum



LINE G Cole-Cole Diagram

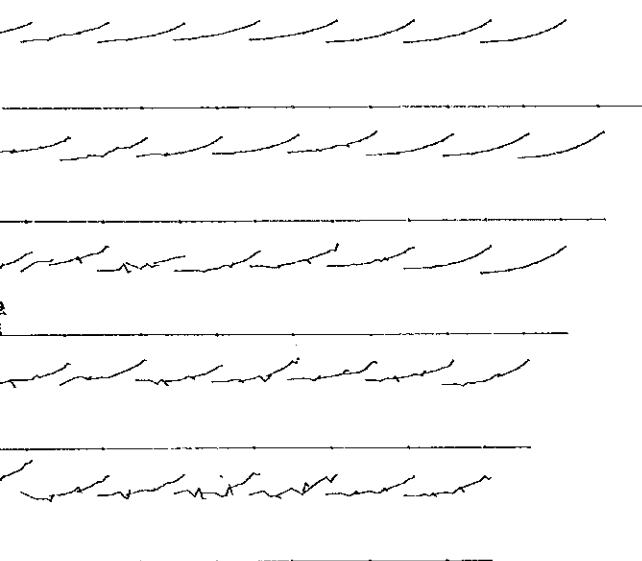


LINE G Decoupled Cole-Cole Diagram



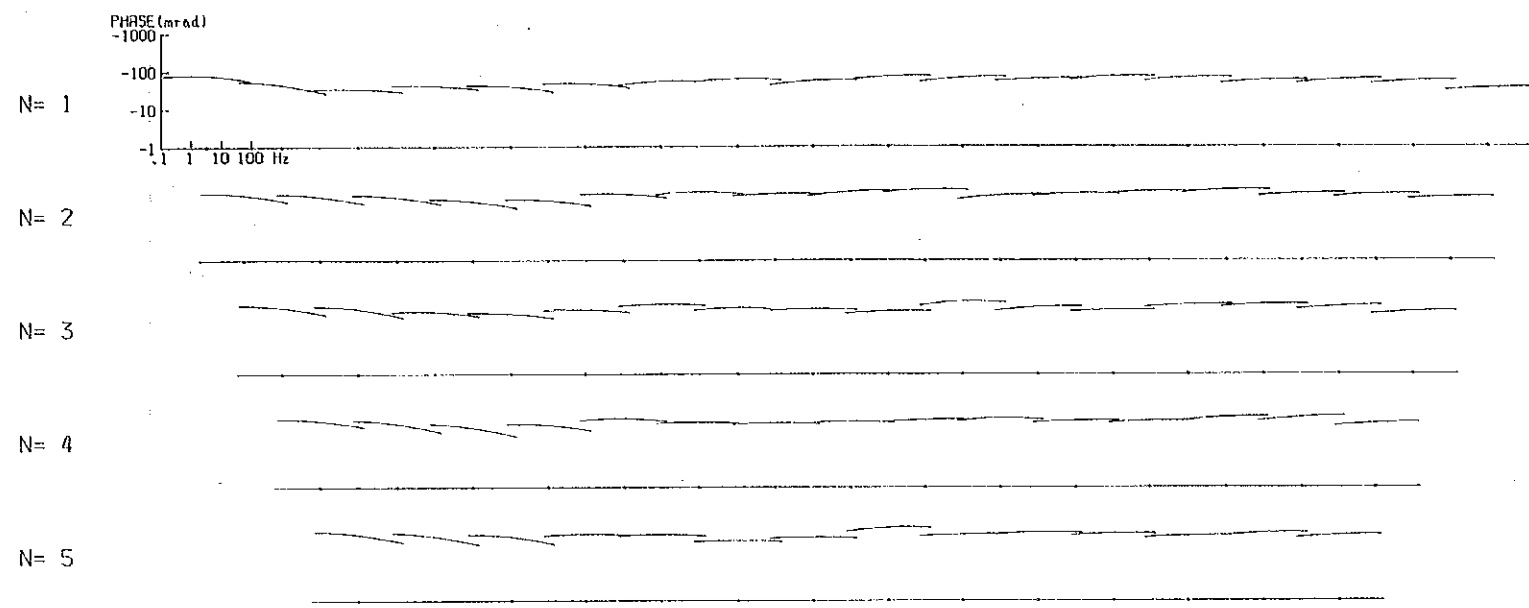
Phase Spectrum

11 12 13 14 15 16 17 18 19 20



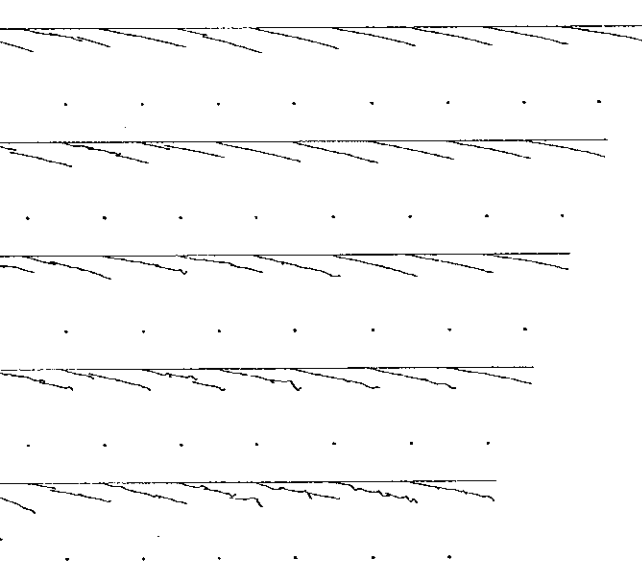
LINE G Decoupled Phase Spectrum

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20



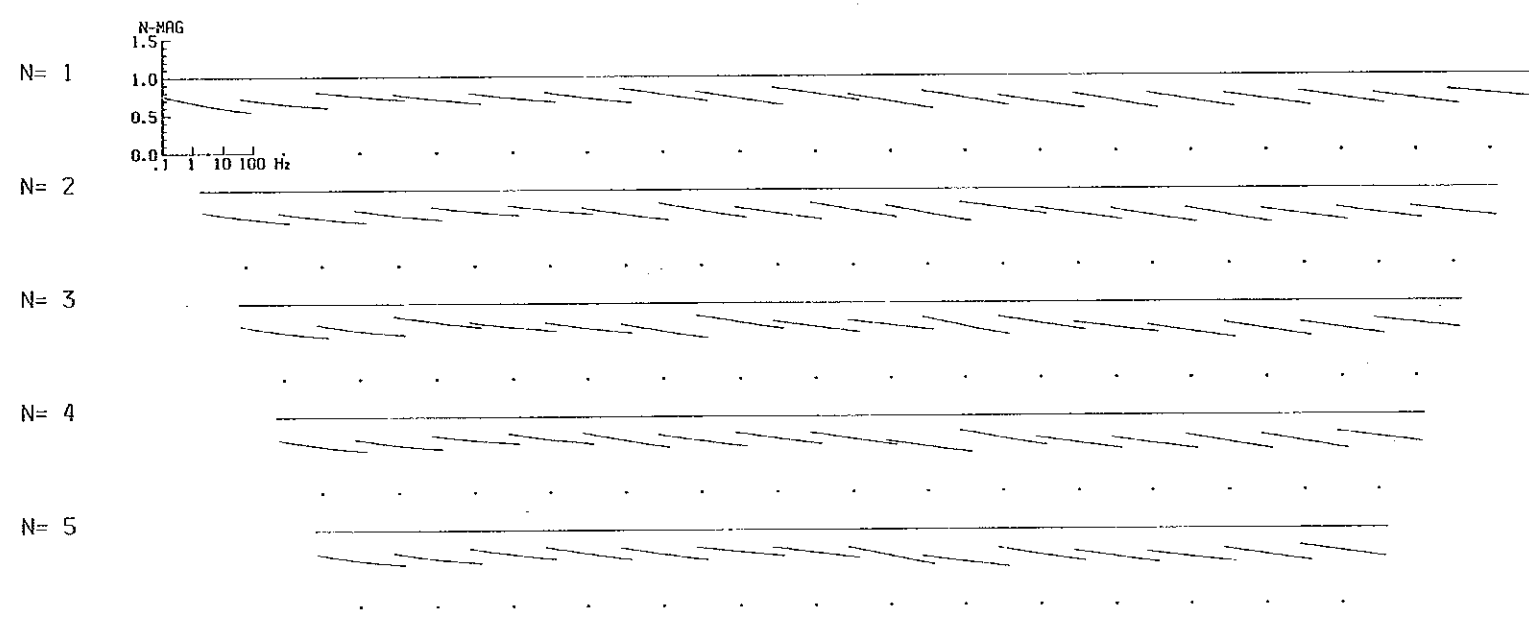
Magnitude Spectrum

11 12 13 14 15 16 17 18 19 20



LINE G Decoupled Magnitude Spectrum

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20



Cole Diagram

11 12 13 14 15 16 17 18 19 20



LINE G Decoupled Cole-Cole Diagram

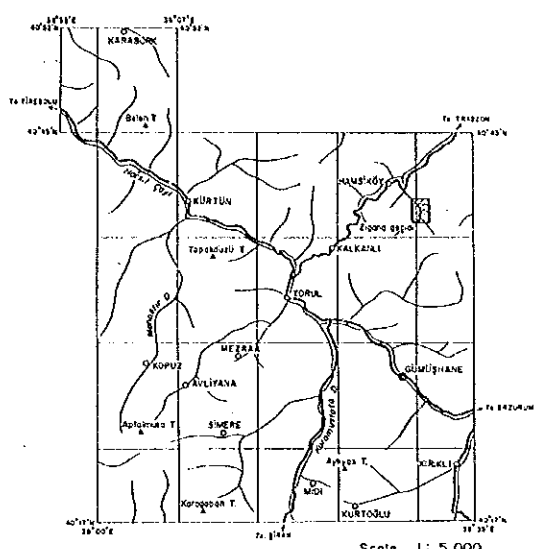
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N=1
Zr
0.3
0.2

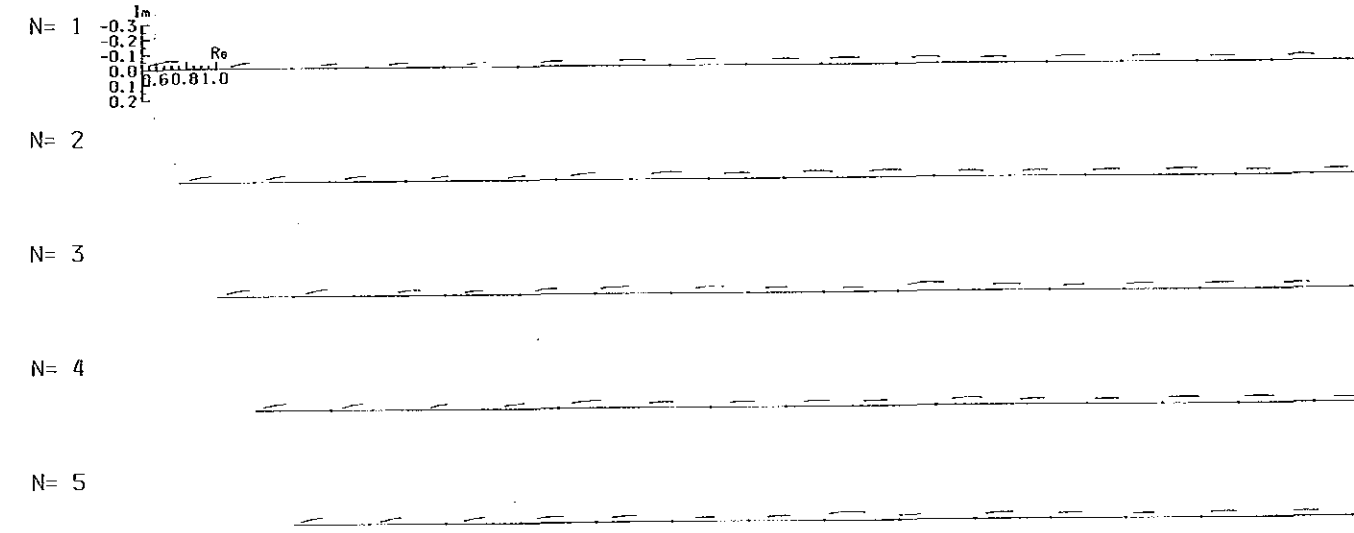
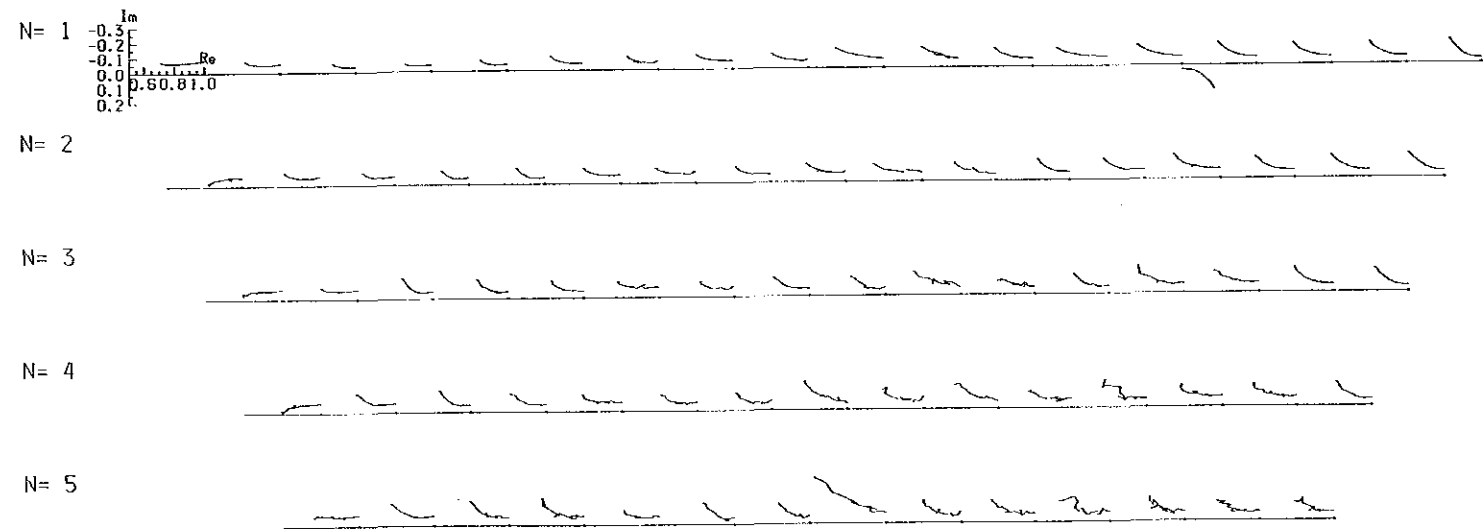
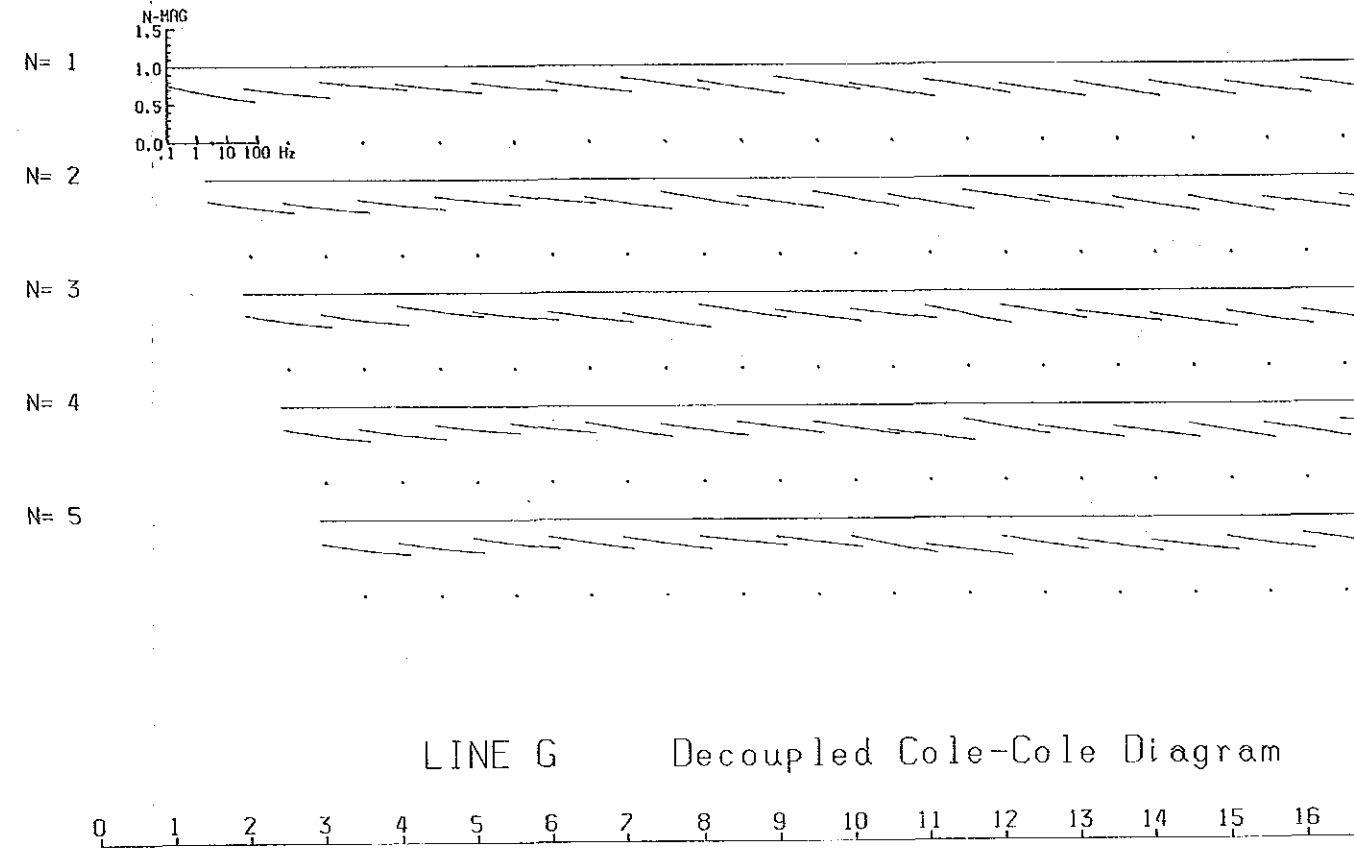
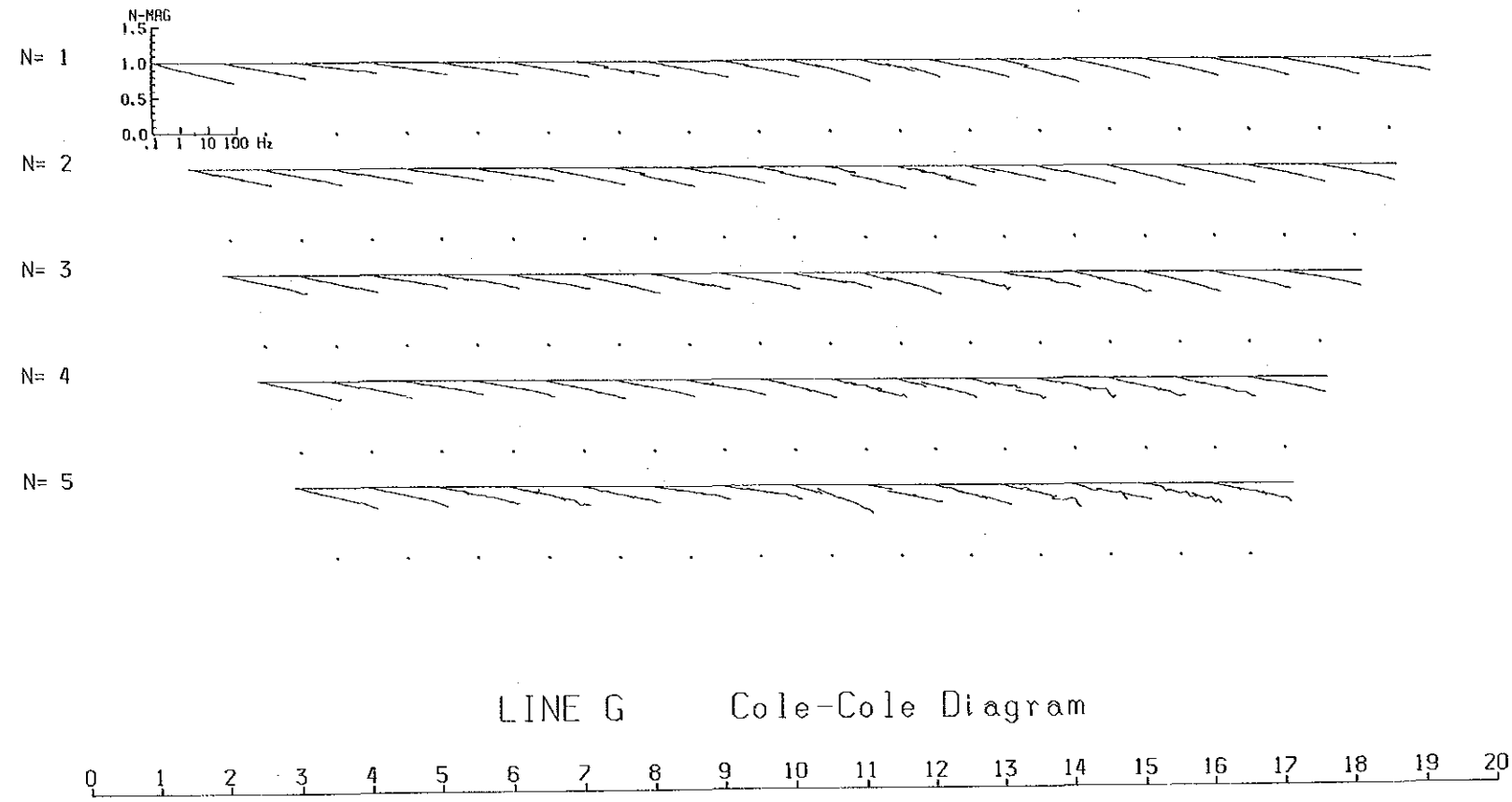
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1986
国書資料館蔵書

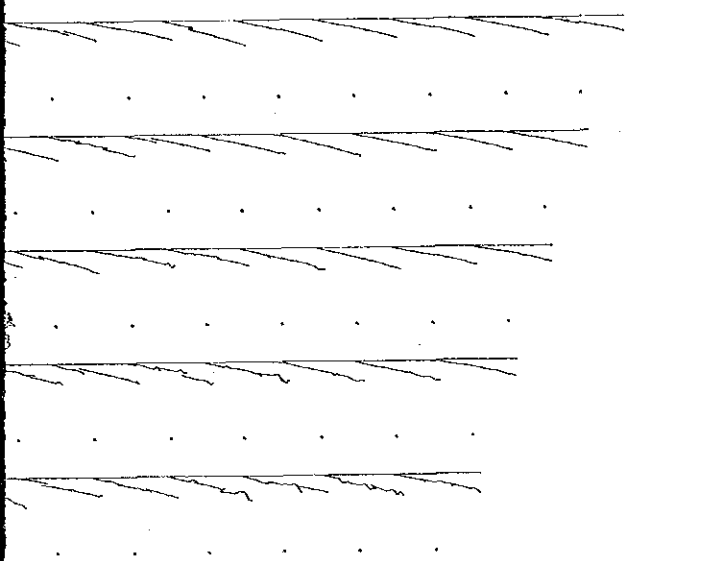
REPORT ON THE MINERAL EXPLORATION
OF GÜMÜŞHANE AREA, THE REPUBLIC OF TURKEY

PHASE, MAGNITUDE AND
COLE-COLE SPECTRUM
(LINE G)

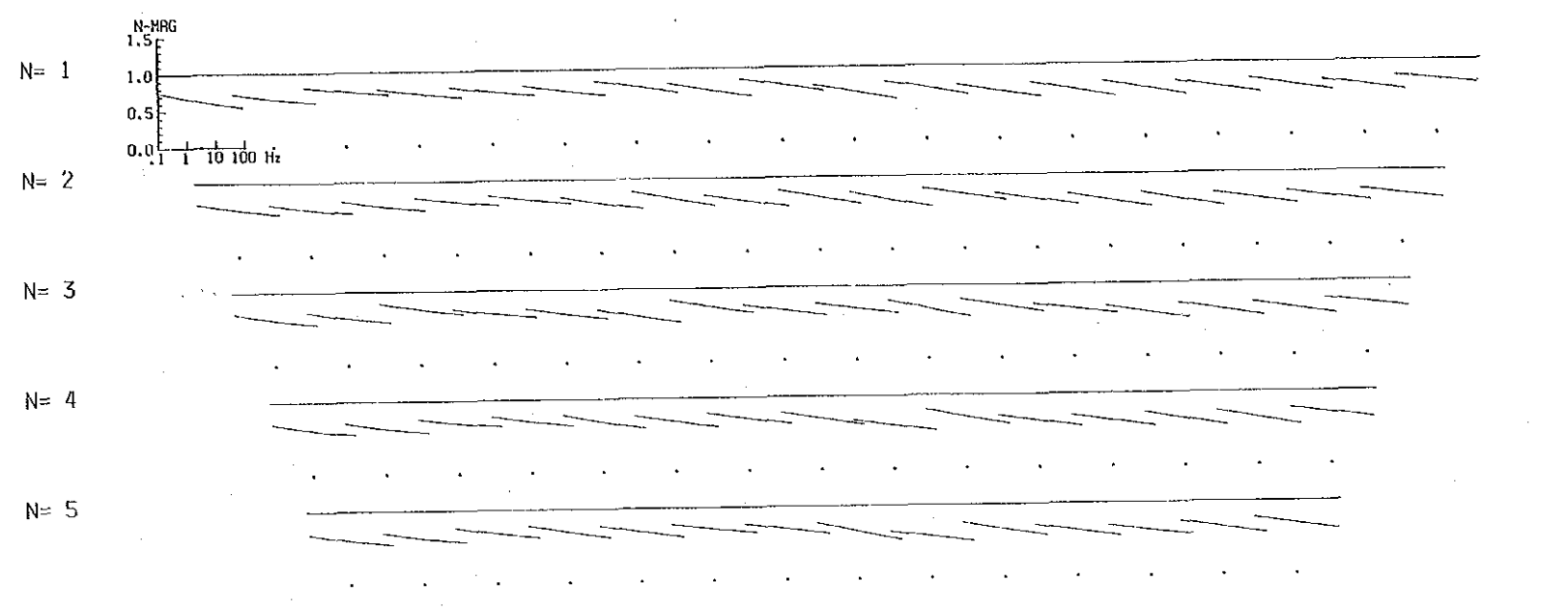
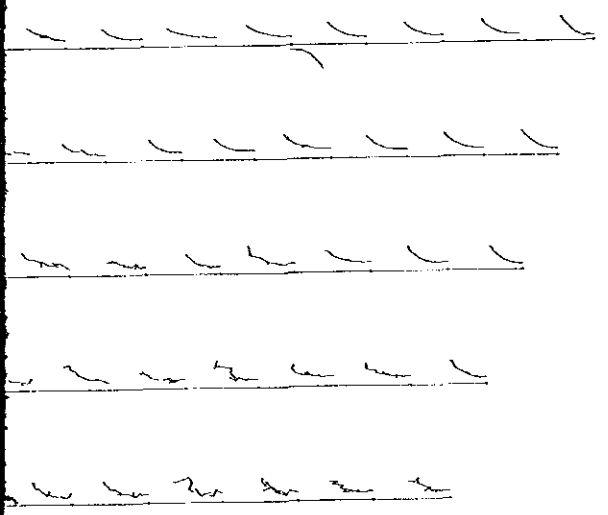


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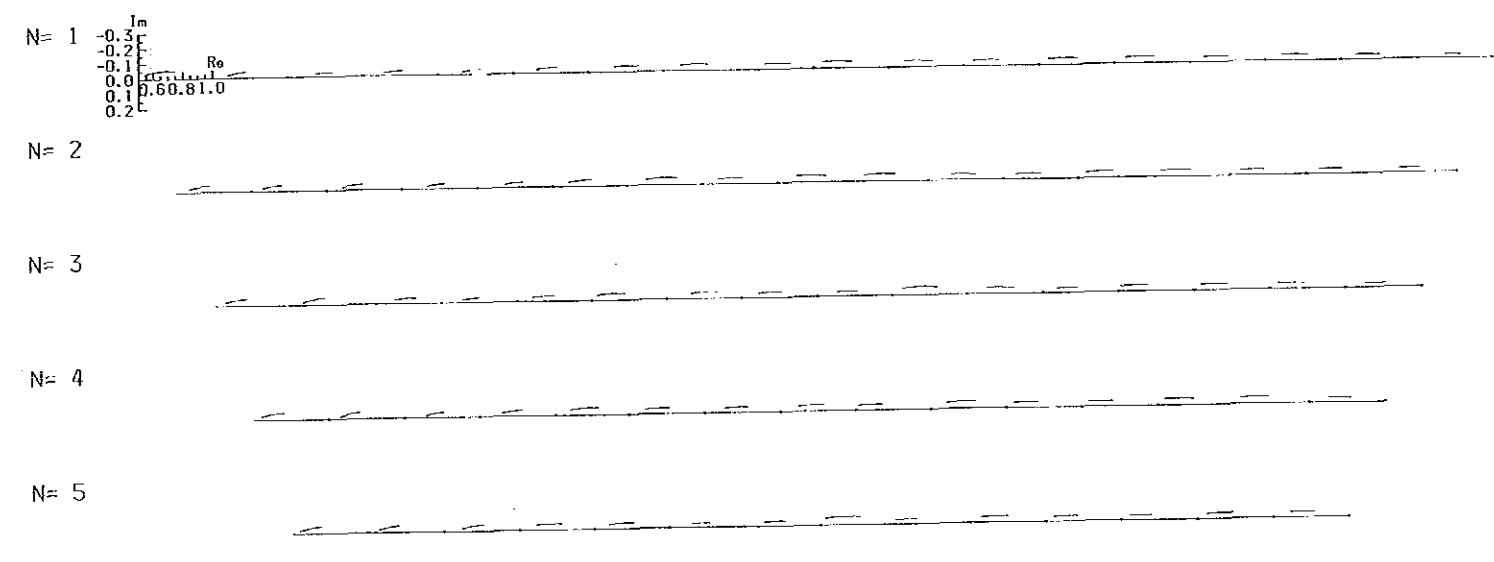


ole Diagram
11 12 13 14 15 16 17 18 19 20

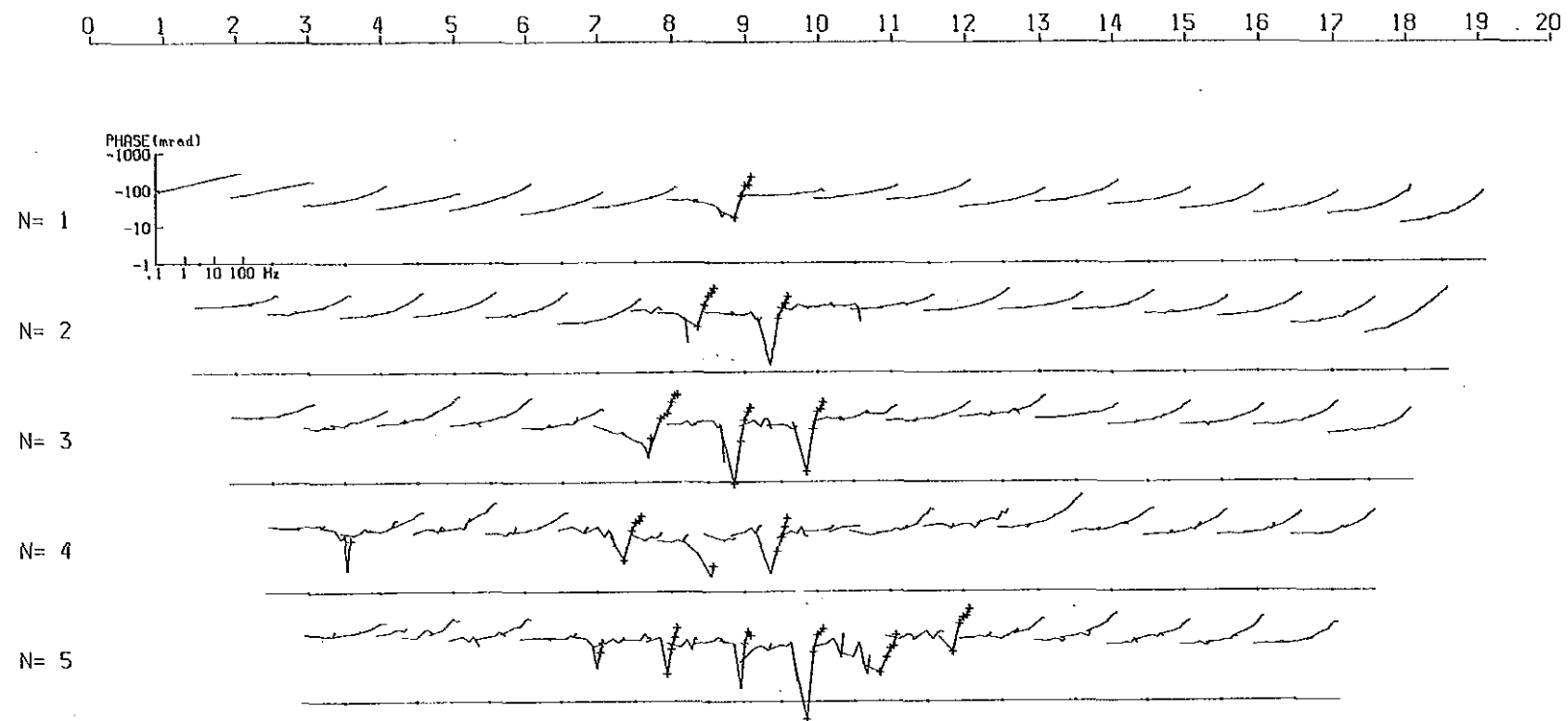


LINE G Decoupled Cole-Cole Diagram

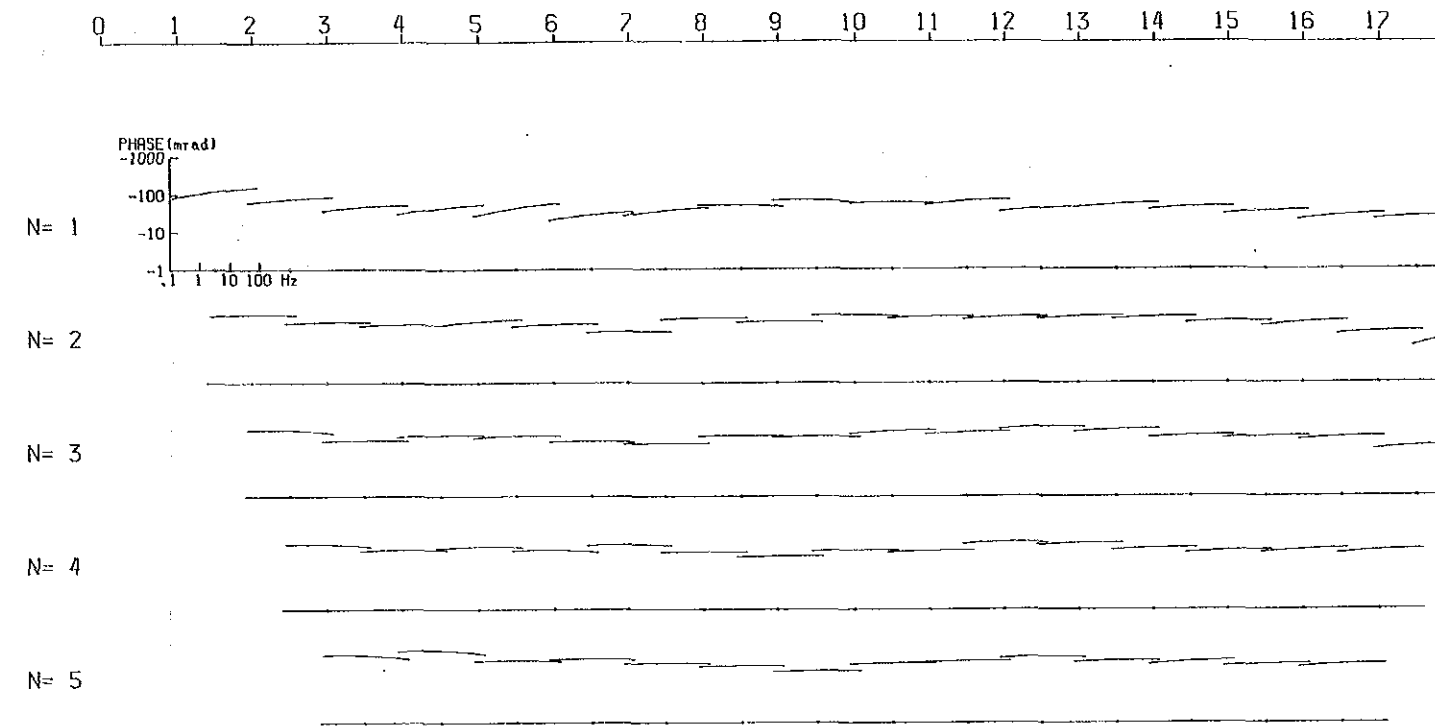
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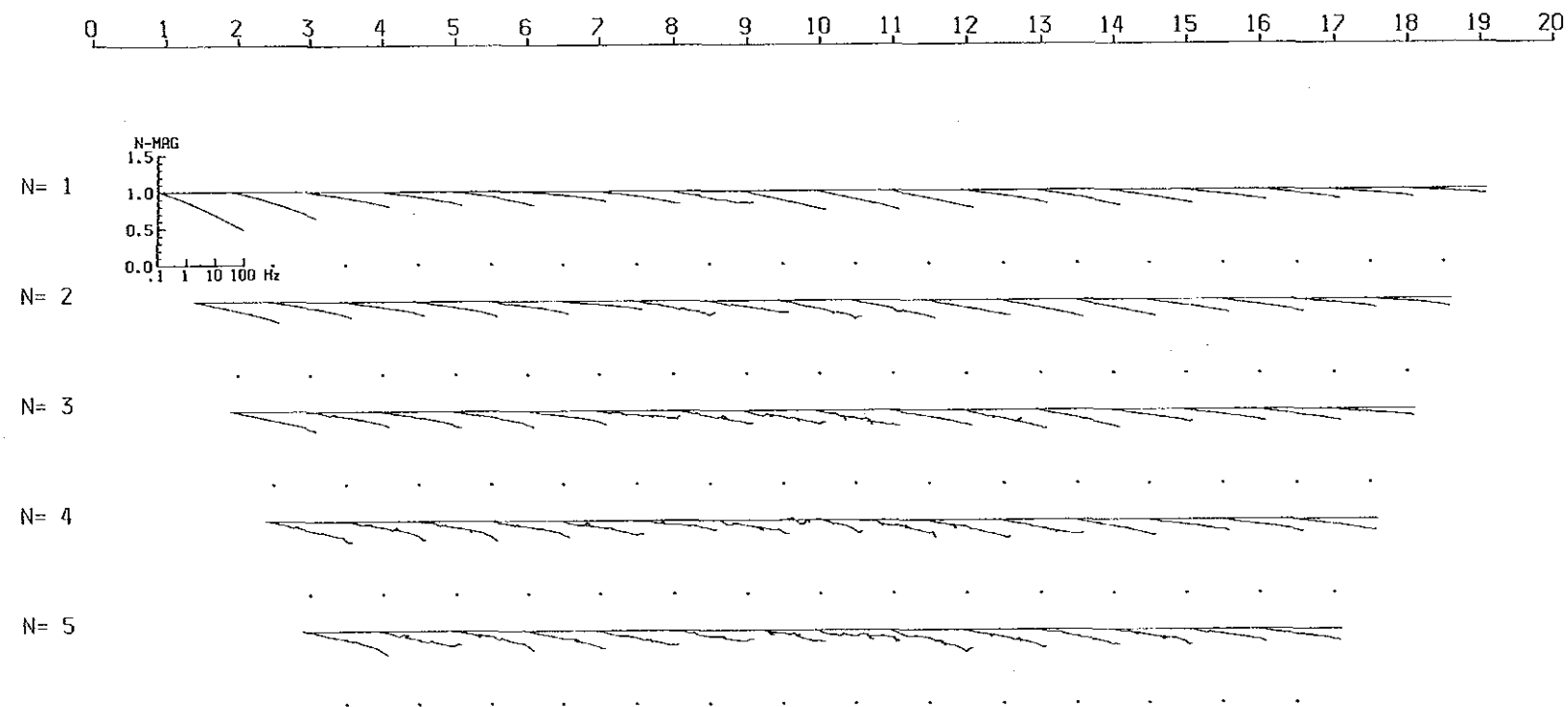
LINE I Phase Spectrum



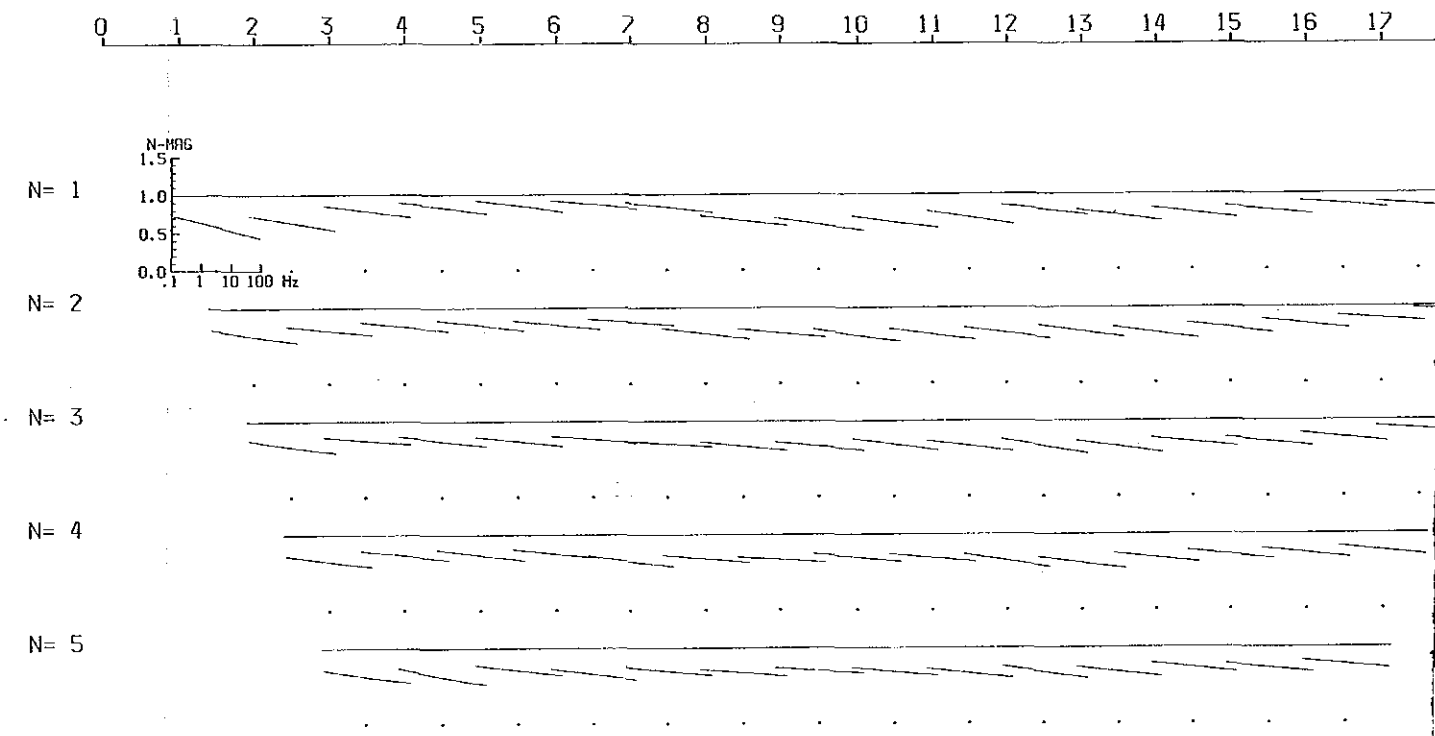
LINE I Decoupled Phase Spectrum



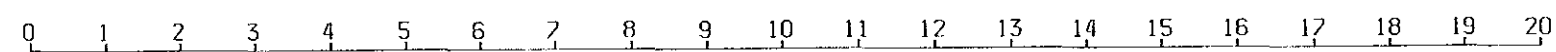
LINE I Magnitude Spectrum



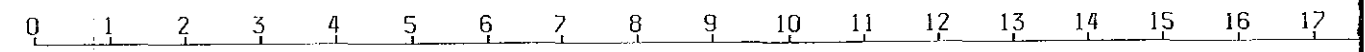
LINE I Decoupled Magnitude Spectrum



LINE I Cole-Cole Diagram

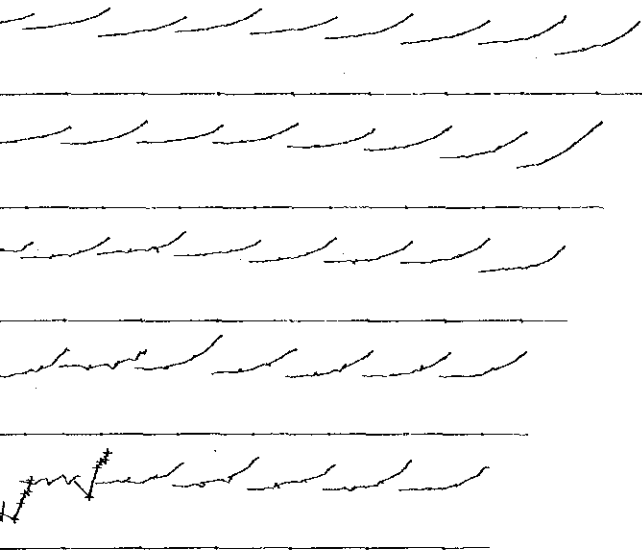


LINE I Decoupled Cole-Cole Diagram



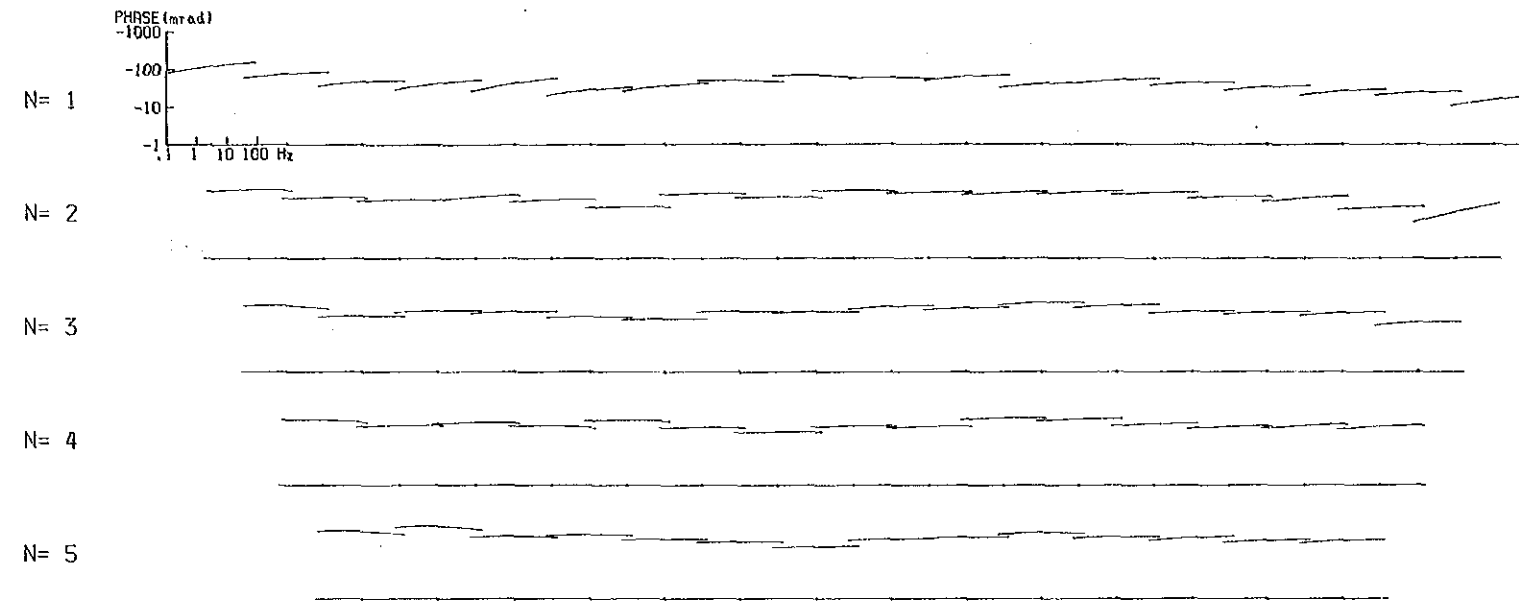
Phase Spectrum

11 12 13 14 15 16 17 18 19 20



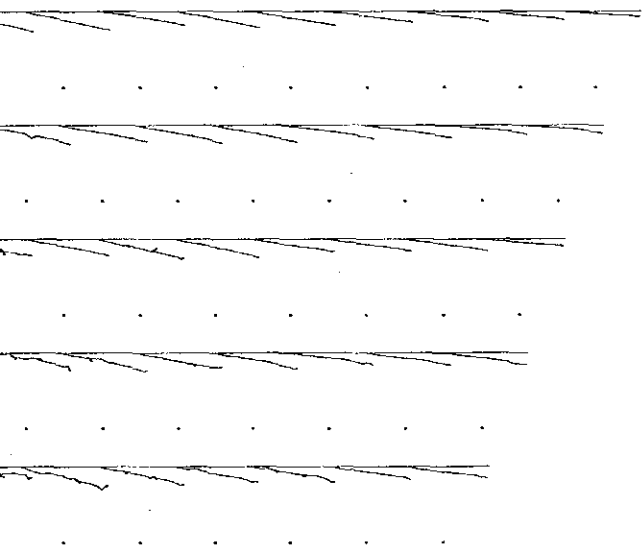
LINE I Decoupled Phase Spectrum

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20



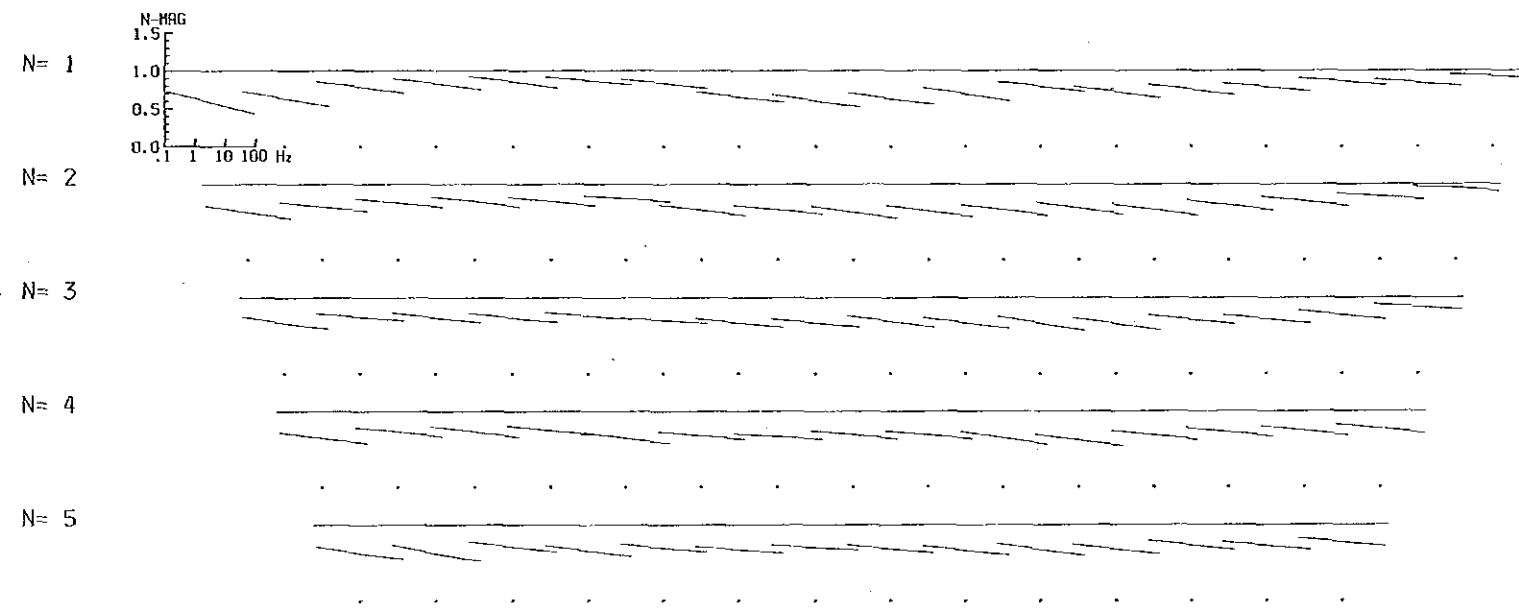
Magnitude Spectrum

11 12 13 14 15 16 17 18 19 20



LINE I Decoupled Magnitude Spectrum

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20



Cole Diagram

11 12 13 14 15 16 17 18 19 20



LINE I Decoupled Cole-Cole Diagram

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20



PL. 13

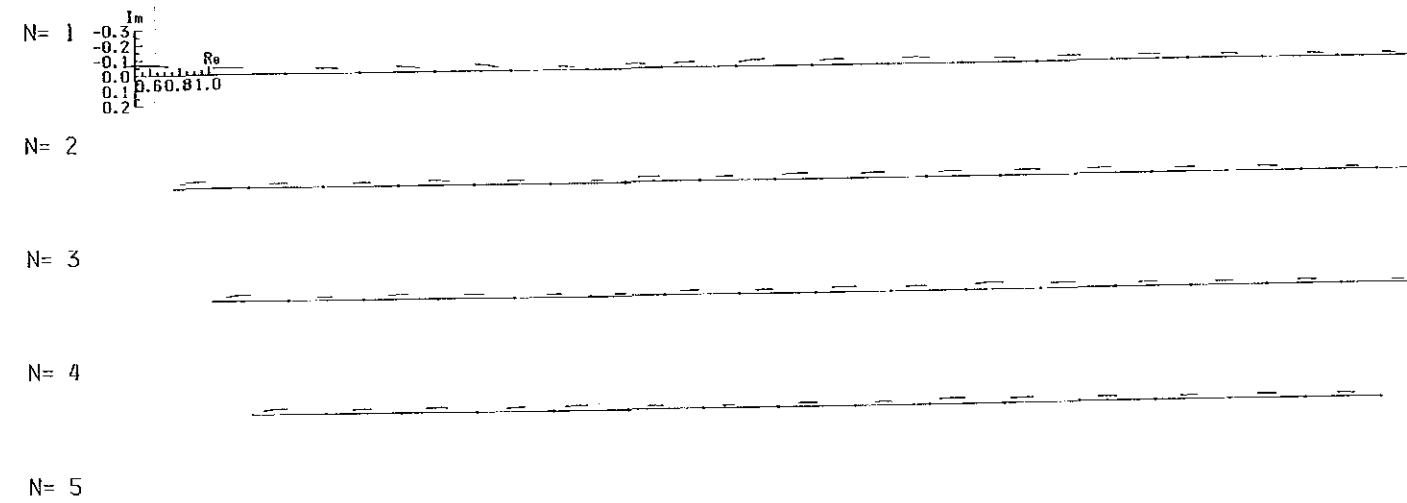
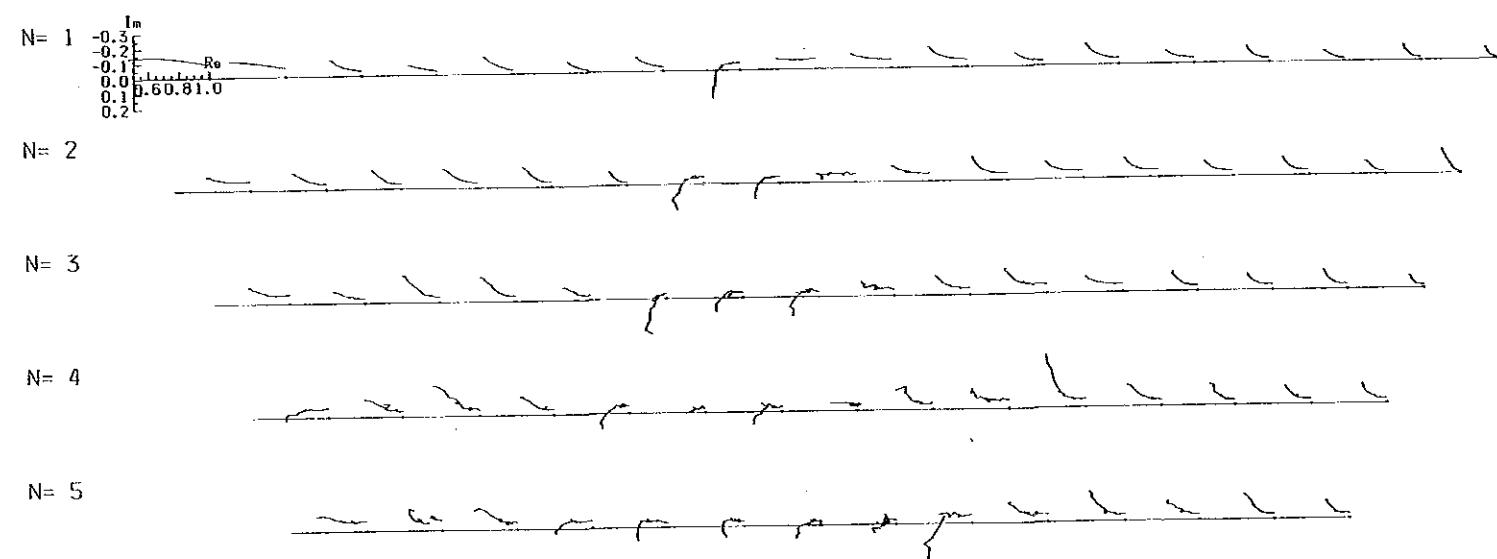
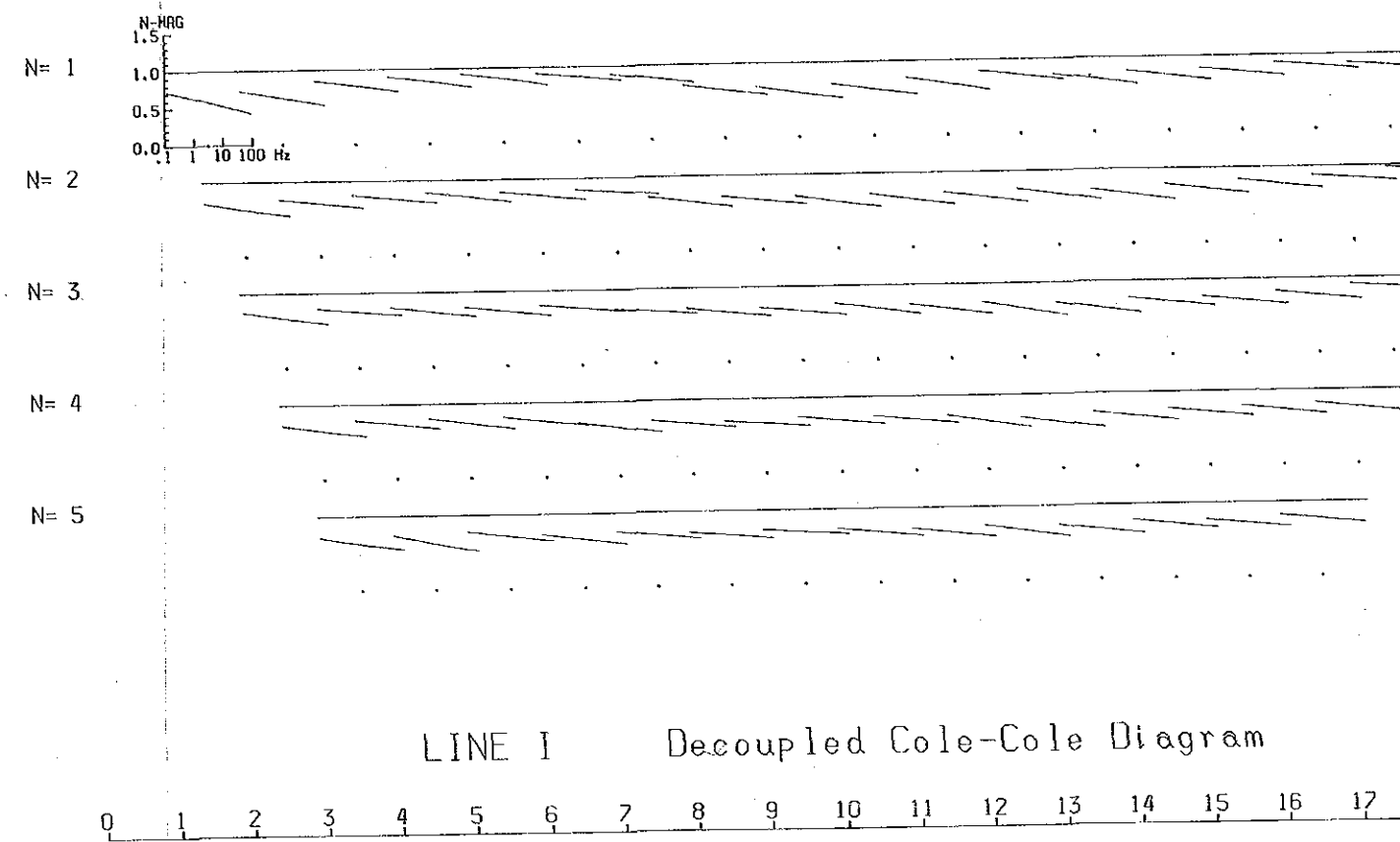
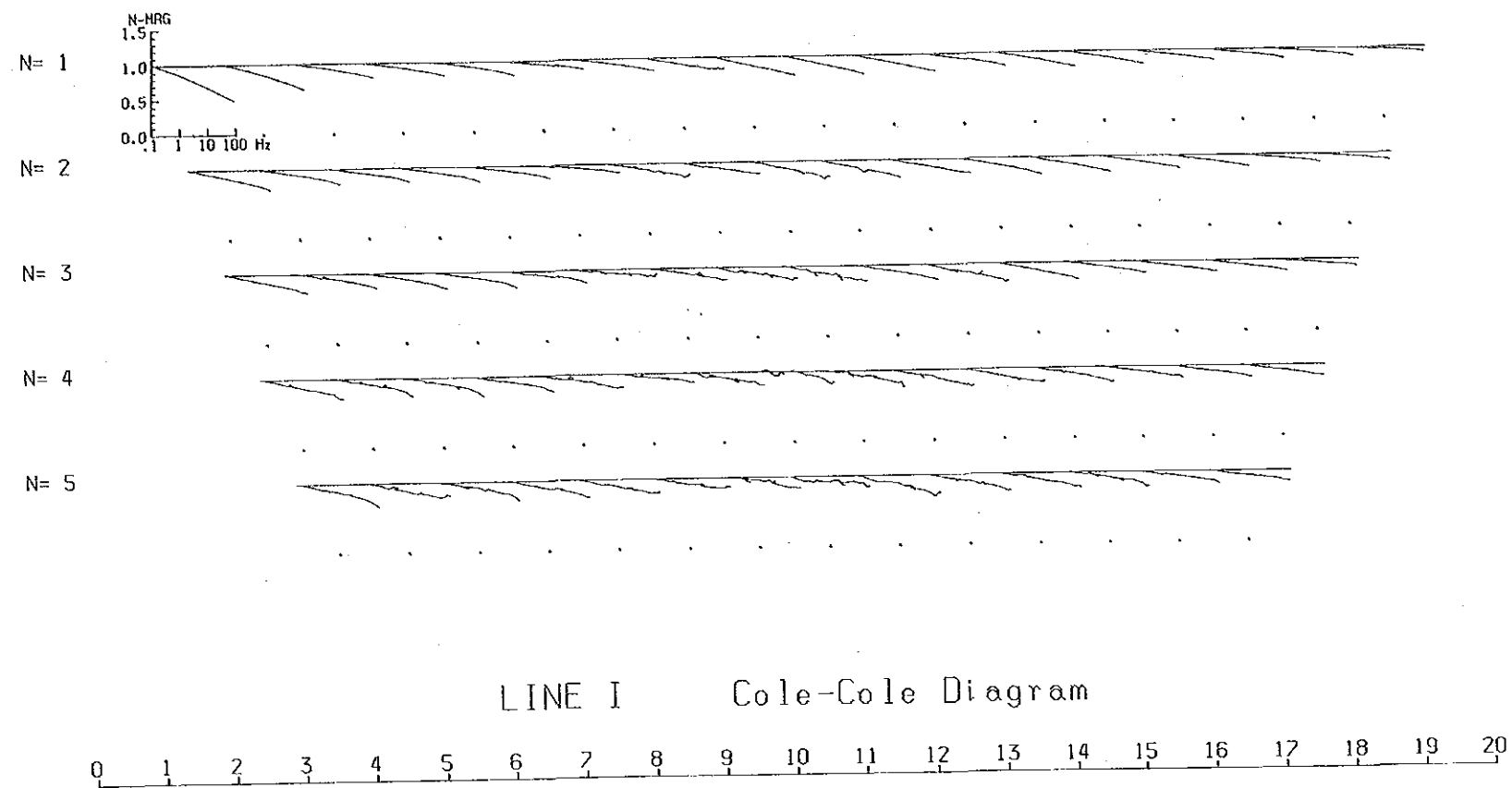
REPORT ON THE MINERAL EXPLORATION
OF GÜMÜŞHANE AREA, THE REPUBLIC OF TURKEY

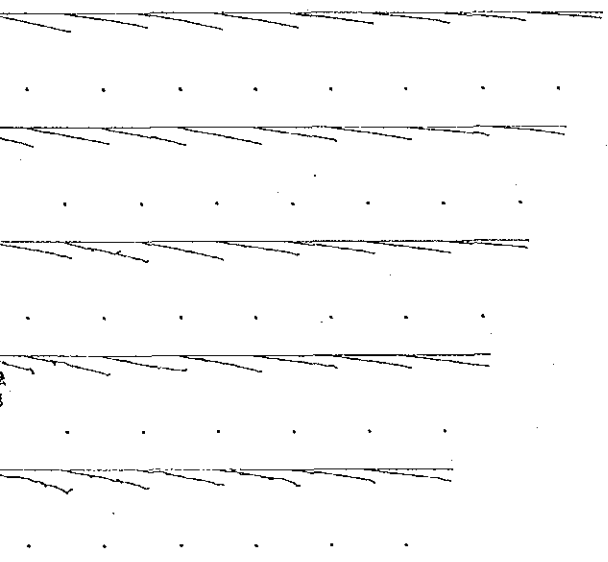
PHASE, MAGNITUDE AND
COLE-COLE SPECTRUM
(LINE I)

Scale 1: 5,000

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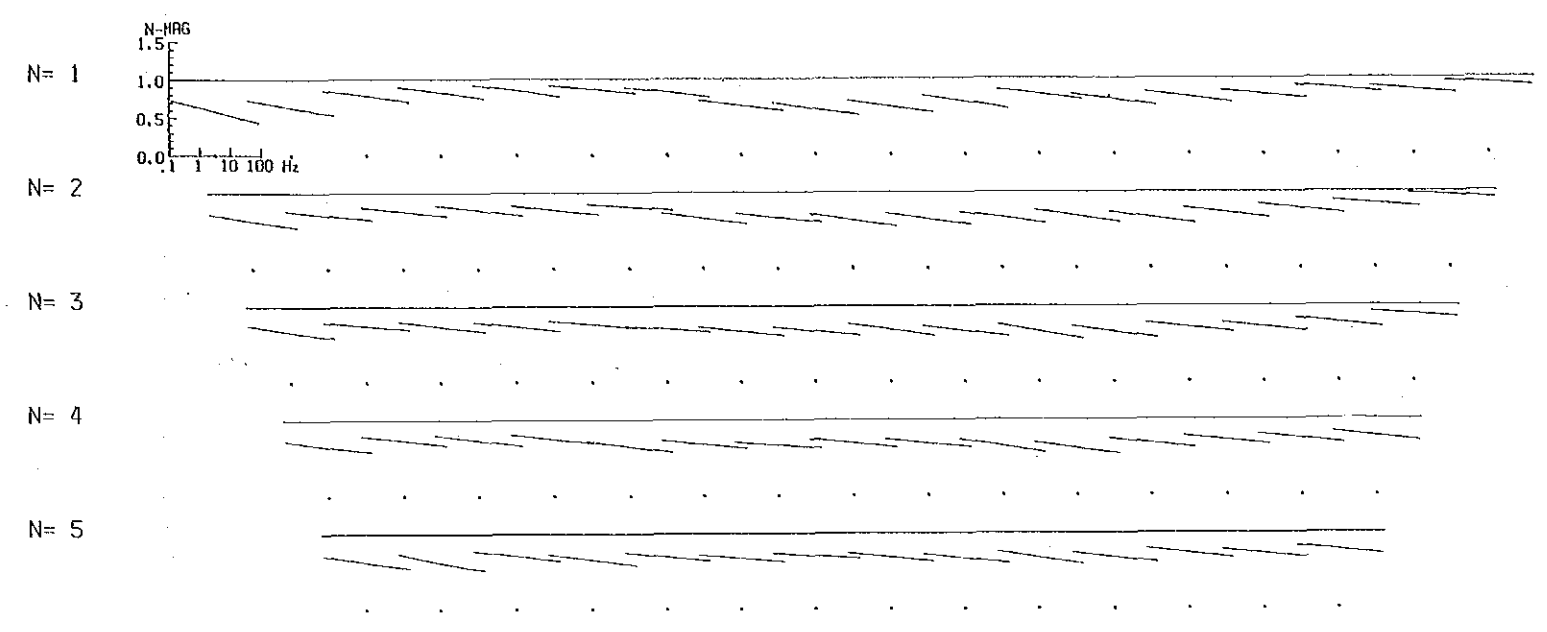
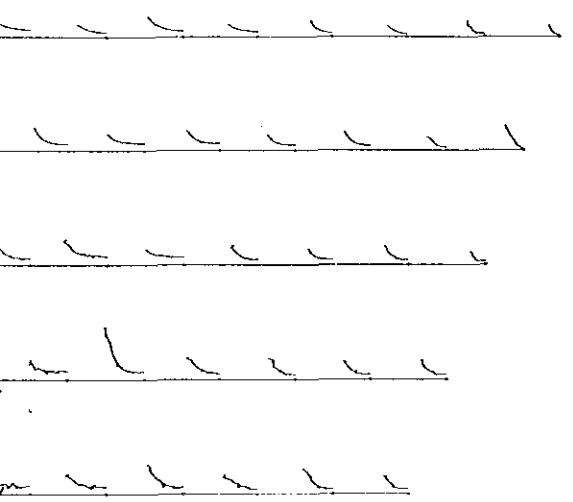
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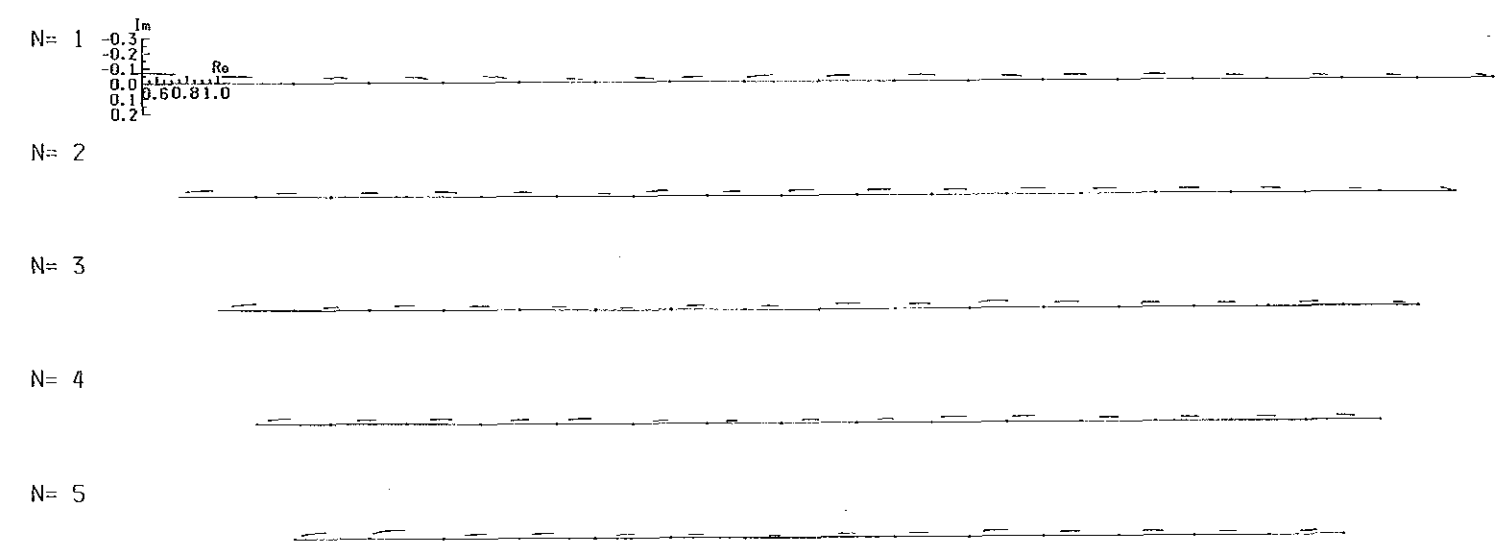
le Diagram

12 13 14 15 16 17 18 19 20



LINE I Decoupled Cole-Cole Diagram

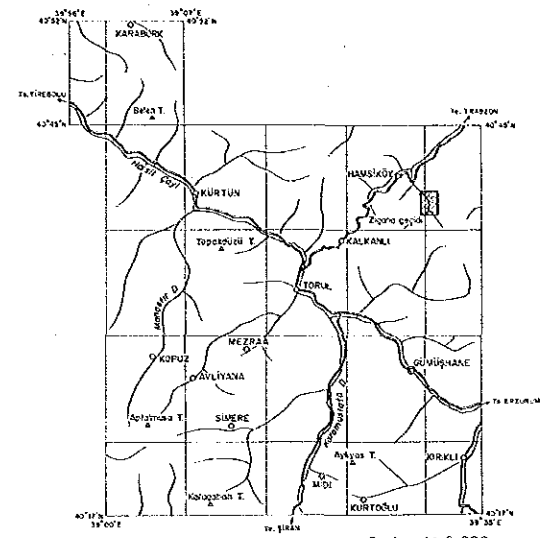
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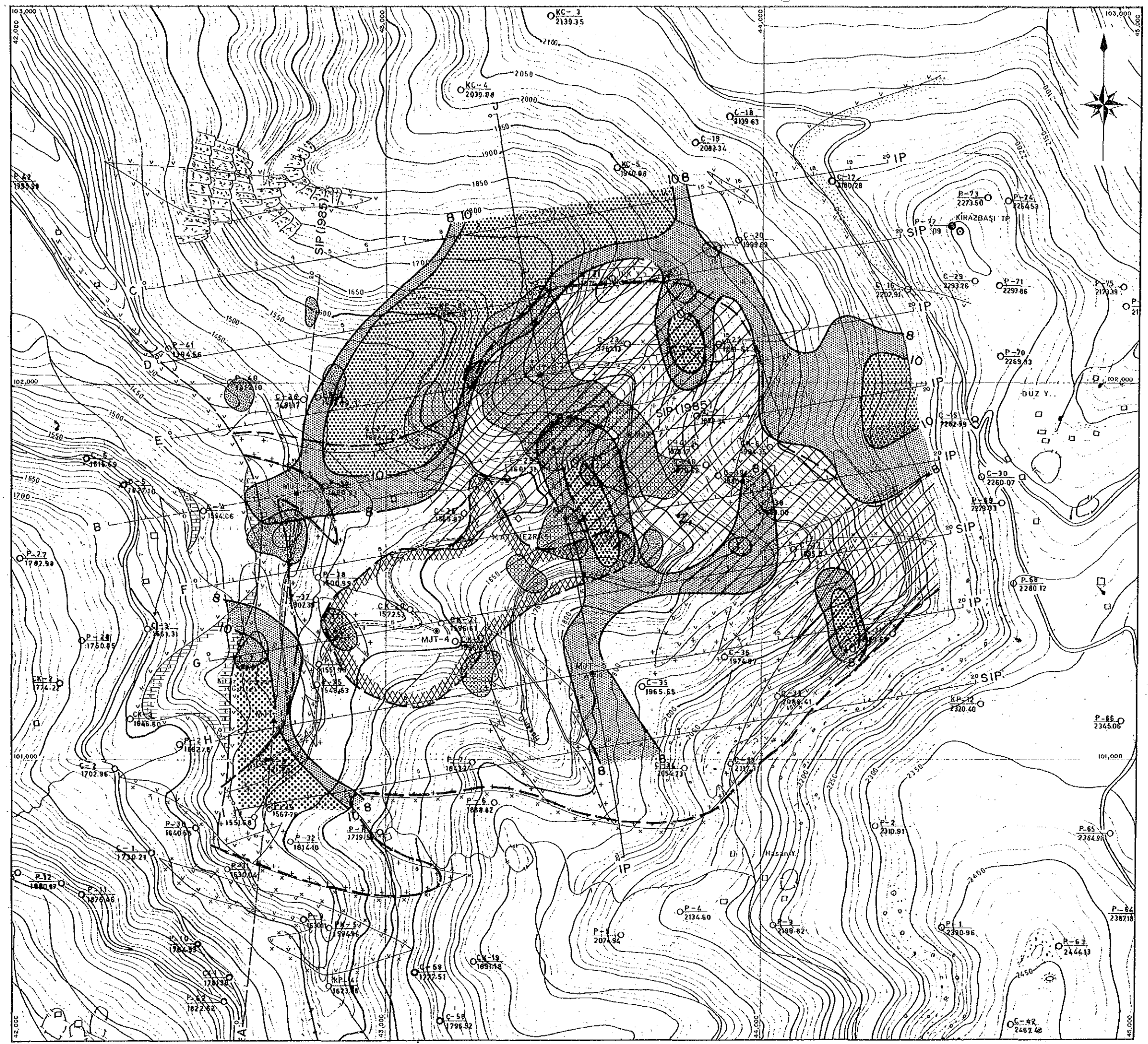
REPORT ON THE MINERAL EXPLORATION
OF GÜMÜŞHANE AREA, THE REPUBLIC OF TURKEY

INTERPRETATION MAP

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国務院地质研究所



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LEGEND

- Zigana F. Siltstone, Sandstone
- Andesite
- Kugukkaya F. Limestone
- Quartz porphyry
- Intrusive Porphyritic granite (Pg-2)
- Porphyritic granite (Pg-1)
- Fault (inferred)
- Drill Holes Performed in 1985
- Drill Holes Performed in 1986
- High PFE zone $\geq 3\%$
- Very high PFE zone $\geq 10\%$
- (unit: x)
- Geochemical survey
- Cu ≥ 600 ppm
- Mo ≥ 75 ppm
- Phyllic zone
- Potassic zone
- Pronissing zone

