3-6 Daris North Area

3-6-1 Loop location

In the northern part of this area, a high metal factor anomaly was detected by the TDIP survey in phase I. The TEM survey was then carried out to clarify the nature of this high anomaly.

The above mentioned high metal factor zone continues from line 400W to line 1000E in the NW-SE direction and especially, high metal factor values over 50, are seen between line 200E and line 1000E.

As shown in Fig.II-3-14, the TEM survey was carried out by deploying 3 loops of 400 m X 400 m.

3-6-2 Results

(1) Loop 1

TEM response maps are shown in Fig.II-3-15(1) and (2).

Two high TEM anomalies were detected as follows:

1) Near the station 850E1500N. This anomaly is detected in Channels 1 to 6. The depth of anomaly source is rather shallow, i.e., around 20 to 30 m.
2) In the south part of the loop, extending from NW to SE in Channels 1 to Ch.20. Since this anomaly zone shifts toward NE in the latter channels, the conductor is considered to dip slightly toward NE.

(2) Loop 2

TEM response maps are shown in Fig.II-3-16(1) and (2).

Two high TEM anomalies are detected as follows:

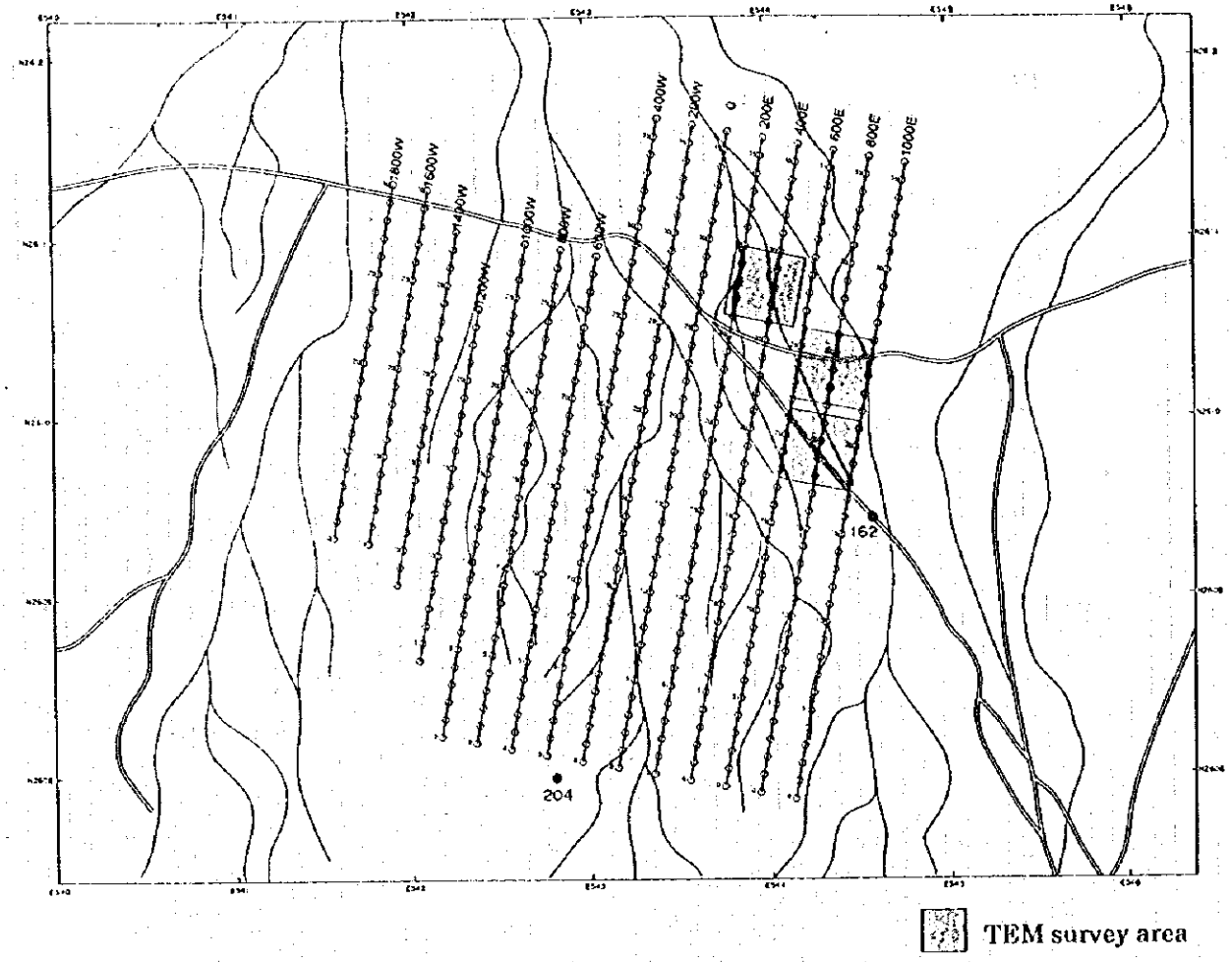
1) Near the station 700E850N. This anomaly extends in the EW direction. Seen in the channels 1 to 10.
2) In the north-east part of the loop. This anomaly, as seen in the channels 13 to 20, extends along the NW-SE direction. Tis anomaly is considered to be a continuation of the NW-SE trending anomaly of Loop1

(3) Loop 3

TEM response maps are shown in Fig.II-3-17(1) and (2).

Two high TEM anomalies are detected:

1) Near the station 400E1900N. This anomaly extends in the NW-SE direction (Channels 1 to 6).
2) In the south-western part of the loop. This anomaly extends along NW-SE direction (Channels 7 to 20). The source of this anomaly is considered to dip slightly toward NE, because the



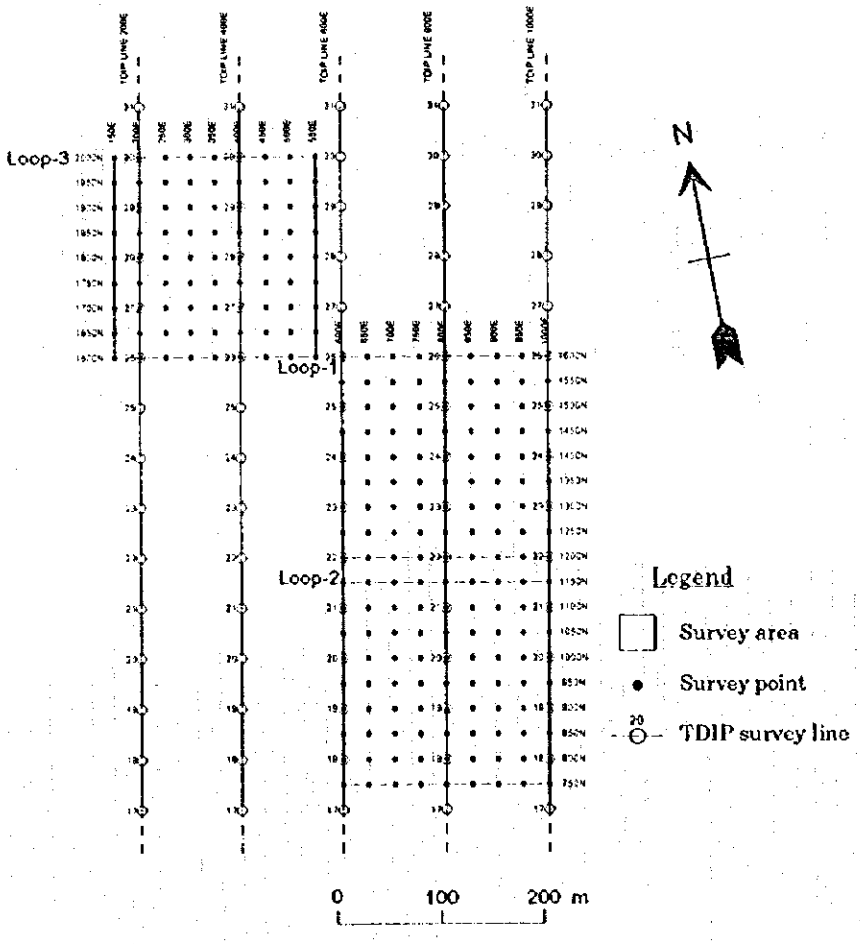


Fig.II-3-14 Daris North survey site showing observation points

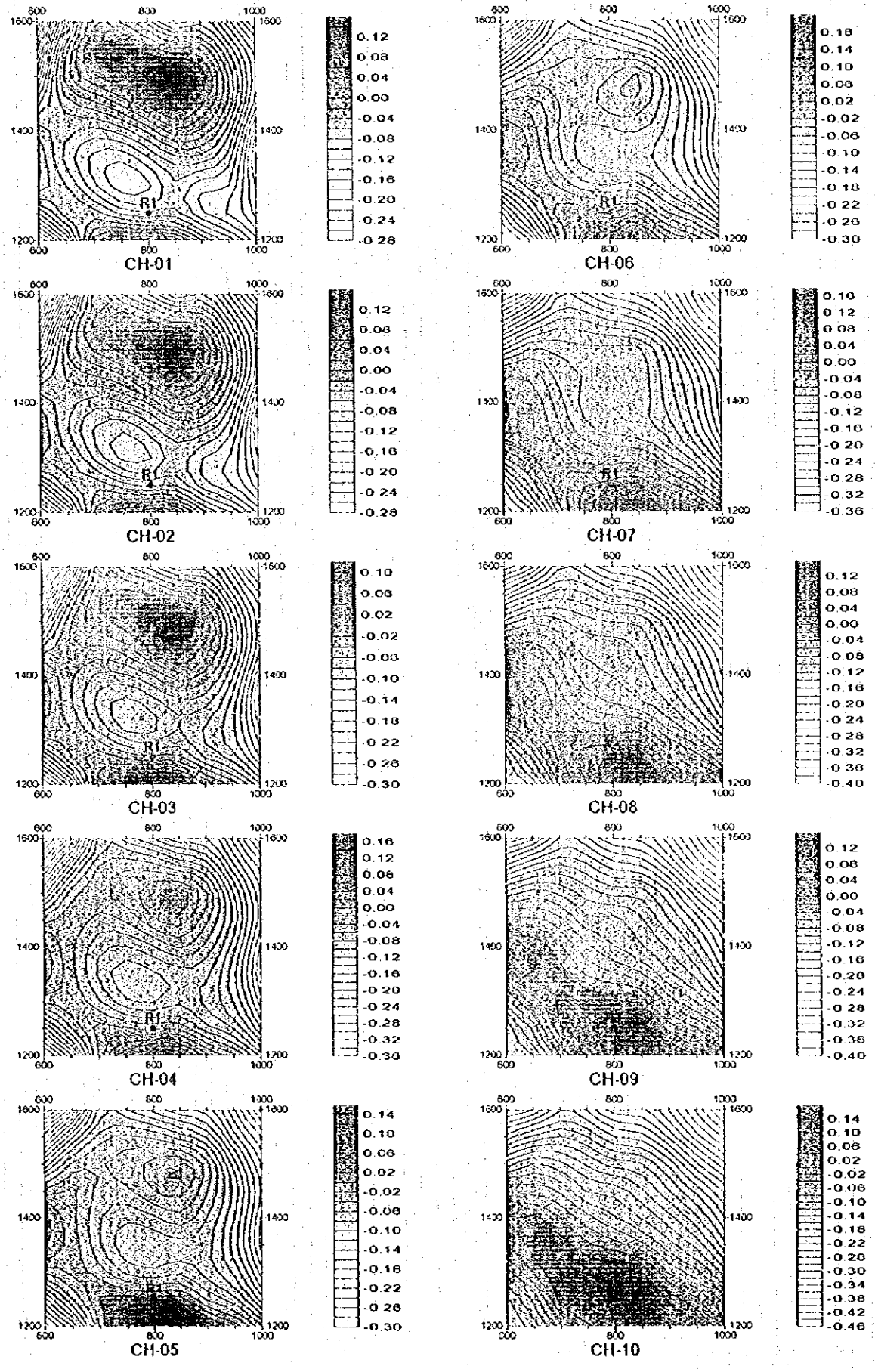


Fig.II-3-15(1) TEM response plane maps of Loop1 in Daris North area

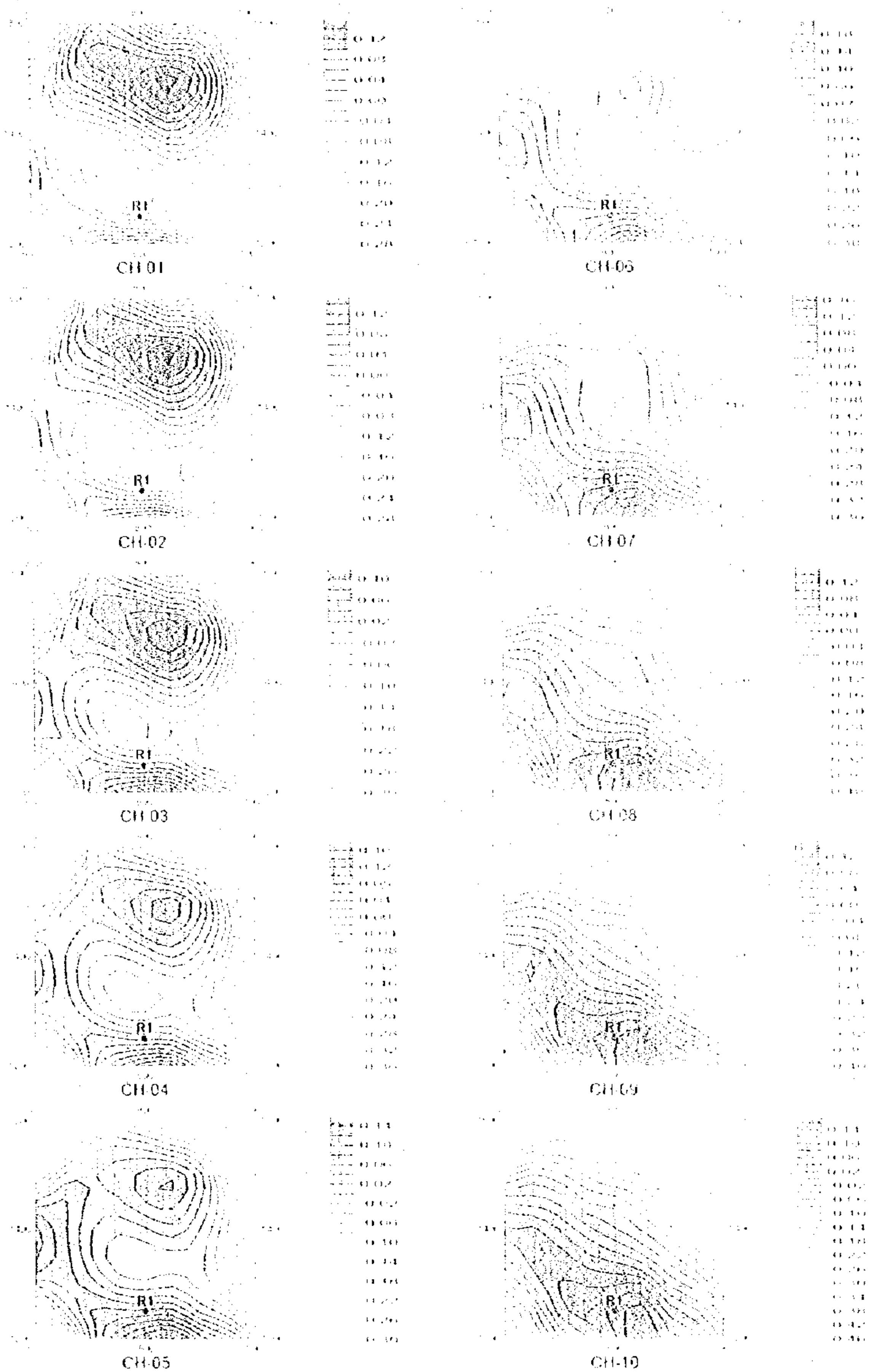


Fig.II-3-15(1) TEM response plane maps of Loop Line Data North area



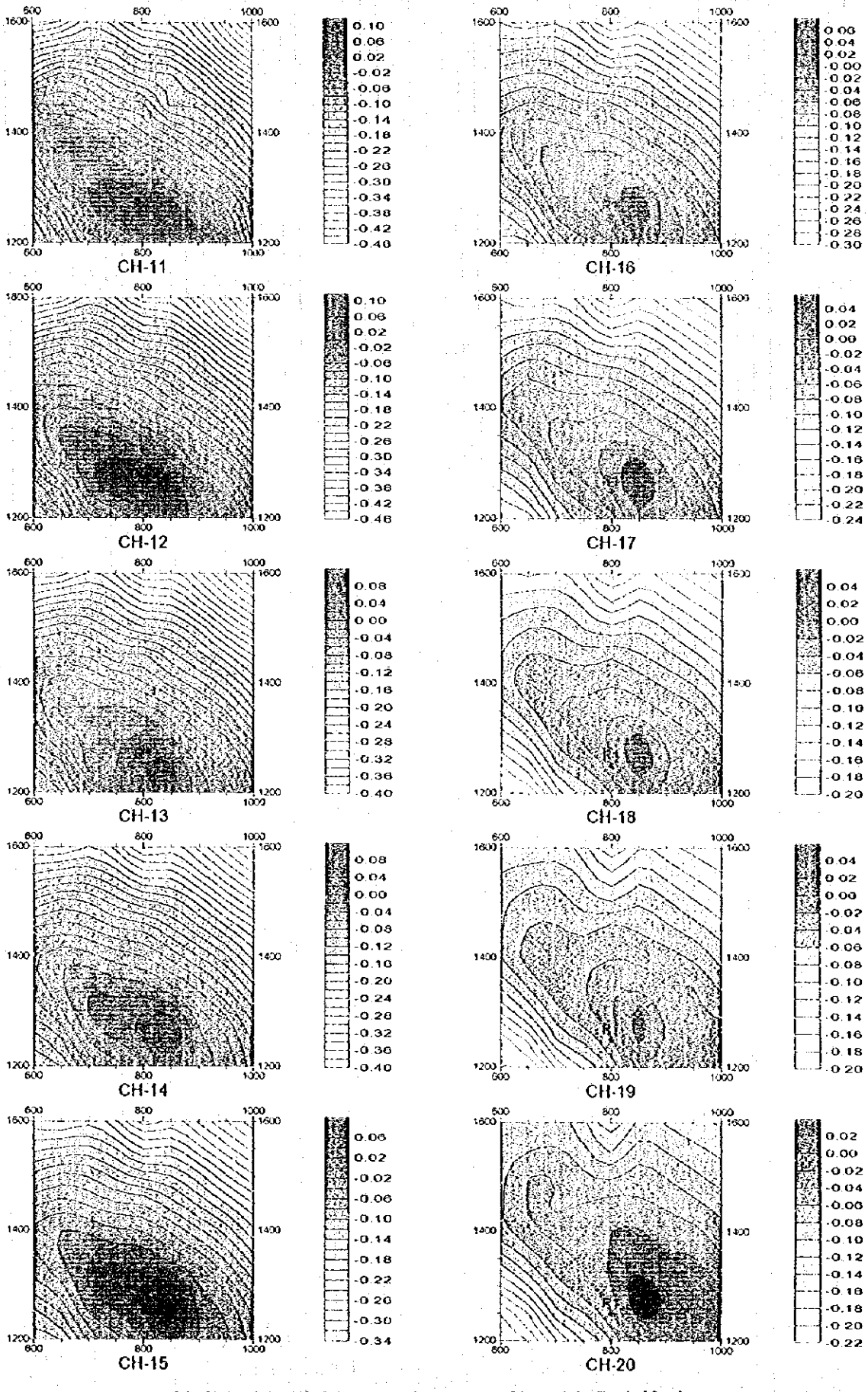
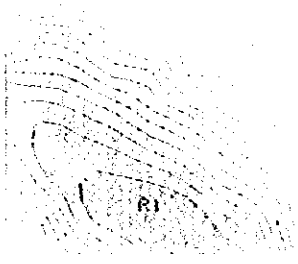
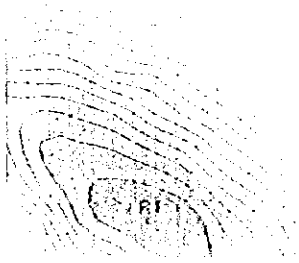


Fig.II-3-15(2) TEM response plane maps of Loop1 in Daris North area

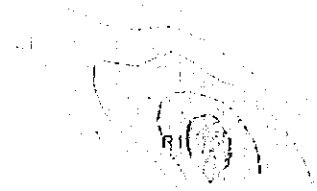


CH 11

CH 16

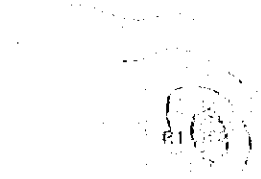


CH 12

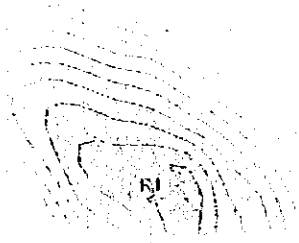


CH 17

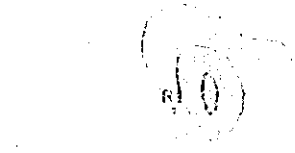
CH 13



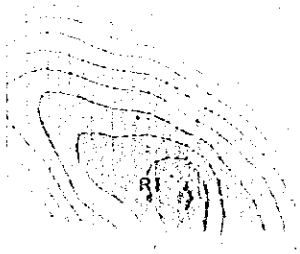
CH 18



CH 14



CH 19



CH 15

CH 20

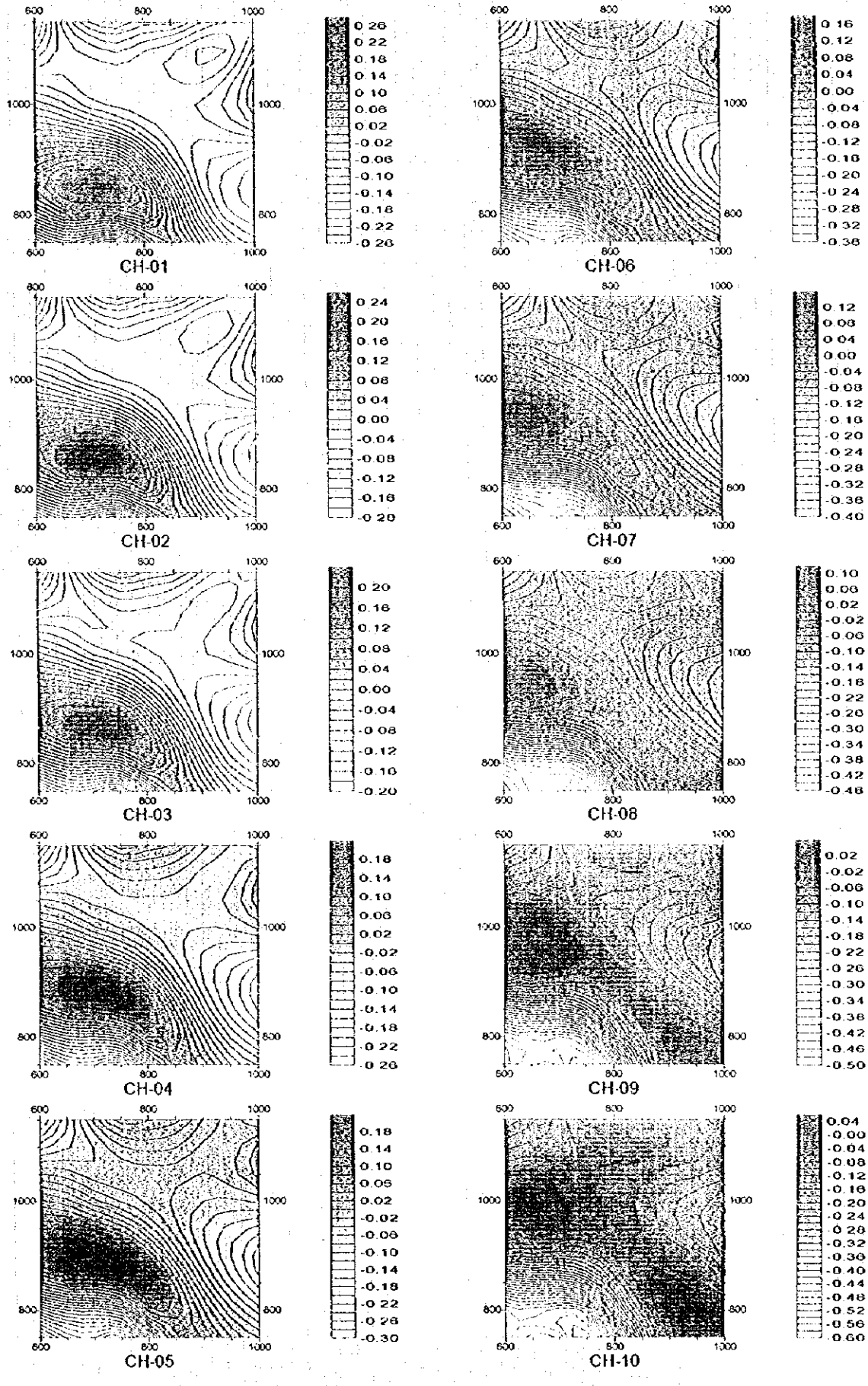


Fig.II-3-16(1) TEM response plane maps of Loop2 in Daris North area

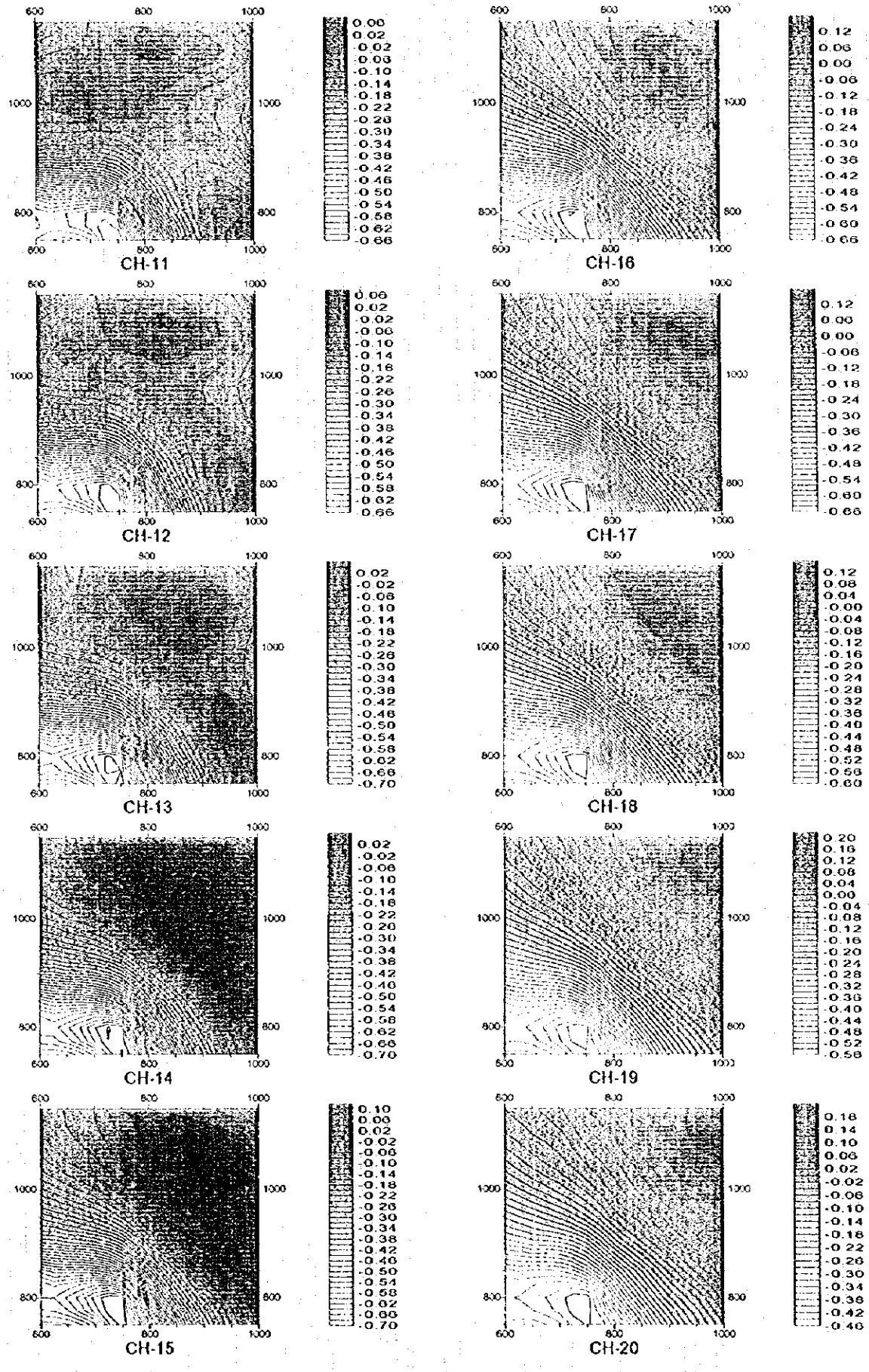


Fig.II-3-16(2) TEM response plane maps of Loop2 in Daris North area

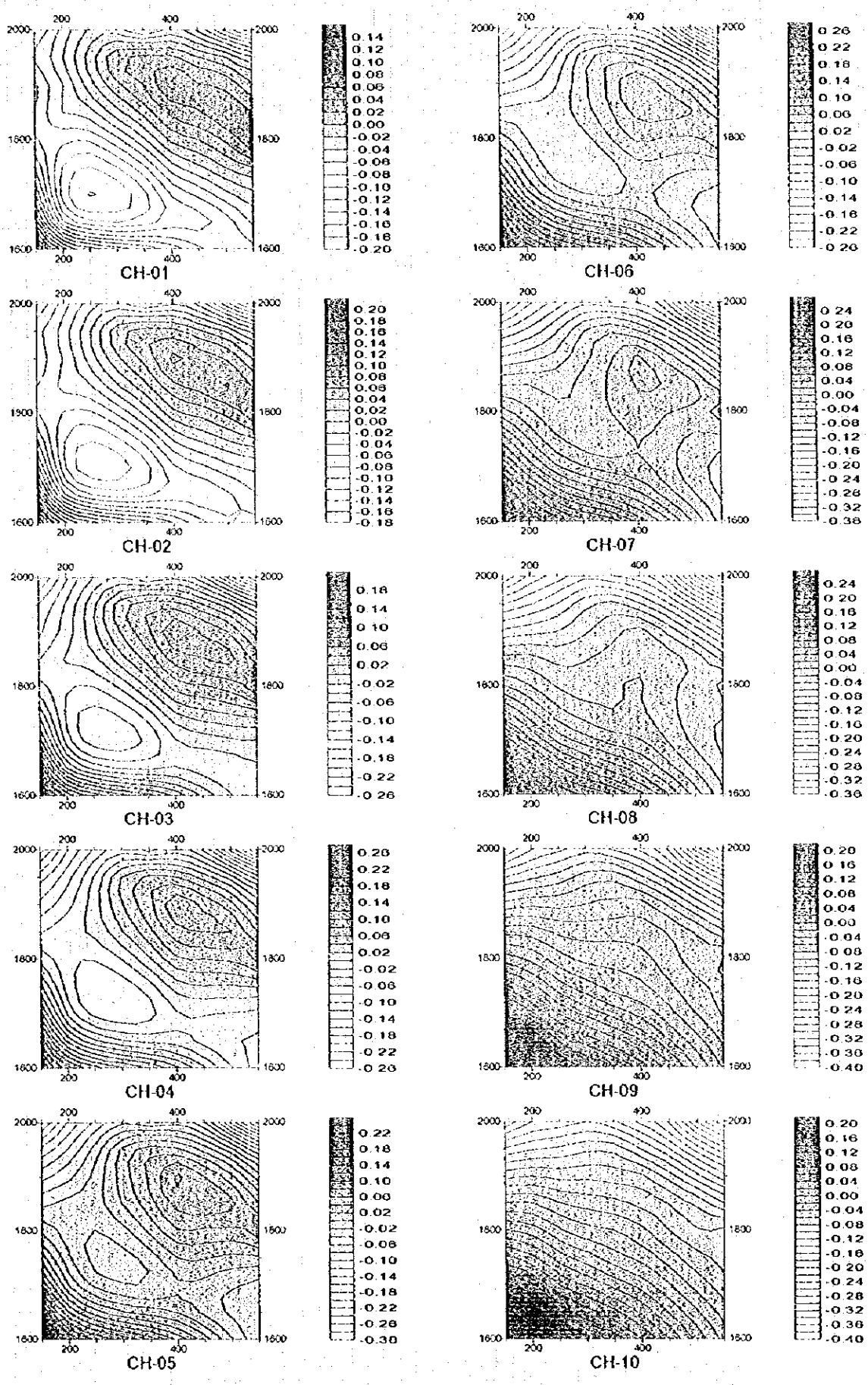


Fig.II-3-17(1) TEM response plane maps of Loop3 in Daris North area

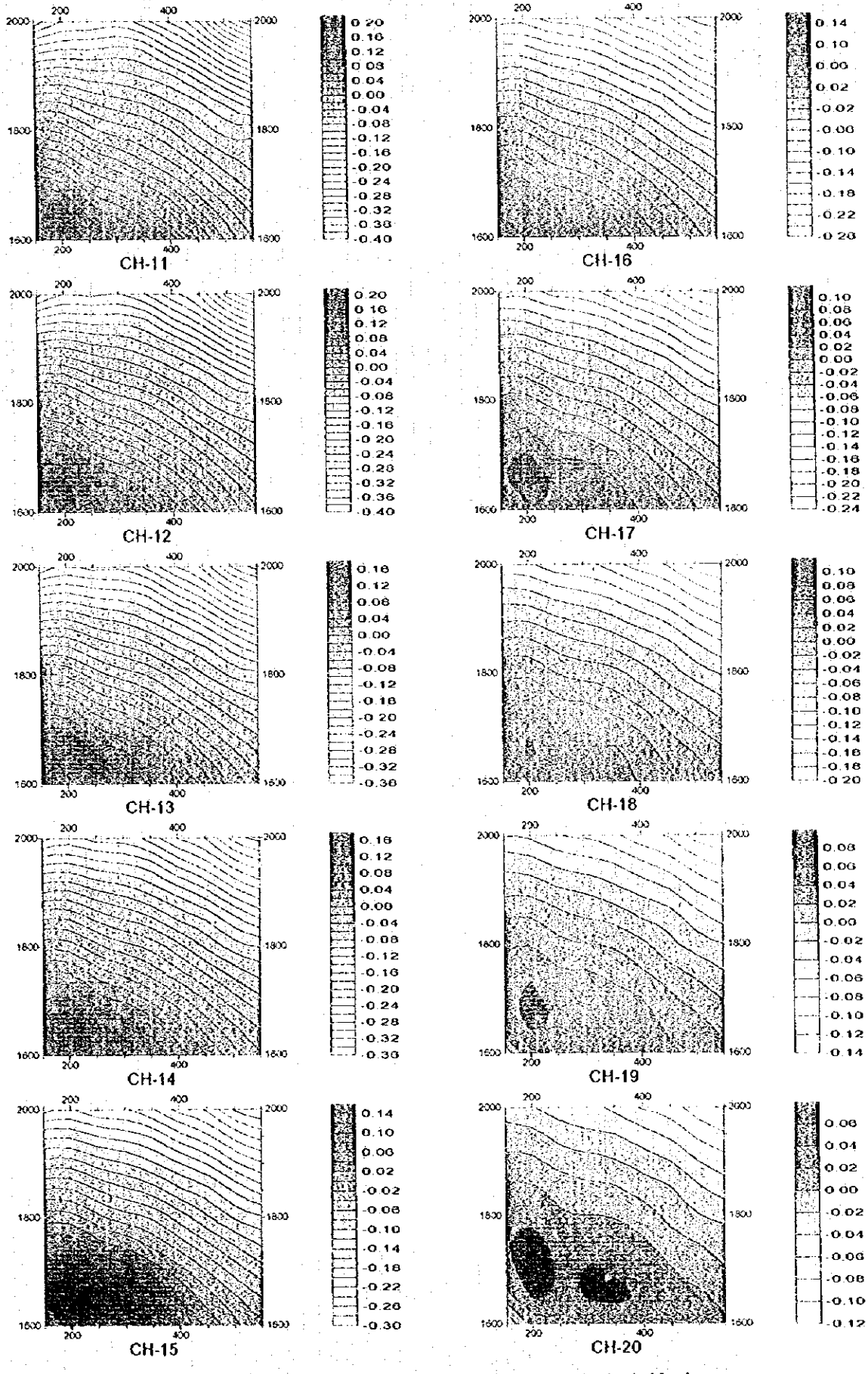


Fig.II-3-17(2) TEM response plane maps of Loop3 in Daris North area

anomaly shifts toward NE at latter channels.

In order to understand the resistivity structure in this area, the TEM response measured in channel 14, which represents a depth of about 100 m, were used to make a compiled map from all the 3 loops. An estimated resistivity structure at this depth, is shown in the compiled map of Fig.II-3-18.

According to this compiled map, the TEM response show a general trending along NW-SE. High TEM anomalies are detected in the south of Loop 1, in the north of Loop 2 and in the south-west of Loop 3. Due to the continuity seen in these three anomalies, it is considered that, as a whole, they conform a big anomaly. Good correlation is seen with the NW-SE trending high metal factor zone detected by TDIP survey. In conclusion, there exists some possibility that this anomaly be caused by a conductor containing sulphide. Borehole R1 was selected at the station 800E1250N, to confirm the results near the center of this anomaly.

3-7 Fardah Area

3-7-1 Loop location

In the northern part of this area, due to a high metal factor anomaly (over 60) trending along NW-SE as detected by TDIP survey, a TEM survey was carried out to clarify the nature of this high anomaly in more detail.

The metal factor anomaly extends from line 600W to 800E in the NW-SE direction. Around the center of this anomaly, TEM survey stations were located within an area of 400 m X 400 m delimited by the lines 0 and 400E. The location of this loop is shown in Fig.II-3-19.

3-7-2 Results

TEM response maps are shown in Fig.II-3-20(1) and (2).

Two high TEM anomalies are detected:

1) Near the station 300E200N. This anomaly, as seen from channels 1 to 6, extends along the E-W direction.
2) In the south of the loop. This anomaly extends along the NW-SE direction. Because this anomaly shifts toward north as seen in the later time channels (located in the center of the loop in channel 20), it is considered that a conductive body dips slightly toward north.
   Borehole F2 was located on the station 200E100S to clarify the nature of the shallow anomaly (Channel 13), and F1 was located on the station 200E100N to aim at the deep anomaly (Channel 20).

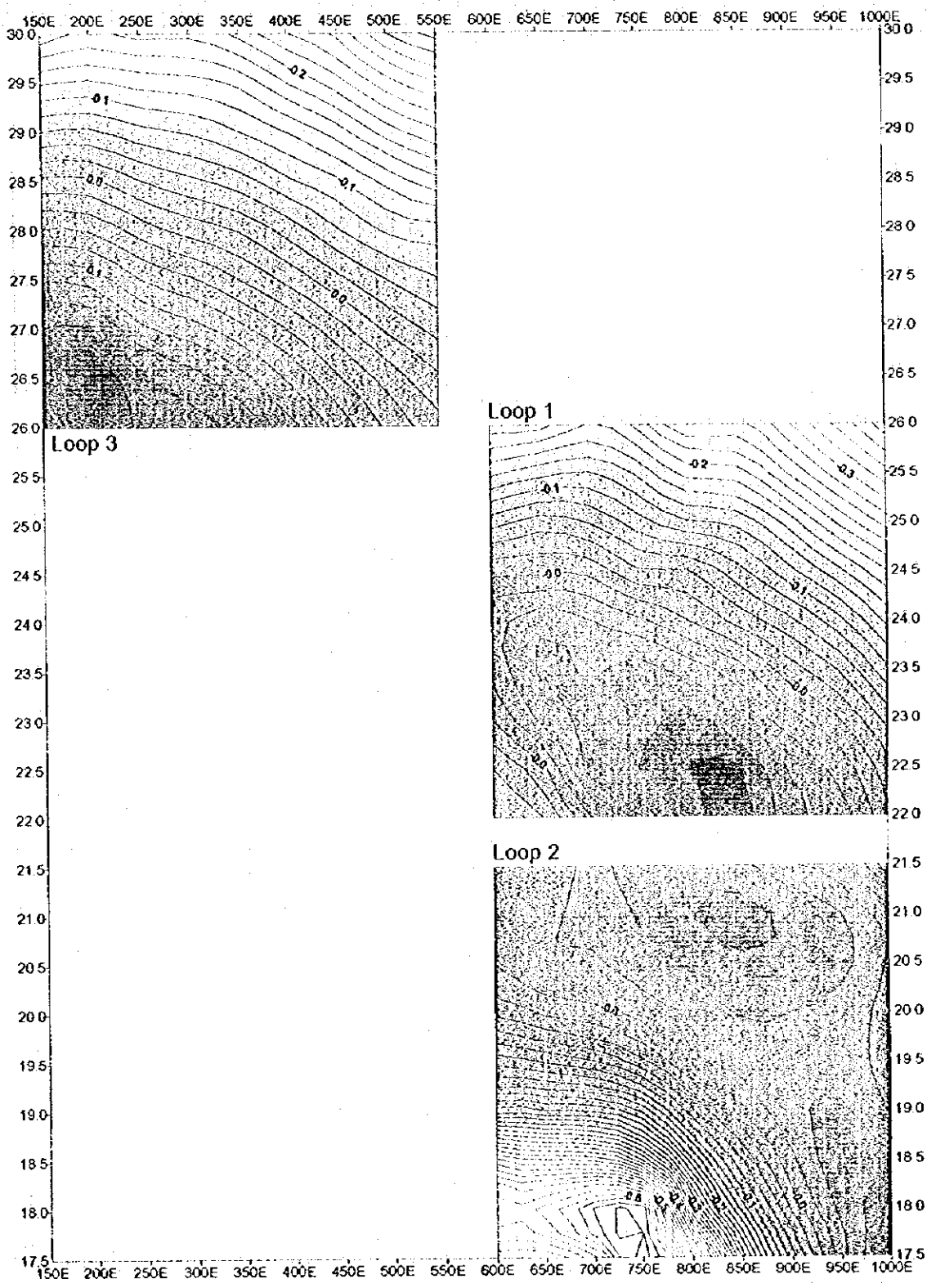
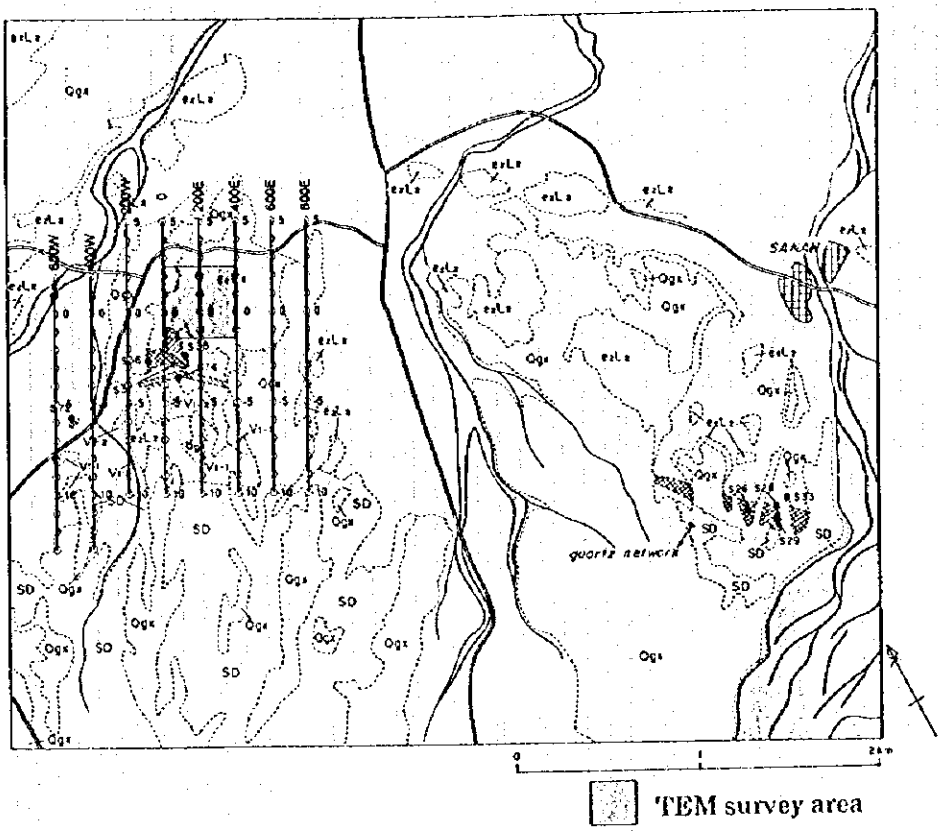


Fig.II-3-18 TEM response compiled maps in Daris North area



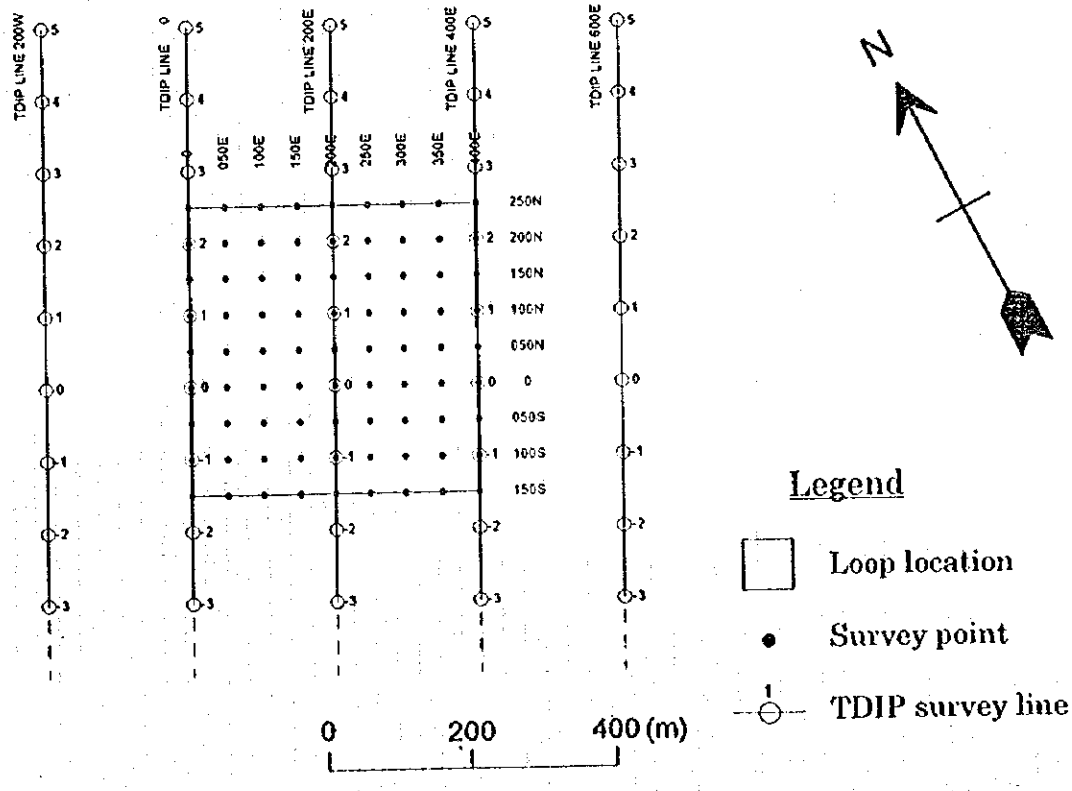


Fig.II-3-19 Pardha survey site showing observation points

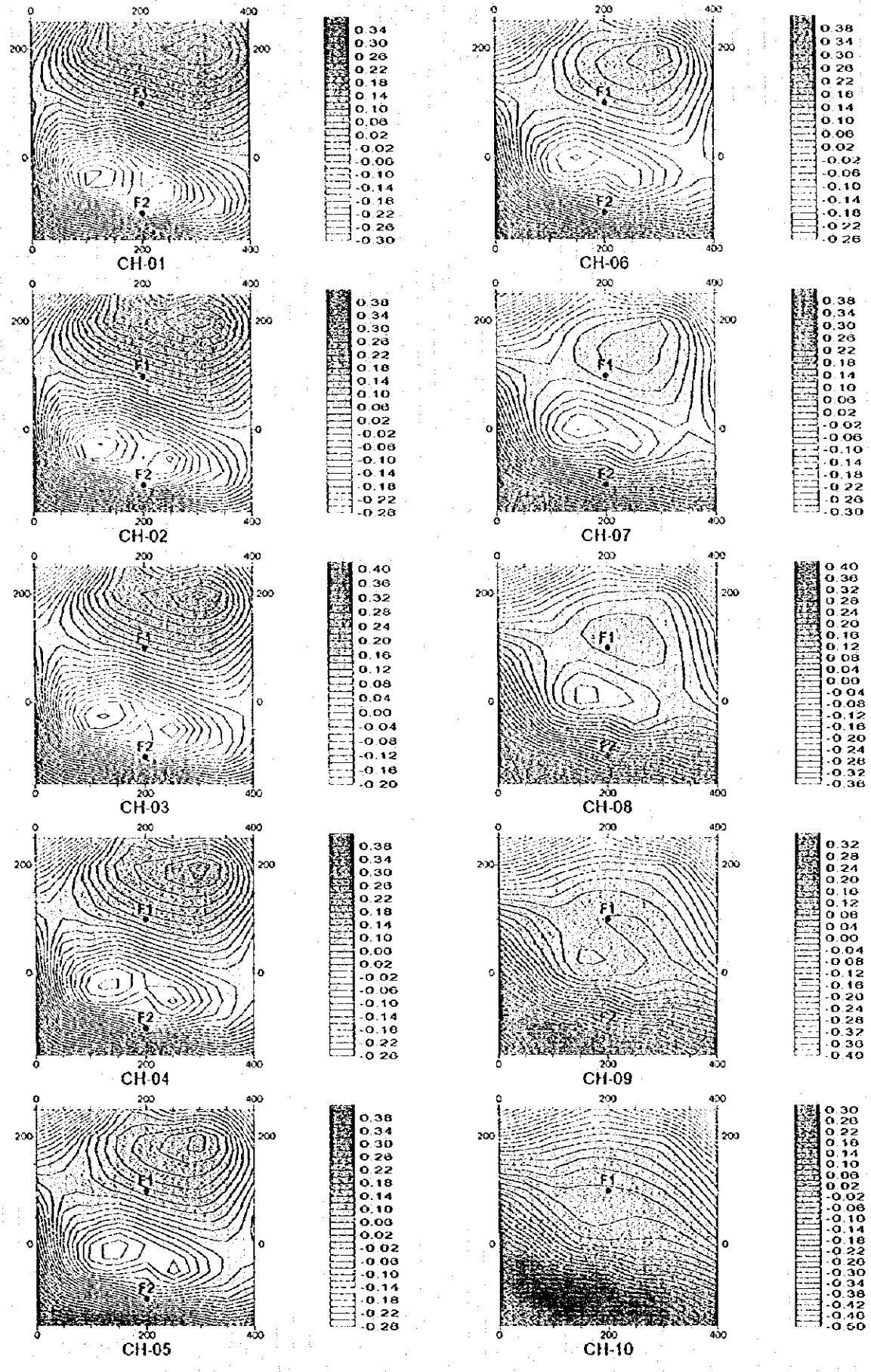


Fig.II-3-20(1) TEM response plane maps of Loop1 in Pardha area


F3
F1
F2
CH 01
CH 05
F1
F1
F2
CH 02
CH 06
F1
F1
F2
CH 03
CH 07
F1
F1
F2
CH 04
CH 08
F1
F1
F2
CH 09
CH 10

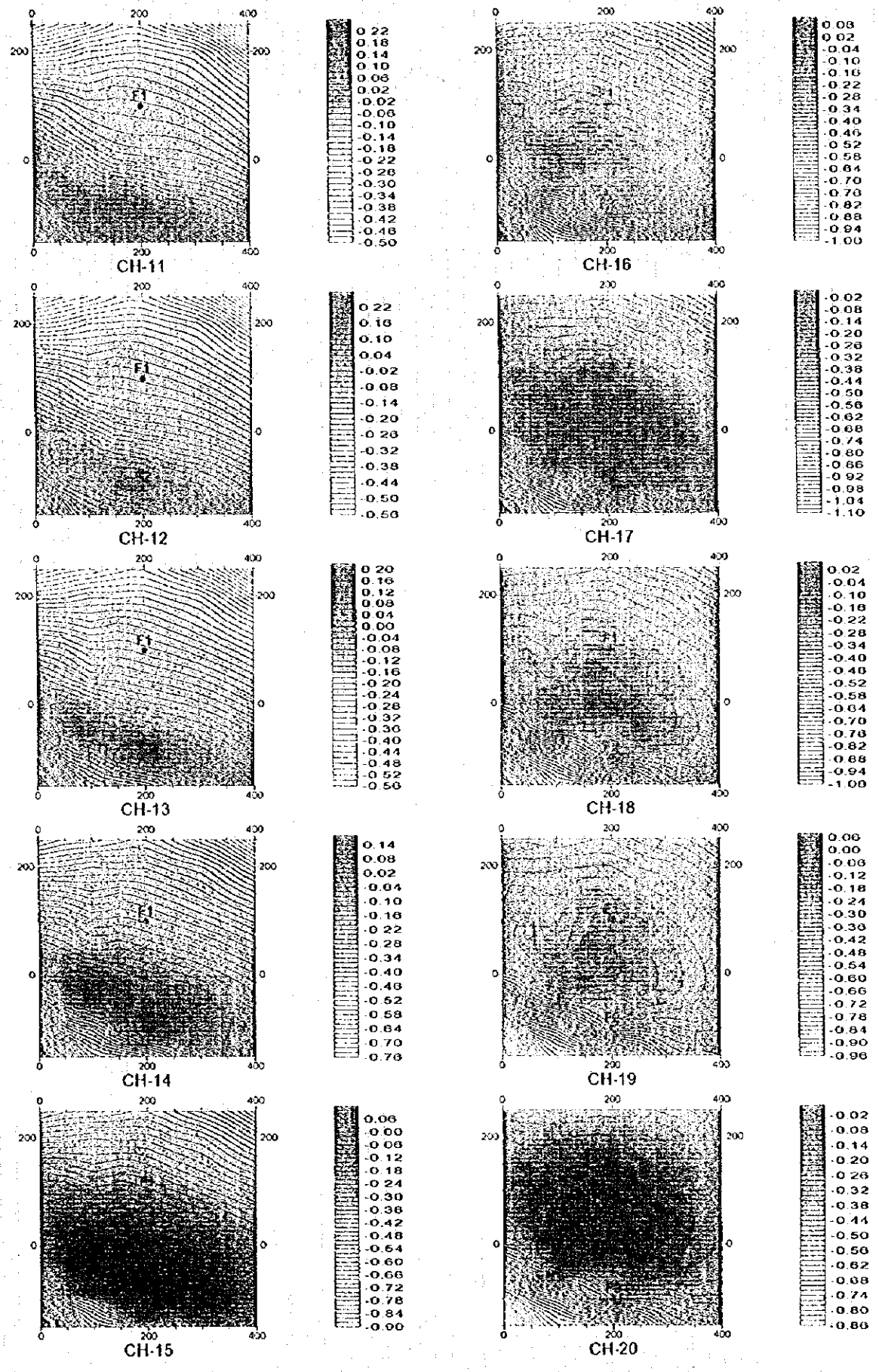
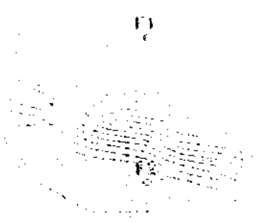
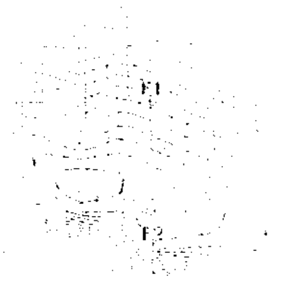
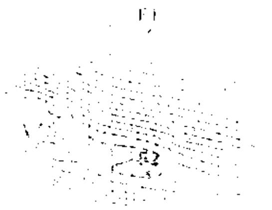


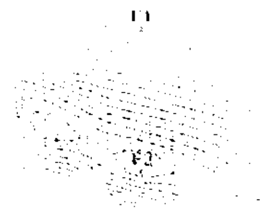
Fig.II-3-20(2) TEM response plane maps of Loop1 in Pardha area


F1
F2

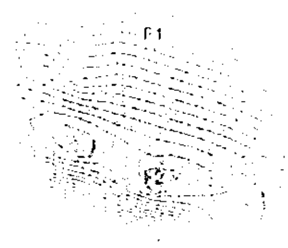

F1
F2

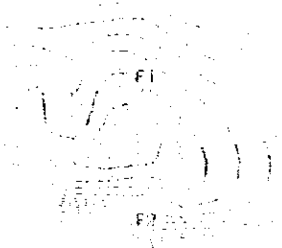

F1
F2


F1
F2

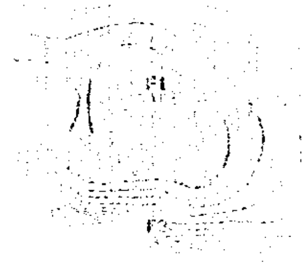

F1
F2


F1
F2


F1
F2


F1
F2


F1
F2


F1
F2

3-8 Sanah Area

3-8-1 Loop location

A TEM survey was carried out to clarify in more detail the nature of the NW-SE high metal factor anomalies (over 100) detected by the TDIP survey in the central part of this area, as well as an anomaly of medium metal factor values located on the south of this area.

As same as in Fardah area, metal factor anomalies extend in the NW-SE direction. Loop 1 was located on the center of a high anomaly zone within a 400 X 400m area, delimited by the lines 200W and 200E, while loop 2 was deployed on an anomaly zone of medium values. The location of the loops is shown in Fig.II-3-21.

3-8-2 Results

(1) Loop 1

TEM response maps are shown in Fig.II-3-22(1) and (2).

The distribution of TEM responses is similar to that of Fardah area. Two high TEM anomalies are detected:

1) Near the station 000E100N. This anomaly extends in the E-W direction (Channels 1 to 8).
2) In the south of the loop. This anomaly extends in the NW-SE direction (Channels 10 to 20). Since this anomaly shifts toward north at later channels, it is considered that a conductive zone dips slightly toward north.

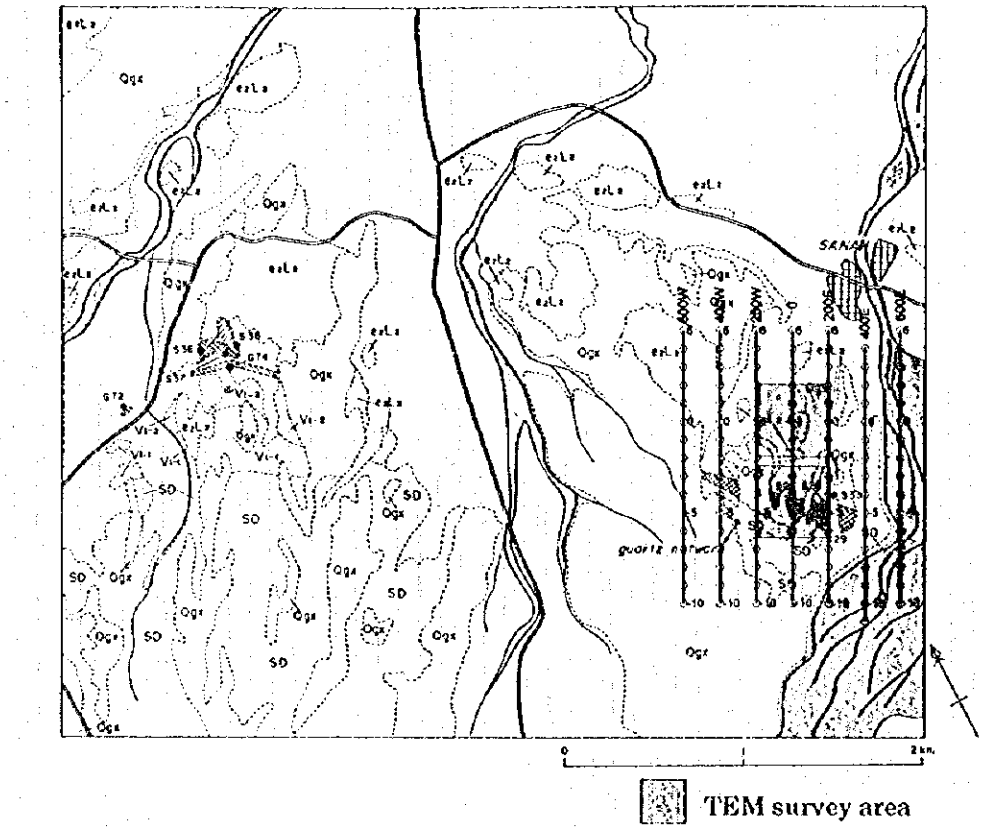
(2) Loop 2

TEM response maps are shown in Fig.II3-23(1) and (2).

Two high TEM anomalies are detected

1) Near the station 000E500N. This anomaly extends in the E-W direction (Channels 1 to 7).
2) In the northern edge of the loop. This anomaly extends in the NW-SE direction (Channels 11 to 20).

In the south of the loop, no conductive zone can be delineated because the TEM response is very weak.



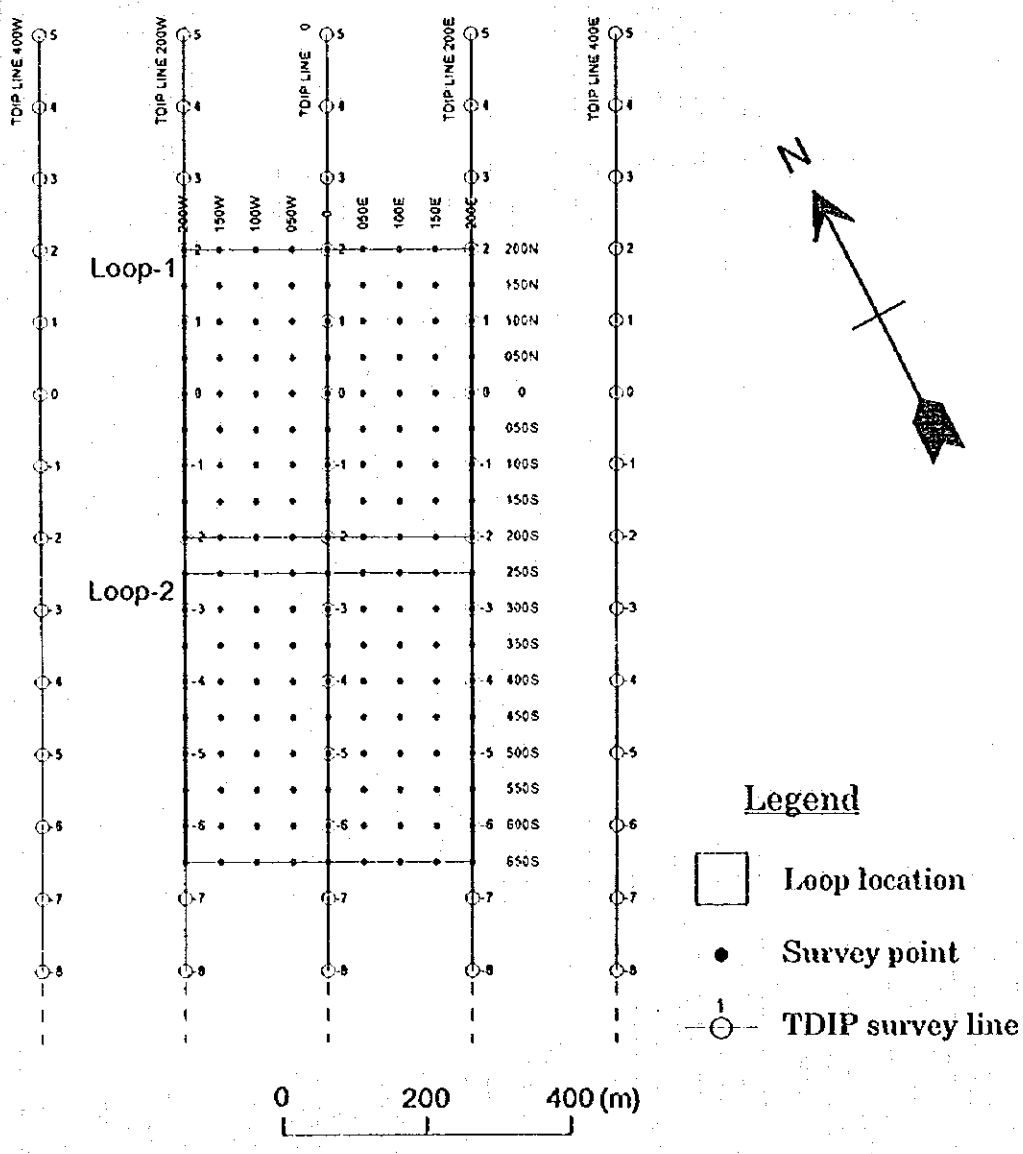


Fig.II-3-21 Sanah survey site showing observation points

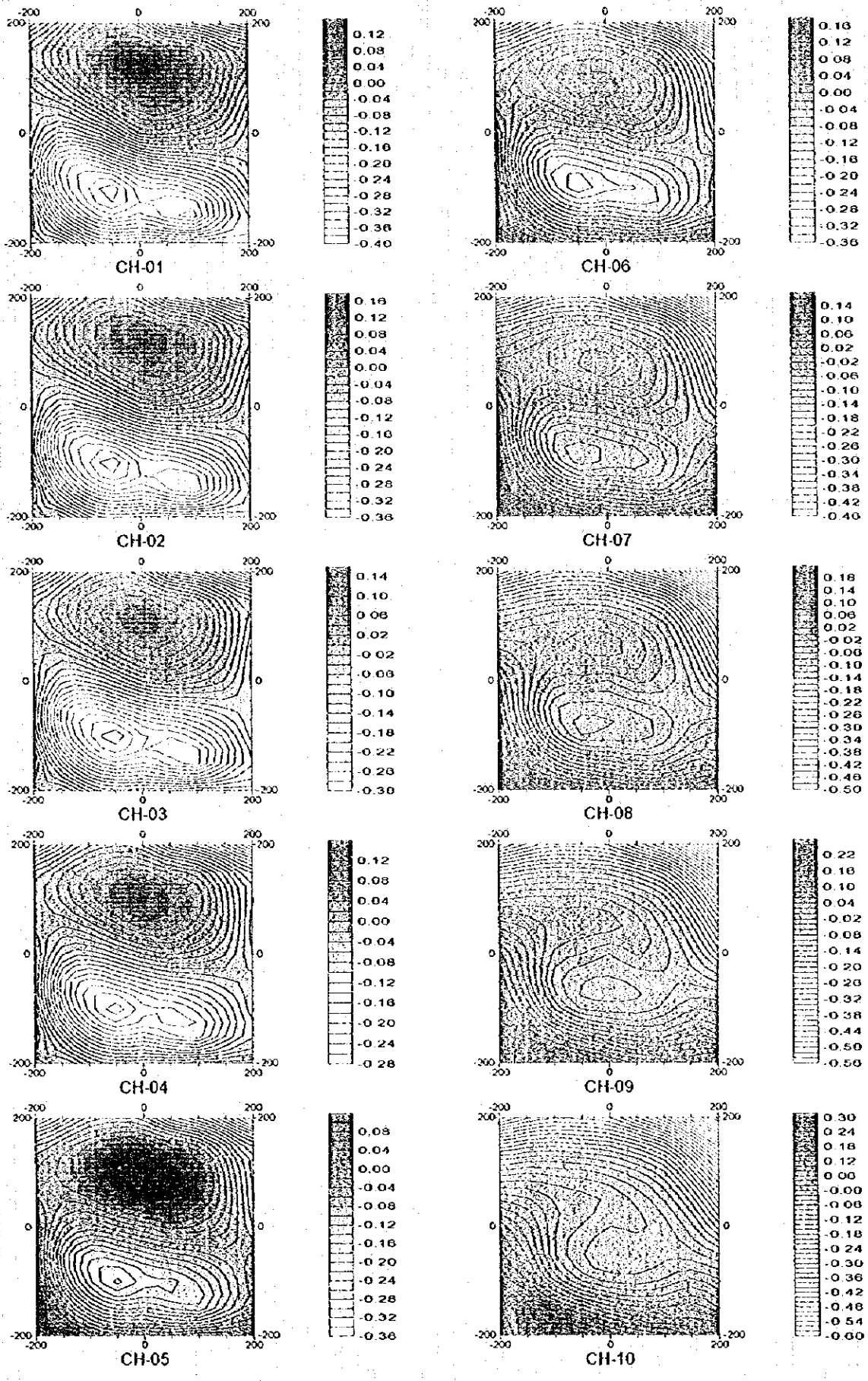


Fig.II-3-22(1) TEM response plane maps of Loop1 in Sanah area

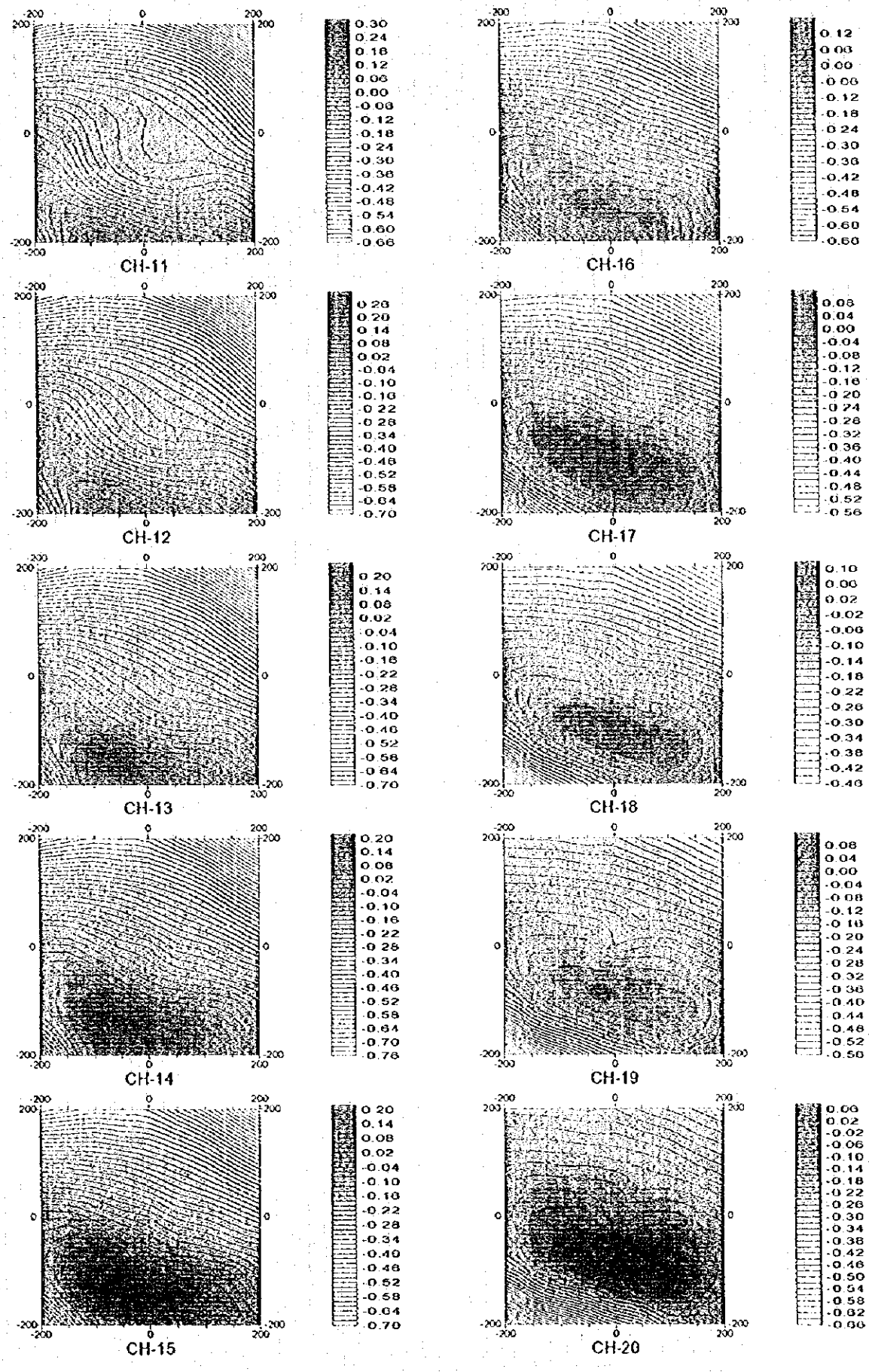


Fig.II-3-22(2) TEM response plane maps of Loop1 in Sanah area

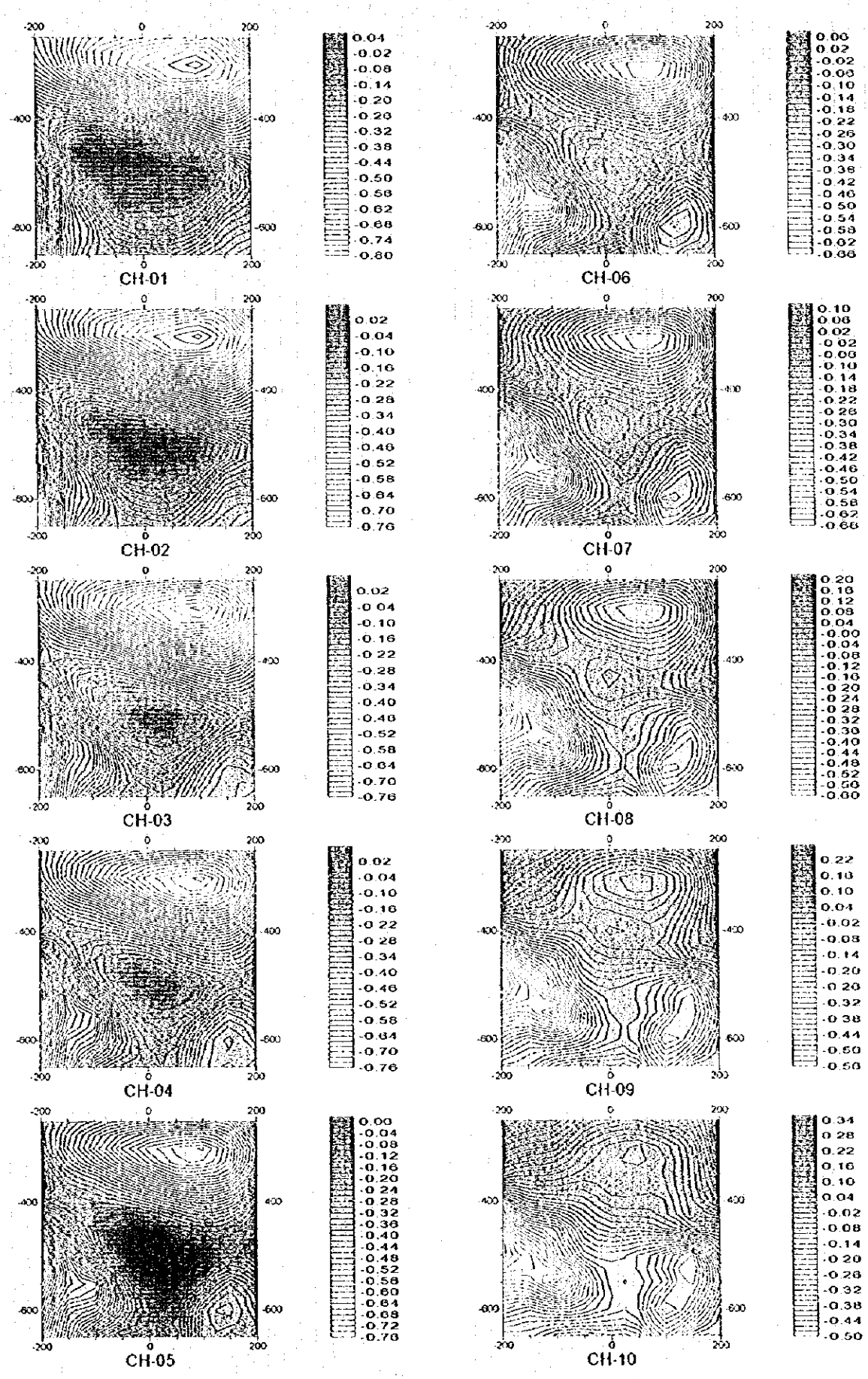


Fig.II-3-23(1) TEM response plane maps of Loop2 in Sanah area

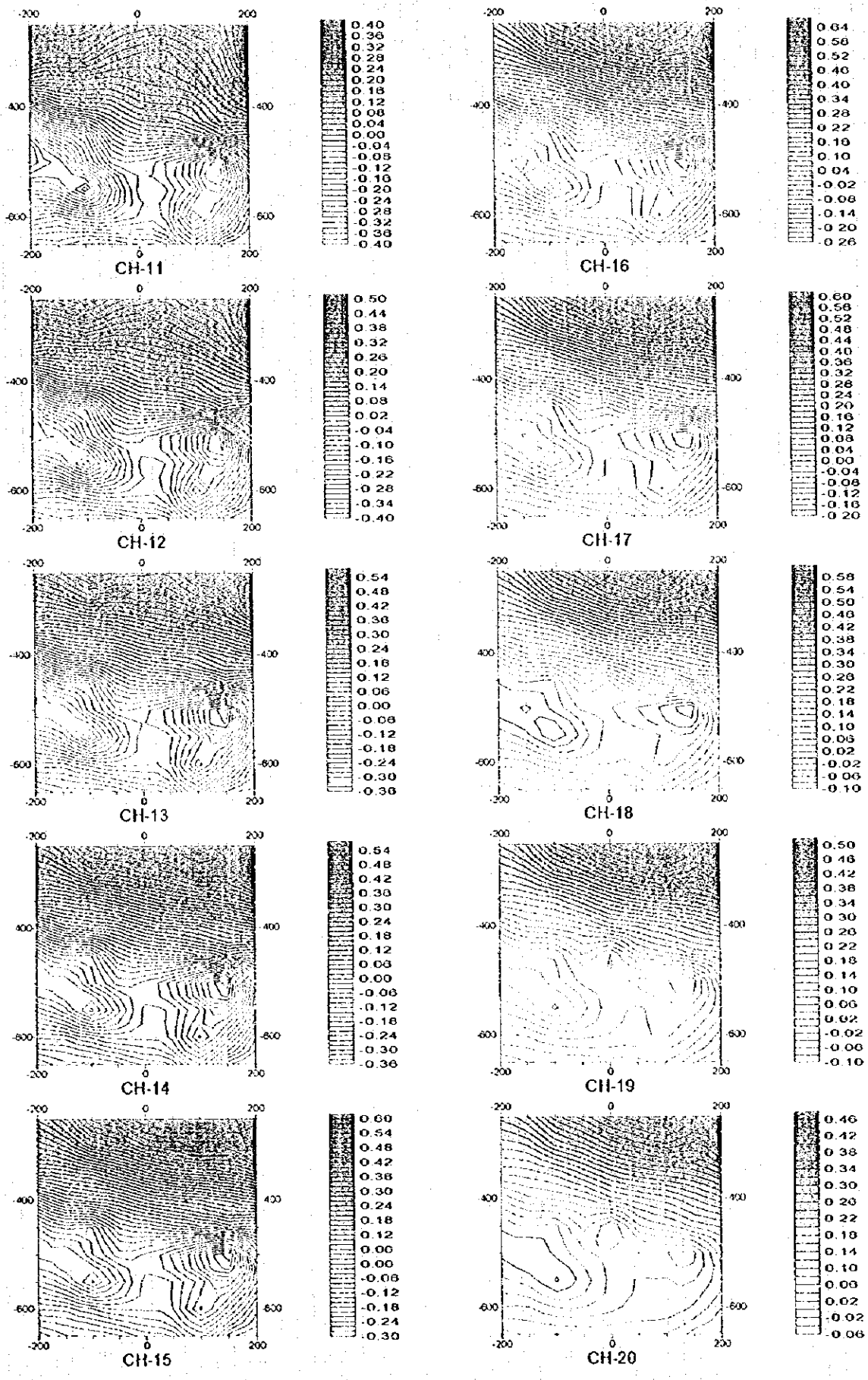


Fig.II-3-23(2) TEM response plane maps of Loop2 in Sanah area

3-9 Doqal Area

3-9-1 Loops location

A TEM survey was carried out to clarify the nature of an anomaly detected by the TDIP method and located on the central part of this area. This anomaly of metal factor values above 20, extends along the N-S direction.

On this area, 2 loops were deployed, one located on the center of this area to clarify high metal factors between the lines 0 and 200N, and the other, located on the south side of Loop 1 delimited by the lines 200S and 400S. Survey area of each loop is 400 m X 400 m, and located as shown in Fig.II-3-24.

3-9-2 Results

(1) Loop 1

TEM response maps are shown in Fig.II-3-25(1) and (2).

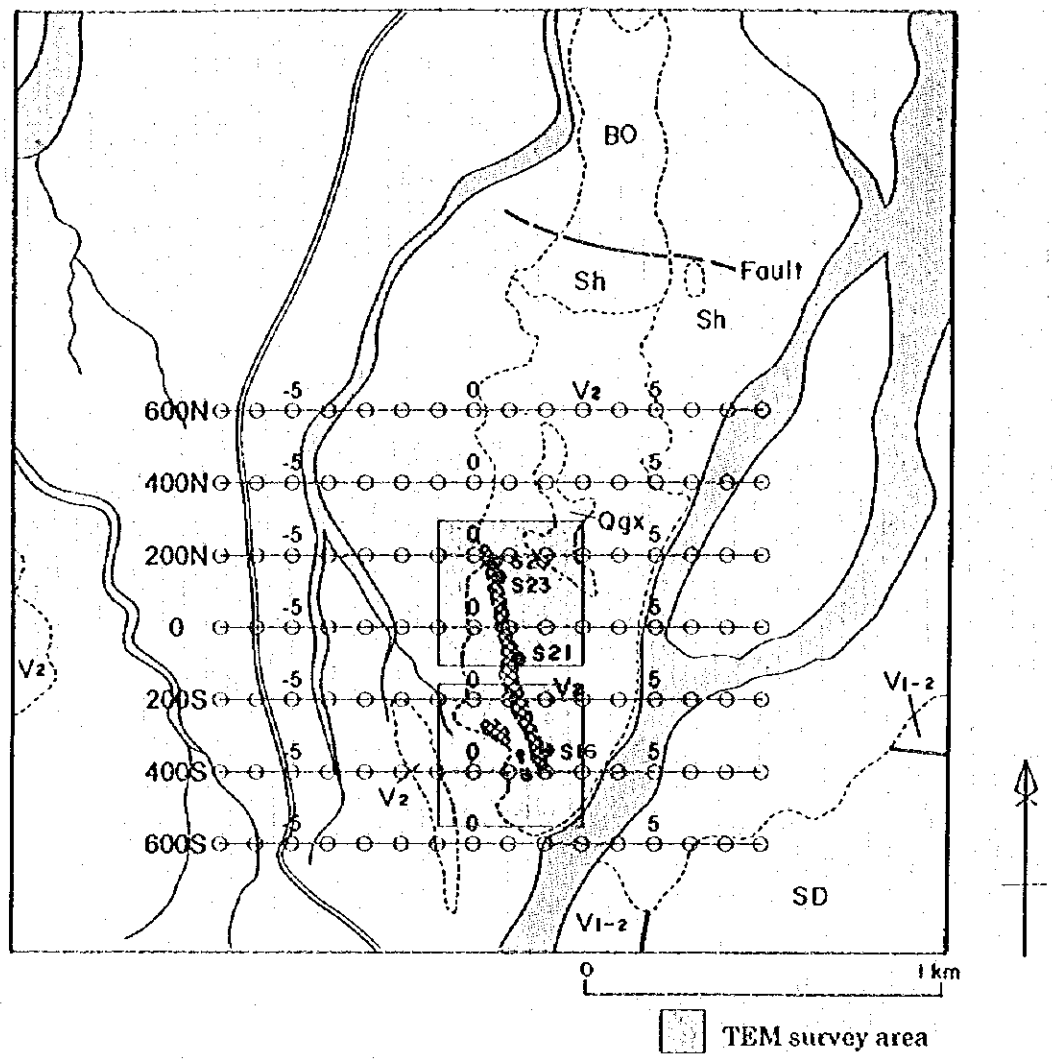
Two high TEM anomalies are detected:

1) Near the station 250E250N and extended along the NW-SE direction as seen in channels 1 to 6.
2) About 50 m west of the gossan in channels 1 to 15. It runs parallel to the gossan, with a maximum value in the northern edge of the loop, and decreasing slightly toward south.

(2) Loop 2

TEM response maps are shown in Fig.II-3-26(1) and (2).

A N-S trending high TEM anomaly is detected in the north part of the loop (channels 1 to 11). It extends from the northern edge to the central part of the loop and assumed to be the continuation of the anomaly detected by Loop 1 which runs parallel to the gossan.



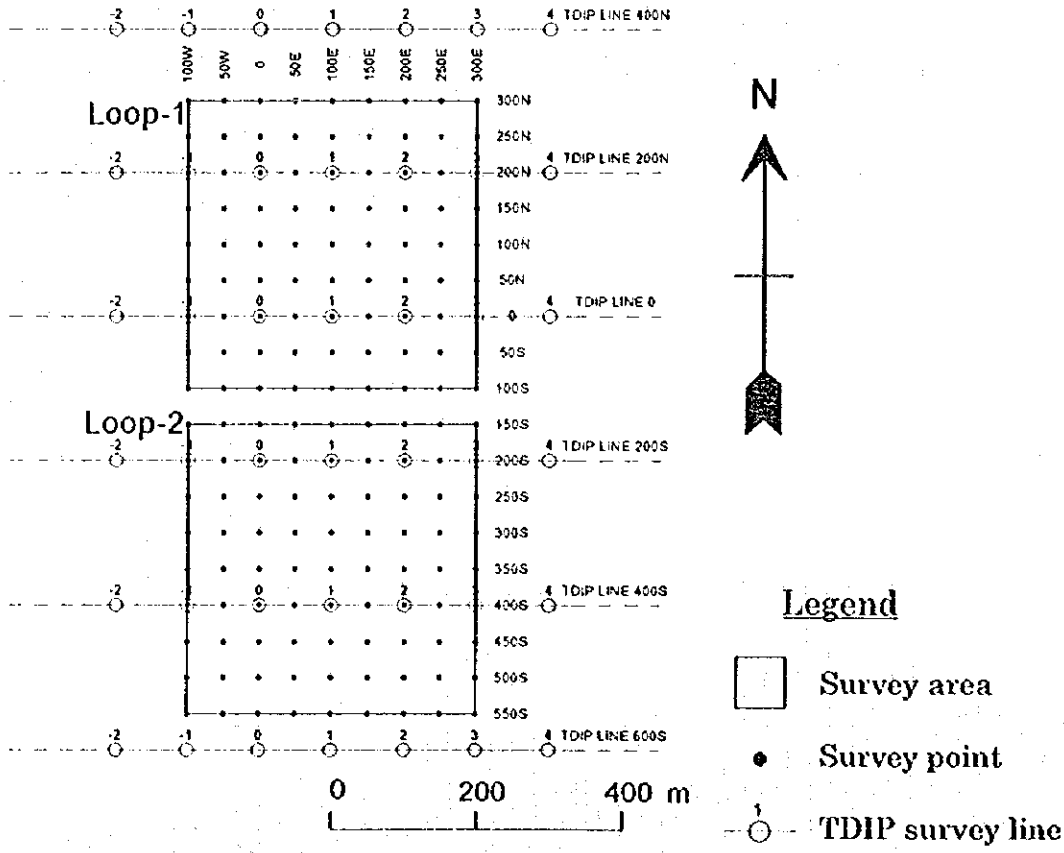


Fig.II-3-24 Doqal survey site showing observation points

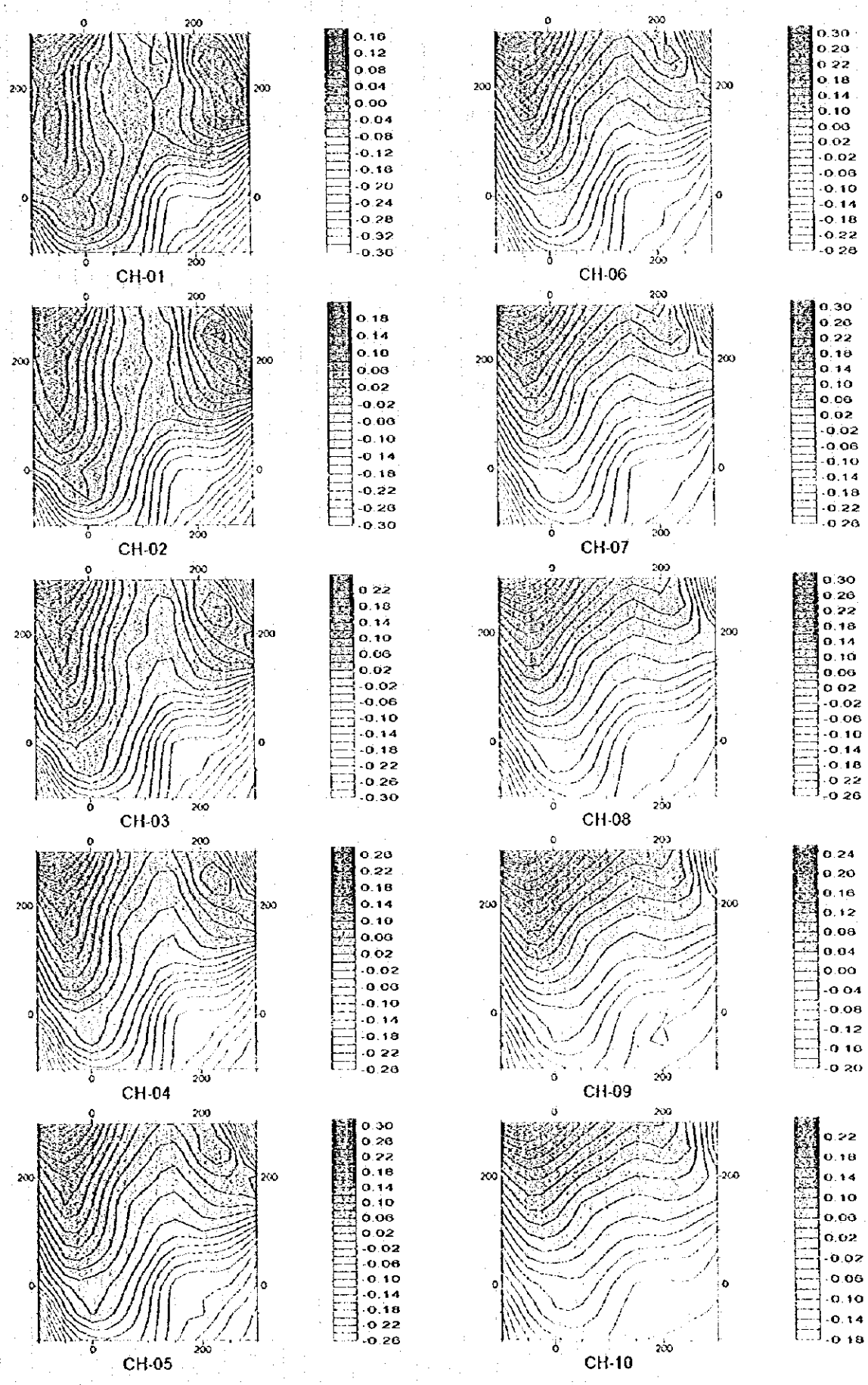


Fig.II-3-25(1) TEM response plane maps of Loop1 in Doqal area

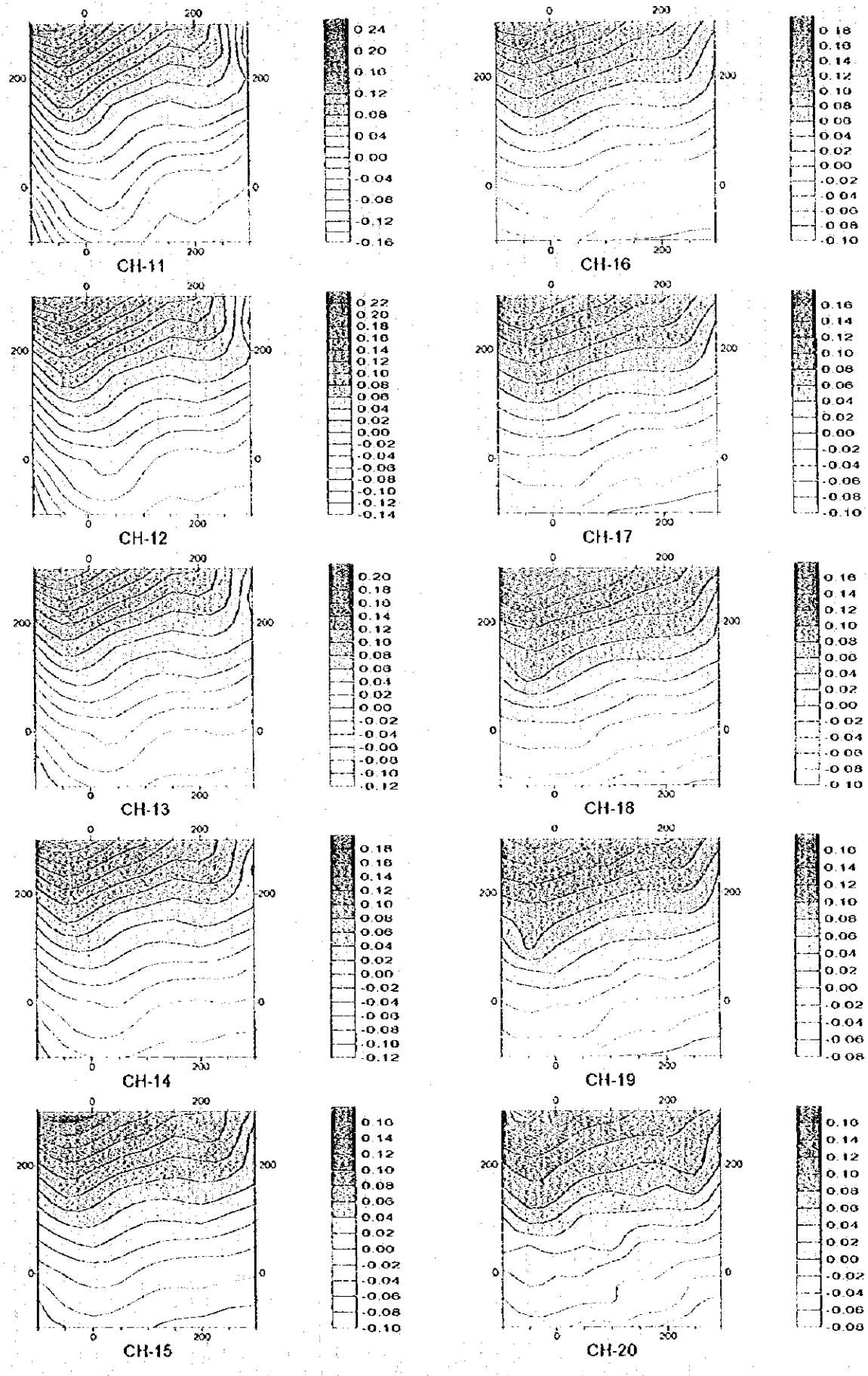


Fig.II-3-25(2) TEM response plane maps of Loop1 in Doqal area

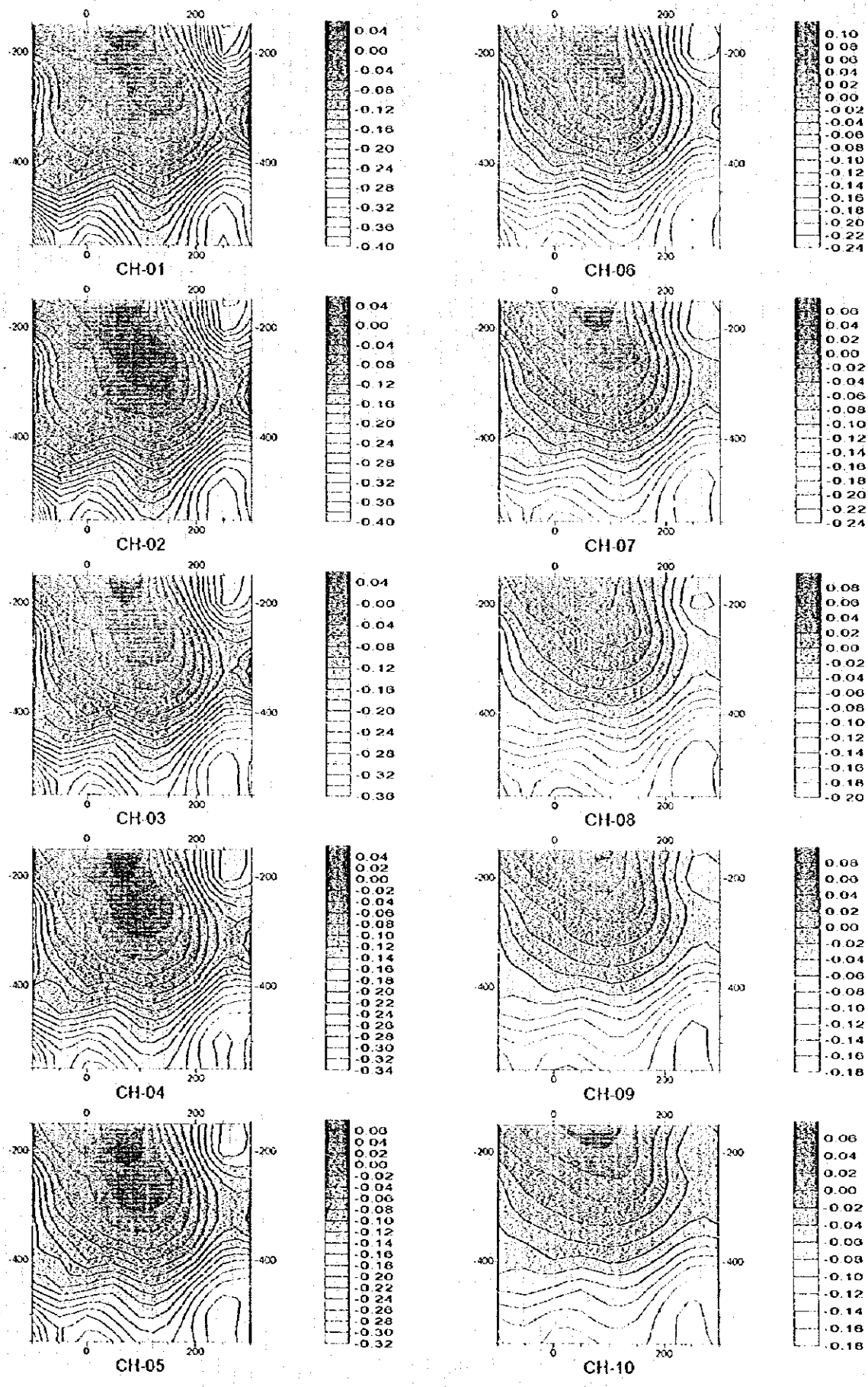


Fig.II-3-26(1) TEM response plane maps of Loop2 in Doqal area

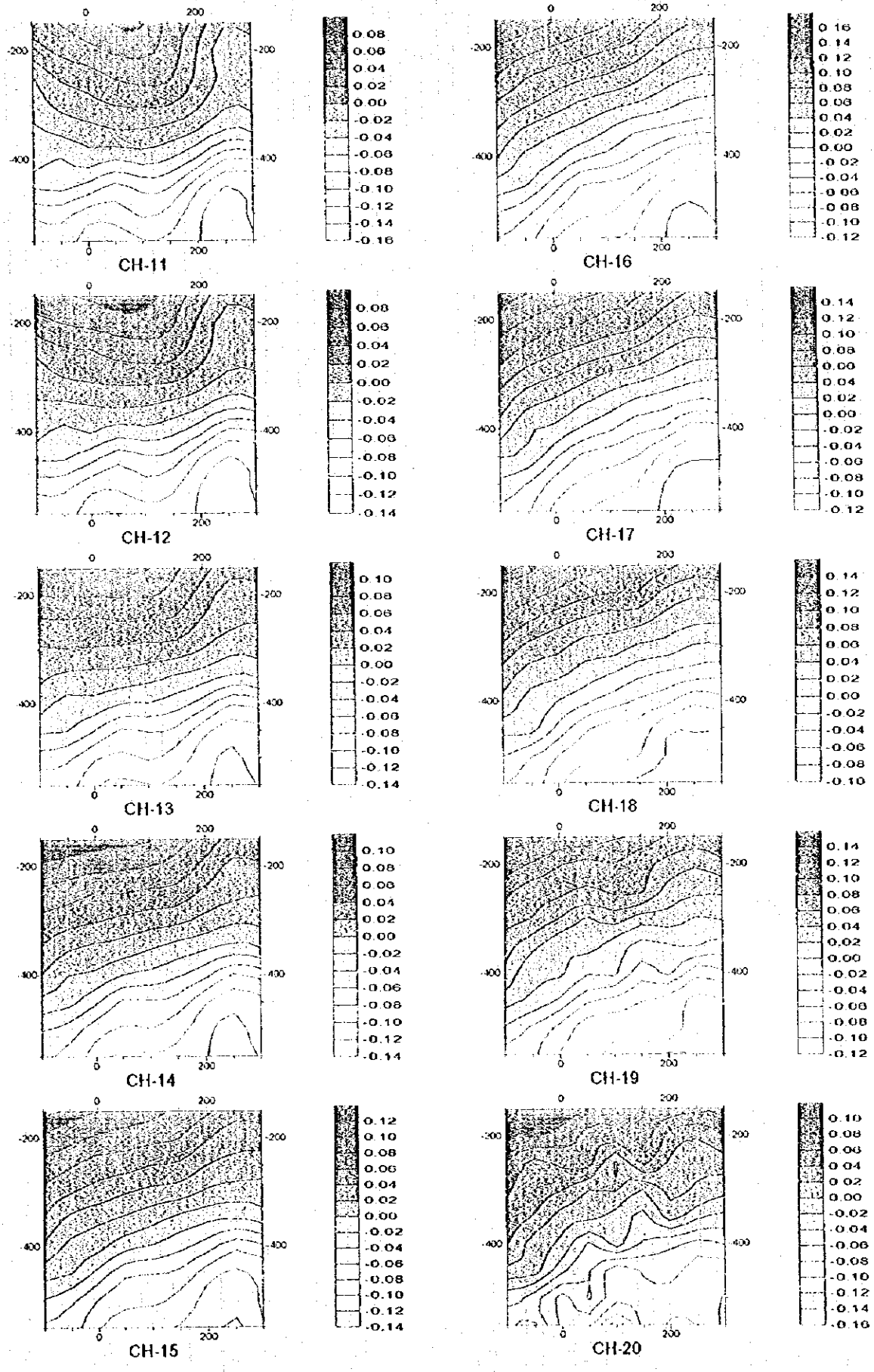


Fig.II-3-26(2) TEM response plane maps of Loop2 in Doqal area

CHAPTER 4 DRILLING SURVEY

4-1 Objectives of the Survey

Drilling survey was carried out in order to clarify the mineralization and geologic structures in the depth on the anomalous areas detected by the geophysical surveys conducted during the Phases I and II of this project.

Drilling works were conducted during a period between July 14, 1996 to December 11, 1996.

4-2 Survey Areas and Amounts

Drilling survey was conducted in the areas of Ghuzayn, Daris, Daris 3A5, Daris North and Fardah. The locations of boreholes in each of the areas are shown in Figs.II-4-1 to II-4-4. Total amount of the survey is 26 boreholes and 6,197.8m in drilling length.

4-3 Survey Method

4-3-1 Drilling operation

The drilling operation was done by wire line method using four types of rigs mentioned in table of Appendix 1. A summary of the drilling results and progress record is given in Table II-4-1 and Appendix 2.

4-3-2 Core logging

The description of the drill cores was conducted at the drilling site during the drilling operation and compiled in a 1:200 log sheet. Core sampling was carried concurrent with core logging. Amounts of laboratory works are shown in Table I-1-2.

4-4 Results

Drilling logs are shown in Appendix 3. The results of laboratory works are shown in Table II-4-2 for thin sections, Table II-4-3 for polished sections, Table II-4-4 for x-ray diffraction analyses and Appendix 4 for chemical analyses of ore. Results of drilling survey are described for each of the areas as follows:

4-4-1 Ghuzayn area

Table II-4-1 Drilling survey conducted in Phase II

Area Name	Holes	Length planned (m)	Length excuted (m)	Inclination (deg.)	Direction	Date of start	Date of finish
(1) Ghuzayn Area	MJOB-G1	186	186.50	-70	S25E	7/21	8/6
	MJOB-G2	305	305.40	-90		7/19	8/11
	MJOB-G3	300	300.40	-70	S25E	8/9	9/7
	MJOB-G4	300	300.50	-90		8/13	9/16
	MJOB-G5	300	300.20	-90		9/11	9/29
	MJOB-G6	300	300.30	-90		9/19	10/9
	MJOB-G7	300	300.15	-90		10/11	10/30
	MJOB-G8	200	200.25	-90		10/2	10/11
	MJOB-G9	200	200.20	-90		10/2	10/11
	MJOB-G10	200	200.10	-90		10/14	10/22
	MJOB-G11	200	200.20	-90		10/13	10/21
	MJOB-G12	200	200.30	-90		10/23	11/2
	MJOB-G13	200	200.10	-90		10/24	11/3
	MJOB-G14	250	250.10	-90		11/3	11/26
	MJOB-G15	250	250.15	-90		11/5	11/18
	MJOB-G16	200	201.85	-90		11/21	12/5
	MJOB-G17	250	250.25	-90		11/21	12/10
	Total length	4,141	4,146.95				
(2) Daris Area	MJOB-D1	220	220.15	-70	S45E	7/16	7/30
	MJOB-D2	250	251.00	-90		8/1	8/12
	MJOB-D3	150	150.35	-90		8/14	8/21
	MJOB-D4	300	300.35	-90		10/23	11/5
	Total length	920	921.85				
(3) Daris 3A5 Area	MJOB-A1	250	251.00	-70	SW	8/25	9/11
	MJOB-A2	227	227.00	-70	SW	9/14	10/8
	Total length	477	478.00				
(4) Daris North Area	MJOB-R1	200	200.15	-90		10/24	11/3
	Total length	200	200.15				
(5) Fardah Area	MJOB-F1	250	250.65	-90		11/9	11/25
	MJOB-F2	200	200.20	-90		11/6	11/18
	Total length	450	450.85				
Total length :		6,188	6,197.80				

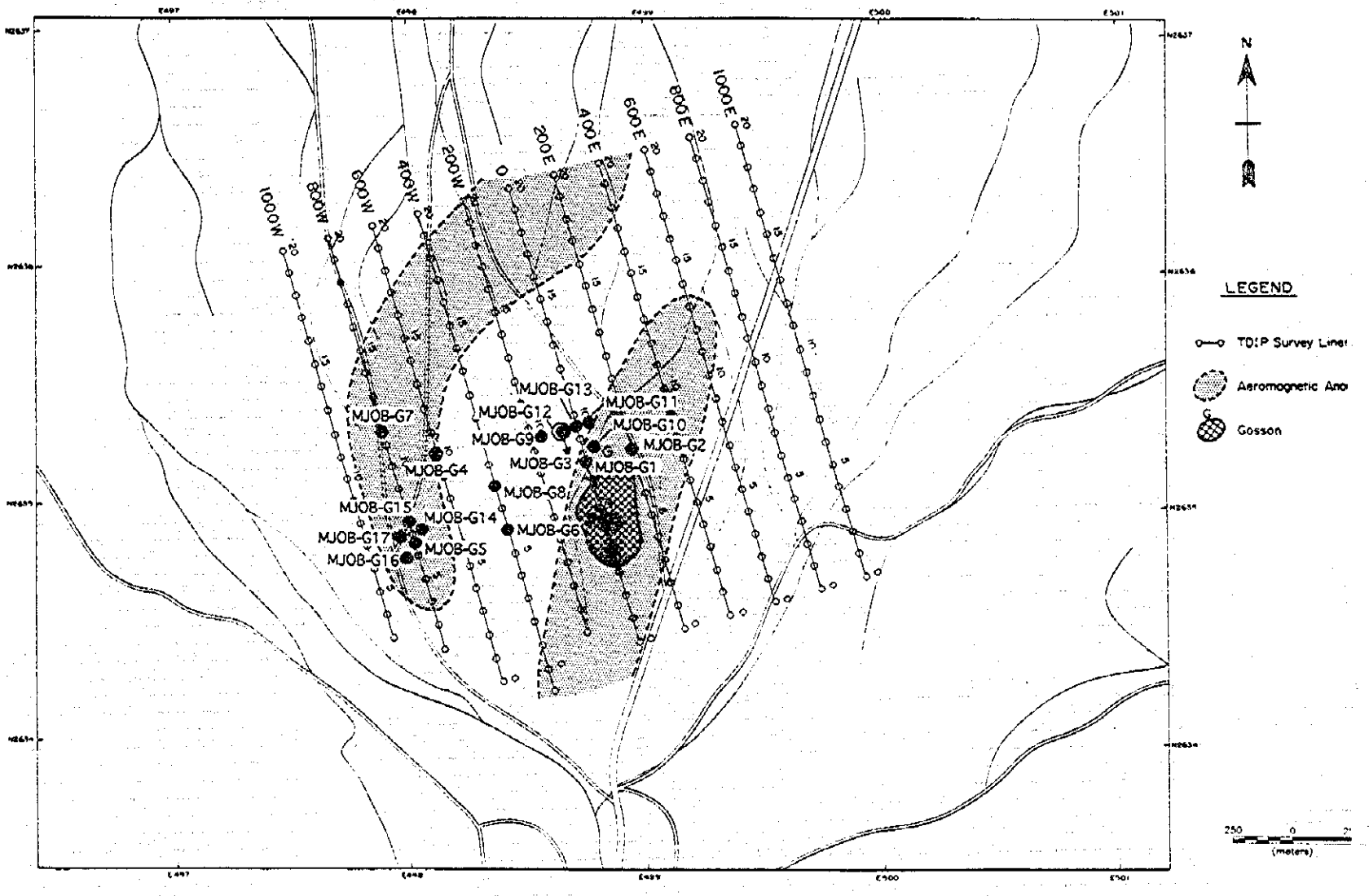


Fig.II-4-1 Location map of bore holes in Ghuzayn area

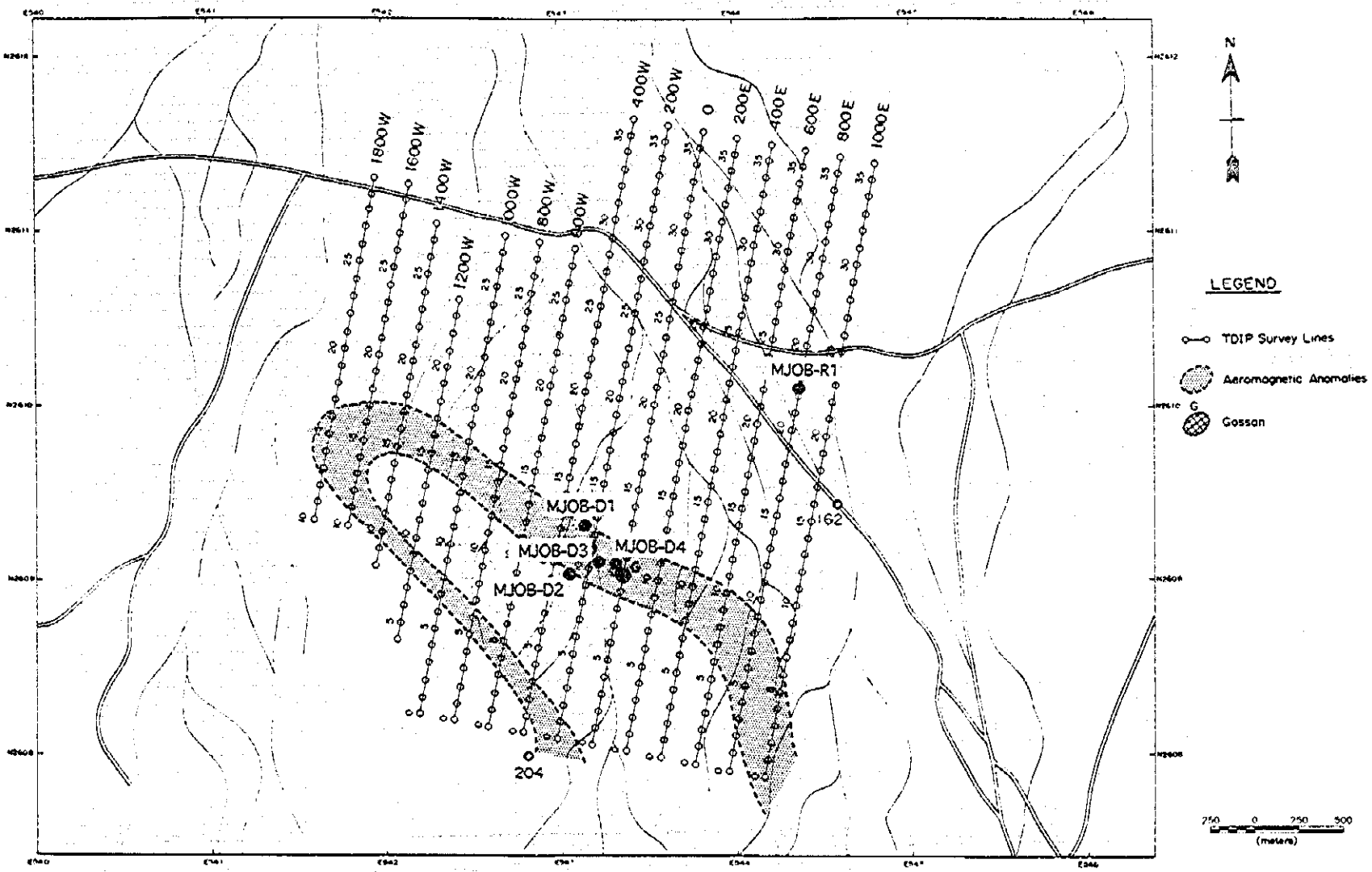


Fig.II-4-2 Location map of bore holes in Daris area

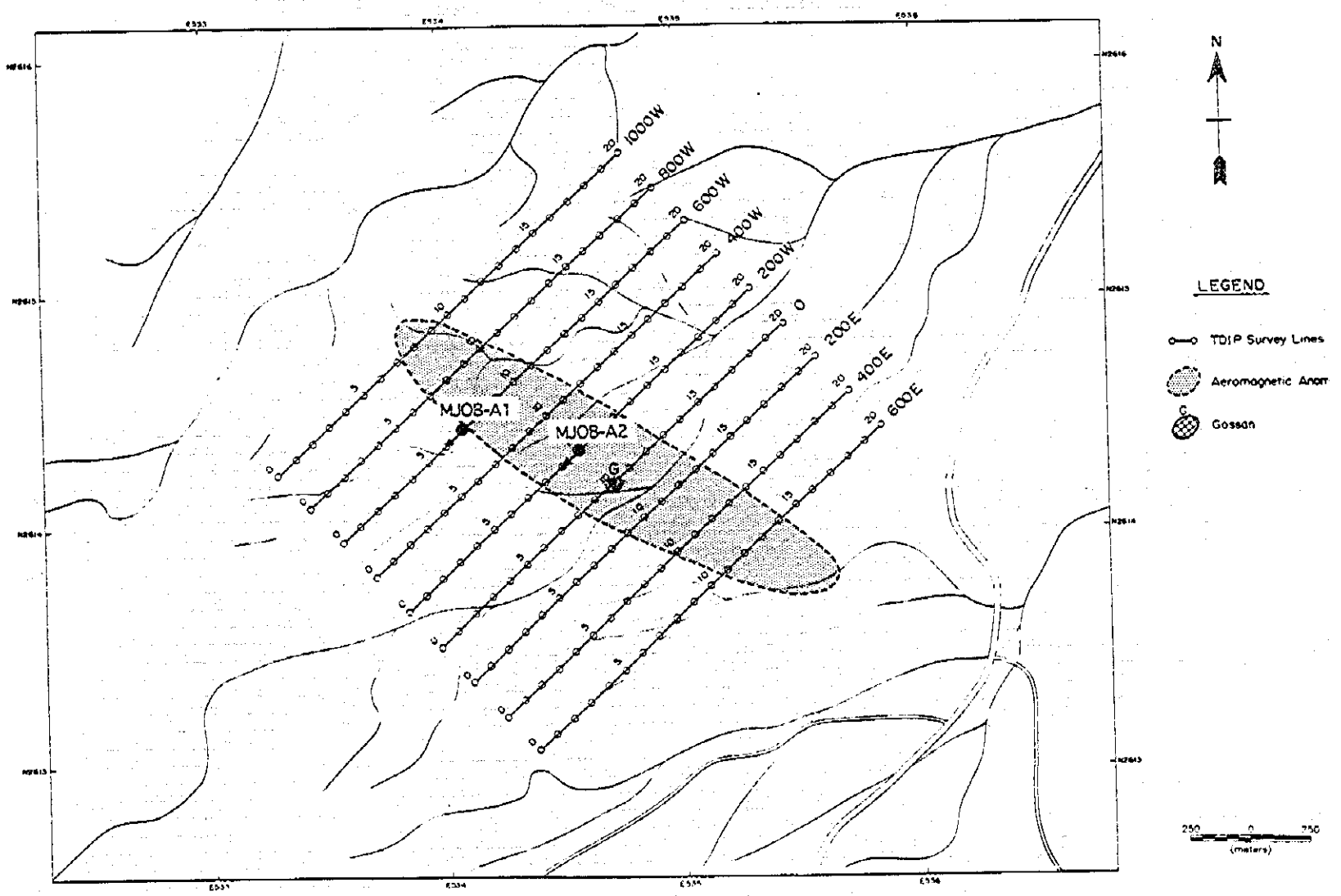


Fig.II-4-3 Location map of bore holes in Daris 3A5 area

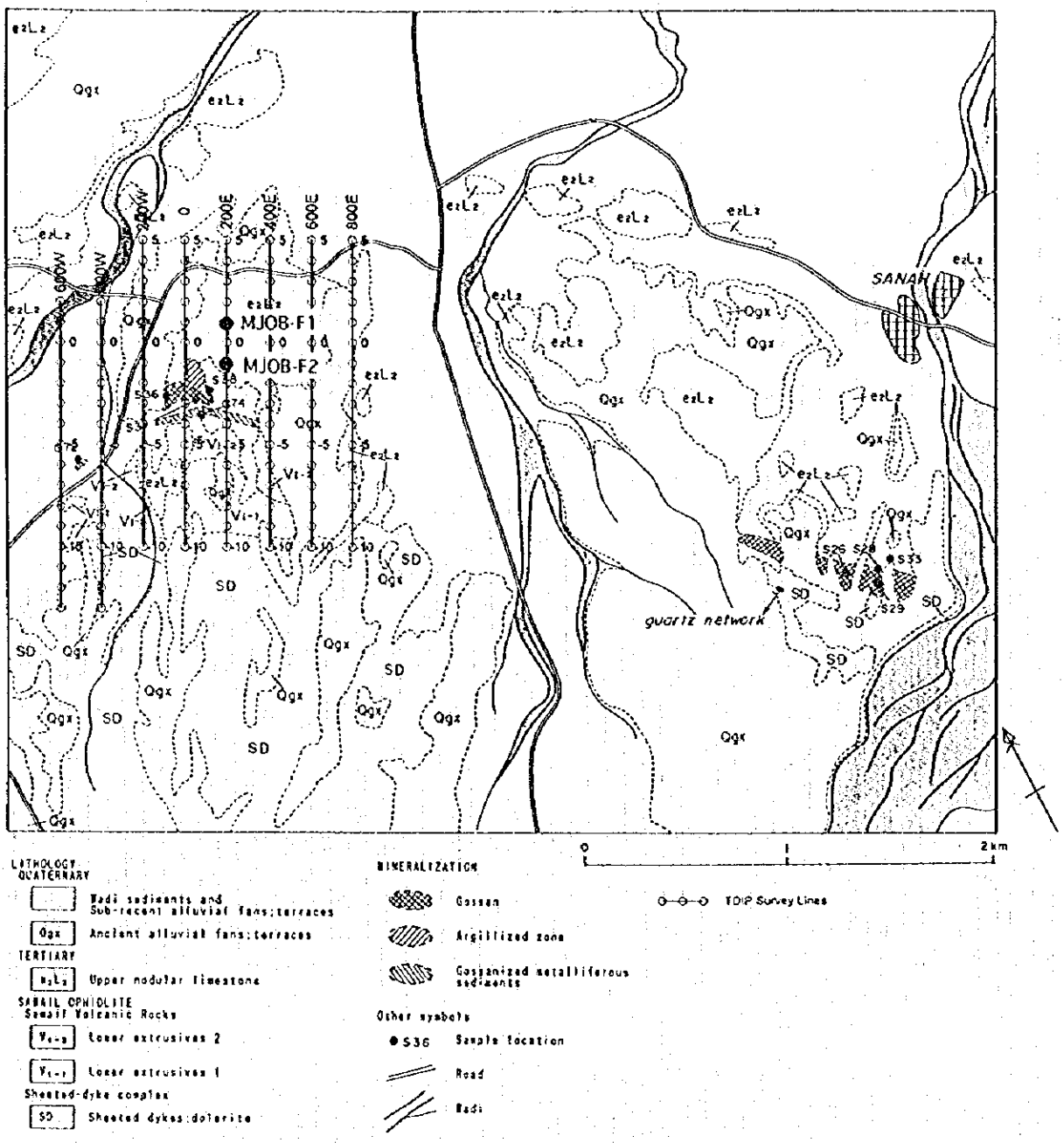


Fig.II-4-4 Location map of bore holes in Fardah area

Table II-4-2 Description of thin sections of drilling core

Ser. No.	Sample Location		Rock Name	Texture	Primary Minerals						Secondary Minarals							
					Phenocryst				Ground mass									
	Hole No.	Depth			Ol	Pl	Cpx	Sp	Pl	Cpx	Qz	Ab	Chl	Cc	Ep	Pr	OM	PM
1	G1	183.90 m	Basalt	Sub-variolitic					◎			○	○	○			○	●
2	G2	10.00 m	Gabbroic dolerite	Ophitic					○	○		○	○	○	◎		●	
3	G2	27.00 m	Dolerite	Ophitic					○	○		○	◎	○			·	
4	G2	42.90 m	Dolerite	Ophitic					○	○				●			○	
5	G2	68.40 m	Basalt	Intersertal					◎	○	○	○	○	●			○	●
6	G2	112.20 m	Basalt	Intersertal					◎		◎	○	○	●			○	●
7	G2	266.80 m	Basalt	Intersertal					◎		◎	○		○			○	●
8	G2	280.80 m	Basalt	Intersertal					◎		○	○	●				◎	
9	G2	299.10 m	Basalt	Intersertal					◎		◎	○	○	○			○	
10	G3	29.30 m	Basalt	Sub-variolitic		○	○		○		○	○	●	●		○	●	
11	G3	70.50 m	Basalt	Intersertal					○	○		○			·	○	○	
12	G3	102.00 m	Basalt	Intersertal					○	○		○	○		◎	○		
13	G3	106.10 m	Basalt	Hyaro-ophytic					○	○		○		○	◎	●	●	
14	G4	212.00 m	Basalt	Intersertal		●	●		○		◎	○	●		○		●	
15	G6	164.80 m	Basalt	Hyaro-ophytic					◎		○	○	○	●	●		○	
16	G7	41.10 m	Basalt	Intersertal			·		○	○		○	○			○	●	
17	G7	194.00 m	Basalt	Intersertal	○		●	●	○	○	●	○	○	·	·		●	●
18	G7	252.90 m	Basalt	Intersertal			●		○	○		○	○	●			○	
19	G8	15.60 m	Basalt	variolitic		●			○	●		○	○	○	·			●
20	G9	52.70 m	Basalt	Intersertal			○		○			○	○	○	●	○	○	●
21	G10	50.00 m	Gabbroic dolerite	Ophitic					○	◎			○	●			○	
22	G13	167.80 m	Basalt	hyaro-ophitic		·			◎		○	○	●				○	
23	G14	80.00 m	Basalt	Intersertal			○				·	○	●	●	○			
24	G15	52.50 m	Basalt	variolitic							○	○	○	○			○	●
25	G15	221.00 m	Basalt	Intersertal		○			○		◎	○	◎				○	●
26	G16	45.25 m	Basalt	Intersertal			○		○	○	○	○	●	○				
27	G16	180.50 m	Basalt	Sub-ophitic	●				○	○			○	○		·	○	
28	A1	172.30 m	Basalt	perlitic			○		●	·							·	
29	A1	244.20 m	Basalt	perlitic			○											
30	D4	37.50 m	Dolerite	Ophitic			○		○	○			○	○			○	●

◎: abundant ○: common ●: rare ·: very rare

Ol: olivine, Pl: Plagioclase, Cpx: Clinopyroxene, Sp: Spinel, Qz: Quartz, Ab: Albite, Chl: Chlorite, Cc: Calcite, Ep: Epidote, Pr: Prehnite, OM: Opague minerals, PM: Pseudomorph of Phenocryst

Table II-4-3 Description of polished section of drilling core

Ser. No.	Sample Location		Sample Description	Identified Minerals							
	Hole No.	Depth		Cp	Py	Sp	Mt	Ht	Gg	Cav	Py coll
1	G3	118.90m	Py, Cp intense dissemination in basalt	○	○				◯		
2	G3	134.50m	Massive sulphide ore	●	●					○	◯
3	G3	136.90m	Massive sulphide ore		◯					○	◯
4	G3	142.00m	Massive sulphide ore	●	●					○	◯
5	G3	147.00m	Stockwork ore	●	●					○	◯
6	G5	147.80m	Massive sulphide ore	○	◯						◯
7	G11	163.00m	Hematite dominant siliceous ore		◯	○	○	○	●		○
8	G14	132.20m	Massive sulphide ore	○	◯						◯
9	G14	150.00m	Massive sulphide ore	○	◯				○	○	◯
10	G15	189.40m	Massive sulphide ore	●	●					○	◯
11	G15	207.70m	Massive sulphide ore	○	◯					○	◯
12	G15	222.70m	Stockwork ore	○	●		●		○		

◯ abundant
● common
○ rare

Cp: Chalcopyrite
Py: Pyrite
Sp: Sphalerite
Mt: Magnetite
Ht: Hematite
Gg: Gangue minerals
Cav: Cavity
Py coll: Pyrite of colloform texture

Table II-4-4 Results of X-ray diffraction analyses of drilling core

Ser. No.	Sample Location		Lithology(Formation)	Identified Minerals										
	Hole No.	Depth		Qz	Fl	Ch	Il	Mm	Ep	La	Py	Mt	Ht	Mn
1	G1	40.20m	Basalt pillow lava(V1-2)	○		○	◦							
2	G2	277.10m	Basalt pillow lava(V1-1)	○		●	◦				◦			
3	G3	160.50m	Silicified and slightly argillized rock	○							○			
4	G3	179.00m	Silicified and slightly argillized rock	○		●					●			
5	G3	221.20m	Silicified and slightly argillized rock	○		●					○			
6	G4	164.70m	Metalliferous sediment(V1-2)	●		◦	◦		●		○			
7	G8	191.40m	Metalliferous sediment(V1-2)	○		◦			●			○		
8	G9	187.20m	Metalliferous sediment(V1-2)			◦	◦		○		◦			
9	G11	196.80m	Silicified and slightly argillized rock	○		◦					○			
10	G12	185.90m	Silicified and slightly argillized rock	○	◦	●					○			
11	G12	196.80m	Silicified and slightly argillized rock	●	○	●			●		○			
12	G13	180.10m	Basalt pillow lava(V1-1)	○		◦	◦				●			
13	G13	187.00m	Silicified and slightly argillized rock	○		●								
14	G14	181.80m	Silicified and slightly argillized rock	○		○					○			
15	G14	232.90m	Silicified and slightly argillized rock	○	●	○								
16	G17	105.00m	Basalt pillow lava(V1-2)							○				
17	A1	34.10m	Basalt pillow lava(V2); weatherd					○						
18	A1	67.00m	Basalt pillow lava(V2); weatherd					○						
19	F1	228.70m	Metalliferous sediment(V1-2)											○
20	F1	245.90m	Metalliferous sediment(V1-2)	○									●	○

○ abundant
● common
◦ rare

Qz: Quartz
Fl: Feldspar
Ch: Chlorite
Il: Ilite
Mm: Montmorillonate
Ep: Epidote
La: Laumontite
Py: Pyrite
Mt: Magnetite
Ht: Hematite
Mn: Manganese minerals

The high chargeability zone was detected in the central part of the area by TDIP survey conducted in Phase I. Within this zone, several low resistivity portions were delineated by TDIP and TEM survey data. Drilling survey was carried out to comfirm mineralization on these low resistivity zones.

(1) MJOB-G1 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) and Lower extrusives 1(V1- 1).

0.00m - 3.40m Unconsolidated Quaternary sediments.

3.40m - 42.60m Lower extrusives 2. It consists mainly of basaltic pillow lava and massive lava with intercalations of metalliferous sediments of less than 2m thick.

42.60m -186.50m(end of hole) Lower extrusive 2. It consists mainly of basaltic pillow lava with thick interpillows of 10cm to 40cm and accompanied by massive lava in places. Basalt and dolerite dykes were intruded into these rocks.

Mineralization: Pyrite dissemination are observed throughout the core and intense dissemination occurs between 23.25m and 165.70m where it is accompanied in places by disseminations of chalcopyrite and sphalerite. Chalcopyrite intensely disseminated between 23.80m and 42.60m and highest copper assay of 1m core length is 0.43% in 27.80m to 28.80m. Below 165.70m in depth, a slight dissemination of fine grained pyrite is only observed.

Alteration: Rocks are strongly subjected to silicification between 49.60m and 73.50m and a slight silicification continues up to 105m in depth. Gypsum fine veins are often observed with a width of 1cm to 2cm in 49.60m to 126.90m and of less than 0.5cm in 126.90m to 152.0m.

(2) MJOB-G2 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) and Lower extrusives 1(V1-1).

0.00m - 3.60m Unconsolidated Quaternary sediments.

3.60m - 54.90m Lower extrusives 2. It consists of basaltic massive lava intruded by many basalts and dolerite dykes.

54.90m -305.40m(end of hole) Lower extrusives 2. It consists mainly of basaltic pillow lava with thick interpillows of 10cm to 40cm and accompanied by massive lava and hyaloclastite in places. Dikes can not be observed.

Mineralization: As same as borehole 1, pyrite dissemination are observed throughout the core. Intense pyrite dissemination occurs between the intervals 29.30 - 33.0 and 54.85 - 55.35 where it is

accompanied by disseminations of chalcopyrite and sphalerite, veinlets of pyrite-chalcopyrite-sphalerite. From 110.30m to the end of the hole (305.40) networks of pyrite and quartz are developed. In addition, stockworks are observed below 211.65m accompanied frequently by chalcopyrite. Below 300.90m chalcopyrite is not observed.

Alteration: Weak silicification is observed between 153.70 and 272.00m, but strongly subjected to silicification below 272.00m.

(3) MJOB-G3 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) and Lower extrusives 1(V1-1).

0.00m - 6.10m Unconsolidated Quaternary sediments.

6.10m - 133.45m Lower extrusives 2. It consists mainly of basaltic pillow lava and massive lava intruded by many basalts and dolerite dikes.

133.45 - 142.80m Massive sulphide minerals (core length: 7.95m). basaltic dykes.

142.80 - 232.00m Stockworks with strong silicification and bleached lower extrusives 1.

232.00 - 300.40m(end of hole) Lower extrusive 1. It consists mainly of basaltic pillow lava with thick interpillows and accompanied in one portion by massive lava and hyaloclastite.

Mineralization: The above mentioned massive sulphide ore was confirmed in the core length of 7.95m, between the intervals of 133.45 and 142.80. Average grade of copper is 4.66%, but gold was not detected. Pyrite dissemination are observed almost throughout. Above the detected massive sulphide, from 26.25 to 90.90m it is partially observed disseminated chalcopyrite and chalcopyrite-pyrite-quartz veins, from 115.15 to 121.30 it is observed strong chalcopyrite as well as pyrite dissemination. The average copper assay in the interval from 115.15 to 121.30m is 0.49%. Below massive sulphide, it is developed disseminations of pyrite and chalcopyrite as well as veinlets including stockwork zone. From 142.80 to 179.90 comparatively high copper grade is observed in places and the core length of 37.1m in this interval resulted with an average Cu grade of 0.46%. The stockwork zone continues down to 232.00m, but from 179.90 the average Cu grade decreases, so that the Cu grade in 1m interval exceeds in a little more than 0.5% in some places. Below 234.40m depth it is observed sphalerite disseminations and network veins. From 279.50 to 288.80 it is observed, in a 2m interval, an average grade for Zn of a bit more than 3% in some places.

Alteration: It is observed very strong silicification in the hanging wall and footwall of the massive body. It is observed on the hanging wall side from 132.00 to 133.00m, whereas in the the footwall side it is observed down to 232.00m, where the texture of the host rock do not remain due to a strong

silicification. and additionally becoming white throughout the interval due to the bleaching process. At a depth of 18.20m it is already observed silicification but, in general, weak silicification is observed up to 132.0m. From the footwall side up to the depth of 232.00m, silicification is comparatively strong and continues all the way down the bottomhole. In limited places, it is observed partial epidotization in the hanging wall within the interpillow lava.

(4) MJOB-G4 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) and Lower extrusives 1(V1- 1).

0.00m - 5.30m Unconsolidated Quaternary sediments.

5.30m - 10.90m Consolidated Quaternary sediments (calcrete)

10.90 - 290.30m(end of hole) Lower extrusive 2. It consists mainly of basaltic pillow lava with massive lava partially intercalated accompanied by many basalt and dolerite dykes. In the interval from 161.80m to 168.65m there is a lot of intercalations of metalliferous sediments of yellowish brown color of 10cm to 50cm thickness. Magnetite layers of 2 to 5cm thickness or epidote rich layers of 10cm in thickness are observed above some metalliferous sediments. Further down, between 290.10m and 290.30m depth, it is observed Mn rich black metalliferous sediments.

290.30- 300.50m(end of hole) Lower extrusive 1. It consists mainly of basaltic pillow lava with thick interpillows of 20 to 30cm.

Mineralization: It is observed almost throughout a weak pyrite dissemination. It is also observed locally from 69.90m to the bottom of the hole, slight dissemination of chalcopyrite or sphalerite, and fine veinlets of quartz or calcite including chalcopyrite, pyrite and sphalerite.

Alteration: It is observed weak silicification between 79.80 and 196.60m. It is observed quartz veins partially accompanied by epidote.

(5) MJOB-G5 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) and Lower extrusives 1(V1- 1).

0.00 - 10.10m Unconsolidated Quaternary sediments.

10.10 - 23.10m Consolidated Quaternary sediments. (calcrete)

23.10 - 136.90m Lower extrusives 2. Mainly basaltic pillow lava as well as massive lava, accompanied by basalt and dolerite dikes.

136.90 - 170.6m Massive sulphide (core length 33.70m). The upper part is accompanied by magnetite layers of 2cm in thickness.

23.10 - 136.90(end of hole) Lower extrusives 1. Consisting of basaltic lavas with a little thick interpillows around 5 to 15cm of thickness.

Mineralization: As stated above, massive was intersected as indicated in the core length of 33.70m. Chemical analysis resulted in Cu 1.47%(average) and Au content of less than 0.1%. Pyrite dissemination is observed almost everywhere accompanied by chalcopyrite and pyrite bearing calcite or epidote-quartz sparse veinlets. Below the massive body, quartz veinlets of networks are seen developed, however, they are almost not accomapnied by ore minerals.

Alteration: From the depth of 63.70m to the bottom of the hole, weak silicification is observed. Epidote-calcite and epidote-quartz veins are often observed, though just above the massive sulphide ore from 133.05 to 136.90m it is strongly epidotized.

(6) MJOB-G6 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2 (V1-2) and Lower extrusives 1 (V1-1).

0.00m - 11.80m Unconsolidated Quaternary sediments.

11.80m - 73.10m Lower extrusives 2 consisting mainly of basaltic pillow lava, massive lava and many basalt or dolerite dykes.

73.10m - 300.30m (end of hole) Lower extrusives 1 consisting of basaltic pillow lava and massive lava with thick interpillows (5cm - 15cm thick, few are over 50cm), and accompanied with a little basaltic dykes. Bleaching is not observed except for some parts. These show gray to dark gray.

Mineralization: Pyrite dissemination are relatively intense to 116.55m. Chalcopyrite dissemination and quarts vein including chalcopyrite are observed partially between 20.90m and 39.95m. Quarts network accompanied with sphalerite and pyrite are observed between 45.60m and 50.35m. Below 116.55m, chalcopyrite dissemination becomes slight, and chalcopyrite is observed in veins which are partially distributed between 161.00m and 169.40m, and as local dissemination or in veins between the intervals 204.75m - 218.20m and 252.35m - 266.60m.

Alteration: Bleaching is observed between the intervals 11.80m - 73.10m and 86.80m - 102.50m. Slight silicification is partially observed in Lower extrusives 2.

(7) MJOB-G7 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) of Lower volcanes.

0.00m - 11.00m Unconsolidated Quaternary sediments.

11.00 - 28.95m Consolidated Quaternary sediments.

28.95m -300.15m(end of hole) Lower extrusive 2. It consists mainly of basaltic pillow lava with a few massive lavas. Below 224.60m they show dark green. Two dikes are observed near the end of the hole.

Mineralization: Below 182.20m only weak dissemination with fine grained pyrite can be observed.

Alteration: No silicification. Only bleached alteration is observed above 224.60 in depth.

(8) MJOB-G8 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) of Lower volcanics and and Lower extrusives 1(V1- 1).

0.00m - 4.90m Unconsolidated Quaternary sediments.

4.90m - 19.80m Consolidated Quaternary sediments.

19.80 - 191.55m Lower extrusive rocks 2. Chiefly consisting of basaltic pillow lavas and massive lavas, which are accompanied with basalt or dolerite dikes. The Mn rich metalliferous sediments with 35cm in thichness are laid at the lower part.

191.55 -200.55m(end of hole) Lower extrusives 2. It consists of basaltic pillow lavas with thick interpillows (10cm -40cm).

Mineralization: Pyrite dissemination is slighthly strong from 80.60 to 100.60m, however, it is weak in the remaining intervals. This borehole shows the following characteristics: (1) magnetite are observed in the interpillow at 55.80m and 57.35m in depth, (2) metaliferous sediments are observed between 69.45 and 70.45m where strong dissemination of coarse grain pyrite and weak dissemination of sphalerite are noted, (3) the interval from 70.40m to 71.45m shows strong sphalerite dissemination, and (4) from 190.20 to 191.55mn, it is observed Mn rich black metaliferous sediments (pyrite dissemination). In relation to copper mineralization, a relatively continued chalcopyrite dissemination (between 102.50 to 139.80m) can be observed with epidote-calcite veinlets with chalcopyrite dissemination. In addition, between 161.50m and 165.80 and between 188.65 and 191.20m, weak chalcopyrite dissemination is noted.

Alteration: Bleaching is observed all over the drill cores, however, silicification is absent. Veinlets of epidote-calcite with pyrite are recognized at the intervals: 84.25 to 101.25m, 119.65 to 129.30m, 142.10 to 149.20m.

(9) MJOB-G9 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) of Lower volcanics.

0.00m - 7.35m Unconsolidated Quaternary sediments.

7.35m - 17.60m Consolidated Quaternary sediments (calcrete).

17.60 -200.20m(end of hole) Lower extrusive 2. It consists mainly of basaltic pillow lava and massive lava, accompanying with basalt or dolerite dikes.

Mineralization: Pyrite dissemination are observed throughout the core, but mineralization is as weak as the borehole G8. Besides the weak dissemination of chalcopyrite which is continuously observed from 84.80m to 90.85m, fine grained chalcopyrite and scattered spotted chalcopyrite dissemination are noted only locally. Between 180.00m to 197.70m some reddish brown metalliferous sediments with 10 to 20% of pyrite can be observed.

Alteration: Only bleaching can be recognized through all the borehole.

(10) MJOB-G10 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) of Lower volcanics and Lower extrusives 1.

0.00m - 5.80m Unconsolidated Quaternary sediments.

5.80m - 84.70m Lower extrusive rocks 1. The interval between 5.80m to 70.20m corresponds to gabro, which is considered as feeder dike.

84.70 -200.10m(end of hole)Lower extrusive 1. This section is mainly composed of basaltic, pillow lavas with thick interpillows of 5 to 40cm in thickness. A few massive lavas and hyaloclastites are partly intercalated.

Mineralization: With the exception of the gabroic parts, strong pyrite dissemination can be observed everywhere. Sphalerite dissemination is relatively strong, but chalcopyrite dissemination can be poorly observed at 129.90m in depth. As same as in borehole G1, Gypsum veins are also accompanied.

Alteration: Silicification is observed above 148.85m in Lower extrusive 1. Bleaching is absent below 185.50m.

(11) MJOB-G11 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) of Lower volcanics, siliceous massive ore and Lower extrusive rocks 1 (V1-1).

0.00m - 4.60m Unconsolidated Quaternary sediments.

4.60m -162.85m Consists of Lower extrusive rocks 2, basaltic pillow lava, massive lava, dolerite to gabro feeder dike and basaltic dike. These are accompanied at the bottom by

metalliferous sediments of about 1m in thickness .

162.85 -165.25m Siliceous massive ore, consisting mainly of hematite with small amount of pyrite, chalcopyrite and magnetite.

165.25 -200.20m(end of hole) Intensely silicified Lower extrusive rocks 1.

Mineralization: Weak pyrite dissemination and local chalcopyrite dissemination (sporadically) can be observed above 109.10 in depth. Below reddish brown metaliferous sediments (161.90m to 162.85m in depth), it can be observed siliceous massive ore of hematite which contains a few pyrite, chalcopyrite and magnetite. This siliceous massive ore is considered to intersect an end of the massive sulphide orebody in the borehole G3. Between 189.80 and 187.95 massive chalcopyrite is detected.

Alteration: Weak silicification is observed in the section from 144.50 to 161.70m. Intense silicification is confirmed from 172.20 to 200.20m in depth.

(12) MJOB-G12 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) of Lower volcanic rocks and Lower extrusive rocks 1 (V1-1).

0.00m - 4.80m Unconsolidated Quaternary sediments.

4.80m - 6.50m Consolidated Quaternary sediments (calcrete).

6.50m - 156.50m Lower extrusive rocks 2. It consists of basaltic pillow lava, massive lava, intruded by many basalts and dolerite dykes and accompanied at the lowest part by metalliferous sediments with 20cm in thickness

84.70 -200.10m(end of hole)Lower extrusives 1.Consisting of silicified basaltic pillow lavas.

Mineralization: A boundary between Lower extrusive rocks 2 and Lower extrusive rocks 1 was detected at 156.50 in depth. However, only metalliferous sediments can be recognized in the boundary. In the Lower extrusive rocks 2, pyrite dissemination or pyrite veinlets can be observed throughout. Chalcopyrite occurs in two forms: 1) in calcite veins in a form of spotted dissemination (26.60m to 58.70m), and 2) as a weak chalcopyrite dissemination between 120.55mand 142.50m. In Lower extrusive rocks 1, pyrite-quartz veins are found developed between 156.40m and 183.60m. In a section from 183.60m to the end of the hole, they are intensely disseminated with pyrite.

Alteration: Upper part of the section from 153.65m to 156.40m corresponds to the hanging wall side of ore horizon, while the lower part from 156.40m to the bottom of the hole in the foot wall side of orezone is intensely silicified. Among these, two sections between 153.65 to 156.40 and between 183.60 to the bottom are so intense that the original texture can not be seen.

(13) MJOB-G13 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives 2(V1-2) of Lower volcanics, massive sulphide ore and Lower extrusive rocks 1 (V1-1).

0.00m - 4.70m Unconsolidated Quaternary sediments.

4.70m - 152.80m Lower extrusive rocks 2. Consisting of basaltic lava and massive lava, both of which are intruded by many basalts or dolerite dykes.

152.80-154.40m Massive sulphide ore. Only few chalcopyrite is observed.

154.40 -200.10m(end of hole) Consisting of lower extrusive rocks 1, silicified pillow lava with thick interpillows.

Mineralization:Massive sulphide ore was intersected between 152.80m and 154.40m and consisting almost of pyrite. Average copper grade for this section is 0.7%. From these drilling results, it becomes clear that the massive ore continues for more than 70m in extension (from borehole G3). Regarding mineralizations other than the massive ore, weak mineralization of pyrite or chalcopyrite is recognized on the hanging wall side, and intense pyrite dissemination with partial sphalerite dissemination is recognized on the footwall side.

Alteration: On the hanging wall side, between 60.10m and 117.50m in depth, only partial weak silicification is observed, but, between 117.50 and 152.80m in depth, weak silicification is observed. Lower extrusive rocks 1 are intensely silicified on the footwall side.

(14) MJOB-G14 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives rocks 2(V1-2) of Lower volcanics, massive sulphide ore and Lower extrusive rocks 1 (V1-1).

0.00m - 3.50m Unconsolidated Quaternary sediments.

3.50m - 18.60m Consolidated Quaternary sediments (calcrete).

18.60m - 119.80m Lower extrusive rocks 2. Consisting of basaltic pillow lava, massive lava and many intruded basaltic or doleritic dykes which cut accross the lavas. Metalliferous sediments are accompanied at the bottom of the interval between 119.50 and 119.80m.

119.80 - 164.75m Massive sulphide ore (core length: 37.10m). Accompanied by basaltic dikes of 1 to 2m in width.

164.75 -305.40m(end of hole) Lower extrusive rocks 1. Intensely silicified section from 164.75m to 235.05m, showing a stockwork of veinlets. From 235.05 to the bottom of the hole silicified pillow lava is observed.

Mineralization:Massive sulphide was intersected as indicated in the core of 37.10m in length. Average grade resulted in 1.88%Cu. A large part of the core shows a non-detected gold content.

Although remarkable mineralization is not seen, weak pyrite dissemination is observed on the hanging wall side, on the footwall side and down to the depth of 230.50m, a stockwork is formed as in borehole G3. Pyrite dissemination, pyrite and sphalerite bearing quartz veins are developed in the depth of more than 230.50m. Among stockworks from 164.75m to 171.50m, which are rich in chalcopyrite, average grade resulted in 2.74%Cu, 0.44%Zn, , while for the section from 171.50m to 230.50m., average grade resulted in 0.37%Cu and 0.32% Zn.

Alteration: Only bleaching is observed on the hanging wall side. Remarkable silicification can not be recognized. Epidote networks are developed in the pillow lavas located just above the massive ores (between 104.80m and 119.50m). On the footwall side and down to 235.05m, intense silicification is observed. From 235.05 to the bottom of the hole, some silicification is observed.

(15) MJOB-G15 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives rocks 2(V1-2) of Lower volcanics, massive sulphide ore and Lower extrusive rocks 1 (V1-1).

0.00m - 3.50m Unconsolidated Quaternary sediments.

3.50m - 18.60m Consolidated Quaternary sediments (calcrete).

18.60m - 179.20m Lower extrusive rocks 2. Consisting mainly of basaltic pillow lava, massive lava and many basaltic or doleritic dykes. In the deepest section, from 178.85m to 179.20m, a thin seam of magnetite of 7cm in thickness is accompanied by metalliferous sediments.

179.20 - 212.30m Massive sulphide ore (core length 29.90m).

212.30 -250.15m(end of hole) Lower extrusive rocks 1. It consists of basaltic pillow with thick interpillows (5m to 40cm in thickness) accompanied with basaltic dikes.

Mineralization:Massive sulphide was intersected as indicated in the core of 29.90m in length.

Alteration: Weak silicification is observed from 49.60m to the bottom of the hole. From 136.10m to 178.85m, epidote-calcite veinlets are frequently observed.

(16) MJOB-G16 borehole

Geology: Consisting of Quaternary sediments, Lower extrusives rocks 2(V1-2) of Lower volcanics, massive sulphide ore and Lower extrusive rocks 1 (V1-1).

0.00m - 4.80m Unconsolidated Quaternary sediments.

4.80m - 20.25m Consolidated Quaternary sediments (calcrete).

20.25m - 186.90m Lower extrusive rocks 2. Consisting of basaltic pillow lava, massive lava and basalt or dolerite dykes. Some seams of metalliferous sedimentary rocks are intercalated between the depths of 162.70 to 167.70m.

186.90 - 189.40m Massive sulphide ore (core length 2.50m).

189.40 -201.85m(end of hole) Lower extrusives 1. It consists of basaltic pillow lava with thick interpillow (5m to 30cm in thickness).

Mineralization: As indicated in the core of 2.50m length, massive sulphide was encountered. An average grade for copper is 1.63%. A weak pyrite dissemination is observed throughout. Pyrite veinlets and chalcopyrite are accidentally accompanied.

Alteration: With the exception of dykes, weak silicification is detected throughout. Under the massive ore, epidote networks are recognized, and in the section from 137.60 to 170.50m, sparse epidote-calcite veins are observed.

(17) MJOB-G17 borehole

Geology: Main componentes are: Quaternary sediments, Lower extrusives rocks 2(V1-2) of Lower volcanics, massive sulphide ore and Lower extrusive rocks 1 (V1-1).

0.00m - 6.70m Unconsolidated Quaternary sediments.

6.70m - 18.25m Consolidated Quaternary sediments (calcrete).

18.25m - 215.90m Lower extrusive rocks 2. Consisting mainly of basaltic pillow lava and massive lava which accompany many basaltic dykes.

215.90 - 222.80m Massive sulphide ore (core length 6.90m). The upper part is cut by a fault. Further below, it is accompanied by magnetic layers of 1 to 2cm in thickness.

222.80 -250.25m(end of hole) Lower extrusive 1. It consists of basaltic pillow lava as well as massive lava and basaltic dykes.

Mineralization: Massive sulphide was intersected as indicated in the core of 6.90m in length. Average grade is 1.71%. On the hanging wall side, weak pyrite dissemination is accompanied by a very limited portion of chalcopyrite or sphalerite dissemination. On the footwall side, the epidote-quartz veins with pyrite and a moderate pyrite dissemination are observed.

Alteration: Weak silicification is detected in the intervals of 52.45m to 66.00m and 101.10m to 167.40m. From 167.40m to a depth of just above the massive ore, moderate silicification is observed,while from the footwall to a depth of 245.50m, it is observed weak mineralization. From 226.10m to 245.50m, it can be observed a broad epidote-quartz vein with pyrite in the form of networks.

4-4-2 Daris area

High chargeability was detected widely at the center of this area by TDIP survey in Phase I. Considering that the gossan and the known massive sulphide ore deposit are located in the south edge of this high chargeability zone, drilling survey was carried out at the low resistivity zone around the high chargeability zone.

(1) MJOB-D1 borehole

Geology: Consisting of Quaternary sediments and Lower extrusives 2 (V1-2).

0.00m - 3.70m Unconsolidated Quaternary sediments.

3.70m - 220.15m (end of hole)Lower extrusives 2, consisting mainly of basaltic pillow lava and accompanied with massive lava. Between the intervals 3.70m - 23.50m, 35.75m - 55.75m and 147.80m - 150.65m, rocks are crushed to pieces by strong deformation and show clear planar structure.

Mineralization: Only slight pyrite dissemination are observed partially between 80.80m and 189.00m.

Alteration: Silicification along fractures with quarts network are observed between 87.20m and 147.80m. Weak silicification is observed between 151.00m and 164.00m. Except for these part, alteration is not observed.

(2) MJOB-D2 borehole

Geology: Consisting of Quaternary sediments and Lower extrusives 2(V1-2).

0.00m - 4.95m Unconsolidated Quaternary sediments.

4.95m - 251.00m (end of hole) Lower extrusives 2, consisting of basaltic pillow lava , massive lava, and basalt or dolerite dykes. Fault fracture zone is detected between 129.35m and 132.00m. Developed fractures are observed between 160m and 187.25m.

Mineralization: Slight to middle pyritization are observed throughout the core. Pyrite and quartz vein are observed partially. Pyritization become a little intense below 187.25m. Below 231.25m, intense pyrite dissemination accompanied with sphalerite are observed in brecciated massive lava.

Alteration: Bleaching are observed between the intervals 4.95m - 58.15m and 133.40m - 155.65m. Bleaching and silicification are observed between 231.25m and 241.35m.

(3) MJOB-D3 borehole

Geology: Consisting of Quaternary sediments and Lower extrusives 2 (V1-2).

0.00m - 3.50m Unconsolidated Quaternary sediments.

3.50m - 150.35m (end of hole) Lower extrusives 2, consisting of basaltic pillow lava , massive lava, and basalt or dolerite dykes. Brown metalliferous sediments with the thickness of 20cm and 10cm are observed respectively in the depth of 46.00m and 50.80m. Faults with fracture zone are observed between the intervals 117.60m - 117.80m and 141.50m - 141.80m.

Mineralization: Slight fine-grained pyrite dissemination and pyrite vein are observed between 6.00m and 80.00m.

Alteration: Not observed.

(4) MJOB-D4 borehole

Geology: Consisting of Quaternary sediments and Lower extrusives 2(V1-2).

0.00m - 4.50m Unconsolidated Quaternary sediments.

4.50m - 300.35m (end of hole) Lower extrusives 2, consisting of basaltic pillow lava, massive lava, and basalt or dolerite dykes. It is gossanized between 4.50m and 36.35m. Small fractures filled up with calcite or quartz are developed between 124.85m - 181.60m. A fault is detected between 247.10m - 248.70m.

Mineralization: Argellaceous gossan and gossanized basaltic lava (including oxidized pyrite and calcite vein) accompanied with copper oxide are observed between 4.50m and 36.35m. Native copper is also observed between 27.00m and 27.10m. Pyritization are observed between 36.35m and 122.50m. Within this zone, A little intense pyritization accompanied with pyrite and quartz vein with chalcopyrite are observed between 67.10m and 93.90m. Very weak pyritization are observed between 122.50m and 255.00m. Pyrite network vein filling up small fractures are observed below 260.50m.

Alteration: Silicification is not observed. Breaching is not clear.

4-4-3 Daris 3A5 area

The results of TDIP survey in Phase I show that the known massive sulphide ore deposit has a tendency to extend toward NW. Therefore, drilling survey was carried out within the IP anomaly zone.

(1) MJOB-A1 borehole

Geology: Consisting of Quaternary sediments and Middle extrusives (V2)

0.00m - 2.60m Unconsolidated Quaternary sediments.

2.60m - 251.00m (end of hole) Middle extrusives, consisting of basaltic pillow lava and hyaloclastite. Pillow lava are weathered to deeper part(91.80m), and show intense chloritization.

Mineralization: Not observed.

Alteration: Not observed.

(2) MJOB-A2 borehole

Geology: Consisting of Quaternary sediments, Middle extrusives (V2) and Lower extrusives 2 (V1-2).

0.00m - 2.60m Unconsolidated Quaternary sediments.

14.00 - 186.40m Middle extrusives, consisting mainly of hyaloclastite with intercalation of basaltic pillow lava.

186.40m - 227.00m (end of hole) Lower extrusives 2, consisting of basaltic massive lava. These are crushed to pieces. A fault forms the boundary between this Lower extrusives 2 and the above Middle extrusives.

Mineralization: Previous survey by BRGM and OMCO reported that the gossan and the massive ore have been found in hyaloclastite at upper part. However, in this borehole only slight network gossanized part is observed between the intervals 100.25m - 103.50m and 184.80m - 185.40m. Pyrite dissemination are observed in massive lava at lower part.

Alteration: Silicification and breaching are observed in massive lava at lower part.

4-4-4 Daris North area

The high chargeability and low resistivity zone extending widely in the direction of E-W has been detected by TDIP survey in Phase I. And this year, TEM survey was carried out within this IP anomaly zone, then drilling survey was carried out within the TEM anomaly zone.

(1) MJOB-R1 borehole

Geology: Consisting of Quaternary and Tertiary sediments, and Middle volcanic rocks.

0.00m - 3.60m Unconsolidated Quaternary sediments.

3.60m - 11.65m Consolidated Quaternary sediments(calcrete).

11.65 - 131.85m Tertiary sediments, consisting of sandstone, coaly shale and alternating beds of limestone and mudstone rock including many foraminiferas and shell fossils. Mudstone include fine-grained pyrite.

131.85m - 200.15m (end of hole) Middle extrusives, consisting of massive andesite. It is

considered as sill.

Mineralization: Slight fine-grained pyrite dissemination is observed in andesite.

Alteration: Not observed.

4-4-5 Fardah area

The low resistivity zone was detected by TDIP survey, but chargeability value were low as whole. Therefore only oxidized ore (gossan) was expected. TEM survey was carried out within this low resistivity zone, then drilling survey was carried out within the TEM anomaly zone.

(1) MJOB-F1 borehole

Geology: Consisting of Tertiary sediments, and Lower extrusives 2 (V1-2).

0.00m - 97.00m Tertiary sediments, consisting of sandstone, alternating beds of limestone and lutaceous rocks including many foraminifer and shell fossil. Lutaceous rocks include fine-grained pyrite.

97.00m - 250.65m (end of hole) Lower extrusives, 2 consisting of basaltic pillow lava and massive lava, and intercalated with hyaloclastite partially. Dark brown Mn rich interpillows are observed between 207.60m and 245.80m.

Mineralization: Slight gossanization are observed between 88.30m and 97.00m in lower part of Tertiary sediments. In Lower extrusives 2, slight pyritization are observed between the intervals 118.45m - 121.70m, 215.70m - 220.60m and 231.70m - 241.00m, and network pyrite vein are observed between 148.00m and 151.20m.

Alteration: Not observed.

(2) MJOB-F2 borehole

Geology: Consisting of Tertiary sediments, and Lower extrusives 2 (V1-2).

0.00m - 49.20m Tertiary sediments, consisting of limestone and lutaceous rock including many foraminifer and shell fossil, and alternating beds of them. Lutaceous rocks include fine-grained pyrite.

49.20m - 200.20m (end of hole) Lower extrusives 2, consisting mainly basaltic pillow lava intercalated partially with massive lava and hyaloclastite.

Mineralization: From Tertiary sediments to Lower extrusives 2, slight gossanization are observed between 39.70m and 53.20m.

Alteration: Not observed.