2-3 Survey Results in Doqal Area

2-3-1 Geophysical survey

(1) Outline of survey

The TDIP and TEM survey were conducted in this survey area, as illustrated in Fig.II-2-9. As for the TDIP survey, a total of 10.5km line-length with seven survey lines were set along a E-W direction and separated by 200m between each line. Measurements were taken every 100m interval along the survey lines by adopting a dipole-dipole configuration and setting N factor (electrode separation) from 1 to 4.

For the TEM survey, two loops were set and the data were collected at every 50m interval within a 400 mx400 m grid for each loop. The loop adopted is a fixed type square loop of 600 m x 600 m and the total observed stations were 162 points.

(2) Results of survey

(a)TDIP survey

The results are shown in Fig.II-2-10(1),II-2-10(2).

The resistivities are in general low in the north part while high towards the south. Within this general tendency, partially relativelly low resistivity distributions extend from the north along NS direction, one of them, can be seen in the central part of the survey area. Another distribution is seen at the western edge of the area. The former low resistivity distribution seems to coincide quite well with the NS direction of the gossanized mineralized zone, the latter low resistivity coincides on the surface with the Wadi that elongates along NS direction.

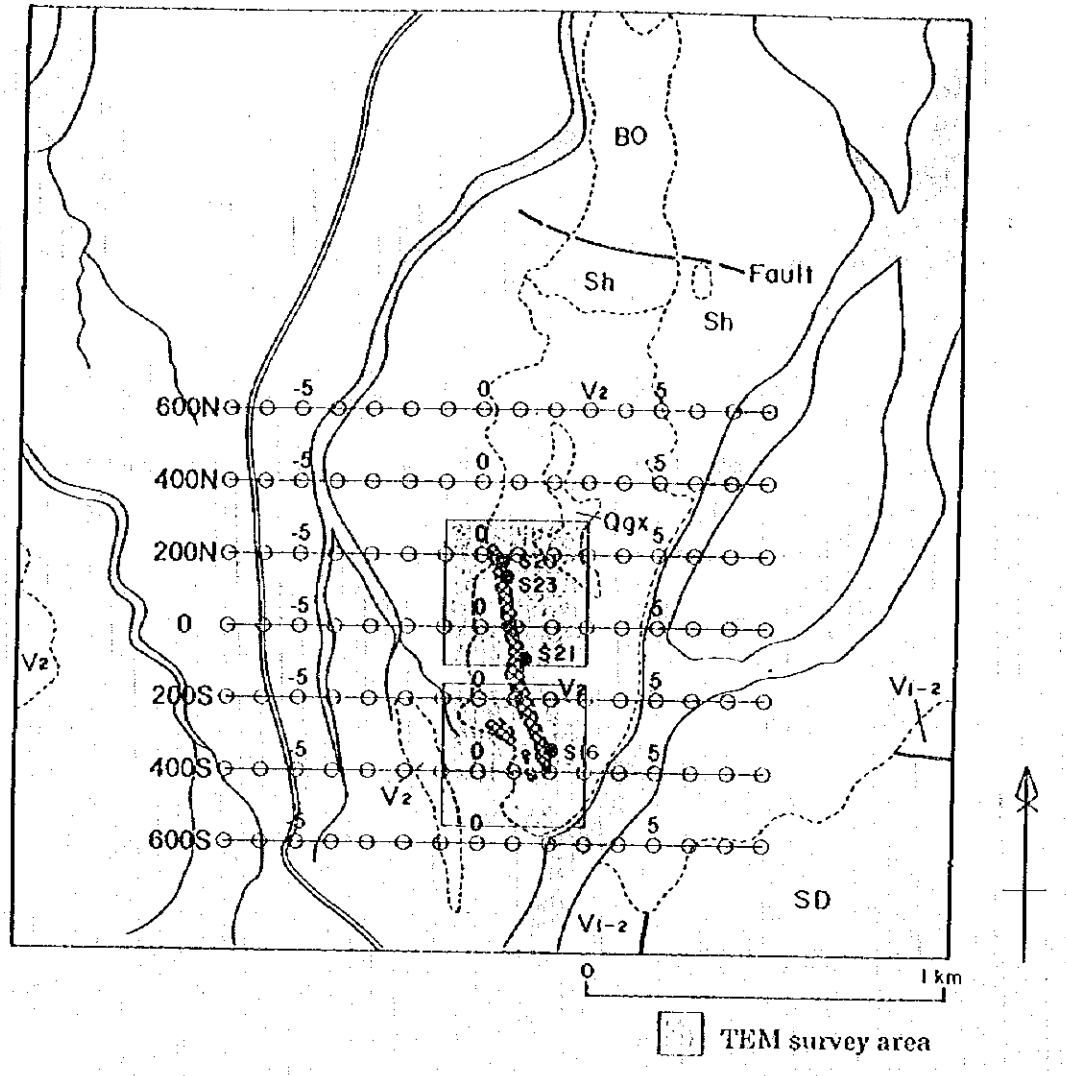
In relation to the chargeability distribution , a comparatively high chargeability distribution of above 10 mV/V, is seen extended from the central part of the area towards the south at both levesl n=1 and 3. The center of this high chargeability distribution is located about 50m west of the gossanized zone at level n=1, at greater depth (n=3), it is located around the gossan.

Regarding the metal factor, a high metal factor zone of above 10 is widely distributed in the central part, then extends towards the north west part of the area where it becomes even wider. Prominent values can be seen around the gossan and at the northwest of the area.

(b) TEM survey

A TEM survey was carried out to clarify the nature of an anomaly detected in the central part of the area by the TDIP survey. The TEM response map are shown in Fig.II-2-11(1),II-2-11(2).

A TEM anomaly is detected about 50 m west of the gossan. It runs parallel to the gossan, with a maximum value in the northern edge of the loop, and decreasing slightly toward south, as illustrated in



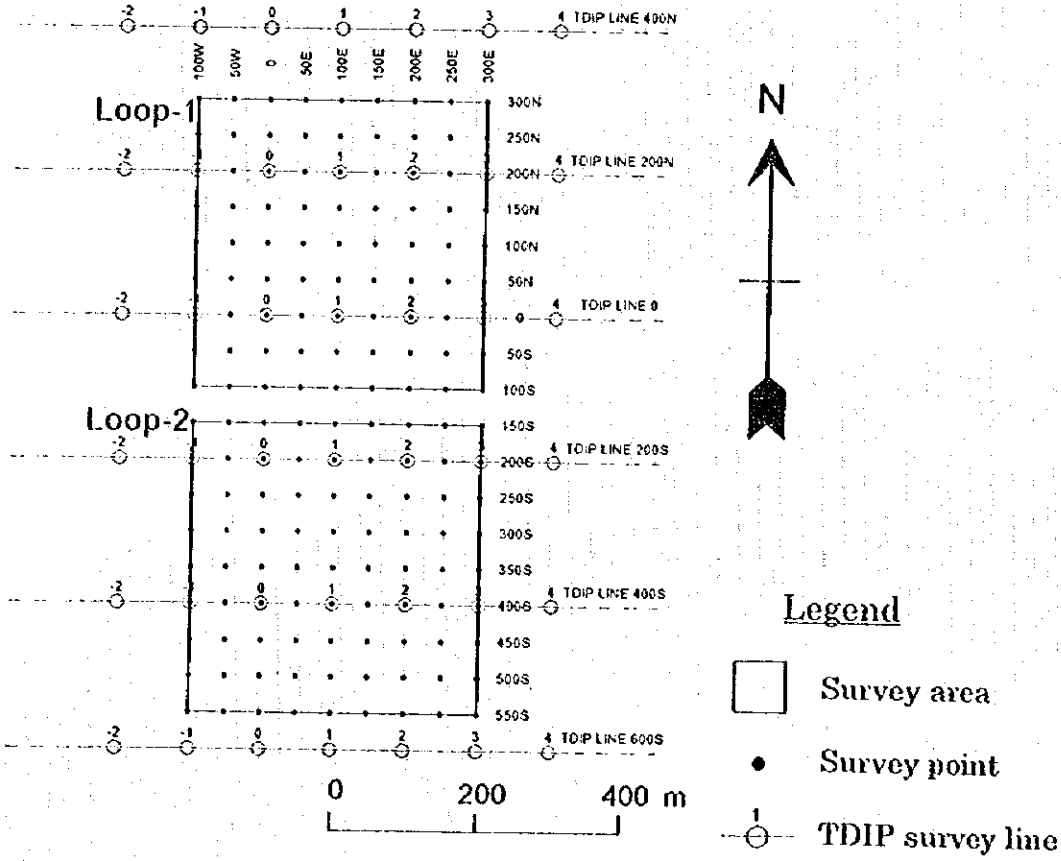


Fig.II-2-9 Geophysical survey locations in Doqal area

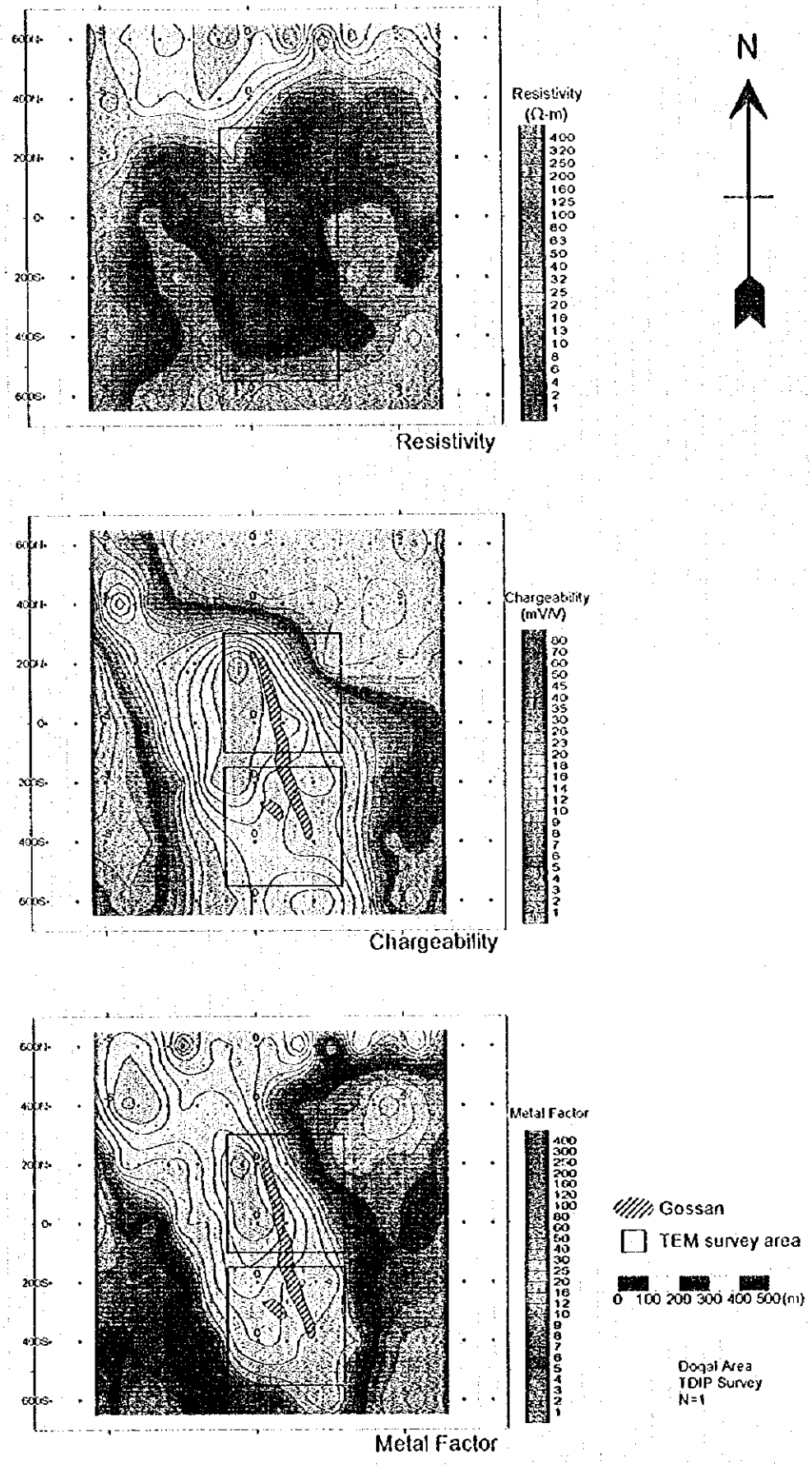
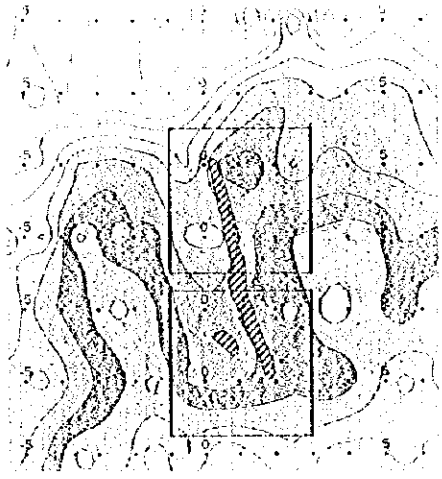
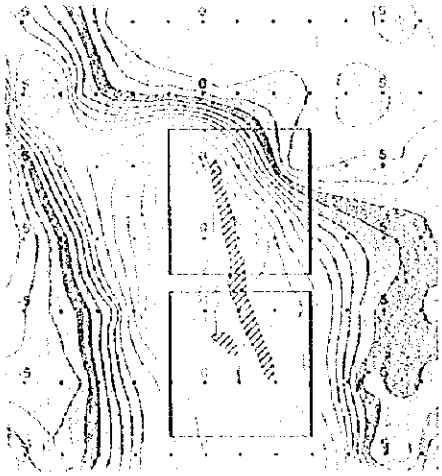


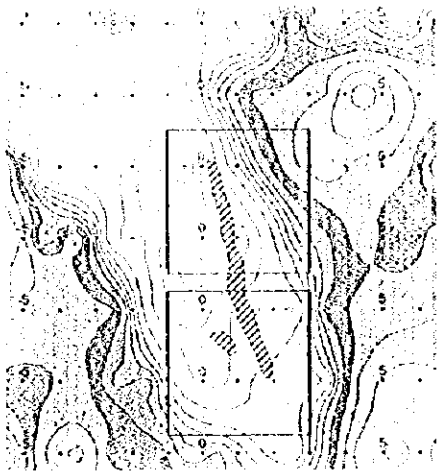
Fig.II-2-10(1) IP plane map at n=1 in Doqal area



Resistivity



Chargeability



Metal Factor

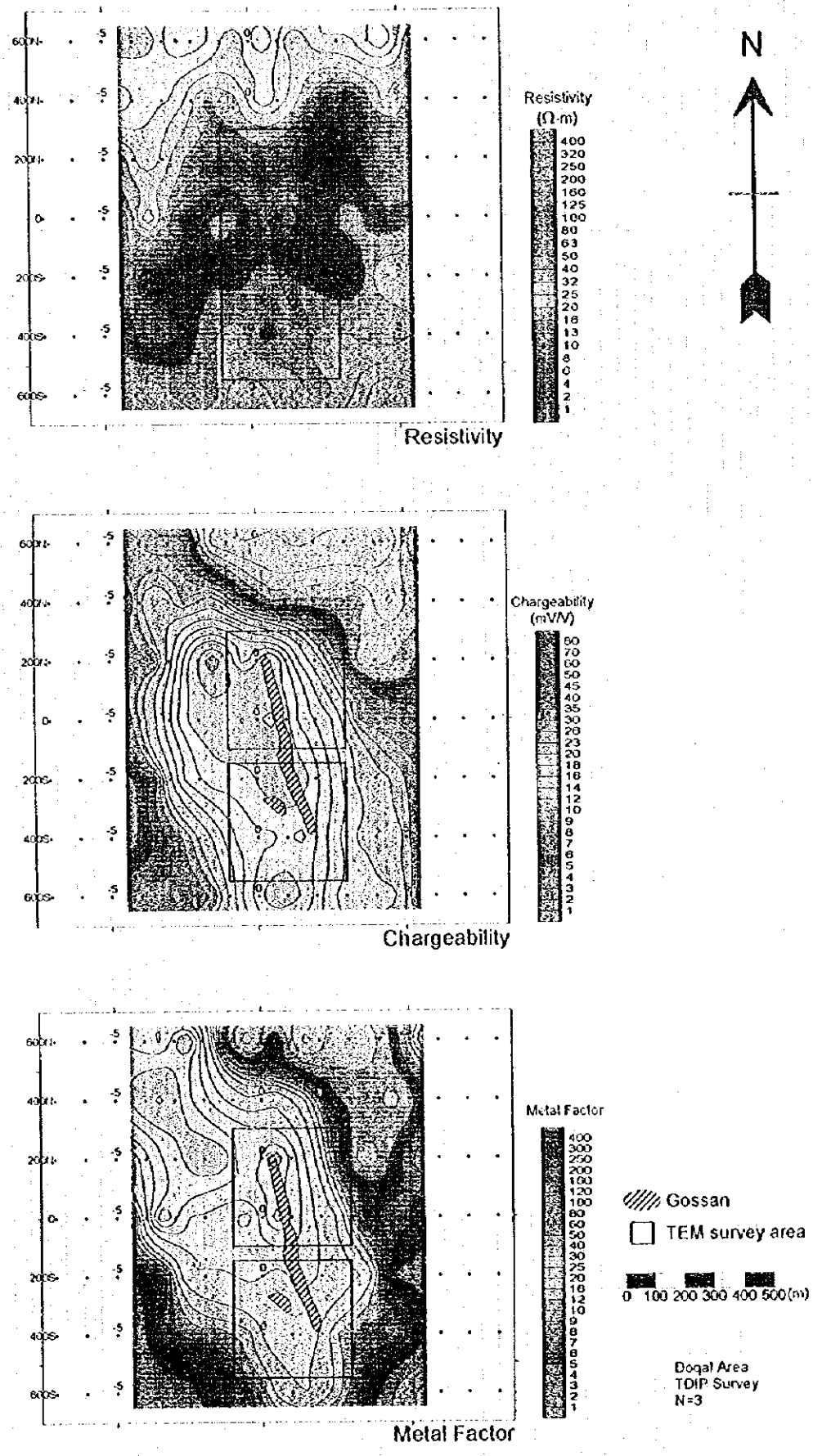
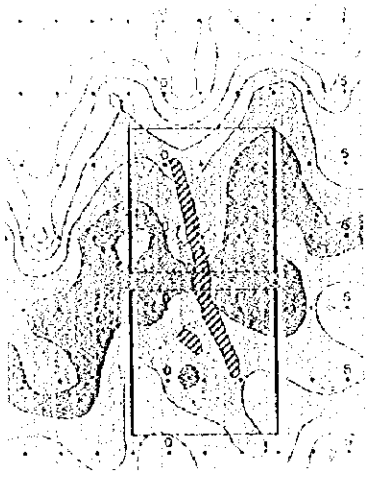
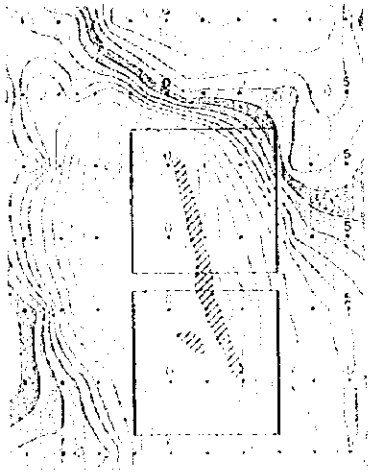


Fig.II-2-10(2) IP plane map at n=3 in Doqal area

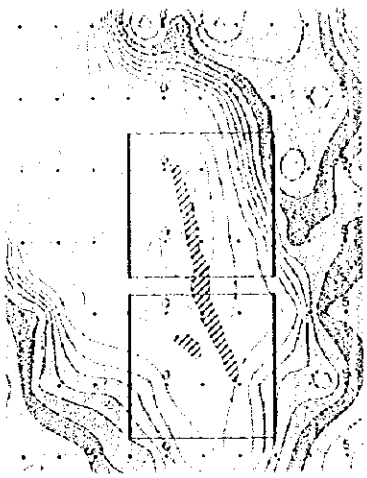


N

Resistivity



Chargeability



Metal Factor

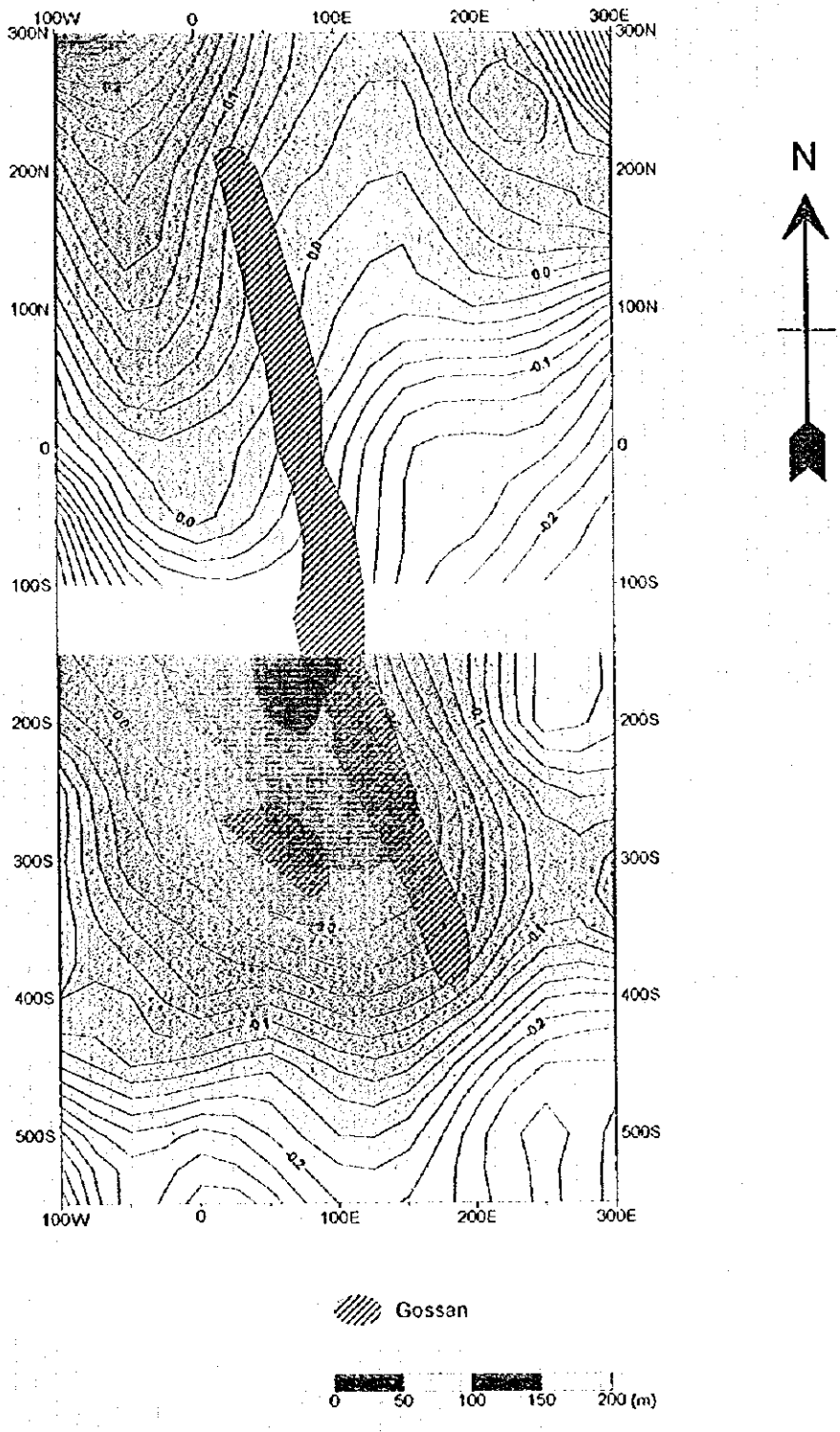


Fig.II-2-11(1) TEM response map around 100m depth in Doqal area

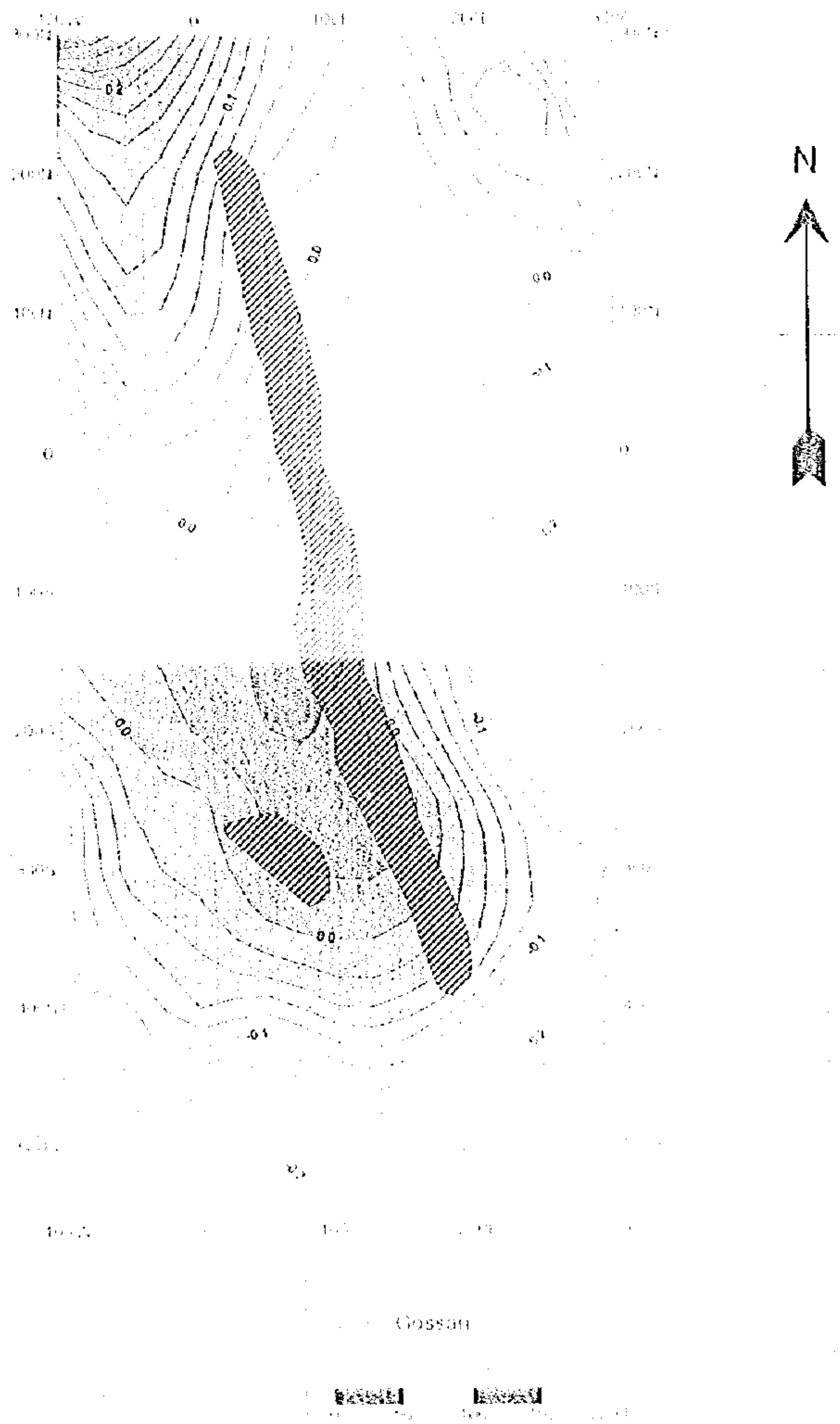


Fig II.2 HCh TEM response map around 100m depth in Dogal area

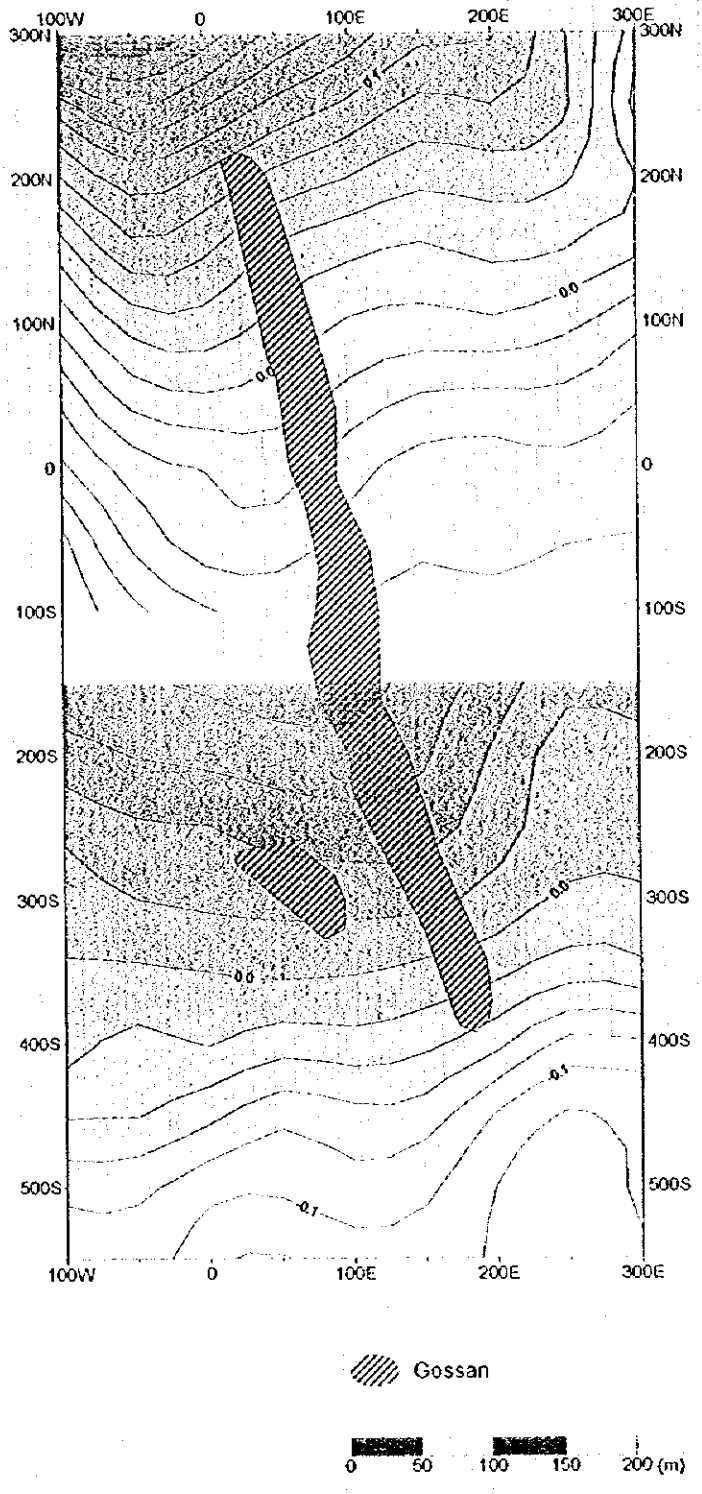


Fig.II-2-11(2) TEM response map around 200m depth in Doxpal area

Fig.II-2-11(1). This anomaly extends from the northern edge of loop1 and disappears at the central part of the loop2 which correrates with the gosssan distribution. Since this TEM anomaly zone locates in a high metal factor zone, it is expected as a high potential location for the sulphide deposit.

2-4 Survey Results in Other Areas

2-4-1 Geophysical survey

(1)Ghuzayn east area

(a)Outline of survey

The TDIP survey were conducted in this survey area, as illustrated in Fig.II-2-12.
A total of 16.8km line-length with eight survey lines were set along the N40°W direction and separated by 200m between each line. Measurements were taken every 100m interval along the survey lines by adopting dipole-dipole configuration and N factor (electrode separation) are set from 1 to 4.

(b)Results of survey

The results are shown in Fig.II-2-13.

The central part of the area presents high resistivity distribution, however, the north and south ends tends to become lower. The central part shows resistivities higher than 100 Ωm along a E-W direction with a width of about 500m. The low resistivity zone of less than 50 Ωm is located at the north end of the area and in agreement with the aero-magnetic anomaly.

Regarding the chargeability, the above mentioned low resistivity zone at the north end, shows chargeability values of less than 5mV/V, however, outside of this zone, medium chargeability values around 10mV/m are seen at the central part with a tendency to become higher towards the south.

This zone of medium to high chargeability corresponds to the outcrops as well as to the pyrite which is included in the quartz veins and sheeted dykes.

The metal factor shows almost same distribution pattern as the chargeability. A metal factor values as high as 40, where the above mentioned high chargeability zone locates, also corresponds to the sheeted dykes with pyrite pregunation.

This area seems to present low potential for sulphide deposits of economic interest.

(2) Ghuzayn west area

(a)Outline of survey

The TDIP survey was conducted in this survey area, as illustrated in Fig.II-2-14. A total of 14.6km line-length with six survey lines were set along the N20°E direction by keeping 200m interval between each line. Measurement were taken every 100m interval along the survey lines by adopting a dipole-dipole configuration and setting the N factors (electrode separation) from 1 to 4.

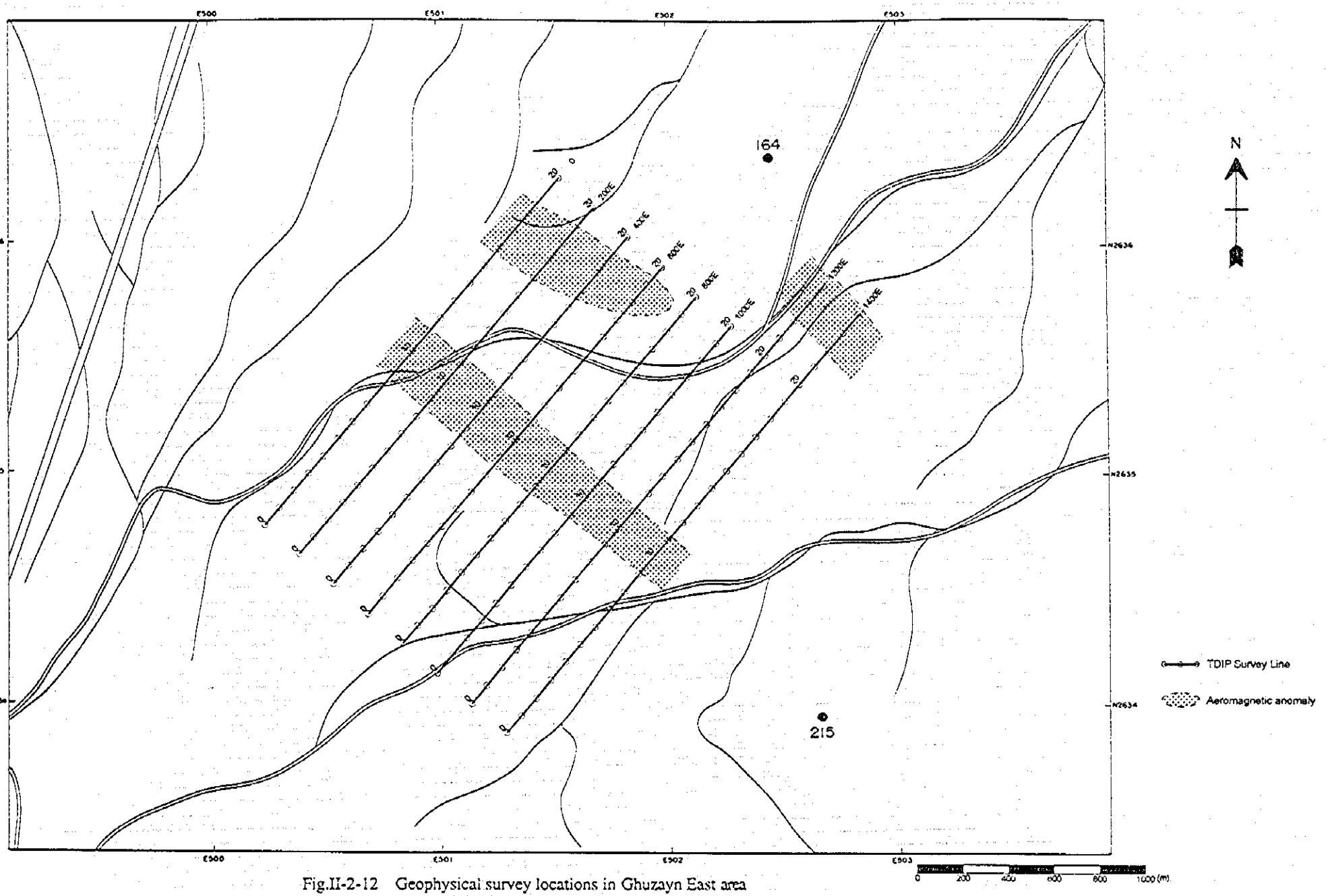
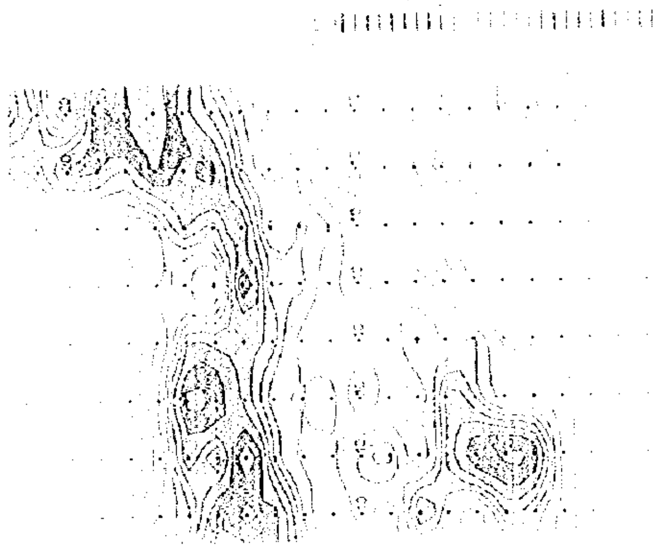
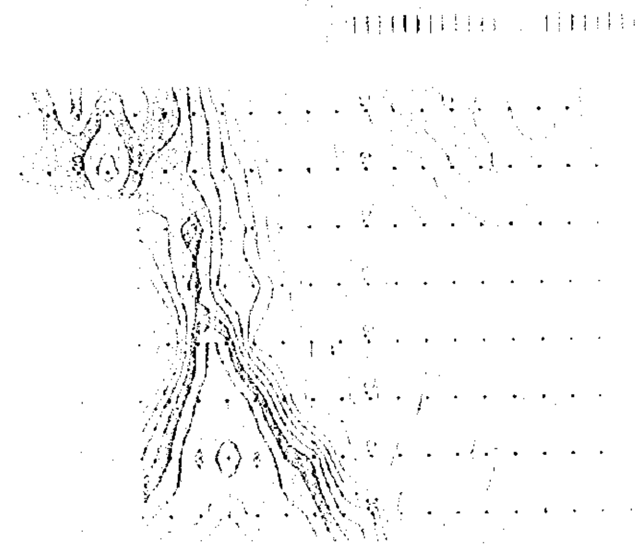
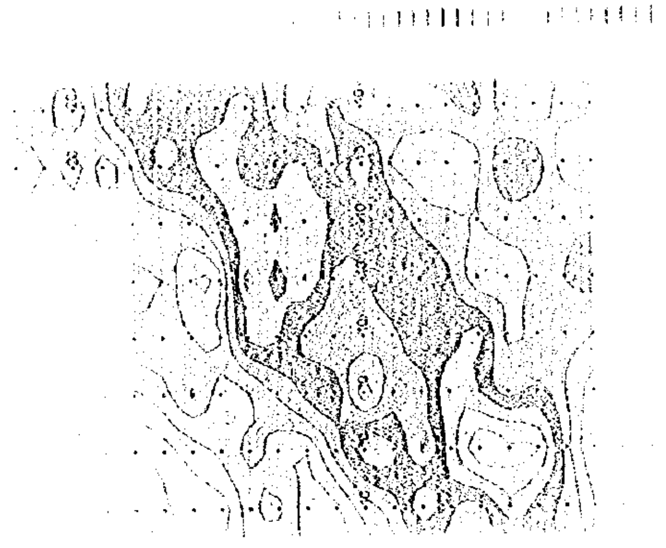


Fig.II-2-12 Geophysical survey locations in Ghuzayn East area

Fig.II-2-13 IP plane map at n=4 in Ghuzayn east area







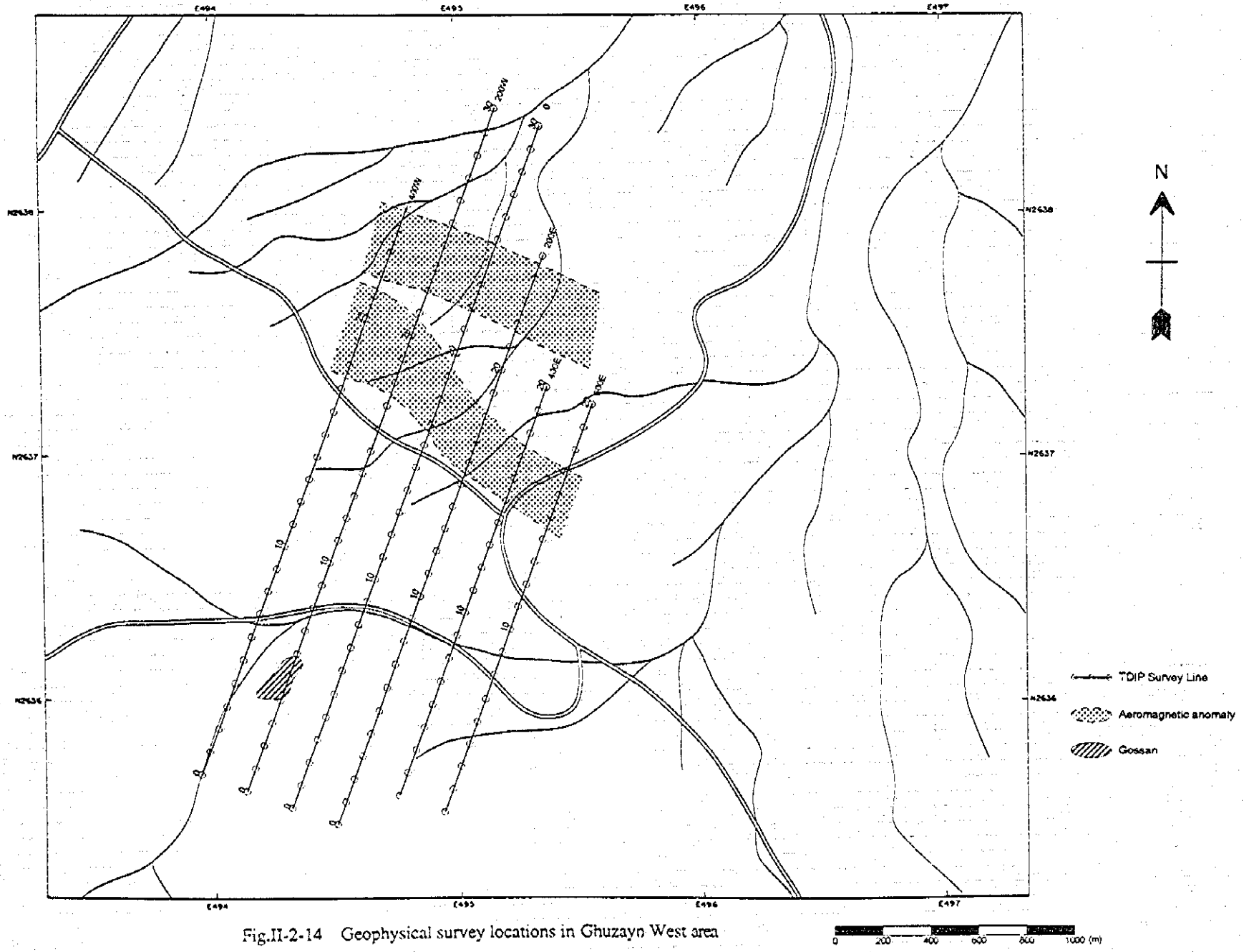


Fig.II-2-14 Geophysical survey locations in Ghuzayn West area

(b)Results of survey

The results are shown in Fig.II-2-15.

The south side presents high resistivity, while the north side indicates relatively low values. A low resistivity zone of about 20 ohm-m is seen extended along the NW-SE direction. This zone is in agreement with the aero-magnetic anomaly.

The chargeability distribution shows a similar pattern as the resistivity, i.e., high to the south and low to the north. A center of high chargeability is located south of the gossan.

In relation to the metal factor, the pattern agreement of low-high and high-low values of chargeability and resistivities give as a result no significant anomaly.

This area seems to have a low potential for economic sulphide deposits.

(3)Ghuzayn village north

(a)Outline of survey

The TDIP survey was conducted in this survey area, as illustrated in Fig.II-2-16.

Two lines were set along the N27°E direction and a third line perpendicular to the above two lines. As indicated in the Fig. II-2-16, the lines 000N, 180S and 000E have the lengths of 1.5km, 1.4 km and 800m, respectively. Measurements were taken every 100m interval along the survey lines by adopting a dipole-dipole configuration and by setting the N factor (electrode separation) from 1 to 4

(b)results of survey

The results are shown in Fig.II-2-17. The area presents rather high apparent resistivity values of more than 50 ohm-m. Only a relatively low resistivity distribution is seen at the north of the area.

In relation to chargeability, it is seen medium chargeability values of about 10mV/V in the south, however,no remarkable anomaly was detected.

Metal factor values are also low with a maximum of about 20.

This area seems to present low potential for the finding of economic sulphide deposits.

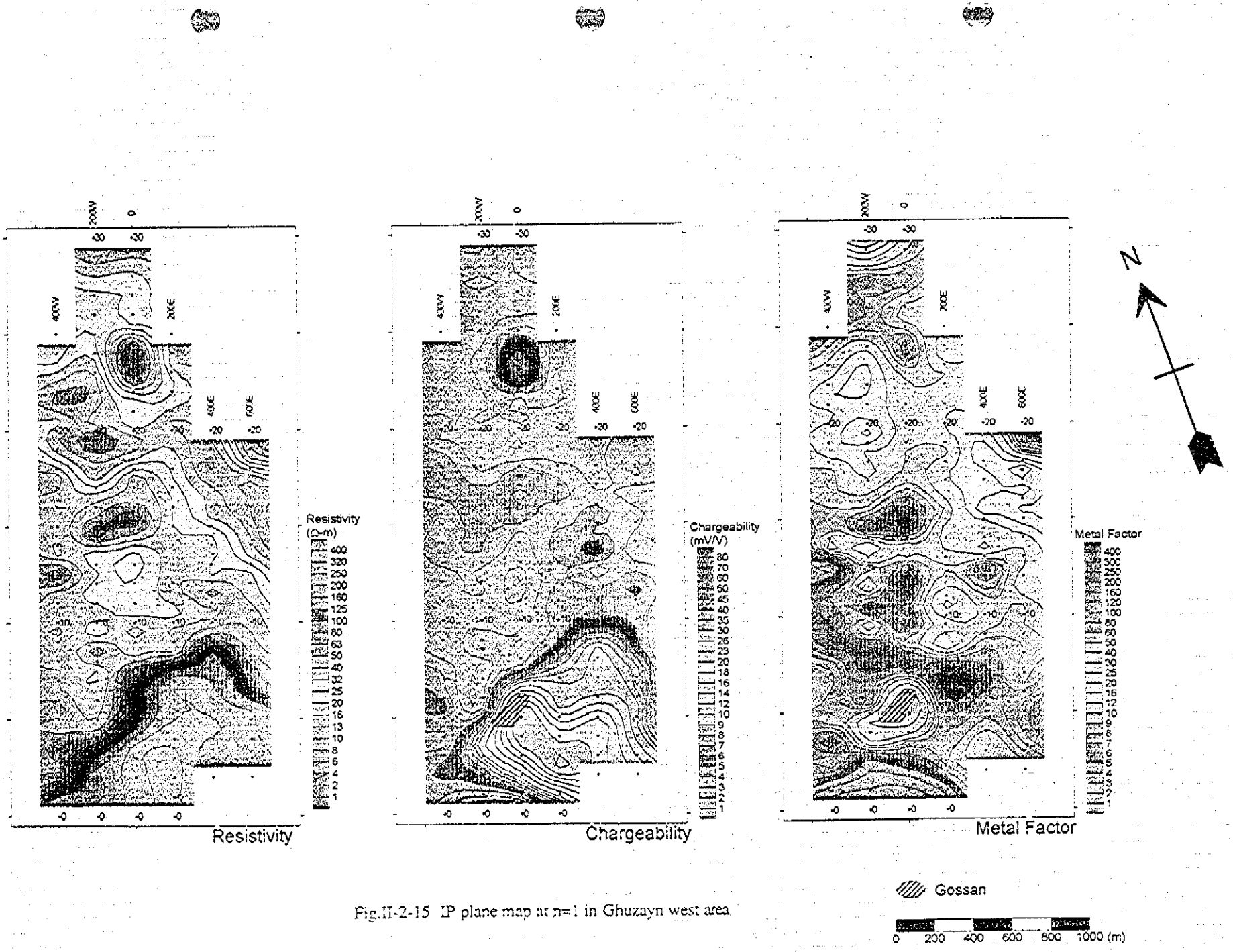
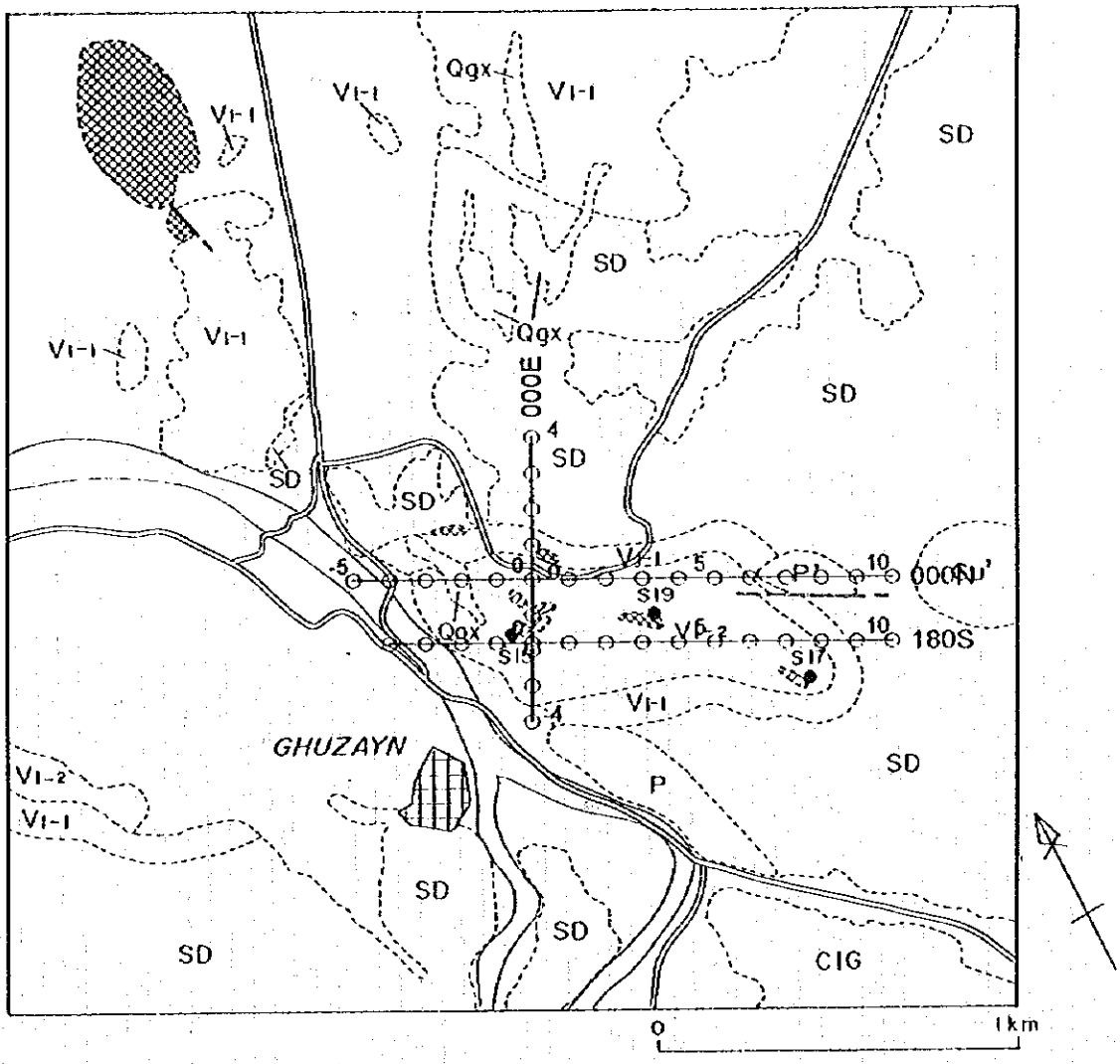


Fig.II-2-15 IP plane map at n=1 in Ghuzayn west area

N

Ghuzayn Village North Area



LITHOLOGY

QUATERNARY

- Wadi sediments and Sub-recent alluvial fans;terraces
- Qgx — Ancient alluvial fans;terraces

SAMAIL OPHIOLITE

Samail Volcanic Rocks

- V_{I-2} — Lower extrusives 2
- V_{I-1} — Lower extrusives 1

Sheeted-dyke complex

- SD — Sheeted dykes;dolerite

Cumulate Sequence

- CIG — Cumulate layered gabbro

Intrusives

- Gu' — Uralitic Gabbro
- P' — Peridotite

MINERALIZATION

- Gossan
- Silicified or argillized zone

Other symbols

- ● S15 — Sample location
- Ghuzayn village
- Road
- Wadi
- TDIP Survey Lines

Fig.II-2-16 Geophysical survey locations in Ghuzayn village north area

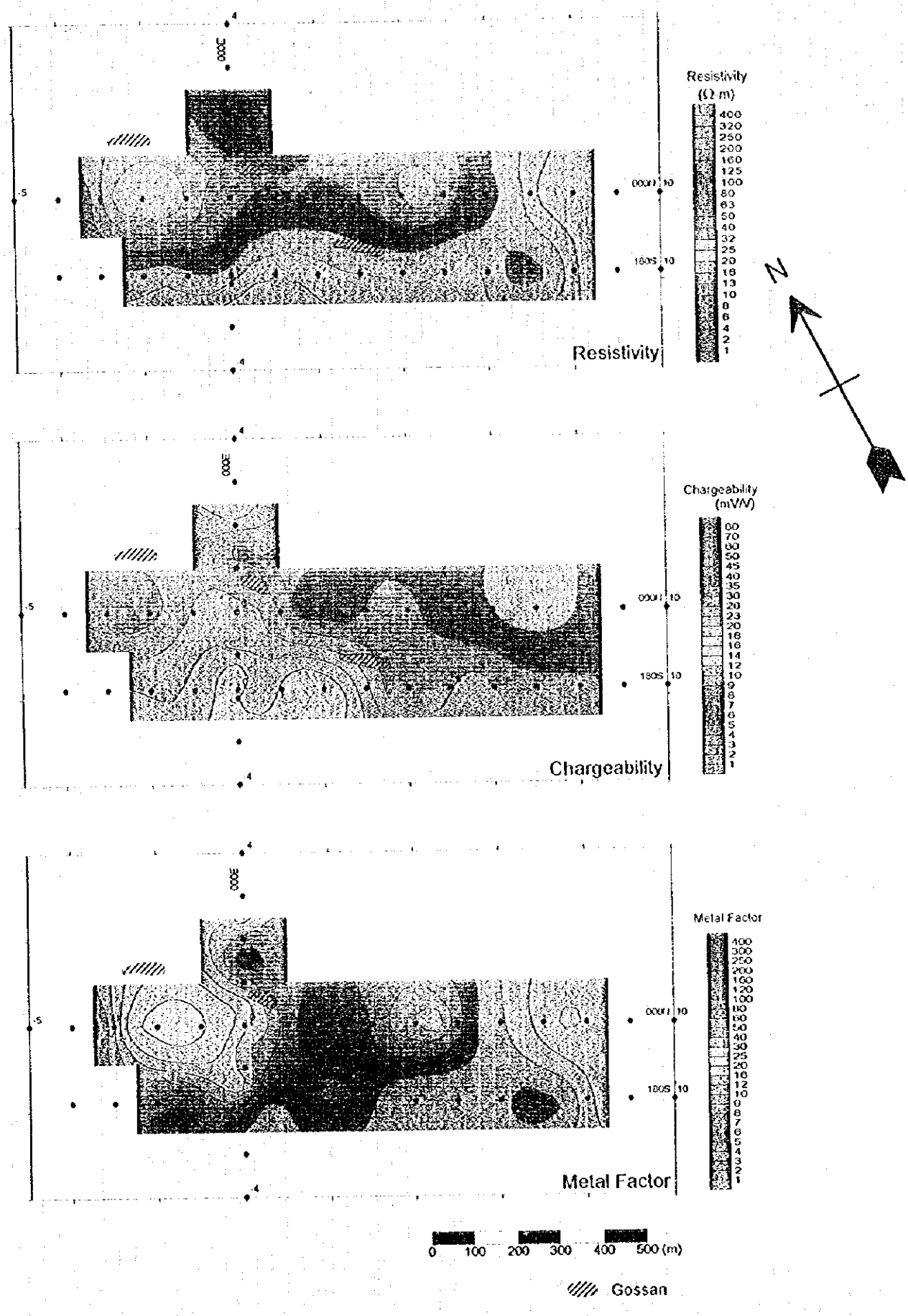


Fig.II-2-17 IP plane map at n=1 in Ghuzayn village north area

CHAPTER 3 DETAILED SURVEY IN FARDAH AND SANAH AREA

3-1 Geology and Mineralization

3-1-1 Geology

The area is situated in the west of project area and to east of Ghuzayn-Doqal area. The geology of the area consists of sheeted dykes and Samail volcanic rocks of Samail Ophiolite, Supra-Ophiolite sediments (Batinah Olistostromes) , Tertiary sedimentary rocks of autochthonous and Quaternary formations(Fig. II-3-1).

3-1-2 Mineralization

Fardah showing is located about 12km east of Ghuzayn deposits and near Fardah village. The gossan is found in Lower extrusives 2 and accompanied by a thick metalliferous sediment of 1km long (Fig.II-3-2). The base of the Tertiary limestone is locally gossanized. White argillaceous zone with a extension of 200m x 200m is also accompanied. Limonitized argillaceous sample shows contents of small amount of gold and silver.

Sanah showing is situated to the south of Sanah village, which is only 4km away from Fardah showing. Conglomerates in the base of the Tertiary limestone overlain by volcanic rocks are gossanized in wide area. The area has an approximate width of about 100m and extends for more than 900m.

3-2 Survey Results in Fardah Area

3-2-1 Geophysical survey

(1)Outline of survey

The TDIP and TEM survey were conducted in this survey area according to the location illustrated in Fig.II-3-3.

As for TDIP survey, a total of 12.0km line-length with eight survey lines were set along the N28°E direction by keeping a distance of 200m between each line. Measurements were done every 100m interval along the survey lines by adopting a dipole-dipole configuration and by using N factors (electrode separation) from 1 to 4.

In relation to the TEM survey, one loop was utilized. Data was collected every 50m inteval within a 400 m x 400 m grid. The type of configuration used was a fixed type square loop of 600 m x 600 m and the total observed stations were 81 points.

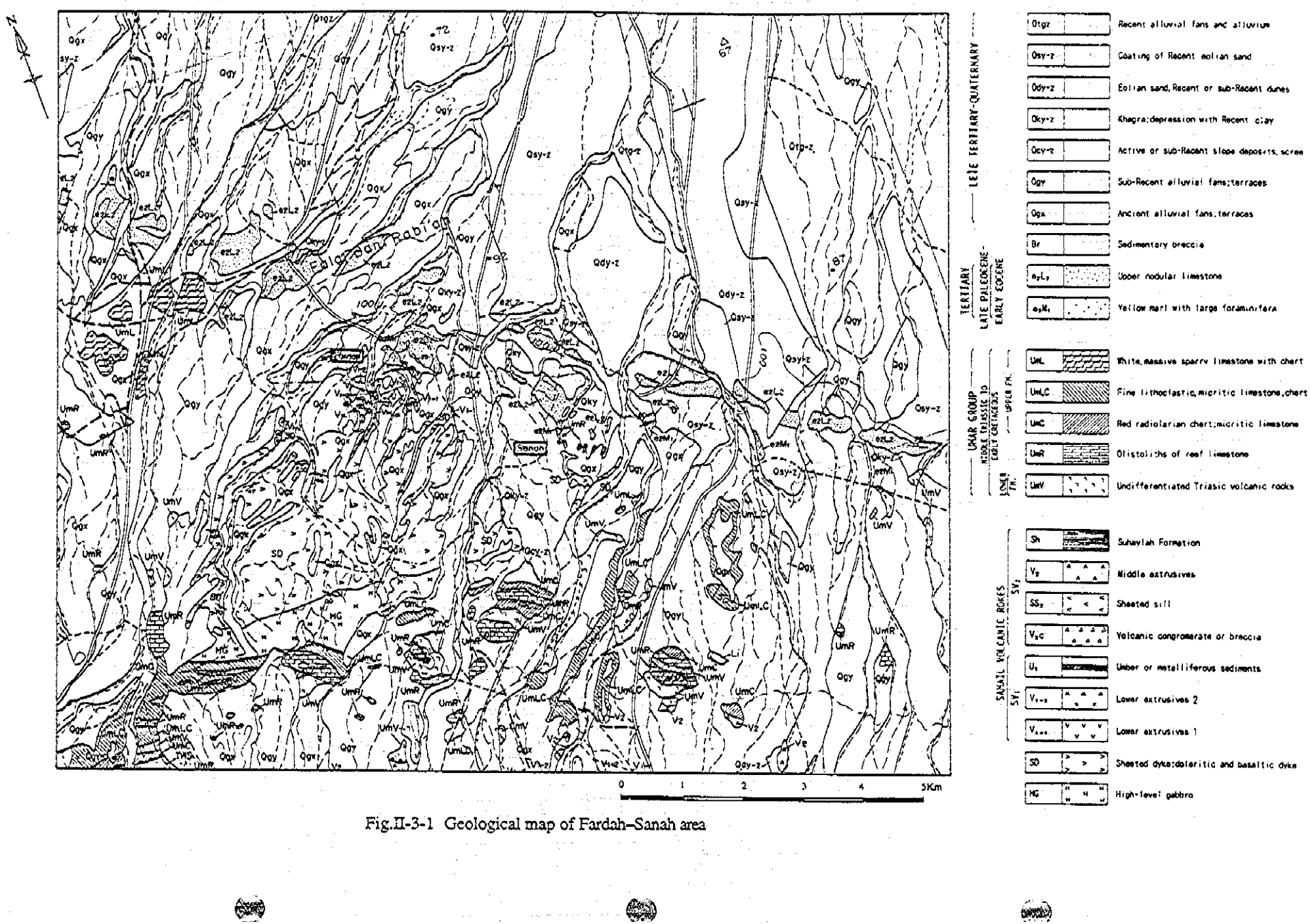
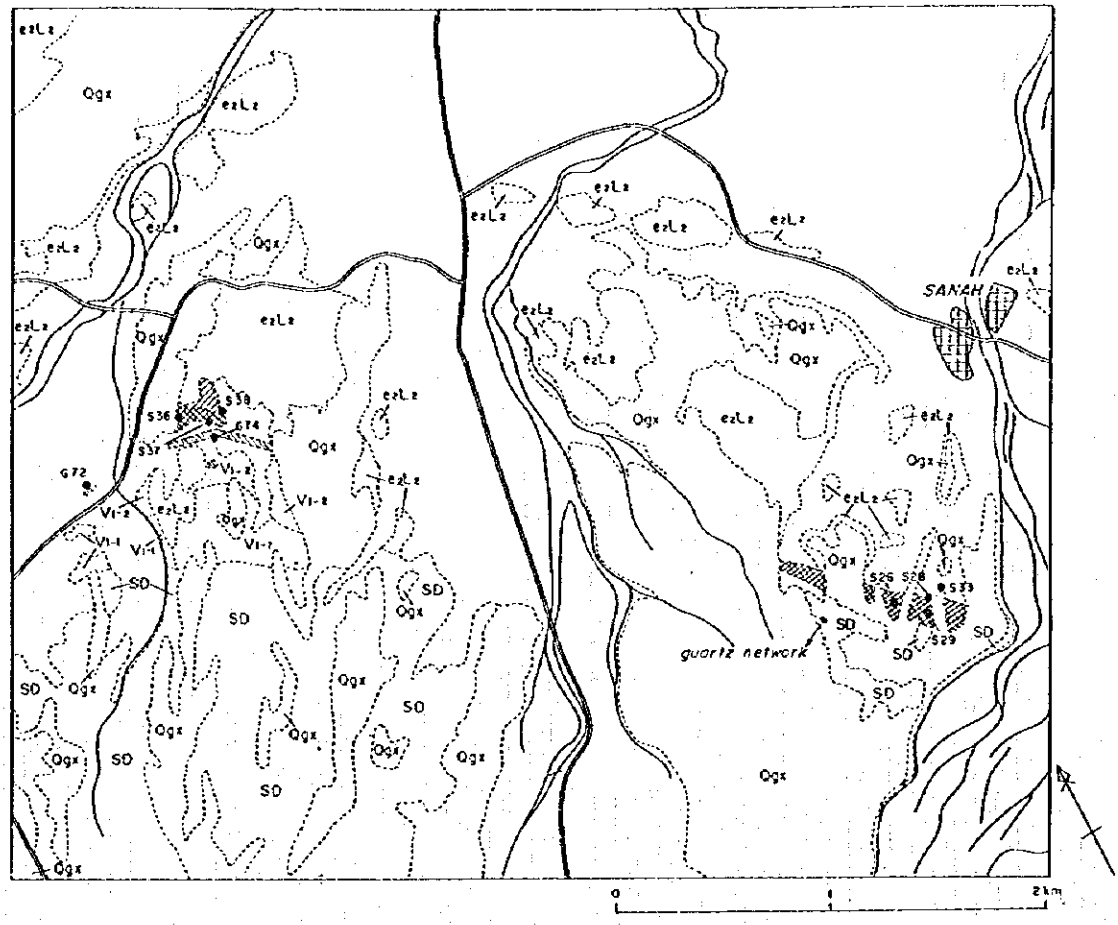


Fig.II-3-1 Geological map of Fardah–Sanah area



LITHOLOGY
QUATERNARY

- Wadi sediments and Sub-recent alluvial fans;terraces
- Ogx — Ancient alluvial fans;terraces

TERTIARY

- e_2L_2 — Upper nodular limestone

SAMAIL OPHIOLITE
Samail Volcanic Rocks

- V_{1-2} — Lower extrusives 2
- V_{1-1} — Lower extrusives 1

Sheeted-dyke complex

- SD — Sheeted dykes;dolerite

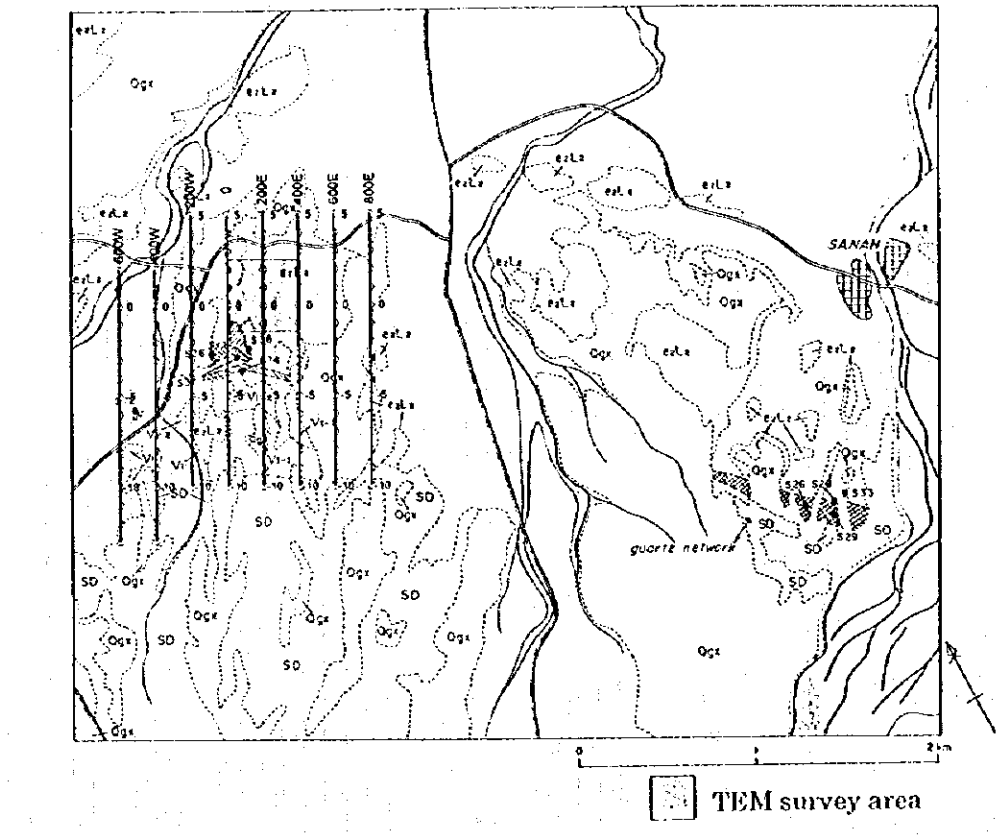
MINERALIZATION

- Gossan
- Argillized zone
- Gossanized metalliferous sediments

Other symbols

- ● S36 — Sample location (in Phase I)
- Road
- Wadi

Fig.II-3-2 Mineral showing of Fardah-Sanah area



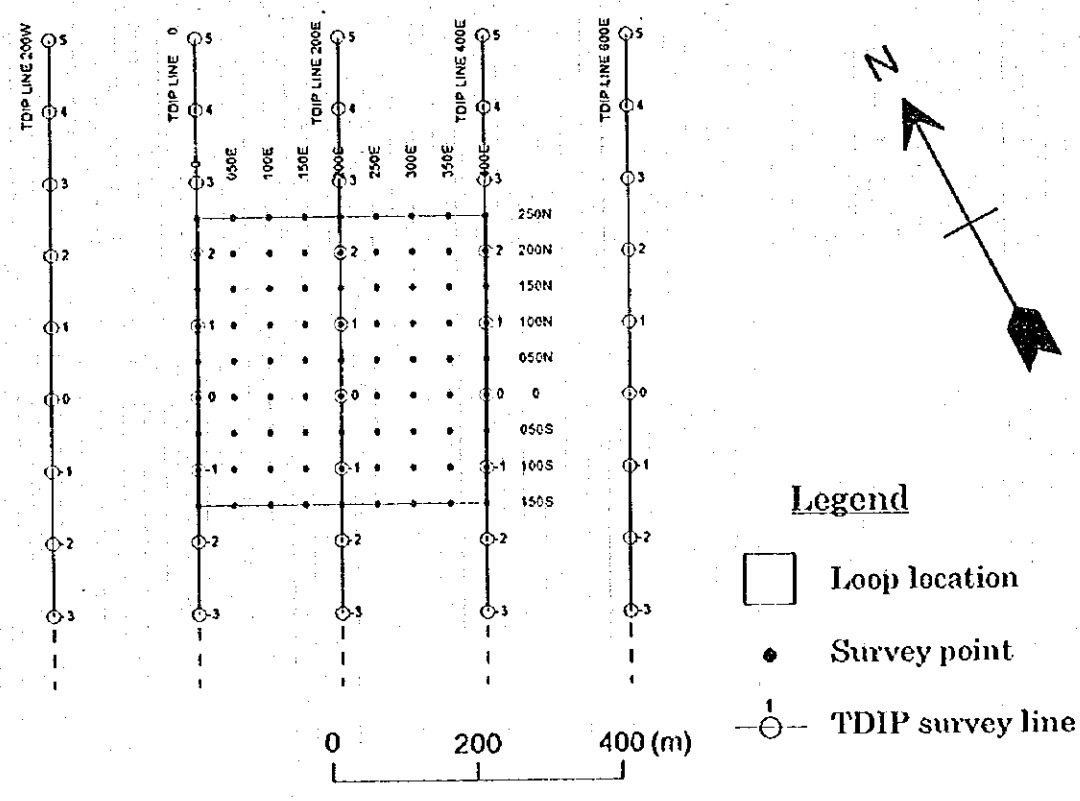


Fig.II-3-3 Geophysical survey locations in Pardah area

(2)Results of survey

(a)TDIP survey

The results are shown in Fig.II-3-4.

The resistivity shows in general relatively low values of less than 50 Ωm.

To the northeast of the gossanized zone, it can be seen a zone of low resistivity extended along a NW-SE direction. This low resistivity zone presents a width of about 250m.

Chargeability values of about 10mV/V are distributed in the same direction along the north margin of the above mentioned low resistivity zone. In the southwest corner of the area, a medium chargeability distribution zone is seen with values around 10mV/V.

In relation to the metal factor, a high metal factor zone higher than 60 is seen extended in a similar way as the low resistivity zone along the NW-SE direction.

(b)TEM survey

A TEM survey was carried out to investigate in detail a high metal factor zone detected by the TDIP survey in the north of the area along the NW-SE direction.

TEM response maps are shown in Fig.II-3-5.

The TEM anomalies are detected in the south and central part of the loop.

The borehole MJOB-F2 was located on the station 200E100S to clarify the nature of the shallow anomaly (Channel 13), and MJOB-F1 was selected on the station 200E100N to aim at the deep anomaly (Channel 20).

3-2-2 Drilling survey

(1) Outline of the survey

A low resistivity zone was detected by TDIP survey, but chargeability values were in general low. Based on this result, it is expected only oxidized ore (gossan). TEM survey was carried out within this low resistivity zone, thereafter, drilling survey was carried out within the detected TEM anomaly zone. Two drilling holes with a total length of 450.85m were conducted in the sites indicated in Fig.II-3-6.

(2) Results of the survey

Since no significant mineralization was intersected by this survey, the low resistivity anomaly is considered to be due to mudstone beds of Tertiary formation unconformably underlaying with Samail volcanic rocks. In addition, the gossan found in the Tertiary rocks seems to be formed by chemical weathering related to groundwater.

Because of the results in Fardah area and because same geologic and geophysical features were found in Sanah area, no drilling survey was carried out in Sanah area.

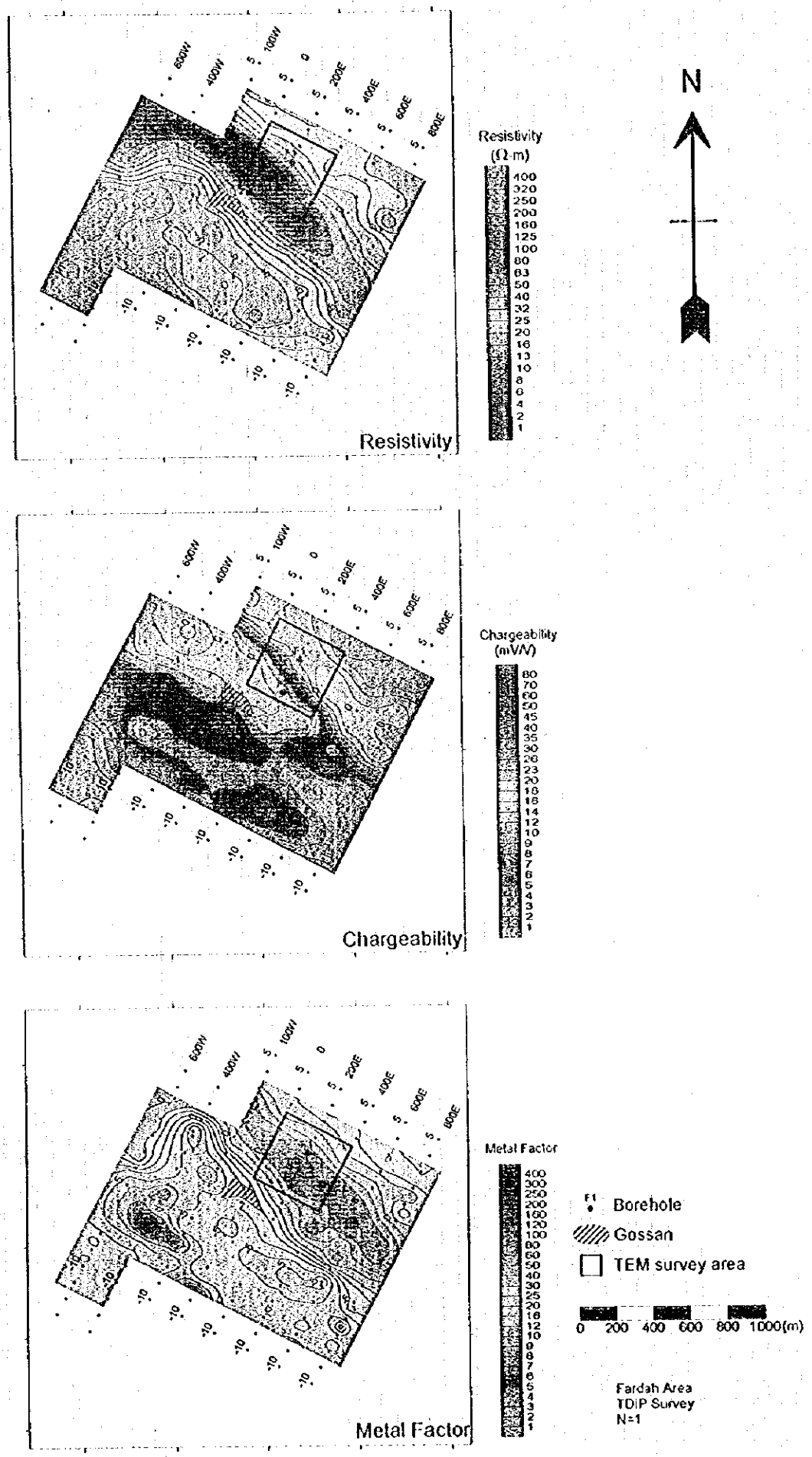
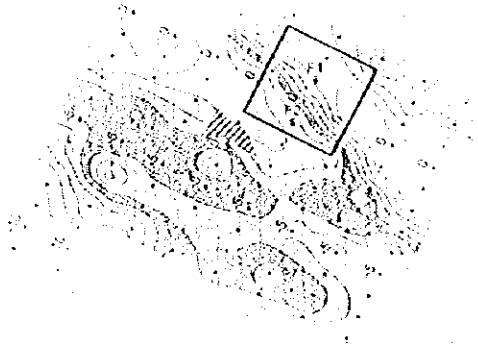
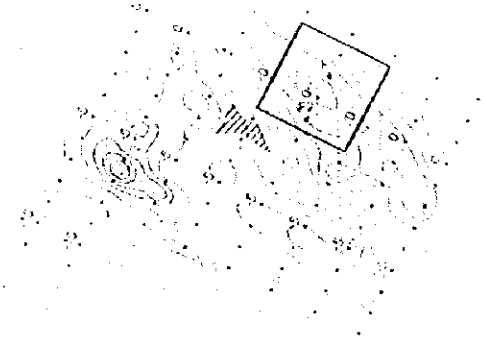


Fig.II-3-4 IP plane map at n=1 in Fardah area





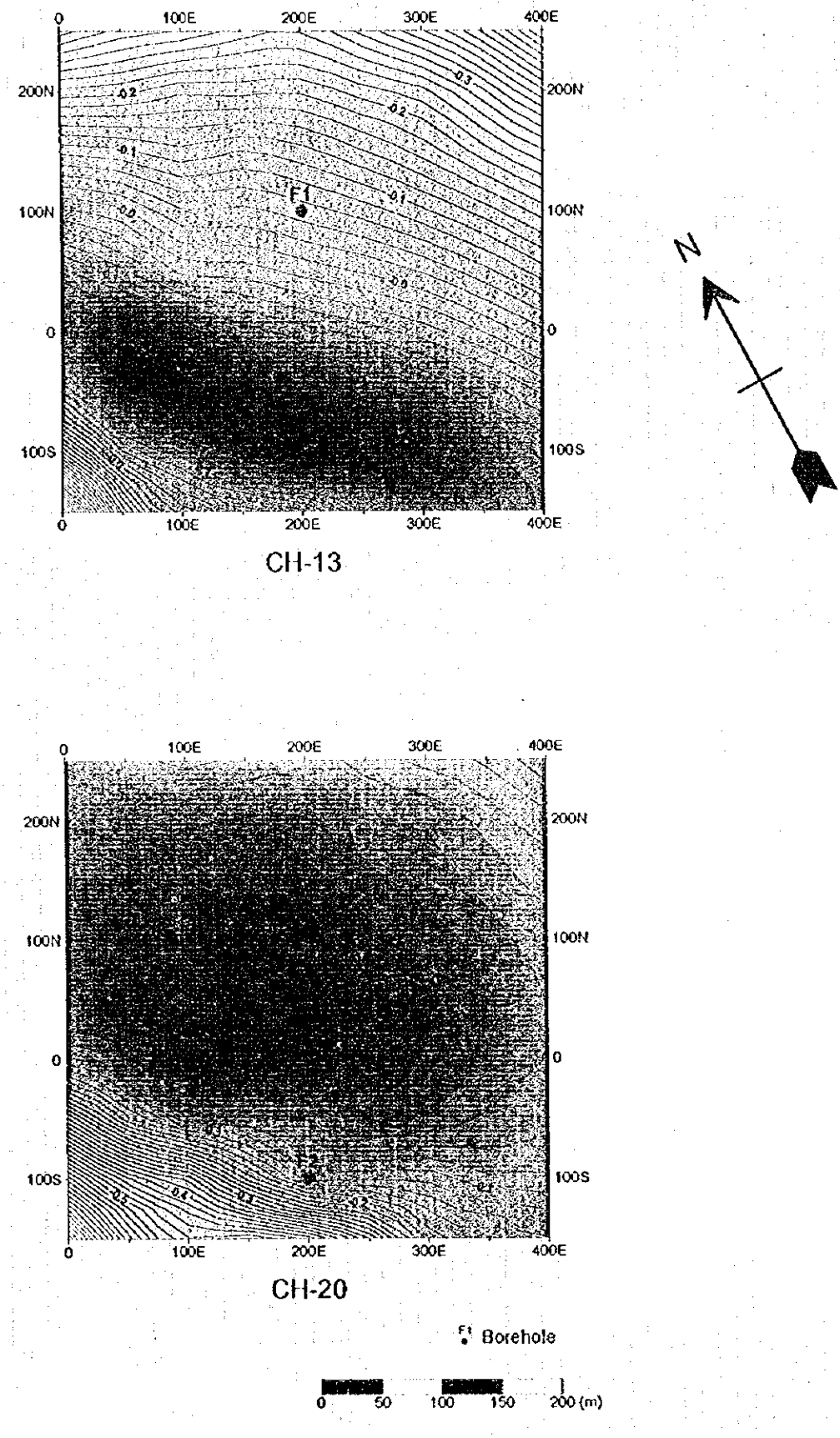
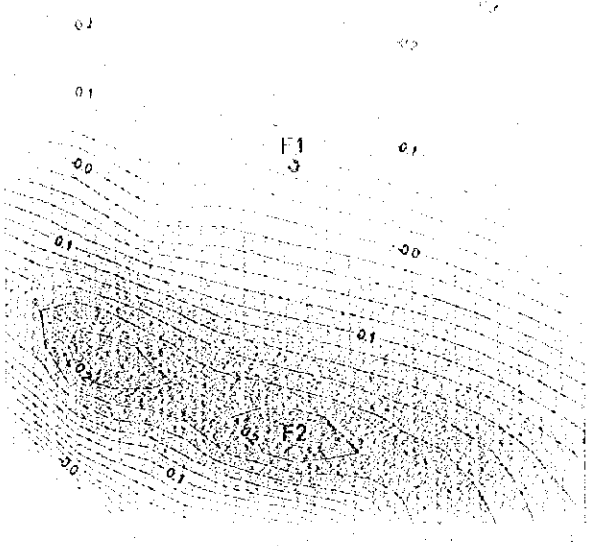
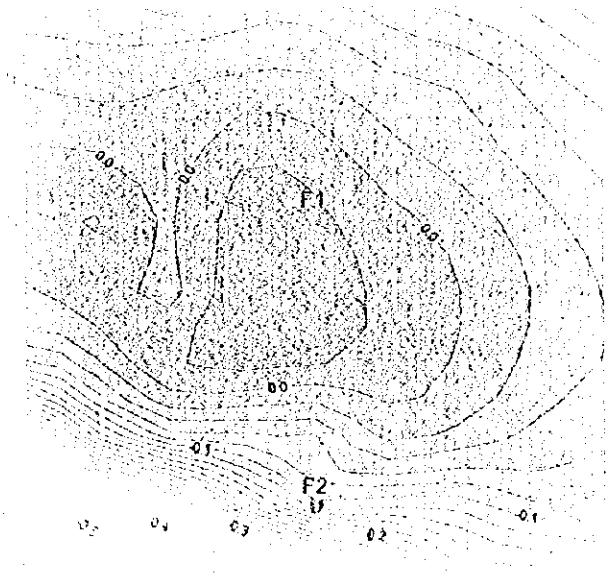


Fig.II-3-5 TEM response maps around 50m and 100m depth in Fardah area



CH-13



CH-20

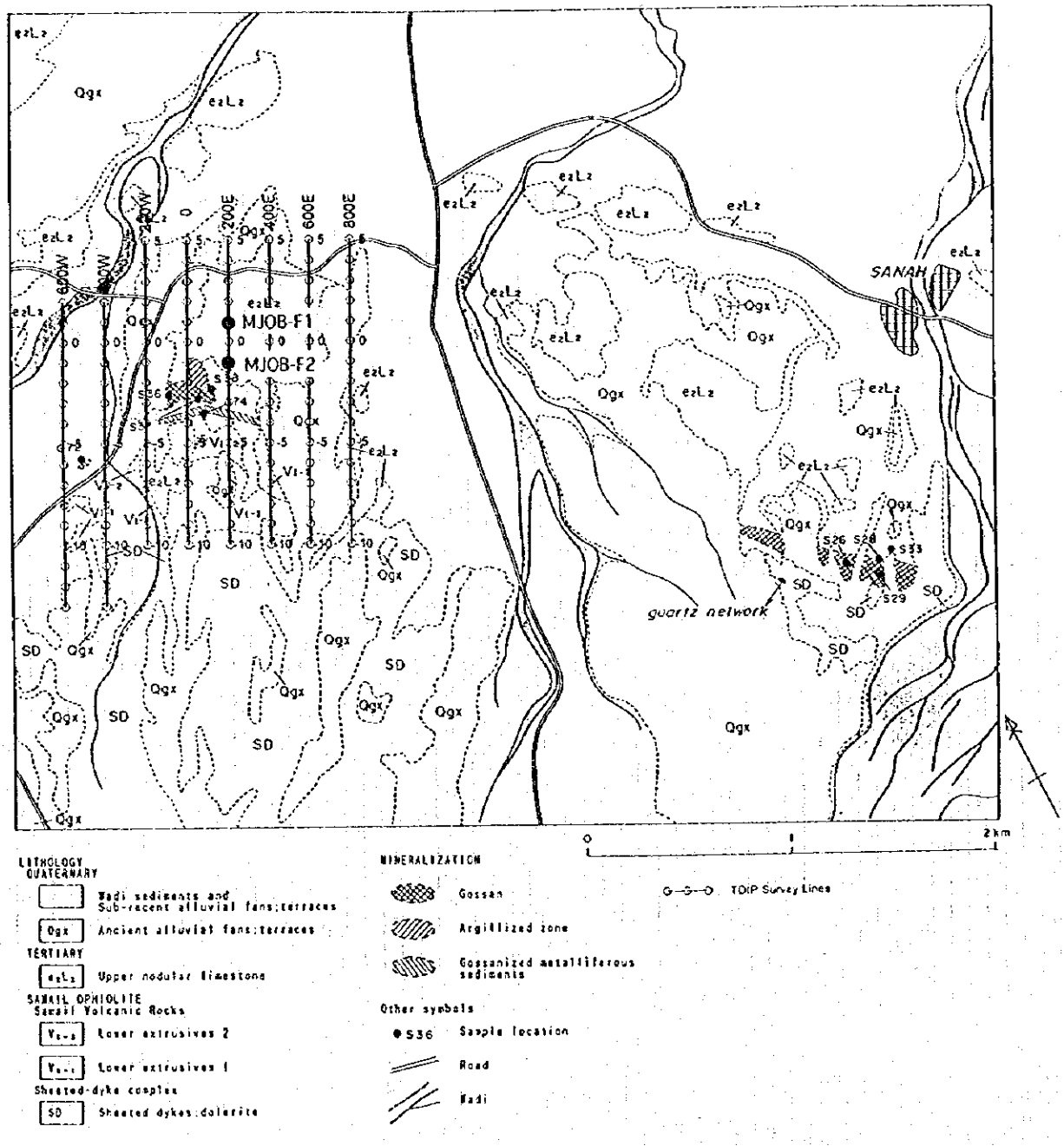


Fig.II-3-6 Location map of bore holes in Fardah area

3-3 Survey Results in Sanah Area

3-3-1 Geophysical survey

(1)Outline of survey

Geophysical TDIP and TEM surveys were conducted in this survey area according to the locations illustrated in Fig.II-3-7.

As for TDIP survey, a total of 10.5km line-length with seven survey lines separated 200m between each, were set along a N28°E direction. Measurements were done every 100m interval along the survey lines by adopting a dipole-dipole configuration and N factors (electrode separation) from 1 to 4.

In relation tor the TEM survey, two loops were set and the data was collected at every 50m inteval within a 400 mx400 m grid for each loop.

The loop adopted is a fixed type square loop of 600 m x 600 m and the total observed stations are 162 points.

(2)Results of survey

(a) TDIP survey

The results are shown in Fig.II-3-8.

The resistivity and chargeability distributions found in this area present very similar patterns as the ones found in Fardah area. The resistivity shows in general low values of less than 50 ohm-m. To the north side of the gossan, which is distributed along NW-SE, it is seen a low resistivity zone of about 300m in width distributed also along NW-SE. Another low resistivity zone is distributed in the south part of the area where resistivities of less than 10 Ωm are observed in some places.

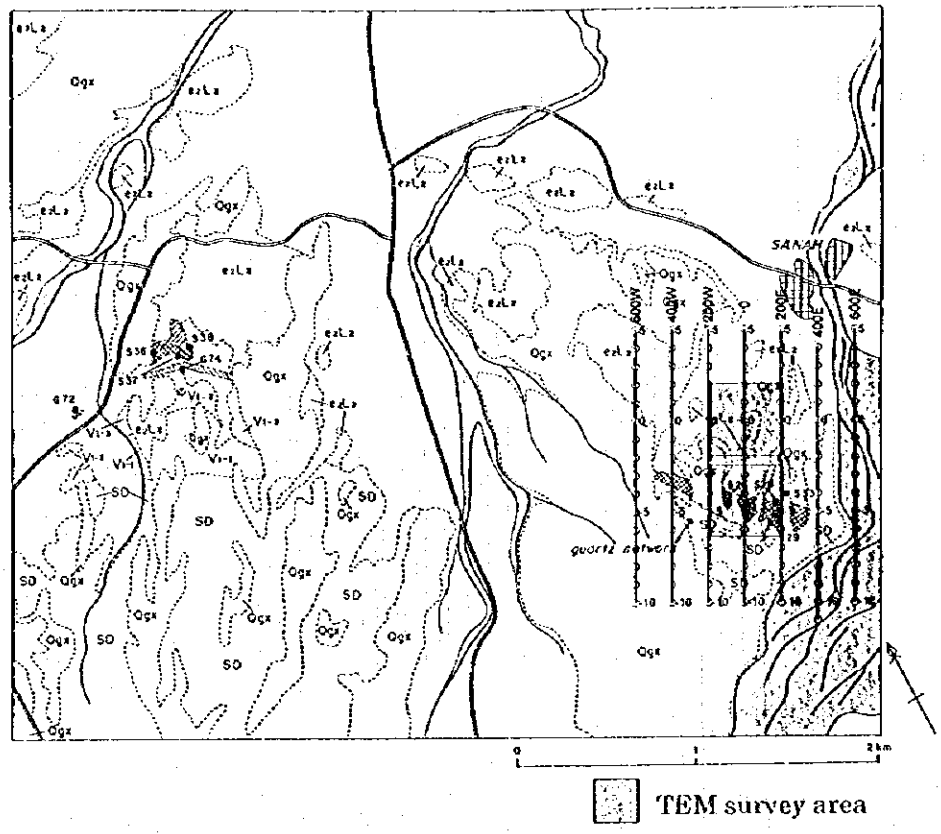
In relation to the chargeability, it can be seen in general low values, however, a somewhat medium chargeability zone of about 10 mV/V is seen adjacent to the north of the above mentioned low resistivity zone along theNW-SE direction.

Metal factor values above 100 can be also seen to the north of the low resistivity distribution with a pattern nearly similar to the resistivity distribution.

(b) TEM survey

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. TEM response maps are shown in Fig.II-3-9(1),II-3-9(2).

The distribution of the TEM responses is similar to that of Fardah area. A TEM anomaly was detected extending to the NW-SE direction in the central part of the area. This anomaly distribution is consistent with the low resistivity zone detected by TDIP survey.



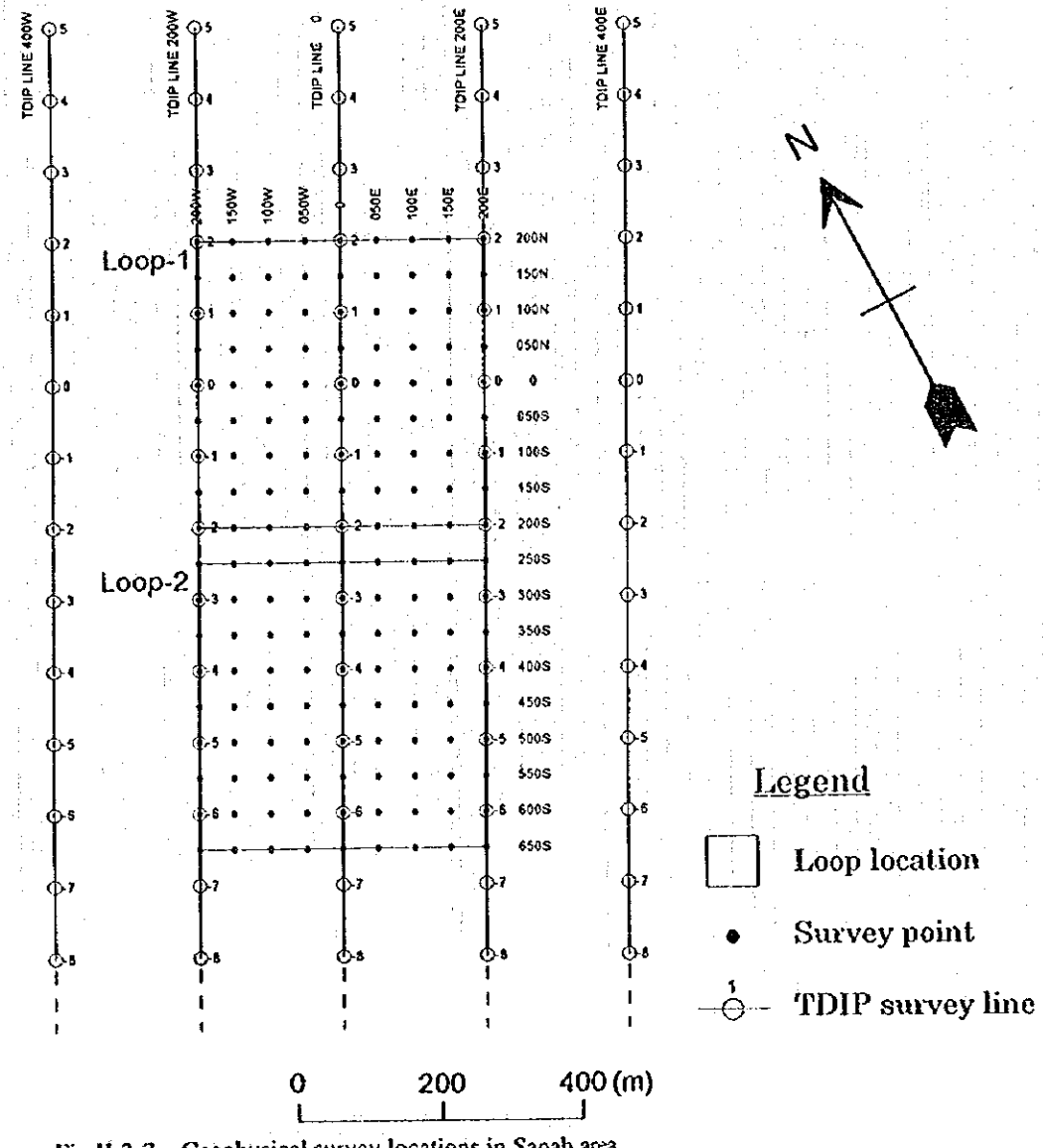


Fig.II-3-7 Geophysical survey locations in Sanah area

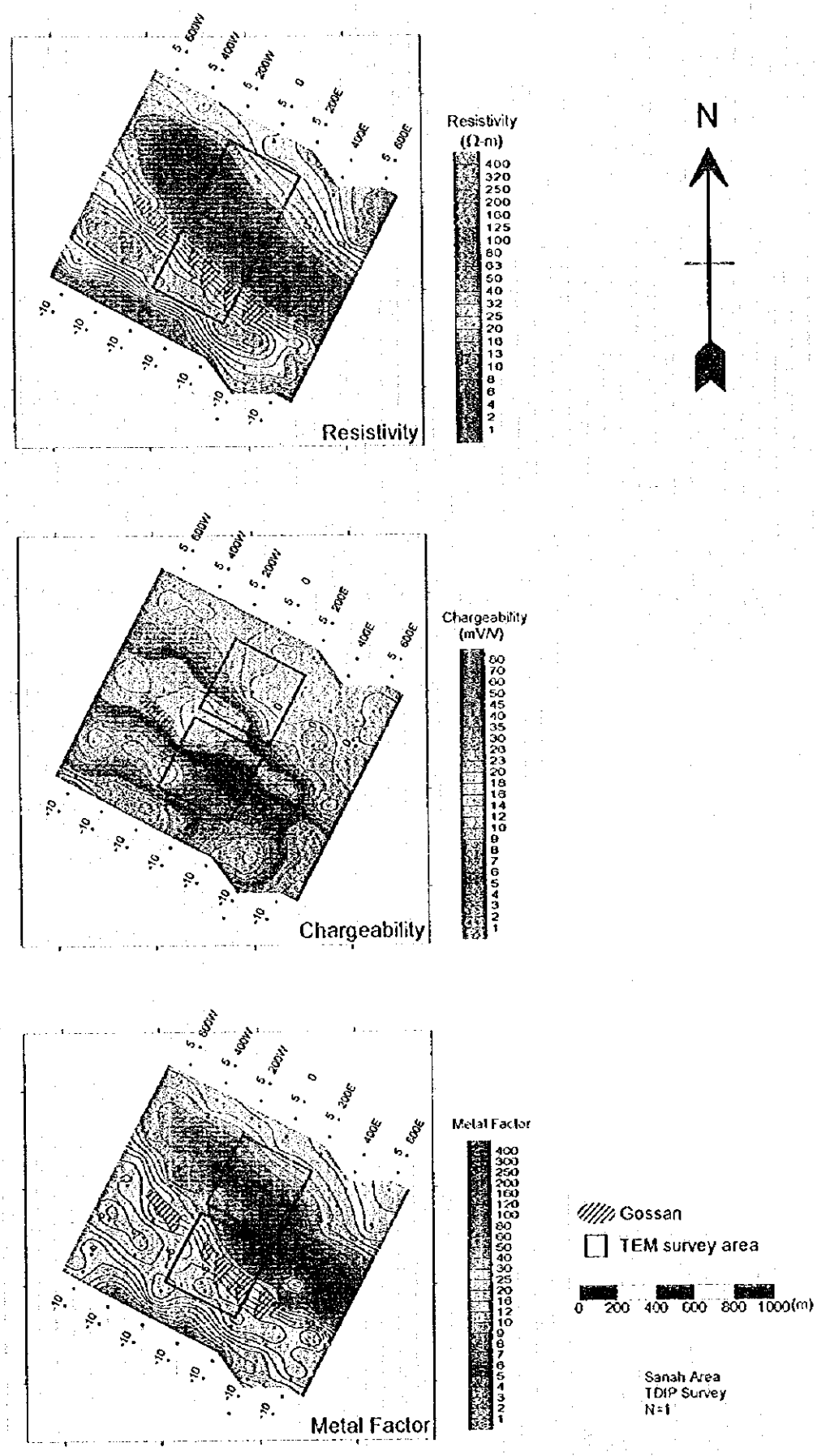
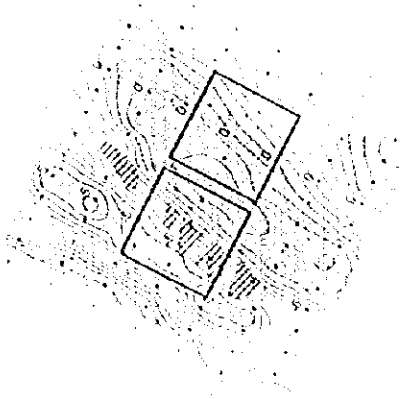
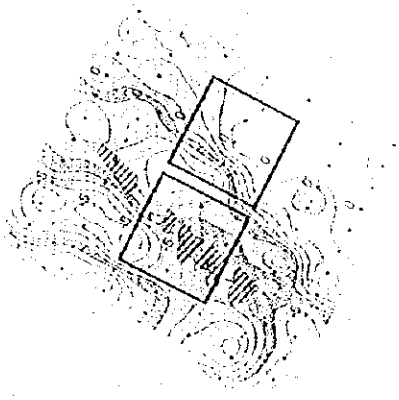


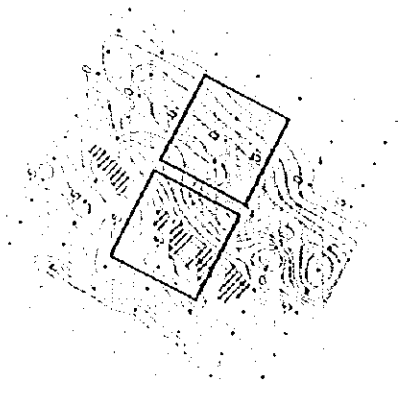
Fig.II-3-8 IP plane map at n=1 in Sanah area



Resistivity



Susceptibility



Metal Factor

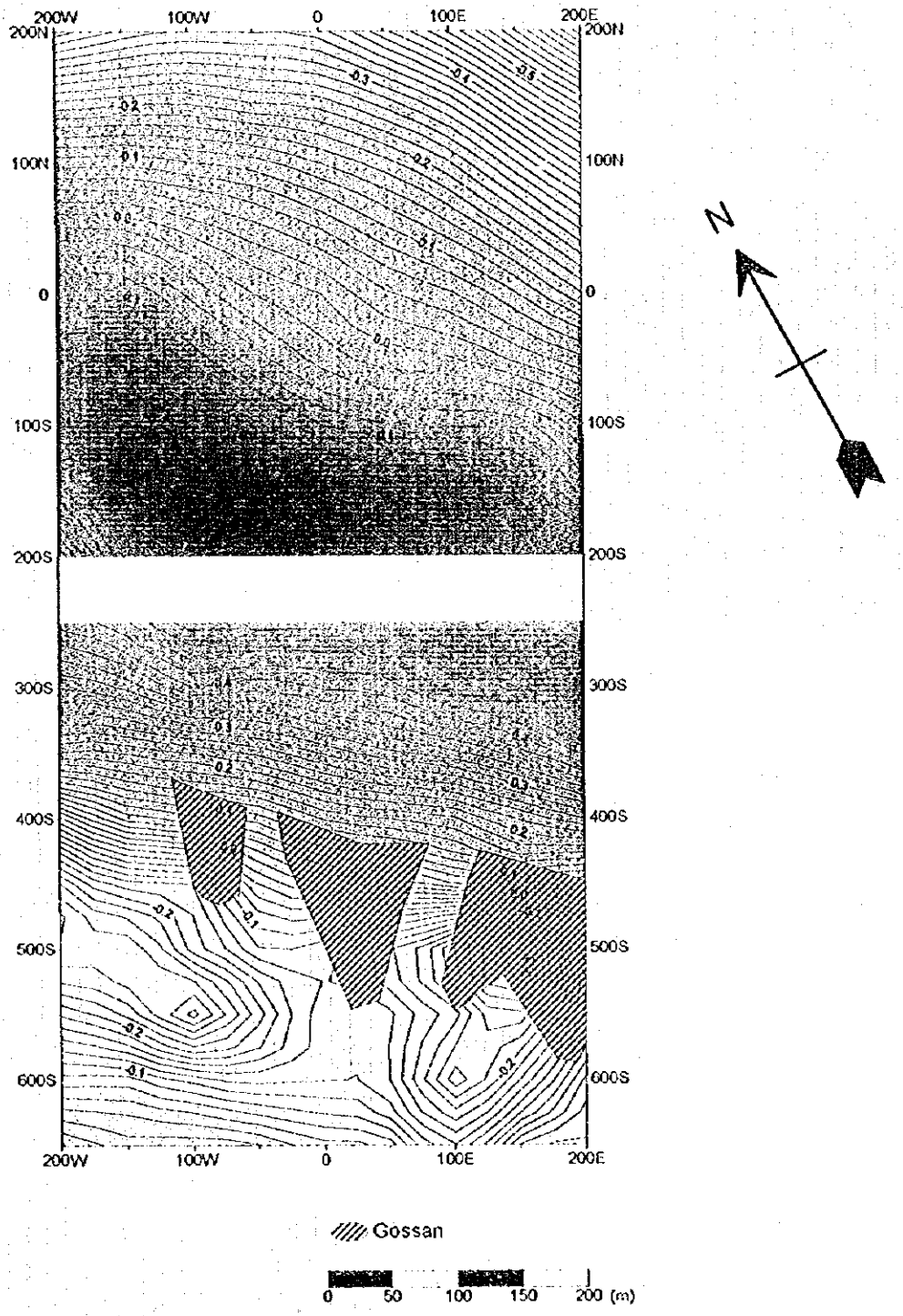
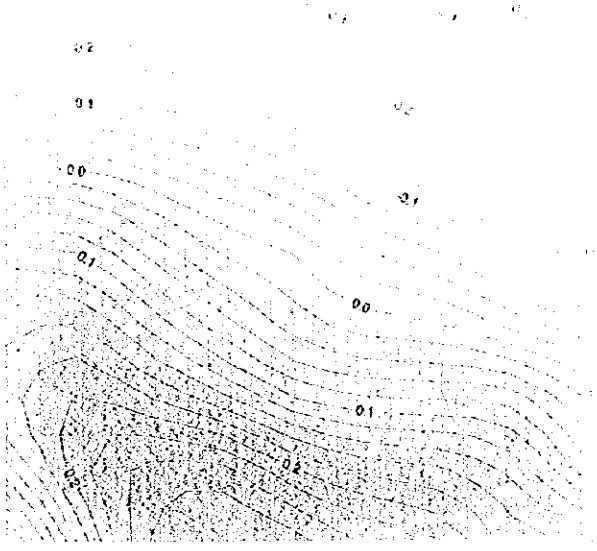
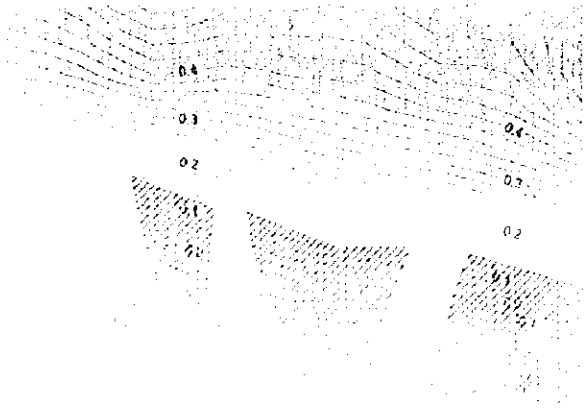


Fig.II-3-9(1) TEM response map around 50m depth in Sanah area





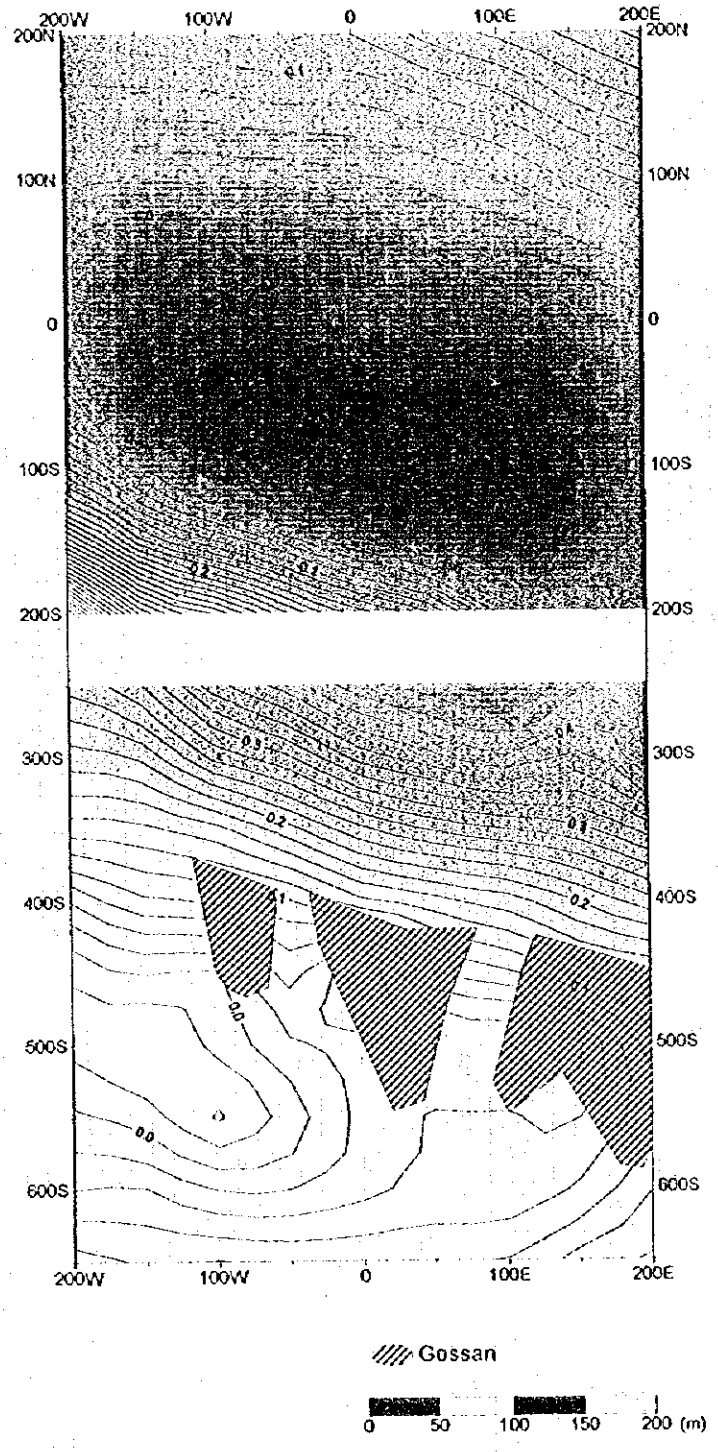
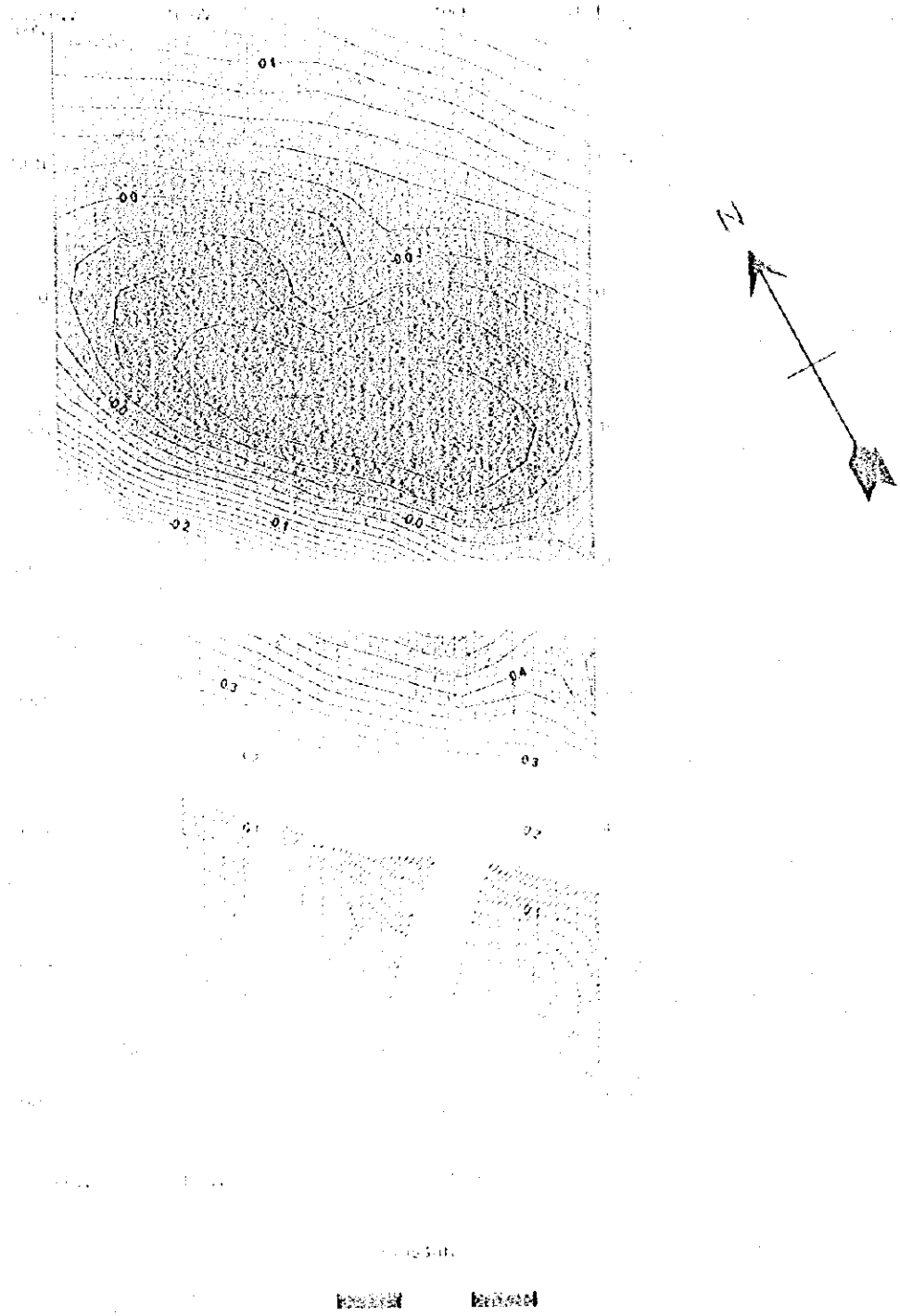


Fig.II-3-9(2) TEM response map around 100m depth in Sanah area


N

CHAPTER 4 DETAILED SURVEY IN DARIS - DARIS 3A5 AREA

4-1 Geology and Mineralization

4-1-1 Geology

The area is located in the north-central part of the project area.

Geology of the area consists of sheeted dykes and Samail volcanic rocks of Samail Ophiolite, Supra-Ophiolite sediments (Batinah Olistostromes) , Tertiary sedimentary rocks of autochthonous and Quaternary formations (Fig. II-4-1). The area is widely covered by Quaternary sediments and the Samail volcanic rocks being host rocks of massive sulphide deposits which crops out in this area in a limited way.

4-1-2 Mineralization

Daris and Daris 3A5 deposits were discovered in the area by previous works. Daris deposit is located in the central part of the project area and about 25km south of As Suwaiq. Small gossan outcrops in this deposit, in which a drilling survey conducted by Prospection Ltd. during 1976 to 1978 confirmed two distinctive mineralized blocks, differentiated as the eastern and western blocks (Fig.II-4-2 and II-4-3).

In the eastern block, the top of mineralized part of Lower volcanic rocks occurs as a gossan lying directly below a thin recent overburden. Only small amounts of massive sulphides are locally preserved below weathered Middle volcanic rocks. The primary ore is almost completely oxidized in this block. Prospection Ltd. estimated reserves is 0.6 Mt at 1.9% Cu.

The western block is downwarped along an inferred fault zone. Two boreholes (DH-12 and DH-26) drilled by Prospection Ltd. intersected a massive sulphide ore body. Drillings conducted later by BRGM in 1986 intersected this ore body by three boreholes: DA-6, DA-8 and DA-9 and encountered the maximum core length of 7m in DA-6 with average assays of 2.36% Cu, 0.15% Zn, 16g/t Ag and 0.86g/t Au. According to the results of these drillings, it is confirmed that this orebody is of a small scale and was formed in a narrow (20 to 50 m wide) semi-graben which stretches westwards over at least 200 m. Geological reserves of the western block estimated by BRGM is a 145,000t of sulphide ore averaging 1.95% Cu, 0.21% Zn, 12g/t Ag and 0.6g/t Au.

In Daris 3A5 deposit, a gossan with high gold content was found and a drilling survey was carried out around the gossan firstly by BRGM in 1986. Borehole 3A-3 located 40m north of the gossan, intersected massive sulphide body from 58 to 60.25m in a slightly sheared zone. The 2.25 m thick (true

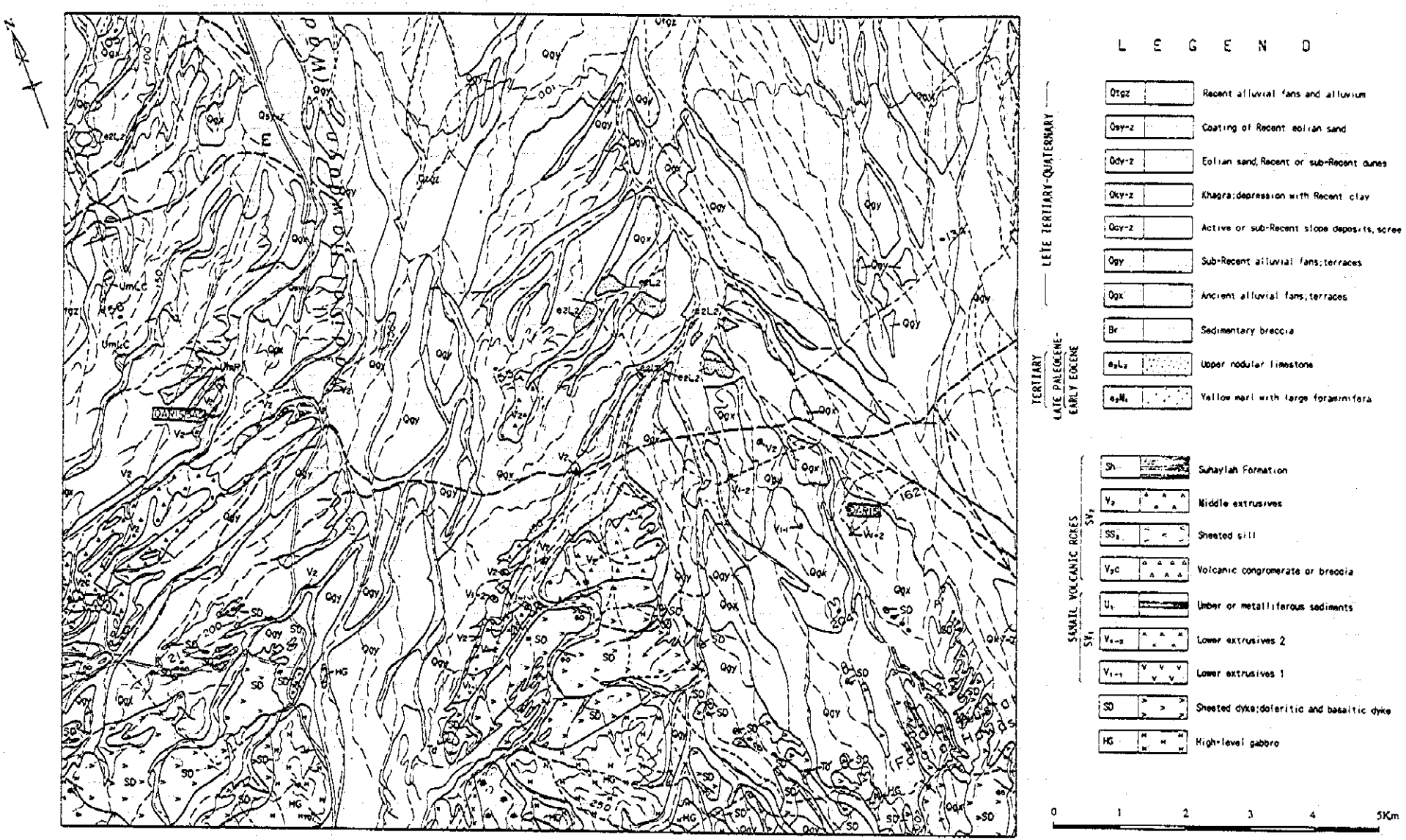


Fig.II-4-1 Geological map of Daris–Daris3A5 area

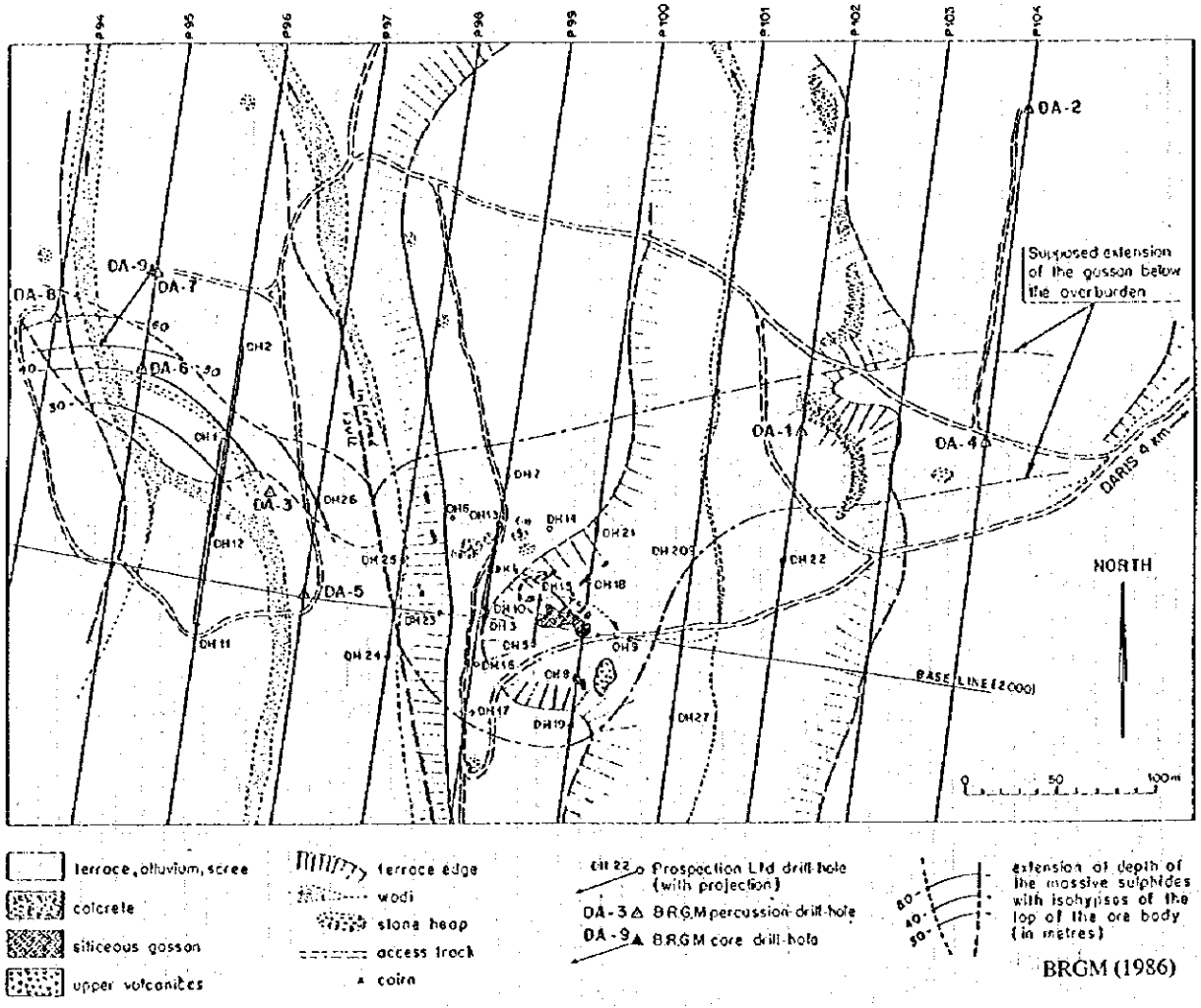
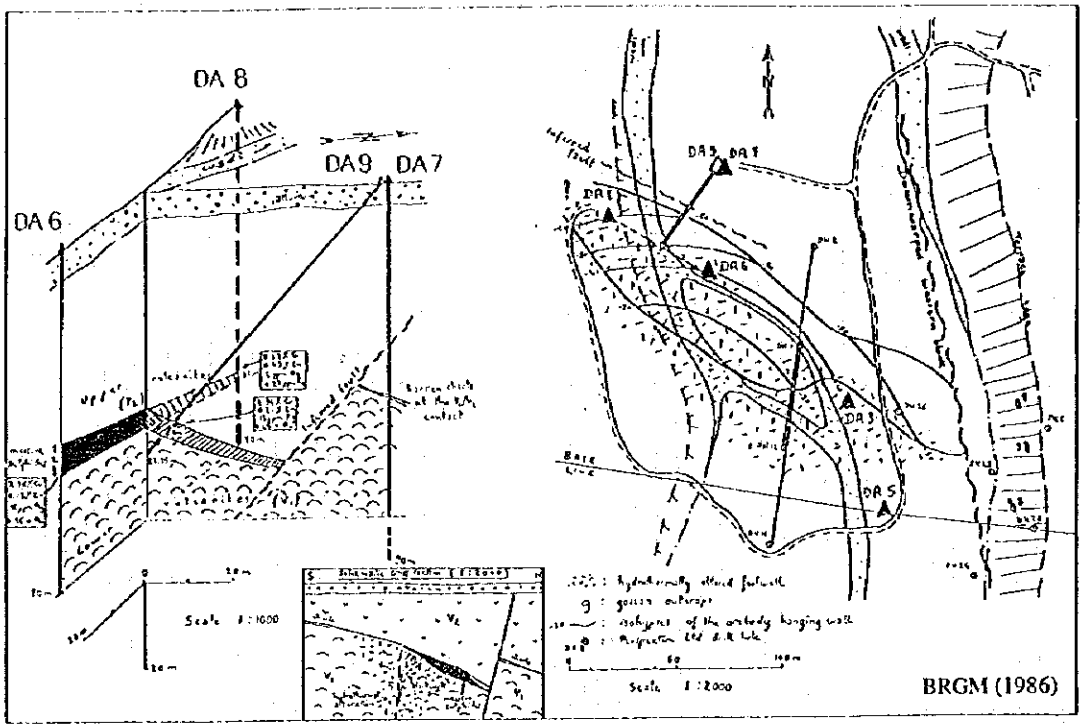


Fig.II-4-2 Location map of previous surveys in Daris prospect area



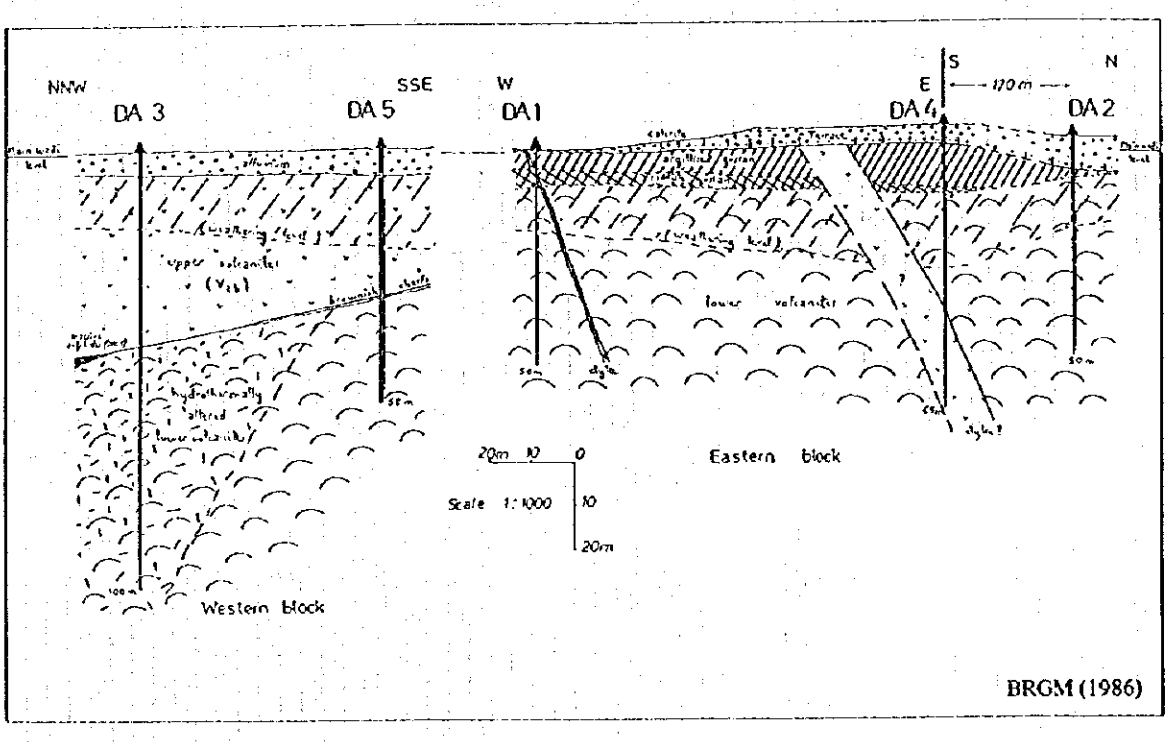


Fig.II-4-3 Cross section of borehole site in Daris prospect area

thickness is 1.5m) sulphide-rich section assays 0.71%Cu, 2.71%Zn, 32g/t Ag and 0.4g/t Au. Bore hole 3A-4 was drilled on the same place as 3A-3 but inclined southwestwards and intersected oxidized mineralization from 21.2 to 31.6m in the form of an iron oxide-rich siliceous gossan. The base metal content of this ore is low, however precious metal grades were as interesting as 2.8g/t Au and 28.6g/t Ag over a thickness of 9m. Borehole 3A-2 also intersected an oxidized mineralization, and a 8m thick section assays 3.2g/t Au and 33.5g/t Ag.

After the exploration works by BRGM, the Ministry of Petroleum and Minerals and Oman Mining Company(OMCO) carried out a drilling survey. This survey proved the details of the body dipping northeastwards but thin and small in size, as shown in Fig.II-4-4. The estimated ore reserves calculated on the basis of above drilling surveys by OMCO is a 61,146t of massive sulphide ore averaging 5.18% Cu, 0.95g/t Au and a 31,680t of oxidized ore averaging 3.21g/t Au and 0.09% Cu.

4-2 Survey Results in Daris Area

4-2-1 Geophysical survey

(1)Outline of survey

The TDIP and TEM survey were conducted in this survey area according to the lovation illustrated in Fig.II-4-5.

As for the TDIP survey, a total of 44.0km line-length with fifteen survey lines were set in a N10°E direction and with a separation of 200m between each line.

Measurements were taken every 100m interval along the survey lines by adopting a dipole-dipole configuration and N factors (electrode separation) set from 1 to 4.

In relation to the TEM survey, one loop was set in the central part and three loops in the northern part of the Daris are. The data were collected every 50m inteval within a 400 mx400 m grid for each loop. The loop adopted is a fixed type square loop of 600 m x 600 m and the total observed stations are 324 points.

(2)Results of survey

(a) TDIP survey

The results are shown in Fig.II-4-6(1),II-4-6(2).

Regarding the resistivity distribution of the area, it can be in general stated that, from south to north it is seen a distribution of relatively low values of less than 50 ohm-m, followed by a high resistivity zone around 100 Ωm, then a low resitivity, finally followed by a medium resistivity distribution (50 to 100 Ωm). These low and high distributions present a NW-SE trending both at n=1 and n=3 level. In the gossan area as well as its surroundings, a low resistivity distribution of less than 50 Ωm can be seen at n=1 level, specially low (less than 20 Ωm) in the vicinity of MJOB-D3 and MJOB-D4.

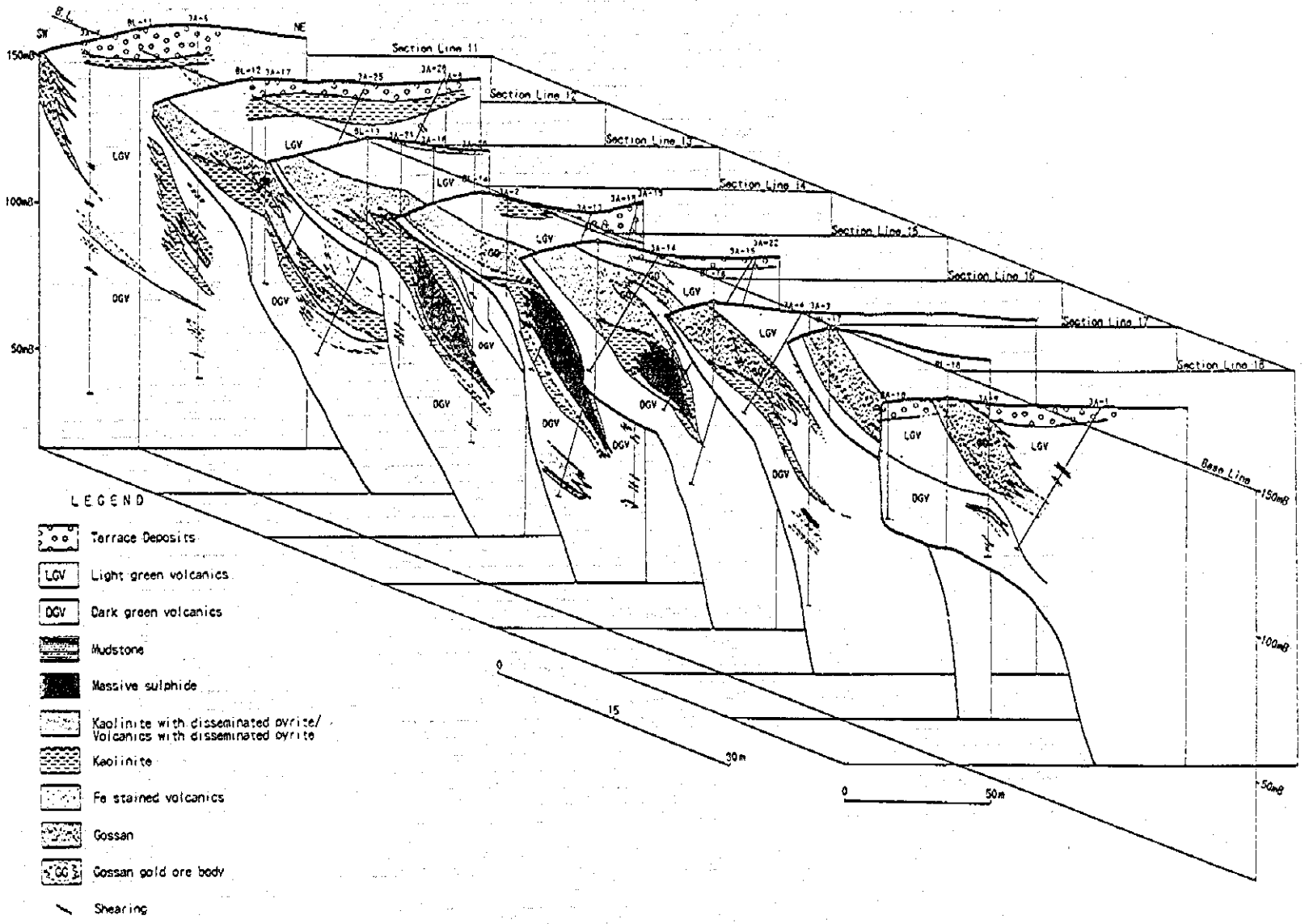
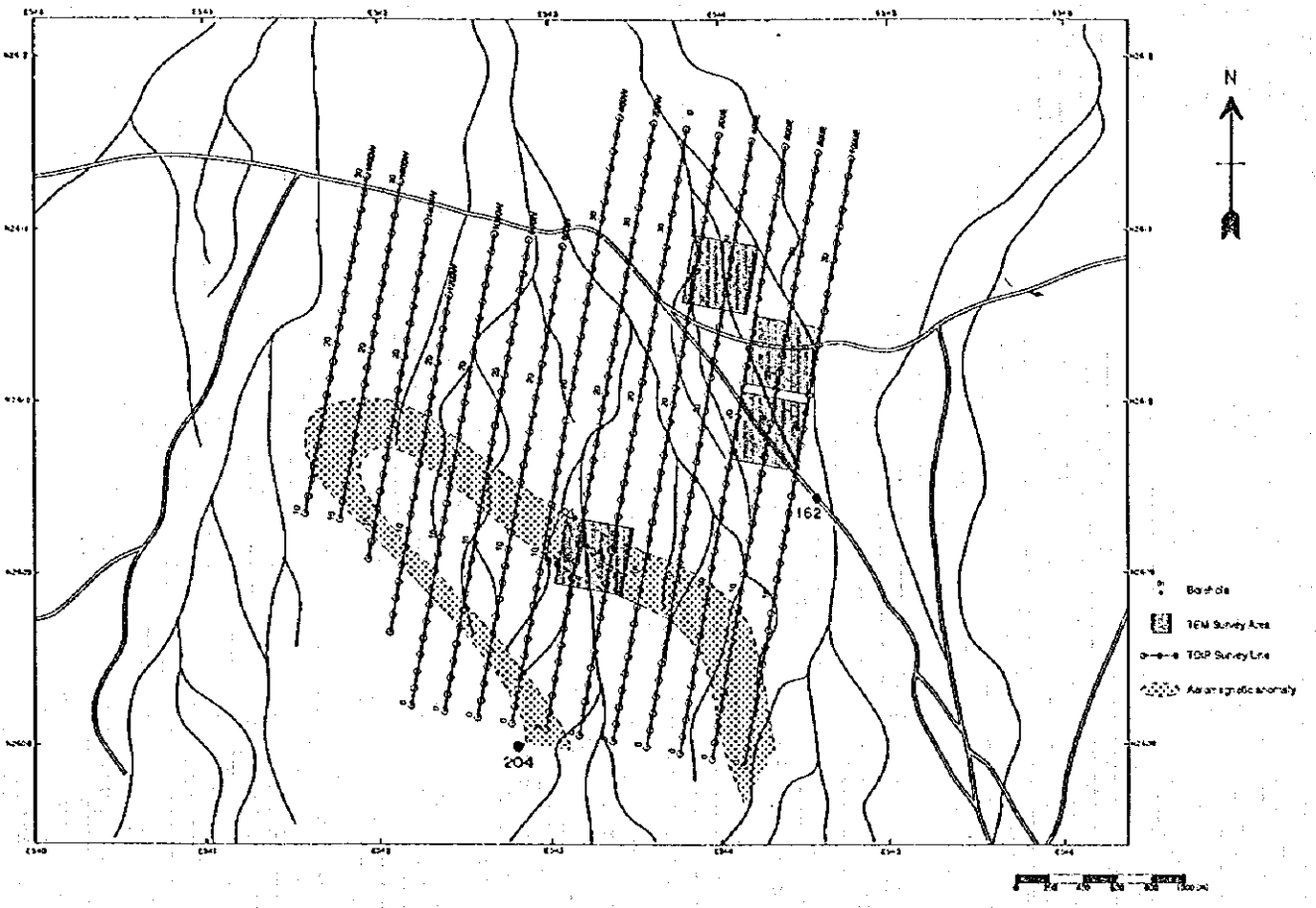


Fig.II-4-4 Panel diagram of Daris 3A5 deposits



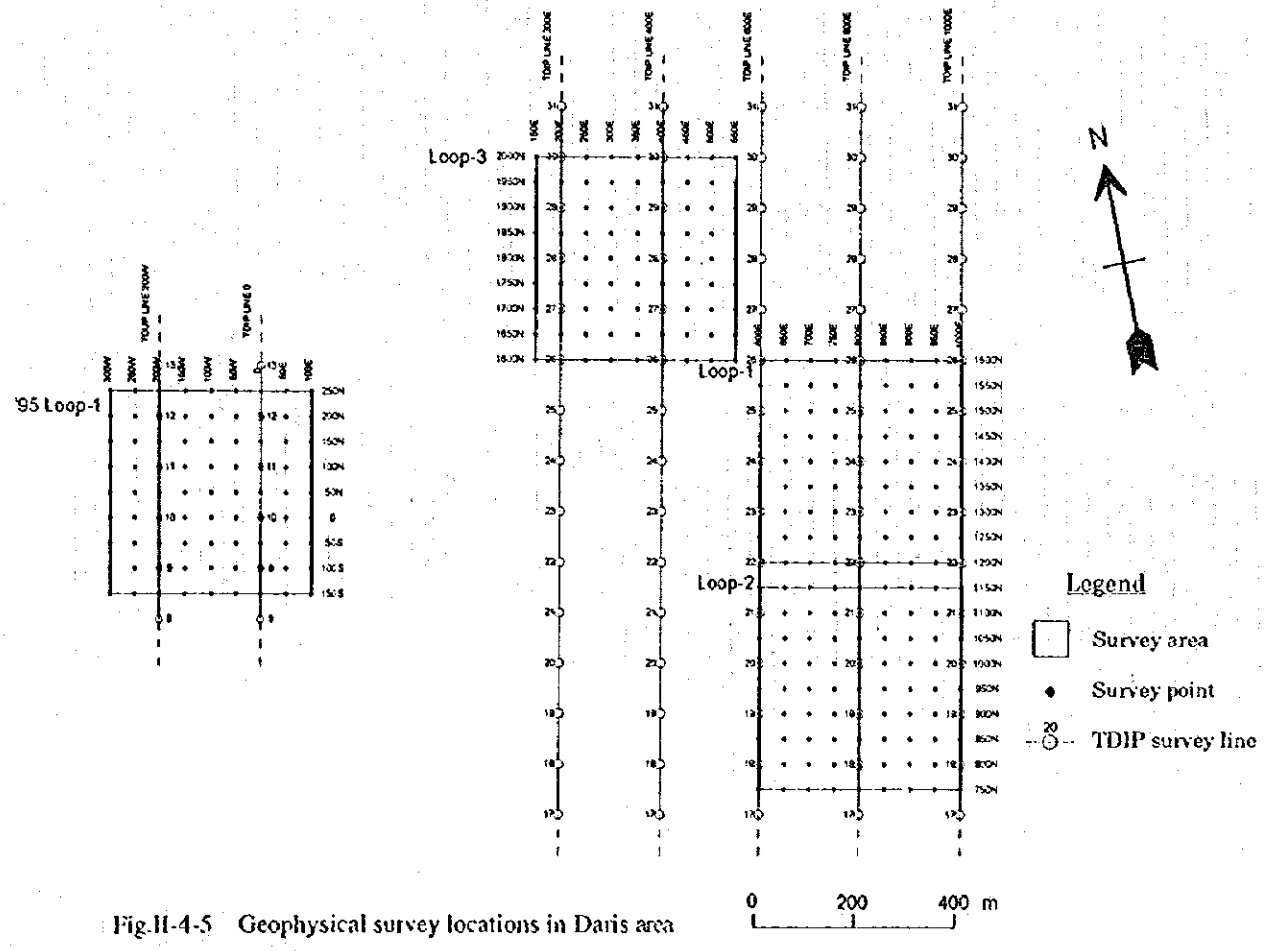


Fig.II-4-5 Geophysical survey locations in Daris area

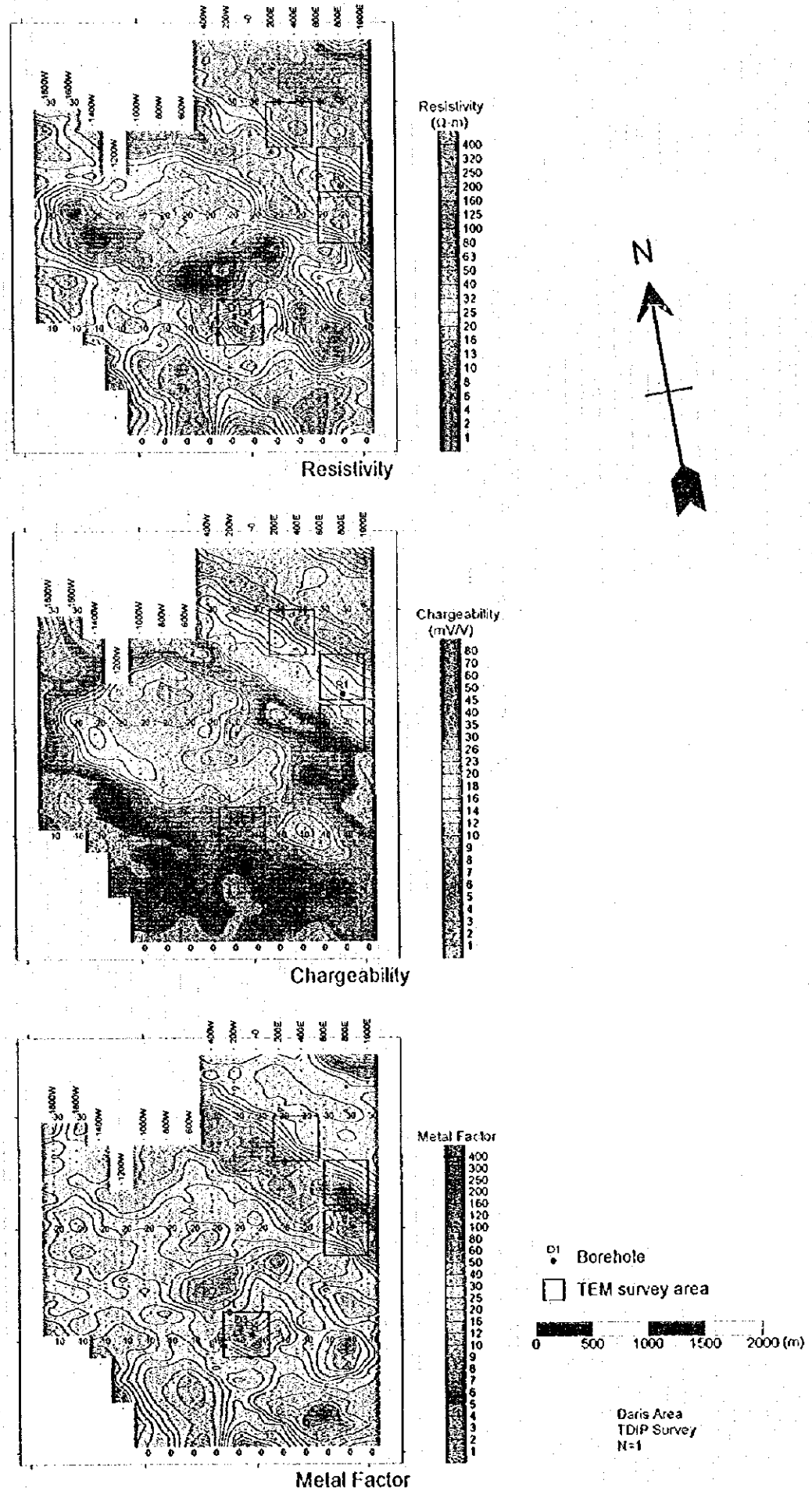
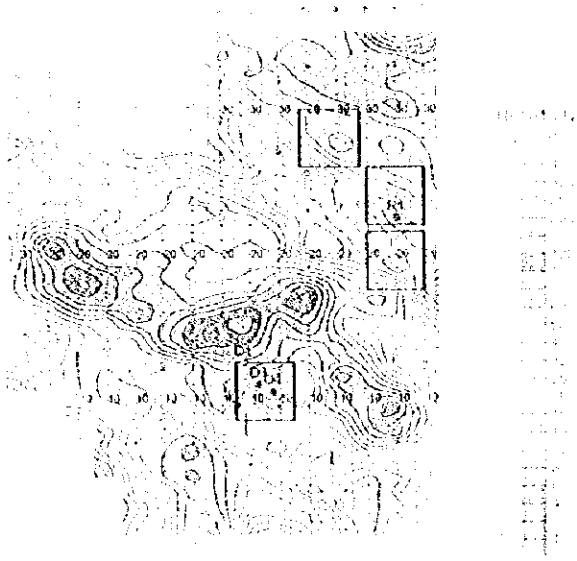
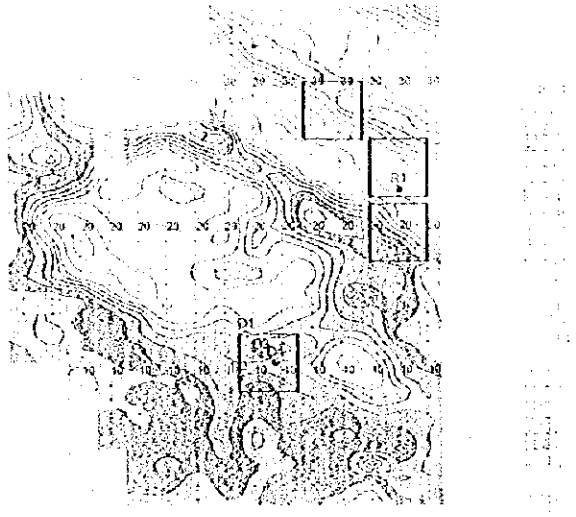


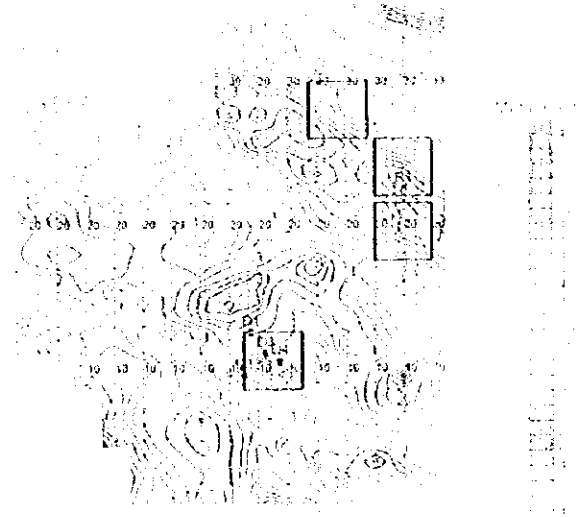
Fig.II-4-6(1) IP plane map at n=1 in Daris area



Resistivity



Chargeability



Metal Factor

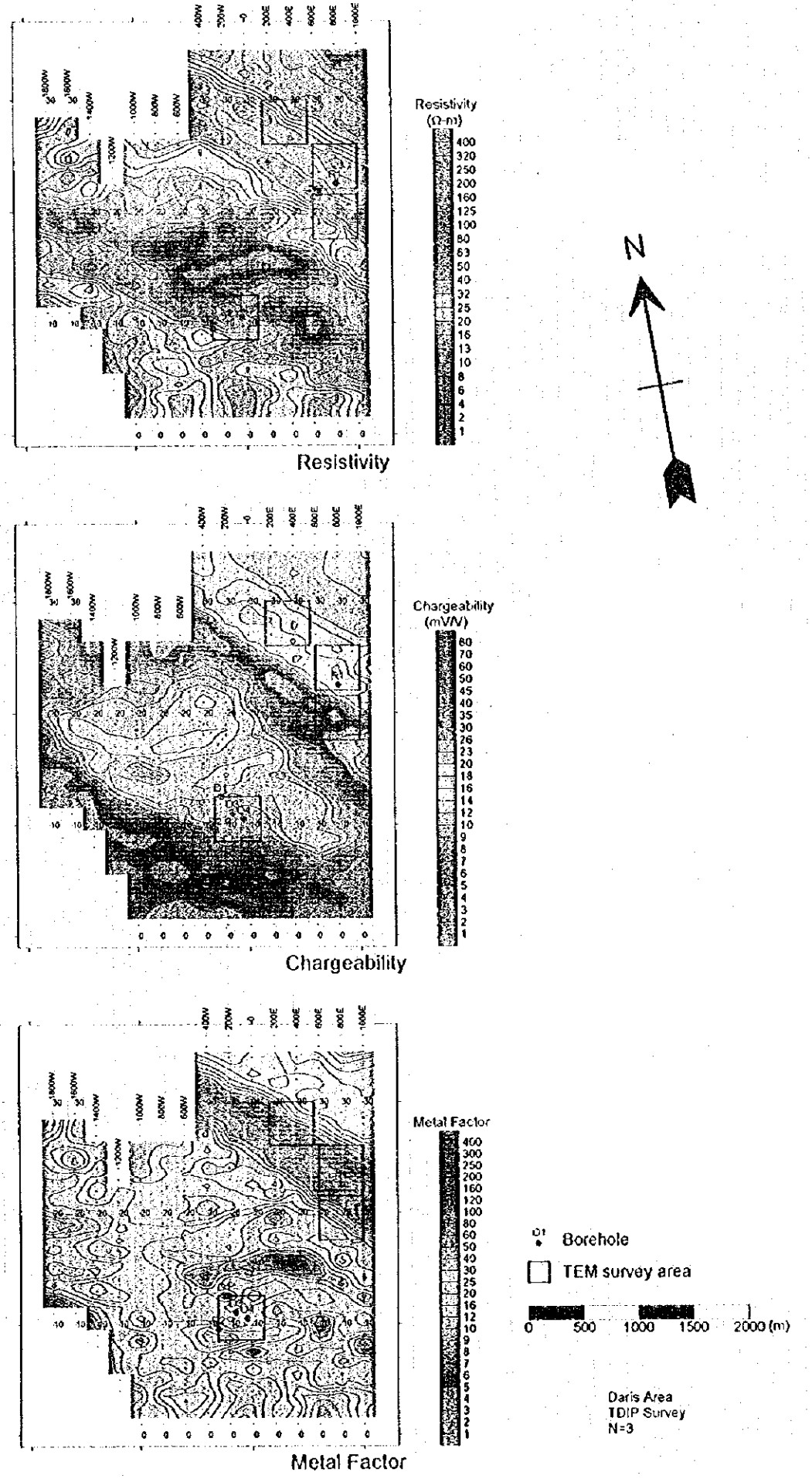
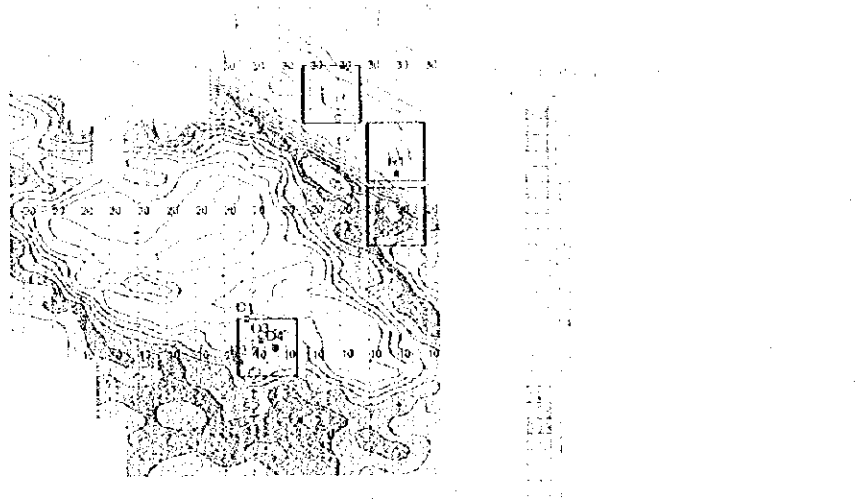
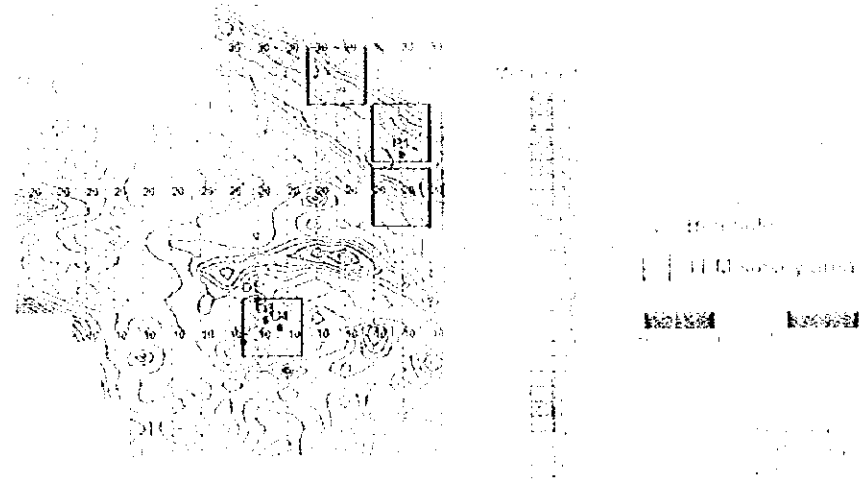


Fig.II-4-6(2) IP plane map at n=3 in Daris area

Resistivity



Chargeability



Metal Factor

The chargeability distribution shows in general the same correlation observed as the resistivity, for instance, in the central zone where high resistivity values are seen, relatively high chargeabilities above 10 mV/V are seen. In the southern zone of the low resistivity values, also low chargeabilities of less than 6mV/V are seen. The aero-magnetic anomaly zone runs parallel to the boundary of the above mentioned high and low chargeability zones. The gossan is located at the boundary. A high chargeability zone trending to NW-SE is distinctly distributed in the northern part of the area.

The metal factor shows almost the same pattern as the resistivity. Metal factor anomaly zones having values above 30 are distributed in the gossan as well as the surrounding zones, in the south and north of the area at n=1 level, and in the north at n=3 level.

(b) TEM survey

1.Central part of the area

The results are shown in Fig.II-4-7. A TEM survey was carried out to clarify in more detail the nature of the high chargeability and high metal factor anomalies detected in the vicinity of the gossan. TEM anomalies which show complicated pattern are distributed in the south and central part of the loop. Four Drilling site were selected within the TEM anomalies zone and its boundaries. However, significant mineralization was not found in the boreholes.

It is concluded that the anomalies are produced by fractured zone and/or faults

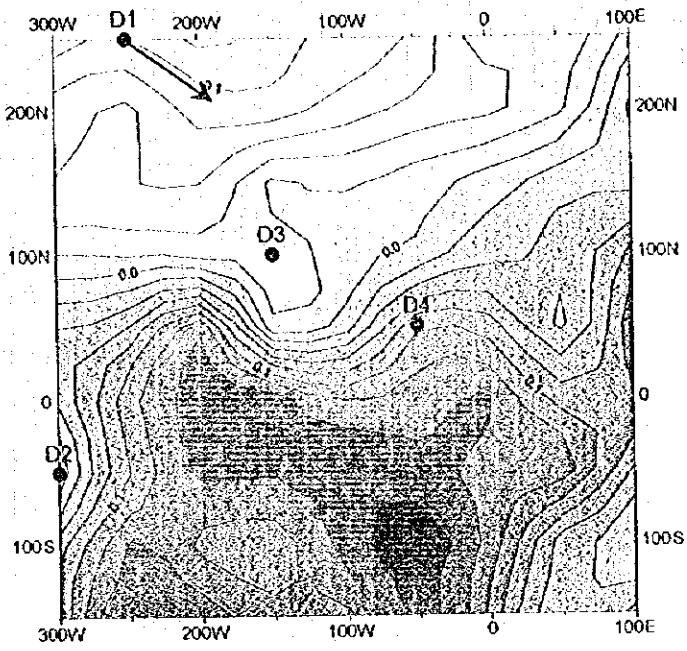
2.Northern part of the area

A TEM survey was carried out to clarify the nature of the high metal factor zone oriented towards NW-SE in the norther part of Daris area. The results are shown in Fig.II-4-8(1) and II-4-8(2).
The TEM anomalies detected at the south of loop 1, at the north of loop 2 and at the southwest of loop 3 seem to be continued each other and form a NW-SE trending anomaly zone.
This anomaly distribution presents good correlation with the NW-SE trending high metal factor zone detected by TDIP survey. To check the nature of this anomaly the borehole MJOB-R1 was located nearly the center of the anomaly zone.

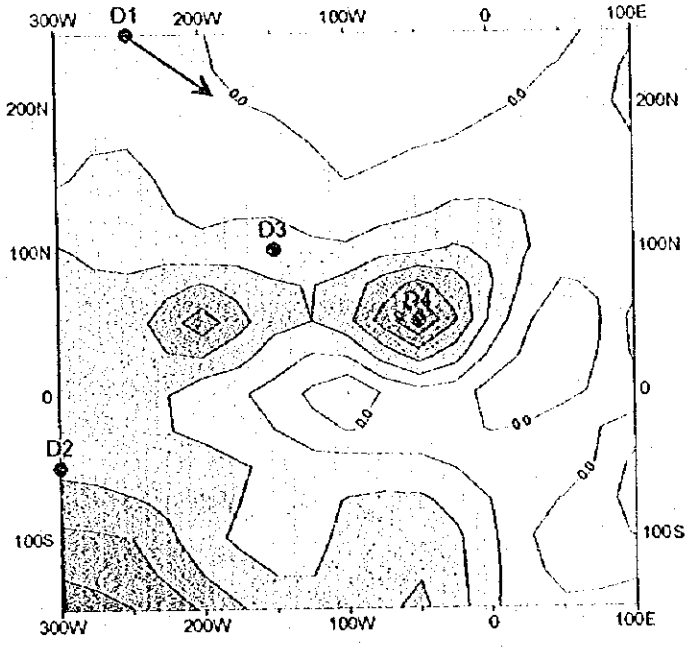
4-2-2 Drilling survey

(1) Outline of the survey

High chargeability was detected widely at the center and north 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 central high chargeability zone, drilling survey was carried out at the low resistivity zone around that high chargeability zone. Four drilling holes with a total length of 921.85m were conducted in this zone. In the north, a high chargeability and low resistivity zone extending widely in the direction of NE-



CH-14



CH-18

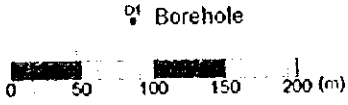


Fig.II-4-7 TEM response maps around 100m and 200m depth in Davis central part

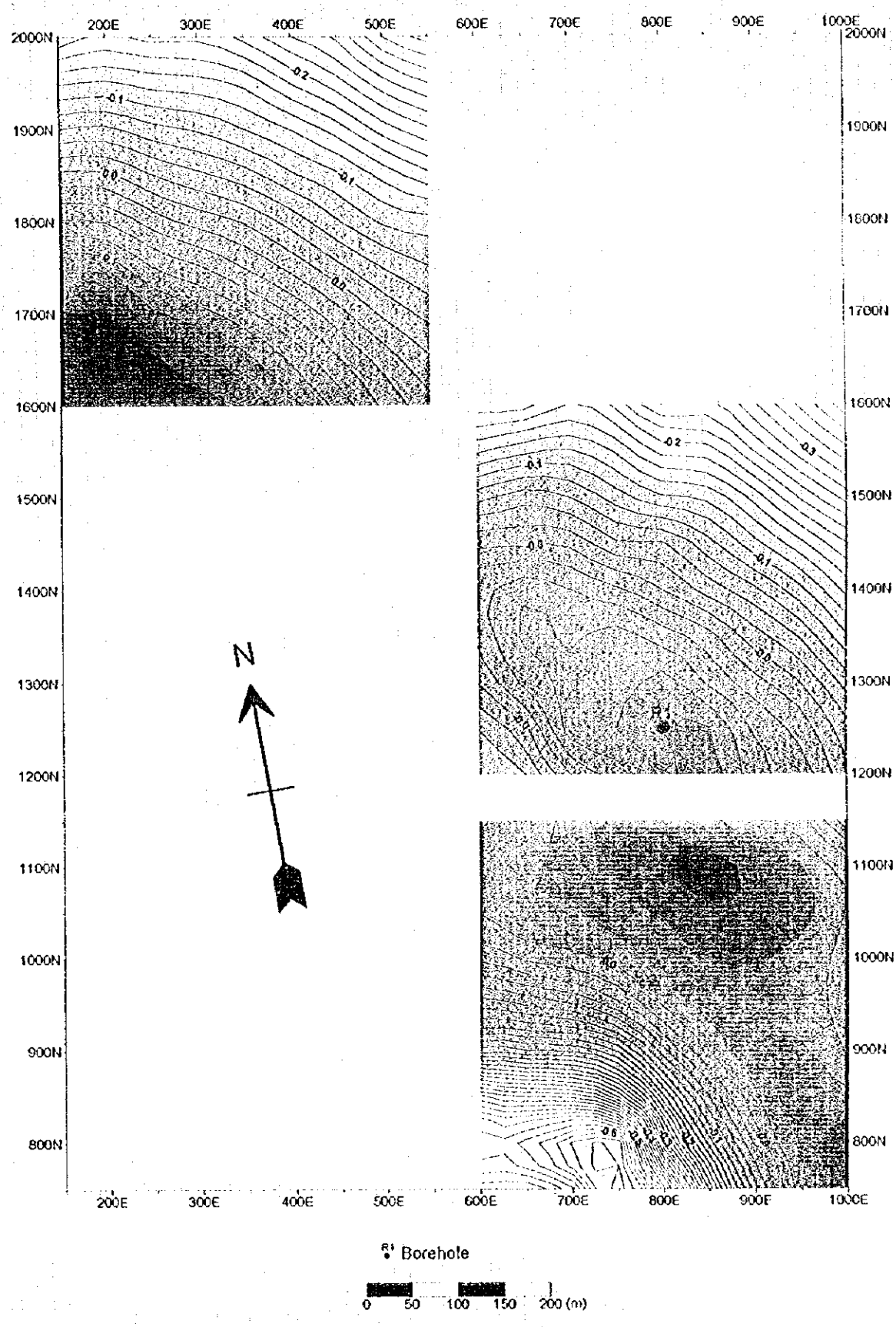
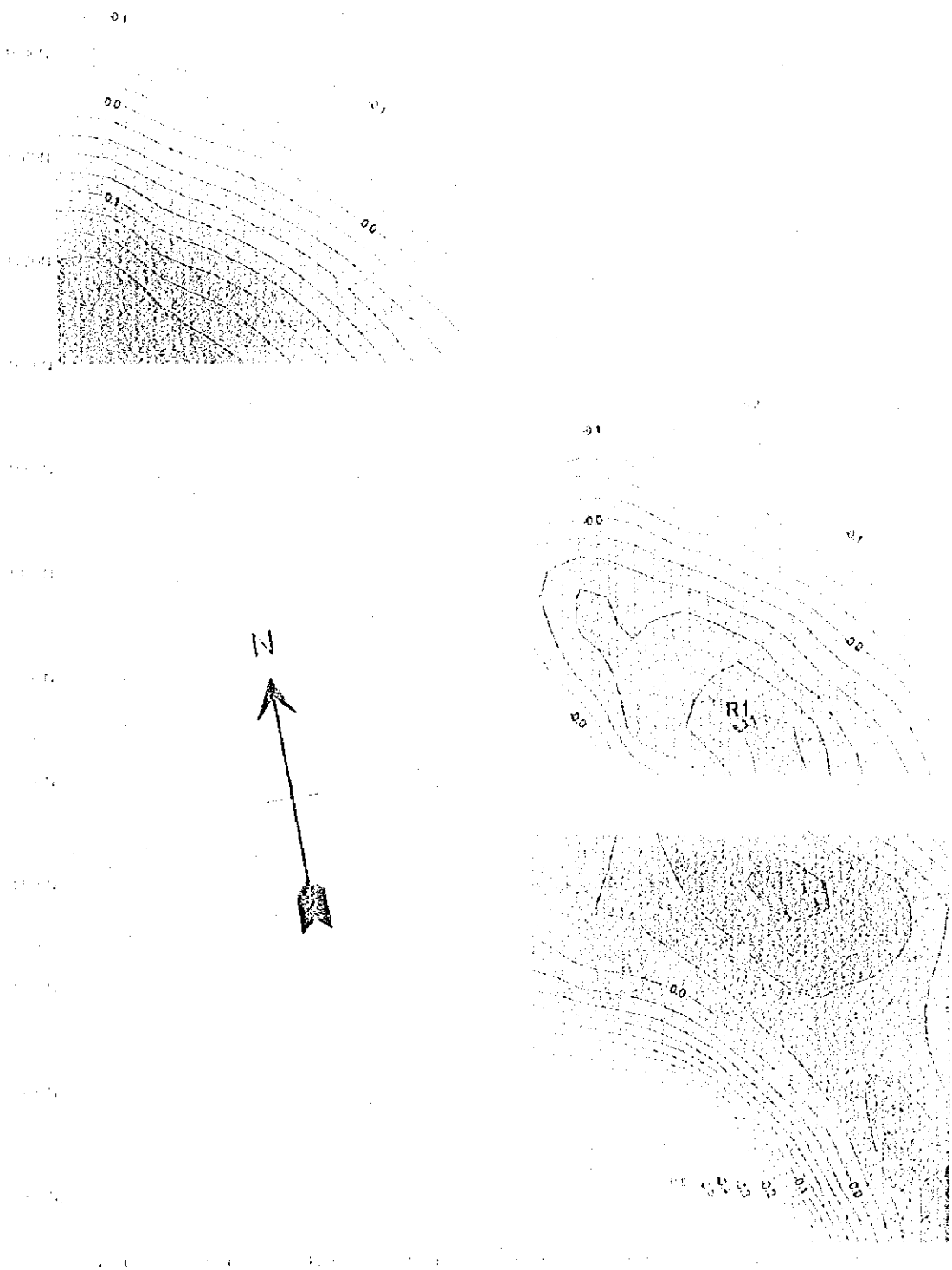


Fig.II-4-8(1) TEM response map around 100m depth in Daris northern part


N
R1

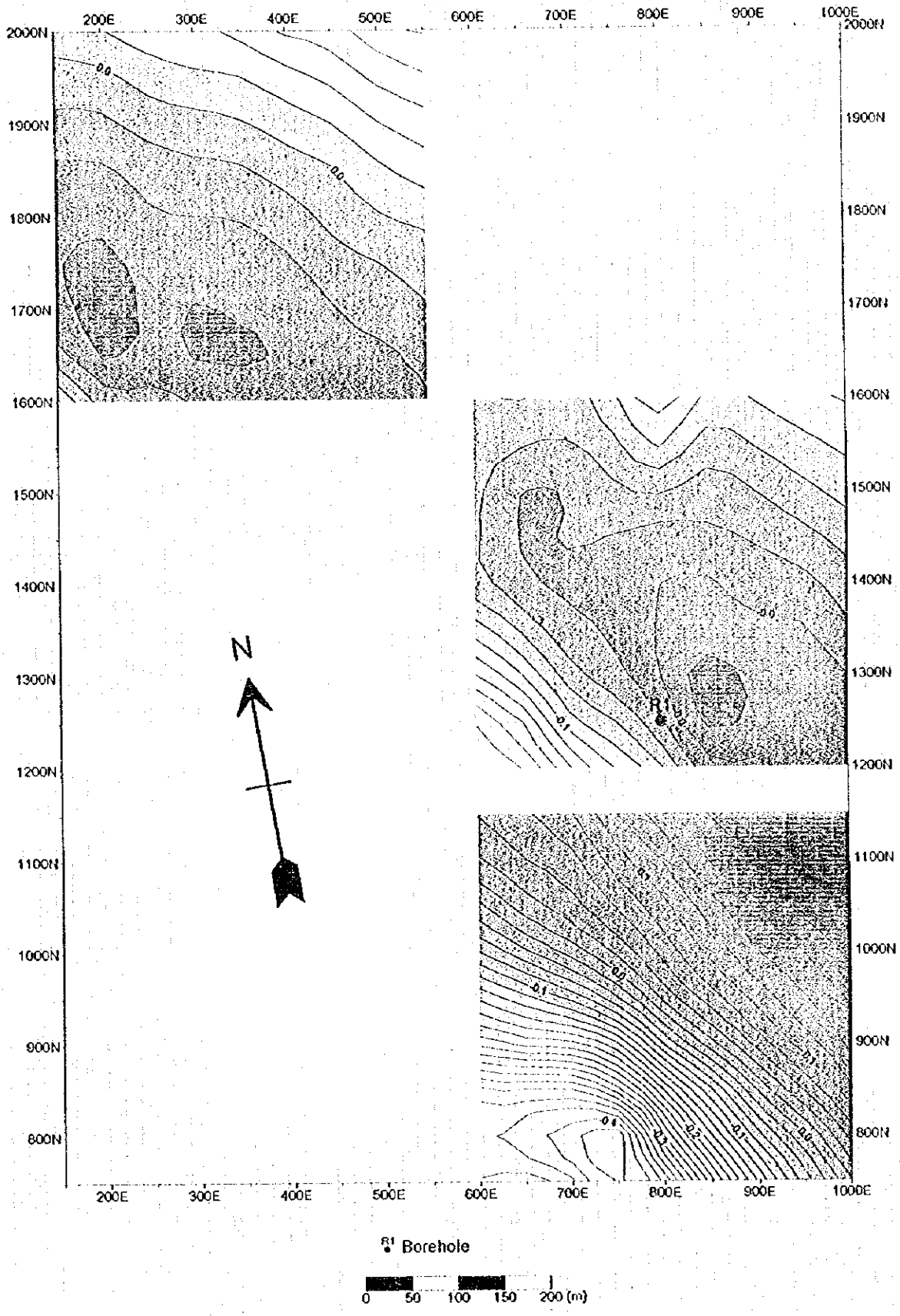


Fig.II-4-8(2) TEM response map around 200m depth in Daris northern part

SW were detected by TDIP survey in Phase I. TEM survey was carried out within this IP anomaly zone in Phase II, subsequently, a drilling survey was carried out within the TEM anomaly zone. The locations of the selected boreholes are shown in Fig. II-4-9.

(2) Results of the survey

MJOB-D2 encountered an intense pyritization, however MJOB-D1 and D3 could not intersect any clear mineralization. The anomalies detected by TEM survey in the sites of MJOB-D1 and D3 are considered to be due to fracture zones accompanied by clay and pyrite. MJOB-D4 drilling was conducted to investigate the deep TEM anomaly detected near gossan. Since mineralization was encountered only in a shallow depth, it is inferred that the deep anomaly is probably due to fractures.

In the northern part, the drilling survey was conducted in the center of TEM anomalies, however, no significant mineralization was encountered. In this hole, the Tertiary sedimentary rocks continued up to 131.85m before encountering Samail volcanic rocks, which is a calcareous sequence with intercalation of many mudstone beds. A considerable amount of pyrite was observed in the mudstone. These facts support the idea that the TDIP anomalies reflected the mudstone beds and pyrites in mudstone.

4-3 Suurvey Results in Daris 3A5 Area

4-3-1 Geophysical survey

(1)Outline of survey

The TDIP survey were conducted in this survey area in the location illustrated in Fig.II-4-10. A total of 18.0km line-length with nine survey lines were set in the direction N45°E and with a separation of 200m between each line. Measurements were carried out every 100m interval along the survey lines by adopting a dipole-dipole configuration and N factor (electrode separation) from 1 to 4

(2)Results of survey

The results are shown in Fig.II-4-11.

The resistivities are very low(less than 20 ohm-m), especially from the central part towards the north are detected resistivities of extremely low values of less than 4 Ωm. This extremly low resistivity distribution agrees with the aero-magnetic anomaly location. Moreover, from the central part of this survey area to the south, the resistivity values gradually increase, for which an E-W boundary can be estimated.

The chargeability also shows in general low values. The chargeability zone of the central part of the area, which detected middle values from 5 to 10mV/V indicates a cental belt along an E-W direction. There is a clear difference between the central zone trending E-W and the rest of the area.

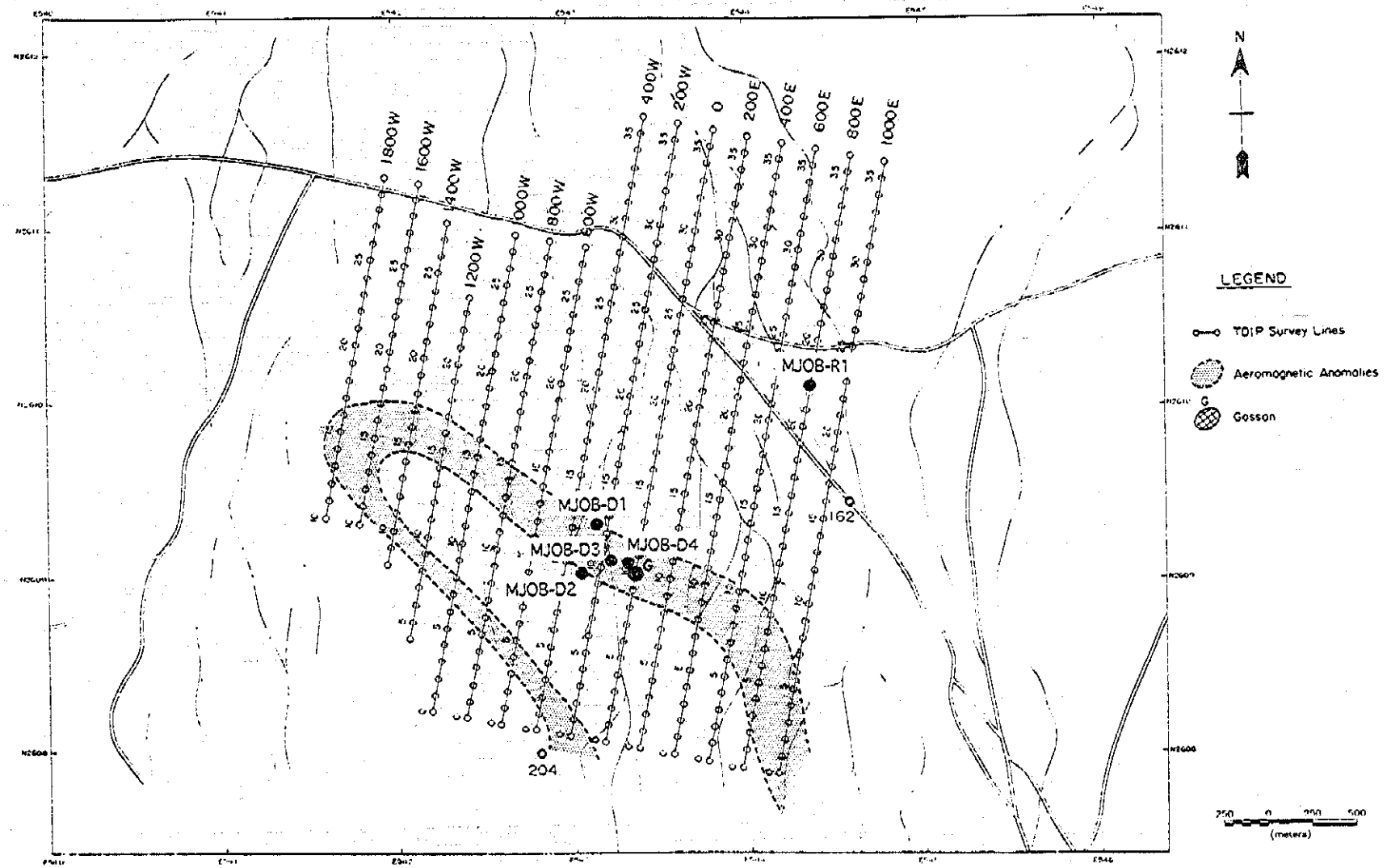


Fig.II-4-9 Location map of bore holes in Daris area

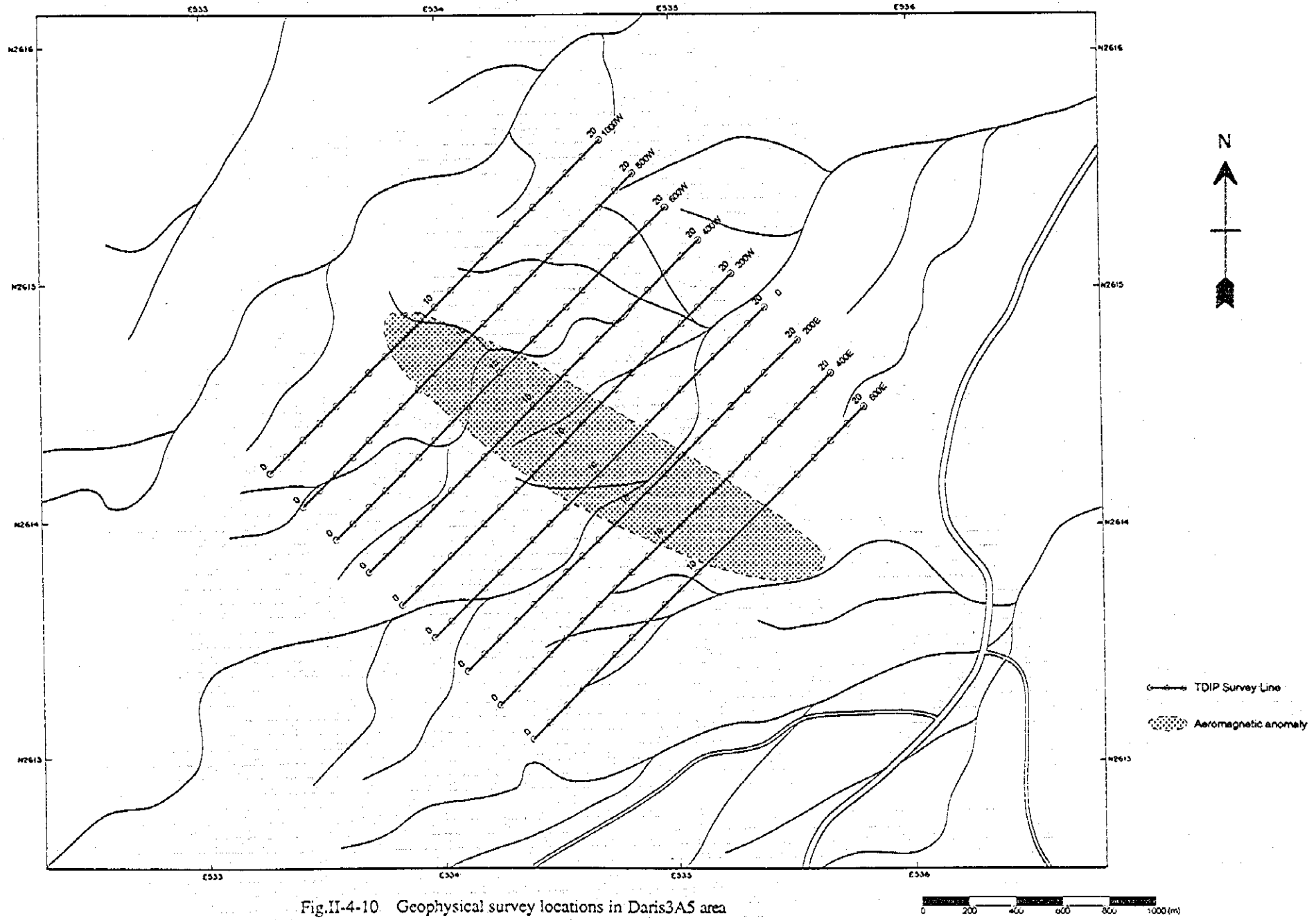
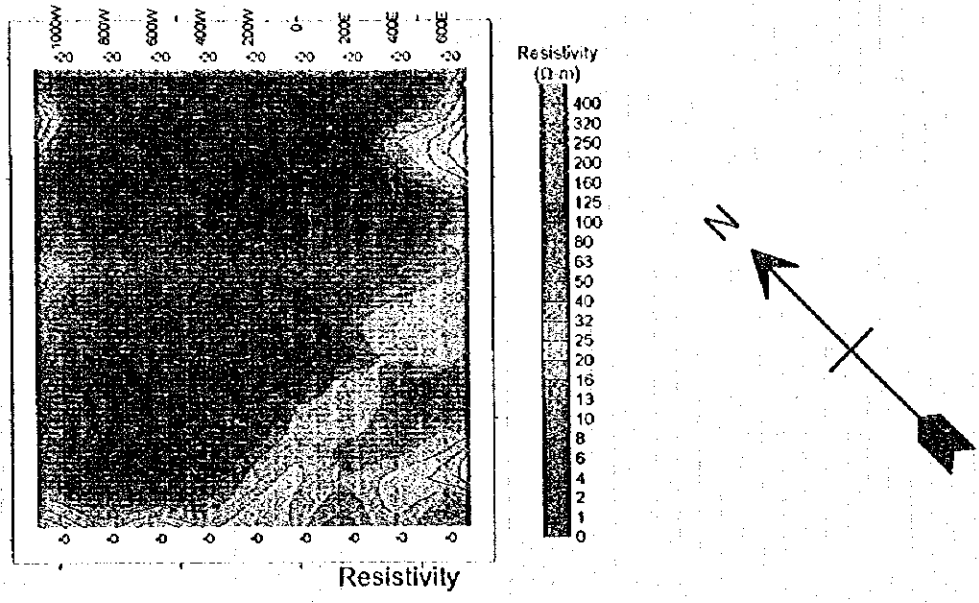
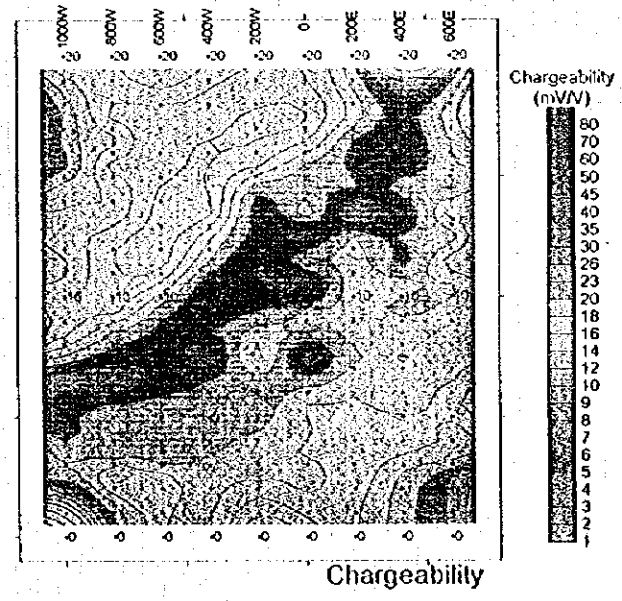


Fig.II-4-10 Geophysical survey locations in Daris3A5 area





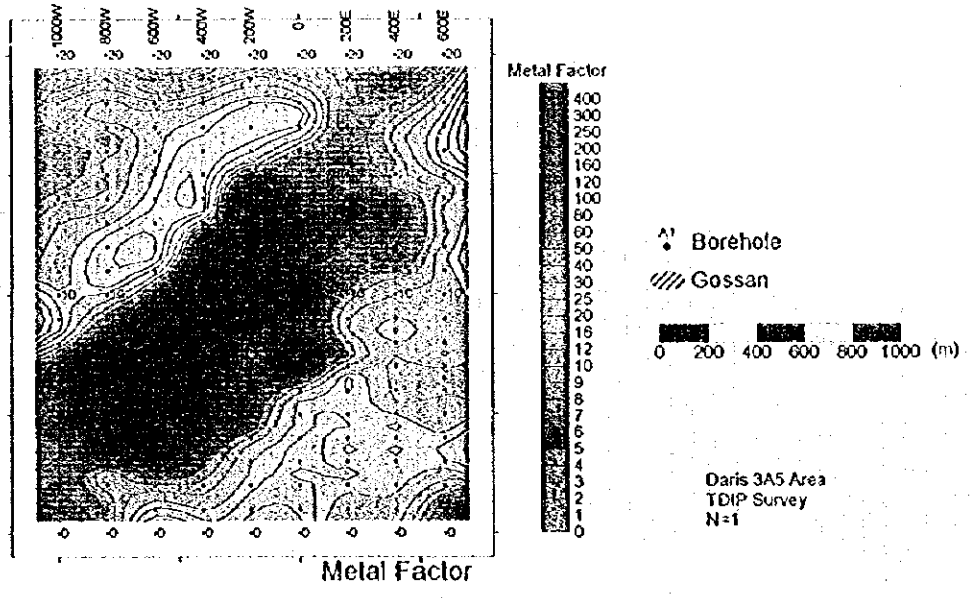
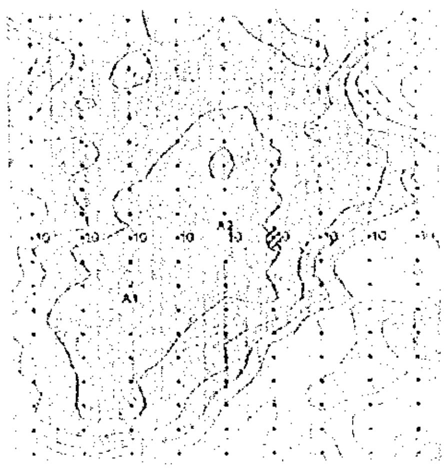
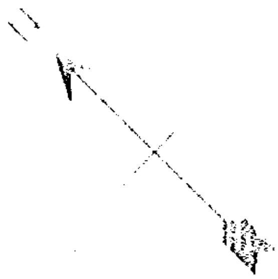
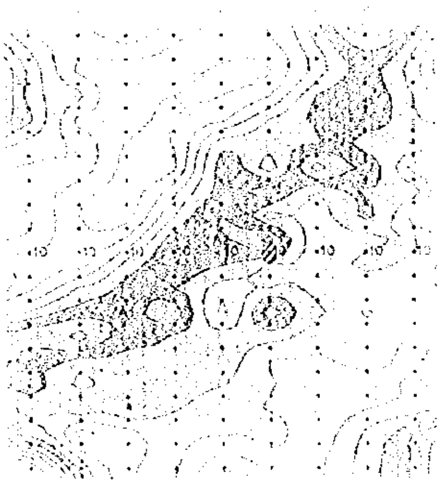


Fig.II-4-11 IP plane map at n=1 in Daris3A5 area

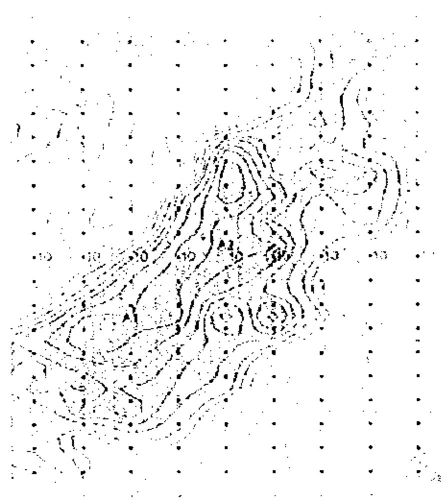




Resistivity



Chargeability



Metal Factor

The metal factor values are relatively high, especially, the central zone of the area towards west and east shows metal factor values as high as 100.

Two borcholes(MJOB-A1 and A2) were selected along a central axis of this high metal factor zone.

4-3-2 Drilling survey

(1) Outline of the survey

The results of TDIP survey in Phase I show that the known massive sulphide ore deposit presents a tendency to extend towards NW. Accordingly, drilling survey was carried out within the IP anomaly zone. The locations of the boreholes are shown in Fig. II-4-12.

(2) Results of the survey

The two holes could not intersect any mineralization, except a slight gossanization in MJOB-A2. The geology of both holes consist mainly of slighly weathered and strongly montmorillonized hayaloclastite in shallow depth and strongly chloritized hayaloclastite and pillow lava in depth. Finely fractured cores were obtained in most of the parts at shallow to middle depth of both holes. Judging from the results of drilling survey, the intense resistivity anomalies detected by TDIP are considered to be due to a strong montmorillonization and ground water filling fractures.

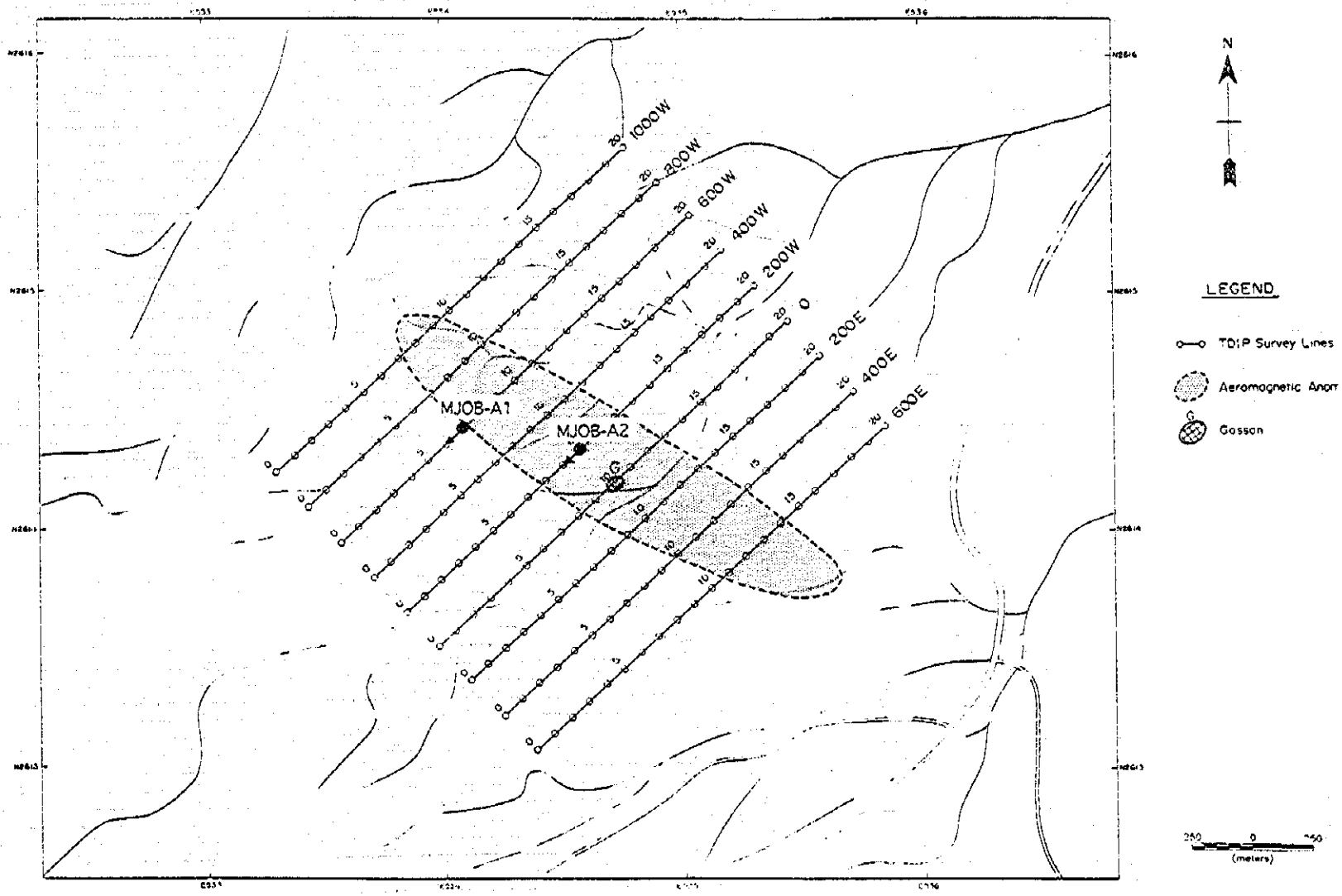


Fig.II-4-12 Location map of bore holes in Daris 3A5 area