NGU Report 98.135

EM-Slingram and Magnetic measurments in the
Ogna and Evje aeras, Southern Norway ,1998

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REPORT

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Title:
EM-Slingram and Magnetic measurments in the Ogna and Evje aeras, Southern Norway ,1998

Authors:	Client:
Einar Dalsegg	America Mineral Field
County:	Commune:
Rogaland and Vest-Agder	Hå and Evje og Hornes
Map-sheet name (M=1:250.000)	Map-sheet no. and -name (M=1:50.000)
Stavanger and Mandal	1212 II Bjerkreim, 1212 III Nærbø and 1512 III Evje
Deposit name and grid-reference:	Number of pages: 37 Price (NOK): Kr. 65,-
Bjørndalsnipa 32V 31830 64945	Map enclosures: 5
Høgevarden 32V 31400 64958	
Hauge 32V 43680 64958	

Fieldwork carried out:	Date of report:	Project no.:	Person responsible:
01.07 - 15.07 1998	26.10 1998	2725.02	Jens S. Rønning

Summary:

On behalf of America Mineral Field the Geological Survey of Norway have executed EM Slingram and Magnetic survey over two areas in Ogna and one area in Evje. Ogna are located in Rogaland county and Evje are located in Vest-Agder county in the southern part of Norway.

The purpose of the survey was as a follow-up work of the Helicopter EM survey over the same areas.

The Slingram measurements indicates at Bjørndalsnipa a small area where it seems to be two separate zones with good conductivity.

No anomalies were indicated at Høgevarden and Hauge despite of helicoperanomalies.

Keywords: Geofysikk	Elektromagnetisk måling	Magnetometri
Sulfid		
		Fagrapport

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On behalf of America Mineral Field the Geological Survey of Norway have executed EM Slingram and Magnetic survey over two areas in Ogna and one area in Evje. Ogna are located in Rogaland county and Evje are located in Vest-Agder county in the southern part of Norway. The location of the areas are shown in the maps -01 og -02.

The purpose of the survey was as a follow-up work of the Helicopter EM survey over the same areas.

The survey was executed from 01.07 - 15.07 1998. According to the agreements no qualitative interpretation should be done within the project.

2. MEASURMENTS

The Slingram-measurements vas carried out using Scintrex SE-88 «Genie». The measurement is based on the simultaneous transmission of two preselected, well separated frequencies and the comparison of the amplitudes of the two signals at the receiver. The Frequency pairs used in the measurements was :
Bjørndalsnipa 112 Hz as reference, measurements at 337, 1012 and 3037 Hz (most of the area).
Høgevarden 112 Hz as reference, measurements at 3037 Hz.
Hauge 112 Hz as reference, measurements at 1012 and 3037 Hz.

The magnetic survey was carried out using the Scintrex ENVI-MAG proton precession magnetometer (accuracy 1nT). No base station magnetometer in the area was available, but the measurements are checked against diurnal variations at other locations in Norway.

3. RESULTS

The results of the Slingram measurements from Bjørndalsnipa are presented in figures 1 - 6, from Høgevarden in figures 7 - 9 and from Hauge in figures 10 - 11.

The results of the Magnetic measurements (total field) from Bjørndalsnipa are presented in figures 12 - 23, from Høgevarden in figures 24 - 28 and from Hauge in figures 29 - 32.

Map -03 shows the measuring grid of Bjørndalsnipa and the Slingram-anomalies. In the map the anomalies are graded as follow:

Anomaly	Ratio 3037/112 Hz
Very strong	>50%
Strong	30-50%
Weak	15-30%
Very weak	5-15%

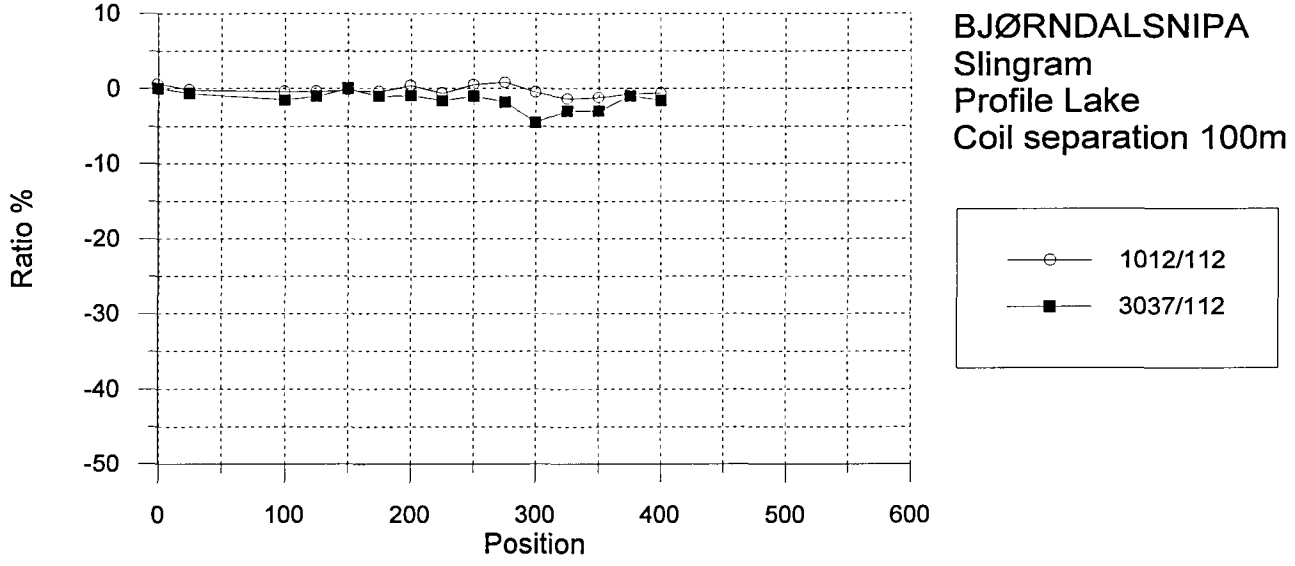
As shown in Map -03 the measurements indicate an anomali area between profile 950Y and 1000Y. The most shallow anomalies are indicated at profile 1000Y- 1012X, and at line 975X - 975Y. The measurements with coil separation 50 and 100m indicate two separate conductors. This is best indicated at line 975X. Both zones indicate good electric conductivity.

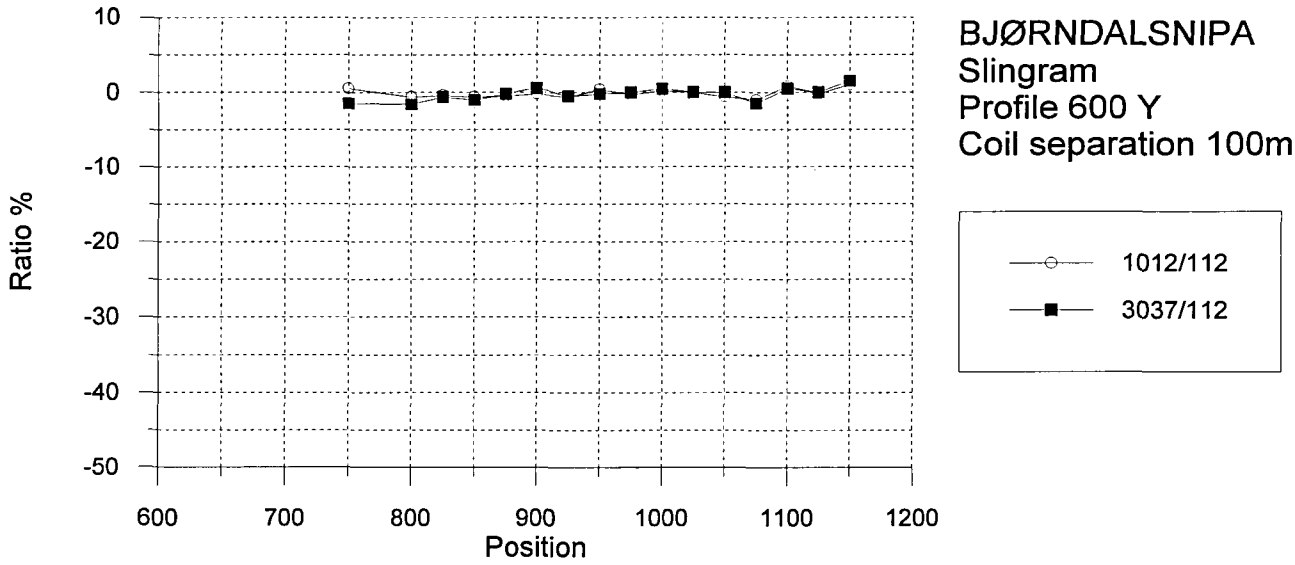
In the area Høgevarden (map -04) and in the area Hauge (map -05) some anomalies at the helicopter EM appeared, but none slingram anomalies was detected on ground. For some of the profiles at Høgevarden, the measurements was disturbed by noise from powerlines.

4. CONCLUSION

The Slingram measurements indicates at Bjørndalsnipa a small area where it seems to be two separate zones with good conductivity.

No anomalies were indicated at Høgevarden and Hauge despite of helicopteranomalies.





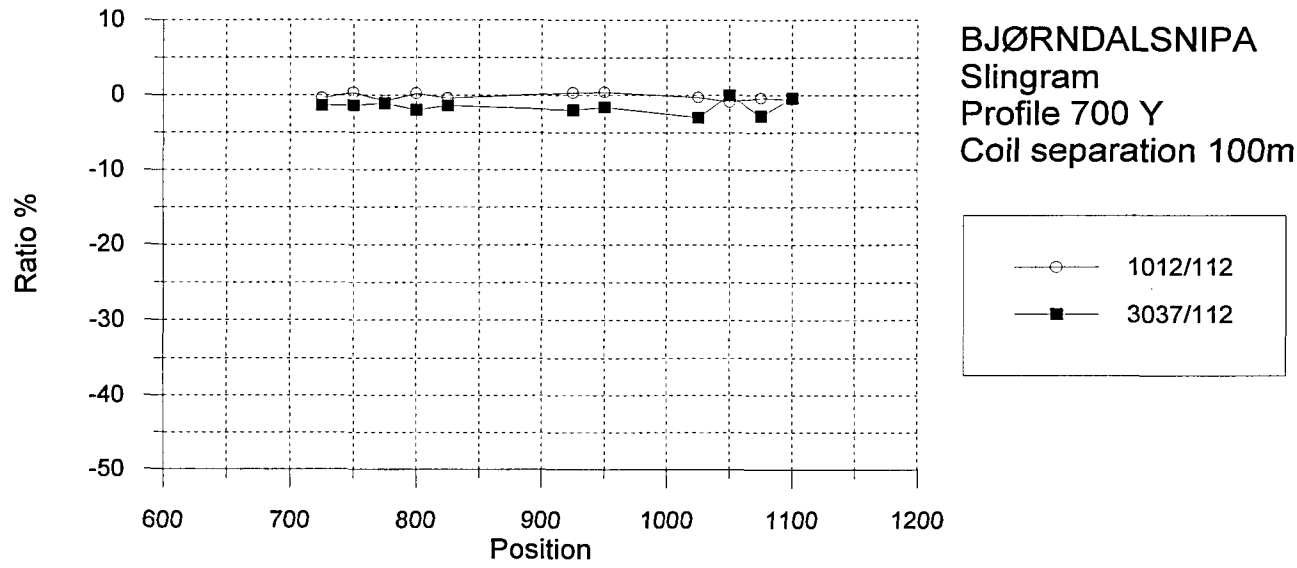
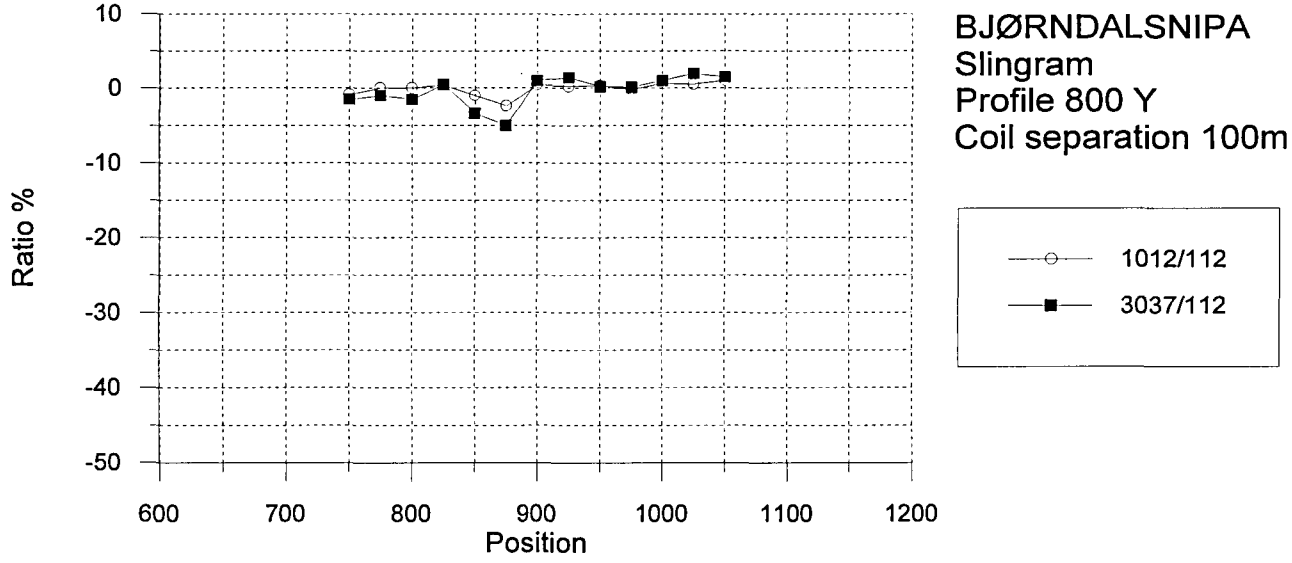


Figure 1. Slingram Bjørndalsnipa profile Lake, 600Y and 700Y.



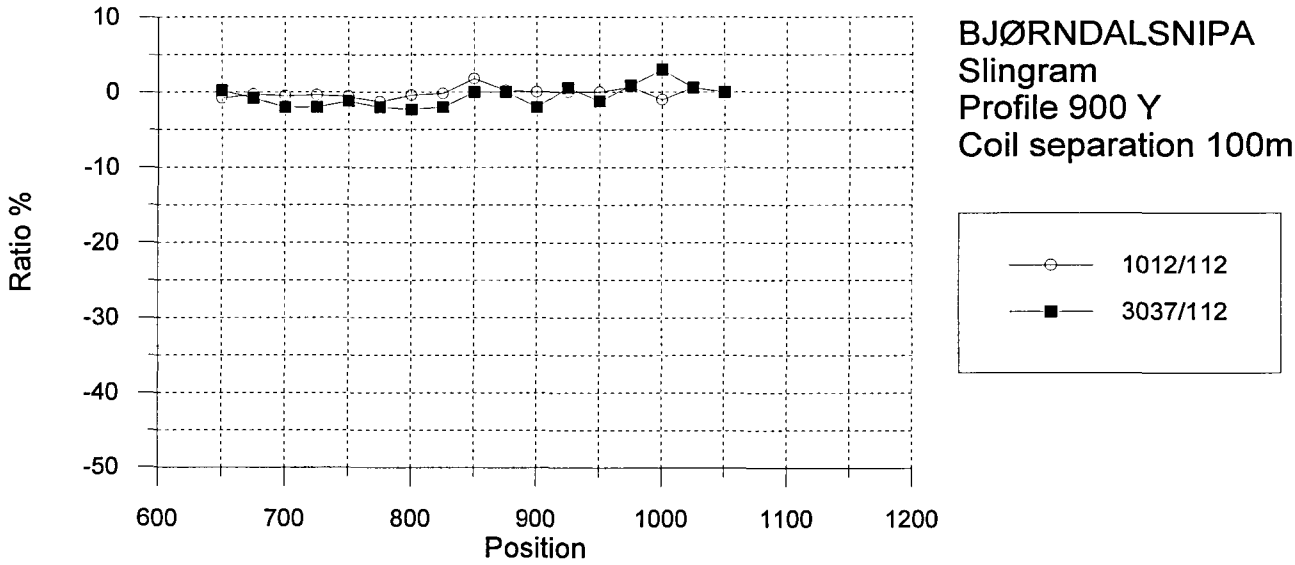
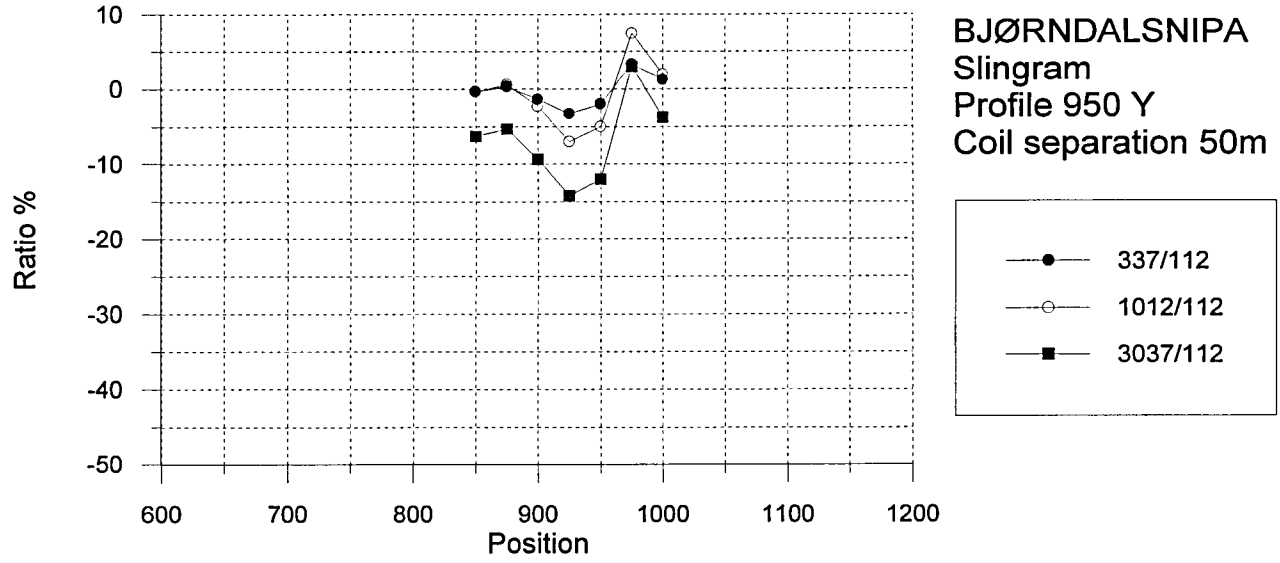
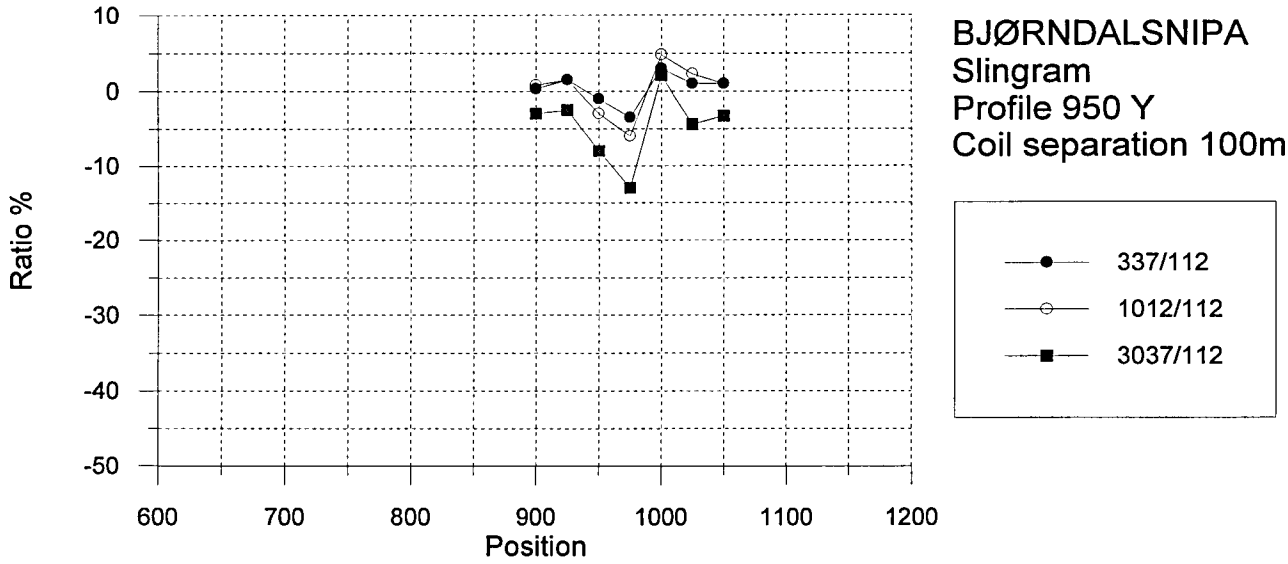


Figure 2. Slingram Bjørndalsnipa profile 800Y and 900Y.





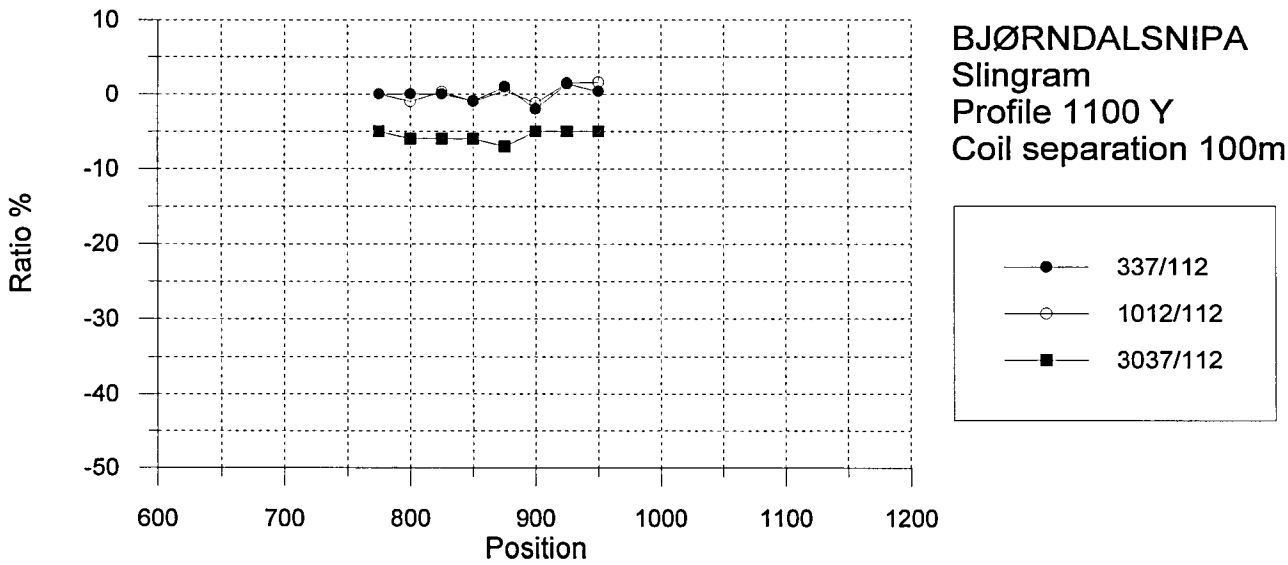


Figure 3. Slingram Bjørndalsnipa profile 950 Y and 1100 Y.

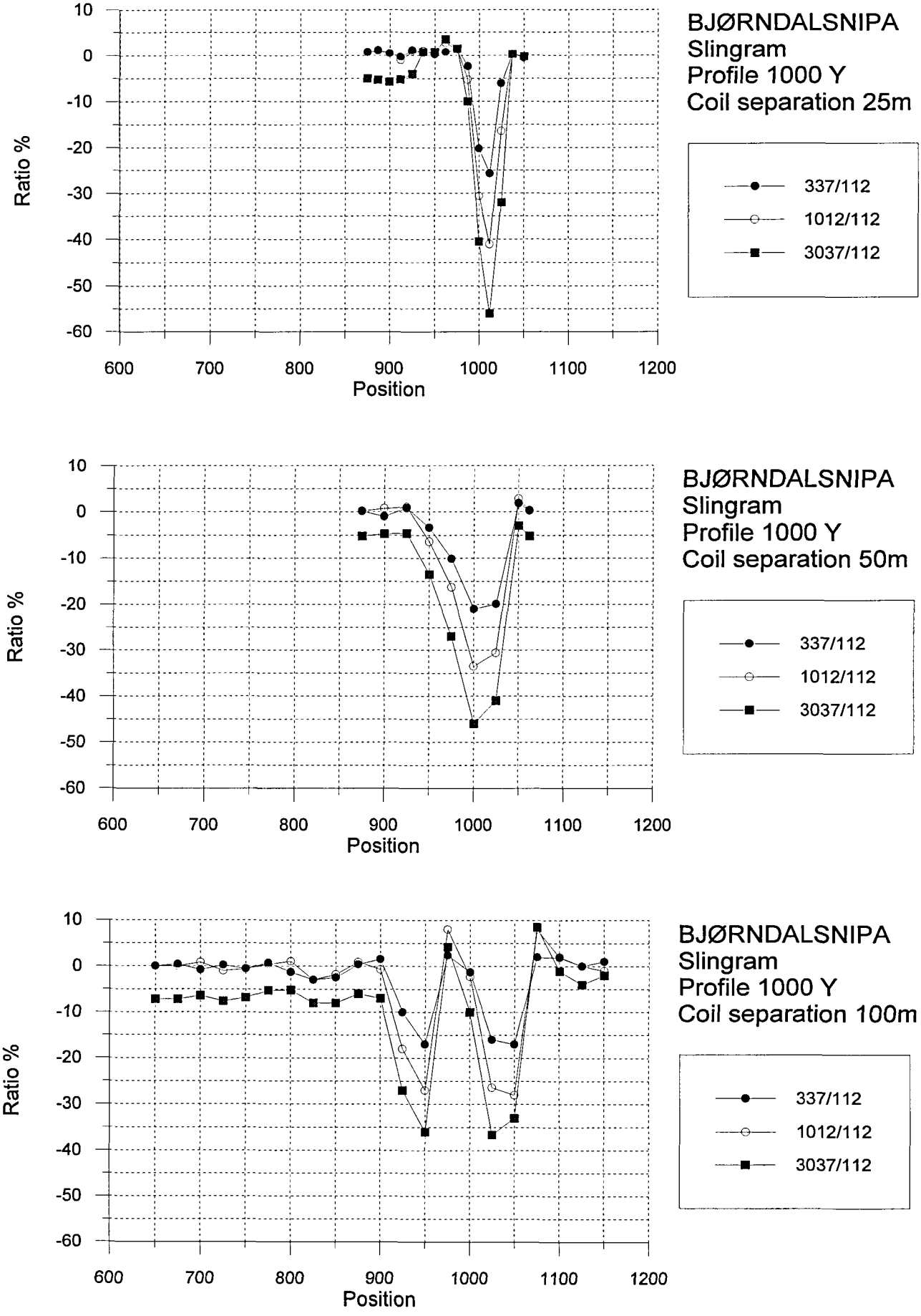


Figure 4. Slingram Bjørndalsnipa profile 1000 Y.

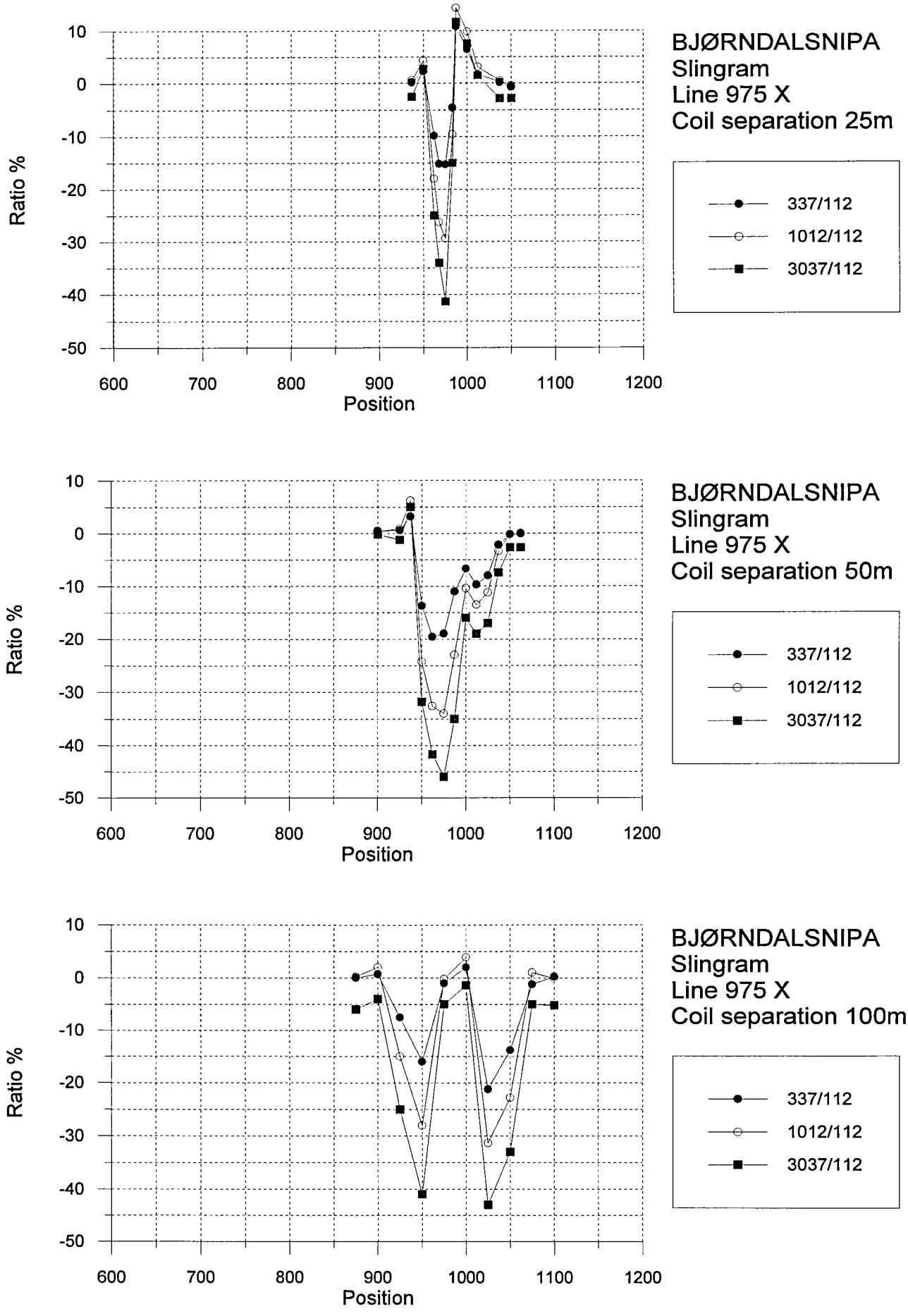
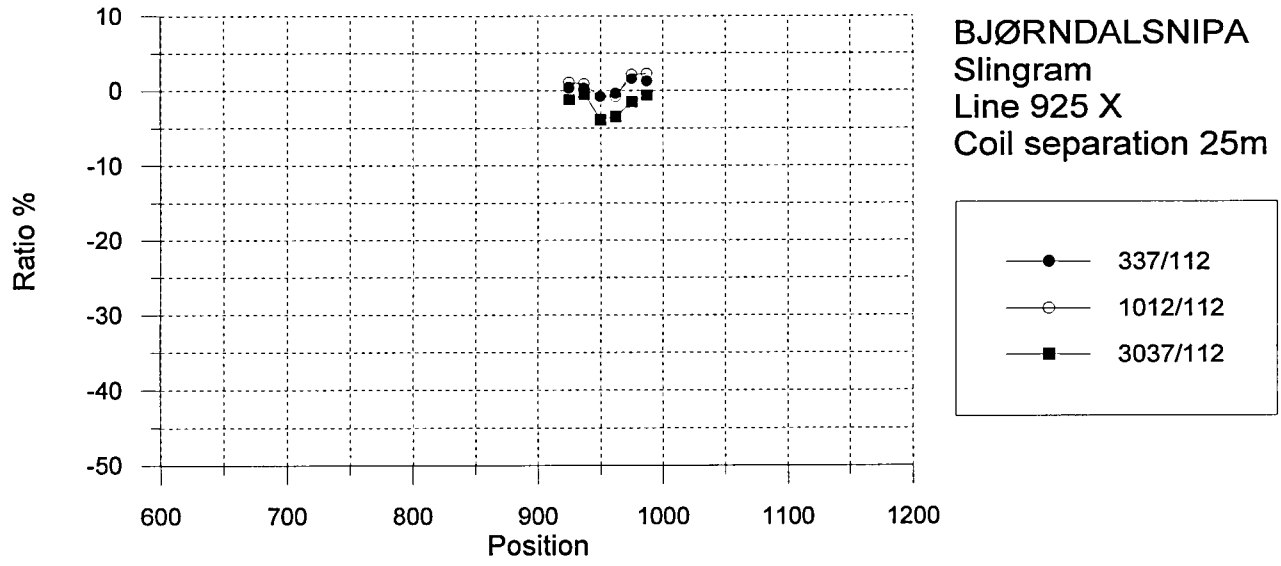
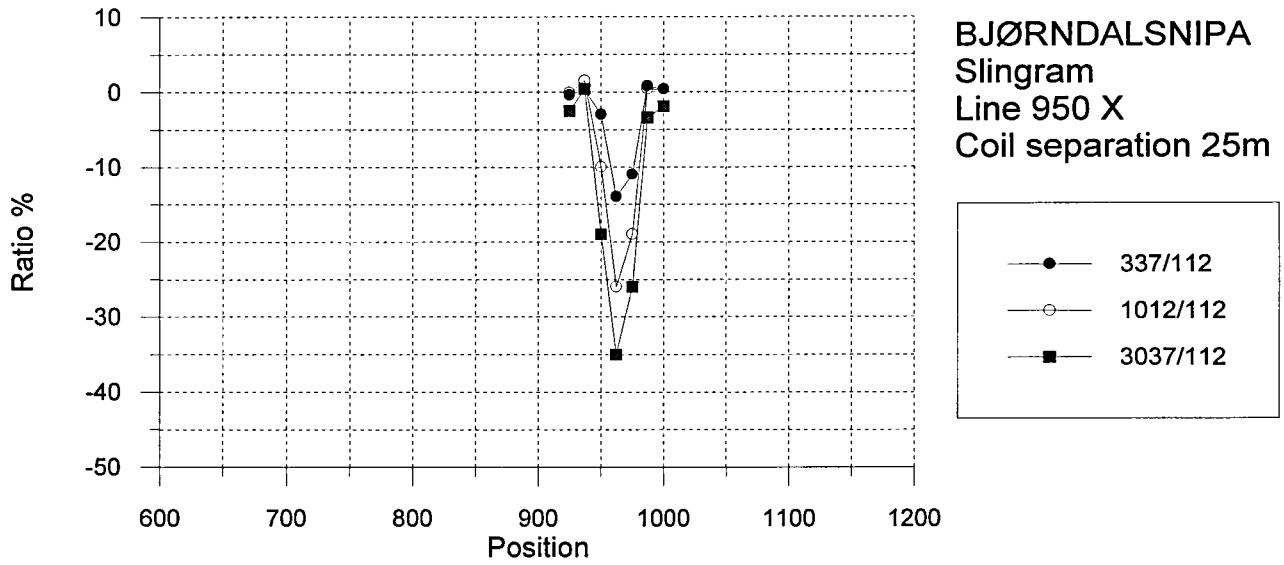


Figure 5. Slingram Bjørndalsnipa line 975 X.





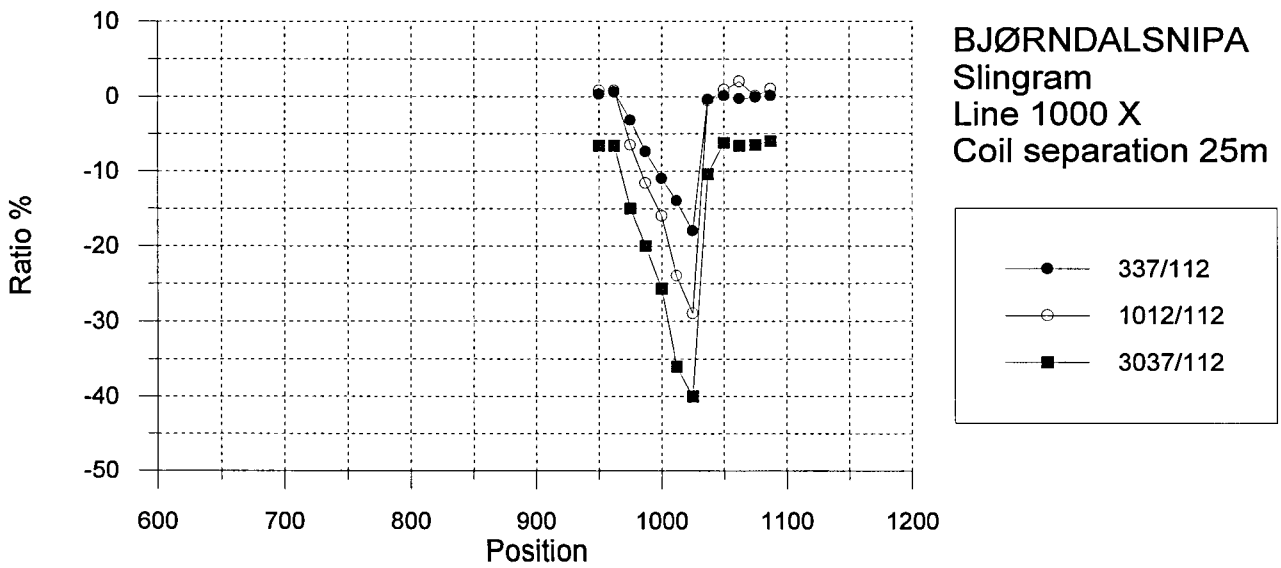
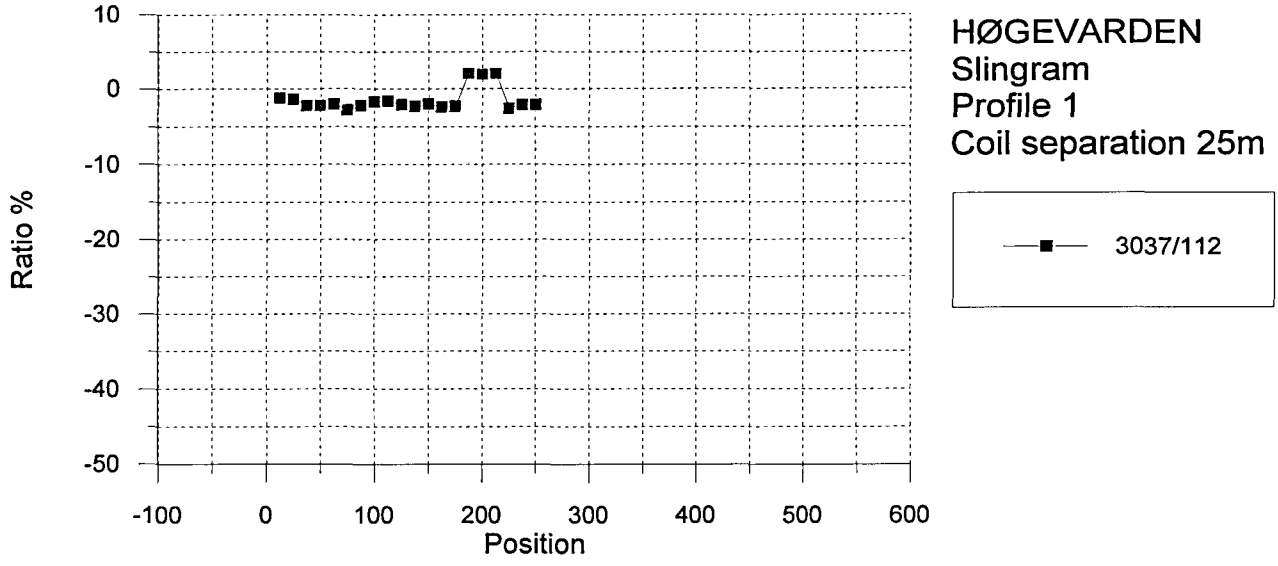


Figure 6. Slingram Bjørndalsnipa line 925 X, 950 X and 1000 X.



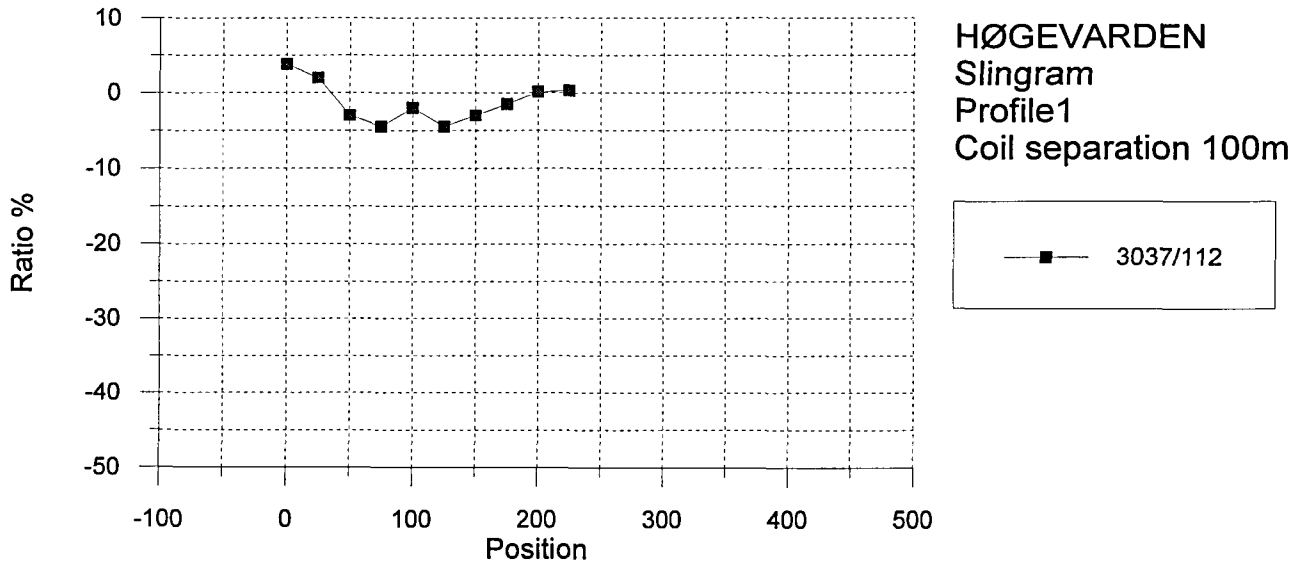
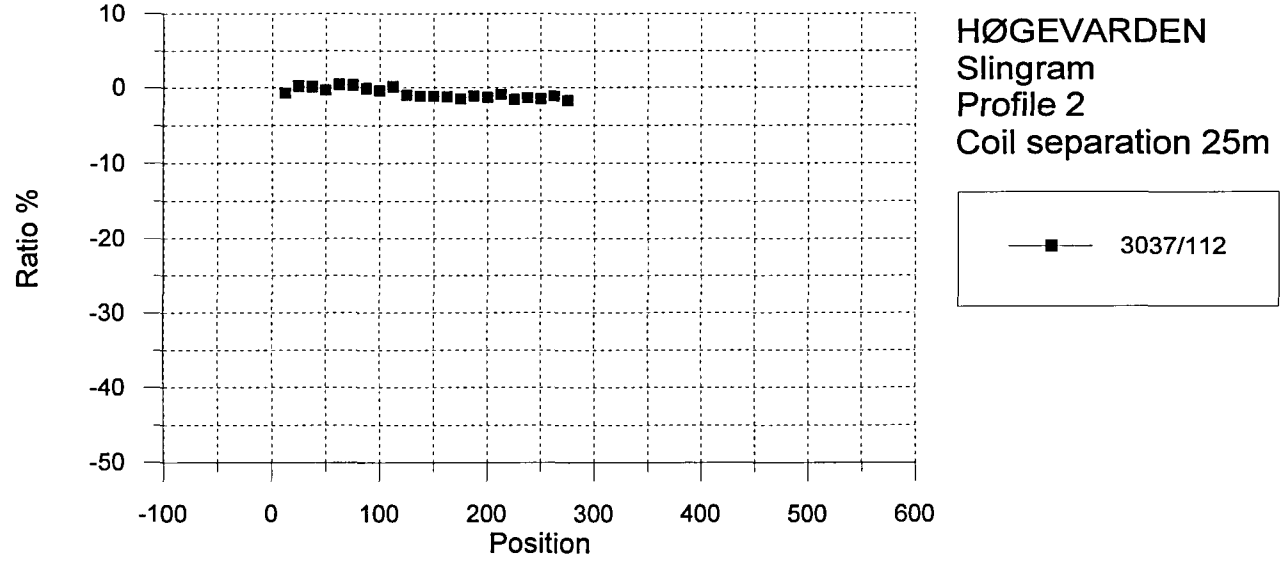


Figure 7. Slingram Høgevarden profile 1.



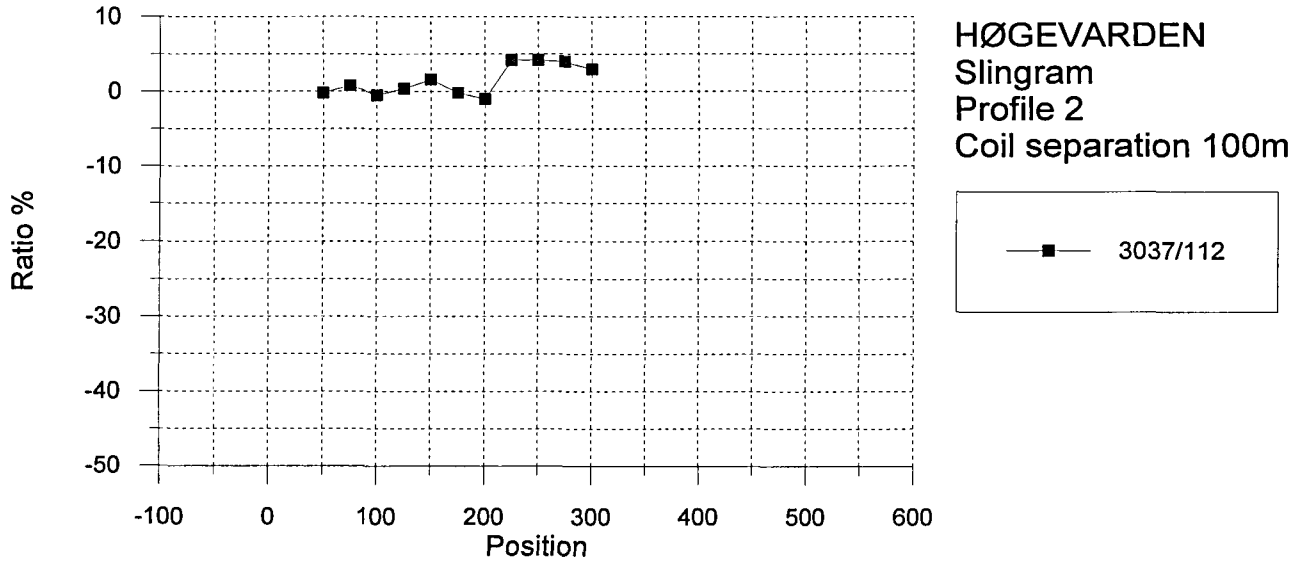
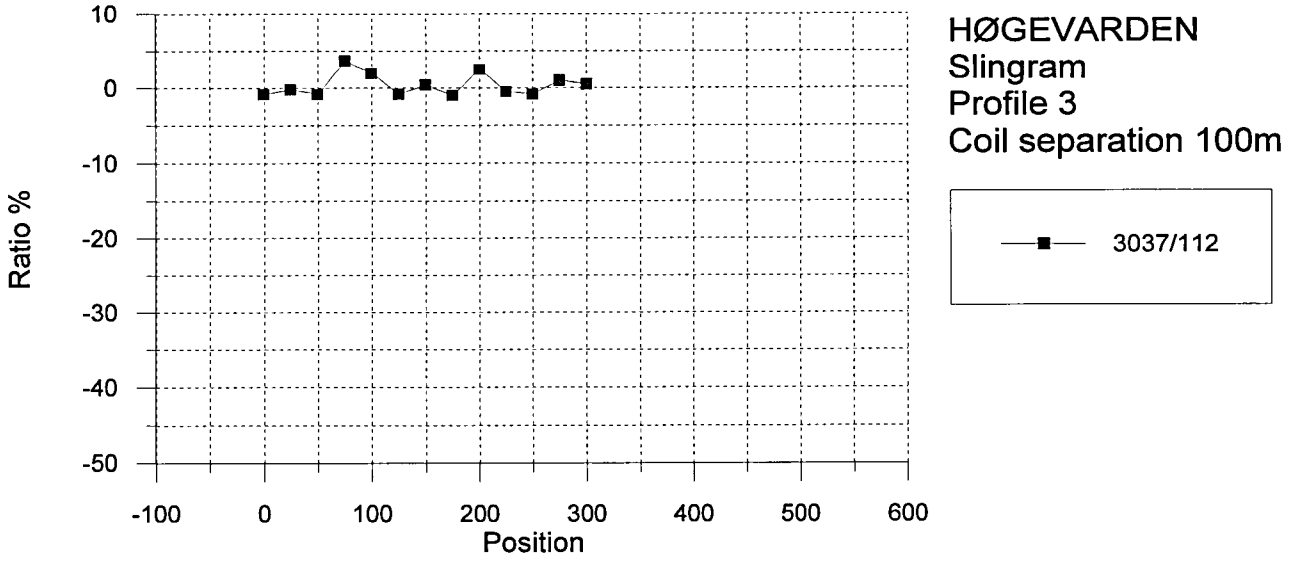
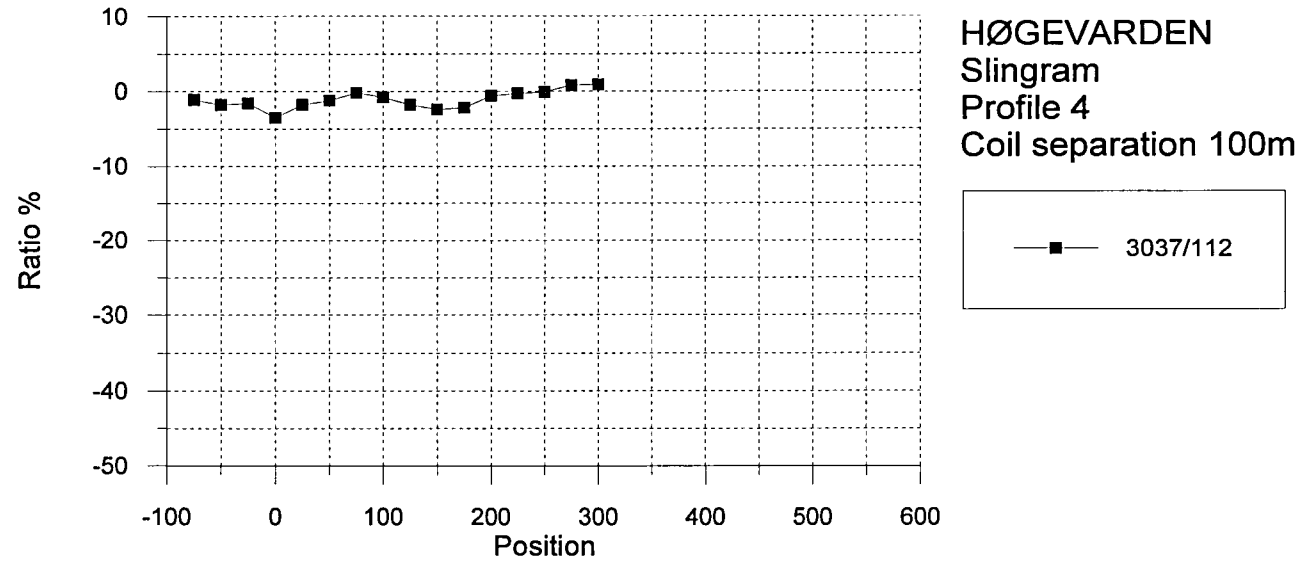


Figure 8. Slingram Høgevarden profile 2.





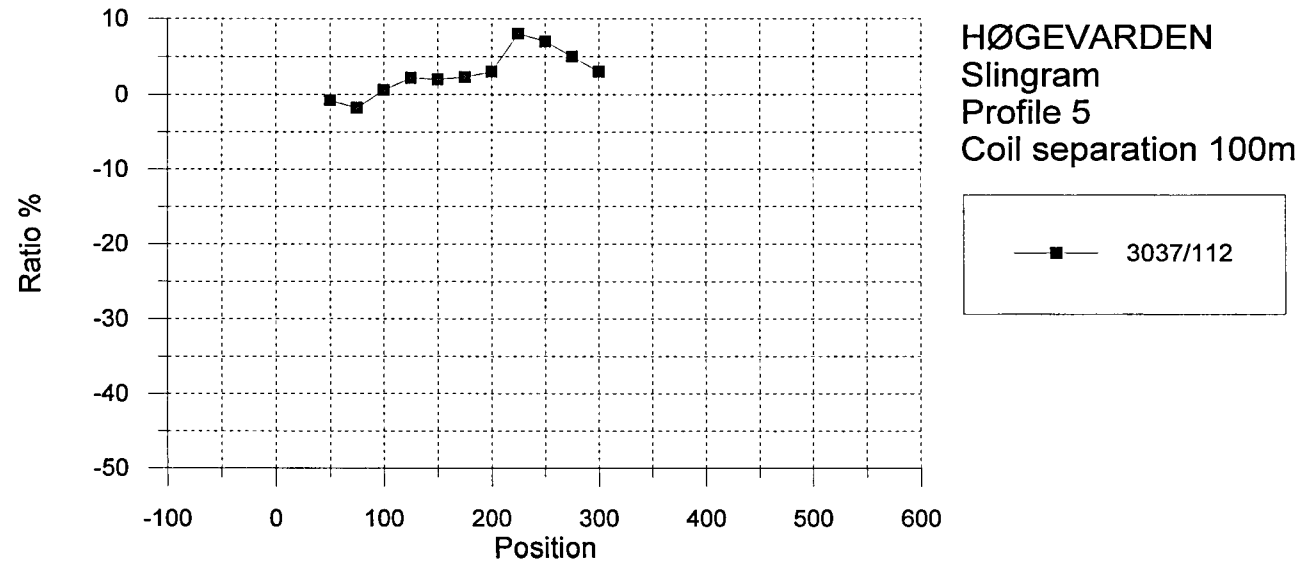
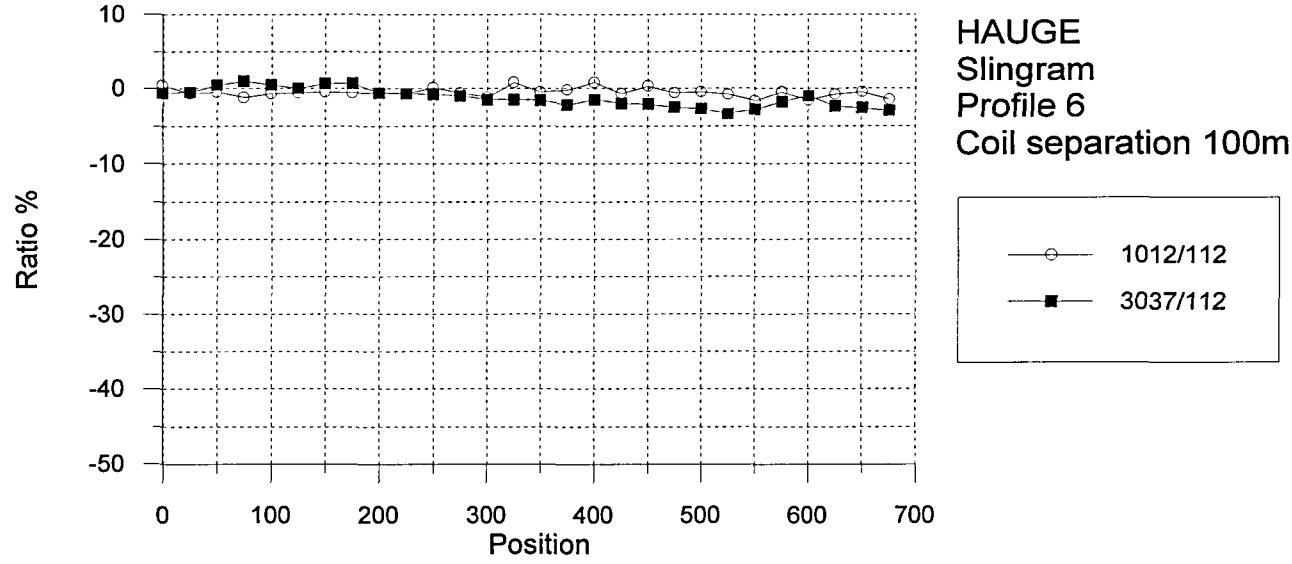


Figure 9. Slingram Høgevarden profile 3, 4 and 5.



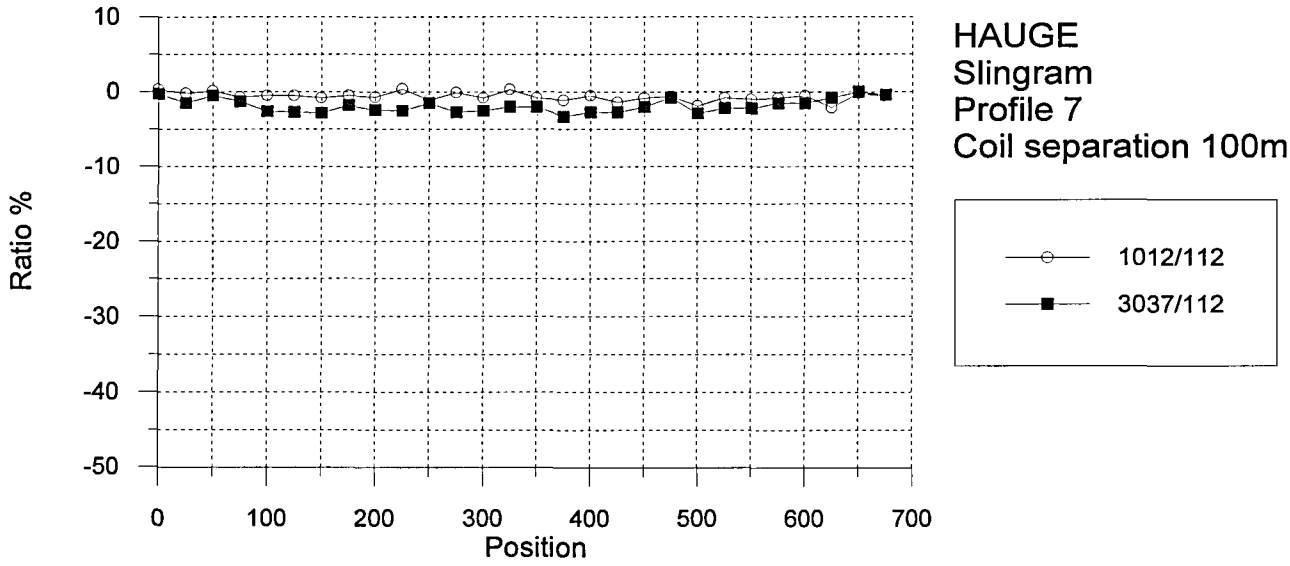
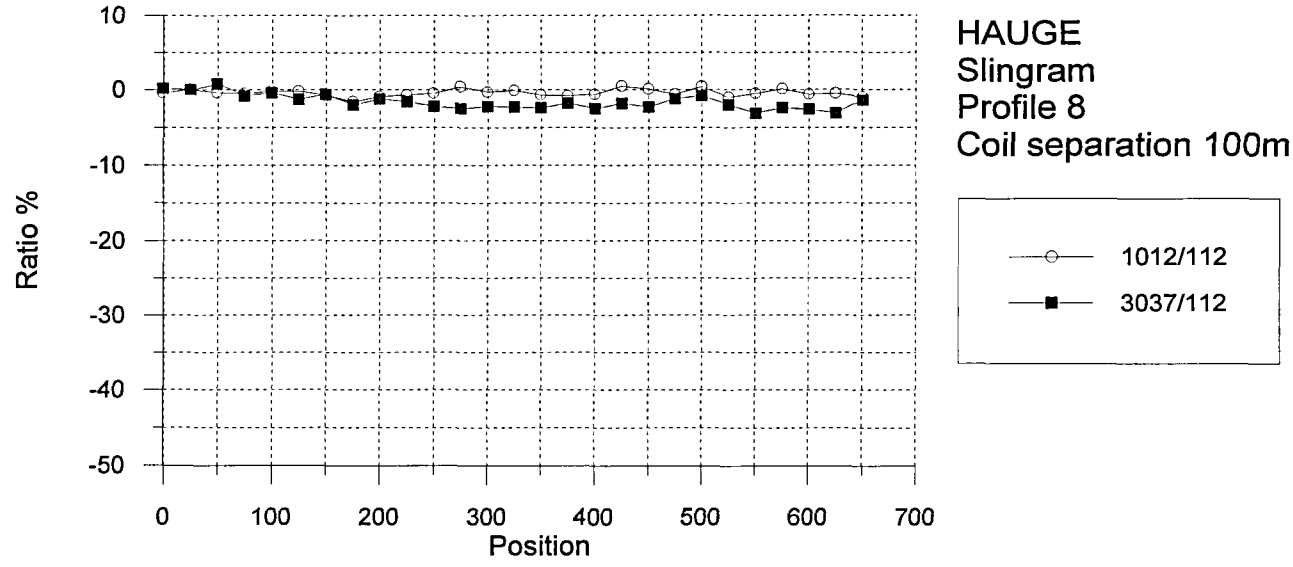


Figure 10. Slingram Hauge profile 6 and 7.



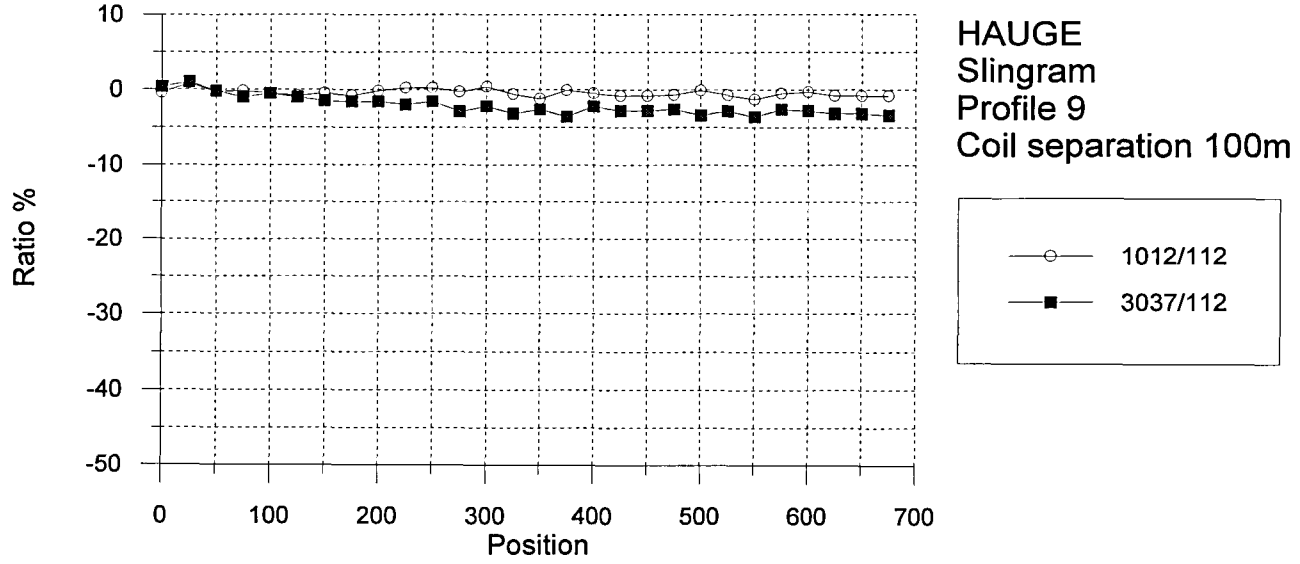


Figure 11. Slingram Hauge profile 8 and 9.

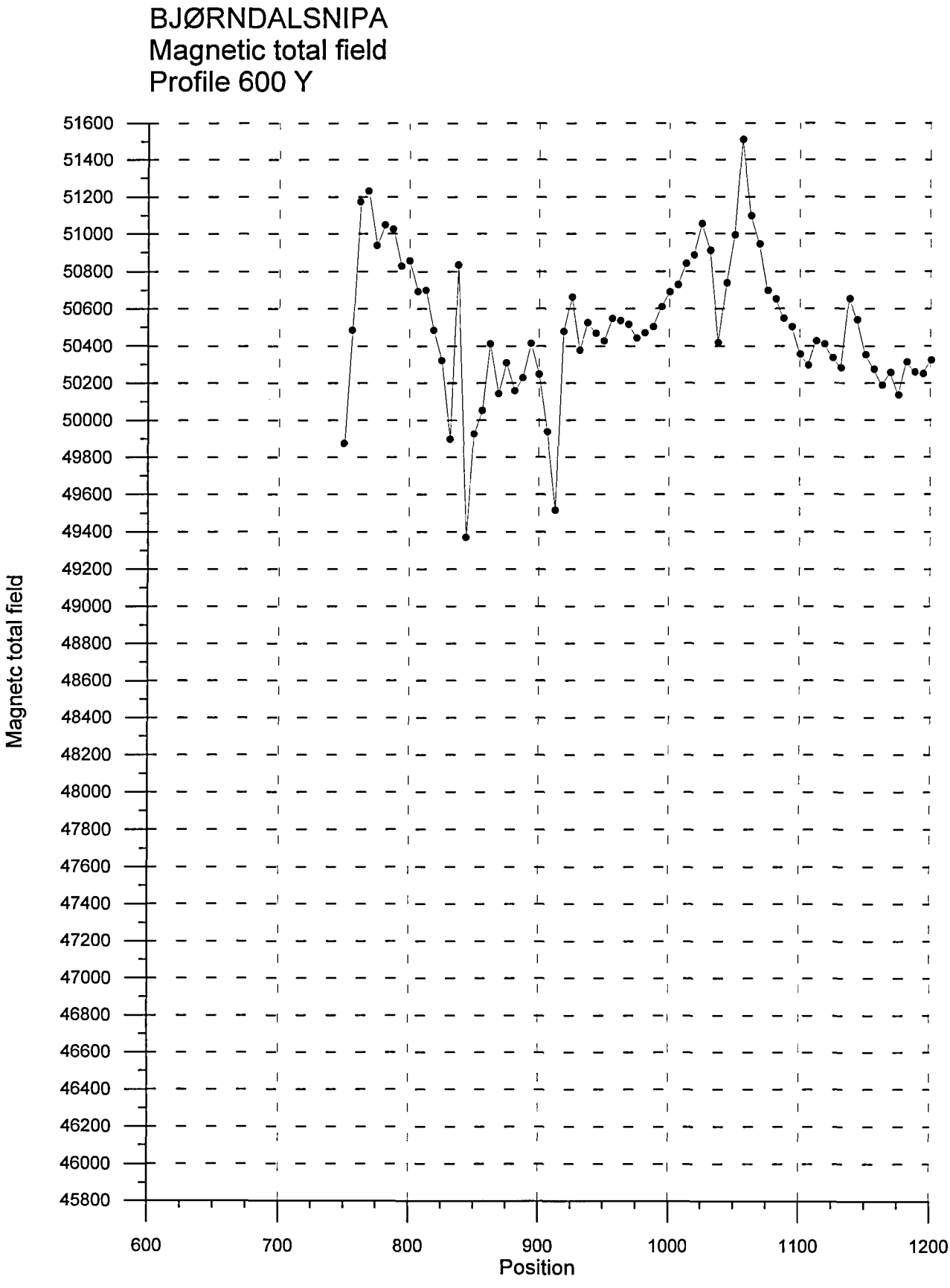


Figure 12. Magnetic total field profile 600 Y.

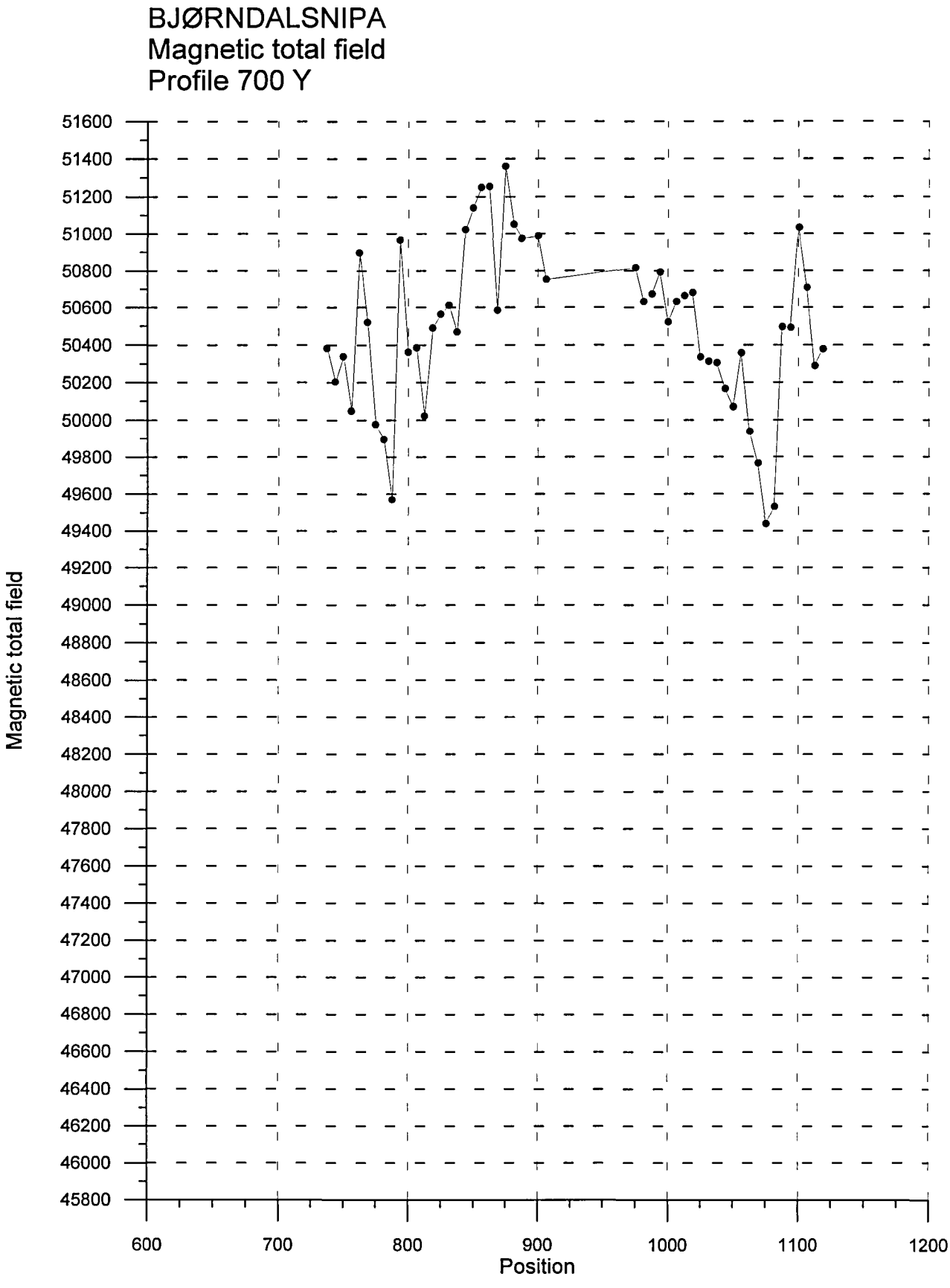


Figure 13. Magnetic total field profile 700 Y.

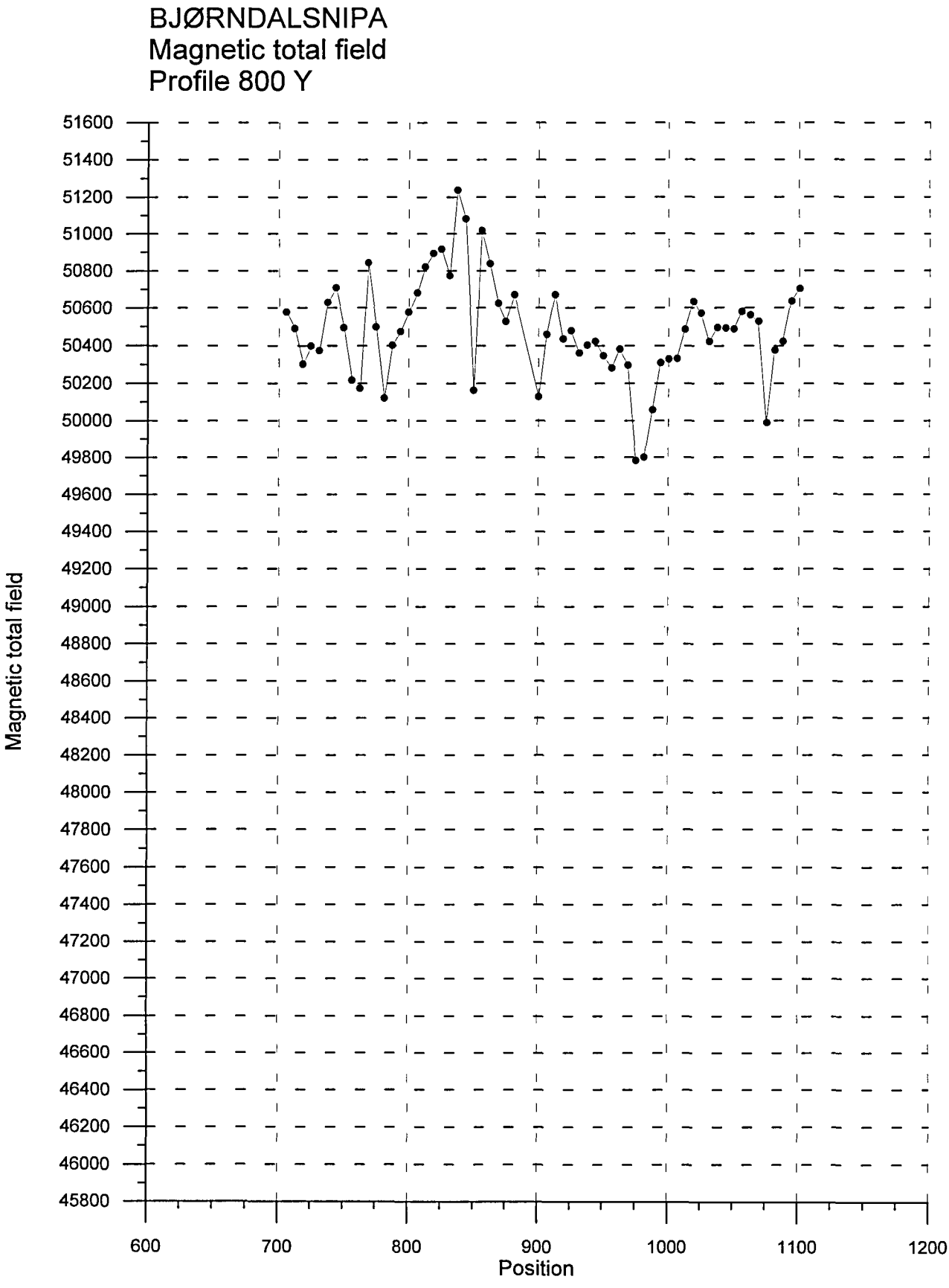


Figure 14. Magnetic total field profile 800 Y.

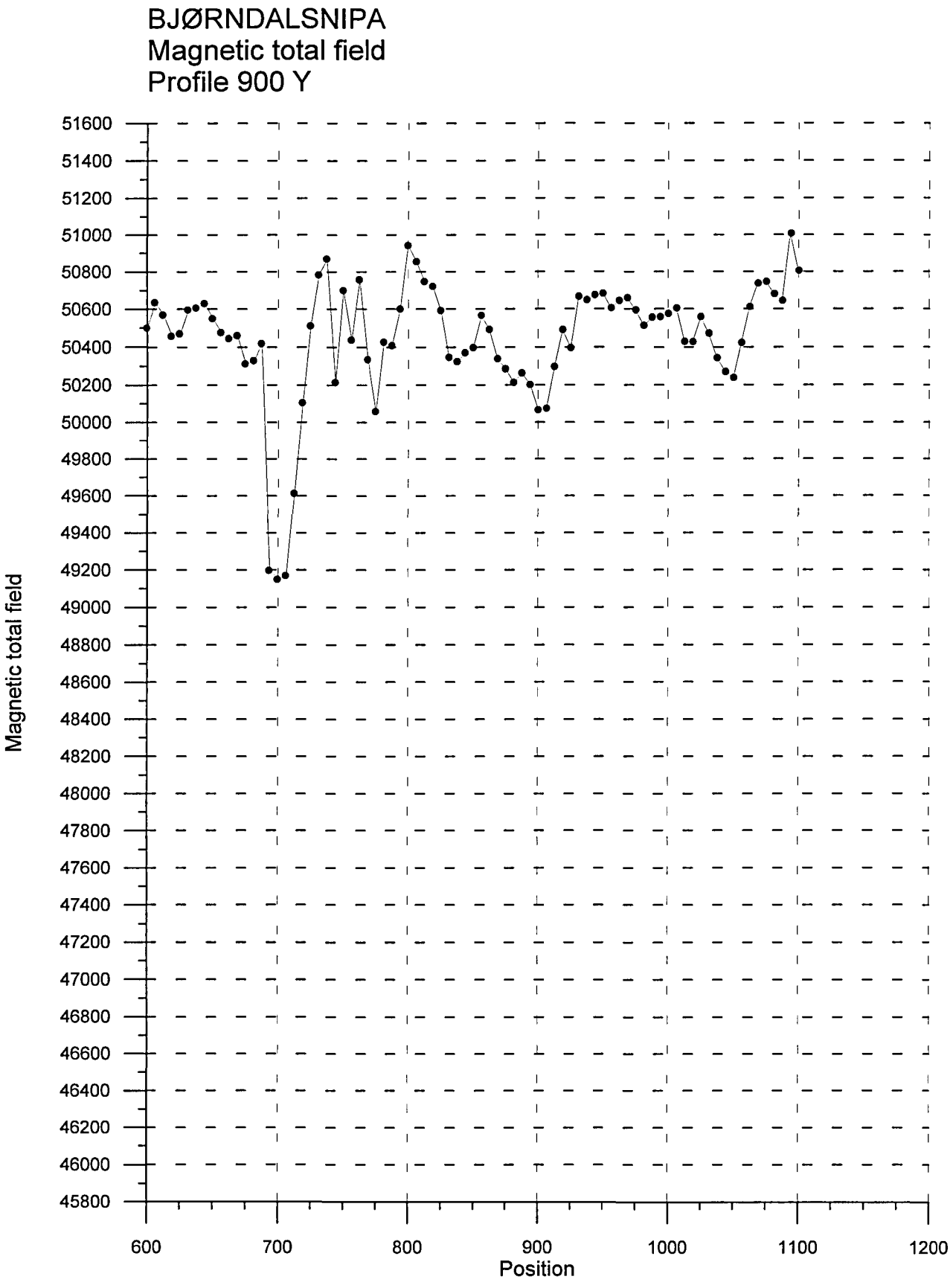


Figure 15. Magnetic total field profile 900 Y.

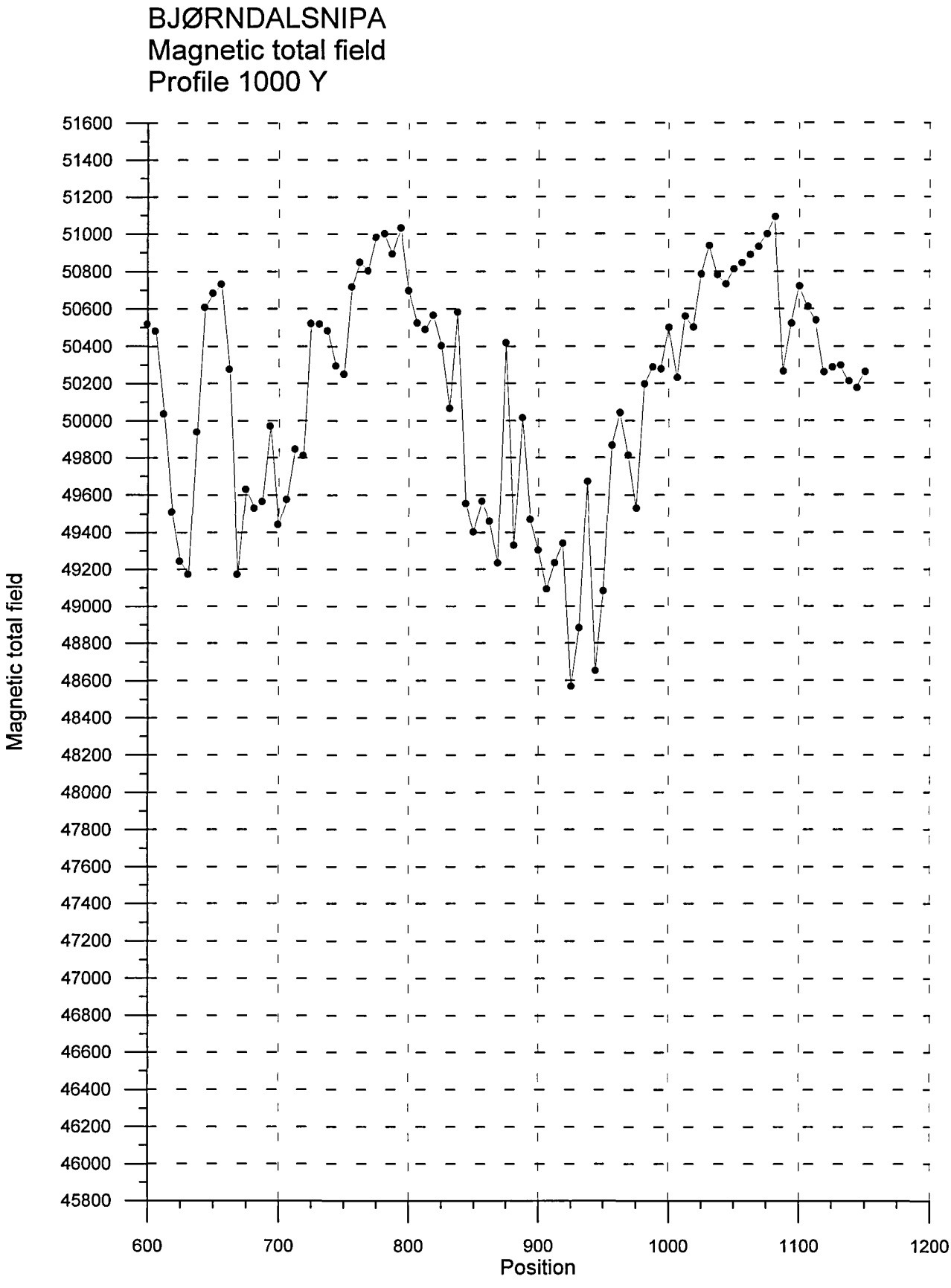


Figure 16. Magnetic total field profile 1000 Y.

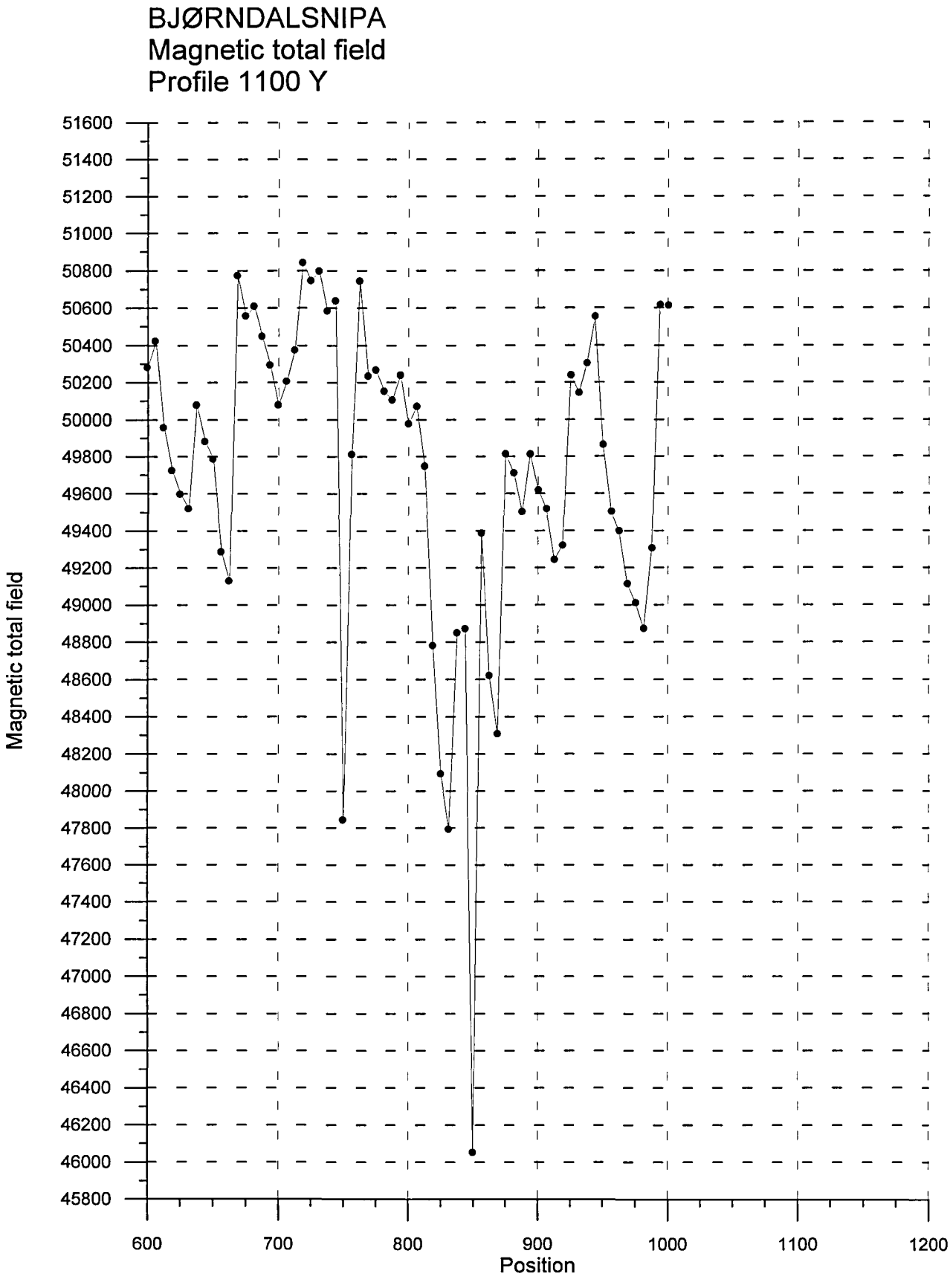


Figure 17. Magnetic total field profile 1100 Y.

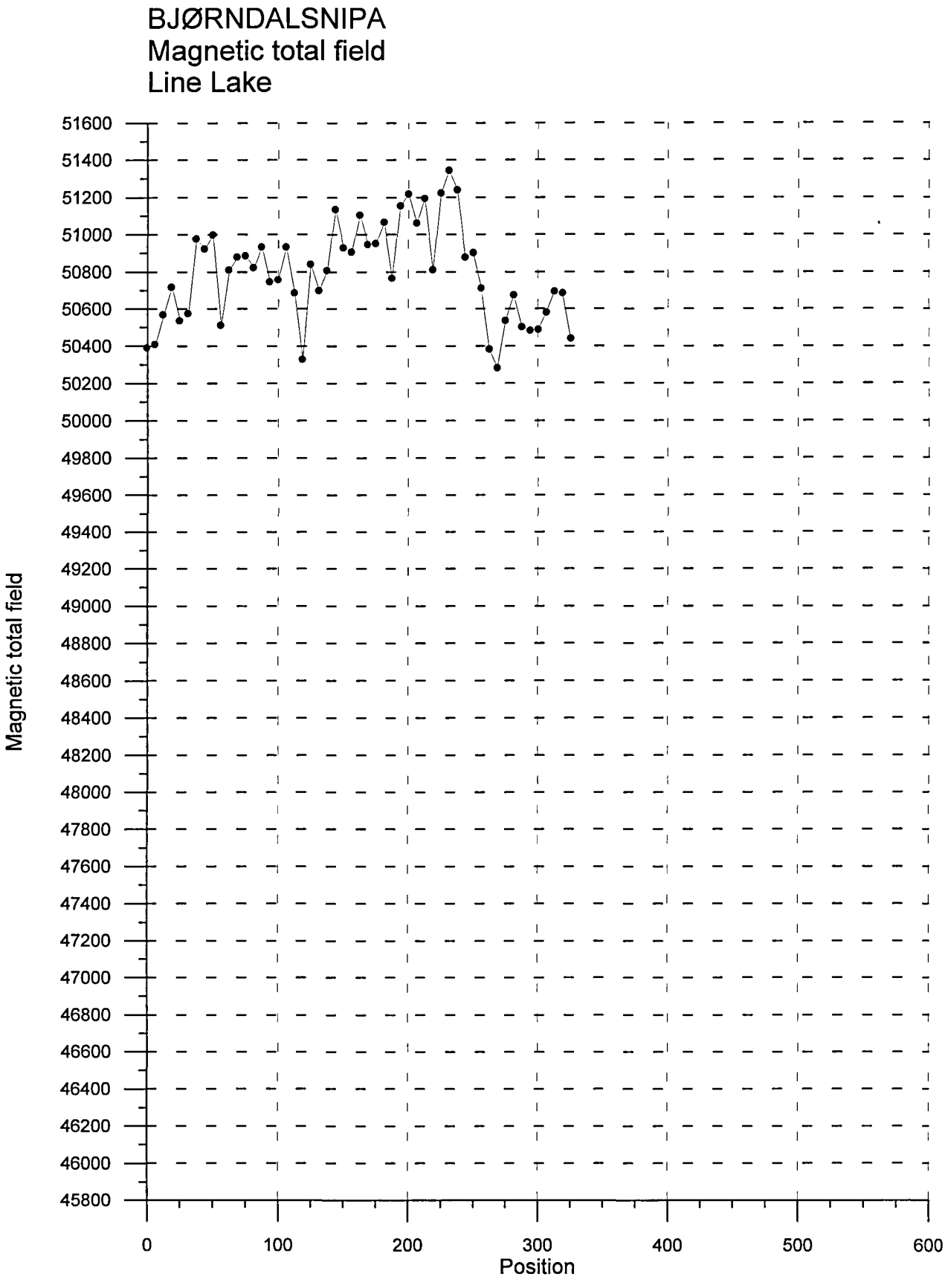


Figure 18. Magnetic total field line Lake.

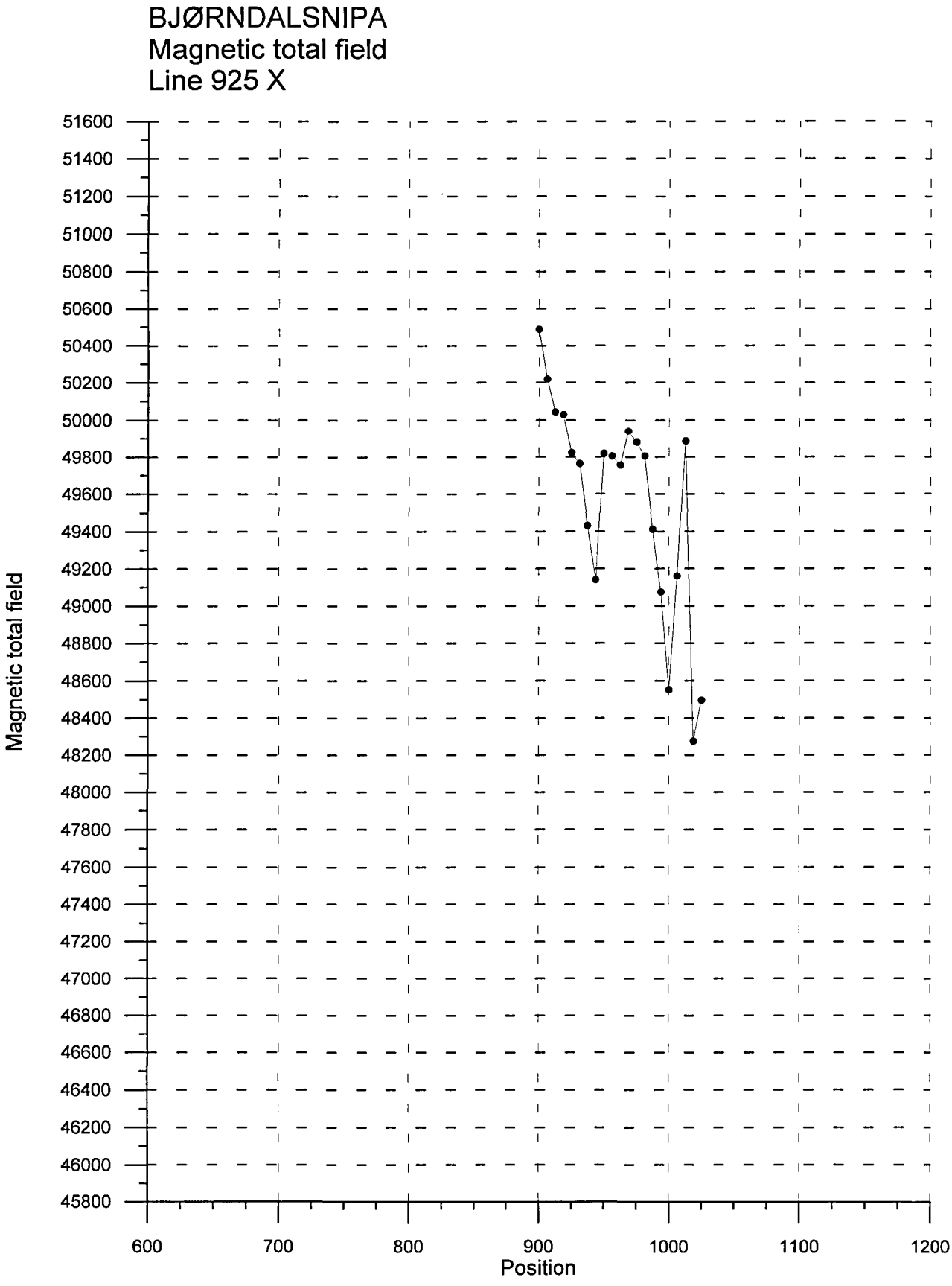


Figure 19. Magnetic total field line 925 X.

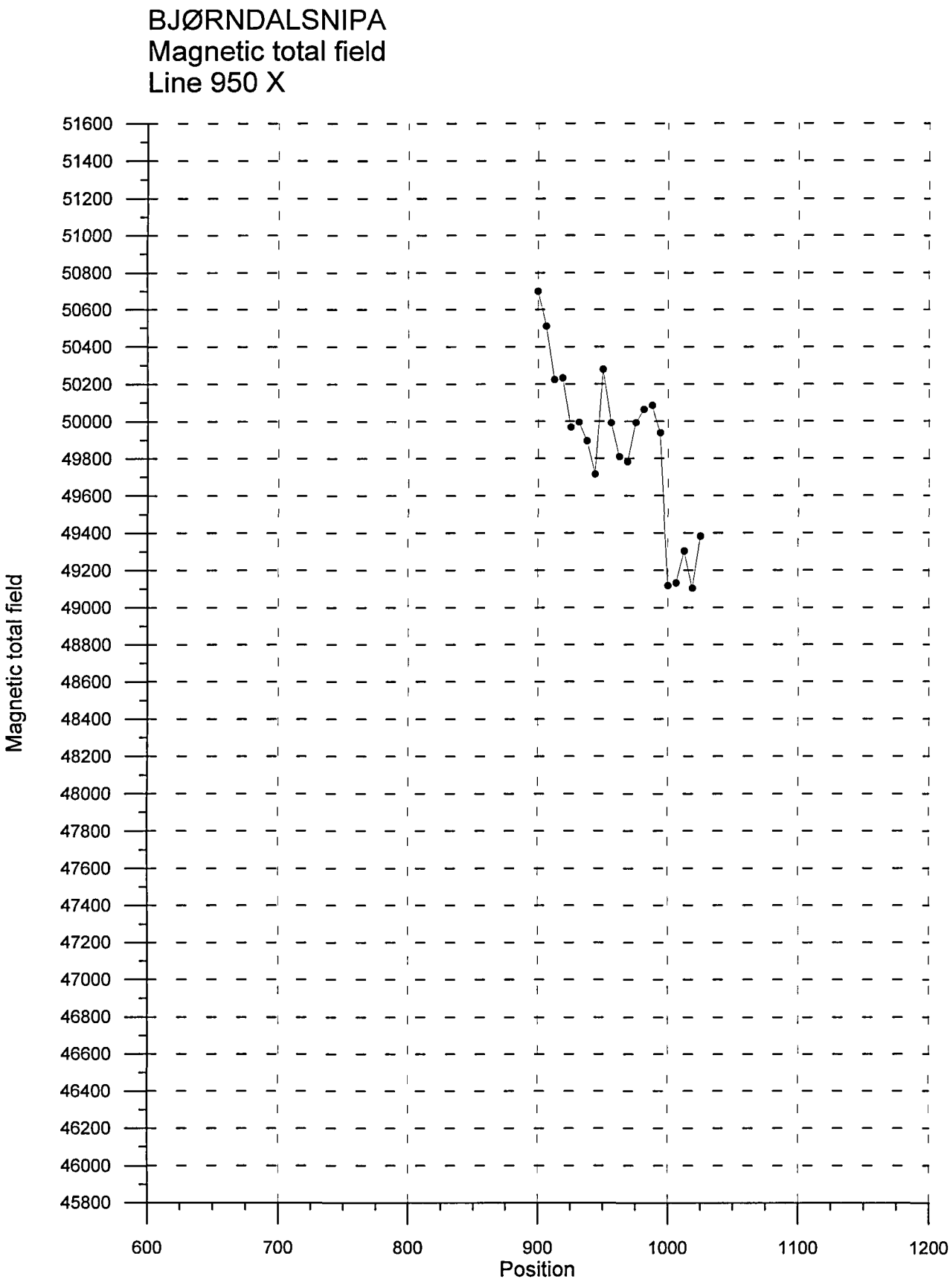


Figure 20. Magnetic total field line 950 X.

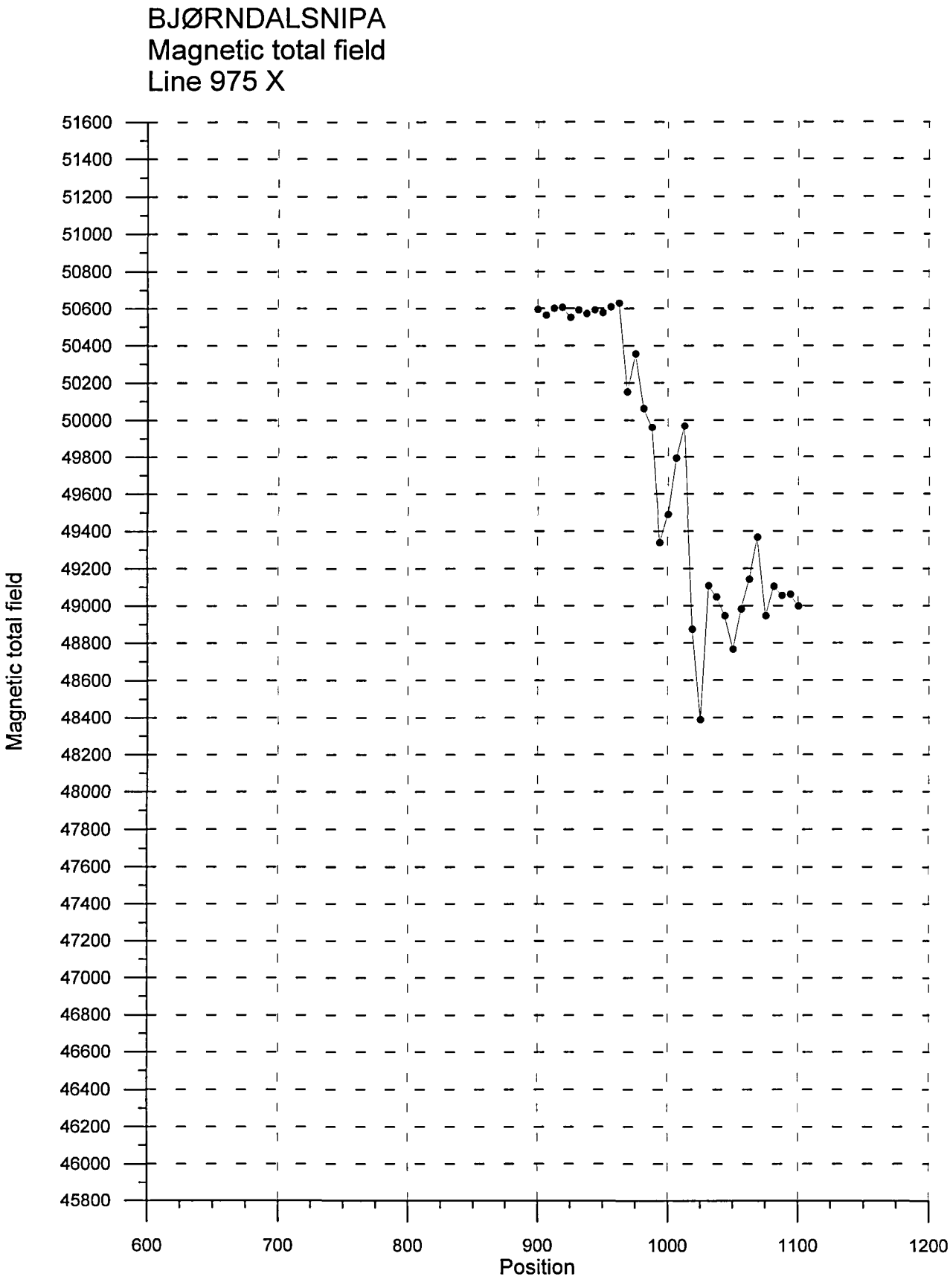


Figure 21. Magnetic total field line 975 X.

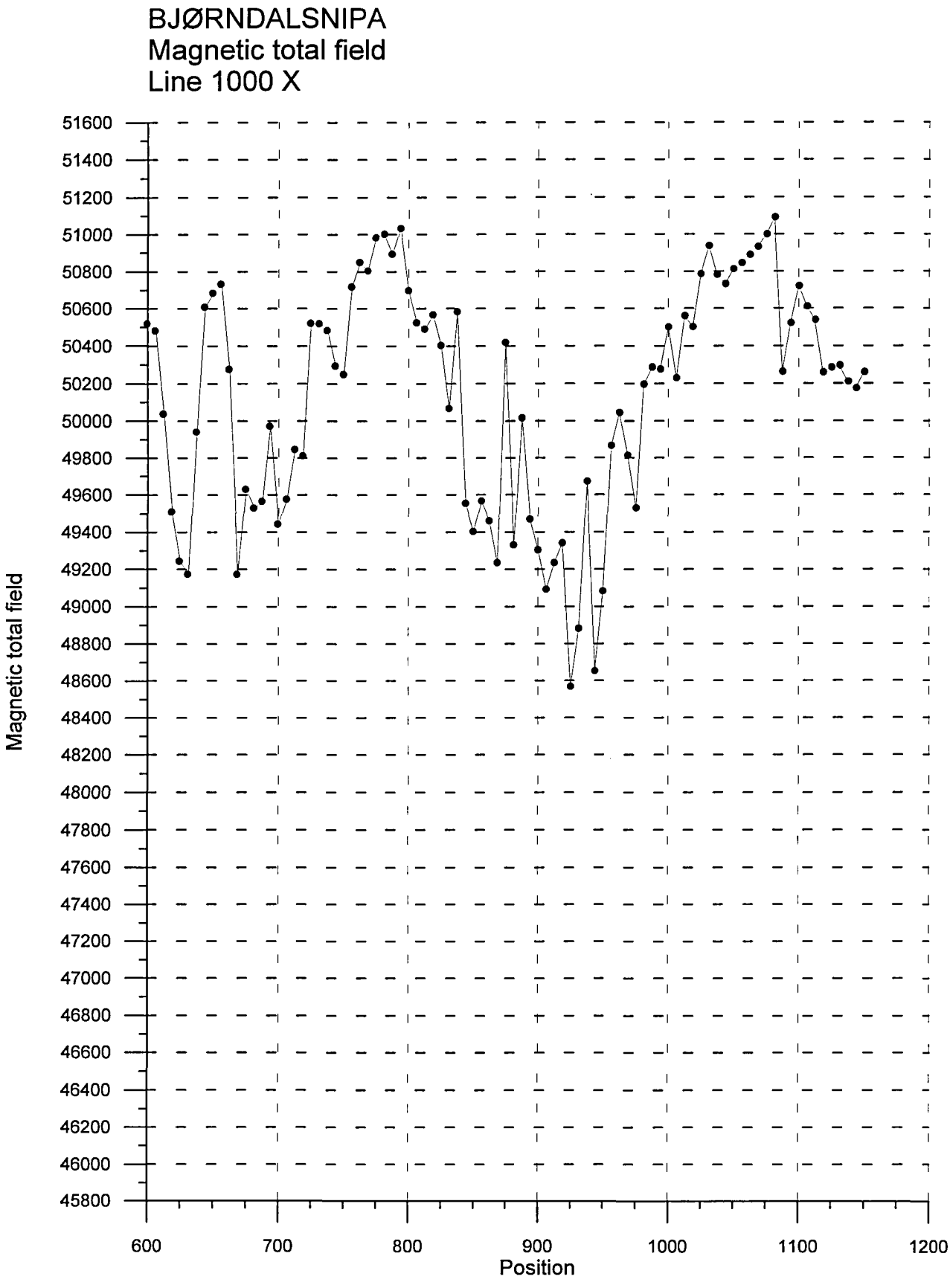


Figure 22. Magnetic total field line 1000 X.

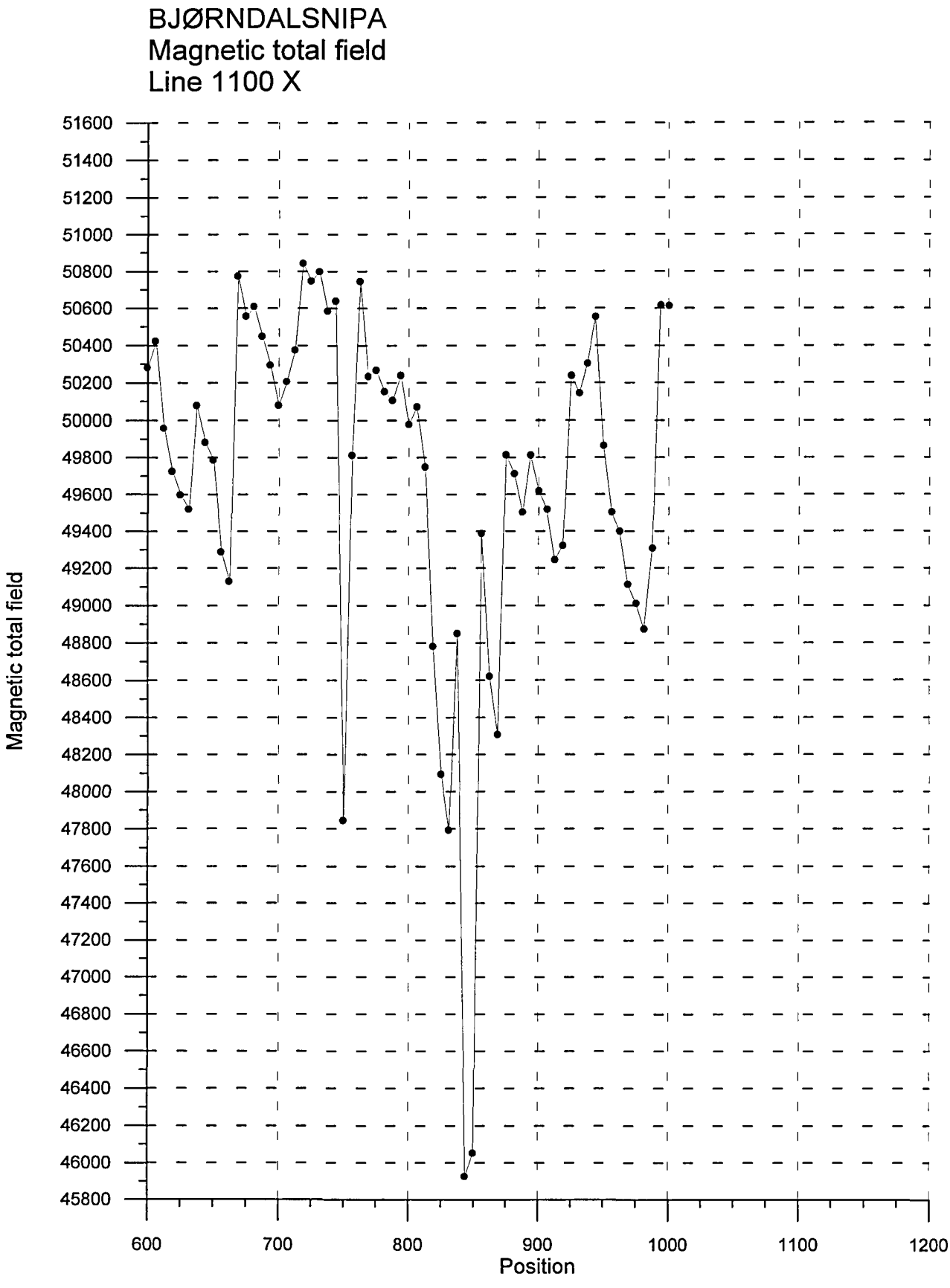


Figure 23. Magnetic total field line 1100 X.

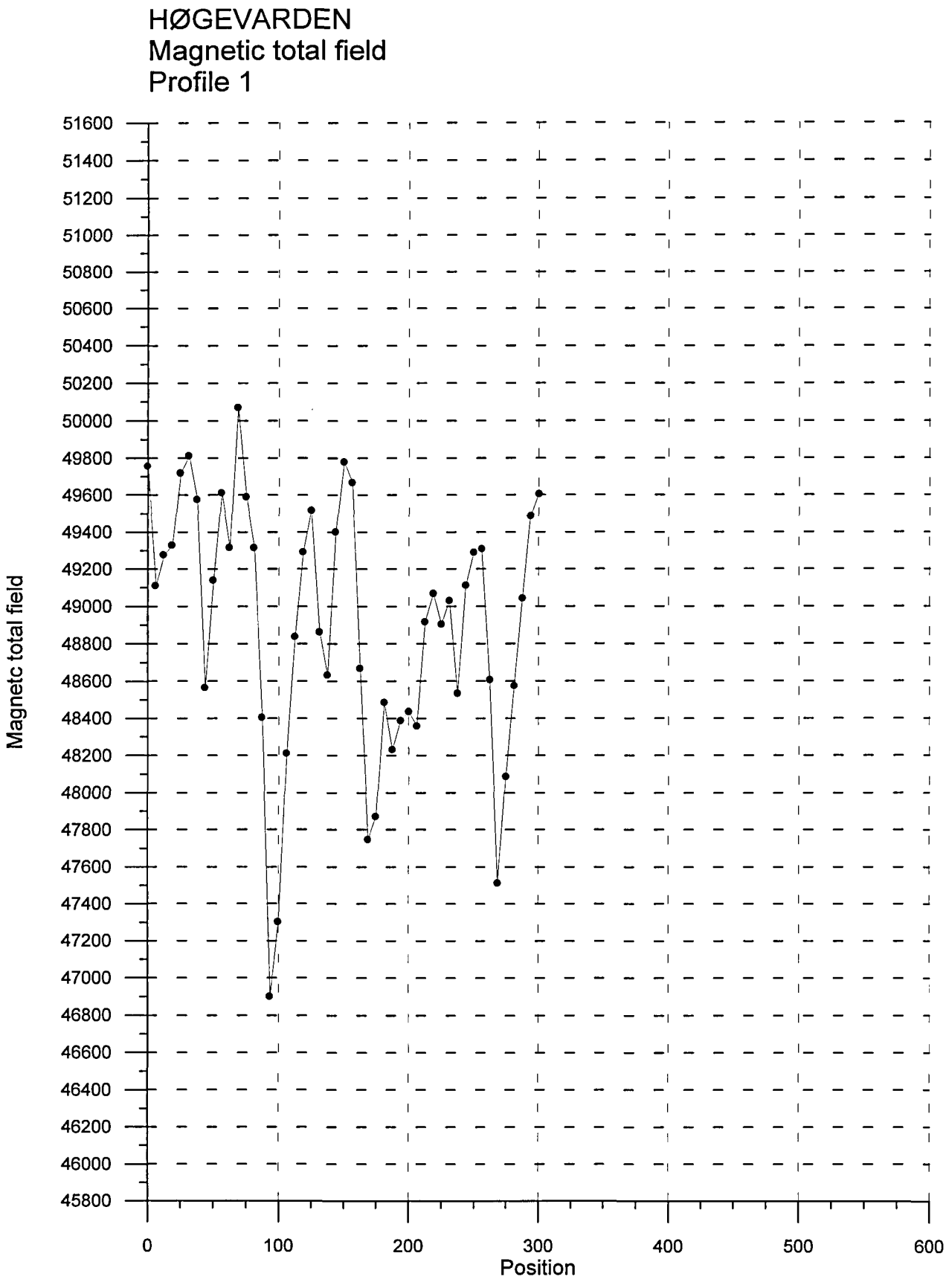


Figure 24. Magnetic total field profile 1.

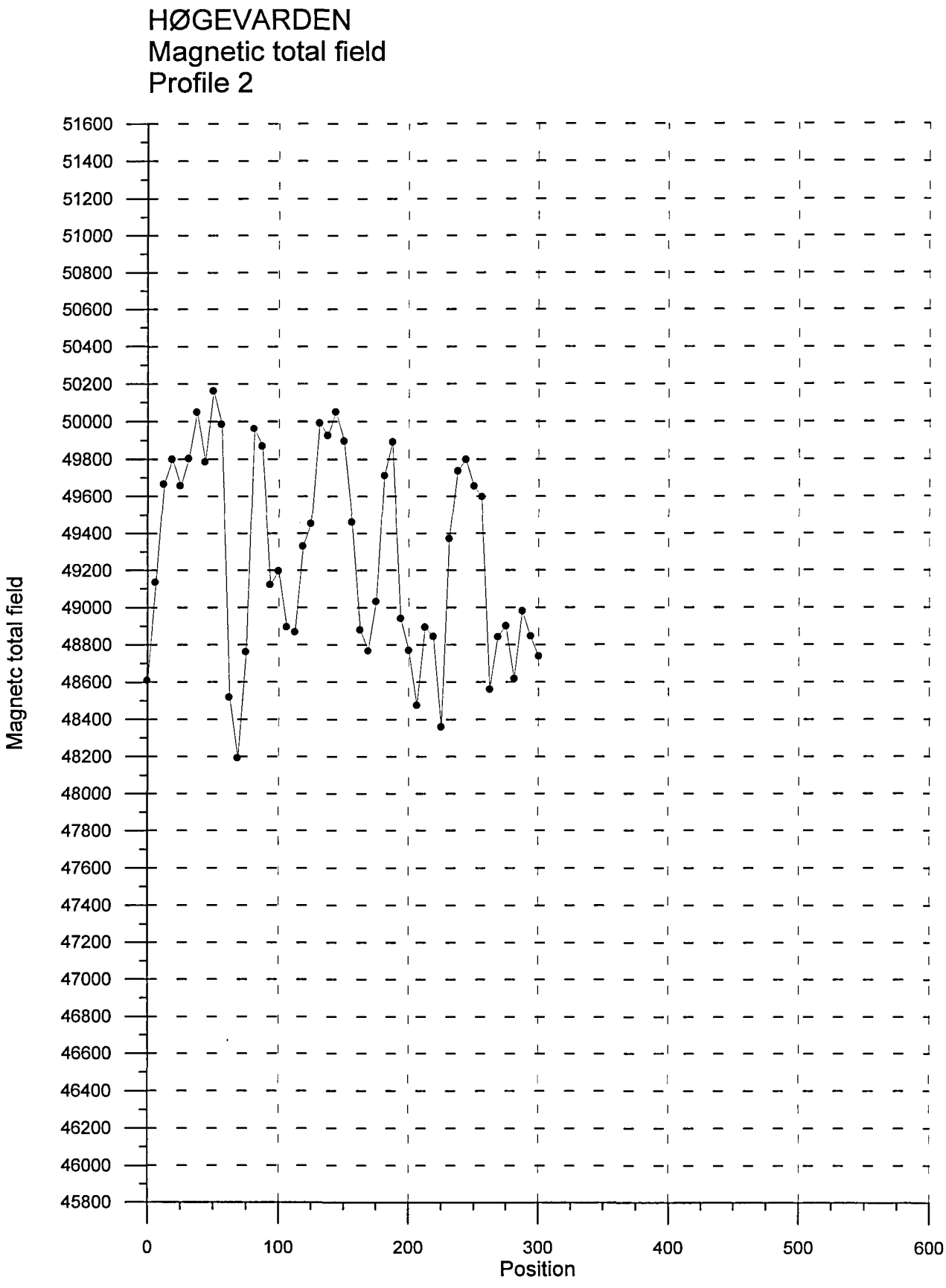


Figure 25. Magnetic total field profile 2.

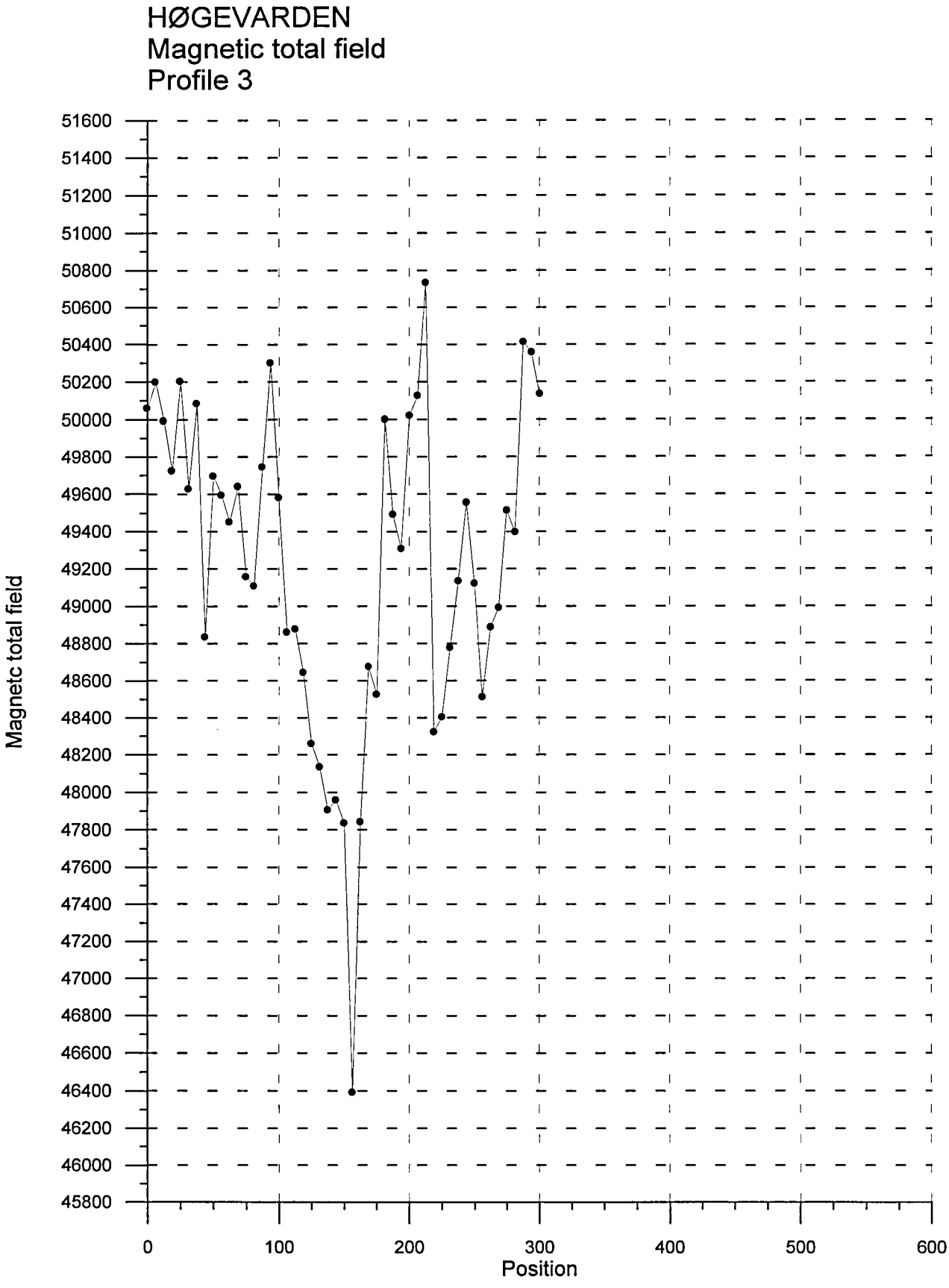


Figure 26. Magnetic total field profile 3.

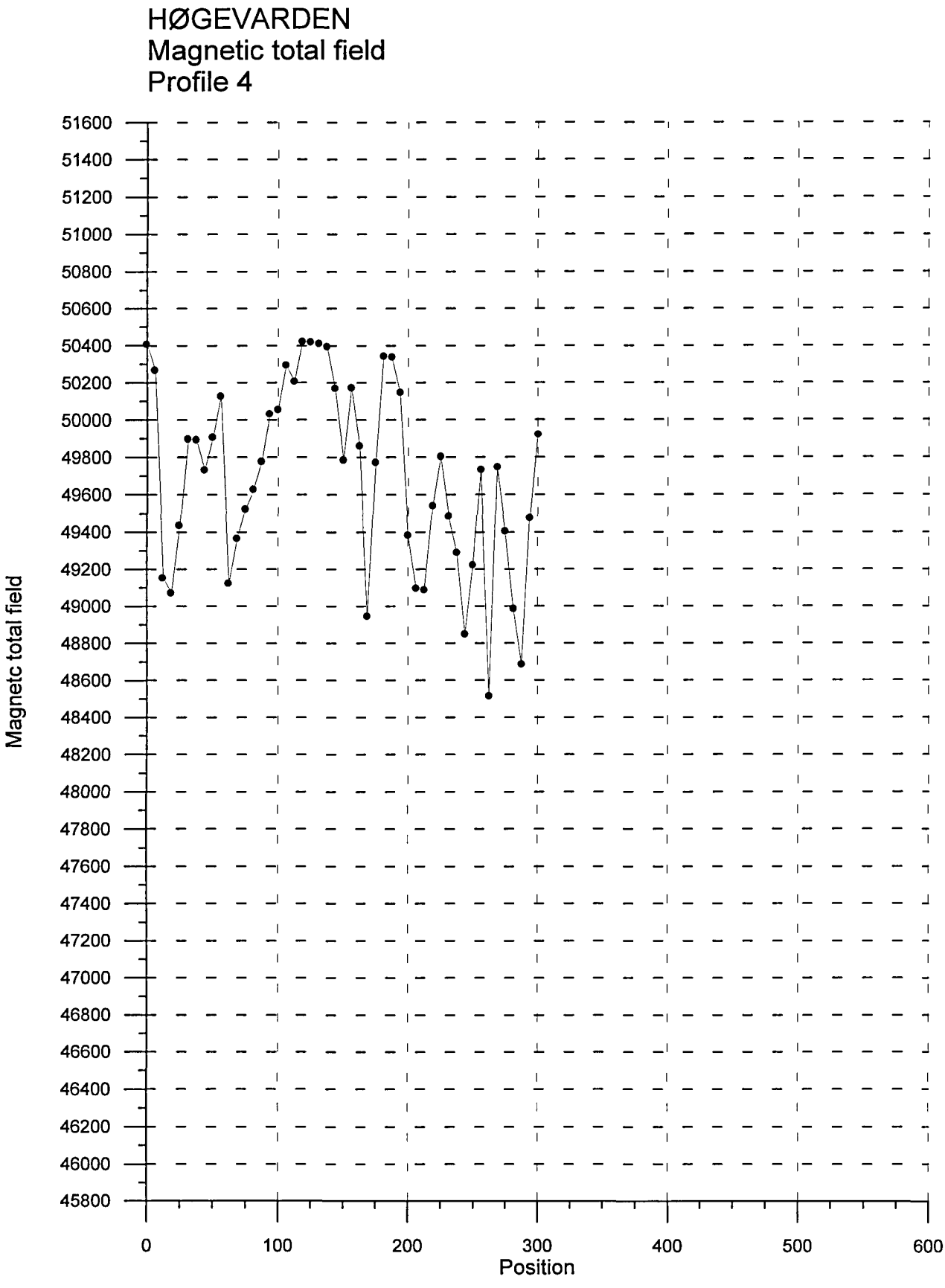


Figure 27. Magnetic total field profile 4.

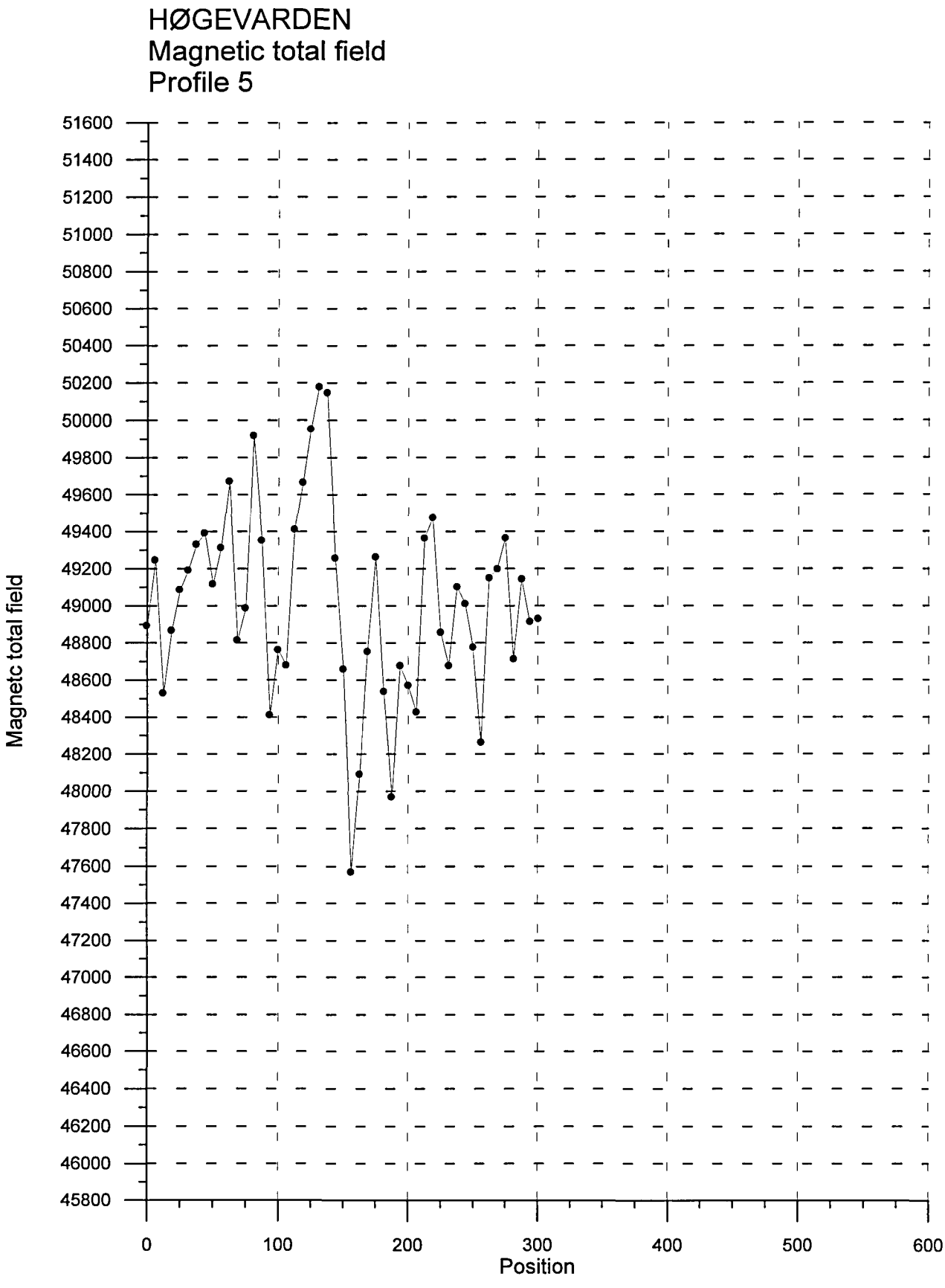


Figure 28. Magnetic total field profile 5.

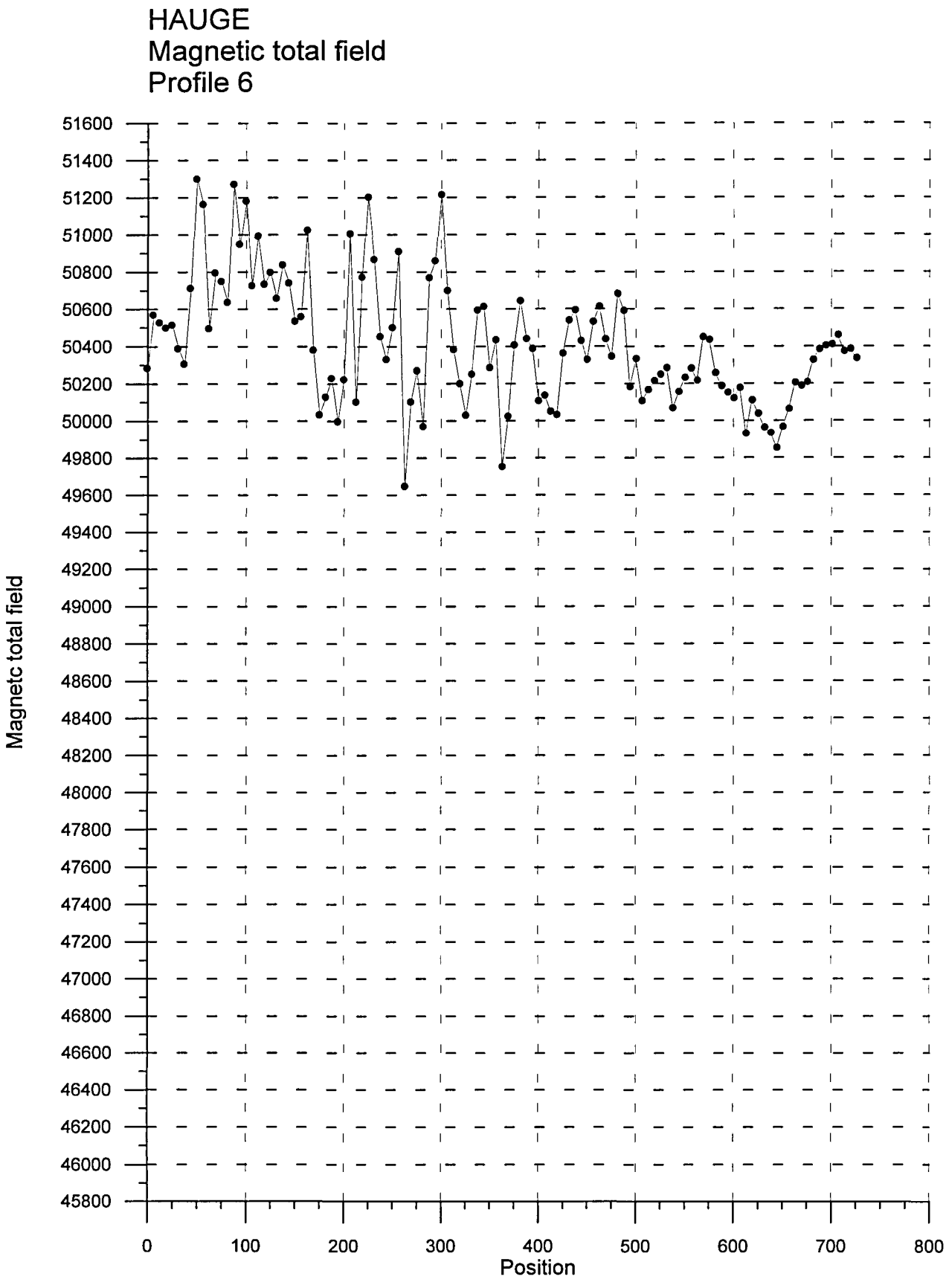


Figure 29. Magnetic total field profile 6.

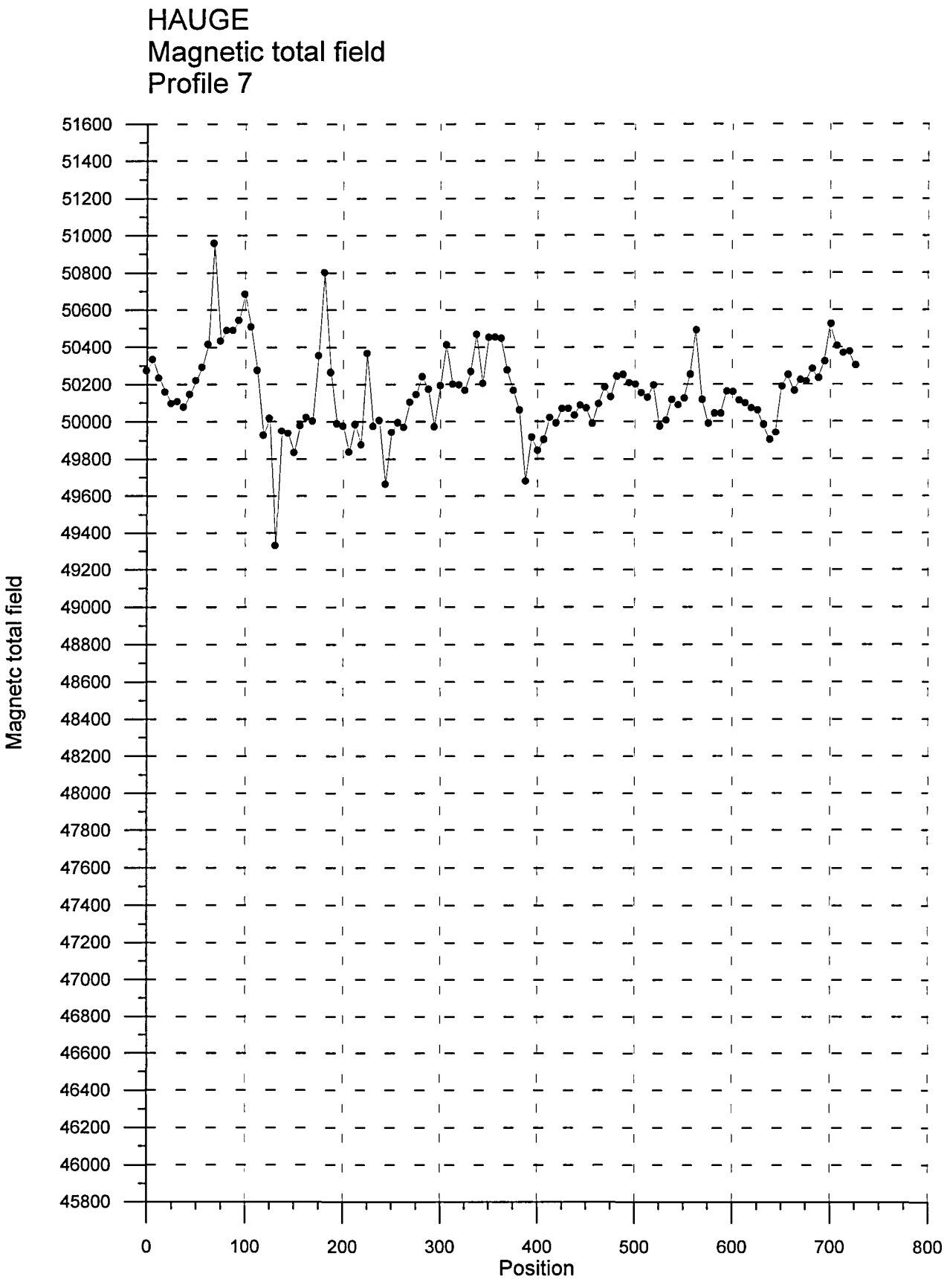


Figure 30. Magnetic total field profile 7.

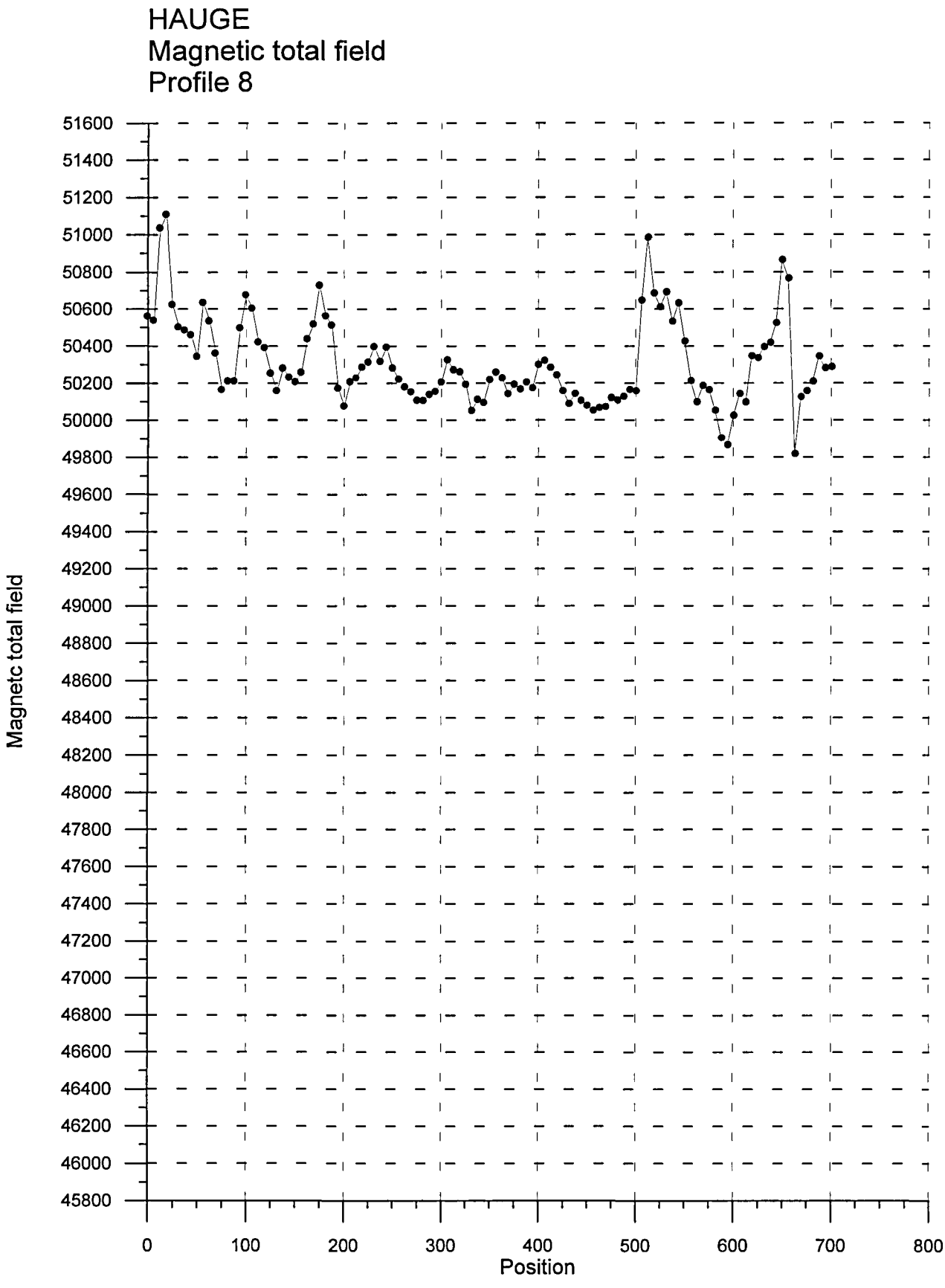


Figure 31. Magnetic total field profile 8.

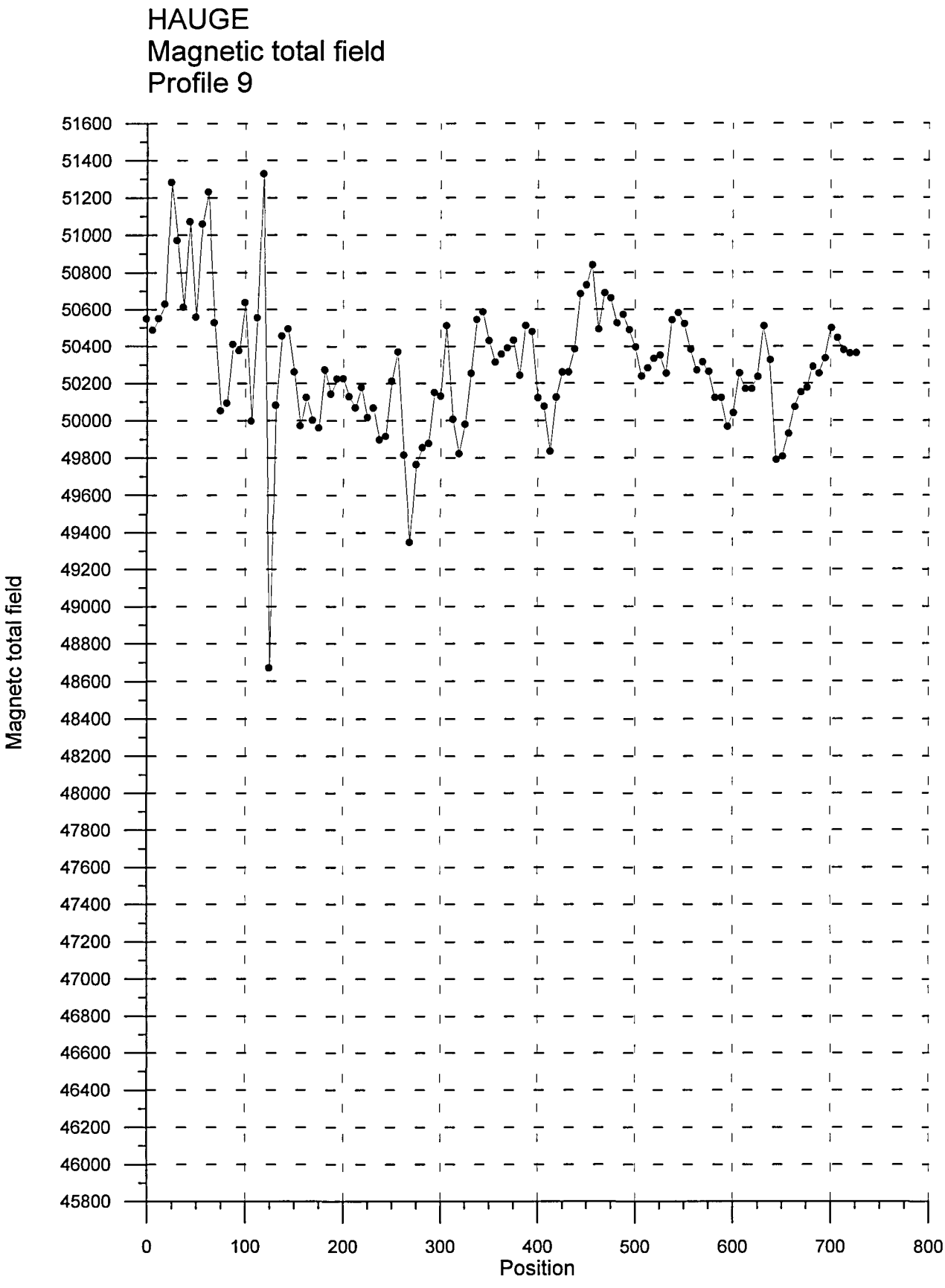
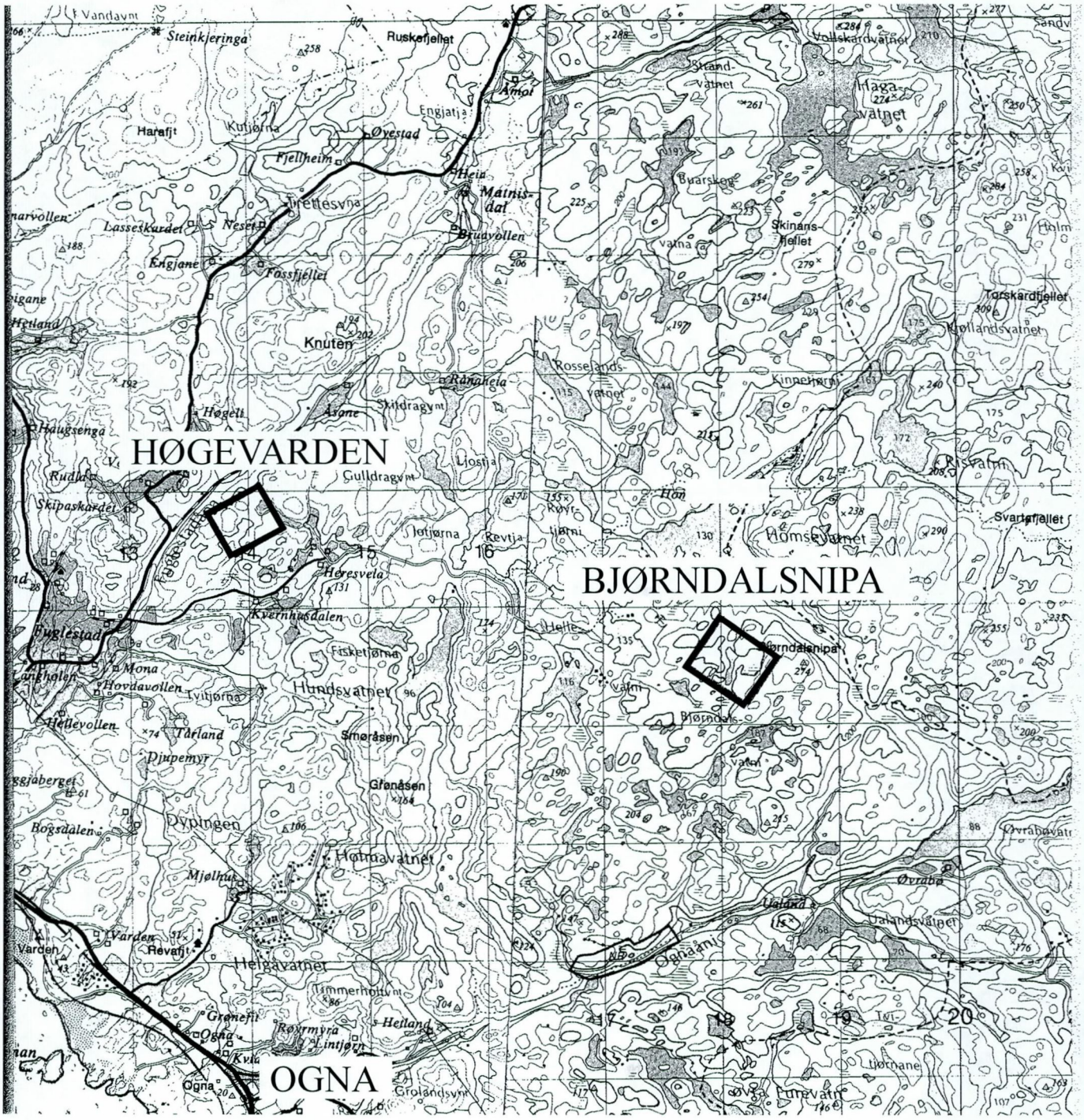


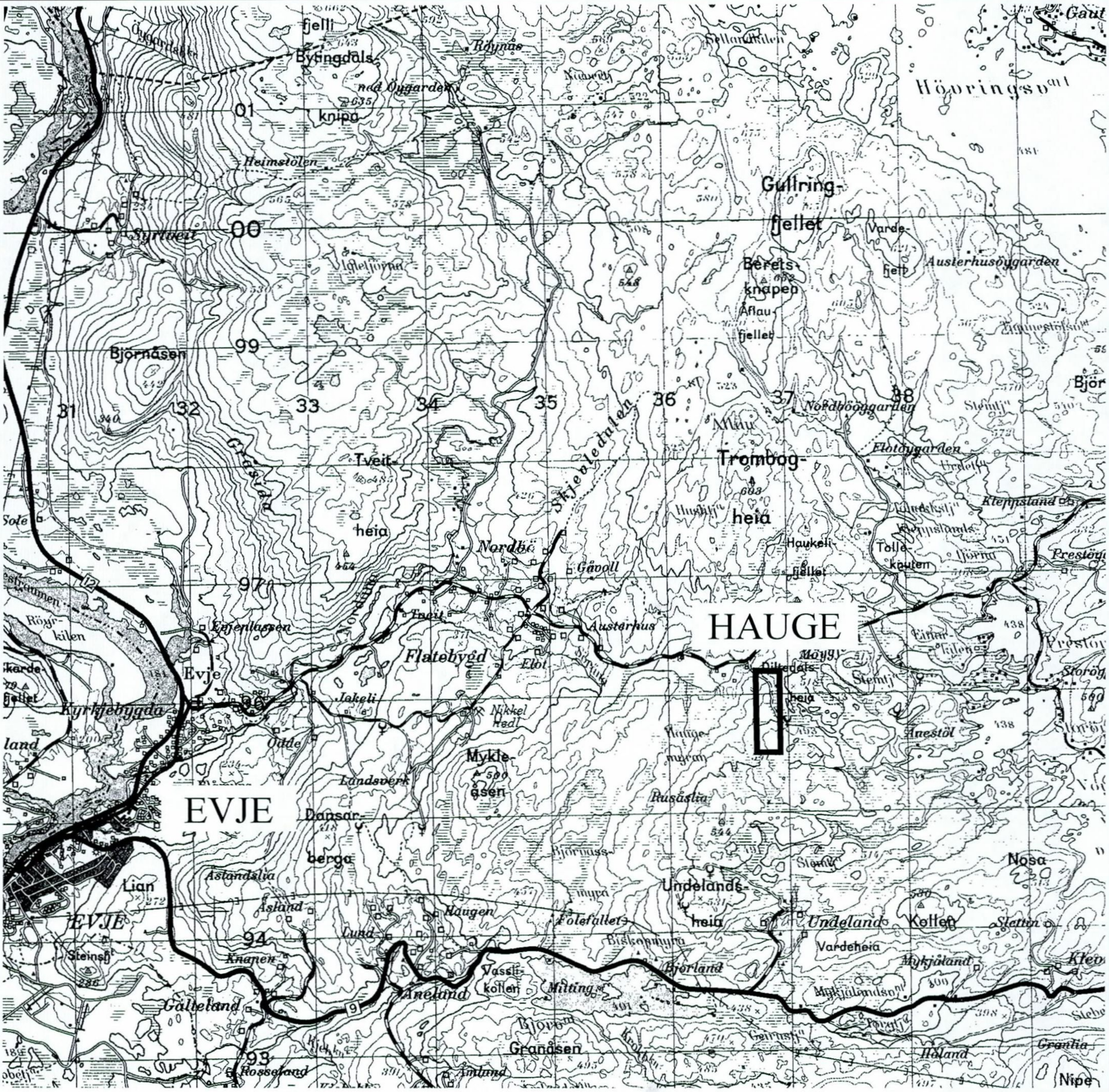
Figure 32. Magnetic total field profile 9.



INVESTIGATED AREAS

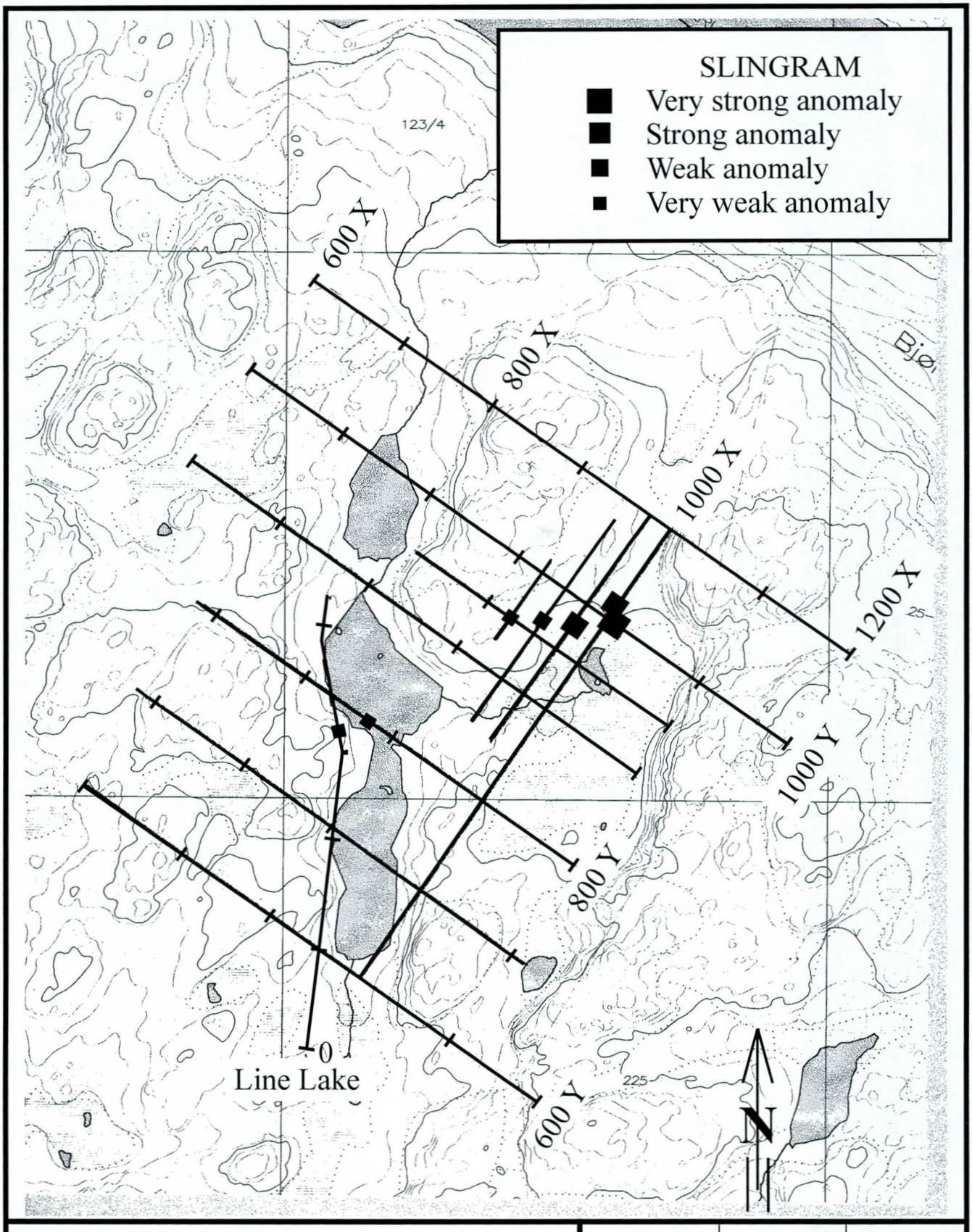
AMERICA MINERAL FIELDS INVESTIGATED AREAS BJØRNDALSNIPA AND HØGEVARDEN HÅ, ROGALAND	SCALE 1:50 000	OPER. E.D.	JULY -98
		DRAW E.D.	OCT. -98
		TRAC	

GEOLOGICAL SURVEY OF NORWAY TRONDHEIM	MAP NO. 98.135-01	MAP 1:50 000 1212 II - 1212 III



INVESTIGATED AREA

AMERICA MINERAL FIELDS INVESTIGATED AREA **HAUGE** EVJE OG HORNES, VEST-AGDER	SCALE 1:50 000	OPER. E.D. DRAW E.D. TRAC	JULY -98 OCT. -98
GEOLOGICAL SURVEY OF NORWAY TRONDHEIM	MAP NO. 98.135-02	MAP 1:50 000 1512 III	



AMERICA MINERAL FIELDS
SLINGRAM AND MAGNETIC GROUND SURVEY

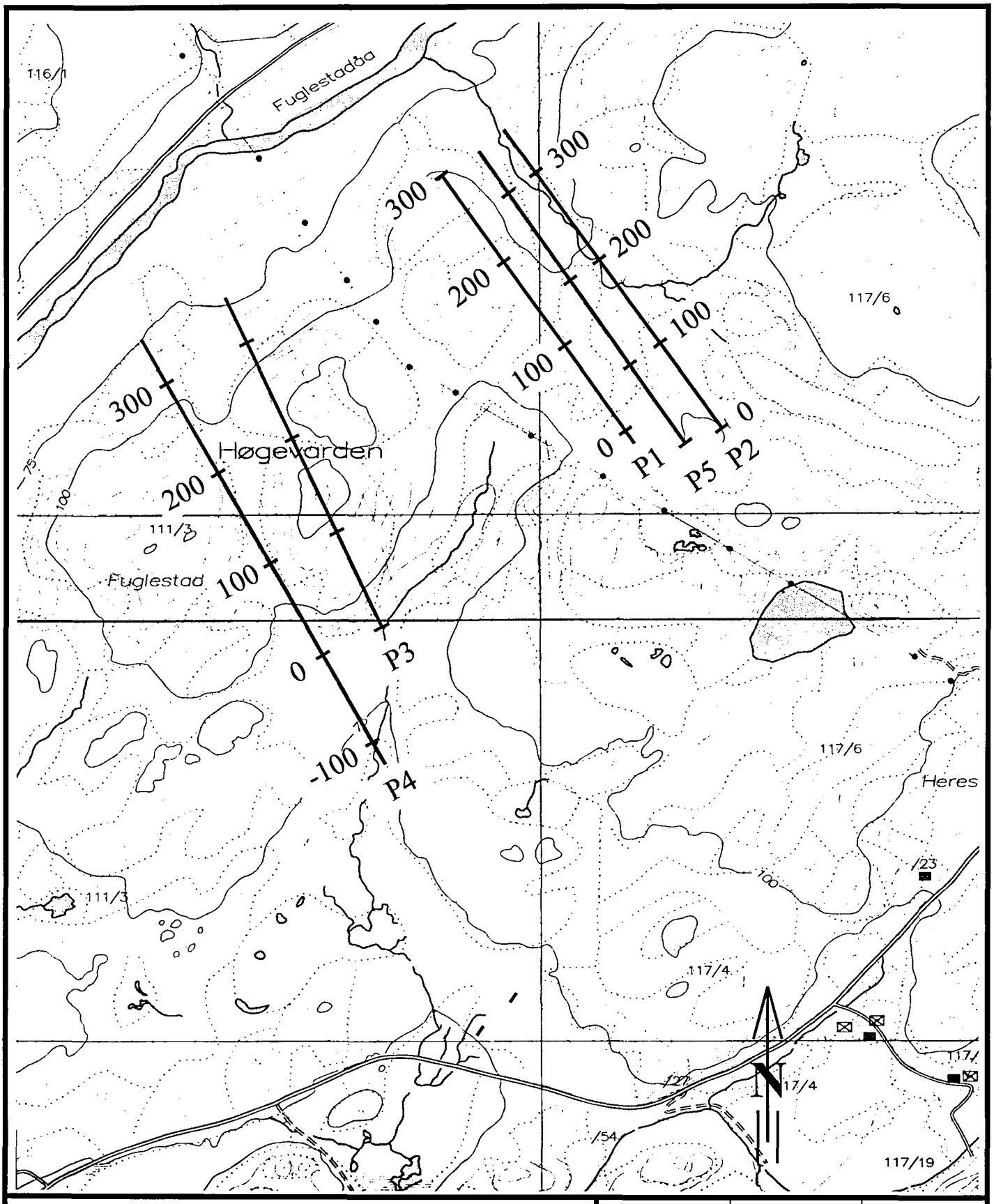
BJØRNDALSNIPA

HÅ, ROGALAND

SCALE	OPER. E.D.	July -98
1:5 000	DRAW E.D.	Oct. -98
	TRAC	

GEOLOGICAL SURVEY OF NORWAY
TRONDHEIM

MAP NO.	MAP 1:50 000
98.135-03	1212 II



AMERICA MINERAL FIELDS

SLINGRAM AND MAGNETIC GROUND SURVEY

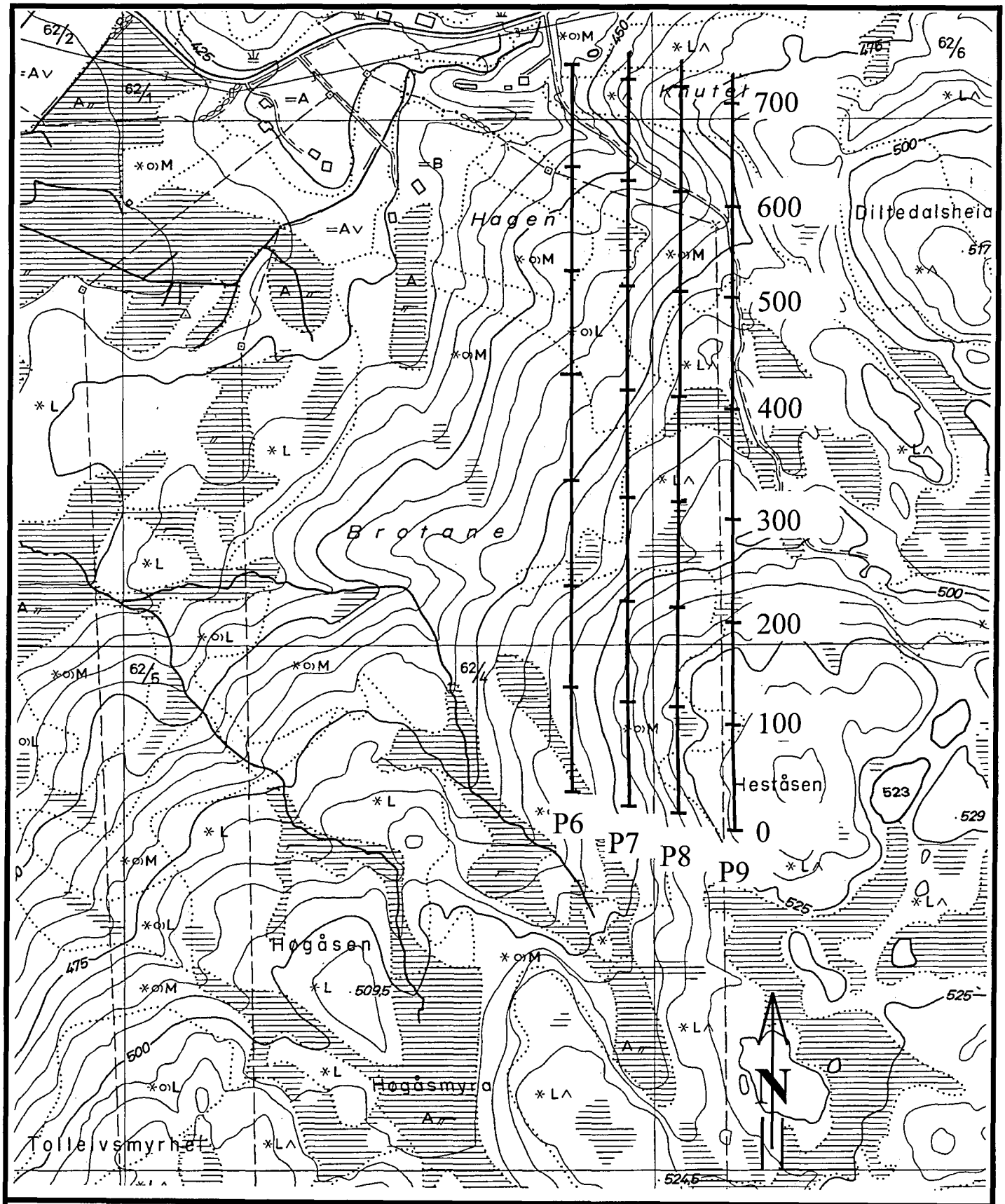
HØGEVARDEN

EVJE OG HORNES, AUST-AGDER

SCALE	OPER. E.D.	JULY -98
1:5 000	DRAW E.D.	OCT. -98
	TRAC	

GEOLOGICAL SURVEY OF NORWAY
TRONDHEIM

MAP NO.	MAP 1:50 000
98.135-04	1212 III



AMERICA MINERAL FIELDS

SLINGRAM AND MAGNETIC GROUND SURVEY

HAUGE

EVJE OG HORNES, AUST-AGDER

SCALE	OPER. E.D.	JULY -98
1:5 000	DRAW E.D.	OCT. -98
	TRAC	

GEOLOGICAL SURVEY OF NORWAY
TRONDHEIM

MAP NO.	MAP 1:50 000
98.135-05	1512 III