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Tittel

The geology of the Segelvann area

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ORKLA INDUSTRIER A.s
MINING SECTION, EXPLORATION

GULF - ORKLA

LØKKEN VENTURE

REPORT NO.: L.V.6 DATE: 13.1.82
TITLE: The geology of the Segelvann area

ORKLA INDUSTRIER A.S.

MINING SECTION, EXPLORATION

Report no: L.V.6	Date: 13.1.82
Title: The geology of the Segelvann area	
Prepared by: Åse Bollingmo	Areas name: Segelvann area
Map no., name: 15213 Løkken	Coordinates (UTM): NW-corner: 293026
Field work period(s): 21.9 - 7.9	Pages: 5 Map enclosures: 6

Summary (purpose, execution, results):

This summer's investigations were meant as a preparation for placing a diamond drill hole. Especially the tectonic conditions in the area were mapped in detail.

The lithological boundaries on the previous map (Thesis ÅB, M.5.81) were revised to a certain degree.

According to varations in schistosity the rock complex seems to lie in a synformal structure with E-W-stiking axis. The metagabbro in the east is most probably extending underneath this saucershaped structure.

The area is probably cut by several faults and other zones of weakness.

Key words: Geological mapping, VLF, magnetometer, AMT, diamond drilling

Project initiated (date): 21.9.81	Report finished (date): 13.1.82

C O N T E N T

1. Introduction

The Segelvann area covers about 1 km^2 between Segelvann, Hoslynga and Litlvatnet west of Orkla river (Encl. 1).

As a continuation of the detailed investigations in the area, a diamond drill hole is planned.

As a preparation for the drilling the geological map from 1980 (Thesis ÅB) was controlled and revised to a certain degree.

The tectonic conditions in the area were mapped as exactly as possible, to avoid problems during the drilling.

In addition to the geological map, VLF-, magnetometer- and AMT measurements have decided where the drill hole will be put.

2. Geology (ÅB,TG)

Greenstones of the Støren group dominate the are (Encl. 2). In general these are massive, but several localities with pillow lava are observed. In some cases the pillows are lying upside down, so at least parts of the rock complex are inverted.

Alteration of the greenstones is common. Especially the albitization is interesting. Both in the Høydalen and the Løkken mine this kind of alteration occurs in the stratigraphical footwall of the massive ore body It is supposed to have a direct connection with the ore formation.

Besides the greenstones one find felsite and a felsite-like more intermediate rock. It is not certain whether the acid to intermediate "felsites" represent intrusives or extrusives (or both); however an intrusive origin is thought to be the most likely.

To the north and east, the greenstones and felsites have boundaries to a metagabbro.

The greenstones contain one known "vasskis" horizon, which outcrops near Litlvatnet. Jasper is observed in a few localities.

According to the variations in strike and dip of the schistosity, the rock complex seems to lie in a synformal structure with an E-W axis.

The metagabbro to the north and east is most probably extending down beneath the greenstones/"felsites" in this saucershaped structure, although there is very little evidence for such an interpretation in the rest of the area.

Several zones of weakness in different directions cut through the area. As can be seen on the vertical profile (Encl. 3), some of them are interpreted as steep faults.

The dip of the faults is not known, and it is possible that they dip to the north, and not to the south as indicated on the profile.

The interpretations are done by means of several assumptions. For example, we know very little about the shape of the gabbro body, although by Merkesbekken, south in the area, I have found a rock-type which may represent the southernmost outcrop of the gabbro. If that is really the case, it supports the structural interpretations mentioned above (the saucershaped structure).

Next, knowledge about the greenstone - felsite - relationships is lacking and also we know very little about the felsites/felsite-like rocks and the relationships between these.

Another difficulty in this area is to distinguish between the greyish, altered greenstone and the intermediate felsite-like rock-type.

3. Discussion of VLF mesurements (KBC,ÅB)

Data:
* Profile direction: NE-SW
* Profile intervals: 100 metres
* Measurement intervals: 25 metres
* VLF station: NAA, 17,8 kHz
* Measurement area: 1,2 km^2

Interpretation of results

There are several quite good conductors in the area. This can be seen both from the dip angle- and the imaginary component map (Encl. 4), and also from the Frazer contouring map (Encl. 5). The following table gives a short description of these conductors and their possible explanation. The anomaly numbers refer to the dip angle- and imaginary component map.

Anomaly nr	Dip	Depth	Remarks
1	rel. steep W-SW	rel. shallow	Weak anomaly corr. with the gabbro/greenstone contact
2	rel. slight SW	shallow	May be interrupted between 800 and 1100x. Based on shape and direction: Might be a jasper/cherf zone
3	rel. slight SW	rel. shallow	Same as anomaly nr 2. Strong anomaly around 600-700x, should be further examinated
4	slight SE		Weak anomaly
5	rel. steep SE		Strong anomaly. Might be a "vasskis" horizon parallel to anom. (6) and (8). Might be interrupted by a fault
6	rel. steep SE	shallow	Same as anomaly (5)
7	slight SE	rel. shallow	There might be a connection to anomaly (8), the observed "vasskis" zone
8	steep SE	shallow	"Vasskis" zone, can be seen along Litlvatnet

General remarks: Some of the VLF anomalies interfere partly with old Turam anomalies.

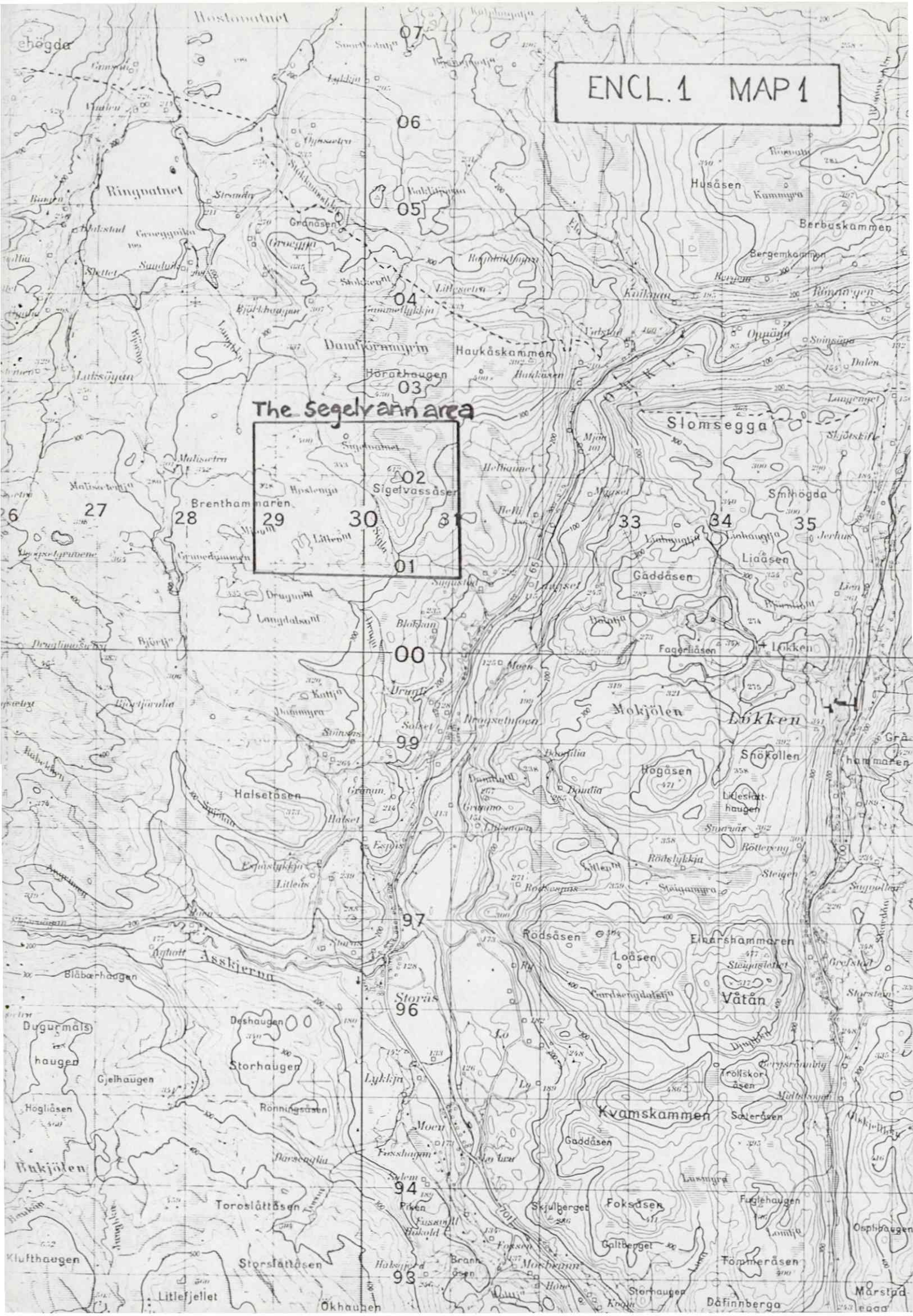
AMT measurements in 1981 have also shown a conductor which corresponds with the VLF anomalies (2) and (3).

VLF anomalies (3), (4), (5), (6), (7) and (8) can also be seen at the total magnetic field map (Encl. 6).

4. Conclusion

If we put a diamond drill hole at point D on Encl. 3 and drill steeply to the south we

- get the maximal amount of geological information
- hope to avoid deviation and caving in because of schistosity or faults
- have a chance to hit the AMT indications
- may find the reason for a VLF anomaly


ENCL. 1 MAP 1
The Segelvann area
07
06
05
04
03
02
01
00
99
97
96
94
93
Ringpatnet
Granåsen
Haukåskammen
Horathaugen
Sigelvassåsen
Brenthammaren
Slomsegga
Husåsen
Berbuskammen
Smihogda
Gåddåsen
Liaåsen
Fagerliåsen
Lökken
Mokjölen
Shokollen
Högåsen
Halsetåsen
Rödsåsen
Eikarshammaren
Loåsen
Våtån
Asskjerna
Storås
Storhaugen
Kvamskammen
Foksåsen
Skjulberget
Galtberget
Tømmeråsen
Storslåttåsen
Toroslåttåsen
Littlefjellet
Ökhaugen
Dåfinnberga

THE GEOLOGY OF THE SEGELVANN AREA

Scale : 1:5000

Contour interval:

Segelvatnet

Hoslynga

Litlvatnet

VLF base-line 1000Y

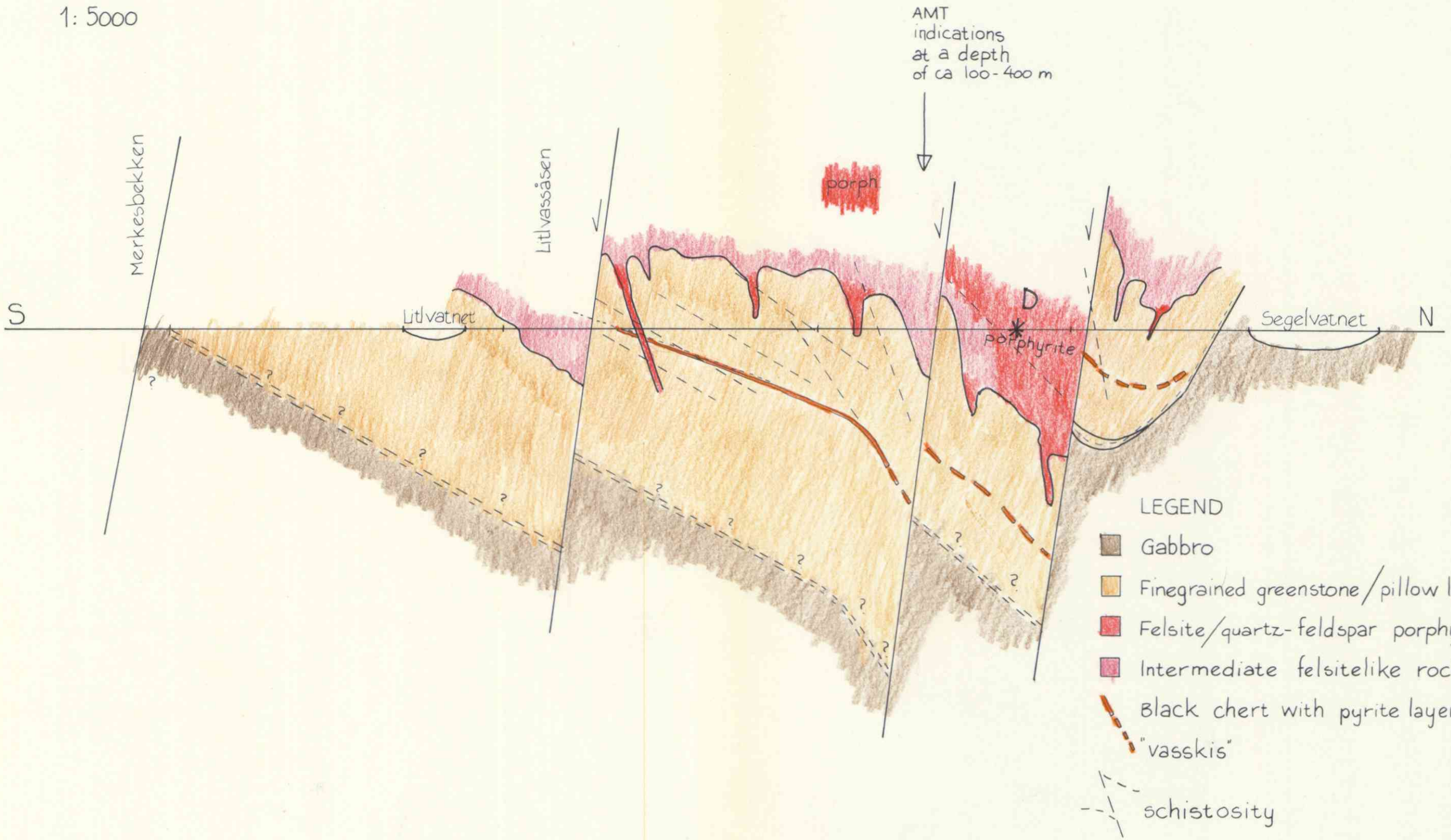
LEGEND

1 Finegrained greenstone/pillow lava
2 Corsegrained greenstone/ dolerite
3 Gabbro
4 Felsite/quartz - feldspar porphyrite
5 Intermediate felsitelike
6 Jasper
Lithological border
Fault
Strike/dip schistosity
Strike/dip layening
Alteration, grayish
Fold axis, synform
Strike/dip flattening, vesicles

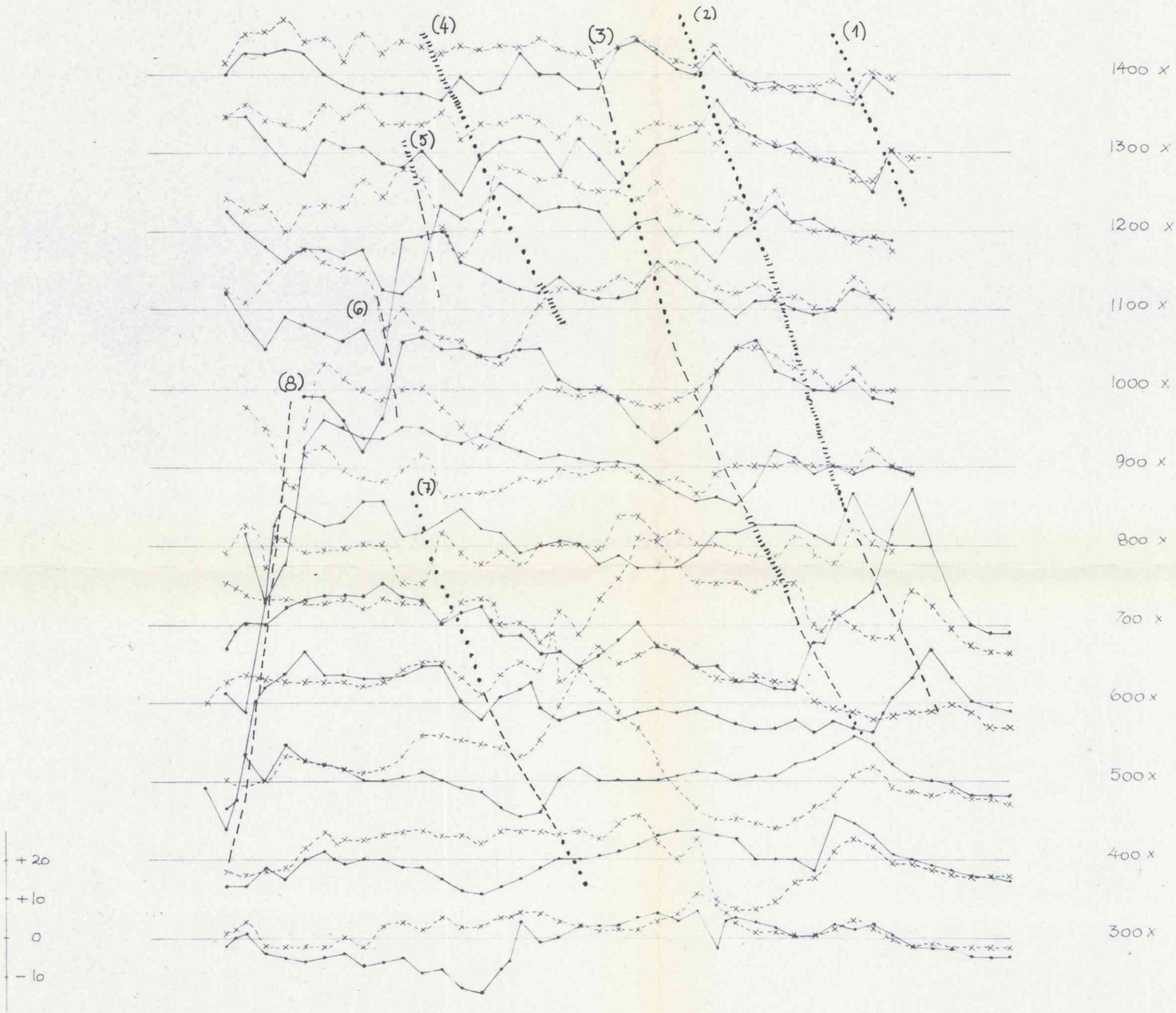
	Scale: 1:5000	Draw:	ÅB
		Trac:	ÅB
		13.1.82	
Orkla Industrier A·s 7332 LØKKEN VERK Gulf - Orkla Venture	NO:		

Profile A-A, Segelvatn area, preliminary interpretation (TG, ÅB)

1: 5000



500 y 700 y 1000 y 1400 y 1500 y

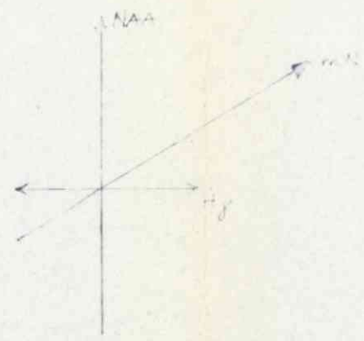


INTERPRETATION OF ANOMALIES :

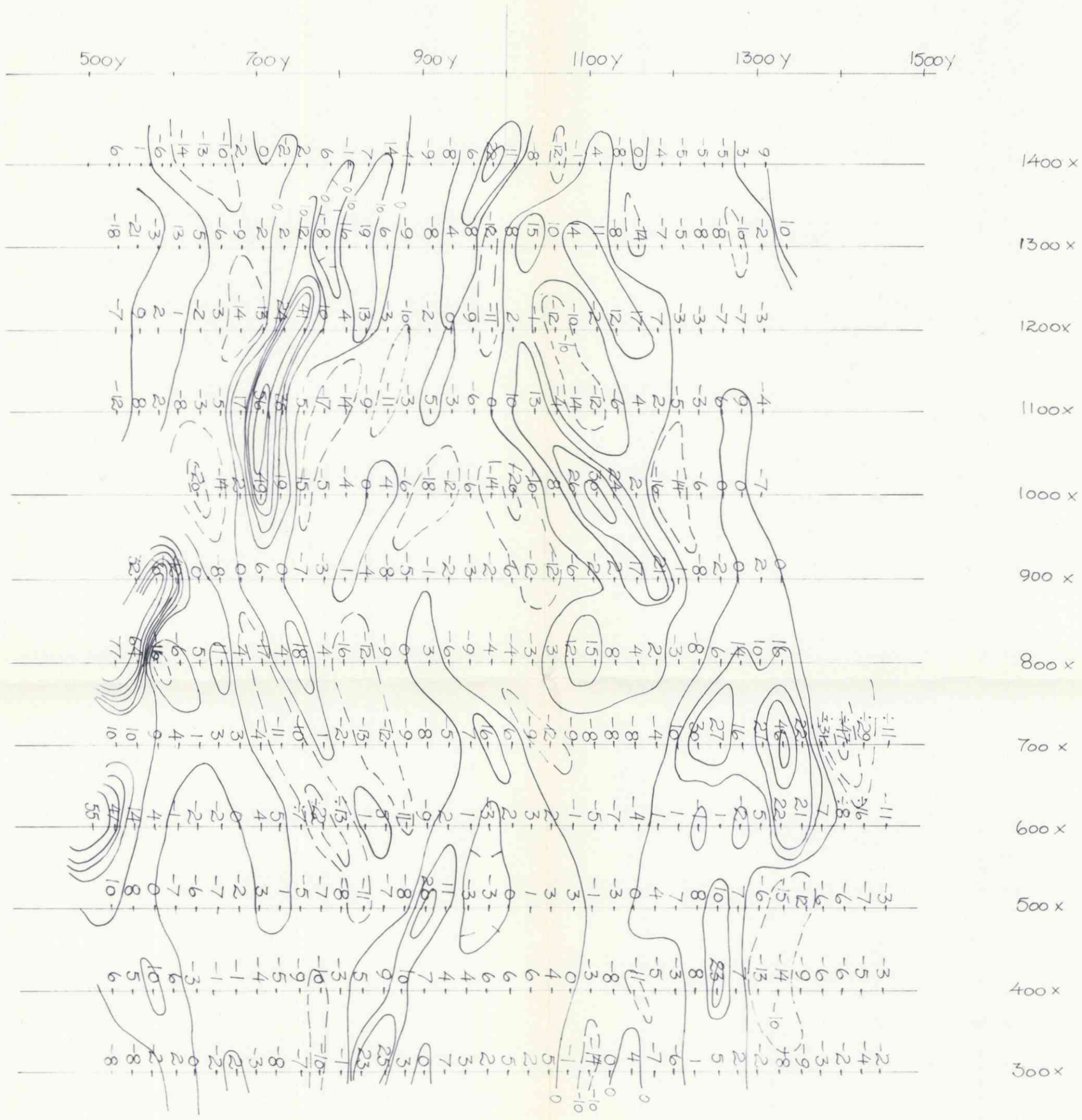
..... STRONG VLF ANOMALY

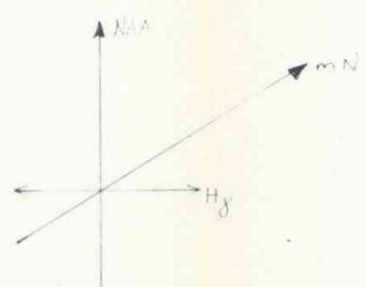
- - - - - - - WEAK VLF ANOMALY

VERY WEAK VLF ANOMALY

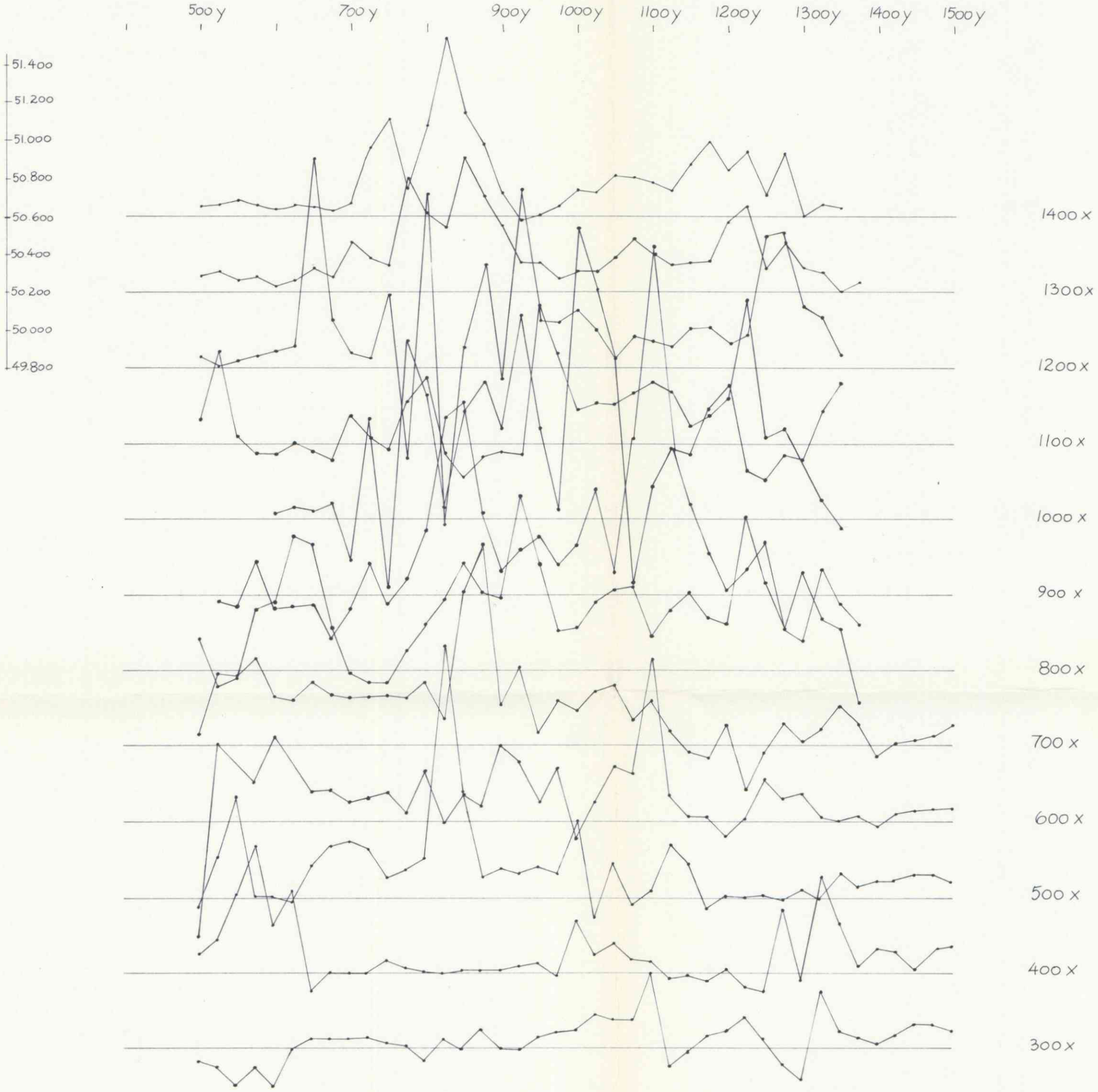


SEGELVANN VLF anomali map (instr. Paulsen) Dip angle ——•—— Imaginare component x- - - -x- - - - Station NAA	Scale: 1:5000	Draw:	KL
		Trac:	AM
			GGr.+KBC
Orkla Industrier A.s 7332 Løkken Verk Gulf - Orkla Venture	No GfI 84		





SEGELVATN VLF - anomali map Frazer contouring, intervals 5% Station NAA	Scale: 1:5000	Draw.	KL
		Trac.	AM
			GGr. KBC
Orkla Industrier A.S 7332 Løkken Verk Gulf - Orkla Venture	No: GfI B3		



Segelvatn Total magnetic field map 0=50.600 γ (Instr.: Seintrex)	Scale:	Draw.:	KL
		Trac.:	AM
			GGr. KBC
Orkla Industrier A.s 7332 Løkken Verk Gulf - Orkla Venture	No: Gf J4		