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Tittel Exploration in the Rinna Area.				
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Råstofftype	Emneord			
Sammendrag				

ORKLA INDUSTRIER A/S

MINING SECTION
EXPLORATION

GULF ORKLA
LØKKEN VENTURE

Report no: LV 24 Date: Dec. 1983

Title: Exploration in the Rinna Area.

ORKLA INDUSTRIER A.s

MINING SECTION, EXPLORATION

Report no.: LV 24

Date: Dec. 83

Title:

Exploration in the Rinna Area

Prepared by:

Åse Bollingmo
Gudmund Grammeltvedt

Areas name:

Rinna

Map. no., name:

1521 III Løkken

Coordinates (UMT):

Field work period(s):

1982-1983

Pages:

Map enclosures: 64

Summary (purpose, execution, results):

The Rinna Area is situated south of the volcanic greenstones in the Løkken Area. There are numerous HEM-anomalies in the area. Several ore-horizons mainly with pyrrhotite were known in the area. Eleven subareas were followed up with geology EM-(Genie), VLF- and MAG measurements and soil geochemistry.

No base metal anomalies have been recognised and further exploration work is not recommended.

Key words: Geology, EM-MAG-VLF Geochemistry

Project initiated (date):

Report finished (date):

Distribution to:

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Reinslia
Ljøsåa
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Totlia

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1. INTRODUCTION

The Rinna area is located far west in the Løkken area, west of Resfjellet mountain (encl. 1).

The area is about 14 km long in E-W direction, and 1 to 4 km wide in N-S direction.

Working in the Rinna area is problematic because of the partly steep relief and the vegetation. Where the terrain is not so difficult, there are marches which cover big areas.

Comprehensive investigations of different kinds have been performed for a long time.

In 1949 and 1950 some parts of the area were covered by turam measurements. These were followed up by prospects and diamond drill-holes.

The conclusions of these early investigations, were that the area has a considerable number of extensive, conducting zones.

By the uncovering, the anomalies turned out to be caused by graphite schists and pyrite/pyrrhotite dissemination and orebodies.

In 1981, helicopter geophysical measurements were performed. Also this method gave several extensive electromagnetic and magnetic anomaly-lines.

In 1982 they were followed up by VLF, magnetometer - and Genie measurements, geological recognition and geochemical sampling. The area was also more properly mapped, and S.Kollung's map in scale 1:20.000 (1981) was, by himself, revised to a certain degree.

2. GEOLOGY

The geology of the Rinna Area is described in L.V. Reports no 7 and 19 by S.Kollung.

The rocks in the area are older than the volcanic greenstones in the Løkken Area and consist of the following sequences:

- Greenschists
- Phyllites (Reinslia, Kroken)
- Mica-schists, (Høgla, Kattem, Langtjern, Totlia)
- w/trondhjemites (Pikkhaugen, Knivhaugen)
- Amfibolites
- w/mica-schists (Sandmovatn)

Typical for all these sequences are graphite bearing horizons and mineralization of pyrite and pyrrhotite. In the amfibolite-sequence two small ultramafic lenses occur.

3. GEOPHYSICS

Several geophysical methods have been applied in the Rinna area. In 1949 and 1950, comprehensive turam measurements were performed. Both by means of these and the helicopter survey in 1981, extensive conducting zones along the direction of strike of schistosity were discovered (encl. 3.).

In 1982 we followed up with VLF-, magnetometer - and Genie measurements. The Genie equipment gives a more exact interpretation of deep structures than the other methodes give.

The ground survey in general shows the same anomalies as the helicopter survey, though more detailed.

As we had no capacity to investigate all the helicopter anomalies, we had to choose.

We decided to consentrate on 11 subareas (encl. 4): Knivhaugen, Kroken, Høgla, Pikkhaugen, Sandåvatnet, Reinslia, Kattem, Ljosåa, Langtjonn, Romundstad and Totlia.

These are the areas where the most distinct helicopter anomalies are located.

In Knivhaugen (encl. 6,7,8 and 9), there are several electromagnetic anomalies, though not very distinct. The most striking result here is the magnetic anomaly.

What causes the magnetic response has not been possible to find out, but the electromagnetic anomalies may be explained like this (Numbers referring to encl. 3 and 5).

Genie

1. Graphite-bearing quartzite
2. Rusty mica schist
3. Rusty garnet - mica schist, partly graphite-bearing.
4. Rusty amphibolite with quartz and graphite

HEM

1. Coincides with Genie 1 and 2
2. Coincides with Genie 3 and 4.

Kroken No ground survey is performed here.

HEM (encl. 3)

- 1: Graphite schist is observed in some localities along the anomaly line, f.eks. 130^d, 131^c, 132^e and 133^e (the numbers referring to the Dihem map. encl. 3)
- 2: Graphite schist, $\frac{1}{2}$ m thick, by the little farm Kroken.
(encl. 10,11,12,13,14)

In Høglia the electromagnetic anomalies are caused by:

VLF and Genie

- 1: Graphite schist along the escarpment on the southern side.

Genie

- 2: Rusty mica schist

VLF

- 3: May be caused by graphite in quartzite in the eastern end of the anomaly line.

HEM

The helicopter anomalies coincide with VLF3 and Genie/VLF 1 and 2.

Pikkhaugen (encl. 15,16,17) has both an electromagnetic and a weak magnetic anomaly.

Genie

- 1: Rusty mica schist with quartz lenses and some graphite.

HEM

The only anomaly coincide with Genie 1.

Sandåvatnet (encl. 18,19,20,21,22) has several distinct electromagnetic anomalies.

Genie

- 1: Graphite bearing, rusty mica schist on the northern side of the lake.
- 2: Rusty mica schist.

HEM

- 1: Coincides with Genie 1
- 2: Coincides with Genie 2

In Reinslia (encl. 23,24,25,26) there is one distinct electromagnetic anomaly.

HEM

1: In an old prospect a massive pyrrhotite is observed.

Kattem (encl.27,28,29,30) subarea has several distinct electromagnetic anomalies.

HEM

1: The anomaly is probably placed about 100-150 m too far north on the map. If this is a correct conclusion, the anomaly coincides with a zone of graphite-bearing quartzite, graphite schist and graphite-bearing mica schist.

2: This anomaly should also probably be placed further south on the map, and then it coincides with a graphite schist in a graphite bearing quartzite.

3: Graphite schist is observed by 141^g. Besides this, there are no other observations on this anomaly line.

Genie and VLF

1: is the same as HEM 1

2: is the same as HEM 2

3: is the same as HEM 3

In Ljøsåa no ground survey is performed

HEM (by the road)

160^F (number referring to the Dighem map): Graphite - bearing quartzite

156^e : Quartzite with disseminated pyrrhotite.
Several big rusty zones by the road.

Langtjønna (encl. 31 and 32)

Genie

1: Zone of rusty weathering in amphibolite/trondhjemite.

2: Graphite schist in an amphibolite.

The weathering zone is very extensive in the direction of strike. It is impossible to tell what causes the rusty colour.

HEM

1: Graphite schist, thickness 1 meter, is observed by the river, west of the road in the western end of the anomaly-line. No other observations on this anomaly-line.

2: 20 cm thick slate, rusty by the road

3: 10 cm thick, rusty slate by the road

4: Zone of rusty weathering. Most probable the same as Genie-anomaly 1.

Totlia (encl. 37,38 and 39)

Genie

1: Most probable a slate. It is observed in the little brook which coincides with the anomaly-line.

2: Rusty weathering-zone in amphibolite/trondhjemite. It is impossible to tell what is the origin of the rust.

VLF

Gives two anomalies that seem to coincide well with the Genie anomalies.

MAGNETOMETRE

These anomalies are still not explained, but the southernmost seem to coincide with the Genie-anomaly 2 and the corresponding VLF-anomaly.

HEM

1: Most probably corresponding with Genie 2.

4. GEOCHEMISTRY

Introduction

The Rinna area has been sampled in two steps:

1)

one sample each square kilometre, soil- and stream-sample. The sampling area covers the Rinna area and the surrounding basal gneisses and greenstones.

2)

Soil samples in subareas. The samples were taken in profiles, 50 metres between each sample and 100 metres between the profiles. 8 subareas were sampled.

Introduction

The samples were analysed at the laboratory of NGU at 29 elements:

Si, Al, Fe, Ti, Mg, Ca, Na, K, Mn, P, Cu, Zn, Pb, Ni, Co, V, Mo, Cd, Cr, Ba, Sr, Zr, Ag, B, Be, Li, Sc, Ce, La.

The results of the regionale sampling are given in NGU-report no 1908.

None of the elements indicated anomalies of base metals in the area. Further statistic treatments have not been done.

In the subarea the soil samples were analysed on the same elements. The results of Cu, Pb, Zn, Mn, Fe, Sr, Co, Ni, Cr, B, V are given in enclosures 40-63. No obvious anomalies have been observed.

Hard rock sampling. Mineralization occurs in all the subareas. It is mainly pyrite and pyrrhotite. The content of base-metals is very small. Enclosure 64 shows the content of Cu, Pb, Zn, Ni, Ag, Au in the analysed samples.

5. CONCLUSION

The exploration in the Rinna Area shows numerous horizons with low grade massive sulfide and graphitic schists. The sulfides are mainly pyrrhotite and some pyrite.

Neither the soil geochemistry nor the hard rock samples showed anomalies of base metals silver and gold.

Further investigations in the area are not recommended.

Appendix 1

Hard rock analysis Rinna Area

Sample no.	Rock type	Cu	Pb	Zn ppm	Ni	Ag	Au
Høglia Subarea							
R 05	Amfibolite	82	28	40	34	-	-
R 08	Quartzite	96	38	22	15	-	-
R 18	Graphite-schist	80	14	21	56	-	0,02
Totlia Subarea							
R 09	Amfibolite	104	15	28	16	0,3	-
To 1	Trondhjemite	293	47	130	72	0,2	-
To 2	Mica schist	50	40	56	94	-	-
To 3	Amfibolite	36	37	163	44	-	-
To 4	Gabbro	40	22	215	19	-	-
To 5	Gabbro	43	31	214	109	-	-
To 6	Amfibolite	40	29	212	42	-	-
Reinslia Subarea							
RE 1	ore	291	23	601	89	-	-
RE 2	ore	250	28	425	77	-	-
RE 3	ore	290	27	225	81	-	-
RE 4	ore	185	38	301	67	-	0,03
RE 5	ore	207	27	86	80	-	-
RE 6	ore	350	73	391	47	1,0	-
RE 7	amfibolite	628	19	41	35	-	-
RD 1	amfibolite	286	22	192	50	-	-
RD 2	amfibolite	201	15	125	56	-	-
RD 3	amfibolite	260	19	248	78	-	-
RD 4	amfibolite	228	27	235	68	-	-
RD 5	amfibolite	391	17	368	68	-	-
Langtjern Subarea							
RO 7	Quartzite	55	24	28	18	-	-
R 10	Graphite schist	29	9	25	16	-	-
R 11	"	455	24	29	297	-	-
R 12	"	92	12	116	69	-	-
K 192	Mica schist	318	13	205	137	-	-
K 193	Ore	275	77	269	76	-	-
K 104	Mica gneiss	535	14	60	130	-	0,04
K 184	Mica gneiss	29	14	75	22	-	-
LT 1	Granite	183	29	42	207	-	-
LT 2	Quartz-mica sch.	13	32	33	11	-	-
Kattem Subarea							
Ro 15a	Mica schist	47	25	122	72	-	0,06
Ro 15 b	Graphite schist	54	28	105	82	-	0,06
Ro 15 c	Quartzite	54	19	103	87	-	0,04
Sample no.	Rock	Cu	Pb	Zn ppm	Ni	Ag	Au

Sandåvatn Subarea

Ro 26	Micaschist	62	32	32	38	-	0,04
Ro 27	Trondhjemite	23	113	91	38	-	0,06
K1122	Amfibolite	287	15	91	130	-	-
SV 1	Q-mica schist	232	18	109	92	-	-
SV 2	"	166	22	161	94	-	-

Knivhaugen Subarea

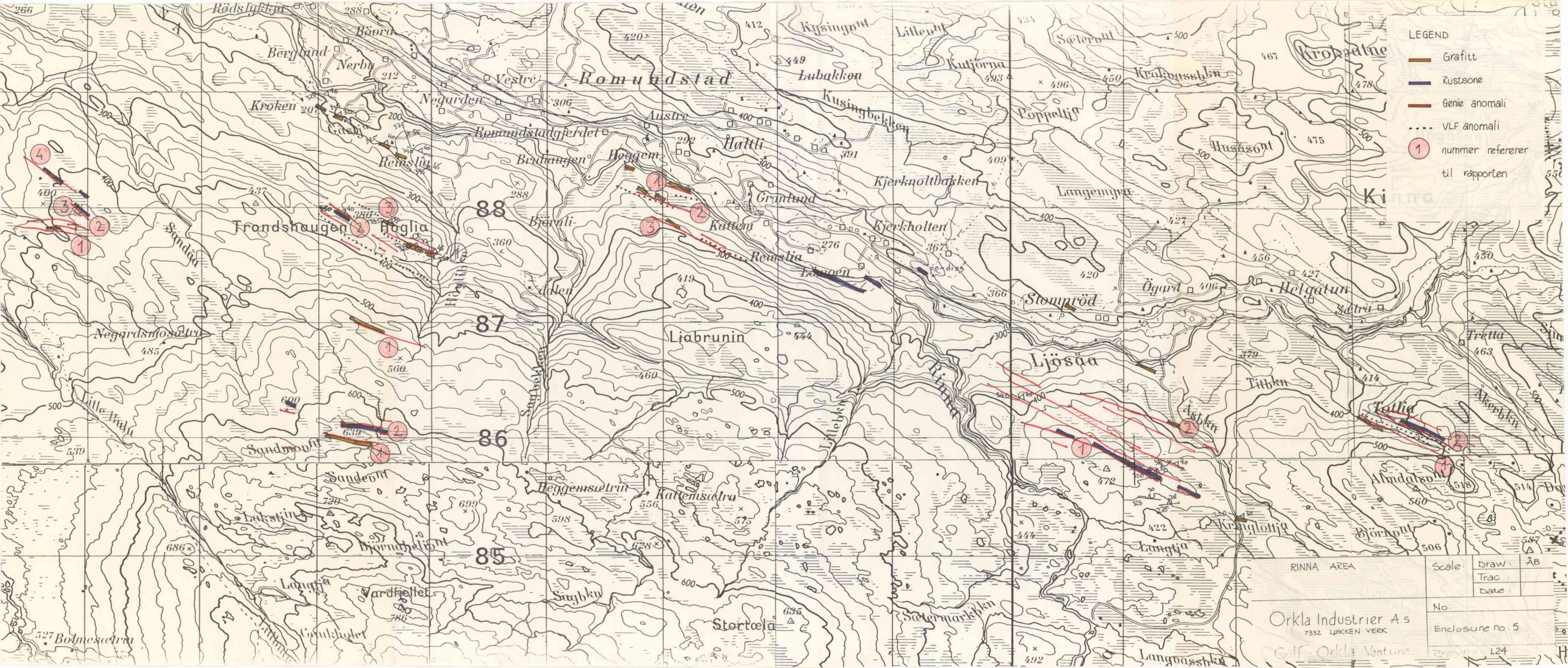
RO 19	Amfibolite	13	79	141	22	-	-
RO 20	Mica schist	26	114	89	15	-	-
RO 21	"	12	64	30	17	-	-
RO 22	"	7	54	35	19	-	-
RO 23	Quartzite	36	105	66	27	-	0,04
RO 24	Amfibolite	63	122	166	106	0,3	0,04
RO 25	"	63	97	222	10	-	-

Liabrunin/Sagbekken

K 190	amfibolite	422	10	70	54	-	-
K 191	amfibolite	585	31	73	113	0,9	-
K 1132	amfibolite	297	29	72	44	-	-
K 185	Mica schist	319	26	203	137	-	-
K 127	"	294	8	251	222	-	-
SB 1	ore	389	28	570	146	-	-
SB 2	ore	824	29	237	210	-	-
SB 3	Mica schist	329	31	468	202	0,9	-
SB 4	ore	223	35	1190	101	0,6	-
SB 5	ore	788	31	476	107	1,3	-
SB 6	ore	349	31	367	299	1,6	-
SB 7	ore	320	26	172	92	0,8	-

Bjørnlidalen

BD 1	ore	357	32	95	130	0,8	-
BD 2	ore	1360	22	106	118	0,3	-
BD 3	ore	663	39	145	133	0,7	-
BD 4	ore	254	40	154	163	0,9	-
BD 5	ore	421	34	159	134	1,0	-

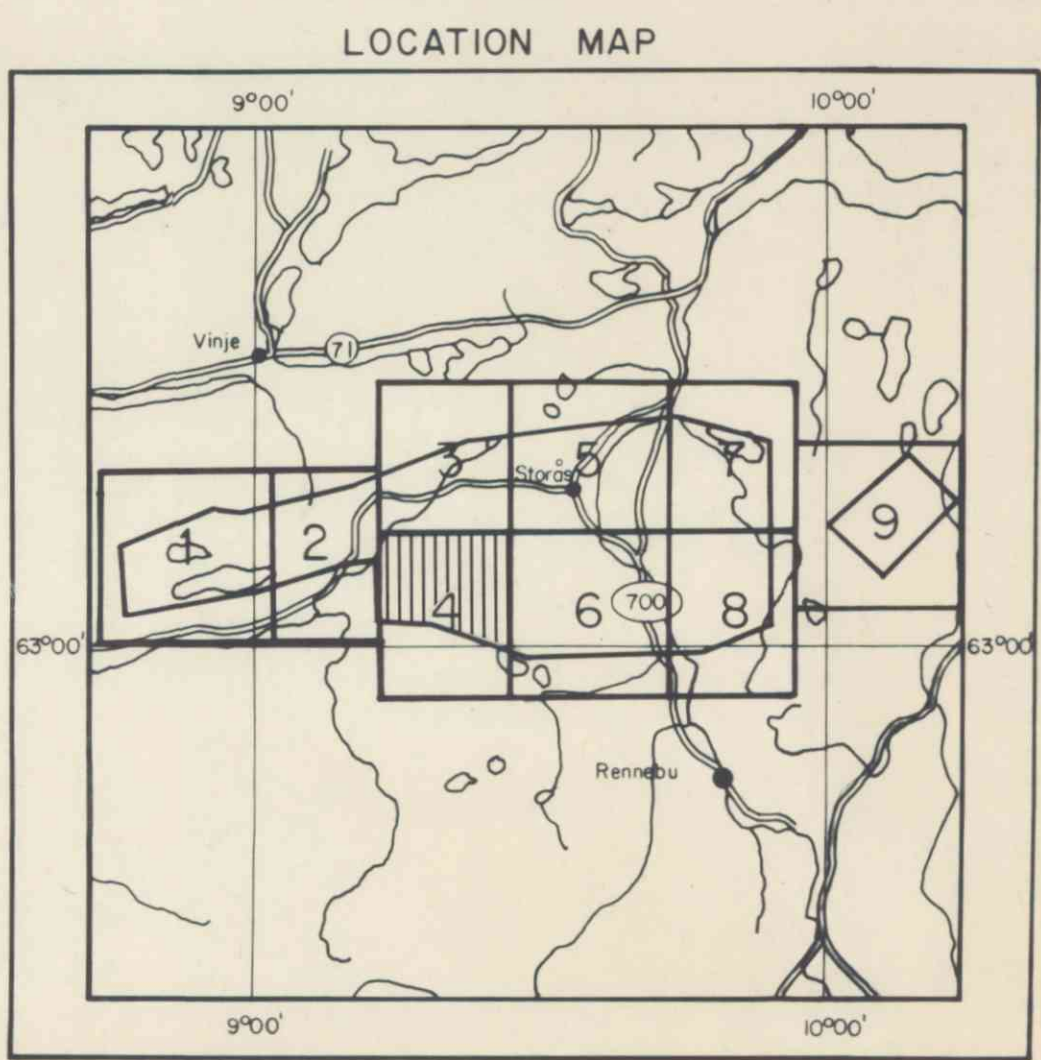
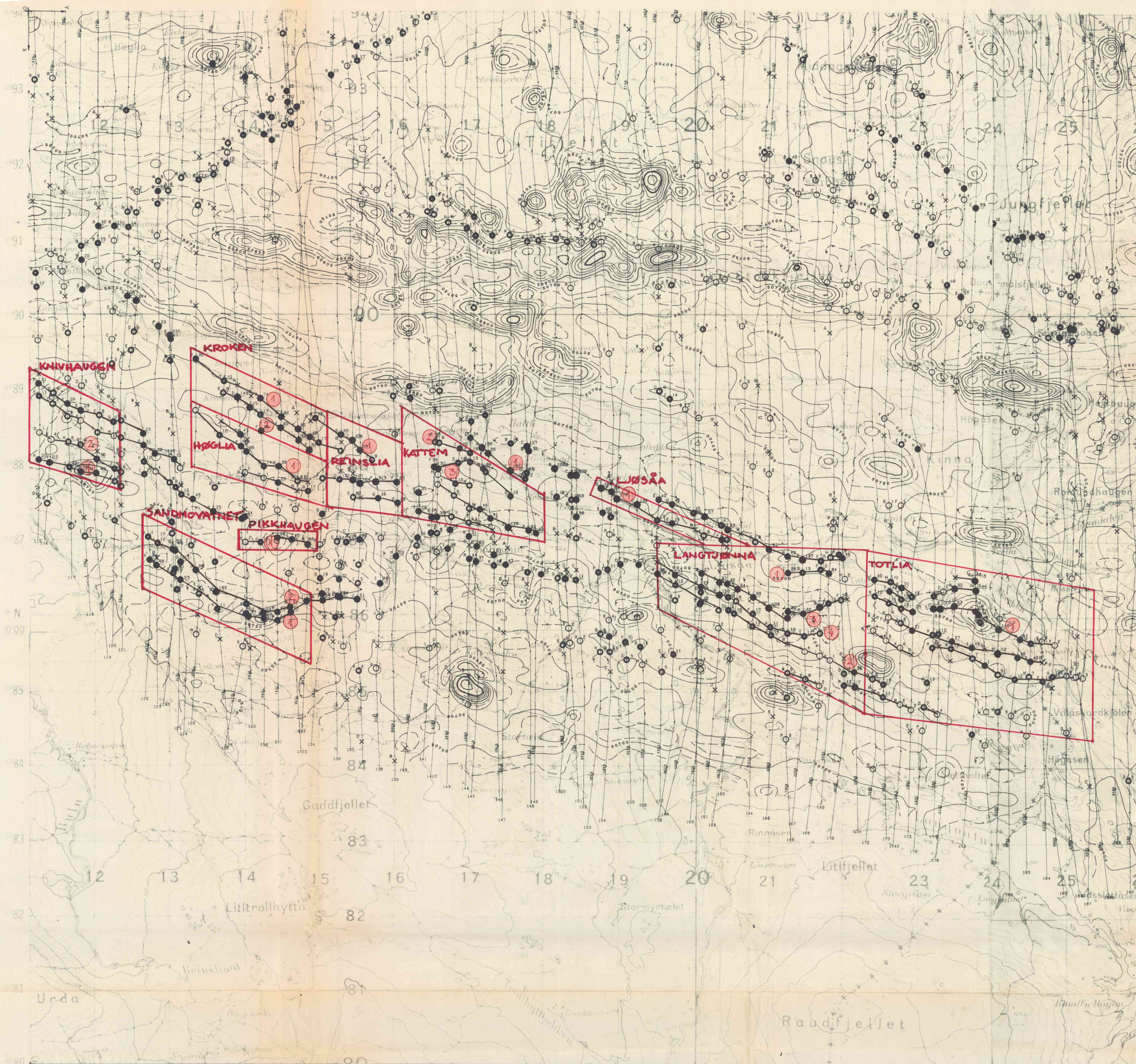


RINNA AREA

Orkla Industrier A.s
7332 LØKKEN VERK

Gulf - Orkla Venture

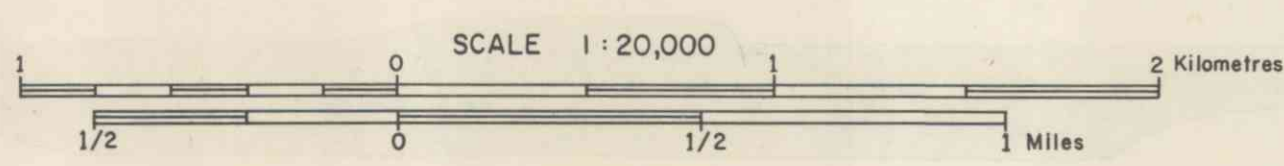
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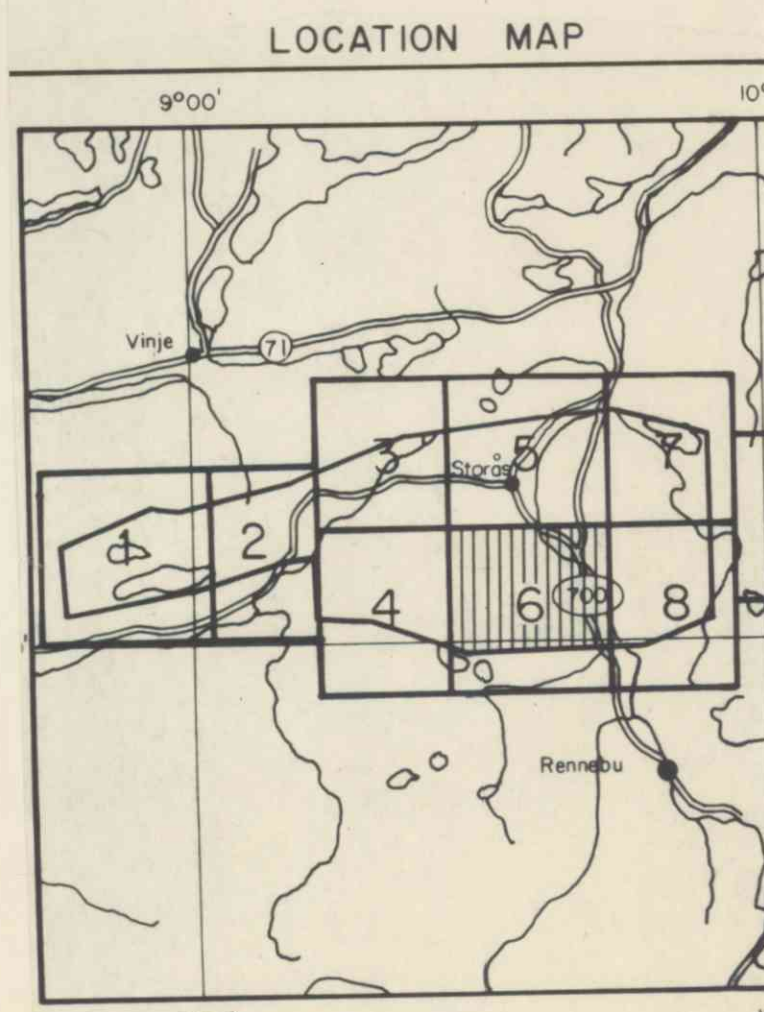


DIGHEM^{II} SURVEY LOKKEN AREA, NORWAY MAGNETICS FOR ORKLA INDUSTRIER A.S.



SHEET 4

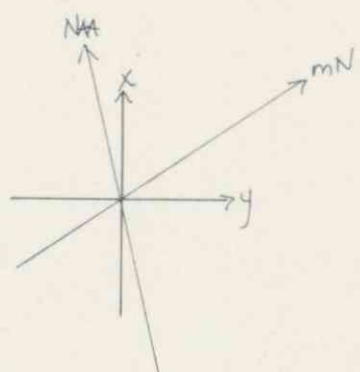
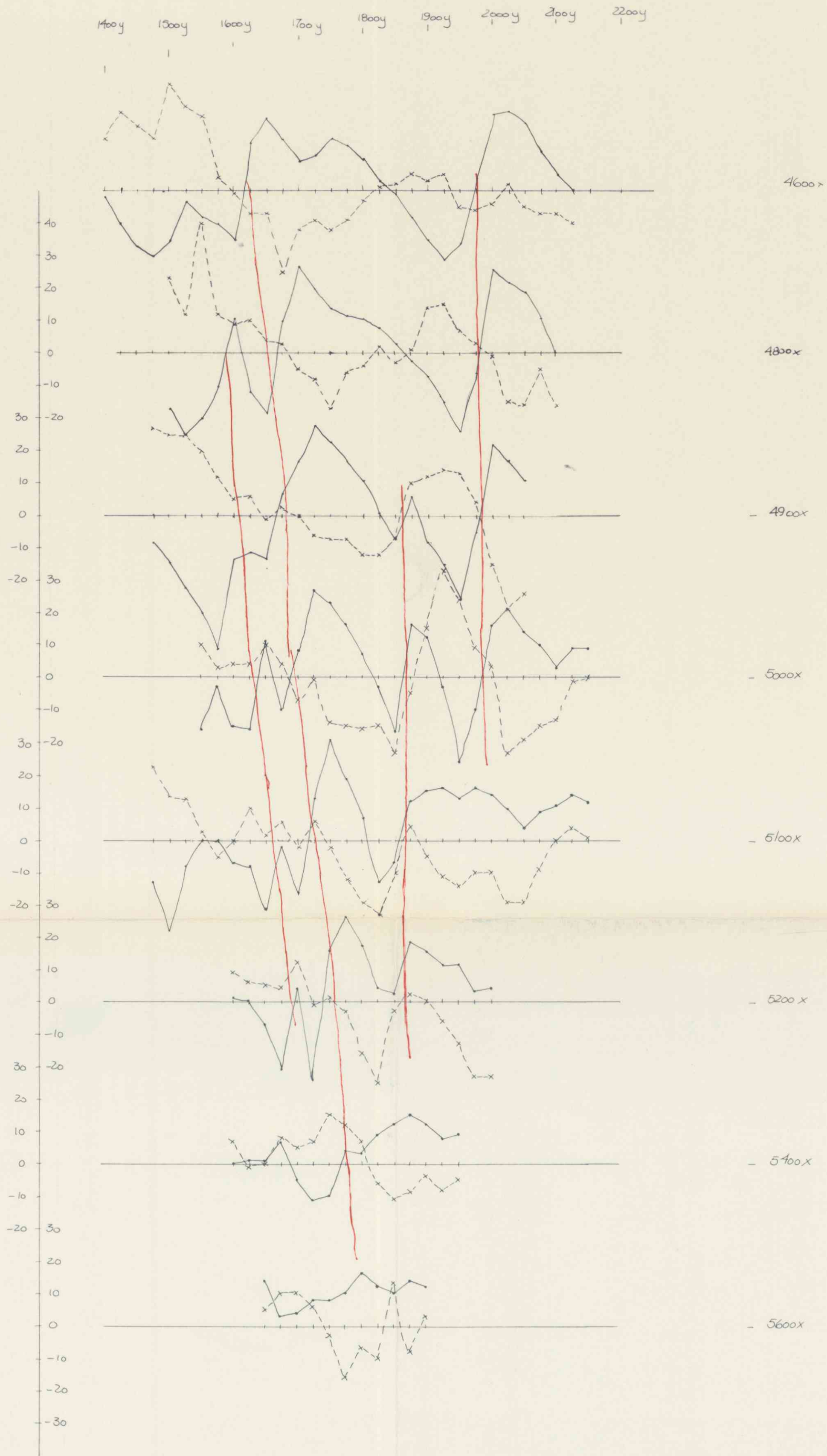
- ISOMAGNETIC LINES**
(total field)
- 1000 1000 gammas
 - 200 200 gammas
 - 50 50 gammas
 - 25 25 gammas
 - magnetic depression
- Magnetic Inclination within the survey area: 74°



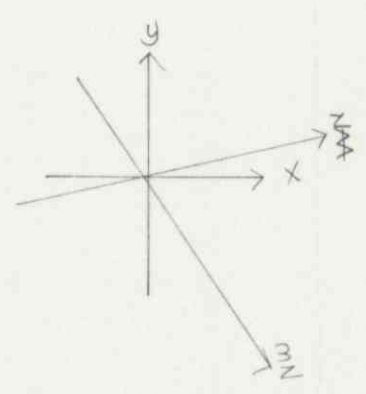
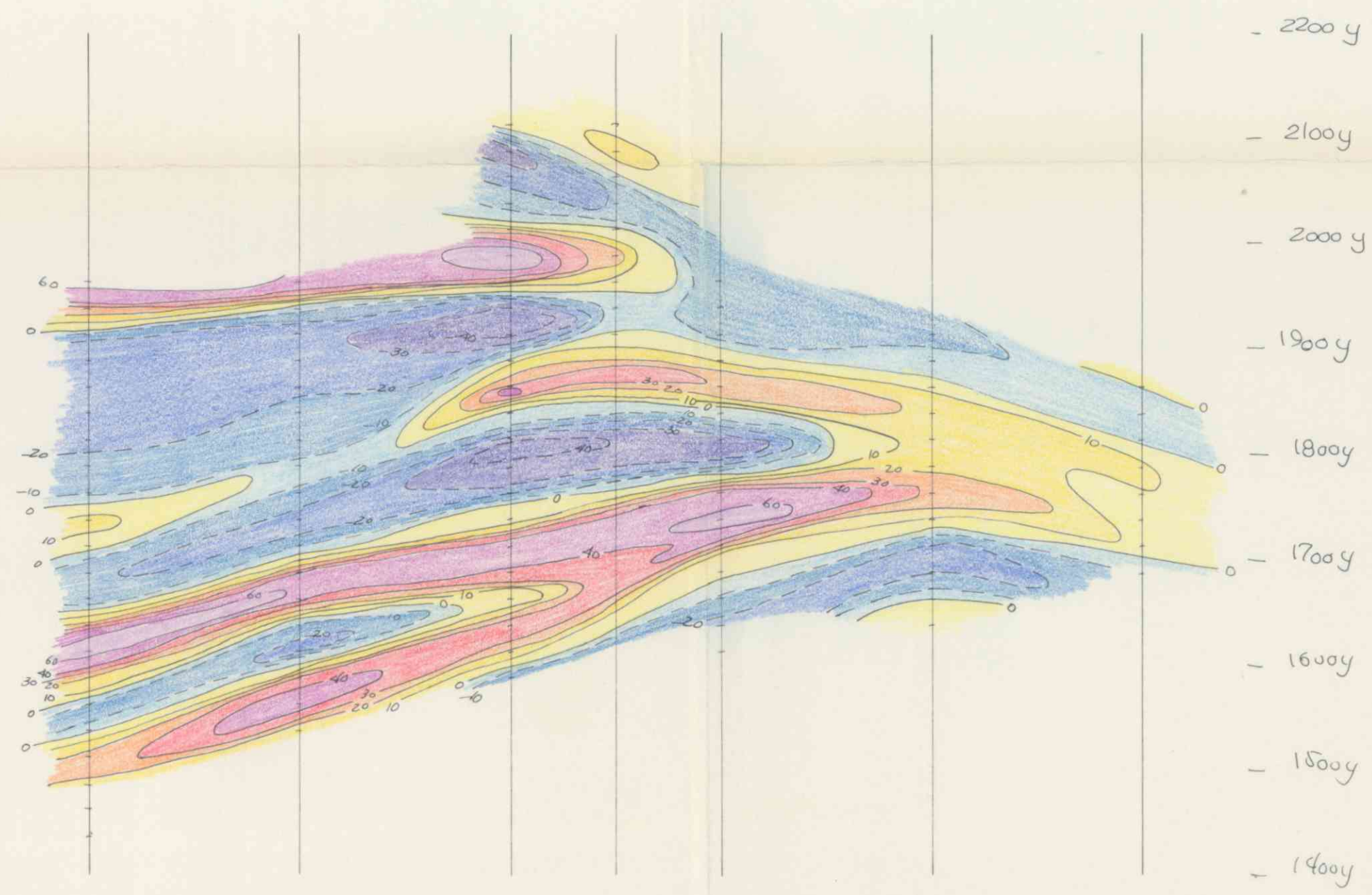
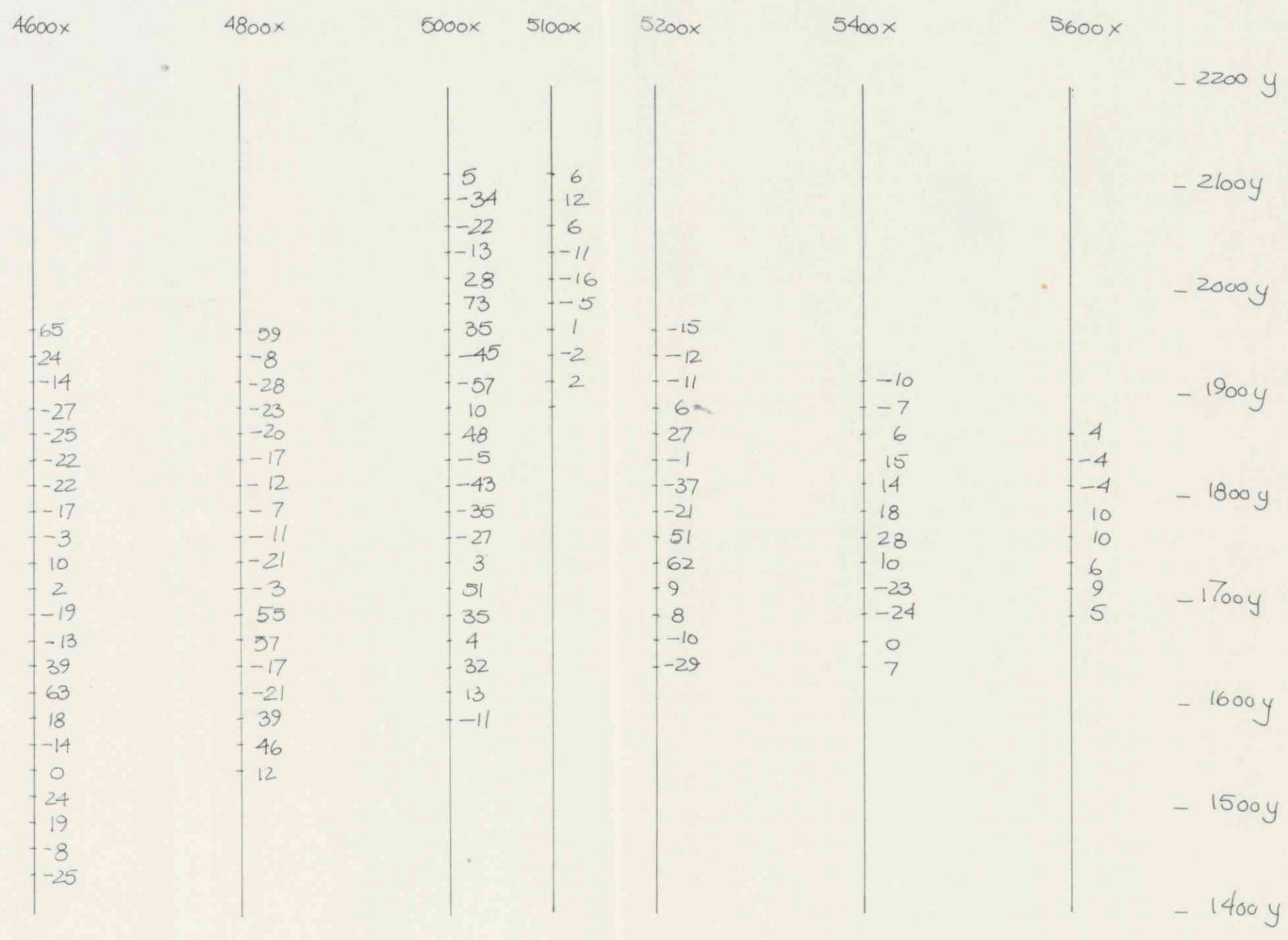
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Encl. 3

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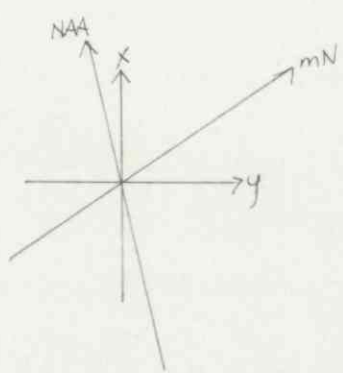
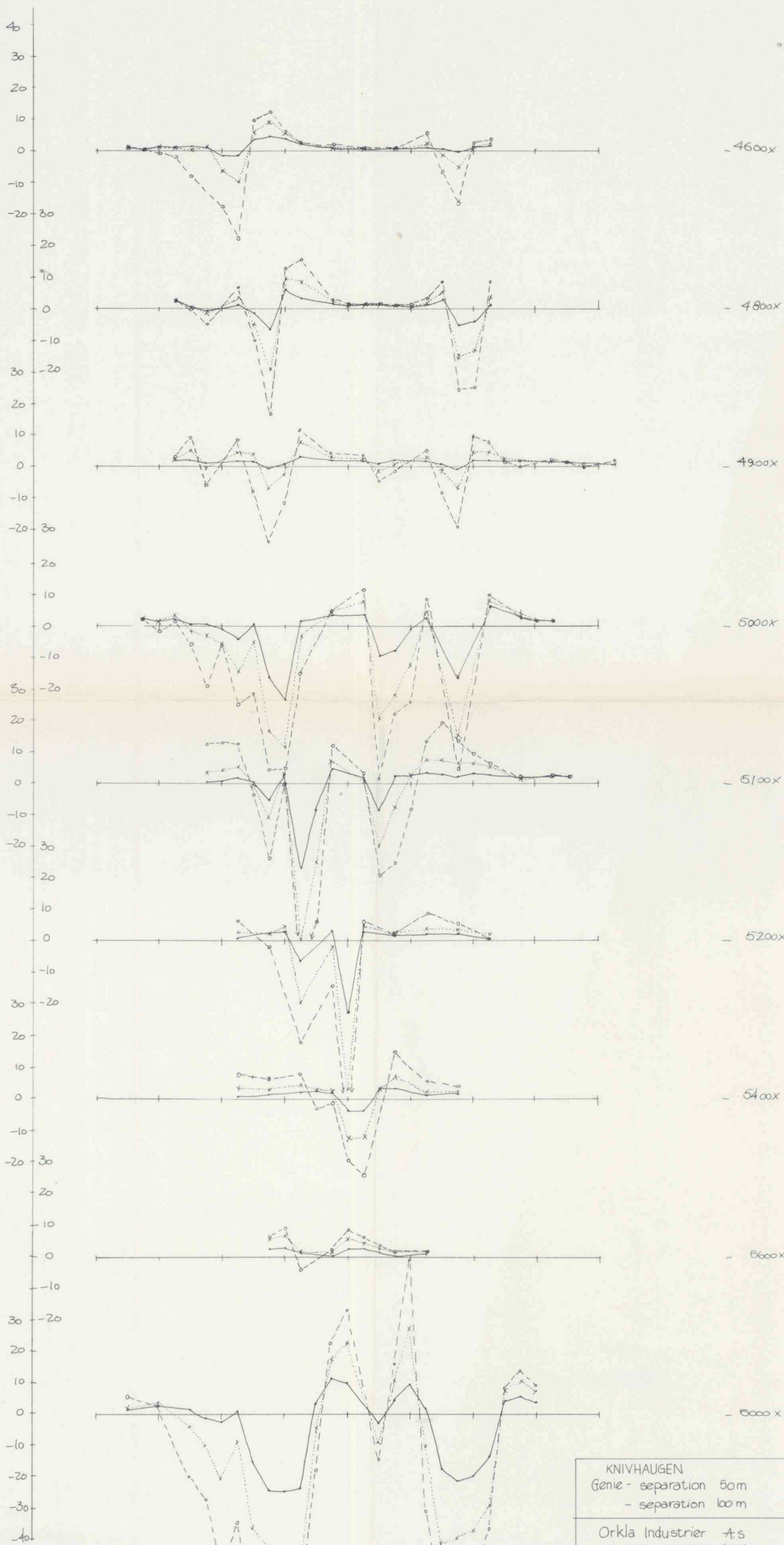


KNIVHAUGEN VLF - anomali map Dip angle $\longleftrightarrow$ Imaginary component x---x---x	Scale: 1:5000	Draw TAC	AM AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf- Orkla Venture	No: R1 of DR		
	Encl. no: 6		
	Report no: LV 24		
	Date: oct 82		



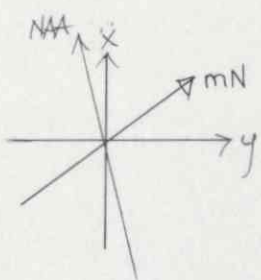
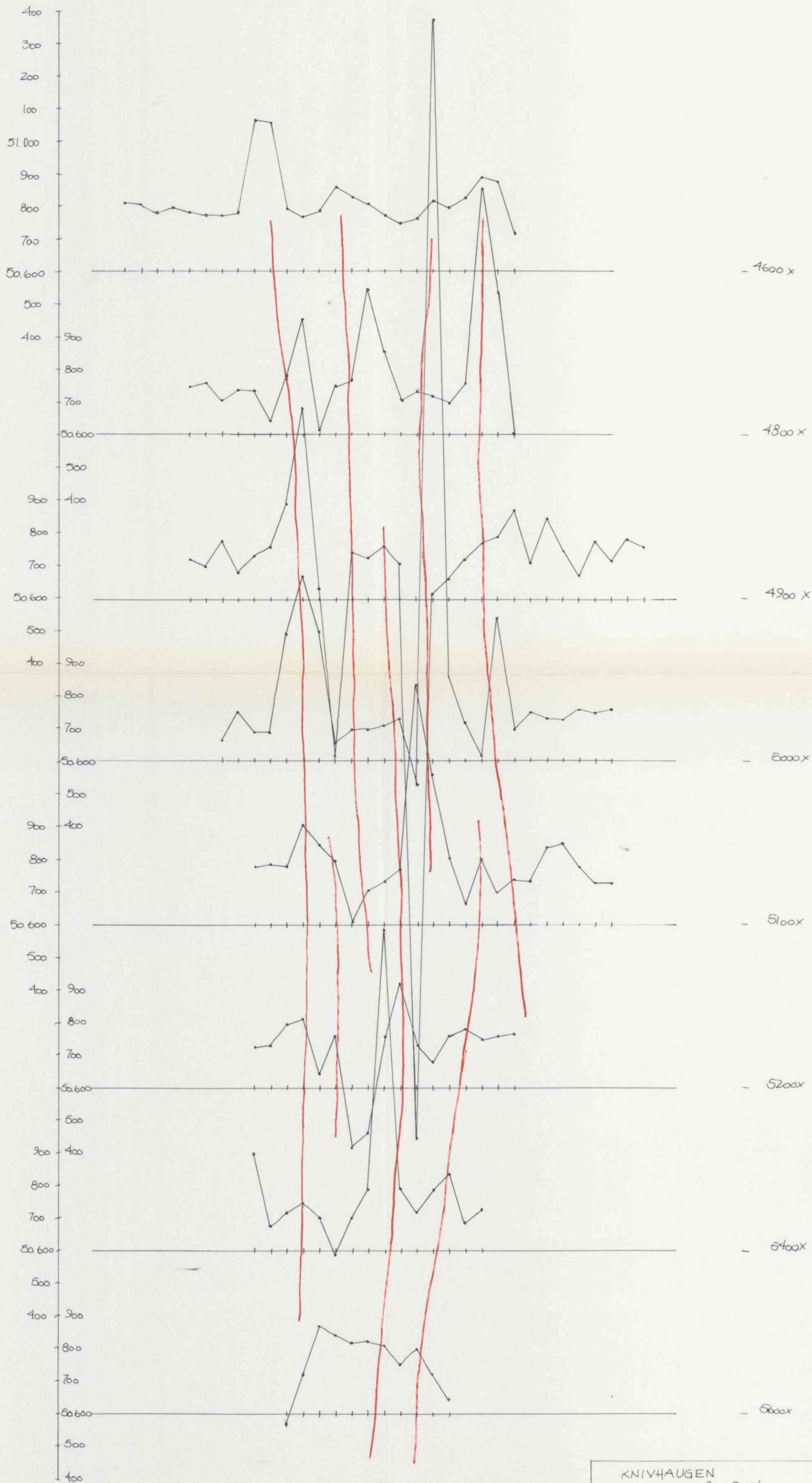
KNIVHAUGEN VLF - anomaly map Fraser values Fraser contouring curves	Scale: 1:5000	Draw:	AM
		Trac:	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf - Orkla Venture	No: RI of D3		
	Encl. no: 7		
	Report no: LV24		
	Date: oct82		

1400y 1500y 1600y 1700y 1800y 1900y 2000y 2100y 2200y

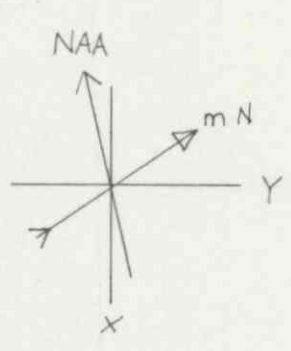
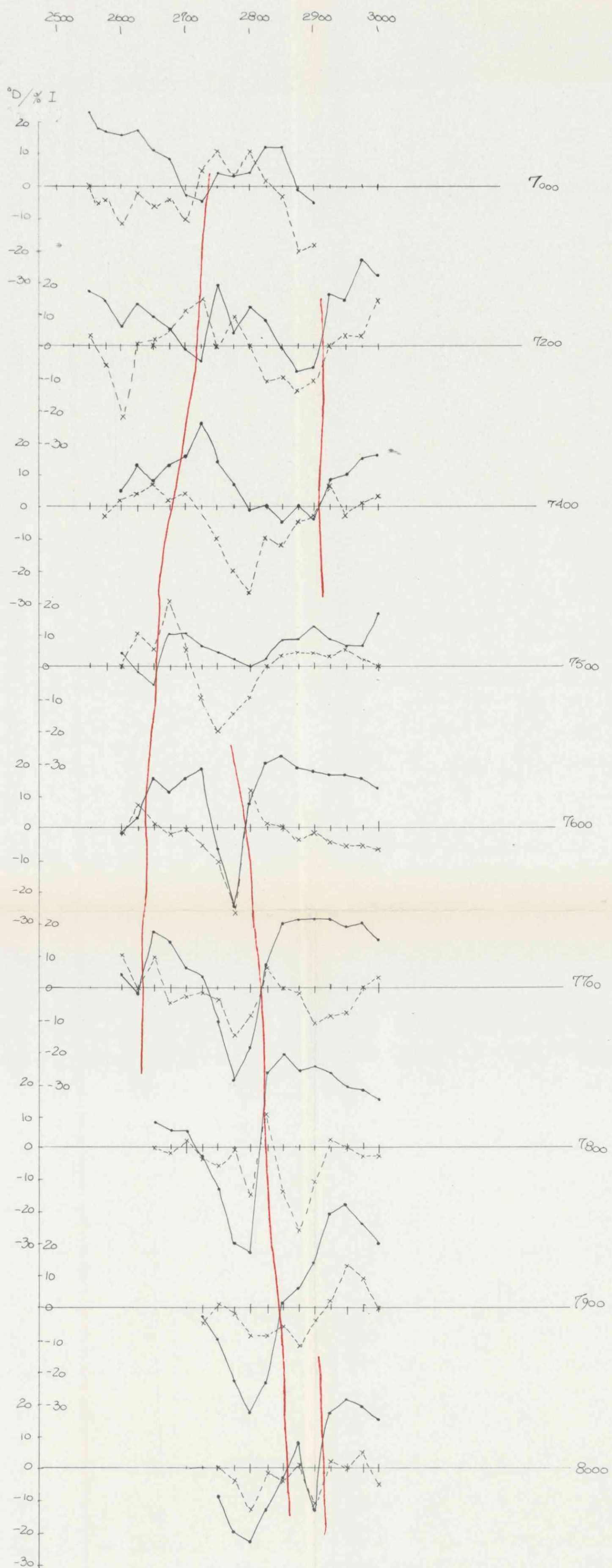


KNIVHAUGEN Genie - separation 50m - separation 100m	Scale :	Draw.	EBS
		Trac.	AM
Orkla Industrier AS 7332 LØKKEN VERK Gulf - Orkla Venture	No: R1 gf D4		
	Encl. no: 8		
	Report no: LV24		
	Date: oct 82		

1400 y 1500 y 1600 y 1700 y 1800 y 1900 y 2000 y 2100 y 2200 y



KNIVHAUGEN Total magnetic field	scale:	Draw	AM
		Trav	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf- Orkla Venture	No: RI of D6		
	Encl. no: 9		
	Report no: LV 24		
	Date: oct 82		



Area HØGLIA VLF-anomaly map Dip angle $\rightarrow$ Imaginary component x---x---x	Scale:	Draw	AM
		Trac:	AM
Orkla Industrier A.S 7332 LØKKEN VERK Gulf-Orkla Venture	No: R1 of A2		
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	Report no: LV 24		
	Date: Sept. 82		

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7200

7400

7500

7600

7700

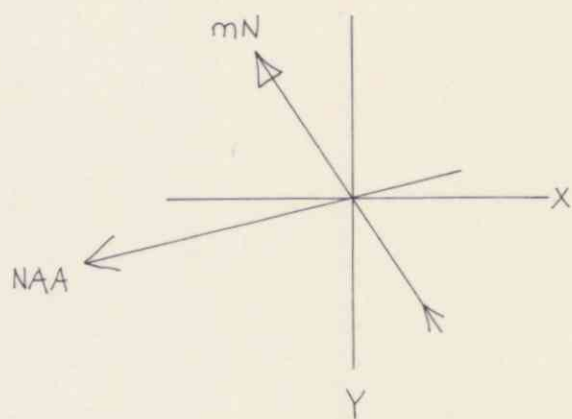
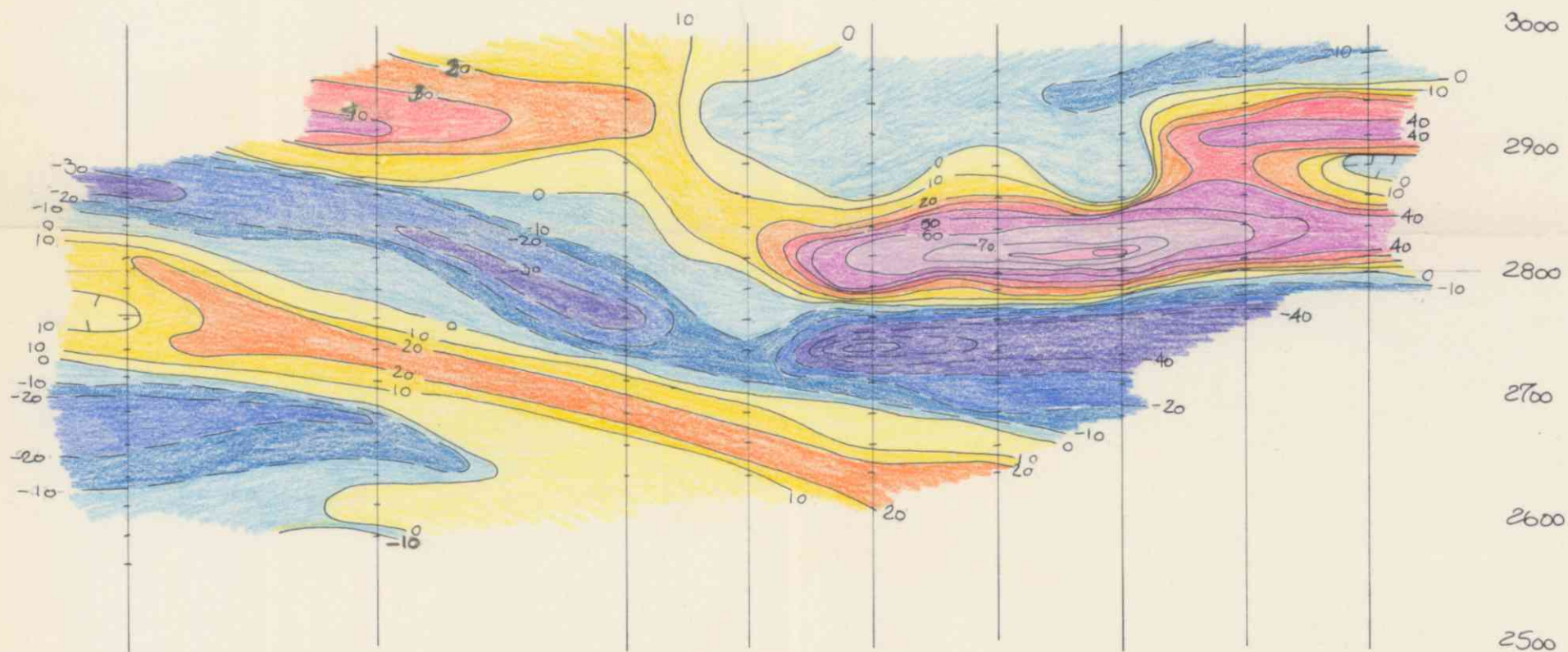
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8000

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	17	8	4	-7	1	-5	36	-1	2900
-30	-23	0	10	-9	15	-3	43	11	
-5	-28	-3	14	13	53	63	64	45	
17	-8	-10	8	60	75	115	33	31	2800
11	-3	-22	-4	59	28	33	-24	-11	
8	2	-34	-8	-29	-40	-47	-40		
15	29	-21	-10	-65	-49	-41			
-6	10	11	-10	-18	-28	-26			2700
-27	-20	21	12	7	-22	-11			
-23	-18	8	28	8	5				
-14	-5	3	2	25	29				2600
-5	2								
-7	-12								2500



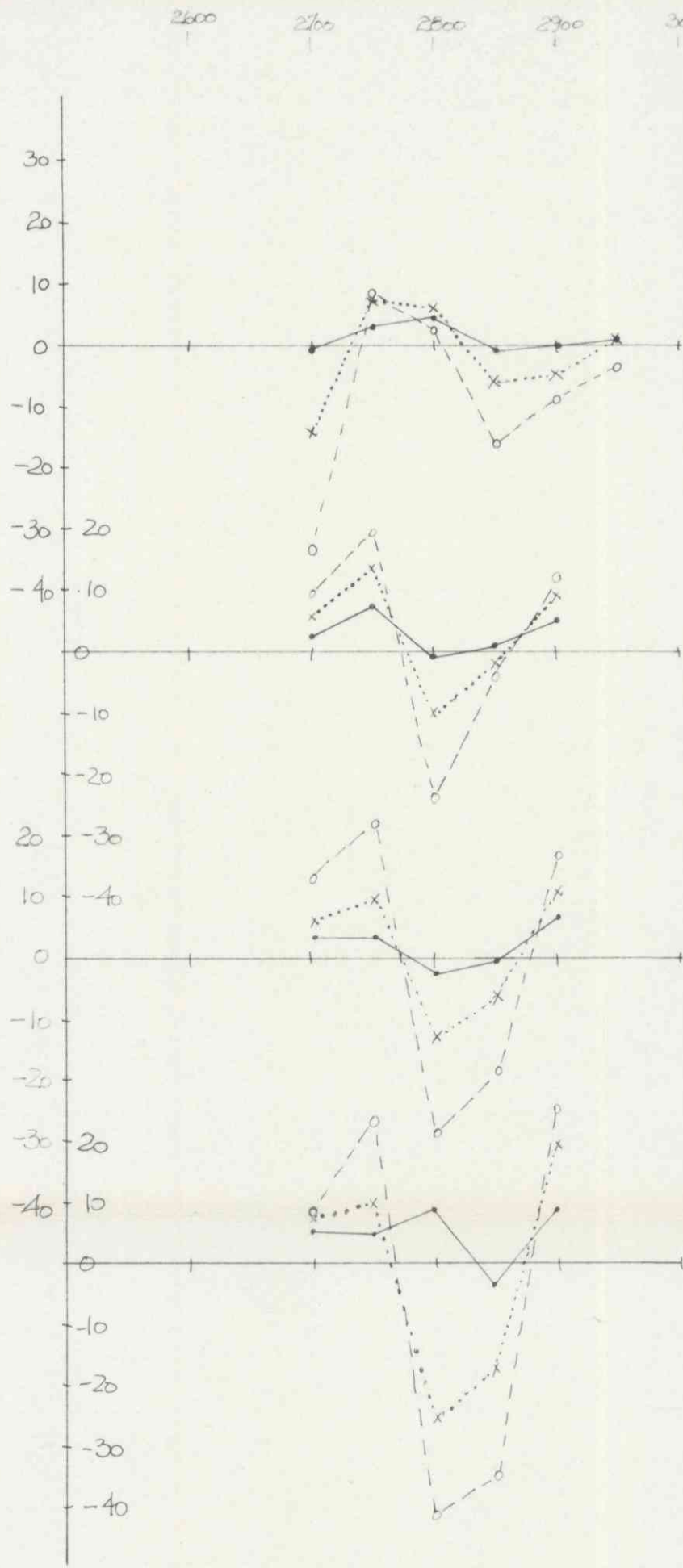
Area HØGLIA
VLF-anomali map
Fraser values and frazer curves

Scale:
1:5000

Draw: AM/68r
Trac: AM

Orkla Industrier A.S
7332 LØKKEN VERK
Gulf - orkla Venture

No: Gf I F₃
End. no: 11
Report no: LV 24
Date: sept. 82



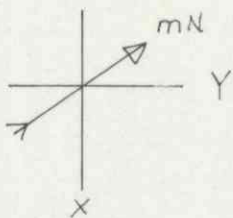
Separation 100 m

337/112 —●—

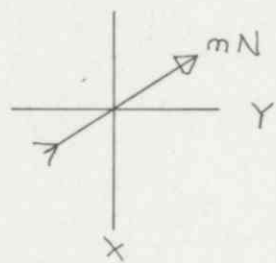
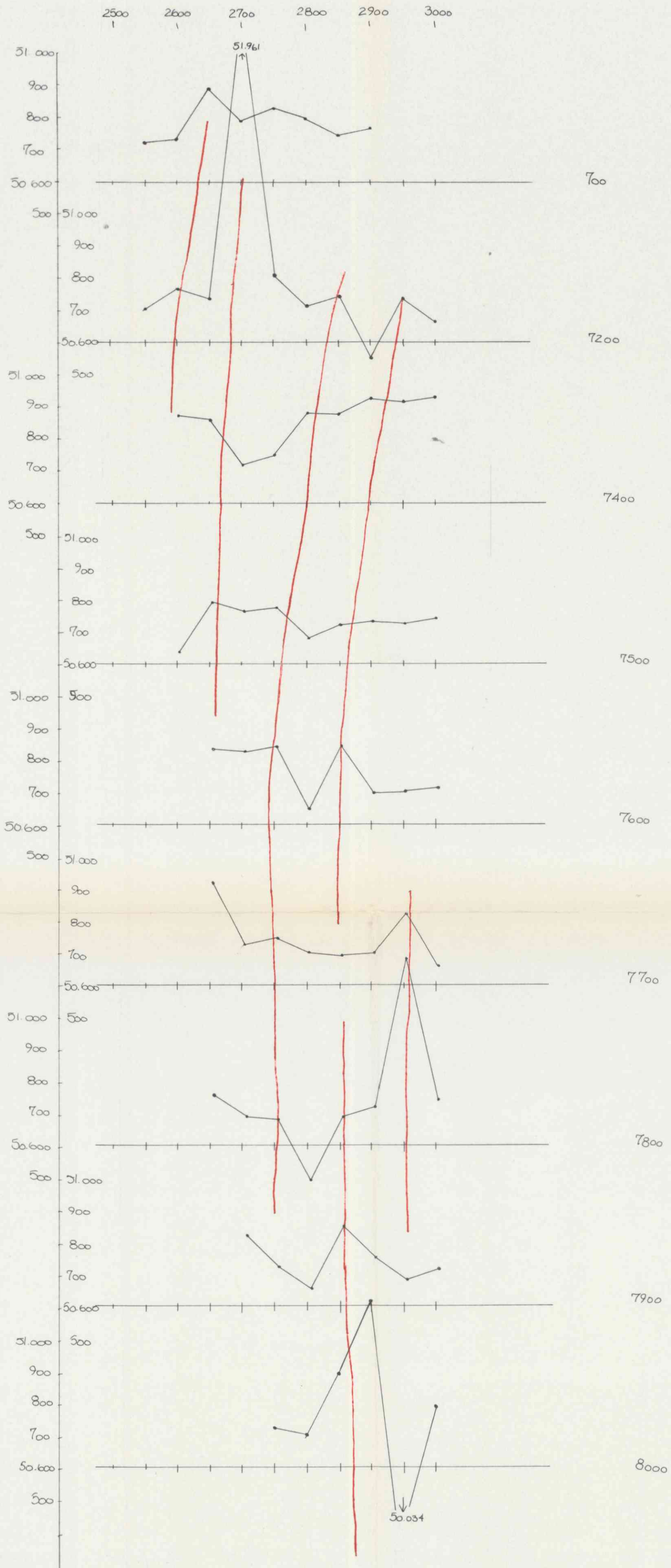
1012/112 x...x

3037/112 o---o

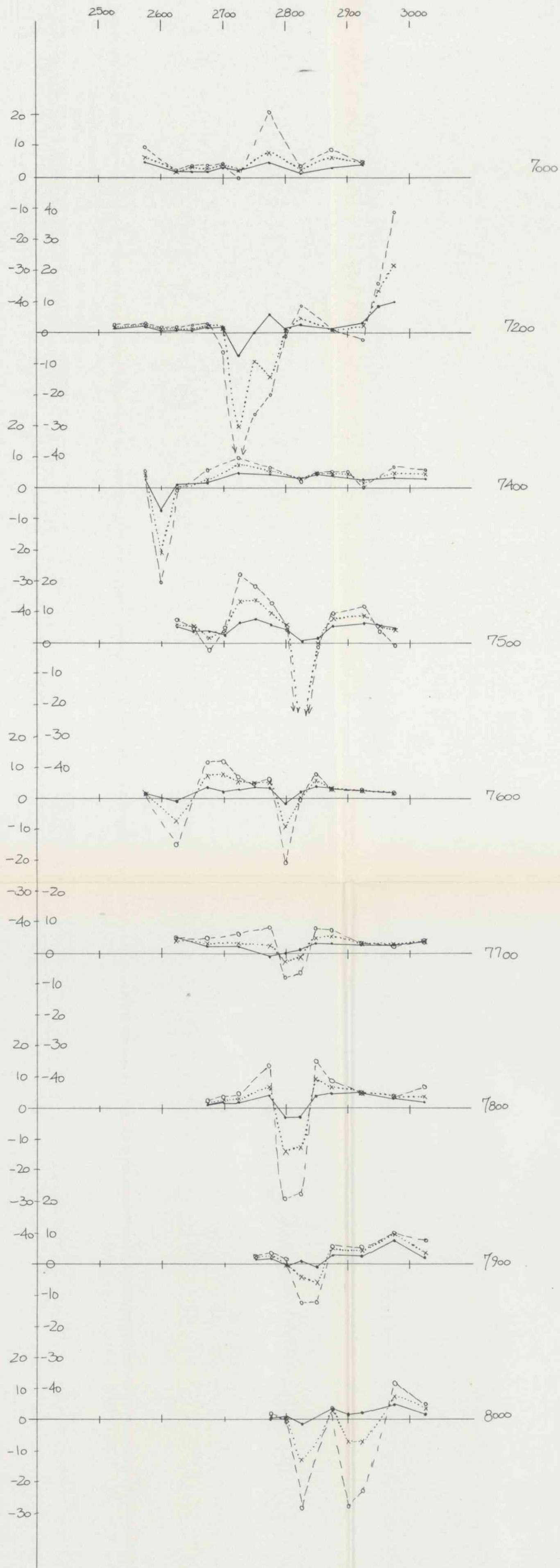
→ indicates out of scale



Area HØGLIA Genie	Scale:	Draw:	ES
		Trac:	AM
Orkla Industrier As 7332 LØKKEN VERK gulf - Orkla Venture	No: RI of A5		
	Encl. no: 12		
	Report no: LV24		
	Date: sept. 82		



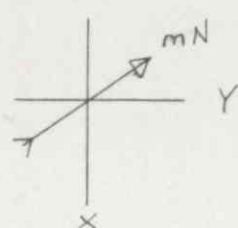
Area HØGLIA Total magnetic field values	Scale:	Draw	G.Gr
		Trac:	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf-Orkla Venture	No: RI, qf A7		
	Encl. no: 14		
	Report no: LV 24		
	Date: Sept 82		



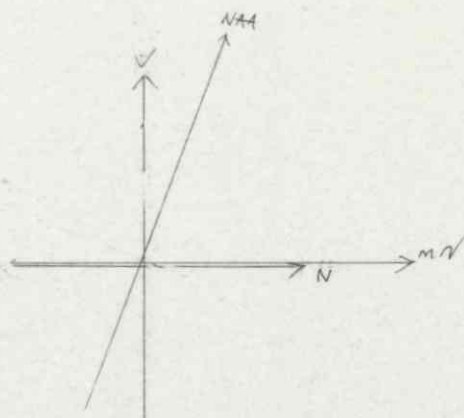
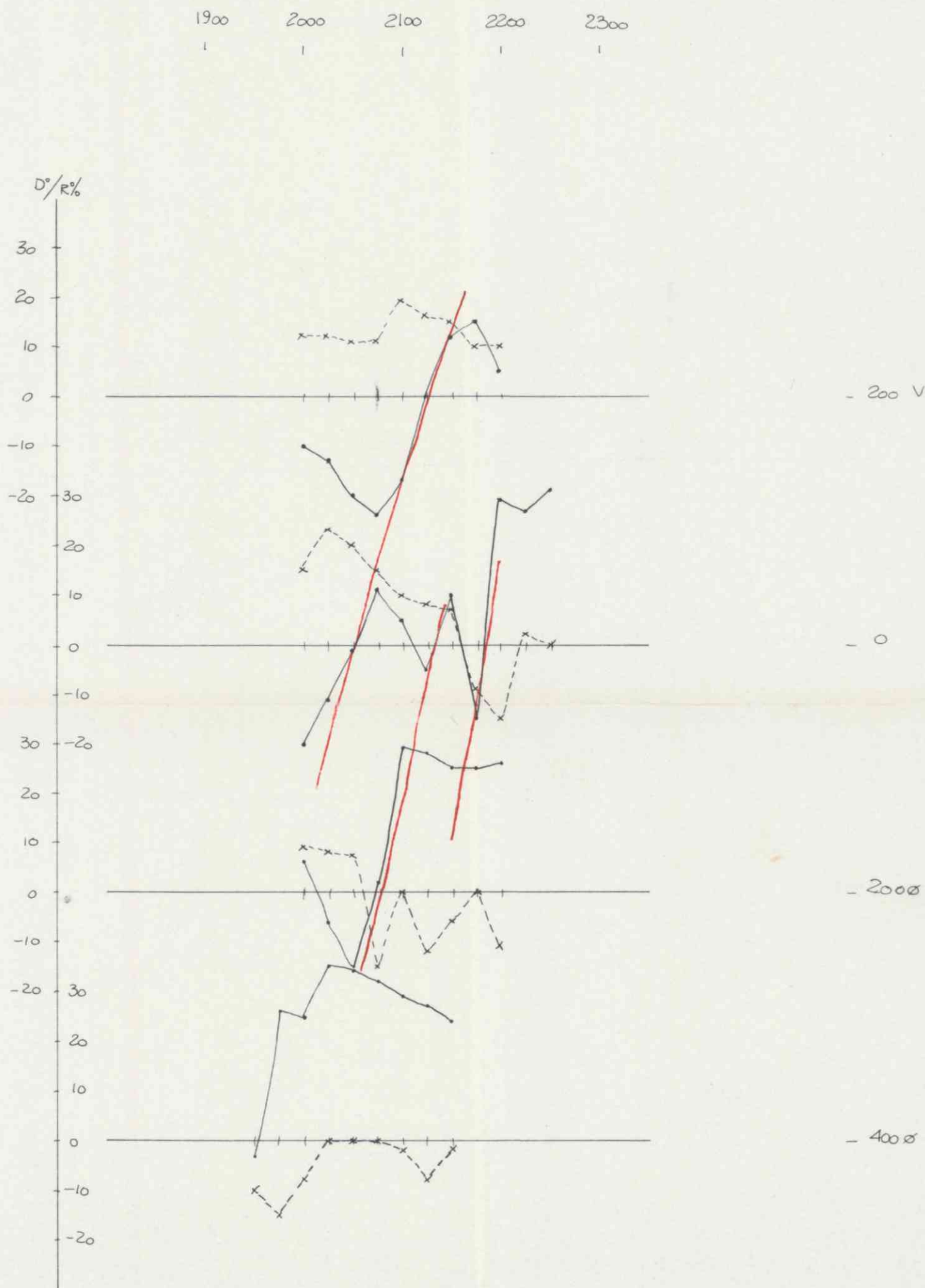
Separation 50 m

337/112 —●—
 612/112 -x-x-x-
 3037/112 o---o

→ indicates out of scale



Area HØGLIA	Scale:	Draw	AM
Genie		Trac:	AM
Orkla Industrier A/S 7332 LØKKEN VERK Gulf - Orkla Venture	No: R1.gp AG		
	Encl. no: 13		
	Report no: LV 24		
	Date: Sept 82		

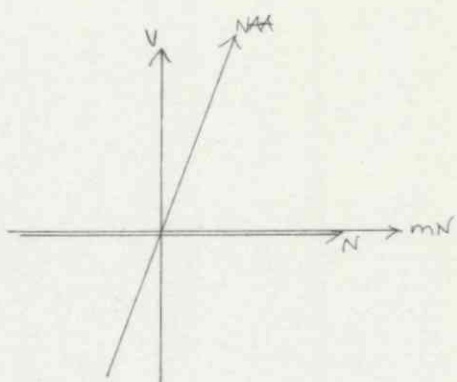
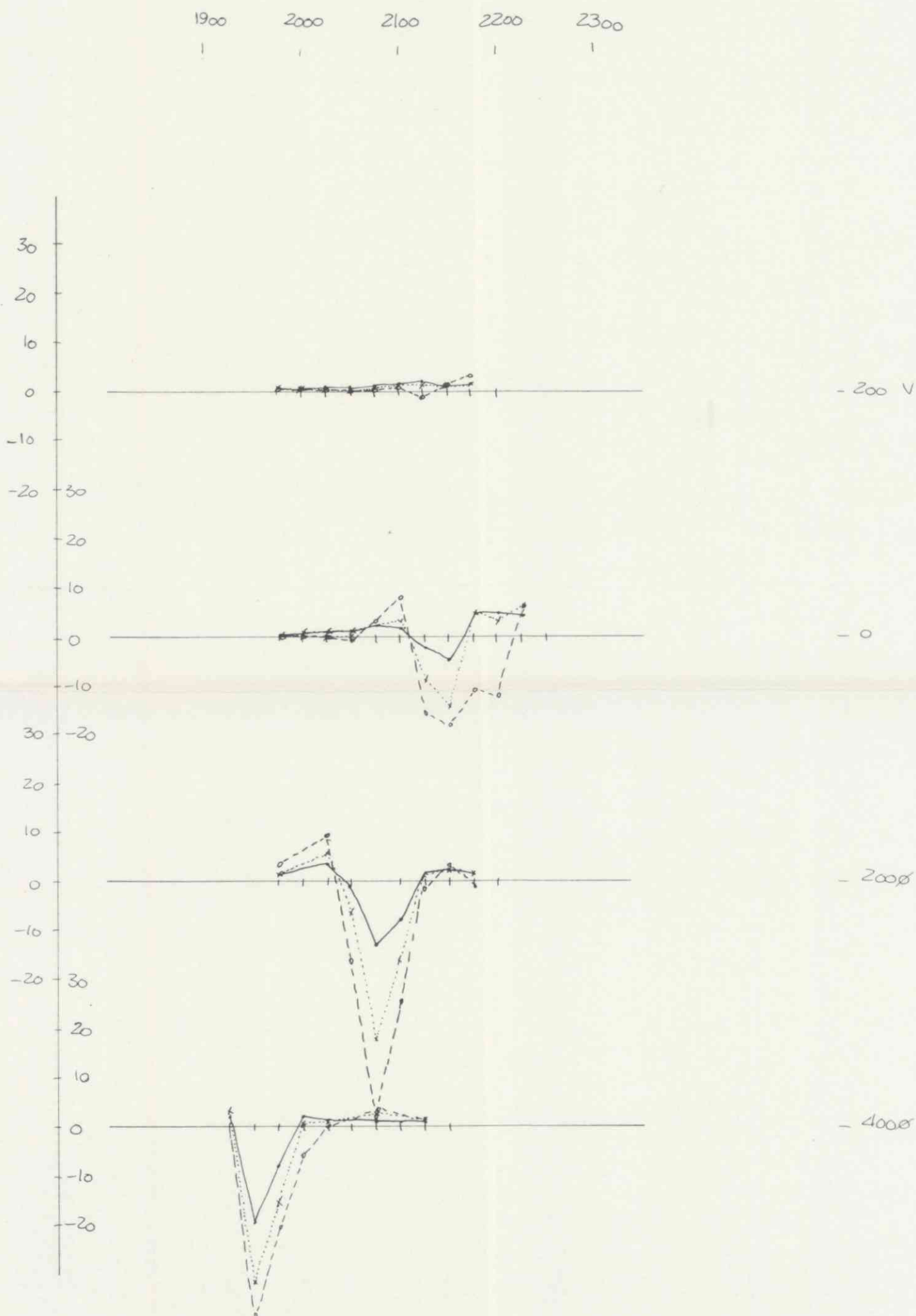


PIKKHAUGEN
VLF anomaly map
Dip angle. Imaginary component

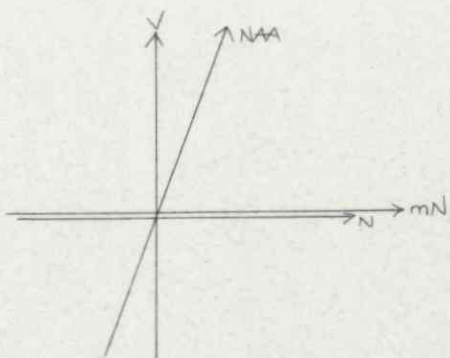
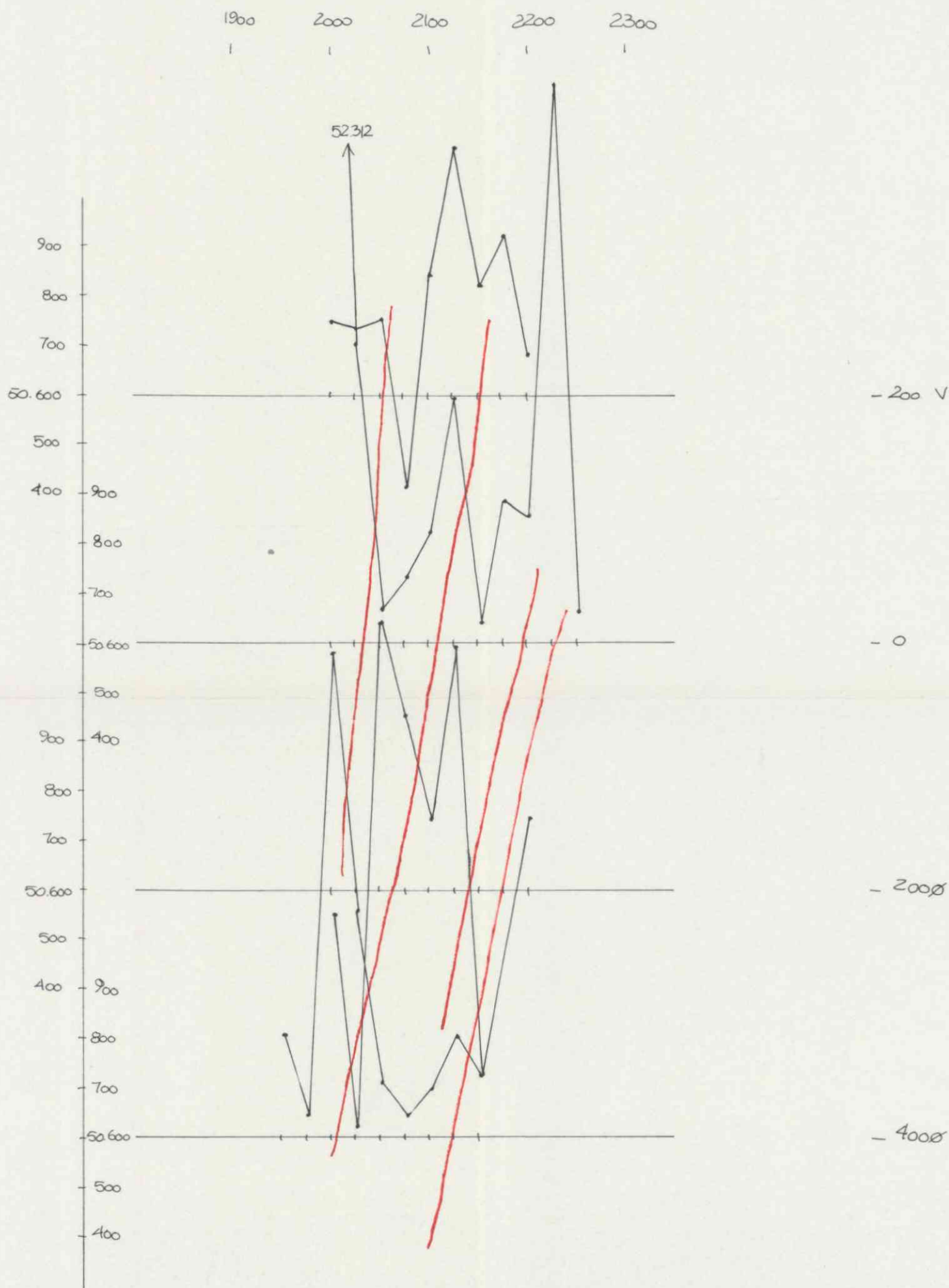
Scale	Draw:	AM
	Trac:	AM

Orkla Industrier A.s
7332 LØKKEN VERK
Gulf - Orkla Venture

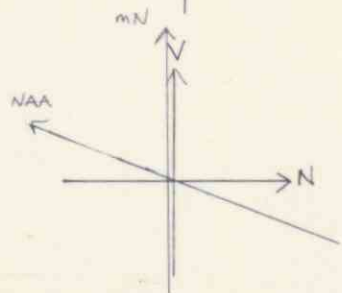
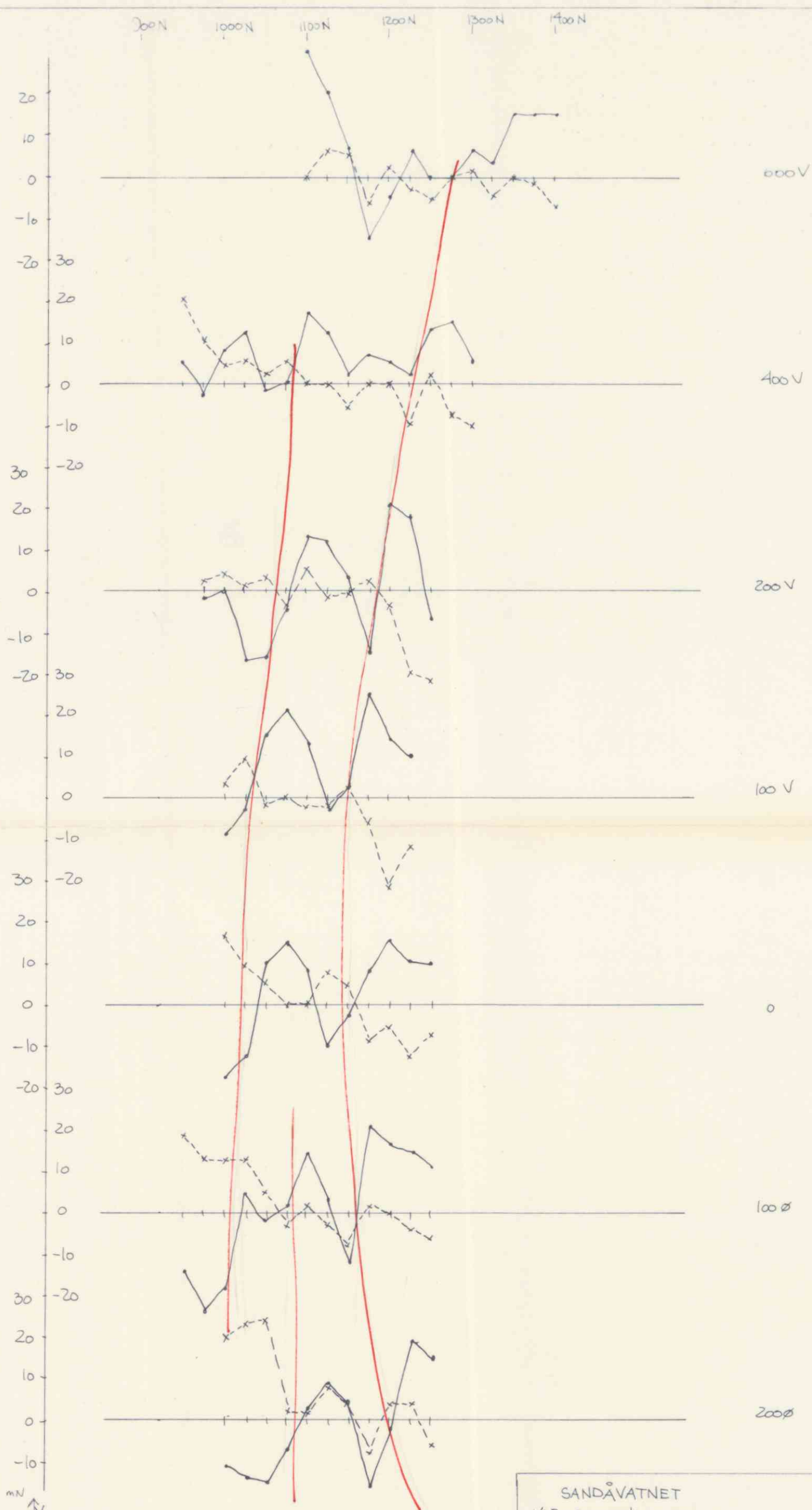
No. R1 gf FR
Encl. no: 15
Report no: LV 24
Date: oct 82



PIKKHAUGEN	Scale:	Draw:	EBS
Genie - separation 50m		Trac:	AM
1: x---x 3: o---o			
Orkla Industrier A.s 7332 LØKKEN VERK Gulf - Orkla Venture	No: R1gf F4		
	Encl. no: 16		
	Report no: LV24		
	Date: oct 82		



PIKKHAUGEN Total magnetic field map	Scale:	Draw:	AM
		Trac:	AM
Orkla Industrier A.s 7332 LØKKEN VEEK Gulf - Orkla Venture	No. 21 of F6		
	Encl. no: 17 Report no: LV 24		
	Date: oct 82		



SANDÅVATNET
VLF-anomaly map
Dip angle: $\rightarrow$ Imaginary comp. x---x

Orkla Industrier A.s
7332 LØKKEN VERK

Gulf - Orkla Venture

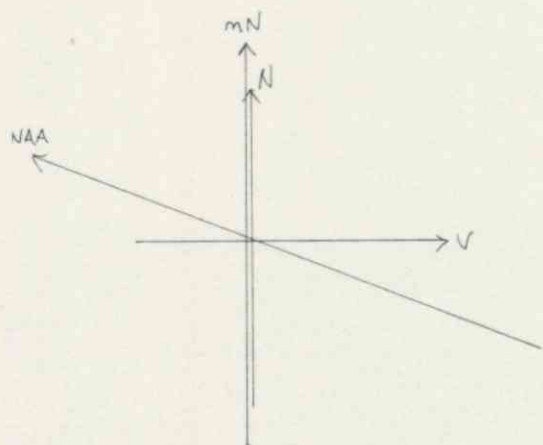
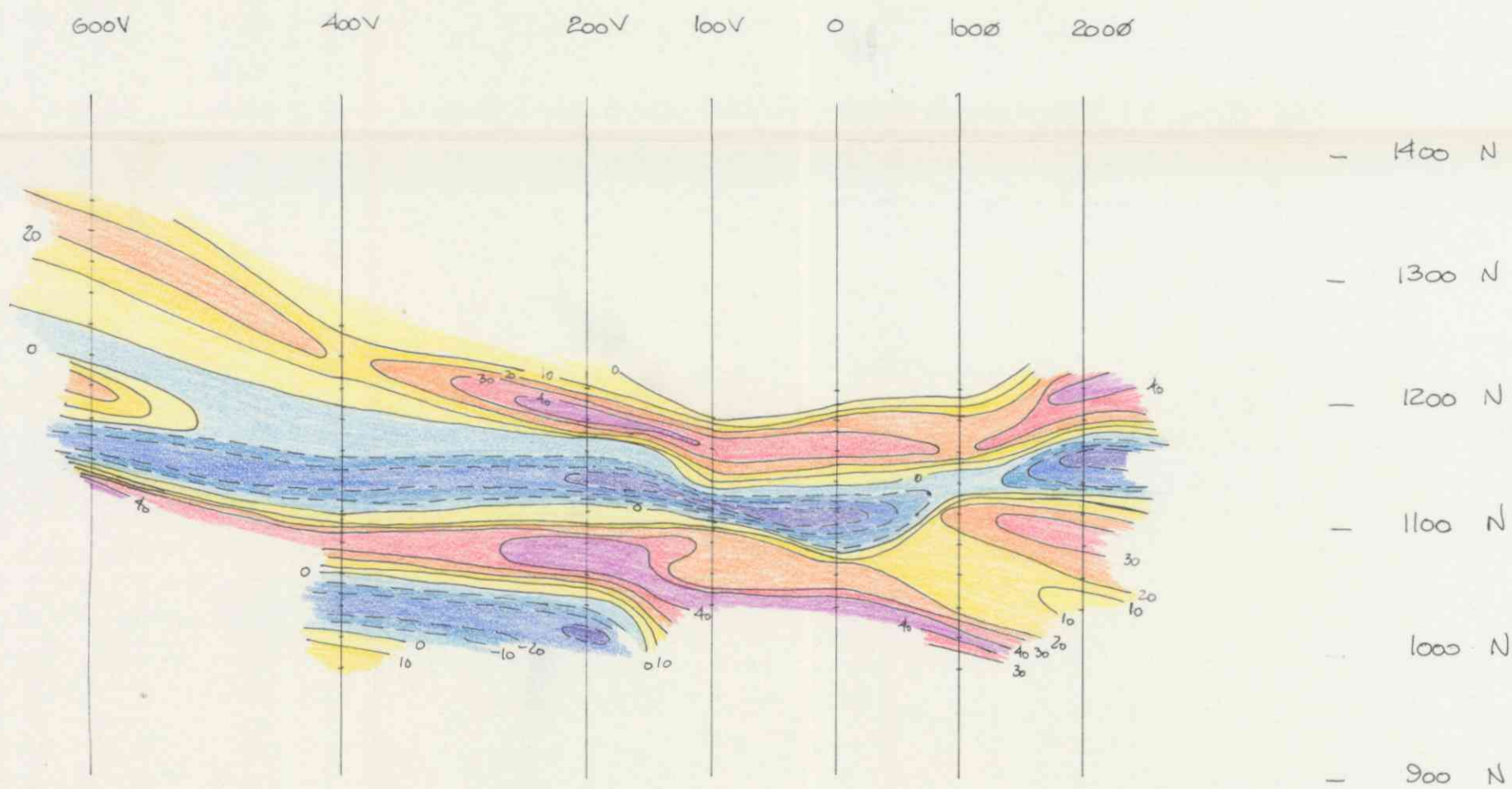
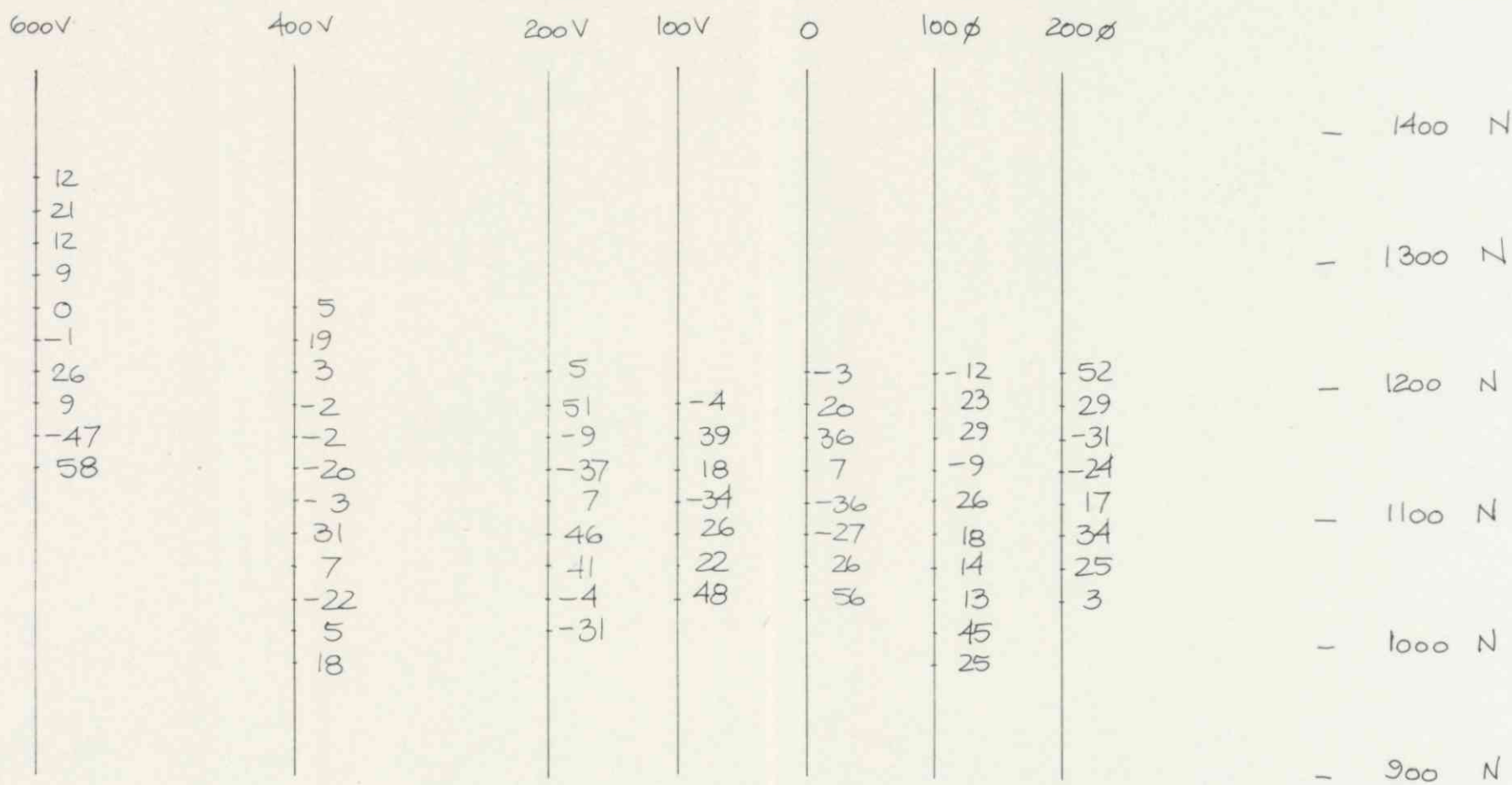
Scale:	Draw:	AM
	Trac:	AM

No: Gf1L2

Encl. no: 18

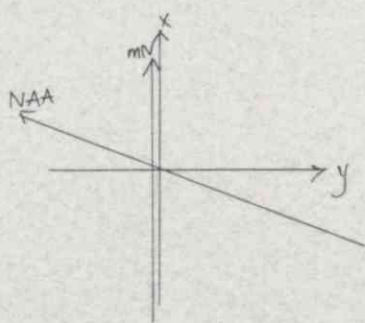
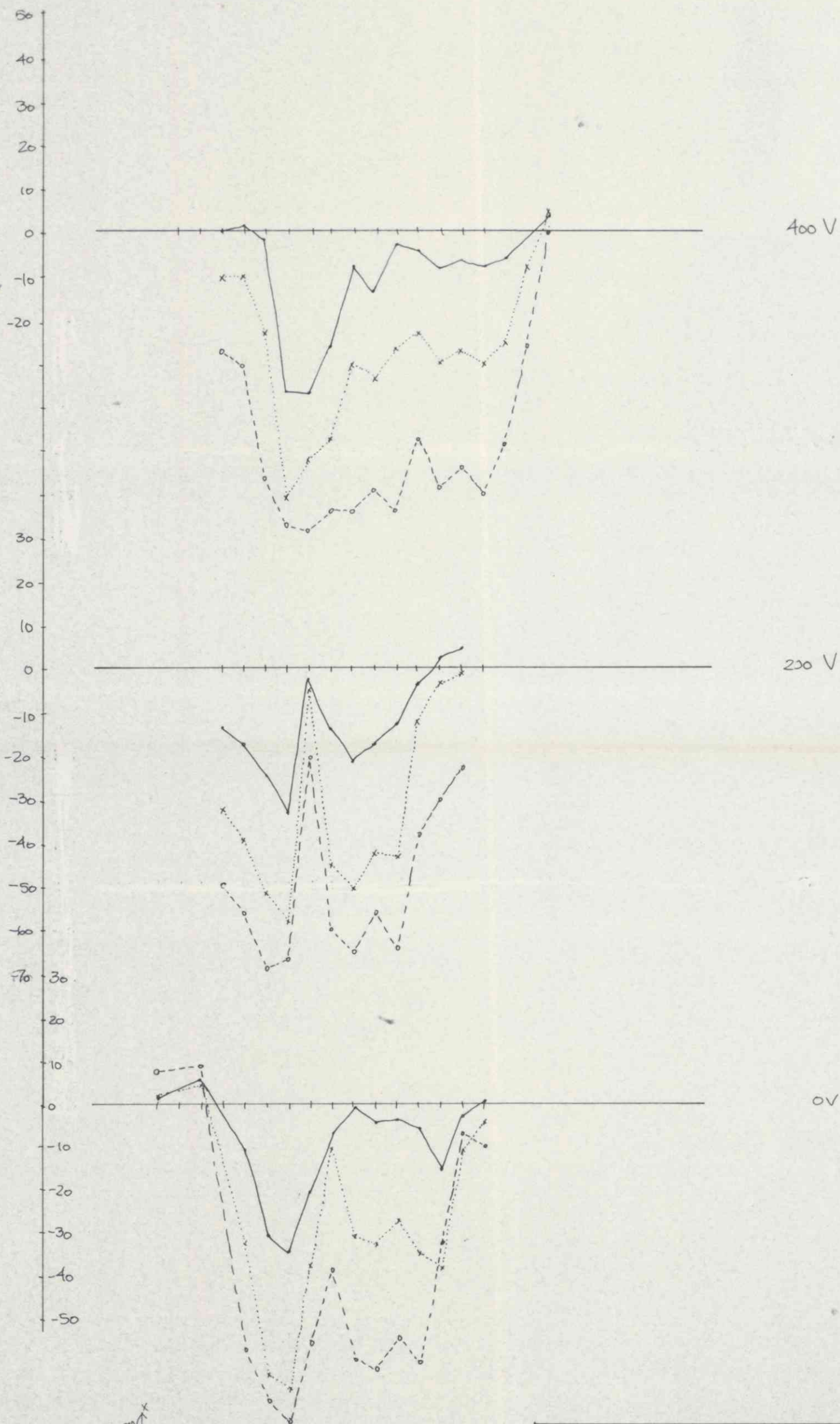
Report no: LV 24

Date: oct 82

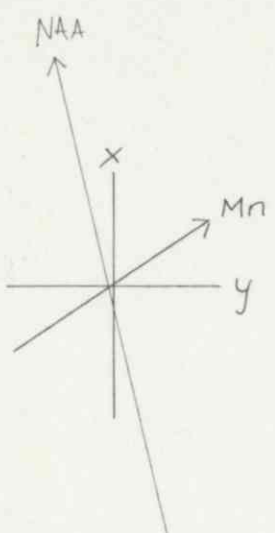
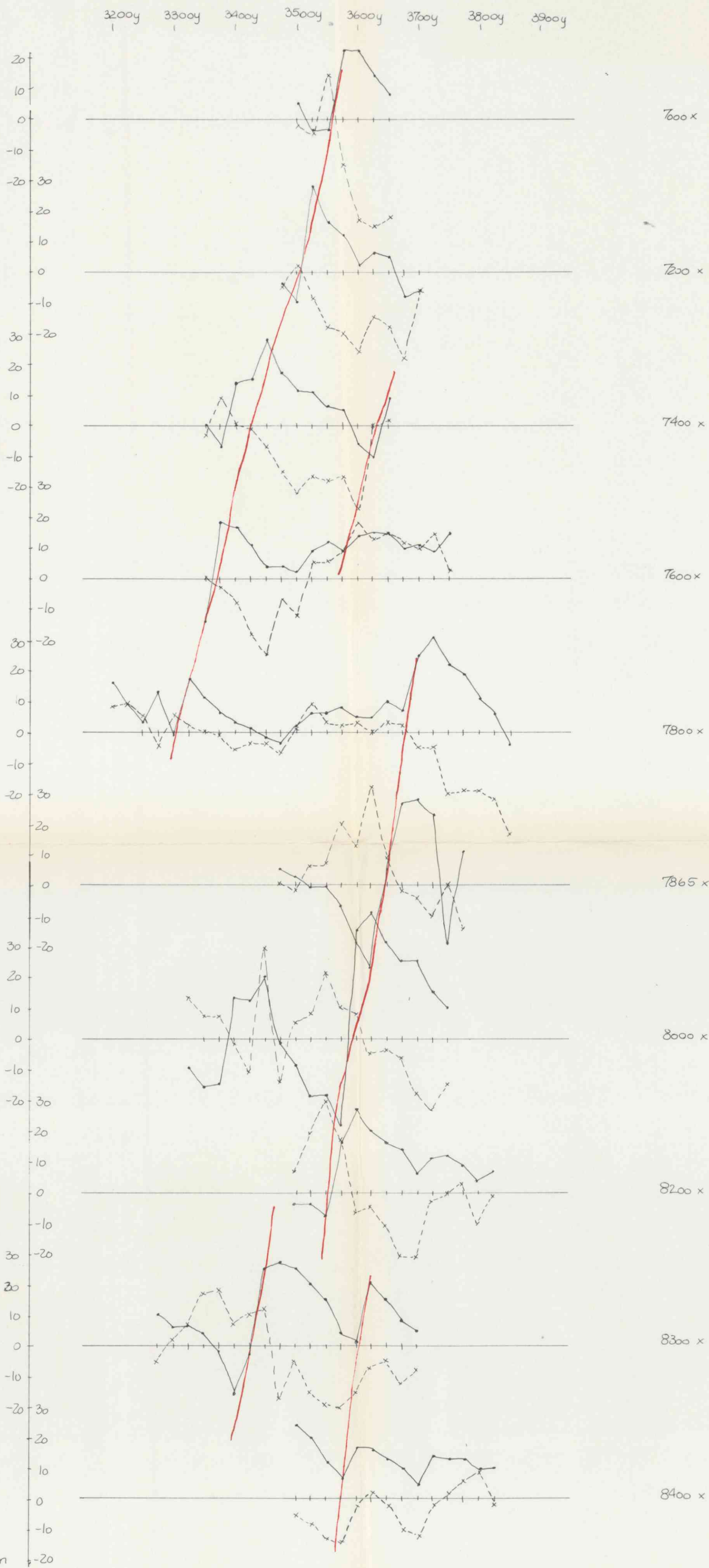


SANDÅVATNET VLF-anomali map Fraser values. Fraser contouring map	Scale : 1:5000	Draw :	AM
		Trac :	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf - Orkla Venture	No : E1 gfJ3		
	Encl. no: 19		
	Report no: LV24		
	Date: oct 82		

900 N 1000 N 1100 N 1200 N 1300 N 1400 N

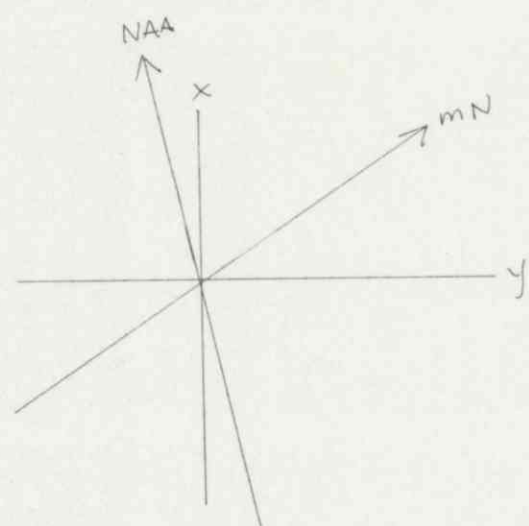
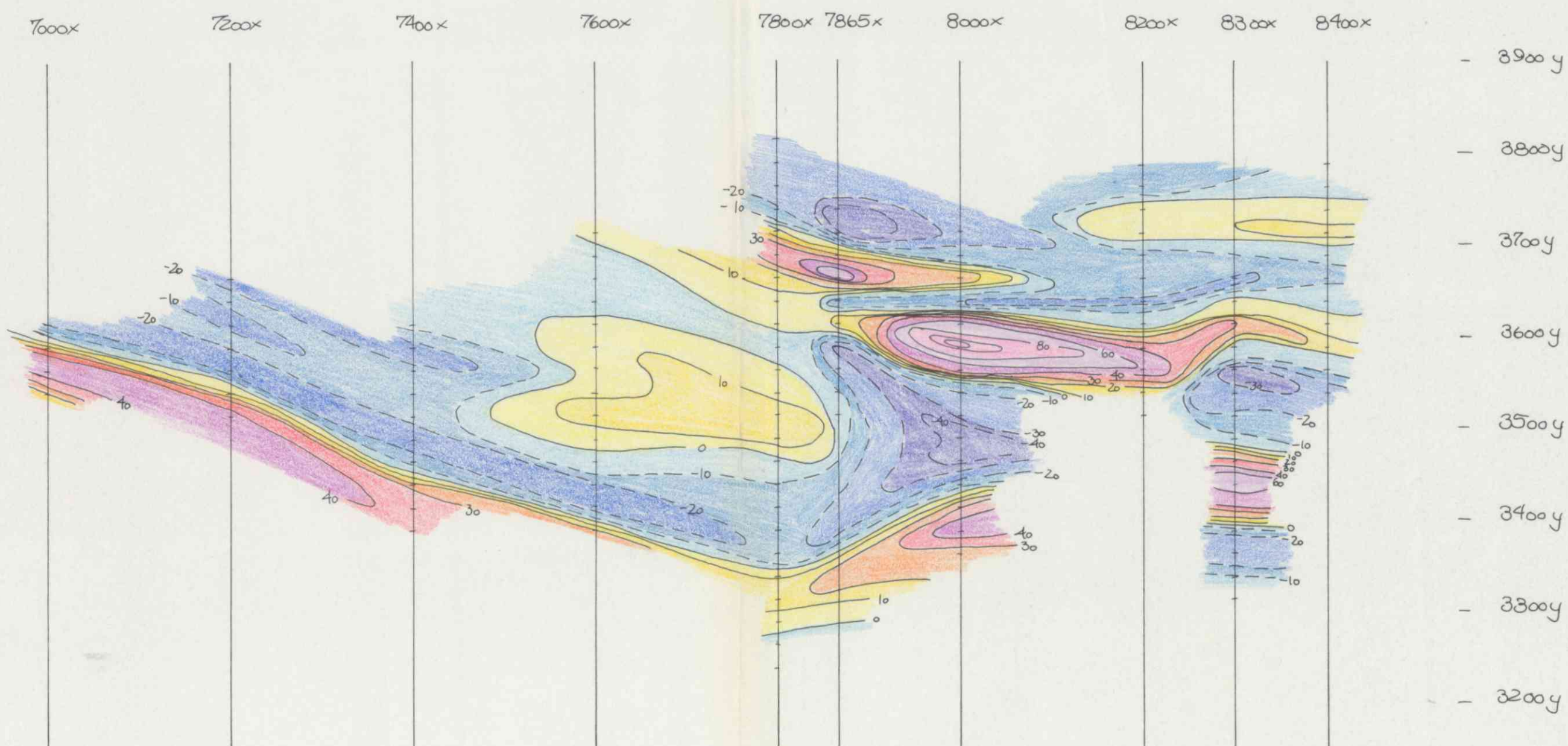


SANDÅVATNET Genie - separation loom (:— 2: x—x—x 3: o—o—o—)	Scale:	Draw	EBS
		Trac:	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf - Orkla Venture	No: R1 gf J5		
	Encl. no: 21		
	Report no: LV 24		
	Date: oct 82		

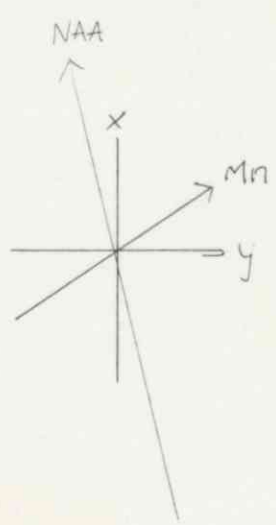
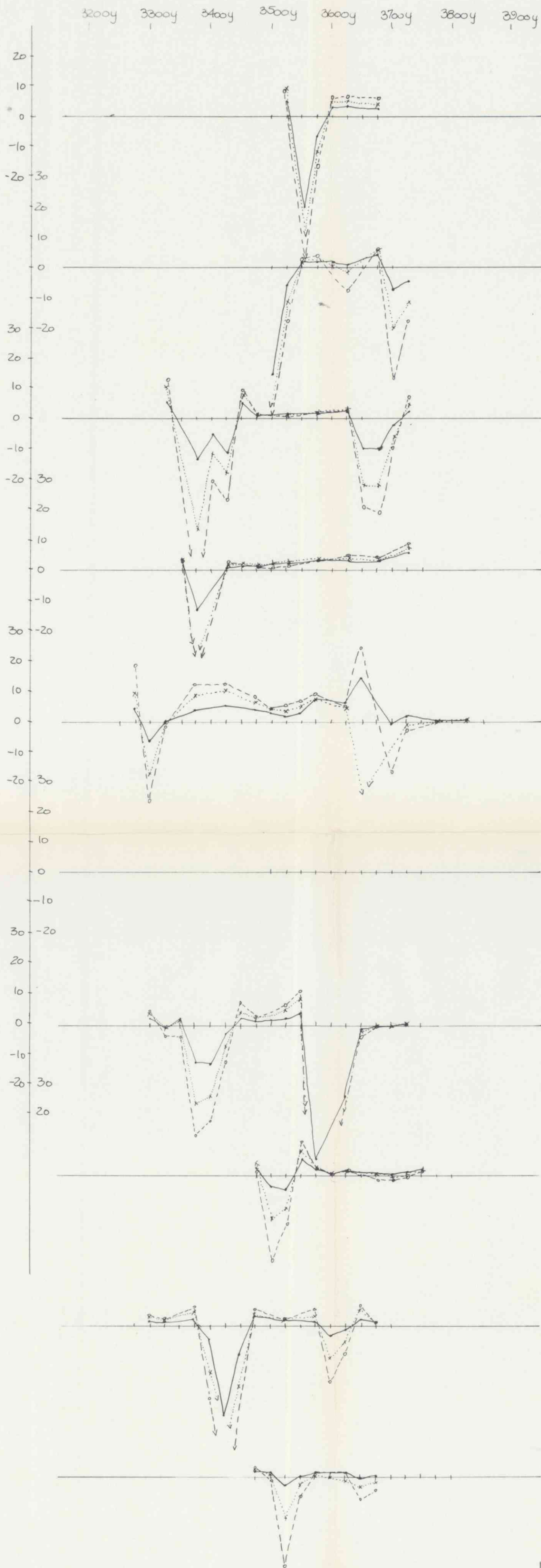


REINSLIA VLF-anomaly map Dip angle $\rightarrow$ Imaginary component x---x---x	Scale:	Draw:	AM
		Trac:	AM
Orkla Industrier A.S 7332 LØKKEN VERK Gulf- Orkla Venture	No. R1 of GR		
	Encl. no: 23		
	Report no: LV24		
	Date: sept 82		

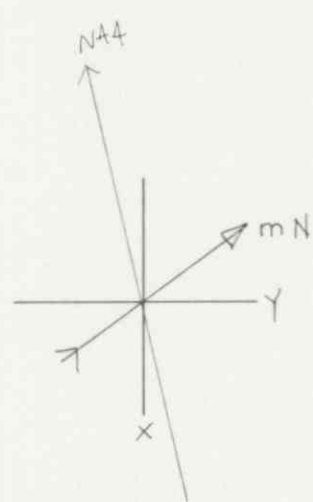
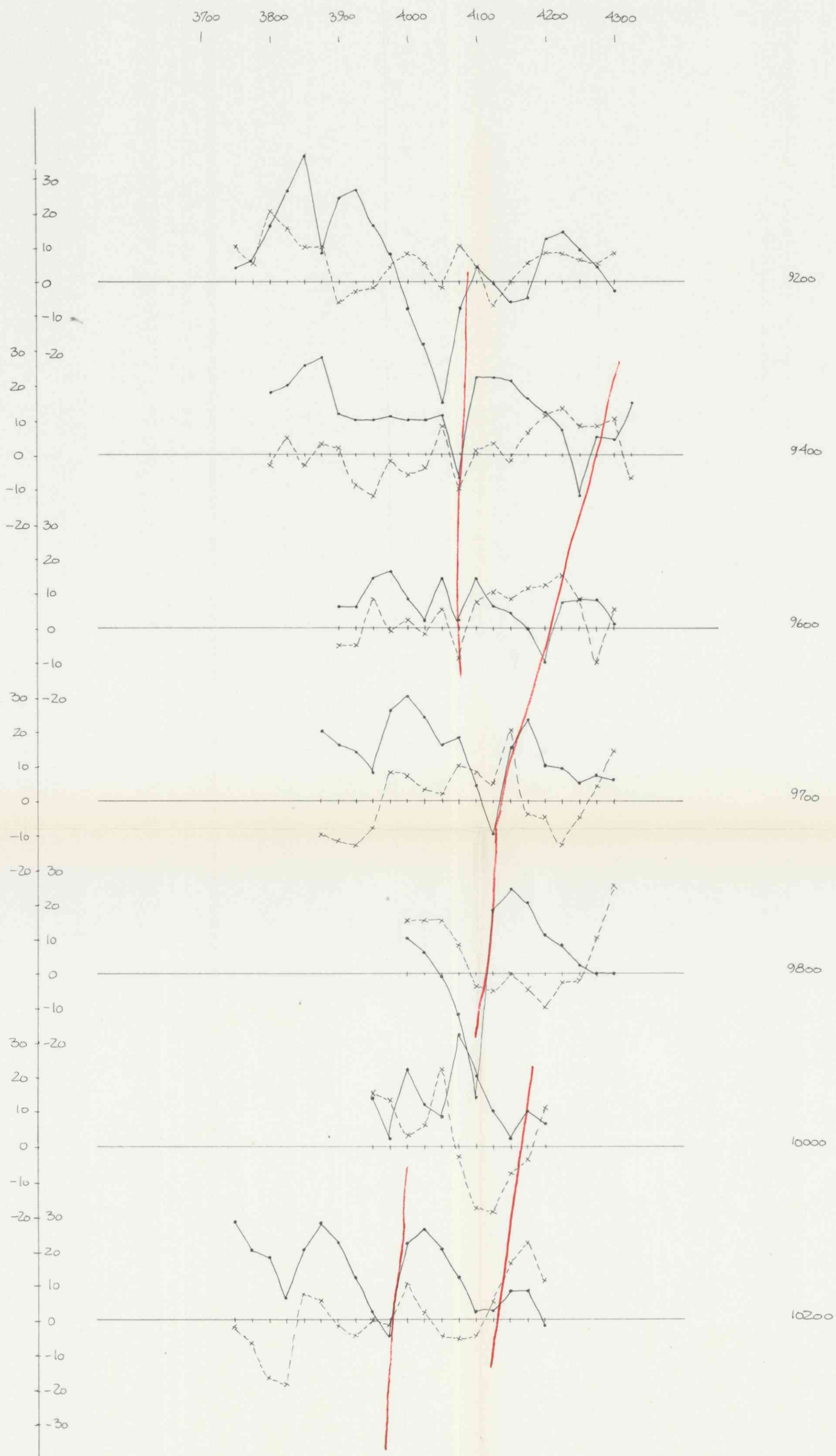
7000x	7200x	7400x	7600x	7800x 7865x	8000x	8200x	8300x	8400x	
									- 3900y
									- 3800y
									- 3700y
									- 3600y
									- 3500y
									- 3400y
									- 3300y
									- 3200y
-22 18 52 17	-25 -11 -3 -20 -30 10 50	0 -27 -18 -11 -11 -23 -15 16 35 36	3 -5 -9 -4 7 8 2 10 15 3 -9 -20 -20 24	-28 -24 -22 -14 20 38 17 7 2 -4 1 6 14 14 -3 -10 -10 -13 -19 1 16 0 0 -9	-59 -51 19 77 -14 14 -38 -24 -9 -9	-25 -16 22 -20 66 124 44 -20 -27 -46 -43 -7 34 36 24	-10 -10 4 3 -13 -16 -27 -7 39 55 16	-6 -4 7 12 -4 -14 5 14 -8 -22 -26 -17 -7 30 71 40 -21 -28 -10 -6	



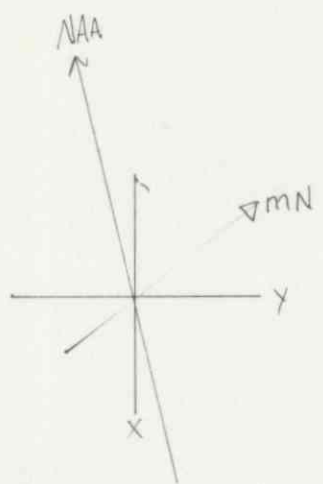
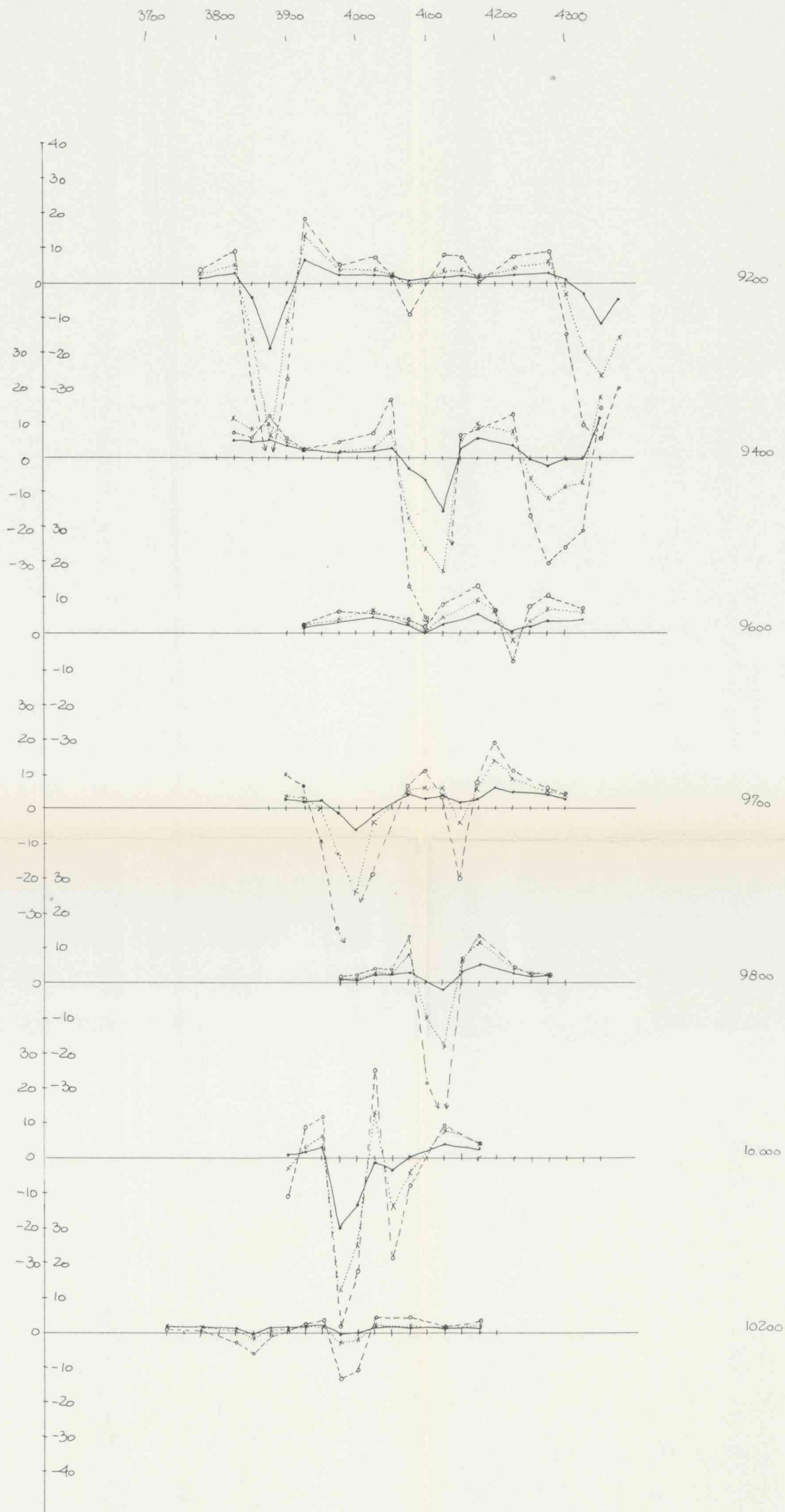
REINSLIA VLF - anomali map Fraser values - Fraser contouring	Scale: 1:5000	Draw	AM
		Trac	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf - Orkla venture	No: RlgFG3		
	Encl. no: 24 Report no: LV24		
	Date: sept 82		



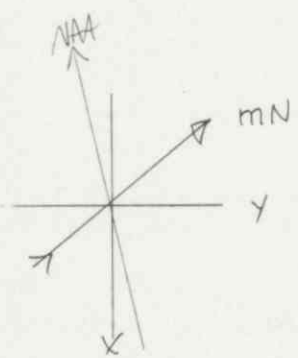
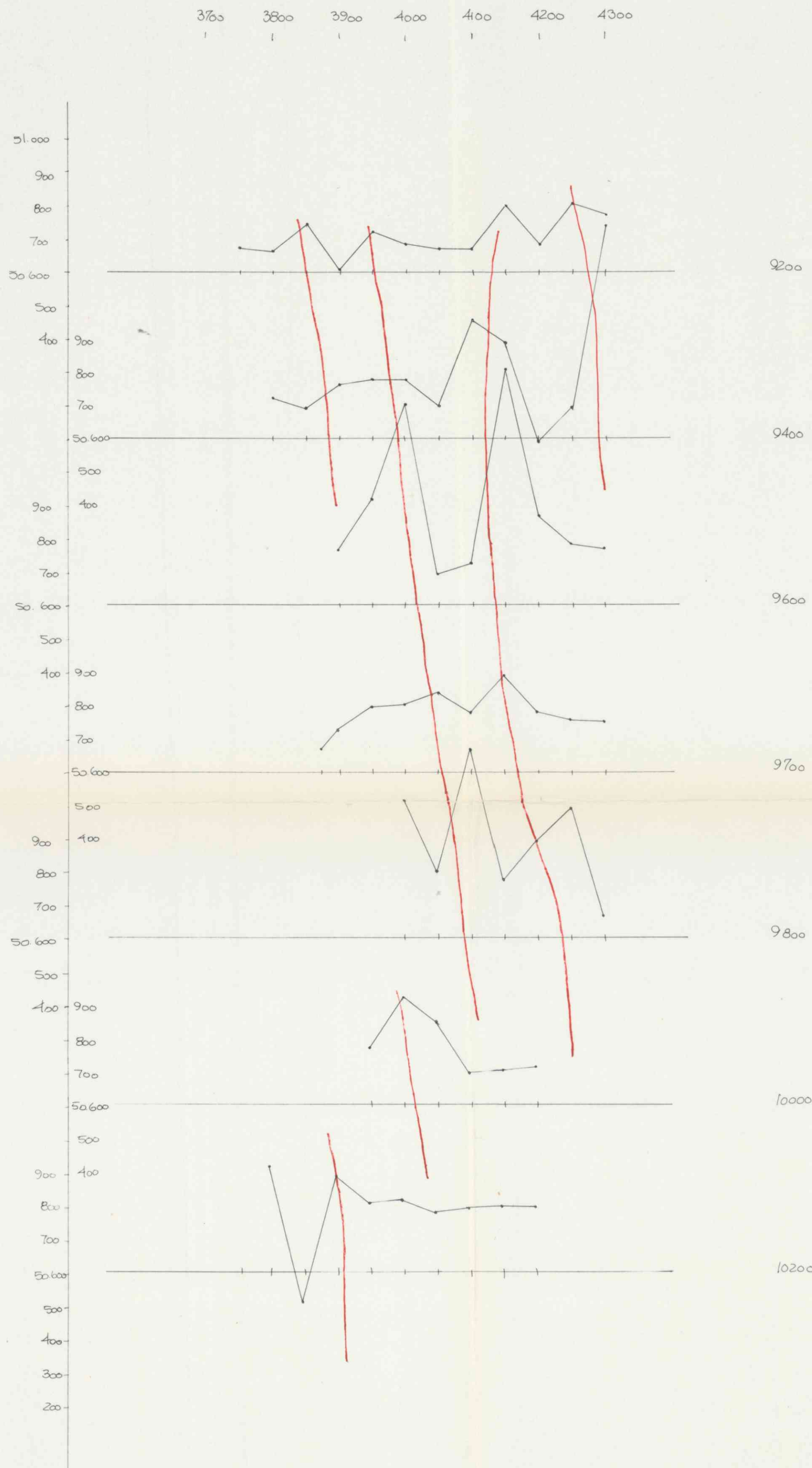
REINSLIA Genie Separation 50m	1: — 2: x-x 3: o--o	Scale:	Draw: AM Trac: AM
Orkla Industrier A.S 7332 LØKKEN VERK		No: Rigt G4	
Gulf - Orkla Venture		Encl. no: 25 Report no: LV 24	
		Date: sept. 82	



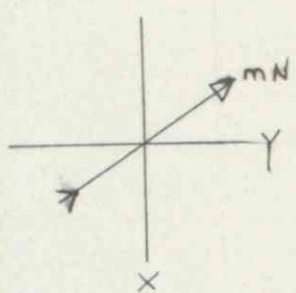
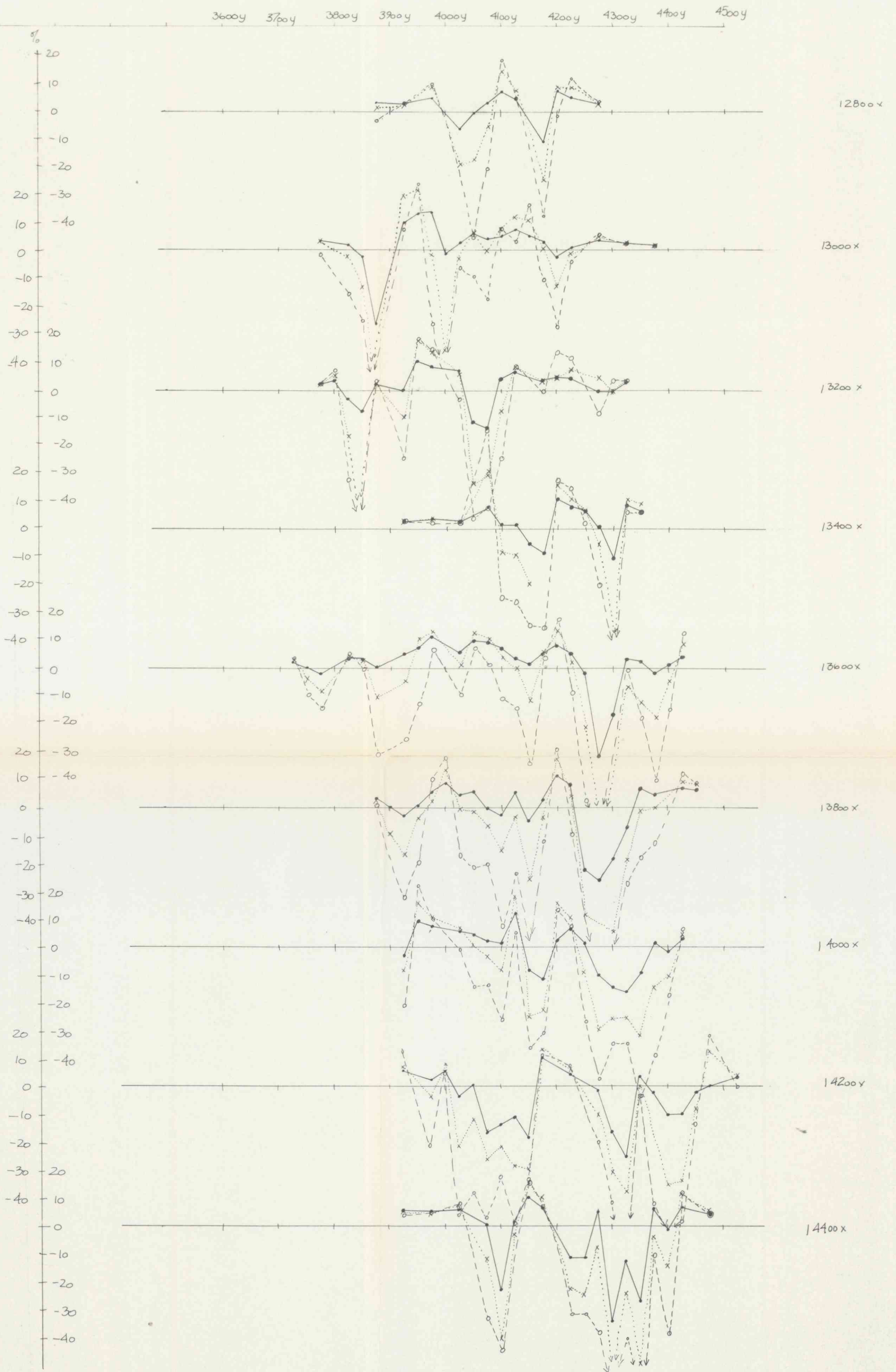
KATTEM Dip angle Imaginary component	Scale:	Draw:	AM
	1:5000	Trac:	AM
Orkla Industrier A.S 7332 LØKKEN VERK		No: R1 gf 82	
Gulf-Orkla Venture		Incl.no: 28	
		Report no: LV 24	
		Date: Sept. 82	



KATTEM Genie - separation 50m	Scale:	Draw:	EBS
		Trac:	AM
Orkla Industrier A.S 7302 LØKKEN VERK Gulf-Orkla Venture	No: R1 of B4		
	Encl. no: 29		
	Report no: LV 24		
	Date: Sept. 82		



KATTEM	Scale:	Draw:	AM
Total magnetic field		Trac:	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf-orkla Venture	No: R1 gf. 86		
	Encl. no: 30 Report no: LV24		
	Date: sept. 82		

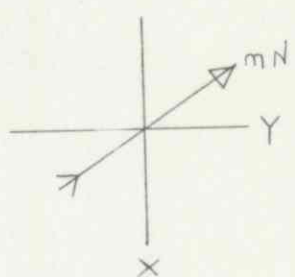
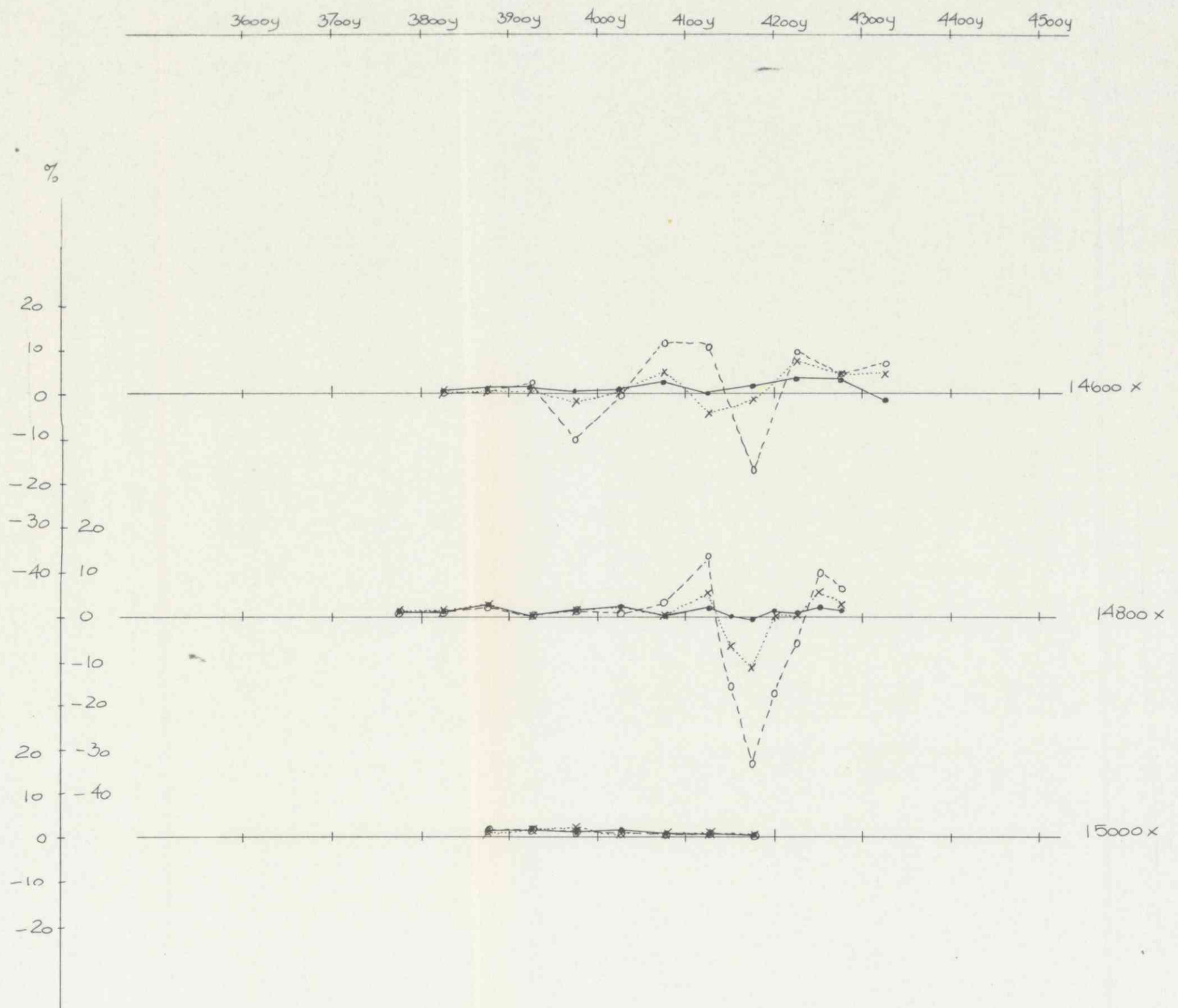


Separation 50 m.

337/112 —●—
 1012/112 x-----x
 3037/112 o-----o

→ indicates out of scale

Area RINNA- LANGTJERN Genie	scale: 1:	Draw:	AM
		Trac:	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf-Orkla Venture	No: RJ gf EI		
	Encl. no: 31		
	Report no: LV24		
	Date: aug. 82		



Separation 50 m

337/112

→

1012/112

x.....x

3037/112

o----o

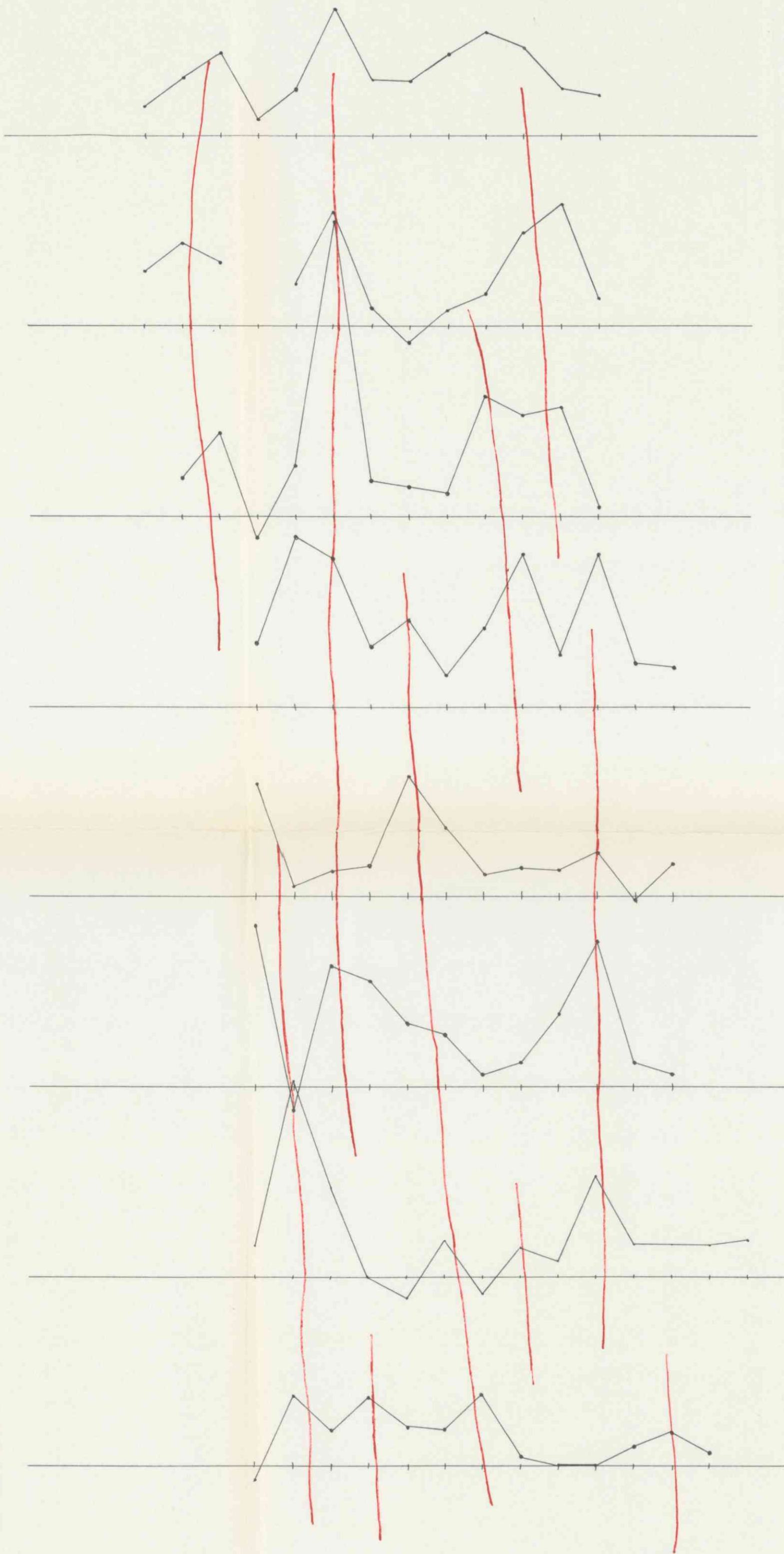
→ indicates out of scale

Aera RINNA - LANGTJERN	Scale:	Draw:	AM
Genie		Trac:	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf - Orkla Venture	1:		
	No: R1 of EI		
	Encl. no: 31 Report no: LV24		
	Date: aug 82		

3700y 3800y 3900y 4000y 4100y 4200y 4300y 4400y 4500y

Gammas

51.000
900
800
700
50.600
500
51.000
900
800
700
50.600
500
51.000
900
800
700
50.600
500
51.000
900
800
700
50.600
500
51.000
900
800
700
50.600
500
51.000
900
800
700
50.600
500



13000 x

13200 x

13400 x

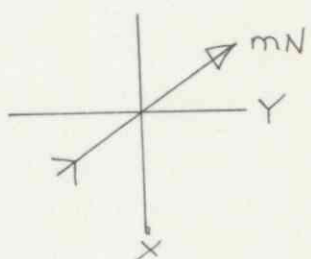
13600 x

13800 x

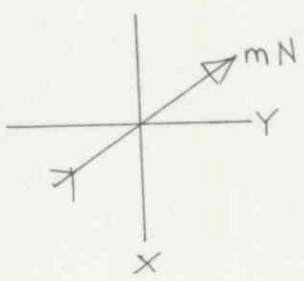
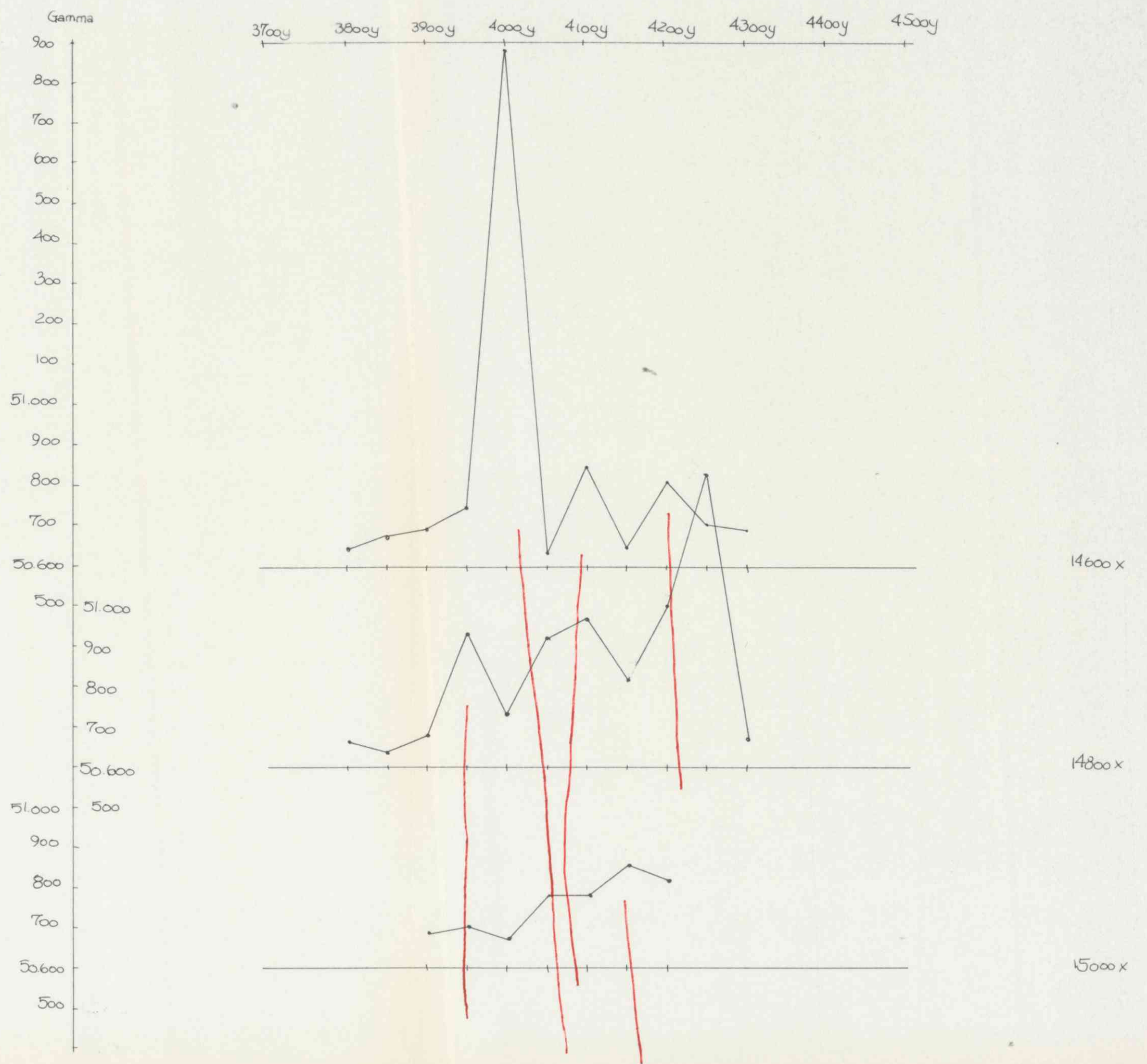
14000 x

14200 x

14400 x

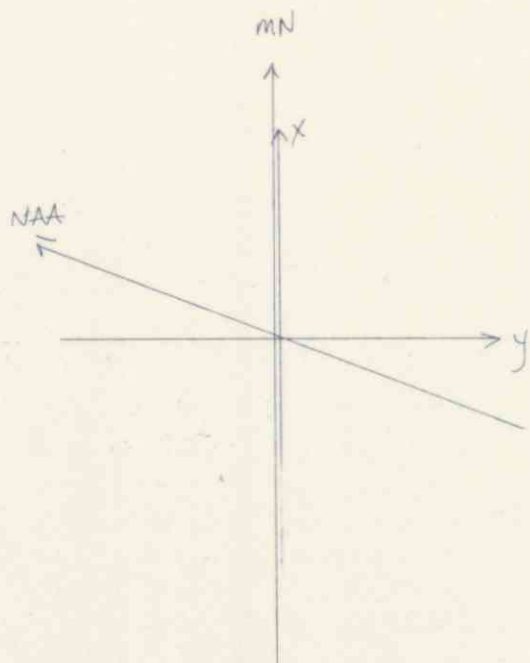
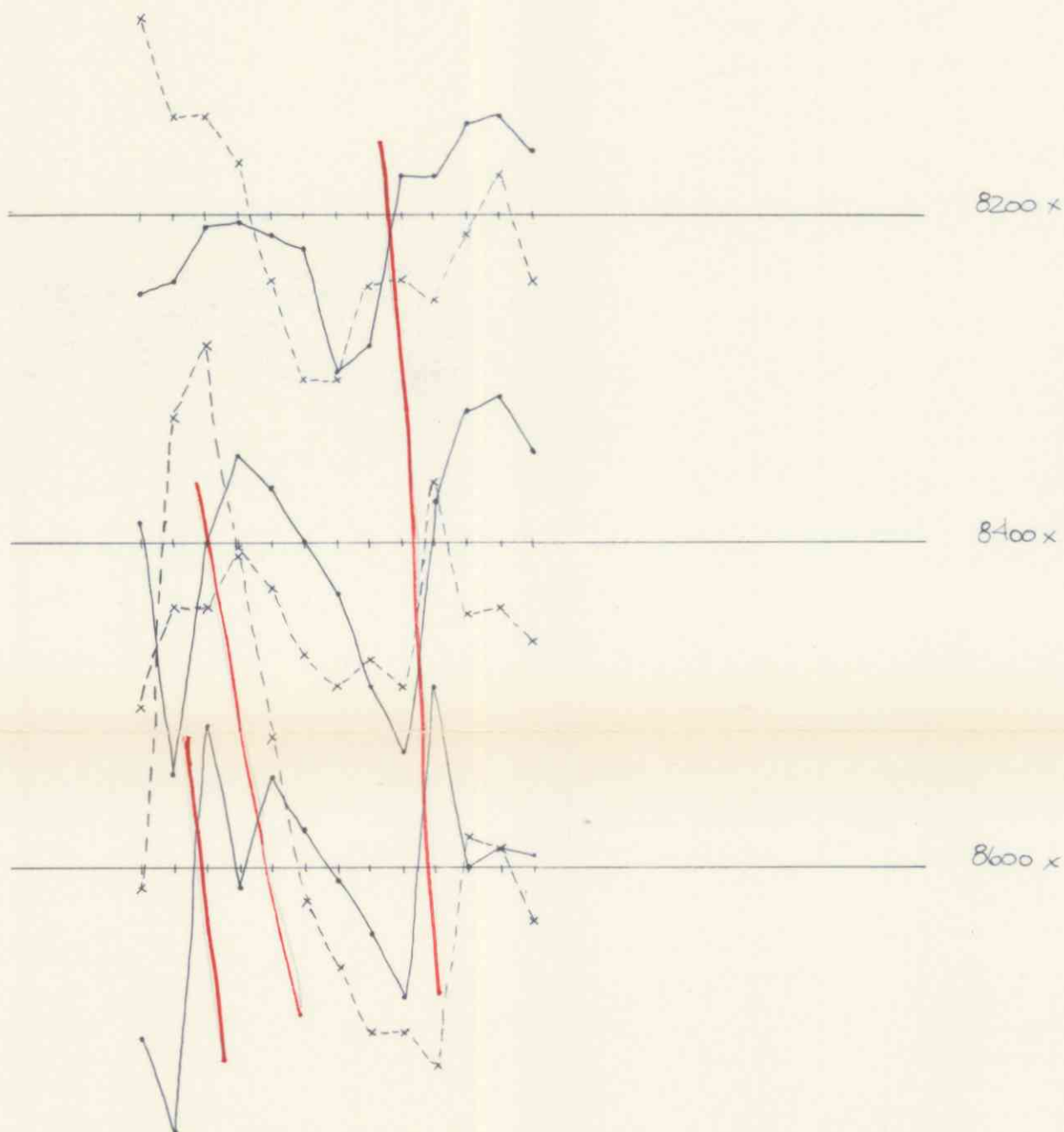


RINNA - LANGTJERN Total magnetic field map	scale:	Draw:	AM
		Trac:	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf-Orkla Venture		No: Rigt E3	
		Encl. no: 32	
		Report no: LV24	
		Date: 1. Sept. 82	



RINNA - LANGTJERN Total magnetic field map	Scale:	Draw:	AM
		Trac:	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf-Orkla Venture	No. RI 9f E3		
	Encl. no: 32		
	Report no: LV 24		
	Date: 1. sept. 82		

4400y 4500y 4600y 4700y 4800y 4900y



ROMUNDSTAD VLF-anomaly map Dip angle. Imaginary component	Scale:	Draw:	AM
		Trac:	AM
Orkla Industrier A.s 7332 LØKKEN VERK Gulf - Orkla Venture	No. Gf I _z		
	Encl. no: 33		
	Report no: LV 24		
	Date: oct. 82		

8200

8400

8600

-5
-17
-34
-56
-15
-36
-25
-5
8
19

16
16
80
4
-46
-38
-29
-5
57
46

-23
-5
-2
20
-34
-32
-5
1
27
85

- 4900

- 4800

- 4700

- 4600

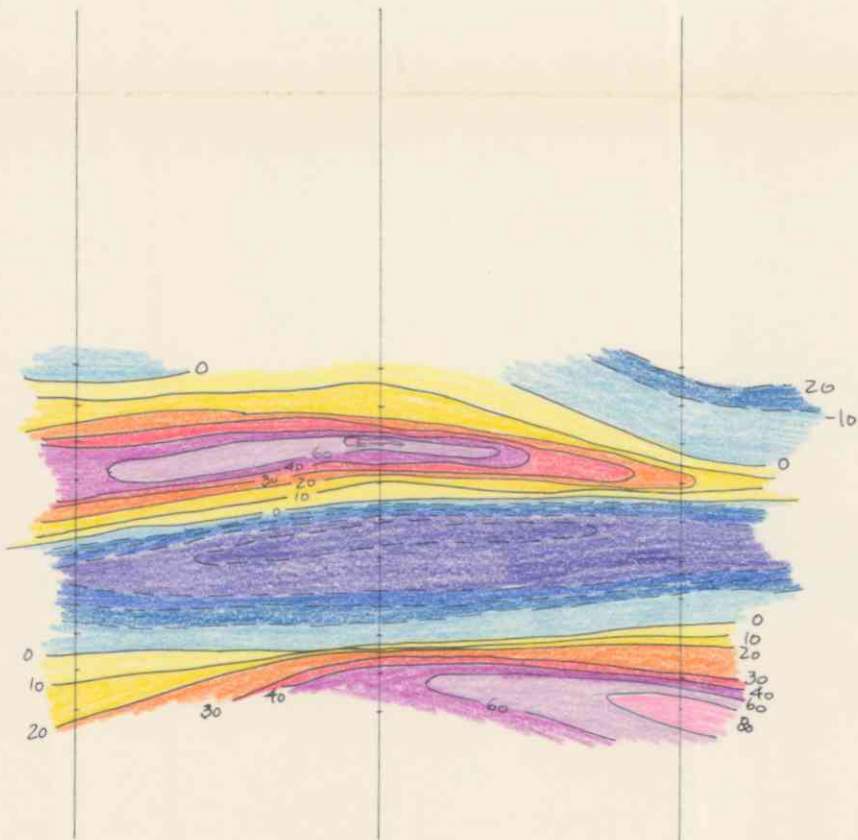
- 4500

- 4400

8200

8400

8600



- 4900

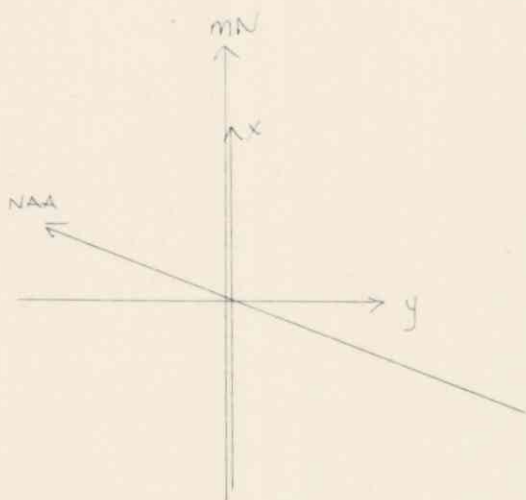
- 4800

- 4700

- 4600

- 4500

- 4400



ROMUNDSTAD
VLF-anomali map
Fraser values. Fraser contouring interv.

Scale: 1:5000	Draw:	AM
	Trac:	AM

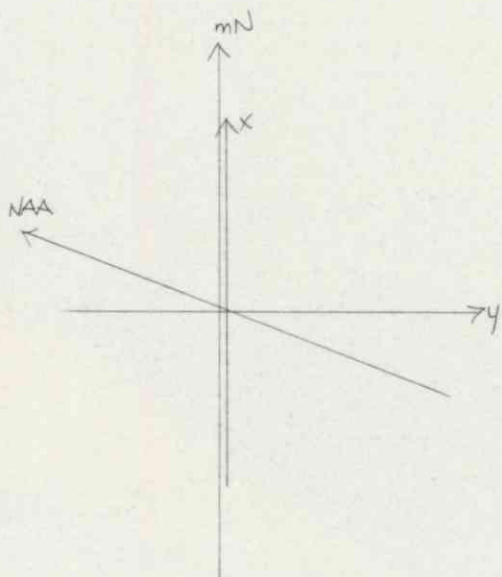
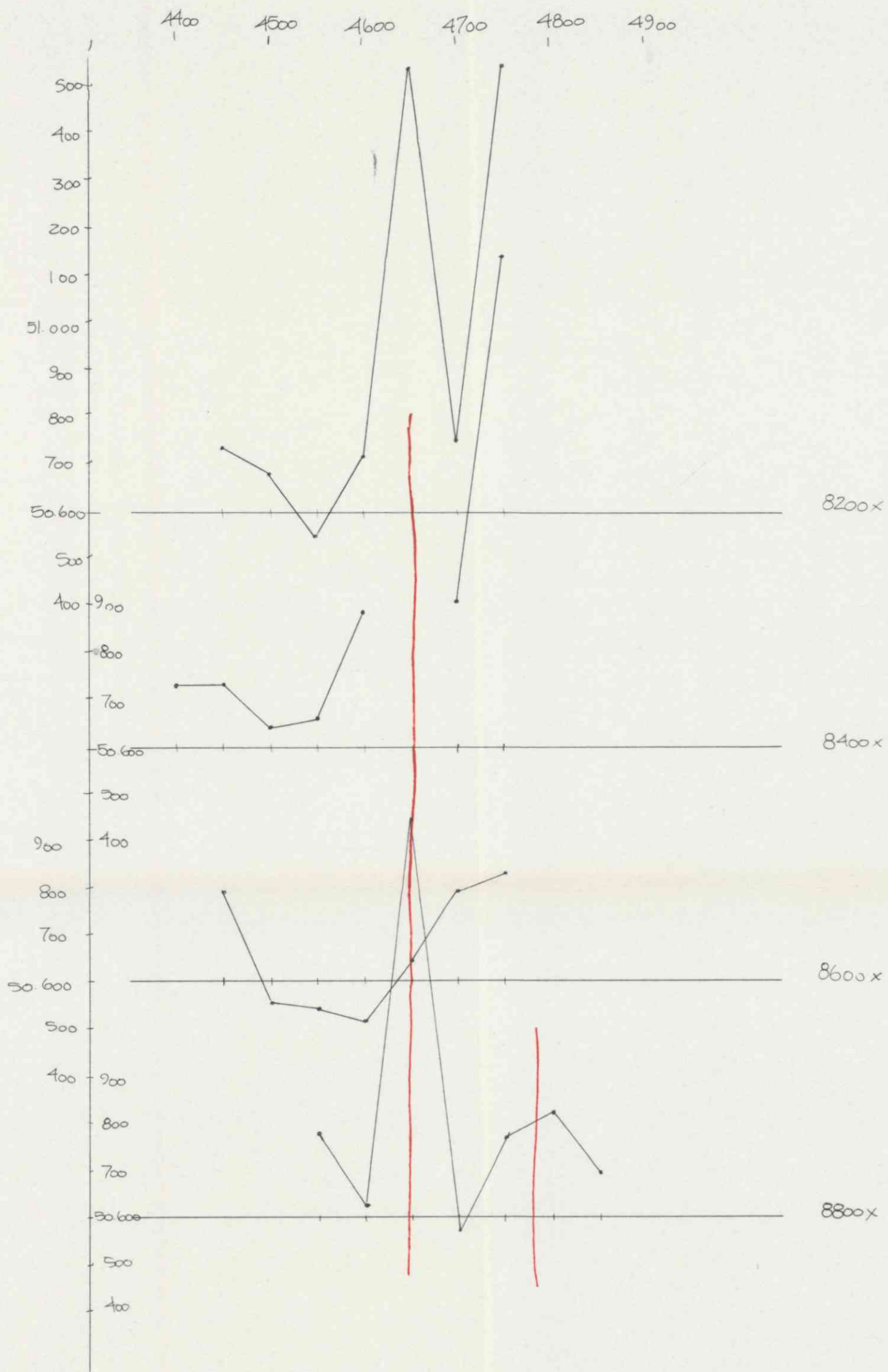
Orkla Industrier A.s
7332 LØKKEN VERK

Gulf - Orkla Venture

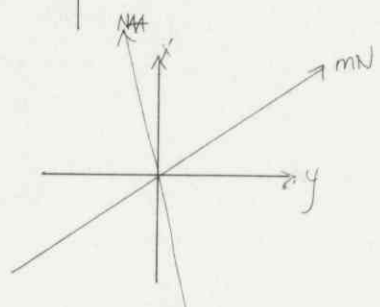
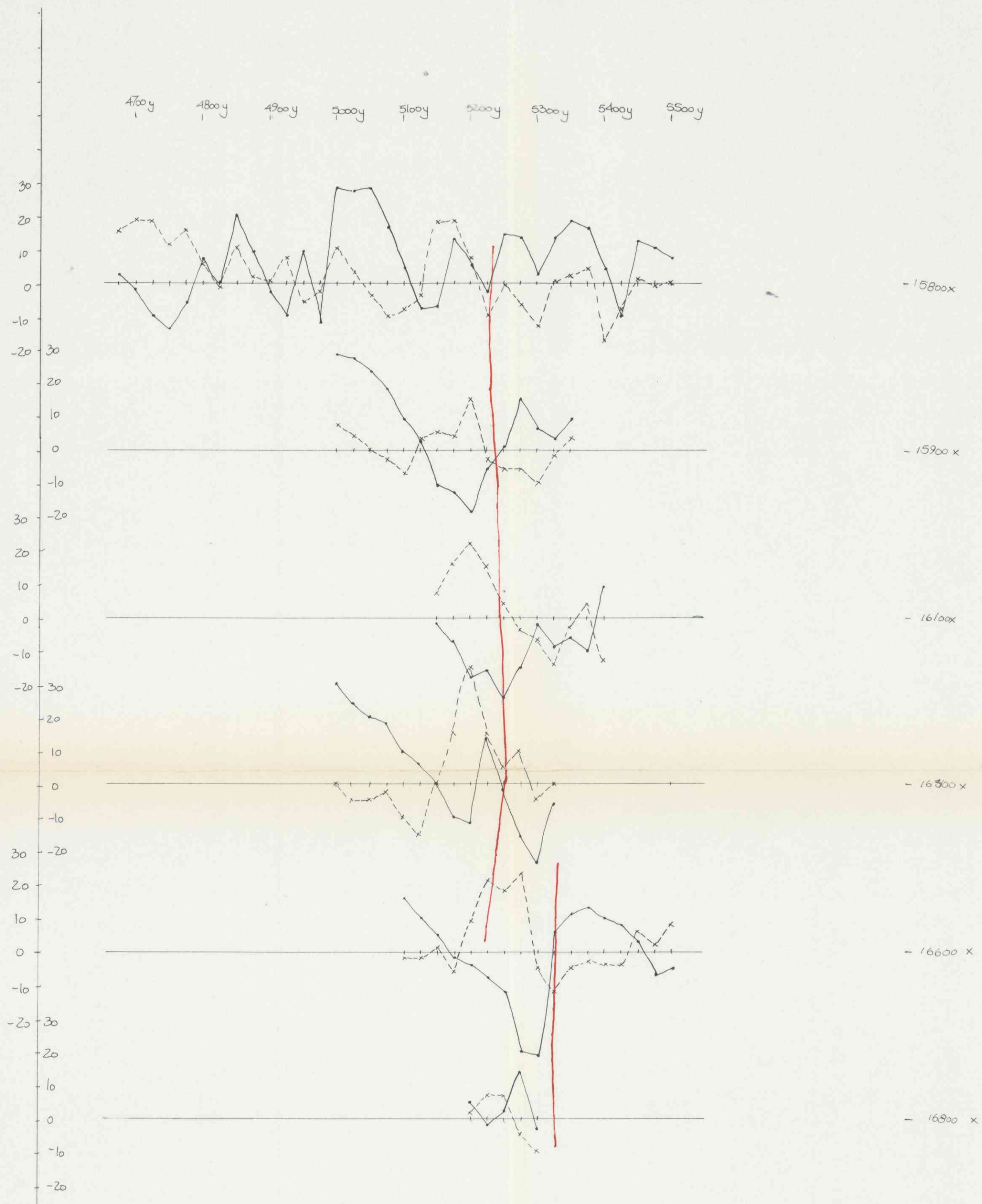
No: Gf I J₃

Encl. no: 34
Report no: LV 24

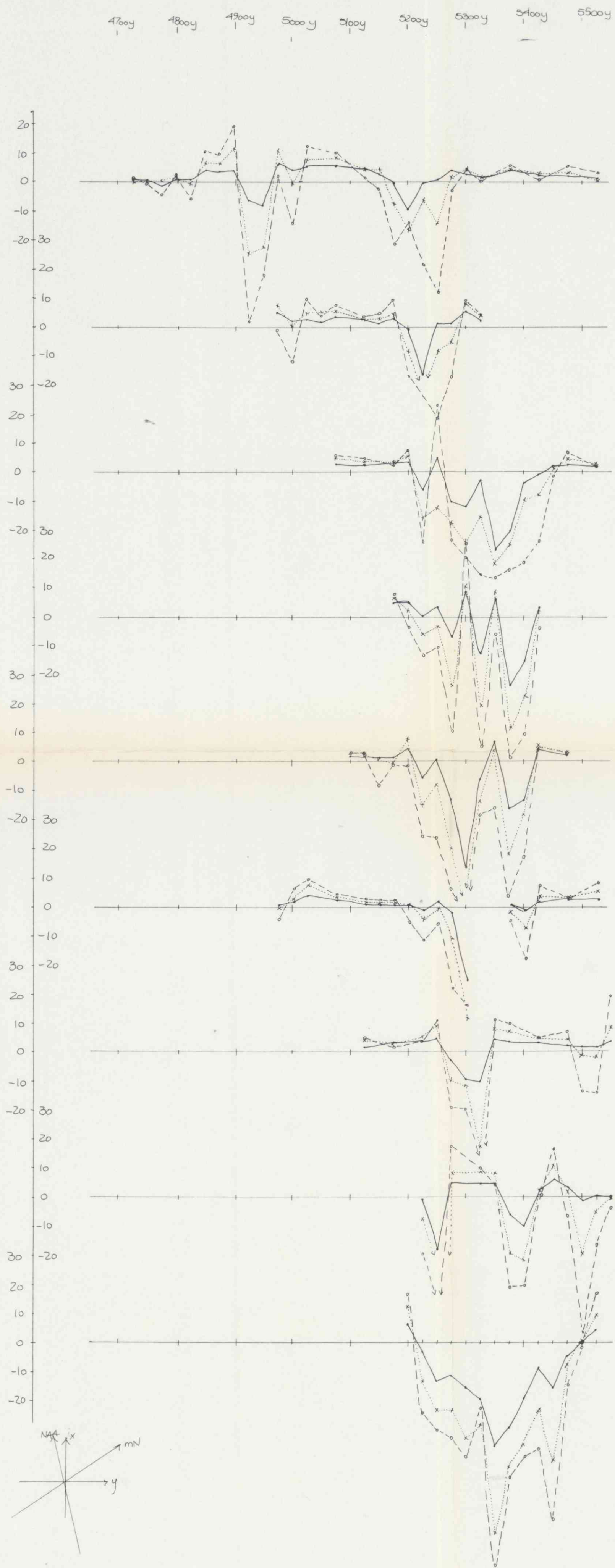
Date: oct. 82



ROMUNDSTAD	Scale :	Draw :	AM
Total magnetic field map		Trac :	AM
Orkla Industrier A.S 7332 LØKKEN VERK Gulf - Orkla Venture	No : RI-gf I 6		
	Encl. no : 36		
	Report no : LV 24		
	Date : oct. 82		



TOTLIA VLF anomaly map Dip angle, Imaginary comp	Scale:	Draw	AM
		Trace	AM
Orkla Industrier A.S 7332 LØKKEN VERR Gulf - Orkla Venture	No: R1 of K2		
	Encl. no: 37		
	Report no: LV 24		
	Date: oct 82		



15800x

-15900x

-16000x

-16100x

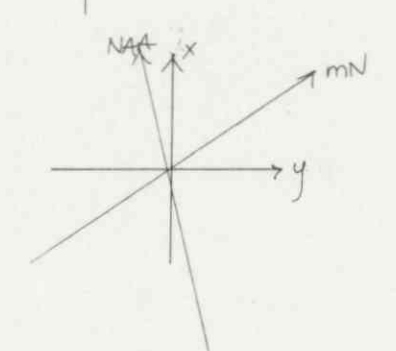
-16200x

-16300x

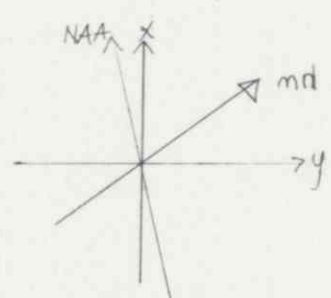
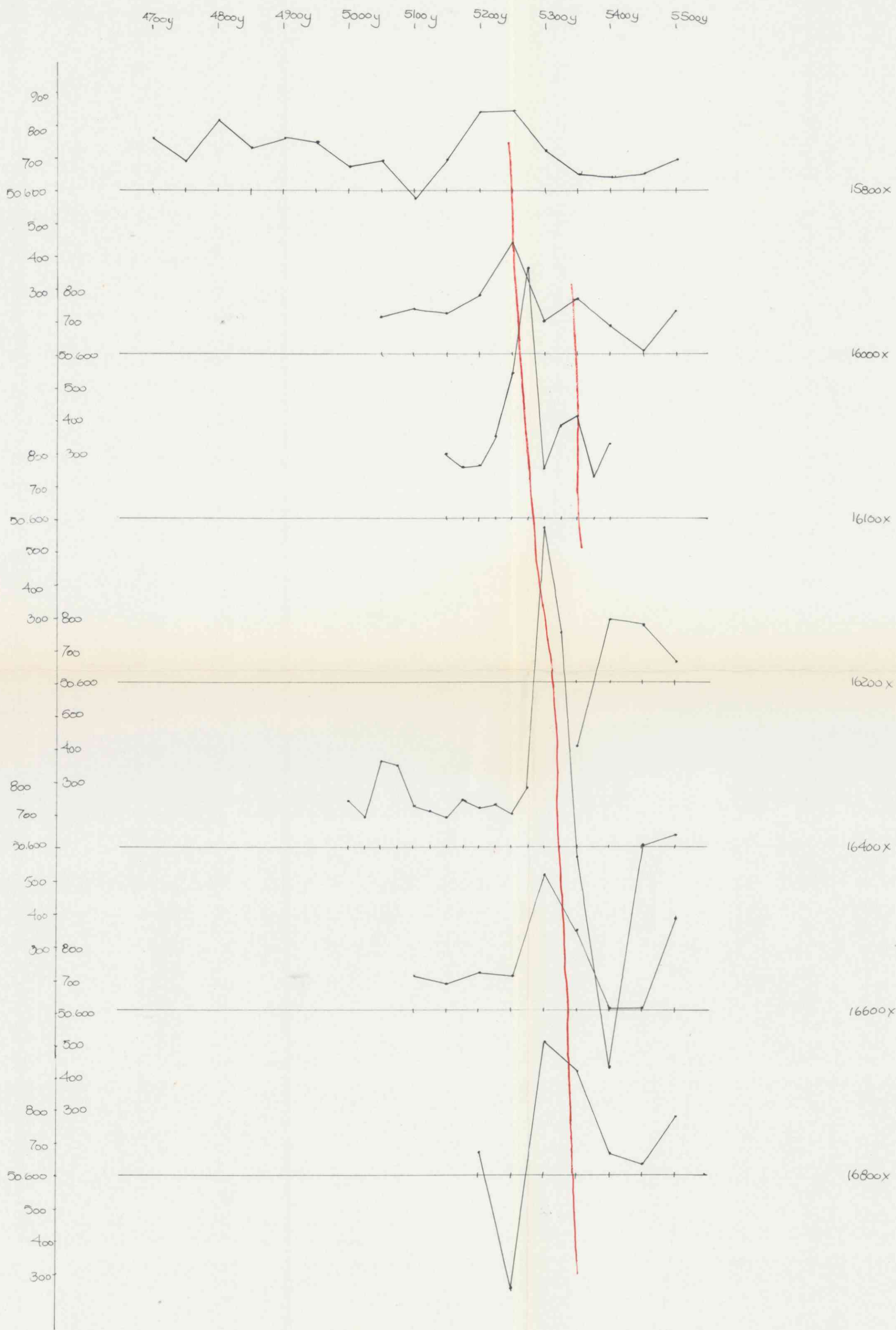
-16400x

16800x

16000x separation 100m



TotLIA Genie - separation 50m Genie - separation 100m 16000x 1:— 2:x—x 3:—•—	Scale:	Draw	AM
		TRC	AM
Orkla Industrier A.S 7332 LOKKEN VERK Gulf - Orkla Venture	No RI of K4		
	Encl. no: 38		
	Report no: LV 2d		
	Date: oct 82		



TOTLIA	Scale:	Draw	AM
Total magnetic field		Trac	AM
Orkla Industrier A.S 7332 LØKKEN VERK	No: El qf K6		
Gulf- orkla Venture	Encl. no: 39 Report no: LV 24		
	Date: oct 82		