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0965/05

-Interpretation Report-
2004 UTEM Survey
Espedalen
Norway
for
A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

May, 2004

Rob Langridge, M.Sc.

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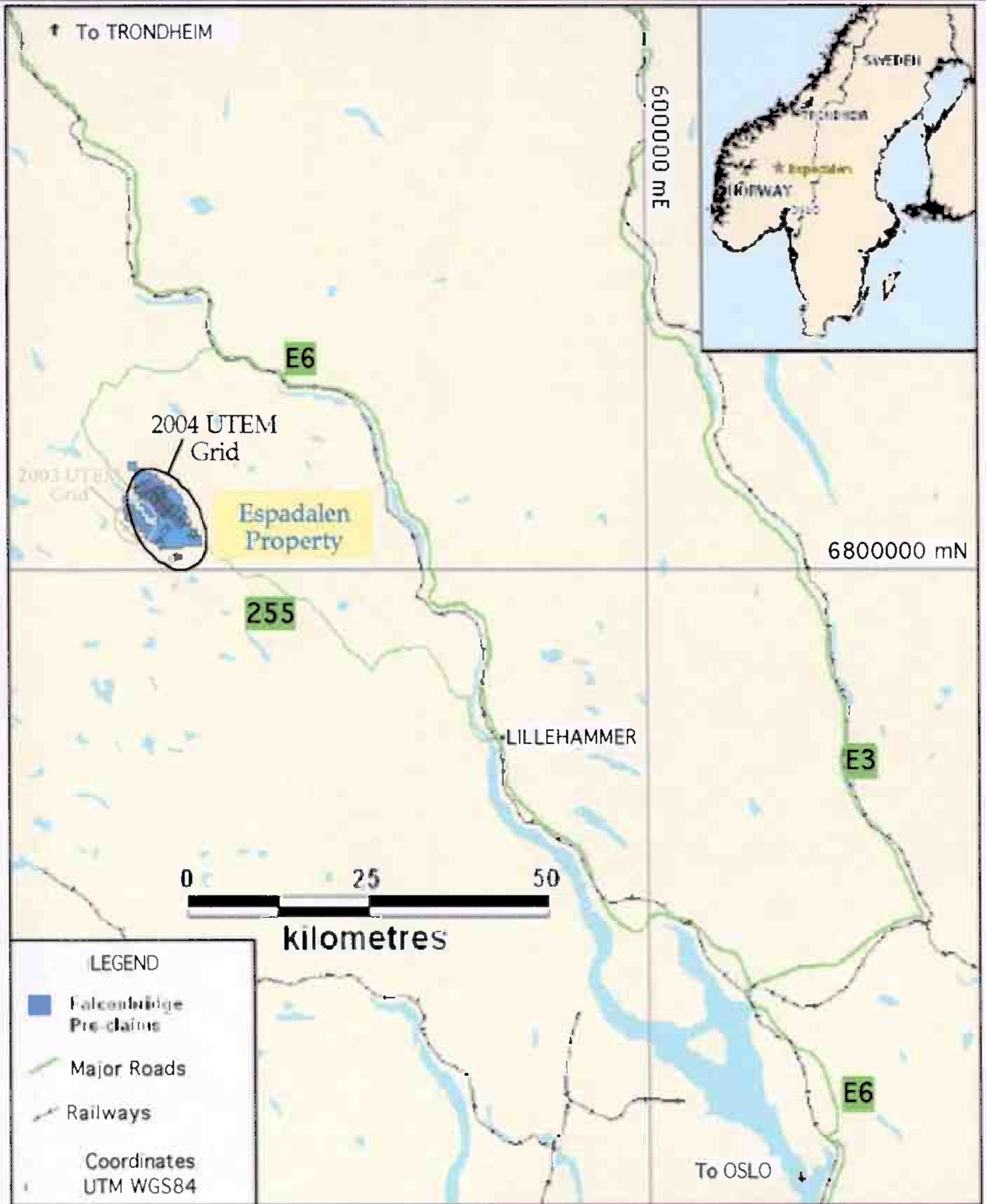
INTRODUCTION

During the period of February 17th 2004 through March 29th 2004 a UTEM 3 survey was carried out by Lamontagne Geophysics Limited personnel for A/S Sulfidmalm in the area of Espedalen, Norway (Figure 1). This survey continues on from a 2003 UTEM 3 survey (Loops 01-04). The location of the property is shown in Figures 1 and 2. The survey was carried out to locate conductors in the immediate grid areas with the intention of outlining targets for future work.

A total of 123.000km of UTEM data was collected using 15 transmitter loops (Loops 05-18) with the receiver operating in 10-channel mode. A transmitter frequency of 3.251 Hz was used for all loops. All lines were surveyed measuring the vertical component, Hz. A station spacing of 25m (50m beyond 1000m out from the loop) and a line spacing of 200m was employed with detailing lines closer intervals as required.

This report documents the UTEM survey in terms of logistics, survey parameters and field personnel. Appendix A contains the data presented in profile form. Other appendices contain:

- List of Personnel / Production Diary (Appendix B)
- an outline of the UTEM System (Appendix C)
- Note on sources of anomalous Ch1 (Appendix D)
- Note on 4Hz UTEM Data (Appendix E)



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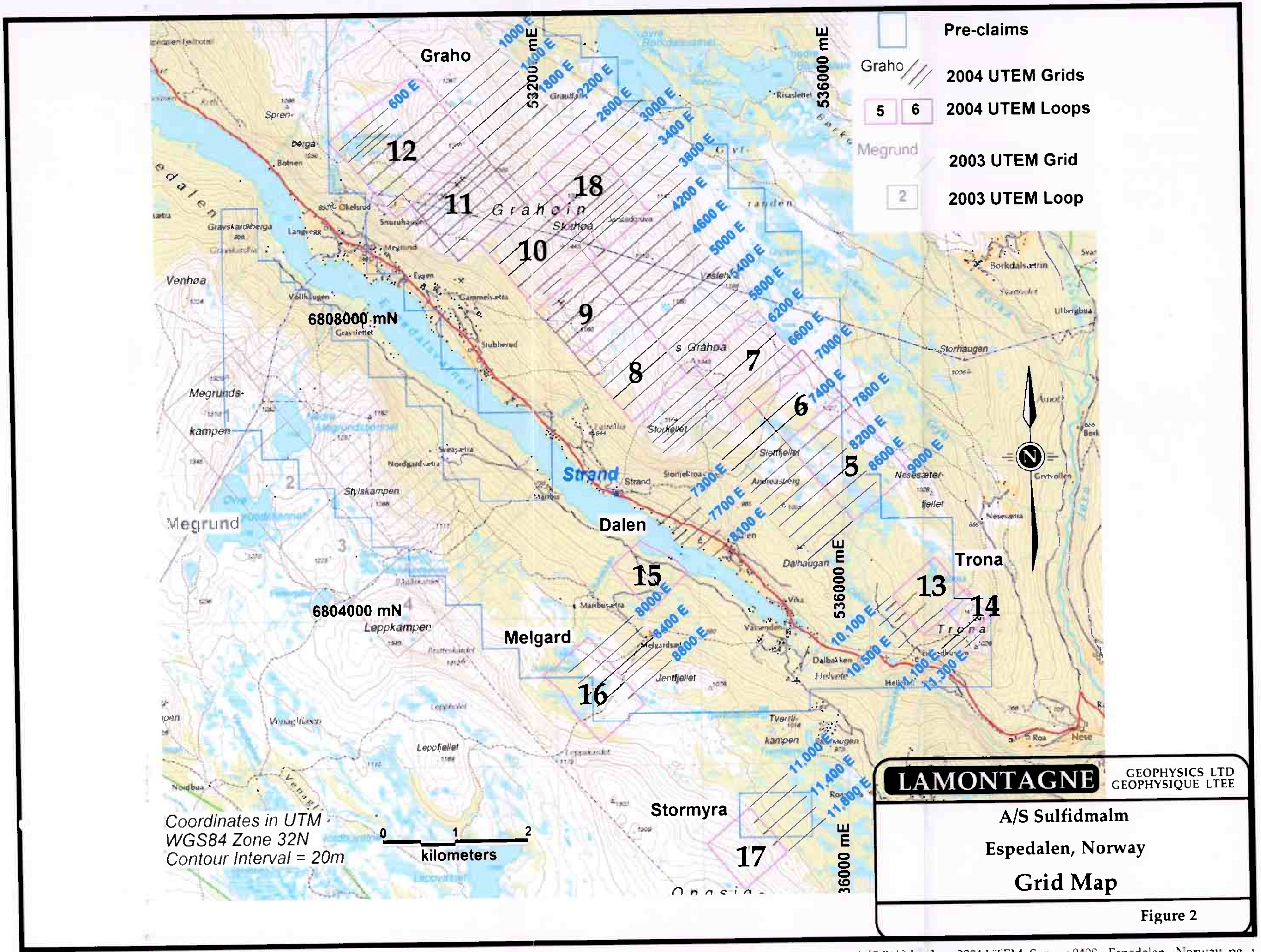
Espedalen, Norway

UTEM Survey Location Map

Figure 1



Pre-claims
Graho
2004 UTEM Grids
5 6
2004 UTEM Loops
Megrund
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Graho
Megrund
Strand
Dalen
Melgard
Stormyra
Trona
6808000 mN
6804000 mN
532000 mE
536000 mE
Coordinates in UTM
WGS84 Zone 32N
Contour Interval = 20m
0 1 2
kilometers
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Espedalen, Norway
Grid Map
Figure 2

SURVEY DESIGN

This UTEM survey is part of a nickel exploration program in the Espedalen area. Historically mining of Ni-bearing massive sulfide deposits has been carried out in the area. The UTEM survey was planned and carried out to outline and allow better definition of known conductors, to detect/outline new conductors and to detect/outline deeper features and depth continuations of known features.

The grid and loop layout was designed by A/S Sulfidmalm/Falconbridge Ltd. personnel to allow efficient coverage of the area. Loop size and locations were selected to provide good coupling with the expected targets and to allow efficient coverage of the grid area. The base frequency was lowered from the international standard ~26Hz to 3.251Hz to eliminate the response of many "moderate" conductors - these responses will have decayed away by Ch1 time. Any remaining Ch1 responses are then considered to be representative of conductors of an appreciably higher conductivity.

The survey parameters employed:

- outside-the-loop coverage with 2 receivers
- variable transmitter loop size - to fit the area to be covered and the relief
- 1.18mm (~1mm^2 ~17-gauge copper wire) doubled in places for increased current - more signal requires shorter stacking times and/or better quality data
- line spacing of 200m with detailing lines at 100m intervals as required
- station interval of 25m reduced to 12.5m in anomalous areas. At ~1000m from the loop the station spacing was changed to 50m.
- Hz (vertical component measurements)
- 10-channel data at a frequency of 3.251Hz
- minimum 256 stacking (512 half-cycles) increased where noise levels dictate

In nickel exploration non-decaying Channel 1 (Ch1) conductors are indicative of highly conductive mineralization. Any non-decaying anomalous Ch1 features are therefore of interest. Non-decaying channel UTEM anomalies can reflect:

i) the presence of conductive mineralization
ii) the presence of a magnetic anomaly
iii) poor geometric control - either station location or loop location

These are outlined in more detail in Appendix D. From an interpretation standpoint magnetic anomalies and geometric control should be considered and evaluated as a mandatory part of any interpretation. From a field standpoint precise geometric control should be part of any UTEM survey where the target is non-decaying. Poor geometric control has the potential to both mask and invent Ch1 conductors.

For this survey GPS data was collected by the client and made available for use in reducing the UTEM data. GPS data was collected for all survey points and at intervals around all transmitter loops. For reference GPS data collection for UTEM reduction should be most detailed along loop fronts - the most important portion of the loop from a UTEM reduction perspective. The goal along the loop front - and loop sides/back - is to recover the topographic shape loop as well as the loop/line intersection points.

SURVEY LOGISTICS

A Lamontagne Geophysics crew mobilized from Kingston on February 15th and arrived in Oslo on February 16th. The crew and equipment were picked up by client representative Jean Laforest and driven to the base of operations for the Espedalen survey - Strand Fjellstue (Figure 1 - www.strand-fjellstue.no). The survey began the following morning.

Fifteen transmitter loops were used during the UTEM survey for a total survey coverage of 123.000km. Loop numbering began at Loop 5 - Loops 1 through 4 were surveyed in the 2003 UTEM survey. Figure 2 shows the loop locations and grid layout. Access to the grid was by snowmobile along a series of pre-existing trails used for accessing the area by skiers/hikers etc. The grid/loop positions had been established by GPS and were demarcated by bamboo wands and flagging.

Surveying began with Loop 05. The wire for this loop was laid in advance by the client. The generator (Honda 7500W) was already in position. Electrical connection to the generator was made through an LGL isolation-transformer/Variac combination rewired to conform with the sockets (standard 2-pin/side-clip ground european) on the generator. This worked well for the duration of the survey. The small-volume gas tank on the generator was the only drawback - it required filling 2-3 times a survey day.

In general surveying for all loops went well. Noise levels proved to be high and in places, along certain geologic structures, extremely high. This likely indicates channeling telluric currents along conductive features in the relatively-resistive host rock. During loop laying a double strand of wire was laid along one side of the loop - the side with the best access. Doubling the wire reduces the resistance of the loop and this allows a higher transmitter current to be used. Higher current equals more signal and an improved signal-to-noise ratio - less stacking is required and surveying proceeds more quickly. In practice it requires a considerable additional effort to lay/retrieve double strands of wire. As a compromise only one side was doubled. Use of a heavier gauge wire could be considered on future surveys.

Surveying off-loop (to the gridnorth) from Loops 08-12 and 18 was slowed by high levels of "noise" (50Hz transmission signal + noise) resulting from a regional powerline that lies just off the gridnorth end of the survey lines. The powerline is shown on Figure 2 as a grey line with short cross marks trending WNW-ESE across the northeast corner of Figure 2 (also shown crossing the upper left-hand corners of Figures 3 and 4). The profiles from Loops 08-12 and 18 (Appendix A) become considerably noisier at the grid northern end. The noise is particularly evident on the earlier channels - Ch10-5 - as the channel width is too narrow to allow the 50Hz powerline transmission to be adequately stacked out (Appendix E).

The powerline angles towards the grid from east-to-west with the closest approach - strongest influence - being on lines surveyed from Loops 18/11 and 12. In practice coverage approaching the powerline was limited by noise levels and the stacking required Note: @3.2Hz a 1K/2K stack takes ~15/30 minutes. A traverse across the powerline was carried out on Loop 18 Line 2800E. The third receiver was employed in the process and very long readings were required. At ~17:00 both receivers in use on this line were stacking close to the powerline and both overloaded at the same time indicating a distinct change in the powerline transmission characteristics/levels. The receiver gain could not be set at any reasonable level and surveying was halted. Fluctuations like this would account for line-to-line variations in data quality approaching the powerline.

The final data was collected March 27th and all remaining wire was picked up March 28th along with a number of lines of pickets (all trace of the survey had to be removed after completion). The survey was declared completed and the equipment was packed for shipping. The equipment was transported to SAS cargo at Oslo Gardemoen Airport. The crew demobilized to Ontario, Canada. Details of the daily production and personnel are included in the Production Diary (Appendix B) along with a summary of production.

The survey equipment consisted of two UTEM 3 receivers and one UTEM 3 transmitter as well as all necessary accessories, support equipment and backup equipment. Data was reduced on a field computer (Macintosh) and UTEM profiles and digital data were made available/emailed to the client's personnel on a daily basis. Snowshoes equipped with crampons were obtained for the survey. Given the conditions stiff boots - insulated if possible - are recommended for kicking steps. Consideration should also be given to crampons/crampon-ready boots.

Particular care was taken during the survey not to leave anything on the site. In practice the UTEM operators worked with coilers. Where survey conditions allowed - where the topography was more gentle and towards the ends of survey lines where long stacking times were required - the coiler was freed up to facilitate looping and picket retrieval. The weather conditions were generally good for surveying - cold nights and pleasant days. The snow conditions were generally good. High winds stopped surveying on one day - the loop broke under tension due to the wind.

SURVEY RESULTS

The results of the survey are summarized and presented as UTEM profiles in Appendix A. The final grid and Loop Locations are presented in Figures 2. Overall the data quality is good - though in places it is noisy. A number of conductors and/or conductive features are evident. Although every effort was taken to shelter the receiver coil minor wind noise may be evident in some profiles.

Profiles are listed by Loop number and presented as 3-axis profiles in the following order:

Hz	**continuous norm**	***Ch1 reduced***	**(blue separator)**
Hz	**point normalized**	***Ch1 reduced***	**(pink separator)**

A description of the standard plotting formats used and of the UTEM System is presented in Appendix C.

Outline of profile types

Hz continuous norm ***Ch1 reduced*** **(blue separator)**

Continuous normalization is useful for detection of the presence of anomalies at any position on a profile. The anomaly shape is distorted by the normalization to the local field. As the field gets very big near the wire the continuously normalized Ch1 tends towards zero.

top axis - Ch5-10
middle axis - Ch2-5
bottom axis - Ch1
bottom axis - topography - no vertical exaggeration

Hz point normalized ***Ch1 reduced*** **(pink separator)**

normalization point: all data~300m out from the loop-front centre

Point normalized data is useful for interpretation purposes. Anomaly shape is preserved as is the amplitude if the normalization point is local to the anomaly.

All data has been point normalized to a the field at a point ~300m out from the centre of the loop front. Note that this field value is intermediate and it was chosen because the survey was roughly half inside-the-loop and half off-loop. Normalizing to an intermediate point allows the interpretation of responses along the entire line. The amplitude of responses close to (**further from**) the loop front will be blown up (**muted**).
Note: Typically the normalization point for off-loop profiles is 4-500m out from the centre of the loop front and for inside-the-loop profiles it is the loop centre.

The disadvantage of point normalization is that small errors in location near the wire and in current tend to appear as large errors in Ch1. If the loop/station locations and the current are accurately known then point normalized Ch1 (in the absence of a local conductor) will tend to be continuous approaching the wire - unlike the continuously normalized Ch1 which, as described above, will dip to zero.

top axis - Ch5-10
middle axis - Ch2-5
bottom axis - Ch1
bottom axis - topography - no vertical exaggeration

Discussion of the Grid

The profiles presented in Appendix A have been reduced with a grid produced from the GPS data collected by the client. The overall results are quite good (Appendix A). Some of the character in Ch1 profiles is due to remaining errors in loop/line location - this is particularly true near the loop wire where errors in station/loop location/elevation have a larger effect (Appendix D). Aside from survey accuracy and day-to-day variation sources of error in location include the locating of the double-strand loop sides and "adjustments" of the loop to topography and wind. In one instance high winds were found to have bowed ~300m of a side wire outwards ~25m.

Discussion of Results

A number of responses of interest can be seen on the profiles. An interpretation is presented in two figures:

Figures 3	Interpreted Features
Figures 4	Interpretation

Features outlined are mainly contacts, shallow conductors and thin conductive zones - geological units and structural features. A series of interesting conductors have been outlined and a number were selected for modeling using MultiLoop. The details of these conductors and the MultiLoop modeling are presented in the Interpretation section.

Note: Conductors are designated by **ESP**edalen, loop number and conductor number. For example: **ESP-05-03** designates **ESP**edalen-Loop **05**-Conductor **03**. The two conductors outlined in the 2003 report as **Conductor A** and **B** become:

- **Conductor A** = **ESP-04-01**
- **Conductor B** = **ESP-02-02**

Note that character on the Ch1 profiles may reflect one or a combination of (see Appendix D):

- local magnetics
- conductive features
- poor geometric control

Ch1 responses - spikes and broader features - should be checked against magnetics and rechecked against geometry. The character of the Ch1 profiles suggests that geometric control is quite good. Stations affected by poor geometry are close to the loop.

A number of points can be said about the results in general:

- The pattern of responses outlined in Figure 3 generally fits with the map pattern of the geological mapping, contoured airborne magnetics and confirms the results of the airborne EM survey. Features are generally continuous over sections of the grid - in the case of isolated loops over the entire grid. Changes in strike/offsets occur coincide with breaks in topographic features and elevation changes. Two examples:
  - the southeastern flank of Gråhøa/Storfellet - Lines 6600/6800E. The map pattern of interpreted features (Figure 3) changes at the sharp southeast-facing flank down to Andreasberg.
  - the northwestern flank of Storhøa - ~Line 2800E. The map pattern of interpreted features (Figure 3) changes ~coincident with the saddle at the base of the northwestern-facing flank.

  It is difficult to correlate Interpreted Features across either topographic feature.

- Response of interest are typically in the Ch5-3 range, in places to Ch2. No clear Ch1 responses were detected.

- The UTEM survey coverage was designed in part to follow up on conductive features detected by the airborne EM survey. The responses outlined by the UTEM survey outline features at a suitable depth - shallow - and sufficient conductivity - to UTEM Ch5-3 - to confirm the results of the airborne EM survey. Typically the airborne detects the updip edge (shallowest expression) of a feature.

- There is generally a good correlation between the airborne magnetics and the Ch1 profiles - for example the following correlate to highs on the airborne magnetics:
  - Loop 11 Line 2400E ~5200N-5250N - local feature inside-the-loop Ch1 low
  - Loop 09 Line 4000E 5200N-5225N - local feature inside-the-loop Ch1 low
  - Loop 06 Line 7400E 6075N-6100N - local feature off-loop Ch1 high
  - 5775N-6125N - local feature off-loop Ch1 high
  - Loop 09 Line 4600E 6000N-7200N - broad, subtle feature off-loop Ch1 high

    Ch1 slightly positive 6000-6150N, ~zero 6150-6650N, positive 6650-7200N

  Note that the correlation is not expected to be exact (Appendix D). Note that Ch1 responses may represent features small enough or poorly-located (steep/sharp terrain) that they may not be reflected in the airborne survey data.

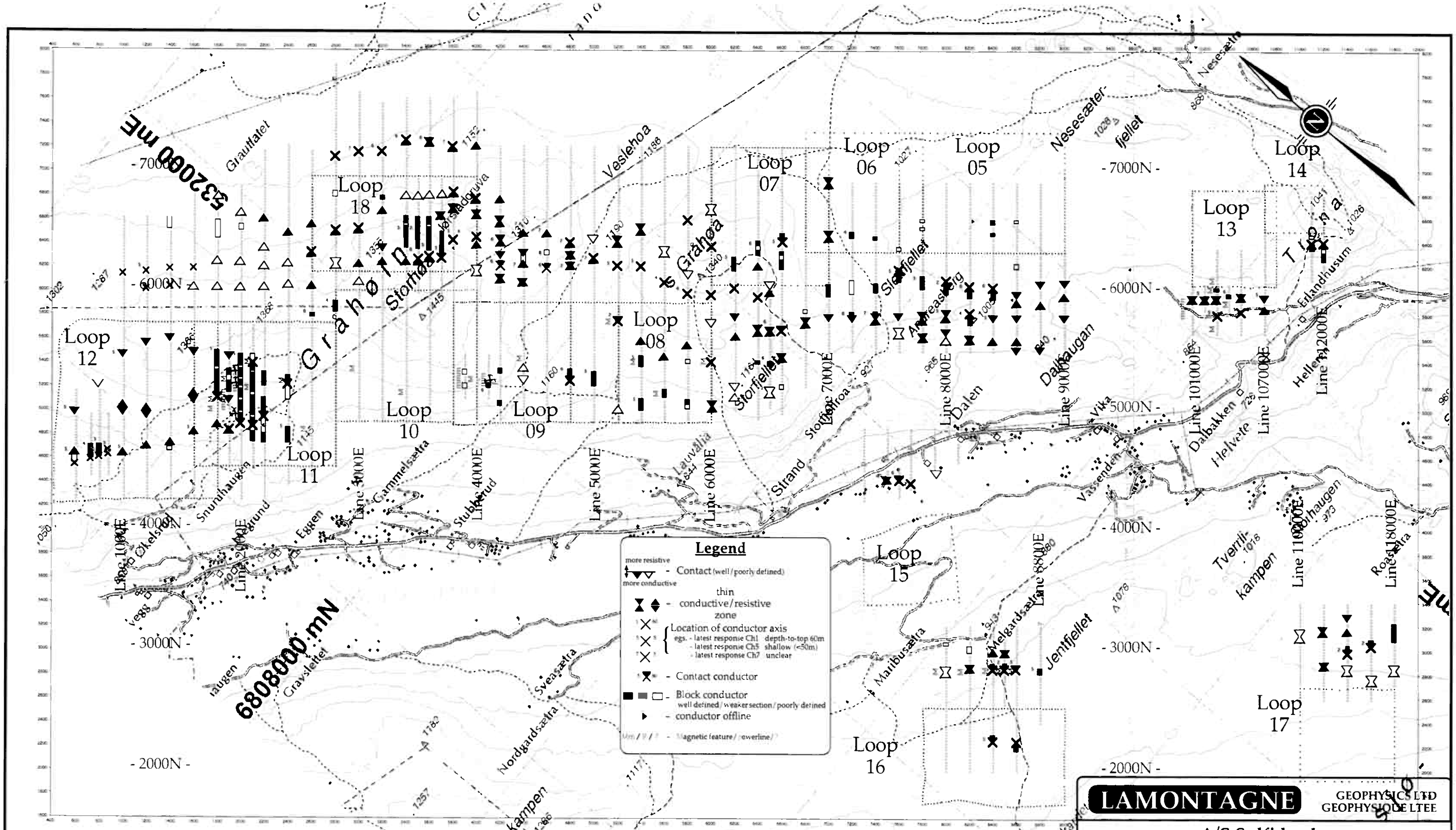
- Responses reflect shallow features or features that have a shallow expression - possibly minor mineralization. Many features outlined in Figures 3/4 represent contacts, shallow conductors and thin conductive zones - geological units and structural features.

- Overall the background response seen in the profiles indicates a resistive area. The background response is modeled in MultiLoop with a laterally-extensive layer (~15-30S) at depth (~1100m). Where the local response requires it another laterally extensive layer (~0.2-2S) is added at an intermediate depth (~500m).

- In areas of steep terrain - where elevation changes markedly along survey lines - care should be exercised in interpreting responses. Responses are often "distorted". The situation is analogous to a borehole survey where the conductor is not necessarily beneath the survey - it may lie to the side or above.

- The profiles are in places fairly noisy - in particular the mid-to-late time channels. Some of this is wind noise but a good portion of it is geological noise - reflecting the character of the local mineralization - in places thin stringers of sulphides - and the lithology.

- The off-loop sections (to the gridnorth) of profiles (Appendix A) surveyed from Loops 08-12 become considerably noisier at the gridnorthern end - approaching a regional powerline. The noise is particularly evident on the earlier channels - Ch10-5 - as the channel width is too narrow to allow the 50Hz powerline transmission to be adequately stacked out (Appendix E). The powerline angles towards the grid from east-to-west with the closest approach - strongest influence - being on lines surveyed from Loops 18/11 and 12. In practice coverage approaching the powerline was limited by noise levels and the stacking required. Fluctuations in the powerline transmission characteristics/levels account for variations in data quality from line-to-line approaching the powerline.



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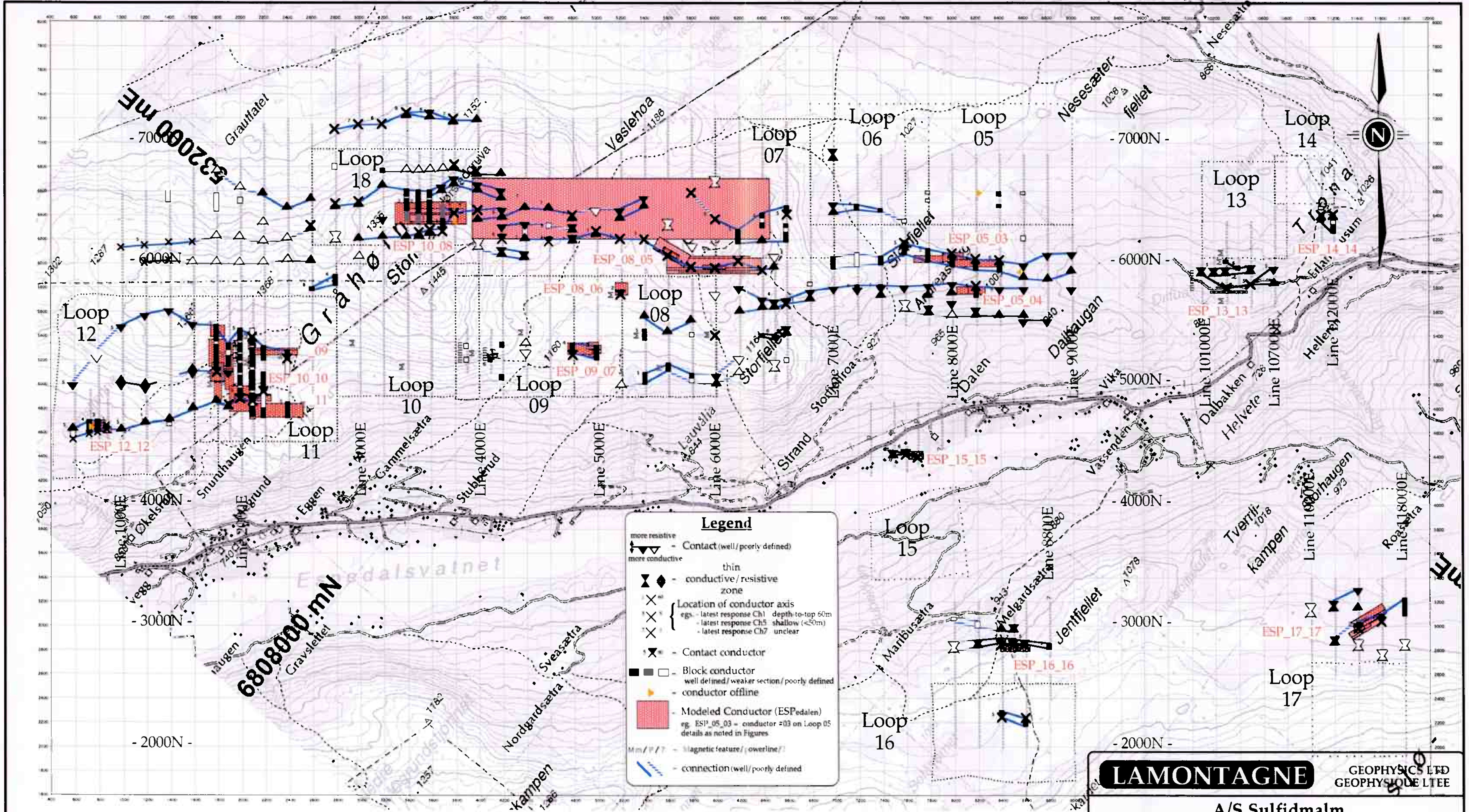
Interpreted Features

0 200 1000m

Figure 4

Notes:
- gridwest is ~320 / gridnorth is ~050
- features shown generally shallow/have a shallow expression



Notes:
- gridwest is ~320 / gridnorth is ~050
- features shown generally shallow / have a shallow expression

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Espedalen, Norway

Interpretation

Figure 4

INTERPRETATION

An interpretation is presented in two figures:

Figures 3 Interpreted Features
Figures 4 Interpretation

Features outlined are mainly contacts, shallow conductors and thin conductive zones - geological units and structural features. A series of interesting conductors have been outlined and a number selected for modeling using MultiLoop. The details of these conductors and the MultiLoop modeling are presented in this Interpretation section.

The interpretation presented in this section is an interpretation of the UTEM data alone - with a passing reference to airborne magnetics and airborne EM anomaly maps. As such it should be evaluated in conjunction with other available information on the Espedalen property.

Note: Conductors are designated by **ESP**edalen, loop number and conductor number. For example: **ESP-05-03** designates **ESP**edalen-Loop **05**-Conductor **03**. The two conductors outlined in the 2003 report as **Conductor A** and **B** become:

- **Conductor A** = **ESP-04-01**
- **Conductor B** = **ESP-02-02**

In general in the model figures significant conductors will be shown in black and other weaker conductors - modeling details of the local response - are shown in pale blue.

Several points about the interpretation in general:

- There is considerable similarity among the set of **Conductors** outlined by the combined 2003/2004 UTEM surveys. As noted in the 2003 Report:
  - the main conductive zone(s) are modeled to be an enhancement along a conductive horizon..
  - noisy later channels noisy coincident with a **Conductor** suggests that sharp features - stringers of mineralization? - may be present.
- The models presented are not expected to match the drill results exactly. There are errors in depth estimates and dip angle (+/-5 to 10°). In particular note that the modeling of smaller zones at shallow depths will have relatively large errors.
- As noted the off-loop sections (to the gridnorth) of Loops 08-12 profiles become considerably noisier at the gridnorthern end - approaching a regional powerline. Towards the ends of these lines as surveyed it would be difficult to discern an anomalous response.

The responses chosen for discussion/modeling are as follows:

Conductor	Figure #	Loop	Line #	~station
ESP_05_03	Figure 5	Loop 05	Line 8000E	6075N
ESP_05_04	Figure 6	Loop 05	Line 8200E	5825N
ESP_08_05	Figure 7a	Loop 08	Line 5600E	6100N
	Figure 7b	Loop 08	Line 6000E	6100N
	Figure 7c	Loop 08	Line 5800E	6100N
	Figure 8	Loop 08	Line 5200E	6200N
ESP_08_06	Figure 8	Loop 08	Line 5200E	5775N
ESP_09_07	Figure 9	Loop 09	Line 4800/5000E	5200N
ESP_10_08	Figure 10	Loop 10/18	Line 35/36/3700E	6300N
ESP_11_09/10/11				
ESP_11_09	Figure 11b	Loop 11	Line 1800E	5100N
	Figure 11c	Loop 11	Line 1900E	5100N
ESP_11_11	Figure 11d	Loop 11	Line 2100E	4850N
ESP_11_10	Figure 11e	Loop 11	Line 2400E	5250N
ESP_12_12	Figure 12	Loop 12	Line 800E	4625N
ESP_13_13	Figure 13	Loop 13	Line 10300E	5775N
ESP_14_14	Figure 14	Loop 14	Line 11100/11200E	6350N
ESP_15_15	Figure 15	Loop 15	Line 7700E	4400N
ESP_16_16	Figure 16	Loop 16	Line 8500E	2825N
ESP_17_17	Figure 17	Loop 17	Line 11400E	2950N

An interpretation of features follows. Note: a general Legend for Figures 3 and 4 is enlarged and presented as Figure 18.

Conductor ESP_05_03 Lines 76/78/80/82/8400E ~5950-6000N

Conductor ESP_05_03 was detected during surveying from Loop 05 and Loop 06. With a much weaker character the **Conductor ESP_05_03** response continues both:

- to the gridwest Lines 74/72/7000E or right up to the southeastern flank of Gråhøa/Storfellet. As discussed above it is difficult to interpret across this topographic feature - it is possible that **Conductor ESP_05_03** connects up with the system of **Conductor ESP_08_05** and **Conductor ESP_10_08**.
- to the grideast Lines 86/88/9000E - no UTEM surveying was done east of this.

The overall best response detected was that on Loop 05 Line 8000E - to Ch2 - and this response was selected for MultiLoop modeling.

Modeling **Conductor ESP_05_03**: Loop 05 Line 8000E Figure 5

The modeling results for Loop 05 Line 8000E are shown in Figure 5. The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1100m and a weakly conductive layer at a depth of ~400m. Details of the local response are modeled using a weaker conductor (pale blue in Figure 5) ~parallel to the conductor but laterally more extensive. **Conductor ESP_05_03** is modeled as an enhancement along a conductive horizon. The late time response (Ch3/2) suggests that **Conductor ESP_05_03** may contain two parallel lenses - alternatively this character may represent thickening or changes along strike. Details of **ESP_05_03** as modeled as listed in Figure 5 are:

centre of top edge 8000E, 6095N, 961 m.a.s.l. (grid coords.)
local elevation ~993 m.a.s.l. giving ~32m depth-to-top
strike/dip ~140/15° conductance 500S
along strike/downdip 175m/75m

Conductor ESP_05_03 is interpreted to be a good conductor. It should be evaluated in comparison with other known features in the Espedalen area - in particular **Conductor ESP_05_04** which is parallel and similar in character. Primary field coupling is ~maximum coupled as modeled suggesting that the conductance is a reasonable maximum estimate. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

Conductor ESP_05_03 as modeled on Line 8000E

Figure 5

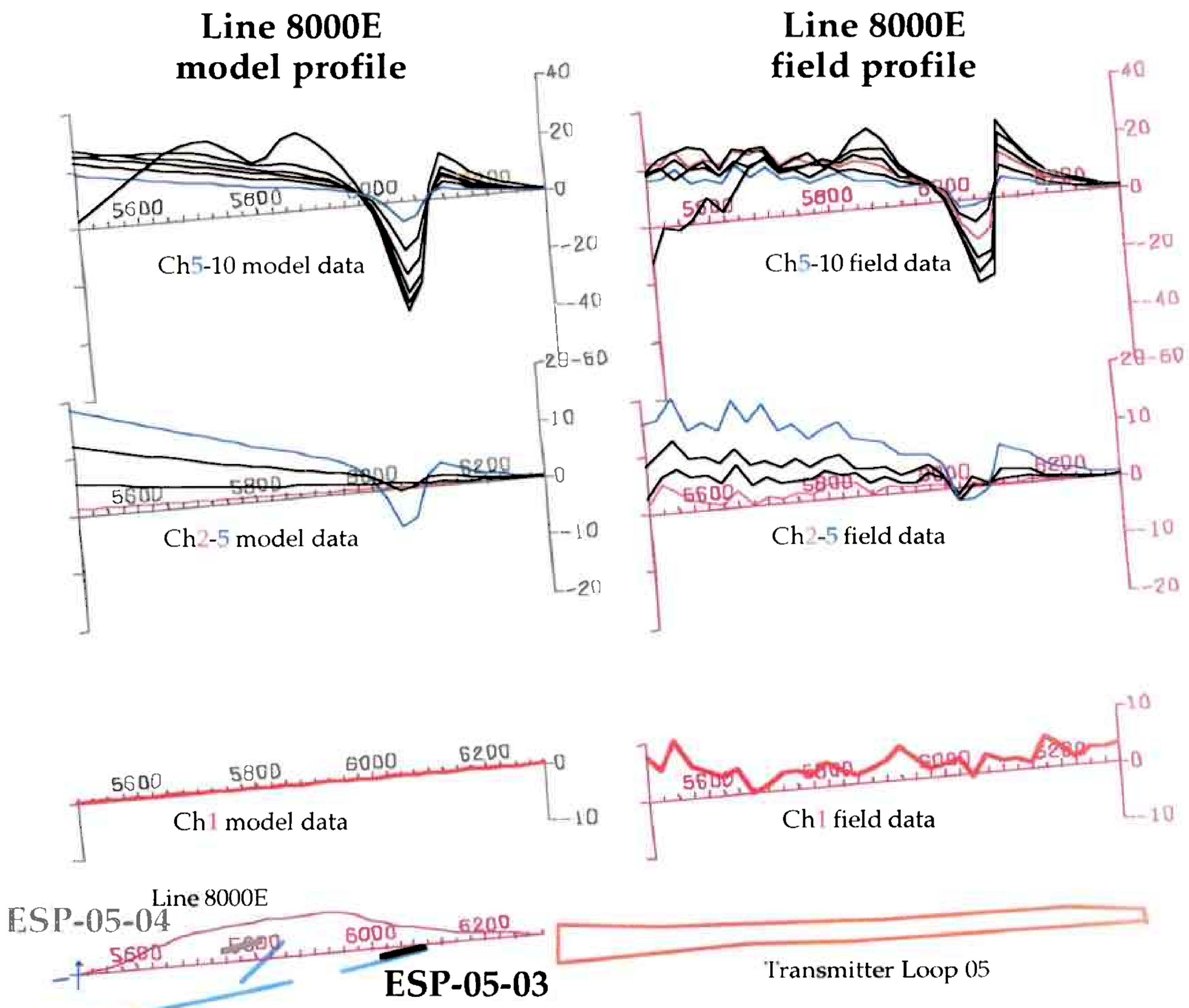
ccentre of top edge 8000E, 6095N, 961 m.a.s.l. (grid coords.)

local elevation ~993 m.a.s.l. giving ~32m depth-to-top

strike/dip ~140/15° conductance 500S

along strike/downdip 175m/75m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.



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ESP-05-03 - Model Line 8000E

0 100 500m

Figure 5

Conductor ESP_05_04 Lines 8200E ~5825N

Conductor ESP_08_05 was detected during surveying from Loops 05 and is located at the top a slope that faces gridsouth. With a much weaker character the **Conductor ESP_05_04** response continues both:

- to the gridwest Lines 80/78/7600E and may continue (Figure 4) as a feature at a contact as far gridwest as Line 6400E ~up to the southeastern flank of Gråhøa, gridnorth of Storfellet. As discussed above it is difficult to interpret across this topographic feature - as with **ESP_05_03** it is possible that **Conductor ESP_05_04** connects up with the system of **Conductor ESP_08_05** and **Conductor ESP_10_08**.
- to the grideast Lines 84/8600E and possibly further as a contact.

The overall best response detected was that on Loop 05 Line 8200E - to Ch4 - and this response was selected for MultiLoop modeling.

Modeling **Conductor ESP_05_04**: Loop 05 Line 8200E Figure 6

The modeling results for Loop 05 Line 8000E are shown in Figure 6 The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1100m and a weakly conductive layer at a depth of ~400m. Details of the local response are modeled using two weak conductors (pale blue in Figure 6). One weak conductor is more steeply dipping and laterally more extensive. The second is deeper, ~parallel and more extensive laterally and down dip. Together the two weak conductors model a lithologic/structural contact that is related to/reflected in the gridsouth facing slope below **Conductor ESP_05_04**. **Conductor ESP_05_04** is modeled as an enhancement in conductivity along this feature. The details of **ESP_05_04** as modeled as listed in Figure 6 are:

centre of top edge 8200E, 5813N, 970 m.a.s.l. (grid coords.)
local elevation ~987 m.a.s.l. giving ~18m depth-to-top
strike/dip ~140/15° conductance 500S
along strike/downdip 140m/62m

Conductor ESP_05_04 is interpreted to be a good conductor. It should be evaluated in comparison with other known features in the Espedalen area - in particular **Conductor ESP_05_03** which is parallel and similar in character. Primary field coupling is ~maximum coupled as modeled suggesting that the conductance is a reasonable maximum estimate. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

Note: **Conductor ESP_05_03** is modeled with a conductance of 150S on Line 8200E (Figure 6 in conjunction with modeling of **Conductor ESP_05_04**).

Conductor ESP_05_04 as modeled on Line 8200E

Figure 6

centre of top edge 8200E, 5813N, 970 m.a.s.l. (grid coords.)

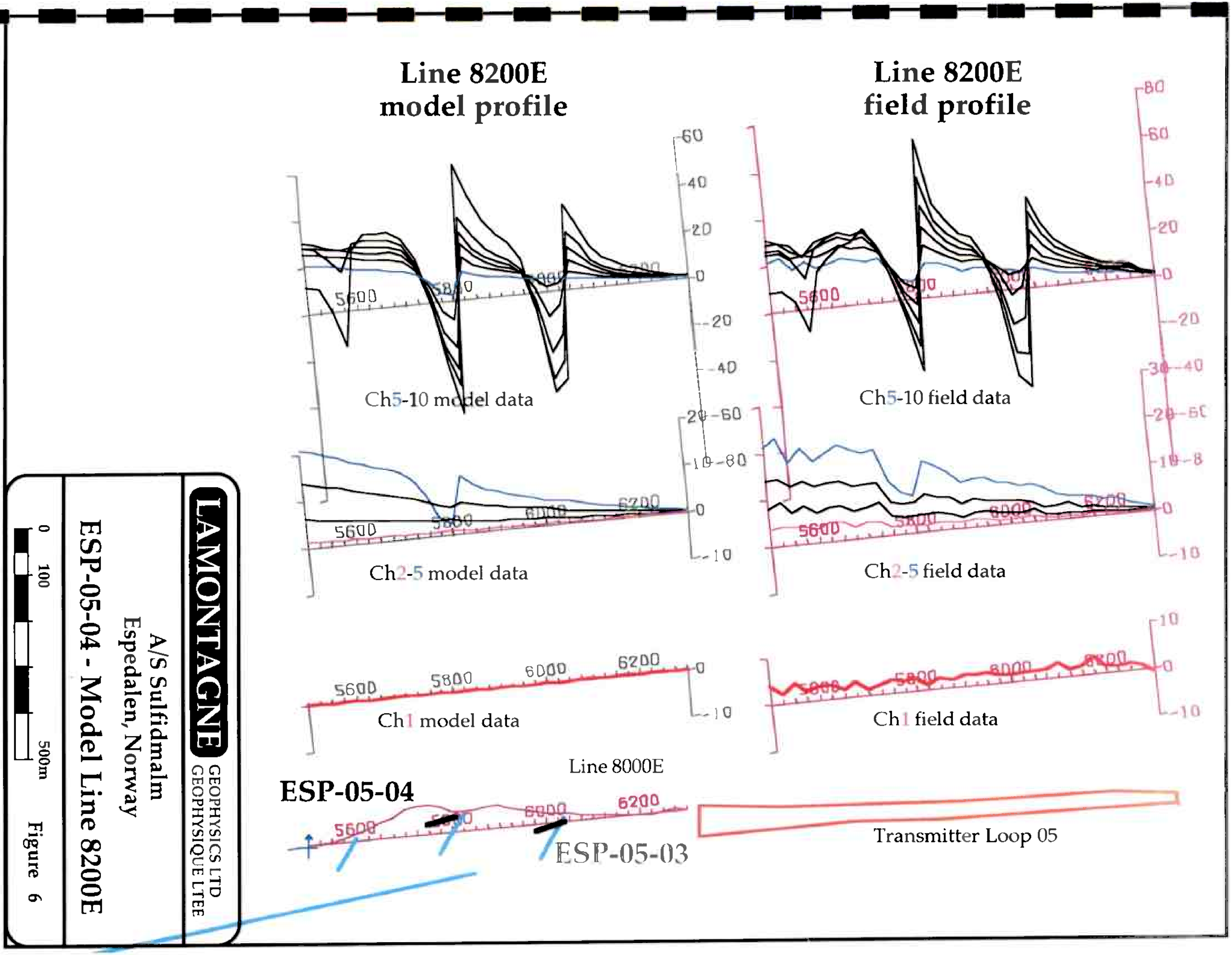
local elevation ~987 m.a.s.l. giving ~18m depth-to-top

strike/dip ~140/15° conductance 500S

along strike/downdip 140m/62m

Notes:

- view is looking gridwest (~320)
- conductor as modeled is well-coupled but not maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background/current channeling/local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.



Line 8200E
model profile
Line 8200E
field profile
Ch5-10 model data
Ch5-10 field data
Ch2-5 model data
Ch2-5 field data
Ch1 model data
Ch1 field data
5600
5800
6000
6200
Line 8000E
ESP-05-04
ESP-05-03
Transmitter Loop 05
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
A/S Sulfidmalm
Espedalen, Norway
ESP-05-04 - Model Line 8200E
0
100
500m
Figure 6

Conductor ESP_08_05 Line 46-5400E ~6200N/L5600E ~6075N/L58-6400E ~6000N

Conductor ESP_08_05 was detected during surveying from Loops 07/08/09. The **Conductor ESP_08_05** response is interpreted to be a long strike-length feature that continues both:

- to the gridwest where it connects up with **Conductor ESP_10_08**.
- to the grideast as far as line 6500E(Figure 4) , up to the southeastern flank of Gråhøa, gridnorth of Storfellet. As discussed above it is difficult to interpret across this topographic feature - it is possible that **Conductor ESP_08_05** connects up with the system of **Conductors ESP_05_03** and **ESP_05_04**.

The overall best response detected was that on Loop 08 Line 5600E - to Ch5/4 - and this response was selected for MultiLoop modeling. Note that at Line 5600E the strike of **Conductor ESP_08_05** is ~350 whereas overall the strike is ~320.

Modeling **Conductor ESP_08_05**: Loop 08 Line 5600E Figure 7a

The modeling results for Loop 08 Line 5600E are shown in Figure 7a. The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1300m and a weakly conductive layer at a depth of ~600m. Details of the local response are modeled using a three conductors (pale blue in Figure 7a) ~parallel to **Conductor ESP_08_05**. One of these is more extensive both laterally and down dip and reflects the overall structure of **Conductor ESP_08_05**. The other two are laterally more extensive and model a broad, weak local enhancement in conductivity. **Conductor ESP_08_05** is modeled as the best portion of a local enhancement along a conductive horizon that is more extensive laterally and down dip and itself has a conductivity of ~2-6S as modeled on this line and on Loop 08 Line 5200 @ 6190N (Figure 8). Details of **Conductor ESP_08_05** as modeled as listed in Figure 7 are:

centre of top edge 5600E, 6065N, 1230 m.a.s.l. (grid coords.)
local elevation ~1253.5 m.a.s.l. giving ~24m depth-to-top
strike/dip ~350/15° conductance 300S
along strike/downdip 120m/80m

Conductor ESP_08_05 @ Line 5600E is interpreted to be fair-to-good conductor. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is less than maximum as modeled suggesting that the conductance is a reasonable estimate - it could be higher. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

Note: Additional modeling of **Conductor ESP_05_03** is shown in:

Figure 7b	Loop 08 Line 5800E
Figure 7c	Loop 08 Line 6000E
Figure 7d	Loop 07 Line 6000E
Figure 8	Loop 08 Line 5200E

Modeling of Line 6000E is difficult as the conductor sits close to the loop edge of both Loop 07 and Loop 08 - where the line was "split". Line 6000E was the only line "split" - half read from one loop, half from another - on the survey.

Conductor ESP_08_05 as modeled on Line 5600E

Figure 7a

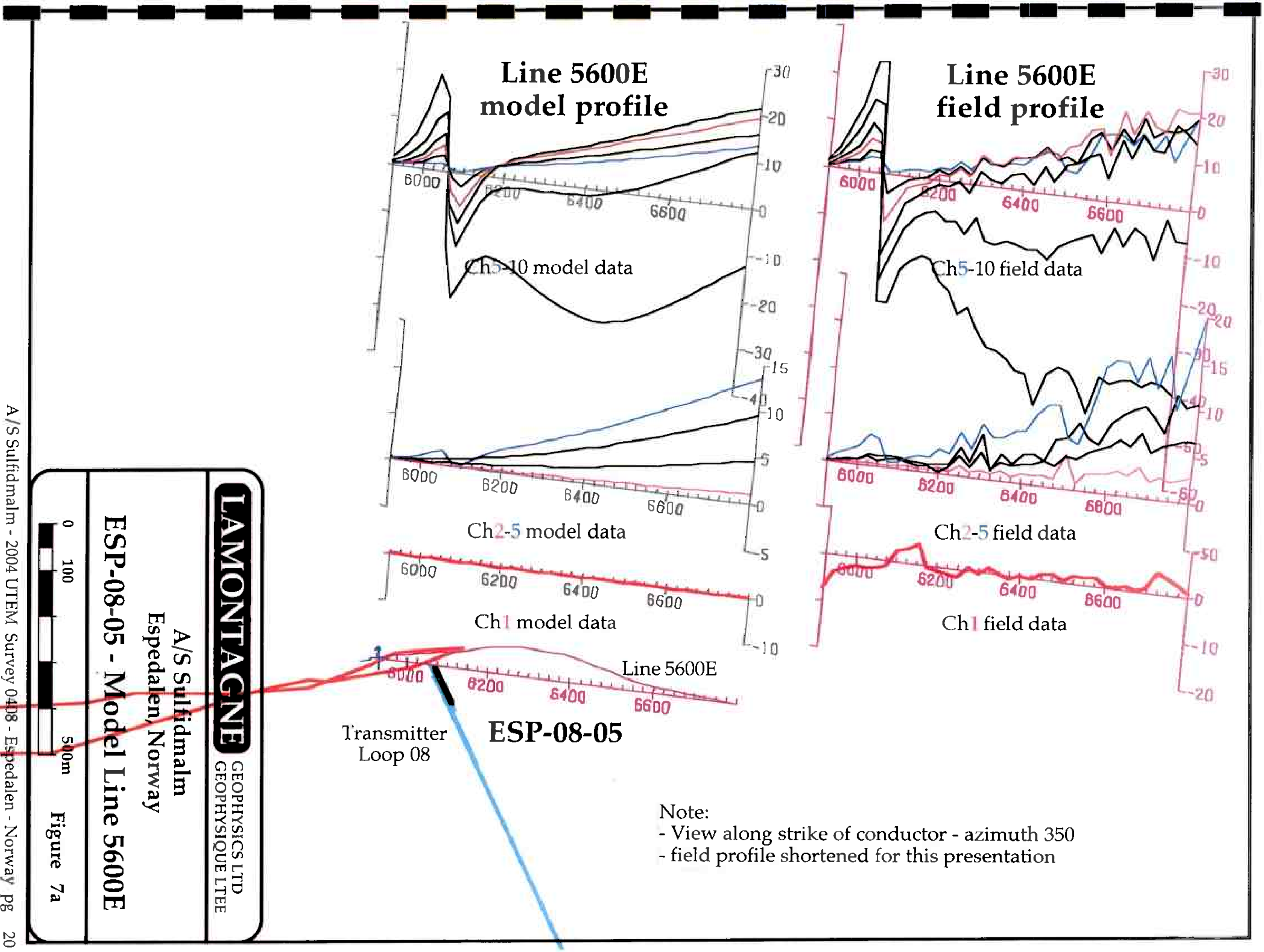
centre of top edge 5600E, 6065N, 1230 m.a.s.l. (grid coords.)

local elevation ~1253.5 m.a.s.l. giving ~24m depth-to-top

strike/dip ~350/15° **conductance 300S**

along strike/downdip 120m/80m

Notes:
- view is looking along the strike of the conductor - ~350.
- conductor as modeled is well-coupled but not maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.



Note:
- View along strike of conductor - azimuth 350
- field profile shortened for this presentation

Conductor ESP_08_05 as modeled on Line 5800E

Figure 7b

centre of top edge 6000E, 6000N, 1260 m.a.s.l. (grid coords.)

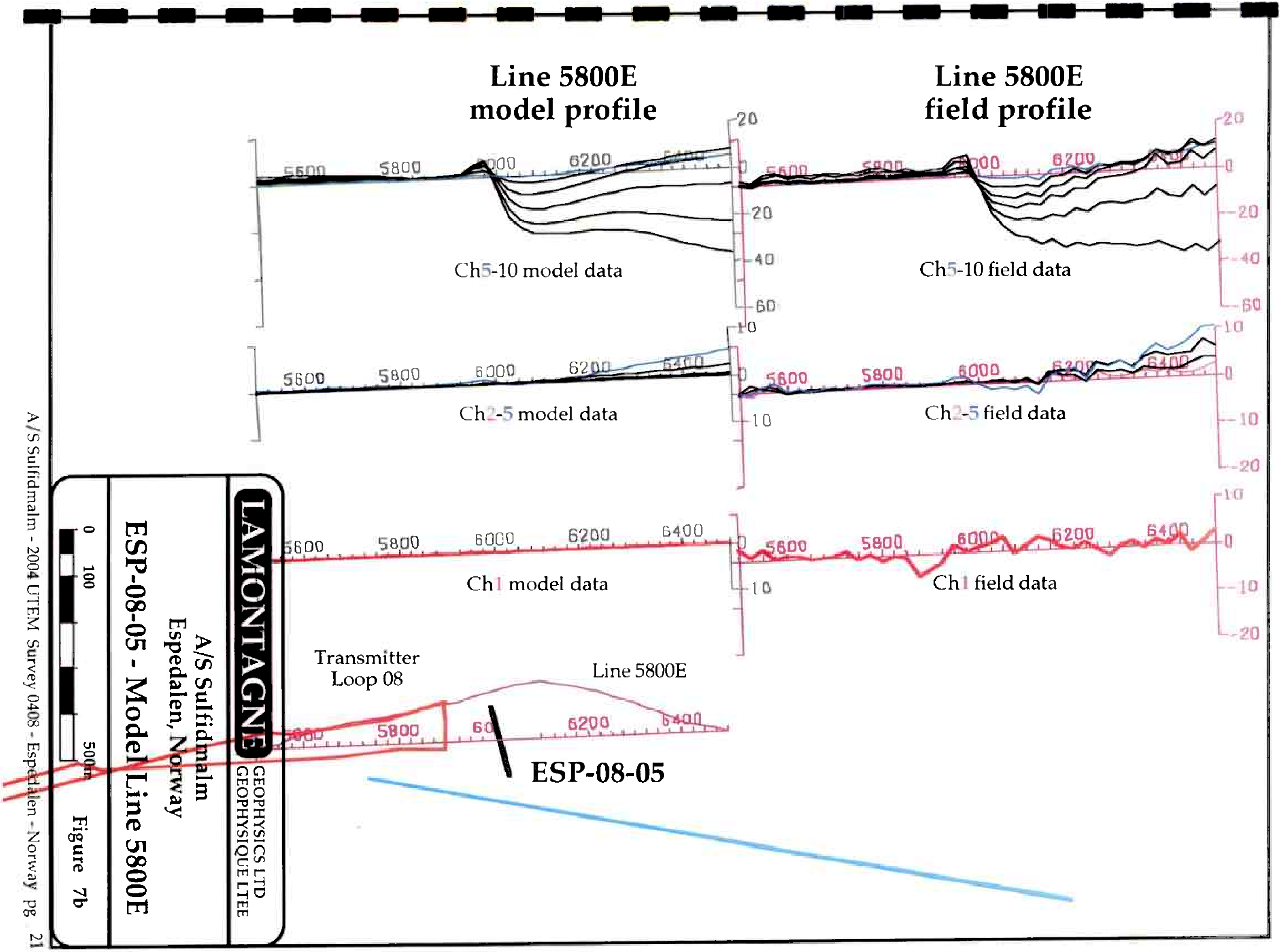
local elevation ~1327 m.a.s.l. giving ~67m depth-to-top

strike/dip ~320/75° conductance 150S

along strike/downdip 800m/150m

Notes:

- view is looking gridwest (~320)
- conductor as modeled is well-coupled but not maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background/current channeling/local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.


Line 5800E
model profile
Line 5800E
field profile
Ch5-10 model data
Ch5-10 field data
Ch2-5 model data
Ch2-5 field data
Ch1 model data
Ch1 field data
5600
5800
6000
6200
6400
20
0
-20
-40
-60
10
-10
-20
Transmitter
Loop 08
Line 5800E
ESP-08-05
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
A/S Sulfidmalm
Espedalen, Norway
ESP-08-05 - Model Line 5800E
0
100
500m
Figure 7b

Conductor ESP_08_05 as modeled on Line 6000E

Figure 7c

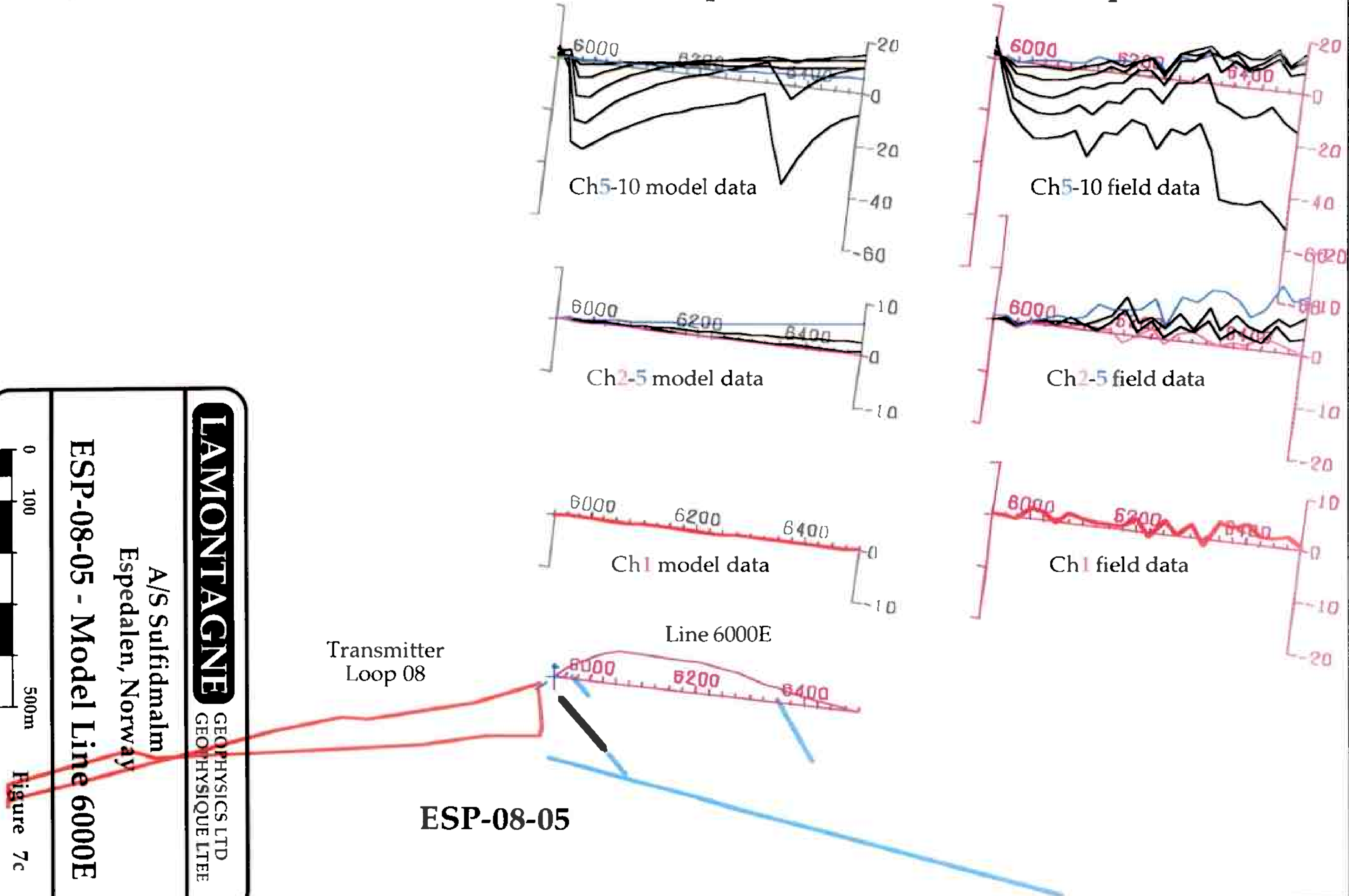
centre of top edge 6000E, 5960N, 1290 m.a.s.l. (grid coords.)
local elevation ~1305 m.a.s.l. giving ~15m depth-to-top
strike/dip ~320/50° conductance 250S
along strike/downdip 200m/50m

centre of top edge 6000E, 5935N, 1250 m.a.s.l. (grid coords.)
local elevation ~1288m.a.s.l. giving ~38m depth-to-top
strike/dip ~320/50° conductance 75S
along strike/downdip 600m/100m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is well-coupled but not maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.

Line 6000E model profile

Line 6000E field profile



LAMONTAGNE

GEOPHYSICS LTD
GEOPHYSIQUE LTEE

A/S Sulfidmalm
Espedalen, Norway

ESP-08-05 - Model Line 6000E

0 100 500m

Figure 7c

Conductor ESP_08_05 as modeled on Line 6000E - Loop 07
(preliminary model)

Figure 7d

centre of top edge 6000E, 5970N, 1260 m.a.s.l. (grid coords.)
local elevation ~1317 m.a.s.l. giving ~57m depth-to-top
strike/dip ~320/60° conductance 8S
along strike/downdip 800m/150m

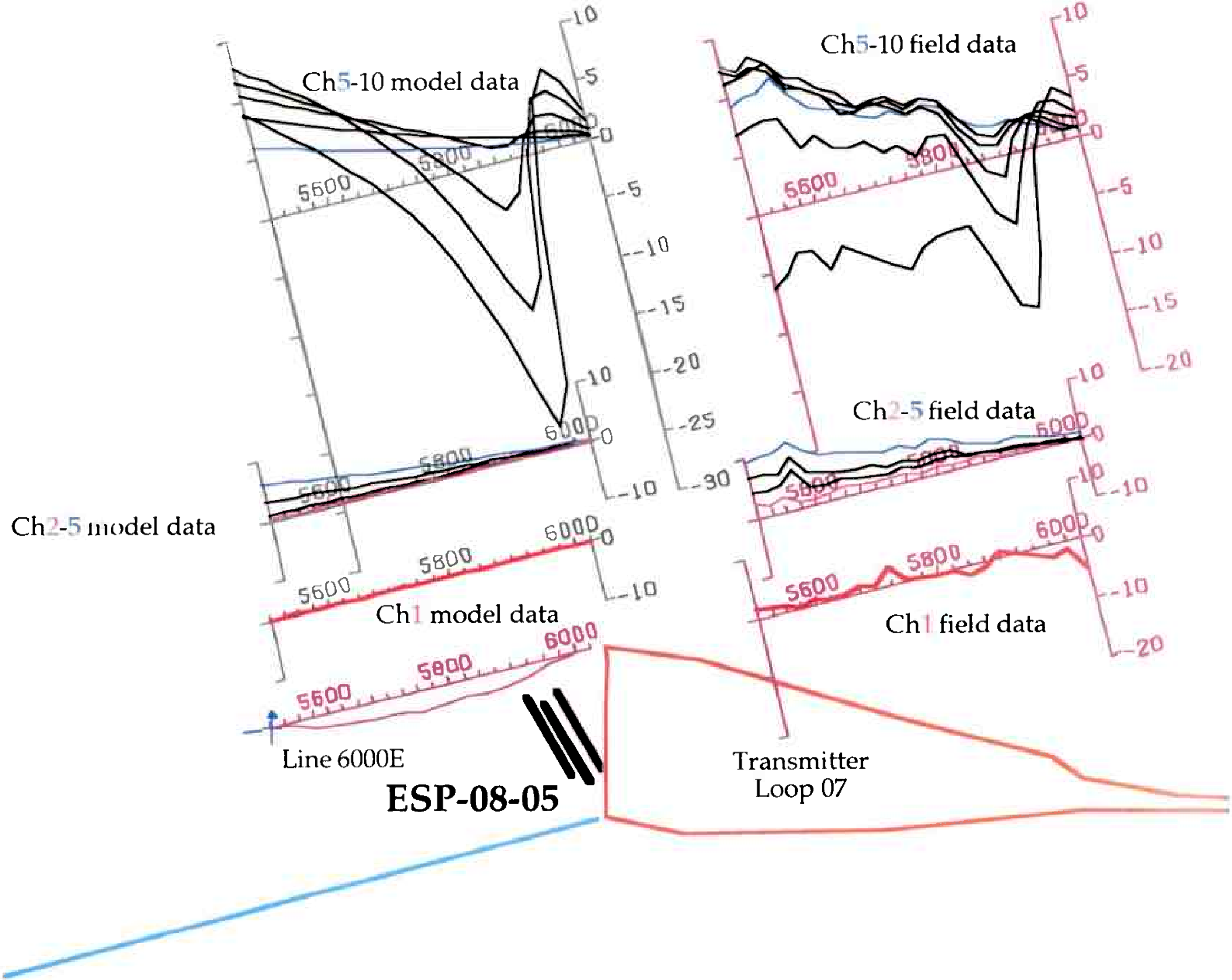
centre of top edge 6000E, 5950N, 1240 m.a.s.l. (grid coords.)
local elevation ~1304m.a.s.l. giving ~65m depth-to-top
strike/dip ~320/60° conductance 10S
along strike/downdip 800m/150m

centre of top edge 6000E, 5920N, 1250 m.a.s.l. (grid coords.)
local elevation ~1288m.a.s.l. giving ~38m depth-to-top
strike/dip ~320/60° conductance 20S
along strike/downdip 800m/150m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is well-coupled but not maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background/current channeling/local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.

Line 6000E (Loop 07) model profile

Line 6000E (Loop 07) field profile



LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

A/S Sulfidmalm
Espedalen, Norway

ESP-08-05 - Model Loop 07 Line 6000E

0 100 500m

Figure 7d

Conductor ESP_08_06 Line 5200E ~5775N

Conductor ESP_08_06 was detected during surveying from Loop 08. The **Conductor ESP_08_06** response is a single-line feature - very slight indications of its presence are seen on adjacent profiles. The Line 5200E response was therefore chosen for modeling.

Modeling **Conductor ESP_08_06**: Loop 08 Line 5200E Figure 8

The modeling results for Loop 08 Line 5600E are shown in Figure 8. The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1300m. **Conductor ESP_08_06** is modeled as an isolated conductor. The response indicates a more-conductive core - the ~single point peak in Ch3/2 @ 5775N indicating that the response in that area continues to Ch2. Details of **Conductor ESP_08_06** as modeled as listed in Figure 7 are:

centre of conductor 5200E, 5791N, 1155 m.a.s.l. (grid coords.)
local elevation ~1186 m.a.s.l. giving ~14m depth-to-centre
strike/dip ~320/05° conductance 400S
along strike/downdip 100m/35m

centre of conductor 5200E, 5791N, 1145 m.a.s.l. (grid coords.)
local elevation ~1186 m.a.s.l. giving ~24m depth-to-centre
strike/dip ~350/15° conductance 50S
along strike/downdip 100m/100m

Conductor ESP_08_06 is interpreted to be a small fair-to-good conductor. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is ~maximum as modeled suggesting that the conductance is a reasonable ~maximum estimate. On the other hand note that the conductance of the more-conductive core is based primarily on a single data point on one line of one-component data - it is really only an estimate. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

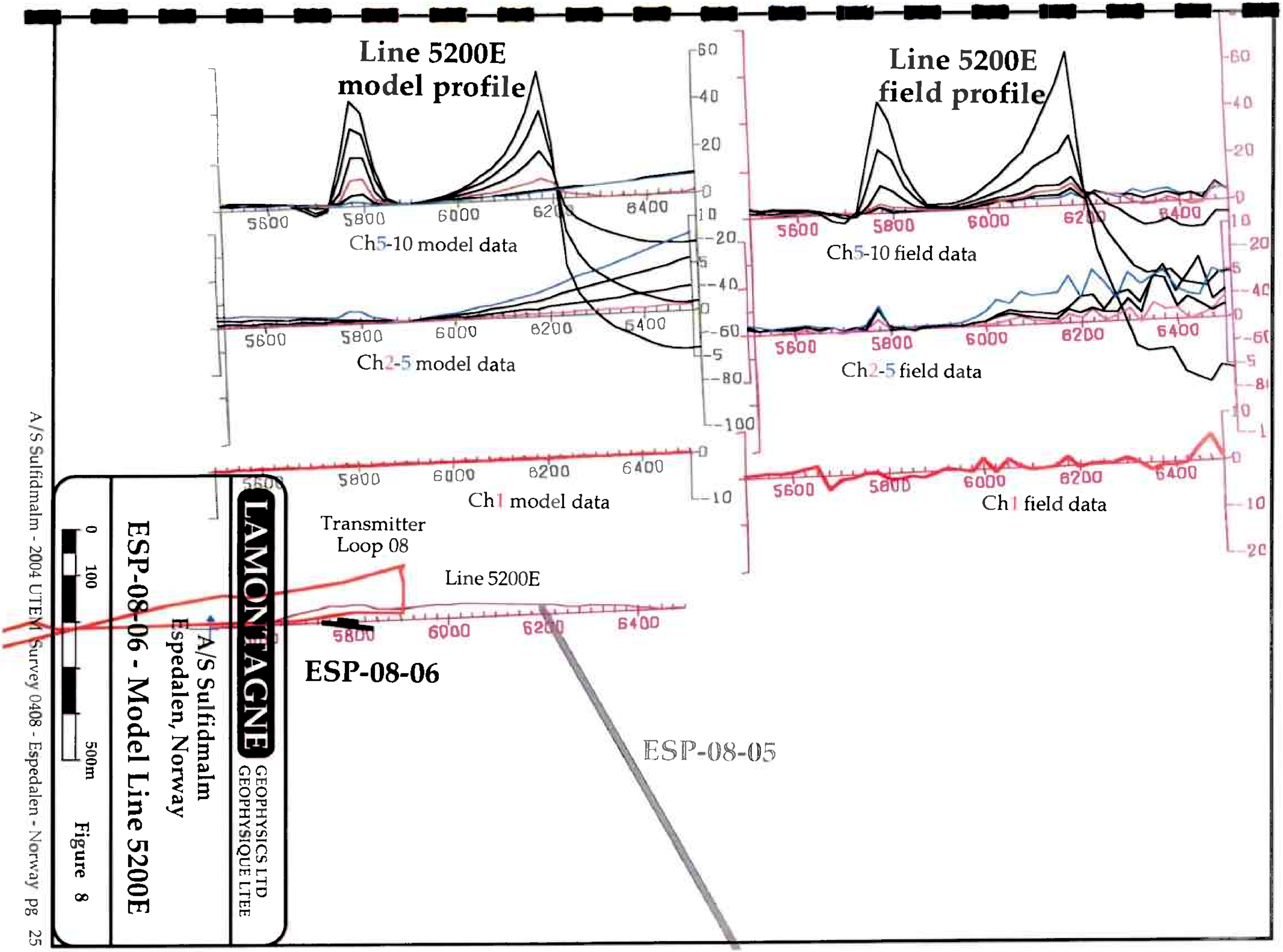
Conductor ESP_08_06 as modeled on Line 5200E

Figure 8

centre of conductor 5200E, 5791N, 1155 m.a.s.l. (grid coords.)
local elevation ~1186 m.a.s.l. giving ~14m depth-to-centre
strike/dip ~320/05° conductance 400S
along strike/downdip 100m/35m

centre of conductor 5200E, 5791N, 1145 m.a.s.l. (grid coords.)
local elevation ~1186 m.a.s.l. giving ~24m depth-to-centre
strike/dip ~350/15° conductance 50S
along strike/downdip 100m/100m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.


Line 5200E
model profile
Line 5200E
field profile
Ch5-10 model data
Ch2-5 model data
Ch1 model data
Ch5-10 field data
Ch2-5 field data
Ch1 field data
Transmitter
Loop 08
Line 5200E
ESP-08-06
ESP-08-05
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
A/S Sulfidmalm
Espedalen, Norway
ESP-08-06 - Model Line 5200E
0
100
500m
Figure 8

Conductor ESP_09_07 Line 4800/5000E ~5250N

Conductor ESP_09_07 was detected during the surveying of Line 5000E from Loop 08. The feature is at too great a depth to have been detected by the airborne EM. Loop 09 was modified slightly - the eastern edge displaced 200m grid east - to allow Line 5000E to be repeated from Loop 09. The response is limited to Lines 5000 and 4800E although:

- to the gridwest there is no corresponding response on Line 4600E - though as **Conductor ESP_09_07** weakens and steepens from Line 5000E to 4800E this may be due to orientation. Continuing gridwest to Storgruva - Lines 4400/42/41/40/3900E case can be made for a connection.
- to the grideast there is no corresponding response on Line 5200E - a quick test indicated that even with an increase in the depth of **Conductor ESP_09_07** of ~75m it would still be detectable. Continuing grideast a case can be made for a connection with a feature on Lines 54/56/5800E (Figure 4).

The best response detected is on Line 5000E - to Ch2 - and the results from Loop 08 and 09 were virtually identical. The response on Loop 09 Line 5000E was selected for MultiLoop modeling.

Modeling **Conductor ESP_09_07**: Loop 09 Line 5000E Figure 9

The modeling results for Loop 09 Line 5000E are shown in Figure 9 The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1300m and a weakly conductive layer at a depth of ~600m. **Conductor ESP_09_07** is modeled with a moderate dip to the gridnorth using three plates. The shallowest plate has a steeper dip and is considerably weaker than the deeper, more gently dipping pair. The overall model of **Conductor ESP_09_07** is an enhancement of conductivity along a structure/contact The details of **Conductor ESP_09_07** as modeled as listed in Figure 9 are:

centre of top edge 4965E, 5230N, 1030 m.a.s.l. (grid coords.)
local elevation ~1127 m.a.s.l. giving ~97m depth-to-top
strike/dip ~320/20° conductance 600S
along strike/downdip 80m/130m

centre of top edge 4965E, 5260N, 1030 m.a.s.l. (grid coords.)
local elevation ~1128 m.a.s.l. giving ~98m depth-to-top
strike/dip ~320/35° conductance 900S
along strike/downdip 120m/80m

centre of top edge 4985E, 5225N, 1085 m.a.s.l. (grid coords.)
local elevation ~1069 m.a.s.l. giving ~42m depth-to-top
strike/dip ~320/45° conductance 30S
along strike/downdip 200m/60m

Conductor ESP_09_07 is interpreted to be a good-to-excellent conductor. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is ~maximum coupled as modeled suggesting that the conductance is a reasonable maximum estimate. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

Conductor ESP_09_07 as modeled on Line 5000E

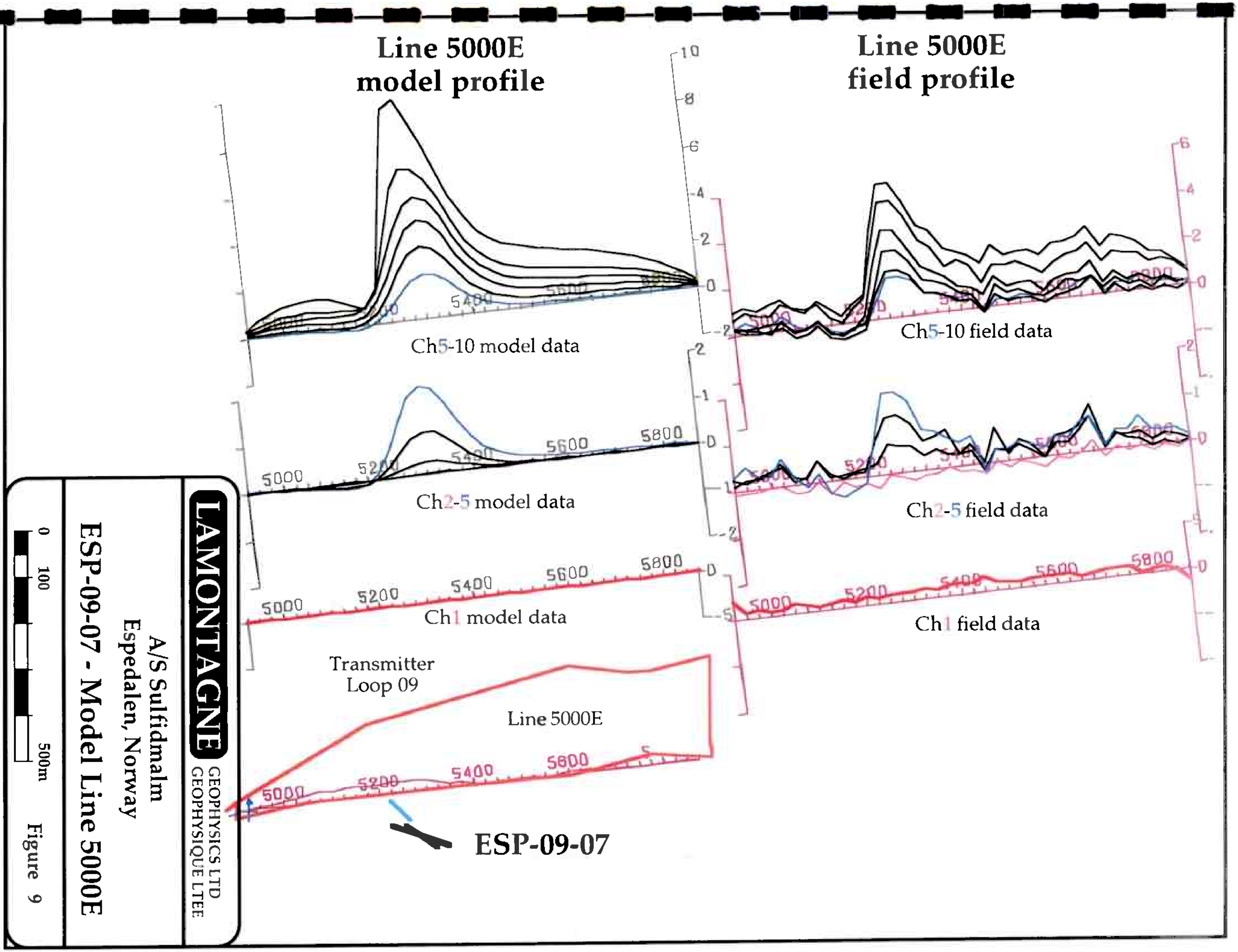
Figure 9

centre of top edge 4965E, 5230N, 1030 m.a.s.l. (grid coords.)
local elevation ~1127 m.a.s.l. giving ~97m depth-to-top
strike/dip ~320/20° conductance 600S
along strike/downdip 80m/130m

centre of top edge 4965E, 5260N, 1030 m.a.s.l. (grid coords.)
local elevation ~1128 m.a.s.l. giving ~98m depth-to-top
strike/dip ~320/35° conductance 900S
along strike/downdip 120m/80m

centre of top edge 4985E, 5225N, 1085 m.a.s.l. (grid coords.)
local elevation ~1069 m.a.s.l. giving ~42m depth-to-top
strike/dip ~320/45° conductance 30S
along strike/downdip 200m/60m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is well-coupled but not maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background/current channeling/local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.


Line 5000E
model profile
Line 5000E
field profile
Ch5-10 model data
Ch5-10 field data
Ch2-5 model data
Ch2-5 field data
Ch1 model data
Ch1 field data
Transmitter
Loop 09
Line 5000E
ESP-09-07
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
A/S Sulfidmalm
Espedalen, Norway
ESP-09-07 - Model Line 5000E
Figure 9
0
100
500m

Conductor ESP_10_08 Line 34/35/36/37/3800E ~62-6500N

Conductor ESP_10_08 was detected during the surveying of Loop 10. Detail Lines 3500E and 3700E were put in and surveyed from Loop 10. Detail stations @12.5m on Loop 10 Line 3700E define a conductor that ~comes to surface at a waste/excavation pile (Jorstad) @ 6345N. Lines 3500/3600/3700E were then repeated inside-the-loop from Loop 18. The shallower (gridsouth) weaker edge/extension of **Conductor ESP_10_08** was detected by the airborne EM survey

With a weaker character the **Conductor ESP_10_08** response continues both:

- to the gridwest to the ~break at the northwestern-facing flank of Storhøa and possibly beyond..
- to the grideast into **Conductor ESP_08_05**.

The **Conductor ESP_10_08** response on Loop 10 Lines 35/36/3700E was selected for MultiLoop modeling. Note: **Conductor ESP_10_08** as modeled for the Loop 10 profiles was transferred to models for Loop 18 Lines 35/36/3700E - the results matched the Loop 18 profiles very well.

Modeling **Conductor ESP_10_08**: Loop 10 Line 35/36/3700E Figure 10a,b,c

The modeling results for Loop 10 Line 35/36/3700E are shown in Figure 10a,b,c. The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1300m. **Conductor ESP_10_08** is modeled as dipping gridnorth with details of the local response modeled using 3/1/1 (Lines 35/36/3700E) conductors (pale blue in Figure 7) generally ~parallel to and more extensive both laterally and down dip than **Conductor ESP_10_08**. **Conductor ESP_10_08** is modeled as an enhancement in conductivity along a structure/contact Details of **ESP_10_08** as modeled as listed in Figure 10a,b,c are:

Figure 10a - Line 3500E

centre of top edge 3500E, 6330N, 1275 m.a.s.l. (grid coords.)
local elevation ~1341 m.a.s.l. giving ~66m depth-to-top
strike/dip ~320/45° conductance 375S
along strike/downdip 400m/250m

Figure 10b - Line 3600E

centre of top edge 3700E, 6330N, 1275 m.a.s.l. (grid coords.)
local elevation ~1310 m.a.s.l. giving ~35m depth-to-top
strike/dip ~320/45° conductance 400S
along strike/downdip 400m/260m

Figure 10c - Line 3700E

centre of top edge 3625E, 6349N, 1295 m.a.s.l. (grid coords.)
local elevation ~1329 m.a.s.l. giving ~34m depth-to-top
strike/dip ~320/55° conductance 375S
along strike/downdip 400m/100m

centre of top edge 3625E, 6420N, 1265 m.a.s.l. (grid coords.)
local elevation ~1302 m.a.s.l. giving ~37m depth-to-top
strike/dip ~320/65° conductance 375S
along strike/downdip 500m/85m

Conductor ESP_10_08 is interpreted to be a good-to-excellent conductor based in part on its size - the largest feature of interest detected in this survey. **Conductor ESP_10_08** ~comes to surface at a waste/excavation pile (Jorstad) @ 6345N. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is ~maximum coupled as modeled suggesting that the conductance is a reasonable maximum estimate. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

Conductor ESP_10_08 as modeled on Line 3500E

Figure 10a

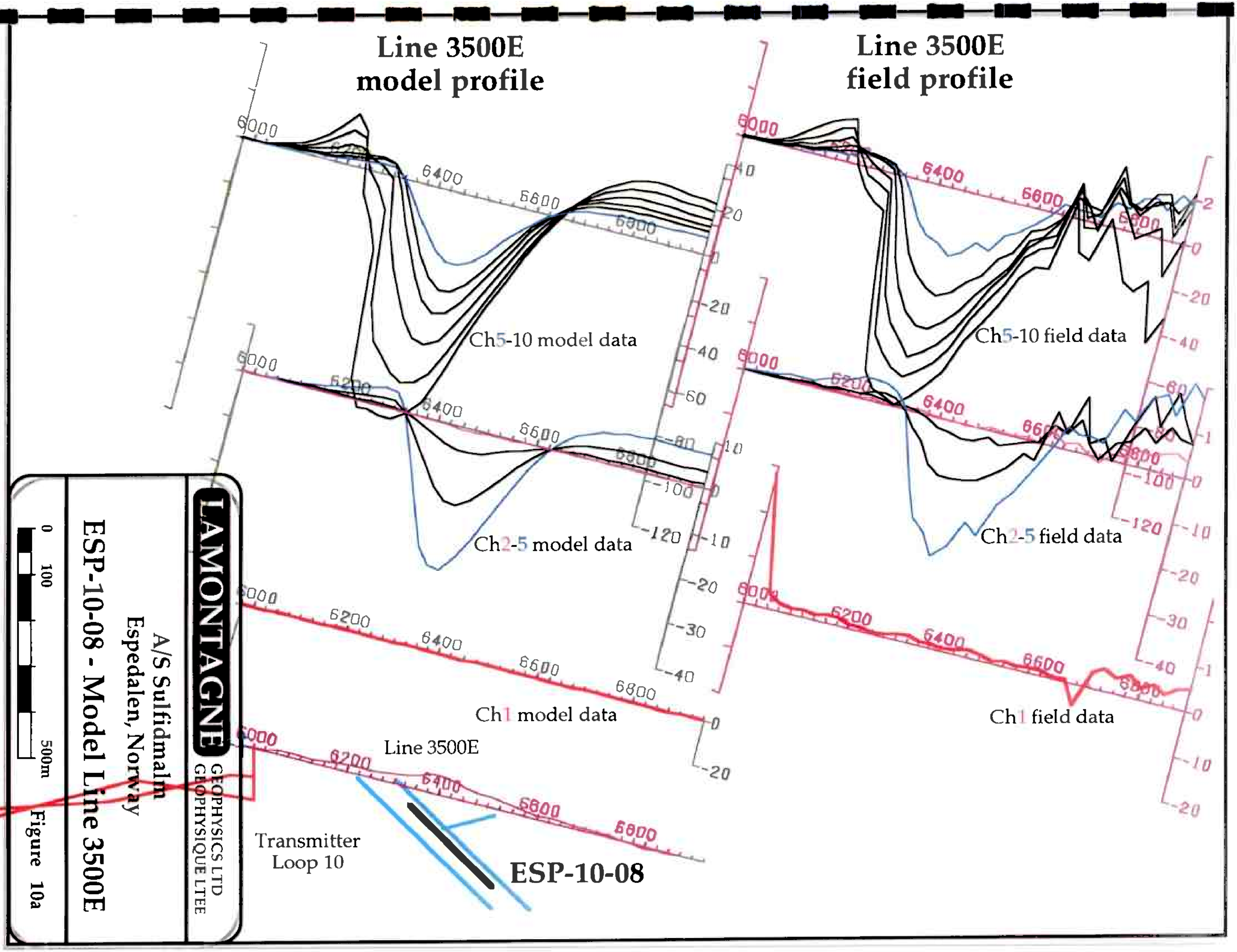
centre of top edge 3500E, 6330N, 1275 m.a.s.l. (grid coords.)

local elevation ~1341 m.a.s.l. giving ~66m depth-to-top

strike/dip ~320/45° conductance 375S

along strike/downdip 400m/250m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.


Line 3500E
model profile
Line 3500E
field profile
Ch5-10 model data
Ch2-5 model data
Ch1 model data
Ch5-10 field data
Ch2-5 field data
Ch1 field data
Line 3500E
Transmitter
Loop 10
ESP-10-08
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
A/S Sulfidmalm
Espedalen, Norway
ESP-10-08 - Model Line 3500E
0
100
500m
Figure 10a

Conductor ESP_10_08 as modeled on Line 3600E

Figure 10b

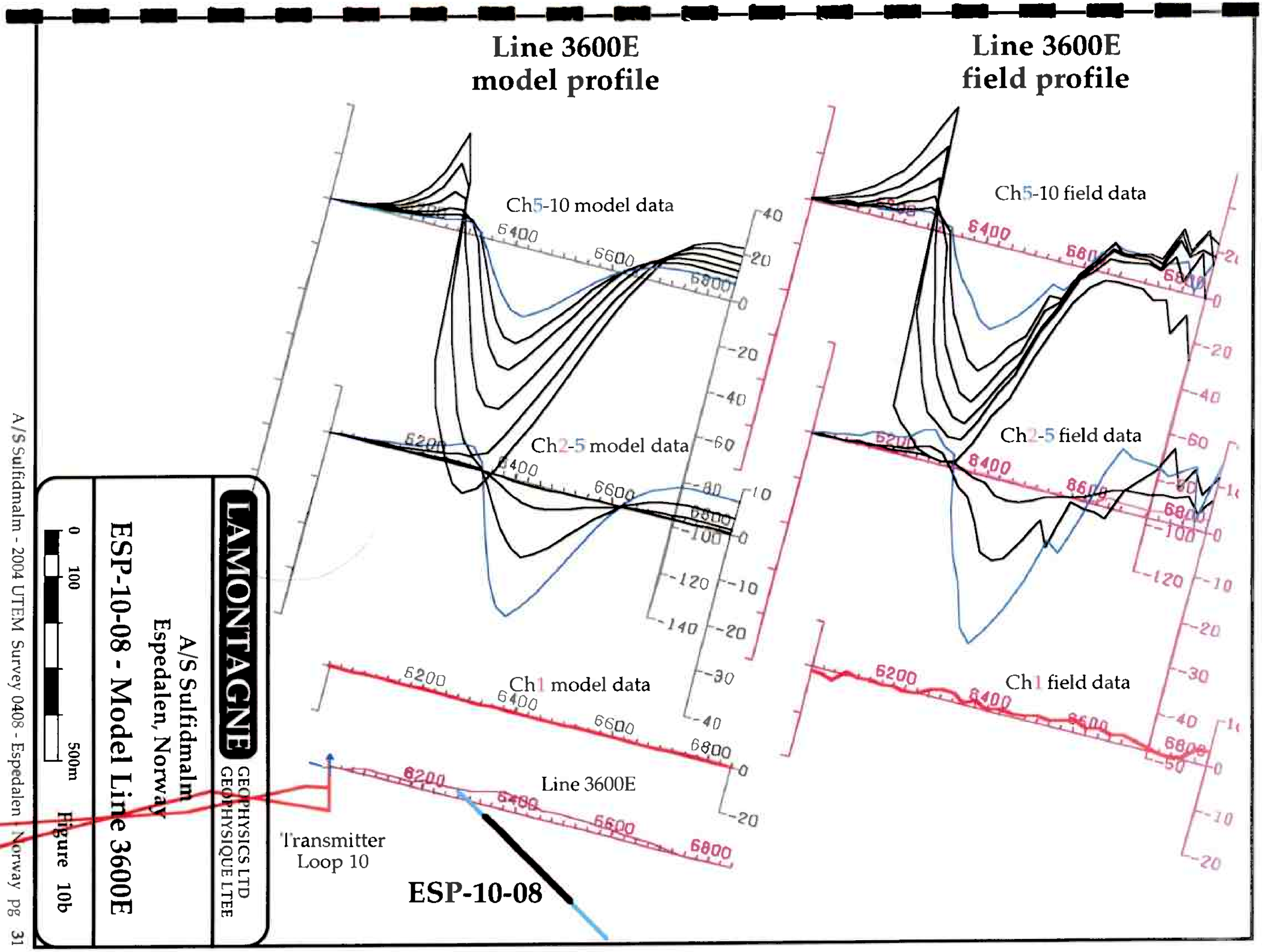
centre of top edge 3700E, 6330N, 1275 m.a.s.l. (grid coords.)

local elevation ~1310 m.a.s.l. giving ~35m depth-to-top

strike/dip ~320/45° conductance 400S

along strike/downdip 400m/260m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background/current channeling/local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.


Line 3600E
model profile
Line 3600E
field profile
Ch5-10 model data
Ch2-5 model data
Ch1 model data
Ch5-10 field data
Ch2-5 field data
Ch1 field data
Line 3600E
Transmitter
Loop 10
ESP-10-08
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
A/S Sulfidmalm
Espedalen, Norway
ESP-10-08 - Model Line 3600E
Figure 10b
0
100
500m

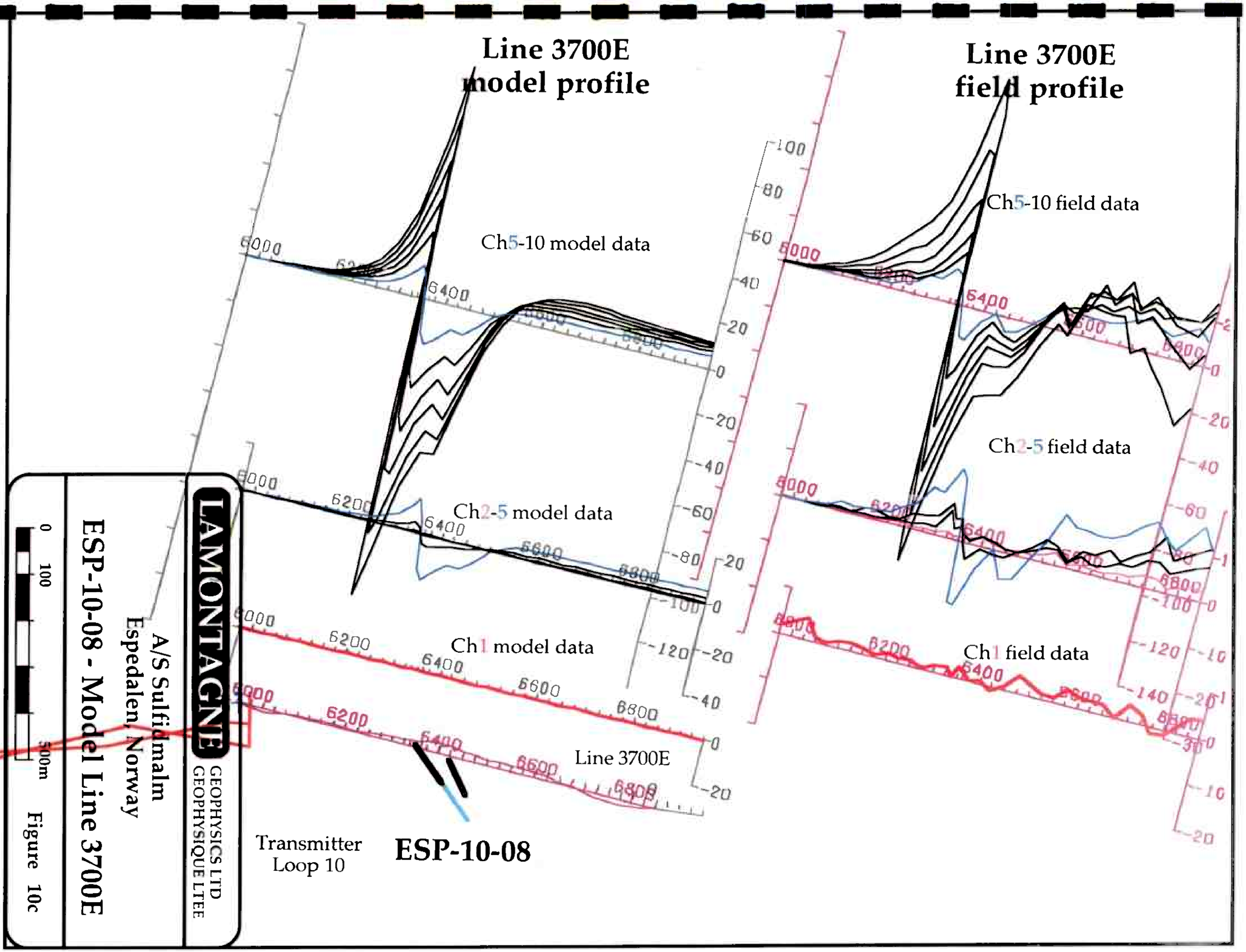
Conductor ESP_10_08 as modeled on Line 3700E

Figure 10c

centre of top edge 3625E, 6349N, 1295 m.a.s.l. (grid coords.)
local elevation ~1329 m.a.s.l. giving ~34m depth-to-top
strike/dip ~320/55° conductance 375S
along strike/downdip 400m/100m

centre of top edge 3625E, 6420N, 1265 m.a.s.l. (grid coords.)
local elevation ~1302 m.a.s.l. giving ~37m depth-to-top
strike/dip ~320/65° conductance 375S
along strike/downdip 500m/85m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background/current channeling/local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.


Line 3700E
model profile
Line 3700E
field profile
Ch5-10 model data
Ch2-5 model data
Ch1 model data
Ch5-10 field data
Ch2-5 field data
Ch1 field data
6000
6200
6400
6600
6800
Line 3700E
Transmitter
Loop 10
ESP-10-08
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
A/S Sulfidmalm
Espedalen, Norway
ESP-10-08 - Model Line 3700E
0
100
500m
Figure 10c

Conductor ESP_11_09/10/11 Line 18/19/20/21/22/2400E ~48-5400N

Conductor ESP_11_09/10/11 was detected during the surveying of Loop 11. Detail Lines 1900E and 2100E were planned from the outset because the area was expected to be complicated geologically and of significant interest - as evidenced by the number of showings/old workings in the area.

The interpretation in the immediate area -Loops 11 and 12 - is detailed in Figure 11a. The shallower (sharper response) features of **Conductor ESP_11_09/10/11** were detected by the airborne EM survey.

The UTEM profiles indicate a conductive layer that is a patchwork of gently dipping conductors - this patchwork will be referred to as **Conductor ESP_11_09/10/11**. Modeling of three specific responses was requested and these are referred to as (from gridnorth to gridsouth):

- **Conductor ESP_11_09**: Line 2400E @ 5250N
- **Conductor ESP_11_10**: Line 18/1900E @ 5100N
- **Conductor ESP_11_11**: Line 2100E @ 4850N

Note that in Figure 11a **Conductor ESP_11_09** is interpreted as an along-strike enhancement of **Conductor ESP_11_10** - it is not interpreted as connecting to the response on Line 2200E @ 4950E (not modeled).

With a weaker character the **Conductor ESP_11_09/10/11** response continues both:

- to the gridwest as a zone of increased conductivity. Note that the gridsouth limit of **Conductor ESP_11_09/10/11** connects up with **Conductor ESP_12_12** - interpreted to be the conductivity-enhanced termination of the weakly conductive layer (the extension of **Conductor ESP_11_09/10/11)** or it may simply be a conductor at a contact.
- to the grideast into the ~break at the northwestern-facing flank of Storhøa.

The **Conductor ESP_11_09/10/11** response on Loop 11 Lines 18/19/21/2400E was selected for MultiLoop modeling.

Modeling **Conductor ESP_11_09/10/11**: Loop 11 Line 18/19/21/2400E Figure 11

The modeling results for Loop 11 Line 18/19/21/2400E are shown in Figure 11b,c,d,e. The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1200m. Details of the local response modeled using weaker conductors (pale blue in Figure 7). **Conductor ESP_11_09/10/11** is modeled as a gently dipping set of plates that form a patchwork - patchy in both along and across strike. As modeled the plates mimic a broad synform (axis running ~320). The specific conductors **Conductor ESP_11_09, Conductor ESP_11_10** and **Conductor ESP_11_11** are modeled as plates that come closer to surface - they are not of outstanding conductivity but they are shallower drill targets. Details of **ESP_11_09/10/11** as modeled as listed in Figure 11b,c,d,e are:

Figure 11b - Line 1800E

Conductor ESP_11_10

centre of top edge 1800E, 5089N, 1180 m.a.s.l. (grid coords.)
local elevation ~1205 m.a.s.l. giving ~25m depth-to-top
strike/dip ~320/30° conductance 70S
along strike/downdip 60m/110m

<u>additional conductors</u>

centre of conductor 1800E, 4940N, 1070 m.a.s.l. (grid coords.)
local elevation ~1177 m.a.s.l. giving ~107m depth-to-centre
strike/dip ~140/10° conductance 150S
along strike/downdip 60m/150m

centre of conductor 1800E, 5070N, 1105 m.a.s.l. (grid coords
local elevation ~1201 m.a.s.l. giving ~96m depth-to-centre
strike/dip ~140/20° conductance 150S
along strike/downdip 125m/100m

centre of conductor 1800E, 5440N, 1287m.a.s.l. (grid coords
local elevation ~1201 m.a.s.l. giving ~77m depth-to-centre
strike/dip ~140/20° conductance 150S
along strike/downdip 120m/100m

Figure 11c - Line 1900E

Conductor ESP_11_10

centre of top edge 1900E, 5125N, 1168 m.a.s.l. (grid coords.)
local elevation ~1201 m.a.s.l. giving ~33m depth-to-top
strike/dip ~320/08° conductance 110S
along strike/downdip 60m/110m

Figure 11d - Line 2100E

Conductor ESP_11_11
<u>pair of conductors - 180S total - @ ~4885N</u>

centre of conductor 2100E, 4889N, 1117 m.a.s.l. (grid coords.)
local elevation ~1135 m.a.s.l. giving ~18m depth-to-centre
strike/dip ~140/05° conductance 90S
along strike/downdip 300m/50m

centre of conductor 2100E, 4882N, 1120 m.a.s.l. (grid coords.)
local elevation ~1135 m.a.s.l. giving ~14m depth-to-centre
strike/dip ~320/05° conductance 90S
along strike/downdip 300m/50m

Figure 11d - Line 2100E (cont)

additional conductors

pair of conductors - 160S total - @ ~5025N

centre of conductor 2100E, 5025N, 1110 m.a.s.l. (grid coords.)
local elevation ~1158 m.a.s.l. giving ~48m depth-to-centre
strike/dip ~320/05° conductance 80S
along strike/downdip 50m/150m

centre of conductor 2100E, 5025N, 1110 m.a.s.l. (grid coords
local elevation ~1158 m.a.s.l. giving ~48m depth-to-centre
strike/dip ~140/05° conductance 80S
along strike/downdip 50m/150m

pair of conductors - 160S total - @ ~5175N

centre of conductor 2100E, 5175N, 1140 m.a.s.l. (grid coords.)
local elevation ~1198 m.a.s.l. giving ~58m depth-to-centre
strike/dip ~140/05° conductance 80S
along strike/downdip 60m/100m

centre of conductor 2100E, 5175N, 1140 m.a.s.l. (grid coords
local elevation ~1198 m.a.s.l. giving ~58m depth-to-centre
strike/dip ~140/15° conductance 80S
along strike/downdip 60m/100m

Figure 11e - Line 2400E

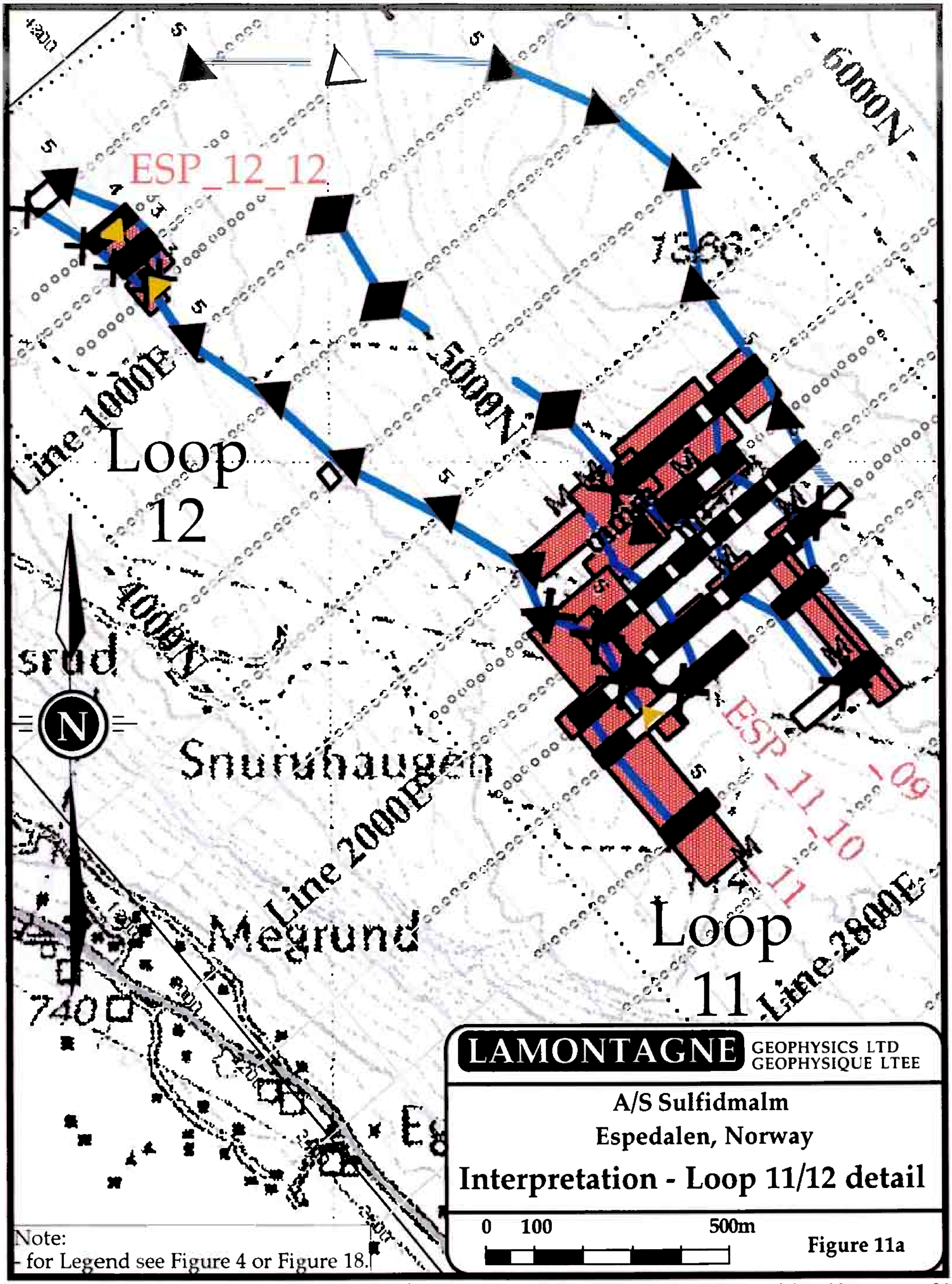
Conductor ESP_11_09

pair of conductors - 150S total - @ ~5268N

centre of conductor 2300E, 5271N, 1182 m.a.s.l. (grid coords.)
local elevation ~1227 m.a.s.l. giving ~45m depth-to-centre
strike/dip ~140/35° conductance 50S
along strike/downdip 375m/60m

centre of conductor 2300E, 5267N, 1186 m.a.s.l. (grid coords.)
local elevation ~1227 m.a.s.l. giving ~41m depth-to-centre
strike/dip ~140/10° conductance 100S
along strike/downdip 375m/65m

Conductor ESP_11_09/10/11 is interpreted to be a patchwork of fair-to-good conductor. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is ~maximum coupled as modeled suggesting that the conductances listed are reasonable maximum estimates. Increasing the strike length of the modeled bodies would act to lower the conductance somewhat.



Note:
- for Legend see Figure 4 or Figure 18.

Conductor ESP_11_009/10/11 as modeled on Line 1800E

Figure 11b

Conductor ESP_11_10

centre of top edge 1800E, 5089N, 1180 m.a.s.l. (grid coords.)

local elevation ~1205 m.a.s.l. giving ~25m depth-to-top

strike/dip ~320/30° conductance 70S

along strike/downdip 60m/110m

<u>additional conductors</u>

centre of conductor 1800E, 4940N, 1070 m.a.s.l. (grid coords.)

local elevation ~1177 m.a.s.l. giving ~107m depth-to-centre

strike/dip ~140/10° conductance 150S

along strike/downdip 60m/150m

centre of conductor 1800E, 5070N, 1105 m.a.s.l. (grid coords

local elevation ~1201 m.a.s.l. giving ~96m depth-to-centre

strike/dip ~140/20° conductance 150S

along strike/downdip 125m/100m

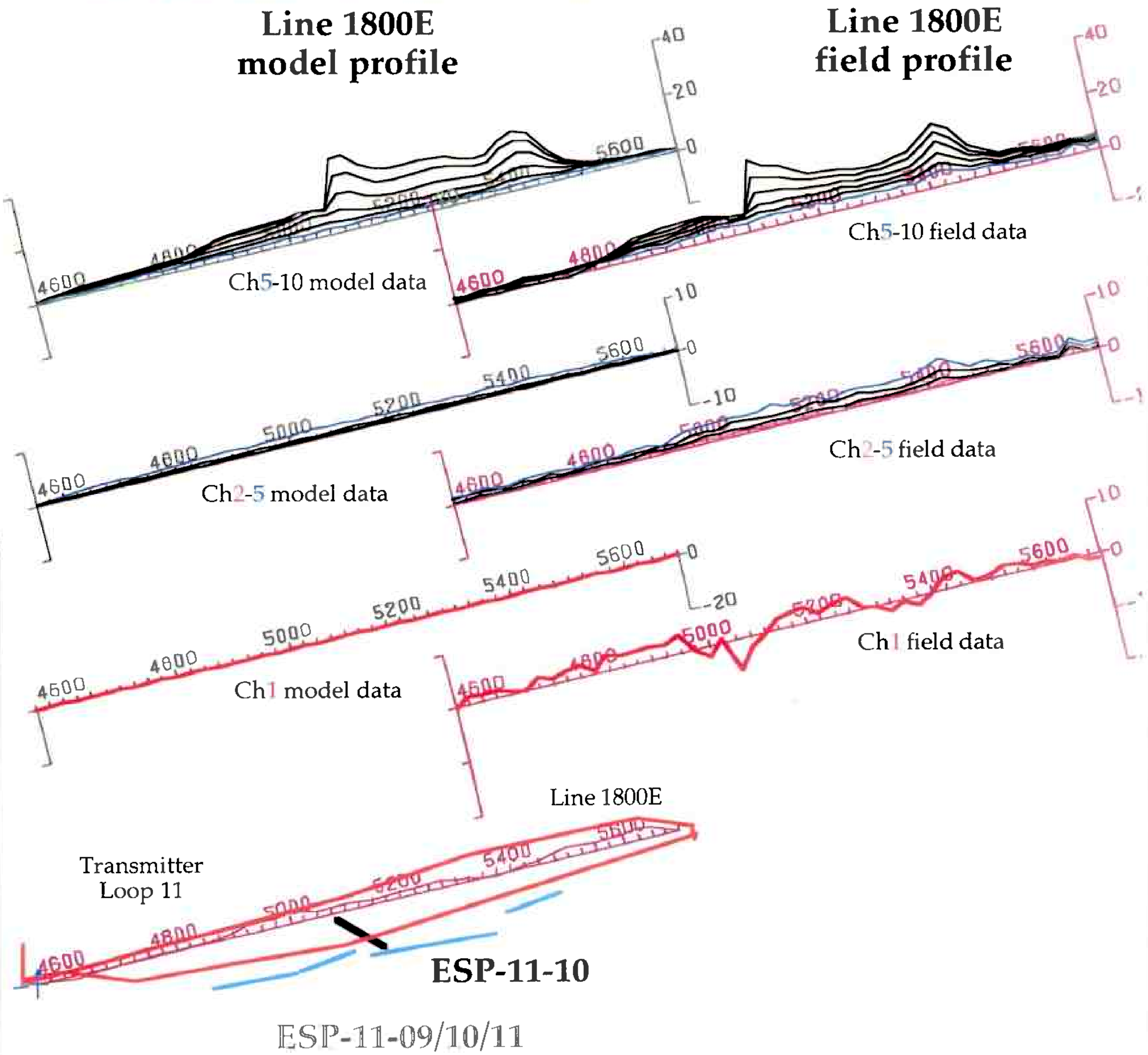
centre of conductor 1800E, 5440N, 1287m.a.s.l. (grid coords

local elevation ~1201 m.a.s.l. giving ~77m depth-to-centre

strike/dip ~140/20° conductance 150S

along strike/downdip 120m/100m

<u>Notes</u>:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.



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ESP-11-09/10/11 - Model Line 1800E

0 100 500m

Figure 11b

Conductor ESP_11_009/10/11 as modeled on Line 1900E

Figure 11c

Conductor ESP_11_10

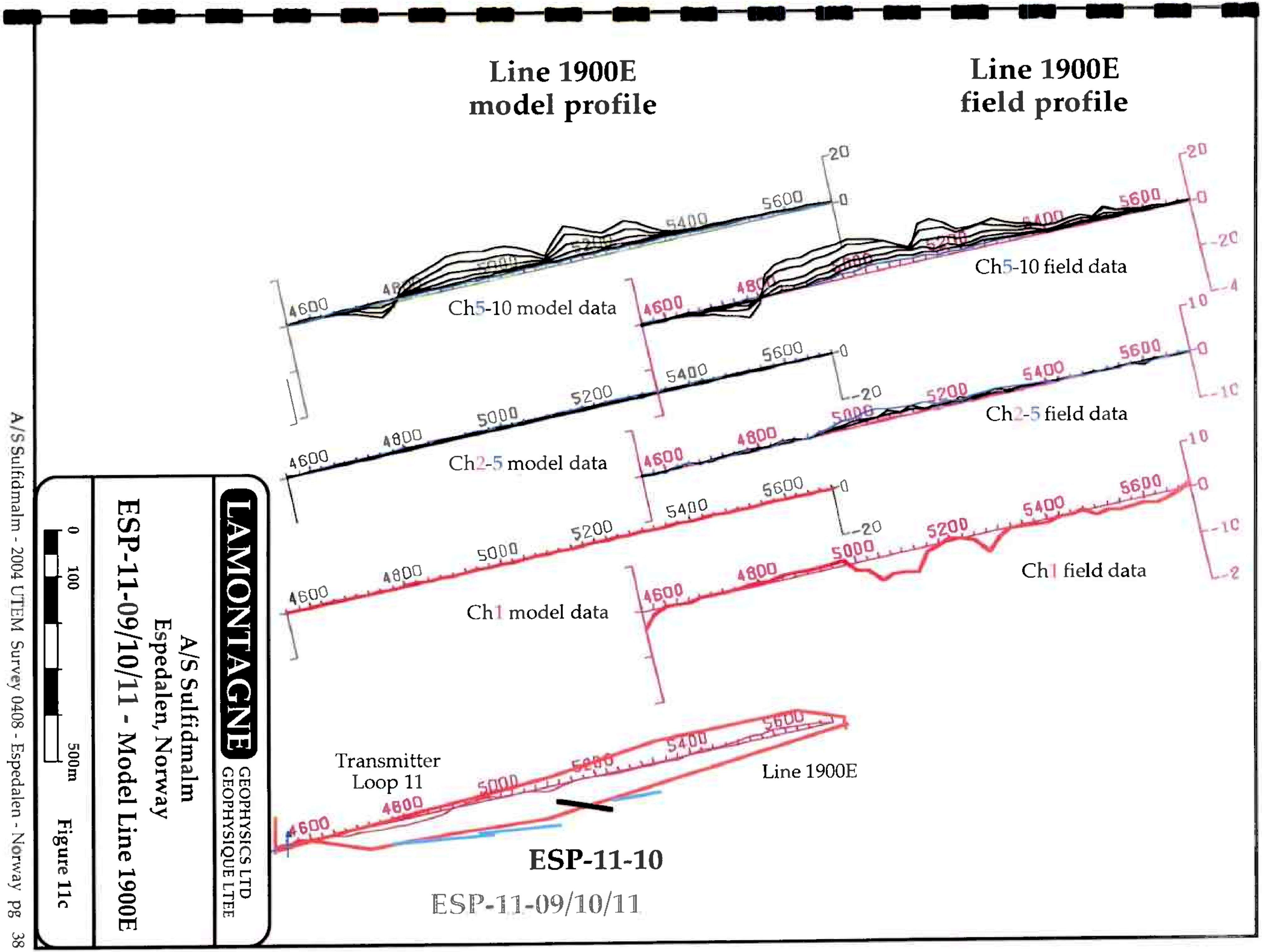
centre of top edge 1900E, 5125N, 1168 m.a.s.l. (grid coords.)

local elevation ~1201 m.a.s.l. giving ~33m depth-to-top

strike/dip ~320/08° conductance 110S

along strike/downdip 60m/110m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.


Line 1900E
model profile
Line 1900E
field profile
Ch5-10 model data
Ch5-10 field data
Ch2-5 model data
Ch2-5 field data
Ch1 model data
Ch1 field data
4600
4800
5000
5200
5400
5600
20
0
-20
-4
10
-10
-2
Transmitter
Loop 11
Line 1900E
ESP-11-10
ESP-11-09/10/11
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A/S Sulfidmalm
Espedalen, Norway
ESP-11-09/10/11 - Model Line 1900E
0
100
500m
Figure 11c

Conductor ESP_11_009/10/11 as modeled on Line 2100E

Figure 11d

Conductor ESP_11_11

<u>pair of conductors - 180S total - @ ~4885N</u>

centre of conductor 2100E, 4889N, 1117 m.a.s.l. (grid coords.)
local elevation ~1135 m.a.s.l. giving ~18m depth-to-centre
strike/dip ~140/05° conductance 90S
along strike/downdip 300m/50m

centre of conductor 2100E, 4882N, 1120 m.a.s.l. (grid coords.)
local elevation ~1135 m.a.s.l. giving ~14m depth-to-centre
strike/dip ~320/05° conductance 90S
along strike/downdip 300m/50m

<u>additional conductors</u>

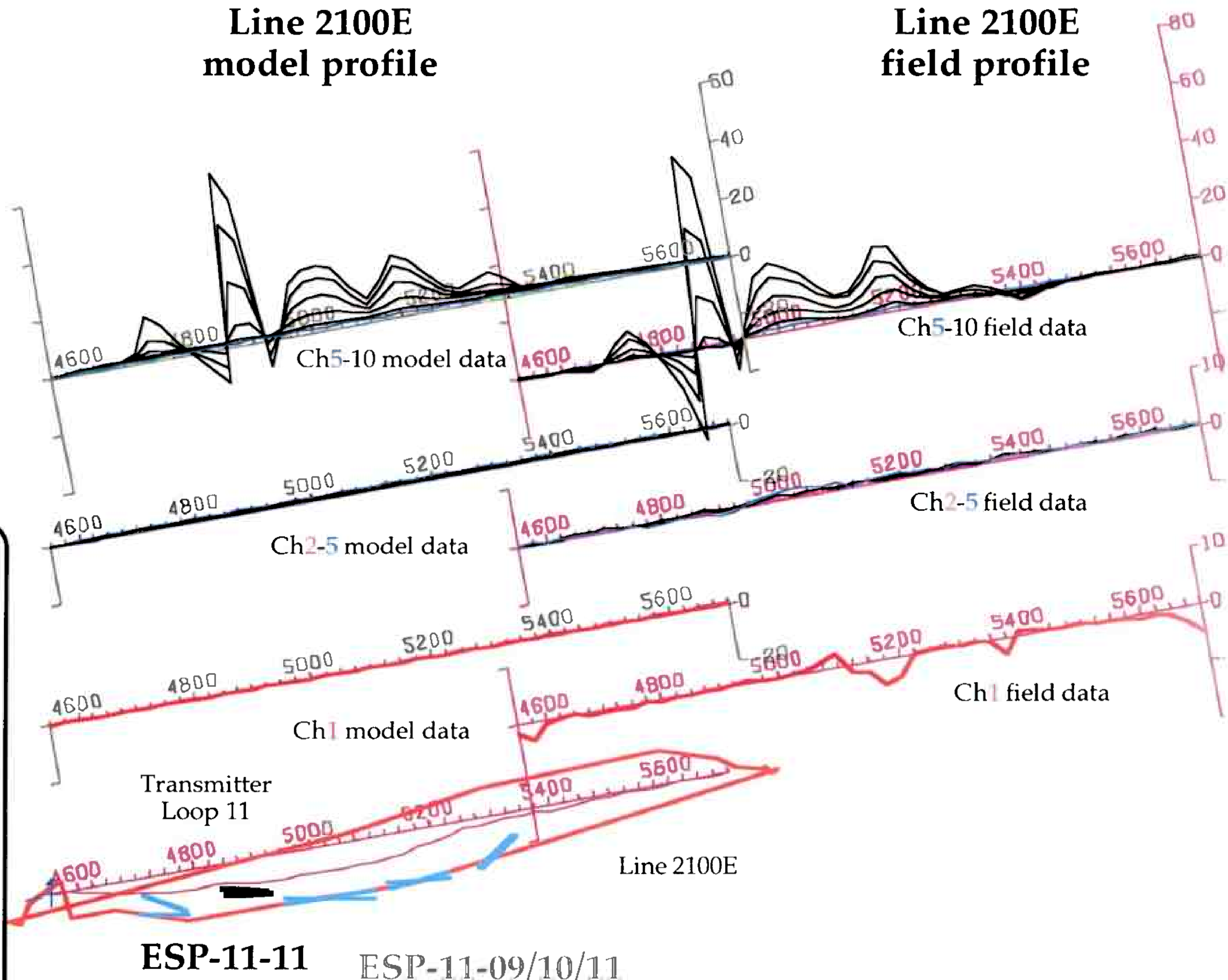
<u>pair of conductors - 160S total - @ ~5025N</u>

centre of conductors 2100E, 5025N, 1110 m.a.s.l. (grid coords.)
local elevation ~1158 m.a.s.l. giving ~48m depth-to-centre
strike/dip ~320/05° conductance 80S
strike/dip ~140/05° conductance 80S
along strike/downdip 50m/150m

<u>pair of conductors - 160S total - @ ~5175N</u>

centre of conductor 2100E, 5175N, 1140 m.a.s.l. (grid coords.)
local elevation ~1198 m.a.s.l. giving ~58m depth-to-centre
strike/dip ~140/05° conductance 80S
strike/dip ~140/15° conductance 80S
along strike/downdip 60m/100m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background/current channeling/local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.



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ESP-11-09/10/11 - Model Line 2100E

0 100 500m

Figure 11d

Conductor ESP_11_009/10/11 as modeled on Line 2400E

Figure 11e

Conductor ESP_11_09
pair of conductors - 150S total - @ ~5268N

centre of conductor 2300E, 5271N, 1182 m.a.s.l. (grid coords.)

local elevation ~1227 m.a.s.l. giving ~45m depth-to-centre

strike/dip ~140/35° conductance 50S

along strike/downdip 375m/60m

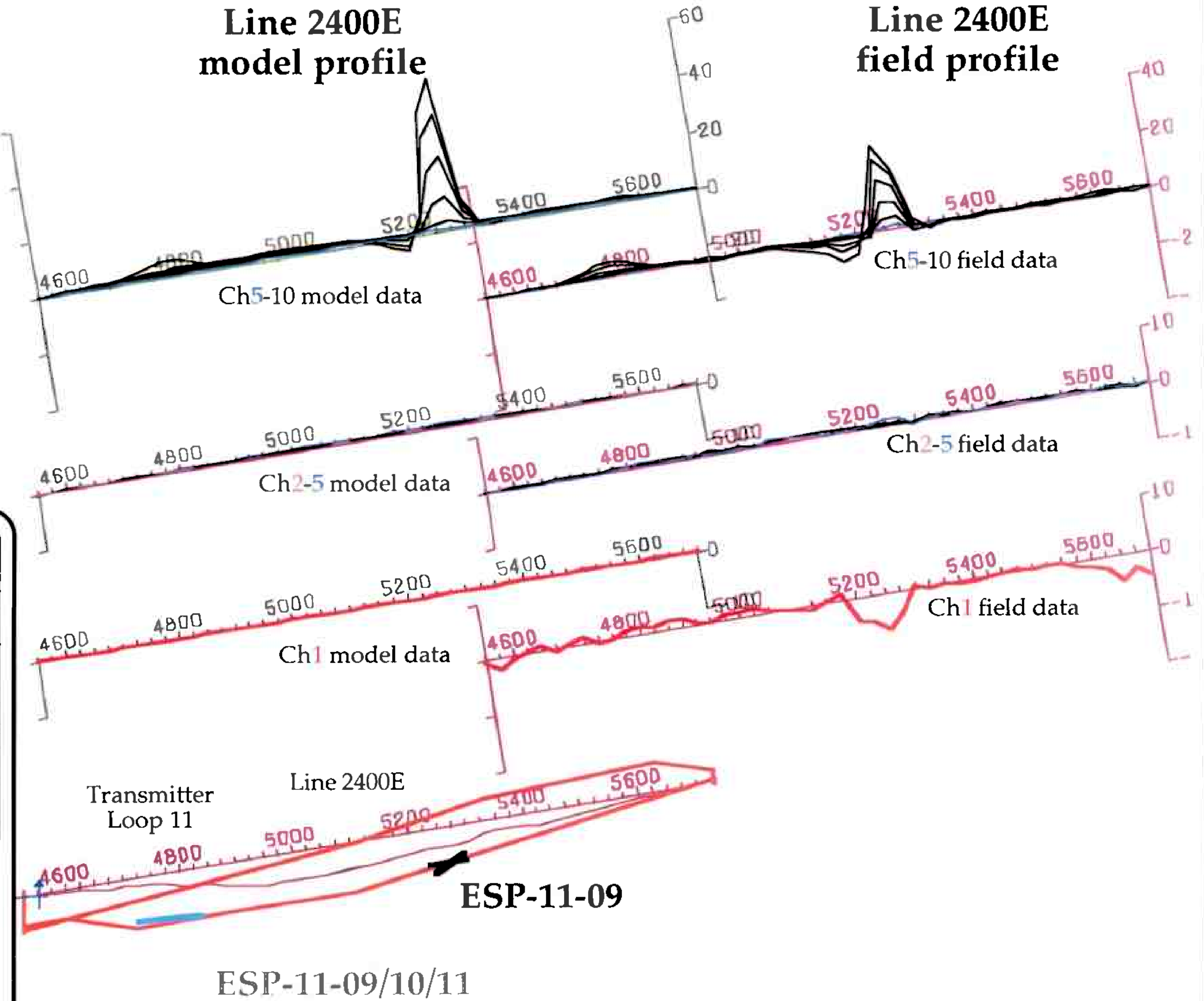
centre of conductor 2300E, 5267N, 1186 m.a.s.l. (grid coords.)

local elevation ~1227 m.a.s.l. giving ~41m depth-to-centre

strike/dip ~140/10° conductance 100S

along strike/downdip 375m/65m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.



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ESP-11-09/10/11 - Model Line 1800E

0 100 500m

Figure 11e

Conductor ESP_12_12 Line 725/800/875E ~4625N

Conductor ESP_12_12 was detected during surveying from Loop 12 and Lines 725E and 875E were added to detail the feature. The response indicates a feature that shallows from Line 725 to 800 to very shallow on Line 875E - the airborne EM survey detected the feature towards the 875E end. The Line 875E profile gridsouth of **Conductor ESP_12_12** indicates fairly resistive terrain. Gridnorth of **Conductor ESP_12_12** the earlier time-channels are raised indicating more conductive ground - possibly the presence of a weakly conductive layer. **Conductor ESP_12_12** may represent the conductivity-enhanced termination of the weakly conductive layer or it may simply be a conductor at a contacts. The sharp, shallow response on Line 875E is of interest - and may be detectable at surface ~4612-4662N - however, the best response detected was that on Loop 12 Line 800E - to Ch4/3. The Loop 12 Line 800E response was selected for MultiLoop modeling.

Modeling **Conductor ESP_12_12:** Loop 12 Line 800E Figure 12

The modeling results for Loop 12 Line 800E are shown in Figure 12 The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1200m. Two flat-lying conductive plates (pale blue in Figure 12) are positioned at ~100m and ~400m depth under the loop and gridnorth of **Conductor ESP_12_12** to model the weakly conductive layer under the loop. **Conductor ESP_12_12** is modeled with three similar plates. The details of **ESP_12_12** as modeled as listed in Figure 12 are:

centre of conductor 800E, 4665N, 1020 m.a.s.l. (grid coords.)
local elevation ~1065 m.a.s.l. giving ~45m depth-to-centre
strike/dip flat conductance 150S
along strike/downdip 150m/90m

centre of conductor 800E, 4660N, 1013 m.a.s.l. (grid coords.)
local elevation ~1064 m.a.s.l. giving ~51m depth-to-centre
strike/dip ~320/10° conductance 150S
along strike/downdip 150m/80m

centre of conductor 800E, 4670N, 1013 m.a.s.l. (grid coords.)
local elevation ~1069 m.a.s.l. giving ~56m depth-to-centre
strike/dip ~140/10° conductance 150S
along strike/downdip 150m/80m

Conductor ESP_12_12 is interpreted to be a good conductor. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is ~maximum coupled as modeled suggesting that the conductance is a reasonable maximum estimate. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

Note: The broad negative response of Ch5 on Line 875E @ **Conductor ESP_12_12** is interpreted as indicating an off-line feature - likely **Conductor ESP_12_12** as modeled above on Line 800E. The shallow response seen on line 875E is interpreted to indicate a remnant of the conductor as modeled on Line 800E.

Conductor ESP_12_12 as modeled on Line 800E

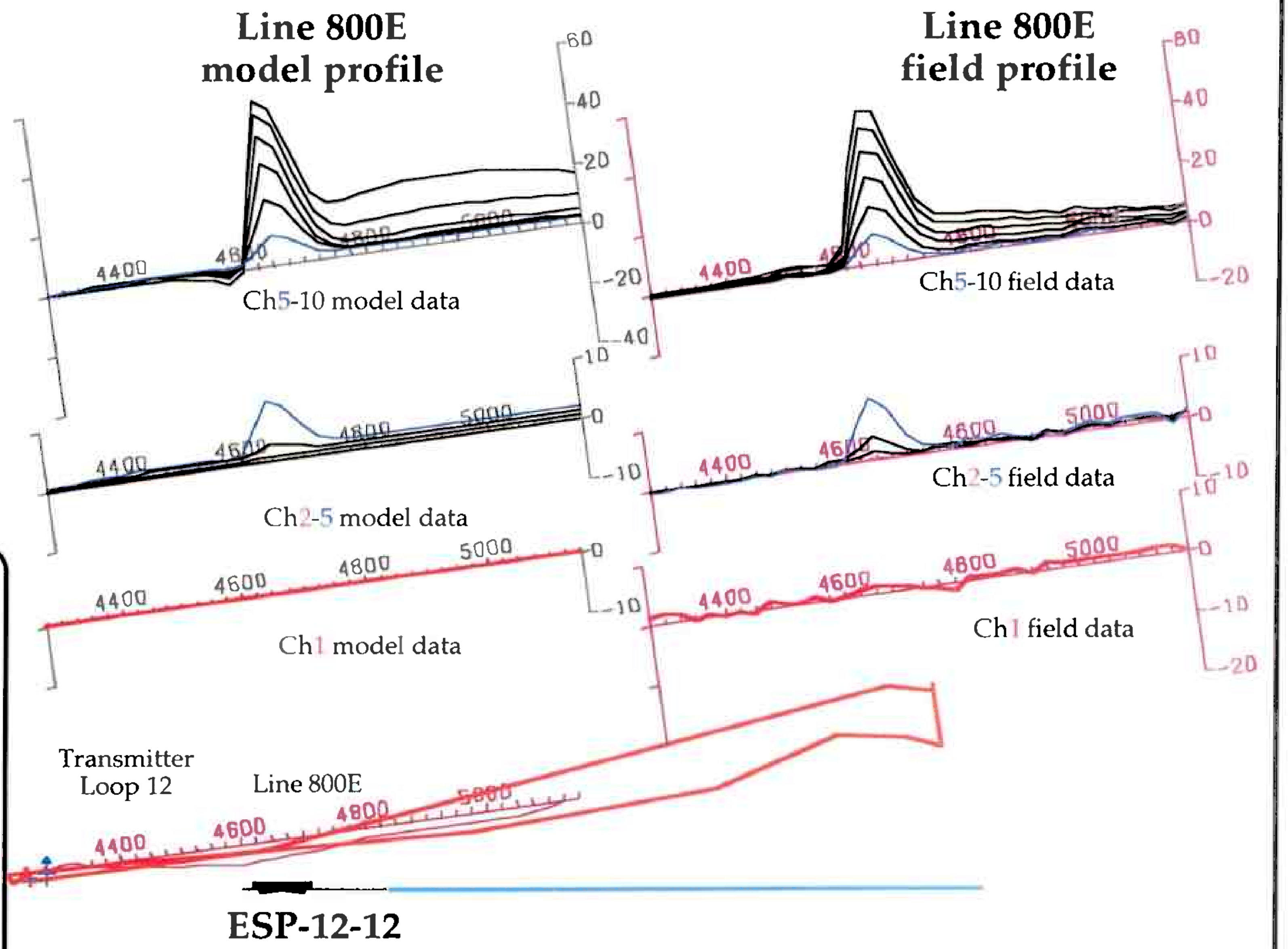
Figure 12

centre of conductor 800E, 4665N, 1020 m.a.s.l. (grid coords.)
local elevation ~1065 m.a.s.l. giving ~45m depth-to-centre
strike/dip flat conductance 150S
along strike/downdip 150m/90m

centre of conductor 800E, 4660N, 1013 m.a.s.l. (grid coords.)
local elevation ~1064 m.a.s.l. giving ~51m depth-to-centre
strike/dip ~320/10° conductance 150S
along strike/downdip 150m/80m

centre of conductor 800E, 4670N, 1013 m.a.s.l. (grid coords.)
local elevation ~1069 m.a.s.l. giving ~56m depth-to-centre
strike/dip ~140/10° conductance 150S
along strike/downdip 150m/80m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background/current channeling/local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.



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Espedalen, Norway

ESP-12-12 - Model Line 800E

0 100 500m

Figure 12

Conductor ESP_13_13 Line 101/103/113/10700E ~5800N

Conductor ESP_13_13 was detected during surveying from Loop 13. The best response detected was that on Loop 13 Line 10300E - to Ch5. The response lies between two magnetic features (Ch1 profiles). The Loop 13 Line 10300E response was selected for MultiLoop modeling.

Modeling **Conductor ESP_13_13**: Loop 13 Line 10300E Figure 13

The modeling results for Loop 13 Line 10300E are shown in Figure 13 The overall background response was modeled using a laterally extensive conductive layer at a depth of ~700m and a conductive layer under the loop at a depth of ~400m. Details of the local response are modeled using three weak conductors (pale blue in Figure 13). One weak conductor models a topographic effect - it is ~parallel to the topography and more extensive than **Conductor ESP_13_13**. A pair of weak conductors ~parallel **Conductor ESP_13_13** - one of these is more extensive laterally and down dip. Together this pair of weak conductors model the broader structure of **Conductor ESP_13_13. Conductor ESP_13_13** is modeled as an enhancement in conductivity along this feature. The details of **ESP_13_13** as modeled as listed in Figure 13 are:

centre of top edge 10300E, 5773N, 820 m.a.s.l. (grid coords.)
local elevation ~825 m.a.s.l. giving ~5m depth-to-top
strike/dip ~140/75° conductance 125S
along strike/downdip 300m/70m

centre of top edge 10300E, 5778N, 825 m.a.s.l. (grid coords.)
local elevation ~825 m.a.s.l. giving ~0m depth-to-top
strike/dip ~140/75° conductance 10S
along strike/downdip 250m/90m

centre of top edge 10300E, 5785N, 820 m.a.s.l. (grid coords.)
local elevation ~827 m.a.s.l. giving ~8m depth-to-top
strike/dip ~140/75° conductance 12S
along strike/downdip 400m/140m

centre of top edge 10300E, 5750N, 790 m.a.s.l. (grid coords.)
local elevation ~826 m.a.s.l. giving ~36m depth-to-top
strike/dip ~140/10° conductance 5S
along strike/downdip 400m/250m

Conductor ESP_13_13 is interpreted to be a fair conductor. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is ~maximum coupled as modeled suggesting that the conductance is a reasonable maximum estimate. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

Note: The response of a small response (Ch6) can be seen near the loopfront on Line 10400E @5975N just gridnorth of a magnetic feature. A weaker version of the same response, again near a magnetic feature, is evident on Line 10300E @6000N and a plate to ~model this response has been added to the above model.

Conductor ESP_13_13 as modeled on Line 10300E

Figure 13

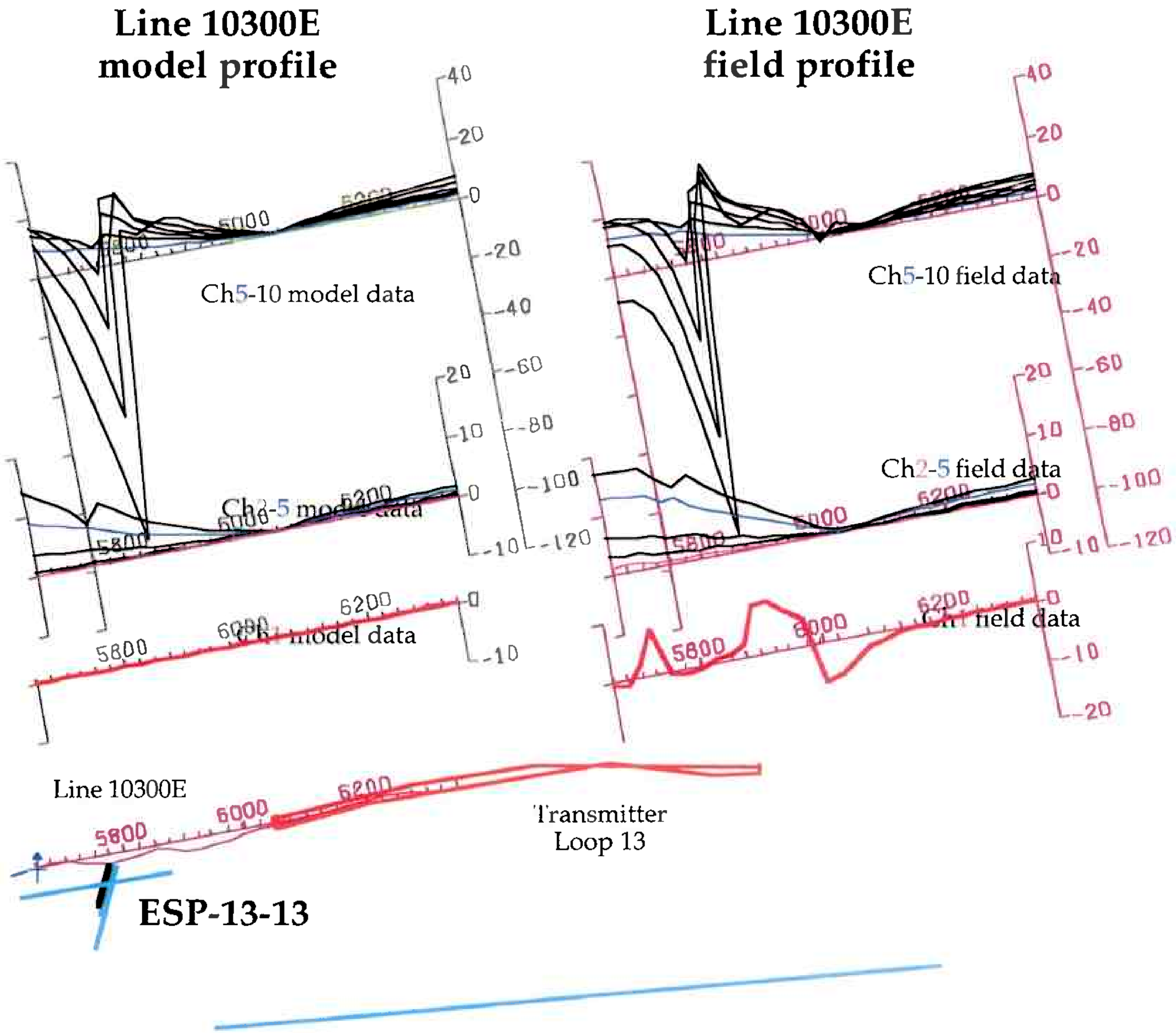
centre of top edge 10300E, 5773N, 820 m.a.s.l. (grid coords.)
local elevation ~825 m.a.s.l. giving ~5m depth-to-top
strike/dip ~140/75° conductance 125S
along strike/downdip 300m/70m

centre of top edge 10300E, 5778N, 825 m.a.s.l. (grid coords.)
local elevation ~825 m.a.s.l. giving ~0m depth-to-top
strike/dip ~140/75° conductance 10S
along strike/downdip 250m/90m

centre of top edge 10300E, 5785N, 820 m.a.s.l. (grid coords.)
local elevation ~827 m.a.s.l. giving ~8m depth-to-top
strike/dip ~140/75° conductance 12S
along strike/downdip 400m/140m

centre of top edge 10300E, 5750N, 790 m.a.s.l. (grid coords.)
local elevation ~826 m.a.s.l. giving ~36m depth-to-top
strike/dip ~140/10° conductance 5S
along strike/downdip 400m/250m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.



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ESP-13-13 - Model Line 10300E

0 100 500m

Figure 13

.**Conductor ESP_14_14** Line 111/11200E ~6350-6400N

Conductor ESP_14_14 was detected during surveying from Loop 14 on both of the lines surveyed from Loop 14. A rough MultiLoop model was made of **Conductor ESP_14_14** - not all details of the response were modeled. The location of **Conductor ESP_14_14** is marked on Figure 4 but the roughly modeled plates are not.

Modeling **Conductor ESP_14_14**: Loop 14 Line 111/11200E Figure 14

The preliminary modeling results for Loop 14 Line 11400E are shown in Figure 14. The overall background response was modeled using a laterally extensive conductive layer at a depth of ~800m The response is modeled using two conductors (Figure 14) Details of the **Conductor ESP_14_14** preliminary model as listed in Figure 14 are:

centre of top edge 11100E, 6400N, 946 m.a.s.l. (grid coords.)
local elevation ~952 m.a.s.l. giving ~6m depth-to-top
strike/dip ~105/50° conductance 200S
along strike/downdip 75m/30m

centre of top edge 11200E, 6350N, 946 m.a.s.l. (grid coords.)
local elevation ~938.5 m.a.s.l. giving ~49m depth-to-top
strike/dip ~140/05° conductance 125S
along strike/downdip 200m/50m

Conductor ESP_14_14 is interpreted to be fair-to-good conductor. Further modeling would be required if this conductor is considered a drill target. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is slightly less than maximum as modeled suggesting that the conductance is a reasonable ~maximum estimate. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

Conductor ESP_14_14 as modeled on Line 111/11200E

Figure 14

centre of top edge 11100E, 6400N, 946 m.a.s.l. (grid coords.)

local elevation ~952 m.a.s.l. giving ~6m depth-to-top

strike/dip ~105/50° conductance 200S

along strike/downdip 75m/30m

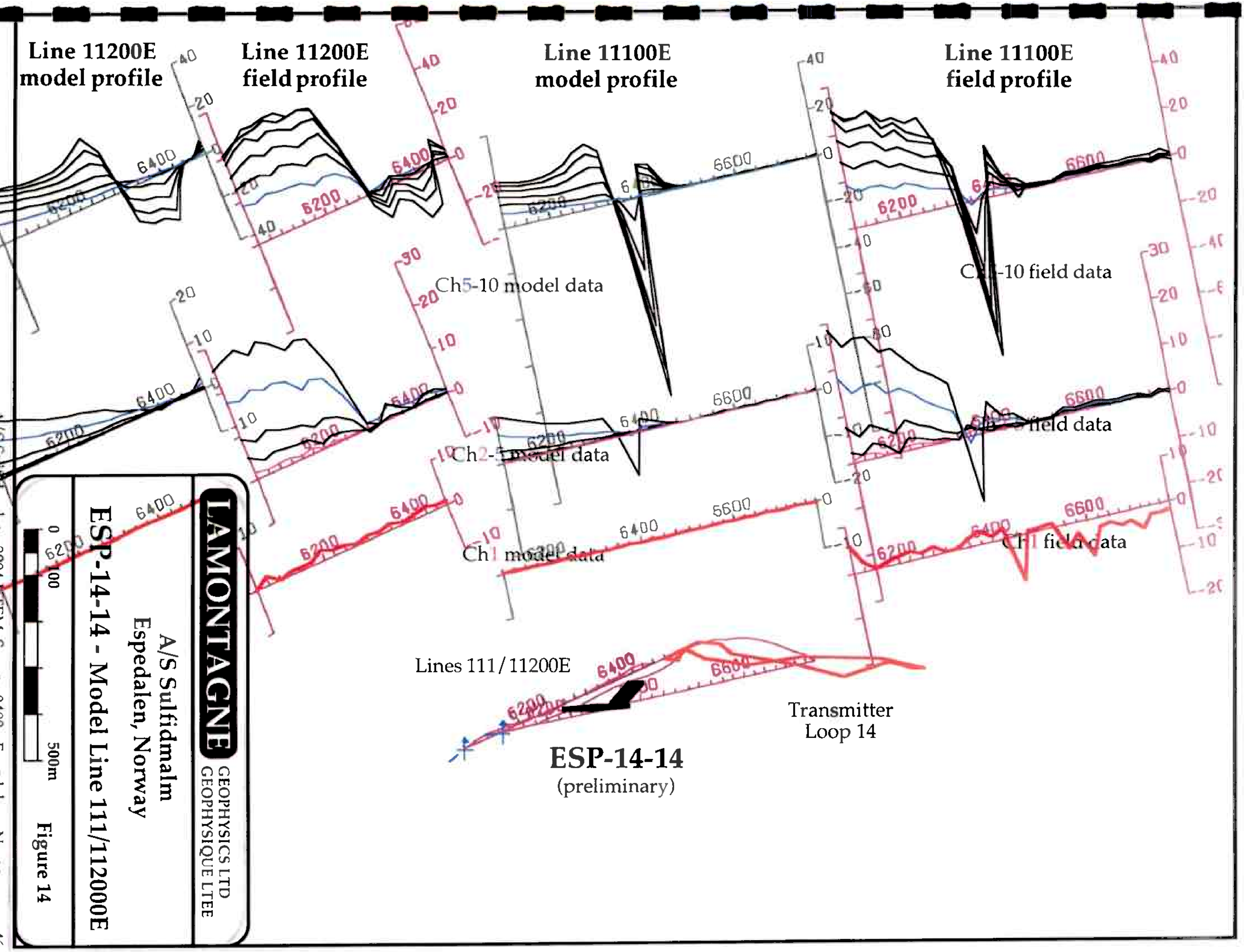
centre of top edge 11200E, 6350N, 946 m.a.s.l. (grid coords.)

local elevation ~938.5 m.a.s.l. giving ~49m depth-to-top

strike/dip ~140/05° conductance 125S

along strike/downdip 200m/50m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is well-coupled but not maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background/current channeling/local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.



Line 11200E
model profile
Line 11200E
field profile
Line 11100E
model profile
Line 11100E
field profile
Ch5-10 model data
Ch2-5 model data
Ch1 model data
field data
Ch1 field data
6200
6400
6600
40
20
0
-20
-40
30
10
-10
Lines 111/11200E
Transmitter
Loop 14
ESP-14-14
(preliminary)
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
A/S Sulfidmalm
Espedalen, Norway
ESP-14-14 - Model Line 111/11200E
0
100
500m
Figure 14

Conductor ESP_15_15 Line 75/76/77/7800E ~4400N

Conductor ESP_15_15 was detected during surveying from Loop 15. Several points should be noted about the surveying of Loop 15:

- Espedalsvarnet does not freeze well in the area of this grid - there is often open water near the islands. As a result the loop was laid out entirely on the southwest side of the lake and surveying was carried out on the northeast shore side from the lake edge up.
- all of the survey lines (except the detail Line 7600E) cross the powerline that parallels the main road through Espedalen (Figures 2, 3 and 4) - a powerline response can be seen on the profiles

The **Conductor ESP_15_15** response improves markedly @ Line 7700 and the response on this line was therefore chosen for modeling.

Modeling **Conductor ESP_15_15**: Loop 16 Line 7700E Figure 15

The modeling results for Loop 15 Line 7700E are shown in Figure 16. The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1200m. The **Conductor ESP_15_15** response indicates a more-conductive core and it is modeled using two ~parallel plates - the weaker one more extensive both laterally and downdip than the more conductive one. Details of **Conductor ESP_15_15** as modeled as listed in Figure 15 are:

centre of top edge 7675E, 4383N, 710 m.a.s.l. (grid coords.)
local elevation ~724 m.a.s.l. giving ~14m depth-to-top
strike/dip ~320/05° conductance 800S
along strike/downdip 125m/65m

centre of top edge 7675E, 4356N, 705 m.a.s.l. (grid coords.)
local elevation ~724 m.a.s.l. giving ~19m depth-to-top
strike/dip ~320/05° conductance 50S
along strike/downdip 150m/150m

Conductor ESP_15_15 is interpreted to be good conductor of short strike length. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is ~maximum as modeled suggesting that the conductance is a reasonable ~maximum estimate. On the other hand note that the modeling is based primarily on one line - conductance could improve (very) locally on either side of Line 7700E but the size is constrained by the flanking lines. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

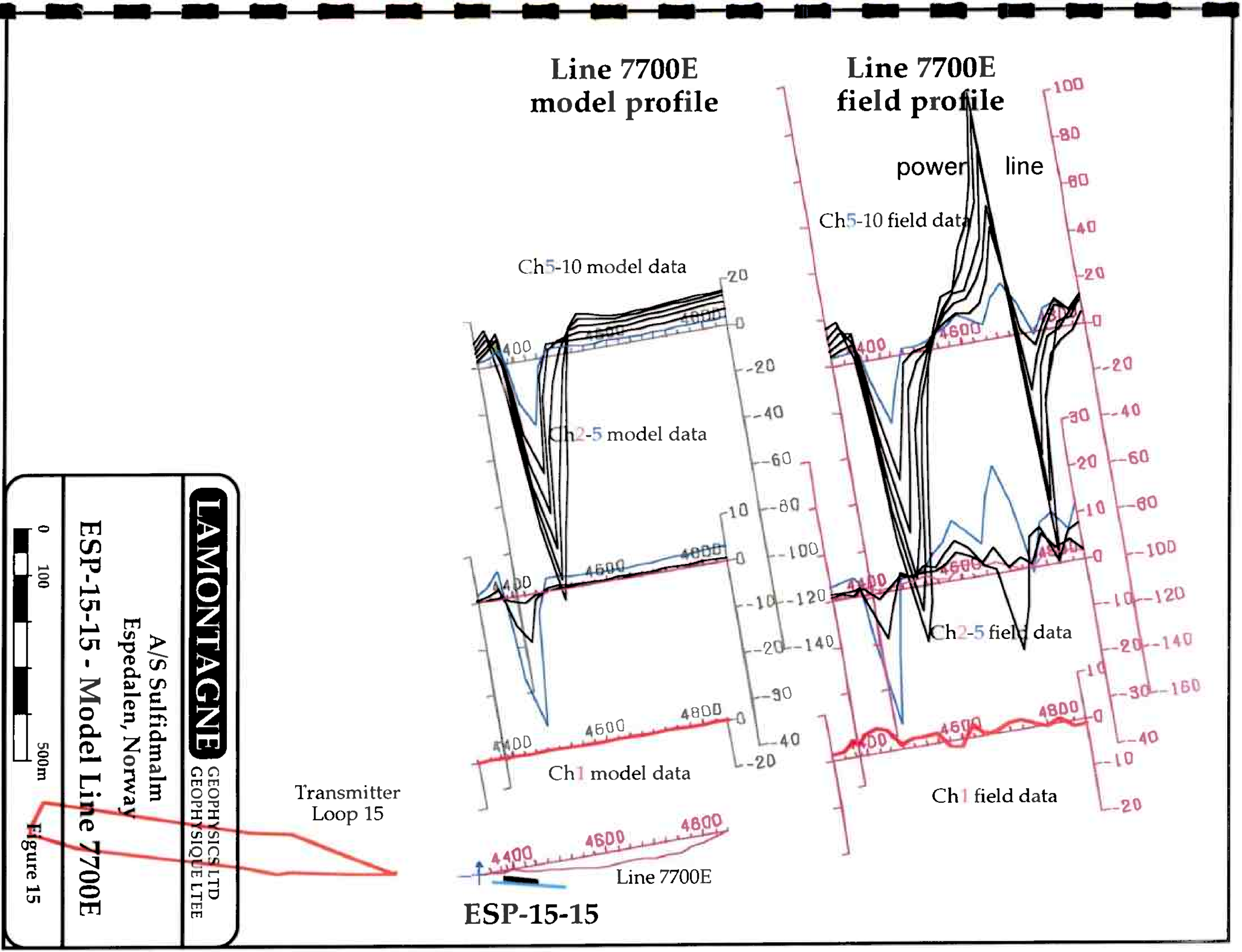
Conductor ESP_15_15 as modeled on Line 7700E

Figure 15

centre of top edge 7675E, 4383N, 710 m.a.s.l. (grid coords.)
local elevation ~724 m.a.s.l. giving ~14m depth-to-top
strike/dip ~320/05° conductance 800S
along strike/downdip 125m/65m

centre of top edge 7675E, 4356N, 705 m.a.s.l. (grid coords.)
local elevation ~724 m.a.s.l. giving ~19m depth-to-top
strike/dip ~320/05° conductance 50S
along strike/downdip 150m/150m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is ~maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.


Line 7700E
model profile
Line 7700E
field profile
power line
Ch5-10 field data
Ch5-10 model data
Ch2-5 model data
Ch2-5 field data
Ch1 model data
Ch1 field data
Transmitter
Loop 15
Line 7700E
ESP-15-15
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
A/S Sulfidmalm
Espedalen, Norway
ESP-15-15 - Model Line 7700E
Figure 15
0 100 500m

Conductor ESP_16_16 Line 80/82/84/85/86/8800E ~2800N

Conductor ESP_16_16 was detected during surveying from Loop 16. A short-wavelength magnetic response tracks the feature - see for example Ch1 @Line 8400E 2825N. The best response is on Lines 8400E and 8600E and on Line 8500E - a detail line added to better define the feature.

The overall best **Conductor ESP_16_16** response detected - to Ch3 - is that on Loop 16 Line 8500E - in part because it is flanked on both sides by ~significant responses. The Line 8600E response is a very close second. The Loop 16 Line 8500E response was selected for MultiLoop modeling.

Modeling **Conductor ESP_16_16**: Loop 16 Line 8500E Figure 16

The modeling results for Loop 16 Line 8500E are shown in Figure 16. The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1200m. The **Conductor ESP_16_16** response indicates a more-conductive core and it is modeled using two ~parallel plates - the weaker one more extensive both laterally and downdip than the more conductive one. Details of **Conductor ESP_16_16** as modeled as listed in Figure 16 are:

centre of top edge 8500E, 2810N, 988 m.a.s.l. (grid coords.)
local elevation ~1011 m.a.s.l. giving ~23m depth-to-top
strike/dip ~320/45° conductance 600S
along strike/downdip 250m/65m

centre of top edge 8500, 2800N, 990 m.a.s.l. (grid coords.)
local elevation ~1011 m.a.s.l. giving ~21m depth-to-top
strike/dip ~320/45° conductance 40S
along strike/downdip 600m/100m

Conductor ESP_16_16 is interpreted to be good conductor. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is slightly less than maximum as modeled suggesting that the conductance is a reasonable ~maximum estimate. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

Note: Because the response on Line 8600E was very close to that of Line 8500E a quick model was done for **Conductor ESP_16_16** on Line 8600E and this is included in the suite of MultiLoop models on the accompanying CD. A rough model of the weak conductor (~50S) detected inside-the-loop (Line 8400 @2275 for example) is also in this additional model.

Conductor ESP_16_16 as modeled as modeled on Line 8500E

Figure 16

entre of top edge 8500E, 2810N, 988 m.a.s.l. (grid coords.)

local elevation ~1011 m.a.s.l. giving ~23m depth-to-top

strike/dip ~320/45° conductance 600S

along strike/downdip 250m/65m

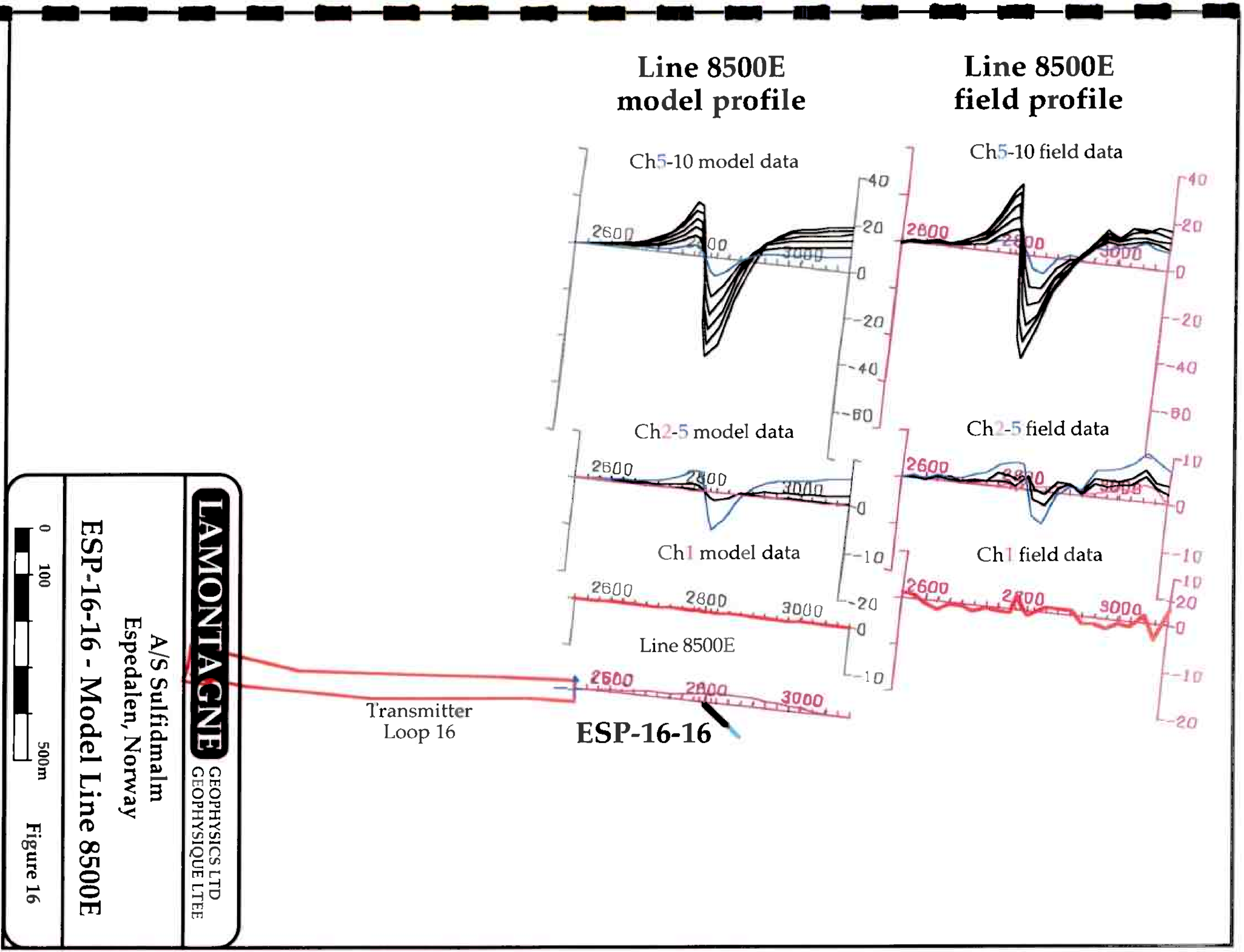
centre of top edge 8500, 2800N, 990 m.a.s.l. (grid coords.)

local elevation ~1011 m.a.s.l. giving ~21m depth-to-top

strike/dip ~320/45° conductance 40S

along strike/downdip 600m/100m

Notes:
- view is looking gridwest (~320)
- conductor as modeled is well-coupled but not maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background/current channeling/local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.


Line 8500E
model profile
Line 8500E
field profile
Ch5-10 model data
Ch5-10 field data
Ch2-5 model data
Ch2-5 field data
Ch1 model data
Ch1 field data
Line 8500E
2600
2800
3000
40
20
0
-20
-40
-60
10
-10
Transmitter
Loop 16
ESP-16-16
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
A/S Sulfidmalm
Espedalen, Norway
ESP-16-16 - Model Line 8500E
0
100
500m
Figure 16

Conductor ESP_17_17 Line 112/114/116/11800E ~2950N

Conductor ESP_17_17 was detected during surveying from Loop 17. The best responses are on Lines 11400E, 11600E and 11800E. Note that the conductor strikes ~30° to grideast-west - the conductors as modeled have a strike azimuth of 290.

The overall best **Conductor ESP_17_17** response detected - to Ch2 - is that on Loop 17 Line 11400E and this response was selected for MultiLoop modeling.

Modeling **Conductor ESP_17_17**: Loop 17 Line 11400E Figure 17

The modeling results for Loop 17 Line 11400E are shown in Figure 17. The overall background response was modeled using a laterally extensive conductive layer at a depth of ~1300m and a weakly conductive layer at a depth of ~800m. Details of the local response are modeled using two weaker, laterally more extensive conductors (pale blue in Figure 17) - one ~parallel to the conductor and a second more steeply dipping. **Conductor ESP_05_03** is modeled as an enhancement along a conductive horizon. Details of **Conductor ESP_17_17** as modeled as listed in Figure 17 are:

centre of top edge 11400E, 2970N, 965 m.a.s.l. (grid coords.)
local elevation ~984.5 m.a.s.l. giving ~20m depth-to-top
strike/dip ~290/35° conductance 3500S
along strike/downdip 75m/30m

centre of top edge 11400E, 2960N, 970 m.a.s.l. (grid coords.)
local elevation ~987 m.a.s.l. giving ~17m depth-to-top
strike/dip ~290/35° conductance 150S
along strike/downdip 200m/50m

centre of top edge 11500E, 2935N, 980 m.a.s.l. (grid coords.)
local elevation ~993 m.a.s.l. giving ~13m depth-to-top
strike/dip ~290/65° conductance 50S
along strike/downdip 275m/75m

Conductor ESP_17_17 is interpreted to be good-to-excellent conductor. It should be evaluated in comparison with other known features in the Espedalen area. Primary field coupling is slightly less than maximum as modeled suggesting that the conductance is a reasonable ~maximum estimate. The small size of the most-conductive plate means that the error in the conductance estimate is large. Increasing the strike length of the modeled body would act to lower the conductance somewhat.

Note: Because the response on Line 11600E was close to that of Line 11400E a quick model was done for **Conductor ESP_17_17** on Line 11400E and this is included in the suite of MultiLoop models on the accompanying CD.

Conductor ESP_17_17 as modeled on Line 11400E

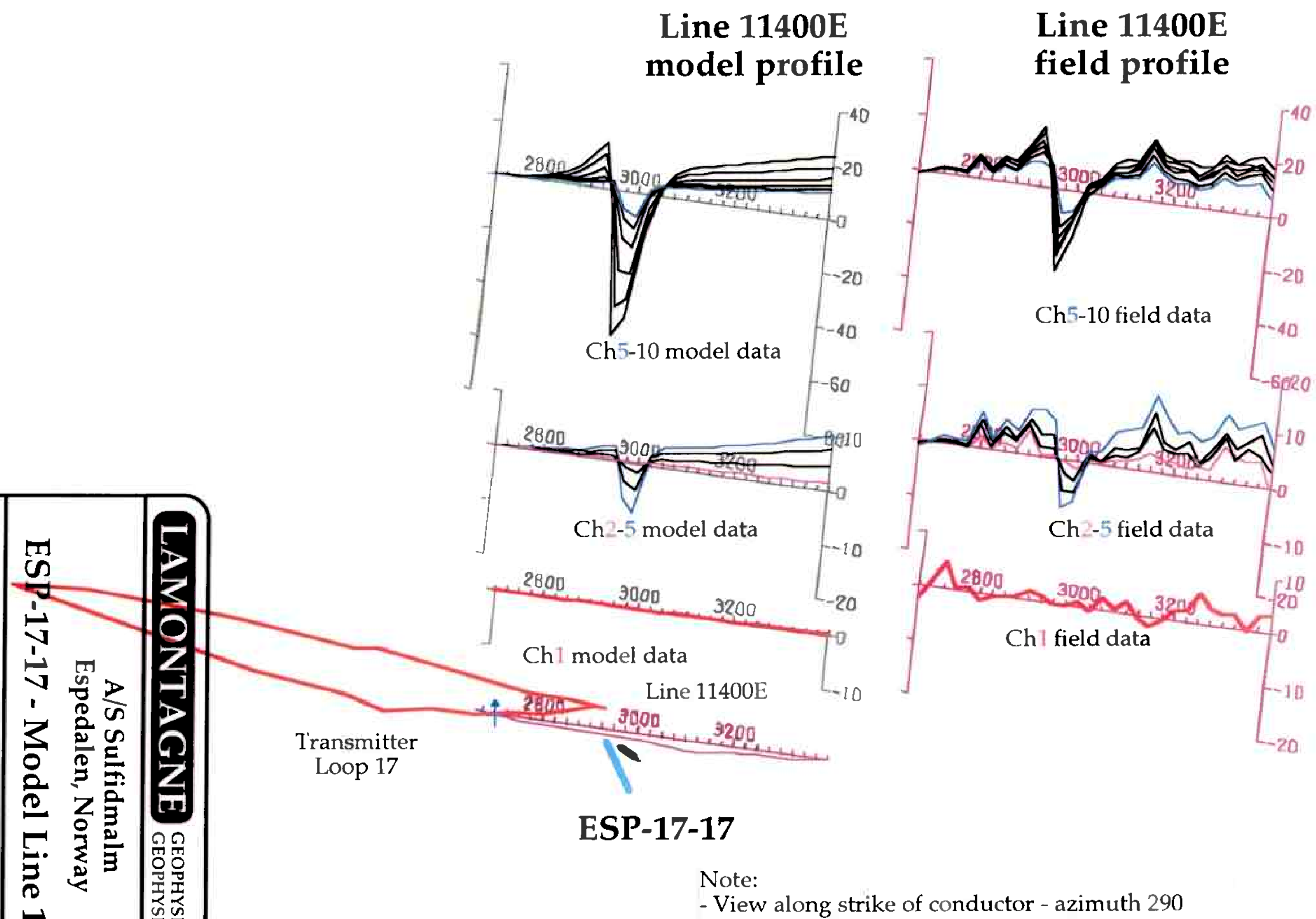
Figure 17

centre of top edge 11400E, 2970N, 965 m.a.s.l. (grid coords.)
local elevation ~984.5 m.a.s.l. giving ~20m depth-to-top
strike/dip ~290/35° conductance 3500S
along strike/downdip 75m/30m

centre of top edge 11400E, 2960N, 970 m.a.s.l. (grid coords.)
local elevation ~987 m.a.s.l. giving ~17m depth-to-top
strike/dip ~290/35° conductance 150S
along strike/downdip 200m/50m

centre of top edge 11500E, 2935N, 980 m.a.s.l. (grid coords.)
local elevation ~993 m.a.s.l. giving ~13m depth-to-top
strike/dip ~290/65° conductance 50S
along strike/downdip 275m/75m

Notes:
- view is looking along the strike of the conductor - ~290.
- conductor as modeled is well-coupled but not maximum coupled.
- locations are listed in Grid coordinates - refer to GPS notes for UTM locations.
- conductors shown in light blue model the background / current channeling / local response in the vicinity of the conductor.
- the overall background response.in modeled by conductors (laterally extensive, centred under loop) at depth.



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GEOPHYSIQUE LTEE

A/S Sulfidmalm
Espedalen, Norway

ESP-17-17 - Model Line 11400E

0 100 500m

Figure 17

Conclusions and Recommendations

The results of the survey are summarized and presented as UTEM profiles in Appendix A. Overall the data quality is good and a number of conductive features are evident. The final Grid and Loop Locations are presented in Figure 2 and an interpretation is presented as Interpreted Features (Figure 3) and Interpretation (Figure 4). There are a number of responses of considerable interest - although no clear Ch1 conductors have been delineated.

Features outlined are mainly contacts, shallow conductors and thin conductive zones - geological units and structural features. The pattern of responses outlined in Figures 3 and 4 fits the map pattern of the geological mapping and pattern of airborne EM conductors. In general the airborne EM detected shallower features or the shallowest occurrence of deeper features. There is also a reasonable correlation between the airborne magnetics and UTEM Ch1 features interpreted as magnetic in origin. This indicates that field location of the grids was sufficiently accurate to cover the target geology.

The profiles presented in Appendix A have been reduced with a grid corrected as well as possible using available information. The location of all survey points and loop locations were collected using a GPS system. For reference GPS collection for UTEM reduction should be more detailed along loop fronts. The goal along the loop front - and loop sides/back - is to recover the topographic shape of the loop as well as the loop/line intersection points.

As in the 2003 UTEM survey the responses of interest are generally an enhancement of conductivity along a conductive horizon/contact/structure. The profiles were examined by Falconbridge personnel and a number - 14 or 15 - were selected for MultiLoop modeling. The results of the modeling are presented in the Interpretation section and the reader is directed there and to the accompanying CD for specific details. A summary follows in which the modeled features and the 2003 modeled features - in total 17 features - are grouped into one of four categories:

good-to-excellent	- >1000S	**Conductors 01,07,08,17**
good	- 400-1000S	**Conductors 03,04,15,16**
fair-to-good	- 150-400S	**Conductors 02,05,06,09/10/11,12,14**
fair	- <150S	**Conductor 13**

Note that some adjustment was made to allow for size - a large feature moving up a category, a small feature moving down. The features are listed on the following page in numerical order - no ranking of **Conductors** within a group has been done.

In conclusion - the UTEM survey and subsequent MultiLoop modeling have resulted in a number of **Conductors** of interest. These are generally an enhancement of conductivity along a conductive feature. Several of the **Conductors** of interest come to surface - allowing for field examination.- and several have been mined/are related to old mine workings. Following a surface examination of the shallower **Conductors** a drill program to test a number of the **Conductors** would seem to be in order.

Conductor - good-to-excellent (>1000S)

	ESP_04_01 - 2000S		
2003 Report	Loop 04	Line 5200E	1760N
	ESP_09_07 - 1500S		
Figure 9	Loop 09	Line 4800/5000E	5200N
	ESP_10_08 - 400S+ (large feature)		
Figure 10	Loop 10/18	Line 35/36/3700E	6300N
	ESP_17_17 - 3500S		
Figure 17	Loop 17	Line 11400E	2950N

Conductor - good (400-1000S)

	ESP_05_03 - 500S		
Figure 5	Loop 05	Line 8000E	6075N
	ESP_05_04 - 500S		
Figure 6	Loop 05	Line 8200E	5825N
	ESP_15_15 - 800S		
Figure 15	Loop 15	Line 7700E	4400N
	ESP_16_16 - 600S		
Figure 16	Loop 16	Line 8500E	2825N

Conductor - fair-to-good 150-400S)

	ESP_04_02 - 200S		
2003 Report	Loop 02	Line 3100E	1975N
	ESP_08_05 - 300S		
Figure 7a	Loop 08	Line 5600E	6100N
	ESP_08_06 - 400S)		
Figure 8	Loop 08	Line 5200E	5775N
	ESP_11_09/10/11 - up to 160S		
Figure 11b,c	Loop 11	Line 18/1900E	5100N
Figure 11d	Loop 11	Line 2100E	4850N
Figure 11e	Loop 11	Line 2400E	5250N
	ESP_12_12 - 450S		
Figure 12	Loop 12	Line 800E	4625N
	ESP_14_14 - 325S		
Figure 14	Loop 14	Line 11100/11200E	6350N

Conductor - fair (<150S)

	ESP_13_13 - 125S		
Figure 13	Loop 13	Line 10300E	5775N

In terms of logistics the survey ran very smoothly and the crew supplied by Falconbridge was excellent and is thanked for their efforts. Several small points should be noted for future surveys:

- Rectangular transmitter loops work very well and are recommended. Transmitter loops, however, can take any shape and take advantage of/be fit to trails and topography. Factors to consider in setting out a uniquely-shaped transmitter loop:
  - will the primary field be well-coupled to potential targets?
  - can the loop be safely laid out and picked up?
  - can the loop be accurately GPS surveyed?
  - avoid UTEM surveying close to (say within 3-400m of) "uniquely" shaped sidewires. Errors in location can superimpose the shape on Ch1.

- If the same generator is to be used on future surveys it should be rigged with a larger gas tank. The small-volume gas tank currently on the generator required filling 2-3 times a survey day. With communication difficult in times due to terrain this was a constant minor problem.

- On lengthy jobs in difficult terrain such as this one it is advisable to build in a scheduled break for all crew members. Based on our experience with the weather from 2003 it was assumed some down time would occur - it did not. The crew was pretty well beat at the end of the survey.

- Use of a heavier gauge wire on future survey could be considered.
  As noted above: during this survey a double strand of wire was laid along one side of the loop. In practice it requires a considerable additional effort to lay/retrieve double strands of wire. The total loop resistance is lowered, however, allowing a higher transmitter current. Signal-to-noise is improved, less stacking is required and surveying proceeds more quickly. Data quality would improve in areas of high noise - along certain geologic structures and near powerlines.

Legend

more resistive

- Contact (well / poorly defined)

more conductive

- thin conductive / resistive zone

1 60
5 S
7 ?

Location of conductor axis
egs. - latest response Ch1 depth-to-top 60m
- latest response Ch5 shallow (<50m)
- latest response Ch7 unclear

5 80 - Contact conductor

- Block conductor
well defined / weaker section / poorly defined

- conductor offline

- Modeled Conductor (ESPedalen)
eg. ESP_05_03 = conductor #03 on Loop 05
details as noted in Figures

Mm / P / ? - Magnetic feature / powerline / ?

- connection (well / poorly defined

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Espedalen, Norway

Interpretation Legend

Figure 18

Appendix A

0408 UTEM Profiles

UTEM 3 Survey

Espedalen
Norway

for

A/S Sulfidmalm

Presentation

The results of the survey are summarized and presented as UTEM profiles in Appendix A. The final grid and Loop Locations are presented in Figures 2. Overall the data quality is good and a number of conductors and/or conductive features are evident. Moderate-to-severe noise levels to the gridnorth of lines surveyed from Loops 05 through 12 reflect the presence of a regional powerline beyond the end of the lines. A description of the standard plotting formats used and of the UTEM System is presented in Appendix C.

The profiles are listed by Loop number and presented as 3-axis profiles in the order:

Hz continuous norm *Ch1 reduced* **(blue separator)**
Hz point normalized *Ch1 reduced* **(pink separator)**

Outline of profile types

Hz continuous norm *Ch1 reduced* **(blue separator)**

Continuous normalization is useful for detection of the presence anomalies at any position on a profile. The anomaly shape is distorted by the normalization to the local field. As the field gets very big near the wire the continuously normalized Ch1 tend towards zero.

top axis - Ch5-10
middle axis - Ch2-5
bottom axis - Ch1
bottom axis - topography - no vertical exaggeration

Hz point normalized *Ch1 reduced* **(pink separator)**

normalization point: all data ~300m out from the loop-front centre

Point normalized data is useful for interpretation of responses. Anomaly shape is preserved as is the amplitude if the normalization point is local to the anomaly.

All data has been point normalized to a the field at a point ~300m out from the centre of the loop front. Note that this field value is intermediate and it was chosen because the survey was roughly half inside-the-loop and half off-loop. Normalizing to an intermediate point allows the interpretation of responses along the entire line. The amplitude of responses close to (**further from**) the loop front will be blown up (**muted**). Note: Typically the normalization point for off-loop profiles is 4-500m out from the centre of the loop front and for inside-the-loop profiles it is the loop centre.

The disadvantage of point normalization is that small errors in location near the wire and in current tend to appear as large errors in Ch1. If the loop/station locations and the current are accurately known then point normalized Ch1 (in the absence of a local conductor) will tend to be continuous approaching the wire - unlike the continuously normalized Ch1 which, as described above, will dip to zero.

top axis - Ch5-10
middle axis - Ch2-5
bottom axis - Ch1
bottom axis - topography - no vertical exaggeration

Notes on Survey and Presentation/plotting details

- Please note the scales and the range on scale on all plots. Scales should be the same for a given loop/normalization. An effort has been to keep the scales consistent from loop-to-loop. Note that due a powerline crossing the lines surveyed from Loop 15 (Dalin) the uppermost axis range on the continuously normalized data is from +100--100.

- An effort has been to keep the scales consistent. The horizontal scale is 1cm:100m. Three lines from Loop 11 could not be fit on a letter-sized page at this scale. These profiles are presented split in two with considerable overlap as follows:

Loop 11	Line 2200E	4250N - 6850N	most of the coverage
		5725N - 7100N	off-loop coverage
	Line 2400E	4375N - 6825N	most of the coverage
		5725N - 7200N	off-loop coverage
	Line 2600E	4450N - 6850N	most of the coverage
		5725N - 7200N	off-loop coverage

- Lines added to 200m line coverage to detail conductors:

Loop 07	Line 6500E	Loop 12	Line 0725E
Loop 09.10	Line 3900E		Line 0875E
	Line 4000E	Loop 13	Line 10200E
	Line 4100E		Line 10400E
	Line 4200E	Loop 15	Line 7500E
Loop 10/18	Line 3500E		Line 7600E
	Line 3700E	Loop 16	Line 8500E
Loop 11	Line 1900E		
	Line 2100E		

- A short-strike-length feature detected by the airborne survey in the vicinity of Lines 2600/2800E ~5800N was covered from the south edge of Loop 18 - designated as Loop 18S. These profiles are separated from the general coverage from Loop 18 and are presented after the Loop 18 profiles as Loop 18S profiles. A few stations near the feature were missed during surveying - in part due to high winds and very limited visibility. To ensure adequate coverage a 300m profile across it was surveyed from Loop 11 - 5725N - 6025N.

- Loop 09.10 (listed between Loops 9 and 10) combined Loops 09 and 10 into a large loop in order to detail a small features near Strogruva (Line 4000E ~5200N). The feature is located close to a sidewire of either loop and it was felt that loop/station geometry would be less of a factor with the larger loop - no sidewires would fall in the vicinity of the detailing.

- A traverse across the powerline was carried out on Loop 18 Line 2800E. The third receiver was employed in the process and very long readings were required. At ~17:00 both receivers in use on this line were stacking close to the powerline and both overloaded at the same time indicating a distinct change in the powerline transmission characteristics/levels. The receiver gain could not be set at any reasonable level and the surveying was halted. Fluctuations like this would account for variations in data quality from line-to-line approaching the powerline. In practice coverage approaching the powerline was limited by noise levels and the stacking required Note: @3.2Hz a 1K/2K stack takes ~15/30 minutes.

List of Data Collected and Plotted

Espedalen 2004 Grid

Surface coverage - @ 3.251 Hertz

	Line	coverage	
Loop 05	Line 7600E	5500N - 6325N	825m
	Line 7800E	5500N - 6900N	1400m
	Line 8000E	5500N - 6900N	1400m
	Line 8200E	5500N - 6900N	1400m
	Line 8400E	5500N - 6900N	1400m
	Line 8600E	5500N - 6900N	1400m
	Line 8800E	5500N - 6900N	1400m
	Line 9000E	5500N - 6325N	825m
		Loop 05 Total	10050m
Loop 06	Line 6800E	5400N - 6325N	925m
	Line 7000E	5500N - 6900N	1400m
	Line 7200E	5500N - 6900N	1400m
	Line 7400E	5500N - 6900N	1400m
	Line 7600E	5500N - 6900N	1400m
		Loop 06 Total	6525m
Loop 07	Line 6000E	4900N - 6050N	1150m
	Line 6200E	5000N - 7200N	2200m
	Line 6400E	4925N - 7200N	2275m
	Line 6500E	5025N - 6050N	1025m
	Line 6600E	4950N - 7200N	2250m
	Line 6800E	5200N - 7200N	2000m
		Loop 07 Total	10900m
Loop 08	Line 5000E	4900N - 5900N	1000m
	Line 5200E	4900N - 7200N	2300m
	Line 5400E	4900N - 7200N	2300m
	Line 5600E	4900N - 7200N	2300m
	Line 5800E	4900N - 7200N	2300m
	Line 6000E	5900N - 7200N	1300m
		Loop 08 Total	11500m
Loop 09	Line 4000E	4900N - 7200N	2300m
	Line 4200E	4900N - 7200N	2300m
	Line 4400E	4900N - 7200N	2300m
	Line 4600E	4900N - 7200N	2300m
	Line 4800E	4900N - 7200N	2300m
	Line 5000E	4900N - 7200N	2300m
		Loop 09 Total	13800m

	Line	coverage	
Loop 09.10	Line 3900E	5100N - 5400N	300m
	Line 4000E	5075N - 5400N	325m
	Line 4100E	5100N - 5450N	350m
	Line 4200E	5050N - 5450N	400m
		Loop 09.10 Total	1375m
Loop 10	Line 2800E	6000N - 7150N	1150m
	Line 3000E	4900N - 7150N	2250m
	Line 3200E	4900N - 7150N	2250m
	Line 3400E	4900N - 7150N	2250m
	Line 3500E	6000N - 6900N	900m
	Line 3600E	4900N - 7150N	2250m
	Line 3700E	6000N - 6850N	850m
	Line 3800E	4900N - 7150N	2250m
		Loop 10 Total	14150m
Loop 11	Line 1800E	4250N - 6850N	2600m
	Line 1900E	4525N - 5725N	1200m
	Line 2000E	4250N - 6850N	2600m
	Line 2100E	4525N - 5725N	1200m
	Line 2200E	4250N - 7100N	2850m
	Line 2400E	4375N - 7200N	2825m
	Line 2600E	4450N - 7200N	2750m
	Line 2800E	5725N - 6025N	300m
		Loop 11 Total	16325m
Loop 12	Line 0600E	4250N - 5150N	900m
	Line 0725E	4450N - 4950N	500m
	Line 0800E	4250N - 5150N	900m
	Line 0875E	4450N - 4950N	500m
	Line 1000E	4250N - 6600N	2350m
	Line 1200E	4250N - 6600N	2350m
	Line 1400E	4250N - 6600N	2350m
	Line 1600E	4250N - 6800N	2550m
		Loop 12 Total	12400m
Loop 13	Line 10100E	5650N - 6050N	400m
	Line 10200E	5850N - 6050N	200m
	Line 10300E	5650N - 6350N	700m
	Line 10400E	5850N - 6050N	200m
	Line 10500E	5650N - 6350N	700m
	Line 10700E	5650N - 6800N	1150m
		Loop 13 Total	3350m

	Line	coverage	
Loop 14	Line 11100E	6100N - 6800N	700m
	Line 11200E	6050N - 6500N	450m
		Loop 14 Total	1150m
Loop 15	Line 7300E	4250N - 4850N	600m
	Line 7500E	4325N - 4850N	525m
	Line 7600E	4290N - 4490N	200m
	Line 7700E	4325N - 4850N	525m
	Line 7900E	4450N - 4850N	400m
	Line 8100E	4550N - 4850N	300m
		Loop 15 Total	2550m
Loop 16	Line 8000E	2000N - 3200N	1200m
	Line 8200E	2000N - 3200N	1200m
	Line 8400E	2000N - 3200N	1200m
	Line 8500E	2525N - 3100N	575m
	Line 8600E	2000N - 3200N	1200m
	Line 8800E	2525N - 3200N	675m
		Loop 16 Total	6050m
Loop 17	Line 11000E	2700N - 3400N	700m
	Line 11200E	2700N - 3400N	700m
	Line 11400E	2700N - 3400N	700m
	Line 11600E	2600N - 3400N	800m
	Line 11800E	2700N - 3400N	700m
		Loop 17 Total	3600m
Loop 18	Line 2800E	6950N - 7875N	925m
(surveyed N)	Line 3000E	6950N - 7650N	700m
	Line 3200E	6950N - 7550N	600m
	Line 3400E	6950N - 7600N	650m
	Line 3500E	6150N - 6950N	800m
	Line 3600E	6150N - 7600N	1450m
	Line 3700E	6150N - 6950N	800m
	Line 3800E	6950N - 7600N	650m
	Line 4000E	6950N - 7650N	700m
Loop 18S	Line 2600E	5400N - 6150N	750m
(surveyed S)	Line 2800E	4900N - 6150N	1250m
		Loop 18 Total	9275m
	Espedalen 2004	**Total**	**123.000km**

Espedalen

Loop 5

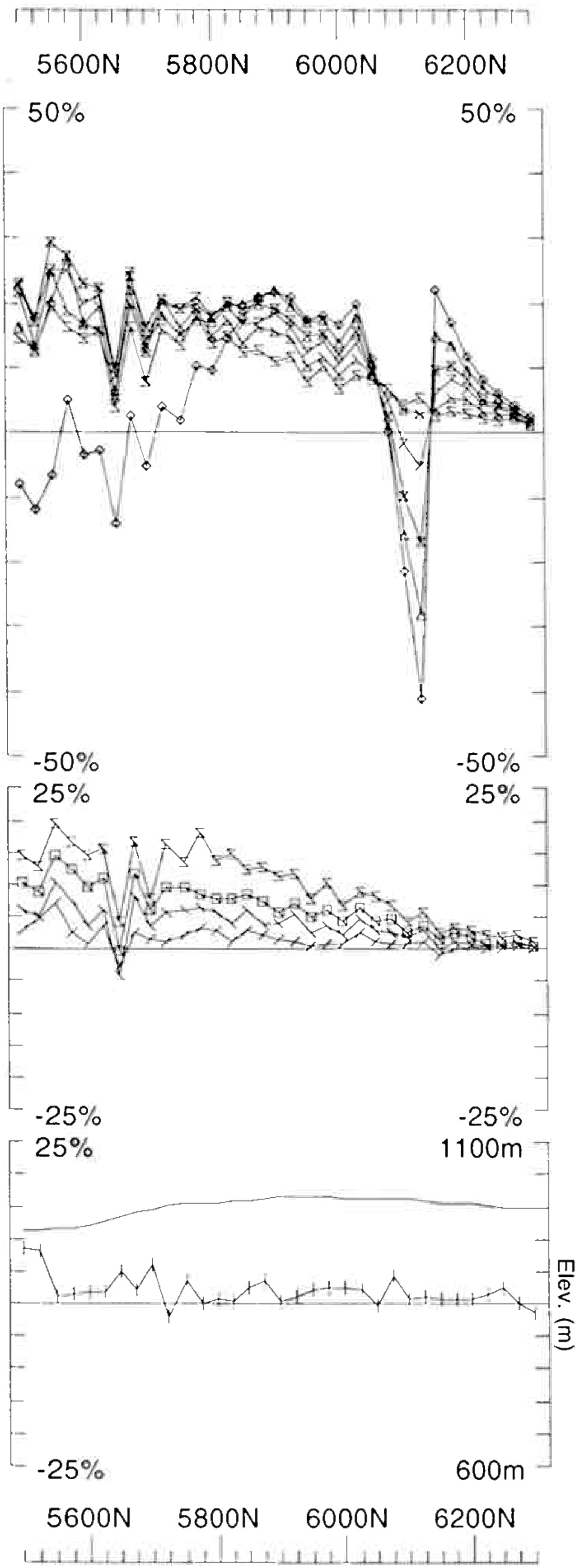
Hz
@3.251 Hz frequency

continuous norm

Ch1 reduced

Loop 05	Line	7600E	5500N - 6325N	825m
	Line	7800E	5500N - 6900N	1400m
	Line	8000E	5500N - 6900N	1400m
	Line	8200E	5500N - 6900N	1400m
	Line	8400E	5500N - 6900N	1400m
	Line	8600E	5500N - 6900N	1400m
	Line	8800E	5500N - 6900N	1400m
	Line	9000E	5500N - 6325N	825m
			Loop 05 Total	10050m

Loop 5 - continuous norm



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

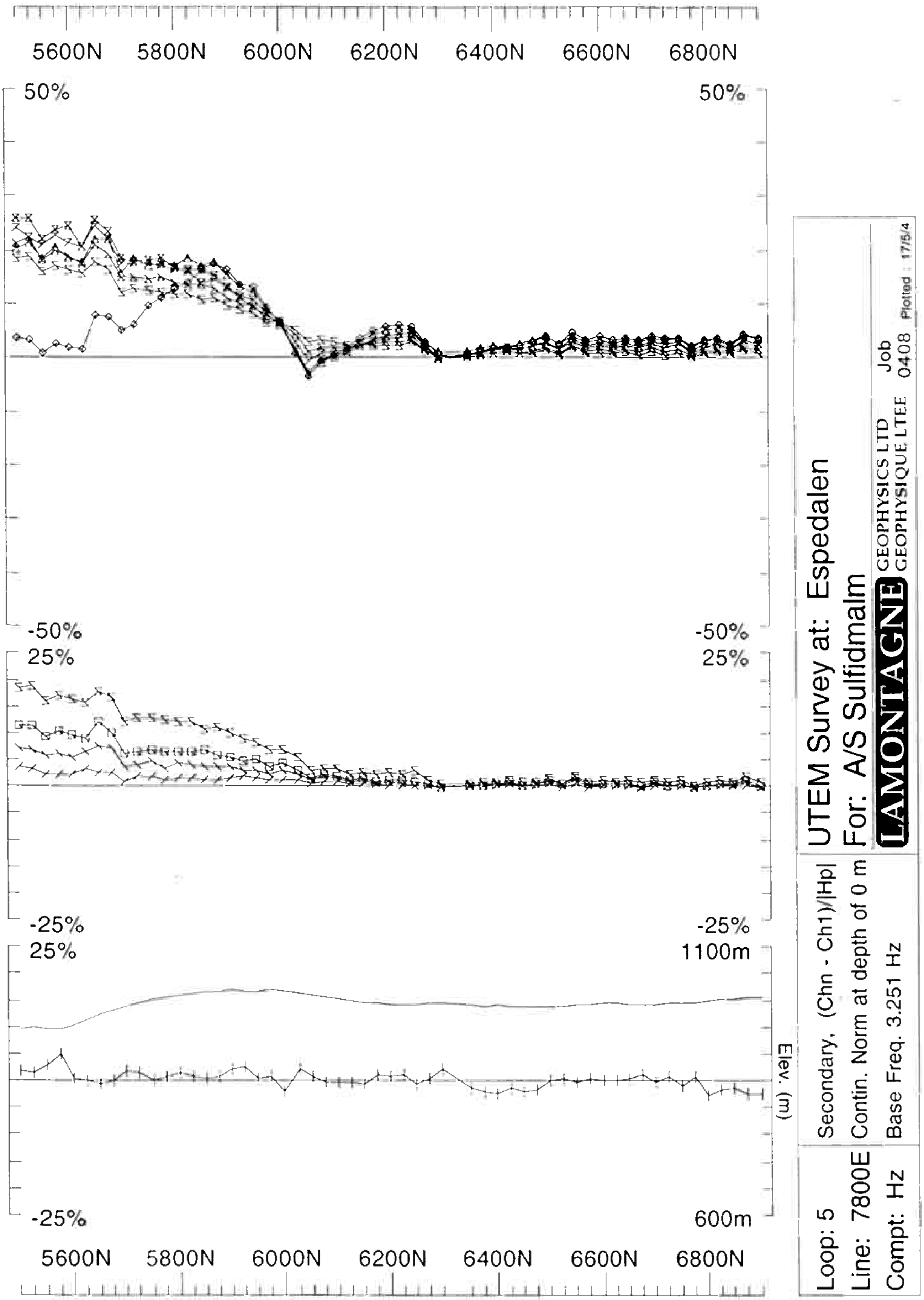
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

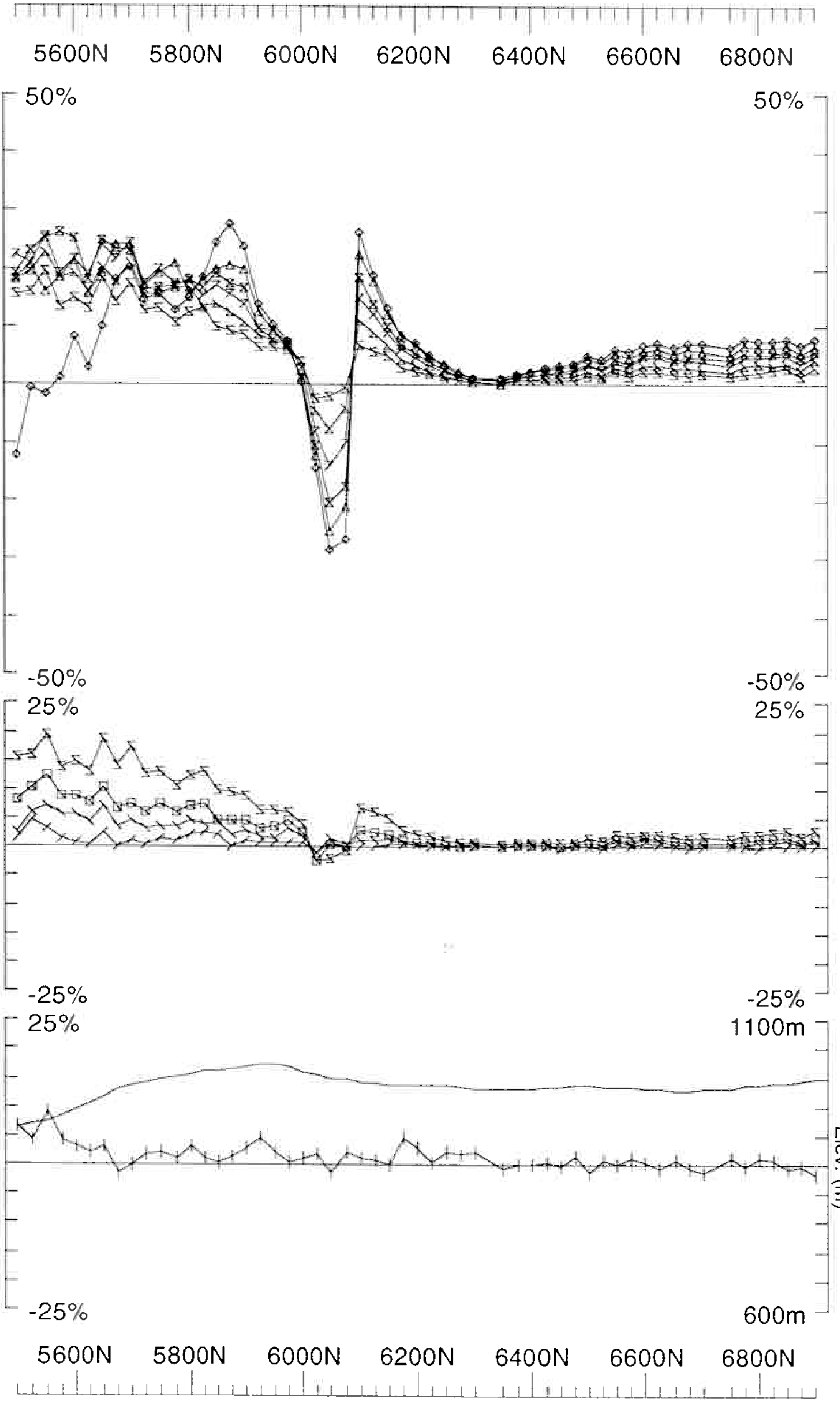
Surveyed : 17/2/4
Reduced : 17/5/4
Plotted : 17/5/4

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

Loop: 5
Line: 7600E
Compt: Hz



5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
-50%
25%
-25%
25%
-25%
1100m
600m
Elev. (m)
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
Loop: 5
Line: 7800E
Compt: Hz



UTEM Survey at: Espedalen

For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Job 0408

Plotted : 17/5/4

Secondary, (Chn - Ch1)/|Hp|

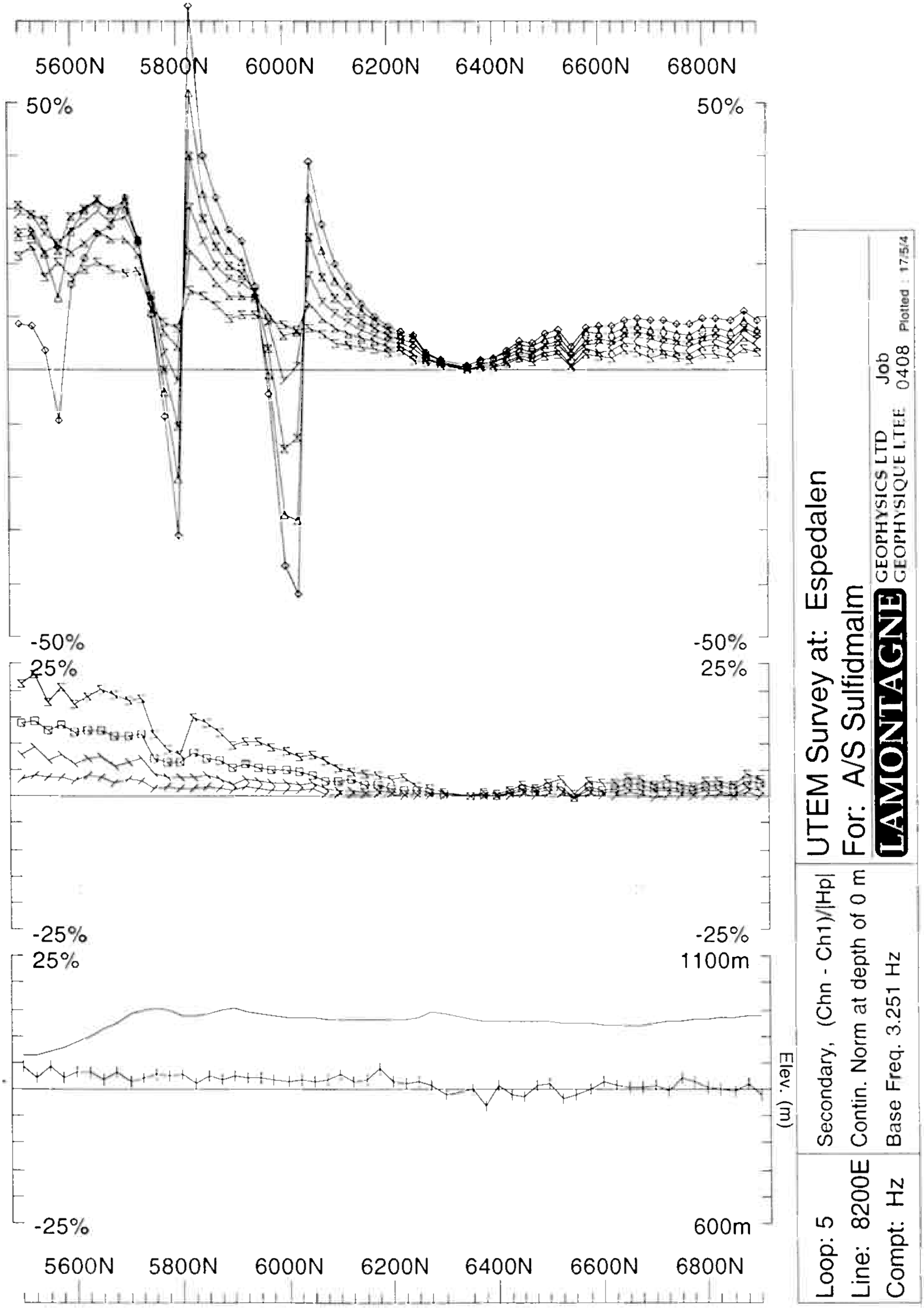
Contin. Norm at depth of 0 m

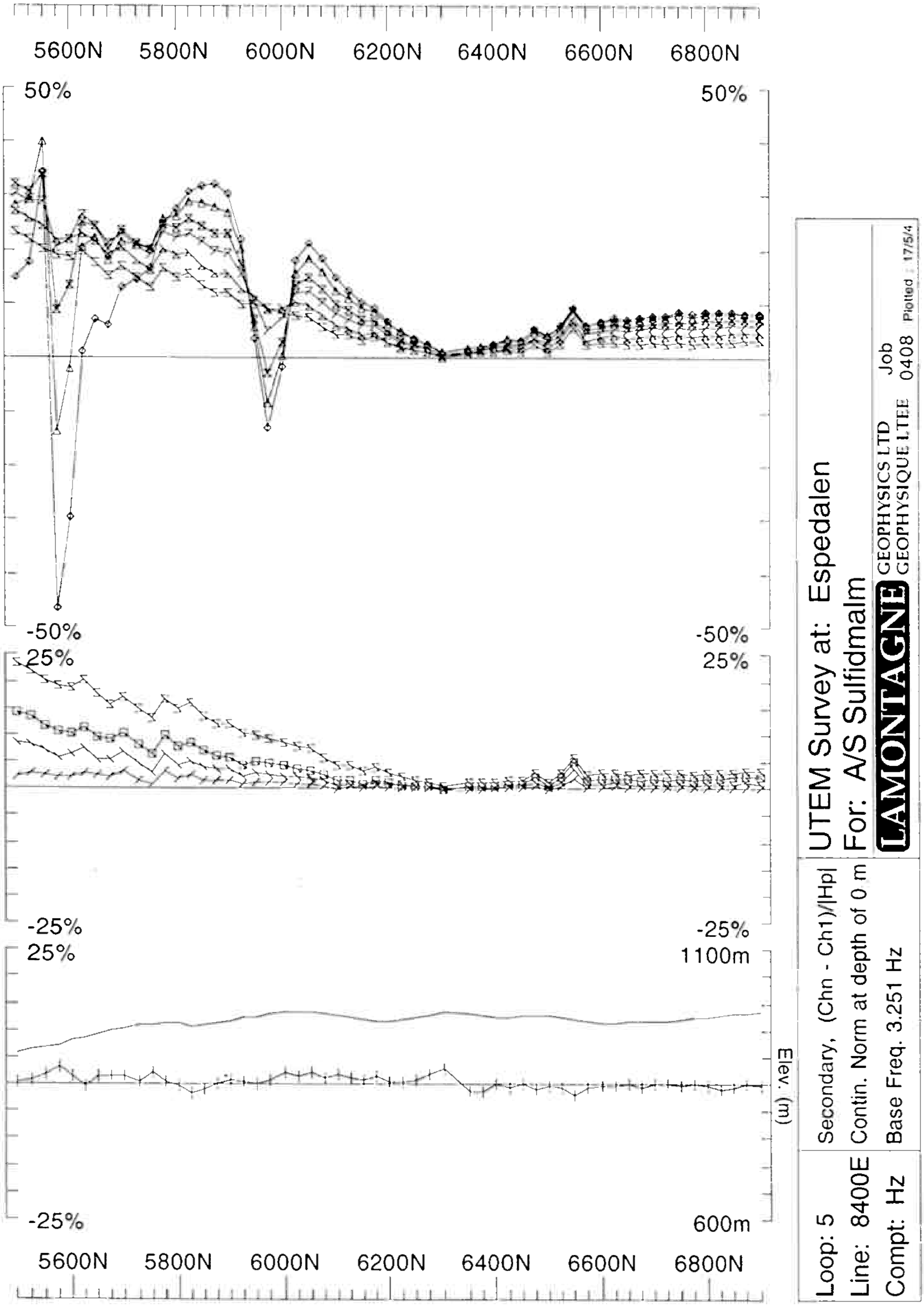
Base Freq. 3.251 Hz

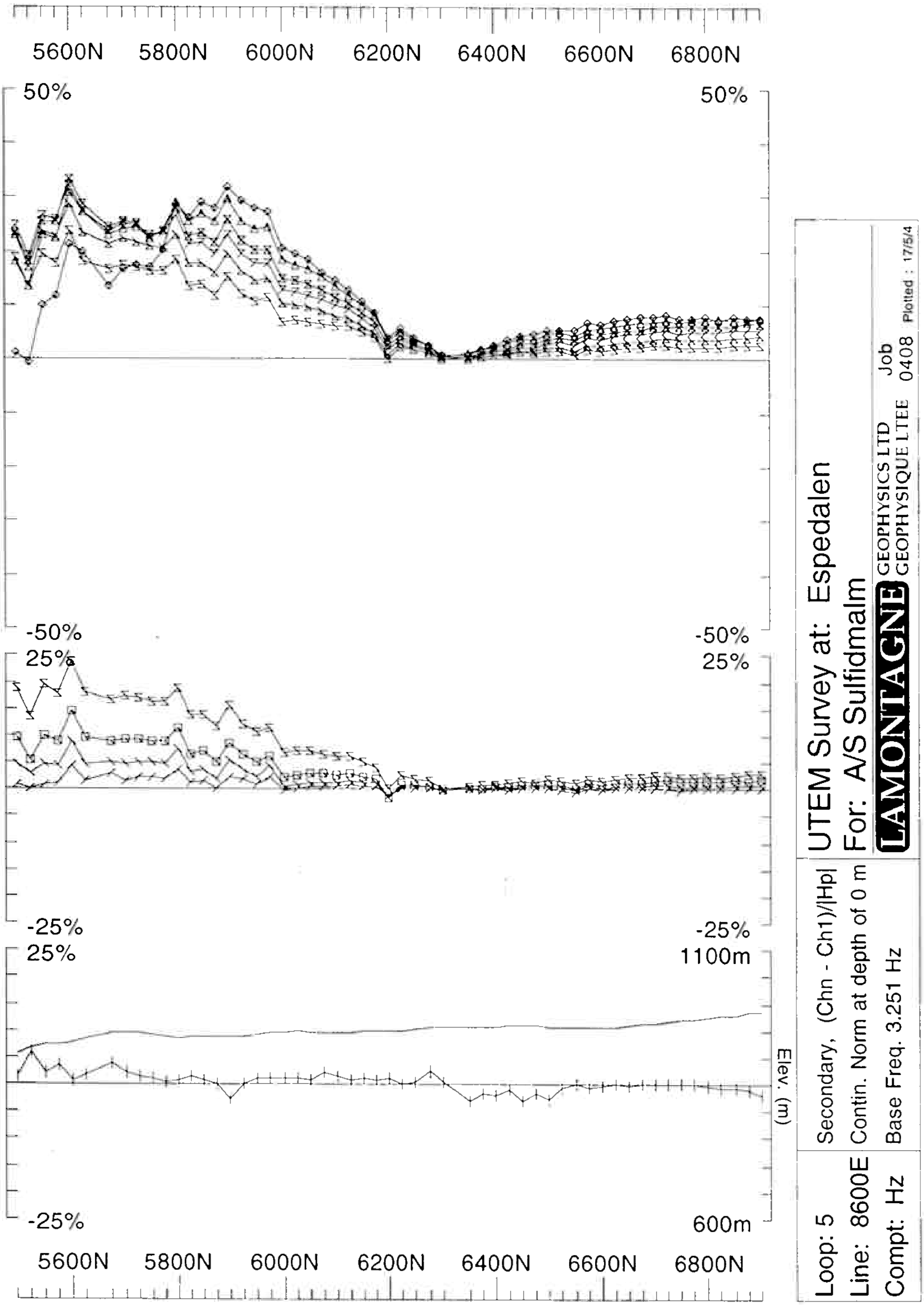
Loop: 5

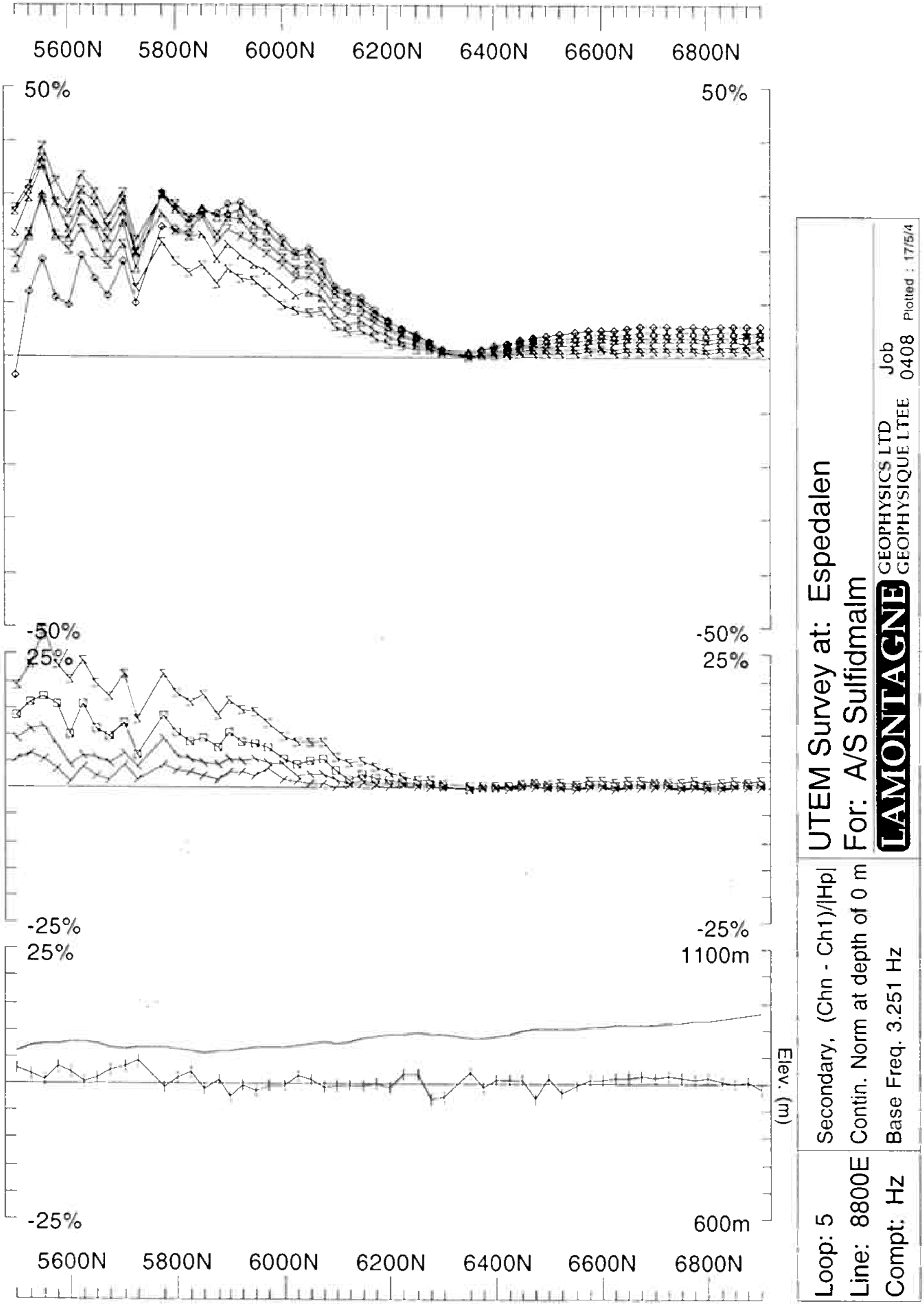
Line: 8000E

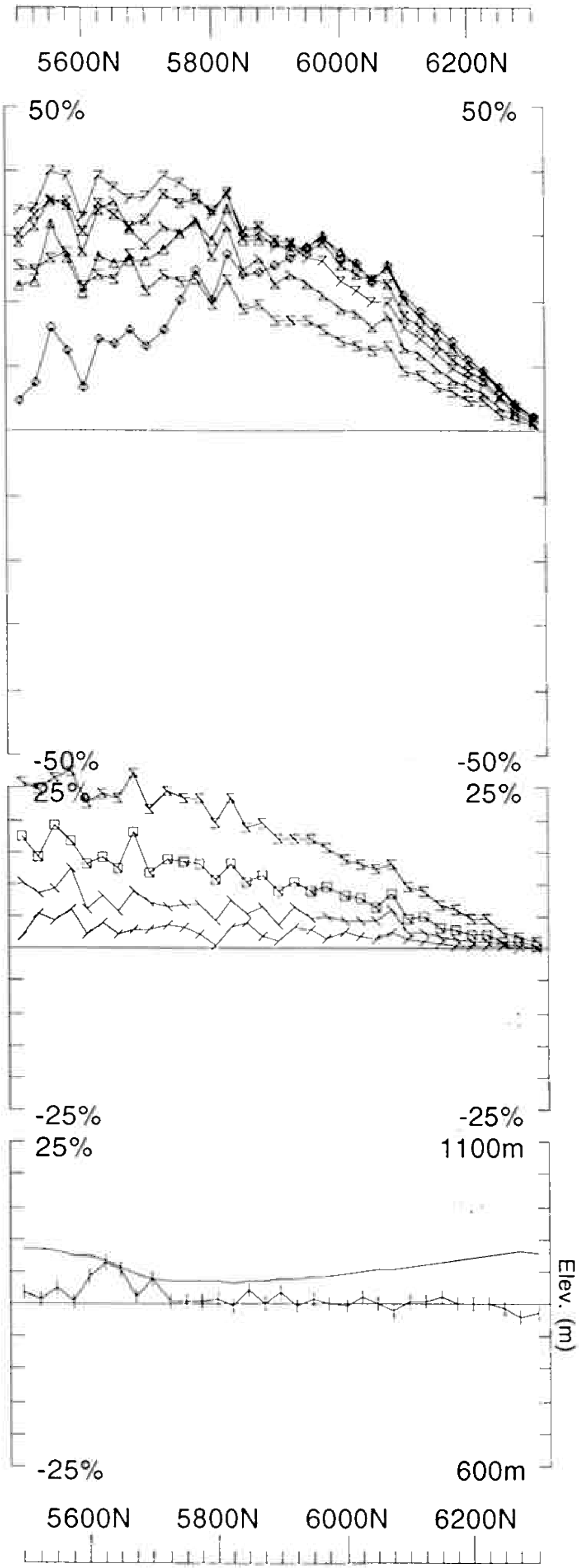
Compt: Hz


5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1100m
Elev. (m)
-25%
600m
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17.5.4
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
Loop: 5
Line: 8200E
Compt: Hz


5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
-50%
25%
-25%
25%
-25%
1100m
600m
Elev. (m)
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
Loop: 5
Line: 8400E
Compt: Hz


5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1100m
-25%
600m
Elev. (m)
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
Loop: 5
Line: 8600E
Compt: Hz


5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
-50%
25%
-25%
25%
-25%
1100m
600m
Elev. (m)
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
Loop: 5
Line: 8800E
Compt: Hz



Loop: 5
Line: 9000E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Surveyed : 19/2/4
Reduced : 17/5/4
Plotted : 17/5/4

Espedalen

Loop 6

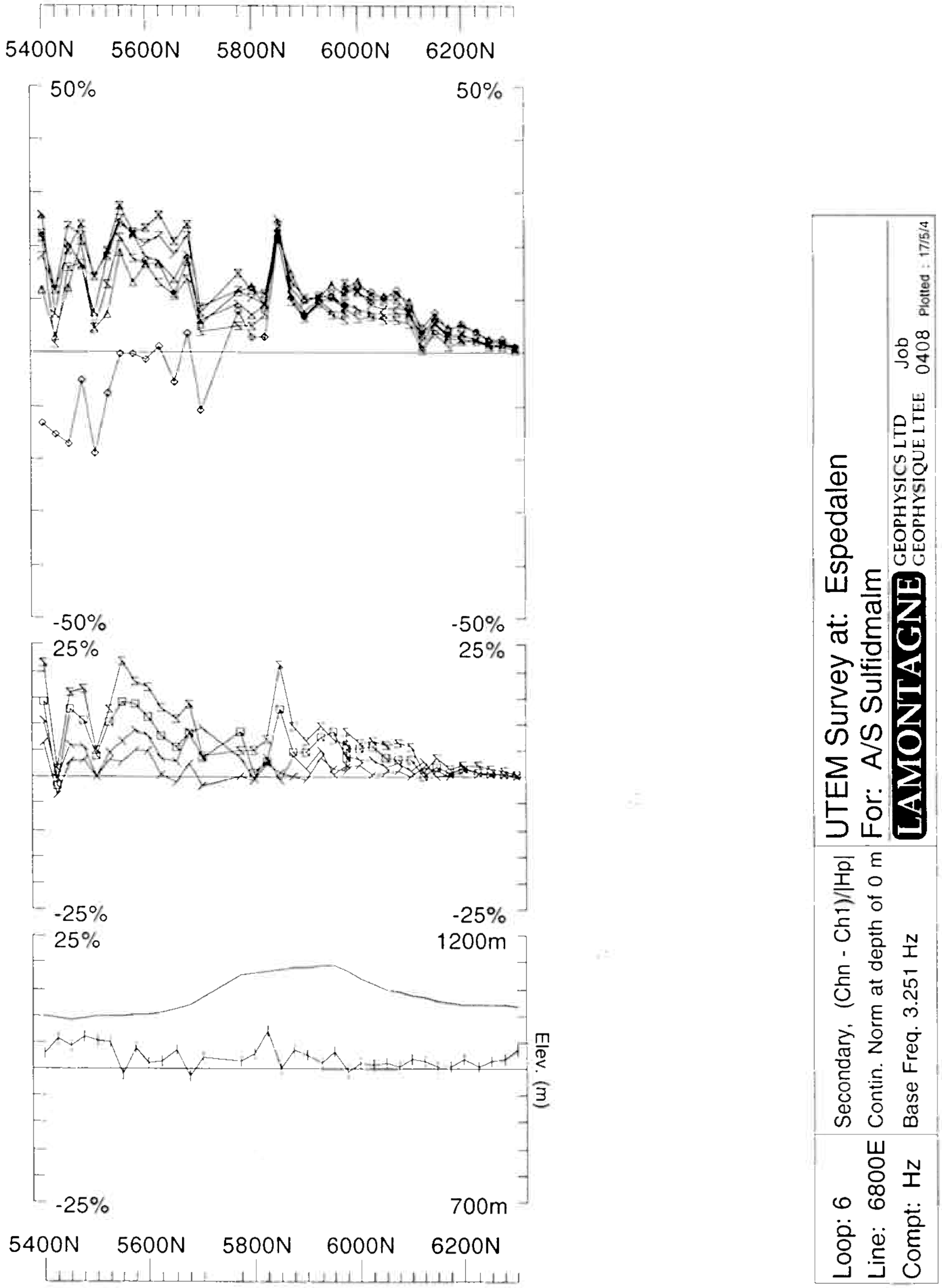
Hz
@3.251 Hz frequency

continuous norm

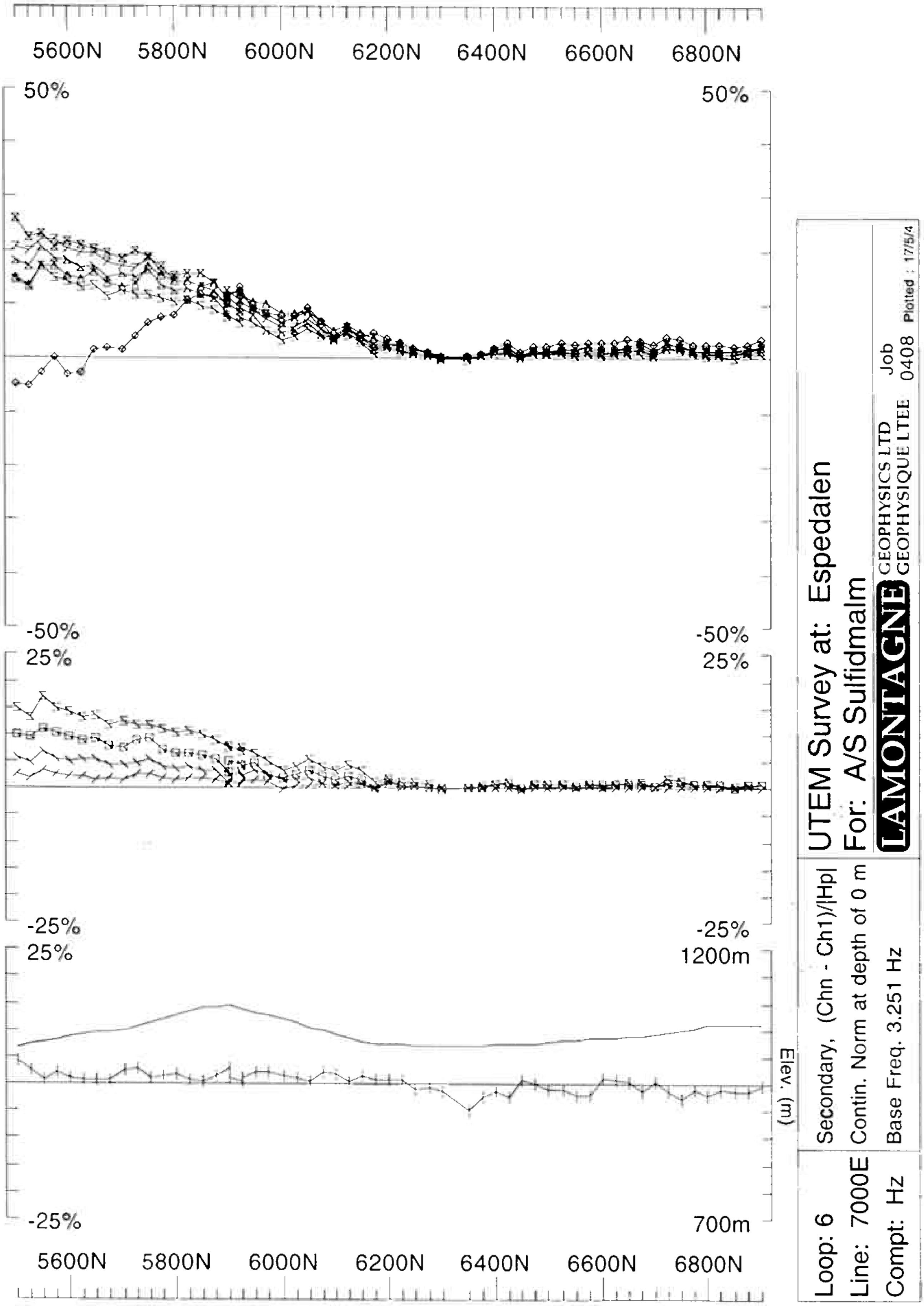
Ch1 reduced

Loop 06	Line	6800E	5400N - 6325N	925m
	Line	7000E	5500N - 6900N	1400m
	Line	7200E	5500N - 6900N	1400m
	Line	7400E	5500N - 6900N	1400m
	Line	7600E	5500N - 6900N	1400m
			Loop 06 Total	6525m

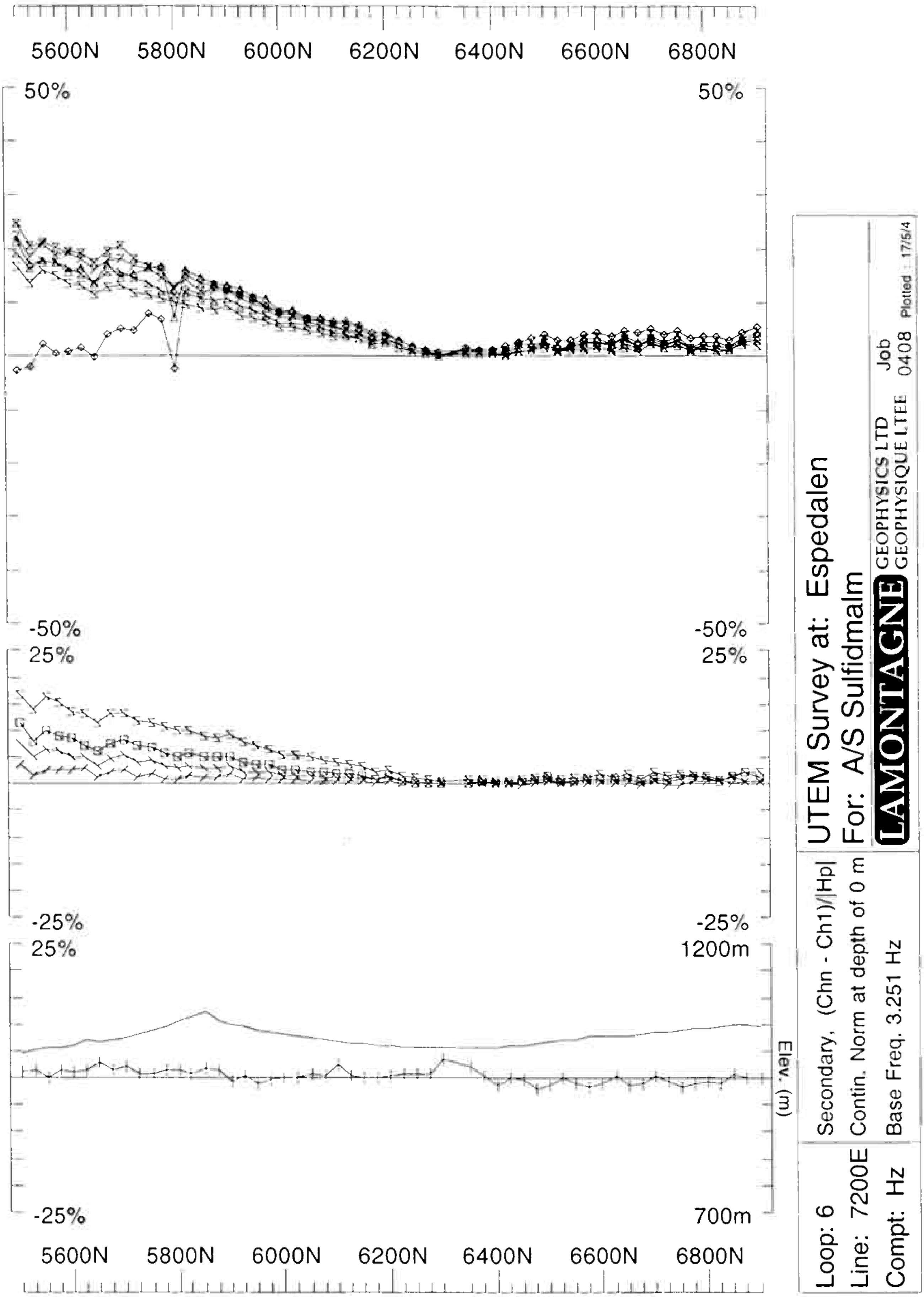
Loop 6 - continuous norm



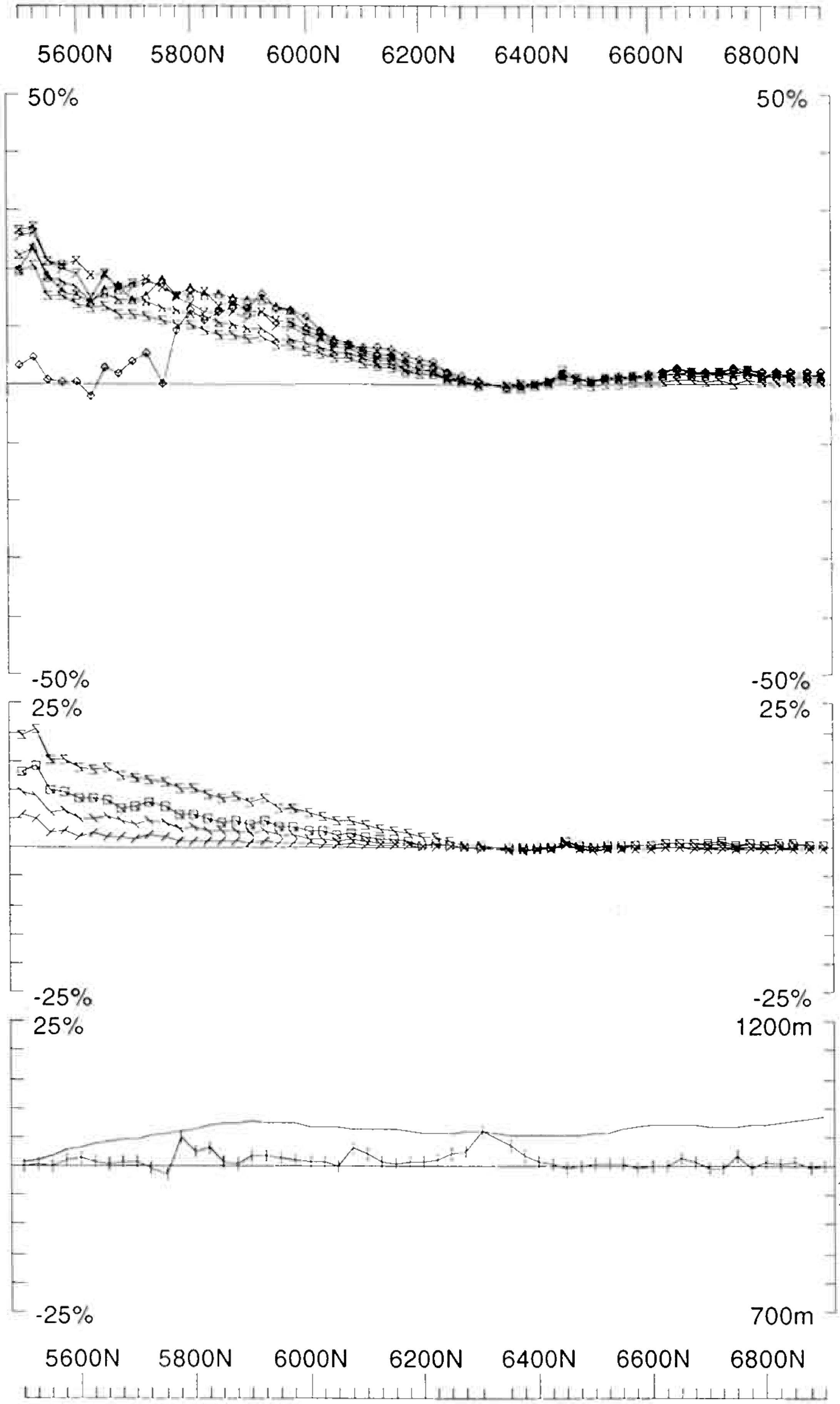
5400N
5600N
5800N
6000N
6200N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1200m
Elev. (m)
-25%
700m
5400N
5600N
5800N
6000N
6200N
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
Loop: 6
Line: 6800E
Compt: Hz



5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1200m
Elev. (m)
-25%
700m
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
Loop: 6
Line: 7000E
Compt: Hz



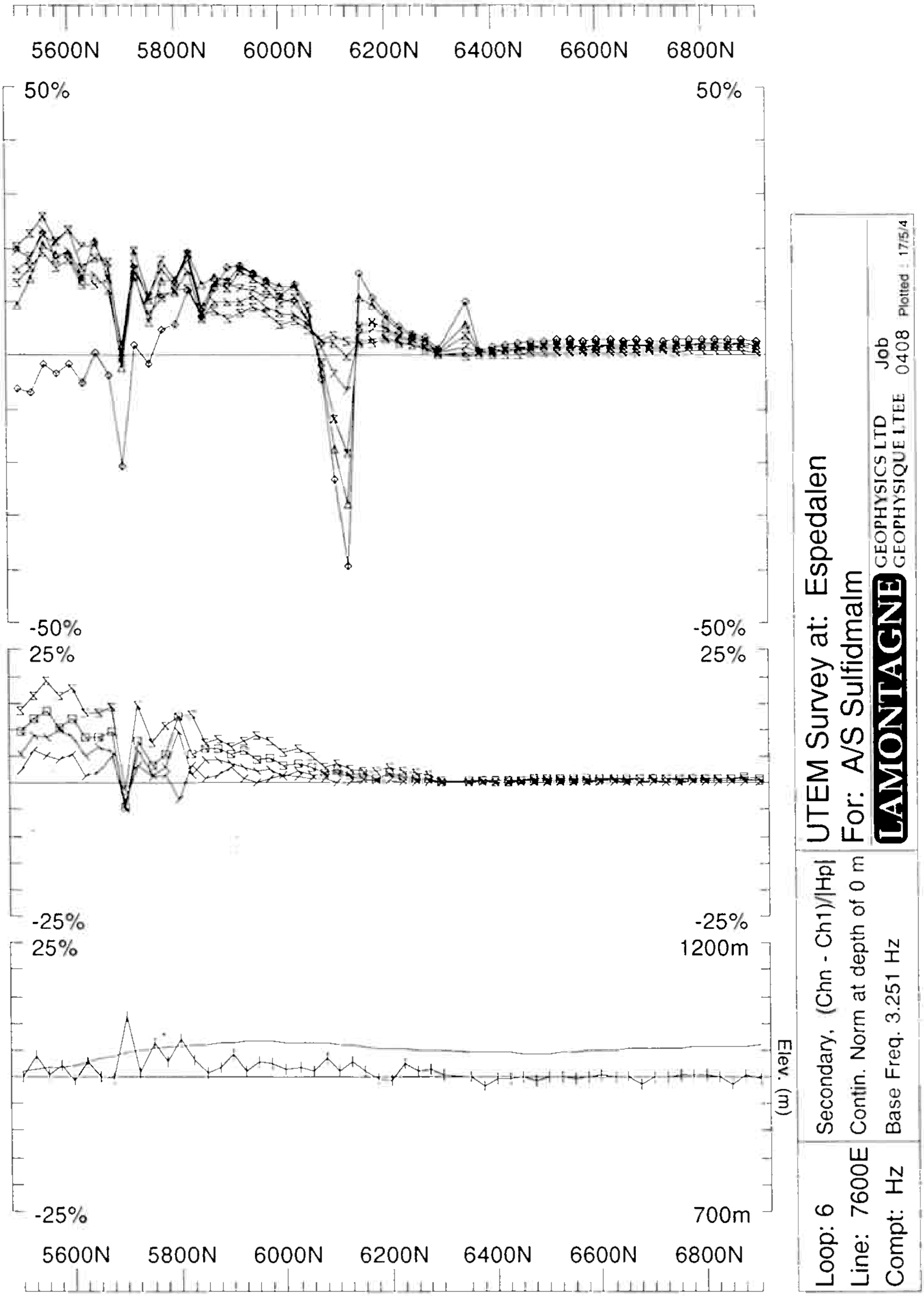
5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
-50%
25%
-25%
1200m
700m
Elev. (m)
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4
Loop: 6
Line: 7200E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz



UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

Loop: 6
Line: 7400E
Compt: Hz



5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1200m
Elev. (m)
-25%
700m
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 17/5/4
Loop: 6
Line: 7600E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

Espedalen

Loop 7

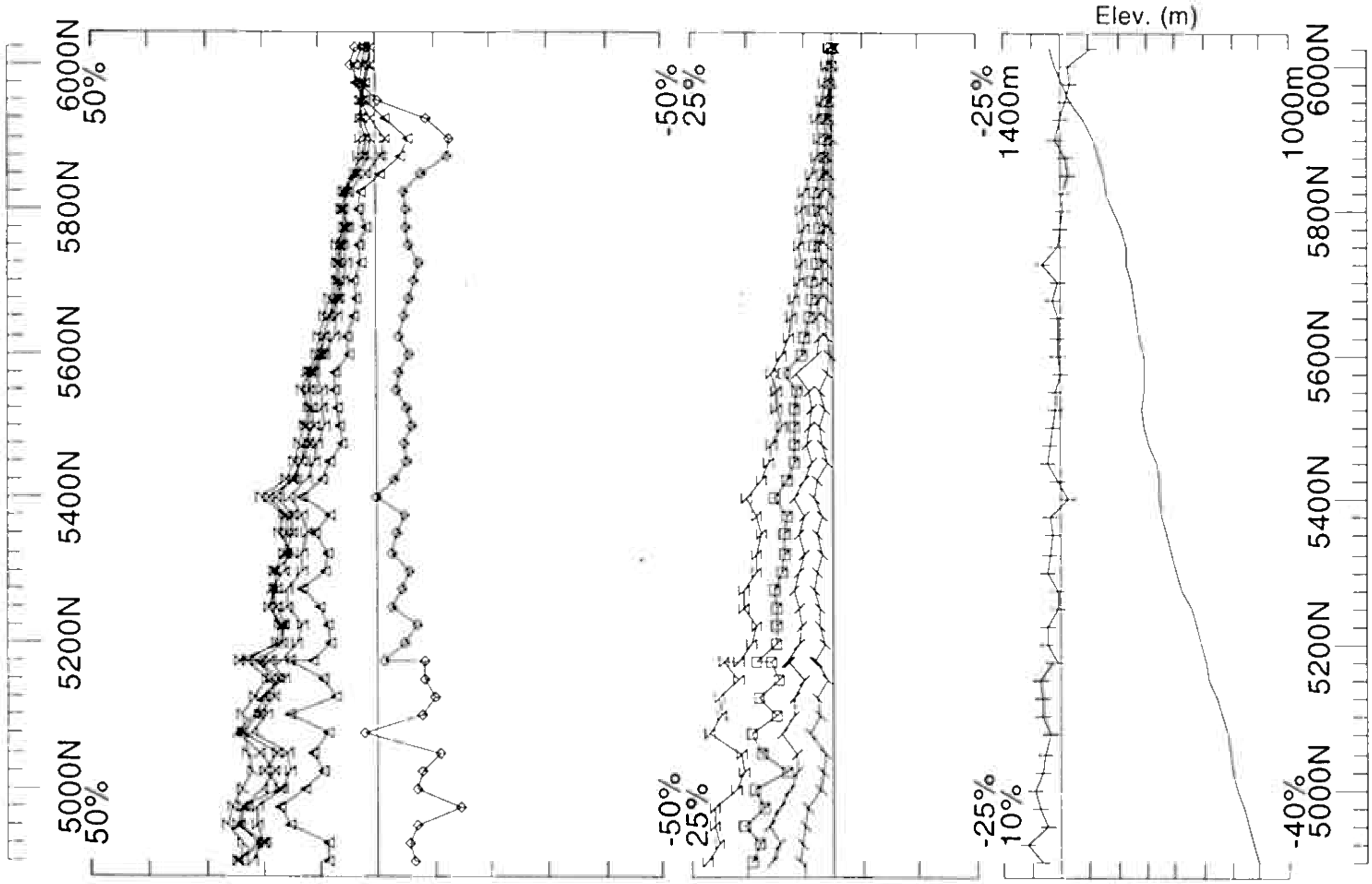
Hz
@3.251 Hz frequency

continuous norm

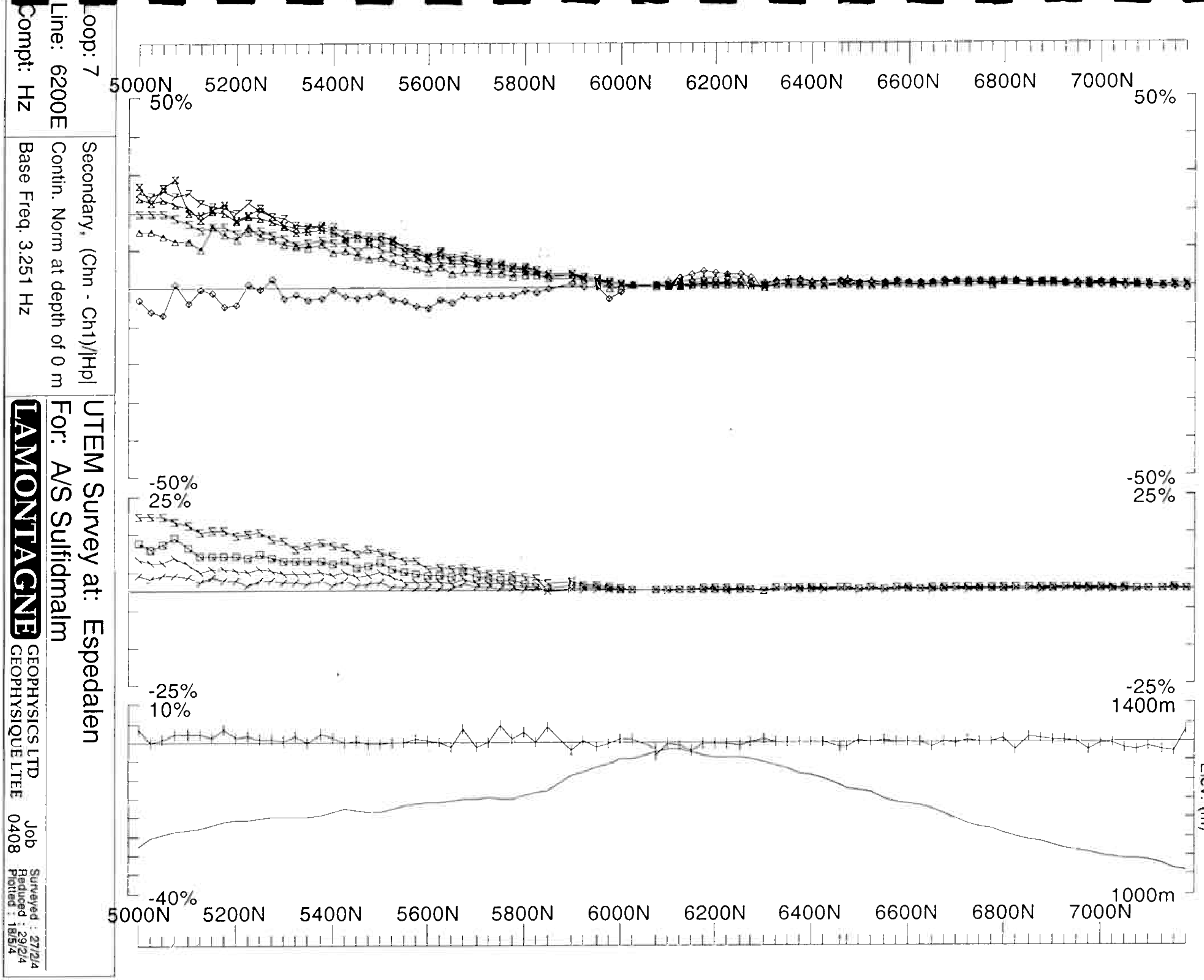
Ch1 reduced

Loop 07	Line	6000E	4900N - 6050N	1150m
	Line	6200E	5000N - 7200N	2200m
	Line	6400E	4925N - 7200N	2275m
	Line	6500E	5025N - 6050N	1025m
	Line	6600E	4950N - 7200N	2250m
	Line	6800E	5200N - 7200N	2000m
			Loop 07 Total	10900m

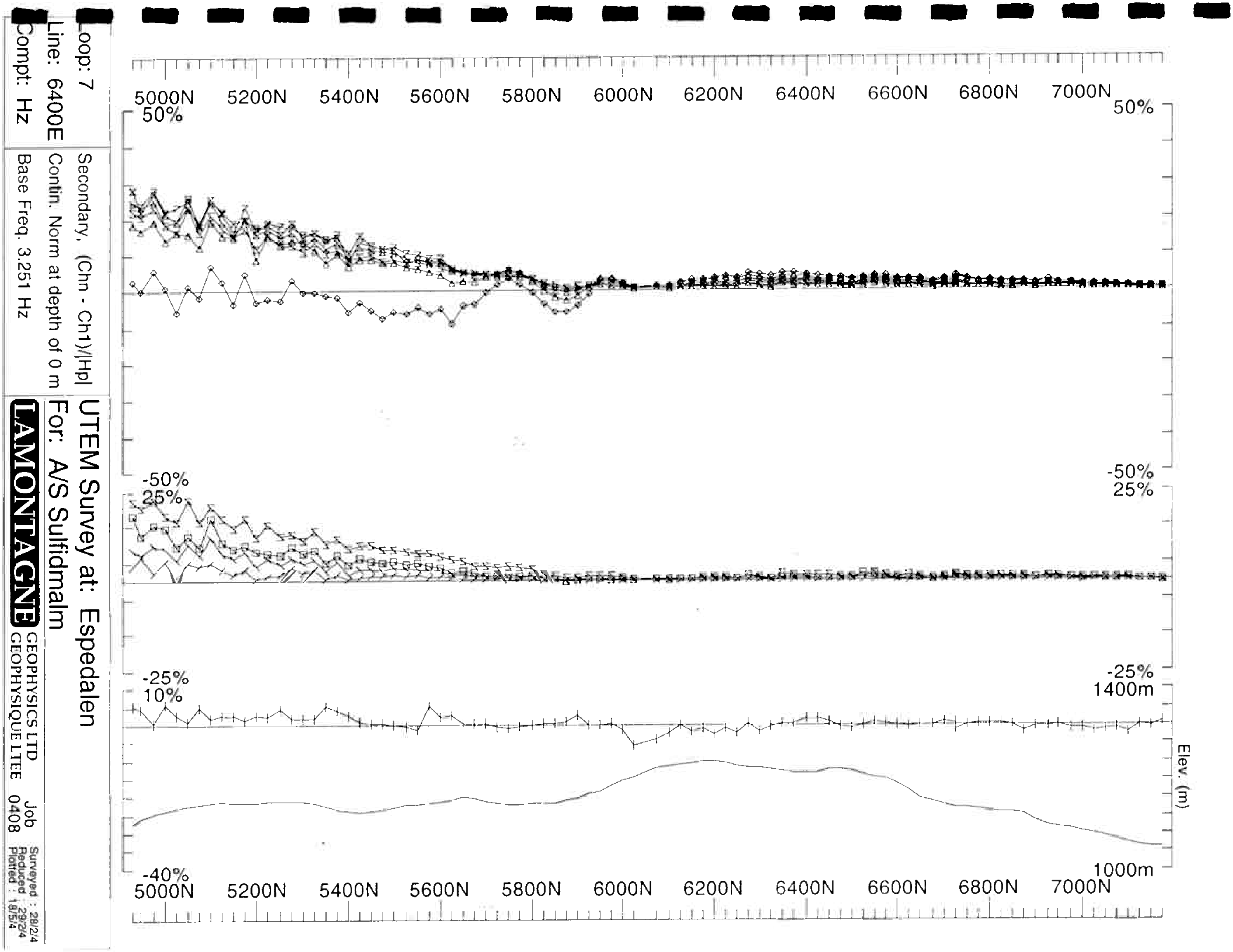
Loop 7 - continuous norm



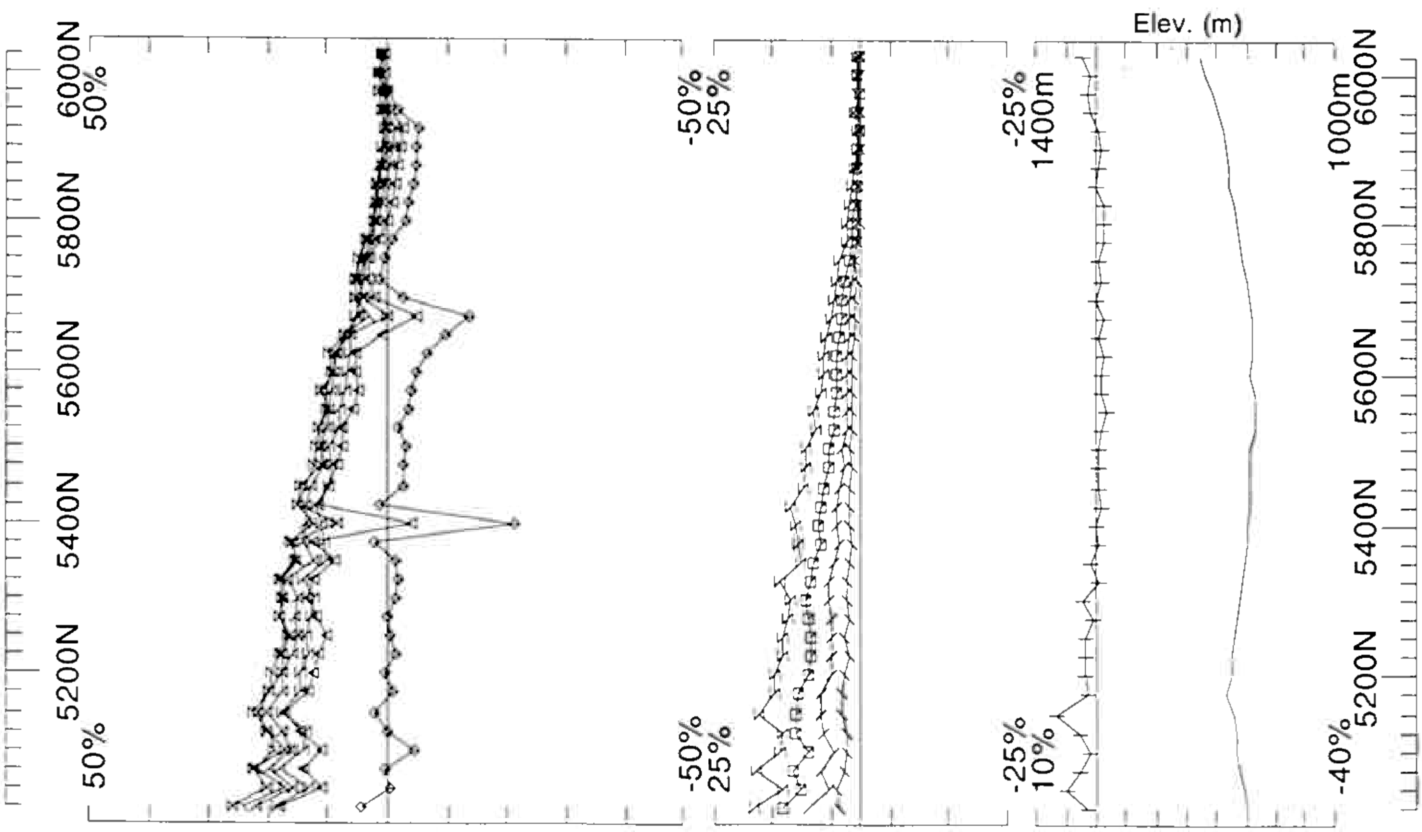
Loop: 7	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 6000E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 7
Line: 6200E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Surveyed : 27/2/4
Reduced : 29/2/4
Plotted : 18/5/4
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 7
Line: 6400E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Surveyed : 28/2/4
Reduced : 29/2/4
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 7
Line: 6500E
Compt: Hz

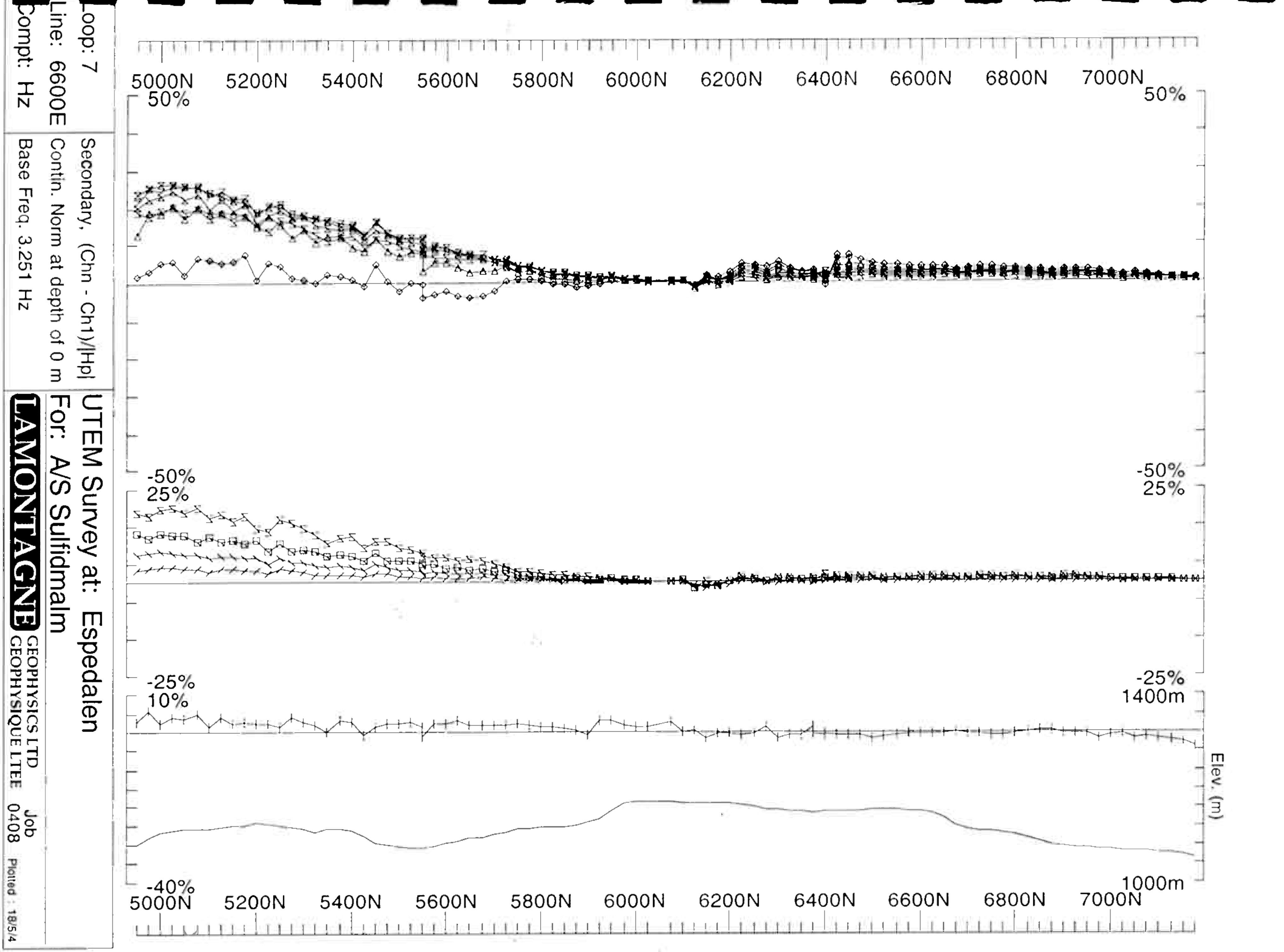
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

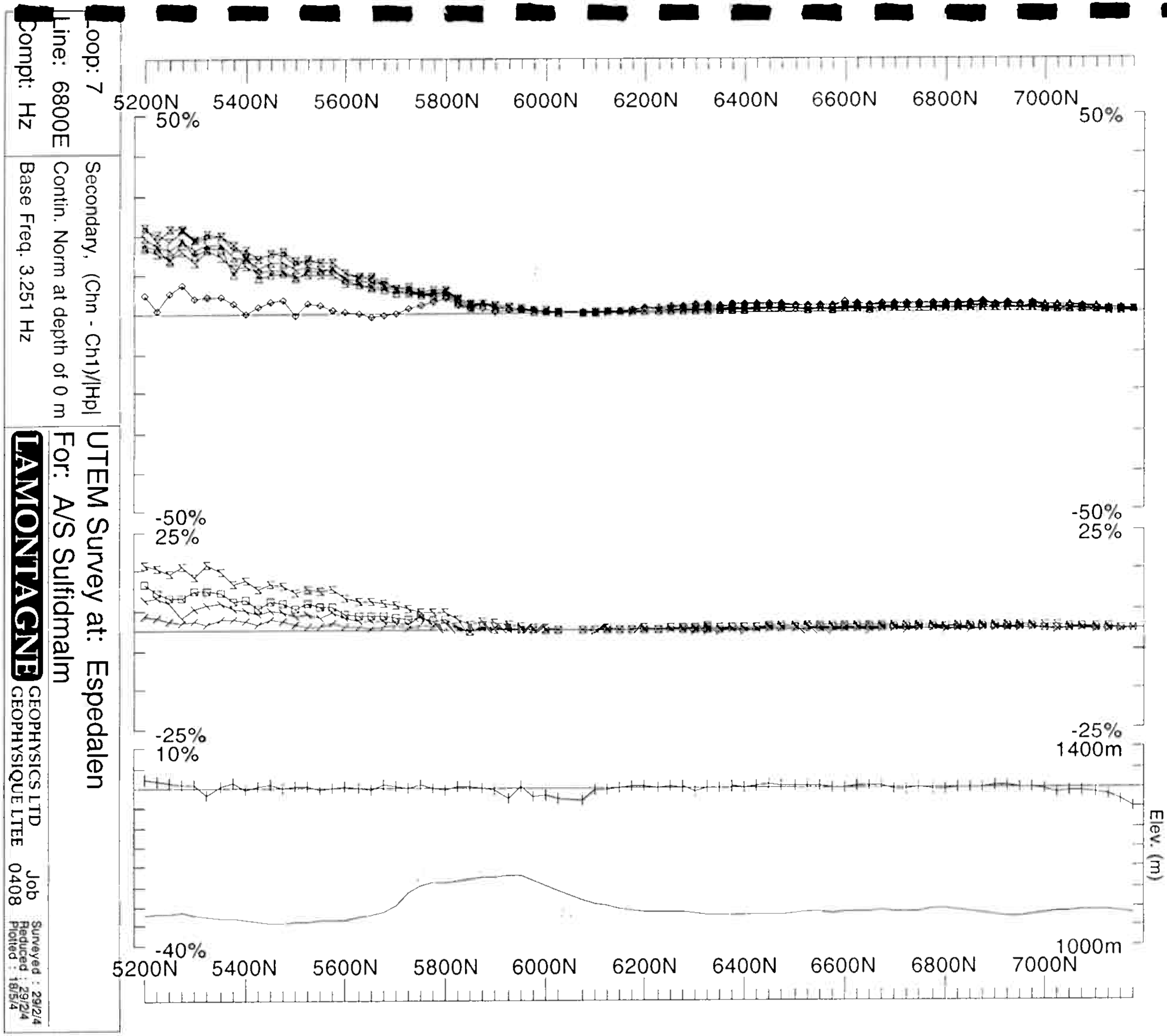
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Surveyed : 28/2/4
Reduced : 1/3/4
Plotted : 19/5/4



Loop: 7
Line: 6600E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 7
Line: 6800E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Surveyed : 29/2/4
Reduced : 29/2/4
Plotted : 18/5/4
5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)

Espedalen

Loop 8

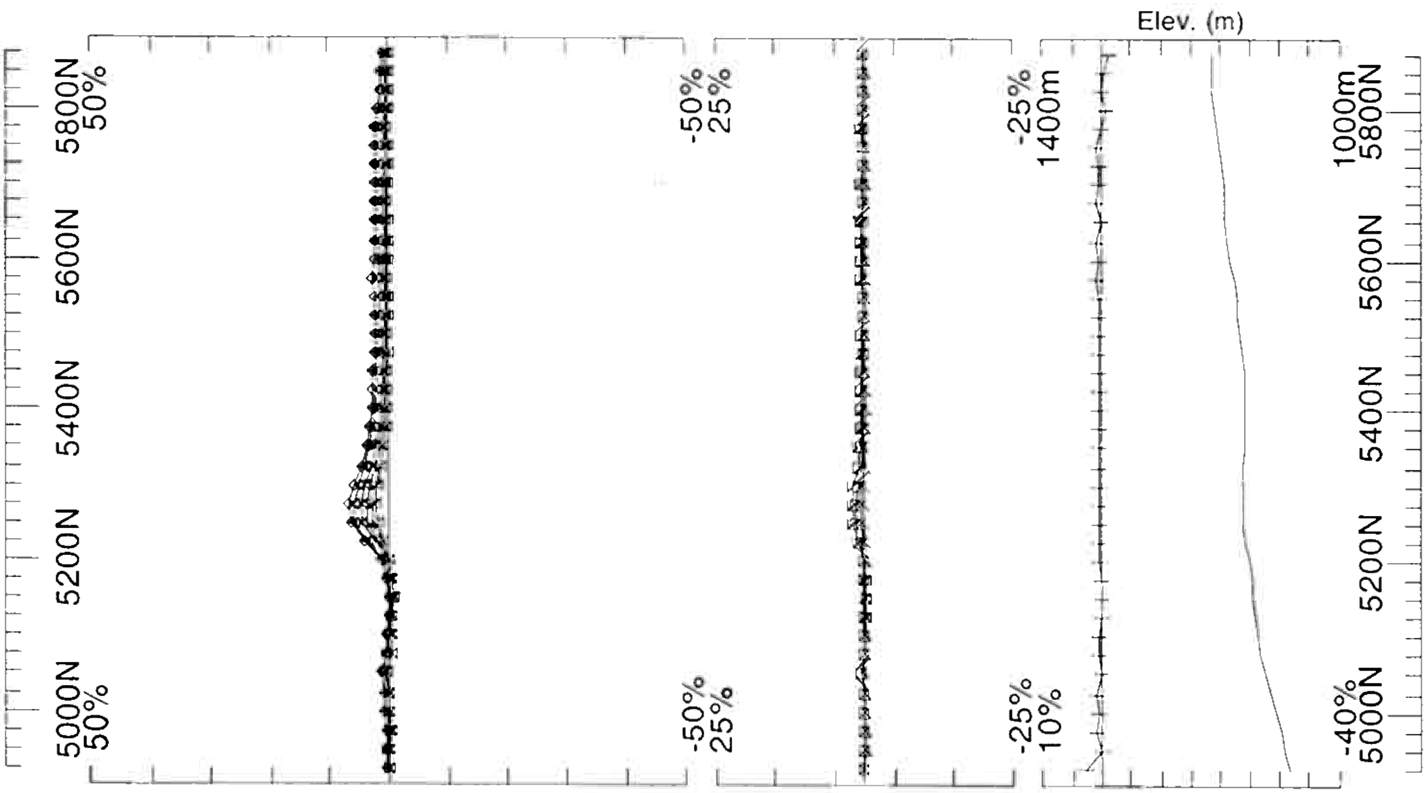
Hz
@3.251 Hz frequency

continuous norm

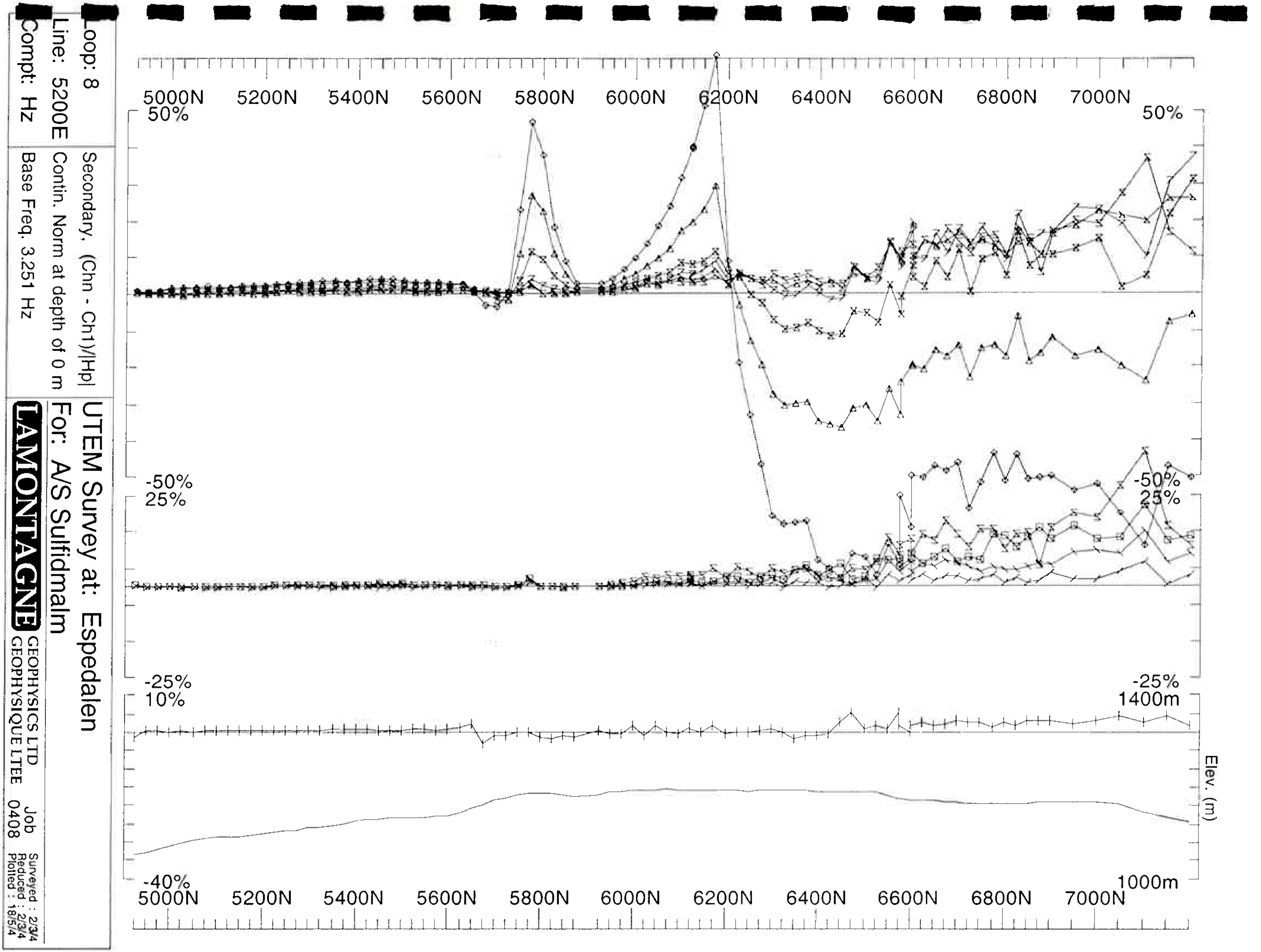
Ch1 reduced

Loop 08	Line	5000E	4900N - 5900N	1000m
	Line	5200E	4900N - 7200N	2300m
	Line	5400E	4900N - 7200N	2300m
	Line	5600E	4900N - 7200N	2300m
	Line	5800E	4900N - 7200N	2300m
	Line	6000E	5900N - 7200N	1300m
			Loop 08 Total	11500m

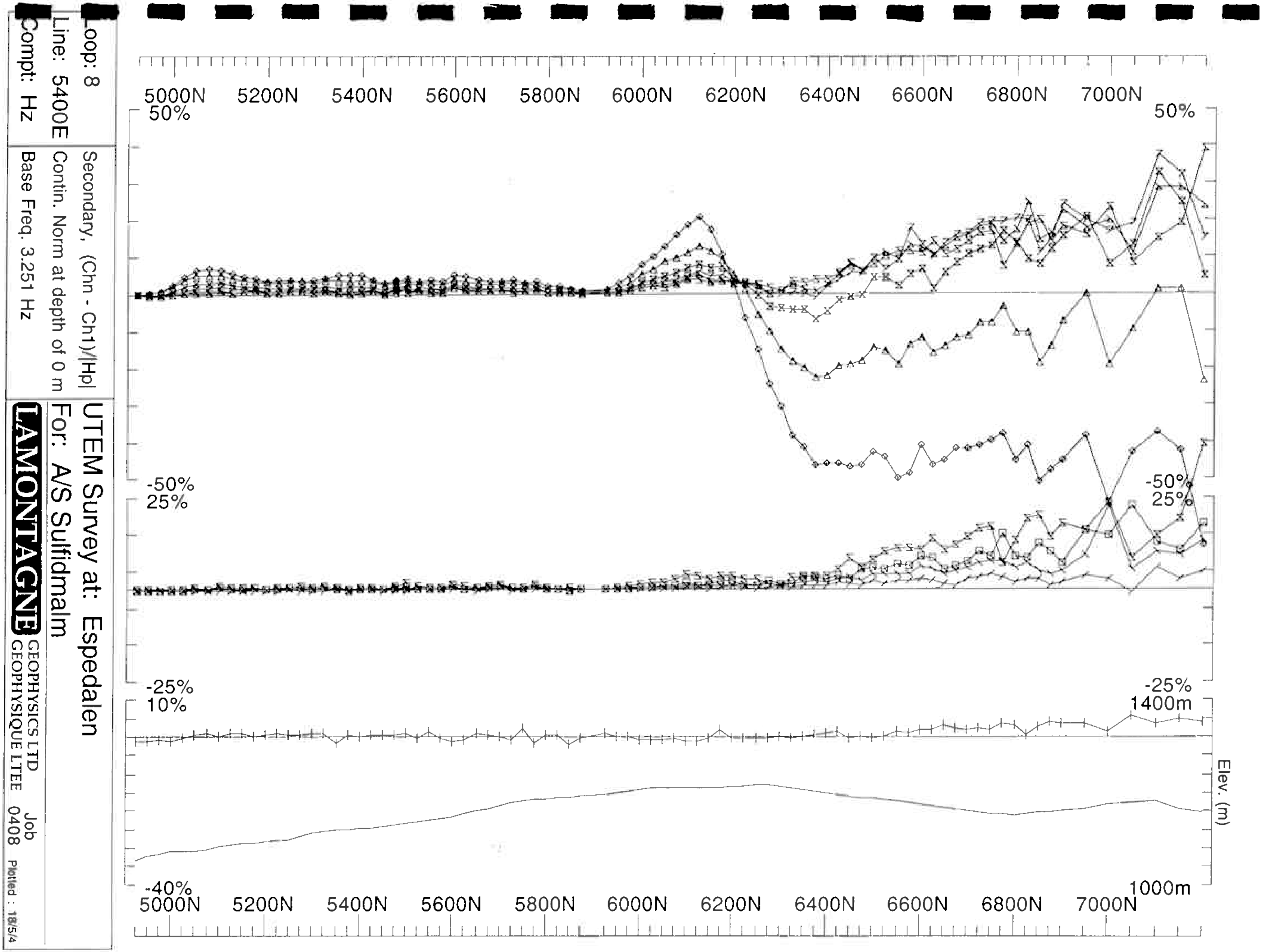
Loop 8 - continuous norm

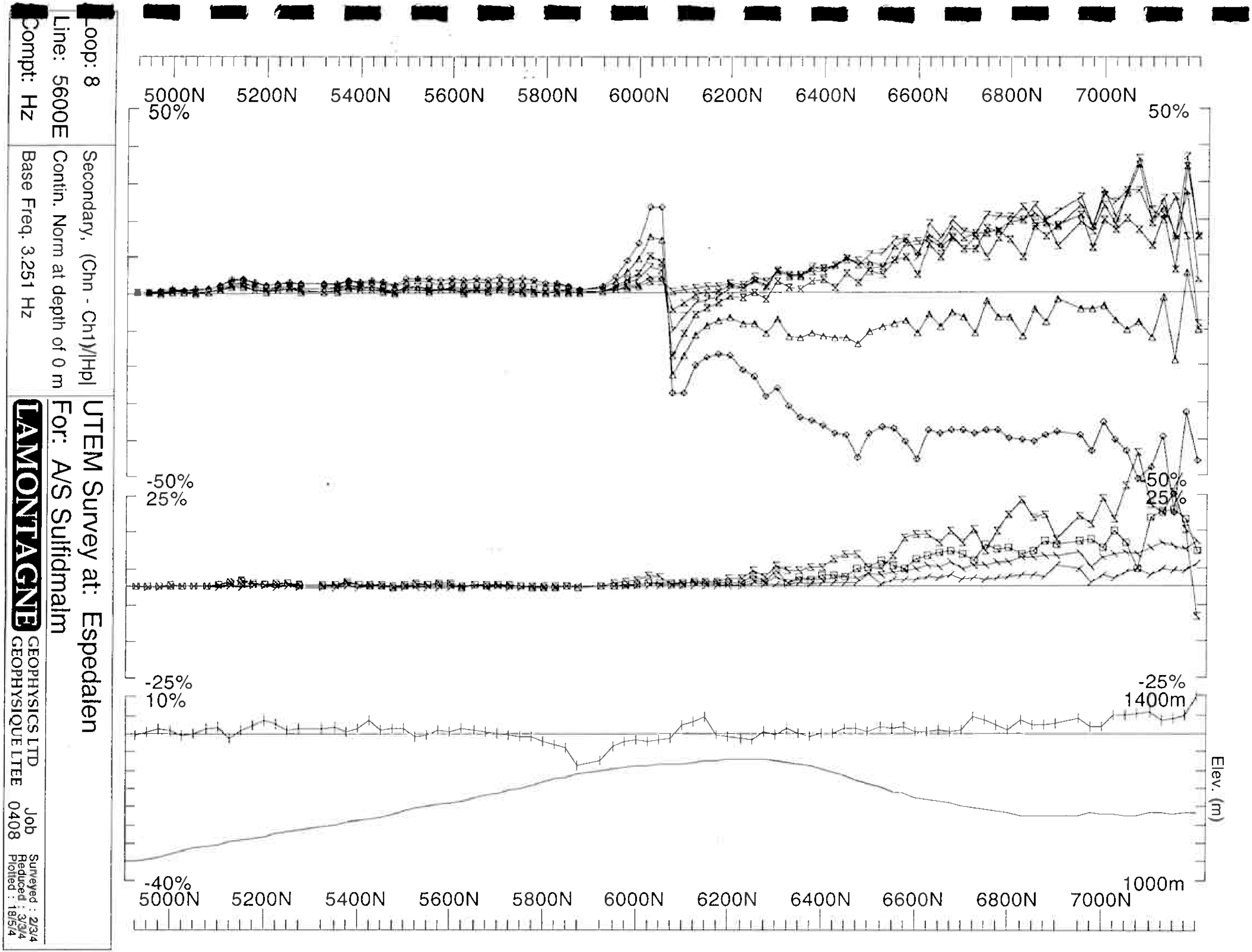


Loop: 8	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 5000E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 2/3/4 Reduced : 2/3/4 Plotted : 18/5/4

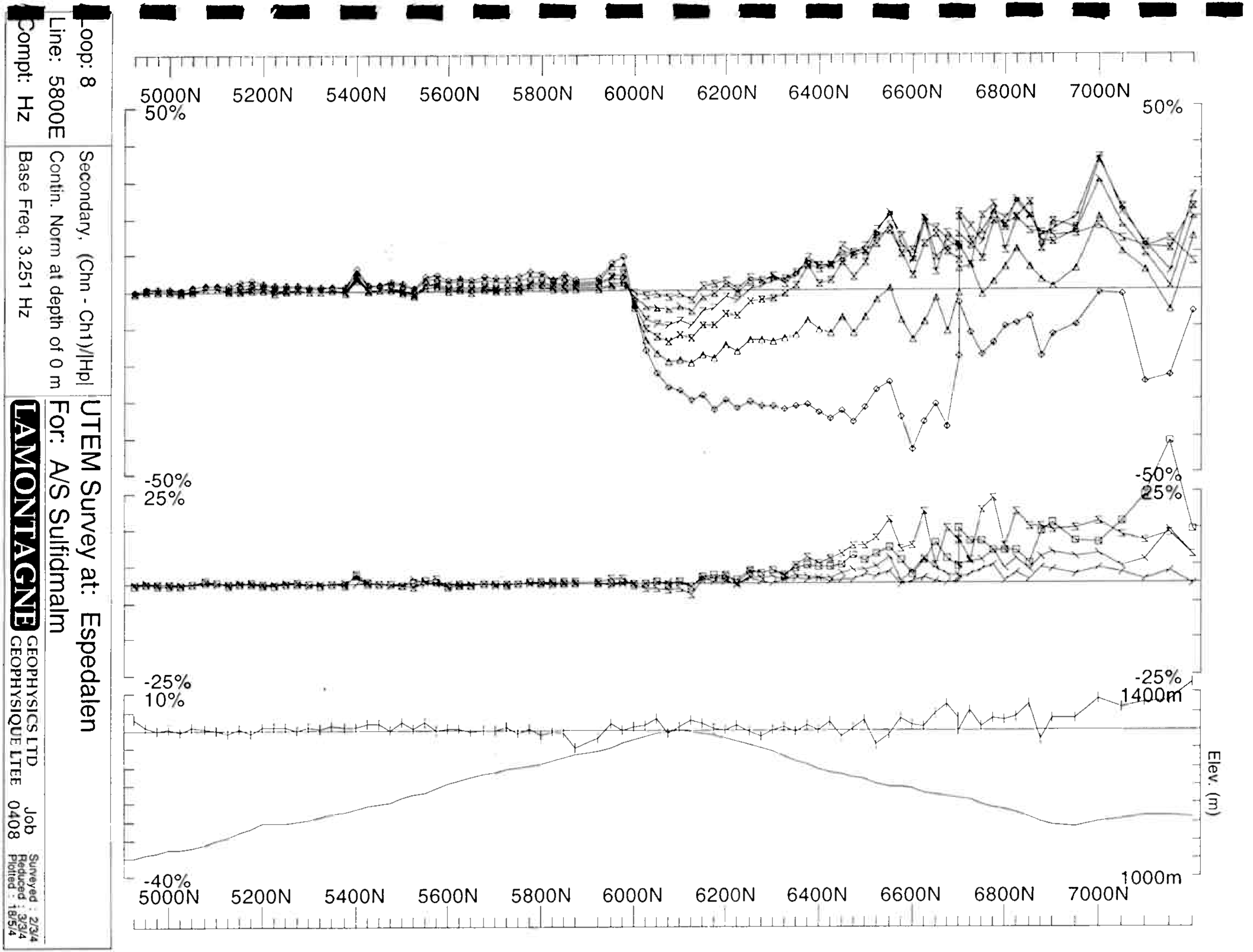


Loop: 8
Line: 5200E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Surveyed : 2/3/4
Reduced : 2/3/4
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)

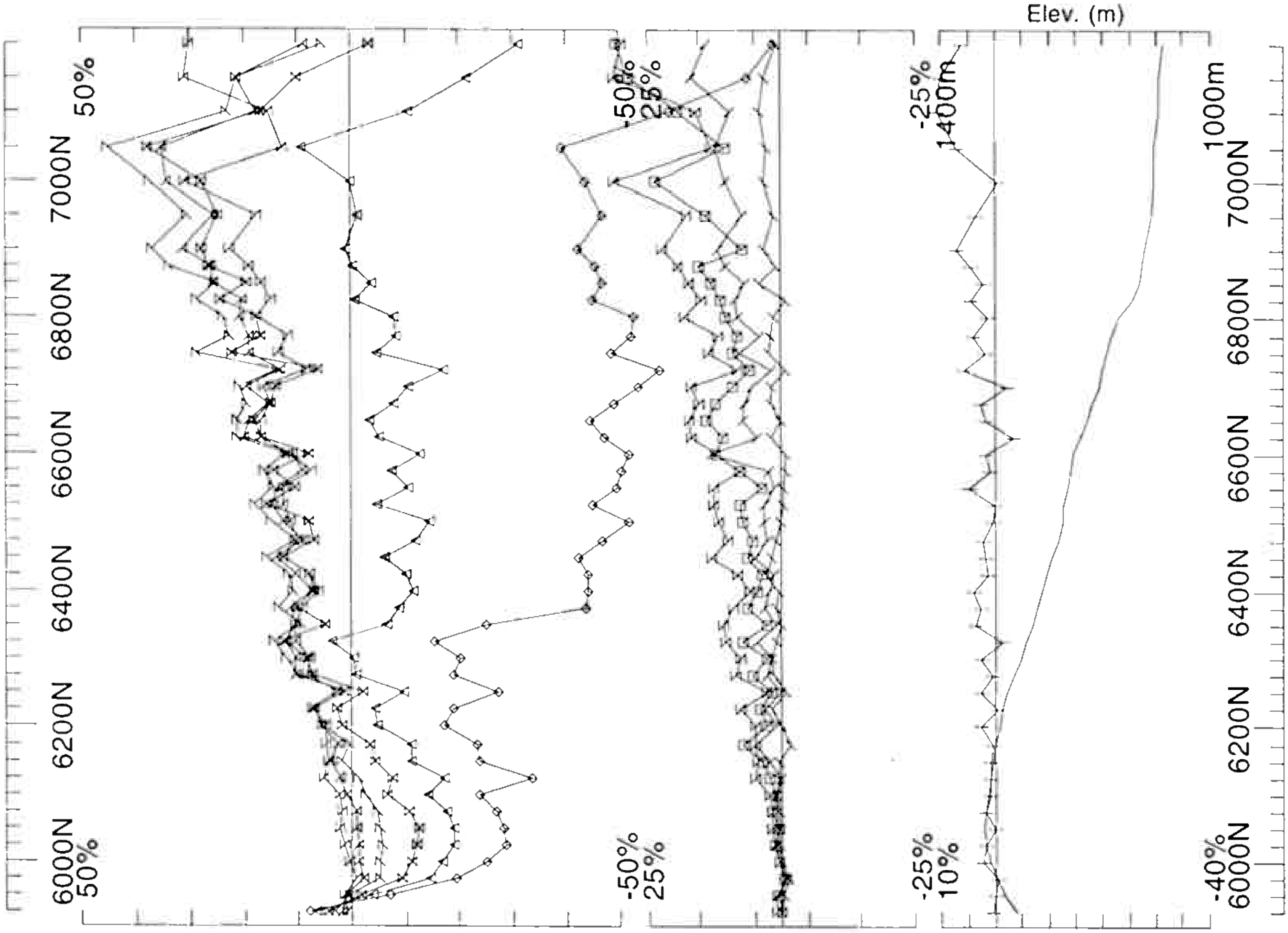

Loop: 8
Line: 5400E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 8
Line: 5600E
Compt: Hz
Secondary, (Chn - Ch1)/Hpl
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Surveyed : 2/3/4
Reduced : 3/3/4
Plotted : 18/5/4
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 8
Line: 5800E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Surveyed : 2/3/4
Reduced : 3/3/4
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 8	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 6000E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 4/3/4 Reduced : 4/3/4 Plotted : 18/5/4

Espedalen

Loop 9

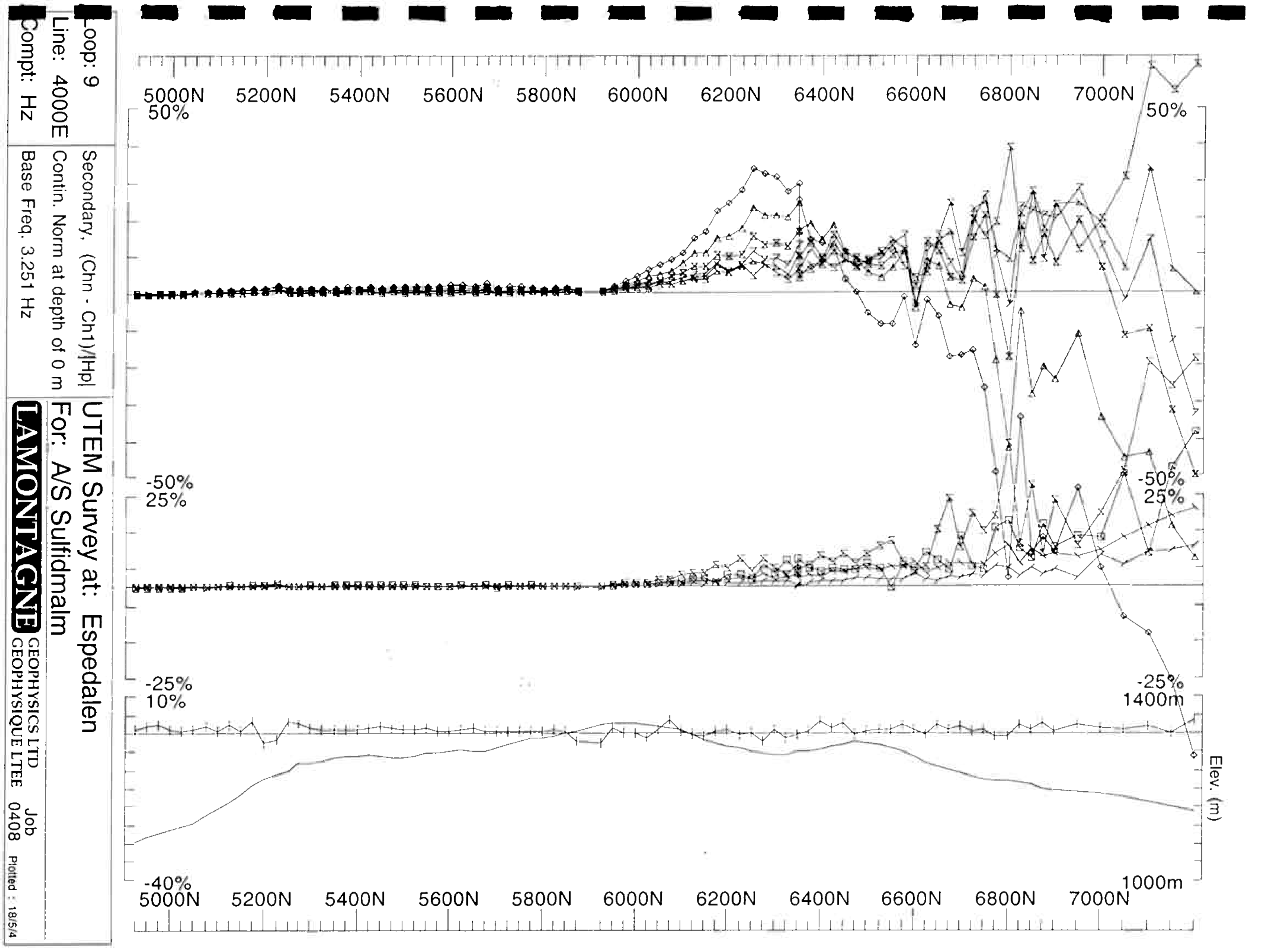
Hz
@3.251 Hz frequency

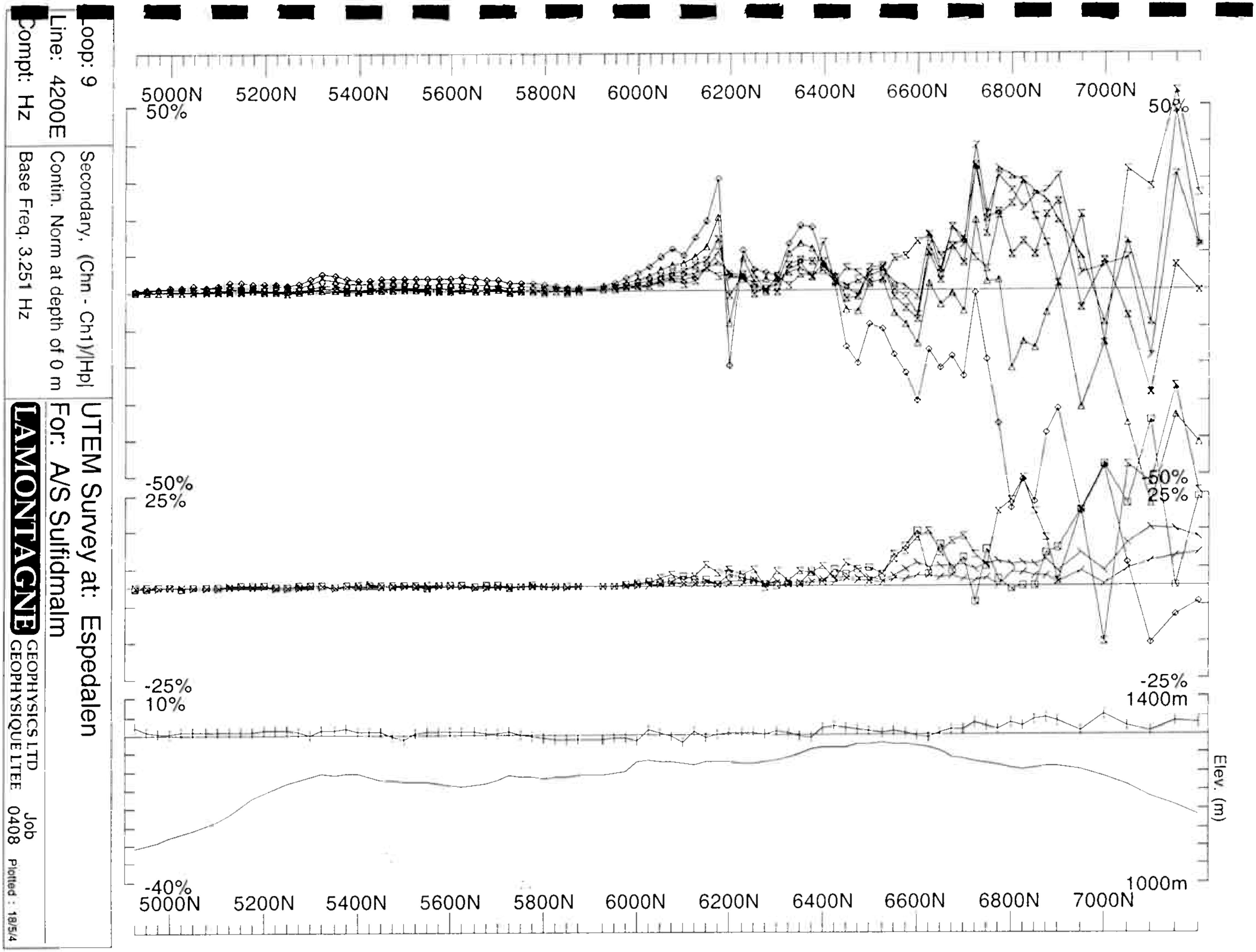
continuous norm

Ch1 reduced

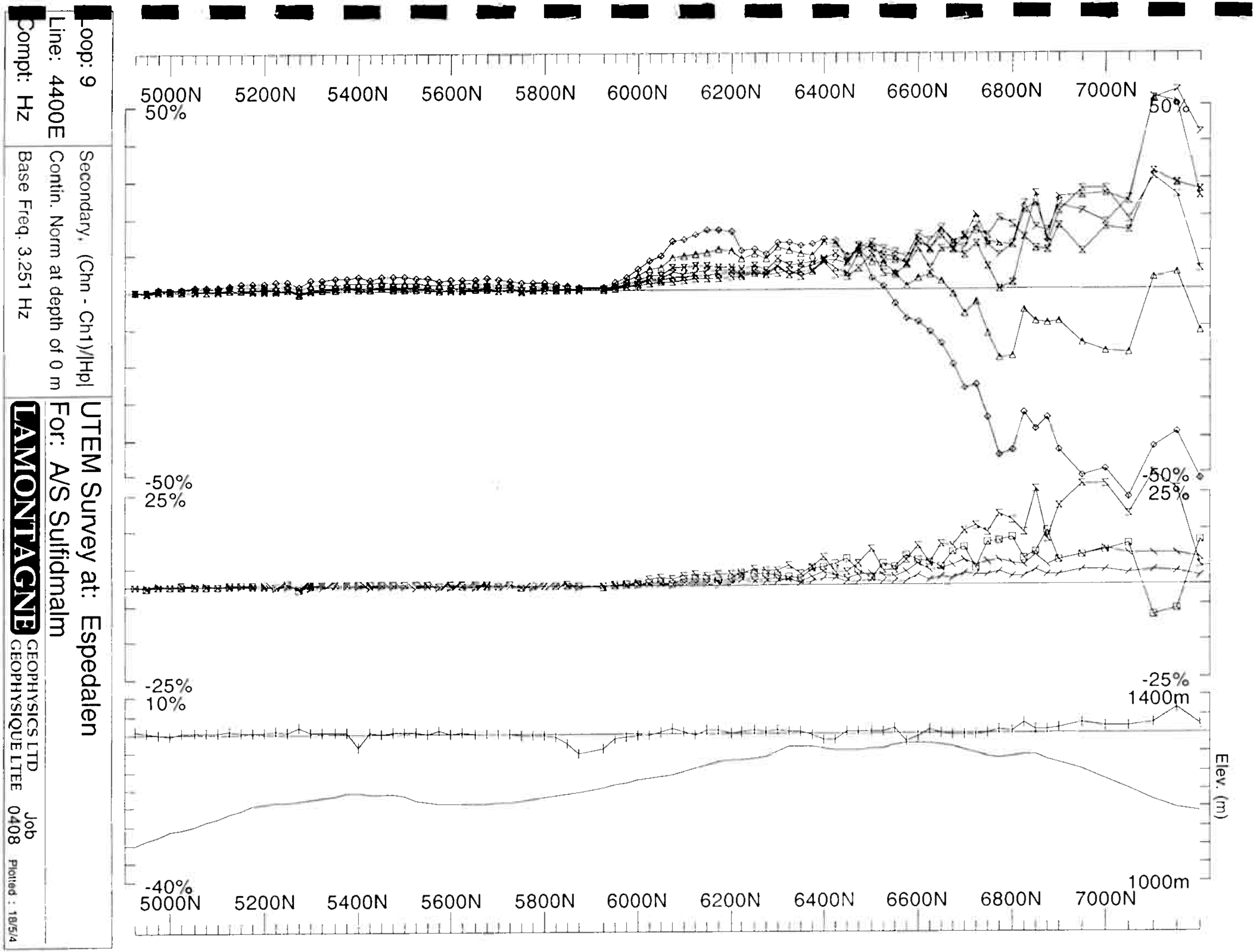
Loop 09	Line	4000E	4900N - 7200N	2300m
	Line	4200E	4900N - 7200N	2300m
	Line	4400E	4900N - 7200N	2300m
	Line	4600E	4900N - 7200N	2300m
	Line	4800E	4900N - 7200N	2300m
	Line	5000E	4900N - 7200N	2300m
			Loop 09 Total	13800m

Loop 9 - continuous norm


Loop: 9
Line: 4000E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 9
Line: 4200E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 9
Line: 4400E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)

Loop: 9
Line: 4600E
Compt: Hz

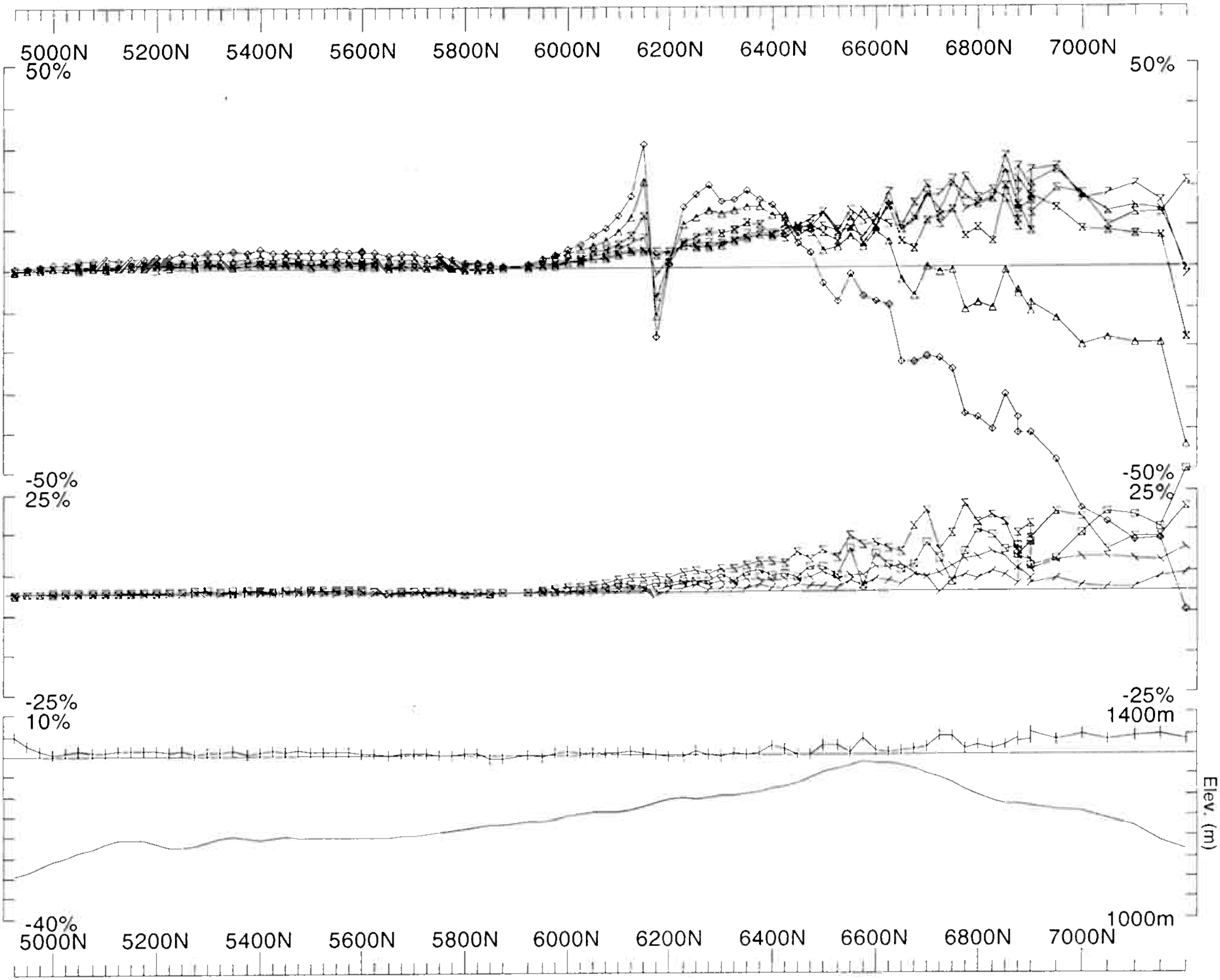
Secondary, (Chn - Ch1)/Hpl
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Plotted : 18/5/4



Loop: 9
Line: 4800E
Compt: Hz

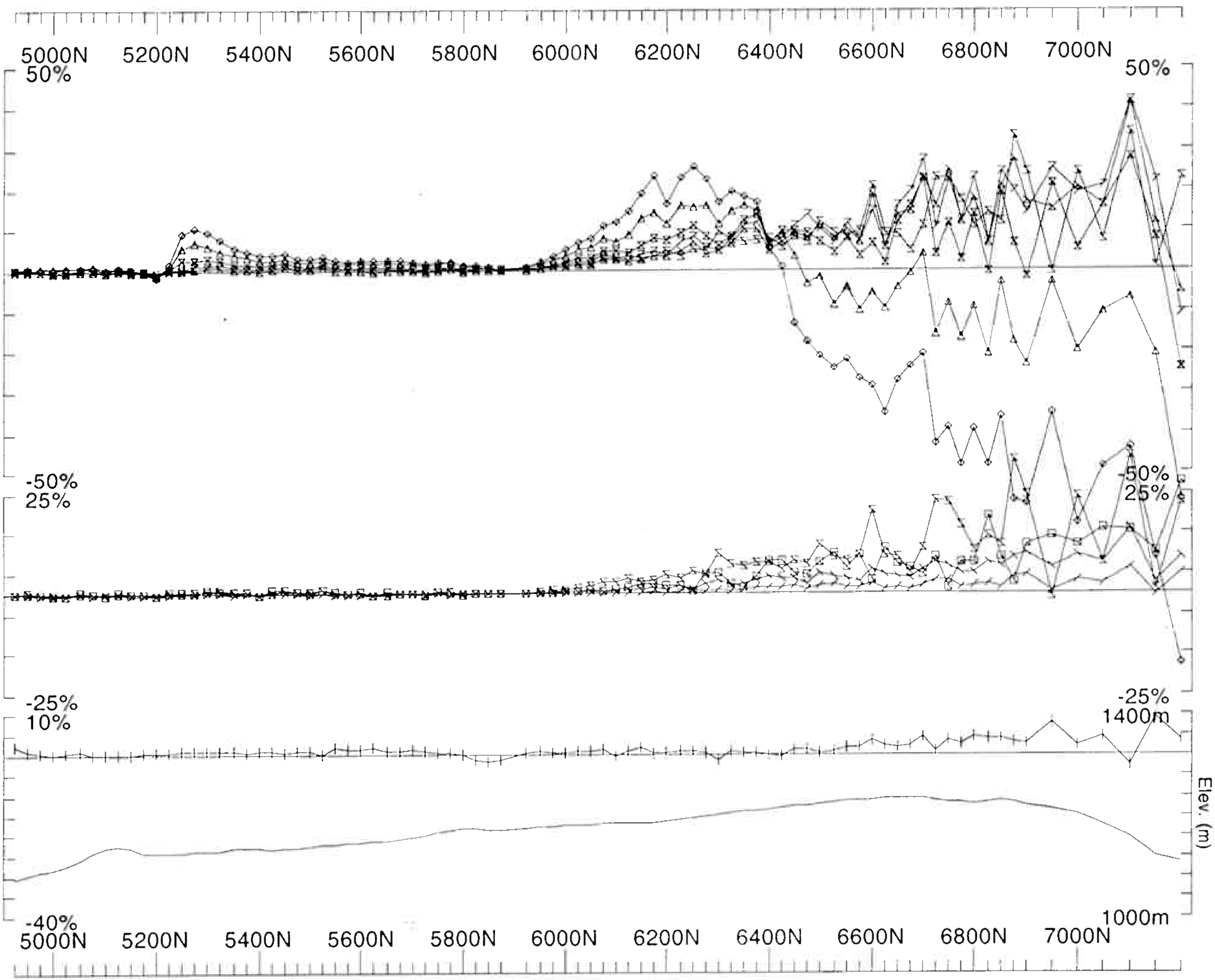
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

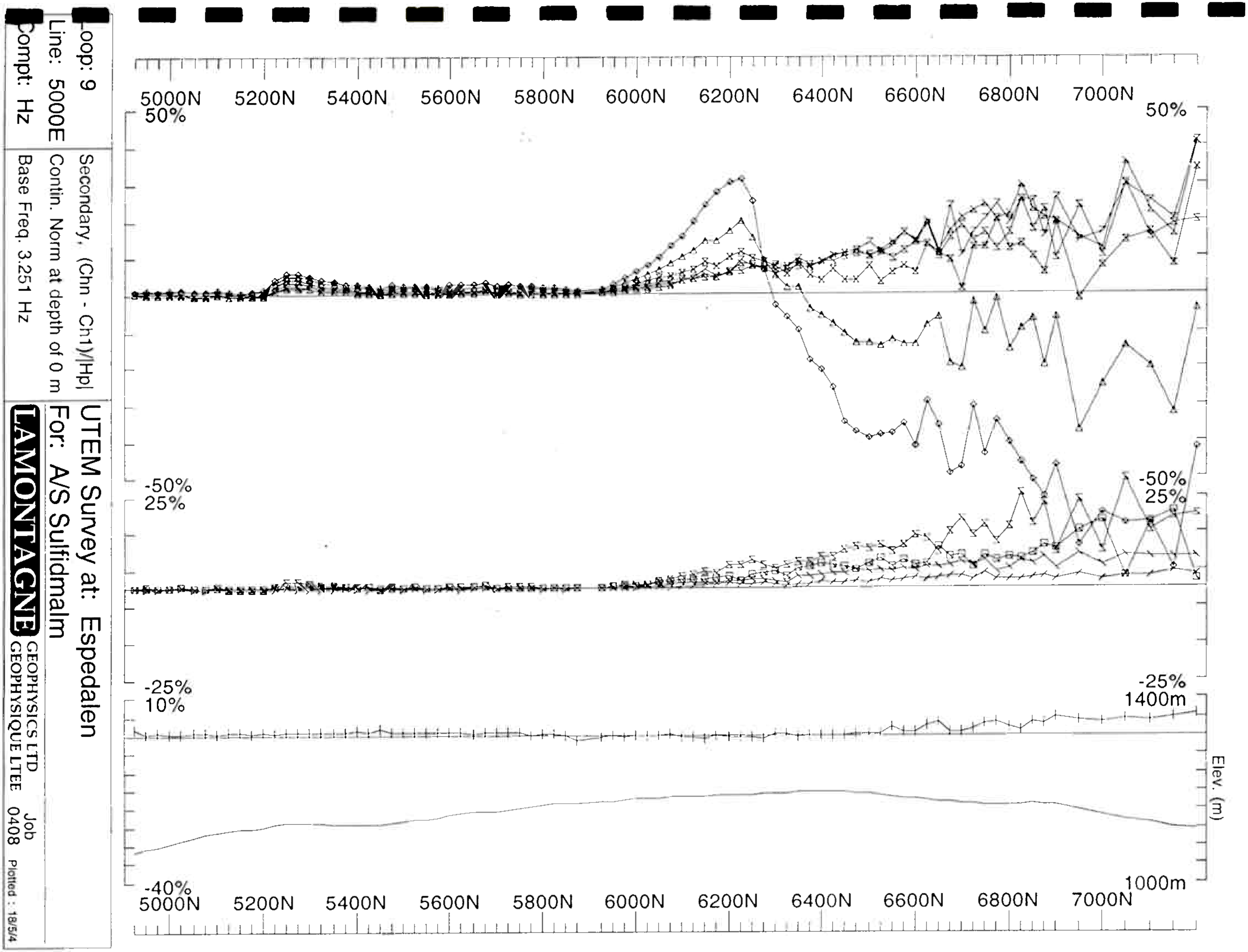
UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Plotted : 18/5/4




Loop: 9
Line: 5000E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)

Espedalen

Loop 09.10

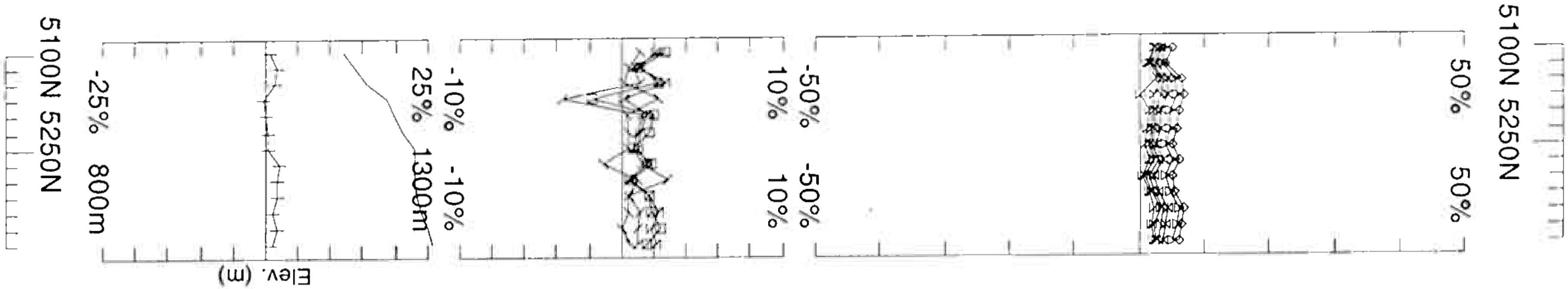
Hz
@3.251 Hz frequency

continuous norm

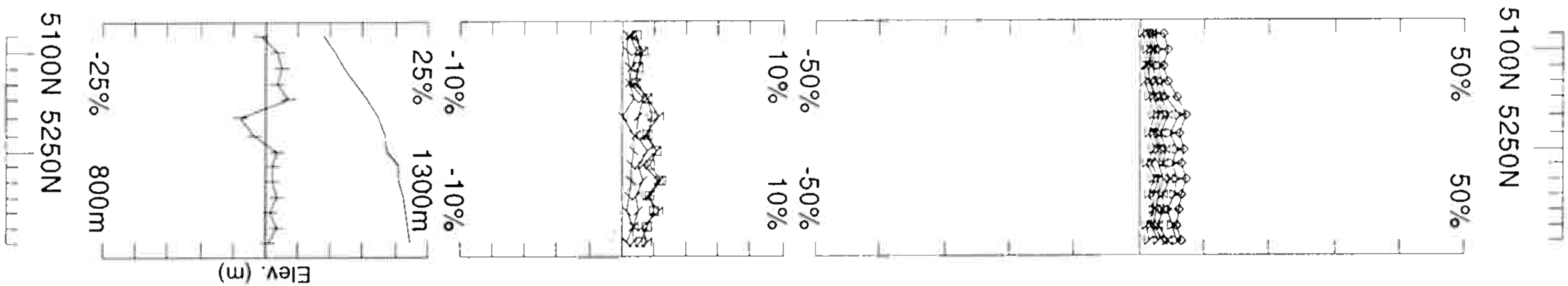
Ch1 reduced

Loop 09.10	Line	3900E	5100N - 5400N	300m
	Line	4000E	5075N - 5400N	325m
	Line	4100E	5100N - 5450N	350m
	Line	4200E	5050N - 5450N	400m
			Loop 09.10 Total	1375m

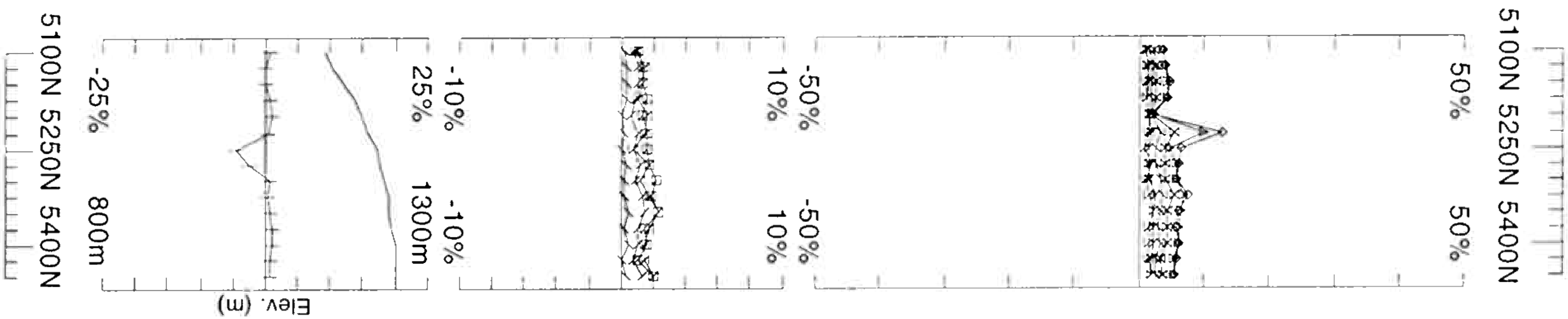
Loop 09.10 - continuous norm



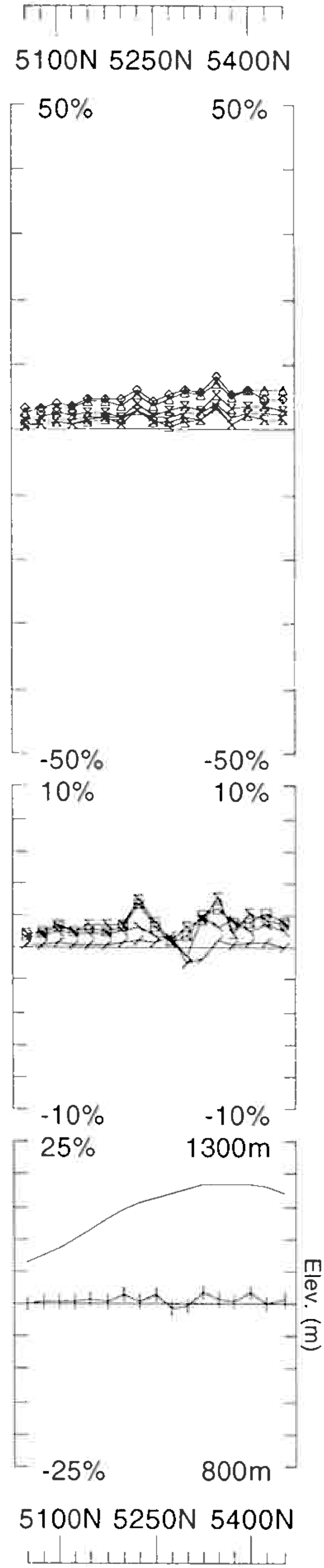
Loop: 9.10 Line: 3900E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 13/3/4 Reduced : 13/3/4 Plotted : 18/5/4



Loop: 9.10	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 4000E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 13/3/4 Reduced : 13/3/4 Plotted : 18/5/4



Loop: 9.10	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 4100E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 13/3/4 Reduced : 13/3/4 Plotted : 18/5/4



Loop: 9.10
Line: 4200E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Surveyed : 13/3/4
Reduced : 13/3/4
Plotted : 18/5/4

Espedalen

Loop 10

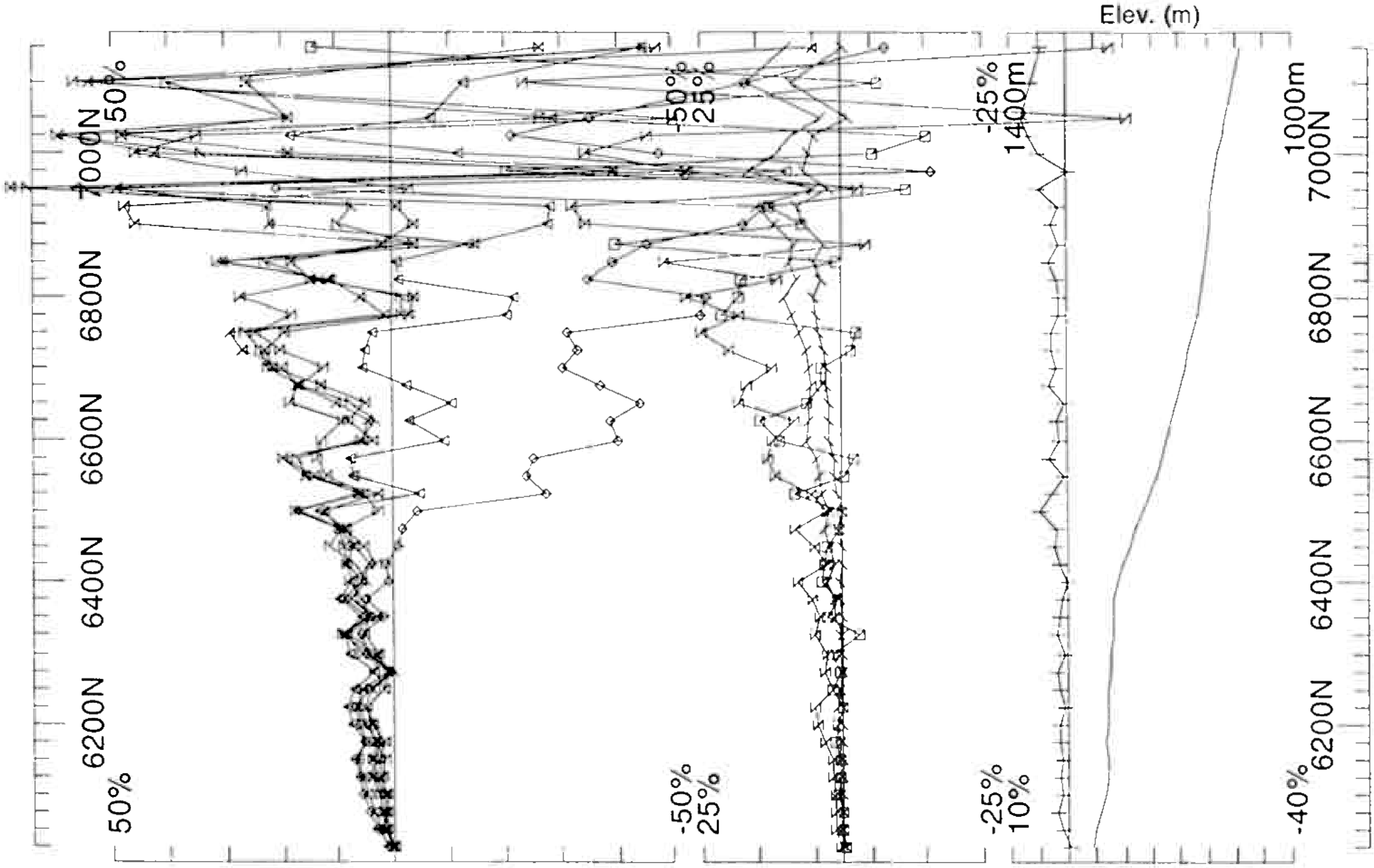
Hz
@3.251 Hz frequency

continuous norm

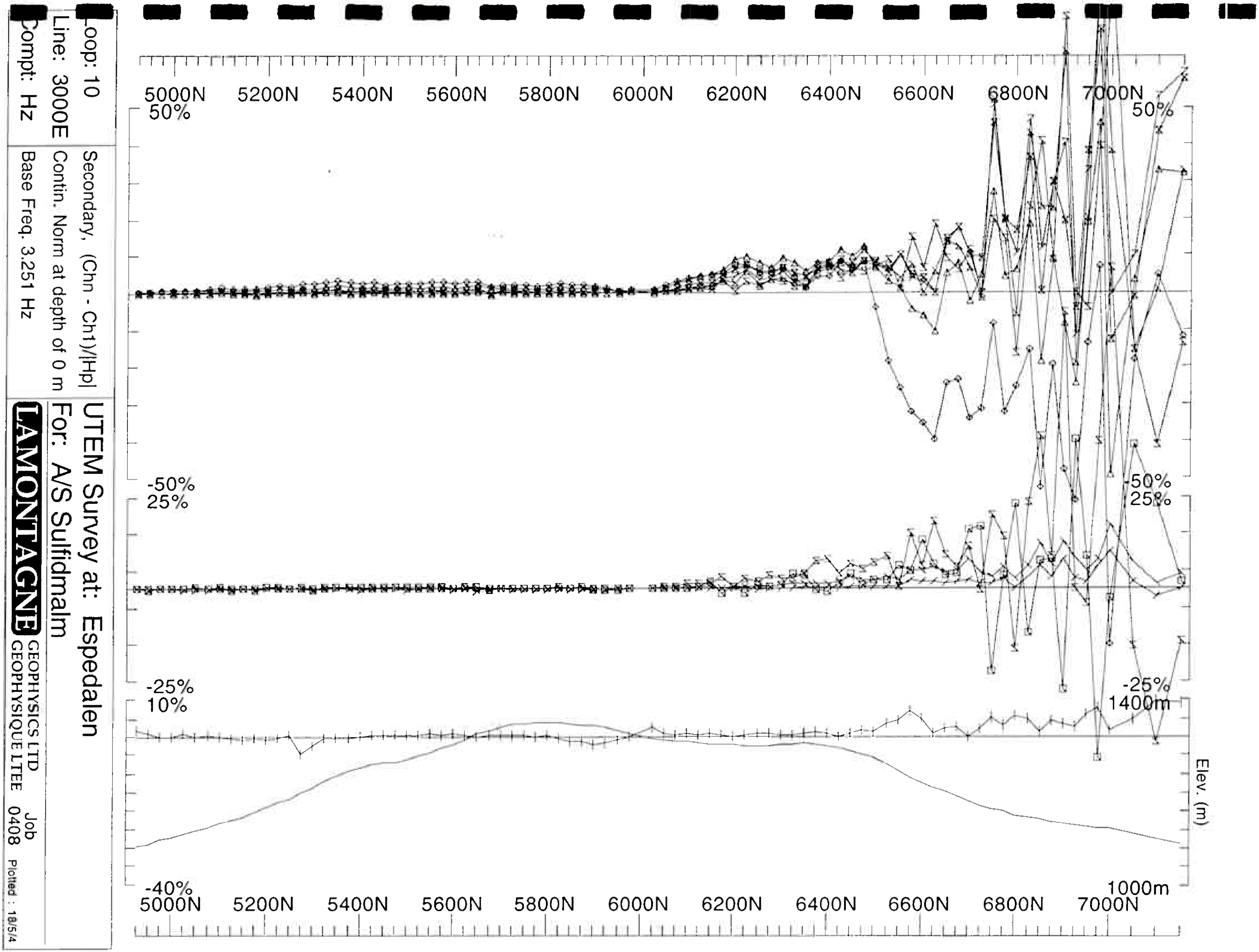
Ch1 reduced

Loop 10	Line	2800E	6000N - 7150N	1150m
	Line	3000E	4900N - 7150N	2250m
	Line	3200E	4900N - 7150N	2250m
	Line	3400E	4900N - 7150N	2250m
	Line	3500E	6000N - 6900N	900m
	Line	3600E	4900N - 7150N	2250m
	Line	3700E	6000N - 6850N	850m
	Line	3800E	4900N - 7150N	2250m
			Loop 10 Total	14150m

Loop 10 - continuous norm



Loop: 10	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2800E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 9/3/4 Reduced : 9/3/4 Plotted : 18/5/4



Loop: 10
Line: 3000E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)

Loop: 10
Line: 3200E
Compt: Hz

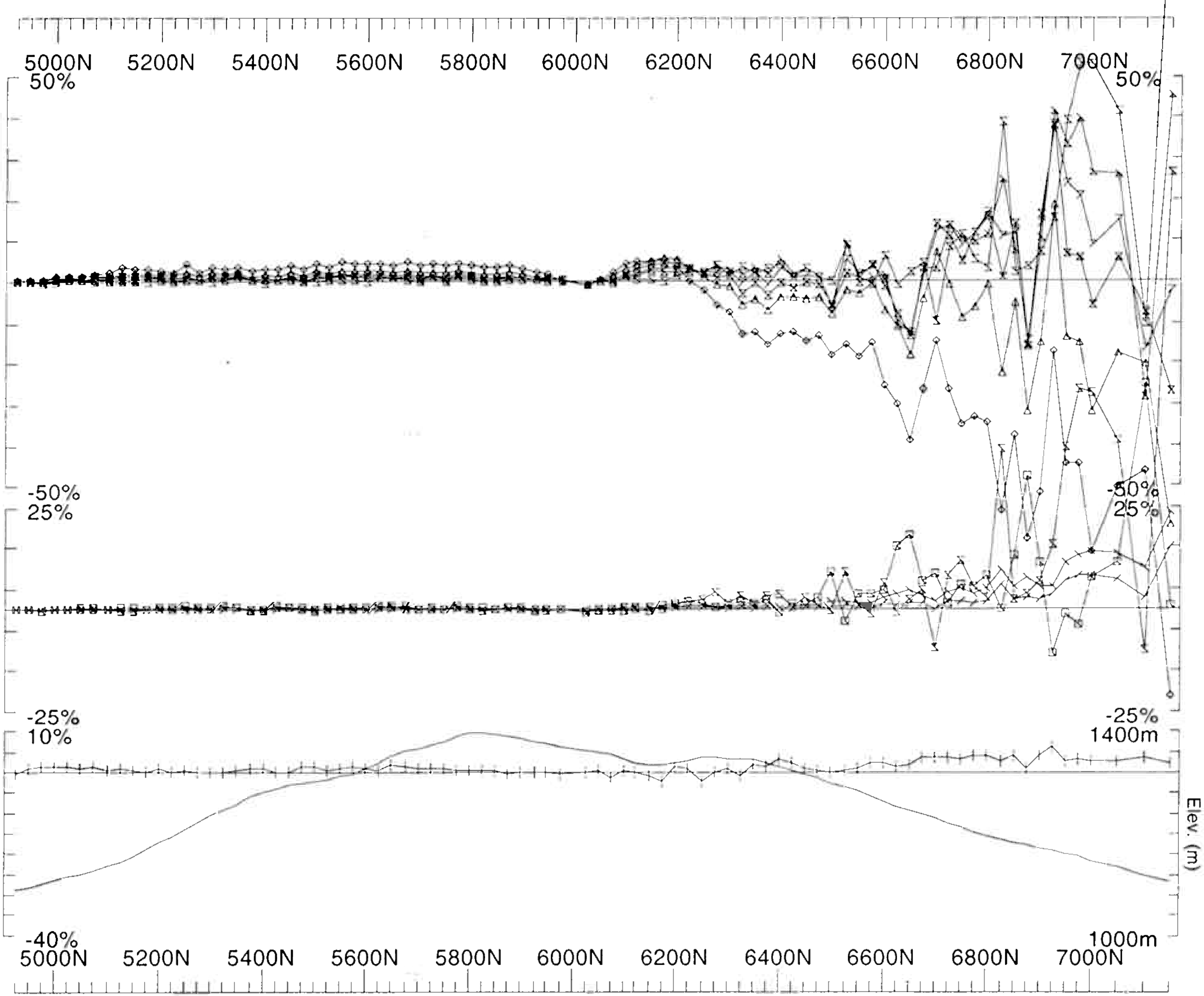
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Plotted : 18/5/4



Loop: 10
Line: 3400E
Compt: Hz

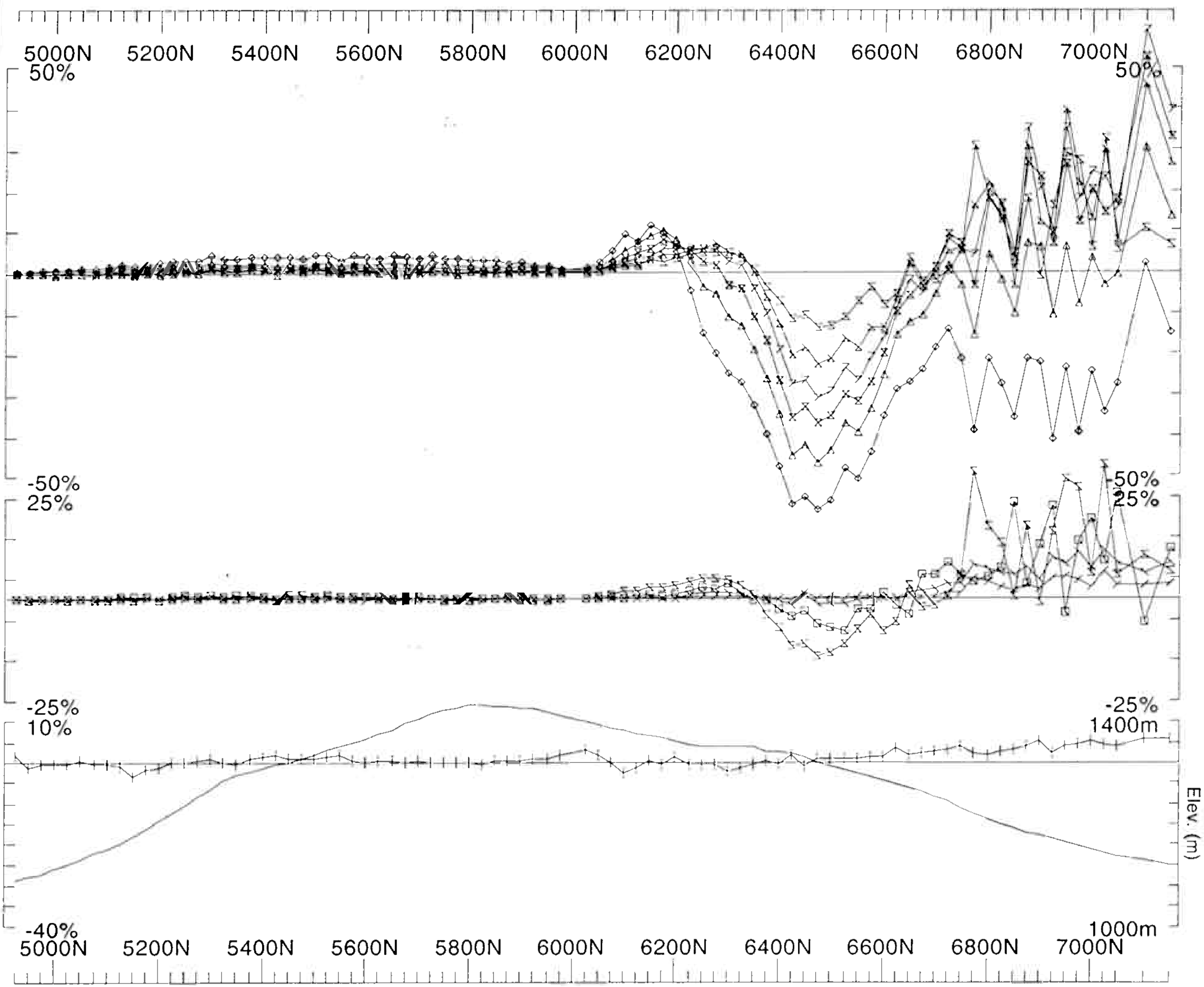
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

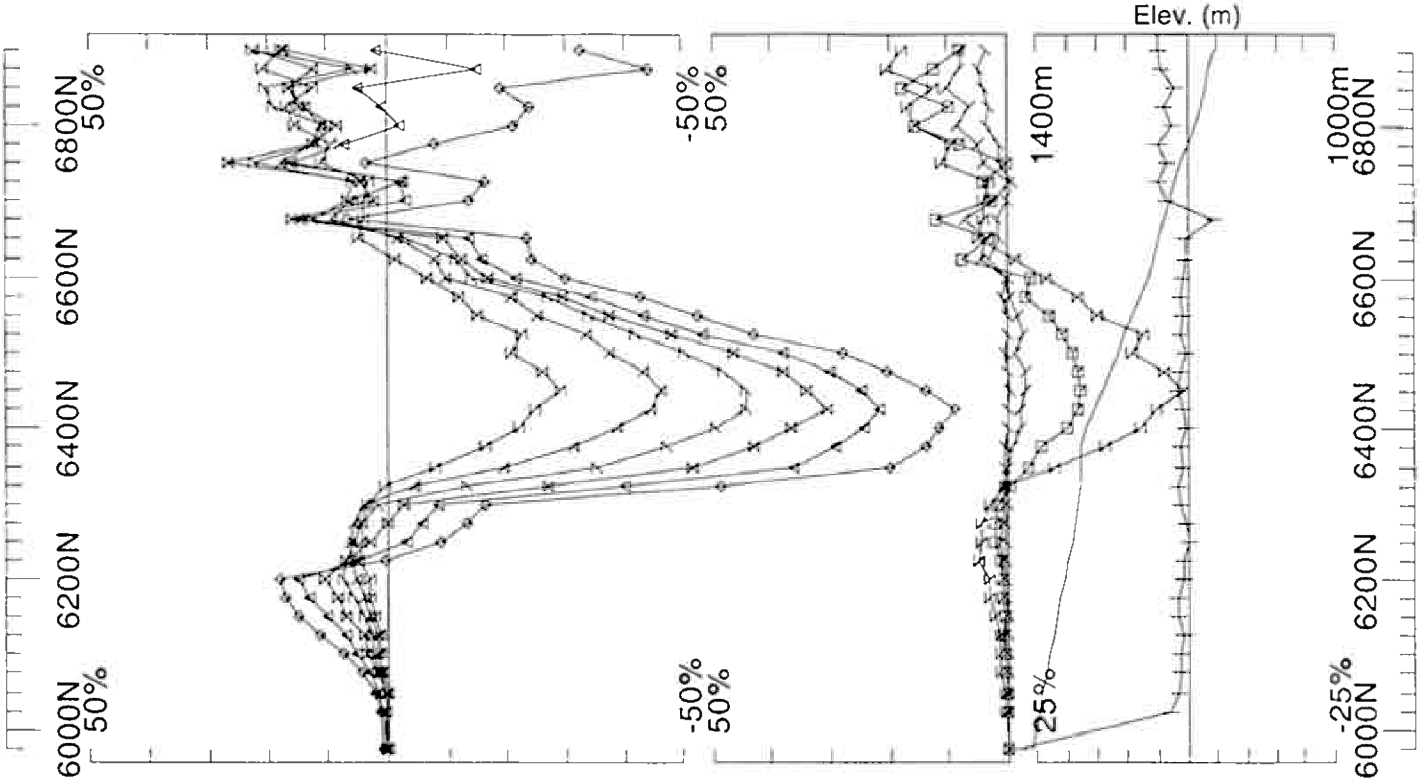
UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

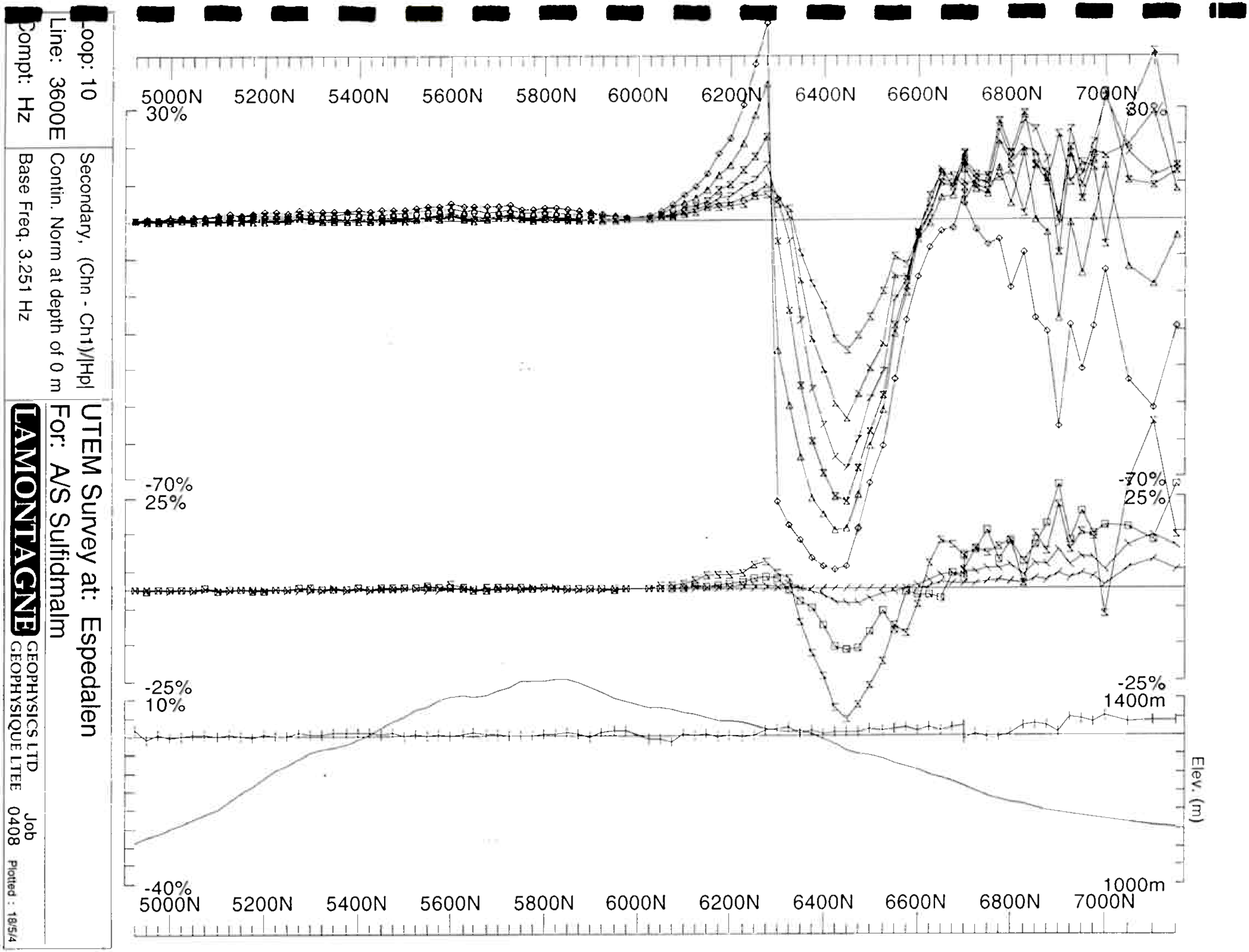
Job 0408

Surveyed : 9/3/4
Reduced : 9/3/4
Plotted : 18/5/4

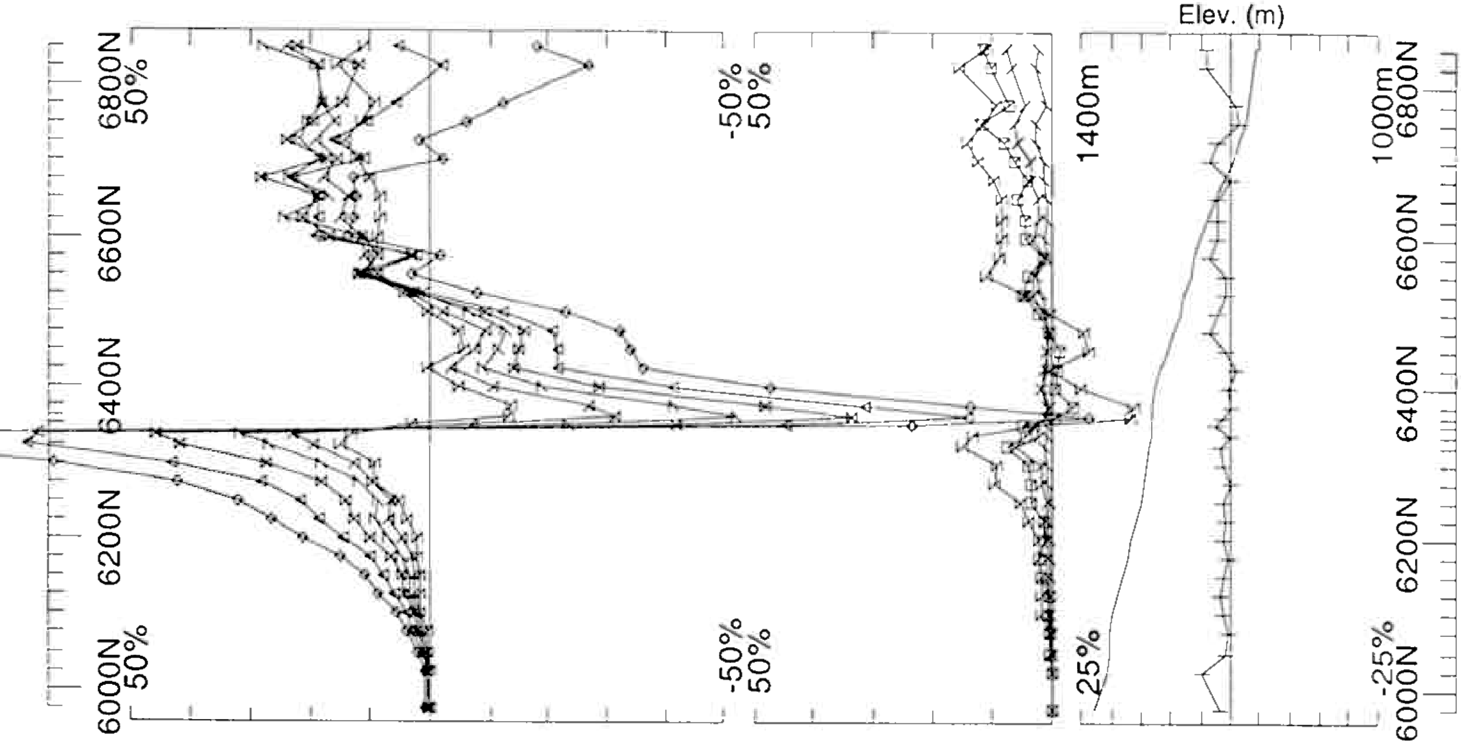




Loop: 10 Line: 3500E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 12/3/4 Reduced : 21/3/4 Plotted : 19/5/4



Loop: 10
Line: 3600E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
30%
-70%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



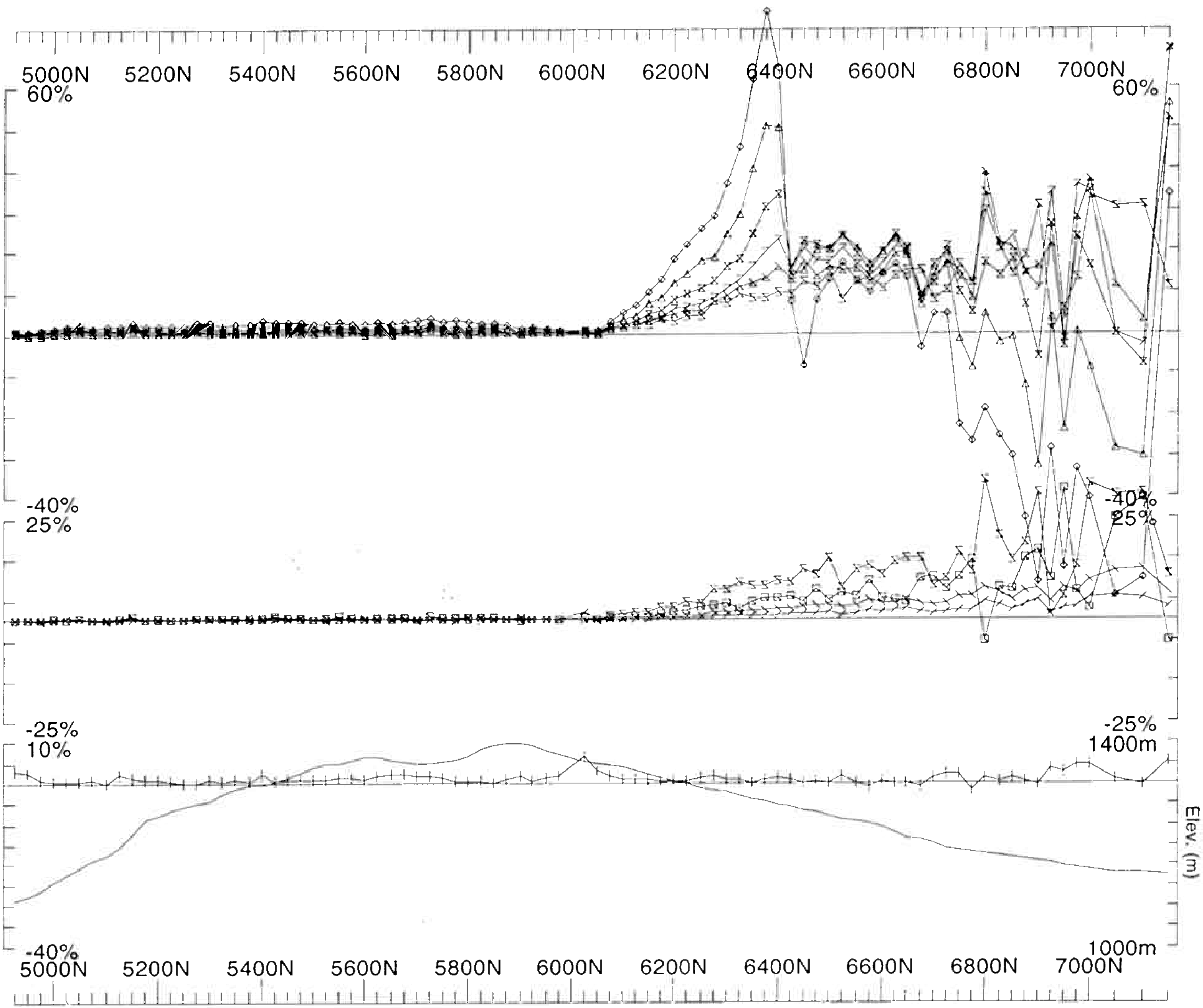
Loop: 10	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 3700E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 12/3/4 Reduced : 21/3/4 Plotted : 19/5/4

Loop: 10
Line: 3800E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4



Espedalen

Loop 11

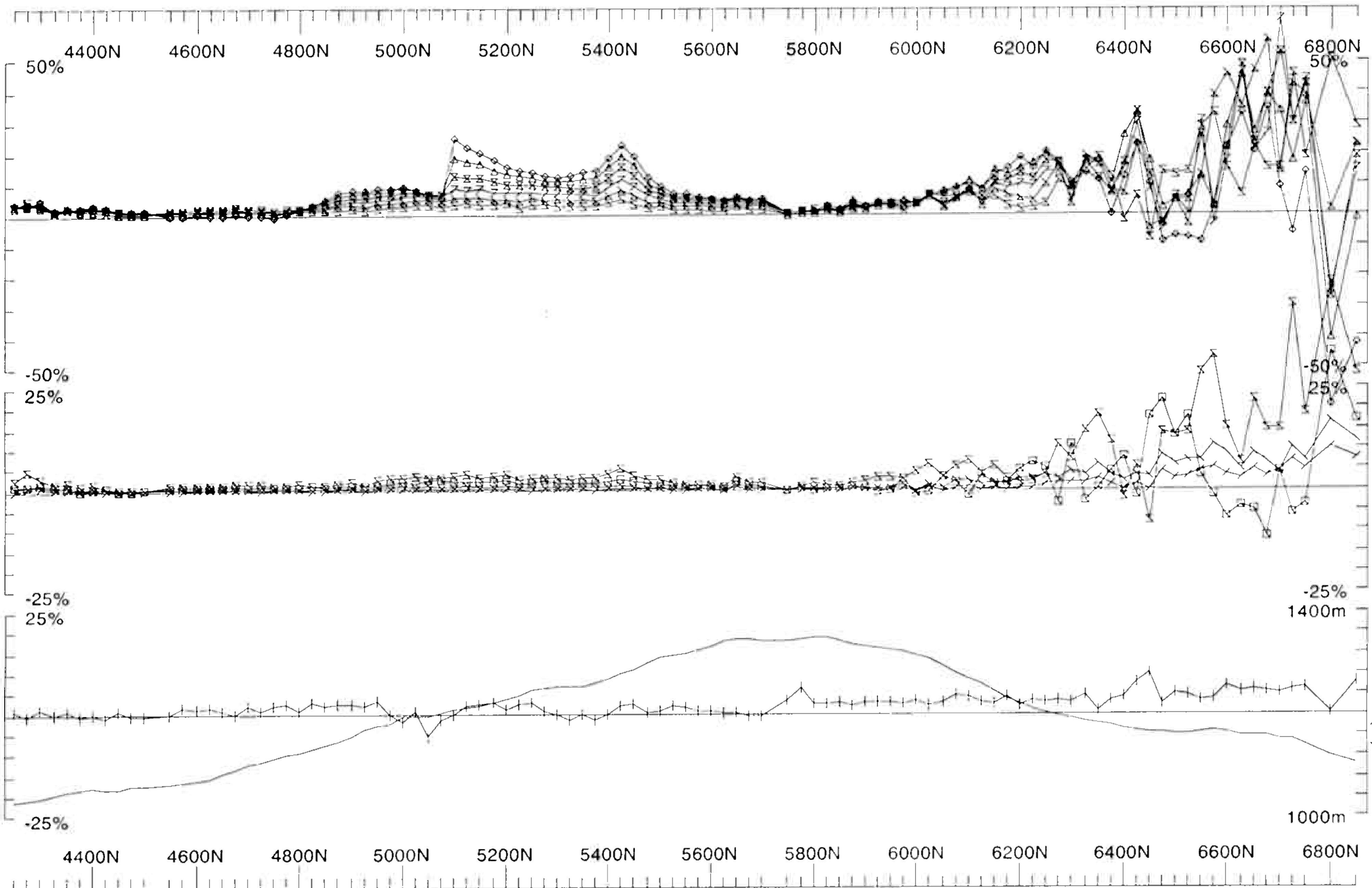
Hz
@3.251 Hz frequency

continuous norm

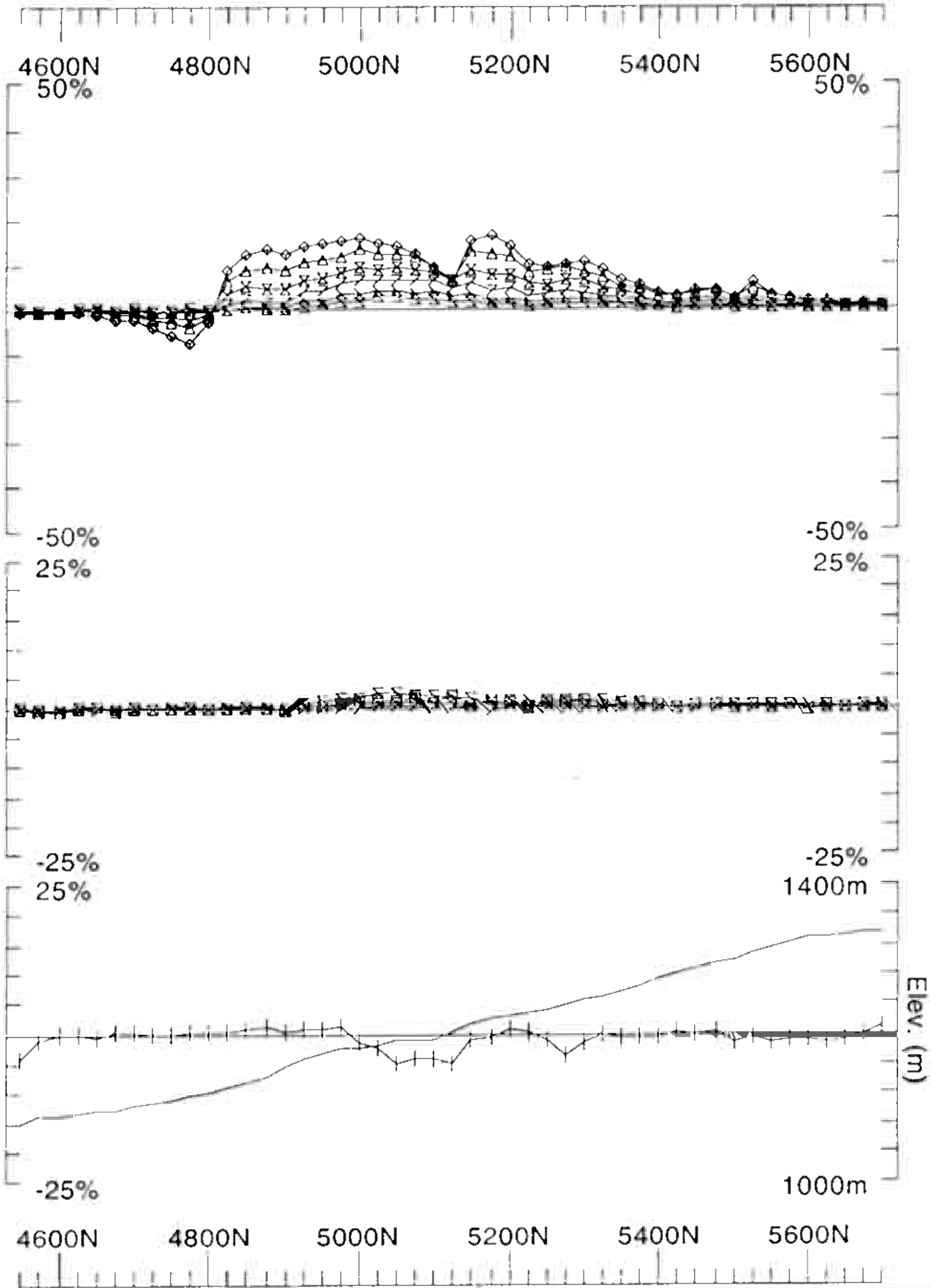
Ch1 reduced

Loop 11	Line	1800E	4250N - 6850N	2600m
	Line	1900E	4525N - 5725N	1200m
	Line	2000E	4250N - 6850N	2600m
	Line	2100E	4525N - 5725N	1200m
	Line	2200E	4250N - 7100N	2850m
	Line	2400E	4375N - 7200N	2825m
	Line	2600E	4450N - 7200N	2750m
	Line	2800E	5725N - 6025N	300m
			Loop 11 Total	16325m

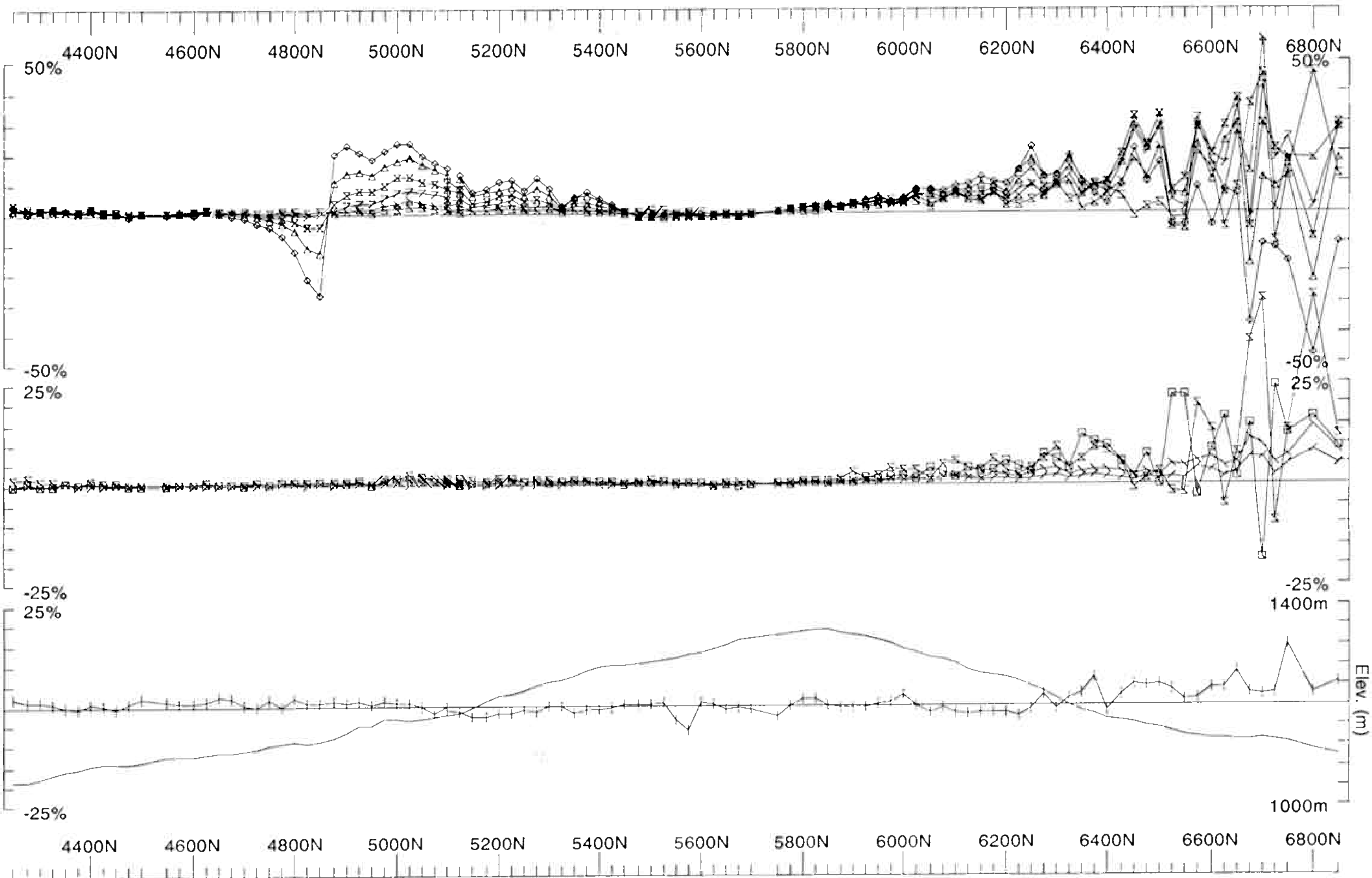
Loop 11 - continuous norm



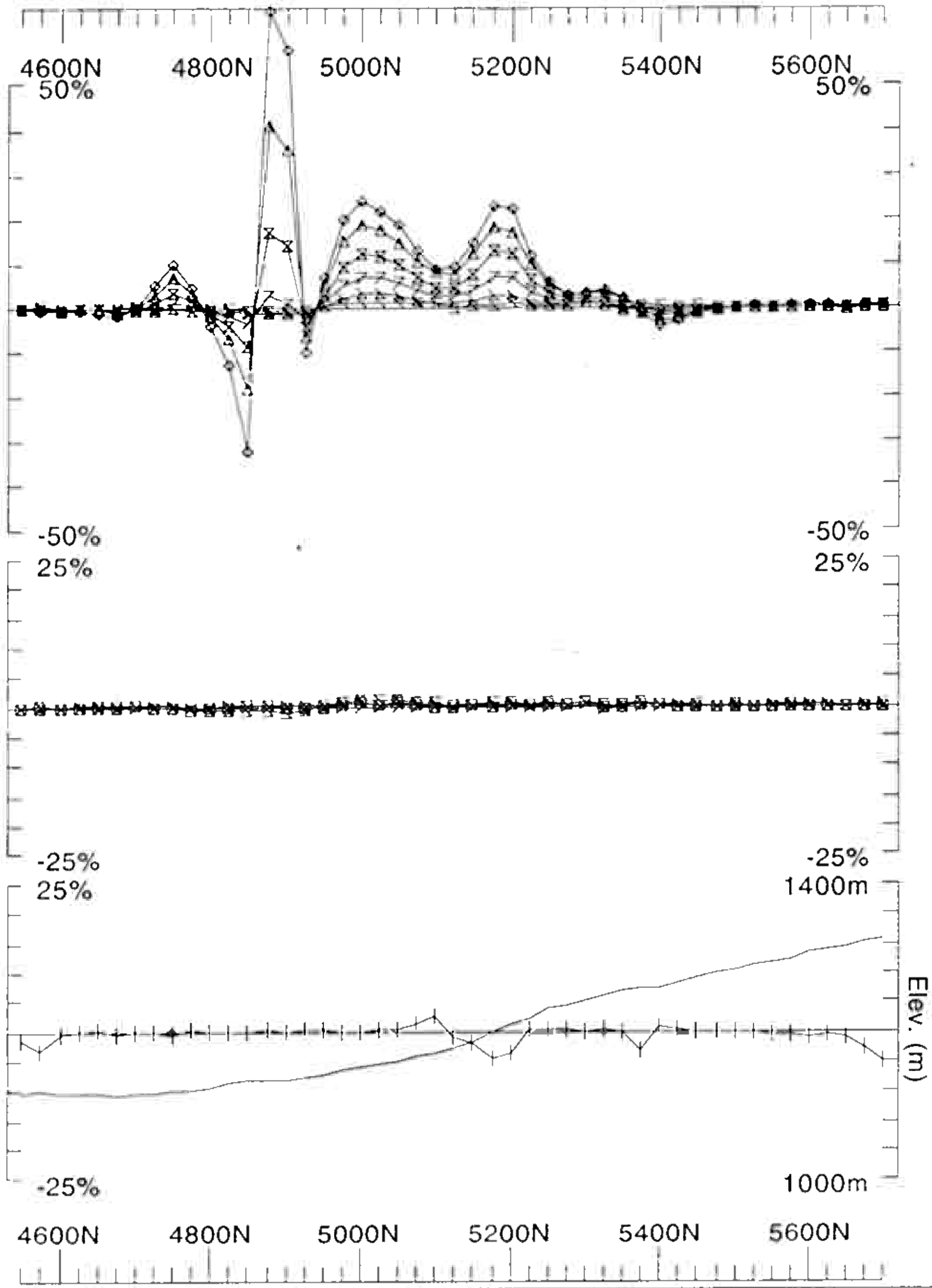
Loop: 11	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 1800E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



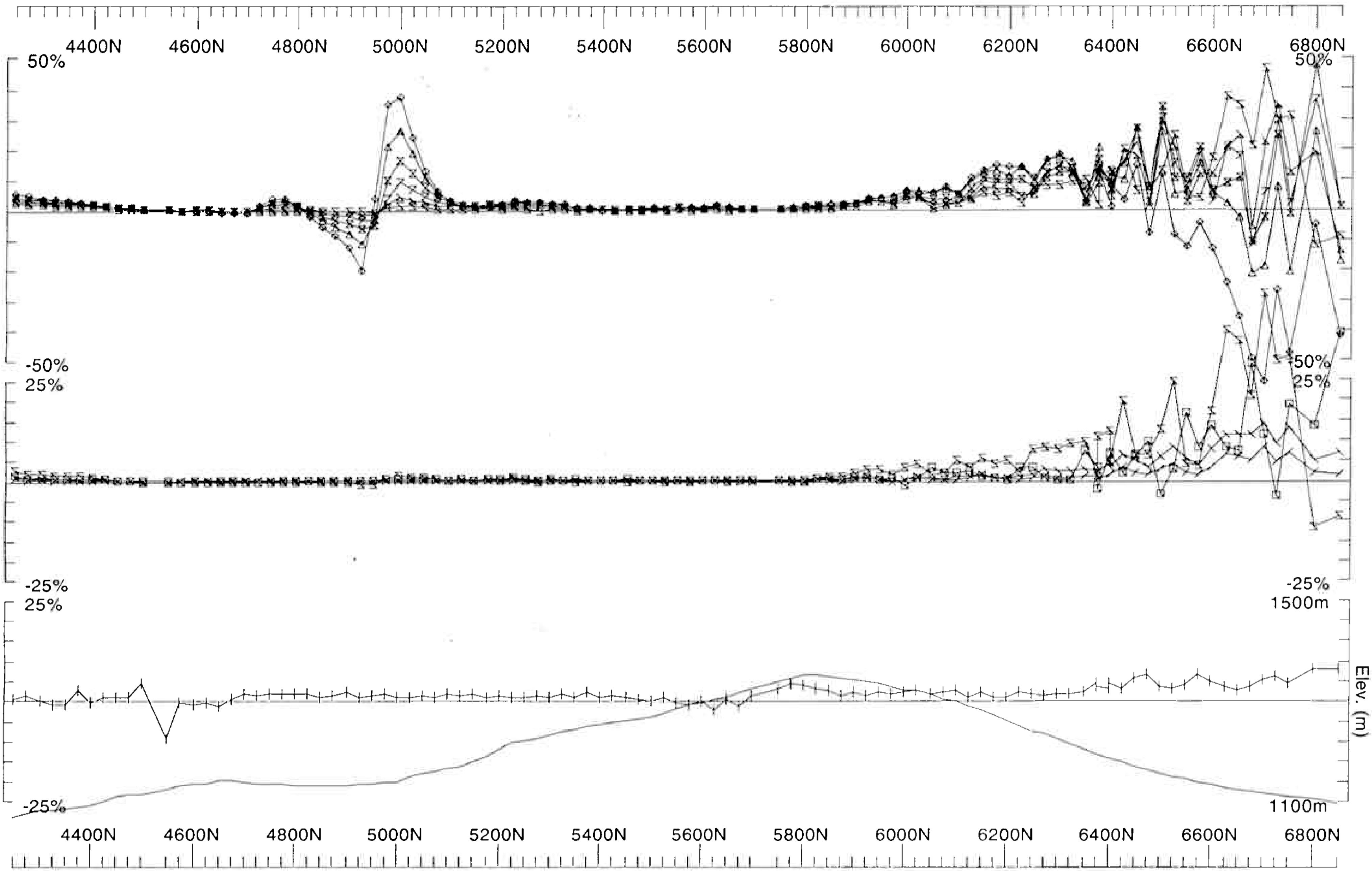
Loop: 11 Line: 1900E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



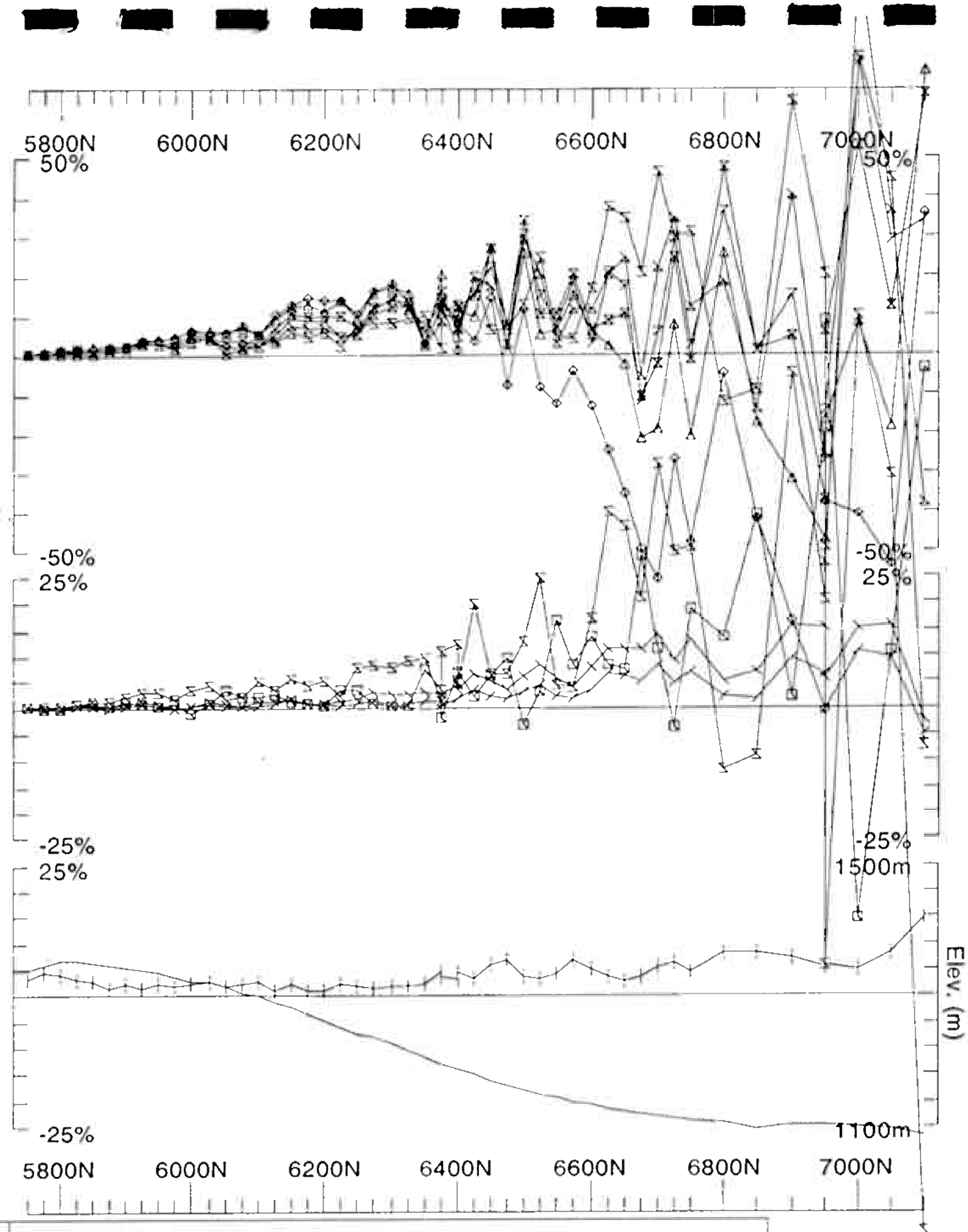
Loop: 11	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2000E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted 18/5/4



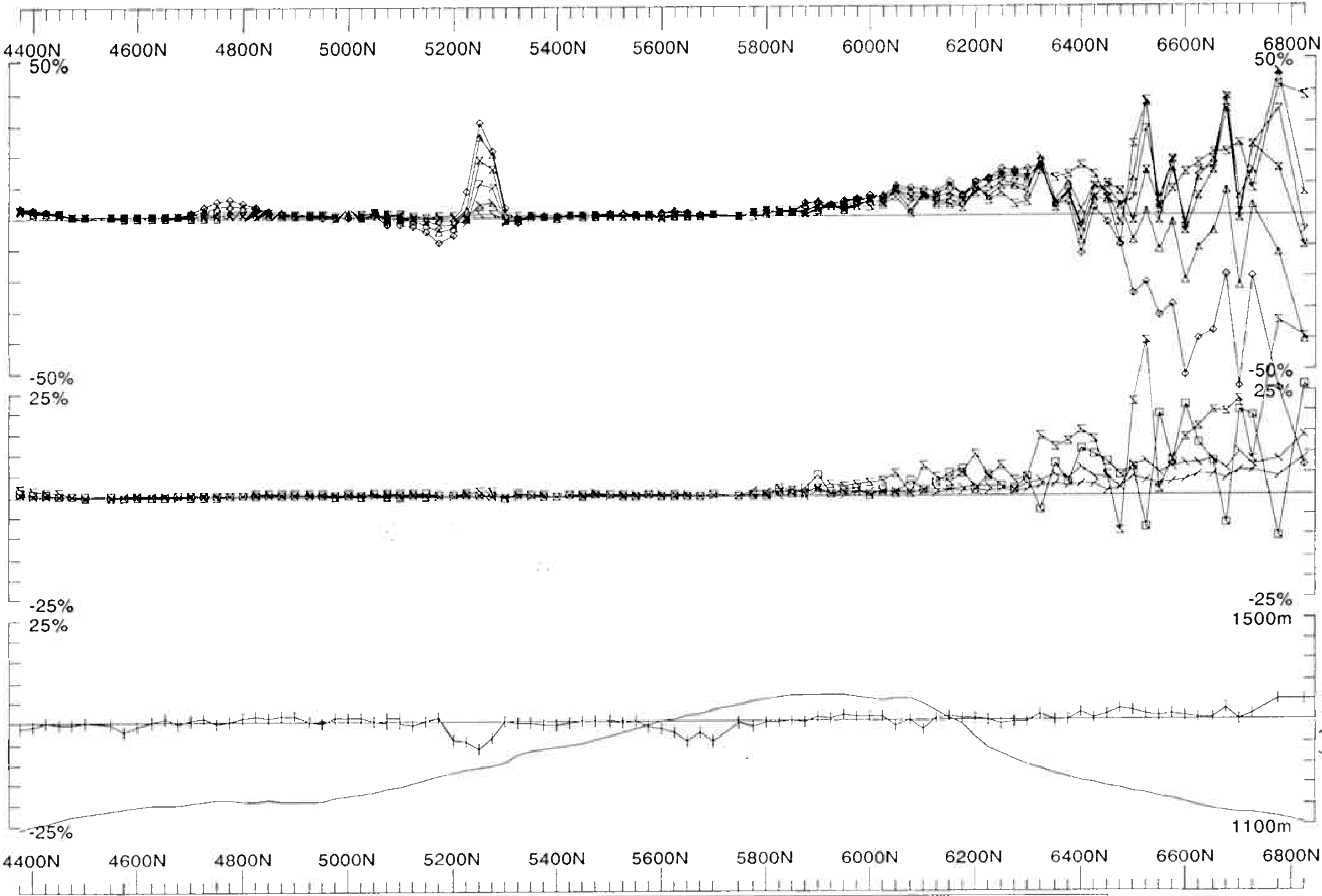
Loop: 11	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2100E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



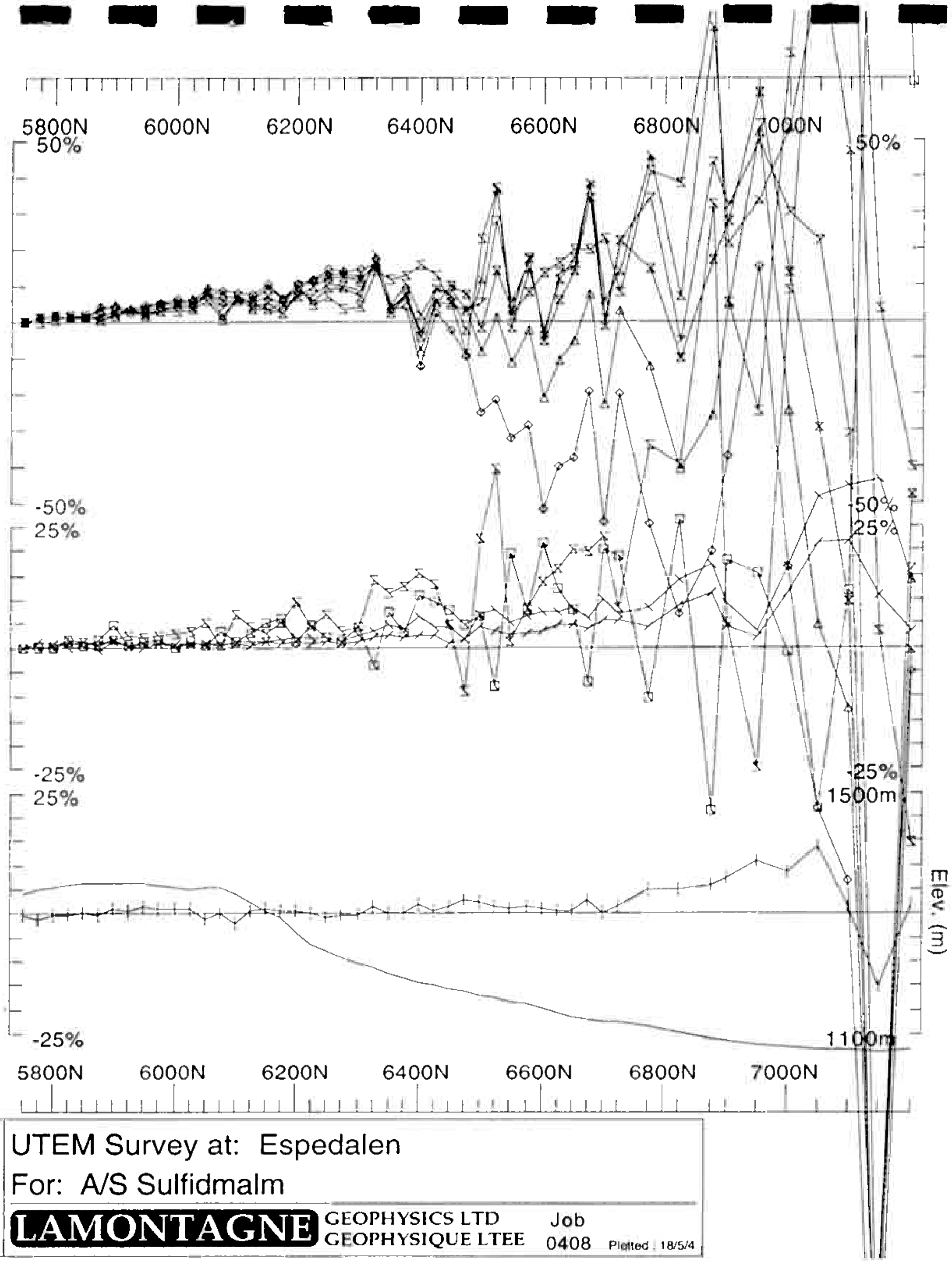
Loop: 11	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2200E (to 6850E)	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 11	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2200E (off-loop data)	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted 18/5/4



Loop: 11	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2400E (to 6825E)	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted: 18/5/4



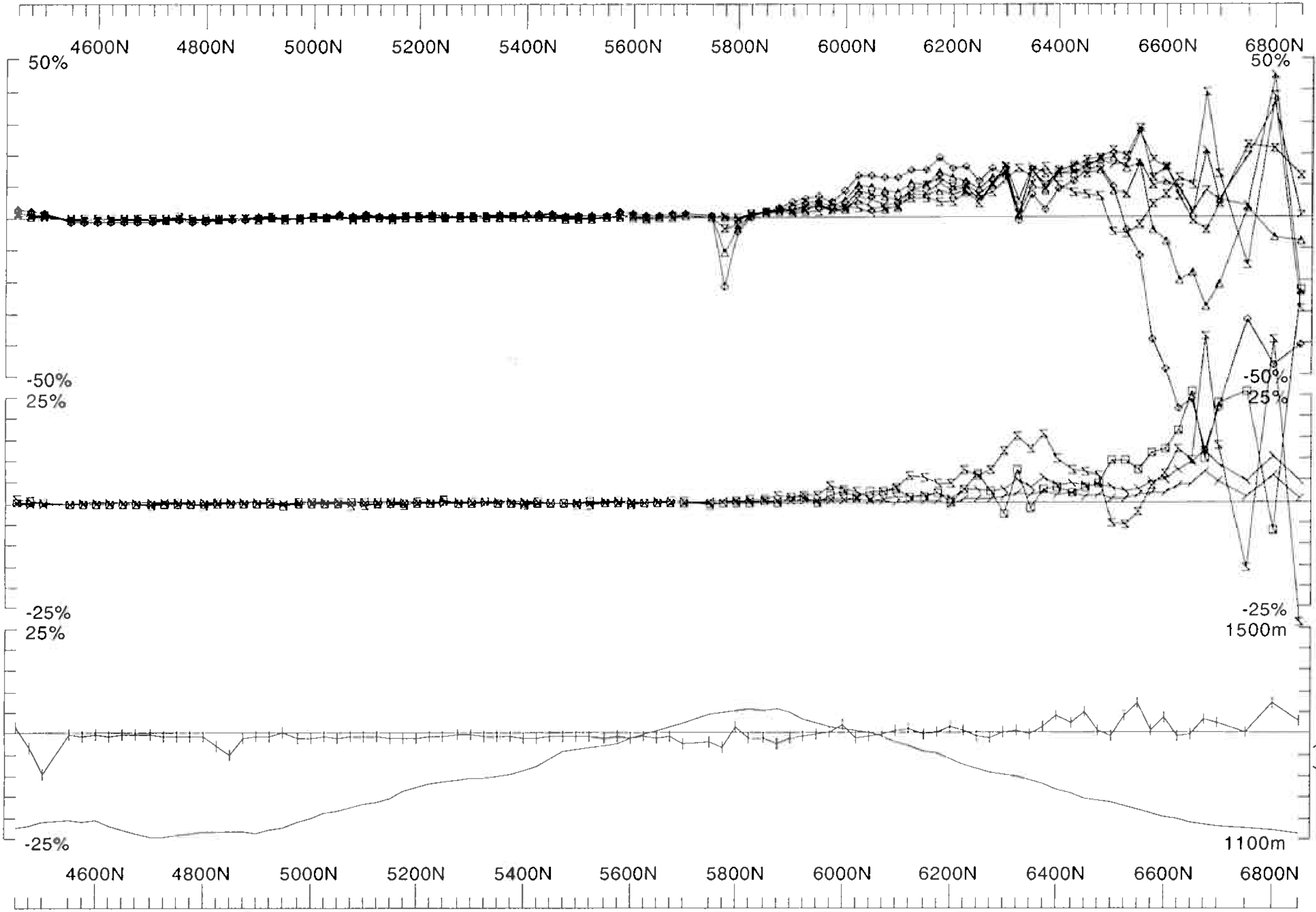
Loop: 11
Line: 2400E (off-loop data)
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

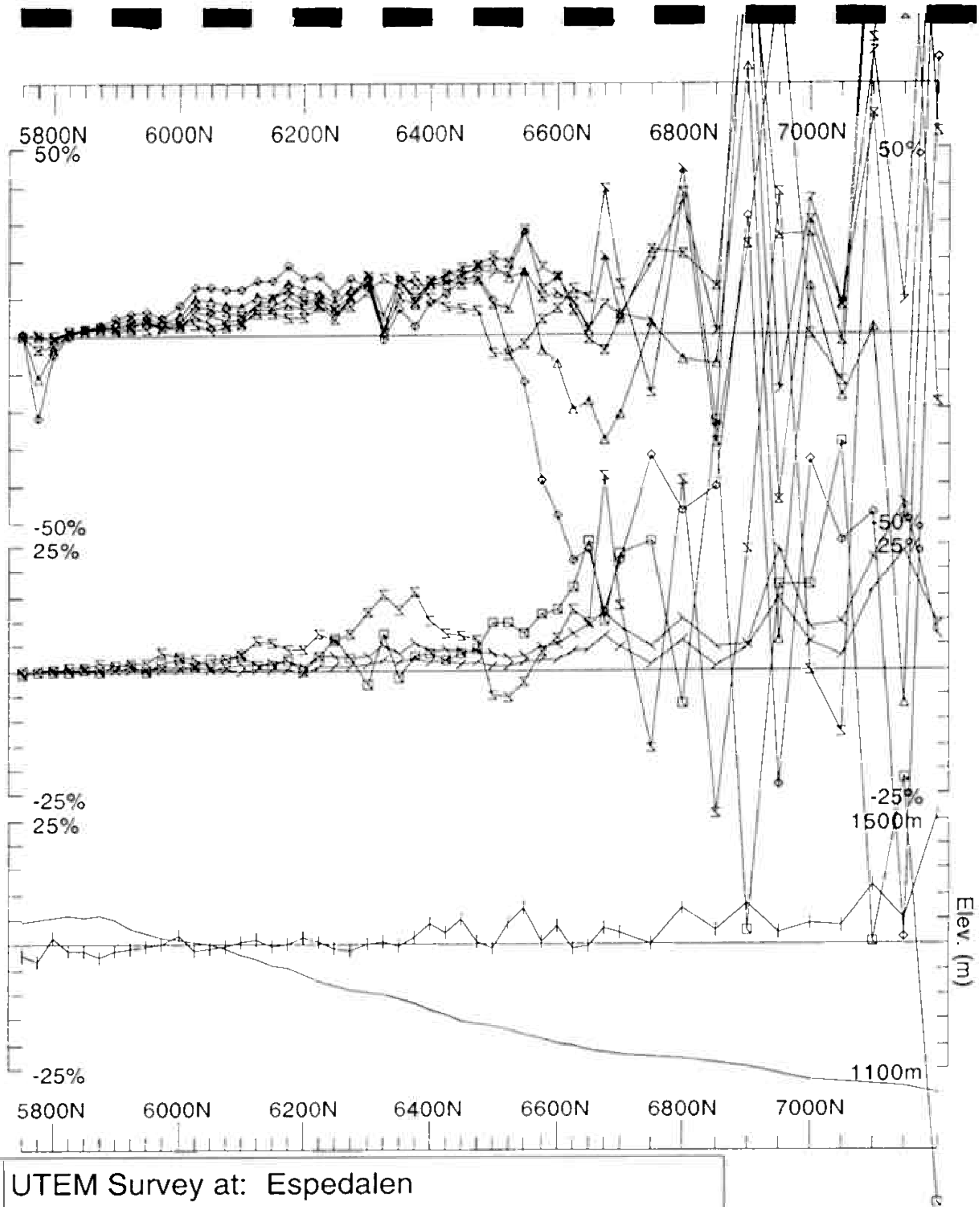
UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

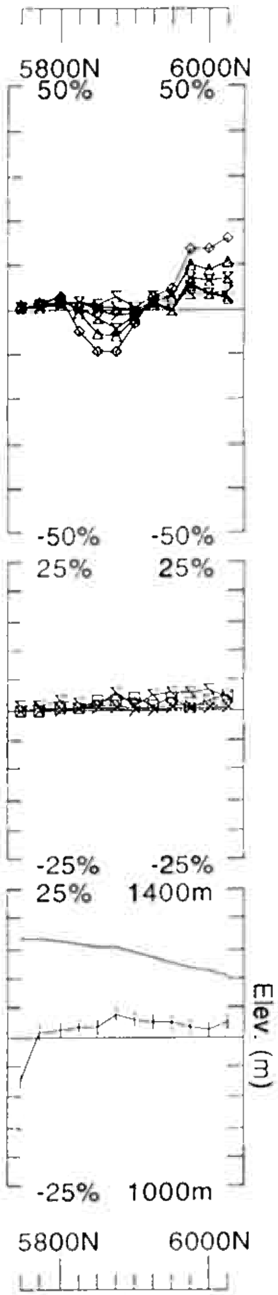
Job 0408 Plotted : 18/5/4



Loop: 11	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2600E (to 6850E)	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 11	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2600E (off-loop data)	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted: 18/5/4



Loop: 11	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2800E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed: 21/3/4 Reduced: 23/3/4 Plotted: 18/5/4

Espedalen

Loop 12

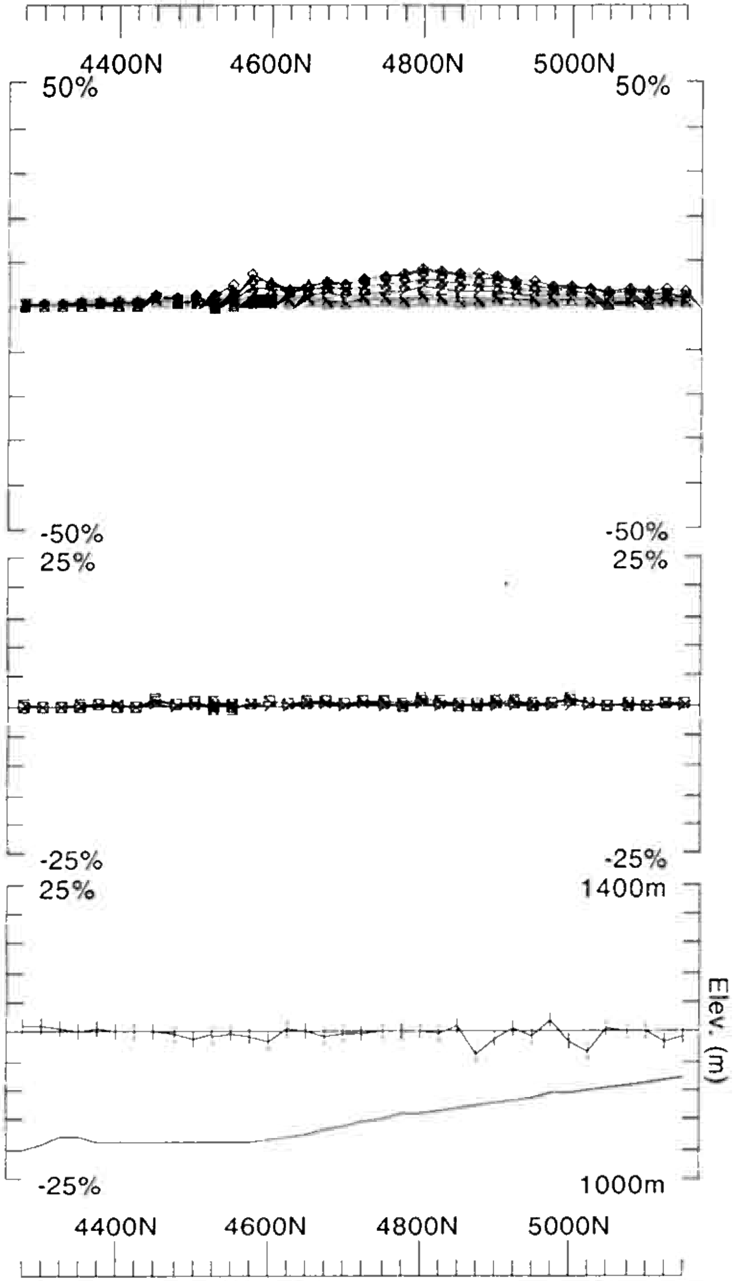
Hz
@3.251 Hz frequency

continuous norm

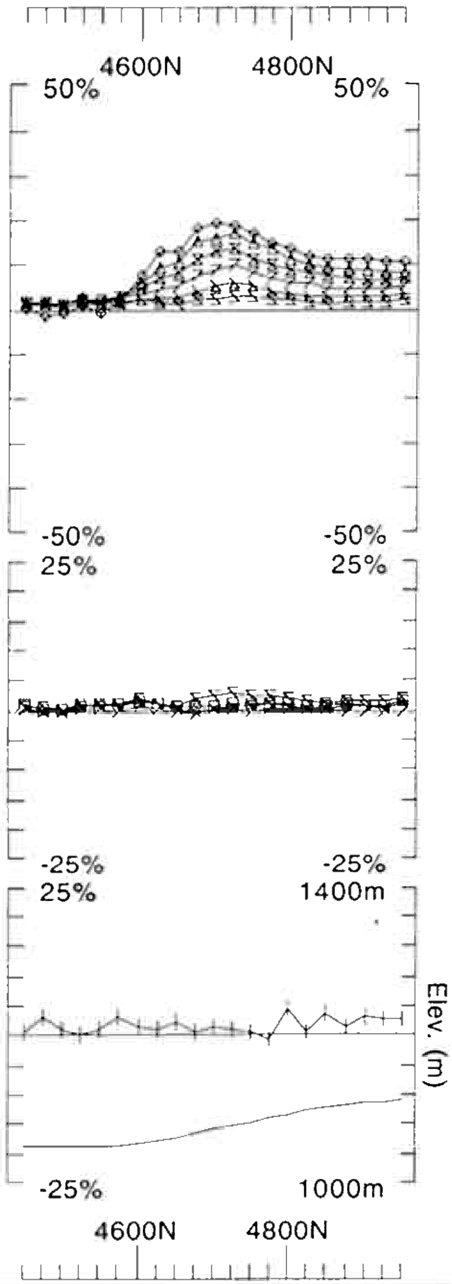
Ch1 reduced

Loop 12	Line	0600E	4250N - 5150N	900m
	Line	0725E	4450N - 4950N	500m
	Line	0800E	4250N - 5150N	900m
	Line	0875E	4450N - 4950N	500m
	Line	1000E	4250N - 6600N	2350m
	Line	1200E	4250N - 6600N	2350m
	Line	1400E	4250N - 6600N	2350m
	Line	1600E	4250N - 6800N	2550m
			Loop 12 Total	12400m

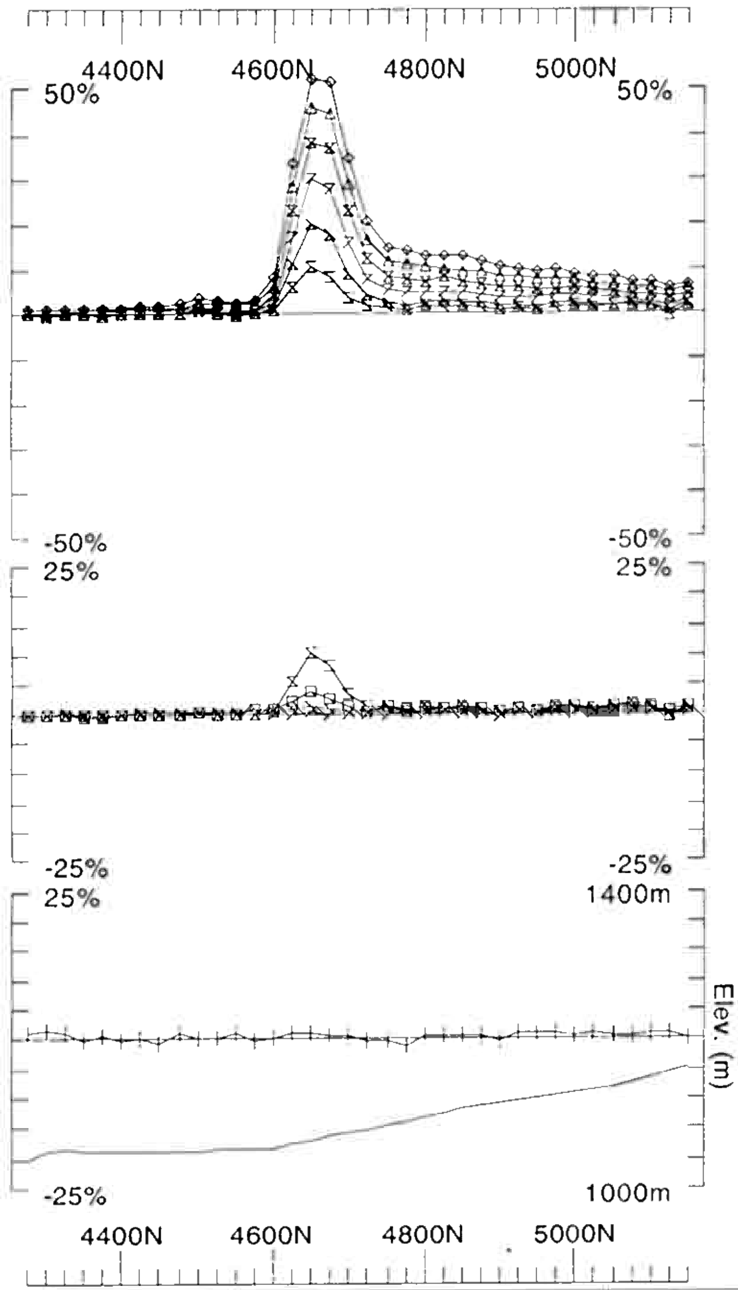
Loop 12 - continuous norm



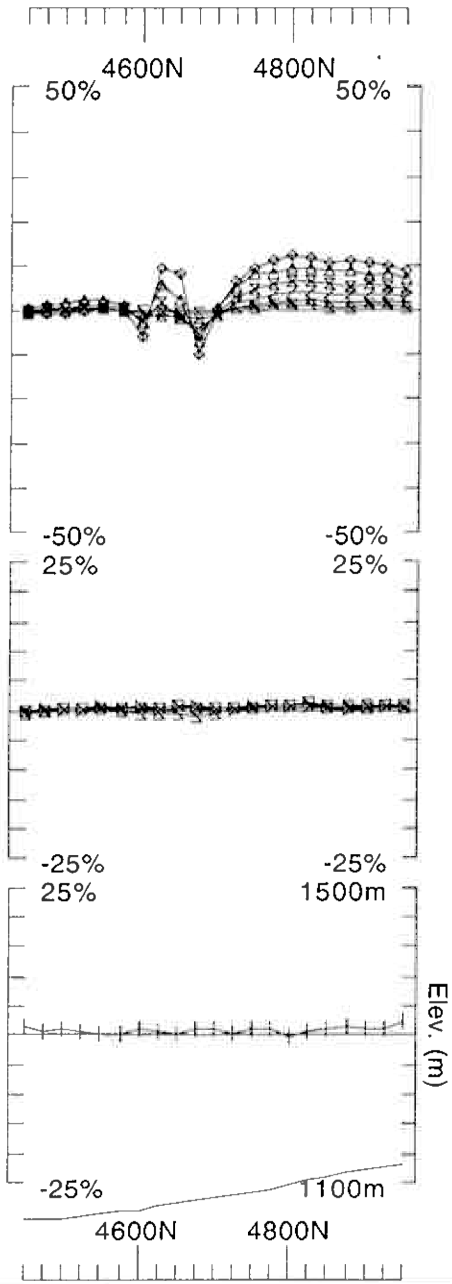
Loop: 12	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 600E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



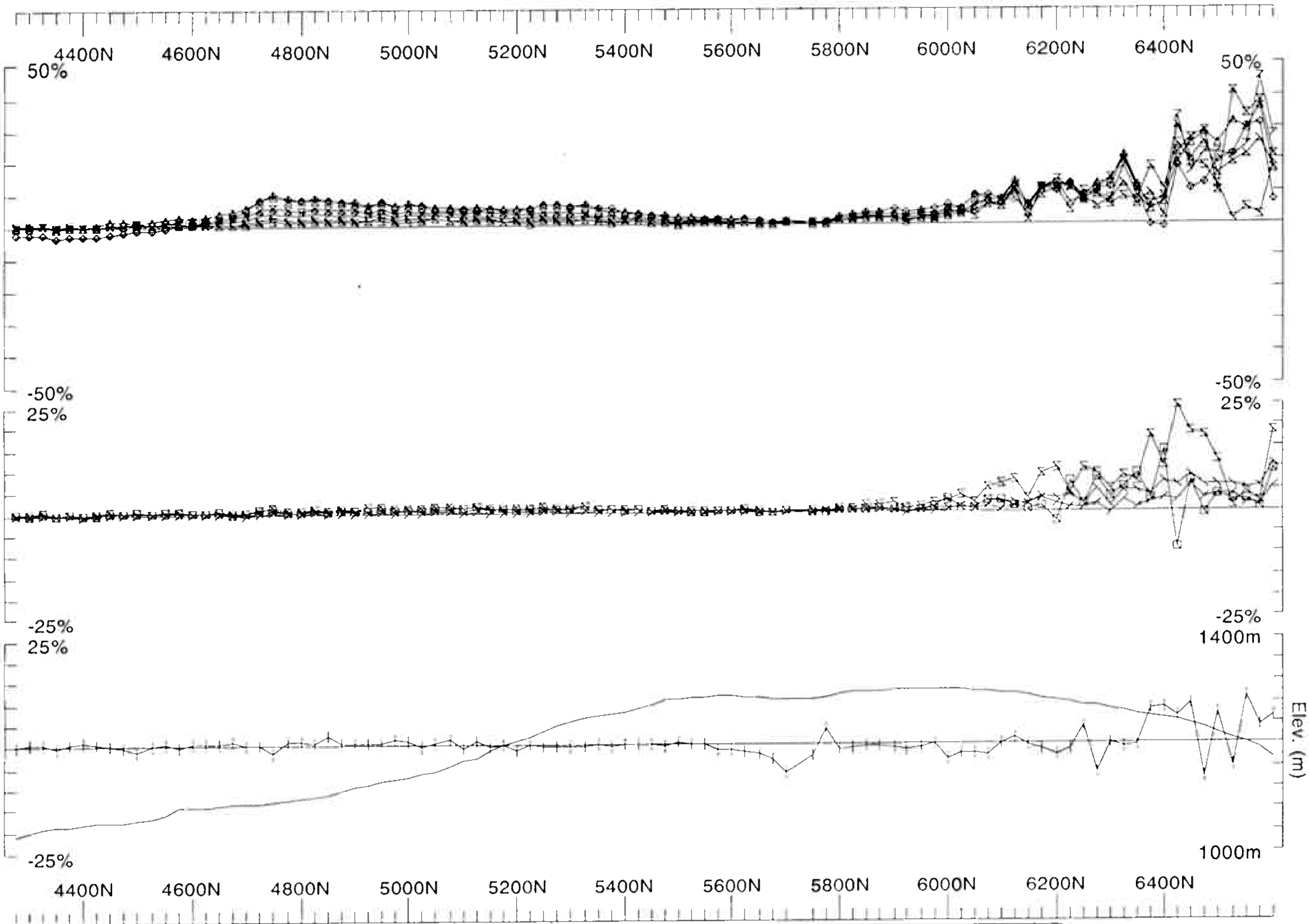
Loop: 12	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 725E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 26/3/4 Reduced : 26/3/4 Plotted : 18/5/4



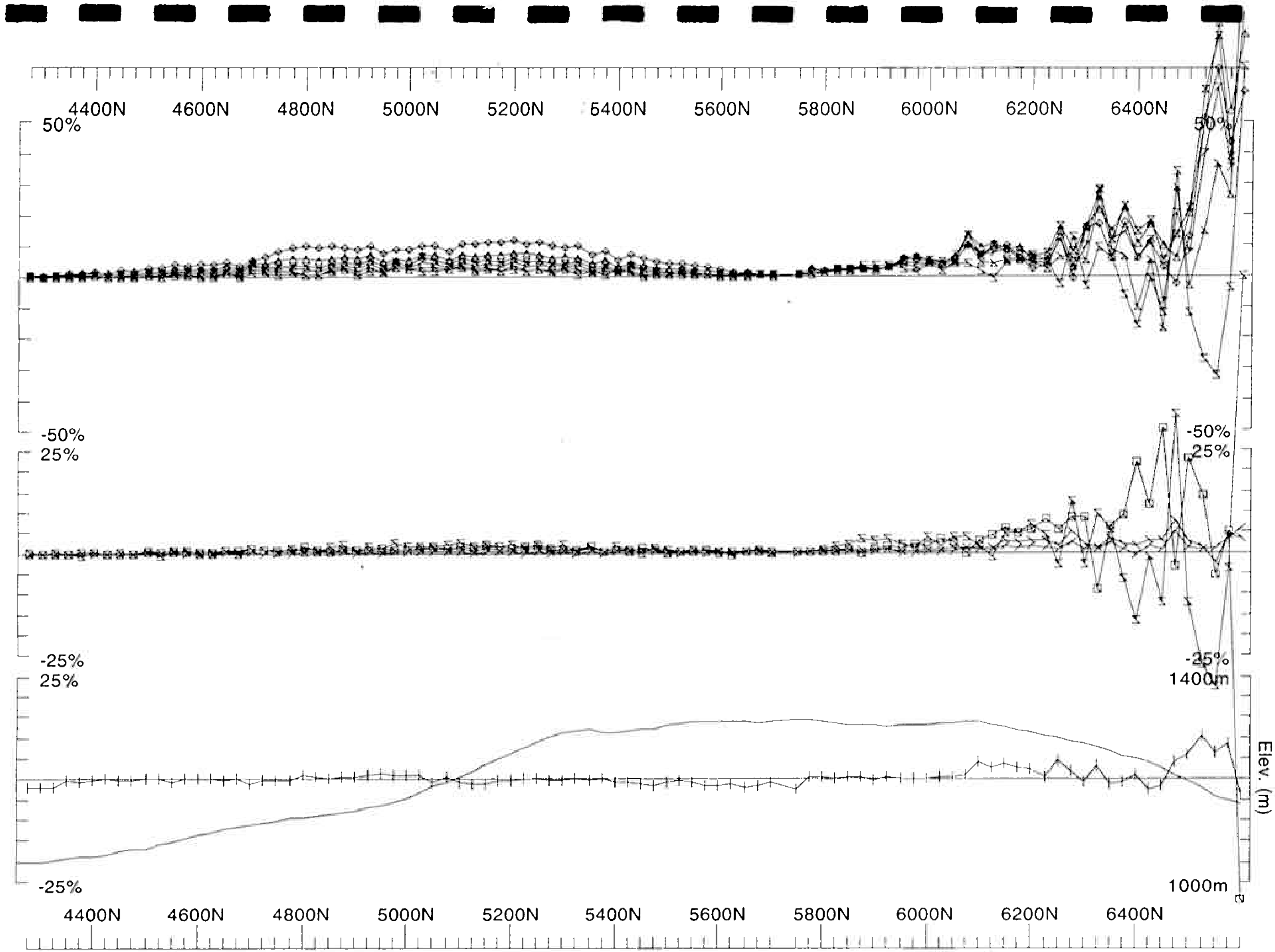
Loop: 12	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 800E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed: 25/3/4 Reduced: 25/3/4 Plotted: 18/5/4



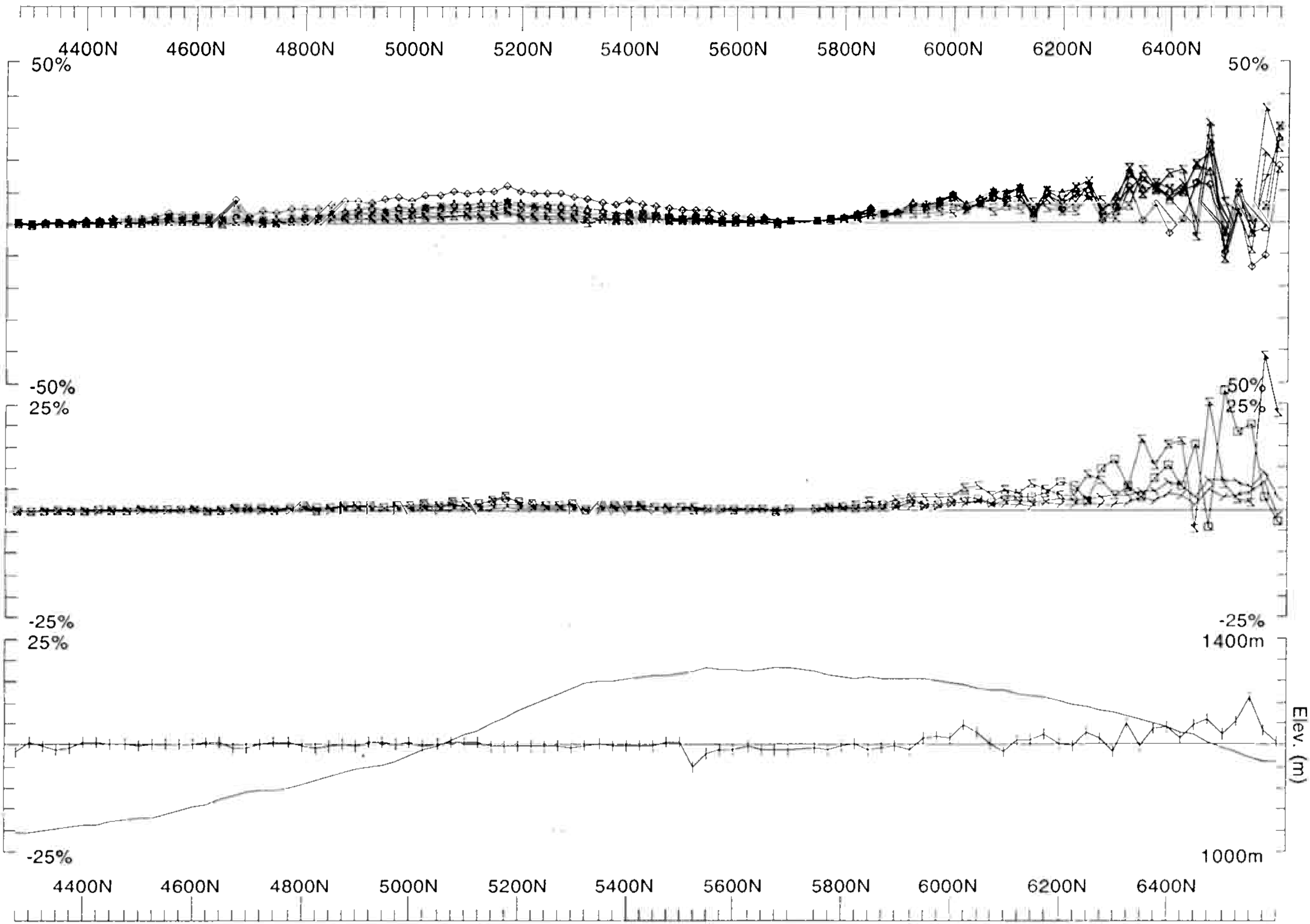
Loop: 12	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 875E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 26/3/4 Reduced : 26/3/4 Plotted : 18/5/4



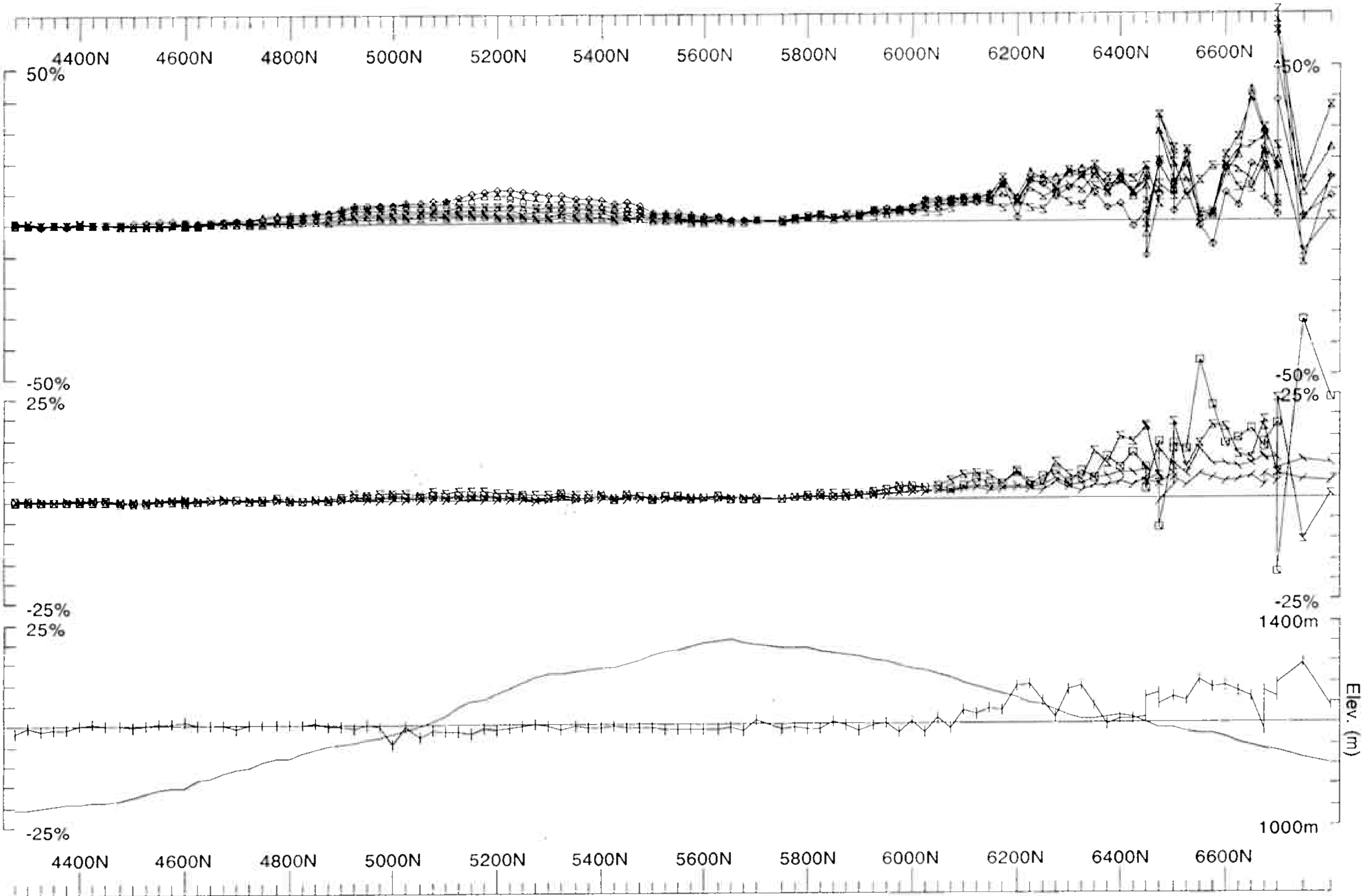
Loop: 12	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 1000E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 12	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 1200E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 12	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 1400E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted 18/5/4



Loop: 12	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 1600E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4

Espedalen

Loop 13

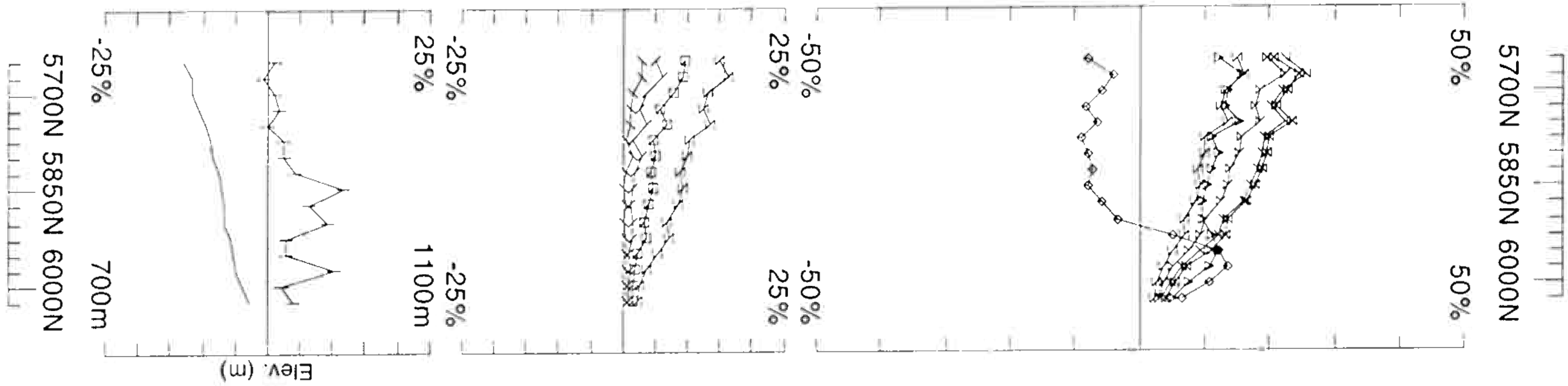
Hz
@3.251 Hz frequency

continuous norm

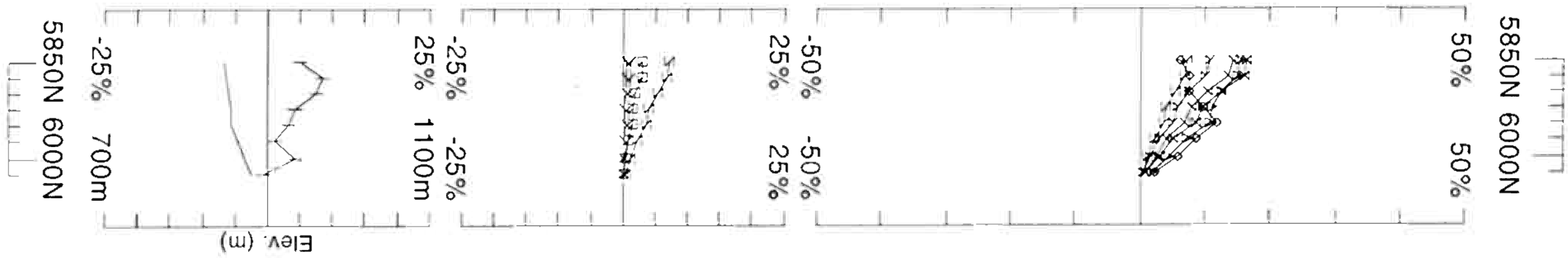
Ch1 reduced

Loop 13	Line 10100E	5650N - 6050N	400m
	Line 10200E	5850N - 6050N	200m
	Line 10300E	5650N - 6350N	700m
	Line 10400E	5850N - 6050N	200m
	Line 10500E	5650N - 6350N	700m
	Line 10700E	5650N - 6800N	1150m
		Loop 13 Total	3350m

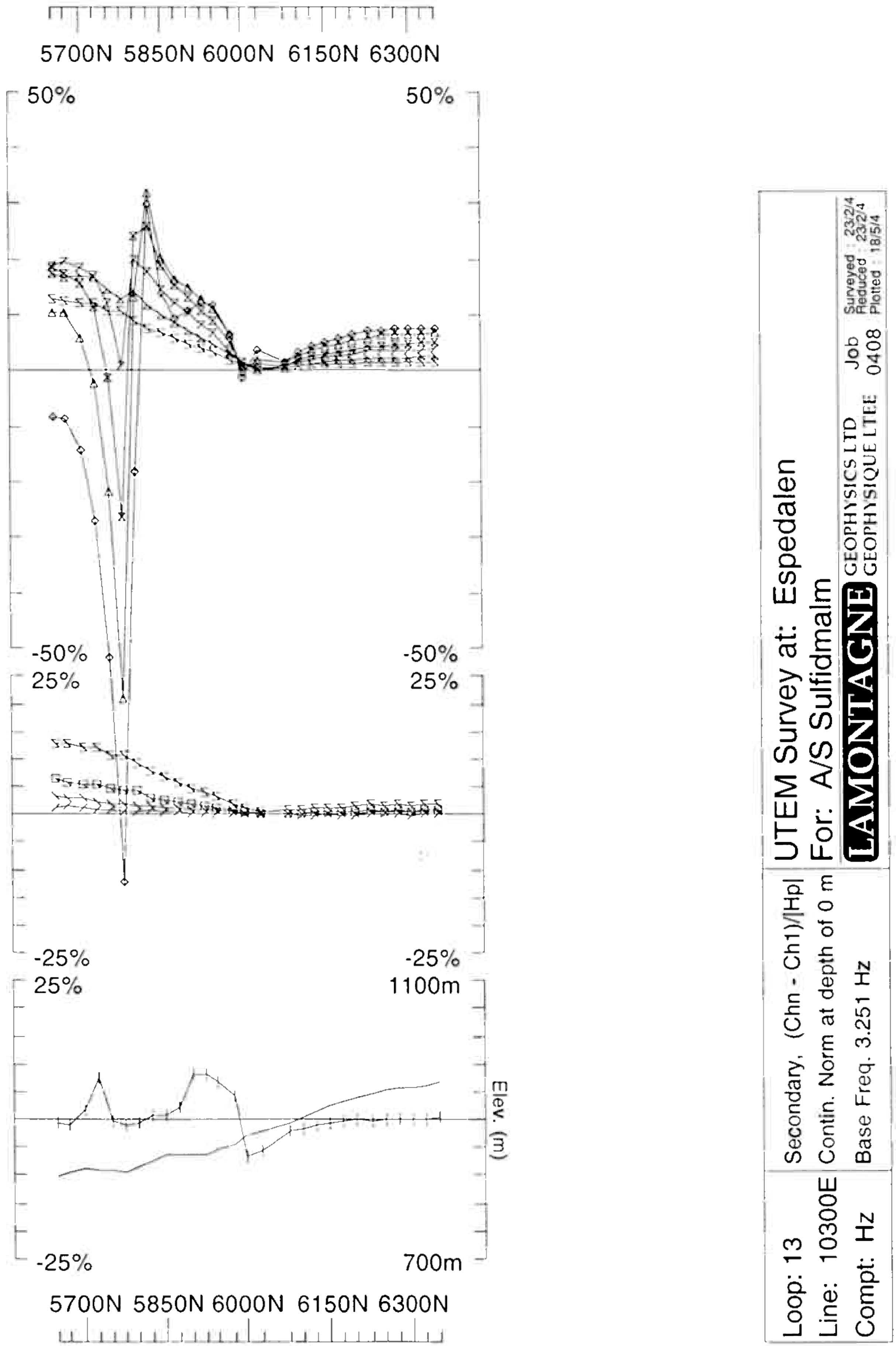
Loop 13 - continuous norm



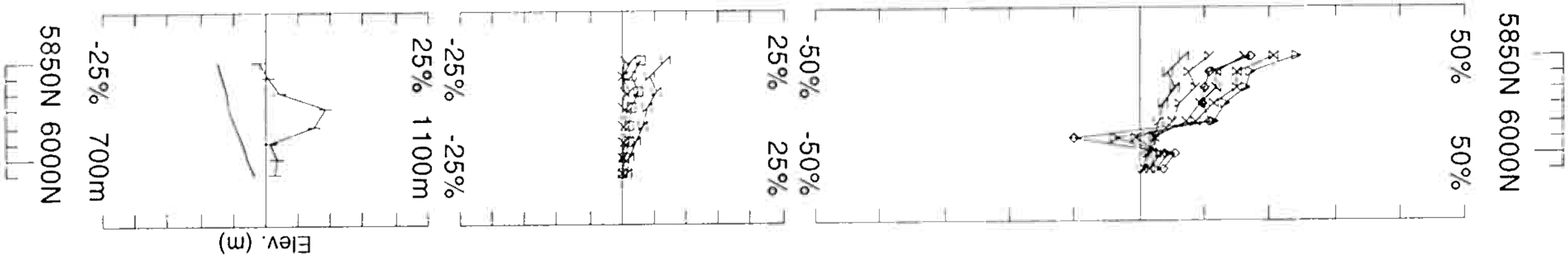
Loop: 13	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 10100E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE — Job 0408 — Surveyed : 23/2/4 Reduced : 23/2/4 Plotted : 18/5/4



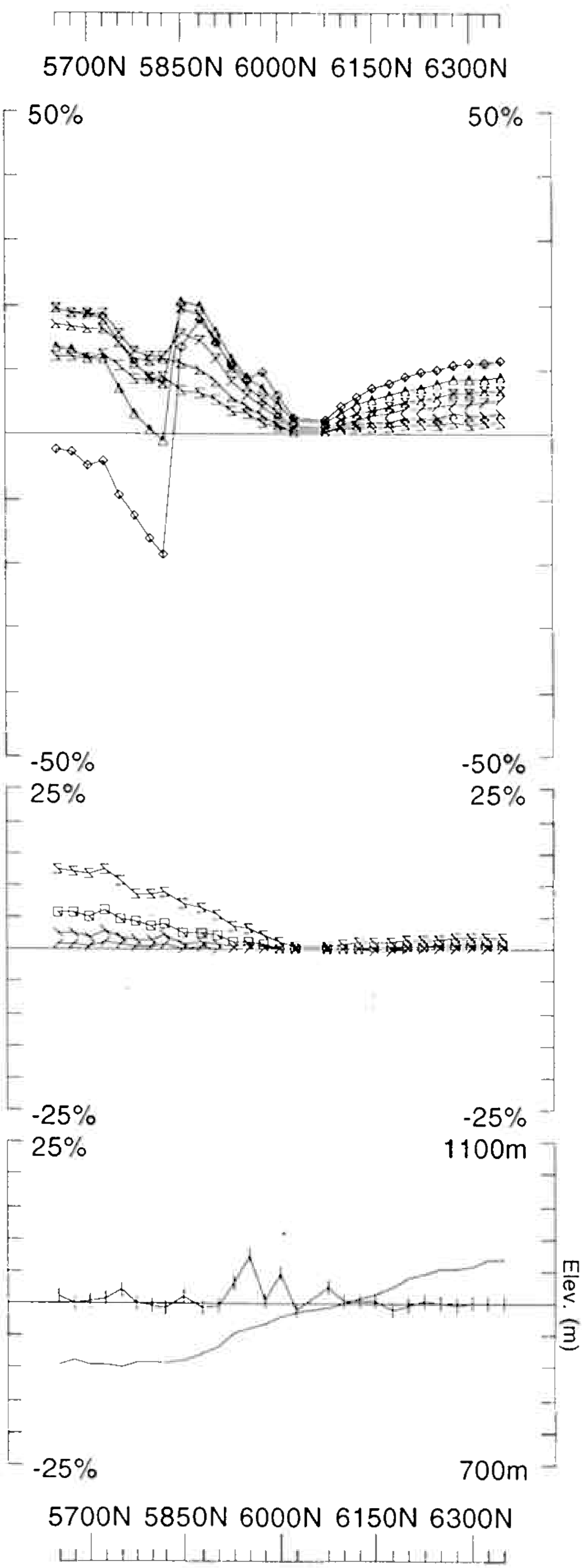
Loop: 13	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 10200E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 24/2/4 Reduced : 24/2/4 Plotted : 18/5/4



5700N 5850N 6000N 6150N 6300N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1100m
Elev. (m)
-25%
700m
5700N 5850N 6000N 6150N 6300N
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Surveyed : 23/2/4
Reduced : 23/2/4
Plotted : 18/5/4
Loop: 13
Line: 10300E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz



Loop: 13 Line: 10400E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 24/2/4 Reduced : 24/2/4 Plotted : 18/5/4



Loop: 13
Line: 10500E
Compt: Hz

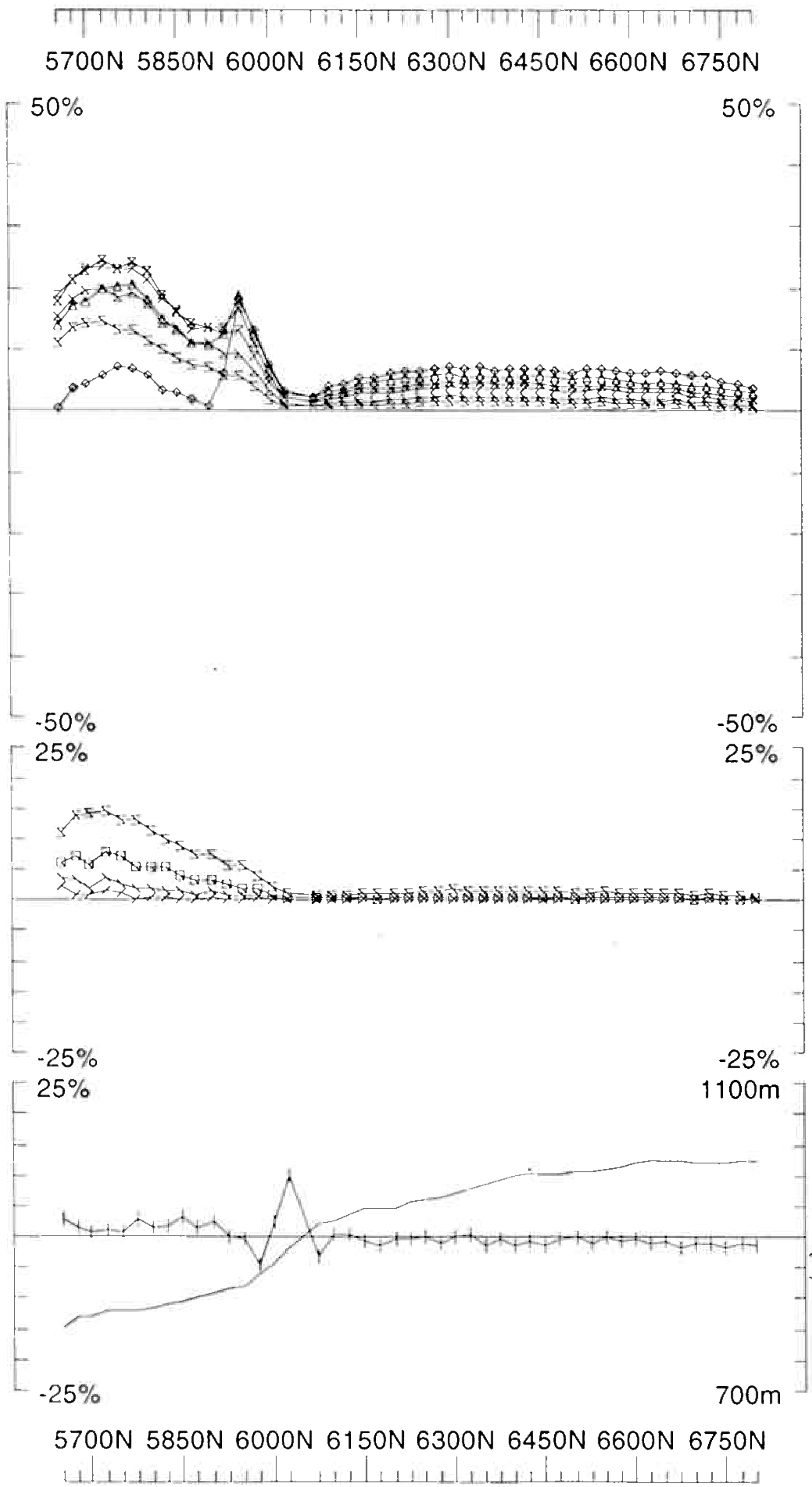
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job
0408

Surveyed : 23/2/4
Reduced : 23/2/4
Plotted : 18/5/4



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408
Surveyed : 23/2/4
Reduced : 23/2/4
Plotted : 18/5/4

Loop: 13
Line: 10700E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

Espedalen

Loop 14

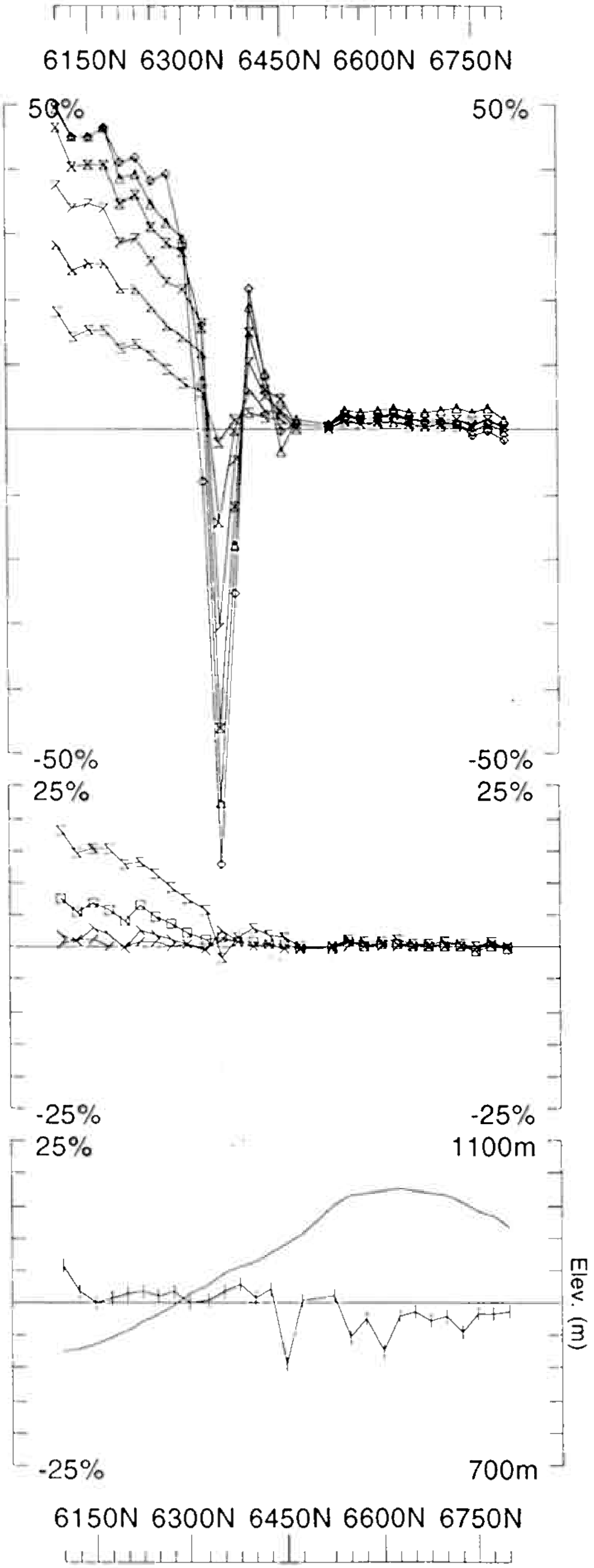
Hz
@3.251 Hz frequency

continuous norm

Ch1 reduced

Loop 14	Line 11100E	6100N - 6800N	700m
	Line 11200E	6050N - 6500N	450m
		Loop 14 Total	1150m

Loop 14 - continuous norm



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

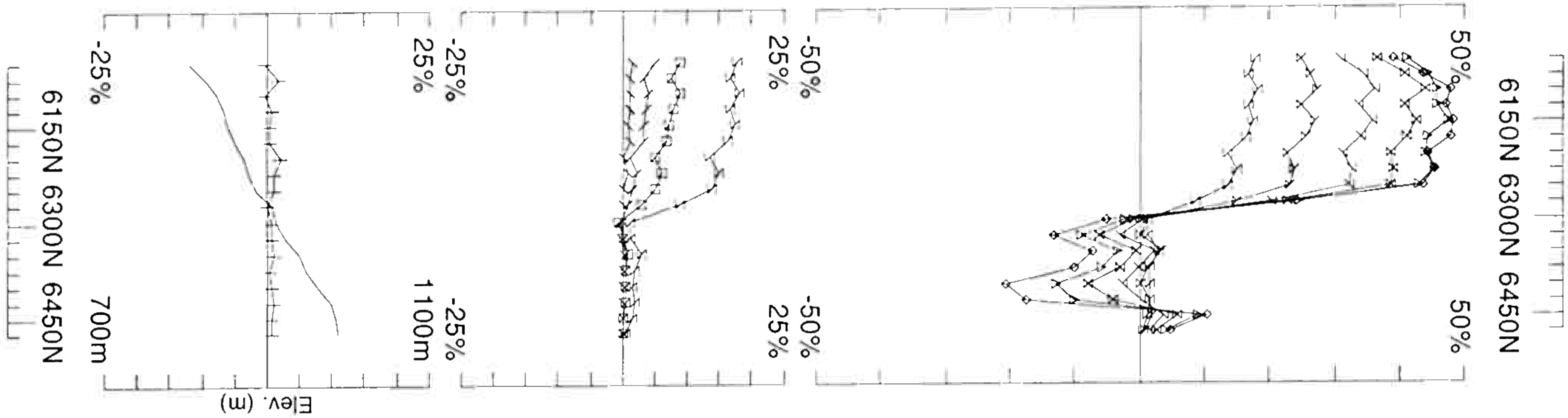
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Job 0408

Surveyed : 24/2/4
Reduced : 24/2/4
Plotted : 18/5/4

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

Loop: 14
Line: 11100E
Compt: Hz



Loop: 14	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 11200E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 24/2/4 Reduced : 24/2/4 Plotted : 18/5/4

Espedalen

Loop 15

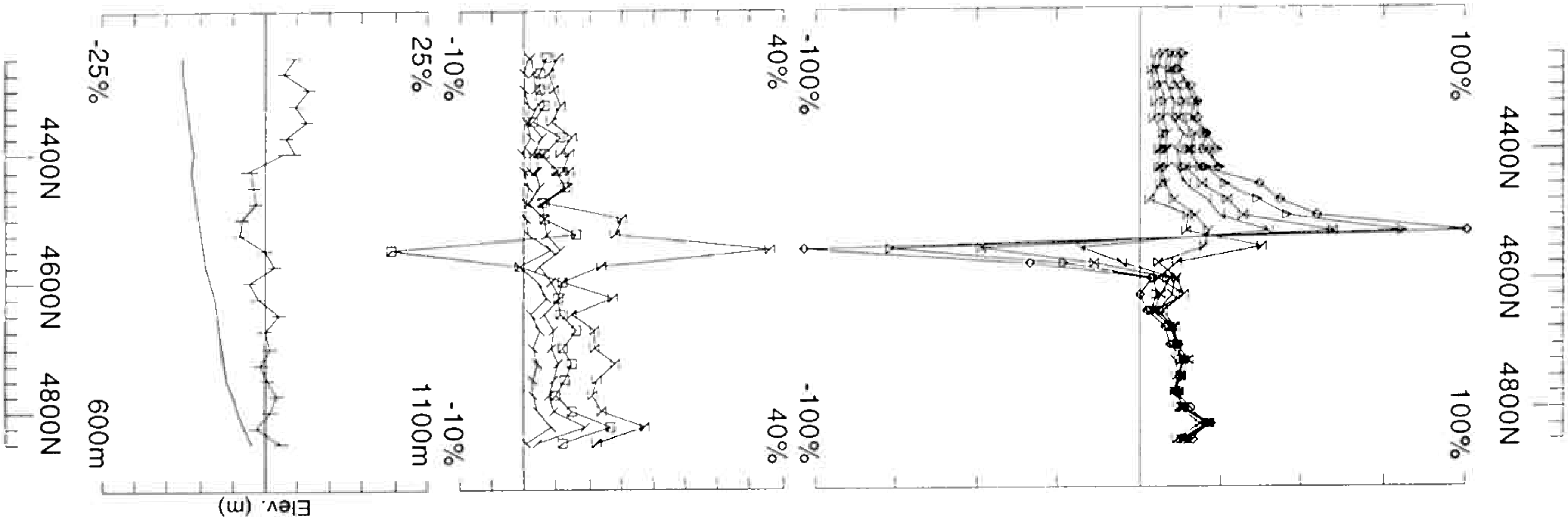
Hz
@3.251 Hz frequency

continuous norm

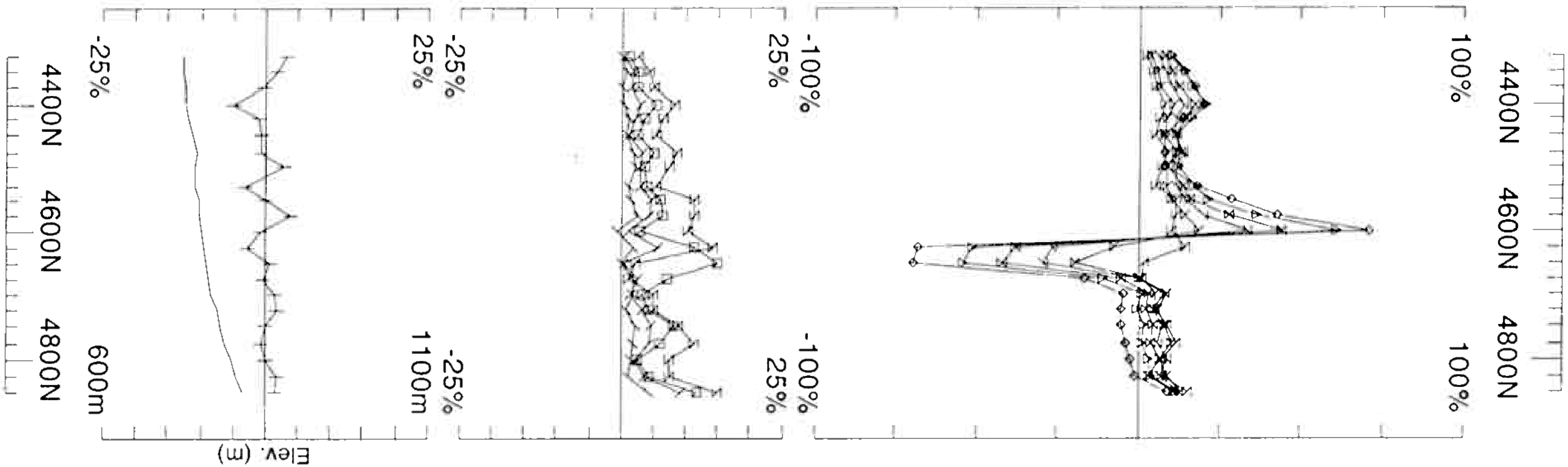
Ch1 reduced

Loop 15	Line 7300E	4250N - 4850N	600m
	Line 7500E	4325N - 4850N	525m
	Line 7600E	4290N - 4490N	200m
	Line 7700E	4325N - 4850N	525m
	Line 7900E	4450N - 4850N	400m
	Line 8100E	4550N - 4850N	300m
		Loop 15 Total	2550m

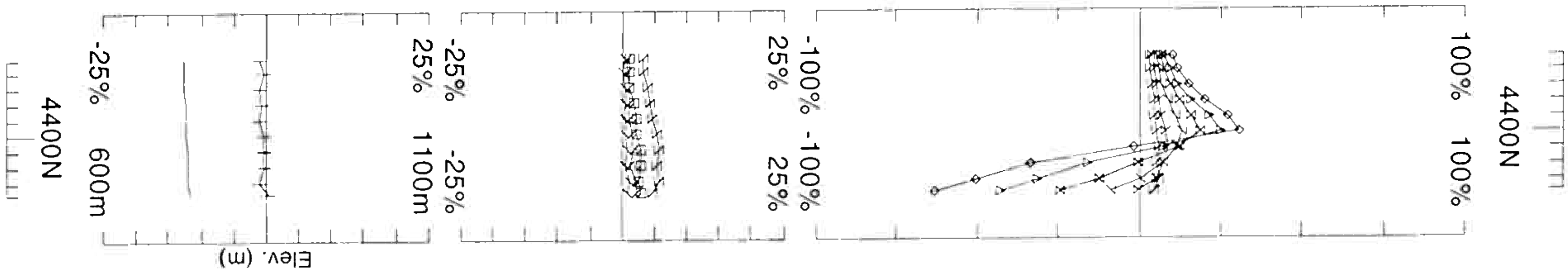
Loop 15 - continuous norm



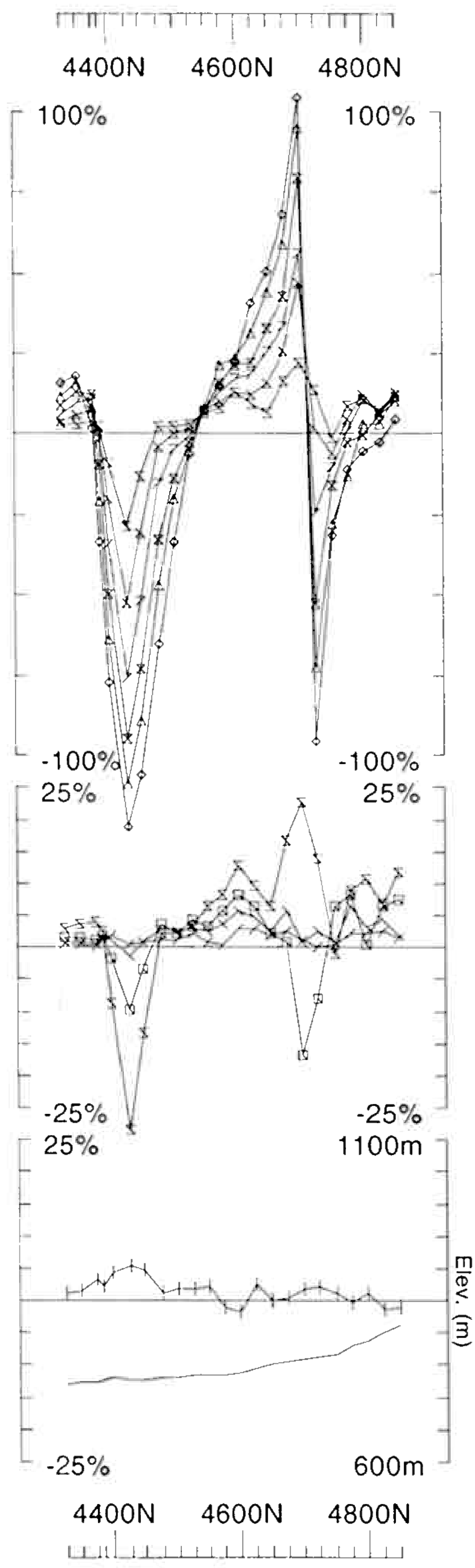
Loop: 15 Line: 7300E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 15	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 7500E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 25/2/4 Reduced : 26/2/4 Plotted : 18/5/4



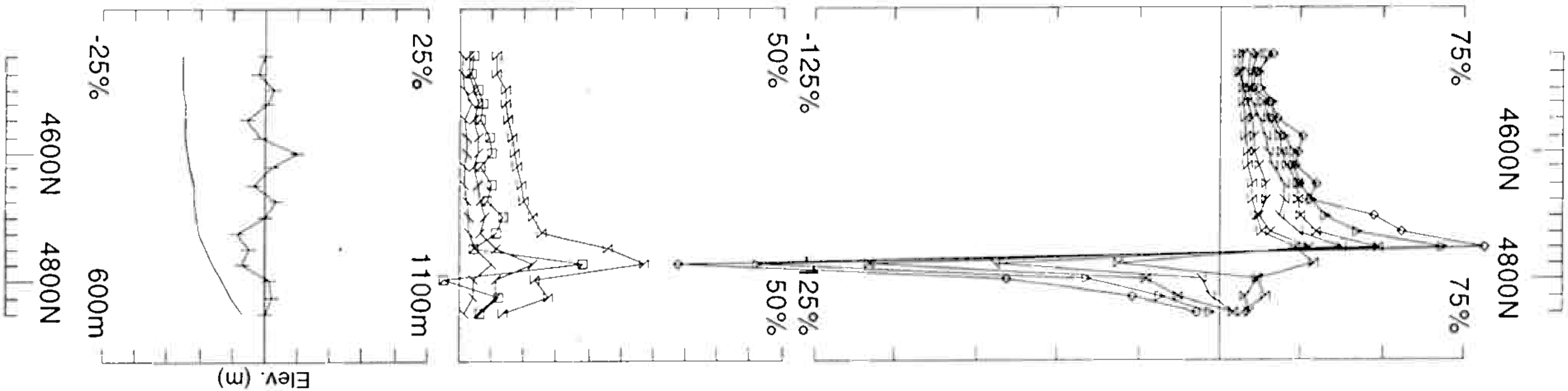
Loop: 15	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 7600E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE — Job 0408 — Surveyed : 27/2/4 Reduced : 27/2/4 Plotted : 18/5/4



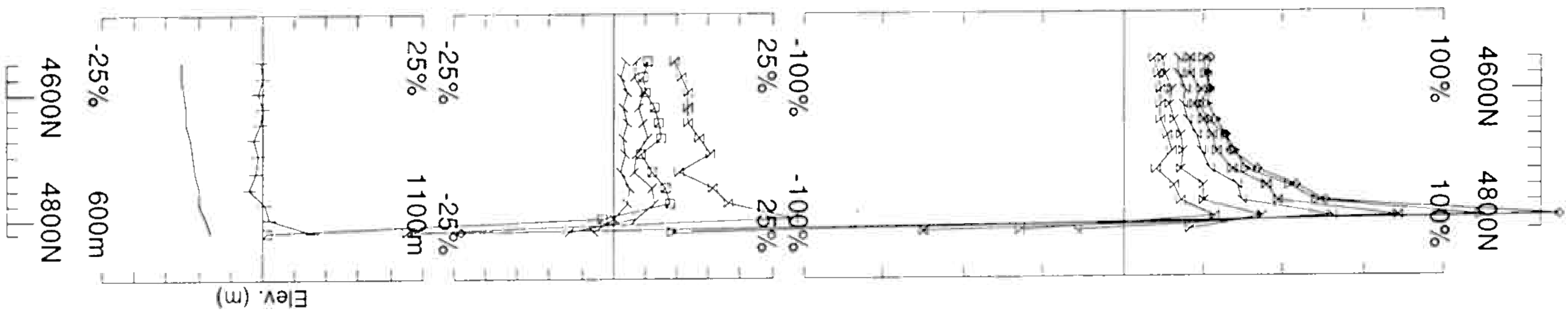
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Surveyed : 25/2/4
Reduced : 26/2/4
Plotted : 18/5/4

Loop: 15
Line: 7700E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz



Loop: 15 Line: 7900E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 26/2/4 Reduced : 26/2/4 Plotted : 18/5/4



Loop: 15	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 8100E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 26/2/4 Reduced : 26/2/4 Plotted : 18/5/4

Espedalen

Loop 16

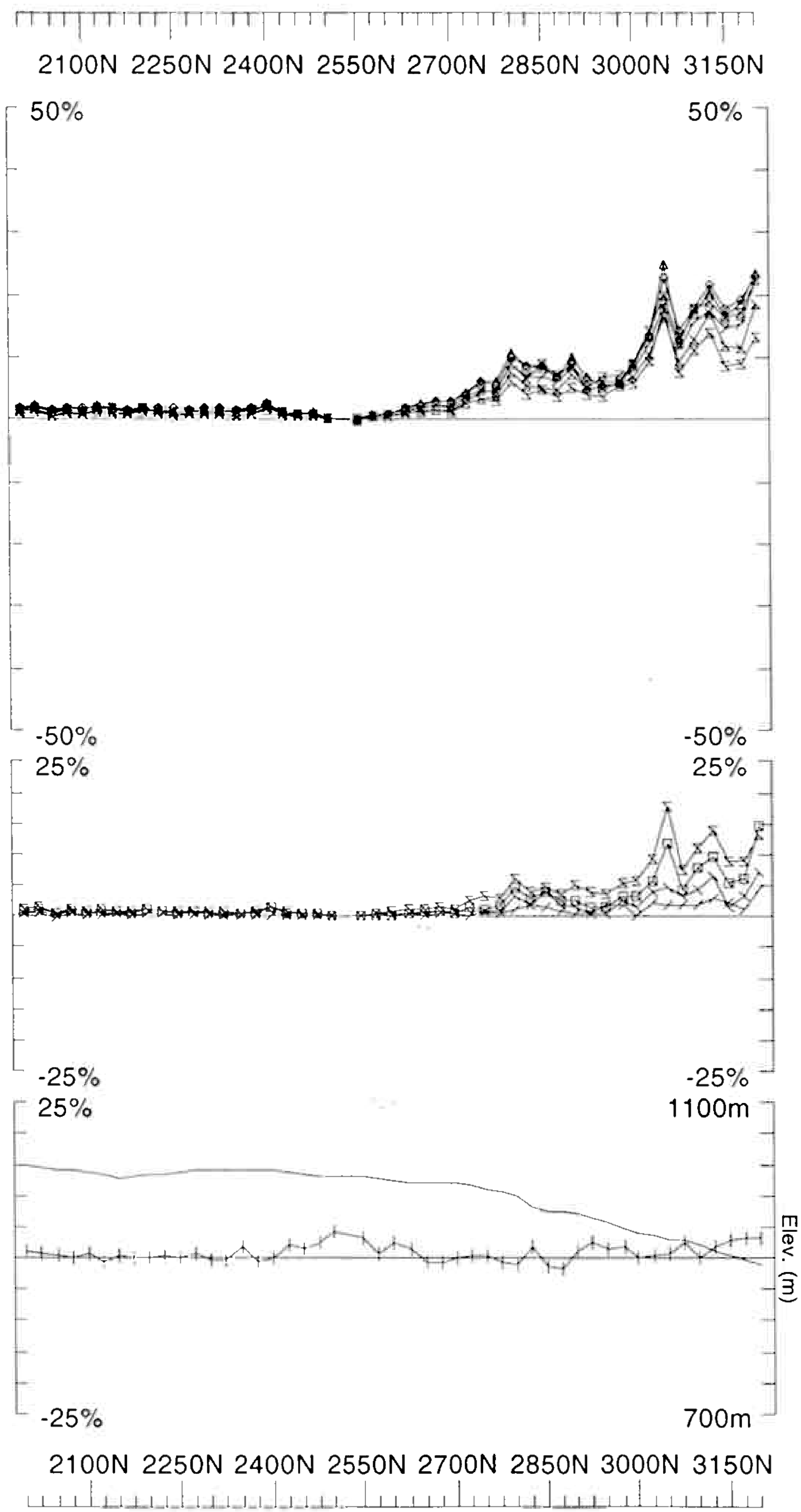
Hz
@3.251 Hz frequency

continuous norm

Ch1 reduced

Loop 16	Line	8000E	2000N - 3200N	1200m
	Line	8200E	2000N - 3200N	1200m
	Line	8400E	2000N - 3200N	1200m
	Line	8500E	2525N - 3100N	575m
	Line	8600E	2000N - 3200N	1200m
	Line	8800E	2525N - 3200N	675m
			Loop 16 Total	6050m

Loop 16 - continuous norm



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

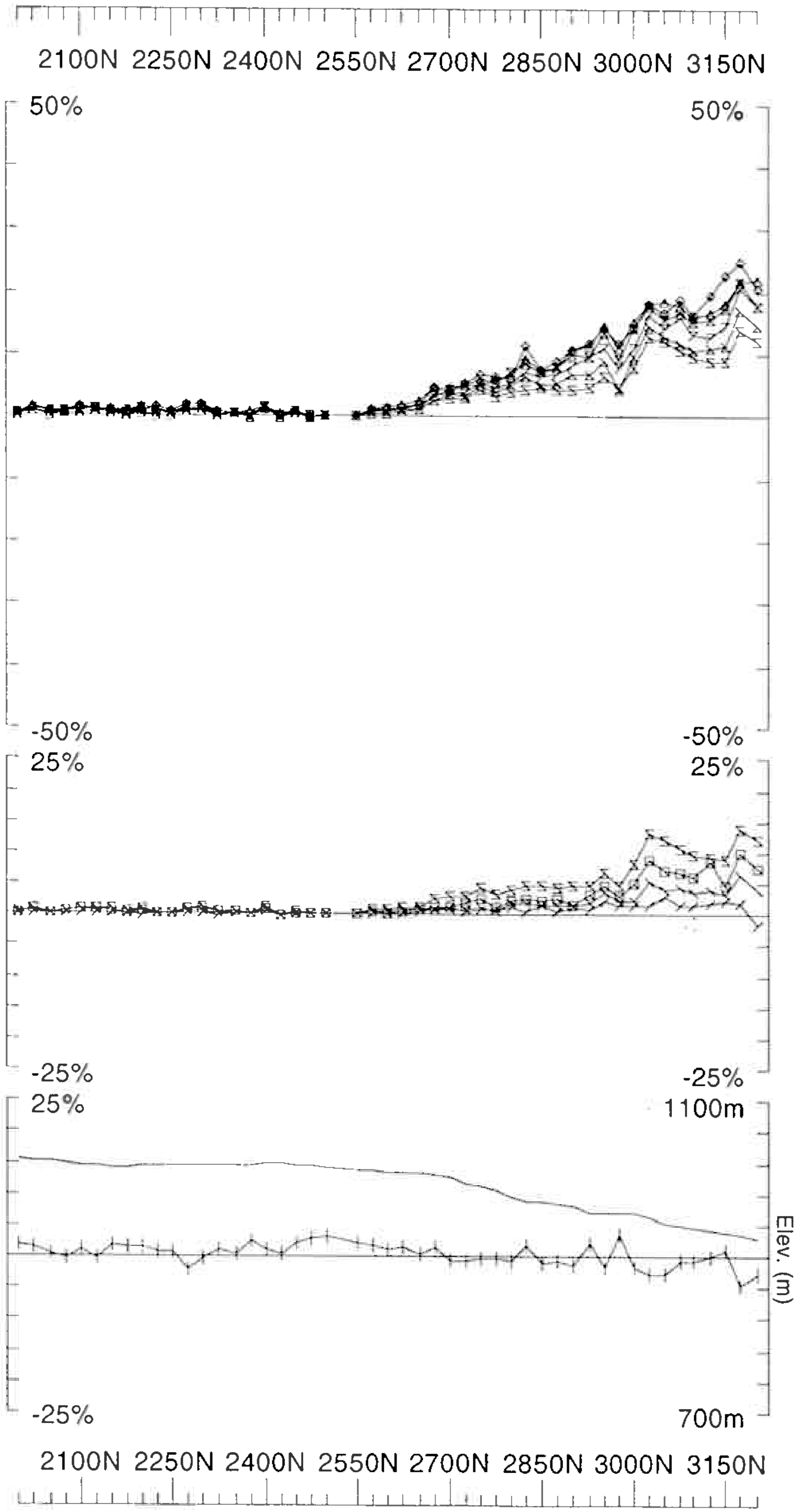
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Job 0408

Surveyed : 26/3/4
Reduced : 26/3/4
Plotted : 18/5/4

Loop: 16
Line: 8000E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz



UTEM Survey at: Espedalen

For: A/S Sulfidmalm

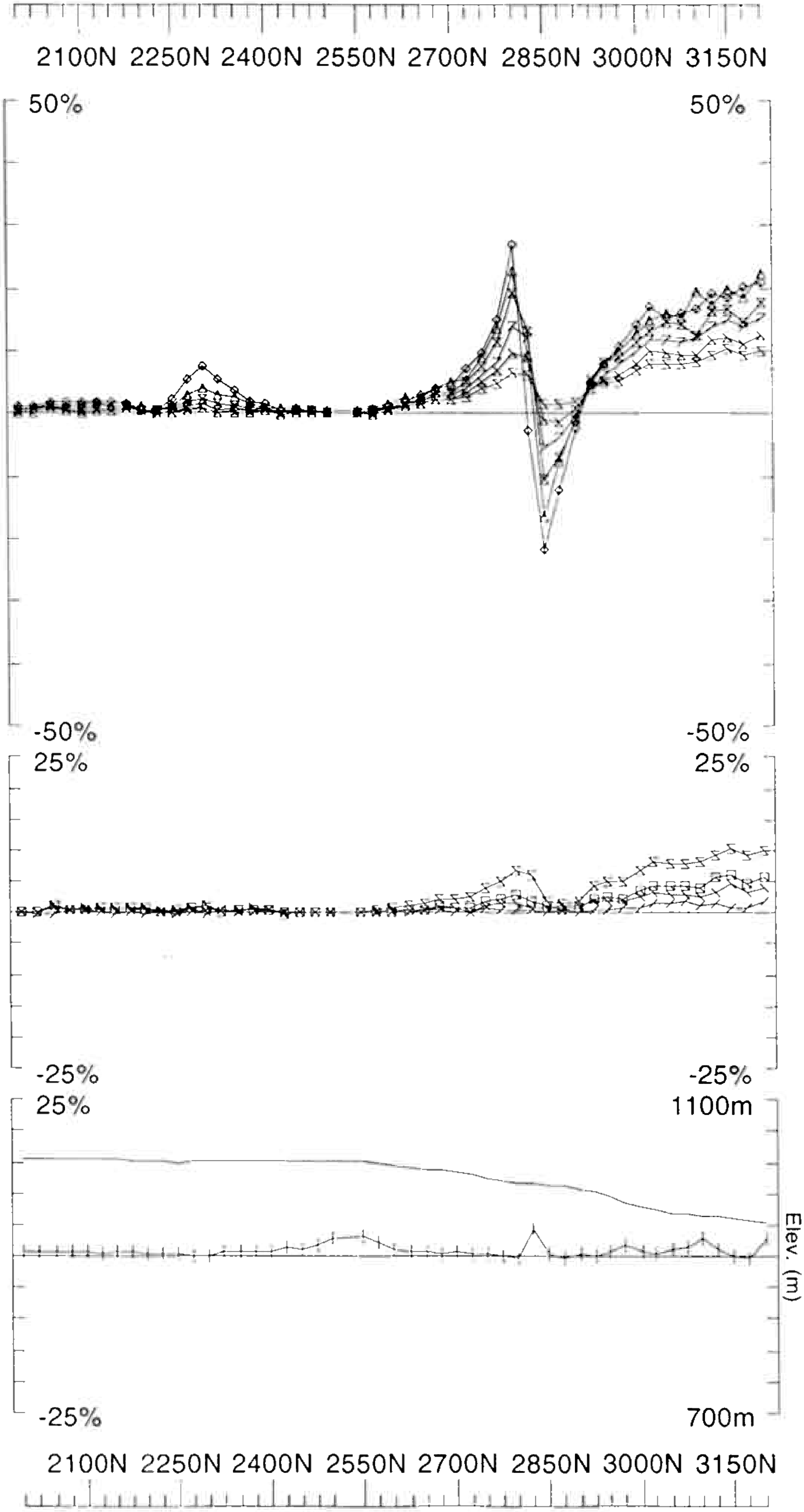
LAMONTAGNE GEOPHYSICS LTD / GEOPHYSIQUE LTEE

Job 0408

Surveyed : 27/3/4
Reduced : 27/3/4
Plotted : 18/5/4

Loop: 16
Line: 8200E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz



UTEM Survey at: Espedalen

For: A/S Sulfidmalm

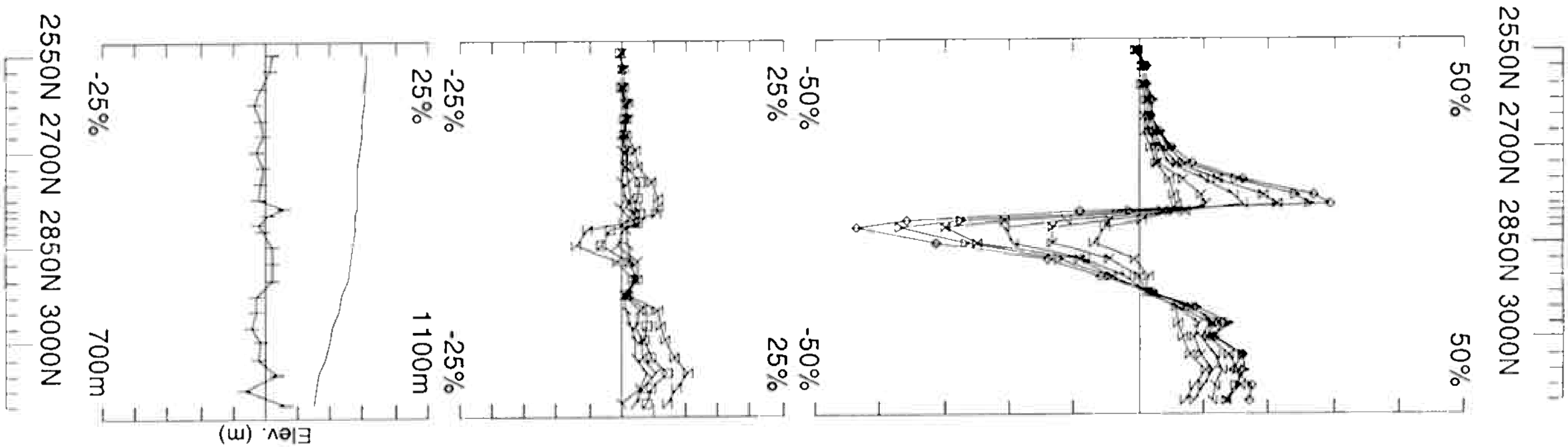
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Job 0408

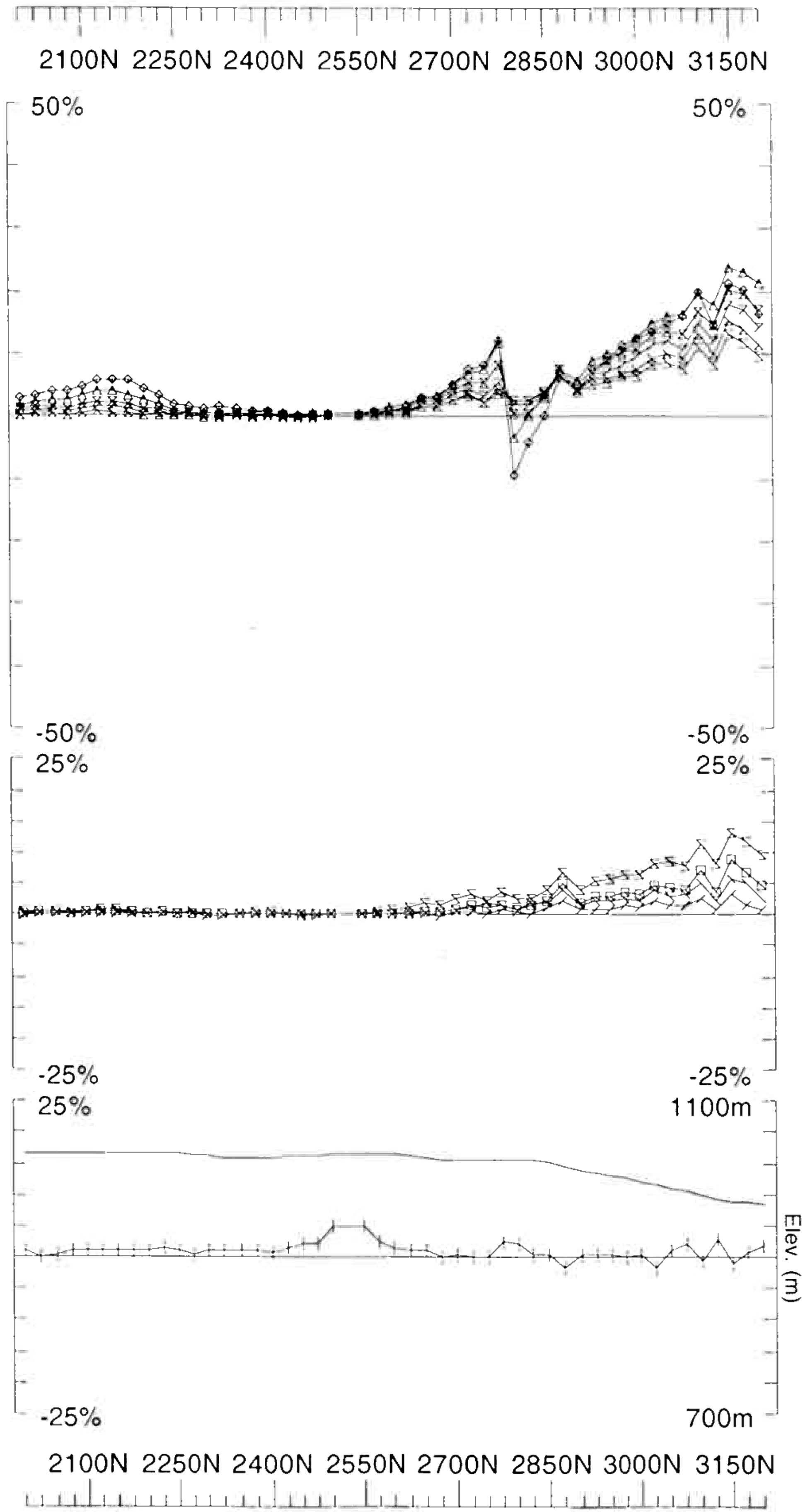
Surveyed : 26/3/4
Reduced : 26/3/4
Plotted : 18/5/4

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

Loop: 16
Line: 8400E
Compt: Hz



Loop: 16	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 8500E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 27/3/4 Reduced : 27/3/4 Plotted : 19/5/4



Loop: 16
Line: 8600E
Compt: Hz

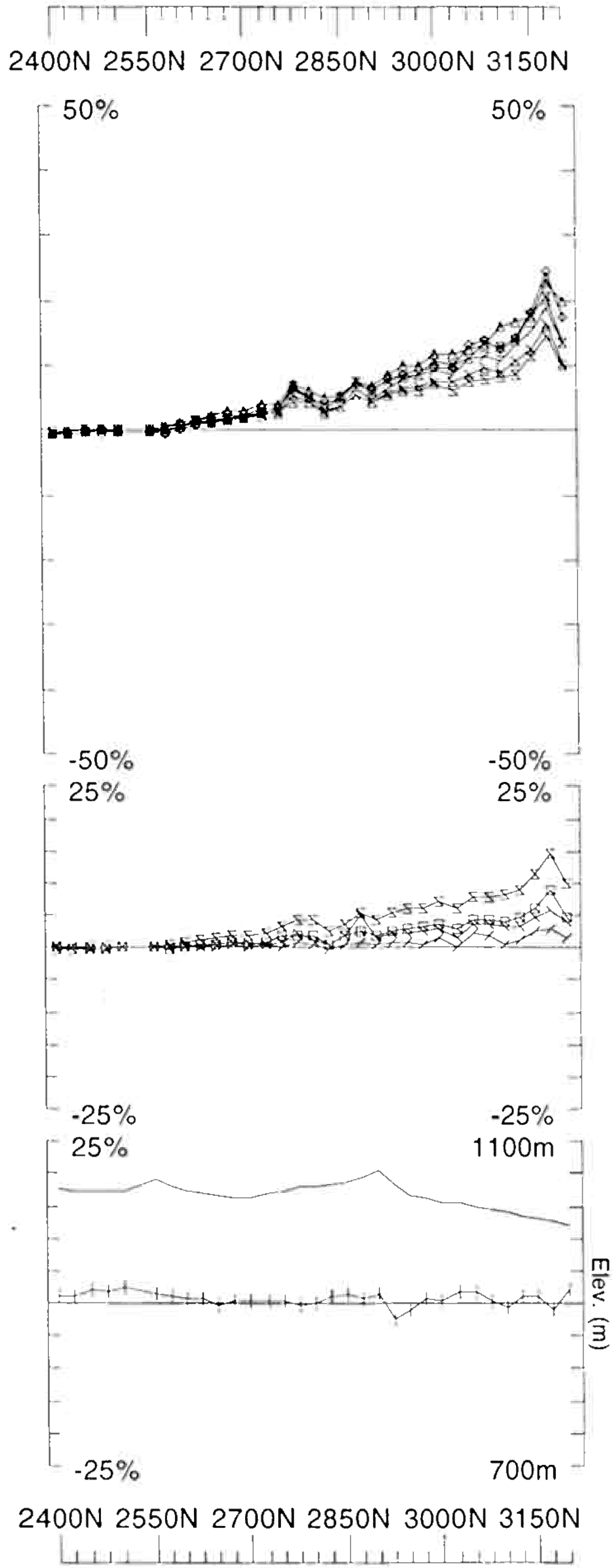
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Surveyed : 27/3/4
Reduced : 27/3/4
Plotted : 18/5/4



UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Surveyed : 27/3/4
Reduced : 27/3/4
Plotted : 18/5/4

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

Loop: 16
Line: 8800E
Compt: Hz

Espedalen

Loop 17

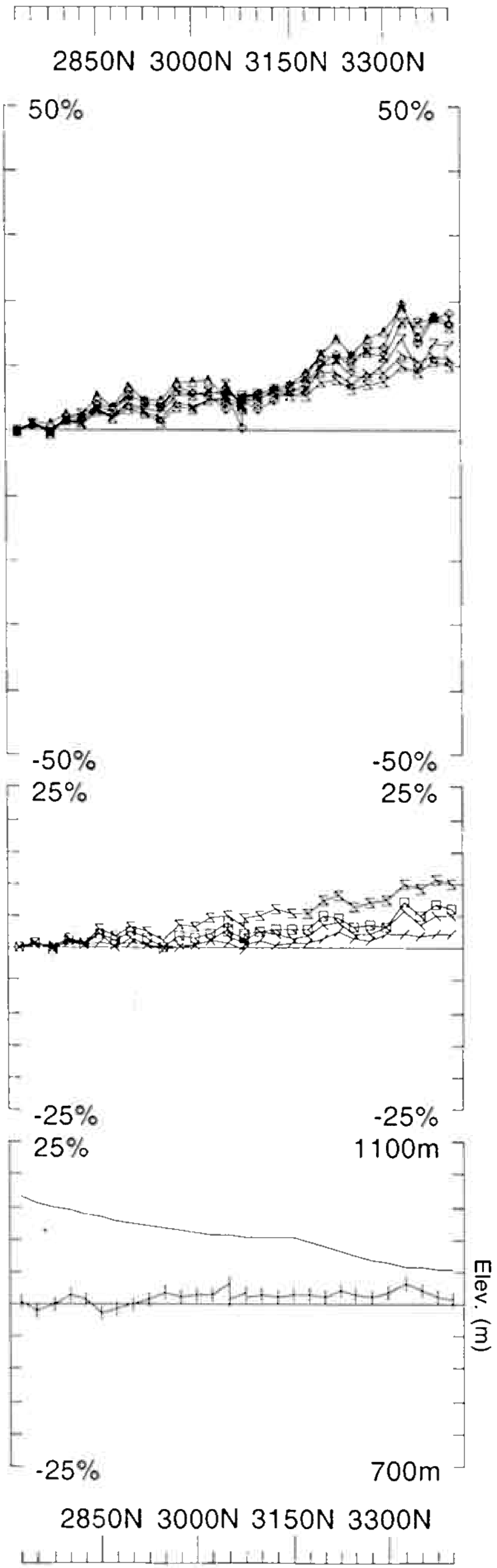
Hz
@3.251 Hz frequency

continuous norm

Ch1 reduced

Loop 17	Line 11000E	2700N - 3400N	700m
	Line 11200E	2700N - 3400N	700m
	Line 11400E	2700N - 3400N	700m
	Line 11600E	2600N - 3400N	800m
	Line 11800E	2700N - 3400N	700m
		Loop 17 Total	3600m

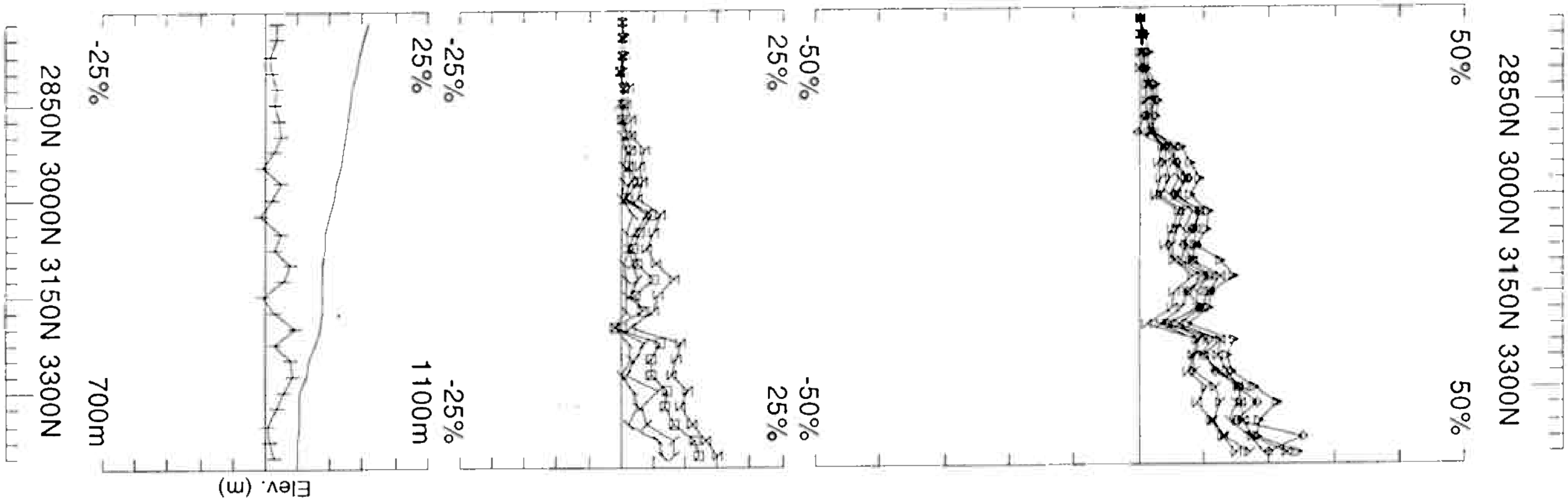
Loop 17 - continuous norm



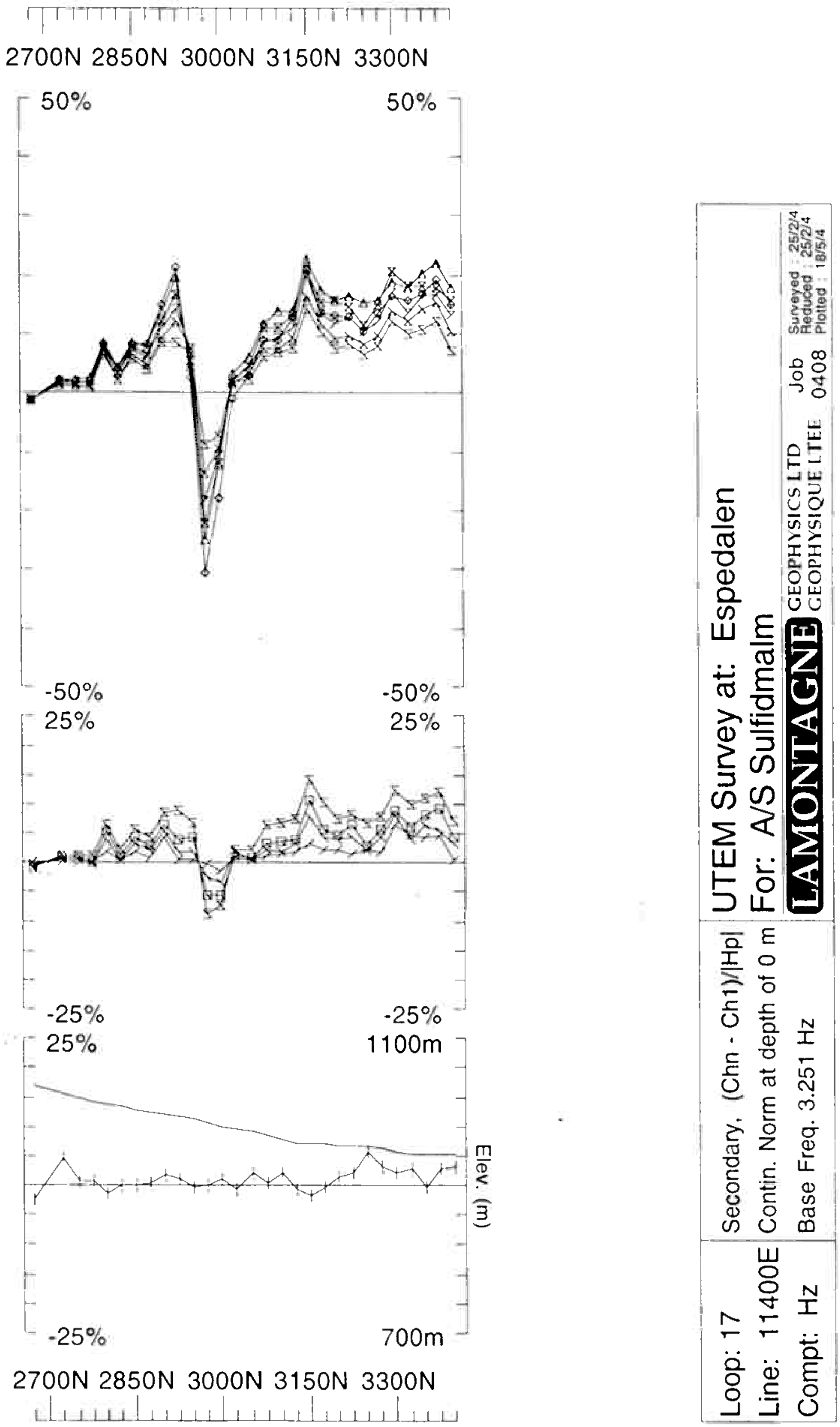
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4

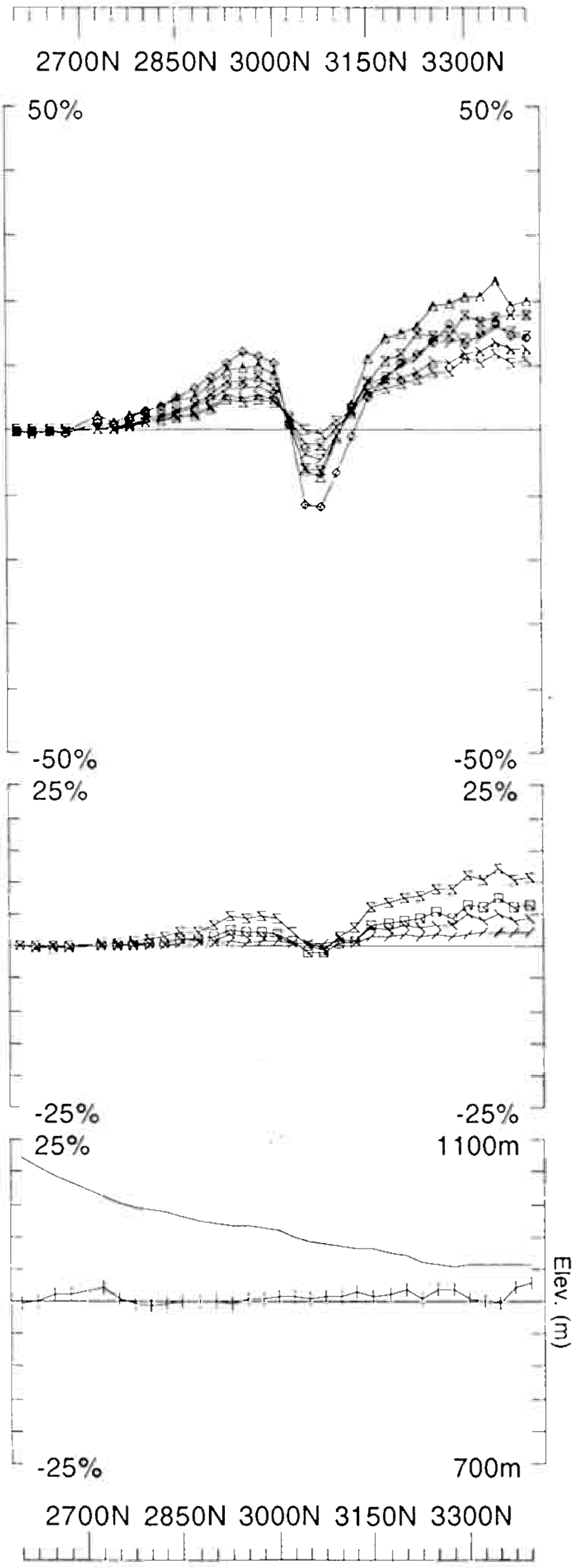
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

Loop: 17
Line: 11000E
Compt: Hz



Loop: 17 Line: 11200E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 25/2/4 Reduced : 25/2/4 Plotted : 18/5/4


2700N 2850N 3000N 3150N 3300N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1100m
Elev. (m)
-25%
700m
2700N 2850N 3000N 3150N 3300N
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Surveyed : 25/2/4
Reduced : 25/2/4
Plotted : 18/5/4
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
Loop: 17
Line: 11400E
Compt: Hz



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

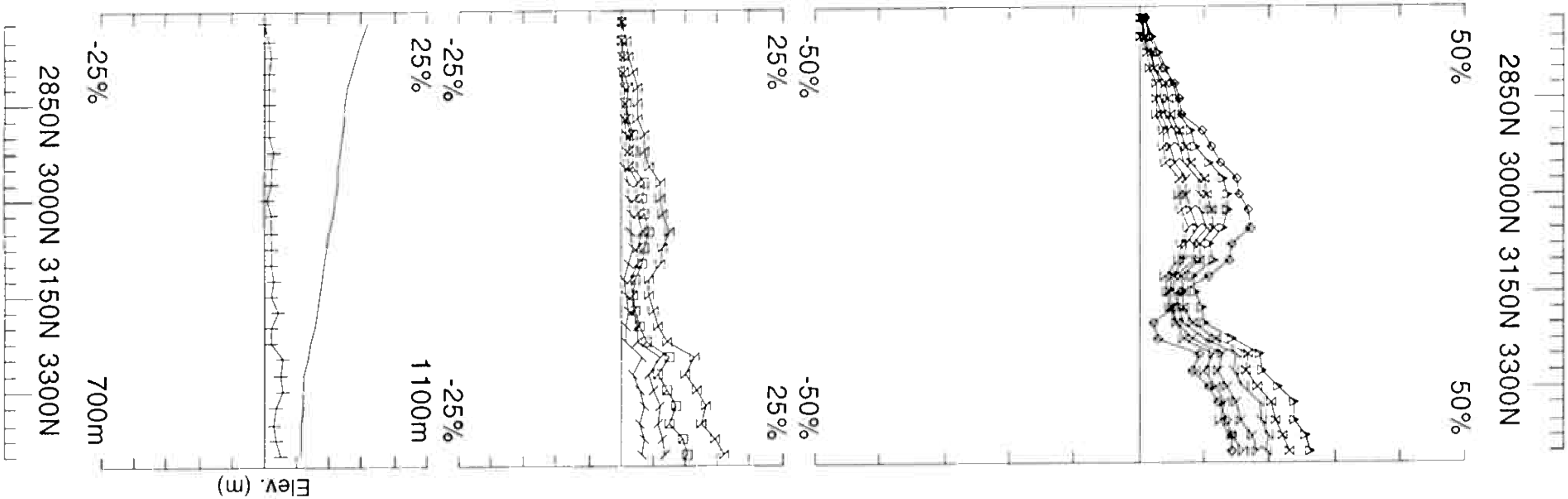
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Job 0408

Surveyed : 25/2/4
Reduced : 25/2/4
Plotted : 18/5/4

Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq., 3.251 Hz

Loop: 17
Line: 11600E
Compt: Hz



Loop: 17 Line: 11800E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 25/2/4 Reduced : 25/2/4 Plotted : 18/5/4

Espedalen

Loop 18

Hz

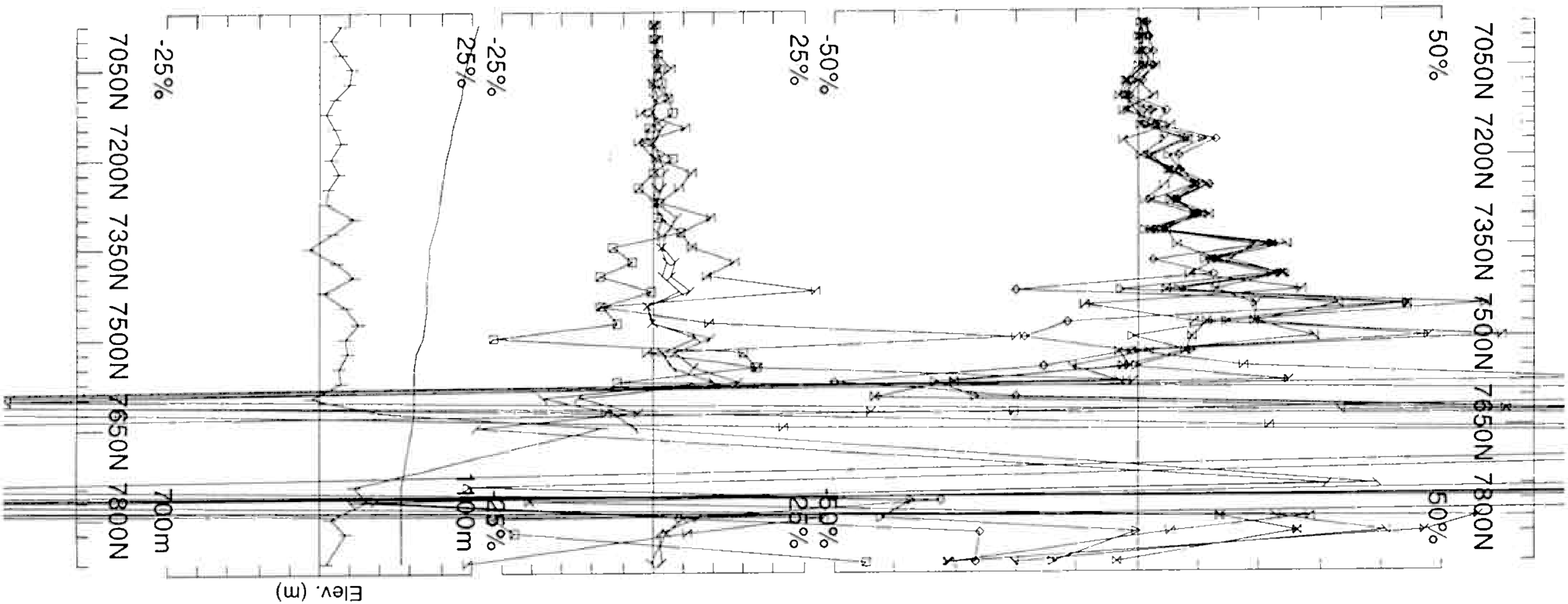
@3.251 Hz frequency

continuous norm

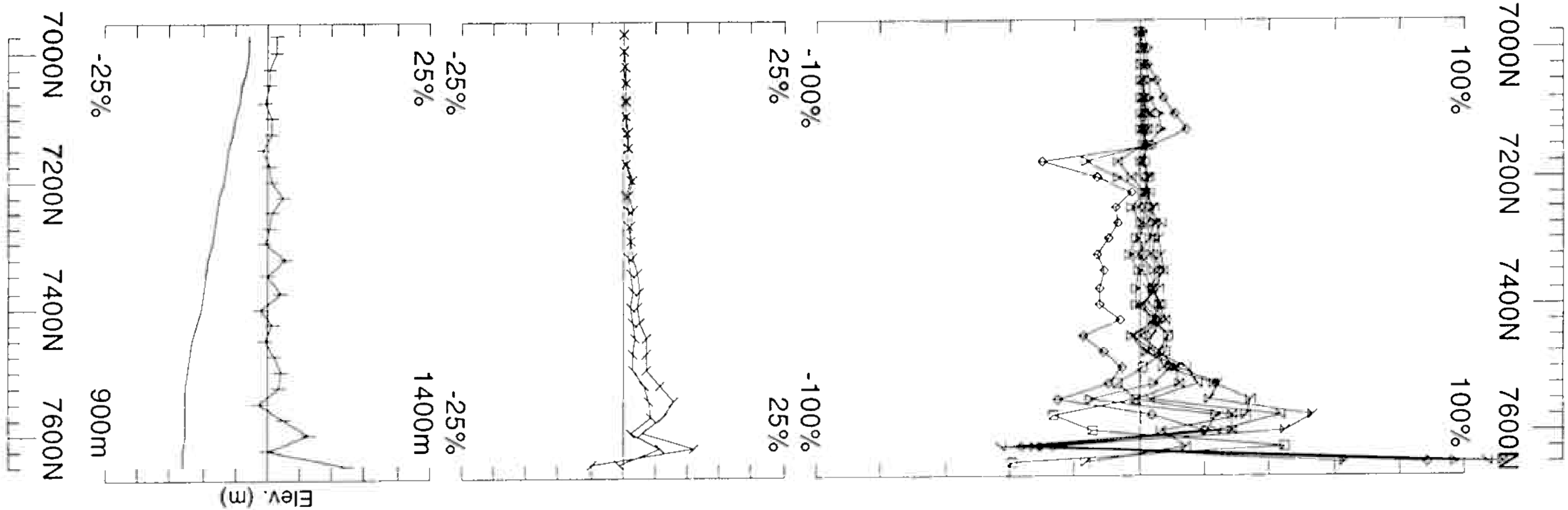
Ch1 reduced

Loop 18N	Line	2800E	6950N - 7875N	925m
(surveyed N)	Line	3000E	6950N - 7650N	700m
	Line	3200E	6950N - 7550N	600m
	Line	3400E	6950N - 7600N	650m
	Line	3500E	6150N - 6950N	800m
	Line	3600E	6150N - 7600N	1450m
	Line	3700E	6150N - 6950N	800m
	Line	3800E	6950N - 7600N	650m
	Line	4000E	6950N - 7650N	700m
Loop 18S	Line	2600E	5400N - 6150N	750m
(surveyed S)	Line	2800E	4900N - 6150N	1250m
			Loop 18 Total	9275m

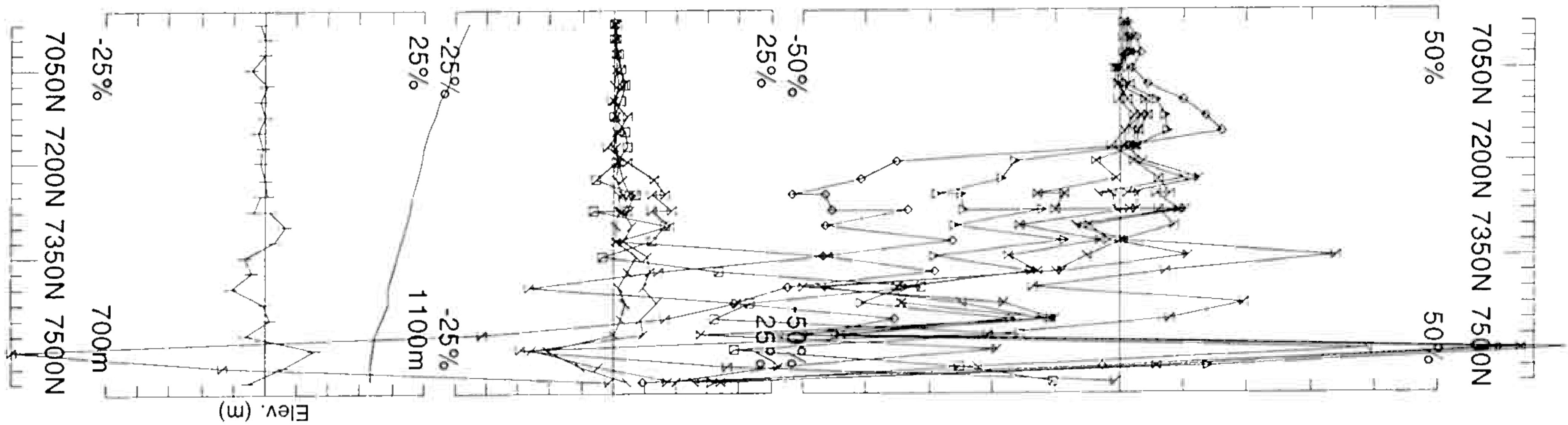
Loop 18 - continuous norm



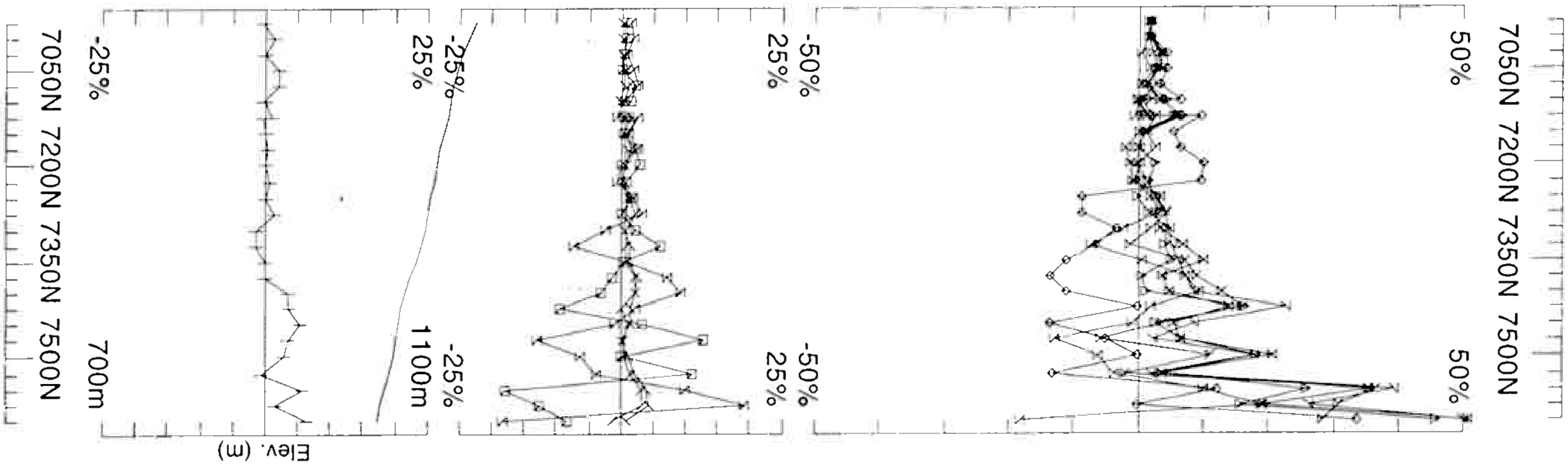
Loop: 18	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2800E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



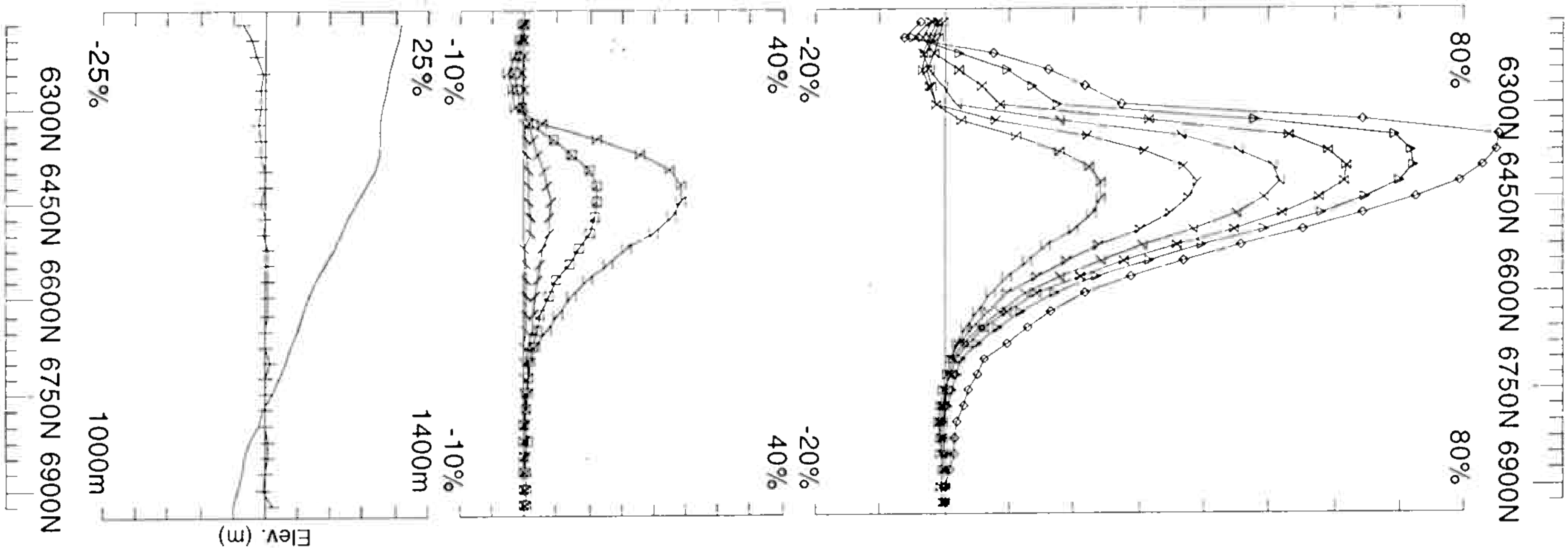
Loop: 18	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 3000E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 14/3/4 Reduced : 17/3/4 Plotted : 18/5/4



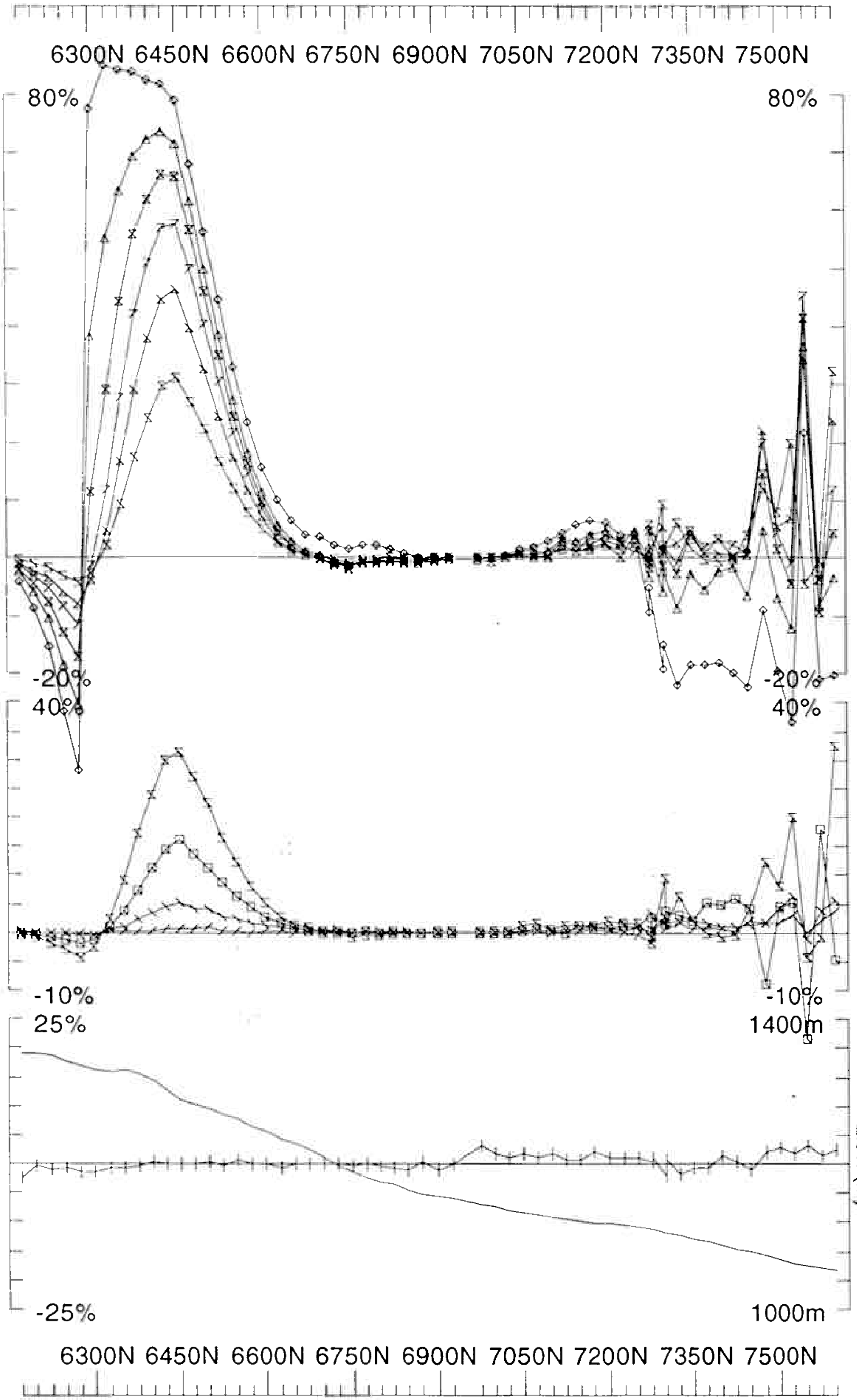
Loop: 18	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 3200E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 18	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 3400E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 18 Line: 3500E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 14/3/4 Reduced : 17/3/4 Plotted : 18/5/4



Loop: 18
Line: 3600E
Compt: Hz

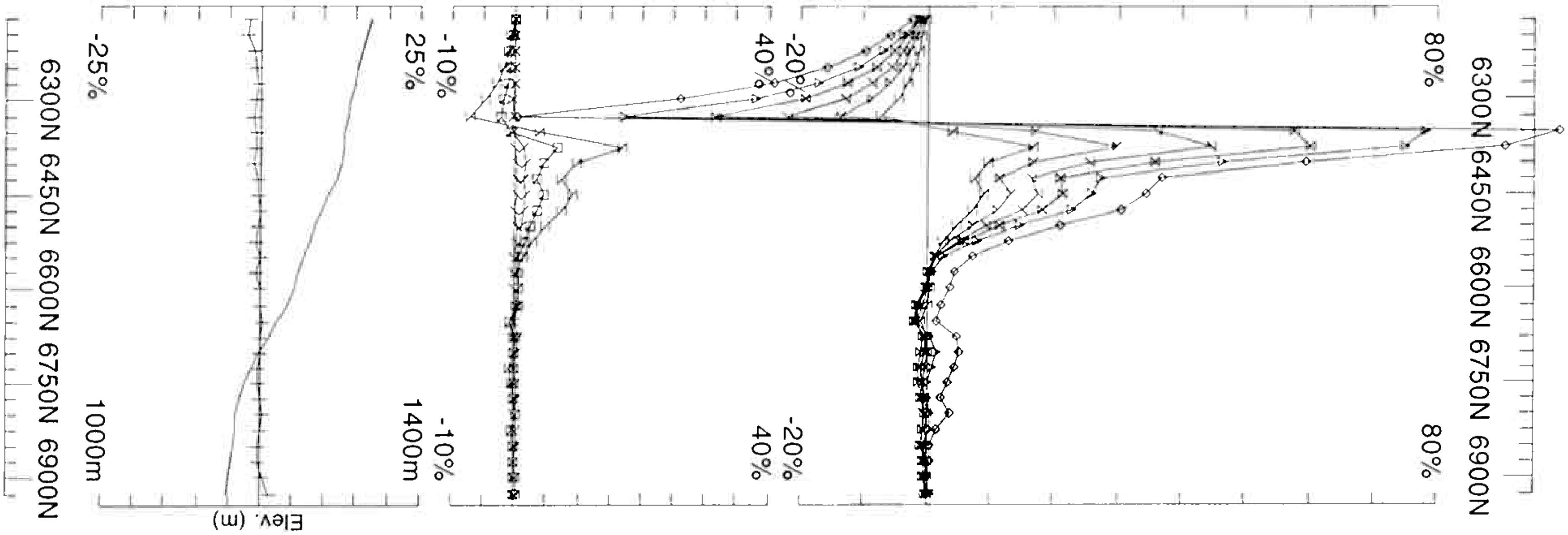
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

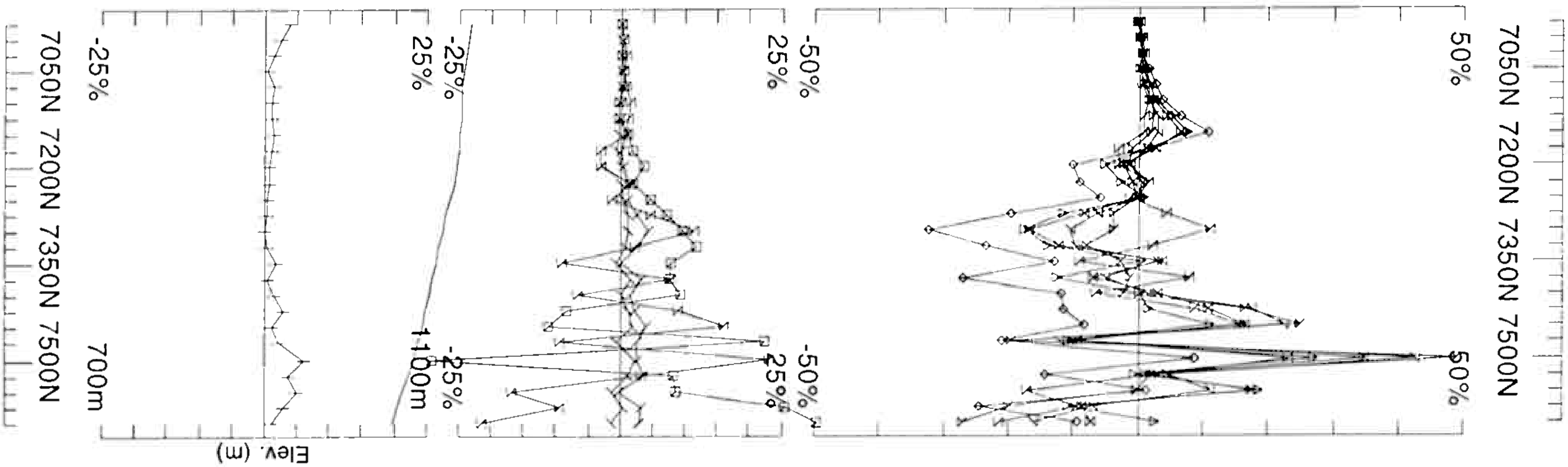
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Job 0408

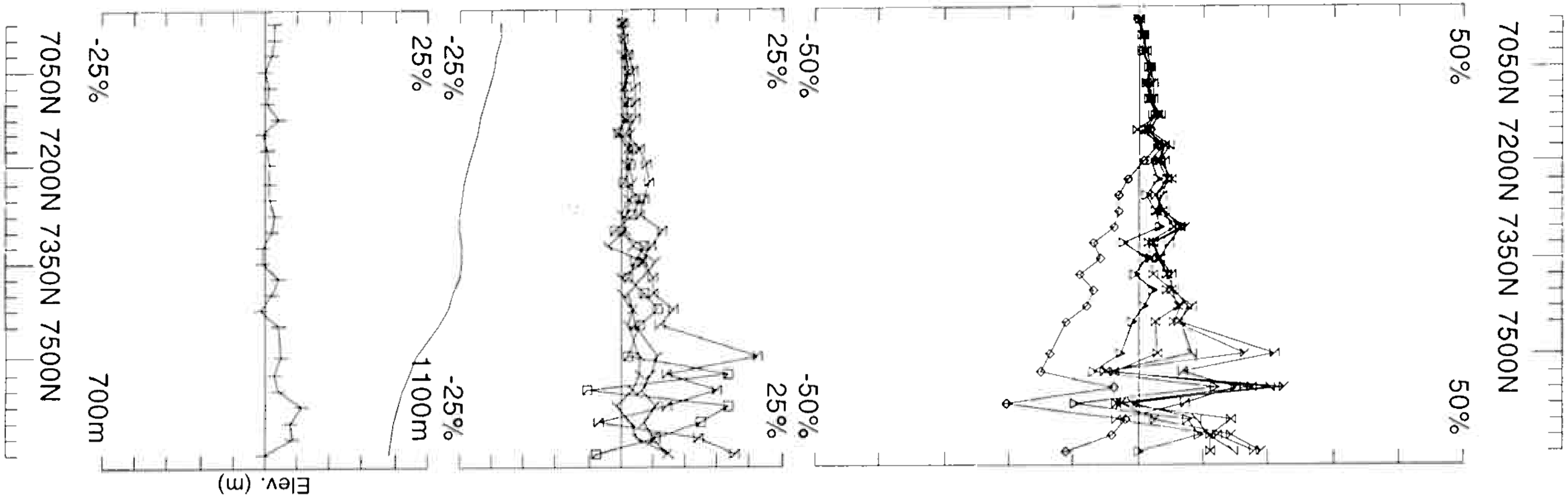
Plotted : 18/5/4



Loop: 18	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 3700E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 14/3/4 Reduced : 17/3/4 Plotted : 18/5/4



Loop: 18 Line: 3800E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 18 Line: 4000E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4

Espedalen

Loop 18S

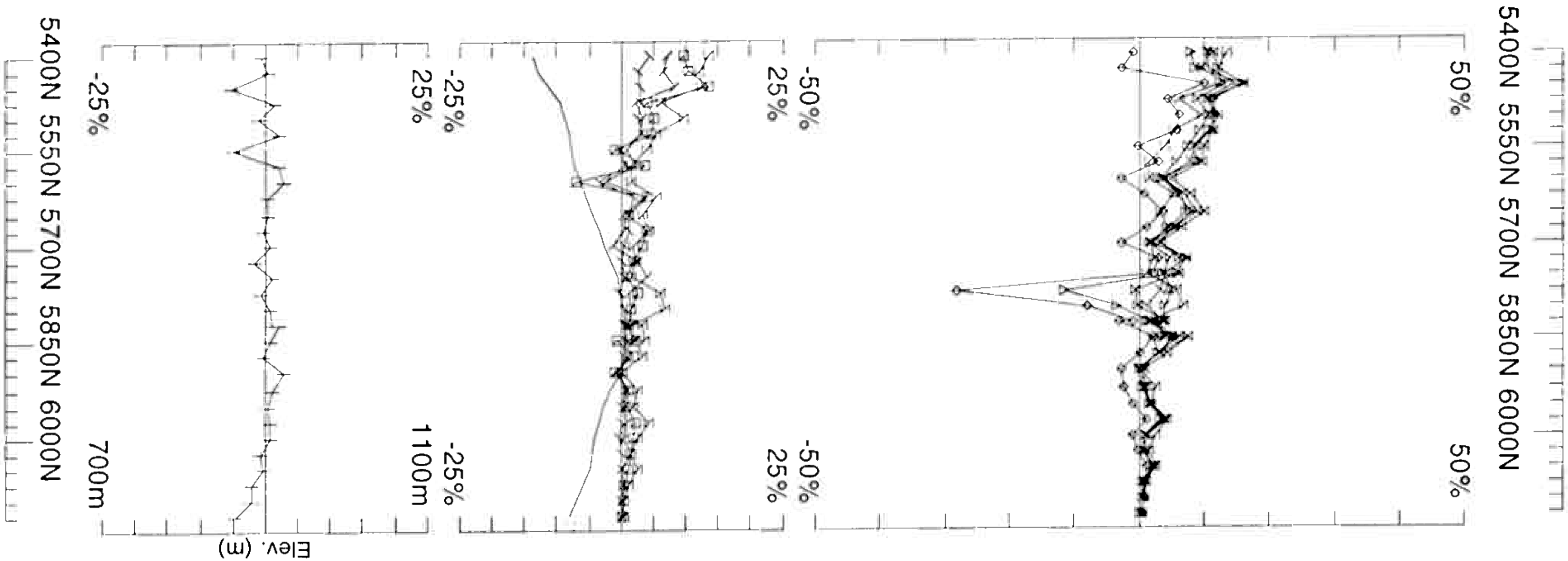
Hz
@3.251 Hz frequency

continuous norm

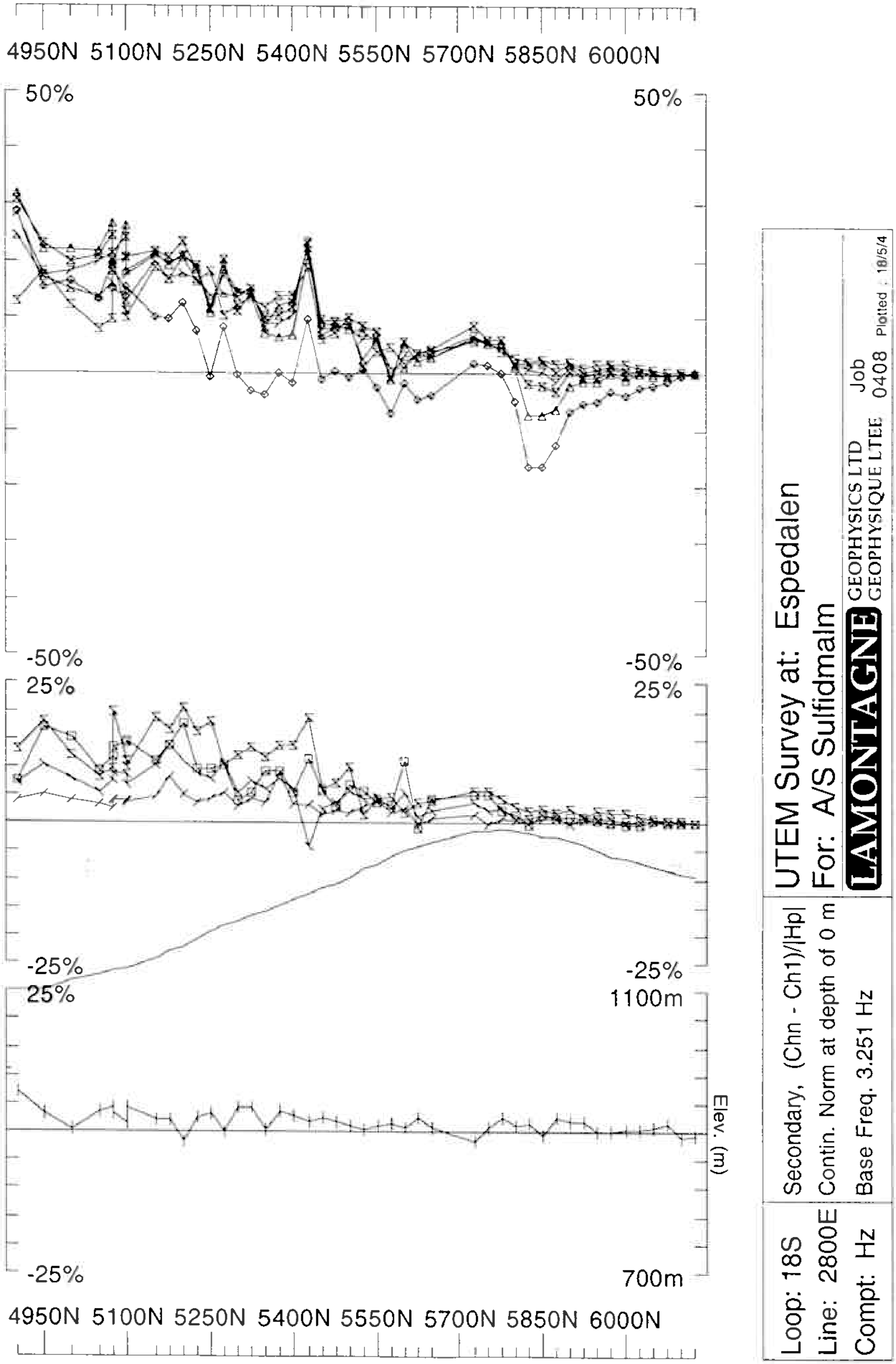
Ch1 reduced

Loop 18N	Line	2800E	6950N - 7875N	925m
(surveyed N)	Line	3000E	6950N - 7650N	700m
	Line	3200E	6950N - 7550N	600m
	Line	3400E	6950N - 7600N	650m
	Line	3500E	6150N - 6950N	800m
	Line	3600E	6150N - 7600N	1450m
	Line	3700E	6150N - 6950N	800m
	Line	3800E	6950N - 7600N	650m
	Line	4000E	6950N - 7650N	700m
Loop 18S	Line	2600E	5400N - 6150N	750m
(surveyed S)	Line	2800E	4900N - 6150N	1250m
			Loop 18 Total	9275m

Loop 18S - continuous norm



Loop: 18S	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 2600E	Contin. Norm at depth of 0 m	For: A/S Sulfidmalm
Compt: Hz	Base Freq. 3.251 Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



4950N 5100N 5250N 5400N 5550N 5700N 5850N 6000N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1100m
Elev. (m)
-25%
700m
4950N 5100N 5250N 5400N 5550N 5700N 5850N 6000N
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4
Loop: 18S
Line: 2800E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz

Espedalen

Loop 5

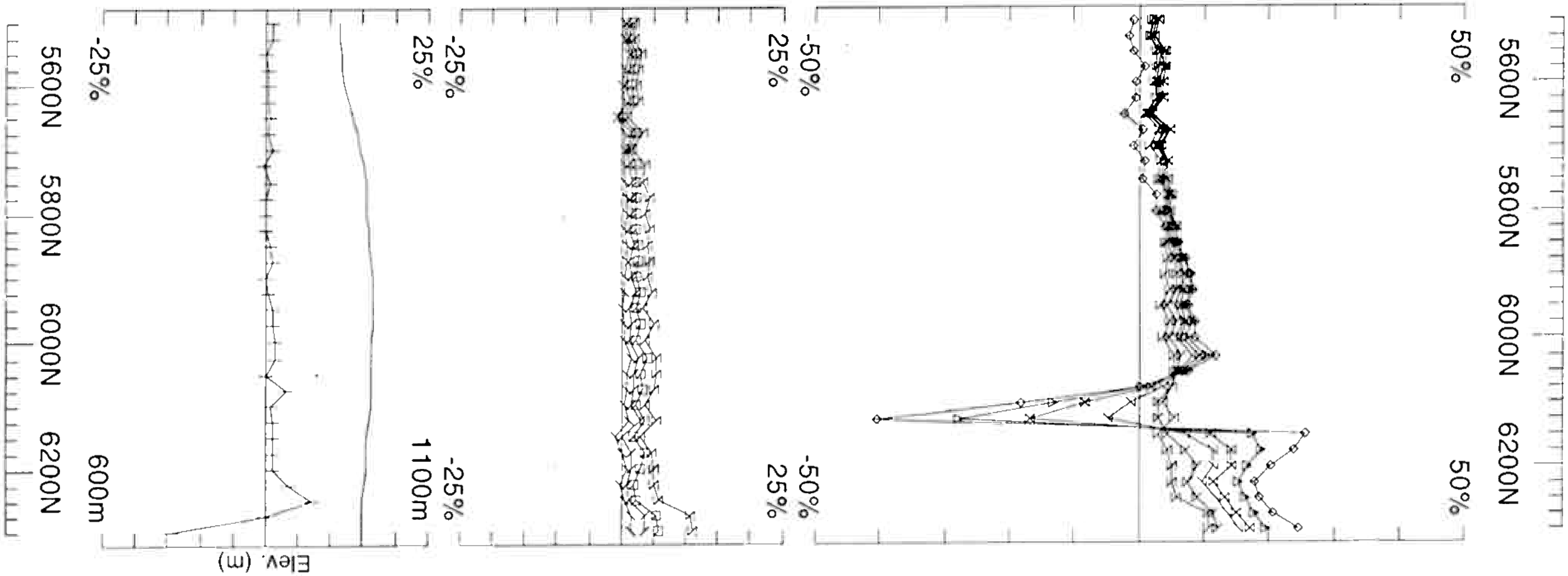
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (8300E,6025N, 985 m.a.s.l.)

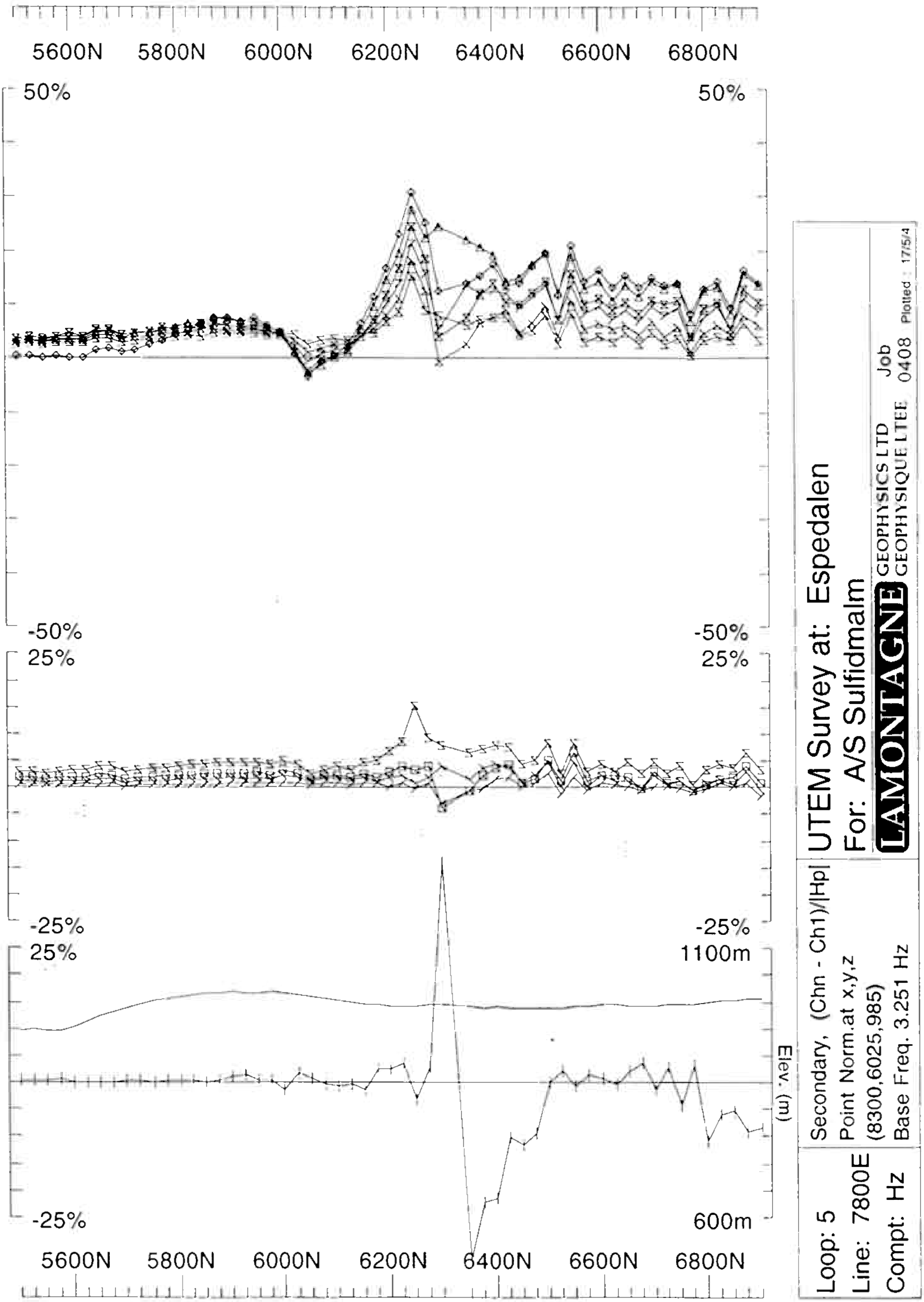
Ch1 reduced

Loop 05	Line 7600E	5500N - 6325N	825m
	Line 7800E	5500N - 6900N	1400m
	Line 8000E	5500N - 6900N	1400m
	Line 8200E	5500N - 6900N	1400m
	Line 8400E	5500N - 6900N	1400m
	Line 8600E	5500N - 6900N	1400m
	Line 8800E	5500N - 6900N	1400m
	Line 9000E	5500N - 6325N	825m
		Loop 05 Total	10050m

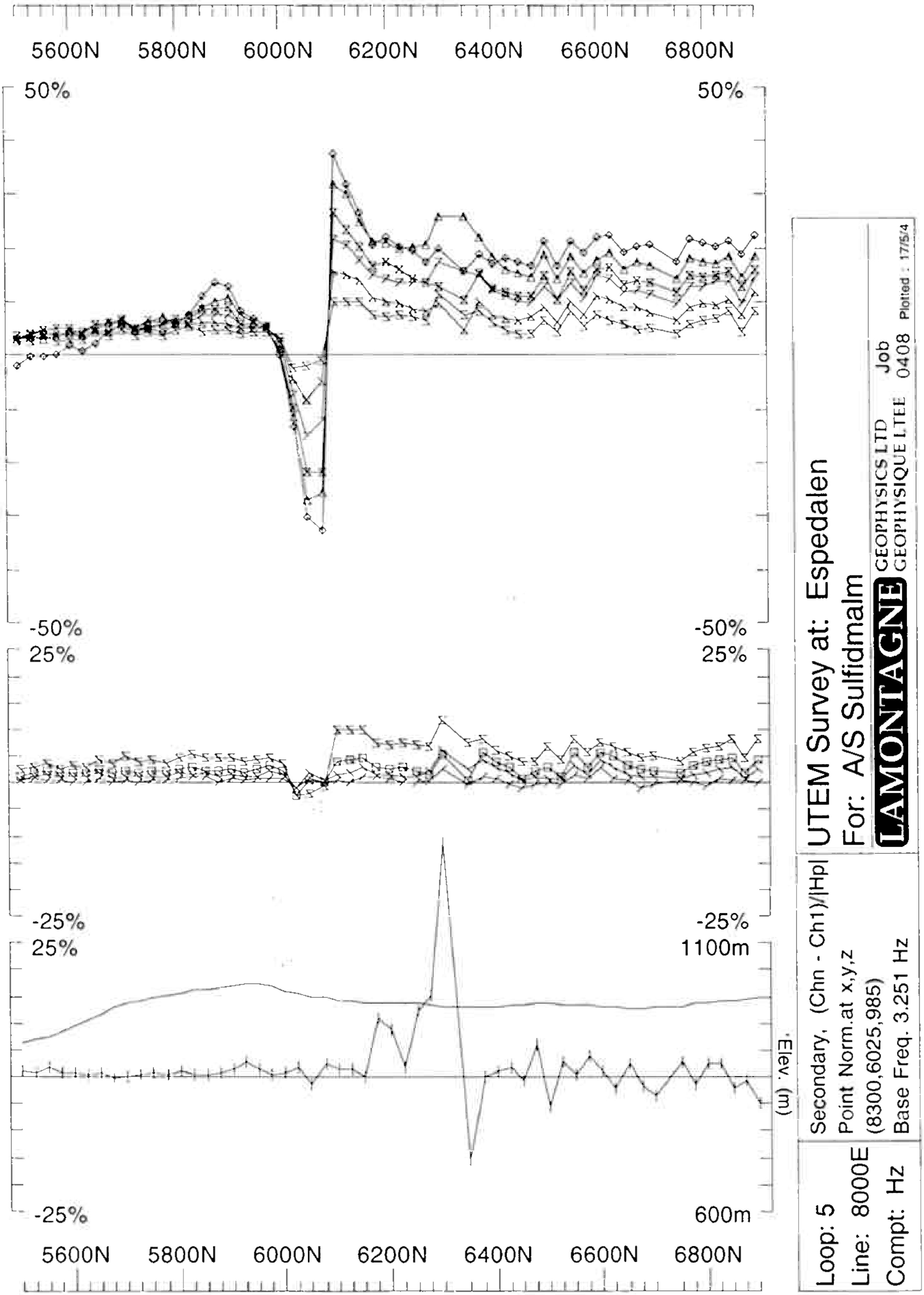
Loop 5 - point norm



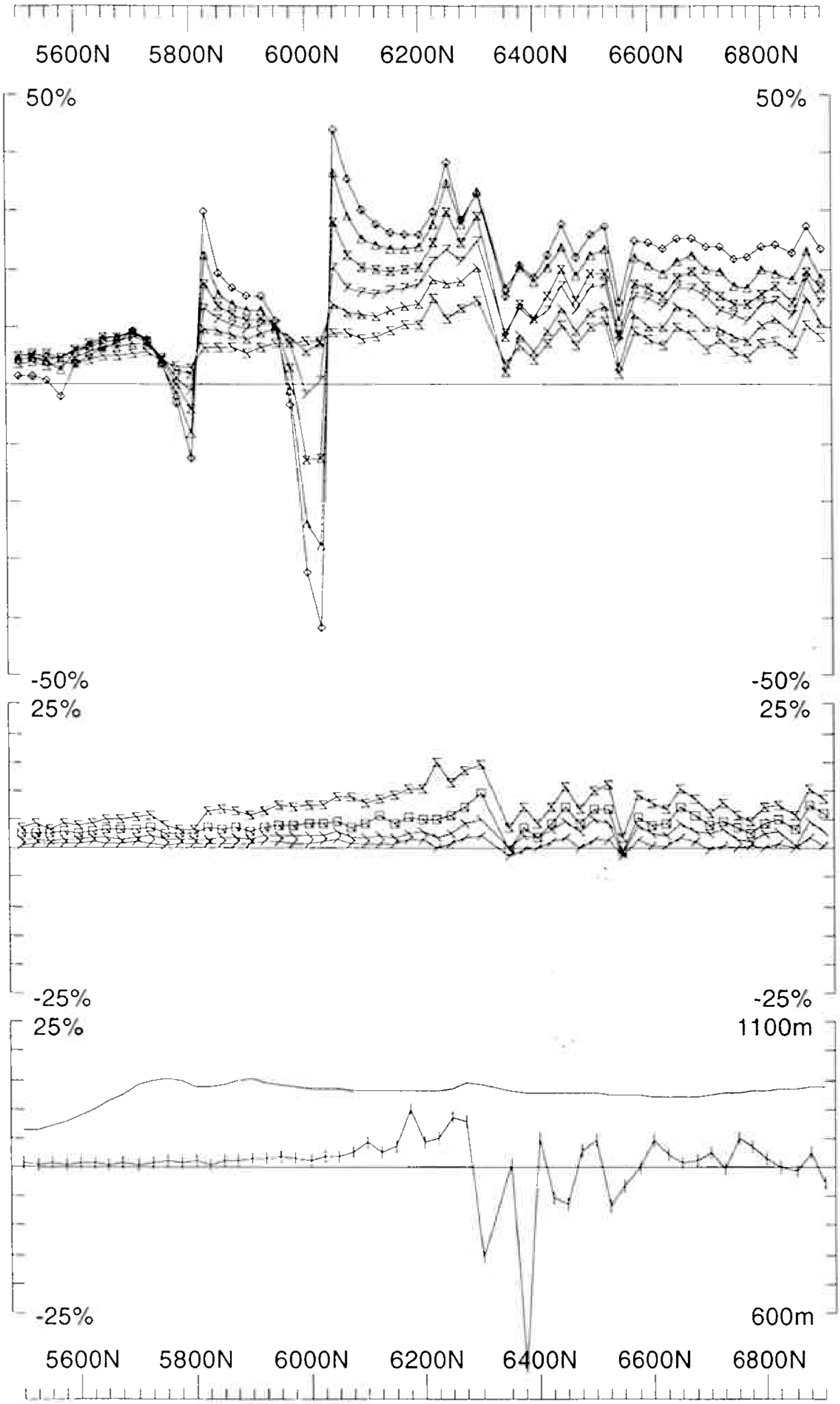
Loop: 5 Line: 7600E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (8300,6025,985) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 17/2/4 Reduced : 17/5/4 Plotted : 17/5/4



5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1100m
-25%
600m
Elev. (m)
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8300,6025,985)
Base Freq. 3.251 Hz
Loop: 5
Line: 7800E
Compt: Hz



5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
-50%
25%
-25%
25%
-25%
1100m
600m
Elev. (m)
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8300,6025,985)
Base Freq. 3.251 Hz
Loop: 5
Line: 8000E
Compt: Hz



UTEM Survey at: Espedalen

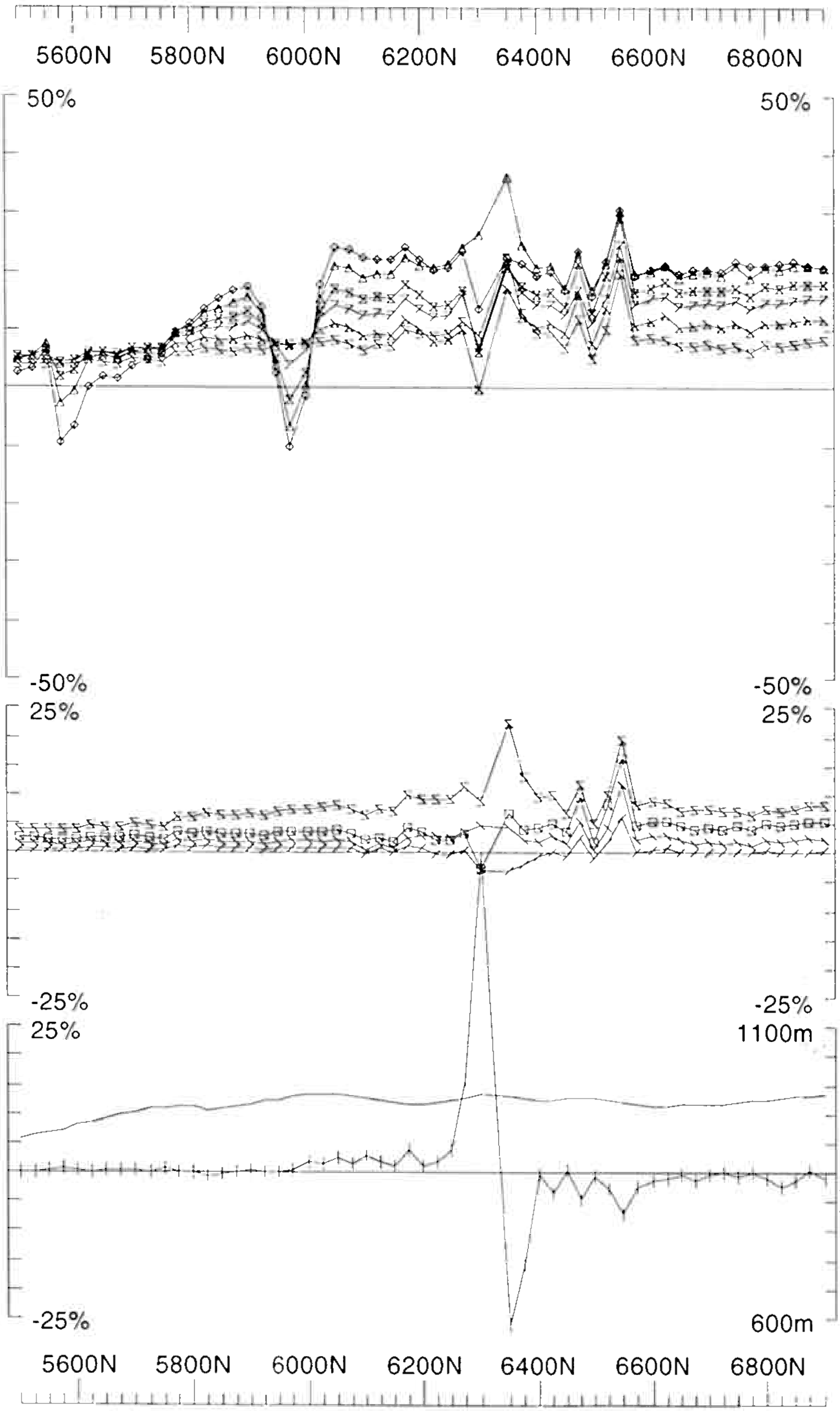
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Job 0408 Plotted : 17/5/4

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8300,6025,985)
Base Freq. 3.251 Hz

Loop: 5
Line: 8200E
Compt: Hz



UTEM Survey at: Espedalen

For: A/S Sulfidmalm

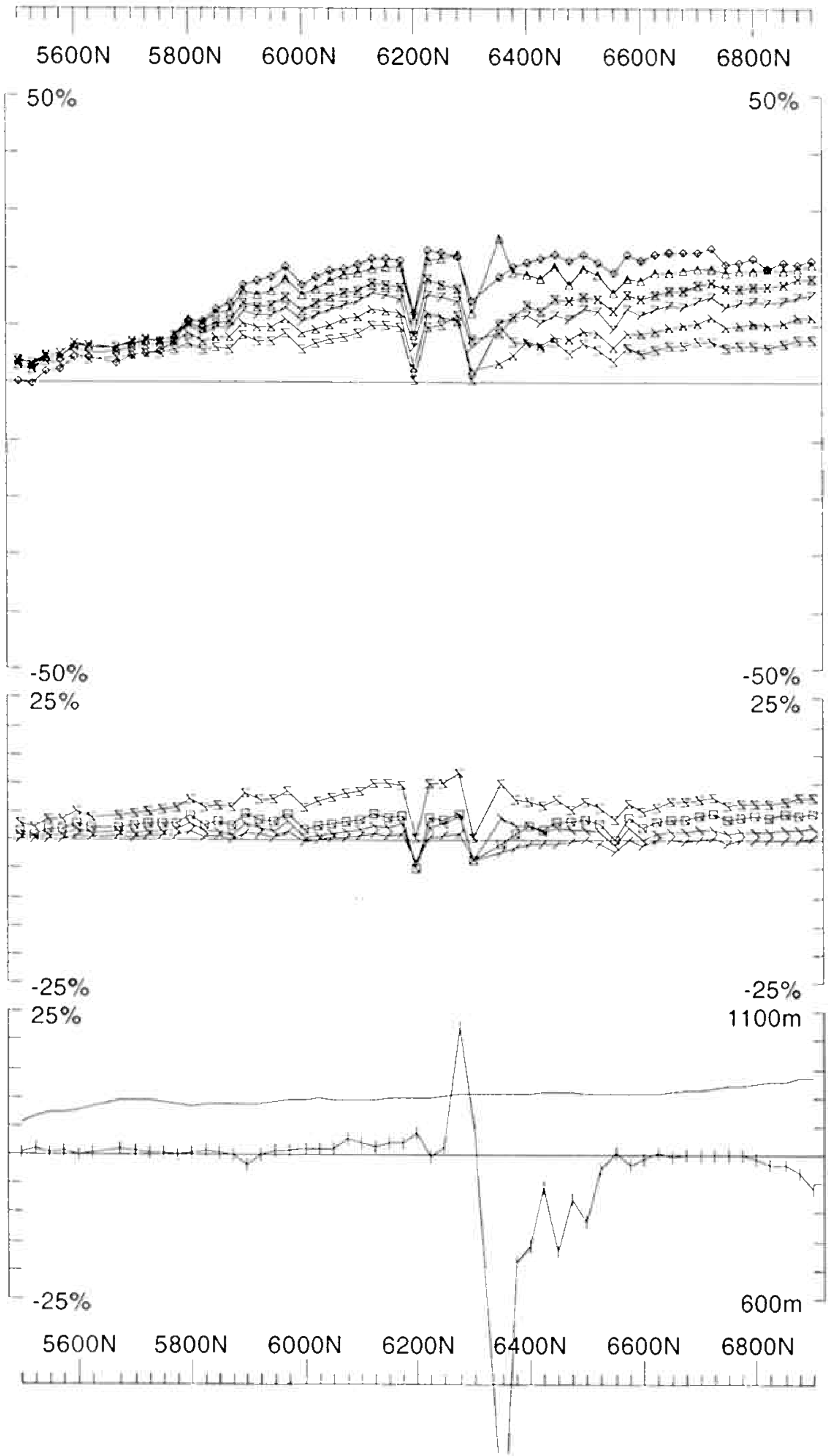
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Plotted : 17/5/4

Loop: 5
Line: 8400E
Compt: Hz

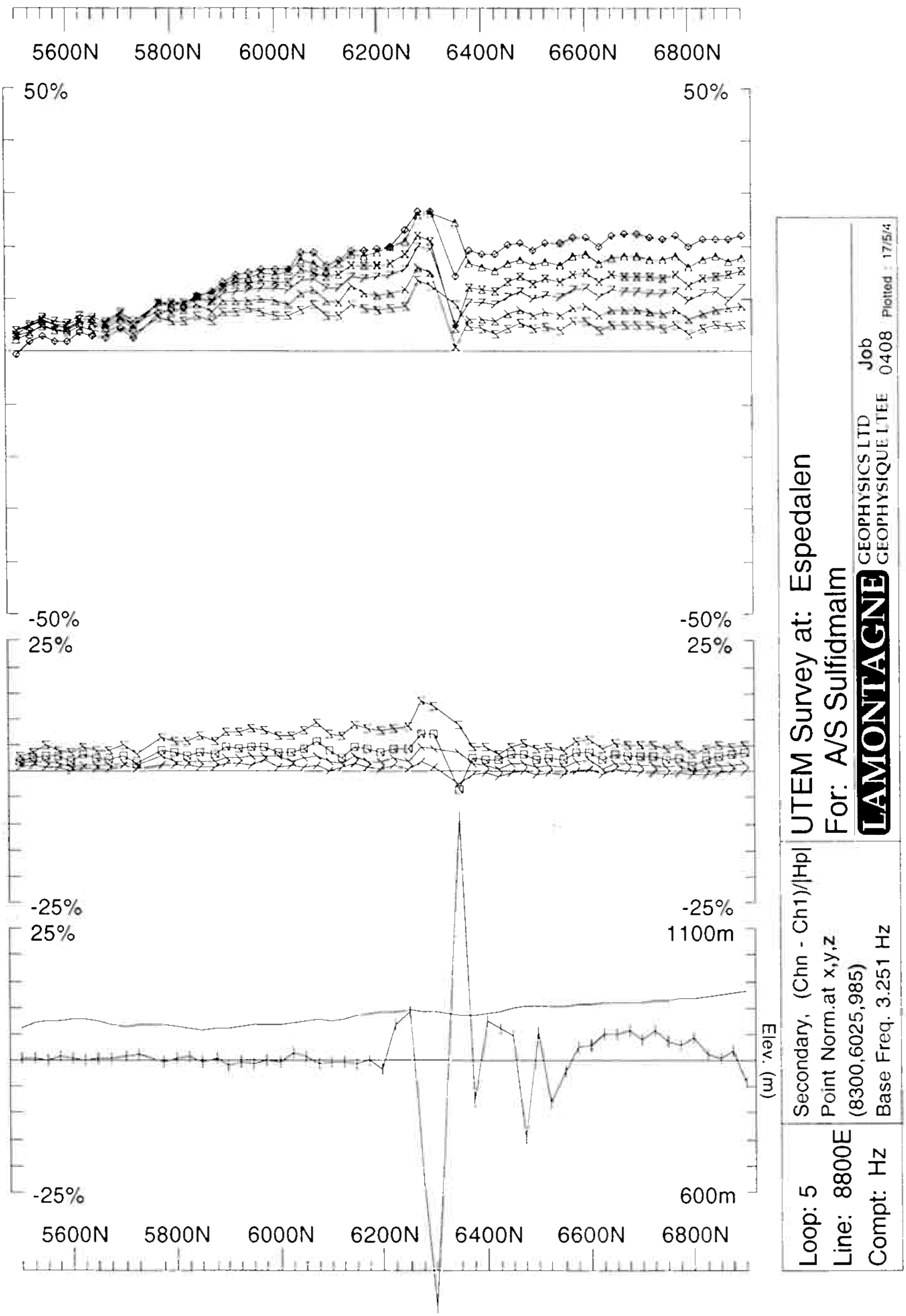
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8300,6025,985)
Base Freq. 3.251 Hz

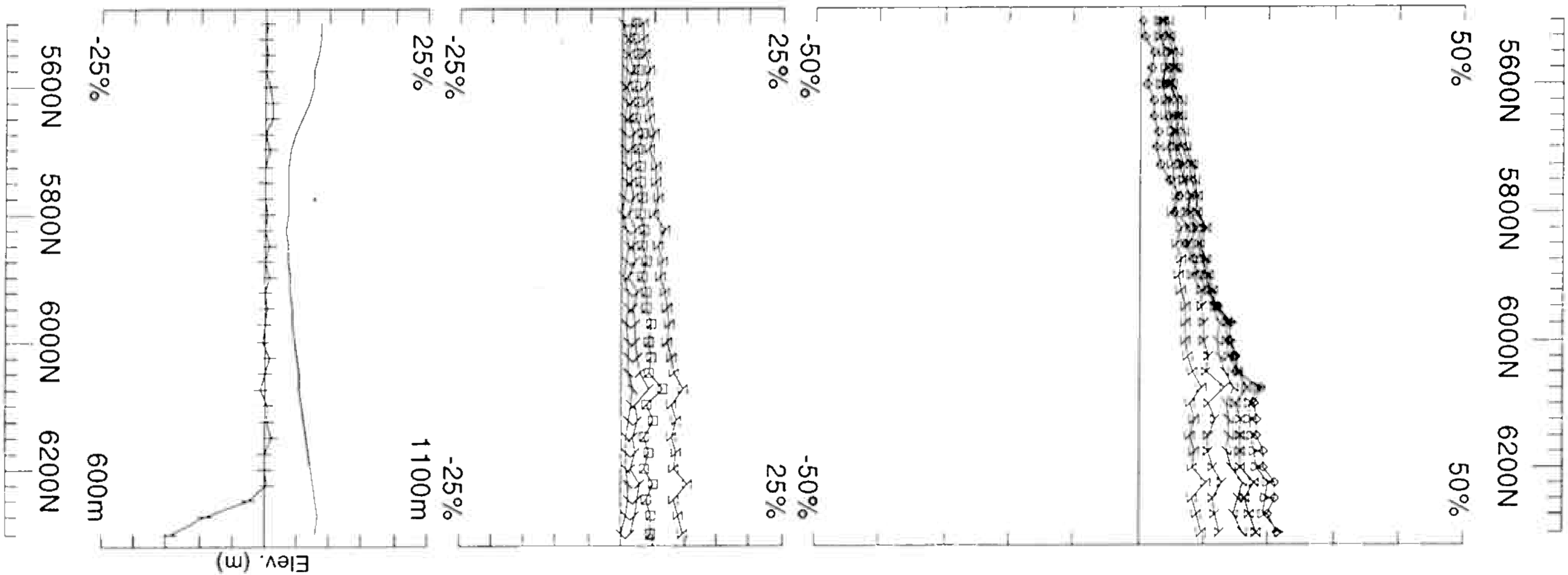


UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8300,6025,985)
Base Freq. 3.251 Hz

Loop: 5
Line: 8600E
Compt: Hz


5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1100m
-25%
600m
Elev. (m)
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8300,6025,985)
Base Freq. 3.251 Hz
Loop: 5
Line: 8800E
Compt: Hz



Loop: 5 Line: 9000E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (8300,6025,985) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 19/2/4 Reduced : 17/5/4 Plotted : 17/5/4

Espedalen

Loop 6

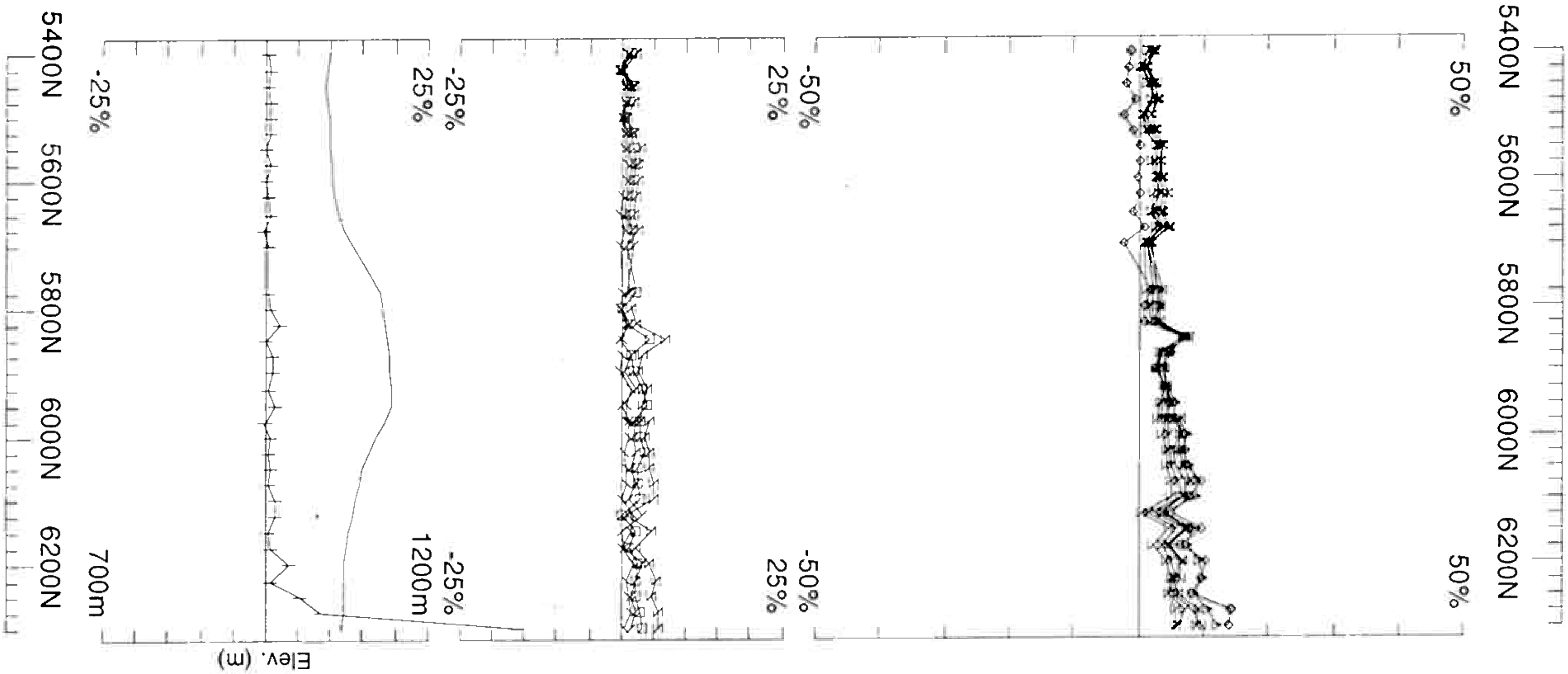
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (7300E,6025N, 1023 m.a.s.l.)

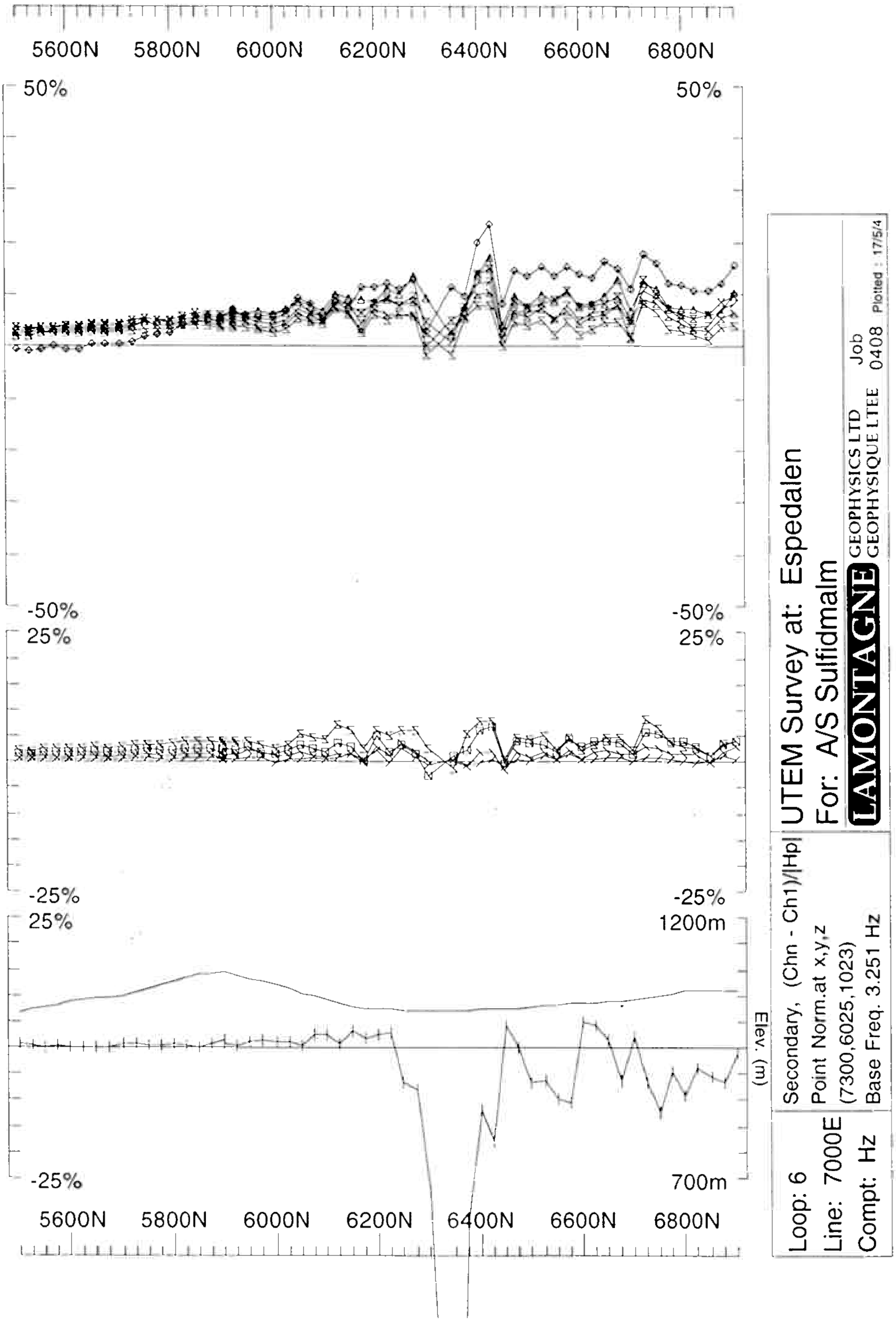
Ch1 reduced

Loop 06	Line	6800E	5400N - 6325N	925m
	Line	7000E	5500N - 6900N	1400m
	Line	7200E	5500N - 6900N	1400m
	Line	7400E	5500N - 6900N	1400m
	Line	7600E	5500N - 6900N	1400m
			Loop 06 Total	6525m

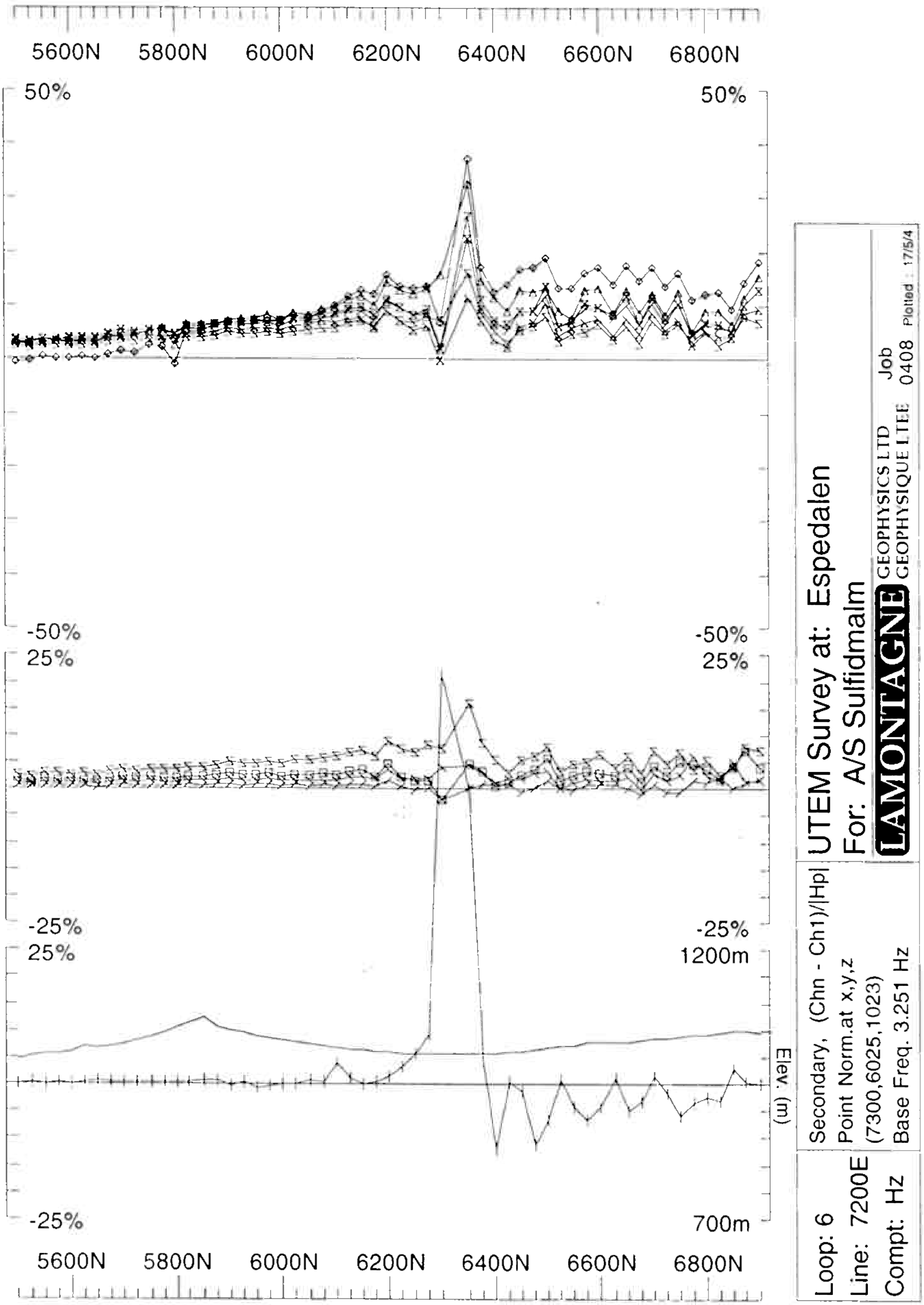
Loop 6 - point norm



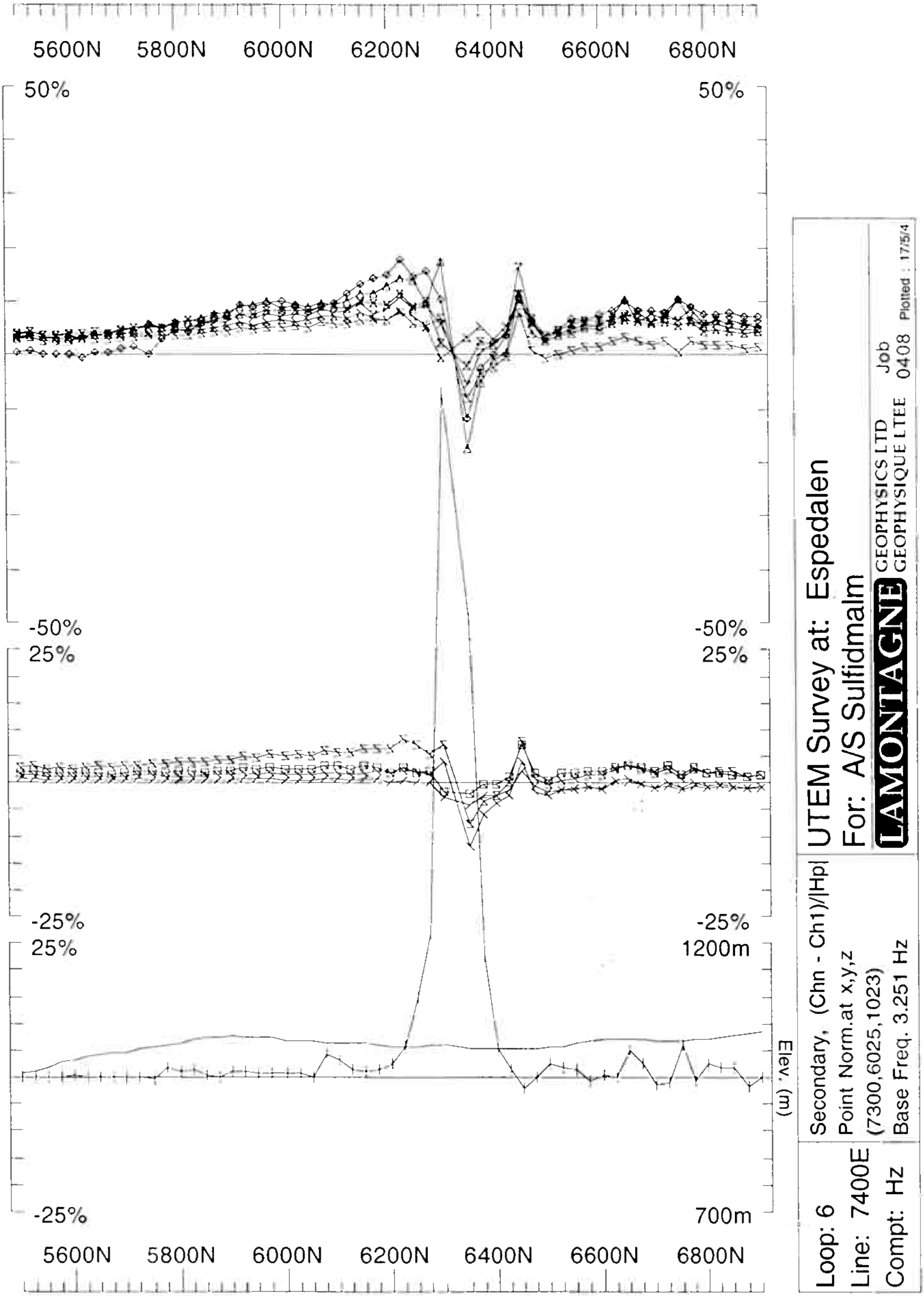
Loop: 6 Line: 6800E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (7300,6025,1023) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 17/5/4



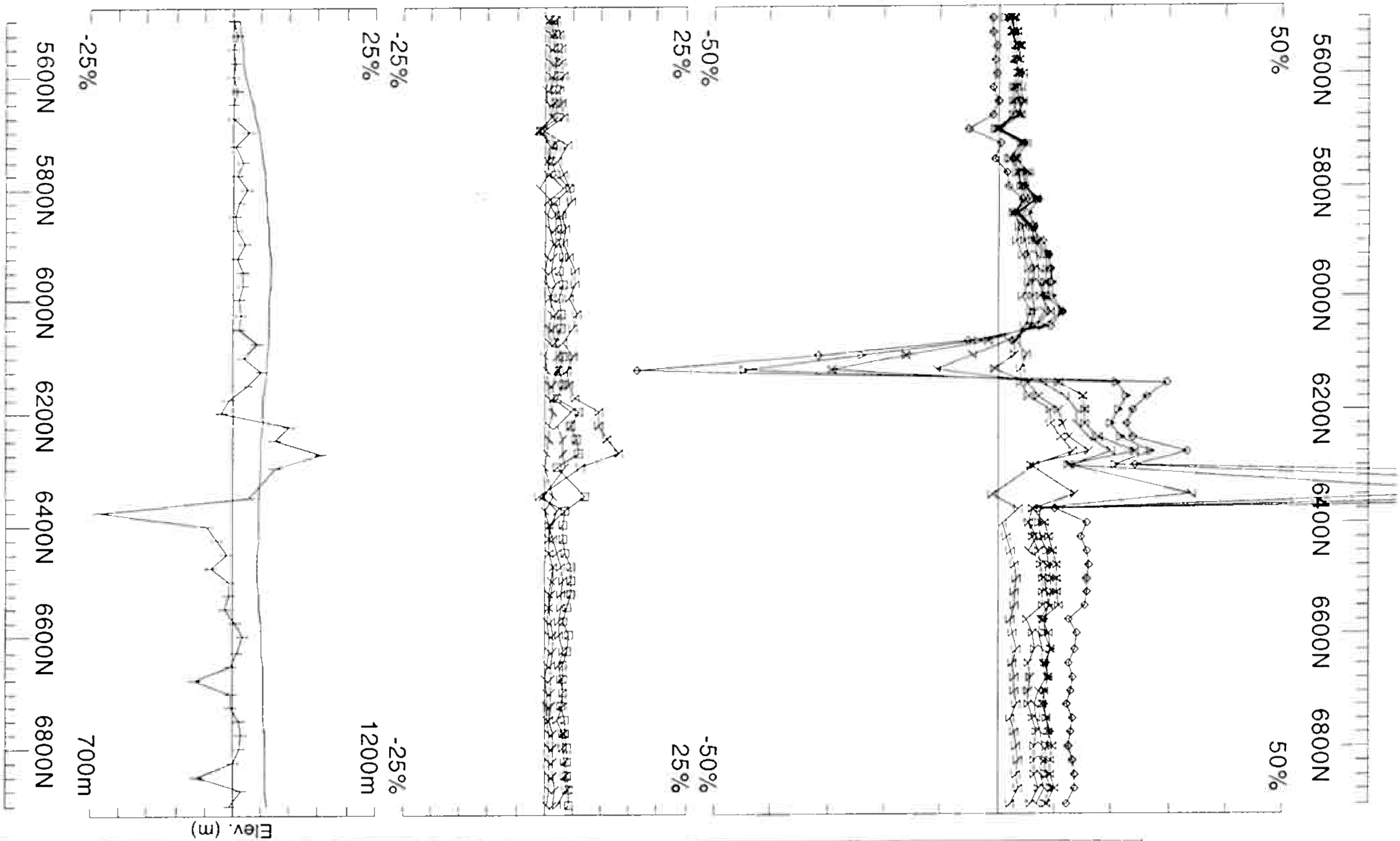
5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
-50%
25%
-25%
1200m
700m
Elev. (m)
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(7300,6025,1023)
Base Freq. 3.251 Hz
Loop: 6
Line: 7000E
Compt: Hz



5600N
5800N
6000N
6200N
6400N
6600N
6800N
50%
50%
-50%
-50%
25%
25%
-25%
-25%
25%
1200m
Elev. (m)
-25%
700m
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(7300,6025,1023)
Base Freq. 3.251 Hz
Loop: 6
Line: 7200E
Compt: Hz



5600N 5800N 6000N 6200N 6400N 6600N 6800N
50%
-50%
25%
-25%
25%
-25%
1200m
700m
Elev. (m)
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 17/5/4
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(7300,6025,1023)
Base Freq. 3.251 Hz
Loop: 6
Line: 7400E
Compt: Hz



Loop: 6 Line: 7600E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (7300,6025,1023) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 17/5/4

Espedalen

Loop 7

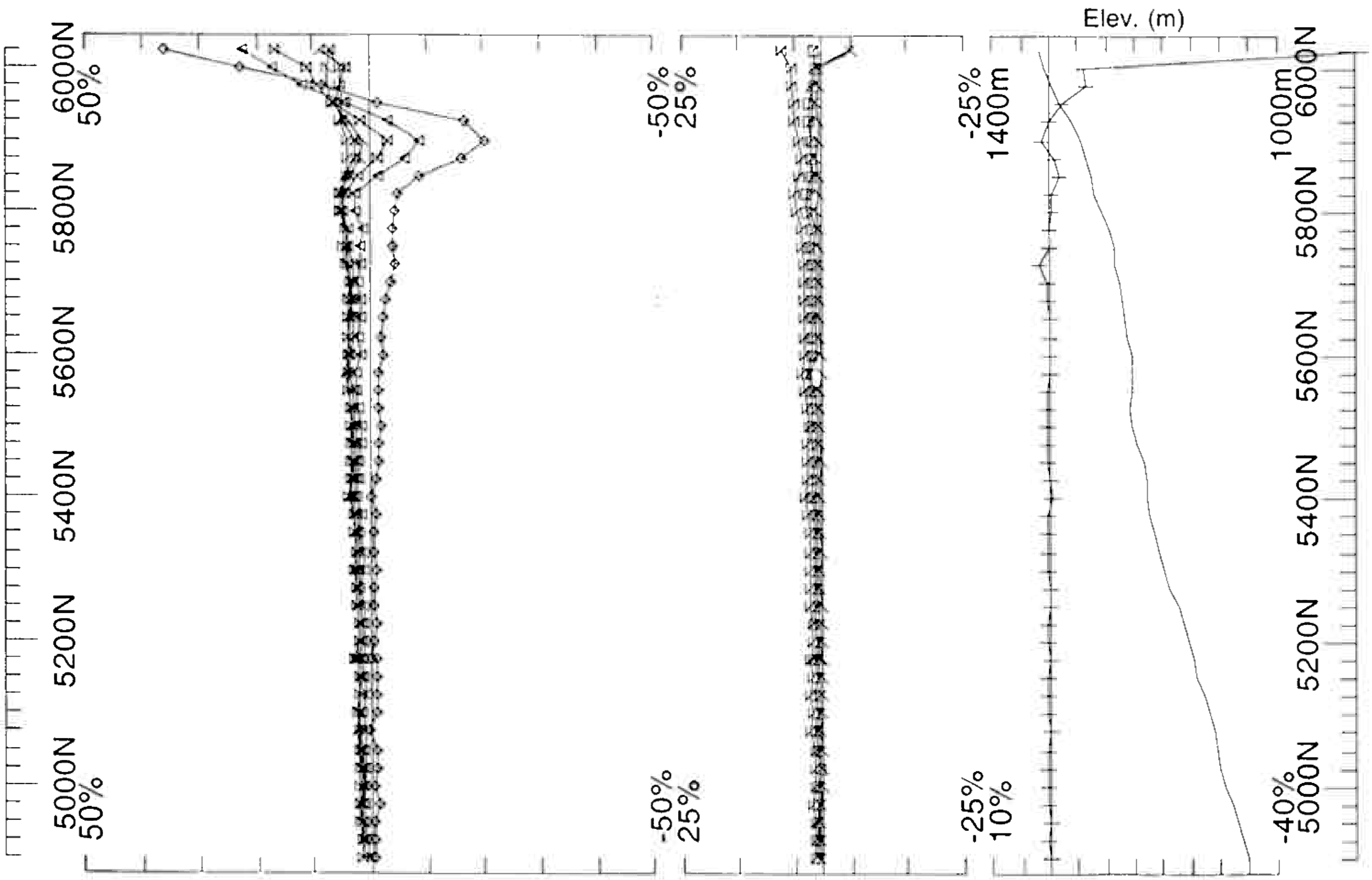
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (6500E,5750N, 1128 m.a.s.l.)

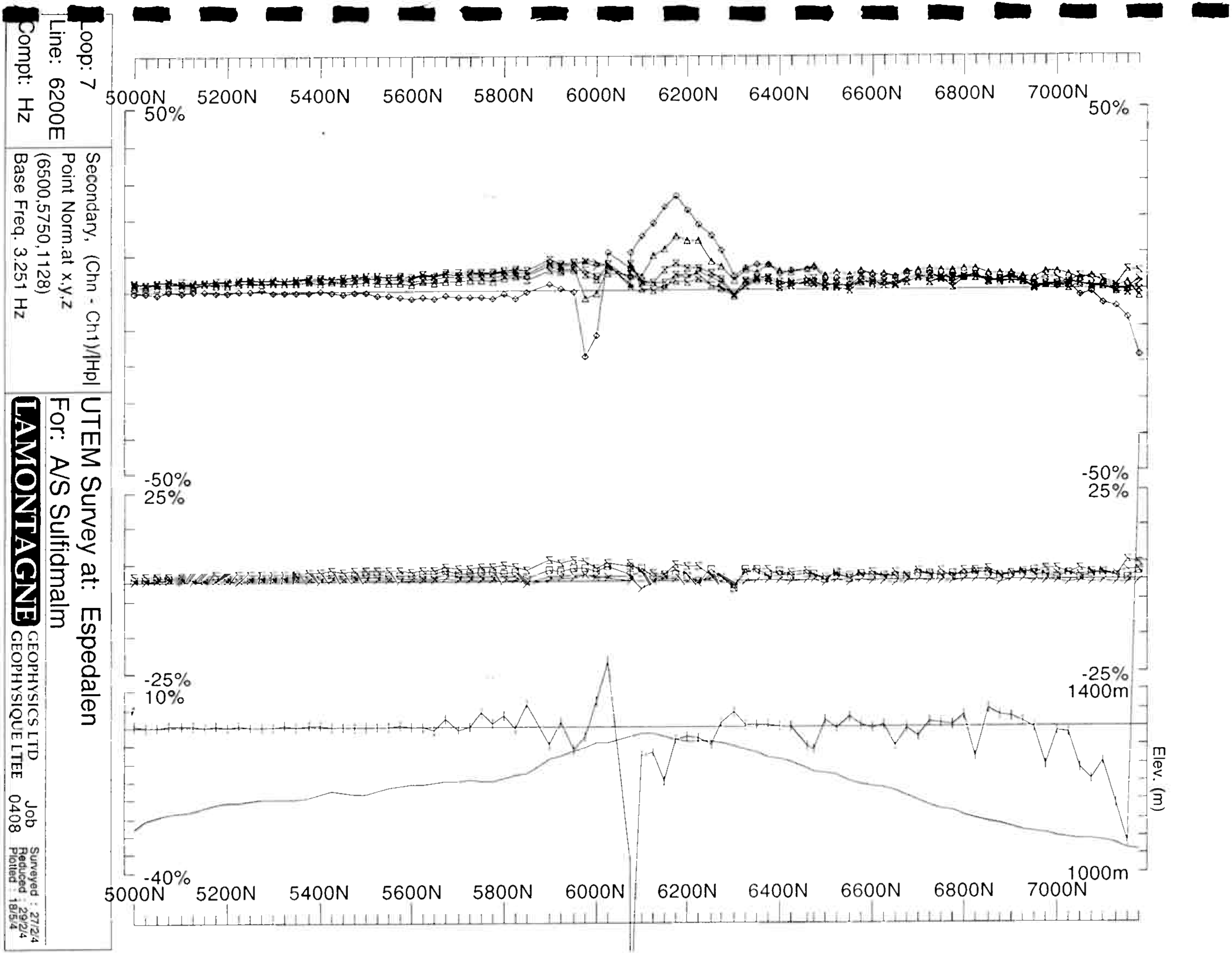
Ch1 reduced

Loop 07	Line	6000E	4900N - 6050N	1150m
	Line	6200E	5000N - 7200N	2200m
	Line	6400E	4925N - 7200N	2275m
	Line	6500E	5025N - 6050N	1025m
	Line	6600E	4950N - 7200N	2250m
	Line	6800E	5200N - 7200N	2000m
			Loop 07 Total	10900m

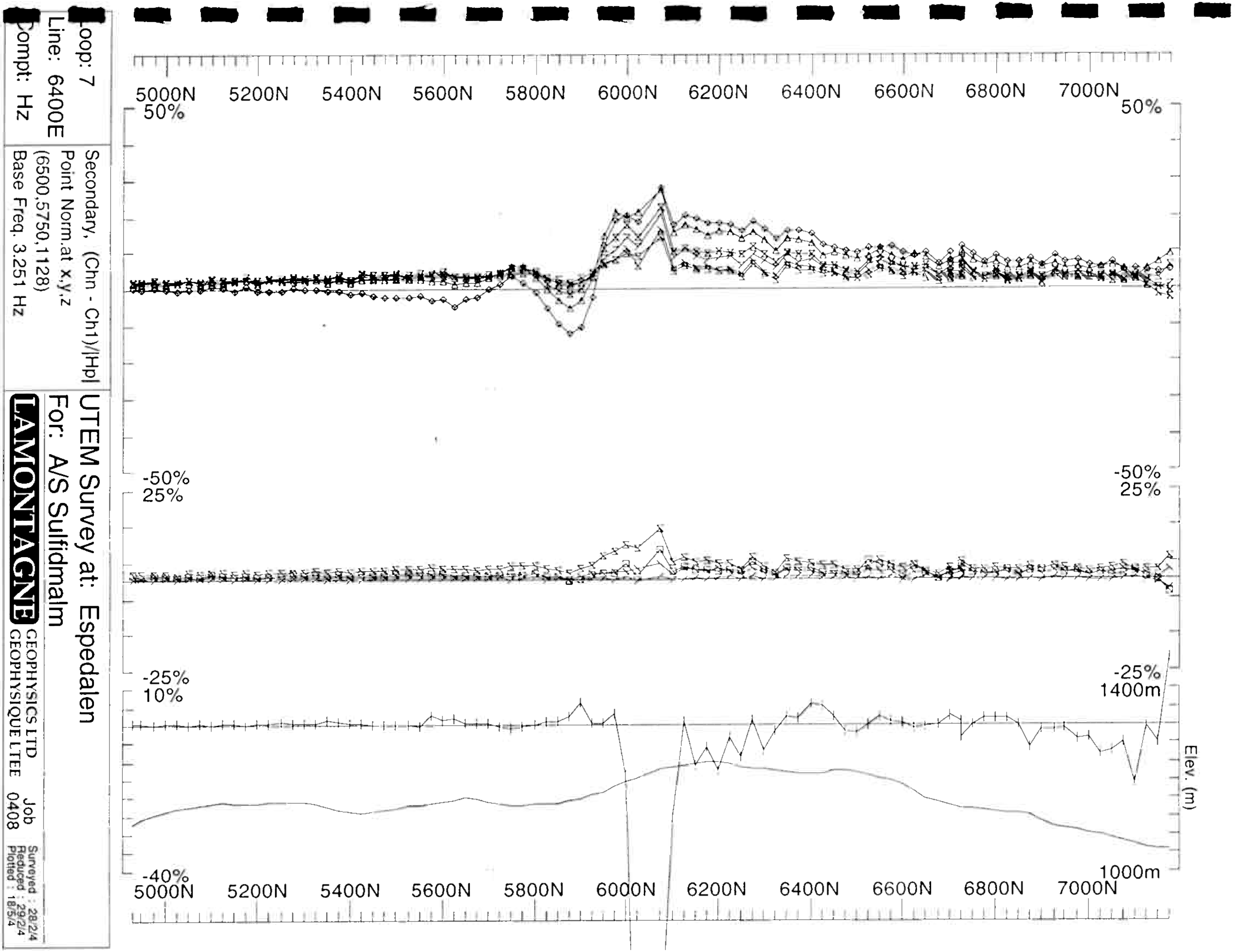
Loop 7 - point norm



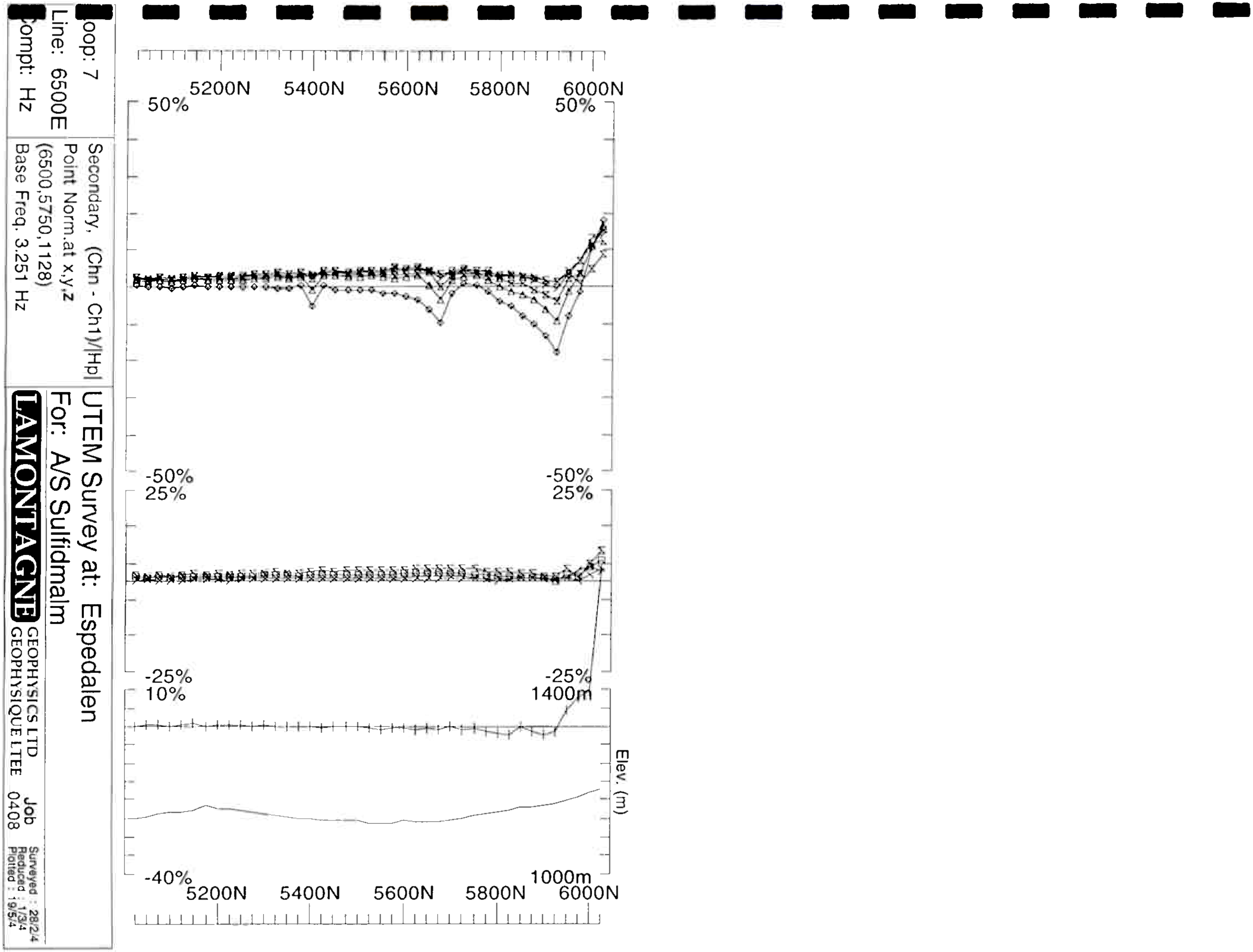
Loop: 7 Line: 6000E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6500,5750,1128) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4

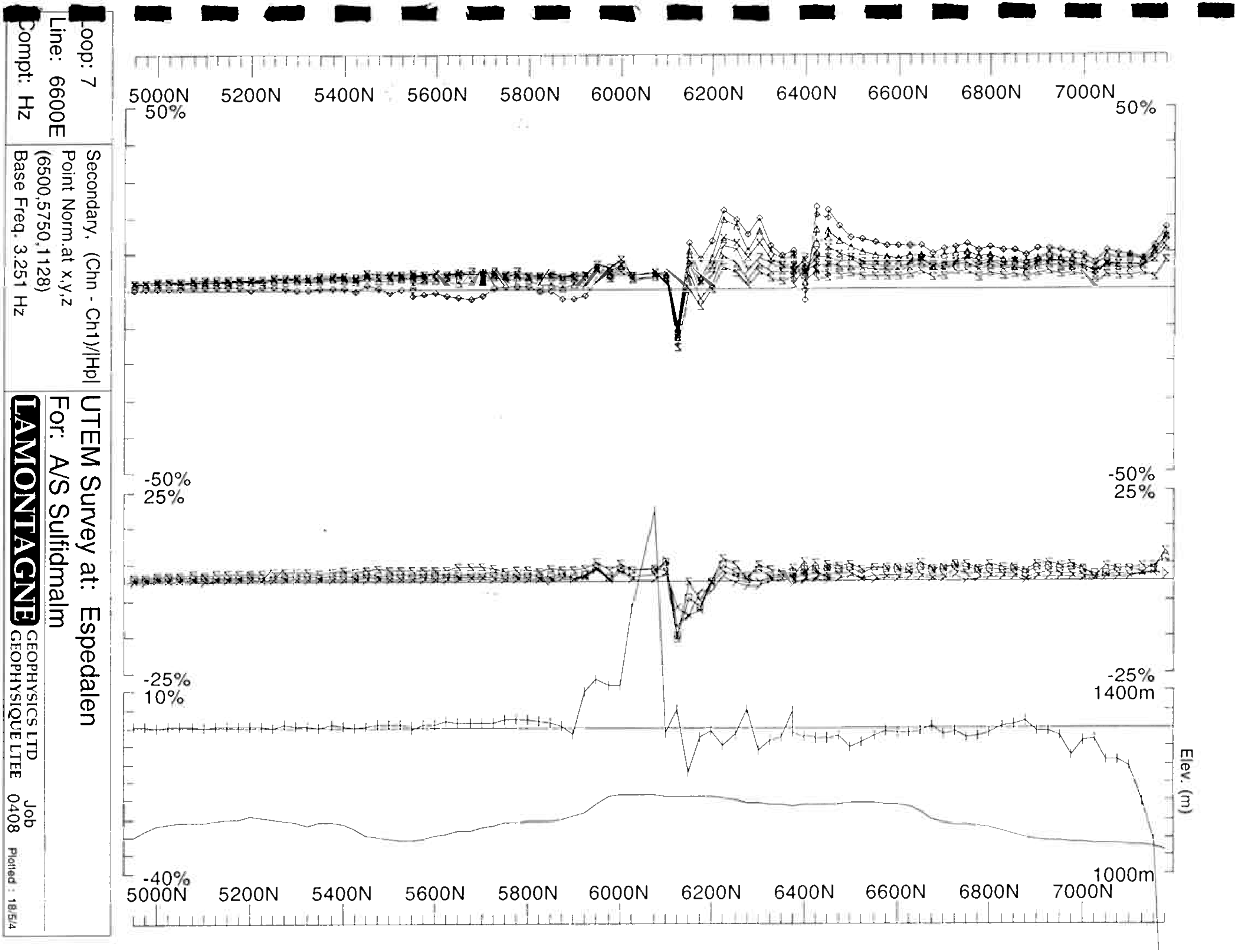


Loop: 7
Line: 6200E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(6500,5750,1128)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Surveyed : 27/2/4
Reduced : 29/2/4
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)

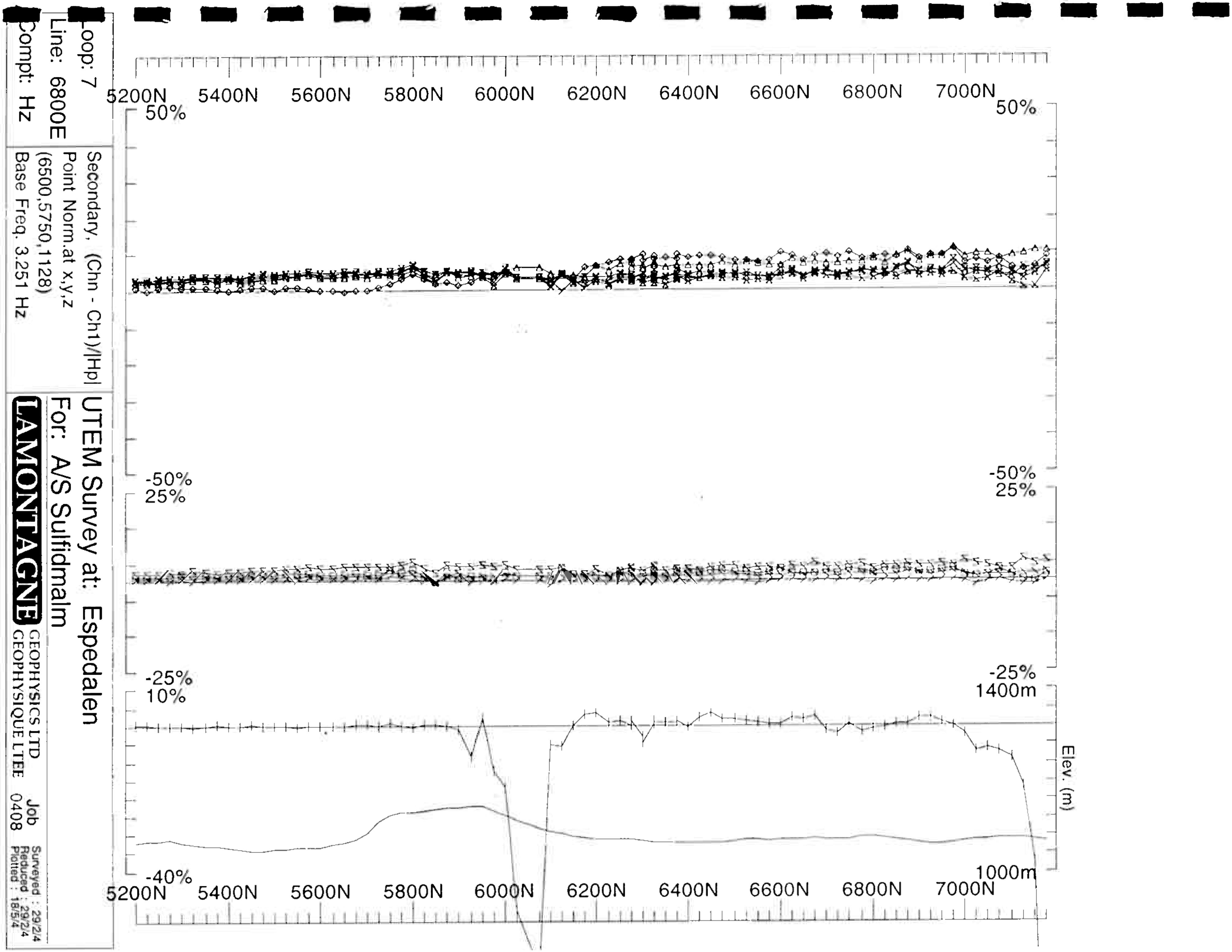


Loop: 7
Line: 6400E
Compt: Hz
Secondary, (Chn - Ch1)/Hpl
Point Norm.at x,y,z
(6500,5750,1128)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Surveyed : 28/2/4
Reduced : 29/2/4
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)


Loop: 7
Line: 6500E
Compt: Hz
Secondary, (Chn - Ch1)/Hpl
Point Norm.at x,y,z
(6500,5750,1128)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Surveyed : 28/2/4
Reduced : 1/3/4
Plotted : 19/5/4
5200N
5400N
5600N
5800N
6000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 7
Line: 6600E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(6500,5750,1128)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 7
Line: 6800E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(6500,5750,1128)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Surveyed : 29/2/4
Reduced : 29/2/4
Plotted : 18/5/4
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)

Espedalen

Loop 8

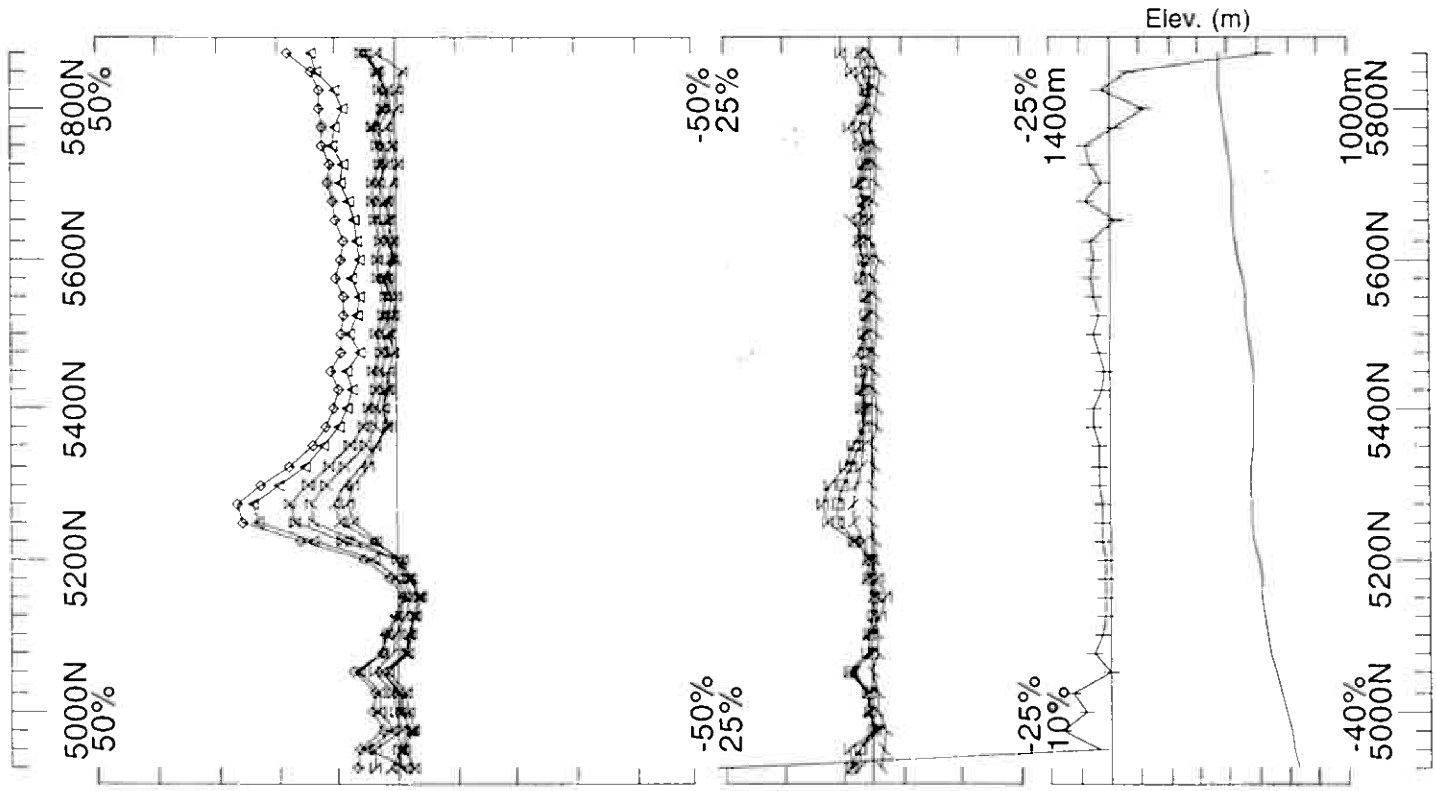
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (5400E,6200N, 1213 m.a.s.l.)

Ch1 reduced

Loop 08	Line	5000E	4900N - 5900N	1000m
	Line	5200E	4900N - 7200N	2300m
	Line	5400E	4900N - 7200N	2300m
	Line	5600E	4900N - 7200N	2300m
	Line	5800E	4900N - 7200N	2300m
	Line	6000E	5900N - 7200N	1300m
			Loop 08 Total	11500m

Loop 8 - point norm



Loop: 8
Line: 5000E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(5400,6200,1213)
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job
0408

Surveyed : 2/3/4
Reduced : 2/3/4
Plotted : 18/5/4

Loop: 8
Line: 5200E
Compt: Hz

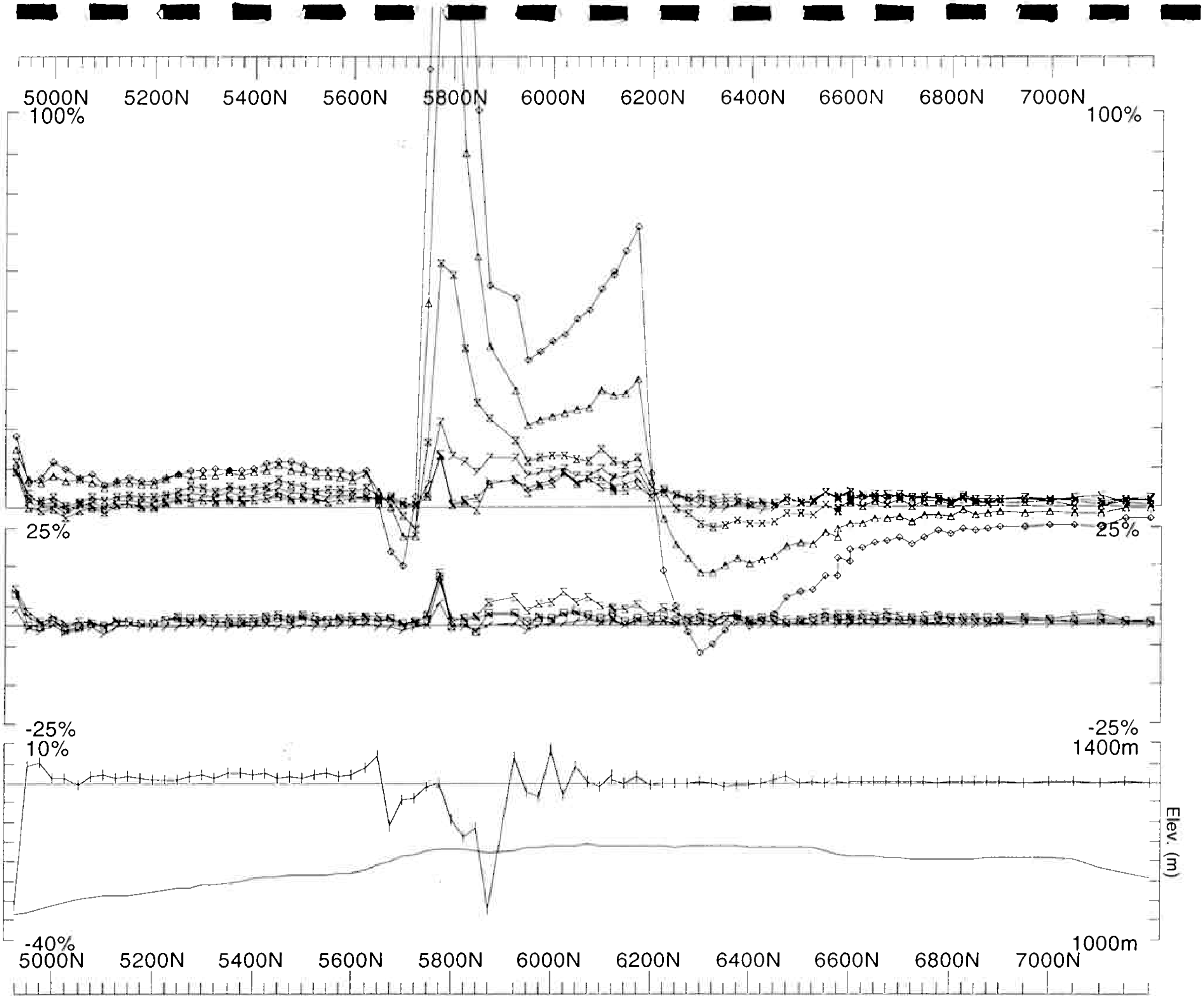
Secondary, (Chn - Ch1)/Hp|
Point Norm.at x,y,z
(5400,6200,1213)
Base Freq. 3.251 Hz

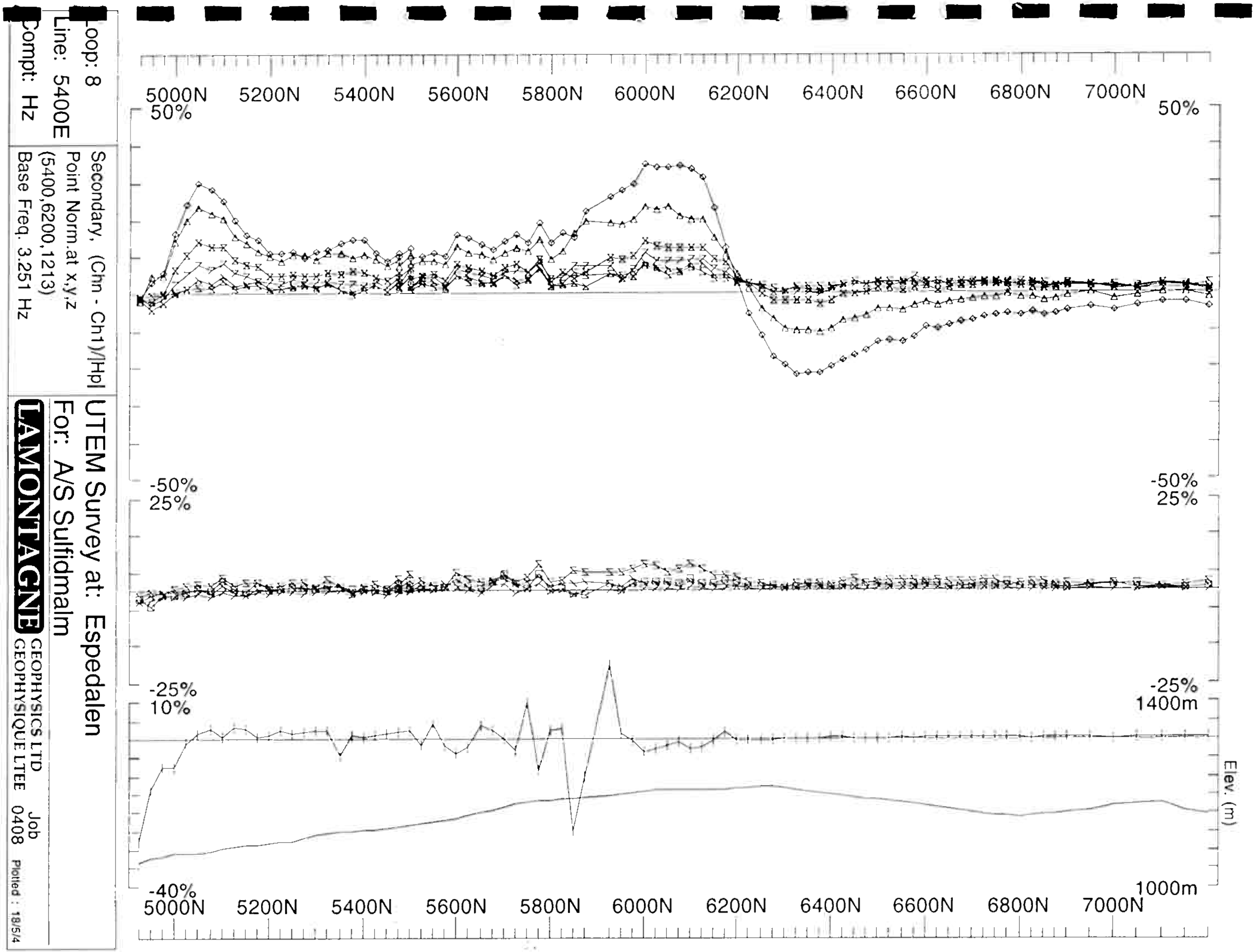
UTEM Survey at: Espedalen
For: A/S Sulfidmalm

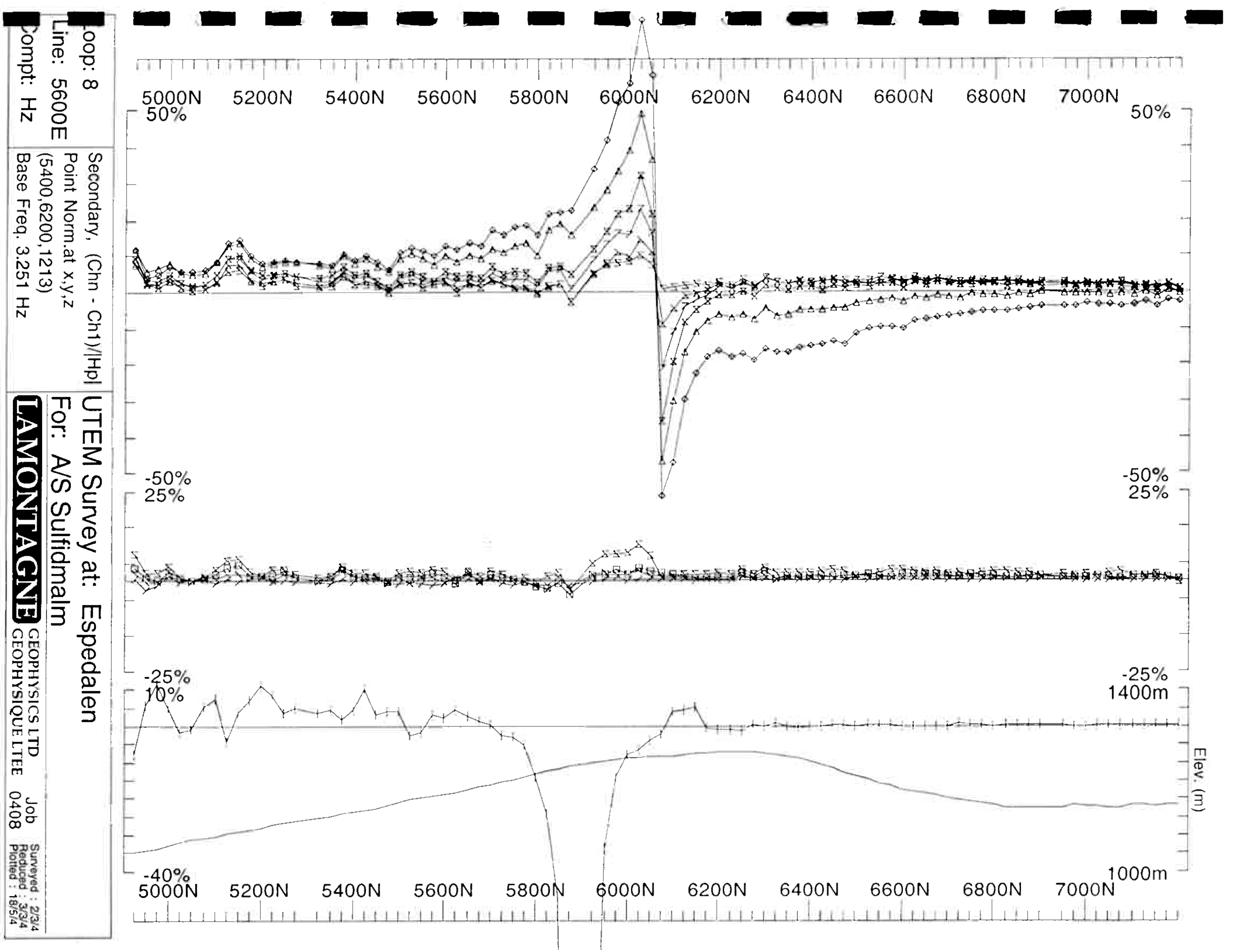
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

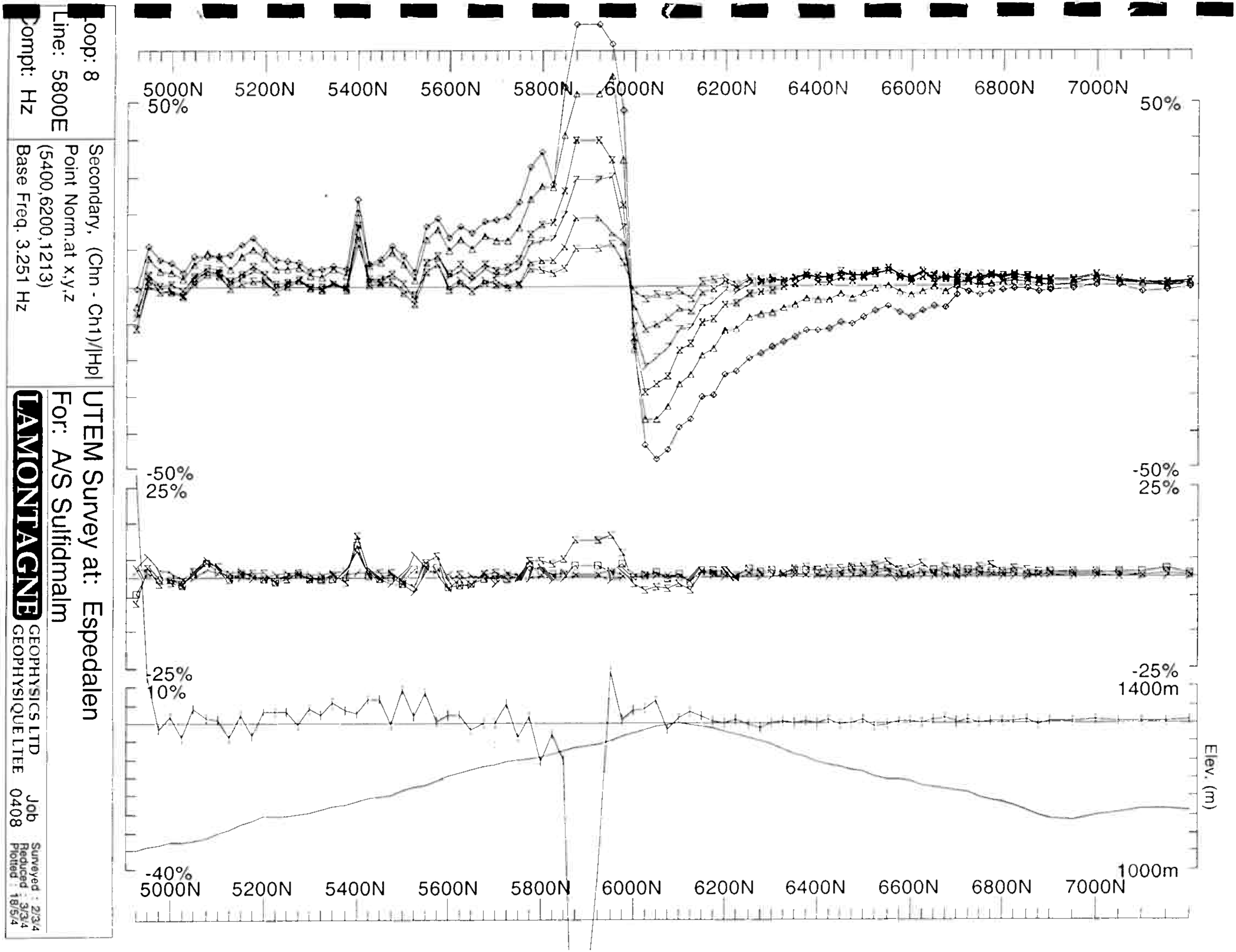
Surveyed : 2/3/4
Reduced : 2/3/4
Plotted : 18/5/4



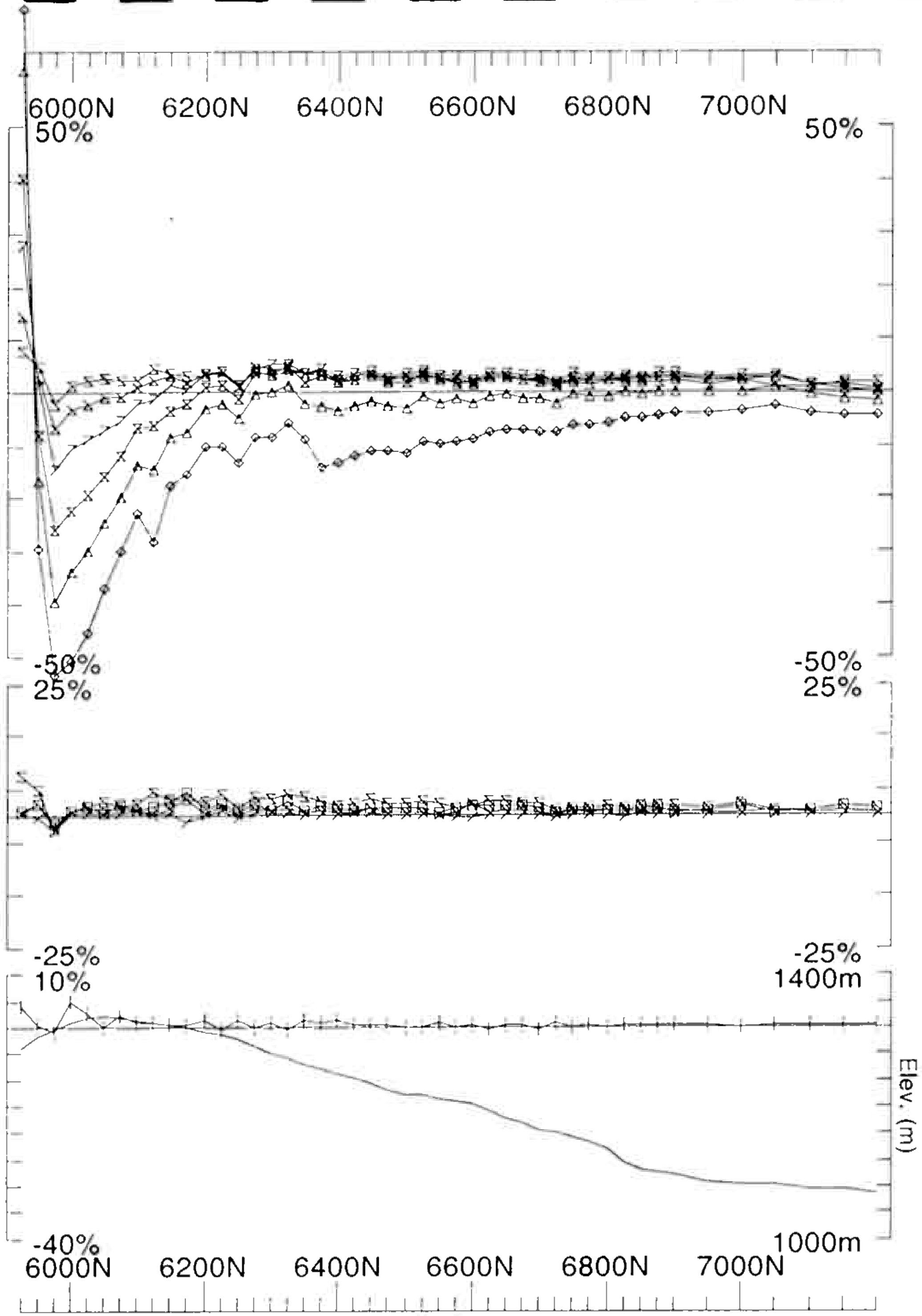

Loop: 8
Line: 5400E
Compt: Hz
Secondary, (Chn - Ch1)/Hpl
Point Norm.at x,y,z
(5400,6200,1213)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 8
Line: 5600E
Compt: Hz
Secondary, (Chn - Ch1)/Hpl
Point Norm.at x,y,z
(5400,6200,1213)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Surveyed : 2/3/4
Reduced : 3/3/4
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 8
Line: 5800E
Compt: Hz
Secondary, (Chn - Ch1)/Hpl
Point Norm.at x,y,z
(5400,6200,1213)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Surveyed : 2/3/4
Reduced : 3/3/4
Plotted : 18/5/4
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 8
Line: 6000E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(5400,6200,1213)
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job
0408

Surveyed : 4/3/4
Reduced : 4/3/4
Plotted : 18/5/4

Espedalen

Loop 9

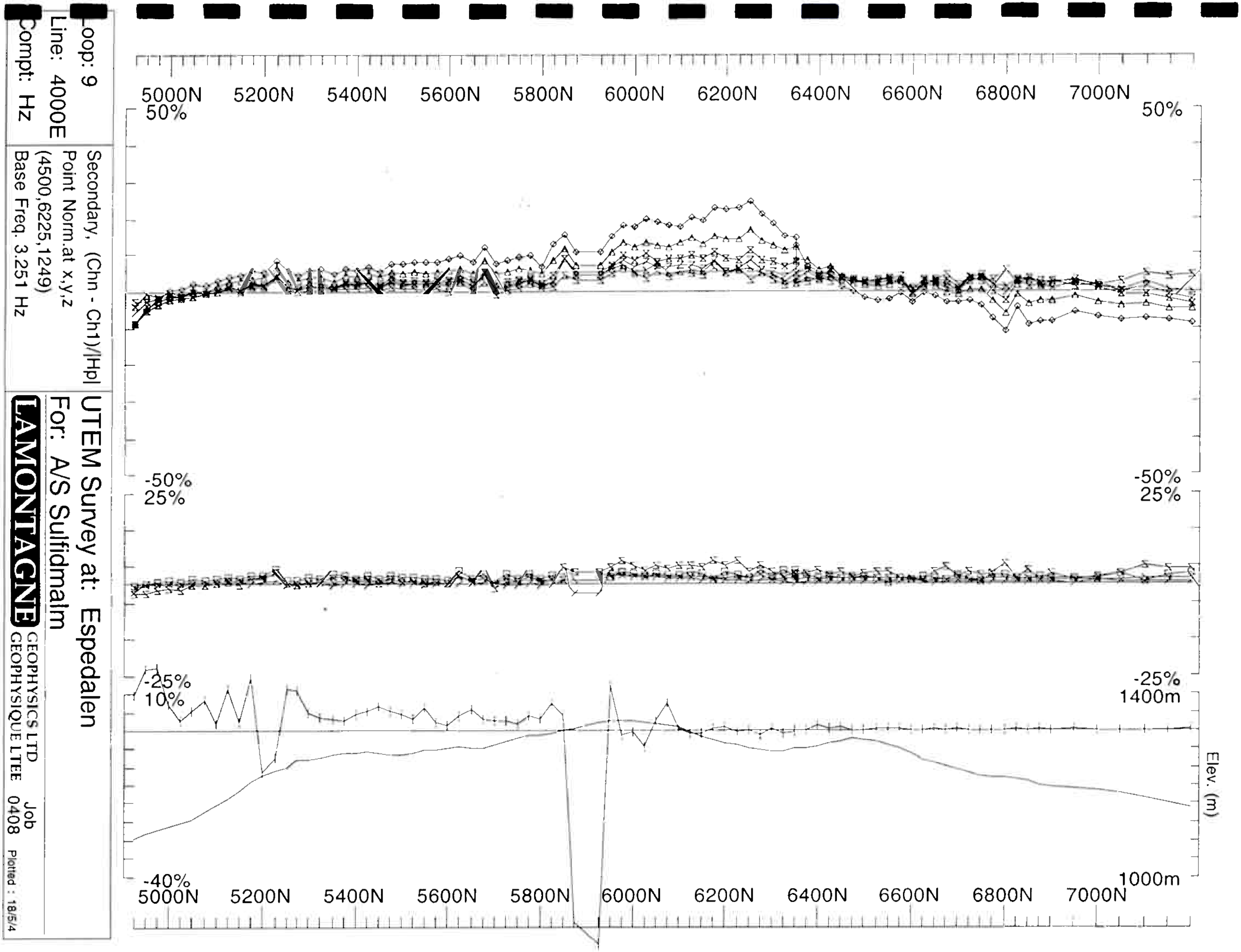
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (4500E,6225N, 1249 m.a.s.l.)

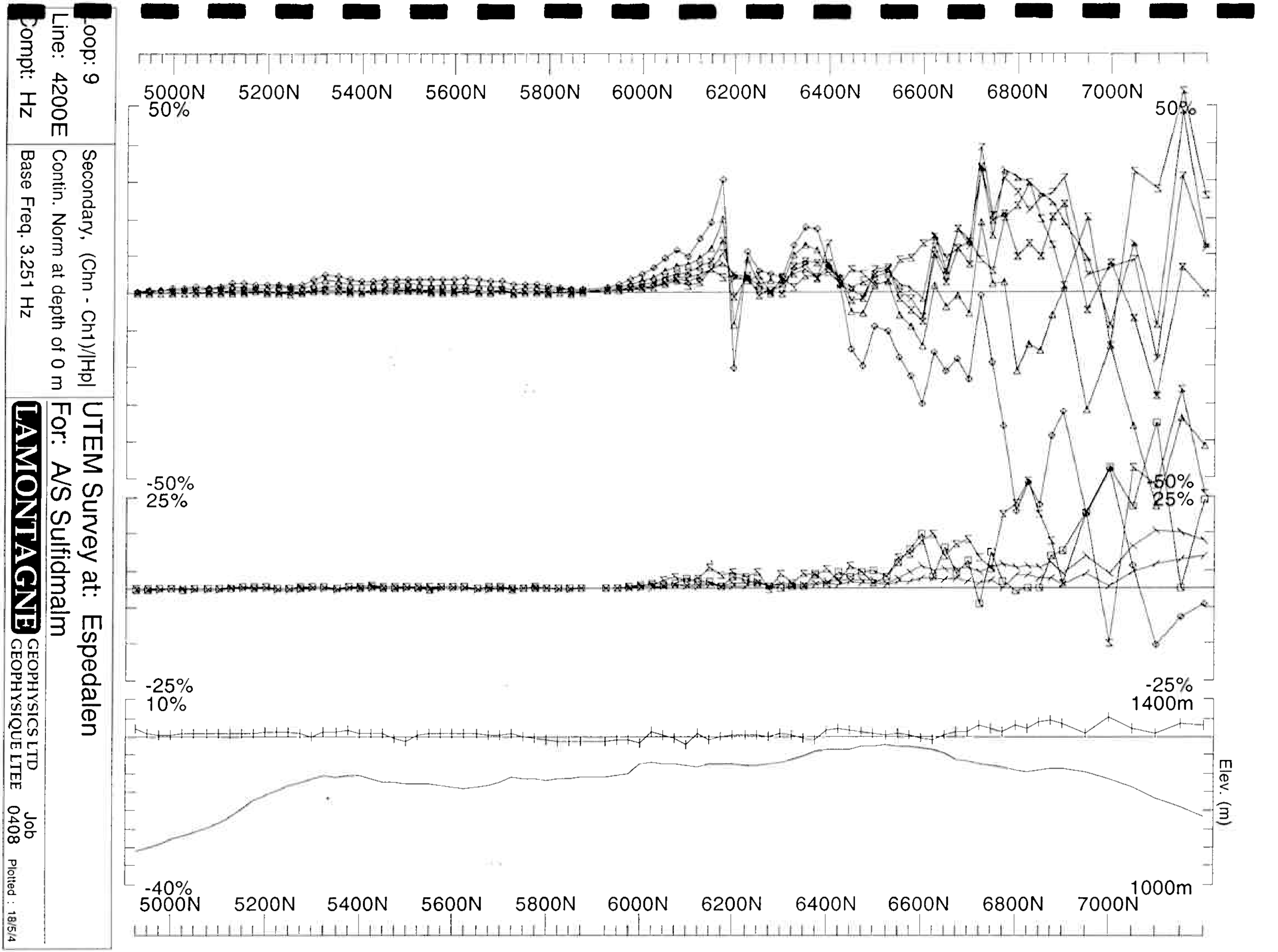
Ch1 reduced

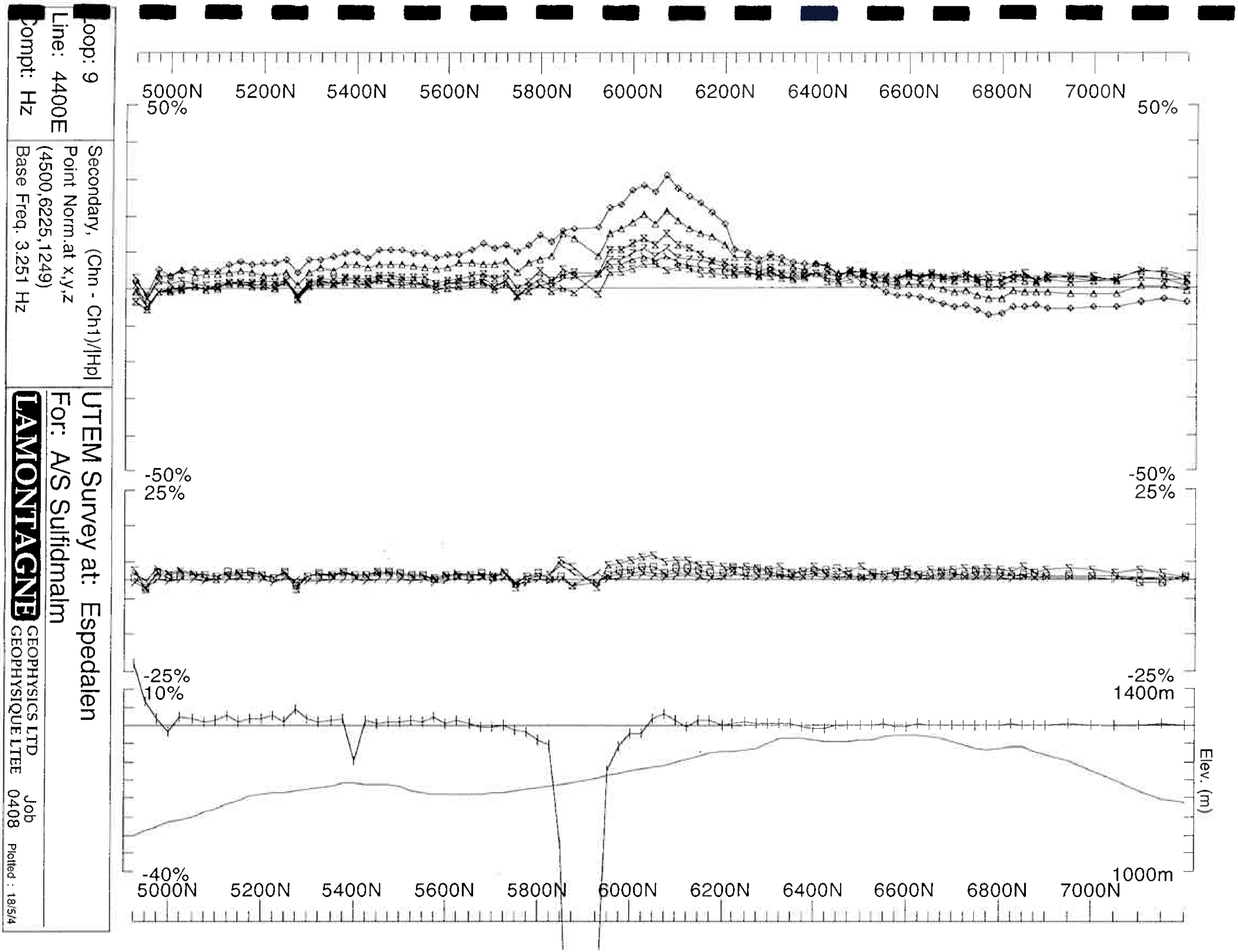
Loop 09	Line	4000E	4900N - 7200N	2300m
	Line	4200E	4900N - 7200N	2300m
	Line	4400E	4900N - 7200N	2300m
	Line	4600E	4900N - 7200N	2300m
	Line	4800E	4900N - 7200N	2300m
	Line	5000E	4900N - 7200N	2300m
			Loop 09 Total	13800m

Loop 9 - point norm

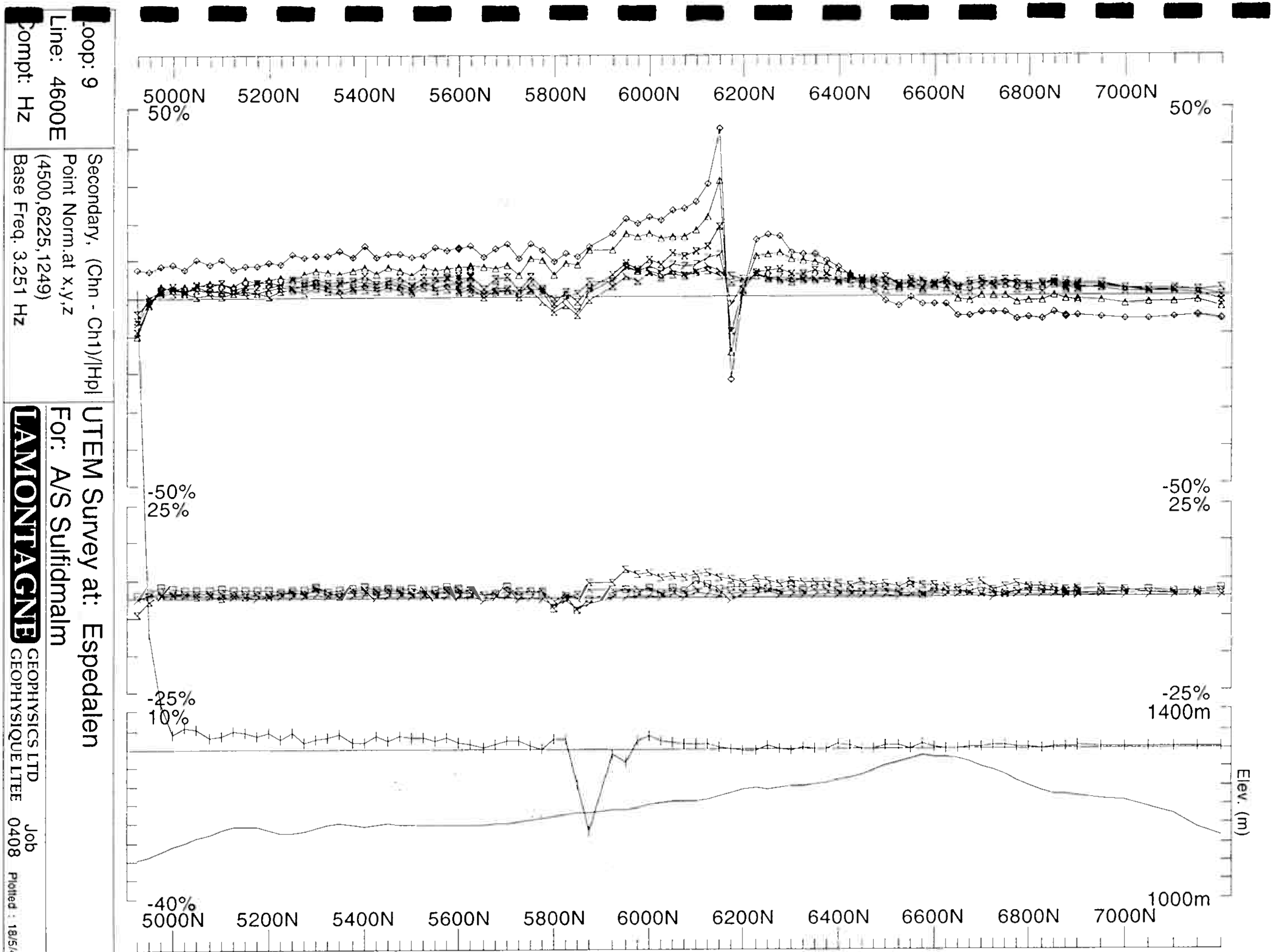


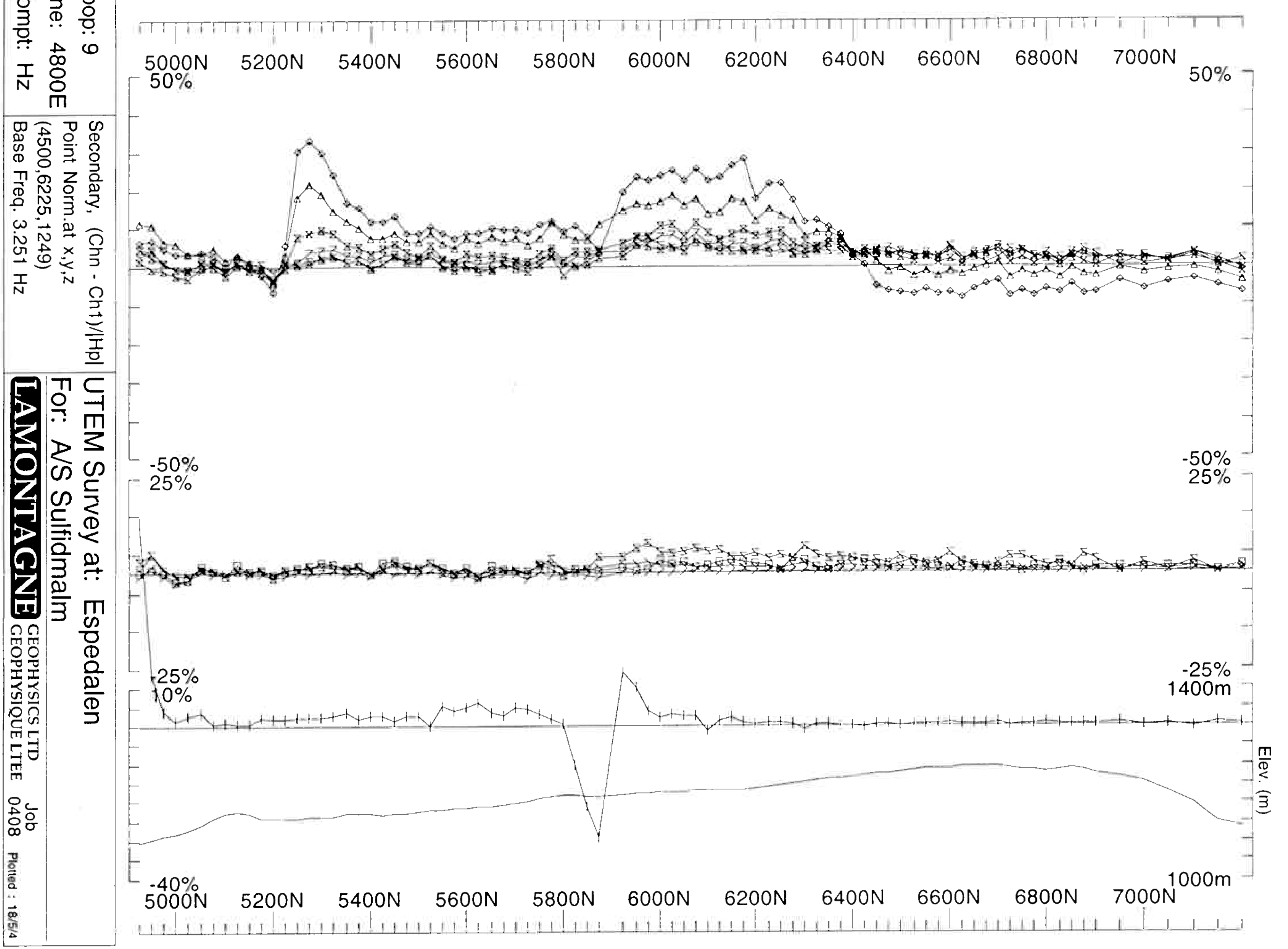
Loop: 9
Line: 4000E
Compt: Hz
Secondary, (Chn - Ch1)/Hpl
Point Norm.at x,y,z
(4500,6225,1249)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)


Loop: 9
Line: 4200E
Compt: Hz
Secondary, (Chn - Ch1)/Hpl
Contin. Norm at depth of 0 m
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 9
Line: 4400E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(4500,6225,1249)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)


Loop: 9
Line: 4600E
Compt: Hz
Secondary, (Chn - Ch1)/IHpl
Point Norm.at x,y,z
(4500,6225,1249)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 9
Line: 4800E
Compt: Hz
Secondary, (Chn - Ch1)/Hpl
Point Norm.at x,y,z
(4500,6225,1249)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
50%
50%
-50%
25%
-50%
25%
-25%
10%
-25%
1400m
Elev. (m)
-40%
1000m
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N

Loop: 9
Line: 5000E
Compt: Hz

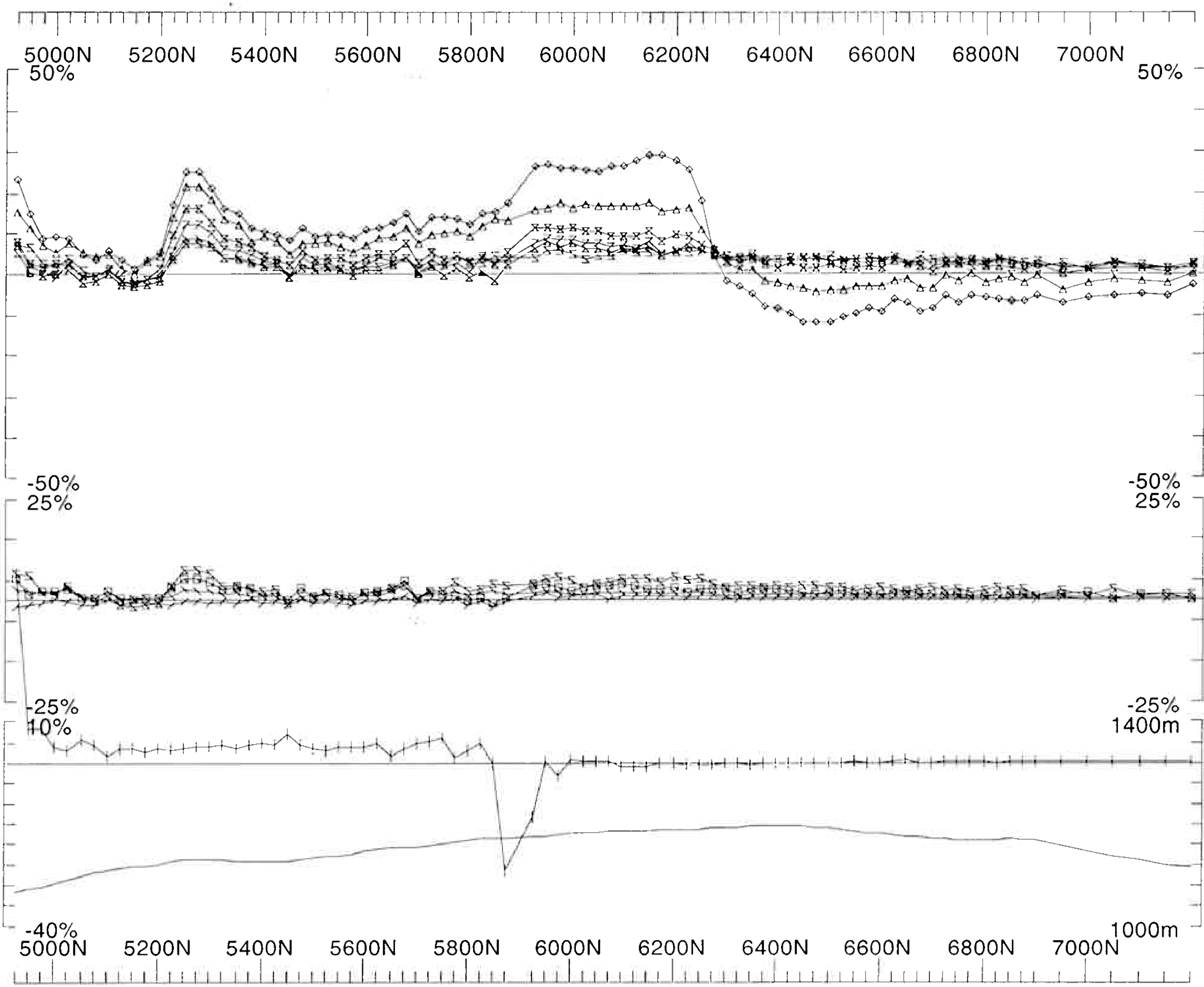
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(4500,6225,1249)
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job
0408

Plotted : 18/5/4



Espedalen

Loop 09.10

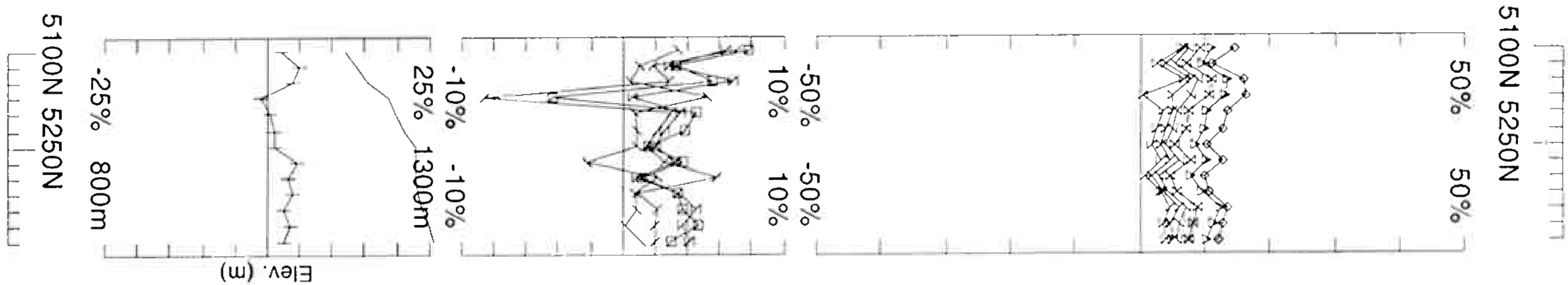
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (4000E,6300N, 1275 m.a.s.l.)

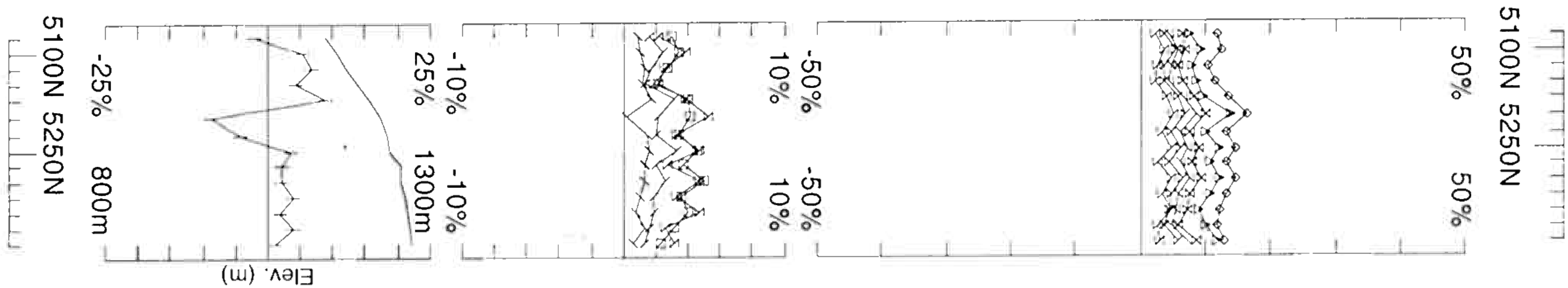
Ch1 reduced

Loop 09.10	Line	3900E	5100N - 5400N	300m
	Line	4000E	5075N - 5400N	325m
	Line	4100E	5100N - 5450N	350m
	Line	4200E	5050N - 5450N	400m
			Loop 09.10 Total	1375m

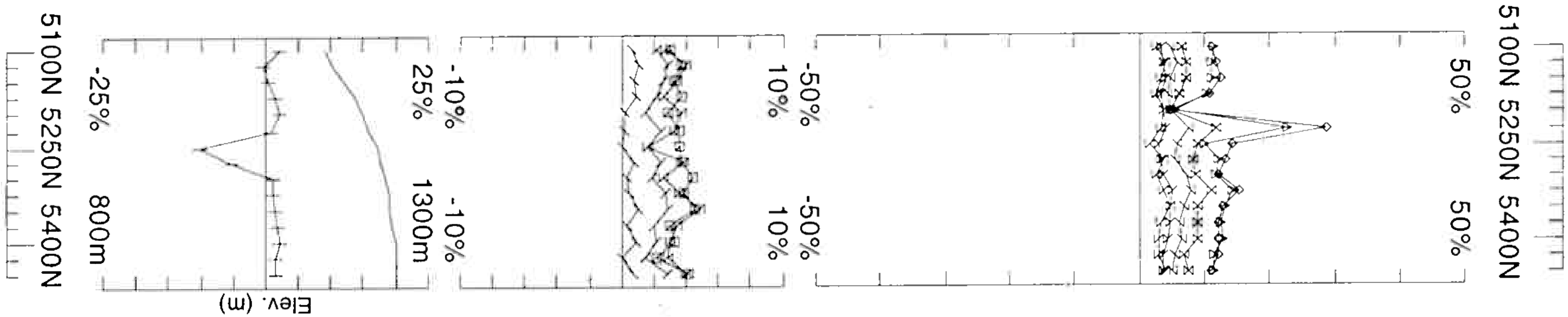
Loop 09.10 - point norm



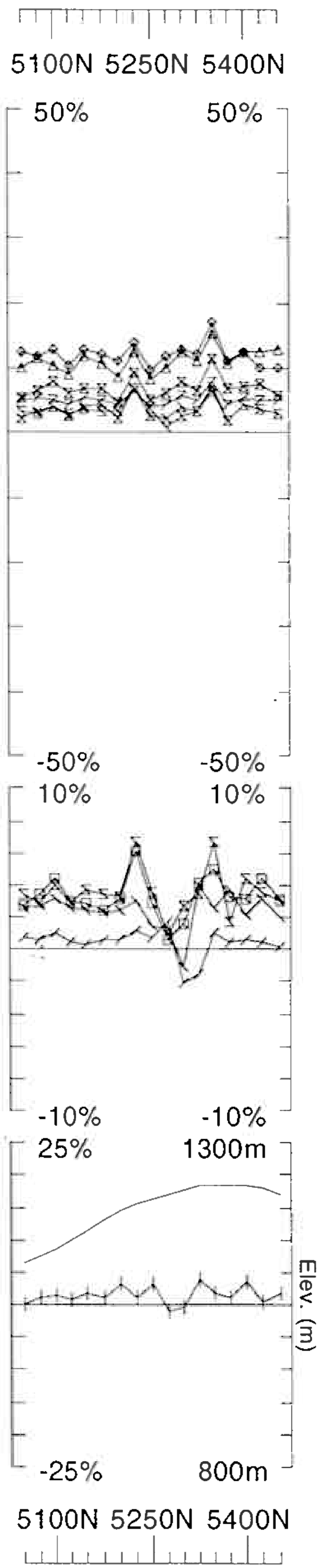
Loop: 9.10 Line: 3900E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (4000,6300,1275) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 13/3/4 Reduced : 13/3/4 Plotted : 18/5/4



Loop: 9.10 Line: 4000E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (4000,6300,1275) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 13/3/4 Reduced : 13/3/4 Plotted : 18/5/4



Loop: 9.10 Line: 4100E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (4000,6300,1275) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 13/3/4 Reduced : 13/3/4 Plotted : 18/5/4



UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job 0408
Surveyed : 13/3/4
Reduced : 13/3/4
Plotted : 18/5/4

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(4000,6300,1275)
Base Freq. 3.251 Hz

Loop: 9.10
Line: 4200E
Compt: Hz

Espedalen

Loop 10

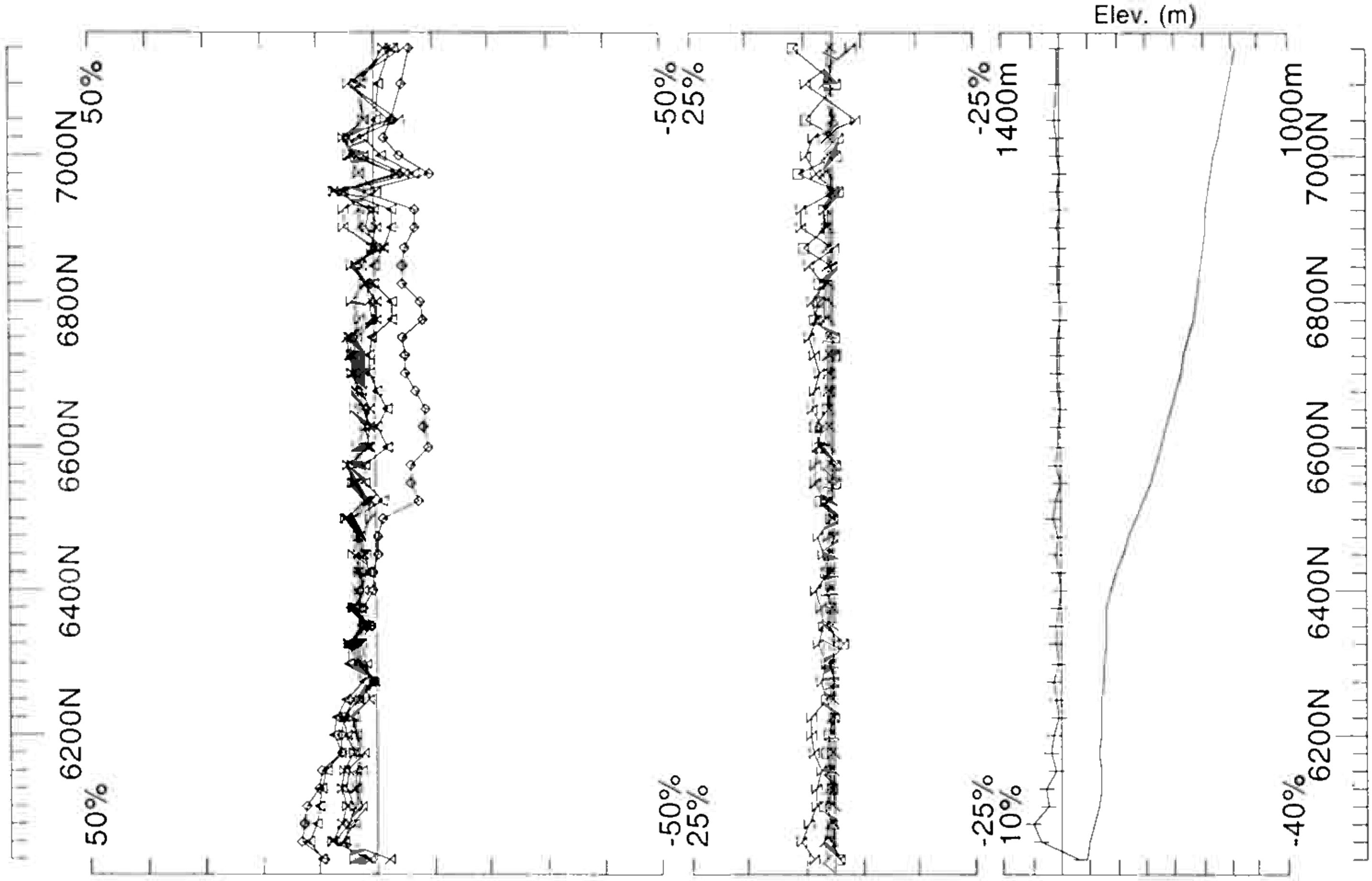
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (3400E,6300N, 1351 m.a.s.l.)

Ch1 reduced

Loop 10	Line	2800E	6000N - 7150N	1150m
	Line	3000E	4900N - 7150N	2250m
	Line	3200E	4900N - 7150N	2250m
	Line	3400E	4900N - 7150N	2250m
	Line	3500E	6000N - 6900N	900m
	Line	3600E	4900N - 7150N	2250m
	Line	3700E	6000N - 6850N	850m
	Line	3800E	4900N - 7150N	2250m
			Loop 10 Total	14150m

Loop 10 - point norm



Loop: 10 Line: 2800E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (3400,6300,1275) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 9/3/4 Reduced : 9/3/4 Plotted : 18/5/4

Loop: 10
Line: 3000E
Compt: Hz

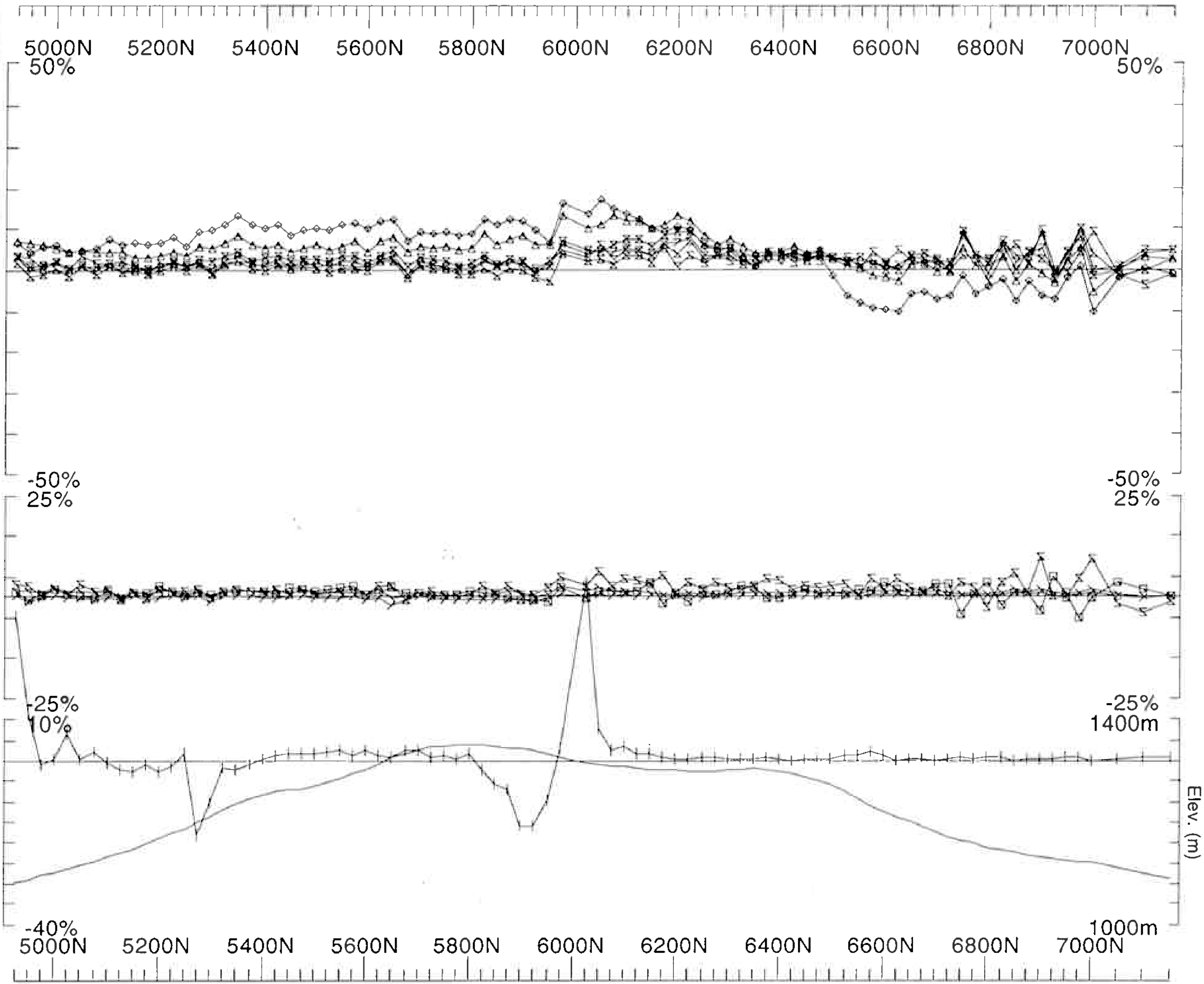
Secondary, (Chn - Ch1)/Hpl
Point Norm.at x,y,z
(3400,6300,1275)
Base Freq. 3.251 Hz

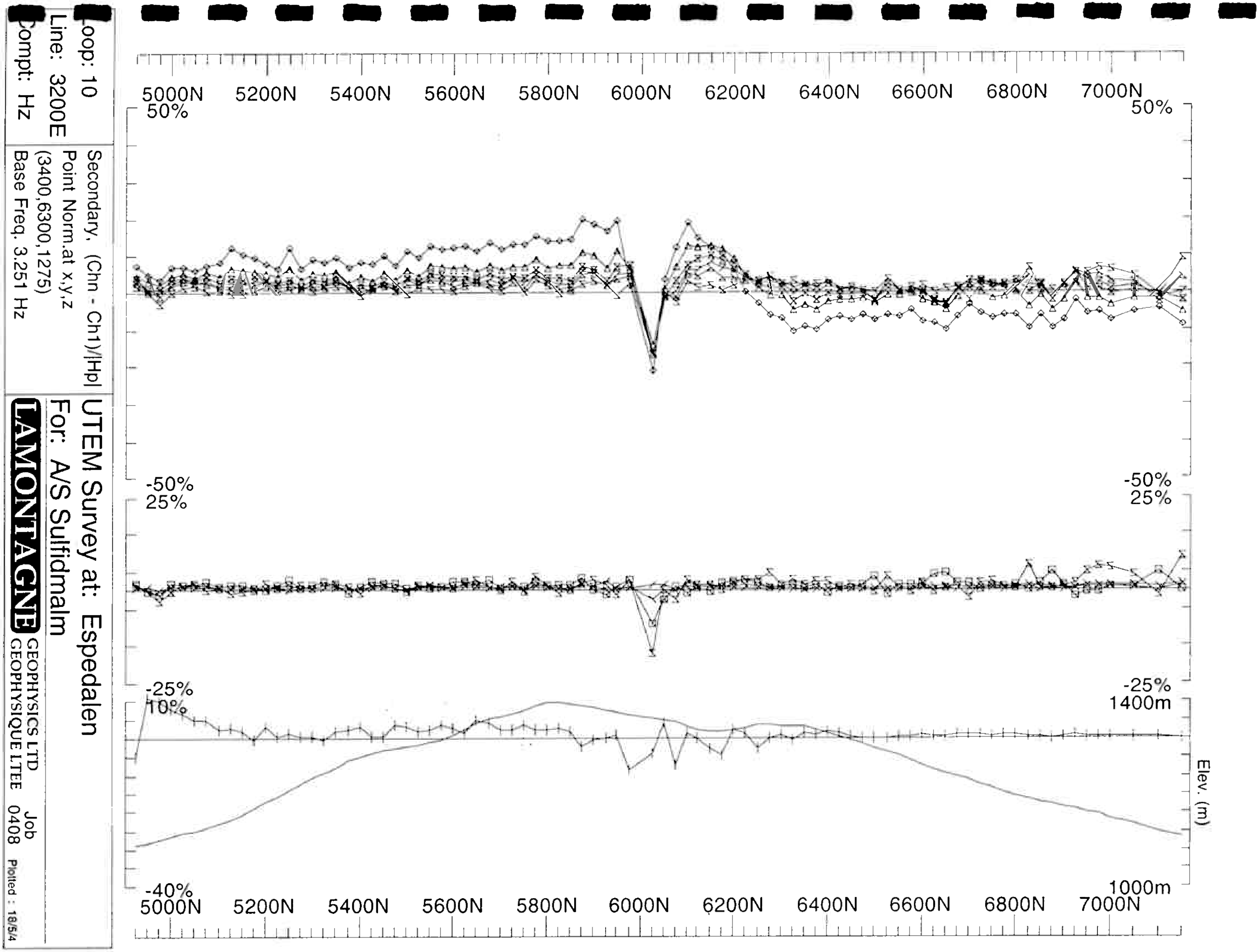
UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job
0408

Plotted : 18/5/4




Loop: 10
Line: 3200E
Compt: Hz
Secondary, (Chn - Ch1)/Hpl
Point Norm.at x,y,z
(3400,6300,1275)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
50%
-50%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)

Loop: 10
Line: 3400E
Compt: Hz

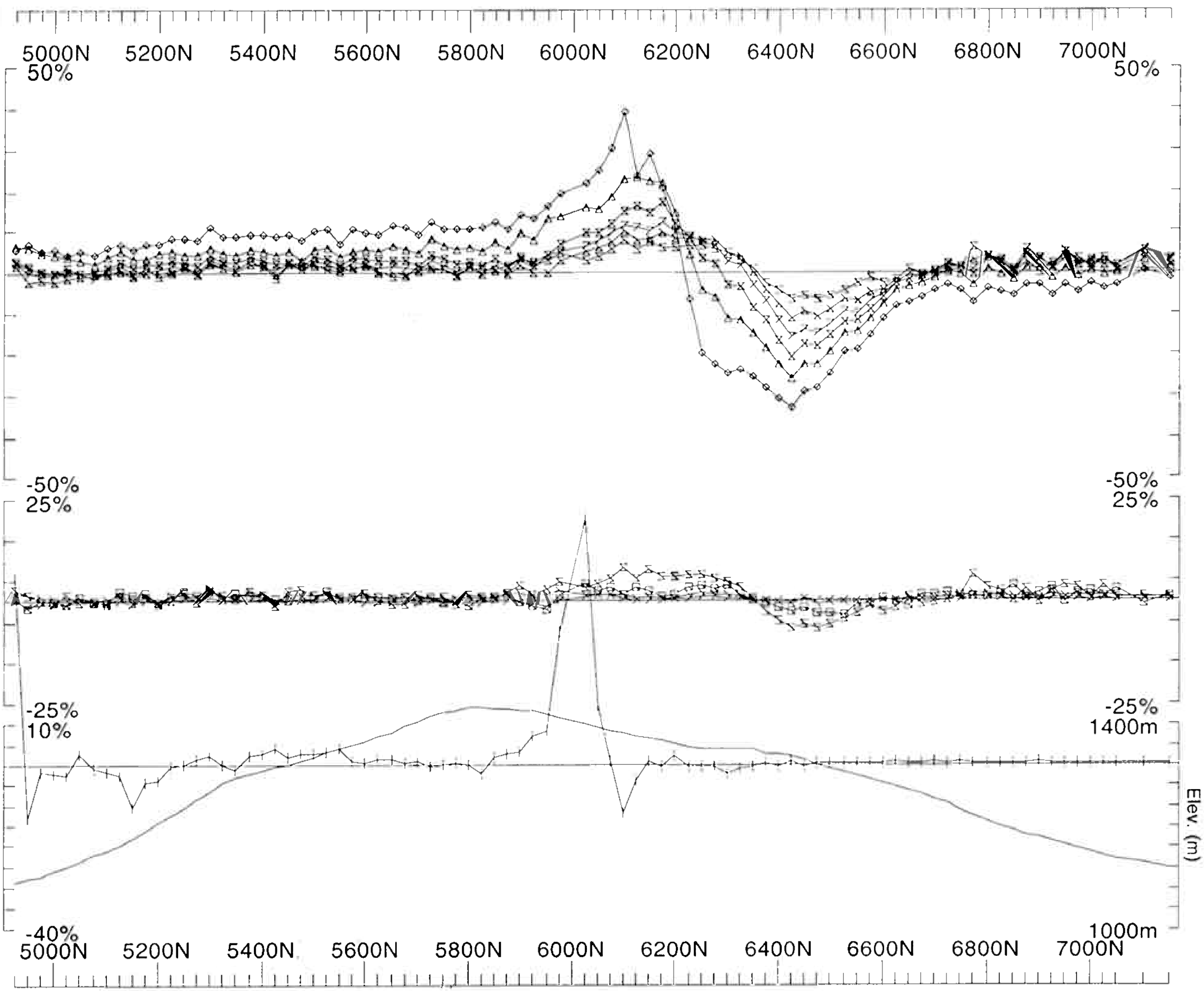
Secondary, (Chn - Ch1)/Hpl
Point Norm.at x,y,z
(3400,6300,1275)
Base Freq. 3.251 Hz

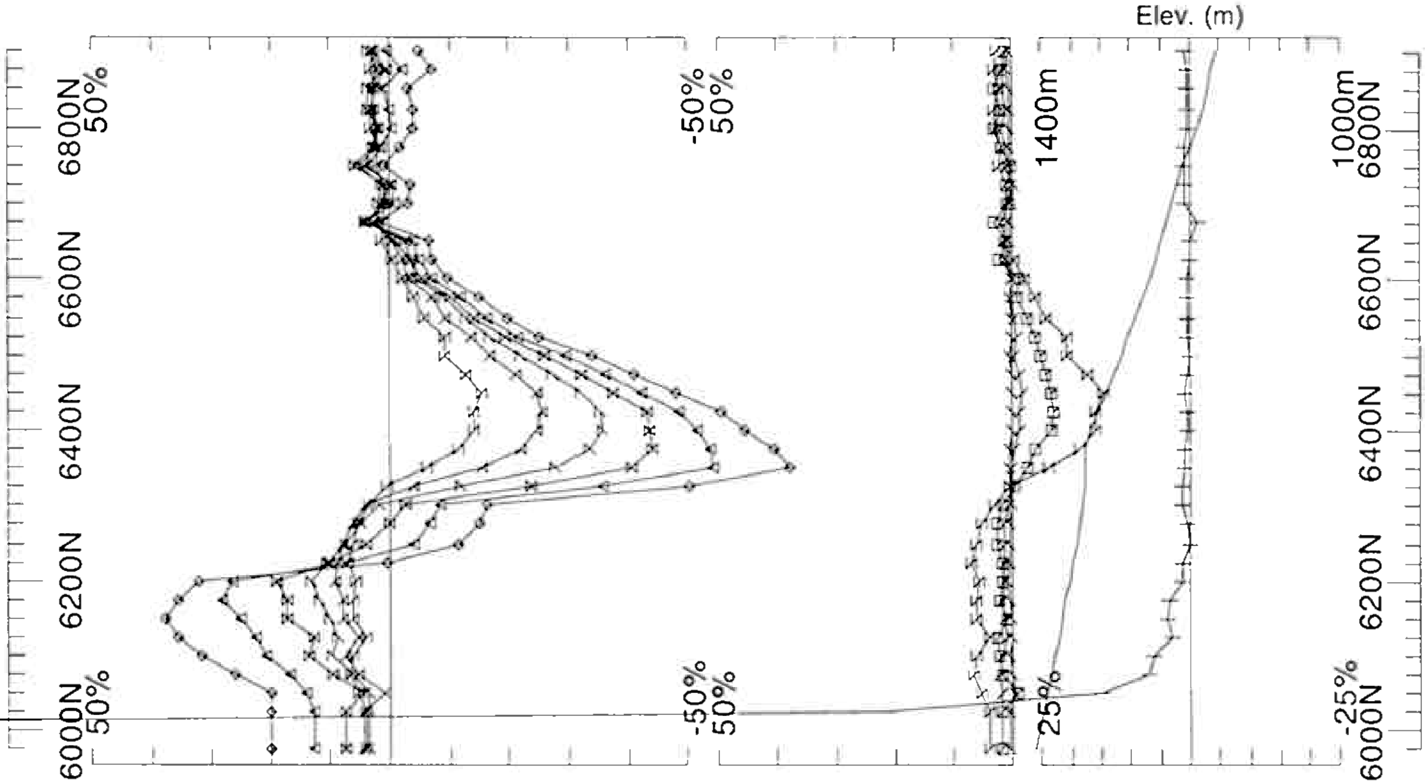
UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

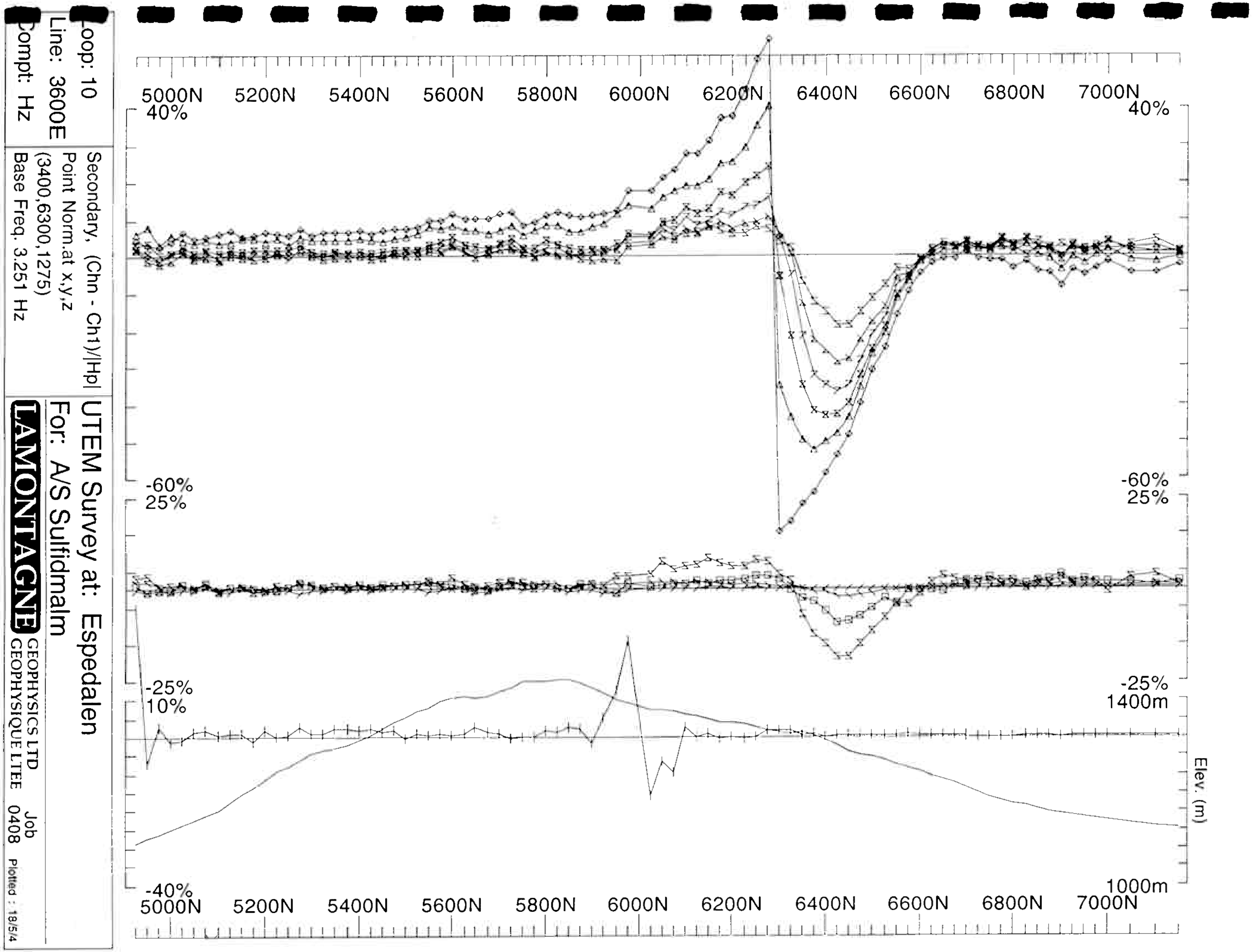
Job
0408

Surveyed : 9/3/4
Reduced : 9/3/4
Plotted : 18/5/4

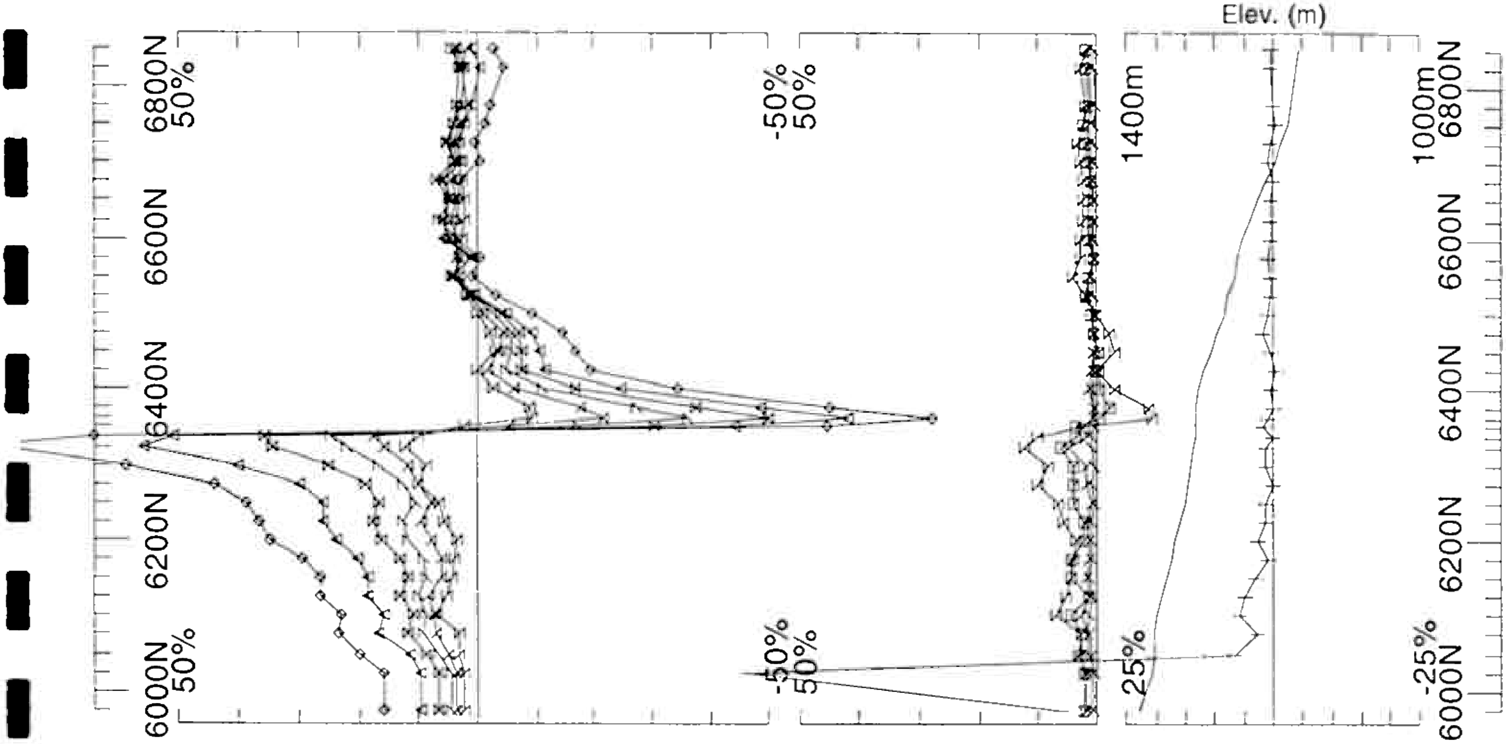




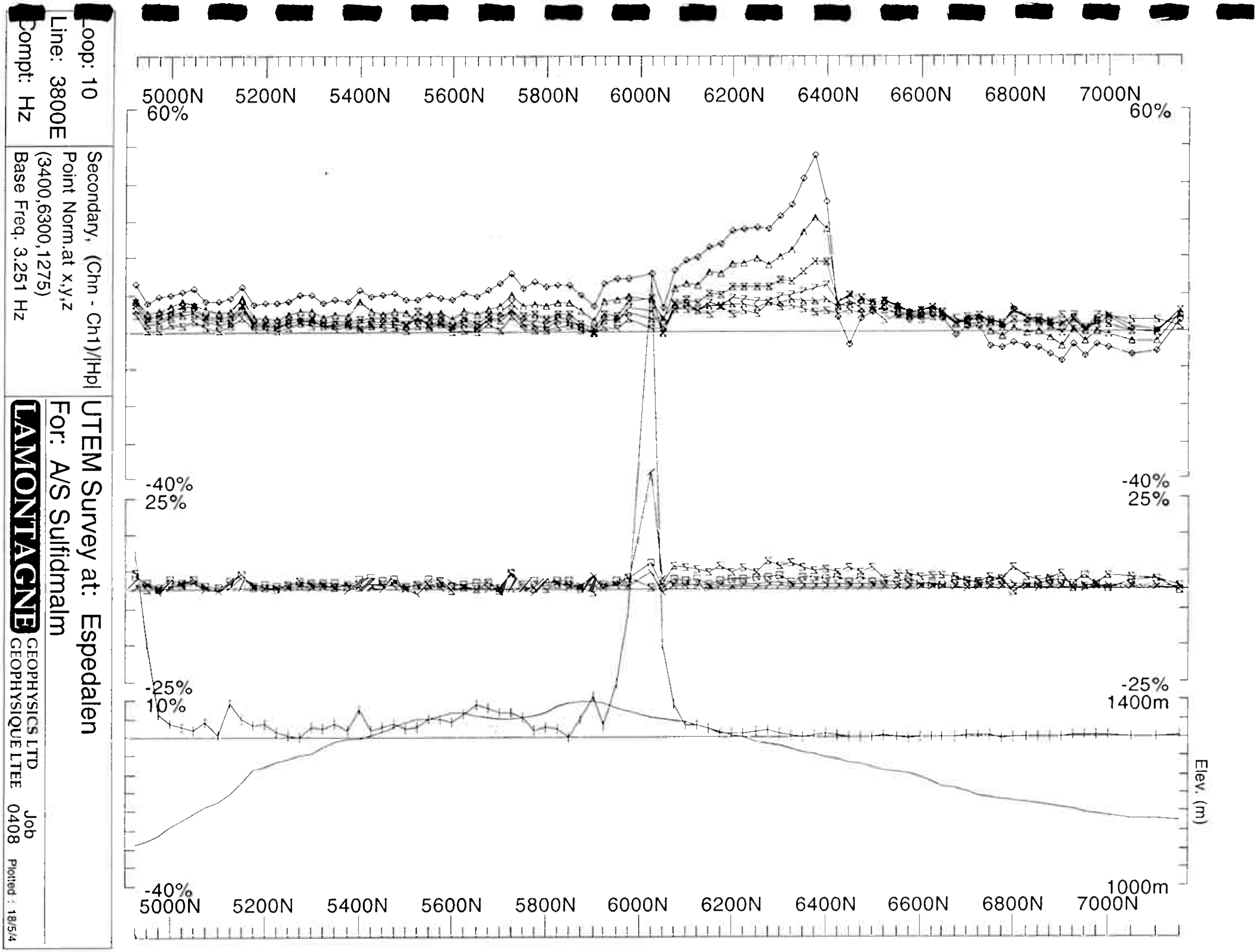
Loop: 10 Line: 3500E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (3400,6300,1275) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 12/3/4 Reduced : 21/3/4 Plotted : 19/5/4



Loop: 10
Line: 3600E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(3400,6300,1275)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N
5200N
5400N
5600N
5800N
6000N
6200N
6400N
6600N
6800N
7000N
40%
-60%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)



Loop: 10 Line: 3700E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (3400,6300,1275) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 12/3/4 Reduced : 21/3/4 Plotted : 19/5/4



Loop: 10
Line: 3800E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(3400,6300,1275)
Base Freq. 3.251 Hz
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE
GEOPHYSICS LTD
GEOPHYSIQUE LTEE
Job
0408
Plotted : 18/5/4
5000N 5200N 5400N 5600N 5800N 6000N 6200N 6400N 6600N 6800N 7000N
60%
-40%
25%
-25%
10%
-40%
1400m
1000m
Elev. (m)

Espedalen

Loop 11

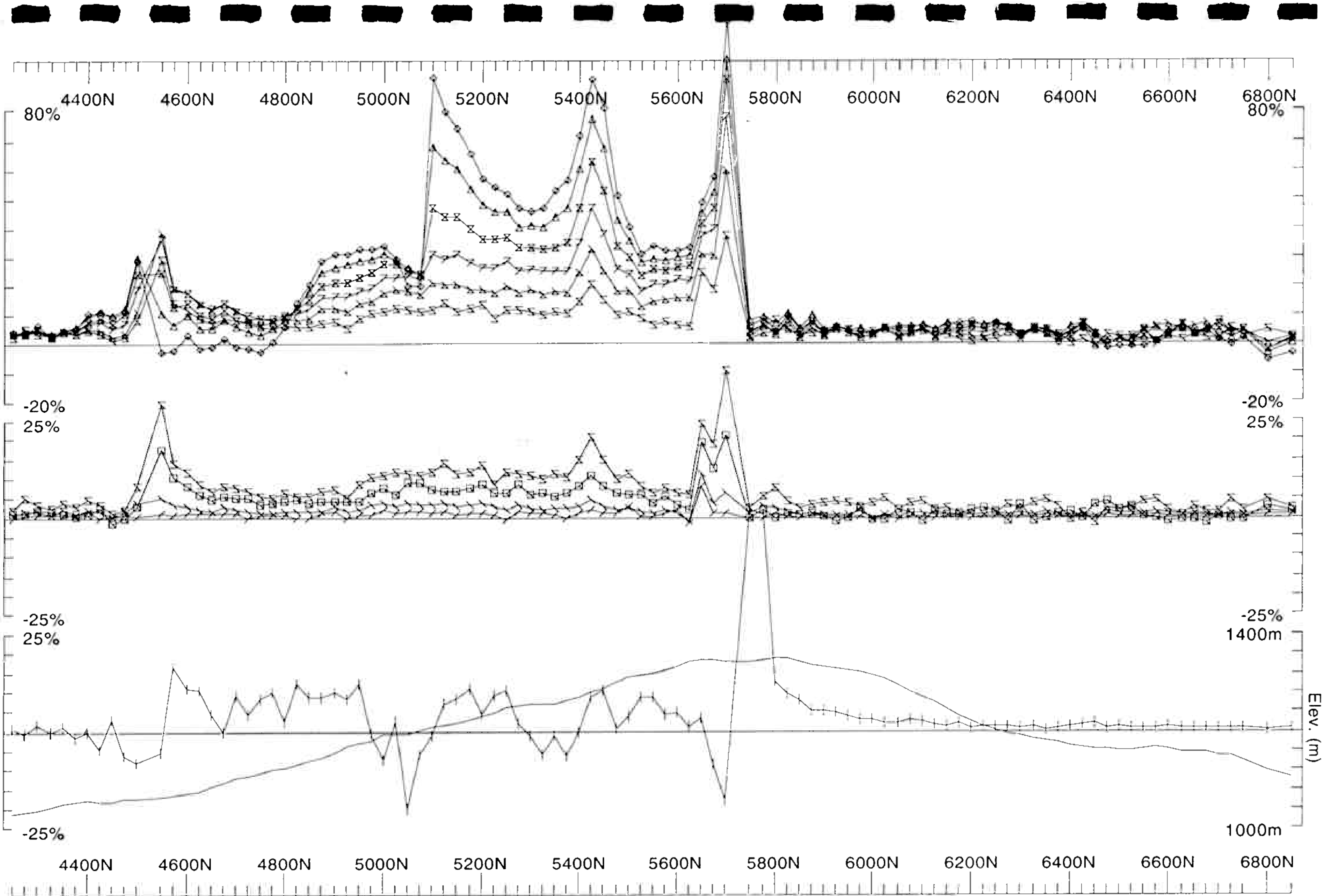
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (2200E,6025N, 1321 m.a.s.l.)

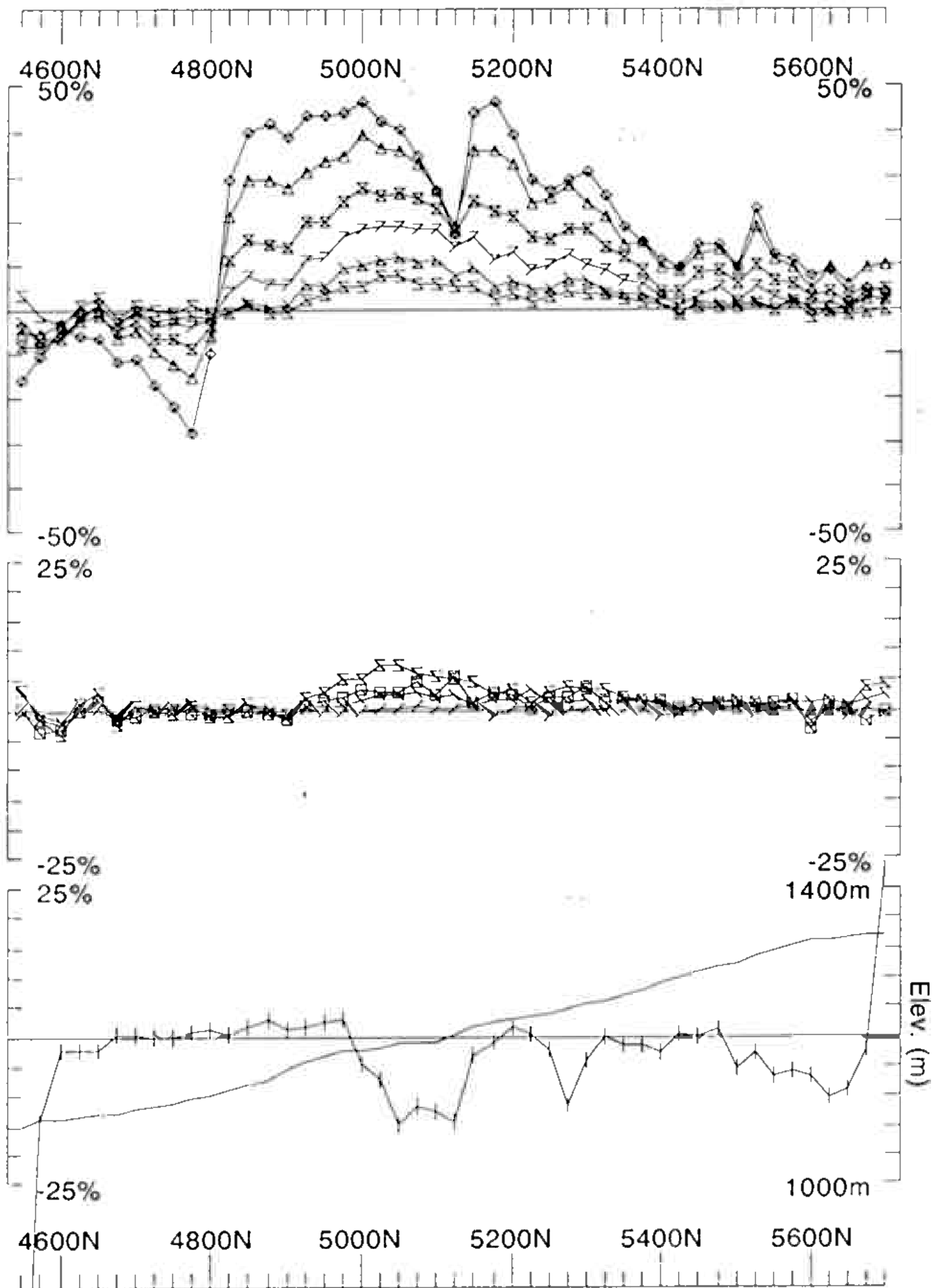
Ch1 reduced

Loop 11	Line	1800E	4250N - 6850N	2600m
	Line	1900E	4525N - 5725N	1200m
	Line	2000E	4250N - 6850N	2600m
	Line	2100E	4525N - 5725N	1200m
	Line	2200E	4250N - 7100N	2850m
	Line	2400E	4375N - 7200N	2825m
	Line	2600E	4450N - 7200N	2750m
	Line	2800E	5725N - 6025N	300m
			Loop 11 Total	16325m

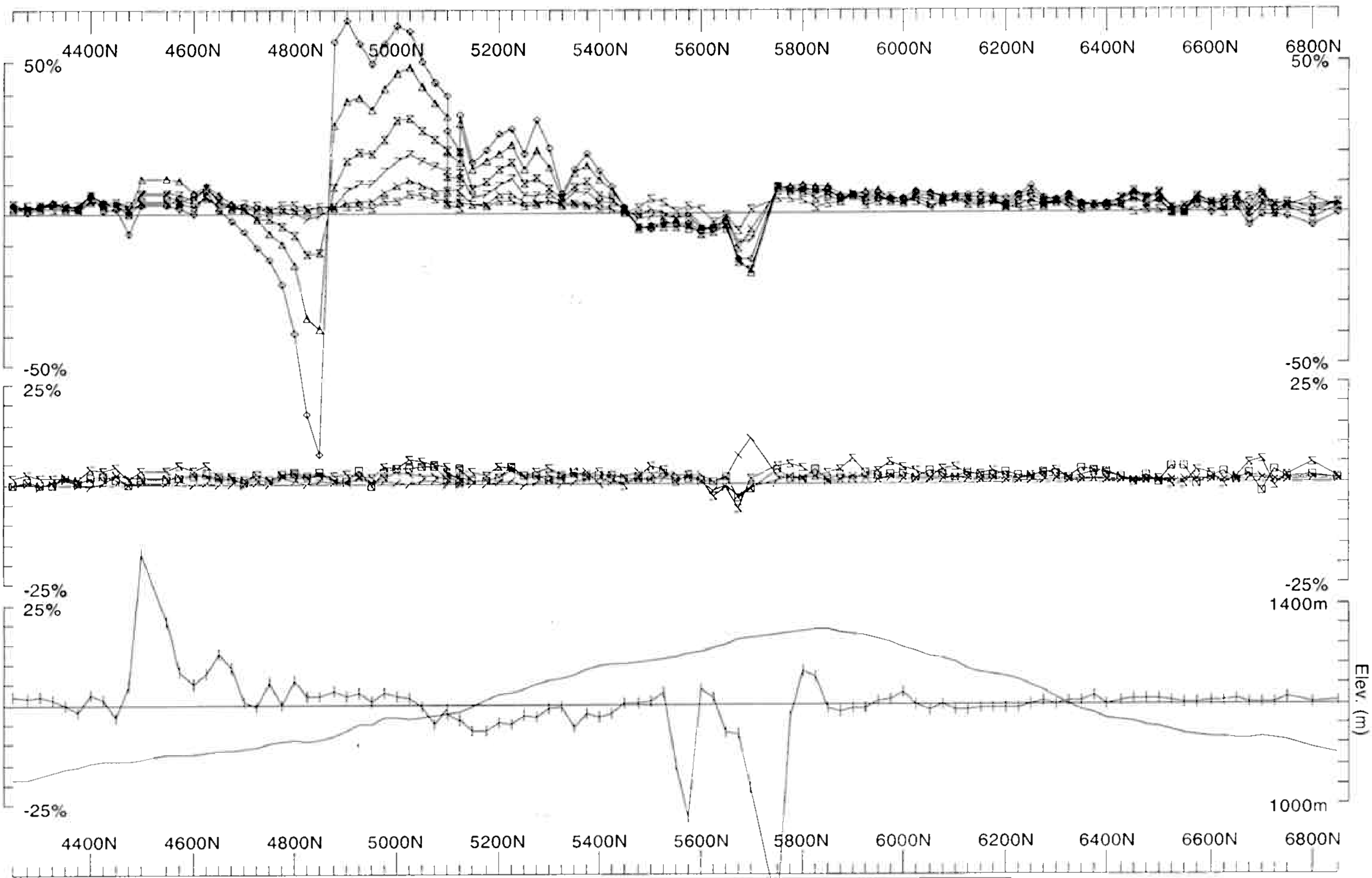
Loop 11 - point norm



Loop: 11 Line: 1800E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (2200,6025,1270) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 11 Line: 1900E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (2200,6025,1270) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 11
Line: 2000E
Compt: Hz

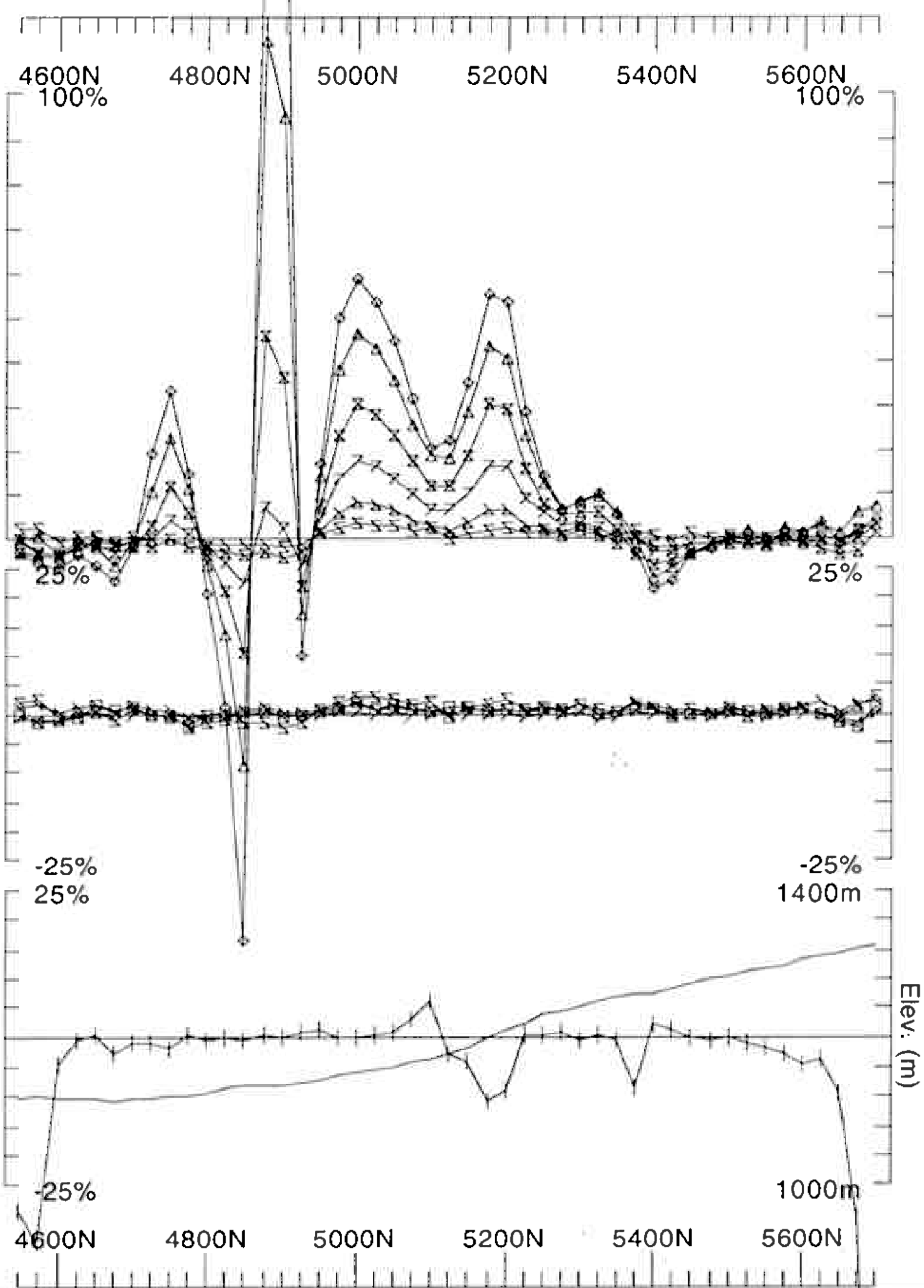
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(2200,6025,1270)
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

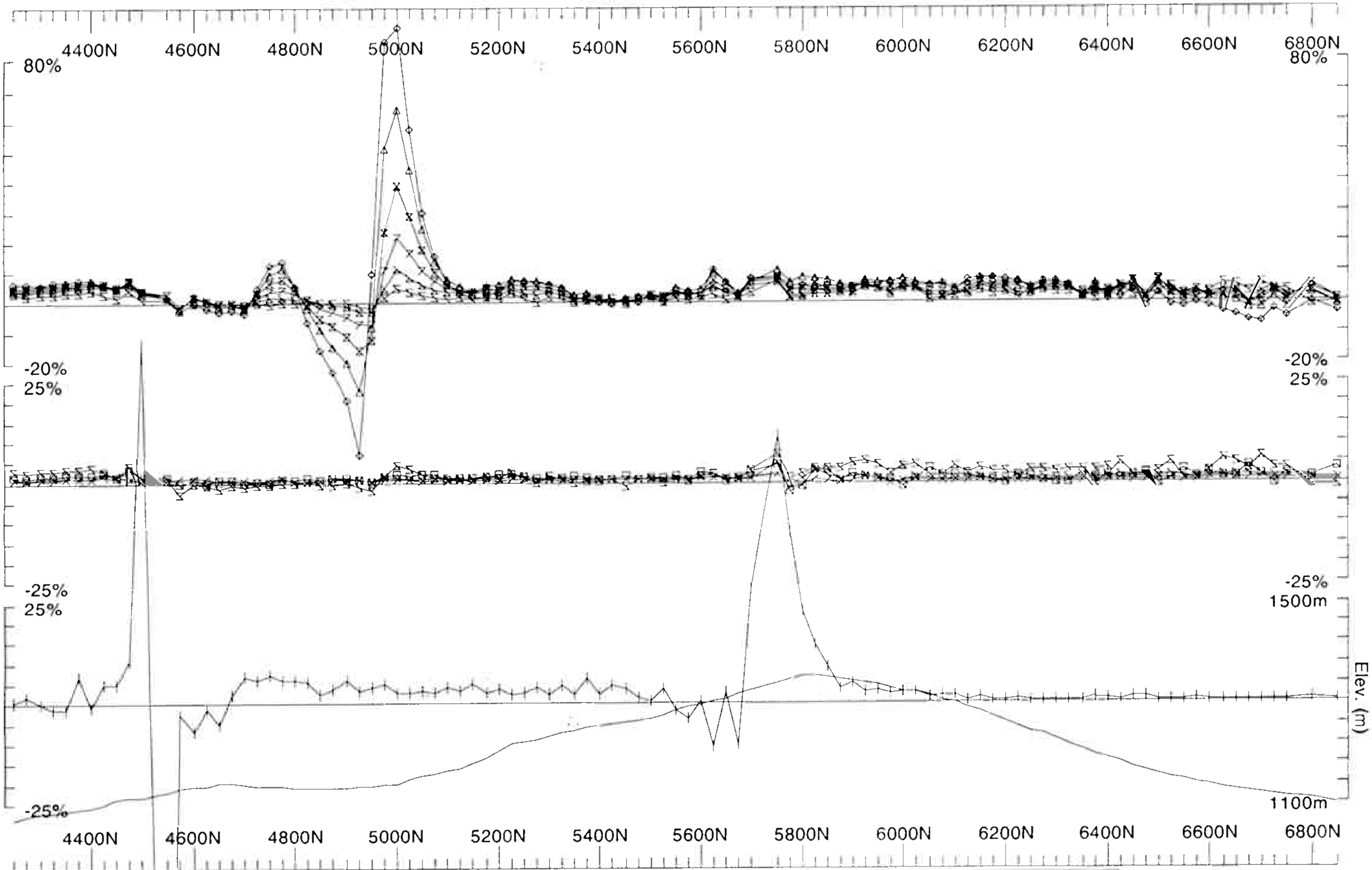
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Job 0408

Plotted : 18/5/4



Loop: 11 Line: 2100E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (2200,6025,1270) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



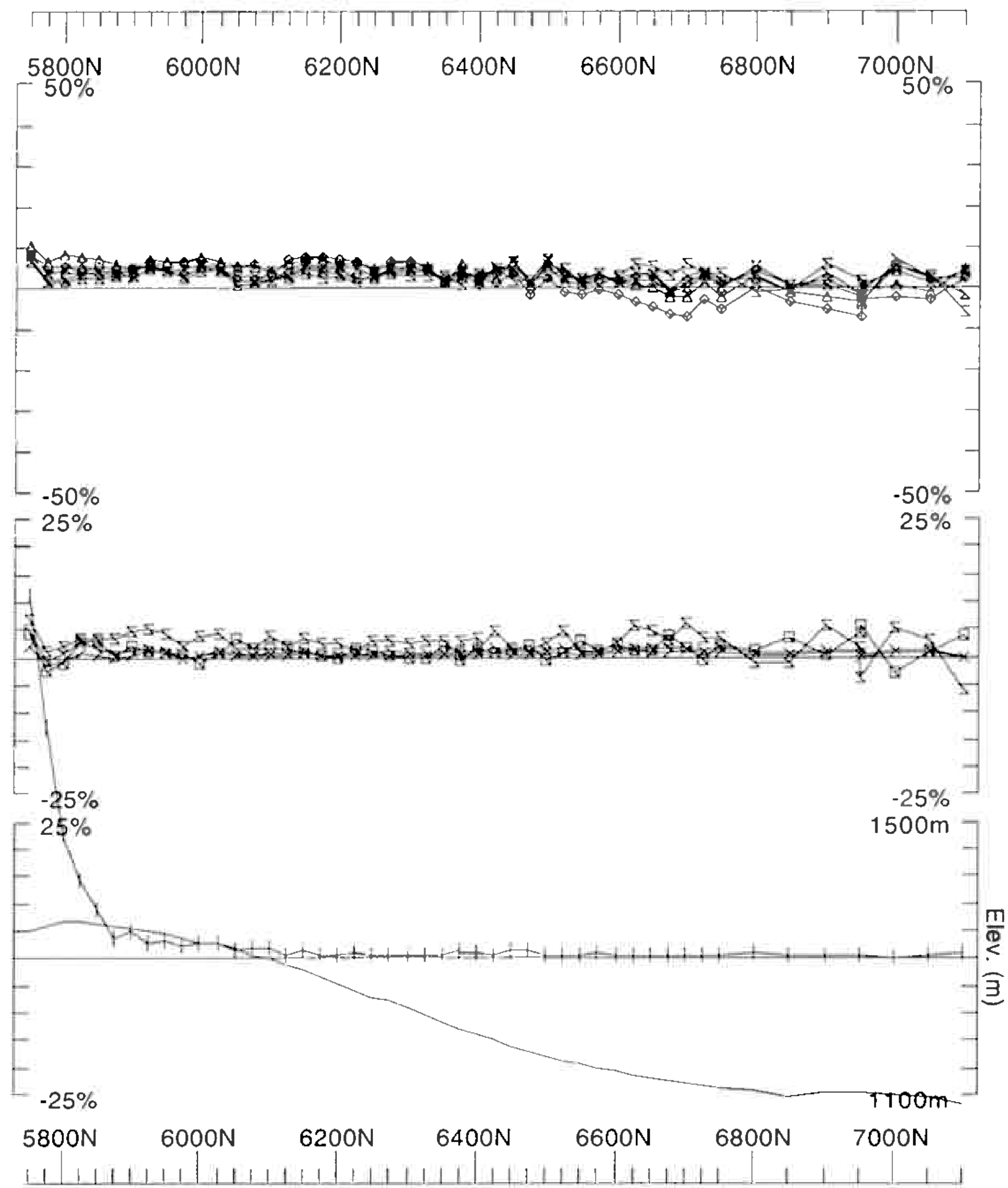
Loop: 11
Line: 2200E (to 6850E)
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(2200,6025,1321)
Base Freq. 3.251 Hz

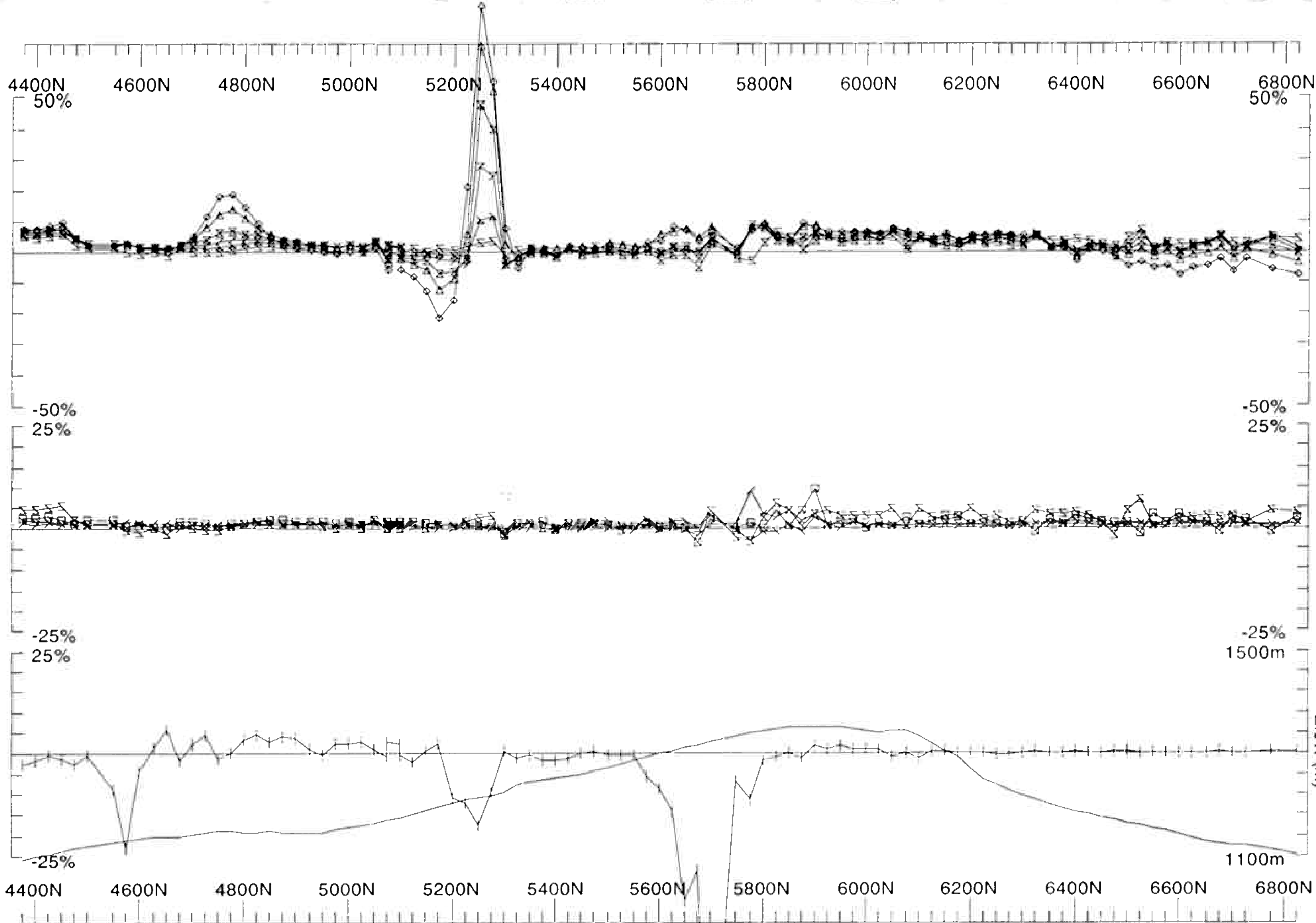
UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

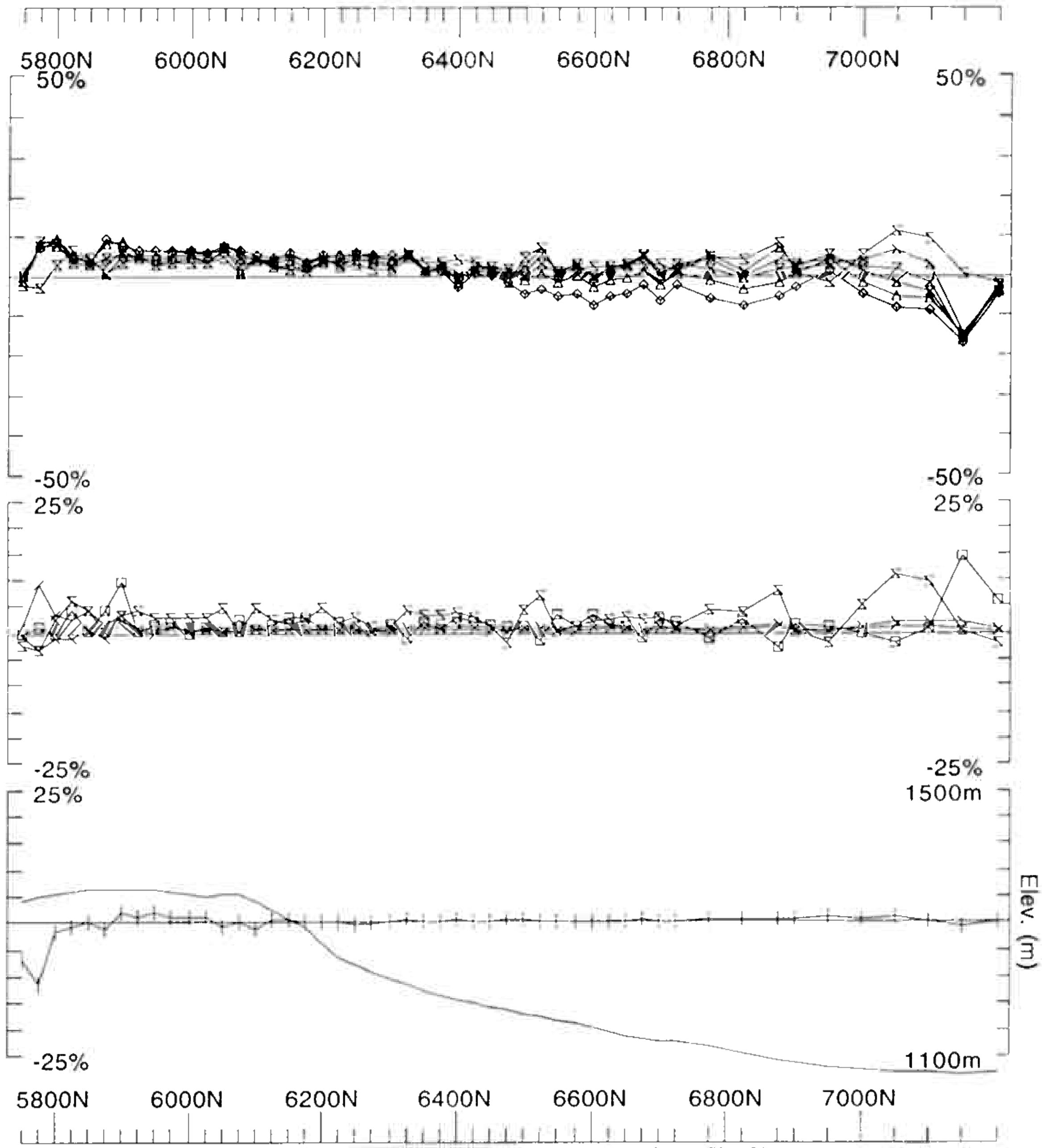
Job 0408 Plotted : 18/5/4



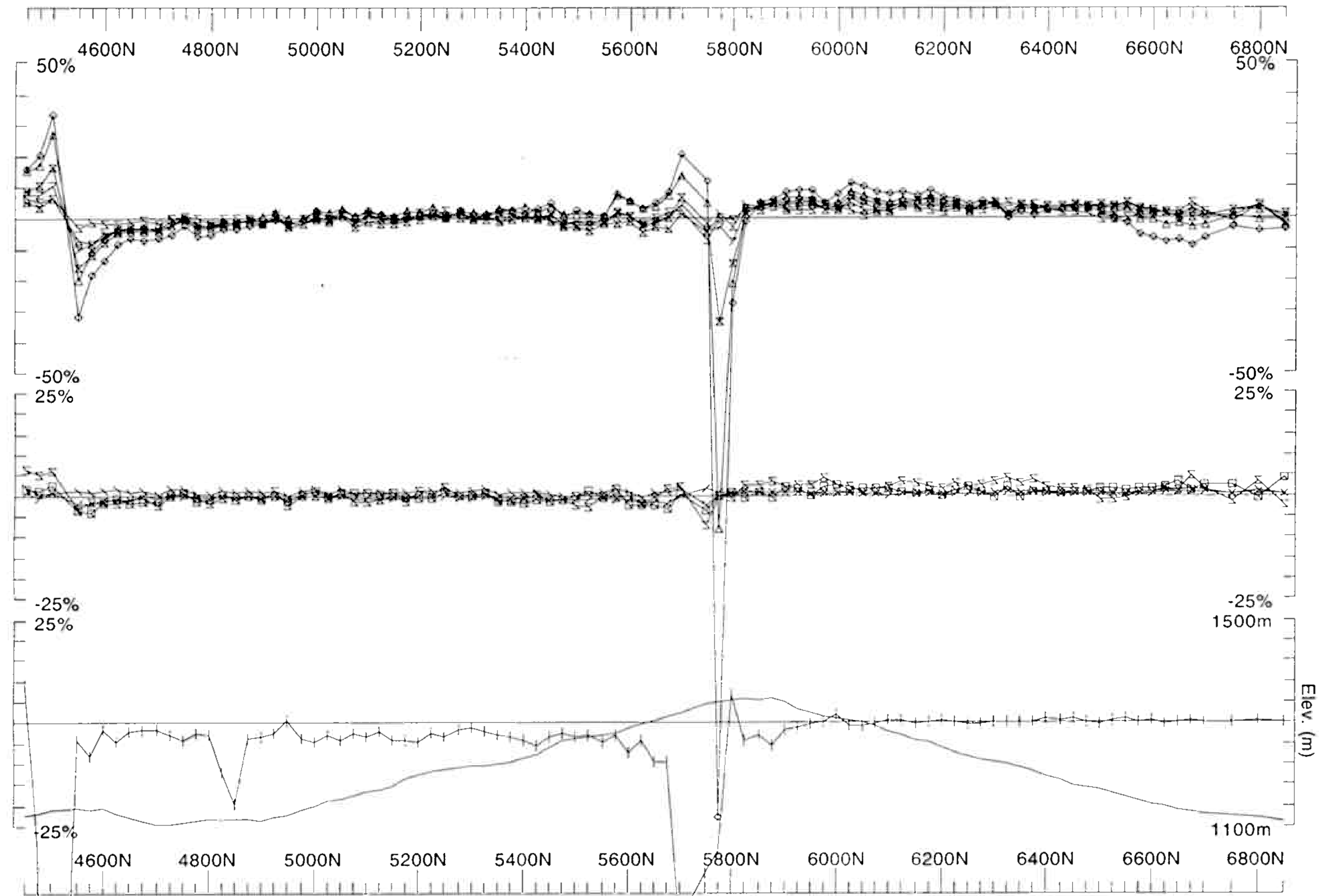
Loop: 11 Line: 2200E (off-loop data) Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (2200,6025,1321) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



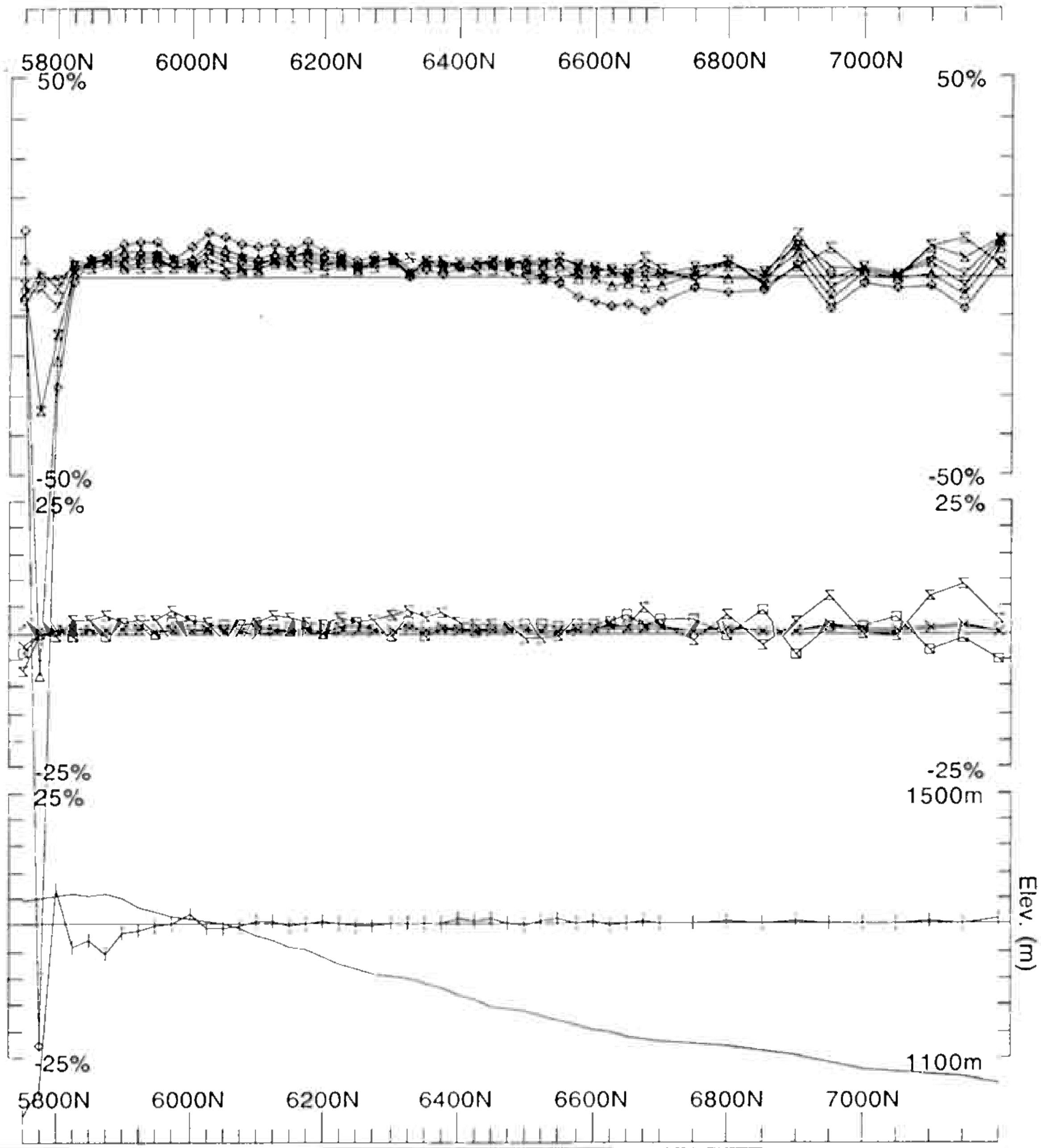
Loop: 11 Line: 2400E (to 6825E) Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (2200,6025,1321) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



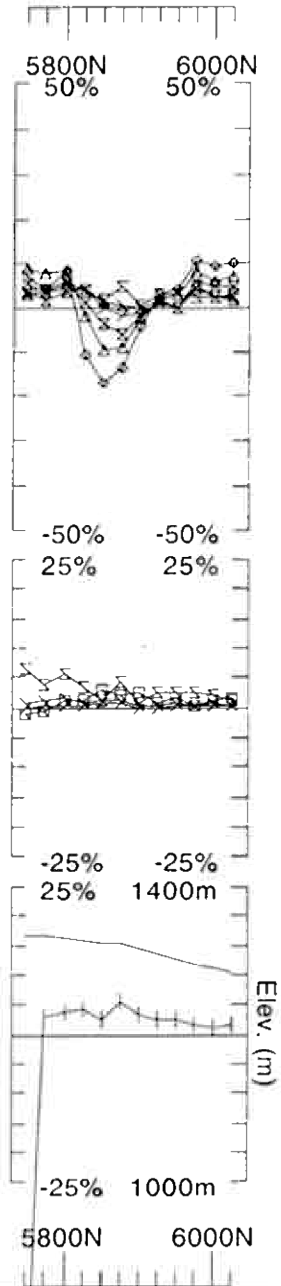
Loop: 11 Line: 2400E (off-loop data) Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (2200,6025,1321) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted 18/5/4



Loop: 11 Line: 2600E (to 6850E) Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (2200,6025,1321) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted: 18/5/4



Loop: 11 Line: 2600E (off-loop data) Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (2200,6025,1321) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 11 Line: 2800E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (2200,6025,1270) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 21/3/4 Reduced : 23/3/4 Plotted : 18/5/4

Espedalen

Loop 12

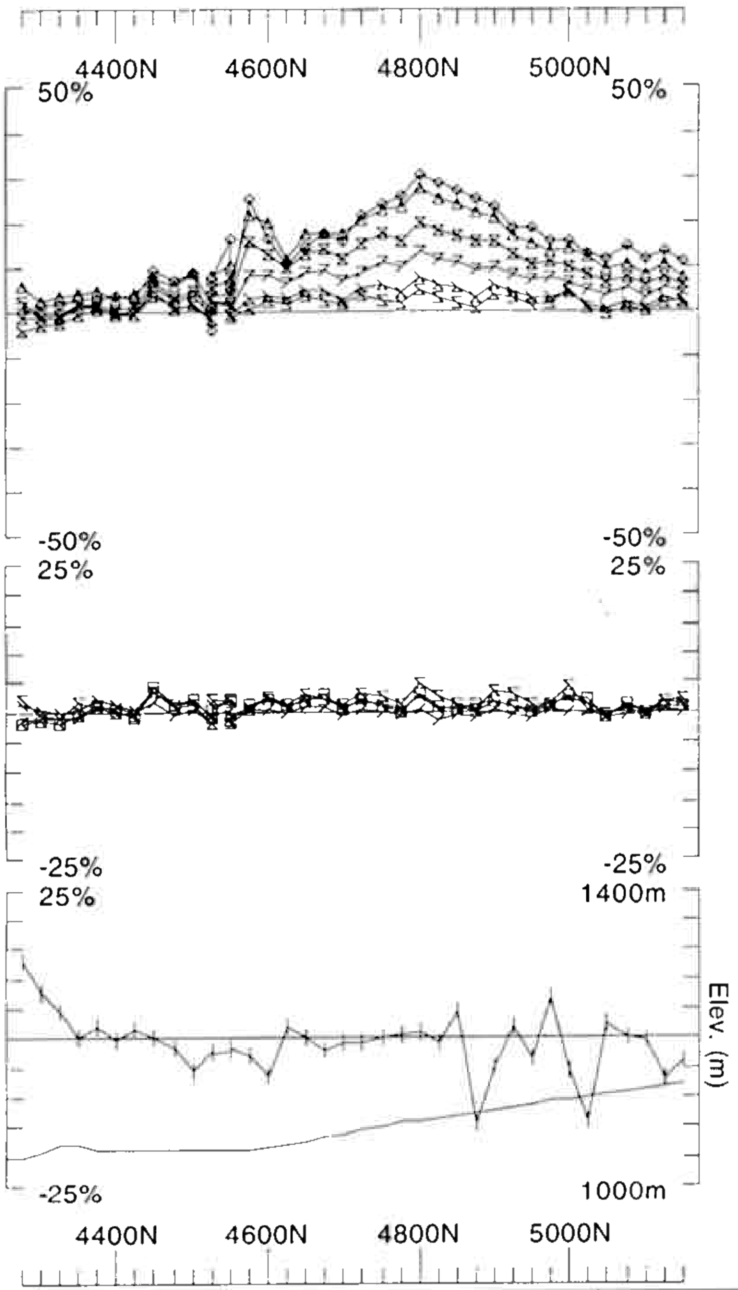
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (1110E,6025N, 1304 m.a.s.l.)

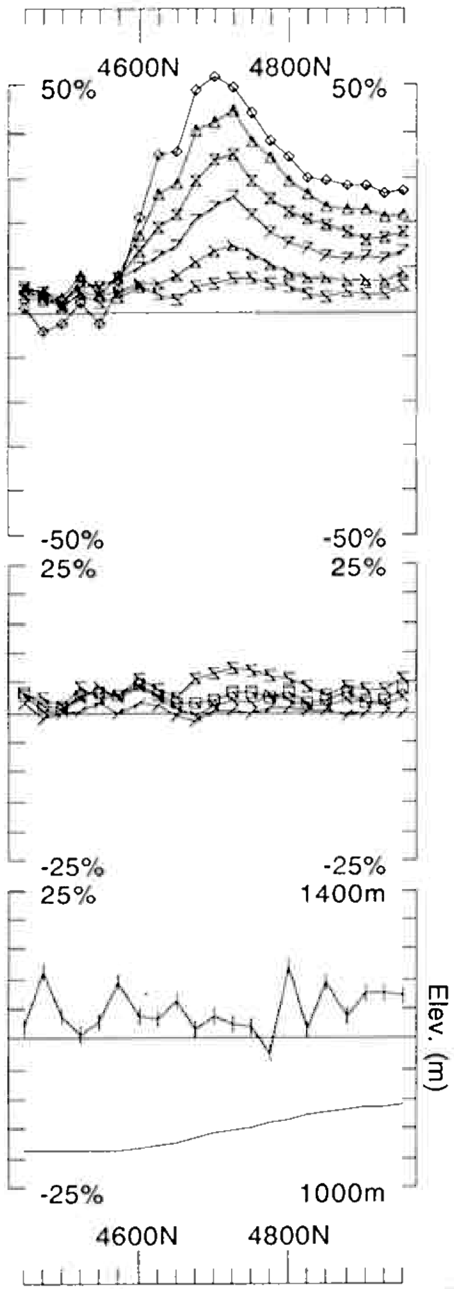
Ch1 reduced

Loop 12	Line	0600E	4250N - 5150N	900m
	Line	0725E	4450N - 4950N	500m
	Line	0800E	4250N - 5150N	900m
	Line	0875E	4450N - 4950N	500m
	Line	1000E	4250N - 6600N	2350m
	Line	1200E	4250N - 6600N	2350m
	Line	1400E	4250N - 6600N	2350m
	Line	1600E	4250N - 6800N	2550m
			Loop 12 Total	12400m

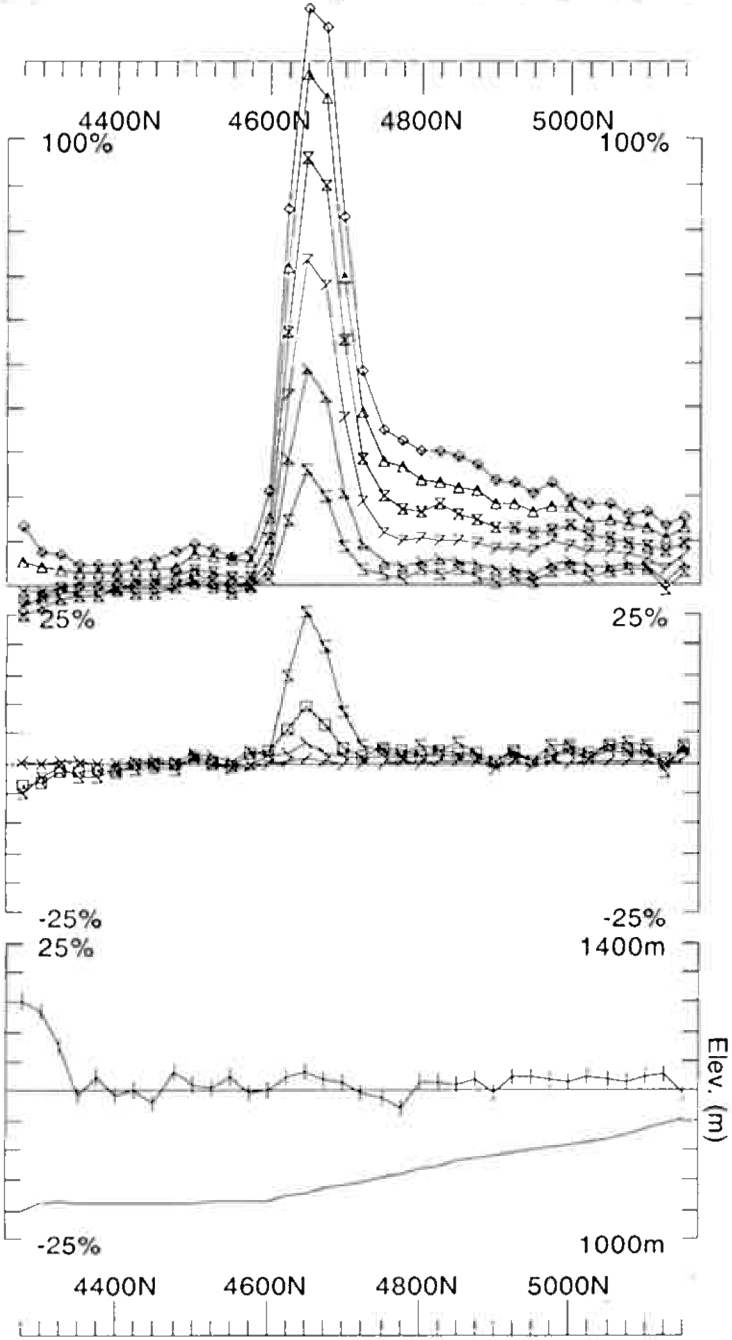
Loop 12 - point norm



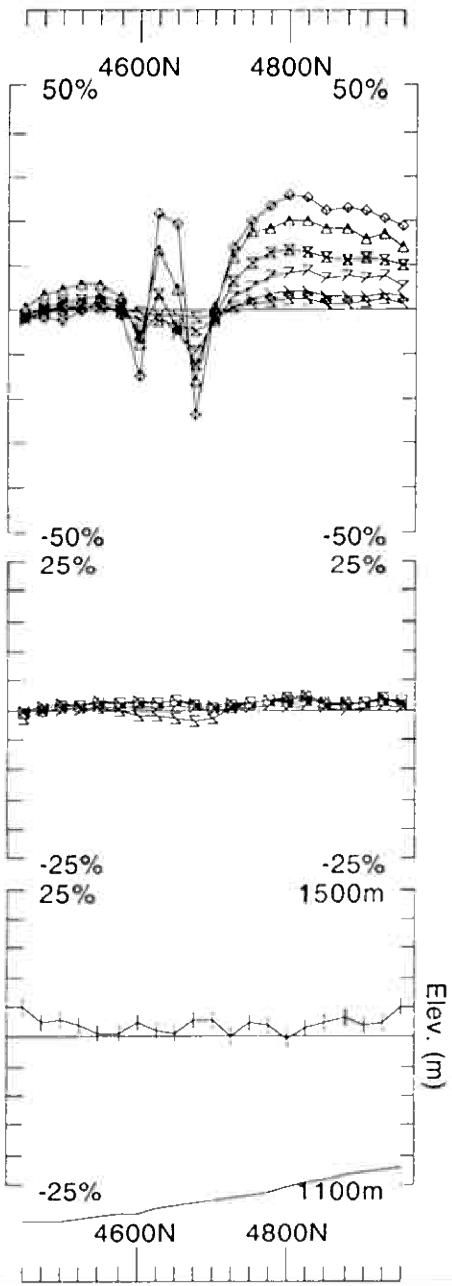
Loop: 12 Line: 600E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (1110,6025,1304) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted: 18/5/4



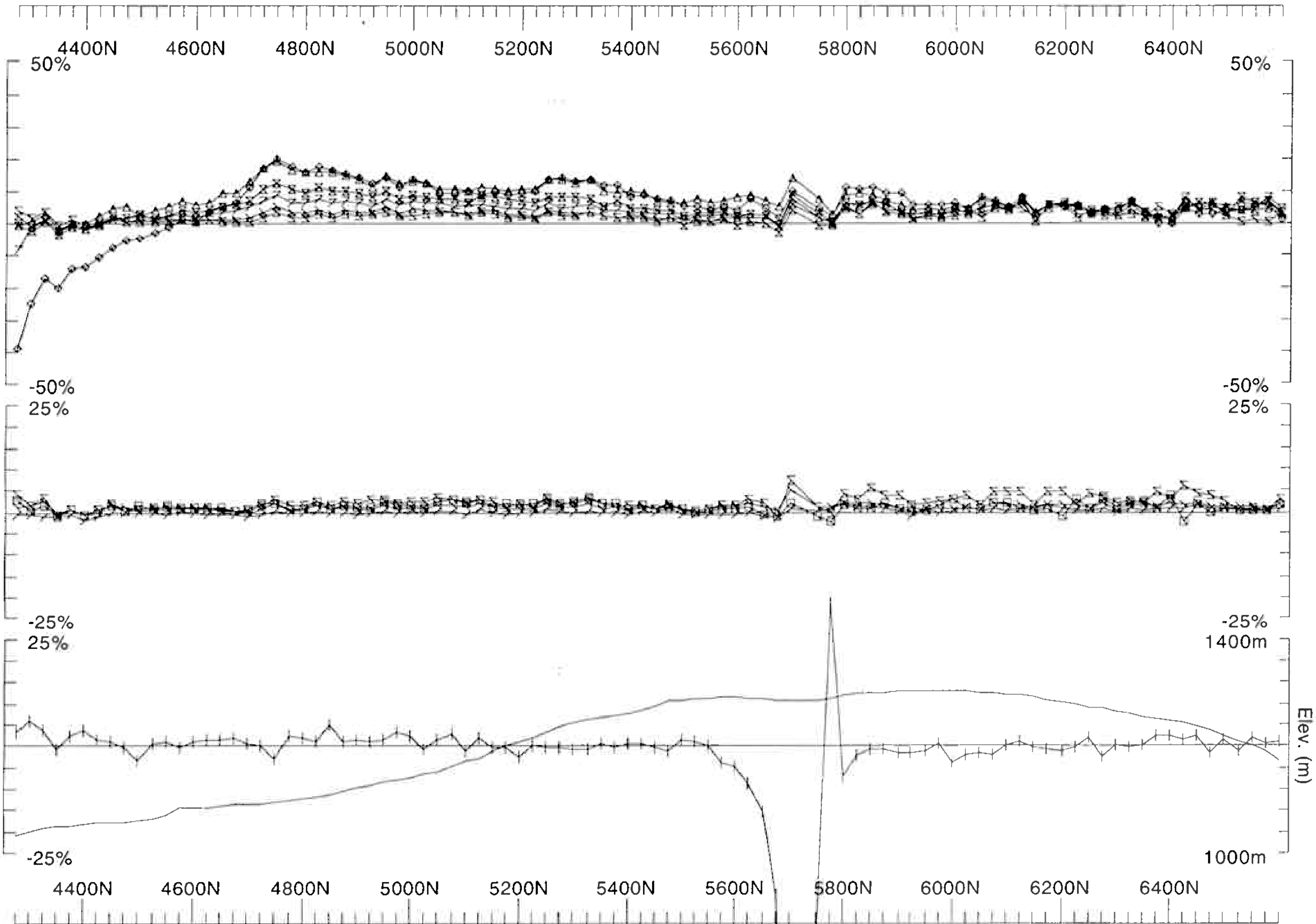
Loop: 12 Line: 725E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (1110,6025,1304) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 26/3/4 Reduced : 26/3/4 Plotted : 18/5/4



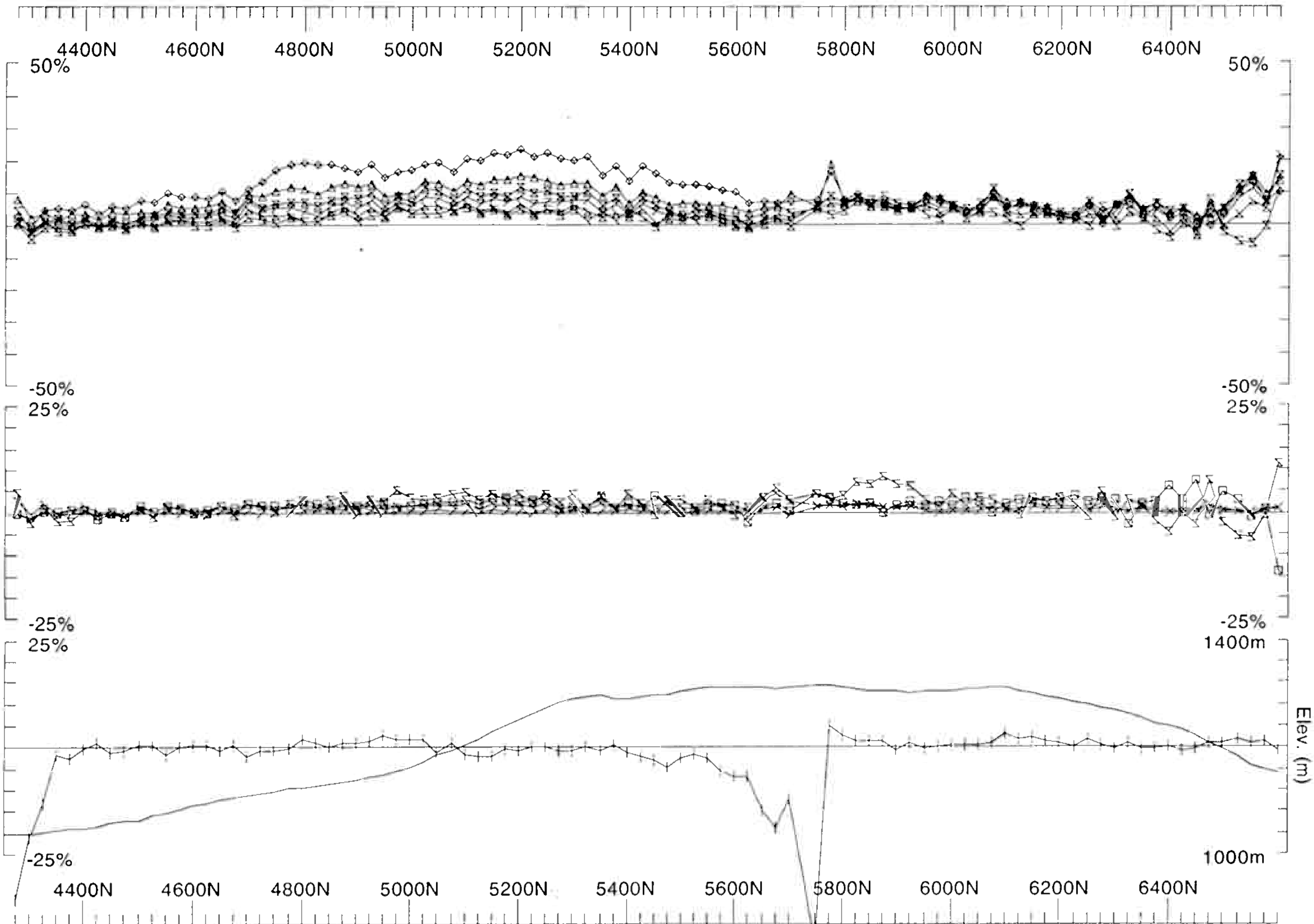
Loop: 12 Line: 800E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (1110,6025,1304) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 25/3/4 Reduced : 25/3/4 Plotted : 18/5/4



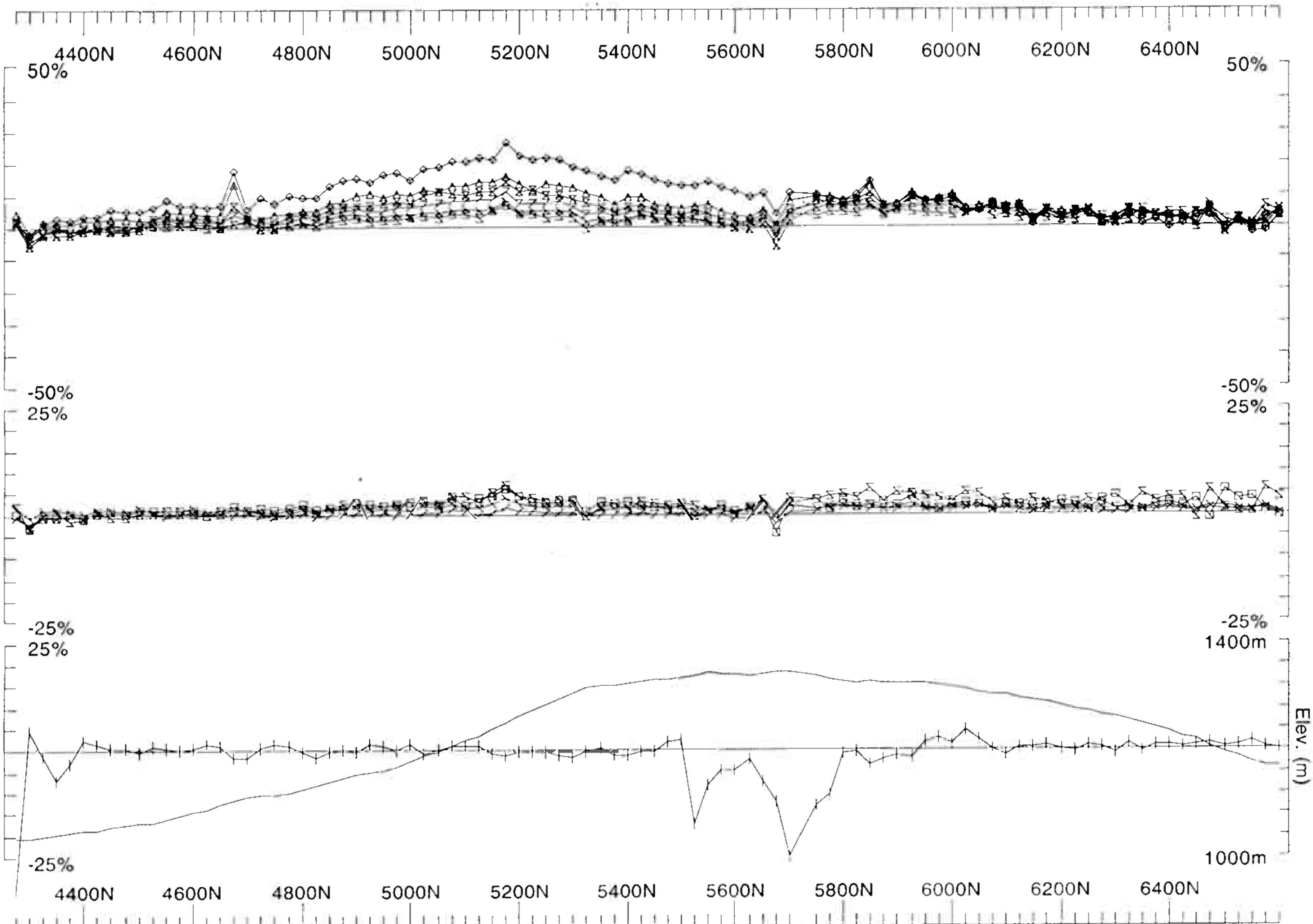
Loop: 12 Line: 875E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (1110,6025,1304) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed: 26/3/4 Reduced: 26/3/4 Plotted: 18/5/4



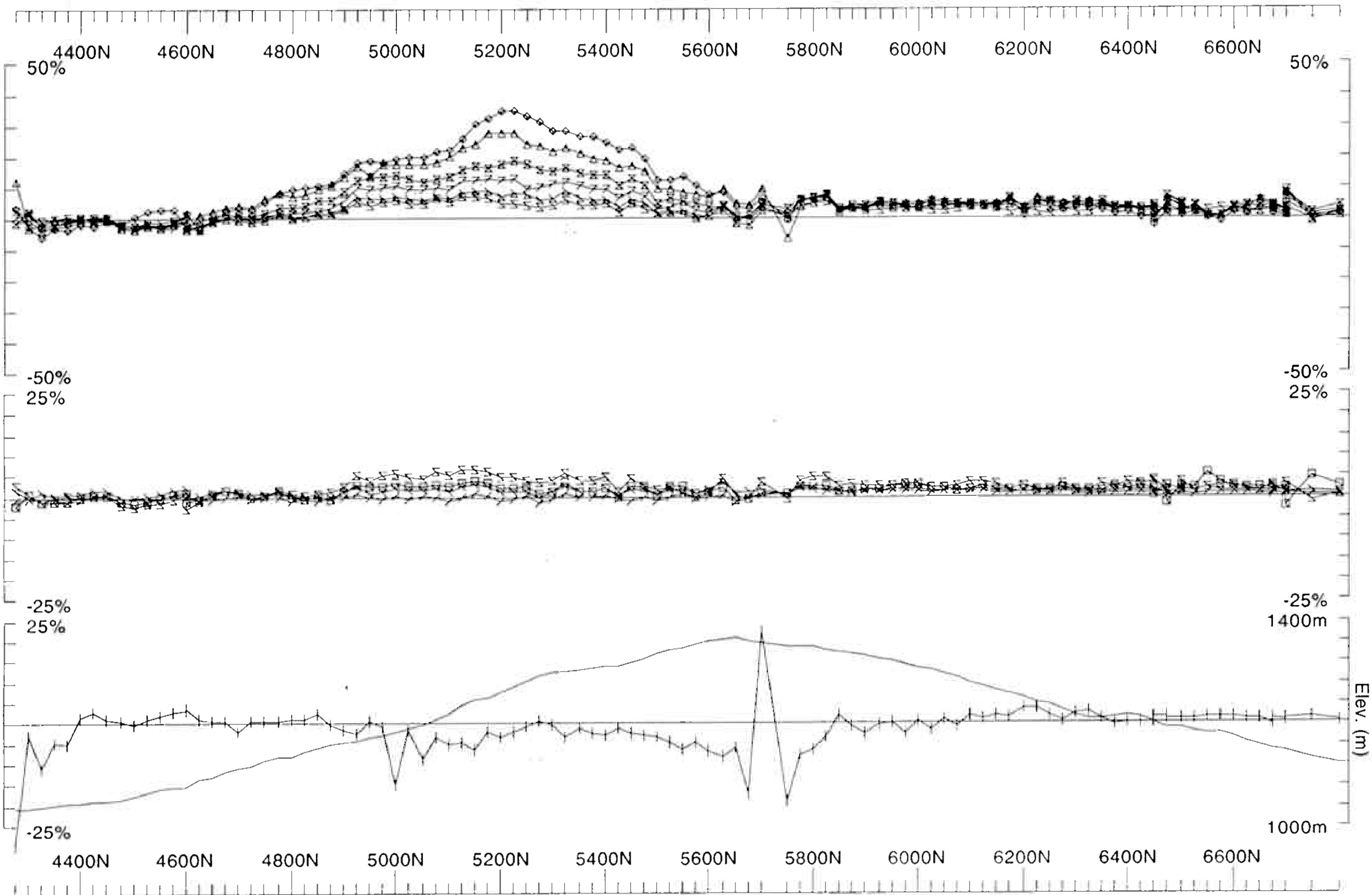
Loop: 12 Line: 1000E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (1110,6025,1304) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 12 Line: 1200E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (1110,6025,1304) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 12 Line: 1400E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (1110,6025,1304) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 12
Line: 1600E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(1110,6025,1304)
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4

Espedalen

Loop 13

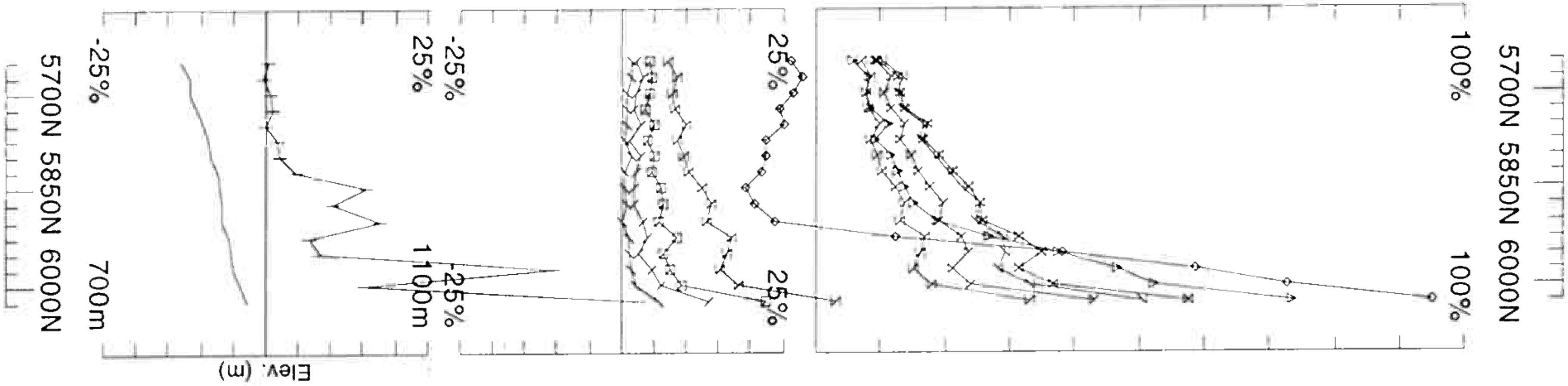
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (10450E,5725N, 931 m.a.s.l.)

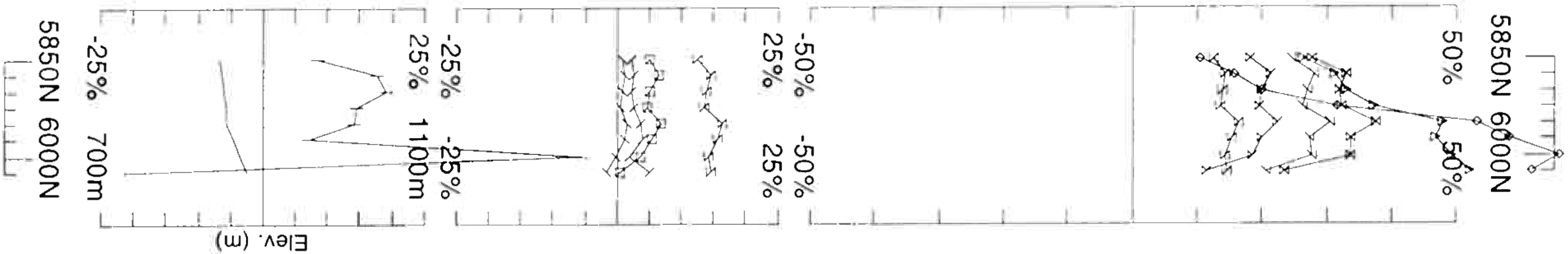
Ch1 reduced

Loop 13	Line 10100E	5650N - 6050N	400m
	Line 10200E	5850N - 6050N	200m
	Line 10300E	5650N - 6350N	700m
	Line 10400E	5850N - 6050N	200m
	Line 10500E	5650N - 6350N	700m
	Line 10700E	5650N - 6800N	1150m
		Loop 13 Total	3350m

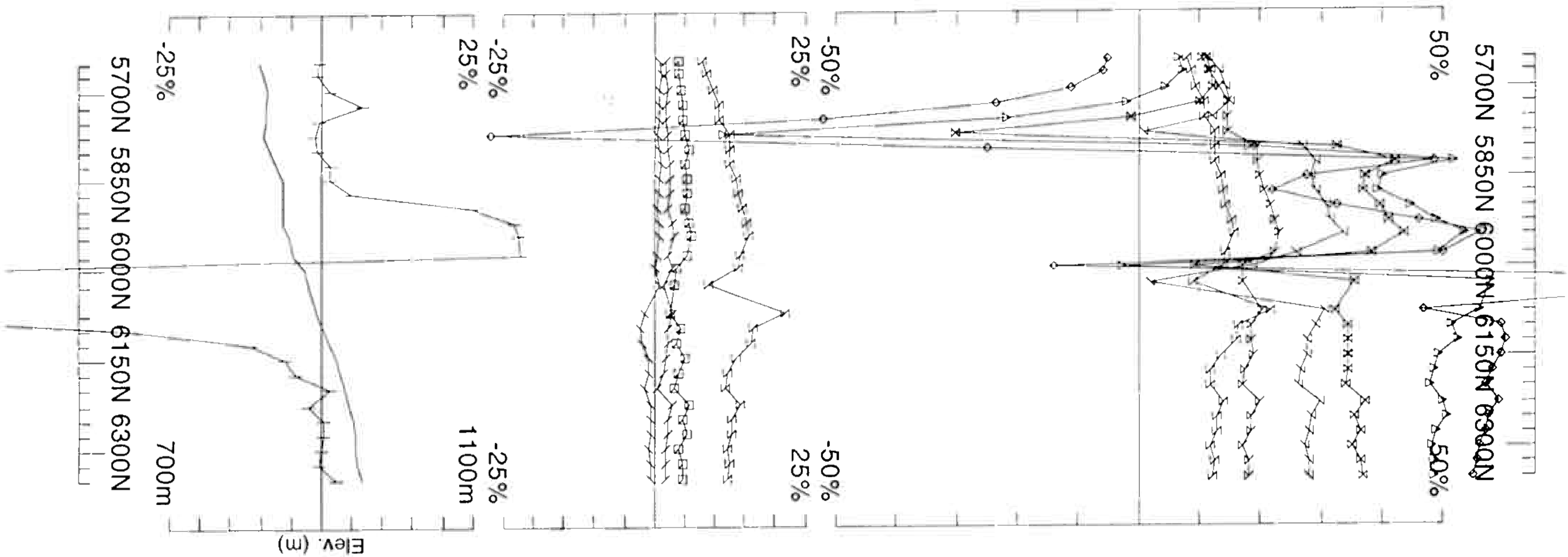
Loop 13 - point norm



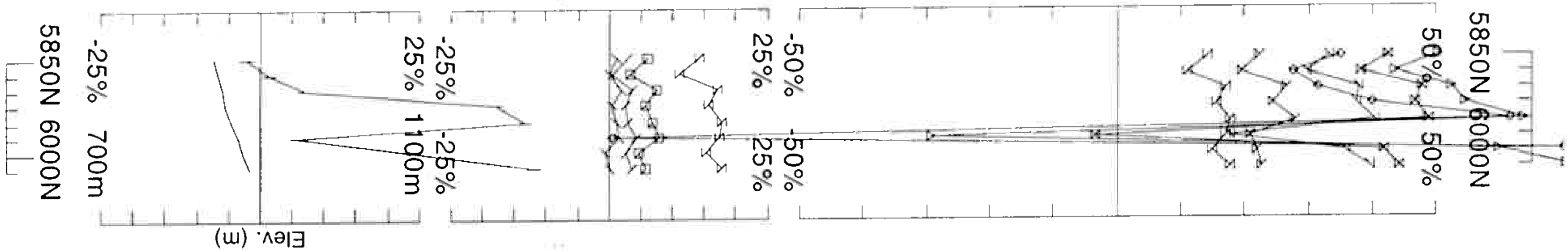
Loop: 13 Line: 10100E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (10450,5725,931) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 23/2/4 Reduced : 23/2/4 Plotted : 18/5/4



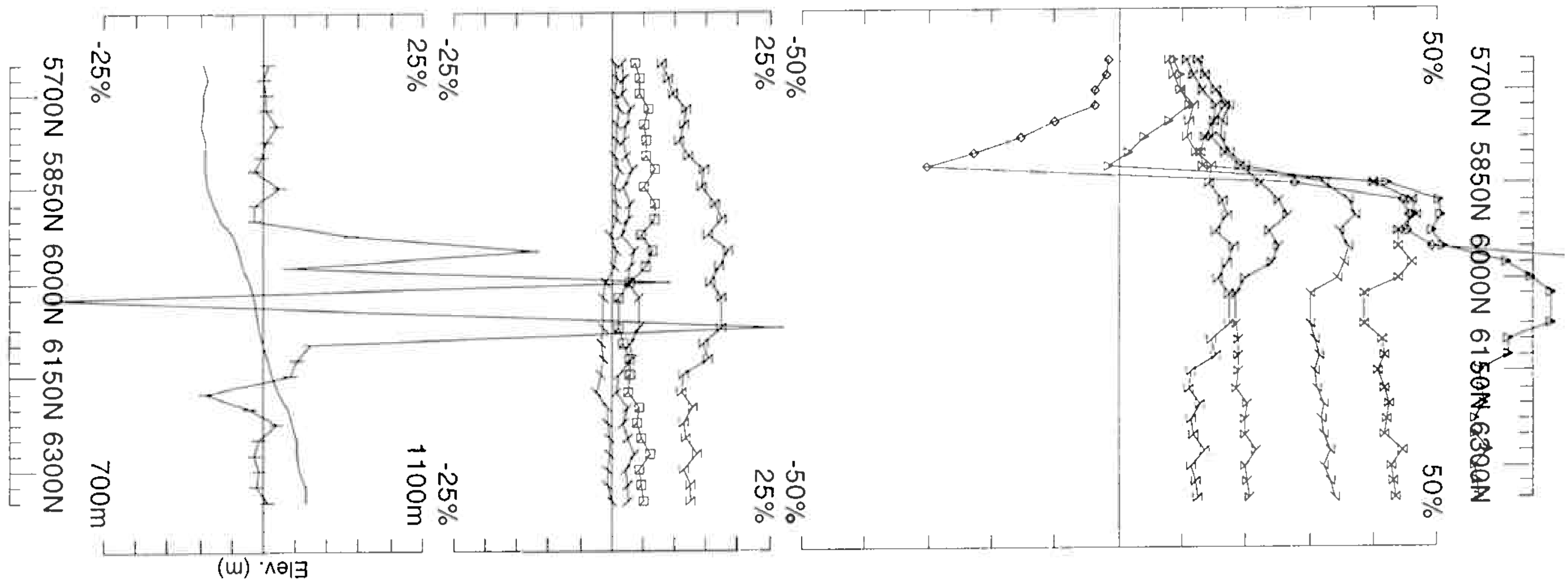
Loop: 13 Line: 10200E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (10450,5725,931) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 24/2/4 Reduced : 24/2/4 Plotted : 18/5/4



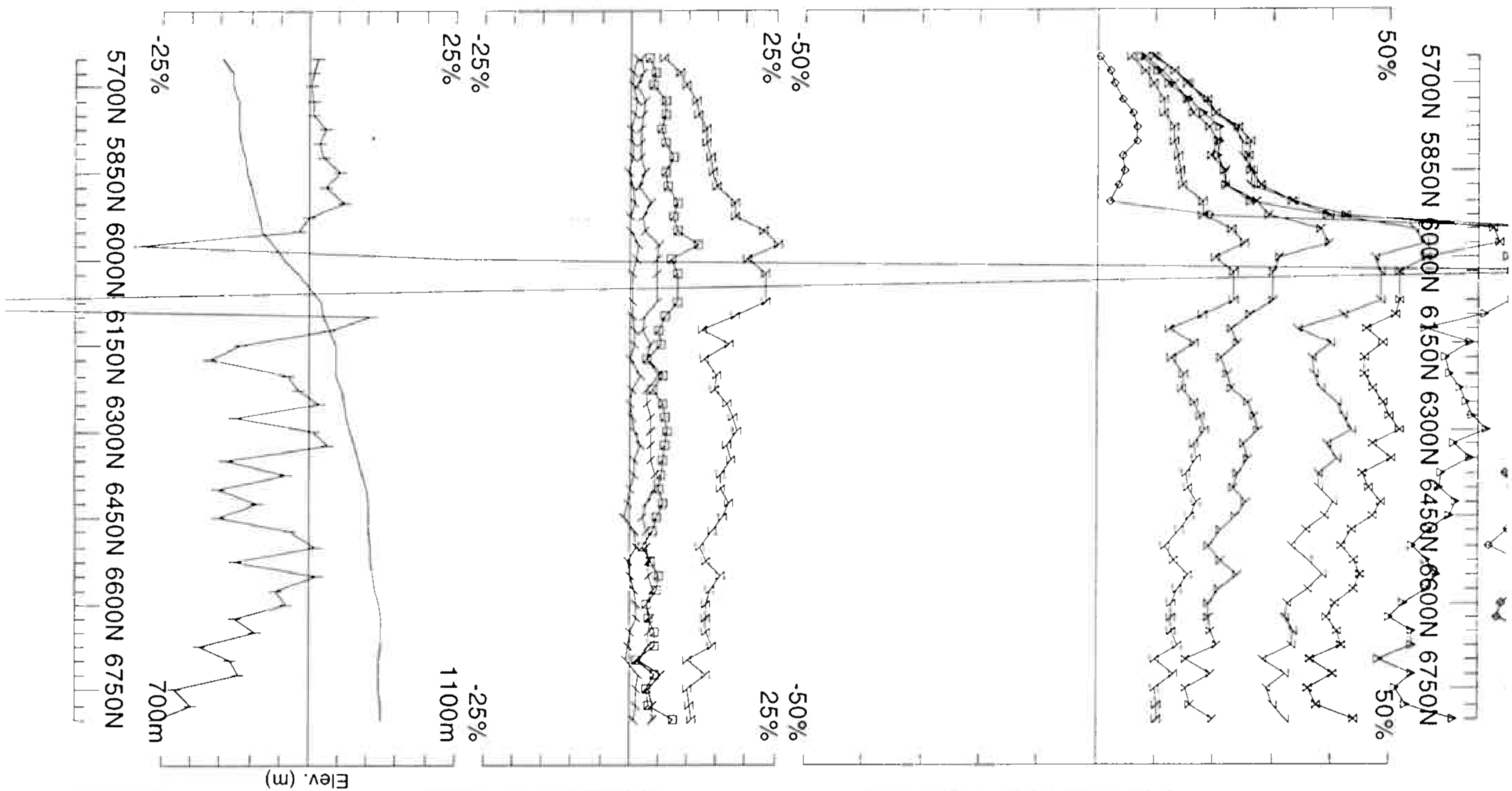
Loop: 13 Line: 10300E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (10450,5725,931) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 23/2/4 Reduced : 23/2/4 Plotted : 18/5/4



Loop: 13 Line: 10400E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (10450,5725,931) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD / GEOPHYSIQUE LTEE Job 0408 Surveyed : 24/2/4 Reduced : 24/2/4 Plotted : 18/5/4



Loop: 13 Line: 10500E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (10450,5725,931) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 23/2/4 Reduced : 23/2/4 Plotted : 18/5/4



Loop: 13 Line: 10700E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (10450,5725,931) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 23/2/4 Reduced : 23/2/4 Plotted : 18/5/4

Espedalen

Loop 14

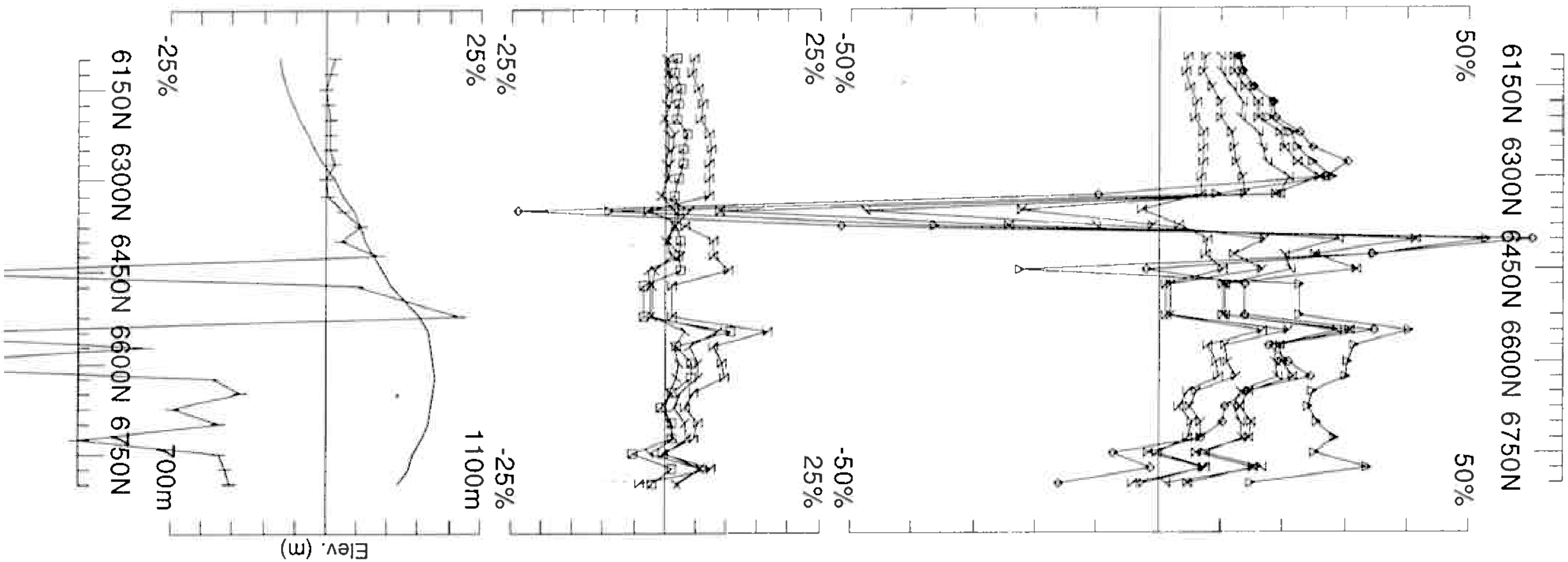
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (10950E,6300N, 867 m.a.s.l.)

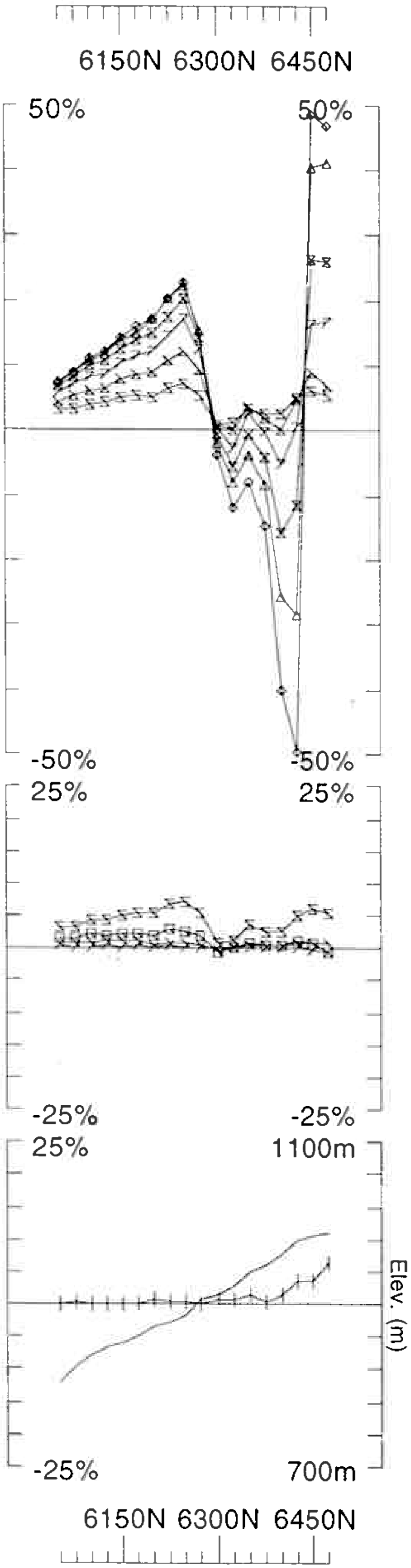
Ch1 reduced

Loop 14	Line 11100E	6100N - 6800N	700m
	Line 11200E	6050N - 6500N	450m
		Loop 14 Total	1150m

Loop 14 - point norm



Loop: 14 Line: 11100E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (10950,6300,867) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 24/2/4 Reduced : 24/2/4 Plotted : 18/5/4



Loop: 14
Line: 11200E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(10950,6300,867)
Base Freq. 3.251 Hz

UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Surveyed : 24/2/4
Reduced : 24/2/4
Plotted : 18/5/4

Espedalen

Loop 15

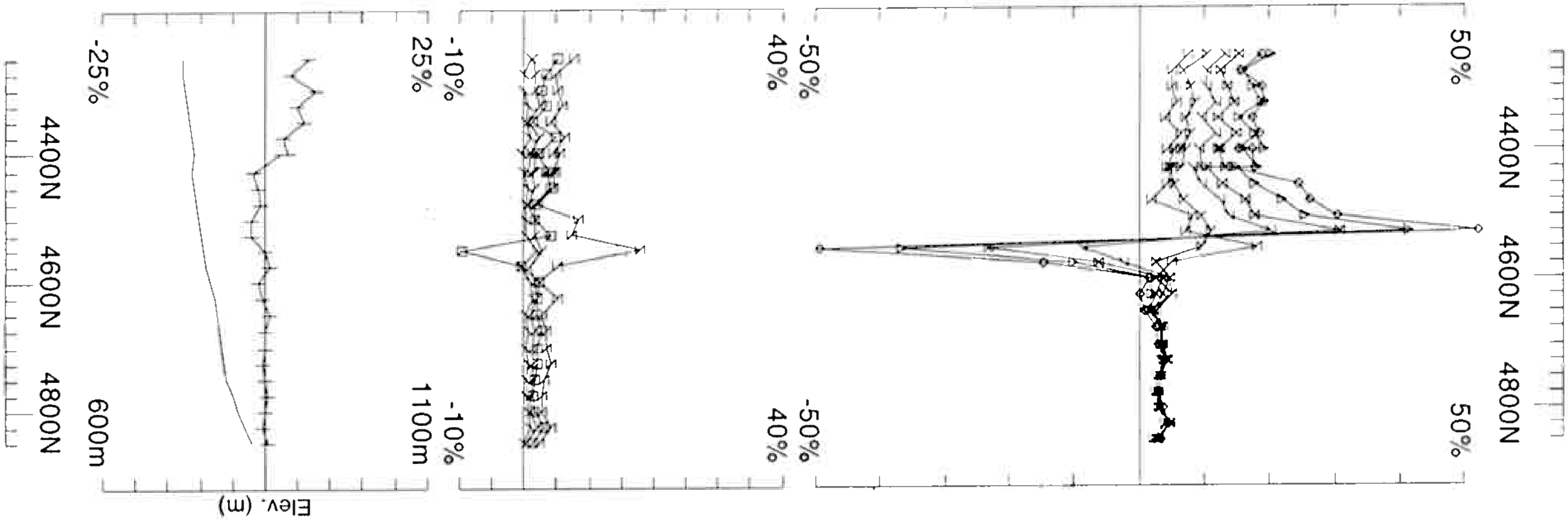
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (7690E,4400N, 729 m.a.s.l.)

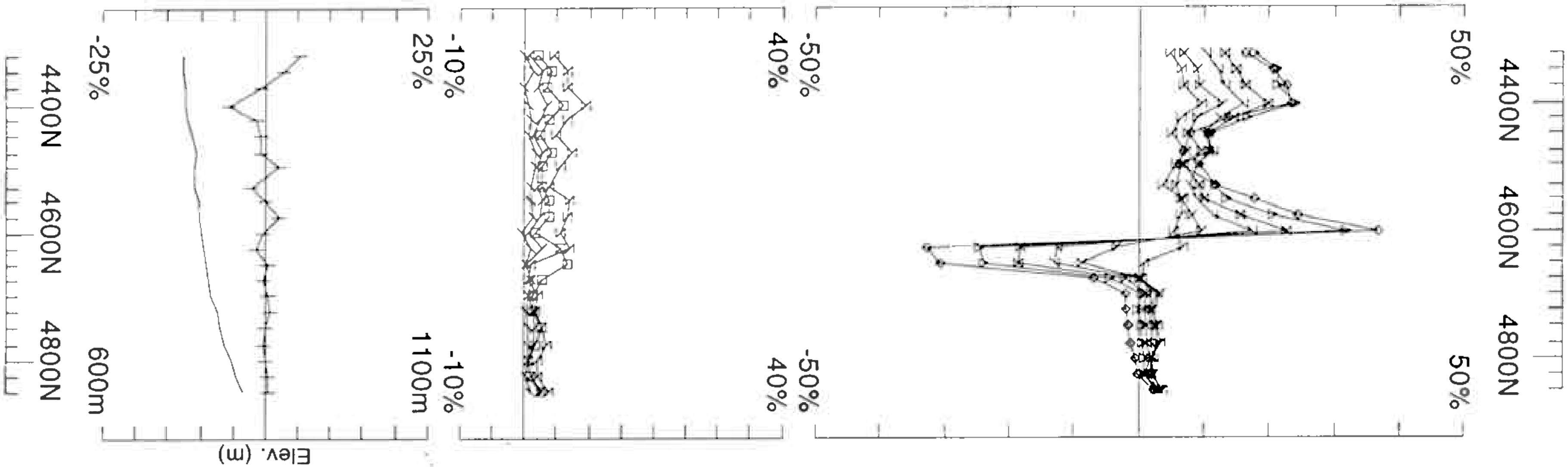
Ch1 reduced

Loop 15	Line 7300E	4250N - 4850N	600m
	Line 7500E	4325N - 4850N	525m
	Line 7600E	4290N - 4490N	200m
	Line 7700E	4325N - 4850N	525m
	Line 7900E	4450N - 4850N	400m
	Line 8100E	4550N - 4850N	300m
		Loop 15 Total	2550m

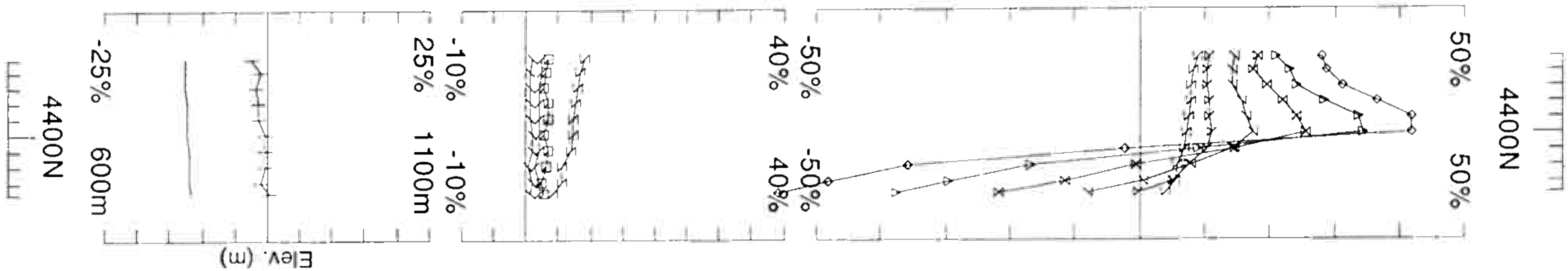
Loop 15 - point norm



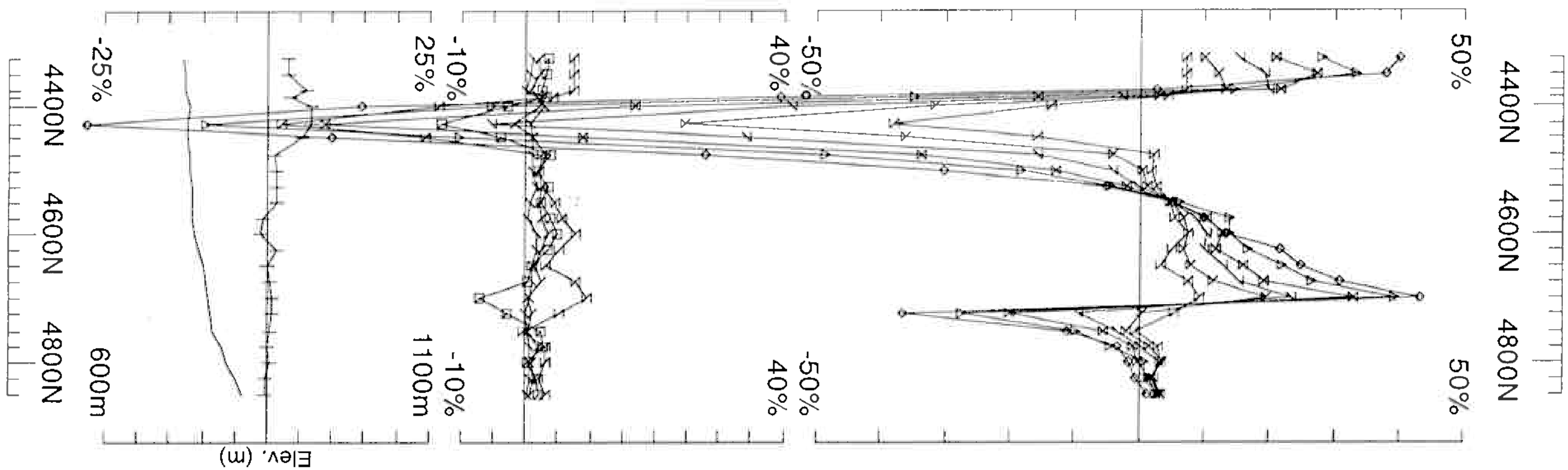
Loop: 15 Line: 7300E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (7690,4400,1150) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



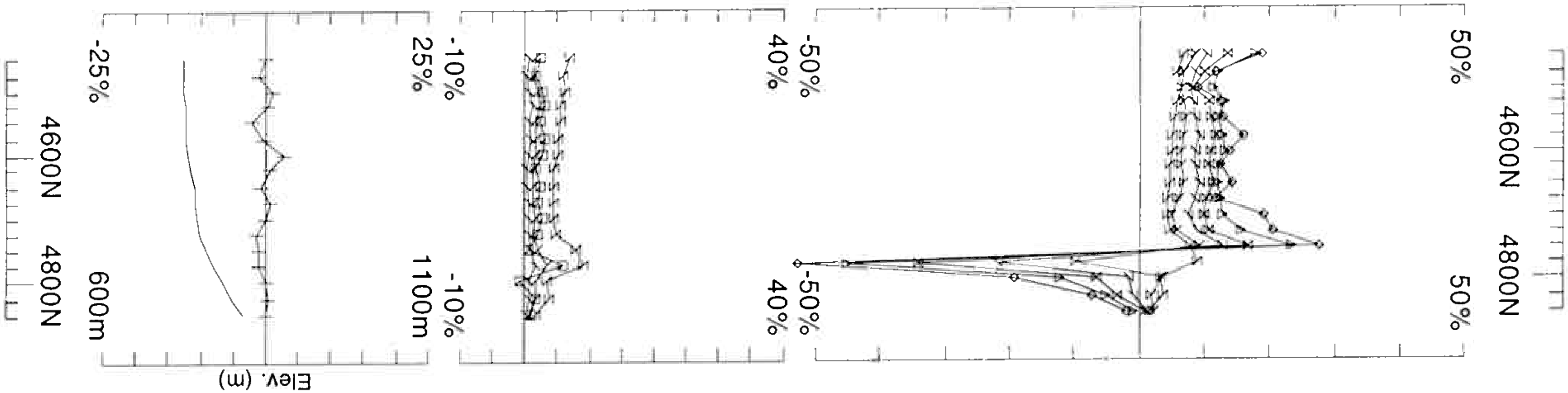
Loop: 15 Line: 7500E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (7690,4400,1150) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 25/2/4 Reduced : 26/2/4 Plotted : 18/5/4



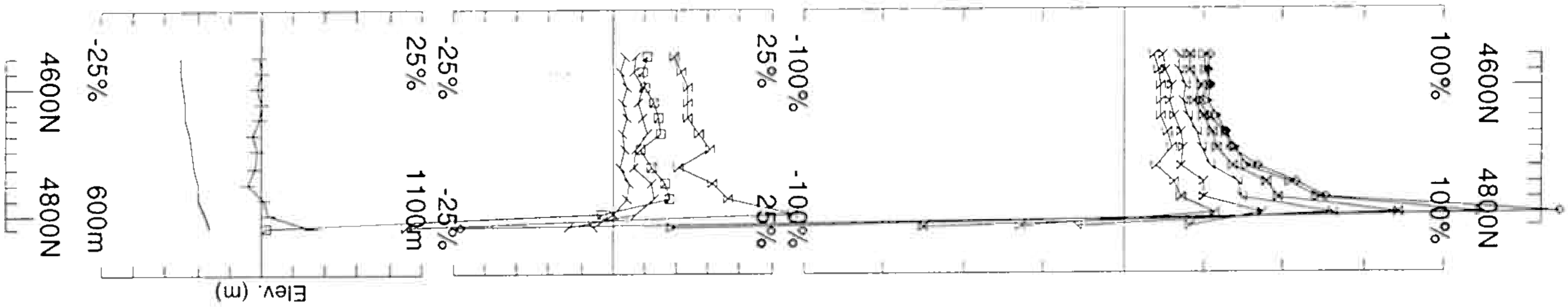
Loop: 15	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: Espedalen
Line: 7600E	Point Norm.at x,y,z	For: A/S Sulfidmalm
Compt: Hz	(7690,4400,1150)	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
	Base Freq. 3.251 Hz	Job 0408 — Surveyed : 27/2/4, Reduced : 27/2/4, Plotted : 18/5/4



Loop: 15 Line: 7700E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (7690,4400,1150) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 25/2/4 Reduced : 26/2/4 Plotted : 18/5/4



Loop: 15 Line: 7900E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (7690,4400,1150) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE	Job 0408	Surveyed : 26/2/4 Reduced : 26/2/4 Plotted : 18/5/4



Loop: 15 Line: 8100E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 26/2/4 Reduced : 26/2/4 Plotted : 18/5/4

Espedalen

Loop 16

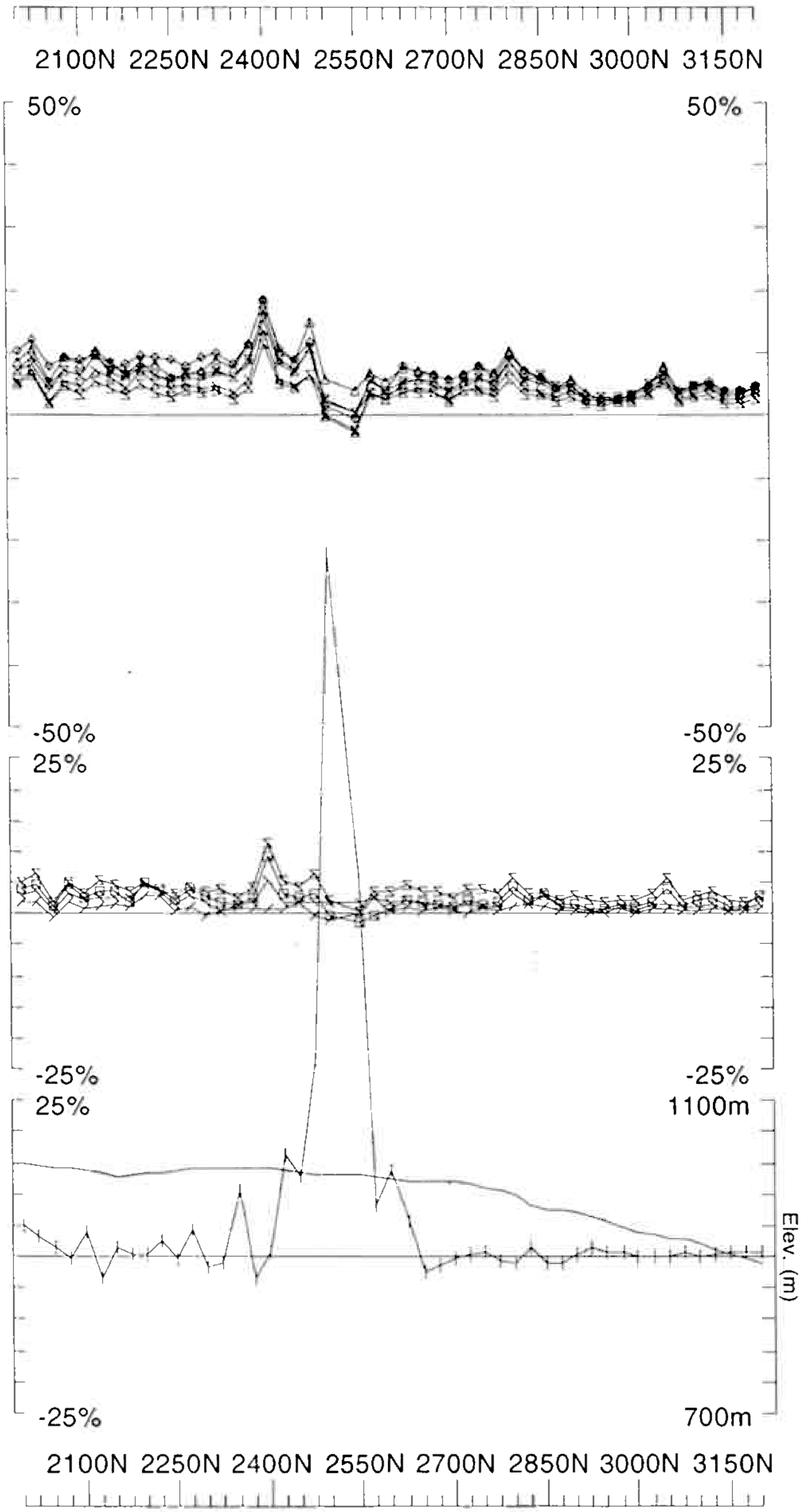
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (8400E,2825N, 993 m.a.s.l.)

Ch1 reduced

Loop 16	Line	8000E	2000N - 3200N	1200m
	Line	8200E	2000N - 3200N	1200m
	Line	8400E	2000N - 3200N	1200m
	Line	8500E	2525N - 3100N	575m
	Line	8600E	2000N - 3200N	1200m
	Line	8800E	2525N - 3200N	675m
			Loop 16 Total	6050m

Loop 16 - point norm



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

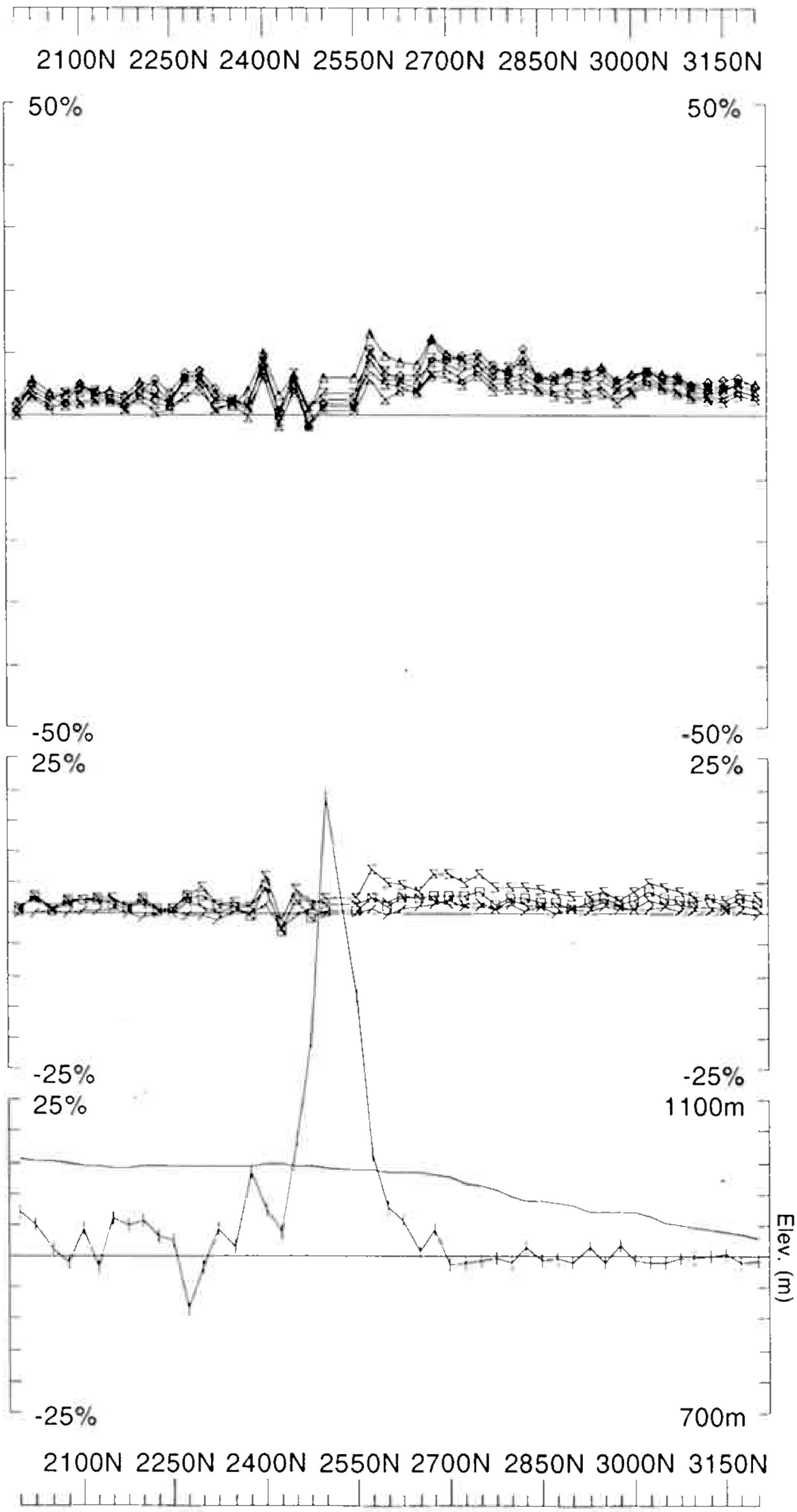
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Surveyed : 26/3/4
Reduced : 26/3/4
Plotted : 18/5/4

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8400,2825,993)
Base Freq. 3.251 Hz

Loop: 16
Line: 8000E
Compt: Hz



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

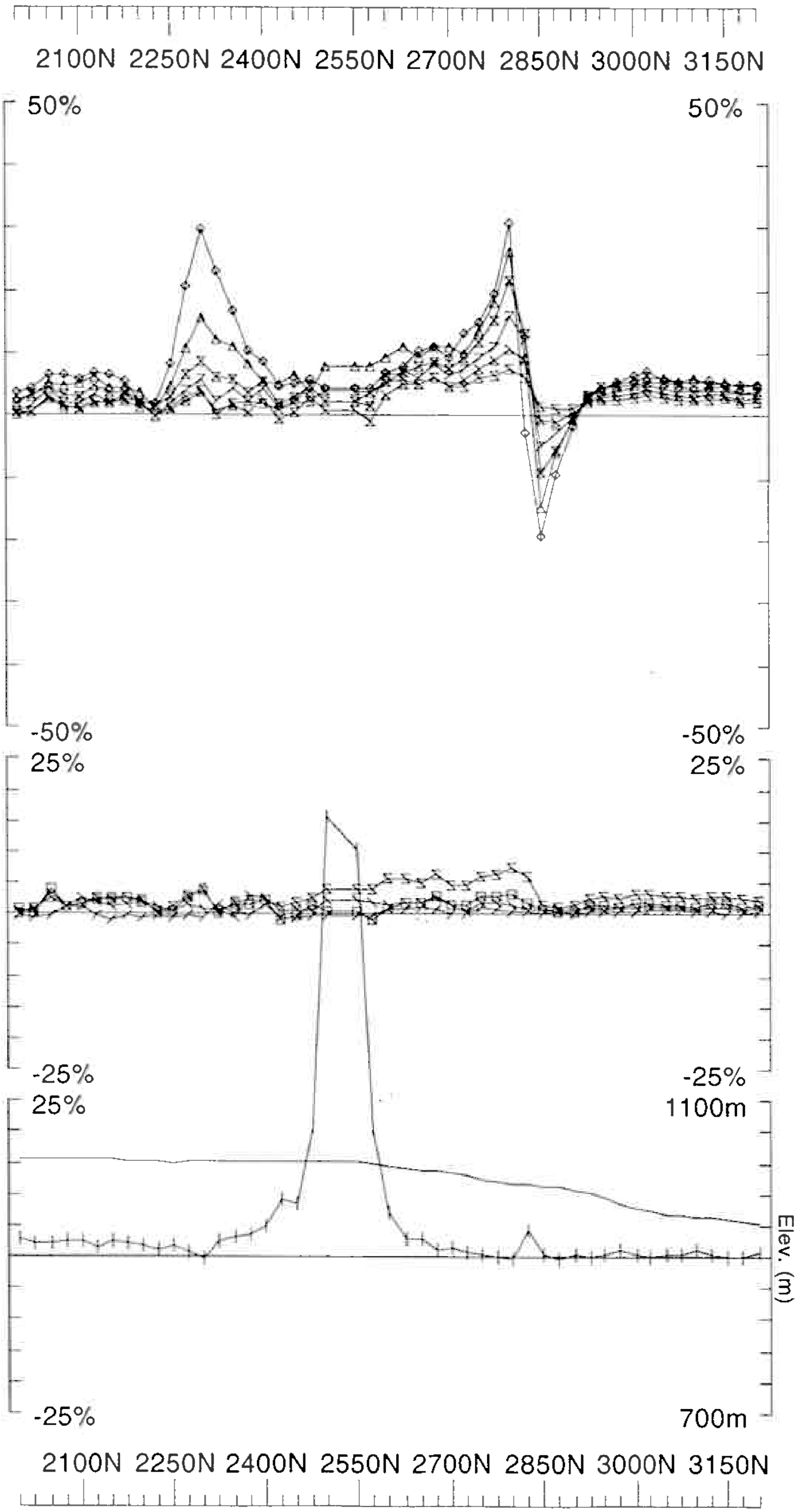
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Surveyed : 27/3/4
Reduced : 27/3/4
Plotted : 18/5/4

Loop: 16
Line: 8200E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8400,2825,993)
Base Freq. 3.251 Hz



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

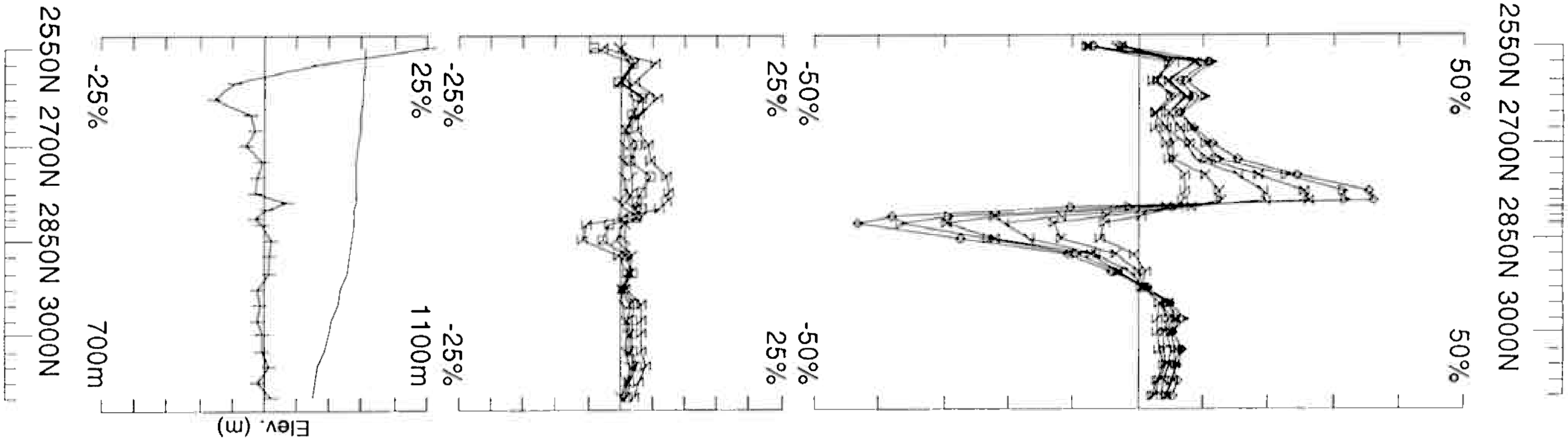
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

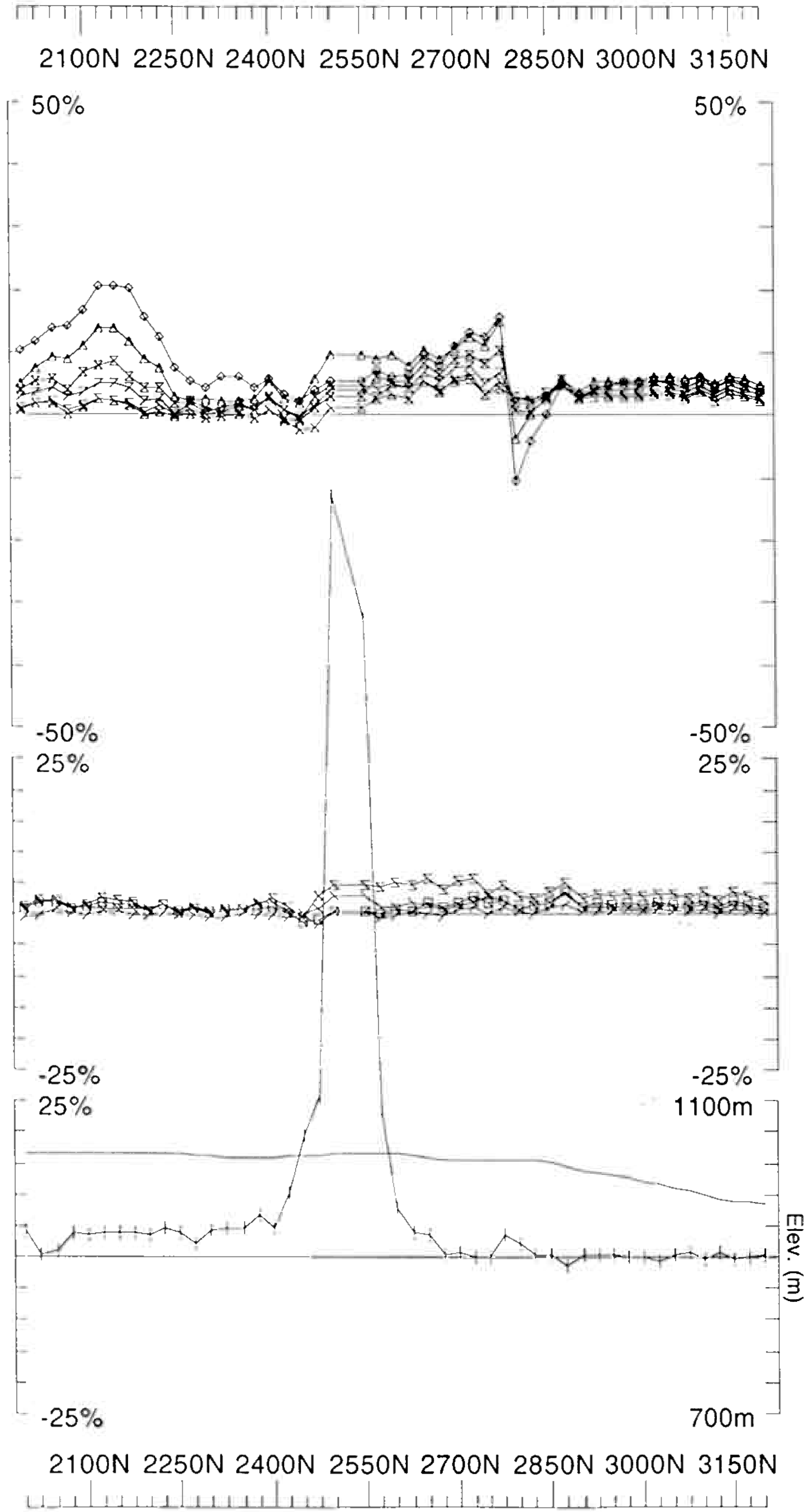
Surveyed : 26/3/4
Reduced : 26/3/4
Plotted : 18/5/4

Loop: 16
Line: 8400E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8400,2825,993)
Base Freq. 3.251 Hz



Loop: 16 Line: 8500E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (8400,2825,993) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 27/3/4 Reduced : 27/3/4 Plotted : 19/5/4



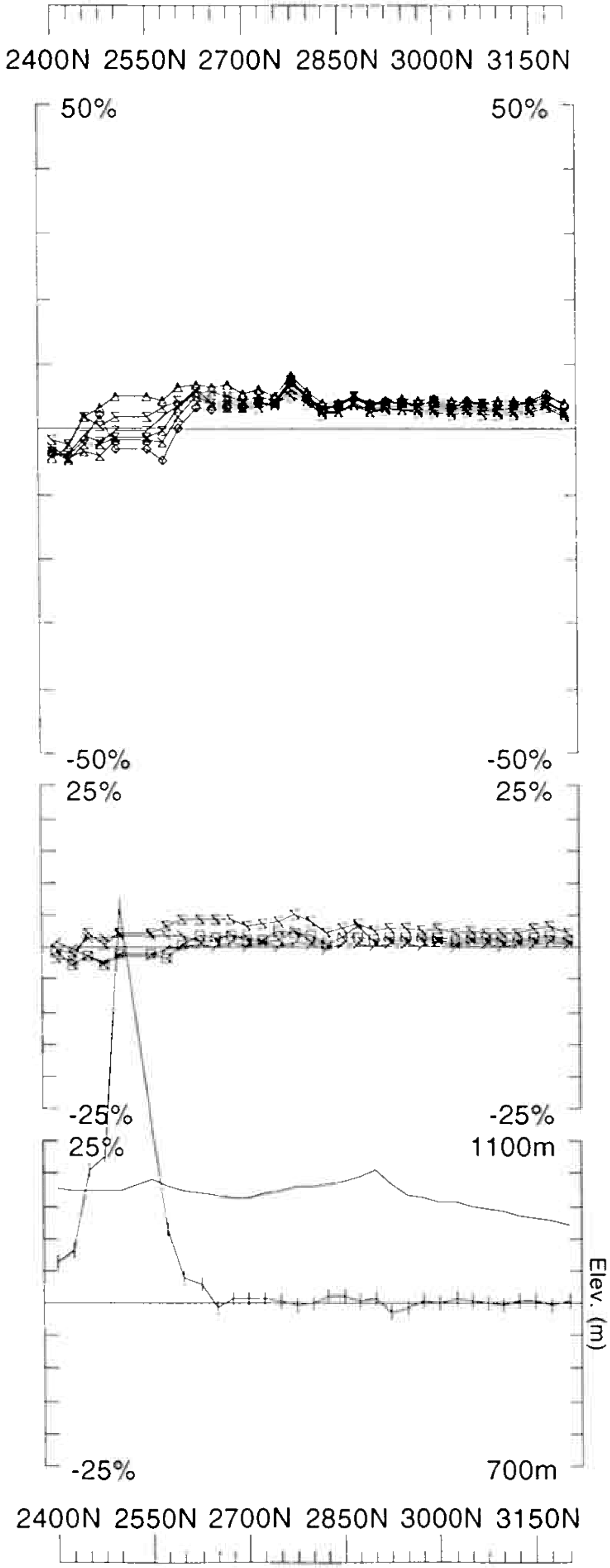
UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408
Surveyed : 27/3/4
Reduced : 27/3/4
Plotted : 18/5/4

Loop: 16
Line: 8600E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8400,2825,993)
Base Freq. 3.251 Hz



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Surveyed : 27/3/4
Reduced : 27/3/4
Plotted : 18/5/4

Loop: 16
Line: 8800E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(8400,2825,993)
Base Freq. 3.251 Hz

Espedalen

Loop 17

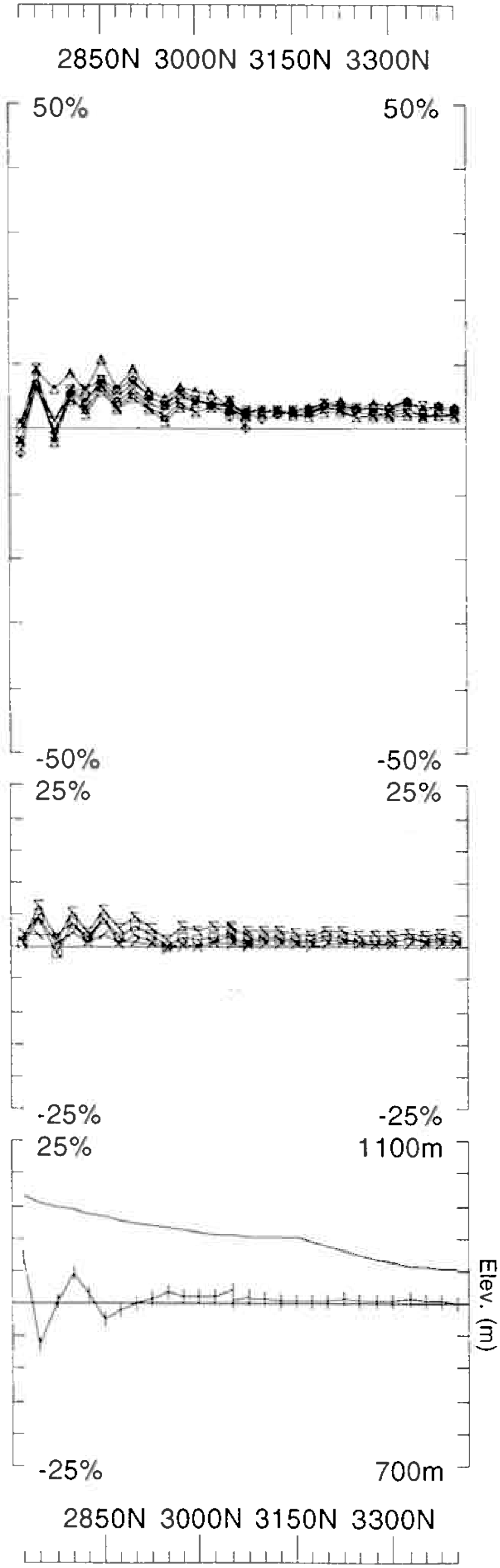
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (11400E,3025N, 976 m.a.s.l.)

Ch1 reduced

Loop 17	Line 11000E	2700N - 3400N	700m
	Line 11200E	2700N - 3400N	700m
	Line 11400E	2700N - 3400N	700m
	Line 11600E	2600N - 3400N	800m
	Line 11800E	2700N - 3400N	700m
		Loop 17 Total	3600m

Loop 17 - point norm



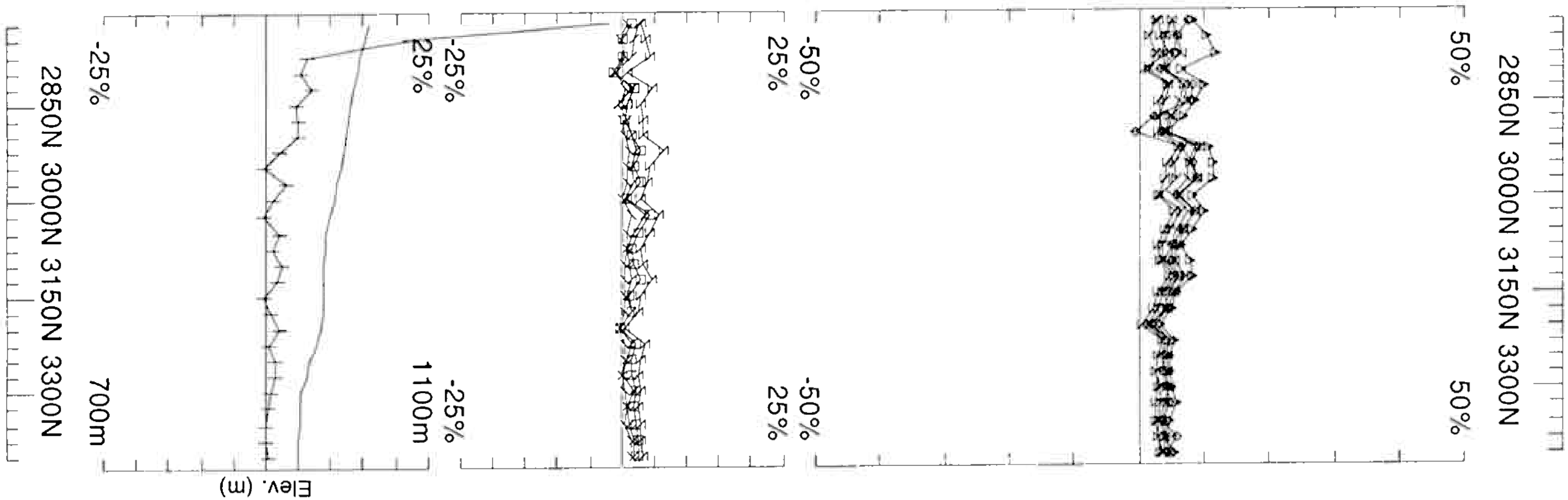
Loop: 17
Line: 11000E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(11400,3025,976)
Base Freq. 3.251 Hz

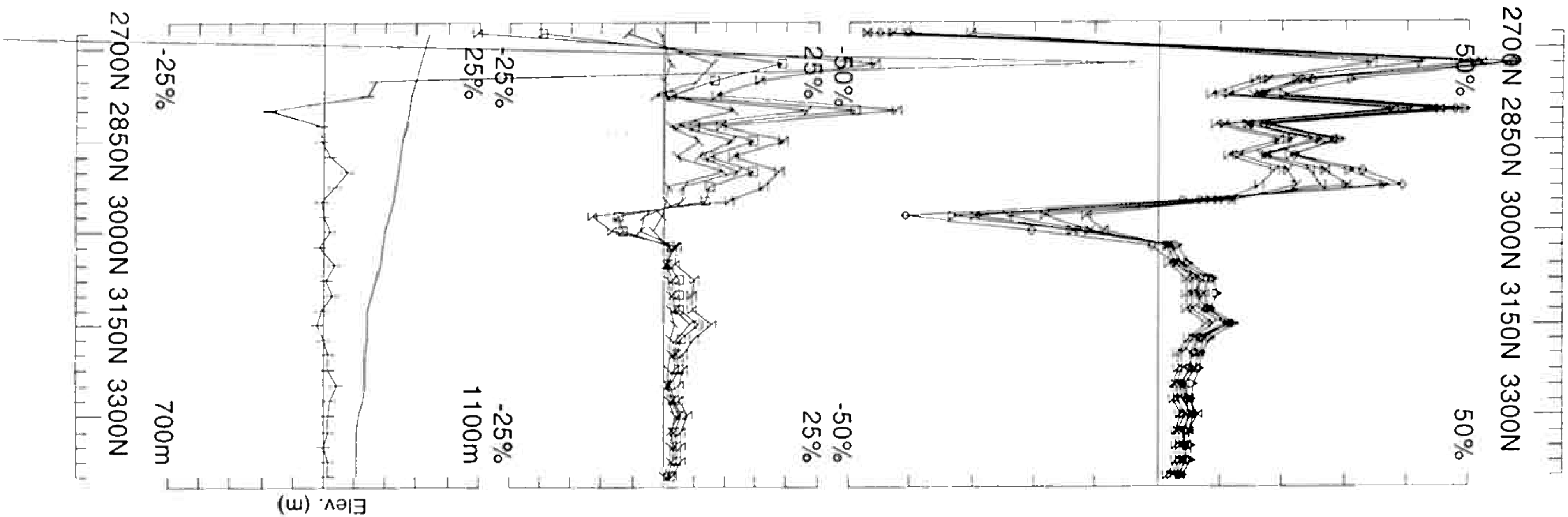
UTEM Survey at: Espedalen
For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

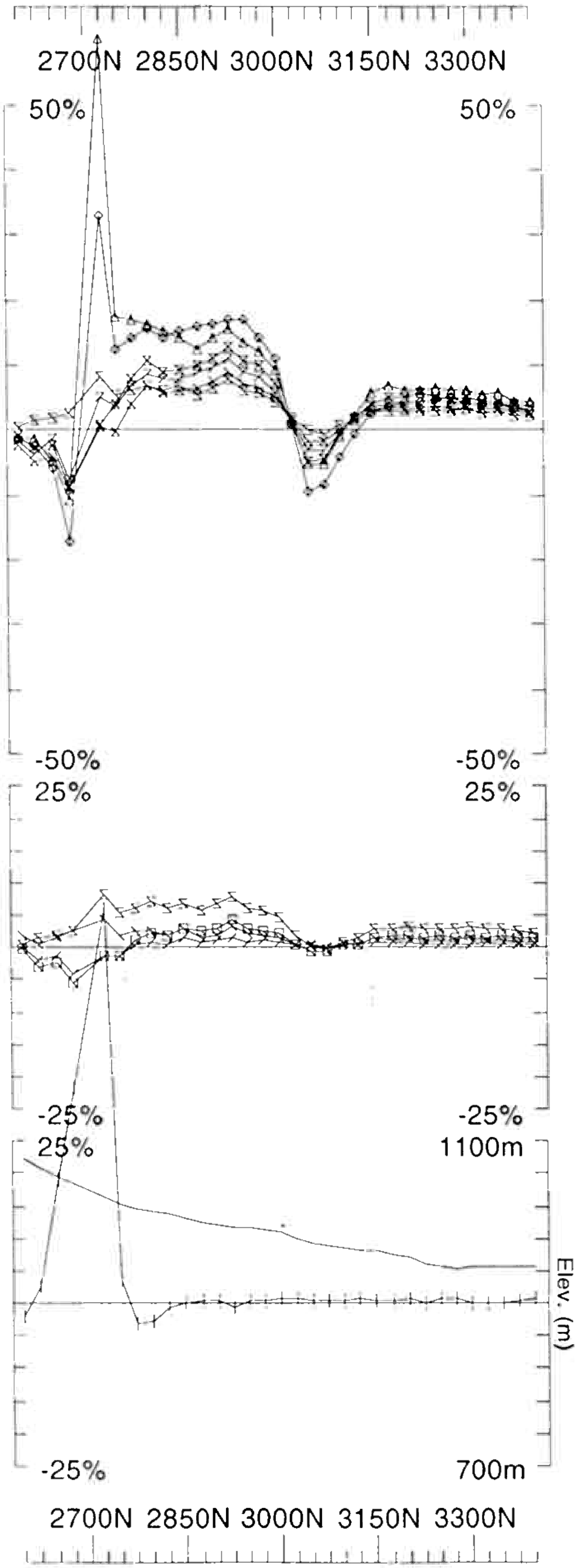
Job 0408 Plotted : 18/5/4



Loop: 17 Line: 11200E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (11400,3025,976) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 25/2/4 Reduced : 25/2/4 Plotted : 18/5/4



Loop: 17 Line: 11400E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (11400,3025,976) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 25/2/4 Reduced : 25/2/4 Plotted : 18/5/4



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

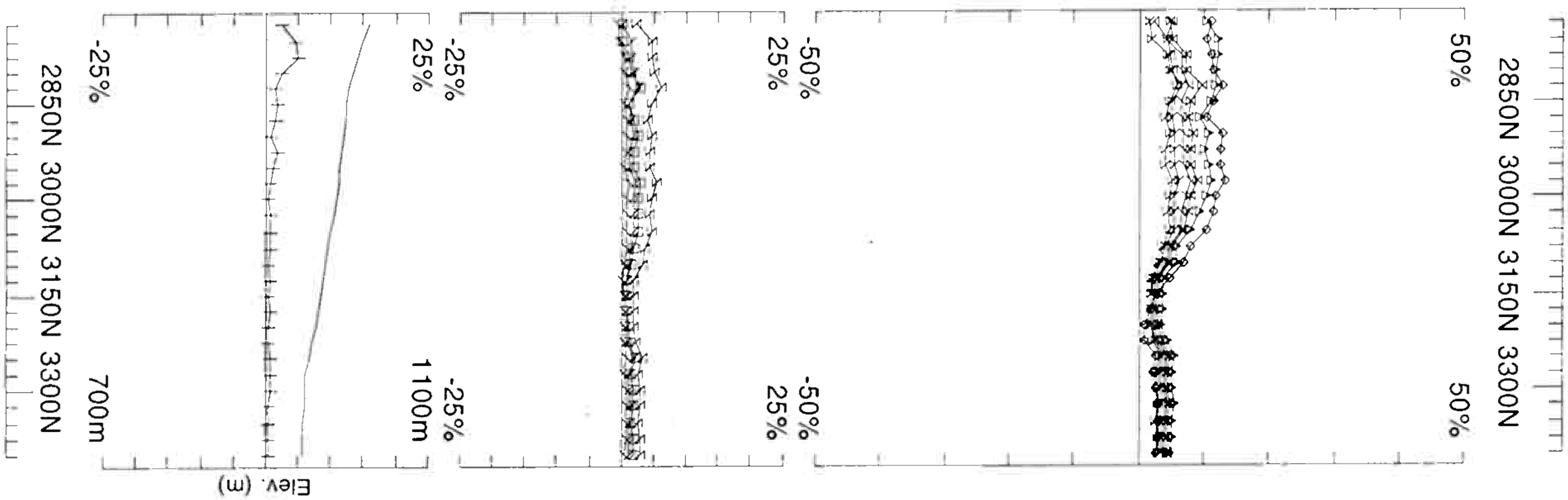
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Surveyed : 25/2/4
Reduced : 25/2/4
Plotted : 18/5/4

Loop: 17
Line: 11600E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(11400,3025,976)
Base Freq. 3.251 Hz



Loop: 17 Line: 11800E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (11400,3025,976) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 25/2/4 Reduced : 25/2/4 Plotted : 18/5/4

Espedalen

Loop 18

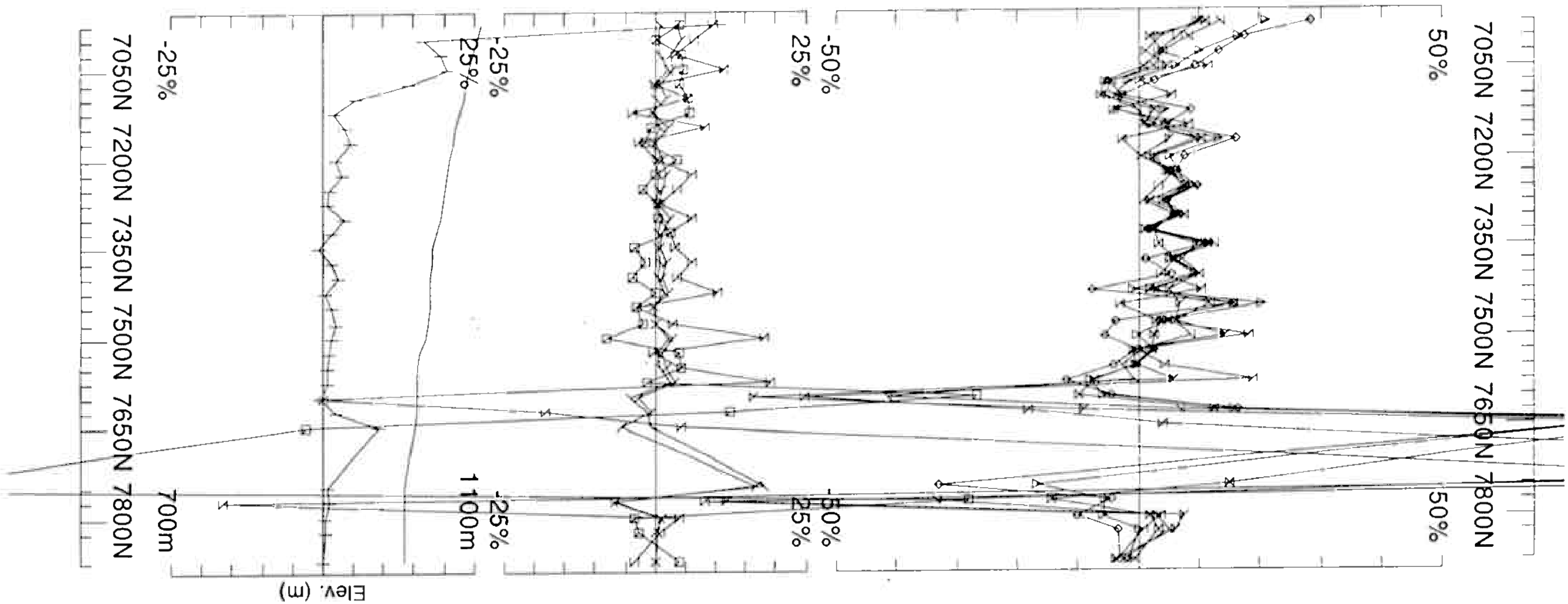
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (3300E,7250N,1096 m.a.s.l.)

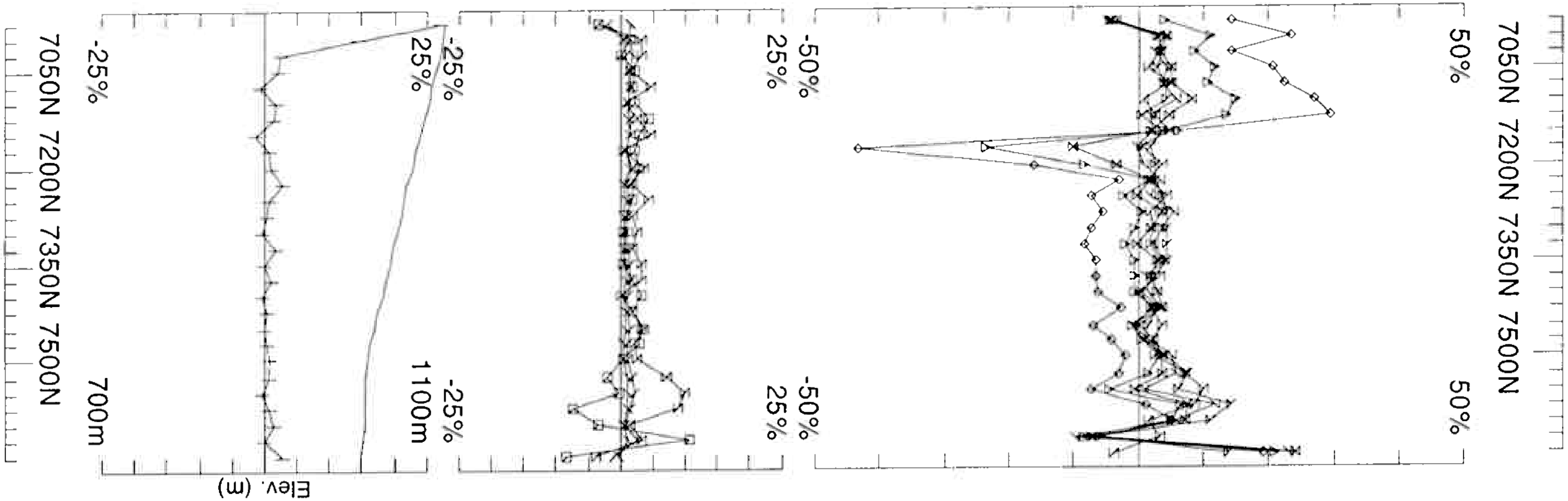
Ch1 reduced

Loop 18N (surveyed N)	Line	2800E	6950N - 7875N	925m
	Line	3000E	6950N - 7650N	700m
	Line	3200E	6950N - 7550N	600m
	Line	3400E	6950N - 7600N	650m
	Line	3500E	6150N - 6950N	800m
	Line	3600E	6150N - 7600N	1450m
	Line	3700E	6150N - 6950N	800m
	Line	3800E	6950N - 7600N	650m
	Line	4000E	6950N - 7650N	700m
Loop 18S (surveyed S)	Line	2600E	5400N - 6150N	750m
	Line	2800E	4900N - 6150N	1250m
			Loop 18 Total	9275m

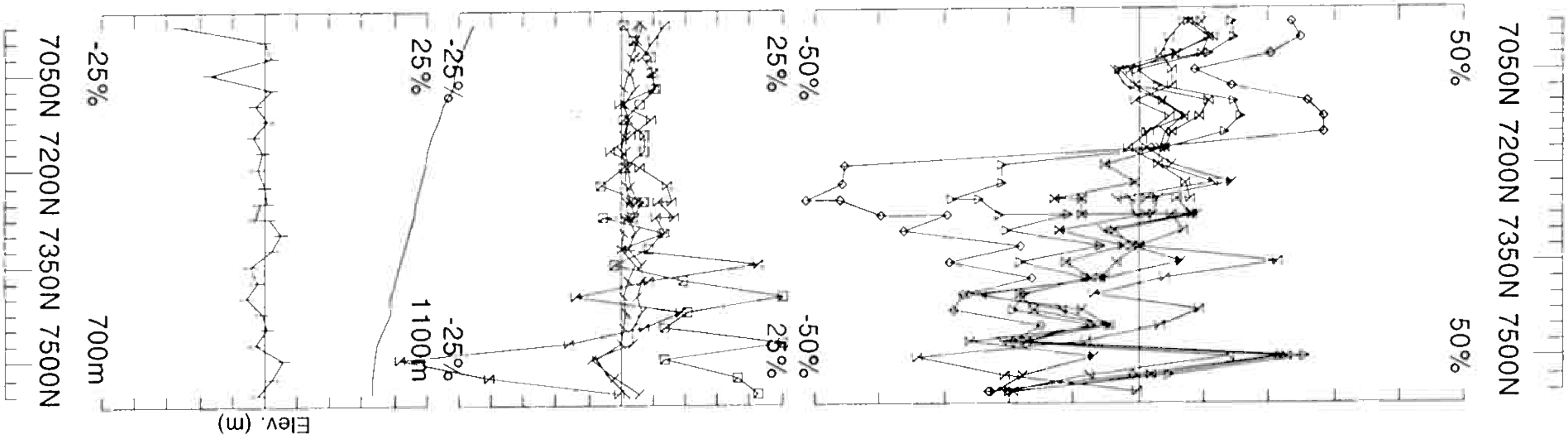
Loop 18 - point norm



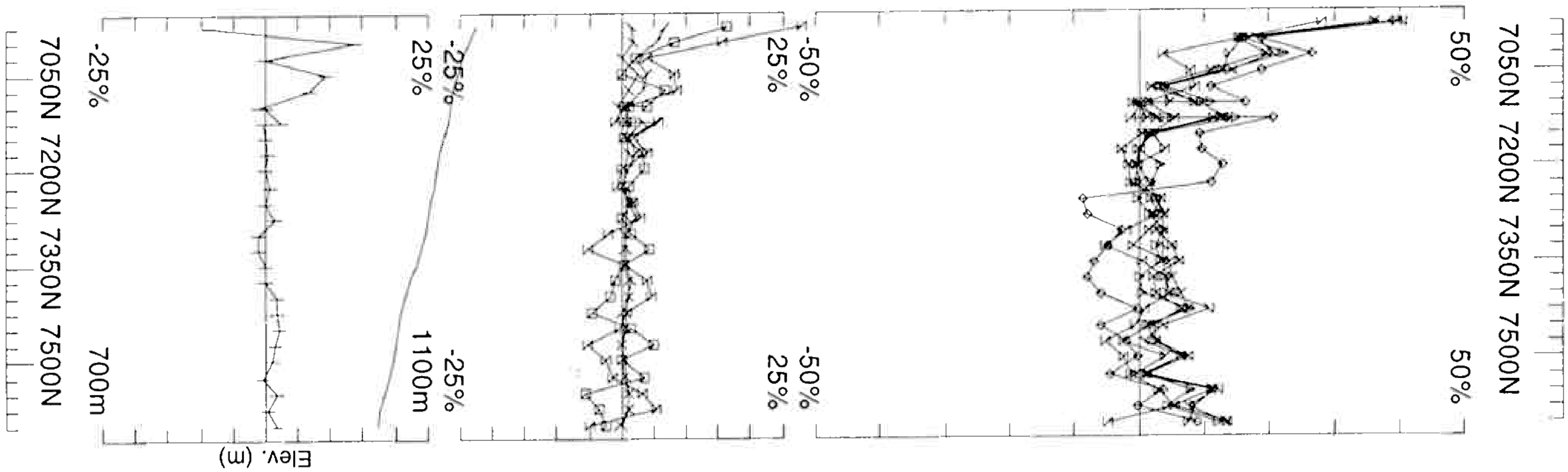
Loop: 18 Line: 2800E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (3300,7250,1096) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



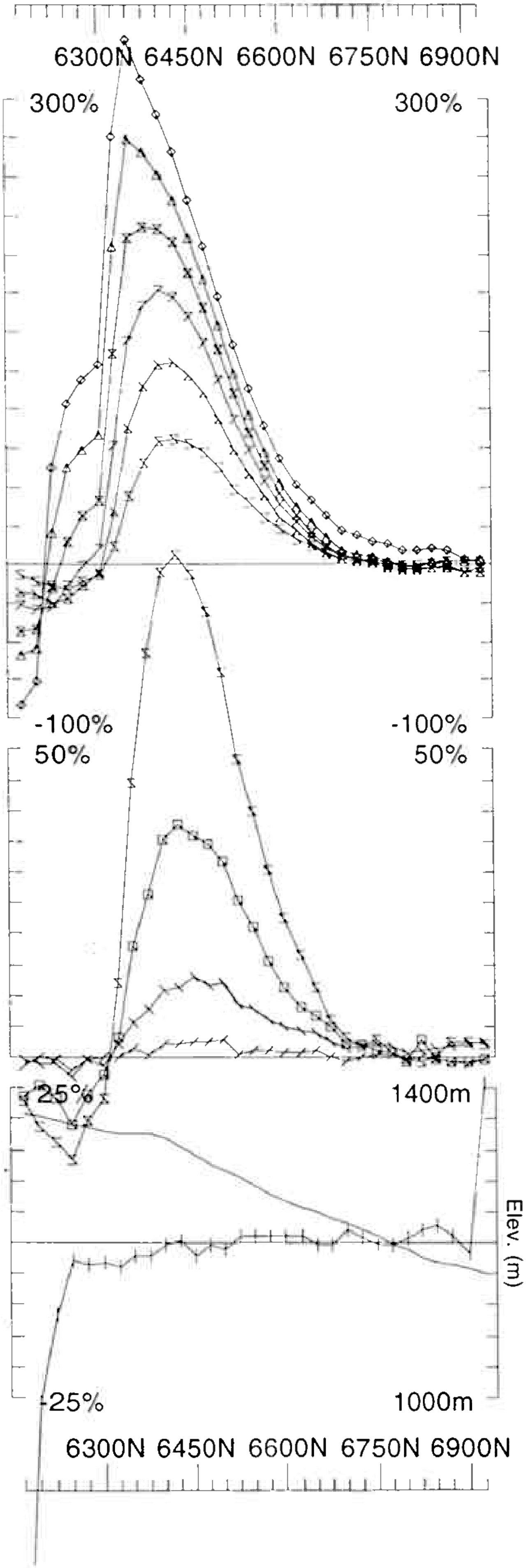
Loop: 18 Line: 3000E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (3300,7250,1096) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 14/3/4 Reduced : 17/3/4 Plotted : 18/5/4



Loop: 18 Line: 3200E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (3300,7250,1096) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



Loop: 18 Line: 3400E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (3300,7250,1096) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

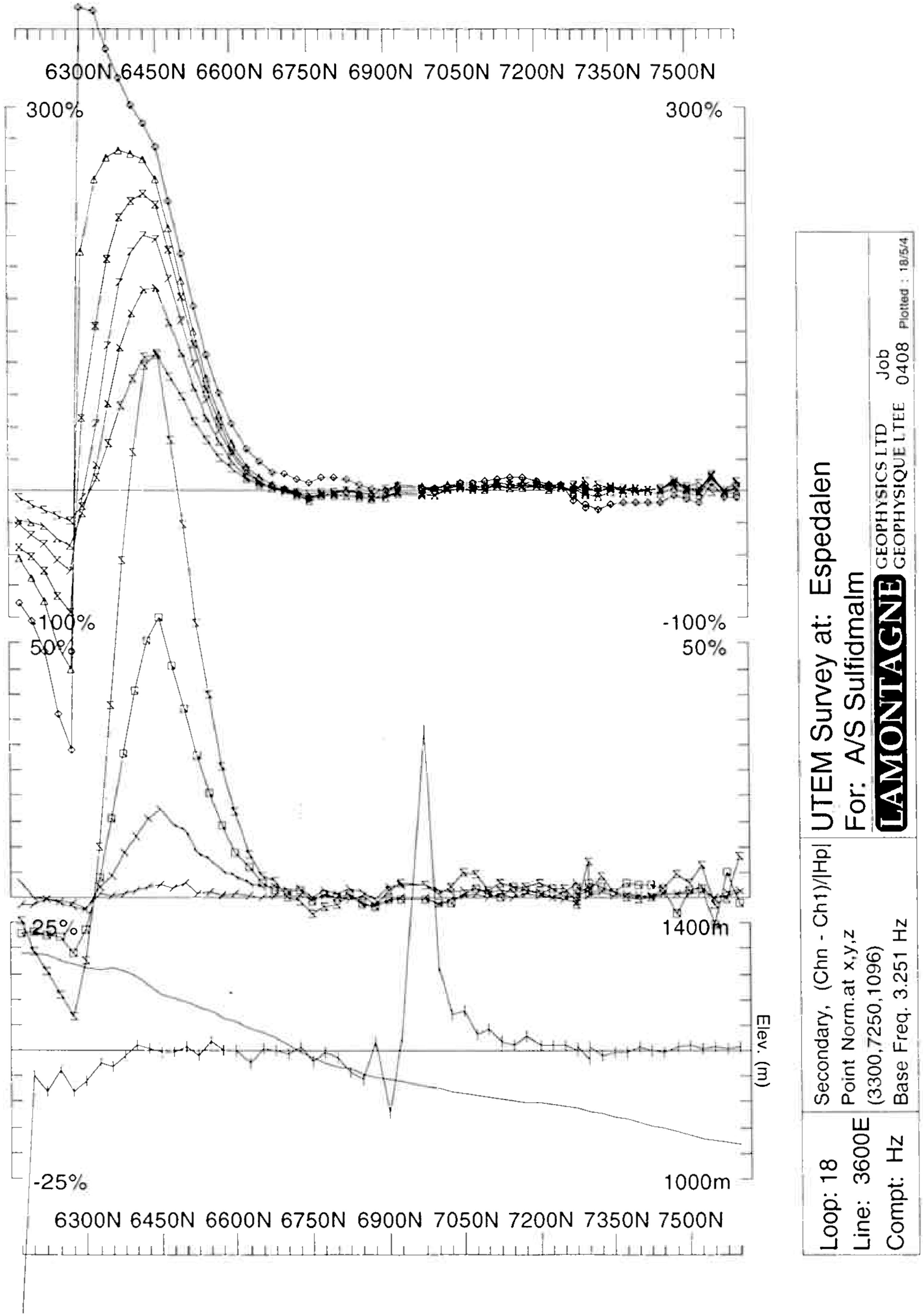
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

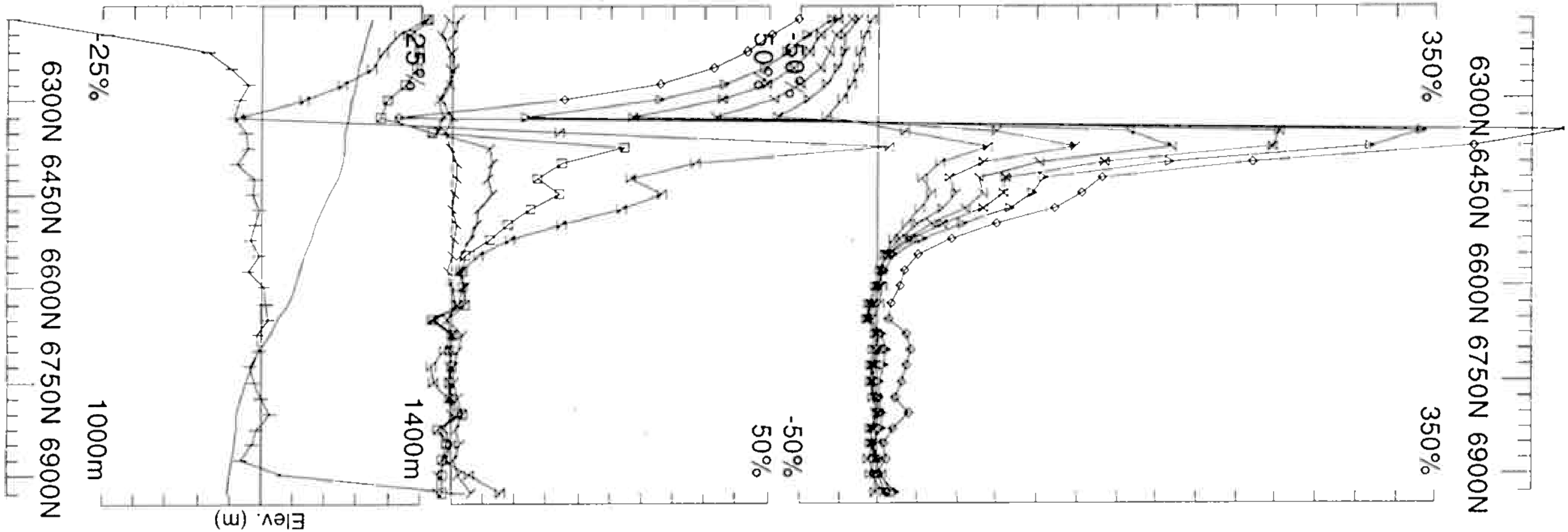
Job 0408

Surveyed : 14/3/4
Reduced : 17/3/4
Plotted : 18/5/4

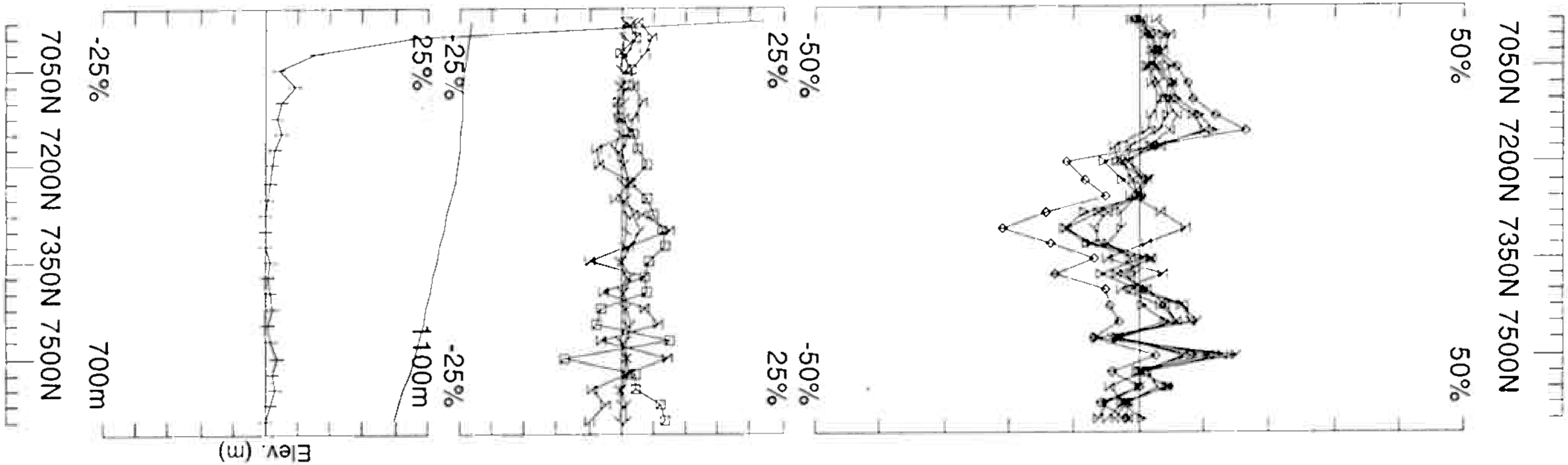
Loop: 18
Line: 3500E
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(3300,7250,1096)
Base Freq. 3.251 Hz

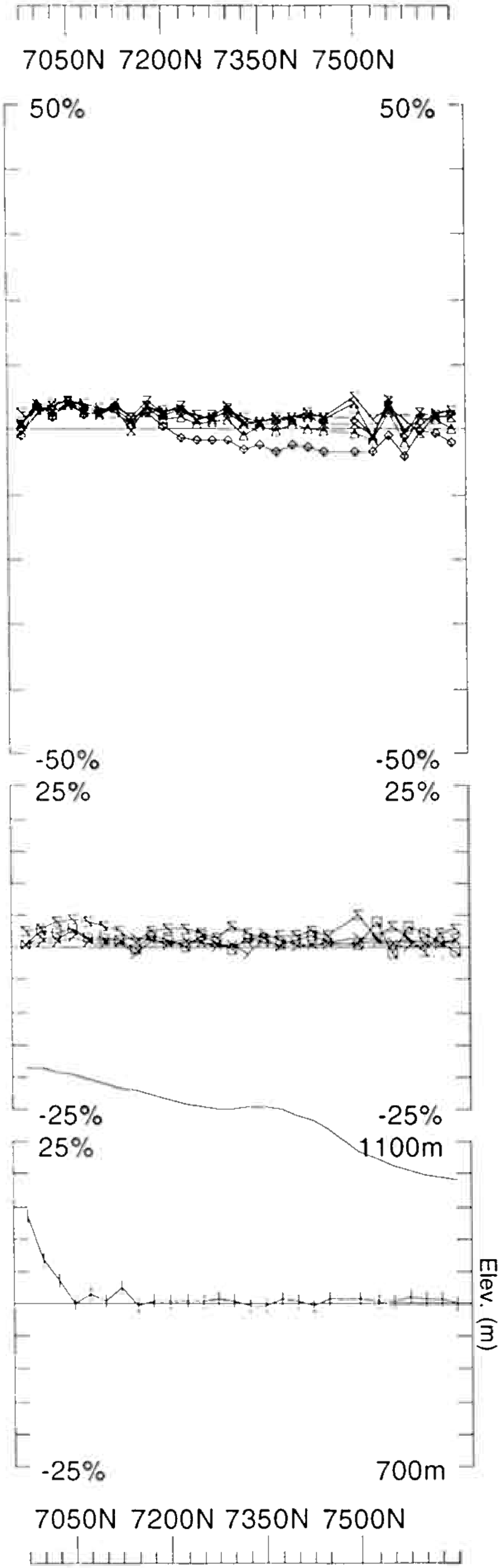

6300N 6450N 6600N 6750N 6900N 7050N 7200N 7350N 7500N
300%
300%
-100%
-100%
50%
50%
-25%
1400m
-25%
1000m
Elev. (m)
6300N 6450N 6600N 6750N 6900N 7050N 7200N 7350N 7500N
UTEM Survey at: Espedalen
For: A/S Sulfidmalm
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE
Job 0408
Plotted : 18/5/4
Loop: 18
Line: 3600E
Compt: Hz
Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(3300,7250,1096)
Base Freq. 3.251 Hz



Loop: 18 Line: 3700E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (3300,7250,1096) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Surveyed : 14/3/4 Reduced : 17/3/4 Plotted : 18/5/4



Loop: 18 Line: 3800E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (3300,7250,1096) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4



UTEM Survey at: Espedalen

For: A/S Sulfidmalm

LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Job 0408

Plotted : 18/5/4

Loop: 18

Line: 4000E

Compt: Hz

Secondary, (Chn - Ch1)/|Hp|

Point Norm.at x,y,z

(3300,7250,1096)

Base Freq. 3.251 Hz

Espedalen

Loop 18S

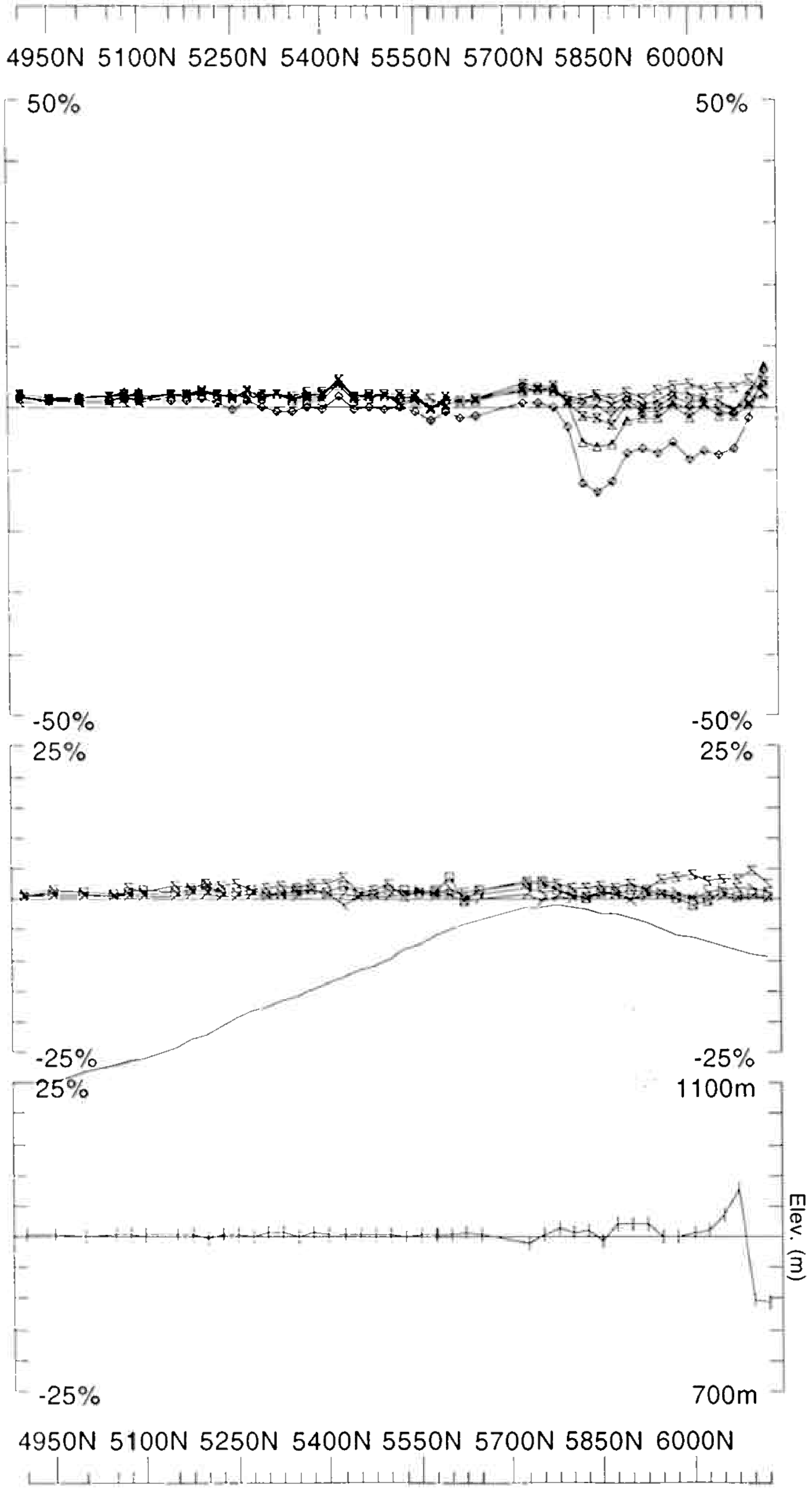
Hz
@3.251 Hz frequency

point norm
@
(x,y,z) = (3300E,5850N, 1413 m.a.s.l.)

Ch1 reduced

Loop 18N (surveyed N)	Line 2800E	6950N - 7875N	925m
	Line 3000E	6950N - 7650N	700m
	Line 3200E	6950N - 7550N	600m
	Line 3400E	6950N - 7600N	650m
	Line 3500E	6150N - 6950N	800m
	Line 3600E	6150N - 7600N	1450m
	Line 3700E	6150N - 6950N	800m
	Line 3800E	6950N - 7600N	650m
	Line 4000E	6950N - 7650N	700m
Loop 18S (surveyed S)	Line 2600E	5400N - 6150N	750m
	Line 2800E	4900N - 6150N	1250m
		Loop 18 Total	9275m

Loop 18S - point norm



UTEM Survey at: Espedalen
For: A/S Sulfidmalm

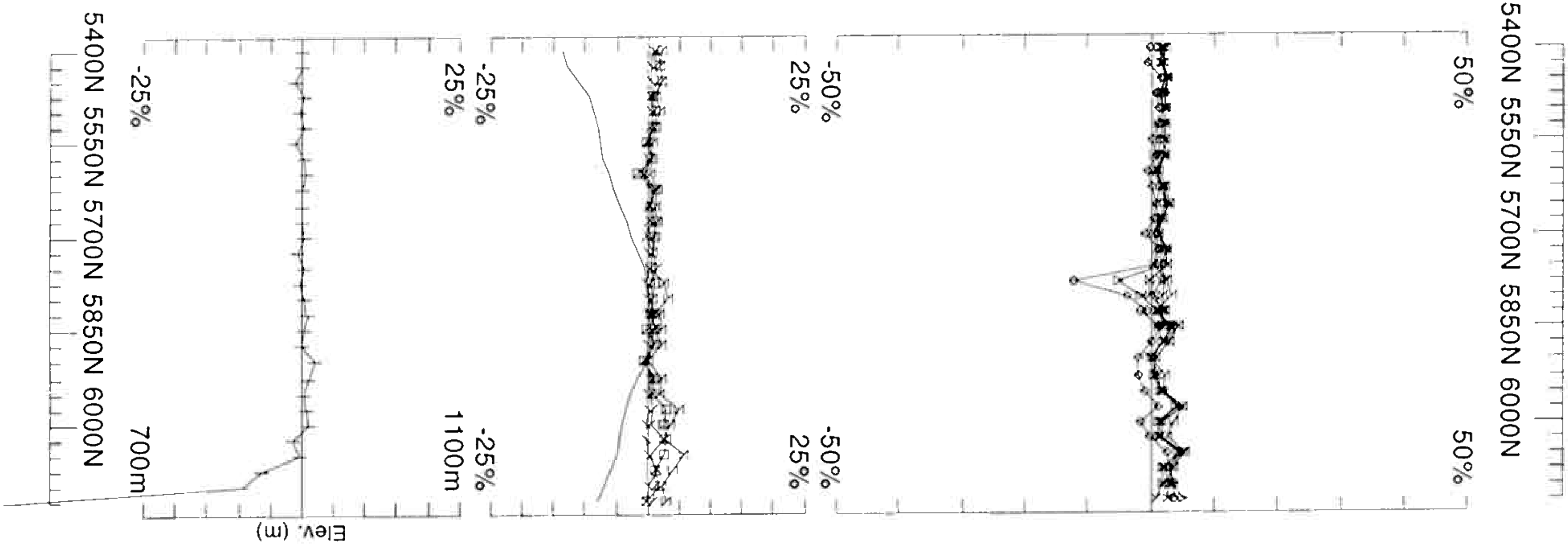
LAMONTAGNE GEOPHYSICS LTD
GEOPHYSIQUE LTEE

Job 0408

Plotted : 18/5/4

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(3300,5850,1413)
Base Freq. 3.251 Hz

Loop: 18S
Line: 2800E
Compt: Hz



Loop: 18S Line: 2600E Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (3300,5850,1413) Base Freq. 3.251 Hz	UTEM Survey at: Espedalen For: A/S Sulfidmalm LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE Job 0408 Plotted : 18/5/4

Appendix B

0408 Production Diary

UTEM 3 Surface Survey

Espedalen Grid
Norway

for

A/S Sulfidmalm

Production Log (0408)
UTEM Survey - Espedalen
Norway
A/S Sulfidmalm

Date	Rate	Production	Comments
up to February 08		-	Discussions, signing of the contract, assembly of crew and equipment.
February 09	Mob	(equip)	Equipment packed up and labelled. Picked upfrom Kingston. Shipping address is: A/S Sulfidmalm Strand Fjellstue 2658 Espedalen Norway ATTN: Svein Sørum phone (47) 38 10 14 40
February 15	Mob	-	The LGL crew -Rob Langridge and Ryan Land - travel from Calgary (YYC) and Halifax (YHZ) respectively to: London(LHR)->Oslo (OSL) Falconbridge personnel in Espedalen lay out wire.
February 16	Mob	-	Continuation of air travel. Crew arrives in Oslo and is collected by Falconbridge personnel. The crew is transported to the hotel in Espedalen. The gear clears customs and is transported to the hotel in Espedalen. Unpack gear and prepare for survey.
February 17	**P(2)-2**	1650m	Pack gear and travel out to Loop 5 Tx site. Get to the site and get the transmitter setup by ~12:00. Ryan and Rob survey with Claude and Ole Kristian respectively . Jean and Dag GPS grid and lay outwire. Back in camp ~17:00. **Loop 05** **Line 7600E 5500N - 6325N Hz Rx08** **Line 8200E 5500N - 6325N Hz Rx10** Crew: R.Langridge, R.Land Total to date: 1.650km
February 18	**P(2)-2**	3125m	Get to the site and get the transmitter setup by ~10:00. Problems with Rx10 - return to the Strand to get Rx08. The transmitter also shuts off later on - possibly due to generator problems. Back in camp ~17:30 **Loop 05** **Line 7800E 5500N - 6325N Hz Rx08** **Line 7800E 6325N - 6900N Hz Rx10** **Line 8000E 6325N - 6900N Hz Rx10** **Line 8200E 6325N - 6900N Hz Rx10** **Line 8800E 6325N - 6900N Hz Rx08** Crew: R.Langridge, R.Land Total to date: 4.775km

Date	Rate	Production	Comments
February 19	**P(2)-2**	3300m	Get to the site and get the transmitter setup by ~09:30. Problems again with Rx10 - return to the Strand to get Rx06. Back in camp ~18:30

Loop 05

Line 8400E	**5500N**	**- 6325N**	**Hz**	**Rx06**
Line 8600E	**5500N**	**- 6325N**	**Hz**	**Rx06**
Line 8800E	**5500N**	**- 6325N**	**Hz**	**Rx08**
Line 9000E	**5500N**	**- 6325N**	**Hz**	**Rx08**

Crew: R.Langridge, R.Land   Total to date: 8.075km

Date	Rate	Production	Comments
February 20	**P(2)-2**	3125m	Get to the site and get the transmitter setup by ~09:30. Finish off Loop 5 and move over to Loop 6. Connect up the corners and find the loop is still open. Find several breaks including what looks like a place where the wire on the new spool was tied together in the factory. Back in camp ~17:30

Loop 05

Line 8000E	**5500N**	**- 6325N**	**Hz**	**Rx08**
Line 8400E	**6325N**	**- 6900N**	**Hz**	**Rx06**
Line 8600E	**6325N**	**- 6900N**	**Hz**	**Rx06**

Loop 06

Line 7000E	**6325N**	**- 6900N**	**Hz**	**Rx08**
Line 7400E	**6325N**	**- 6900N**	**Hz**	**Rx06**

Crew: R.Langridge, R.Land   Total to date: 11.200km

Date	Rate	Production	Comments
February 21	**P(2)-2**	3825m	Breakfast moved 30 minutes earlier (to 07:30). Get to the site and get the transmitter setup by ~09:00. Read on Loop 6. High winds stopped surveying on Line 6800E. Back in camp ~17:30.

Loop 06

Line 6800E	**5975N**	**- 6325N**	**Hz**	**Rx08**
Line 7000E	**5900N**	**- 6325N**	**Hz**	**Rx08**
Line 7200E	**5500N**	**- 6325N**	**Hz**	**Rx06**
	6325N	**- 6900N**	**Hz**	**Rx08**
Line 7400E	**5500N**	**- 6325N**	**Hz**	**Rx06**
Line 7600E	**5500N**	**- 6325N**	**Hz**	**Rx08**

Crew: R.Langridge, R.Land   Total to date: 15.025km

Date	Rate	Production	Comments
February 22	**P(2)-2**	1550m	Get to the site and get the transmitter setup by ~09:00. Read on Loop 6. High winds slowed surveying on Line 6800E. Moved gear over to Loop 13 on Trontjorna. Back in camp ~16:00.

Loop 06

Line 6800E	**5400N**	**- 5975N**	**Hz**	**Rx08**
Line 7000E	**5500N**	**- 5900N**	**Hz**	**Rx08**
Line 7600E	**6325N**	**- 6900N**	**Hz**	**Rx08**

Crew: R.Langridge, R.Land   Total to date: 16.575km

Date	Rate	Production	Comments
February 23	**P(2)-2**	2950m	Get to the site and get the transmitter setup by ~09:00. Read on Loop 13. Help out laying Loop 14 and set up to read for tomorrow. Back in camp ~16:00.

Loop 13

Line 10100E	**5650N**	**- 6050N**	**Hz**	**Rx08**
Line 10300E	**5650N**	**- 6350N**	**Hz**	**Rx06**
Line 10500E	**5650N**	**- 6350N**	**Hz**	**Rx06**
Line 10700E	**5650N**	**- 6800N**	**Hz**	**Rx08**

Crew: R.Langridge, R.Land Total to date: 19.525km

Date	Rate	Production	Comments
February 24	**P(2)-2**	1550m	Get to the site and get the transmitter setup by ~09:00. Read on Loop 14. Set up to read. Back in camp ~17:00.

Loop 13

Line 10200E	**5850N**	**- 6050N**	**Hz**	**Rx06**
Line 10400E	**5850N**	**- 6050N**	**Hz**	**Rx08**

Loop 14

Line 11100E	**6100N**	**- 6800N**	**Hz**	**Rx08**
Line 11200E	**6050N**	**- 6500N**	**Hz**	**Rx06**

Crew: R.Langridge, R.Land Total to date: 21.075km

Date	Rate	Production	Comments
February 25	**P(2)-2**	3600m	Get to the site and get the transmitter setup by ~09:00. One clock had been off for some time. Read on Loop 17. Pack gear and come back to Espedalen. Back in camp ~17:45.

Loop 17

Line 11000E	**2700N**	**- 3400N**	**Hz**	**Rx8/6**
Line 11200E	**2700N**	**- 3400N**	**Hz**	**Rx08**
Line 11400E	**2700N**	**- 3400N**	**Hz**	**Rx08**
Line 11600E	**2600N**	**- 3400N**	**Hz**	**Rx06**
Line 11800E	**2700N**	**- 3400N**	**Hz**	**Rx06**

Crew: R.Langridge, R.Land Total to date: 24.675km

Date	Rate	Production	Comments
February 26	**P(2)-2**	2350m	Get to the site and get the transmitter setup by ~09:30. . Read on Loop 15 at Dalen. Pack gear and come back to Espedalen. Back in camp ~17:45.

Loop 15

Line 7300E	**4250N**	**- 4850N**	**Hz**	**Rx8/6**
Line 7500E	**4325N**	**- 4850N**	**Hz**	**Rx08**
Line 7700E	**4325N**	**- 4850N**	**Hz**	**Rx08**
Line 7900E	**4450N**	**- 4850N**	**Hz**	**Rx06**
Line 8100E	**4550N**	**- 4850N**	**Hz**	**Rx06**

Crew: R.Langridge, R.Land Total to date: 27.035km

Date	Rate	Production	Comments
February 27	P(2)-2	2125m	Back to Dalen and get the transmitter setup by ~09:30. . Read detail line on Loop 15 at Dalen. Pack gear and come back to Espedalen. Out to Loop 07. Problems with Rx 08 clock again - switch to Rx 10. Read on Loop 07. Back in camp ~18:00.

Loop 15

Line	**7600E**	**4290N**	**- 4490N**	**Hz**	**Rx06**

Loop 07

Line	**6000E**	**5175N**	**- 6050N**	**Hz**	**Rx06**
Line	**6200E**	**5000N**	**- 6050N**	**Hz**	**Rx10**

Crew: R.Langridge, R.Land   Total to date: 29.150km

February 28	P(2)-2	3025m	Out to Loop 07. Skidooing adventures included breaking the loop wire twice. Read on Loop 07. Back in camp ~18:00.

Loop 07

Line	**6000E**	**4900N**	**- 5175N**	**Hz**	**Rx06**
Line	**6400E**	**4925N**	**- 6050N**	**Hz**	**Rx10**
Line	**6500E**	**5025N**	**- 6050N**	**Hz**	**Rx06**
Line	**6600E**	**4950N**	**- 5550N**	**Hz**	**Rx10**

Crew: R.Langridge, R.Land   Total to date: 32.175km

February 29	P(2)-2	3650m	Out to Loop 07. Read on Loop 07. Back in camp ~17:30.

Loop 07

Line	**6600E**	**5550N**	**- 7200N**	**Hz**	**Rx06**
Line	**6800E**	**5200N**	**- 7200N**	**Hz**	**Rx10**

Crew: R.Langridge, R.Land   Total to date: 35.825km

March 01	P(2)-2	2300m	Out to Loop 07. Read on Loop 07. Very high winds in the morning - the Tx site was almost completely drifted in. Moved Tx to a more sheltered site. During the move/setup the N value on the Tx changed to 45. This delayed the start of surveying. Finished the loop and moved the Tx to the next loop. The loopers had some adventures. Back in camp ~17:30.

Loop 07

Line	**6200E**	**6050N**	**- 7200N**	**Hz**	**Rx06**
Line	**6400E**	**6050N**	**- 7200N**	**Hz**	**Rx10**

Crew: R.Langridge, R.Land   Total to date: 38.125km

March 02	P(2)-2	5000m	Out to Loop 08. Very windy - ended up settling for surveying all the in-loop lines. Back in camp ~17:00.

Loop 08

Line	**5000E**	**4900N**	**- 5900N**	**Hz**	**Rx06**
Line	**5200E**	**4900N**	**- 5900N**	**Hz**	**Rx06**
Line	**5400E**	**4900N**	**- 5900N**	**Hz**	**Rx6/8**
Line	**5600E**	**4900N**	**- 5900N**	**Hz**	**Rx08**

Date	Rate	Production	Comments
			Line 5800E **4900N - 5900N** **Hz** **Rx08** Crew: R.Langridge, R.Land Total to date: 43.125km
March 03	**P(2)-2**	2600m	Out to Loop 08. Noisy - surveyed two off loop lines. Minor problems with Tx10 and coil 10. Back in camp ~17:20. **Loop 08** **Line 5600E** **5900N - 7200N** **Hz** **Rx06** **Line 5800E** **5900N - 7200N** **Hz** **Rx08** Crew: R.Langridge, R.Land Total to date: 45.725km
March 04	**P(2)-2**	3900m	Out to Loop 08. Surveyed three off loop lines. Rx 8 went very slightly out of sync - such that essentially Ch10 and ~Ch9 were affected. We monitor to Ch8. The data before and after were reduced using calibration data from before/after the event. The result can be seen in the data in two places - where it occurred on Line 6000E between stations 6350E and 6375E (Ch9/10) - where a splice was made with another Rx's data - Line 5200E stations 6575/6600N. Back in camp ~18:45. **Loop 08** **Line 5200E** **5900N - 7200N** **Hz** **Rx6/8** **Line 5400E** **5900N - 7200N** **Hz** **Rx06** **Line 6000E** **5900N - 7200N** **Hz** **Rx08** Crew: R.Langridge, R.Land Total to date: 49.625km
March 05	**P(2)-2**	4300m	Out to Loop 09. Connected up the loop and surveyed three in-loop lines and one off loop line. Loopers picked up one side of Loop 8 and then the loop/grid @ Loop 17. Back in camp ~17:15. **Loop 09** **Line 4600E** **4900N - 5900N** **Hz** **R6/10** **Line 4800E** **4900N - 5900N** **Hz** **Rx06** **Line 5000E** **4900N - 7200N** **Hz** **Rx10** Crew: R.Langridge, R.Land Total to date: 53.925km
March 06	**P(2)-2**	3550m	Out to Loop 09. Connected up the loop and surveyed off loop lines. Dinner in Lilliehammer. Back in camp ~17:15. **Loop 09** **Line 4000E** **6575N - 7200N** **Hz** **Rx10** **Line 4200E** **5900N - 7200N** **Hz** **Rx10** **Line 4600E** **6925N - 7200N** **Hz** **Rx06** **Line 4800E** **5900N - 7200N** **Hz** **Rx06** Crew: R.Langridge, R.Land Total to date: 57.475km

Date	Rate	Production	Comments
March 07	P(2)-2	3600m	Out to Loop 09. Surveyed - loop break in the afternoon. Back in camp ~17:25. **Loop 09** **Line 4000E 4900N - 6575N Hz Rx10** **Line 4400E 4900N - 5900N Hz Rx06** **Line 4600E 5900N - 6925N Hz Rx06** Crew: R.Langridge, R.Land Total to date: 61.125km
March 08	P(2)-2	2300m	Out to Loop 09 - with new recruit Hans Eric. Surveyed - loop break in the morning.. Packed generator back to camp for maintenance. Fixed equipment in the evening. Back in camp ~16:30. **Loop 09** **Line 4200E 4900N - 5900N Hz Rx06** **Line 4400E 5900N - 7200N Hz Rx10** Crew: R.Langridge, R.Land Total to date: 63.425km
March 09	P(2)-2	2300m	Out to Loop 10. Connected up the loop and surveyed. Back in camp ~17:10. **Loop 10** **Line 2800E 6000N - 7150N Hz Rx06** **Line 3400E 6000N - 7150N Hz Rx10** Crew: R.Langridge, R.Land Total to date: 65.725km
March 10	P(2)-2	3450m	Out to Loop 10. Surveyed three lines. Back in camp ~18:05. **Loop 10** **Line 3000E 6000N - 7150N Hz Rx06** **Line 3200E 6000N - 7150N Hz Rx10** **Line 3600E 6000N - 7150N Hz R6/10** Crew: R.Langridge, R.Land Total to date: 69.175km
March 11	P(2)-2	4450m	Out to Loop 10. Surveyed three lines in-loop and one line off-loop. Back in camp ~17:30. **Loop 10** **Line 3200E 4900N - 6000N Hz Rx10** **Line 3400E 4900N - 6000N Hz Rx06** **Line 3600E 4900N - 6000N Hz Rx06** **Line 3800E 6000N - 7150N Hz Rx10** Crew: R.Langridge, R.Land Total to date: 73.625km

Date	Rate	Production	Comments
March 12	**P(2)-2**	3950m	Out to Loop 10. Surveyed two lines in-loop and two detailing lines off-loop. Back in camp ~17:10. **Loop 10** **Line 3000E 4900N - 6000N Hz Rx06** **Line 3500E 6000N - 6900N Hz Rx06** **Line 3700E 6000N - 6850N Hz Rx10** **Line 3800E 4900N - 6000N Hz Rx10** Crew: R.Langridge, R.Land Total to date: 77.575km
March 13	**P(2)-2**	1375m	Out to Loop 09.10. Windy with snow - quite low visibility. Repaired loop 9 and combined Loops 9 and 10 to survey in the vicinity of Sorgruva. Getting around proved to be difficult in the weather conditions. Surveyed and moved Tx setup onto Loop 18. Back in camp ~17:05. **Loop 09.10** **Line 3900E 5100N - 5400N Hz Rx10** **Line 4000E 5075N - 5400N Hz Rx10** **Line 4100E 5100N - 5450N Hz Rx06** **Line 4200E 5050N - 5450N Hz Rx06** Crew: R.Langridge, R.Land Total to date: 78.950km
March 14	**P(2)-2**	4375m	Out to Loop 18. Cloudy with new snow. One loop break was repaired. Surveyed and had a little trouble getting home in the poor light. Back in camp ~18:15. **Loop 18** **Line 2800E 6950N - 7875N Hz R8/10** **Line 3000E 6950N - 7650N Hz Rx10** **Line 3500E 6150N - 6950N Hz Rx10** **Line 3600E 6150N - 7300N Hz Rx06** **Line 3700E 6150N - 6950N Hz Rx06** Crew: R.Langridge, R.Land Total to date: 83.325km

Date	Rate	Production	Comments
March 15	**P(2)-2**	1850m	Out to Loop 18. Cloudy with more new snow. Crew surveying Line 2800E ran into very windy conditions on top of the mountain and switched to Line 3800E. Very windy in general - the transmitter site filled with snow and a problem developed with the Tx. This was fixed but the weather seemed to be deteriorating so we all headed back to Espadalen - arriving there in rain. Back in camp ~16:15. **Loop 18** **Line 2800E 5725N - 6150N Hz Rx06** **Line 3200E 6950N - 7550N Hz R10/8** **Line 3400E 6950N - 7125N Hz Rx08** **Line 3800E 6950N - 7600N Hz Rx06** Crew: R.Langridge, R.Land Total to date: 85.175km
March 16	**P(2)-2**	1800m	Out to Loop 18. Sunny and windy. Crew surveying Line 2600E ran into very windy conditions on top of the mountain and switched to Line 4000E. Very windy in general. Finished up the powerline ends of lines. Back in camp ~15:45. **Loop 18** **Line 2600E 5825N - 6150N Hz Rx06** **Line 3400E 7125N - 7600N Hz R10/8** **Line 3600E 7300N - 7600N Hz Rx08** **Line 4000E 6950N - 7650N Hz Rx06** Crew: R.Langridge, R.Land Total to date: 86.975km
March 17	**P(2)-2**	3650m	Out to Loop 18. Sunny and very windy. Crew surveyed Line 2800 and 2600E into very windy conditions..Moved Tx down the mountain to an intersection point of Loop 11 and 12. Read Lines 1800E (to allow next loop to be laid out) and 1900E. Back to camp in very soft snow conditions. Back in camp ~18:35. **Loop 18** **Line 2600E 5400N - 5825N Hz Rx10** **Line 2800E 4900N - 5725N Hz R10/6** **Loop 11** **Line 1800E 4525N - 5725N Hz Rx10** **Line 1900E 4525N - 5725N Hz Rx06** Crew: R.Langridge, R.Land Total to date: 90.625km

Date	Rate	Production	Comments
March 18	**P(2)-2**	3225m	Out to Loop 11. Sunny and windy. Read Lines 2000E and 1800E (to allow next loop to be laid out) and 2400E. Problems with Rx06 caused an ~1.5hr delay. Back in camp ~18:15. **Loop 11** **Line 1800E 4250N - 4525N Hz Rx06** **Line 2000E 4250N - 5725N Hz Rx06** **Line 2400E 5725N - 7200N Hz Rx10** Crew: R.Langridge, R.Land Total to date: 93.850km
March 19	**S(2)-2**		Out to Loop 11. Cloudy, snowy and very windy. Set up to read. Move the reciver crews out to Line 2200E. The transmitter was off - the loop had broken. Checked skidoo wire crossings and determined that the wire was not broken there. The high winds were likely the cause of the break. It was decided to end surveying for the day because of the coinditions and limited visibility. Back in camp ~11:05. Crew: R.Langridge, R.Land Total to date: 93.850km
March 20	**P(2)-2**	4025m	Out to Loop 11. Cloudy, snowing and moderately windy. Found a wire break on Line 1600E. Repaired the break and surveyed three lines in-loop. Back in camp ~16:50 **Loop 11** **Line 2100E 4525N - 5725N Hz Rx06** **Line 2200E 4250N - 5725N Hz Rx10** **Line 2400E 4375N - 5725N Hz R6/10** Crew: R.Langridge, R.Land Total to date: 97.875km
March 21	**P(2)-2**	3775m	Out to Loop 11. The past few days of wind and snow have built up quite a bit of snow on the northeast sides of the mountains. We surveyed lines that were considered safer today - and added a small section of Line 2800E to cover an anomaly. Back in camp ~18:15 **Loop 11** **Line 2200E 6375N - 7100N Hz R6/10** **Line 2600E 4450N - 7200N Hz R6/10** **Line 2800E 5725N - 6025N Hz Rx06** Crew: R.Langridge, R.Land Total to date: 101.650km

Date	Rate	Production	Comments
March 22	**P(2)-2**	2900m	Out to Loop 11. Surveyed the remaining Loop 11 lines. Note: Breakfast @07:30. Depart camp ~08:30-08:40. Back in camp ~16:15 **Loop 11** **Line 1800E 5725N - 6850N Hz R6/10** **Line 2000E 5725N - 6850N Hz Rx10** **Line 2200E 5725N - 6375N Hz Rx06** Crew: R.Langridge, R.Land Total to date: 104.550km
March 23	**P(2)-2**	4700m	Out to Loop 12. Conected up Loop 12 and surveyed two lines. Jean GPSed in Loops 11/12 and picked up wire. Back in camp ~17:35 **Loop 12** **Line 1200E 4250N - 6600N Hz R6/10** **Line 1400E 4250N - 6600N Hz R6/10** Crew: R.Langridge, R.Land Total to date: 109.250km
March 24	1/2**P(2)-2** 1/2D	3175m	Out to Loop 12. Conected up Loop 12 and surveyed. Tx10 blew a fuse part way through the day with one crew on one side of the mountain and the other crew on the other. Returned to the Strand for fuses and Tx 8. A replacement fuse seemed to work - and then blew. Used Tx8 for the rest of the day. Back in camp ~18:20 **Loop 12** **Line 0600E 4525N - 5150N Hz Rx06** **Line 1600E 4250N - 6800N Hz R6/10** Crew: R.Langridge, R.Land Total to date: 112.425km
March 25	**P(2)-2**	3525m	Out to Loop 12. Conected up Loop 12 and surveyed. Back in camp ~18:20 **Loop 12** **Line 0600E 4250N - 4525N Hz Rx06** **Line 0800E 4250N - 5150N Hz Rx06** **Line 1000E 4250N - 6600N Hz R6/10** Crew: R.Langridge, R.Land Total to date: 115.950km

Date	Rate	Production	Comments
March 26	**P(2)-2**	3400m	Out to Loop 12. Conected up Loop 12 and surveyed detail lines with one loop break. Pack, move gear back to Strand and then up to Loop 16. Read 2 lines with one loop break. Back in camp ~18:50 **Loop 12** **Line 0725E 4450N - 4950N Hz Rx08** **Line 0875E 4450N - 4950N Hz Rx06** **Loop 16** **Line 8000E 2000N - 3200N Hz Rx08** **Line 8400E 2000N - 3200N Hz Rx06** Crew: R.Langridge, R.Land Total to date: 119.350km
March 27	**P(2)-2**	3650m	Out to Loop 16. Read 4 lines including a detailing line with minor Tx trouble. Packed up the UTEM gear and headed back to camp. Back in camp ~17:15. **Loop 16** **Line 8200E 2000N - 3200N Hz Rx08** **Line 8500E 2525N - 3100N Hz Rx08** **Line 8600E 2000N - 3200N Hz Rx06** **Line 8800E 2525N - 3200N Hz Rx06** Crew: R.Langridge, R.Land Total to date: 123.000km
March 28	**L(2)-2**		Received word we could pack up. Picked up remaining Loop 12 and Loop 16 wire. Retrieved pickets from Loop 16. Packed gear for transport to Gardemoen in the morning (Monday). Crew: R.Langridge, R.Land Total to date: 123.000km
March 29	**demob**		Gear and crew to Gardemoen.
March 30	**demob**		Ryan Land to Canada. Rob Langridge takes day off in Oslo.
March 31	**demob**		Rob Langridge to Canada.
April 1-07	**equipment**	-	Equipment in transit.
April 08			Equipment arrives in Kingston.

LEGEND

P(n)-x	Surface Production (# of receivers) - # of personnel
L(n)-x	Looping (# of receivers) - # of personnel

Date	Rate	Production	Comments
	S(n)-x		Standby (# of receivers) - # of personnel
	D(n)-x		Down (# of receivers) - # of personnel

Appendix C

The UTEM SYSTEM

The UTEM System

UTEM Data Reduction and Plotting Conventions

Data Presentation

The UTEM SYSTEM

UTEM uses a large, fixed, horizontal transmitter loop as its source. Loops range in size from 300m x 300m up to as large as 4km x 4km. Smaller loops are generally used over conductive terrain or for shallow sounding work. The larger loops are only used over resistive terrain. The UTEM receiver is typically syncronized with the transmitter at the beginning of a survey day and operates remotely after that point. The clocks employed - one in each of the receiver and transmitter - are sufficiently accurate to maintain synchronisation.

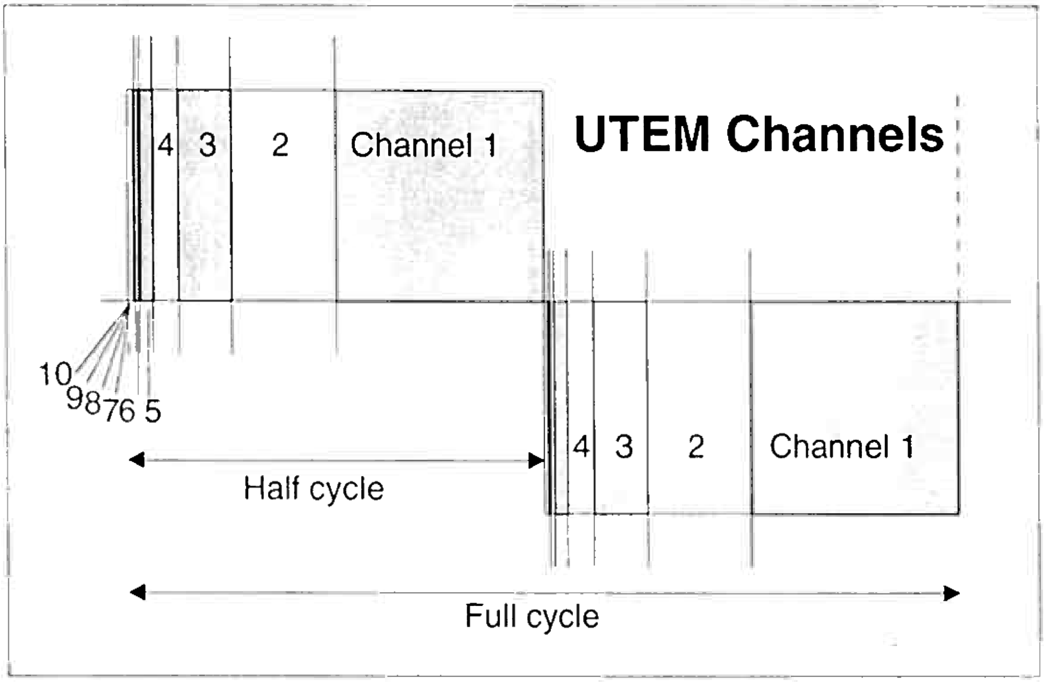
Measurements are routinely taken to a distance of 1.5 to twice the loop dimensions, depending on the local noise levels, and can be continued further. Lines are typically surveyed out from the edge of the loop but may also be read across the loop wire and through the centre of the loop, a configuration used mainly to detect horizontal conductors. BHUTEM - the borehole version of UTEM -surveys have been carried out to depths up to 3000+ metres.

System Waveform

The UTEM transmitter passes a low-frequency (4 Hz to 90 Hz) current of a precisely regulated triangular waveform through the transmitter loop. The frequency can be set to any value within the operating range of the transmitter, however, it is usually set at 31 Hz to minimise power line (60 Hz in North America) effects. Since a receiver coil responds to the time derivative of the magnetic field, the UTEM system really "sees" the step response of the ground. UTEM is the only time domain system which measures the step response of the ground. All other T.D.E.M. systems to date transmit a modified step current and "see" the (im)pulse response of the ground at the receiver. In practice, the transmitted UTEM waveform is tailored to optimize signal-to-noise. Deconvolution techniques are employed within the system to produce an equivalent to the conceptual "step response" at the receiver.

System Sampling

The UTEM receiver measures the time variation of the magnetic field in the direction of the receiver coil at 10 delay times (channels). UTEM channels are spaced in a binary, geometric progression across each half-cycle of the received waveform. Channel **10** is the earliest channel and it is $1/2^{10}$ of the half-cycle wide. Channel **1**, the latest channel, is $1/2^{1}$ of the half-cycle wide (see Figure below). The measurements obtained for each of 10 channels are accumulated over many half-cycles. Each final channel value, as stored, is the average of the measurements for that time channel. The number of half-cycles averaged generally ranges between 2048 (1024 full-cycles - 1K in UTEM jargon) to 32768 (16K) depending on the level of ambient noise and the signal strength.



System Configurations

For surface work the receiver coil is mounted on a portable tripod and oriented. During a surface UTEM survey the vertical component of the magnetic field (Hz) of the transmitter loop is always measured. Horizontal in-line (Hx) and cross-line (Hy) components are also measured if more detailed information is required. The UTEM System is also capable of measuring the two horizontal components of the electric field, Ex and Ey. A dipole sensor comprised of two electrodes is used to measure the electric field components. This is generally used for outlining resistive features to which the magnetic field is not very sensitive.

BHUTEM surveys employ a receiver coil that is smaller in diameter than the surface coil. The borehole receiver coil forms part of a down-hole receiver package used to measure the axial (along-borehole) component of the magnetic field of the transmitter loop. Due to the distance between coil and receiver in borehole surveys the signal must be transmitted up to the receiver. In BHUTEM the signal is transmitted to surface digitally using a kevlar-reinforced fibre-optic cable as a data link. Using a fibre-optic link avoids signal degradation problems and allows surveying of boreholes to 3000+m. The cable is also very light - the specific gravity is nearly 1.0 - making the cable handling hardware quite portable.

The EM Induction Process

Any time-varying transmitted ("primary") field induces current flow in conductive regions of the ground below and around the transmitter loop (i.e. in the earth or "half-space"). This current flow produces a measurable EM field, the secondary field, which has an inherent "inertia" that resists the change in primary field direction. This "inertial" effect is called self-inductance; it limits the rate at which current can change and is only dependent on the shape and size of a conductive path.

It takes a certain amount of time for the transmitted current flow to be redirected (reversed) and reestablished to full amplitude after the rate-of-change of the primary field reverses direction. This measurable reversal time is characteristic for a given conductor. In general, for a good conductor this time is greater than that of a poor conductor. This is because in a good conductor the terminal current level is greater, whereas its rate of change is limited by the inductance of the current path. The time-varying current causes an Emf in the sensor proportional to the time derivative of the current. This Emf decays with time - it vanishes when the reversal is complete - and the characteristic time of the Emf decay as measured by the sensor is referred to as the **decay time** of the conductor.

The large-scale current which is induced in the half-space by the primary field produces the half-space response as seen in typical UTEM profiles. This background response is influenced by the finite conductivity of the surrounding rock. Other currents may be induced in locally more conductive zones (conductors) that have longer decay times than the half-space response. The responses of these conductors are superimposed upon the background response. The result is that the UTEM receiver detects:

- the primary field waveform, a square-wave
- the half-space (background) response of the surrounding rock
- a slight-to-large response due to any conductors present.

The result is that in the presence of conductors the primary field waveform is substantially (and anomalously) distorted.

UTEM DATA REDUCTION and PLOTTING CONVENTIONS

The UTEM data as it appears in the data files is in total field, continuously normalized form. In this form, the magnetic field data collected by the receiver is expressed as a % of the calculated primary magnetic field vector magnitude at the station. These are total field values - the UTEM system measures during the "on-time" and as such samples both the primary and secondary fields.

For plotting purposes, the reduced magnetic field data (as it appears in the data file) are transformed to other formats as required. The following is provided as a description of the various plotting formats used for the display of UTEM data. A plotting format is defined by the choice of the *normalization* and *field type* parameters selected for display.

NORMALIZATION

UTEM results are always expressed as a % of a normalizing field at some point in space.

In **continuously normalized** form the normalizing factor (the denominator) is the magnitude of the computed local primary field vector. As the primary exciting field magnitude diminishes with increasing distance from the transmitter loop the response is continuously amplified as a function of offset from the loop. Although this type of normalization considerably distorts the response shape, it permits anomalies to be easily identified at a wide range of distances from the loop.

Note: An optional form of continuous normalization permits the interpreter to normalize the response to the magnitude of the primary field vector at a fixed depth below each station. This is useful for surface profiles which come very close to the loop. Without this adjustment option, the normalizing field is so strong near the loop that the secondary effects become too small in the presence of such a large primary component. In such circumstances interpretation is difficult, however; by "normalizing at some depth" the size of the normalizing field, near the loop in particular, is reduced and the resulting profile can be more effectively interpreted to a very close distance from the transmitter wire. The usual choice for the depth is the estimated target depth is used.

In **point normalized form** the normalizing factor is the magnitude of the computed primary field vector at a single point in space. When data is presented in this form, the point of normalization is displayed in the title block of the plot. Point normalized profiles show the non-distorted shape of the field profiles. Unfortunately, the very large range in magnitude of anomalies both near and far from the loop means that small anomalies, particularly those far from the loop, may be overlooked on this type of plot in favor of presenting larger amplitude anomalies.

Note: Selecting the correct plot scales is critical to the recognition of conductors over the entire length of a point normalized profile. Point normalized data is often used for interpretation where an analysis of the shape of a specific anomaly is required. Point normalized profiles are therefore plotted selectively as required during interpretation. An exception to this procedure occurs where surface data has been collected entirely inside a transmitter loop. The primary field does not vary greatly inside the loop, therefore, the benefits of continuous normalization are not required in the display of such results. In these cases data is often point normalized to a fixed point near the loop centre.

FIELD TYPE

The type of field may be either the **Total field** or the **Secondary field.** In general, it is the secondary field that is most useful for the recognition and interpretation of discrete conductors.

UTEM Results as Secondary Fields

Because the UTEM system measures during the transmitter on-time the determination of the secondary field requires that an estimate of the primary signal be subtracted from the observations. Two estimates of the primary signal are available:

1) UTEM Channel 1

One estimate of the primary signal is the value of the latest time channel observed by the UTEM System, channel 1. When Channel 1 is subtracted from the UTEM data the resulting data display is termed ***Channel 1 Reduced***. This reduction formula is used in situations where it can be assumed that all responses from any target bodies have decayed away by the latest time channel sampled. The Channel 1 value is then a reasonable estimate of the primary signal present during Channels 2....10.

In practice the ***Channel 1 Reduced*** form is most useful when the secondary response is very small at the latest delay time. In these cases channel 1 is indeed a good estimate of the primary field and using it avoids problems due to geometric errors or transmitter loop current/system sensitivity errors.

2) Calculated primary field

An alternate estimate of the primary field is obtained by computing the primary field from the known locations of the transmitter loop and the receiver stations. When the computed primary field is subtracted from the UTEM data the resulting data display is termed ***Primary Field Reduced*** .

The calculated primary field will be in error if the geometry is in error - mislocation of the survey stations or the loop vertices - or if the transmitter loop current/system sensitivity is in error. Mislocation errors from loop/station geometry may give rise to very large secondary field errors depending on the accuracy of the loop and station location method used. Transmitter loop current/system sensitivity error is rarely greater than 2%. ***Primary Field Reduced*** is plotted in situations where a large Channel 1 response is observed. In this case the assumption that the Channel 1 value is a reasonable estimate of the primary field effect is not valid.

Note: When UTEM data is plotted in the ***Channel 1 Reduced*** form the secondary field data for Channel 1 itself are always presented in ***Primary Field Reduced*** form and are plotted on a separate axis. This plotting format serves to show any long time-constant responses, magnetostatic anomalies and/or geometric errors present in the data.

Mathematical Formulations

In the following expressions:

Rn_j is the result plotted for the n^{th} UTEM channel,

$R1_j$ is the result plotted for the latest-time UTEM channel, channel 1,

Chn_j is the raw component sensor value for the n^{th} channel at station j,

$Ch1_j$ is the raw component sensor value for channel 1 at station j,

$H^P{}_j$ is the computed primary field component in the sensor direction

$|H^P|$ is the magnitude of the computed primary field at:
- a fixed station for the entire line (point normalized data)
- the local station of observation (continuously normalized data)
- a fixed depth below the station (continuously normalized at a depth).

Channel 1 Reduced Secondary Fields : Here, the latest time channel, Channel 1 is used as an "estimate" of the primary signal and channels 2-10 are expressed as:

$$Rn_j = (Chn_j - Ch1_j) / |H^P| \quad x\ 100\%$$

Channel 1 itself is reduced by subtracting a calculation of the primary field observed in the direction of the coil, $\mathbf{H^P}$ as follows:

$$R1_j = (Ch1_j - H^P{}_j) / |H^P| \quad x\ 100\%$$

Primary Field Reduced Secondary Fields : In this form all channels are reduced according to the equation used for channel 1 above:

$$Rn_j = (Chn_j - H^P{}_j) / |H^P| \quad x\ 100\%$$

This type of reduction is most often used in cases where very good geometric control is available (leading to low error in the calculated primary field, $\mathbf{H^P{}_j}$) and where very slowly decaying responses result in significant secondary field effects remaining in channel 1 observations.

UTEM Results as a Total Field

In certain cases results are presented as a % of the **Total Field**. This display is particularly useful, in borehole surveys where the probe may actually pass through a very good conductor. In these cases the shielding effect of the conductor will cause the observed (total) field to become very small below the intersection point. This nullification due to shielding effects on the total field is much easier to see on a separate ***Total Field*** plot. In cases where the amplitude of the anomalies relative to the primary field is small, suggesting the presence of poorly conductive bodies, the ***Total Field*** plot is less useful.

The data contained in the UTEM reduced data files is in ***Total Field***, continuously normalized form if:

$$Rn_j = Chn_j / |H^P| \quad x\ 100\%$$

DATA PRESENTATION

All UTEM survey results are presented as profiles in an Appendix of this report. For BHUTEM surveys the requisite Vectorplots, presented as plan and section views showing the direction and magnitude of the calculated primary field vectors for each transmitter loop, are presented in a separate Appendix.

The symbols used to identify the channels on all plots as well as the mean delay time for each channel is shown in the table below.

UTEM System Mean Delay Times

10 Channel Mode @ 31 hz.(approx.)

(base freq: 30.974 hertz)

Channel #	Delay time (ms)	Plot Symbol
1	12.11	|
2	6.053	\
3	3.027	/
4	1.513	□
5	0.757	5
6	0.378	6
7	0.189	7
8	0.095	X
9	0.047	△
10	0.024	◇

Notes on Standard plotting formats:

10 channel data in *Channel 1 Reduced* form - The data are usually displayed on three separate axes. This permits scale expansion, allowing for accurate determination of signal decay rates. The standard configuration is:

Bottom axis - Channel 1 (latest time) is plotted alone in *Primary Field Reduced* form using the same scale as the center axis.

Center axis - The intermediate to late time channels, ch5 to ch2 are plotted on the center axis using a suitable scale.

Top axis - The early time channels, ch10 to ch6 and a repeat of ch5 for comparison are plotted on the top axis at a reduced scale. The earliest channels, ch8 to ch10, may not be plotted to avoid clutter.

10 channel data in *Primary Field Reduced* form: The data are displayed using a single axis plot format. Secondary effects are plotted using a Y axis on each

single axis plot format. Secondary effects are plotted using a Y axis on each data plot with peak to peak values up to 200%.

<u>BHUTEM data plotted as total field profiles</u>: Data are expressed directly as a percentage of the ***Total Field*** value. The Y axis on each single axis data plot shows peak values of up to 100%. These departures are always relative to the measured total field value at the observation station.

<u>BHUTEM data plotted as secondary field profiles</u>: Check the title block of the plot to determine if the data is in ***Channel 1 Reduced*** form or in ***Primary Field Reduced*** form.

Note that on all BHUTEM plots the ratio between the axial component of the primary field of the loop and the magnitude of the total primary field strength **(dc)** is plotted as a profile without symbols. In UTEM jargon this is referred to as the "primary field" and it is plotted for use as a polarity reference tool.

Appendix D

Note on sources of anomalous Ch1

Note on sources of anomalous Ch1

This section outlines the possible sources of anomalous channel 1 which is not correlated to the Ch2-10 data plotted on the upper axes of a *channel 1 normalized* plot.

1) **Mislocation of the transmitter loop and/or survey stations**

Mislocating the transmitter loop and/or the survey stations results in an error in the calculated primary field at the station and appears as an anomalous Ch1 value not correlated to *channel 1 normalized* Ch2-10. The effect is amplified near the loop front. This can be seen in the profiles - the error in Ch1 generally increases approaching the loop. As a rule a 1% error in measurement of the distance from the loop will result in, for outside the loop surveys, an error in Ch1 of:

- 1% near the loop front (long-wire field varies as $1/r$)
- 3% at a distance from the loop front (dipolar field varies as $1/r^3$)
- 2% at intermediate distances (intermediate field varies as $\sim 1/r^2$)

Errors in elevation result in smaller errors but as they often affect the chainage they accumulate along the line.

The in-loop survey configuration generally diminishes geometric error since the field gradients are very low. At the centre of the loop the gradient in the vertical field is essentially zero so it is difficult to introduce geometric anomalies near the loop centre. Near the loop sides and at the closest approach of the lines to the wire mislocation of the loop and the station becomes more critical. Typically loop sides are designed to be >200m from any survey stations.

2) **Magnetostatic UTEM responses**

Magnetostatic UTEM responses arise over rocks which generate magnetic anomalies. Such magnetic materials will amplify the total (primary + secondary) field of the UTEM transmitter which is sensed by the receiver coil. The secondary field is generated by subtracting a computed primary which does not include magnetic effects. This can give rise to strong and abrupt channel 1 anomalies when the source of the magnetics is at surface. This is the case in a number of places on these grids. UTEM magnetostatic anomalies differ from DC magnetic anomalies in the following three major ways:

1) In the case of DC magnetics the field is dipping N and is very uniform over the scale of the survey area while the UTEM field inside the loop is vertical and it is stronger near the loop edges.
2) Most aeromagnetics are collected as total field while with UTEM we measure a given (in this case generally z,x) component.
3) DC magnetic instruments observe the total magnetization of the causative body which is due to its susceptibility as well as any remnant magnetization. An AC method such as UTEM will not respond to the remnant portion of the magnetization.

The larger amplitude of the UTEM Ch1 response is explained by the fact that the UTEM primary field is often more favourably coupled (magnetostatically speaking) to

magnetic mineralization as compared to the earths field. Another factor could be the presence of a reverse remnant component to the magnetization.
Note that positive magnetic anomalies will cause:

- positive Ch1 anomalies in data collected outside the loop
- negative Ch1 anomalies in data collected inside the loop

3) **Extremely good conductors**

An extremely good conductor will be characterized by a time constant much longer than the half-period (@ 30Hz >>16ms). This will give rise to an anomalous Ch1 which is not correlated to the Ch2-10 data plotted on the upper axes of a *channel 1 normalized* plot.

Appendix E

Note on 4 Hz UTEM data: The effect of the presence of a 60-cycle powerline.

Note
While this Appendix uses data collected in the presence of a 60Hz powerline the issue dealt with applies equally to UTEM data collected in the presence of a 50Hz powerline.

Note: The standard presentation in Appendix A has Ch2-5 plotted on the middle axis. An alternative presentation - with Ch2 and Ch3 on the middle axis - is sometimes chosen when a powerline cuts through the surveyed area. This Appendix is a brief discussion of why the alternative presentation is chosen.

Note on 4 Hz UTEM data: The effect of the presence of a 60-cycle powerline.

This appendix outlines and discusses the effect of the presence of a 60-cycle powerline on ~4Hz (3.872Hz) UTEM data. The example data is from Loop 12 Line 280S. This line is from a series of loops with a powerline cutting across the survey area. The Loop 12 Line 280S UTEM data is affected by the presence of the powerline.

example data:

Figure E1(a) is the example data as presented in Appendix A - an alternative presentation with Ch2 and Ch3 on the middle axis. The standard presentation is shown in Figure E1(b) - with Ch2-5 plotted on the middle axis. The alternative presentation was chosen for a series of loops (including this loop) with a powerline cutting through the surveyed area. Figure E1(c) shows why - Ch4 and Ch5 show a pattern where when one is up the other is down and vice versa. The amplitude of the pattern decreases with distance away from the powerline. It was felt that this pattern obscured the information in Ch2 and 3 and the alternative presentation was chosen.

explanation:

Figure E2a) shows the UTEM waveform at ~4Hz with a 60Hz waveform superimposed on it. Roughly 16 cycles of the 60-cycle waveform fit into the full UTEM waveform. On a channel-by-channel basis:

~4 cycles fit into Ch1
~2 cycles fit into Ch2
~1 cycle fits into Ch3.

The multiple cycles tend to cancel out. Earlier channels are narrower - only part of a cycle wide. In particular Ch4 is ~half a cycle wide and Ch5 falls in the opposite halfcycle. The result is the pattern shown in Figure 1(c): Ch4 and Ch5 tending to diverge from one another - more strongly near the powerline.

other presentations:

Figures E3(a) and (b) show the example data in two other presentations where several channels are combined to give fewer, cleaner channels:

Figure E3(a): In this presentation Ch4 and 5 are combined to give a combined Ch"4" that is ~1.5 times as wide as the original Ch4. The Ch"4" is cleaner than the original. The original Ch5-10 are shown on the upper axis.

Figure E3(b): In this presentation Ch4-10 are combined to give a combined Ch"4" that is 2x as wide as the original Ch4 (equal in width to the original Ch3). The Ch"4" is as clean as the original Ch3. Note that Ch10 is added in twice to make the 2x factor exact. The original Ch5-10 are shown on the upper axis.

Discussion:

Several elements of UTEM survey design and procedure will have an affect on the number of useful channels in the final data set. These would include:

- careful positioning of the transmitter loops relative to the powerline(s)
- increasing the transmitter current (and the signal-to-noise ratio)
- care in the selection of gains during surveying. Near a source of coherent noise (eg powerline) the signal gain should be selected to minimize data rejections.

Consideration should also be given to increasing the station spacing in the vicinity of the powerline. This allows additional stacking to be done (at fewer stations) without much of an increase in surveying time.

Several other ways to increase the number of channels free of the powerline affects are:

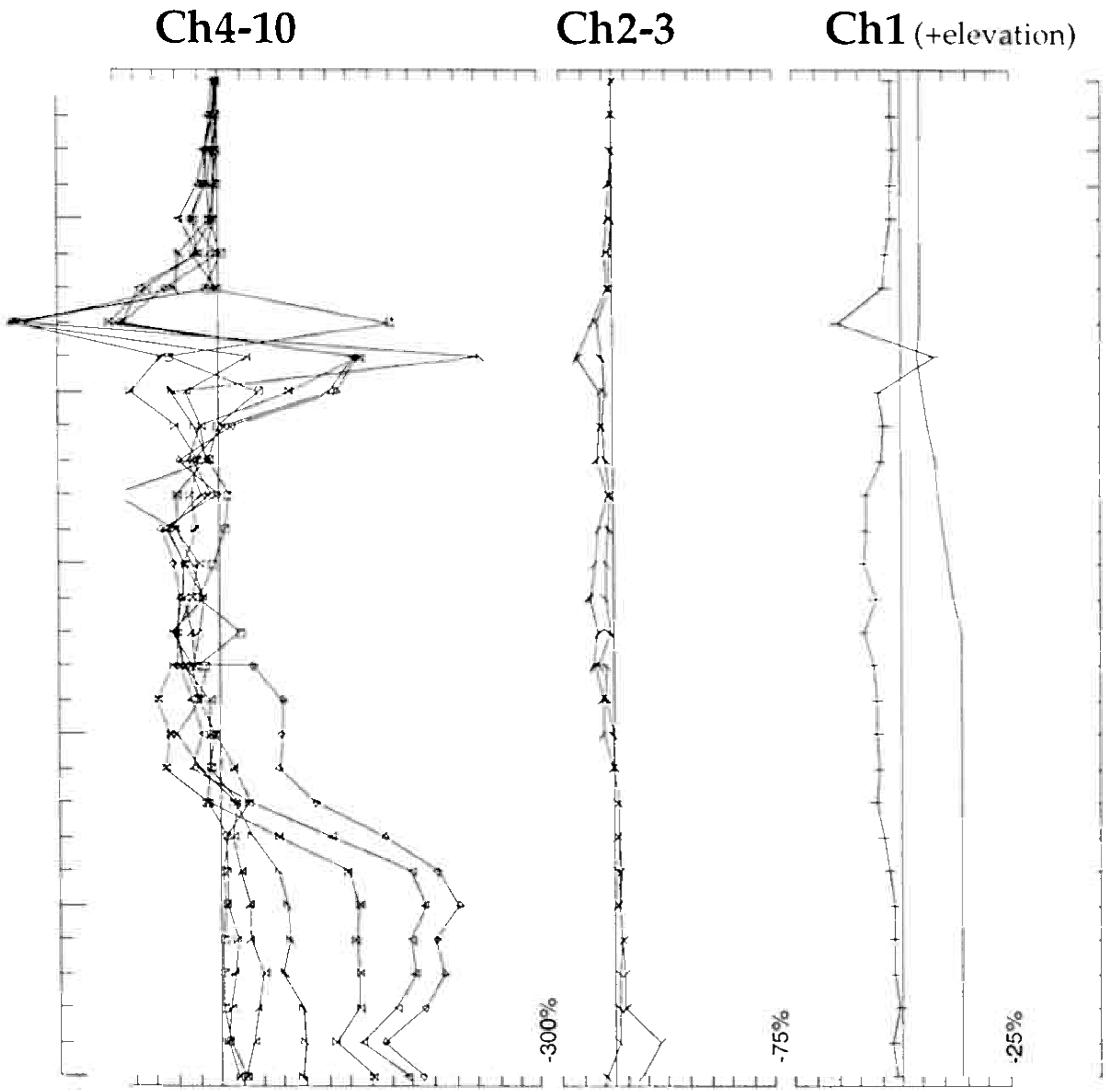
- lowering the frequency: each factor of two lower in frequency would add a channel relatively free of the affects of the powerline. The cost would be increased stacking time at each station.

- taking multiple readings: each reading starts at a different (random) point on the 60-cycle waveform. The sum of several readings will tend to better average out any affect.

- alternative channel sampling: Figure E2b) shows the standard UTEM 3 Boxcar channel sampling. An alternative - tapered channel sampling - is available (and often used) with UTEM 4. In this case if tapered sampling had been available it would likely have been used. The result would have been:

  - a slightly noisier Ch3
  - a considerably improved Ch4
  - an improved Ch5

  The choice of which sampling to use on a UTEM 4 survey depends on the frequency of the survey, the proximity and the frequency of any local powerline and the type of decay seen.



Loop:	Secondary, (Chn-Ch1/Hpl	
Line	Contin. Norm at a depth of 0m	
Compt: Hz	Base Freq. 3.872Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

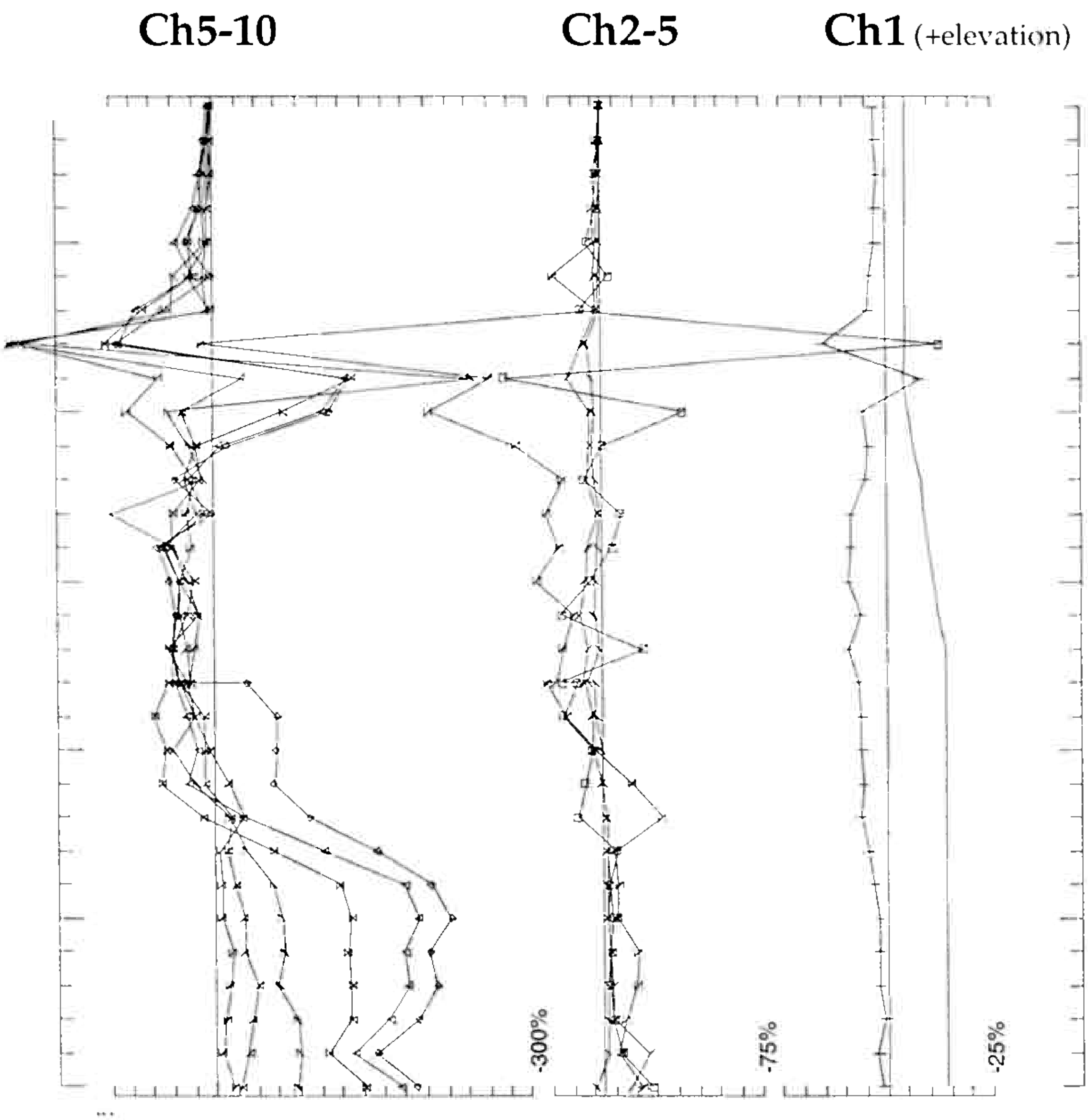
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Appendix E

Figure E1(a)

Original 4Hz data: alternative format

Figure E1a



Loop:	Secondary, (Chn-Ch1/Hpl	
Line	Contin. Norm at a depth of 0m	
Compt: Hz	Base Freq. 3.872Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

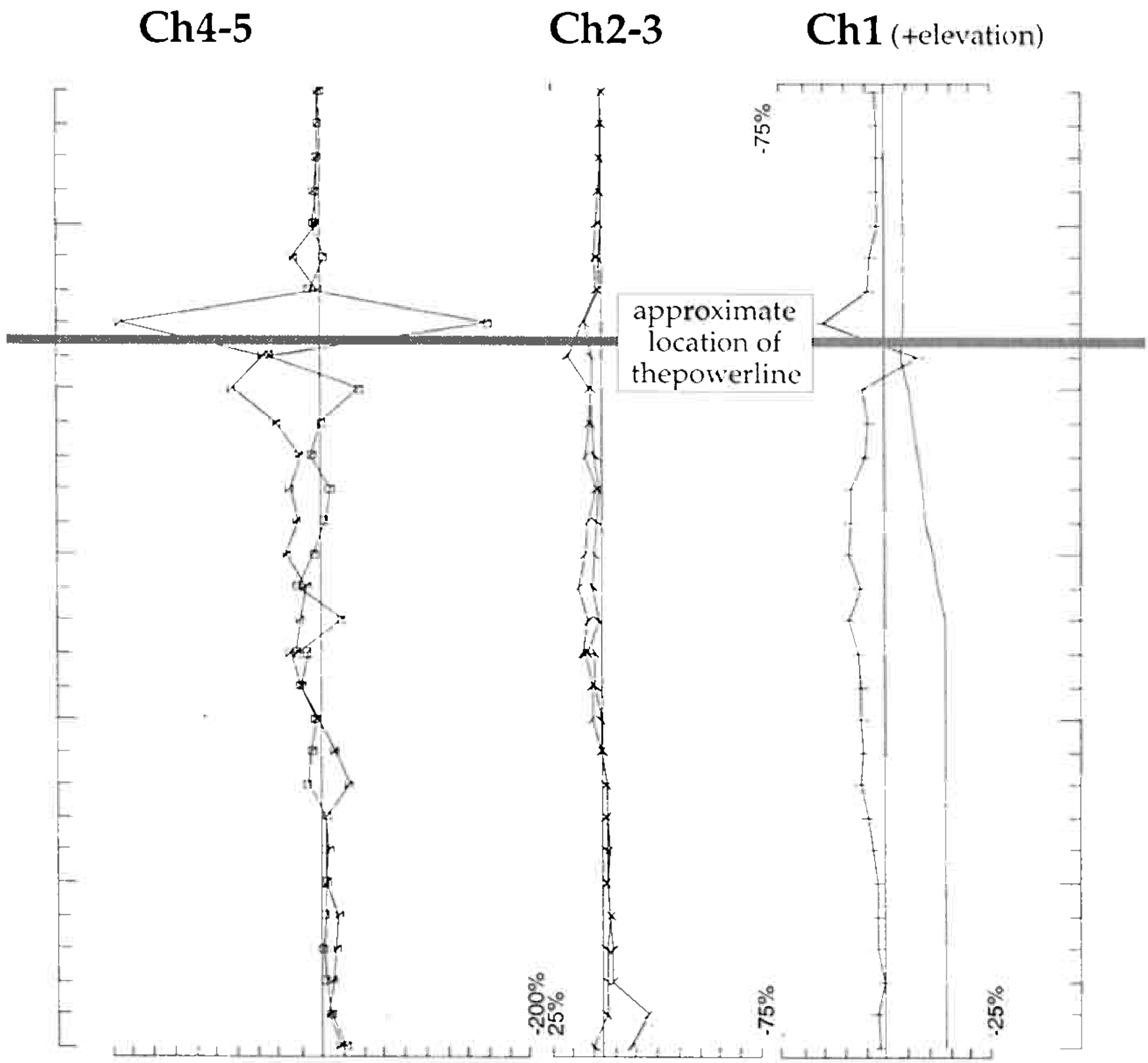
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Appendix E

Figure E1(b)

Original 4Hz data: standard format

Figure E1b



Loop:	Secondary, (Chn-Ch1/Hpl	
Line	Contin. Norm at a depth of 0m	
Compt: Hz	Base Freq. 3.872Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

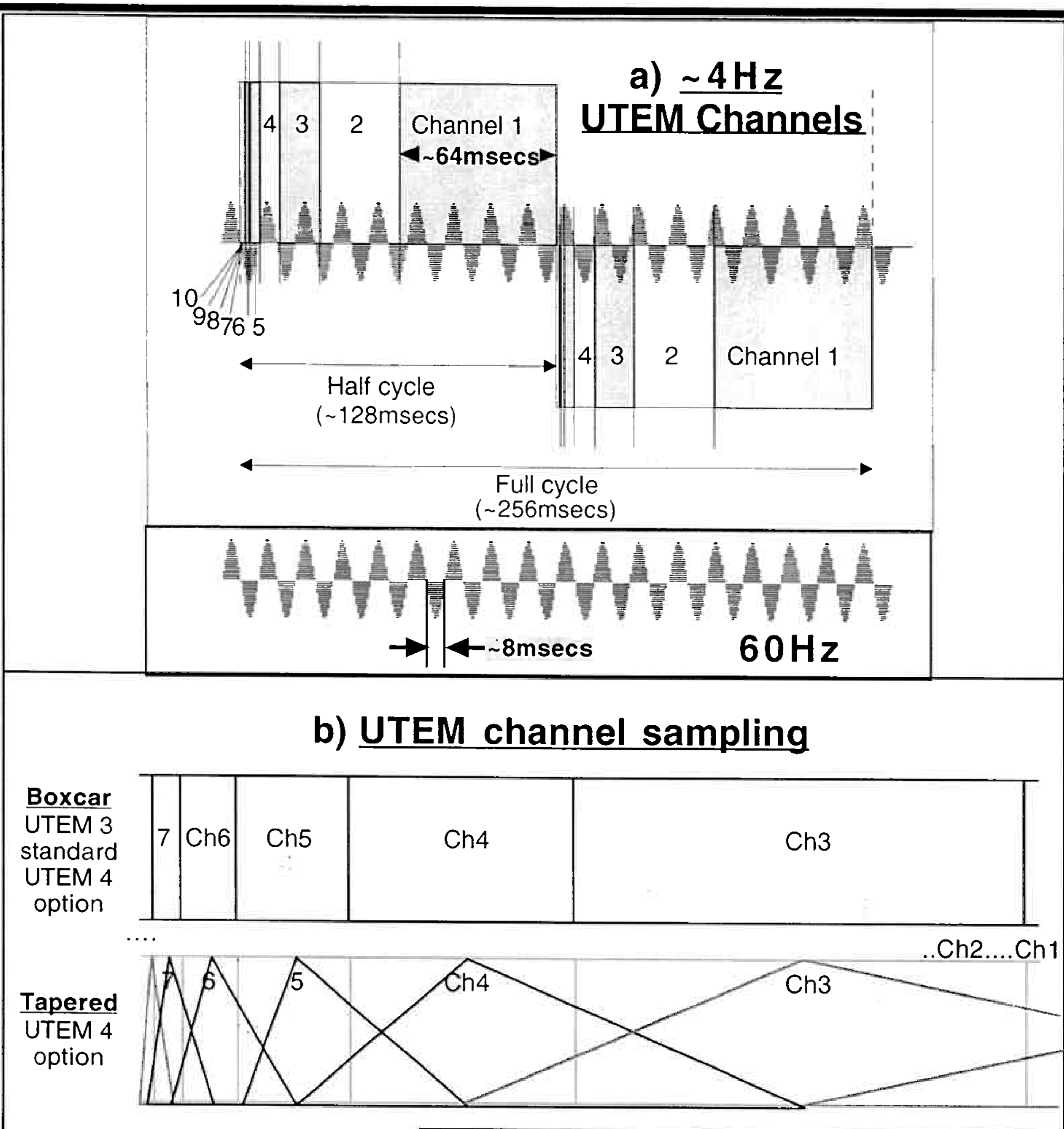
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Appendix E

Figure E1(c)

Original 4Hz data: Ch4/5 detail

Figure E1c



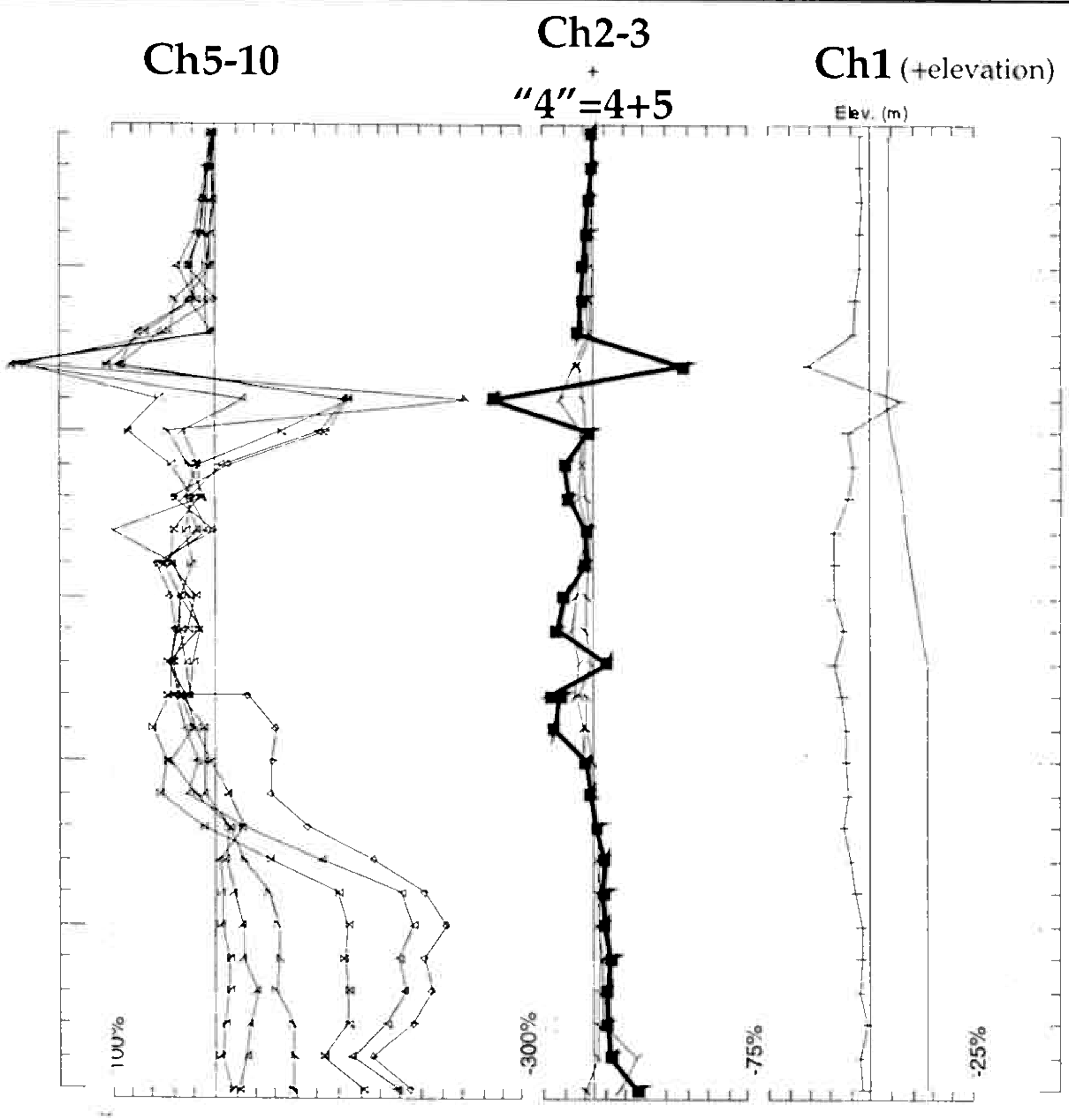
LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

Appendix E

Figure E2

a) ~4Hz UTEM Channels with 60Hz signal
b) UTEM Channel sampling options

Figure E2



Loop:	Secondary, (Chn-Ch1/Hpl	
Line	Contin. Norm at a depth of 0m	
Compt: Hz	Base Freq. 3.872Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

"modified" Ch4
=
2/3(Ch4+1/2Ch5)

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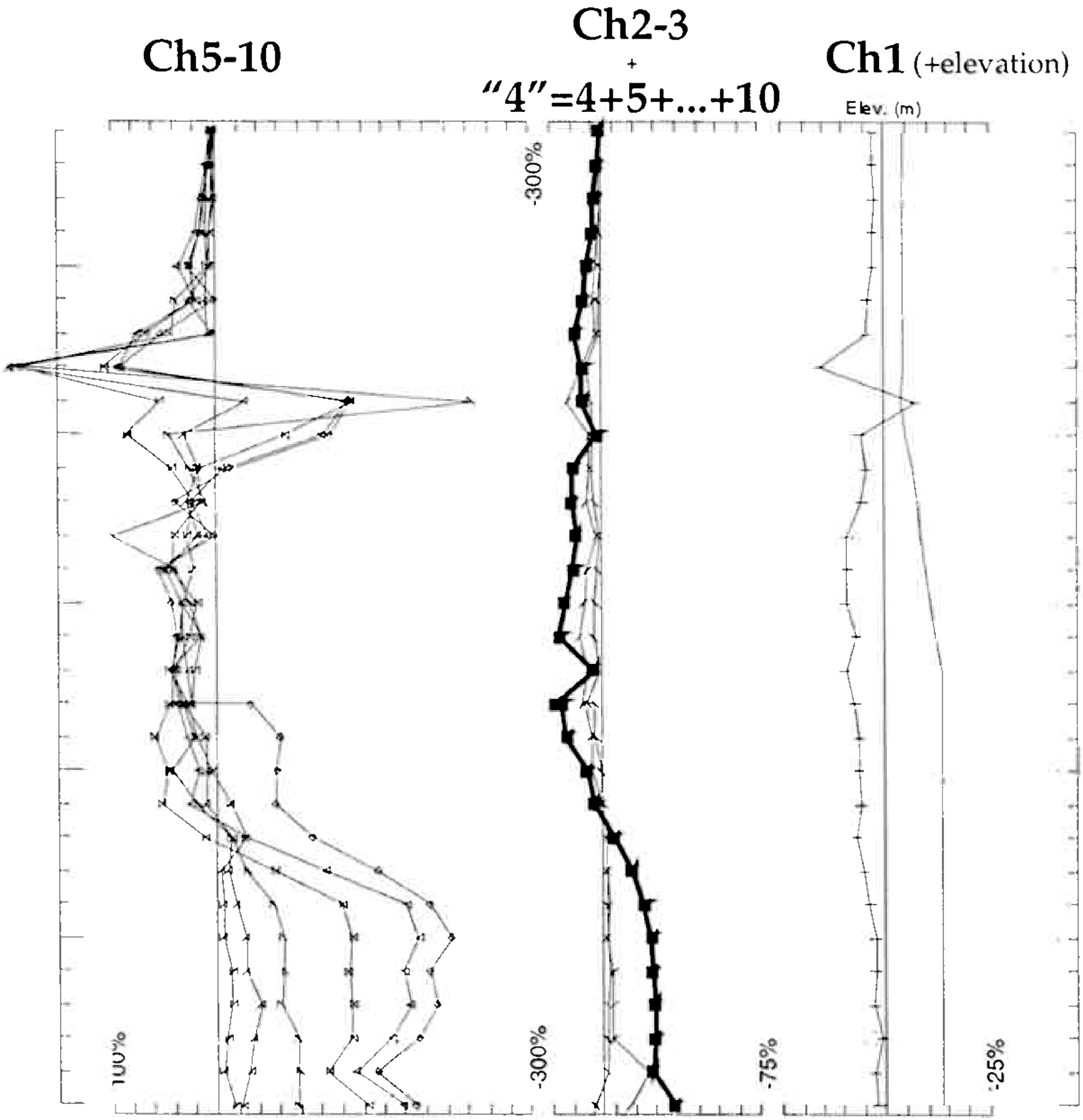
Appendix E

Figure E3(a)

Modified 4Hz data: Ch4/5 combined

Figure E3a



Loop:	Secondary, (Chn-Ch1/Hpl	
Line	Contin. Norm at a depth of 0m	
Compt: Hz	Base Freq. 3.872Hz	LAMONTAGNE GEOPHYSICS LTD GEOPHYSIQUE LTEE

"modified" Ch4
=
1/2Ch4+1/4Ch5+1/8Ch6+1/16Ch7)+
1/32Ch8+1/64Ch9+1/128Ch10+
1/128Ch10
Note: extra 1/128Ch10 to ~complete "modified" Ch4

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Appendix E

Figure E3(b)

Modified 4Hz data: Ch4-10 combined

Figure E3b