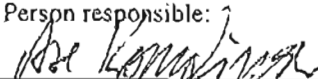


NGU Report 2006.021

Data Acquisition and Processing – Helicopter  
Geophysical Survey, Bamble, Ertelien and  
Sigdal, 2005  
Telemark and Buskerud counties, Norway

Report no.: 2006.021		ISSN 0800-3416	Grading: Åpen
Title: Data Acquisition and Processing - Helicopter Geophysical Survey, Bamble, Ertelien and Sigdal, 2005, Telemark and Buskerud counties, Norway			
Authors: John Olav Mogaard		Client: A/S Sulfidmalm	
County: Telemark and Buskerud		Commune: Bamble, Kragerø, Ringerike, Sigdal, Flesberg	
Map-sheet name (M=1:250.000) Hamar, Skien, Arendal		Map-sheet no. and -name (M=1:50.000) 1712 IV Kragerø, 1712 I Langesund, 1713 II Porsgrunn, 1713 III Kilebygd, 1714 I Hokksund, 1714 IV Flesberg, 1715 III Eggedal, 1715 II Krøderen, 1815 IV Sperillen, 1815 III Hønefoss	
Deposit name and grid-reference		Number of pages: 11	Price (NOK): 60.-
Fieldwork carried out: September/October 2005		Date of report: 10.03.2006	Project no.: 2990.06
		Person responsible: 	
Summary: <p>In September/October 2005, a helicopter geophysical survey was carried out over four different areas in southern Norway. They were Bamble in Telemark county, and Ertelien, Sigdal and Ramsdal in Buskerud county. This report covers all areas. The purpose of the surveys was to provide geophysical information for mineral exploration. The data were collected and processed by the Geological Survey of Norway (NGU). A total of about 3250 line-km of electromagnetic (EM) and magnetic data were acquired using a nominal 100-m line spacing (app. 1450 line-km in Bamble, 1100 line-km in Ertelien, 500 line-km in Sigdal and app. 2000 line-km in Ramsdal. The nominal flying height was 60 m above ground level (AGL), and lines were flown in different alternating directions at headings of 066° and 246° in Bamble, 078° and 258° in Ertelien and 102° and 282° in Sigdal and Ramsdal. Noise levels were within survey specifications.</p> <p>All initial processing was carried out on a flight-by-flight basis. Magnetic data, consisting of total field measurements collected by a cesium vapor magnetometer, were corrected by removing diurnal variations as recorded at a magnetic base station at Geiteryggen airfield, Skien for the Bamble area and at Eggemoen airfield, Hønefoss for the other areas. EM data were leveled using data from frequent high altitude excursions 300-m AGL. All final processed data were gridded using 25-m cell size. Geophysical maps were produced at a scale of 1:50 000 and are considered as stand alone products.</p> <p>This report covers aspects of data acquisition and processing.</p>			
Keywords: Geofysikk (Geophysics)		Magnetometri (Magnetometry)	
Elektromagnetisk måling (Electromagnetic measurements)		Databehandling (Data processing)	
		Fagrapport (Technical report)	

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## APPENDIX A:

Data delivery formats.

Maps in scale: 1:50 000 produced as stand alone products:

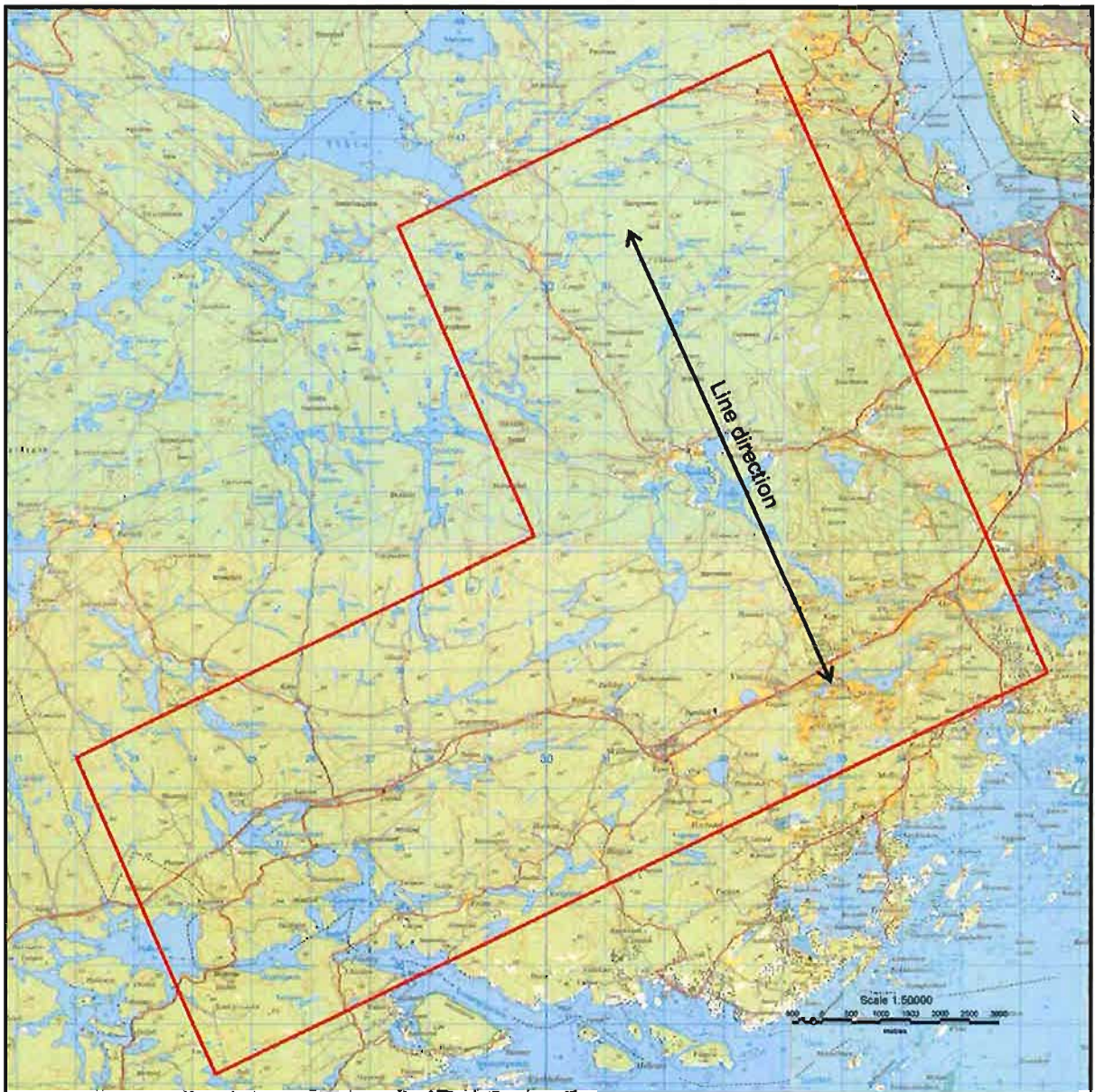
Map 2006.021-01 <i>n</i> :	Flight path.
Map 2006.021-02 <i>n</i> :	Total magnetic field.
Map 2006.021-03 <i>n</i> :	First vertical derivative of magnetic total field.
Map 2006.021-04 <i>n</i> :	EM stacked profiles 7001 Hz coaxial.
Map 2006.021-05 <i>n</i> :	EM stacked profiles 6606 Hz coplanar.
Map 2006.021-06 <i>n</i> :	EM stacked profiles 980 Hz coaxial.
Map 2006.021-07 <i>n</i> :	EM stacked profiles 880 Hz coplanar.
Map 2006.021-08 <i>n</i> :	EM stacked profiles 34133 Hz coplanar.
Map 2006.021-09 <i>n</i> :	EM apparent conductivity 6606 Hz coplanar.
Map 2006.021-10 <i>n</i> :	EM apparent conductivity 7001 Hz coaxial.

Where:

- n = A** : Ertelien area
- n = B** : Bamble area
- n = C** : Sigdal (and Ramsdal) area

## 1 INTRODUCTION

As a contract work for AS Sulfidmalm, in September and October, 2005, a helicopter geophysical survey was carried out over four areas in Southern Central Norway. They were Bamble in Telemark county and Ertelien, Sigdal and Ramsdal in Buskerud county. The distances flown (with tie-lines) and areas covered are approx. 1450 line-km and 130 km<sup>2</sup> for Bamble; 1100 line-km and 98.8 km<sup>2</sup> for Ertelien; 500 line-km and 46.4 km<sup>2</sup> for Sigdal and 200 line-km and 18 km<sup>2</sup> for Ramsdal. See *fig.1*, *fig.2* and *fig.3* for the outline of the areas. Magnetic and electromagnetic (HEM) data were collected. The primary objective of the survey was to provide geophysical information for mineral prospecting in the area.



*Fig. 1: Outline of the Bamble area (flight direction 066/246°).*

136 - 336



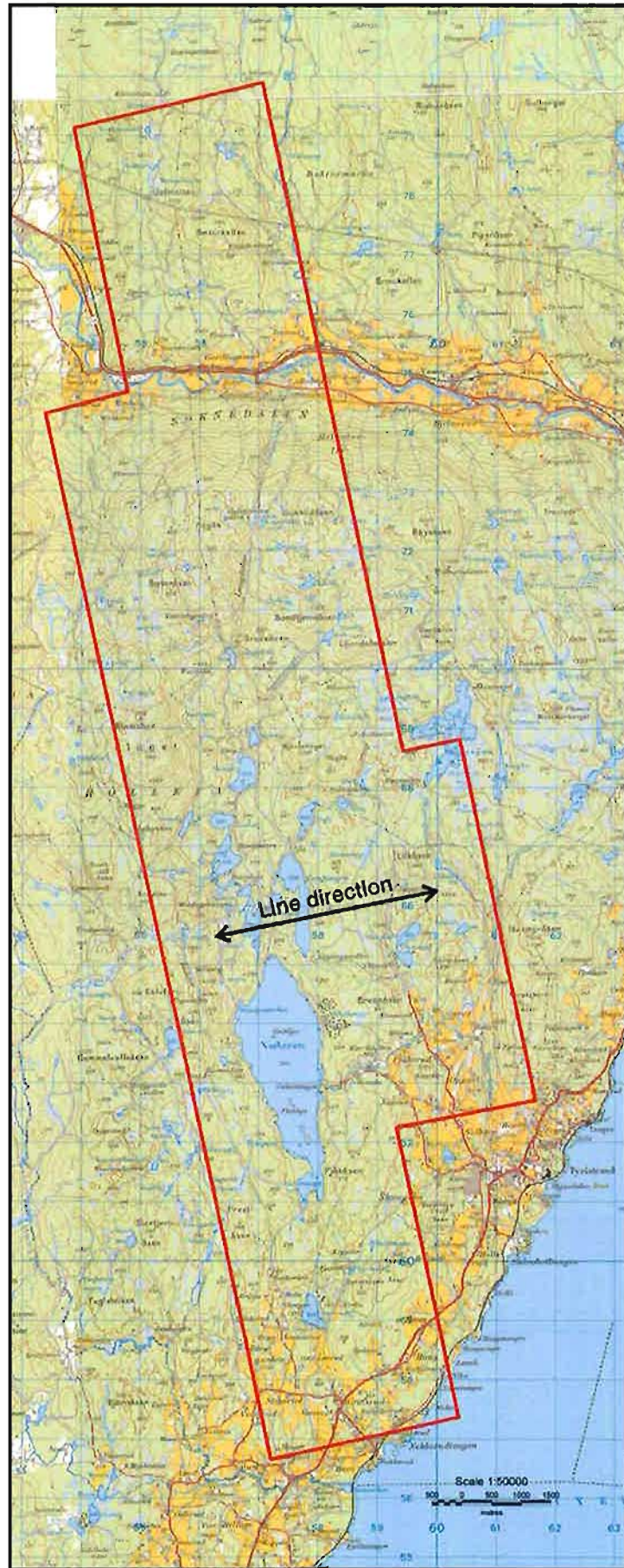


Fig. 2: Outline of the Ertelien area (flight direction 078/258°).



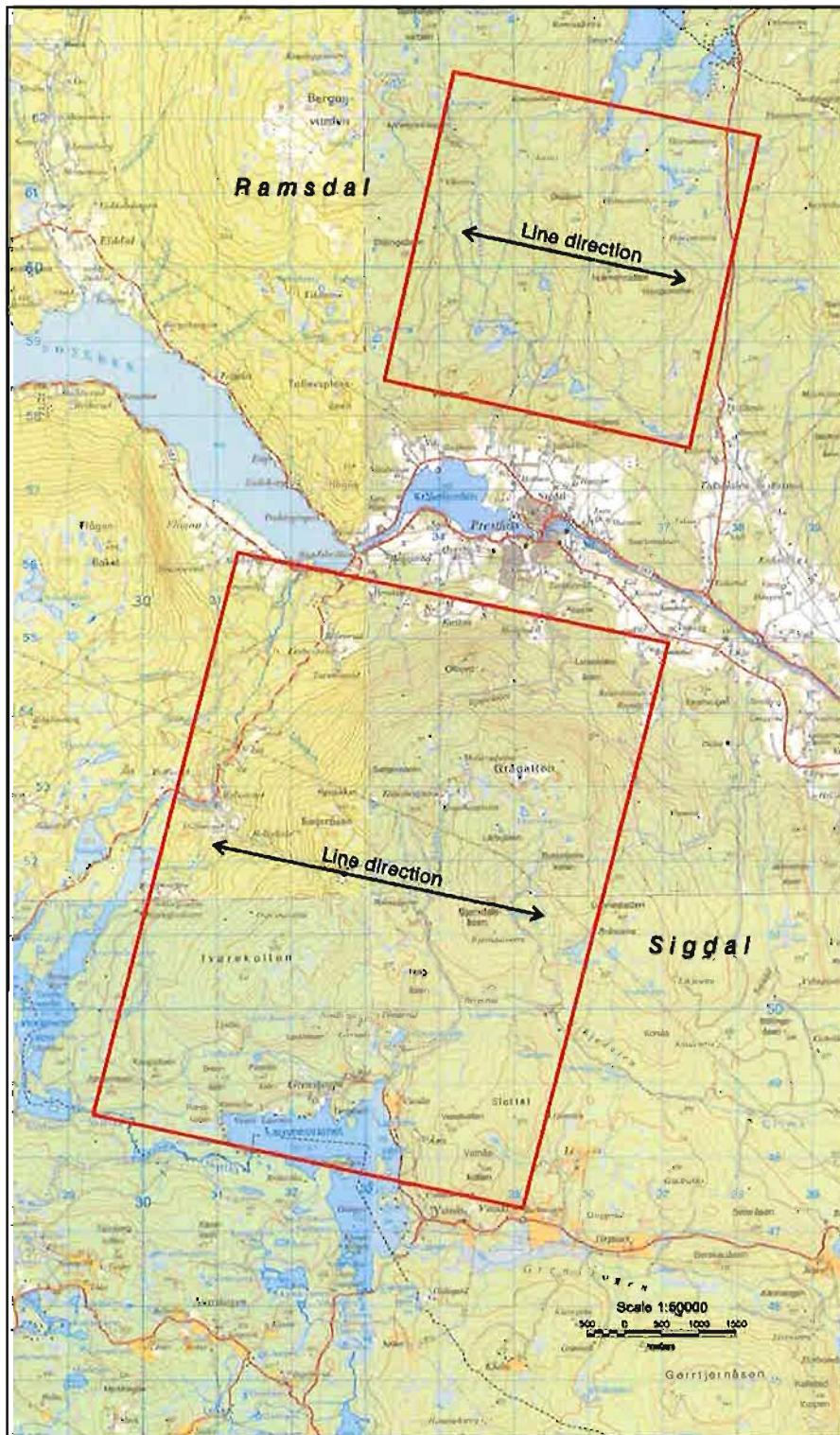


Fig. 3: Outline of the Sigdal and Ramsdal area (flight direction 102/282°).

## 2 SURVEY VARIABLES AND CONDITIONS

Several conditions may influence on the quality of the geophysical data.

### 2.1 Weather conditions

Strong wind can increase the noise level of airborne geophysical data. High winds were not frequent during the survey, but were encountered occasionally. Non of the flights were aborted because of wind.

### 2.2 Topographic conditions

The resolution of geophysical sensors decreases exponentially with flying height. To achieve the greatest possible resolution, the helicopter should be flown as low as is safely possible.

The topography in the four areas are varying from fairly flat to quite steep and it is difficult to keep a constant terrain clearance during flying. The surveys were flown using a helicopter strong enough to climb the hills but in spite of this, data are strongly effected by altitude differences uphill and downhill. As a consequence of this it was impossible to drape the terrain with the bird 30 +/- 10 meters above ground as specified in the contract.

### 2.3 Magnetic conditions

Diurnal changes in the earth's magnetic field affect magnetic data. The base station magnetic field never indicated strong magnetic storm conditions during the surveys. Magnetic data quality on all lines used for production is very good.

### 2.4 EM data conditions

Strong vertical temperature gradients can affect EM leveling because the temperature at the 300-m nulling altitude is different from the temperature at survey altitude (30 m above ground level for the EM sensor). In addition to this, measuring at different altitudes may cause drift effects along profiles. Drift effects between nulling points are corrected using standard linear interpolation. EM drift is characterized as low.

The target flying height is 60 meters above ground level. Due to the severe terrain, flying height varied considerably in the present survey. This effected both the magnetic and the electromagnetic datasets.

In general EM signals are low in all the areas, and this created problems when producing conductivity maps. The quality of the EM data can be characterized as good.

### 3 DATA ACQUISITION

The survey aircraft was an Aerospatial Ecureuil AS 350 B-2. Flying speed was approximately 100 km per hour (28 meters per second). Flight lines were flown in directions 066°/246° in Bamble, 078°/258° in Ertelien and 102°/282° in Sigdal and Ramsdal with a flight line spacing of 100 m in all areas. In addition a few tie-lines were measured for all areas. The 5-frequency EM system and the magnetometer were enclosed in a 6-m long 'bird' suspended by cable 30m beneath the helicopter.

NGU personnel responsible for data acquisition were John Olav Mogaard and Janus Koziel. Pilots from AIRLIFT ASA were Leif Hus and Stian Follaug .

#### 3.1 Magnetic measurements

A Scintrex CS-2 cesium vapor magnetometer was used. The magnetometer resolution is 0.01 nT. Sampling rate is 10 measurements per second (approximately 3 meter spacing).

A Scintrex ENVI-mag proton precession magnetometer was located at Geiteryggen airfield, Skien for the Bamble area and at Eggemoen airfield, Hønefoss for the other areas, and was used for base station measurements. The base station magnetometer was synchronized with the Scintrex magnetometer in the helicopter to ensure proper removal of diurnal magnetic changes from the helicopter magnetic measurements. The magnetic total field at the base station was digitally recorded during flights every third second.

#### 3.2 Electromagnetic system

The EM system used was the 5-frequency Hummingbird system made in Canada by Geotech, Ltd. The Hummingbird records data at a sampling rate of 10 measurements per second. It has two coil orientations-vertical coaxial (VCA) and horizontal coplanar (HCP). The VCA coils operate at 980 Hz and 7001 Hz. The HCP coils operate at 880 Hz, 6606 Hz, and 34133 Hz. The transmitter-receiver separation is 6 m for lower frequencies and 4.2 m for 34133 Hz. The manufacturer specified noise level for each frequency is 1-2 ppm.

### 3.3 Navigation, altimetry, and data logging

The navigation system used is an Ashtech G12, 12 channel receiver. Position accuracy using this system is better than +/- 5 m.

The navigation console is a PNAV 2001 manufactured by the Picodas Group, Ltd. of Canada. Profile line data are entered into the console and are displayed on a left/right-display on the console. The pilot can see his position with respect to these predefined lines and adjust accordingly.

The helicopter is equipped with a King KRA-430 radar altimeter measuring height above ground level. The altimeter data is recorded digitally and altitude is displayed in front of the pilot. The altimeter is accurate to 5 percent of the true flying height. Unfortunately data are strongly affected when flying over dense forest.

The data logging system is an integral part of the Hummingbird electromagnetic system, manufactured by Geotech, Ltd. of Canada. Data is recorded both digitally and analog.

## 4 PROCESSING

The data were processed at the Geological Survey of Norway in Trondheim using Geosoft processing software (Geosoft Oasis Montaj 6.2, 2005).

Obvious inaccuracies in navigation were manually removed from the data. The datum used was WGS84 and the projection was UTM zone 32 for all areas.

### 4.1 Standard processing

**Total field magnetic data:** The data were inspected flight-by-flight and any cultural anomalies were identified and manually removed. A base station correction was applied to each flight using corrections based on the diurnal measurements from the base station magnetometer at Geiteryggen and Eggemoen airfields. Finally a time lag of 0.6 sec (6 points) were applied to the basemag-corrected (levelled) magnetic data.

**EM data:** EM data were processed on a flight-by-flight basis. Zero levels and drift control for each frequency were obtained by frequent excursions 300m AGL, usually at the end of every second flight line. A nonlinear filter was applied to all EM data to remove data spikes resulting from sferics. Before levelling, all data were mildly low passed using a 45 m filter. Noise levels for all frequencies were within an envelope of 2 ppm. Noise levels over 2 ppm



occurred near powerlines. All EM data (and especially in Bamble and Ertelien) were affected of huge powerlines crossing the survey areas. A manually levelling on a line by line basis were done for the two frequencies used for apparent resistivity calculation. Magnetic structures having high susceptibility may produce negatively oriented in-phase anomalies. A time lag of 0.5 sec (5 points) were applied to all channels before plotting of maps.

## 4.2 Map Production

Magnetic maps in scale 1: 50 000, total magnetic field and first vertical derivative, were produced using a grid cell size of 25 x 25 metres. The problems in keeping a correct flying height in parts of the area, created some leveling problems. These were significant on a first version of the contour maps, and were corrected for without ruining the information in the data using median micro-leveling procedures created at the NGU (Mauring & Kihle 2000). The contoured color maps are produced with a shaded relief of the high frequency content. In agreement with the clients representative, magnetic measurements outside the predefined area was kept in the magnetic maps. Flying height and profile separation may be out of specifications and as a result lower data quality.

As a standard, stacked profiles of all EM frequencies in scale 1: 50 000 were produced following standard procedures. Based on quadrature data, apparent resistivity was computed for 6606 Hz coplanar and 7001 Hz coaxial using least squares inversion and a homogeneous half space model (Geosoft 1997). In agreement with the clients representative, conductivity maps instead of resistivity maps were produced using 6606 Hz coplanar and 7001 Hz coaxial frequencies. Due to low EM signals (high resistivity), negative EM responses due to high susceptibility and problems to keep a constant flying altitude, it was a very difficult to create conductivity maps with a satisfactory layout. Because of this, a resistivity grid was created which was micro-leveled using median filtering (Mauring & Kihle 2000) before inverting data to conductivity. Grid cell size was 50 x 50 metres.

## 5 DATA DELIVERIES

In agreement with the clients representative, the following stand alone maps in scale 1: 50 000 are produced and delivered to the client as printed maps:

- **Map 2006.021-01n:** Flight path.

- **Map 2006.021-02n:** Total magnetic field.
- **Map 2006.021-03n:** First vertical derivative of magnetic total field.
- **Map 2003.001-04n:** EM stacked profiles 7001 Hz coaxial.
- **Map 2006.021-05n:** EM stacked profiles 6606 Hz coplanar.
- **Map 2006.021-06n:** EM stacked profiles 980 Hz coaxial.
- **Map 2006.021-07n:** EM stacked profiles 880 Hz coplanar.
- **Map 2006.021-08n:** EM stacked profiles 34133 Hz coplanar.
- **Map 2006.021-09n:** EM apparent conductivity 6606 Hz coplanar.
- **Map 2006.021-10n:** EM apparent conductivity 7001 Hz coaxial.

Where **n = A** : Ertelien area  
**n = B** : Bamble area  
**n = C** : Sigdal (and Ramsdal) area

These maps are also delivered on DVD in Geosoft packed maps format.

Digital magnetic and electromagnetic data in Geosoft XYZ file formats and grid files of these data are delivered on DVD as described in Appendix A.

## 6 REFERENCES

Geosoft Inc., 2005: OASIS montaj Version 6.2 User Guide, *Geosoft Incorporated, Toronto*.

Geosoft Inc.; 1997: HEM System (Windows®95 & NT™) User Guide, *Geosoft Incorporated*

Mauring, E. & Kihle, O. 2000: Micro-levelling of aeromagnetic data using a moving differential median filter. *NGU Report 2000.053*.

## Appendix A: Data delivery formats.

## Geosoft XYZ file formats.

Final Delivery on DVD

### File: nMAG.XYZ (including tielines)

<i>x_filt</i>	meters	Final processed x (masked to the extended area polygon)
<i>y_filt</i>	meters	Final processed y (masked to the extended area polygon)
<i>mag_final</i>	nT	Levelled and time-lagged magnetic data (0.5 sec)
<i>mag_final_1D</i>	nT/m	Calculated vertical gradient

### File: nEM.XYZ

<i>x_filt</i>	meters	Final processed x (masked to the area polygon)
<i>y_filt</i>	meters	Final processed y (masked to the area polygon)
<i>recnum</i>		Internal record number, ordinal, per flight, incremented at 0.1 per tenth of a second
<i>UTCtime</i>		Universal time Hours: Minutes: Seconds. Decimal_seconds
<i>bird_height_m</i>	meters	Processed radar altimeter data minus 30 meter
<i>IP1_f_L_lag</i>	ppm	Filtered, leveled and lagged inphase 7001 Hz Coaxial
<i>Q1_f_L_lag</i>	ppm	quadrature 7001 Hz Coaxial
<i>IP2_f_L_lag</i>	ppm	inphase 6606 Hz Coplanar
<i>Q2_f_L_lag</i>	ppm	quadrature 6606 Hz Coplanar
<i>IP3_f_L_lag</i>	ppm	inphase 980 Hz Coaxial
<i>Q3_f_L_lag</i>	ppm	quadrature 980 Hz Coaxial
<i>IP4_f_L_lag</i>	ppm	inphase 880 Hz Coplanar
<i>Q4_f_L_lag</i>	ppm	quadrature 880 Hz Coplanar
<i>IP5_f_L_lag</i>	ppm	inphase 33133 Hz Coplanar
<i>Q5_f_L_lag</i>	ppm	quadrature 33133 Hz Coplanar
<i>cond6606_final</i>	mS-m	Apparent conductivity (6606 Hz coplanar)
<i>cond7001_final</i>	mS-m	Apparent conductivity (7001 Hz coaxial)

Where *n* = **A** : Ertelien area  
*n* = **B** : Bamble area  
*n* = **C** : Sigdal (and Ramsdal) area

The following Geosoft grid files are copied to the DVD :

*mag\_final<sup>m</sup>.grd*

Micro levelled magnetic grid (circular median filter) used in map (25 m cell size)

*mag\_final\_1D<sup>m</sup>.grd*

Calculated vertical gradient grid used in map based on the

final magnetic grid file .

*res6606\_final.grd*

Apparent resistivity grid from res6606 channel (50 m cell size)

*res7001\_final.grd*

Apparent resistivity grid from res7001 channel (50 m cell size)

*cond6606\_final.grd*

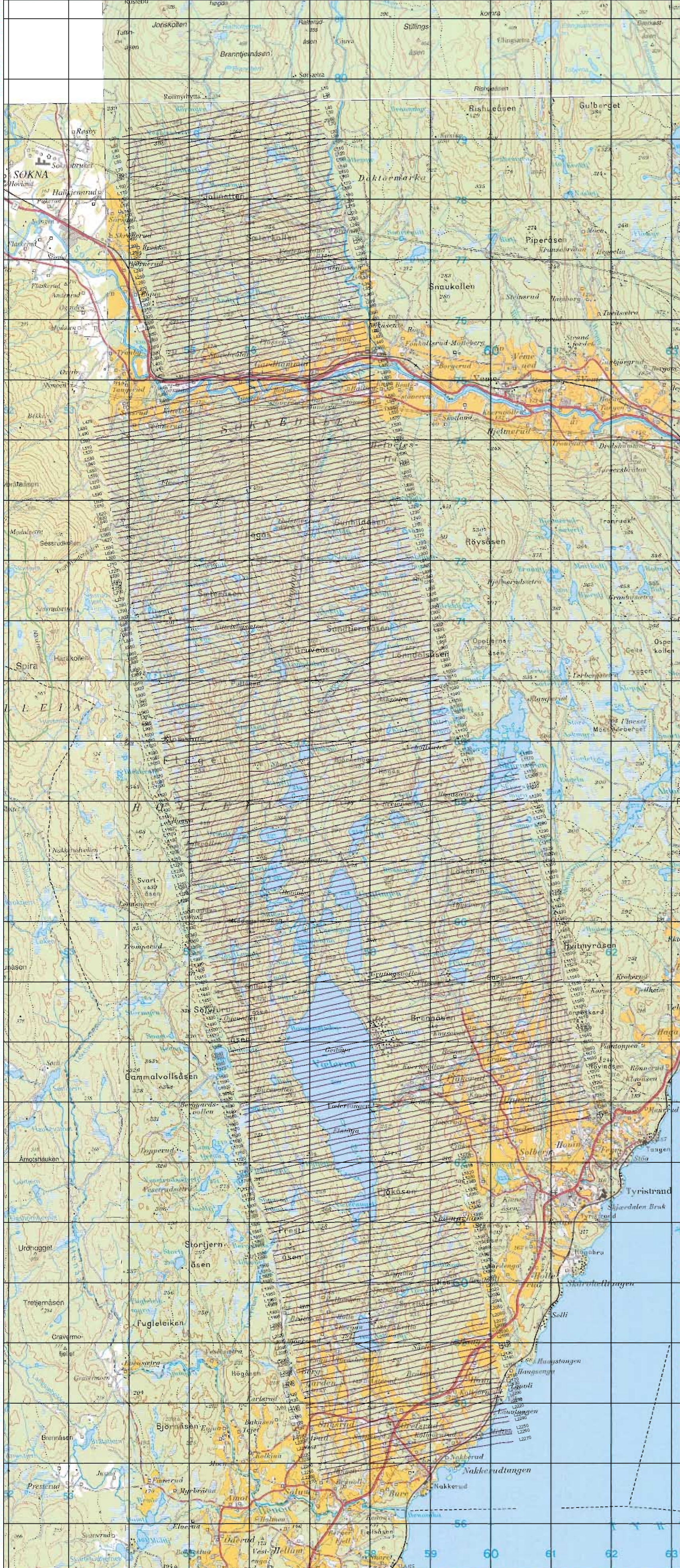
Final conductivity grid file used in map after micro levelling 6606 Hz coplanar freq. (50 m cell size)

*cond7001\_final.grd*

Final conductivity grid file used in map after micro levelling 7001 Hz coaxial freq. (50 m cell size)

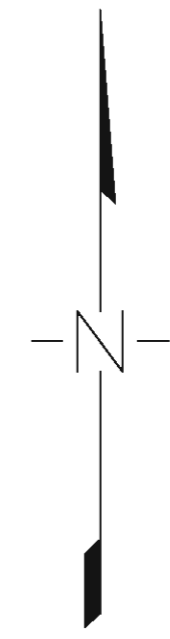


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552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



### NAVIGATION

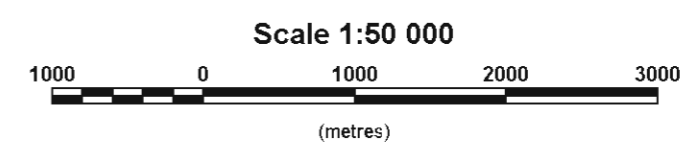
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### FLIGHTPATH

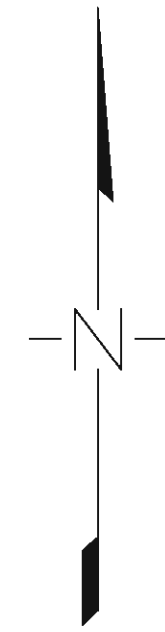
Ertelien  
Buskerud

Drawing: Mogaard, J.O.	Date: FEB2006	Obs: JOM/JK
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1815 III Hønefoss  
1715 II Kragerø





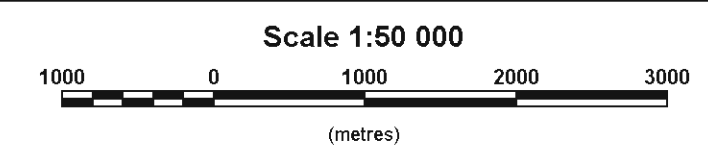
### NAVIGATION

The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

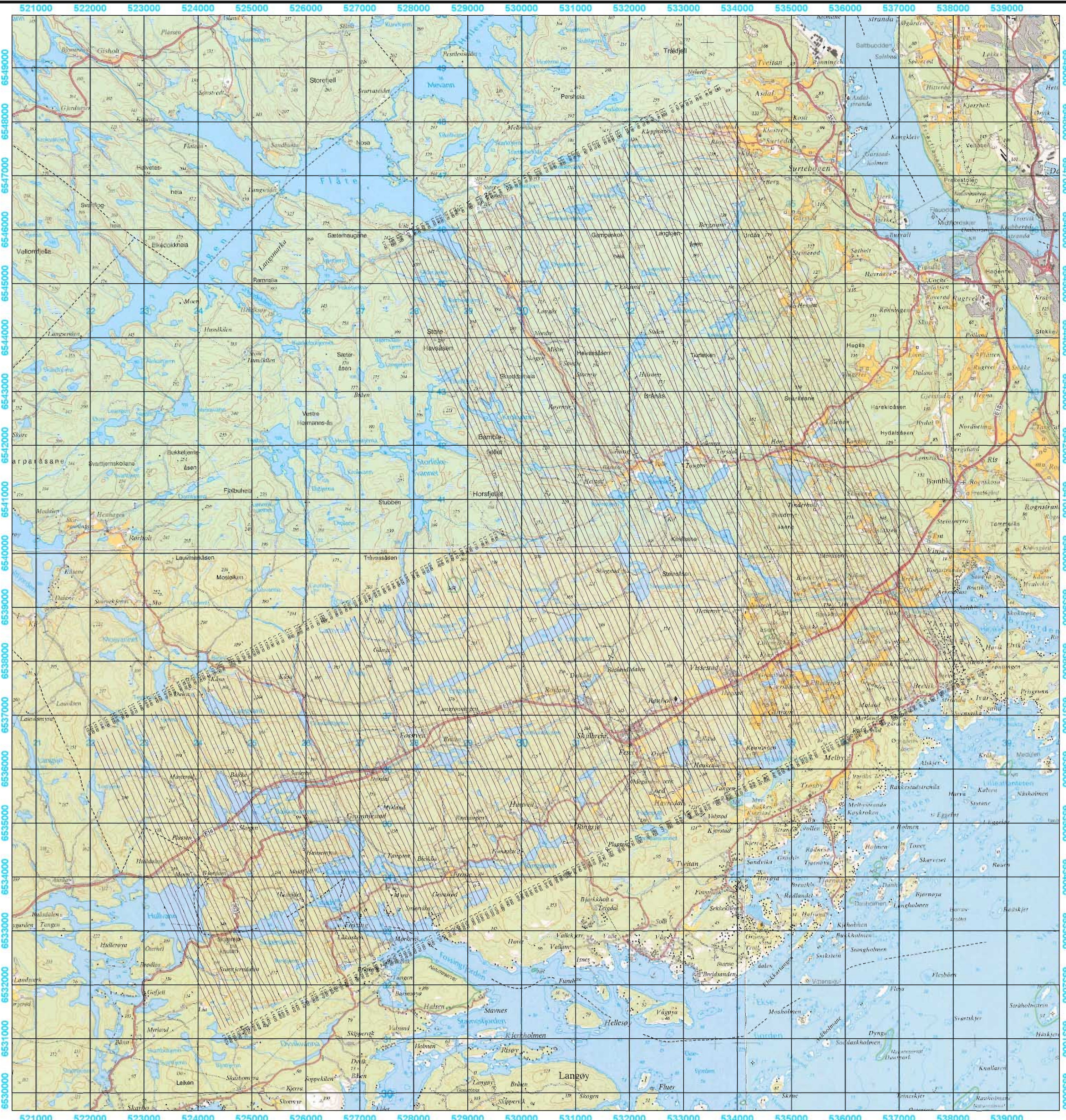
## A/S SULFIDMALM FLIGHT PATH

**Bamble**  
Telemark

Drawing: <b>Mogaard, J.O.</b>	Date: <b>FEB2006</b>	Obs: <b>JOM/JK</b>
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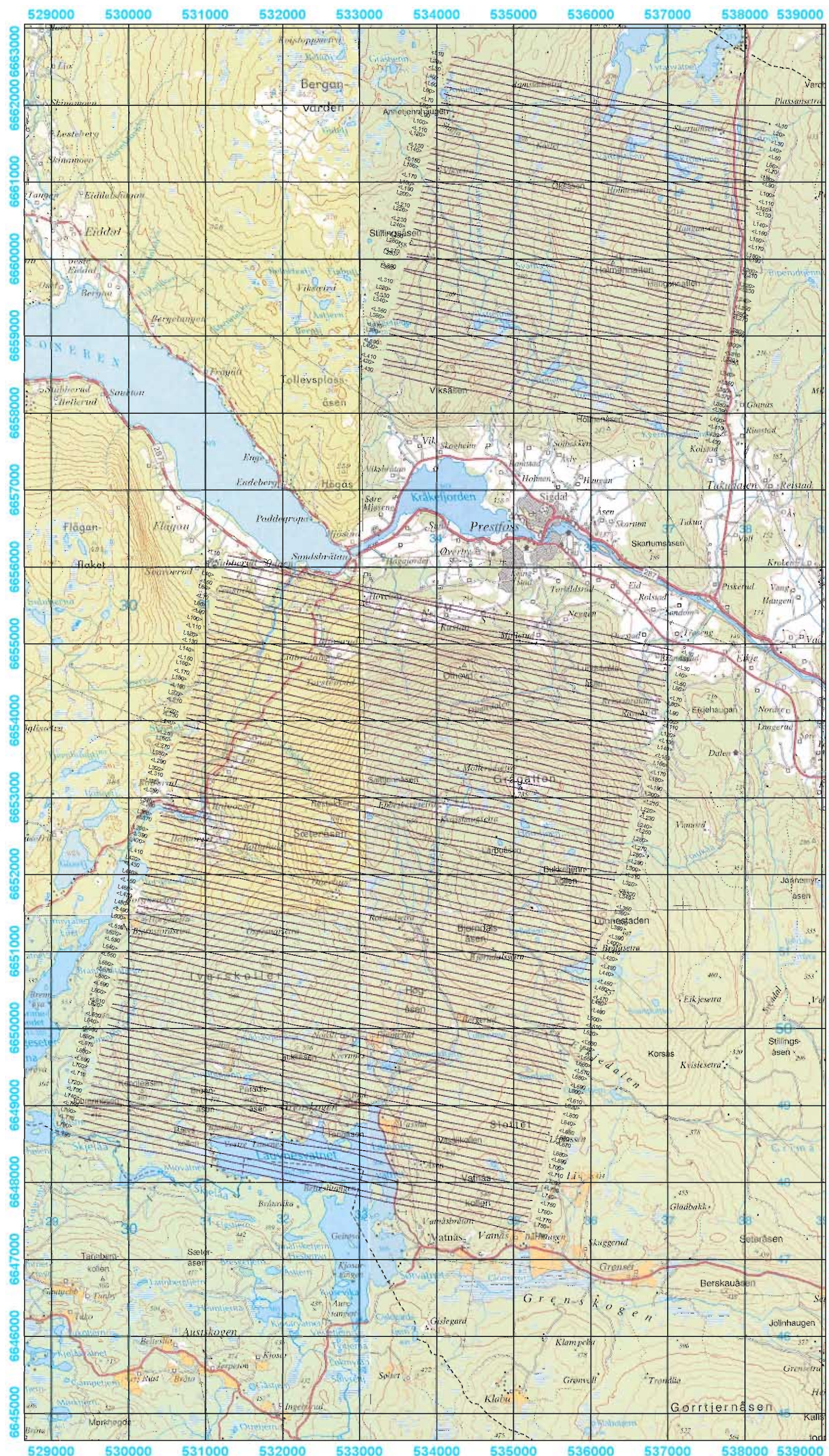


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1712 II Langesund  
1713 II Porsgrunn  
1713 III Kilebygd



GEODETIC DATUM: WGS84  
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Numbers in BLUE for UTM coordinates, zone 32N

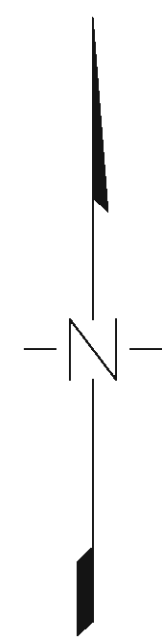




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### NAVIGATION

The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### FLIGHTPATH

*Sigdal*

*Buskerud*

Drawing: <b>Mogaard, J.O.</b>	Date: <b>FEB2006</b>	Obs: <b>JOM/JK</b>
Scale 1:50 000		Mapsheet (1:50 000): 1714 I Hokksund 1714 IV Flesberg 1715 III Eggedal 1715 II Krødern

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N

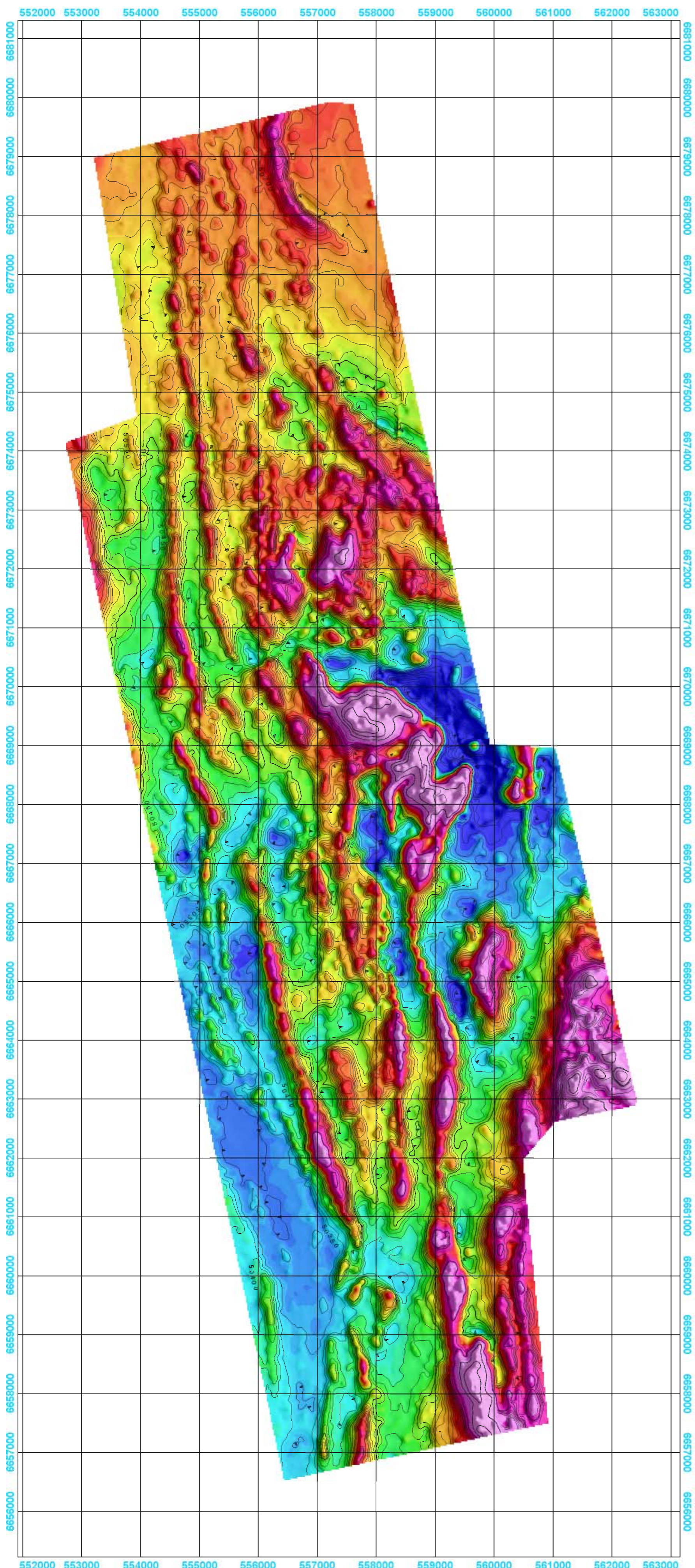
### GEOLOGICAL SURVEY OF NORWAY

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N-7491 TRONDHEIM  
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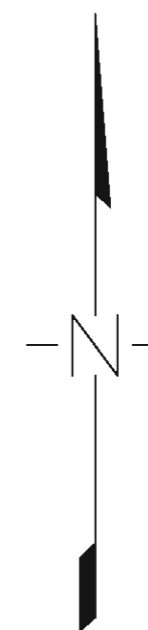
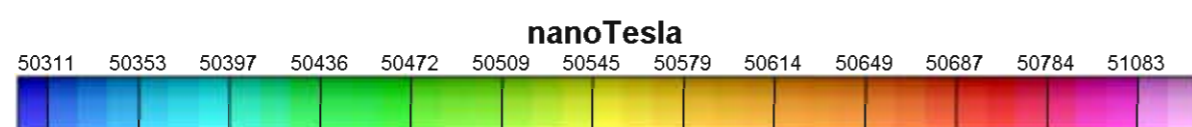
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**2006.021-01C**





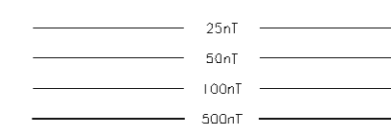
GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



### TOTAL MAGNETIC FIELD

The intensity of the total magnetic field is in nanoTesla.

Contours given in following intervals:



Colours - distributed after colourscale.

Data are corrected for diurnal variations using a basemagnetometer located at Eggemoen airfield.

A high sensitivity cesiummagnetometer sensor is used and nominal sensor elevation is 30 metres.

### NAVIGATION

The entire area was covered by GPS navigation.

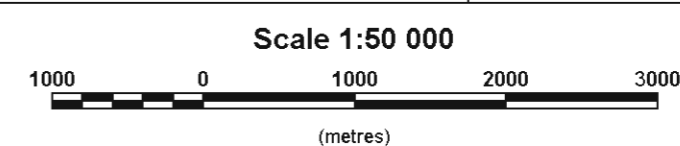
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### TOTAL MAGNETIC FIELD Colours and contours

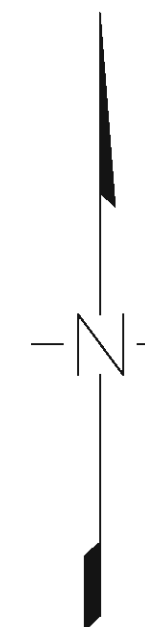
*Ertelien*  
*Buskerud*

Drawing: *Mogaard, J.O.* Date: *FEB2006* Obs: *JOM/JK*



Mapsheet (1:50 000):  
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1815 III Hønefoss  
1715 II Kraderen

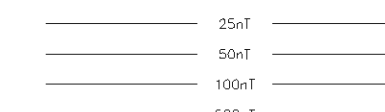




### TOTAL MAGNETIC FIELD

The intensity of the total magnetic field is in nanoTesla.

Contours given in following intervals:



Colours - distributed after colourscale.

Data are corrected for diurnal variations using a basemagnetometer located at Geiteryggen airfield.

A high sensitivity cesiummagnetometer sensor is used and nominal sensor elevation is 30 metres.

### NAVIGATION

The entire area was covered by GPS navigation.

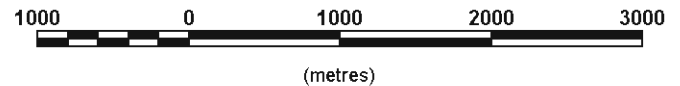

The nominal flying height above ground level in the area is 60 metres.

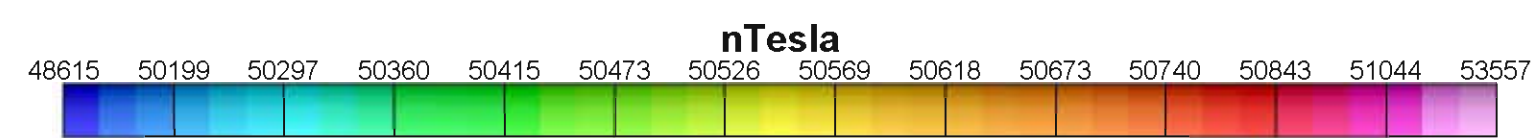
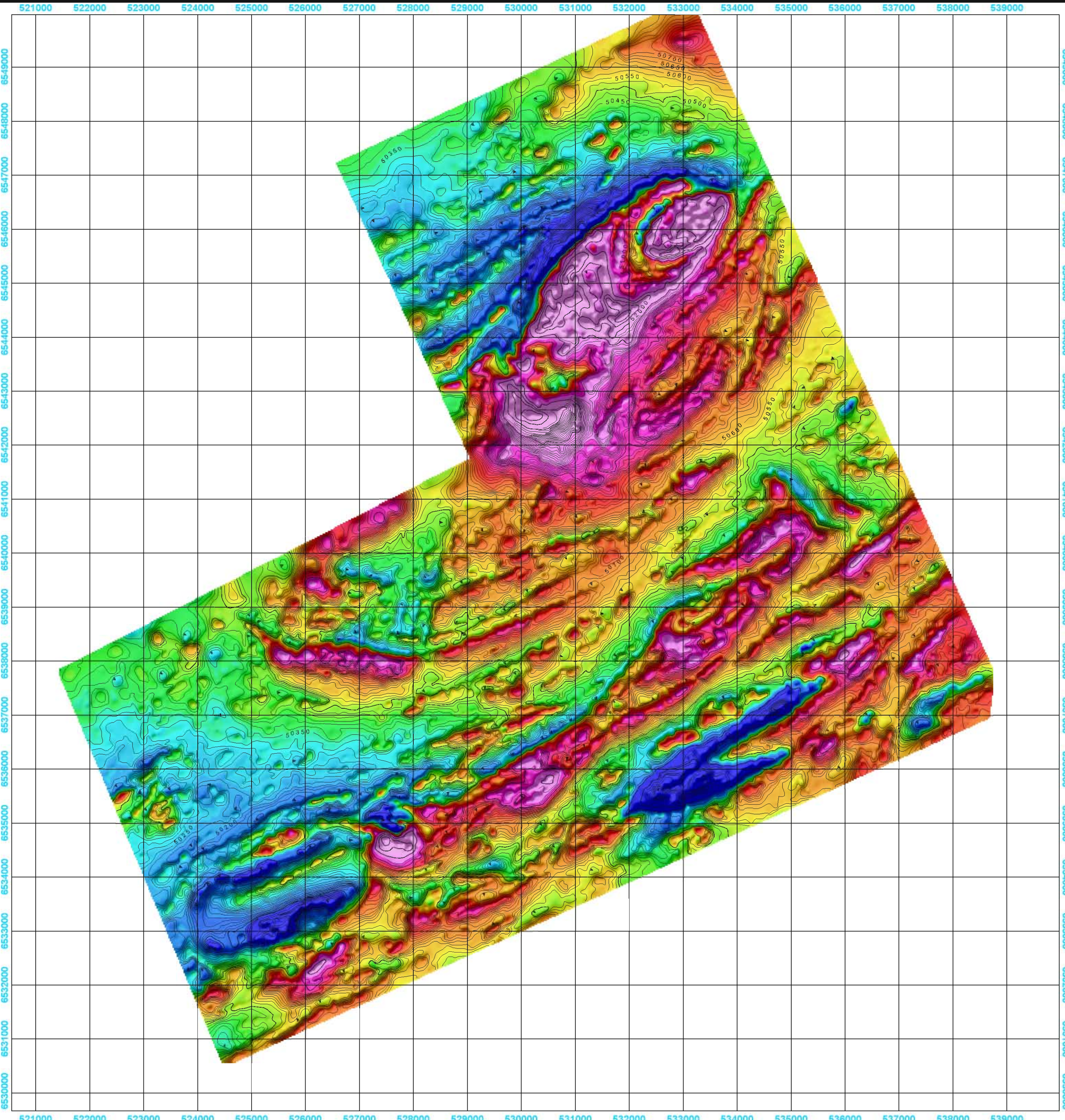
## A/S SULFIDMALM

### TOTAL MAGNETIC FIELD

Colours and contours

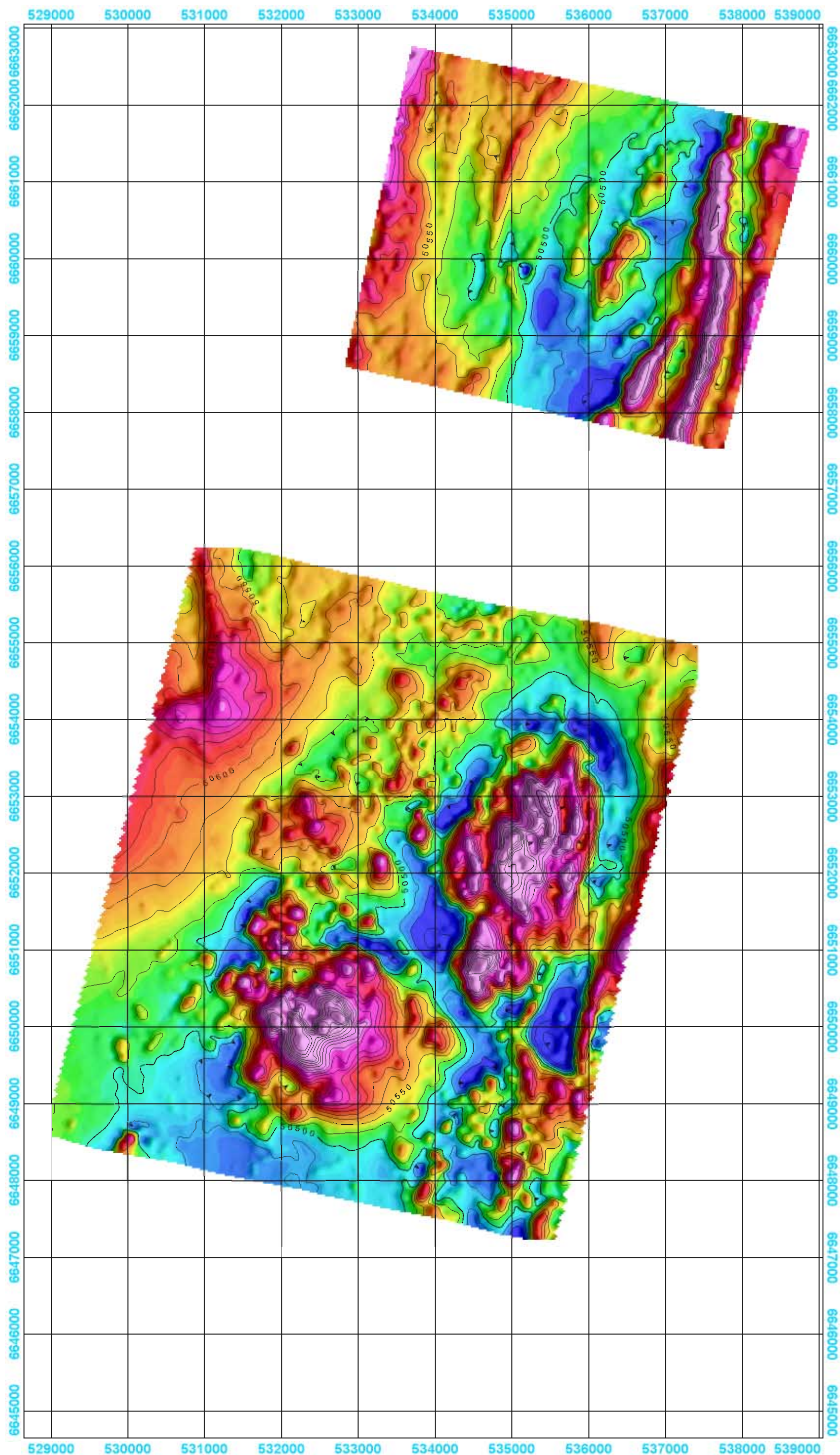
**Bamble**  
Telemark

Drawing: <i>Mogaard, J.O.</i>	Date: <i>FEB2006</i>	Obs: <i>JOM/JK</i>
Scale 1:50 000		Mapsheet (1:50 000): 1712 IV Kragera 1712 I Langesund 1713 II Porsgrunn 1713 III Kilebygd
 <p>(metres)</p>		
 <p><b>NGU</b> Norges geologiske undersøkelse Geological Survey of Norway</p>		<p><b>GEOLOGICAL SURVEY OF NORWAY</b> Leiv Eirikssons vei 39 N-7491 TRONDHEIM Tel +47-73 90 40 00, Fax +47-73 92 16 20 <a href="http://www.ngu.no">http://www.ngu.no</a></p>
Drawing no:		<b>2006.021-02B</b>

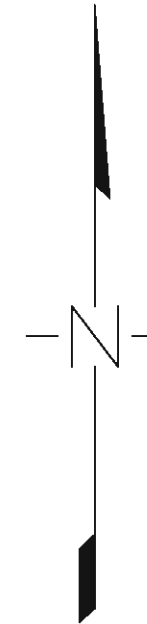
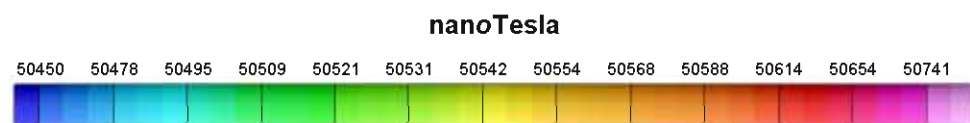


GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N





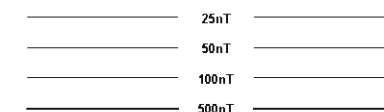
GEODETIC DATUM: WGS84  
 CONFORM CYLINDERPROJECTION  
 Numbers in BLUE for UTM coordinates, zone 32N



### TOTAL MAGNETIC FIELD

The intensity of the total magnetic field is in nanoTesla.

Contours given in following intervals:



Colours - distributed after colourscale.

Data are corrected for diurnal variations using a basemagnetometer located at Eggemoen airfield.

A high sensitivity cesiummagnetometer sensor is used and nominal sensor elevation is 30 metres.

### NAVIGATION

The entire area was covered by GPS navigation.

The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### TOTAL MAGNETIC FIELD Colours and contours

*Sigdal*

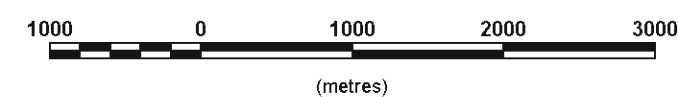
*Buskerud*

Drawing: *Mogaard, J.O.*

Date: *FEB2006*

Obs: *JOM/JK*

Scale 1:50 000

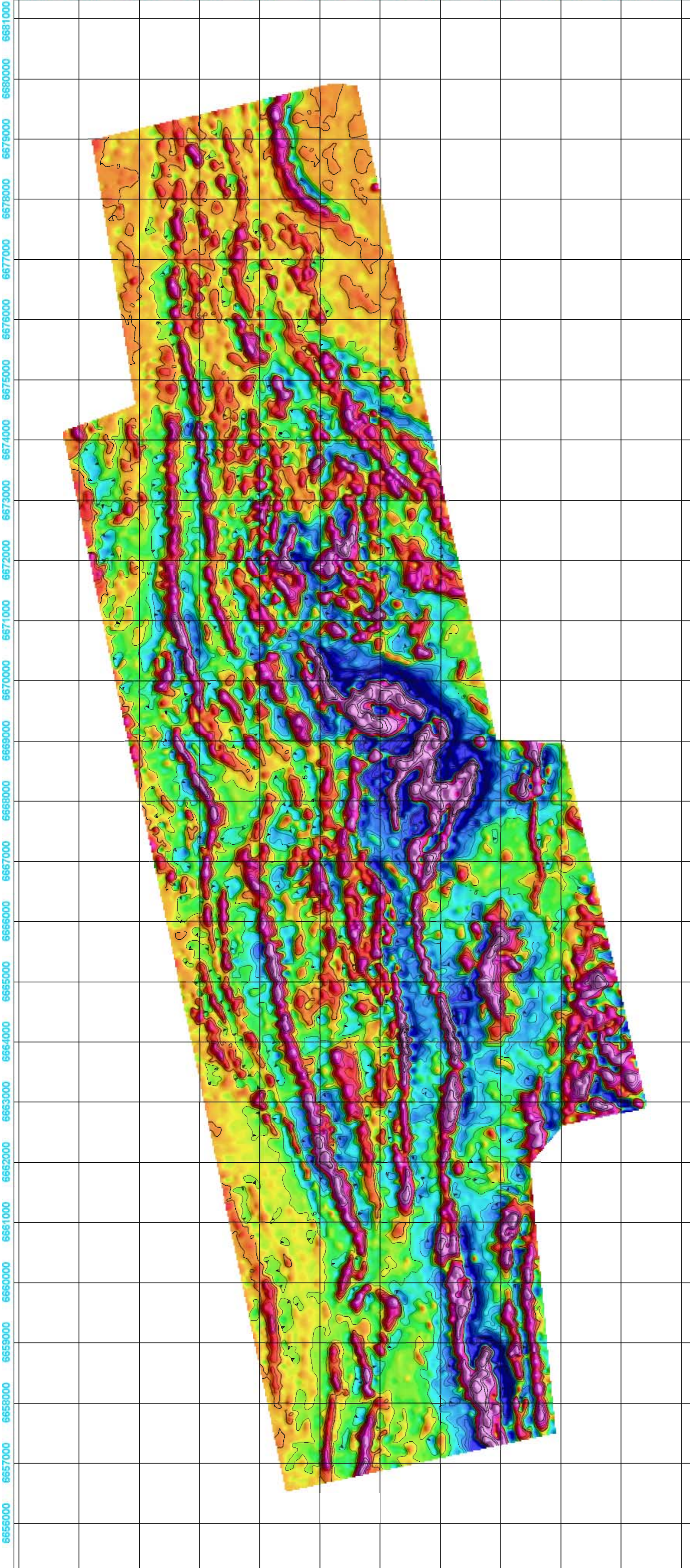


Mapsheet (1:50 000):

1714 I Hokksund  
 1714 IV Flesberg  
 1715 III Eggedal  
 1715 II Krøderen

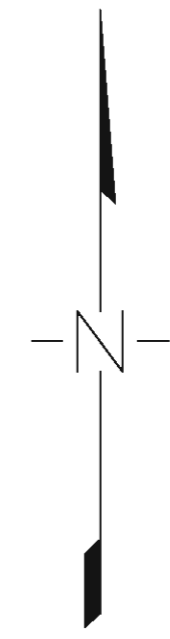


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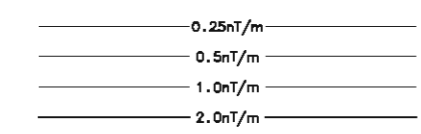
552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



**CALCULATED VERTICAL GRADIENT**

Vertical Magnetic Gradient (in NanoTeslas per meter).  
Calculated from the total field magnetics.  
Contours given in following intervals:



Colours - distributed after colourscale.

Cesium high sensitivity magnetometer.  
Sensor elevation - 30 metres.

**NAVIGATION**

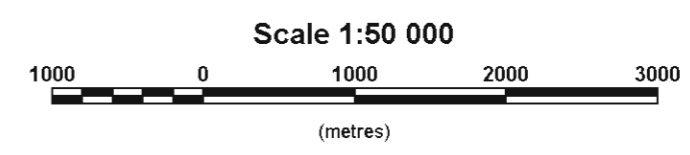
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

**A/S SULFIDMALM**

**CALCULATED VERTICAL MAGNETIC GRADIENT**  
Colours and contours

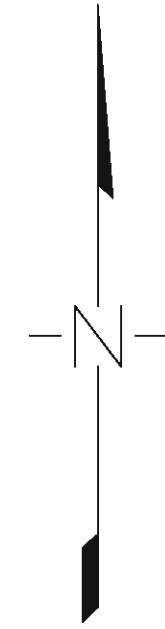
*Ertelien*  
*Buskerud*

Drawing: <i>Mogaard, J.O.</i>	Date: <i>FEB2006</i>	Obs: <i>JOM/JK</i>
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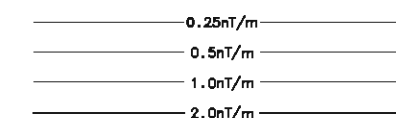
Mapsheet (1:50 000):  
1815 IV Sperillen  
1815 III Hønefoss  
1715 II Kraderen





### CALCULATED VERTICAL GRADIENT

Vertical Magnetic Gradient (in NanoTeslas per meter).  
Calculated from the total field magnetics.  
Contours given in following intervals:



Colours - distributed after colourscale.

Cesium high sensitivity magnetometer.  
Sensor elevation - 30 metres.

### NAVIGATION

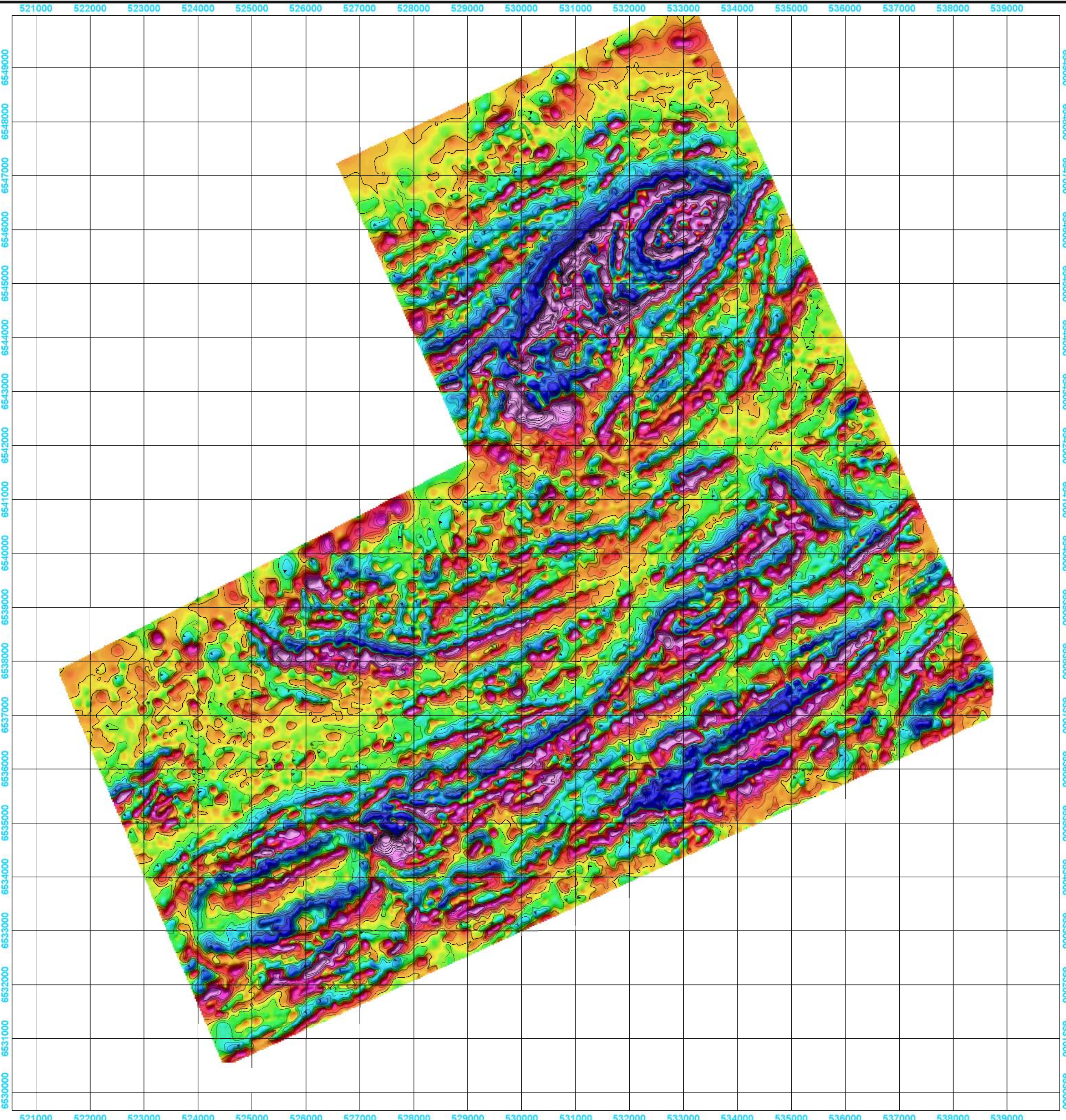
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

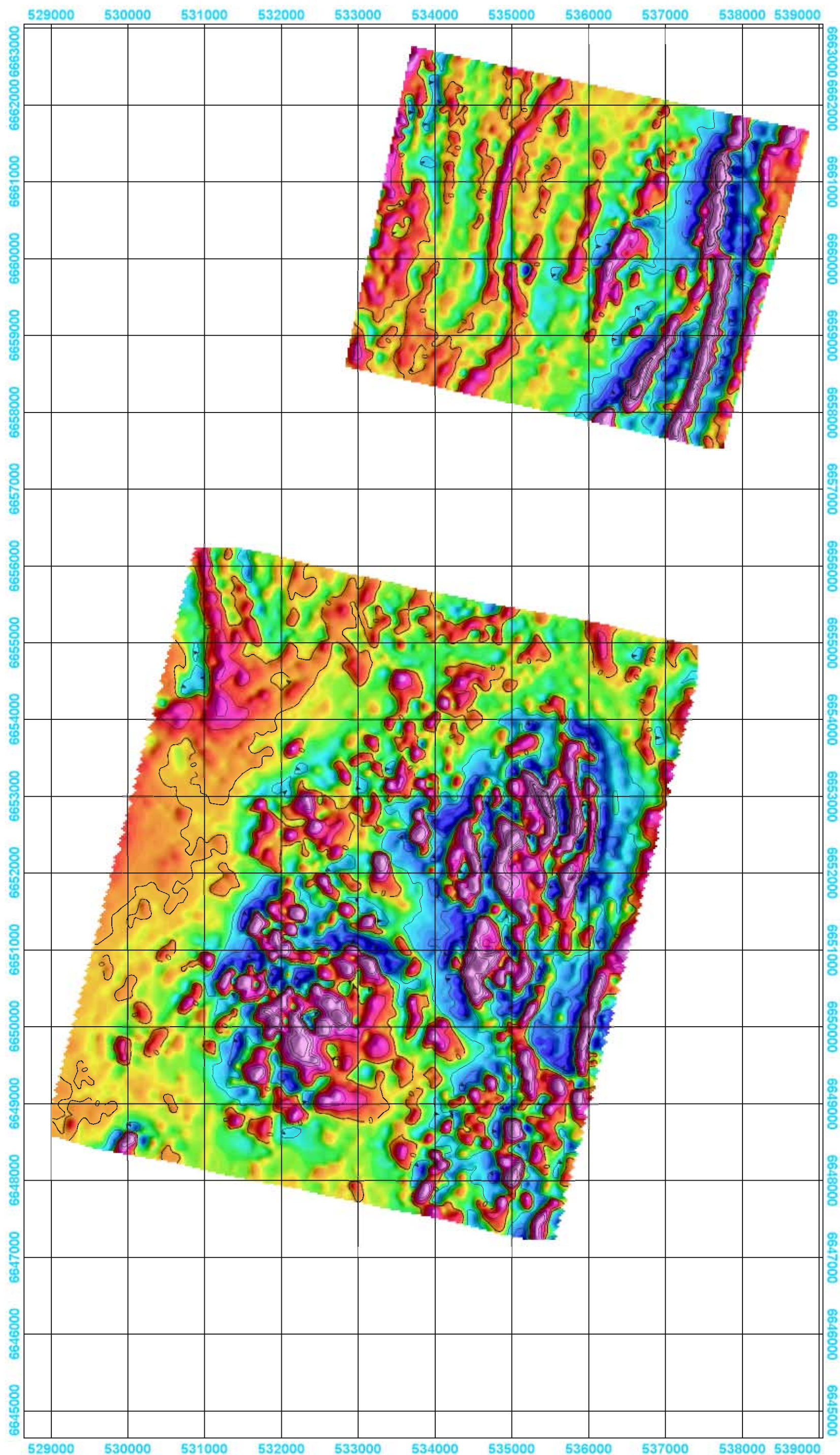
### CALCULATED VERTICAL MAGNETIC GRADIENT Colours and contours

**Bamble**  
Telemark

Drawing: <i>Mogaard, J.O.</i>	Date: <i>FEB2006</i>	Obs: <i>JOM/JK</i>
Scale 1:50 000		Mapsheet (1:50 000): 1712 IV <i>Kragerø</i> 1712 I <i>Langesund</i> 1713 II <i>Porsgrunn</i> 1713 III <i>Kilebygd</i>





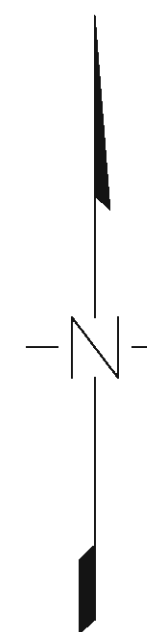
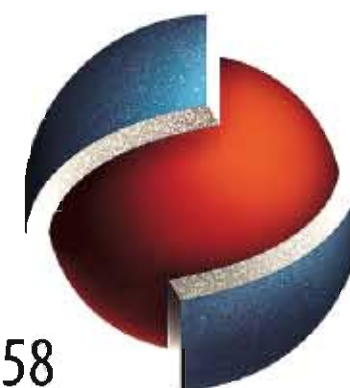


GEODETIC DATUM: WGS84  
 CONFORM CYLINDERPROJECTION  
 Numbers in BLUE for UTM coordinates, zone 32N



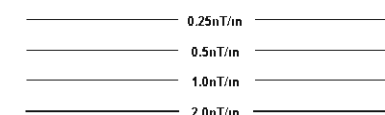
# NGU

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### CALCULATED VERTICAL GRADIENT

Vertical Magnetic Gradient (in NanoTeslas per meter).  
 Calculated from the total field magnetics.  
 Contours given in following intervals:



Colours - distributed after colourscale.

Cesium high sensitivity magnetometer.  
 Sensor elevation - 30 metres.

### NAVIGATION

The entire area was covered by GPS navigation.

The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### CALCULATED VERTICAL MAGNETIC GRADIENT Colours and contours

*Sigdal*

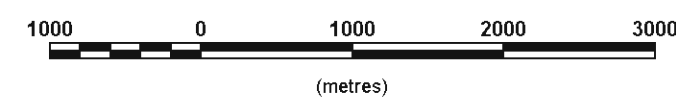
*Buskerud*

Drawing: *Mogaard, J.O.*

Date: *FEB2006*

Obs: *JOM/JK*

Scale 1:50 000



Mapsheet (1:50 000):

1714 I Hokksund  
 1714 IV Flesberg  
 1715 III Eggedal  
 1715 II Krøderen



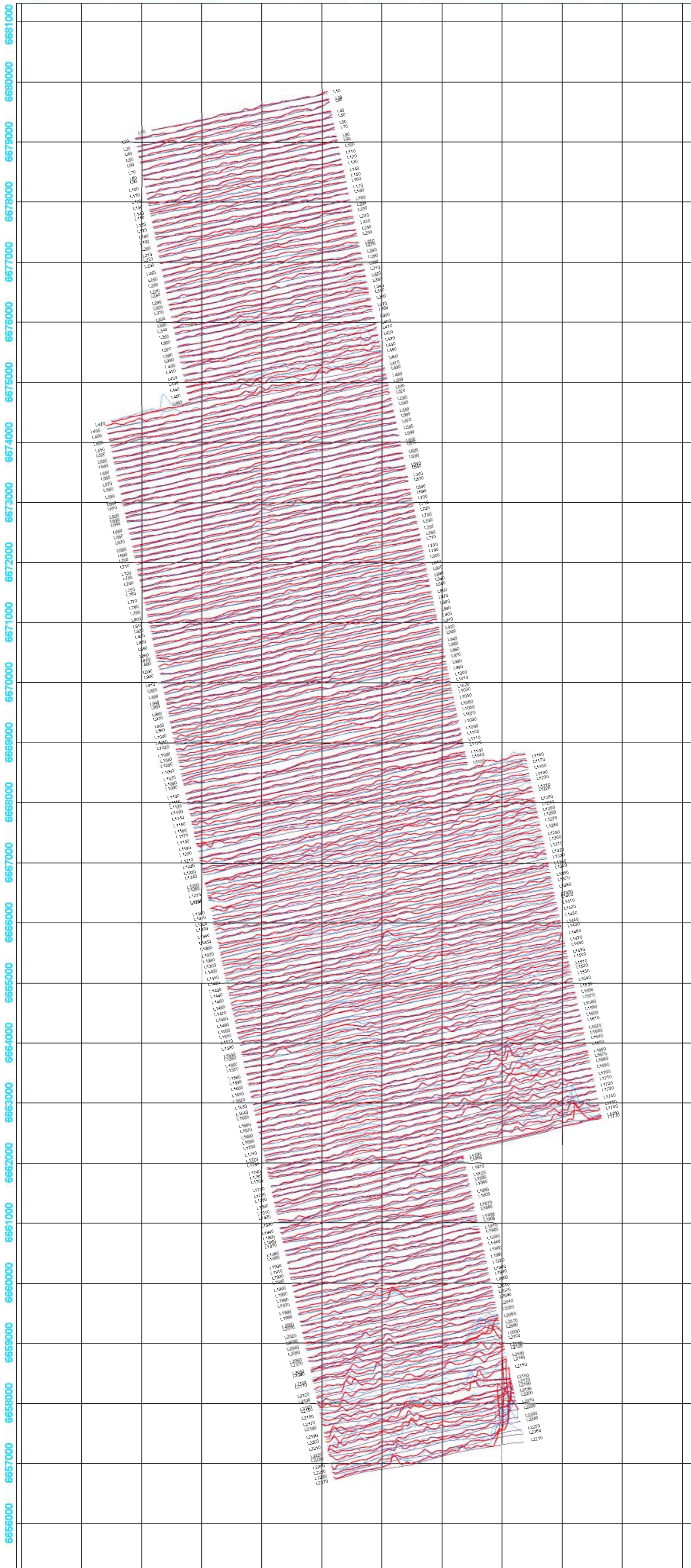
GEOLOGICAL SURVEY OF NORWAY  
 Leiv Eirikssons vei 39  
 N-7491 TRONDHEIM  
 Tel +47-73 90 40 00, Fax +47-73 92 16 20  
<http://www.ngu.no>

Drawing no:

2006.021-03C

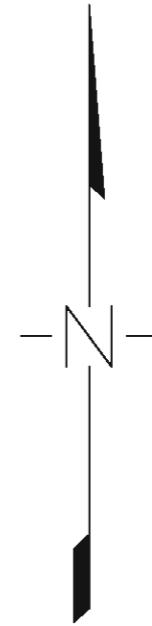


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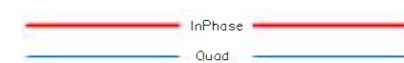
552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



### HEM 7001 Hz COAXIAL

Frequency : 7001 Hz (coaxial orientation)  
Coil spacing : 6 m



Inphase : 5 ppm/mm  
Quadrature : 5 ppm/mm

### NAVIGATION

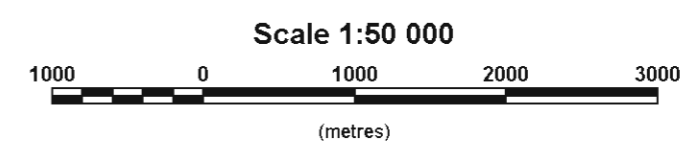
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### HEM STACKED PROFILES 7001 Hz COAXIAL

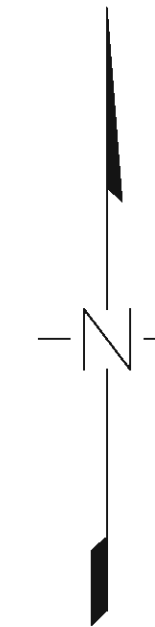
Ertelien  
Buskerud

Drawing: **Mogaard, J.O.** Date: **FEB2006** Obs: **JOM/JK**



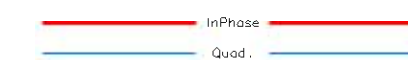
Mapsheet (1:50 000):  
1815 IV Sperillen  
1815 III Hønefoss  
1715 II Kraderen





### HEM 7001 Hz COAXIAL

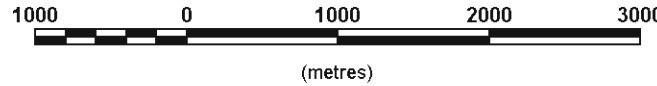

Frequency : 7001 Hz (coaxial orientation)  
Coil spacing : 6 m

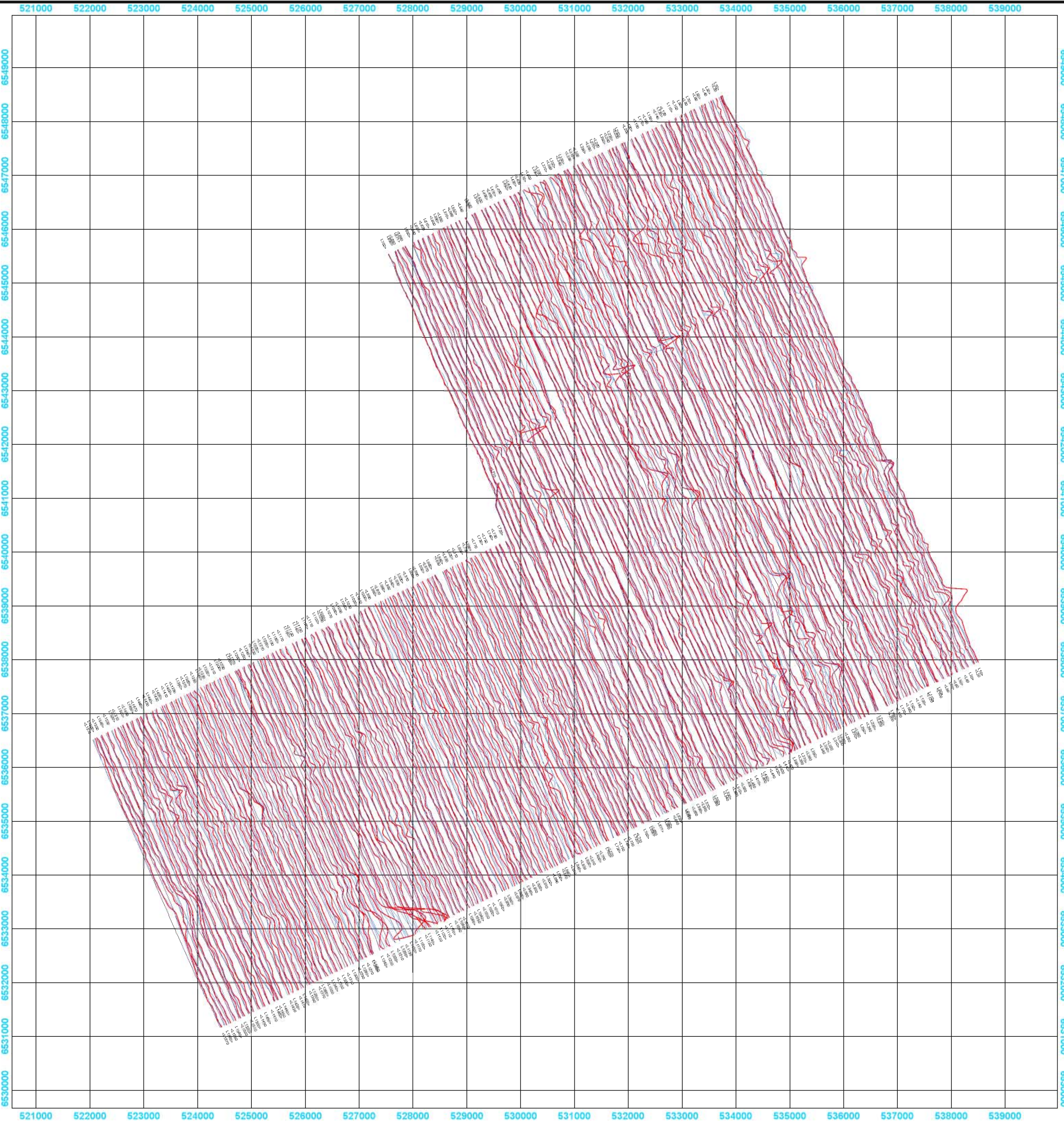


Inphase : 5 ppm/mm  
Quadrature : 5 ppm/mm

### NAVIGATION

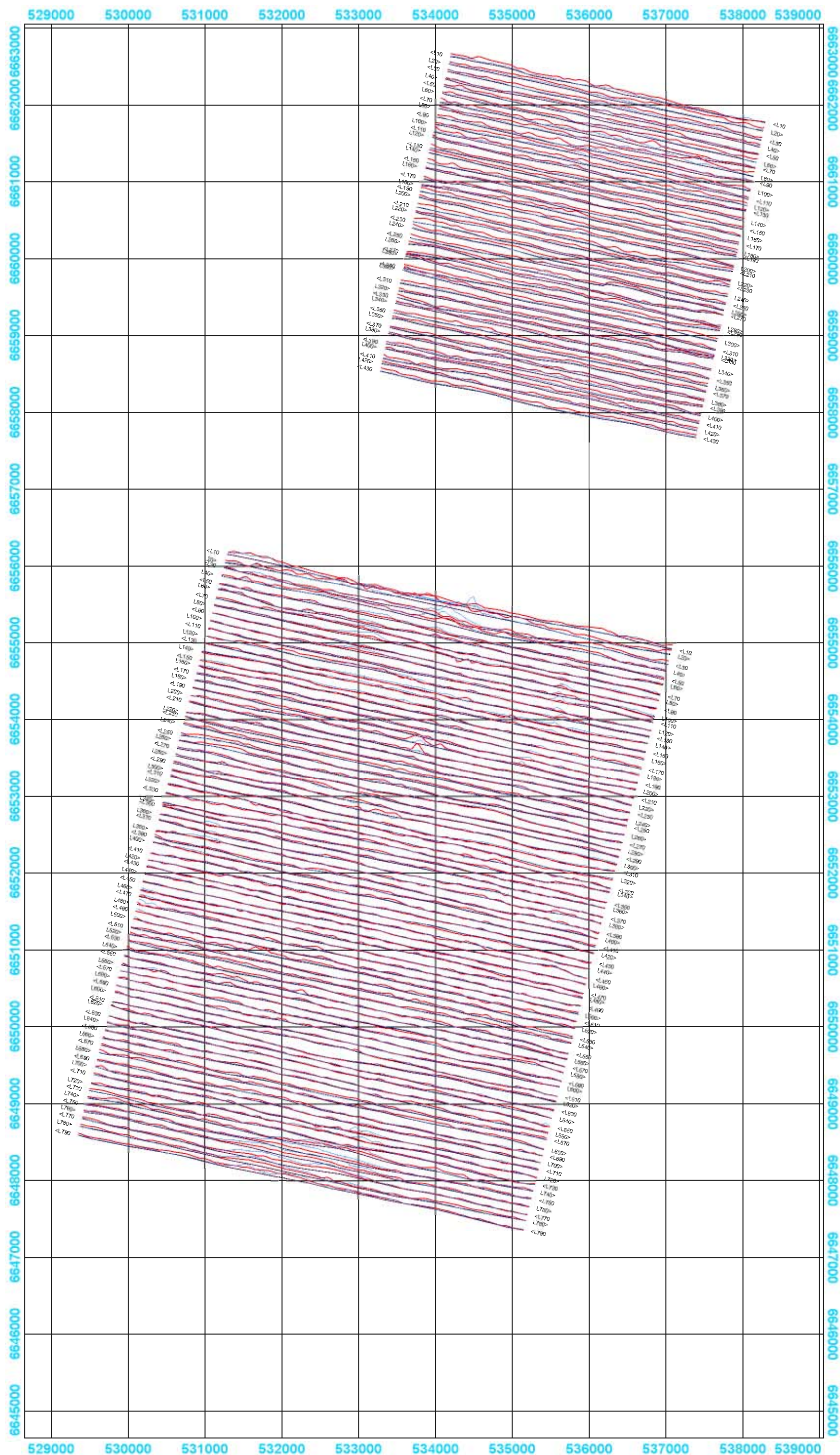
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

<h2>A/S SULFIDMALM</h2>		
<h3>HEM STACKED PROFILES 7001 Hz COAXIAL</h3>		
<b>Bamble</b> Telemark		
Drawing: <i>Mogaard, J.O.</i>	Date: <i>FEB2006</i>	Obs: <i>JOM/JK</i>
Scale 1:50 000		Mapsheet (1:50 000): 1712 IV Kragerø 1712 I Langesund 1713 II Porsgrunn 1713 III Kilebygd
 <p>(metres)</p>		
		Drawing no: <b>2006.021-04B</b>
<b>GEOLOGICAL SURVEY OF NORWAY</b> Leiv Eirikssons vei 39 N-7491 TRONDHEIM Tel +47-73 90 40 00, Fax +47-73 92 16 20 <a href="http://www.ngu.no">http://www.ngu.no</a>		

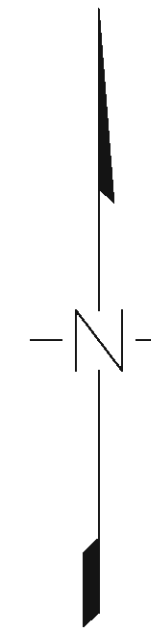


GEODETTIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N





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**HEM 7001 Hz COAXIAL**

Frequency : 7001 Hz (coaxial orientation)  
Coil spacing : 6 m



Inphase : 5 ppm/mm  
Quadrature : 5 ppm/mm

**NAVIGATION**

The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

**A/S SULFIDMALM**

**HEM STACKED PROFILES 7001 Hz COAXIAL**

**Sigdal**

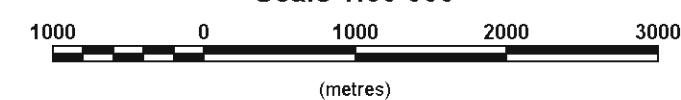
**Buskerud**

Drawing: **Mogaard, J.O.**

Date: **FEB2006**

Obs: **JOM/JK**

Scale 1:50 000



Mapsheet (1:50 000):

1714 I Hokksund  
1714 IV Flesberg  
1715 III Eggedal  
1715 II Krøderen

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



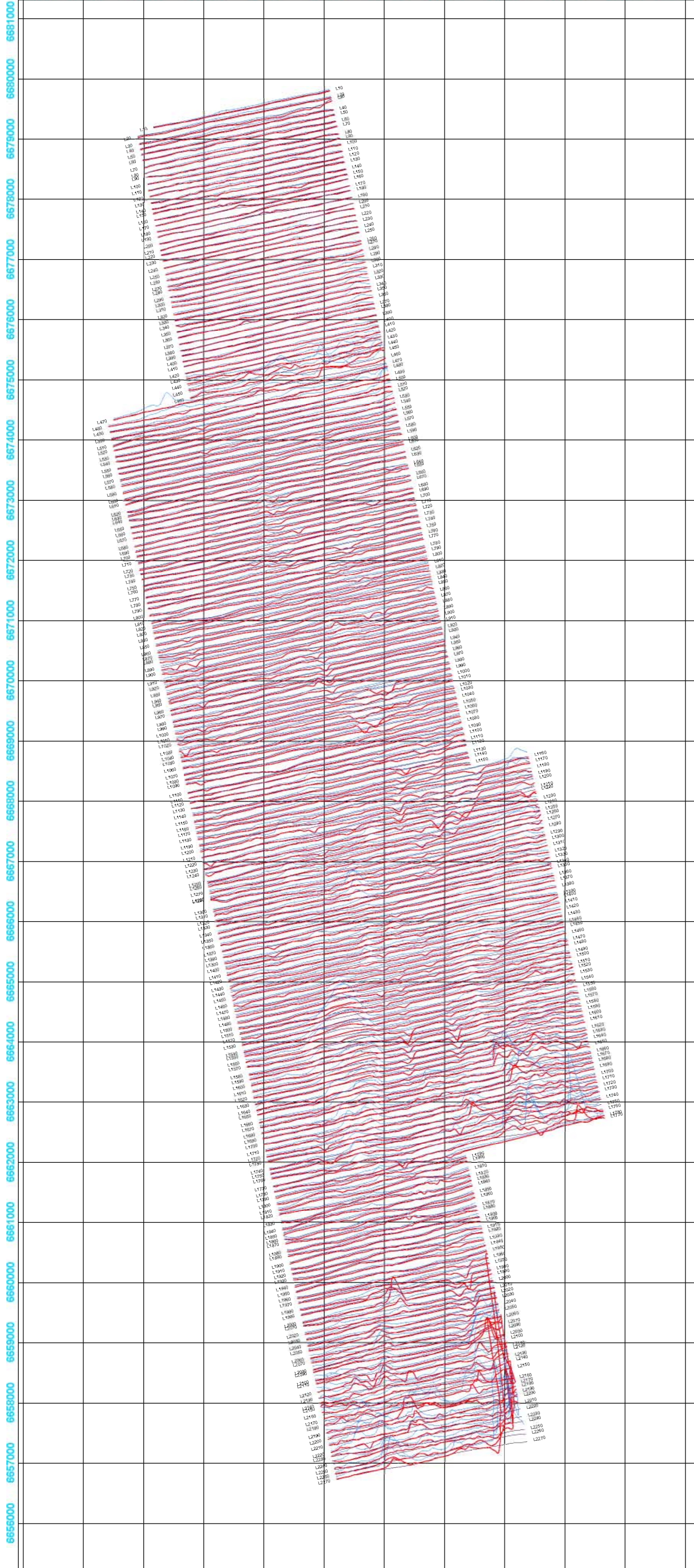
**GEOLOGICAL SURVEY OF NORWAY**  
Leiv Eirikssons vei 39  
N-7491 TRONDHEIM  
Tel +47-73 90 40 00, Fax +47-73 92 16 20  
<http://www.ngu.no>

Drawing no:

**2006.021-04C**

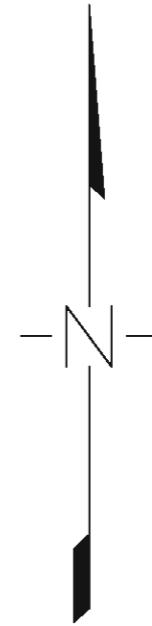


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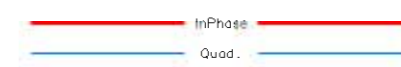
552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



### HEM 6606 Hz COPLANAR

Frequency : 6606 Hz (horizontal, coplanar orientation)  
Coil spacing : 6 m



Inphase : 10 ppm/mm  
Quadrature : 10 ppm/mm

### NAVIGATION

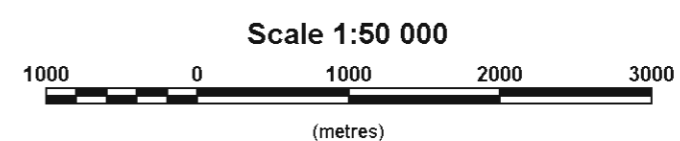
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### HEM STACKED PROFILES 6606 Hz COPLANAR

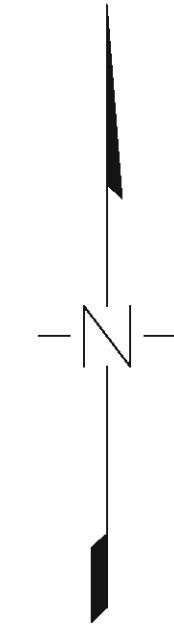
Ertelien  
Buskerud

Drawing: **Mogaard, J.O.** Date: **FEB2006** Obs: **JOM/JK**



Mapsheet (1:50 000):  
1815 IV Sperillen  
1815 III Hønefoss  
1715 II Kraderen





### HEM 6606 Hz COPLANAR

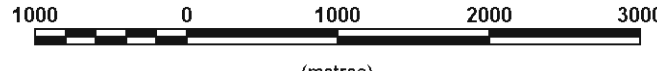

Frequency : 6606 Hz (horizontal, coplanar orientation)  
Coil spacing : 6 m

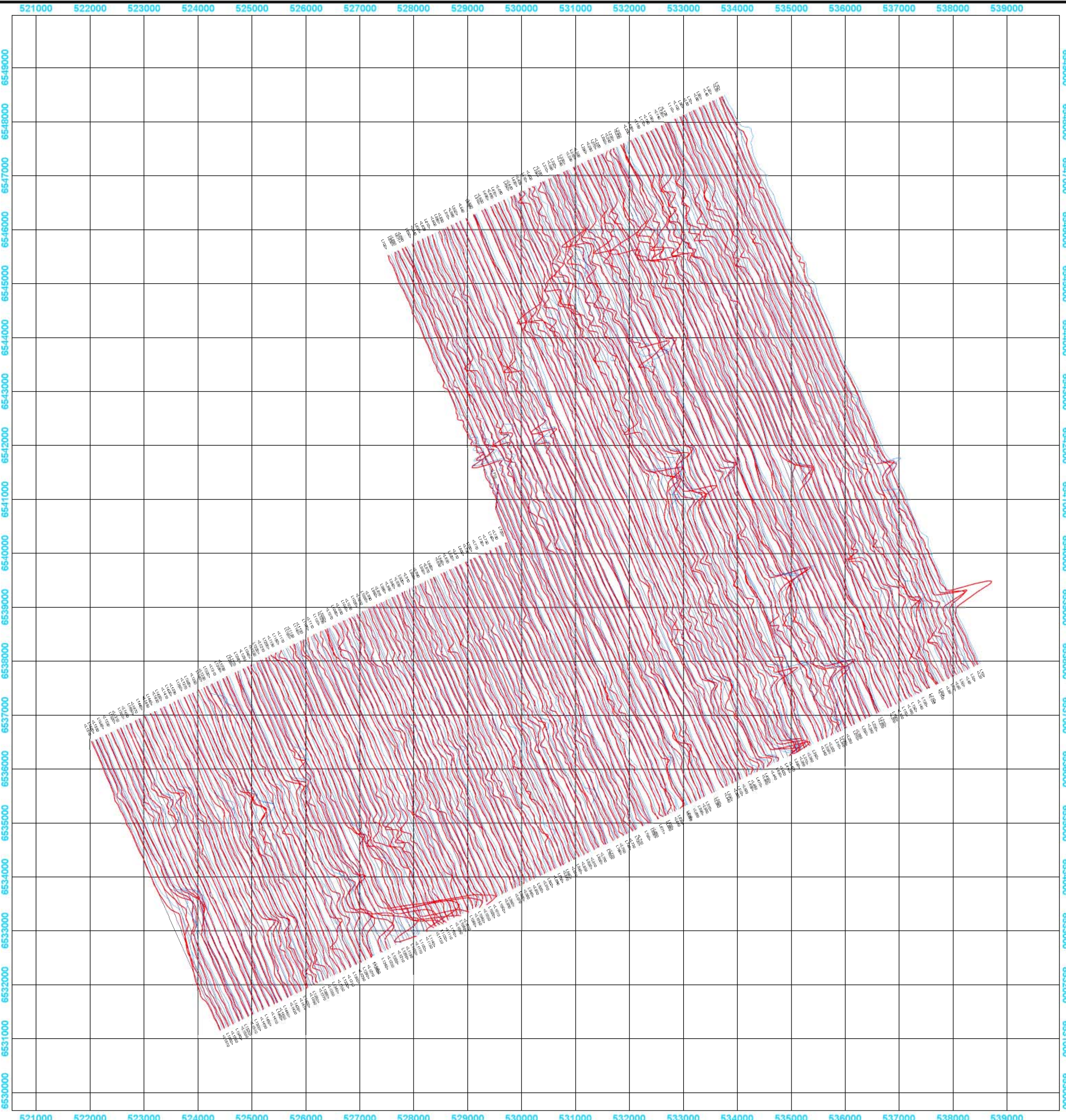


Inphase : 10 ppm/mm  
Quadrature : 10 ppm/mm

### NAVIGATION

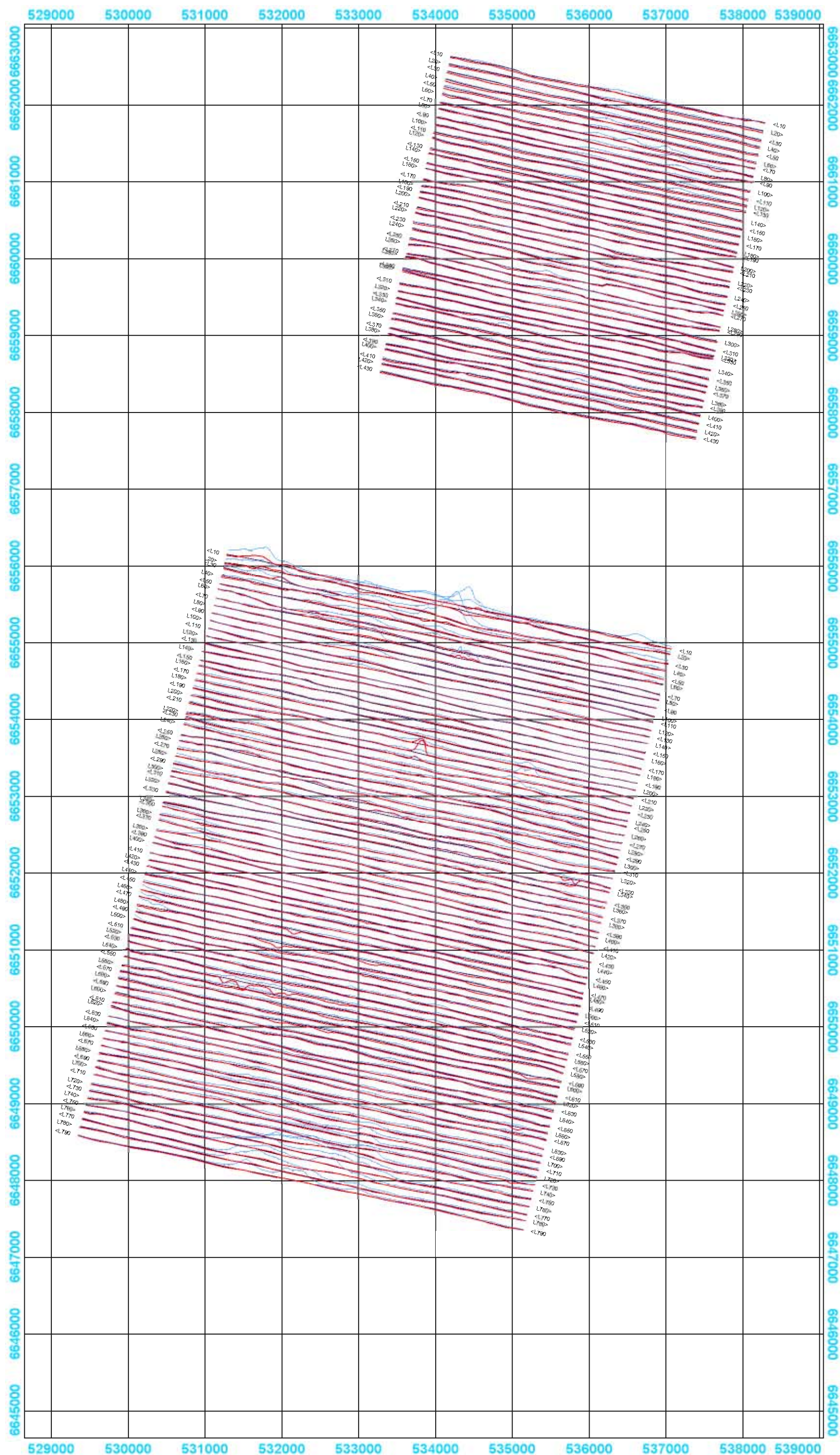
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

<h2>A/S SULFIDMALM</h2>		
<h3>HEM STACKED PROFILES 6606 Hz COPLANAR</h3>		
<b>Bamble</b> Telemark		
Drawing: <i>Mogaard, J.O.</i>	Date: <i>FEB2006</i>	Obs: <i>JOM/JK</i>
Scale 1:50 000		Mapsheet (1:50 000): 1712 IV Kragersø 1712 I Langesund 1713 II Porsgrunn 1713 III Kilebygd
 <p>(metres)</p>		
 <p><b>NGU</b> Norges geologiske undersøkelse Geological Survey of Norway</p>		<p><b>GEOLOGICAL SURVEY OF NORWAY</b> Leiv Eirikssons vei 39 N-7491 TRONDHEIM Tel +47-73 90 40 00, Fax +47-73 92 16 20 <a href="http://www.ngu.no">http://www.ngu.no</a></p>
		Drawing no: <b>2006.021-05B</b>

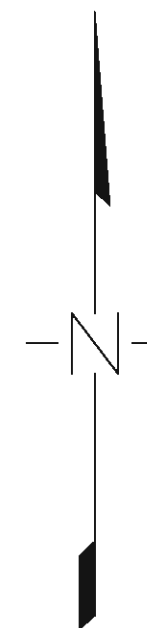
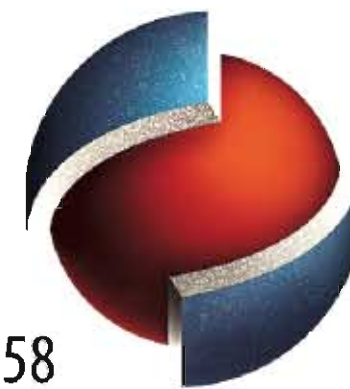


GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



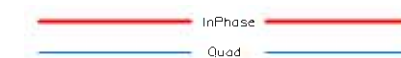


**NGU**  
Geology for Society since 1858



**HEM 6606 Hz COPLANAR**

Frequency : 6606 Hz (horizontal, coplanar orientation)  
Coil spacing : 6 m



Inphase : 10 ppm/mm  
Quadrature : 10 ppm/mm

**NAVIGATION**

The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

**A/S SULFIDMALM**

**HEM STACKED PROFILES 6606 Hz COPLANAR**

**Sigdal**

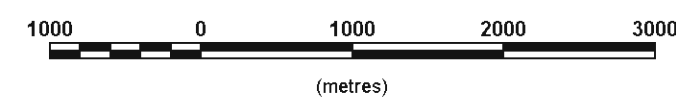
**Buskerud**

Drawing: **Mogaard, J.O.**

Date: **FEB2006**

Obs: **JOM/JK**

Scale 1:50 000



Mapsheet (1:50 000):

1714 I Hokksund  
1714 IV Flesberg  
1715 III Eggedal  
1715 II Krøderen

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N

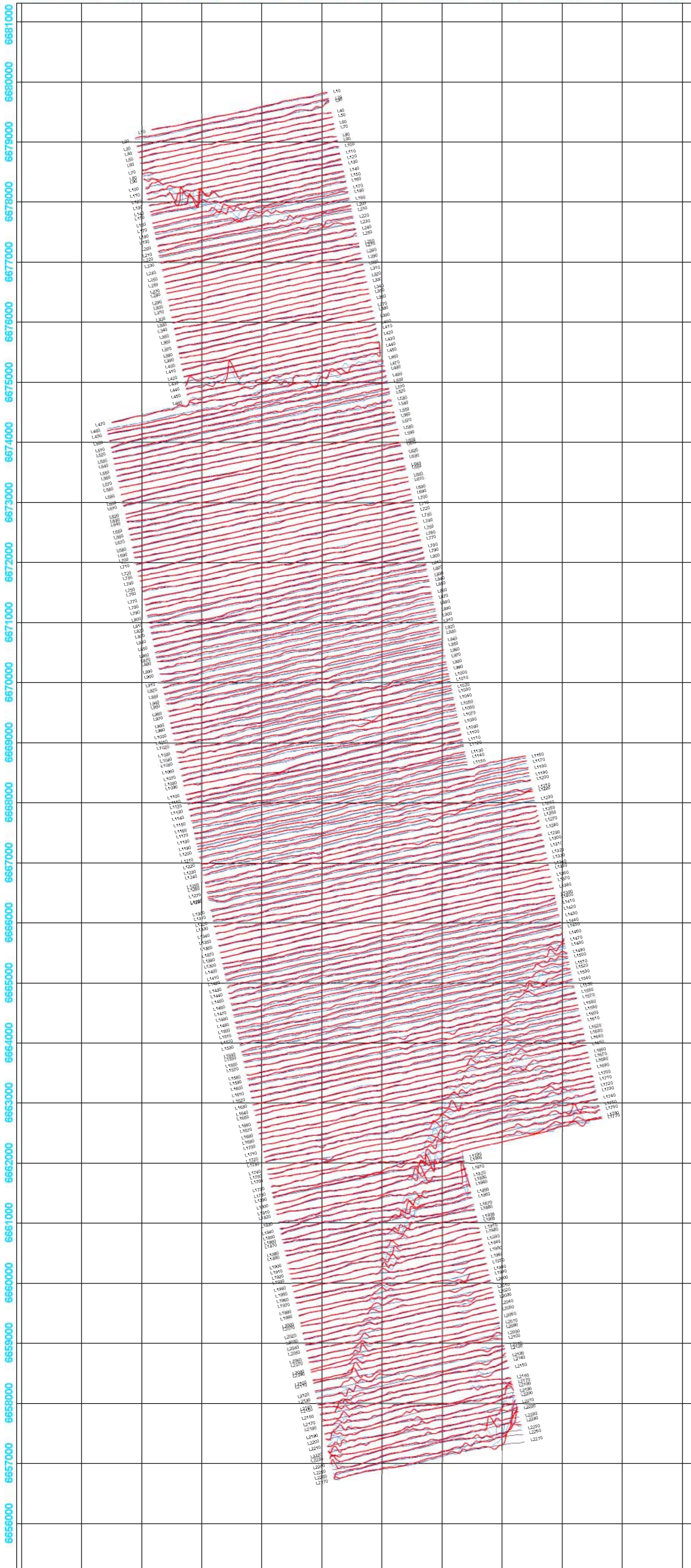


**GEOLOGICAL SURVEY OF NORWAY**  
Leiv Eirikssons vei 39  
N-7491 TRONDHEIM  
Tel +47-73 90 40 00, Fax +47-73 92 16 20  
<http://www.ngu.no>

Drawing no:  
**2006.021-05C**

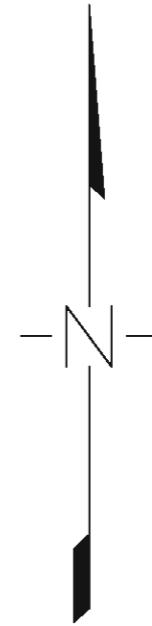


552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000



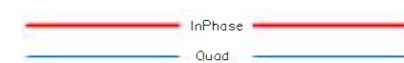
552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



**HEM 980 Hz COAXIAL**

Frequency : 980 Hz (coaxial orientation)  
Coil spacing : 6 m



Inphase : 5 ppm/mm  
Quadrature : 5 ppm/mm

**NAVIGATION**

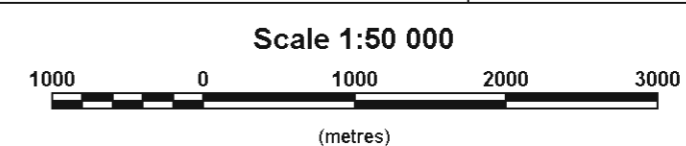
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

**A/S SULFIDMALM**

**HEM STACKED PROFILES 980 Hz COAXIAL**

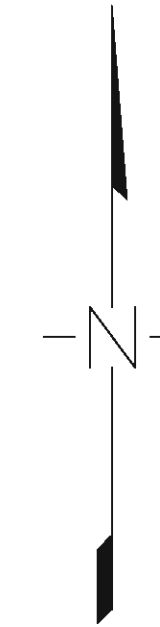
*Ertelien*  
*Buskerud*

Drawing: <b>Mogaard, J.O.</b>	Date: <b>FEB2006</b>	Obs: <b>JOM/JK</b>
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Mapsheet (1:50 000):  
1815 IV Sperillen  
1815 III Hønefoss  
1715 II Krageren





### HEM 980 Hz COAXIAL



Frequency : 980 Hz (coaxial orientation)  
Coil spacing : 6 m

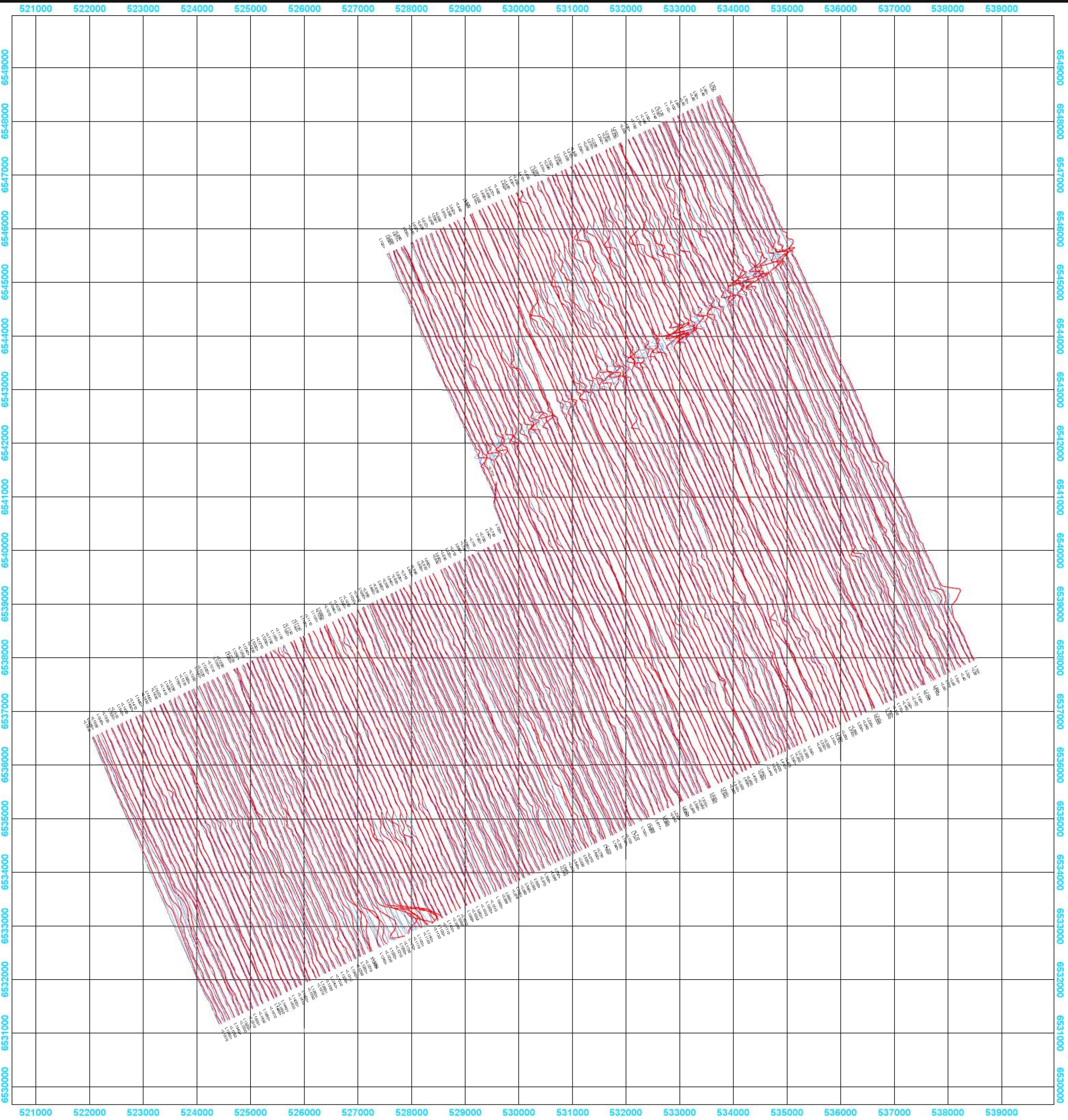


Inphase : 5 ppm/mm  
Quadrature : 5 ppm/mm

### NAVIGATION

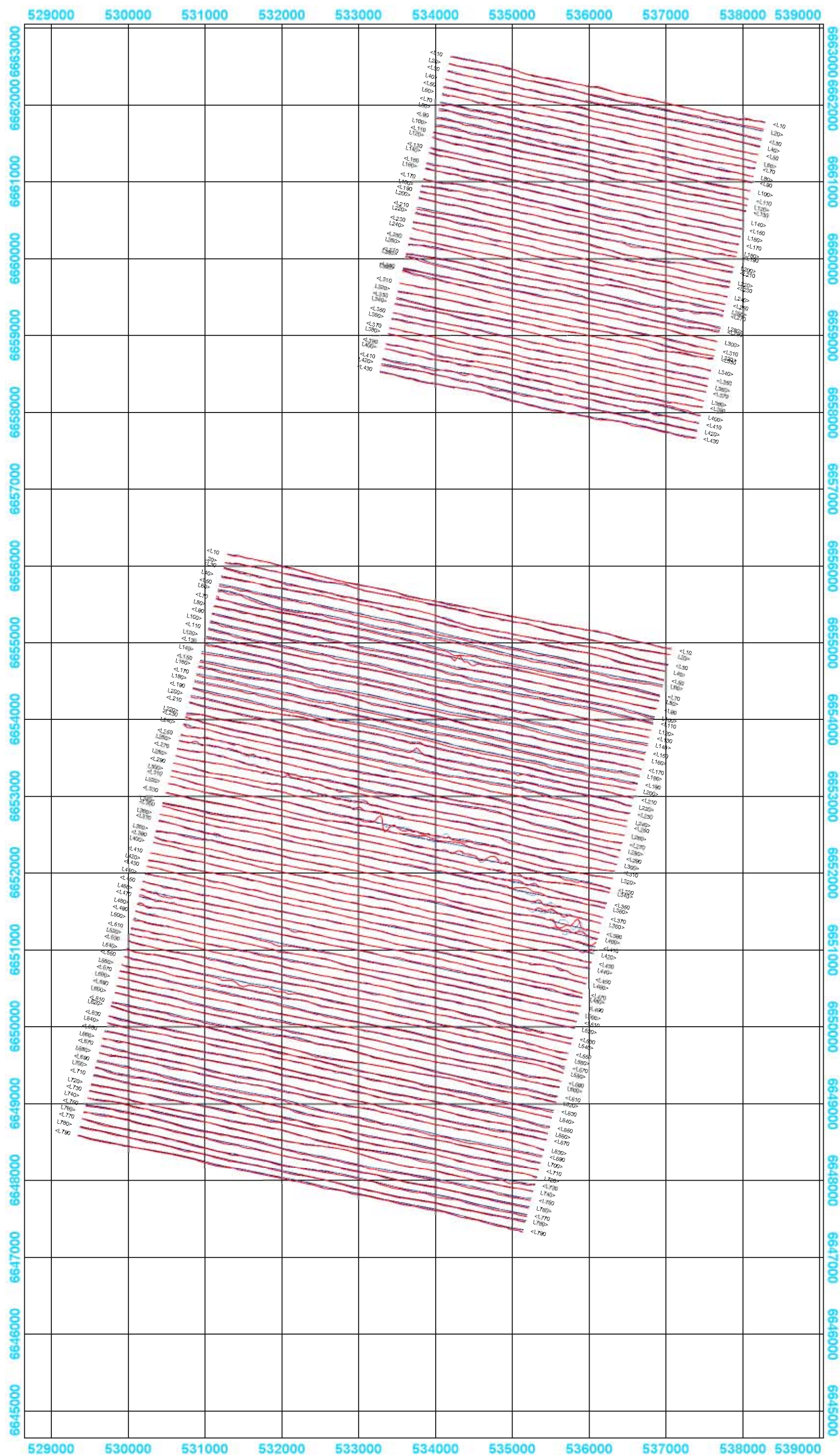
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

<h2>A/S SULFIDMALM</h2>		
<h3>HEM STACKED PROFILES 980 Hz COAXIAL</h3>		
<b>Bamble</b> Telemark		
Drawing: <i>Mogaard, J.O.</i>	Date: <b>FEB2006</b>	Obs: <i>JOM/JK</i>
Scale 1:50 000  (metres)		Mapsheet (1:50 000): 1712 IV Kragersund 1712 I Langesund 1713 II Porsgrunn 1713 III Kilebygd
 <b>GEOLOGICAL SURVEY OF NORWAY</b> Leiv Eirikssons vei 39 N-7491 TRONDHEIM Tel +47-73 90 40 00, Fax +47-73 92 16 20 <a href="http://www.ngu.no">http://www.ngu.no</a>		Drawing no: <b>2006.021-06B</b>

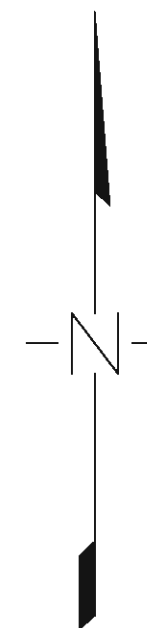
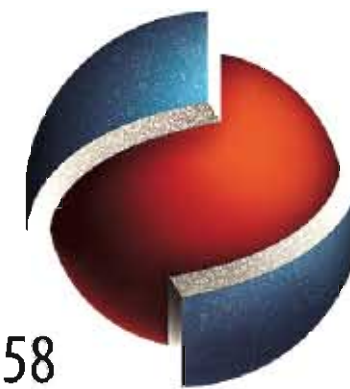


GEODETIC DATUM: WGS84  
 CONFORM CYLINDERPROJECTION  
 Numbers in BLUE for UTM coordinates, zone 32N





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**HEM 980 Hz COAXIAL**

Frequency : 980 Hz (coaxial orientation)  
Coil spacing : 6 m



Inphase : 5 ppm/mm  
Quadrature : 5 ppm/mm

**NAVIGATION**

The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

**A/S SULFIDMALM**

**HEM STACKED PROFILES 980 Hz COAXIAL**

**Sigdal**

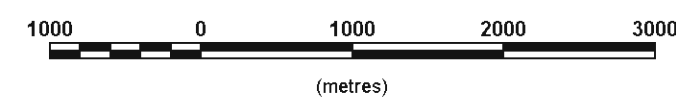
**Buskerud**

Drawing: **Mogaard, J.O.**

Date: **FEB2006**

Obs: **JOM/JK**

Scale 1:50 000



Mapsheet (1:50 000):  
1714 I Hokksund  
1714 IV Flesberg  
1715 III Eggedal  
1715 II Krøderen

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N

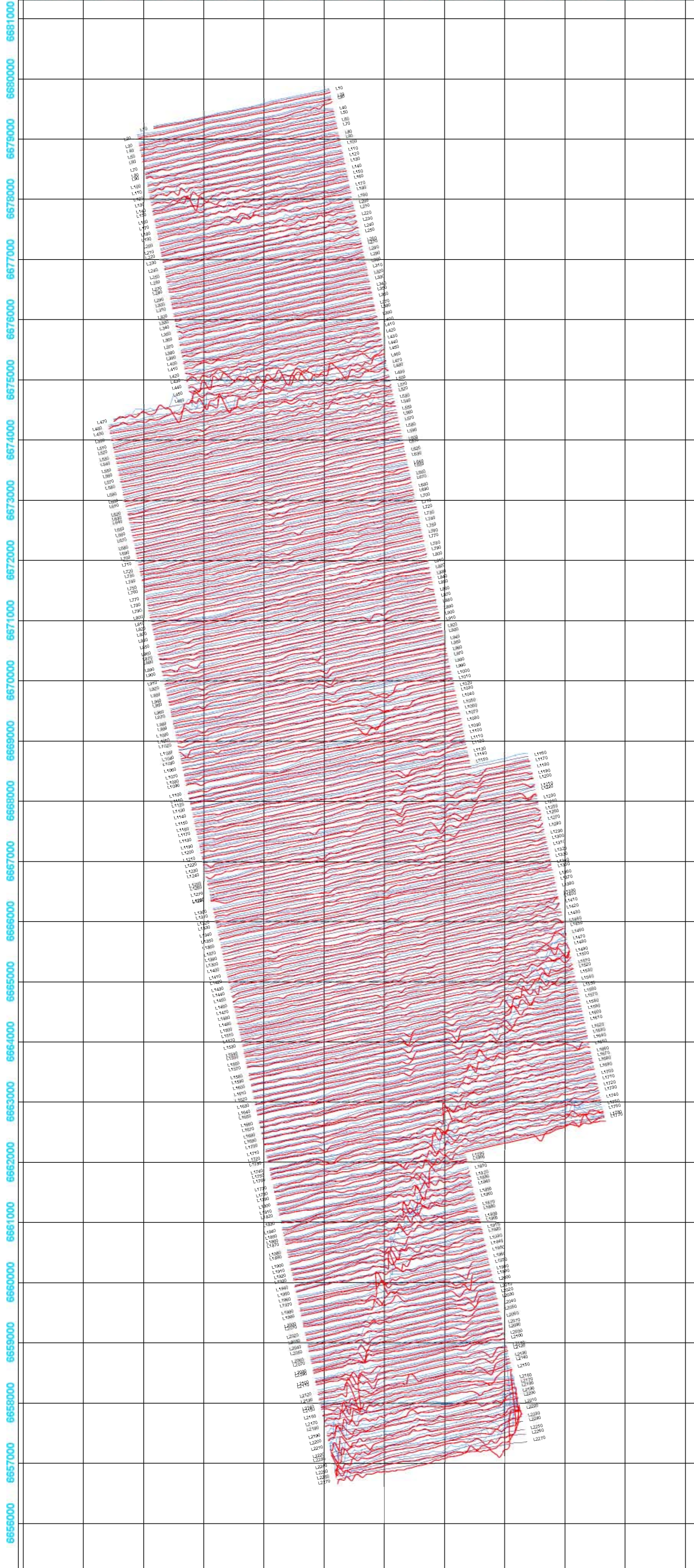


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Tel +47-73 90 40 00, Fax +47-73 92 16 20  
<http://www.ngu.no>

Drawing no:  
**2006.021-06C**

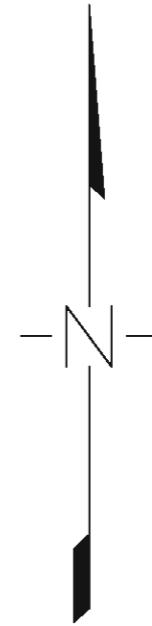


552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000



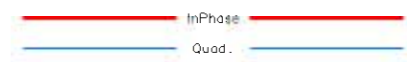
552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



### HEM 880 Hz COPLANAR

Frequency : 880 Hz (horizontal, coplanar orientation)  
Coil spacing : 6 m



Inphase : 10 ppm/mm  
Quadrature : 10 ppm/mm

### NAVIGATION

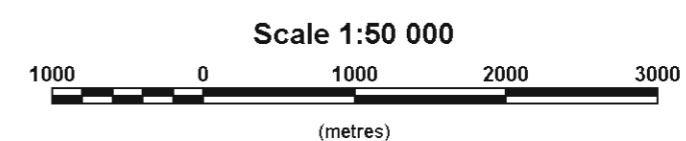
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### HEM STACKED PROFILES 880 Hz COPLANAR

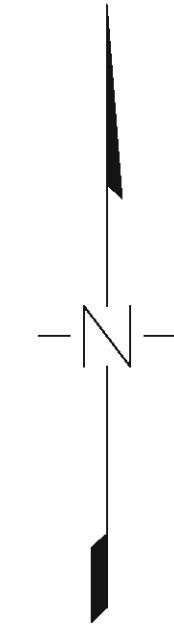
Ertelien  
Buskerud

Drawing: *Mogaard, J.O.* Date: *FEB2006* Obs: *JOM/JK*



Mapsheet (1:50 000):  
1815 IV Sperillen  
1815 III Hønefoss  
1715 II Kraderen





### HEM 880 Hz COPLANAR

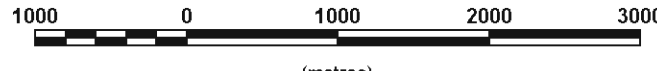

Frequency : 880 Hz (horizontal, coplanar orientation)  
Coil spacing : 6 m

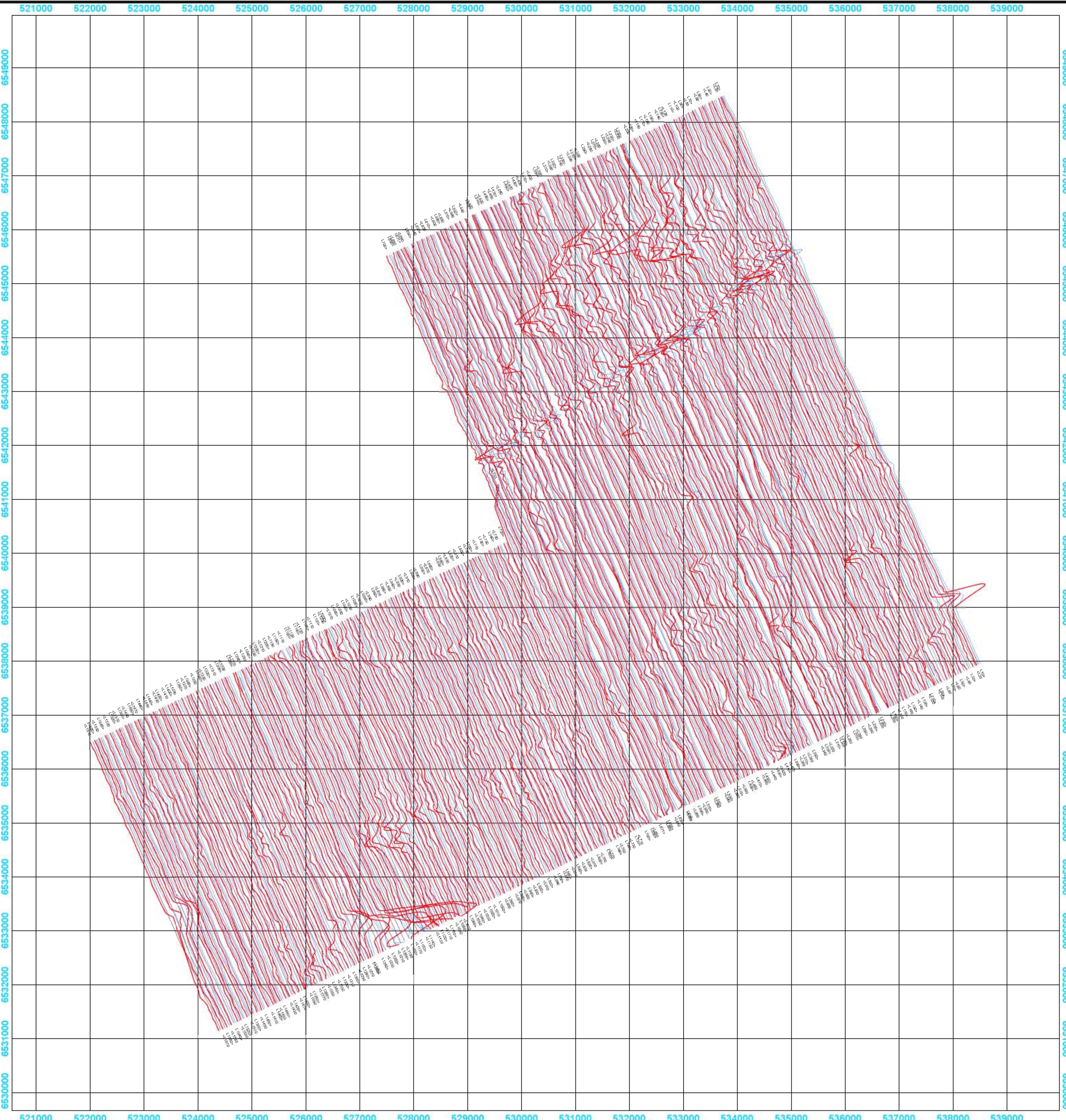


Inphase : 10 ppm/mm  
Quadrature : 10 ppm/mm

### NAVIGATION

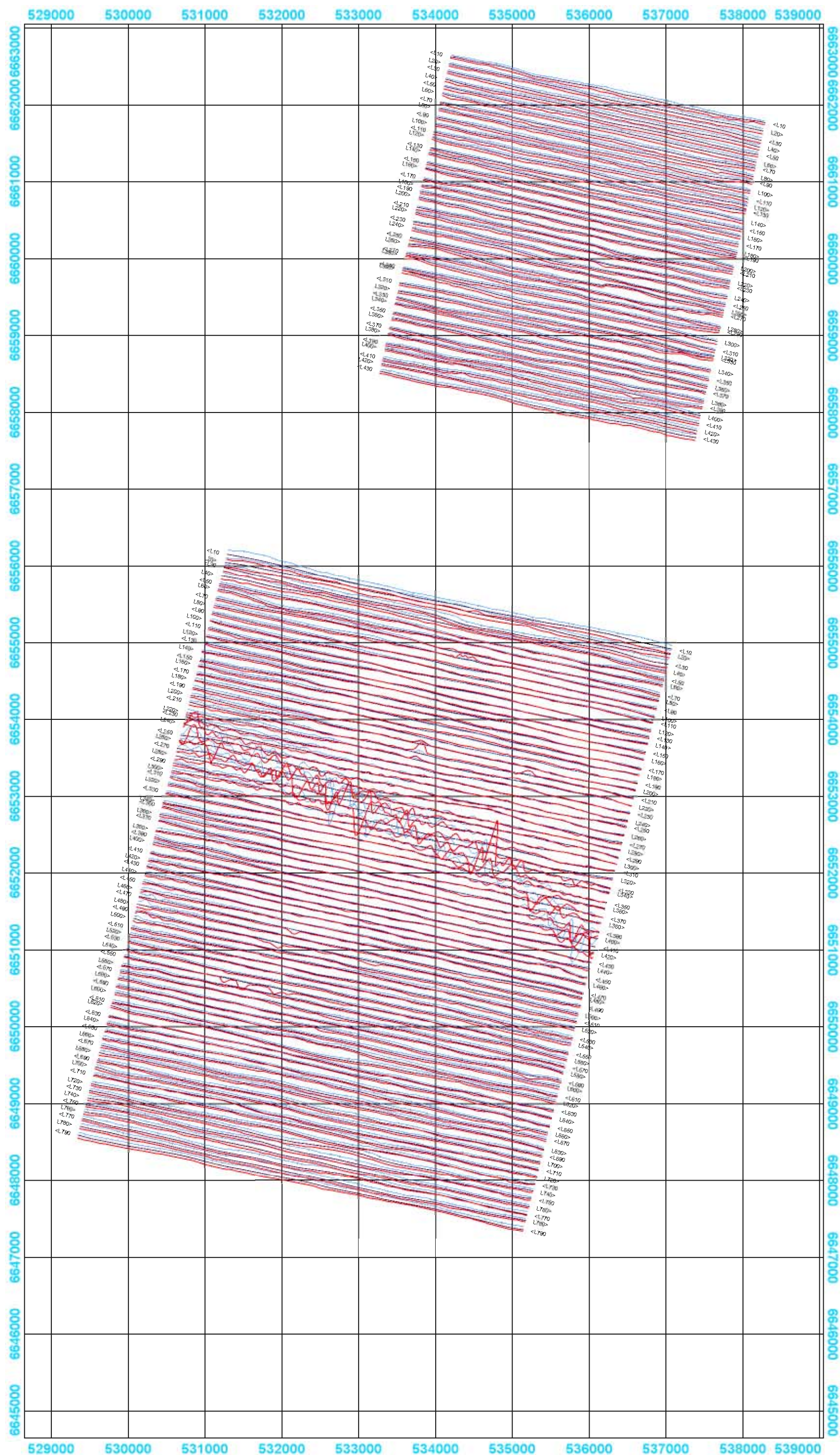
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

<h2>A/S SULFIDMALM</h2>		
<h3>HEM STACKED PROFILES 880 Hz COPLANAR</h3>		
<b>Bamble</b> Telemark		
Drawing: <i>Mogaard, J.O.</i>	Date: <i>FEB2006</i>	Obs: <i>JOM/JK</i>
Scale 1:50 000  (metres)		Mapsheet (1:50 000): 1712 IV Kragersø 1712 I Langesund 1713 II Porsgrunn 1713 III Kilebygd
 NORWEGIAN SURVEY OF NORWAY Leiv Eirikssons vei 39 N-7491 TRONDHEIM Tel +47-73 90 40 00, Fax +47-73 92 16 20 <a href="http://www.ngu.no">http://www.ngu.no</a>		Drawing no: <b>2006.021-07B</b>

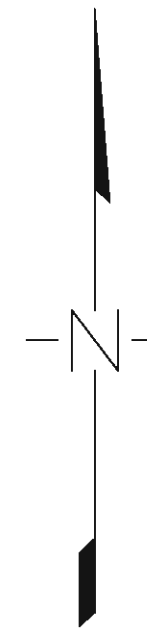


GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N





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**HEM 980 Hz COPLANAR**

Frequency : 980 Hz (horizontal, coplanar orientation)  
Coil spacing : 6 m



Inphase : 10 ppm/mm  
Quadrature : 10 ppm/mm

**NAVIGATION**

The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

**A/S SULFIDMALM**

**HEM STACKED PROFILES 980 Hz COPLANAR**

*Sigdal*

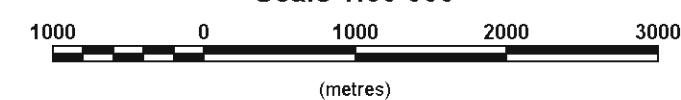
*Buskerud*

Drawing: *Mogaard, J.O.*

Date: *FEB2006*

Obs: *JOM/JK*

Scale 1:50 000



Mapsheet (1:50 000):  
1714 I Hokksund  
1714 IV Flesberg  
1715 III Eggedal  
1715 II Krøderen

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N

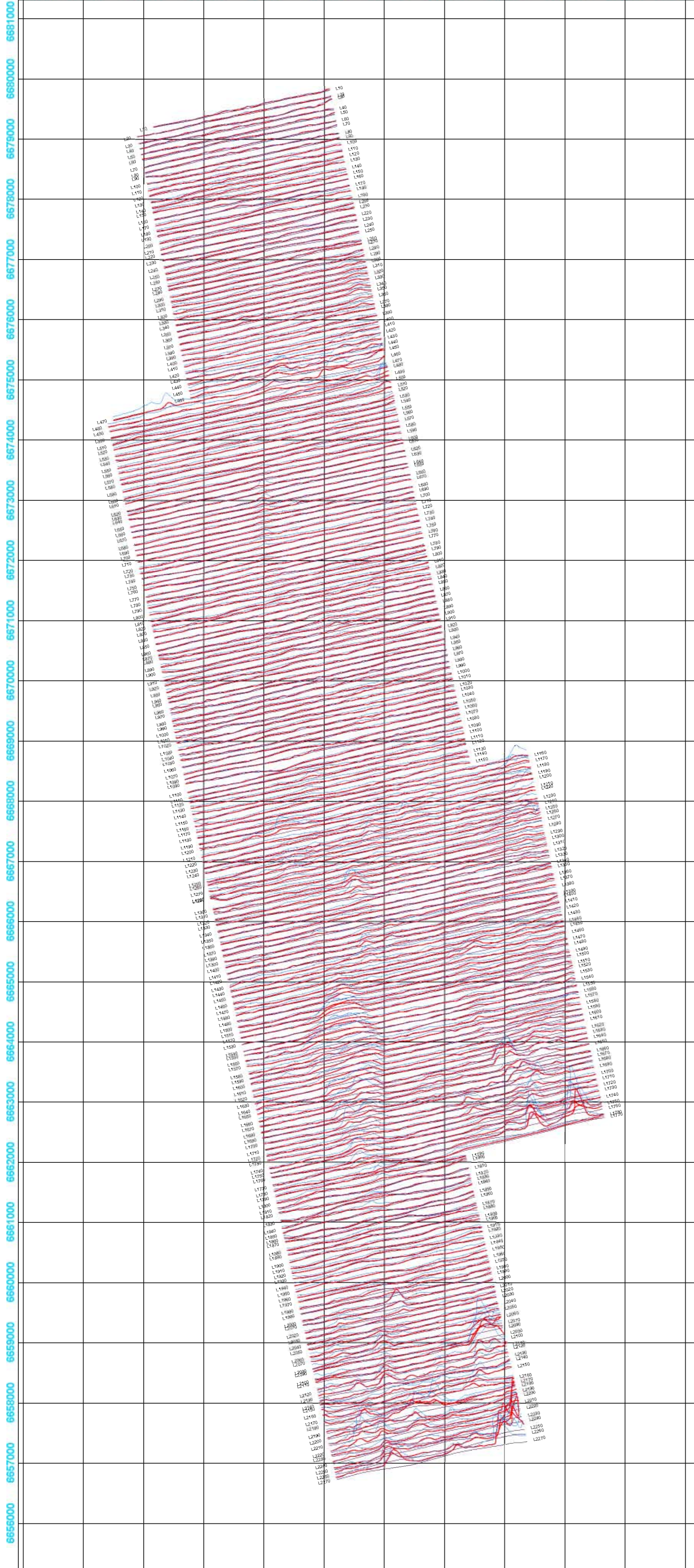


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<http://www.ngu.no>

Drawing no:  
**2006.021-07C**

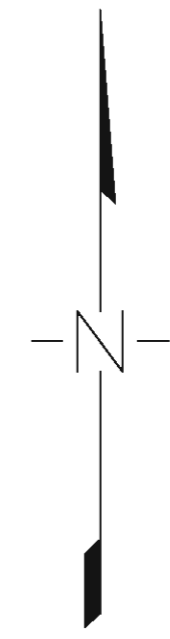


552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000



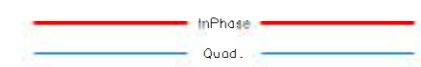
552000 553000 554000 555000 556000 557000 558000 559000 560000 561000 562000 563000

GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



### HEM 34133 Hz COPLANAR

Frequency : 34133 Hz (horizontal, coplanar orientation)  
Coil spacing : 4.2 m



Inphase : 20 ppm/mm  
Quadrature : 20 ppm/mm

### NAVIGATION

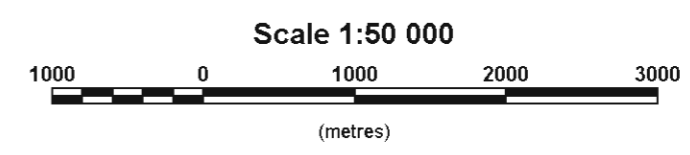
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### HEM STACKED PROFILES 34133 Hz COPLANAR

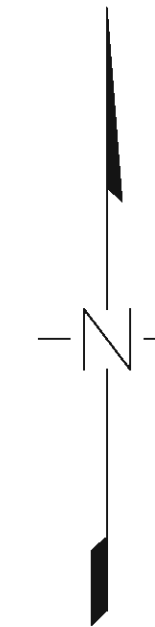
Ertelien  
Buskerud

Drawing: **Mogaard, J.O.** Date: **FEB2006** Obs: **JOM/JK**



Mapsheet (1:50 000):  
1815 IV Sperillen  
1815 III Hønefoss  
1715 II Kraderen





### HEM 34133 Hz COPLANAR

Frequency : 34133 Hz (horizontal, coplanar orientation)  
Coil spacing : 6 m



Inphase : 20 ppm/mm  
Quadrature : 20 ppm/mm

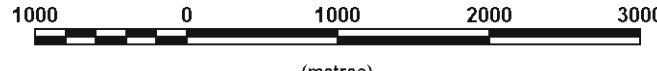
### NAVIGATION

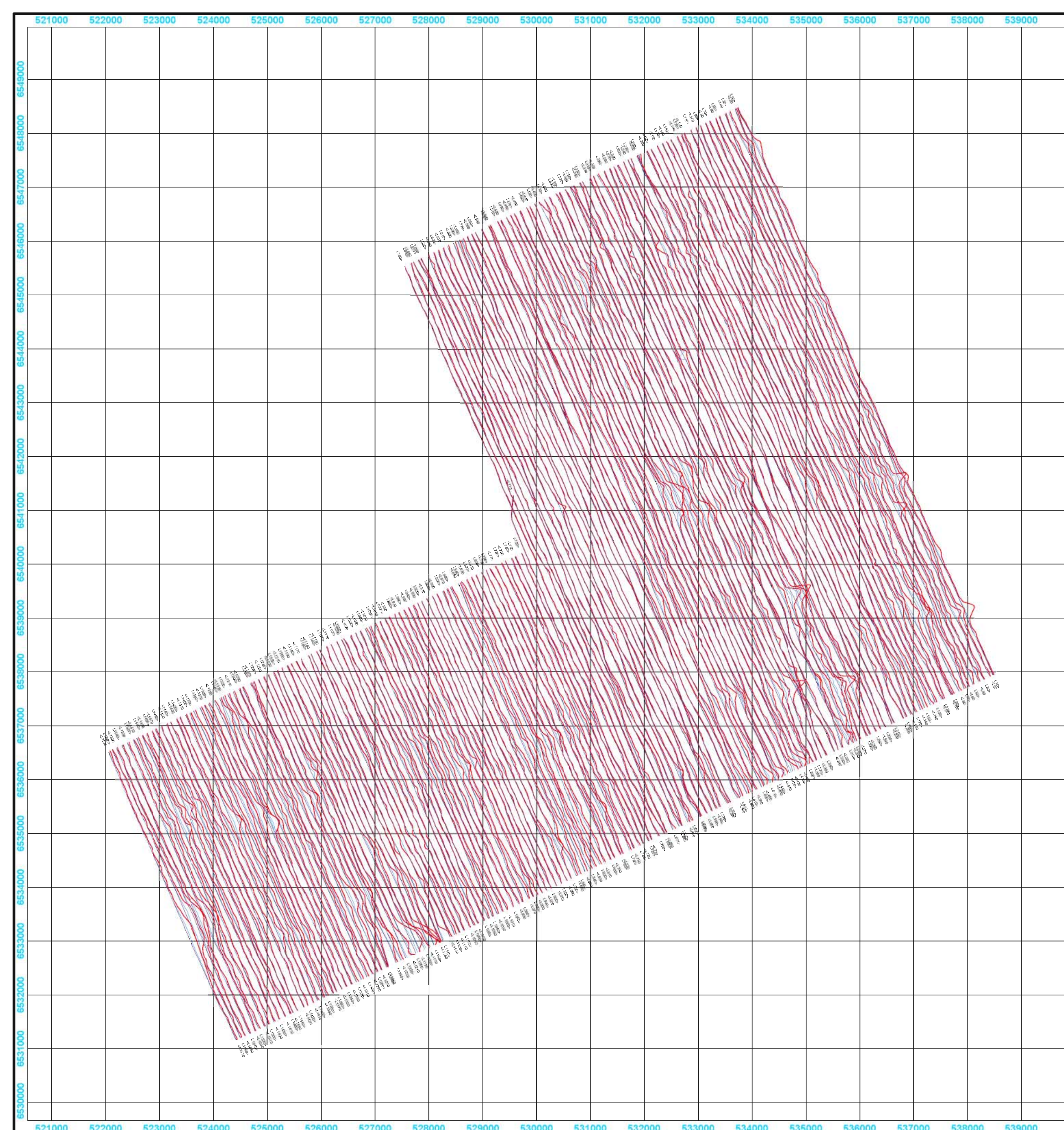
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

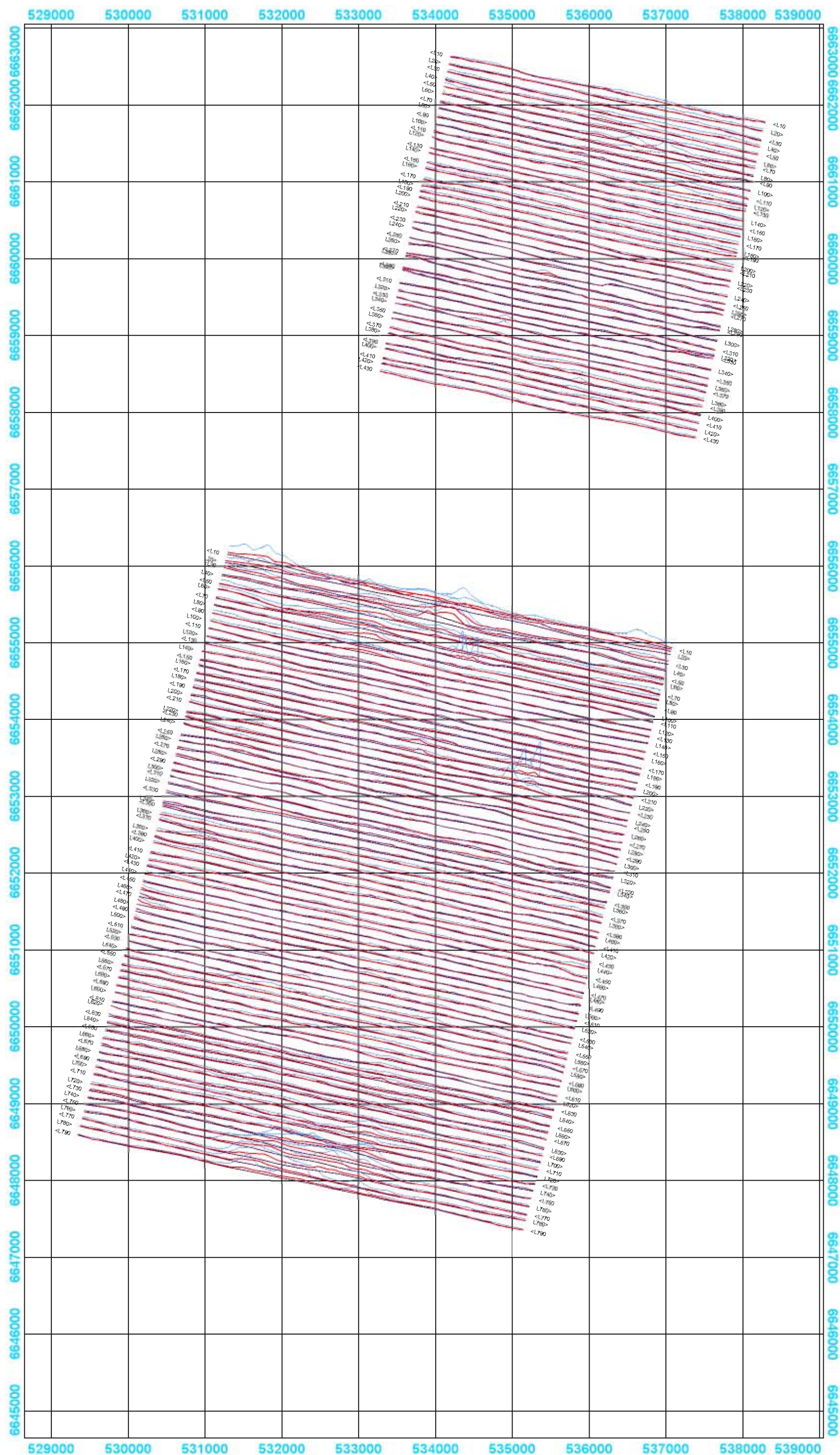
### HEM STACKED PROFILES 34133 Hz COPLANAR

**Bamble**  
Telemark

Drawing: <i>Mogaard, J.O.</i>	Date: <i>FEB2006</i>	Obs: <i>JOM/JK</i>
Scale 1:50 000		Mapsheet (1:50 000): 1712 IV Kragerø 1712 I Langesund 1713 II Porsgrunn 1713 III Kilebygd
 <p>(metres)</p>		

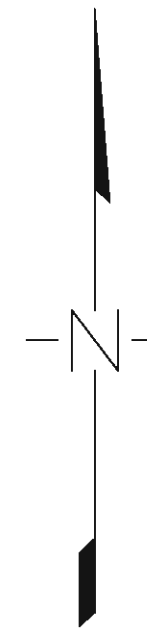






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### HEM 34133 Hz COPLANAR

Frequency : 34133 Hz (horizontal, coplanar orientation)  
Coil spacing : 4.2 m

— InPhase  
— Quad.

Inphase : 10 ppm/mm  
Quadrature : 10 ppm/mm

### NAVIGATION

The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### HEM STACKED PROFILES 34133 Hz COPLANAR

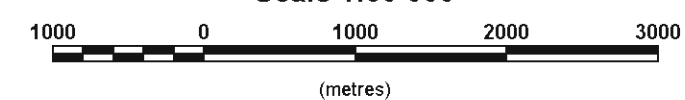
Sigdal  
Buskerud

Drawing: Mogaard, J.O.

Date: FEB2006

Obs: JOM/JK

Scale 1:50 000



Mapsheet (1:50 000):  
1714 I Hokksund  
1714 IV Flesberg  
1715 III Eggedal  
1715 II Krøderen

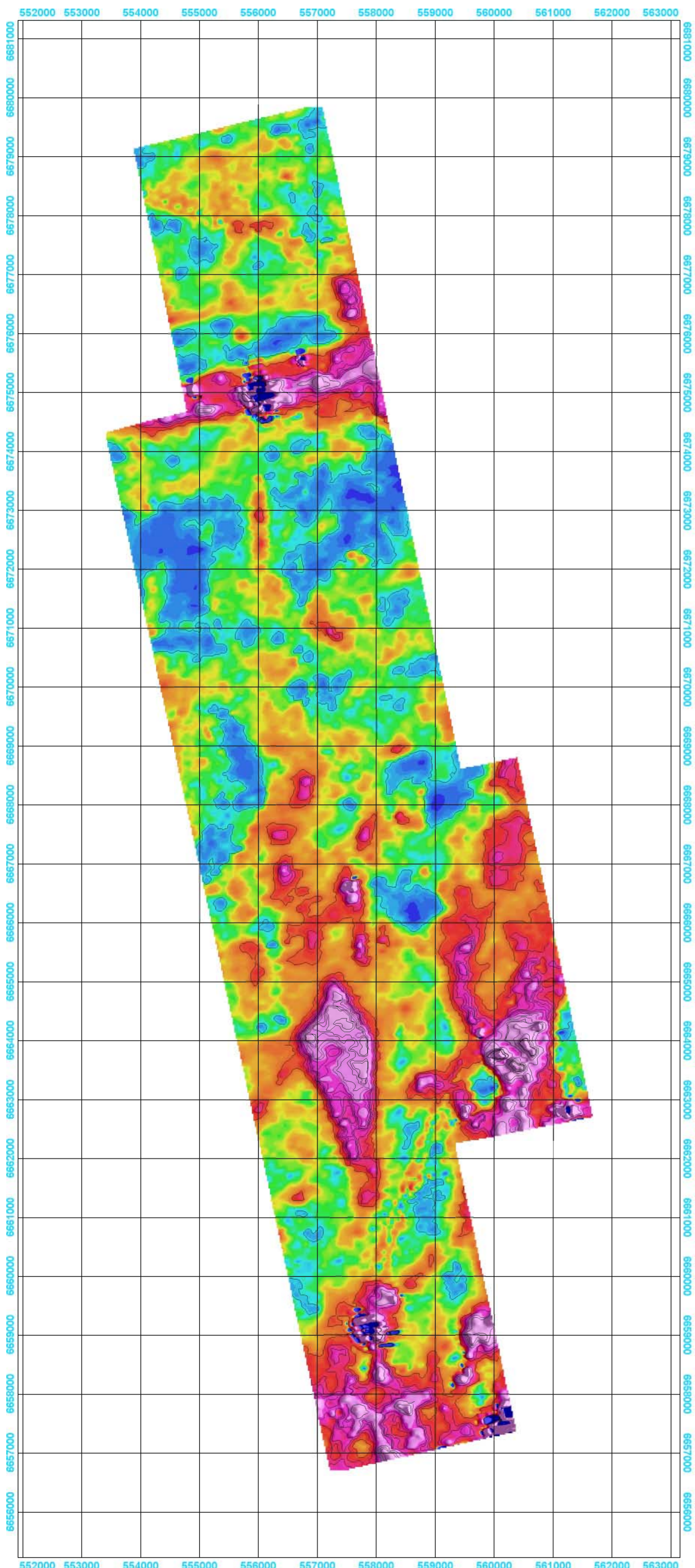
GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N



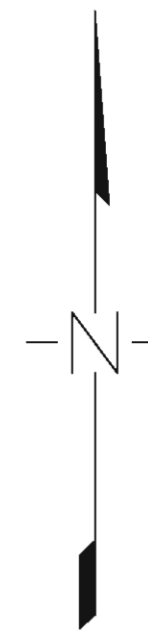
GEOLOGICAL SURVEY OF NORWAY  
Leiv Eirikssons vei 39  
N-7491 TRONDHEIM  
Tel +47-73 90 40 00, Fax +47-73 92 16 20  
<http://www.ngu.no>

Drawing no:  
**2006.021-08C**





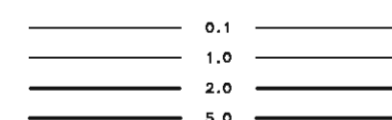
GEODETTIC DATUM: WGS84  
 CONFORM CYLINDERPROJECTION  
 Numbers in BLUE for UTM coordinates, zone 32N



### APPARENT CONDUCTIVITY

Calculated from 6606 horizontal coplanar response.

Contours: given in following intervals (mS/m)



Colours - distributed after colourscale.

Sensor elevation - 30 meters.

### NAVIGATION

The entire area was covered by GPS navigation.

The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### EM APPARENT CONDUCTIVITY 6606 Hz H.Coplanar Colours and contours

Ertelien

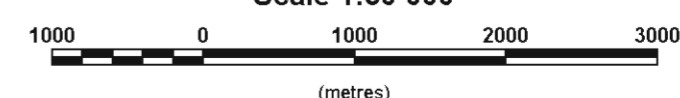
Buskerud

Drawing: Mogaard, J.O.

Date: FEB2006

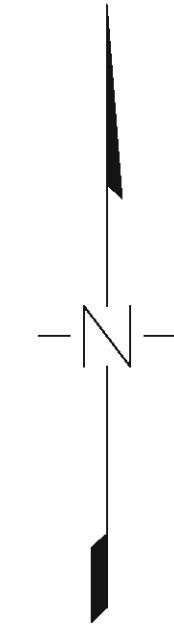
Obs: JOM/JK

Scale 1:50 000



Mapsheet (1:50 000):  
 1815 IV Sperillen  
 1815 III Hønefoss  
 1715 II Krødaren

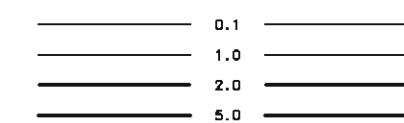




### APPARENT CONDUCTIVITY

Calculated from 6606 horizontal coplanar response.

Contours: given in following intervals (mS/m)



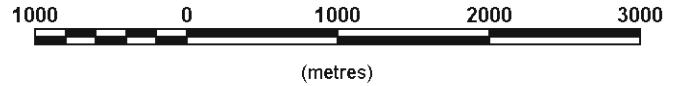
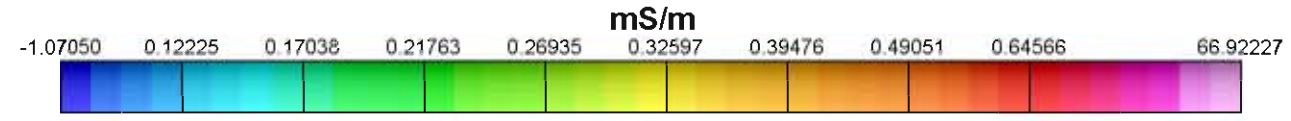

Colours - distributed after colourscale.

Sensor elevation - 30 meters.

### NAVIGATION

The entire area was covered by GPS navigation.

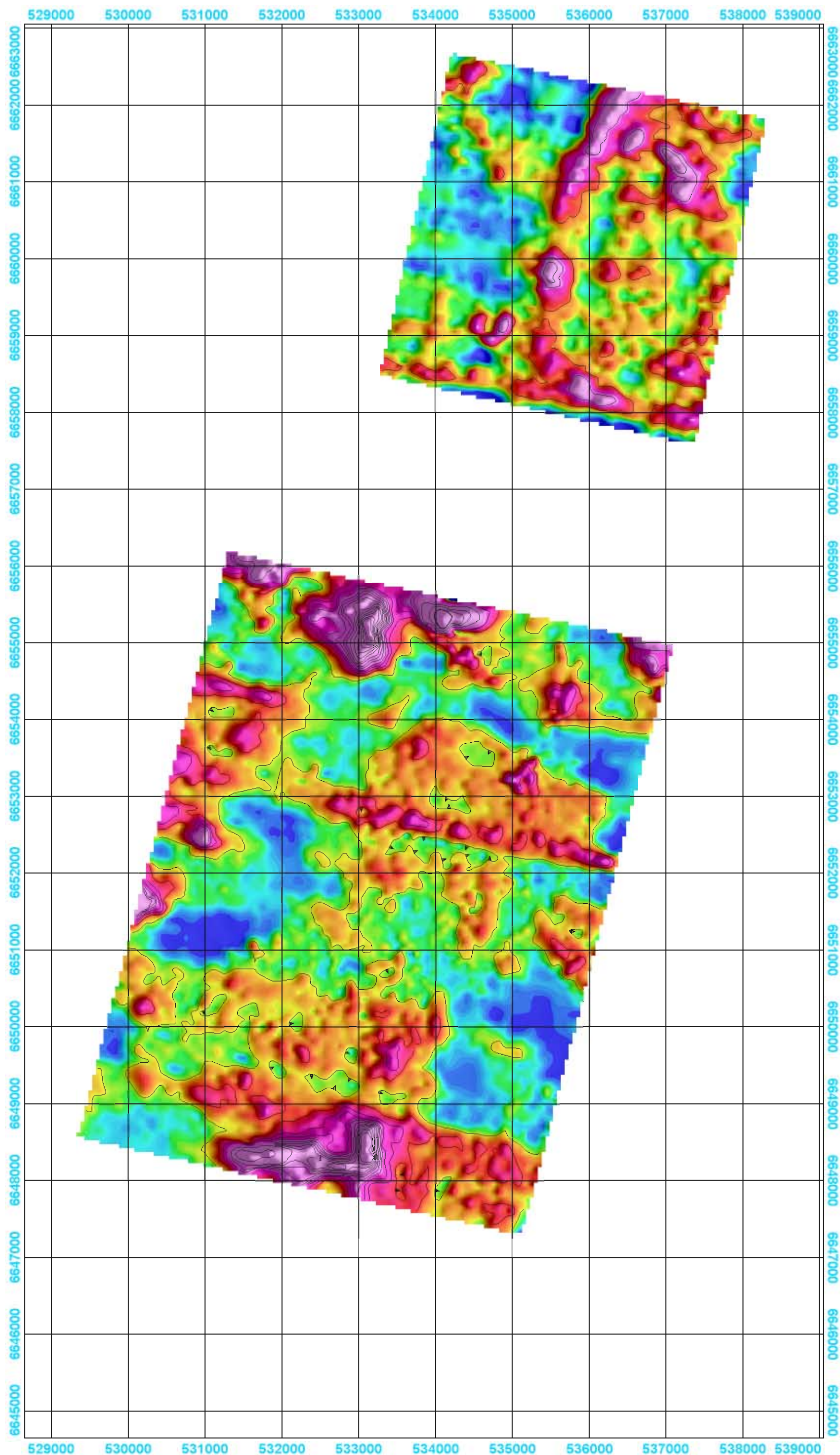
The nominal flying height above ground level in the area is 60 metres.

<h2>A/S SULFIDMALM</h2>		
<i>EM APPARENT CONDUCTIVITY 6606 Hz H.Coplanar</i> Colours and contours		
<b>Bamble</b> Telemark		
Drawing: <i>Mogaard, J.O.</i>	Date: <i>FEB2006</i>	Obs: <i>JOM/JK</i>
Scale 1:50 000		Mapsheet (1:50 000): 1712 IV Kragersø 1712 I Langesund 1713 II Porsgrunn 1713 III Kilebygd
		
		Drawing no: <b>2006.021-09B</b>
 <b>GEOLOGICAL SURVEY OF NORWAY</b> Leiv Eirikssons vei 39 N-7491 TRONDHEIM Tel +47-73 90 40 00, Fax +47-73 92 16 20 <a href="http://www.ngu.no">http://www.ngu.no</a>		

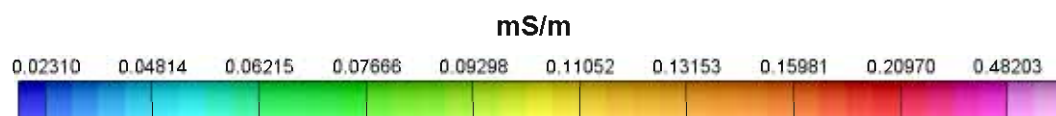
GEODETIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N

mS/m  
-1.07050 0.12225 0.17038 0.21763 0.26935 0.32597 0.39476 0.49051 0.64566 66.92227





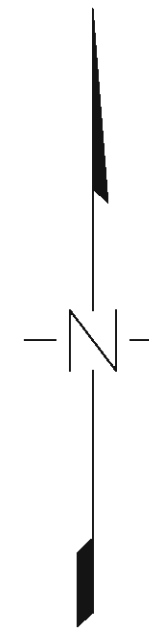
GEODETIC DATUM: WGS84  
 CONFORM CYLINDERPROJECTION  
 Numbers in BLUE for UTM coordinates, zone 32N



# NGU



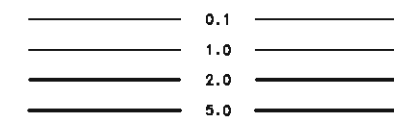
Geology for Society since 1858



### APPARENT CONDUCTIVITY

Calculated from 6606 horizontal coplanar response.

Contours: given in following intervals (mS/m)



Colours - distributed after colourscale.

Sensor elevation - 30 meters.

### NAVIGATION

The entire area was covered by GPS navigation.

The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

*EM APPARENT CONDUCTIVITY 6606 Hz H.Coplanar*  
*Colours and contours*

*Sigdal*

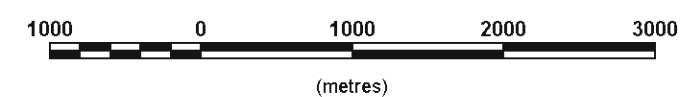
*Buskerud*

Drawing: *Mogaard, J.O.*

Date: *FEB2006*

Obs: *JOM/JK*

Scale 1:50 000



Mapsheet (1:50 000):

1714 I Hokksund  
 1714 IV Flesberg  
 1715 III Eggedal  
 1715 II Krøderen

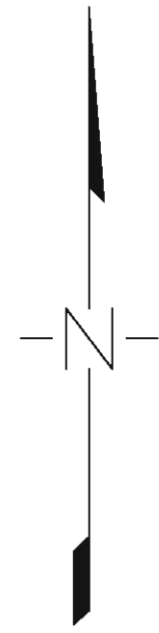
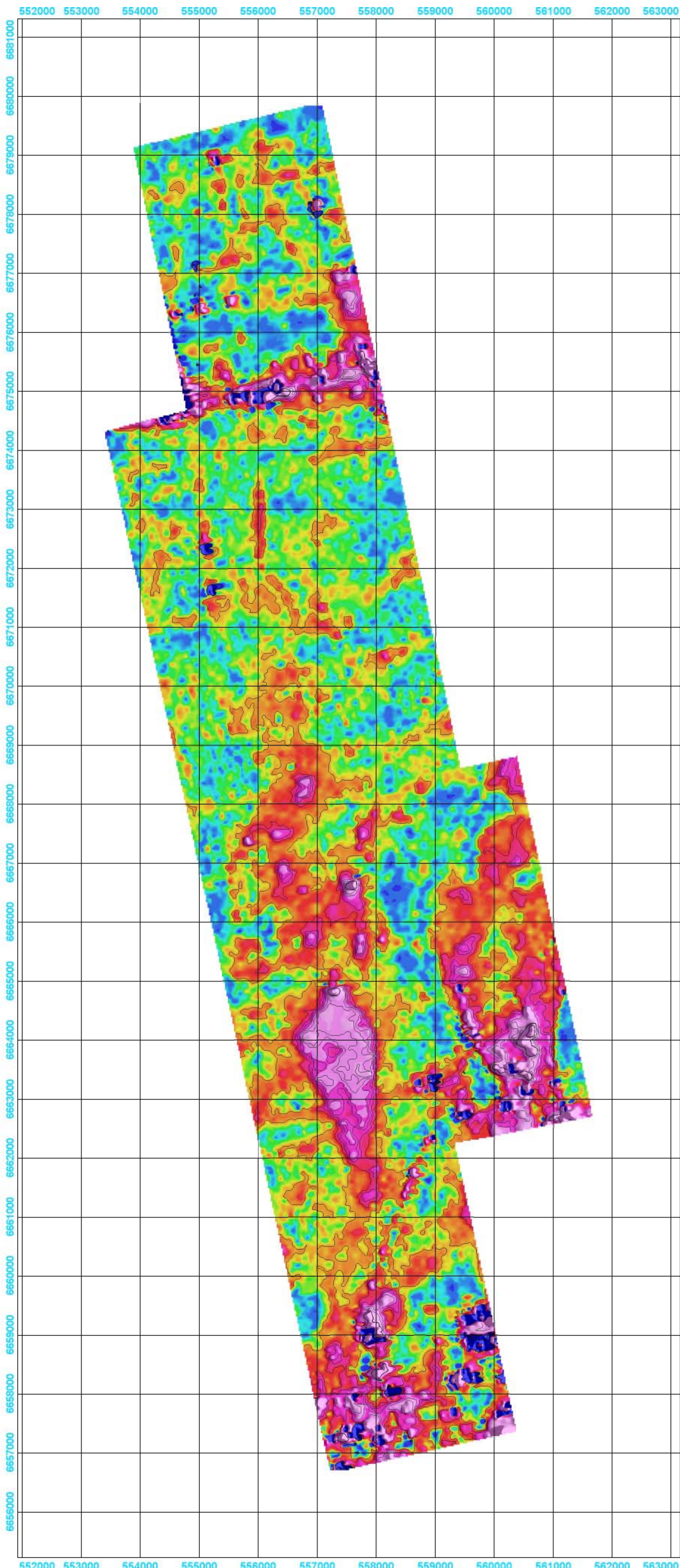


**GEOLOGICAL SURVEY OF NORWAY**  
 Leiv Eirikssons vei 39  
 N-7491 TRONDHEIM  
 Tel +47-73 90 40 00, Fax +47-73 92 16 20  
<http://www.ngu.no>

Drawing no:

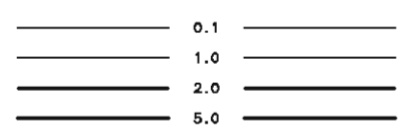
**2006.021-09C**





### APPARENT CONDUCTIVITY

Calculated from 7001 Hz coaxial response.  
Contours: given in following intervals (mS/m)



Colours - distributed after colourscale.  
Sensor elevation - 30 meters.

### NAVIGATION

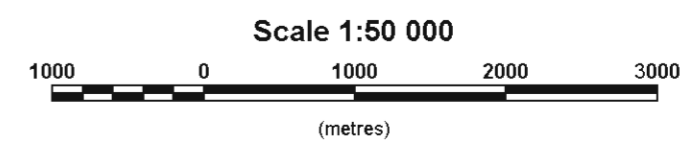
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### EM APPARENT CONDUCTIVITY 7001Hz Coaxial Colours and contours

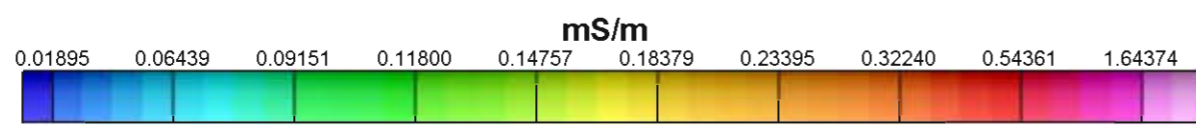
Ertelien  
Buskerud

Drawing: *Mogaard, J.O.* Date: *FEB2006* Obs: *JOM/JK*

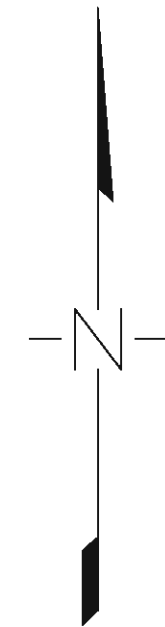


Mapsheet (1:50 000):  
1815 IV Sperillen  
1815 III Hønefoss  
1715 II Krødern

GEODETTIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N

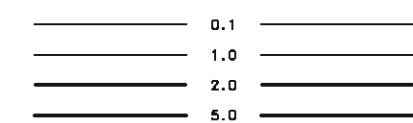






### APPARENT CONDUCTIVITY

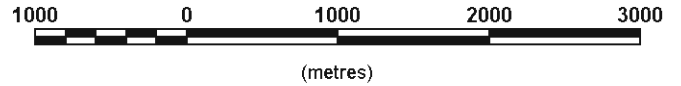

Calculated from 7001 Hz coaxial response.  
Contours: given in following intervals (mS/m)

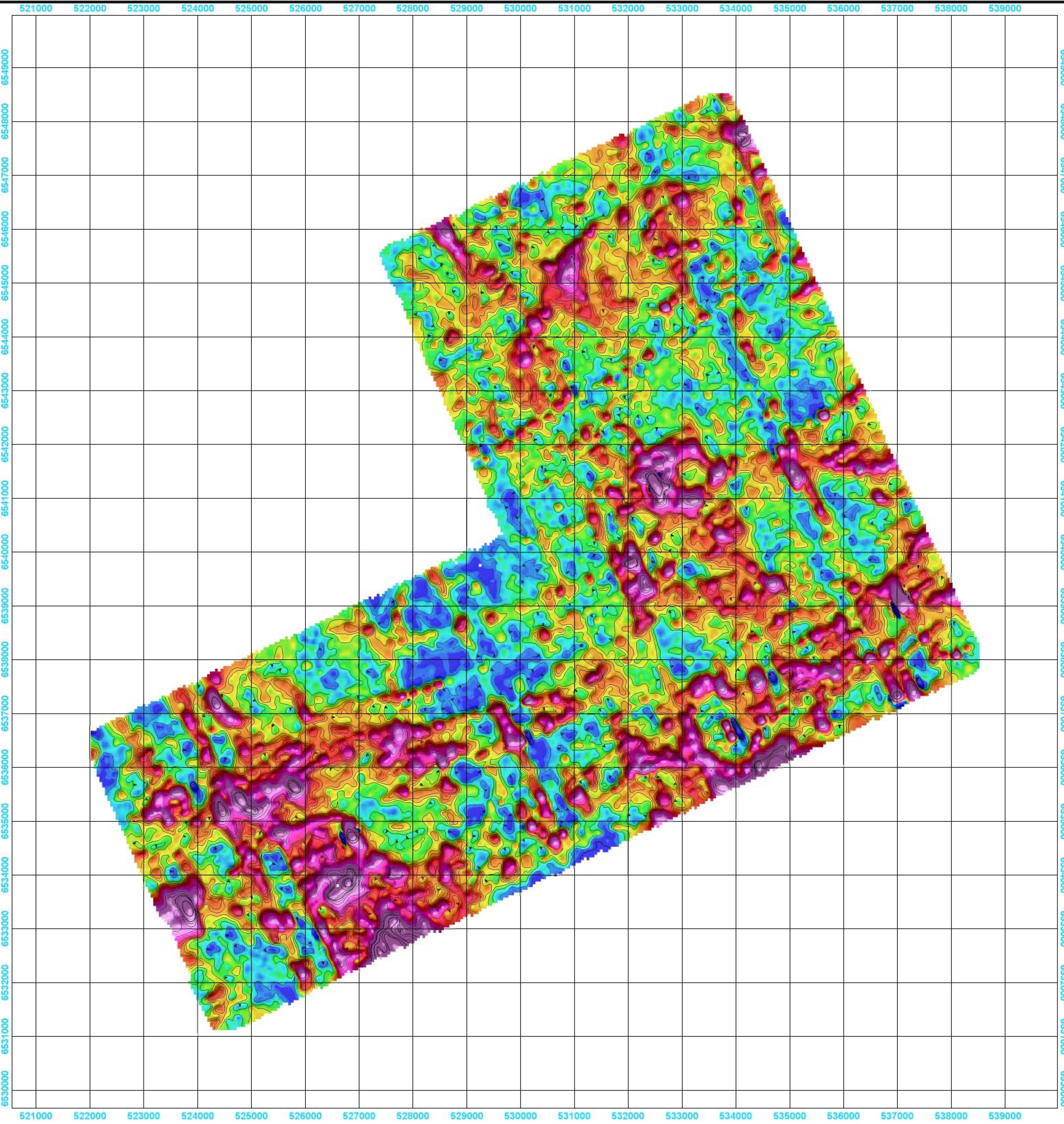
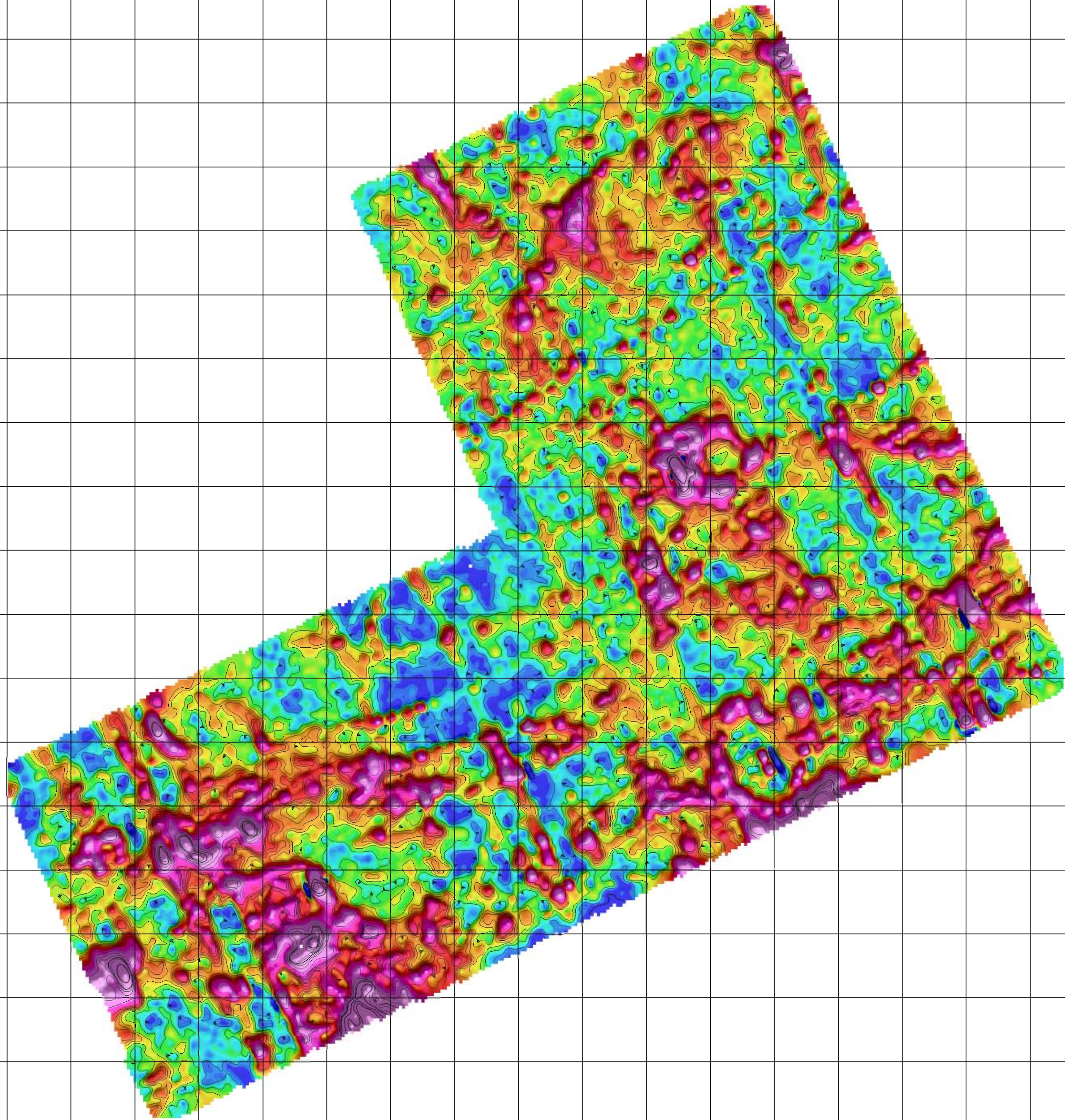


Colours - distributed after colourscale.  
Sensor elevation - 30 meters.

### NAVIGATION

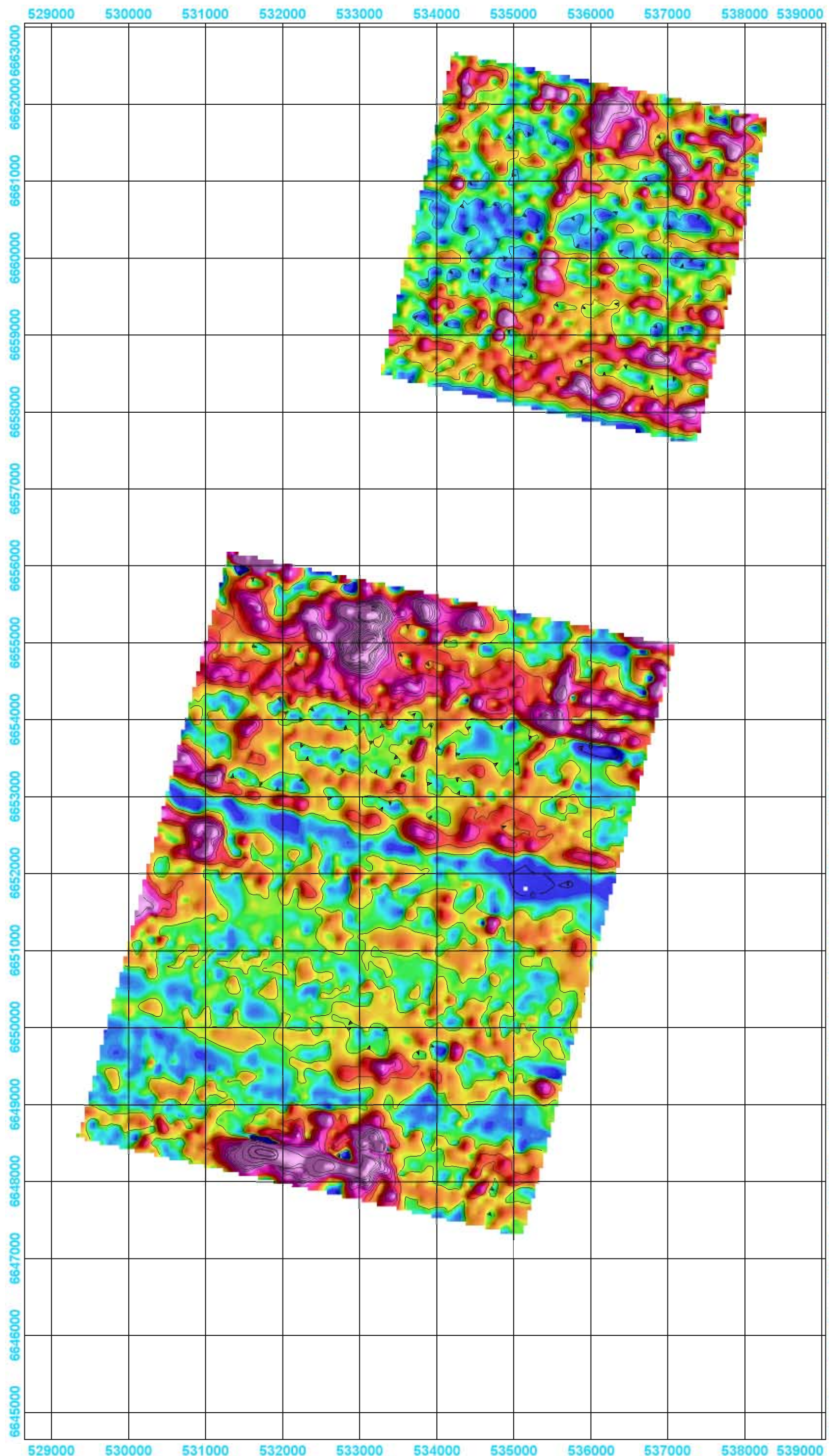
The entire area was covered by GPS navigation.  
The nominal flying height above ground level in the area is 60 metres.

<h2>A/S SULFIDMALM</h2>		
<h3>EM APPARENT CONDUCTIVITY 7001 Hz Coaxial</h3> <p>Colours and contours</p>		
<p><b>Bamble</b> Telemark</p>		
Drawing: <i>Mogaard, J.O.</i>	Date: <i>FEB2006</i>	Obs: <i>JOM/JK</i>
<p>Scale 1:50 000</p>  <p>(metres)</p>		<p>Mapsheet (1:50 000): 1712 IV Kragersø 1712 I Langesund 1713 II Porsgrunn 1713 III Kilebygd</p>
 <p><b>GEOLOGICAL SURVEY OF NORWAY</b> Leiv Eirikssons vei 39 N-7491 TRONDHEIM Tel +47-73 90 40 00, Fax +47-73 92 16 20 <a href="http://www.ngu.no">http://www.ngu.no</a></p>		<p>Drawing no: <b>2006.021-10B</b></p>

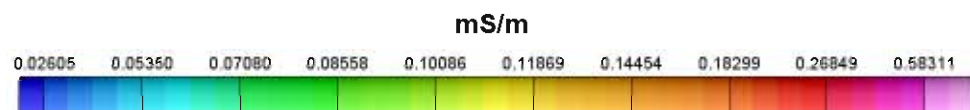


GEODETTIC DATUM: WGS84  
CONFORM CYLINDERPROJECTION  
Numbers in BLUE for UTM coordinates, zone 32N





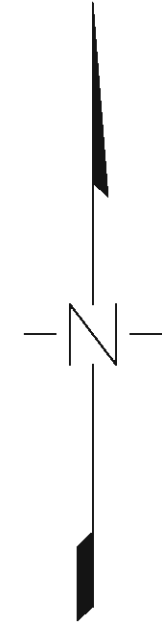
GEODETIC DATUM: WGS84  
 CONFORM CYLINDERPROJECTION  
 Numbers in BLUE for UTM coordinates, zone 32N



# NGU



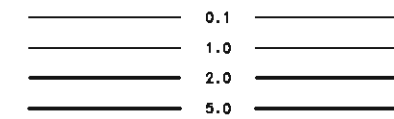
Geology for Society since 1858



### APPARENT CONDUCTIVITY

Calculated from 7001 Hz coaxial response.

Contours: given in following intervals (mS/m)



Colours - distributed after colourscale.

Sensor elevation - 30 meters.

### NAVIGATION

The entire area was covered by GPS navigation.

The nominal flying height above ground level in the area is 60 metres.

## A/S SULFIDMALM

### EM APPARENT CONDUCTIVITY 7001 Hz COAXIAL Colours and contours

*Sigdal*

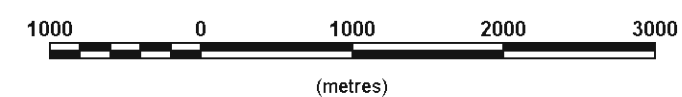
*Buskerud*

Drawing: *Mogaard, J.O.*

Date: *FEB2006*

Obs: *JOM/JK*

Scale 1:50 000



Mapsheet (1:50 000):

1714 I Hokksund  
 1714 IV Flesberg  
 1715 III Eggedal  
 1715 II Krøderen



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Drawing no:

**2006.021-10C**