UTEM-3

AND

HORIZONTAL LOOP EM SURVEY

ON THE

KUTCHO CREEK PROJECT

N.T.S. 104I/1W,2E

DEASE LAKE, B.C.

FOR

ATNA RESOURCES LTD.

LATITUDE: 58 Degrees 12' N

LONGITUDE: 128 Degrees 22'W

SURVEY BY

SJ GEOPHYSICS LTD.

JULY, 1997

REPORT BY

Ingo Jackisch; S.J. Geophysics Ltd./S.J.V. Consultants Ltd.
and Peter Holbek, Atna Resources Ltd.

TABLE OF CONTENTS

LIST OF TABLES | page

LIST OF FIGURES | page

1. INTRODUCTION

This report describes the results of a large loop time domain electromagnetic (UTEM-3) and horizontal loop electromagnetic (HLEM) survey that was completed by SJ Geophysics Ltd. for Atna Resources Ltd. on the Kutcho Property during the time period June 7 to 26, 1997.

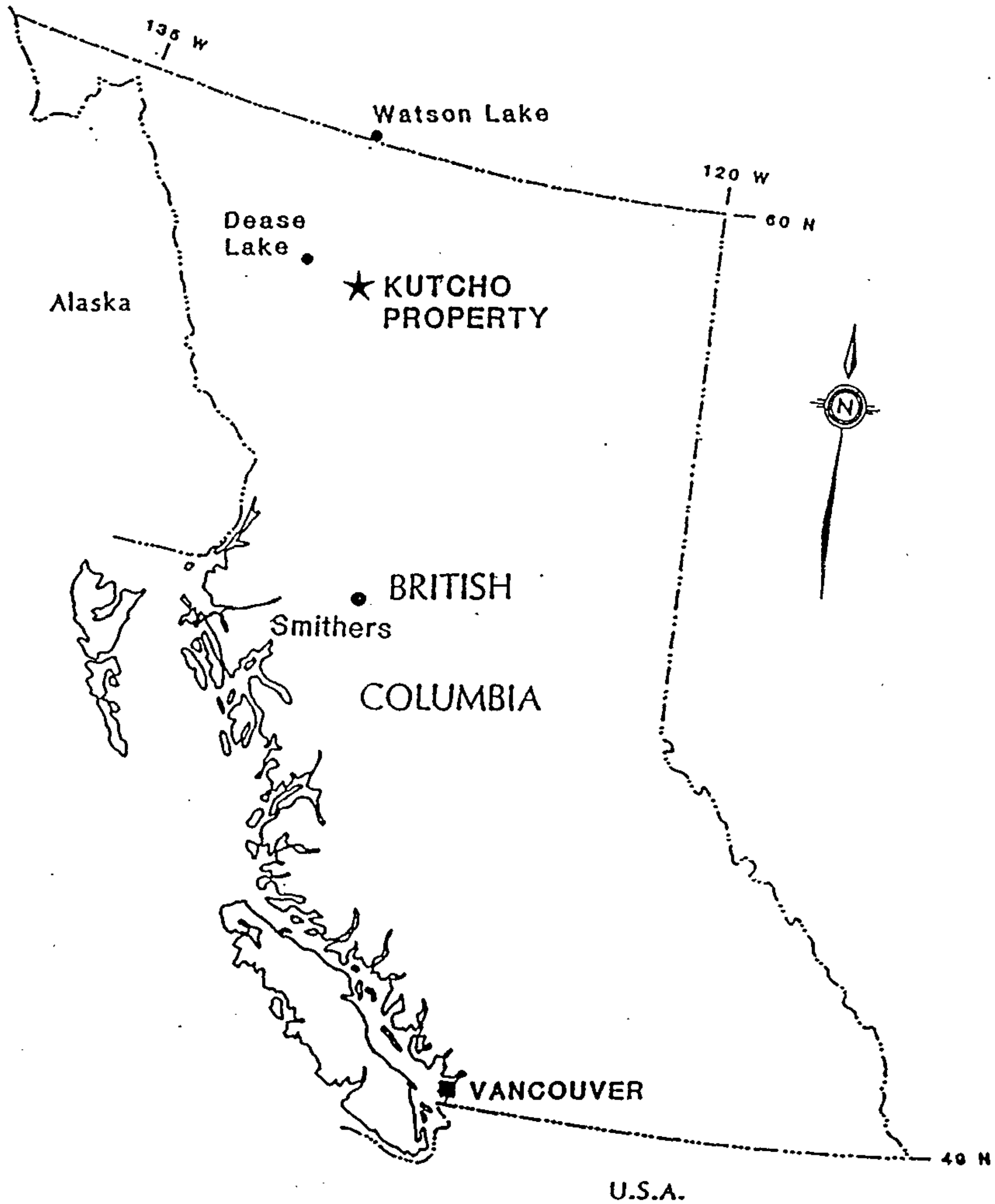
1.1 Location and Access

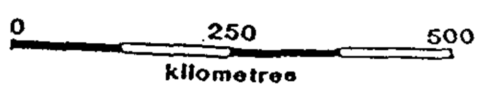
The Kutcho Property is located 90 km east of Dease Lake, B.C. at Latitude 58° 12' N and Longitude 128° 22' W. The property straddles Kutcho Creek, near its headwaters and is located within the Liard Mining Division.

Access to the property is provided by an 1,100 metre long, gravel airstrip located along the west side of Kutcho Creek, immediately north of the Kutcho 39 claim and 5 kilometres north of the center of the grid areas. The grid areas are accessible by trail from the airstrip. Accommodation was provided by Jade West at their camp located adjacent to the airstrip. Fuel, equipment, personnel and supplies were transported from either Dease Lake or Smithers, located 250 km south of the airstrip. A rough cat-road connects the airstrip with the town of Dease Lake and is commonly used by the Jade miners for hauling fuel, supplies and jade, usually in large tired vehicles.

1.2 Climate and Physiography

The property area lies on the two slopes of the Kutcho Creek valley with elevations ranging from 1,300 to 1,800 metres. Topography would be classified as gentle to moderate. Physiographically, the property area is situated within the southern flank of the Cassiar Mountains. Regionally much of the area is above tree-line which occurs at about the 1,500 metre elevation. The area is characterized by broad U-shaped valleys that are conspicuous by the absence of trees. Forested areas are restricted to a 300 to 400 metre vertical elevation band along slopes above the valleys. Much of the property occurs in this area of forest cover. Forests consist of thin to thick, tangled growths of sub-alpine fir with spruce and pine at lower elevations. Forests commonly contain a variety of tree sizes and only a very small proportion of the forest contains trees of sufficient size to be considered merchantable timber. At lower elevations, in areas without forest cover, thick growths of 'buckbrush' (alpine willow) with interspersed grass meadows predominate.





ATNA RESOURCES LTD.

KUTCHO PROPERTY

LOCATION MAP

DRAWN	DATE	NTS	FIG. 1.1
		104I/ 1W	

The climate is typical of the northern interior of British Columbia with short, wet summers and long, cold, dry winters. Winter snow accumulations range from 1 to 3 metres, with snow cover lasting from early October to mid May. Summer daytime temperatures range from 0 to 30° with a mean of 10°.

1.3 Claims

The property consists of 55 claims comprising 177 contiguous units covering an area of approximately 4,000 hectares (Figure 1.2). The claims are either owned or under option to Atna Resources Ltd. Details of claim status are summarized in Table 1.1. The claims are divided into two groups as shown on Table 1.1.

Table 1.1 Summary of Claim Data

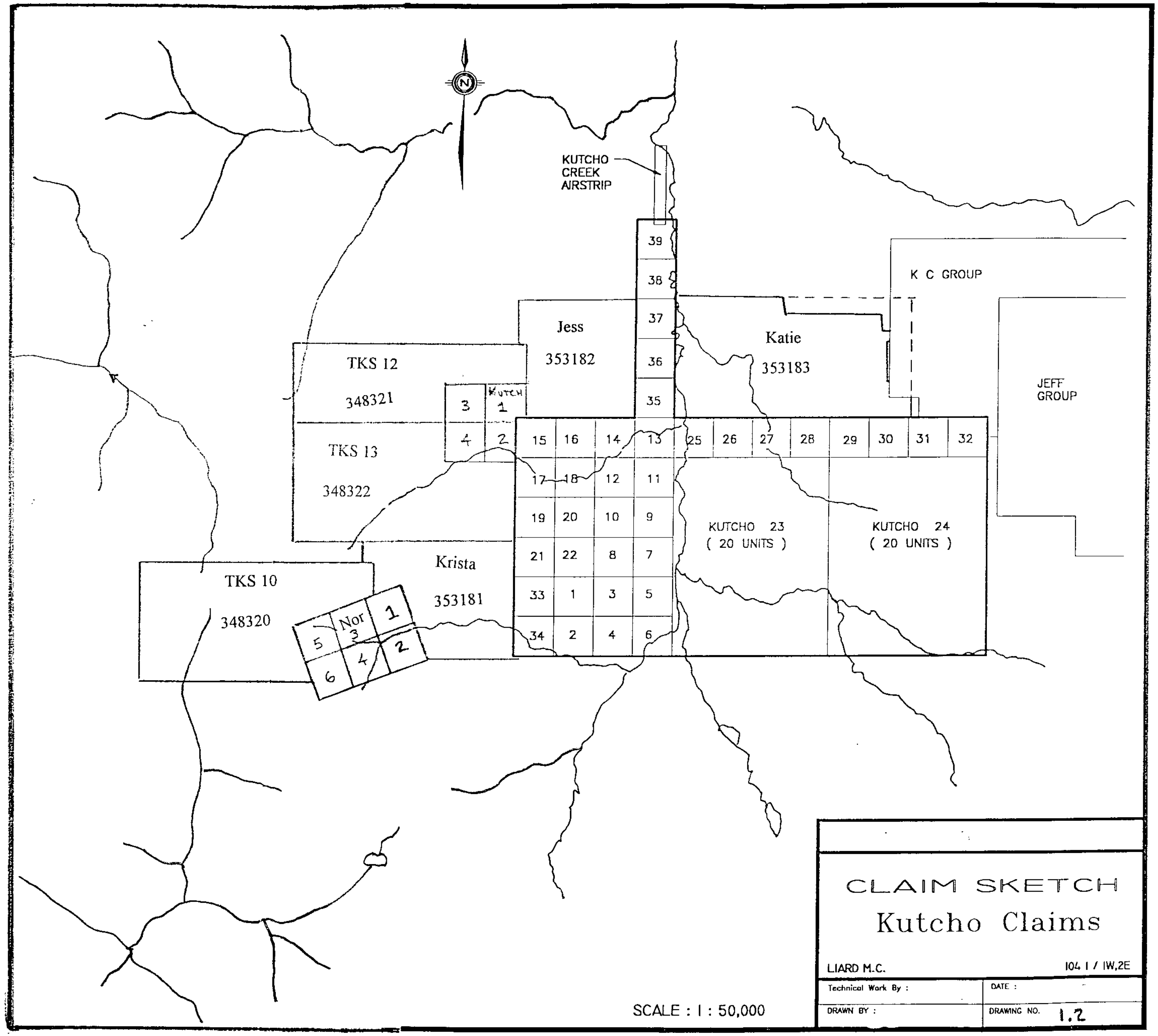
CLAIM	UNITS	RECORD #	RECORD DATE	EXPIRY DATE	OWNER	GROUP
Kutcho 1	1	330916	9/16/94	9/16/2007	Atna	Kut 2
Kutcho 2	1	330917	9/16/94	9/16/2007	Atna	2
Kutcho 3	1	330918	9/16/94	9/16/2007	Atna	2
Kutcho 4	1	330919	9/16/94	9/16/2007	Atna	2
Kutcho 5	1	330944	9/16/94	9/16/2007	Atna	2
Kutcho 6	1	330921	9/16/94	9/16/2007	Atna	2
Kutcho 7	1	330922	9/16/94	9/16/2008		2
Kutcho 8	1	330923	9/16/94	9/16/2008	Atna	2
Kutcho 9	1	347103	6/18/96	6/18/2007	Atna	2
Kutcho 10	1	347104	6/18/96	6/18/2007	Atna	2
Kutcho 11	1	347105	6/18/96	6/18/2004	Atna	Kut 1
Kutcho 12	1	347106	6/18/96	6/18/2004	Atna	1
Kutcho 13	1	347107	6/18/96	6/18/2004	Atna	1
Kutcho 14	1	347108	6/18/96	6/18/2004	Atna	1
Kutcho 15	1	347109	6/18/96	6/18/2004	Atna	1
Kutcho 16	1	347110	6/18/96	6/18/2004	Atna	1
Kutcho 17	1	347111	6/19/96	6/19/2004	Atna	1
Kutcho 18	1	347112	6/19/96	6/19/2004	Atna	1

Nor 6	1	348330	7/02/96	7/02/2000	"	2
Kutch 1	1	348331	7/02/96	7/02/2000	"	2
Kutch 2	1	348332	7/02/96	7/02/2000	"	2
Kutch 3	1	348333	7/02/96	7/02/2000	"	2
Kutch 4	1	348334	2/07/96	7/02/2000	"	2

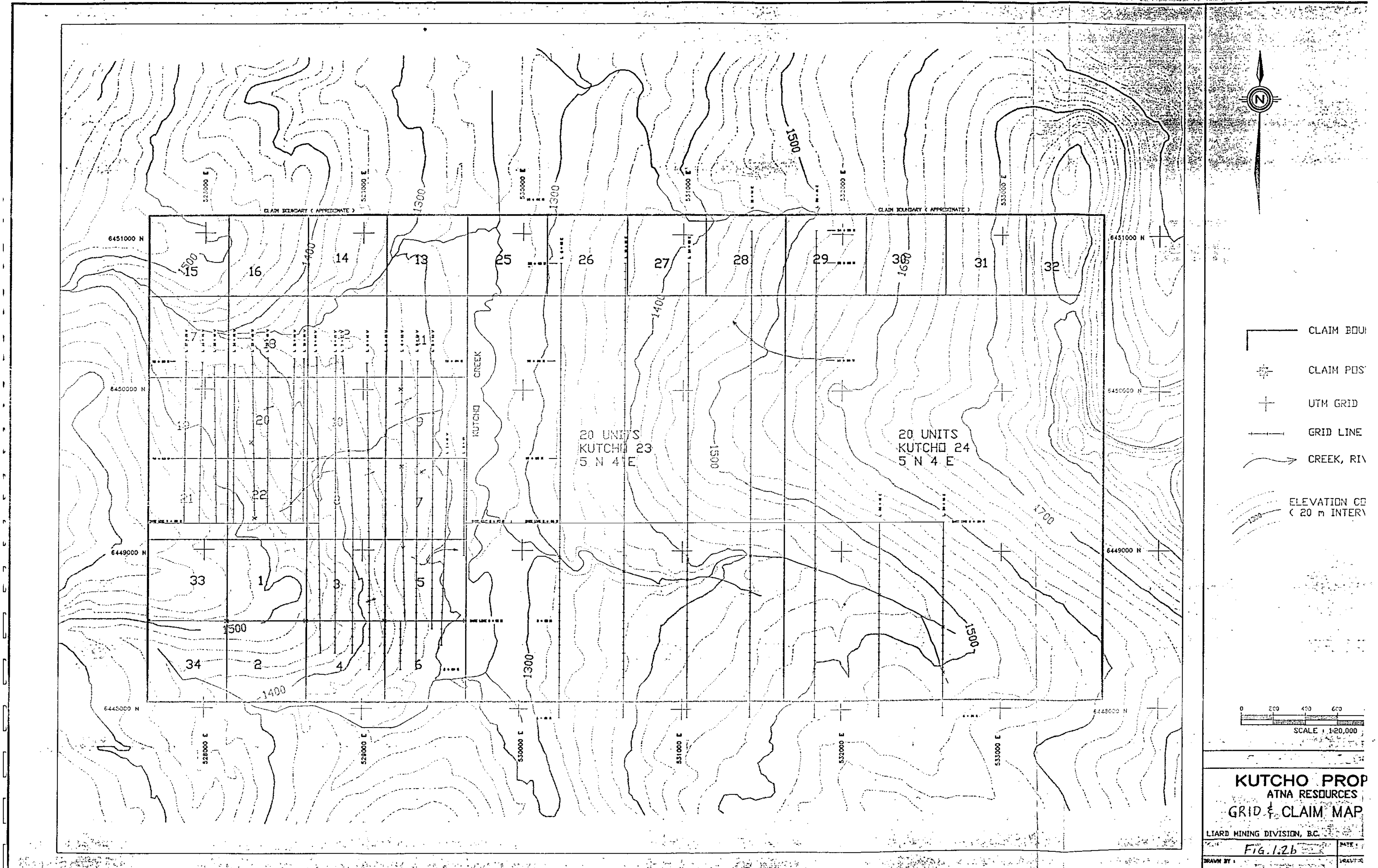
1.4 Exploration History

The recent exploration history of the Kutcho area dates back 1967 when the initial stream sediments leading to the discovery of mineralization were first collected by an exploration syndicate operated by Imperial Oil Ltd. The discovery of a mineralized float boulder and initial claim staking occurred in 1970 during follow-up work resulting from the anomalous stream sediment samples collected by the syndicate. The initial claims were allowed to lapse as the other parties in the syndicate declined to fund further exploration work. Imperial Oil returned to the area in 1973 in order to restake the area following dissolution of the exploration syndicate. However, Sumac Mines Ltd., the Canadian exploration arm of Sumitomo Corp. of Japan, had staked eight claims adjacent to a small stream where they had collected anomalous stream sediment samples in 1972. These original Sumac claims cover the western part of the main lens of the Kutcho Creek volcanogenic massive sulphide deposit. Exploration work was carried out by both Sumac and Imperial (Esso Minerals Canada Limited) and by 1982 three massive sulphide lenses had been delineated. Collectively, Esso and Sumac have incurred exploration expenditures in excess of $10 million in programs that include two airborne geophysical surveys, numerous campaigns of ground geophysics, geology and geochemistry, more than 60,000 metres of drilling in 231 holes, collection of a 100 ton bulk sample from a 225 metre long adit and a plethora of engineering, metallurgical and environmental studies.

The property discussed in this report covers ground that was previously held by Esso, (primarily on the east side of Kutcho Creek) and Noranda (on the west side of Kutcho Creek) and is immediately southwest, and along strike, of the area containing the defined massive sulphide lenses. Noranda carried out exploration work on to the west of Kutcho Creek between 1976 and 1980 which consisted of line cutting, geological, geochemical and geophysical surveys and three core holes totalling 229 metres. However, only one of these holes was drilled in the current claim area with the remaining two holes having been drilled in areas further to the west. Esso drilled three holes in the current claim area between 1974 and 1977 and an additional two



KUTCHO CREEK AIRSTRIP
K C GROUP
JEFF GROUP
Jess
353182
Katie
353183
TKS 12
348321
TKS 13
348322
TKS 10
348320
Krista
353181
Kutch
Nor
KUTCHO 23 (20 UNITS)
KUTCHO 24 (20 UNITS)
SCALE : 1 : 50,000
CLAIM SKETCH
Kutcho Claims
LIARD M.C.
104 I / IW,2E
Technical Work By :
DATE :
DRAWN BY :
DRAWING NO. 1.2



CLAIM BOUNDARY (APPROXIMATE)
6451000 N
6450000 N
6449000 N
6448000 N
528000 E
529000 E
530000 E
531000 E
532000 E
533000 E
15
16
14
13
25
26
27
28
29
30
31
32
33
1
3
5
34
2
4
6
KUTCHO CREEK
20 UNITS
KUTCHO 23
5 N 4 E
20 UNITS
KUTCHO 24
5 N 4 E
1300
1400
1500
1600
1700
CLAIM BOU
CLAIM POS
UTM GRID
GRID LINE
CREEK, RI
ELEVATION CO
(20 m INTER
SCALE 1:20,000
KUTCHO PROP
ATNA RESOURCES
GRID & CLAIM MAP
LIARD MINING DIVISION, B.C.
FIG. 1.2b
DRAWN BY :

holes in 1990. The early holes were drilled to test airborne EM conductors while the 1990 holes tested an area of favourable geology and lithogeochemistry.

The initial claims of the current property were staked by G. Belik in 1994, who carried out a program of geological mapping, data compilation and soil geochemistry. This program established the presence of a felsic flow-dome complex with associated areas of pyrite-silica exhalite, hydrothermal alteration and anomalous copper and zinc geochemistry in soils. Based on the results of this work Atna Resources Ltd. optioned the property and staked an additional 69 claim units and carried out an exploration program consisting of additional geological mapping, prospecting, soil sampling and test pitting, and a ground electromagnetic survey. Continued favourable results prompted staking of an additional 42 claim units and optioning of 58 claim units from the Hunter Exploration Group.

1.5 Current Exploration Work

The 1997 program consisted of line-cutting, UTEM and Max-Min geophysical surveys, geological mapping, soil geochemistry, lithogeochemical sampling and 9 NQ diamond drill holes totalling 1,586 metres. Work began on June 7 and was completed on July 11, diamond drilling commenced on June 24. This report covers the geophysical work conducted between June 3 and June 30, 1997. A total of 55.75 line kilometres of geophysical surveying was completed (see below) of which 34.6 line kilometres was carried out on claims belonging to claim group Kut-2 and 21.15 line kilometres was carried out on claims within group Kut-1. Grid locations relative to claims are shown on Figure 1.2b (note that grid lines have been extended) whereas the individual survey locations are shown in Figures 3.1 to 3.6.

Four UTEM loops totaling 43.1 km were surveyed (Figs. 3.1 to 3.4). Four small grids totaling 13 km were surveyed with HLEM (Figs. 3.5 and 3.6). The purpose for conducting the surveys was to search for Cu-Zn massive sulphides of volcanic exhalative origin, similar to and along strike of the known Kutcho Creek massive sulphide occurrence.

The surveys were carried out by geophysicists Ingo Jackisch and Zoran Dujakovic, plus assistants Matt Kowalczyk and Chris Gooliaff, all employees of SJ Geophysics Ltd. The UTEM equipment was mobilized from a previous job in Alaska through Whitehorse, Yukon to Dease Lake, and then into a base field camp belonging to Jade West from June 3 to 6, 1997.

The Jade West camp was within 5 km walking distance from the grids being surveyed. A helicopter was occasionally used in the mornings or late afternoon to mob/demob field crews as availability permitted. The grid lines had been cut many years ago but were virtually overgrown with buckbrush for this survey. Lines were brushed out and tight-chained with slope corrections. Chainage notes documenting the slope distance and inclination between stations required for the UTEM survey were provided by Atna personnel or line cutting contractors.

Two UTEM-3 receivers (S/N 13 and 91) and coils were used along with one UTEM-3 transmitter. A total of 41.8 km of lines was surveyed with the UTEM system from 4 loops. The survey went smoothly without any equipment breakdowns. Distant thunder activity produced some clipping problems with the Transmitter on a few occasions.

The HLEM MaxMin survey was carried out by Ingo Jackisch and an assistant provided by Atna Resources. The majority of lines were cut and tight-chained prior to collecting MaxMin data. Results were plotted the same day as the data was collected and correlated with UTEM results and geology. Preliminary interpretation was carried out on site to facilitate drill testing in a timely fashion.

2. GEOLOGY

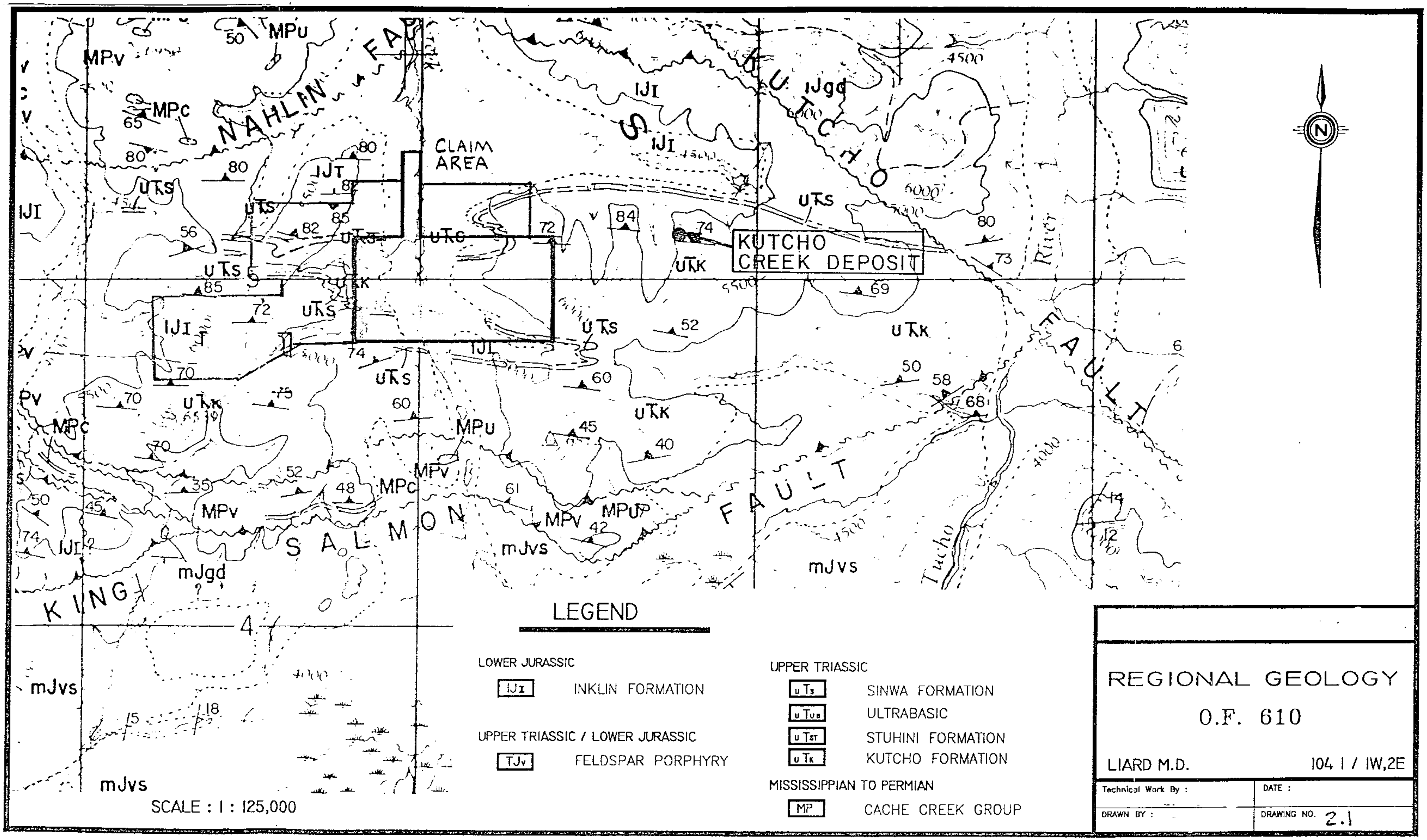
2.1 Regional Geology

The Kutcho property lies within the King Salmon Allochthon, a narrow belt of Triassic to Permian island-arc volcanic rocks and Jurassic sediments sandwiched between two northerly dipping thrust faults: the Nahlin fault, to the north, and the King Salmon fault, to the south (Fig. 2.1). Penetrative foliation and axial planes of major folds are parallel to these east-west trending, southerly dipping, bounding faults. The volcanic rocks within the Allochthon are thickest in the area of the known massive sulphide deposits; due in part to primary deposition but also to stratigraphic repetition caused by folding and thrust faulting. Large scale folds plunge gently to the west and consequently the volcanic host rocks for mineralization are overlain by sediments west of the claim area discussed in this report.

Stratigraphy of the Allochthon consists of mafic and felsic volcanic rocks of the Kutcho Formation overlain by limestone of the Upper Triassic Sinwa Formation, and sediments of the Lower Jurassic Inklin Formation. Major folds are best delineated by the Sinwa limestone and the contact between Kutcho Formation volcanic rocks and Inklin Formation argillite. The Kutcho Formation and the King Salmon allochthon are cut off 16 kilometres to the east by the Kutcho Fault, a major right-lateral strike-slip fault. The King Salmon Allochthon extends to the west past Dease Lake but Kutcho Formation volcanic rocks become scarce a few kilometres to the west of the property area.

Volcanogenic massive sulphide mineralization of the Kutcho deposits occurs at the contact between footwall lapilli tuffs and hanging wall quartz-feldspar crystal tuffs of the Kutcho Formation. The main sulphide bearing horizon is marked by extensive hydrothermal alteration in the form of sericite, and deposition of iron-carbonate and silica exhalites and pyritic ash tuffs. This horizon is visually and geochemically recognizable for at least 8 km along strike.

The pyroclastic rocks of the Kutcho Formation exhibit greater thicknesses and coarser grain size in the vicinity of the known sulphide deposits and units become thinner and finer grained away from the deposit area suggesting that the deposits are vent proximal. Other, possibly subordinate, vent areas may exist in the region.


NAHLIN FAULT
KUTCHO FAULT
KING SALMON FAULT
CLAIM AREA
KUTCHO CREEK DEPOSIT
River
Tucho
MPv
MPu
MPc
lJI
lJgd
lJT
uTs
uTk
mJvs
mJgd
4500
6000
5000
5500
4000
LEGEND
LOWER JURASSIC
lJI INKLIN FORMATION
UPPER TRIASSIC / LOWER JURASSIC
TJv FELDSPAR PORPHYRY
UPPER TRIASSIC
uTs SINWA FORMATION
uTub ULTRABASIC
uTst STUHINI FORMATION
uTk KUTCHO FORMATION
MISSISSIPPIAN TO PERMIAN
MP CACHE CREEK GROUP
SCALE : 1 : 125,000
N
REGIONAL GEOLOGY
O.F. 610
LIARD M.D.
104 I / IW,2E
Technical Work By :
DATE :
DRAWN BY :
DRAWING NO. 2.1

2.2 Property Geology

Geology of the property has been described in detail in an assessment report by Belik (1996) and will only be briefly reviewed here.

2.2.1 Stratigraphy

The most prominent stratigraphic and structural feature on the property is a large syncline defined by Inklin argillite, Sinwa limestone and another argillite/shale unit below the limestone that could be part of the Sinwa Formation or may mark the upper limit of the Kutcho Formation. Typically the top of the Kutcho Formation is marked by a volcanic conglomerate unit which is only present the north edge of the claim area. Below this sedimentary package sits a sequence of felsic and minor mafic volcanic rocks that is the main focus of the exploration effort. A precise and detailed stratigraphy is difficult to establish due extensive and rapid facies changes and complex fold geometry. The felsic volcanic rocks have been divided into six units. One unit is composed of resistant, fairly uniform, rhyolitic quartz-feldspar porphyry that most likely represents a rhyolite flow-dome complex. The interpreted dome is flanked by flows, tuffaceous units and breccias (although some of the breccias may also be a hydrothermal in origin). Units are differentiated on the basis of grain size and abundance, however the same eruptive unit may show considerable variation in grain size and phenocryst abundance along strike. All of the felsic units have quartz phenocrysts. Within the felsic pile but towards the base are a number of mafic units consisting of basalt flows and derived epivolcaniclastic rocks.

2.2.1 Structure

On a regional scale, the claim area straddles a large, westerly trending anticline-syncline pair. These folds plunge very gently to the west. The shallow plunge gives a map appearance isoclinal folds however, in a structural section it can be seen that these folds are open to moderately tight. All units display a penetrative axial plane foliation which is most pronounced within the sericitic units. Foliation ranges from near-vertical to moderately north dipping. Changes in the dip of the foliation is only observed on the west side of Kutcho Creek whereas on the east side foliation dips consistently at 45° to the north. The changes in foliation dip may be due to block faulting and/or post-metamorphic compression. Detailed mapping has confirmed that between the axial planes of the major fold set, subordinate folds of variable amplitudes are ubiquitous. It would also appear that these folds are disharmonic in that they have variable plunges. An enclosing envelope about these folds is interpreted to be nearly flat lying within the central part of the claim area.

3. GEOPHYSICAL SURVEY

3.1 Description of the UTEM-3 System

UTEM is an acronym for "University of Toronto ElectroMagnetometer". Dr. Y. Lamontagne (1975) developed the system while he was a graduate student of that University.

The following is a short description of the UTEM system. The published paper by G.F. West, J.C. Macnae, and Y. Lamontagne "A time-domain EM system measuring the step response of the ground" gives a more complete description of the system with an overview of interpretations as outlined in Appendix III.

The field procedure consists of first laying out a large square loop of single strand insulated wire. The loop can vary in size from less than 100m X 100m to more than 2 km X 2 km. The wire is energized with current from a transmitter powered by a 2.2 kW motor generator. During a surface survey the lines are generally oriented perpendicular to one side of the loop and surveying can be performed both inside and outside the loop. For Borehole surveys, the sensor coil is placed down the borehole and measures the axial component of the electromagnetic field from a minimum of 2 separate surface loops.

The transmitter loop is energized with a precise triangular current waveform at a carefully controlled frequency (30.974 Hz for this survey). The receiver system includes a sensor coil and backpack portable receiver module, and is capable of measuring the magnetic field generated by the transmitting loop (primary field) and any conductive material in the ground (secondary field) and recording this data on a digital recording facility. The receiver sensor coil can measure the vertical, horizontal, or axial-magnetic component of the electromagnetic field, but in this survey only the vertical component was measured. The triangular waveform of the transmitter is differentiated by the receiver sensor coil (i.e. coil responds to the time derivative), which will sense a perfect square wave in the absence of geologic conductors. time synchronization between transmitter and receiver is achieved through quartz crystal clocks, that are accurate to about one second in 50 years in both units.

Deviations from a perfect square wave are caused by electrical conductors, which may be geologic or cultural in origin. The receiver stacks any pre-set number of cycles in order to increase the signal to noise ratio. Generally the number of stacks is small close to the loop where the signal is strong, and increases the further the receiver is located from the loop.

The UTEM receiver gathers and records 10 channels of data at each station where a reading is taken. The higher number channels (7-8-9-10) correspond to short time or high frequency while the lower number channels (1-2-3) correspond to long time or low frequency. Therefore, poor or weak conductors will respond on channels 10, 9, 8, 7 and 6. Progressively better conductors will give responses on progressively lower number channels as well. For example massive, highly conducting sulphides or graphite will produce a response on all ten channels.

The Borehole system consists of a surface UTEM-3 transmitter and receiver but comes with a special receiver coil (1 1/4" in diameter). The coil is connected to the receiver through a controller and fiber optic cable.

3.2 DESCRIPTION OF HORIZONTAL LOOP EM SURVEY

The HLEM survey was carried out with a MaxMin II-5 unit manufactured by Apex Parametrics Ltd. of Uxbridge, Ont. An MMC data logger was used to record the readings. Frequencies read were 444, 888, 1777, and 3555 Hz, at cable separations of 50 and 100 meters. Readings were taken every 12.5 meters for the 50 meter cable and every 25 meters for the 100 meter cable. The terrain was generally rolling hill so that the reference cable could be used as a chain to determine the exact transmitter-receiver distance. An inclinometer was used to establish the slope so that both units could be tilted coplanar to the topographic slope.

3.3 DATA PRESENTATION

The results of the 1997 UTEM survey are presented on 32 data sections (Appendix V, Continuous plots in Book 2 and Point Normalized plots in Book 3) and 4 plan maps as follows:

Plate G1	UTEM-3 SURVEY COMPILATION MAP Loop 1	In Pocket Book 1
Plate G2	UTEM-3 SURVEY COMPILATION MAP Loop 2	In Pocket Book 1
Plate G3	UTEM-3 SURVEY COMPILATION MAP Loop 3	In Pocket Book 1

Plate G4	UTEM-3 SURVEY COMPILATION MAP Loop 4	In Pocket Book 1

Legends for the UTEM data sections are also attached (Appendix II).

In order to reduce the field data, the theoretical primary field of the loop must be computed at each station. The normalization of the data is as follows:

a) For Channel 1:

% Ch.1 anomaly = (Ch.1 - PC) X 100/PT

Where:

PC is the calculated primary field in the direction of the component from the loop at the occupied station

Ch.1 is the observed amplitude of Channel 1

PT is the calculated total field

b) For remaining channels (n = 2 to 10)

% Ch.n anomaly = (Ch.n - Ch.1) X 100/Ni

Where:

Ch.n is the observed amplitude of Channel n (2 to 9)

N is Ch1 for Ch1 normalized

N is PT for primary field normalized

I is the data station for continuous normalized (each reading normalized by different primary field)

I is the station below the arrow on the data sections for point normalized (each reading normalized by the same primary field)

Subtracting channel 1 (Ch.1) from the remaining channels eliminates the topographic errors from all the data except channel 1.

If there is a response in channel 1 from a conductor then this value must be added to do a proper conductivity determination from the decay curves. Therefore channel 1 should not be subtracted indiscriminately.

The data from each line is plotted on at least 2 separate sections consisting of a continuous normalized section and a point normalized section.. Point normalization data is the absolute secondary field at a "gain setting" related to the normalization point. The data is usually point normalized over the central part of the crossover anomaly to aid in interpretation.

The results of the HLEM MaxMin survey are presented on Plate G5, for "In Phase" values (IP), and on Plate G6, for "Out-of-Phase" values (OP). All 4 frequencies are included on the same plate, with negative (or anomalous) readings to the right (or east) direction, at a scale of 10 percent per cm. The profiles are colour coded such that each frequency has a separate colour as shown on the map legend. Interpretation signifying "Conductivity-Thickness" and "Depth to Top" are included on Plate G5 for all significant conductive responses.

3.4 DISCUSSION OF RESULTS

UTEM (loop 1)

The Loop 1 (Plate G1) lines were surveyed inside the loop, the loop size being 1200mX1500m. Geological mapping over this ground indicates a large syncline is present, in which a synclinal fold of argillite is enveloped by a thin unit containing some known sulphides. Loop 1 was intended to delineate any near surface conductive sulphides in this envelope, and if present, to detect sulphides in this envelope as it folds underneath the argillite.

The following table summarizes the conductive responses of Loop 1:

LINE NUMBER	STATION	EXTENDS TO	DESCRIPTION
200W	275N (south limb)		Thin, probably argillite
	425N (north limb)		Shallow, channel 5 response.
300W	300N (south limb)		Thin, probably argillite
	425N (north limb)		Shallow, channel 5 response.
400W	250N (south limb)	325N	Argillite band getting thicker.
	375N (north limb)	450N	Shallow, channel 2 response.
500W	225N (south limb)	325N	Argillite increasing in thickness
	375N (north limb)	450N	Shallow, channel 2 response.
600W	200N (south limb)	325N	Shallow, channel 2 response.
600W	350N (north limb)	475N	Shallow, channel 2 response.
700W	200N (both limbs)	450N	Correlates with Argillite unit.
800W	125N (south limb)	300N	Channel 2 response.

	300N (north limb)	500N	Channel 1 response.
800W	662N		Shallow, thin, channel 6.
900W	100N (south limb)	275N	Channel 2 response.
	275N (north limb)	525N	Channel 1 response.
	662N		Shallow, thin, channel 6.
1000W	50N (south limb)	250N	Channel 2 response.
	250N (north limb)	525N	Channel 1 response.
	712N		Shallow, thin, channel 4.
1100W	75N (south limb)	275N	Channel 2 response.
	275N (north limb)	575N	Channel 1 response.
	650N	750N	Channel 4, argillite unit.
1200W	50N (south limb)	250N	Channel 2 response.
	250N (north limb)	575N	Channel 1 response.
	650N	775N	Channel 3, argillite unit
1300W	50N (south limb)	300N	Channel 2 response.
	300N	575N	Channel 1 response.
	650N	750N	Channel 3, argillite unit.
	825N		Shallow, channel 5 response.

The UTEM responses are highly influenced by the conductive argillite unit, and show excellent correlation with the mapped outcrop exposure of this unit. The UTEM responses are shown to be shallow, meaning the overburden cover is thin (i.e. up to a few meters in thickness).

The most continuous occurrence of argillite occurs on all lines in this loop, and has been labeled "north" and "south limbs" in the table above, which refers to the two limbs of the syncline. The south limb appears to give a consistent channel 2 response, in contrast to the character of the north limb, which shows a channel 1 response. The strength of these features diminishes to the east reflecting considerable thinning of the argillite unit in this direction. UTEM responses north of the north limb have also been predominately correlated with argillite outcroppings.

With the occurrence of these conductive argillites over such a large area within loop 1, it is difficult to differentiate the weaker sulphide conductors from the argillite units. It certainly is not possible to identify massive sulphides underlying the argillite unit at depth, given that the argillites units themselves are showing a channel 1 or 2 response.

Because one of the objectives of the UTEM survey, namely the subcrop delineation of the sulphide envelope, was not being fulfilled, a MaxMin test was carried out to check the effectiveness of this tool. This test was conducted from lines 100W to 1400W, between stations 400N to 200S. The results of the 5 western lines (see Plate G5 & G6), 1000W to 1400W, show a discrete response with the 50 meter cable at approximately 60N correlating with the mapped sulphide unit. The conductivity-thickness ranged from 11 to 27 mhos and the depth to top was up to a maximum of 4 meters.

UTEM (Loop 2)

Lines were Loop 2 is in exactly the same location as the first loop, except that the survey outside the loop, covering an area of interest to the north of loop 1. The following table summarizes the UTEM responses:

LINE NUMBER	STATION	EXTENDS TO	DESCRIPTION
200W	1325N	1500N	Slightly more conductive unit.
	1687N		Shallow, channel 6 response.
	1912N		Mod. Deep, ch. 4 response.
	2087N		Shallow, channel 4 response.
	2212N		Shallow, channel 3 response.
400W	1687N		Shallow, channel 6 response.
	1887N		Shallow, channel 4 response.
	1962N		Shallow, channel 4 response.
	2137N		Mod. Deep, ch. 4 response.
600W	1862N		Shallow, channel 3 response.
	2187N		Shallow, channel 4 response..
800W	1862N		Mod. Deep, ch. 4 response.
	2212N		Shallow, channel 3 response.

1000W	1837N	Shallow, channel 4 response.
	2262N	Shallow, channel 5 response.
1200W	1812N	Shallow, channel 4 response.
1400W	1862N	Shallow, channel 2 response.
1500W	1862N	Shallow, channel 4 response.
1600W	1837N	Shallow, channel 5 response.
1800W	1675N	Shallow, channel 5 response.

The loop 2 results clearly do not show the presence of massive conductive argillite units such as were detected in the loop 1 survey. The loop 2 responses are indicative of thin conductive sheets which generally come very close to surface, again indicating a shallow overburden cover. The most prominent feature, occurring at approximately 1850N on all lines, roughly follows a creek valley. This might suggest the feature is reflecting a fault, but a deviation in direction from the creek on the westernmost lines casts some doubt on this conclusion. The changes in response from channel 2 to 4, as well as changes in depth to top of this feature suggest it may not be uniformly conductive. The UTEM character indicates a sheet with local variations in conductivity from poor to moderate. The lack of a significant negative lope to the north (i.e. downdip) of the subcrop location suggests there is no downdip component to this sheet, suggesting it has a ribbon like shape.

The easternmost lines show several conductors spread over a 400 to 500 meter distance along the survey line instead of one single conductor at 1850N. This plethora of features on Lines 200W and 400W provides a more favourable area to test for sulphides.

HLEM data on 3 lines (Lines 400W, 1400W, and 1600W) across the feature at 1850N all indicate a dip towards the north, estimated to vary from 45 to 60 degrees. The HLEM signatures also indicate a large variation in conductivity-thickness from 3 to 23 mhos, confirming the UTEM results. The depth to top is estimated to range from 13 to 24 meters. (NOTE: these calculations were carried out on the 444 Hz data, and assume an infinite half plane, a reasonable assumption for this conductor from an HLEM perspective.)

Another significant feature occurs at approximately 2200N on Lines 200W to 1000W, and has a strike parallel to the feature mentioned above. The HLEM coverage of this conductor detects nothing on Line 400W (where depth penetration with the 50 meter cable is effectively 25 meters), and detects a 1.5 mho response with 17 meter depth to top on Line 200W at station 2200N.

UTEM (Loop 3)

Loop 3 is similar in location to loop 2, except that the loop front was moved from 1000N to 700N. The objective was to test for the presence of geologically features of interest occurring at or near 1000N. The following table summarizes the findings:

LINE	STATION	EXTENDS TO	DESCRIPTION
200W	837N		Shallow, channel 8 response
	1350N	1500N	Slightly more cond. Unit.
400W	850N	975N	Slightly more cond. Unit.
	1350N	1500N	Slightly more cond. Unit.
600W	825N	925N	Slightly more cond. Unit.
800W	900N	975N	Slightly more cond. Unit.
LINE	837N		Shallow, ch. 7 response.

No significant response was detected from this loop. Several weak block responses were outlined, which correspond to rock units marginally more conductive than the units that surround them. These UTEM responses can be useful as an aid to geological mapping, but do not indicate a drill target.

UTEM (Loop 4)

The geology is believed to be highly folded in the area covered by the loop 3 survey lines. Although the general dip is to the north, which would couple well with the magnetic field lines propagating from loop 3, it is conceivable that a localized fold containing massive sulphides could occur which dips to the south. This geometry would not couple very well with the magnetic field induced by loop 3, and may result in the sulphides not being detected. To cover this possibility, the loop 3 survey lines were covered with a loop flipped to the north (i.e. loop 4), which would couple with a south dipping conductor. The following table summarizes the results:

LINE	STATION	EXTENDS TO	DESCRIPTION
200W	1437N		Mod Deep, ch 8 response
	837N		Shallow, ch. 7 response.
	412N		Ch. 1 argillite response.
400W	1350N	1450N	Weakly cond. Unit.
	937N		Shallow, ch. 6 response.
	437N		Ch. 1 argillite response.
600W	867N		Shallow, ch. 6 response.
800W	937N		Mod Deep, ch 8 response
	637N		Shallow, ch. 3 response.
	487N		Ch. 2 argillite response.
1000W	712N		Shallow, ch. 3 response.
1200W	762N		Shallow, ch. 2 response
1400W	887N		Shallow, ch. 6 response.
	862N		Shallow, ch. 4 response.
1600W	1012N		Shallow, ch. 6 response.
	962N		Shallow, ch. 4 response..

The strongest UTEM responses occur on the southern part of the data sections, at approximately stations 400 to 800N. These locations occur at or very close to the argillite contact.

A weaker feature occurs at approximately 900N on Lines 200W to 800W. Even though this is a weak channel 6 to 8 response, it is significant in that these lines were surveyed to detect a possible conductor in this approximate location. If more resources had been available, this conductor would have been a good target for a small HLEM grid.

HORIZONTAL LOOP EM SURVEY

The results of the two small grids overlapping with the UTEM survey have already been discussed. An additional HLEM grid was surveyed to the east and along strike to the geology covered by the Loop 1 UTEM survey. These lines are labeled 800E to 1600E on Plates G5 and G6, and cover an area from stations 900N to 600S. Lines 800E and 1000E were covered with a 50 meter cable, whereas Lines 1200E, 1400E, and 1600E were covered with a 100 meter.

Results show 2 narrow, parallel conductors, approximately 200 meters apart along strike to and having the same strike direction as the argillite conductors detected in the Loop 1 UTEM survey. The geometry of the HLEM conductors resembles the north and south limb features detected in the Loop 1 data. Calculations on the HLEM data shows these conductors to be 9 to 28 mhos in conductivity-thickness and ranging from less than 5 to 24 meters in depth to top.

4. CONCLUSIONS AND RECOMMENDATIONS

41.8 kms of UTEM surveying and 13 kms of HLEM surveying on the Kutcho Creek Property detected several conductive features.

The most pronounced features outline an argillite unit which is folded into a synclinal structure showing two limbs on the surface expression. A thin band of sulphides enveloping the outside of the argillite fold has been traced with HLEM on a small test area. The HLEM survey should be extended if follow-up work is encouraging.

The argillite units diminish in width to the east and have been traced along strike east of the Loop 1 UTEM lines by an HLEM grid (on Lines 800E to 1600E). This HLEM grid has shown this system to be an excellent mapping tool for delineating the axis of the synclinal fold, as the two argillite limbs have quite a diagnostic geophysical character compared to other units in the area.

UTEM features to the north of Loop 1 are characteristic of thin, sheet-like sources and may be caused by faults and/or sulphide mineralization. All conductors not correlated with argillite need to be followed up, and if they are associated with sulphides, further delineation along strike (with surface UTEM surveys) and downdip (with borehole UTEM surveys) is recommended.

MaxMin surveying in the area of multiple and/or shallow UTEM conductors is also advisable to aid in locating drill locations once a promising UTEM feature has been identified.

The geophysical surveys discussed in this report have covered an extensive, but by no means exhaustive area of promising geology for potential sulphide mineralization in the Kutcho Creek camp. Any encouragement or opportunity for continuation of geophysical surveys should be aggressively pursued. A geophysical compilation map of this camp from past assessment reports is also recommended.

APPENDIX I

STATEMENT OF QUALIFICATIONS

I, Ingo Jackisch, of 424 Somerset Street, in the City of North Vancouver, British Columbia, do hereby certify that,

1) I graduated from the University of British Columbia in 1975 with a B.Sc. in Geophysics.
2) I have been actively engaged in Mining Exploration activities since 1971.
3) I am a professional Geoscientist registered in British Columbia, No. 18983.

Ingo Jackisch

Ingo Jackisch, B.Sc., P.Geo

Geophysicist

SJ Geophysics Ltd./S.J.V. Consultants Ltd. 11762 - 94th Ave., Delta, BC, V4X 3R7 Canada.
Bus: (604) 582-1100 Fax: (604) 589-74613136 E-mail: syd_visser@mindlink.net

Certificate of Qualifications

I, Peter M. Holbek with a business address of 1550 - 409 Granville Street, Vancouver, British Columbia, V6C 1T2, do hereby certify that:

1. I am a professional geologist registered under the Professional Engineers and Geoscientists Act of the Province of British Columbia and a member in good standing with the Association of Professional Engineers and Geoscientists of British Columbia.
2. I am a graduate of The University of British Columbia with a B.Sc. in geology 1980 and an M.Sc. in geology, 1988.
3. I have practiced my profession continuously since 1980.
4. I am vice president of Atna Resources having a business address as given above.
5. I supervised the work program conducted on the Kutcho property as described in this report.

Peter Holbek, M.Sc., P.Geo.
September 25, 1997

PROFESSIONAL
PROVINCE OF
P. M. HOLBEK
BRITISH COLUMBIA
GEOSCIENTIST

APPENDIX II
STATEMENT OF COSTS

1.	Grid Preparation	
	G.R. Thompson and Assoc.	27,830.18
2.	Labour and Management - Grid Prep and Survey	
	Duncan McCrae 20 days @ $170/day	3,400.00
	Bart Piekarski 20 days @ $140/day	2,800.00
	Heath Walton 14 days @ $200/day	2,800.00
	Rob Wilson 16 days @ $330/day	5,280.00
	Peter Holbek 6 days @ $425/day	2,550.00
3.	Geophysical Surveys	
	S.J. Geophysics Ltd.	51,069.96
4.	Camp Costs (Camp rent, fuel, food and supplies)	
	296 man days @ $75/day	22,200.00
5.	Aircraft Charter	
	Pacific Western Helicopters	3,658.21
	Northern Lights Air Services	14,763.05
6.	Travel Expenses (pro-rated)	
	Canadian Airlines International	2,775.00
	Air Canada/Central Mountain Air	3,600.00
7.	Report Preparation	850.00
8.	Miscellaneous	2,119.44
	Total	$145,695.84

Proportion of expenditures on Claim Group Kut-2 equals:

34.6/55.75 * $145,700 = **$90,306.00**

APPENDIX III

Production Sheets

DATE	Description	Loop	Line	Dist.	RX Op	Coil	Other	Comments
4-Jun	mob							IJ, MK, CG drove Whitehorse to Dease Lake.
5-Jun	mob							ZD flew Vancouver to Smithers. IJ, MK, CG waited for flight to Kutcho weathered in.
6-Jun	mob							IJ, ZD, MK, CG flew Dease Lake to Kutcho Creek. IJ wire camp electrical sys spare M/G.
7-Jun	loop laying							IJ, ZD measured lines, flagged and took slopes. MK, CG laid loop#1 geologists and assistants.
8-Jun	UTEM3	1	2+00W	1200 m	ZD	IJ		
		1	3+00W	1200 m	IJ	ZD		
	flagging						MK, CG	flagged lines in
9-Jun	UTEM3	1	4+00W	1200 m	ZD	MK		
		1	5+00W	1200 m	ZD	MK		
		1	6+00W	1200 m	IJ	CG		Line 7+00W was started but the Rx 13 battery gave out part way throu survey line.
10-Jun	UTEM3	1	9+00W	1225 m	ZD	CG		
		1	10+00 W	1225 m	ZD	CG		
		1	7+00W	1200 m	IJ	MK		Line 7+00W was suveyed then the battery gave out again. Throw out o battery cell..
11-Jun	UTEM3	1	12+00 W	1225 m	IJ	CG		
		1	13+00 W	1225 m	IJ	CG		
		1	8+00W	1225 m	ZD	MK		

SJ Geophysics Ltd./S.J.V. Consultants Ltd. 11762 - 94th Ave., Delta, BC, V4X 3R7 Canada.
Bus: (604) 582-1100 Fax: (604) 589-74615156 E-mail: syd_visser@mindlink.net

		1	11+00 W	1225 m	ZD	MK		
12-Jun	UTEM3	2	2+00W	1700 m	IJ	MK		Loop#2 is in the same spot as loop#1 except that at this point we a surveying outsid the loop.
		2	4+00W	1700 m	ZD	CG		
13-Jun	UTEM3	2	8+00W	1700 m	IJ	CG		Four breaks in the loop.
		2	6+00W	1700 m	ZD	MK		Survey started at 2:30pm.
14-Jun	UTEM3	2	10+00 W	1700 m	IJ	MK		
		2	12+00 W	1700 m	ZD	CG		
15-Jun	UTEM3	2	16+00 W	1700 m	IJ	CG		
		2	14+00 W	1650 m	ZD	MK		
16-Jun	UTEM3	2	15+00 W	900m	IJ	MK		Lines 15+00W and 18+00W were fill in lines to check weird results on 14+0(16+00W.
		2	18+00 W	900m	IJ	MK		
	Loop3						CG	Put in loop 3.
	Office work				ZD			
17-Jun	UTEM3				ZD,IJ	MK	CG	Moved setup to loop#3. Fixed break in wire. Started building a new ten for the camp.Raining very hard so reeled out wire for lp4 & catch up on p
18-Jun	UTEM3	3	6+00W	825m	IJ	CG		
		3	15+50 N	850m	IJ	CG		
		3	16+00 N	900m	IJ	CG		
		3	16+00 N	900m	ZD	MK		
		3	16+00 N	900m	ZD	MK		
19-Jun	UTEM3				ZD	MK	CG	Moved loop#4 setup. Plots, interpretation.

SJ Geophysics Ltd./S.J.V. Consultants Ltd. 11762 - 94th Ave., Delta, BC, V4X 3R7 Canada.
Bus: (604) 582-1100 Fax: (604) 589-74616166 E-mail: syd_visser@mindlink.net

	Office work						IJ	Plotting, interpretation, & consulting with geologists.
	UTEM3						MK, CG	Reeled in loop#3. Lay out remainder of loop#4. Worked on tent frame.
20-Jun	UTEM3	4	16+25 N	1100 m	IJ	MK		
		4	16+00 N	1100 m	IJ	MK		
		4	16+00 N	1200 m	ZD	CG		
		4	16+00 N	1200 m	ZD	CG		
21-Jun	UTEM3	4	16+00 N	1000 m	ZD	MK		Tx problems. Current wanders. Noticed this problem before in isolat occasions, but getting worse today. Decide to resurvey worst line over.
		4	16+00 N	950m	ZD	MK		
		4	16+50 N	825m	IJ	CG		
		4	16+50 N	800m	IJ	CG		
22-Jun	UTEM3	4	16+25 N	925m	ZD	CG		MC monitor Tx, to see if it continues to give clipping problem.
	MaxMin		225N	450m	IJ			MaxMin works fine, but have trouble getting data
			225N	450m	IJ			out of MMC. Works fine if use 2400 baud rate
			225N	450m	IJ			when dumping. Phone Syd in pm.
			225N	420m	IJ			Use 50m cable. Stations every 12.5m.
			225N	450m	IJ			Atna supplies Tx operator for MaxMin.
23-Jun	Travel							ZD, MC, CG fly Kutcho camp to Dease Lk.
	MaxMin		400N	400m	IJ			Use 50m cable.
			400N	400m	IJ			Atna supplies Tx operator for MaxMin.
			400N	400m	IJ			
			400N	400m	IJ			
			900N	563m	IJ			
24-Jun	MaxMin		900N	1500 m	IJ			Use 50m cable.
			412.5N	1013 m	IJ			Atna supplies Tx operator for MaxMin.

SJ Geophysics Ltd./S.J.V. Consultants Ltd. 11762 - 94th Ave., Delta, BC, V4X 3R7 Canada.
Bus: (604) 582-1100 Fax: (604) 589-74617176 E-mail: syd_visser@mindlink.net

25-Jun	MaxMin		900N	1500 m	IJ			Use 100m cable.
			900N	1500 m	IJ			Atna supplies Tx operator for MaxMin.
			900N	1500 m	IJ			
26-Jun	MaxMin		2075N	300m	IJ			50m MaxMin on uncut lines, going very slow.
			2200N	500m	IJ			Instrument stops working after thunder & hard rain
			2350N	575m	IJ			at 2:30pm. Atna supplies Tx operator. IJ plot data
			2375N	312.5 m	IJ			& go over results with Gary Belik in evening.
27-Jun	Demob							IJ pack up MaxMin gear, phone Syd, finish all
								data interpretation, print out UTEM line coord-
								ates. Fly from camp to Dease Lake in pm.
28-Jun	Demob							No flights so stayed in Dease. Ship maxmin.
29-Jun	Demob							Fly Dease Lk to Watson Lk to Smithers to Vanc.

APPENDIX IV

A time domain EM system measuring the step response of the ground

SJ Geophysics Ltd./S.J.V. Consultants Ltd. 11762 - 94th Ave., Delta, BC, V4X 3R7 Canada.
Bus: (604) 582-1100 Fax: (604) 589-74618186 E-mail: syd_visser@mindlink.net

APPENDIX IV

Legend

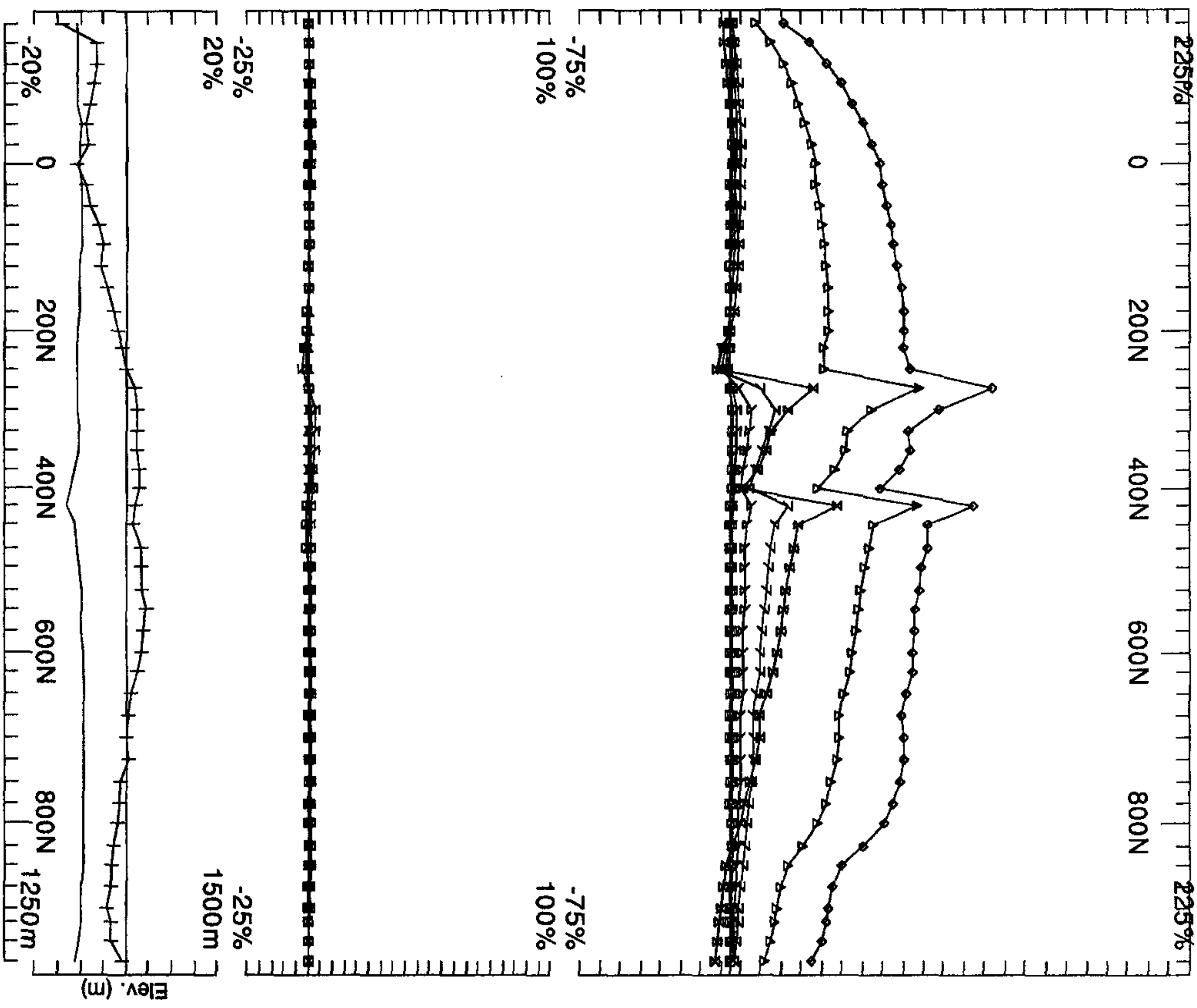
UTEM SYSTEM MEAN DELAY TIME		
Channel Number	Delay Time(msec)	Symbol
1	12.8	|
2	6.4	\
3	3.2	/
4	1.6	□
5	0.8	Σ
6	0.4	∡
7	0.2	7
8	0.1	×
9	0.05	△
10	0.025	◇
Base Frequency = 31 Hz		

APPENDIX V

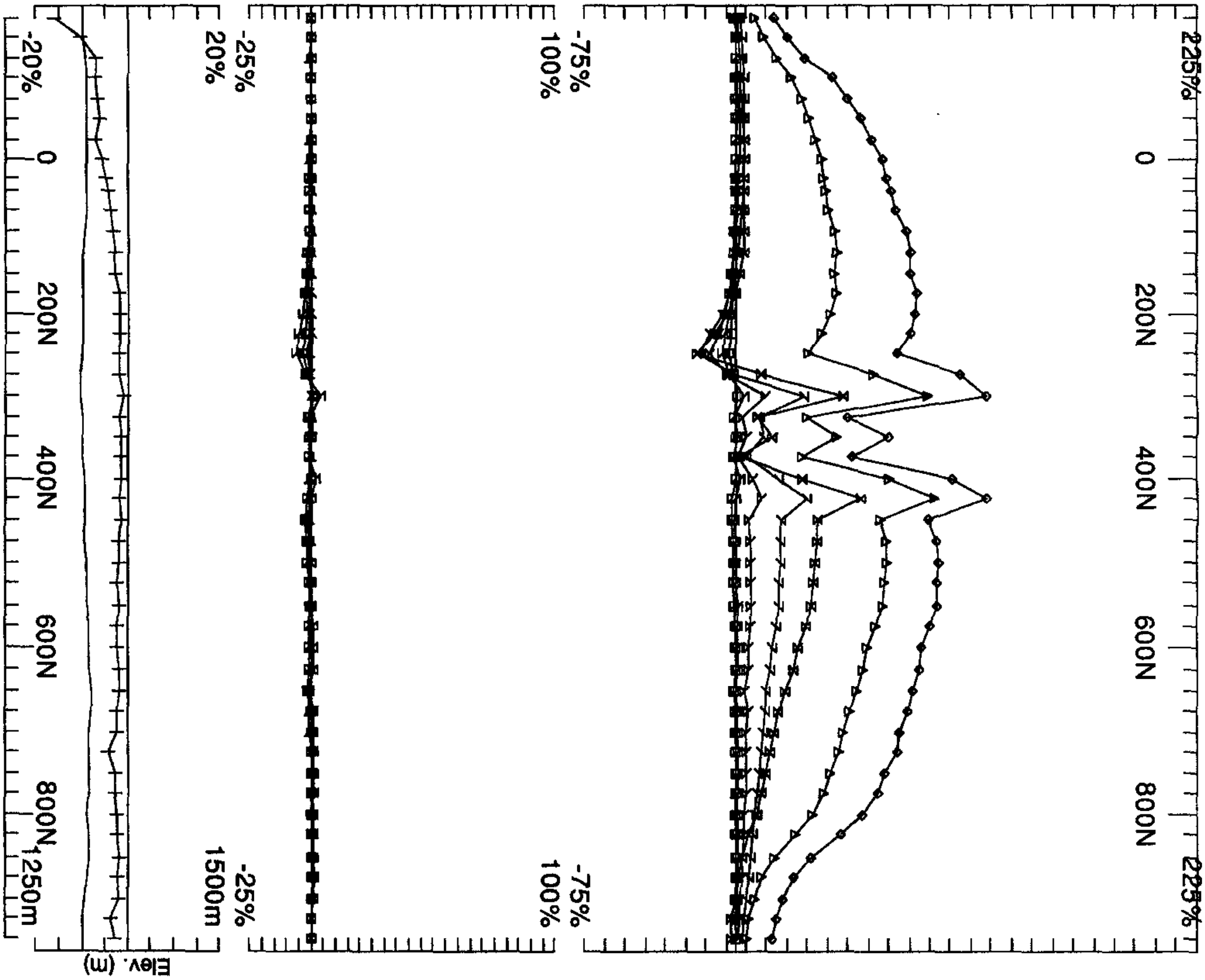
Data Sections

Continuous normalized data sections

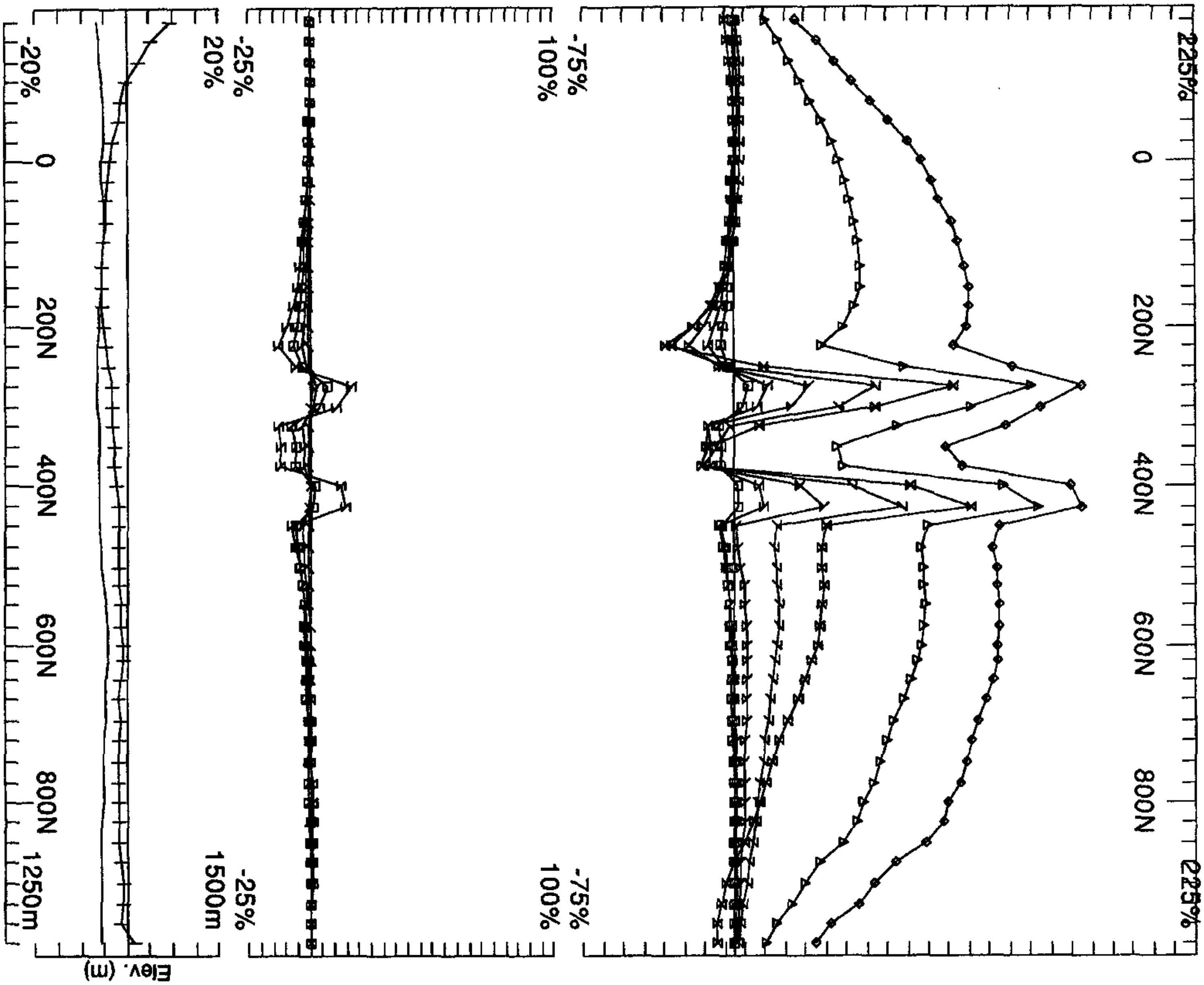
SJ Geophysics Ltd./S.J.V. Consultants Ltd. 11762 - 94th Ave., Delta, BC, V4X 3R7 Canada.
Bus: (604) 582-1100 Fax: (604) 589-74620206 E-mail: syd_visser@mindlink.net



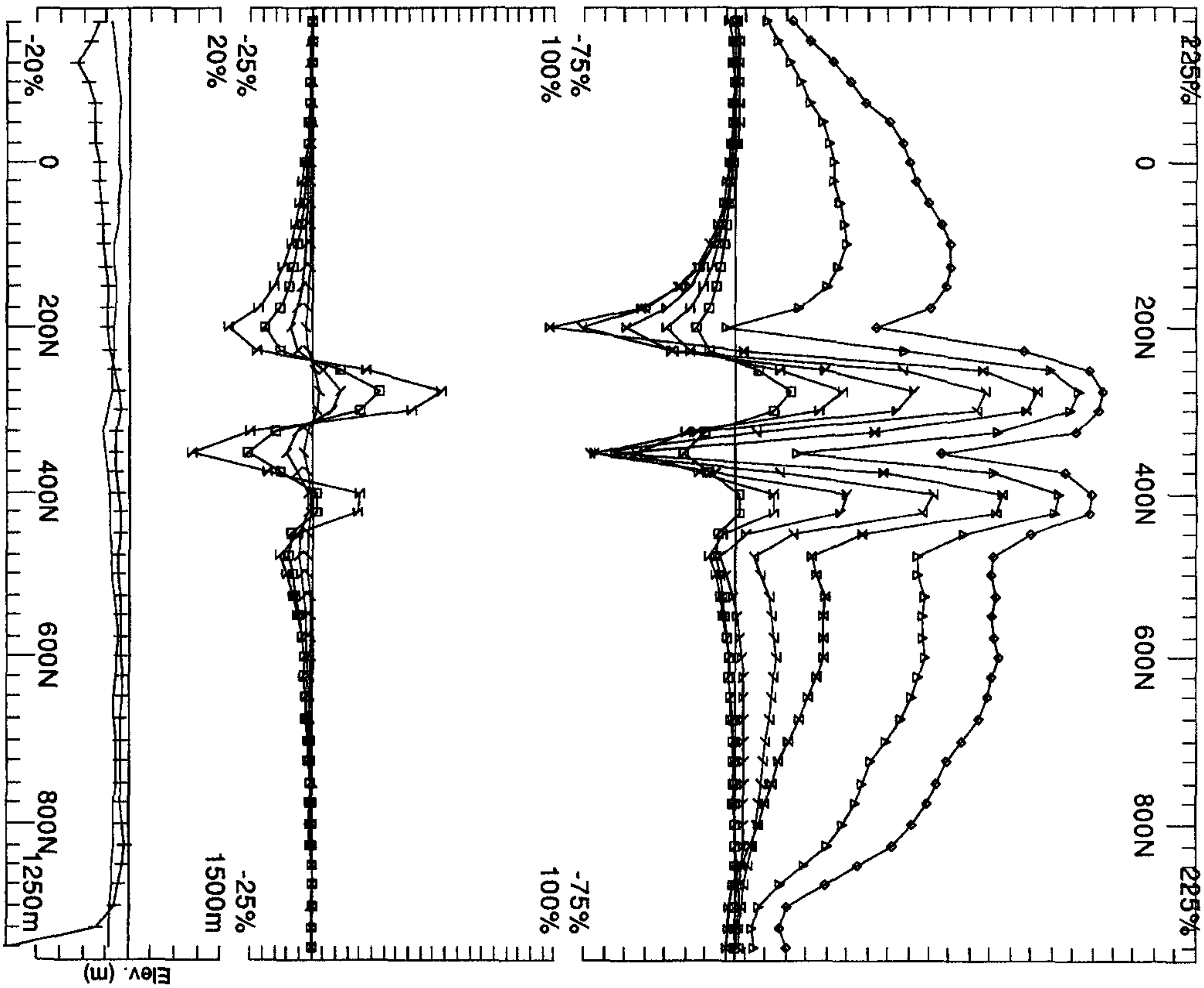
Loop: 1	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 200W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 8/6/97 Reduced : 7/7/97 Plotted : 18/7/97



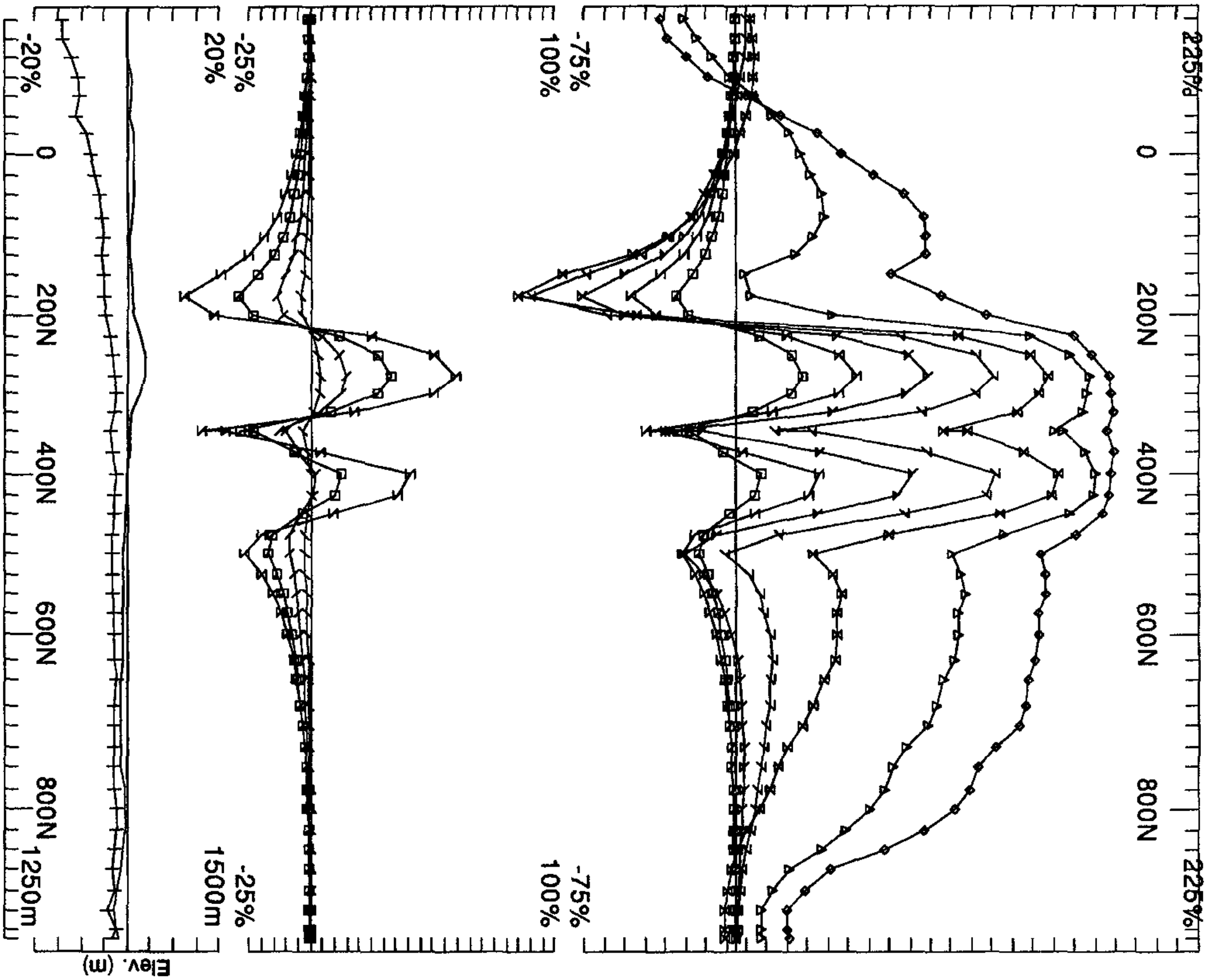
Loop: 1	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 300W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 8/6/97 Reduced : 7/7/97 Plotted : 18/7/97



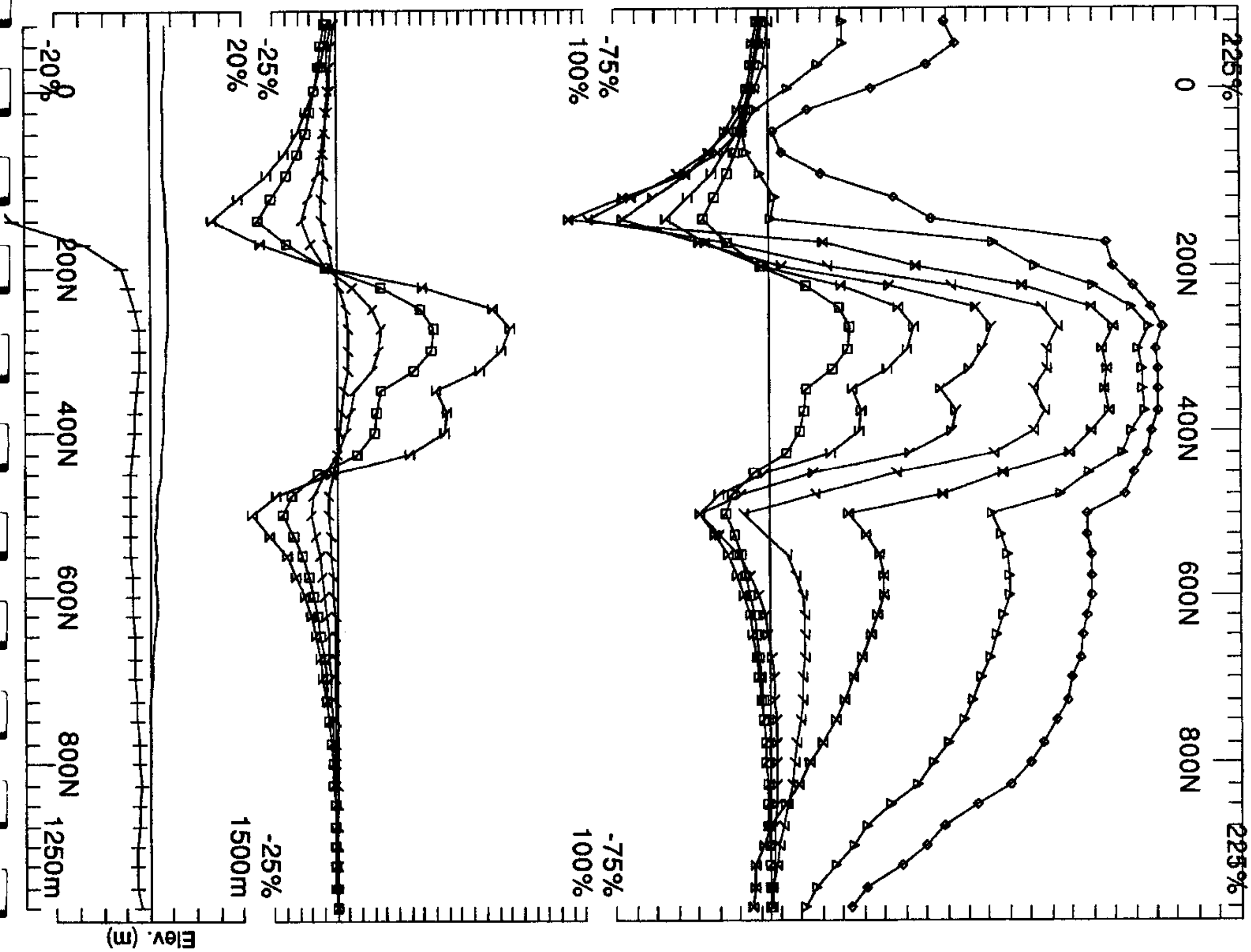
Loop: 1	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 400W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 9/6/97 Reduced : 7/7/97 Plotted : 18/7/97



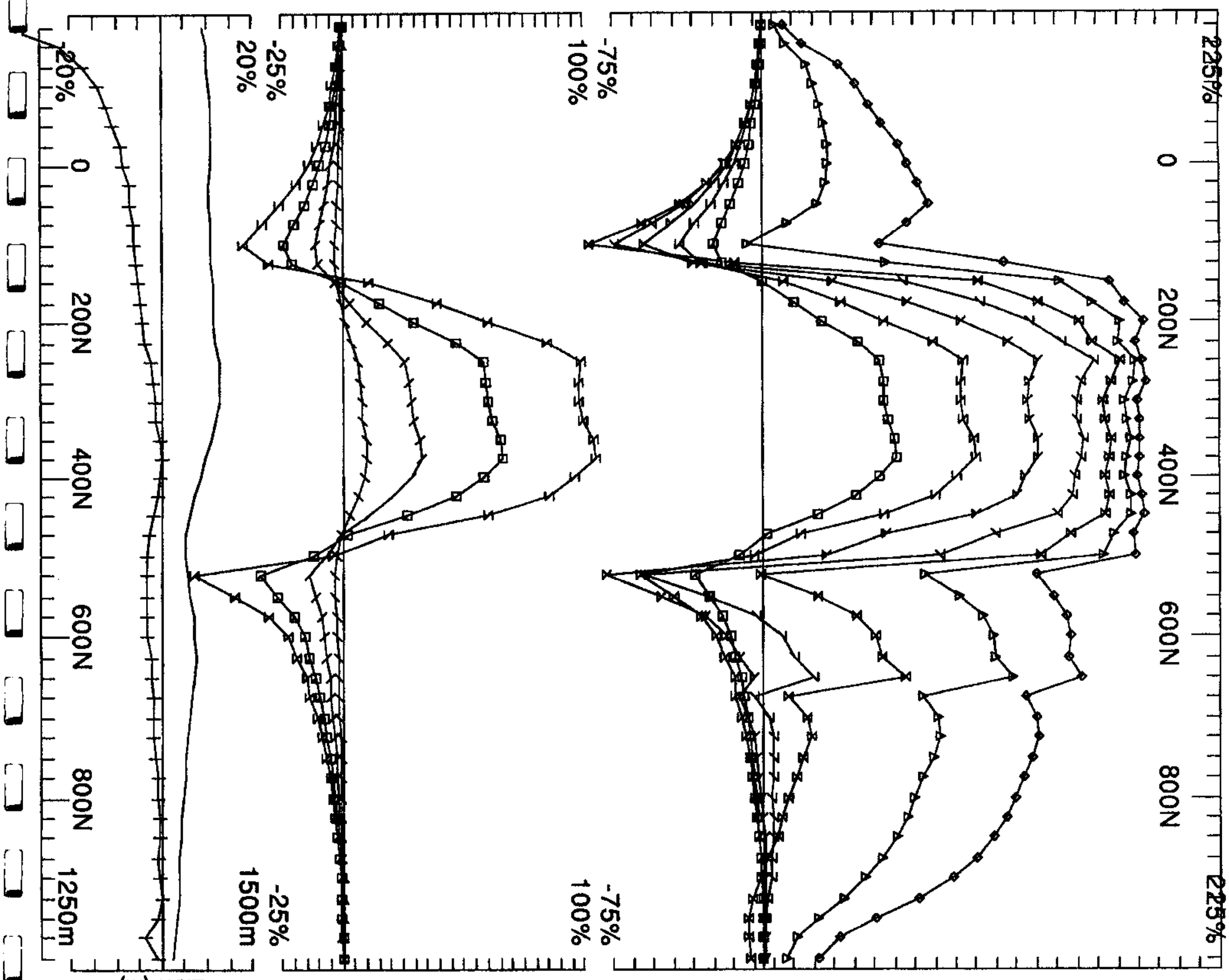
Loop: 1	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 500W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 9/6/97 Reduced : 7/7/97 Plotted : 18/7/97



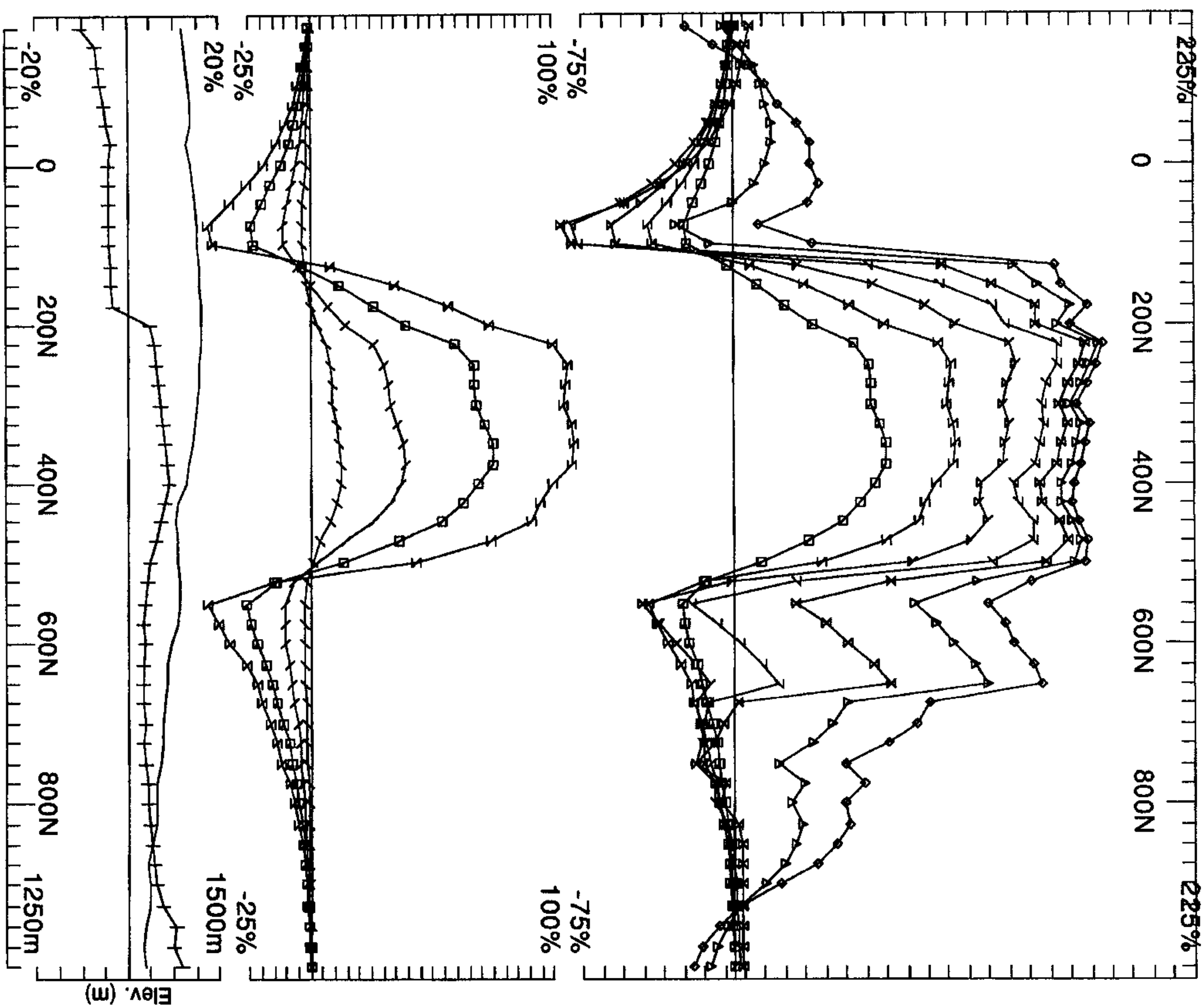
Loop: 1	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 600W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 9/6/97 Reduced : 7/7/97 Plotted : 18/7/97



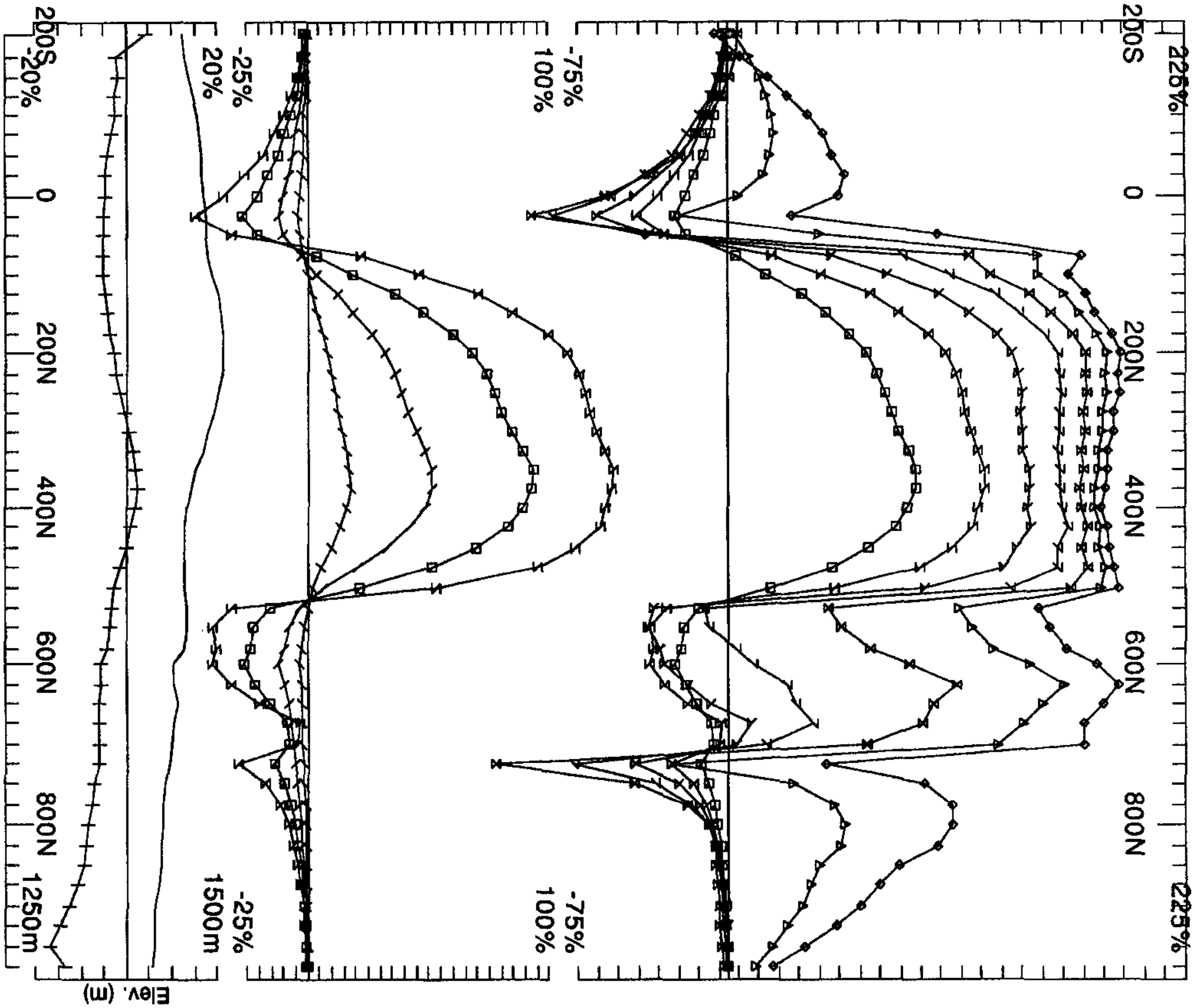
Loop: 1 Line: 700W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 10/6/97 Reduced : 7/7/97 Plotted : 18/7/97



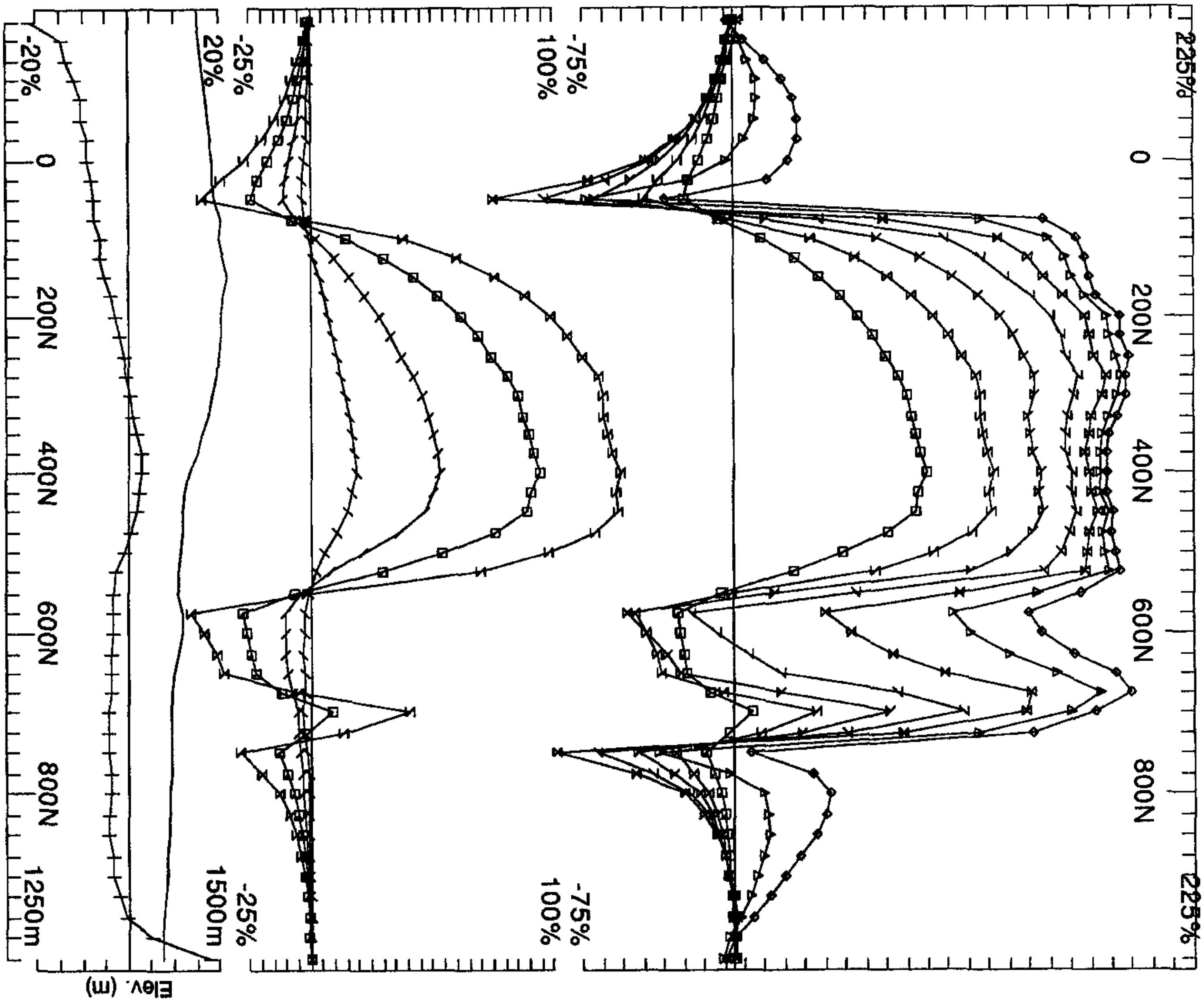
Loop: 1	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 800W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 11/6/97 Reduced : 7/7/97 Plotted : 18/7/97



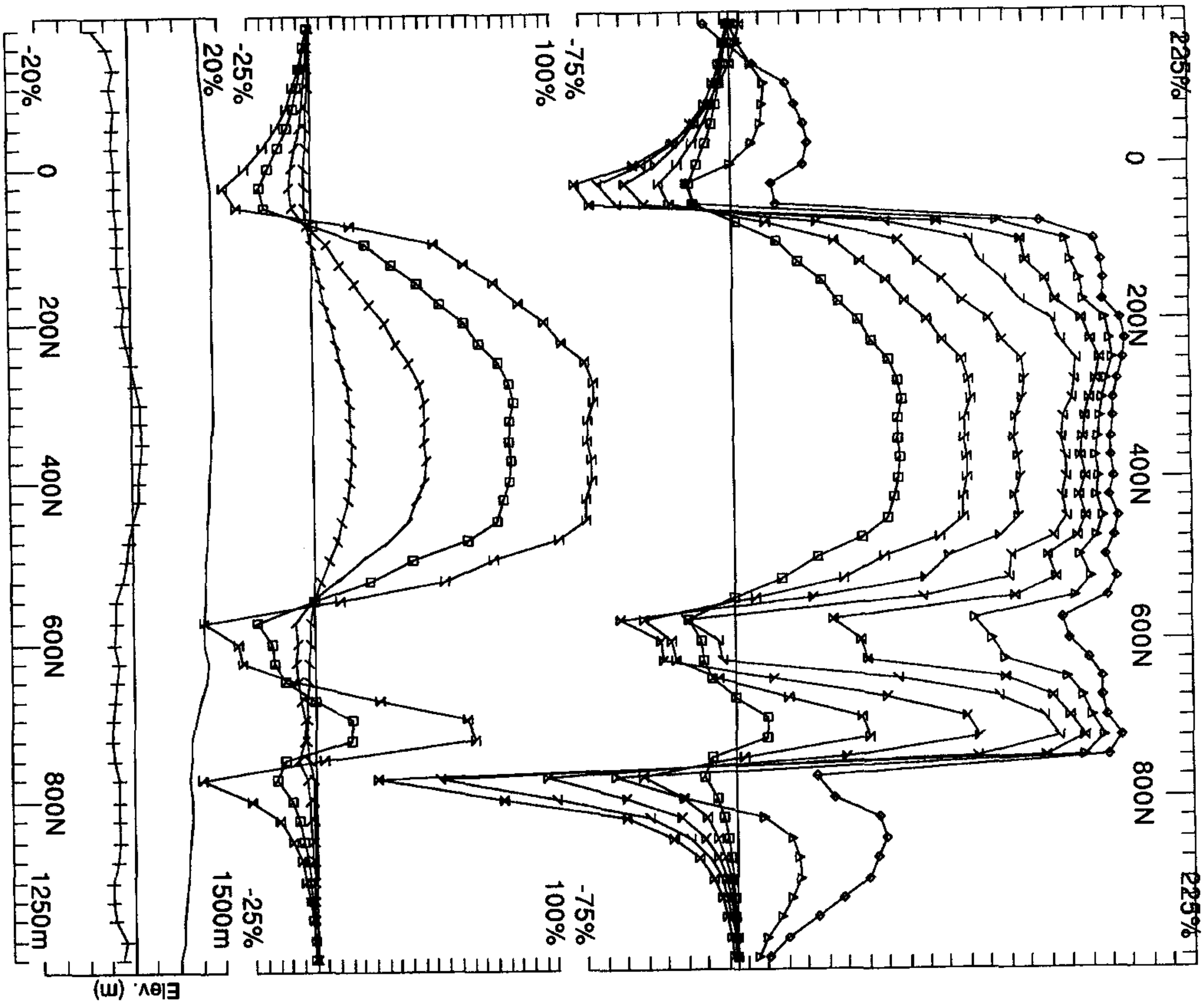
Loop: 1	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 900W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 10/6/97 Reduced : 7/7/97 Plotted : 18/7/97



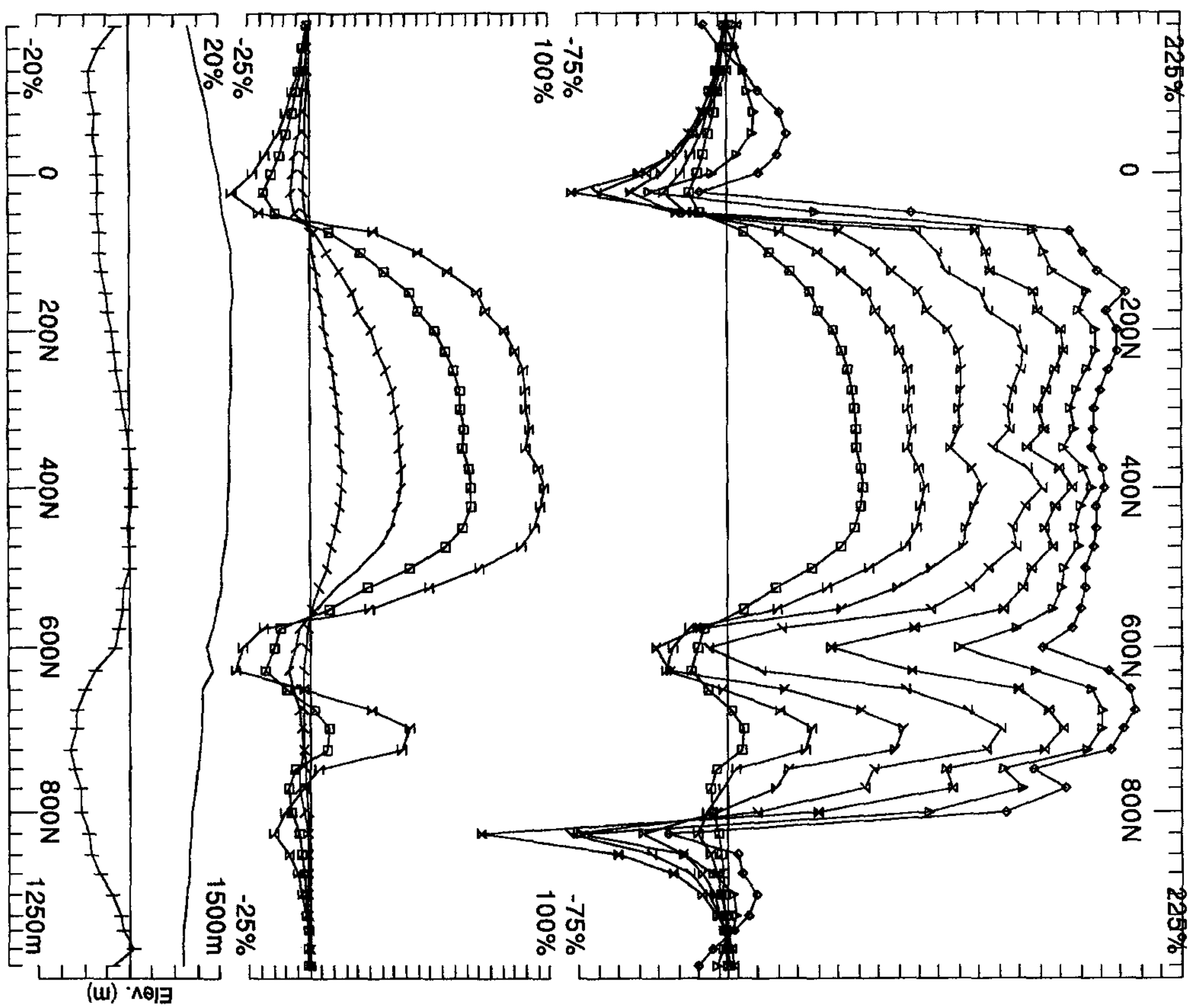
Loop: 1	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1000W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 10/6/97 Reduced : 7/7/97 Plotted : 18/7/97



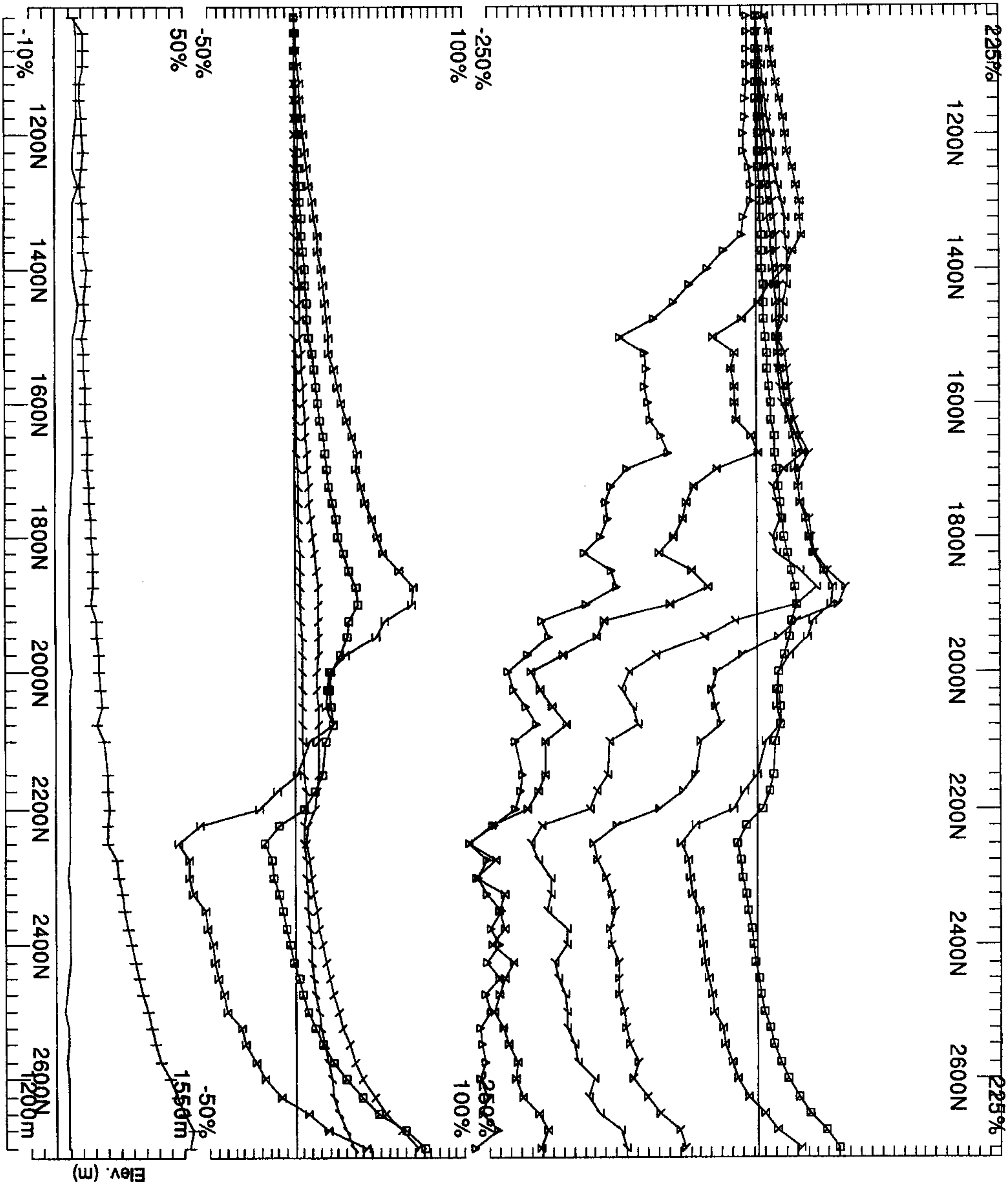
Loop: 1	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1100W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 11/6/97 Reduced : 7/7/97 Plotted : 18/7/97



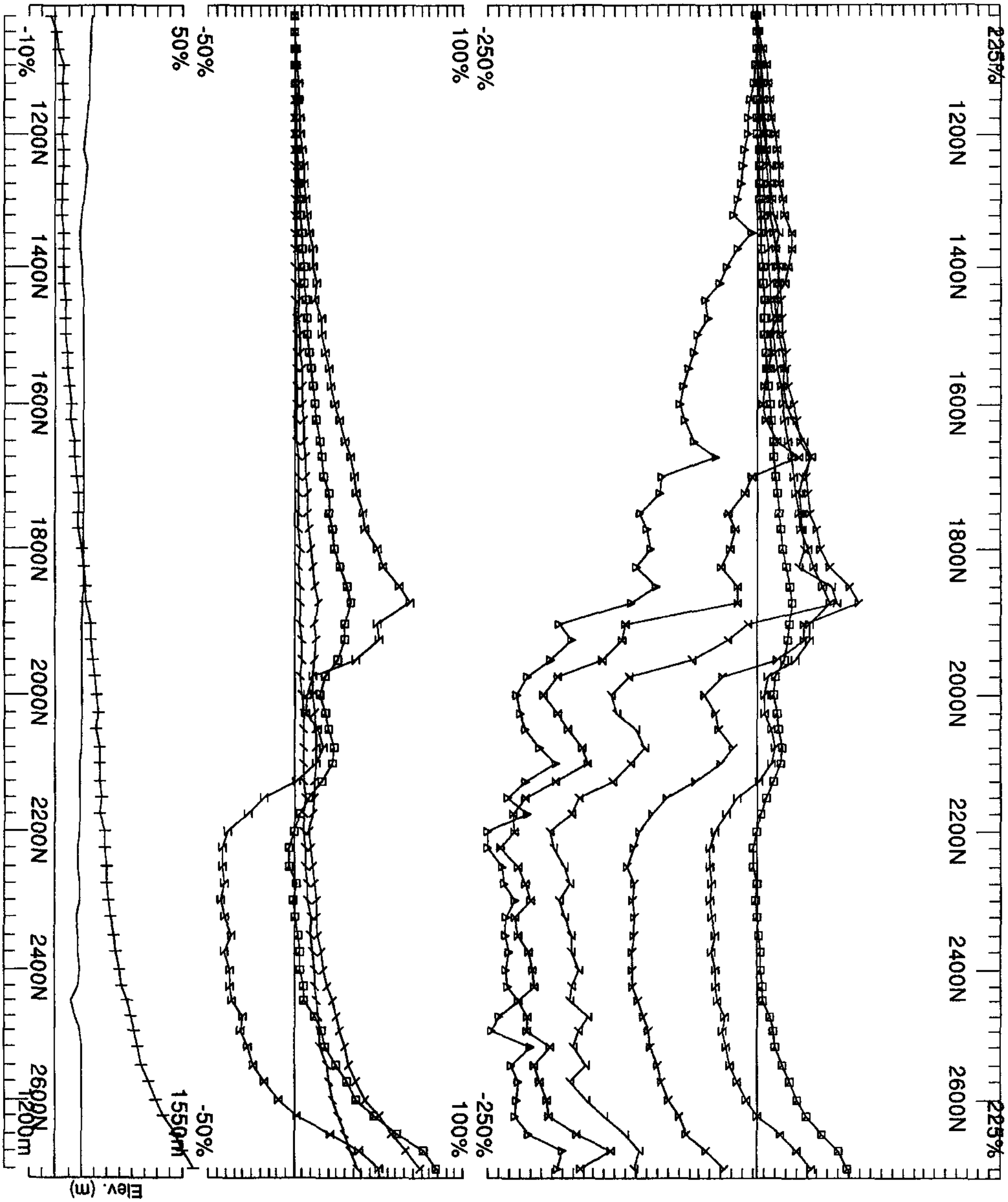
Loop: 1 Line: 1200W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Contin. Norm at depth of 0 m Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 11/6/97 Reduced : 7/7/97 Plotted : 18/7/97



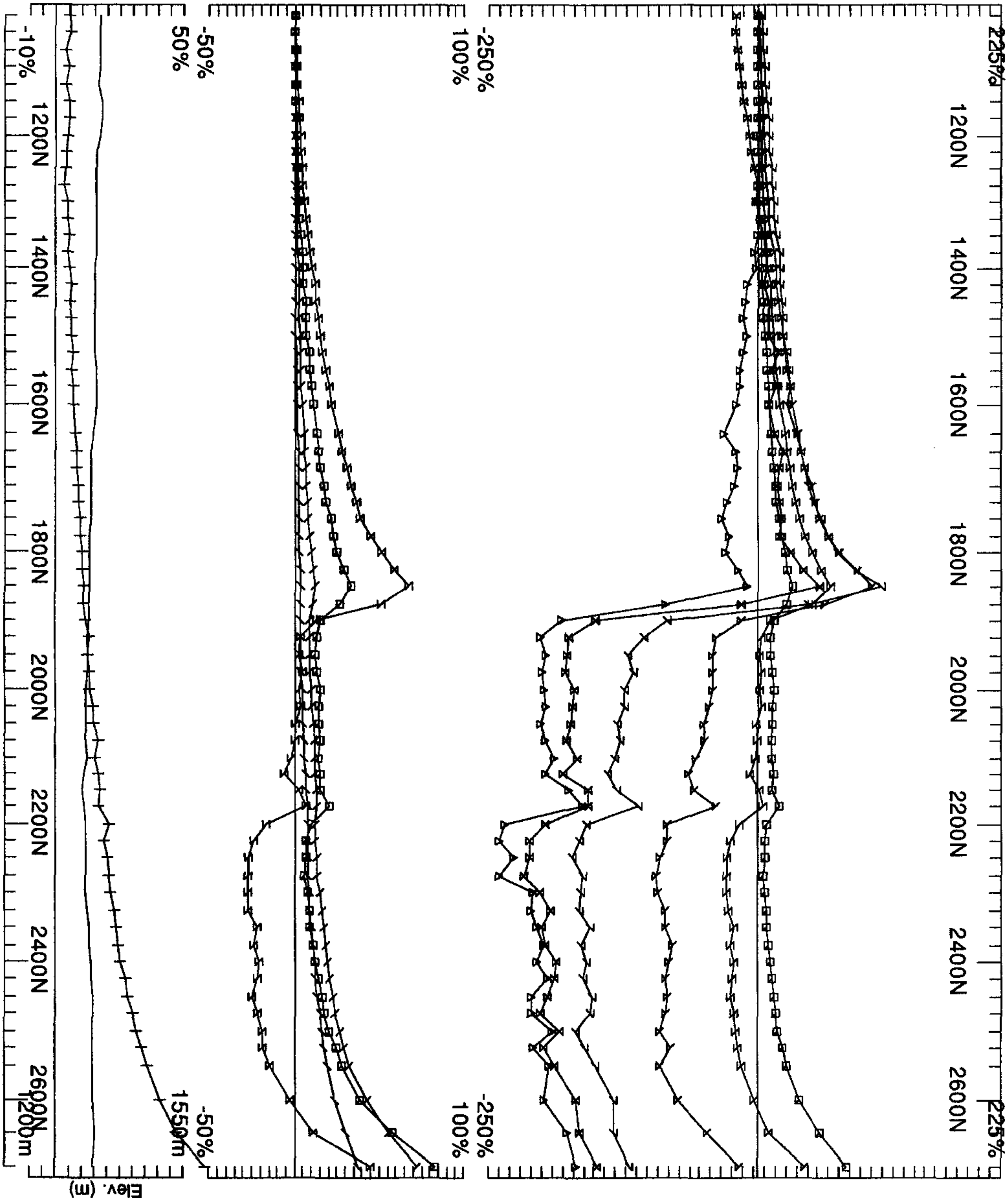
Loop: 1	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1300W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 11/6/97 Reduced : 7/7/97 Plotted : 18/7/97



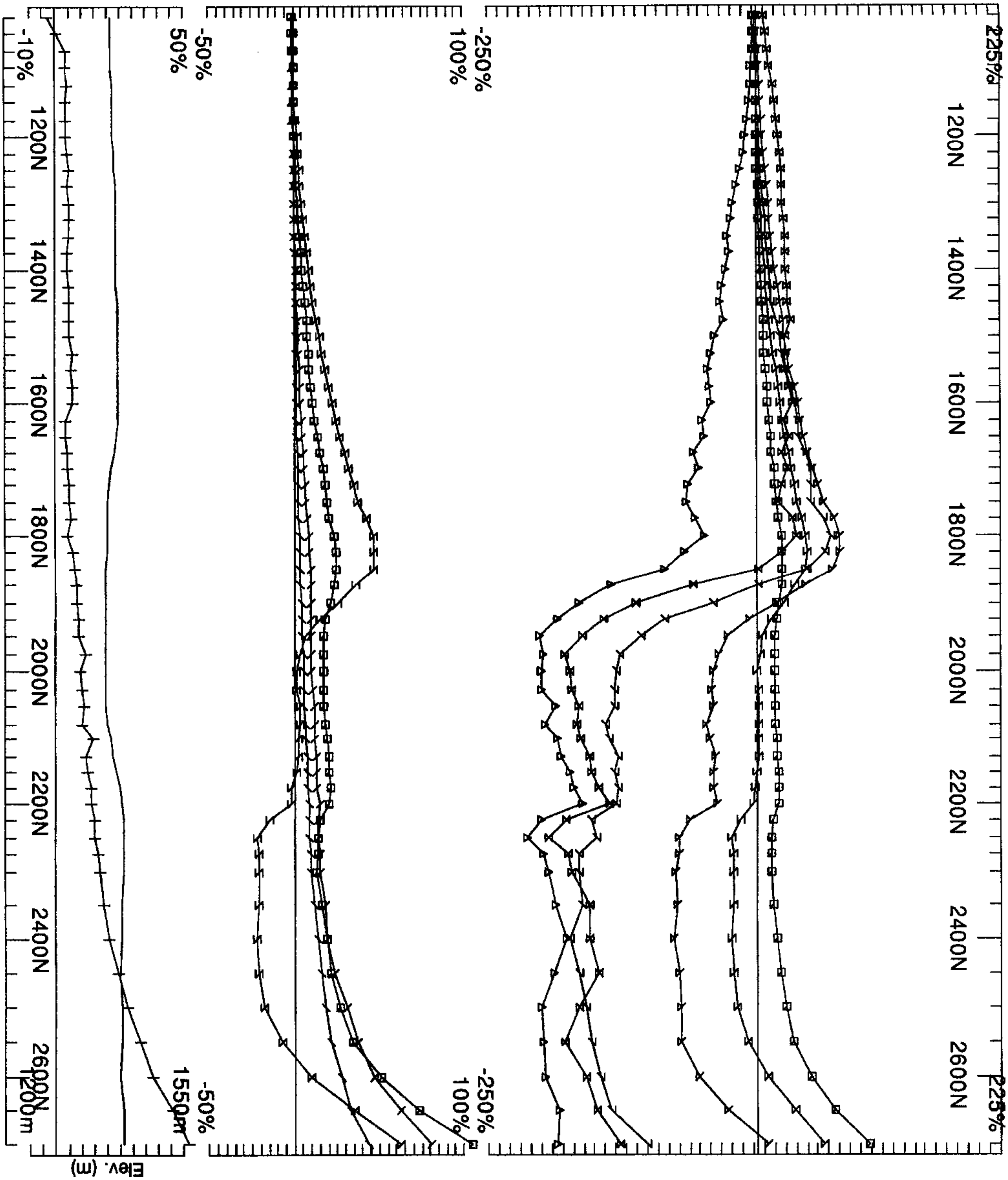
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 200W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 12/6/97 Reduced : 14/6/97 Plotted : 21/7/97



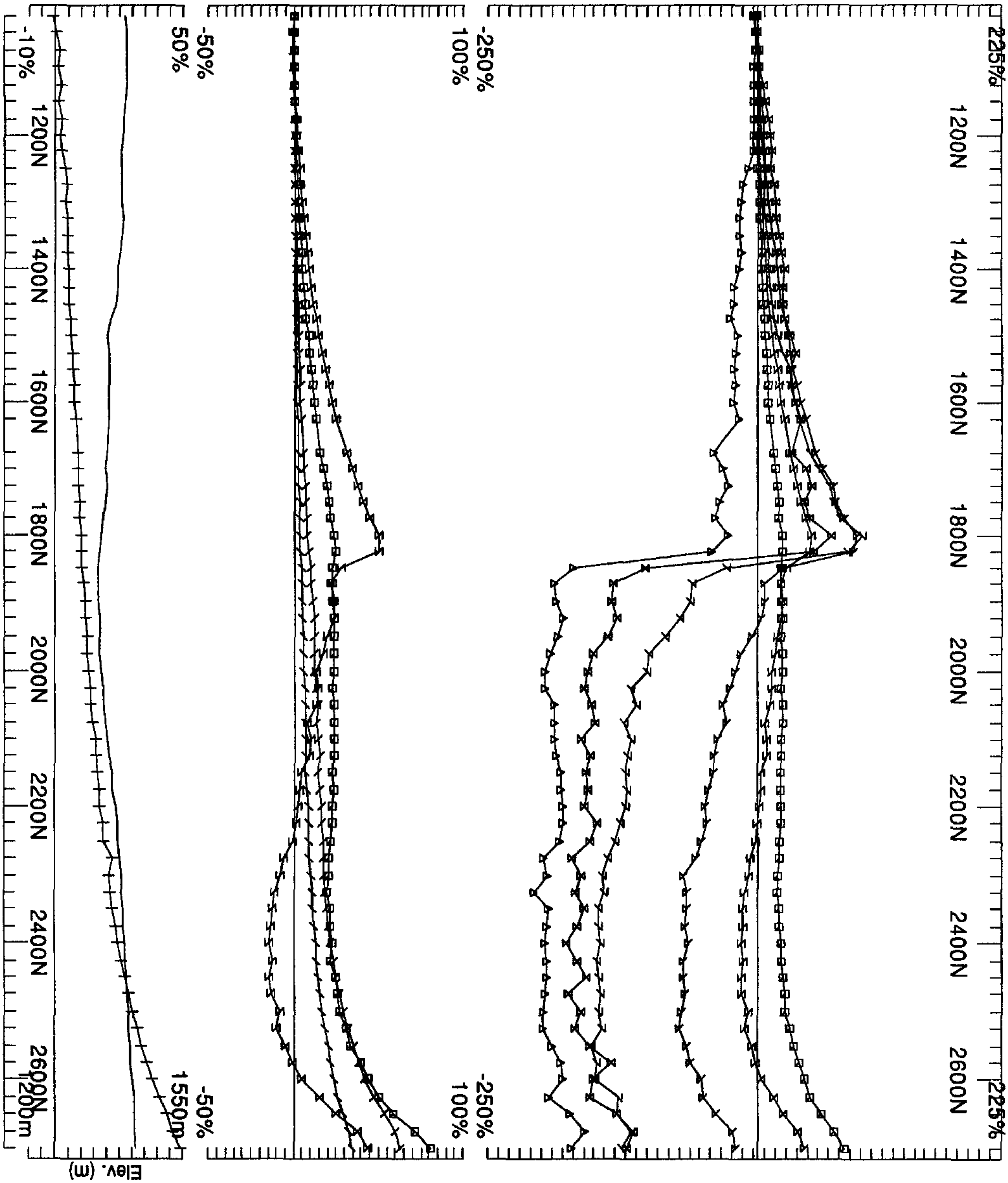
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 400W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 12/6/97 Reduced : 19/6/97 Plotted : 21/7/97



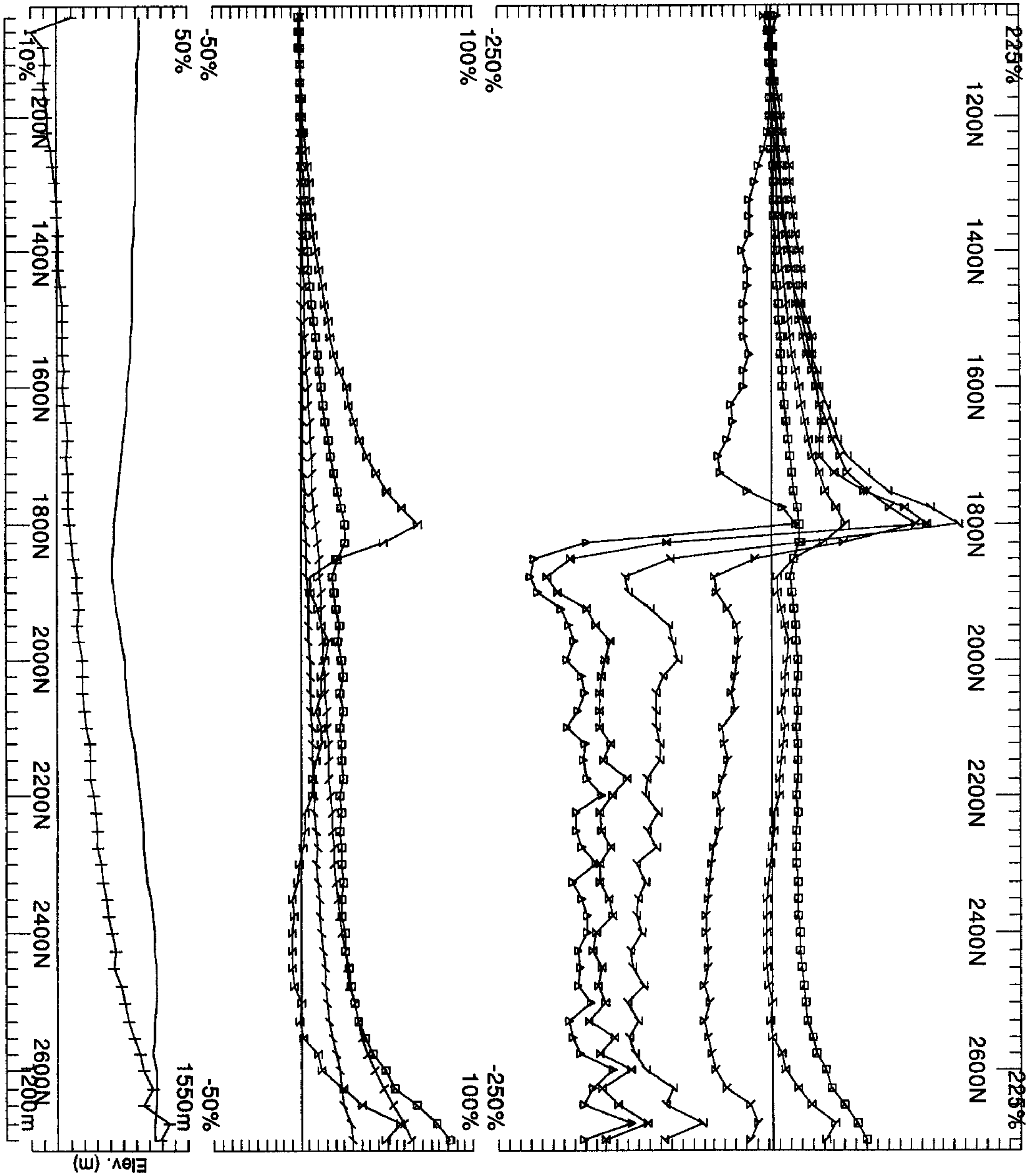
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 600W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 13/6/97 Reduced : 19/6/97 Plotted : 21/7/97



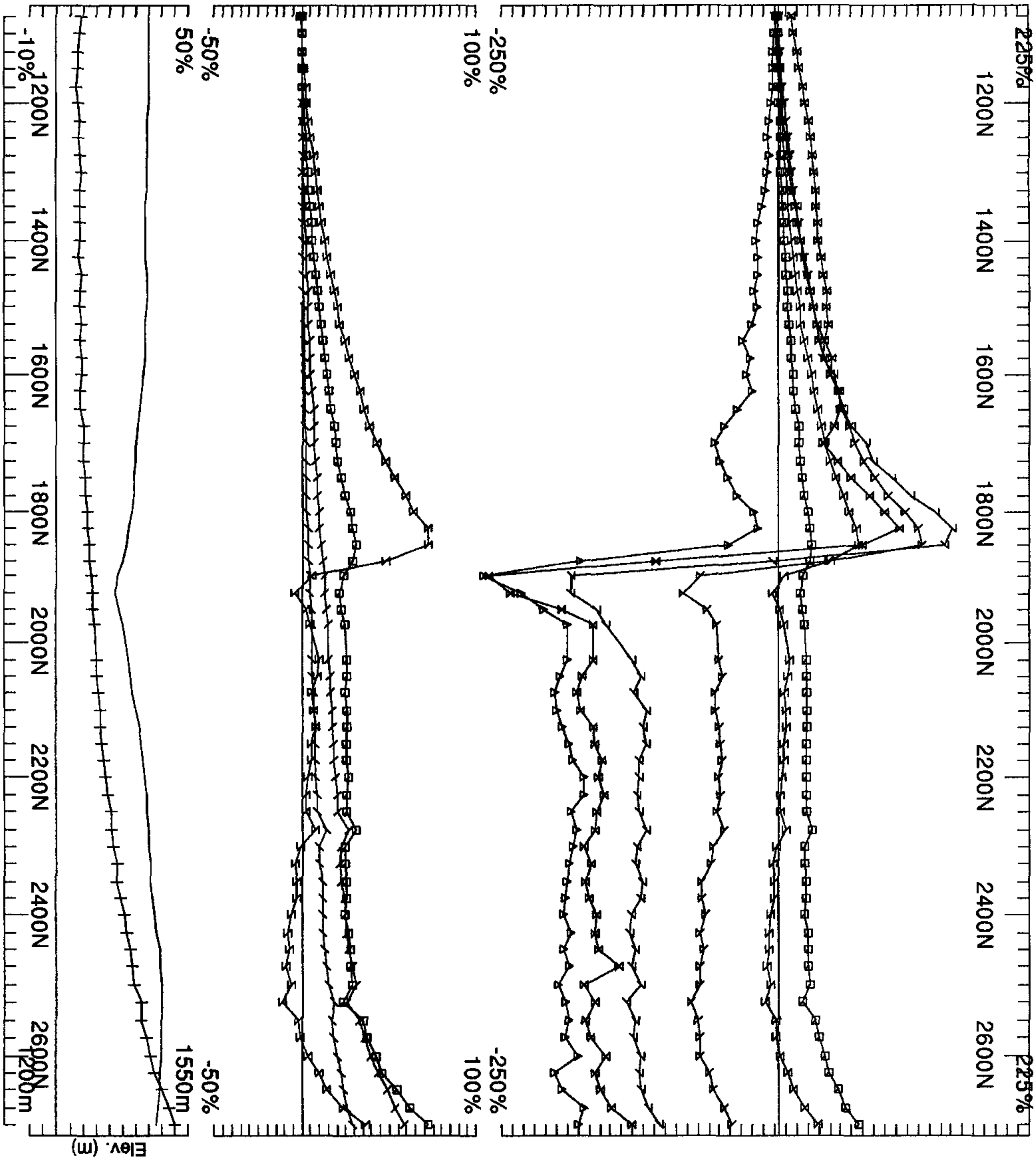
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 800W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 13/6/97 Reduced : 19/6/97 Plotted : 21/7/97



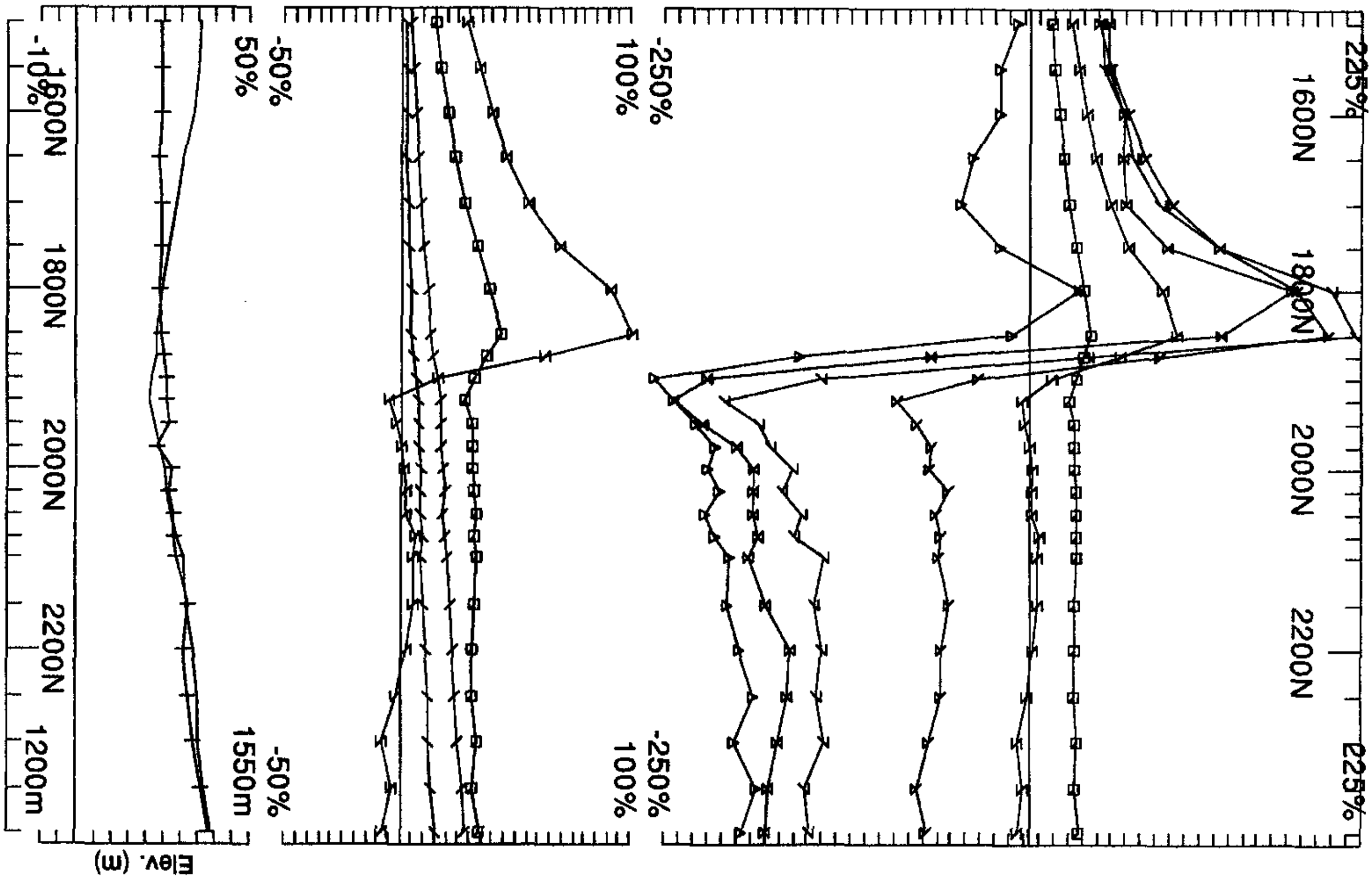
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1000W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 14/6/97 Reduced : 19/6/97 Plotted : 21/7/97



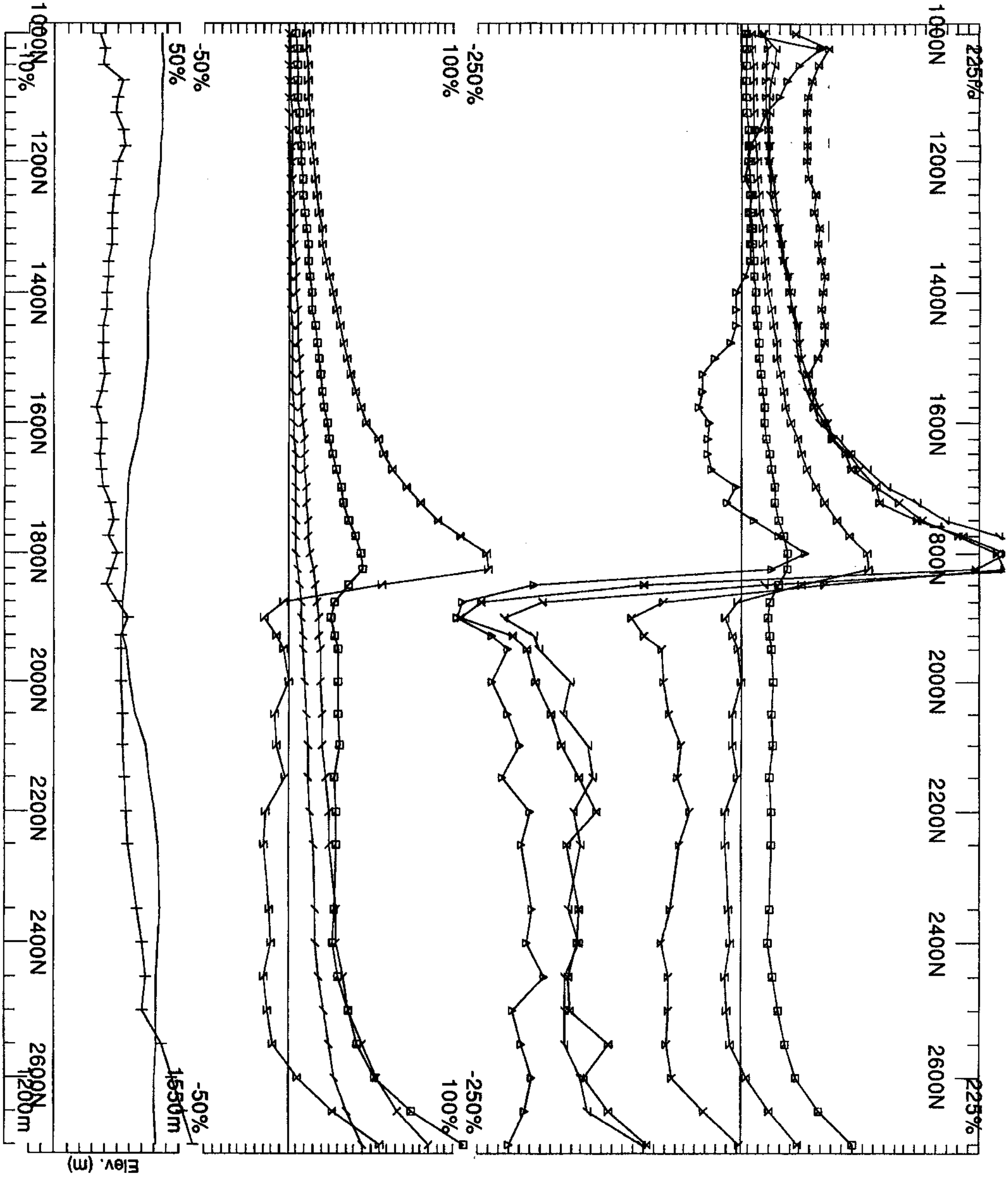
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1200W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 14/6/97 Reduced : 19/6/97 Plotted : 21/7/97



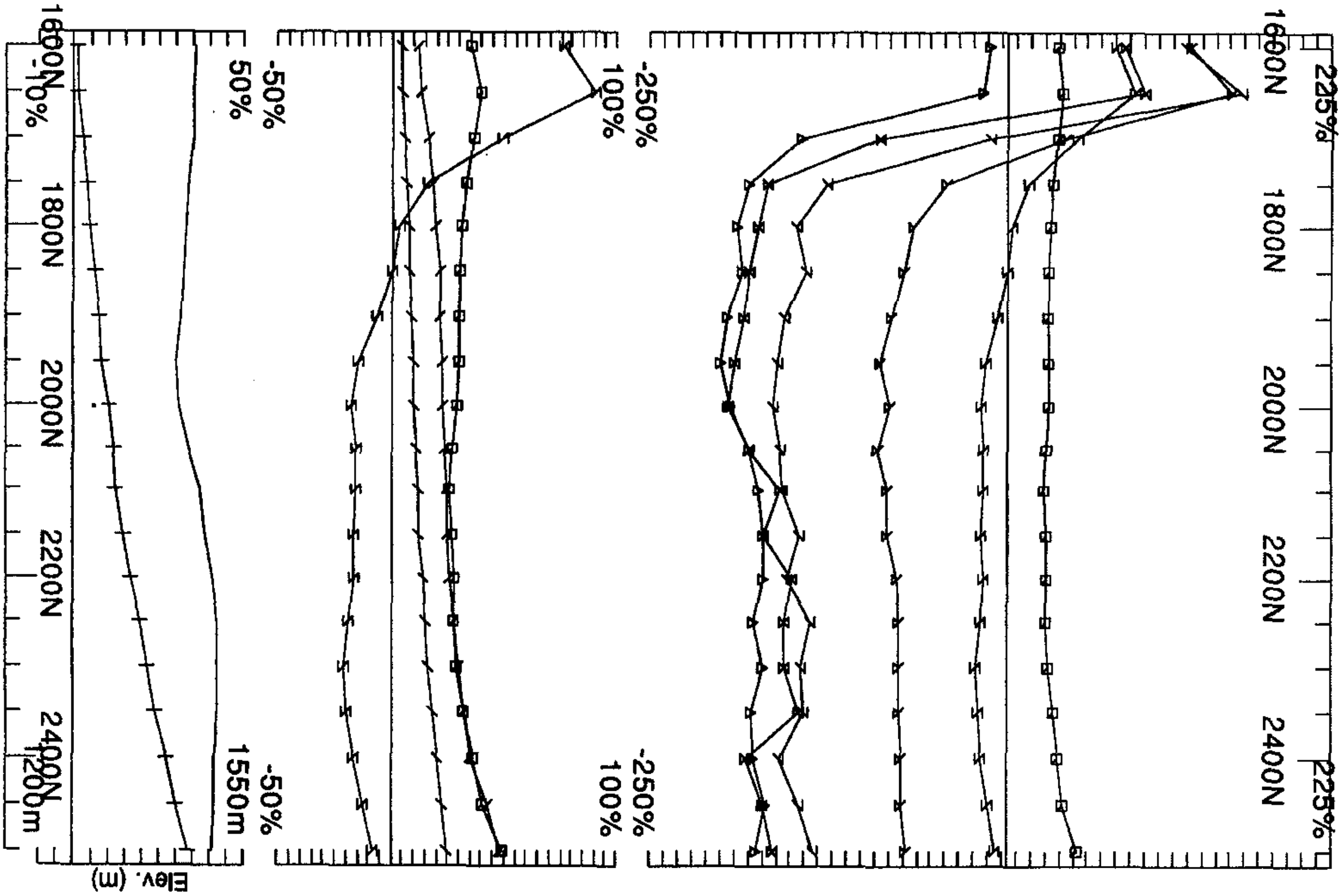
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1400W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 15/6/97 Reduced : 22/6/97 Plotted : 21/7/97



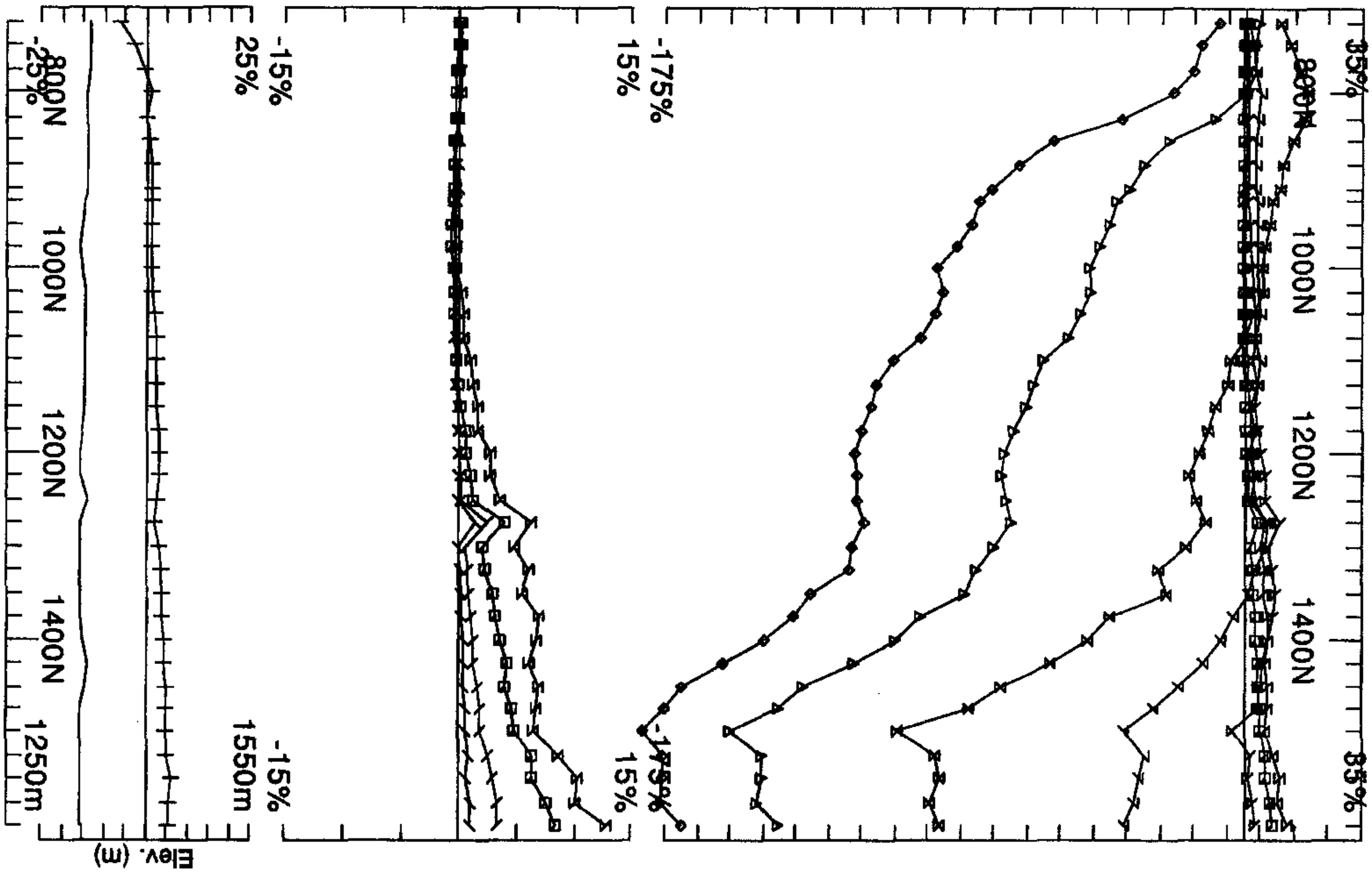
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1500W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 16/6/97 Reduced : 19/6/97 Plotted : 21/7/97



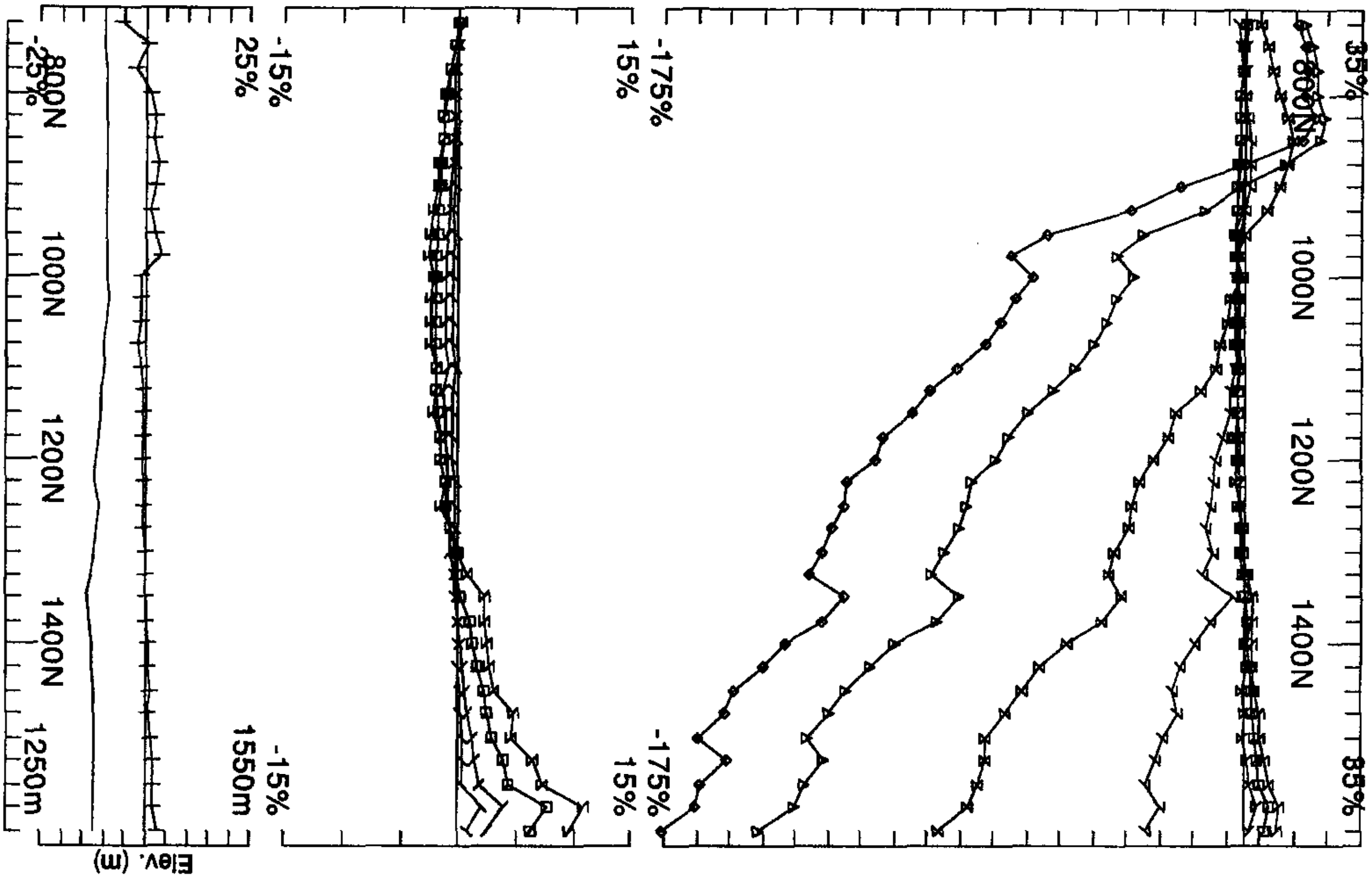
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1600W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 15/6/97 Reduced : 22/6/97 Plotted : 21/7/97



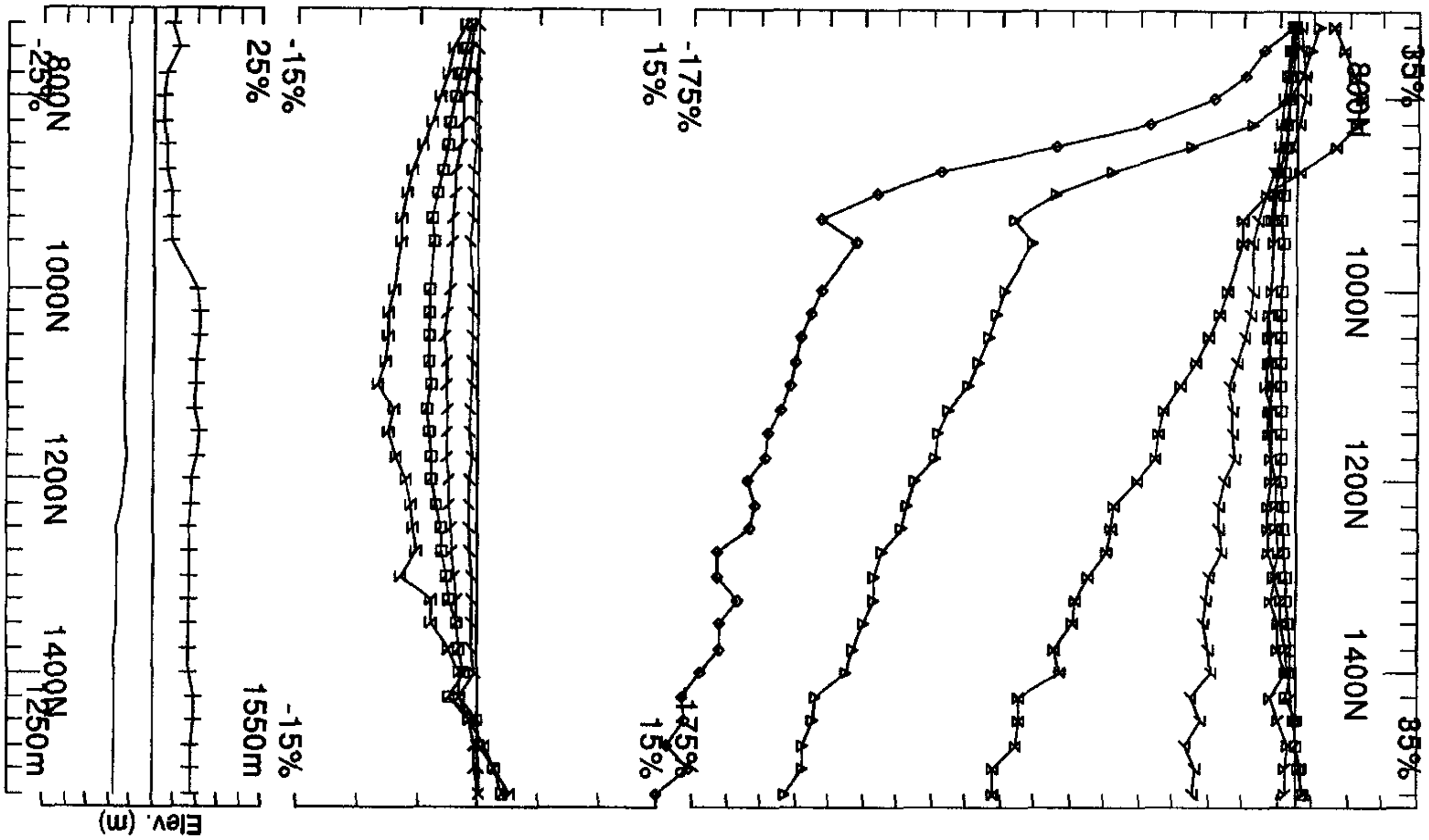
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1800W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 16/6/97 Reduced : 19/6/97 Plotted : 21/7/97



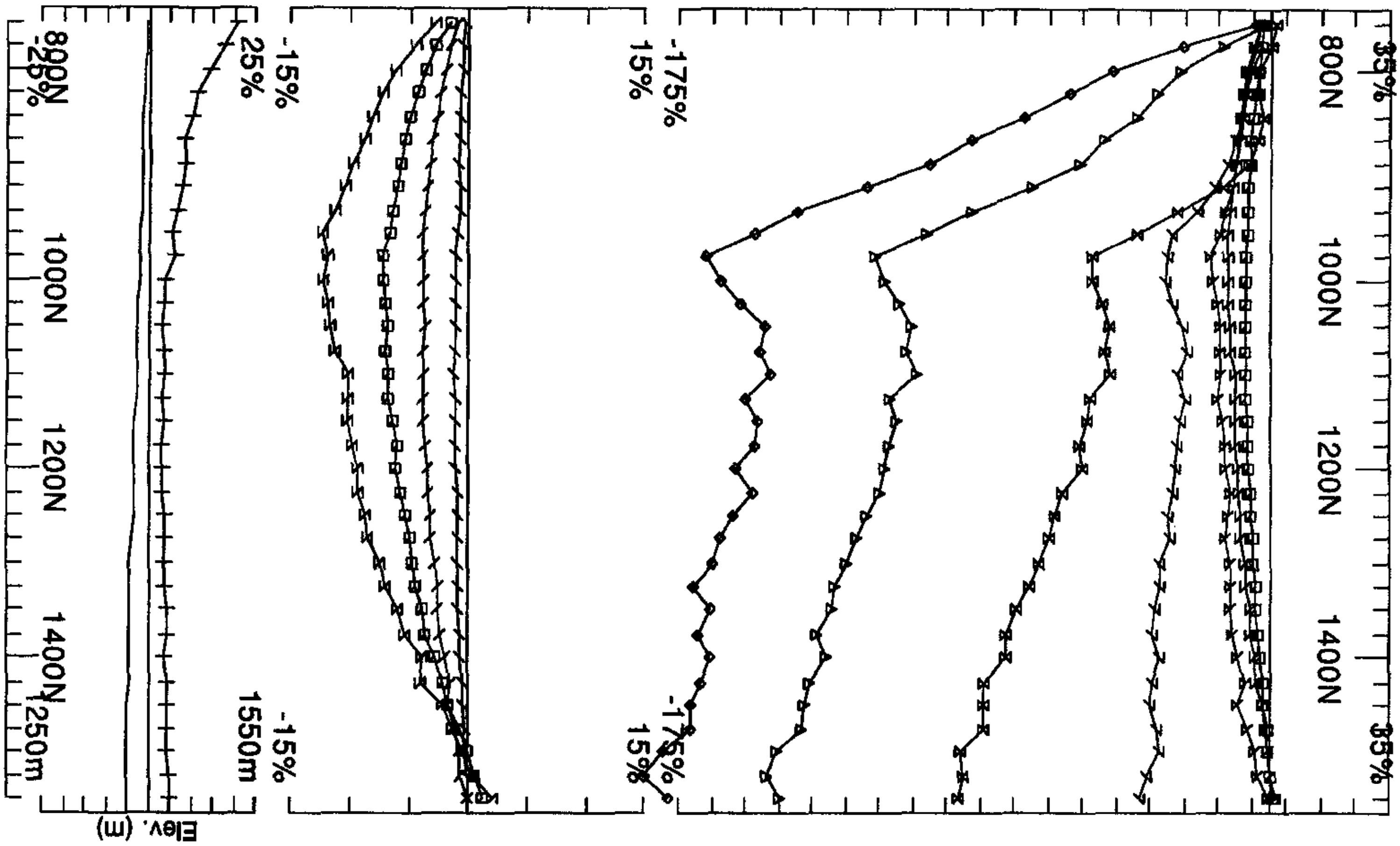
Loop: 3	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 200W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 18/6/97 Reduced : 18/6/97 Plotted : 21/7/97



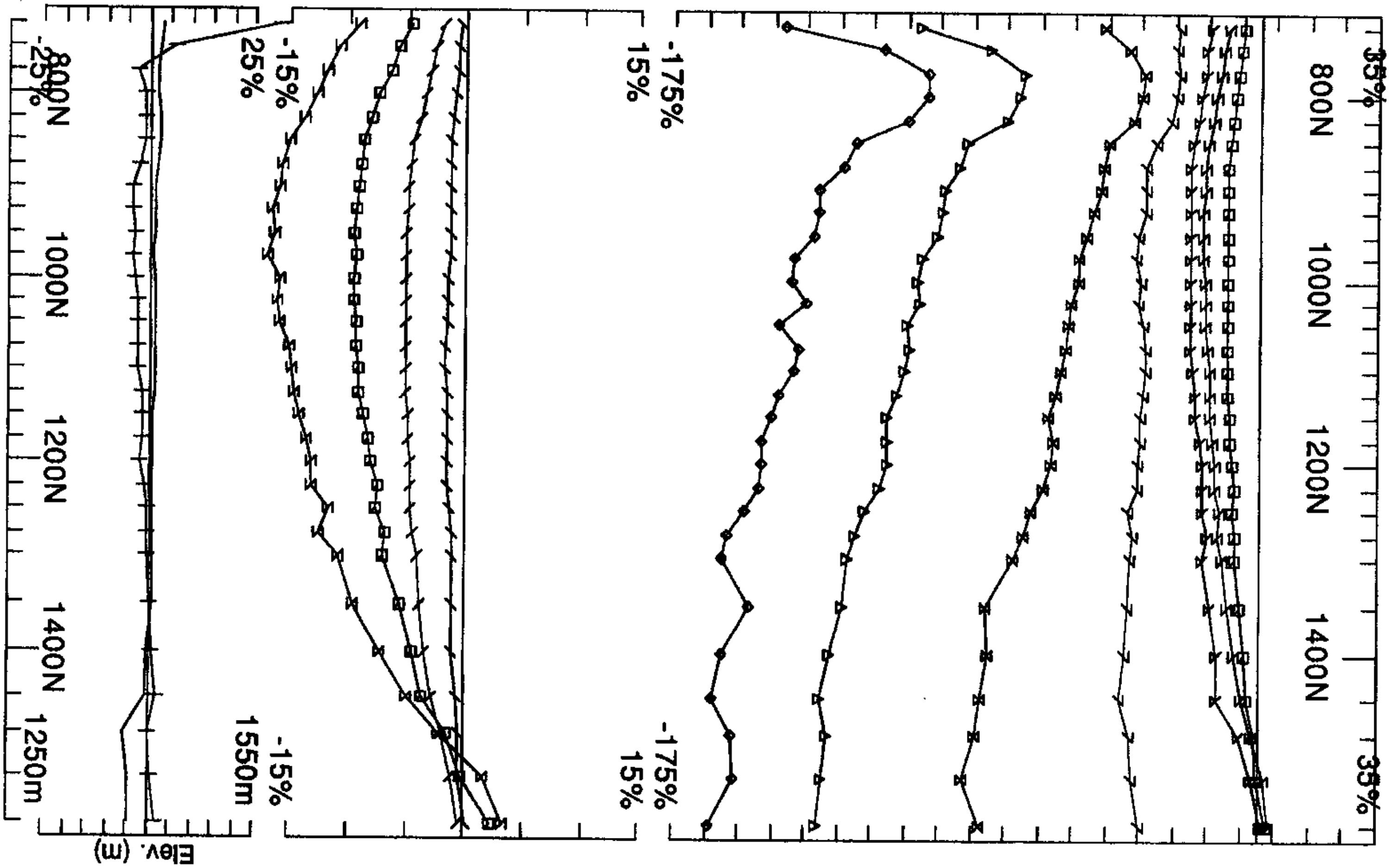
Loop: 3	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 400W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 18/6/97 Reduced : 18/6/97 Plotted : 21/7/97



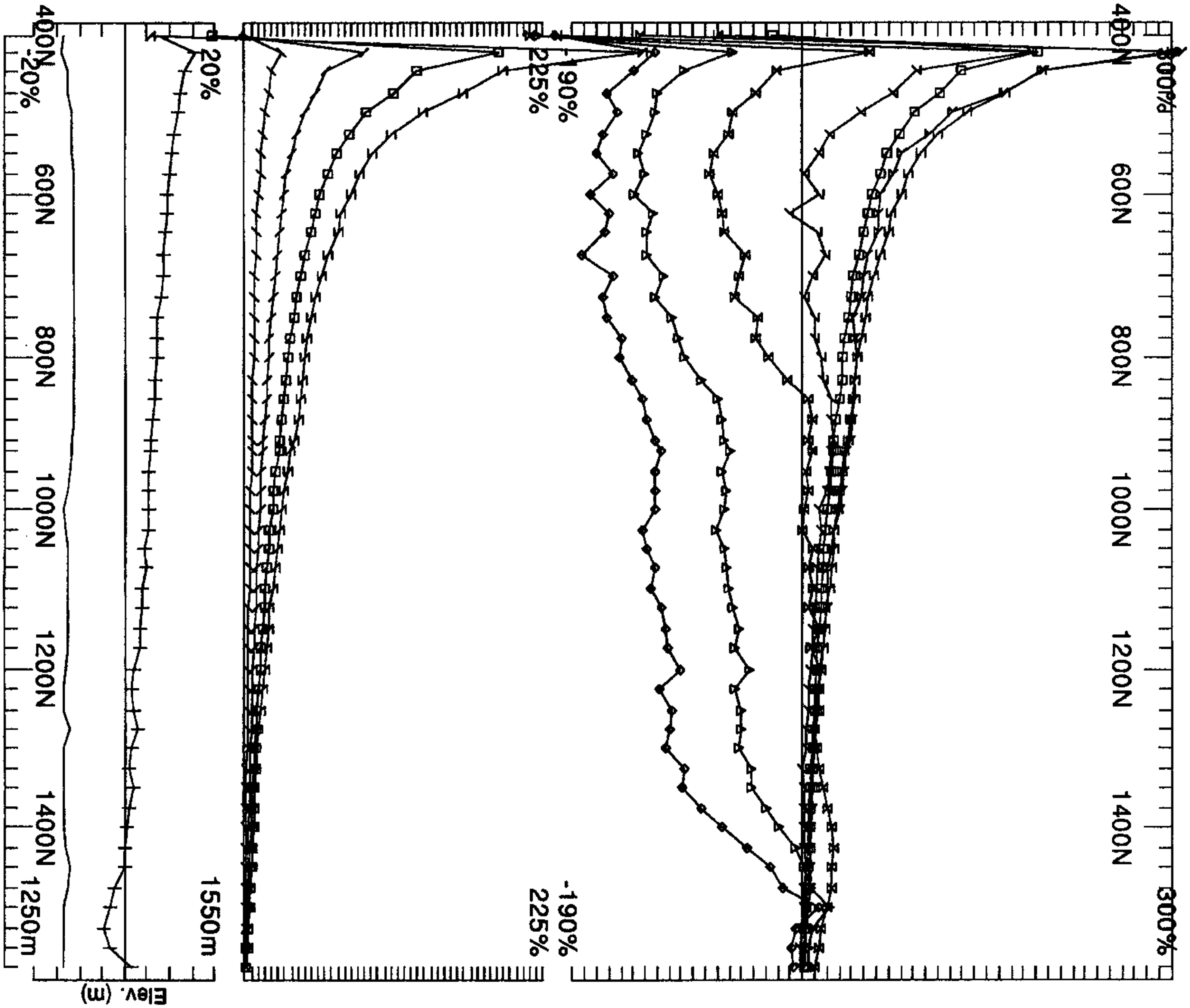
Loop: 3	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 600W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 18/6/97 Reduced : 18/6/97 Plotted : 21/7/97



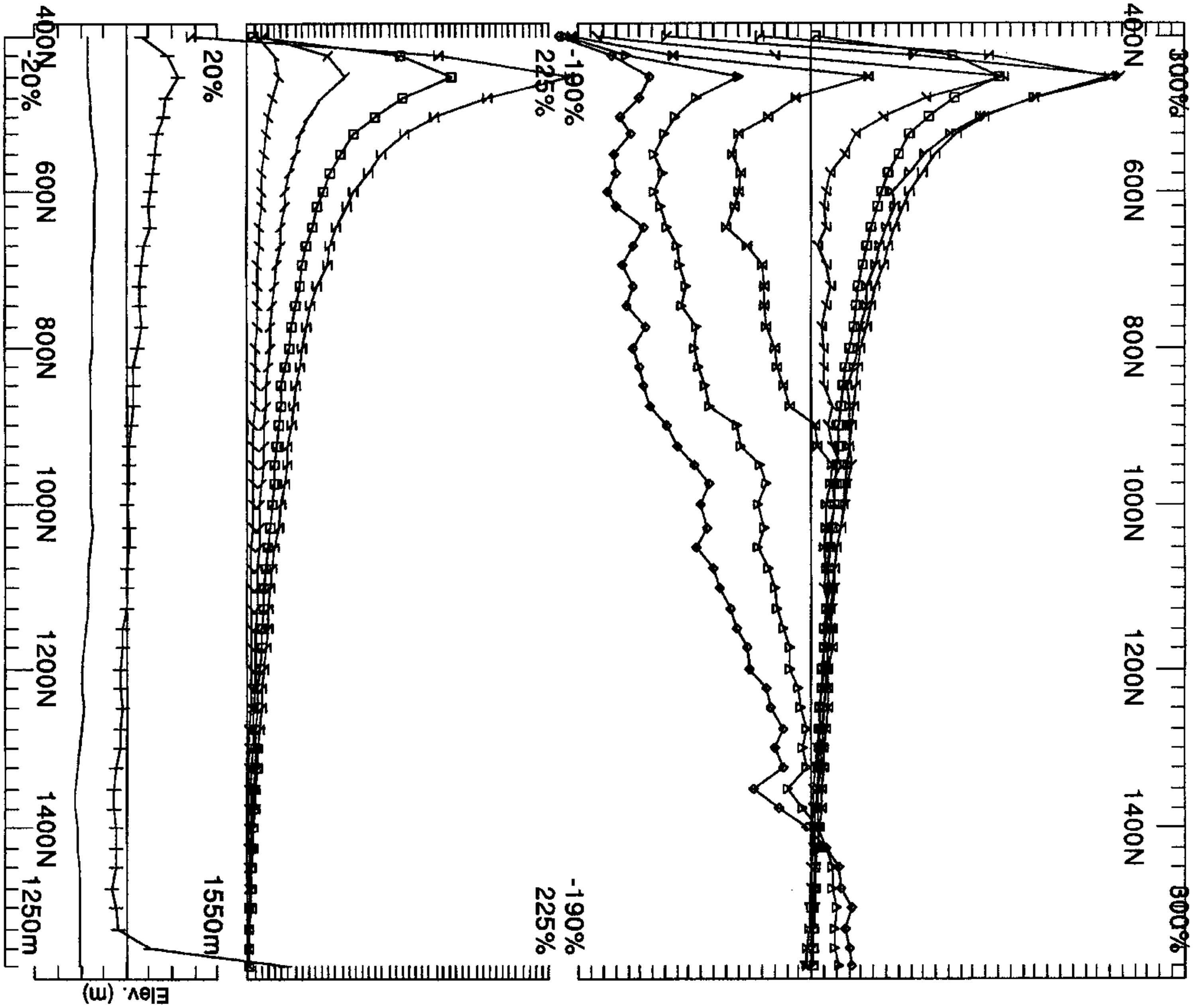
Loop: 3	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 800W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 18/6/97 Reduced : 18/6/97 Plotted : 21/7/97



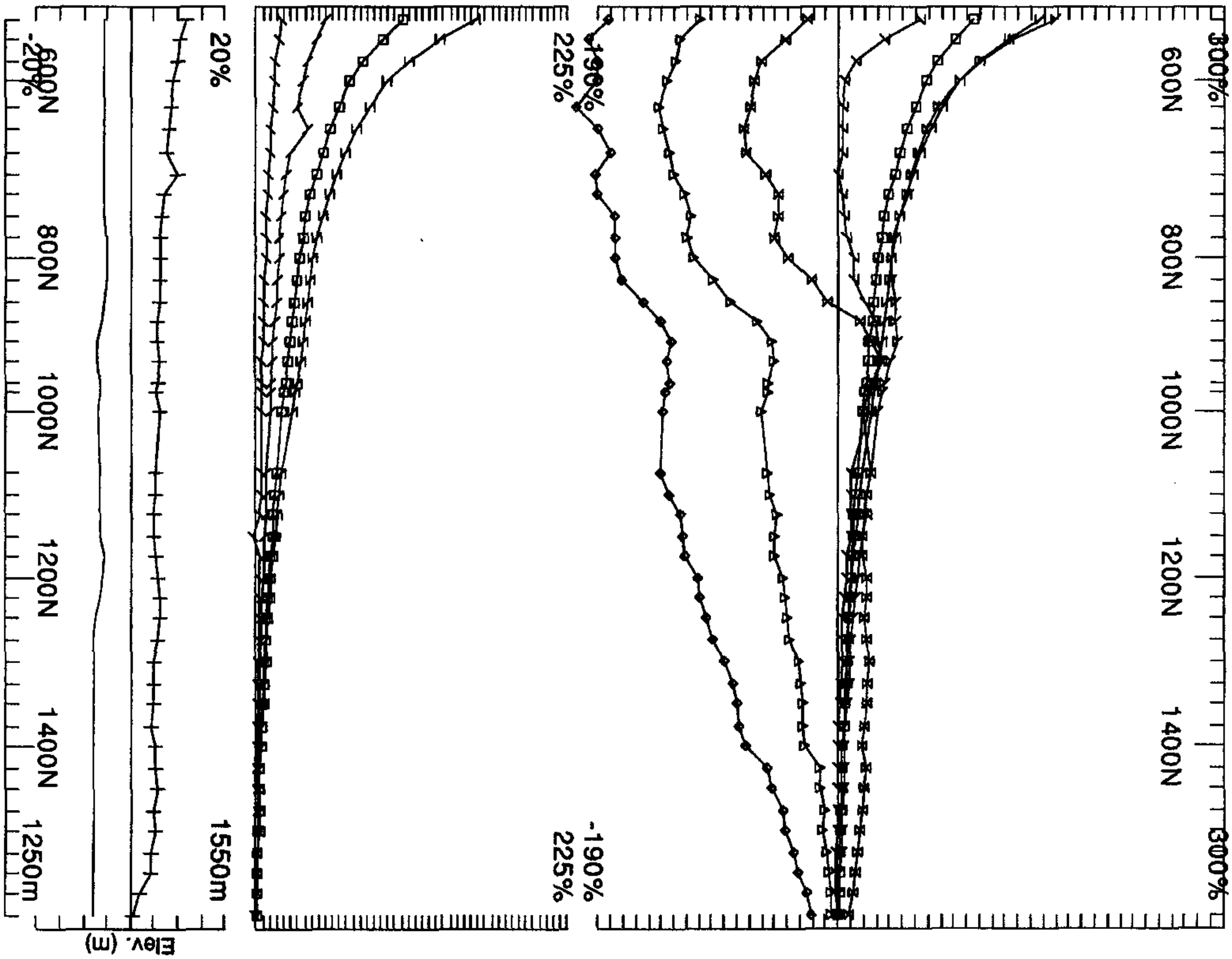
Loop: 3	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1000W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 18/6/97 Reduced : 19/6/97 Plotted : 21/7/97



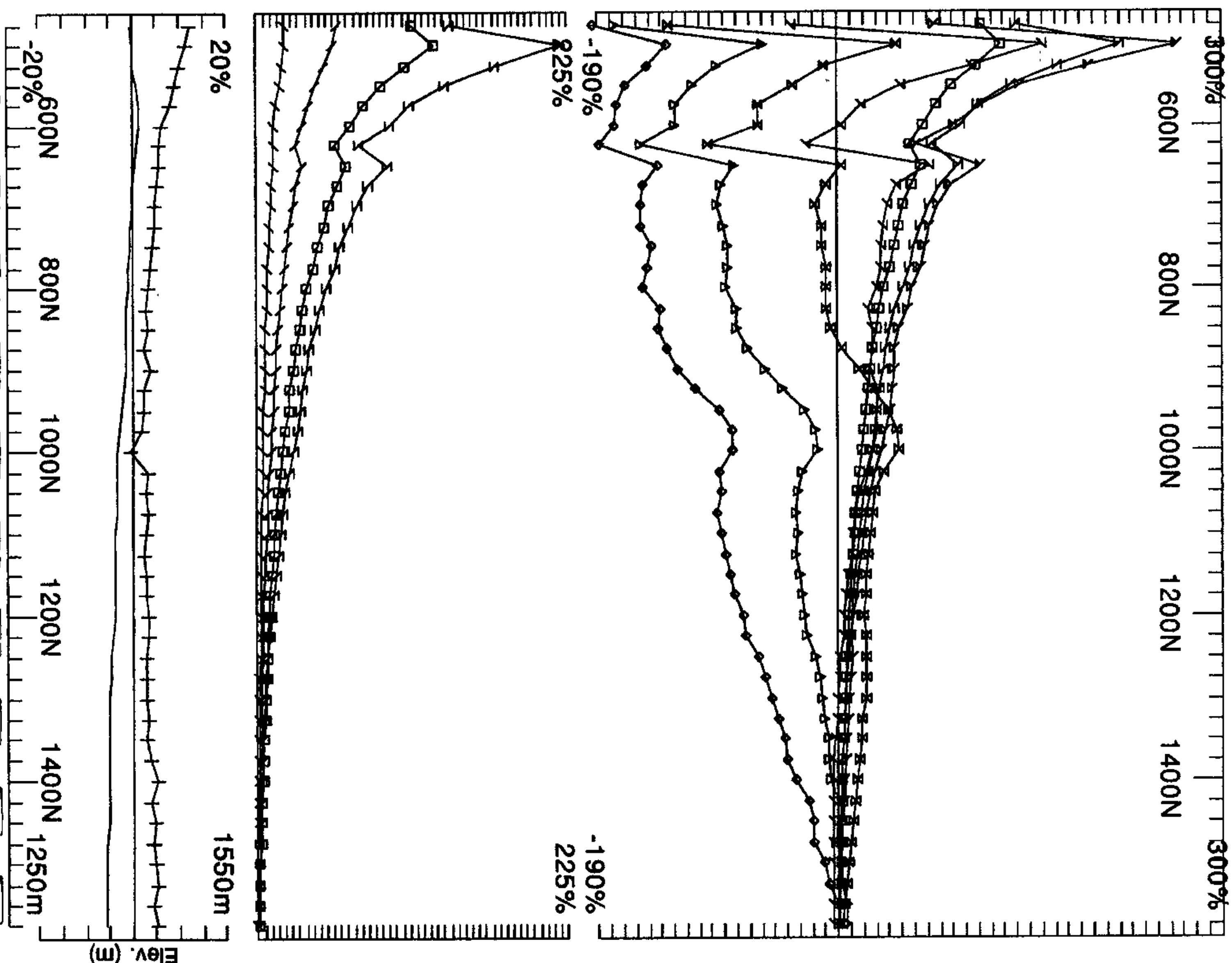
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 200W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 20/6/97 Reduced : 21/6/97 Plotted : 21/7/97



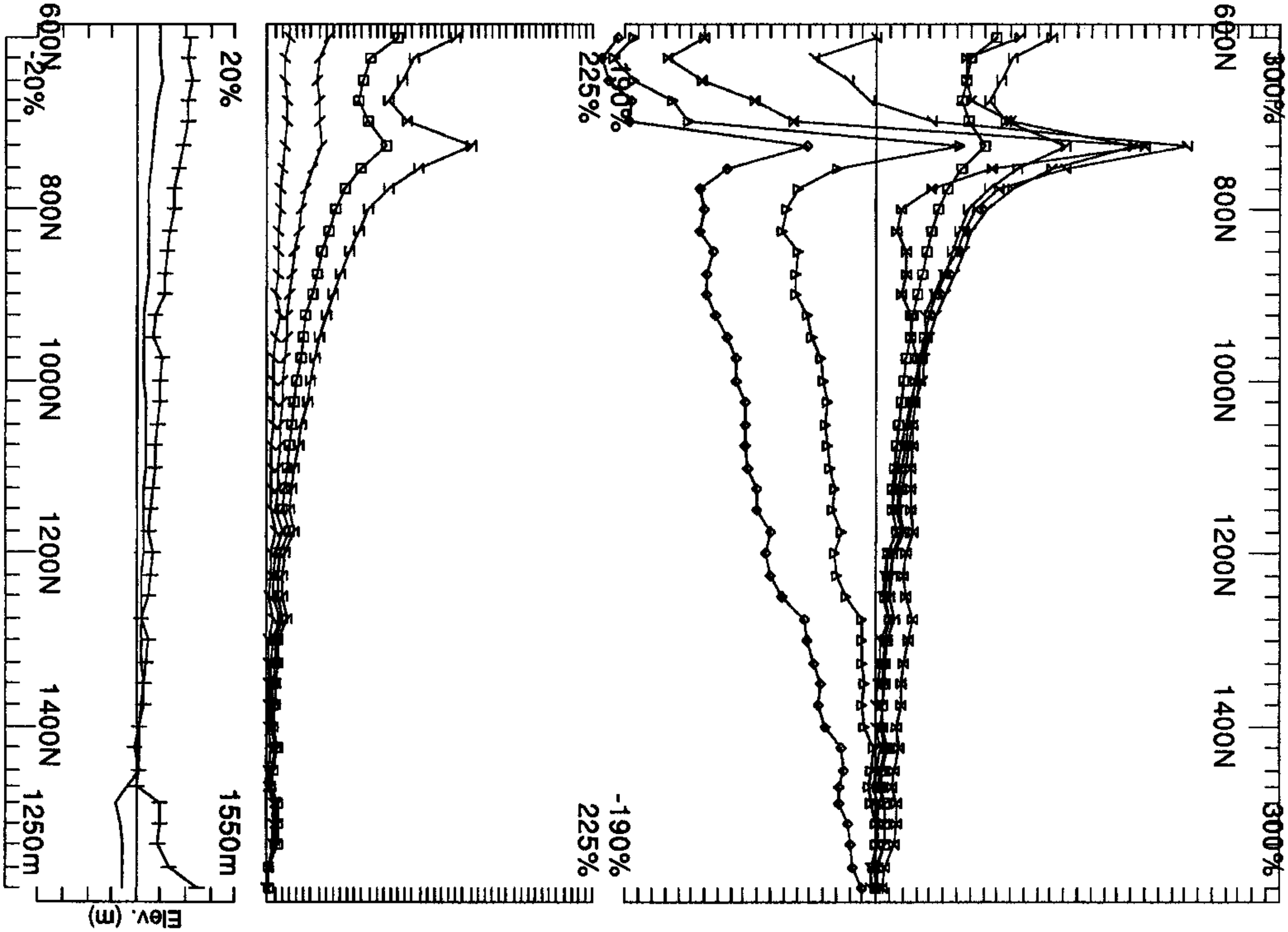
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 400W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 20/6/97 Reduced : 22/6/97 Plotted : 21/7/97



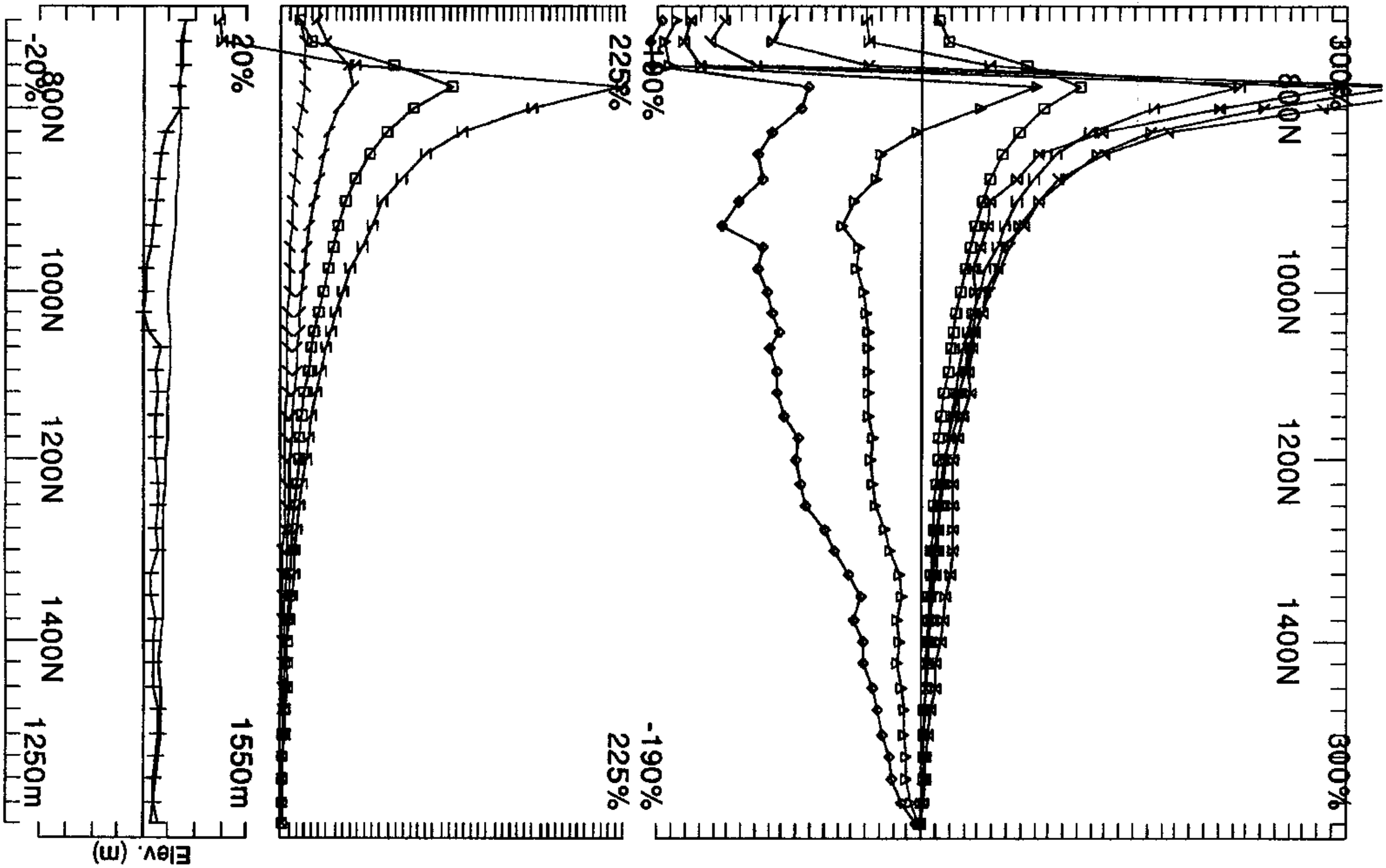
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 600W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 20/6/97 Reduced : 20/6/97 Plotted : 21/7/97



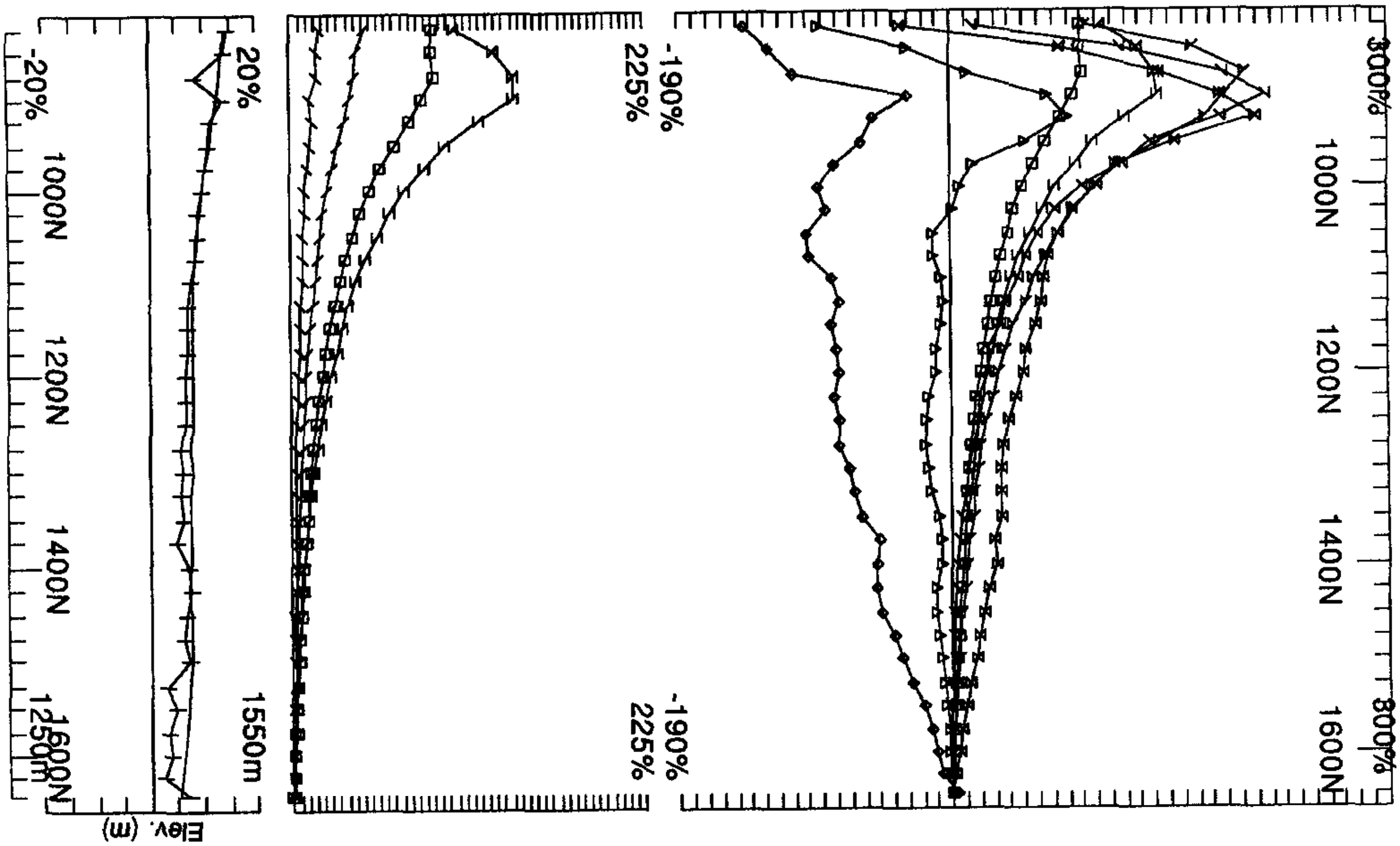
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 800W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 20/6/97 Reduced : 21/6/97 Plotted : 21/7/97



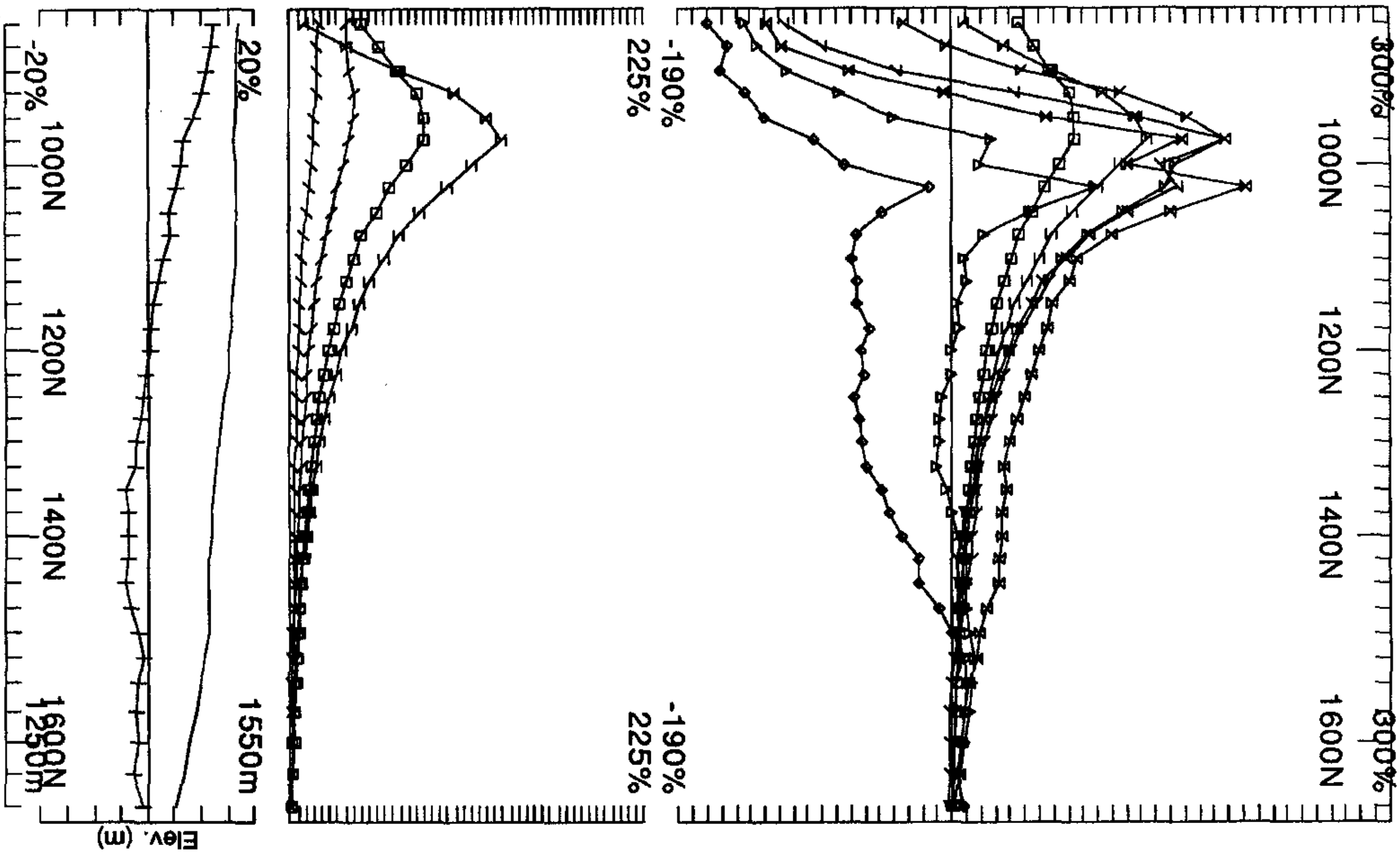
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1000W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 21/6/97 Reduced : 21/6/97 Plotted : 24/7/97



Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1200W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 22/6/97 Reduced : 22/6/97 Plotted : 24/7/97



Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1400W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 21/6/97 Reduced : 22/6/97 Plotted : 24/7/97

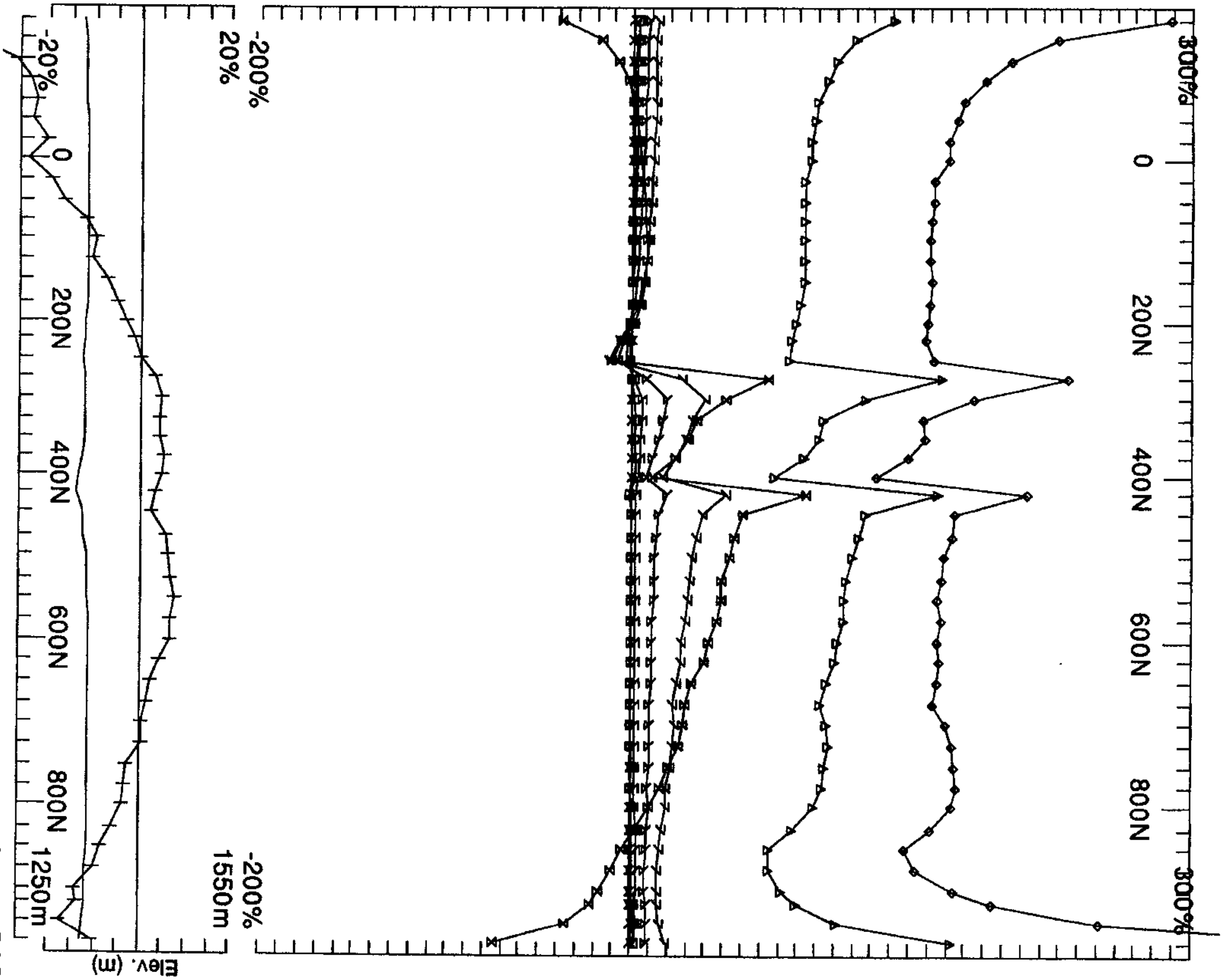


Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1600W	Contin. Norm at depth of 0 m	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 21/6/97 Reduced : 22/6/97 Plotted : 24/7/97

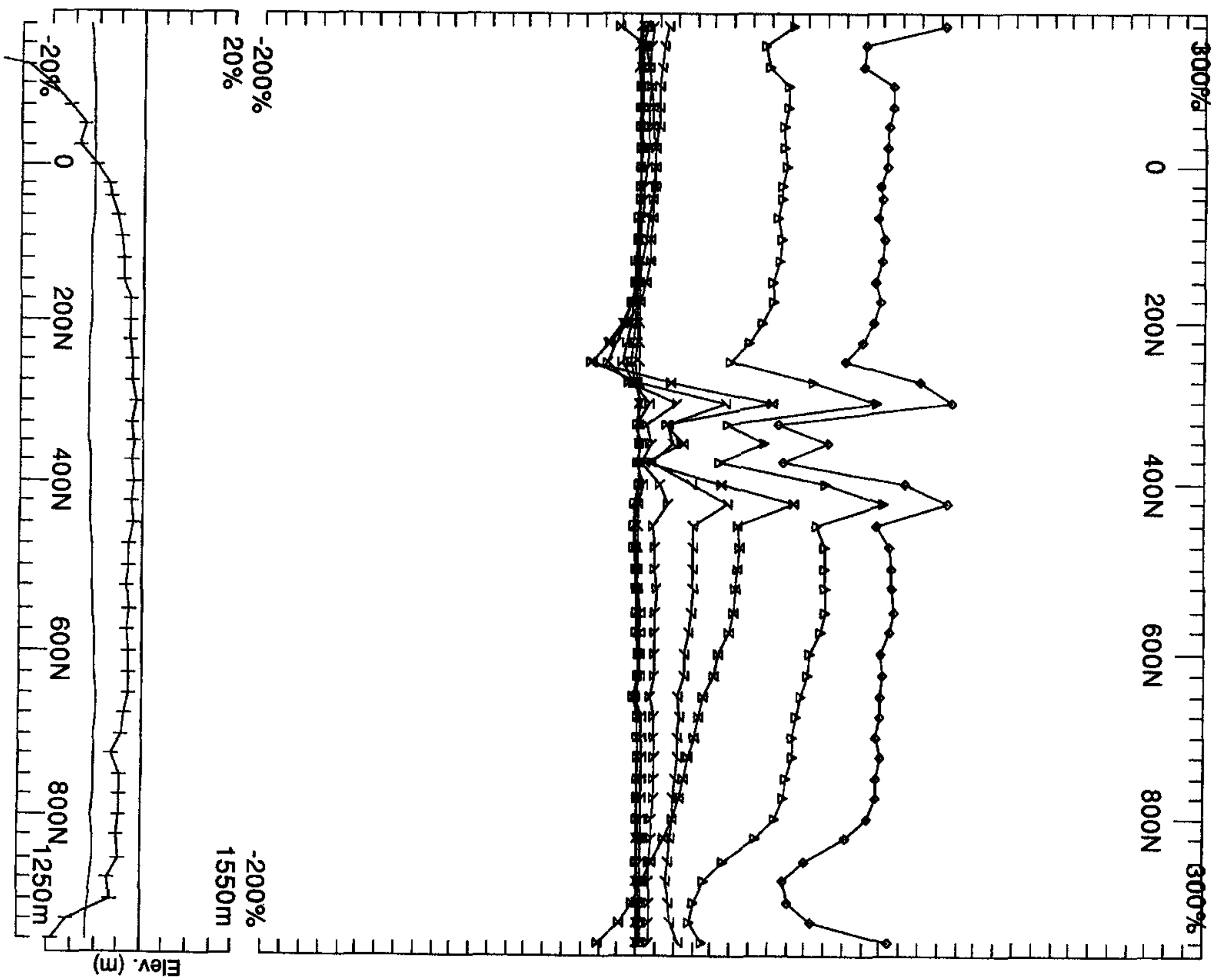
APPENDIX VI

Data Sections

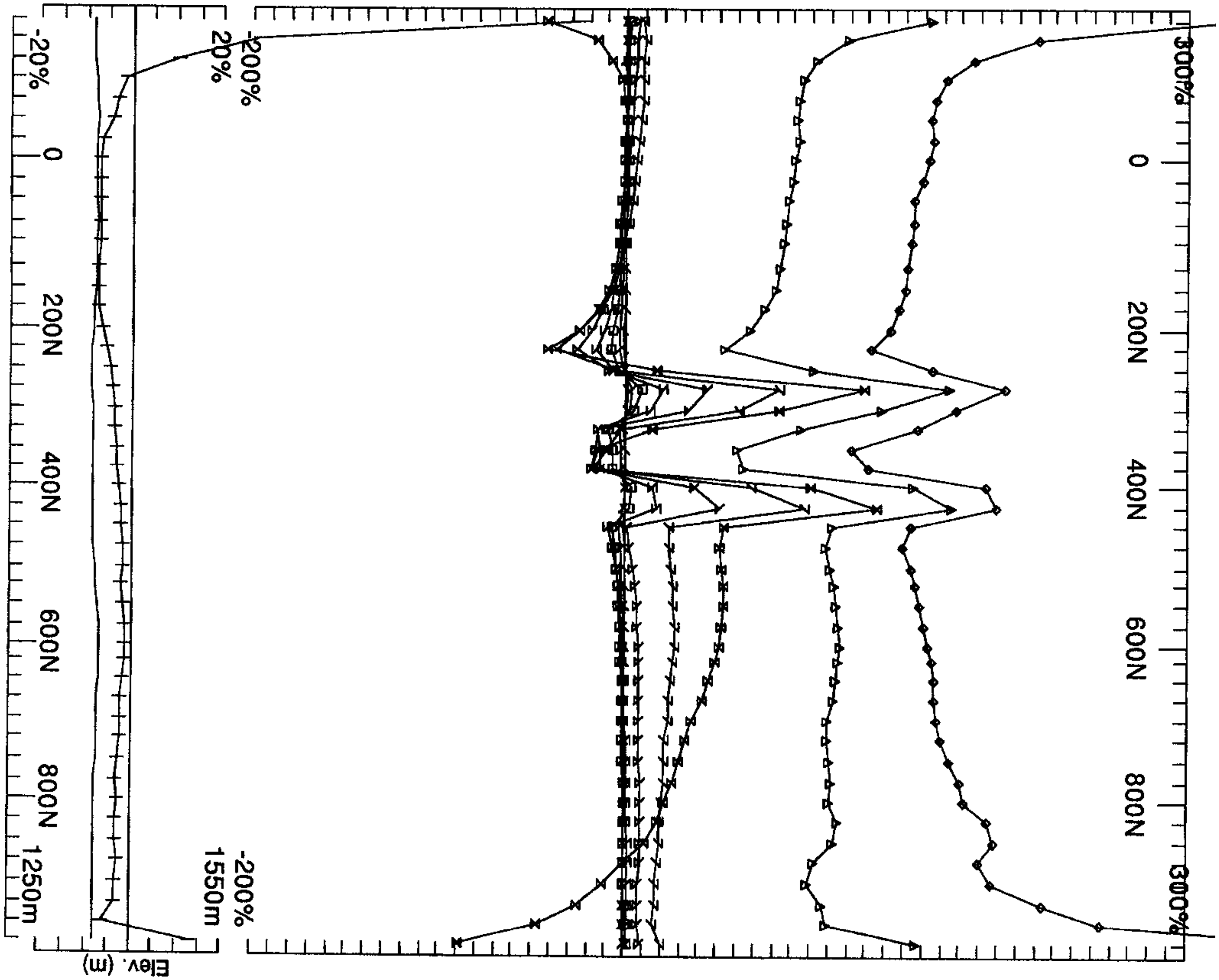
Point normalized data sections



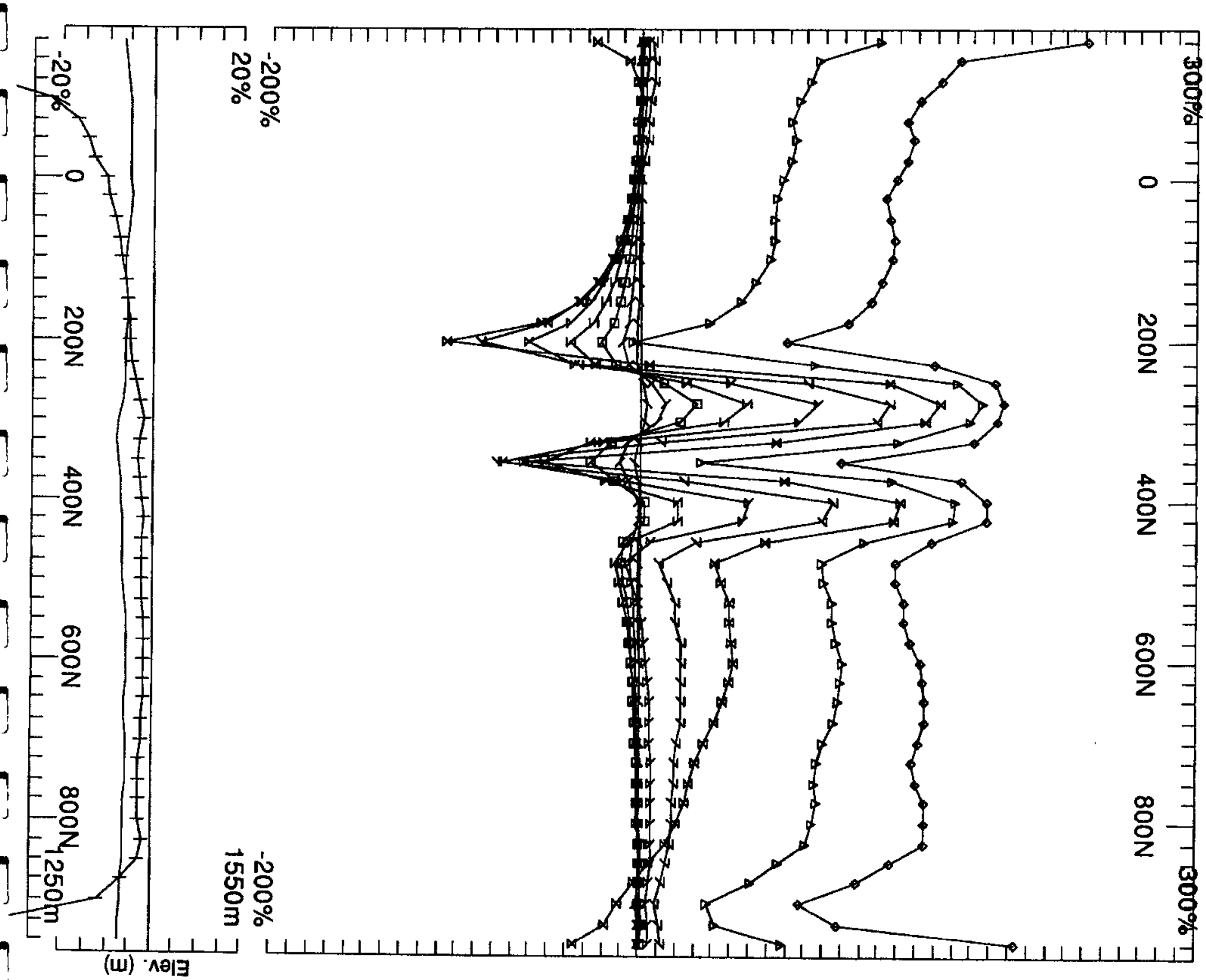
Loop: 1 Line: 200W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 8/6/97 Reduced : 7/7/97 Plotted : 21/7/97



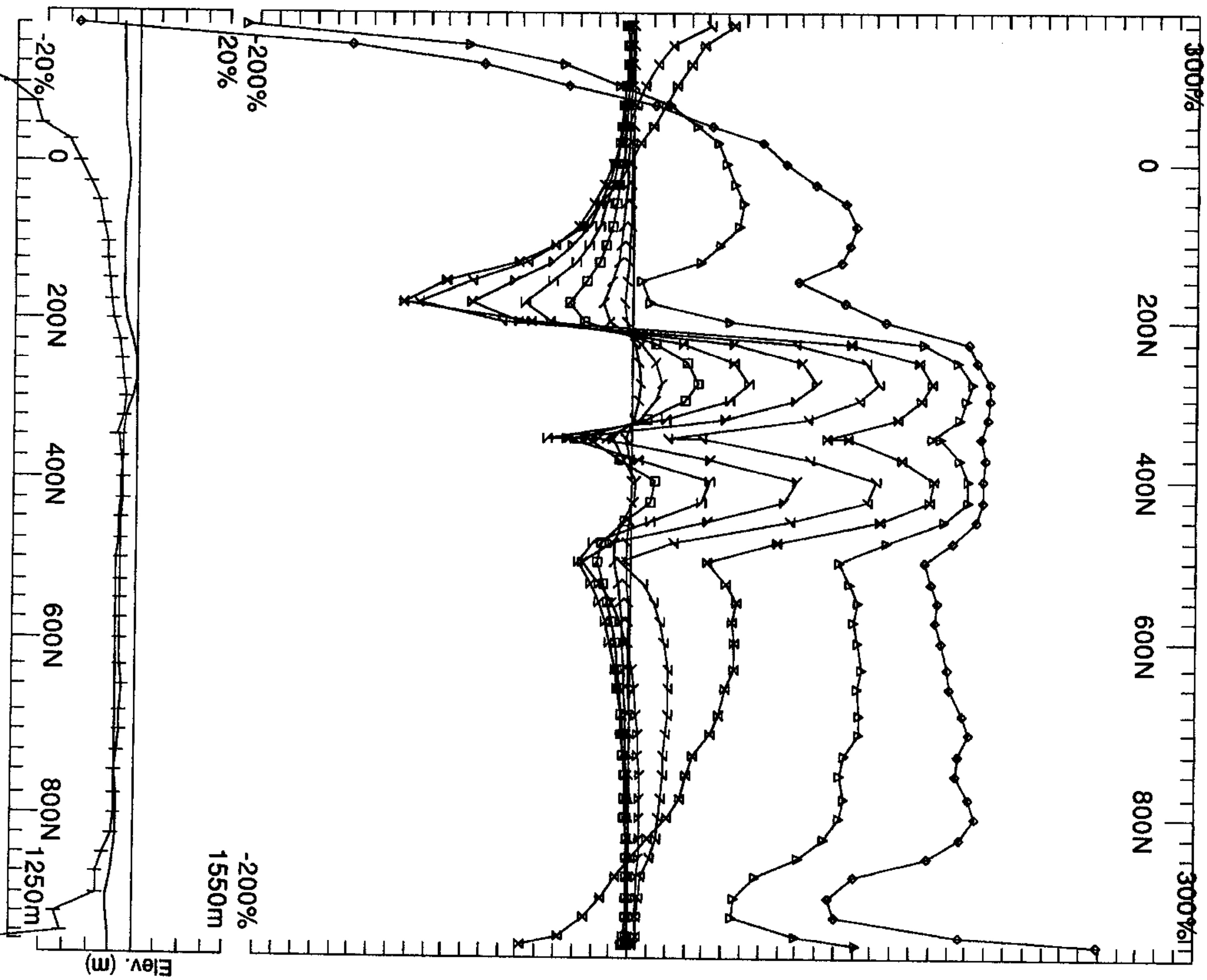
Loop: 1 Line: 300W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 8/6/97 Reduced : 7/7/97 Plotted : 21/7/97



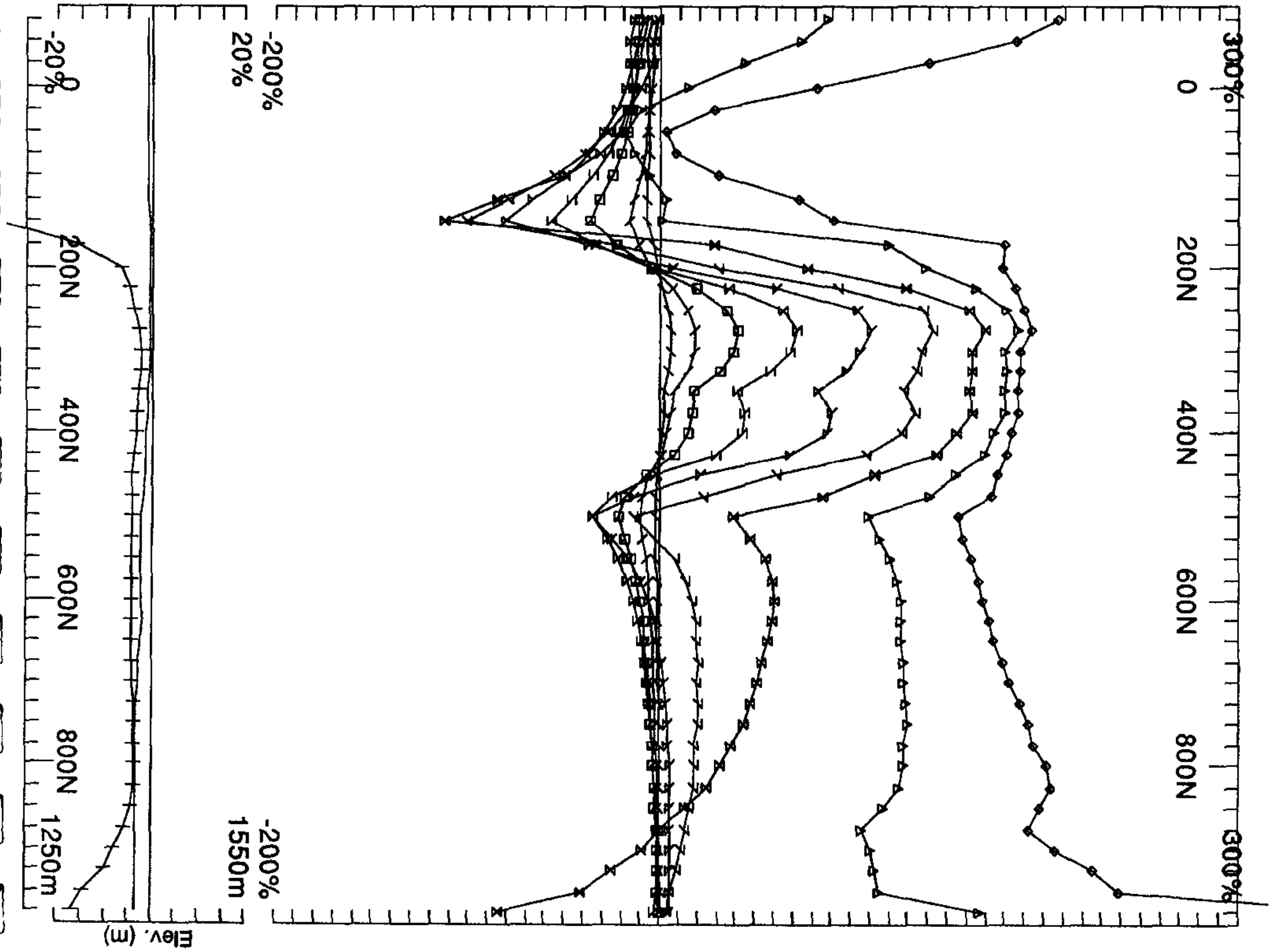
Loop: 1 Line: 400W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 9/6/97 Reduced : 7/7/97 Plotted : 21/7/97



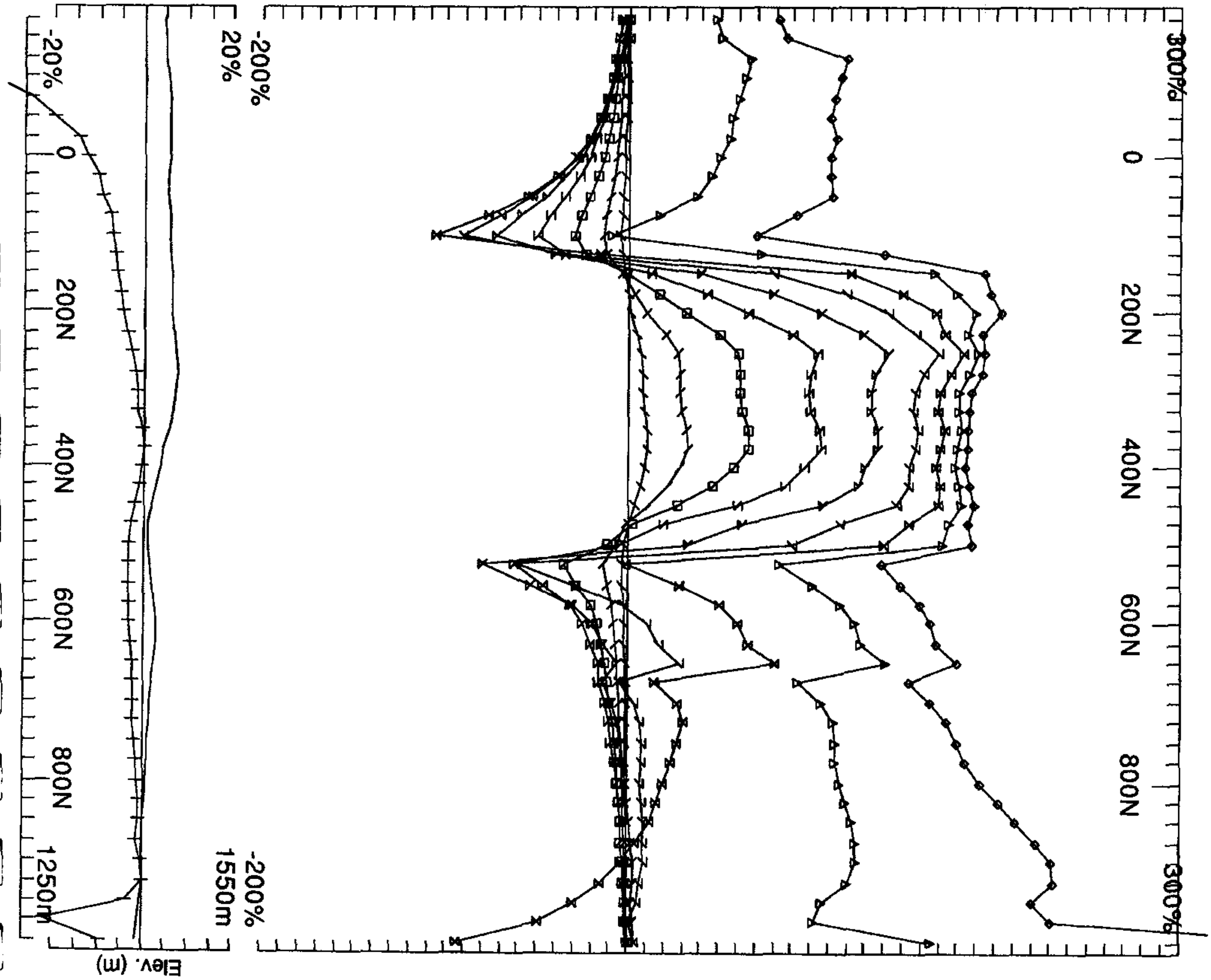
Loop: 1 Line: 500W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 9/6/97 Reduced : 7/7/97 Plotted : 21/7/97



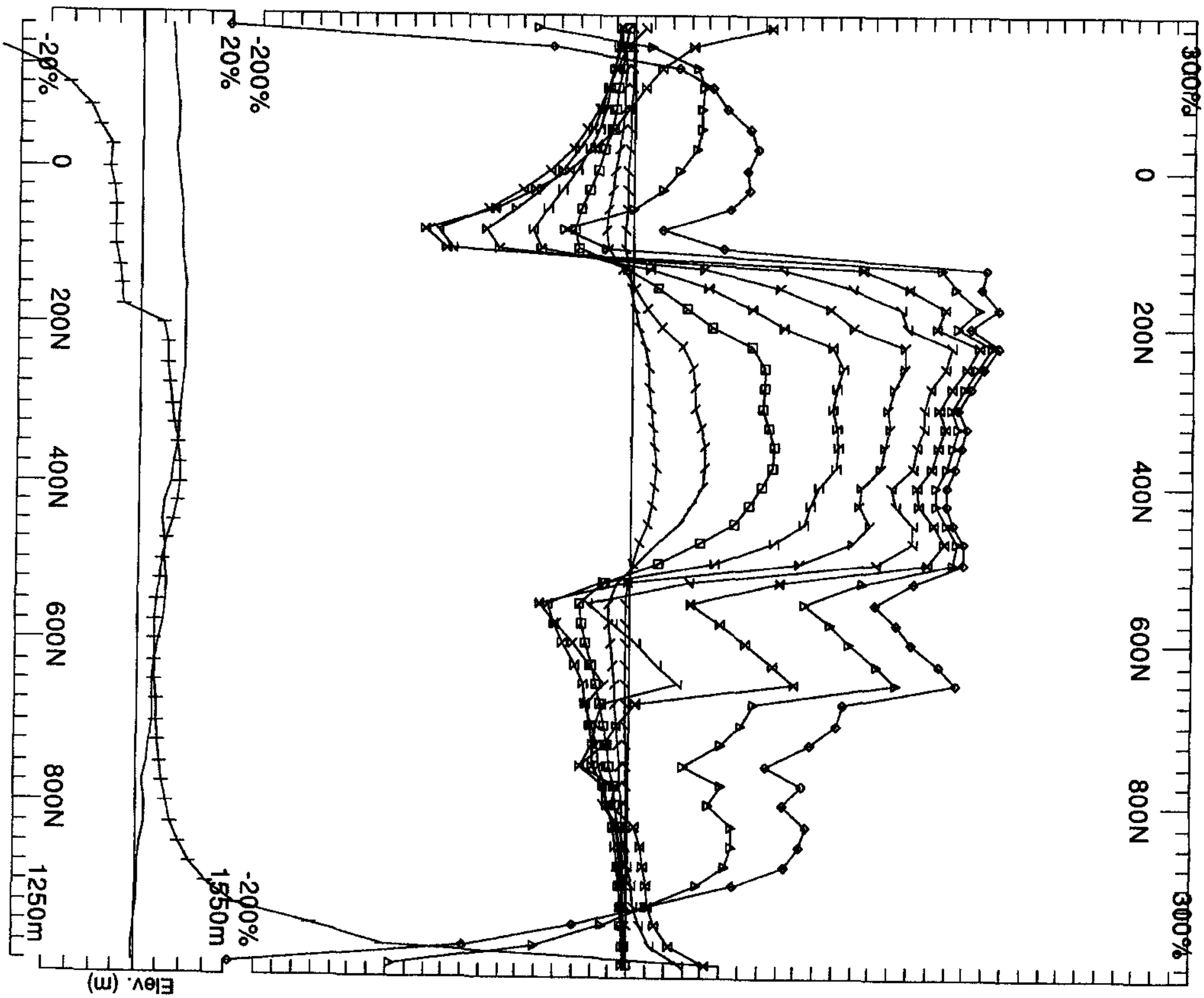
Loop: 1 Line: 600W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 9/6/97 Reduced : 7/7/97 Plotted : 21/7/97



Loop: 1 Line: 700W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 10/6/97 Reduced : 7/7/97 Plotted : 21/7/97



Loop: 1 Line: 800W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 11/6/97 Reduced : 7/7/97 Plotted : 21/7/97



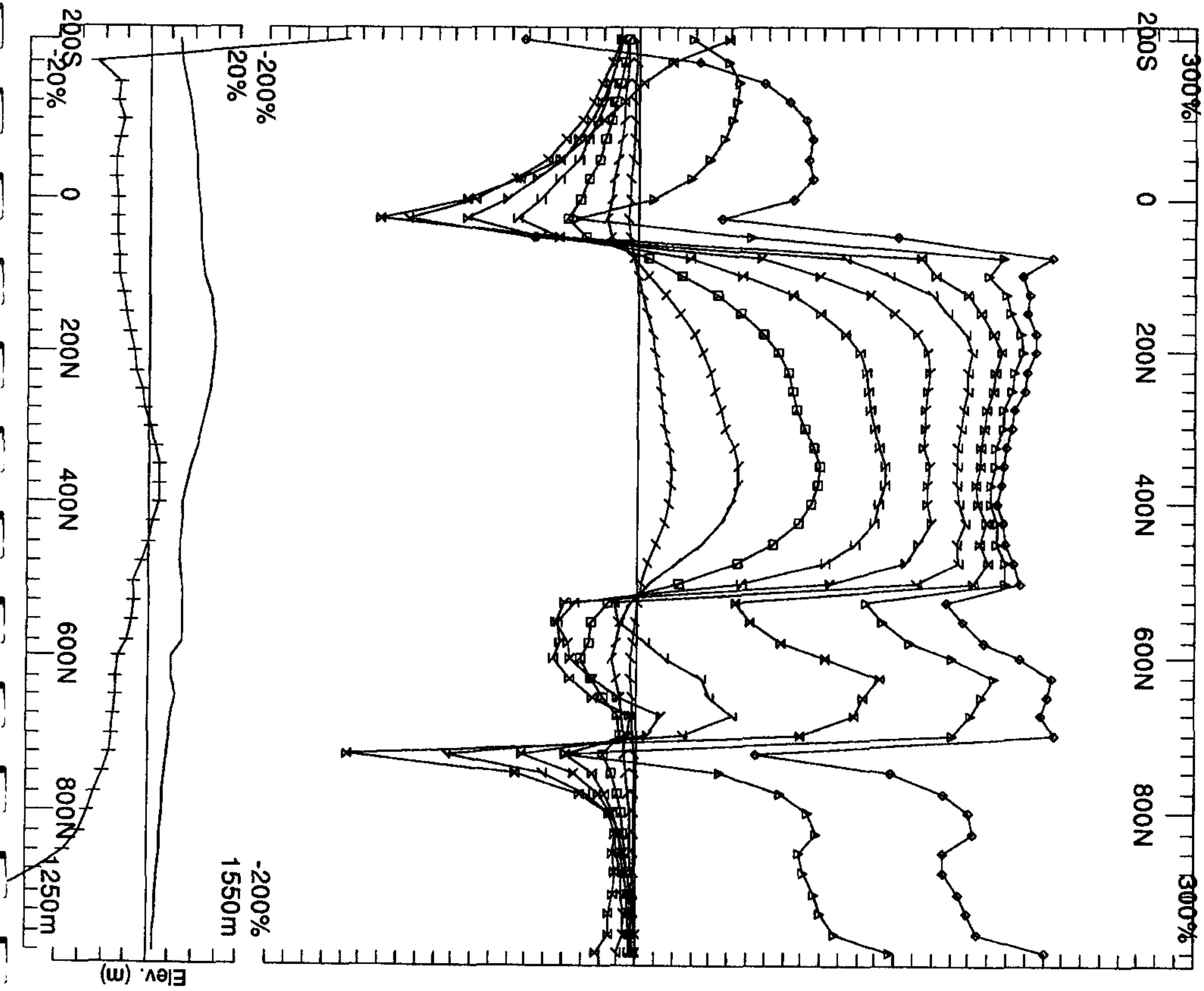
Loop: 1
Line: 900W
Compt: Hz

Secondary, (Chn - Ch1)/|Hp|
Point Norm.at x,y,z
(6448972,528925,1392)
Base Freq. 30.974 Hz

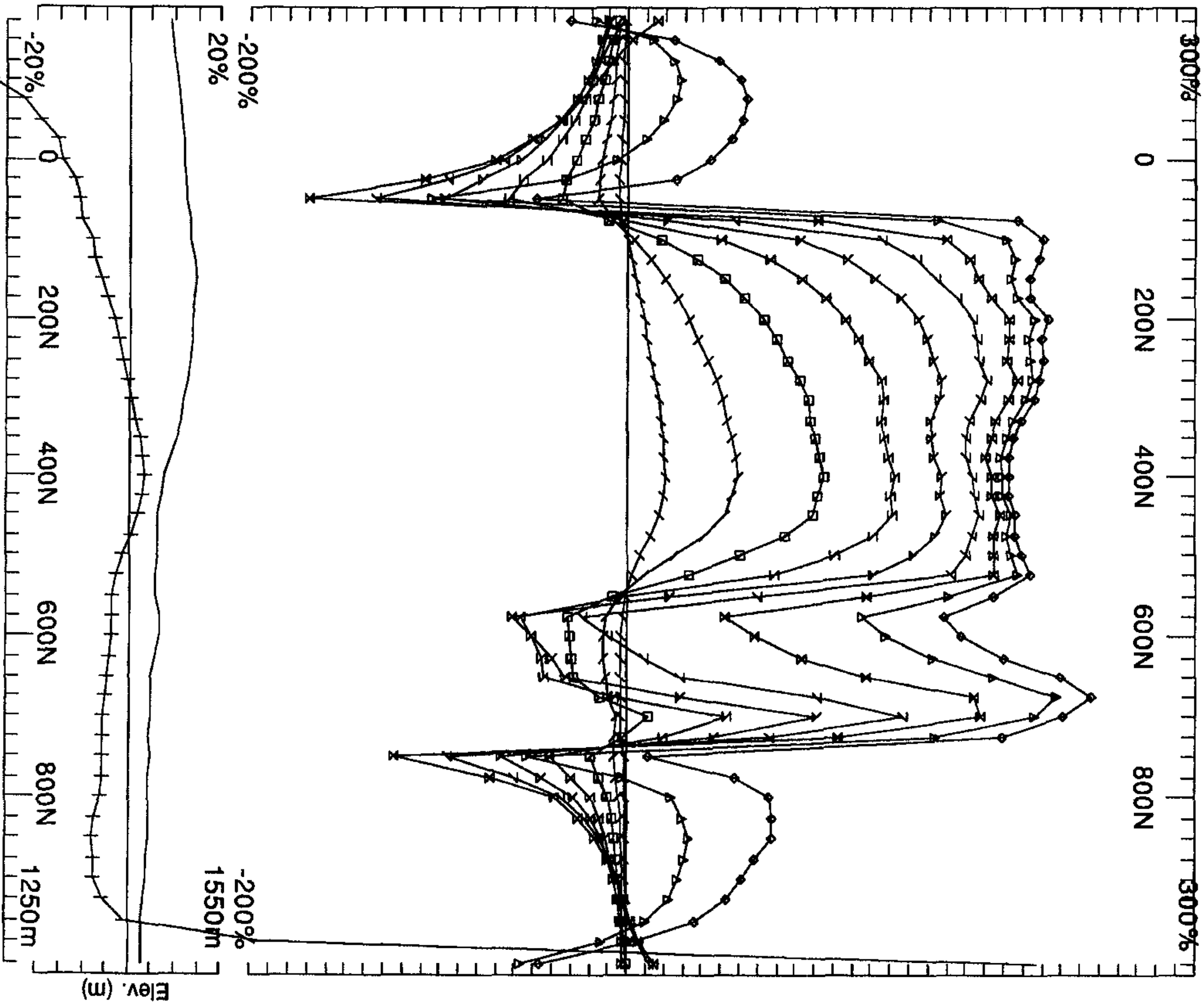
UTEM Survey at: KUTCHO CREEK
For: ATNA RESOURCES LTD.

SJ GEOPHYSICS LTD.

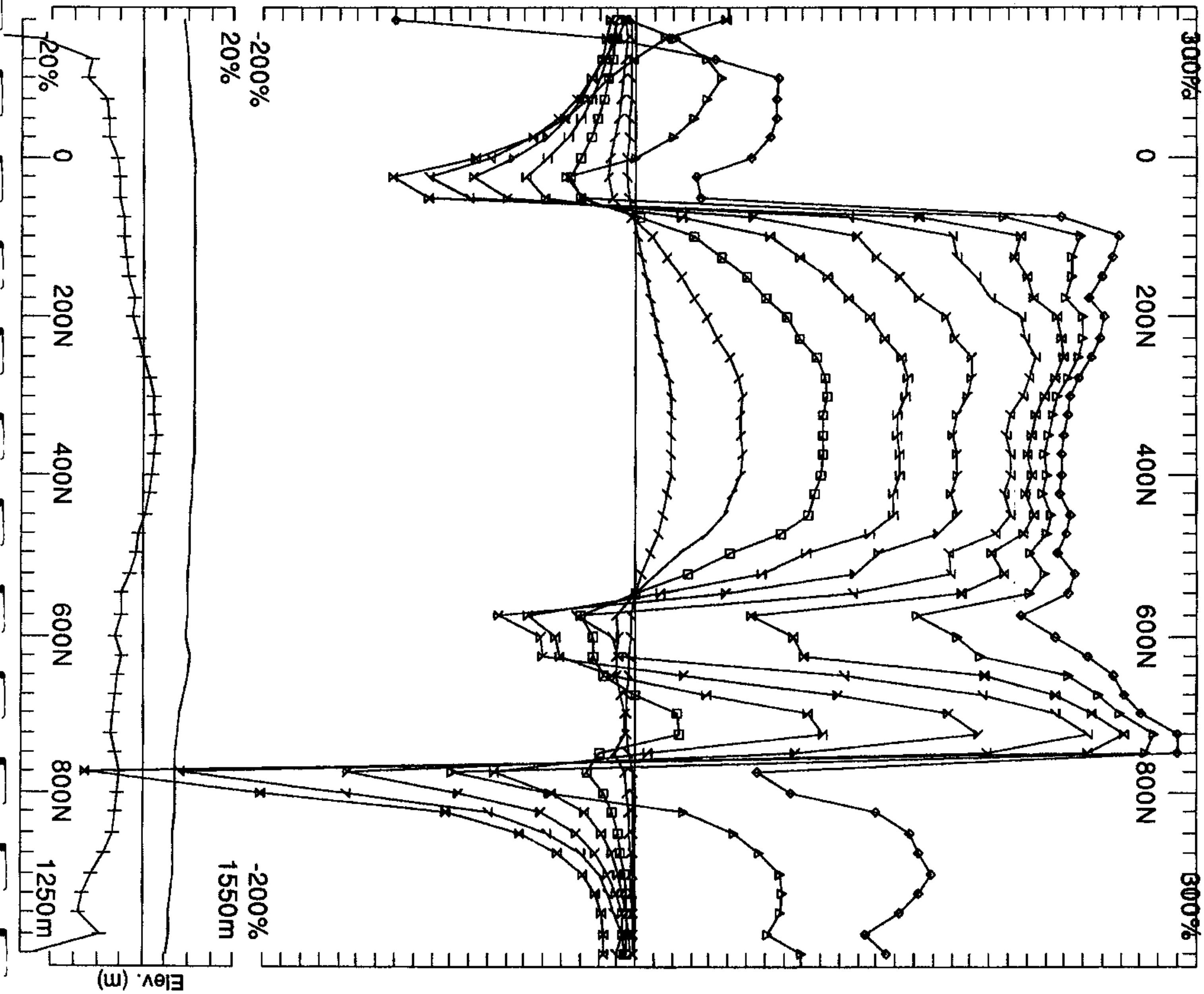
Job 1
Surveyed : 10/6/97
Reduced : 7/7/97
Plotted : 21/7/97



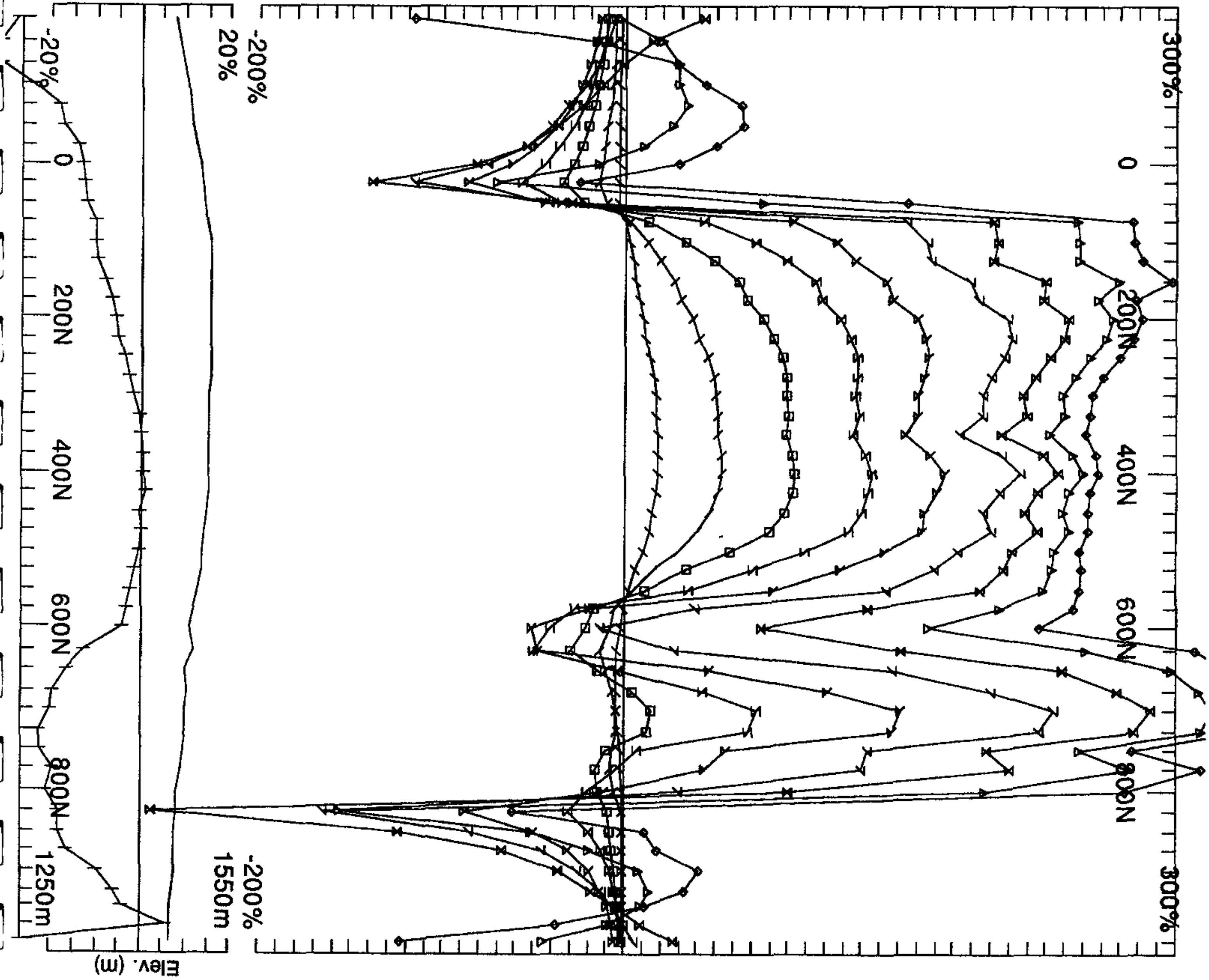
Loop: 1 Line: 1000W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 10/6/97 Reduced : 7/7/97 Plotted : 21/7/97



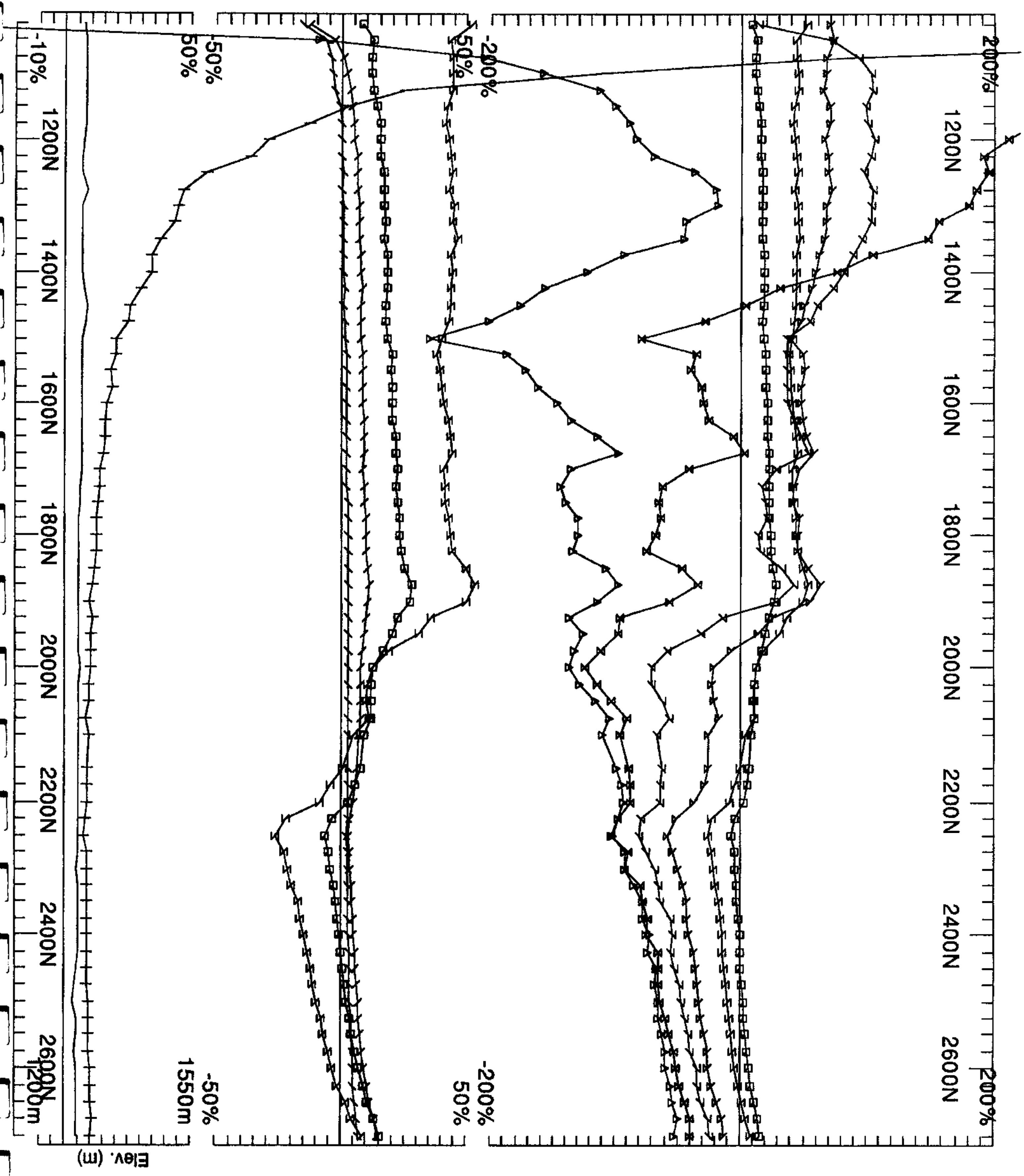
Loop: 1 Line: 1100W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 11/6/97 Reduced : 7/7/97 Plotted : 21/7/97



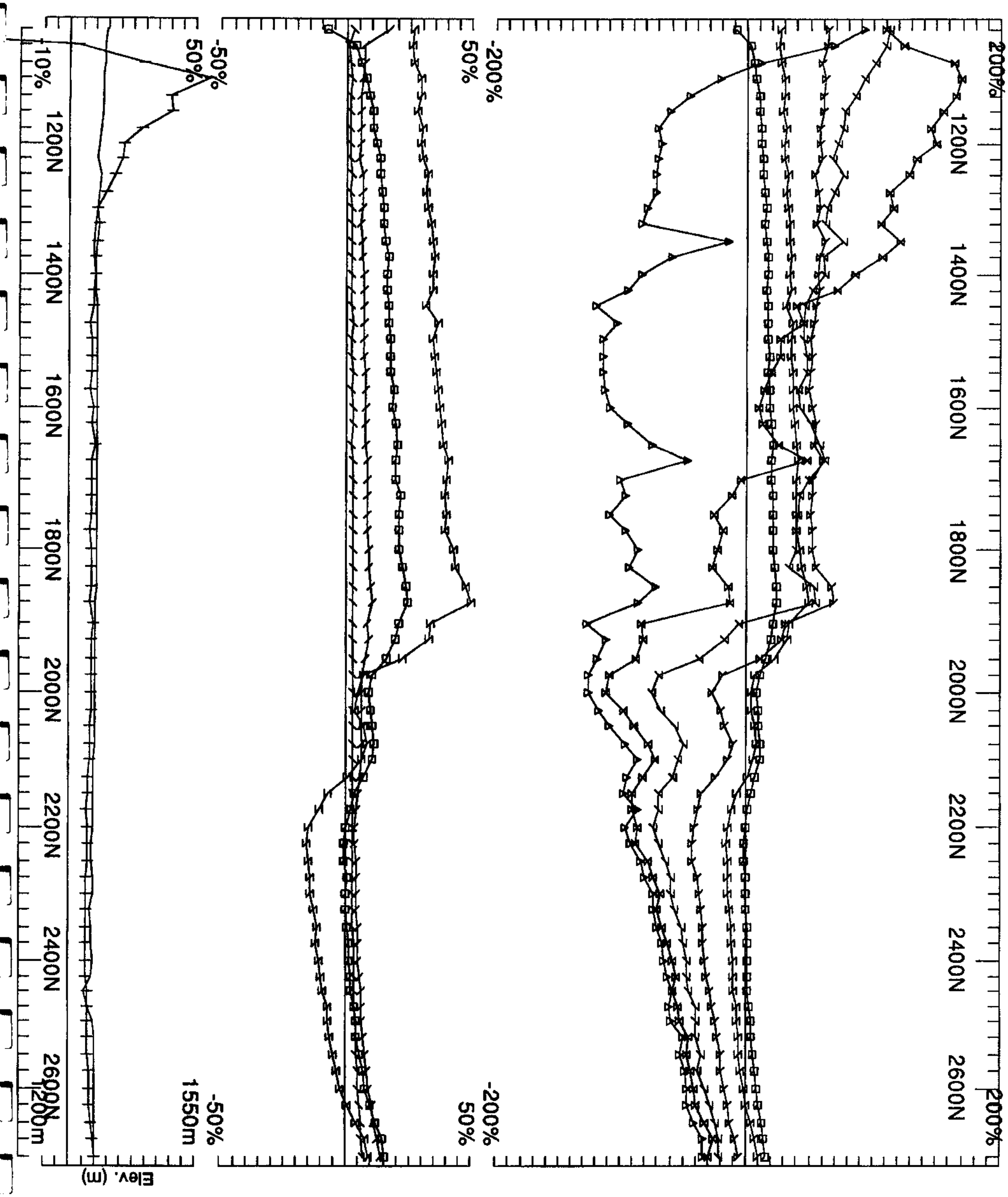
Loop: 1 Line: 1200W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 11/6/97 Reduced : 7/7/97 Plotted : 21/7/97



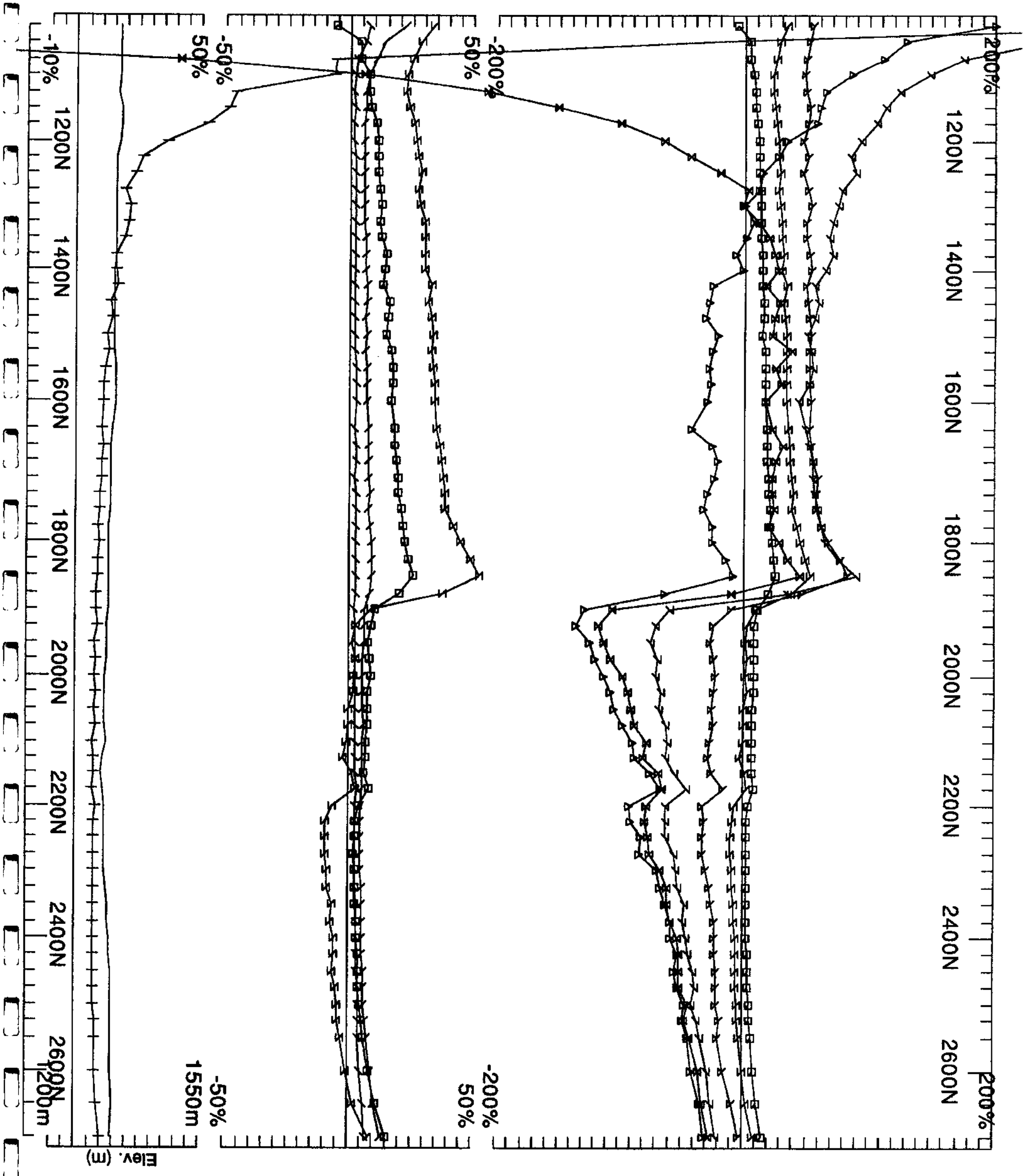
Loop: 1 Line: 1300W Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at x,y,z (6448972,528925,1392) Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 11/6/97 Reduced : 7/7/97 Plotted : 21/7/97



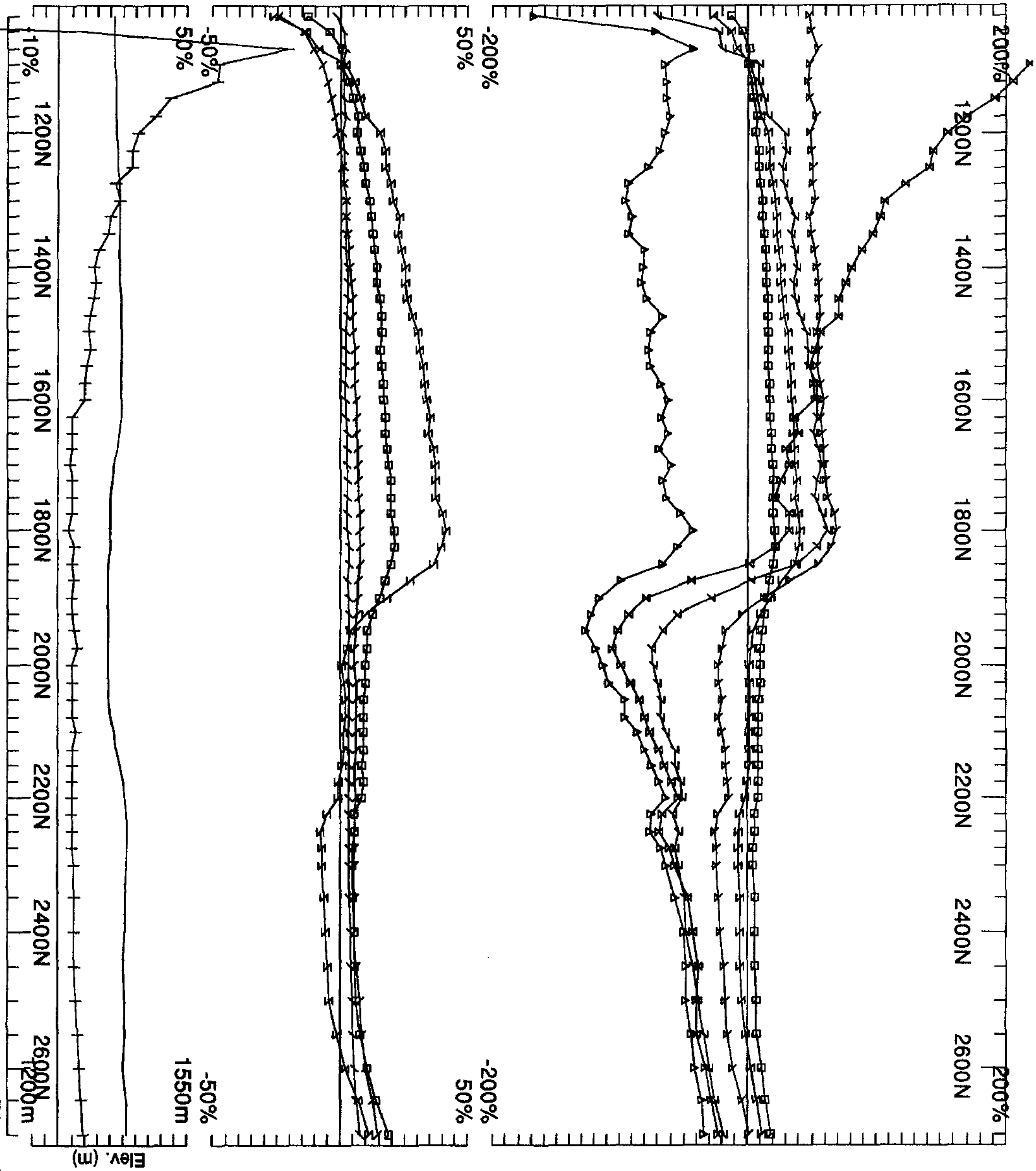
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 200	Point Norm.at stn 1750	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 12/6/97 Reduced : 14/6/97 Plotted : 11/9/97



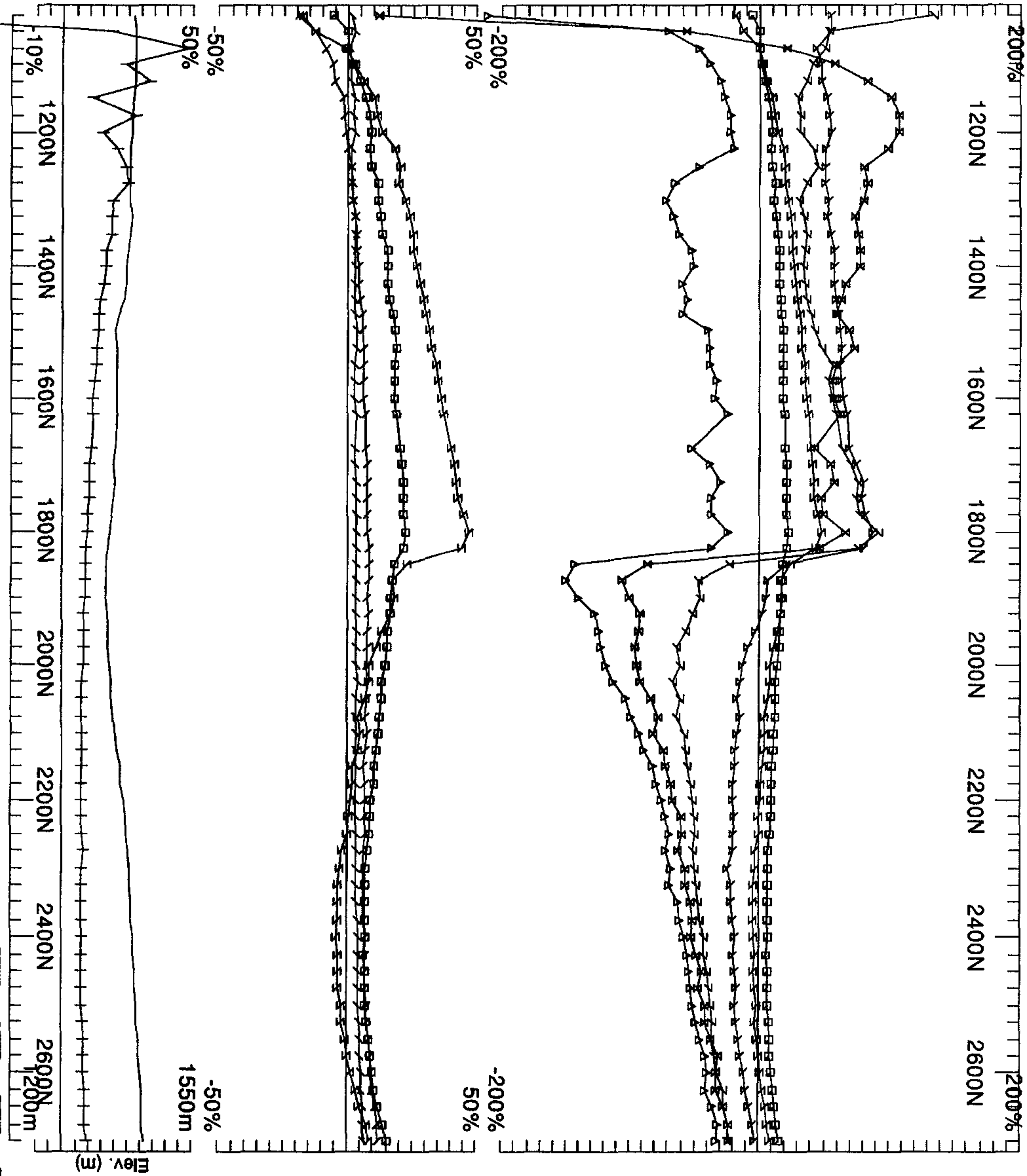
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 400	Point Norm.at stn 1750	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 12/6/97 Reduced : 19/6/97 Plotted : 11/9/97



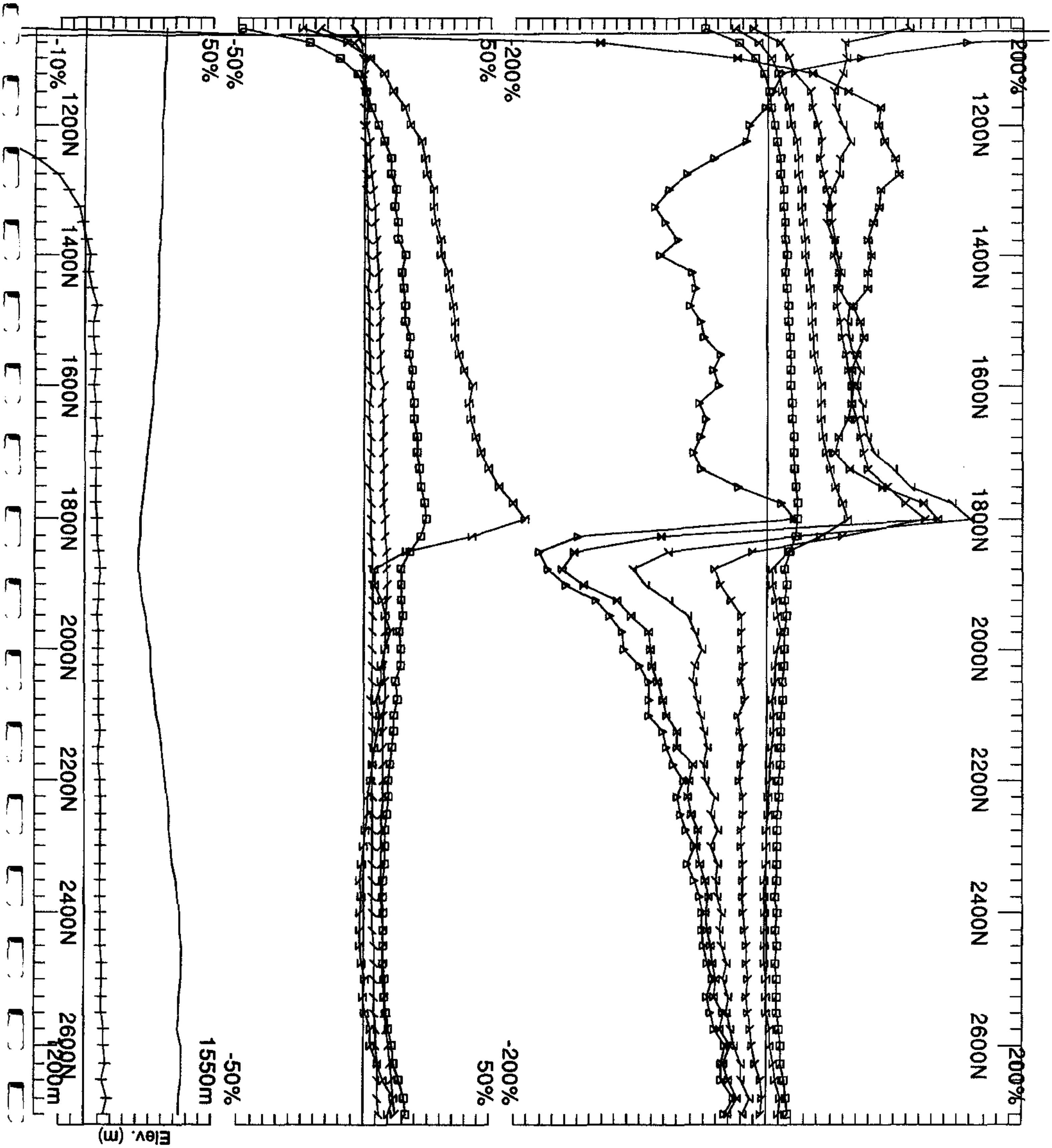
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 600	Point Norm.at stn 1750	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 13/8/97 Reduced : 19/8/97 Plotted : 11/9/97



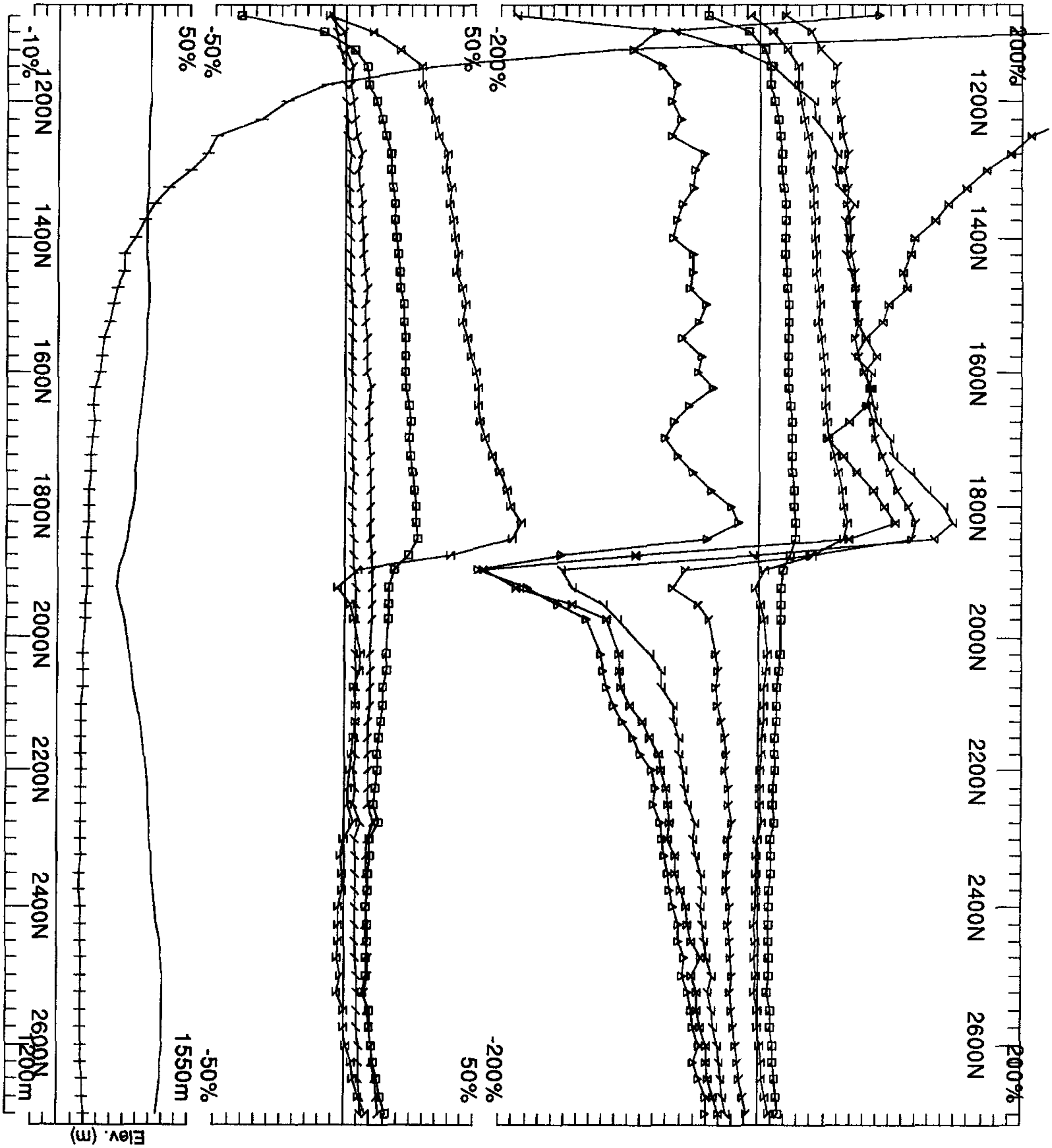
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 800	Point Norm.at stn 1750	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 13/6/97 Reduced : 19/6/97 Plotted : 11/9/97



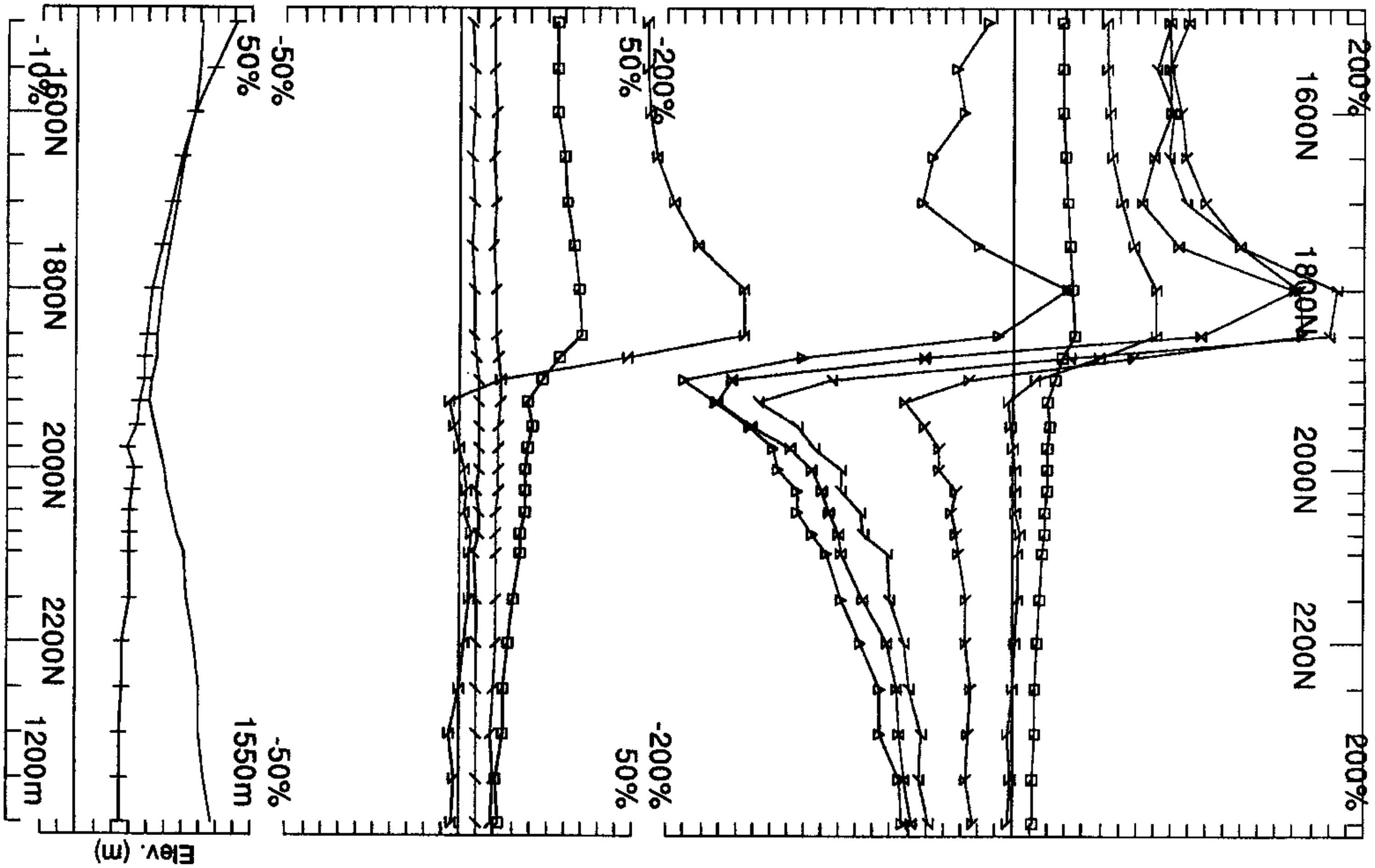
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1000	Point Norm.at stn 1775	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 14/6/97 Reduced : 19/6/97 Plotted : 11/9/97



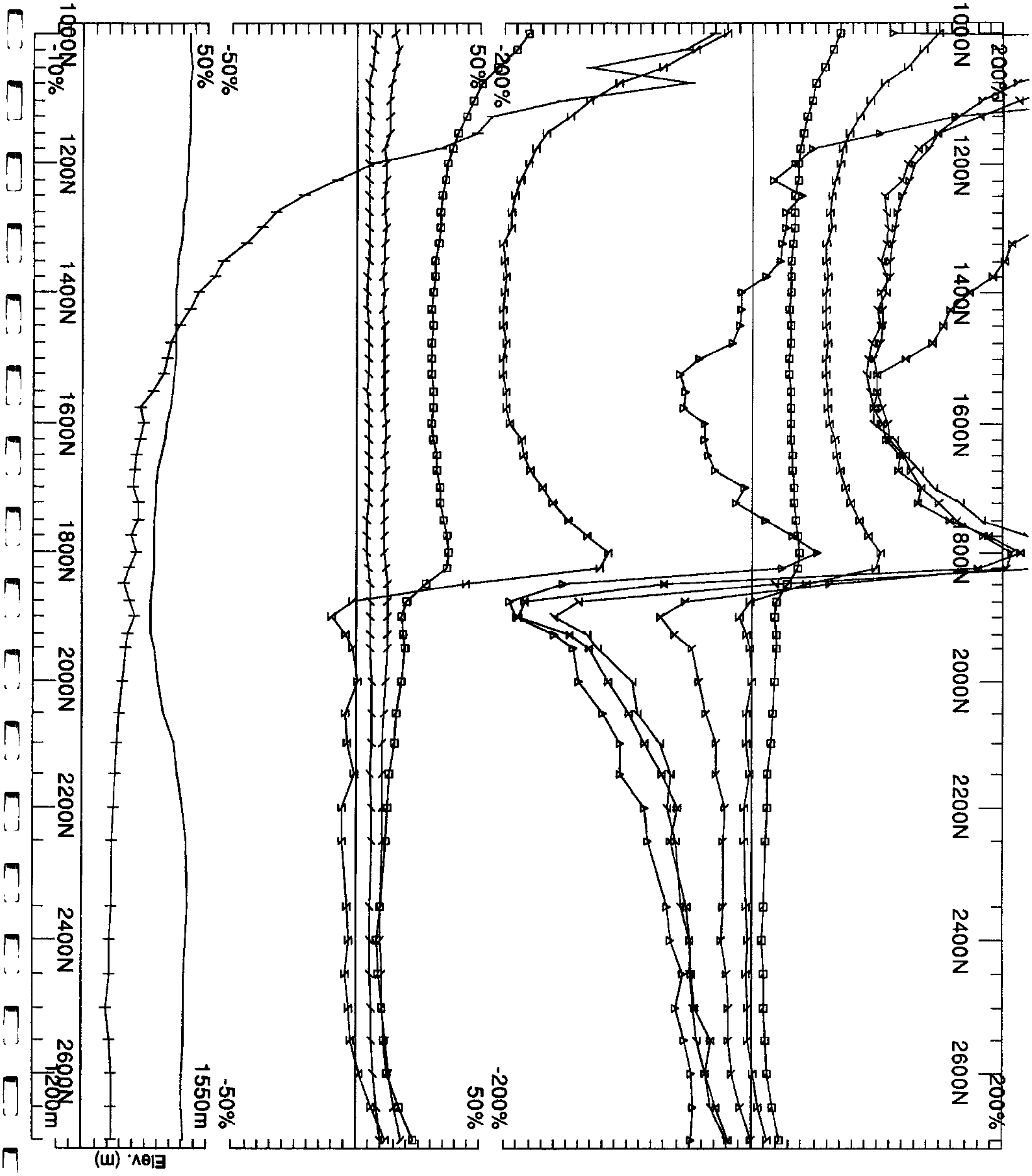
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1200S	Point Norm.at stn 1775	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 14/6/97 Reduced : 19/6/97 Plotted : 11/9/97



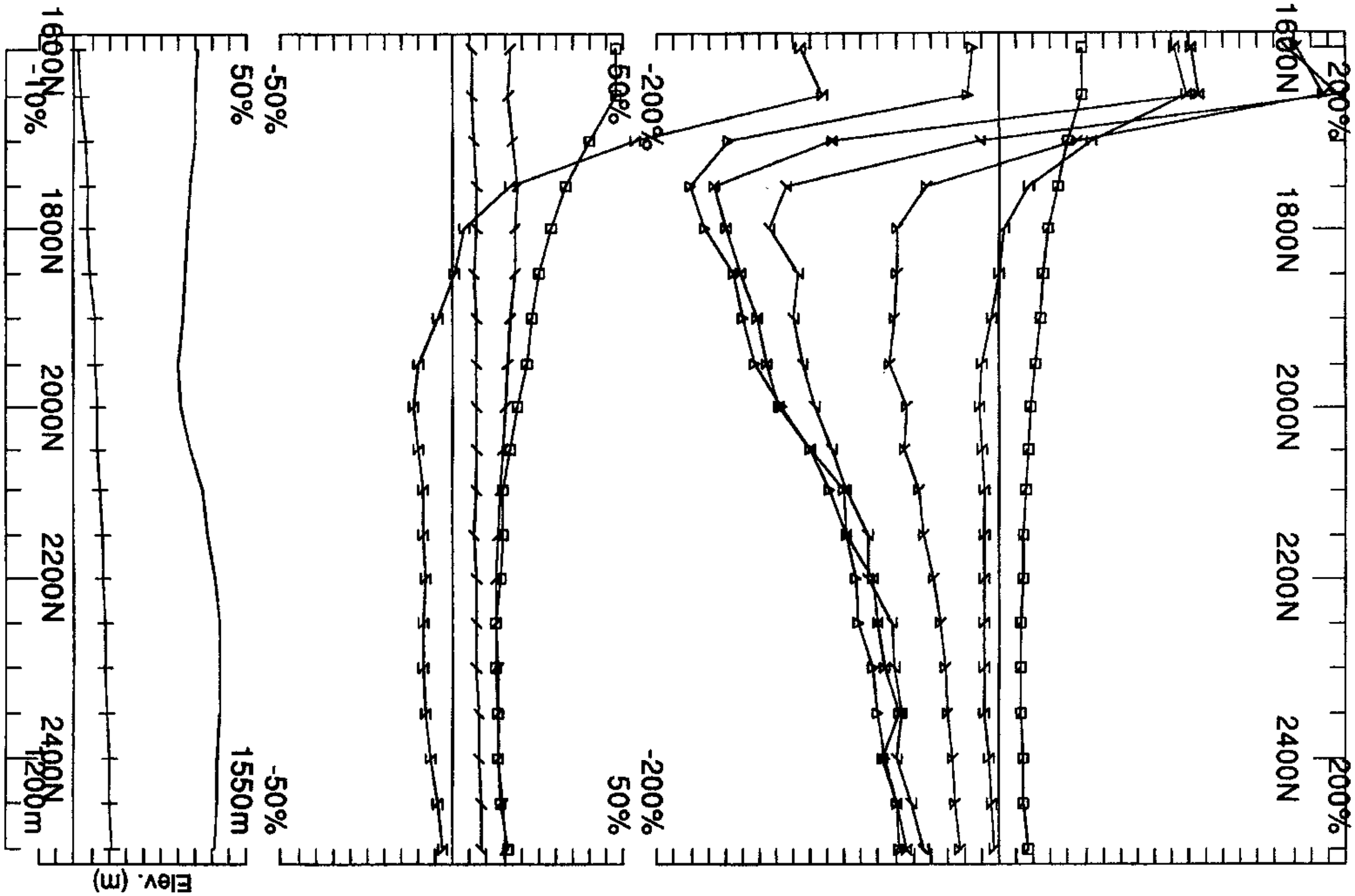
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1400	Point Norm.at stn 1800	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 15/6/97 Reduced : 22/6/97 Plotted : 11/9/97



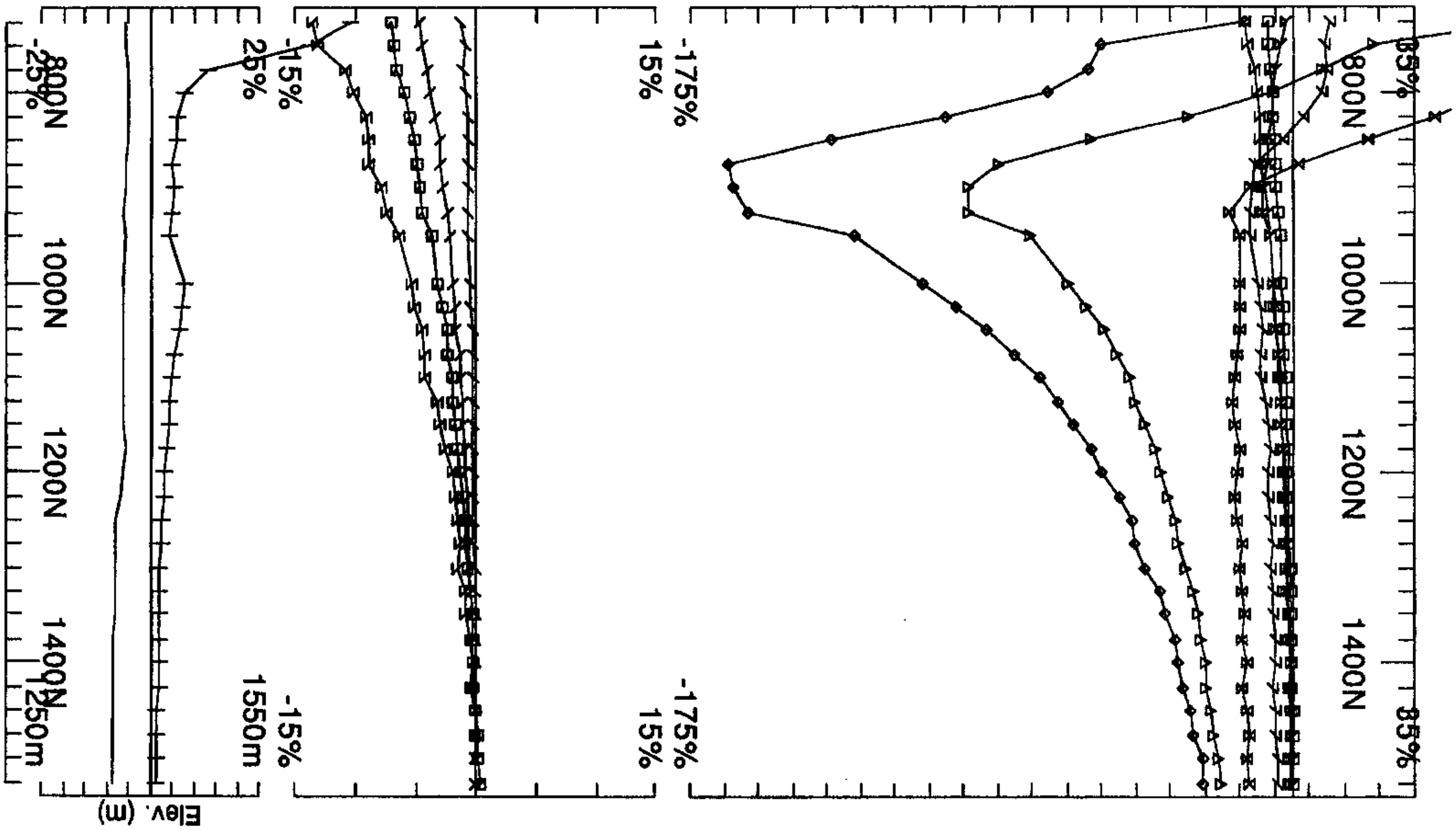
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1500	Point Norm.at stn 1750	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 16/6/97 Reduced : 19/6/97 Plotted : 11/9/97



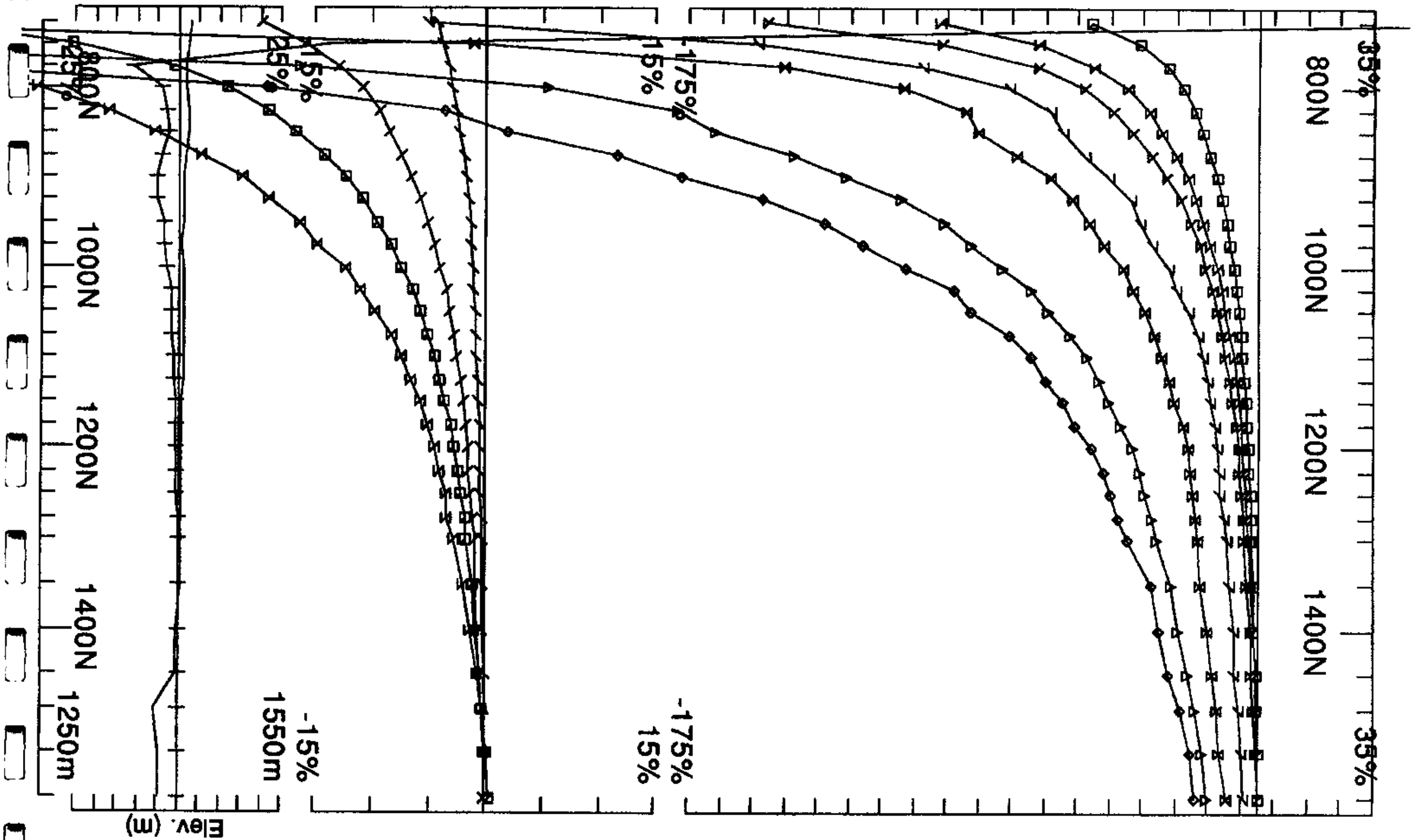
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1600	Point Norm.at stn 1725	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 15/6/97 Reduced : 22/6/97 Plotted : 11/9/97



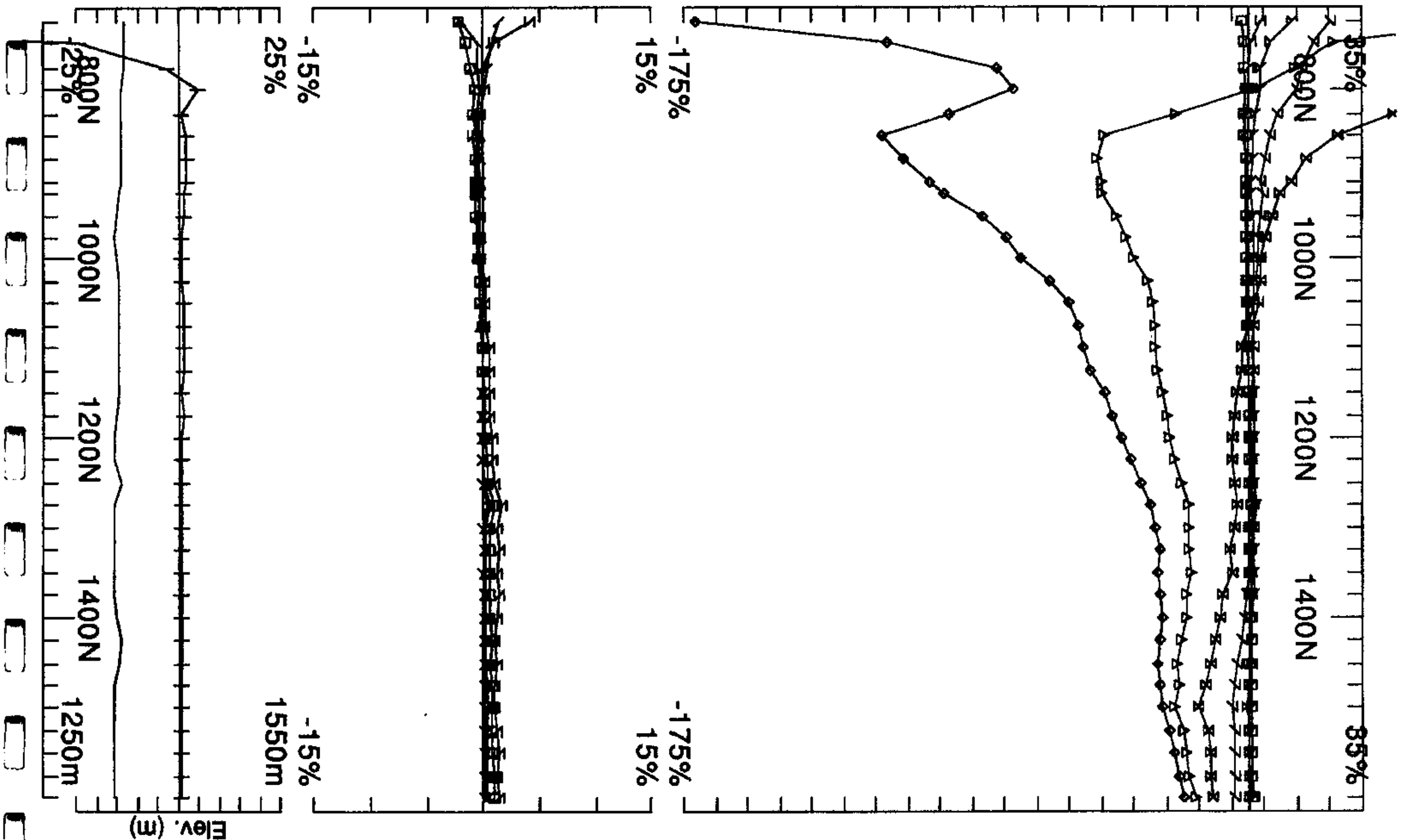
Loop: 2	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1800	Point Norm.at stn 1750	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 16/6/97 Reduced : 19/6/97 Plotted : 11/9/97



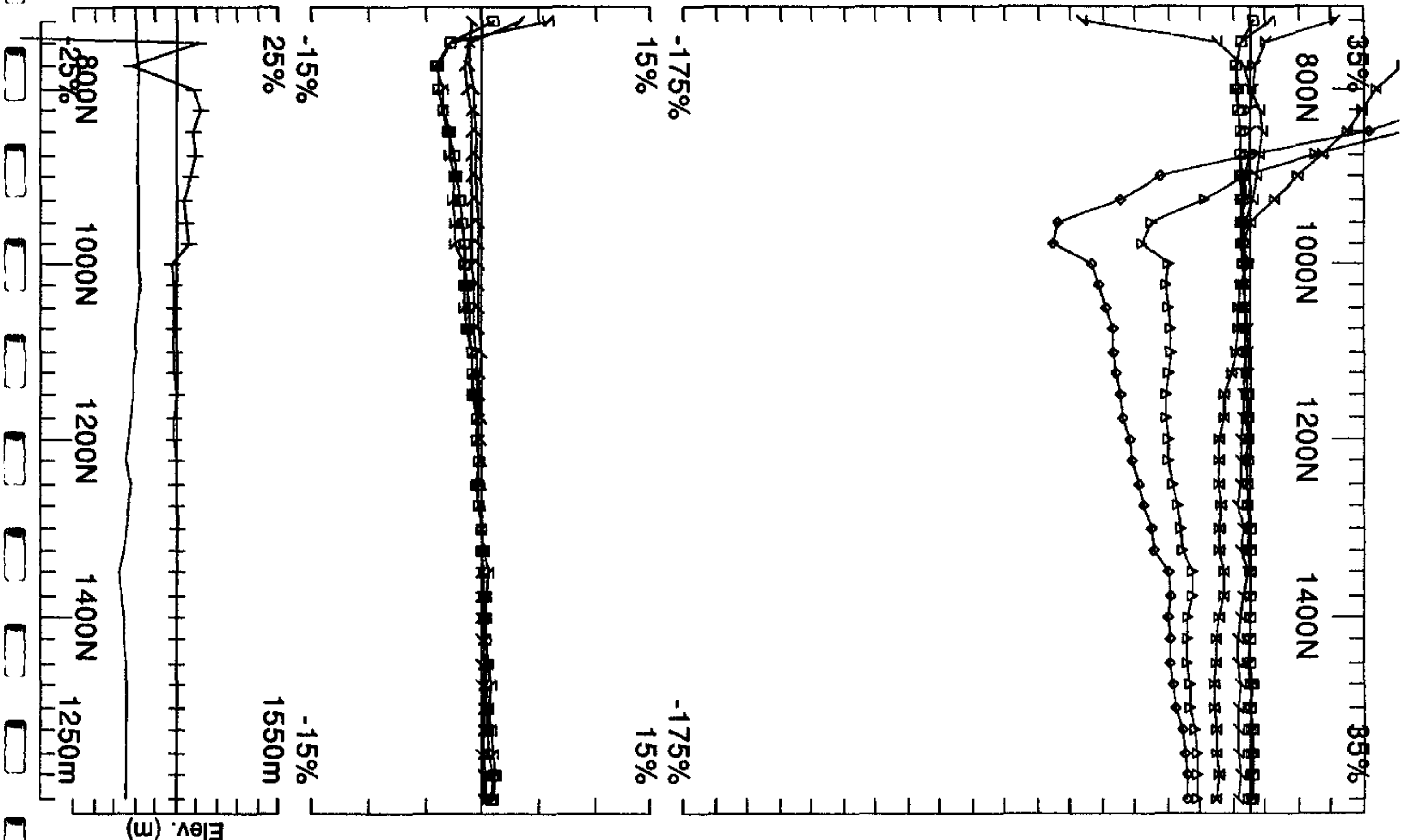
Loop: 3	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 600	Point Norm.at stn 950	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 18/6/97 Reduced : 18/6/97 Plotted : 11/9/97



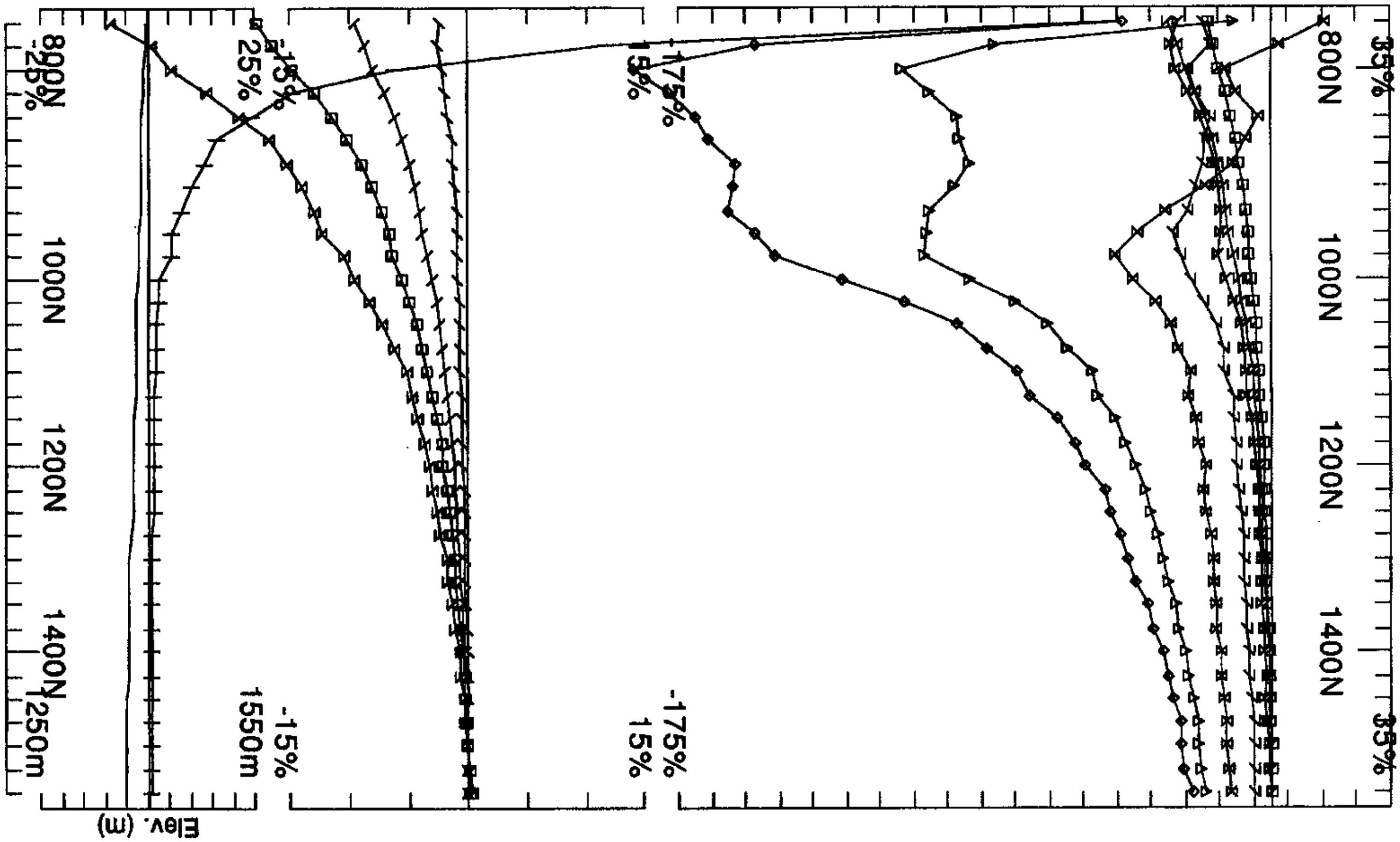
Loop: 3	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1000	Point Norm.at stn 950	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 18/6/97 Reduced : 19/6/97 Plotted : 11/9/97



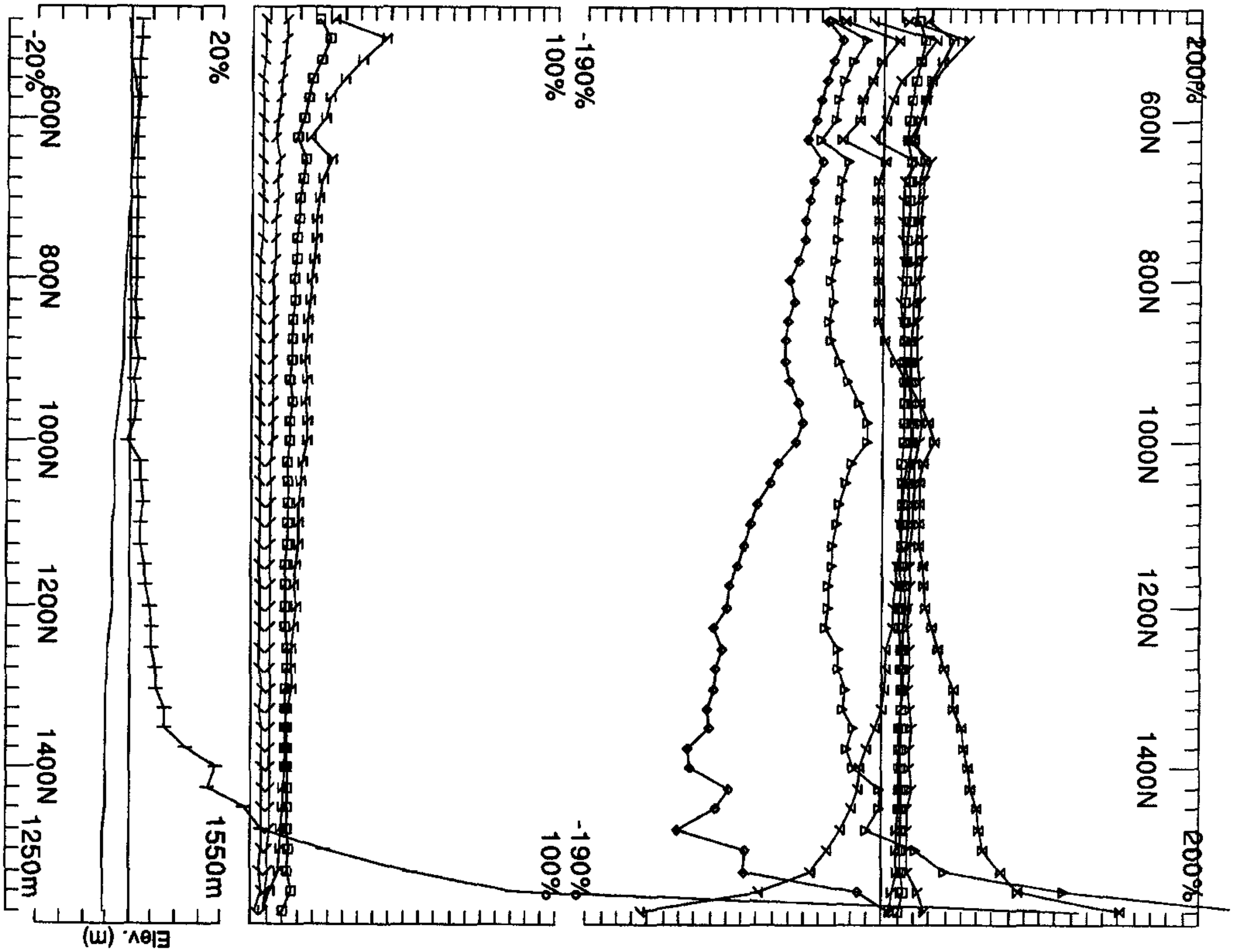
Loop: 3	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 200	Point Norm.at stn 950	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 18/6/97 Reduced : 18/6/97 Plotted : 11/9/97



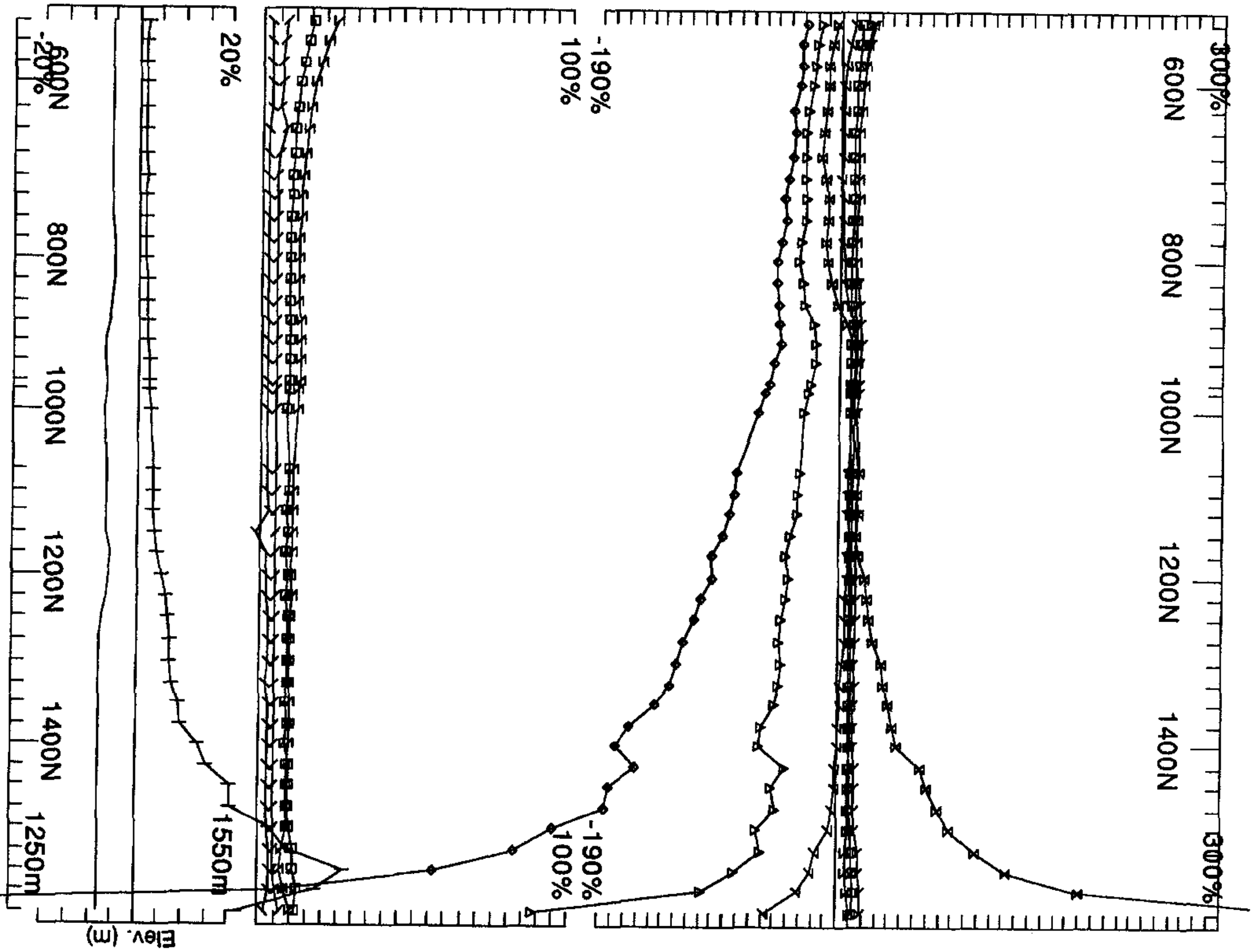
Loop: 3	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 400	Point Norm.at stn 950	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 18/6/97 Reduced : 18/6/97 Plotted : 11/9/97



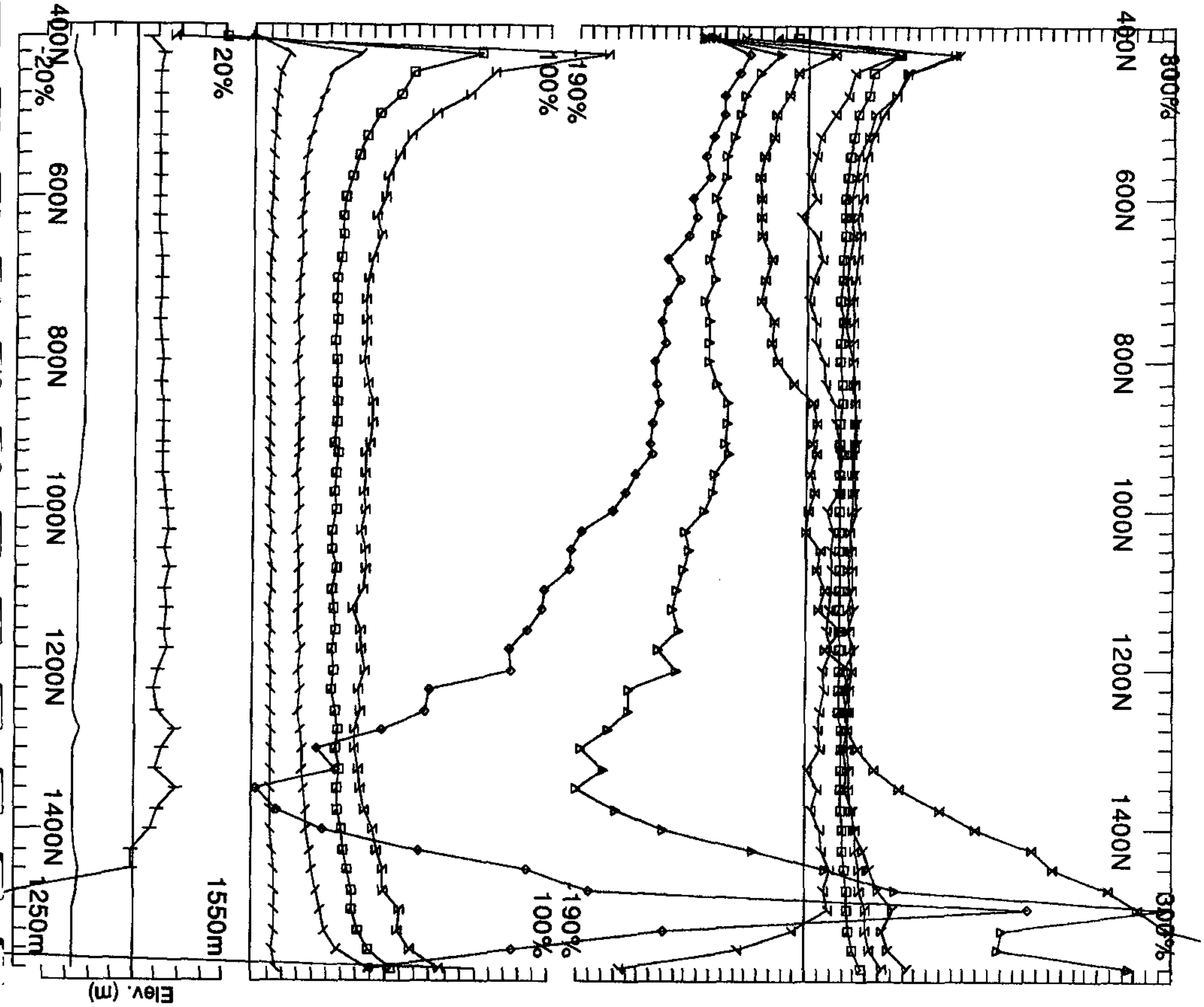
Loop: 3	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 800	Point Norm.at stn 975	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 18/6/97 Reduced : 18/6/97 Plotted : 11/9/97



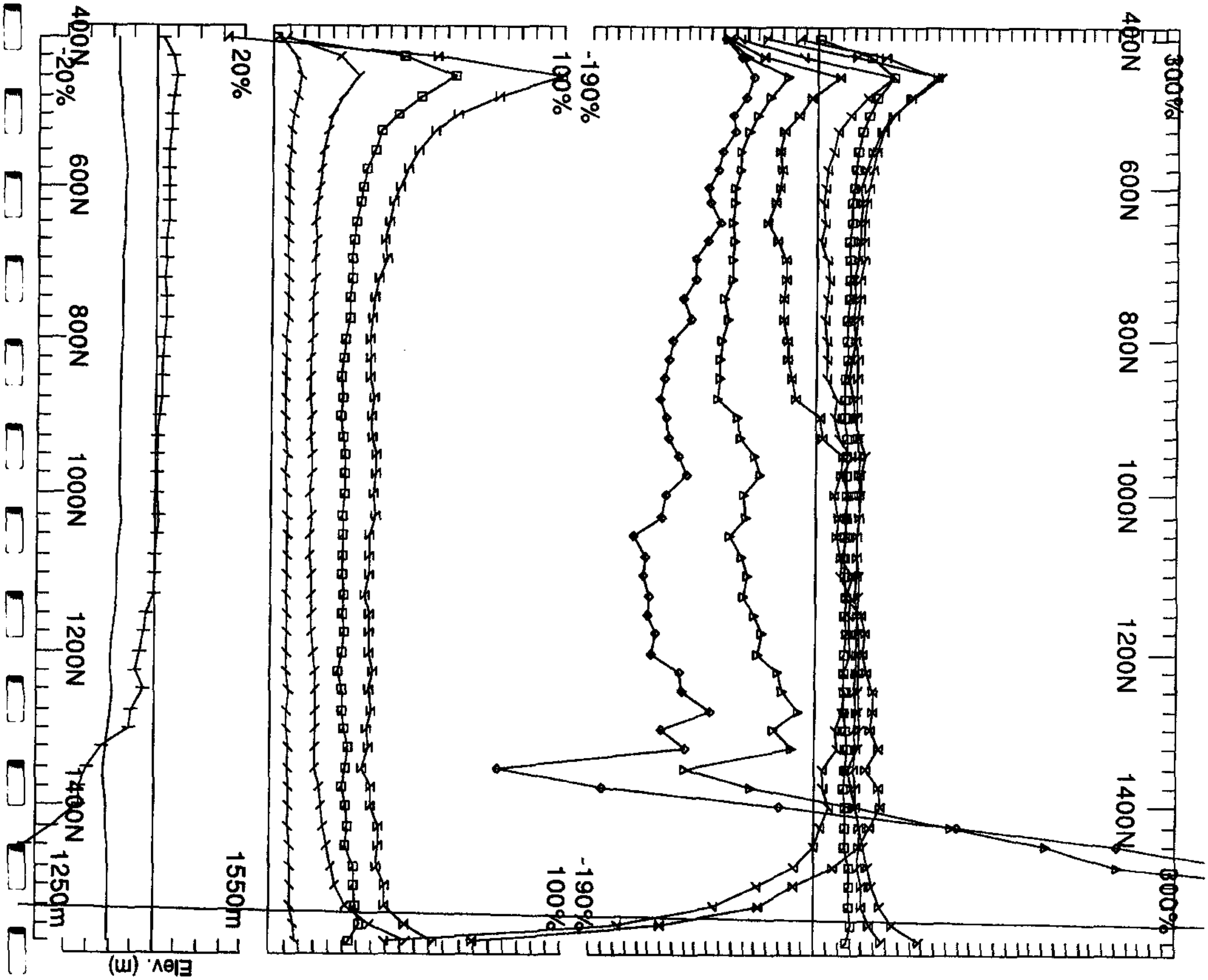
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 800	Point Norm.at stn 1125	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 20/6/97 Reduced : 21/6/97 Plotted : 11/9/97



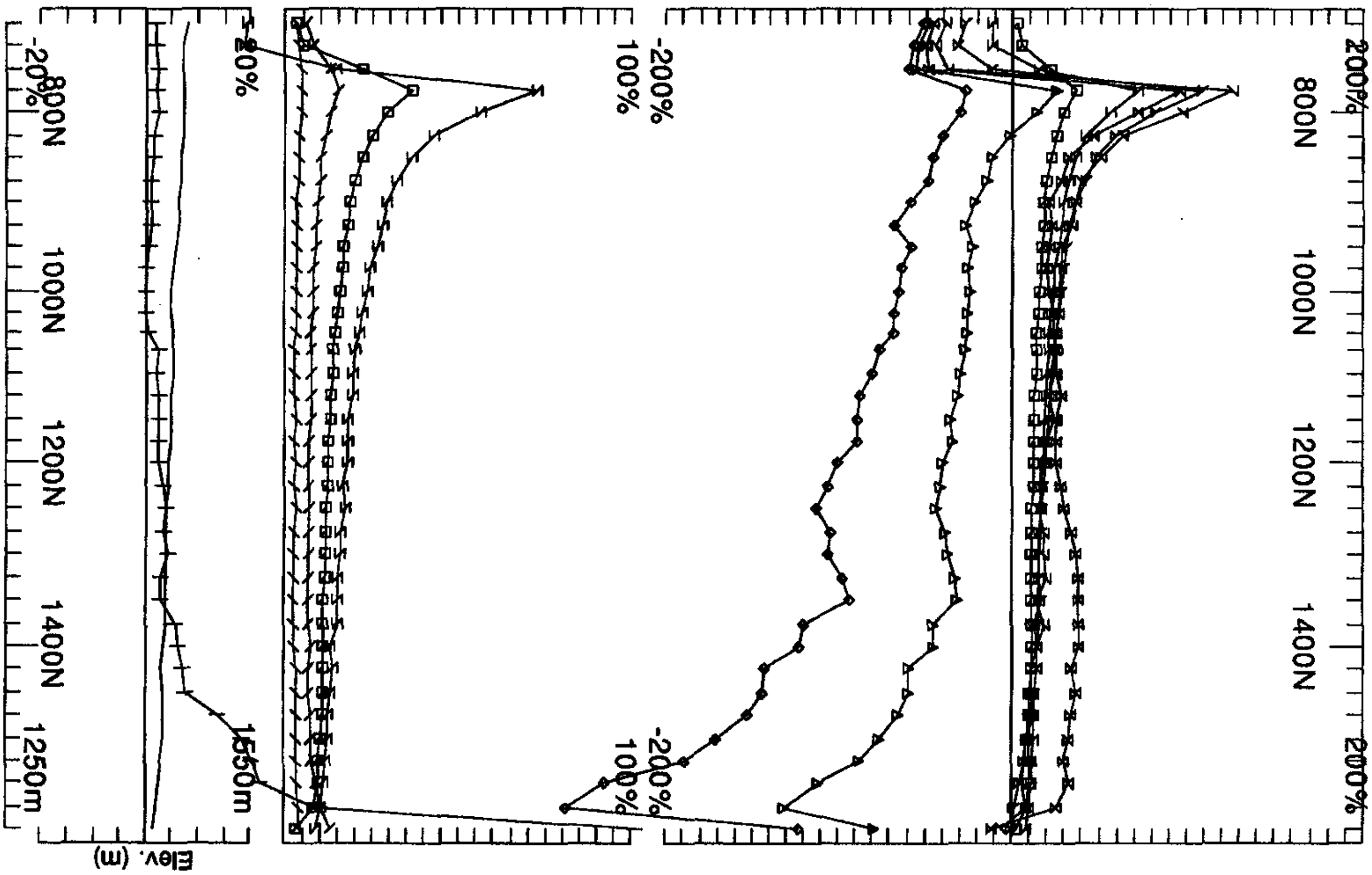
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 600	Point Norm.at stn 1225	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 20/6/97 Reduced : 20/6/97 Plotted : 11/9/97



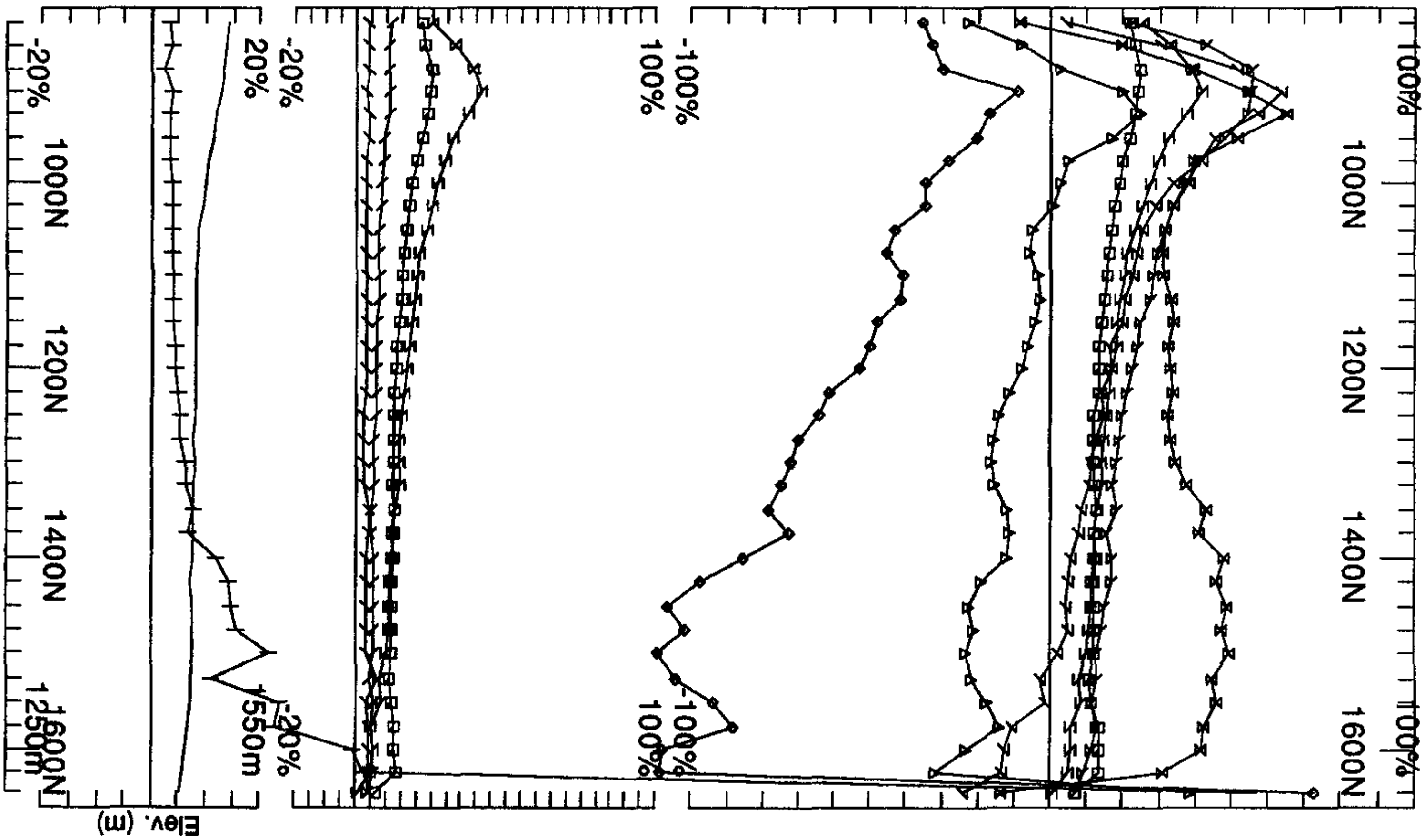
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 200	Point Norm.at stn 875	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 20/6/97 Reduced : 21/6/97 Plotted : 11/9/97



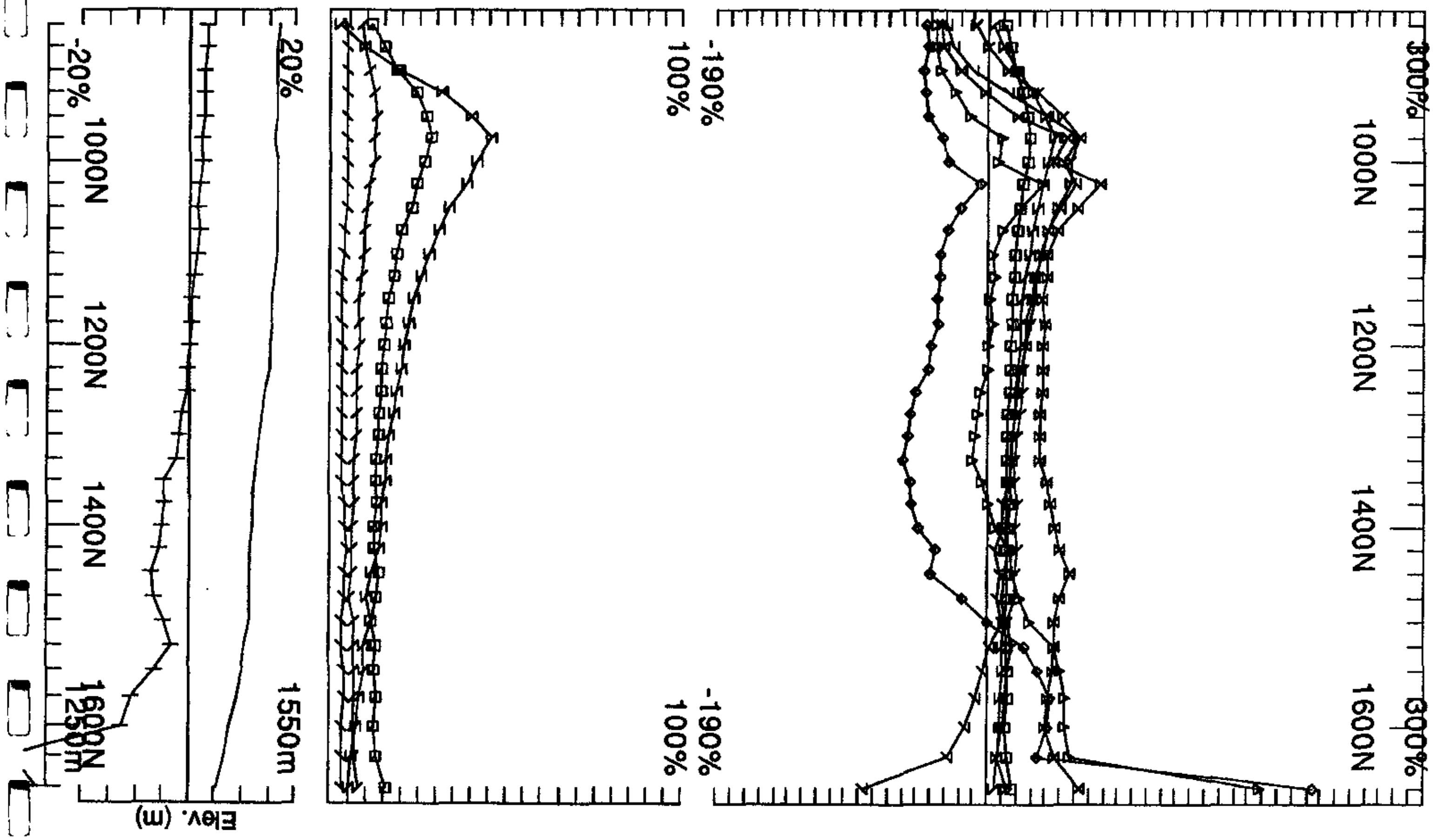
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 400	Point Norm.at stn 875	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 20/6/97 Reduced : 22/6/97 Plotted : 11/9/97



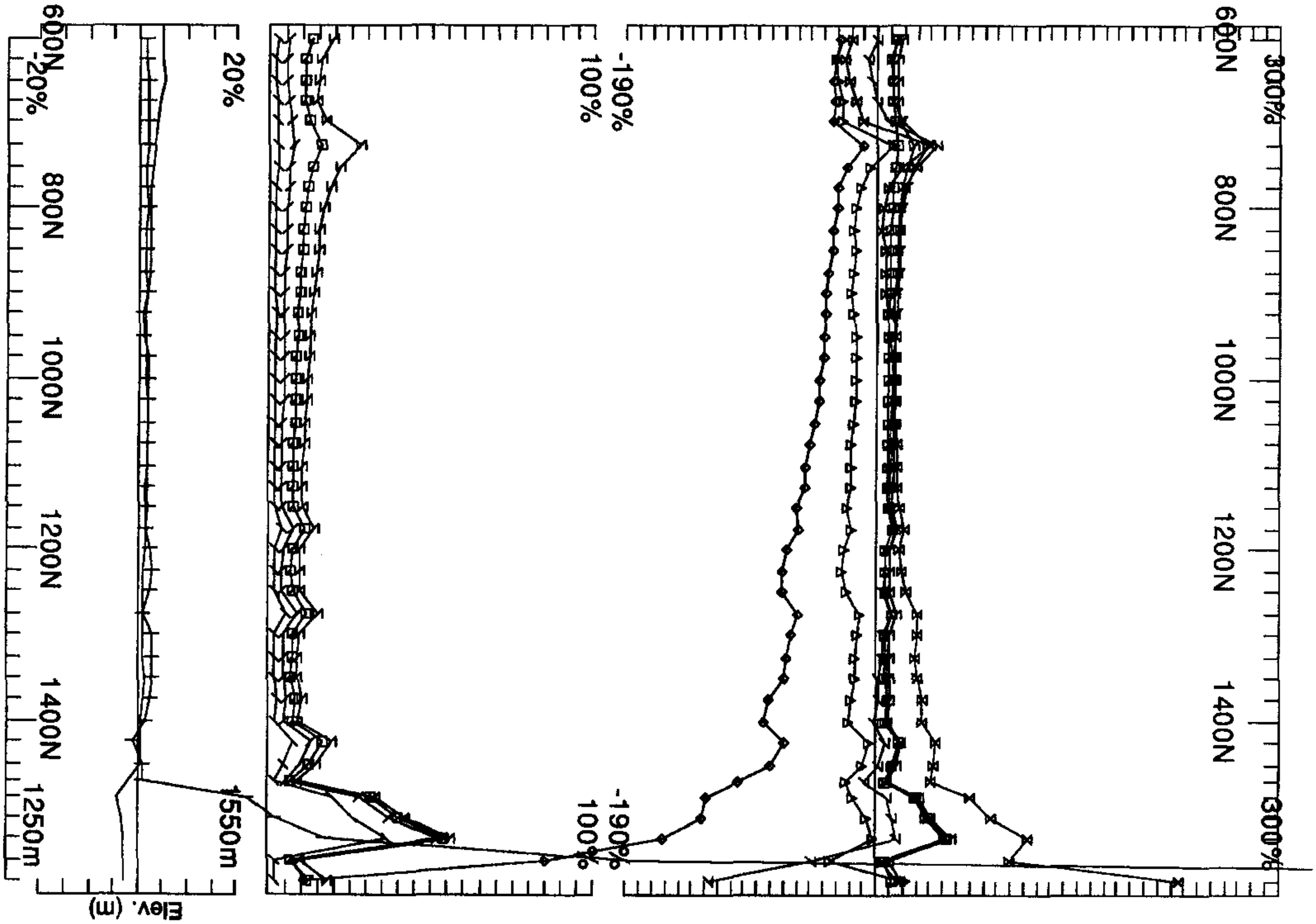
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1200W	Point Norm.at stn 1175	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 22/6/97 Reduced : 22/6/97 Plotted : 11/9/97



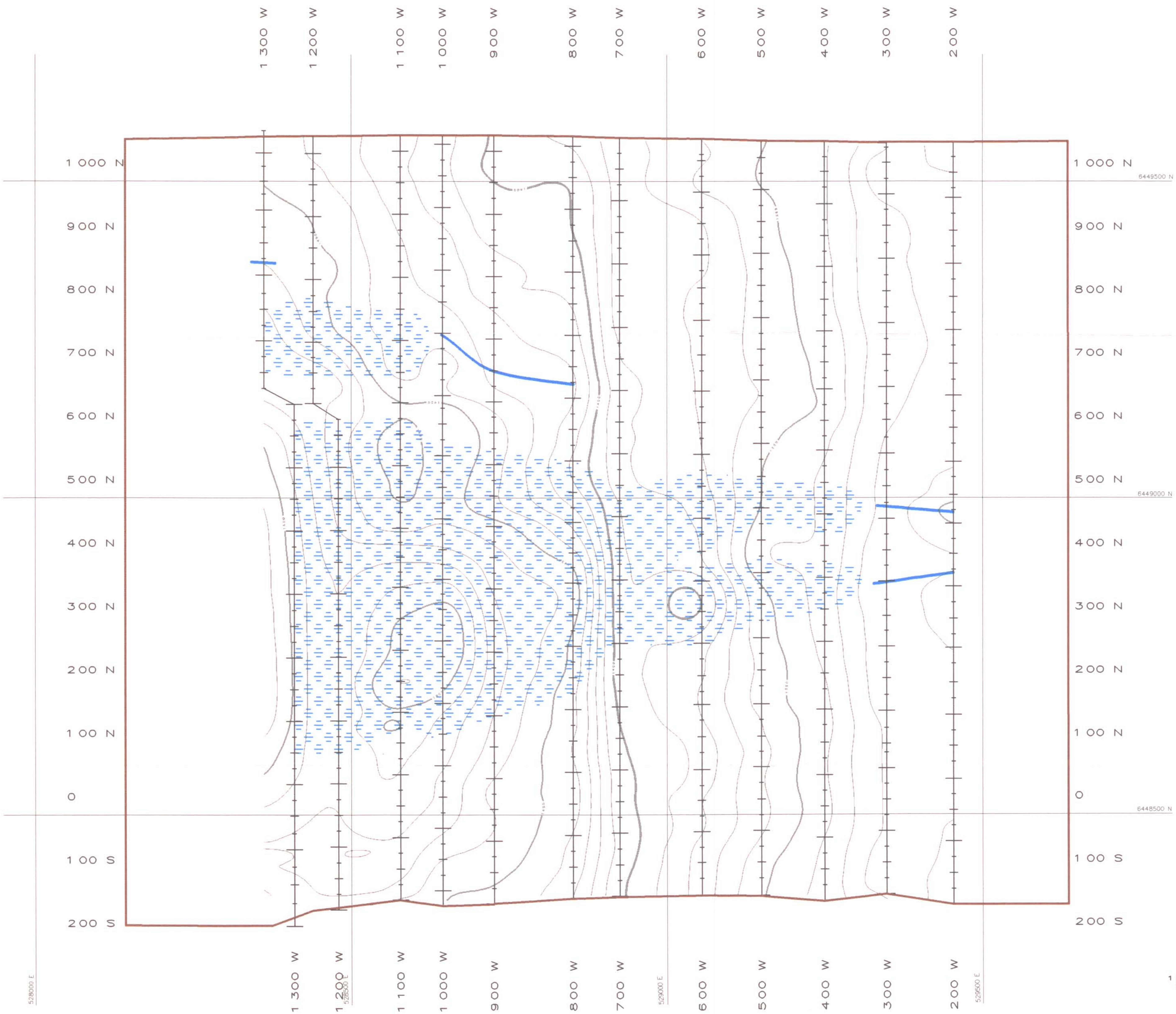
Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1400	Point Norm.at stn 1300	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 21/6/97 Reduced : 22/6/97 Plotted : 11/9/97



Loop: 4 Line: 1600 Compt: Hz	Secondary, (Chn - Ch1)/|Hp| Point Norm.at stn 1325 Base Freq. 30.974 Hz	UTEM Survey at: KUTCHO CREEK For: ATNA RESOURCES LTD. SJ GEOPHYSICS LTD. Job 1 Surveyed : 21/6/97 Reduced : 22/6/97 Plotted : 11/9/97



Loop: 4	Secondary, (Chn - Ch1)/|Hp|	UTEM Survey at: KUTCHO CREEK
Line: 1000	Point Norm.at stn 1250	For: ATNA RESOURCES LTD.
Compt: Hz	Base Freq. 30.974 Hz	SJ GEOPHYSICS LTD. Job 1 Surveyed : 21/6/97 Reduced : 21/6/97 Plotted : 11/9/97



LEGEND

Strong UTEM Response (Argillite)

Good to Weak UTEM Response (Argillite)

Loop 1 Location

Topographic Contours

ATNA RESOURCES LTD.

KUTCHO PROPERTY

WEST GRID

Liard M.D. N.T.S. 104 I/ 1W, 2E

UTEM 3 SURVEY

INTERPRETATION MAP

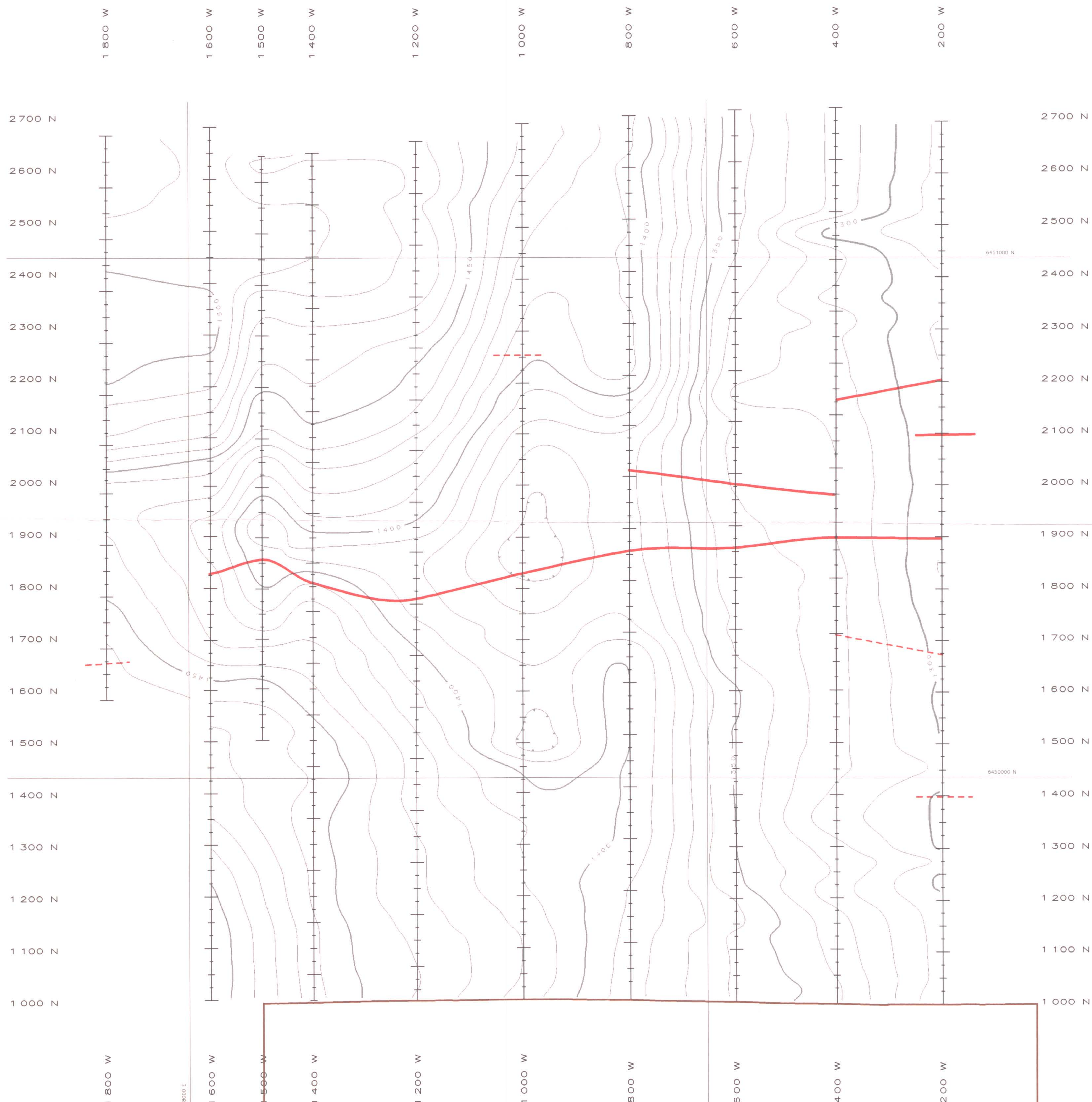
(Loop 1)

Scale in metres

1 00 0 1 00 200 300

June, 1997 Plate G1

SJ Geophysics Ltd.



LEGEND

Good UTEM Response Deep (Channels 2–5)

Weak UTEM Response Shallow (Channels 5–10)

Loop 2 Location

Topographic Contours

ATNA RESOURCES LTD.

KUTCHO PROPERTY

WEST GRID

Liard M.D. N.T.S. 104 I/ 1W, 2E

UTEM 3 SURVEY

INTERPRETATION MAP

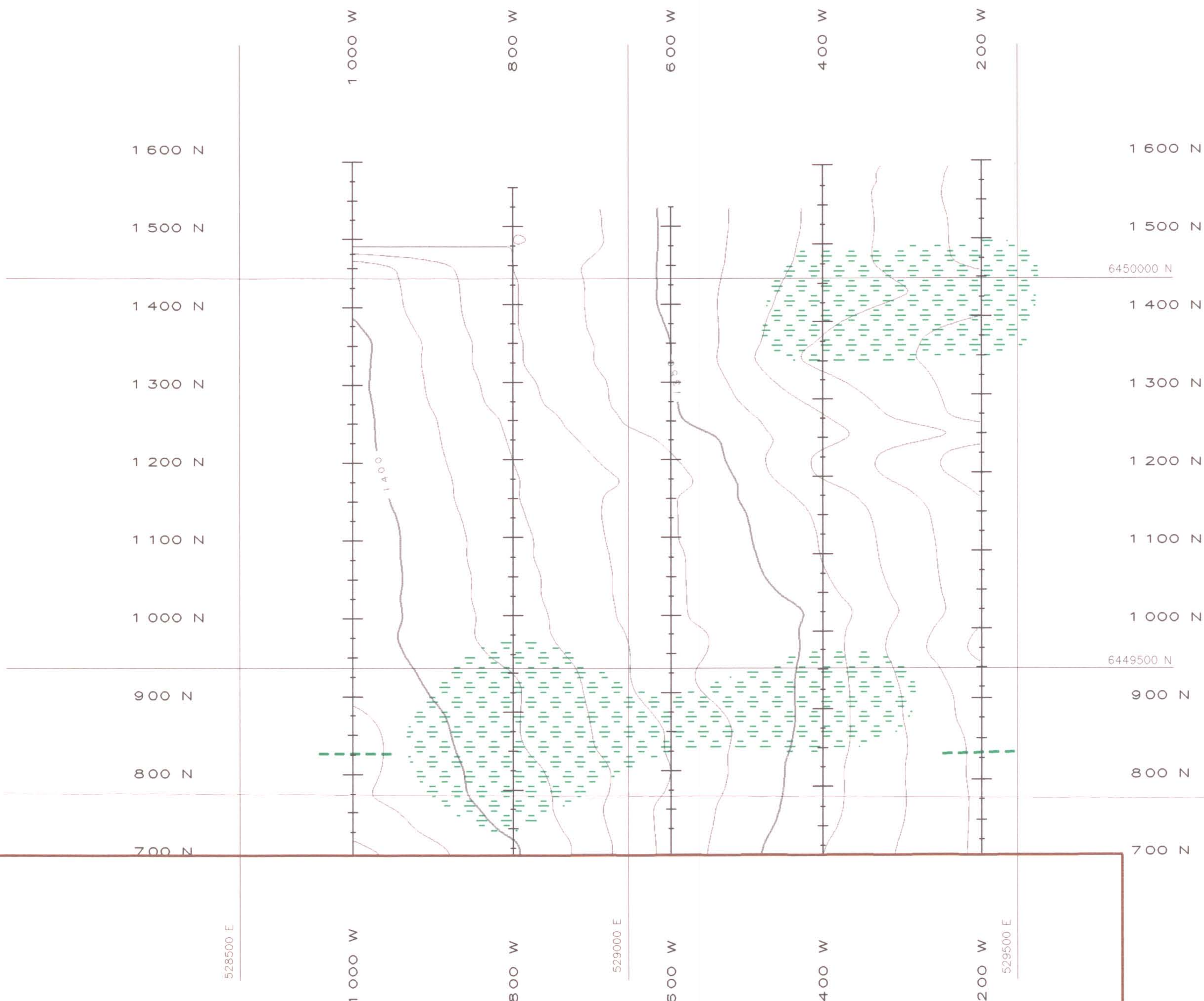
(Loop 2)

Scale in metres

1 00 0 1 00 2 00 3 00

June, 1997 Plate G2

SJ Geophysics Ltd.



ATNA RESOURCES LTD.

KUTCHO PROPERTY

WEST GRID

Liard M.D. N.T.S. 104 I/ 1W, 2E

UTEM 3 SURVEY

INTERPRETATION MAP

(Loop 3)

Scale in metres

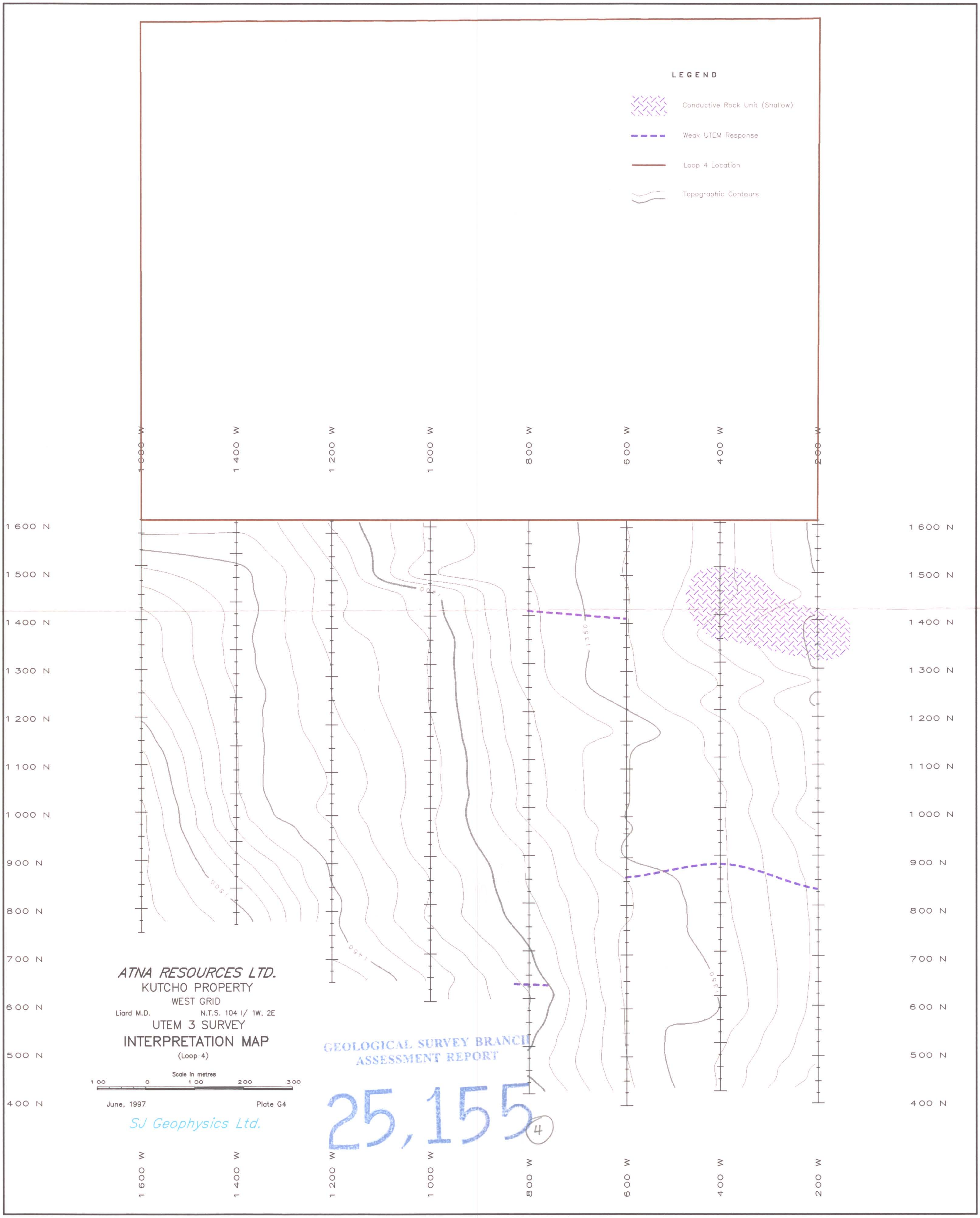
1 00 0 1 00 2 00 3 00

June, 1997 Plate G3

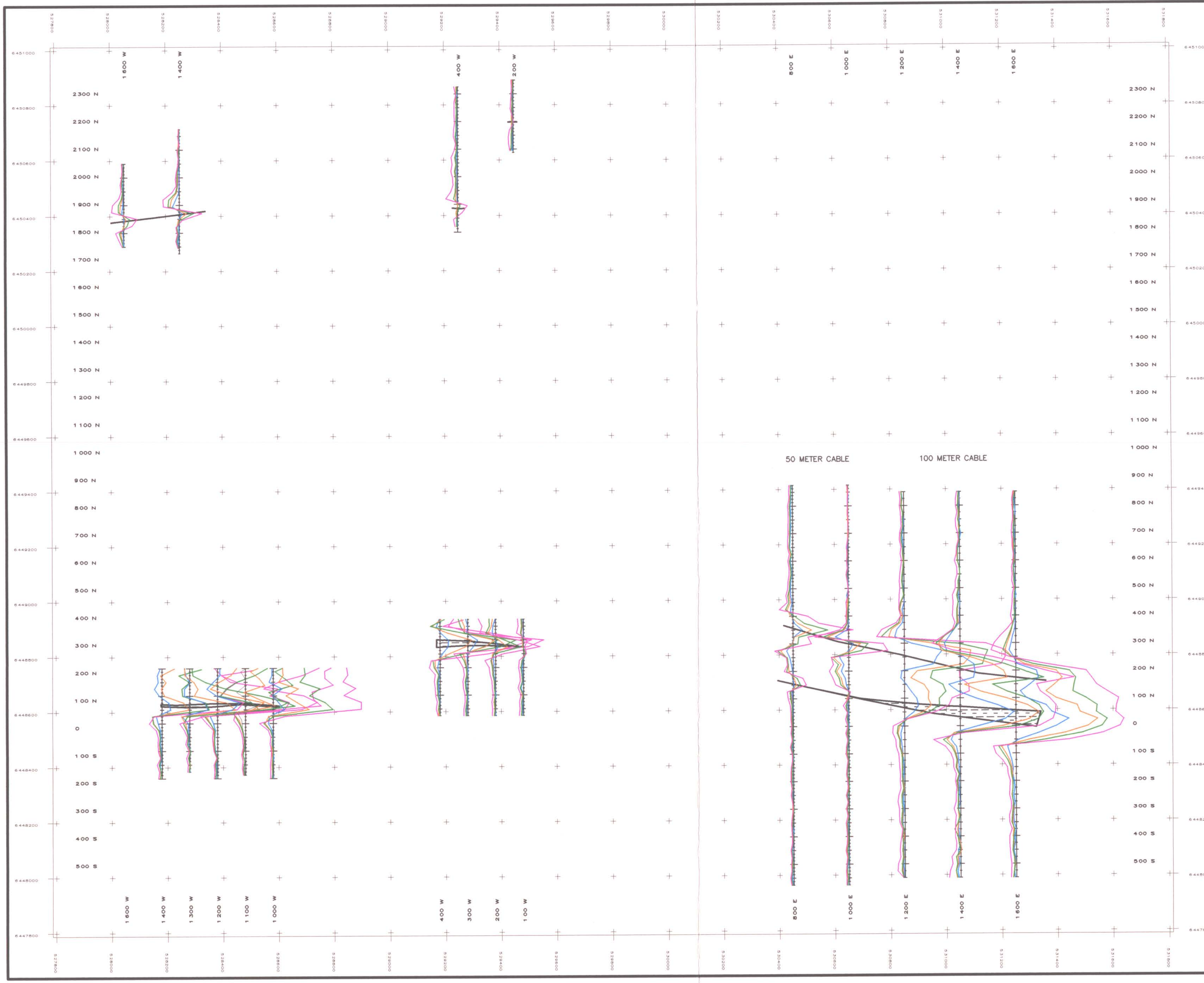
SJ Geophysics Ltd.

LEGEND

- Conductive Rock Unit (Shallow)
- Weak UTEM Response
- Loop 3 Location
- Topographic Contours



LEGEND
Conductive Rock Unit (Shallow)
Weak UTEM Response
Loop 4 Location
Topographic Contours
1 600 W
1 400 W
1 200 W
1 000 W
800 W
600 W
400 W
200 W
1 600 N
1 500 N
1 400 N
1 300 N
1 200 N
1 100 N
1 000 N
900 N
800 N
700 N
600 N
500 N
400 N
1350
1500
1450
ATNA RESOURCES LTD.
KUTCHO PROPERTY
WEST GRID
Liard M.D.
N.T.S. 104 I/ 1W, 2E
UTEM 3 SURVEY
INTERPRETATION MAP
(Loop 4)
Scale in metres
100 0 100 200 300
June, 1997
Plate G4
SJ Geophysics Ltd.
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT
25,155
4



INSTRUMENTATION

MaxMin equipment: MM II S/N 559

Mode: Max1 (Horizontal Coplaner)

Separation: 50m, 100m

Frequencies (Hz): 444,888,1777,3555

LEGEND

+10% 0 -10%

Wide Conductor Axis

Conductor Axis

GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT

25,155 (5)

ATNA RESOURCES LTD.

KUTCHO PROPERTY
BRITISH COLUMBIA

MAX-MIN SURVEY

STACKED PROFILE MAP

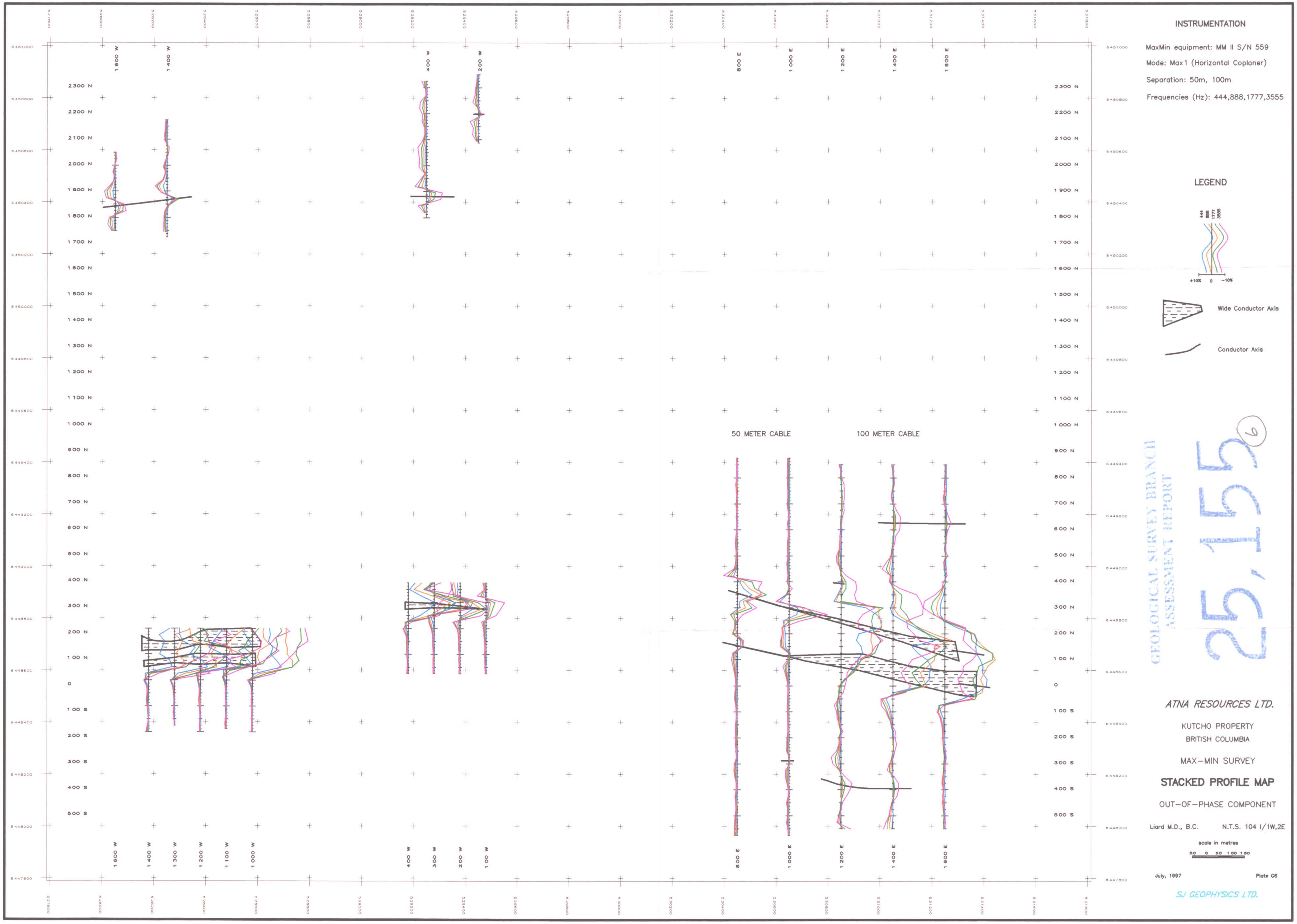
IN-PHASE COMPONENT

Liard M.D., B.C. N.T.S. 104 I/1W,2E

scale in metres
50 0 50 100 150

July, 1997 Plate G5

SJ GEOPHYSICS LTD.


INSTRUMENTATION
MaxMin equipment: MM II S/N 559
Mode: Max1 (Horizontal Coplaner)
Separation: 50m, 100m
Frequencies (Hz): 444,888,1777,3555
LEGEND
Wide Conductor Axis
Conductor Axis
50 METER CABLE
100 METER CABLE
GEOLOGICAL SURVEY BRANCH
ASSESSMENT REPORT
25,155
ATNA RESOURCES LTD.
KUTCHO PROPERTY
BRITISH COLUMBIA
MAX-MIN SURVEY
STACKED PROFILE MAP
OUT-OF-PHASE COMPONENT
Liard M.D., B.C.
N.T.S. 104 I/1W,2E
scale in metres
July, 1997
Plate G6
SJ GEOPHYSICS LTD.