VORTEX GEOPHYSICS

ACN : 111 063 828 ABN: 46 681 307 987

- **Electrical Geophysical Surveys**
- **Processing and Interpretation**

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MEMORANDUM

To: Paul McMillen
From: Allan Perry
Subject: Comparison of previous DHEM Modeling with the MLEM response for line 7469450N
Date: 17th July 2012
CC:

Introduction

The aim of this exercise is to compare the results of thin plates modeled from previous down hole electromagnetic (DHEM) data to recent moving loop electromagnetic (MLEM) data. The DHEM data was collected in November 2011 from 6 drill holes using two separate transmitter loops (Perry, 2012). The MLEM data was collected in June 2012 using a fluxgate sensor located in the centre of a 100m x 100m transmitter loop.

For this exercise the plates modeled from the DHEM data using loop 1 have been imported into a model project for the MLEM data. The plates have then been forward modeled without any adjustment to compare how they fit against the MLEM data.

Results

Figure 2 shows the modeled verses field MLEM response for the DHEM plates after importing and forward modeling. The comparison is for late time EM channels 30-43 (53-882ms). The fit between the field and model data is quite good with the same polarities and profile shape with similar amplitudes. This would indicate that the plates modeled from the DHEM response completely explain the late time response for the MLEM data. Note that it would not be possible to resolve the 6 plates modeled from the DHEM data using only the MLEM data.

Figure 3 shows the same data and model but compares the model and field MLEM data for mid time EM channels 25-35 (18-156ms). It can be seen that the fit between the model and field data is not good and an additional moderately conductive response is apparent in the MLEM data.

Figure 4 shows the same data with the addition of Plate 7 (Yellow); this produces a good fit between the model and MLEM data in EM channels 25-35 (18-156ms). Plate 7 has dimensions of about 200m x 700m and a fairly low conductivity-thickness product of about 900S. This would indicate that there is a weak conductor located around the stronger conductors previously modeled using the DHEM data and this plate may represent less conductive mineralization. Figure 1 and Table 1 show the location and parameters of the 7 plates used to generate this model. Note that variations in the location and dimensions can be made to Plate 7 without affecting the model fit all that much; it is likely that the true conductor is more complex in shape than the simple thin plate used in the modeling.

	Plate 1 Red	Plate 2 Orange	Plate 3 Light Green	Plate 4 Purple	Plate 5 Dark Green	Plate 6 Brown	Plate 7 Yellow
Easting	468930mE	468936mE	468996mE	469086mE	468965mE	468868mE	469141mE
Northing	7469375mN	7469322mN	7469473mN	7469582mN	7469470mN	7469423mN	7469450mN
RL	330m	329m	261m	209m	278m	255m	311m
Dip	49.0°	70.4°	18.0°	24.7°	31.4°	70.5°	24.8°
Dip Direction	285.5°	297.6°	352.7°	303.0°	-29.5°	317.4°	272.4°
Rotation	17.3°	-0.8°	32.7°	32.8°	-82.1°	-22.9°	0.0°
Strike Length	62m	78m	53m	58m	80m	162m	200m
Depth Extent	176m	202m	328m	222m	29m	193m	700m
CTP	8256S	5339S	8303S	6479S	12499S	3485S	882S

Table 1: Summary of modeled plates. Plates 1-6 are from previous DHEM Loop 1 modeling.

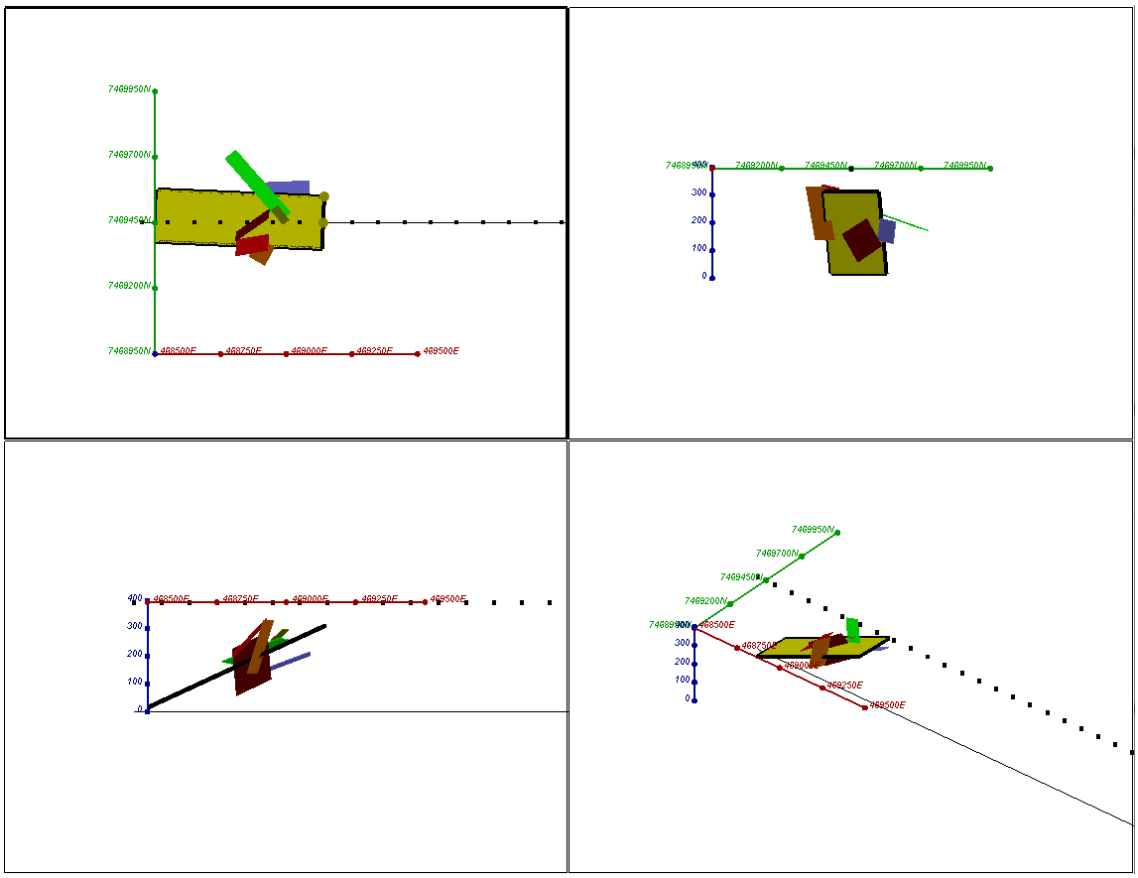
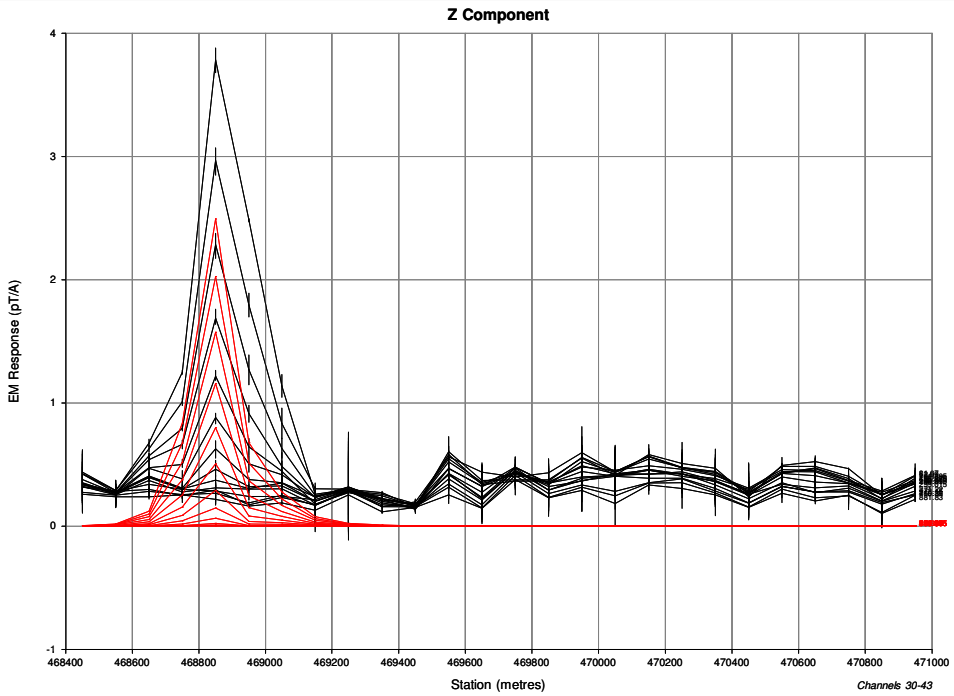
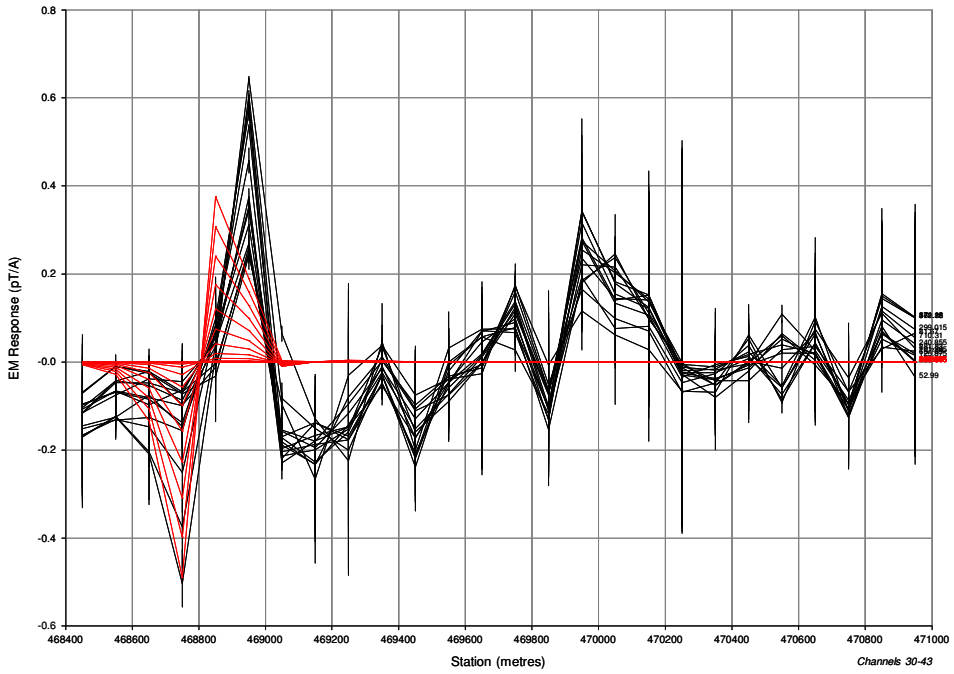


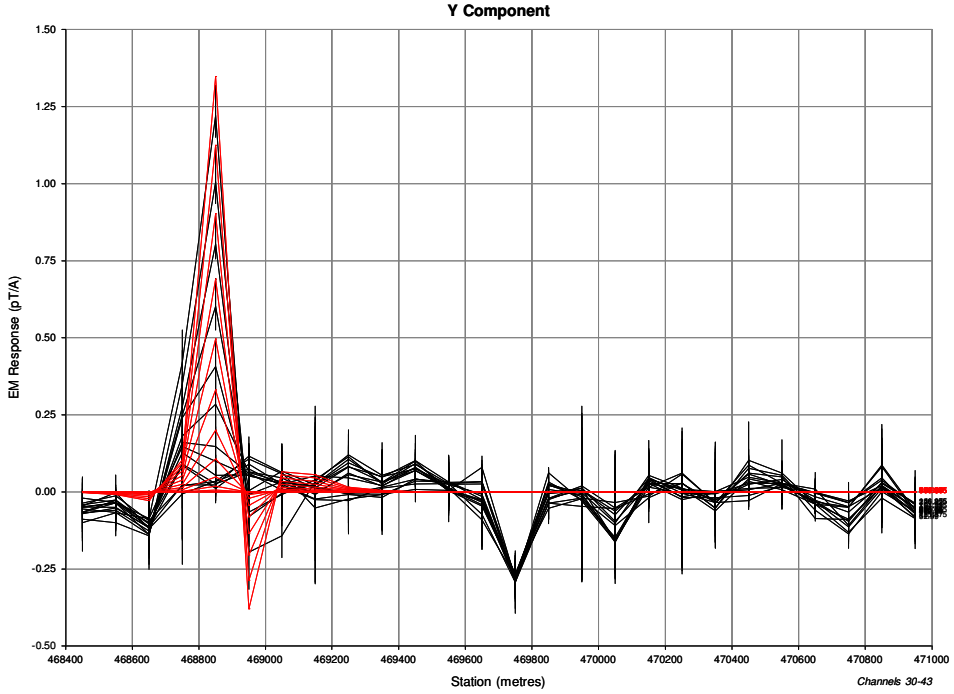
Figure 1: Location of model plates. Clockwise from top left the views are: Plan view, View looking towards the west, View looking towards the north and View from above looking towards the north-west.

References

Perry, A. (2012). Beadell DHEM Survey Data Modelling, Vortex Geophysics for Rumble Resources.







WINDOW TIMES (ms): Start End
From the start of the Ramp

1	0.6900, 0.7100	24	13.26, 16.88
2	0.7100, 0.7400	25	16.32, 20.81
3	0.7300, 0.7700	26	20.12, 25.70
4	0.7700, 0.8200	27	24.83, 31.76
5	0.8100, 0.8700	28	30.68, 39.28
6	0.8600, 0.9300	29	37.95, 48.62
7	0.9200, 1.0100	30	46.97, 60.21
8	1.000, 1.110	31	58.16, 74.61
9	1.090, 1.230	32	72.06, 92.48
10	1.210, 1.390	33	89.3, 114.7
11	1.360, 1.580	34	110.7, 142.2
12	1.540, 1.810	35	137.3, 176.4
13	1.770, 2.110	36	170.4, 218.9
14	2.060, 2.470	37	211.3, 271.6
15	2.410, 2.920	38	262.2, 337.0
16	2.840, 3.490	39	325.4, 418.2
17	3.390, 4.180	40	403.8, 519.1
18	4.060, 5.050	41	501.2, 644.3
19	4.890, 6.120	42	622.1, 799.7
20	5.930, 7.450	43	772.2, 992.7
21	7.220, 9.110	44	959, 1232
22	8.820, 11.160	45	1190, 1530
23	10.80, 13.72	46	1477, 1899

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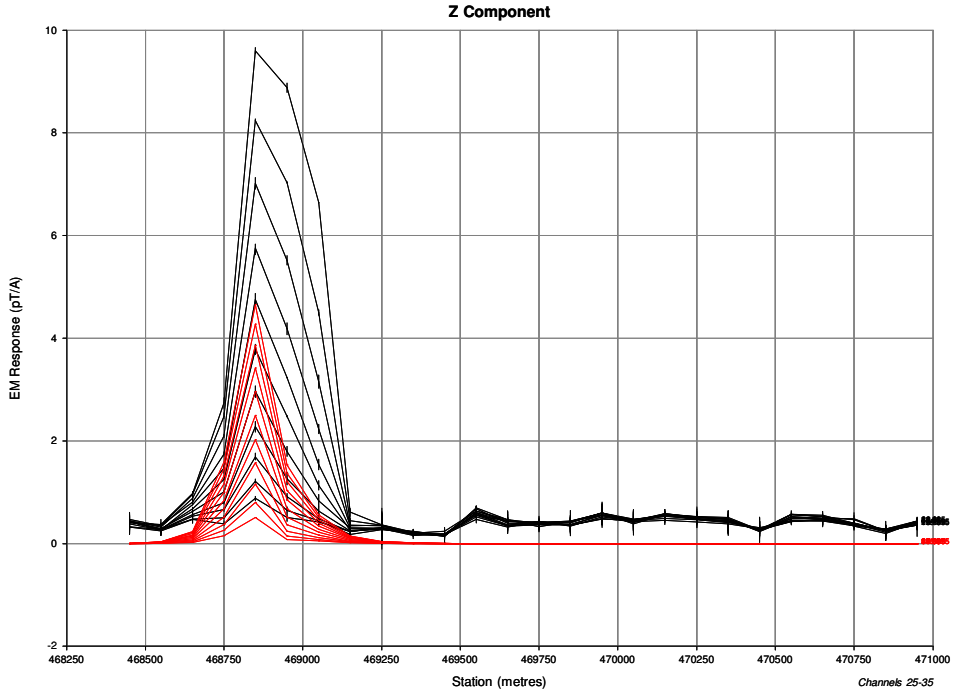
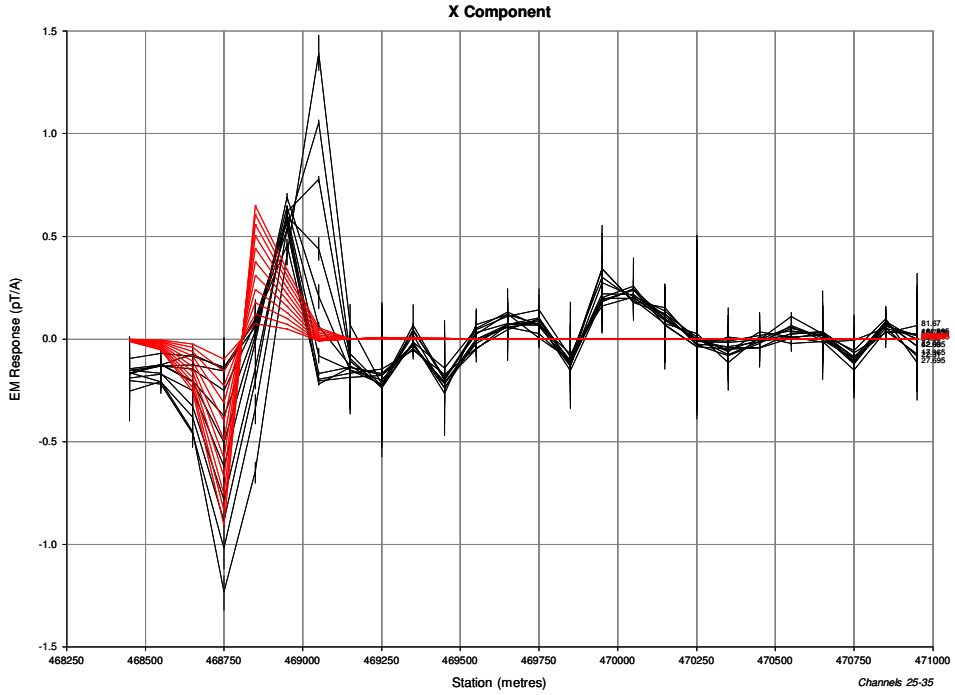
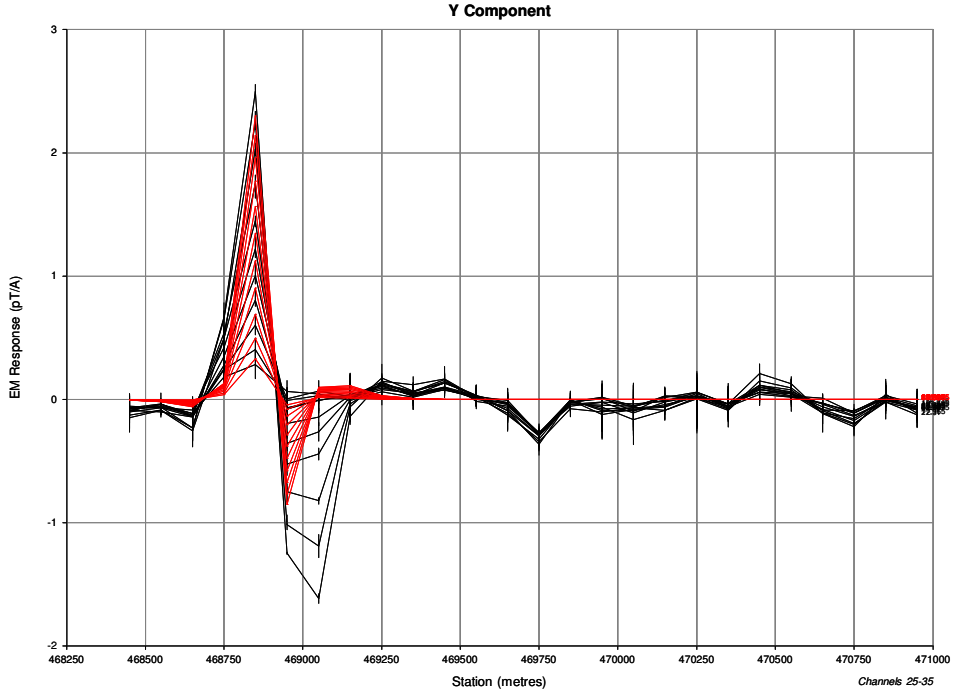
Beadell Prospect
In-Loop EM Survey
DHEM Multiple Plate Responses
Field (Black) and Modelled (Red)
CHANNELS 30-43 (53-882ms)

Drawn :
Figure : 2
Client : Rumble Resources







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4	0.7700, 0.8200	27	24.83, 31.76
5	0.8100, 0.8700	28	30.68, 39.28
6	0.8600, 0.9300	29	37.95, 48.62
7	0.9200, 1.0100	30	46.97, 60.21
8	1.000, 1.110	31	58.16, 74.61
9	1.090, 1.230	32	72.06, 92.48
10	1.210, 1.390	33	89.3, 114.7
11	1.360, 1.580	34	110.7, 142.2
12	1.540, 1.810	35	137.3, 176.4
13	1.770, 2.110	36	170.4, 218.9
14	2.060, 2.470	37	211.3, 271.6
15	2.410, 2.920	38	262.2, 337.0
16	2.840, 3.490	39	325.4, 418.2
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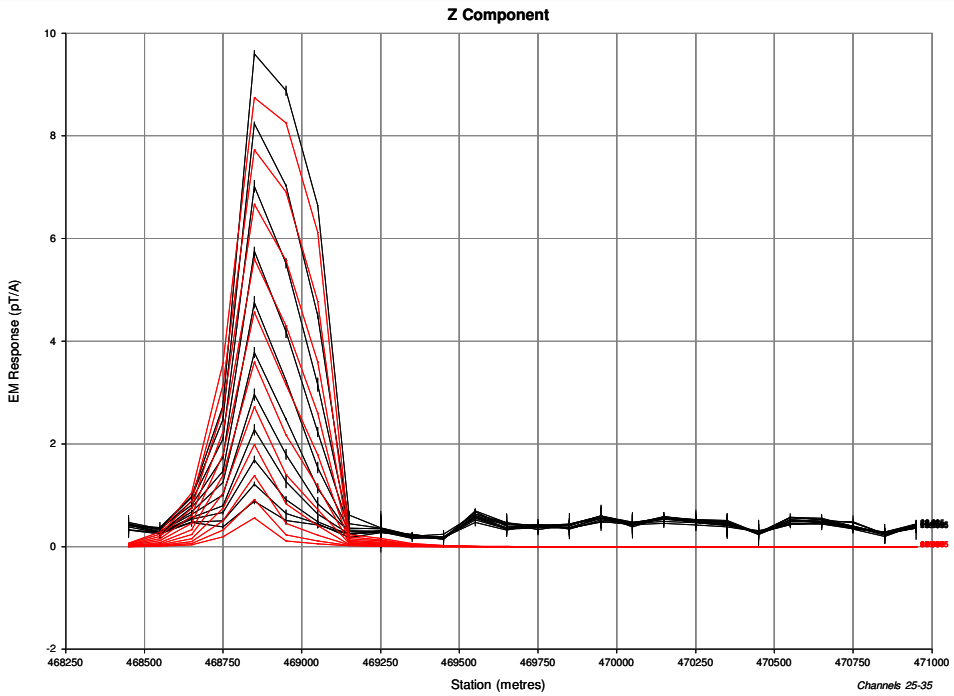
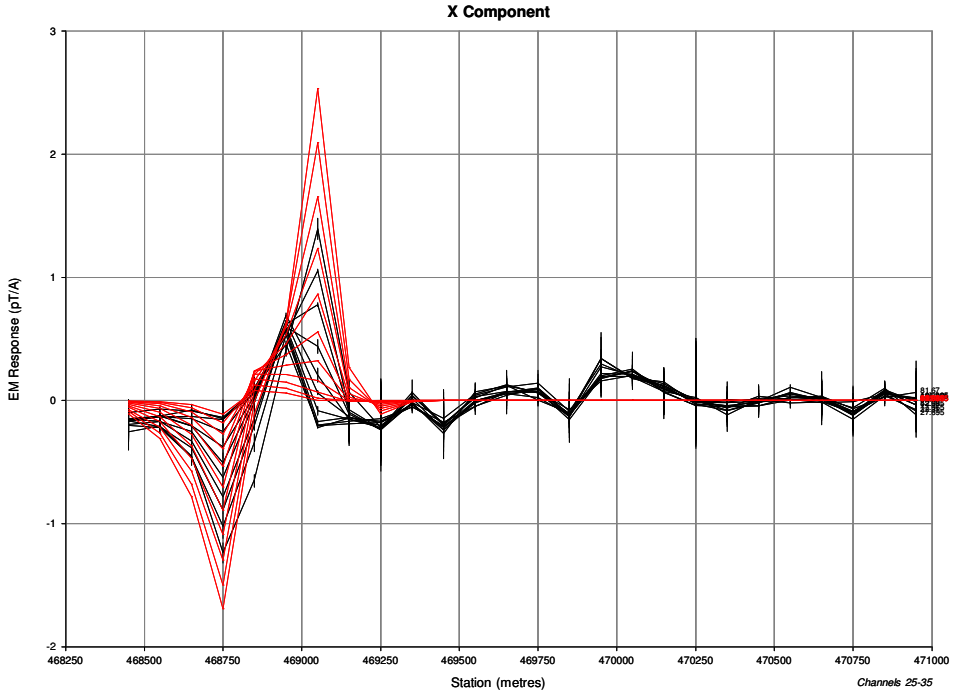
In-Loop EM Survey
DHEM Multiple Plate Responses
Field (Black) and Modelled (Red)
CHANNELS 25-35 (18-156ms)

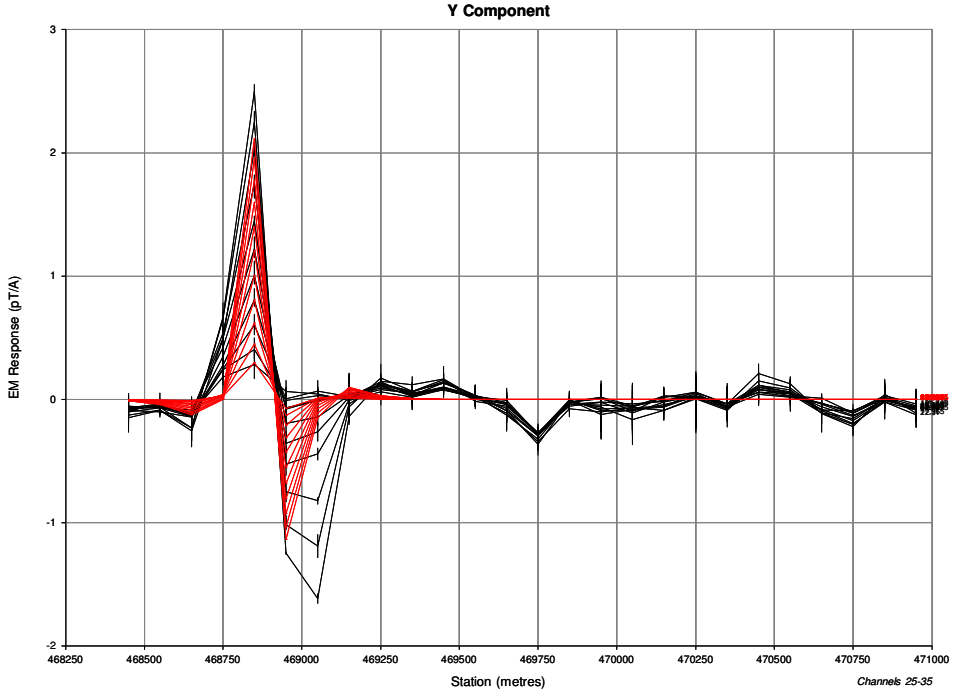
Drawn :

Figure : 3

Client : Rumble Resources







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CHANNELS 25-35 (18-156ms)

Drawn : | Figure : 4

Client : Rumble Resources