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EXPLORATION GEOPHYSICS

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vch11.doc

15 July 2006

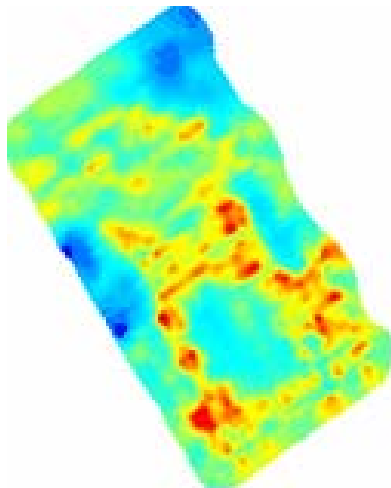
No: 11

## CASE HISTORY

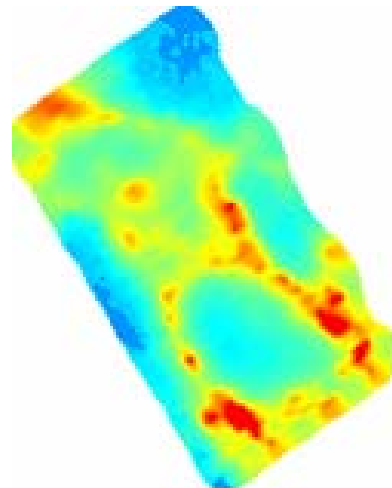
**Subject: TargetTEM™ – Greenstone belt (HOISTEM)**

**Dingo Range nickel and gold field, Yilgarn Craton, Western Australia**

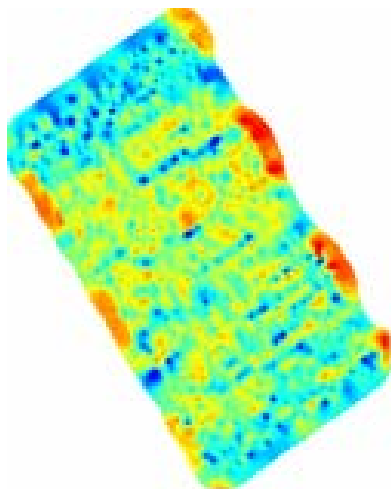
HOISTEM survey (flown 2004) with survey lines oriented 055-235 degrees and spaced 100 metres apart over an Archaean greenstone belt comprising greenschist to upper amphibolite grade mafic-ultramafic rocks with intercalated felsic sediments and volcanics. The area hosts several gold and nickel sulphide prospects. Area is 2.5kms x 4.5kms, north to top of page. Data shown are the HOISTEM dB/dt vertical (Z) component, 21 channels. See Vector Research Technical Note No. 9 for details of TargetTEM™.



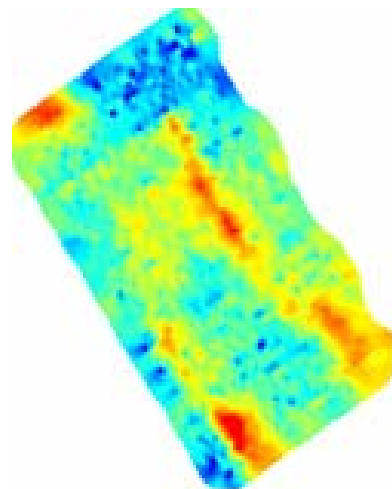
HOISTEM channel 3



HOISTEM channel 8



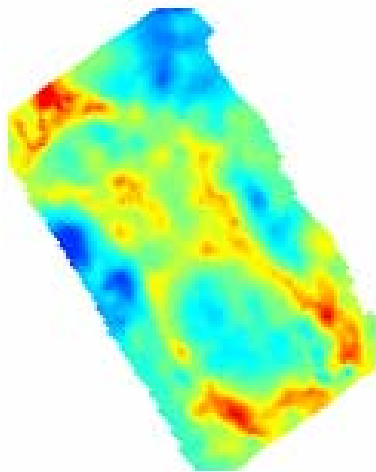
HOISTEM channel 19



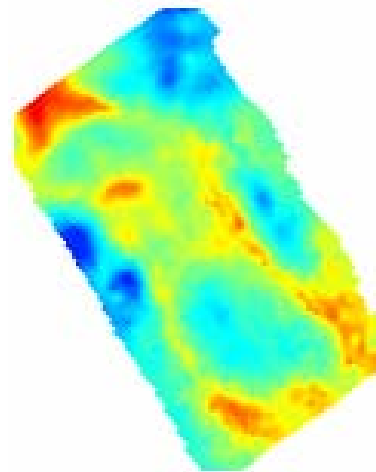
HOISTEM channel 13

Compare these raw channel images with the detail resolved in the TargetTEM™ SPATIAL and TEMPORAL responses.

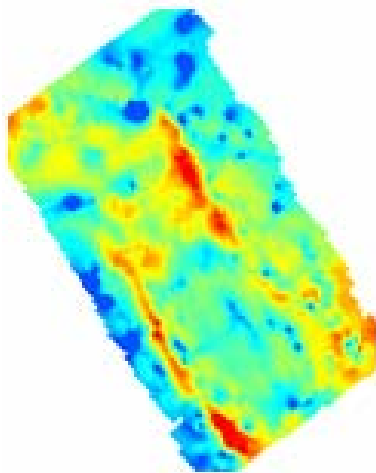
Dingo Range nickel and gold field, Yilgarn Craton, Western Australia (continued).



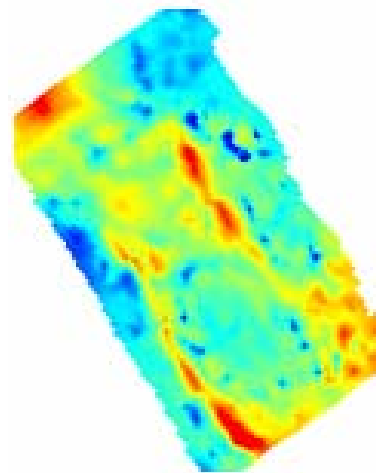
Calculated conductivity at 35 m depth



Calculated conductivity at 50 m depth



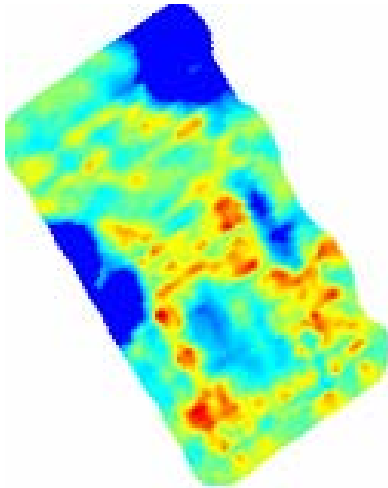
Calculated conductivity at 150 m depth



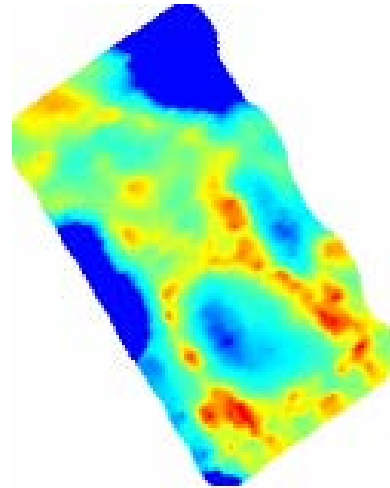
Calculated conductivity at 100 m depth

These conductivity-depth images were calculated from the HOISTEM data using a conductivity-depth imaging algorithm and attempt to show the conductivity at particular depths. They show the large electrical contrasts of the prominent geological features, but lack important detail necessary for drill-targeting. Compare these with the detail resolved in the TargetTEM™ SPATIAL and TEMPORAL responses.

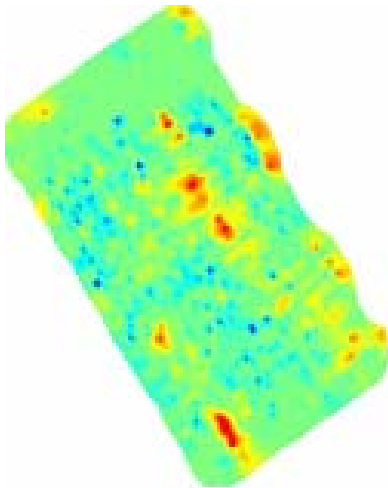
Dingo Range nickel and gold field, Yilgarn Craton, Western Australia (continued).



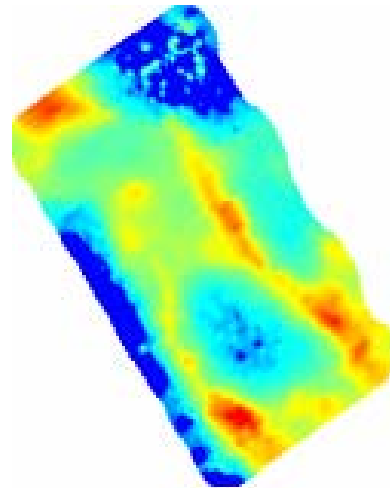
TargetTEM™ early-time SPATIAL response



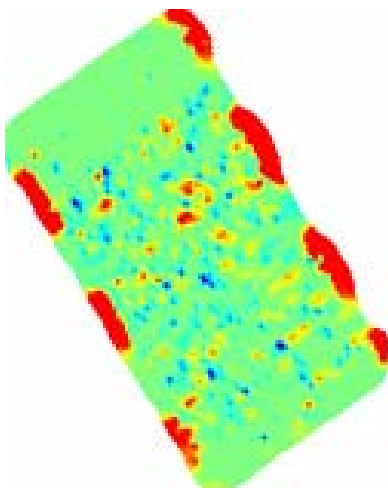
TargetTEM™ mid1-time SPATIAL response



TargetTEM™ mid3-time SPATIAL response



TargetTEM™ mid2-time SPATIAL response

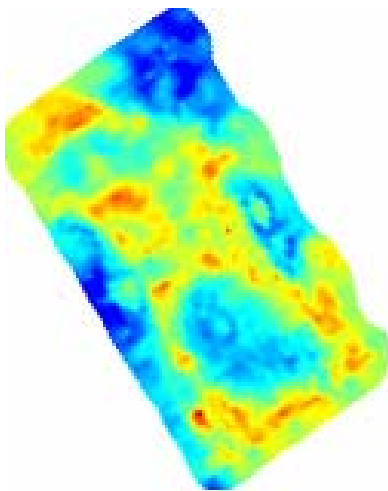


TargetTEM™ late-time SPATIAL response

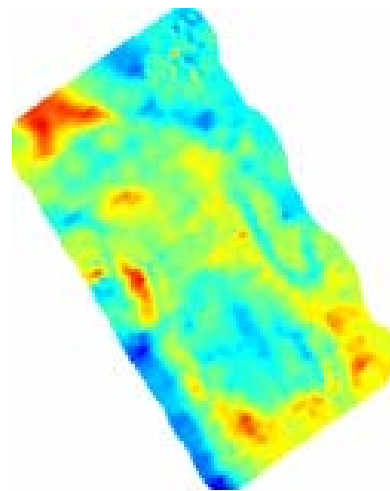
TargetTEM™ SPATIAL responses for each channel are calculated from the measured response. The background response for each channel, which includes the response of the host rocks and any conductive overburden present, is removed to reveal changes in the response along the survey lines. The depth, size and orientation of conductors strongly affect the amplitude of the measured responses. Early times depict the electrical response of shallow depths whilst later times depict deeper regions. Poor conductors are resolved at early times whilst the response of good conductors extends to later times.

Note the significant improvement in resolution of detail compared to the conductivity-depth images. The SPATIAL responses also resolve the affects of variations in survey height. Areas producing stronger responses than the background are shown in red whilst those producing weaker responses than the background are shown in blue.

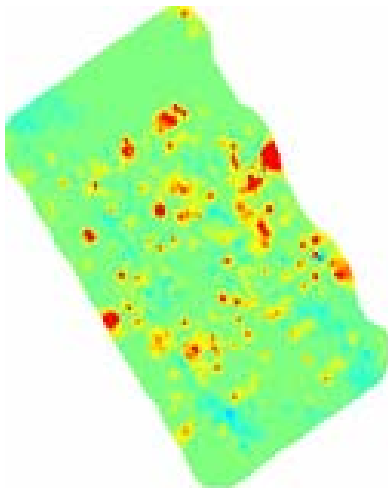
Dingo Range nickel and gold field, Yilgarn Craton, Western Australia (continued).



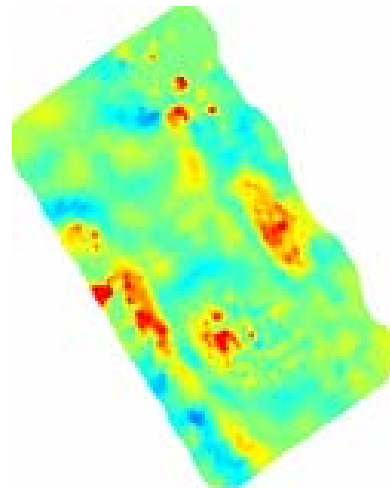
TargetTEM™ early-time TEMPORAL response



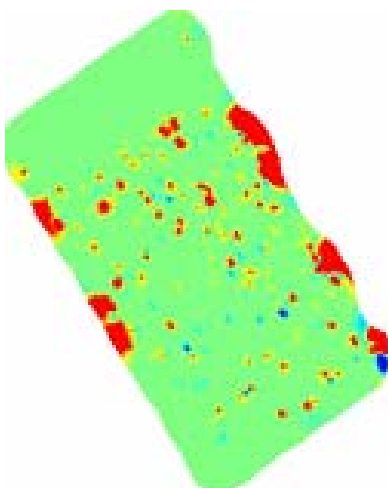
TargetTEM™ mid1-time TEMPORAL response



TargetTEM™ mid3-time TEMPORAL response



TargetTEM™ mid2-time TEMPORAL response



TargetTEM™ late-time TEMPORAL response

TargetTEM™ TEMPORAL responses for each channel are calculated from the time-varying transient decay. The background transient decay for each channel, which includes the response of the host rocks and any conductive overburden present, is removed to reveal changes in the decay along the survey lines. Early times depict the electrical response of shallow depths whilst later times depict deeper regions. Poor conductors are resolved at early times (they exhibit fast decays, ie short decay times) whilst the response of good conductors extends to later times (they exhibit slow decays, ie long decay times).

Note the significant improvement in resolution of detail compared to the conductivity-depth images. The TEMPORAL responses are relatively immune to the affects of variations in survey height and are therefore more reliable than the SPATIAL responses for exploration targeting. Areas having higher conductivity than the background are shown in red whilst those with lower conductivity than the background are shown in blue.

A number of known conductive massive-pyrite bodies and nickel sulphide occurrences are resolved in these images which are either not apparent or not clear in the conductivity-depth images.