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EXPLORATION GEOPHYSICS

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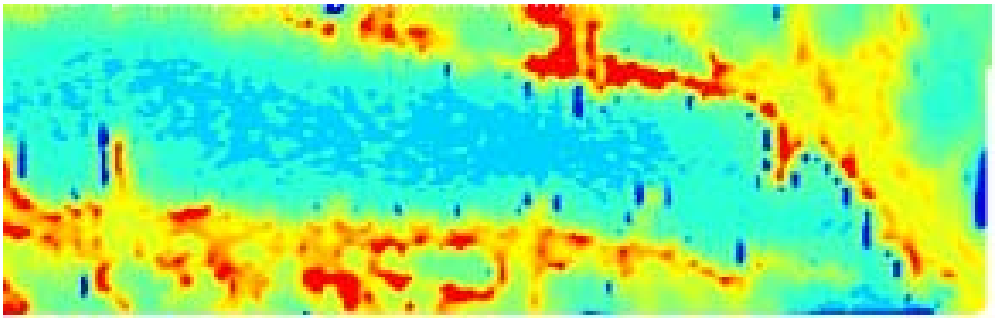
17 July 2006 No: 14

CASE HISTORY

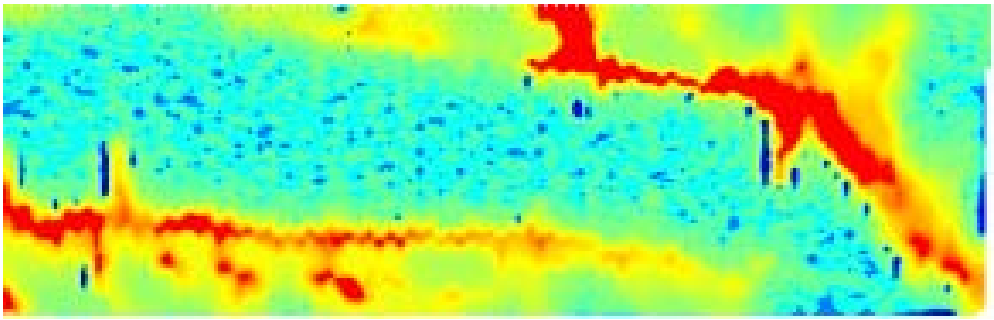
Subject: TargetTEM™ – Greenstone belt (GEOTEM)

WEST MUSGRAVE BLOCK, Western Australia

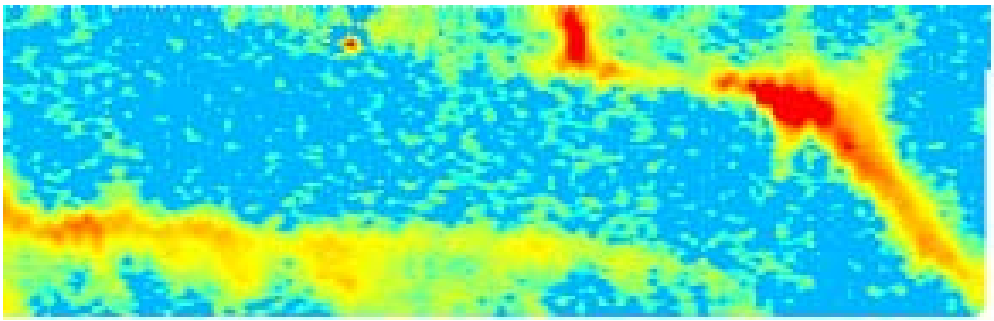
GEOTEM survey (flown 2003) with survey lines oriented 0-180 degrees and spaced 300 metres apart over a Proterozoic greenstone belt comprising a series of steeply dipping fractionated troctolitic rocks with narrow stratabound magnetite and ilmenite bands. The area hosts several gold and nickel sulphide prospects. Area is 29kms x 9kms, north to top of page. Data shown are the GEOTEM dB/dt vertical (Z) and horizontal along-line (X) component, 20 channels. See Vector Research Technical Note No. 9 for details of TargetTEM™.



GEOTEM channel 6



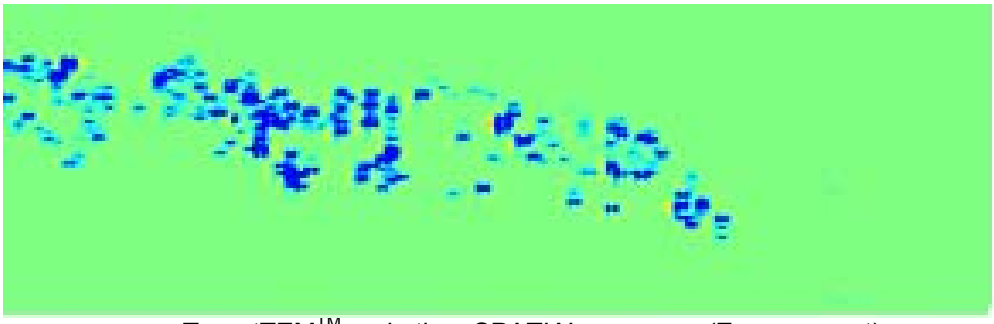
GEOTEM channel 12



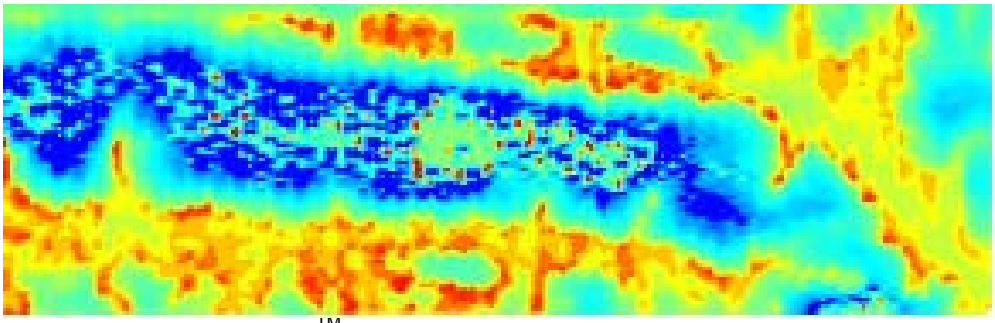
GEOTEM channel 18

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

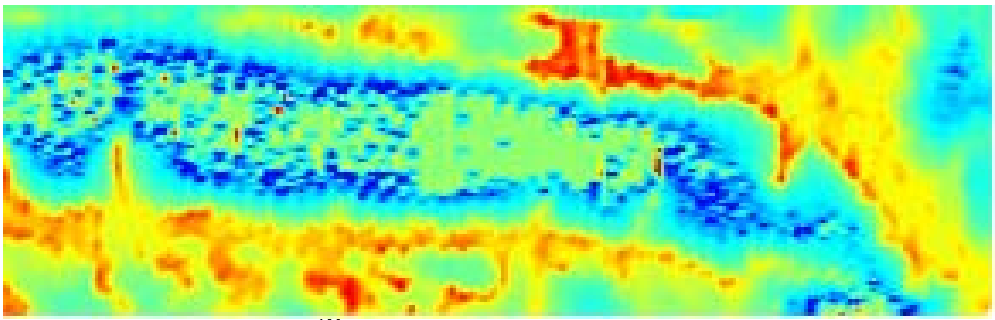
West Musgrave Block, Western Australia (continued).



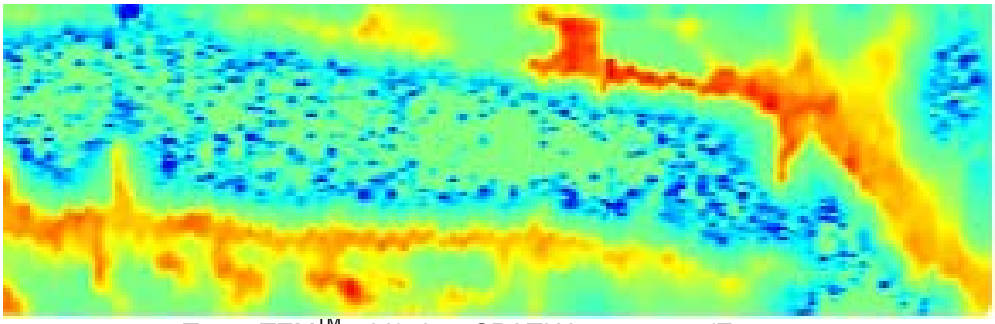
TargetTEM^{IM} early-time SPATIAL response (Z component)



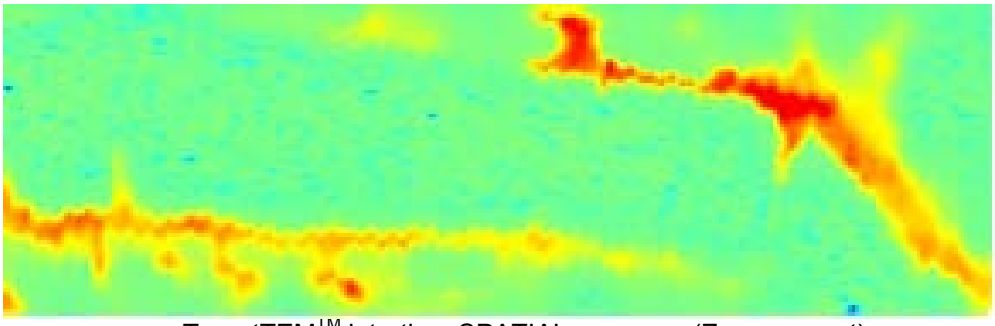
TargetTEM^{IM} mid1-time SPATIAL response (Z component)



TargetTEM^{IM} mid2-time SPATIAL response (Z component)



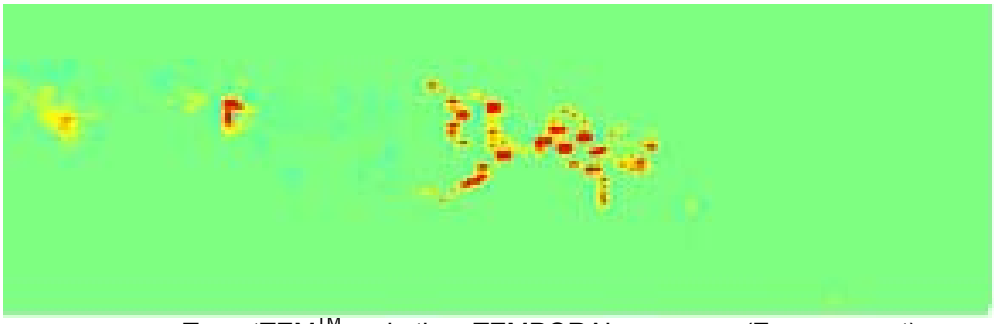
TargetTEM^{IM} mid3-time SPATIAL response (Z component



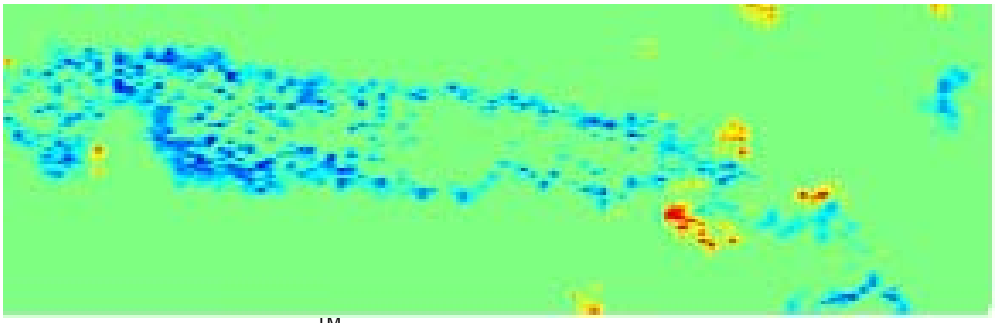
TargetTEM^{IM} late-time SPATIAL response (Z component)

An explanation of these images is given on page 4.

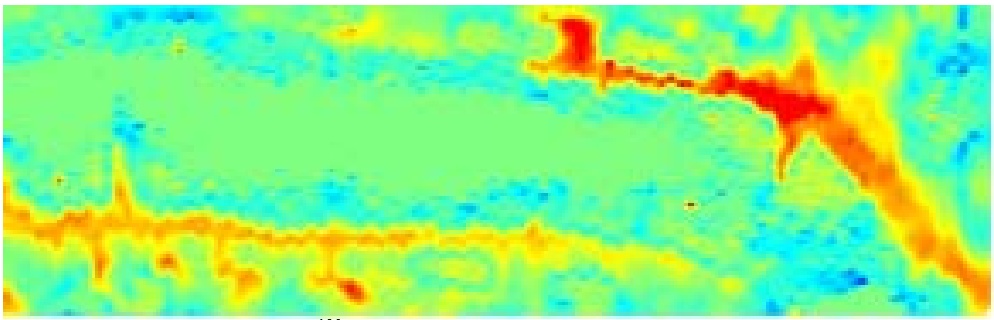
West Musgrave Block, Western Australia (continued).



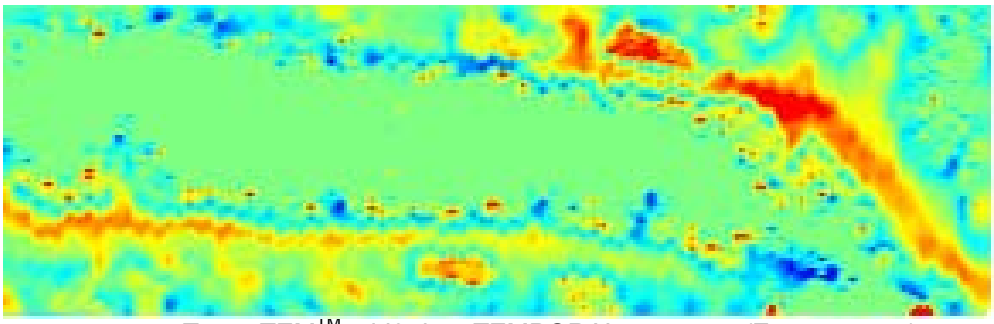
TargetTEM^{IM} early-time TEMPORAL response (Z component)



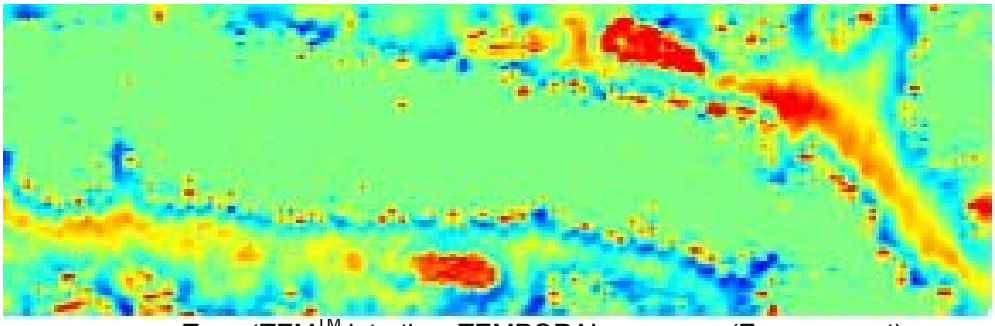
TargetTEM^{IM} mid1-time TEMPORAL response (Z component)



TargetTEM^{IM} mid2-time TEMPORAL response (Z component)



TargetTEM^{IM} mid3-time TEMPORAL response (Z component)



TargetTEM^{IM} late-time TEMPORAL response (Z component)

An explanation of these images is given on page 4.

SPATIAL responses - Z component

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 raw channel 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.

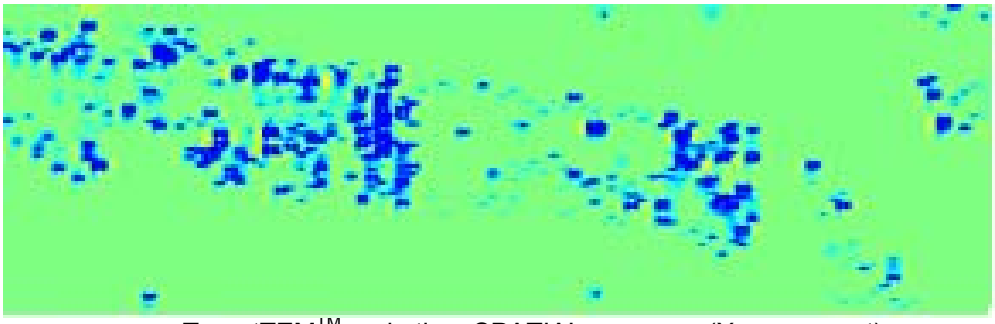
TEMPORAL responses - Z component

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, i.e. short decay times) whilst the response of good conductors extends to later times (they exhibit slow decays, i.e. long decay times).

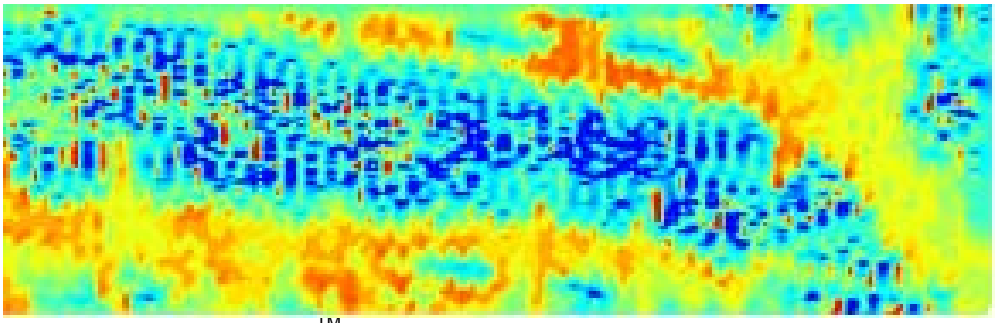
Note the significant improvement in resolution of detail compared to the raw channels. The TEMPORAL responses are relatively immune to the affects of variations in survey height and are therefore more reliable than the SPATIAL responses for exploration targeting Areas having higher conductivity than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

A number of conductive targets are resolved in these images which are either not apparent or not clear in the raw channel images.

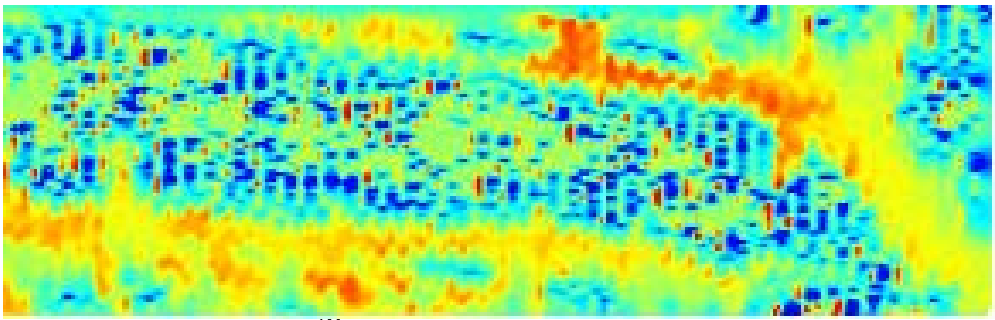
West Musgrave Block, Western Australia (continued).



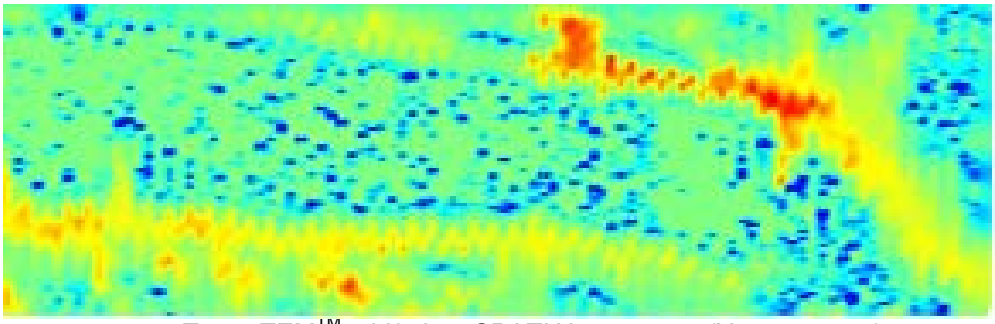
TargetTEM™ early-time SPATIAL response (X component)



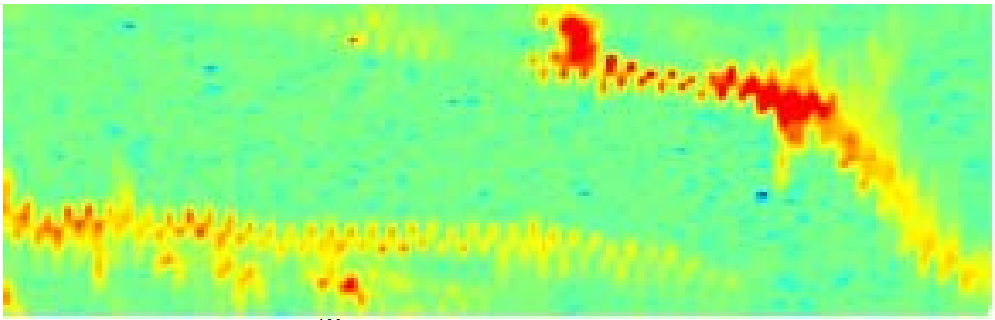
TargetTEM™ mid1-time SPATIAL response (X component)



TargetTEM™ mid2-time SPATIAL response (X component)



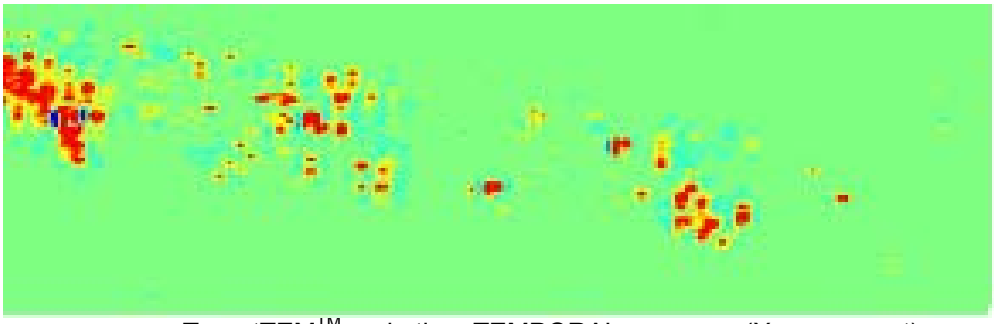
TargetTEM™ mid3-time SPATIAL response (X component)



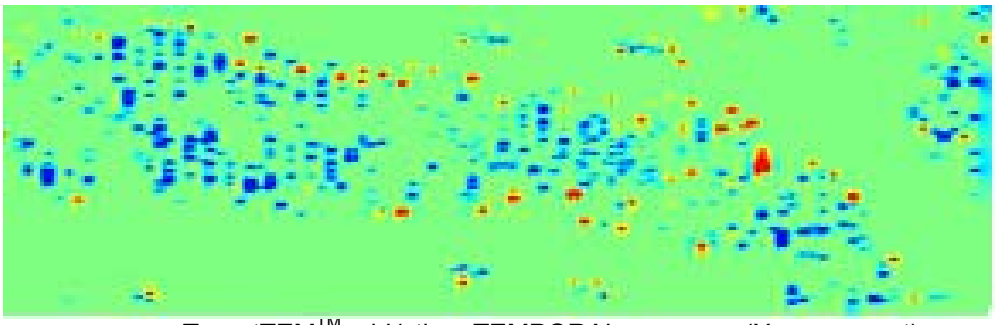
TargetTEM™ late-time SPATIAL response (X component)

An explanation of these images is given on page 7.

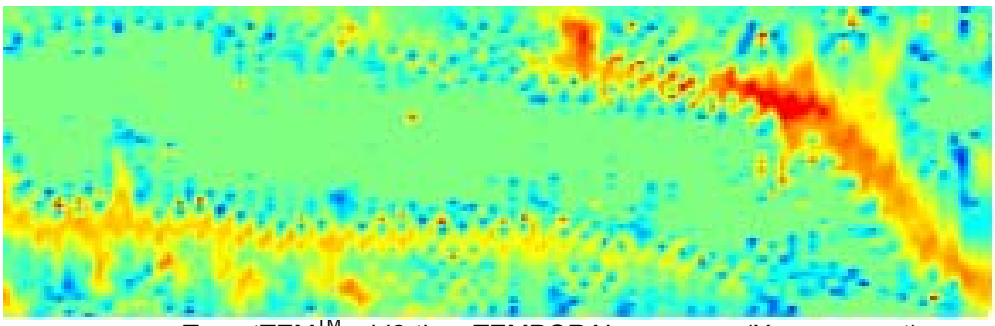
West Musgrave Block, Western Australia (continued).



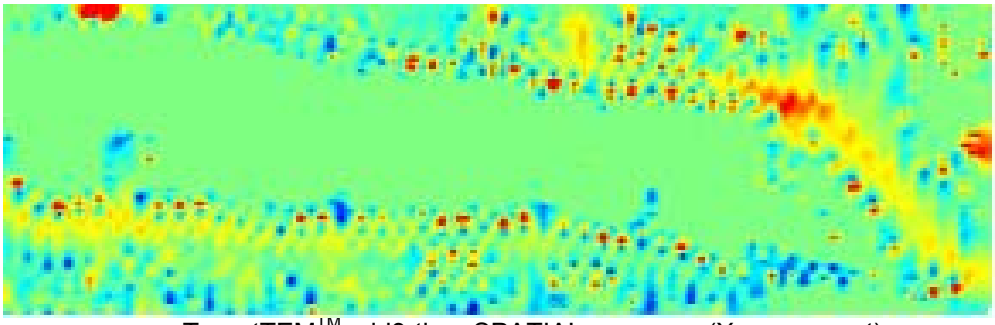
TargetTEM™ early-time TEMPORAL response (X component)



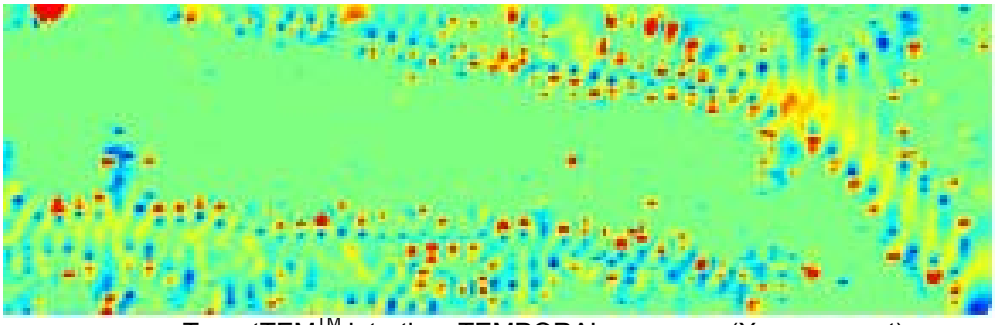
TargetTEM™ mid1-time TEMPORAL response (X component)



TargetTEM™ mid2-time TEMPORAL response (X component)



TargetTEM™ mid3-time SPATIAL response (X component)



TargetTEM™ late-time TEMPORAL response (X component)

An explanation of these images is given on page 7.

West Musgrave Block, Western Australia (continued).

SPATIAL responses - X component

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 raw channel 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.

The across-line ripples are due to asymmetry in the X-component response caused by alternating survey directions on neighbouring survey lines. Asymmetry is a characteristic artefact of fixed-wing systems like GEOTEM, where the receiver is towed outside the transmitter loop.

TEMPORAL responses - X component

TargetTEM™ SPATIAL responses for each channel are calculated from the measured response. The 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, i.e. short decay times) whilst the response of good conductors extends to later times (they exhibit slow decays, i.e. long decay times).

Note the significant improvement in resolution of detail compared to the raw channels. 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 conductive targets are resolved in these images which are either not apparent or not clear in the raw channel images. The ripples are due to system asymmetry.