Comparisons between Deep IP & AMT 2D and 3D inversions - Juruena Geological context.

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Abstract

The Juruena target is located in Alta Floresta Paleoproterozoic Gold Province. The gold deposits are divided into two major groups: (1) Epithermal with “phyllic” fault-controlled alteration (phengite-quartz-sericite-pyrite) and strong to moderate silicification and geochemical association with ±Ag-Bi-Fe-Pb-Zn – Juruena gold deposit style - and; (2) Porphyry Cu-Au deposits with Cu+Au (±Mo ±Pb) signature.

On October 2020, a Deep IP and AMT survey, carried out by Meteoric Resources – an Australian junior company - and executed by Geomag-Wellfield, searching for potential Porphyry Copper-Gold targets, discovered a massive IP chargeability anomaly at depth beneath the Juruena Gold Deposit.

The first 2D results pointed out that the high chargeability IP anomaly is over 2000m length and 1500m wide and is located less than 500m below the surface, open to the north-west.

In addition to the Deep IP-AMT profiles 2D inversion, Wellfield/Geomag has performed the DCIP3D (UBC) Chargeability and Resistivity 3D inversions using the complete data set.

Preliminary 3D results, compared to the 2D sections, indicate that the high chargeability anomaly shows a larger lateral extension that the one suggested by the simpler 2D inversion. Also, it clearly shows SE-NW trend and dip with this direction approximately in agreement with the local structures orientation even if some faults cut the high chargeability zone, suggesting being posterior to the mineralization faulting event(s). The high chargeability anomaly goes from shallow in the SE to deeper in the NW and is split in two areas by the Juruena fault.

2D Section 1 does not seem to intercept the high chargeability body but the 3D inversion, considering all the available nearby data, clearly shows the anomaly extension pattern toward NW, almost reaching the profile 1 trace, a detail that does not appear in the 2D inverted section.

Also, the high chargeability zone coincides with a certain decreasing of the high values obtained for the high resistivity modelled body, as should be expected.

The 3D inversion resistivity anomaly clearly shows the important structural control of the area with the resistivity distribution controlled by faults and the high resistivity body geologically coinciding with granite.

Wellfield/Geomag also inverted the AMT data with a 3D code (WSINV3DMT). The results corroborated the resistivity information obtained from the Deep IP 3D inversion. Comparing with the 2D AMT inversions, the 3D inversion results showed greater lateral continuity and correlation with the structural mapping.

Although the survey was performed along profiles, i.e in 2D, the 3D inversions showed results with better geological and structural correlation than the 2D inversion results. Therefore, the 3D inversion is a valid alternative for a more detailed interpretations even based on a 2D acquisition survey.