

# CERRO BAYO – CHILE: VEIN-HOSTED AU-AG

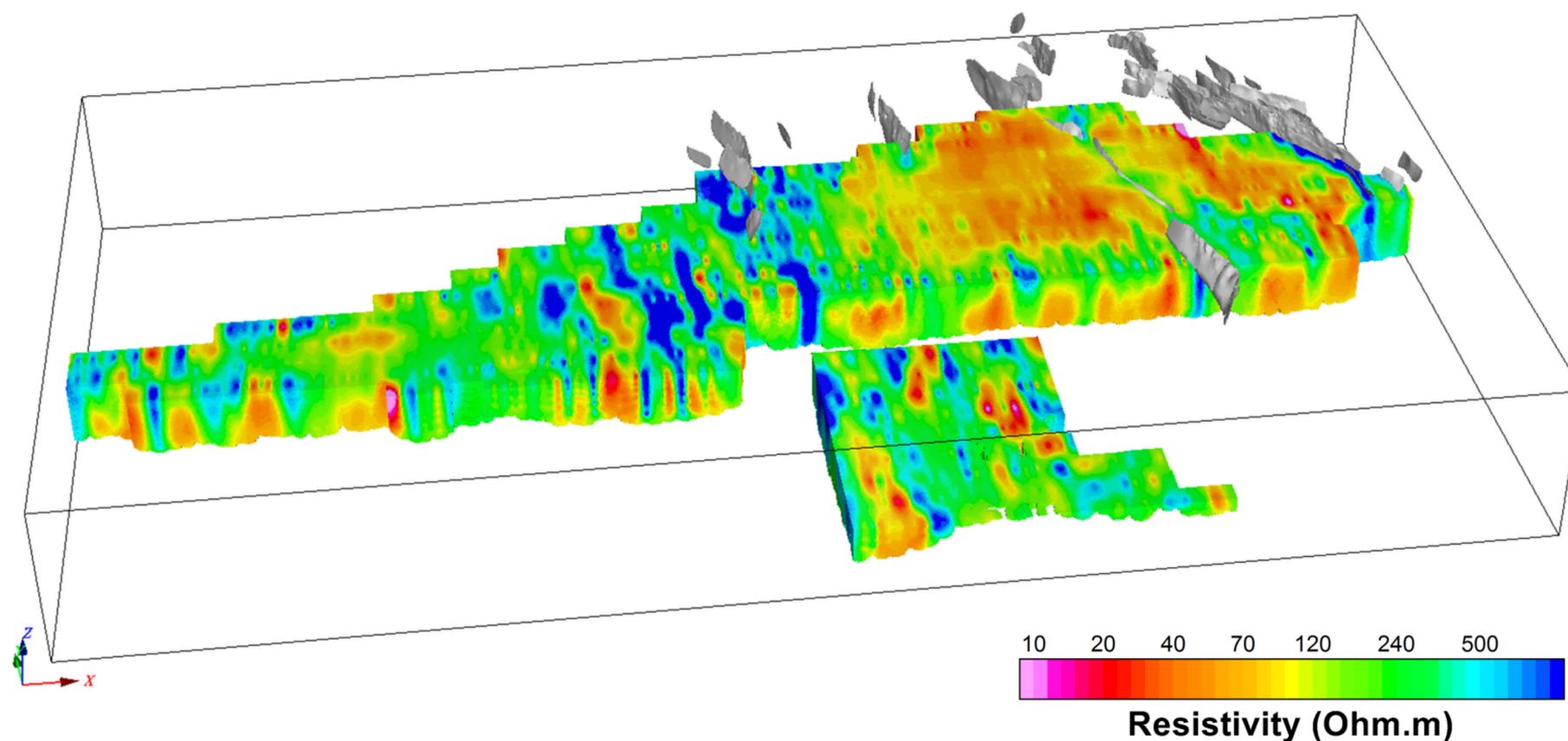
Prepared by Southernrock Geophysics

## 1. EMAP-AMT Imaging of Vein-Hosted Au-Ag Mineralization at Cerro Bayo

At the Cerro Bayo Project, in Chile, Au-Ag mineralization is hosted in narrow, silicified veins. For the exploration of such systems, EMAP-style audio-frequency magnetotellurics (AMT) is often employed.

In this case, short 25 m, contiguous, electric-field dipoles were deployed along multiple survey lines oriented roughly orthogonal to geological strike. This configuration provides an efficient means of imaging the narrow, high-resistivity anomalies associated with silicified veins.

Compiled 1D models from just over 1,000 individual stations clearly delineate both known mineralized veins and similar prospective high-resistivity trends (shown here in blue).



*1D resistivity inversion modelling of an CSAMT dataset. Known mineralized veins are shown in grey.*

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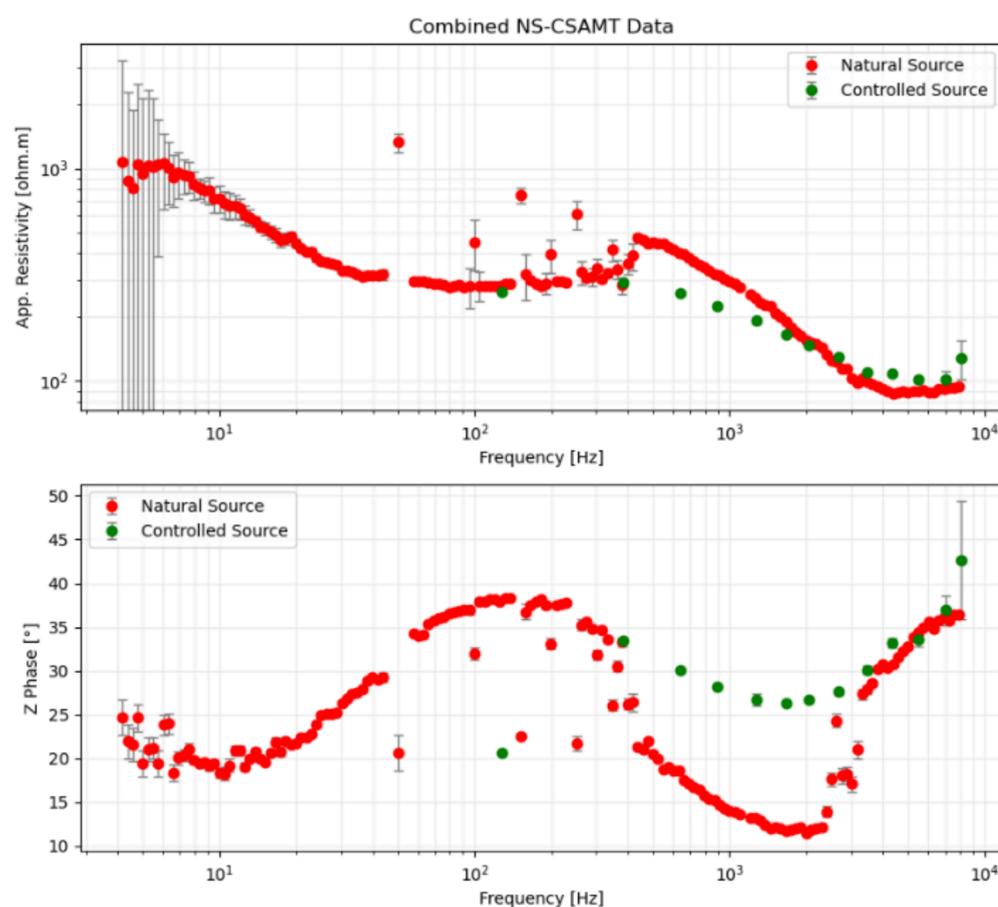
## 2. Overcoming Logistical Constraints with Combined Natural- and Controlled-Source AMT

Traditionally, controlled-source AMT (CSAMT) acquisition is used for this type of target. However, immediately north of the project area lies Lago General Carrera, and access to areas south of the property is likewise challenging. As a result, identifying suitable locations for distant transmitters or controlled sources becomes logistically problematic, reinforcing the advantages of a passive-source approach in this setting.

In this case, short intervals of time-series data were acquired at a sampling rate of approximately 32 kHz and processed as natural-source data. The red data points shown on the apparent resistivity and impedance phase curves correspond to results from a single station within the survey.

However, to address the occasional lack of signal within the ~2 kHz dead band or, in this instance, the near-field overprint of cultural interference, the same dataset was also processed at discrete frequencies generated by a relatively nearby, low-power controlled source. This approach allowed infilling of the problematic frequency band.

By processing the same short daytime time-series intervals as both natural-source and controlled-source datasets, it was possible to combine the advantages of each method. The result is an efficient, practical, and safe survey strategy that maximizes data quality while minimizing logistical complexity.



### Results

- Natural-source AMT (**red dots**) affected by 50 Hz powerline noise + harmonics
- CSAMT response (**green dots**) extracted at odd harmonics of controlled source signal
- Combined NS+CSAMT dataset → full AMT bandwidth.
- Low-frequency limit controlled mainly by the induction coils being used.