

## **ABSTRACT**

Critical raw materials are essential for the development of our society. However, most shallow ores have already been exploited and only deep targets remain unexplored. Indirect techniques are essential for an environmentally friendly and cost-effective prospecting that can guarantee the stock of vital resources. A magnetic and gravity survey has been carried out in and around the San Finx W-Sn mine. The resulting absolute magnetic anomaly and relative gravity anomaly have been studied analytically and through 2-2.75D forward modeling. Results indicate that the potential field anomalies are not related with the main tectonic contacts. However, an important circular gravity maximum accompanied by a smooth magnetic maximum appears to the N of San Finx. Its geometry suggests that it is originated by some sort of igneous source. Its amplitude demands a model that includes a shallow and very high density body ( $5000 \text{ kg/m}^3$ ). Finally, its proximity with the Confurco granite indicates that both might be genetically related. However, the San Finx area itself does not show any significant potential field anomaly. This might be due to the low density of the Confurco granite, little remaining mineralization and/or to a lack of relationship between magnetite growth and W-Sn mineralization