GEOIT
GEOSCIENCES

Technology and experience are
our **strategic advantages** for
discover the required resources
for the **Green Pact** and
achieve **decarbonization by 2050**

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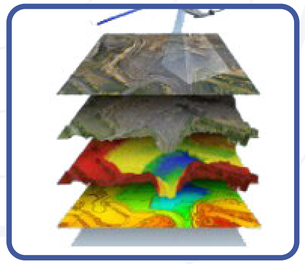
Applications and services:
UAV Photogrammetry

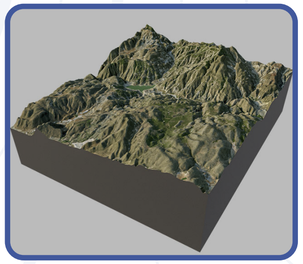
- **Topography - Geology:**
  - UAV Photogrammetry for mapping and 3D digital terrain models (DEM)
  - High-resolution orthomosaics.
  - VNIR Multispectral Surveys.

- **Precision Agriculture:**
  - Plant counting.
  - Measurement of water stress and greenness index.
  - 3D drainage mapping.
  - Vegetation cover density.

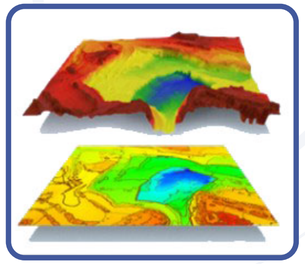
- **Included Services:**
  - Planning, design, and execution of lines acquisition through RTK-PPK drones.
  - Baseline and Control Point Surveying with dual-frequency differential GPS.
  - Our products provide ultra-high-resolution images and digital elevation models as invaluable tools for planning and analyze spatial data.



Orthomosaics



3D Models



Vigor Analysis

Volume Calculation

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MAG + GRAV + IP/RES = MACHINE LEARNING TARGETING

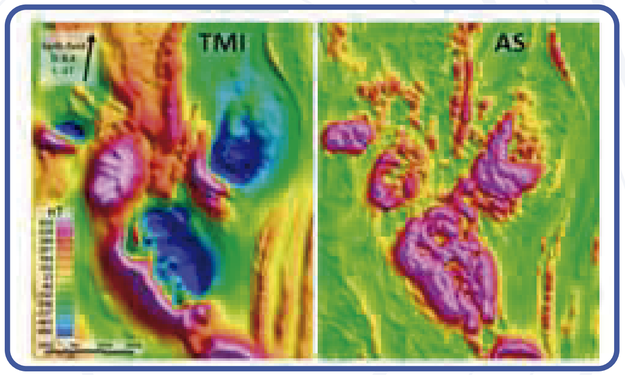
Applications and services:
UAV Magnetometry

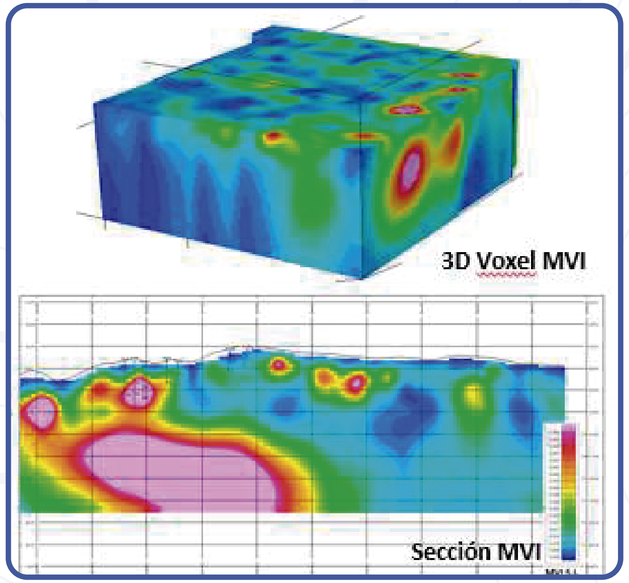
- **Identification of magnetic anomalies:**
  - Recognition of geological and magnetic structures in PC. and Epithermal hydrothermal systems.
  - Determination of geological boundaries.
  - Geothermal exploration.

- **Detection of UXOs and Metallic Objects**

- **Included Services:**
  - Planning, design and execution of acquisition lines.
  - Generation of 2D maps: TMI, RTP, AS, 1DV.
  - 3D Magnetic Vector inversion (MVI) and Self Organizing Map (SOM) inversion models.
  - Integration of multiparameter geophysics for Machine Learning exploration models.
  - Technical report and interpretation of results. Planning, design, and execution of acquisition lines using RTK-PPK drones.

MagNIMBUS atomic total-field magnetometer





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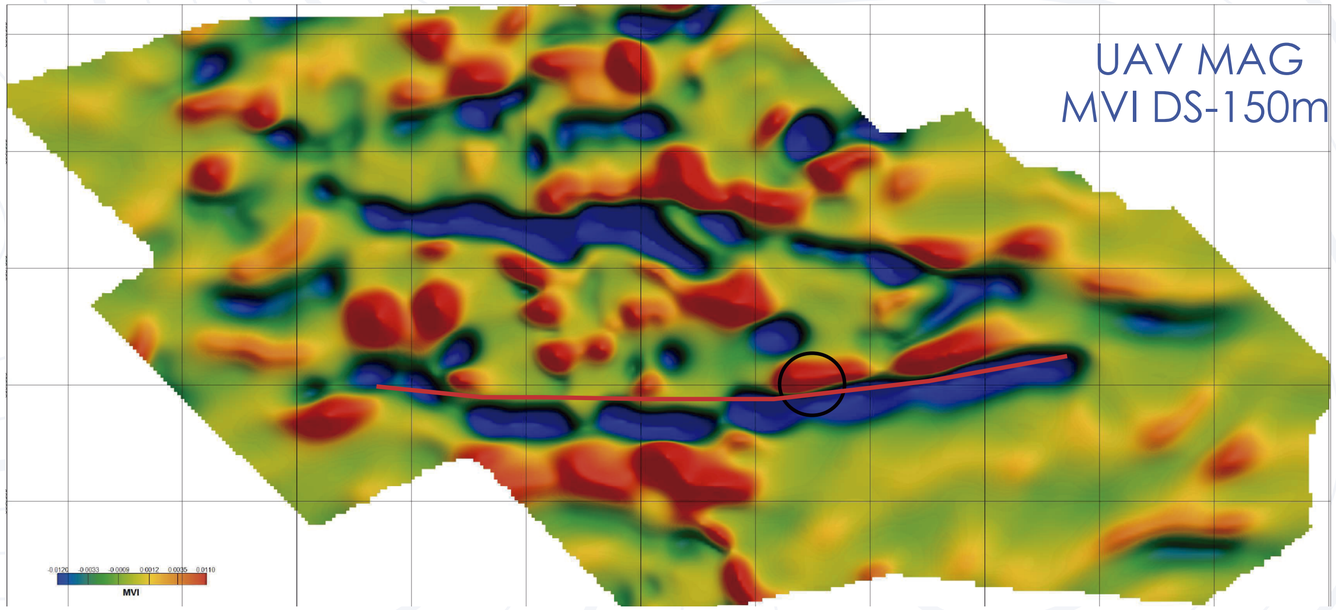
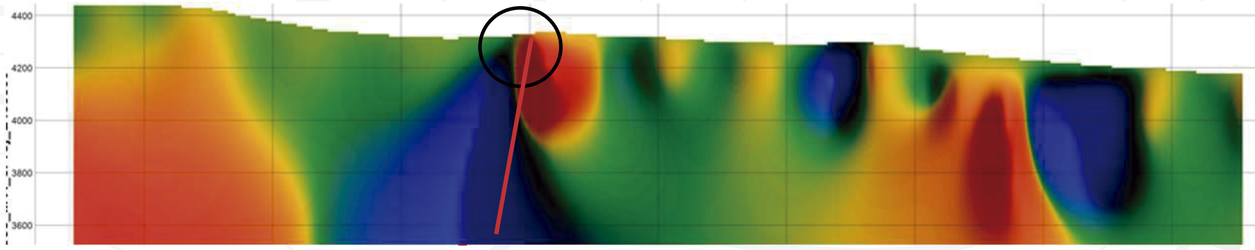
Applications and services:
UAV Magnetometry

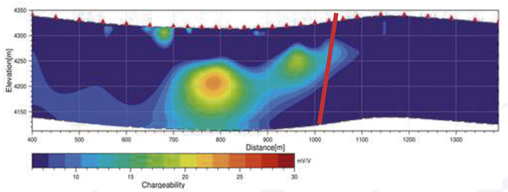
- Project of 10x5km at 4,500 masl, 3,500 linear kilometers, flight lines every 100m, and nominal flight height of 40m above the surface.

- Geophysical characterization through the identification of magnetic anomalies related to demagnetized mineralized structure in IS epithermal-type deposit.

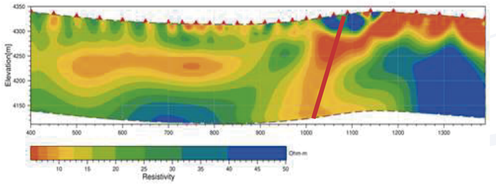
- New exploration target to the north in a structure with similar characteristics.







IP Chargeability



IP Resistivity

○ Mine

/ Vein

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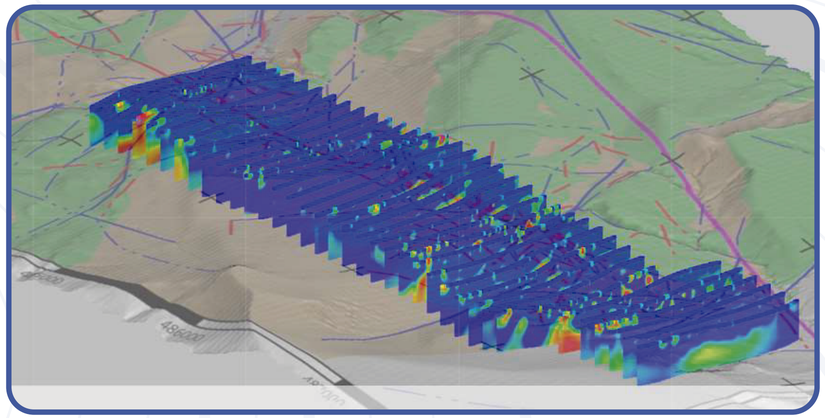
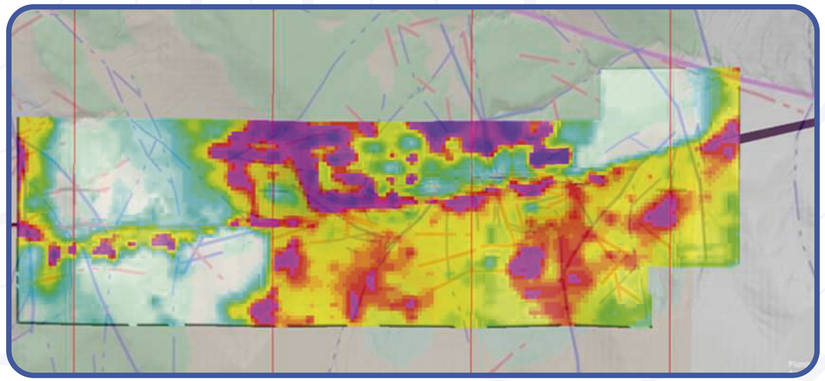
Applications and services:
Electric resistivity and IP Tomography

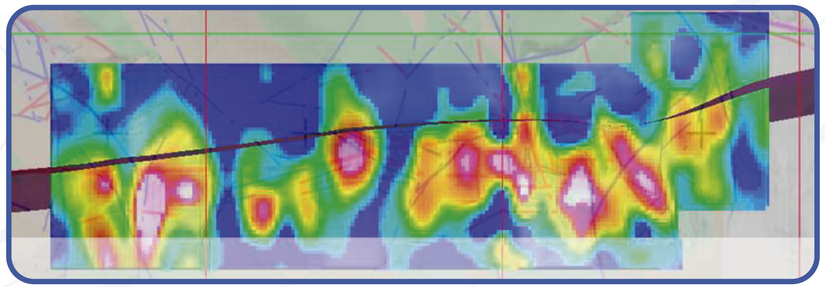
- 2D-3D shallow mining exploration (<500m)
- Characterization of PC, IOCG, Epithermal, and Strata-Bound deposits.
- Evaluation of aquifer heterogeneity.
- Location of paleochannels, dykes, and other geological features.
- Detection of leaks in leach piles, dams, and reservoirs.
- Mapping and monitoring of pollution plumes.
- Study of time-lapse multitemporal infiltration in dams and environmental remediation monitoring.



High-density IP-Res: 38 lines of 48 electrodes spaced 100m



Resistivity Depth Slide identifying mineralized structure



Chargeability Depth Slide with sulfide anomalies

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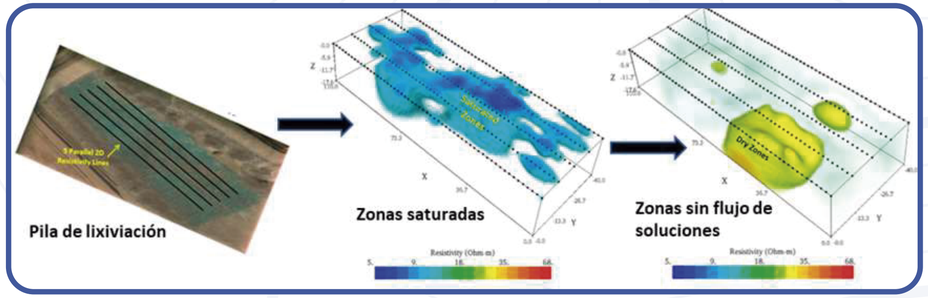
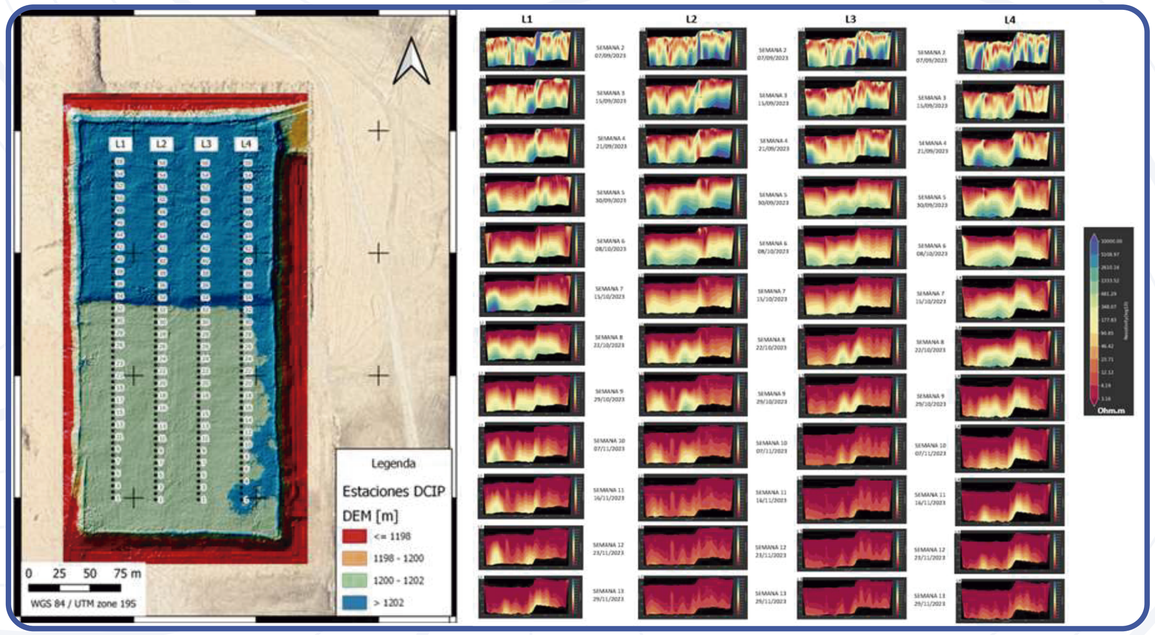
Applications and services: Electric resistivity and IP Tomography





Monitoring Irrigation Leaching Heap from week 1 to week 12 through resistivity measurement.

ARES II
10 Channels and 48 Electrodes

SUPERSTING
8 Channels and 56 Electrodes

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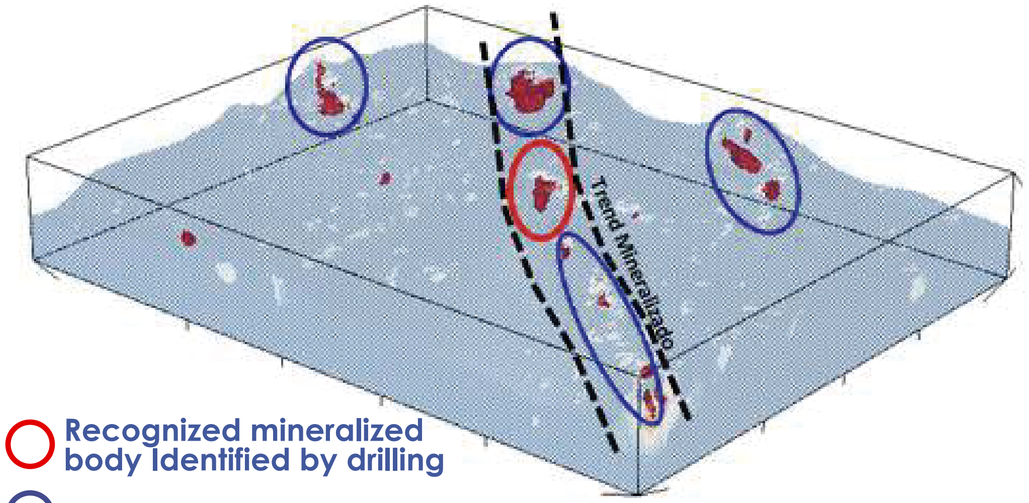
Applications and services:
Processing, Multiparameter Geophysical Integration, and Machine Learning

- **3D Inversion and Machine Learning:**
  - Definition of Exploratory Objectives.
- **Reprocessing and Integration:**
  - Gravimetry.
  - Magnetometry.
  - Magnetotellurics.
  - Seismic.
  - IP/Res.
  - Electromagnetics.
- **Machine Learning:**
  - Proprietary algorithms and workflows
  - Definition of Exploratory Objectives.
  - Feedback and optimization with new data.
  - Local and cloud processing capabilities allow for quick response.
  - Self-Organizing Map (SOM) algorithm enables efficient prediction of new exploratory targets.

IP + RES + MAG + GRAV + Geología = SOM



Machine Learning: Self-Organizing Map (SOM) algorithm on 3D inversion of Magnetic, Gravimetric, IP, and Resistivity data. Through machine learning, the SOM algorithm successfully predicts new exploration targets.

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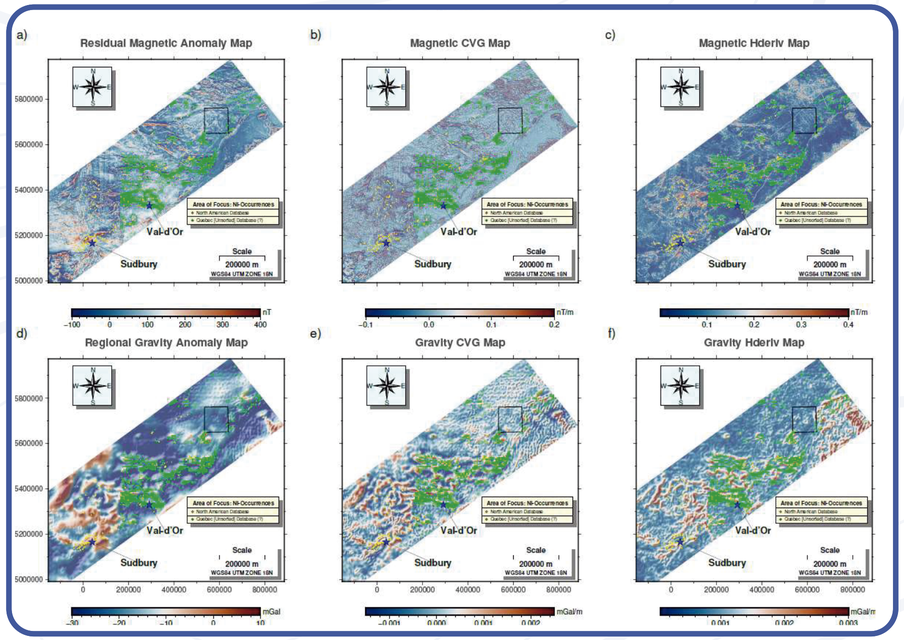
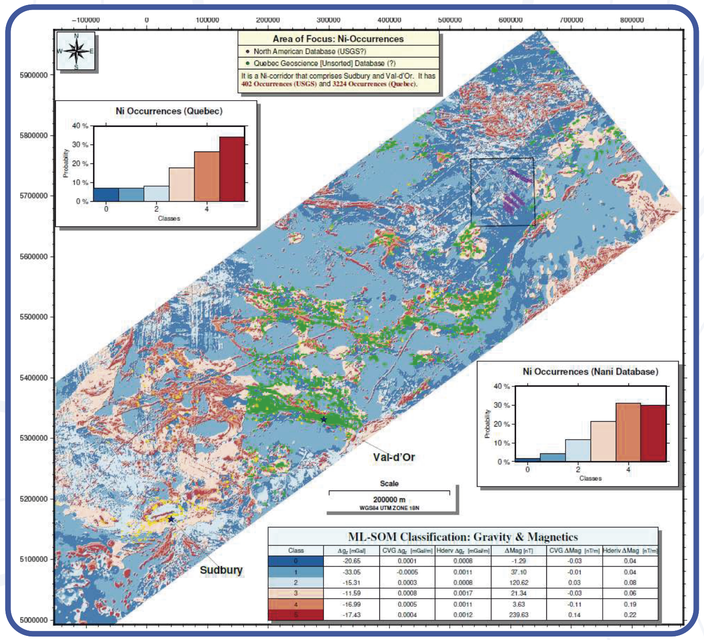
Applications and services:
Processing, Multiparameter Geophysical Integration, and Machine Learning

- Compilation, organization, and standardization of local and regional geophysics.
- Machine Learning classification and characterization of geophysical maps.
- Prospectivity maps assisted by Machine Learning.

Geophysical Maps



ML-Assisted Characterization



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