GAIA
EXPLORACIÓN

Parque Industrial y Tecnológico, Nave E8 | 2100 Valverde del Camino (Huelva-Spain) | 620 97 28 26 | gaiaexploracion.com

Founding Partners

Gaia Exploration was born from the collaboration of 3 international geophysical services and consulting companies. It merges the capabilities, expertise and experience of three companies, all consolidated in the mining sector, in order to advance the range and quality of exploration and consulting services, as well as processing modelling and interpretation of data.

Parque Industrial y Tecnológico, Nave E8 | 2100 Valverde del Camino (Huelva-Spain) | 620 97 28 26 | gaiaexploracion.com

Founding Partners - Geognosia

Based in Spain, Geognosia offers geophysical, geological, geochemical and topographical consultancy Works and services, both nationally and internationally. It integrates all services into one, when required by the client. Specialized in terrestrial geophysics: Induced Polarisation, Gravimetry, Electromagnetic methods, Magnetotelluric and potential methods. It has extensive experience in mining exploration specializing in consultancy in the Iberian Pyritic Belt.

Founding Partners - Emergo

Based in Italy, EMERGO (formerly Aarhus Geophysics) is one of the world's leading AEM data processing and interpretation companies. EMERGO provides advanced processing using innovative algorithms for modeling and interpretation including “IP effect” analysis.It has a long history of working with data measured with all AEM (Airborne Electromagnetic Campaigns) systems applied to mineral exploration and hydrogeology.

Founding Partners – Newexco

Bill Amann

Nicolás Ebner

Based in Australia, NEWEXCO is an independent group specializing in geophysical exploration and prospecting consultancy and services applied primarily to the mining industry.It provides geological and geophysical services and has an extensive track record of base metal discoveries worldwide.

Our Leaders

Isla Fernández - Geophysicist

Isla has more than 25 years experience working as a geophysicist in mining exploration, developing her expertise in direct contact with geologists. Thus mastering the skill of integration between geology and geophysics in exploration projects.

She has developed her career mainly in the pyritic belt in Spain and Portugal, and has also participated in exploration projects in different mining districts outside the peninsula. Following 6 years at Rio Tinto M&E, Isla then established Geognosia S.L., where she continues to work presently.

Since 2017 she has participated in 3 European research projects in the field of mining exploration, leading the geophysics components in all three projects. Isla continues her role as a lecturer in the Master of Mineral Resources at UNIA, teaching the subject of Geophysics since 2011.

Our Leaders

Nicholas Ebner – Geophysicist

A committed and proven Leader, Minerals Explorer and Geophysicist.

Twenty years experience exploration-targeting across the globe has revealed the significance of collaboration between geoscientists and leading a group of exceptional explorers committed to discovery. Exposure to the 'secret sauce' of discovery and the people behind it, is what drives our consulting group's continued success for our clients.
Career highlights: Monty VMS Discovery – one of the highest grade and economic of such occurrences worldwide. Commercialisation of the Fourth Generation ARMIT Magnetic Field receiver currently searching for the next generation of massive-sulphide deposits. Directing a global group of 'World-Leading Mine Finders'.

Our Leaders

Antonio Menghini – Geologist

Antonio has worked with EM methods for different applications since 1990. His main interest is turning geology into geophysics, and viceversa. His experience, initially freelance, and later as a founder of Emergo, spans from applications in Hydrogeology to Mining, Geotechnics and Environment. Working at Emergo, on numerous projects all around the world, has exposed Antonio to many different tasks in a variety of geological settings. He is convinced that the relationship between geologists and geophysicists are crucial for the outcome of any project.

Our Leaders

Bill Amann – Geophysicist

For forty years and more, Bill has had the pleasure of working with exploration teams covering most parts of the globe, generally looking for base and precious metals. As a geophysicist with an interest and undergraduate degree in Geology he has easily assimilated into numerous (successful) exploration teams within majors of a now past era. In 99 he and Adrian created and nurtured their own Team-Newexco

In the 80's, in addition to routine exploration, Bill worked on distributed arrays and B-Field EM sensors with renowned/fabulous scientists at Chevron, using an Oil patch budget and approach. In the 90's he worked with WMC on numerous projects including the development of new, now state of the art receiver systems. In the 00's these ideas were consolidated and developed at Newexco

Our Leaders

Silvia Aragon– Geophysicis

Geologist with experience in acquisition, processing and analysis of geophysical surveys in mining exploration campaigns and geotechnical characterization (Gravimetry, AMT, IP, DHEM, seismic refraction, TRE and SEV). Management of Seisimager, Res2dinV, Ipi2win software, medium knowledge of Oasis and basic knowledge of Recmin and Leapfrog.

Emphasis on teamwork, time management and leadership skills.

Our Leaders

Emilio Mora- Field Operator

More than 30 years experience as a field operator, using Gravimetric, Magnetometric and EM methods.

Emilio has developed his career demonstrating high level problem solving in the field along with his capacity to organize all those tasks related to geophysical field work. His extensive knowledge of geophysical equipment allows him to maintain it in optimal condition and get the most out of it.

Our Leaders

Ronal Barcala – Geophysicist

He took 5 years of a main degree in Applied Geophysics Engineering at Technological University of Havana. Immediately after, he started working for the Cuban National Oil company, playing a geophysicist role for 6 years in hydrocarbon exploration and reserves quantification. Participated on a UNESCO research programme from 2018 to 2019 where he was awarded with the recognition of scientific achievement.

Three years later, he undertook a master's degree in Geology and Environmental Management of Mineral Resources at Huelva University, after this, in 2022 he started working in Gaia Exploración, involve in leading downhole electromagnetics field campaigns and its modelling. His current role in this company is related to mineral exploration on the Iberian Pyrite Belt, in terms of acquisition, processing, modelling and interpretation of geophysical data.

Our Leaders

Daniela Ramirez– Geophysicis

Geologist from the University of Caldas Colombia, with a master degree in geophysics and seismology from the University of Granada Spain. Experience in planning and execution of geophysical surveys (Gravimetry, AMT, IP, ARMIT) applied mining exploration campaigns, with emphasis on efficient and safe work.

Management of geographic information systems softwares.

Worldwide Presence

Projects our group has been a part of:

About us

MiningExploration
- Matsa-Sandfire
- Panglobal Resources
- Atalaya Mining
- First Quantum Minerals
- Emerita Resources Corporation
- Lundin Mining Corporation
- Rio Tinto Group
- Glencore PLC
- Angloamerican
- Avrupa Minerals LTD
- LKAB

CO2 Injection
- Gas Natural
- Endesa

Hydrogeology
- Aquology (Chile)
- Rethink Water (Denmark)
- CAP Milan (Italy)
- Geoscience BC (Canada)
- Geotech (US)
- LBEG (Germany)
- Artesia (The Netherlands

EuropeanProjects
- AMTEG (Eramin)
- Infact (Horizon2020)
- SEMACRET (Horizon2020)

Geothermal
- Grupo SAMCA
- Melilla Geothermal Energy
- Cardial Recursos Alternativos

Services

Gaia offers geophysical data collection services. Performing Gravity surveys, Magnetometry, ElectroMagnetic methods (both, surface and borehole), Induced Polarization (IP) and MagnetoTelluric methods (MT). Gaia's work does not end with the interpretation of the results, we have the ability to continue monitoring in the field, with soil geophysical methodologies, to advance in all phases of mineral exploration, including the drilling phase, being one of the specialties of Gaia's team the DHEM and MMR campaigns (EM and Magnetic measurements in boreholes).

Gaia's greatest value is its specialized staff, with a high technical level and a great experience in each of their tasks..





Services

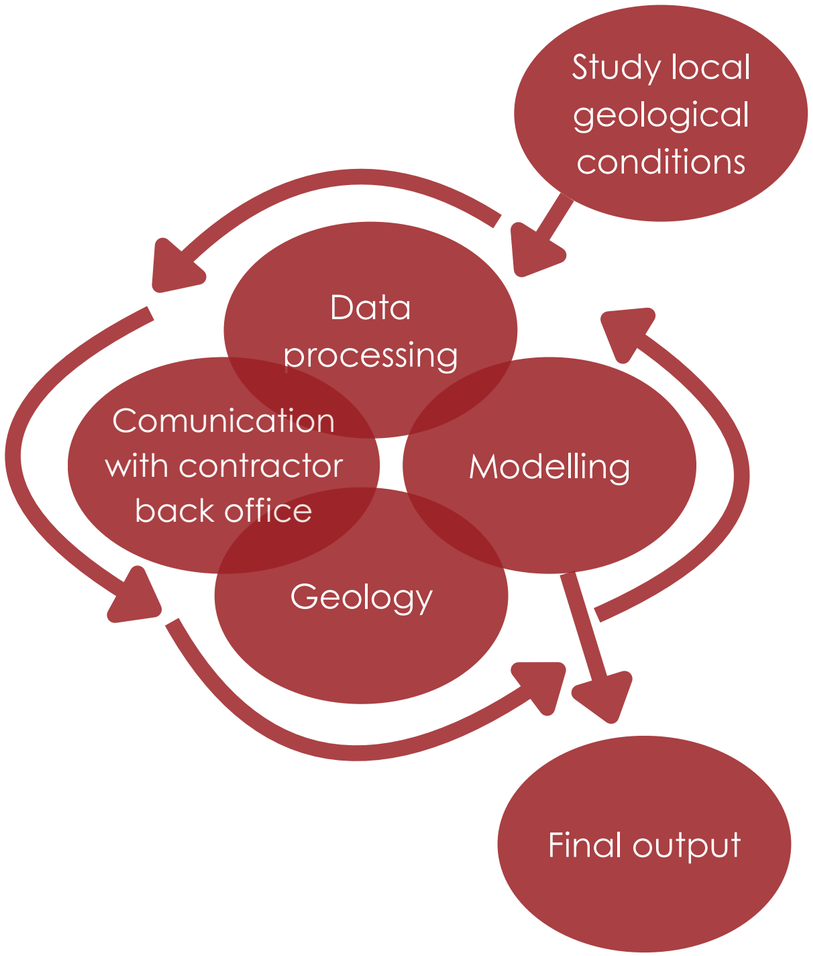
Geophysical services offered include:

- Management of geophysical prospecting campaigns from design, through acquisition, data quality control, interpretation and prospecting.
- Qualified personnel, with specialized tools and extensive experience.
- Specialists in EM, from airborne geophysics to ground geophysics and borehole measurement techniques such as DHEM and MMR.
- Interpretation of all electrical techniques, EM, induced polarization and potential field methods.
- Comprehensive reports of the work performed, ensuring an accurate record of the entire work process.
- Project evaluation and data collection.
- Training in Applied Geophysics.
- Personnel who can be seconded to the client's offices to provide support to geologists for geophysical interpretation.

Services

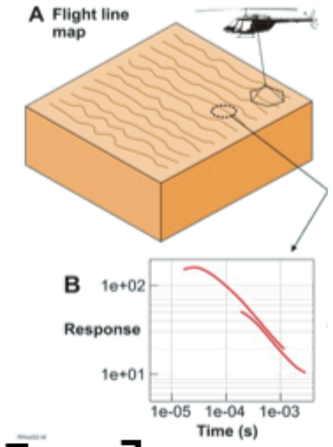
In Relation to Geophysics Applied to Mineral Exploration and Geology:

- Generation of regional and local targets by our geologists and geophysicists in direct contact with clients.
- Gaia is currently managing geological and geophysical activities in numerous projects for several clients related to the mining sector.
- Survey planning and target selection.
- Review of data and projects with recommendations for future work and objectives.
- Internal company and governmental reports.
- Annual and other statutory reports to meet the requirements of the Department of Mines.

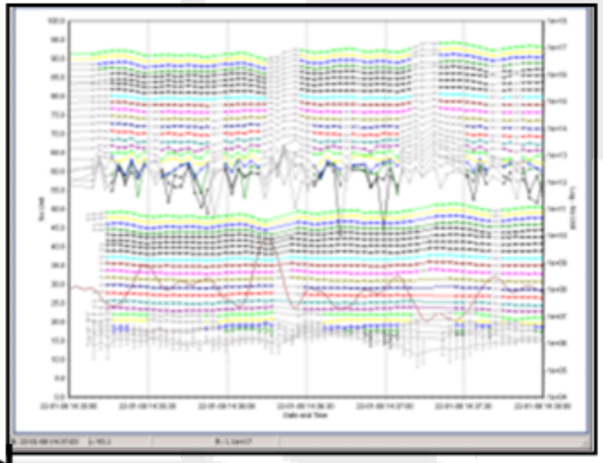


Services

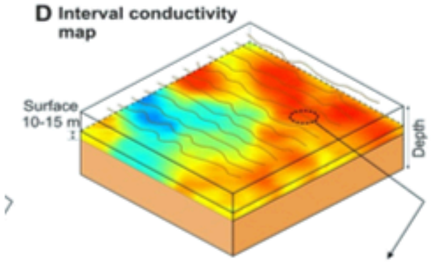
1. Alta Calidad en los datos brutos

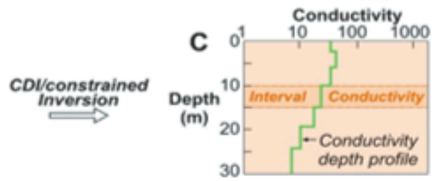


2. Alta Calidad en el Procesado

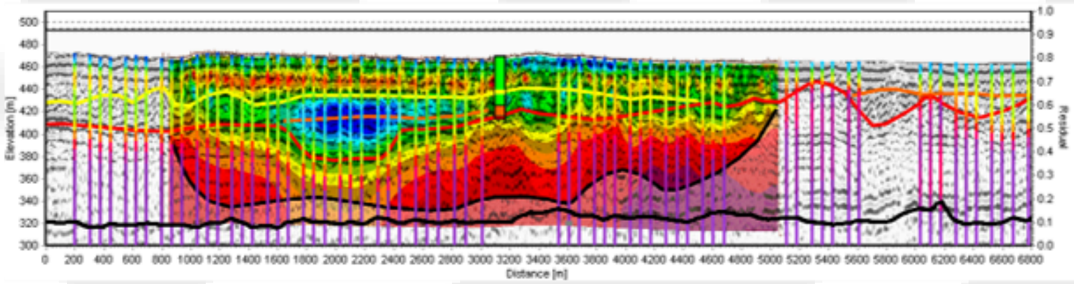


3. Alta Calidad en los inversion de los datos

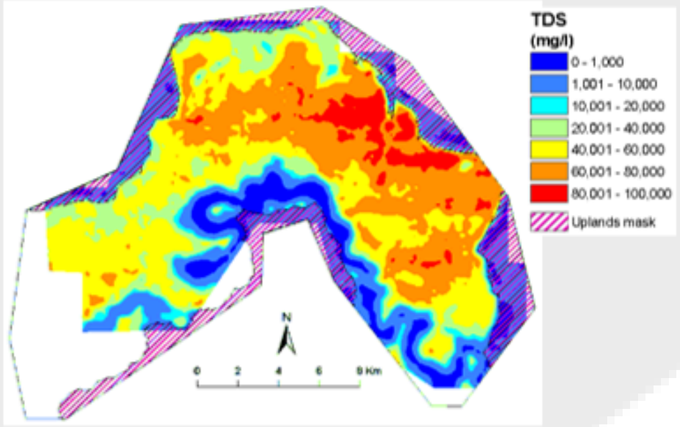




4. Integración de Datos



5. Alta Calidad en el Producto Final

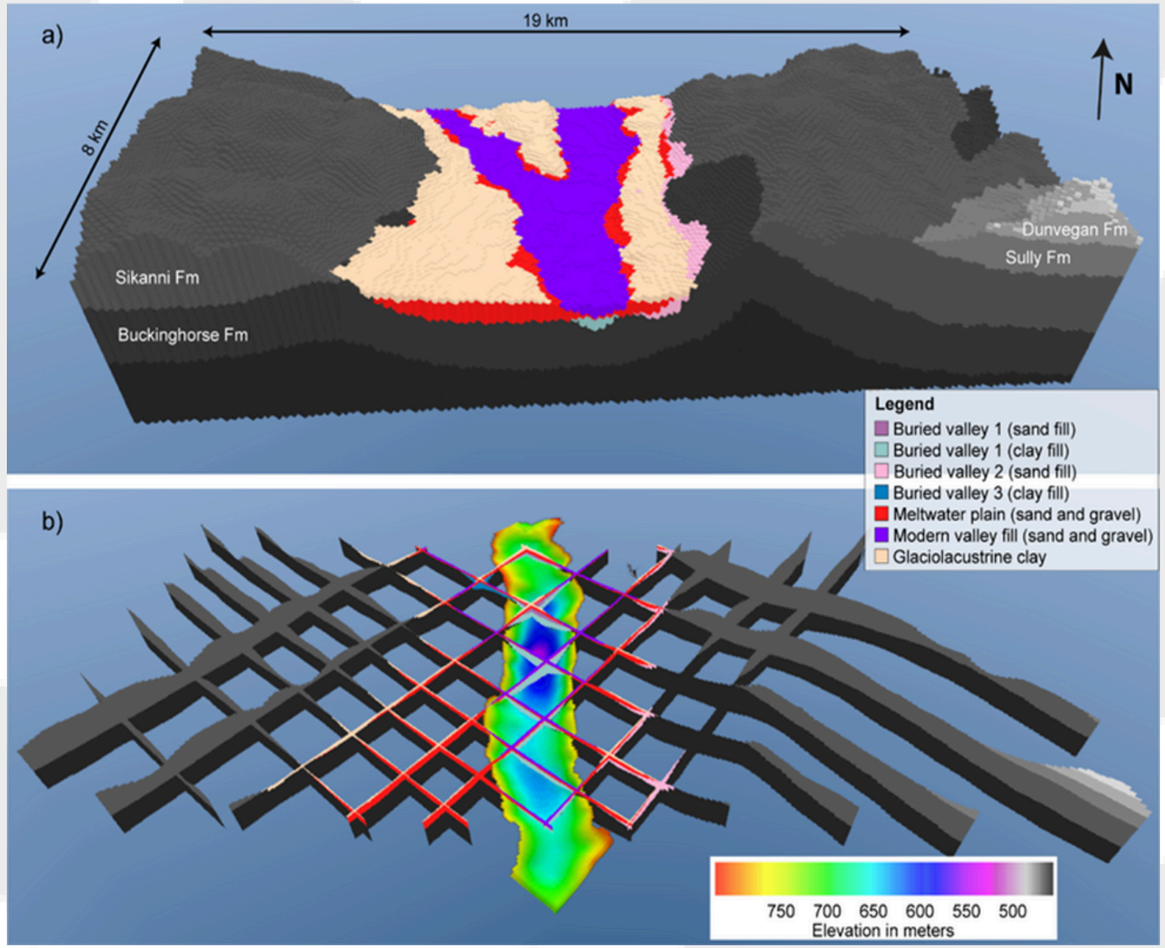


Reprocessing and Interpretation of AEM data

Services

In Relation to Geophysics Applied to Hydrogeology, the aeromagnetic data can be useful for:

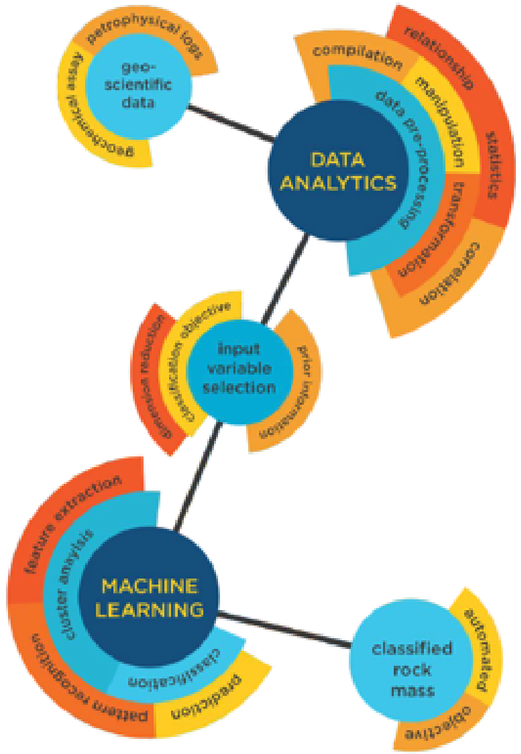
- Fresh water detection
- Seawater intrusion mapping
- Vulnerability assessment of groundwater resources
- Hydrogeological modelling
- Groundwater management at basin scale



Services

"Machine Learning" and Data Analysis

Newexco (Gaia's partner) actively supports and invests in new exploration approaches. One of the most promising of these approaches are the Machine Learning processes developed and led in-house by Dr. Conny Kitzig. This machine learning can help to



- **Validate** geologic logs against predicted lithology or a classification based on data.
- **Identify** rock mass characteristics, such as faults and fractures, from petrophysical data measured in boreholes
- **Finding** unknown patterns in the data that may indicate areas of disturbance or vectors to the next target
- **Using** multivariate data collected from a known reservoir to generate prospective drilling targets
- **To deepen** the knowledge and understanding of the style of a site.

Methods

Gravity

Instrument

CG5 Gravimeter

Applications

Mineral Exploration:

Identifying subsurface structures associated with mineral deposits

Density variations are related to ore bodies, faults and geological structures

Groundwater Exploration:

Detecting variations in subsurface density related to aquifers and groundwater distribution

Geological Mapping and Environmental Studies

Methods

Audio Magnetotelluric (AMT)

Applications

Mineral Exploration:

Locating and delineating mineral deposits

Identifying conductive zones that may indicate the presence of ore bodies

Groundwater Exploration:

Aquifer Mapping and Identifying Boundaries and Recharge Areas

Instrument

GDAS24

Methods

Induced Polarization

Instrument

Elrec Terra Receiver and VIP 10000 transmitter

Applications

Mineral Exploration:

Identifying areas with potential ore deposits by detecting chargeability and resistivity anomalies associated with metallic minerals, not only massive sulphides but also disseminated styled mineralizations.

Groundwater Exploration:

Aquifer delineation and contamination studies.

Environmental Studies:

Landfill site investigations and soil and groundwater contamination

Methods

GroundMagnetics

Applications

Mineral Exploration:

Identifying ore bodies containing magnetic minerals mapping geological structures such as faults, dykes, and intrusions that are often associated with mineralization.

Arqueological surveys:

Locating buried structures due to their magnetic signature

It provides a non-invasive way to map and understand the layout of archaeological sites without excavation

Instrument

GEM's Overhauser Magnetometer system

Methods

Time Domain Electromagnetics (TDEM) Moving Loop

Applications

Mineral Exploration:

Mapping Subsurface Conductivity

Detecting conductive minerals

Groundwater Exploration

Identifying areas of saline water intrusion in freshwater aquifers

Mapping the extent and thickness of aquifers by detecting changes in electrical conductivity associated with water-bearing formations.

Environmental Studies:

Contaminant Plume Mapping

Landfill Investigations

Instrument

Zonge GDP32 receiver and ZT30 transmitter

Parque Industrial y Tecnológico, Nave E8 | 2100 Valverde del Camino (Huelva-Spain) | 620 97 28 26 | gaiaexploracion.com

Methods

Time Domain ElectroMagnetics (TDEM) Moving Loop (Slingram)

Instrument

Terratem and Armit Gen IV receiver and TX50 transmitter

Applications

Mineral Exploration:

3D mapping subsurface conductivity

Detecting conductive minerals with the advantages of a very sensitive sensor

Groundwater Exploration

Identifying areas of saline water intrusion in freshwater aquifers

Mapping the extent and thickness of aquifers by detecting changes in electrical conductivity associated with water-bearing formations.

Environmental Studies:

Contaminant Plume Mapping

Landfill Investigations

Methods

Downhole TDEM

Applications

Mineral Exploration:

Detecting and delineating electrically conductive targets in the rocks surrounding the drillhole.

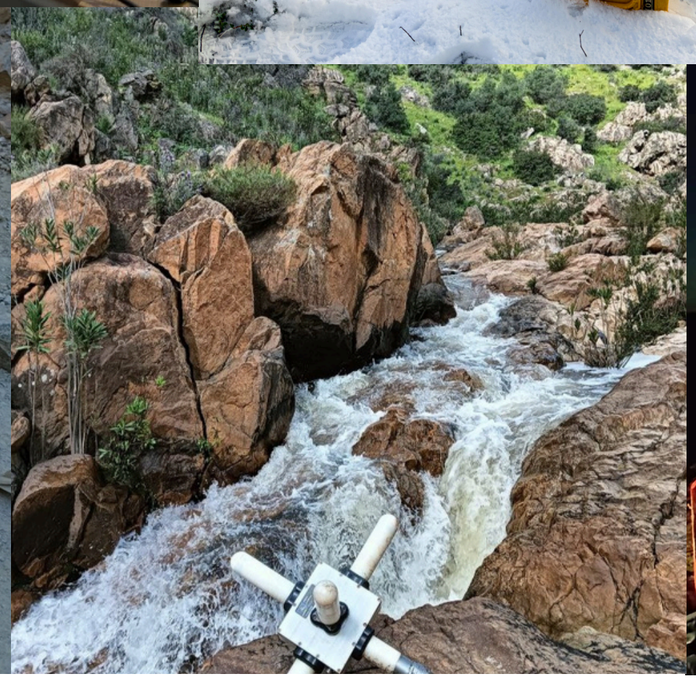
Higher Signal to Noise ratio than ground and airborne systems

Targets from raw data can be characterized in 3 dimensions, achieving high resolution information on the location, size, and shape of ore deposits

Instrument

EMIT Digi Atlantis probe and receiver with Zonge GGT10 transmitter


ELREC TERRA
ON / OFF
USB A/C
USB Link



GAIA
EXPLORACIÓN

Parque Industrial y Tecnológico, Nave E8 | 2100 Valverde del Camino (Huelva-Spain) | 620 97 28 26 | gaiaexploracion.com