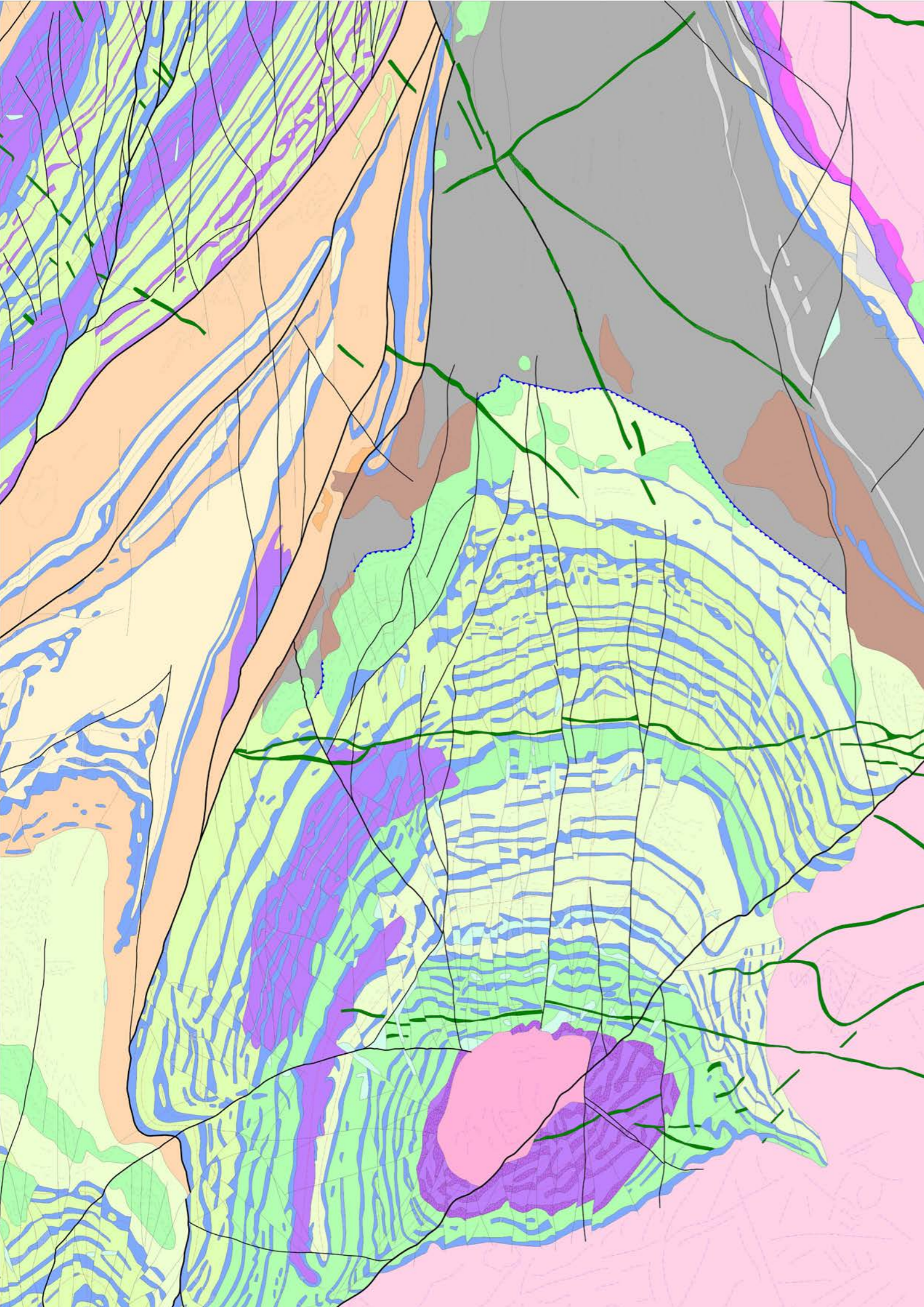


SOUTHERN GEOSCIENCE
CONSULTANTS

2023 **CAPABILITY STATEMENT**



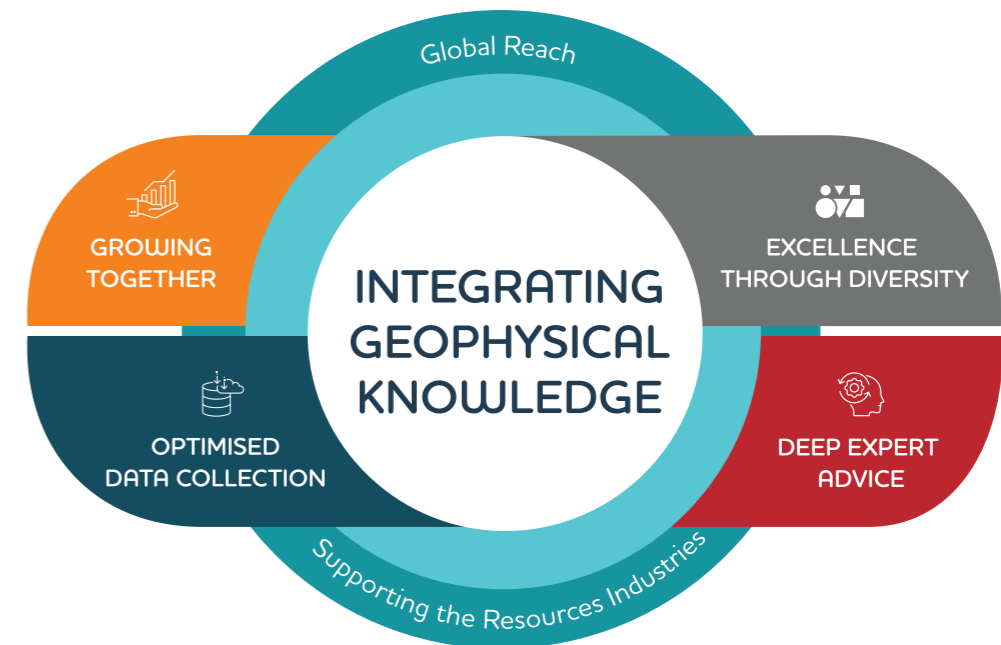
About SGC

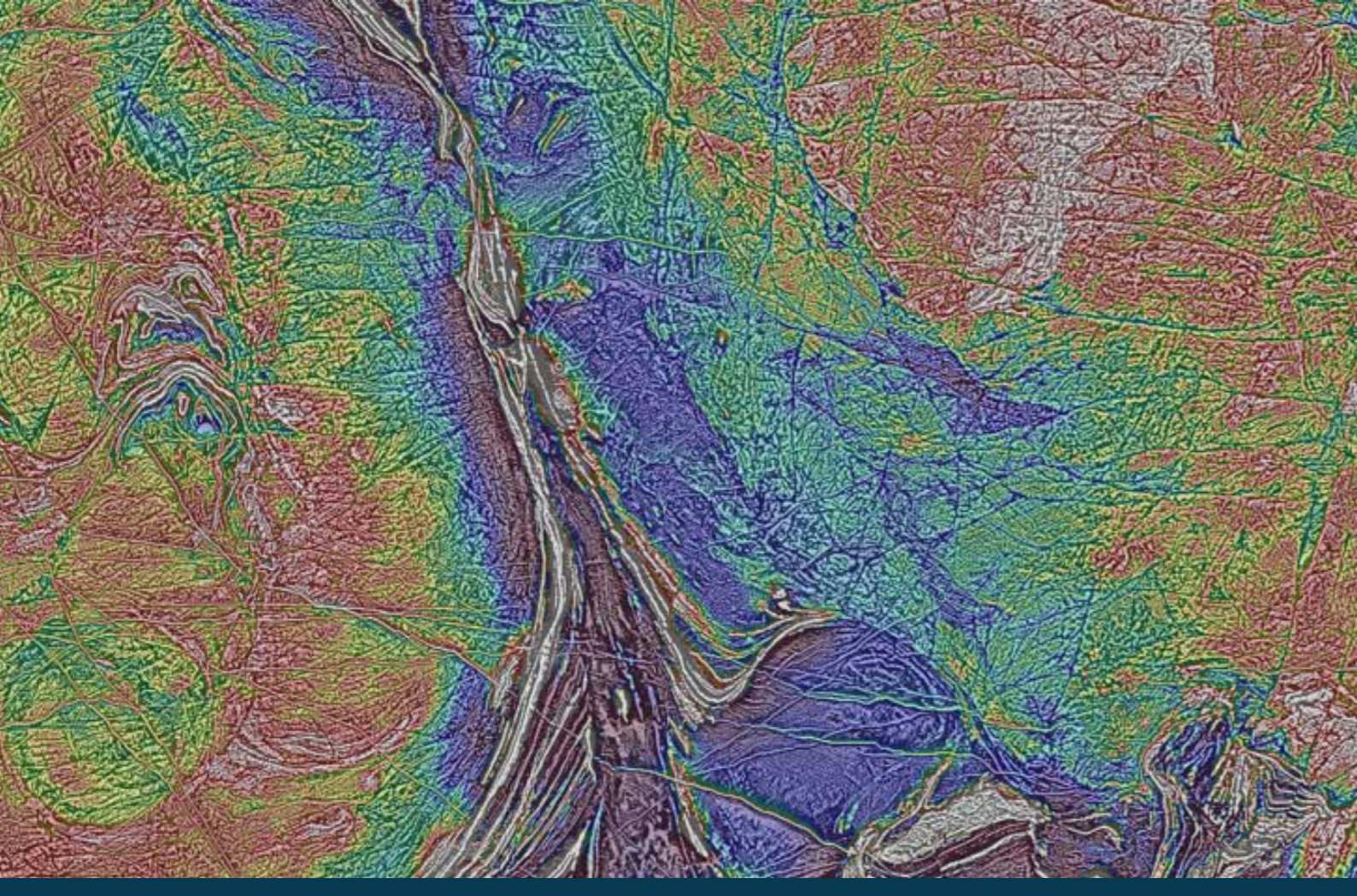
Established in 1985, SGC integrates geophysical knowledge to identify value adding outcomes for the resources sectors. Our global, diverse, technically respected team and in-house survey crews allow us to service the whole resource value chain from targeting, exploration, and discovery, to engineering, groundwater, and environmental assessment.

SGC has become a global leader in geophysics by working for all sizes of companies and projects and is growing its business from

resources to other sectors. We leverage our technical knowledge across all geophysical techniques to build sustainable partnerships with clients through skills training and beyond-the-brief innovation and advice.

Our technical team of over 20 geophysicists are experts in their specialist fields with a deep understanding of the resources industries. They're driven by a passion to deliver solutions that help our clients address their dynamic challenges.





Critical Minerals

Critical minerals are natural resources that are essential for the functioning of modern economies and technologies. The green transition and climate action are accelerating. Aluminium, cobalt, graphite, manganese, rare earth elements (REEs), tungsten, vanadium, lithium and platinum group metals, amongst others, are recognised as being critical to the clean energy and technology industries with demand for these critical minerals forecast to increase.

Geophysical methods have a key role to play in the smarter exploration strategies required to discover new critical mineral resources and reserves sustainably and under cover.

SGC's geoscientists apply their extensive knowledge to utilising geophysical data, whether existing

datasets or optimising new acquisition, in the exploration for critical minerals. Electromagnetics are highly effective for delineating conductive graphite and REE-bearing ionic clay layers. High-resolution magnetics can define vanadium-bearing magnetite mineralisation in mafic or ultramafic intrusions. Radiometric and magnetic methods can map zoned REE-bearing carbonatites. Potential LCT pegmatites can be delineated directly with very high resolution radiometric or gravity data, or indirectly by magnetics and structural interpretation as well as through the detection of potential lithium-bearing clays with multi- or hyperspectral imagery. Seismic reflection can be used to image platinum-rich reefs located deep beneath the Earth's surface.

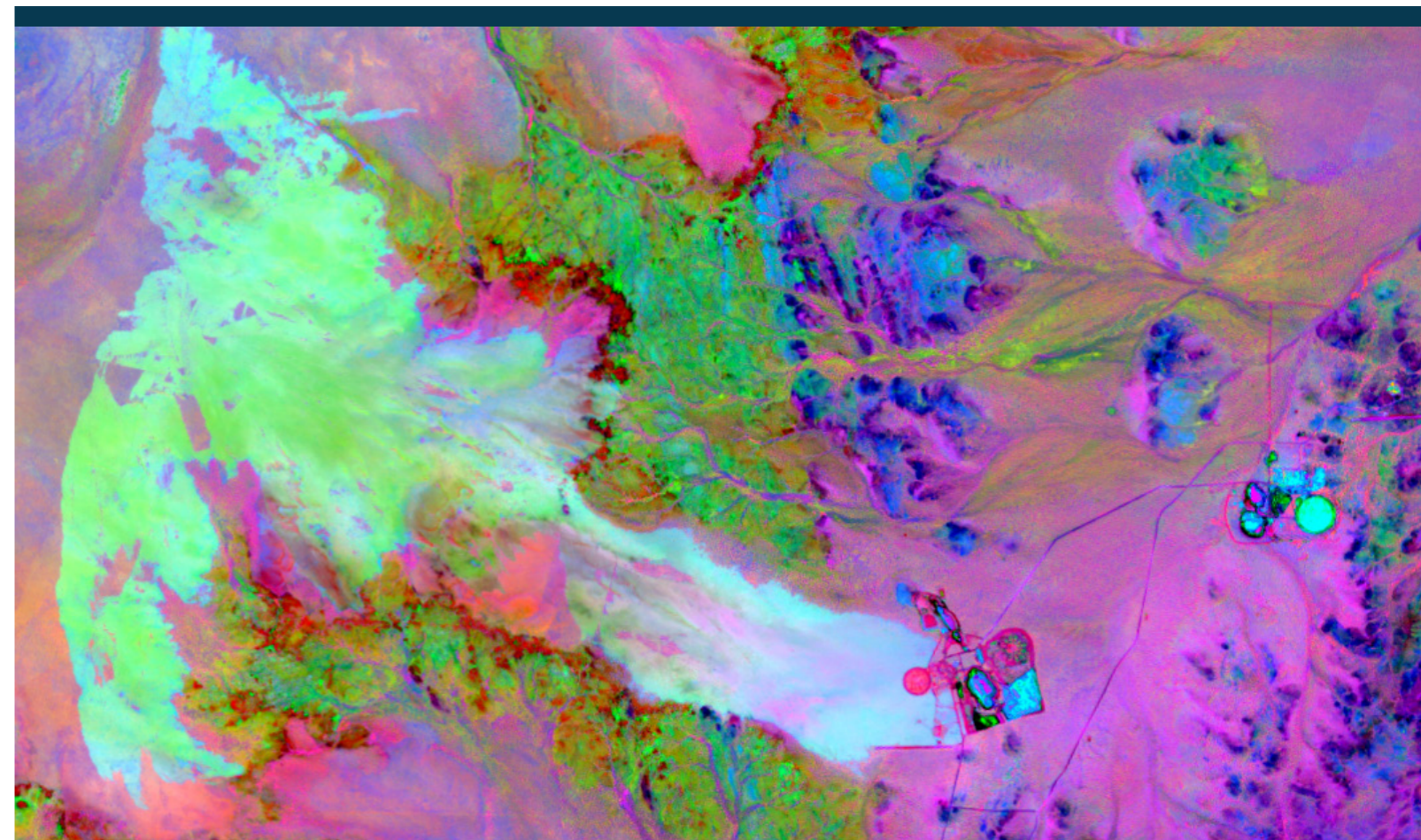
Mineral Exploration to Discovery

Geophysical methods play an integral role in mineral exploration particularly as we explore deeper, under cover, remotely, and in areas of difficult access, whether that's rugged terrain or highly vegetated. The successful application of geophysics to any given project area requires a considered, customised, and collaborative approach with project geologists and integrating all available information.

SGC geoscientists have decades of combined experience and understanding of greenfields exploration through to in-mine target delineation

and ore body discovery of precious and base metals, lithium, iron ore, rare earth elements (REE), uranium, diamonds and more, in all geological terranes.

We provide a full geophysical service from new survey planning, management, and data QC, to processing, modelling, interpretation, and target generation of new or legacy datasets. Our Principals and Consultants review entire project areas or specific targets and make recommendations for the optimal application of geophysical methods.





Sedimentary-hosted Mineral Deposits and Basin Analysis

Copper, lead-zinc-silver, uranium, and hydrocarbon deposits are hosted within sedimentary basins. Knowledge of the formation and evolution history of the sedimentary basin is important to focus exploration activities. The basin geometry, depth, and structure can be determined from a range of geophysical methods including gravity and

magnetics, seismic reflection, drillhole data, and surface geological mapping.

SGC specialises in integrating these datasets to provide valuable insights on subsurface structure, rock physical properties and contrasts, and the presence of igneous and sedimentary intrusions.

Groundwater Exploration and Aquifer Management

Groundwater is an essential part of life, especially in Australia. Whether it's for urban planning, agriculture, mining, industrial or even recreational use, the success of many projects depends on securing a suitable, reliable, and cost-effective source of water.

SGC has experience in all aspects of geophysics that can be applied to groundwater investigations including magnetics, gravity, radiometrics, satellite spectrometry, electrical, electromagnetic, nuclear

magnetic resonance (NMR), and seismic survey methods.

Our team of professional geoscientists will work closely with you to ensure the optimal result to maximise the benefit to your project. The SGC group has considerable experience working on groundwater projects all over the world, including Australia, Tanzania, Mozambique, Madagascar, and Sri Lanka.



Environmental Assessments and Contaminated Site Investigations

Non-destructive geophysical imaging brings significant added value to contaminated site investigations and environmental assessments. Geophysical methods can characterise subsurface structures and material conditions, estimate groundwater depth and quality, map buried targets, and extend past or “infill” between boreholes and other point sensor data. Geophysics is also well suited for repeat surveys to facilitate the monitoring of dynamic processes. Whether you are dealing with industrial site clean-up, acid rock drainage, or

soil and groundwater remediation, geophysics may provide the solutions you are looking for.

SGC has experience with a comprehensive range of geophysical techniques that are suitable in the assessment of contaminated sites. These include time- and frequency-domain electromagnetics (TDEM, FDEM), electrical resistivity imaging (ERI), Induced polarisation (IP), multi-channel analysis of surface waves (MASW), magnetometry, seismic refraction, and ground-penetrating radar (GPR).

Engineering and Geotechnical Investigations

Geophysical methods can reliably investigate soil and bedrock geotechnical properties as well as engineered structures. Structural information includes the depth to bedrock and water table, soil strength and stiffness, fractures, and underground voids.

Geophysical solutions employed by SGC to conduct these investigations include multi-channel analysis of surface waves (MASW), seismic refraction, electrical resistivity imaging (ERI), electromagnetic induction (EMI), and ground-penetrating radar (GPR).

Project Locations



Services

SGC's integrated solutions are underpinned by our full range of geophysical services.

Geophysical Survey

- Planning and design
- Optimisation
- Management

Field Services

- Downhole electromagnetics (DHEM)
- Ground electromagnetics: moving loop, fixed loop, Loupe TEM
- Ground magnetics
- Electrical resistivity imaging (ERI)
- Ground gravity
- Seismic: passive, MASW, 2D reflection, refraction
- Induced polarisation (IP)

Geophysical and Satellite Data

- Quality control (QC)
- Enhanced processing
- Imaging

Interpretation

- 2D modelling
- 3D modelling
- Anomaly identification
- Lithostructural interpretation
- Target generation
- 3D visualisation
- Drillhole design

Geomatics

- Digitisation
- Map generation
- GIS support
- Data archiving
- Multiclient data
- Hallberg Mapping Library

Training

- Integration of Aeromagnetic and Geology Workshop

Rock Property Testing

- Galvanic resistivity
- Inductive conductivity
- Density
- Magnetic susceptibility
- Magnetic viscosity
- Koenigsberger resistivity
- Seismic velocity
- Chargeability

Equipment Rental

- Magnetometers + GPS
- Scintillometers
- Spectrometers
- Magnetic viscosity meter
- Magnetic susceptibility meters
- Resistivity and IP core tester

Project Review

- Open file data compilation
- Data review
- Prospectivity assessment
- Target generation

Technology

SGC uses the latest geophysical technologies including leading industry softwares and specialist proprietary programs developed inhouse including:

- **Tromtools:** HSVR passive seismic processing workflows and data visualisation
- **ImageRobot:** enhanced image processing

Our geophysicists have experience and knowledge of all geophysical techniques and systems. This allows us to provide fully considered solutions to our clients' objectives.

Techniques

- Electromagnetics
- IP
- Magnetics
- Seismic
- Gravity
- GPR
- Resistivity, ERI
- Wireline logging
- Radiometrics
- Sub-audio magnetics (SAM)
- Magnetotellurics (MT), AMT, CSAMT
- NMR
- Multi-spectral, hyperspectral imagery

Platforms

- Downhole / borehole
- Surface
- Airborne
- UAV
- Satellite
- Shipborne



SOUTHERN GEOSCIENCE
CONSULTANTS

HEAD OFFICE

39 Richardson Street,
West Perth, Western Australia 6005
AUSTRALIA

AMERICAS OFFICE

Toronto, Canada
Tel: +1 (416) 407 6355

Vancouver, Canada
Tel: +1 (778) 302 9726

POSTAL

PO Box 696, West Perth
Western Australia 6872
AUSTRALIA

T +61(8)6254 5000 **E** geophysics@sgc.com.au

