

# AEM Forward & Inversion Modelling

## Geological Survey of South Australia in collaboration with Geolntrepid Consulting Services

Forward and inverse modelling of airborne electromagnetic data and 3D fault generation of regional gravity data.



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AUSTRALIA

# Collaborative Project

- New 1D/2.5D EM Inversion Codes
- Uses a geological reference model
- GeoModeller software

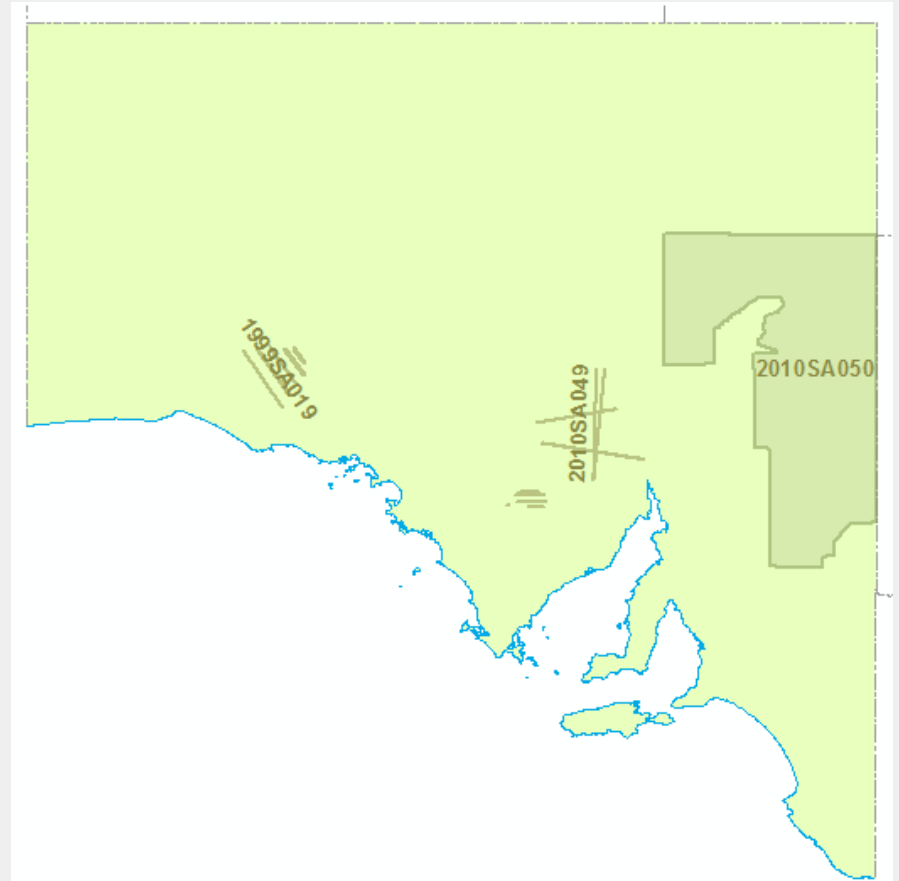
## Aim

- Evaluate the results against original results (combination of GA/CSIRO processed and exploration industry supplied).



# Where?

- Cariewerloo: 4 lines - total length 600 km (unconformity style U)
- Gawler South Paris: 10 lines - total length 172 km (Porphyry Silver and base metals/graphite)
- Quinyambie (full 2.5km): 45 lines - total length 4257km (U/Water)
- Western Craton Margins – Fowler: 10 lines - total length 538km (Nickel Copper)



# Links

- Report Book and Data Package:
- **Forward and inverse modelling of airborne electromagnetic data and 3D fault generation of regional gravity data.**
- <https://sarigbasis.pir.sa.gov.au/WebtopEw/ws/samref/sarig1/wcir/Record?w=NATIVE%28%27ALLFIELDS%27%27CTEXT+ph+is+%27%27forward+and+inverse%27%27%27%29&sid=1b8f9c5dd4f146e881d8098a233dfb4b&order=native%28%27title%27%29&rpp=25&r=1&set=1&m=2>

## Forward and inverse modelling of airborne electromagnetic data and 3D fault generation

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Intrepid Geophysics and GeoIntrepid Geophysical Software Technology and Consulting Specialists; Program

DPC Resources and Energy Group. Geological Survey of South Australia; Hill, S.M.

Geophysical 1D/2.5D forward and inverse modelling was performed on the EM data from airborne from a VTEM survey flown in northern Eyre Peninsula (at Paris prospect). The Tarcoola and Paris measured X and Z components, allowing the inversion to resolve more complex 2D structure and AEM data can extract benefit at little extra cost. The TEMPEST data from Cariewerloo and Frome components. A workaround, involving re-scaling the Z component of the Frome data, yielded acceptable. Reprocessing of the South Australian subset of the national gravity map was also performed, via used for geological dip determination from full tensor gravity gradiometry (FTG). Dips were determined national grid has demonstrated that the full tensor analysis requires higher standard, industry quality. <https://sarigbasis.pir.sa.gov.au/WebtopEw/ws/samref/sarig1/wcir/Record?r=0&m=1&w=catno=21>

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# Thank You

