

# Oceania Update

OneGeology Board Meeting – June 2018

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## Current Australian Programs

- Exploring for the Future
- Future Positioning
- Digital Earth Australia
  
- Data Strategy 2020
- QLD Geological Survey Data Modernisation Program

*No updates from New Zealand*

# Exploring for the future

Provide new geoscience data and information to reduce technical risk and drive new discoveries

minerals | energy | groundwater

Improve knowledge of key **mineral resources** in under-explored greenfield regions.

Improve knowledge of potential **oil and gas resources** within selected basins.

Identify **groundwater** potential for agriculture, resource, and community supplies.

Resource assessments for Northern Australia

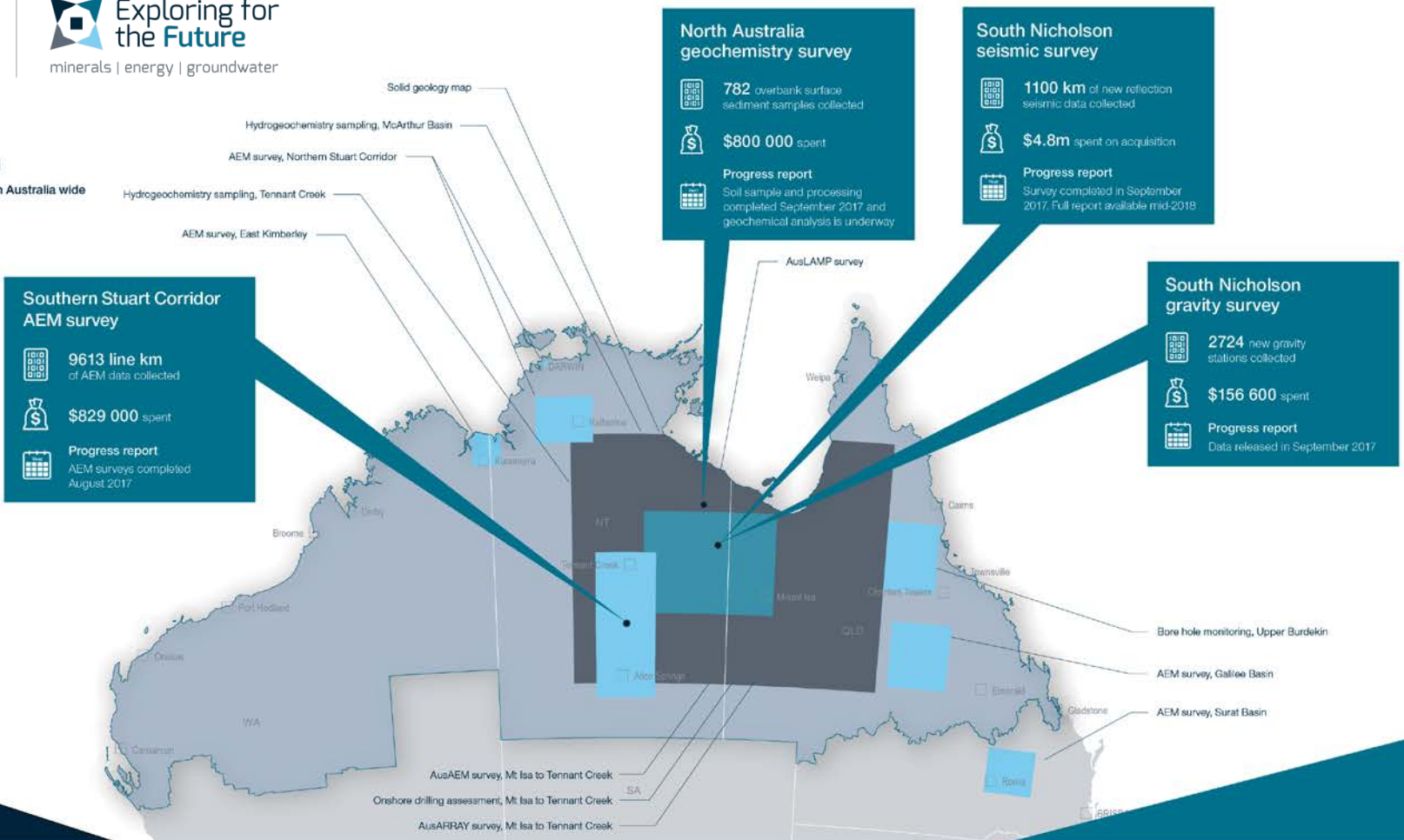
# Providing geoscience data globally



Exploring for the Future  
minerals | energy | groundwater

### Map legend

- Minerals regional
- Minerals northern Australia wide
- Energy
- Groundwater



**Southern Stuart Corridor AEM survey**

- 9613 line km of AEM data collected
- \$829 000 spent
- Progress report  
AEM surveys completed August 2017

**North Australia geochemistry survey**

- 782 overbank surface sediment samples collected
- \$800 000 spent
- Progress report  
Soil sample and processing completed September 2017 and geochemical analysis is underway

**South Nicholson seismic survey**

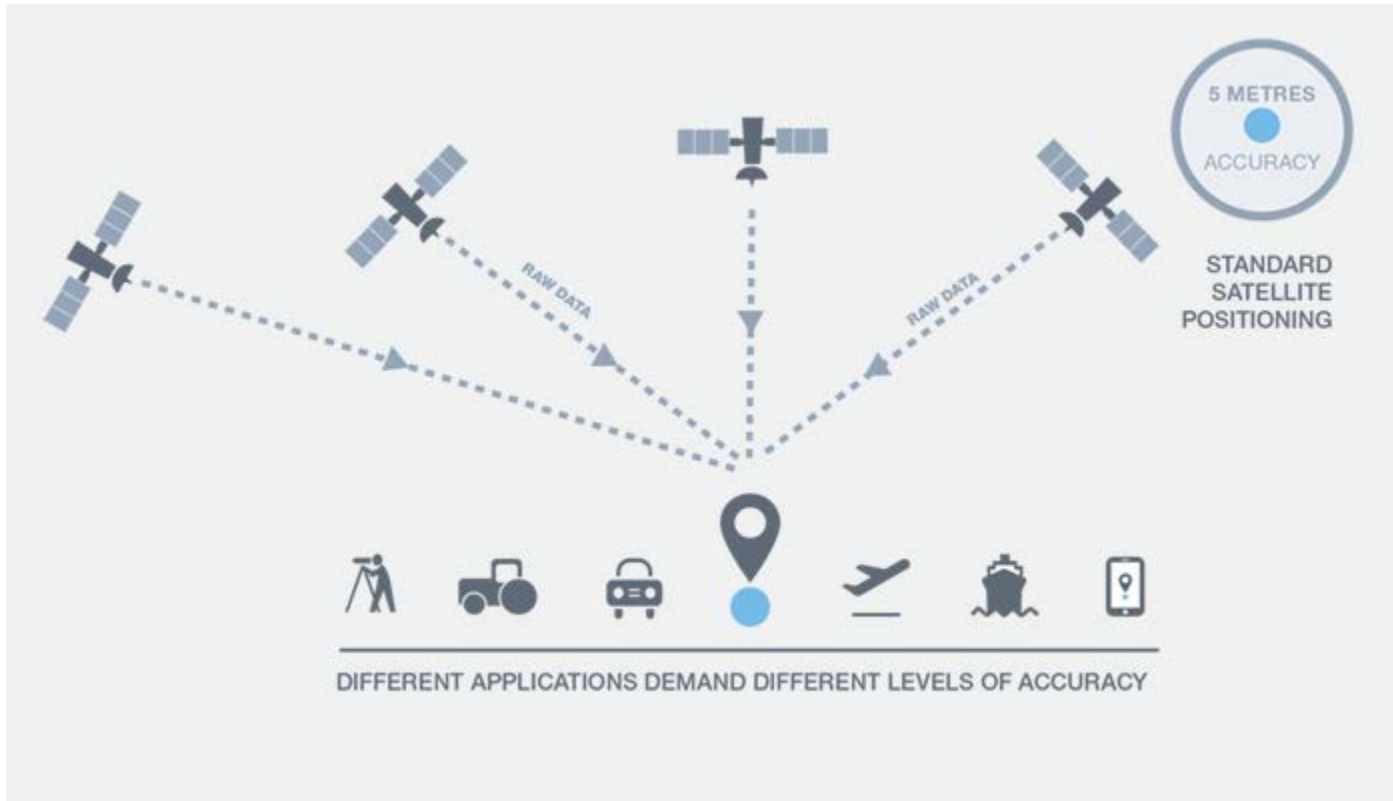
- 1100 km of new reflection seismic data collected
- \$4.8m spent on acquisition
- Progress report  
Survey completed in September 2017. Full report available mid-2018

**South Nicholson gravity survey**

- 2724 new gravity stations collected
- \$156 600 spent
- Progress report  
Data released in September 2017

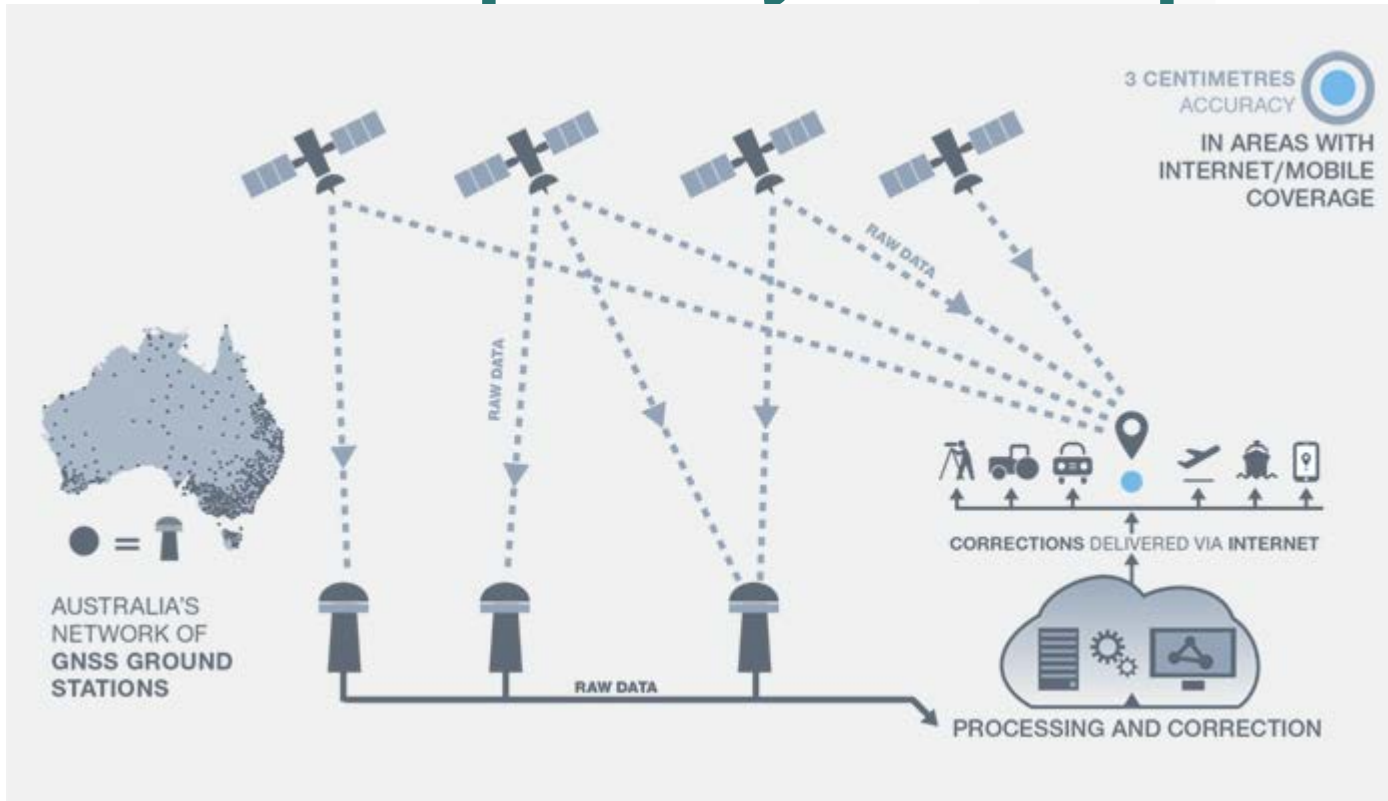
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# Current GPS



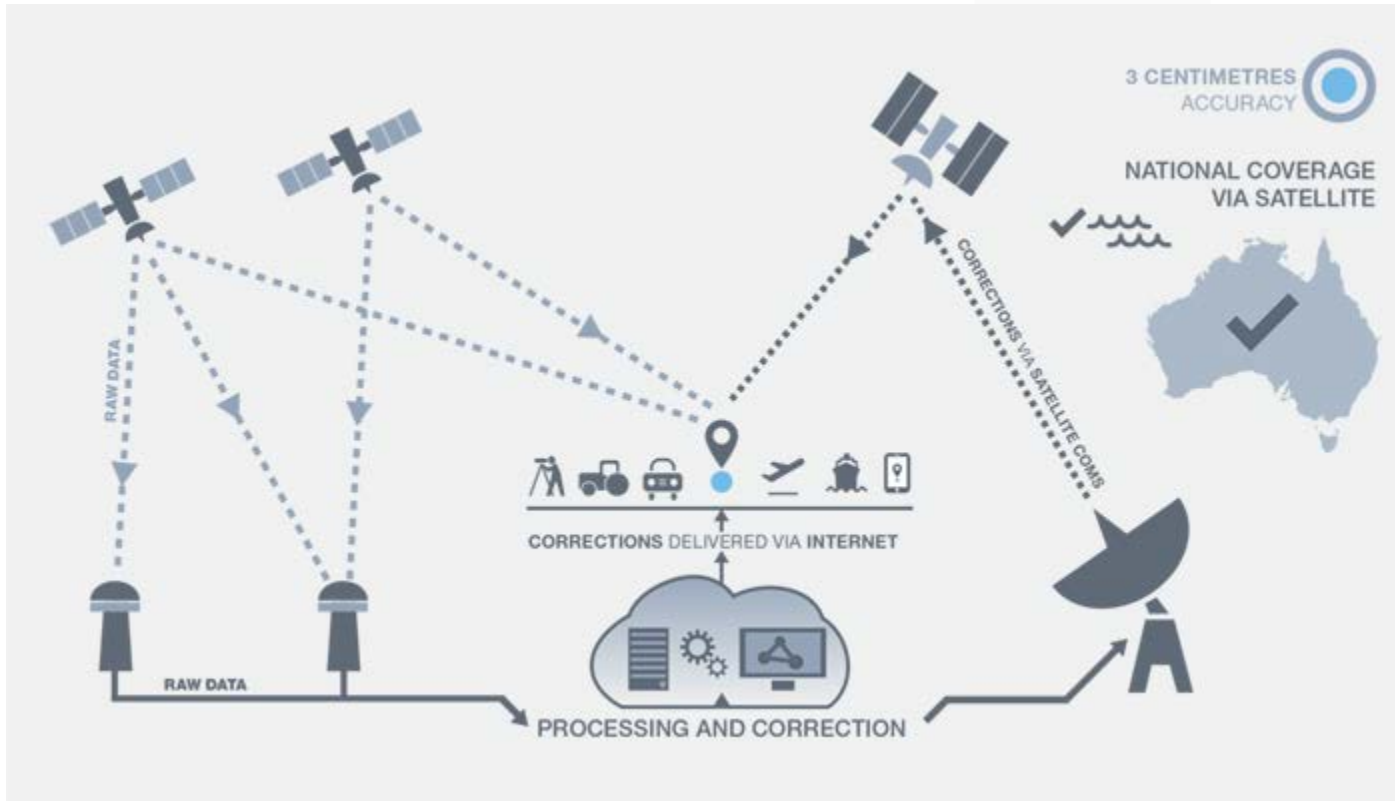
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# Ground Capability Development



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# NPI - Satellite Delivery



**Providing geoscience data globally**



**Digital Earth**  
AUSTRALIA

**10 000**



DAYS

1987-2017 DATA

**25**



METRE  
PIXEL

RESOLUTION

**300 000**

SCENES

**25 000**

PASSES

**$4 \times 10^{13}$**



PIXELS

**2**



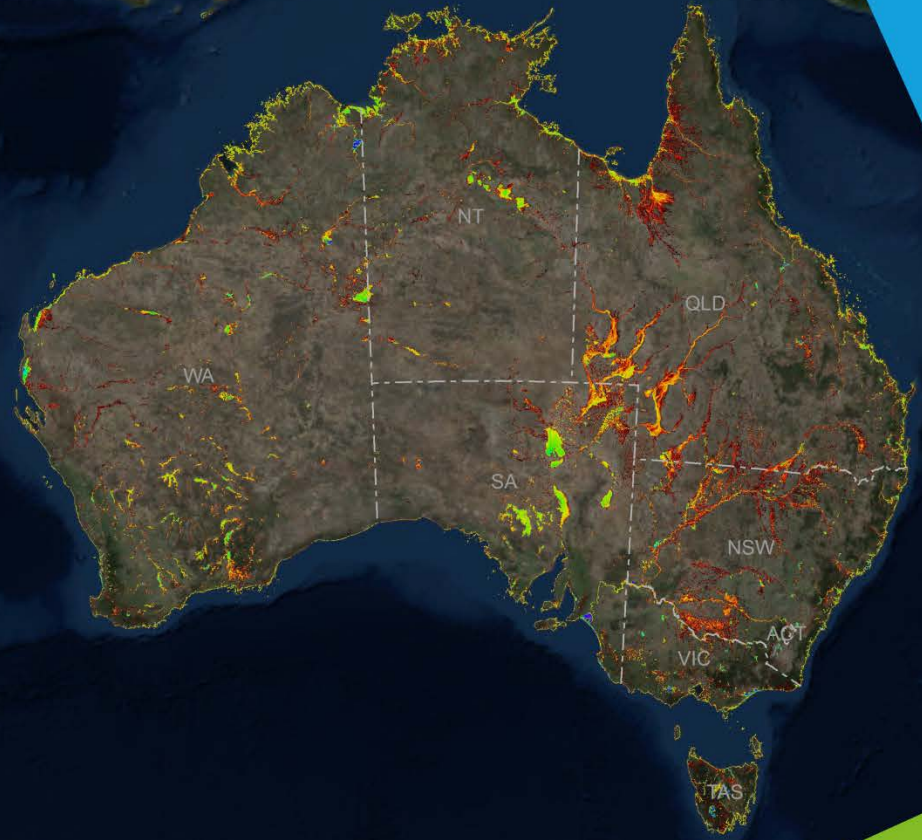
TERABYTES

COVERS

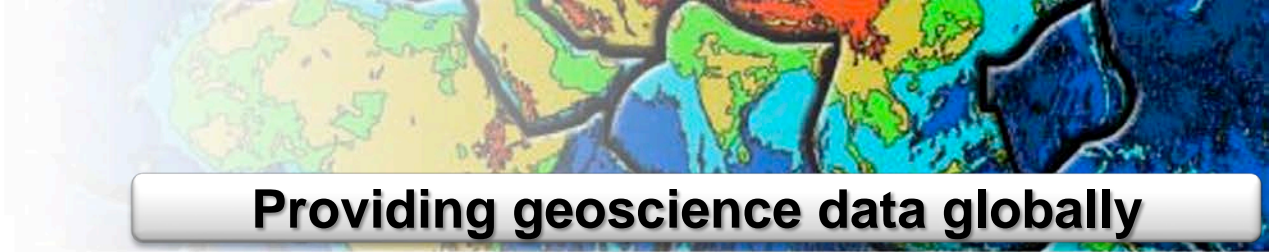
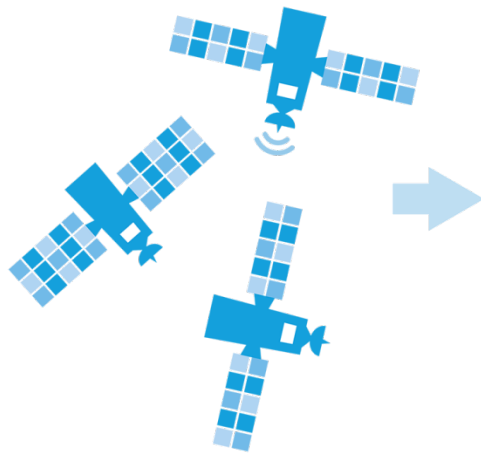
**13**



MILLION  
SQUARE KM







# Providing geoscience data globally



Reporting



Web services



Write code

**Analysis Ready Data**



Australian Government  
Geoscience Australia

<https://www.opendatacube.org/>

The objective of the ODC is to increase the impact of satellite data by providing an open and freely accessible exploitation tool, and to foster a community to develop, sustain, and grow the breadth and depth of applications.

INSTITUTIONAL PARTNERS



Australian Government  
Geoscience Australia



# Geoscience Australia Data Strategy 2018 – 2020: Vision and Pillars

Maximise Data's  
Potential

## Vision

Accessible

Discoverable

Reusable

Managed

Trusted

## Pillars

Streamline  
processes

Embed best  
practice

Encourage  
and reward

Develop  
capabilities

Strengthen  
Data  
Governance

## Current status – Web Services

- Utilising the Public Cloud for web service delivery
  - Geoserver and ArcGIS Server
- Recently released Services
  - Mineral occurrences
  - Commodity resources
  - Mines
- Services To be updated
  - Surface geology
  - Geological provinces
  - Rock properties
  - Seismic surveys
- New services to be built
  - Boreholes
  - Strat unit lexicon
  - Fieldsites, samples, geological observations
  - Organic and inorganic chemistry analyses
  - Depth to bedrock/basement
  - Geochronology
  - MT sites and maps
  - Other EFTF services not thought of yet
- Replacement of GADDS, based on WMS/WCS services

## Future Work



- Implement Data Strategy
  - Linked Data
  - Automated Web Services Delivery
- 3D Modelling and Delivery
- Machine Learning and AI
  - leverage open data cube technologies
- Continue to increase Cloud usage
  - Experiment with AWS Data Lake for Petroleum

## OneGeology Goes 3D

OneGeology members have teamed up with Academics from Monash University, the University of Western Australia, Universite de Lorraine and RWTH Aachen University to deliver a new 3D geological modelling platform – The Loop.

Members met in Southampton, UK in September following the Open Geospatial Consortium Technical Meeting to workshop the 3D modelling platform proposal and discuss interest from each National Geological Survey.

Geoscience Australia, The Canadian Geological Survey, The British Geological Survey, The French Geological Survey and the Polish Geological Institute have agreed to be involved and are preparing a consortium of geological surveys under the umbrella of OneGeology to collaborate on the Loop project. This initial group of surveys have been meeting over the past three months to finalise their proposal for involvement. The next face to face meeting will be during the [Resources for Future Generations Conference](#) (RFG2018) in Vancouver, Canada in June 2018.

The Loop 3D geological modelling platform will initially be conducted over three years from 2018 and will comprise research into producing a Geological Event Manager, a structural inversion engine, optimisation of supplementary data acquisition to maximise uncertainty reduction, methods for producing a series of geophysically and geologically consistent models, geological simulations, models classification, uncertainty estimation and risk mitigation and a geophysical falsification likelihood function. For more information please contact your OneGeology Board representative.

