Oceania Update

OneGeology Board Meeting – June 2018

Carina Kemp, Geoscience Australia
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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

- 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
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Current GPS

Different applications demand different levels of accuracy.
Ground Capability Development

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NPI - Satellite Delivery
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- **10,000 Days** 1987-2017 Data
- **25 Megapixel Resolution**
- **300,000 Scenes**
- **25,000 Passes**
- **4 x 10^{13} Pixels**
- **2 Terabytes**
- **13 Million Square Kilometers**

Digital Earth
Australia

Australian Government
Geoscience Australia
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Analysis Ready Data

Digital Earth
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.
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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.