

Geoscience information systems and services: 2019 and 2020

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This past year was a year of steady progress in open filing of mineral exploration reports, increasing the number of exploration geophysical datasets online through GEMIS, ongoing publication of reports and data generated by the Northern Territory Geological Survey (NTGS), and in the capture of exploration drilling and geochemical data for inclusion in the NTGS drilling and geochemistry database. The new petroleum and geothermal tenure reports (PEX Tenure) collection was also added to GEMIS, the final collection of the three separate collections providing access to the open file reports and data under the *Petroleum Act* and *Geothermal Energy Act*.

New drilling and geochemistry data

Drilling and geochemistry data captured from 66 industry reports, covering historical titles in the Batten Fault Zone area, was completed in April 2019. Progressive data capture over the Tennant Creek area to the Queensland border and throughout the Barkly region has commenced with the capture of data from the Tennant Creek 1:250 000 scale mapsheet. Data from the Short Range 1:100 000 scale mapsheet was undertaken in mid-2019, which included the capture of ~21 500 drill collars, 82 700 drill samples, 19 800 surface samples and associated results. Once fully checked and duplicate records removed, the data will be released. New data capture from the Flynn 1:100 000 scale mapsheet is commencing shortly.

All the new legacy and recently open filed data are released in batches through STRIKE and DIP 001 – *Northern Territory Geochemical Datasets*.

STRIKE

The last twelve months was characterised by a phase of stability in STRIKE development with some minor updates, including an upgrade of the download functionality to enable users to select and download small sets of themed data layers, eg geochemistry, rather than one large group for all geoscientific data.

More recently, development of a series of short tips and tricks videos has commenced. Several of these, including exporting coordinates of line and polygon objects, selecting from two layers and exporting to KML, will be available online in the near future. Suggestions for further topics are welcome.

Changes to the download functionality for data layers on STRIKE were implemented on 31 August 2019. It is now much easier to find and access the NT-wide layer downloads with the addition of a ‘Downloads’ tab. Prior to this, the downloads were only accessible on a separate web page via the Help link, which was somewhat hidden and hard to find.

Previously, multiple layers were included by default within large themed groups for titles and geoscience and the whole group had to be downloaded although only one layer may have been required. There are now 12 separate themed groups: Mineral titles, Petroleum titles and pipeline titles, Geothermal titles, Drilling, Diamond exploration, Geochemistry, Geochronology, Geology, Geophysics, Mineral deposits and mines, Indexes, and Graticules and blocks. With the exception of the three titles groups, each individual layer within a group can now be downloaded separately in the selected data format so users only receive what they really want (**Figure 1**). However, all groups can still be downloaded in one action in the selected data format as before.

Improvements to web services aimed at splitting the current single service into two services encountered some technical issues. Two separate web services, one for titles and one for geoscience data, would make it easier for consumers to find and determine the layers contained within each smaller web service package. Investigation and further work to resolve the issues continue.

Industry reports

Work to reduce the backlog of reports due for release under the five year ‘sunset clause’ in the *Mineral Titles Act* (MTA) continues. Over the last 12 months, reports from 2011 and 2012 have been released (open filed) and added to the MEX collection on GEMIS. In tandem with the open filing, the quality of the MEX database records is being improved as each report’s MEX record is checked and updated to ensure the information is complete and correct before release. Nearly 400 existing MEX records had geophysical datasets added to GEMIS in the last twelve months.

The PEX Tenure collection, covering industry reports on geological surveys, regional interpretation and similar, including the small number of geothermal exploration reports submitted under the *Geothermal Energy Act*, was launched in March 2019, completing the online PEX collections. The collection contains 203 open file records with only 30 records having no files available for download. During the migration to the GEMIS platform over the last few years, records within the PEX collections have been reviewed and improved; some have been merged with or separated from other records. The usual reasons records within the three collections may not have attachments are because either the file sizes are too large for downloading (particularly in PEX Geophysics), or the hard copy report, logs or sections have not yet been scanned (particularly in PEX Wells and PEX Tenure). Newly scanned documents and geophysical datasets are uploaded to existing records when available and it is worth checking from time to time to see if there have been any updates.

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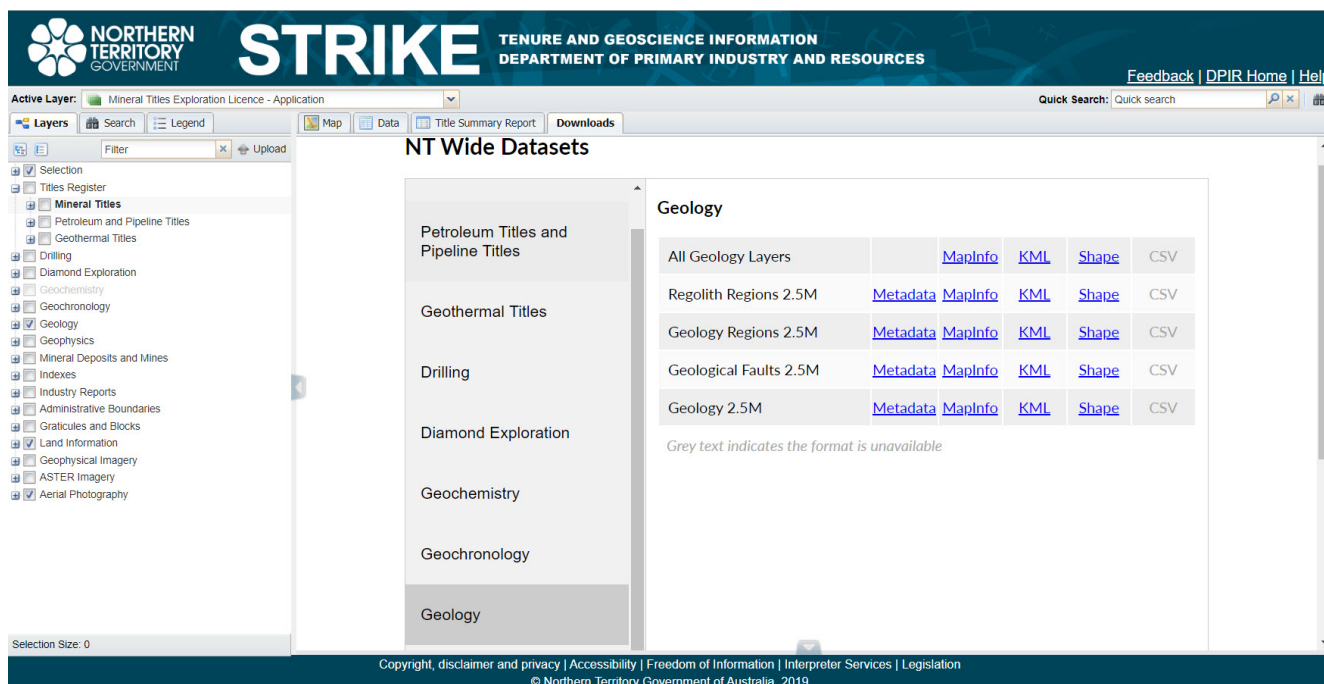


Figure 1. Screen capture of STRIKE Download tab showing Geology layers (and formats) available for download.

Resourcing the Territory website

The new Resourcing the Territory website was launched in January (www.resourcingtheterritory.nt.gov.au) and has an enhanced, modern design and user experience. It delivers insights and relevant information on exploration, projects, and commodities, to provide clients with the foundation knowledge to initiate the investment decision-making process. The content has had a significant update with the introduction of interactive maps, added detail in the commodity summaries, plus links to other information and GEMIS, whilst consistency has been improved across the web pages, commodity fact sheets and maps. The commodity categories have changed with the introduction of a critical minerals factsheet covering cobalt, lithium, magnesium, rare earths, nickel, tungsten, molybdenum and vanadium.

New NTGS products

New or updated NTGS products released since March 2019 include 14 Records, nine HyLogger Data Packages, two updated Digital Information Packages, data and images of the Tanami Region airborne magnetic/radiometric survey, Metallogenic map of the NT, one new geological map and explanatory notes and four new geological GIS datasets. Nineteen revised geological GIS datasets have also been released.

Records released include a number summarising geochronology results, the definition of the Beetaloo Sub-basin, the structural evolution of basement and basin

rocks in the Jervois Range Special 1:100 000 mapsheet, and the AGES 2020 presentations and posters.

The long term project to release GIS datasets in a standard data structure for all the geological 1:250 000 scale mapsheets was completed in July 2018, but the datasets were released only in MapInfo format. During the project, datasets have been identified as having varying data quality issues. More robust quality control checks have been introduced and datasets are being revised and re-released. In parallel, a new project to produce all the datasets in ESRI Shape format commenced in 2019. Twelve datasets were revised and re-released in August 2019 in both MapInfo and Shape formats, and another 5 unrevised datasets were also released in Shape format. A further six datasets have been revised and released in both formats since August 2019.

Other releases include new 1:100 000 scale geological GIS datasets for the Tennant Creek, Flynn and Short Range maps during 2019 and the new Jervois Range Special 1:100 000 scale geological map, explanatory notes and GIS dataset released in January 2020.

An update to the magnetic and radiometric NT-wide maps and new editions of several Digital Information Packages will be released for AGES 2020.

Reference

Rogers T, 2019. Geoscience Information: what's new and what's ahead: in 'Annual Geoscience Exploration Seminar (AGES) Proceedings, Alice Springs, Northern Territory, 19–20 March 2019'. Northern Territory Geological Survey, Darwin.