Discover what's new in NTGS information services and delivery

Tracey Rogers[1,2]

Overview

The legacy data capture program continues with digitisation and collation of a large volume of drilling and geochemical data in the Pine Creek priority area. Data capture from 820 reports covering the Batchelor 1:100 000 mapsheet has been completed with the data due for release by AGES 2025. Data from the Mary River and Point Stuart 1:100 000 mapsheets was released in December 2024, completing data capture for the DARWIN 1:250 000 mapsheet.

All geochemistry layers on STRIKE have been modified to align with the changes introduced in the December 2024 release of DIP 001 Northern Territory geochemical datasets; this includes merging two existing layers into one, and adding one new layer. The refreshed DIP 001 was released in December 2024 with new views and additional derived and raw datasets. Several enhancements to STRIKE are in development, including improving the display of attributes for mineral and petroleum titles where there are multiple titleholders.

The project to digitise hardcopy documents and make digital data available for seismic surveys continued with the addition of another survey that was not on the original list, and extended by utilising a manual vectorisation method on another five surveys from the mid-1960s. Data from the Burt Range 2D 1970 survey in the onshore Bonaparte Basin was released in June 2024.

Products released over the last year include a new NTGS Report on geothermal prospectivity for geothermal power generation, six NTGS Records, the 2024 edition of the Gravity map of the Northern Territory (NT) and grids, and one new Digital Information Package, DIP 043, 3D data compilation of the Birrindudu Basin. In May 2024, the report by Deloitte on the *Resourcing the Territory* (2018–2022) program outcome evaluation was also released. The popular Critical minerals in the Northern Territory guide has been updated several times and is now also available in Japanese, Korean and Indonesian.

New drilling and geochemistry data

Data captured from the remaining two 1:100 000 mapsheets on the DARWIN 1:250 000 mapsheet, Mary River and Point Stuart, were released on STRIKE in December 2024. The data release comprised over 2345 drill collars, 21 855 drillhole samples, and 22 900 surface samples, including associated geochemistry for around 21 960 surface and 21 810 drillhole samples. A revamped DIP 001, with additional derived and raw datasets and some reformatting of existing dataset layers, was also released in December 2024 (Harvey 2025, this volume).

In 2023–24, the focus for data capture moved to the PINE CREEK 1:250 000 mapsheet. Due to the high concentration of reports in the vicinity of historic mining fields including Pine Creek, data capture requires longer time frames for relatively narrow geographic coverage. During 2024, data capture was ongoing for 820 reports covering the Batchelor 1:100 000 mapsheet and completed in January 2025. Processing and validation of the data for inclusion in the database is in progress and due to be released in April 2025. Estimated numbers for the new release dataset are approximately 17 000 drillhole collars, 226 000 drillhole samples and 106 000 surface samples, of which 217 000 drillhole and 102 000 surface samples have associated geochemical assays.

An update to DIP 001 Northern Territory geochemical datasets is due for release by AGES 2025. New versions of recently released data are available for querying on STRIKE and are included in the download package.

STRIKE

During 2024, improvements to server resources were implemented to boost response times and overcome issues reported by clients when processing and rendering was particularly heavy. Data cleansing of several layers of mineral and petroleum titles information was also completed to remove some duplication.

The 1:250 000 topographic mosaic base map layer was updated in January 2025 to display the latest available version (2008) from Geoscience Australia. In February 2025, the geochemistry layers were modified to align with the datasets and presentation in the revamped DIP 001 (Harvey 2025, this volume). The two layers *Whole rock* and *Rock chip* have been combined into one layer: *All rocks* (**Figure 1**). Attribute fields have been redesigned to provide a single field for the assay value of each analyte using a standardised unit of measure, rather than displaying several fields required for differing units of measure, and null values now show as blanks. A new layer, *Maximum drill assays*, was also added. For each drillhole, this layer gives the single highest assay value for each analyte.

Several functional improvements are in development, including the ability to right click on a layer name to zoom to the extent of that particular layer, and to represent one-to-many relationships in the display of attributes. Restrictions due to the normal flat-file attribute display often result in extra fields, making searching less straightforward, or duplicated records with minor attribute variations, giving a larger number of search results. The mineral and petroleum title layers currently present duplicate records as a means of enabling searches for exact matches to a specific titleholder where there is more than one titleholder for a particular title. We aim to remove the duplicated records currently presented in the mineral and petroleum title layers whilst still enabling explicit titleholder searches where there are multiple titleholders.

[1] Northern Territory Geological Survey, GPO Box 4550, Darwin NT 0801, Australia
[2] Email: tracey.rogers@nt.gov.au

Seismic survey digital conversion project

Although the seismic digital conversion project was thought to be complete in the first quarter last year, one seismic survey was missed from the original list. The Burt Range 2D 1970 survey, comprising 20 seismic lines, was digitised and the data released in June 2024.

Digitising of some other older surveys completed in 1964 and 1965 was not possible by the standard, automated method used for the project. After receiving expert advice, it was determined that hardcopy sections for another five seismic surveys could possitbly be digitised with special treatment and manual vectorisation (**Figure 2**). To date, sections from the Erldunda 2D SS 1964 (10 lines) and the Mt Charlotte 2D SS 1964 (13 lines) in the Amadeus Basin have been digitised, with the data due to be released by early April 2025. Digital conversion of another three surveys is planned: Napperby 2D SS 1964 in the Ngalia Basin, and the Finke River 2D SS 1965 and West Walker Creek 2D 22 1965 surveys in the Amadeus Basin. Unfortunately only one of six lines in the Napperby 2D SS 1964 survey is available for digitising, and there may be an issue with the West Walker Creek survey.

All the digitised data will be added to the Petroleum Exploration Reports (PEX) collections on GEMIS.

Industry reporting and sample submission

With the amendments in June 2023 to the *Petroleum Act 1984* and Petroleum Regulations 2020, there were changes to the requirements for reporting and sample submission. Subsequently, an update to the Guidelines for Northern Territory onshore petroleum reporting and data submission was published in September 2023. All titleholders and operators need to be familiar with the reporting and sample submission requirements. In particular, drill core and cuttings will not be accepted as a matter of course. Before any transport to the core facilities is arranged, the sample submission form must be completed and sent to the department together with any relevant information for a decision on what will be accepted. The offer of submission will be considered and the department may accept the samples in part or in their entirety, or give authorisation for disposal of the samples.

There are no changes in requirements for mineral reporting but there will be increased attention on compliance with the mineral reporting guidelines. There will be a focus on the requirements in regard to data formats and content elements missing from reports, such as the exploration index map. Any authorisations under the *Mining Management Act 2001* or the subsequently issued environmental licences should be stated within the report. A new email address for all reports and drill core offers under the *Mineral Titles Act 2010* has recently been set up. All clients should use mineral.reporting@nt.gov.au (rather than geoscience.info@nt.gov.au) to submit technical, production, resource/reserve and expenditure reports, as well as offers of drill core and applications for amalgamated reporting and preliminary airborne exploration.

All reporting and core submission forms, guidelines and procedures are being progressively updated to reflect

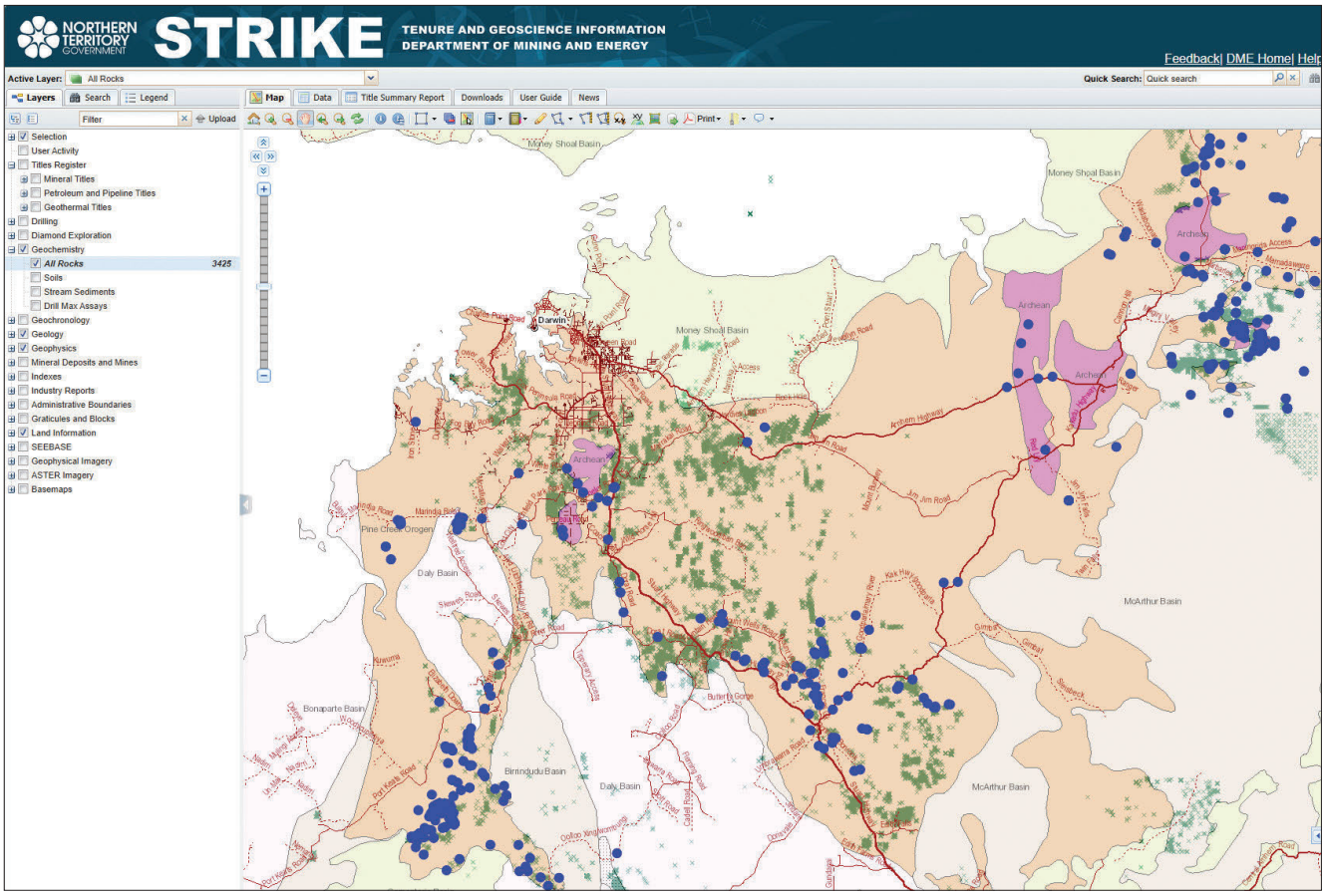

Figure 1. *All rocks* STRIKE geochemistry layer. NTGS samples with whole-rock analyses shown in blue.

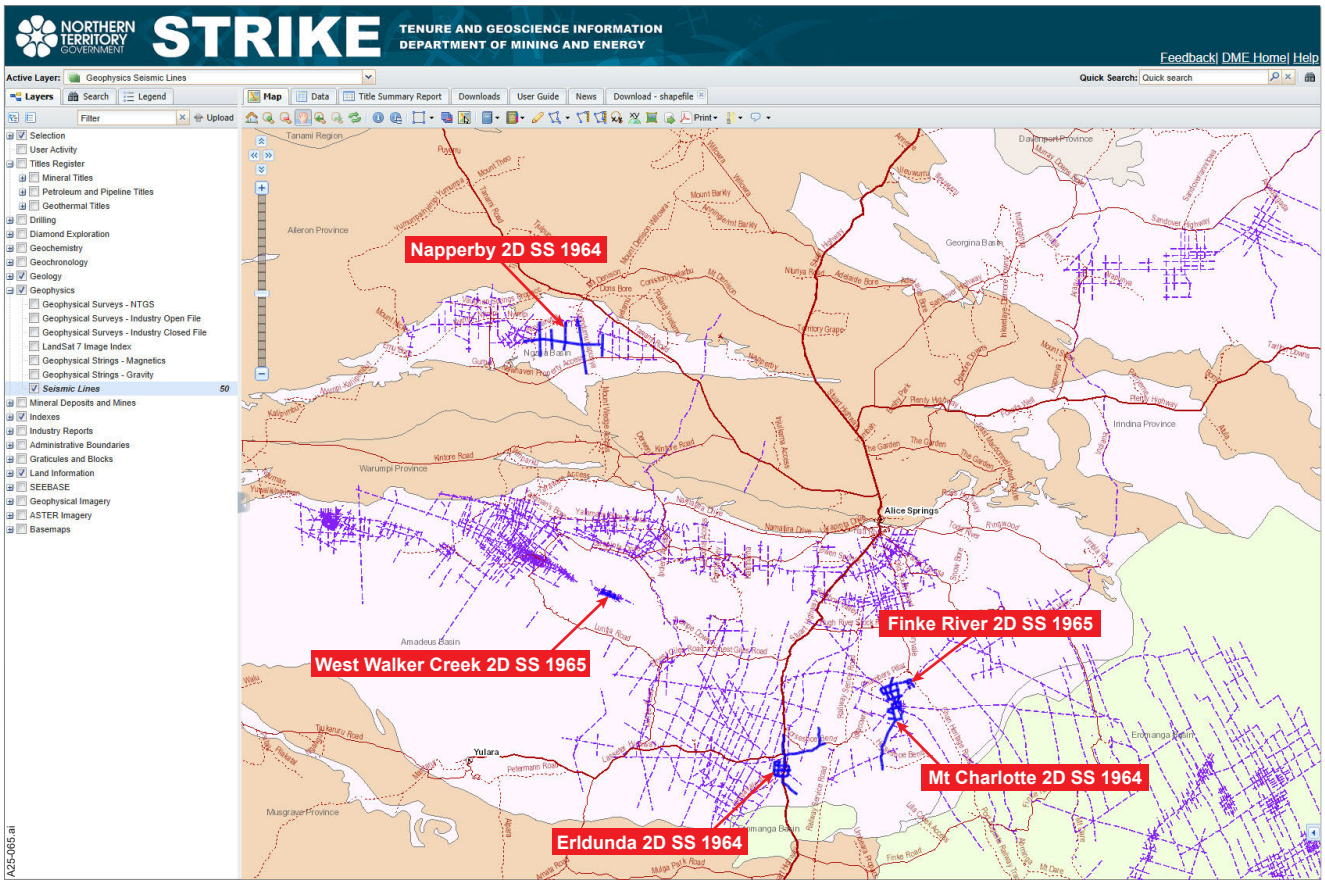

Figure 2. Industry seismic data conversion project – surveys requiring manual vectorisation.

the change of agency name to Department of Mining and Energy. At the same time, the email contact for mineral reporting will be updated in the various documents.

Resourcing the Territory website and Mining developments in the Northern Territory report

In 2024, the critical minerals pages on the *Resourcing the Territory* website (resourcingtheterritory.nt.gov.au) were rearranged and several new pages, including one for lithium, were created. These pages are accessed via the Minerals menu. Each subsection contains information on prospectivity, projects and links to further information, including factsheets and maps.

A completely reformatted and refreshed Mining developments in the Northern Territory report was released in May 2024. The report gives a brief overview and summarises resource, production, ownership, status and operations for developing projects, operating mines, and mines on care and maintenance. Details include the status of any approvals in progress, timelines, estimated jobs and mine life. Updated three times a year, the report can be downloaded from the NT Mining Developments Report web page under the Data and Publications menu on the *Resourcing the Territory* website. The latest version was released in February 2025.

New Northern Territory Geological Survey products

New or updated NTGS products released since April 2024 include one new and four updated Digital Information Packages (DIP), one Report, six Records, one new HyLogger Data Package (HDP), the 2024 version of the NT-wide gravity grids and 1:2.5M gravity map, and the final data and grids for the Pedirka gravity survey.

Records released cover geochronology results in the Pedirka Basin, Entia Dome, Aileron and Iridina provinces, an assessment of mine waste secondary prospectivity at the Cosmo mine, sedimentology and mineral potential of the Birrindudu Basin, stratigraphic characterisation of the Pine Creek Orogen, and a site screening study in selected onshore basins for CO_2, H_2 and compressed air energy storage.

Highlights are the second module of a collaborative study with CSIRO on the sequence stratigraphic framework, burial history and mineral potential of the Birrindudu Basin (Record 2024-004), released in October 2024, and Record 2025-001 on the stratigraphic characterisation of the Pine Creek Orogen, released in February 2025. The latter provides detailed petrographic information improving understanding of the petrogenesis and the thermal and deformational history of stratigraphic units hosting many mineral deposits across the Pine Creek Orogen.

NTGS Report 23, Prospectivity for geothermal power generation in the Northern Territory, was released in November 2024. The report and accompanying GIS dataset provides a high-level assessment of the geological prospectivity for geothermal energy generation and overview and discussion of three main generation strategies: Hot Sedimentary Aquifers (HSA), Engineered Geothermal

Systems (EGS), and Advanced Geothermal Systems (AGS).

DIP 043, 3D data compilation of the Birrindudu Basin, was released in September 2024. The data package is a 3D compilation of open-file data for the Birrindudu Basin which forms the western part of the greater McArthur Basin in the Northern Territory. A variety of datasets are collated into a pre-packaged 3D visualisation tool.

Other releases include the *Resourcing the Territory* (2018–2022) program outcome evaluation report. The report from Deloitte, released in May 2024, evaluates the $26 million four-year program that was a precursor to the current ongoing $9.5 million per annum program. The updated 2025 edition of the guide to the Critical minerals in the Northern Territory, first published in 2023, was released in February 2025. Japanese, Korean and Indonesian versions of the guide are also now available from the *Resourcing the Territory* website or directly from GEMIS.

The third edition HUCKITTA 1:250 000-scale geological map, explanatory notes and GIS dataset will be released in the near future.

References

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