

## Increasing accessibility and interoperability of New Zealand geoscience information for mineral exploration

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The project generation phase of mineral exploration requires diverse types of geoscience information to identify prospective areas of the target commodity and thereby reduce search areas and exploration risk. Much of this geoscience information is typically sourced from government organisations such as geological surveys and, in a globally-connected internet world, ideally needs to be findable, accessible, interoperable and re-usable.

In New Zealand, GNS Science is the key provider of mineral-relevant geoscience information such as geological maps and map datasets, rock and mineral properties data, earth resource information, geophysical datasets, and geological interpretations. These are managed and developed in an applied research framework for end users. International data standards are increasingly being embedded into these datasets to enhance their interoperability and versatility in data analytics applications. Digital geological map data associated with the Geological Map of New Zealand (GMNZ) at scales of 1:1M and 1:250k are now being delivered as Web Feature Services via the GeoSciML geological data model mapped features, using linked vocabularies for age and lithological properties, among others. Rock and mineral sample and physicochemical property data in the Petlab Geoanalytical Database (Petlab) conform to the international vocabulary standard for rock names. Mineral and other resource occurrence data of the Geological Resource Map of New Zealand (GERM) are made available through implementation of an EarthResourceML data model portrayal that uses standardised terminology for age, commodity, mineral deposit type and occurrence type and shape.

The accessibility of New Zealand geoscience information through web services has improved significantly for explorers. With these services and the increasing adoption of common data models and terminology, New Zealand is well placed to participate in the application of global data mining and other artificial intelligence methods to assess mineral resource potential.