**Title**

New Zealand’s hydrogeological unit dataset.

**Date**

First Release: November 2019 (White et al. 2019)

Current Release: November 2025

**Abstract**

The NZ\_hydrogeological\_unit\_stacked\_south\_island\_20250131.zip’ file consists of the following complementary files:

* ‘NZ\_hydrogeological\_unit\_stacked\_south\_island\_20250131.shp’ which consist of overlapping stacked polygons that represent hydrogeological units (i.e., aquifers, aquitards, aquicludes and basement) developed in a nationally-consistent manner.
* ‘HUM\_data\_dictionary\_20250131.csv’ which summarises attributes, values and descriptions from the GIS dataset;
* ‘HUM\_unit\_list\_20250131.csv’ which lists HUM unit names;
* ‘HUM\_facies\_list\_20250131.csv’ which lists facies names;
* ‘HUM\_facies\_model\_list\_20250131.csv’ which lists current facies model and their definition criteria.

Each polygon is attributed with the following attributes (dataset attribute names in brackets):

* unique identification number (HUM\_ID),
* unique name (HUM\_name),
* hydrogeological unit type (HUM\_type),
* geological era (HUM\_era),
* geological age descriptor (HUM\_age),
* lithological type (HUM\_lith),
* lithological descriptor (HUM\_rock),
* polygon-specific depositional facies name (facies),
* where applicable, hydrogeological system-specific reference to the representative volcanic facies model (volc\_model),
* where applicable, hydrogeological system-specific reference to the representative sedimentary facies model (sed\_model),
* polygon-specific outcrop indicator (outcrop),
* polygon-specific vertical sequence order, from younger to older unit (order),
* unique polygon id (poly\_ID).

**Release notes**

This dataset was initially prepared for the Ministry for the Environment (White et al. 2019) and is now developed by GNS as part of the Groundwater Strategic Science Investment Funds programme.

Fixes to the HUM dataset included:

* correction of attributes (HUM\_ID, HUM\_type) for polygons from the “miocene\_SI\_volcanics” in the Dunedin area.
* removal of duplicated polygons throughout the South Island, where facies were described as “Not available yet” (Unit ID: 5,21,38 and 46).
* update of sedimentary and volcanic model aquifer types re-attribution following the removal of duplicated polygons in the Mokihinui and Karamea areas as part of the 20250131 release of the Hydrogeological System polygon dataset.

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**Disclaimer**

In compiling the datasets, inferences and assumptions have been made about hydrogeological systems at a regional scale (i.e., 1:250,000). At the time of publishing, no validations using actual observations have been made (e.g., yield, aquifer properties, etc.), and the datasets do not include any information regarding the sustainability of a hydrogeological system (e.g., recharge/discharge areas, water balance, etc.). Experience and an appreciation of the limitations of the datasets is needed by persons using the datasets as an element in their decision making over access to and use of groundwater resources. In addition, the datasets should be treated with caution for detailed studies at map scales of less than 1:250,000.

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**Update frequency**

There is currently no scheduled update for this dataset. it is therefore recommended to include the current release date when using and referencing the dataset.

**Resource constraints**

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Where the dataset is used in a figure, it requires attribution in the following manner: © GNS Science 2025. Where reference to the dataset is to be included in a reference list please cite White et al., 2019 (Revised 2025) (see Credits for full reference).

**Spatial resolution**

This dataset is provided with an indicative resolution of 1:250,000-scale. Details on uncertainty pertaining to scale, resolution and capture of the input dataset is detailed in Moreau et al., 2019 (see Credits for full reference).

**Spatial Extent**

New Zealand, bounding box 'NZ': ('New Zealand', (166.509144322, -46.641235447, 178.517093541, -34.4506617165))

**Temporal Extent**

Not applicable

**Credits**

White PA, Moreau M, Mourot F, Rawlinson ZJ. 2019 (Revised 2025). New Zealand groundwater atlas:hydrogeological-unit map of New Zealand. Lower Hutt (NZ): GNS Science. [86] p. Consultancy Report 2019/144.

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