

Modernising height data



The New Zealand Vertical Datum 2016 provides a nationally consistent height reference surface. Standardised heights are an important tool for planning, consenting and infrastructure works.

NZVD2016 is New Zealand's official height system. It allows for the consistent collection and seamless exchange of heights across New Zealand. Heights used in GIS, infrastructure, planning, consents and works can now be nationally standardised. This provides better support for regional and national projects.

NZVD2016 is compatible with technologies such as GPS and levelling and NZVD2016 heights can be provided for all existing benchmarks. This allows accurate height measurements anywhere in the country.



The ability to integrate elevation information is critical in the assessment of water flow in coastal and low lying areas.

Traditional sea level datums

Traditionally a tide gauge has been used as the basis for a height system. However, these heights are misleading as they do not represent local sea level; the sea varies around the country and the height is not updated over time; these are historic reference points.

These systems are becoming less economic to use and maintain and are susceptible to movement, such as caused by earthquakes and geothermal activity.

Each local authority has determined their own sea level height reference, which means that heights are difficult to share with others. This can result in duplicated effort and errors.

How can LINZ help you?

LINZ is happy to work with you to understand your needs and how NZVD2016 could be best implemented in your area.

For more information contact Rachelle Winefield at crm_geodetic@linz.govt.nz

Case Study: Nelson City and Tasman District

Before NZVD2016 was developed, Tasman District and Nelson City Councils each used independent height datums. The difference between the two was more than 12 metres.

This led to problems, and in one example a building site was within the Nelson City Council boundary, while the infrastructure was supplied via Tasman District Council.

Two sets of plans, with two different heights had to be prepared. This caused duplication of effort and risked confusion on site.

LINZ was able to provide tools and advice which allowed local height datasets such as contours, LiDAR and benchmark heights, to be provided in terms of NZVD2016.

In July 2017, both councils successfully adopted NZVD2016 as the standard for all new height data, removing the risk of duplication and improving efficiency across both regions.



Image showing the distribution of NZVD2016 Benchmarks across the Tasman District and Nelson City Council boundaries