

Land Information

Fact Sheet

July 2008

New Zealand Geodetic Datum 2000 Projections

LINZG25702

This fact sheet describes the NZGD2000 projections that have been defined for representation of spatial data in New Zealand, its offshore islands, and the continental shelf

LINZ has defined a series of map projections in terms of the New Zealand Geodetic Datum 2000 (NZGD2000) for topographic mapping and spatial data representation over New Zealand, its offshore islands, and the continental shelf.

Each of the NZGD2000 projections is defined in *LINZS25002 Standard for New Zealand Geodetic Datum 2000 Projections: Version 2*. This standard was originally published in November 2007 and was amended in July 2008. NZGD2000 is defined in a separate standard, *LINZS25000 Standard for New Zealand Geodetic Datum 2000*.

NZGD2000 projections have been defined to support topographic mapping of the New Zealand mainland, its offshore islands, and the continental shelf. In addition, there are meridional circuits for cadastral surveying on the New Zealand mainland and the coastal islands. Each projection is described in the following sections.

Transformation of coordinates between NZGD2000 projections and projections in terms of other datums, such as NZGD1949, is explained in the fact sheet *LINZG25703 Datum and Projection Transformations*.

New Zealand Transverse Mercator 2000 projection

The New Zealand Transverse Mercator 2000 (NZTM2000) is the official projection for LINZ medium scale topographic mapping on the New Zealand mainland and its coastal islands. NZTM2000 is being used for the new 1:50,000 map series, *Topo50 (available from September 2009)*.

This projection supersedes the NZGD1949 based New Zealand Map Grid (NZMG) that has been used for the NZMS260 1:50,000 mapping. NZTM2000 has greater international consistency and is more easily incorporated into mapping applications and equipment.

Assistance for the conversion of coordinates between NZMG and NZTM2000 is available on the LINZ website.

The key parameters of NZTM2000 are:

Projection name	New Zealand Transverse Mercator 2000
Abbreviation	NZTM2000
Datum	NZGD2000
Reference ellipsoid	GRS80
Origin latitude	0° 00' South
Origin longitude	173° 00' East
False northing	10,000,000 metres North
False easting	1,600,000 metres East
Central meridian scale factor	0.9996

Further information

LINZ standards, fact sheets and up-to-date information are available on the LINZ website: <http://www.linz.govt.nz>.

Further information is available from:

Surveyor-General
Land Information New Zealand
PO Box 5501
Lambton Quay
Wellington 6145
Email: info@linz.govt.nz

Meridional circuits

New Zealand cadastral survey data is typically presented in terms of a local projection. Surveys that are carried out on the New Zealand mainland and its coastal islands using NZGD2000 are displayed in one of 28 local Transverse Mercator projections called meridional circuits.

The parameters defining the meridional circuits are available in LINZS25002 and on the LINZ website.

Offshore island projections

New Zealand has jurisdiction over a number of offshore islands. To enable the presentation of spatial data, topographic mapping and cadastral surveys on New Zealand's offshore islands, five additional Transverse Mercator projections have been defined in terms of NZGD2000.

Geospatial data cannot be represented using NZTM2000 in offshore areas due to the large distortion that occurs on Transverse Mercator projections with increasing distance from the central meridian.

The common parameters for the offshore island projections are:

Datum	NZGD2000
Reference ellipsoid	GRS80
Origin latitude	0° 00' South
False northing	10,000,000 metres North
False easting	3,500,000 metres East
Central meridian scale factor	1.0000

The remaining parameters for the offshore island projections are listed in the table below:

New Zealand Continental Shelf 2000 projection

The New Zealand Continental Shelf Lambert Conformal 2000 (NZCS2000) projection is suitable for the presentation of datasets that span the New Zealand continental shelf. The continental shelf extends from 25°S to 60°S and from 160°E to 170°W.

Unlike the other projections on this fact sheet, NZCS2000 is a Lambert Conformal Conic projection. This is to minimise the distortion that occurs with transverse Mercator projections with increasing distance from the central meridian.

The key parameters of NZCS2000 are:

Projection name	New Zealand Continental Shelf Lambert Conformal 2000
Abbreviation	NZCS2000
Datum	NZGD2000
Reference ellipsoid	GRS80
First standard parallel	37° 30' South
Second standard parallel	44° 30' South
Origin latitude	41° 00' South
Origin longitude	173° 00' East
False Northing	7,000,000 metres North
False Easting	3,000,000 metres East

Geodetic Reference System 1980 (GRS80)

Parameter	Value
Semi-major axis	6,378,137 metres
Inverse flattening	298.257 222 101

Offshore Island Projection Parameters

Area	Projection name	Abbreviation	Origin Longitude
Chatham Islands	Chatham Islands Transverse Mercator 2000	CITM2000	176° 30' West
Snares and Auckland Islands	Auckland Islands Transverse Mercator 2000	AKTM2000	166° 00' East
Campbell Island	Campbell Island Transverse Mercator 2000	CATM2000	169° 00' East
Antipodes and Bounty Islands	Antipodes Islands Transverse Mercator 2000	AITM2000	179° 00' East
Raoul Island and Kermadec Islands	Raoul Island Transverse Mercator 2000	RITM2000	178° 00' West