

NZ Report to SCAR Geodesy and Geographic Information WG

Activities during 2000 - 2002

Antarctic Strategy

LINZ is developing an Antarctic Strategy. This will cover LINZ involvement in the Ross Sea Region of Antarctica, including mapping, place naming, and geodetic survey activities. It also looks towards future work programmes in the Ross Sea Region. The strategy will be completed and released by the end of 2002.

Geographic Place Names

LINZ continues to work closely with USGS jointly naming features in the Ross Sea Region.

Other activities include:

- An official committee ruling over Place Naming in the Ross Sea Region of Antarctica and coordinating with US ACAN.
- Official names being published in the NZ Gazette and on the LINZ Web of NZ Antarctic place names.
- Development of a policy on NZ Naming in Antarctica.
- Provision of a submission process form on the LINZ Web site for submitting names for features in the Ross Sea Region.
- The encouragement, through Antarctica NZ, for scientists and field staff to submit names by including articles in their Ice Sheet Newsletter and Season Handbook.

Geodetic

Ross Sea Region Geodetic Datum 2000 (RSRGD2000) was implemented in November 2000. Work continues to capture existing survey data held in terms of the old Camp Area Datum, and readjustment of it in terms of the new datum. The defining parameters for the new datum are:

- The new datum for the Ross Dependency of Antarctica will be known as 'Ross Sea Region Geodetic Datum 2000' (RSRGD2000).
- The ellipsoid associated with RSRGD2000 will be the Geodetic Reference System 1980 (GRS80 ellipsoid).
- RSRGD2000 will be based on and aligned with the International Terrestrial Reference Frame 1996 (ITRF96) at epoch 1 January 2000 (2000.0) which has a geocentric origin.
- All points coordinated in terms of RSRGD2000 will have coordinates defined at epoch 1 January 2000 (2000.0).
- Coordinates of geodetic marks in terms of RSRGD2000 will not be fixed. Coordinates will be updated as required to account for new observations or localised mark movement.

LINZ continues to work jointly with USGS on the annual surveys of the TAMDEF geodetic project. Data from these surveys contribute to RSRGD2000.

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LINZ has also continued to work with Victoria University on maintenance and calibration of the Cape Roberts tide gauge. A major upgrade of the tide gauge is planned for the 2002/2003 season. In cooperation with USGS a permanent GPS tracking station has also been established at Cape Roberts adjacent to the tide gauge.

Assistance has been provided to Antarctica NZ with local surveys around Scott Base and to spatially define several Sites of Special Scientific Interest.

Work is slowly progressing on the cleaning up of some NZ geodetic sites in the Ross Sea Region. It is planned to remove the 44-gallon drums that have previously been used as observing beacons.

A template has been developed for a geodetic database for the GGI working group of SCAR.

Topographic Mapping

In late 2001 LINZ let a contract for the capture of digital data for Ross Island. The data is now available. It was captured for output at 1:50 000 scale using photo control supplied by USGS from 1993 photography. At 1:50 000 it will take approximately nine (1 deg x 15 min) sheets to cover the area. A check plot of data at 1:120 000 is available.

Hydrographic Mapping

LINZ undertook a multibeam survey in the western Ross Sea in February/March 2001. The survey took 25 days and covered over 500 square miles around Cape Adare, Cape Hallett, the Possession Islands and the Balleny Islands.

LINZ will produce 3 new charts of the Ross Sea in FY 02/03. These will incorporate the LINZ survey data. Their details are:

Chart number	Area	Scale
NZ 149006	A sheet of plans covering: Cape Adare Cape Hallett Ridley Beach Seabee Hook	1:50 000 1:50 000 1:15 000 1:15 000
NZ 149007	Possession Islands	1:60 000
NZ 149008	Cape Adare to Cape Hallett	1:200 000

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