

NEW ZEALAND NATIONAL REPORT FOR SCAR 2000 WG FOR GEODESY AND GEOGRAPHIC INFORMATION

Report of Current Activities for 1998 - 2000 Prepared by

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INSTITUTIONAL CHANGES

During the setup of Gateway Antarctica (GA), a new centre for Antarctic studies and research, the University of Canterbury purchased the International Centre for Antarctic Research and Information (ICAIR) from the Royal Society of New Zealand. Since this date ICAIR has been fully incorporated superceded into GA and the decision to discontinue the ICAIR label was made at the beginning of 2000. Dr Bryan Storey became the new director of GA and Professor of Antarctic Studies from February 2000.

Gateway Antarctica has taken over the UNEP/GRID-C node responsibility for the Antarctic and South Pacific region. The United Nations Environment Program/Global Resource Information Database, Christchurch forms one of a global network of co-operating centres which collect, collate, manage, analyse and distribute environmental data and present these as information products, as well as develop and implement measures to integrate the use of such information into environmental management procedures. Work is undertaken for international, national and local authorities, programs and agencies. Activities are focussed in the Pacific Region and Antarctica, although the projects in the second of these areas are confined to those that specifically address the objectives of Agenda 21 as it relates to Antarctic mapping activities.

Field Activities

1.1 Geodetic Survey

The programme to unify all survey datums in the Ross Dependency in line with SCAR resolutions continues. During the 1999/2000 field programme New Zealand assisted the USGS in the GPS TAMDEF survey of the Trans-Antarctica/Ross Island region of the Ross Dependency. Data from this and earlier TAMDEF surveys, and surveys undertaken by Terralink NZ Ltd for LINZ, are currently being processed and will form the basis of a new datum, Ross Sea Region Geodetic Datum 2000, for the area. The first phase of the new datum, incorporates 1 zero order, 25 1st order, 13 2nd order, and 39 3rd order stations. Processing of this data and realisation of the new datum is expected to be completed by November 2000. The next stage will include incorporation of other lower order stations and unification of other local datums into the Ross Sea Region Geodetic Datum 2000.

During the 1999/2000 field programme the opportunity was taken to assess the usefulness of the old survey drum beacons with a view to removing them in future years.

1.2 Aerial Photography & Remote Sensing Nothing to report, see section 6.2

1.3 Hydrography/Bathymetry See section 7.3

1.6 Tide Gauging

Victoria University of Wellington have continued the operation of the Cape Roberts Tide Gauge with data being downloaded annually. With completion of the Cape Roberts drilling programme arrangements for the longer term operation of this tide gauge are being assessed by LINZ.

1.7 Gravity Nothing to report.

1.8 Sites of Special Interest and SPAS.

Gateway Antarctica has completed several digital orthophoto maps for the proposed Terra Nova Bay Site of Special Scientific Interest and is in the process of finishing similar maps for the proposed Edmonton Point Protected Area. These maps are achieved with management plans for each area. The work has been carried out under contract to the Italian Antarctic Program.

2. **Mapping Activities**

2.1 Topographic Mapping

Plans have been developed to map 8 sheets from the 1993 photography over Ross Island at 1:50,000. Aerial triangulation and field control is awaited from the USGS. This has been delayed for some time.

2.2 Thematic Mapping Nothing to report.

2.3 Hydrographic Charts See section 6.3

3. **Geographic Information Activities**

3.1 Digital Data Sets

Under the UNEP/GRID Christchurch node Gateway Antarctica completed a contribution to the Global Environment Outlook report (GEO-2000), which included an Antarctic input for the following sections of GEO-2000:

- State of Environment, Polar and the Deep Oceans;
- Current policy review: Polar Regions and the Deep Oceans; and
- Multilateral Environmental Agreements: Polar Regions and the Deep Oceans.

5. **Publications**

Contributions to the Polar and the Deep Oceans Section of the UNEP Global Environment Outlook 2000. Published by Earthscan Publications Ltd, London.

Blick, G.H. 1999: Ross Dependency (Antarctica): current and future geodetic activities. *Land Information New Zealand Office of Surveyor General Technical Report 7.*

Pearse M.B. 2000: Ross Sea Region Drum Beacon Audit. *Land Information New Zealand Office of Surveyor-General Audit Report RQA-02-03-03-03.*

6. Place Names

The New Zealand Geographic Names Board has been working with the US Board on Geographic Place Names on naming features on Ross Island and the Dry Valleys area in preparation for new maps of the area. Under a co-operative arrangement between New Zealand and the United States, approximately half the names are supplied by each country for jointly produced mapping.

7. Proposed Activities

7.1 Geodetic

Completion of the realisation of the I¹ and 2^d order 2000 co-ordinates for the Ross Sea Region Geodetic Datum 2000 by November 2000. Begin integration of lower order marks into the Ross Sea Region Geodetic Datum 2000. Participate in a further TANMEF survey and begin removal of drum beacons and sit restoration.

7.2 Topographic Mapping

The need for further 1:50,000 digital topographic mapping of New Zealand's area of interest is to be assessed, generally extending to the north and south of existing coverage and around Cape Hallet and Cape Adair.

Much of the existing 1:250,000 mapping is 50 years old and lacks content and accuracy. It does not adequately support GPS navigation. Plans are being developed to supplement the mapping with enhanced satellite imagery.

7.3 Hydrographic Charts

Surveys are planned for the coast around Cape Hallet, Cape Adair and the Possession Islands. These are required to support tourist ventures that require safe anchorage. Adverse weather and ice conditions are a major consideration and the risk of not completing a successful survey are high. Work is likely to commence in the summer of 2001/2002.

Charting at scales of 1:5,000 to 1:700,000 is being planned for the Ross Sea extending from Balleny Islands in the north to Ross Island in the south. These will be compiled initially from existing data being sought from other hydrographic authorities.