

Land Information

Fact Sheet

date December 2002

PositionNZ

*This fact sheet explains
PositionNZ and how to
access data.*



The New Zealand GPS Active Control Network

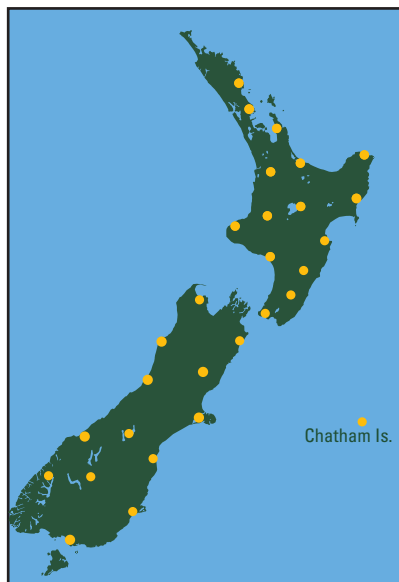


Fig 1. Operational and Proposed Active Control Stations (not to scale).



Fig 2. A view of a PositionNZ station.

Introduction

The New Zealand Active Control Network (**PositionNZ**) will consist of approximately 30 continuously tracking Global Positioning System (GPS) stations at locations across New Zealand and in the Chatham Islands. The proposed network of stations is shown in Figure 1. The North Island component of this network is expected to be completed by **June 2003** and the South Island component by **June 2005**. Operational stations can be seen on the LINZ web site at

www.linz.govt.nz/positionnz.

The network provides (GPS) carrier phase and code range measurements in support of three-dimensional positioning activities throughout New Zealand. The **PositionNZ** network enables users to position points with an accuracy that approaches a few centimetres relative to New Zealand Geodetic Datum 2000 (NZGD2000), both horizontally and vertically.

The network has been established in partnership with the Institute of Geological and Nuclear Sciences.

PositionNZ Data

PositionNZ stations are the highest accuracy points in the NZGD2000. A continuous tracking GPS receiver (Fig. 2) located at each station receives data from the constellation of GPS satellites that orbit the Earth. Data from these satellites can be used to determine the precise position of points on the Earth's surface.

- The data from the **PositionNZ** stations are recorded at 30-second intervals and stored as RINEX format files
- Data is available as hourly or daily files
- Data is available free of charge at www.linz.govt.nz/positionnz
- There are no restrictions on the use of the RINEX data
- IGS precise satellite orbits can be obtained from <http://igscb.jpl.nasa.gov/>

Applications

LINZ distributes and archives GPS data from the **PositionNZ** network. This data can be used for a wide range of activities including:

- to enable geodetic, cadastral and other users to derive accurate positions, in terms of NZGD2000, with a single GPS receiver, single field party and, ultimately, without the need for their own processing software
- to enable connection of local surveys, eg. cadastral surveys, into the highest accuracy points in NZGD2000 (the Zero Order network) to enable seamless and spatially consistent data sets to be developed and contribute to the local geodetic framework
- to provide greater confidence in the geometry and integrity of NZGD2000 through continuously collecting and analysing data and model the effects of crustal deformation
- to contribute to the International GPS Service (IGS) and to provide information for scientists for measuring plate tectonic movements and other applications
- to determine GPS satellite integrity, confirming that satellites are transmitting reliable data.

LINZ will look to further developments as the **PositionNZ** network is developed. These may include the ability to automatically post process GPS data from the network and from other users' remote receivers.

Further information is available from:

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For up-to-date information on this or any other LINZ service, see LINZ on the Web at:

www.linz.govt.nz