



Land Information New Zealand (LINZ)



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Quality – 1Spatial is committed to quality in all aspects of its business and has achieved ISO 9001:2000 certification. 1Spatial has been ISO9001/TickIT assured continuously since February 1994.

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Land Information New Zealand (LINZ) publishes maps in new geodetic reference system (NZTM)

About LINZ

New Zealand is slightly larger than the UK in area and has a unique combination of topography and biodiversity. With many wild areas it is a natural location for many outdoor pursuits. Tourism supports nearly 10% of the GDP, Topo50 maps are designed to help tourists find their way through remote areas, and include updated information on Department of Conservation (DOC) huts and tracks. Emergency services will be using the same maps should help be needed. Navigation to remote locations can be achieved quickly and accurately using GPS and the compatible topographic map based on the global reference system WGS84 (the GPS reference frame).

Land Information New Zealand (LINZ) is the national mapping agency responsible for providing up-to-date topographic mapping (digital mapping data and hard copy land maps at 1:50,000 scale) to support the needs of Defence, Emergency Services, and the constitutional framework. The 451 maps that comprise the new LINZ topographic 1:50,000 series are available to the public through bookshops, outdoor stores and information centres. You can also download raster map files free from the LINZ website. They cover all of mainland New Zealand and the Chatham Islands.

Overview & Challenges

The New Zealand Topographic Information Strategy 2005-2010 identified a high priority for LINZ to replace the current NZMG-based topographic map series with a new series based on the NZ Transverse Mercator projection: NZTopo50. Since 2001 LINZ has been contracting its aerial flying, orthophoto production and data maintenance work based on this datum, projection and sheet layout.

In order to achieve the strategy objective LINZ required a number of modifications and new developments to be made to their existing map production processes. LINZ had previously out sourced much of their topographical data maintenance and map production capabilities. A benefit in publishing the new map series was to bring as much of the production process as possible in house to speed up the production process. Features within the new processes include:

- A text clash detection tool to assist with text placement and additional tools for manually resolving any subsequent text clashes
- Intelligent cartographic feature representation
- The inclusion, for the first time, of Māori Macron font for text labels
- The collation of the map sheet components before printing to a number of formats including PostScript, TIFF, GeoTIFF and PDF

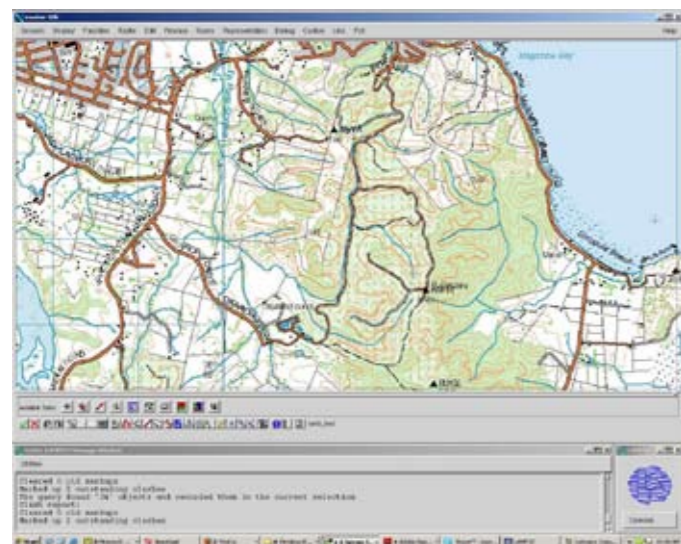


Figure 1 - Before

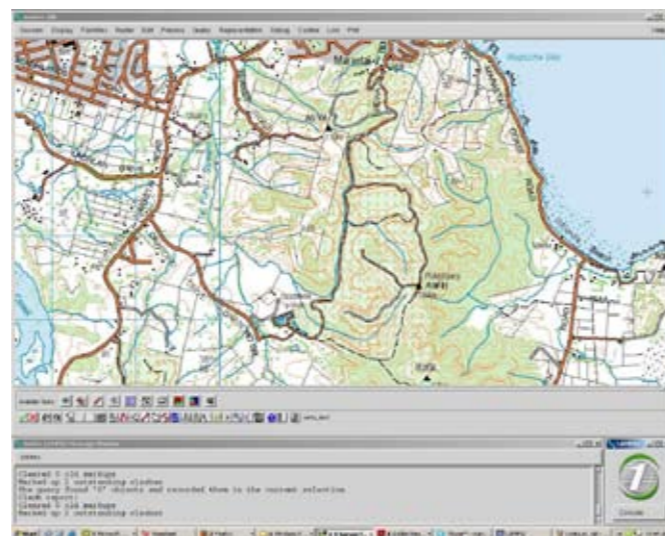


Figure 2 - After

“LINZ is a longstanding customer of 1Spatial and has been using 1Spatial technology since 1995 to manage and maintain topographic data. The 1Spatial project team are a pleasure to work with.

They listen carefully to our requirements and provide us with a practical, cost-effective solution that is tailored specifically to suit our needs and help us achieve our goals. By working in partnership with 1Spatial to develop a fully integrated pre-press flowline, we have streamlined our operations and made cost savings through being more self-reliant than ever before.

We went live with the new map series on schedule in September 2009 and the feedback has been extremely positive. We were very pleased with the text placement, the relief and the masking and were particularly impressed with the way the automated cartographic enhancements operate without altering the underlying data - everything looked great. Thank you to the whole team at 1Spatial for a job well done!”

Fran McNamara
Project Manager
LINZ

Key Benefits

More frequent updates – map production now takes minutes rather than months and is a key motivator for reporting back changes

Improved Professional Image – the hard copy map series now comes in easy to use A1 portrait style and includes the Māori Macron font. The rule sets for avoiding text clashes which are automated mean that the LINZ has been able to improve the quality of both its digital and cartographic products

LINZ Achievements

LINZ has achieved the challenges it set itself in the 5year Information Strategy within the plan timetable. Map production now takes minutes rather than months and will lead to more frequent print runs allowing maps to show more recent changes. The before and after images, illustrating the new products are shown in Figs 1-4. The false origin of the new projection was moved by about 900km east and 550km north so that there could be no confusion between coordinates read off maps using the old NZMG. LINZ has moved from the New Zealand Geodetic Datum 1949 to the New Zealand Geodetic Datum 2000, and a new projection (New Zealand Transverse Mercator). The effect of this change is that Topo50 map latitudes and longitude values have moved about 200-190 meters in a north/south direction, and 10 meters in an east/west direction.

Benefits Summary

Time and cost savings – LINZ are now maintaining the 1:50,000 scale database from which cartographic quality outputs can be generated simply for printing directly on demand. Such a database dramatically reduces the costs and timeframes of subsequent map production. Put simply the effect has been to reduce the cost of maps wholesale has been reduced from \$6.70 to \$3.50

Compliance – the new map series is compatible with international systems such as the global reference system WGS84 which is used as the GPS reference frame

Stakeholder Value – The feedback from stakeholders has been extremely positive. Stuart Waring, New Zealand Fire Service said: *“Thank you to the LINZ team for the leadership and project management over the past years to ensure the successful completion of this changeover”.*

Additional Reference material

Additional resources that you may want to read in conjunction with this case study include:
<http://www.topo50.govt.nz/index.html>
<http://www.linz.govt.nz/geodetic/conversion-coordinates/geodetic-datum-conversion/nzgd1949-nzgd2000/distortion-grid/index.aspx>

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Figure 3 - Before



Figure 4 - After