

Statistics New Zealand ANZLIC Metadata Template

Identification

Title	Meshblocks 2013 Annual Pattern
Date	30 November 2012 (publication)
Language	eng
Character Set	Uft8
Abstract	<p>This dataset is the definitive set of meshblock boundaries for 2013 as defined by Statistics New Zealand.</p> <p>Statistics New Zealand maintains an annual meshblock pattern for the collection and production of statistical data, allowing data to be compared over time. A meshblock is the smallest geographic unit for which statistical data is collected and processed by Statistics New Zealand. A meshblock is defined by a geographic area, which can vary in size from part of a city block to a large area of rural land. Each meshblock abuts against another to form a network covering all of New Zealand, including coasts and inlets and extending out to the 200 mile economic zone. Meshblocks are added together to build up larger geographic areas such as area units and urban areas. They are also used to define electoral districts, territorial authorities and regional councils.</p> <p>Meshblocks are allocated a unique seven-digit number. The first 5 digits are unique, and refer to the original 1976 meshblock code. The two end numbers refer to sequential meshblock splits to the original meshblock. When a meshblock is split the final two digits of the original meshblock number are changed. Exceptions to this rule are a small number of meshblocks where no more numbers in the sequence are available. There are therefore some meshblocks in Auckland and Tauranga City starting with 32xxxx. Statistics New Zealand maintains a concordance file to ensure that boundaries relating to earlier meshblock patterns can also be produced.</p> <p>There are two ways of amending meshblock boundaries.</p> <ol style="list-style-type: none"> 1. Splitting is the subdivision of a meshblock into two or more meshblocks. 2. Nudging is the shifting of a boundary to a more appropriate position. <p>Reasons for splits and nudges include:</p>

- to accommodate changes to local government boundaries, which are required by the Local Government Act 2002 to follow meshblocks for electoral purposes.
- to accommodate changes to parliamentary electoral boundaries, following each Electoral Representation Commission review after each five yearly Census of Population and Dwellings.
- to make changes to statistical boundaries such as area units and urban areas.
- to enable changes to census collection districts.
- to improve the size balance of meshblocks in areas where there has been population growth.
- to separate land and water e.g. mainland, islands, inlets, oceanic are defined separately.
- to accommodate requests from other users of the meshblock pattern e.g. the NZ Police for their station, area and district boundaries.

The dataset is intended for use in the display and presentation of statistical and other data to show areas of high or low density and distributions for comparative purposes over time. The digital geographic boundaries are defined by Statistics New Zealand. They are maintained on behalf of Statistics New Zealand by Land Information New Zealand in Landonline using ArcInfo.

Meshblocks cover the land area of New Zealand, the water area to the 12 mile limit, the Chatham Islands, Kermadec Islands, sub-antarctic islands, off-shore oil rigs, and Ross Dependency. The following 16 meshblocks are not held in digitised form.

Meshblock	Location (Area Unit name)
0016901	Oceanic-Kermadec Islands
0016902	Kermadec Islands
1588000	Oil Rig-Taranaki
3166401	Oceanic-Campbell Island
3166402	Campbell Island
3166600	Oil Rig-Southland
3166710	Oceanic-Auckland Islands
3166711	Auckland Islands
3195000	Ross Dependency
3196001	200 Mile Economic Zone
3196002	Oceanic-Bounty Islands
3196003	Bounty Islands
3196004	Oceanic-Snares Islands
3196005	Snares Islands
3196006	Oceanic-Antipodes Islands
3196007	Antipodes Islands

	<p>Meshblock boundaries generally follow road centre-lines, cadastral property boundaries or topographical features (e.g. rivers). Expanses of water in the form of lakes and inlets are defined separately from land.</p> <p>The annual pattern of digital boundaries is used for the full calendar year from 1 January and applies to the timing of the survey – not necessarily when the data is processed.</p> <p>The following table shows the total number of meshblocks for each annual pattern since 1990 when meshblocks were digitised.</p> <table border="1" data-bbox="544 584 1369 1512"> <thead> <tr> <th>Year</th> <th>Meshblock Totals of NZ</th> <th>Digitised Meshblock Totals</th> </tr> </thead> <tbody> <tr><td>1990</td><td>34882</td><td>34876</td></tr> <tr><td>1991</td><td>35152 (Census)</td><td>35146</td></tr> <tr><td>1992</td><td>35163</td><td>35157</td></tr> <tr><td>1993</td><td>35370</td><td>35364</td></tr> <tr><td>1994</td><td>35584</td><td>35578</td></tr> <tr><td>1995</td><td>36235</td><td>36228</td></tr> <tr><td>1996</td><td>36808 (Census)</td><td>36801</td></tr> <tr><td>1997</td><td>36808</td><td>36801</td></tr> <tr><td>1998</td><td>36829</td><td>36822</td></tr> <tr><td>1999</td><td>37154</td><td>37147</td></tr> <tr><td>2000</td><td>37383</td><td>37367</td></tr> <tr><td>2001</td><td>38366 (Census)</td><td>38350</td></tr> <tr><td>2002</td><td>38378</td><td>38362</td></tr> <tr><td>2003</td><td>38685</td><td>38669</td></tr> <tr><td>2004</td><td>39313</td><td>39297</td></tr> <tr><td>2005</td><td>39819</td><td>39803</td></tr> <tr><td>2006</td><td>41392 (Census)</td><td>41376</td></tr> <tr><td>2007</td><td>41512</td><td>41496</td></tr> <tr><td>2008</td><td>42982</td><td>42966</td></tr> <tr><td>2009</td><td>43940</td><td>43924</td></tr> <tr><td>2010</td><td>46252</td><td>46236</td></tr> <tr><td>2011</td><td>46627</td><td>46611</td></tr> <tr><td>2012</td><td>46632</td><td>46616</td></tr> <tr><td>2013</td><td>46637</td><td>46621</td></tr> </tbody> </table> <p>As at 1st July 2007, Digital Boundary data became freely available.</p>	Year	Meshblock Totals of NZ	Digitised Meshblock Totals	1990	34882	34876	1991	35152 (Census)	35146	1992	35163	35157	1993	35370	35364	1994	35584	35578	1995	36235	36228	1996	36808 (Census)	36801	1997	36808	36801	1998	36829	36822	1999	37154	37147	2000	37383	37367	2001	38366 (Census)	38350	2002	38378	38362	2003	38685	38669	2004	39313	39297	2005	39819	39803	2006	41392 (Census)	41376	2007	41512	41496	2008	42982	42966	2009	43940	43924	2010	46252	46236	2011	46627	46611	2012	46632	46616	2013	46637	46621
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Topic category	boundaries																																																																											
Spatial representation type	vector																																																																											

Extent

Description	Twelve mile New Zealand territorial limit
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Geographic Box

West bound longitude	165.905646
East bound longitude	179.855610
North bound latitude	-33.826584
South bound latitude	-47.841491

Extent

TEMPORAL	
Description	Data represents meshblock polygons mapped/digitised since 1991
Begin date	1991-01-01
End date	2013-01-01
Access Constraints	None. Data is freely downloadable from the Statistics NZ website.
Use constraints	<p>These conditions of supply apply to all users of Statistics New Zealand digital boundaries effective 1 July 2007.</p> <p>Permitted uses Statistics New Zealand must be acknowledged as the source of the boundaries.</p> <p>Uses not permitted Users are not permitted to change the accuracy of the boundaries and supply them to another party.</p> <p>Liability While care has been used in compiling these boundary coordinates, Statistics New Zealand gives no warranty that the data supplied is free from error. Statistics New Zealand shall not be liable for any loss suffered through the use, directly or indirectly, of any information, product or service.</p>
Use limitation	
Maintenance and update frequency	The meshblock pattern is maintained on a regular basis. An annual meshblock pattern is made available for each year up to 2013.
Date of next update	December 2013
Update scope	Dataset

Point of Contact

Organisation name	Statistics New Zealand
Position name	Geospatial Analyst

Role	Point of Contact
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Linkage	http://www.stats.govt.nz/browse_for_stats/people_and_communities/Geographic-areas/digital-boundary-files.aspx

Distribution Info

Distribution format	ESRI Geodatabase ESRI Shape MapInfo Tab
Distribution version	1.0
Online resource linkage	http://www.stats.govt.nz/browse_for_stats/people_and_communities/Geographic-areas/digital-boundary-files.aspx
Online resource description	Web page for downloading the digital boundaries which the meshblock is part of the bundle of boundaries/geographies StatsNZ makes available

Reference system info

Title	New Zealand Transverse Mercator 2000 (NZTM2000)
Date	1 July 2001
Edition	
Code (page 128 of Guidelines)	19971

Data quality info scope

Hierarchy level	Dataset
Description	New Zealand Meshblock Boundaries

Lineage

<p>Statement (general explanation of the data producer's knowledge about the lineage of a dataset)</p>	<p>The digital meshblock boundaries are stored and maintained by Land Information New Zealand within their Landonline database, and ArcInfo Suite.</p> <p>Statistics New Zealand maintains the meshblock pattern by checking the cadastral pattern against the meshblock pattern via LINZ's Landonline and Terralink International Limited's licensed software, Terraview platinum. Non-alignment of meshblock and cadastral boundaries are one of a number of reasons for meshblock boundary adjustments. Other reasons include requests from local authorities, Local Government Commission, Electoral Representation Commission and to make Census of Population and Dwellings enumeration processes easier.</p> <p>Once all changes are prepared, Statistics NZ then passes the requests for changes to the meshblock pattern onto LINZ for the electronic changes to take place.</p> <p>From the generalised meshblock pattern, higher geographies were dissolved using the dissolve tool in the Arc GIS suite to create multiple output datasets.</p>
<p>Description (detailed description of the level of the source data)</p>	<p>Deriving output files</p> <p>The original vertices delineating the meshblock boundary pattern were digitised in 1991 from 1:5,000 scale urban maps and 1:50,000 scale rural maps. The magnitude of error of the original digital points would have been in the range of +/- 10 metres in urban areas and +/- 25 metres in rural areas. Where meshblock boundaries coincide with cadastral boundaries the magnitude of error will be within the range of 1–5 metres in urban areas and 5 - 20 metres in rural areas. This being the estimated magnitude of error of Landonline.</p> <p>The creation of high definition and generalised meshblock boundaries for the 2013 digital pattern and the dissolving of these meshblocks into other geographies/boundaries were completed within Statistics New Zealand using ESRI's ArcGIS desktop suite and the Data Interoperability extension with the following process:</p> <ol style="list-style-type: none"> 1. Import data and all attribute fields into an ESRI File Geodatabase from LINZ as a shapefile 2. Run geometry checks and repairs. 3. Run Topology Checks on all data (Must Not Have Gaps, Must

	<p>Not Overlap), detailed below.</p> <ol style="list-style-type: none"> 4. Generalise the meshblock layers to a 1m tolerance to create generalised dataset. 5. Clip the high definition and generalised meshblock layers to the coastline using land water codes. 6. Dissolve all four meshblock datasets (clipped and unclipped, for both generalised and high definition versions) to higher geographies to create the following output data layers: Area Unit, Territorial Authorities, Regional Council, Urban Areas, Community Boards, Territorial Authority Subdivisions, Wards, Constituencies and Maori Constituencies for the four datasets. 7. Complete a frequency analysis to determine that each code only has a single record. 8. Re-run topology checks for overlaps and gaps. 9. Export all created datasets into MapInfo and Shapefile format using the Data Interoperability extension to create 4 output formats for each file. 10. Quality Assurance and rechecking of delivery files. <p>The High Definition version is similar to how the layer exists in Landonline with a couple of changes to fix topology errors identified in topology checking.</p> <p>The following quality checks and steps were applied to the meshblock pattern:</p> <p>Translation of ESRI Shapefiles to ESRI geodatabase dataset The meshblock dataset was imported into the ESRI File Geodatabase format, required to run the ESRI topology checks. Topology rules were set for each of the layers.</p> <p>Topology Checks A tolerance of 0.1 cm was applied to the data, which meant that the topology engine validating the data saw any vertex closer than this distance as the same location. A default topology rule of “Must Be Larger than Cluster Tolerance” is applied to all data – this would highlight where any features with a width less than 0.1cm exist. No errors were found for this rule.</p> <p>Three additional topology rules were applied specifically within each of the layers in the ESRI geodatabase – namely “Must Not Overlap”, “Must Not Have Gaps” and “Area Boundary Must Be Covered By Boundary Of (Meshblock)”. These check that a layer forms a</p>
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continuous coverage over a surface, that any given point on that surface is only assigned to a single category, and that the dissolved boundaries are identical to the parent meshblock boundaries.

Topology Checks Results:

There were no errors in either the gap or overlap checks.

Generalising

To create the generalised Meshblock layer the “Simplify Polygon” geoprocessing tool was used in ArcGIS, with the following parameters:

Simplification Algorithm: POINT_REMOVE

Maximum Allowable Offset: 1 metre

Minimum Area: 1 square metre

Handling Topological Errors: RESOLVE_ERRORS

Clipping of Layers to Coastline

The processed feature class was then clipped to the coastline. The coastline was defined as features within the supplied Land2013 with codes and descriptions as follows:

11- Island – *Included*

12- Mainland – *Included*

21- Inland Water – *Included*

22- Inlet – *Excluded*

23- Oceanic – *Excluded*

33- Other – *Included.*

Features were clipped using the Data Interoperability extension, attribute filter tool. The attribute filter was used on both the generalised and high definition meshblock datasets creating four meshblock layers. Each meshblock dataset also contained all higher geographies and land-water data as attributes.

Note: Meshblock 0017001 which is classified as island, was excluded from the clipped meshblock layers, as most of this meshblock is oceanic.

Dissolve meshblocks to higher geographies

Statistics New Zealand then dissolved the ESRI meshblock feature classes to the higher geographies, for both the full and clipped dataset, generalised and high definition datasets. To dissolve the higher geographies, a model was built using the dissolver, aggregator and sorter tools, with each output set to include geography code and names within the Data Interoperability extension.

Export to MapInfo Format and Shapefiles

The data was exported to MapInfo and Shapefile format using ESRI's Data Interoperability extension Translation tool.

Quality Assurance and rechecking of delivery files

The feature counts of all files were checked to ensure all layers had the

	correct number of features. This included checking that all multipart features had translated correctly in the new file.
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Metadata

File identifier	
Language	eng
Character set	Utf8
Hierarchy level	dataset
Hierarchy level name	Dataset – Meshblocks -2013
Date stamp	2013-01-01
Metadata standard name	ANZLIC Metadata Profile
Metadata standard version	1.1

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