

# Canterbury - Christchurch and Selwyn LiDAR 1m DEM (2015)

## Title

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## Creator

LINZ - Land Information New Zealand

## Date

2015-11-07

## Date

2017-03

## Description

This layer contains the DEM for LiDAR data from the Christchurch and Selwyn areas captured in 2015. The DSM is available as layer [Canterbury - Christchurch and Selwyn LiDAR 1m DSM (2015)](<http://data.linz.govt.nz/layer/3588>). The index tiles are available as layer [Canterbury - Christchurch and Selwyn LiDAR Index Tiles (2015)](<http://data.linz.govt.nz/layer/3578>). The LAS point cloud and vendor project reports are available from [OpenTopography](<http://opentopo.sdsc.edu/datasets>). Lidar was captured for Environment Canterbury Regional Council by AAM between 5 October and 7 November 2015. The datasets were generated by AAM and their subcontractors. The survey area includes Christchurch City and parts of the Selwyn district. Data management and distribution is by Land Information New Zealand. Data comprises: •DEM: tif or asc tiles in NZTM2000 projection, tiled into a 1:1,000 tile layout •DSM: tif or asc tiles in NZTM2000 projection, tiled into a 1:1,000 tile layout •Point cloud: las tiles in NZTM2000 projection, tiled into a 1:1,000 tile layout Planned pulse density is 4 pulses/square metre. Vertical accuracy specification is +/- 0.20m (95%). Horizontal accuracy specification is +/- 1.00m (95%). Vertical datum is NZVD2016.

## Source

Data Acquisition: Airborne Laser Scanner (ALS) data was acquired from a fixed wing aircraft in October and November 2015, using AAM's Riegl LMS-Q1560 and Leica ALS60 LiDAR systems. Survey Specification: Selwyn: Device Name Q1560 Half Scan Angle 29 degrees Laser Pulse Rate 800 kHz Overlap Percentage 20% Average Point Spacing 3.1 pts/m<sup>2</sup> Laser Footprint 0.47m Christchurch: Device Name: ALS60 Half Scan Angle: 12.5 degrees Laser Pulse Rate: 145 kHz Overlap Percentage: 20% Minimum Point Density: 4 pts/m<sup>2</sup> Laser Return Types: 1st, 2nd, 3rd and last Laser Intensity All returns File Format: ESRI ASCII Grid, ESRI Shapefile, LAS 1.2 Horizontal Datum: NZGD2000 Vertical Datum: NZVD2016 Map Projection: NZTM Vertical Accuracy Specification: ±0.10m Standard Error (68% confidence level or 1 sigma) Horizontal Accuracy Specification: ±0.50m Standard Error (68% confidence level or 1 sigma) Data processing: Laser strikes were classified into ground and non-ground points using a single algorithm across the project area. Manual checking and editing of the data classification further improved the quality of the terrain model. Further Processing: ArcGIS 10.1 Terrain and Surface Grids were derived using the Natural Neighbor interpolation. This method uses the closest triangles and applies weights to the proportionate areas from the grid cell centroid to interpolate the value. It uses known elevation data, it does not make any predictions regarding the surface and accurately depicts existing troughs and

peaks in the data and supports irregular point spacing, which suits the nature LiDAR data. GPS base station support was sourced from Global Surveys CORS operating in Christchurch. The ground check points were field surveyed by Sounds Surveying Limited, these allowed an independent assessment of the accuracy of the ALS data.. All product deliverables were initially supplied in terms of NZTM and Lyttelton 1937 height datum. Classification of the point cloud followed the classification scheme below: 0 - Created, never classified 1 - Unclassified 2 - Ground 7 - Low/high points 9 - Water Re-processing: In 2016 the data was reprocessed by AAM for LINZ relative to the NZVD2016 vertical datum, and supplied as 1:1000 nominal scale (2500 720m high x 480m wide subtiles per full NZ Topo50 sheet). Lakes and rivers were hydroflattened in the bare earth digital elevation model. The deliverables to LINZ were: 1m gridded bare earth digital elevation model (DEM) 1m gridded digital surface model (DSM) Classified point cloud

#### Coverage

-43.9132586936 171.657740799 -43.2630076584 172.809757374

#### Identifier

<https://data.linz.govt.nz/layer/53587-canterbury-christchurch-and-selwyn-lidar-1m-dem-2015/>

#### Type

grid

#### Language

eng

#### Subject

New Zealand

#### Subject

LAND-Topography

#### Subject

LAND-Cover

#### Subject

elevation

#### Subject

imageryBaseMapsEarthCover