

# Canterbury - Amberley LiDAR 1m DEM (2012)

## Title

Canterbury - Amberley LiDAR 1m DEM (2012)

## Creator

LINZ - Land Information New Zealand

## Date

2012-07-17

## Date

2017-03

## Description

This layer contains the DEM for LiDAR data from the Amberley area captured in 2012. The DSM is available as layer [Canterbury - Amberley Lidar 1m DSM (2012)] (<http://data.linz.govt.nz/layer/3547>). The index tiles are available as layer [Canterbury - Amberley Lidar Index Tiles (2012)] (<http://data.linz.govt.nz/layer/3572>). 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 Aerial Surveys on 10 and 17 July 2012. The datasets were generated by Aerial Surveys and their subcontractors. The survey area includes the Amberley and Waipara township areas and adjacent coastal strips and river corridors. 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 Pulse density is >1 pulse/square metre. Vertical accuracy specification is +/- 0.20m (95%). Vertical datum is NZVD2016.

## Source

Data Acquisition: Airborne Laser Scanner (ALS) data was acquired from a fixed wing aircraft in July 2012, using Aerial Surveys' Optech ALTM 3100EA LiDAR systems. Survey Specification: Scanner: Optech ALTM 3100EA Flying height: 1250m AMGL Scan Angle: +/- 14.9 degrees Scan Frequency: 47.3Hz Pulse Rate 70kHz Swath Overlap: 35% Data processing: The LiDAR sensor positioning and orientation (POS) was determined using the collected GPS/IMU datasets and Applanix POSpac software. This work was all undertaken in NZGD2000 coordinate system using the data collected from base station maintained by Geosystems VRS Net3:- Base Station Position: 43 8 59.72500 S 172 44 26.44100 E 52.06 Ell Height APC 0.00m The POS data was combined with the LiDAR range files and used to generate LIDAR point clouds in NZTM and ellipsoidal heights. This process was undertaken using Optech LMS LiDAR processing software. The data was checked for completeness of coverage. The relative fit of data in the overlap between strips was also checked. The height accuracy of the ground classified LiDAR points was checked using open land-cover survey check site data collected by C & R Surveyors Ltd. This was done by calculating height differences statistics between the checkpoints and a TIN of the LiDAR ground points. A 0.108m vertical offset was applied to the data to bring it into terms with the survey check site data. The standard deviation statistic is 0.037 m and a RMS of 0.039m. The positional accuracy of the LiDAR data has been checked by overlaying C & R Surveyors Ltd surveyed data over the LiDAR data displayed coded by intensity. The data was found to fit well in

position. The point cloud data was classified with TerraSolid LiDAR processing software into ground and above ground returns using automated routines tailored to the project landcover and terrain. 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 2 - Ground 14 - Above ground 15 - River\_Stream\_points 17 - Water\_Body\_points Re-processing: In 2016 the data was reprocessed by Aerial Surveys 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 Data hosted by OpenTopography was re-classified: the Above\_Ground (14) points were reclassified as Unassigned classification (1). Class 15 and 17 water points were reclassified as Water (9).

#### Coverage

-43.2546026252 172.621862787 -43.0406088094 172.822971495

#### Identifier

<https://data.linz.govt.nz/layer/53546-canterbury-amberley-lidar-1m-dem-2012/>

#### Type

grid

#### Language

eng

#### Subject

New Zealand

#### Subject

LAND-Topography

#### Subject

LAND-Cover

#### Subject

elevation

#### Subject

imageryBaseMapsEarthCover