

Canterbury LiDAR 1m DEM (2016)

Title

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Creator

LINZ - Land Information New Zealand

Date

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Description

This layer contains the DEM for LiDAR data from the Canterbury Region captured between November 2016 and January 2017. - The DSM is available as layer [Canterbury LiDAR 1m DSM (2016)](<https://data.linz.govt.nz/layer/99232>). - The index tiles are available as layer [Canterbury LiDAR Index Tile (2016)](<https://data.linz.govt.nz/layer/99233>). - 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 New Zealand between November 2016 and January 2017. The datasets were generated by AAM New Zealand and their subcontractors. 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 1:2,000 tile layout Pulse density is 3.44 pulses/square metre. Vertical accuracy specification is +/- 0.20 m (95%). Horizontal accuracy specification is +/- 1.00m (95%). Vertical datum is NZVD2016.

Source

Survey Specification: -Device Name: Q1560 -Half Scan Angle: 30 degrees -Laser Pulse Rate: 230 kHz -Overlap Percentage: 20% -Laser return: 1st, 2nd, 3rd and last -Laser Intensity: All Returns -File Format: ESRI ASCII Grid, LAS 1.4, ESRI Shapefile -Horizontal Datum: NZGD2000 -Vertical Datum: NZVD2016 -Map Projection: NZTM2000 -Vertical Accuracy Specification: $\pm 0.10\text{m}$ Standard Error (68% confidence level or 1 sigma) -Horizontal Accuracy Specification: $\pm 0.50\text{m}$ Standard Error (68% confidence level or 1 sigma) Airborne Laser Scanner (ALS) data was acquired from a fixed wing aircraft between 7th November 2016 and 6th January 2017 using AAM New Zealand's Riegl LMS-Q1560 LiDAR systems. This area included Selwyn, Ashburton, Methven, Lake Tekapo, Lake Ruataniwha, Rolleston, Lower Rangitata, Omarama, Otematata and Twizel. Classification of the point cloud followed the classification scheme below; 1 - Default 2 - Ground 7 - Low/high points (unusable) 9 - Water Data Validation: Ground data in this volume has been compared to test points obtained by field survey and assumed to be error-free. The test points were distributed across the mapping area and located on clear open ground. Comparison was made of the field test points with elevations interpolated from measured data, and the mean difference was removed from the data. Data Classification has been manually checked and edited against any available imagery. Limitations of Data: The definition of the ground under trees may be less accurate. Ground Support: GPS base station support was sourced from Global Surveys and GeoNET CORS operating in the area. The ground check points were field surveyed by Sounds Surveying Limited, these allowed an independent assessment of the accuracy of the ALS data. Data Processing: Reduction of the ALS data proceeded without any significant

problems. 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. Overage points have been identified by use of the overage flag, all points in the overage are candidate ground points ArcGIS 10.1 Terrain Grids were derived using the Natural Neighbour 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. Breaklines have been used where required to ensure hydro flattening on the DEM products. Lakes and large rivers were hydroflattened in the Bare Earth Digital Elevation Model.

Type

grid

Language

eng

Subject

New Zealand

Subject

elevation