



Nelson LiDAR 1m DEM (2021)

Title

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Creator

Toitū Te Whenua Land Information New Zealand

Date

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Description

This layer contains the DEM for LiDAR data in the Nelson Region, including Nelson City as well as the surrounding area, captured in 2021. - The DSM is available as layer [Nelson LiDAR 1m DSM (2021)] (<https://data.linz.govt.nz/layer/106842>). - The index tiles are available as layer [Nelson LiDAR Index Tiles (2021)](<https://data.linz.govt.nz/layer/106835>). - The LAS point cloud and vendor project reports are available from [OpenTopography](<https://portal.opentopography.org/datasets?loc=New%20Zealand>). LiDAR was captured for Nelson City Council by Aerial Surveys from 10 January to 24 June 2021. These datasets were generated by Aerial Surveys and their subcontractors. Data management and distribution is by Toitū Te Whenua 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 specification is at a minimum of 8 pulses/square metre. Vertical Accuracy Specification is +/- 0.2m (95%). Horizontal Accuracy Specification is +/- 1.0m (95%). Vertical datum is NZVD2016.

Source

Data Aquisition: Airborne Laser Scanner (ALS) data was acquired from a fixed wing aircraft between 10 January to 24 June 2021, using Aerial Surveys Optech Orion Galaxy PRIME system. Survey Specification: - Scanner: Optech Galaxy PRIME - Flying Height: 1800 m AMGL - Scan Angle: ± 19 degrees - Scan Frequency: 88.5 Hz - Pulse Rate: 400 kHz - Swath Overlap: 35% - Swath Points Per m²: 8 Data Processing: The LiDAR sensor positioning and orientation (POS) was determined using the collected GPS/IMU datasets and Applanix POSPac software. Base Station Positions: PP-RTX 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 Sounds Surveying Ltd. This was done by calculating height differences statistics between a TIN of the LiDAR ground points and the checkpoints. The standard deviation statistic is 0.04 m; a RMS of 0.04 m and the average difference is 0.004 m. LiDAR is relative to the control check points. The positional accuracy of the LiDAR data has been checked by overlaying Sounds Surveying 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 then classified with TerraSolid LiDAR processing software into ground and above ground returns using automated routines tailored to the project landcover and terrain. In some densely vegetated gullies, there may be locations where the 2015 LiDAR survey achieved better penetration through the dense vegetation ('Nelson and Tasman LiDAR 1m DEM (2008-2015)' layer (<https://data.linz.govt.nz/layer/95817>)). All product deliverables supplied in terms of NZTM map projection and NZVD2016 height datum. Classification of the point cloud followed the classification scheme below: 1 - Unclassified 2 - Ground 3 - Low Vegetation 4 - Medium Vegetation 5 - High Vegetation 6 - Buildings 7 - Low Noise 9 - Water 18 - High Noise Lakes and large 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

-41.39996598542979 173.17201153307468 -41.048551669612884 173.6056636284123

Identifier

<https://data.linz.govt.nz/layer/106837-nelson-lidar-1m-dem-2021/>

Type

grid

Language

eng

Subject

New Zealand

Subject

elevation