Northland 0.1m Urban Aerial Photos (2014-2015)

Title

Northland 0.1m Urban Aerial Photos (2014-15)

Creator

Toitū Te Whenua Land Information New Zealand

Date

2015

Description

Orthophotography in the Northland Region taken in the flying season (summer period) 2014 - 2015. Coverage is of urban areas with the Far North district, The Kaipara district, and Whanagei City council areas. Imagery was captured for the 'Northland Aerial Imagery Consortium (NAIC)' by Aerial Surveys Ltd, Unit A1, 8 Saturn Place, Albany,0632, New Zealand. Data comprises: •6,550 ortho-rectified RGB GeoTIFF images in NZTM projection, tiled into the LINZ Standard 1:500 tile layout •Tile layout in NZTM projection containing relevant information. The supplied imagery is in terms of New Zealand Transverse Mercator (NZTM) map projection. The products are tiled into NZTopo50 1:500 tiles. Please refer to the supplied tile layout shape file for specific details, naming conventions, etc. Imagery supplied as 10cm pixel resolution (0.1m GSD), 3-band (RGB) uncompressed GeoTIFF. The final spatial accuracy is ±0.15m @ 95% confidence level in clear open spaces (2 sigma) over area of interest. Index tiles for this dataset are available as layer [Northland 0.1m Urban Aerial Photos Index Tiles (2014-15)] (http://data.linz.govt.nz/layer/3394)

Source

Data Acquisition: The aerial photography for this project was captured within the 2014/15 flying season (September 2014 – April 2015) on 10, 25, 26 October 2014, 09, 10, 11 November 2014, 04 January 2015, 03, 04 May 2015. All photography was captured using Vexcel's digital UCLp and UCE cameras with flying height of UCLp 3829ft and UCE 6312ft. Data Processing: All aspects of the data processing from imagery processing to DTM creation and ortho production and product deliverables was undertaken in-house by Aerial Surveys and Cyient staff. Map Projection: All spatial data for this project provided in terms of New Zealand Transverse Mercator (NZTM) map projection. The datum is New Zealand Geodetic Datum 2000. The height datum is orthometric One Tree Point 1946 (sea level). Image Processing and Aerial Triangulation: All imagery has gone through QA checks ensuring there is no cloud cover and cloud shadow. During aerial acquisition the aircraft on-board GPS navigation data and ground base station data collected and post processed. Imagery processed to level 3 and checked for colour correctness/radiometry and even tonal balance across each project area. The aerial triangulation brings together the GPS data and imagery using a two part process which stitches the imagery together using tie point matching for the relative orientation phase and observing ground control points for the absolute orientation phase. LINZ control, 8th order horizontal and 4th order vertical and other existing control from Aerial Surveys control data base were used to strengthen the block adjustment or as independent checks on position during final QA of the ortho imagery. A final report is generated to check RMSE values are within specification. DTM Creation: The DTM creation for the urban areas was collected from stereo imagery using photogrammetric techniques, largely automated pixel matching and auto-correlation process that creates mass points of the terrain surface with further manual editing to remove points on water bodies and extensive breaklines added around water bodies and along all ridges, valleys and areas of steep terrain change, such as kerbs, retaining walls, drains. In areas of dense vegetation form lines are collected. The final DTM took the form of breaklines and mass points. A Triangulated Irregular Network (TIN) was then created and used for the ortho-rectification process. DTM Accuracy: ±0.2m @ 95% confidence level in clear open areas (2 sigma) RGB and Ortho Rectification Process: Ortho rectification is the process of removing (from the image) the effects of camera tip/tilt and displacement caused by terrain relief. During this process each frame is 'draped' over the terrain model and the photograph then becomes 'scaled' and 'levelled' in terms of true ground coordinates. The generation of seamlines between frames follow natural physical features such as ridges, valleys, roads and rivers. The seamlines are used for the final ortho mosaic that stitches the imagery together using feather mosaicking techniques. The ortho imagery is then extracted aligned to LINZ 1:500 sheet tile layout.

Coverage

-36.1749915406 173.110201677 -34.8008067143 174.602587429

Identifier
https://data.linz.govt.nz/layer/53399-northland-01m-urban-aerial-photos-2014-2015/

Type
grid

Language
eng

Subject
imageryBaseMapsEarthCover