Northland 0.4m Rural Aerial Photos Index Tiles (2014-2016)

Title

Northland 0.4m Rural Aerial Photos Index Tiles (2014-16)

Creator

Toitū Te Whenua Land Information New Zealand

Date

2016

Description

Index Tiles ONLY, for actual orthophotos see layer [Northland 0.4m Rural Aerial Photos (2014-16)] (http://data.linz.govt.nz/layer/88131) Orthophotography in the Northland Region taken in the flying season (summer period) 2014 - 2016. Coverage is of all areas areas within the Far North district, The Kaipara district, Whanagei City, Northland Regional 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: •2,465 ortho-rectified RGB GeoTIFF images in NZTM projection, tiled into the LINZ Standard 1:5,000 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 1:5,000 tiles. Please refer to the supplied tile layout shape file for specific details, naming conventions, etc. Imagery supplied as 40cm pixel resolution (0.4m GSD), 3-band (RGB) uncompressed GeoTIFF. The final spatial accuracy is +/-0.6m @ 67% confidence level in clear open spaces.

Source

Data Acquisition: The aerial photography for this project was captured within the 2014/15/16 flying seasons between November 2014 and July 2016. All photography was captured using Vexcel's digital cameras and flown at: -0.3m GSD with the UCE: 18,934ft (5,771m) flying height Camera Lens: 100mm - 0.4m GSD with the UCLp: 15,398ft (4,693m) flying height Camera Lens: 70mm Sun Angle Minimum of +35 degrees 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. 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 1964 (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 rural 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 minimal breaklines collected to ensure gross errors were corrected and the DTM generally reflects the terrain surface. The final DTM took the form of mass points only with minimal breaklines, suitable for the ortho rectification process. DTM-ortho Accuracy: ±0.8m @ 68% confidence level in clear open areas (1 sigma) RGB and RGBI 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 1:5,000 sheet tile layout. The ortho imagery was processed to RGBI to ensure a consistent dataset is maintained for the RGB and RGBI ortho tiles including the same seamlines. Minimal colour adjustment was undertaken in the RGB, generally over water areas and along coastal foreshore for colour matching and to minimise glare. Peripheral Imagery

Because the flight planning incorporates capture of an area larger than the target this creates additional imagery that can be ortho rectified and supplied. The peripheral ortho imagery in essence is the supply to full image extents., but can include partial tiles. The peripheral image tiles contain pixels with null value (the area where there is no imagery). The null value areas have been assigned a pixel value of 255 in the Geotiff for all three bands. The null value can then be treated as transparent within a GIS environment. DTM Source: Outside client's area of interest auto correlated DTM points were generated from the stereo imagery and used to hold the ortho imagery in place. Peripheral Ortho Spatial Accuracy: ±0.4m @ 1 sigma

Coverage

-36.9147167008 172.607758543 -34.3588683495 174.791452976

Identifier

https://data.linz.govt.nz/layer/88094-northland-04m-rural-aerial-photos-index-tiles-2014-2016/

Type

grid

Language

eng

Subject

imageryBaseMapsEarthCover