

Photomapping Project # 5035

Tasmanian Mining Tenement Aerial Survey LiDAR Acquisition

GHD

Project Summary

The Tasmanian Mining Tenement project area has been captured by Photomapping Services using our Optech Gemini LiDAR system (Airborne Laser Scanning). Capture has been undertaken from the 19th to the 22nd of July and from the 12th to the 17th of August 2014. The project is intended to provide ground surface data.

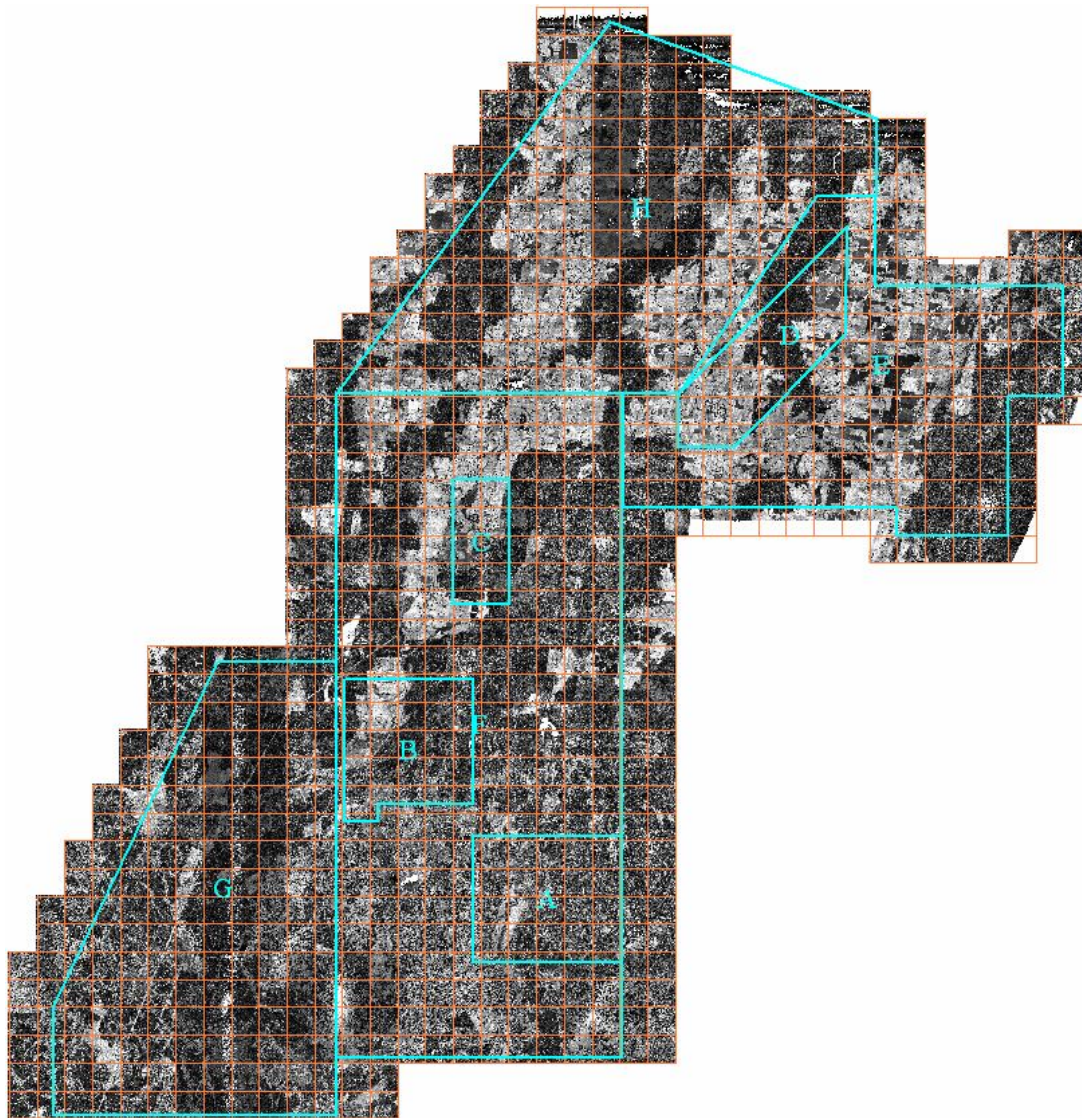


Figure 1: Tasmanian Mining Tenement with tile index

1. Data supplied:

- LAS v1.2 tiles classified into ground and vegetation (low, medium and high)
- Tile index as shapefile

Naming convention is as follows:

EEENNNN.las

where EEE = first three digits of Easting of South West tile corner

NNNN = first four digits of Northing of South West tile corner

2. LiDAR Metadata

Acquisition Dates	19 th – 22 nd July, 12 th , 13 th , 16 th and 17 th August 2014
Device Name	Optech 'ALTM Gemini'
IMU / GPS	Litton LN200 / Applanix 510
Flying Height (AGL)	1100m
No. of Runs	97 + 8 cross strips
Swath Width	760m
Flight Direction	E – W and SW – NE
Side Overlap	30 %
Laser Scan Rate	100 kHz
Laser Scan Angle	+ / - 19 deg
Horizontal Datum	GDA94
Vertical Datum	AHD Ausgeoid09
Map Projection	MGA Zone 55
Description of Aerotriangulation Process	onboard IMU and GPS
Vertical Accuracy	±0.20m @ 1σ
Horizontal Accuracy	±0.20m @ 1σ
Surface Type	Classified laser
Average Point Separation	0.7m
Laser Return Types	1 st through to 4 th
Data Thinning	No
Limitations of Data	
Processing / Derivation Lineage	LiDAR data captured using onboard GPS, IMU and basestations. Trajectories and laser data corrected using AusGeoid09. LiDAR data classified into ground and non ground.

3. Project Accuracy

3.1 Laser Accuracy

Airborne survey position was computed from the onboard Applanix dual frequency GPS receiver supplemented by corrections from the Applanix IMU in conjunction with the local basestation Burnie.

3.2 Achieving AHD

AusGeoid09 was used to shift the LiDAR data between ellipsoidal heights and AHD.

3.3 Surveyed Ground Control

Previously surveyed GPS ground control was used to adjust the Tasmanian Mining Tenement laser to AHD.

This control had been fixed to the 3rd order 'SPM9721' and processed to AHD using AusGeoid98. The accuracy of the survey was confirmed by comparing the surveyed coordinates to published coordinates for three other local PMs:

PM	Published			Difference to Surveyed (m)		
	Easting	Northing	AHD	Easting	Northing	AHD
SPM10336	407662.369	5455216.39	9.231	-0.04	0.061	-0.04
SPM9718	362620.695	5360902.546	164.208	0.085	0.024	0.183
SPM9717	377403.986	5374439.039	135.198	0.084	0.06	0.126

The control (transformed to AusGeoid09) was then compared to the adjusted laser ground surface with the following results:

Point	Easting	Northing	Known Height	Dz (m)
10	408119.686	5453638.475	33.153	-0.028
11	410292.986	5453069.269	11.719	-0.044
12	408988.829	5453710.968	3.324	0.019
15	395355.786	5431970.526	481.443	0.015
17	391954.667	5428105.39	526.953	0.112
SPM10336	407662.409	5455216.329	9.405	-0.062

Average dz	0.002
Minimum dz	-0.062
Maximum dz	0.112
Average magnitude	0.047
Root Mean Square	0.057
Std deviation	0.057

4. Additional Services

Photomapping Services are the mapping and airborne imagery specialists with a focus on delivering spatial solutions including: Photogrammetry, Aerial Photography and Digital Imagery, LiDAR Airborne Laser Scanning, GIS Data Capture, Revision and Management and Cartography and Custom Map Production.

For this project Photomapping Services can provide various other products derived from the LiDAR data.

For further information contact:

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