



# Global Mapper

## OVERVIEW OF FUNCTIONALITY



Workshop and Technical Day - 6<sup>th</sup> November 2015



**SMC  
Synergy**  
Spatial Management  
Consulting

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**SMC Synergy**

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# Main features

- **Cost effective – single license for US\$499**
- **Link to on-line data – TomTom/MapIT, CD:NGI Aerial Photographs, Bing, Google, Landsat 8, SRTM DEM**
- **Import and export dozens of file formats ( $\pm 300$ )**
- **User-friendly Map Catalog**
- **Raster calculator (NDVI etc.)**
- **Save geo-referenced on-line images**
- **Excellent feature mapping and editing tool**
- **Generate watersheds/streamflow**
- **Handle massive LiDAR/Drone datasets**
- **Optional LiDAR Module for advanced processing**
- **Volume calculation – cut and fill**
- **Realistic 3D perspective view – capture fly-through**
- **GPS tracking – upload images to GPS**
- **Wide variety of DEM processing tools**
  - **Create DEM, contours, slopes, flooding**

# Import more than 300 formats

Recent File Types  
Commonly Used Formats  
Common Supported Elevation Types  
Common Supported Raster Types  
Common Supported Vector Types  
3Ds (3DS Max) Files (\*.3ds, \*.tar.gz, \*.tgz, \*.zip)  
ACE/ACE2 (Altitude Corrected Elevation) Files (\*.ace\*, \*.ace2\*, \*.ace2.bin, \*.tar.gz, \*.tgz, \*.zip)  
ADRG/ASRP Files (\*.THF, \*.tar.gz, \*.tgz, \*.zip)  
ANUGA Triangulation  
DIVA GIS Grid Files (\*.grd, \*.tar.gz, \*.tgz, \*.zip)  
Arc Vector Coverage  
DLG-O Files (\*.dlg, \*.do, \*.opt, \*.cdo, \*.do.gz, \*.opt.gz, \*.cdo.gz, \*.tvc.gz, \*.gz, \*.0sf, \*.0af, \*.tvc, \*.tar.gz, \*.tgz, \*.zip)  
Arc/Info ASCII Grid Files  
DMDF (Digital Map Data Format) Files (\*.ddl, \*.tar.gz, \*.tgz, \*.zip)  
Arc/Info Binary Grid  
DOI MMS Polygon ASCII Files (\*.gen, \*.tar.gz, \*.tgz, \*.zip)  
ARCS (British Marine  
DOQ Quarter Quad Files (\*.sec, \*.nec, \*.swc, \*.nwc, \*.tar.gz, \*.tgz, \*.zip)  
ASCII Text Files (\*.asc)  
DWG Files (\*.DWG, \*.tar.gz, \*.tgz, \*.zip)  
ASR (FCC Antenna  
DXF (AutoCAD Drawing Interchange File) Files (\*.dxf, \*.gz, \*.tar.gz, \*.tgz, \*.zip)  
ATS (Alberta Townsh  
E00 Files (\*.gz, \*.e00, \*.tar.gz, \*.tgz, \*.zip)  
BIL/BIP/BSQ/BIN/GT  
E57 3D Image File (ASTM) Format Files (\*.e57, \*.tar.gz, \*.tgz, \*.zip)  
Blender (Blender) Fil  
EasyGPS Files (\*.loc, \*.tar.gz, \*.tgz, \*.zip)  
BMP Files (\*.bmp, \*.t  
ECRG (Enhanced Compressed Raster Graphics) Files (toc.xml, \*.tar.gz, \*.tgz, \*.zip)  
BSB Files (\*.KAP, \*.C  
ECW (Enhanced Compressed Wavelet) Files (\*.ecw, \*.tar.gz, \*.tgz, \*.zip)  
BT (Binary Terrain) Fi  
EMF (Windows Enhanced Metafile Format) Files (\*.emf, \*.tar.gz, \*.tgz, \*.zip)  
BYN (Natural Resour  
ENVI DEM Files (\*.dat, \*.envi, \*.tar.gz, \*.tgz, \*.zip)  
Canada3D Files (can  
ERDAS GIS Files (\*.gis, \*.lan, \*.gz, \*.tar.gz, \*.tgz, \*.zip)  
Carlson SurvCAD Gri  
ERDAS Imagine Files (\*.img, \*.tar.gz, \*.tgz, \*.zip)  
CDF (GES Cartograp  
ERM  
Mapper Grid Files (\*.ers, \*.tar.gz, \*.tgz, \*.zip)  
CML (Italian Cadastr  
ESRI ArcSDE Geodatabase Files (\*.sde)  
COLLADA (3D Asset  
ESRI File Geodatabase (GDB) Files (gdb, \*.tar.gz, \*.tgz, \*.zip)  
Compe GPS Files (\*.f  
ESRI Personal Geodatabase Files (\*.mdb, \*.tar.gz, \*.tgz, \*.zip)  
CPS-3 (GeoFrame) G  
ETOPO2/ETOPO5 Files (\*.dos)  
CSV (Comma-Separ  
FAST-L7A (LANDSAT) Files (\*.MTL,FST, \*\_MTL,L1G, \*.tar.gz, \*.tgz, \*.zip, \*\_HRF,FST, \*\_HPN,FST, \*\_HTM,FST, \*\_HRF,L1G, \*\_HPN,L1G, \*\_HTM,L1G)  
GeoMedia Access Warehouse Files (\*.mdb)



# Online data

(MapIT/TomTom – CD:NGI Aerial photographs, TomTom GPS data, Bing, Google)

Select Online Data Source to Download

Select Data Source

- IMAGERY
  - Worldwide High-Res Imagery from Digital Globe [PREMIUM CONTENT]
  - Bing Maps Hybrid
  - Bing Maps Imagery
  - Google Maps Hybrid
  - Google Maps Imagery
  - Intermap Europe DRI (Imagery) [PREMIUM CONTENT]
  - Intermap World30 DEM [PREMIUM CONTENT]
  - Landsat7 Global Imagery Mosaic (Natural Color, Pan-Sharpned)
  - Landsat7 Global Imagery Mosaic (Pseudo-Color, Pan-Sharpned)
  - Landsat8 Global Imagery (Download via Earth Explorer)
  - MapMat On Demand (Worldwide Data) [PREMIUM CONTENT]
  - NAIP Color Imagery for US (1m Resolution)
  - World Imagery

Connect  
Close

Add New Source... Remove Source Delete Cached Files... Add Sources from File... Load ECW from Web...

Select Area to Download

Current Screen Bounds

Within [ ] miles of address [ ]

Within [ ] miles of latitude [-23.750084582000?] longitude [27.7588997097388]

Specify Latitude/Longitude Bounds of Area

West: [27.7544447860132] North: [-23.749050005575] East: [27.7589546534644] South: [-23.7511180788264] Draw Box...

(NOTE: Longitude values in the Western Hemisphere and latitude values in the Southern hemisphere must be negative.)

Entire Data Source Bounds

Display Options

Resampling Method: [Bicubic Interpolation]

Restrict Source to Selected Bounds (i.e. Don't Allow Penning Entire Data Set)

**IMPORTANT NOTE: These data sources are on external servers that we have no control over. The data may draw/export very slowly or become unavailable at any time. We have no control over this.**

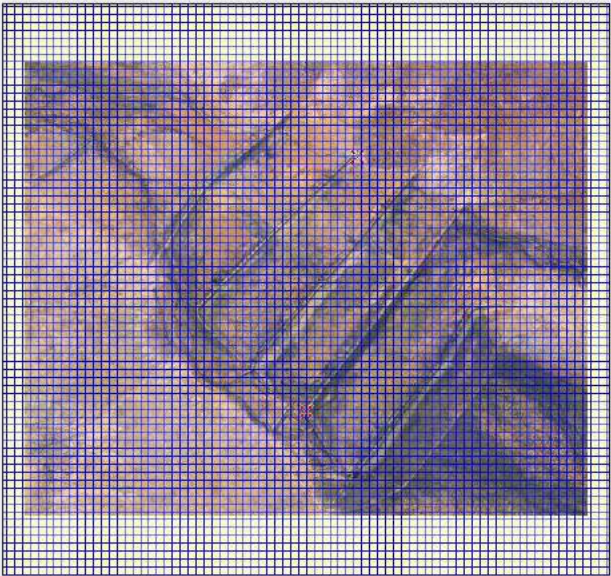


# Image rectification


Image Rectifier [Automatic] (Capture.JPG)

File Options


Entire Image



Zoomed View (Click for Pixel Coordinates)



Reference Images (Load into Main View First)



22.2019372572, -30.5761537142

Ground Control Point (GCP) Entry

Pixel X: 525.5 X/Easting/Lon: 22°17'30.9674"E Add Point to List

Pixel Y: 651.49012987013 Y/Northing/Lat: 30°34'24.7019"S Update Selected Point

Ground Control Point (GCP) Projection

Geographic (Latitude/Longitude) / WGS84 / arc degrees

Select Projection ...

Ground Control Points (Double-click to Center on Control Point)

Point Name	Pixel X	Pixel Y	Projected X	Projected Y	Longitude	Latitude	Error
<input checked="" type="checkbox"/> Point1	621.318	176.083	22.2929783611	-30.5678178333	22°17'34.7221"E	30°34'04.5042"S	0.00
<input checked="" type="checkbox"/> Point2	525.5	651.49	22.2919353889	-30.5735283056	22°17'30.9674"E	30°34'24.7019"S	0.00

Delete OK

Shift+Alt... Apply

Cancel

Help



# Vector creation/editing tools

Global Mapper v14.2 (b052213) [64-bit] - REGISTERED (LIDAR2.gmw)

File Edit View Tools Analysis Search GPS Help

press "Grab" Altos Shooter Set up Favorites List...

Feature Vertex List

Vertex List (Double-Click to Center View on Vertex, Right-Click for More Options)

Idx	X	Y	Length	Total Length	Heading
1	10191.602	-2261.572	153.87 m	—	14.3°
2	10229.625	-2102.479	61.439 m	153.87 m	73.8°
3	10298.662	-2005.469	64.173 m	215.3 m	79.2°
4	10351.702	-2073.451	63.364 m	279.48 m	68.7°
5	10410.738	-2050.447	38.65 m	342.84 m	68.7°
6	10446.761	-2036.438	43.667 m	381.49 m	62.8°
7	10405.785	-2016.426	46.354 m	426.35 m	57.3°
8	10524.810	-1991.410	36.642 m	471.7 m	55.0°
9	10554.828	-1970.397	20.531 m	508.34 m	47.0°
10	10569.838	-1956.389	80.58 m	526.67 m	155.0°
11	10503.853	-2029.434	10.777 m	609.45 m	158.2°

Edit Position... Add Elevs Edit Length Copy to Clipboard

Delete Selected Vertices Update Elevations from Terrain

OK Cancel

Modify Feature Info

Name: Field2 Vertices...

Feature Type: Unknown Area Type Create New Type...

Feature Layer: User Created Features

Feature Style:  Use Default Style for Selected Feature Type  Specify Style to Use When Rendering Feature Sample Label

Customize Style

Feature Attributes

Attribute Name	Attribute Value
PERIMETER	1.151 km
ENCLOSED_AREA	0.0956 sq km

Add... Edit... Delete Add File Link(s)... Add Time Stamp

OK Cancel

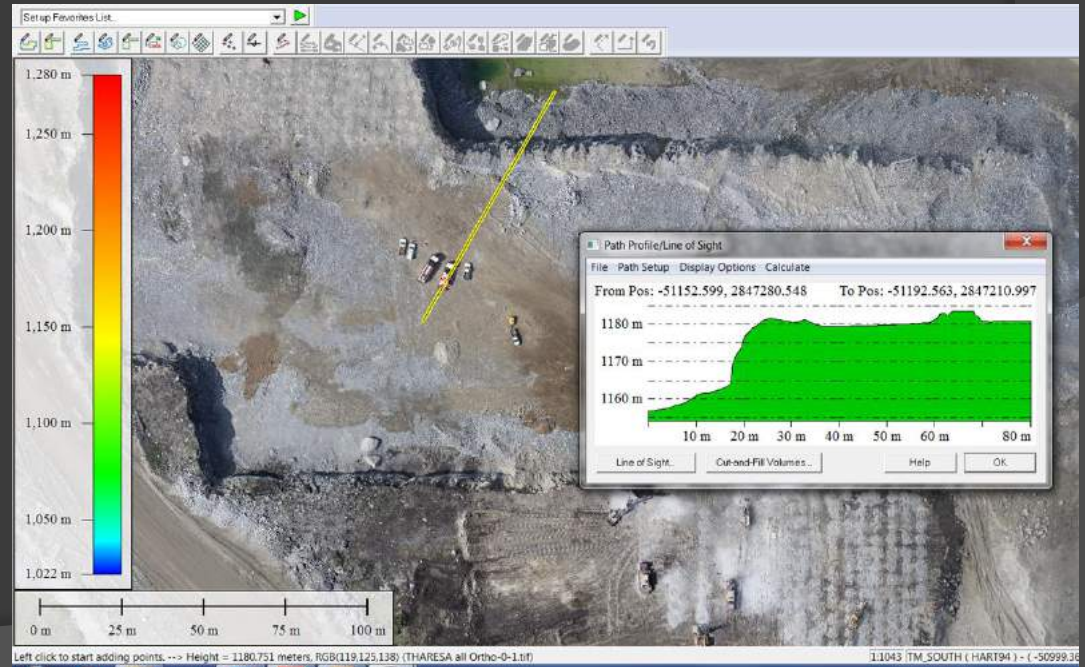
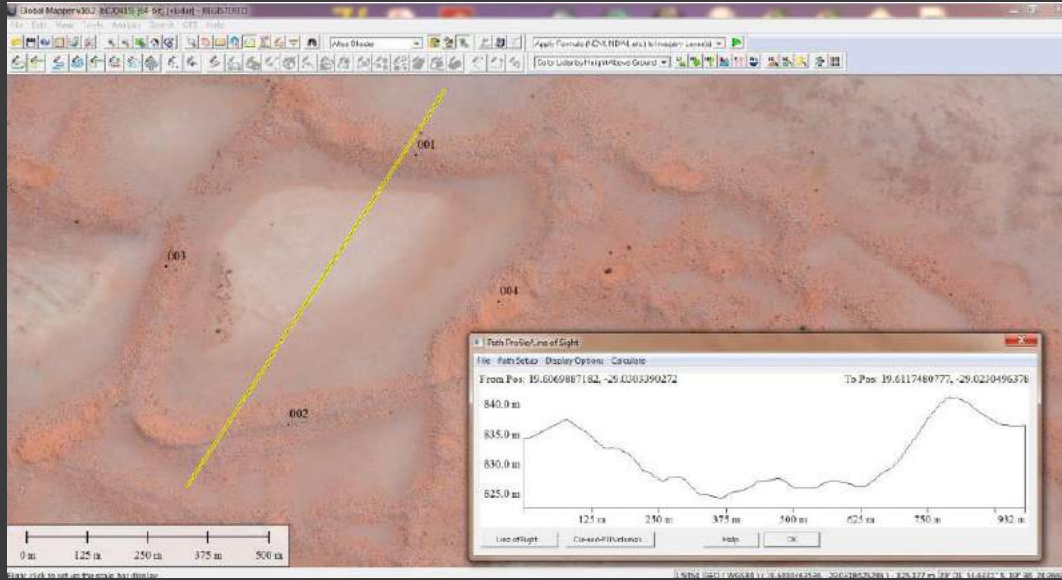
750 m 500 m 250 m 0 m

50 m 150 m 250 m 350 m 450 m

Option Menu (1 feature(s) selected) --> Height = 1598.597 meters, Sample\_G003.ecw (Sample\_G003.ecw) (LI

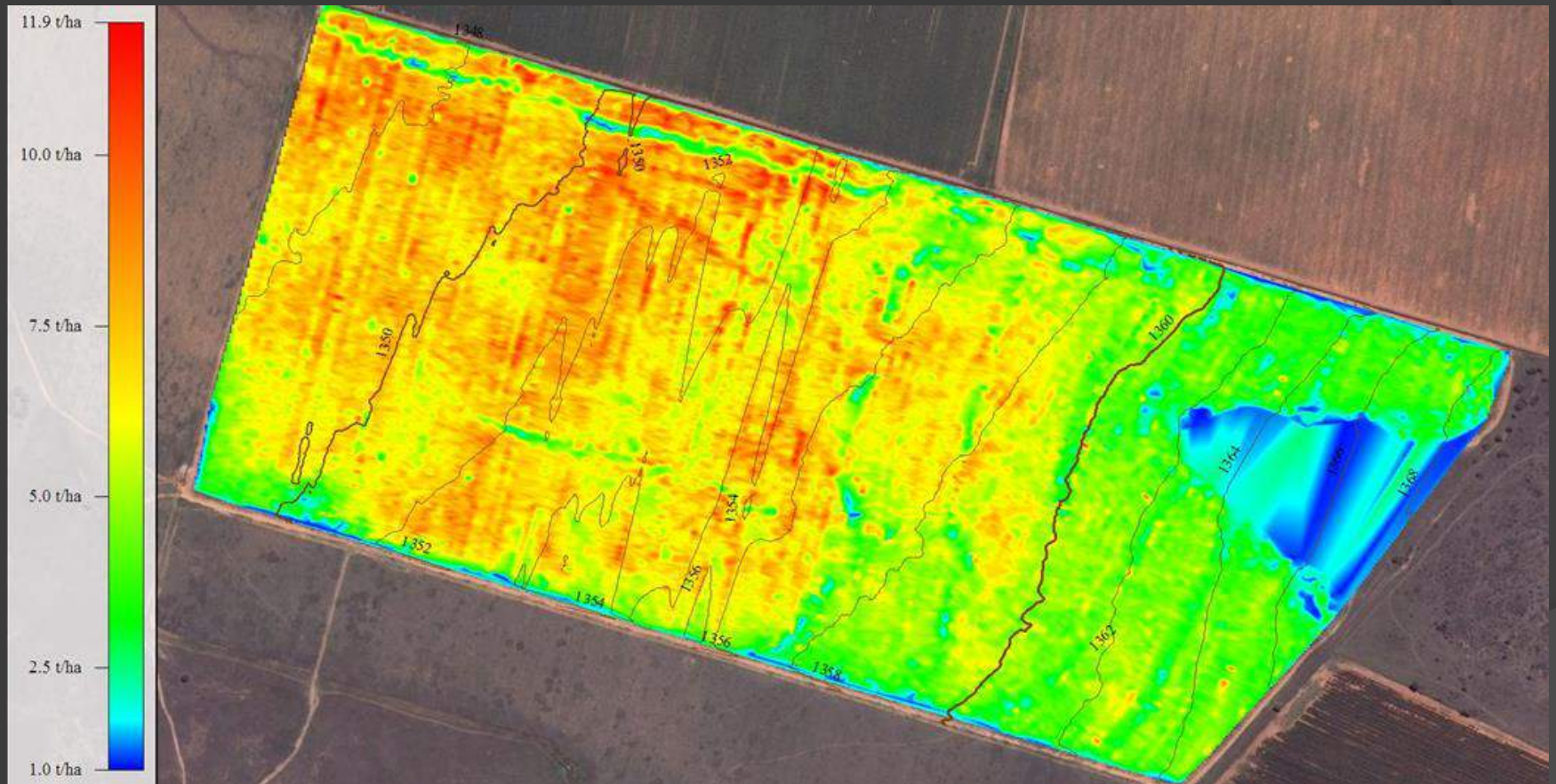
1:4727 TM (WGS84) - ( 10244.635, -2189.534, 1598.597 m ) 0° 01' 11.2852" S, 0° 05' 31.3047" E

# Terrain profile analysis



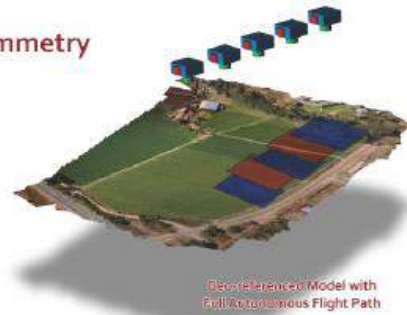


# Yield data from combine harvesters





## Precision Farming Applications and Photogrammetry



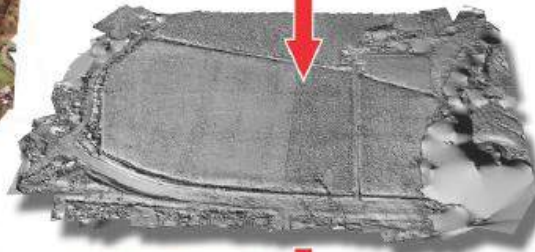
Georeferenced Model with Full Autonomous Flight Path



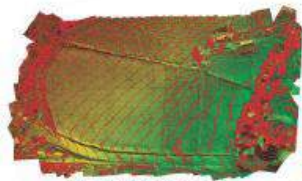
Ortho Mosaic



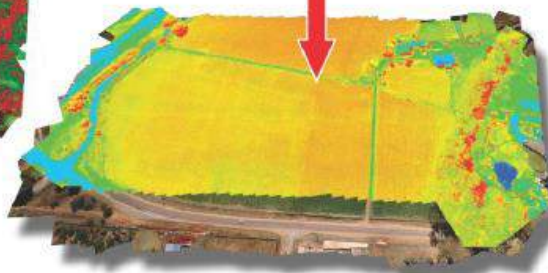
Profiles of a Geo-referenced Model



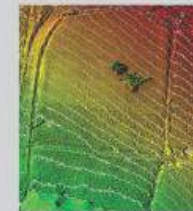
DEM / DTM / DSM / Point Cloud



Depth Map Visualisation with Contours



High resolution NDVI Overlay

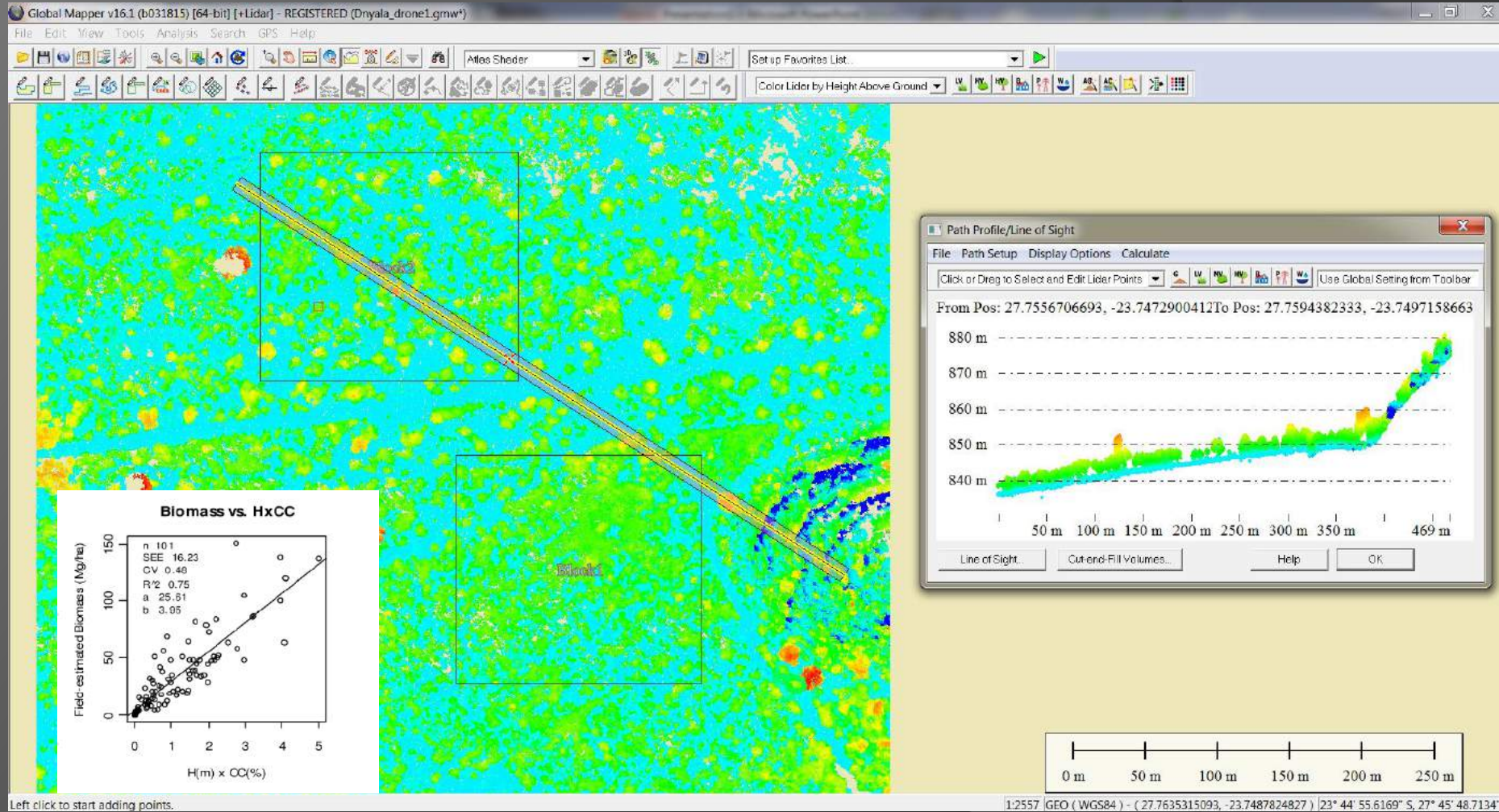


Depth Map Visualisation with Contours

## APPLICATIONS

- Near real-time imagery
  - color
  - near-infrared
  - vegetation index
- Terrain data
  - elevation
  - slope
  - drainage
  - contours

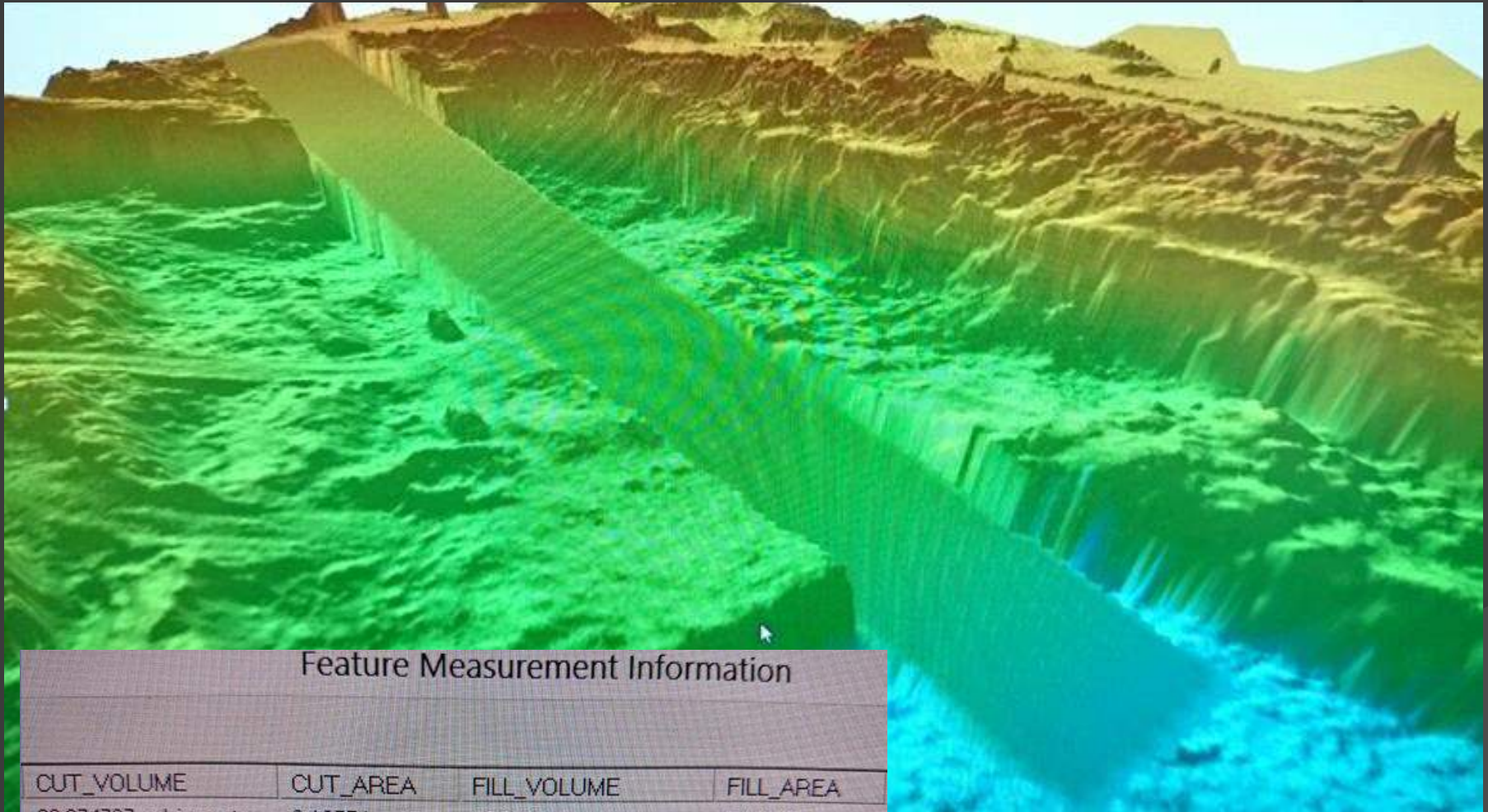
# UAV point cloud analysis



Left click to start adding points.



# Road construction – cut and fill – volume calculations



CUT_VOLUME	CUT_AREA	FILL_VOLUME	FILL_AREA
60.874767 cubic meters	0.1655 hectares	59.972238 cubic meters	0.1691 hectares

# Summary

- User-friendly – logic functionality
- Great vector creation/editing tools
- Excellent support and training
- 3D capabilities – unbeatable (try other GIS software)
- Import and export formats – best on the market
- Excellent mapping tool – real-time 3D updates
- On-line data
- Fast point cloud processing
- True value for money

**Thank-you**

[www.smc-synergy.co.za](http://www.smc-synergy.co.za)



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