

NSF Sponsored NATIONAL CENTER FOR AIRBORNE LASER MAPPING

<u>NCALM@UFL</u>	<u>NCALM@UCB</u>
365 Weil Hall, PO Box 116580	307 McCone Hall
University of Florida	University of California at Berkeley
Gainesville, FL 32611	Berkeley, CA 94720
Phone: (352) 392-1571 / Fax: (352) 392-5032	Phone: 510-642-3991 / Fax: 510-643-9980
ncalm@ce.ufl.edu	ncalm@eps.berkeley.edu

Airborne Laser Swath Mapping Project

Dragons Back Ridge, San Andreas Fault - CA, USA

PI: George E. Hilley

Date Flown: May 19, 2005

List of products – quick view

1. 1m DEMs in ESRI GRID file format, based on the filtered (“bare-earth”) and unfiltered “last return” laser point datasets.
2. 1m Shaded Relief Maps in ESRI GRID file format.
3. 1m Contour map in ESRI Coverage file format, based on the bare-earth DEM.
4. Raw laser point data (9 columns), ASCII format.
5. Filtered and unfiltered “last return” (xyz) laser point data, ASCII format.
6. Shaded Relief Maps and Contour Maps high resolution JPEG images for quick visualization.
7. Report on the data processing.

Comments

- The bare-earth classification (filtering) was performed using Terrasolid’s TerraScan Lidar processing software. Details about the filtering process can be found in the Processing Report.
- You may observe a periodic fine scale elevation variation throughout the dataset (about 5 to 20 cm, similar to a “corduroy” pattern), which is a property of the Optech LIDAR system, and it’s within the machine’s error limits. This variation can be removed by using a smoothing routine, but this process could smooth other features as well and we feel that the decision is best left with the PI.

What’s on the DVD(s)

DVD1

- **GIS Data** – this folder contains the ArcInfo datasets and the associated “info” directory
 - Digital Elevation Models, in ESRI GRID file format
“**ground_grd**” – bare-earth grid based on the filtered “last-return” point dataset.

Grid Parameters
Cell Size: 1m
Gridding Method: Kriging
Kriging parameters:
 Variogram: Linear
 Nugget Variance: 0.07 meters
 MicroVariance: 0.00 meters
 SearchDataPerSector: 10
 SearchMinData: 5
 SearchMaxEmpty: 1
 SearchRadius: 20m

“***unfil_grd***” – unfiltered “last-return” grid

Grid Parameters
Cell Size: 1m
Gridding Method: Kriging
Kriging parameters:
 Variogram: Linear
 Nugget Variance: 0.07 meters
 MicroVariance: 0.00 meters
 SearchDataPerSector: 10
 SearchMinData: 5
 SearchMaxEmpty: 1
 SearchRadius: 5m

Projection:
 UTM Zone 11, Datum: NAD83, Units: meters
 Elevations are NAVD88 orthometric heights computed using NGS
 GEOID03 model

- Shaded Relief Maps, in ESRI GRID file format
 “***ground_shd***” – bare-earth shaded relief map
 “***unfil_shd***” – unfiltered “last-return” shaded relief map

Cell Size: 1m. The shaded relief maps were generated from the 1m DEMs.

- Contour Map, in ESRI Coverage file format
 “***ground_cnt***” – bare-earth contour coverage

Contour Interval: 1m. The contour map was generated from the 1m bare-earth DEM.

- **Images** – this folder contains high resolution images for quick visualization
- **Readme.pdf** – this document
- **Report.pdf** – detailed report describing how the data was processed

DVD2

- **Point Data** – this folder contains the raw laser point datasets

“9_Column.zip” – zip archive containing 9-column unfiltered laser point data, one file per flight strip, ASCII format.

The nine columns are as follows:

1. GPS time (seconds of week);
2. Easting last return;
3. Northing last return;
4. Height last return;
5. Intensity last return;
6. Easting first return;
7. Northing first return;
8. Height first return;
9. Intensity first return.

Note that in these 9-column files no geoid model has been applied - height values are ellipsoid heights and these height values will NOT match orthometric heights (elevations) found in the 3-column output or in the 1-meter DEM grid nodes. The UTM zone code (11) is appended to the Easting coordinate in this nine-column format.

“unfil_flightlines_3col.zip” – zip archive containing 3-column “last return” laser point data, one file per flight strip, ASCII format.

The three columns are as follows:

1. Easting last return (X)
2. Northing last return (Y)
3. Elevation last return. (Z)

The projection is UTM Zone 11, in meters. Elevations are NAVD88 orthometric heights computed using the NGS GEOID03 model.

“filtered_tiles_overlap.zip” – zip archive containing filtered “last-return” points split in 2km x 2km overlapping tiles (60m overlap) , ASCII format.

The format is 3-column space delimited X Y Z.

X = Easting last return

Y = Northing last return

Z = Elevation last return.

The horizontal data is UTM Zone 11, in meters. Elevations are NAVD88 orthometric heights computed using the NGS GEOID03 model.

The tile filenames start with the letter “F” (indicating the tile contains filtered data) followed by the lower left grid node coordinates (without taking into account the actual tile overlap).

“unfiltered_tiles_overlap.zip” – zip archive containing unfiltered “last-return” points split in 2km x 2km overlapping tiles (60m overlap) , ASCII format.

The format is 3-column space delimited X Y Z.

X = Easting last return

Y = Northing last return

Z = Elevation last return.

The horizontal data is UTM Zone 11, in meters. Elevations are NAVD88 orthometric heights computed using the NGS GEOID03 model.

The tile filenames start with the letter "u" (indicating the tile contains unfiltered data) followed by the lower left grid node coordinates (without taking into account the actual tile overlap).

Software required for using the data

The ESRI Grids and Coverages can be viewed with all ESRI software, such as ArcGIS, ArcMAP, and ArcView 3.xx. Please contact NCALM if alternative formats are needed.