

NSF Sponsored NATIONAL CENTER OF 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

LIDAR Project: PahrumpValley_05feb_JE

Pahrump Valley, Nevada

PI: Bernard Guest

Date Flown: February 28, 2005

List of products – quick view

1. DEMs in ESRI GRID file format, based on the unfiltered “last return” dataset
2. Shaded Relief Maps in ESRI GRID file format.
3. Contour Maps in ESRI Coverage file format
4. Raw laser point data (9 columns), ASCII format.
5. “Last return” (3 columns) laser point data, ASCII format.
6. Shaded Relief Maps and Contour Maps high resolution JPEG images for quick visualization.

Comments

- Please note that the flight was conducted in an unconventional way as this was an add-on to other work and was done to quickly obtain data for the requested area. Rather than flying a regular, straight grid across the area, the airplane banked along the determined trajectory. This way of gathering data introduces noticeable error, especially on the fringes of the flight path, giving a “corduroy” appearance to the data. This is in addition to the background periodic fine scale elevation variation (normally 5 to 20cm) which is a property of the Optech LIDAR system, and within the machine’s error limits. This effect is less noticeable in Corridor 1 as the plane was following a mostly straight trajectory. Our understanding is that if these preliminary data looked promising, a carefully planned survey would then be conducted if funding became available.
- Bare-earth extraction was not performed on this dataset due to the scarceness of vegetation in the interest area. Filtering the data with a conservative feature-preserving algorithm (Hagerud) can remove some of the vegetation but with the expense of smoothing out some of the morphology in steep areas. If requested, NCALM can provide such a filtered dataset, with the associated grids.

What's on the DVD(s)

DVD1

- **Products** – this folder contains the products in ESRI file formats and the associated “info” directory used by ESRI software.

- a) Digital Elevation Models, in ESRI GRID file format
 - “pvg_c1_grd2m” – Corridor 1, 2m cell GRID
 - “pvg_c1_grd_n” – Corridor 1 North part, 1m cell GRID
 - “pvg_c1_grd_s” – Corridor 1 South part, 1m cell GRID
 - “pvg_c2_grd” – Corridor 2, 1m cell GRID

Gridding Method: Kriging

Kriging parameters:

Variogram: Linear

Nugget Variance: 0.10 meters

MicroVariance: 0.00 meters

Quadrant Search: 4

Search Radius: 5 meters

Minimum points per quadrant: 5

Maximum points per quadrant: 7

Projection:

UTM Zone 11, Datum: NAD83, Units: meters

Elevations are ellipsoid heights.

Processing:

The gridding was performed with “Golden Software Surfer 8” in tiles and assembled as a seamless dataset with ArcGIS 8.3.

Because of size limitations of ESRI software, the Corridor 1 dataset could not be processed as a single DEM at 1m cell size resolution. Thus two 1m DEMs are provided for the North and South parts, along with a full coverage at 2m resolution.

Corridor 2 data was small enough to be processed as a single DEM.

- b) Shaded Relief Maps, in ESRI GRID file format
 - “pvg_c1_shd2m” – Corridor 1, 2m cell Shaded Relief Map
 - “pvg_c1_shd_n” – Corridor 1 North part, 1m cell Shaded Relief Map
 - “pvg_c1_shd_s” – Corridor 1 South part, 1m cell Shaded Relief Map
 - “pvg_c2_shd” – Corridor 2, 1m cell Shaded Relief Map
- c) Contour Maps, in ESRI Coverage file format
 - “pvg_c1_cnt2m” – Corridor 1 Contour Map generated from the 2m DEM, with 1 meter contour interval.
 - “pvg_c1_cnt_n” – Corridor 1 North part Contour Map generated from the 1m DEM, with 1 meter contour interval.
 - “pvg_c1_cnt_s” – Corridor 1 South part Contour Map generated from the 1m DEM, with 1 meter contour interval.
 - “pvg_c2_cnt” – Corridor 2 Contour Map generated from the 1m DEM, with 1 meter contour interval.

- **Images** – this folder contains high resolution images for quick visualization:
 - “pvg_c1_shd2m.jpg” –high resolution JPEG file of the shaded relief map for Corridor 1 at 2m cell resolution
 - “pvg_c1_shd_n.jpg” – high resolution JPEG file of the shaded relief map for Corridor 1 North part at 1m cell resolution
 - “pvg_c1_shd_s.jpg” – high resolution JPEG file of the shaded relief map for Corridor 1 South part at 1m cell resolution
 - “pvg_c2_shd.jpg” – high resolution JPEG file of the shaded relief map for Corridor 2 at 1m cell resolution
 - “pvg_c1_cnt2m.jpg” - high resolution JPEG file of the contour map for Corridor 1 at 2m cell resolution and 1m contour interval
 - “pvg_c1_cnt_n.jpg” – high resolution JPEG file of the contour map for Corridor 1 North part at 1m cell resolution and 1m contour interval
 - “pvg_c1_cnt_s.jpg” – high resolution JPEG file of the contour map for Corridor 1 South part at 1m cell resolution and 1m contour interval
 - “pvg_c2_cnt.jpg” – high resolution JPEG file of the contour map for Corridor 2 at 1m cell resolution and 1m contour interval
- **Readme.pdf** – this document

DVD2

- **Data** – this folder contains the LIDAR points dataset
 - “pvg_corridor1_9col.zip” – zip archive with 9-column ASCII files, one per flight strip, for Corridor 1
 - “pvg_corridor2_9col.zip” – zip archive with 9-column ASCII files, one per flight strip, for Corridor 2

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 the UTM zone code (11) is appended to the Easting coordinate in this nine-column format.

- “pvg_corridor1_3col.zip” – zip archive with the “last return” data, ASCII format, for Corridor 1
- “pvg_corridor2_3col.zip” – zip archive with the “last return” data, ASCII format, for Corridor 2

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

X = Easting last return
Y = Northing last return
Z = Elevation last return.

The projection is UTM Zone 11, in meters.

Note that in both the 9-column and 3-column files no geoid model has been applied - height values are ellipsoid heights.

- **Readme.pdf** – this document

Software required to use 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.