

NSF Sponsored NATIONAL CENTER OF AIRBORNE LASER MAPPING

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LIDAR Project: DeathValley_05feb_NS

Furnace Creek Wash, Death Valley National Park, California

PI: Noah Snyder

Date Flown: February 27, 2005

List of products – quick view

1. 1m DEMs in ESRI GRID file format, based on the unfiltered “last return” dataset
2. 1m Shaded Relief Map in ESRI GRID file format.
3. 1m Contour map 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 Map and Contour Map high resolution JPEG images for quick visualization.
7. Report on the data processing.

Comments

- 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.
- 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)

- **Products** – this folder contains the products in ESRI file formats and the associated “info” directory used by ESRI software. See the Report (Report.pdf) for details about the Survey areas and parameters.
 - a) Digital Elevation Model, in ESRI GRID file format (“dvs_grd”)
 - Grid Parameters
 - Cell Size: 1m

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 NAVD88 orthometric heights.

Processing: the gridding was performed with “Golden Software Surfer 8” in tiles and assembled as a seamless dataset with ArcGIS 8.3. The grids were created from the last return LIDAR data, without any vegetation removal.

- b) Shaded Relief Map, in ESRI GRID file format (“dvs_shd”)
The Shaded Relief Map was generated from the 1m DEM, with a cell size of 1 meter.
- c) Contour Map, in ESRI Coverage file format (“dvs_cnt”)
The Contour Map was generated from the 1m DEM, with contour spacing and Z factor of 1 meter.
- **Images** – this folder contains high resolution images for quick visualization:
 - “shaded_relief.jpg” –high resolution JPEG file of the shaded relief map
 - “contour_map.jpg” – high resolution JPEG file of the contour map
- **Data** – this folder contains the LIDAR points dataset
 - “dvs_feb05_9cols.zip” – zip archive with 9-column ASCII files, one per flight strip. Details about the file format can be found in the Report, Section 5 (Laser Point Processing)
 - “dvs_feb05_3cols.zip” – zip archive with “last return” data, ASCII format
The format is 3-column space delimited X Y Z.
X = Easting last return
Y = Northing last return
Z = Elevation last stop.
The projection is UTM Zone 11, in meters. Elevations are NAVD88 orthometric heights computed using the NGS GEOID03 model.
- **Readme.pdf** – this document
- **Report.pdf** – detailed report describing how the data was processed.

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.