



# Data Collection & Product Report for 2018 Seed Project: The Role of Extreme Events in Setting the Pace and Magnitude of Landscape Change: Post-fire Debris Flows in the Santa Monica Mountains, Southern California

PI: Kirk Townsend ([kirkft@umich.edu](mailto:kirkft@umich.edu))

University of Michigan, Department of Earth & Environmental Sciences  
1100 N University Ave, Rm 2534, Ann Arbor, MI 48109

## Data Collection Summary:

Collection Dates, Flights:	September 25, 2019 (DOY 268) comprising one (1) flight
Aircraft, Equipment:	Piper PA-31 Navajo Chieftain (N640WA) with Optech Titan Lidar (14SEN340)
Flight Plan Parameters:	Flying Height: 600 m AGL, Speed: 140 kt, Overlap: 50%
Equipment Parameters:	PRF: 75 kHz, Scan Angle: $\pm 30^\circ$ , Scan Frequency: 26 Hz
Imagery Flight Plan Parameters:	N/A
Collected Area:	60.0 km <sup>2</sup>

## GNSS Reference Station Summary:

Station Name	Operating Agency	Control Coordinates (WGS84(850) epoch 2012.00/Ellipsoid)
CBHS	UNAVCO	34°08'18.81739" N, 118°37'47.30721" W, 284.603 m
CIRX	UNAVCO	34°06'34.38992" N, 118°56'14.27256" W, 488.214 m
CNPP	UNAVCO	33°51'27.47221" N, 117°36'32.11689" W, 300.293 m
GSE4	NCALM	34°05'26.52373" N, 117°47'10.63049" W, 265.035 m
LFRS	UNAVCO	34°05'42.24949" N, 118°24'46.17932" W, 146.905 m
MAT2	UNAVCO	33°51'24.33387" N, 117°26'12.12151" W, 398.304 m
P471	UNAVCO	33°33'43.64563" N, 117°32'27.12180" W, 174.784 m

## Data Processing Summary:

Scan Angle Cutoff:	$\pm 1^\circ$
Intensity Normalization:	600 m
Data Adjustments:	Line-by-line/channel-by-channel roll orientation and elevation correction, project elevation shift of -17.0 cm
Ground Classification:	Two iterations of default ground determination, manual classification of misclassified ground
Elevation Model Generation:	First-return calculated from average Z TIN model, bare-earth calculated from Kriging

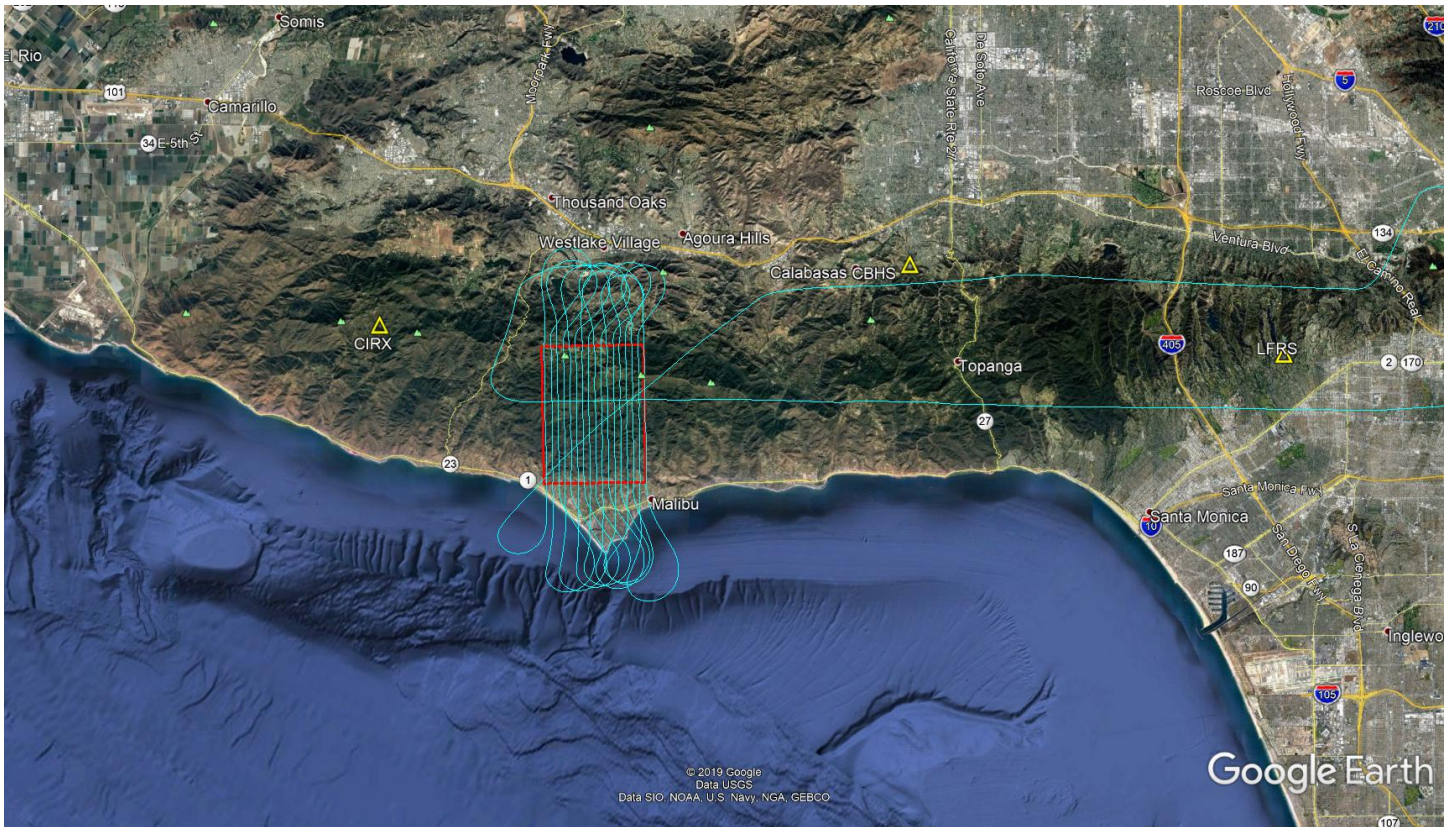
## Data Accuracy Summary

Strip-to-Strip Average	0.089 m
GCP Residual RMS	N/A

## Data Product Summary:

Horizontal / Vertical Datum:	WGS84(850) epoch 2012.00 / Ellipsoid
Projection / Units:	UTM Zone 11N / meters
Point Cloud Tiles:	1000-m $\times$ 1000-m tiles in LAS format (Version 1.4) with non-ground (1), ground (2), low point (7), and high point (18) returns
Bare-Earth Elevation Model:	GeoTIFF @ 50-cm resolution from classified ground points
First-Surface Elevation Model:	GeoTIFF @ 50-cm resolution with canopy and buildings included

## Area of Interest:



**Location of survey polygon, aircraft trajectory, and GNSS reference stations.**

The requested survey area consisted of one polygon located in the Santa Monica Mountains, north of Malibu, CA. The polygon enclosed approximately 39.8 km<sup>2</sup> (15.4 mi<sup>2</sup>).

## Notes:

No visible imagery was collected over the site due to an instrument malfunction.