



**Data Collection & Product Report for 2019 Seed Project:
Utilization of Airborne Lidar to Evaluate Regional Landslide Area-
Volume Scaling Relationships After a Large Rainfall-Triggered Mass
Wasting Event in Western North Carolina**

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Data Collection Summary:

Collection Dates, Flights:	1 flight on November 14, 2020 (DOY 319)
Aircraft, Equipment:	Piper PA-31-350 Navajo Chieftain (N640WA), Optech Titan (14SEN340)
Flight Plan Parameters:	Flying Height: 500 m AGL, Speed: 150 kt, Overlap: 50%
Equipment Parameters:	PRF: 100 kHz, Scan Frequency: 26 Hz, Scan Angle: $\pm 30^\circ$
Collected Area:	78.6 km ²

GNSS Reference Station Summary:

Station Name	Operating Agency	Control Coordinates (NAD83(2011)/Ellipsoid)
GSE3	NCALM	35°49'15.86082" N, 81°36'49.52898" W, 349.984 m
MARI	NGS	35°39'13.38520" N, 81°57'16.17217" W, 366.985 m
NCHE	NGS	35°21'21.89178" N, 82°30'03.99661" W, 654.473 m
NCMG	NGS	35°42'27.07387" N, 81°39'23.99846" W, 344.829 m
NCSP	NGS	35°21'55.83434" N, 81°54'57.34814" W, 302.766 m
NCSW	NGS	35°35'46.03848" N, 82°25'24.22970" W, 659.838 m

Data Processing Summary:

Scan Angle Cutoff:	$\pm 1^\circ$
Intensity Normalization:	500 m
Data Adjustments:	Project elevation shift of -0.12 m
Ground Classification:	One iterations of moderate ground determination, one iteration of aggressive ground determination, manual classification of misclassified ground
Elevation Model Generation:	Bare-earth generated from Kriging, first-return calculated from average Z TIN model

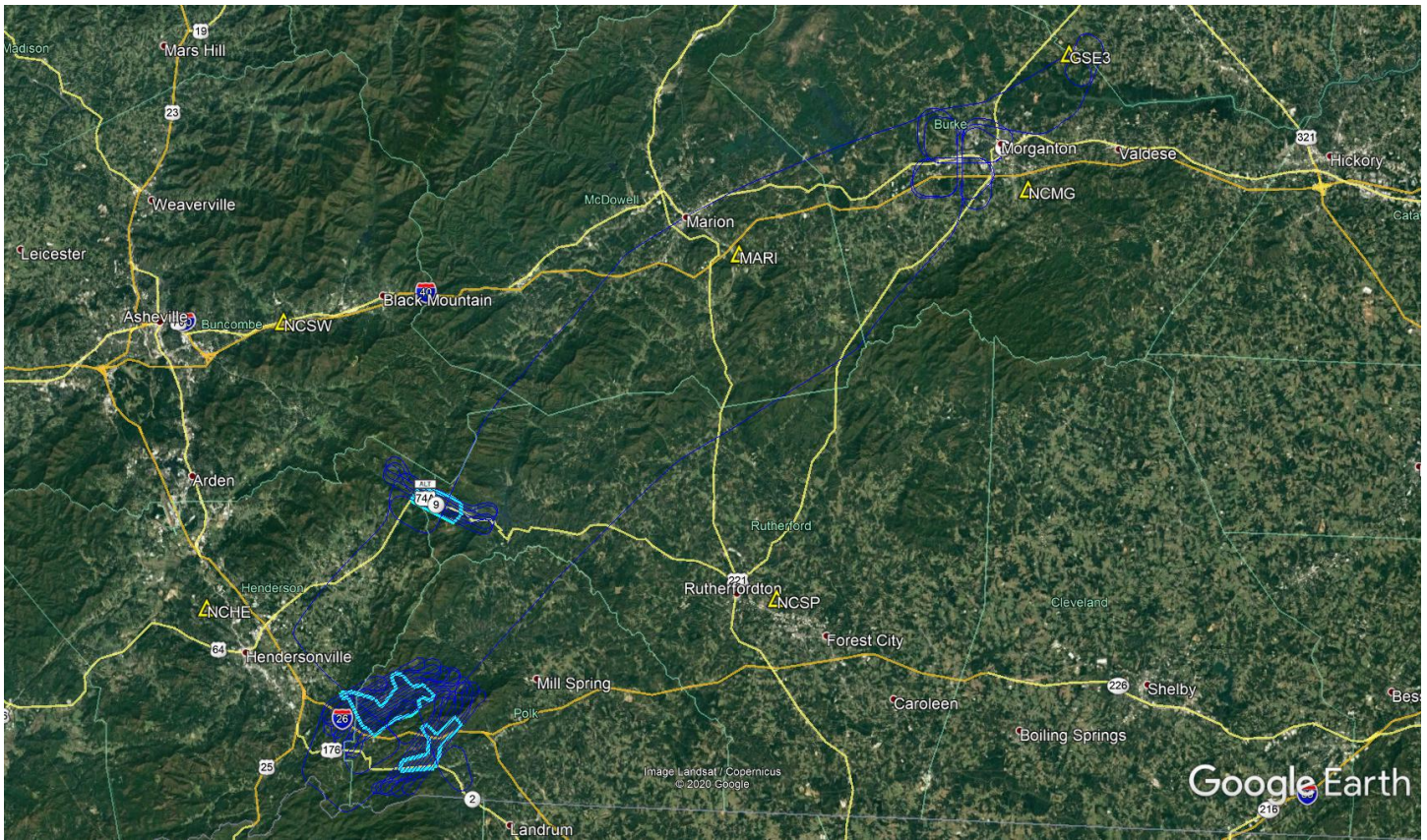
Data Accuracy Summary

Strip-to-Strip Average	0.05 m
GCP Residual RMS	N/A

Data Product Summary:

Horizontal / Vertical Datum:	NAD83(2011) epoch 2010.00 / NAVD88 (GEOID18)
Projection / Units:	UTM Zone 17N / 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 @ 1-m resolution from classified ground points
First-Surface Elevation Model:	GeoTIFF @ 1-m resolution with canopy and buildings included

Area of Interest:



Location of survey polygons, aircraft trajectory, and GNSS reference stations

The requested survey area consisted of three polygons located east of Hendersonville, NC. The polygons enclosed approximately 37 km² (14 mi²).