Data Collection & Product Report for
2020 Sparta Earthquake Project

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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: 400 m AGL, Speed: 140 kt, Overlap: 50%
Equipment Parameters:	PRF: 175 kHz, Scan Frequency: 26 Hz, Scan Angle: ± 30°
Collected Area:	11.2 km²

GNSS Reference Station Summary:

Station Name	Operating Agency	Control Coordinates (ITRF2014 epoch 2020.87/Ellipsoid)
GSE4	NCALM	35°49'16.01764" N, 81°36'49.99608" W, 348.683 m
NCSR	NGS	36°29'51.93474" N, 81°06'52.95913" W, 838.629 m

Data Processing Summary:

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Scan Angle Cutoff:	± 1°
Intensity Normalization:	400 m
Data Adjustments:	Project elevation shift of +5.0 cm
Ground Classification:	Two iterations of moderate ground determination, manual classification of misclassified ground
Elevation Model Generation:	First-return and bare-earth generated from Kriging

Data Accuracy Summary

Strip-to-Strip Average	0.023 m
GCP Residual RMS	N/A

Data Product Summary:

Horizontal / Vertical Datum:	WGS 84 / ellipsoid
Projection / Units:	UTM Zone 17N / meters
Point Cloud Tiles:	1000-m × 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 @ 25-cm resolution from classified ground points
First-Surface Elevation Model:	GeoTIFF @ 25-cm resolution with canopy and buildings included

Area of Interest:
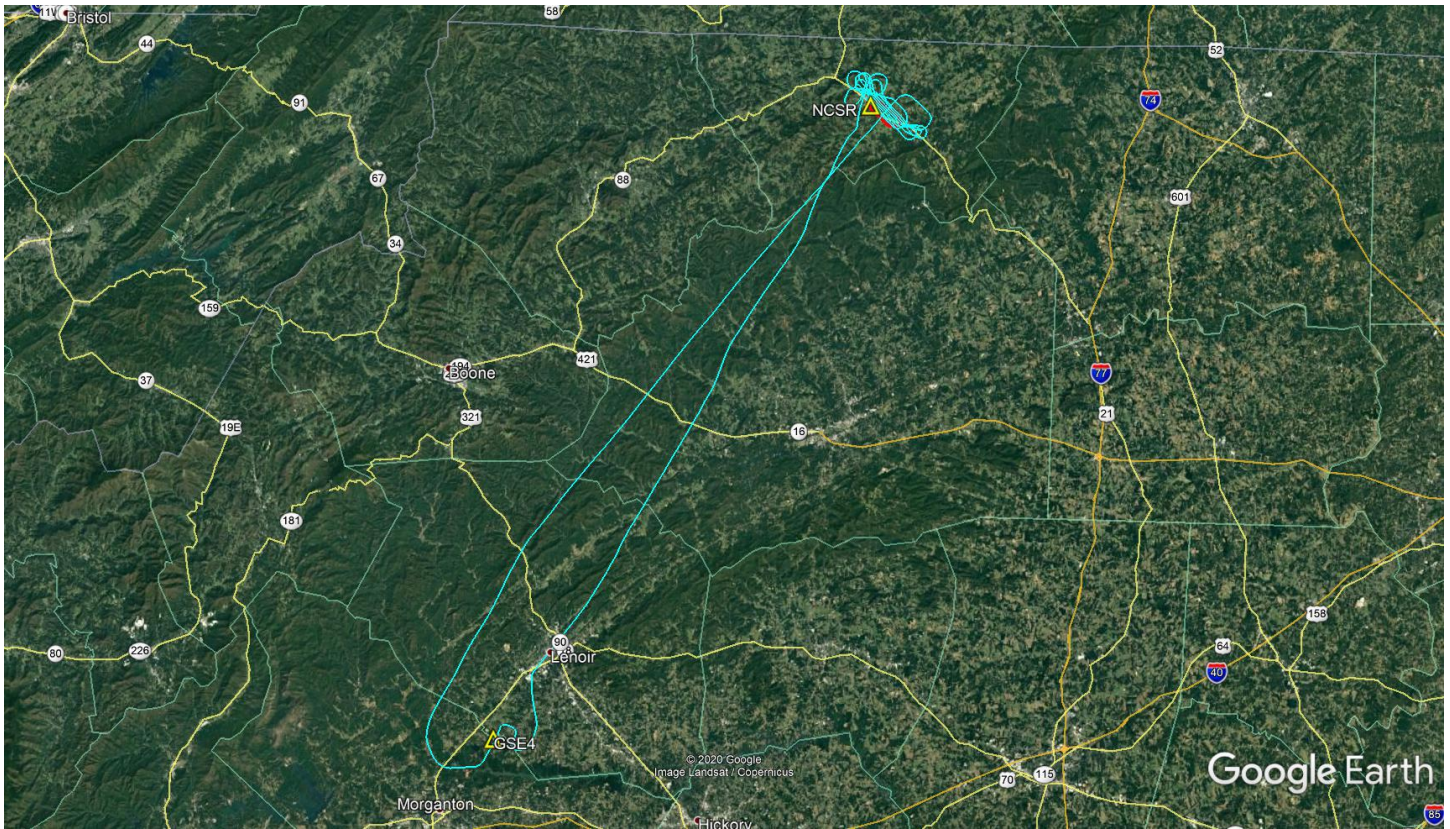
Location of survey polygon, aircraft trajectory, and GNSS reference stations

The requested survey area consisted of one polygon located in Sparta, NC. The polygon enclosed approximately 5.4 km^2 (2.1 mi^2).