



Data Collection & Product Report for 2021 Seed Project: The Spatial and Temporal Distribution of Large Rock Blocks and Control on Landscape Evolution in the Ozarks

PI: Chelsea Moran (cmm084@uark.edu)
University of Arkansas, Department of Geosciences
340 N Campus Walk, 216 Gearhart Hall, Fayetteville, AR 72701

Data Collection Summary:

Collection Dates, Flights:	1 flight on September 21, 2023 (DOY 264)
Aircraft, Equipment:	Piper PA-31 Navajo (C-GJMT), Optech Titan (14SEN340)
Nominal Flight Parameters:	Flying Height: 450 m AGL, Speed: 140 kt, Overlap: 50%
Nominal Equipment Parameters:	Pulse Rate: 125 kHz, Scan Rate: 26 Hz, Scan Angle: $\pm 30^\circ$
Collected Area:	79.4 km ²

GNSS Reference Station Summary:

Station Name	Operating Agency	Coordinates (ITRF2014 Epoch 2023.721 / Ellipsoid)
ARHR	ARDOT	36°11'03.25921" N, 93°01'48.76612" W, 333.312 m

Data Processing Summary:

Scan Angle Cutoff:	$\pm 1^\circ$
Intensity Normalization:	450 m
Data Adjustments:	Line-by-line roll/pitch and elevation matching, project elevation shift of 0.63 m
Ground Classification:	2 iterations of aggressive ground determination, manual classification of misclassified ground
Elevation Model Generation:	Bare-earth calculated from Kriging, first-return calculated from TIN model

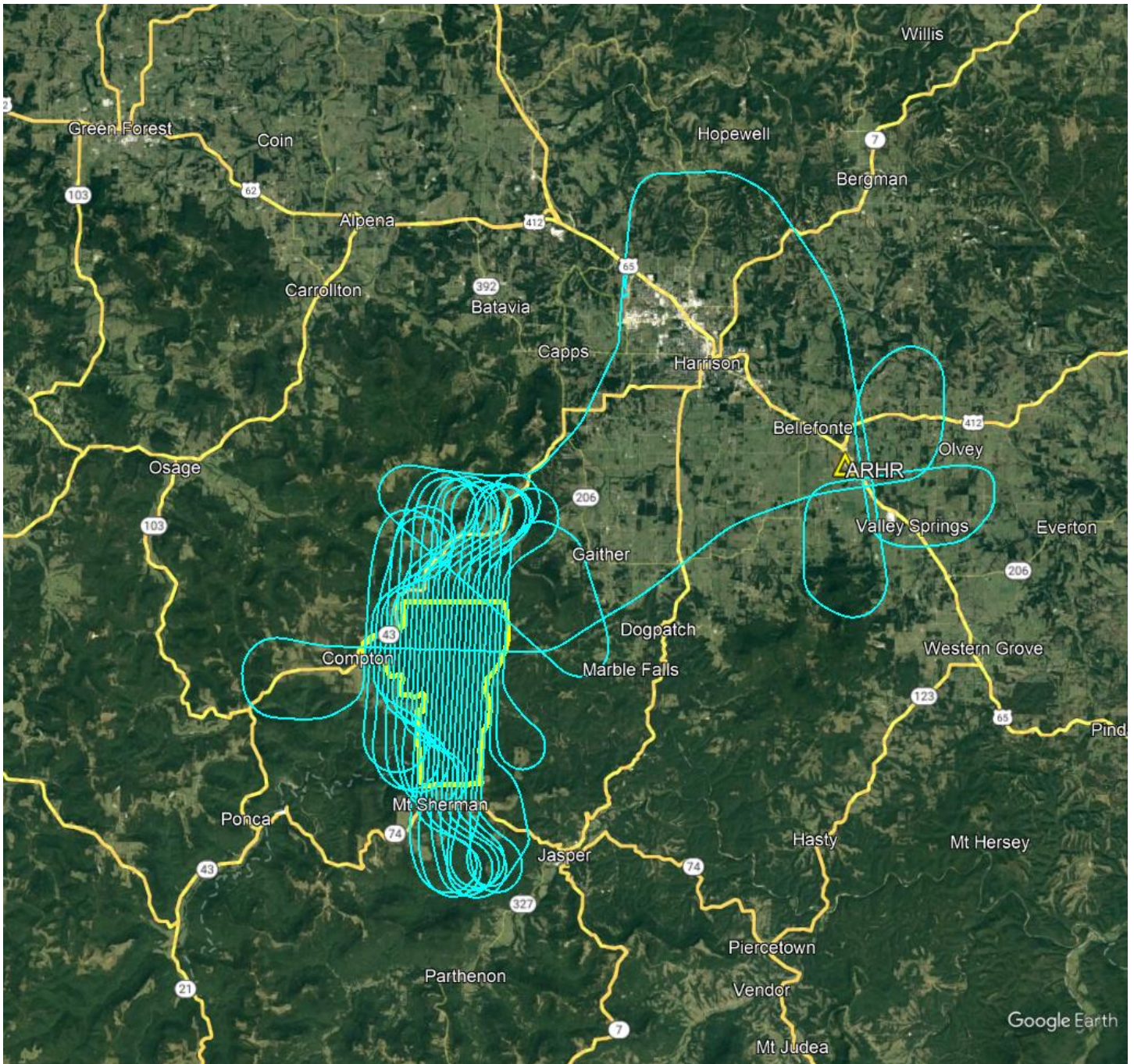
Data Accuracy Summary:

Strip-to-Strip Average:	0.05 m
GCP Residual RMS:	0.03 m (in calibration area)

Data Product Summary:

Horizontal / Vertical Datum:	NAD83(2011) epoch 2010.00 / ellipsoid
Projection / Units:	UTM Zone 15N / 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 @ 25-cm resolution from classified ground
First-Surface Elevation Model:	GeoTIFF @ 25-cm resolution with canopy and buildings included

Area of Interest:



Location of survey polygon, aircraft trajectory (including instrument calibration), and GNSS reference station

The requested survey area consisted of one polygon located southwest of Harrison, AR, over Buffalo River. The polygon enclosed approximately 40.0 km² (15.4 mi²).