



Data Collection & Product Report for 2016 Seed Project: Leveraging TLS and SFM Data for Characterizing Forest Structure Changes and the Effects on Snowpack Accumulation and Persistence

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Data Collection Summary:

Collection Dates, Flights:	1 flight on October 16, 2017 (DOY 289)
Aircraft, Equipment:	Piper PA-31-350 Navajo Chieftain (N640WA), Optech Titan (14SEN340)
Flight Plan Parameters:	Flying Height: 1000 m AGL, Swath Width: 930 m, Overlap: 50%
Equipment Parameters:	PRF: 100 kHz, Scan Frequency: 32 Hz, Scan Angle: $\pm 25^\circ$
Imagery Flight Plan Parameters:	Collected coincidentally
Collected Area:	89.9 km ²

GNSS Reference Station Summary:

AZFL	CORS	35°10'38.30178" N, 111°39'25.29096" W, 2088.799 m (Ellipsoid)
FERN	PBO	35°20'30.72358" N, 112°27'17.00744" W, 1768.847 m (Ellipsoid)

Data Processing Summary:

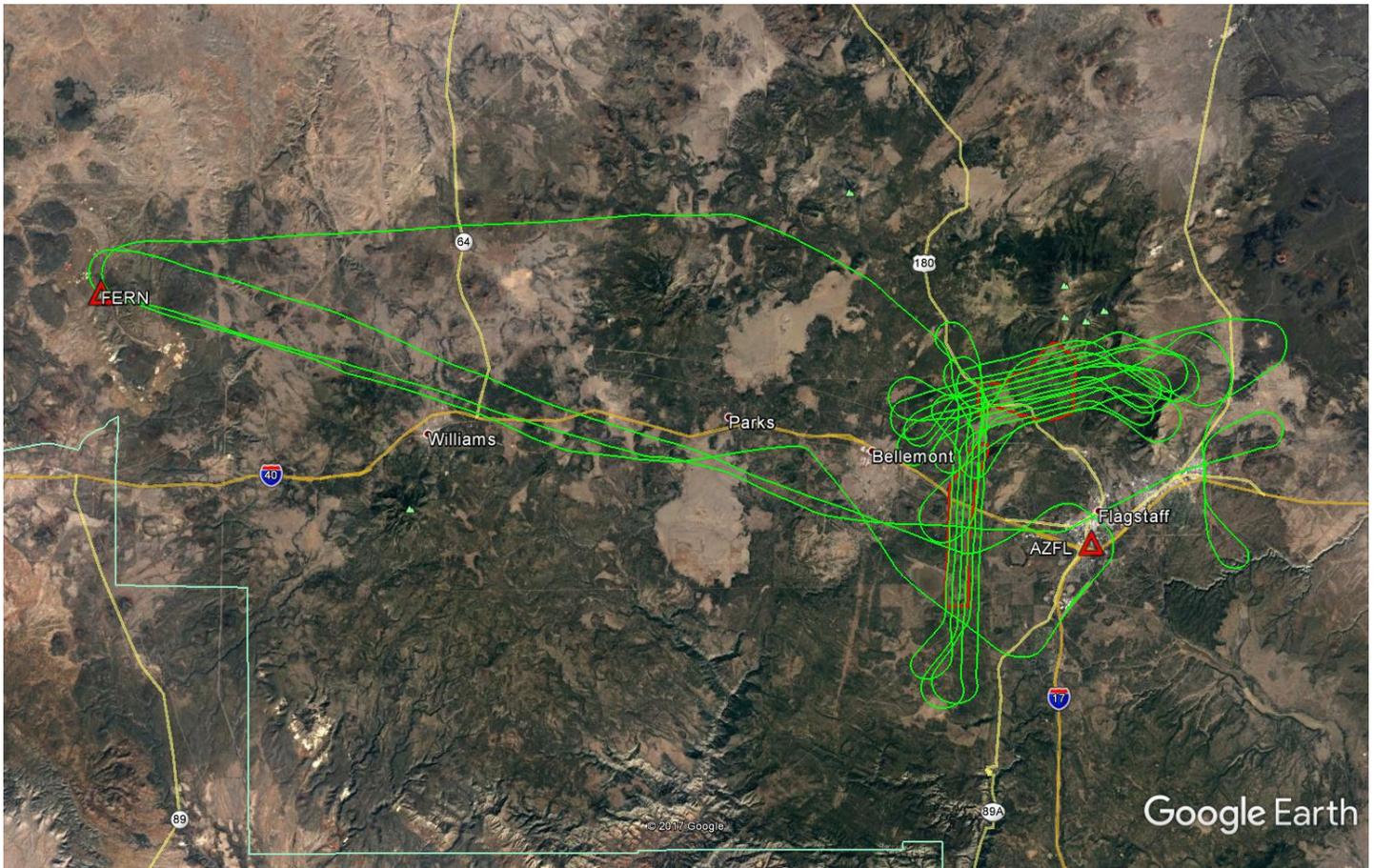
Scan Angle Cutoff:	$\pm 1^\circ$
Intensity Normalization:	1000 m
Data Adjustments:	Line-by-line elevation correction, project elevation shift of -14 cm
Ground Classification:	Two iterations of aggressive ground determination
Elevation Model Generation:	Elevation values calculated from point average, overlap points cut in bare-earth model, channel 2 (nadir) points used in first-surface model

Data Product Summary:

Horizontal / Vertical Datum:	NAD83(2011) epoch 2010.00 / Ellipsoid
Projection / Units:	UTM Zone 12N / meters
Point Cloud Tiles:	1000-m \times 1000-m tiles in LAS format (Version 1.4) classified with ground and non-ground returns
Bare-Earth Elevation Model:	ESRI FLT format @ 1-m and 50-cm resolution from classified ground points
Bare-Earth Hillshade:	ESRI-created raster @ 1-m and 50-cm resolution
First-Surface Elevation Model:	ESRI FLT format @ 1-m and 50-cm resolution with canopy and buildings included
First-Surface Hillshade:	ESRI-created raster @ 1-m and 50-cm resolution
Aerial Images:	Radiometrically corrected and rectified 24-bit TIFF files with timestamp and location information

A detailed summary of the equipment and processing techniques used by NCALM is included in the [Data Collection & Processing Summary](#).

Area of Interest:



Location of survey polygons (in red), aircraft trajectory (in green), and GNSS reference stations

The requested consolidated survey areas consisted of two polygons located in Flagstaff, AZ. The polygons enclose approximately 43.3 km² (16.7 mi²).