



**Data Collection & Product Report for 2021 Seed Project:  
Airborne Laser Swath Mapping vs. Structure from Motion  
Photogrammetry Comparison for Monitoring Eklutna Glacier  
Geodetic Mass Balance**

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**Data Collection Summary:**

Collection Dates, Flights:	1 flight on July 22, 2023 (DOY 203)
Aircraft, Equipment:	Piper PA-31 Navajo (C-GJMT), Leica TerrainMapper-2 (92528)
Nominal Flight Parameters:	Flying Height: 1700–3500 m AGL, Speed: 160 kt, Overlap: 20%
Nominal Equipment Parameters:	Pulse Rate: 235–246 kHz, Scan Rate: 60–69 Hz, FOV: 40°
Collected Area:	175.3 km <sup>2</sup>

**GNSS Reference Station Summary:**

Station Name	Operating Agency	Coordinates (ITRF2014 Epoch 2023.5568 / Ellipsoid)
AC14	UNAVCO	60°50'55.33098" N, 147°59'58.51478" W, 748.769 m
AC20	UNAVCO	60°55'45.14430" N, 149°21'09.03229" W, 43.793 m
AC44	UNAVCO	61°14'31.81772" N, 149°34'01.66649" W, 832.190 m
PAMR	NCALM	61°12'31.34466" N, 149°51'01.30950" W, 45.344 m

**Data Processing Summary:**

Data Adjustments:	HxMap line-by-line Lidar Matching, no project elevation shift
Ground Classification:	Two iterations of moderate ground determination, manual classification of misclassified ground
Elevation Model Generation:	Elevation values calculated from Kriging

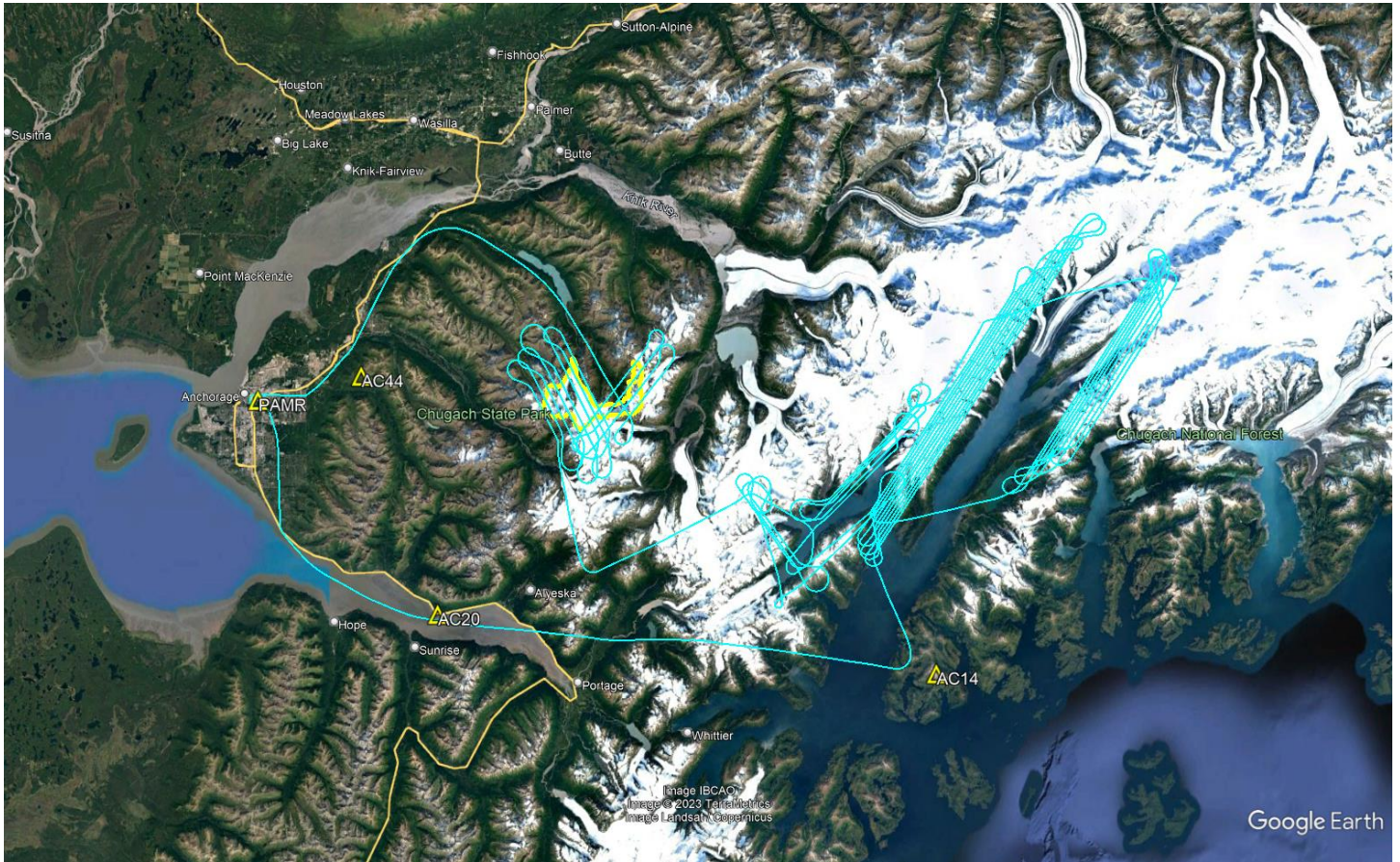
**Data Accuracy Summary**

Strip-to-Strip Average	0.029 m
GCP Residual RMS	0.078 m (in the 2023 Alaska campaign)

**Data Product Summary:**

Horizontal / Vertical Datum:	WGS 84 (ITRF2014) epoch 2023.5568 / ellipsoid
Projection / Units:	UTM Zone 6N / meters
Point Cloud Tiles:	1000-m × 1000-m tiles in LAS format (Version 1.4) with non-ground (1), ground (2), and outlier (7) returns
Bare-Earth Elevation Model:	GeoTIFF @ 1-m resolution from classified ground and ice
First-Surface Elevation Model:	GeoTIFF @ 1-m resolution with canopy included

**Area of Interest:**



**Location of survey polygon, aircraft trajectory (included other projects), and GNSS reference stations**

The requested survey area consisted of one polygon located over Eklutna Glacier, east of Anchorage, AK. The polygon enclosed approximately 58.5 km<sup>2</sup> (22.6 mi<sup>2</sup>).