



Data Collection & Product Report for 2020 NSF seed Project: Lake Michigan coastal erosion: measuring geomorphic response to extremely high lake levels

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Data Collection Summary:

Collection Date, Flight:	2 flights on November 12 and 13, 2020 (DOY 317 and 318)
Aircraft, Equipment:	Piper PA-31-350 Navajo Chieftain (N640WA), Optech Titan (14SEN340)
Flight Plan Parameters:	Flying Height: 600 m AGL, Speed: 150 kt, Overlap: 50%
Equipment Parameters:	PRF: 300 kHz, Scan Frequency: 26 Hz, Scan Angle: $\pm 30^\circ$
Collected Area:	28 km ²

GNSS Reference Station Summary:

Station Name	Operating Agency	Control Coordinates (NAD83(2011)/Ellipsoid)
GSE3	NCALM	43° 02' 20.69693" N, -88° 14' 30.02993" W, 242.955 m
GSE4	NCALM	43° 02' 21.26105" N, -88° 14' 30.29312" W, 242.936 m
WIWB	NGS CORS	43° 25' 13.96898" N, -88° 08' 55.47120" W, 235.124 m
SIW2	NGS CORS	42° 52' 04.53374" N, -87° 58' 58.56157" W, 191.268 m

Data Processing Summary:

Scan Angle Cutoff:	$\pm 1^\circ$
Intensity Normalization:	600 m
Classifications:	0: Unclassified over water 1: Unclassified 2: Ground classified - All Channels 7: Low Points 9: Water Surface Points from Channel 1 and 2 (IR channels) 18: Air Noise Points 31: Green Channel Bathymetric Points 32: Green Channel Water Penetrated Intermediate points 33: Green Channel Water Surface points
Elevation Model Generation:	Bare-earth DEM (Class 2 and 31) and First return DSM generated from Kriging

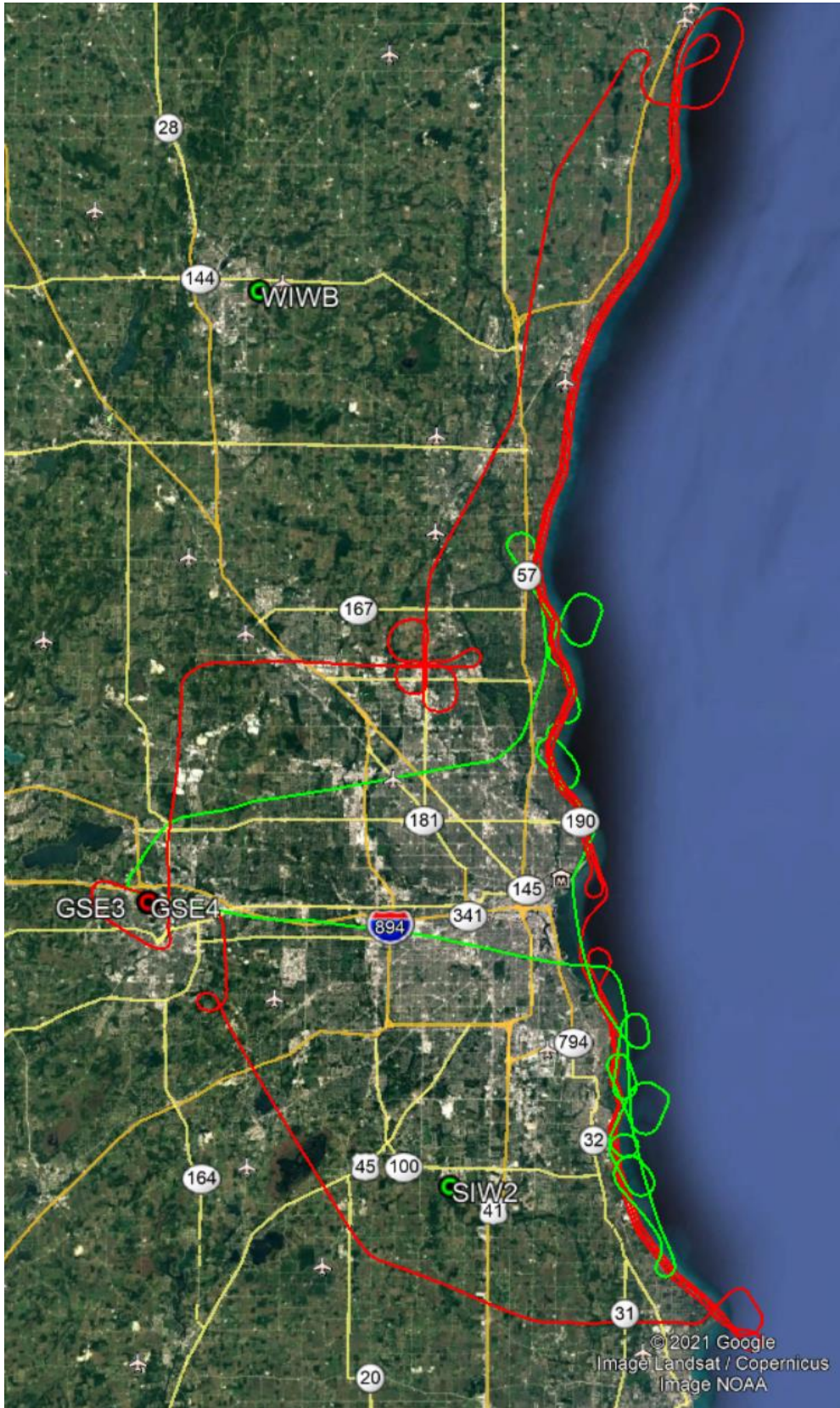
Data Accuracy Summary

Strip-to-Strip Average	0.05 m
GCP Residual RMS	0.002 m

Data Product Summary:

Horizontal / Vertical Datum:	NAD83(2011) epoch 2010.00 / NAVD88 (GEOID18)
Projection / Units:	UTM Zone 16N / meters
Point Cloud Tiles:	1000-m \times 1000-m tiles in LAS format (Version 1.4) with above classifications
Bare-Earth Elevation Model:	GeoTIFF @ 1-m resolution from classified ground and bathy points: 2 files for north polygon (WISC01_GEB_01M) and south polygon(WISC02_GEB_01M)
First-Surface Elevation Model:	GeoTIFF @ 1-m resolution from first returns, canopy and buildings included: 2 files for north polygon (WISC01_GEF_01M) and south polygon (WISC02_GEF_01M)

Area of Interest:



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

The requested survey area consisted of two polygons located east of Milwaukee, WI, along the coast of Lake Michigan. The polygon enclosed approximately 26 km².