



**LiDAR Data Collection & Product Report for 2022 Seed Project:
Role of hillslope topography, channel morphology, and riparian
vegetation density canopy cover in patterning of longitudinal stream
wetting and biogeochemical processing in an intermittent stream**

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Data Collection Summary:

Collection Dates, Flights:	1 flight on September 11, 2023 (DOY 254)
Aircraft, Equipment:	Robinson R66 (N166FS), RIEGL VQ580-II (H2225798) (1064 IR Laser)
Flight Plan Parameters:	Flying Height: 600 m AGL, Speed: 40–60 kt, Overlap: 50%
Equipment Parameters:	Laser: PRR: 600kHz, FOV: 75 deg
Collected Area:	6.2 km ²

GNSS Reference Station Summary:

Station Name	Operating Agency	Control Coordinates (ITRF2014 epoch 2023.695/Ellipsoid Elevations) NGS-OPUS Solutions
GSE2 (ID-78, Marsing)	NCALM	43° 29' 30.44645" N, 116° 47' 43.68487" W, 702.764 m
GSE3 (Caldwell Airport)	NCALM	43° 38' 36.77100" N, 116° 38' 30.11993" W, 722.434 m

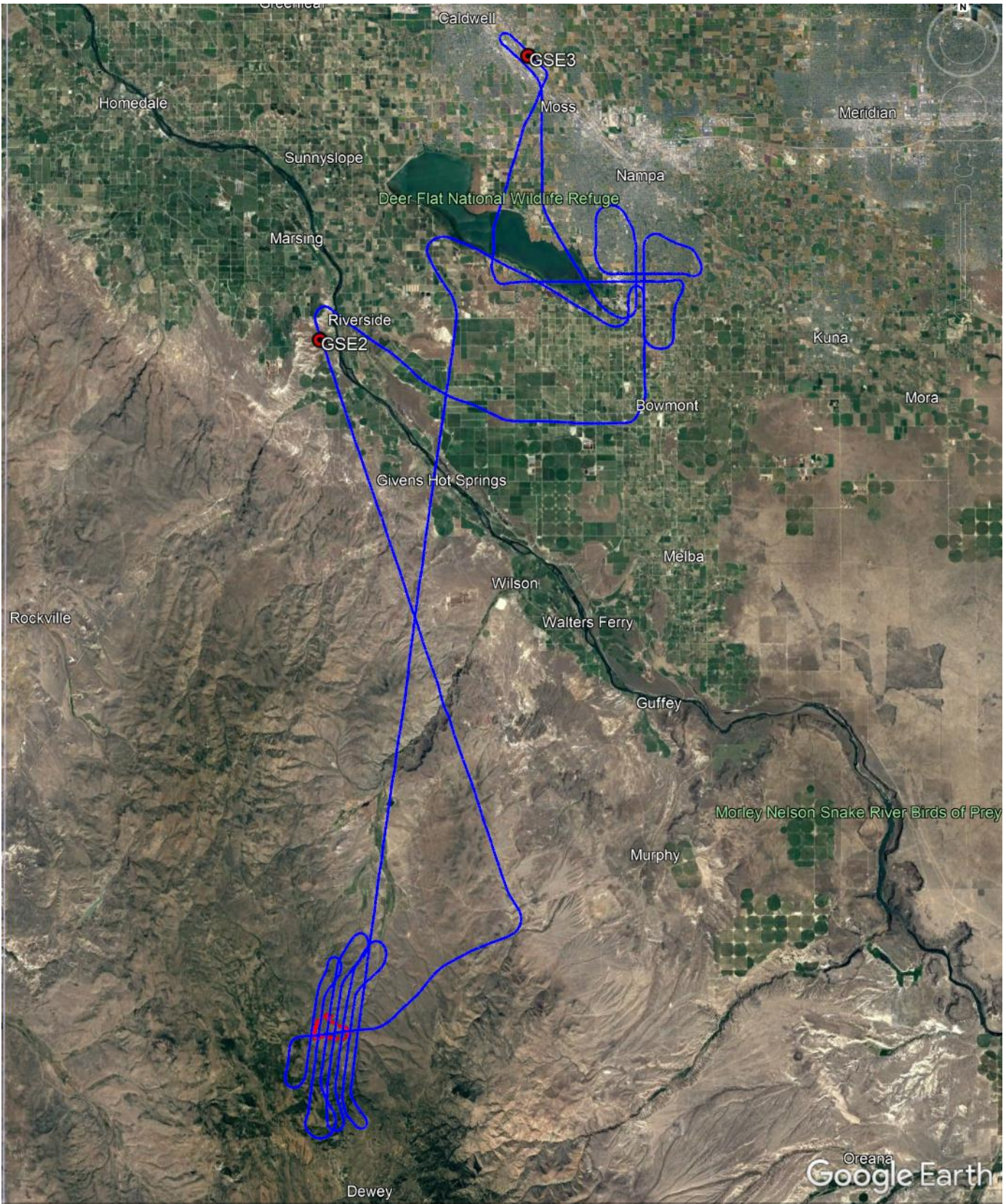
Data Processing Summary:

Calibration	<ul style="list-style-type: none"> • Calibration for the LIDAR sensor (Boresight Alignment) was done near south of Nampa over an urban area with manmade structures such as roads and sloping roofs. Calibration lines were flown in cross hash pattern. • Ground truth was collected south of Marsing on ID-78 (Marsing Murphy Rd) and compared with LiDAR data to look for biases. The RMS of elevation differences was 3 cm and standard deviation was 1.8 cm
Classification	Classification was performed by using a morphological filter in Terrascan software
Elevation Model Generation:	All elevation rasters were created using Kriging
Datum Conversion	Final Deliverables were created by transforming the data to NAD83(2011) epoch 2010.000 and GEOID18 NAVD88 orthometric elevations using the NOAA VDATUM software (https://vdatum.noaa.gov/)

Data Product Summary:

Horizontal / Vertical Datum:	NAD83(2011) epoch 2010.00 / NAVD88 (GEOID18)
Projection / Units:	UTM Zone 11N / meters
Point Cloud Tiles:	1000-m × 1000-m tiles in LAS format (Version 1.4) with following classes: Class 1: unclassified Class 2: ground Class 7: outliers
Bare-Earth Elevation Model:	GeoTIFF format @ 1m pixel resolution bare earth DEM created from ground classified points
First-Surface Elevation Model:	GeoTIFF format @ 1-m resolution with canopy and buildings included created from First returns of all laser shots

Area of Interest:



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