



USACE LIDAR CAPABILITIES FOR RESERVOIR SEDIMENTATION

US Army Corps of Engineers (USACE) has developed low-cost platforms and in-house capabilities towards the rapid deployment of Airborne Laser Scanning (ALS) systems for the measurement of reservoirs in drought-affected areas related to climate change in the United States. From the custom design of hardware that can easily transfer between various aircraft platforms to the processing and dissemination of data within the Geospatial Repository and Data Management System (GRiD), USACE maintains control throughout the entire assessment process.

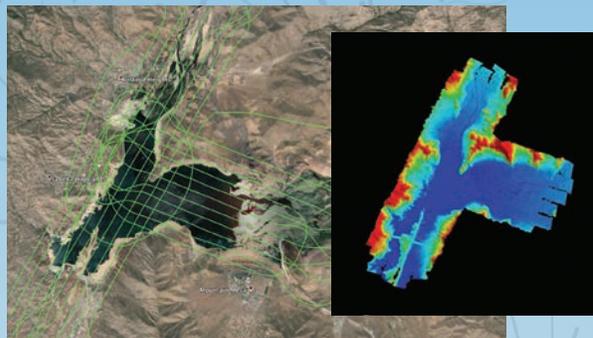
WE'VE MADE GREAT PROGRESS ✓

LEVERAGED the development of the LiDAR program within USACE in order to incorporate high-accuracy, high-resolution ALS systems onto low operational cost aircraft, both fixed-wing and rotorcraft, resulting in efficient and opportunistic data collection of reservoirs.

TESTED the ALS system throughout California during the 2015 drought conditions, refining the data acquisition process. This testing included modifications to the system for specific aircraft, chartering aircraft, and working with the aircraft provider and pilot to effectively implement the surveys.

COLLECTED LiDAR data for one drought-impacted reservoir in California, Lake Isabella, to test methods for opportunistic ALS surveys.

PROVIDED the precise, high-resolution essential boundary conditions for estimating sedimentation rates within reservoirs that are in a low volume state related to drought conditions.



MOVING FORWARD ▶

IMPROVE the modular ALS system by integrating a higher accuracy Inertial Navigation System (INS) and efficient Flight Management Software (FMS).

DEVELOP a set of change detection tools in order to utilize legacy datasets to compare reservoirs over time, integrated into GRiD for fast product delivery and ease of use.

PROVIDE opportunistic ALS surveys of above-the-water conditions for reservoirs in low volume states due to drought.

COMPARE collected LiDAR data to the geospatial information encapsulated in the reservoir sedimentation database maintained by USACE, allowing for first order estimations of sedimentation rates.