AIR DATA SOLUTIONS

BY LAND. BY AIR. BY SEA.

STATEMENT OF QUALIFICATIONS

JANUARY 2024

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POWERHOUSE OF DATA COLLECTION

Air Data Solutions, LLC (ADS) is an industry leader in advanced imagery capture and management of change nationwide. We are a HUBZone certified, small business that specializes in photography capture using metric cameras paired with precision GPS/INS to produce imagery with ultra high-resolution and geometric fidelity. Our data is used to monitor and measure agricultural, forestry, aquatic and urban environments to assist our clients with trouble-shooting, decision-making, planning, and documentation of assets and processes.

ADS offers a suite of photogrammetry services to local, state, and federal government agencies, as well as engineering and survey, construction, agricultural, and the oil and gas industry. Our pilot network in the United States and Central America, along with our fleet of aircraft allow us to deploy immediately providing our clients with the most current, precise data available.

- AERIAL LIDAR
- MUNICIPAL PLANNING
- ROW MAPPING
- DISASTER RESPONSE
- OGI LEAK DETECTION
- STRUCTURAL & UTILITY INSPECTIONS
- CONSTRUCTION MONITORING
- ENVIRONMENTAL MONITORING & RISK MANAGEMENT
- PIPELINE PATROL

WHO WE SERVE

ENGINEERING

ENERGY, OIL & GAS

GOVERNMENT

CONSTRUCTION

RESEARCH, UNIVERSITY

AGRICULTURE

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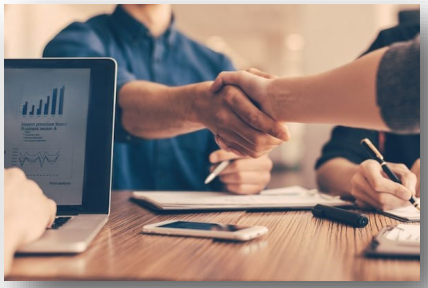
COMMITMENT TO OUR CLIENTS

ADS prioritizes clear client communication and satisfaction throughout all phases of our projects. From planning and proposal to data collection and delivery, our team maintains clears lines of communication internally and with our clients at all times.



We are known for quick turn deliverables that expedite field work for route planning, construction, leak detection, and disaster recovery. This enables project managers to get the data they need and put it to work fast. We double audit our data on every project to ensure that all specifications have been met prior to delivery. We focus on quality, accurate data capture on a timeline that meets our clients specifications.

CERTIFICATIONS AND CODES

North American Industry Classification System (NAICS):

541330– Engineering Services

541350– Building Inspection Services

541360– Geophysical Surveying and Mapping Services

541370– Surveying and Mapping Services

541620– Environmental Consulting

541922– Commercial Photography

UEI– MZMAH6L4SCS3

CAGE– 7RD33

HUBZONE– 666438

SBA
U.S. Small Business Administration
HUBZONE CERTIFIED

Product and Service Codes (PSC):

T099– Photo/Map/Print/Publication

7644– Digital Maps, Charts, and Geodetic Products

C219– Architect and Engineering - General

B529– Special Studies/Analysis

F004– Natural Resources/ Conservation

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QUALITY ASSURANCE AND QUALITY CONTROL

ADS is committed to providing our clients with products and services that not only meet, but exceed expectations. We are dedicated to continuous improvement and maintain an established system which provides a framework for measuring and improving our performance. Some examples of these procedures include:

- REGULAR GATHERING AND MONITORING OF CLIENT FEEDBACK
- TRAINING AND DEVELOPMENT FOR EMPLOYEES
- REGULAR AUDIT OF OUR INTERNAL PROCESSES
- MEASURABLE QUALITY OBJECTIVES WHICH REFLECT OUR BUSINESS AIMS

SAFETY & COMPLIANCE

ADS is vitally interested in its employees' health and safety, as well as the safety of its partners and the public. Protecting all employees, partner employees, and third parties from injury, occupational hazard, or aviation mishap is a major continuing objective. ADS makes every effort to provide a safe, healthy work environment, and reduce or remove risk from all operational events and missions wherever possible. All supervisors, workers, and partners must be dedicated to continued risk reduction.

FEDERAL AVIATION ADMINISTRATION
PART 107 COMPLIANT

All ADS pilots maintain Federal Aviation Administration (FAA) Certified Commercial ratings and adhere to all applicable FAA regulations. They also undergo extensive in-house training specifically designed for the collection of imagery and LiDAR data. Our pilots are also aerial leak detection Operator Qualified (OQ'd) for pipeline patrol and follow all Department of Transportation (DOT) rules and regulations for aerial patrol.

ADS is a member of various compliance organizations including National Compliance Management Service, Inc., ISNetworld (ISN), and Veriforce.

veriforce®

ISN®

NCMS
Contractor Monitoring & Compliance

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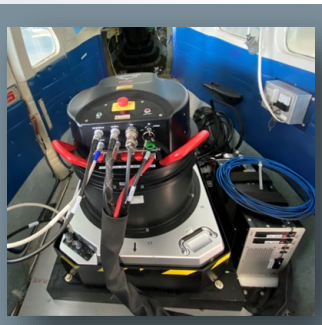
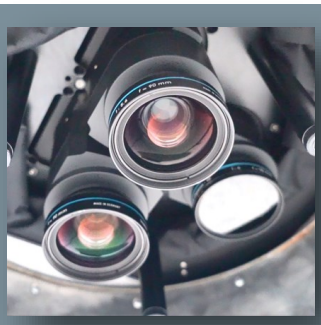
SENSORS, AIRCRAFT, AND SOFTWARE

ADS maintains a comprehensive suite of aircraft, sensors, and software which allow us to a quickly deploy, collect, process, and deliver high quality data fast.





SENSORS

Leica CityMapper
Leica Terrain Mapper
Phase One iXM 100

Phase One PAS280 4-Band Large Format
Phase One iXU RS1000
Phase One PAS iXU-RS-1000 MP 4-Band

Flir DUO Thermal/EO
Flir GF320 Gas Finder
Ventus OGI

AIRCRAFT

Twin Commander AC50 (3)
Cessna Skylane C182P
Cessna Skylane R182

Cessna Stationair U206
Cessna Cardinal C177B
Cessna Skyhawk C177M

Piper Aztec PA27
Multirotor M600
Multirotor M210

SOFTWARE

POSPac MMS 8
CenterPoint RTX | Post Processing

GlobalMapper
GIS - ONLY BETTER

simactive
Cutting-Edge Photogrammetry Software
Correlator3D™

ESRI

HEXAGON

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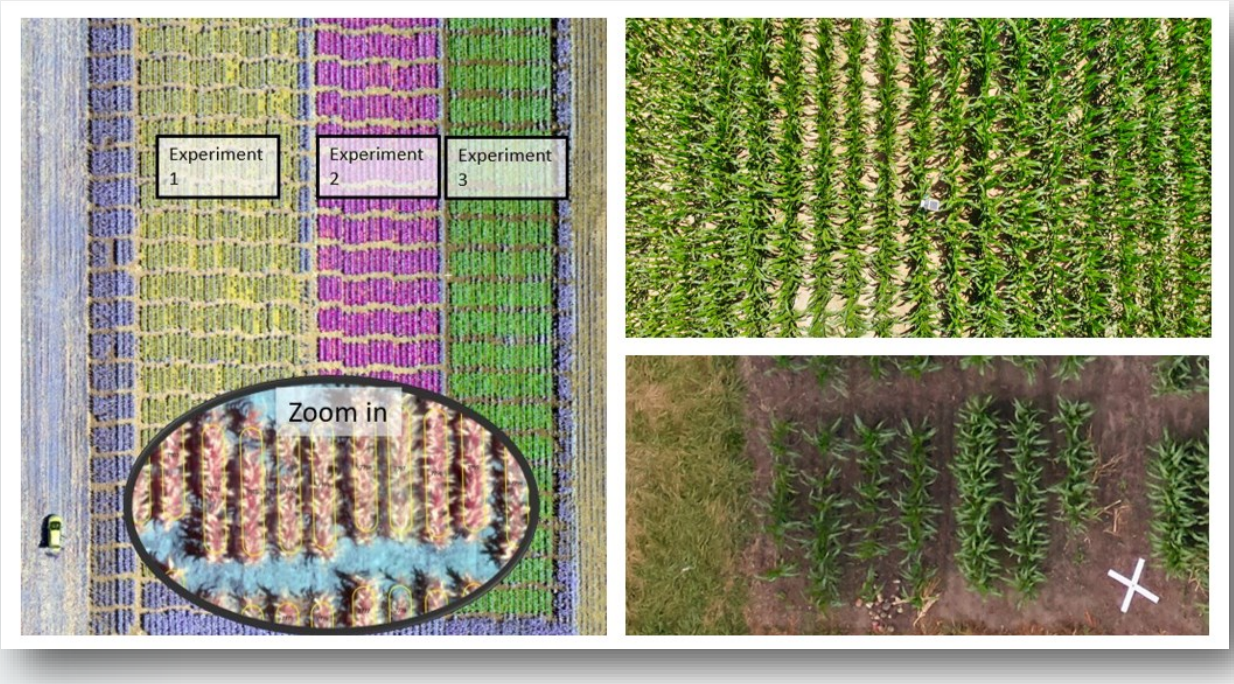
PROJECTS

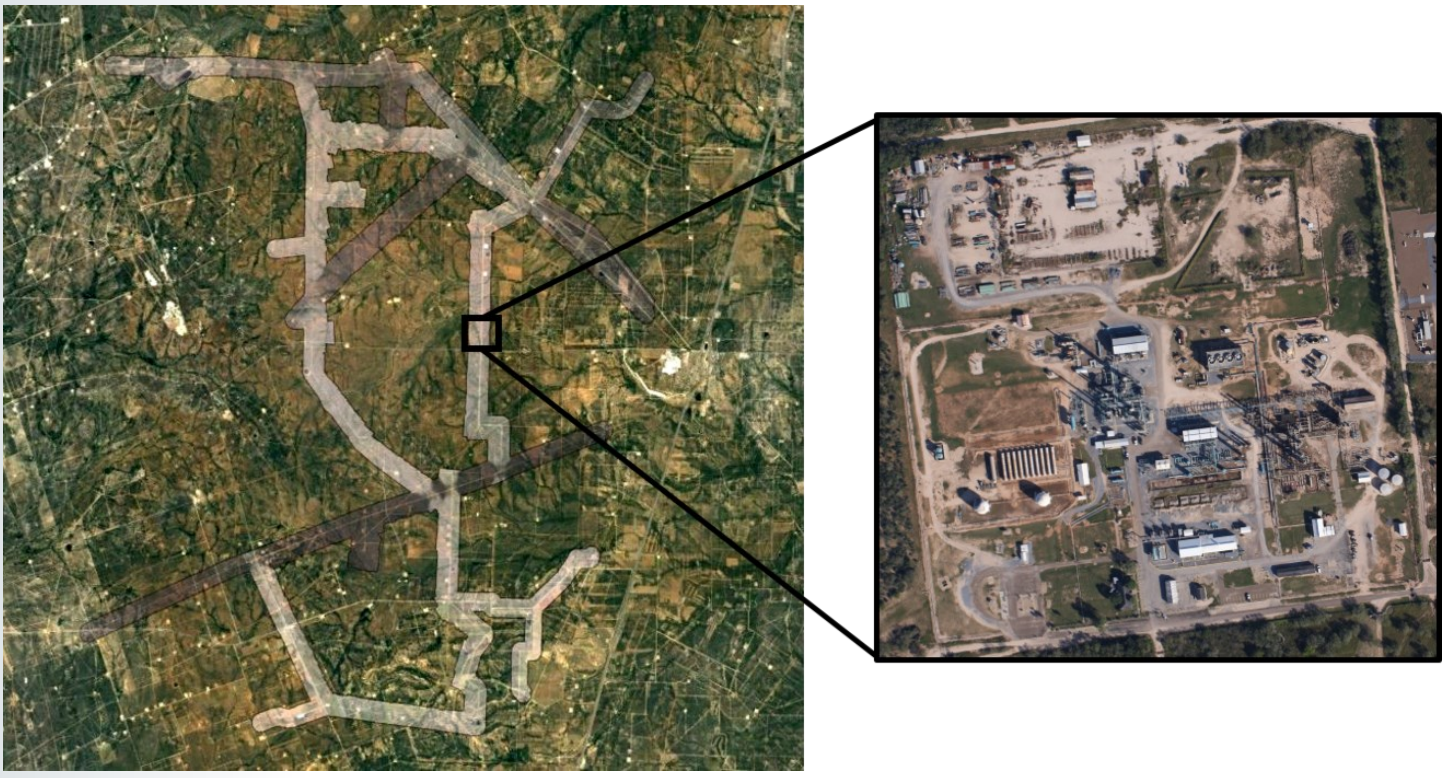
Project Name	USDA-ARS Imagery Collection for Research
Location	Texas and Oklahoma
Product	Aerial Imagery, RGB, CIR, Thermal, Hyperspectral, Single Band
Details	ADS worked with renowned ag researcher, Dr. Chenghai Yang. We provided aircraft and crews for two years in support of Dr. Yang's research.



High resolution imagery provides supplemental data to ground-based agricultural survey providing near real-time data. This data allows researches and farmers to monitor and manage agricultural resources. Imagery provides an opportunity to optimize processes on agricultural land and increases the efficiency of various farming operations.

PROJECTS

Project Name	HGA Florida Pipeline Mapping
Location	HGA Florida Pipeline Mapping
Product	Aerial imagery, RGB, linear mapping, .5–6inch spatial resolution
Details	ADS and HGA completed a highly complex project with a satellite imagery provider. The initial phase required rapid acquisition and delivery. ADS crews were able to collect the imagery ahead of an approaching tropical storm and deliver over 500 miles of linear aerial imagery in less than 4 days. The quick response allowed HGA to gain additional yearly contracts to map all line segments totaling 2,500 linear miles.



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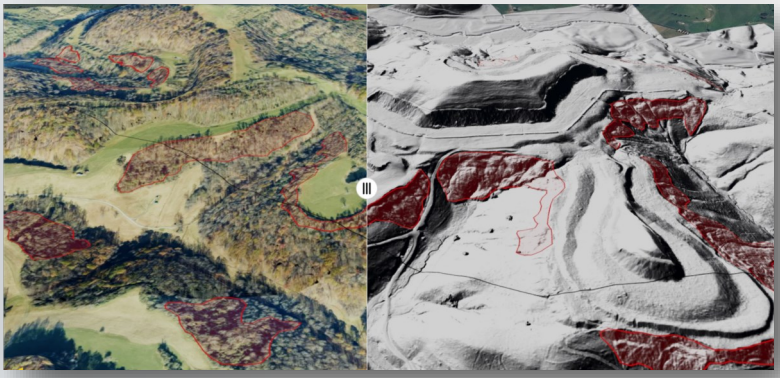
PROJECTS

Project Name	Teren LiDAR
Location	Pennsylvania, West Virginia, and Ohio
Product	Manned aerial LiDAR, aerial imagery, 4-band, RBGNir
Details	Teren provides change detection and terrain analytics to midstream clients. ADS maintains an ongoing partnership with Teren in which we collect LiDAR and imagery on approximately 10 million acres annually. Together we provide clients with the actionable data needed to make decisions and mitigate risk.

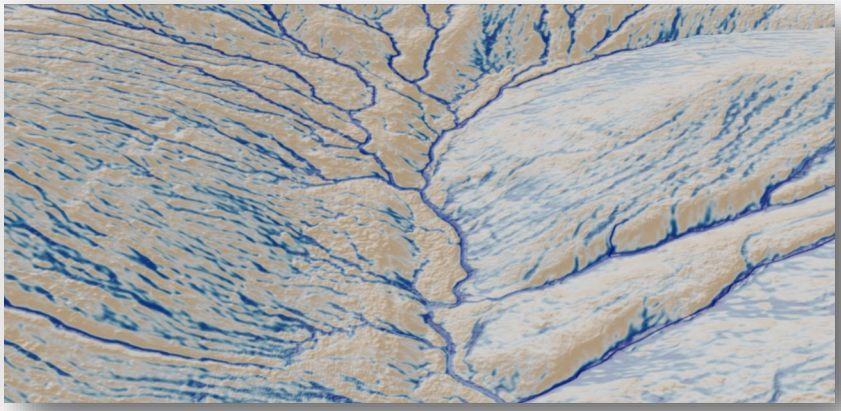


Slip Identification

Landslide identification and hazard mapping are critical to mitigating risk and preventing catastrophic damages leading to significant financial losses for governments, as well as property owners.

Surface Hydrology

By using LiDAR digital elevation models to track where water is flowing, clients can study more detailed questions examining river erosion, flood events, or agricultural runoff.



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LiDAR

LiDAR (Light Detection and Ranging) is a remote sensing method that uses light in the form of a pulsed laser to measure ranges (variable distances) to the Earth. These light pulses—combined with other data recorded by the airborne system — generate precise, three-dimensional information about the shape of the Earth and its surface characteristics.

This data allows clients to examine both natural and manmade environments with accuracy, precision, and flexibility.

Surveying tasks often require LiDAR systems to collect three-dimensional measurements. They can create digital terrain (DTM) and digital elevation models (DEMs) of specific landscapes.

Environmental applications for LiDAR are abundant and is a popular method of mapping flood risk, carbon stocks in forestry, and monitoring coastal erosion. This remote sensing data can be used to assess biodiversity, manage coastlines, analyze landslides, and create stormwater management plans.

LiDAR data can be used to obtain digital models of the earth's surface, which can be used in land use planning to create detailed city models. This technology can be used to map out airport infrastructure, transport planning, parking allocation, traffic congestion, railway infrastructure, and road design.

In 1950, there were 2.5 billion people on the planet. In 2022, the population has more than tripled. By 2100, the UN predicts the global population to grow to 10.4 billion. This has put pressure on agricultural production and the collection of reliable harvest statistics. LiDAR can be used for topographic analysis of crop viability, as well as categorization and mapping.

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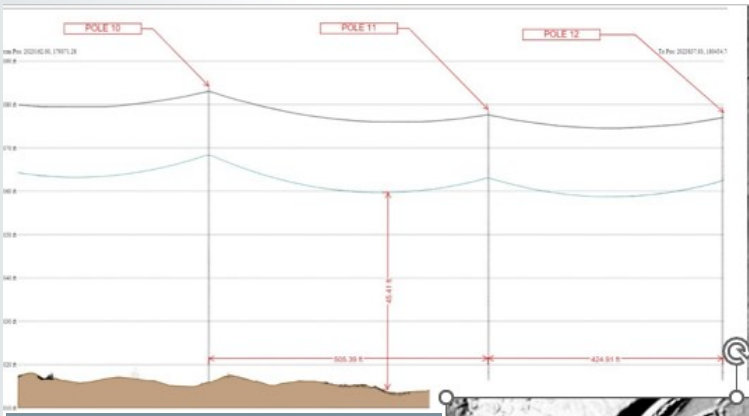
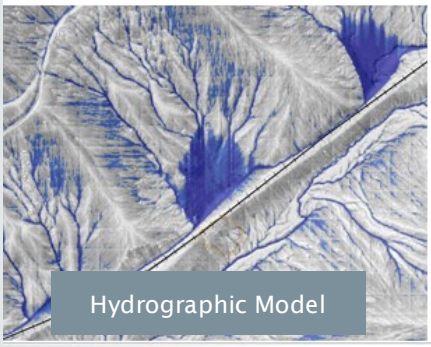
LiDAR FOR RISK MITIGATION

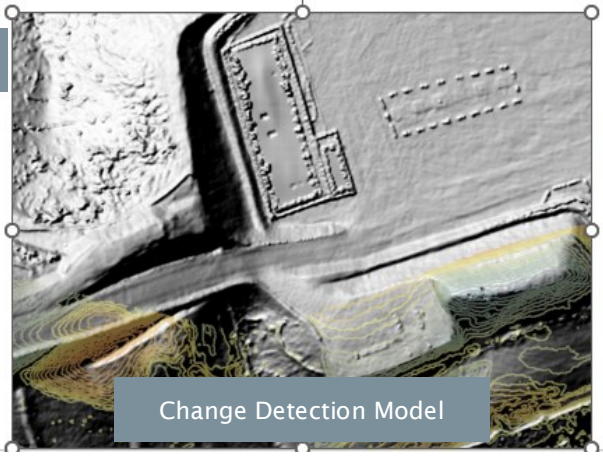
Change detection is essential for monitoring urbanization, disaster assessment and urban planning. Aerial LiDAR has become an important tool for monitoring and understanding the dynamic processes of the local and global environment. It highlights specific areas and hazard events, such as earthquakes, volcanic eruptions, wildfires, and landslides. The combination of the high resolution, areal coverage, and capability of aerial LiDAR has revolutionized data acquisition and helped transform our understanding of the Earth's surface. ADS has completed countless change detection and risk planning projects from slip analysis and hydrological survey to transmission line survey and pole and line sag analysis.

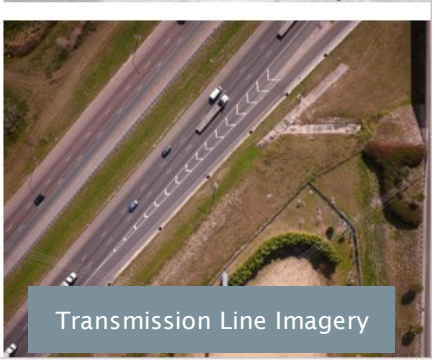


Pole and Line Sag Measurements


Rail and Slip LiDAR


Hydrographic Model


Change Detection Model


Transmission Line Imagery

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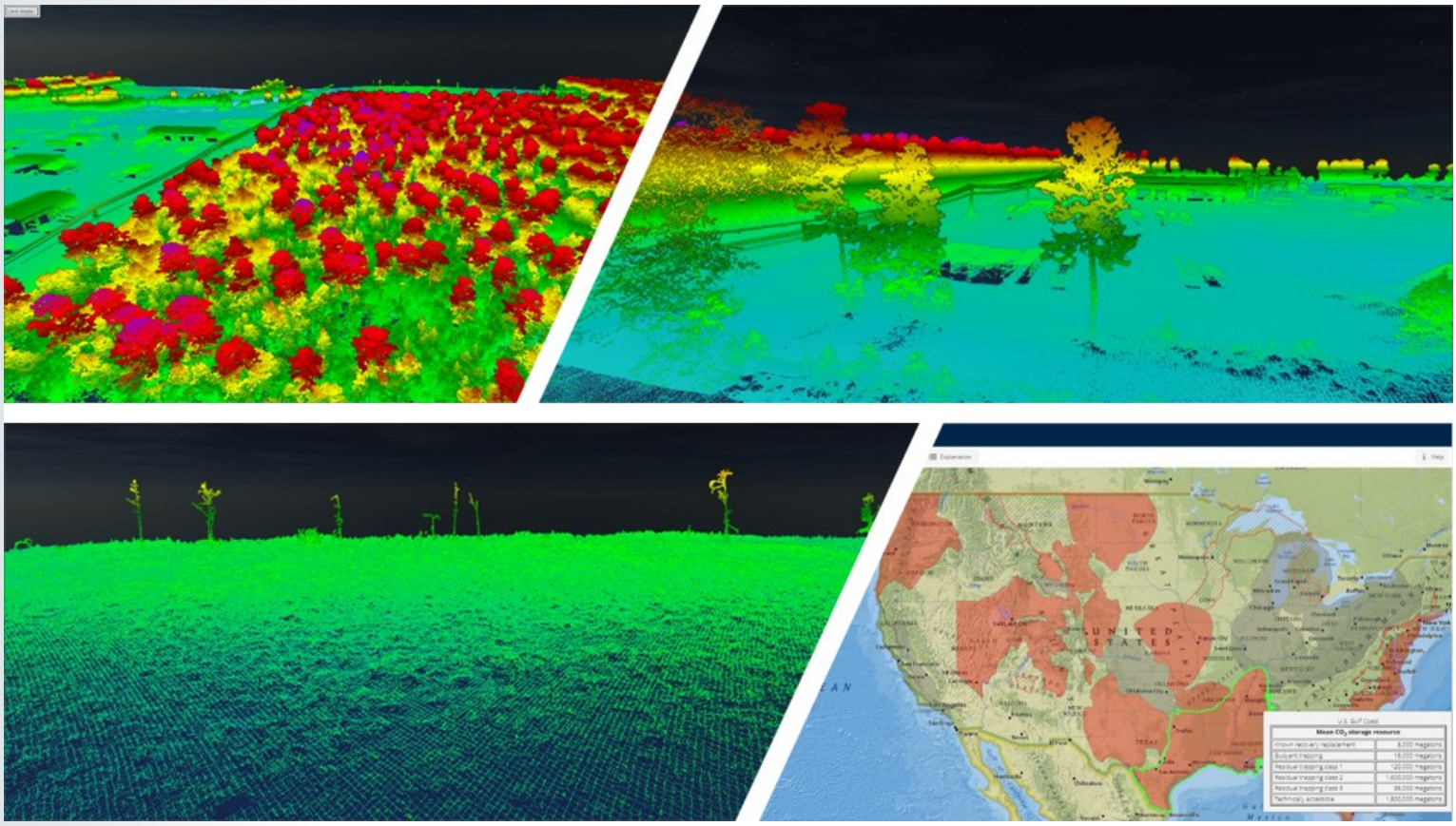
LiDAR FOR CARBON SEQUESTRATION

Forests play a key role in the global carbon cycle. Effective policies around forest management in turn require accurate measurement of carbon storage and how carbon varies over space and time. ADS has complete numerous projects using aerial remote sensing combined with ground sampling to develop baselines for carbon hold capacities in various soil types.

These types of datasets can also be used to identify potential routes for overland water flow, including rainfall, that may impact the volume of soil present and the nutrients contained.



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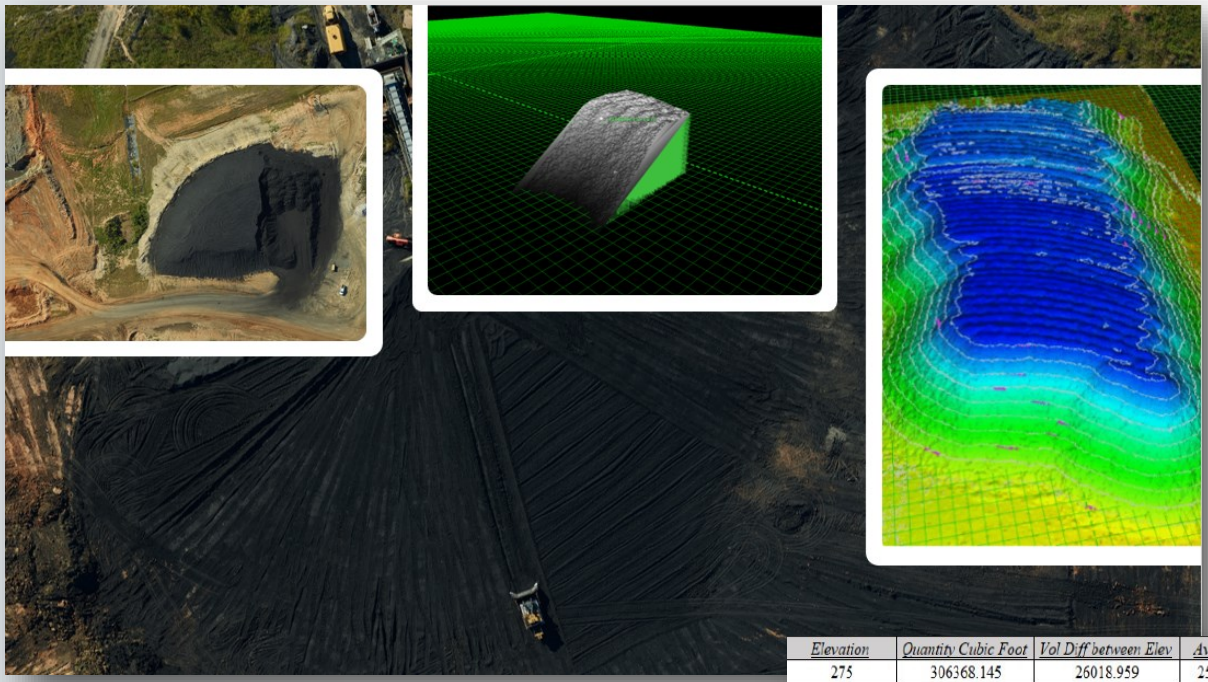
LIDAR AND PHOTOGRAMMETRY FOR VOLUMETRICS

Volumetric calculations are derived from precision Imagery or LiDAR sensors. This data is used to calculate stockpile materials or volumetrics for berms and containment walls. ADS is able to acquire the raw data, analyze, and generate reports tailored to the needs of our clients. We work with professional survey and engineering firms to achieve survey grade accuracies in a final product our clients can be confident in.



Aerial LiDAR produces faster results, higher accuracy, and lower costs compared to traditional methods of measuring volume.

Elevation	Quantity Cubic Foot	Vol Diff between Elev	Average Vol	Diff Ave Vol and Actual Vol
275	306368.145	26018.959	258525.169	47842.976
276	280349.186	23799.288	258525.169	21824.017
277	256549.898	22142.580	258525.169	-1975.271
278	234407.318	19456.021	258525.169	-24117.851
279	214951.297		258525.169	-43573.872
Volume Sum	1292625.844			
Average Volume	258525.169			

Cubic yards	% Difference	How Many 10wd trucks	Difference in trucks by vol/per foot of elev change
11346.968		1135	
10383.303		1038	88
9501.848	92%	950	85
8681.753	91%	868	82
7961.159		796	

Aerial LiDAR surveying is a cost effective and timely solution to calculate volumes for strip mines, stockpiles, landfills, gravel pits, and reservoirs with minimal disturbance of operations on site.

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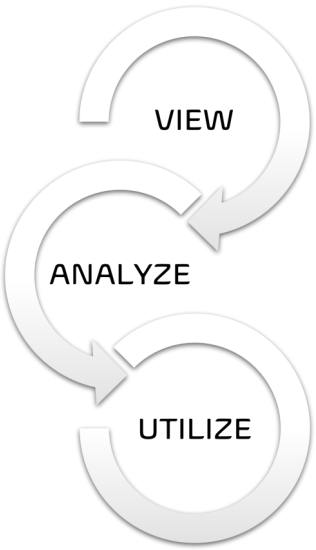
OBLIQUES

Oblique imagery is collected at an off-nadir angle which allows for the viewing, measuring, and analysis of the all sides of a structure or ground feature. This type of imagery ranges from near vertical to near horizonal and is especially useful for environmental monitoring and community planning, as well as emergency response.



ADS employs a variety of sensors to capture this type of dataset. We provide clients with high-resolution, georeferenced imagery that makes it easy to view, analyze, and utilize effectively.

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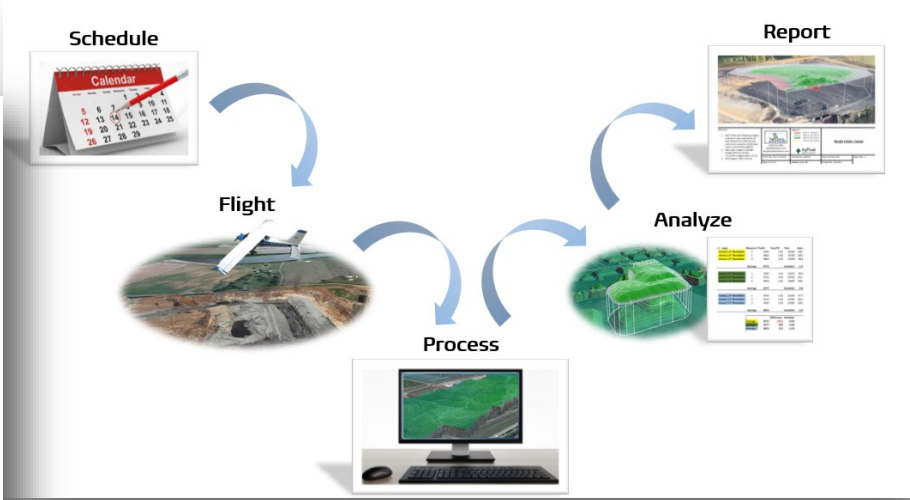
WORKFLOW AND DELIVERABLES

ADS has modified and perfected seamless workflows which allow us to plan, collect, process, and deliver data rapidly. We provide personalized access portals for efficient data access, as well as comprehensive technical support. All products are based on each project's specified needs and deliverables are compatible with all major GIS software.

DELIVERABLE OPTIONS:

- ORTHO TIF
- RGB
- DXF
- POINT CLOUD LAZ
- INTERACTIVE 3D MODEL
- DSM/DTM
- ELEVATION OVERLAY



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