Contracting for UAS Services

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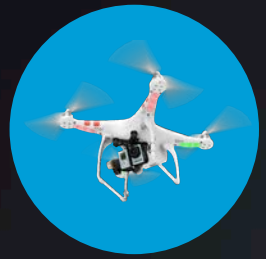
OBJECTIVES

Questions to be answered



ARE UAS RIGHT FOR MY PROJECT?

Unmanned Aerial Systems, or “drones”, offer a new method to gather business information – but will they work for your project?

HOW DO I CONTRACT UAS SERVICES?

Operating UAS commercially in a safe and legal manner can be complicated. We’ll make sure you know the questions to ask when hiring a service provider.

WHY UAS?

Tell me why they're great…

Temporal
Resolution

Temporal Resolution

High
Resolution

June 25, 2015
July 21, 2015
Faster Workflow
Great Brook July 2015 Storm Damage

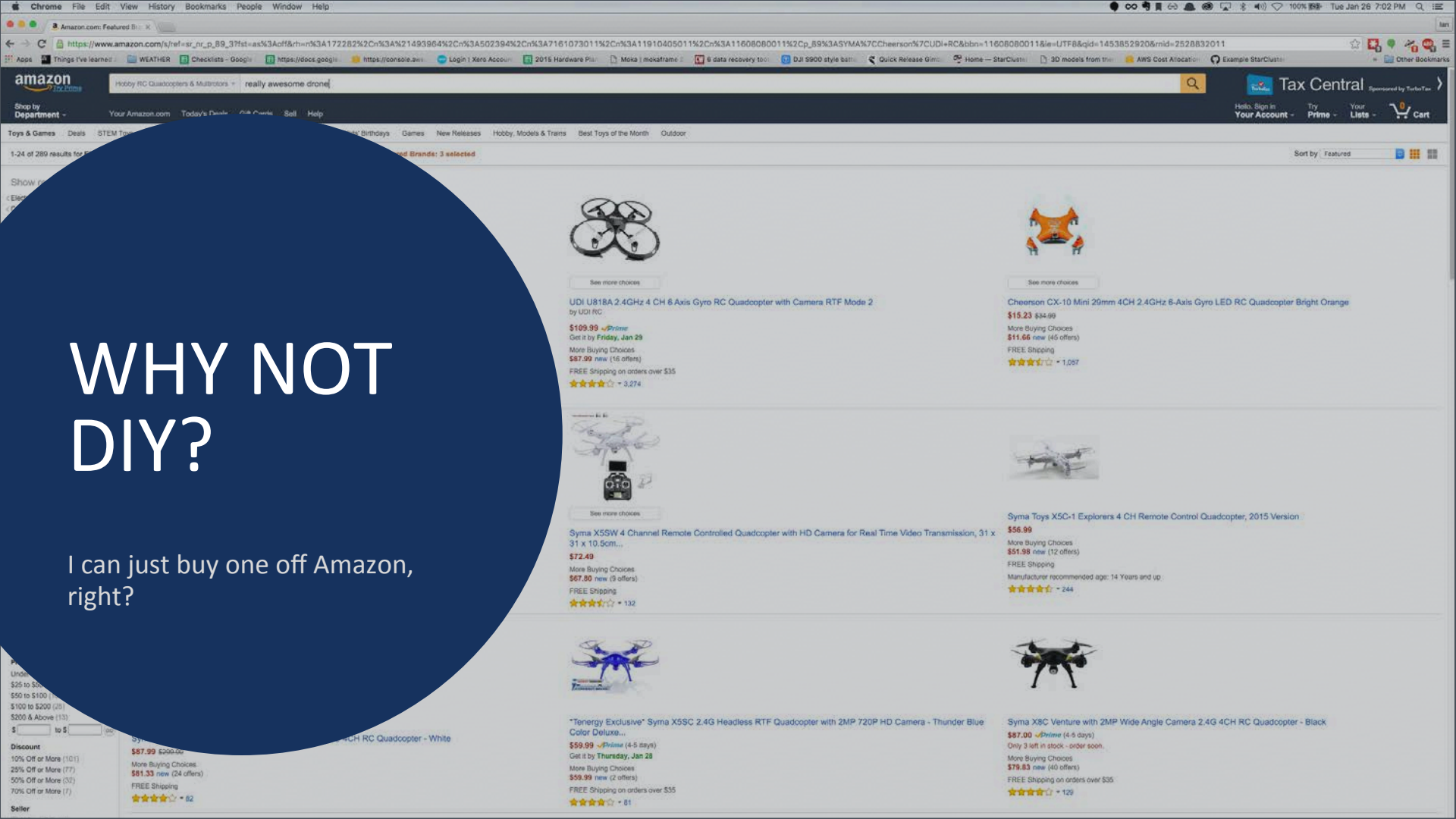
Safe & Low Cost

TYPES OF UAS

They're multiplying!

WHY NOT DIY?

I can just buy one off Amazon, right?



FEDERAL AVIATION ADMINISTRATION

WHY NOT DIY?

Regulations

RECREATIONAL / HOBBY USE

Recreational users must follow a simple registration process with the FAA, and follow basic guidance for safe operation.

COMMERCIAL USE

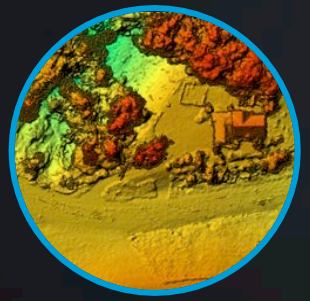
Commercial users must be approved by the FAA to operate through a stringent set of safety guidelines. Similar to obtaining a CDL to drive a commercial car or truck, these rules require much more of professional operators.

WHY NOT DIY?

Equipment

HARDWARE

UAS technology is rapidly evolving, with new hardware being released almost daily. Keeping up to date with the latest capabilities – not to mention maintaining the fleet you already own – is a time consuming task.



DATA PROCESSING

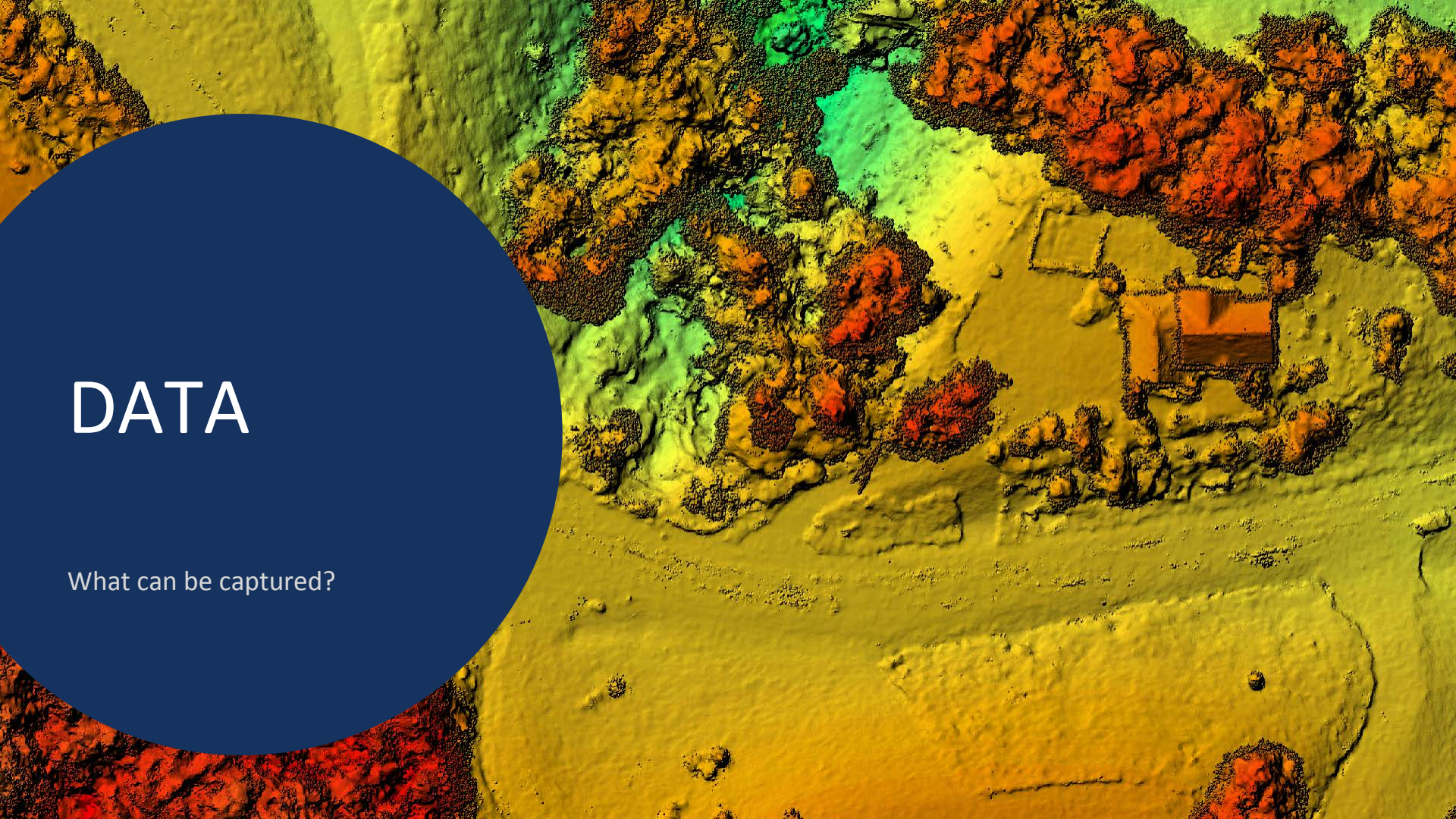
As with most professional software packages, training and licenses are a large investment. Service providers specialize in turning raw UAS data into standard GIS formats, allowing you to focus on the big picture – not the minutiae.

WHY NOT DIY?

Experience

DATA

What can be captured?



DATA TYPES

Geotagged Imagery

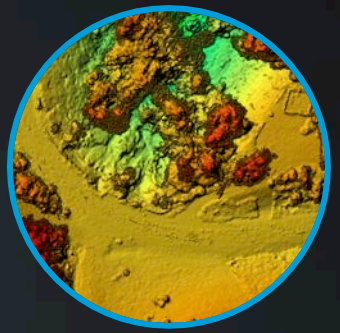
Geo-referenced still & video

Orthophotos

High resolution orthoimagery

Point Clouds

Photogrammetric point clouds in standard formats



Surface Models

Raster terrain data

CAPABILITIES & LIMITATIONS

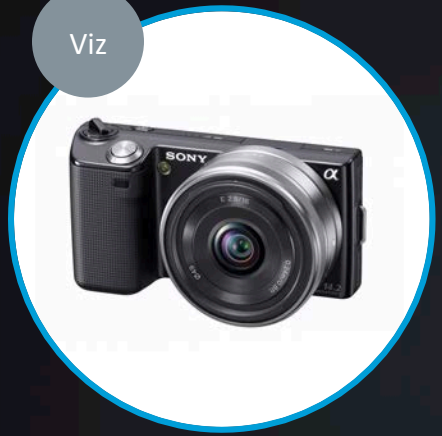
What can be captured?

SENSORS

Current

Future

Viz



IR

LIDAR

?

VISIBLE

High Resolution Still & Video

IR & MULTISPECTRAL

Thermal, Hyperspectral, & Multispectral

LIDAR

Cost, Weight & Power Requirements currently shrinking

OTHER

Gas Detectors
Your Sensor Here

CAPABILITIES

General Flight Considerations

WIND & PRECIP

UAS operations are best conducted on sunny or overcast days, when winds are <~15mph. Light precipitation is manageable, but avoided whenever possible.

MAPPING AREA

Most UAS can fly for 15 – 30 minutes, and by combining flights can cover from tens to hundreds of acres. Fixed wing UAS can cover more area per flight, and should be used for larger projects.

CONDITIONS

Weather & Site Considerations

TERRAIN & OBSTACLES

Flat or rolling terrain with little tree cover is ideal for UAS mapping projects. Multirotors can operate out of smaller launch areas.

TEMPERATURE

UAS can operate year round in almost any temperature, with the human operators being the largest concern. For most cases, use 0 – 100F as a guide.

OPERATIONAL CONSTRAINTS

Simplified Rules for Planning Purposes

LINE OF SIGHT

UAS must remain within the operator's line of sight, in case of emergency. This also means operations must be conducted between dawn and dusk.

AIRSPACE

Except in special circumstances, commercial UAS must not operate within 5NM of an operating airport, and are generally limited to 400FT above the ground.

CONTRACTOR REQUIREMENTS

Questions to ask

FEDERAL AVIATION ADMINISTRATION

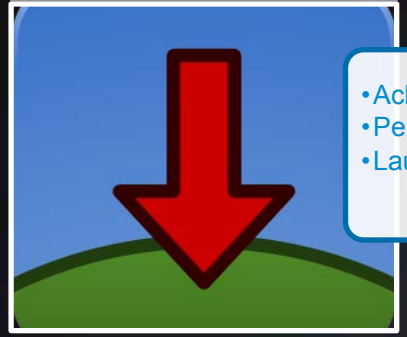
CHECKLIST

For Contracting UAS Operations

FAA Approval	Insurance & Safety	Experience	Processing
Section 333 Exemption	Adequate Insurance Coverage	Situational Awareness	Hardware
Pilot & Visual Observer	Safety Plan & Operational Checklists	Type of Aircraft	Software
Authorizations for Specific Airspace (COA)	Pre-Flight Briefing	Application Specific	Data Types

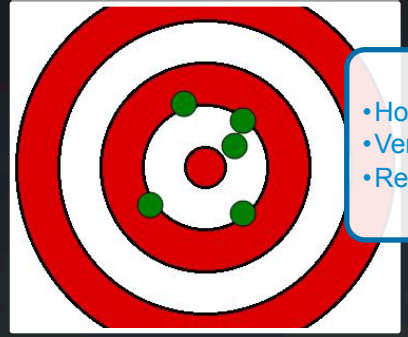
CONTRACT
THIS AGREEMENT made this
by
and between
and
day of
, 20
WITNESSETH: That in consideration
kept and performed on the part
I. Said party of
(First Party)
(Second Party),
ovenants and agreements to be
ereto, respectively as herein st
ants and agrees that it shall

AOI



- Achievable
- Permission
- Launch

Accuracy Specs



- Horizontal
- Vertical
- Resolution

Collection Specs

- Time/ Season
- Weather clause

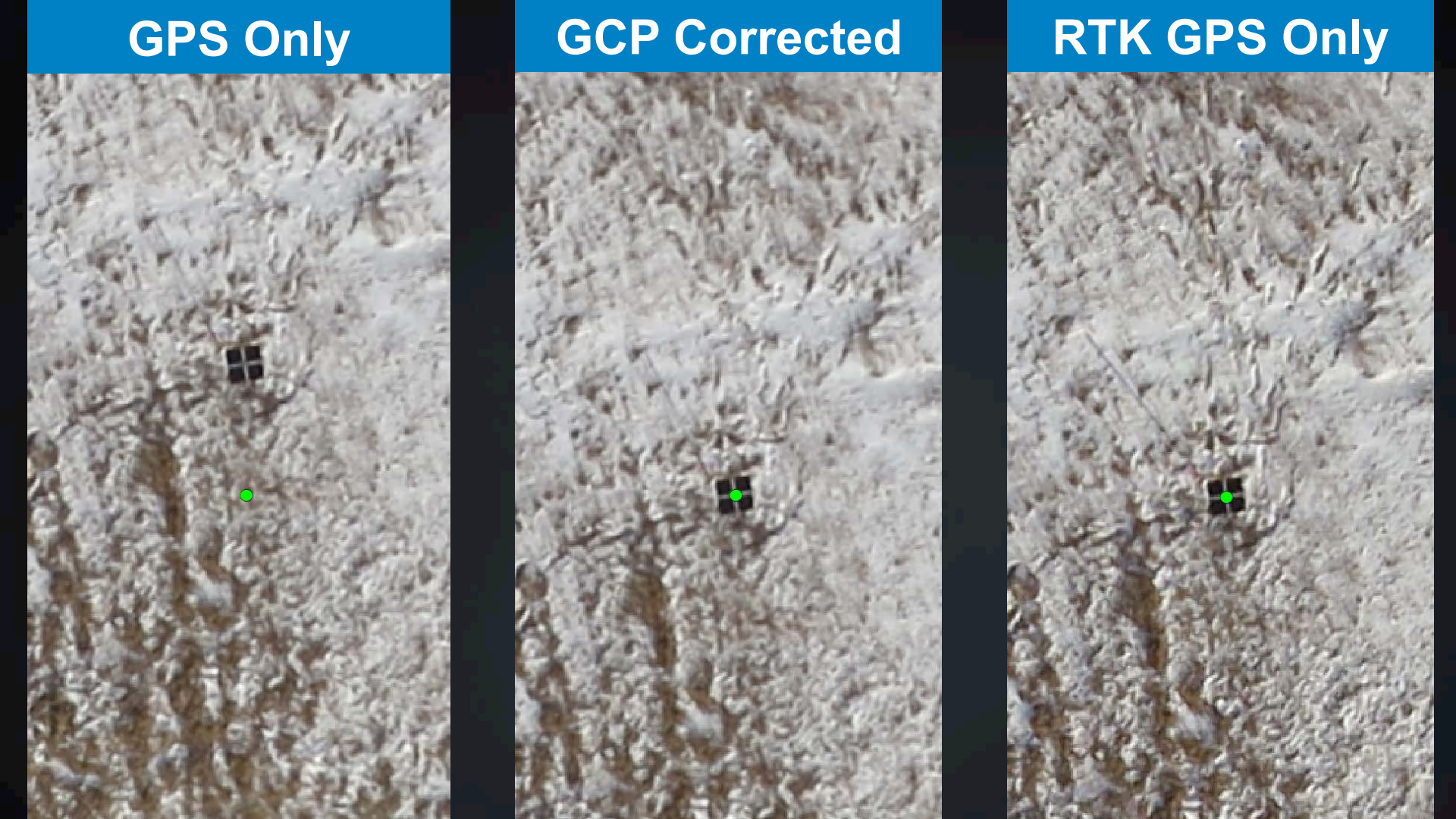
Delivery

- Products
- Formats
- Ownership

Cost

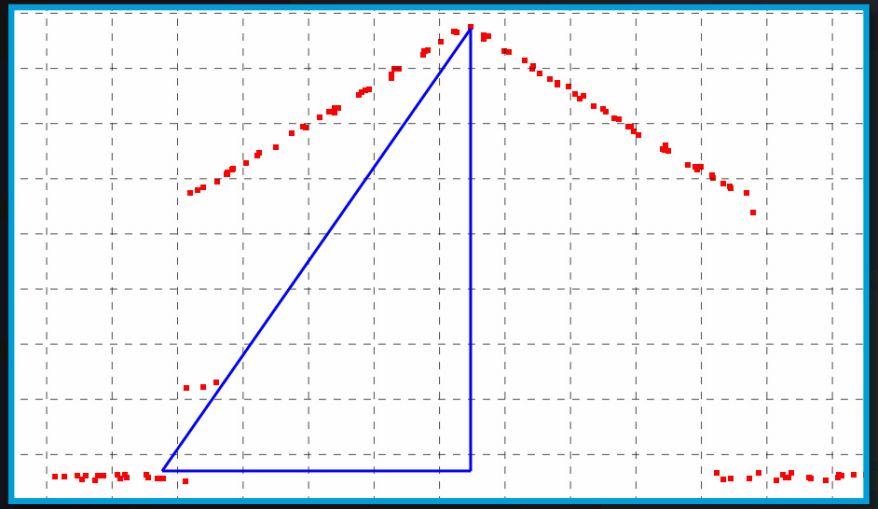
- External
- Internal

78
207

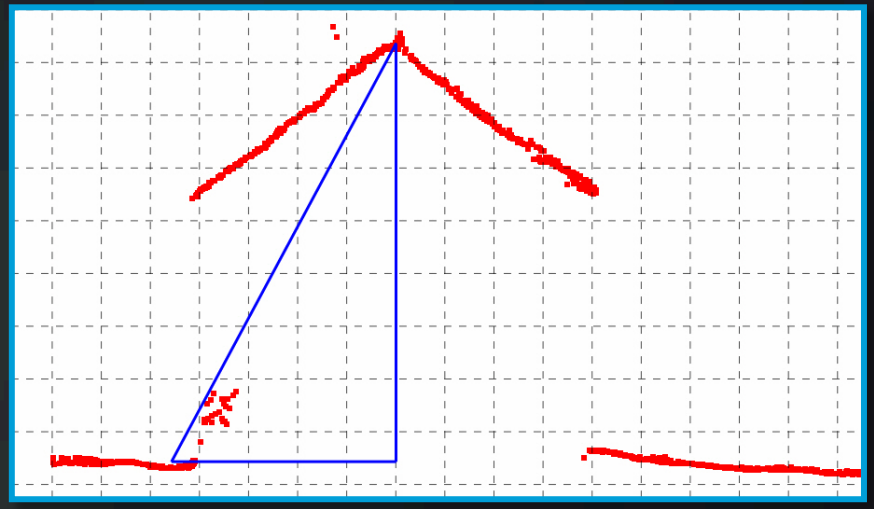

GPS Only
GCP Corrected
RTK GPS Only

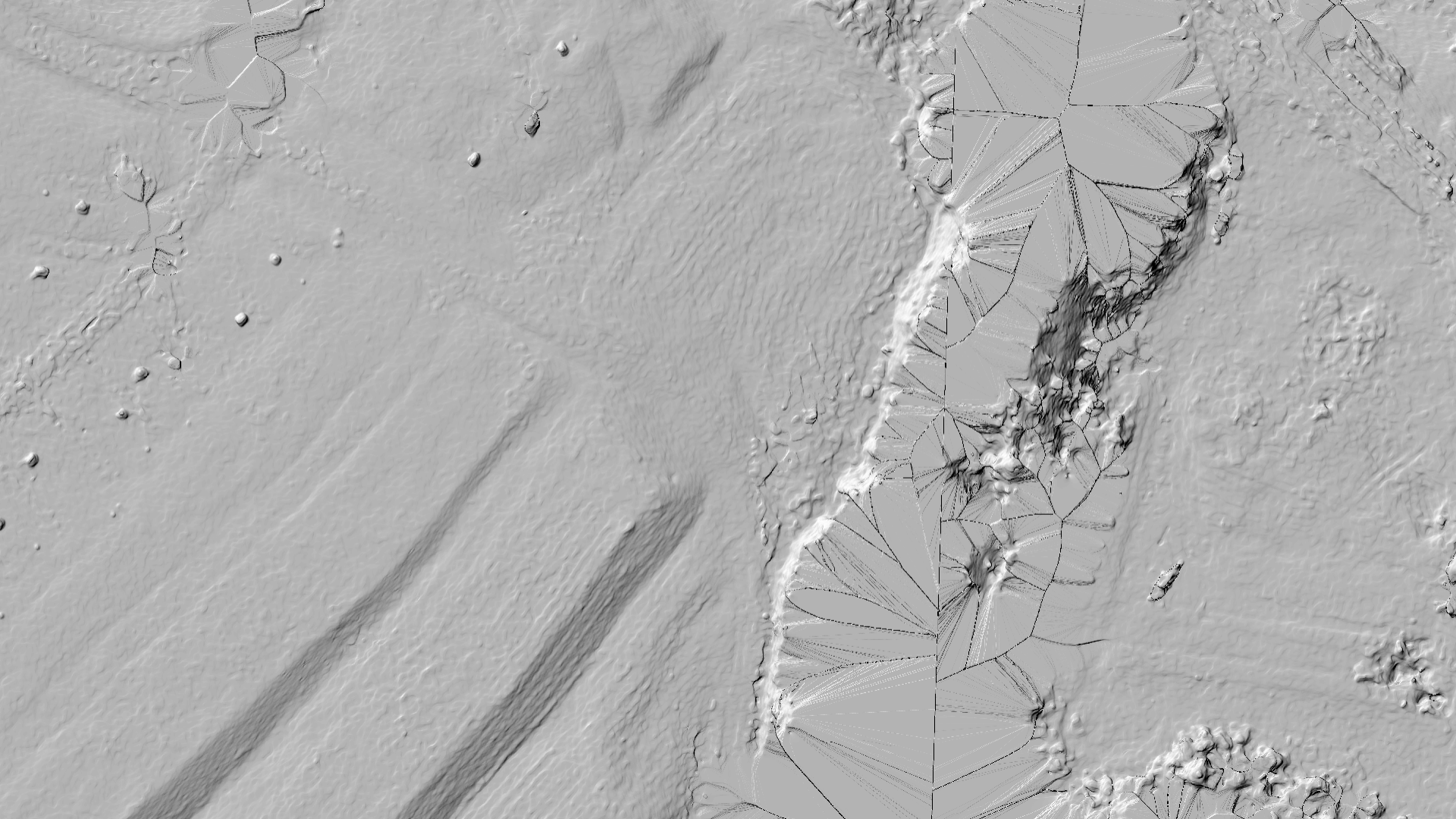
GPS Only | Orthophoto | RTK Only

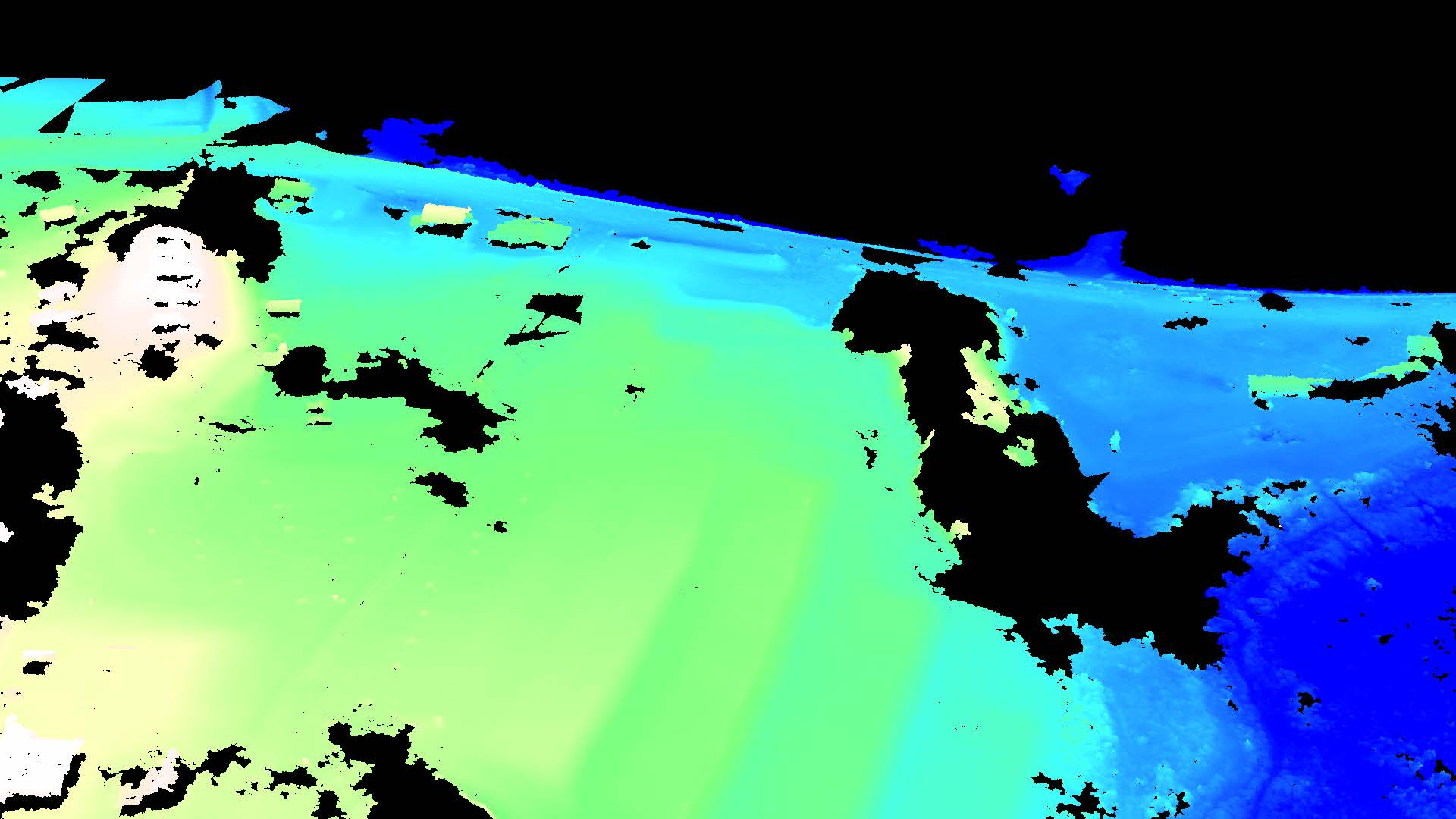
LiDAR

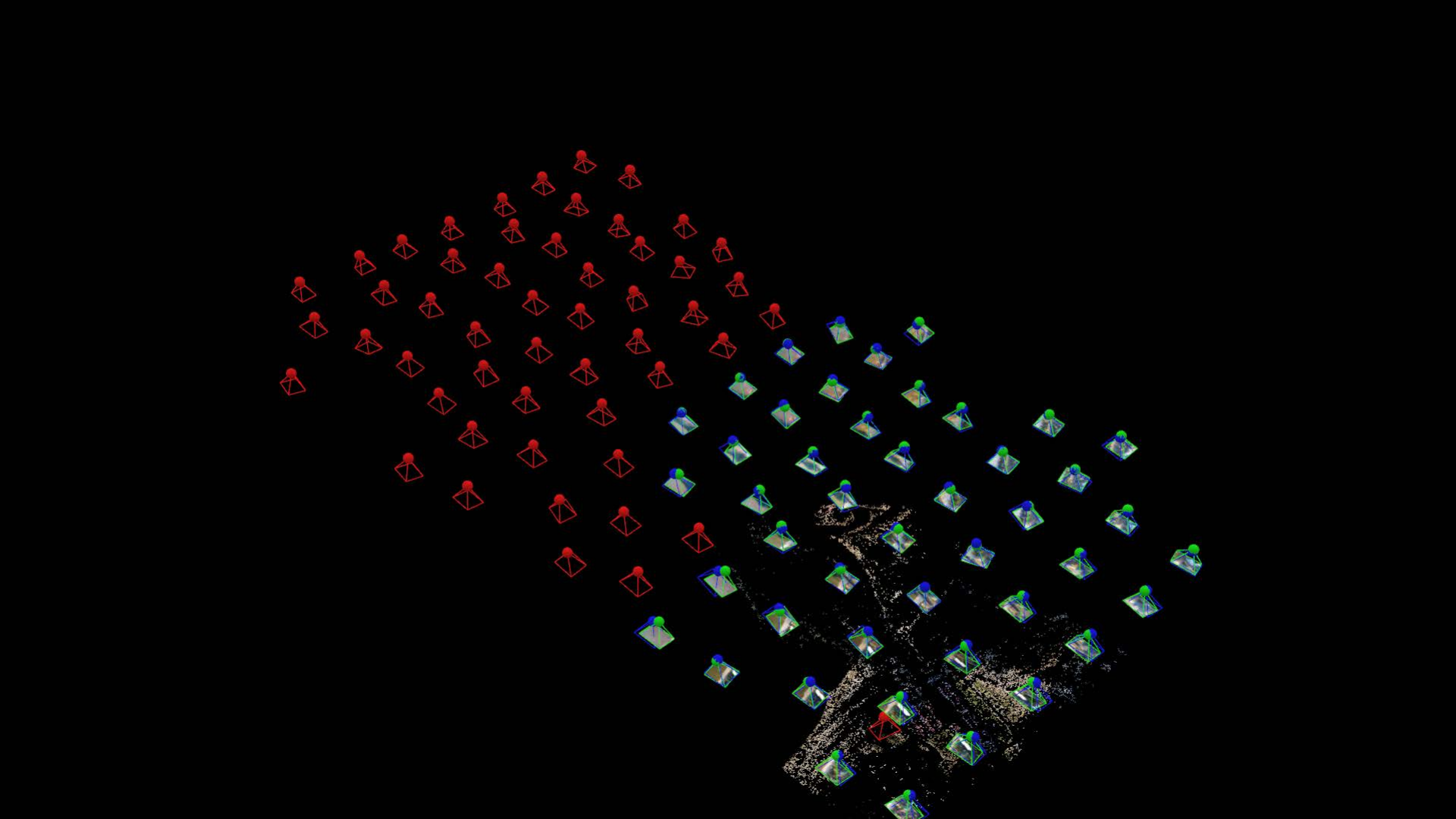


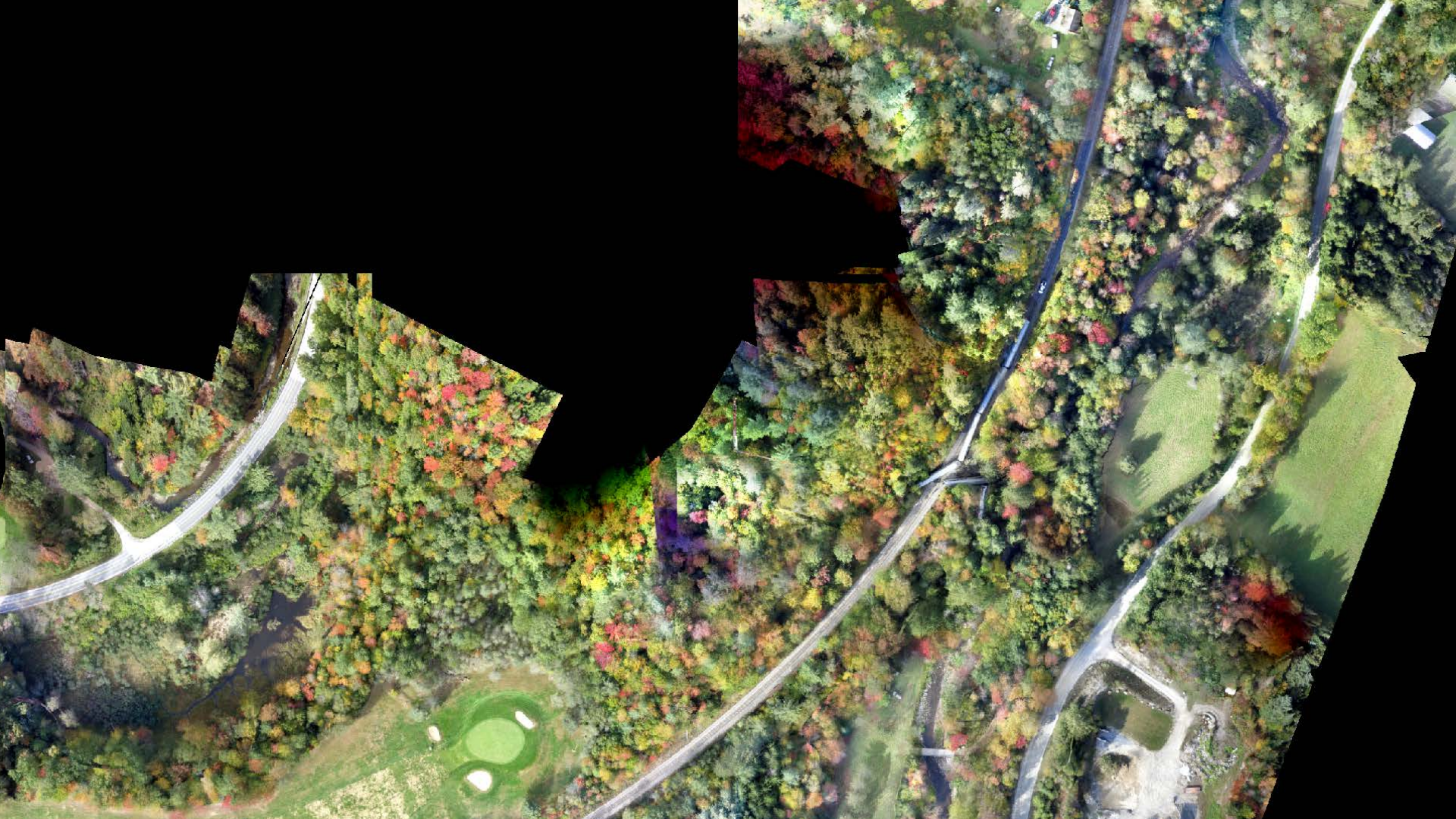
UAS

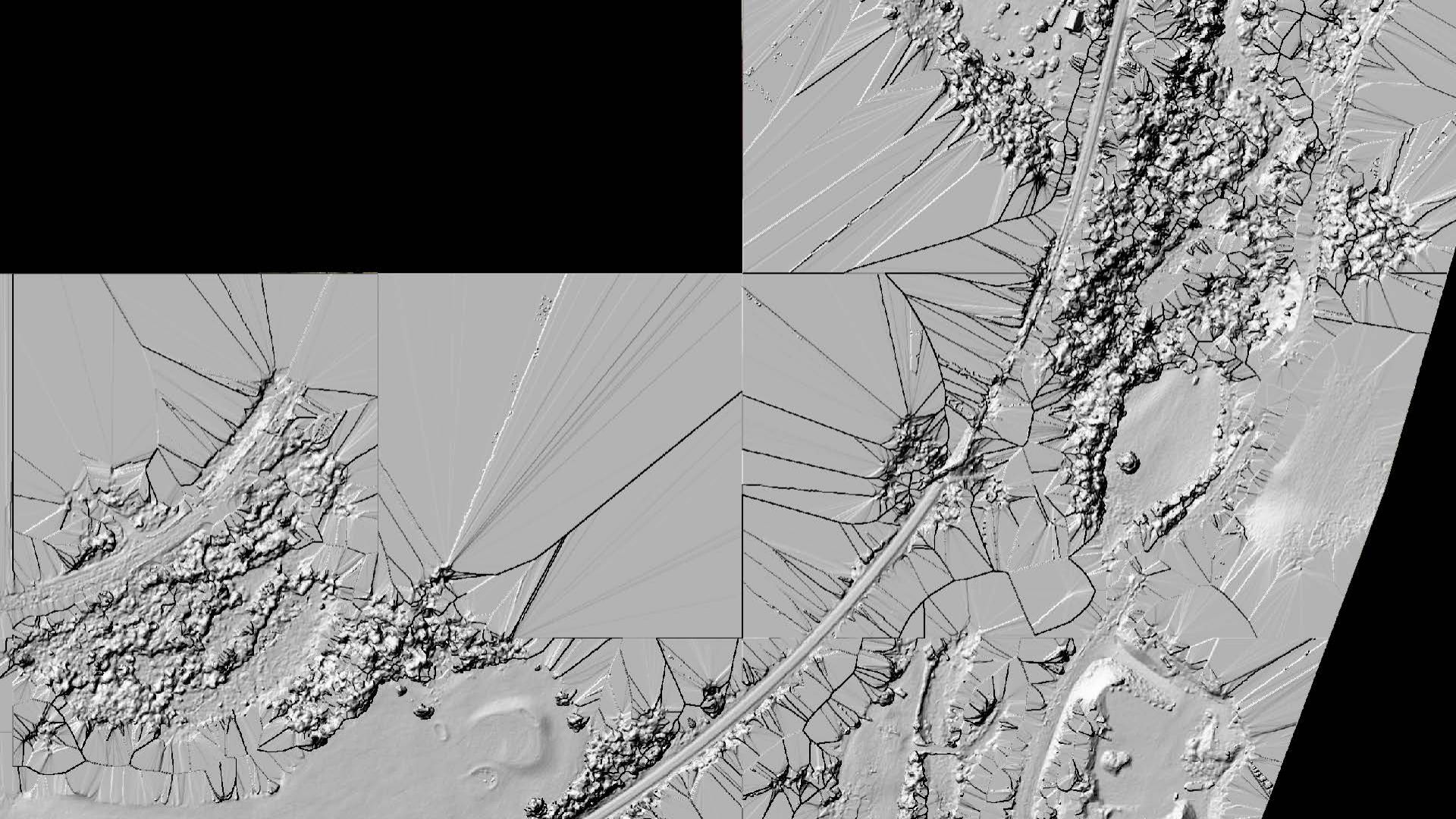


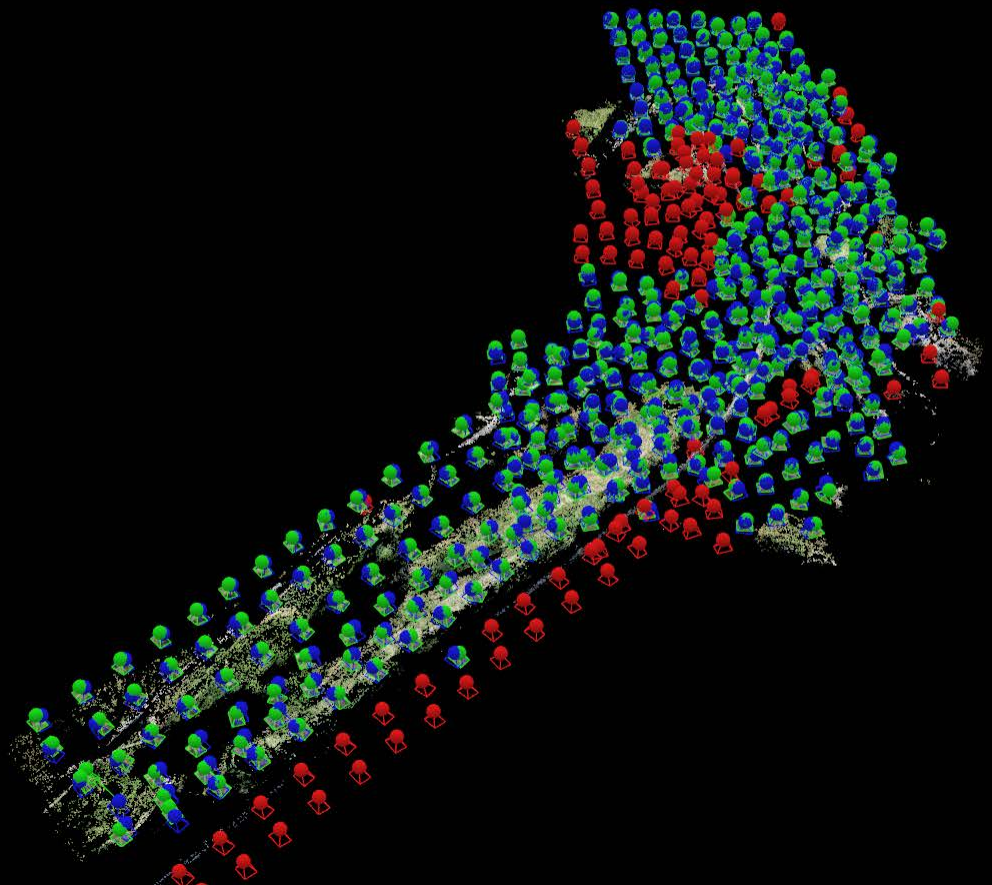


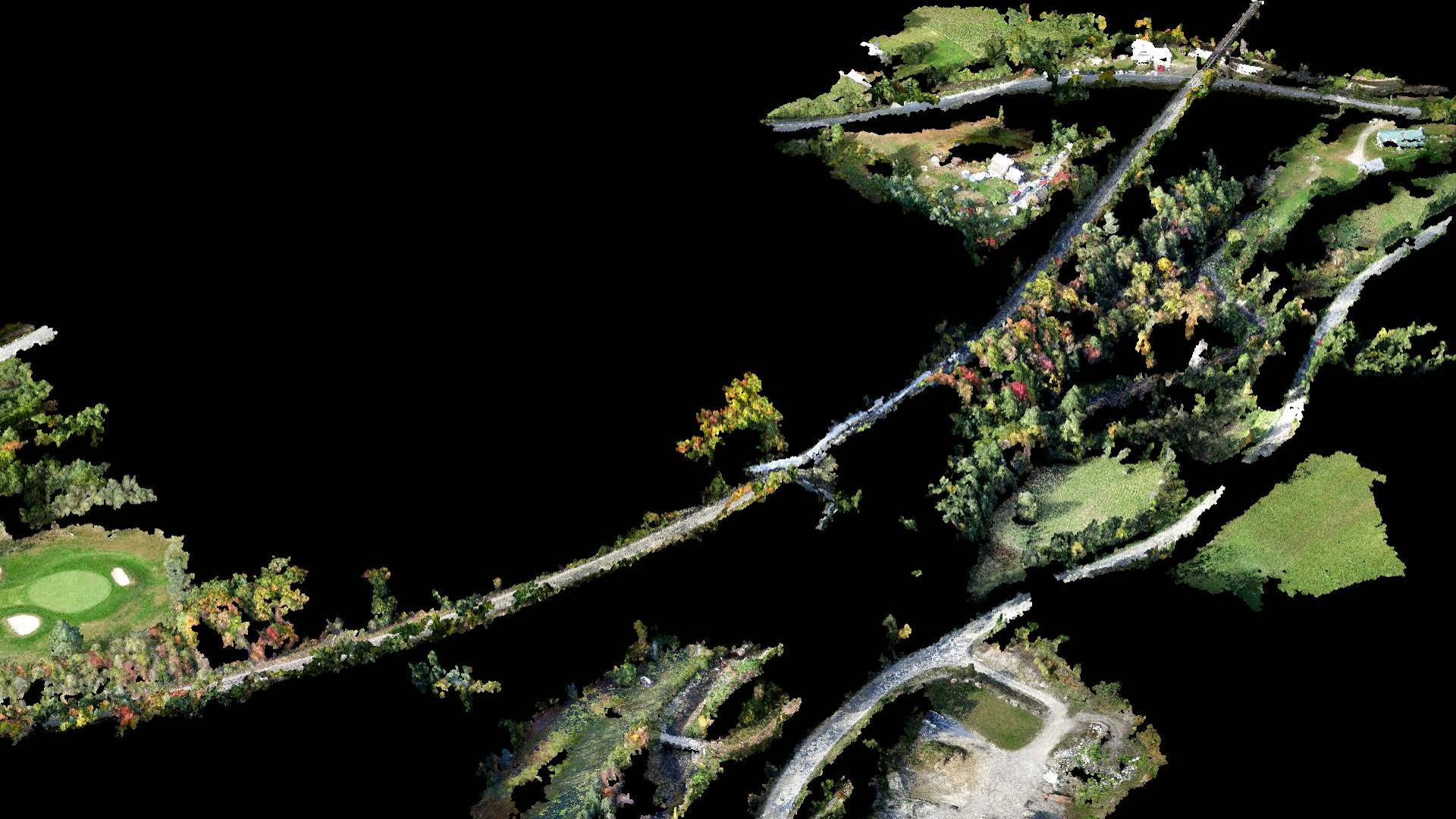












THE PROCESS

How it Works

Q&A
TIME

RESOURCES

For more information...

https://www.faa.gov/uas/

AIRMAP

http://app.airmap.io

www.uvm.edu/~uas uas@uvm.edu

802.656.3324

AIRSHARK

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VCGI

http://vcgi.vermont.gov/