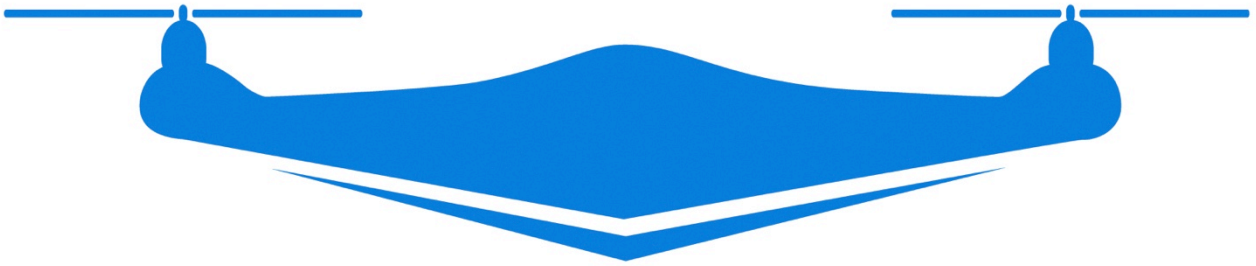
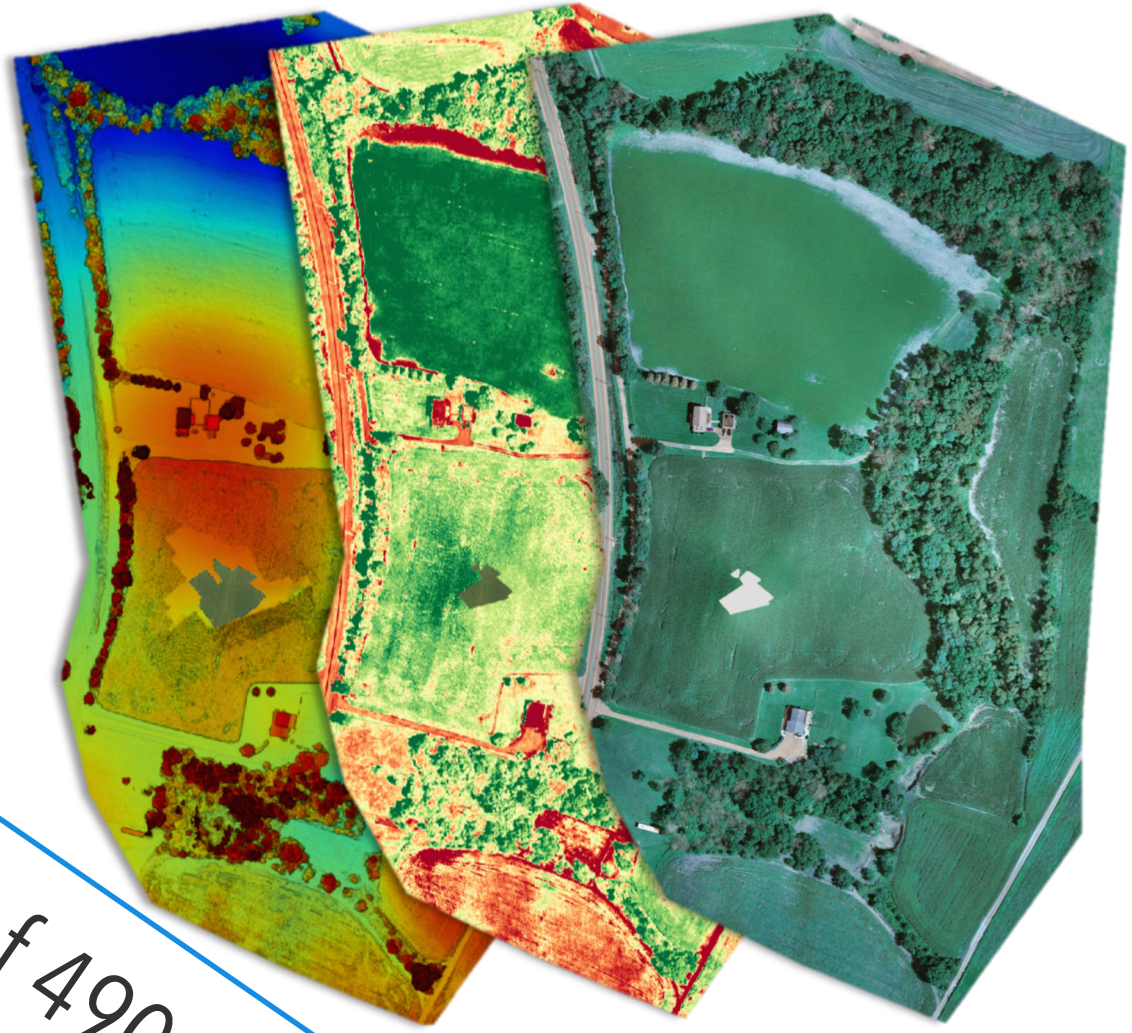
DARTDRONES



AERIAL MAPPING & MODELING WORKSHOP

INTRO TO DRONE MAPPING & MODELING

TYPES OF MAPPING PRODUCTS

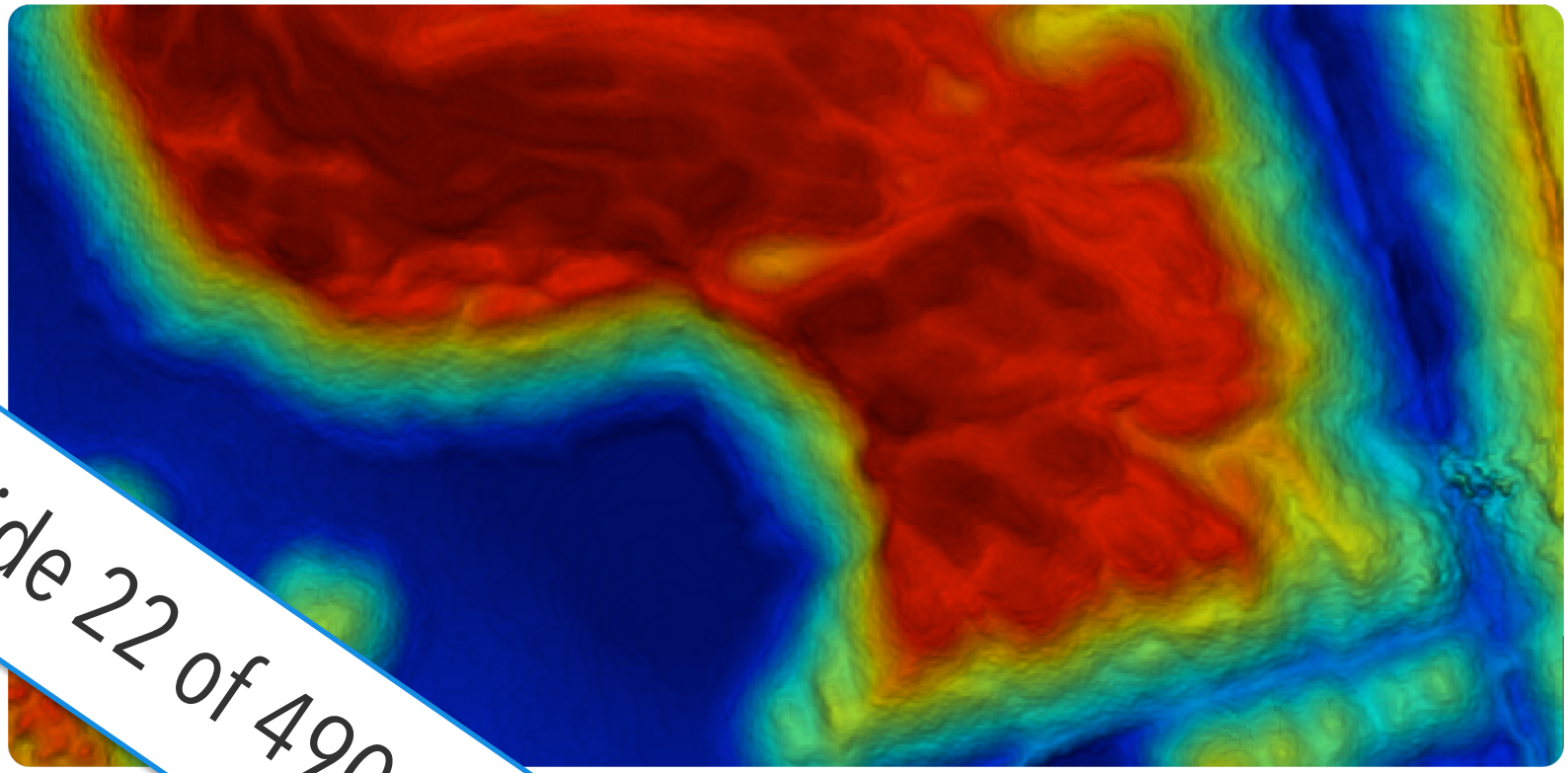


ORTHORECTIFIED IMAGE MAPS

- Maps created by ‘stitching’ multiple georeferenced photographs together

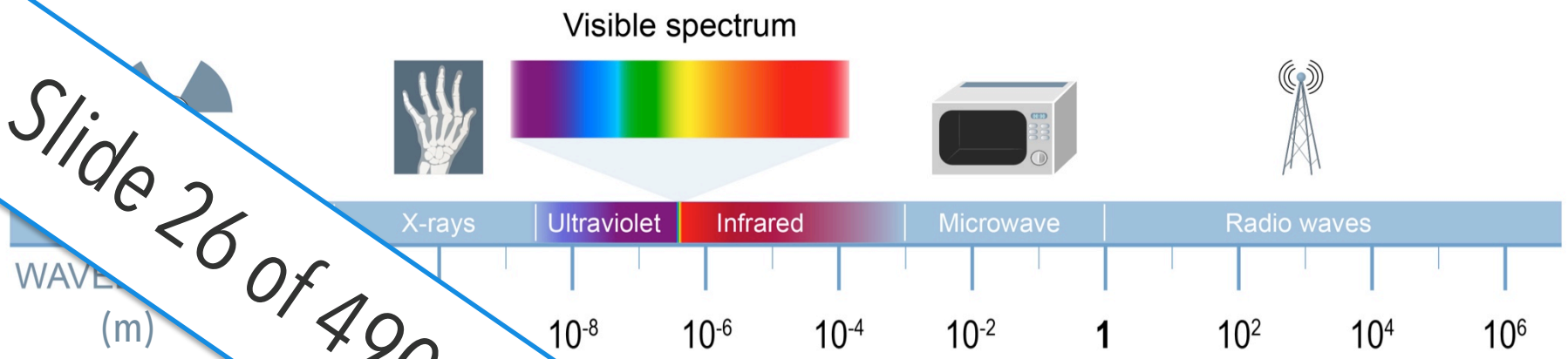
DIGITAL SURFACE MODEL

- Illustration of terrain elevation profile



THE ELECTROMAGNETIC SPECTRUM

- The foundation of map data collection
- Classifies electromagnetic radiation by wavelength
- Each type of mapping payload is calibrated to utilize a specific portion of the EM spectrum

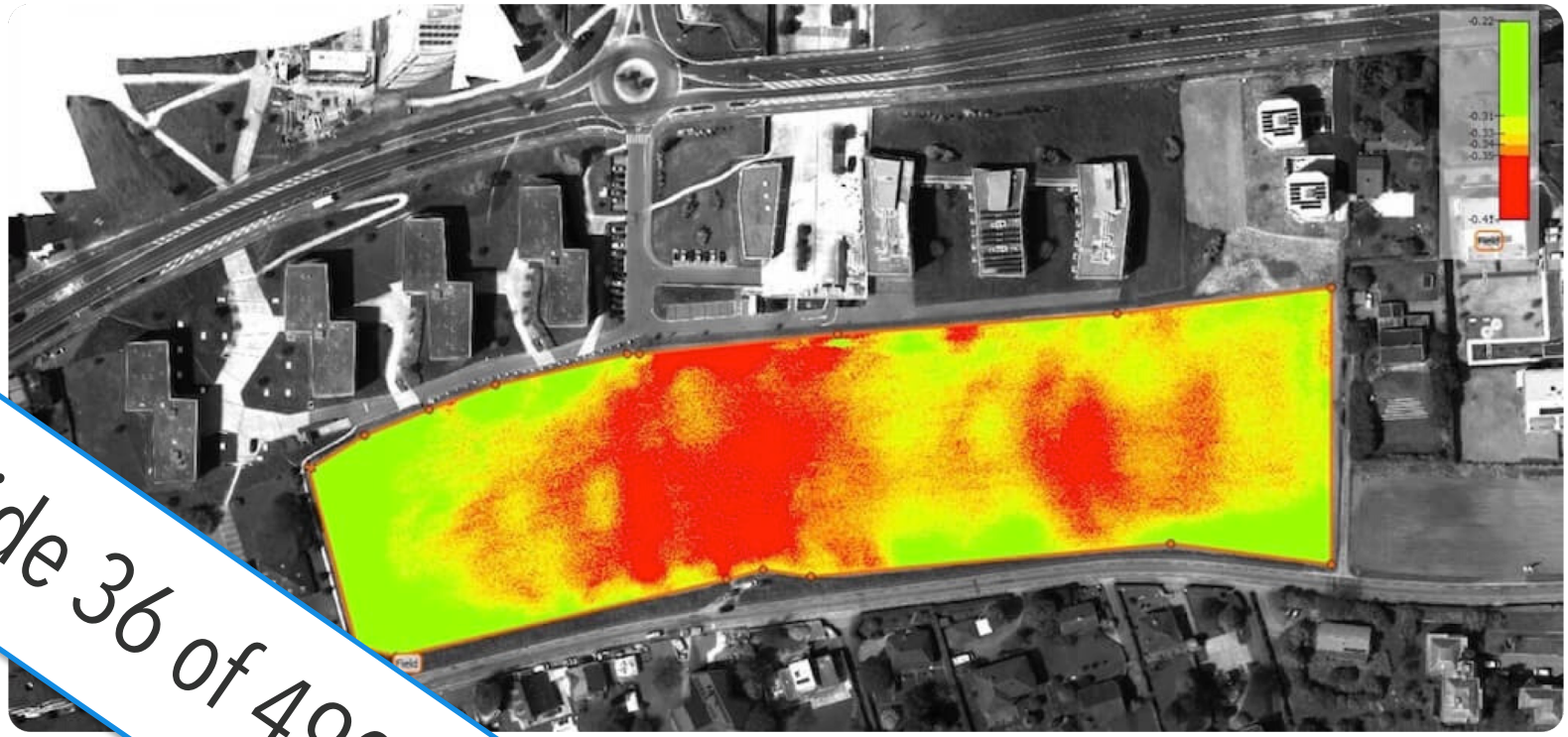


VISUAL PRODUCTS

- Orthomosaic maps, 3D models and point clouds

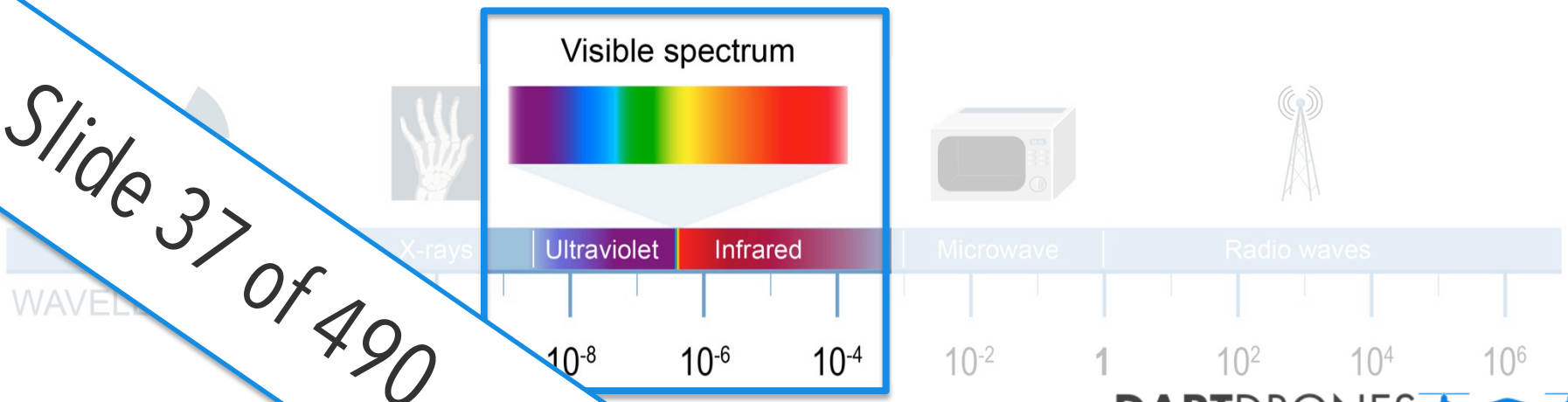
MULTISPECTRAL USES

- Vegetation classification, soil analysis, water quality



HYPERSPECTRAL IMAGERY

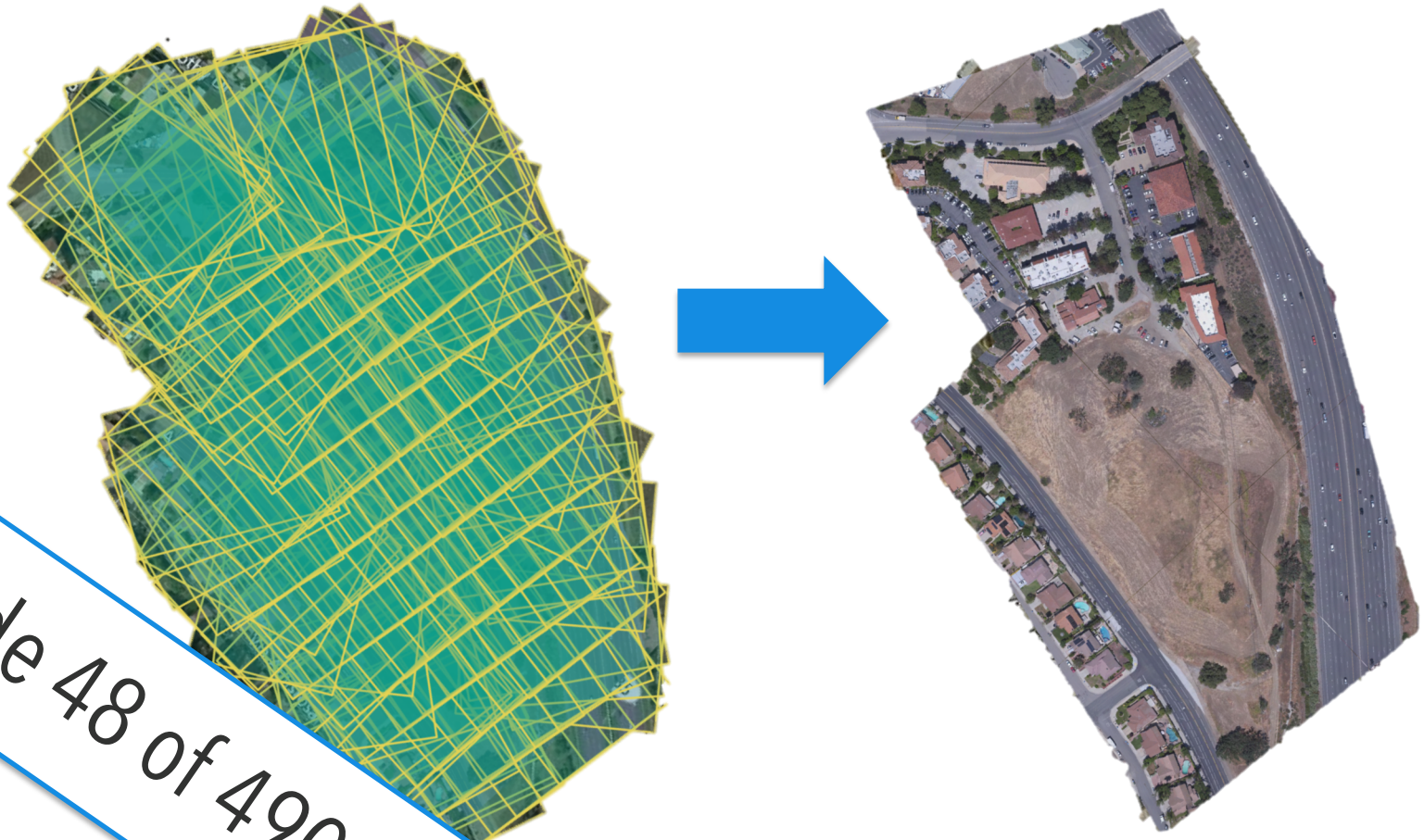
- Typically covers same wavelength range as multispectral imagery, but uses many more bands
- Can contain hundreds of narrow bands
- Provides a higher level of spectral detail



HYPERSPECTRAL USES

- Materials mapping, water quality & vegetation analysis, mineral exploration

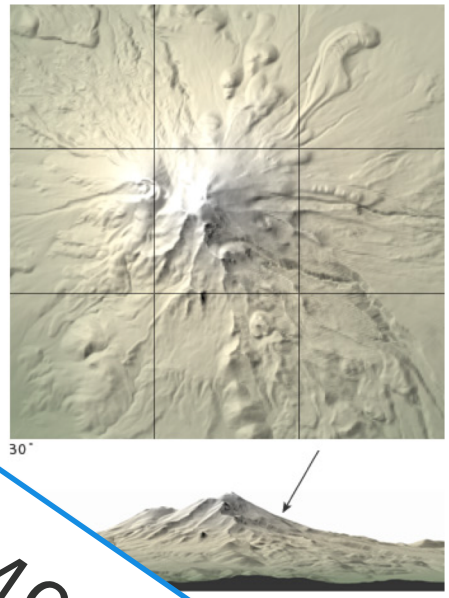
INTRODUCTION TO AERIAL PHOTOGRAMMETRY



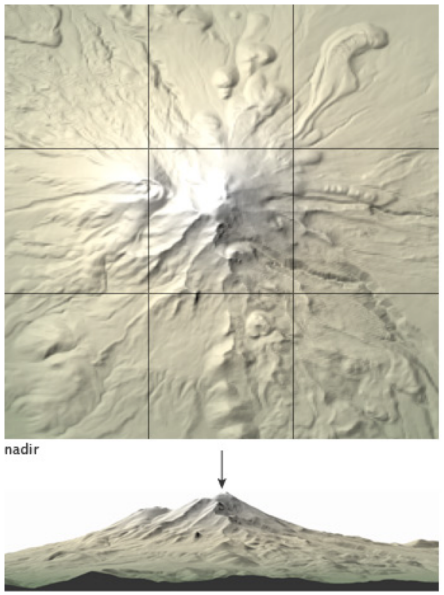
ORTHORECTIFICATION

- Process of removing distortions to assign more accurate coordinates to the final image

orted Image

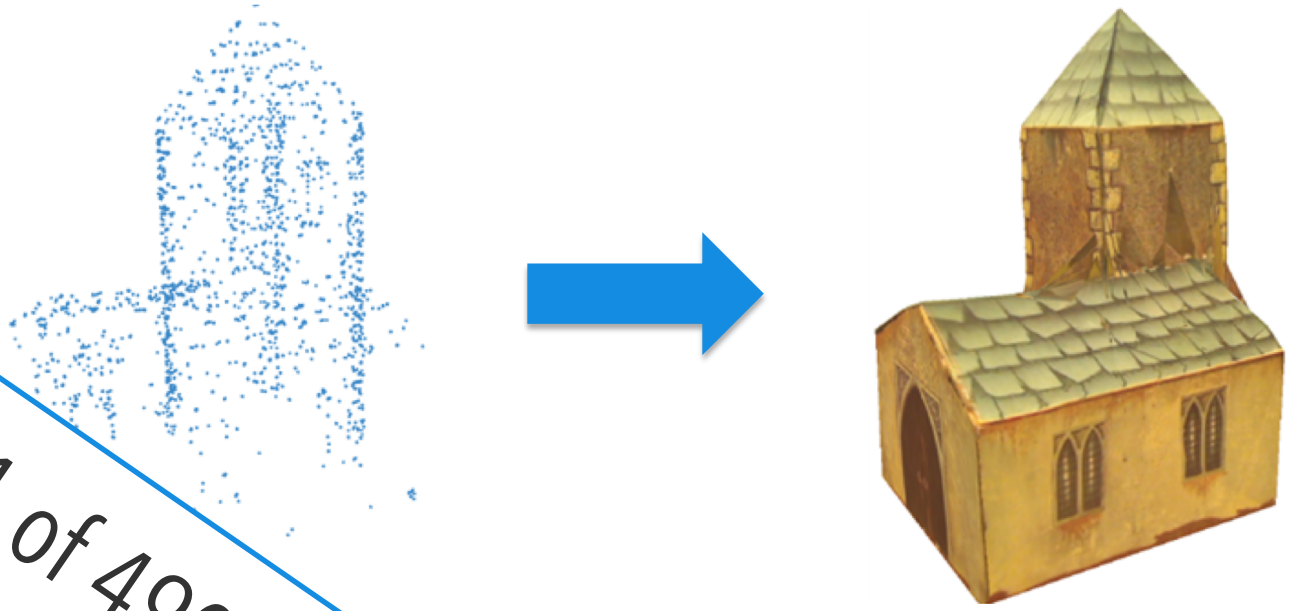


Corrected Image

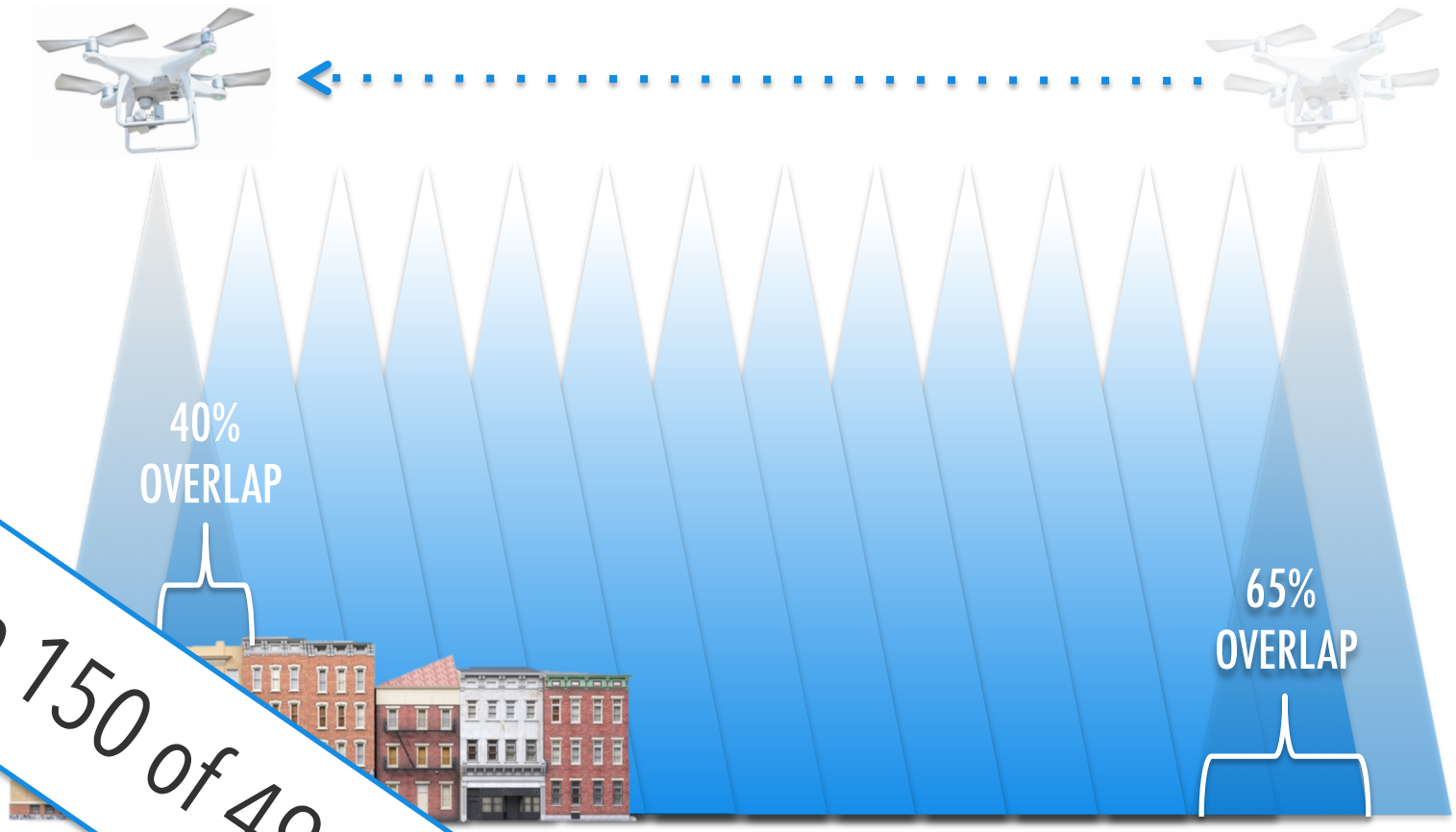


3D MODELING

- Uses a process called ‘meshing’ to turn a point cloud into a model



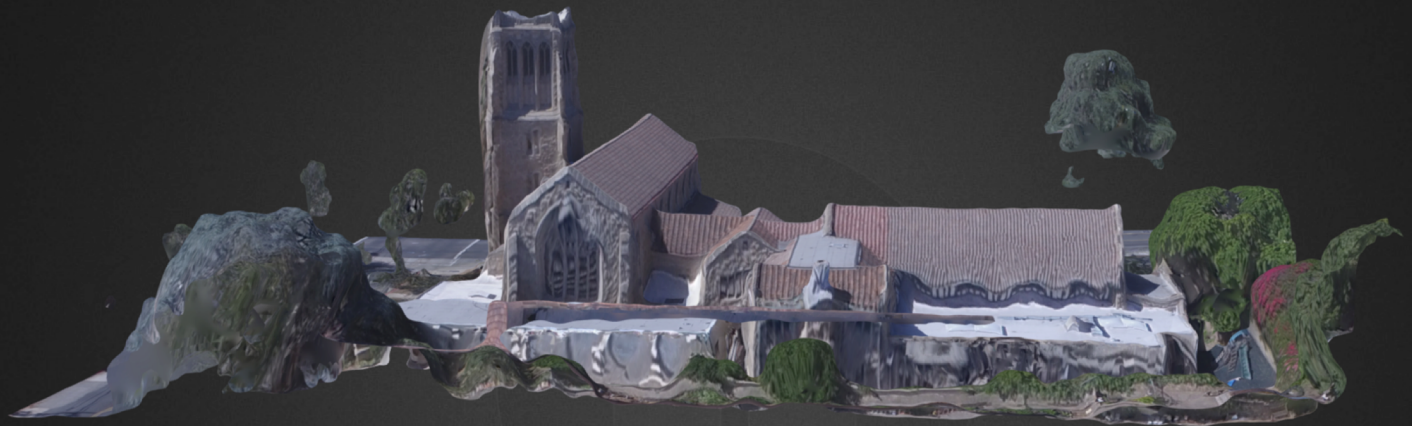
WHY THOSE MINIMUMS?

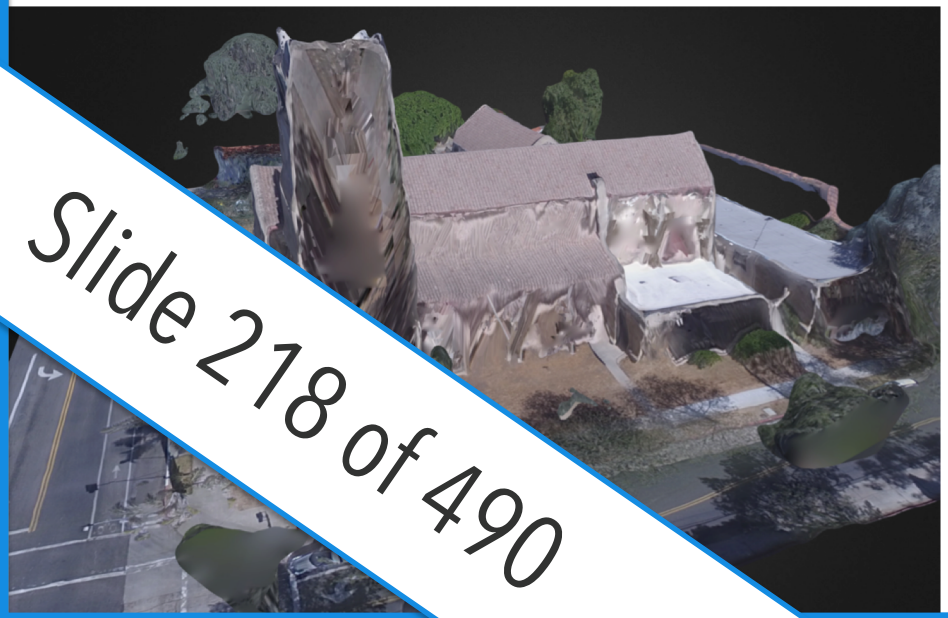


FLIGHT SESSION AGENDA

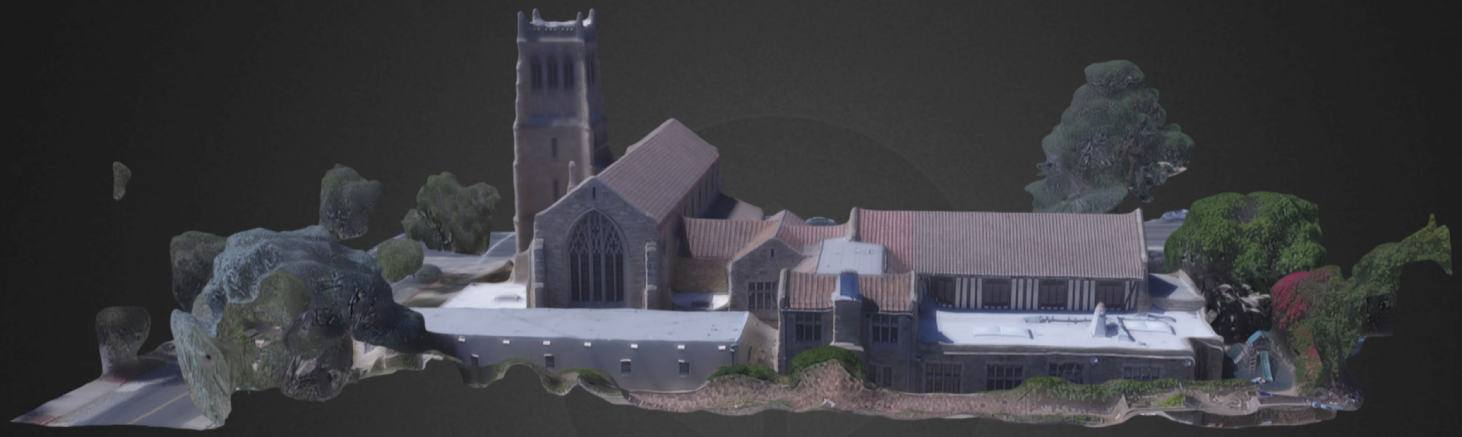
- In teams, you will use what you've learned so far to create a flight plan in DroneDeploy
- Once in the field each team will perform a site assessment, after which flight settings can be updated to account for any new information
- Each team will fly their flight, then upload their [illegible] to DroneDeploy for processing

MODEL PROCESSED WITHOUT OBLIQUES

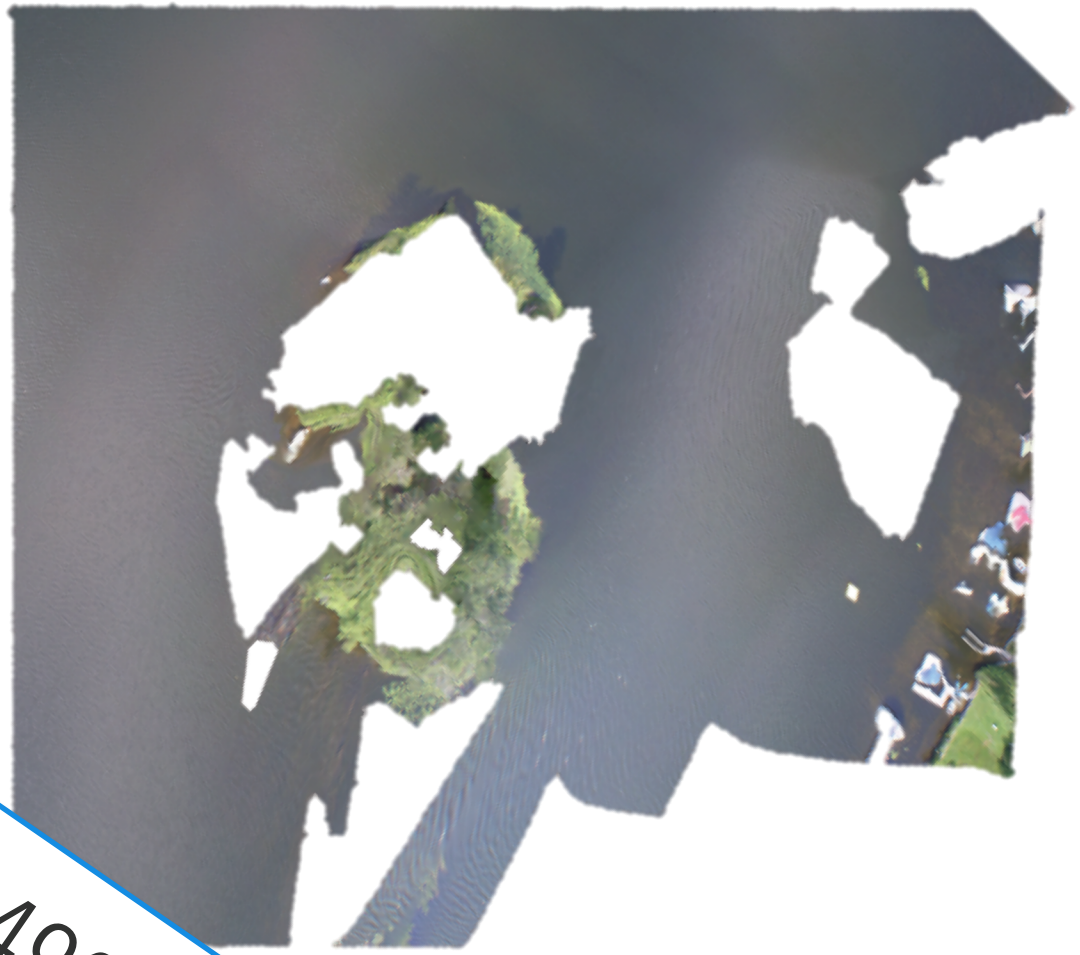




MODEL PROCESSED WITH OBLIQUES



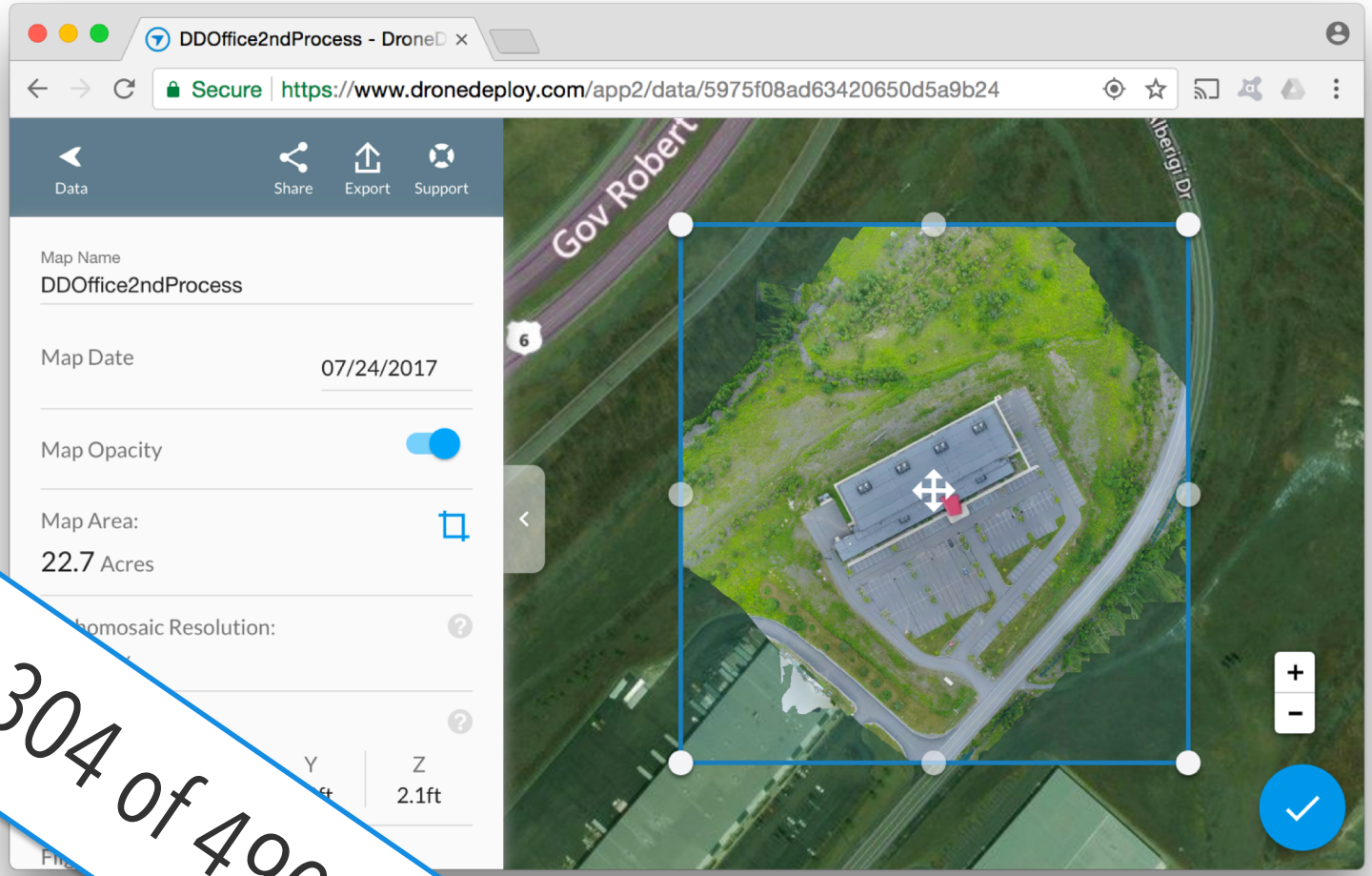
COMMON PROCESSING ISSUES



MOTION BLUR

- Indicates shutter speed is not fast enough or your airspeed is too high
- To resolve, increase shutter speed, decrease speed and fly at a higher altitude

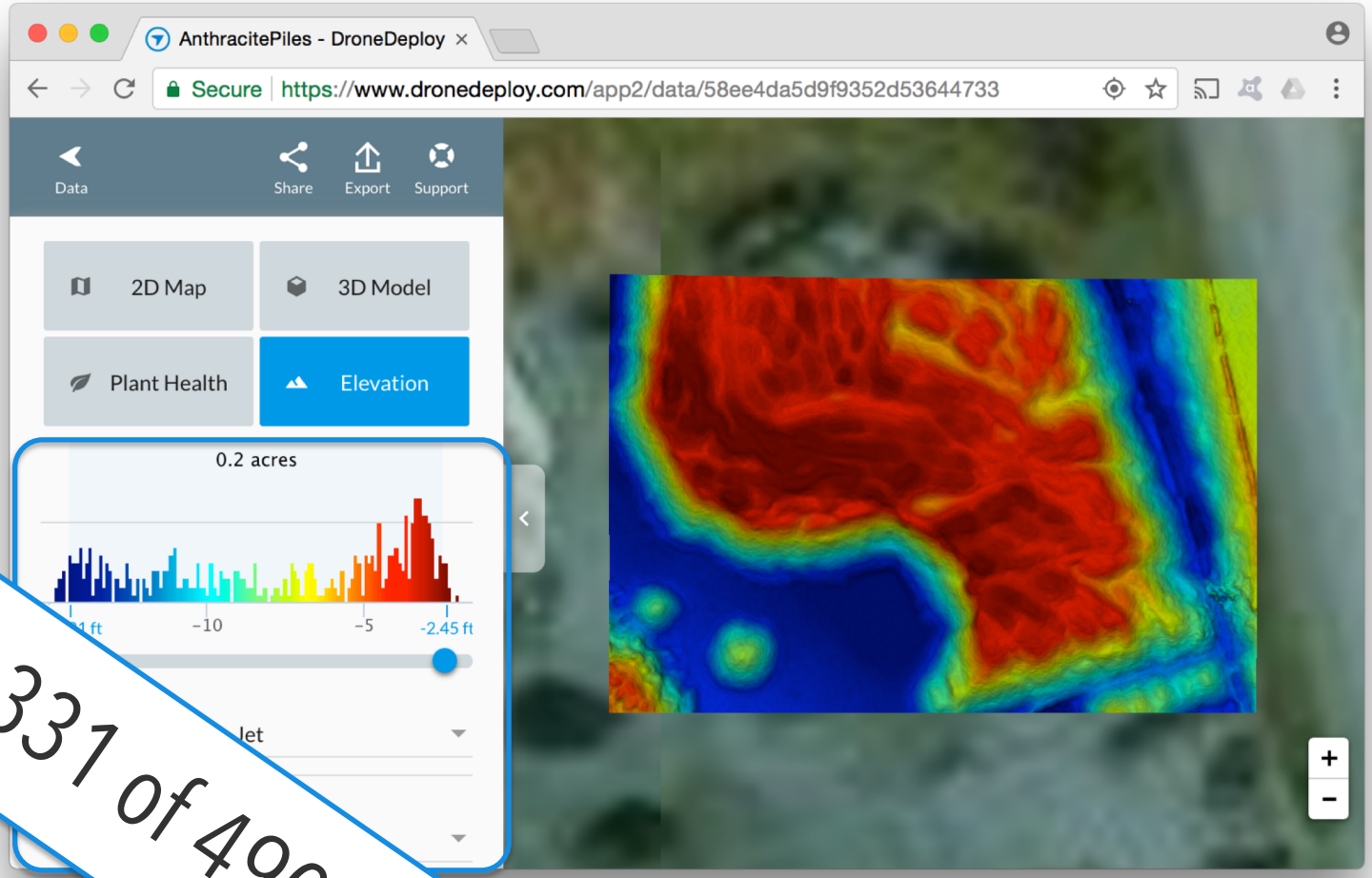
AREA CROPPING



PLANT HEALTH ALGORITHMS

- The NDVI algorithm, which compares NIR and RGB light, is the standard for determining plant health
- However, if you are using an RGB camera without NIR capability, the VARI algorithm should be used instead

ELEVATION TOOLBOX



INCREASE OVERLAP

- Increasing overlap creates more matched points, and greater accuracy

MODULE OBJECTIVES

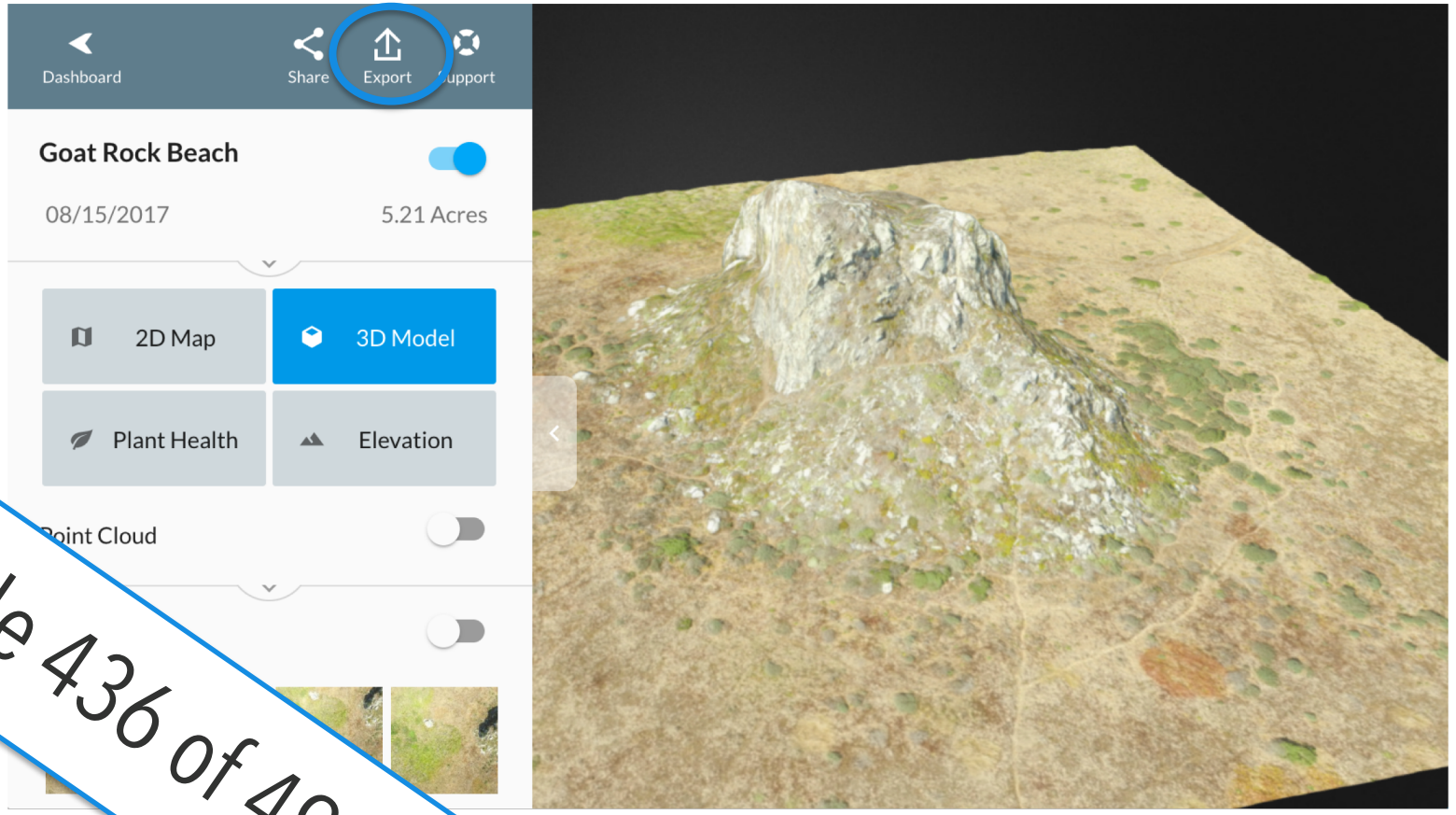
By the end of this module, you will be able to:

- Describe ground control points (GCPs)
- Explain how to integrate GCPs into DroneDeploy
- Utilize the GCP checklist to improve map accuracy

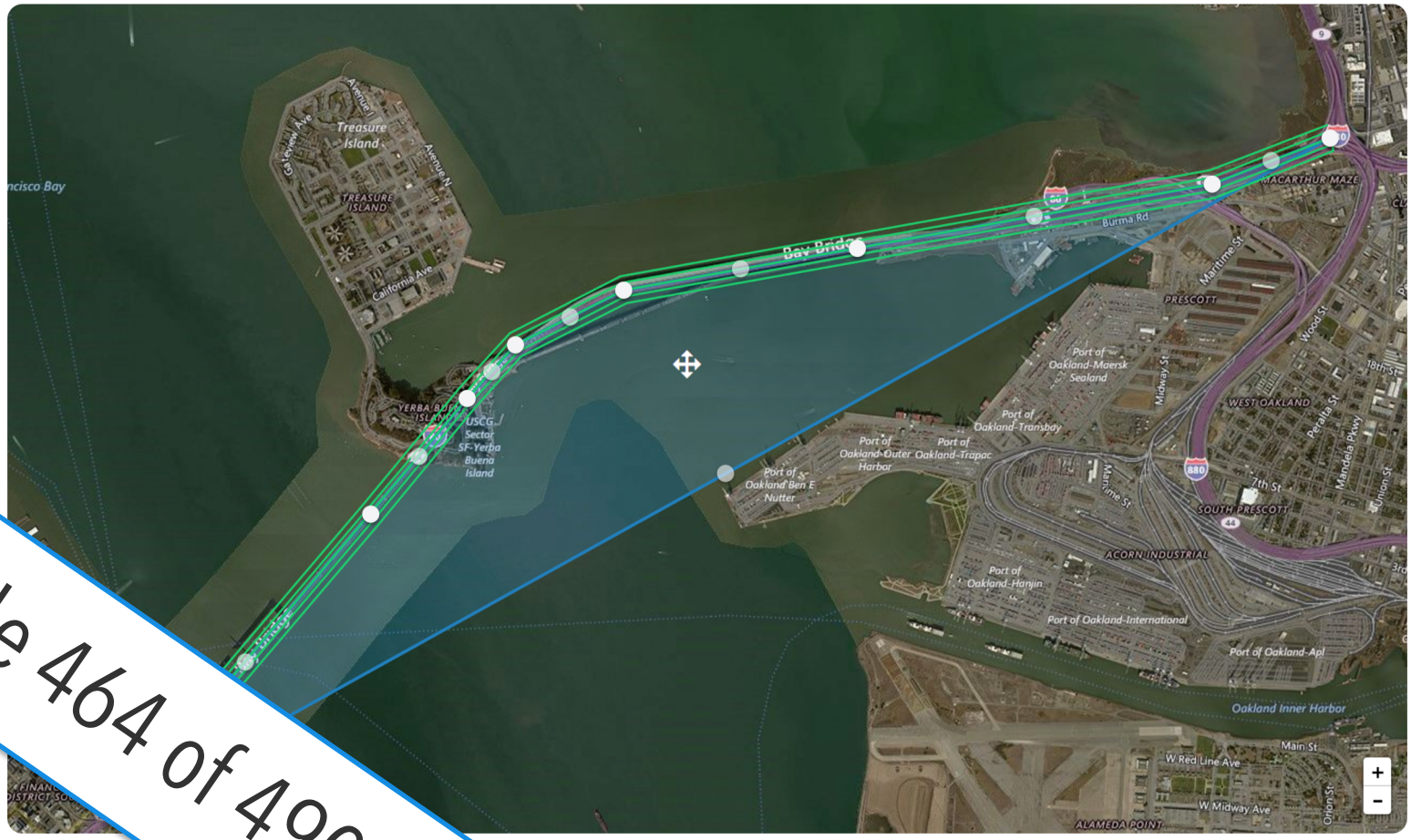
FLIGHT SESSION 3

- Properly placing GCPs throughout the flight area
- Flying a GCP mapping session
- Incorporating GCP data into DroneDeploy

STATIC EXPORT



LINEAR MAPPING



Slide 464 of 490

DARTDRONES

TENSOR FLIGHT