



Merging Drone and Satellite Imagery:

Improving Data Capture and Insights

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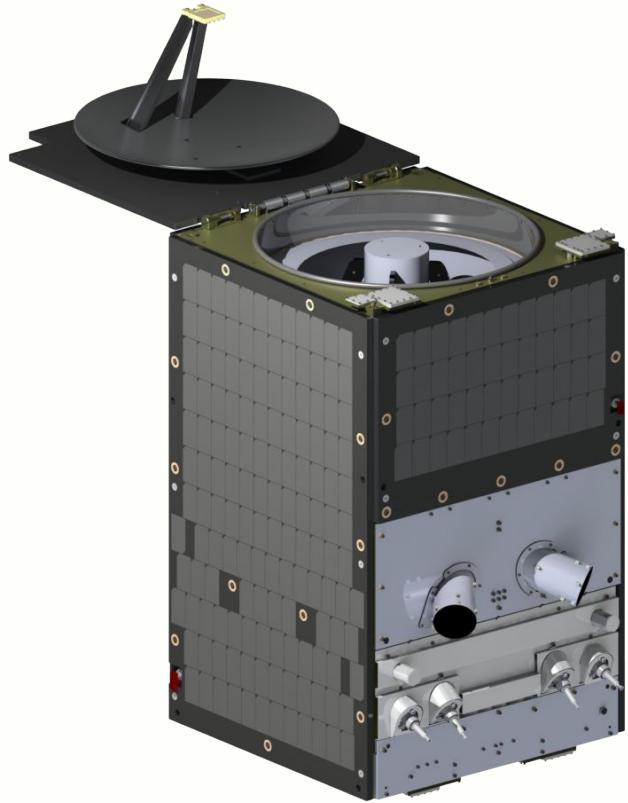
explore21



Jeremiah Johnson

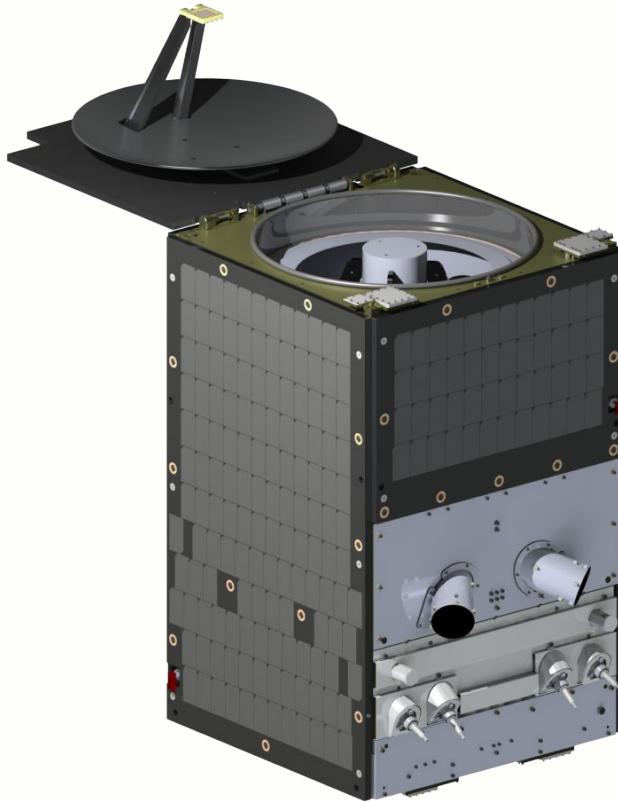
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Esri, Berkeley
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Global
Connection



planet. | explore 21

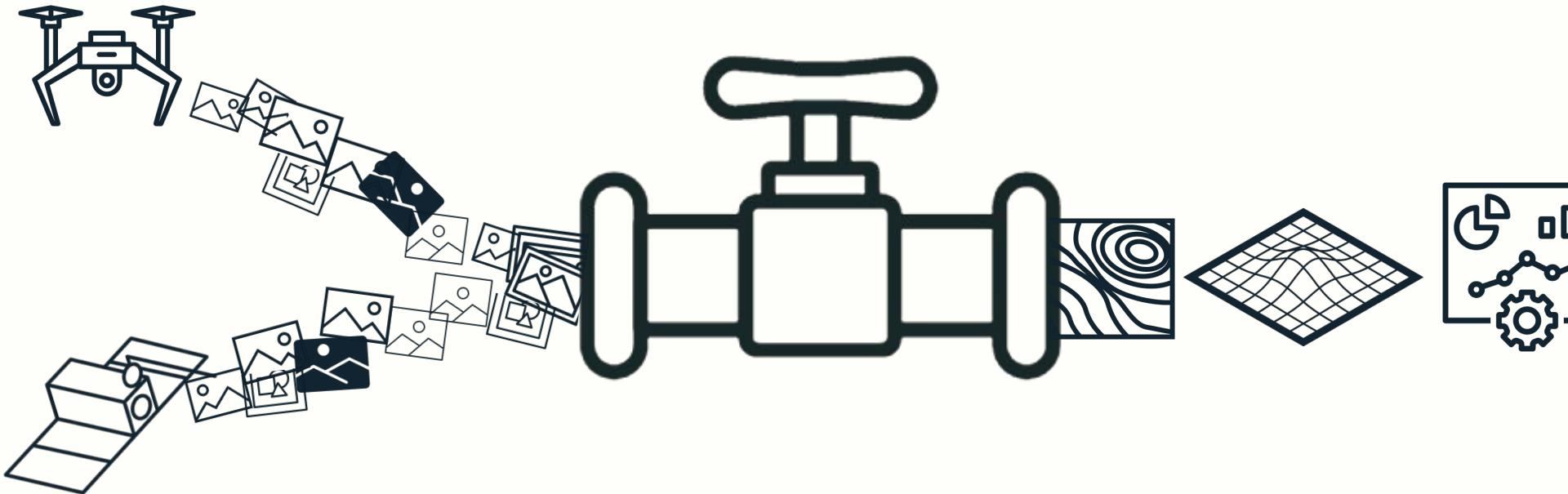
Global
Connection



Resolution Coverage Timeliness Cost



Building an imagery pipeline





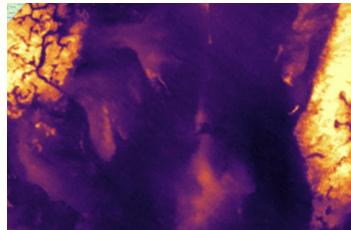
2-Dimensional

3-Dimensional

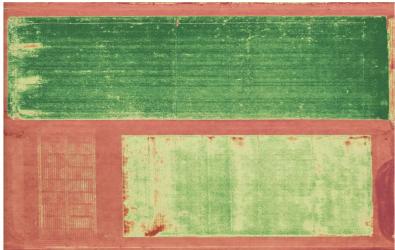
2-Dimensional



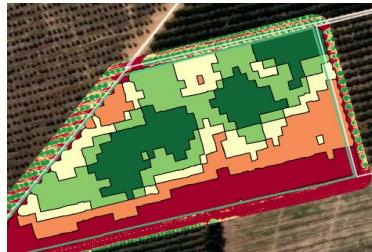
Orthomosaic



Infrared



Reflectance (Index)



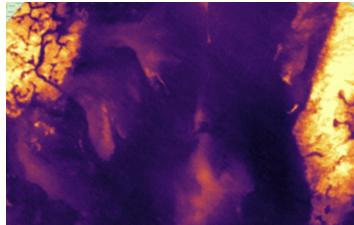
Prescription zones

3-Dimensional

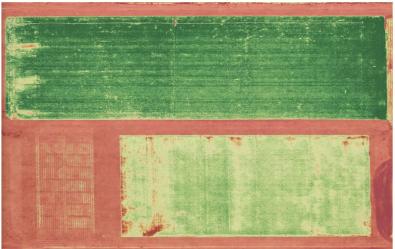
2-Dimensional



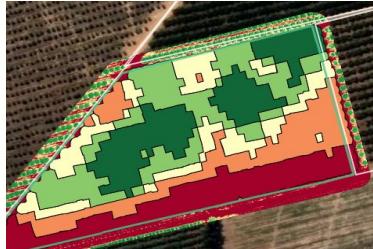
Orthomosaic



Infrared



Reflectance (Index)



Prescription zones

3-Dimensional



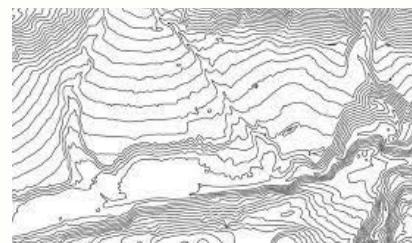
Point cloud



Textured mesh



DEM/DTM

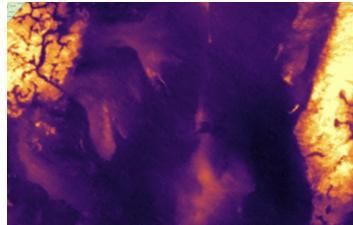


Contours

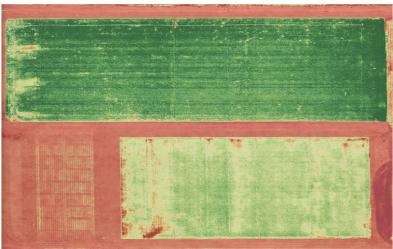
2-Dimensional



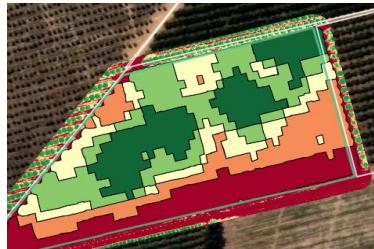
Orthomosaic



Infrared



Reflectance (Index)



Prescription zones

GeoTiff (.tif), .kml, .shp

3-Dimensional



Point cloud



Textured mesh



DEM/DTM

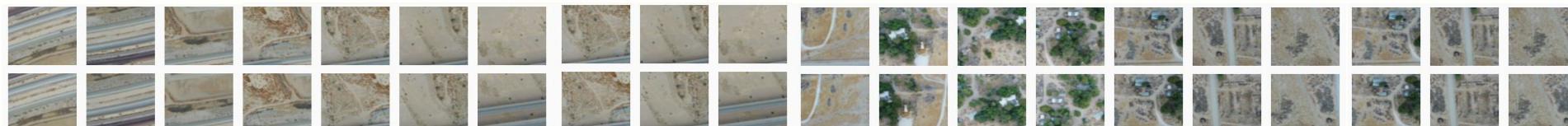


Contours

.GeoTiff (.tif), .las, .laz, .ply, ..obj, xyz, .shp, .dxf, .pdf

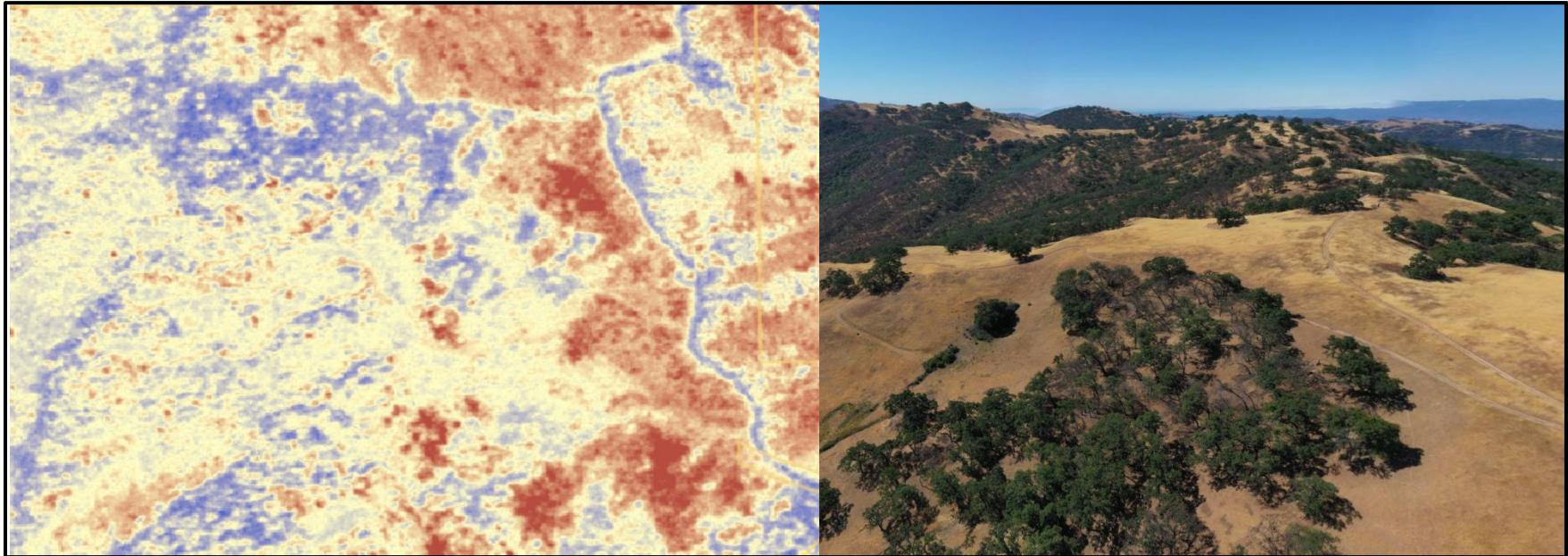
Example 1:

Optimizing drone data collection



Example 2:

Validating changes (tip and cue)



The Site Scan for ArcGIS Workflow

Providing an end-to-end workflow for drone imagery

1 Plan & Capture

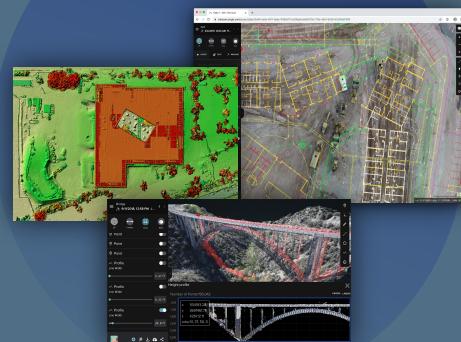


Site Scan Flight
iOS App



2 Process, Manage, & Analyze

Site Scan Manager
Web-App



3 Disseminate & Collaborate



ArcGIS Image Architecture



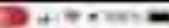
ArcGIS
Online



ArcGIS Image for
ArcGIS Online

10:00 AM - 2020-08-19

New Western Thoroughfares



Save Flight Plan

• Disconnected

Mission Settings

Survey

Overlays

Terrain Follow

Automatically follow along the terrain surface and maintain altitude when approaching mountain ridges.



Fly Along Ground Line

Slope / Corridor Width



Default Corridor Width

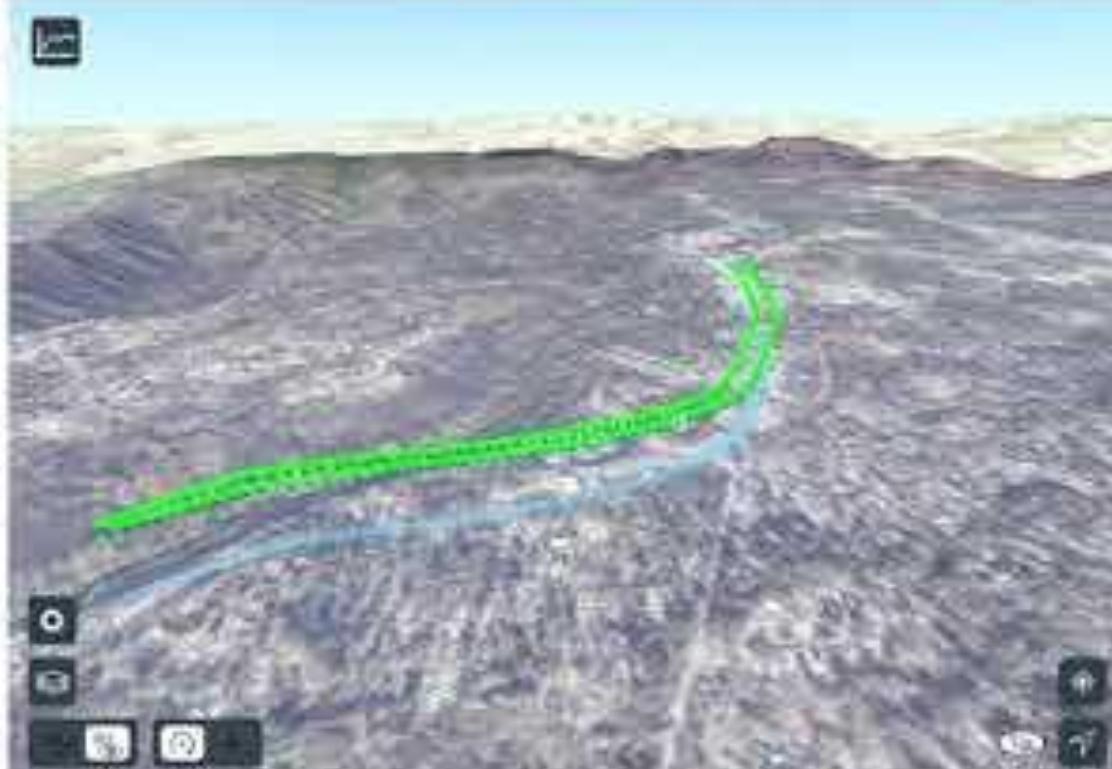
Fly Along Ground

Fly Over Corridor



Autonomy Flight Autonomy

Flight Height

24 min
estimated

0.6 nautical miles

1079 acres
estimated

280

Battery
estimated



Future Directions



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High-Res 3D Insets



Model verification



Data/sensor fusion





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