

Session 4: Emerging Tools for Tree Professionals

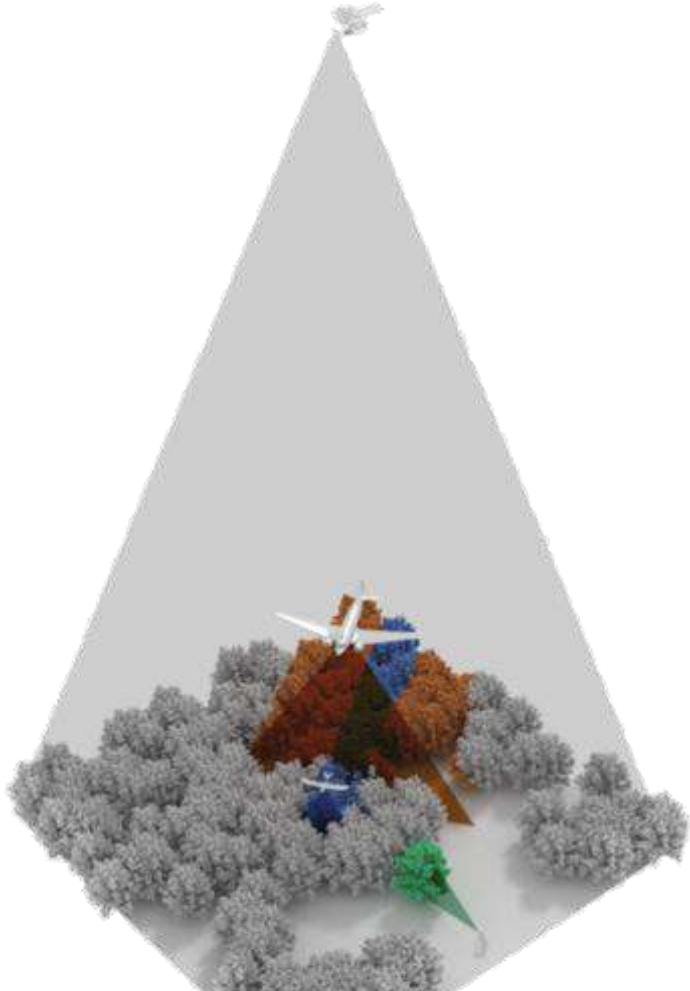
Remote Sensing Innovations

Prof Iain H Woodhouse

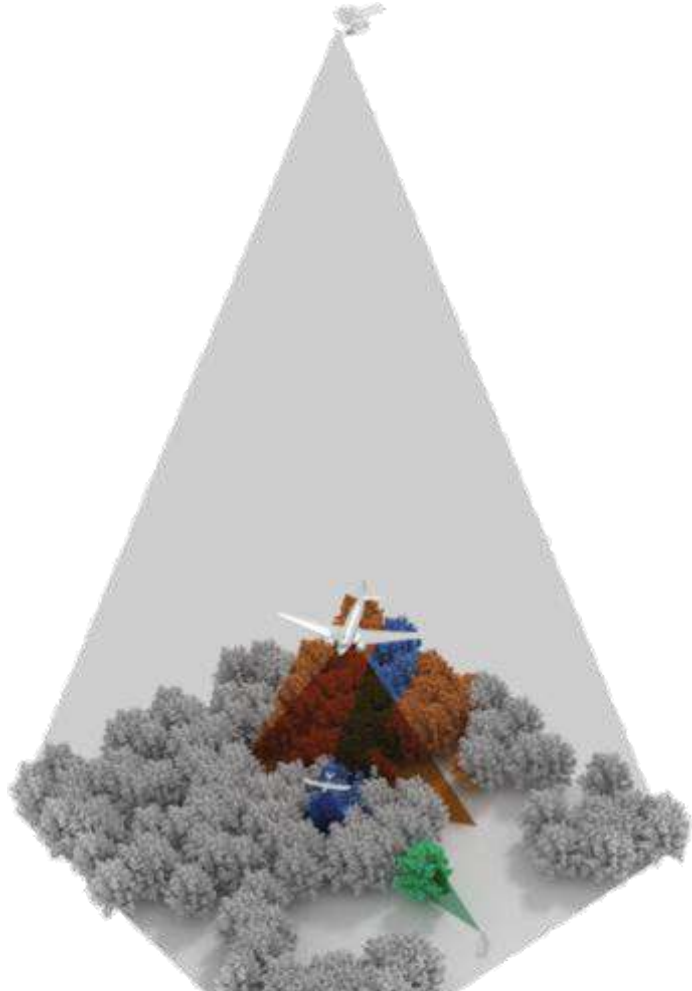
The University of Edinburgh
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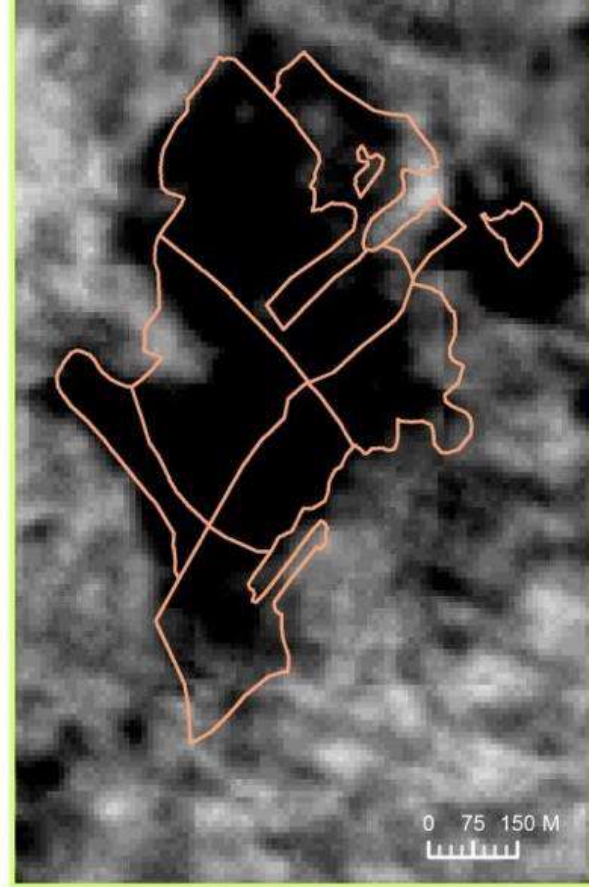
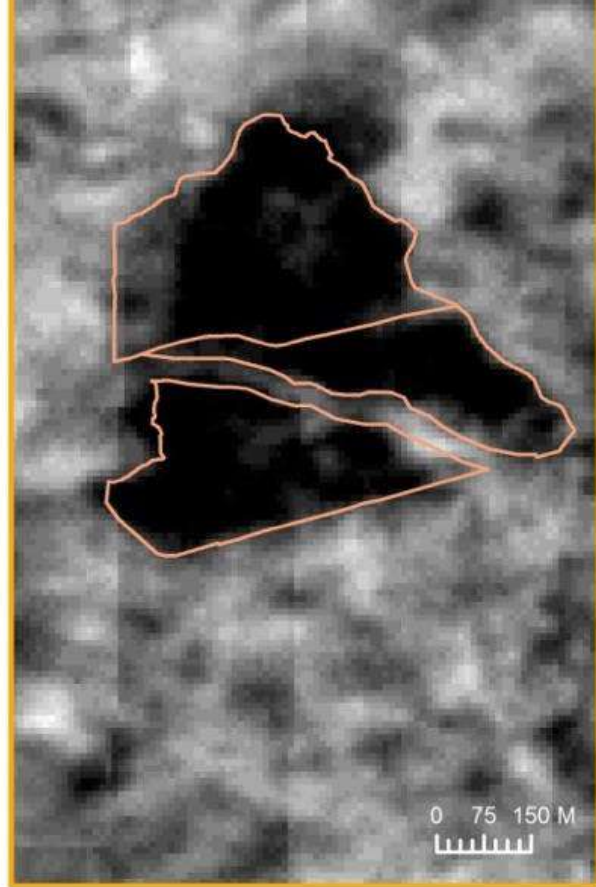
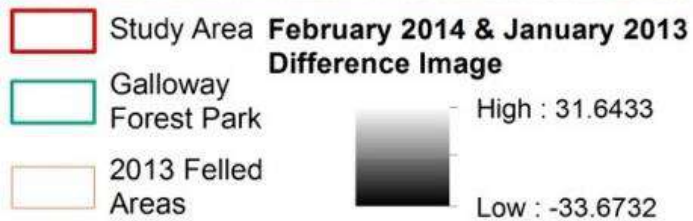
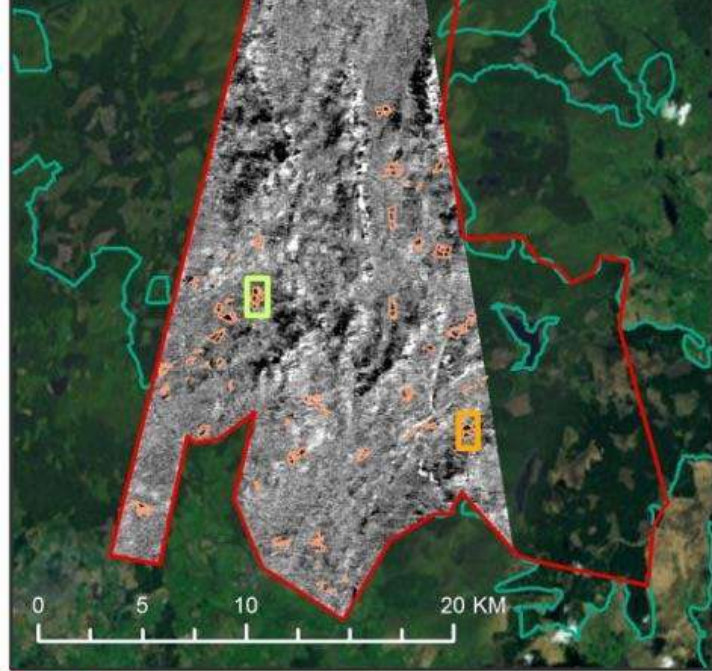




1. Satellite
2. Airborne
3. UAV/drone
4. Accessibility



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2. Airborne
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Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, and the GIS User Community



Satellite SAR height differencing.

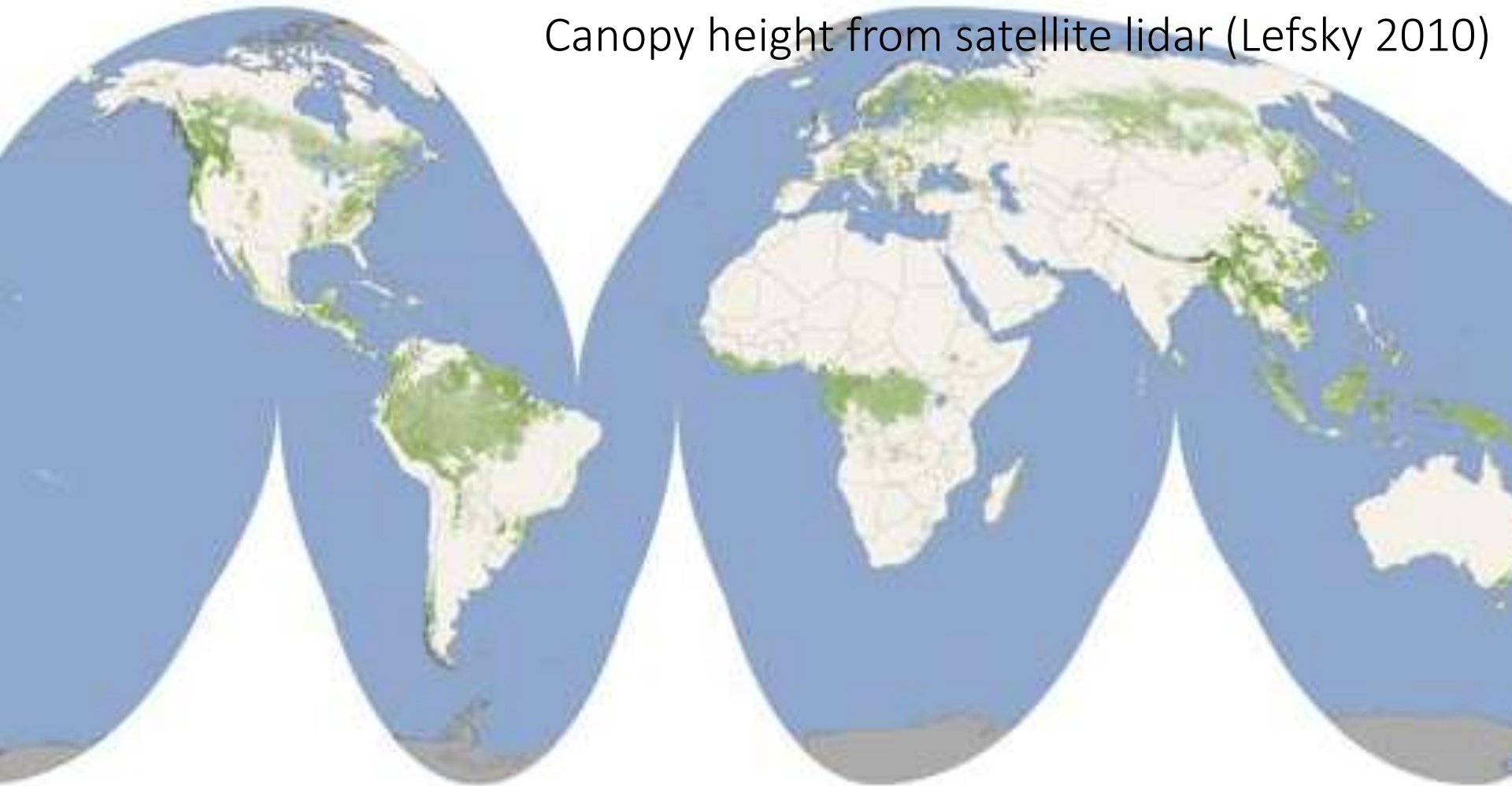
GEDI

High Resolution Laser Ranging
of Earth's Forests & Topography

On ISS

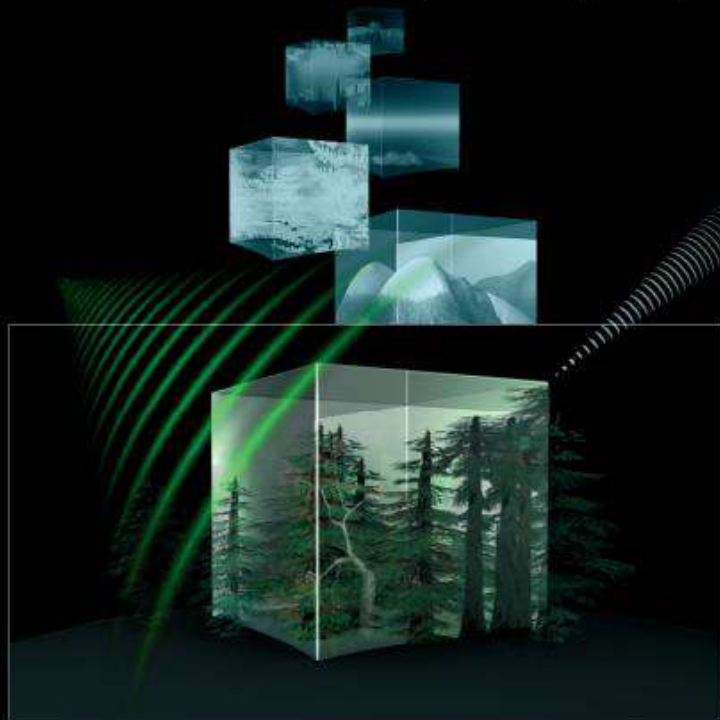


Canopy height from satellite lidar (Lefsky 2010)

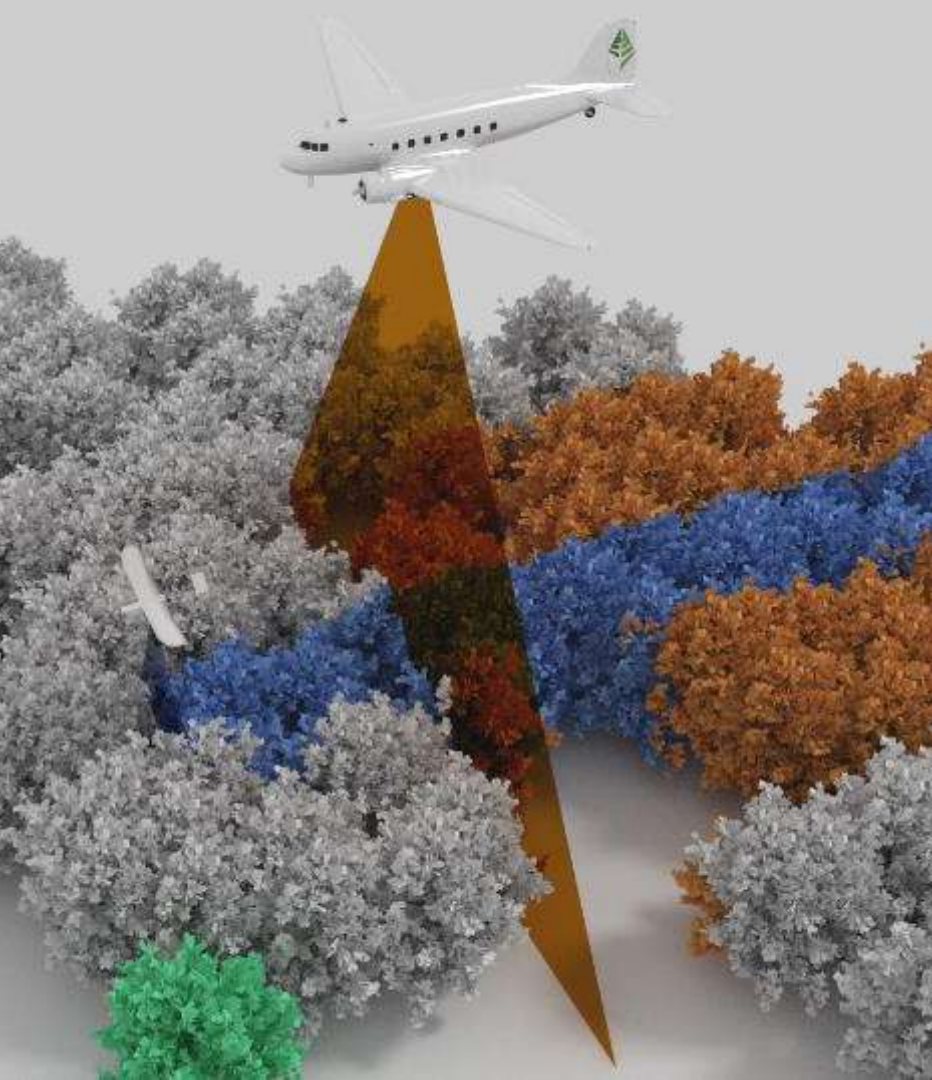


biomass

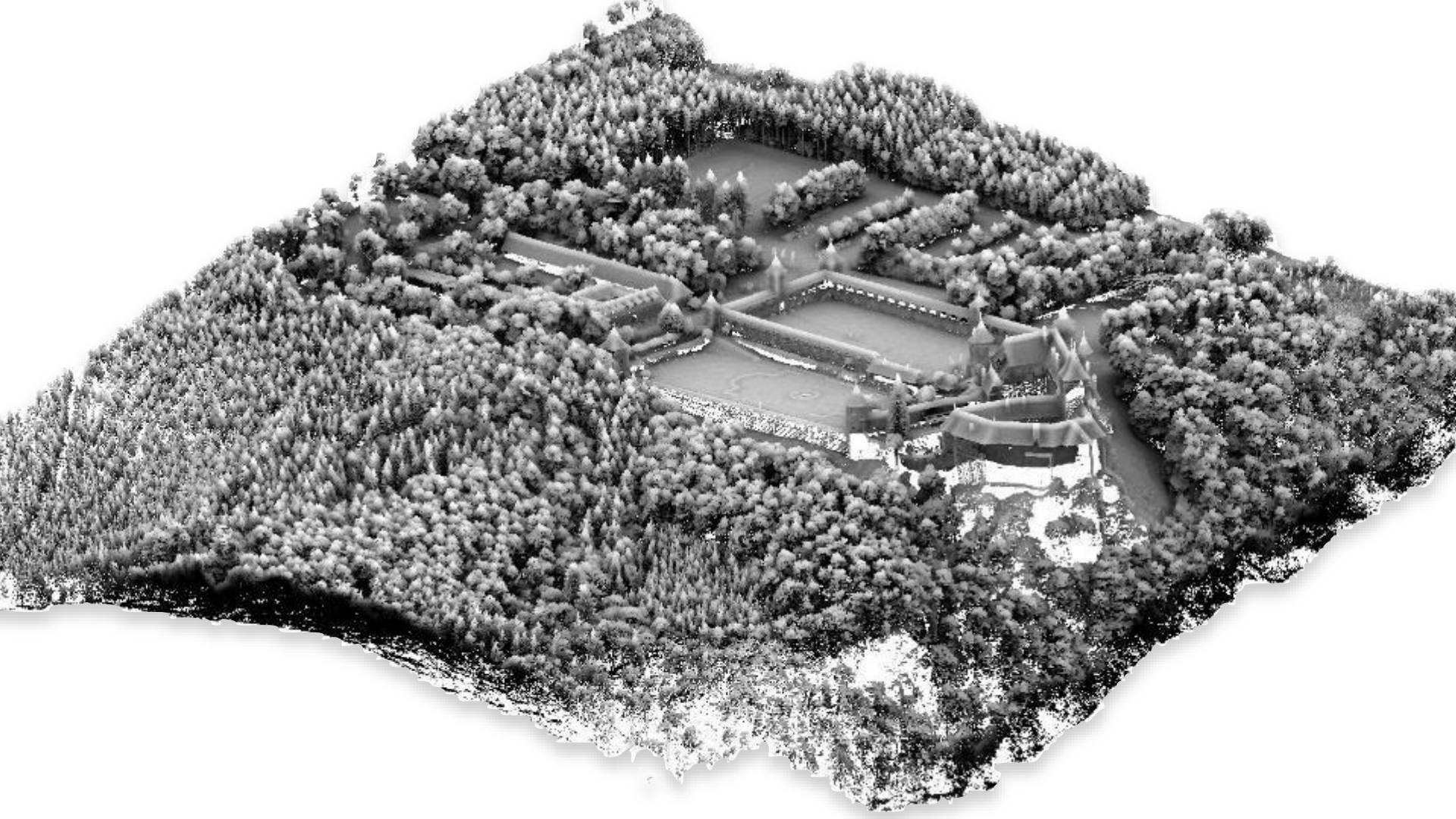
coreh2o flex premier traq a-scope



→ TO OBSERVE GLOBAL FOREST BIOMASS
FOR A BETTER UNDERSTANDING OF THE CARBON CYCLE

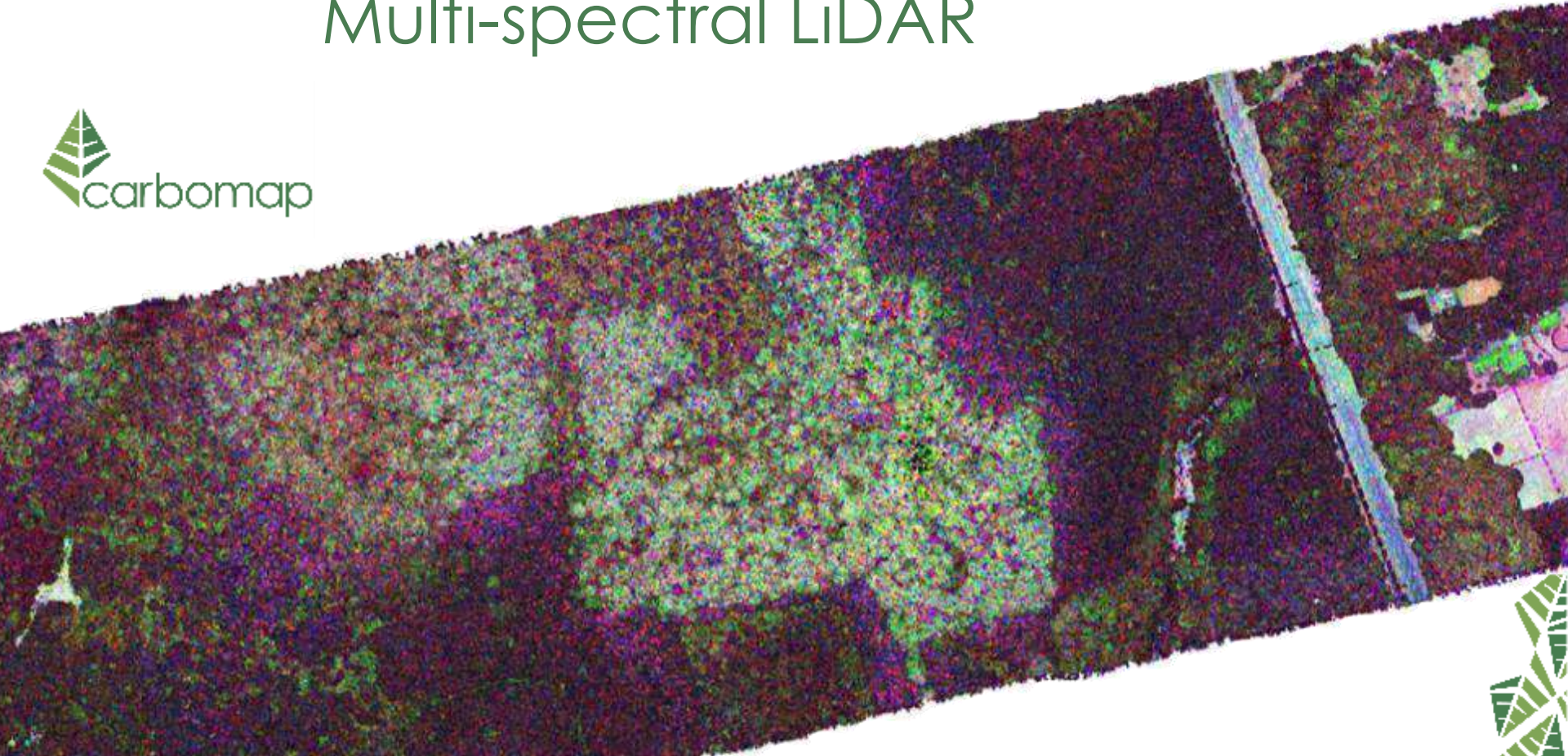


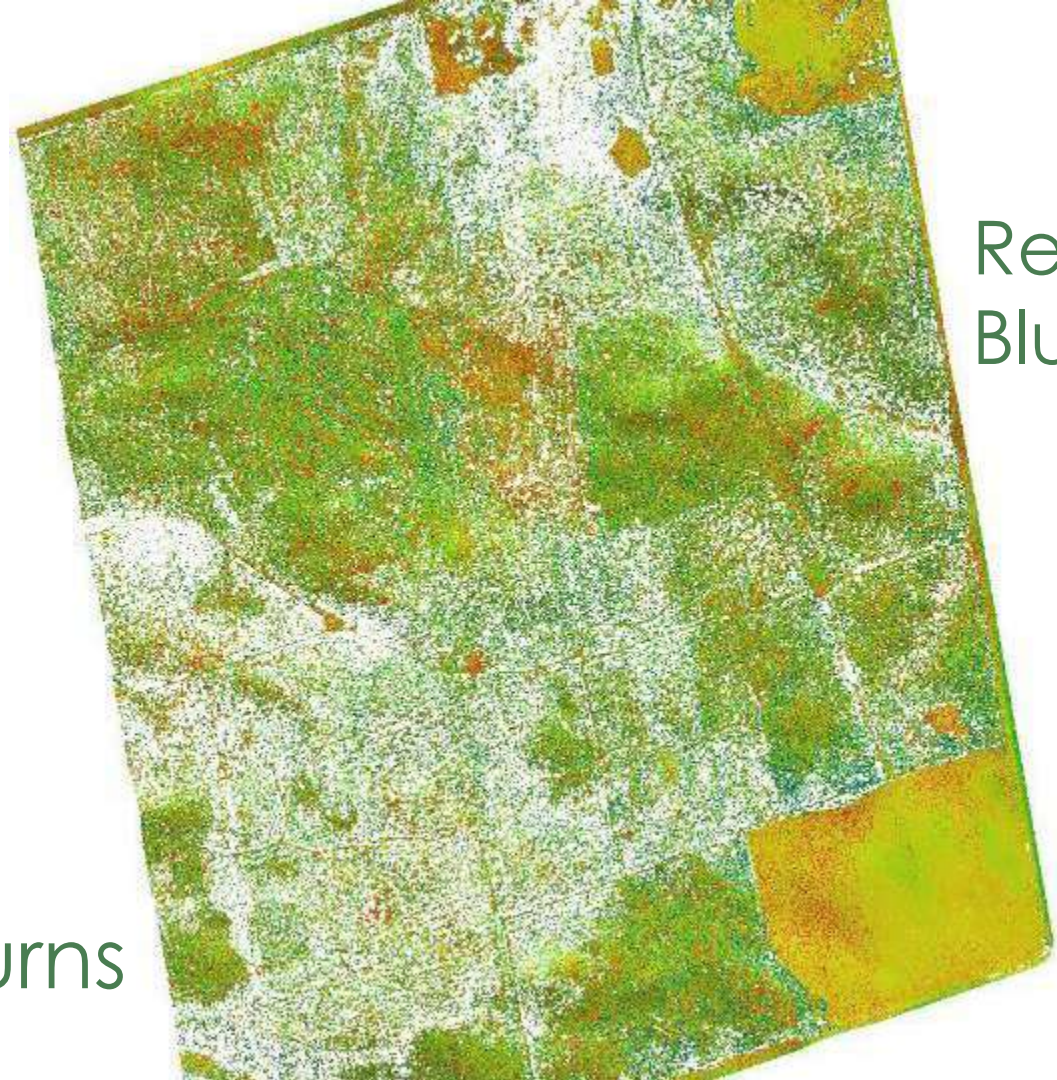
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RGB Composite Multi-spectral LiDAR

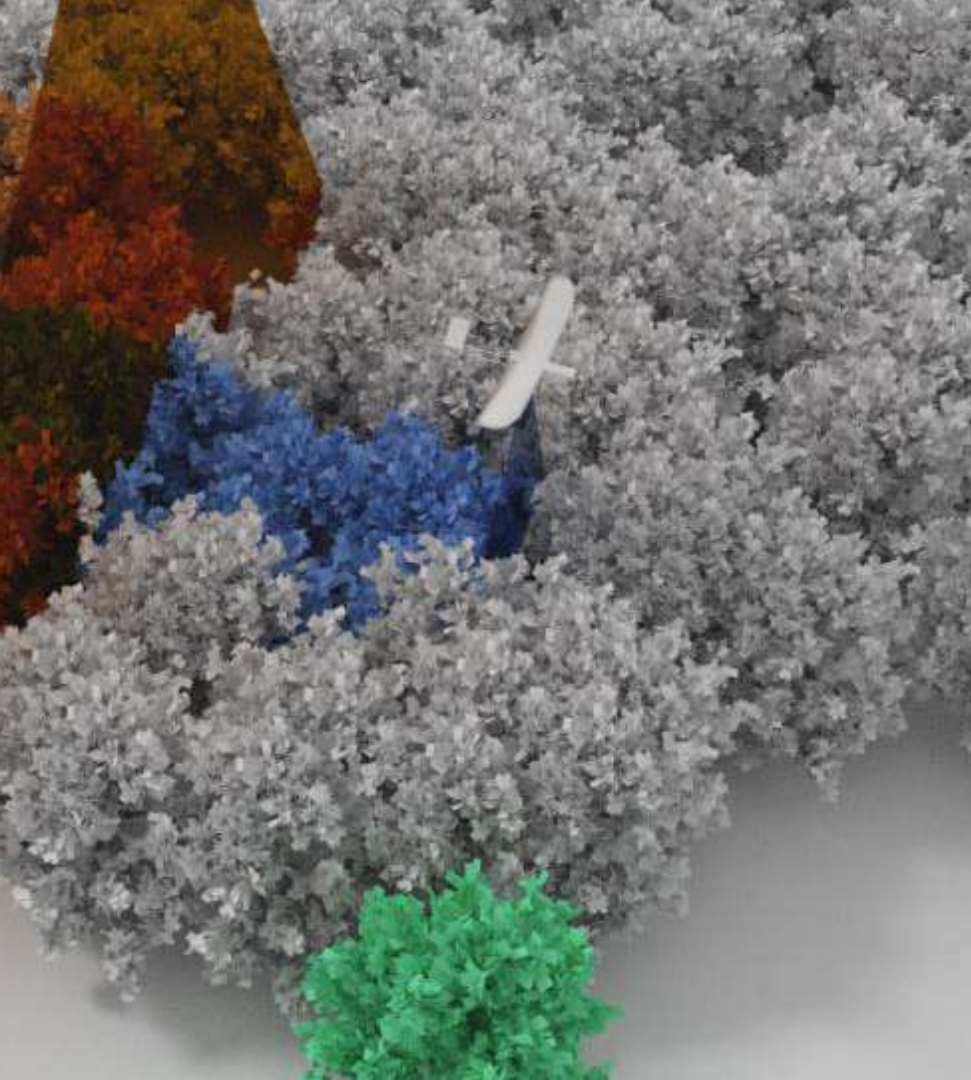




Red: 0.99
Blue: -0.99

gNDVI
top view
ground returns





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What is the data like?

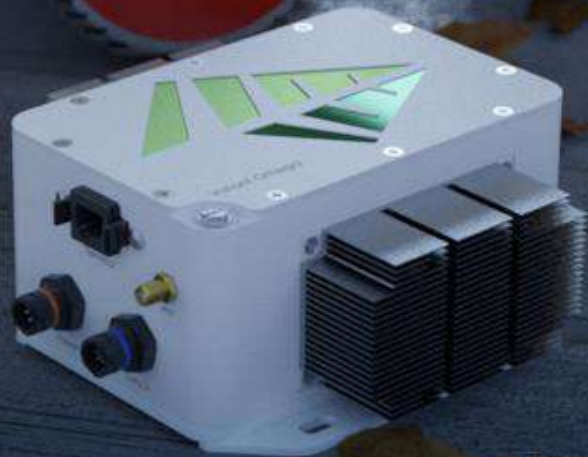


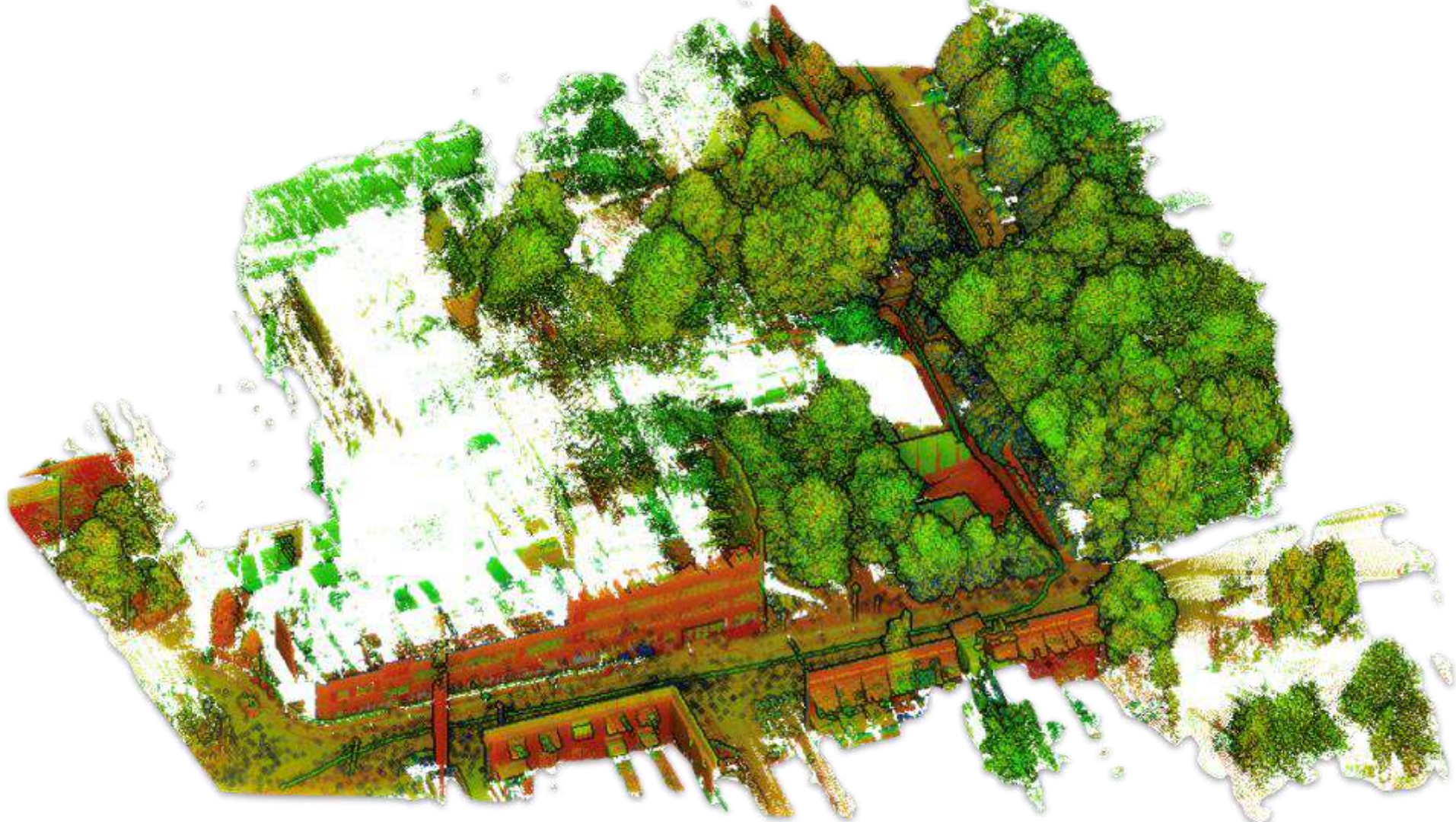




Real-time processing – the "no click" solution

Instant-Omega



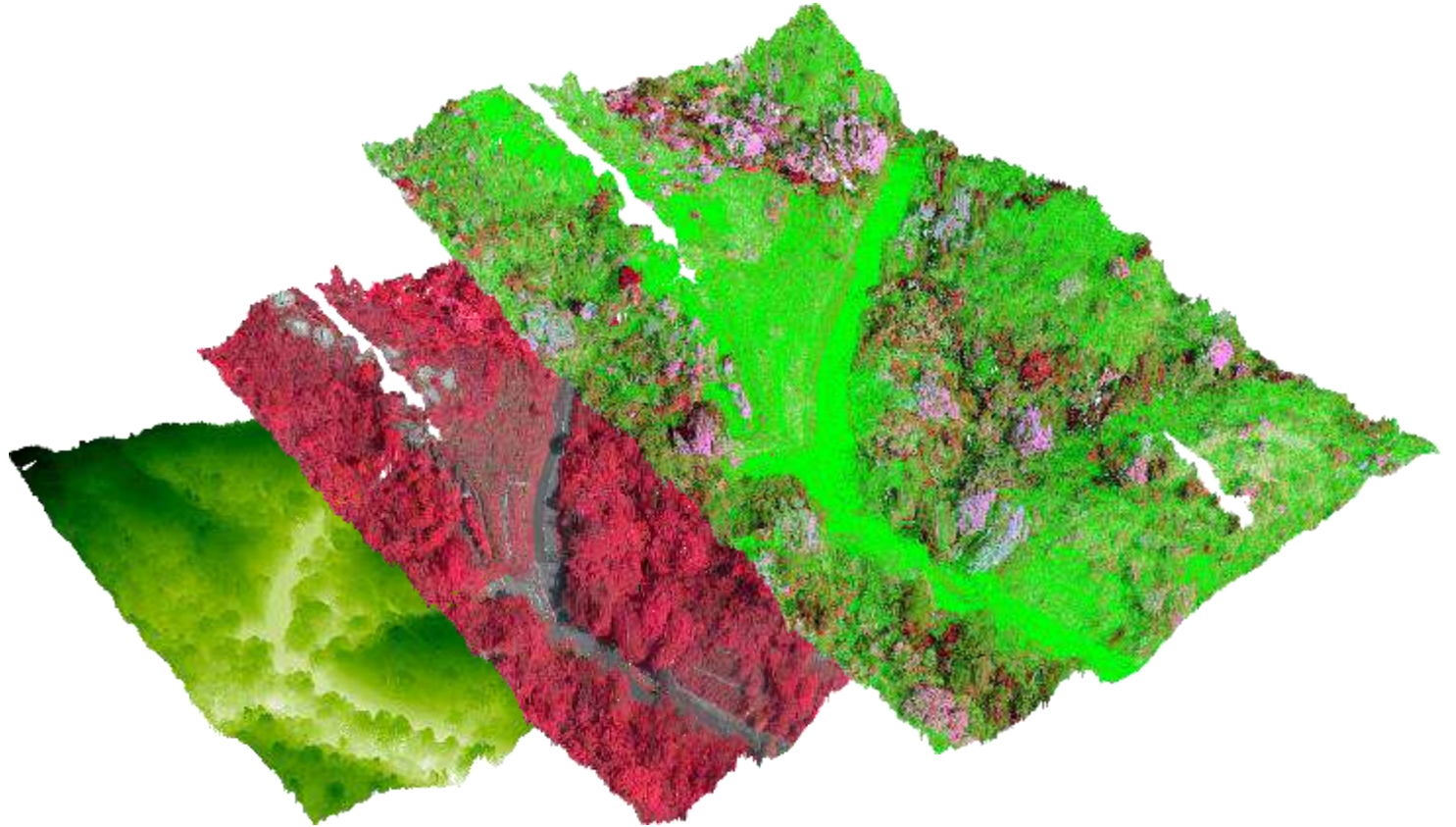


DJI M600 and VUX-1 with Nav Module



Note: Not date of data acquisition

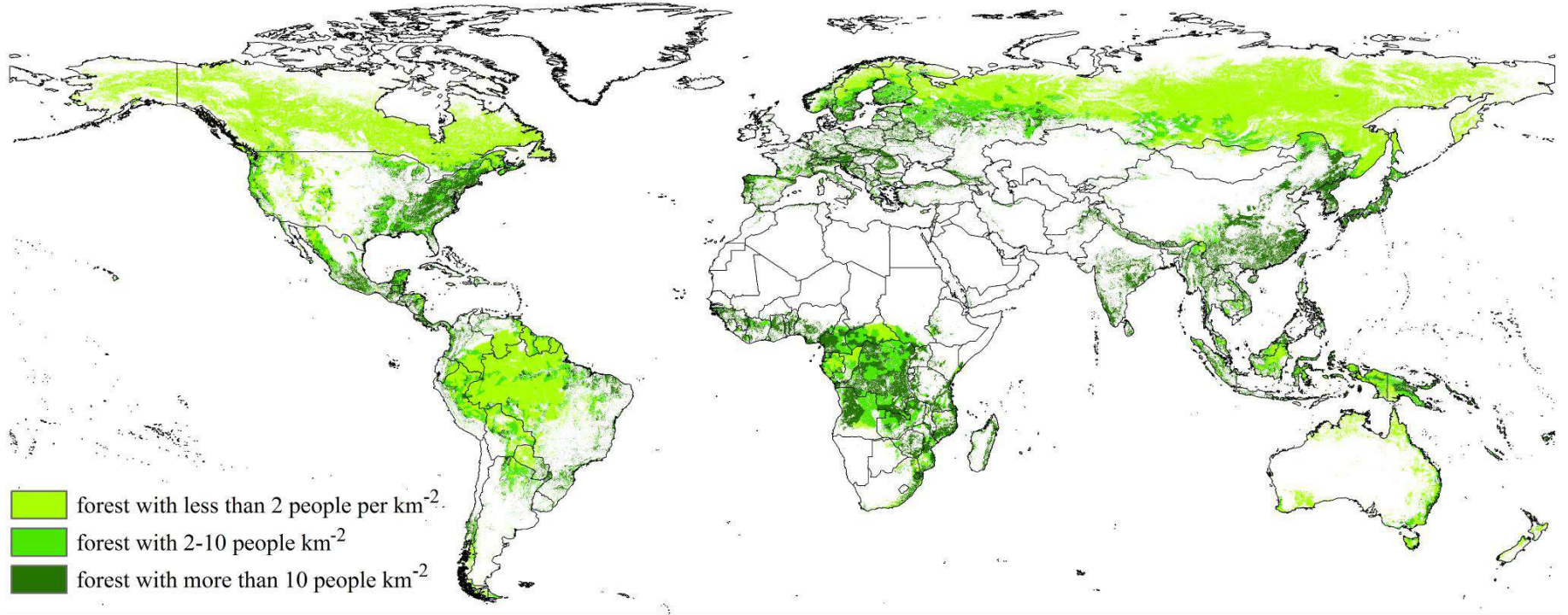
Drone-based LiDAR and hyperspectral





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Overlapping population density with global forest map (5km grid)





forest with less than 2 people per km^{-2} .



forest with 2-10 people km^{-2}



forest with more than 10 people km^{-2}

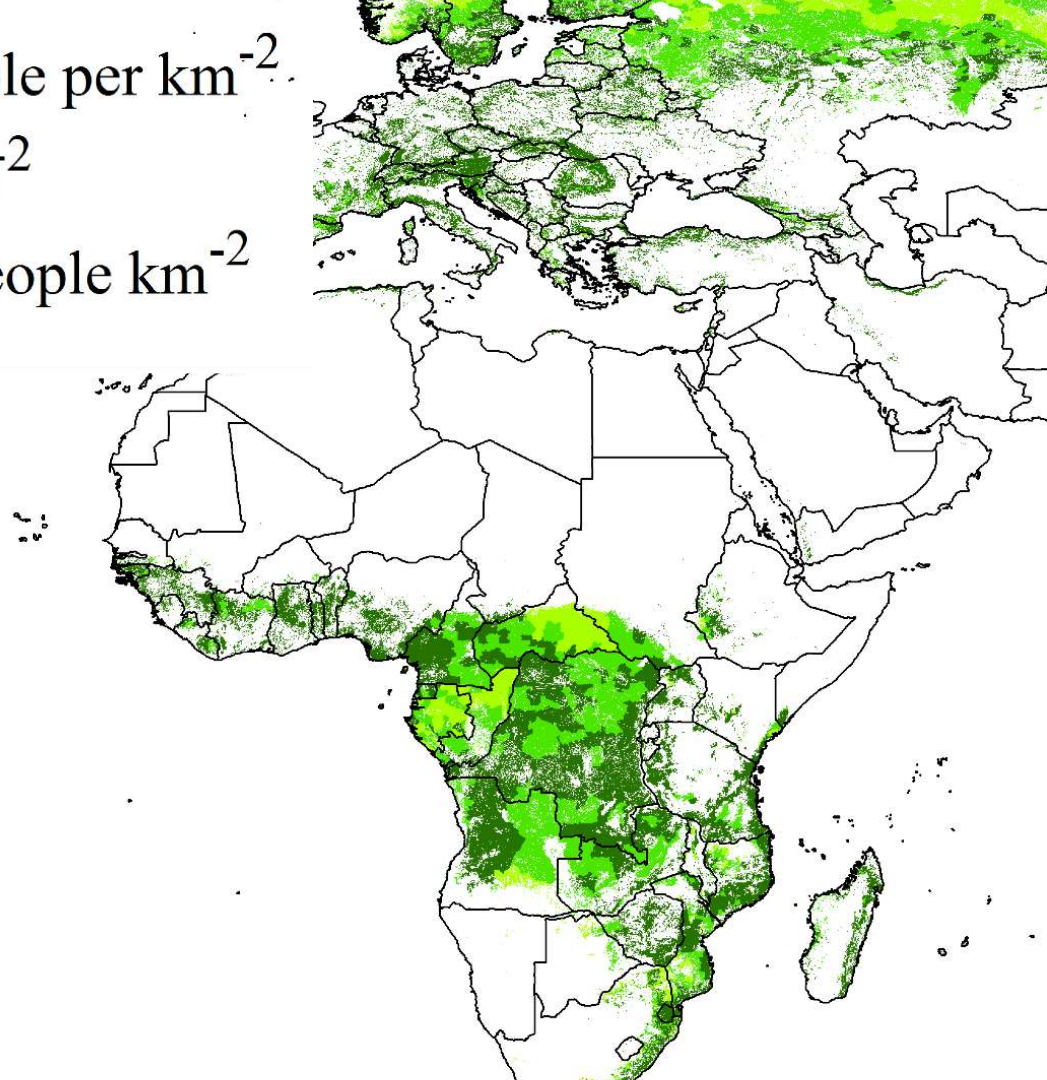
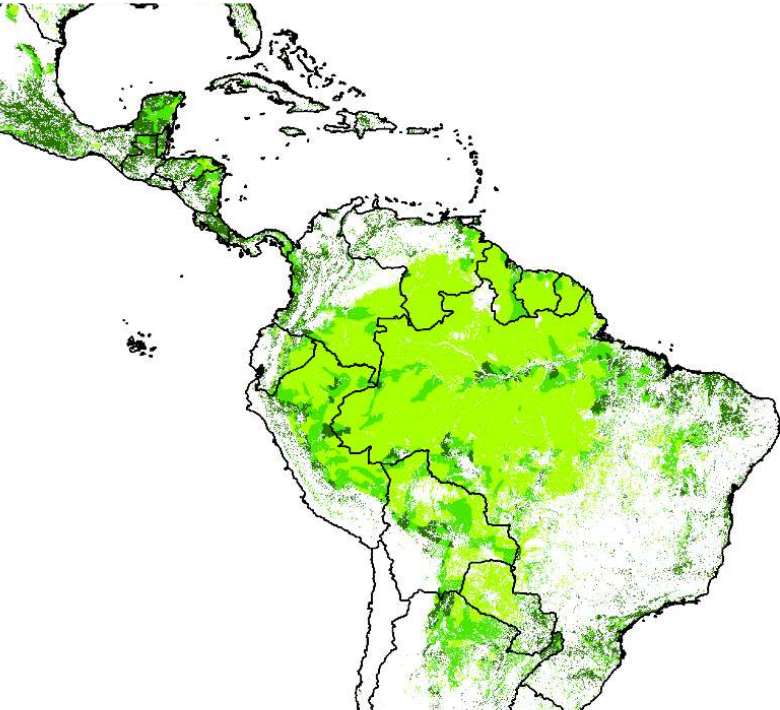




Image from Conservation Drones

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**TELEDYNE
OPTTECH**

YellowScan



Rieggl VUX-1

