AI and collaboration in the future of geospatial

Are you ready for it?

Assoc. Prof. Karen Joyce
James Cook University / GeoNadir

https://linktr.ee/drkjoyce

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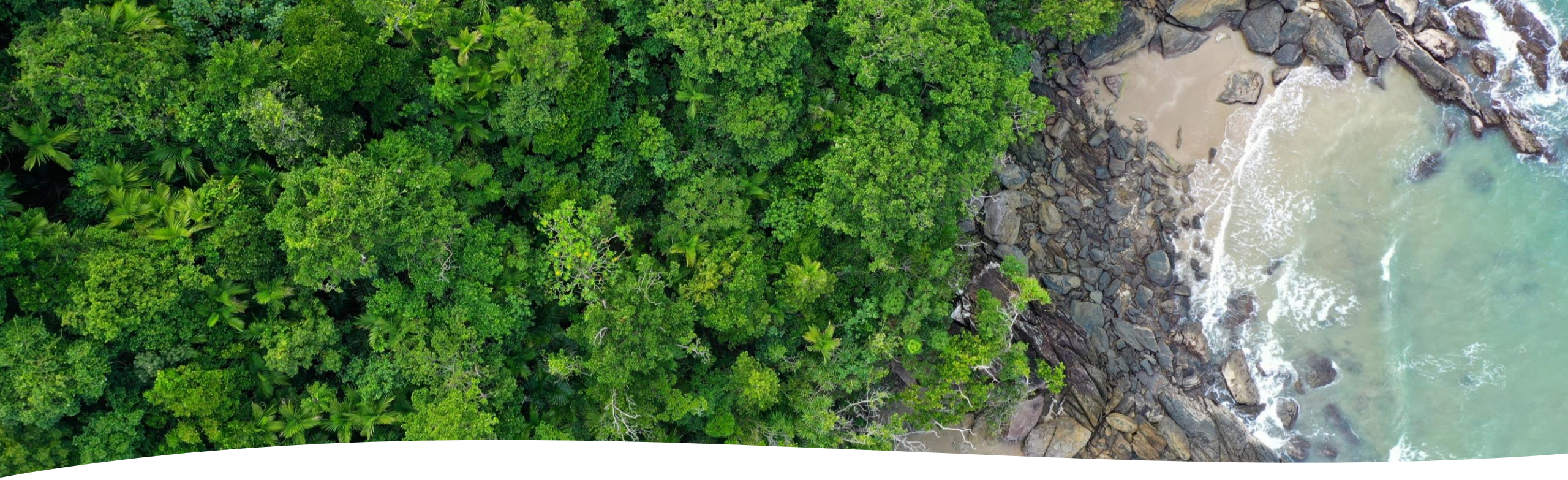


Earth observation data are everywhere

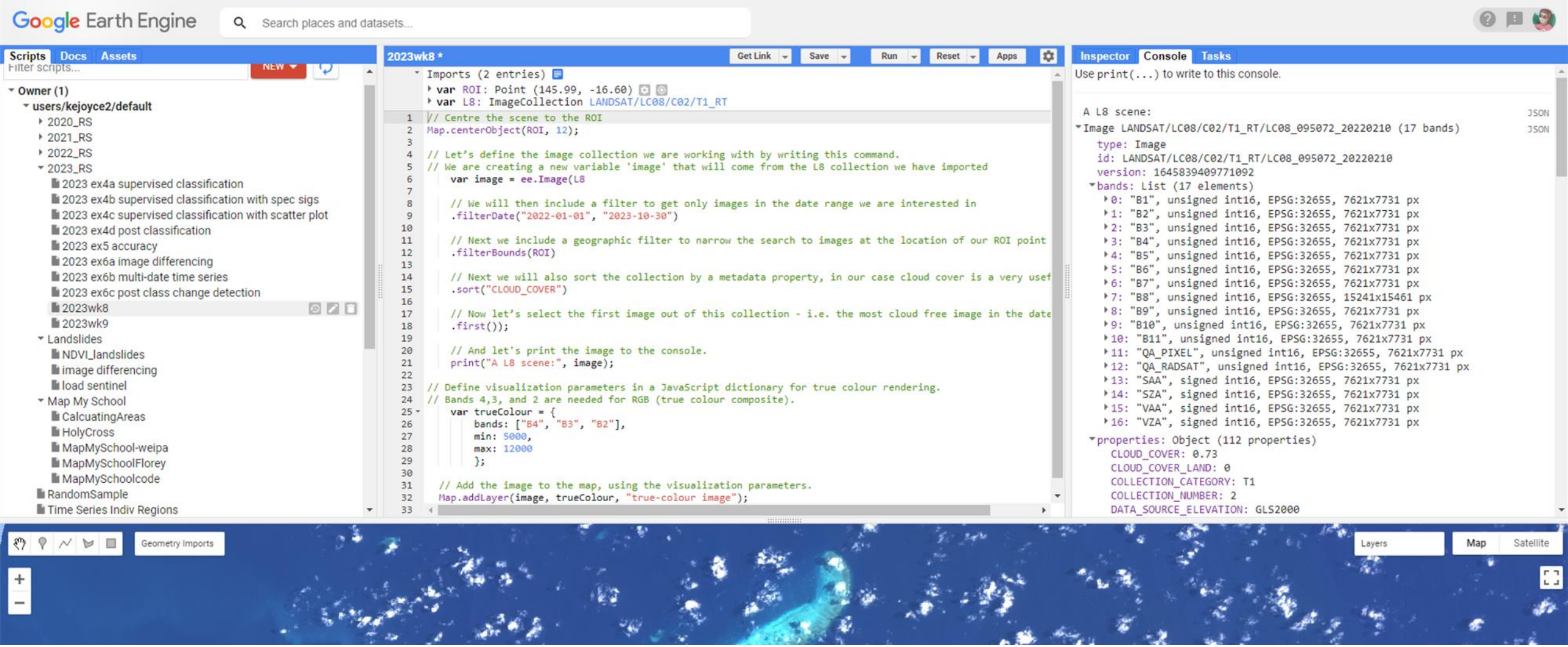
EO datasets are growing by >100 PB per year

Ongoing growth of EO satellites since the 1960’s

Drones have democratized EO data capture

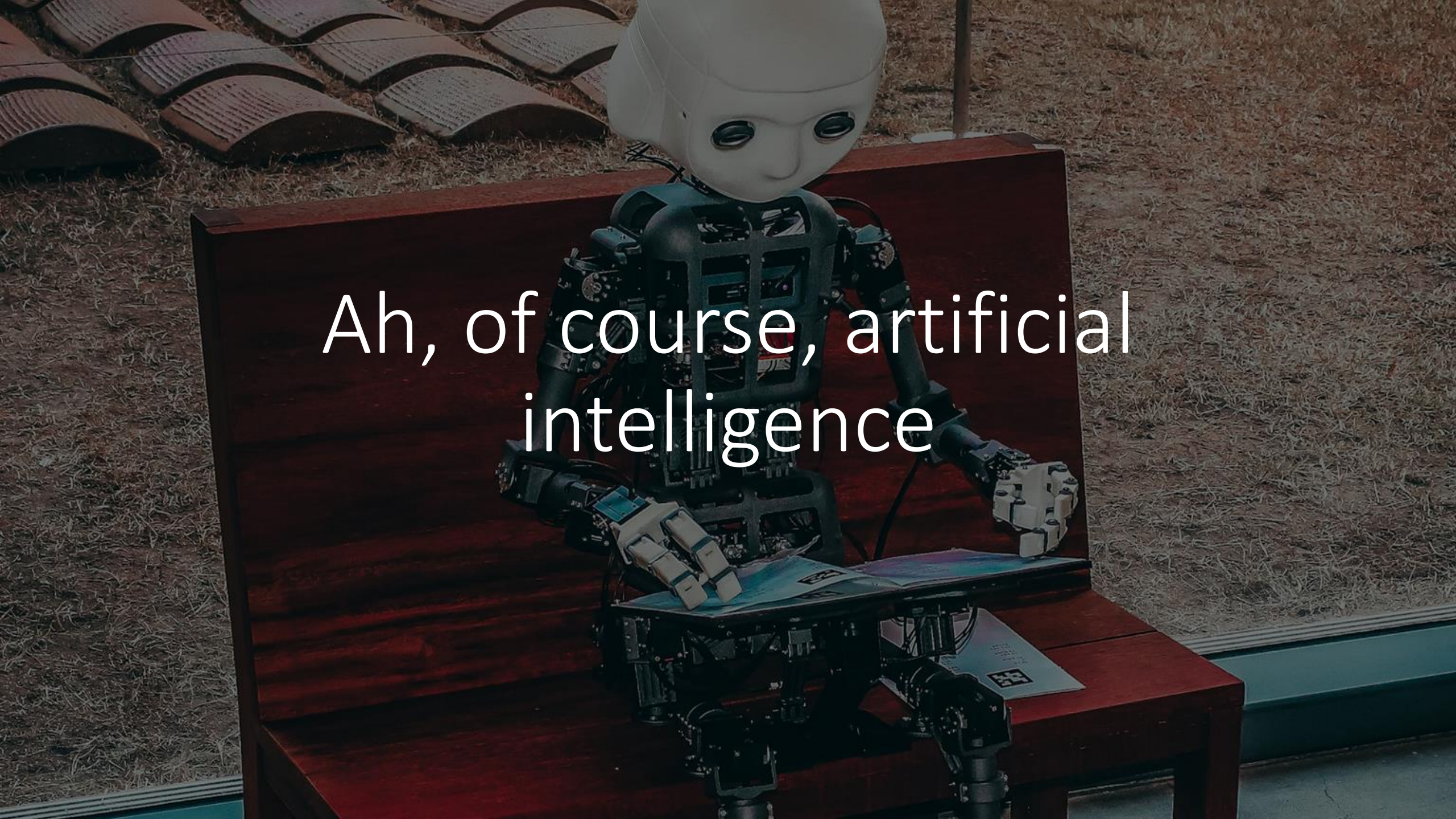
Yet 99% of the world's EO data are not analyzed

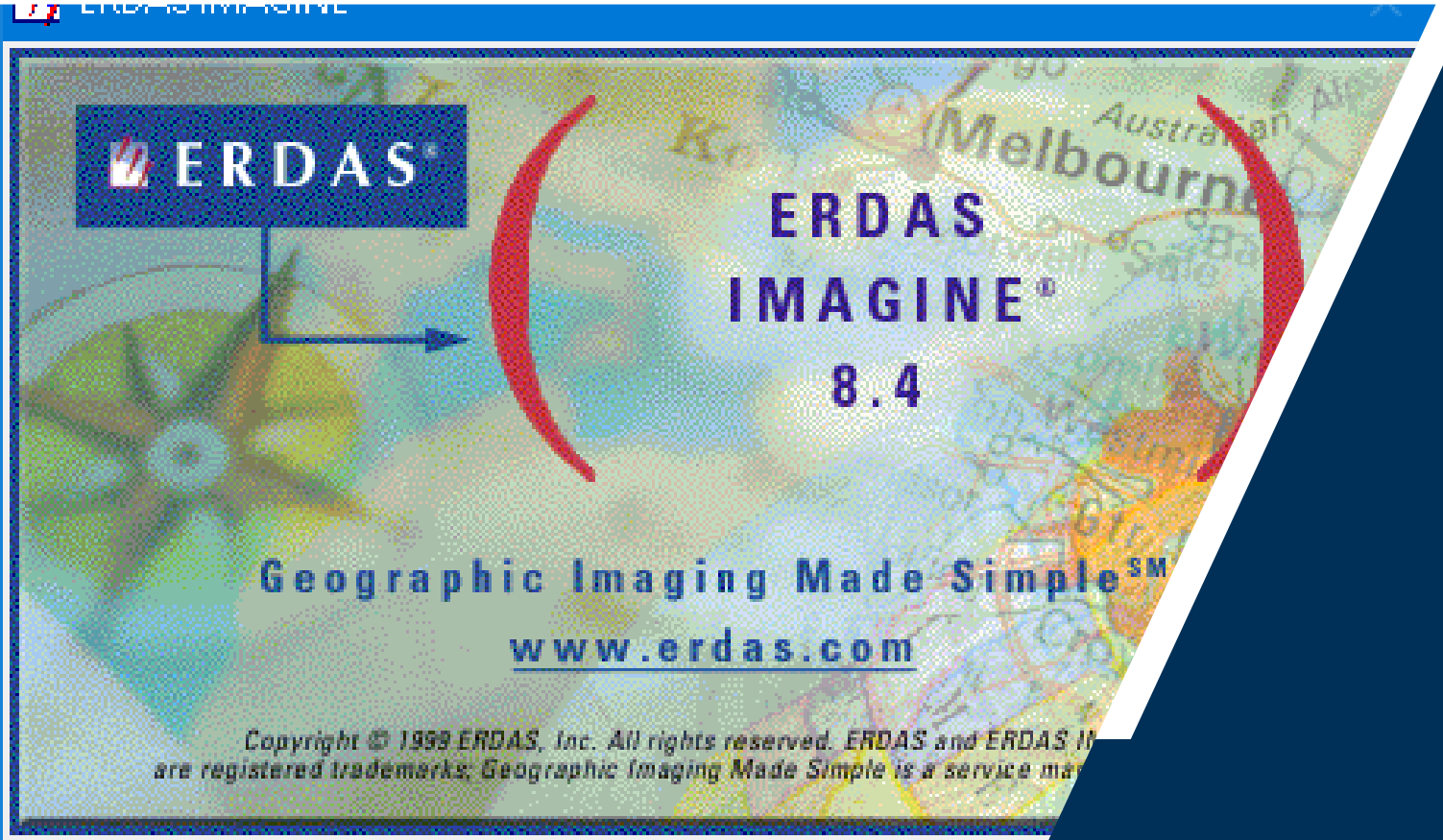
The all-you-can-eat buffet… without cutlery



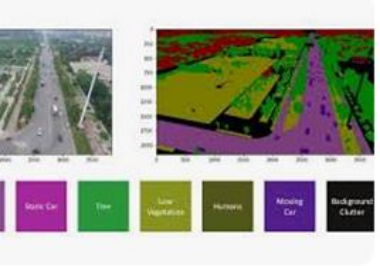
Complex, inaccessible tools


Relying on 1% of data won’t solve global problems


Ah, of course, artificial intelligence



Geospatial was doing AI before AI was cool



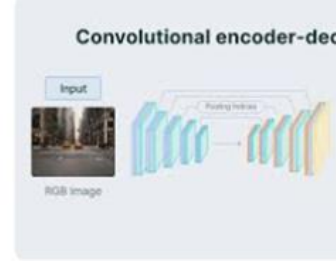
entation with Deep Learning ...

Medium
Image Segmentation: The Deep Learning...

Anolytics
Semantic Segmentation Services for ...

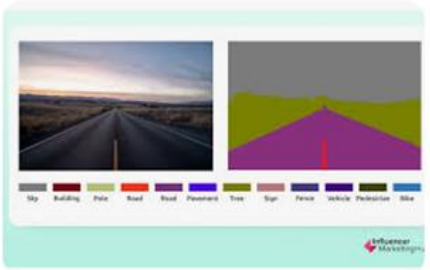
Viso Suite
Image Segmentation with Deep L...

Influencer Marketing Hub
An In-Depth Look into AI Image Segmentation

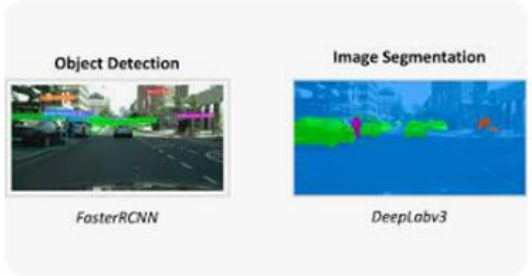


V7 Labs
Image Segmentation: Deep Lear

entation - SentiSight.ai



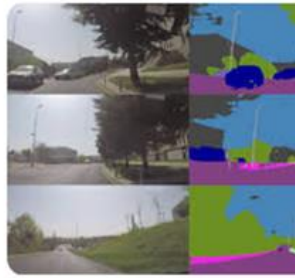
Influencer Marketing Hub
An In-Depth Look into AI Image Segme...



Think Autonomous
Image Segmentation - Use Cases for 2D ...

CleVR
cutting-edge Computer Vision Solut...

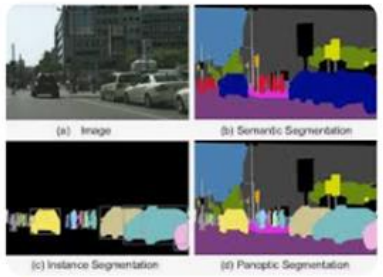
YouTube
Enhancing AI Segmentation Models for ...



ITU|AI
Structural Segmentation of V

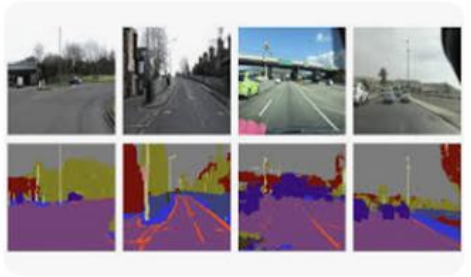
Blog

Viso Suite



Infoscribe.ai

Segments.ai



ResearchGate

Keymakr

Mainstream segmentation is everywhere

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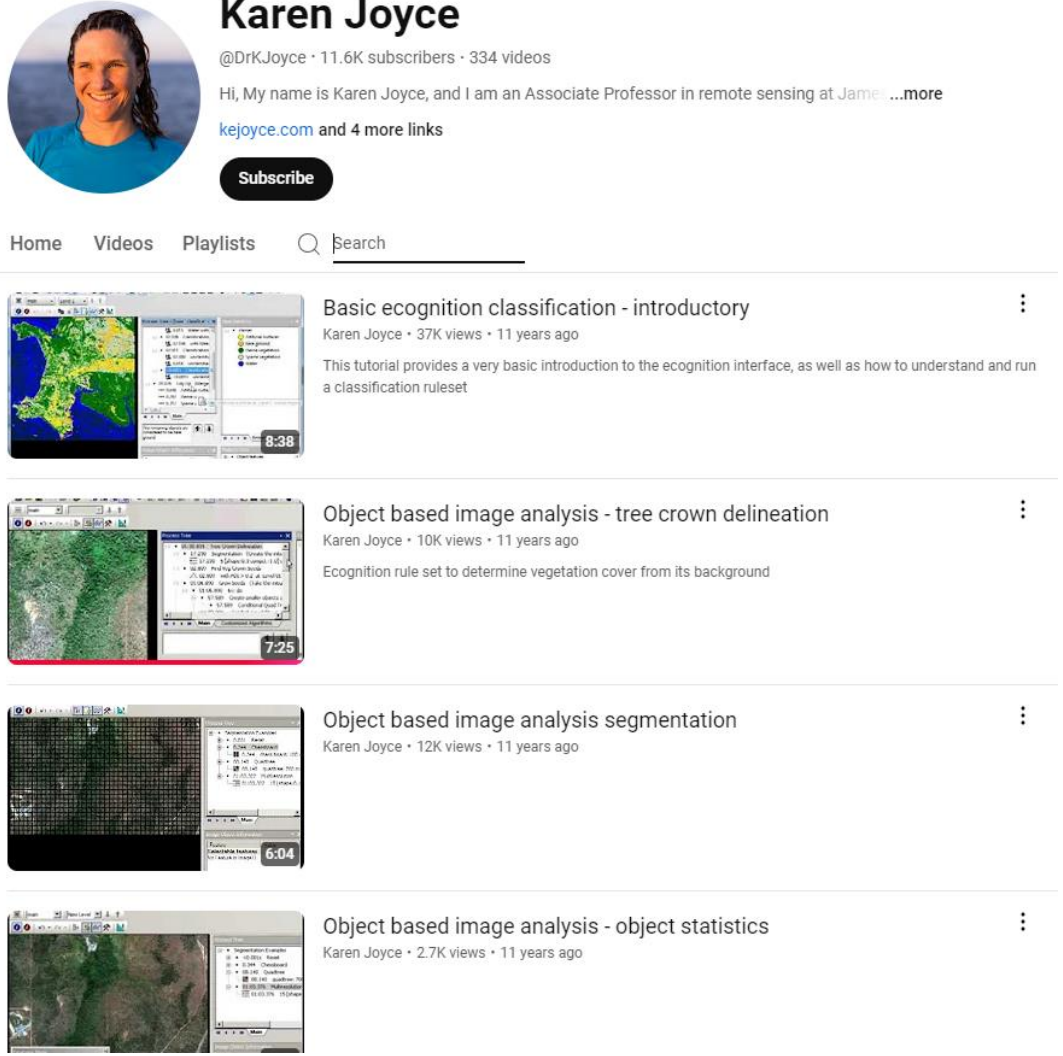
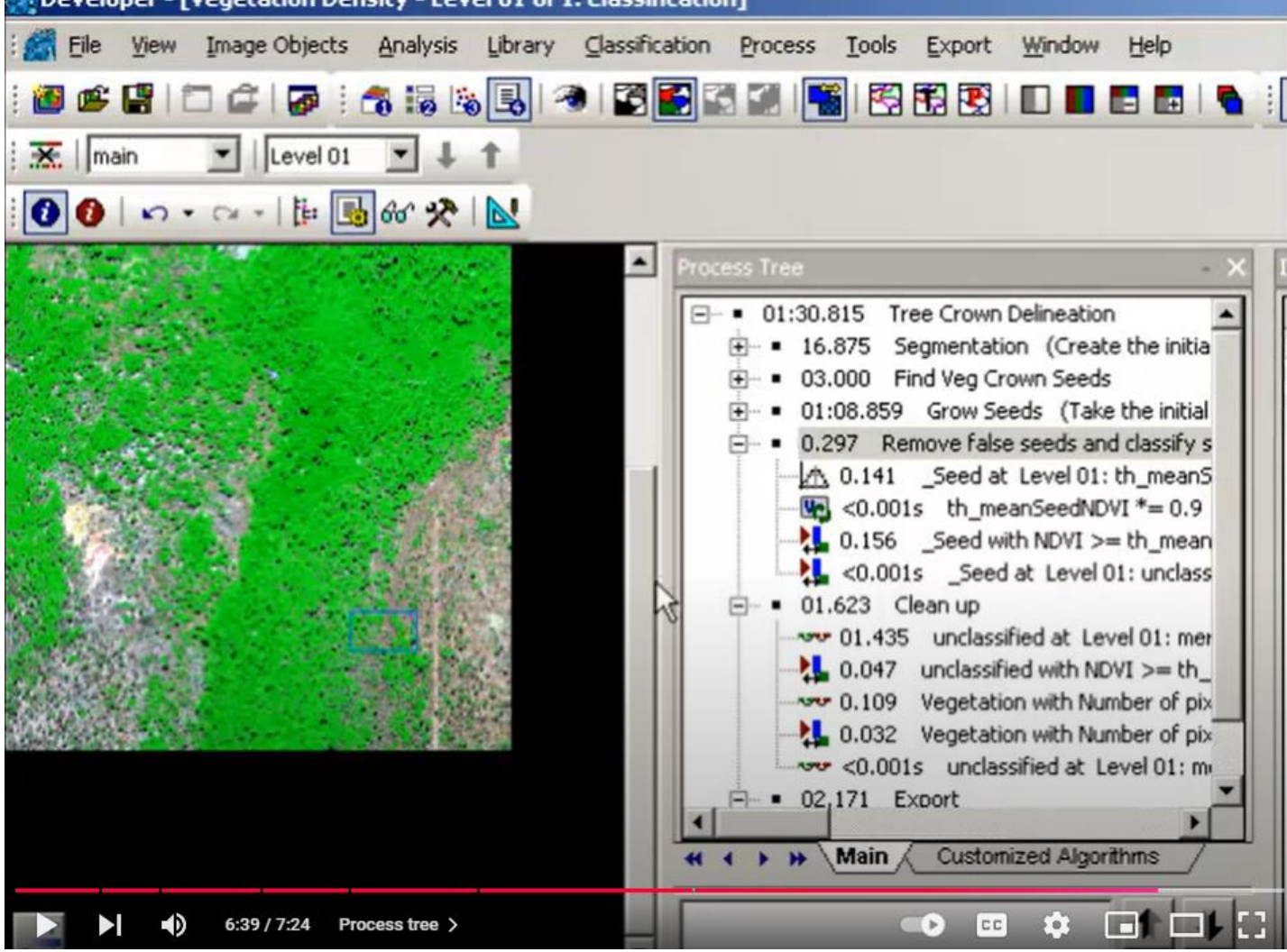
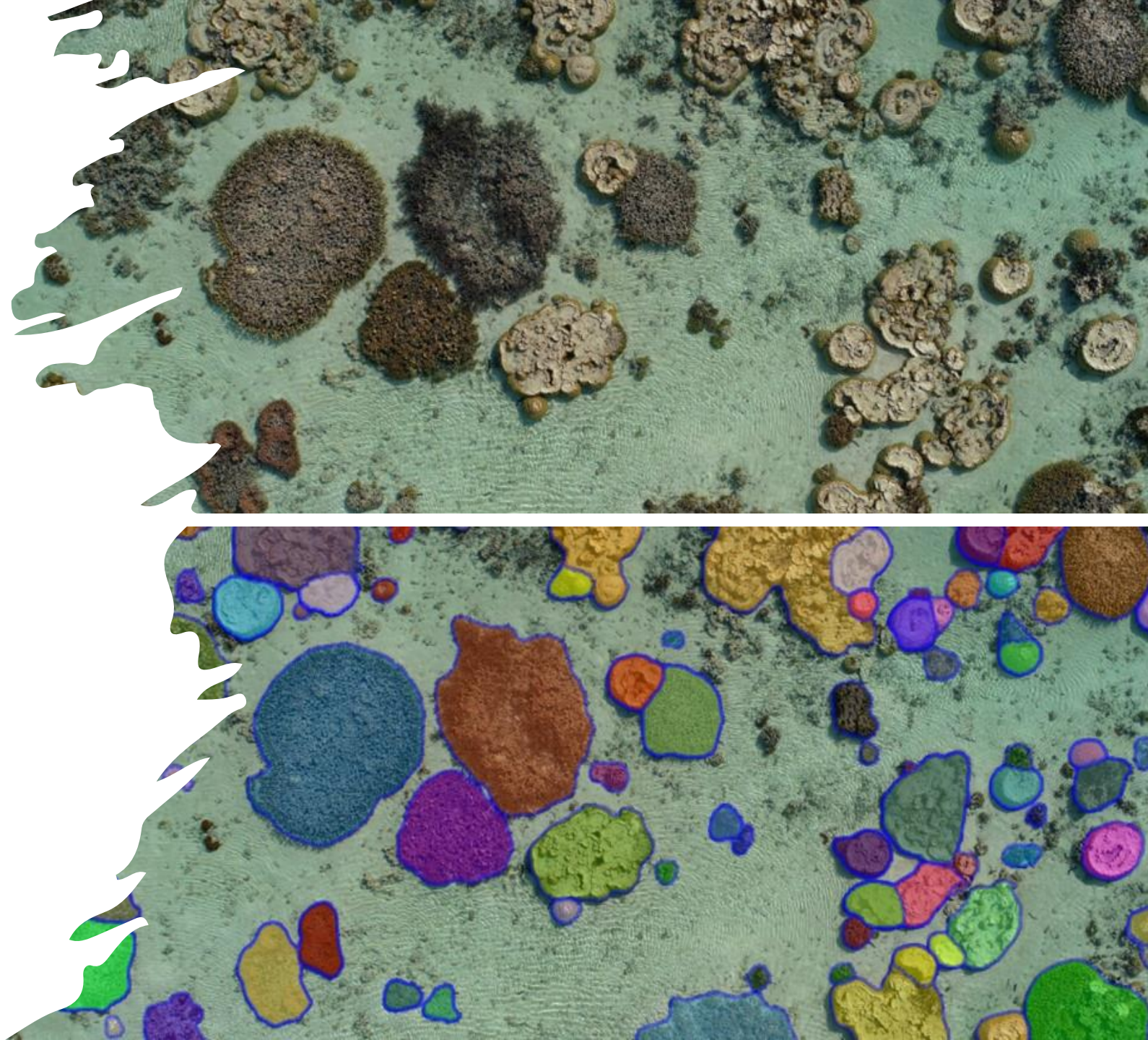
Mainstream segmentation is everywhere

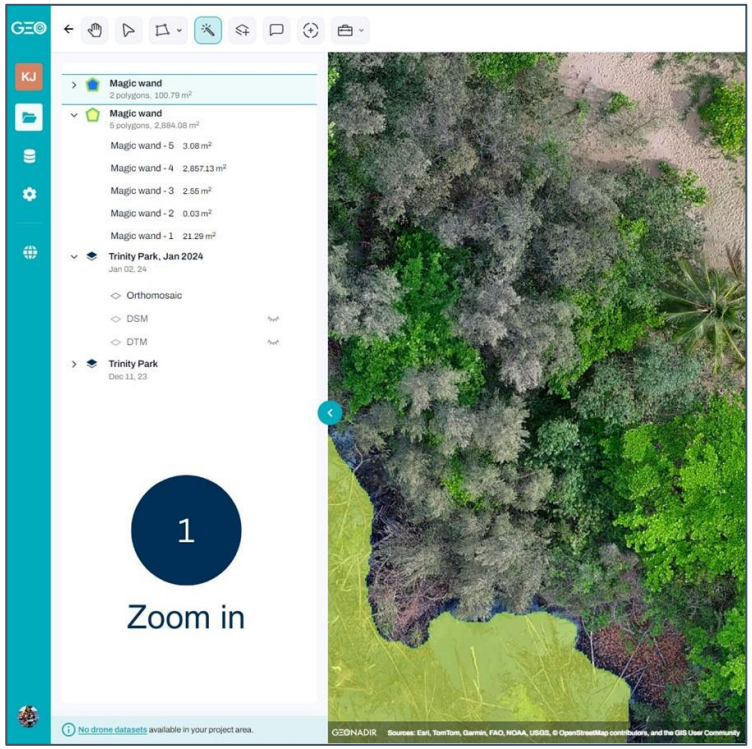


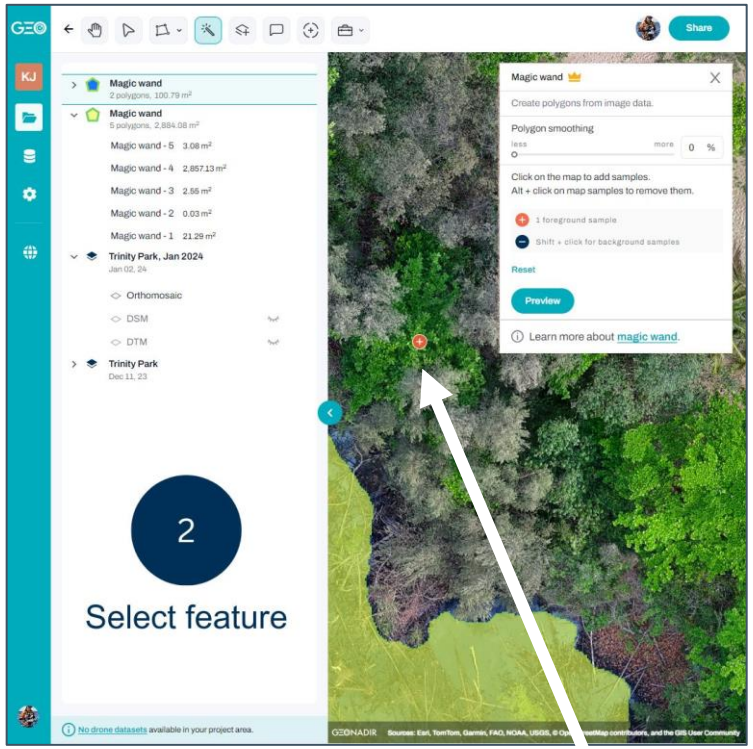


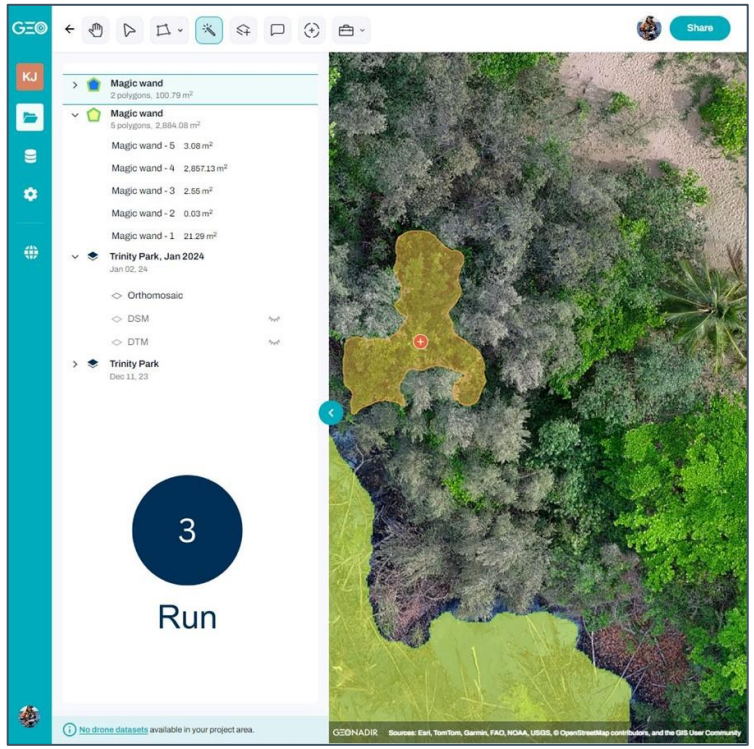
Segmentation is nothing new for us either

Now it’s a little more accessible









Zero shot, modern AI – fast and intuitive

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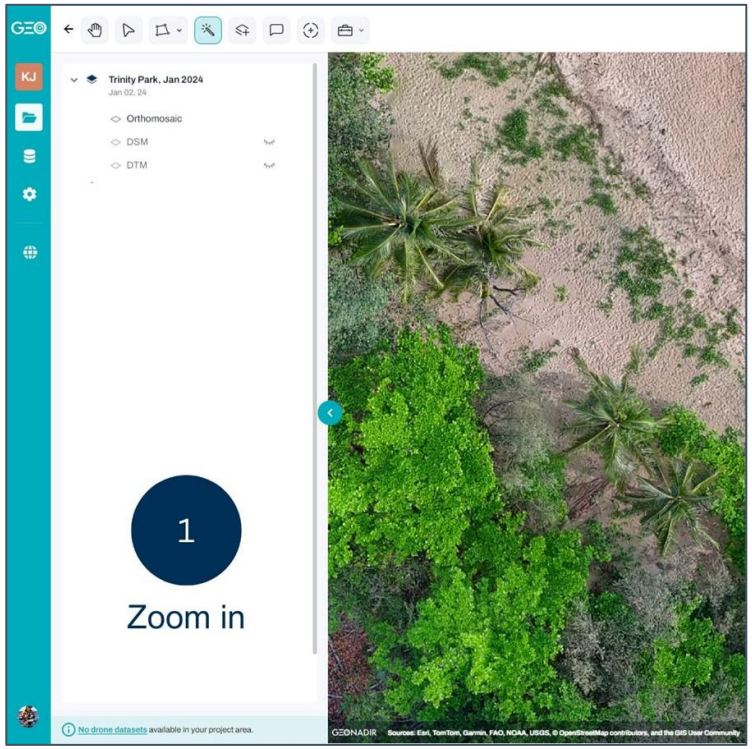

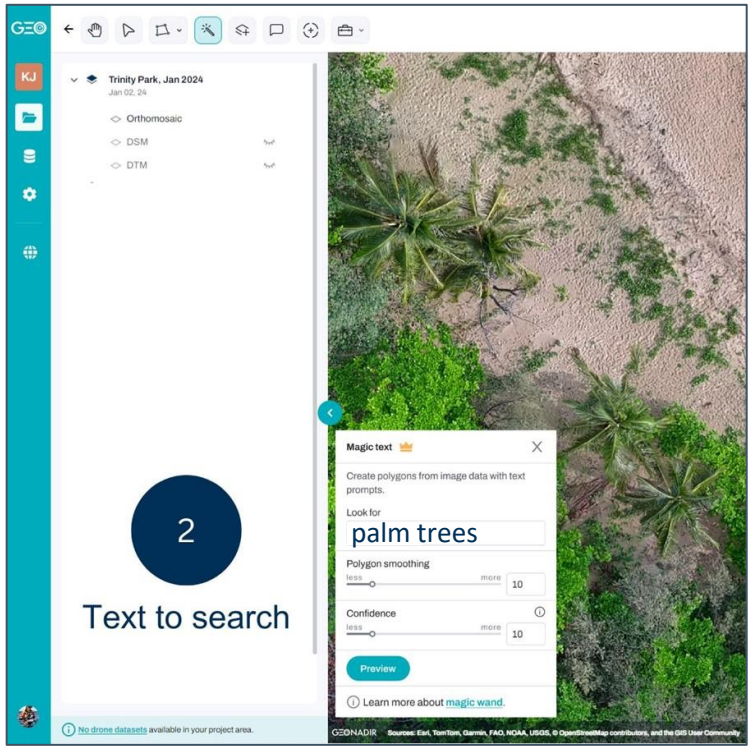

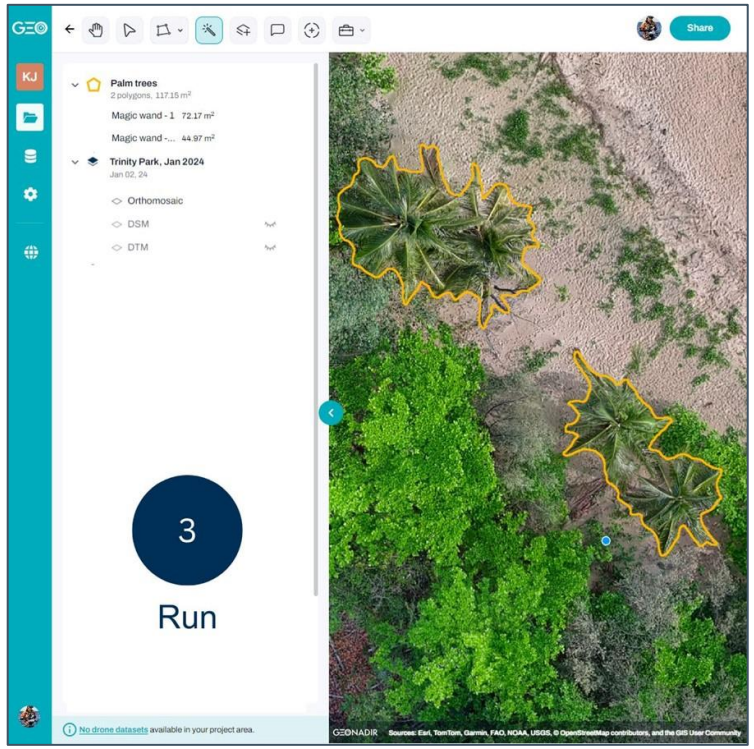

Zero shot, modern AI – fast and intuitive

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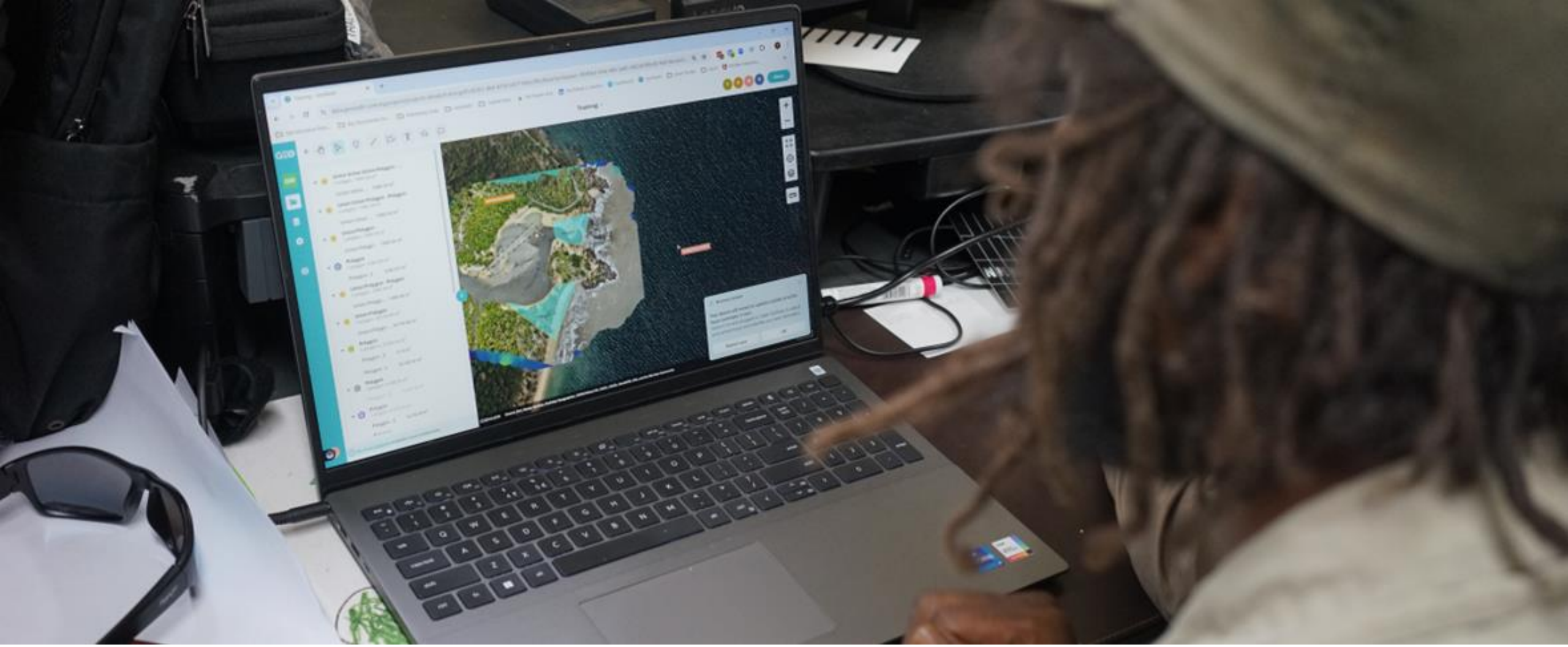
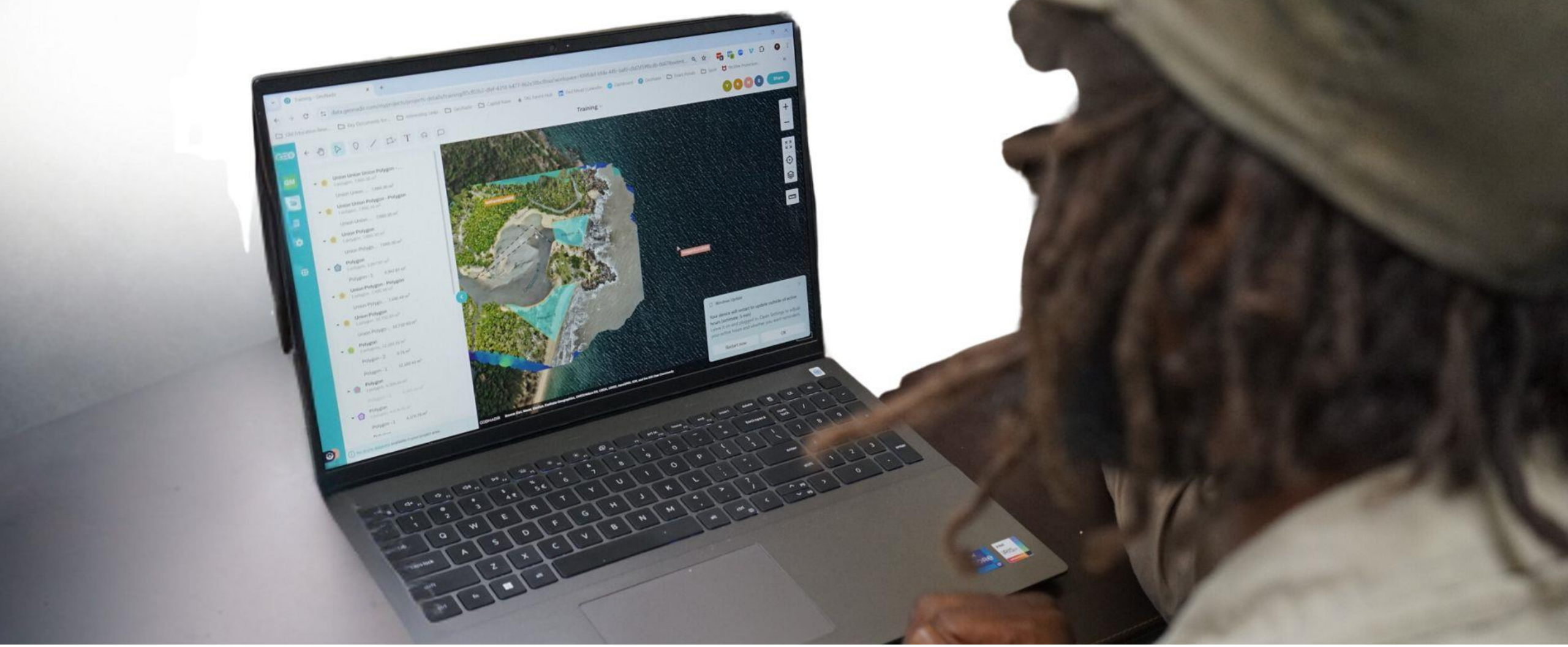


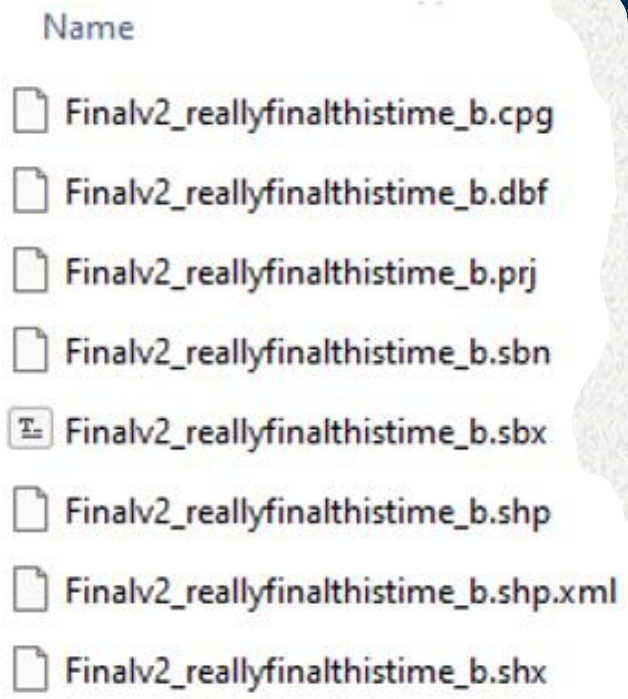
Making geospatial for everyone, everywhere, any time



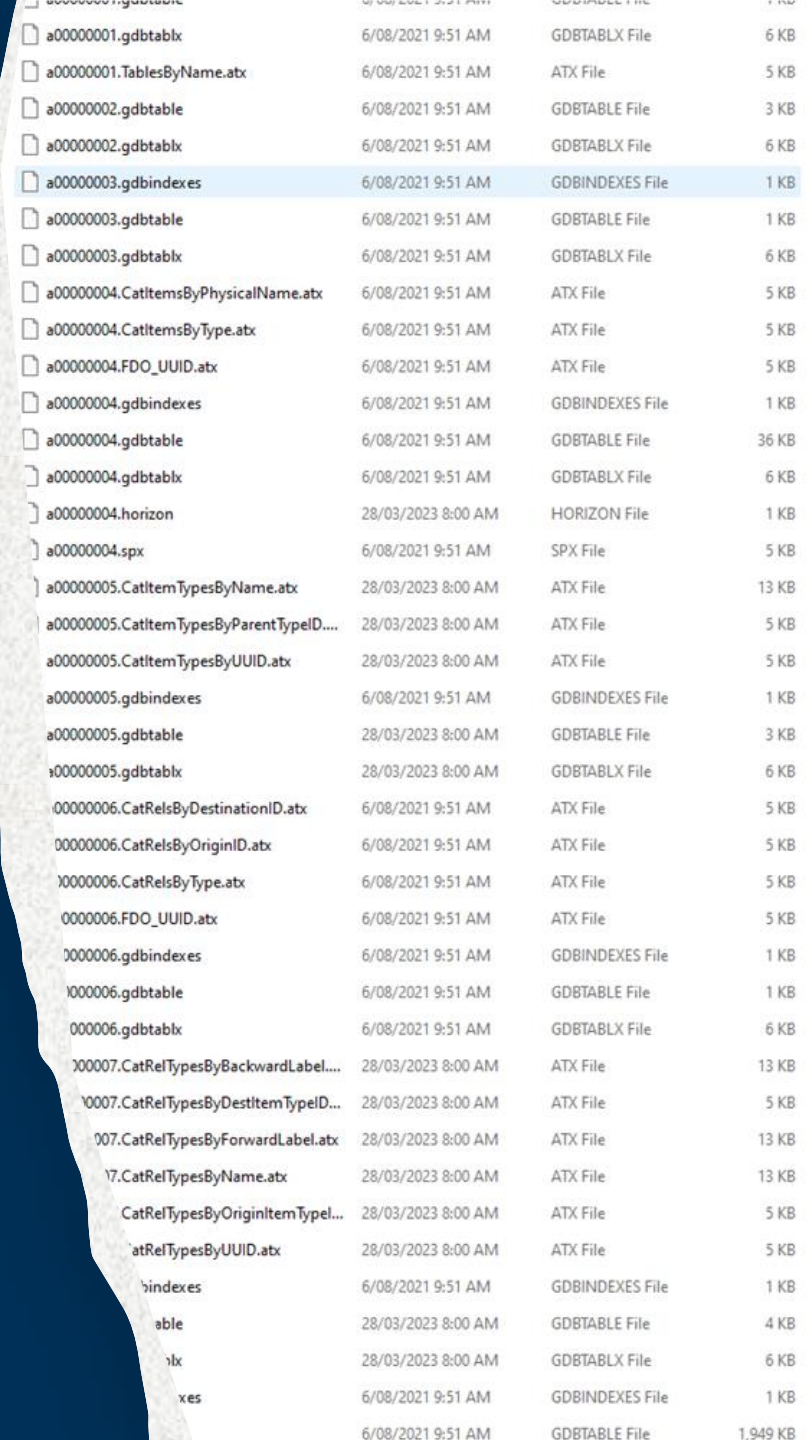
Making geospatial for everyone, everywhere, any time

Science is a team sport

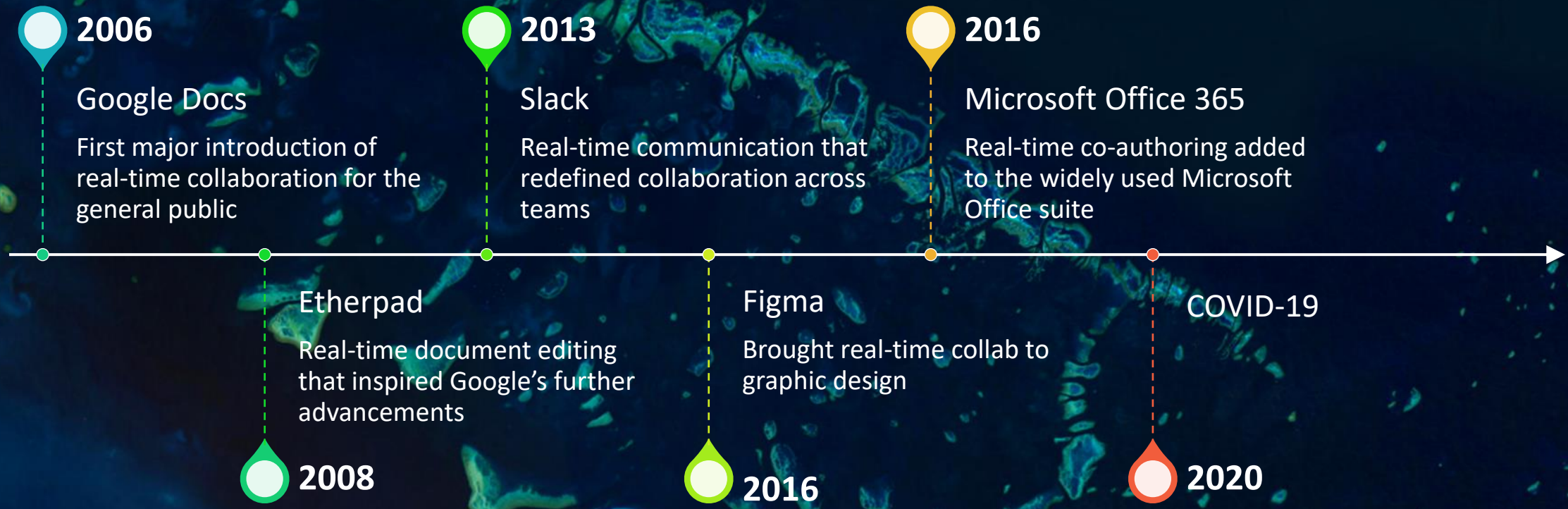
But we are playing geospatial as individuals



Still emailing shapefiles?



Real-time collab – the world has moved on

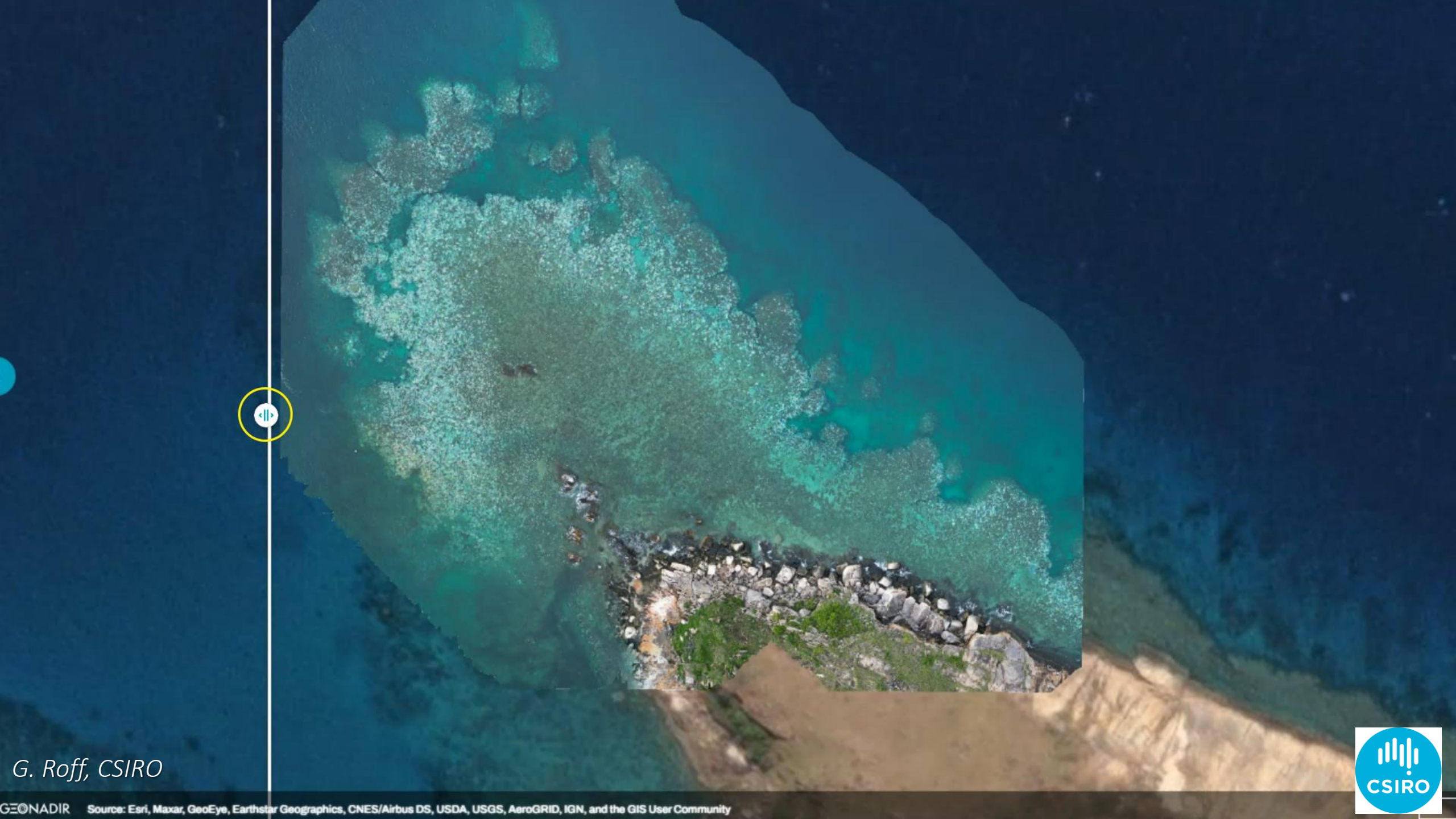


Canva, Notion, Miro, Soundtrap, Unity, Blender…

But where is geospatial in the mix?


Jakarta
INDONESIA
PAPUA NEW GUINEA
Lizard Island
Northern Territory
Queensland
Western Australia
AUSTRALIA
Brisbane
South Australia
New South Wales
Perth
Sydney
Melbourne
Tasmania
Tasman Sea
Lizard Island
Lizard Island
Lizard Island


MACQUARIE
University


G. Roff, CSIRO
GEONADIR
Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
CSIRO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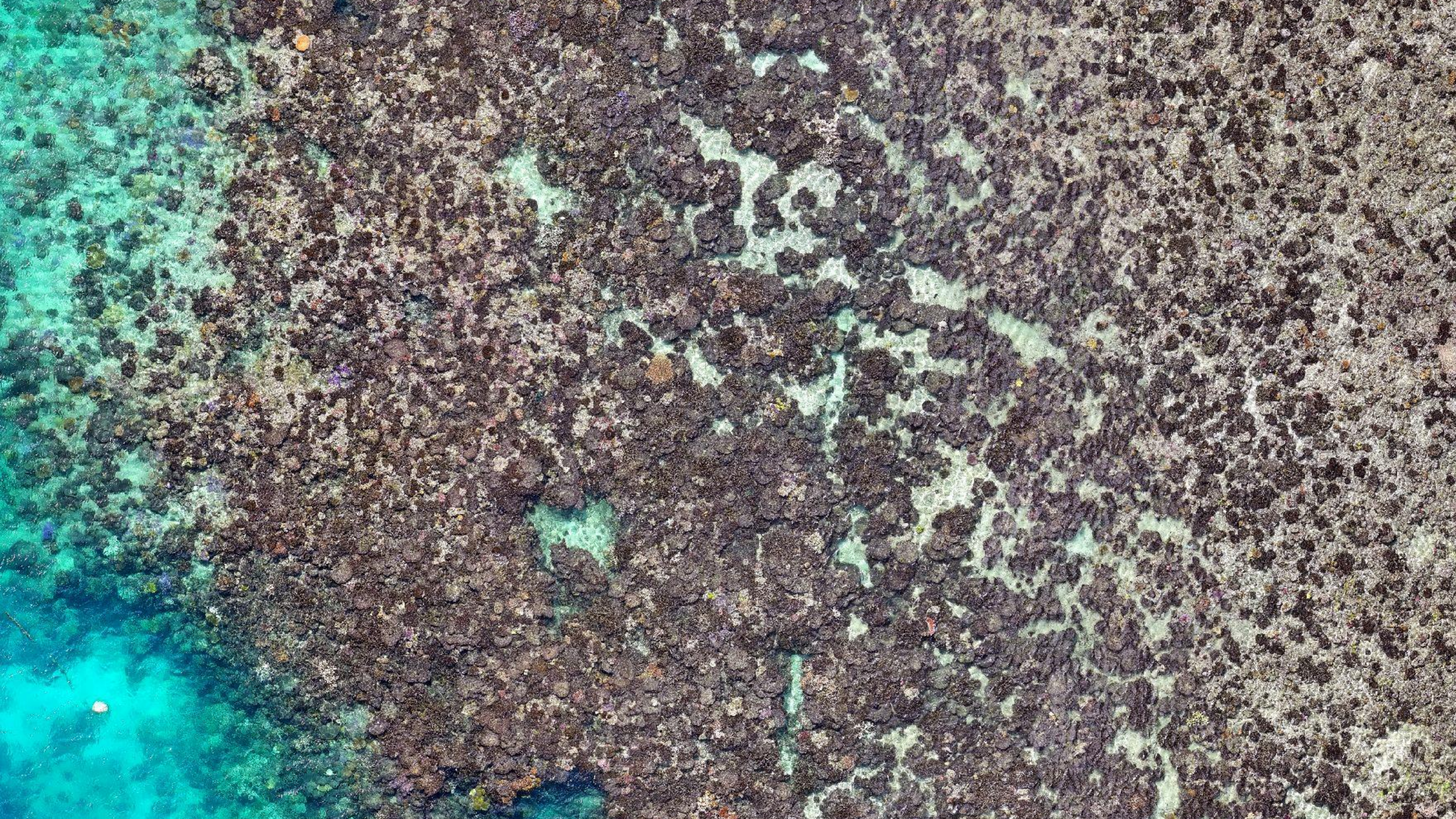

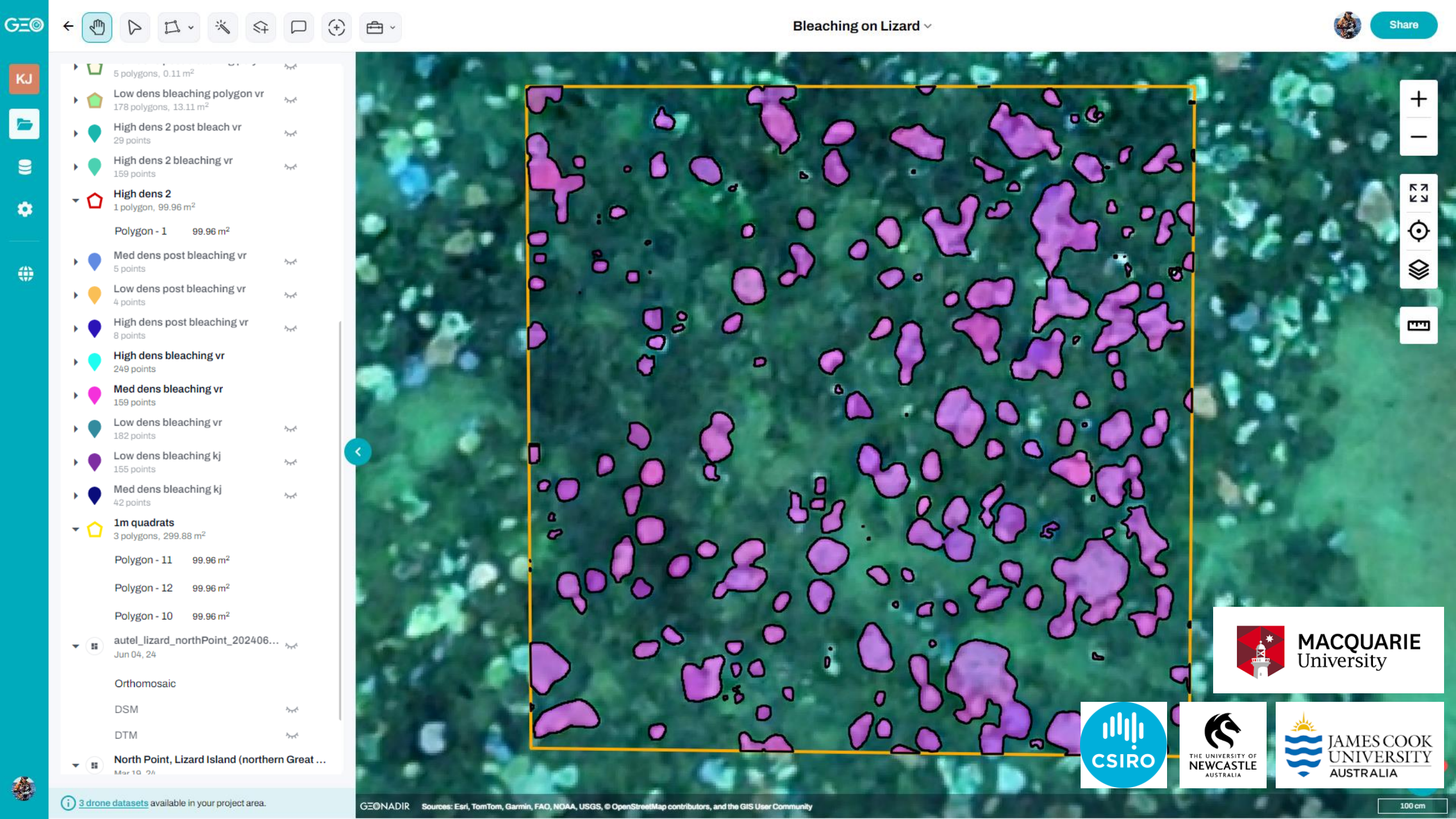
Bleaching on Lizard
Share
5 polygons, 0.11 m²
Low dens bleaching polygon vr
178 polygons, 13.11 m²
High dens 2 post bleach vr
29 points
High dens 2 bleaching vr
159 points
High dens 2
1 polygon, 99.96 m²
Polygon - 1 99.96 m²
Med dens post bleaching vr
5 points
Low dens post bleaching vr
4 points
High dens post bleaching vr
8 points
High dens bleaching vr
249 points
Med dens bleaching vr
159 points
Low dens bleaching vr
182 points
Low dens bleaching kj
155 points
Med dens bleaching kj
42 points
1m quadrats
3 polygons, 299.88 m²
Polygon - 11 99.96 m²
Polygon - 12 99.96 m²
Polygon - 10 99.96 m²
autel_lizard_northPoint_202406...
Jun 04, 24
Orthomosaic
DSM
DTM
North Point, Lizard Island (northern Great ...
3 drone datasets available in your project area.
MACQUARIE University
CSIRO
THE UNIVERSITY OF NEWCASTLE AUSTRALIA
JAMES COOK UNIVERSITY AUSTRALIA
GEONADIR
Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community
100 cm

The Guardian

Great Barrier Reef

‘Most of it was dead’: scientists discover one of Great Barrier Reef’s worst coral bleaching events

Analysis of high-resolution drone imagery concludes 97% of corals died at a Lizard Island reef between March and June this year

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Graham Readfearn
Tue 25 Jun 2024 17.00 CEST

Share

THE CONVERSATION
Academic rigour, journalistic flair

New drone imagery reveals 97% of coral dead at a Lizard Island reef after last summer’s mass bleaching

Published: June 26, 2024 5.50am CEST

FAIR Geo - Global map

Search

Search as I move the map

Neritic

Trip_7341_TechDev_Mar_2... Mar 03, 20

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Trip_7341_TechDev_Mar_2... Mar 04, 20

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Trip_7394_Aquarius_Sarin... May 25, 20

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Trip_7237_CF_John_Brew... Jul 24, 19

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Trip_7237_CF_John_Brew... Jul 24, 19

Neritic

Trip_7237_CF_John_Brew... Jul 24, 19

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Trip_7237_CF_John_Brew... Jul 22, 19

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Trip_7237_CF_John_Brew... Jul 23, 19

Neritic

Trip_7237_CF_John_Brew... Jul 24, 19

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Port Moresby
Honiara
Torres Strait
Cairns
Townsville
Mackay
Rockhampton
Queensland
Coral Sea
45
11
22
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98
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14
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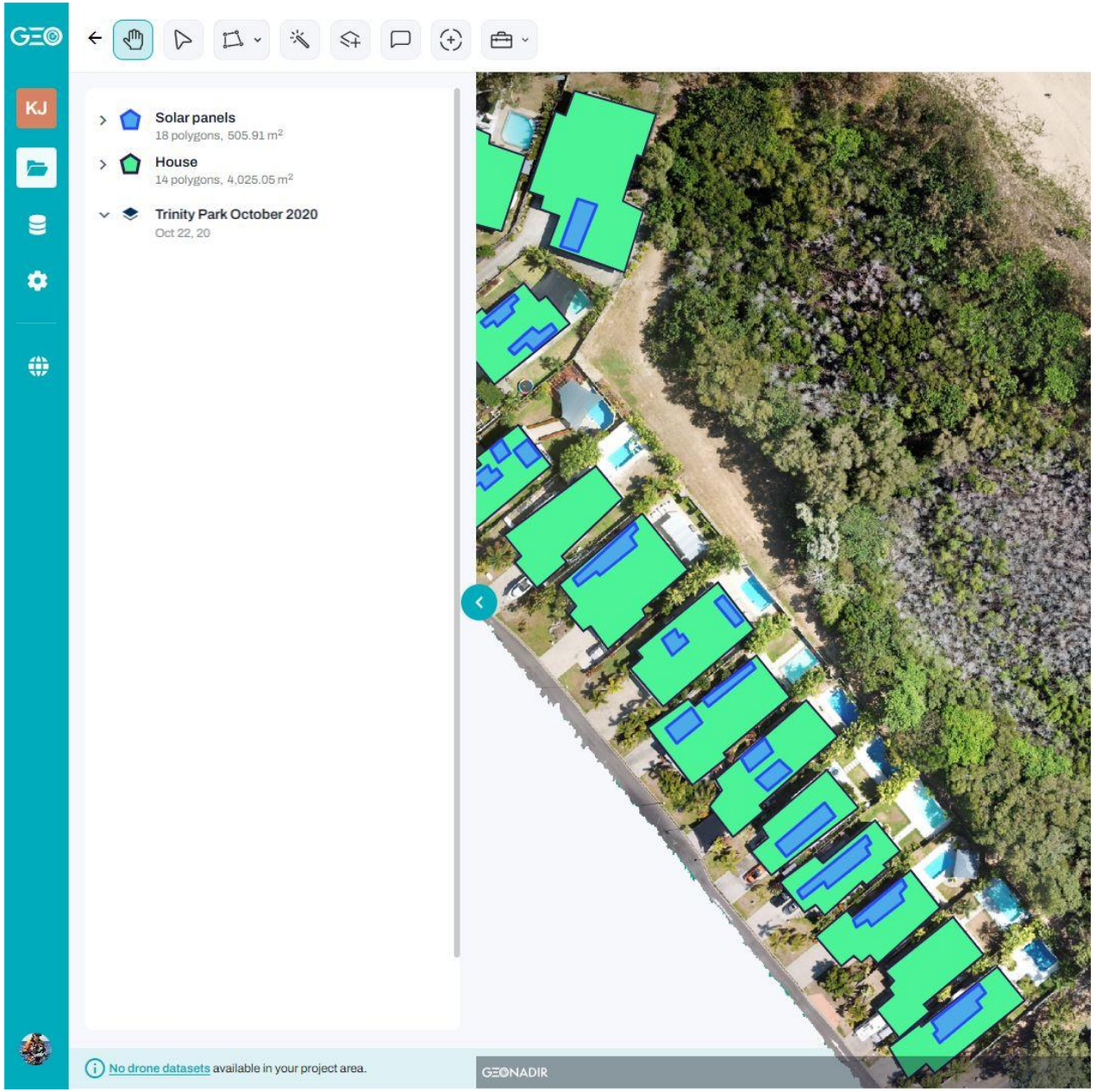
3
61
4

CSIRO
The University of Newcastle Australia
Australian Institute of Marine Science
Queensland Parks and Wildlife Service
Yuku-Baja-Muliku
Queensland Government
Monash University
University of the Sunshine Coast
James Cook University Australia
University of Wollongong Australia
Macquarie University

GEONADIR Sources: Esri, TomTom, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community



ChatGEO

How can I help?

What % of houses have solar panels?

Great question! I can see 14 houses, 11 of which have solar panels. So that's 79%.

Would you like to see them on the map?

Yes pls!

Anything else I can help with?

AI and collaboration in the future of geospatial

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