

SATELLITE LIDAR BATHYMETRY AND EOAPP™ SLB-ONLINE

2025-03-17

ICESAT-2 ATLAS

Launched in September 2018, operated by NASA

Original purpose to measure

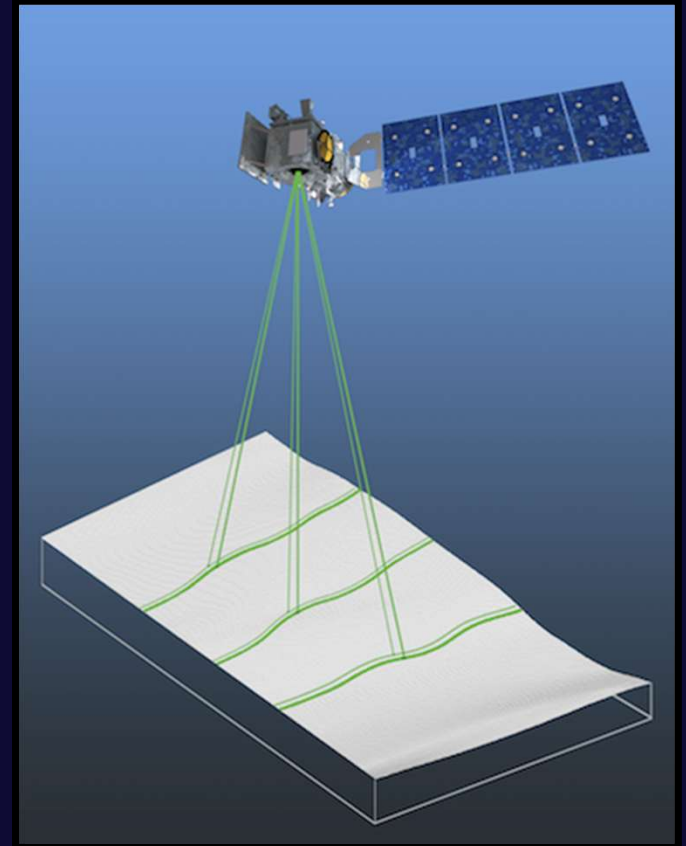
ice sheet elevations

sea ice thickness

land and canopy heights

Revisit time of about 91 days

Coverage between 88°N and 88°S latitude

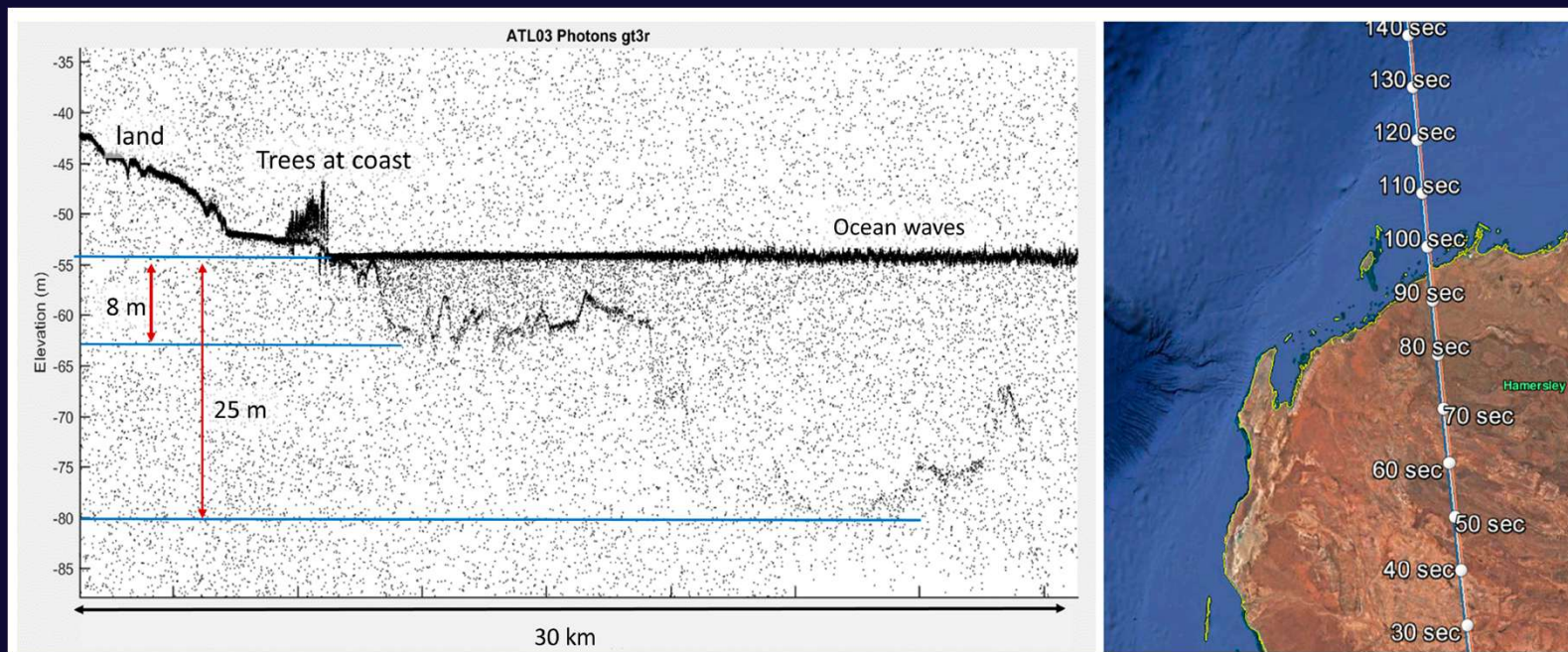


ICESAT-2 ATLAS

WATER DEPTH RETRIEVAL

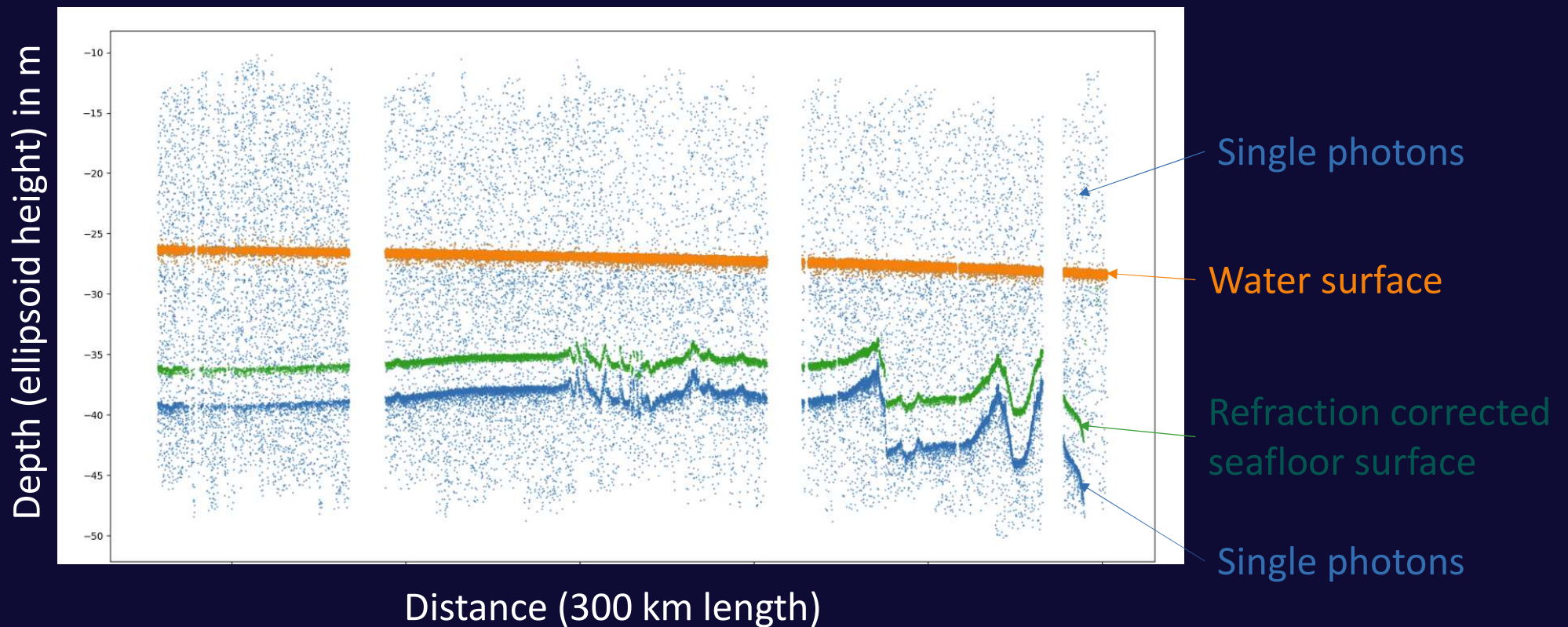
Based on NASA's ATL03 product

Depicts the height of every photon above the WGS 84 ellipsoid



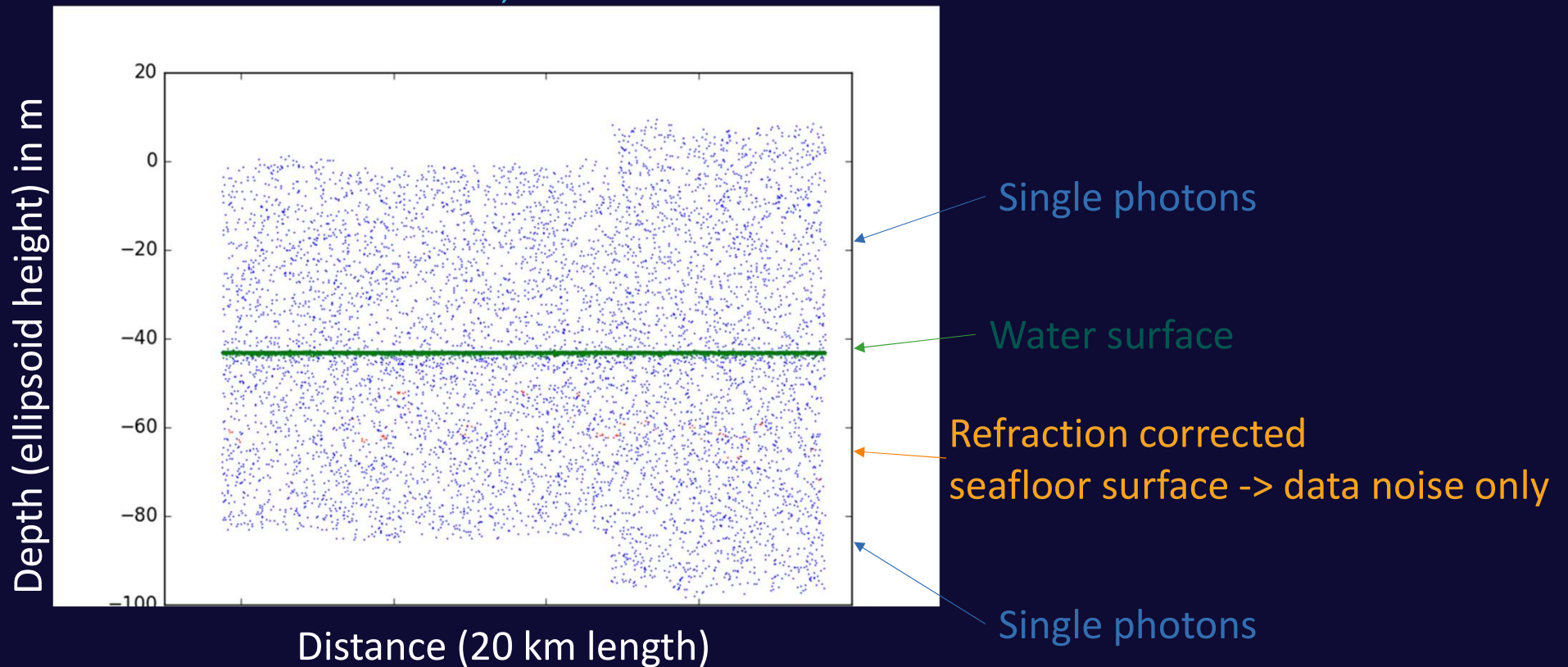
EOMAP'S SATELLITE LIDAR BATHYMETRY TOOLBOX

EXAMPLE: BAHAMAS

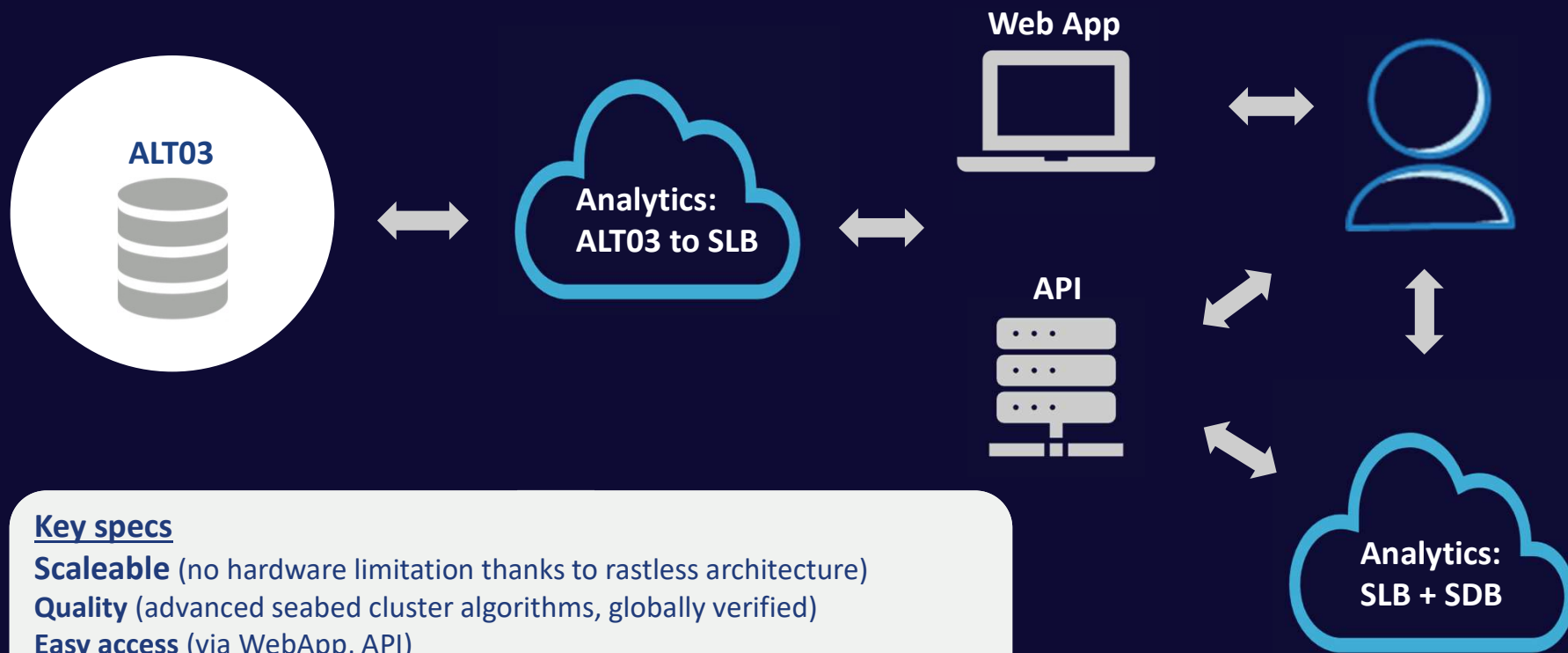


EOMAP'S SATELLITE LIDAR BATHYMETRY TOOLBOX

EXAMPLE: CANADIAN SITE, 0-20M WATER DEPTH



Eoapp™ SLB-ONLINE CONCEPT

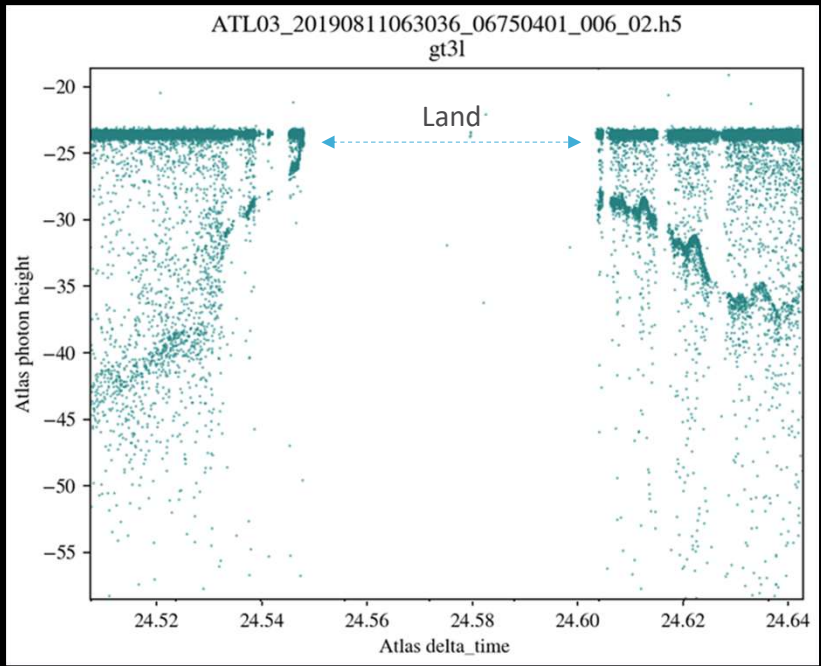


Key specs

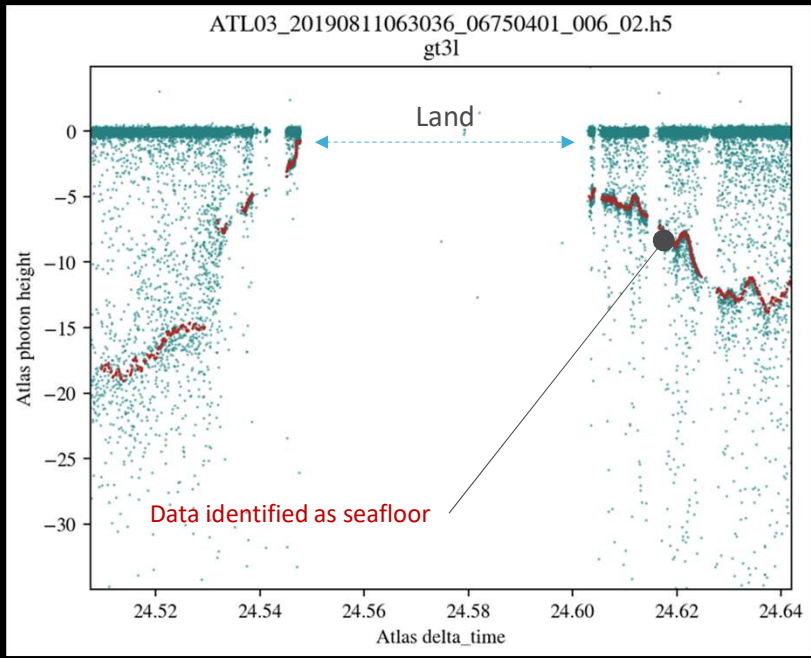
- Scaleable** (no hardware limitation thanks to rastless architecture)
- Quality** (advanced seabed cluster algorithms, globally verified)
- Easy access** (via WebApp, API)
- Use-ready** (GIS ready and directly integrateable into eoapp™ SDB-Online)

TECHNICAL BACKGROUND

POINT CLOUD ANALYSIS



Raw data



TECHNICAL BACKGROUND

1. Land-Water masking
2. Definition and exclusion of water surface
3. Layering
4. Density based clustering and path finding
5. Postprocessing
6. Data storage in SLB archive

UI OF eoapp™ SLB-ONLINE

SLB Online

WELCOME CHRISTIAN EN EOMAP

Request Process

1 CREATE PROJECT → 2 DEFINE AOI → 3 SET TIME INTERVAL

Please choose your area of interest.

← BACK × CANCEL REQUEST

218.8 km² CONTINUE

<https://www.slb-online.eomap.com>

Request Process

1 CREATE PROJECT → 2 DEFINE AOI → 3 SET TIME INTERVAL

Start date
2018-10-01

End date
2025-02-19

← BACK ✕ CANCEL REQUEST

SEND

My Orders

+ ADD ORDER

2025-02-19 Marquesas islands

2025-02-19 Bray Island

2025-02-04 Florida

Marquesas islands

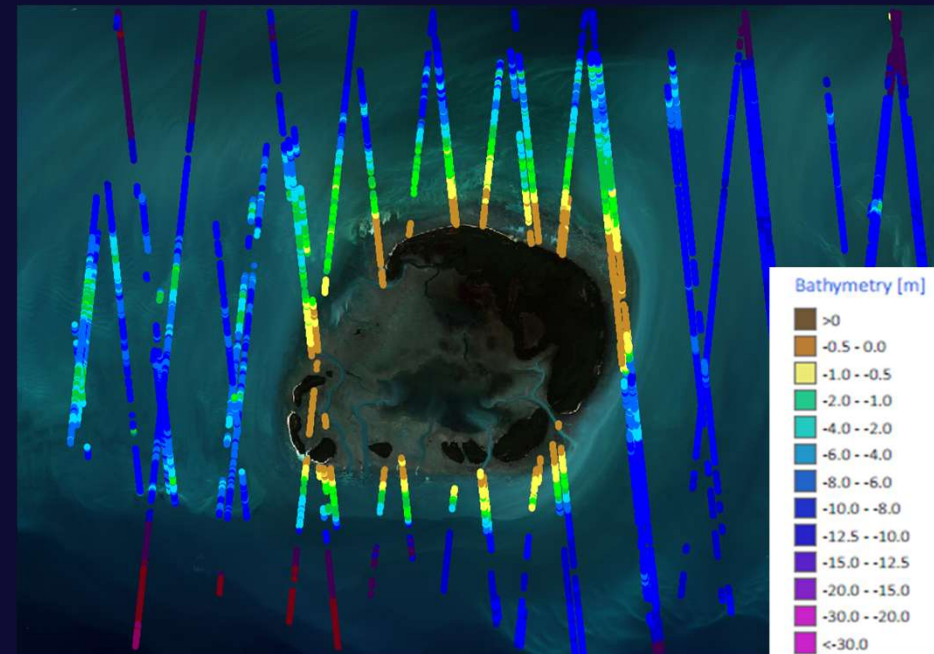
Created on: 2025-02-19
Order Id: 20250219-074542-b799-f87392bc9c34



Status	done
Area	268 km ²
Period Of Time	2018-10-01/2025-02-19
Scenes Found	131
Scenes Processed	131
Results	DOWNLOAD

LIMITATIONS AND INTERPRETATION OF THE DATASETS

- Limited to water depth of approx. **1 time Secchi Disc Depth**
- **Non-spatial data**, information for sparse track lines only
- **Environmental conditions** (e.g. haze, sun glint, ice),
- **Water conditions** (e.g. turbidity, floating vegetation)
- **Underestimation** of points in turbid waters (e.g. river deltas, harbours)

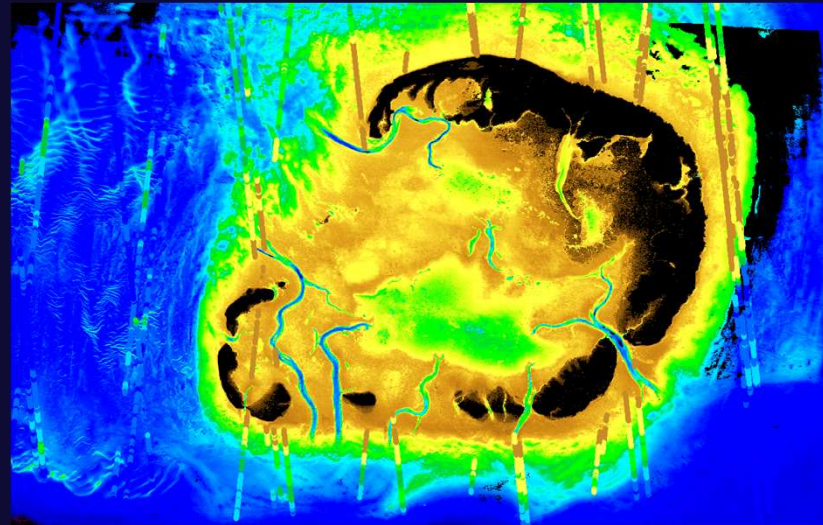
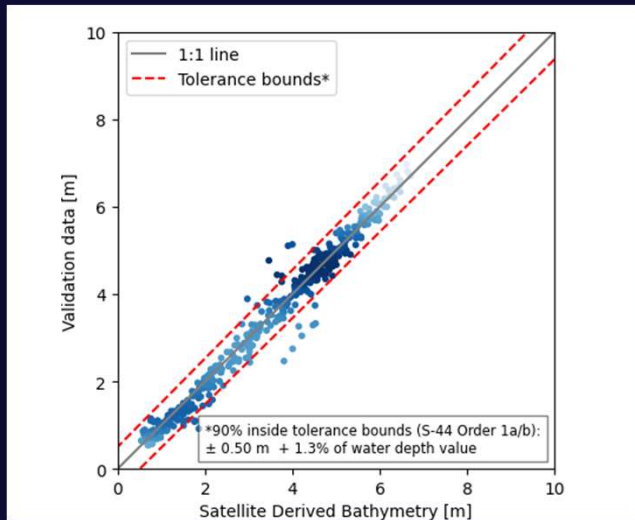


VALIDATION OF SLB DATA

EXAMPLE ONE OF MANY

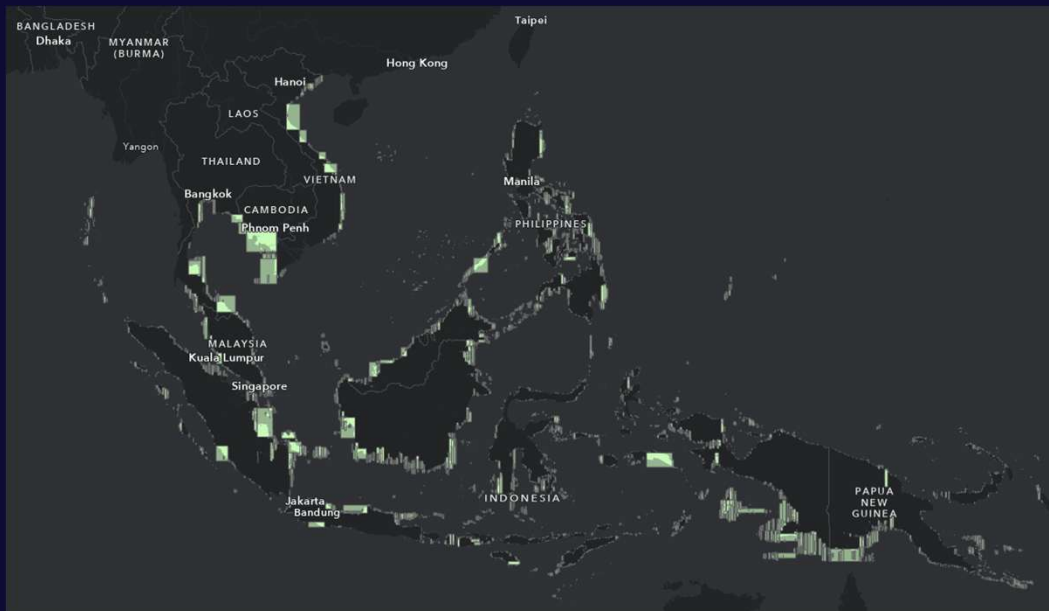
Dataset for comparison:

*2018 - 2019 NOAA NGS **topobathy ALB Lidar Hurricane Irma: Miami to Marquesas Keys***



EOMAP SOLUTION – eoapp™ SLB DATABASE

EXAMPLE OF TILES FOR SE ASIA



Database containing shallow water bathymetric data (SLB data) from ICESAT-2 profile.

Quality controlled dataset.

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