

EOMAP

EOMAP FOR MACHC '24

MACHC 2024

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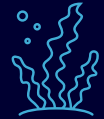
WHO WE ARE



Private GER entity & affiliates
in UAE, USA, AUS, IND



Earth Observation and IT
solution provider



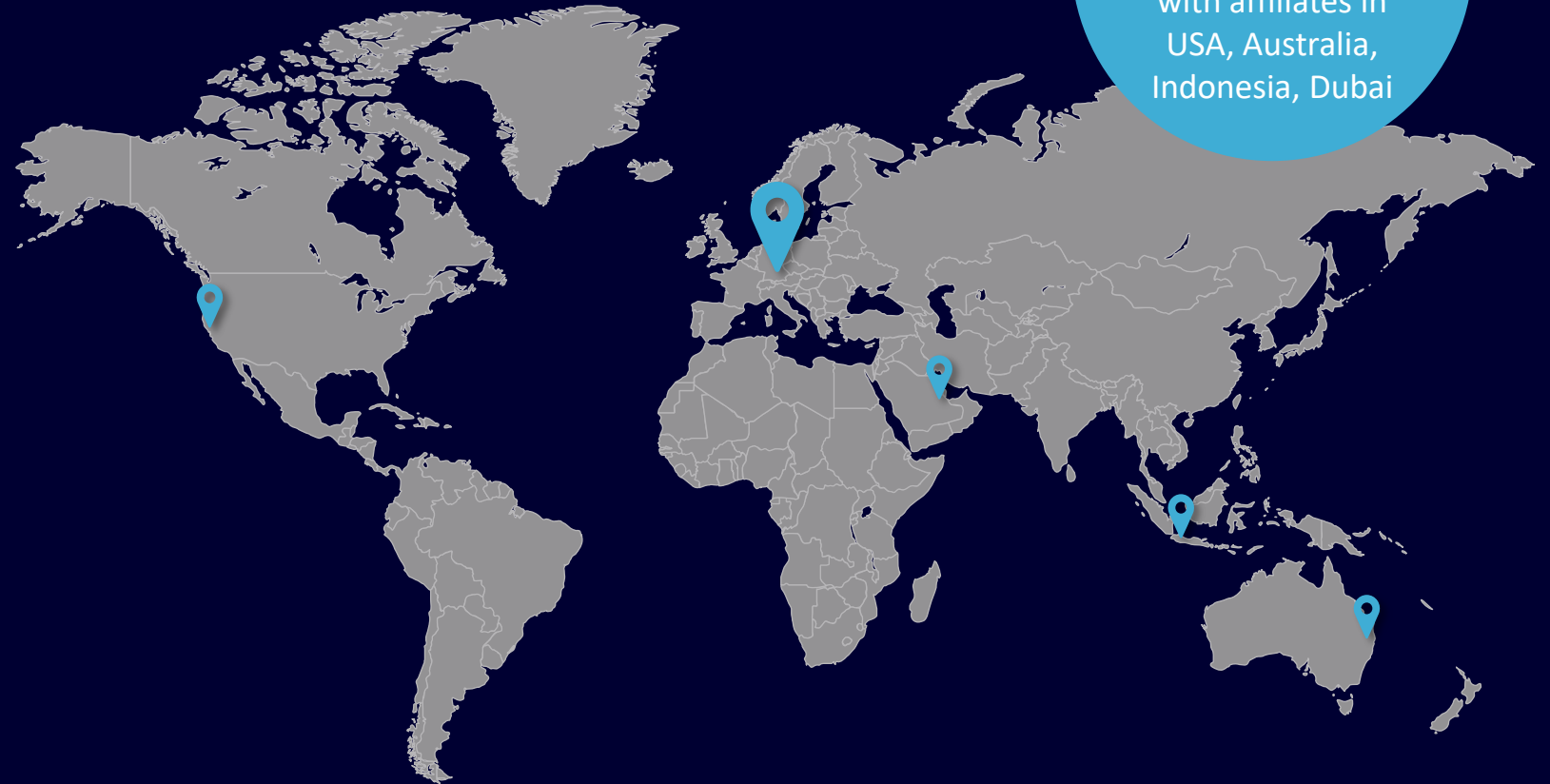
Focus on coastal zones
and surface waters



International & -disciplinary
staff of 50 experts



Data, IT, digital solution
provider to industry,
government and defence



HQ in Germany
with affiliates in
USA, Australia,
Indonesia, Dubai

SATELLITES

SATELLITES



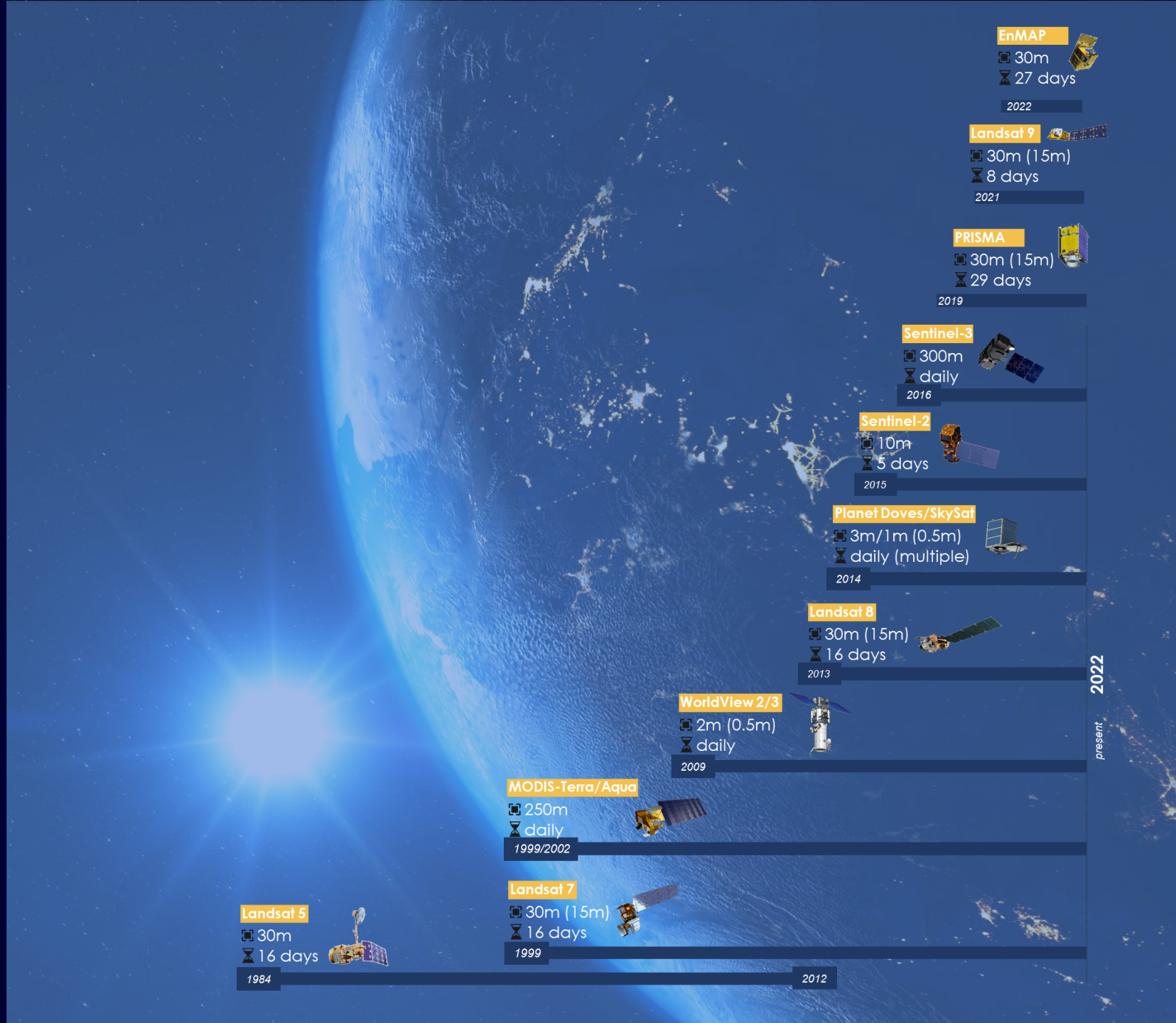
Back in time over decades



Data everywhere even for small water bodies

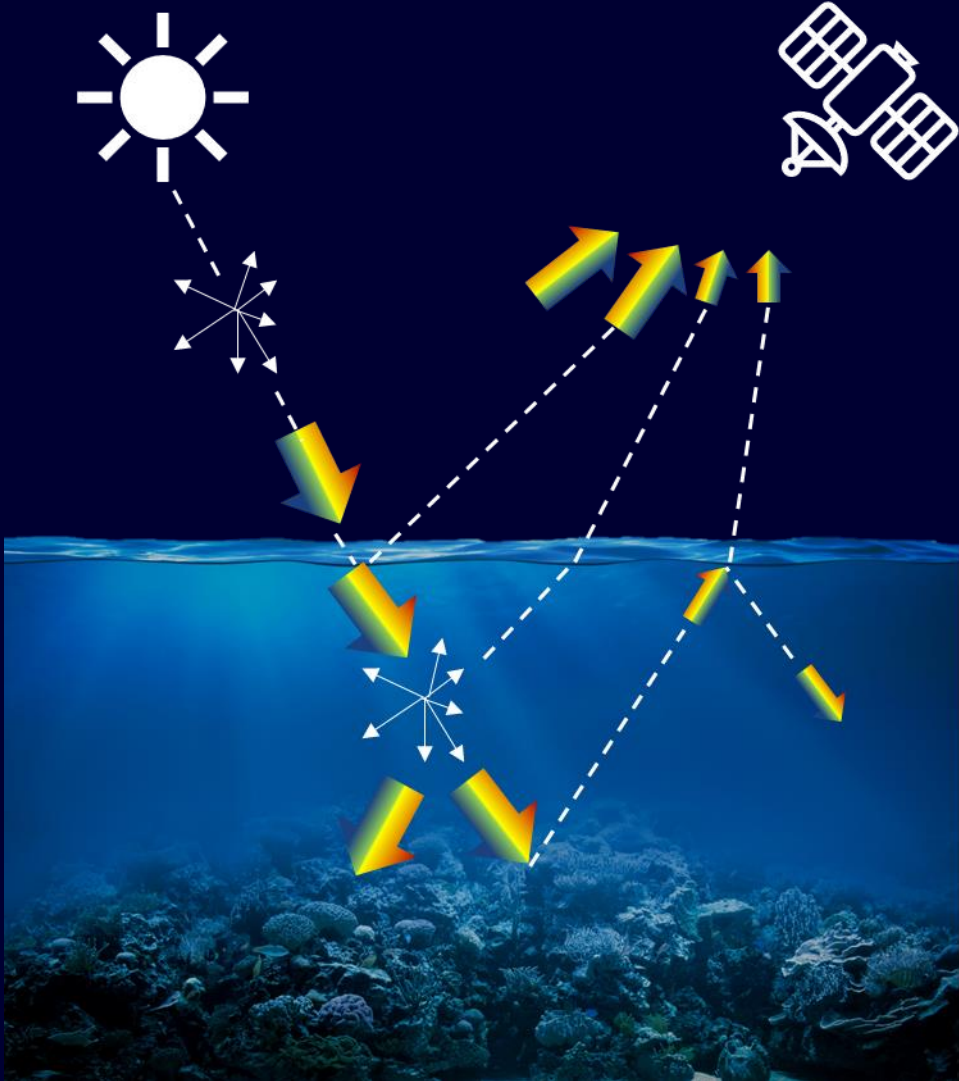


Multiple daily acquisitions



THEORY ON MAPPING AND MONITORING SHALLOW WATERS WITH SATELLITES

SATELLITE DERIVED BATHYMETRY FROM MULTISPECTRAL IMAGERY (SDB)



VERTICAL DYNAMICS – SATELLITE DERIVED BATHYMETRY



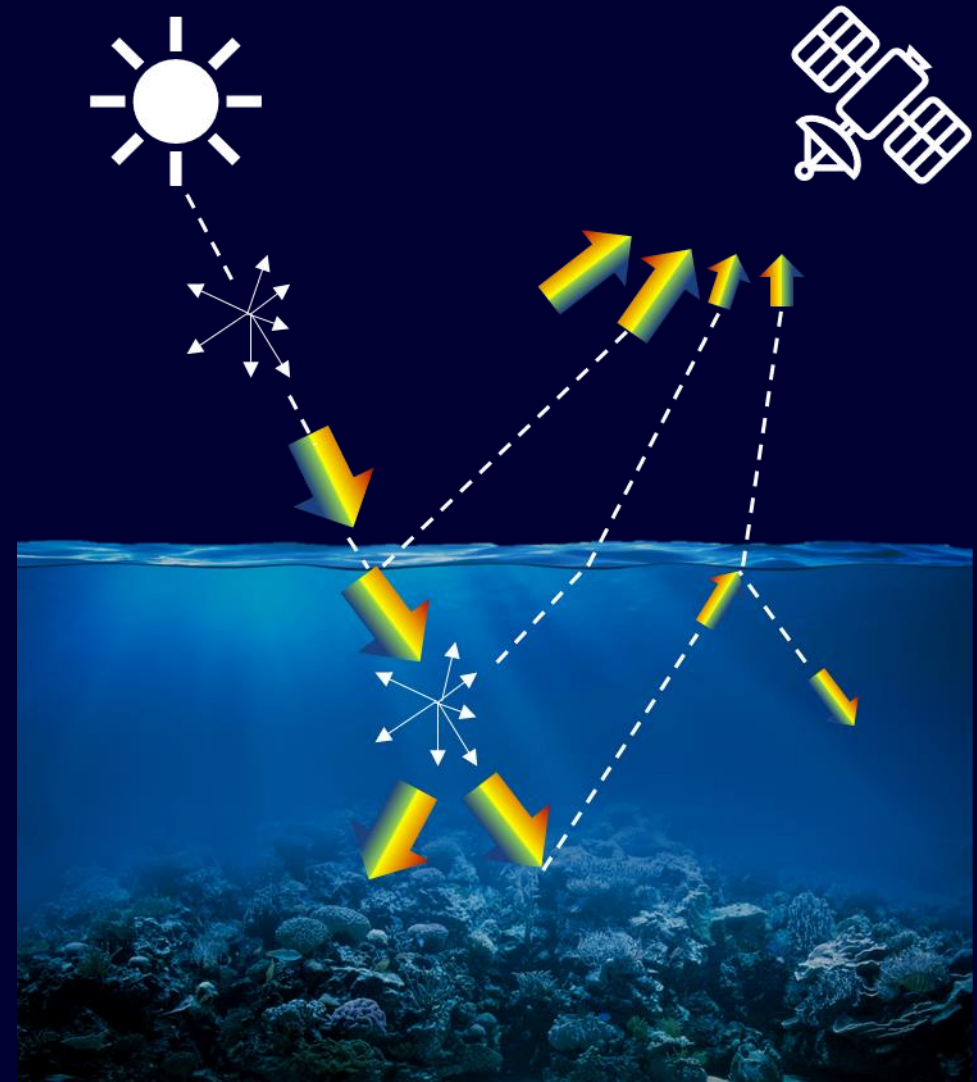
Worldwide applicable



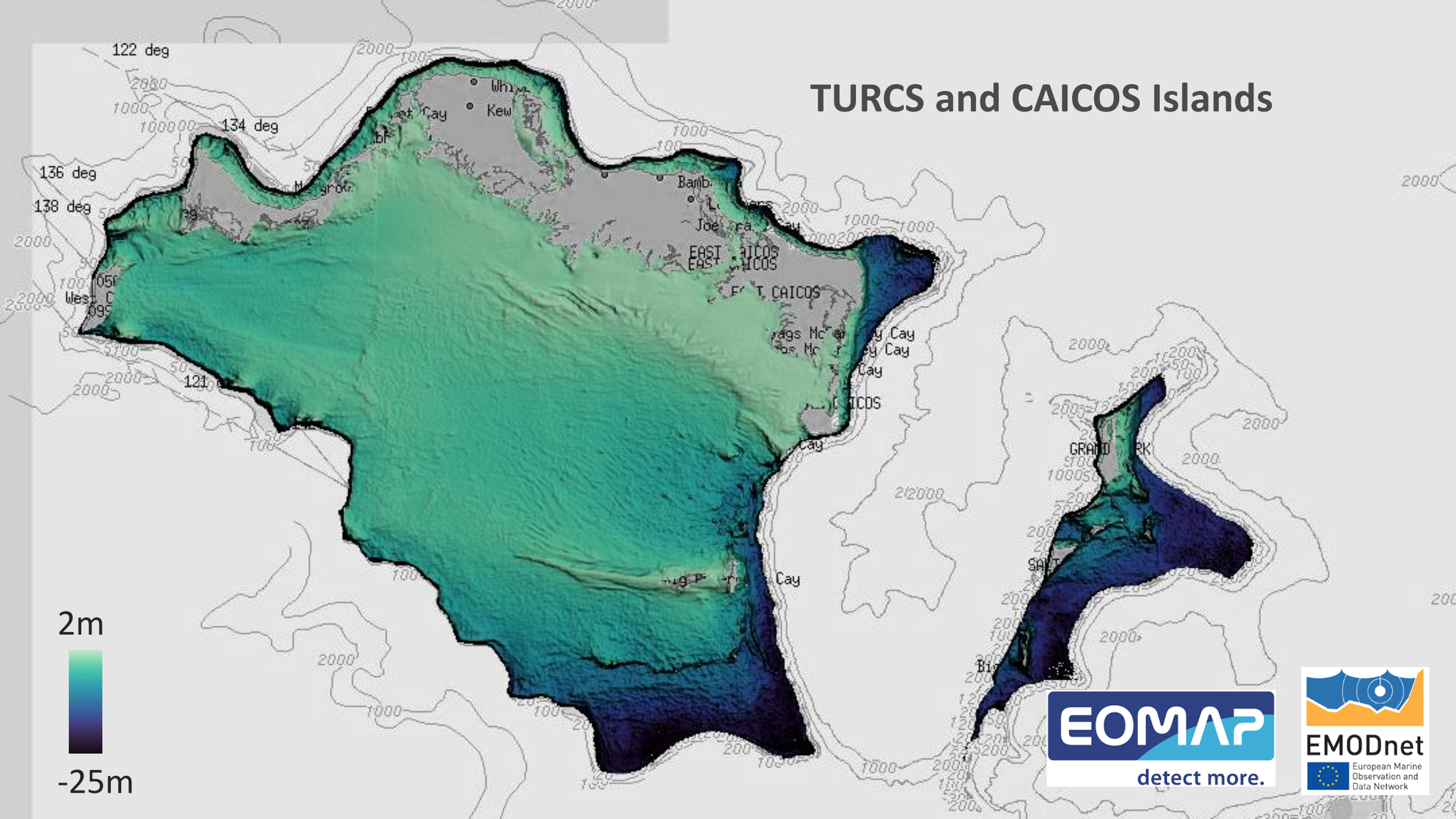
20 years of experience



Available on a cloud-environment



TURCS and CAICOS Islands



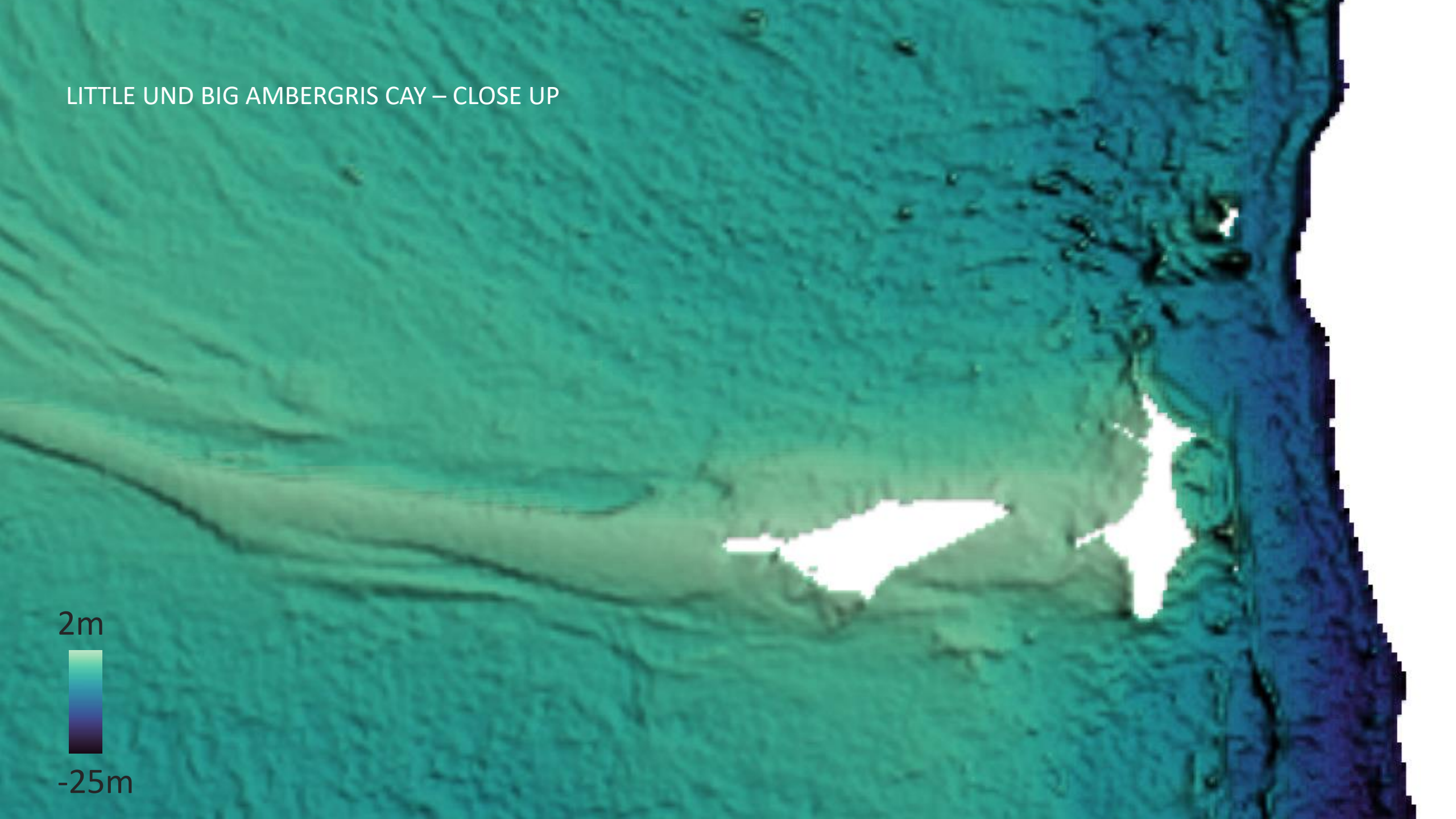
2m



-25m



LITTLE UND BIG AMBERGRIS CAY – CLOSE UP



2m



-25m

HORIZONTAL DYNAMICS

Global high frequent satellite monitoring capabilities

Continuous tracking of horizontal seabed movements based on optical flow methods.

-> Delineation of movement vectors



SOFTWARE AND TOOLS

SDB-ONLINE – NO SPECIAL HARDWARE OR SOFTWARE REQUIREMENTS!

The screenshot shows a web browser window with the URL <https://sdb-online.eoapp.de/purchase-region>. The page features the EOMAP logo (detect more.) in the top left, the title 'SDB-Online' in the center, and the user name 'HELLO KNUT' in the top right. A progress bar at the top indicates three steps: '1 Region', '2 Description', and '3 Checkout', with '1 Region' being the active step.

1 - Select Region

Please create your area of interest (AOI). You can either upload, draw or search places.

The main content area contains a satellite map of the world. A search bar with the placeholder text 'Search address' is located in the top left of the map. In the top right corner of the map, there are icons for refresh and upload. A mouse cursor is positioned over the map, specifically over the continent of Africa. At the bottom left of the map area, there is a small text attribution: 'Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community'.

At the bottom of the interface, there are two buttons: 'X CANCEL' on the left and 'CONTINUE' on the right.

WATCOR-X AND LITECOR-X – DESKTOP SOLUTION

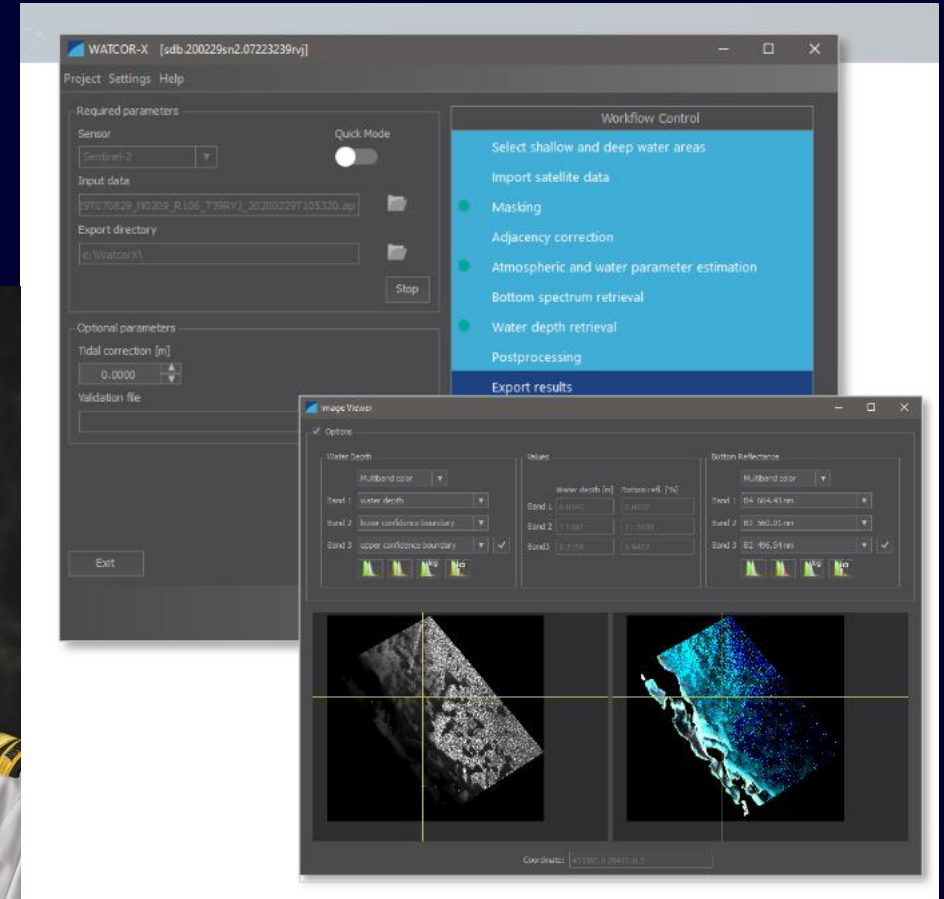
SDB desktop software for multiple sensors.

Works in secure environments.

No dependencies on local training data.

Intuitive design and use.

Based on **latest science and physical modelling**



Review **CDR Chris Waterson, Royal Australian Navy** statement on Watcor-X at sdbday.org/conference-materials/

CAPACITY BUILDING
&
SUPPORT TO UN OCEAN DECADE AND UNDP GOALS

ENGAGEMENT

SDB Best Practice project team and B-13 and contribution to Hydrographic Surveys Working Group (HSWG)

Contribution to **regional HO conferences**, science and industry shows

Leading and participating in **innovations and R&D** on hydrographic Earth Observation, coastal resilience and water monitoring

Hosting and sponsoring dedicated conferences and workshops (SDB Days, coastal stakeholder conferences)



CONTRIBUTION

Seabed2030 data provider

Project partner and data provider to SDB
data to the Caribbean for the European
EMODnet Bathymetry project

Bathymetric data service provider to
Copernicus Marine Service



INNOVATIONS TO COME

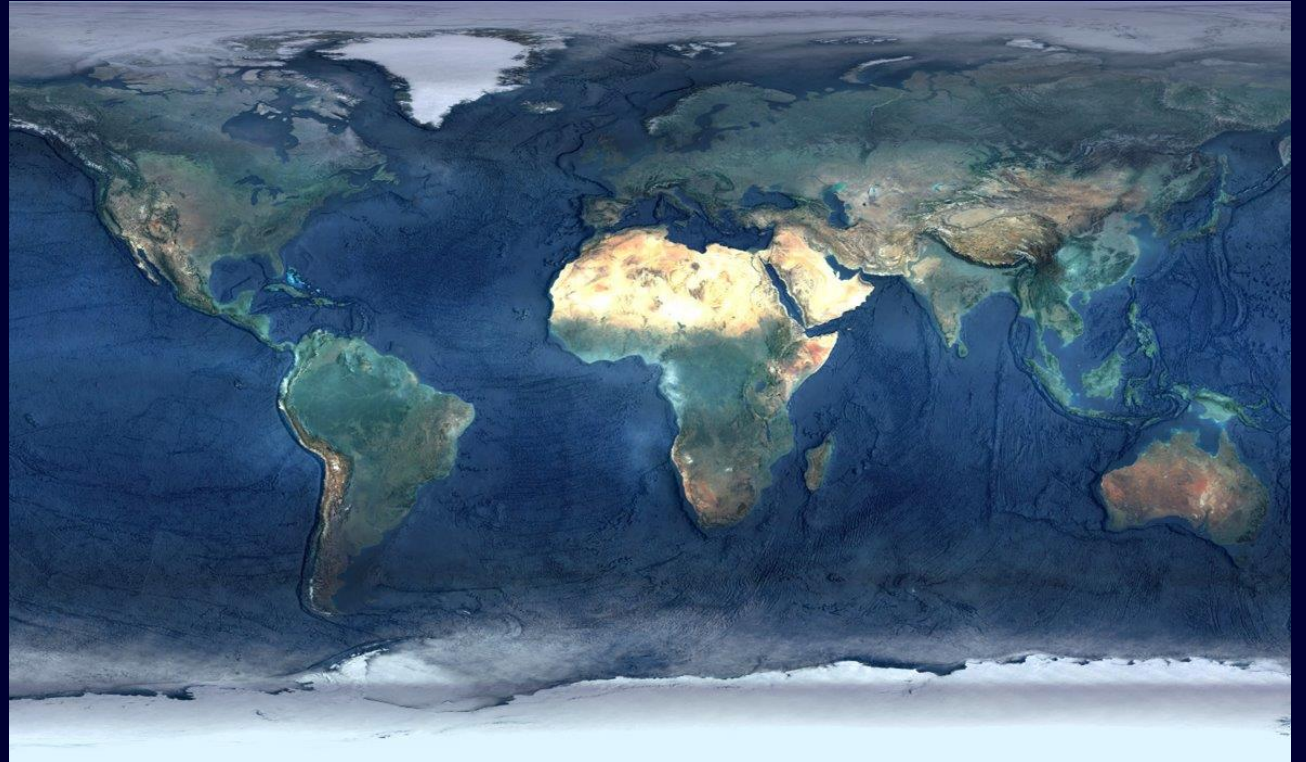
GLOBAL

Multiple SDB methods creating a **global coastal bathymetry** dataset.

Free&open data policy through European Copernicus Marine Service

100m spatial resolution bathymetry grids from intertidal to depth of up to 40m.

Funded and contracted by **Mercator Ocean International and European Commission.**



COASTAL VIRTUAL REALITY

Immersive Virtual Reality

based on **real data** and up to date geospatial information.

Satellite imagery
and derivatives
(bathymetry,
seabed, turbidity...)

Biodiversity
Flora and Fauna
knowledge
(species level)

Scenario
predictions
(climate, weather,
biodiversity)

DIGITAL TWIN
of coastal
environments
(military / civil)

Main applications:

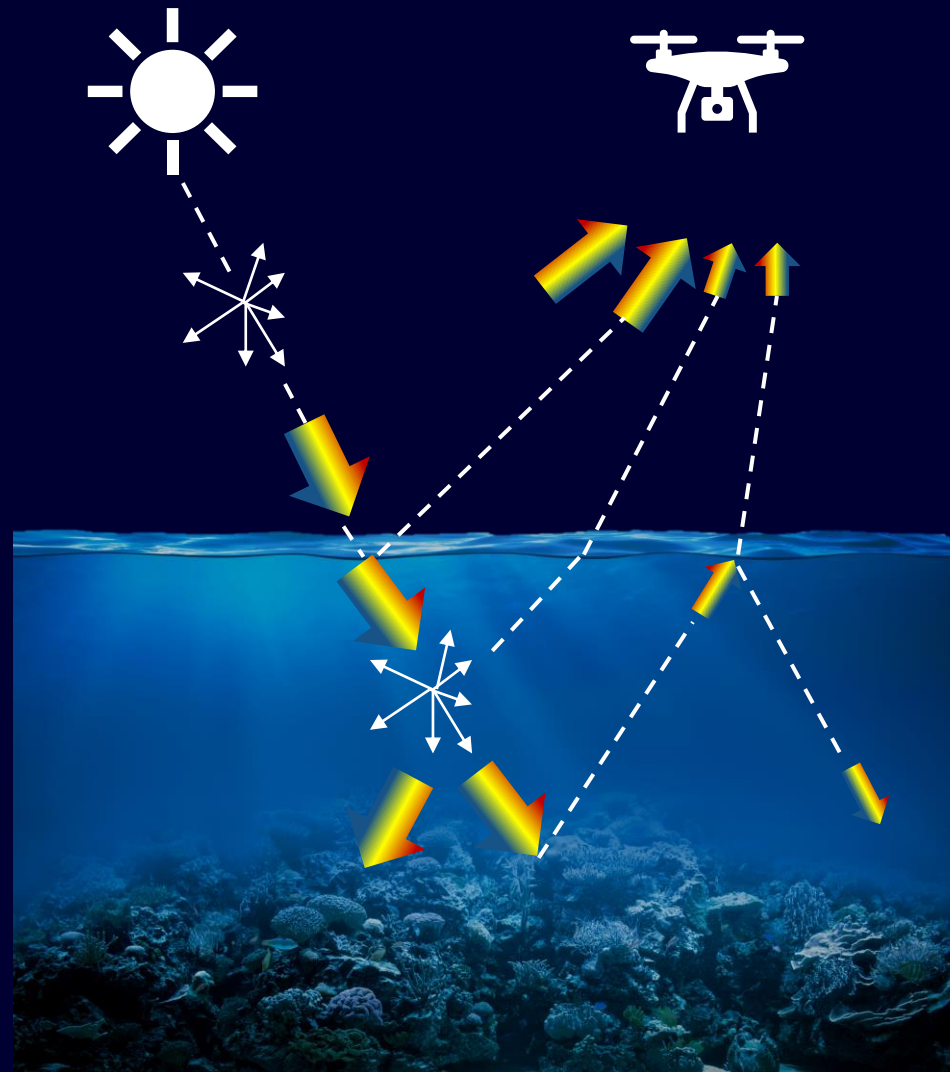
1. Assessment and visualisation of past, current and future scenarios
2. Environmental education
3. Stakeholder engagement



.... TOWARDS HIGHER RESOLUTIONS

Fully physics-based
Drone-Derived Bathymetry

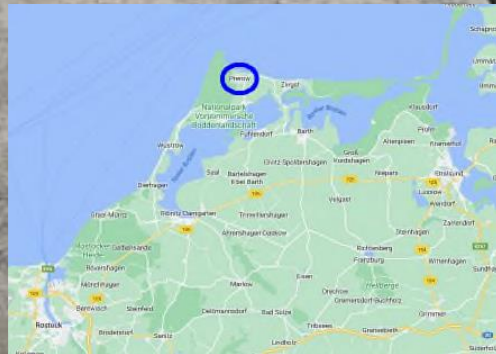
-> 4 Pilots in 2022 and 2023



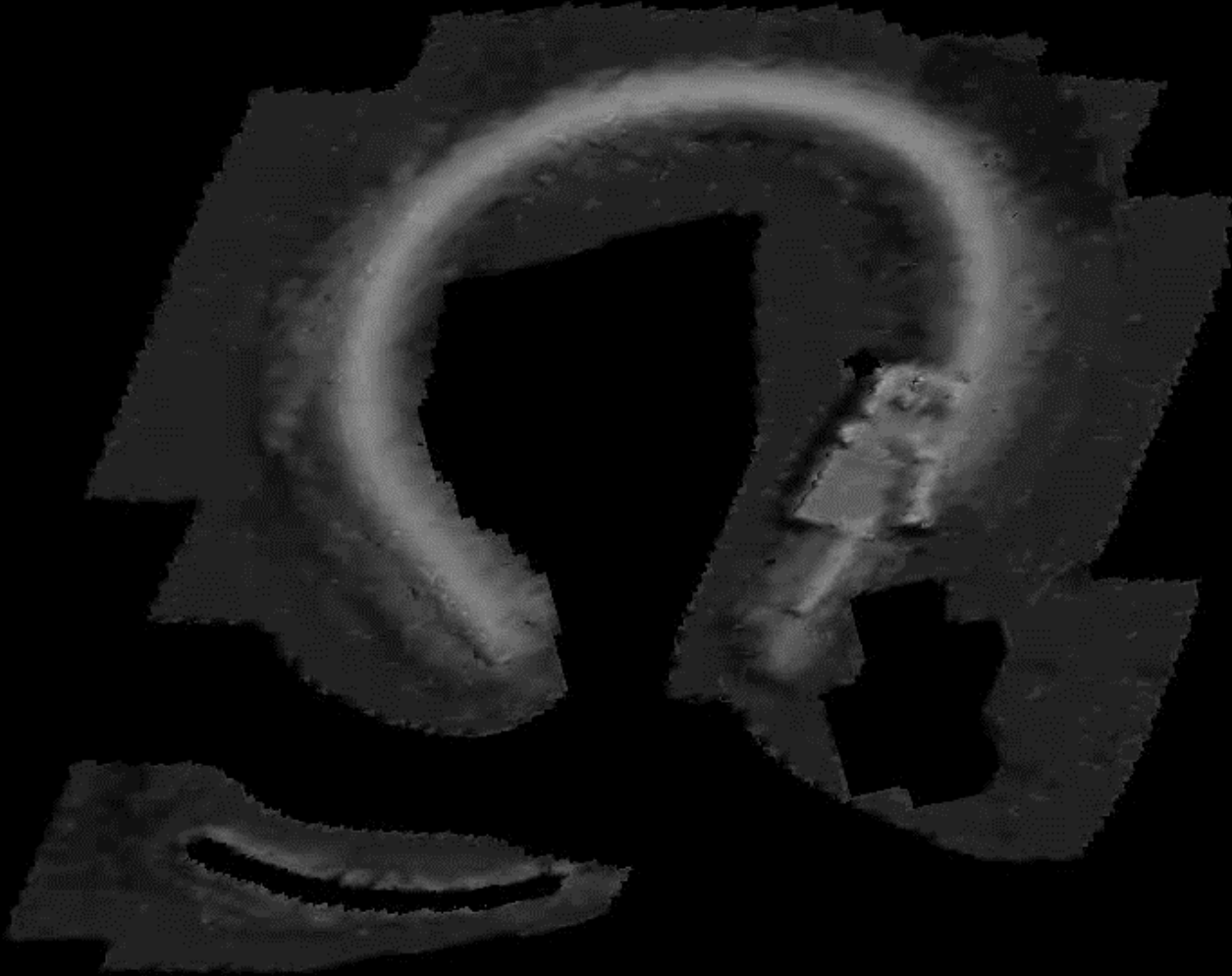
*The project has received funding by the European Union's Horizon 2020
Research and Innovation Programme under grant agreement no. 101004221*

.... TOWARDS HIGHER RESOLUTIONS

Prerow Survey AUG 2023



PREROW SURVEY – AUG 2023



CONCLUSION

- 01** Data, Software, WebApps and capacity building are available and ready on-demand
- 02** Innovations from highest detailed technology to global data to Virtual Reality are about to come
- 03** Interest? Contact your local point of contacts. Rainer Ressler (ressl@eomap.de) and Edward Albada (albada@eomap.de)

EOMAP

THANK YOU FOR YOUR ATTENTION

Hydro 2023

2023-Dic-14 | Dr. Rainer Ressler ressl@eomap.de