



EOMAP

# SDB INNOVATIONS

Water Days

2022-10-02 | Dr. Knut Hartmann

# WHO IS EOMAP?



Private high-tech company



Focusing on satellite data analytics and app solutions



Specialised on aquatic environments



International team of 40 experts



Serving engineering companies, governments, inter-governmental organizations and academia



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



## Stakeholder questionnaire in 2021

# USER REQUIREMENT OF BATHYMETRIC DATA USERS

*Table 4: Can you specify the water depth zone which is of highest interest to you?*

	Coastal zone	0-20m depth	20m or deeper	No, I can't specify it.	Total
Academia (university, research)	19	9	2	6	36
Governmental agency	47	27	7	18	99
Intergovernmental organisation	2	2	2	2	8
Non-profit organisation	2	1	1	2	6
Other (please specify)	5	2		8	15
Private sector	11	13	13	3	40
<b>Total</b>	<b>87</b>	<b>55</b>	<b>25</b>	<b>39</b>	<b>206</b>



# USER REQUIREMENT OF BATHYMETRIC DATA USERS

*Table 7: Can you specify your typical demand on spatial details / spatial resolution of bathymetric data?*

	1m or better	1-2 m	2 or better than 10 m	10 or better than 30 m	Coarser resolution than 30m	Other	Total
Academia (university, research)	10	3	5	5	2	2	27
Governmental agency	37	21	12	9	0	2	81
Intergovernmental organisation	3	1		2	1	1	8
Non-profit organisation	2	0	1	2	0	0	5
Other (please specify)	4	3	0	0	1	2	10
Private sector	21	5	7		2		35
<b>Total</b>	<b>78</b>	<b>33</b>	<b>25</b>	<b>18</b>	<b>6</b>	<b>7</b>	<b>167</b>

# USER REQUIREMENT OF BATHYMETRIC DATA USERS

*Table 9: How fast would you like to have data access?*

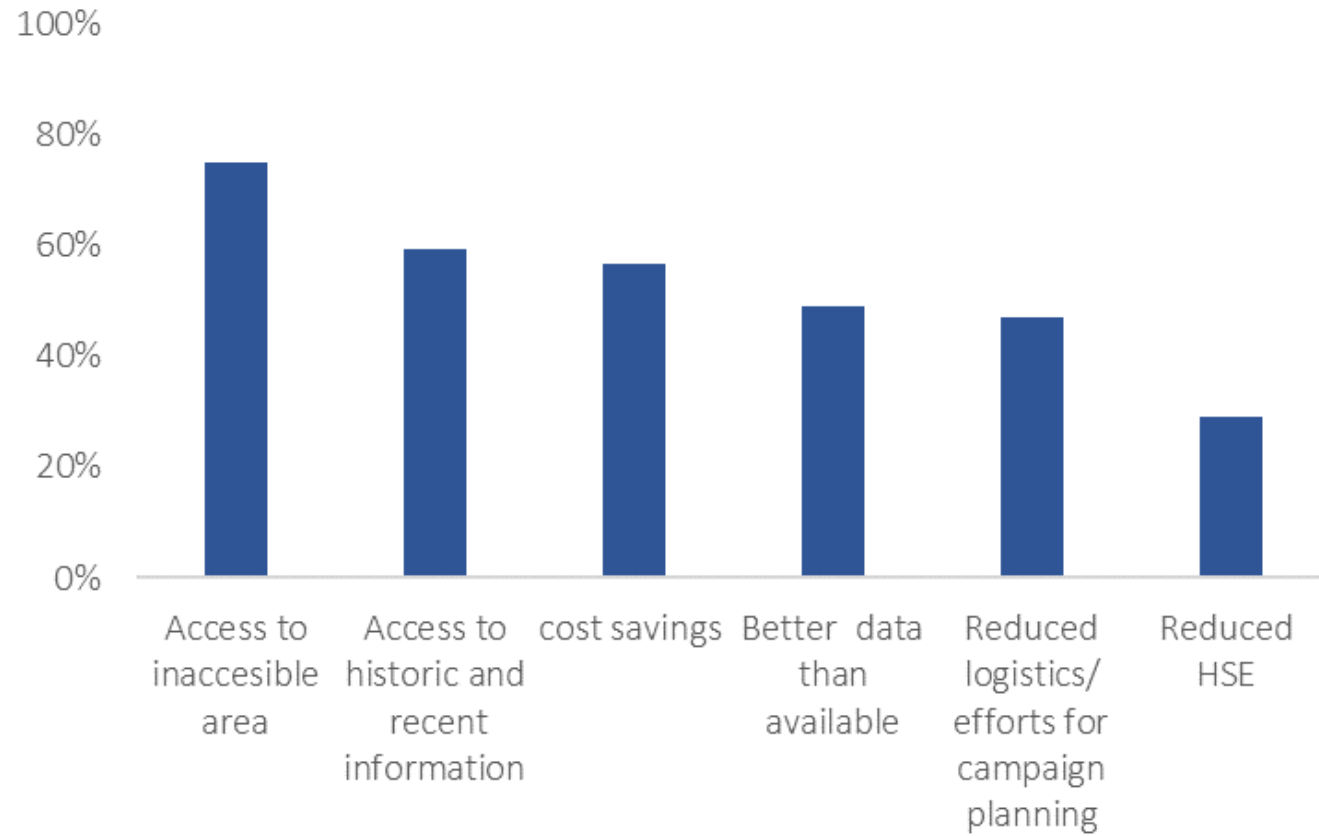
	Immediately	Within 1 week	Within 1-4 weeks	Within 1-2 months	Can be more	Total
Academia (university, research)	7	10	6	1	3	27
Governmental agency	21	22	17	13	8	81
Intergovernmental organisation	1	3	1	1	1	7
Non-profit organisation	1		3		1	5
Other (please specify)	3	2		2	3	10
Private sector	11	12	10	1	1	35
<b>Total</b>	<b>44</b>	<b>49</b>	<b>37</b>	<b>18</b>	<b>17</b>	<b>165</b>

# USER REQUIREMENT OF BATHYMETRIC DATA USERS

*Table 12: How would you like your satellite-based products to be derived?*

	I want to purchase satellite-derived products /satellite-derived services from a provider.	I want to run own satellite-based analyses in-house.	Total
Academia (university, research)	8	19	27
Governmental agency	22	59	81
Intergovernmental organisation	6	2	8
Non-profit organisation	1	4	5
Other (please specify)	6	4	10
Private sector	14	20	34
Total	57	108	165

# WHY SDB?



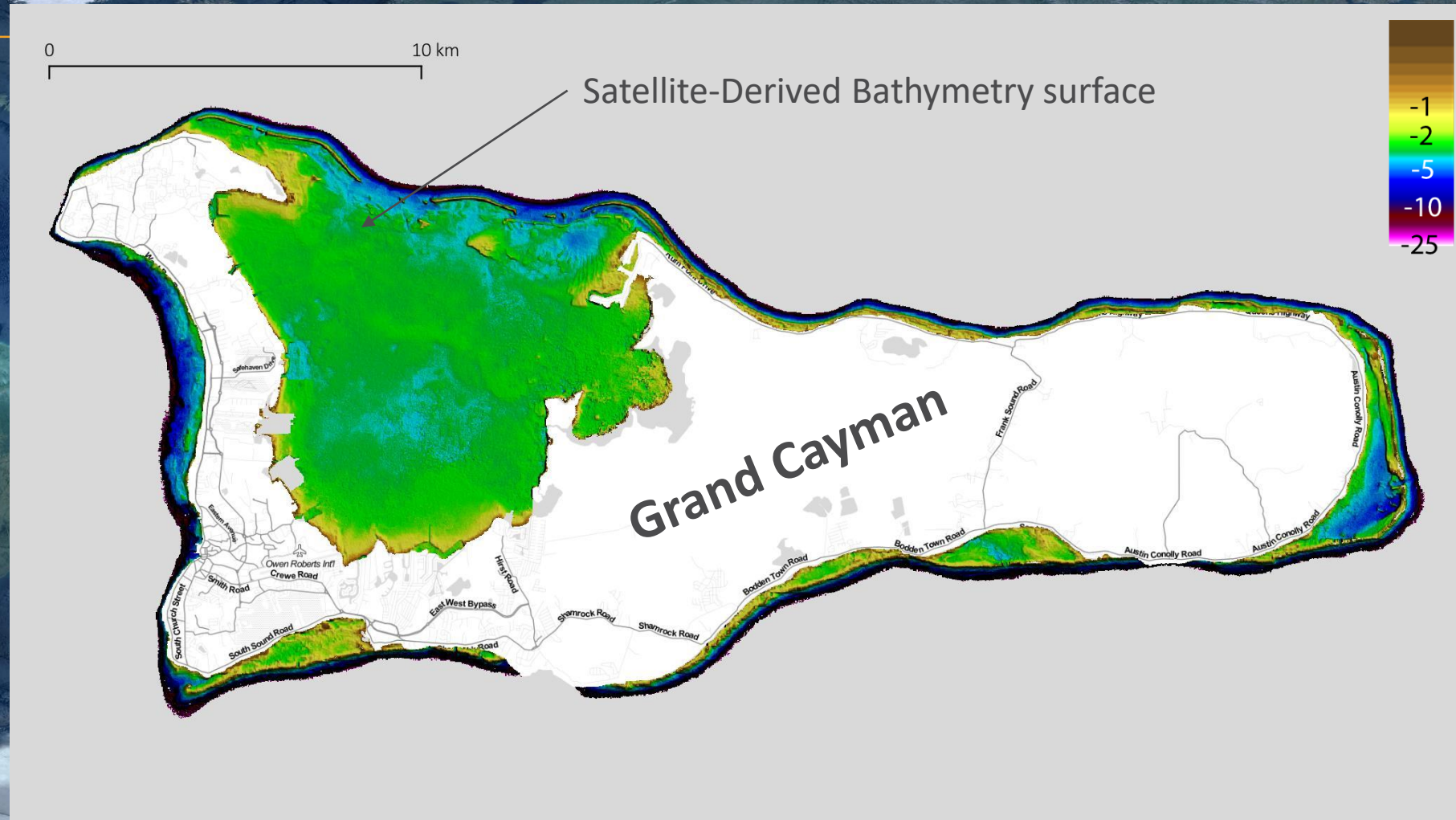




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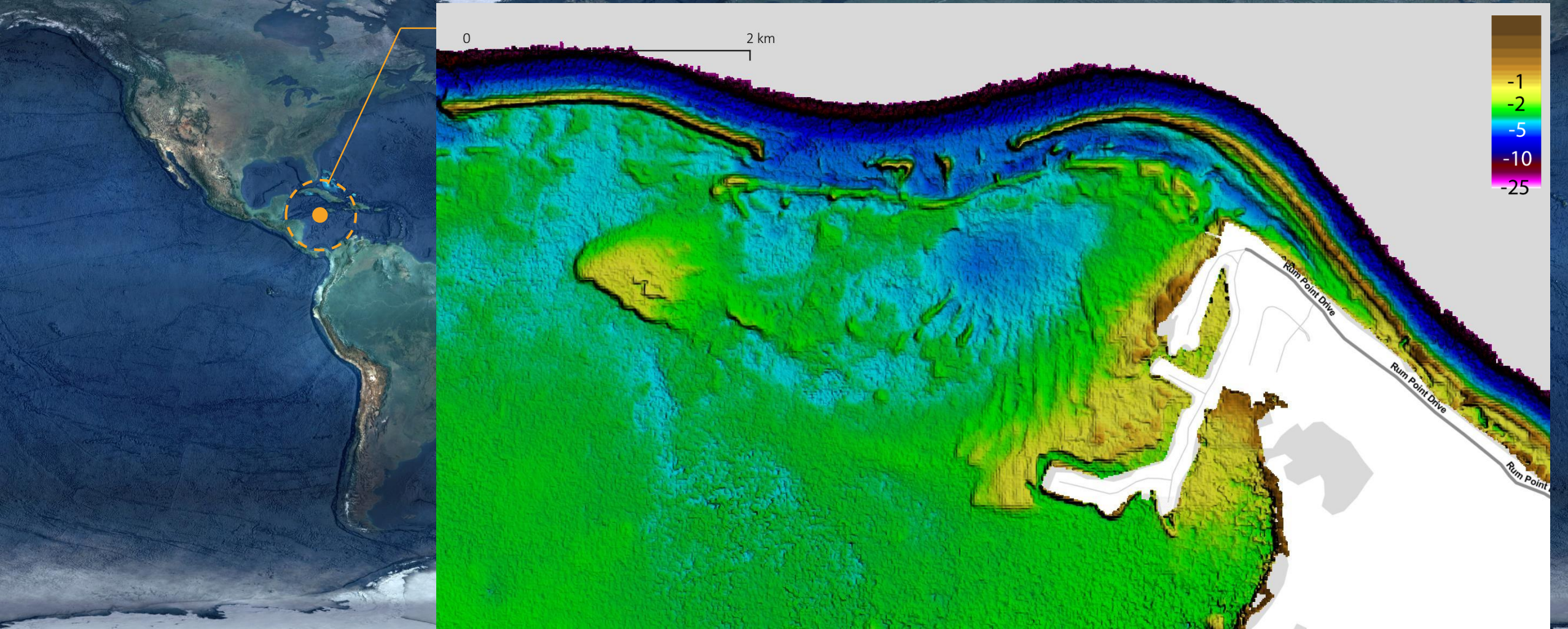
... rapid access to otherwise inaccessible areas...  
... better data than currently accessible...

# EOMAP'S SDB CONTRIBUTION IN THE REGION TO EMODNET



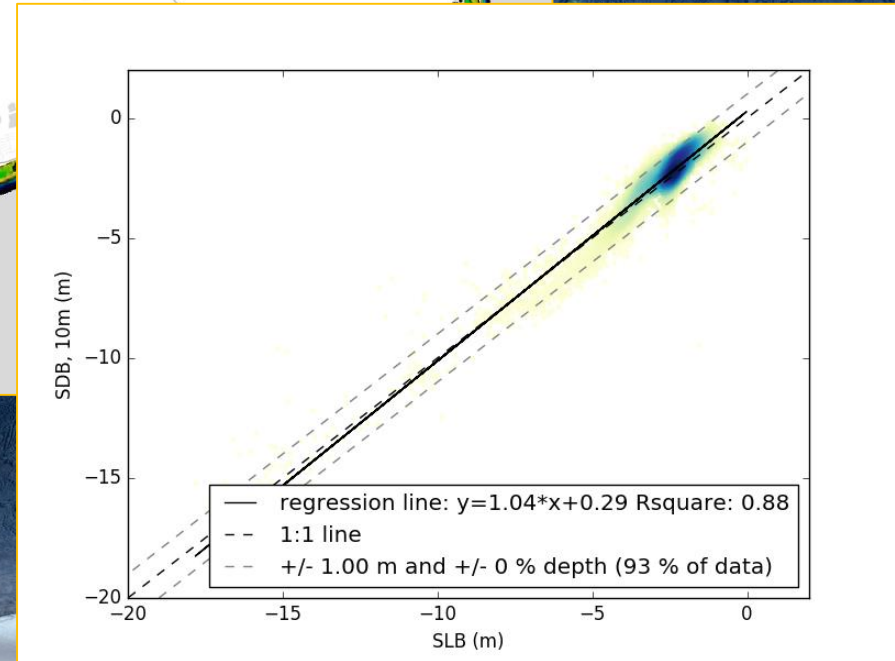
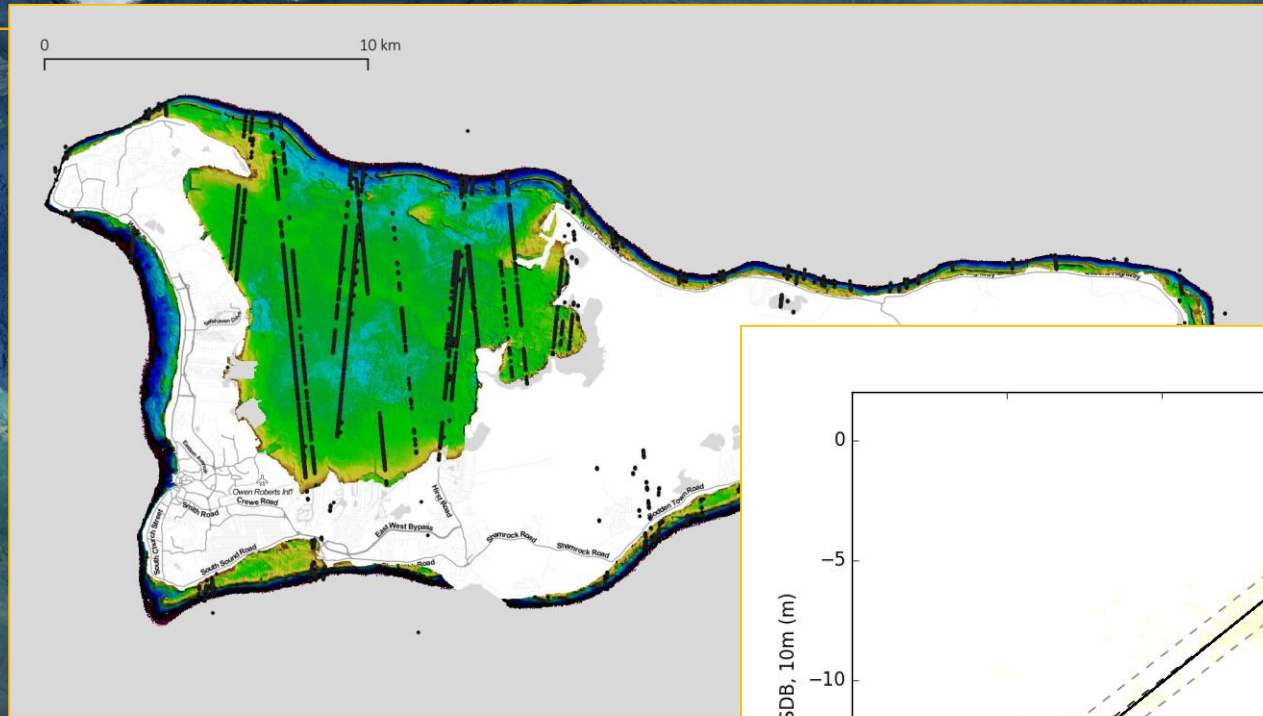


# EOMAP'S SDB CONTRIBUTION IN THE REGION TO EMODNET





# EOMAP'S SDB CONTRIBUTION IN THE REGION TO EMODNET







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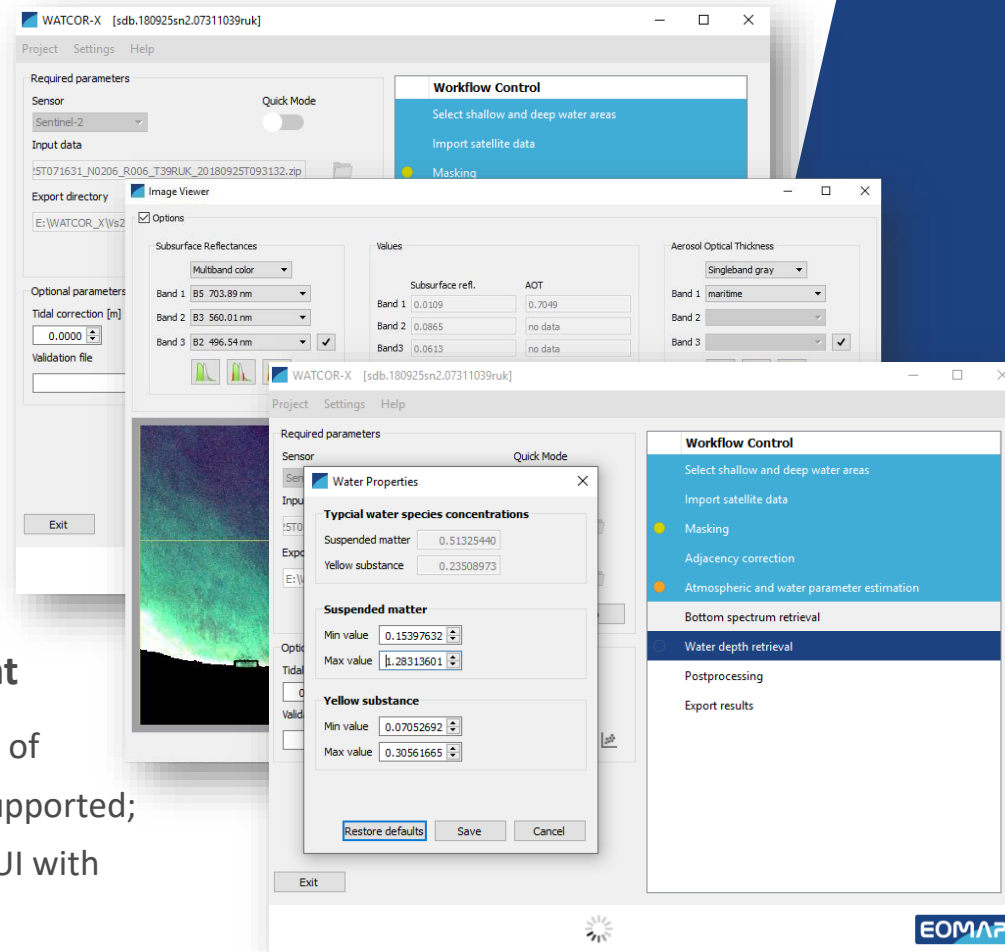
**... in-house capabilities of SDB are mandatory for my governmental organization...**

# WATCOR-X

## SDB DESKTOP SOFTWARE

### SDB for secure environment

Based on RTE inversion concept of SDB; VHR and HR sensors are supported; automated workflow; intuitive UI with advanced setting options



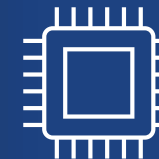
### Access to global shallow waters

Can be applied to all shallow water zones with low and moderate water clarity, globally. Survey data not mandatory



### Secure environment

No dependencies on internet or third party software. Can run in secure environment



### Smart processing

GPU / CPU and 'speed' modus allow to rapidly create SDB grids



“

... demand for immediate data access ...  
... cost savings....

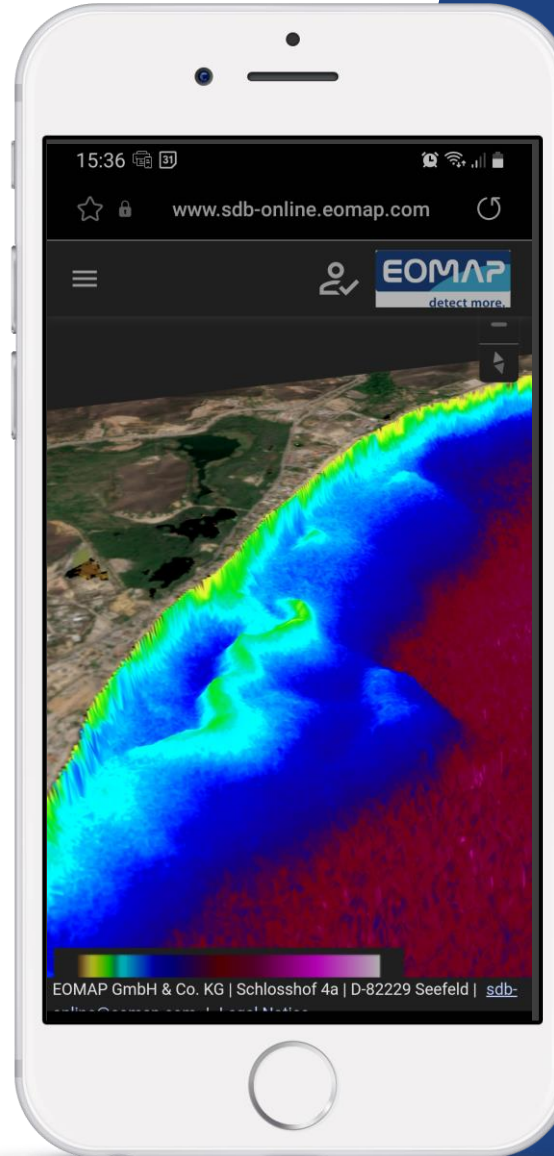
# SDB ONLINE

## *SDB-ONLINE.EOMAP.COM*



### SDB meets the cloud

Based on RTE inversion concept of SDB;  
upscalable; automated workflow; great UI!  
Future updates include VHR satellite  
capabilities and integration of ICESat-2 SLB  
and survey data.



### Access to global shallow waters

Can be applied to all shallow water zones with low and moderate water clarity, globally. Survey data not mandatory



### 24/7 access

No dependencies on subcontracting, third party hard and software.



### Cloud processing

Workflow backend and satellite archives are coupled. (Almost) unlimited computational power. API interface for easy integration.





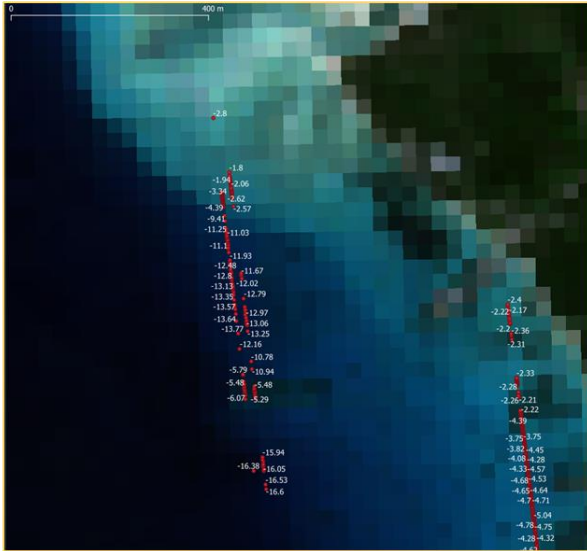


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... reducing and quantifying vertical uncertainties with other information...

# SATELLITE-LIDAR BATHYMETRY DATABASE

## ICESAT-2 ATLAS PHOTON ANALYSIS



### Space born active bathymetric data

Satellite-Lidar Bathymetry (SLB) data are derived from point cloud analysis of the ICESat-2 ATLAS instrument and stored in central SLB database



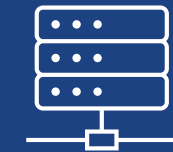
### Access to global shallow waters

Can be applied to all shallow water zones with low and moderate water clarity, globally.



### Active measurement

Based on green lidar returns.  
Approx 0.9 time Secchi Depth



### Smart processing

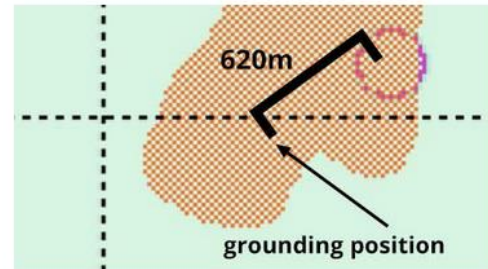
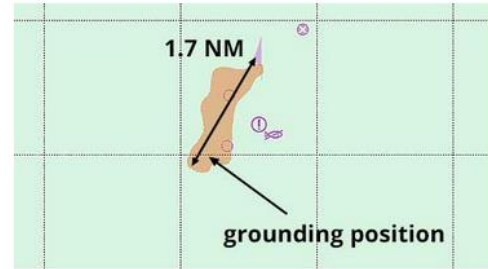
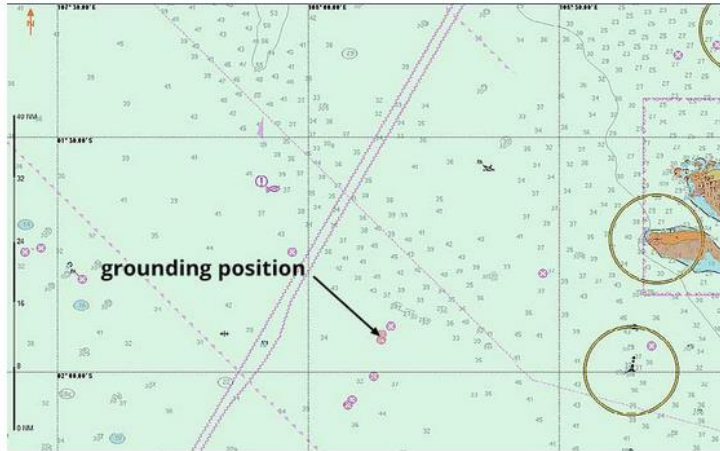
GPU / CPU and 'speed' modus allow to rapidly create SDB grids



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... access to extended sites to reduce navigation risk...

# SHOALS DATABASE *NO GO!*



## Increase awareness in poorly charted waters

Positioning, delineation and integration of shoals database as ENC overlays.

The value of the shoal database was verified for past groundings.

**Idris Salaudeen**



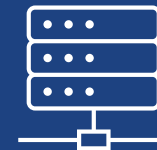
**Access to global shallow waters**

Database for nations to seas



**Increase safety of navigation**

Valuable overlay to identify and positions shoals in poorly charted waters



**Full sat. data analysis**

Based on multi-year and multi-sensor analysis of multispectral data

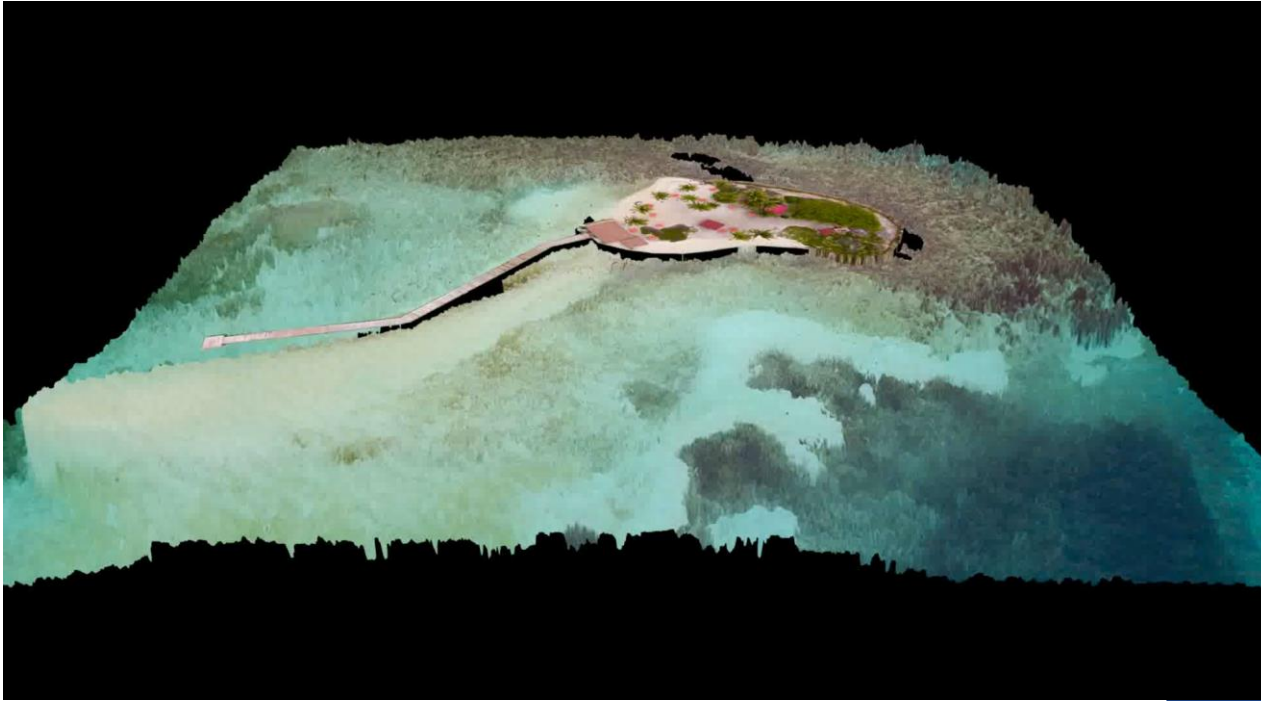


A satellite map of the Pacific Islands, showing various islands and atolls in shades of blue and green, set against a dark blue background.

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... extremely high spatial resolution ....

# EXTREME HIGH RESOLUTION MAPPING SATELLITE-AIRBORNE-DRONE PLATFORMS



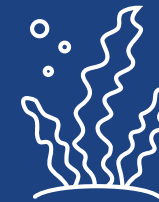
## Extreme high resolution

Based on RTE inversion concept of SDB; Multispectral sensors on drone and airborne; stand-alone solution or as data fusion with satellites or survey data



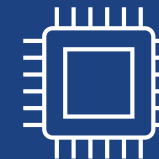
## On-site helper

Easy to deploy – easy to process and access results of extremely high resolution seabed and orthorectified imagery



## Habitat and species mapping

Adds values in mapping local seabed habitats and species



## Smart processing

GPU / CPU and 'speed' modus

## Manfred Stender





**WHO ARE THE INNOVATORS OF SDB?**



**QUO VADIS SDB?**





- **Sensor, platform and data fusion**

- *high resolution, reduced vertical and horizontal uncertainties*

- **Combined seafloor characterisation**

- *valuable information for ecological and seabed studies*

- **Monitoring of coastal seabed (vertical and horizontal)**

- *harnessing the spatial power of satellite records*

- **Integration of SDB software in software and workflows**

- *easy use, access and value-adding*

- **Upscaling**

- *Supporting global needs for shallow waters*

EOMAP

# Contact us

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detect more.



Germany (HQ)   Australia   USA   Indonesia   United Arab Emirates

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