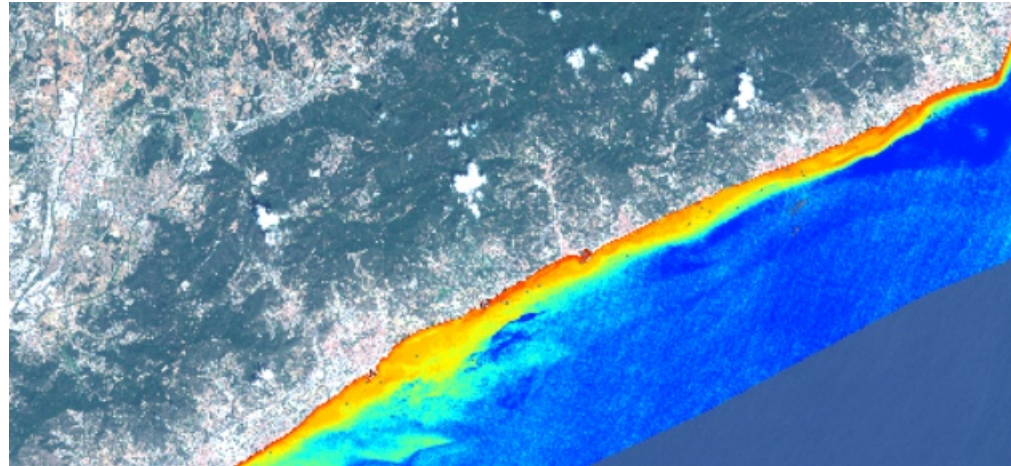




## Satellite Derived Bathymetry Quality Control



# SDB Internal Quality Control



## SDB Internal Quality Control

Bathy Clear

Inversion

ALUT Points:  Subdivide:  Auto

Levenberg-Marquardt Repeat:

Do uncertainty Package size:  % interval:

Model Output

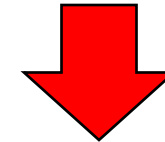
	Min.	Max.	Auto	Sub. Min.	Sub. Max.
Phytoplankton (P)	<input type="text" value="0"/>	<input type="text" value="0.06"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="20"/>
CDOM (G)	<input type="text" value="0"/>	<input type="text" value="0.2"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="20"/>
Backscatter (X)	<input type="text" value="0"/>	<input type="text" value="0.1"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="20"/>
Depth (H)	<input type="text" value="0"/>	<input type="text" value="30"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="20"/>
Mix (mix)	<input type="text" value="0"/>	<input type="text" value="1"/>	<input checked="" type="checkbox"/>	<input type="text" value="0"/>	<input type="text" value="20"/>

Endmembers:  Sand  Reef2  Reef6  Custom (em)

Tide height at image acquisition (m):

- Estimation of Biogeochemical products:

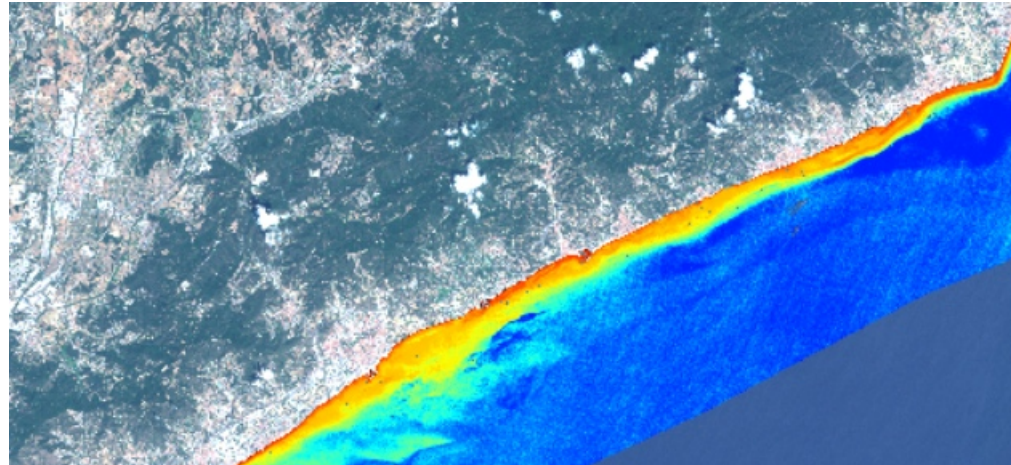
- Using backscatter values
- Using CDOM values



Values of SPM and CDOM higher than defined thresholds: **BAD depth values**

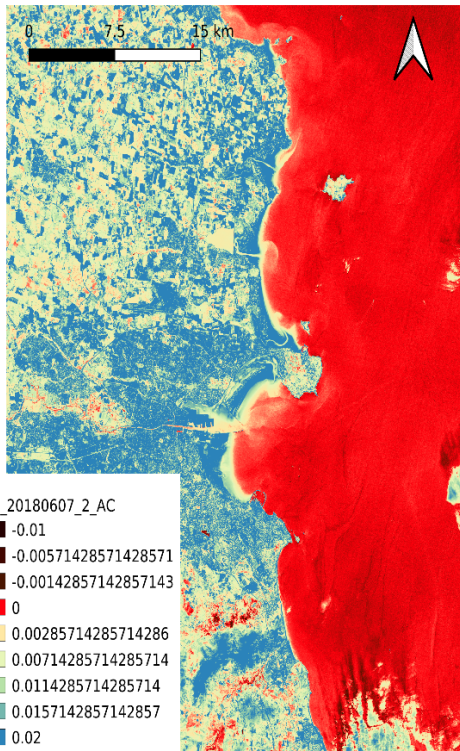


# SDB Semi-external Quality Control



## SDB Semi-external Quality Control

- Image processing: Atmospheric correction



Two variables: 1) aerosol optical thickness and 2) the water surface roughness in terms of wind speed.

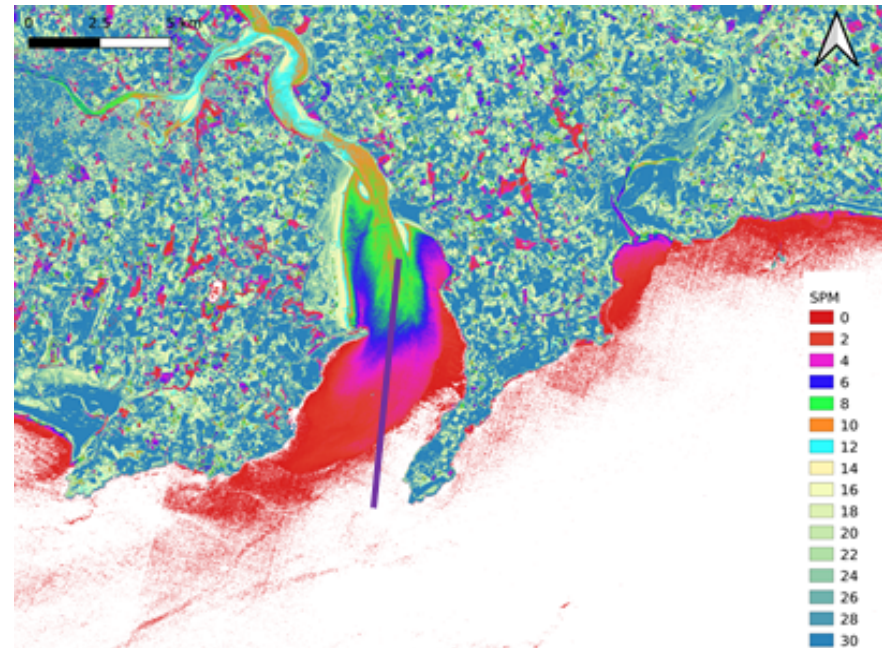
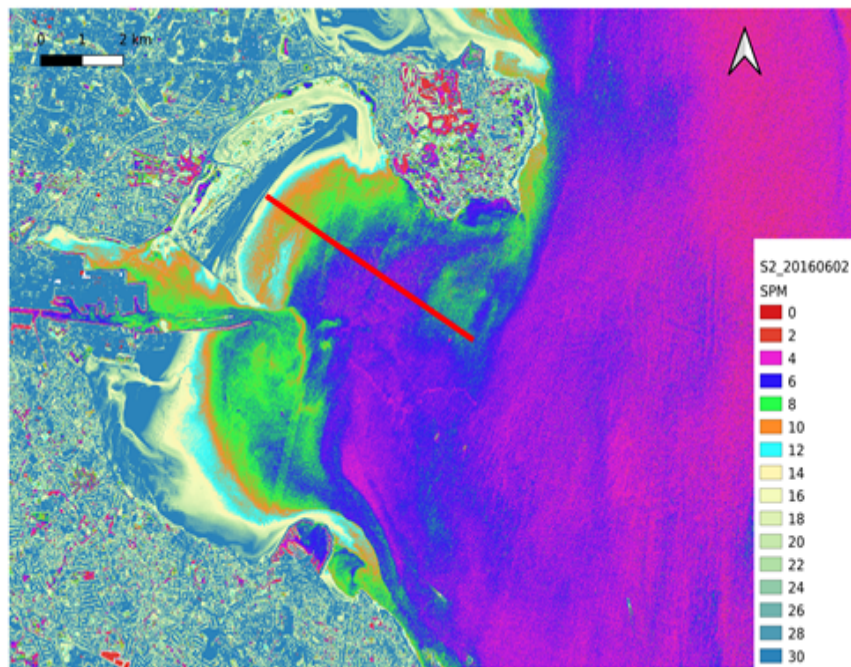


Negative values

AC values	Positive reflectance values for each band	Negative reflectance values for each band
Classification	Good values	Bad values
Mask value	1	3

## SDB Semi-external Quality Control

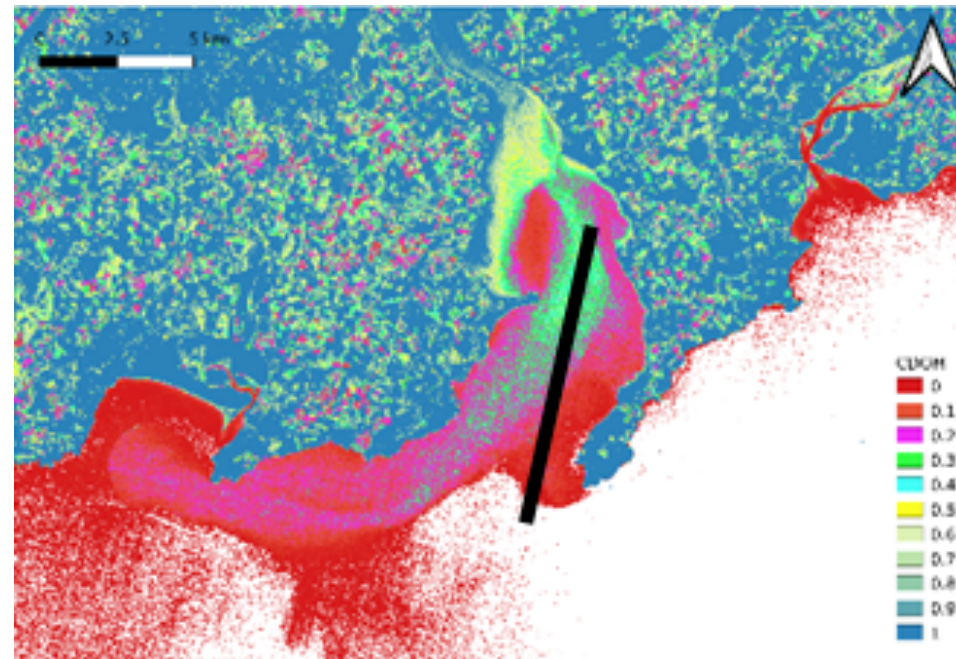
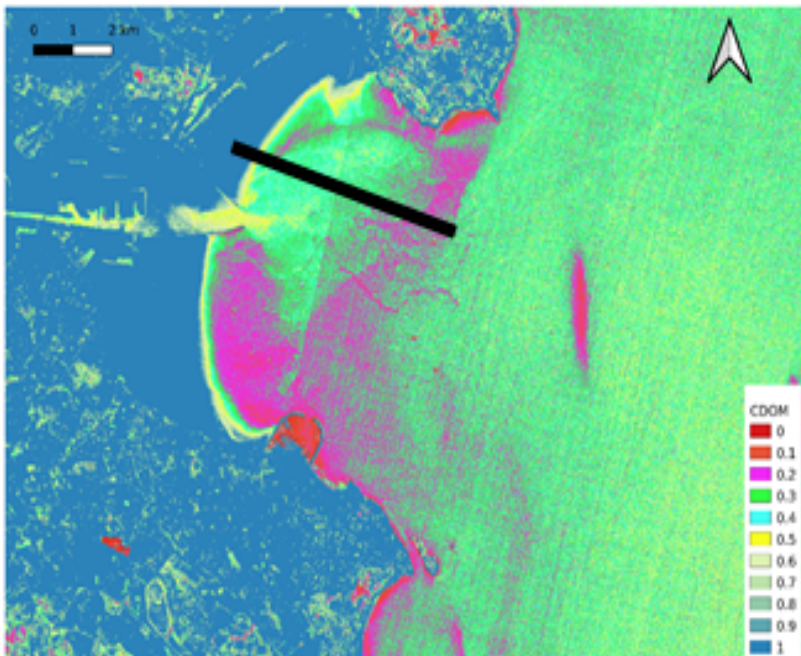
- Biogeochemical products: SPM
  - Estimation using a semi-analytical algorithm developed by Han et al., 2016
  - Reflectance values estimated using IDA Atmospheric Correction tool





## SDB Semi-external Quality Control

- Biogeochemical products: CDOM
  - Estimation using an algorithm developed by Kutser et al., 2005
  - Reflectance values estimated using IDA Atmospheric Correction tool



## SDB Semi-external Quality Control

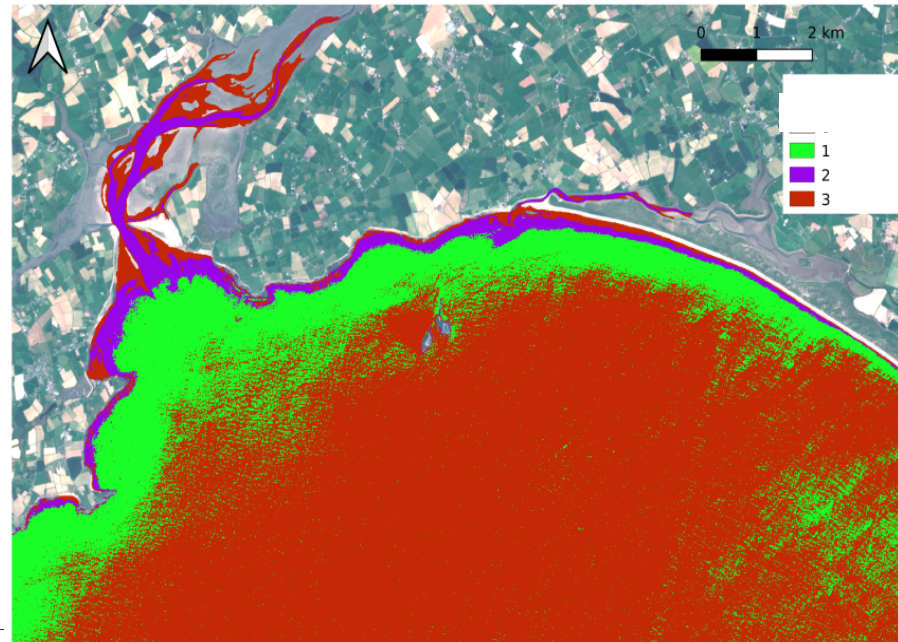
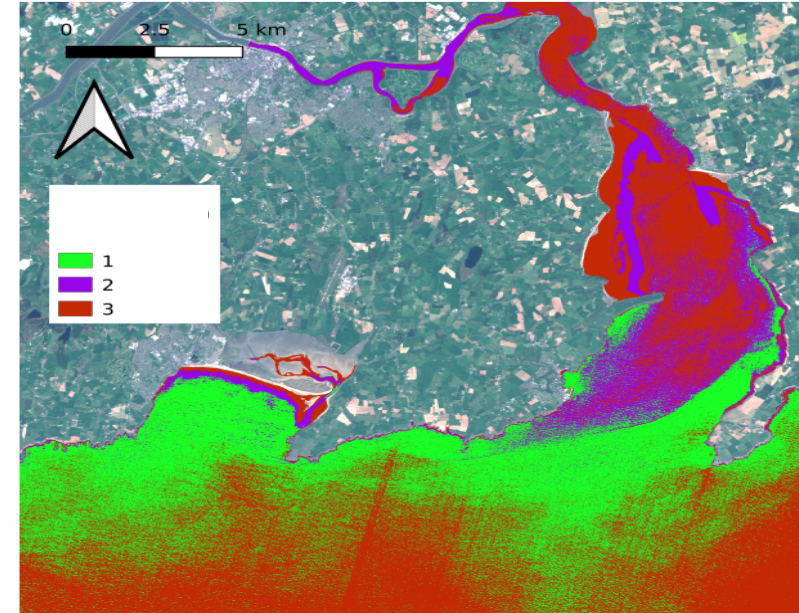
- Biogeochemical products: SPM + CDOM flagging

Classification	Mask value	CDOM and SPM concentration
Good values	1	CDOM < 0.1   SPM <5
Medium values	2	CDOM<0.2 and CDOM>0.1   SPM>5 and SPM<10 CDOM<1.5 and CDOM>0.2 & SPM>4 and SPM<20
Bad values	3	CDOM > 0.2   SPM >10

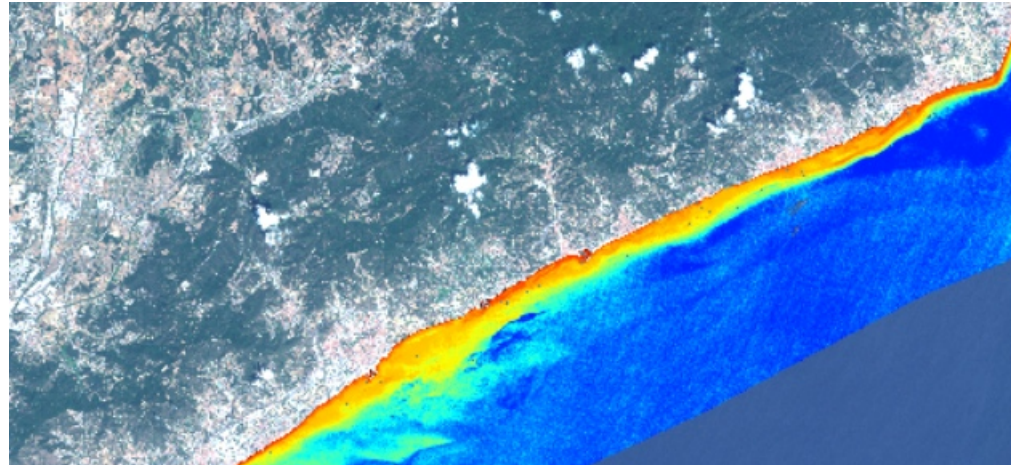


## SDB Semi-external Quality Control

- Final mask: pixels flagging
  - Three values mask:
    - Good values (mask value of 1)
    - Medium values (mask value of 2)
    - Bad values (mask value of 3)



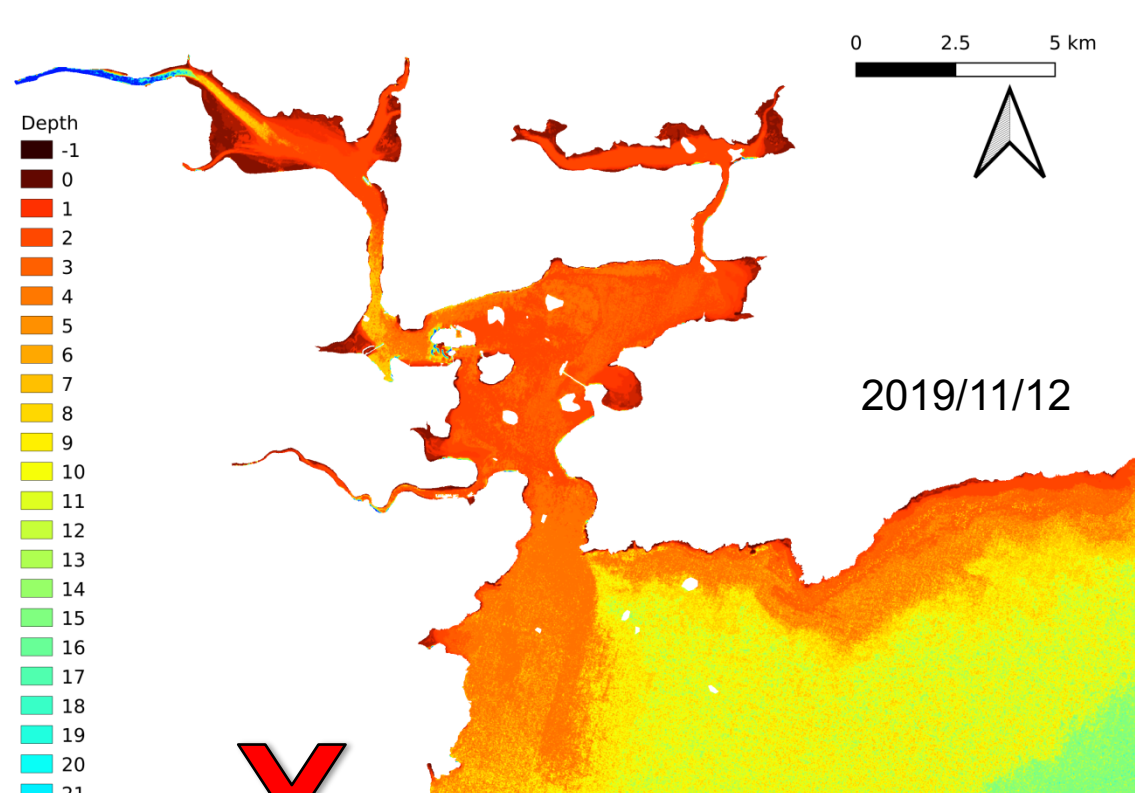
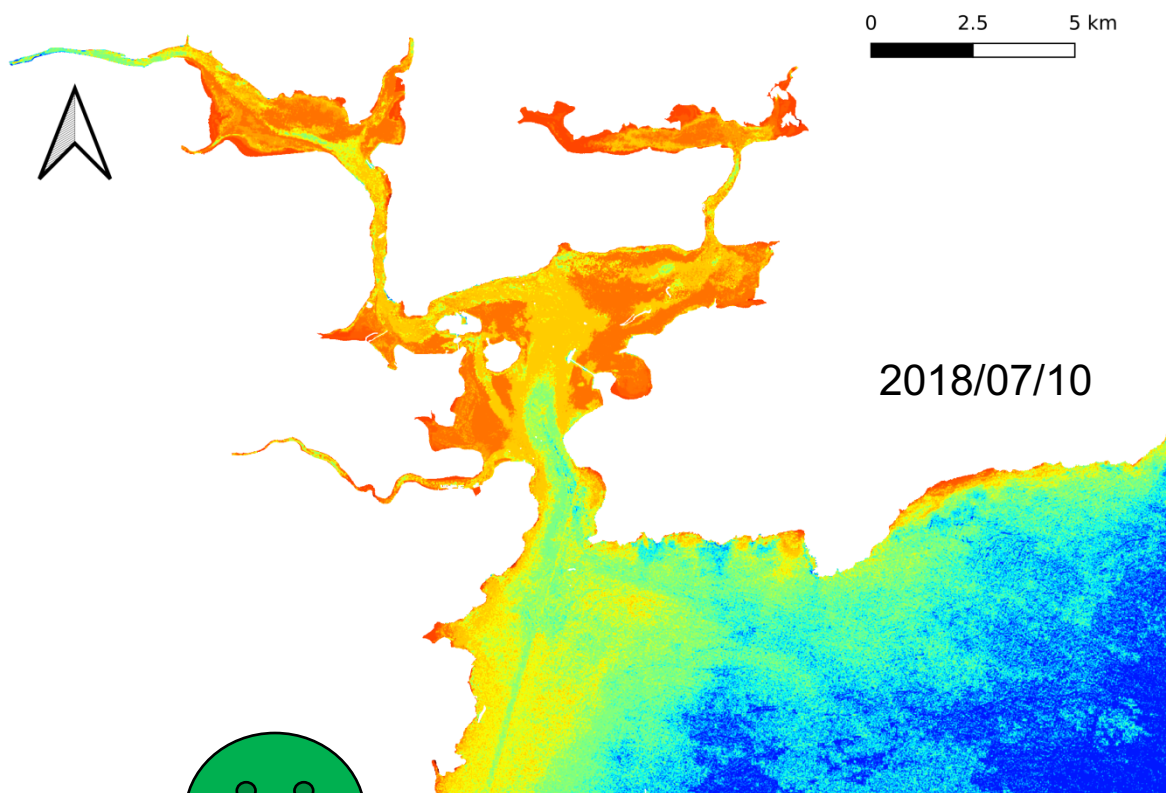
# SDB External Quality Control





## SDB External Quality Control

- Visual comparison with Nautical charts or bathymetric data



Depth

-1
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21

