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UNDERSTANDING RISK
GLOBAL FORUM 2024

TRADITION • INNOVATION • RESILIENCE

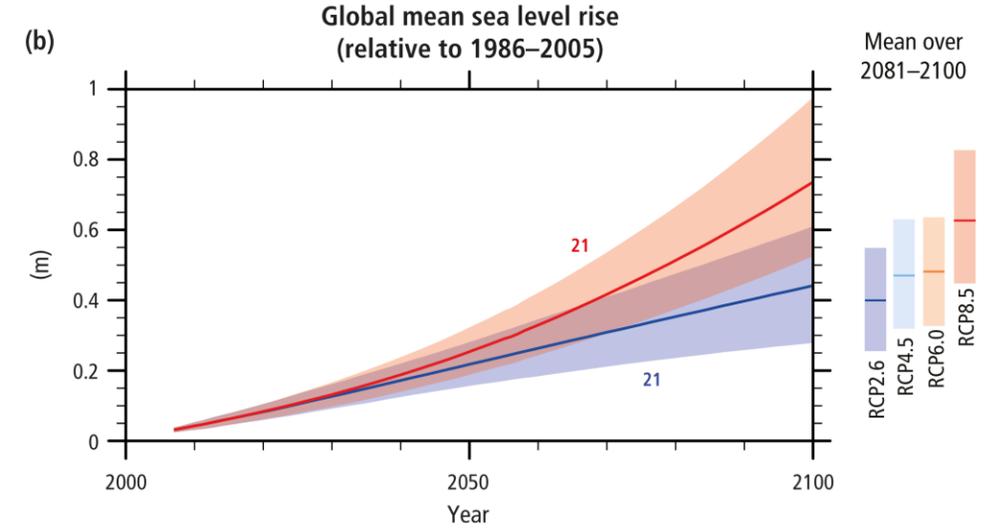
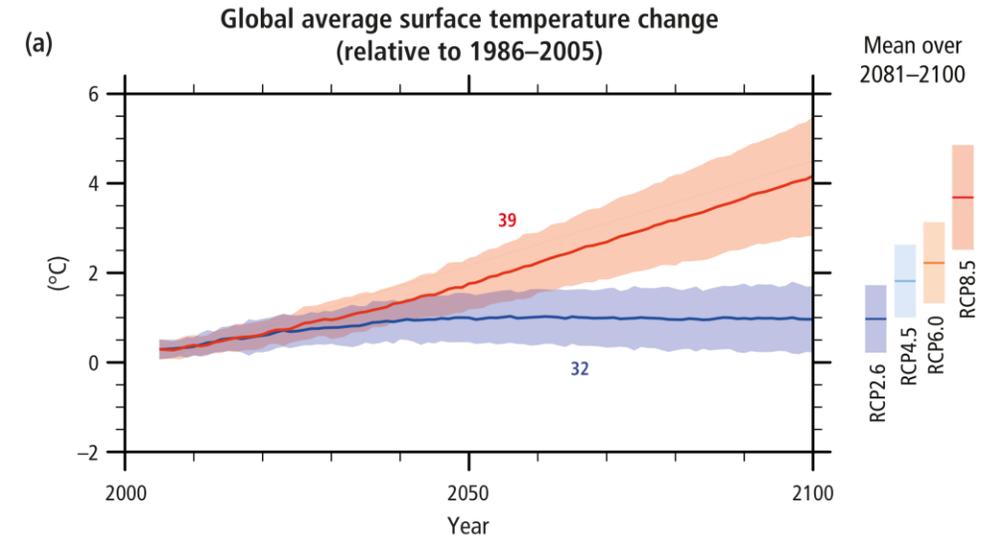
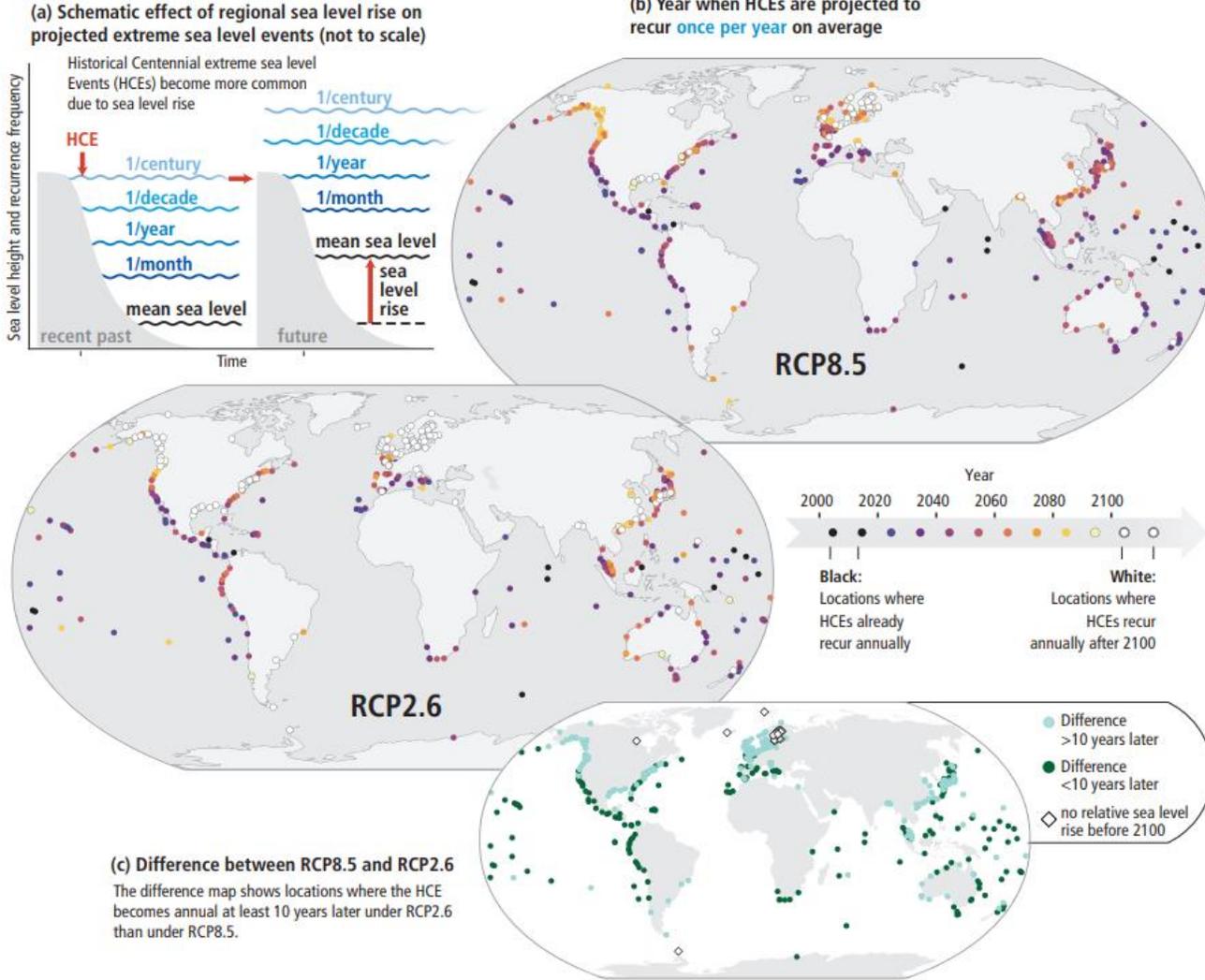
E0 monitoring for coastal dynamic assessment

Speakers:

Anne-Laure BECK



User need summary



What is needed ?

- High temporal frequency



February 2016



June 2016

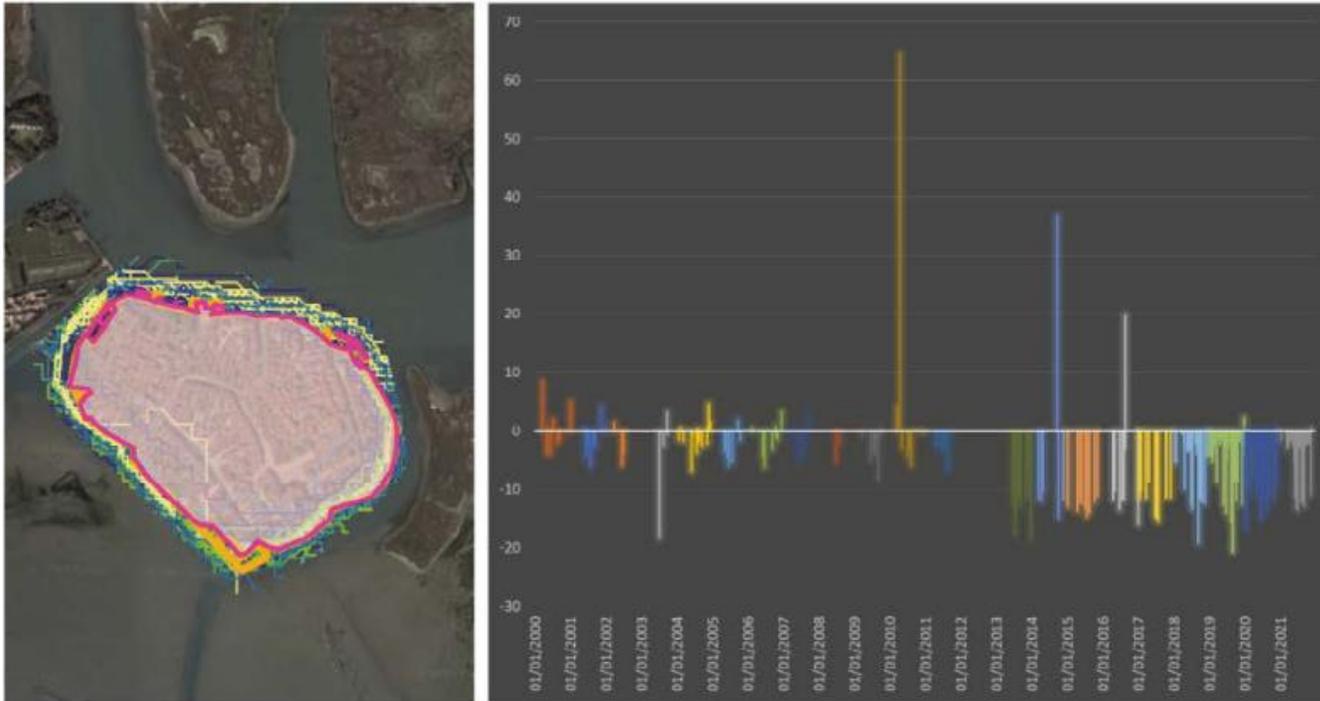


Sept 2016

Spatial scale (m)	Time-Scale					
	Micro		Meso		Macro	Meta
	Seconds-hours	hours-seasons	Seasons-years	Years-decades	Centuries	Millennium
Micro mm-100m	Turbulence Sand Transport Waves	Vegetation Armouring Beach state Storm erosion				
Meso 100 m-km	Beach restoration/ Resilience		Beach rotation			
Macro 1-10 km					Backbarrier dynamics Shore profile change	
Meta >10 km					Climate change Sea-level rise	

What is needed ?

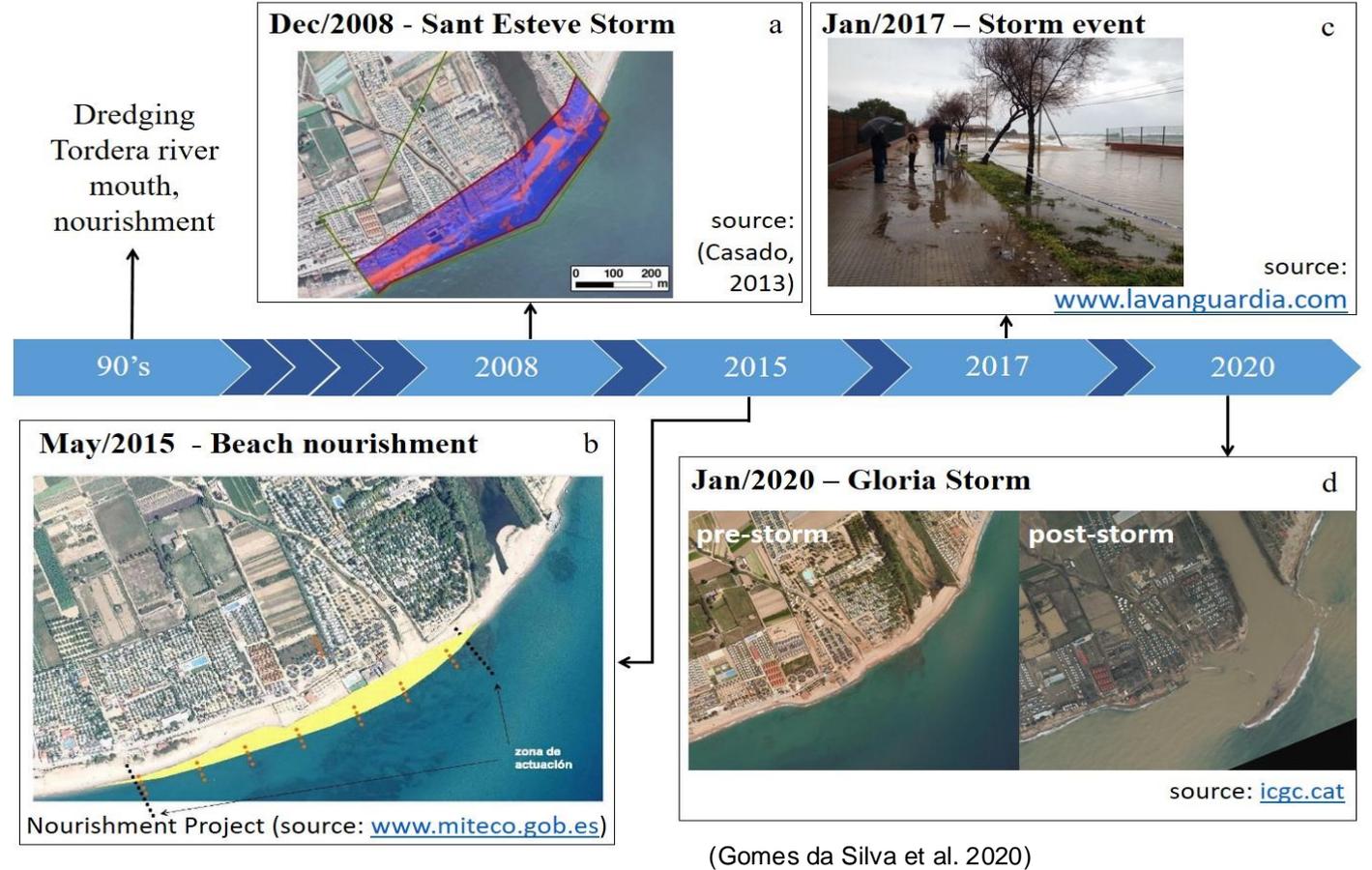
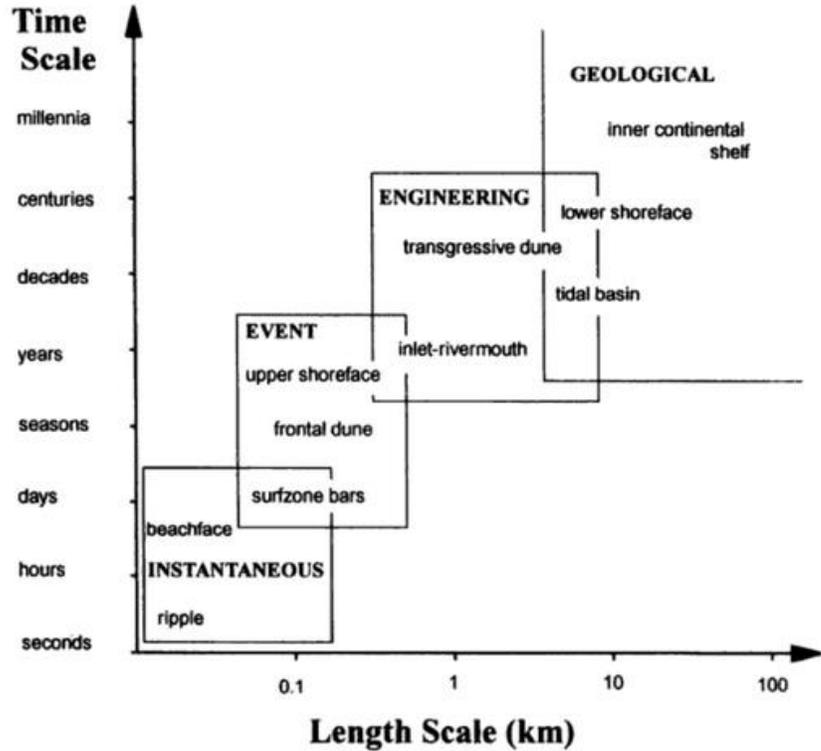
- A real coastline



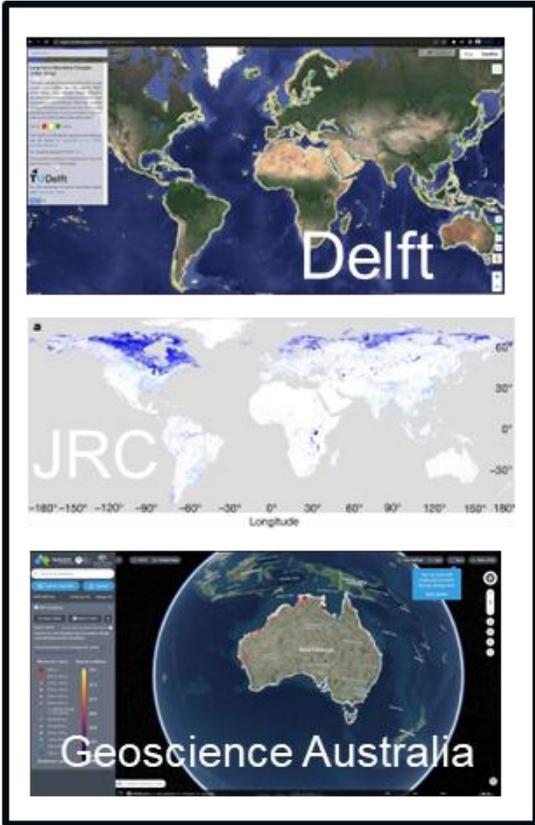
(D'Ascola et al., 2022)

What is needed ?

- High spatial accuracy



Existing Open-source solution



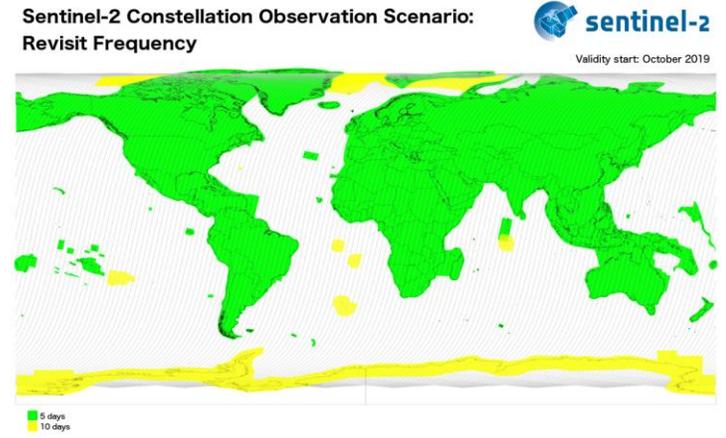
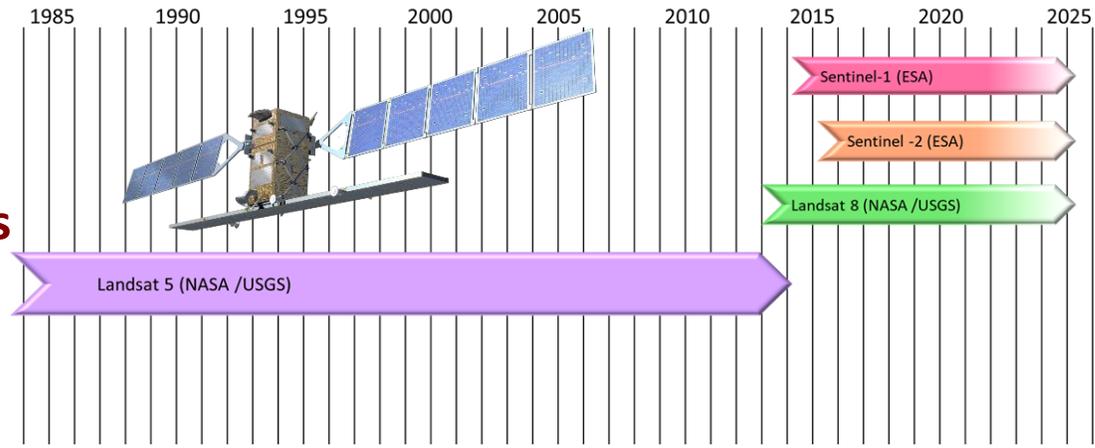
Composite images are made up of two or more photographs, which are combined to create one image



UK COASTAL RESEARCH CONFERENCE, PLYMOUTH, 6TH JULY 2023

Our solution

- Using all available images



- A real representation



- High spatial accuracy



Data Selection



Cloud cover : 0,21 %



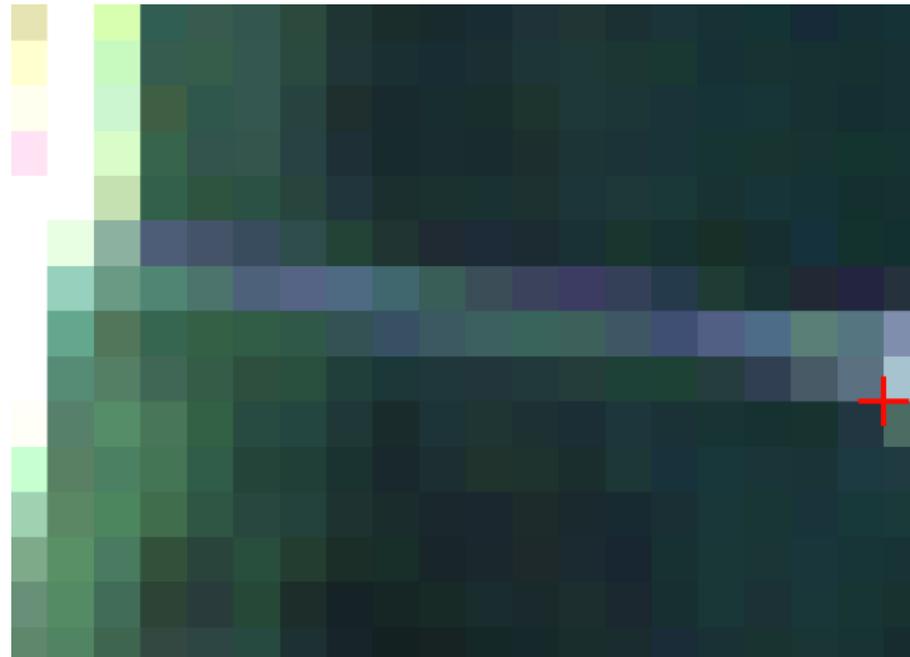
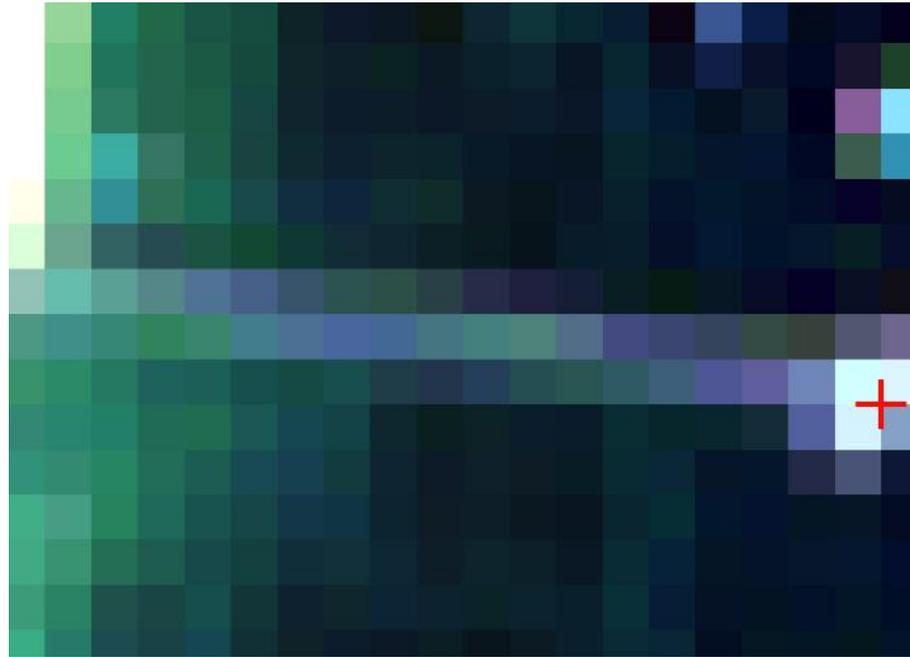
Cloud cover : 45,08 %



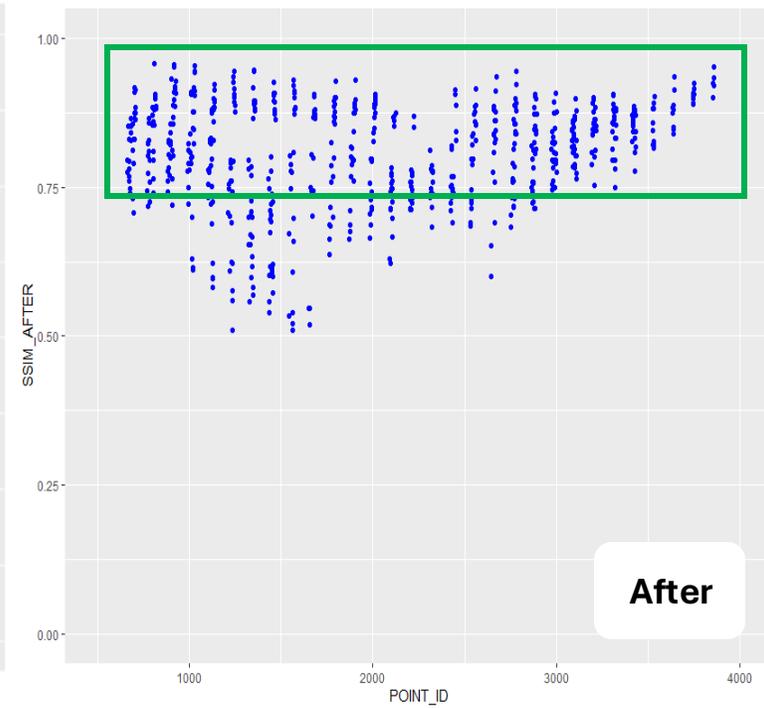
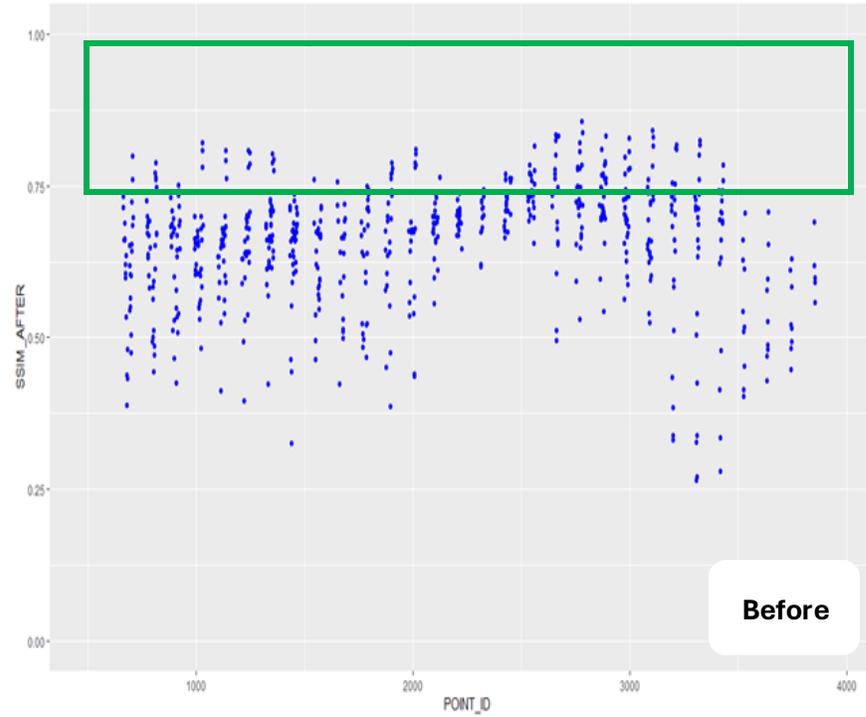
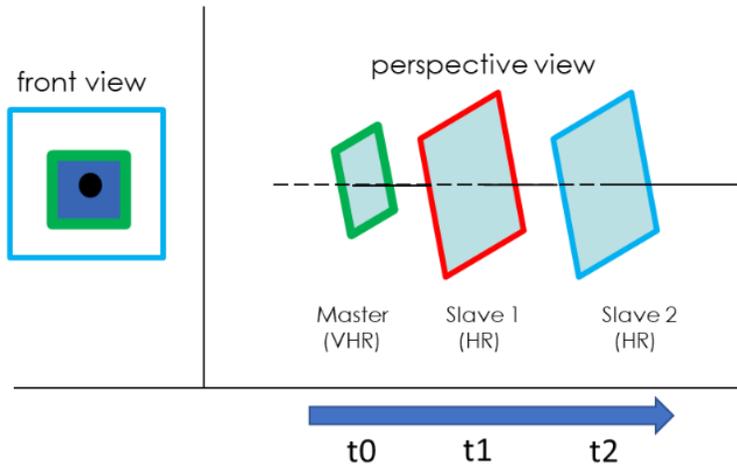
Cloud cover : 20,11 %



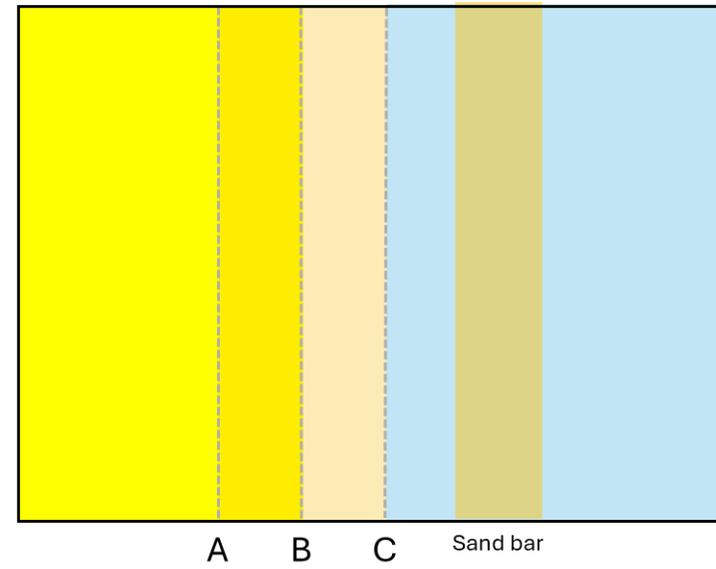
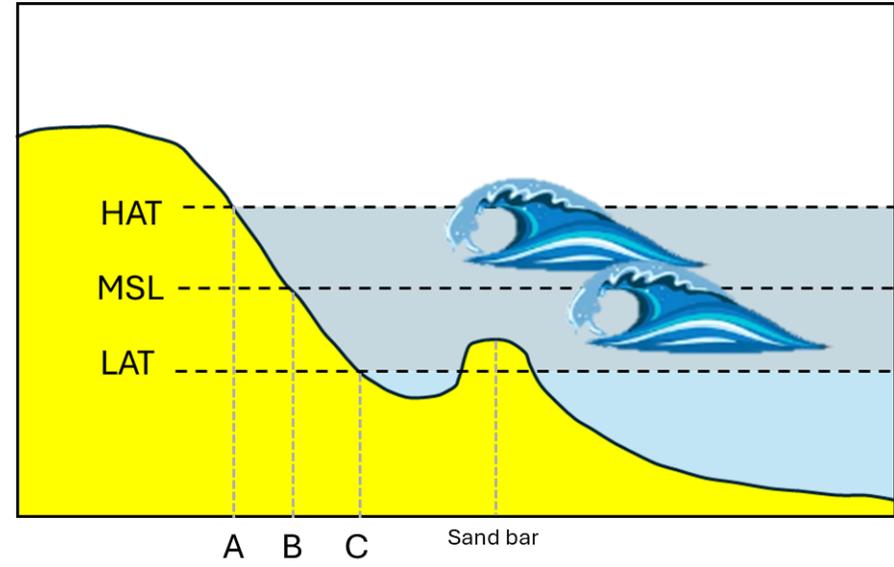
Co-Registration



Co-Registration



Waterline

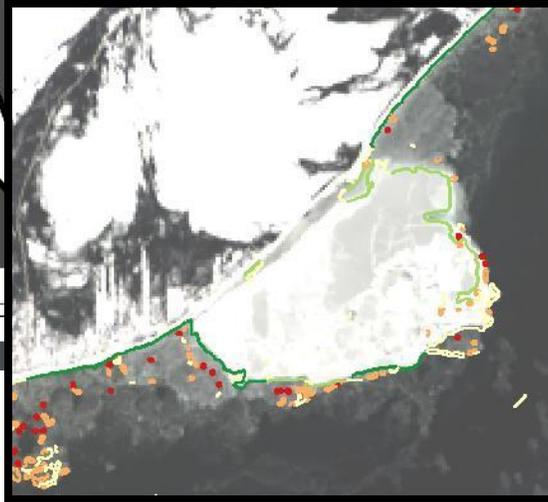
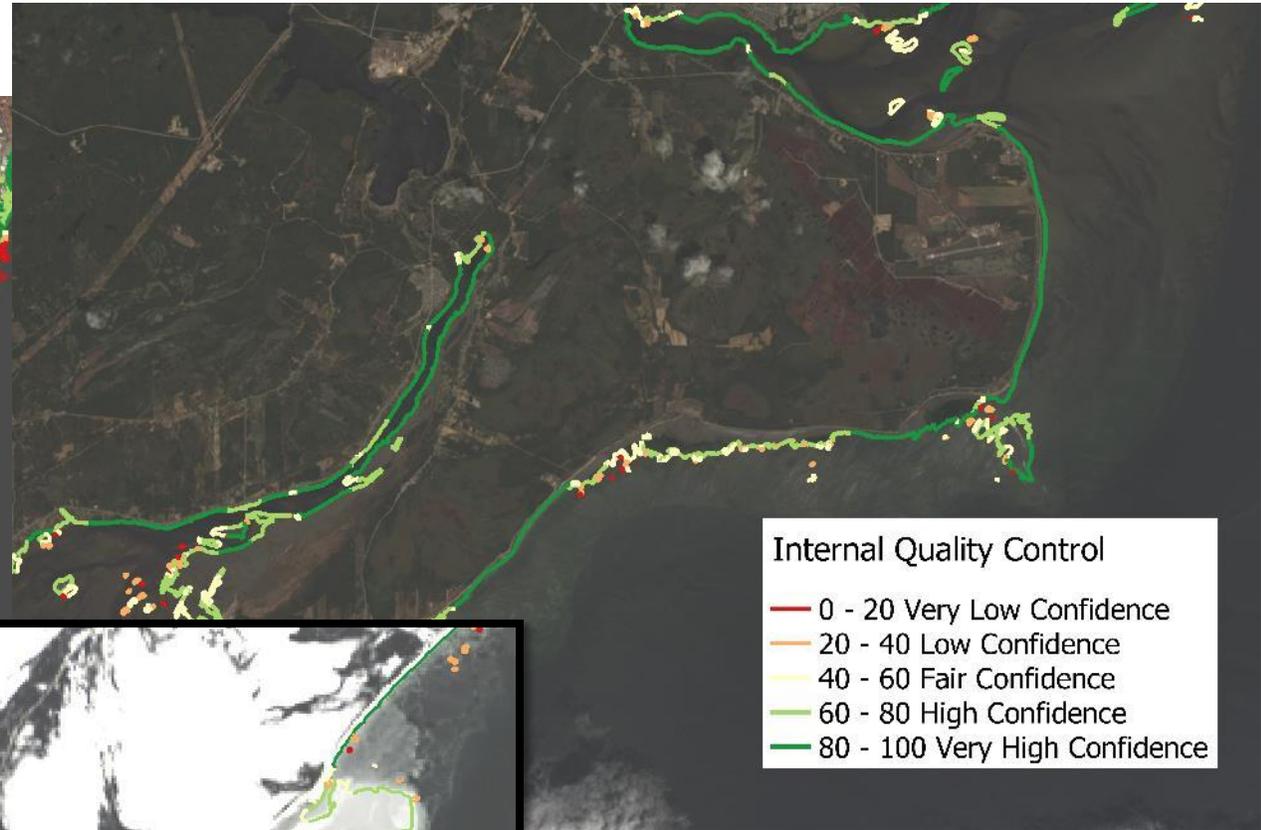
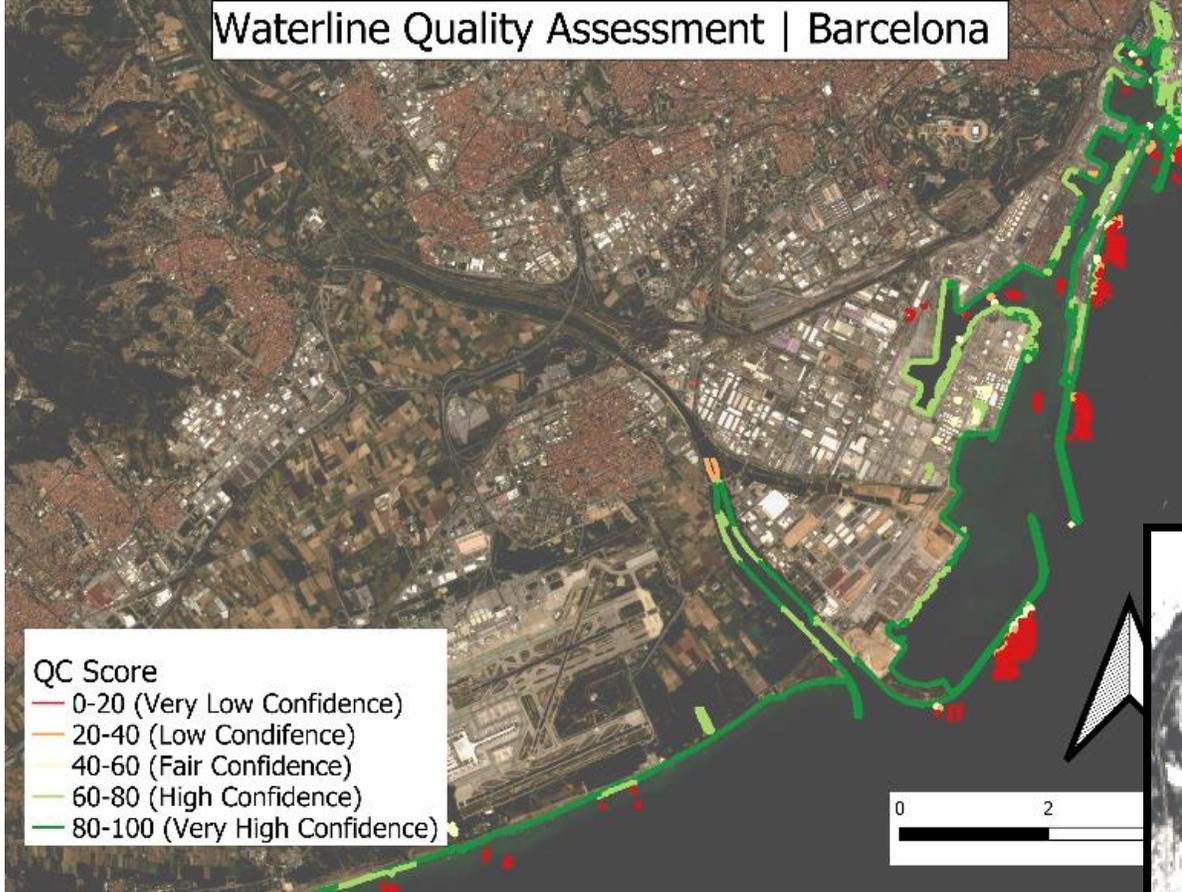


Waterline

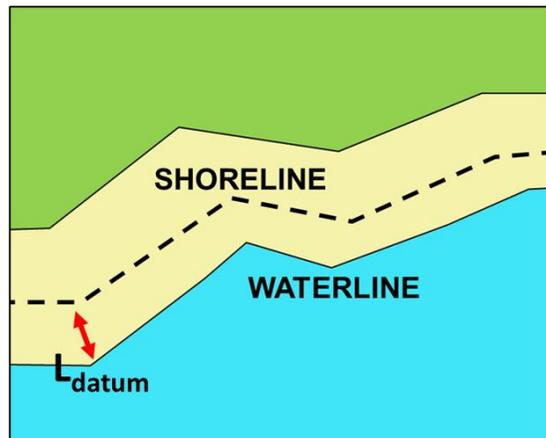
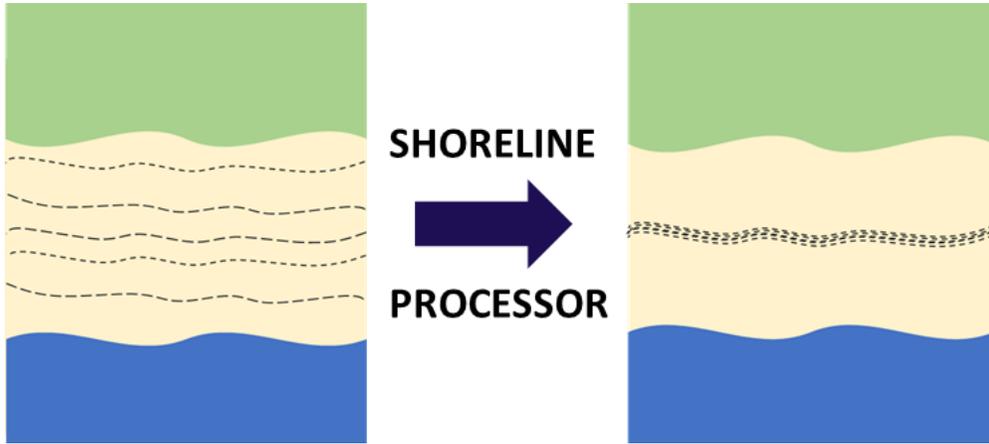


Waterline

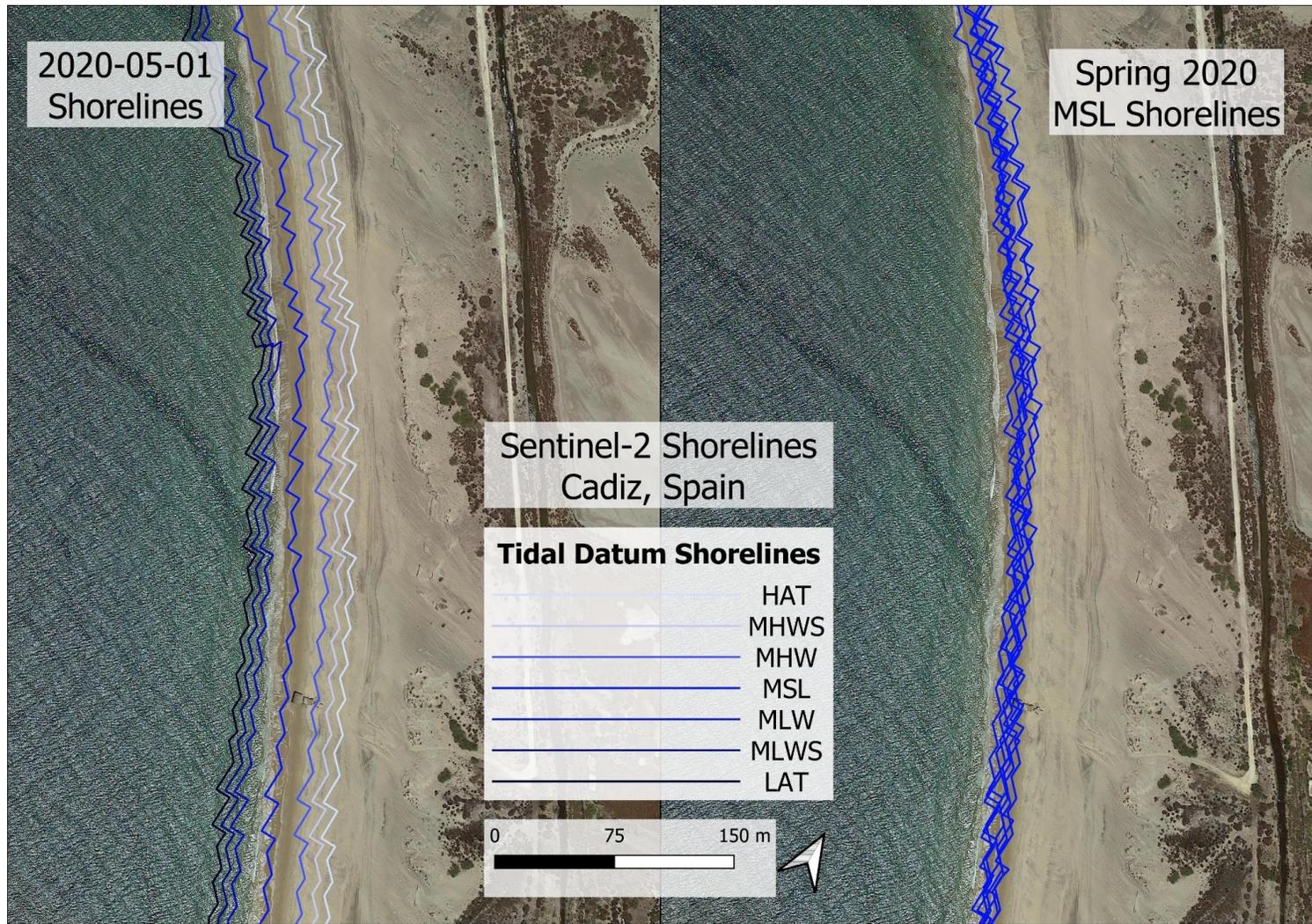
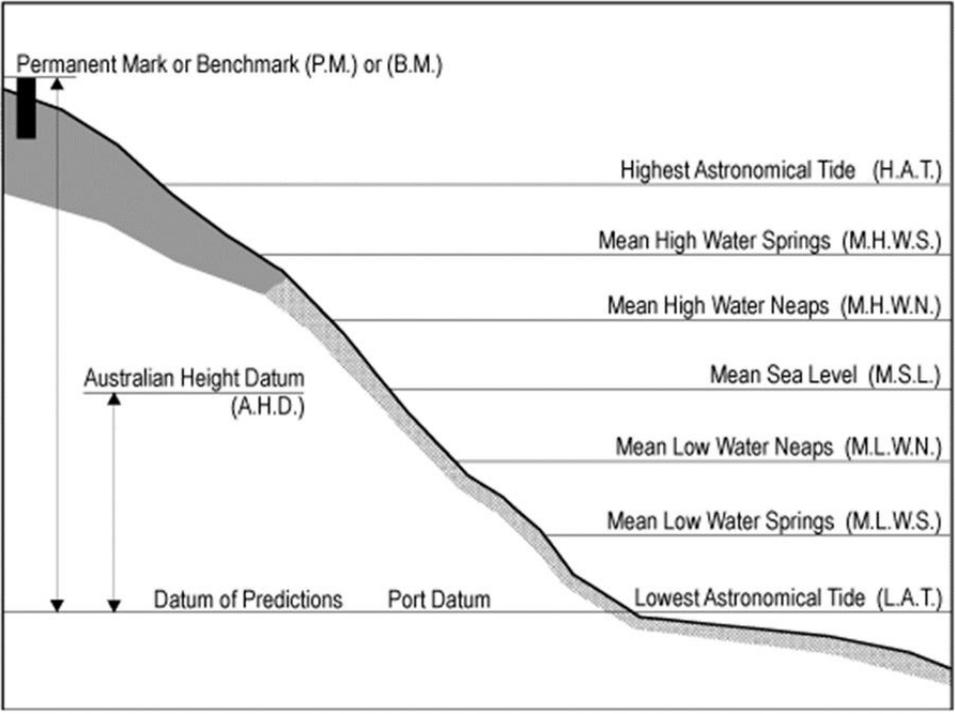
Waterline Quality Assessment | Barcelona



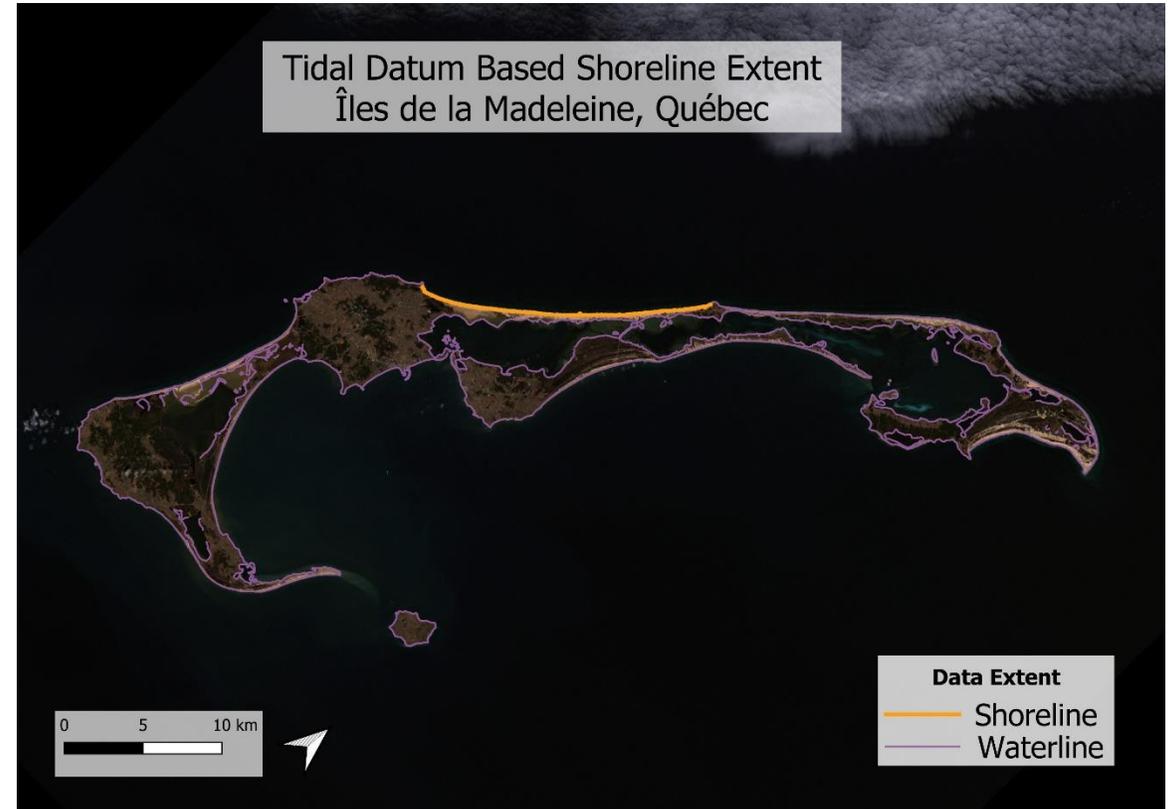
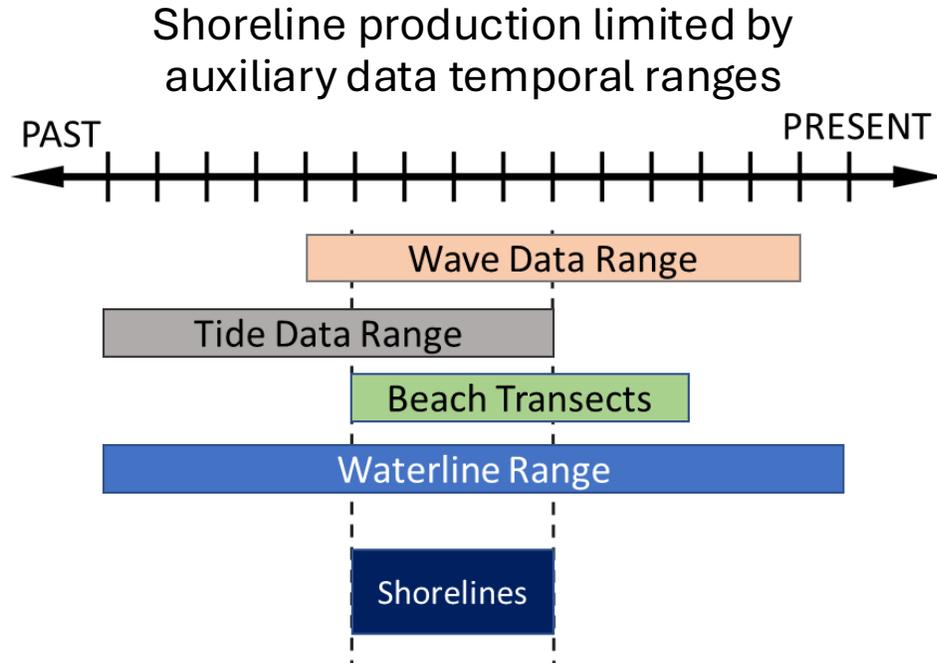
Shoreline



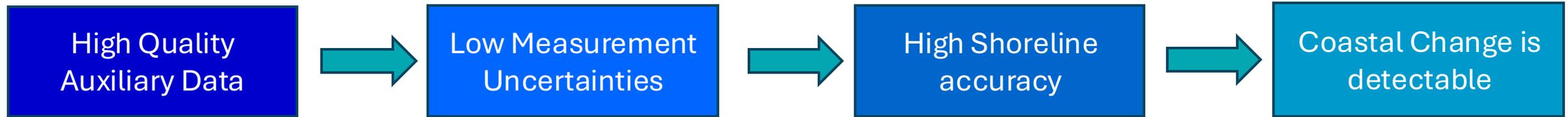
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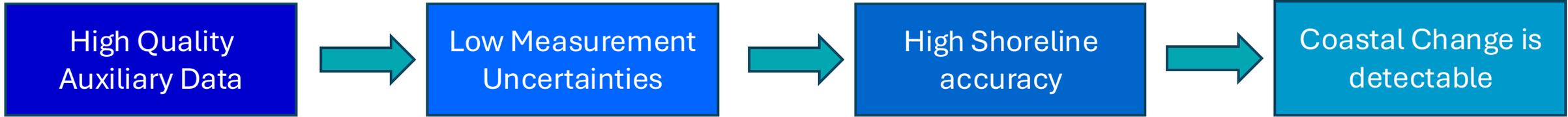
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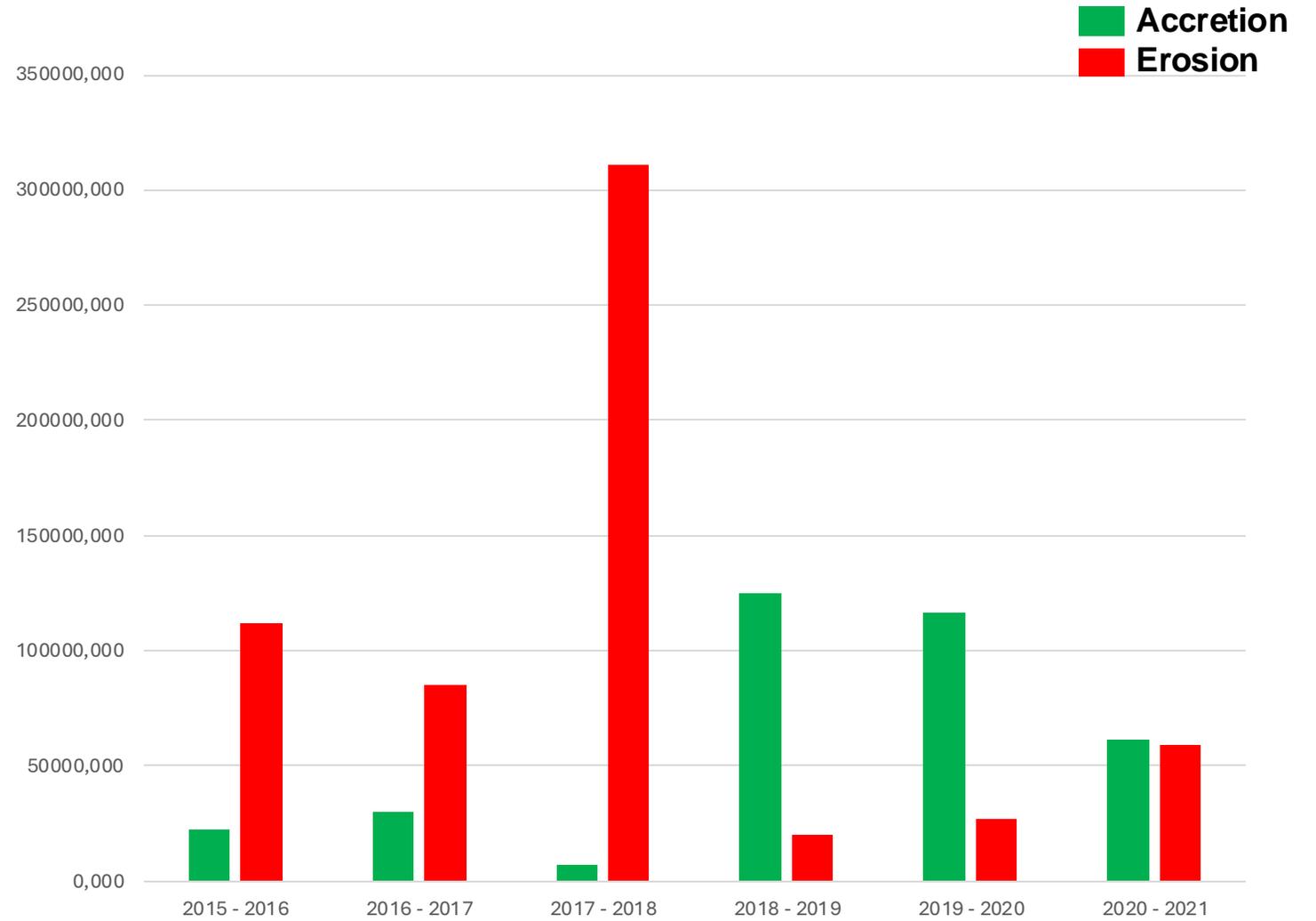
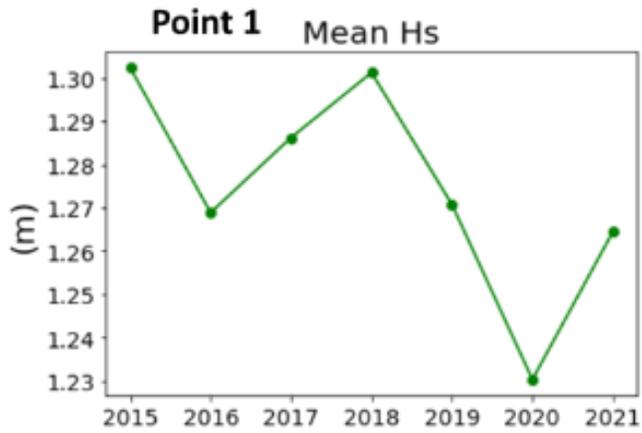
Time series



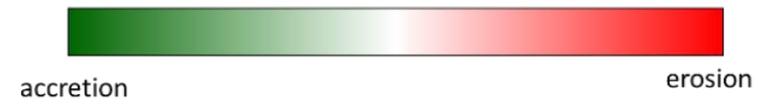
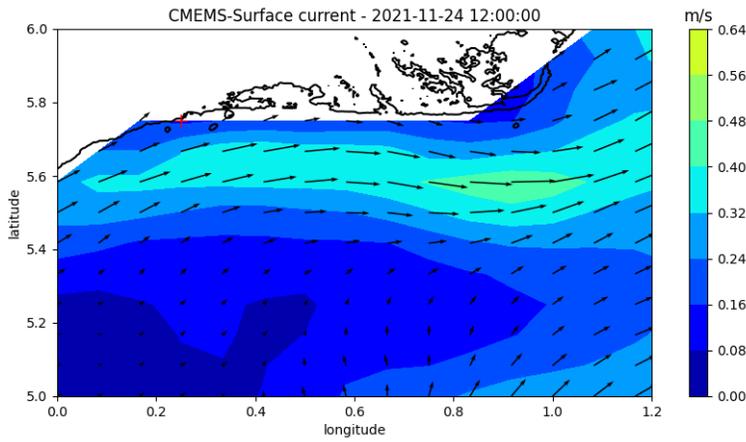
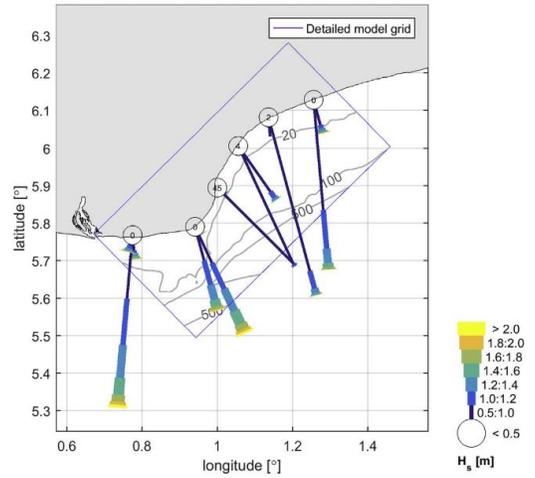
Time series



Time series

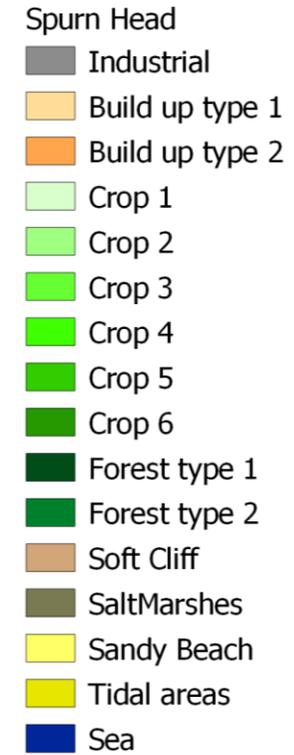
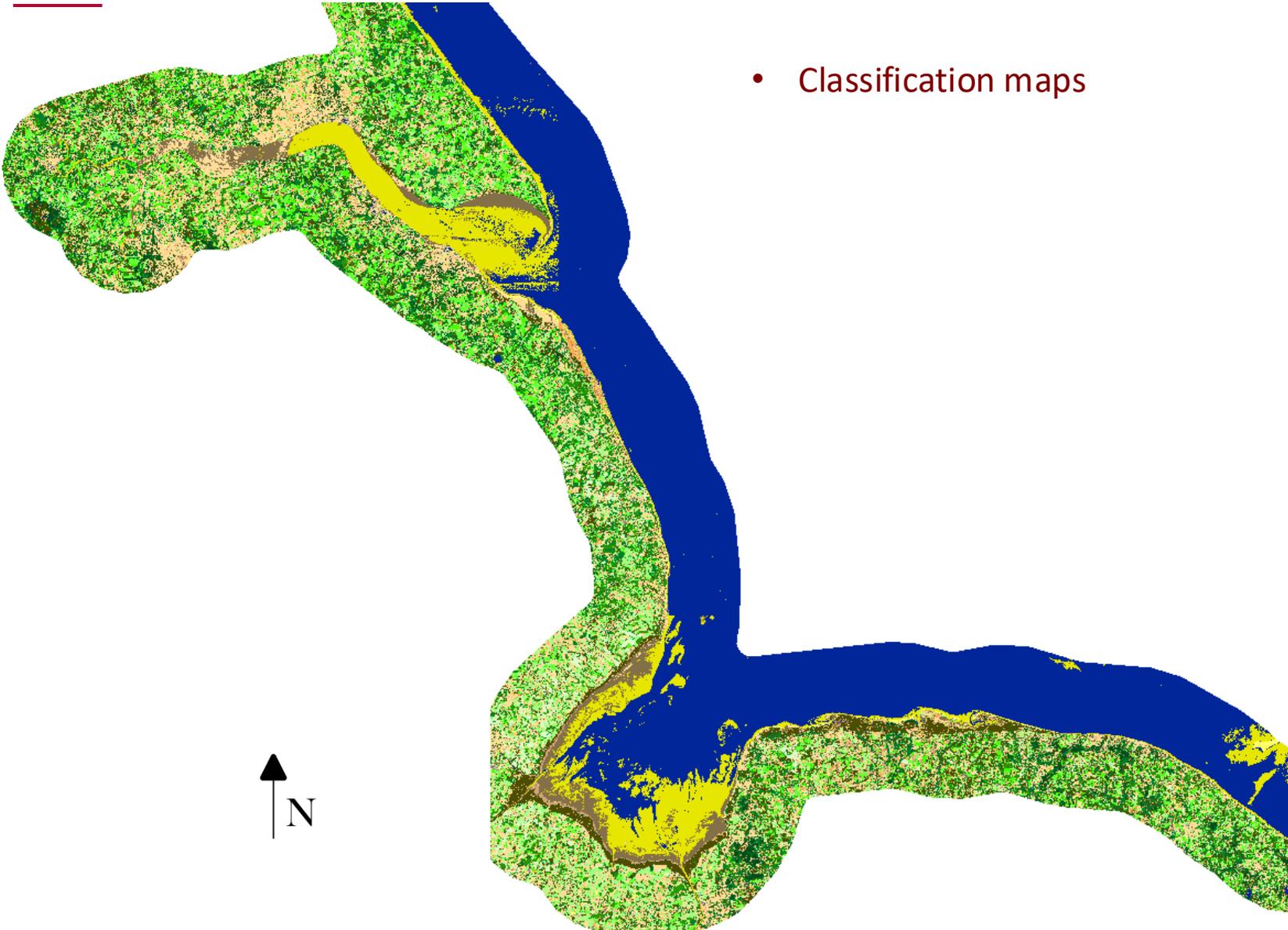


Time series



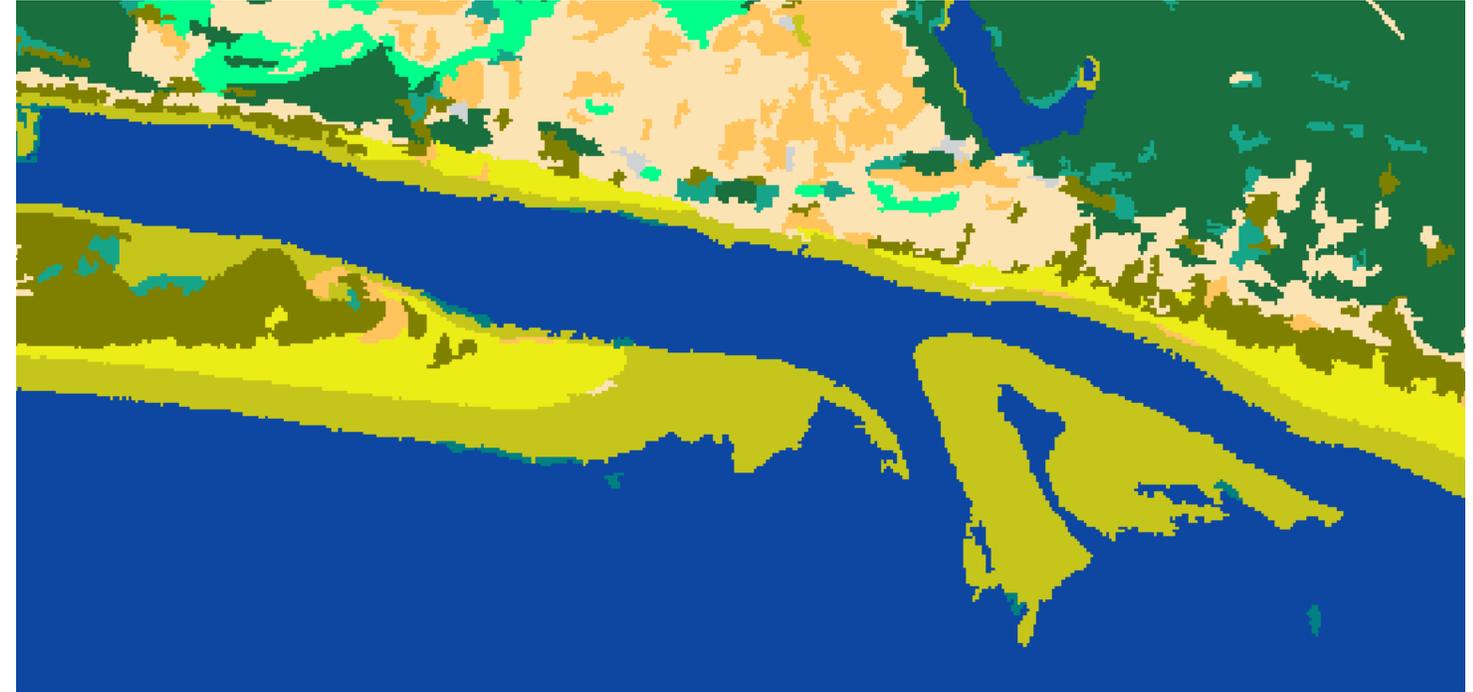
Additional products

- Classification maps



Additional products

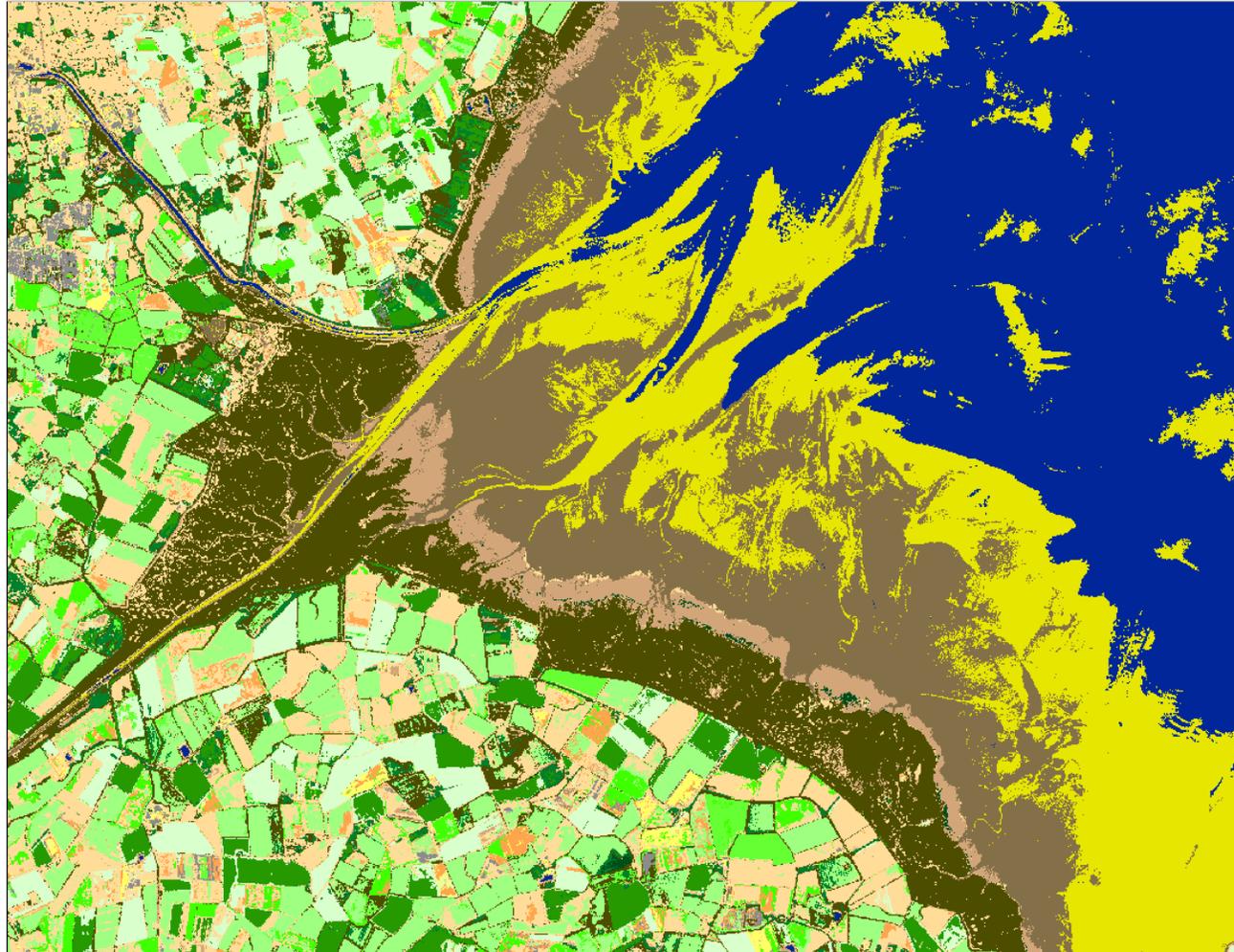
- Classification maps – moving coastal features



Additional products

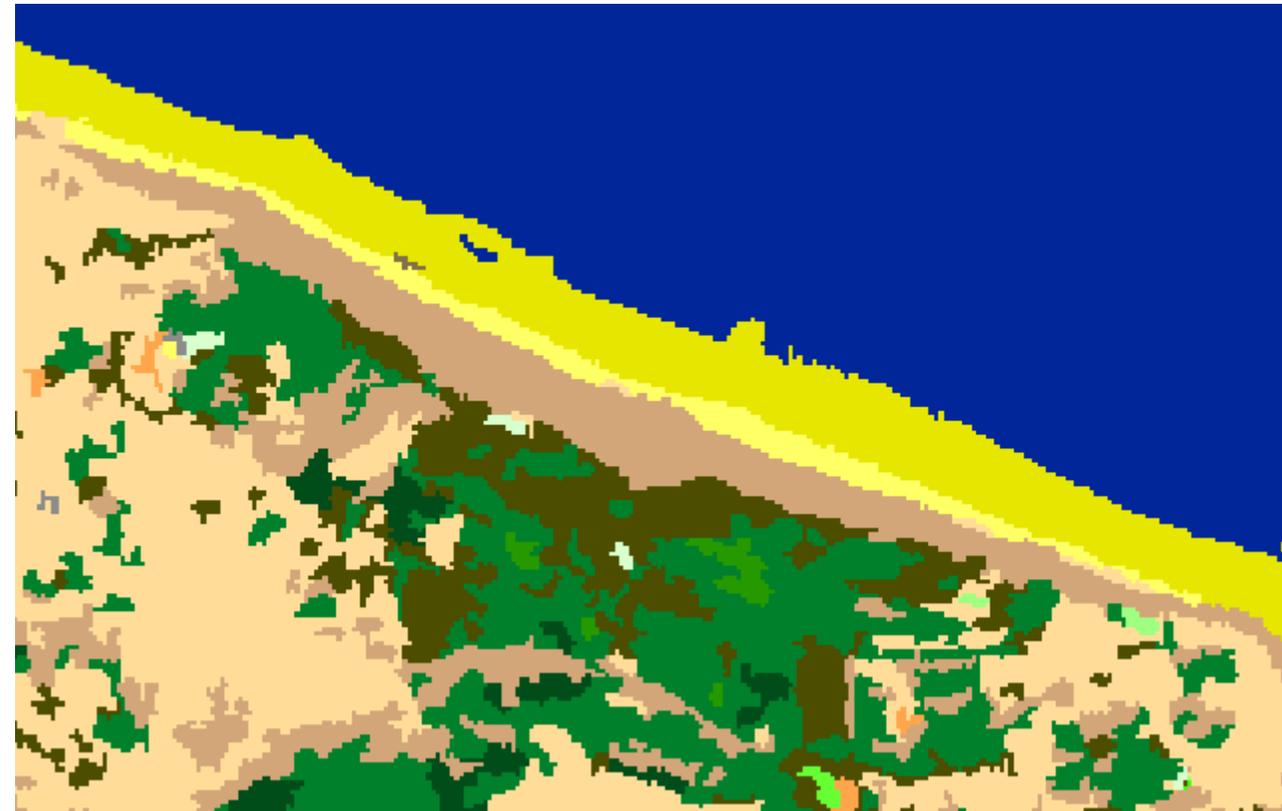
- Classification maps – moving coastal features

- Industrial
- Build-Up area 1
- Build-Up area 2
- Crop type 1
- Crop type 2
- Crop type 4
- Crop type 5
- Crop type 6
- Forest type 1
- Forest type 2
- Soft Cliff
- Salt Marshes
- Mudflat
- Sandy Beach
- Tidal area
- Sea



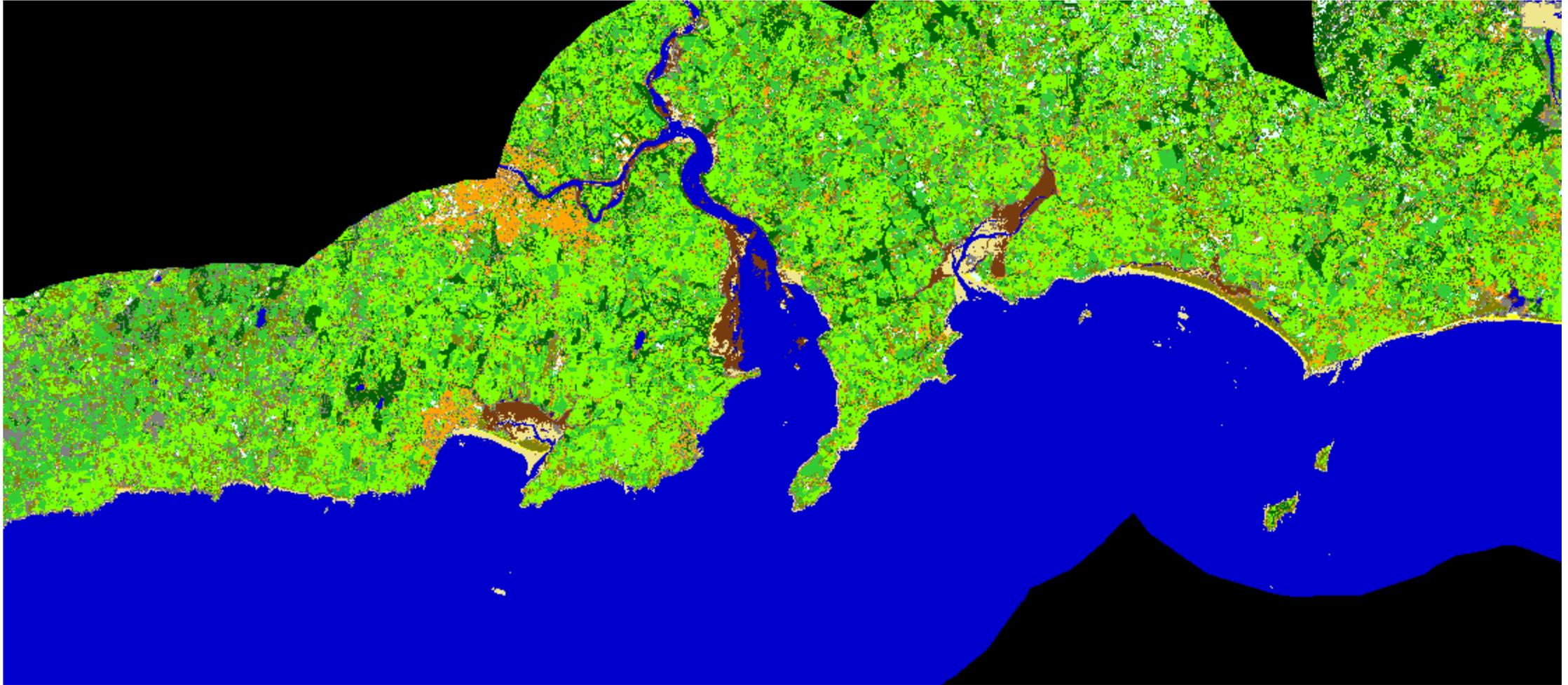
Additional products

- Classification maps – coastal areas



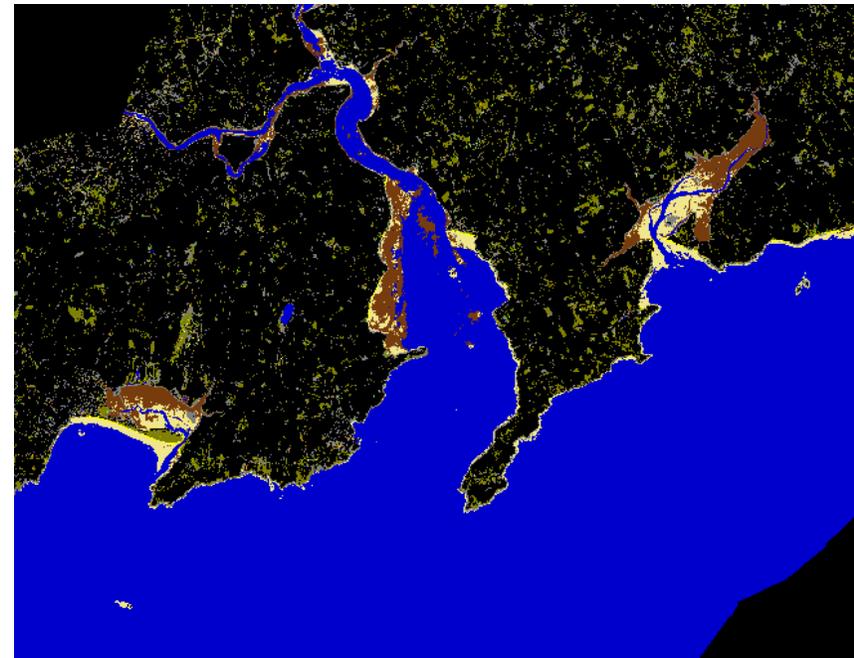
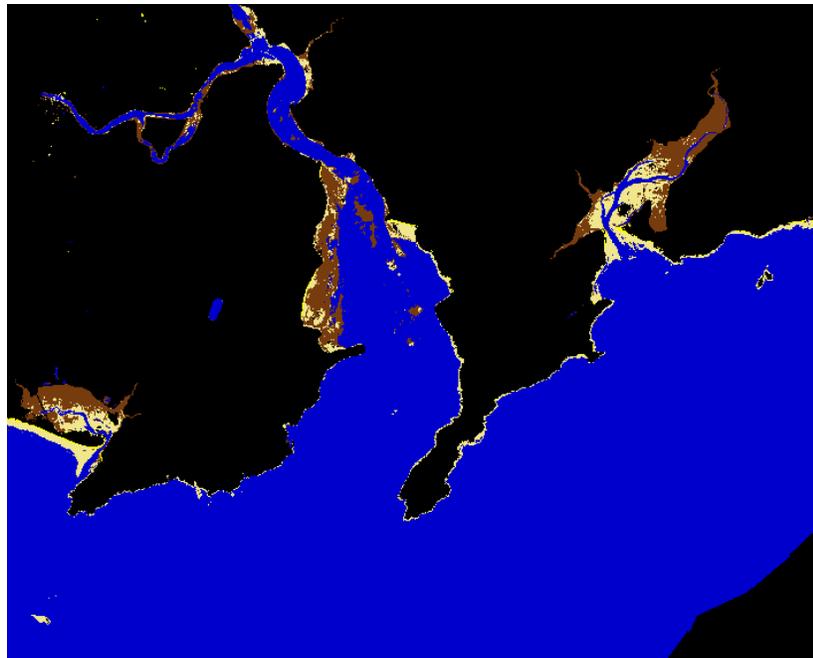
Additional products

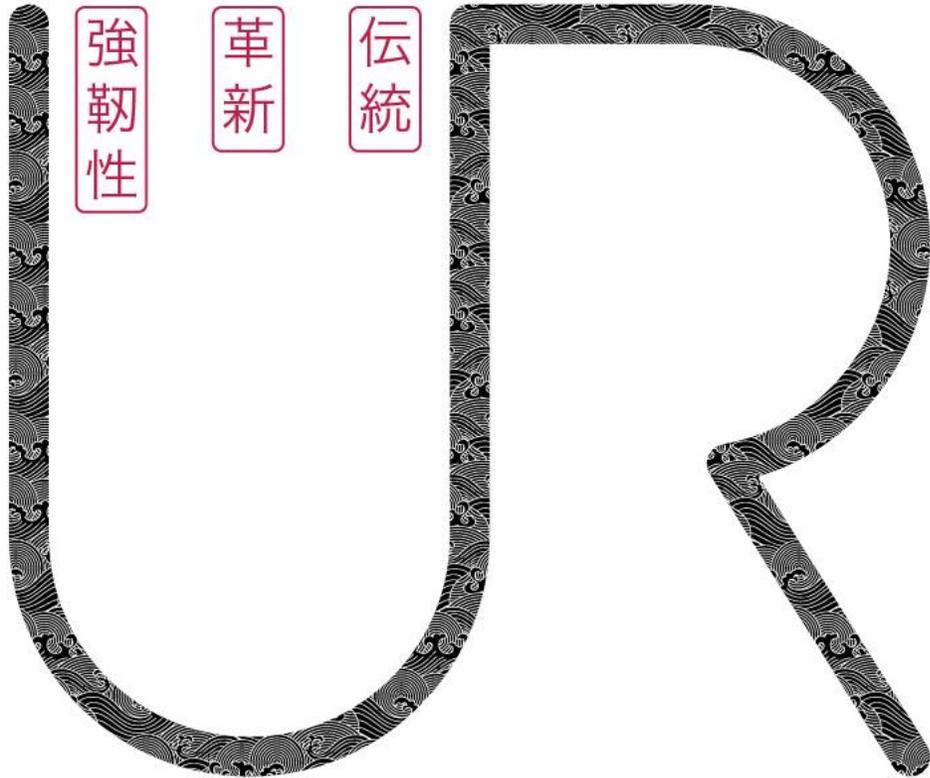
- Classification maps – coastal areas



Additional products

- Classification maps – coastal areas





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Thank you!

Question ?

Anne-Laure BECK
EO Engineer &
Coastal Program Technical Manager



<https://coastalerosion.argans.co.uk/>

Logos:

