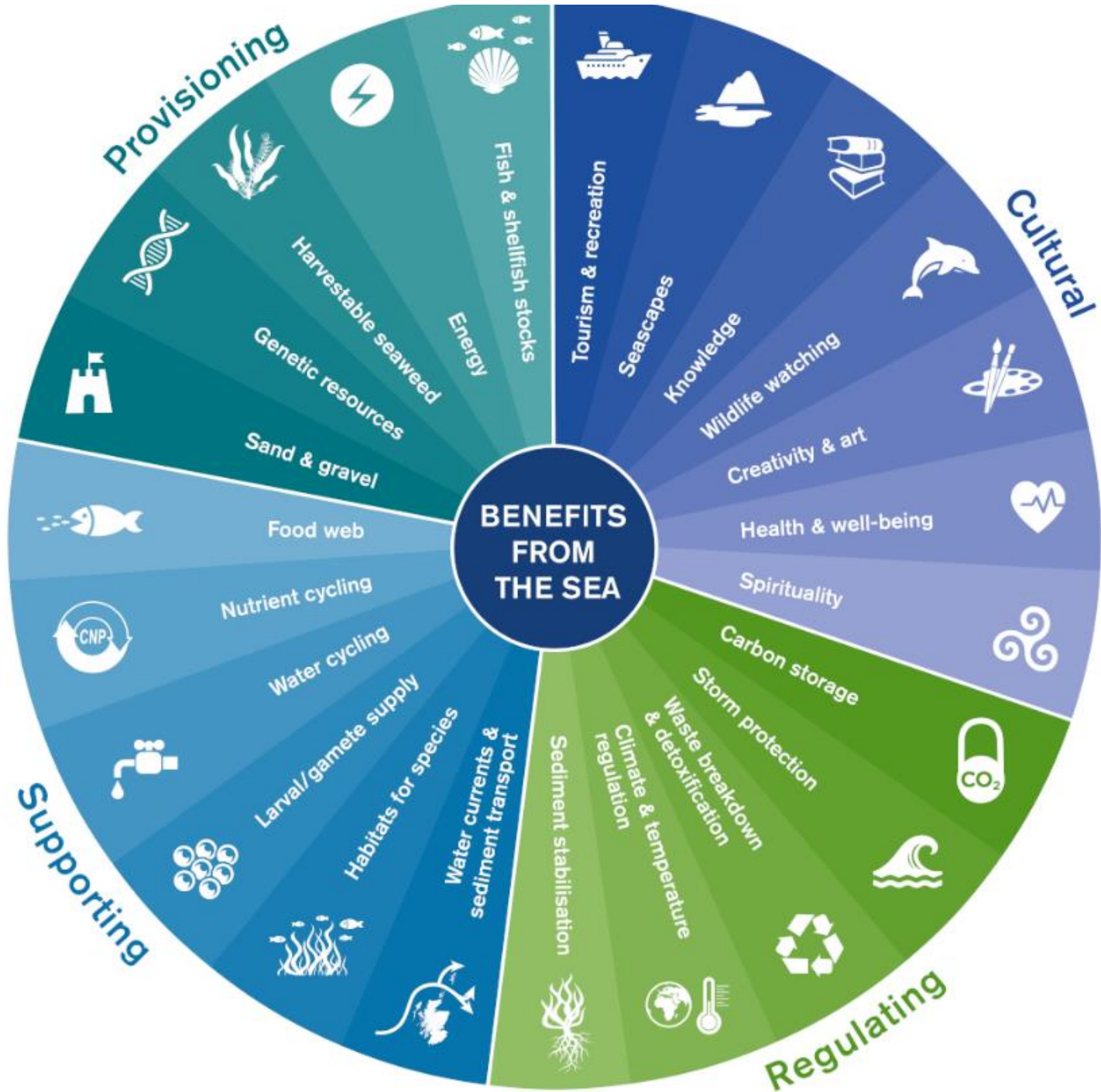


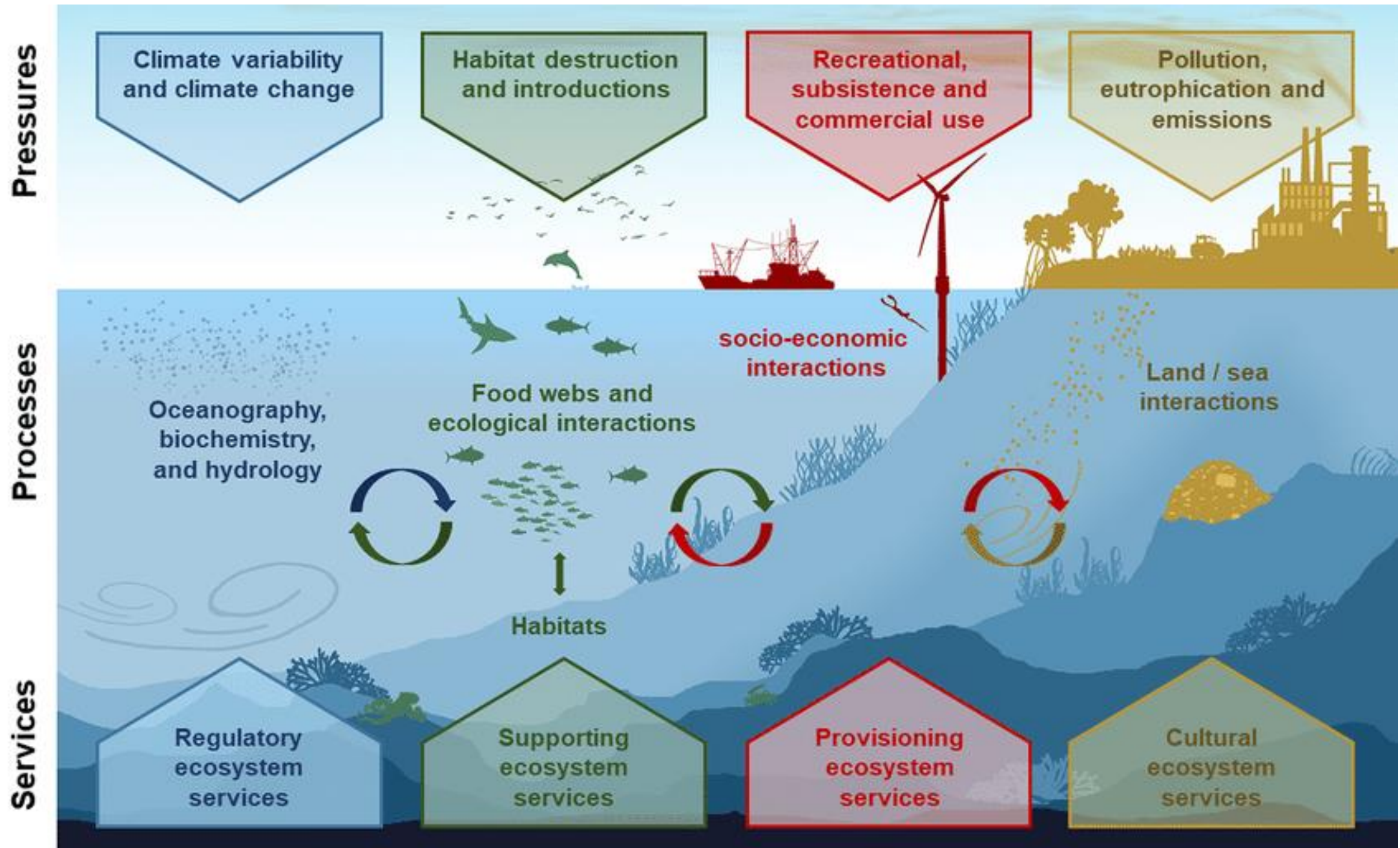
The logo for the National Oceanography Centre, featuring a square with a white top half and a blue bottom half, with the text "National Oceanography Centre" in black on the blue background.

National
Oceanography
Centre

CHANGING MARINE HABITATS: RISKS AND OPPORTUNITIES

CLAIRE EVANS
CLEVANS@NOC.AC.UK





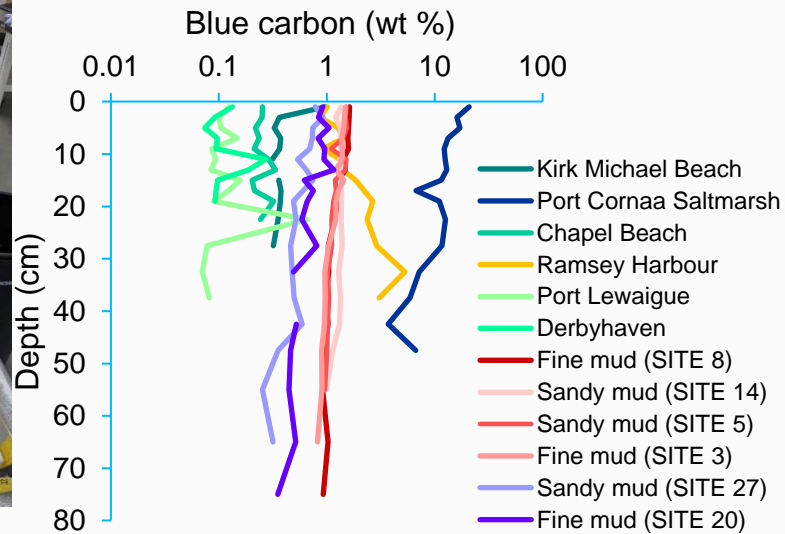
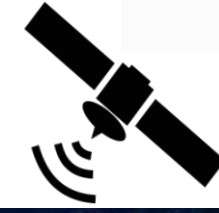
COASTAL VEGETATED ECOSYSTEMS



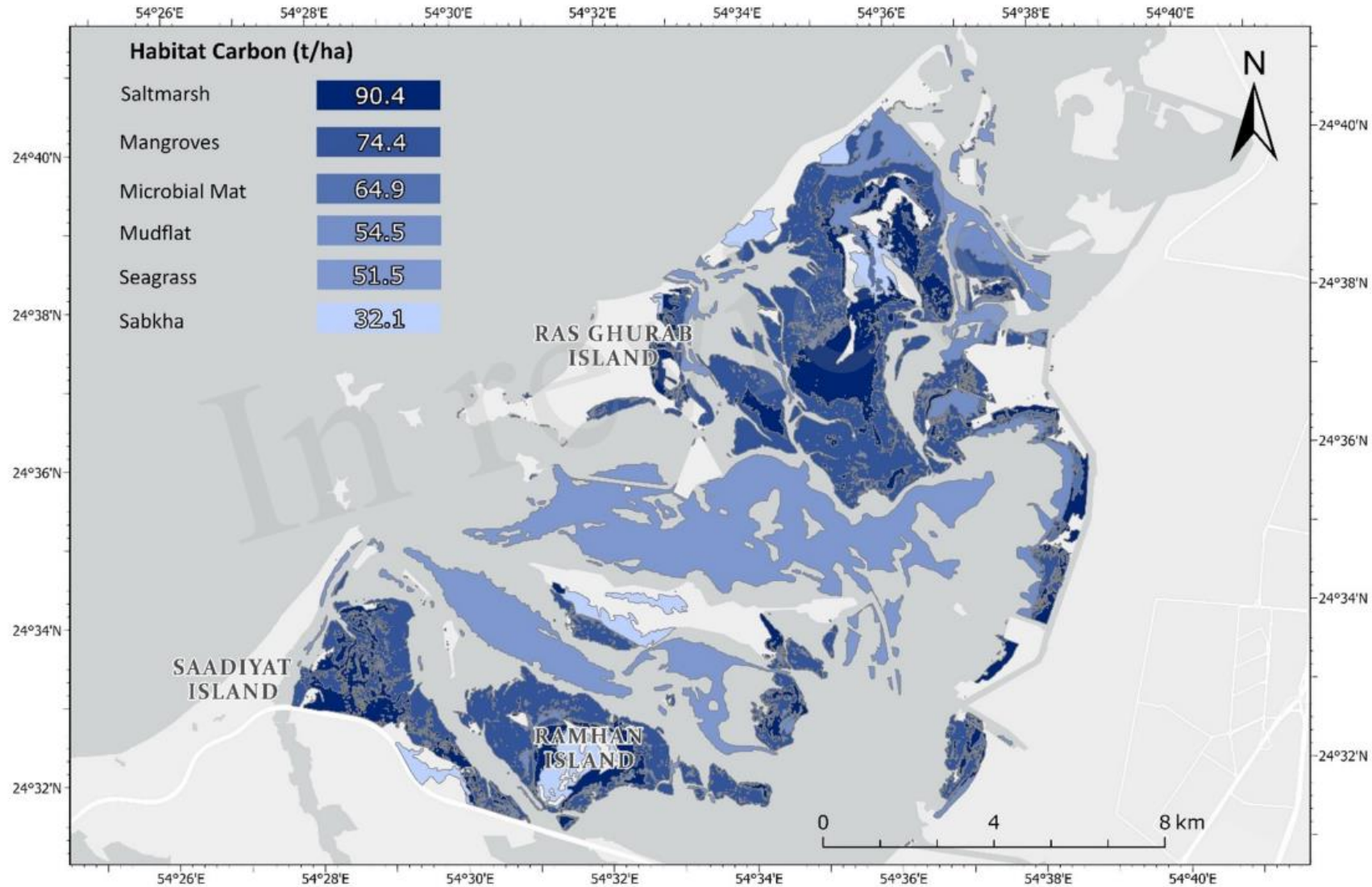
‘BLUE CARBON’ - SOCIO-ENVIRONMENTAL CONCEPT

MANAGEMENT OF MARINE RESOURCES OR ECOSYSTEMS TO PRESERVE, MAINTAIN OR ENHANCE THEIR CARBON STOCKS AND/OR SEQUESTRATION POTENTIAL

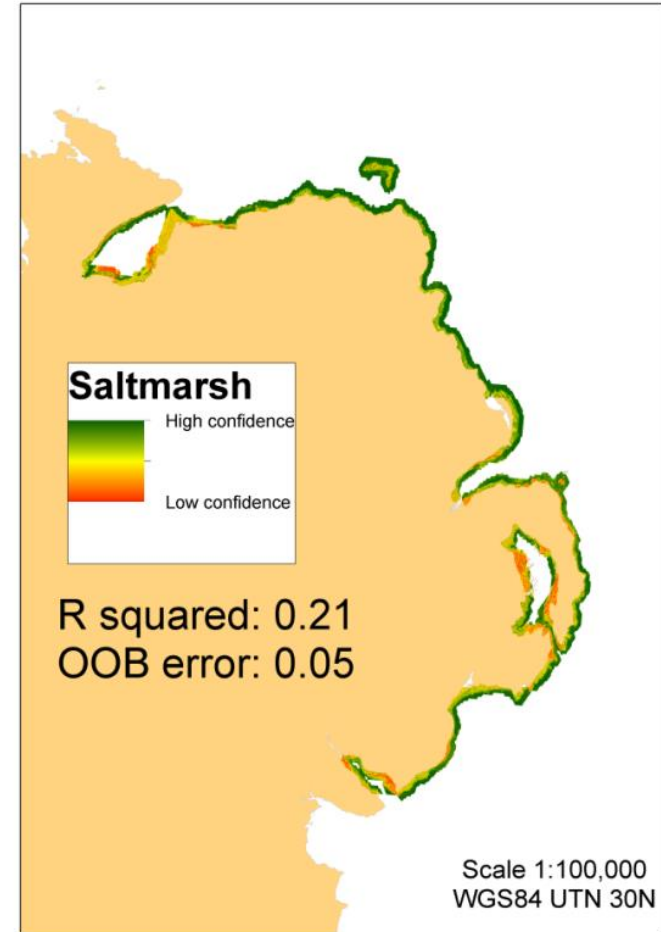
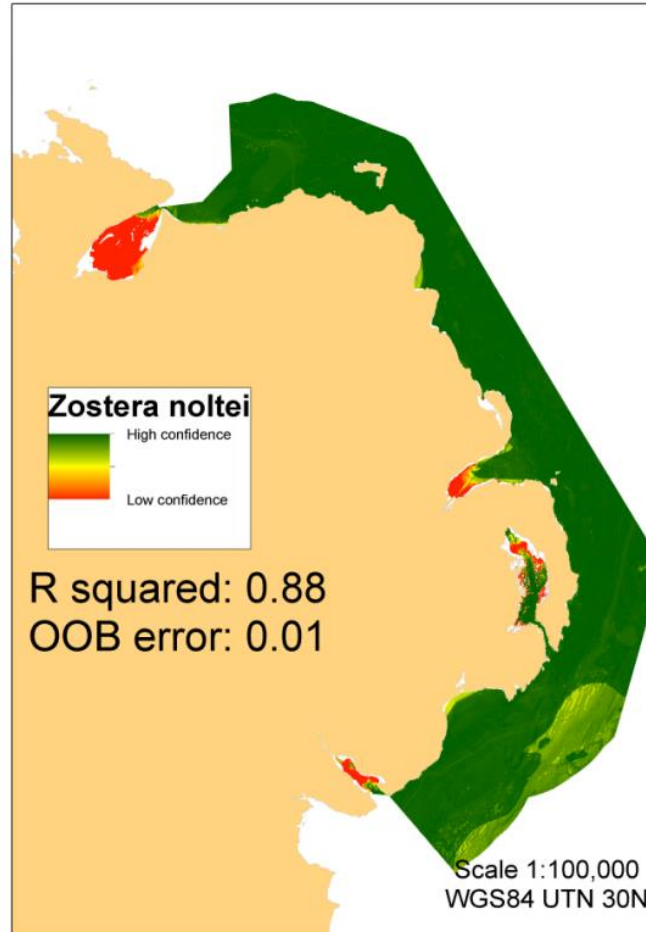
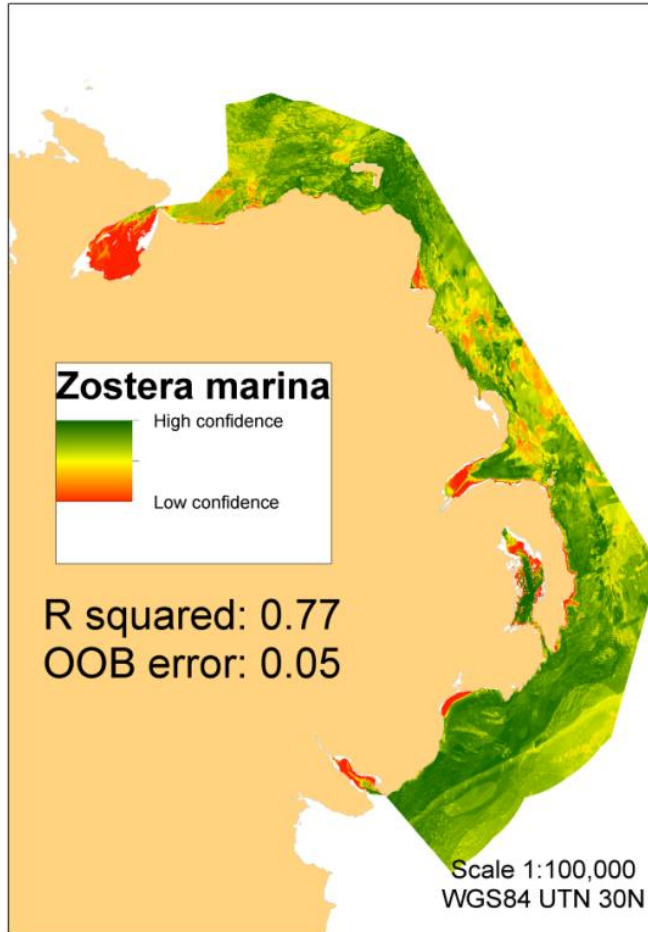
COLLECTION AND ANALYSIS OF CARBON CORES



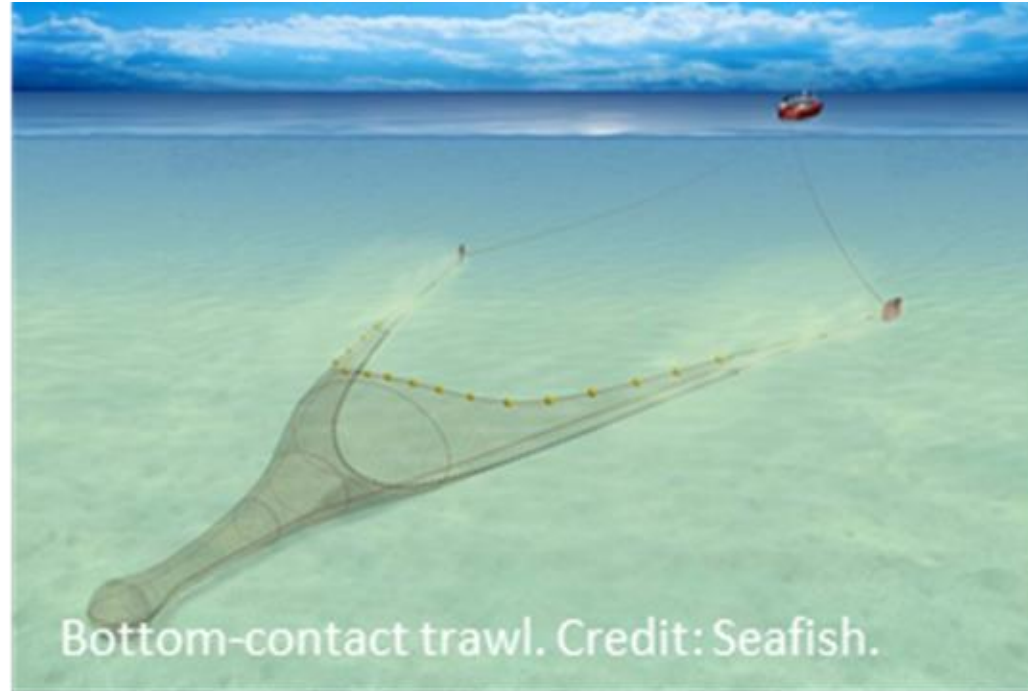
BLUE CARBON ASSESSMENTS/INVENTORIES



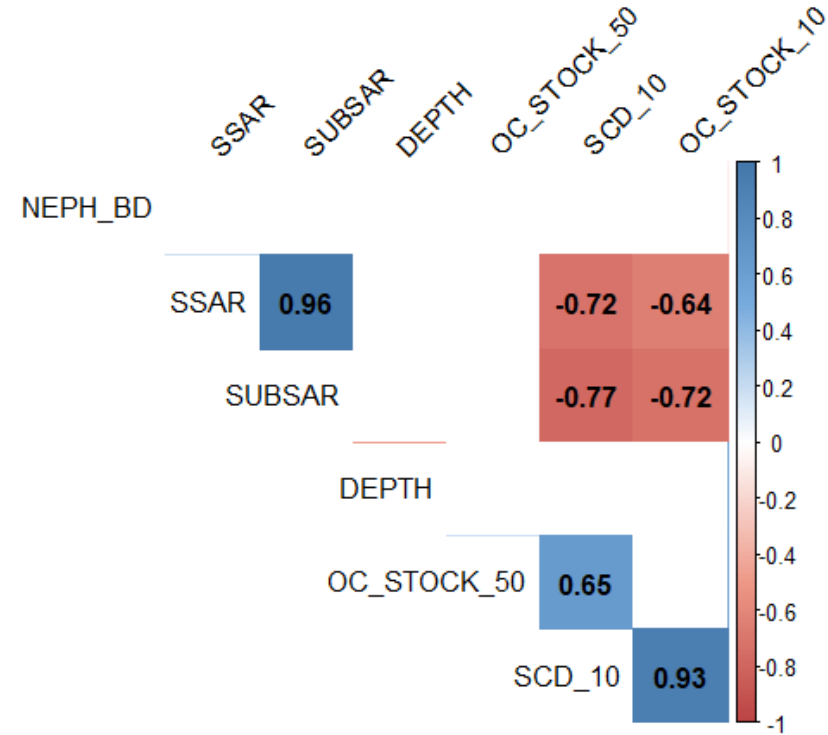
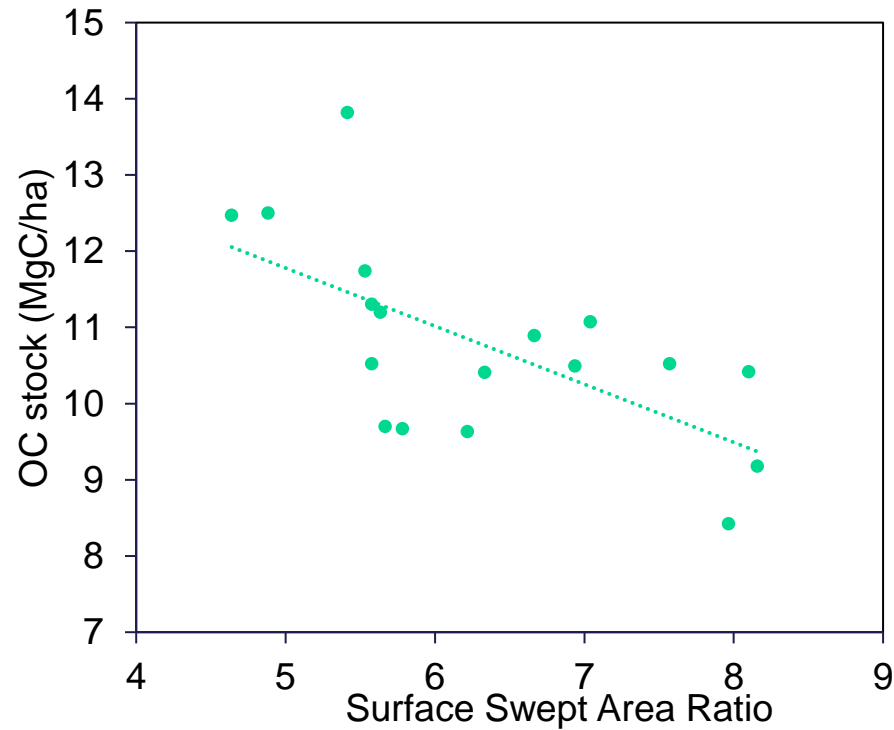
HABITAT SUITABILITY MODELLING



BOTTOM TRAWLING IMPACT ON SEDIMENTARY CARBON



BOTTOM TRAWLING IMPACT ON SEDIMENTARY CARBON



	Soil carbon density, 0–10 cm (mgC cm ⁻³)	Sedimentation rate (cm yr ⁻¹)	OC accumulation rate, 0–10 cm (gC m ⁻² yr ⁻¹)
Range	6.30 – 13.82	0.27 – 0.40	17.01 – 55.28
Average	10.69	0.32	34.21

The logo for the National Oceanography Centre, featuring a white square above a blue square, with the text "National Oceanography Centre" in white on the blue background.

National
Oceanography
Centre

The background of the slide is an aerial photograph of ocean waves, showing white foam and deep blue water.

MONITORING THE PHYSICAL ENVIRONMENT USING SATELLITE EARTH OBSERVATION

**PAUL BELL, SIMON WILLIAMS, CLIVE NEIL &
CHRISTINE SAMS**

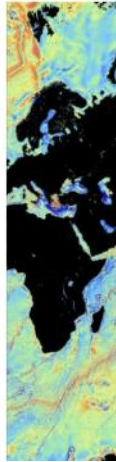
NEWS

Home | Cost of Living | War in Ukraine | Climate | UK | World | Business | Politics | Culture | Tech

Science & Environment

Satellites detect 'thousands' of new ocean-bottom mountains

© 2 October 2014



NEWS

Home | Cost of Living | War in Ukraine | Climate | UK | World | Business | Politics | Culture | Tech

Science & Environment

Satellites now get full-year view of Arctic sea-ice

© 15 September 2022

Climate change

NEWS

Home | Cost of Living | War in Ukraine | Climate | UK | World | Business | Politics | Culture | Tech

Science & Environment

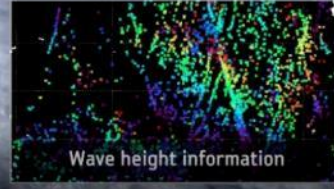
Nasa's Swot satellite will survey millions of rivers and lakes

© 16 December 2022



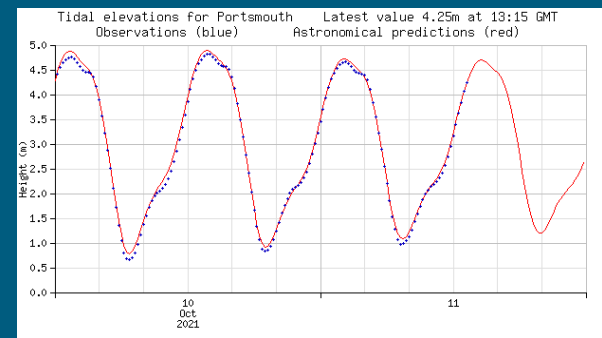
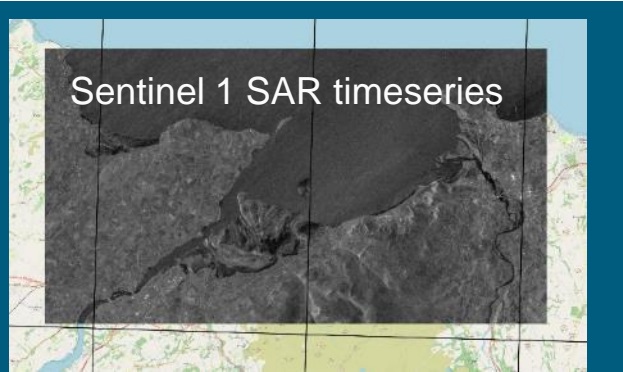
AWI/S. GRAUPNER

In summer months, up to 30% of the sea-ice ca



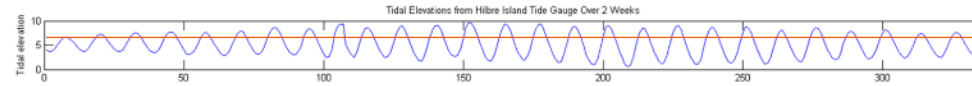


INTERTIDAL MONITORING, COMPOSITE 'SNAPSHOTS' OF TOPOGRAPHY

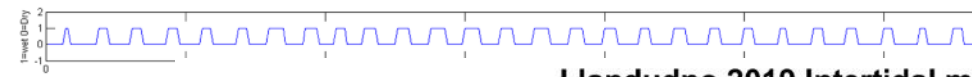


The Temporal Waterline Method – operates on sets of images

1. For any given intertidal pixel in an image we assume the wetting and drying is associated with the tide

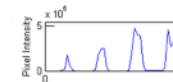


2. We assume wetting and drying pattern based on the tidal curve and the pixel elevation

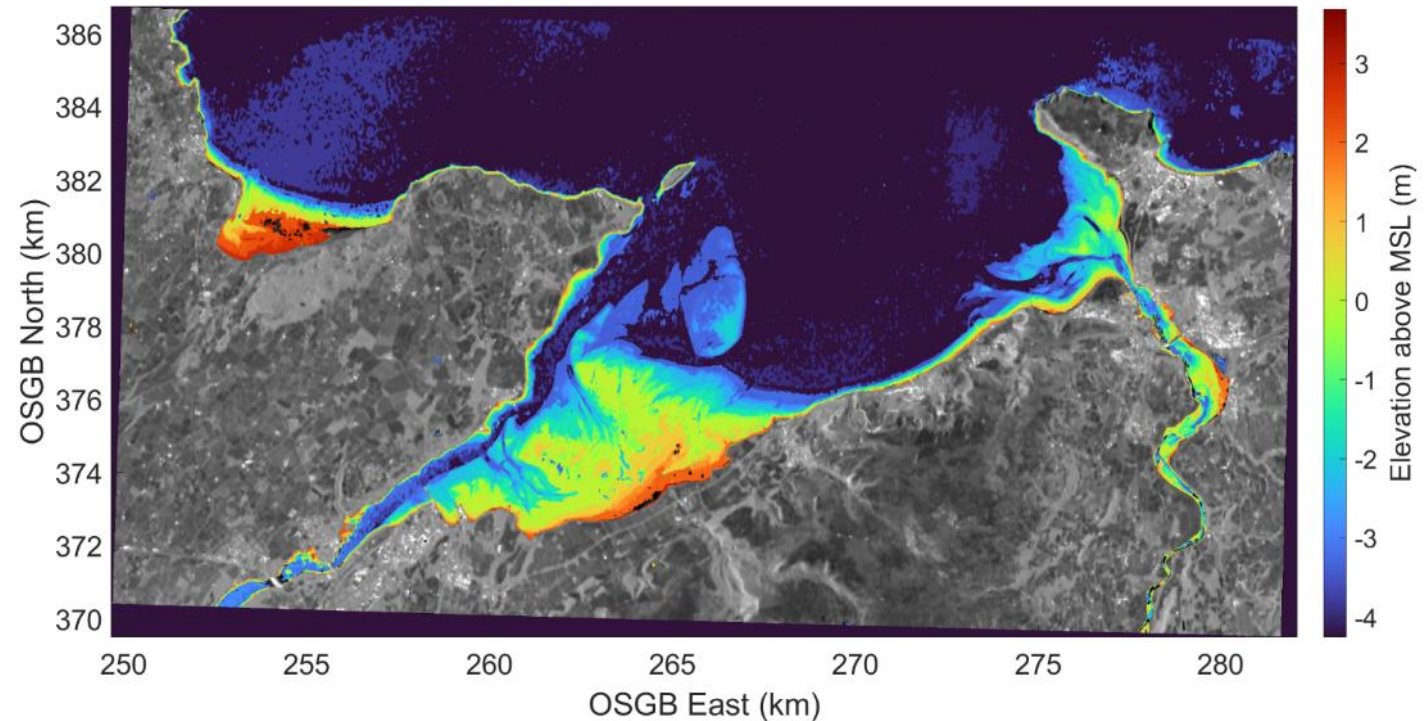


Llandudno 2019 Intertidal map from Sentinel 1 & 2 images

3. We extract a



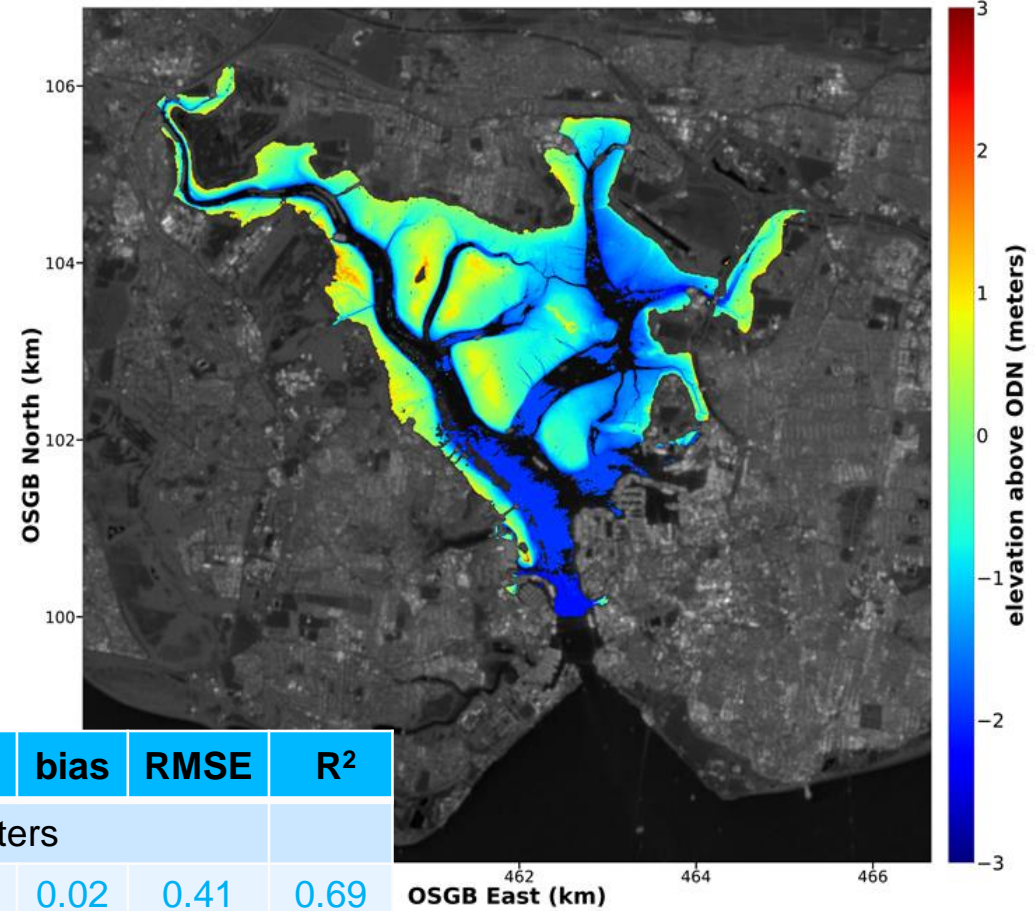
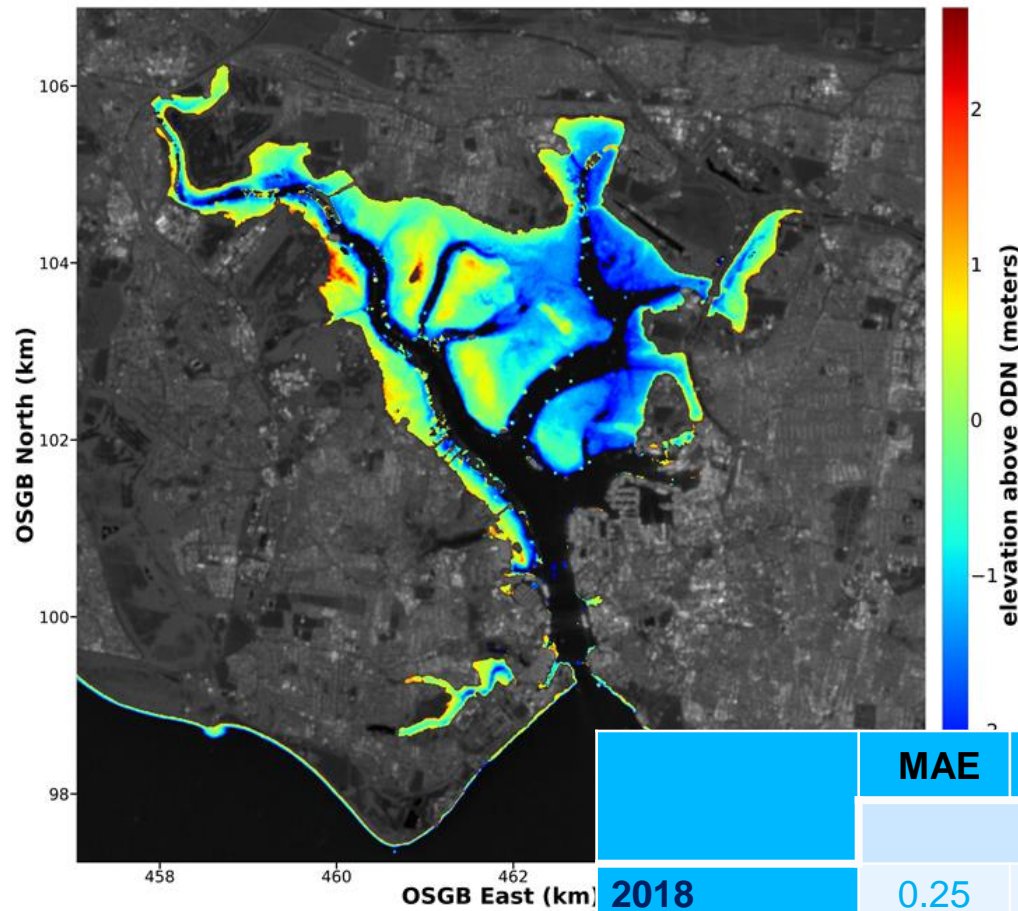
4. Look for the t



VALIDATION - PORTSMOUTH HARBOUR

Satellite Derived – 12 month window

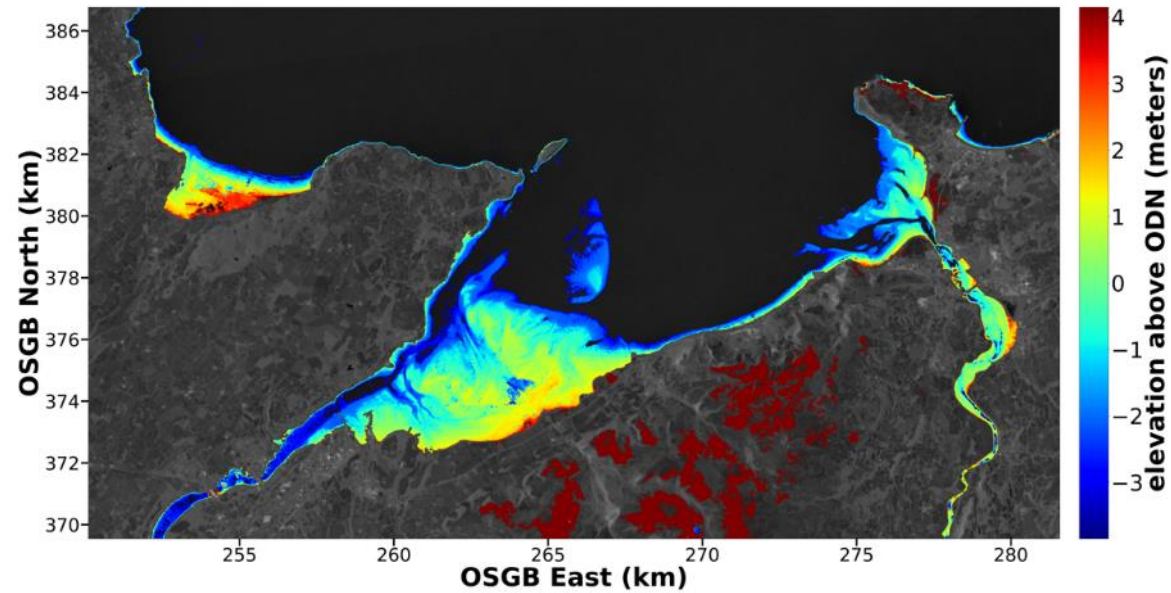
Aerial LiDAR – Snapshot over a few days



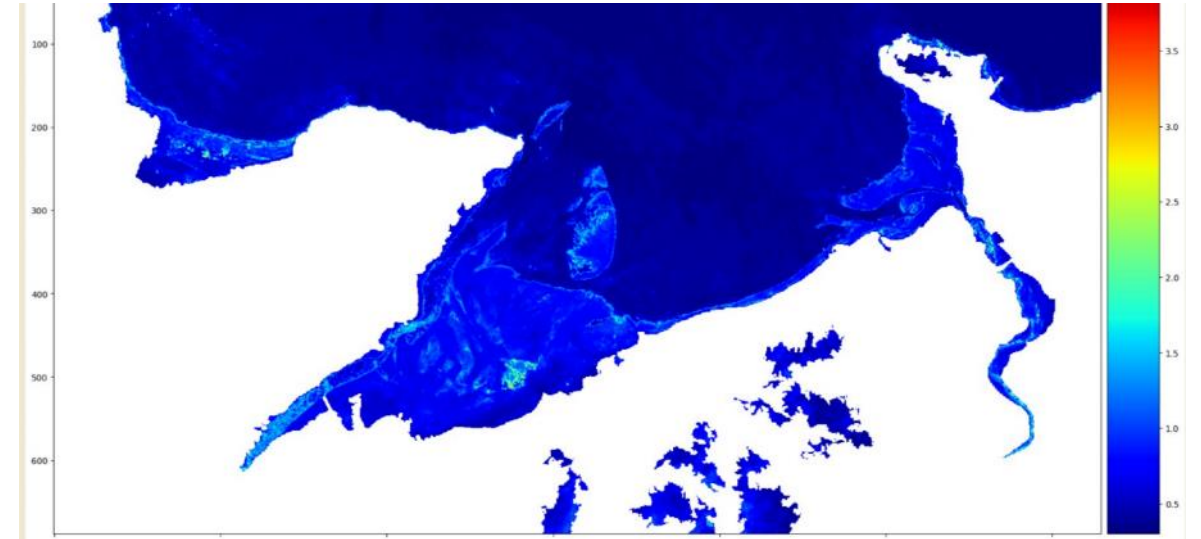
	MAE	STD	bias	RMSE	R ²
	meters				
2018	0.25	0.41	0.02	0.41	0.69
2020	0.21	0.34	0.02	0.34	0.79
2022	0.21	0.37	0.01	0.37	0.73

MAKING IT USEABLE...

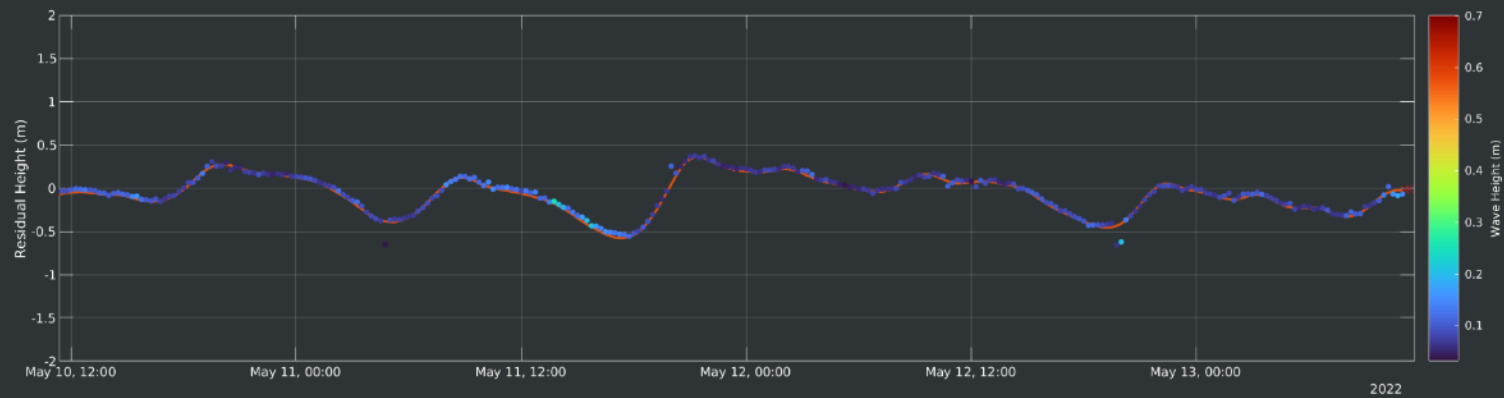
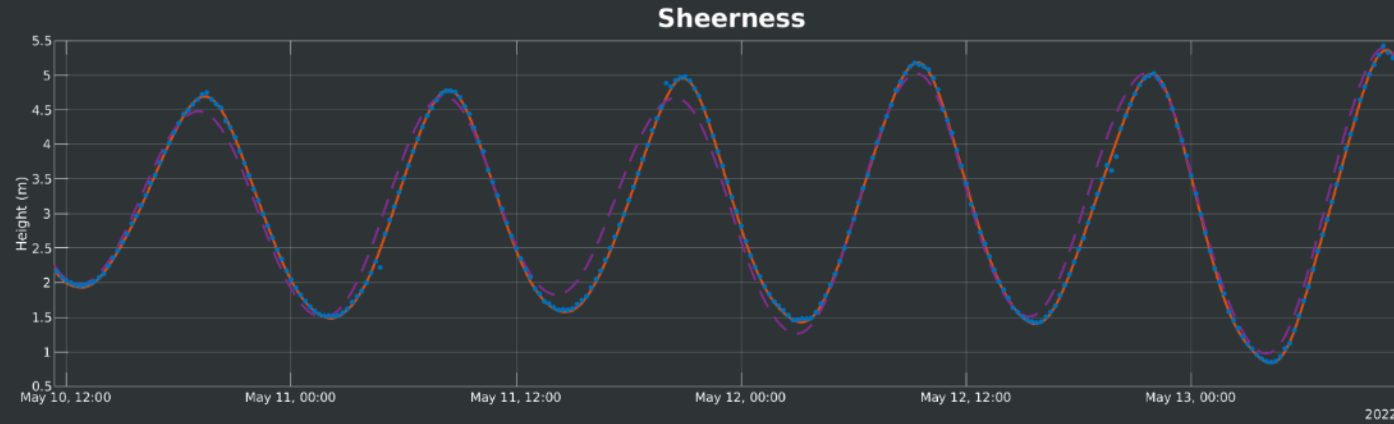
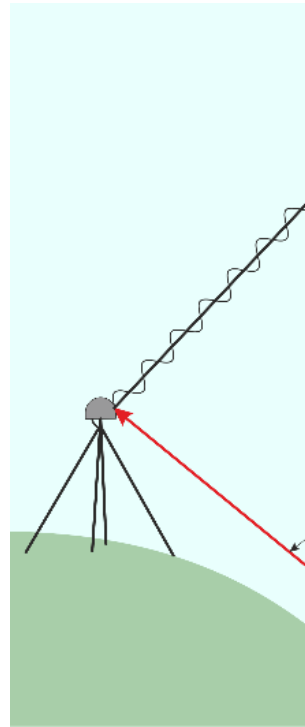
Satellite Derived Topography

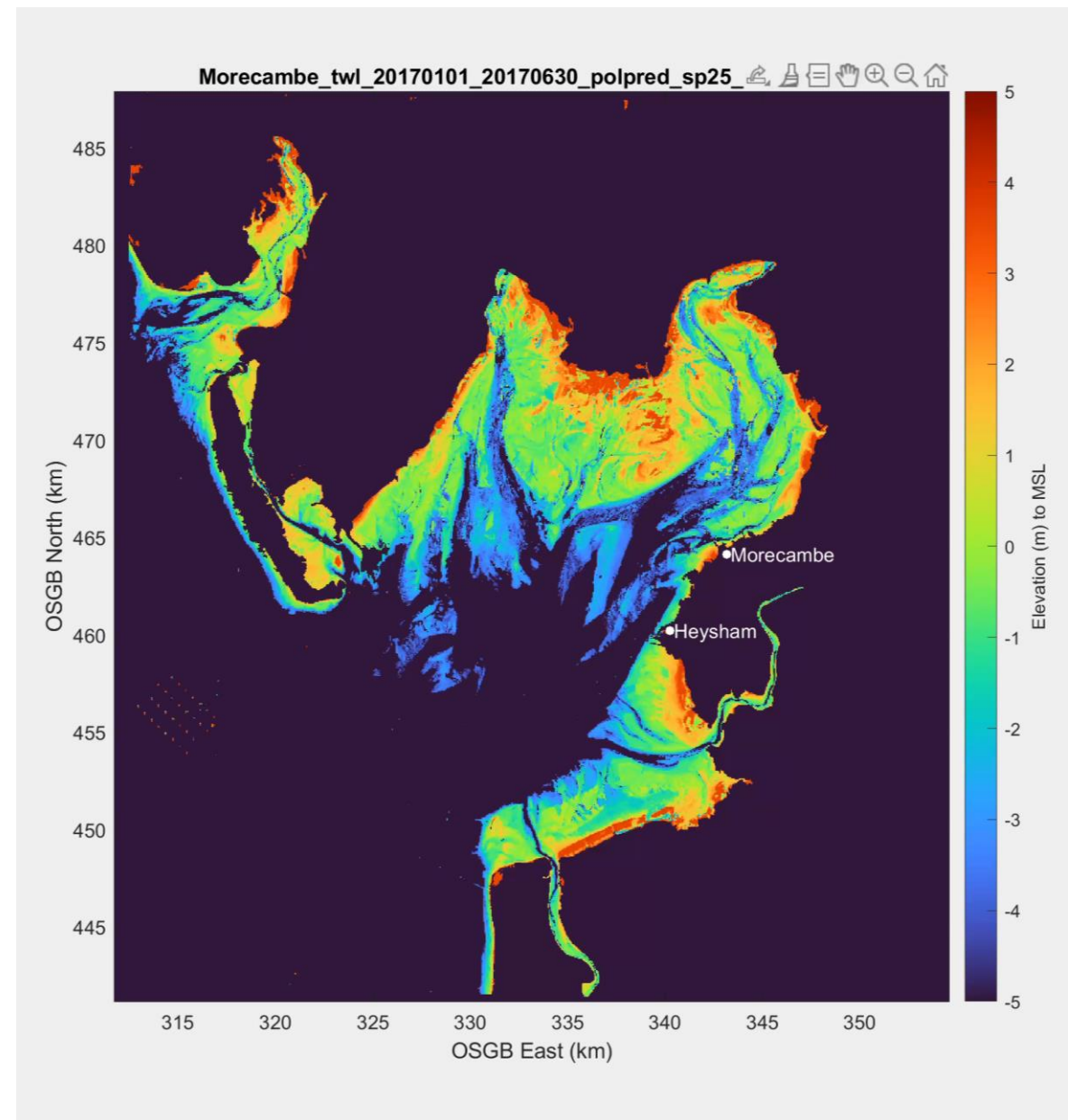


Associated Uncertainty Metric



LIMITATIONS - ACCURACY OF WATER LEVEL DATA







Christine Sams: chrms@noc.ac.uk

With many thanks to the CCO EO WG, and Colin at Trafalgar Wharf