

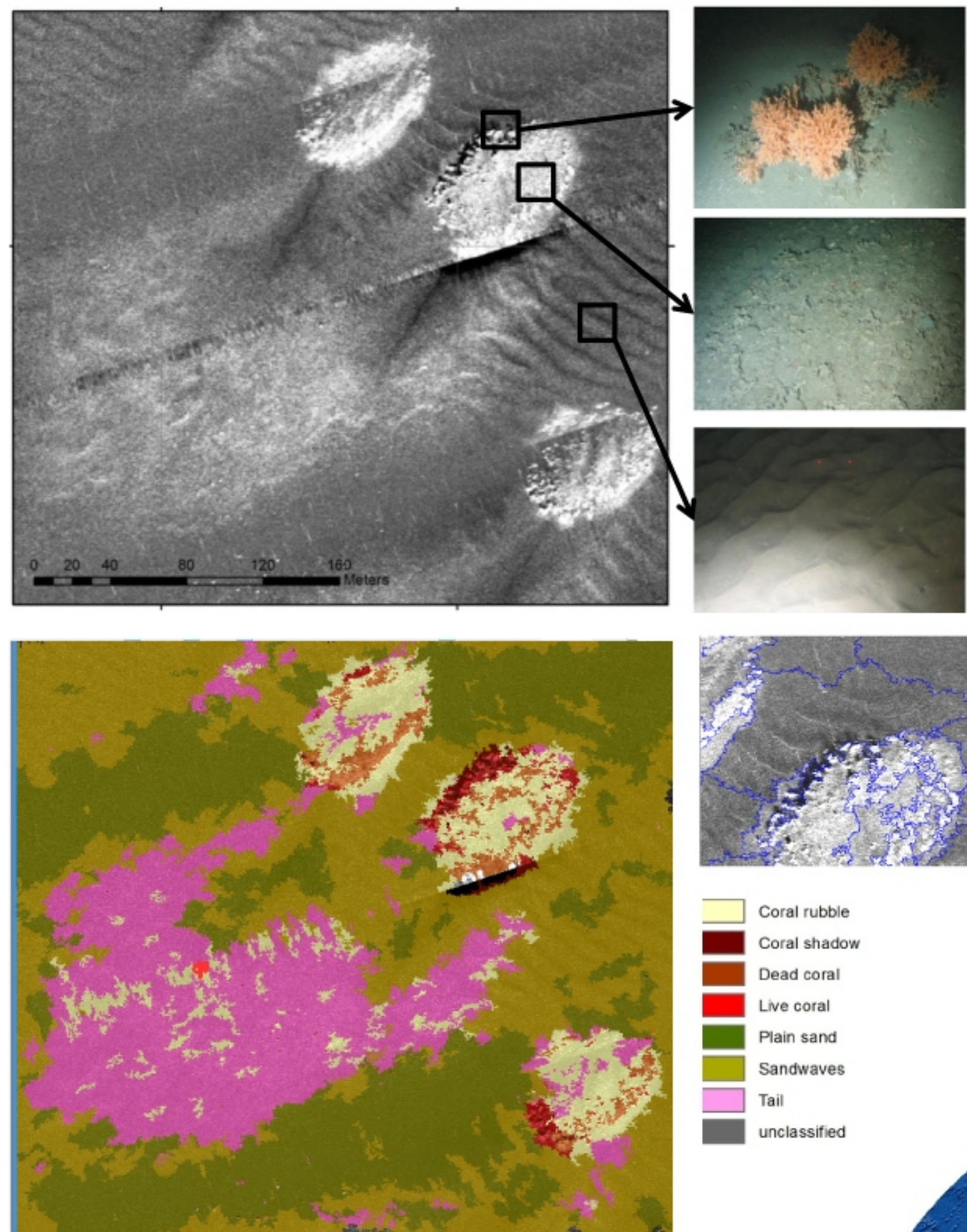
# Seafloor and Habitat Mapping at the National Oceanography Centre

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The NOC Seafloor and Habitat Mapping Team has developed technology, expertise and collaborative partnerships that enable it to undertake habitat mapping and monitoring projects in any part of the ocean, at any water depth, covering all habitat types from coastal waters to the deep ocean.

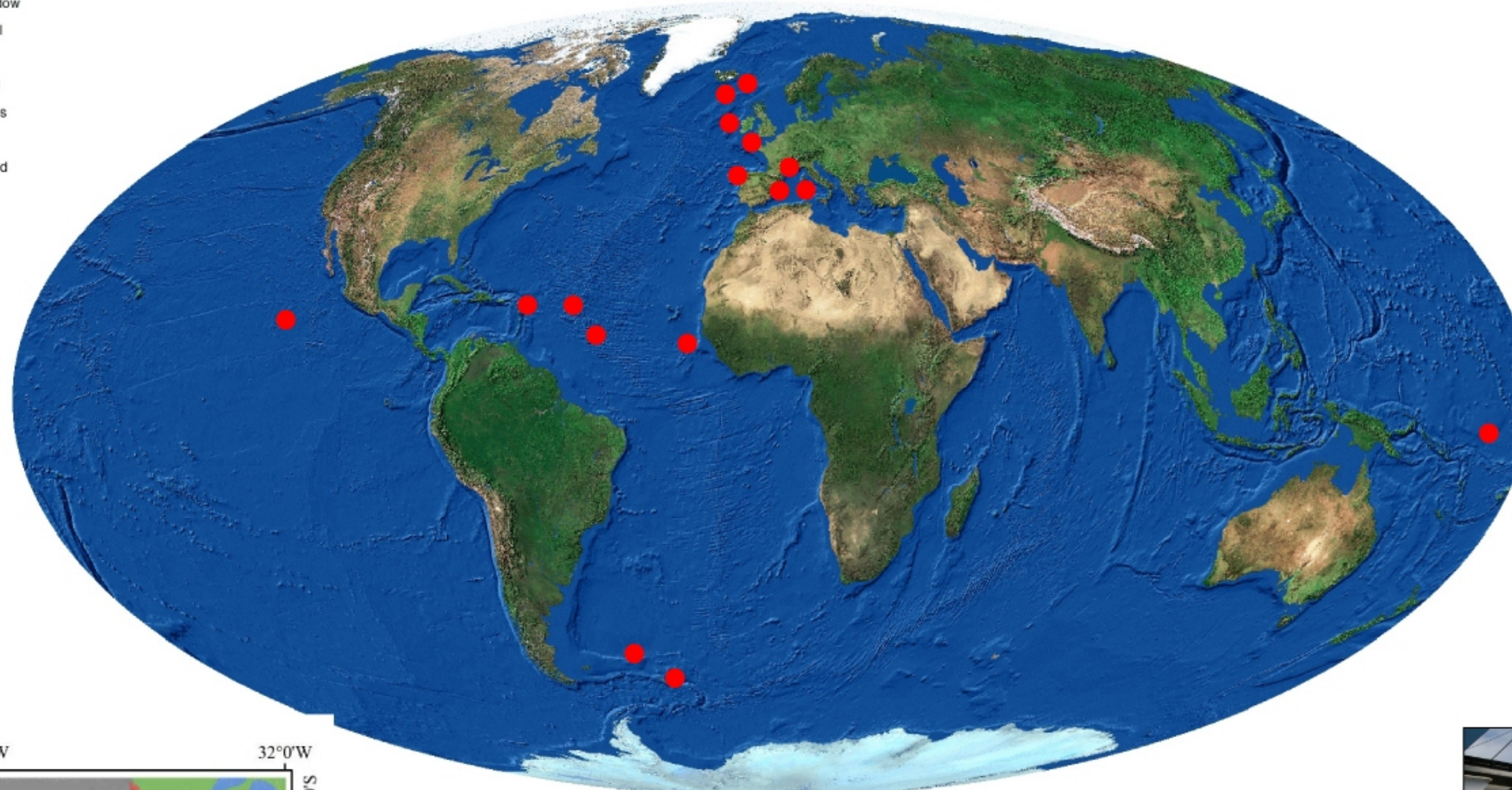
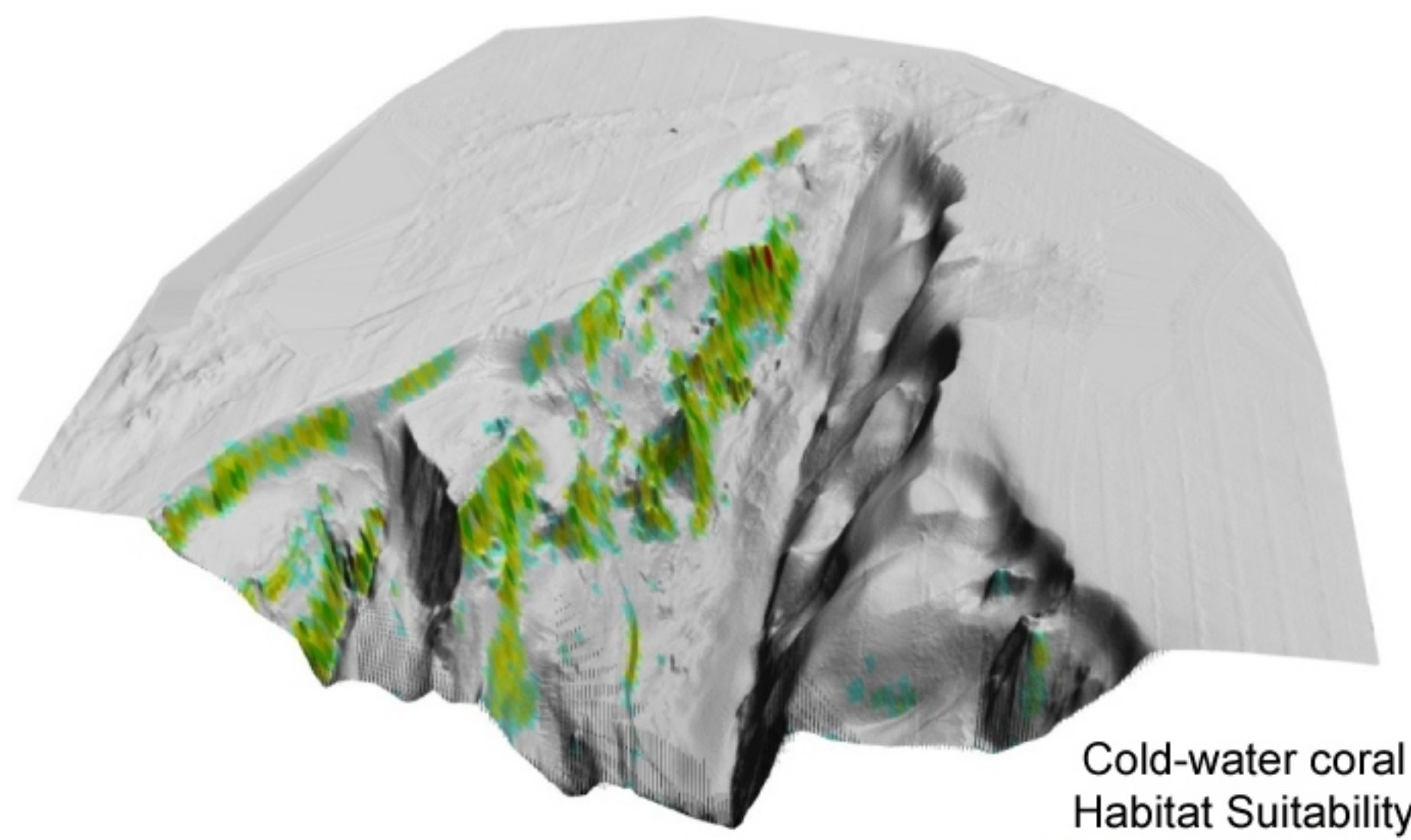
## Automated seabed classification



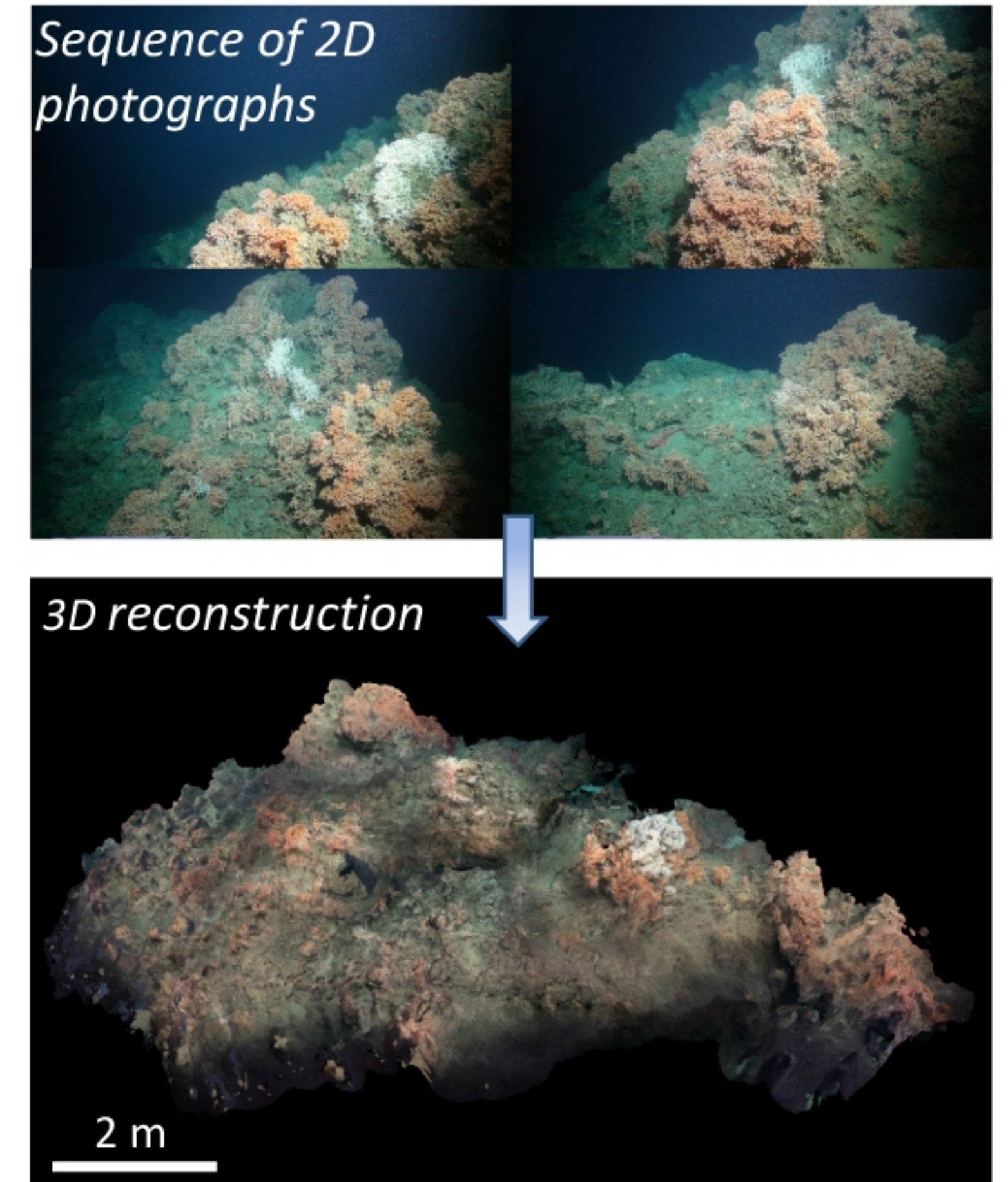
**NOC-developed software:**  
**RS-OBIA (Remote Sensing – Object Based Image Analysis)**  
Example: AUV-based sidescan sonar data from the Darwin Mounds MPA, NE Atlantic

## Habitat distribution modelling

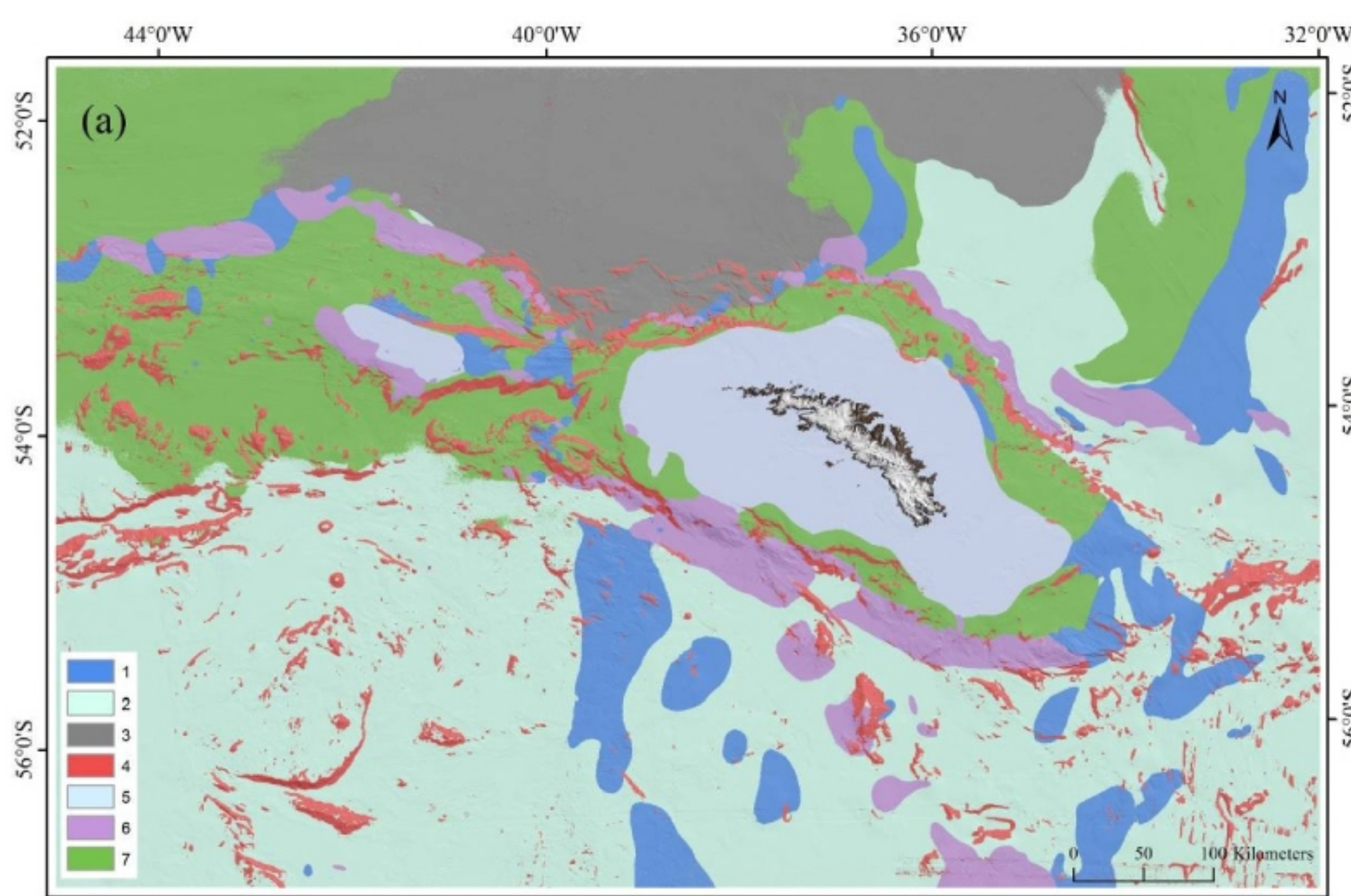
Random Forest, GAMs, GLMs, RDA, MaxEnt  
Example: Merged Random Forest model in Cap de Creus Canyon, NW Mediterranean



## 3D photogrammetry



Using structure-from-motion algorithms to create high-resolution digital terrain models. Example: cold-water coral reef, NE Atlantic

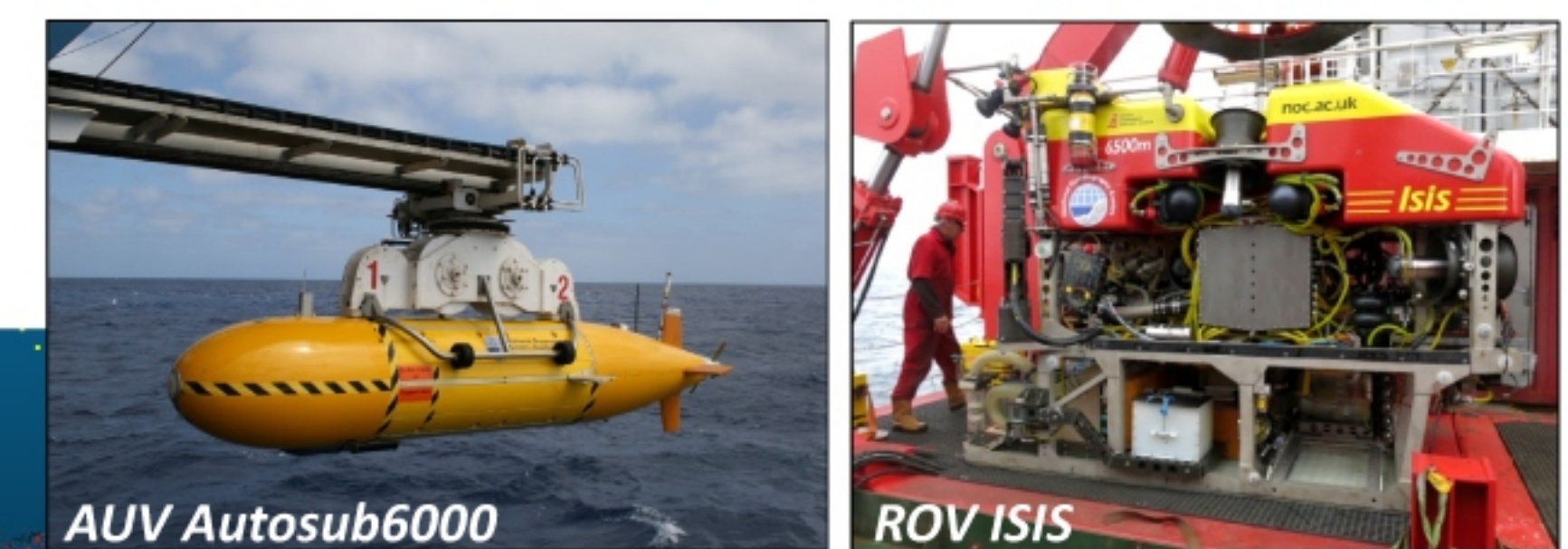
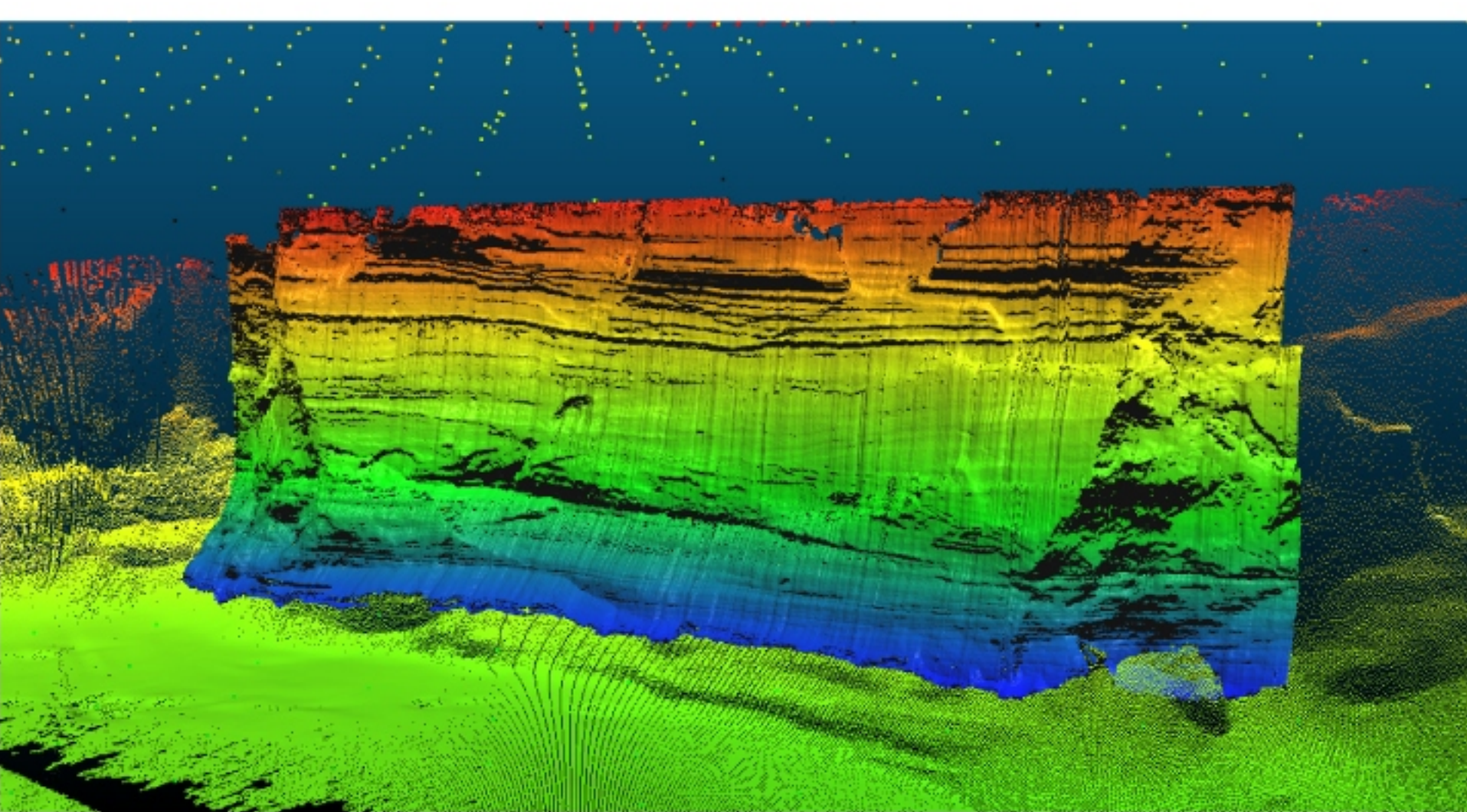


## Supporting ocean governance

Objective marine landscape classification in large-scale MPAs (e.g. South Georgia)

### Key projects:

<b>MAREMAP (NERC)</b>	<b>MIDAS (EC)</b>
<b>CODEMAP (EC-ERC)</b>	<b>STEMM-CCS (EC)</b>
<b>EMODNET (EC)</b>	<b>ISLAND (EC-Eurofleets)</b>
<b>SIDS-Blue Economy (FCO)</b>	



## Sideways mapping of vertical & overhanging cliffs

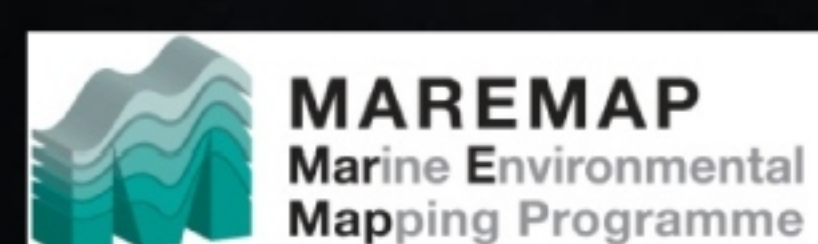
Novel geological and habitat interpretation. Example: nested point clouds based on data from the AUV Autosub6000 and ROV ISIS, Whittard Canyon, NE Atlantic

### Key publications:

Huvenne et al. (2011). A picture on the wall: innovative mapping reveals cold-water coral refuge in submarine canyon. *PLoS ONE*, 6(12), e28755.  
Robert et al. (2015). Finding the hotspots within a biodiversity hotspot: fine-scale biological predictions within a submarine canyon. *Mar. Ecol.*, 36, 1256-1276  
Hogg et al. (subm.). Landscape mapping at sub-Antarctic South Georgia provides a protocol for underpinning large-scale marine protected areas. *Scientific Reports*.



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