PML | Plymouth Marine Laboratory

National Centre for Earth Observation
NATURAL ENVIRONMENT RESEARCH COUNCIL

NEODAAS
NERC Earth Observation Data Acquisition and Analysis Service

NEODAAS capabilities to support coastal and estuarine science

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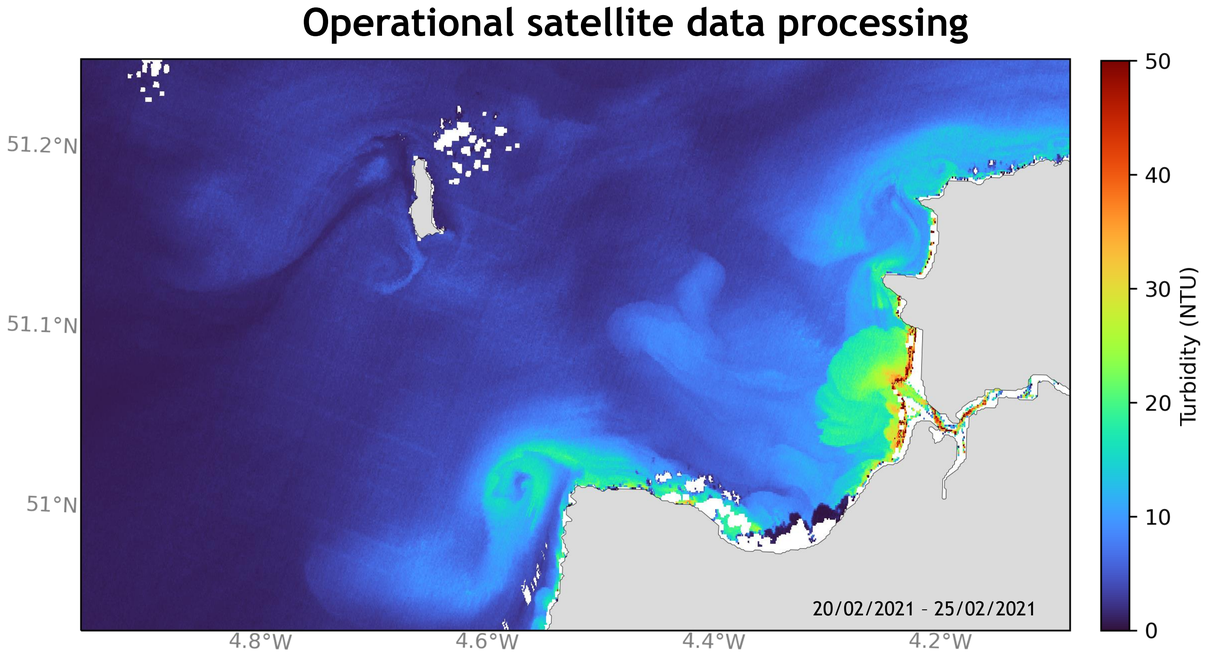
The NERC Earth Observation Data Acquisition and Analysis Service (NEODAAS) is based at Plymouth Marine Laboratory (PML) is overseen by the National Centre for Earth Observation (NCEO) and funded by the Natural Environment Research Council (NERC). NEODAAS offers a range of services to assist researchers in their use of Earth Observation (EO) data.

Operational satellite data processing

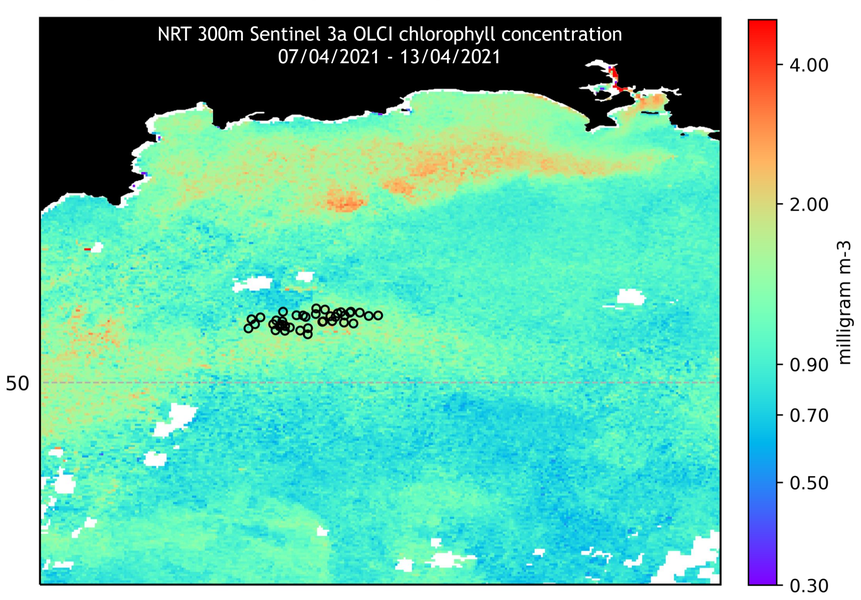


5-day composite of turbidity derived from Sentinel 2 at 100m resolution for Bideford Bay, UK, EOMORES V1.4

Water quality metrics derived from satellite observations complement conventional water sampling by providing greater spatial and temporal coverage. Ocean colour (1km to 300m resolution) and sea surface temperature (1km resolution) data from the latest satellite passes are routinely processed each day by NEODAAS. In addition, high-resolution (10 to 100m) "analysis ready" chlorophyll-a and turbidity products derived from Sentinel 2 data are available for lake and coastal waters. A request system allows researchers to obtain data with processing to suit their requirements, so they can focus on analysis.

Near real-time support and rapid response monitoring

Diesel oil spill event in the Ambarnaya river, Russia



Near real-time (NRT) Sentinel 3a OLCI example cruise support image for the 2021 CAMPUS glider campaign, circle markers show the glider's positions.

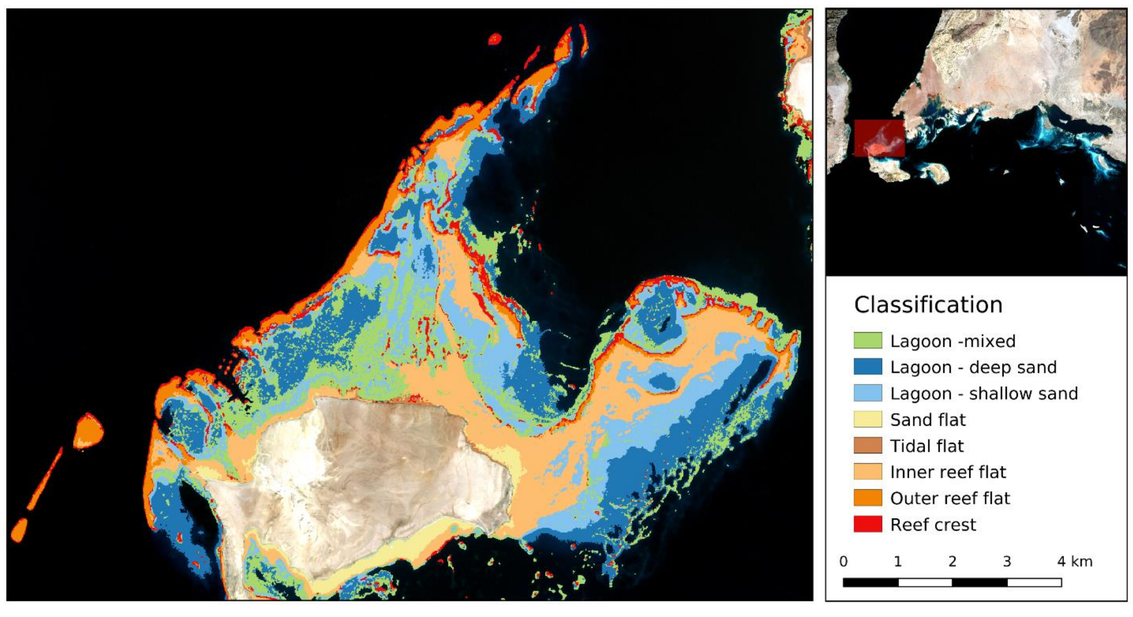
NEODAAS regularly support research cruises by supplying daily satellite imagery 'bulletins' which provide an overview of the area around the cruise ship or AUV. Data can also be rapidly acquired to support events such as blooms, volcanic eruptions, fires or oil spills (as above). Automated data processing systems within NEODAAS allow data to be processed and supplied to users within hours.

Airborne data processing from drones and aircraft

3D point cloud from drone survey at Sharpham Marsh, River Dart, UK on 06/06/2020, visualised in plas.io

NEODAAS process data from aircraft-mounted sensors, including LiDAR and hyperspectral sensors, and has the capability to conduct and process drone surveys. Current projects include monitoring water quality using a visible and near-infrared hyperspectral spectrometer mounted on a Remotely Piloted Aircraft System (RPAS) and monitoring saltmarsh geomorphological change using digital elevation models derived from drone RGB imagery.

Coastal habitat mapping

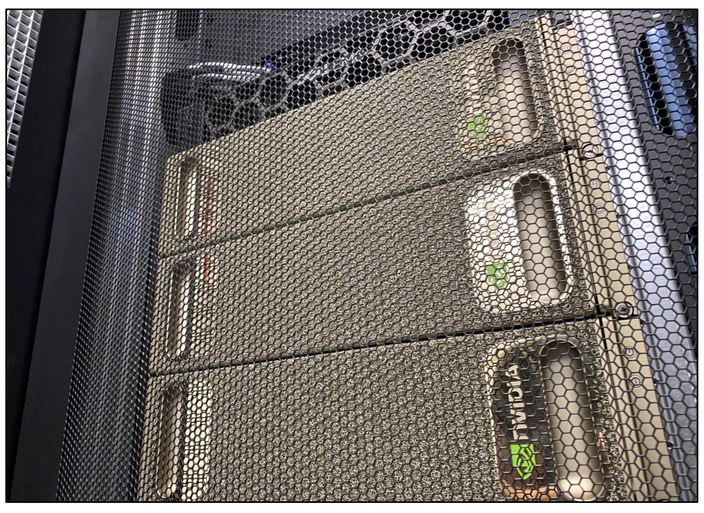


Geomorphological classification of the Tiran Island, Red Sea from 10m resolution Sentinel 2 imagery

Within NEODAAS there is expertise in land cover and habitat mapping, including coastal habitats. NEODAAS can collaborate with researchers to scale up their existing habitat classifications using the Massive GPU Cluster for Earth Observation (MAGEO).

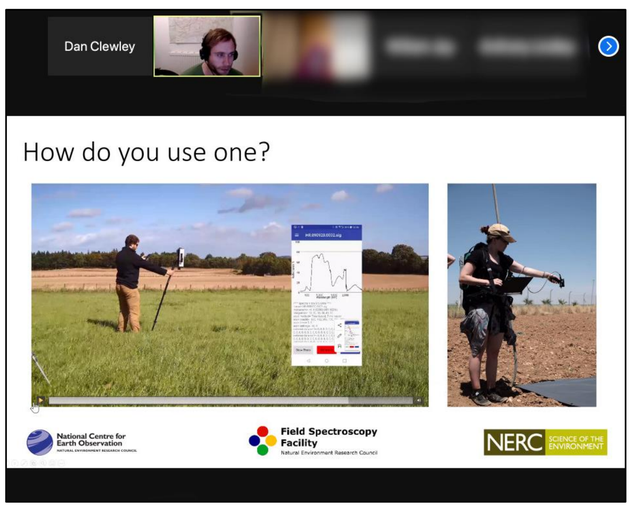
Deep Learning support service

The Massive Graphical Processing Unit Cluster for Earth Observation (MAGEO) and dedicated data scientists provide NEODAAS with the capability to work with researchers wishing to apply Deep Learning and other algorithms to massive volumes of EO data.



MAGEO installed in the new data centre at PML

Training and helpdesk



NEODAAS staff provide advice on choosing appropriate EO sensors and algorithms for your work, as well as the handling and processing of EO data. NEODAAS also host training courses, including an annual data processing course with the NERC Field Spectroscopy Facility (FSF).

NEODAAS and FSF training course providing training on analysis of airborne data, held virtually in 2020.