



The potential of Earth Observation: the EUMETSAT perspective

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EUMETSAT User Support and Training

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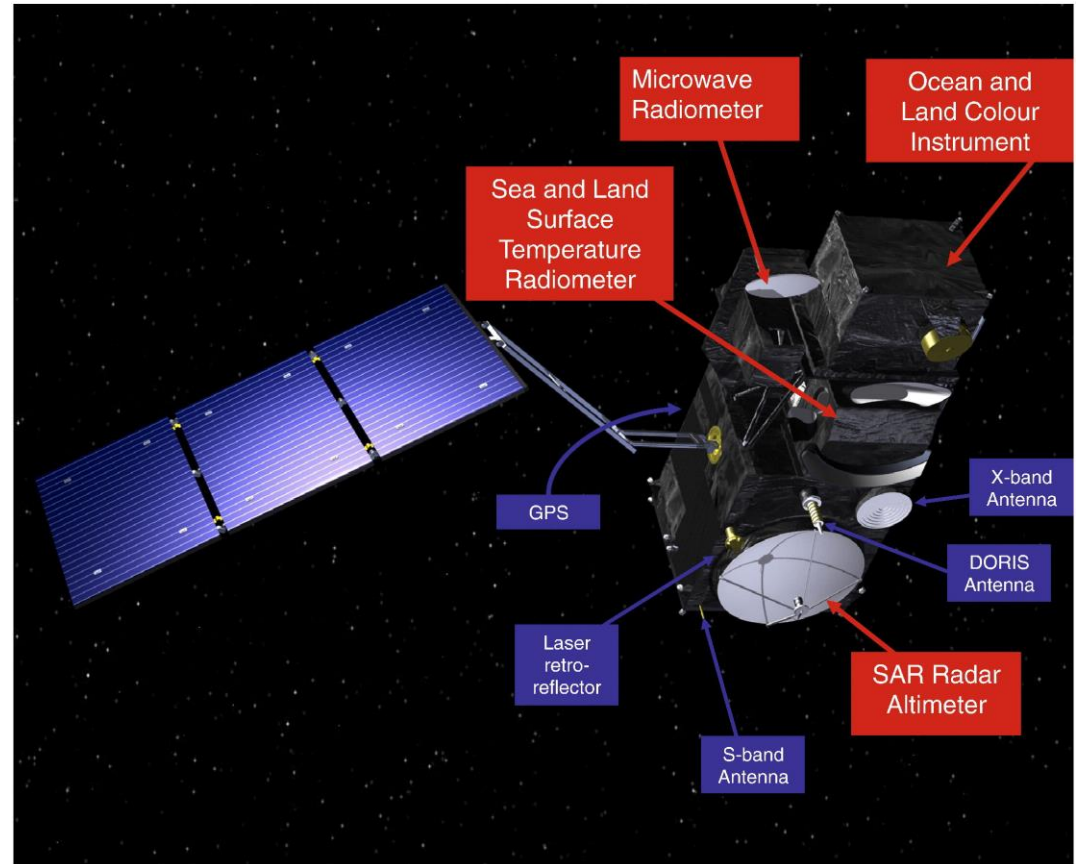


- EUMETSAT Copernicus Marine Data Service
 - Data availability
 - Data access
 - Training and user support
 - Altimetry, ocean colour, SST
- Fisheries and aquaculture use cases

EUMETSAT Copernicus Data Services: Sentinel-3

- Sentinel 3
 - SRAL (Altimetry)
 - SLSTR (SST)
 - OLCI (Ocean Colour)
- Builds on heritage but with improved resolution and sensors.
- 3a (since Feb 2016), 3b (launched 25th April)
 - Currently in ESA managed tandem phase
- Operated and marine data processed by EUMETSAT
- Many applications for ocean research and commercial operations.

Also operating Jason-3



Sentinel 3a and 3b

- Double the data – better revisit time.
- Redundancy
- Opportunities for intercalibration
 - Currently in tandem phase
 - Test data available through S3VT

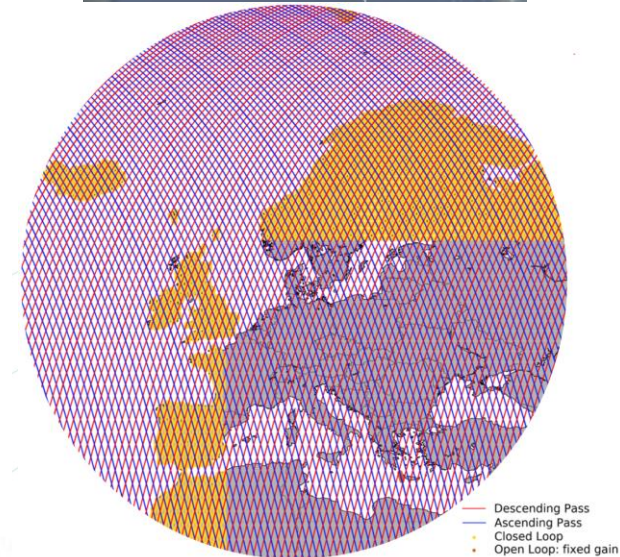
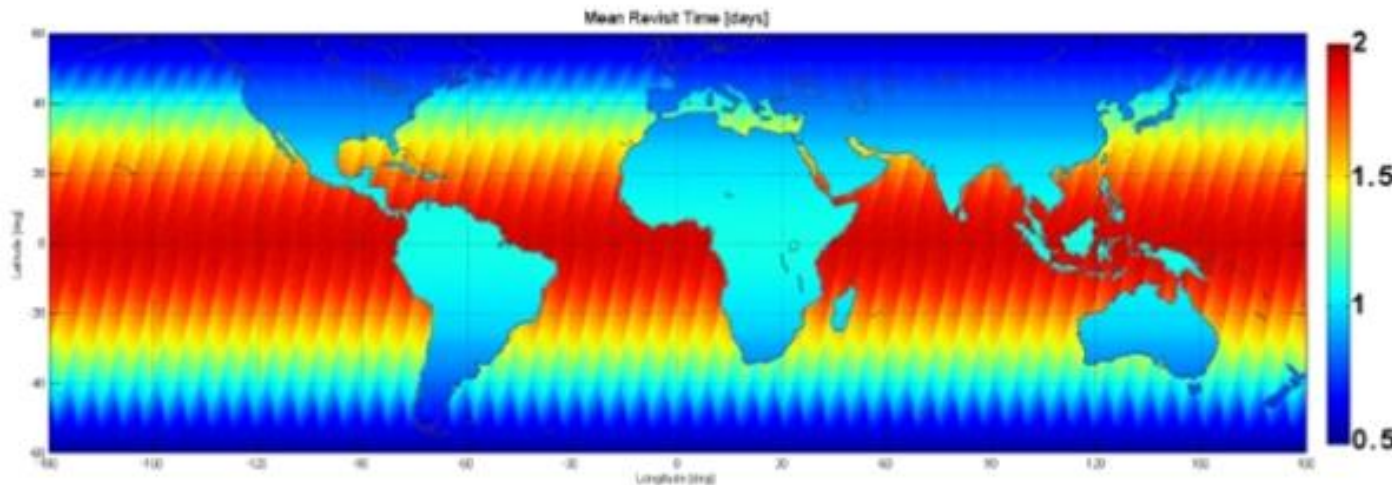
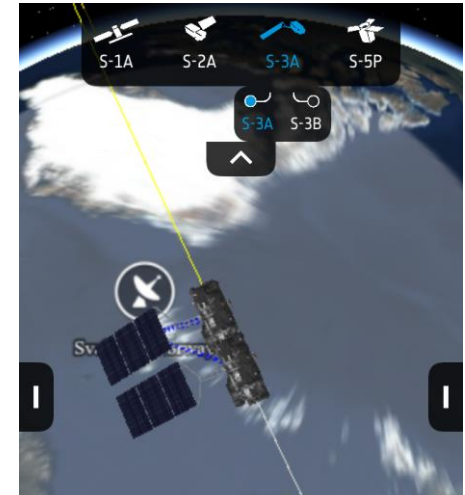
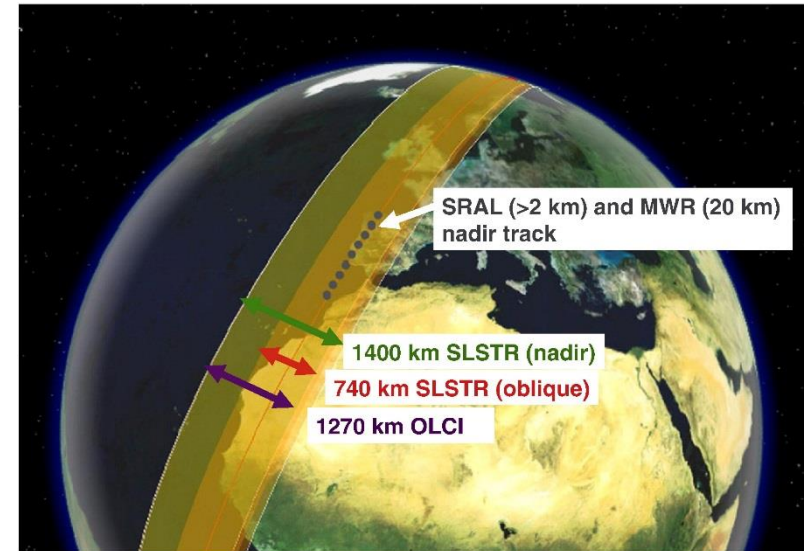


Figure 1: S3A SRAL track spacing and operating modes

<2 day revisit time with 2 satellites for OLCI/SLSTR

Copernicus Marine Data Service

- S3a and soon S3b
 - Continuity
 - Operational
- Level 1 and Level 2 data
 - Daily, highest resolution.
 - NRT/STC/NTC
 - Level 1 allows for custom processing
 - Level 2 includes geophysical products



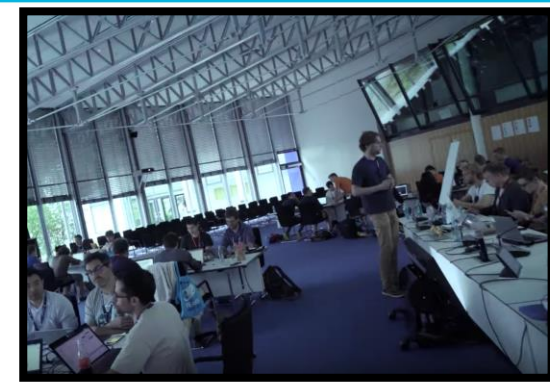
Copernicus Marine Data Service

- Online access via CODA and data centre
- Also via EUMETCast stations
- EUMETSAT is partnered with ECMWF and Mercator ocean to deliver a Copernicus DIAS platform – WEkEO
 - EO workbench
 - Marine user tools
 - Code for common workflows using Jupyter tutorials



User Support and Training

- **Marine user support:**
 - Helpdesk
 - Forums
 - Handbooks and guides
- **Training:**
 - Courses
 - Collab. Exchange
 - Online resources (youtube, code)
- **Wider outreach:**
 - Hackathons
 - TEDx
 - MOOC



COPERNICUS COLLABORATIVE EXCHANGE SUPPORT

WE'RE LOOKING FOR NEW AND EXPERIENCED USERS INTERESTED IN COLLABORATING ON THE USE OF DATA FROM THE EUMETSAT COPERNICUS MARINE DATA STREAM.

Applications for the Copernicus exchange are welcome from across any industries and sectors. Applications should show potential for exchange of expertise with regards to the Copernicus data, and research/application outputs. They must include details the motivation for applying: the work you wish to conduct, the satellite data you will use, the potential impact of this work, and justify why this particular exchange is necessary to achieve this.

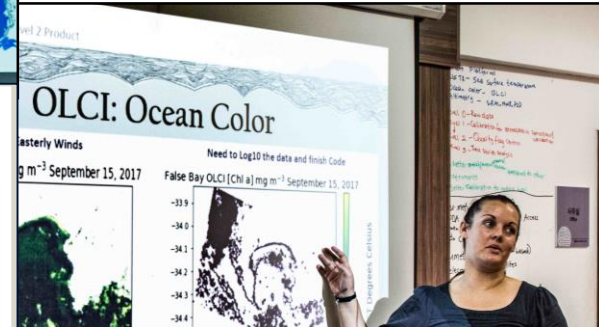
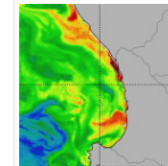
Recipients will be expected to produce a short case study on their experience, which will be shared on the EUMETSAT website.

Application deadlines:

- 1 August for exchange in September–December 2018
- 1 March for exchange in April–June 2019
- 1 June for exchange in July–September 2019

Application should be made to copernicus.training@eumetsat.int. Please read the [criteria document](#) before applying.

LAST UPDATED: WEDNESDAY, 25 APRIL 2018



EUMETSAT Forums

Welcome Contact

Copernicus Marine User Forum

Welcome > Forums > Copernicus Marine User Forum

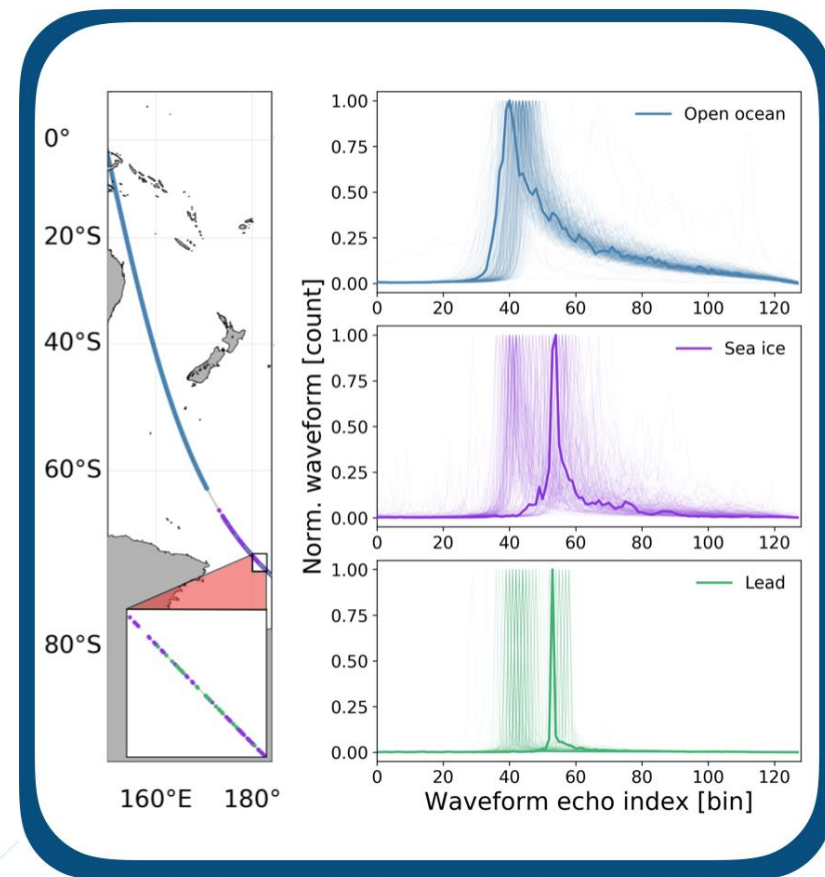
This forum contains 23 topics and 4 replies, and was last updated by [fglanni](#) 5 days, 12 hours ago.

Forum	Topics	Replies	Freshness
Ocean colour This sub-forum discusses Ocean colour related topics OLCI Level 1 (3, 3), OLCI Level 2 (3, 0)	8	3	5 days, 12 hours ago fglanni
Altimetry This sub-forum discusses Altimetry related topics SIRAL Level 1 (3, 0), SIRAL Level 2 (3, 0)	6	0	1 month, 3 weeks ago blowdsky
Sea Surface Temperature This sub-forum discusses Sea Surface Temperature related topics SLSTR Level 1 (2, 0), SLSTR Level 2 (2, 0)	4	0	4 months, 1 week ago blowdsky



Altimetry

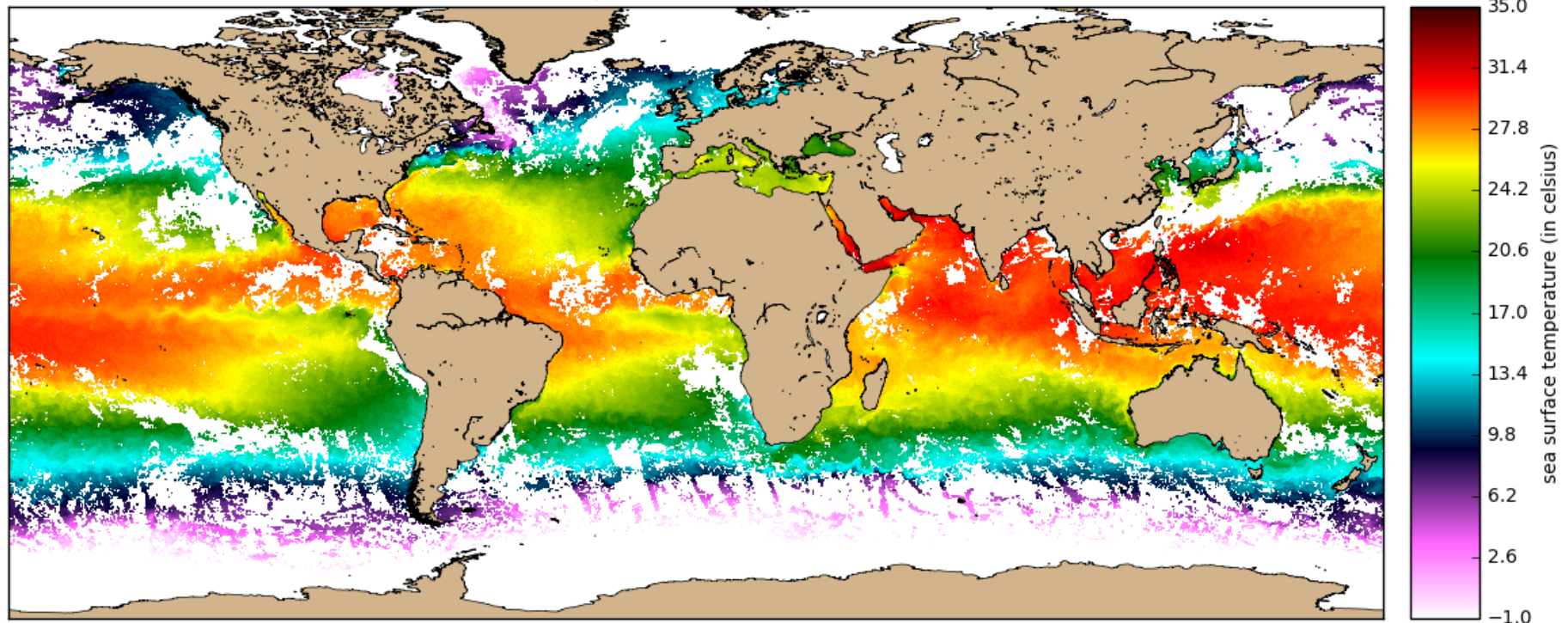
- Level 1 products available for retracking
- Level 2 products including:
 - Along track altimetry waveforms
 - Derived products of:
 - Sea Surface Height
 - Significant Wave Height
 - Wind Speed



Sea Surface Temperature

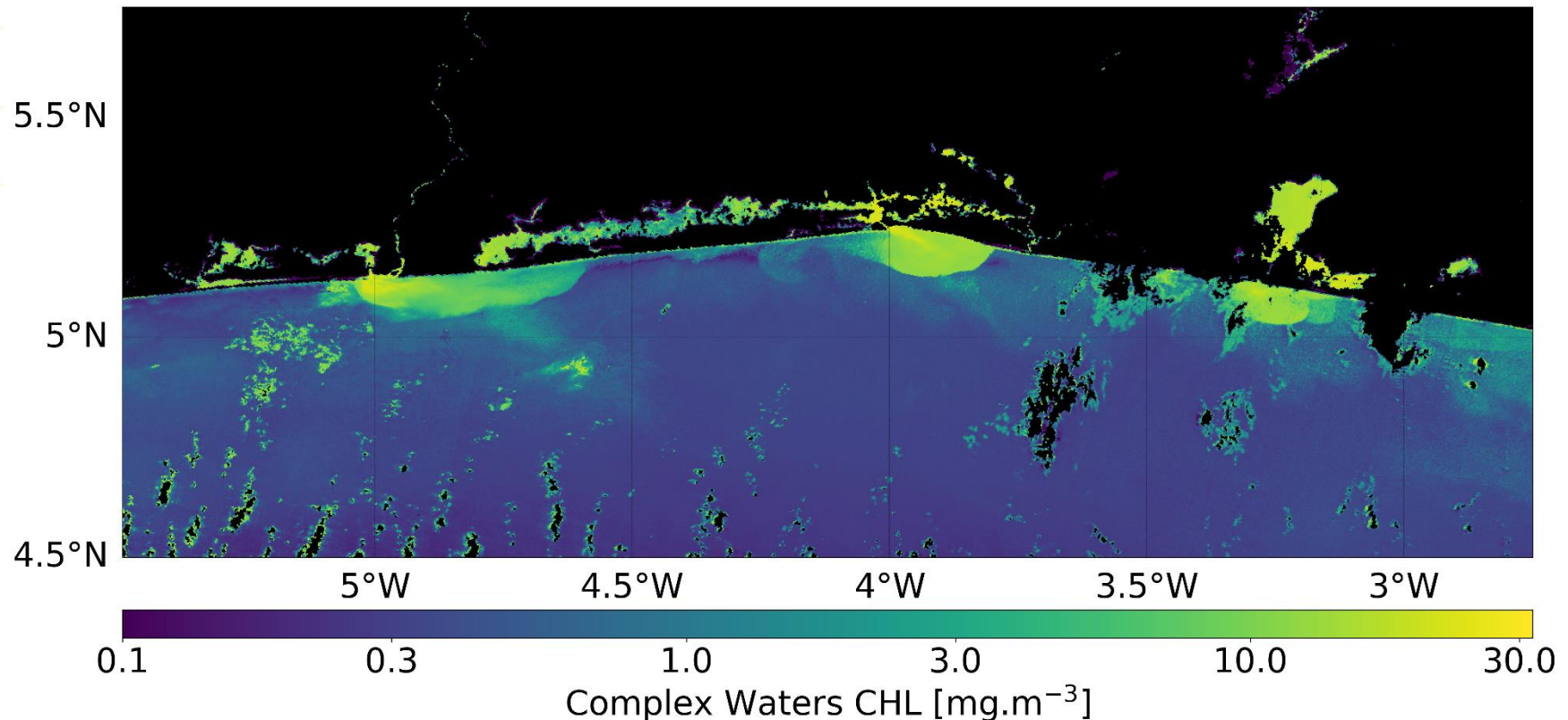
- Level 1 – Radiances (S1-S6) and brightness temperatures (S7-S9), fire bands (F1 and F2).
- Level 2 – GHR SST L2P SST and quality flags, meteorological parameters, error statistics

sea surface skin temperature
15-19 Jun 2017 composite - Sentinel-3A / SLSTR WST NR [PB2.16]-
N = 1427346, min = -1.99 C, max = 36.71 C



Ocean Colour

- Level 1 – top of atmosphere radiance
- Level 2 – Water products (and quality flags):
 - Open ocean: Spectral reflectance, [Chlorophyll], diffuse attenuation coefficient.
 - Complex water: [Chlorophyll], absorption of CDOM and detritus, [total suspended matter]



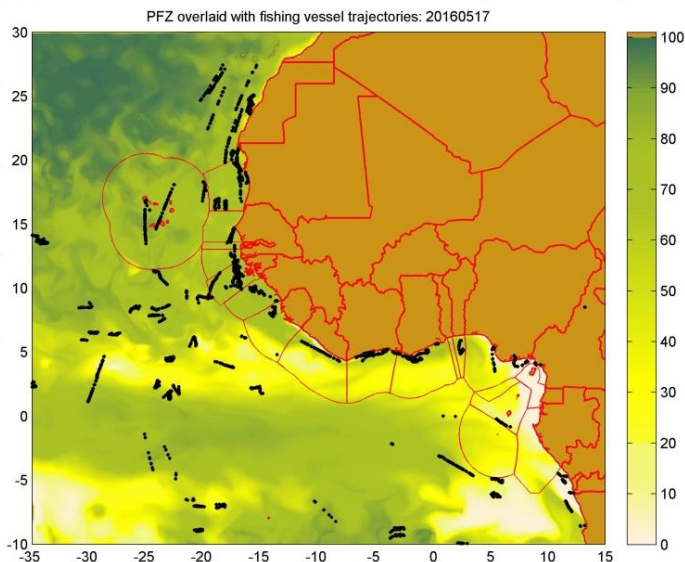
Example use cases for fisheries and aquaculture



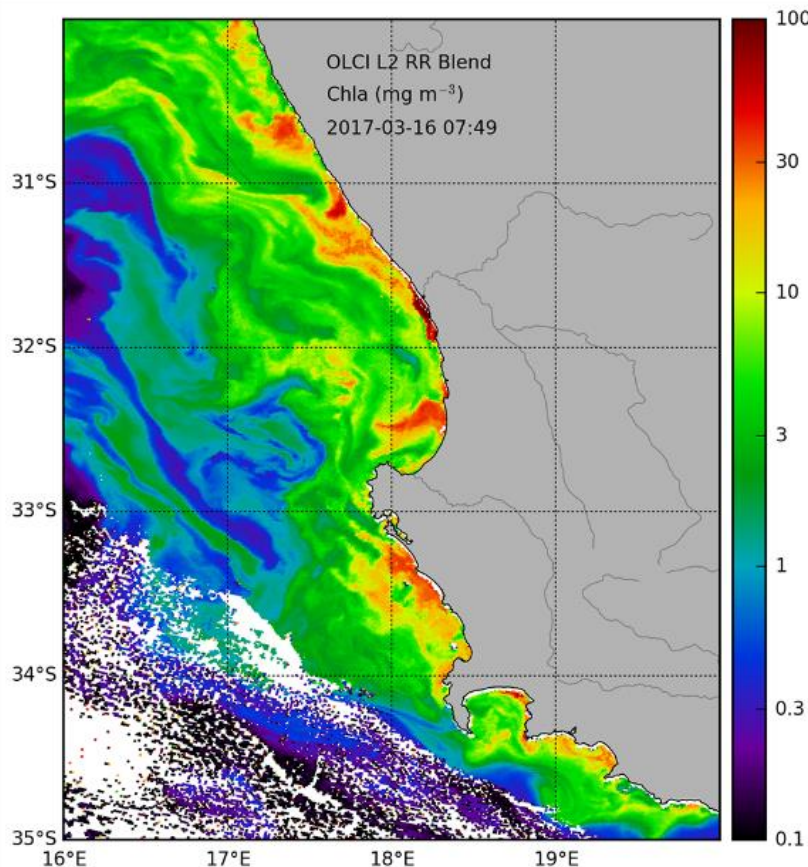
environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA



science
& technology
Department:
Science and Technology
REPUBLIC OF SOUTH AFRICA



Potential Fishing Zone maps overlaid with fishing vessel trajectories for government monitoring and management



Regional biomass estimates for HABs

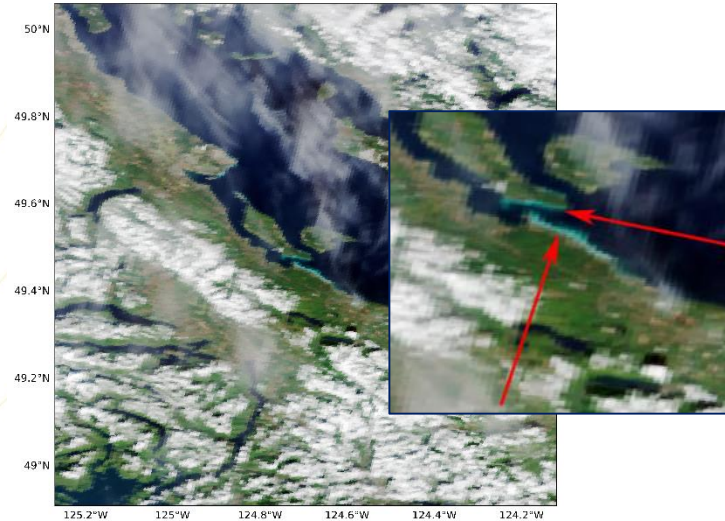
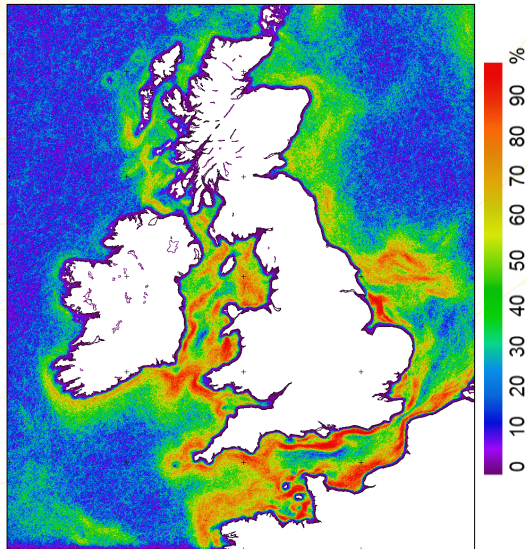


HERASPACE
Sustainable Tech Solutions

Start up company offering services to fishing industry to optimize business practice.



Example use cases for fisheries and aquaculture



VANCOUVER*courier*  MENU
Canada's #1 Community Newspaper Site

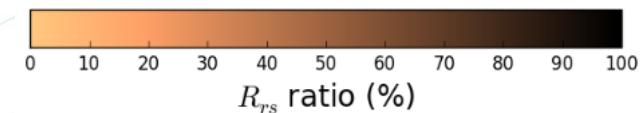
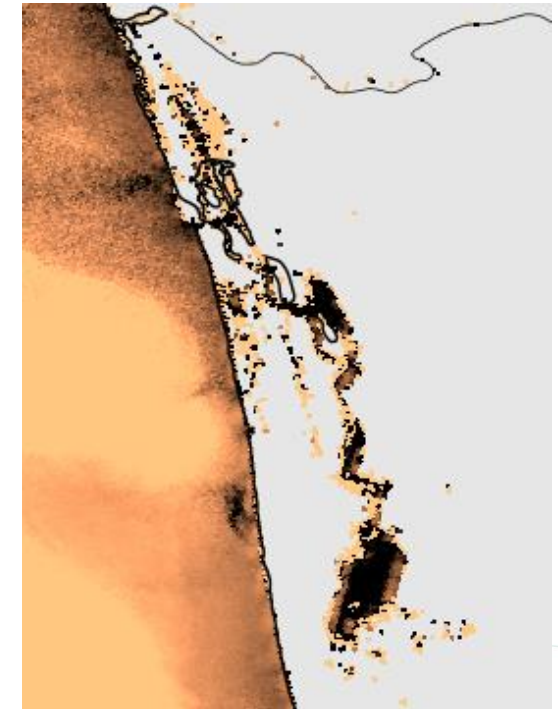
Home » News

Rare outbreak of cholera linked to herring eggs still 'evolving'

Jeff Bell / Times Colonist
MARCH 27, 2018 09:21 AM



Detection of
spawning events

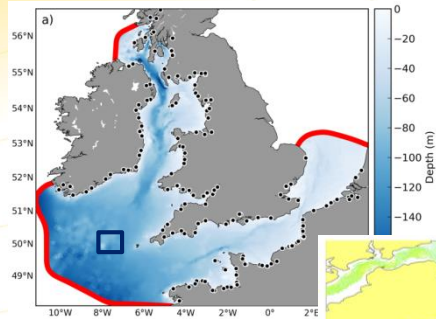


Development of water quality
indicators in fishing regions
(REVIVAL project, Lake
Vembanad, Kerala).

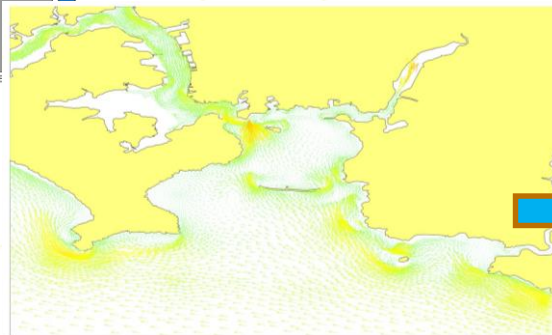
Thermal front frequency, as
proxy for marine animal
abundance (MPAs)

Example use cases for fisheries and aquaculture

Regional to farm-scale modelling



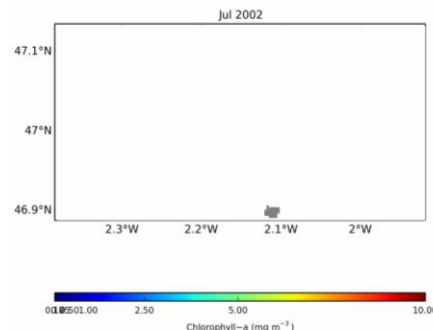
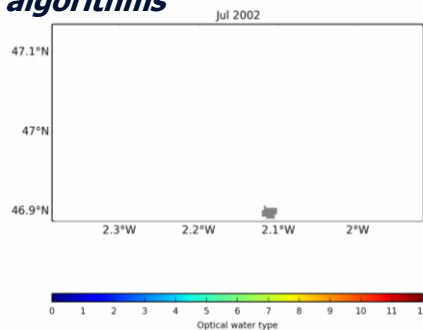
Nested high resolution models



Near-coastal satellite observations

MERIS, S3-OLCI, S2-MSI

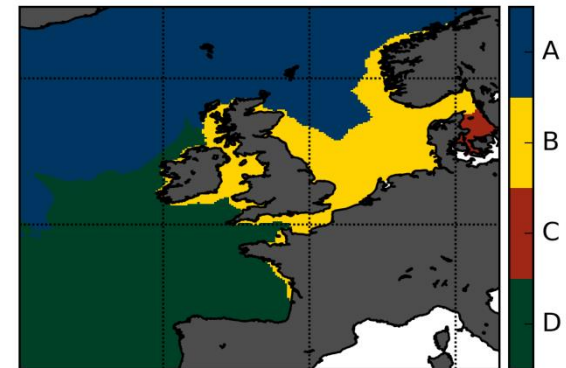
Optical Water Types dynamically assigned to dedicated Chl-a algorithms



Regional risk / growth maps

- Assimilated model and satellite data
- Definition of eco-regions (models + satellite)
- Attribution of growth potential per region (models)
- Attribution of risks per region (models + satellite)

Eco-regions from assimilated model and satellite data



TAPAS
Tools for Assessment and Planning of Aquaculture Sustainability

<http://tapas-h2020.eu>



Example use cases for fisheries and aquaculture

Interreg 
France (Channel
Manche) England
S-3 EUROHAB
European Regional Development Fund



www.shelleye.org

Sites within current map extent:
AB 029 008 04: Kildalloig Bay (Campbeltown Loch) 

[zoom to site](#)

AB 029 008 04

8 Week history from current on map

(Click on parameter name for a long term chart history)

Parameter	year/wk ->	30	31	32	33	34	35	36	37
<i>Karenia mikimotoi</i>									X
<i>Alexandrium</i> Sp									X
<i>Pseudo-nitzschia</i> Sp									X
<i>Dinophysis</i> Sp									X
<i>Prorocentrum lima</i>									X

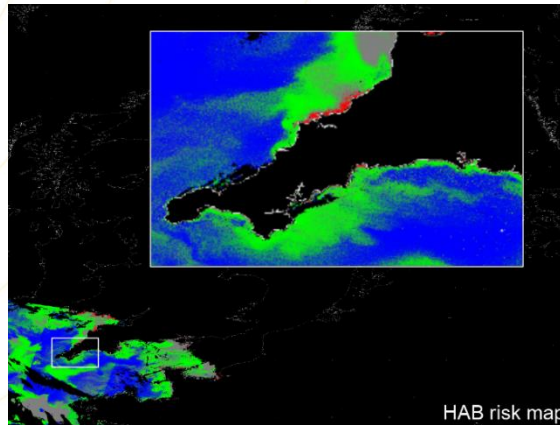
☒ Display 7 day Composite Chlorophyll map
Wk 37 (Sep 10-Sep 16) 2018

Opacity:  80%

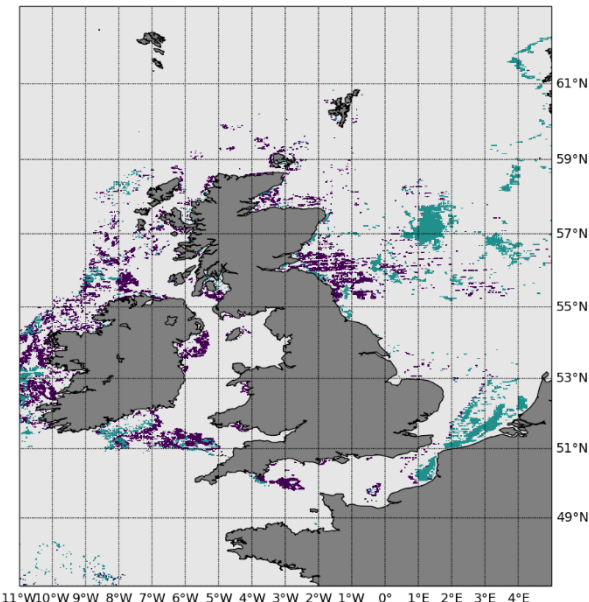
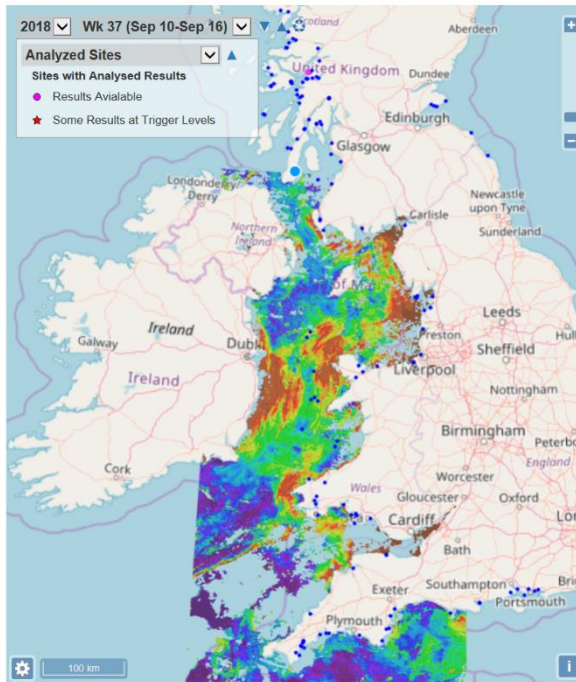
mg Chl-a m⁻³


Select ShellEye Report:

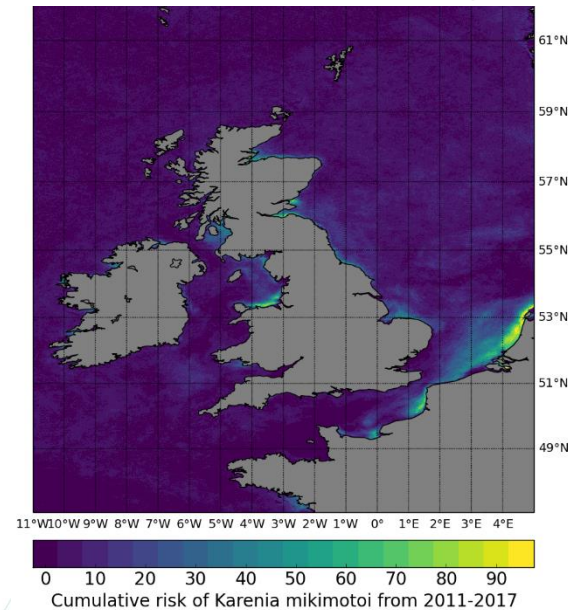
10-Jan-2018(St Austell)
13-Nov-2018(Morecambe Bay)
13-Nov-2018(Menai Strait)
10-Nov-2018 (Loch Ryan)



- *Pseudo-nitzschia* HAB risk - harmless - no bloom - not classified



K. mikimotoi *Pseudonitzschia* *Phaeocystis*



Thank you

- For further information contact:
 - User help desk: ops@eumetsat.int
 - Training: Copernicus.training@eumetsat.int
- Twitter @eumetsat, @eumetsat_users
- Copernicus marine user forum:
<http://forums.eumetsat.int>