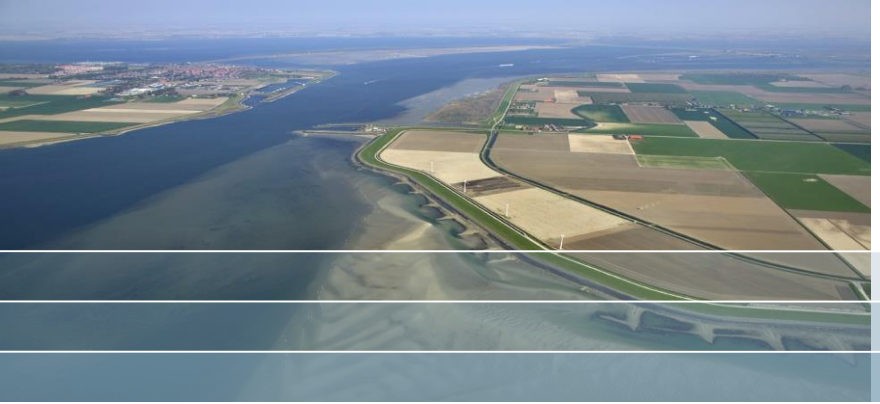


Deltares
Enabling Delta Life

Coastal and Riparian Services

Use of EO in Delta Ecosystems

Ghada El Serafy, Giorgio Santinelli, Sharon Tatman
Deltares

- Deltares
- Coastal Information Systems
- Portfolio and on-going projects
- Ambitions and relation with CLS

Deltares: an independent, not-for-profit, applied research institute advising governments, NGOs for safe and sustainable living in river & coastal regions worldwide

- 800+ employees
- Main offices in Delft & Utrecht (NL)
- Branch offices & affiliates in Asia, Middle East & Americas

Coastal Information Systems

- Coasts are constantly under threat from human interference, climate change and exploitation
- High detailed information (spatial and temporal) is needed

- Earth Observation (EO) is an open source information. Integrate EO with the expertise on systems, fuse it with ground base information and crowd sourcing (people science)

- Information provision in the form of value-added services can be tailored to specific user needs.

Coastal Information Systems

One of Deltares core business:

- Develop models & tools to turn observational data into added value information

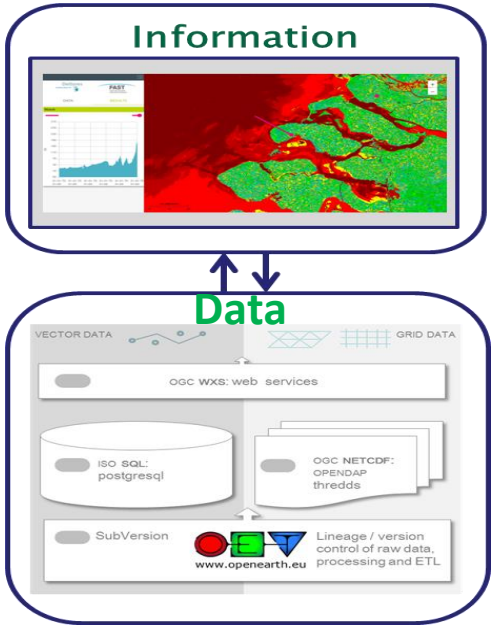
EO data & the Copernicus Services provide us and our clients with:

- Excellent data & information resources
- Platforms to participate in and co-develop core and downstream services

Many projects, here is a few example

FAST | 2014-2018

FAST is developing down-stream services for the European Earth Observation Programme Copernicus to support cost-effective, nature-based shoreline protection against flooding and erosion.



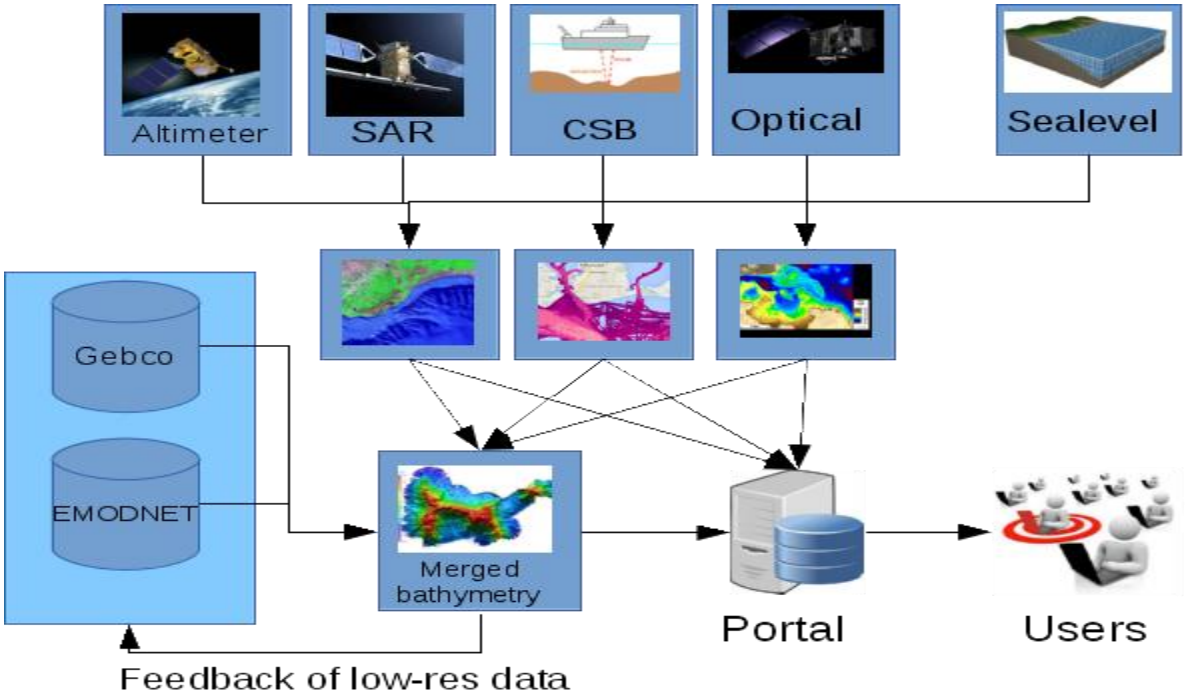
Copernicus downstream service with products based on Sentinel data for spatial information on foreshore and floodplain characteristics, such as morphology, sediment characteristics and vegetation properties.

Aquamonitor | 2017 - …

Aquamonitor is a project enabled by GoogleEarthEngine. This platform helps to detect global surface water changes (1985-2017) with online computing on a temporal collection of satellite imagery such as Sentinel 2A. Water changes on large basins and rivers worldwide are mostly visible.

https://aqua-monitor.appspot.com/

BASE-platform Workflow



- Sea-level correction
- Vertical referencing
- Data-merging
- Validation
- Use cases:
  - Mauritius
  - Xynthia
  - …

Coastal Services

Ecopotential | 2015-2019

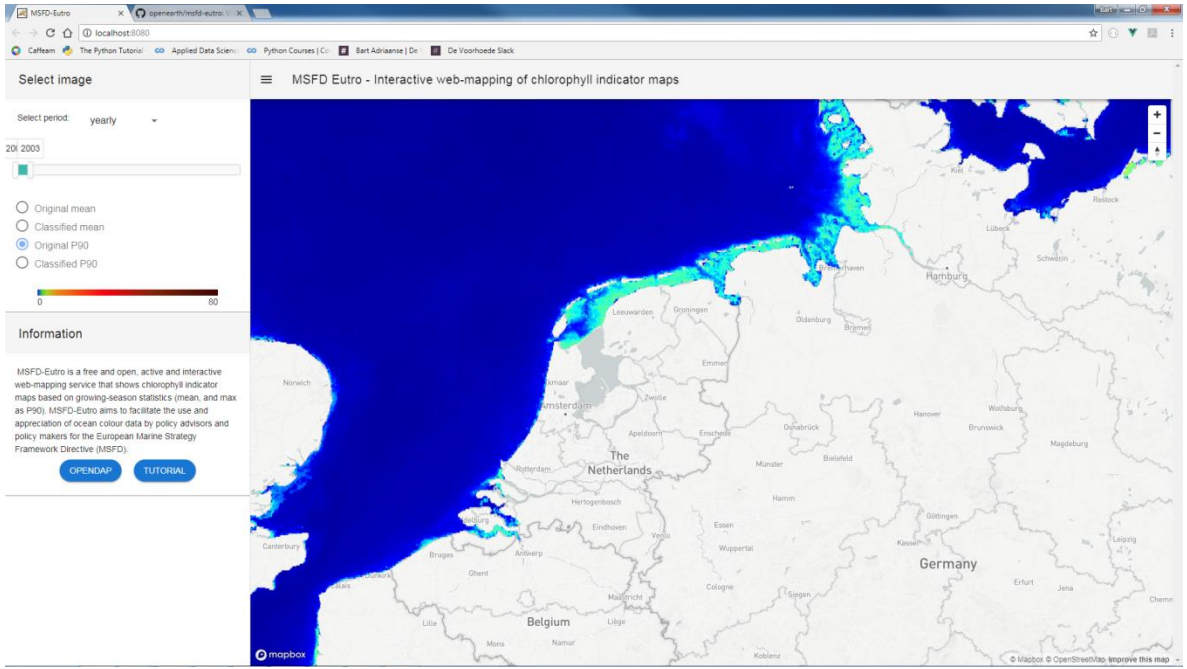
The ECOPOTENTIAL project focuses its activities and pilot actions on a targeted set of internationally recognized protected areas (PA) in Europe, European Territories and beyond, including mountain, arid and semi-arid, and coastal and marine ecosystems.

ECOPOTENTIAL addresses the entire chain of ecosystem-related services

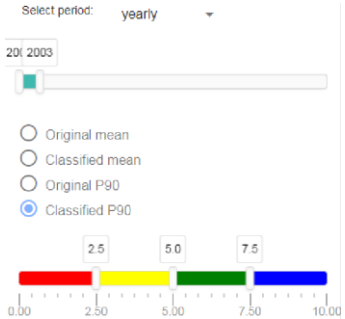
(a) developing ecosystem data services,
(b) implementing model output services to distribute the results of the modelling activities
(c) estimating current and future ecosystem services and benefits, combining ecosystem functions (supply) with beneficiaries needs (demand).

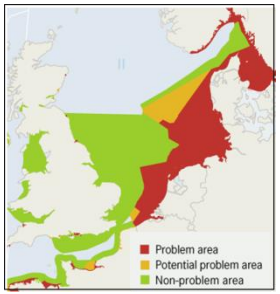
MSFD-Eutro | since 2017

MSFD-Eutro : Development and promotion of CMEMS Downstream services contributing to the implementation of the Marine Strategy Framework Directive



Work in Progress





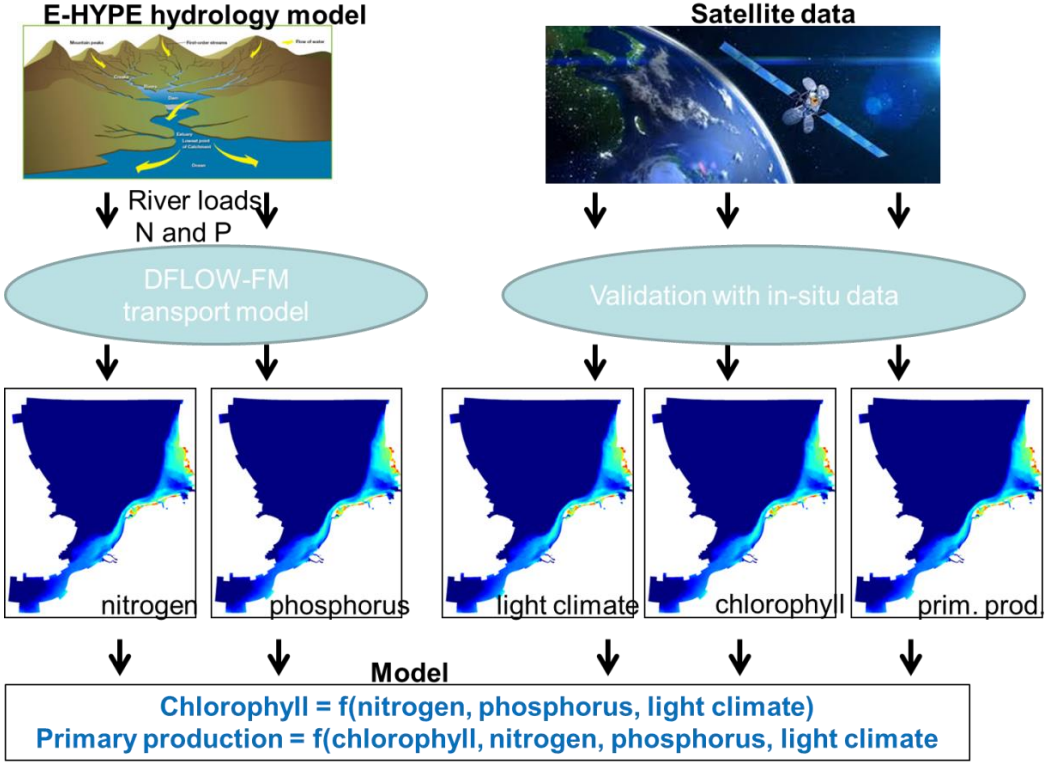
For more information
marieke.eleveld@deltares.nl

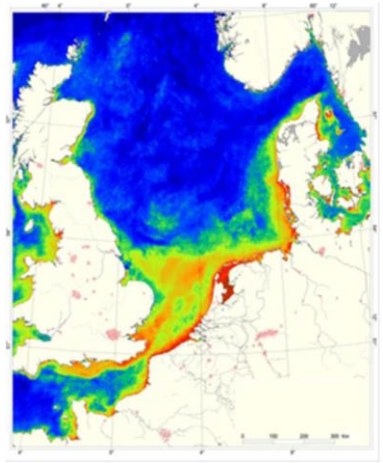
https://www.deltares.nl/en/projects/msfd-eutro/ and http://www.openearth.nl/msfd-eutro/

Coastal Services

JMP-EUNOSAT | since 2017

Joint Monitoring Programme of the Eutrophication of the North Sea with Satellite data. Coupled with Hydrology model and Transport model





For more information
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Surface waters Services

Vegetatiemonitor | 2018

The Vegetatiemonitor project makes use of satellite images to monitor vegetation in the riparian zone, by showing classification.

Work in Progress

For more information

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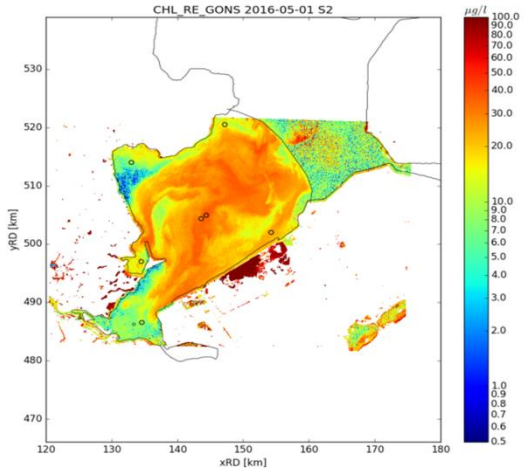
Surface waters Services

Markermeer | since 2017

In the Markermeer project, Deltares helps the water managers (Rijkswaterstaat) to use satellite data for their long-term monitoring of water quality parameters.

Work in Progress



For more information

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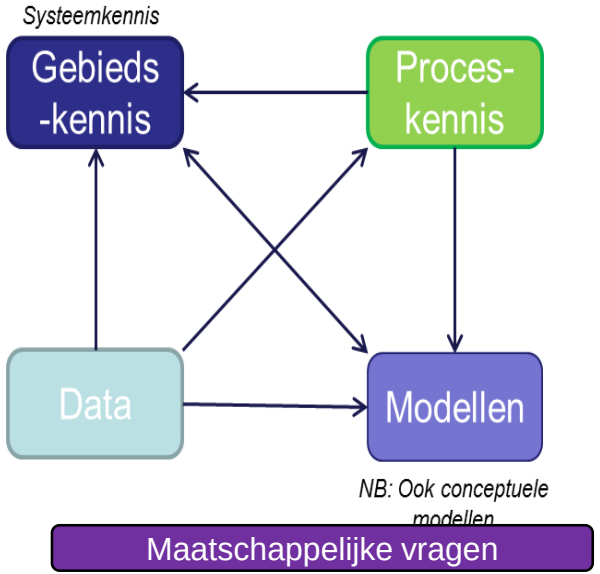
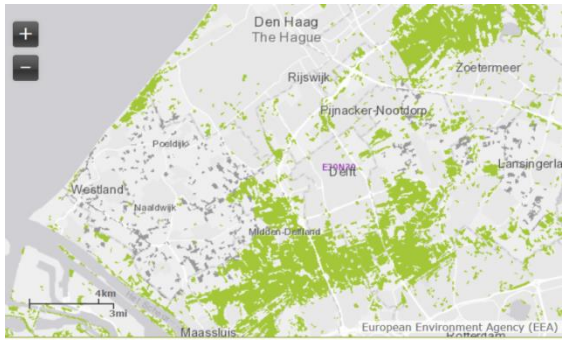
Objectives for Coastal Information Systems

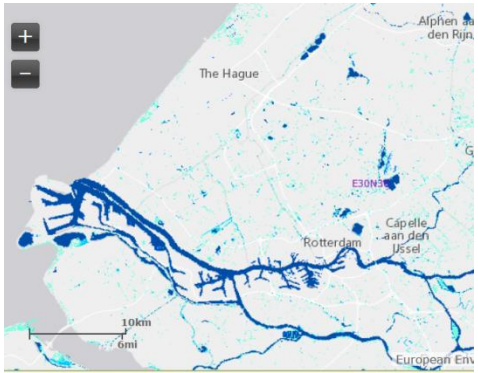
- Deltares focuses on flood safety, aquaculture, water quality, habitats.
- Focus is on the Processes and Systems. How do they function and what are the solutions to societal problems. Our core is knowledge.
- We use and produce data from/for Copernicus services to understand those processes.



Objectives for Coastal Information Systems

- Goal is to develop knowledge and use an open policy strategy, by working in projects.
- Coastal zone products have the objective to contribute to fill the knowledge gap of CMEMS making use of CLS.
- Upcoming use of Copernicus Services:
  - Land cover and land use information from Very High Resolution (VHR) satellite imagery for Riparian Zones and Coastal Zones





Questions

QUESTIONS?