

EU's Copernicus Marine Service in the Baltic Sea



Marine.copernicus.eu

COPERNICUS MARINE ENVIRONMENT MONITORING SERVICE
Providing PRODUCTS and SERVICES for all marine applications

European Commission

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ACCESS YOUR OCEAN INFORMATION

GETTING STARTED →

- OCEAN PRODUCTS**
Ocean product catalogue, to download or visualize data across more than 10 variables, including historic, current and forecasted data.
DATA →
- OCEAN MONITORING INDICATORS**
Essential variables monitoring the health of the ocean.
TRENDS →
- OCEAN STATE REPORT**
Extensive annual analysis on the state of the ocean over nearly 20 years and severe/notable annual events.
2018 02 MAY.
EXPERTISE →

SHORT-CUT TO SERVICES

- REGISTER NOW!
- SCIENTIFIC QUALITY
- ONLINE TUTORIALS
- COLLABORATIVE FORUM

LATEST NEWS FLASH
CMEMS-7324-A
New Service Release on 22 March 2018 - Status on updates
INFORMATION
ALL NEWS FLASH

28 MONDAY EVENTS AGENDA

PARTNERS AND STAKEHOLDERS

FOCUS ON

OUR OCEAN STATE REPORT AWARDED THE DENNY MEDAL

We are delighted to announce that the Ocean State Report produced by the Copernicus Marine Service has been awarded the Institute of Marine Engineering, Science and Technology (IMarEST) Denny Medal, an annual award for the most worthy paper published with the Journal of Operational Oceanography (JOO).

READ MORE

ANY QUESTIONS?

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"European Earth Monitoring"

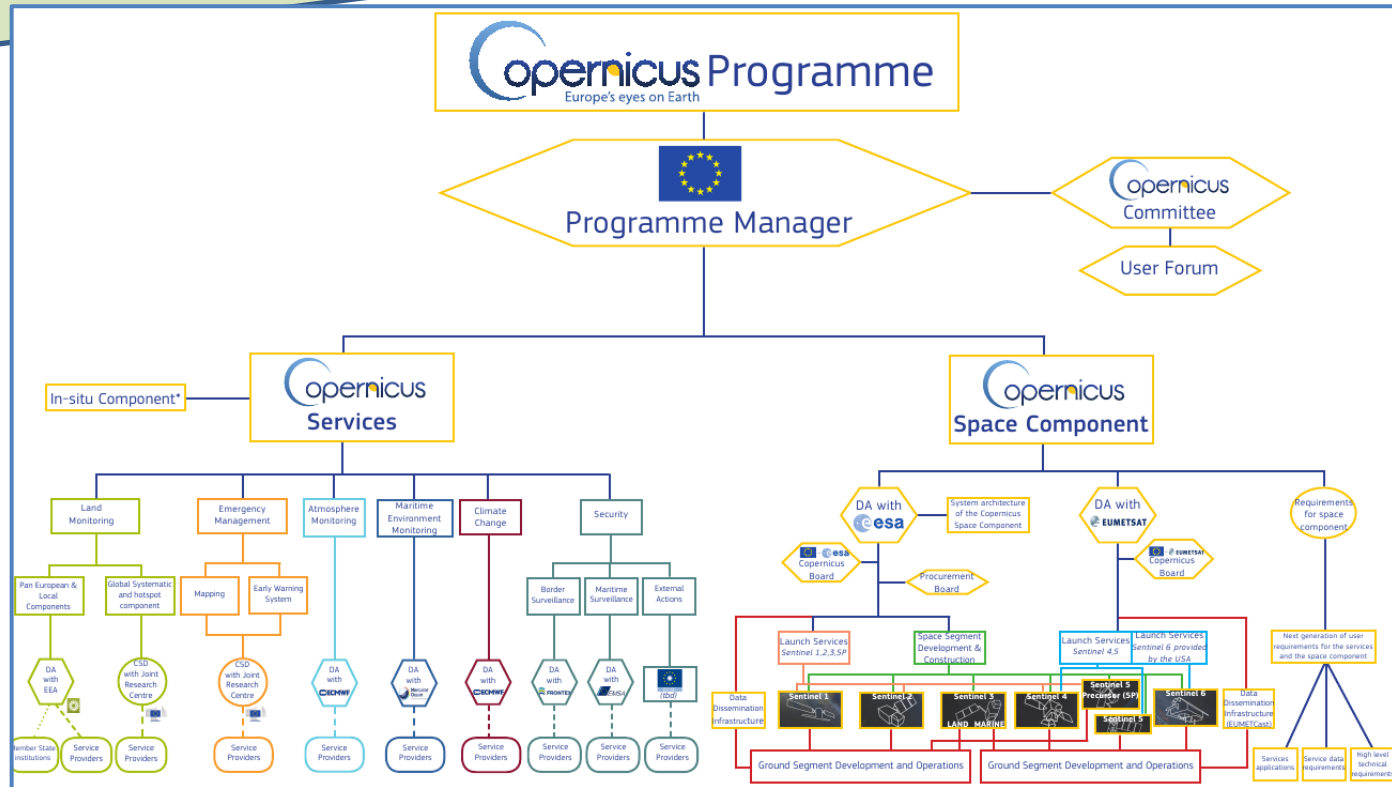
Coordinated by European Commission

Aim:

- collect data from multiple sources
- process these data
- provide services to users



Copernicus Services in brief...



The Marine Service (CMEMS)



- **EU / EC** **delegated task to Mercator Ocean, Toulouse**
Contract for 6 years: 2015 – 2021

- **To provide this Marine Service**
 - => Mercator Ocean issues a range of calls for tender (ongoing):**
 - “Provision of ocean analysis and forecast products for *different European Regions*” (**MFCs**)
 - “Provision of *xxx observation products*” (**TACs**)
 - CMEMS user/downstream services (**provide user contact**)
 - CMEMS Short term R&D projects (**provide R&D input to the service**)
 - *...more*

The Marine Service (CMEMS)



Observation Part:

In-situ observations

Remote sensing:

- Sea level
- Wave
- Sea Ice
- SST
- wind
- Ocean color

Model part:

- Reanalysis
- Forecasts

Wave
Physical
Biological



The Marine Service (CMEMS)



=> BOOS members involvement

Observation Part:

In-situ observations

Remote sensing:

- Sea level
- Wave
- Sea ice
- SST
- wind
- Ocean color

OBSERVATIONS

- SMHI (in situ)
- BSH (NWS in situ)
- FMI (ice)
- DMI (ice, SST)
- SYKE (ocean color)
- ...

Model part:

- Rear
- Fore

Wave
Physical
Biological

BALTIC modelling center

- BSH
- DMI
- FMI
- MSI/TTU
- SMHI

Further:

- BSH (also in NWS MFC)
- HZG (in Black Sea)
- ...

New BAL MFC Phase2 contract

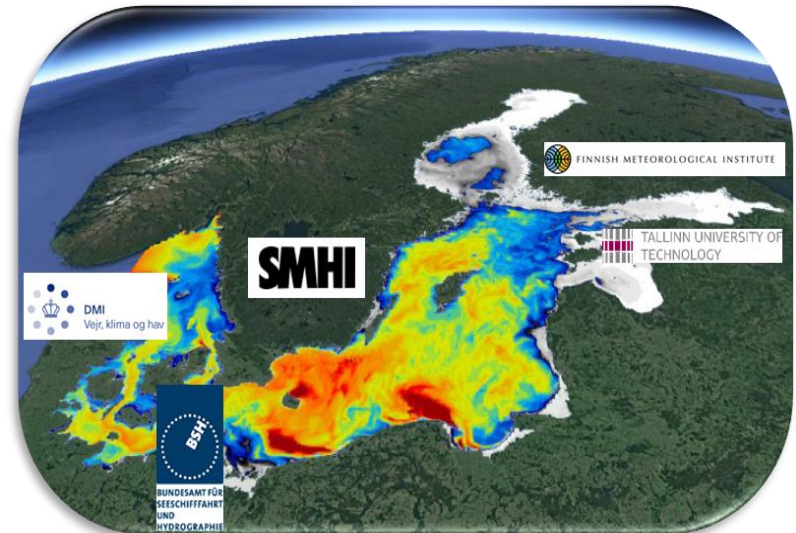


- **New contract – same consortium:**

- 3 years
- 4 mill €

- **Overall deliverables:**

- State of the art modelling system
- Waves, physical and biogeochemical oceanstate



- Analysis & forecast products (*min. 2 years back in time*)
- Reanalysis products (*from 1993 ->*)

BAL MFC new strategic decision: **model system**



	Phase1	Phase2
Forecast system	HBM + ERGOM WAM	Towards one system: <ul style="list-style-type: none">• NEMO-Nordic• ERGOM• DA: PDAF• WAM
Reanalysis system	NEMO-Nordic + SCOBI WAM	

Overall Baltic Product Upgrade Plan

=> next 3 years: annual upgrades



5 products NOW	NRT WAV NRT PHY & BIO RAN PHY & BIO	<ul style="list-style-type: none">• based on the WAM system• based on the HBM-ERGOM-system• based on the NEMO-SCOBI-PDAF system
Spring/Summer 2019	NRT WAV NRT PHY & BIO RAN PHY & BIO	<ul style="list-style-type: none">• WAM system evolution• New system: NEMO-ERGOM-PDAF system• An update of NEMO-SCOBI-PDAF production
Spring 2020	NRT WAV RAN WAV NRT PHY & BIO RAN PHY & BIO	<ul style="list-style-type: none">• WAM system evolution• New hindcast/RAN WAM product• NEMO-ERGOM-PDAF system evolution• An update of NEMO-SCOBI-PDAF production
Spring 2021	NRT WAV RAN WAV NRT PHY & BIO RAN PHY & BIO	<ul style="list-style-type: none">• WAM system evolution• An update of the existing WAM system• NEMO-ERGOM-PDAF system evolution• New product based on the NEMO-ERGOM-PDAF

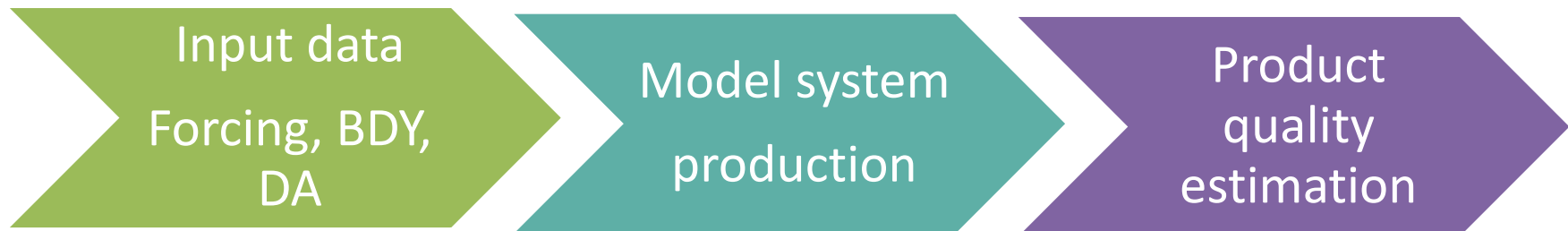
Overall Baltic Product Upgrade Plan :



CMEMS has focus on **full** operational production chain:

⇒ annual update includes developments in all aspects

⇒ "Cross-cutting activities" within CMEMS



Focus development areas in 2018:



- **Shift of forecasting ocean system: HBM-ERGOM to NEMO-ERGOM-PDAF**
 - Ensure non-degradation quality of new system to existing system
 - Online coupling of ERGOM to NEMO
- **ERGOM:**
 - Implement full carbon cycle dynamic
 - serve new variables: Net Primary Production, pH, pCO₂
- **PDAF:**
 - Join the DA resources
 - Use LESTKF scheme (SST, *T/S profile, ice, SL, ...*)
- **WAM:** upgrade to 4.6
 - Offline coupling with NEMO's surface current & ice

Reanalysis products



Ocean-Bio:

Available now – *newly released*:

- NEMO-SCOBI system
 - 1993 -2016
 - 2 n.mi
 - Surface: hourly
 - 3D: Daily + Monthly

Next spring: extended time series

By early 2021:

new production: NEMO-ERGOM

Wave:

Available in Spring 2020

- Hindcast 1993 -> 2018
- WAM (4.6)
- Coupling to NEMO fields...
- Forcing & BDY data ...

Other types of CMEMS products...



CMEMS Ocean State Report

- **Annual version**
- **Published in: Journal of Operational Oceanography**
- **For year 2015: accepted**
- **For year 2016: nearly accepted**
- **For year 2017: in progress**

Ocean Monitoring Indicators

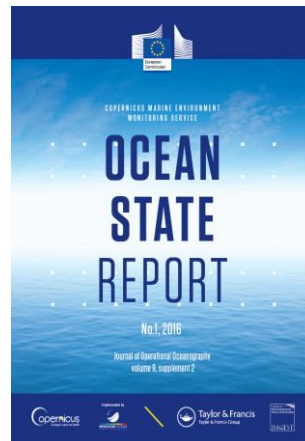
Definition: OMI allow a regular monitoring of the ocean state

Work in progress...

We suggest for Baltic:

Daily maximum ice extent

Major Baltic Inflow



BAL MFC Use of boos.org ...



We will suggest to BOOS SG:

To Allow:

Regional BAL MFC webpage (subpage of BOOS web)

- Host quality validation plots (QUID annexes)
- Show online validation results for the forecast products (linked to MME)
- Show OMIs
- ...

- Make CMEMS Baltic products available for BOOS users
- Link BOOS & CMEMS closer

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On behalf of the BAL MFC Group:
Thank you for your attention

