



EuroSea

WP7 – Ocean Climate Demonstrator

Outcome summary from breakout
session



European
Commission

EuroSea has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 862626

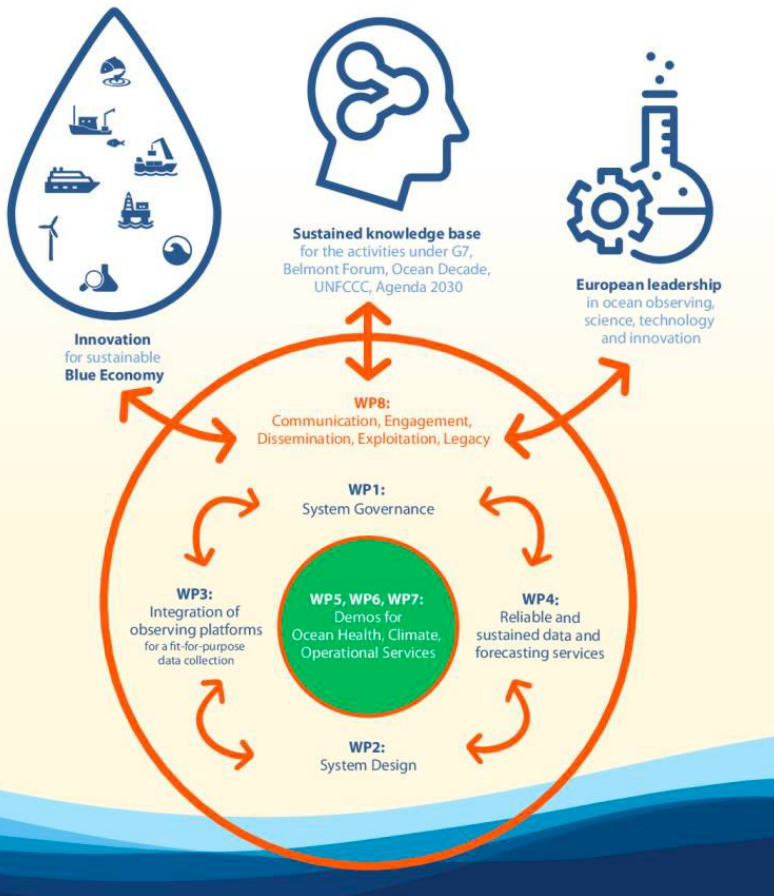


WP7

Ocean climate indicators demonstrator

EuroSea

Observation & Forecasting Services |
Governance | Sustained operation

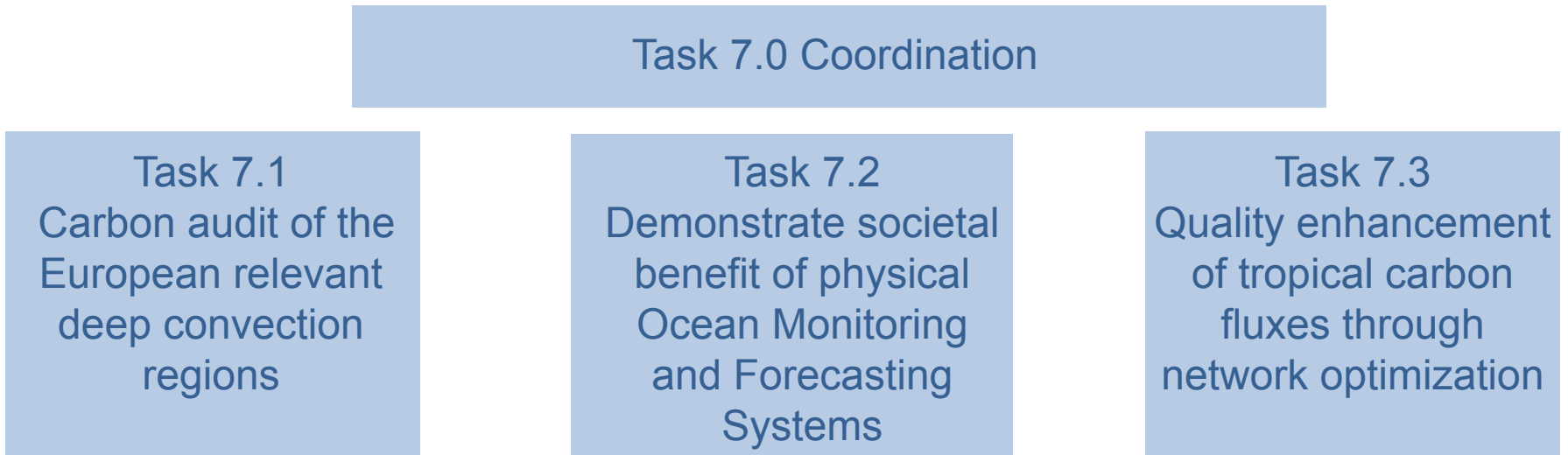


The key objectives of WP 7 are:

- To generate a feedback loop between EuroSea, climate and ocean services, the economy sector, and decision makers by co-examining ocean climate indicators, assessing their uncertainties and quantifying their economic value.
- Provide user-relevant products for ocean climate monitoring and deliver seasonal forecasting indicators in support of improved ecosystem management, risk management and blue growth.
- Carry out AtlantOS (H2020) recommendations for observing system strategies and demonstrate the improvements through ocean climate indicator developments with decreased uncertainty.



WP 7 - Ocean Climate Indicators Demonstrator: Organisation



Major objective of WP7 breakout discussion:

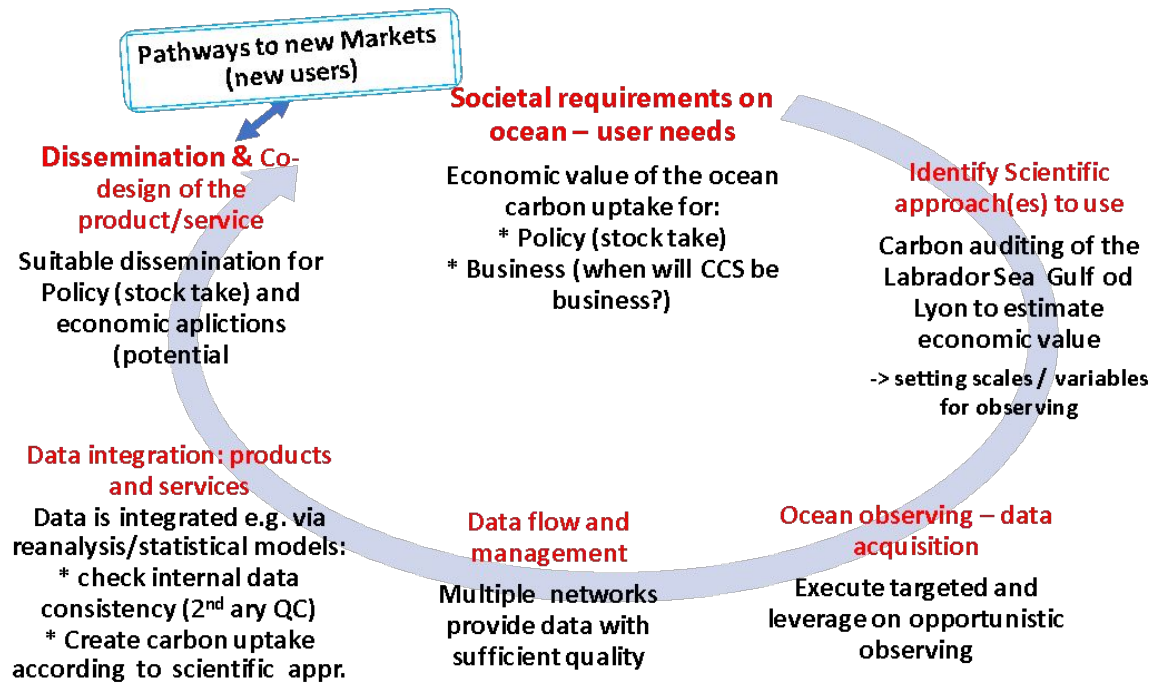
1. How can we best connect the WP7 task activities within EuroSea?
2. How can we align the development of task outcomes with users' and stakeholders' needs?

Major identified stakeholders for WP7:

- Copernicus (particularly C3S, CMEMS)
- Climate action stakeholders (policy: SDG, MSFD, UNFCCC, ...; science: IPCC, ...)
- Users of climate forecast (e.g. for risk/disaster management, urban planning, ...)



Task 7.1: Carbon audit of the European relevant deep convection regions



11

Major expected task outcome:

Tool to quantify economic value of carbon uptake and its variability as a demonstrator for an economic management product



Task 7.1: Carbon audit of the European relevant deep convection regions

Major discussed tools/actions to achieve objectives:

- Clearly identify/specify a design of the outcome product (e.g. methods, units, uncertainty evaluation proposed, etc...), as well as the added value, best practices and protocols (link to WP3). Needed for early stakeholder dialogue!
- Specifically focus on the uncertainty evaluation, and possibly consider a multi-product approach taking into account methods like reanalysis (link to 7.2) and statistical models (e.g. neural networks, link to 7.3).
- Quantify the value of the uncertainty and provide cost estimate of decreasing this uncertainty to levels satisfactory for the users/stakeholders.
- Exchange with partners and experienced groups outside EuroSea to identify direct and indirect users, tested tools and communication pathways.
- Develop a storyline/narrative of use/application in collaboration with partners and groups outside EuroSea which have already performed a similar approach (e.g. MedSea)



Task 7.1: Carbon audit of the European relevant deep convection regions

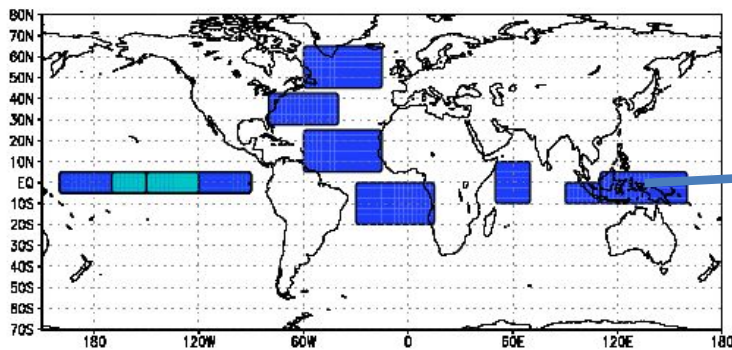
Identified partners, users and stakeholders

- EuroSea WP3 – for best practices development/deposition
- EuroSea WP4, T7.2 and T7.3 – for possible implementation of methods: reanalysis and statistical models
- GCP, UNFCCC Stocktake - existing activities well positioned for impact.
- Groups currently attempting ocean-related carbon accounting (USA, Canada)

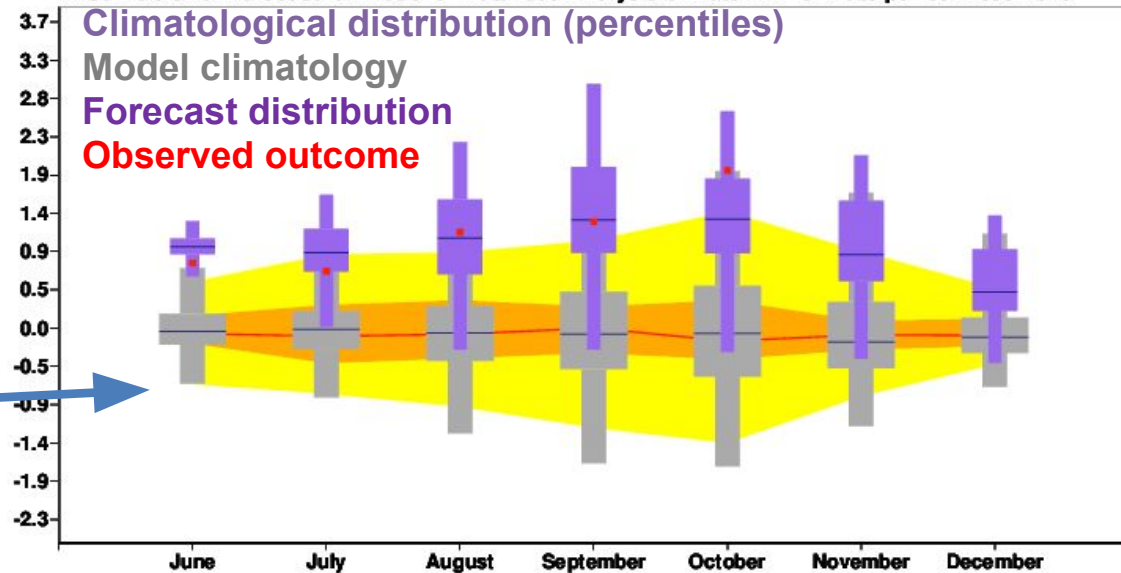


Task 7.2: Demonstrate societal benefit of physical Ocean Monitoring and Forecasting Systems: Design of user driven products

Unprecedented IOD was successfully predicted by forecast issued in June !!



SST anomalies (K) 10.0 to -10.0 50.0 to 70.0 minus 0.0 to -10.0 90.0 to 110.0
Forecast initial date: 20190601
Ensemble size: Forecast=51 Model climate=600 Analysis climate=24 Climate period: 1993-2016



Major expected task outcome:

A set of validated, calibrated and documented ocean monitoring indicators from EOVS SST, SSH and subsurface temperature as a demonstrator of available new and innovative capacity from environmental monitoring



Task 7.2: Demonstrate societal benefit of physical Ocean Monitoring and Forecasting Systems: Design of user driven products

Major discussed tools/actions to achieve objectives:

- Develop a storyline/narrative (scenarios) for use/application of the product leading to impact (heatwaves was given as an example)
- Organize a workshop for potential end-users/stakeholders to communicate the new and innovative capability – in partnership with (or even under the leadership of) organizations that already identified relevant users/stakeholders (C3S, CMEMS, ICES)
- Focus on developing forecasts for already defined indicators (e.g. CMEMS Ocean Monitoring Indicators / Ocean State Report)
- Communicate internally within EuroSea to identify potential users and stakeholders



Task 7.2: Demonstrate societal benefit of physical Ocean Monitoring and Forecasting Systems: Design of user driven products

Identified partners, users and stakeholders

- EuroSea WP6 – to identify potential users and stakeholders
- C3S, CMEMS, ICES – to identify potential users and stakeholders
- Need to identify potential uptake of the product within EuroSea (e.g WP7 T7.1)

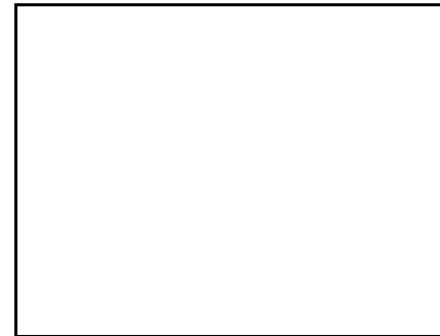


Task 7.3: Quality enhancement of tropical carbon fluxes through network optimization of the Tropical Atlantic Observing System

pCO₂ sensors
on PIRATA
moorings



ASV –
Autonomous
Surface Vehicles
*Equipped with high
accuracy pCO₂
systems incl. cert.
ref. gases*



BGC Argo
Floats



Saildrone

Major expected task outcomes:

Observing system optimization demonstrating the value of an integrative multi-platform approach following the recommendations from AtlantOS

A BGC-Argo data validation tool to demonstrate the value of new innovations in technical development



Task 7.3: Quality enhancement of tropical carbon fluxes through network optimization of the Tropical Atlantic Observing System

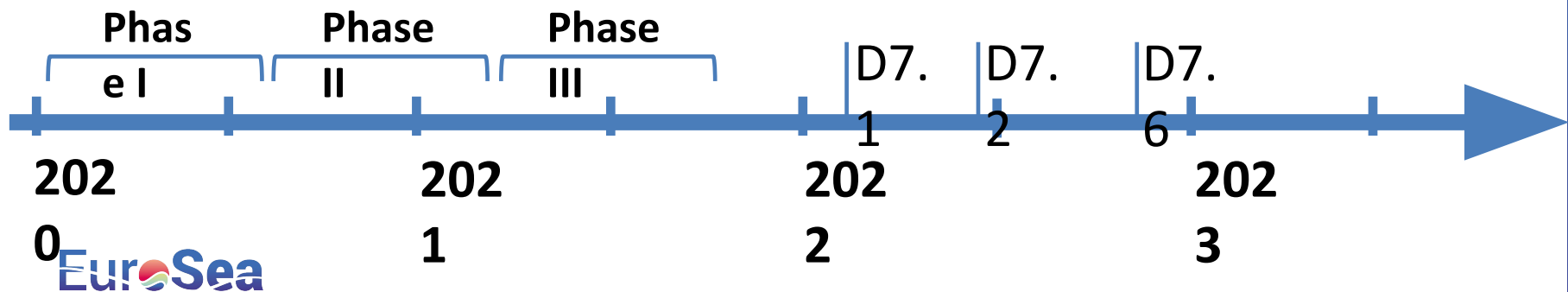
Major discussed tools/actions to achieve objectives:

Timeline:

- **Phase I:** Procurement of equipment (bgc Argo Floats, CO₂ sensors, etc.), mission planning
- **Phase II:** Extension of TAOS (Float deployment, moored sensor installation)
- **Phase III:** ASV field mission

Deliverables:

- **D7.1:** Report on demo mission and dissemination pathways of obtained data
- **D7.2:** The data validation tool (GLODAP data at depth, ASV data at surface) to enhance BGC-Argo carbon data quality
- **D7.6:** Quantification of improvements in carbon flux data for the tropical Atlantic based on the multi-platform and neural network approach





Task 7.3: Quality enhancement of tropical carbon fluxes through network optimization of the Tropical Atlantic Observing System

Identified partners, users and stakeholders

- US SOCCOM – to learn from experience in combining ASVs and floats for validation purposes
- EuroSea T7.1 – for implementation of neural network based product
- C3S, CMEMS – to utilize products (data and neural networks maps at various depths)
- Need to identify potential uptake of the product within the modelling community (CMIP, OMIP, others...)



EuroSea WP7 partners and contributors

| | | | |
|------|------------------------|---|-----------|
| T7.0 | Karina von Schuckmann | karina.von.schuckmann@mercator-ocean.fr | Task lead |
| | Maciej Telszewski | m.telszewski@ioccp.org | Task lead |
| T7.1 | Johannes Karstensen | jkarstensen@geomar.de | Task lead |
| | Wilfried Rickels | Wilfried.Rickels@ifw-kiel.de | Task lead |
| | Pierre Testor | pierre.testor@locean-ipsl.upmc.fr | Partner |
| | Grigor Obolensky | grigor.obolensky@euro-argo.eu | Partner |
| | Virginie Thierry | vthierry@ifremer.fr | Partner |
| T7.2 | Simona Masina | simona.masina@cmcc.it | Task lead |
| | Magdalena A. Balmaseda | magdalena.balmaseda@ecmwf.int | Task lead |
| | Sabrina Speich | sabrina.speich@lmd.ens.fr | Partner |
| | Karina von Schuckmann | karina.von.schuckmann@mercator-ocean.fr | Partner |
| T7.3 | Björn Fiedler | bfiedler@geomar.de | Task lead |
| | Herve Claustre | claustre@obs-vlfr.fr | Task lead |
| | Laurent Coppola | coppola@obs-vlfr.fr | Partner |
| | Fabrice Hernandez | fabrice.hernandez@ird.fr | Partner |

& international partners

EuroSea

THANK YOU

www.eurosea.eu

TWITTER:
[#EuroSea](https://twitter.com/EuroSea)



European
Commission

EuroSea has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 862626