CoastPredict

Observing and Predicting the Global Coastal Ocean

A PROGRAMME under the UN DECADE OF OCEAN SCIENCE FOR SUSTAINABLE DEVELOPMENT

https://www.coastspredict.org/

Revolutionising Global Coastal Ocean observing and forecasting, co-designing the needed infrastructure and offering open and free access to coastal information

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Observing and Predicting the Global Coastal Ocean

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Theme: A predicted global coastal ocean where society understands and can respond to changing ocean conditions

Synergistic Partners: **GOOS, OceanPredict, Ocean Visions, EquiSea, Ocean Best Practice System, IODE, CEOS/BluePlanet/COAST,...**

The basic concept of a Global Coastal Ocean has been defined about a decade ago in five Volumes of The Sea
(Vol. 10 to 14, Harvard Univ. Press)

TRANSFORMATIVE: Coastpredict will re-define the "coastal ocean"

PROPOSED STARTING DEFINITION:

the coastal ocean - that area, extending ***inshore*** *from the estuarine mouths to river catchments affected by saltwater, to the urban settlements on the one side and on the other side to the* ***offshore,*** *from the surf zone to the continental shelf and slope where waters of continental origins meet open ocean currents.*

CoastPredict High Level Objectives

1) A predicted global coastal ocean;

2) The upgrade to a fit-for-purpose oceanographic information infrastructure;

3) Co-design and implementation of an integrated coastal ocean observing and forecasting system adhering to best practices and standards, designed as a global framework and implemented locally.

CoastPredict Main Decade OUTCOMES

1. Integrated knowledge of the **global coastal ocean from events to climate** (*advancing Knowledge*);
2. The design and implementation of an **integrated river/estuarine/coastal/open ocean observing and modelling multidisciplinary** system (*integrated observing and predicting*);
3. **Improved coastal marine forecasting and extended range predictive capabilities for the coastal zone** (*accurate predictions from hours to centuries ahead*);
4. **The development of methods for trusted data/information exchange and interoperability** across the value chain and adopt these as best practices (*open and free access to coastal information*);
5. **Innovative and sustainable applications for coastal solutions/services** that directly benefit local populations, including well-being and human health (*solutions*);
6. **Increased equitable education and capacity** for observing and forecasting in the global coastal ocean (*capacity building*).
7. **Strong engagement of Early Career Professionals and promotion of education**, training and research under principles of diversity, equity and inclusion (*education, no-one left behind*)

Open consultation open in February 15 2020

250 signatures
from 35 countries

29 "Projects" submitted

International
Steering committee,
Advisory committee
ECOP

Chair: N.Pinardi
(Univ. of Bologna, IT)
Co-Chairs:
V.Kourafalou (Univ. of Miami, USA)
J.Tintore
(SOCIB, Spain)

Co-design partners:
GOOS, IODE, IODE/OBPS, CEOS-COAST, Geo-Blueplanet, WMO-WWRP

Synergistic Decade programs:
GEOS, EquiSea, OceanPredict, etc.

The contribution of the initial steering group has been very important!

The initial steering Group

Nadia Pinardi – UNIBO (IT)	Burkard Baschek – HZG (DE)
Holger Brix – HZG (DE)	Kim Cobb – GaTech (USA)
Giovanni Coppini – CMCC (IT)	Pierre De Mey – LEGOS (FR)
Emanuele Di Lorenzo – GaTech (USA)	Villy Kourafalou – Univ. of Miami (USA)
Rosalia Santoleri – CNR-ISMAR (IT)	Joaquin Tintore – SOCIB&IMEDEA (ES)

CoastPredict co-design with UN programs: GOOS

developing #OceanDecade programme proposals

The Global Ocean Observing System

Connecting to many local stakeholder communities as providers and users of ocean observations, deepening engagement and participation in GOOS

lead developers: Molly Powers and Kim Currie

Integrated observations, forecasting and technology to deliver essential information in coastal applications

lead developers: Nadia Pinardi, Villy Kourafalou, Joaquín Tintoré

coastpredict.org

Working across networks and platforms to actively design the system needed to deliver an integrated, responsive, and sustained observing system for climate, forecasts and early warnings, and ocean health

lead developers: David Legler and Sabrina Speich

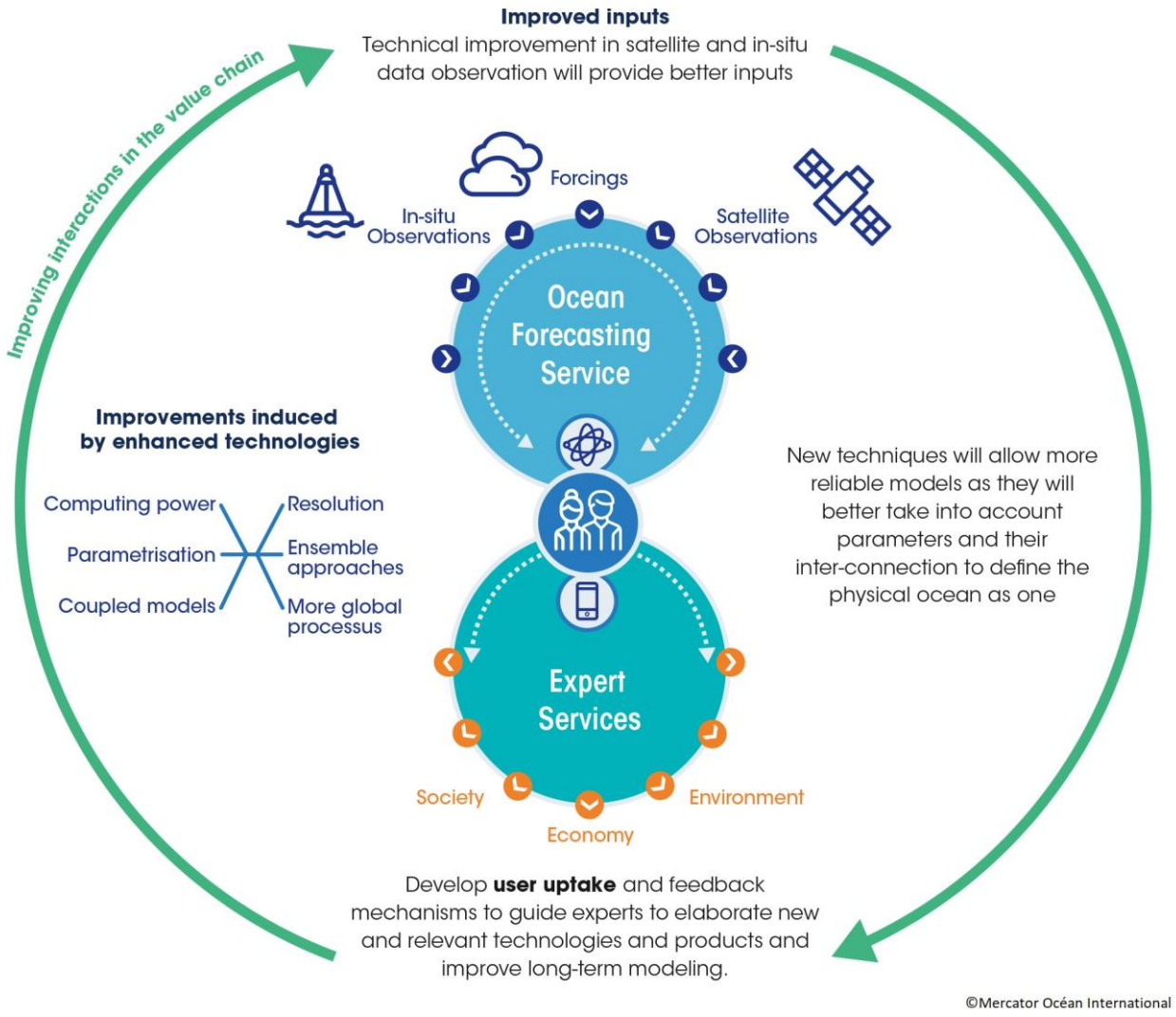
contact point: **decade@goosocean.org**

CoastPredict international affiliations: ETOOFS

ETOOFS: Expert Team on Operational Ocean Forecasting

Ocean Forecasting Value Chain

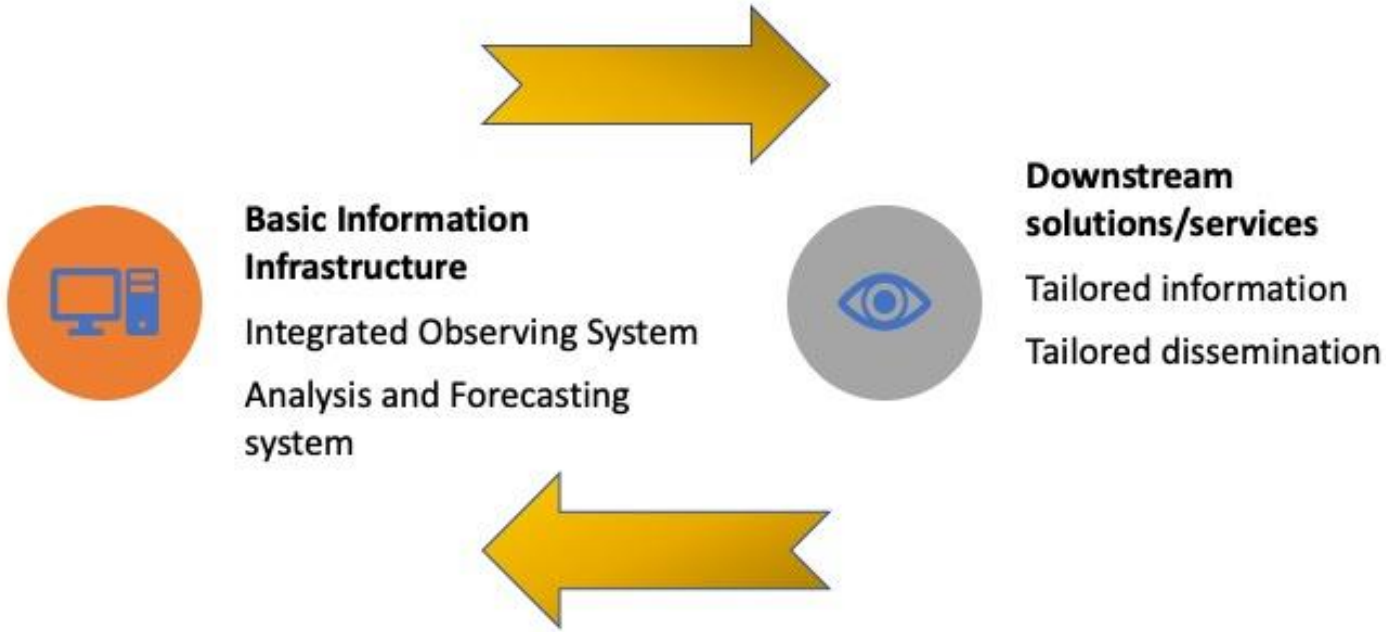
The core mission of the ocean monitoring and forecasting system consists of integrating the richness and variety of ocean observations to **build a state-of-the-art digital description of the ocean environment**, which is multivariable, consistent in space and time, reliable and immediately actionable by expert services.



What is the transformative science in Coastpredict?

- **Re-defining the concept of the Global Coastal Ocean**
- **innovative multidisciplinary observational technologies and fit for purpose observing system in the Global Coastal Ocean,**
- **innovative numerical modelling, data assimilation and data science tools** (including Coastal Earth System Modelling);
- **coastal solutions/services**
- **a virtual information/digital infrastructure**
- a new **Global Coastal Ocean Network**

The simplified value chain and where Coastpredict mainly contributes



1. Scientific understanding of coastal processes giving rise to Research-to-Operation-to-Research developments
2. Integrated open-coastal observing
3. Improved (accuracy and time lead) and impact-based coastal forecasts
4. Best Practices for the Coastal areas

1. Coastal areas solutions for Disaster Risk Reduction
2. Solutions for Climate change mitigation and adaptation
3. Capacity Building

Coastpredict Programme Governance and working structure