

Predicting the
Global Coastal
Ocean:
a UN Ocean Decade
Programme

<https://www.coastspredict.org/>

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)

What is the 'Coastal ocean'?



PROPOSED, REVISED DEFINITION:

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

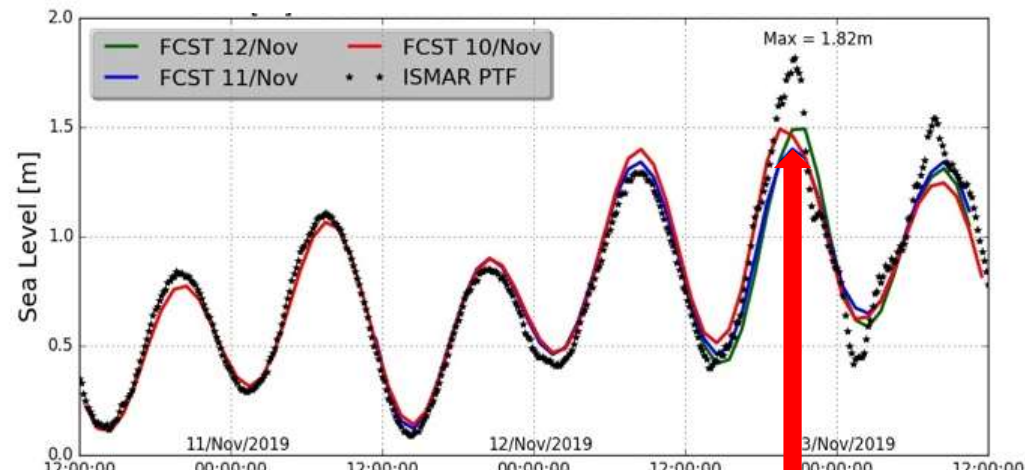
Why such a programme?

Venice extreme Acqua Alta event, November 12, 2019, @ 23:55

The City of Venice local forecast:
Start of forecast at 11:00 am Nov. 12



CMEMS-CMCC forecast:
Start of forecast at 12:00 am Nov. 10



In conclusion: local, coastal forecasting models have less accuracy than large scale models

Why such a programme?



OceanObs'19 Conference Statement

We, the participants of the decadal OceanObs'19 Conference, hear the call from maritime stakeholders, operational resource management agencies, and researchers from private and public organizations about the importance of more complete and sustained observations in the ocean globally. Information about the ocean is needed to advance the understanding of the ocean system, strengthen security and safety at sea, mitigate the risk of disasters including those related to a changing climate, reduce pollution and harmful debris, and inform efforts to conserve life in the sea for the benefit of future generations. It is required to design and support policy options that sustain ocean-related human benefits.

- Advance the frontiers of ocean observing capabilities from **the coast to the deep ocean**, all aspects of the marine biome, disease vectors, pollutants, and exchanges of energy, chemicals and biology at the boundaries between the ocean and air, seafloor, land, ice, freshwater, and human populated areas;
- Improve the uptake of **ocean data in models for understanding and forecasting of the Earth system**;

Driving societal needs

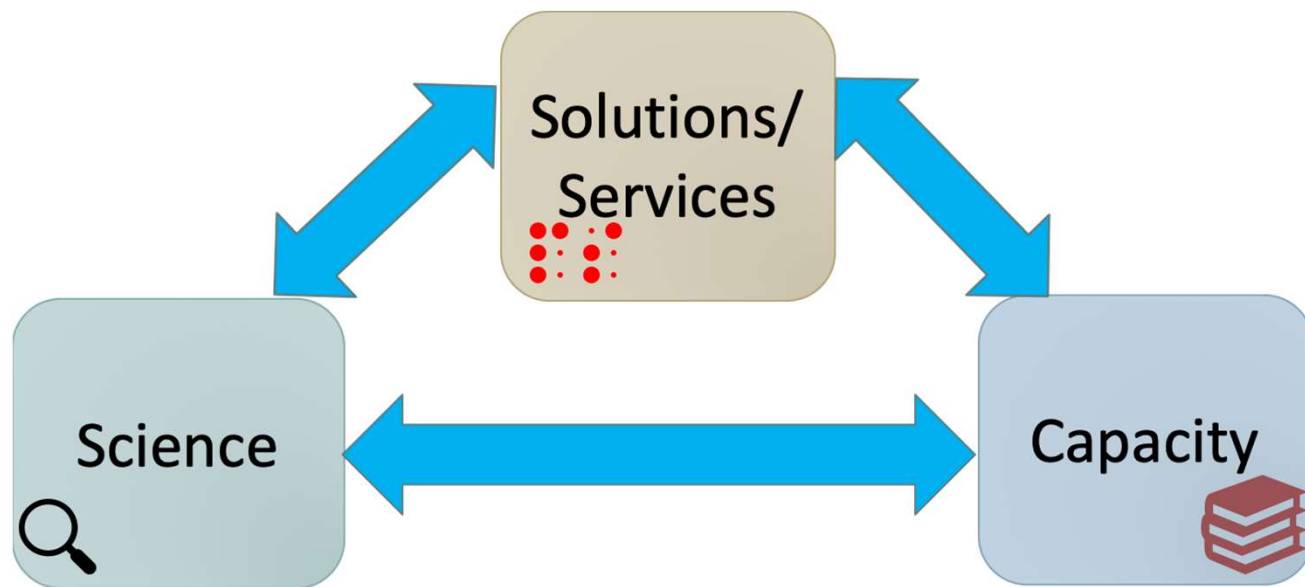
Coastal urbanization needs advanced monitoring and predictions of coastal inundation, of coastal pollution, of coastal habitat health and multi-hazards;

Climate change and related extremes have large coastal impacts;

Sub-seasonal to seasonal forecasting in the coastal zones is needed for blue economy;

There is a need for policy target assessments in the coastal areas.

Predicting the Global Coastal Ocean UN Decade Programme in a nutshell



The three pillars around which to build the programme

Proposal for a UN Ocean Decade Programme: main OUTCOMES

RATIONALE: We need rapid deployment of science-based solutions in the coastal areas to meet several SDG targets/indicators and construct a more resilient society.

The Programme will coordinate research and innovation with the following outcomes:

1. Integrated knowledge of the global coastal ocean from **events** to **CLIMATE**;
2. Integration of coastal and open ocean **observing and modelling** systems;
3. Improved, **multidisciplinary and extended range predictive capabilities for the coastal zone**;
4. Innovative and sustainable applications for coastal solutions/services.

Several projects will be designed as components of the programme

<https://www.coastspredict.org/>

Open consultation open in February 15 and closed April 30, 2020

194 signatures from 38 countries

60 comments, adding substance

International Steering
committee,
Advisory committee
and
management group being formed

Initial steering group: N.Pinardi, R.
Santoleri, J.Tintore, V.Kourafalou,
P.De Mey-Fremaux, H.Brix, E.Di
Lorenzo, K.Cobb, B. Baschek

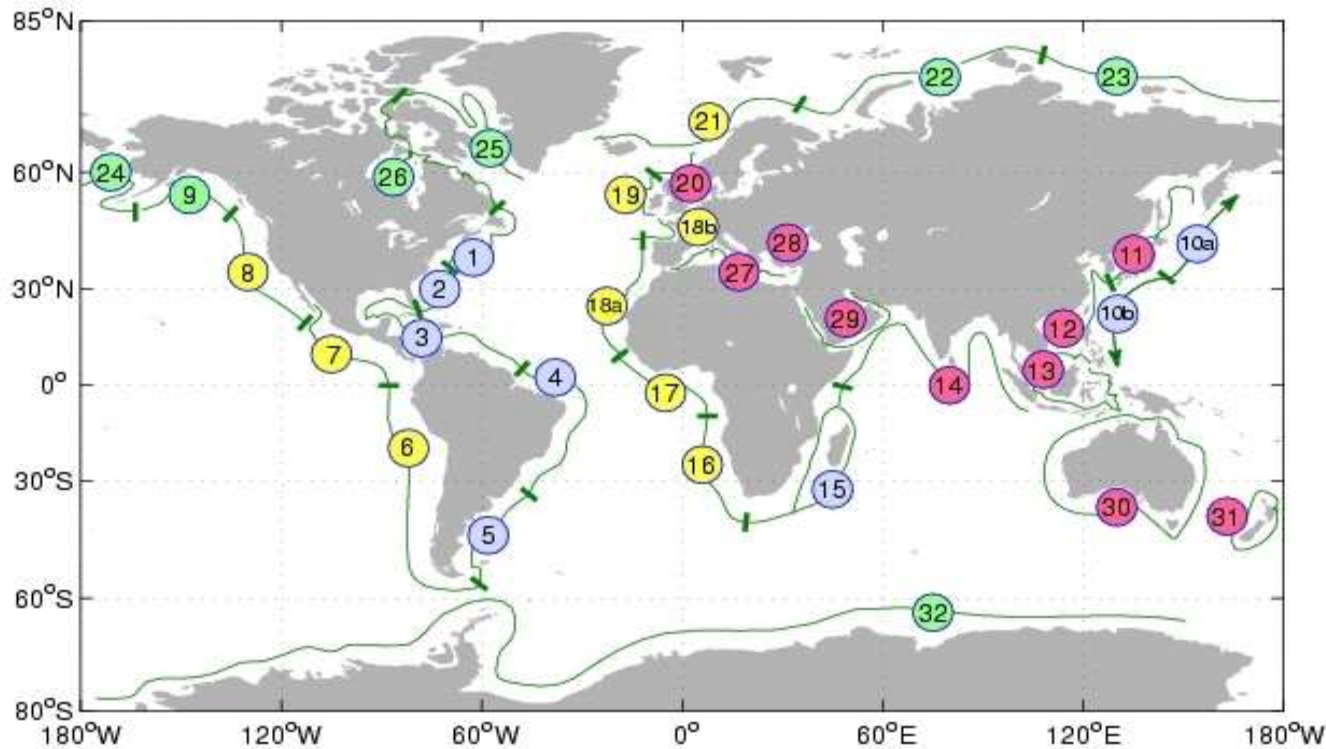
Discussion started:
OceanPredict, Joint Collaborative
Board between IOC and WMO,
GeoBluePlanet, ESA-Coastal, etc.

UN Decade cross-
Programme/Projects:
GEOS (**Global Ecosystem for
Ocean Solutions**) and
Pogramme for Capacity Building

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Predicting the Global Coastal Ocean Solutions/Services should be applied in contrasting areas of the world ocean

Western
boundary –
blue
Eastern
boundary –
yellow
Polar
boundary –
green
Semi-
enclosed
seas and
islands- red



From
Robinson and Brink,
The Sea, Vol. 14
(2010)