39th IAHR WORLD CONGRESS GRANADA, SPAIN 2022 From Snow to Sea 19-24 June 2022

Proceedings of the 39th IAHR World Congress
19–24 June 2022, Granada, Spain
doi://10.3850/IAHR-39WC252171192022key1

KEYNOTE

Keynote 1
Coastal Resilience in a changing climate: the CoastPredict solution

Nadia Pinardi
UN Ocean Science Decade, Bologna University Italy

Abstract

The Global Coastal Ocean concept, at the centre of CoastPredict https://www.coastpredict.org/, considers all coastal ocean regions as an interface area. In particular that area extending inshore from the estuarine mouths to river and urban settlements and offshore from the surf zone to the continental shelf and slope where waters of continental origins meet open ocean currents.

Atmosphere, land, ice, hydrology, coastal ecosystems, open ocean and humans interact on a multiplicity of space and time scales that need to be resolved with proper scientific methods and consideration of uncertainties. This concept helps to design solutions for a healthy and safe ocean and achieve many of the targets of the Sustainable Development Goals, as well as increasing coastal resilience for the human population and the ecosystems.

The key science paradigm is to concentrate the attention on the prediction issues requiring an integrated approach of observing and modelling that will allow to improve our understanding, test theories and hypothesis, reduce uncertainties from events to the climate time scales. CoastPredict is part of the Global Ocean Observing System (GOOS) strategy to design and implement a permanent global system for observations, modelling and analysis of marine and ocean variables to support operational ocean services worldwide. GOOS and CoastPredict will provide: 1) accurate descriptions of the present state of the coastal oceans; 2) continuous forecasts of the future coastal ocean conditions as far ahead as possible; 3) the basis for predictions of climate change impacts on the coasts.

Keywords: CoastPredict, Coastal Resilience, Climate.

Biography

Nadia PINARDI holds a Ph.D. in Applied Physics from Harvard University, and she is full professor of Oceanography at Bologna University. Her interests range from ocean numerical modelling and predictions to data assimilation, numerical modelling of the marine physical-biological interactions and pollutants at sea. She has written more than hundred and sixty papers in peer reviewed journals on a wide range of subjects. The last topic of her research is the understanding of uncertainties in ensemble forecasting, oil spill numerical modelling coupled to operational oceanographic forecasts and the analysis of climate indices in the Mediterranean Sea, such the Mediterranean Sea Overturning Circulation index.

She has been the director of the National Group of Operational Oceanography of the National Institute of Geophysics and Vulcanology from 2004 to 2013. She has been Member of the European Space Agency Space Advisory Group, of the European Environment Agency Scientific Advisory Committee and of the European Research Council for Earth Sciences.

From 2012 to 2019 she was co-president of the Joint Committee for Oceanography and Marine Meteorology (JCOMM) of UNESCO-IOC and WMO and she is, since 2019, vice-president of the Commission for Observation, Infrastructure and Information Systems (Infrastructure Commission) of WMO.

