Future Coastal Ocean Climates Workshop
21-23 February 2023
Leonardo Hotel (formerly Jurys Inn), 31 Keel Wharf, Liverpool, L3 4FN, UK

Agenda 10/02/2023

Tuesday 21st February

12:00-13:00   Registration and lunch

13:00-14:15   **Session 1a: Introductions and scene setting**

(10 min) *The UN Decade FLAME Project*. Jo Hopkins, National Oceanography Centre, UK

(10 min) *The UN Decade CoastPredict Programme*. Nadia Pinardi, Uni. Bologna, Italy

(15 min) Mapping our network. Real time Slido questionnaire.

(30 min) Speed dating (round 1)

14:15-15:00   **Session 1b: Climate projections for ecosystem services** (Chair Jason Holt, NOC, UK)

(30 min) *What might the next generation of regional coastal ocean projections for ecosystem services look like?* Charles Stock, NOAA GFDL, Princeton, USA [invited speaker]

Plenary questions and discussion

15:00-15:30   Coffee

15:30-17:30   **Session 2: Climate projections for ecosystem services** (Chair Paul Myers, Uni. Alberta, Canada)

(10 min) *Future Climate Simulations for the Salish Sea Using a High Resolution Ocean Model with Biogeochemistry.* Natasha Ridenour, Fisheries and Oceans Canada

(10 min) *Future Changes in the California Current Ecosystem*. Mercedes Pozo Buil, University of California Santa Cruz and NOAA Southwest Fisheries Science Center, USA

(10 min) *Projecting the future hydrodynamic environment of the Great Barrier Reef: a dynamic downscaling*. Jodie Schlaefer, CSIRO, Australia

(10 min) *Sensitivity of Arctic Ocean Model Simulations to River Runoff and Temperature Forcing From Hydrological Models*. Tahya Weiss-Gibbons, Uni. Alberta, Canada

(10 min) *Coastal ocean downscaling in the Baltic-North Sea region*. Lars Arneborg, Swedish Meteorological and Hydrological Institute, Sweden

16:30   Panel questions and discussion

17:00   Speed dating (round 2)

18:00-19:30   Drinks reception and posters (at the hotel)

Wednesday 22nd February

09:00-10:30   **Session 3: Climate projections for ecosystem services** (Chair Samantha Siedlecki, Uni. Connecticut, USA)

(10 min) *Downscaling ocean conditions in the Indonesian Seas and the Northern Indian Ocean marginal seas*. Anna Katavouta, National Oceanography Centre, UK

(10 min) *Modelling on the edge of the Agulhas: a downscaling approach to simulating bay-scale dynamics.* Jennifer Veitch, South African Environmental Observation Network, South Africa

(10 min) *Drivers of increasing coastal CO2 uptake identified by a global model with seamless integration of coastal marine carbon dynamics*. Moritz Mathis, Helmholtz-Zentrum Hereon, Germany

(10 min) *Circulation changes and their impact on the North Sea biogeochemistry under climate change*. Giovanni Galli, Plymouth Marine Laboratory, UK

10:00   Panel questions and discussion

10:30-11:00   Coffee

11:00-12:30   **Session 4: Climate projections for coastal resilience** (Chair Alfonso Senatore, Uni. Calabria, Italy)

(30 min) *What might the next-generation of regional coastal ocean projections for coastal hazards look like?* Jerome Aucan, The Pacific Community for Ocean Science, New Caledonia [invited speaker]

(10 min) *Global projections of storm surges using high-resolution CMIP6 climate models*. Sanne Muis, VU University / Deltares, Netherlands

(10 min) *Compound storm surge and fluvial dynamics across the complex coastlines of Denmark*. Morten Larsen, DTU and Danish Meteorological Institute

(10 min) *Compound coastal flooding: Drivers, tipping-points and future change*. Pete Robins, Uni. Bangor, UK

12:00   Panel questions and discussion

12:30-13:30   Lunch

13:30-15:00   **Session 5: Climate projections for coastal resilience** (Chair Giorgia Verri, CMCC, Italy)

(10 min) *Future waves in the Mediterranean Sea: interannual and multimodal behaviour*. Andrea Lira Loarca, University of Genoa, Italy

(10 min) *Efficient early warning system and risk assessment of coastal flooding for Samoa and Tonga*. Fernado Mendez, Uni. Cantabria, Spain

(10 min) *Next-generation (sub-) kilometer-scale climate modelling for extreme storm-surge hazard projections*. Ivica Vilibic, Rudjer Boskovic Institute, Croatia

(10 min) *Towards Physically Consistent Sea Level Rise Storylines for the United Kingdom* Matthew Palmer, UK Meteorological Office, UK

Panel questions and discussion

15:00-15:30   Coffee

15:30-17:30   **Session 6: Internationally co-ordinated future coastal ocean projections** (Chair Jason Holt, NOC, UK)

(30 min) *WRCP CORDEX and Med-CORDEX.* Gabriel Jordà, Instituto Espanol de Oceanografia, Mallorca, Spain [invited speaker]

(10 min) *Copernicus Marine Service: Towards Regional Climate Projections of the Marine Environment*. Angelique Melet, Mercator Ocean International, France

Questions to speakers

16:15   Breakout group discussions
1. What might a common set of CO-MIP experiments look like (e.g. scenarios, forcings, standard outputs etc) and what are a good set of regions to test this on?
2. What communities and partnerships do we need to interact with to support the planning and eventual dissemination of CO-MIP efforts?
3. What is the best way to maintain and fund the momentum and collaborations established beyond this meeting?

17:00   Reporting and discussion in plenary (max 5 min summary per table)

19:30   Conference dinner at The Cosy Club, 37c Paradise Street, Liverpool, L1 3EU

09:00-10:30   **Session 7: The FLAME contribution to The CoastPredict Global Coast Experiment** (Chair Jo Hopkins, NOC, UK)

                 (15 min) *Global Coast – The CoastPredict Global Coastal Ocean Experiment.* Nadia Pinardi, Uni. Bologna, Italy [invited speaker]

                 Questions to speaker

09:30   Breakout group discussions
1. Where are the regions in the world where groups of people within FLAME can contribute expertise, data, models and tools to a Global Coast pilot experiment?
2. How might knowledge gained in these regions be transferred to other coastal ocean environments around the world?
3. How can stakeholders (e.g. local communities, coastal managers etc) and the wider scientific community be involved in shaping the experiment.
4. How might the FLAME contributions to Global Coast integrate with the observational and short-term forecasting contributions and developments in CoastPredict?

10:15   Reporting and discussion in plenary (max 5 min summary per table)

10:30-11:00   Coffee

11:00-13:00   **Session 8: Next Steps**

                 Reporting and discussion in plenary (continued from session 7)

11:30   Parallel discussion sessions on Next Steps
          (a) Early Career Researcher (ECR) breakout led by Anna Katavouta, NOC, UK
          (b) Remaining participants in plenary

                 What should our next steps be? Questions for discussion include:
- Special issue publications, reviews, position pieces, high level meeting report?
- Conference sessions and presentations?
- How do we join up with other related national/international activities (e.g. SUPREME, CoastMIP, OceanPredict, WRCP Lighthouse Activities etc)
- How best to expand, manage and maintain the FLAME network?
- Capacity building, knowledge exchange and stakeholder engagement – how best to do this?

12:30   ECR breakout group report back

12:45   Formal close of meeting and remarks from FLAME steering team

13:00-14:00   Lunch
14:00-15:00   Informal meeting time and steering team de-brief

POSTERS (A1 portrait)

Tomasz Dabrowski	Marine Institute, Ireland	The Irish Atlantic CoCliME Case Study Configuration, Validation and Application of a downscaled ROMS ocean climate model off SW
Yuri Artioli (for Helen Powley)	Plymouth Marine Laboratory, UK	Impacts of terrigenous Dissolved Organic Carbon on the carbon sink of shelf seas.
Aileen Shau-Hwai TAN	Center For Marine & Coastal Studies, Universiti Sains, Malaysia	Investigation into the impacts of the 1.5-2.0^{o}c rise on the natural coastal ecosystems of the northern Straits of Malacca
Alex Arnold	UK Meteorological Office, UK	Developments and plans for coupled climate modelling at km-scale
Mohd Fadzil Akhir	Institute of Oceanography and Environment, Universiti Malaysia Terengganu	Coastal Upwelling in Marginal Seas and changing trends under Climate Change Scenario
Michela De Dominicis	National Oceanography Centre, UK	Effectiveness of mangroves as nature-based coastal defences in the Pearl River Delta
Marvin Lorenz	Leibniz Institute for Baltic Sea Research Warnemünde, Germany	Increase of extreme sea levels due to non-linear tide-surge-sea-level interactions in shallow coastal lagoons
Andrea Ruju	University of Cagliari, Italy	Treatment of offshore boundary conditions for nearshore wave modelling
Jian Su	Danish Meteorological Institute, Denmark	Regional wave model climate projections for coastal impact assessments under a high greenhouse gas emission scenario
Maialen Irazoqui Apecechea	Mercator Ocean International, France	Coastal sea-level projections for climate adaptation services within the Coastal Climate Core Services (CoCliCo) project
Alisée Chaigneau	Mercator Ocean International, France	High-resolution projections of extreme water level changes along the coasts of western Europe
Bahareh Kamranzad	Uni. Strathclyde, UK	Predictability of long-term change in global wave energy resources based on wind and wave climate variability
Svetlana Jevrejeva	National Oceanography Centre, UK	Challenges to calculate a worst case extreme sea levels along the global coastline by 2100
Sarah Wakelin	National Oceanography Centre, UK	Sensitivity of the northwest European Continental Shelf Sea ecosystem to projected climate change
Jenny Jardine	National Oceanography Centre, UK	An asymmetric change in future circulation and nitrate transports around the Bay of Bengal
Birte-Marie Ehlers	Federal Maritime and Hydrographic Agency (BSH), Germany	Providing climate information for the German Coast
Samantha Siedlecki	Uni. Connecticut, USA	A dynamic pathway to transition from vulnerable to resilient Fisheries Social Ecological Systems: a transdisciplinary case study of the US Atlantic sea scallop fishery
Paul Myers	University of Alberta, Canada	Ocean modelling and downscaled climate projections for the coasts of Canada
Agnieszka I. Olbert	University of Ireland	Combined statistical, hydrodynamic and machine learning modelling of water levels in coastal basins
Giorgia Verri	CMCC, Italy	The Adriaclim Project