

13th International Workshop on Modeling the Ocean (IWMO)

June 27 – 30, 2023

Hamburg, Germany

Agenda

Day 1 – June 27, 2023 (Tuesday)

Time	Activity/Presentation	Speaker
8h30	Registration	
9h00 – 9h15	Welcome: Joanna Staneva and Carolina Gramcianinov	
9h15 – 9h30	Corinna Schrum	
9h30	TOPIC 1 Modeling Waves, Currents, Ice and Their Interactions in Coastal and Shelf Seas	Co-chairs: Jinyu Sheng and Mikolaj Jankowski
9h30 – 9h50	Regional impacts of offshore wind farms on ocean waves	Johannes Schulz-Stellenfleth (Germany)
9h50 – 10h10	Positive feedback between the tidal flat variations and sediment dynamics: an example study in the macro-tidal turbid Hangzhou Bay	Li Li (China)
10h10 – 10h30	Effects of observation-based physics on validation and wave climate in the wind-wave model WAM	Marcel Ricker (Germany), OYSA
10h30 - 10h50	An attempt to parameterize surface-wave breaking for a wave-resolving simulation	Haruka Imamura (Japan), OYSA
10h50 – 11h20	Coffee/Tee Break	
11h20	TOPIC 1 (cont.) Modeling Waves, Currents, Ice and Their Interactions in Coastal and Shelf Seas	Jia Wang and Haruka Imamura
11h20 – 11h40	Assessment of wave-current interactions on the Mediterranean Sea dynamics through numerical experiments	Aimie Moulin (Italy)
11h40 – 12h00	Sea state contributions to steric sea-level	Antonio Bonaduce (Norway)
12h00 – 12h20	Longshore sediment transport analysis for the Gulf of Riga based on high-resolution wave model results	Mikolaj Jankowski (Estonia), OYSA
12h20 – 12h40	The “two-step” yielding process of the natural mud under steady and oscillatory shear stress	Yuezhong Xia (China), OYSA
12h40 - 14h00	Lunch (included in the fee)	
14h00	TOPIC 2 Circulation and Dynamics Modeling	Co-chairs: Oliver Fringer and Weicong Cheng
14h00 – 14h20	Characterizing the Variability of the Circulation in the Indonesian Sea	Huijie Xue (China)

14h20 – 14h40	Effects of a surface layer cross-flow and slope steepness on the pathways of dense water flows along a slope	Jarle Berntsen (Norway)
14h40 – 15h00	Modeling two-way ice-wave interactions in the Great Lakes using FVCOM_ice+wave model	Jia Wang (USA)
15h00 – 15h20	Towards high resolution climate projections for the German coasts with NEMOv4.2	Wibke Düsterhöft-Wriggers (Germany), OYSA
15h20 – 15h40	Regional impacts of offshore wind farms on the North Sea hydrodynamics	Nils Christiansen (Germany), OYSA
15h40 – 16h10	Coffee/Tee Break	
16h10	TOPIC 2 (cont.) Circulation and Dynamics Modeling	Co-chairs: Jarle Berntsen and Nils Christiansen
16h10 – 16h30	Evaluation of seagrass as a nature based solution for coastal protection in the German Wadden Sea	Benjamin Jacob (Germany), OYSA
16h30 – 16h50	Variability of the bottom boundary layer induced by dynamics of cross-isobath transport over a variable shelf	Weicong Cheng (China), OYSA
16h50 – 17h10	Estuarine turbidity maximum in the Pearl River estuary – formation mechanisms and dynamics in response to climate and human driver	Mengyao Ma (Germany), OYSA
17h10 – 17h30	Subtidal secondary circulation induced by eddy viscosity-velocity shear covariance in a predominantly well-mixed tidal inlet	Wei Chen (Germany), OYSA
17h40	Ice Breaker Cocktail (included in the fee)	

Day 2 – June 28, 2023 (Wednesday)

Time	Activity/Presentation	Speaker
8h30	Registration + Posters setup	
9h00	TOPIC 3 Data Assimilation and Ocean Forecast Systems	Co-chairs: Ricardo de Camargo and Victoria Boatwright
9h00 – 9h30	Coastpredict: the power of science in support of global coastal communities	Nadia Pinardi (Italy)
9h30 – 9h50	Ocean climate predictability study in the Mediterranean Sea	Roberta Benincasa (Italy), OYSA
9h50 – 10h10	Combining variational Data Assimilation and Artificial Intelligence to improve short-term wave forecasts for Offshore Wind Farms operational decisions	Marica Broseghini (Germany), OYSA
10h10 – 10h30	On the role of temporal irregularities and spatial dependencies in the development of time-series models for predicting biotoxin contamination in shellfish	Sergio Tavares (Portugal), OYSA
10h30 – 11h00	Coffee/Tee Break	
11h00	TOPIC 7 Simulation of Internal Waves, Tides, Turbulence and Mixing	Co-chairs: Ezer Tal and Roberta Benincasa

11h00 – 11h20	Biglobal instability analysis for the current-undercurrent system in the Western North Pacific	Xianliang Chen (China), OYSA
11h20 – 11h40	Internal tides in the Mediterranean Sea	Bethany McDonagh (Italy), OYSA
11h40 – 12h00	Influence of Langmuir Turbulence on the Surface Mixed Layer Depth under Surface Heating	Koichiro Kikkawa (Japan), OYSA
12h00 – 12h20	Anthropogenic turbulence from offshore wind turbine model suggests increase in North Sea primary productivity	Victoria Boatwright (Germany), OYSA
12h20 – 12h40	Longitudinal scour-bar pattern in large convergent estuaries on low-lying coastal plains	Bing Yuan (Germany), OYSA
12h40 – 14h00	Lunch (included in the fee) + group photo	

14h00	TOPIC 6 Coupled Physical-Biogeochemical Ocean Models	Co-chairs: Huijie Xue and Seung-tae Lee
14h00 – 14h30	Coastal restoration through modelling. A tool to enhance resilience	Agustin Sanchez-Arcilla (Spain)
14h30 – 14h50	Effects of the upper ocean turbulence on particles sinking in the ocean	Yutaka Yoshikawa (Japan)
14h50 – 15h10	Improvement of a 3d ecosystem model in the Wadden Sea via a satellite driven light climate	Daniel Thewes (Germany), OYSA
15h00 – 15h30	Parameterisation toolbox for physical-biogeochemical model in FABM	Hoa Nguyen (Germany), OYSA
15h30 – 15h50	Bottom-up effects of bottom trawling on the North Sea ecosystem	Pooja Tiwari (Germany), OYSA
15h50 – 16h20	Coffee/Tee Break	
16h20	TOPIC 6 (cont.) Coupled Physical-Biogeochemical Ocean Models	Co-chairs: Yutaka Yoshikawa and Pooja Tiwari
16h20 – 16h40	Fishing effects on the biomass distribution in the North Sea and Baltic Sea ecosystem	Ute Daewel (Germany)
16h40 – 17h00	Deriving pre-eutrophic conditions from an ensemble model approach for the North-West European Seas	Hermann Lenhart (Germany)
17h00 – 17h20	Transport and cycling of DOC in the river-estuary-ocean continuum: a modeling perspective	Jialing Yao (Germany), OYSA
17h20 – 17h40	New model framework NEMO-ECOSMO-E2E and its application for holistic assessment of ecosystem dynamic of the North and Baltic Seas	Déborah Benkort (Germany), OYSA
17h40 – 18h00	Alkalinity Enhancement in the North Sea: potential and risks assessed by a regional coupled physical-biogeochemical model	Feifei Liu (Germany), OYSA
18h00	Announcements to the boat tour	
19h – 22h	Boat tour & dinner (included in the fee)	

Day 3 – June 29, 2023 (Thursday)

Time	Activity/Presentation	Speaker
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8h30	Registration	
9h00	TOPIC 5 Modeling and Prediction of Extreme Marine Events	Co-chairs: Joseph Zhang and Koichiro Kikkawa
9h00 – 9h30	An extreme warm event of the Yellow Sea Cold Water Mass in the summer of 2007 and its causes	Wenzhou Zhang (China)
9h30 – 9h50	Statistical models versus climate models and the prediction of extreme coastal sea level events and flooding	Tal Ezer (USA)
9h50 – 10h10	Investigating the TC Idai over the Mozambique Channel: effects of SST field on cyclone track and intensity	Ricardo de Camargo (Brazil)
10h10 – 10h30	Island-induced eddy generation mechanism analysis with Lagrangian and Eulerian approaches	Changhoon Ko (Korea), OYSA
10h30 – 11h30	Coffee/Tee Break + Poster session	
11h30	TOPIC 5 (cont.) Modeling and Prediction of Extreme Marine Events	Co-chairs: Joseph Zhang and Changhoon Ko
11h30 – 11h50	Reassessment of heat budget in the Mediterranean Sea and an investigation of probability distributions of heat fluxes using Extreme Value Theory	Mahmud Hasan Ghani (Italy), OYSA
11h50 – 12h10	Venezia Acqua Alta Events	Anna Chiara Goglio (Italy), OYSA
12h10 – 12h30	Subsurface dispersion of radioactive materials from Fukushima Dai-ichi Nuclear Power Plant by Mode Water	Seung-tae Lee (Korea), OYSA
12h30 – 14h00	Lunch (included in the fee)	

14h00	TOPIC 9 Artificial Intelligence approaches applied to Ocean Data Analysis and Modelling	Co-chairs: Ezer Tal and Marica Broseghini
14h00 – 14h30	Digital Twin Ocean for China Coastal Seas	Fei Chai (China)
14h30 – 14h50	Prediction of the western boundary current variability in the Northwestern Atlantic using a high resolution ocean reanalysis and a data-driven deep learning architecture	Ruoying He (USA)
14h50 – 15h10	Machine learning approach applied to short-term forecasting of waves in the offshore zone of the marginal sea	Aleksandra Dudkowska (Poland)
15h10 – 15h30	Underlying models for the European Digital Twin Ocean (EDITO Model Lab)	Joanna Staneva (Germany)
15h30 – 16h30	Coffee/Tee Break + Poster session	
16h30	TOPIC 8 Numerical Techniques and Approaches in Ocean Modeling	Co-chairs: Jia Wang and Bethany McDonagh

16h30 – 16h50	Quick Forecast of Coastal Hazards using Reciprocal Green's Functions	Guan-Yu Chen (Taiwan)
16h50 – 17h10	Comparison of the computational efficiency of z, sigma, and isopycnal vertical coordinates to simulate nonlinear and nonhydrostatic internal gravity wave	Oliver B. Fringer (USA)
17h10 – 17h30	Spurious numerical overturning circulation in ocean models	Knut Klingbeil (Germany)
17h30	Posters removal	
18h00 – 19h30	Free walk through Hamburg*	

*This is a non-professional free tour that Hereon's colleagues will offer those interested. We will collect the names on the first and second day). The route will be defined depending on the number of people, the will to walk, and the weather.

Day 4 – June 30, 2023 (Friday)

Time	Activity/Presentation	Speaker
8h30	Registration	
9h00	TOPIC 10 Regional and Land-Ocean-Continuum (LOC): modelling, coupling, and synergy with observations	Co-chairs: Joanna Staneva and Mahmud Hasan Ghani
9h00 – 9h30	Mesh generation for coastal compound flooding studies	Joseph Zhang (USA)
9h30 – 9h50	Determining Main processes Affecting Circulation and Variability in Bras d'Or Lakes using a Coupled Circulation-Ice Modelling System	Jinyu Sheng (Canada)
9h50 – 10h10	Drivers of increasing coastal CO ₂ uptake identified by a global model with seamless integration of coastal marine carbon dynamics	Moritz Mathis (Germany)
10h10 – 10h30	Estimation of residence time and identification of hotspots of eutrophication in the Odra estuary	Johannes Pein (Germany)
10h30 – 11h00	Coffee/Tee Break	
11h00	Final Session	Co-Chairs: Tal Ezer and Joanna Staneva
11h00 – 11h20	OYSA awards	
11h20 – 11h40	Springer Nature Editor	Ron Doering
11h40 – 12h00	Ocean Dynamics: IWMO special issue	Tal Ezer
12h00 – 12h30	Next IWMO – Japan	Yutaka Yoshikawa
12h20 – 12h40	Bye Bye	

Poster list:

Ref. #	Title	Author
1.1	The inheritance of seabed gullies on the erosion of the seashore in the segment of the South Baltic nearshore zone	Aleksandra Dudkowska (Poland)
1.2	The impact of extreme river discharge on the coastal ocean in the German Bight	Thao Nguyen (Germany), OYSA
1.3	Research Capacity Building for healthy, productive and resilient Seas (SeaReCap)	Carolina Gramcianinov (Germany)

2.1	An implementation of ROMS for the Indian Ocean with riverine freshwater fluxes: model setup and validation	Marufa Ishaque (USA), OYSA
2.2	The Role of Tides on Salinity Distribution in the Persian Gulf	Seyed Taleb Hosseini (Germany), OYSA
2.3	Towards A Global Coastal Ocean Model Based On Unstructured Grids	Chiara Galeotti, (Italy), OYSA
2.4	Living Lab WaddenSea: Learning from Transboundary Pilots on Nature Restoration and Nature Based Solutions	Luciana Villa Castrillon (Germany), OYSA
2.5	A Lagrangian estimate of the Mediterranean outflows origin	Giulia Vecchioni (Italy), OYSA
3.1	Assimilation of sea ice in the Baltic Sea with BSH operational circulation model	Xin Li (Germany)
4.1	Seasonal Variability of Circulation and Freshwater Transport over the Continental Shelf off Eastern Canada	Jinyu Sheng (Canada)
5.1	Energetic patterns of intense extratropical cyclones in the Southwestern Atlantic	Ricardo de Camargo (Brazil)
5.2	Wave energy associated with extreme events along the southern coast of Brazil	Ricardo de Camargo (Brazil)
5.3	The support of the CMEMS' Downstream operational services for the water quality monitoring-modeling-management in western Black Sea coastal areas	Razvan Mateescu (Romania)
5.4	Atlantic Oceanic currents influence Sargassum movement in the Caribbean: a review of early warning systems for detection and forecasting	Deanesh Ramsewak (Trinidad and Tobago)
6.1	Physical/biogeochemical modeling of the global coast with ICON-coast – the impact of continental runoff	Kai Logemann (Germany)
6.2	Modelling the impact of Seagrass on coastal Morphology in a tidal basin	Veronika Mohr (Germany), OYSA
6.3	A numerical study on Natural and Anthropogenic effects on Primary Production in Gwanyang Bay, Korea	Seunghwa Chae (Korea), OYSA
6.4	The spatial range of mercury concentration in a river plume – modelling approach	Aleksandra Dudkowska (Poland)
6.5	Comparison of the Performance of a Simple Fetch-Based Wave Model with SWAVE in FVCOM in the Wadden Sea of the North Sea for the Use in Long-Term Biogeochemical Integrations	Ramez Mohammadi (Germany), OYSA
7.1	From observations to 1D-models: how can we improve the parametrizations of mixed-layer turbulence?	Mariana Miracca Lage (Germany), OYSA
8.1	On several theoretical issues guiding modeling the oceans	Jia Wang (USA)
9.1	Dynamics of the euphotic zone in the Black Sea: The synergy of data from profiling floats, machine learning and numerical modeling	Kathrin Wahle (Germany)
10.1	Mitigation of oxygen decline in fjords by freshwater injection	Jarle Berntsen (Norway)
10.2	Scrubber Discharges from Shipping: A Close Link between Observation and Modelling for the Development of Marine Environmental Protection Measures	Christoph Stegert (Germany)

10.3	On-demand ocean modelling for user defined seamless open ocean to estuary scale applications	Vilnis Frishfelds (Denmark)
10.4	Demonstrating Open Ocean Multi-use – OLAMUR (Offshore Low-trophic Aquaculture in Multi-Use Scenario Realisation)	Joanna Staneva (Germany)