

IWMO 2026

16th International Workshop on Modeling the Ocean

2-5 June 2026
Palma, Balearic Islands

PROGRAMME



imedea

 **CSIC**
CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS



Universitat
de les Illes Balears



EXCELENCIA
MARÍA
DE MAEZTU
2023-2027

AT-A-GLANCE SCHEDULE

Day	Date	Theme
Day 1	Tuesday, 2 June 2026	Eddies to Fronts: Mesoscale- <u>Submesoscale</u> Dynamics and Ocean Mixing
Day 2	Wednesday, 3 June 2026	Earth-System Modeling: Ocean-Atmosphere-Waves-Sea Ice and Extreme Events
Day 3	Thursday, 4 June 2026	Nonlinear Oceans: Instabilities, Coherent Structures, and Biological Applications
Day 4	Friday, 5 June 2026	High-Resolution Modeling for Coastal <u>and Operational</u> Oceanography: Hazards, Transport, and Management

PROGRAMME / DAY 1

Tuesday, 2 June 2026

Eddies to Fronts: Mesoscale-Submesoscale Dynamics and Ocean Mixing

08:30-09:00	Registration
09:00-09:30	Welcome
09:30-10:00	Plenary 1: Baylor Fox-Kemper - Emulators and parameterizations: Indirect tools for climate science
10:00-10:40	Oral Subsession 1 Eddies to Fronts: Mesoscale-Submesoscale Dynamics and Ocean Mixing
Speaker	Talk title
Vincent Combes	On the Variability of the Agulhas Bank Circulation
Maximo Garcia Jove-Navarro	Enhancing Mesoscale Understanding and Predictability through High-Resolution Data Assimilation and Nested Modelling in the Western Mediterranean
10:40-11:10	Coffee break (Poster)
11:10-12:30	Oral Subsession 2 Eddies to Fronts: Mesoscale-Submesoscale Dynamics and Ocean Mixing
Speaker	Talk title
Federico Angel Velazquez-Munoz	Gradual decoupling and physical evolution of Tehuantepec eddies driven by pulsed wind forcing and their offshore displacement.
Florian Le Guillou	VarDyn: Consistent High-Resolution Surface Ocean Fields from a Data-Driven Variational Approach
Jiachen Zhang	Investigation of Realistic Typhoon Forcing on Near-Inertial Waves Generation and Evolution in the South China Sea
Peng Zhan	Submesoscale Vertical Heat Flux Amplifies a Cross-Scale Positive Feedback in the Arabian Sea
12:45-14:30	Lunch break
14:30-15:30	Oral Subsession 3 Eddies to Fronts: Mesoscale-Submesoscale Dynamics and Ocean Mixing
Speaker	Talk title
Hiroki Tsuribe	Transition between Inter-Basin Asymmetric Meridional Overturning Circulations Induced by Wind and Southern Gateway Depth Change
Takumi Nishikawa	Wave-resolving Simulation of Nonlinear Interactions between Surface and Internal Gravity Waves and Entrainment at the mixed layer base
Yutaka Yoshikawa	Evaluation of Two Surface Wave Mixing Schemes; Case Study in the Spring-Summer Northwestern Pacific

PROGRAMME / DAY 1

16:00-17:00		Oral Subsession 4 Eddies to Fronts: Mesoscale-Sub-mesoscale Dynamics and Ocean Mixing
Speaker	Talk title	
Guan-Yu Chen	Numerical Simulation and Rapid Forecast of Internal Solitary Waves in Northern South China Sea	
Jen-Ping Peng	Integration of SWOT and In-Situ Observations into a High-Resolution Data-Assimilative Ocean Model for 3D Representation of a Small-Scale Intrathermocline Eddy	
Diego Vega-Giménez	Modeling the Amplification of Cyclone Mocha's Intensity and Storm Surge Dynamics Driven by Anthropogenic Ocean Warming	

PROGRAMME / DAY 2

Wednesday, 3 June 2026

Earth-System Modeling: Ocean-Atmosphere-Waves-Sea Ice and Extreme Events

08:45-09:00	Registration
09:00-09:30	Plenary 2: Joanna Staneva - Coastal and Regional Ocean Prediction Across Scales, Processes and Applications
09:30-10:30	Oral Subsession 1 Earth-System Modeling: Ocean-Atmosphere-Waves-Sea Ice and Extreme Events
Speaker	Talk title
Tal Ezer	On Gulf Stream exploration: from Spanish sailors in the 1500s to today's coastal impact and future climate change
Jinyu Sheng	Abnormal Subsurface Cooling on the Slope Water off the Scotian Shelf Connected to Hydrodynamic Variability over the Tail of Grand Banks
Ruizi Shi	Global Attribution of Rising Coastal Wave Hazards to Climate-Driven Wind Intensification and Tropical Cyclone Amplification
10:30-11:10	Coffee break (Poster)
11:10-12:30	Oral Subsession 2 Earth-System Modeling: Ocean-Atmosphere-Waves-Sea Ice and Extreme Events
Speaker	Talk title
Jianping Gan	Climate shiftings of spinning, warming, productivity and deoxygenation in the future western Pacific marginal sea
Tsubasa Kodaira	Toward Modeling Extreme Landfast Sea-Ice Melt in Lutzow-Holm Bay, East Antarctica
Yuki Koshida	Mechanism of the Atlantic Meridional Overturning Circulation (AMOC) response to Arctic runoff perturbation
Zhongya Cai	Effects of Current Curvature on Topography-Modulated Cross-Shelf Motions
12:45-14:30	Lunch break
14:30-15:30	Oral Subsession 3 Earth-System Modeling: Ocean-Atmosphere-Waves-Sea Ice and Extreme Events
Speaker	Talk title
Chenyang Yao	Implementation and Numerical Verification of the Vortex Force Formalism in a Regional Z-grid Ocean Model (ORCTM-SWAN v1.0)
Thao Thi Nguyen	Future changes of coastal extremes from the regional wave-ocean coupled model system for the Northern European continental shelf
Gabriel Jorda	Modelling the impacts of the 2025 flash flood in Mar Menor with the BELICH forecasting system
15:30-16:00	Coffee break (Poster)
16:00-17:00	Oral Subsession 4 Earth-System Modeling: Ocean-Atmosphere-Waves-Sea Ice and Extreme Events
Speaker	Talk title

PROGRAMME / DAY 2

Yusuke Ushijima	Sea Surface Temperature Biases in CMIP6 Coupled Models Modulating the Latitude of the North Pacific Westerly Jet
Diego Pereiro	Marine Heatwaves in Irish Waters
Fei Chai	Marine Heatwaves in the Coral Triangle: Spatiotemporal Variability and ENSO Modulation

17:15	Photo Session
18:00	Guided city tour

PROGRAMME / DAY 3

Thursday, 4 June 2026

Nonlinear Oceans: Instabilities, Coherent Structures, and Applications

08:45-09:00	Registration
09:00-09:30	Plenary 3: Emilio Hernandez Garcia - Horizontal and vertical Lagrangian hotspots: bottlenecks and caustics in the ocean
09:30-10:30	Oral Subsession 1 Nonlinear Oceans: Instabilities, Coherent Structures, and Biological Applications
Speaker	Talk title
Gabor Drotos	Microplastic particles sinking in the water column of the Mediterranean Sea: simulation and theory
Tim Toomey	Three-dimensional Lagrangian dispersion properties in the Atlantic Ocean from a global reanalysis
Mingyu Li	Decadal changes in three-dimensional connectivity and accumulation cores in the Western North Pacific
10:30-11:10	Coffee break (Poster)
11:10-12:10	Oral Subsession 2 Nonlinear Oceans: Instabilities, Coherent Structures, and Biological Applications
Speaker	Talk title
Li Li	Mechanism in turbulence and high-frequency oscillation due to wave-current interactions in Qiantang River Estuary, Hangzhou Bay, China
Wenzheng Man	Long-Range Propagation of Mode-1 M2 Internal Tides from Luzon Strait to Xisha Islands
Zhiqiang Liu	A Tidally and Subtidally Forced Open Boundary Condition for Unstructured-Grid Coastal Modeling
12:10-12:30	Special Issue – Ocean Dynamics
12:45-14:30	Lunch break
14:30-15:30	Oral Subsession 3 Nonlinear Oceans: Instabilities, Coherent Structures, and Biological Applications
Speaker	Talk title
Huijie Xue	Physical and Biogeochemical Controls of Hypoxia Durations in the East China Sea
Ignacio Saint-Malo Zamacola	At the convergence: the role of mesoscale dynamics in the habitat selection and bycatch risk of sea turtles in the Eastern Central Atlantic
Ignacio Martinez-Caballero	Modeling larval connectivity of <i>Aristeus Antennatus</i> (red shrimp) through Lagrangian dynamics and network analysis

PROGRAMME / DAY 3

16:00-17:00	Dedicated Poster Session
Speaker	Title
Vincent Combes	On the Variability of the Agulhas Bank Circulation
Lara Diaz Barroso	Assessing coastal profiling floats drift and high resolution shelf modelling in the Balearic Sea
Fabio Giordano	On the effect of different grid resolutions and mixing schemes on mesoscale dynamics in coastal ocean models: a case-study in a shallow, semi-enclosed basin (northern Adriatic Sea)
Ismael Hernandez-Carrasco	Diagnosing Fluid Parcel Retention in Oceanic Flows through Local Absolute Dispersion: Application to the Mediterranean Sea
Sara Cloux (Presenting Cristóbal López)	Linking Surface Filaments to Vertical Transport in the Ibiza Channel
Yiguo Li	Continuous Data Assimilation in Quasi-Geostrophic Turbulence
Yu-Chun Lin	Data-assimilated upper ocean temperature with machine learning
Ying Ma	Physics-Driven Sea Surface Temperature and Ocean Front Forecasting Network
Miyano Nishida	Impact of Ocean Physical Conditions on Oceanic Carbon Pumps and Atmospheric Carbon Dioxide during the Last Glacial Maximum
Elisabet Rodriguez Cruz	Back to basics: A multi-model framework to support native oyster (<i>Ostrea edulis</i>) restoration (ECOCREDIT project)
Victor Rodriguez-Mendez	A Comparative Analysis of Clustering Algorithms for Characterizing Surface Ocean Variability in the Western Mediterranean
Juan-Manuel Sayol	Pathways of Wastewater Dispersal in the Southern Ocean: From Coastal Outfalls to Large-Scale Circulation
Francesco Michele	Estimation of Vertical Velocities in the Mediterranean Sea Using a Machine Learning Approach
Yu-Lin Eda Chang (Presenting Tsubasa Kodaira)	Wave-induced drift of pumice: transitions from forward to backward transport
Giulia Cerny Oliveira (Presenting Jinyu Sheng)	Numerical Study of Circulation and Sea Ice over the Labrador Sea and Adjacent Waters
Kelli Johnson (Presenting Joanna Staneva)	Enhancing Coastal Monitoring and Forecasting With Focus
Douglas Vieira da Silva (Presenting Joanna Staneva)	Drivers for the vertical structure of Suspended Particulate Matter along the Inner Continental Shelf of the Western Black Sea
Daniel García-Veira	Future coastal flooding associated with <i>Posidonia oceanica</i> decline under climate change

17:00

International Scientific Committee meeting

PROGRAMME / DAY 4

Day 4 | Friday, 5 June 2026

High-Resolution Modeling for Coastal and Operational Oceanography: Hazards, Transport, and Management

09:30-10:30	
Oral Subsession 1 High-Resolution Modeling for Coastal and Operational Oceanography: Hazards, Transport, and Management	
Speaker	Talk title
Xiao Hua Wang	Study on sediment dynamics in Batemans Bay, NSW, Australia
Yuezhang Xia	Deep-sea mining vehicle, Mining vehicle plume, Sediment transport, Numerical simulation
Ricardo de Camargo	The Brazilian contribution to SurgeMIP initiative
10:30-11:10	
Coffee Break (Poster)	
11:10-12:30	
Oral Subsession 2 High-Resolution Modeling for Coastal Operational Oceanography: Hazards, Transport, and Management	
Speaker	Talk title
Luca Arpaia	Exploiting high resolution bathymetric datasets in high-order finite element coastal models
Eider Loyola Azanza	A relocatable HRES wave forecast system for coastal wave energy infrastructures management.
Rebeca Álvarez	From multi-platform observations to model-ready data services: SOCIB's data lifecycle supporting ocean forecasting systems
Camilo Andres Melo Aguilar	WMOP, a decade of operational forecasting supporting ocean science and marine applications: challenges and opportunities for integration into digital twin architecture
12:30-12:45	
OYSA awards	
12:45-13:00	
Concluding remarks	

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TECHNICAL SECRETARIAT



Tel. +34 93 362 33 77
hola@creacongresos.com
www.creacongresos.com