

WOC User Consultation Meeting 2022

10–12 October | ESA–ESRIN | Frascati (Rome), Italy



WOC UCM Programme – Draft

SCHEDULE OVERVIEW

Time	10 October 2022	Time	11 October 2022	Time	12 October 2022
0830	Registration		Downstream applications		Perspectives and Outlook
09:00-10:45	Introductory session	08:30-10h00	Safe Navigation	08:30-09:00	DAY1 and DAY2 Discussion summary by discussion chairs
10:45-11:15	Coffee Break	10:00-10h30	Discussion 1	09:00-10h10	Perspectives keynotes I
11:15-12:45	Key WOC achievements I	10:30-11:00	Coffee Break	10:10-10:30	Coffee Break
12:45-14:00	Lunch	11:00-11:50	Sustainable Fisheries	10:30-11:50	Perspectives keynotes II
14:00-14:30	Key WOC achievements II	11:50-12:15	Discussion 2	11:50-12:50	Discussion
1430-1530	Poster Pitch session	12:15-13:15	Lunch	12:50-13:00	Wrap-up and final remarks
15:30-16:00	Coffee Break	13:15-14:15	Clean Ocean	13:00-14:00	Lunch
16:00-17:00	Discussion	14:15-14:45	Discussion 3		
17:00-19:00	Poster session 1 and Icebreaker	14:45-15:00	Coffee Break		
1900	Adjourn	15:00-16:15	Renewable Energy		
		16:15-16:45	Discussion 4		
		16:45-17:00	Syntool presentation		
		17:00-19:00	Poster session 2 + Demo+ Cocktail Dinner		

DAY 1

Session1: Introduction

Chair : Marie-Helene Rio

- 09:00-09:10** ESA opening (Giuseppe Ottavianelli, ESA)
- 09:10-09:25** UCM context and objectives (Marie-Hélène RIO, ESA)
- 09:25-09:45** Keynote 1: Ocean currents in support of the Blue economy: The OECD perspective (Claire Jolly, OECD)
- 09:45-10:05** Overall presentation of the WOC project (Fabrice Collard, ODL)
- 10:05-10:25** Keynote 2 (Bertrand Chapron, Ifremer)
- 10:25-10:45** Keynote 3: Quantifying Upper Ocean Currents: Deficiencies and Knowledge Gaps (Johnny Johannessen, NERSC)

- 10:45-11:15** **COFFEE BREAK**

Session 2: Key WOC achievements (new products)

Chairs: Clement Ubelmann and Bertrand Chapron

- 11:15-11:30** Towards reliable ocean surface current retrievals from the Sentinel-1 Doppler shift in the coastal zone (Aartem Moiseev, NERSC)
- 11:30-11:45** Wave current interaction observations and predictions using satellite data (Fabrice Collard, ODL)
- 11:45-12:00** Improved 2D surface currents from the synergetic use of altimetry and Sea Surface Temperature data (Daniele Ciani, CNR-ISMAR)
- 12:00-12:15** High resolution gridded altimetric maps by the Back-and-Forth Nudging (BFN) method (Florian Le Guillou, ESA)
- 12:15-12:30** High-frequency ageostrophy products: Data-driven models for Ekman+Near-Inertial currents (Clement Ubelmann, DATLAS)

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12:30-12:45 3D Ocean currents retrieval (Bruno Buongiorno-Nardelli, ISMAR, CNR)

12:45-14:00 LUNCH

14:00-14:15 ERA* high resolution ocean forcing product development and application (Marcos Portabella, ICM-CSIC)

14:15-14:30 New validation strategy through frontal structure detection (Lucile Gaultier, ODL)

14:30-15:30 Poster Pitches session (2' by poster)

15:30-16:00 COFFEE BREAK

16:00-17:00 Discussion (Chairs: Clément Ubelmann and Bertrand Chapron)

17:00-19:00 Poster Session with Icebreaker

DAY 2

Session 3: Downstream Applications

- **Safe Navigation** :

Chairs: Fabrice Collard and Jocelyn Rapp

08:30-08:45 Waves and surface ocean circulation for least-carbon ship routes (Mannarini Gianandrea, CMCC)

08:45-09:00 Ship Routing Optimisation based on Metocean conditions (Ioannou Artemis, AMPHITRITE)

09:00-09:15 On a novel approach of forecasting extreme waves: thanks to satellite wave observations (Aouf Lotfi, Meteo France)

09:15-09:30 Contribution of satellite data for the safety and routing of CMA-CGM ships (Jocelyn Rapp, CMA-CGM)

09:30-09:45 Limitations in current weather services to SOLAS vessels (Bjørn Åge Hjøllø, NAVTOR)

09:45-10:00 Swell/current interaction in the Agulhas current and determination of dangerous seas index (Fabrice Collard, ODL)

10:00-10:30 Discussion (*chairs: Fabrice Collard + Jocelyn Rapp*)

10:30-11:00 COFFEE BREAK

- **Sustainable fisheries:**

Chairs : Bruno Buongiorno Nardelli and Patrizio Mariani

11:00-11:20 Keynote 4: How ocean current data can contribute to sustainable fisheries (VanAnrooy Raymond (FAO))

11:20-11:35 Lagrangian modelling of European eel larvae in the Sargasso Sea: improved understanding of mesoscale dispersion (Patrizio Mariani, DTU)

11:35-11:50 Linking Atlantic Bluefin tuna migration pathways and ocean dynamics (Diego Alvarez, SOCIB)

11:50-12:15 Discussion (*chairs: Bruno Buongiorno-Nardelli + Patrizio Mariani*)

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12:15-13:15 LUNCH

- Clean Ocean :

Chairs: Laura Gomez and Duarte Soares

13:15-13:30 Upper Ocean Current Usage for Sargassum and Marine Litter Drift Applications (Lucas Marc, CLS)

13:30-13:45 Lagrangian drift of Sargassum and oil spills (Laura Gomez-Navarro, U. of Utrecht)

13:45-14:00 Assessment of WOC current products for Sargassum drift prediction with MOTHY (Pierre Daniel, Meteo-France)

14:00-14:15 How does an oil slick move? Observations and two case studies (Duarte Soares, ITOPF)

14:15-14:45 Discussion (*chairs: Laura Gomez + Duarte Soares*)

14:45-15:15 COFFEE BREAK

- Renewable energy:

Chair: Bertrand Chapron

15:15-15:30 Assessment of renewable wave energy resources in the French façade coastal zone (Ponce de Leon Sonia, Instituto Superior Tecnico, University of Lisbon, Marco Restano, Serco c/o ESA-ESRIN, Frascati, Italy)

15:30-15:45 Tidal current wave interaction and resulting wave breaking mapping in coastal area using Sentinel1 (Fabrice Collard, ODL)

15:45-16:00 WOC Early Adopter (France Energie Marine, TBC)

16:00-16:15 The ESA Regional Atlantic Initiative project perspective (Stefano Ferretti, ESA, TBC)

16:15-16:45 Discussion (*Chairs B.Chapron+ TBD*)

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16:45-17:00 Syntool Presentation (Lucile Gaultier, ODL)

17:00-19:00 Poster Session + Demo with Cocktail Dinner

DAY 3

Session 4: Perspectives and Outlook:

Chairs Marie-Helene RIO and Stephanie Guinehut

08:30-09:00 Summary of DAY 1 and DAY 2 discussions by chairs

09:00-09:20 Present and future altimeter capability (Yannice Faugere, CLS)

09:20-09:40 The SWOT mission (Rosemary Morrow, CNES)

09:40-09:55 Investigating the assimilation of total surface current velocities in global ocean forecasting systems (Jennifer Waters, MetOffice)

09:55-10:15 **COFFEE BREAK**

10:15-10:30 Towards validating upper ocean currents: issues and methods (Luc Lenain, UCSD and J. Thomas Farrar, WHOI)

10:30-10:50 Future missions to fill gaps for downstream applications (Craig Donlon, ESA)

10:50-11:10 Service evolution in CMEMS (Stephanie Guinehut, Mercator-Ocean)

11:10-11:30 Modelling core engines for European Digital Twin Ocean, the EDITO Model Lab project (Yann Drillet, Mercator-Ocean)

11:30-12:30 Discussion (*Chairs MH-Rio, S. Guinehut*)

12:30-13:00 Wrap-up

13:00 **ADJOURN**

Poster List

- 101** SAR, SARin, RDSAR and FF-SAR Altimetry Processing on Demand for Cryosat-2 and Sentinel-3 at ESA's Altimetry Virtual Lab Benveniste, Jérôme ESA
- 104** AIS derived surface currents - Latest developments and perspectives Guichoux, Yann eOdyn
- 105** How satellite data fusion, SST and AVISO/DUACS, can be used for model validation? Stegner, Alexandre LMD, CNRS-IPSL, Ecole Polytechnique
- 106** 3D Reconstruction of Upper Ocean Dynamics in The Nordic And Beaufort Seas. Assessment Of The Surface Quasi-Geostrophic Approach Umbert Ceresuela, Marta ICM-CSIC
- 108** Implicit Neural Representations: Modern Optimal Interpolation for Ocean Observation Data Johnson, Juan Emmanuel IGE/MEOM
- 113** Semantic Segmentation and Super Resolution for Reliable Ocean Circulation Maps Moschos, Evangelos Amphitrite - Ecole Polytechnique
- 115** A kilometric scale nested configuration in the Copernicus IBI model: assessment and impact on oceanic currents BRIVOAL, Théo Mercator Ocean International
- 116** Small-scale ocean surface current and wind vectors from space: the SEASTAR Earth Explorer 11 candidate mission Gommenginger, Christine National Oceanography Centre
- 117** 28 years of Surface and Upper Ocean Circulation from the combined use of in situ and space borne observations ETIENNE, Hélène CLS
- 118** Undrogued SVP buoys correction processing from Copernicus Insitu Thematic Assembly ETIENNE, Hélène CLS
- 120** Towards understanding surface convergence and divergence processes in the Agulhas Current and its Return by combining data from a surface drifter-pair and World Ocean Circulation data Hart-Davis, Michael Technical University of Munich
- 121** Collaborative data challenges for designing high level ocean data products: feedbacks from altimetry and perspectives for surface currents. Metref, Sammy IGE/Datlas

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- 122** A probabilistic approach based on ensemble simulations to quantify the predictability properties of the surface ocean dynamics: a Western Mediterranean test-case at kilometeric-scale resolution. Leroux, Stephanie Atlas
- 123** Inter-Comparison of oceanic surface current in the region of the Agulhas Current le Goff, Clément eOdyn
- 124** Assimilation of wide-swath satellite observations to infer geostrophic and internal tide signals of the ocean surface dynamics Cosme, Emmanuel Univ. Grenoble Alpes
- 125** Toward a community global 1/36° configuration based on NEMO Bricaud, Clément Mercator Ocean International
- 126** Performances of the new Copernicus Marine Service global ocean monitoring and forecasting real-time high-resolution system Lellouche, Jean-Michel Mercator Ocean International
- 127** A new high-resolution ocean-relative wind stress forcing product from the Copernicus Marine Service Stoffelen, Ad KNMI
- 128** 4DVarNet: end-to-end learning of variational interpolation schemes with application to satellite-derived sea surface datasets Beauchamp, Maxime IMT Atlantique
- 129** Oral presentation On the use of surface current observations for the joint estimation of geodetic mean dynamic topography models and the geoid Brockmann, Jan Martin University of Bonn
- 130** Poster presentation Deep-Eddy-Scan : a new tool for real time eddy detection based on the fusion of SST and altimetry satellite data LE VU, Briac AMPHITRITE
- 131** Poster presentation Analyze of particles advection from altimetry surface currents to assess mesoscale eddy network coherence Pegliasco, Cori Collecte Localisation Satellites
- 132** Synergetic use of altimetry and in-situ surface currents (AIS derived current and drifters) for ocean circulation Jousset, Solène CLS
- 133** Poster presentation Probabilistic Lagrangian Tracking of Objects Lost at Sea With Deep Learning Jenkins, Joseph Université de Toulon
- 136** Sea Surface Currents from AIS Maritime Traffic Data Using Trainable Variational Data Assimilation Models Boussidi, Brahim eOdyn
- 137** On the impact of wave/ocean coupling on surface currents Aouf, Lotfi Meteo France

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138 Validation of near-surface ocean current using satellite products iovino, doroteaciro
Euro-Mediterranean center on climate change (CMCC)

139 Interest (and limits) of new DUACS polar sea level altimetry products for ocean
circulation studies Faugere, Yannice CLS