Draft Workshop Programme

26 October, 13:00 - 30 October, 13:00

Day 1 - Monday 26 October

Time	Session /talk	Author/ presenter
13:00-13:30	**Arrival, registration, and coffee**	
13:30-13:45	Welcome and practical information	
13:45-14:15	**Keynote:** The need for ocean observations and data assimilation for coupled predictions and why we care about coupling when doing predictions	Kristian Mogensen, ECMWF
	Operational prediction systems 1 *(4 talks)* **Chair:** Sergey Frolov, NOAA **Rapporteur:** Ann Kristin Sperrevik, Met Norway	
14:15-14:35	UK Met Office operational ocean-atmosphere coupled numerical weather prediction system: current status and future outlook	Jonah Robert-Jones, Met Office
14:35-14:55	Development of the NOAA Unified Forecast System and Its Application to Subseasonal and Seasonal Predictions	Phillip Pegion, NOAA
14:55-15:15	Coupled Atmosphere-Ice-Ocean Prediction Systems at Environment Canada	Greg Smith, ECCC *(for Jean-Philippe Paquin, ECCC)*
15:15-15:45	Coffee break	
15:45-16:05	Recent upgrades to the coupled ocean - sea ice prediction system at ECMWF Prediction System	Sarah Keeley, ECMWF
16:05-16:25	**Discussion 1: Operational prediction systems** **Chair:** Ann Kristin Sperrevik, Met Norway **Rapporteur:** Sergey Frolov, NOAA	
16:25-17:00	**Poster introductions**	Various authors
17:00-19:00	Icebreaker and poster session with drinks	

Day 2 - Tuesday 27 October

Time	Session	Author/Presenter
	Operational prediction systems 3 *(4 talks)* **Chair:** Kristian Mogensen, ECMWF **Rapporteur:** Anna Teruzzi, OGS	
09:00-09:20	The role of the oceans for subseasonal prediction: insights from eddy-permitting and eddy-rich coupled forecast systems	Chris Roberts, ECMWF
09:20-09:40	A North-Atlantic-focused ocean prediction system for operations and research: results and ongoing developments at CMRE	Andrea Storto, CMRE
09:40-10:00	Ocean dynamic persistence provides significant predictability for sea surface temperature variation associated with El Nino and El Nina	Tong Lee, NASA/JPL
10:00-10:20	Norwegian Climate Prediction Model Version 2: New Developments and their impact	Francois Counillon, NERSC
10:20-10:40	**Discussion 2: Operational Prediction systems** **Chair:** Anna Teruzzi, OGS **Rapporteur:** Kristian Mogensen, ECMWF	
10:40-11:10	Coffee break	
	Coupled processes and air-sea interactions *(5 talks)* **Chair:** Santha Akella, NOAA **Rapporteur:** Phil Browne, ECMWF	
11:10-11:30	Air-Sea Coupling at the Ocean Mesoscale: Some Reflections on the Challenges for Coupled DA	Andrew Moore, UCSC
11:30-11:50	Temporal variability of air-sea fluxes and ocean surface variables under extreme events	Santha Akella, NOAA
11:50-12:10	Prolonged Westerlies in the Equatorial Indian Ocean: Atmospheric Drivers and Upper-Ocean Responses	Prasad Thoppil, NRL
12:10-12:30	Development of Wave-Sea Ice Interactions in the ECMWF Earth System Model	Joshua Kousal, ECMWF
12:30-12:50	Effects of Atmospheric Forcing Frequencies on Ocean Data Assimilation and Coupled Forecasts on NWP Time Scales	Kristian Mogensen, ECMWF
13:00-14:00	Lunch	
14:00-14:20	**Discussion: Coupled processes and air sea interactions** **Chair:** Phil Browne, ECMWF **Rapporteur:** Santha Akella, NOAA	

	Advances in machine learning 1 *(5 talks)* **Chair:** Sergey Frolov, NOAA **Rapporteur:** Rachel Furner, ECMWF	
14:20-14:40	Ocean and Coupled Earth System Emulator Development	Sergey Frolov, NOAA
14:40-15:00	ML-based ocean emulator as a surrogate for ocean forecasting and reanalysis systems	Jungwon Lee, IMT
15:00-15:30	Coffee break	
15:30-15:50	Combining machine learning with data assimilation to improve the quality of phytoplankton forecasting in a shelf sea environment	Josef Skakala, PML
15:50-16:10	Machine-learning bias correction of passive-microwave sea-ice concentration using SAR improves Arctic analyses and forecasts	Davi Mignac, Met Office
16:10-16:30	Offshore Operations and Maintenance: A GNN-LSTM Wave Forecasting Framework for safe Marine Logistics Operations in the German Bight	Supreeth Hanumappa, LUFI
16:30-16:50	**Discussion 1: Advances in machine learning** **Chair:** Rachel Furner, ECMWF **Rapporteur:** Sergey Frolov, NOAA	
16:50	Close of day 2	

Day 3 - Wednesday 28 October

Time	Session	Author/ Presenter
	Advances in machine learning 2 *(2 talks)* **Chair:** Rachel Furner, ECMWF **Rapporteur:** Sergey Frolov, NOAA	
09:00-09:20	Stochastic ensemble coupled modeling of pre-industrial control and 1% increasing CO2 scenarios with physically conservative machine learning emulators	James Duncan, ALLENAI
09:20-09:40	Chlorophyll-Conditioned Bias Correction in a Machine-Learned Seasonal Biogeochemical Forecast	Gabriela Martinez Balbontin, Mercator
09:40-09:55	**Discussion: Advances in machine learning** **Chair:** Sergey Frolov, NOAA **Rapporteur:** Rachel Furner, ECMWF	
	Coupled DA 1 *(5 talks)* **Chair:** Matt Martin, Met Office **Rapporteur:** Hao Zuo, ECMWF	
09:55-10:15	Improvement of SST analysis and near sea-surface atmospheric predictions in the coupled atmosphere-ocean data assimilation system in JMA/MRI	Yosuke Fujii, JMA/MRI
10:15-10:35	Towards strongly coupled ocean-sea ice-atmosphere data assimilation for the Global Forecasting System	Anna Shlyaeva, UCAR/NOAA
10:35-11:05	Coffee break	
11:05-11:25	Coupled ocean-atmosphere DA in operations at ECMWF	Philip Browne, ECMWF
11:25-11:45	A General Nonlinear and Non-Gaussian Strongly Coupled Ensemble Data Assimilation Capability	Jeffrey Anderson, NSF-NCAR
11:45-12:05	Coupled and nonlinear data assimilation into a regional ocean-biogeochemical model	Lars Nerger, AWI
12:05-12:25	**Discussion: Coupled DA** **Chair:** Hao Zuo, ECMWF **Rapporteur:** Matt Martin, Met Office	
	Data assimilation systems and methodology 1 *(6 talks)* **Chair:** Anthony Weaver, CERFACS **Rapporteur:** Marcin Chrust, ECMWF	
12:25-12:45	Advancing ocean data assimilation towards a JEDI-based framework at the UK Met Office Session 3: Methods, tools, and workflows	Sophia Moreton, Met Office
13:00-14:00	Lunch	

14:00-14:20	PDAF - Recent Developments for Open-Source Community Data Assimilation	Lars Nerger, AWI
14:20-14:40	Development of an Ensemble-Based Ocean Data Assimilation System at ECCC	Greg Smith, ECCC *(for Sergey Skachko, ECCC)*
14:40-15:00	Implementation of OceanVar2.0 in the Black and Mediterranean Seas analysis and forecasting systems	Daniele Bigoni, CMCC *(for Ali Aydogdu, CMCC)*
15:00-15:30	Coffee break	
15:30-16:10	Recent Developments in ROMS Data Assimilation and Applications	Hernan G. Arango, Rutgers
16:10-16:30	Multivariate data assimilation across ocean and sea-ice interface	Andrea Cipollone, CMCC
16:30-16:50	**Discussion 1: Data assimilation systems and methodology** **Chair:** Marcin Chrust, ECMWF **Rapporteur:** Anthony Weaver, CERFACS	
From 19:00	Optional self-paid dinner in Reading town centre	

Day 4 - Thursday 29 October

Time	Session	Author/Presenter
	Data assimilation systems and methodology 2 *(4 talks)* **Chair:** Marcin Chrust, ECMWF **Rapporteur:** Anthony Weaver, CERFACS	
09:00-09:20	Data assimilation in the Met Office's 1.5km model of the North-West European shelf	James While, Met Office
09:20-09:40	Scale-dependent background-error covariance modelling, with application to ECMWF's ocean reanalysis system	Anthony Weaver, CERFACS
09:40-10:00	Modelling wide-swath altimeter observation error correlations with a regularised diffusion operator	Olivier Goux, CERFACS
10:00-10:20	A Multi-Tracer Data Assimilation Framework for Constraining Global Ocean Transport and Mixing	Nabir Mamnun, Imperial
10:20-10:40	**Discussion 2: Data assimilation systems and methodology** **Chair:** Anthony Weaver, CERFACS **Rapporteur:** Marcin Chrust, ECMWF	
10:40-11:10	Coffee break	
	Data assimilation systems and methodology 3 *(4 talks)* **Chair:** Andy Moore, UCSC **Rapporteur:** Santha Akella, NOAA	
11:10-11:30	Salinity improvements in the NOAA's US West Coast Ocean Forecast System (WCOFS)	Parisa Heidary, NOAA
11:30-11:50	From surface optics to subsurface ecosystem structure: how reflectance assimilation propagates beyond biogeochemistry	Polina Verezemskaya, University of Liege
11:50-12:10	Assessing the new Met Office high resolution global ocean ensemble hybrid-3DEnVar system	Daniel Lea, Met Office
12:10-12:30	Updated Sea Ice Initialization in JEDI SOCA for the Global Forecast System	Dmitry Dukhovskoy, NOAA
12:30-12:50	**Discussion 3: Data assimilation systems and methodology** **Chair:** Santha Akella, NOAA **Rapporteur:** Andy Moore, UCSC	
13:00-14:00	Lunch	
	Reanalysis activities *(3 talks)* **Chair:** Hao Zuo, ECMWF **Rapporteur:** Sergey Frolov, NOAA	

14:00-14:20	Evaluation of a Coupled Regional Reanalysis for the Mediterranean Region Covering the period 1993-2024	Chunxue Yang, CNR-ISMAR
14:20-14:40	An Evaluation of the impact of ocean observations on a weakly coupled data assimilative Earth System Model. Developing NOAAs next reanalysis.	Joao Marcos Azevedo Correia de Souza, CIRES/NOAA
14:40-15:00	A post-process smoother for improving the past reanalyses with sparse observations	Yumeng Chen, Reading University
15:00-15:15	**Discussion: Reanalysis activities** **Chair:** Sergey Frolov, NOAA **Rapporteur:** Hao Zuo, ECMWF	
15:15-15:45	Coffee break	
	Impact of observations 1 *(2 talks)* **Chair:** Ann Kristin Sperrevik, Met Norway **Rapporteur:** Kristian Mogensen, ECMWF	
15:45-16:05	Impact of assimilating biogeochemical data from multiplatform observing systems on ecosystem indicators	Anna Teruzz, OGS
16:05-16:25	Assessing the Role of Soil Moisture and Land Memory in Northern European Extremes Using a Coupled Large-Ensemble Prediction System	Francois Counillon, NERSC
16:25-16:40	**Discussion 1: Impact of observation** **Chair:** Kristian Mogensen, ECMWF **Rapporteur:** Ann Kristin Sperrevik, Met Norway	
From 19:00	Optional pub trip in Reading town centre	

Day 5 - Friday 30 October

Time	Session	Author/ Presenter
	Impact of observations 2 *(5 talks)* **Chair:** Anna Teruzzi, OGS **Rapporteur:** Santha Akella, NOAA	
09:00-09:20	Dynamical Influences on Observation Impacts for Ocean Data Assimilation	Andrew Moore, UCSC
09:20-09:40	Assessing ocean observation impacts through the SynObs multi-system observing system experiments.	Jennifer Waters, Met Office
09:40-10:00	Impact of ocean observations on climate signals in ECMWF global ocean reanalysis system	Eric de Boisseson, ECMWF
10:00-10:30	Coffee break	
10:30-10:50	Impact of Ocean Observations on the ECMWF Ocean DA System and Medium-range Weather Forecasts	Hao Zuo, ECMWF
10:50-11:10	ECMWF OSES for long time scales: reanalysis and seasonal forecast	Magdalena Alonso Balmaseda, ECMWF
11:10-11:30	**Discussion 2: Impact of observation** **Chair:** Santha Akella, NOAA **Rapporteur:** Anna Teruzzi, OGS	
11:30-12:00	**Workshop summary and closing remarks**	TBD
12:00-13:00	Departures or optionally lunch	

Poster presentations

No	Abstract title	First name	Last name	Affiliation
1	Introducing the ROMS-JEDI Interface	Hernan G.	Arango	Rutgers University
2	Coupled Marine DA at GMAO with a JEDI-based DA workflow	Dorukhan	Ardağ	NASA/GMAO
3	A High-Resolution Coupled MPAS-A/MOM6 Model for Air-Sea Interaction Research and Forecasting	Ben	Barr	UCAR
4	Enhancing Subseasonal-to-Seasonal Prediction of Arctic Summer Sea Ice through hybrid Machine Learning's dynamical modelling	Francois	Counillon	NERSC
5	pyPDAF: a Python version of the Parallel Data Assimilation Framework (PDAF)	Yumeng	Chen	University of Reading
6	Influence of the Agulhas Current on crossing swells along South African coasts	Bafana	Gweba	South African Weather Service
7	Recent developments in the JMA Sub-Seasonal and Seasonal Ensemble Prediction System	Shoji	Hirahara	Meteorological Research Institute / Japan Meteorological Agency
8	Historical High-Resolution Daily SST Analysis (COBE-SST3) with Consistency to Monthly Land Surface Air Temperature	Shoji	Hirahara	Meteorological Research Institute / Japan Meteorological Agency
9	Improving Air–Sea Consistency through Weakly Coupled Atmosphere–Ocean Data Assimilation in the KIM (Korean Integrated Model) Coupled Earth System	Jiyoun	Kim	Korea Institute of Atmospheric Prediction Systems (KIAPS)
10	NOAA-NASA Joint Archive (NNJA): Publicly Accessible, Curated Observations	Jessica	Knezha	CIRES, University of Colorado Boulder
11	Can 4DVAR effectively correct the mean pycnocline depth in an ocean model?	Alexander	Kurapov	NOAA National Ocean Service
12	Hybrid ensemble/variational data assimilation in the North-West European shelf at 7km resolution.	Tom	Louden-Cooke	Met Office

13	Current developments of a Global BGC reanalysis at Mercator Ocean Int	Pubali	Mukherjee	Mercator Ocean international
14	Assessing the global ocean carbon sink with data assimilation	Lars	Nerger	Alfred Wegener Institute
15	REPLAY: a practical resolution-flexible surrogate method for ocean initial condition generation	Charles	Pelletier	European Centre for Medium-Range Weather Forecasts
16	Impact of Ocean Sub-Surface Observations on Coupled Atmosphere-Ocean 15-day Predictions	Andrew	Peterson	Environment and Climate Change Canada
17	Exploring the coupled assimilation of sea surface salinity derived from SMAP radiances in ECMWF-IFS	Nils	Risse	ECMWF
18	Toward Assimilating SWOT Altimetry Data into the Current and Next-Generation GMAO Subseasonal-to-Seasonal Forecast System	David	Russell	University of Maryland / NASA
19	Impact of surface remote sensing reflectance assimilation and its associated uncertainties on the forecast for the visibility and water quality indicators in the turbid coastal waters	Josef	Skakala	Plymouth Marine Laboratory and National Centre for Earth Observation
20	Formation process of Kuroshio large meander in 2017 analyzed by a hybrid data assimilation system	Xiaobo	Wu	NMEFC