



## ASSW KEPLER Workshop

Enhancing Copernicus 2.0 information products through  
optimised usage of in-situ data

20th March 2021

15:30 - 18:30 GMT

<https://next.brella.io/events/assw21/schedule/294790>

<https://assw2021.pt>





## Enhancing Copernicus 2.0 information products through optimised usage of in-situ data

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### Abstract

This Community Workshop will bring together nationally and internationally recognised Earth Observation and in-situ monitoring Arctic experts. The aim is to strengthen the calibration and validation of remotely sensed products, and forecast model data assimilation within Copernicus.

Copernicus is the EU's environmental monitoring programme for planet Earth. It offers full, open and free-of-charge information services based on satellite, model forecasting and in-situ data. These are organised into 6 thematic Services, and an In-Situ Observing Component.

In-situ observations are critical, but at the present stage their integration into data products is limited. To address this challenge we need to understand how the observational research community can better contribute in-situ monitoring to enhance Copernicus products.

The issues associated with the better usage of in-situ observations needs an inclusive approach, involving a wide range of expertise. KEPLER, an EU H2020 project, [kepler-polar.eu](http://kepler-polar.eu) is a multi-partner initiative that has been tasked with preparing an end-to-end roadmap for Copernicus to deliver improved capacity for monitoring and forecasting in the Polar Regions. This Community Workshop brings together the expertise of KEPLER with other international experts. This workshop will contribute to the roadmap by identifying how we can better coordinate, integrate, and share in-situ observational data in order to enhance the products offered by the Copernicus Services.

TimetableSaturday 20th March15:30 - 18:30 GMT<https://next.brella.io/events/assw21/schedule/294790>

1. Overview of Polar services in Copernicus
2. Stakeholder driven improvements
3. Visions for more integrated services

15:30 - 15:35	Introduction and aims of community workshop	Jeremy Wilkinson
15:35 - 15:45	Overview of KEPLER	Nick Hughes
<b>1. Overview of Polar services in Copernicus</b>		
15:45 - 15:55	Overview of Copernicus Arctic services	Andrew Fleming
15:55 - 16:05	KEPLER: WP2 Polar region provision in Copernicus services	Gilles Garric
16:05 - 16:15	Copernicus/ESA HPCM Missions	Nick Hughes
16:15 - 16:25	KEPLER WP3: Capacity gaps	Carolina Gabarro
16:25 - 16:40	Panel Q&A discussion Session	Jeremy Wilkinson
16:40 - 16:50	Break	
<b>2. Stakeholder driven improvements</b>		
16:50 - 17:00	Marine User Group- survey findings/ IICWG?	Nick Hughes
17:00 - 17:10	KEPLER WP 1&4 Marine needs & Training requirements	Keld Qvistgaard
17:10 - 17:20	KEPLER WP4 Improve sea ice forecasts	Steffen Tietsche
17:20 - 17:35	Panel Q&A discussion Session	Frank Kauker
17:35 - 17:45	Break	
<b>3. Visions for more integrated services</b>		
17:45 - 17:55	PEG report finding	Ola Nordbeck
17:55 - 18:05	KEPLER future vision	Frank Kauker
18:05 - 18:30	Wrap up	Nick Hughes



## Speakers



### **Nick Hughes - KEPLER Coordinator**

Nick Hughes is leader of the Norwegian Ice Service and is based at the Division for Forecasting in Tromsø. He is responsible for the daily operation of the Ice Service and for project management including the development of new data processing algorithms and information services. Hughes has 22 years experience in Arctic and Antarctic research including 15 field campaigns. Currently he is Coordinator for *KEPLER*, and Work Package Leader for the Polar Use Case in the EC Horizon 2020 research project *From Copernicus Big Data to Extreme Earth Analytics (ExtremeEarth)*.



### **Jeremy Wilkinson - Workshop organiser, task leader.**

Dr Jeremy Wilkinson is an expert on sea ice dynamics, thermodynamics and mechanics, ocean wave propagation through sea ice, and deep-convection and water mass modification.

He represents the UK on the Arctic Ocean Science Board (AOSB) / International Arctic Science Committee's (IASC) Marine Science Working Group and is a member of the Programme Advisory Board for Arctic Science for the UK funding agency NERC. In addition he is regarded as one of the world experts on the use of AUVs in the polar oceans (under ice experience with Maridan, Autosub, Gavia, Sea-Bed AUVs).



### **Carolina Gabarro - Work Package 3 Lead**

Dr Carolina Gabarró is a scientist with focus on ocean and sea ice remote sensing, in particular with microwave radiometer sensors. She has a permanent position at the Institute of Marine Science in CSIC, Barcelona, Spain.

She has participated in several H2020 and led some ESA and National projects. She has participated in the MOSAIC expedition with an L-band radiometer experiment. She represents Spain in the International Arctic Science Committee (IASC) in the Cryosphere Working Group.



**Gilles Garric - Work Package 2 Lead**

Gilles is the manager of the innovation team in the R&D Department at Mercator Ocean International. His team is in charge of developing the modelling and assimilation components of the real time and reanalysis global operational oceanic system. Gilles is a senior scientist and has conducted various researches in high resolution oceanic modelling, ocean atmosphere interface, climate variability and polar processes. He has been working regularly for 25 years on sea ice and its role in the current climate. He has been involved in several multi-partner European research projects such as the ICE-ARC project. Within KEPLER, he leads WP2 on polar provisions in Copernicus services.



**Steffen Tietsche - Work Package 4 Lead**

Steffen is a Senior Scientist at ECMWF, in the Earth System Predictability Section of the Research Department. He conducts research to advance the quality of ECMWF's forecasts with Earth system models on time scales from days to seasons ahead, with an emphasis on coupled ocean-sea-ice-atmosphere processes. Steffen has been involved in several multi-partner European research projects to improve ocean and sea-ice initialization and forecasts, such as SPICES and ATLANTOS. Within KEPLER, he leads WP4 on improved sea-ice monitoring and forecasting.



**Frank Kauker - Work Package 5 Lead**

Frank Kauker is a physicist with a focus on numerical modelling of the high-latitude coupled climate system and the statistical analysis of climate data. He has been co-developing and applying the coupled ice-ocean model NAOSIM in the Arctic modelling team at AWI and at OASys. He has been a key expert in the development of the data assimilation system NAOSIMDAS developed and used in the EU projects DAMOCLES, ACCESS and the German funded project IRO2. Frank has been developing Quantitative Network Design applications for the Arctic Ocean in the context of the projects EU ACCESS, ESA ARCTIC+5, and KEPLER. Frank was coordinator of the EU FP6 project 'SEARCH for DAMOCLES (S4D)'. Frank is work package leader in the EU-H2020 KEPLER where he is responsible for the development of a roadmap on an 'End-to-end operational system for European forecasting capabilities for monitoring and forecasting of the Polar Regions'.



**Keld Qvistgaard**

Keld Qvistgaard is a geophysicist with more than 25 years of experience in ice service operations focused support of ships ice-covered waters. He has expertise in Greenland/Arctic/Antarctic sea ice & icebergs from years of support of marine operations in ice, including tailored solutions to special programs. He has a broad and deep insight in operational handling and analysis of high resolution satellite images, both SAR and non-SAR in high resolution. He is now the focal point for DMI use of Sentinel-1 and Copernicus Contributing Missions to sea ice and iceberg products to international partners, the marine community and Copernicus Marine and Environmental Monitoring Services



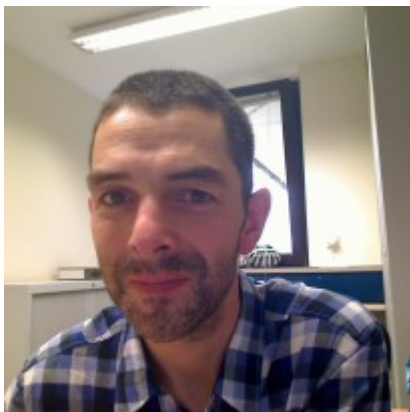
**Ola Nordbeck**

Ola is a Policy Officer with the European Commission's Directorate-General for Defence Industry and Space (DEFIS) Earth Observation Unit.

Ola has a background in Physical Geography and Geoinformatics. Ola has previously worked with Earth Observation for United Nations Environment Programme, Statistics Norway, Norwegian Space Agency and since 2016 with the Copernicus unit in the European Commission.

Ola is handling Access to Third Party Missions and Polar Activities for Copernicus. Ola has supported the Copernicus Polar Expert Group (PEG) since 2017 resulting in two reports and is the editor of PEG III that is about to be published. Ola has

followed the work of KEPLER from the European Commission, working for the project outcomes used in Copernicus.



**Andrew Fleming**

Andrew Fleming is the remote sensing manager for the British Antarctic Survey where he leads the application of remote sensing methods to science and operations projects. He has been Manager of Polar View activities in the Antarctic since 2004, which develops and delivers near-real-time sea ice information to users operating in both polar regions.

He has also played a key role in the related Copernicus Marine Service, ICEMAR, Polar Ice FP7, ESA ArcticSat, H2020 EU-PolarNet and leads the ESA Polar Thematic Exploitation Platform projects.

He also has active interests in developing the application of hyperspectral imaging and UAVs to polar science research and operations.



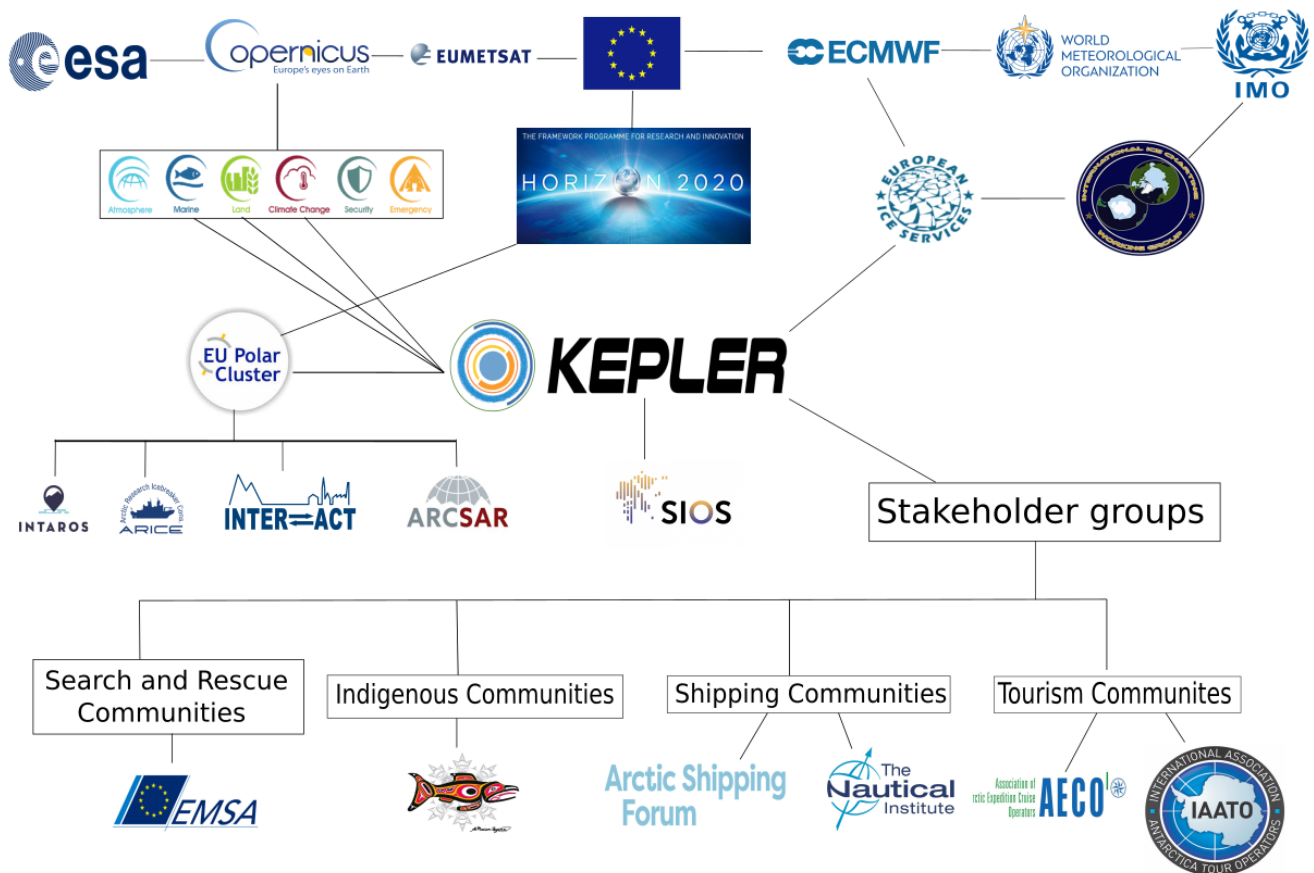
## The KEPLER Project

KEPLER (Key Environmental monitoring for Polar Latitudes and European Readiness) is a multi-partner initiative, built around the operational European Ice Services and Copernicus information providers.

A key aim of KEPLER is to ensure that there is a clear, concise and achievable road map for the Copernicus programme to develop industry and societal-driven value-added technologies, products, and other services. This will also enhance the European capacity in Earth Observation for the monitoring of the Polar Regions, and its sustainable development, to the benefit of stakeholders. The first Sentinel satellites are in orbit, or due to be launched. It is important that in the next phase, Copernicus 2.0 starting in 2021, this capability is developed further to meet the requirements of the Polar Regions.

KEPLER will run from 1st January 2019 to 30th June 2021, has a budget of €2.9M, 15 project partners, and is a EU Horizon 2020 Coordination and Support Action (CSA).

## KEPLER Linkages



## KEPLER PARTNERS



For more information please either contact

**KEPLER Coordinator: Nick Hughes** Head of the Ice Service at Met Norway [nick.hughes@met.no](mailto:nick.hughes@met.no)

**KEPLER Project Manager: Elaina Ford** British Antarctic Survey [elaina.ford@bas.ac.uk](mailto:elaina.ford@bas.ac.uk)

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