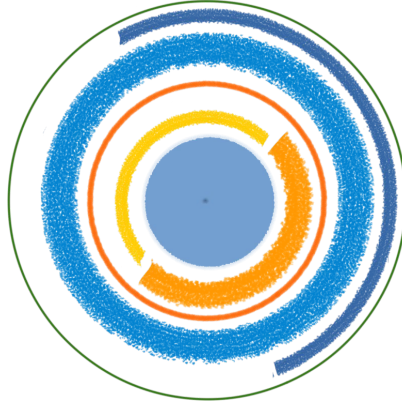


KEPLER



Key Environmental monitoring for Polar Latitudes and European Readiness



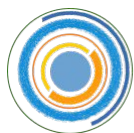
*A project funded under LC-SPACE-02-EO-2018
2019-01-01 to 2021-03-31*

Nick Hughes

nick.hughes@met.no

Leader of Norwegian Ice Service
WMO JCOMM Expert Team on Sea Ice
Chair of European Ice Services





KEPLER Who we are

Operational Ice Services



Norwegian
Meteorological
Institute



ILMATIETEN LAITOS



DMI
Vejr, klima og hav

Maritime Monitoring



British
Antarctic Survey

NATURAL ENVIRONMENT RESEARCH COUNCIL



Copernicus Service Providers



MERCATOR
OCEAN
INTERNATIONAL



Terrestrial Monitoring



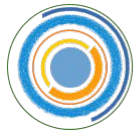
LUNDS
UNIVERSITET



Forecasting Development



iLab



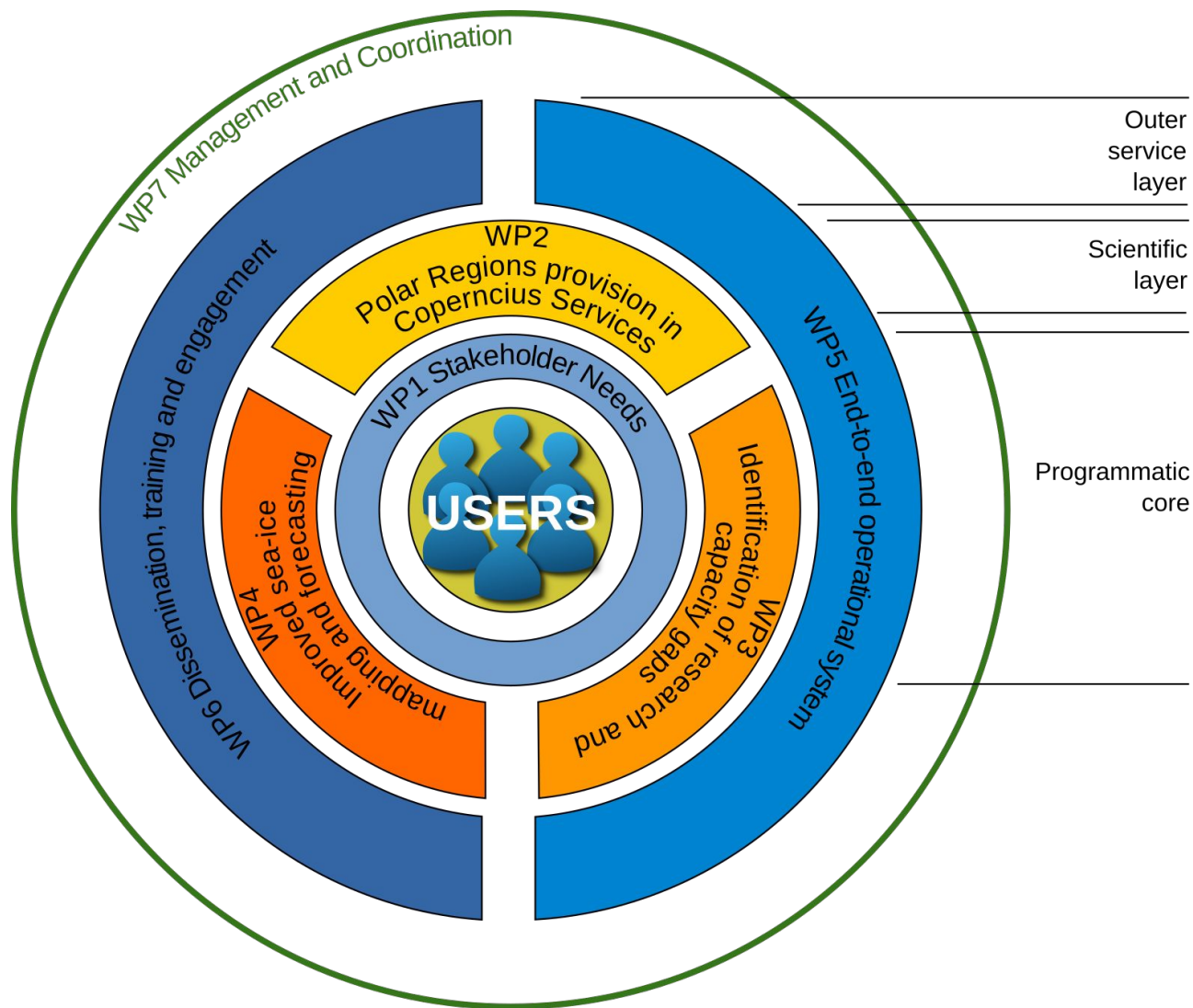
KEPLER Overview

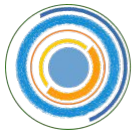
- 2.25 years, €2.9 million, 15 partner Horizon 2020 Coordination & Support Action, starting January 2019
- Call topic
 - *Develop the roadmap for a mature European capacity for monitoring the Polar Regions, notably the Arctic, specifically for sea ice and environmental conditions*
 - *Bring the polar component of the CMEMS, C3S, CAMS, and CLMS services a step beyond the present state of art, and increase the user base*
- 6 themes, based on the recommendations from the **Copernicus User Uptake** review
 1. **Raising awareness** for the Copernicus programme,
 2. **Informing and educating** Copernicus users,
 3. Engaging Copernicus users in **public and private sector**, and
 4. **Enabling access** to Copernicus data and information,
 5. **Identification of research gaps** regarding integration/assimilation, and
 6. **Improved sea-ice mapping and forecasting.**





KEPLER In a nutshell (or orbital system)

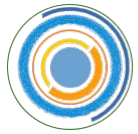




KEPLER Stakeholder Requirements

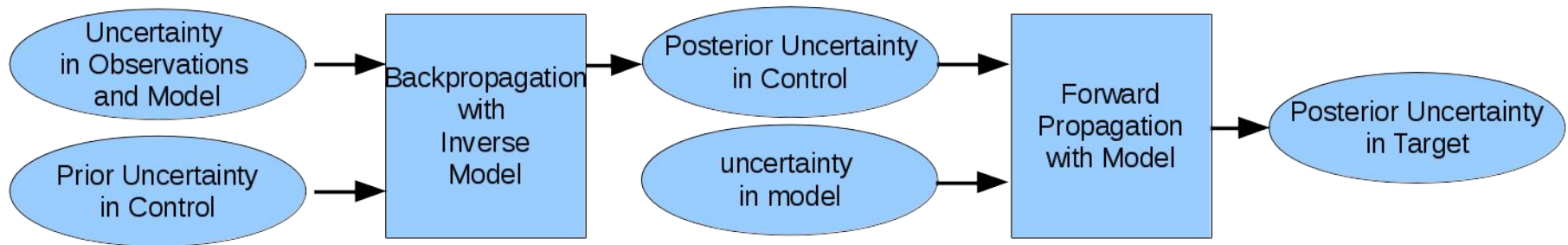
- Identification and understanding user needs for Copernicus in the Polar Regions
 - Helps engage and strengthen public support for the programme
- Following the 3 policy areas of the integrated EU Arctic Policy
 - **Climate Change and Safeguarding the Arctic Environment**
 - Conclusions of the Polar Expert Group fit well with this objective and good agreement in the community
 - **Sustainable Development in and around the Arctic**
 - Disagreement with the conclusions of the Polar Expert Group, particularly on the requirements for safe and reliable navigation
 - **International Cooperation on Arctic Issues**
 - Wide range of stakeholders identified by KEPLER from Europe and beyond
- KEPLER's role
 - Ensuring all users in the 3 policy areas are represented and their needs are taken into account





KEPLER Quantitative Network Design

- Evaluating the cost of decisions as to what information is needed from Copernicus in the Polar Regions



- Quantitative integrated sea ice-ocean-land perspective
- Provides a mechanism to measure the effect of implementing the different **High Priority Candidate Missions (HPCM's)**, or **in situ observation networks**, i.e. questions like
 - Which mission has most effect on different types of forecast model?
 - Are there parameters, that if better or larger volume of measurements were available, would improve information provision
- Based on the computationally efficient Arctic Mission Benefit Analysis tool and extended for terrestrial applications

KEPLER What's next?



The screenshot shows the KEPLER website. The header features the KEPLER logo and the tagline 'KEY ENVIRONMENTAL MONITORING FOR POLAR LATITUDES AND EUROPEAN READINESS'. Below the header is a navigation bar with links: HOME, ABOUT, PROGRAMME, MEMBERS, and CONTACT. The main content area is titled 'ABOUT KEPLER' and includes a post dated November 1, 2018, by eakf. The text describes KEPLER as a multi-partner initiative built around the operational European Ice Services and Copernicus information providers, aiming to prepare a roadmap for Copernicus to deliver an improved European capacity for monitoring and forecasting the Polar Regions. It also mentions the motivation to put the public and stakeholders at the centre of Copernicus, following the recommendations of the 'Copernicus User Uptake' review and its 4 themes of:

1. Raising awareness for the Copernicus programme,
2. Informing and educating Copernicus users,
3. Engaging Copernicus users in public and private sector, and
4. Enabling access to Copernicus data and information.

On the right side of the website, there is a section titled 'Follow us on Twitter' showing a tweet from the KEPLER EU project (@KeplerEU) dated November 1, 2018. The tweet text reads: 'Our Kick-off meeting will be at the end of January in @OsloSciencePark. We'll update more on what we're doing in the project then! Watch this space...'

- Promote the project before the kick-off
 - Copernicus Training and Information Session, 30-31 October in Oslo
 - Copernicus & Polar Regions Industry Workshop, 7 November in Brussels
- Joined the EU Arctic Cluster #EUArcticCluster
- Project kick-off meeting, Oslo 28-30 January 2019
- Set up social media
 - Twitter [@KeplerEU](https://twitter.com/KeplerEU)
 - Facebook “Kepler EU”
 - Website www.kepler-polar.eu