

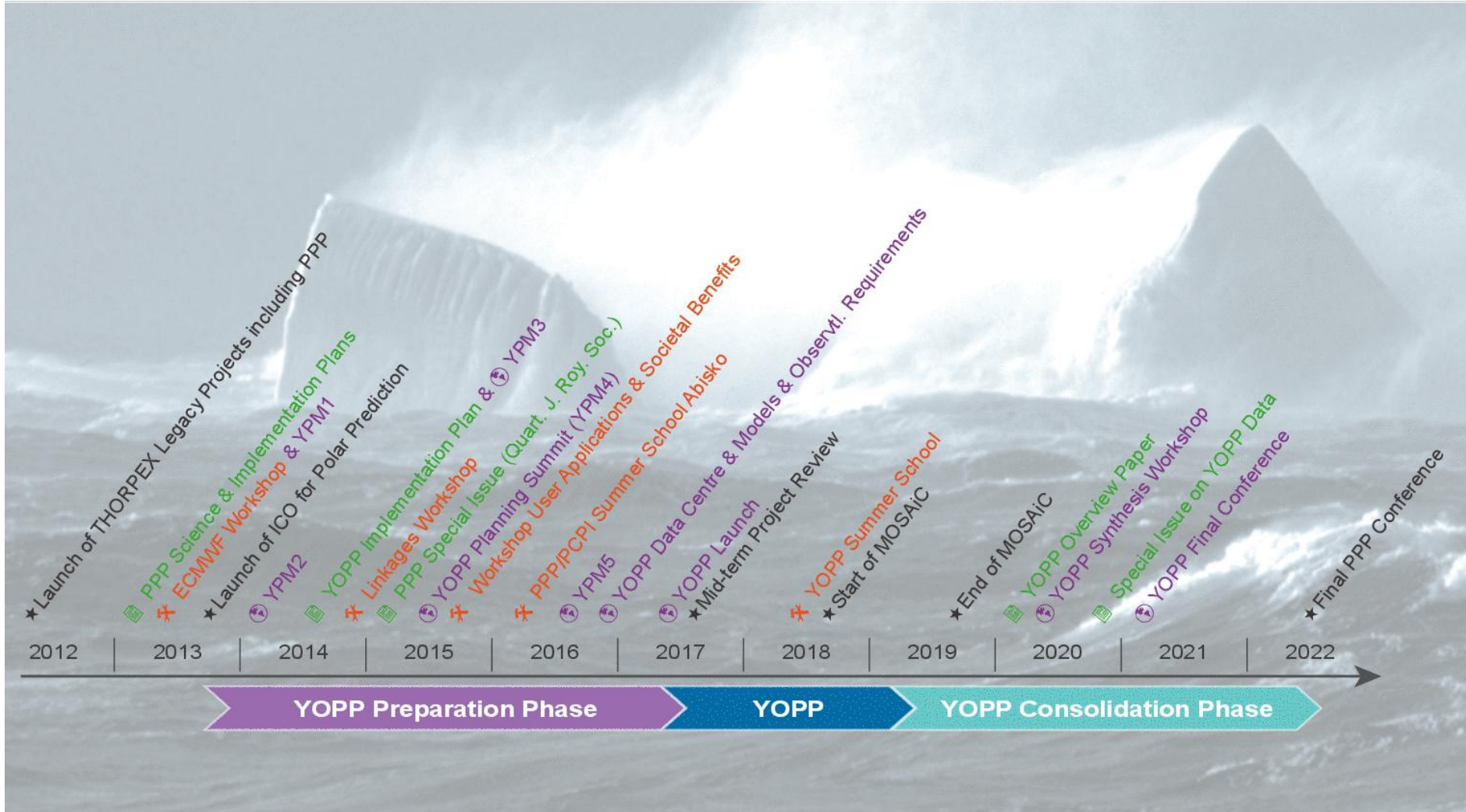


Arctic RI opportunities

- **Year of Polar Prediction – WMO**
 - Optimizing polar obs systems
 - additional obs for verification
- **H2020 2016/17 calls**
 - Blue Growth arctic topics
 - Earth Observation in-situ systems
- **ERA-Planet Strand 4 Polar**
- **SIOS has started**
- **PanEurasianEXperiment (Hanna Lappalainen)**



YOPP timeline





H2020 SC5 (Climate action, environment, resource efficiency and raw materials)

Blue Growth – demonstrating an ocean of opportunities: proposed SC5 contribution (topics)

Provisional topic ref.	Actions	funding type	2016	2017
1	Unified Integrated Arctic Observing System	RIA	x	
2	Impact of Arctic changes on weather/climate of northern hemisphere	RIA	x	
3	Climate impacts on Arctic ecosystems, resources, new economic activities or PERMAFROST ...	RIA		x

Main SC5 call: Earth Observation (topics)

Provisional topic ref.	Actions	funding type	2016	2017
1	Novel in-situ observation systems	RIA		x
2	Coordinate citizen observatories initiatives	CSA		x
3	European Hub of the GEOSS information system	RIA	x	



15M€: Unified integrated Arctic obs sys 2016

Specific challenge: The Arctic is the theatre of profound transformations. Climate change is deeply impacting on the sea-ice extension, on ice-sheet melting, on permafrost thawing, and on ocean and land ecosystems. These changes are bringing with them both risks and opportunities, and an integrated and multi-disciplinary Arctic observing system is becoming essential for studying, forecasting and assessing changes supporting the sustainable development of the region. The improvement of current assessment and prediction capabilities of Arctic environmental change requires the provision of data on a number of key variables of Arctic meteorology, climate, oceanography, and pollution. Monitoring and improved understanding of the Arctic climate system and its teleconnections, as well as ecosystem change and socio-economic impacts on offshore operations, new shipping routes, mining activities, tourism etc. are important prerequisites for effective assessments of climate change adaptation and mitigation strategies in the Arctic and elsewhere.

Scope: The “Unified Arctic Observation system” should close critical gaps with innovative solutions, as well as improve the integration and inter-operability of existing observation systems. The activity shall be based on co-operation between the existing European and International infrastructures (in-situ and remote incl. space-based) and the numerical prediction communities, with active participation from relevant stakeholder groups.

The action should ensure data interoperability through internationally recognised standardisation and quality assurance/quality control (QA/QC) processes, promote database integration and allow free and open access to all data and data products, and should contribute through novel technology development to fill out in-situ observational gaps.



6-8m€: Impact of Arctic changes on weather & climate of northern hemisphere (2016)

Specific challenge: The Arctic climate is changing more rapidly than in any other region. There is evidence that these changes strongly affect ecosystems, people and societies living inside and outside of the Arctic, including Europe and North America. A better representation of processes specific for the Arctic (e.g. related to sea-ice formation and melting) in weather and climate models is required to better constrain the role of the Arctic in the global climate system. In connection with improved observations in the Arctic (Topic 1) this is necessary to improve weather and climate prediction in the Northern hemisphere. These services are essential for managing the risks to infrastructure, agriculture, and other aspects of society across Europe.

Scope: Proposals should develop innovative approaches to improved descriptions and modelling of the mechanisms, processes and feedbacks affecting Arctic climate change and its impacts on the weather and climate of the Northern hemisphere. The assessment of the performance of state-of-the-art models in simulating key processes, and the linkages between polar and lower latitudes through well-evaluated coordinated model experiments, are critical to ensure that improved knowledge leads to advanced climate models and predictions.

Actions should also explore the potential that an improved Arctic observing system – subject of another topic in this Call – would have on the accuracy of weather and climate forecasts in the Northern Hemisphere including Europe and North America. The activities should contribute to the programme of the Year of Polar Prediction (YOPP) and provide input to the improvement of short- to medium-term predictions of the Copernicus Climate Change services (C3S).



Top3 Opt1: Climate impacts on Arctic ecosystems, resources, new economic activities (2017)

Top3 Opt2: Climate impacts on Arctic permafrost, with a focus on coastal areas, and its socio-economic impact (2017)

- EC wants MSs to decide if a more broad challenge is wanted or a targeted one to permafrost
- What do you think?



ERA-Planet - THE EUROPEAN NETWORK FOR OBSERVING OUR CHANGING PLANET

H2020 2015 activity: Earth Observation ERAnet for **15 m€ EU** top-up, total effort **45m€**. Generally to connect more activities to the **GEOSS** (Global Earth Observation System of Systems)

Four projects foreseen to be funded:

- STRAND 1 Smart cities and resilient societies
- STRAND 2 Resource efficiency & environmental management
- STRAND 3 Global change and Environmental treaties
 - Potential work: ICOS becoming GEO flagship
- STRAND 4 Polar areas and natural resources
 - EO extended pollutant monitoring as main theme, but flexible to extend still



SIOS interim phase running by UNIS and NPI

- Knowledge Center is set-up with a small team
- A coordinated data management system in a distributed, but open and free access fashion is the key target for the moment
- Other services are foreseen, but not yet fully clear on extent and time-line
- Clarity foreseen in a special session of ASSW in Japan in 2 weeks
- It seems SIOS will not become a strong RI funding mechanism, but mainly a data and knowledge sharing platform
- **How are nordic countries participating? SIOS and ASSW 😊**



Way forward for Arctic research/infrastructure collaboration

- **YOPP participation for ENVRI RIs?**
 - Ecosystem change questions to drive requirements
- **Circumpolar RI network needs?**
 - Research questions needing a network:
- **Horizon 2020 collaboration?**
 - Where