

## Arctic PASSION

### Pan-Arctic Observing System of Systems: Implementing Observations for Societal Needs

<https://arcticpassion.eu/>



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### Areas of contribution

User-aspects and verification

Polar atmospheric processes

Oceanic processes

Modelling and forecasting

Polar-lower latitude linkages

Education

Observations

Sea ice processes

Land processes

Data assimilation

Data archiving

Outreach

Policy-relevant / cultural aspects

Economic aspects

Societal and/or behavioural aspects

## **Summary**

Arctic PASSION aims to implement an integrated pan-Arctic observing system of systems. This will be achieved by refining its operability, improving and extending pan-Arctic scientific and CBM systems and services, streamlining the access and interoperability of Arctic Data systems, and providing the economic viability and sustainability of the observing system. By working in partnership with key rights holders we will unify and extend the presently fragmented Arctic observing system in collaboration with Copernicus and ESA, as well as relevant international programmes. One key element of our legacy will be the fulfillment of an ArcticGEO initiative with SAON. We will

- enhance and better integrate Arctic observations of the terrestrial, atmospheric and oceanic environment, including Indigenous and Local Knowledge and CBM, to extend the present observation network into a requirement-driven, adaptive system that better serves societal needs,
- improve Arctic data management enhancing handling, archiving and interoperability of environmental data,
- optimize Arctic Observing networks through modeling techniques utilizing statistical and numerical modelling to improve the impact of specific observing system on monitoring and forecasting capabilities,
- deliver set of innovative EuroGEO services for the Arctic by co-developing crucial Pilot Services with different types of users to satisfy Arctic information needs and to improve safety and emergency preparedness.
- quantify the societal benefit of a pan-AOSS and enhance International Collaboration, strengthening European and international integration and coordination,
- provide decision making and policy support establishing meaningful dialogues with local to international policy makers for relevant policy impact.

## **Description**

In responding to the Topic LC-CLA-20-2020 Arctic PASSION will address the need for coordinated and accessible Earth observation (EO - used here in the broad definition by GEO encompassing all observations of the natural environment) and information services for the North.

It is an innovative pan-Arctic Observation and Monitoring action that rises up to the present and future challenges posed to the people living and acting in the Arctic, and to the European society at large, through a set of activities that aim to integrate existing elements with newly created observations, services and interactions. This re-invigoration of the Arctic observing will provide user-focused services and outputs that are available and accessible to any citizen, Arctic stakeholders, and organisation around the world on a free, full and open access basis. By working in partnership with key rights holders and stakeholders and building on past achievements, we will unify and extend the presently fragmented Arctic observing system and transform it into a requirement-driven pan-Arctic Observing System of Systems (pan-AOSS), in collaboration with Copernicus and ESA, as well as relevant international programmes.

Arctic PASSION will pursue an inclusive approach that advances and optimises the convergence of different observing activities, within a common framework under the Sustaining Arctic Observing Network (SAON )

umbrella and its 'Roadmap for Arctic Observing and Data Systems (ROADS)'. To provide a more robust platform for the Arctic observing system we will jointly work with SAON to implement an ArcticGEO initiative.

Through the principles of co-design, co-production, and co-management, Arctic PASSION will achieve pan-AOSS that represents the diverse range of needs of the user-groups, and ensure they have a voice in leadership and decision-making processes. The resulting system of systems will provide unrestricted access to the best-available information that will empower Arctic communities, Indigenous organizations, industries, and governments to make science- and knowledge-based decisions that benefit society.

Working with key stakeholders and building on the substantial knowledge-base we have identified top priorities for improving and enhancing the elements and mechanisms. These will enable Arctic PASSION to fulfill the requirements of the Topic and to overcome identified barriers, such as a lack of: data interoperability, a common framework for integrating observing system elements and of communication channels between stakeholders and observing system providers. Arctic PASSION will co-develop and implement a set of actions tailored to stakeholder needs. These range from a holistic approach to strengthening the observing system (from sensor to end-users), improving the data accessibility and interoperability, implementing new services, establishing more productive dialogue channels between stakeholders and key players, and to provide a deeper understanding of the societal benefits of an Arctic Observing system that encompasses European data providers such as Copernicus, ESA and EUMETSAT..

## **Timeline**

2021-07-01 - 2025-06-30

## **User relevant aspects**

Stakeholder workshops to identify needs of respective groups (science, Indigenous and local population, policy decision-makers, services), rolling review process of all service elements in the project, summer schools, outreach and training activities, co-development of services with end-users

## **Provider relevant aspects**

same as above as all communication is intended to be bi-directional

## **Regional emphasis**

Northern hemisphere: Yes

Southern hemisphere: No

### **Further specification**

Pan-Arctic, with Indigenous and local communities focusing areas in Fennoscandia, Russia, Greenland and North America.

### **Key project deliverables**

Enhanced oceanic, terrestrial and atmospheric observations

Optimization of observations based on on numerical modelling support

Better integration and planning of monitoring

Better handling, archiving and interoperability of environmental data in the Arctic

Development and implementation of services for long-term changes and for improved emergency preparedness and food security

Societal Benefit Analysis of Observing system elements

Window to the Arctic of Copernicus

New communication channels for stakeholders and Arctic inhabitants to impact the Arctic observing system

An Arctic GEO initiate with SAON

Improved collaboration and planning for an integrated Arctic Observing System of Systems

### **Data management**

Met Norway and PANGAEA

### **Is data provided to WMO Global Telecommunication System**

Yes

### **Real-time provision**

NRT