



# **The 27th International Symposium on Polar Sciences**

## **Two decades of Korean Arctic research: Looking back to look forward**

September 20-21, 2022

Online

### **SECOND CIRCULAR**

The 27th International Symposium on Polar Sciences organized by Korea Polar Research Institute (KOPRI) will be held online on September 20-21, 2022. This symposium aims to bring polar scientists together to discuss their research findings and promote international collaborative research. We cordially invite you to share your knowledge and perspectives on the outlook in polar research.

#### **Background**

Korea accelerated its Arctic research by inaugurating the Arctic Dasan station in 2002 at the Ny-Ålesund International Science Village in the Norwegian archipelago of Svalbard. Since then, the Dasan station has served as a base for not only Korean scientists but also researchers from all over the world who need access to the Arctic to conduct their research. Korean Arctic research that started in Ny-Ålesund has expanded to explorations of the pan-Arctic regions such as the Arctic Ocean and Greenland for the last two decades, leading to a wide range of studies on Life Science, Oceanography, Geology, Cryospheric Science, Paleoclimatology, Atmospheric Science and Remote Sensing.

As research in the Arctic provides strong scientific evidence on the ongoing impacts of climate change that has the greatest potential to affect global climate and thus human population and biodiversity, it is essential to understand the past and present of the region in order to better prepare for the future of humankind. During the symposium, we will look back on the findings of Korean Arctic research of the past 20 years from a global perspective and look forward to a promising future in polar research.

## **Sessions**

### **· Retrospect and prospect of atmospheric research in Ny-Ålesund**

The Arctic atmosphere which reflects global climate change from various factors is closely linked to the climate of the mid and low latitudes. As changes in the lower atmosphere affect the upper atmospheric conditions through physical and chemical mechanisms, it is crucial to understand how permafrost thawing and reductions in sea ice in the Arctic caused by global warming have an impact on the interaction between the lower and upper atmosphere. In this session, we look back on the atmospheric research activities based on the Arctic Dasan station in Ny-Ålesund and discuss future perspectives in the research.

### **· Svalbard as a barometer of climate change**

The Svalbard archipelago is extremely sensitive to climate change because of its geographical position located to the east of the Fram Strait where warm Atlantic water flows into the Arctic Ocean. In this session, all contributions on the paleoproxy development and validation, the reconstruction of environmental changes in the past, and modern environmental processes are welcome. We aim to advance our understanding of the past and present environmental changes in the Svalbard archipelago.

### **· Climate change impacts on Arctic terrestrial ecosystems**

Climate change is dramatically altering the terrestrial ecosystem in the Arctic. In this session, we will deal with impacts of climate change on vegetation, biogeochemical cycling, and functioning of Arctic terrestrial ecosystems. Studies on terrestrial ecosystem feedbacks to global climate change will also be discussed.

### **· Response of the Arctic marine system to ongoing environmental changes**

In recent decades, global warming has been amplifying in the Arctic region and sea ice is disappearing at unprecedented rates. These changes have cascading effects on ocean circulation, freshwater budget, ecosystems, and biogeochemical cycles in the Arctic marine system. This session aims to enhance scientific understanding of influences of environmental changes on the Arctic marine system. We invite contributions from a variety of studies using observations and models to address the past, present, and future response of the Arctic Ocean.

### · **Remote Sensing in the Arctic**

Since remote sensing provides valuable information on vast and inaccessible areas, it is an efficient way to understand climate change and quantify environmental factors in the Arctic. This session invites researchers investigating interdisciplinary topics based on remote sensing including sea ice, glacier, ocean, and tundra vegetation to share the latest research findings and identify where we stand in order to go forward in facing the climate crisis.

### · **Past and future of Greenland: a perspective on geology and environment**

Greenland is the largest island on the planet and two-thirds of its total landmass is currently located within the Arctic Circle. In the Precambrian era, however, the landmass was in the Southern hemisphere and it has gradually moved to the current position. Greenland's stratigraphic record, which has been consistently accumulating for a long time in a relatively stable tectonic environment, is regarded as an important subject of research not only in the field of geological sciences but also in resource exploration and climate change. Understanding the geological environment of Greenland would provide the basis to reveal the past, present and future of the Earth.

### **Side Meeting**

An in-person brown bag seminar for early career researchers (ECRs) will be organized on September 20 at the KOPRI campus in Incheon. This seminar, prepared as a side meeting to the 27th ISPS, will provide an invaluable opportunity for next-generation scientists to meet with established polar researchers and learn from their academic endeavors. Further information including the speaker and registration will be provided in the next circular.

### **Abstract Submission(extended)**

Please submit your abstract on the symposium website from June 7 to July 31, 2022. (<https://www.kopri.re.kr/eng/html/sym/050601.html>)

### **Registration**

Registration will be available on the symposium website from July 18, 2022.

If you have any questions, please do not hesitate to contact us at [symposium@kopri.re.kr](mailto:symposium@kopri.re.kr). We look forward to your participation.

The 27th International Symposium on Polar Sciences Secretariat