BSC researchers to study the response of European climate to Arctic sea ice depletion

Researchers from the Earth Sciences department will be involved in the recently launched project APPLICATE.

Researchers from the Earth Sciences department of the Barcelona Supercomputing Center (BSC) will be involved in the recently launched EU-funded project APPLICATE (Advanced Prediction in Polar regions and beyond: modelling, observing system design and LInkages associated with a Changing Arctic climaTE), the aim of which is to investigate ways to improve weather and climate prediction in the face of a rapidly changing Arctic.

The Arctic has changed at a dramatic pace in response to human-induced emissions of greenhouse gases, and there is evidence that what happens at very high latitudes also impacts our everyday weather. The ability to predict Arctic and mid-latitude weather at daily to seasonal time scales is currently a priority topic of research in the Earth Sciences Department of BSC with a dedicated research line called Sea Ice Variability, Prediction and Impacts. In the APPLICATE project, BSC experts will study climate linkages between the Arctic and Europe and, in particular, the response of the European climate to Arctic sea ice depletion and the development of improved forecast capabilities benefiting from the latest advances in climate modelling and remote-sensing of the polar regions. They will also dedicate resources to communicating and engaging with stakeholders to ensure knowledge sharing.

Work will be developed using computing resources such as MareNostrum, the most powerful supercomputer in Spain and which is hosted by BSC. “The use of High Performance Computing (HPC) for improving climate and weather prediction is key for a better understanding of the consequences for Europe of Artic sea ice depletion,” says

Francisco Doblas-Reyes, Earth Sciences Director at BSC. “Our participation in APPLICATE will reinforce the position of the BSC Earth Sciences department as a European leader in the growing field of sub-seasonal to seasonal prediction as well as in the provision of climate services.”

About APPLICATE project

The APPLICATE project – financed by the EU HORIZON 2020 Research and Innovation programme with €8 million - involves 16 partners from nine countries (Belgium, France, Germany, Iceland, Norway, Russia, Spain, Sweden and the United Kingdom) and will be carried out over a period of four years. This multinational and multidisciplinary consortium will work to enhance weather and climate prediction capabilities not only in the Arctic, but also in Europe, Asia, and North America.

The impacts of severe weather on commerce and infrastructure can be significant, so having adequate tools to predict when and how severe weather systems will affect regions in mid-latitudes is vital to inhabitants of these regions. The APPLICATE project is bringing together an international team of experts in weather and climate prediction to improve forecasting models while expanding and improving observational capabilities in the Arctic. Additional information in the press release here: https://www.awi.de/nc/en/about-us/service/press/press-release/eu-horizon-2020-project-applicate-kicks-off.html

(Caption: Anchored instrument, called a buoy, for measuring of sea ice thickness. (Foto Stefan Hendricks) AWI)

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