

MAIRES

Monitoring Arctic Land and Sea Ice using Russian and European Satellites

SPACE FOR A MORE EFFECTIVE AND CAPABLE EUROPE AT SEA

Climate change will increase the temperature in the Arctic, but it is unknown how much this will effect the land and sea ice. The MAIRES project will use data from Russian and European satellites to disclose the changes of the ice cover.

In recent summers commercial European ships have travelled through the fabled Northeast Passage along Russia's Arctic shore. This sailing route between Europe and Asia is some 6000 km shorter than the route through the Suez channel. In the next decades it might be shortened even further if most of the Arctic Ocean becomes icefree in the summer.

However, this sailing route has significant risks of environmental and human disasters, due to collision with

large ice floes or icebergs. Moreover, whilst facilitating new trading routes, the melting Arctic icecap remains an important indicator of the seriousness of the climate change.. In order to understand the variability of the sea ice and glaciers in the Arctic, it is necessary to monitor sea ice, icebergs and glaciers in the Arctic by use of satellites.

The MAIRES project will seek new ways to enhance the quality of such monitoring by combined use of satellites from the European and Russian space agencies, ESA and RKA. – The project will demonstrate the benefits of combining high-resolution radar and optical satellite images for operational mapping and development of better forecasts of land and sea ice in the Eurasian Arctic.



STEIN SANDVEN
IS PROJECT COORDINATOR



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MAIRES is set to develop new methodologies for satellite monitoring of Arctic glaciers, sea ice and icebergs, using Russian and European satellites.

QUESTIONS & ANSWERS

What do you want to achieve with this project?

The project will develop new methods for mapping of sea ice, icebergs and glaciers in the Arctic. By joint analysis of high-resolution images from European and Russian satellites obtained in the last decades, we expect to obtain significant new knowledge about ice in the Arctic.

Why is this project important for Europe?

The European Space Agency has developed leading capability in Earth Observation through the ERS and ENVISAT programmes. It is important to demonstrate that data from these programmes, combined with Russian satellite data, can be useful for research in the Arctic.

How does your work benefit European citizens?

Arctic sea ice and land ice are sensitive indicators of global climate change which has impact on climate in Europe. Reduction of the Arctic sea ice has also economic impact on Europe through future oil and gas exploration and ship traffic in the Arctic.

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LIST OF PARTNERS

- Nansen Environmental and Remote Sensing Center (NERSC), Norway
- Joanneum Research Forschungsgesellschaft mbH (JR), Austria
- Scientific foundation Nansen International Environmental and Remote Sensing Centre (NIERSC), Russia
- Moscow State University of Geodesy and Cartography (MIIGAiK), Russia

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PROJECT INFORMATION

Monitoring Arctic Land and Sea Ice using Russian and
European Satellites (MAIRES)
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