



European  
Commission

# Funding Opportunities for Polar Research

European Research  
Framework Programmes

Presented at the International  
Polar Year Conference  
“From Knowledge to Action”

Montréal, Canada  
22 – 27 April 2012

*Research and  
Innovation*

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## Europe's Framework Programmes for Research

The Framework Programmes for Research (FP) are the European Union's (EU) main instrument for funding research in Europe. With a budget allocation of over €50 billion for the period 2007-2013, the **Seventh Framework Programme** (FP7) is one of the largest research programmes in the world. Funded through the contributions from 27 EU Member States and 14 associated countries<sup>1</sup>, its scope extends well beyond these countries, both in terms of subject matter and participation.

The EU's FPs allocate grants and fellowships for specific research activities. Activities receiving FP7 funding must demonstrate a European added value. This may take different forms: the European added value of an initiative may rest in that it tackles research challenges too complex or costly to be led by a single (European) country. Or it may be that it raises competition between scientists in fundamental research across Europe. For many actions, the key added value is transnationality. For instance, collaborative research projects must include participants from different European countries, and certain fellowships require recipients to move across national borders.

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<sup>1</sup>Switzerland, Israel, Norway, Iceland, Liechtenstein, Turkey, Croatia, the Former Yugoslav Republic of Macedonia, Serbia, Albania, Montenegro, Bosnia&Herzegovina, Faroe Islands, Republic of Moldova.

The EU is a major funder of polar research. Over the last decade EU grants in this field have amounted to over €200 million. Funding to polar research has been allocated across four FP7 *Specific Programmes: Cooperation* (collaborative research projects), *Capacities* (infrastructures for research), *People* (career development and mobility for researchers) and *Ideas* (frontier research).

Most polar research supported by the EU through its FPs is on sustainable development and global environmental change, with climate change attracting a large proportion of the available funding. Nevertheless, opportunities for funding are not confined to these fields: the EU's FPs also support actions investigating issues such as governance and socio-economic aspects of life in the Arctic region.

In 2011, the European Commission tabled a proposal for a new framework programme for research and innovation to succeed FP7 from 2014. This is the **Horizon 2020 Framework Programme for Research and Innovation**. It will cover the period 2014 to 2020. Further details about this proposal can be found on page 9 of this booklet.

This booklet outlines funding opportunities for polar research under four FP7 specific programmes and maps future prospects under *Horizon 2020*.

## Collaborative Research Projects: The Cooperation Specific Programme

The bulk of FP7 funding (€32.5 billion) is allocated to collaborative research through the *Cooperation* specific programme. This programme fosters collaborative research across Europe and other partner countries through projects carried out by transnational consortia of academia, industry and other organisations. It is subdivided into ten thematic areas, of which six are of direct relevance to the polar regions. These are: Environment and Climate Change; Transport; Energy; Health; Food, Agriculture and Fisheries; and Socio-Economics. Calls for proposals are published annually under each theme.

A lot of polar research supported through the *Cooperation* programme focuses on sustainable development and global environmental change. This research explores the mutual relationship between changes in the polar regions and global change.

In recent years, increasing emphasis has been put on understanding the socio-economic implications of global change in the polar regions, and on producing policy-relevant results. A number of projects now

underway are addressing issues such as climate change and the resulting economic impacts, e.g. on fisheries, as well as the economic opportunities that global change is bringing to the polar regions. Finally, FP7 has also supported collaborative research projects to develop technologies that improve our ability to monitor and understand the polar environment.

More information on the FP7 grants awarded to collaborative projects targeting the polar regions can be found in Table 1. The financial support from FP7 obtained by these projects ranges between €2.4 and 10 million per project.

From 2014, collaborative research will be supported under *Horizon 2020's Societal Challenges* priority. Whilst the breakdown into societal challenges does not univocally map FP7 thematic areas, the societal challenges *Climate action, resource efficiency and raw materials* and *Health, demographic change and wellbeing* will provide continuity to research lines hitherto undertaken under the FP7 *Environment and Climate Change* theme.

*Overleaf: Table 1 – A selection of FP7 grants to research projects targeting the polar regions*

Grant	Description
<b>ACCESS</b> Arctic Climate Change, Economy and Society	To assess impacts of climate change on key economic sectors and the effects that the development of these sectors could have on the Arctic environment. Further details: <a href="http://www.access-eu.org">www.access-eu.org</a>
<b>ACOBAR</b> Acoustic Technology for Observing the interior of the Arctic Ocean	To develop an observation system for environmental monitoring of the Arctic Ocean using underwater acoustical methods. Further details: <a href="http://acobar.nersc.no">http://acobar.nersc.no</a>
<b>ArcRisk</b> Arctic Health Risks: Impacts on health in the Arctic and Europe owing to climate induced changes in contaminant cycling	To understand climate-induced changes in the long-range transport of contaminants and their impacts via the food web on the health of human populations in the Arctic and Europe. Further details: <a href="http://www.arcrisk.eu">www.arcrisk.eu</a>
<b>ATP</b> Arctic Tipping Points	To identify and assess potential critical thresholds at which minor perturbations can irreversibly change the Arctic marine ecosystems as a result of climate change. Further details: <a href="http://www.eu-atp.org">www.eu-atp.org</a>
<b>CLEAR</b> Climate Change, Environmental Contaminants and Reproductive Health	To investigate the links between climate change, environmental contaminants and reproductive health in the Arctic and in Europe. Further details: <a href="http://www.inuendo.dk/clear">www.inuendo.dk/clear</a>
<b>EPOCA</b> European Project on Ocean Acidification	To improve the understanding of the effects and implications of ocean acidification on marine biota, ocean chemistry and biogeochemical feedbacks. Further details: <a href="http://www.epoca-project.eu">www.epoca-project.eu</a>
<b>EUROBASIN</b> European Union Basin-scale Analysis, Synthesis and Integration	To understand the impacts and feedbacks of global change on the sea ecosystems of the North Atlantic. Further details: <a href="http://www.euro-basin.eu">www.euro-basin.eu</a>
<b>HERMIONE</b> Hotspot Ecosystem Research and Man's Impact on European Seas	To study how European deep-sea ecosystems and their contribution to the production of goods and services will be affected by global change. Further details: <a href="http://www.eu-hermione.net">www.eu-hermione.net</a>
<b>HYPOX</b> Monitoring of oxygen depletion in hypoxic ecosystems of coastal and open seas, and land-locked water bodies	To monitor climate-induced oxygen depletion and associated processes in aquatic systems. The Arctic is one of several regions targeted by this project. Further details: <a href="http://www.hypox.net">www.hypox.net</a>
<b>Ice2sea</b> Estimating the future contribution of continental ice to sea-level rise	To improve the projections of the contribution from continental ice melt to global sea level rise. Further details: <a href="http://www.ice2sea.eu">www.ice2sea.eu</a>
<b>PAGE21</b> Changing Permafrost in the Arctic and its Global Effects in the 21st Century	To understand the feedbacks between climate change and the carbon/nitrogen pools in Arctic permafrost. Further details: <a href="http://www.page21.eu">www.page21.eu</a>
<b>RECONCILE</b> Reconciliation of essential process parameters for an enhanced predictability of Arctic stratospheric ozone loss and its climate interactions	To shed light on the key processes dominating polar ozone loss and improve our predictive capability of the feedbacks between stratospheric ozone and global climate change in the polar regions. Further details: <a href="http://www.fp7-reconcile.eu">www.fp7-reconcile.eu</a>
<b>THOR</b> Thermohaline overturning – at risk?	To study the Atlantic Thermohaline Circulation (THC), assess its climate implications and the probability of extreme climate events in the European and North Atlantic region. Further details: <a href="http://www.eu-thor.eu">www.eu-thor.eu</a>

## Research Facilities and Networks: The Capacities Specific Programme

Under FP7, research infrastructures are supported by the *Capacities* specific programme. This specific programme enhances research and innovation capacity throughout Europe and ensures the optimal use of research facilities. In addition, it funds access to research environments outside Europe, promotes synergies on a global scale, and fosters strategic partnerships with non-EU countries in selected fields of science and technology.

The budget allocation for the *Capacities* specific programme in 2007-2013 is more than €4 billion and covers seven broad areas of work. Of these, the themes *Research Infrastructures* and *International Cooperation* have already allocated a budget totaling over €30 million to projects enhancing facilities and networks for polar research. The actions co-funded through these themes foster the use and development of the best research infrastructures in Europe, and create new research infrastructures of pan-European interest.

In the period between 2007 and 2012 the *Capacities* programme has provided funding to four research infrastructures projects with the polar regions as their primary geographical focus. In addition, up to ten other research infrastructures projects comprise the Arctic region as a secondary geographical area of interest. They are all successfully supporting new or existing facilities – observatories, data banks, field bases – and offering a range of opportunities for researchers to access and use these facilities.

A selection of FP7 grants to projects building capacity in polar research can be found in Table 2.

From 2014 onwards, the line of work supported by the *Capacities* specific programme under FP7 will be taken over by the *Excellent Science* priority under the *Horizon 2020 Framework Programme for Research and Innovation*.



Grant	Description
<b>EISCAT_3D_2</b> Upgrade of the EISCAT facility for ionospheric and space weather research	To build on EISCAT_3D's incoherent scatter radar system for high-latitude atmosphere and geo-space studies in order to collect data from the upper stratosphere to the magnetosphere and beyond. Further details: <a href="http://www.eiscat.se">www.eiscat.se</a>
<b>EMSO</b> European Multidisciplinary Seafloor Observatory	To establish the legal, financial and governance framework of a new European Multidisciplinary Seafloor Observatory in close connection with ESONET and with EuroSITES. Further details: <a href="http://www.emso-eu.org">www.emso-eu.org</a>
<b>ERICON-AB</b> The European polar research icebreaker consortium Aurora Borealis	To generate strategic, legal, financial and organizational frameworks to develop the European Polar Research icebreaker Aurora Borealis. Further details: <a href="http://www.eri-aurora-borealis.eu">www.eri-aurora-borealis.eu</a>
<b>EuroSITES</b> Integration and enhancement of key existing European deep-ocean observatories	To construct a coherent European network of deep ocean observatories and perform science missions to develop novel and improved future monitoring capability. Further details: <a href="http://www.eurosites.info">www.eurosites.info</a>
<b>EuRuCAS</b> European-Russian Centre for cooperation in the Arctic and Sub-Arctic environmental and climate research	To enhance cooperation on Arctic research between the EU and Russia by providing access for EU researchers to use the Nansen International Environmental and Remote Sensing Centre (NIERSC). Joint studies on climate and environmental changes in the Arctic and Sub-Arctic will also be supported. Further details: website forthcoming
<b>ICOS</b> Integrated Carbon Observing System	To provide long-term observations to understand the present and future climate, global carbon cycle and greenhouse gases emissions. Further details: <a href="http://www.icos-infrastructure.eu">www.icos-infrastructure.eu</a>
<b>INTERACT</b> International Network for Terrestrial Research and Monitoring in the Arctic	To build a circum-arctic network of terrestrial field bases for improved research and monitoring capacity in the Arctic. Access to the field stations and data is also supported. Further details: <a href="http://www.eu-interact.org">www.eu-interact.org</a>
<b>SIOS</b> Svalbard Integrated Arctic Earth Observing System	To provide a unique assembly of observational infrastructures to address the whole spectrum of the natural coupled system in the European Arctic. Further details: <a href="http://www.sios-svalbard.org">www.sios-svalbard.org</a>

Table 2 – A selection of FP7 grants to infrastructures for polar research

## Career Development for Researchers: The People Specific Programme

Researcher training, mobility and career development, both for EU and international researchers, are supported by FP7 through the *People* specific programme, which is implemented via a set of actions jointly known as *Marie Curie Actions*. They provide fellowships that target all stages of a career in research from the postgraduate level onwards, and foster international, intersectoral and interdisciplinary mobility.

*Marie Curie Actions* encourage young people to undertake a career in research. They provide them with opportunities to diversify their skills and acquire transferable competences to pursue research in

the public and private sectors. To this end, collaboration between universities and companies is strongly supported by this specific programme.

The *Marie Curie Actions* are open to all fields of research and to all researchers regardless of their age, gender or nationality. They have an allocated budget of more than €4.7 billion for the period 2007-2013. From 2007 to 2012 alone, more than 23 *Marie Curie* fellowships have gone to researchers whose work centers on the polar regions.

From 2014, *Marie Curie Actions* will fall under Horizon 2020's *Excellent Science* priority.

## Frontier Research: The Ideas Specific Programme

Under FP7, frontier research across all disciplines is funded through the specific programme *Ideas*. This programme aims to stimulate scientific excellence in Europe by encouraging competition among the very best researchers of any nationality and age. It also strives to attract top researchers from anywhere in the world to conduct research in Europe. The funding is awarded by peer review evaluation with scientific excellence as sole selection criterion.

The *Ideas* programme is implemented by the European Research Council (ERC). With a total

budget of €7.5 billion for the period 2007-2013, *Ideas* has as at 2012 supported over 2,500 outstanding researchers of 53 different nationalities working in some 480 different institutions across Europe .

Since 2007, 10 researchers have been selected for funding to the tune of €21 million to conduct cutting-edge research on polar science.

From 2014, the activities of the ERC and *Ideas* specific programme will fall under *Horizon 2020's Excellent Science* priority.

## Prospects beyond 2014: The Horizon 2020 Framework Programme

In 2011, the European Commission proposed a new financial instrument to fund research and innovation in Europe over the period 2014-2020. This is the *Horizon 2020 Framework Programme for Research and Innovation*. The Commission's proposal is under consideration by the European Parliament and Council. Adoption is expected by the end of 2013.

With a proposed budget of €80 billion over seven years, *Horizon 2020* will be the key instrument to implement the EU's *Innovation Union*, one of seven *Europe 2020 Strategy* flagship initiatives aimed at securing Europe's global competitiveness.

For the first time, a single EU instrument will integrate support to research and to innovation. It will do so by providing seamless and coherent funding throughout the innovation cycle, from fundamental research to the commercialisation of new ideas.

*Horizon 2020* is structured around three key priorities:

- **Excellent science**, which will aim at raising the level of excellence in Europe's science base;
- **Industrial leadership** to turn Europe into a more attractive place for business and investment in Research and Development; and
- **Societal challenges** of major concern to Europeans.

This new programme will operate through annual calls for proposals and emphasise funding for projects and initiatives that address specified challenges as opposed to prescribing specific research topics as has been the case hitherto. In many cases, this will mean more multidisciplinary, multi-actor actions that bring together different competences across Europe and beyond. Despite this change in approach, the societal challenges and key enabling technologies identified for *Horizon 2020* will provide a measure of continuity with FP7 thematic areas. They will closely map EU policy goals in such areas as agriculture, energy, environment, transport and security.



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