The Russian Arctic in the Belmont Forum Arctic Call

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Belmont Forum Arctic Call

- Belmont Forum Collaborative Research Action call for Proposals on "Arctic Observing and Research for Sustainability" (ARCTIC CRA).
- **As it was stressed by the organizers of this ARCTIC CRA, due to the vastness, complexity, and extreme nature of the Arctic, international collaboration has long been a keystone of research in the high north. The International Polar Year (2007-2009) have demonstrated the willingness of individual researchers to coordinate amongst themselves towards a greater goal, but coordination amongst funders has lagged. This ARCTIC CRA has provided a much-needed funding mechanism and global partnership to advance science and education in areas of shared international interest, using monies, programs, and facilities already in place or planned: a task not yet fully realized by the International Polar Years nor the existing science governing bodies in the Arctic.**
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Belmont Forum Arctic Call

- It should be mentioned here that many funding agencies have actively participated in the development of this Arctic call, among them
- the National Science Foundation, the Russian Foundation for Basic Research, Research Council of Norway, NordForsk (Nordic countries) and many others.
- It was the productive experience of the joint work of scientific experts, funding agencies, and representatives from many Arctic organizations, especially observers to the Arctic Council (such as the International Arctic Social Science Association).

HIARC: Anthropogenic Heat Islands in the Arctic: Windows to the Future of the Regional Climates, Ecosystems, and Societies

The project investigatеы an interesting, but still largely overlooked phenomenon of ecosystem and societal adaptation to warmer micro-climates, which have been created by the anthropogenic heat pollution in the arctic urbanized areas over the last 30 – 40 years. HIARC ambitions are to combine high-resolution meteorological observations, satellite, modelling data with societal data, economical output and qualitative narratives of the ongoing changes and threats coming from the cultural perspectives.

- **Lead PI:**
- Igor Esau, Nansen Environmental and Remote Sensing Center, Bergen, Norway
- **Co-Leads:**
- **Anna Kurchatova, Institute of the Earth's Cryosphere, Russian Academy of Sciences Siberian Branch, Tyumen, Russia**
  Marlene Laurelle, Institute for European, Russian and Eurasian Studies, George Washington University, Washington, DC, USA
  Martin Miles, Institute for Arctic and Alpine Research, University of Colorado, Boulder, CO, USA

COPERA: C budget of Ecosystems, Cities and Villages on Permafrost in the eastern Russian Arctic

- The research team will establish a permafrost, hydrological, and meteorological observing network in cooperation with local communities to estimate CO2 sequestration by the permafrost ecosystem (tundra and taiga) and CO2 emission form cities and villages. In this study, the carbon budget (CO2 sequestration by ecosystem and CO2 emission through human activity) is estimated as a measure of two different points of view. One is a measure of impact on climate and environment, and the other is that of living cost because more fuel combustion means higher cost for energy. Both of these measures have impacts well beyond the local effects in the Sakha region.

- **Lead PI:**
- Atsuko Sugimoto, Hokkaido University, Sapporo, Japan
- **Co-Leads:**
- Takeshi Ohta, Nagoya University, Nagoya, Japan
Mikhael Prisyazhny, North-Eastern Federal University, Yakutsk, Russia
Rikie Suzuki, Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan
Kenji Yoshikawa, University of Alaska-Fairbanks, Fairbanks, AK, USA

ARCTIC-ERA: ARCTIC climate change and its impact on Environment, infrastructures, and Resource Availability

- ARCTIC-ERA addresses critical aspects of human well-being and sustainable use of Arctic infrastructure and resources under the conditions of regionally accelerating global warming. This will make it possible to develop recommendations on adaptation of coastal settlements and ports, transportation, fishery, oil and gas exploitation to the ongoing and future changes and mitigation of their negative effects, and to identify new opportunities associated with the "Opening of the Arctic".

- **Lead PI:**
- Olga Zolina, Laboratoire de Glaciologie et Géophysique de l'Environnement, Saint-Martin d'Hères, France
- **Co-Leads:**
- Pavel Groisman, Hydrology Science and Services, Inc., Asheville, NC, USA
  Sergey Gulev, P.P. Shirshov Institute of Oceanology, Russian Academy of Sciences, Moscow, Russia
  and other

ASUS: Arctic Sustainability: A Synthesis of Knowledge

This project brings together an international team of experts from seven Arctic countries to develop an interdisciplinary synthesis and assess the state of knowledge about Arctic sustainability and sustainable development. What are the best ways of measuring and monitoring dynamics towards adaptation, thrivability, and sustainability in the Arctic?

- **Lead PI:**
- Andrey Petrov, University of Northern Iowa, Cedar Falls, IA, USA
- **Co-Leads:**
- Aileen Espiritu, The Barents Institute, University of Tromsø, Kirkenes, Norway
  Klaus Georg Hansen, Ilisimatusarfik, Nuuk, Greenland
  Joan Nymand Larsen, Stefansson Arctic Institute, University of Akureyri, Akureyri, Iceland
  Rasmus Ole Rasmussen, Nordregio, Stockholm, Sweden
  Chris Southcott, Lakehead University, Thunder Bay, ON, Canada
  Tatiana Vlasova, Institute of Geography, Russian Academy of Sciences, Moscow, Russia

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МОНИТОРИНГ УСТОЙЧИВОСТИ АРКТИКИ В РАМКАХ МЕЖДУНАРОДНОГО СОТРУДНИЧЕСТВА ПО НАБЛЮДЕНИЯМ В АРКТИКЕ И ИЗУЧЕНИЯ УСТОЙЧИВОСТИ

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ARCTIC SUSTAINABILITY MONITORING WITHIN THE INTERNATIONAL COLLABORATION ON ARCTIC OBSERVING AND RESEARCH FOR SUSTAINABILITY

BELMONT FORUM

Совершенствование системы мониторинга устойчивости Арктики является одной из основных целей международного проекта «Устойчивое развитие Арктики: синтез знаний (ASUS)».

Проект является уникальной международной инициативой Бельмонтского форума – конкурса многосторонних научных проектов по направлению «Наблюдения в Арктике» и научные устойчивости» (ARCTIC CRA). Существующие системы и сети наблюдений в Арктике стали основой для определения состояния и динамики природной окружающей среды. В то же время имеется необходимость интеграции этих наблюдений с мониторингом социальных и экономических процессов. Изменения, происходящие в окружающей природной среде и социуме, связаны между собой. Например, уменьшающаяся криосфера – сокращение площади морского льда, деградация вечной мерзлоты – вызывают у людей на Севере чувство неуверенности в отношении стабильности получения еды и питьевой воды. Эти изменения сопровождаются влиянием глобального масштаба факторов в отношении разработки природных ресурсов и доступа к ранее труднодоступным территориям. Назрел вопрос, приводят ли новые факторы и изменения, вызванные природными или техногенными причинами,

The development of the Arctic Sustainability Monitoring framework is one of the main goals of the international project "Arctic Sustainability: synthesis of knowledge (ASUS)".

This project is a unique international initiative organized within the Belmont Forum Collaborative Research Action call for Proposals on "Arctic Observing and Research for Sustainability" (ARCTIC CRA). While existing Arctic observations and observing networks have provided a basis for assessing the state and dynamics of natural environment, there is a need to integrate these observations with the monitoring of social and economic processes. Environmental and human changes are not unrelated: for example, a shrinking cryosphere, such as decline of the sea ice and permafrost degradation, has led to a diminishing sense of safe control amongst northern peoples in respect to food and water security. These changes are compounded by external, global pressures for natural resource development and territorial access. Stressors, whether natural or human-induced, can bring some benefits, but also inflict harm on Arctic ecosystems and societies. These changes contribute directly and interactively as result in cumulative effects on Arctic socio-ecological systems.

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collaboration has long been a keystone of research in the high north. The International Polar Year (2007–2009) have demonstrated the willingness of individual researchers to coordinate amongst themselves towards a greater goal, but coordination amongst funders has lagged. This ARCTIC CRA has provided a much-needed funding mechanism and global partnership to advance science and education in areas of shared international interest, using monies, programs, and facilities already in place or planned: a task not yet fully realized by the International Polar Years nor the existing science governing bodies in the Arctic.

It should be mentioned here that many funding agencies have actively participated in the development of this Arctic call, among them the National Science Foundation, the Russian Foundation for Basic Research, Research Council of Norway NordForsk (Nordic countries) and many others. It was the productive experience of the joint work of scientific experts, funding agencies, and representatives from many Arctic organizations, especially observers to the Arctic Council (such as the International Arctic Social Science Association). This process was one of the few examples of a truly international, collaborative, multilateral approach to funding research when various participating countries pulled the funds together to support jointly selected transformative projects. In 2014 – Belmont Forum ARCTIC

к новым благоприятным возможностям для устойчивого развития или же они окажут негативное воздействие на арктические экосистемы или человеческие сообщества. Кумулятивный эффект этих изменений прямо или опосредованно сказывается на состоянии социально-экологических систем.

Как подчеркивали разработчики конкурса ARCTIC CRA, в силу территориальной протяженности, сложности и экстремального характера природы в Арктике международное сотрудничество является краеугольным камнем научных исследований на Крайнем Севере. Международный полярный год-МПГ (2007–2009) продемонстрировал стремление ученых координировать свою деятельность с целью достижения более высоких целей, однако координация на уровне финансирующих органов отстает от этого стремления. ARCTIC CRA представляет собой новаторский механизм финансирования, а также возможность глобального партнерства в интересах развития науки и образования в областях, представляющих интерес в международном масштабе с использованием финансов, разработкой программ, имеющихся или планируемых средств. Эта задача, которая не была полностью решена ни в рамках Международного полярного года, ни в результате деятельности имеющихся научных управляющих структур в Арктике.

Следует отметить, что многие финансовые институты активно участвовали в развитии этого Арктического конкурса, в том числе Национальный научный фонд, Российский фонд фундаментальных исследований, Исследовательский совет Норвегии, NordForsk (североевропейские государства) и многие другие. Это был полезный опыт со-

Процесс ноосферизации Арктики

ЗАДАЧА –
На основе трансдисциплинарной деятельности по мониторингу устойчивости Арктики – создание пространств и сетей устойчивых социально-экологических систем