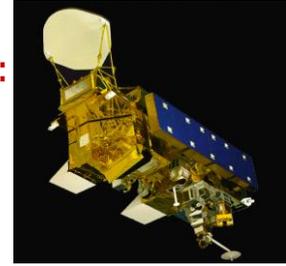




“Ten years of Northern Eurasia Earth Science Partnership Initiative (NEESPI): Synthesis and Future Plans”

Charles University in Prague,
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First Announcement

Background. During recent decades, Northern Eurasia (north of 40°N and east of 15°E) was affected by unprecedented climate and environmental changes. Several droughts alternated with hazardous extreme precipitation and flood events, permafrost thaw, retreating Arctic sea ice, increasing areas of forest fire, and dramatic regional warming trends buffeted this region, tossing northern Eurasia from one extreme condition to another. Northern Eurasia stores nearly half of the Earth’s terrestrial carbon in permafrost, wetlands, and forested land, so ecosystem changes that the release of the stored carbon could profoundly affect the world’s climate. Abrupt institutional and economic changes have detrimentally affected Earth system research in the region, keeping societies unprepared to effectively react to environmental changes. To pool resources and facilitate research, the Northern Eurasia Earth Science Partnership Initiative (NEESPI, <http://neespi.org>) was launched in 2004. With its multidisciplinary focus, the internationally funded the NEESPI program have challenged participants to research climate-ecosystem interactions, societal impacts of extreme events in Northern Eurasia, and the feedbacks of these interactions within the global Earth system as well as build up the regional Earth science community through engagement in internationally coordinated research projects.



NEESPI Participation by the Numbers. Over the years, NEESPI has grown steadily, starting with 26 research projects in 2005 and growing to 87 within two years. In its first decade, over 165 research projects has been involved in the NEESPI program, which continuously have fostered data sharing and international participation. A partial list of publications generated by NEESPI projects, which includes 36 books and more than 1400 papers, can be found at http://neespi.org/science/NEESPI_publications.pdf. Over 750 scientists from more than 200 institutions in 30 countries have worked under the NEESPI umbrella. NEESPI has also helped organize numerous training workshops for early career scientists—10 over the past 5 years. Over 80 Ph.D. theses, covering a wide range of topics in regional Earth science, have been defended under the auspices of the NEESPI program.

NEESPI Phases and Key Findings. NEESPI has been split into three phases. Each phase has had loose time limits as approaches to data collection and modeling have evolved—for example, some NEESPI projects continue to serve the objectives of the first phase, whereas some others are working through the second phase. The first phase of NEESPI projects focused on preparation of the baseline data sets, which involved documenting, monitoring, and analyzing climatic changes, biogeochemical cycles, land use, and land cover changes over northern Eurasia. The second phase (launched around 2007) involved environmental modeling that aimed to blend regional climate, vegetation, carbon flux, permafrost, hydrological, and dust production models within a suite of models for Northern Eurasia to be embedded into the latest versions of global Earth system models. The current phase of NEESPI involves synthesizing and integrating assessments and projections for northern Eurasia into products that characterize the major sub-regions of the NEESPI domain (Siberia, the Arctic, Eastern Europe, East Asia, and central Asia) as a whole and their respective influence on the global Earth system. In particular, in the past 3 years, NEESPI teams have published four books that reviewed and summarized knowledge on regional environmental dynamics and their effects on the Earth system.

The Path Forward. Since mid-2013, NEESPI scientists have been developing new plans for the next decade of research in northern Eurasia, focusing on sustainable societal development in the region. This planning involves reassessing the science questions set more than a decade ago, and after summarizing past achievements, scientists have been working to formulate new challenges and objectives. The International Council for Science recently launched a new initiative called “Future Earth” that will target regional sustainable development. In this respect, implementation of acquired knowledge about climatic and environmental changes accumulated during NEESPI’s past and ongoing activities gives a unique opportunity to launch a “Northern Eurasia’s Future” Initiative that will work with the Future Earth program to characterize environmental changes in Northern Eurasia. We anticipate that this NEESPI Event in Prague and the following Open NEESPI Science Session at the European Geosciences Assembly in Vienna (both being organized back to back in April 2015) will provide an important contribution to this undertaking.

GOALS OF THE EVENT:

- Overview the environmental studies conducted by the NEESPI community
- Discuss the main NEESPI achievements during the past decade
- Lay down the plans for the future research with seamless transition from NEESPI into the “Northern Eurasia’s Future” Initiative (NEFI) within the framework of the FUTURE EARTH and GEO/GEOSS Programs
- Secure the NEESPI-to-NEFI continuity by involving early career scientists (primarily those who have matured within the past and ongoing NEESPI projects) in the first NEFI planning steps
- Initiate preparation of the NEESPI Synthesis book on major NEESPI achievements.

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The Event is organized by NEESPI, WMO, NASA, Charles University, P.P. Shirshov RAS Institute of Oceanology, and other international and local organizations

