MEETINGS

Current Status and Future Earth System Studies in Northern Eurasia

Northern Eurasia Earth Science Partnership Initiative (NEESPI) Conference and Workshop;
Petrozavodsk, Russia, 1–5 September 2013

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Northern Eurasia is a sensitive and rapidly changing area with the signal of climate change effects already observed in many components of the Earth's system. The ongoing warming in the Northern Eurasia Earth Science Partnership Initiative (NEESPI) domain was substantially larger than for the globe and during the past 50 years, with a rate of the annual temperature increase of 0.33°C per decade. In addition, this region experienced impacts of abrupt institutional and economic changes in the former Soviet Union countries, east Europe, Mongolia, and China.

The goal of NEESPI, launched 9 years ago, is to study climate-ecosystem interactions, societal impacts in northern Eurasia, and their feedbacks to the global Earth system. The latest NEESPI research foci are integrated assessments and projections and include summation of all knowledge in books and overview papers, expanding and maintaining of the regional observational database, and developing regional Earth system modeling capabilities. This provides the knowledge required for societies in the region and beyond to face risks posed by environmental changes and to seize opportunities in a transition to global sustainability. Within this framework, a multidisciplinary workshop was held that included an International Conference and Young Scientists School on Computational Information Technologies for Environmental Sciences (CITES; http://www.scert.ru/en/conferences/Cites2013/) and the NEESPI workshop itself (http://neespi.org/meetings/CITES_2013.html).

The workshop was organized as a combination of NEESPI scientists' reports and discussions about future research in northern Eurasia. Reports had the additional objective of guiding early career scientists who attended the workshop. Discussions focused on a new generation of science questions prompted by the latest environmental changes and advances in Earth system studies. Workshop attendees from Russia, China, Japan, and the United States capitalized on participation of a representative group from the modeling community involved in climate, weather, hydrology, biosphere, and land-use modeling, as well as in expanding and maintaining the northern Eurasia observational database, to discuss the present status of NEESPI, its perspectives, and future development. A special statement was made regarding the role of modeling in the comprehensive assessment of contemporary and its future changes in northern Eurasia.

The workshop concluded that new challenges and science foci have emerged. Among them are urgent needs to understand and project dynamics of extreme events in northern Eurasia, near-future and long-term impact of the rapid Arctic warming, and regional carbon cycle and land cover changes and their feedbacks to the global Earth system. Furthermore, attendees concluded that regional food and water security can be at risk with observed and projected changes because most fertile lands of the densely populated southern half of northern Eurasia are in the areas of risky agriculture. A workshop summary is available at http://neespi.org/meetings/Petrozavodsk_2013.pdf.

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