[EE] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-ZZ Others

[M-ZZ39]Environmental, socio-economic and climatic changes in Northern Eurasia

convener:Pavel Groisman(NC State University Research Scholar at NOAA National Centers for Environmental Information, Asheville, North Carolina, USA), Erwan Monier(Massachusetts Institute of Technology), Shamil Maksyutov
Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)
We invite presentations on the biogeochemical and hydrological cycles, climate and ecosystem interactions in Northern Eurasia (land-cover and land-use change, atmospheric aerosols, soil, and permafrost changes that affect and are being affected by human activity, climate and ecosystem change), human dimension, and tools to address the Northern Eurasia studies.

In environmental studies, our Session foci are on the carbon cycle of Northern Eurasia and on the permafrost changes in Siberia, Asian Mountains, and the Arctic coastal regions.

In the regional water cycle studies, our Session foci are on the changing distribution of precipitation intensity, frequency, especially, in the cold/shoulder season transition periods when surface air temperature is close to 0 deg. C, and on the pattern and seasonal cycle changes of runoff.

In the human dimension studies, our Session foci are on assessments of impact of the ongoing environmental changes in Northern Eurasia on the human well-being and on mitigation strategies development in response to harmful consequences of these changes.

Among the tools, a special attention at the Session will be paid to the perspectives of improving the coupling between the human and natural systems, through the use of Earth system models and integrated assessment models, to explore interactions and feedbacks between the various components of the coupled human-Earth system and to understand the role of Northern Eurasia in the global Earth system.

Three particular regional foci of this Session will be the studies of changes that impacts regional sustainable development in the Dry Latitudinal Belt of Northern Eurasia, the Eurasian Arctic, and the boreal forest zone of Northern Eurasia.

We invite also early career scientists associated with (or interested in) the Northern Eurasia Future Initiative (http://nefi-neespi.org/NEFI-WhitePaper.pdf).

[MZZ39-P06]Achievements and New Directions of Environmental Change Studies in Northern Eurasia

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Keywords:Northern Eurasia, global change studies, sustainable development, Earth system modeling

The scientific significance of northern Eurasia and the continuing rate of change across the region propelled the Northern Eurasian Earth Science Partnership Initiative (NEESPI), which was launched in 2004 with its scientific horizon of 10-12 years. The NEESPI Science Plan was prepared by an International Team of more than 100 geoscientists from 11 countries, peer reviewed and released at http://neespi.org/science/science.html.

During the past fourteen years, NEESPI has been quite successful at conducting, highlighting and advancing research in Northern Eurasia. Over the years, NEESPI progress was reported in several programmatic papers, overview books, and five special journal Issues (one issue of *Glob. Planet. Change* and 4 issues of *Environ. Res. Lett*). The NEESPI implementation program has accommodated 172 projects focused on different environmental issues in Northern Eurasia and have involved in different years a total of more than 750 scientists. More than 80 PhD students defended their theses while working within the NEESPI framework. Since 2006, 32 dedicated NEESPI Workshops and 23 NEESPI Open Science Sessions were convened at International Meetings. Since 2006, 32 dedicated NEESPI Workshops and 23 NEESPI Open Science Sessions were convened at International Meetings.

Many science questions and goals of NEESPI outlined in its Science Plan in 2004 have been achieved or require rethinking. In particular, NEESPI had an insufficient number of socioeconomic foci studies and the socio-economic impacts of variability and/or systematic changes in climate and environment remained poorly covered making it difficult to effectively plan future (and to accurately interpret already performed) model experiments. Therefore in 2015, new directions of the NEESPI development were proposed with its transition to the "Northern Eurasia Future Initiative, NEFI" with a new major science question “How to provide in Northern Eurasia a sustainable societal development (economy well-being, activities, health, and strategic planning) in changing climate, ecosystems, and… societies?”. The NEFI objective is to bridge climate and environmental studies with the economic consequences of the observed changes and societal development. Earth system modeling will be a major research tools for achievement the Initiative objectives.

Now NEESPI is gradually discontinuing by attrition (since April 2015, no new projects have been accepted to join the Initiative). Ongoing NEESPI projects have been transitioned to NEFI (18 remaining in 2017). The NEFI and NEESPI Study Areas are the same and NEFI has been designed as an essential continuation of NEESPI (Monier et al. 2017; Groisman et al. 2017).

In this presentation, we briefly describe, how the NEESPI and NEFI Science Plans are organized, were used (for NEESPI), and can be used in the future for NEFI. It is illustrated by attached figure. When the would-be NEFI researcher plans his/her study, they will have already some advantage against their competitors (e.g., when responding to Agency Research Calls) having a set of predesigned science questions, the justification of their importance, and up to date bibliography that has about 500 reference entries. Of course, the competitors will also have access to the same texts and references and this is very good making the level of the Initiative studies higher than it would be otherwise.

References:

Groisman P et al. 2017 Northern Eurasia Future Initiative (NEFI): facing the challenges and pathways of global change in the twenty-first century. *Progress in Earth and Planetary Science* 4:41. doi:10.1186/s40645-017-0154-5

Monier E et al. 2017 A review of and perspectives on global change modeling for Northern Eurasia. *Environ. Res. Lett* 12 083001