

Achievements and New Directions of Environmental Change Studies in Northern Eurasia

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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.

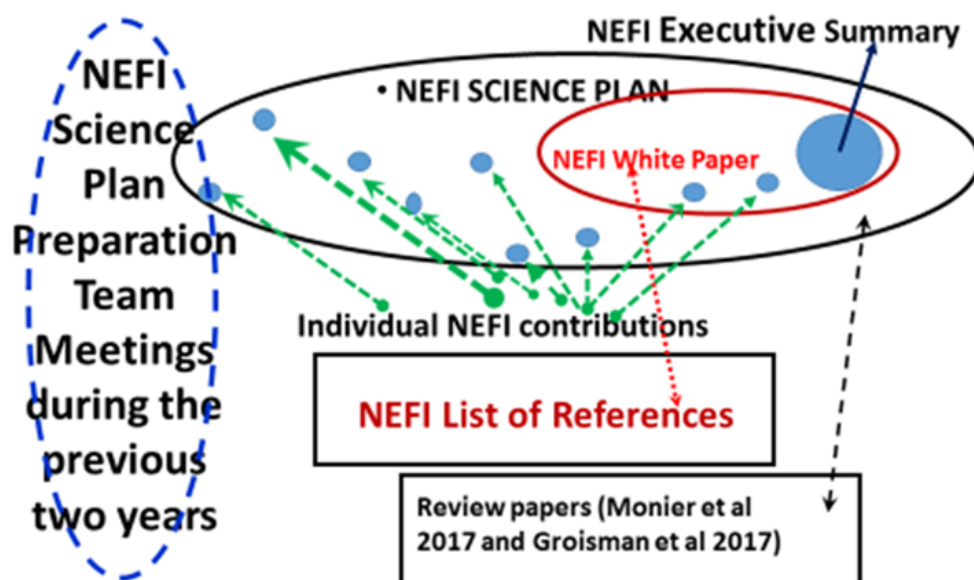
References:

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.
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Development of the NEESPI and NEFI Science Plans (example for NEFI)



- The Science Plan Preparation Team contributes to the Plan gradually casting its White Paper and Executive Summary **with extensive list of background references.**
- Thereafter, the Plan can be non-restrictively used for proposals to funding Agencies by their authors as well as by everyone who shares the research ideas outlined in the Plan.