

**GWSP Collaboration with the Northern Eurasian Earth Science  
Partnership Initiative (NEESPI)**  
A GWSP Fast-Track Activity

**Background**

The **Northern Eurasian Earth Science Partnership Initiative (NEESPI)** is a broad-scale research initiative, encompassing a diversity of Earth systems science research. The dynamics of the carbon, energy and water cycles are among its specific scientific themes, but it also maintains strong social dimension and biological perspectives. The domain is broad and diverse, from wet boreal forest to tundra, forest/steppe, arid ecosystems, glaciers, and aquatic ecosystems. The region maintains vast areas of perennially frozen ground as continuous and discontinuous permafrost as well as ice. Rapid phase change and storage of seasonal snow and changes in permafrost have important implications on planetary albedo and heat transfers. The region constitutes one-fifth of the continental land mass and embodies numerous aspects of global environmental change -- land cover change and degradation, oversubscription of water supplies, and major water engineering works. The high latitude domain is known for its sensitivity to climate change, with a well-documented polar amplification associated with greenhouse warming. Additional information on the initiative can be found at: <http://neespi.gsfc.nasa.gov>.

**Thematic Linkage of NEESPI and GWSP**

The approaches and objectives of both GWSP and NEESPI are highly congruent, including regional-to-continental scale perspectives and a strong water cycle theme. The conjunctive use of broad-scale hydrographic monitoring, satellite remote sensing, integrative modeling, and process-based studies will be pursued during the execution phase of the NEESPI effort. NEESPI and GWSP thus have much in common, from the standpoint of:

- their broad global change themes
- similarity in research approaches
- the integrative philosophy of their science plans, and
- recognition and treatment of human elements in the water system of the region.

**Ultimate Goal**

Through recent negotiations with the Initiative's leadership, GWSP has been invited to join the NEESPI science community and to adopt NEESPI as one of its regional focal projects. NEESPI will support the GWSP science agenda by comprising its only high latitude study, and will in particular assist the GWSP in focusing on a region where there is increasing evidence for an acceleration of the terrestrial hydrologic cycle.

It is envisioned that the exchange of “tools” (data sharing, use and development of corroborated models, joint educational programs and conferences) and facilitation of

scientists' collaboration will greatly benefit both Projects. Furthermore, it is anticipated that some of the individual NEESPI projects could be endorsed and/or launched within each of three major GWSP research themes.

### **Implementation**

To execute this collaboration it will be necessary maintain the already-established dialogue with NEESPI partners. Work should be initiated to incorporate the GSWP objectives related to Northern Eurasia (and high latitudes more generally) into the future NEESPI implementation plan. At the same time, GWSP should formally adopt NEESPI as one of its GWSP regional case studies and coordinate with other such regional case efforts. Briefings by NEESPI leadership to the GWSP SSC, joint planning meetings, development of joint data sets and models, and the co-hosting of workshops and science symposia will help solidify these interactions.

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