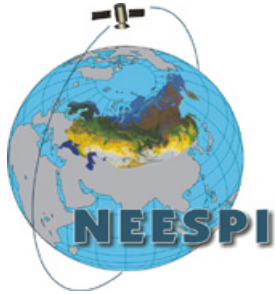


Northern Eurasia Earth Science Partnership



Pavel Groisman

Overview of the NEESPI Research Structure

NEESPI Summit, May 3-4, 2007,
Helsinki, Finland



NEESPI Science Plan Structure

1. INTRODUCTION

2. SCIENTIFIC QUESTIONS AND MOTIVATION

3. MAJOR SCIENTIFIC TOPICS

3.1. Terrestrial ecosystem dynamics

3.2. Biogeochemical cycles

3.3. Surface energy and water cycles

3.4. Land use interactions: societal-ecosystem linkages

3.5. Ecosystems and climate interactions

3.6. Topics of special interest

3.6.1. Cold land region processes

3.6.2. Coastal zone processes

3.6.3. Atmospheric aerosols and pollution

<http://neespi.org>

4. REMOTE SENSING

5. MODELING

6. DATA AND INFORMATION TECHNOLOGY

7. EDUCATION

8. RESEARCH STRATEGY

Scientific Background Appendix

TOOLS

NEESPI Science plan major focuses

- **Focus on transient zones that are most vulnerable in the future changes**

| | |
|--|-------------------|
| <ul style="list-style-type: none">– Coastal zone– Tundra-forest | Cold Lands |
| <ul style="list-style-type: none">– Forest-steppe | |
| <ul style="list-style-type: none">– Steppe-desert– Mountains | Dry lands |

- **Focus on feedbacks that make the projection of the future changes uncertain**
 - Biogeochemical feedbacks
 - Biogeophysical feedbacks
 - Human activity
- *NEESPI Research Priorities:*
 - (a) the processes that directly feed back to the global Earth system and*
 - (b) the processes of major societal importance*

Coping with Growing Pains

While the NEESPI Science Plan is balanced, a quick growth and non-proportionate funding caused different paces of development of different NEESPI components. To mitigate this disproportionality in implementation, we:

- **structure the Initiative by Topical and Regional Focus Research Centers**
- **move the NEESPI data support to Permanent Science Data and Services Centers, and**
- **promote clustering (integration) among the NEESPI Projects into virtual Mega-Projects and/or inception of interdisciplinary internally-integrated projects**

These steps will: (a) secure the continuity of the research within the cluster (or FRC) when individual projects (usually 3 year-long) expire; (b) allow the data preservation; and (c) will gradually balance advances in different research directions

Example of the NASA-NSF funded cluster of 10 NEESPI projects

- **PI:** Dennis Lettenmaier. *Diagnosis and Prognosis of Changes in Lake and Wetland Extent on the Regional Carbon Balance of Northern Eurasia*
- **PI:** Eric Wood. *An integrated understanding of the terrestrial water and energy cycles across the NEESPI domain through observations and modeling*
- **PI:** Charles Vörösmarty. *Role of land cover and land use change in hydrology of Eurasian Pan-Arctic*
- **PI:** Vladimir Romanovsky. *Permafrost dynamics within the Northern Eurasia region and related impacts on surface and sub-surface hydrology*
- **PI:** Eric Wood. *Collaborative Research: Understanding Change in the Climate and Hydrology of the Arctic Land Region: Synthesizing the Results of the ARCSS Fresh Water Initiative Projects*
- **PI:** Larry Hinzman. *Current climate changes over Eastern Siberia and their impact on permafrost landscapes, ecosystem dynamics, and hydrological regime*
- **PI:** Vladimir Romanovsky. *Thermal State of Permafrost (TSP): The U.S. contribution to the International Permafrost Observatory Network*
- **PI:** Dennis Lettenmaier. *Use of International Polar Year data to improve attribution of long-term hydrologic changes in Arctic Eurasian land areas*
- **PI:** Alexander Shiklomanov. *Study of Dam/Reservoir-Induced Hydrologic Changes in Large Siberian Watersheds: Regional Analysis to Pan-Arctic Synthesis*
- **PI:** Vladimir Romanovsky. *Development of a Network of Permafrost Observatories in North America and Russia: The US Contribution to the IPY*

Currently, there are the following NEESPI Focus Research Centers

- *Center for Cold Land Processes and Arctic Coastal Studies*
- *Center for Water System Studies*
- *Center on Aerosol Studies*
- *Center for Land Use Studies*
- *Center for Biogeochemical Cycle Studies*
- *Center for Land Cover Studies*
- *Regional Center for Dry Land Processes Studies*
- *Regional Center for NEESPI Studies in Eastern Europe*
- *Regional Center for NEESPI Studies in Siberia*

Additionally, we project *a Center for Integration of the NEESPI Results and Modeling Studies, and two more Regional FRCs (in Moscow and Vladivostok)*

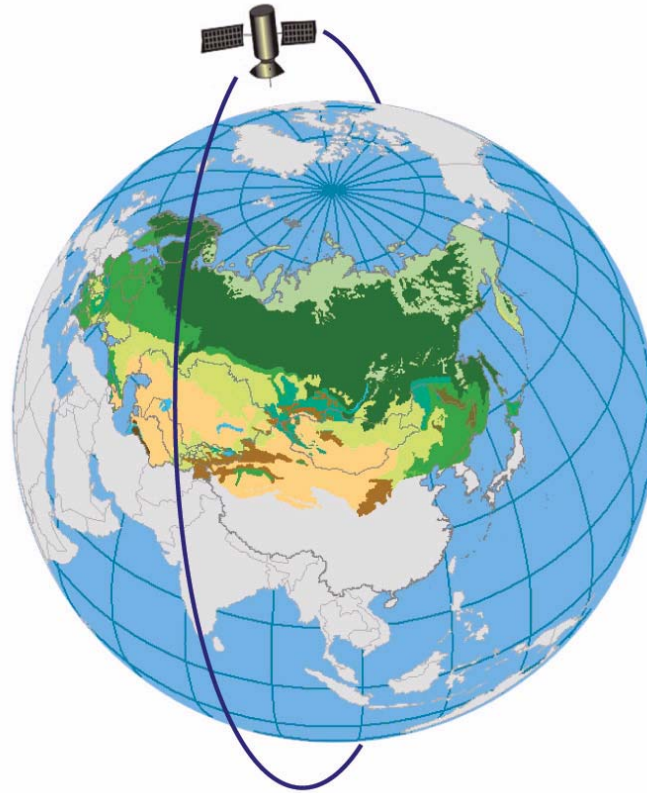
Talks of the Representatives from all (except 1) FRCs will be presented to your attention

FOR MORE INFORMATION SEE THE NEESPI WEB SITE:

<http://neespi.org>



(COURTESY PH)



Side Note:
*“NEESPI” is pronounced
approximately like the
Russian phrase for
“Don’t sleep”*

Northern Eurasia Earth Science Partnership Initiative