

Earth Sciences Branch of National Academy of Sciences of Ukraine



Centre for Aerospace Research of the Earth

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Global Changes vs. Adaptability

Earth Sciences for the Sustainability & Security

NEESPI Science Team Meeting

IIASA, Laxenburg, Austria, Feb 22 - 24, 2005

Key Questions

Structure of the Presentation

1. What is the NEESPI for Ukrainian scientific community?
2. What is applicable for NEESPI realization?
3. What is our expectation from NEESPI?
4. How do we relate our programs to NEESPI?
5. How we may support NEESPI?

NEESPI Vision

What is NEESPI for Ukrainian Scientific Community

1. Way to define the points of sensibility in the future Earth sciences programs
2. Strategy of development and coordination of the inter-disciplinary research in field of ecosystems dynamics
3. Development of the coordinated expert opinion in the policy support area
4. Capacity building on national level and international integration
5. Elaboration of the sophisticated tools and transfer of technologies

Scientific Basis & Experience

Research Directions & Current Projects

1. Foresight of climate, environmental and socio-economic changes in Europe (focus - Ukraine) in XXI century
2. Estimation of the role of the local ecosystems in regional carbon cycle
3. Natural hazards risks analysis and forecasting in view of global changes
4. National segment of GEOSS/GMES
5. Multi-source data utilization for estimation of the environmental security over trans-boundary regions

Our Expectations

Key Issues

1. Development of the integrated databases for account and reducing of the uncertainty of regional carbon flux and water cycle
2. Elaboration of methods to understand the regional water & energy exchange
3. Implementation of EO based tools, transfer of technologies and services market advancing
4. Interdisciplinary expertise to assist the vulnerability and adaptation potential of the regional natural and anthropogenic systems
5. Development of the decision support system for national government
6. Support our coordination efforts on national & international level

Our Expectations

Research Directions: Science

1. Improvement of the multi – scale approach to analysis of water & energy balance of natural systems (bio-geophysical models of landscapes)
2. Re-analyzing of the climate models, scenario uncertainty reducing
3. Vulnerability and adaptation analysis: natural hazards risks assessment
4. Land use – environment relationships and evolution scenarios, incl. soil analysis and land use structure change

Our Expectations

Research Directions: Technology

1. Implementation of the EO tools, approaches, and services market advancing
2. Databases for climate & ecosystems modeling; access to EO products (MODIS, ASTER, Landsat, Hyperion)
3. Support of national network of calibration/validation test – sites
4. Implementation of the harmonized approaches and standardized data management

Our Expectations

Research Directions: Public Dimension

1. Increasing of the ecological awareness of the local communities
2. Education programs on environmental & hazard monitoring
3. Training programs for experts and policy makers on long-term risks analysis

Our Expectations

Research Directions: Policy Dimension

1. Improvement of the regional development strategies
2. Recommendations for the local authorities in field of sustainable development and adaptability (land use – environment relationships optimization)
3. Databases for policy makers and societal valuable information on socio-environmental problems (environmental & hazards monitoring, risks estimations, security assessment etc.)

Links to Other Programs

Relevant Activity

1. Activity of the Earth science branch of National Academy of Sciences of Ukraine
2. Relevant programs of National Space Agency of Ukraine in the field of Earth observations (GEOSS/GMES)
3. Interdisciplinary research with other research entities
4. Activity of Ukrainian NMO of IASA
5. Educational activity

NEESPI Support

Areas of Benefit

1. Disasters
2. Environmental Security
3. Ecology
4. Sustainable Development
5. EO Tools & Services Transfer

NEESPI Support

Proposed Research Directions

1. Earth observations tools for the foresight of coupled climate, environmental and socio-economic changes (focus on Carpathian Basin)
2. Analysis of the role of regional ecosystems in regional carbon cycle
3. Natural hazards risks analysis and forecasting in the global changes context (Danube, Wistula, Dnister, Dnepr rivers basins)



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**Thank you for all
your courtesies!**