Project no. 013427

Project acronym **Enviro-RISKS**

Project title

Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia

Instrument **COORDINATION ACTION**

SIXTH FRAMEWORK PROGRAMME PRIORITY
[Specific Measures in support of International Cooperation (INCO)]

Title of report

FINAL ACTIVITY REPORT

Period covered: from 1 November 2005 to 31 October 2008

Date of preparation: 15 December 2008

Start date of project: 1 November 2005 Duration: 36 months

Project coordinator name A. Baklanov

Project coordinator organisation name Danish Meteorological Institute Revision [6.02.09]

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Publishable Executive Summary

Summary description of project objectives

Siberia environment has been subjected to serious man-made transformations during last 50 years. Current regional level environmental risks are: direct damages to environment caused by accidents in process of petroleum/gas production and transporting including their influence on water, soil, vegetation and animals; caused by deforestation (cutting and forest fires) variations in Siberian rivers runoffs and wetland regimes; direct and indirect influence of forest fires, flambeau lights and losses of gas and petroleum during their transportation on regional atmosphere composition; deposition of hazardous species leading to risks to soil, water and consequently to risks in the food chain. These regional problems are typical for number of NIS and some European countries, whose territory are crossed by pipelines and/or are used for petroleum production.

Strategic objective of the project is to facilitate elaboration of solid scientific background and understanding of man-made associated environmental risks, their influence on all aspects of regional environment and optimal ways for it remediation by means of coordinated initiatives of a range of relevant RTD projects as well as to achieve improved integration of the European research giving the projects additional synergy in current and future activities and potential for practical applications.

Scientific background allowing us to reach this objective is formed by a number of different levels RTD projects devoted to near all aspects of the theme but in virtue of synergy lack not resulting in improvement of regional environmental situation. The set comprise coordinated/performed by Partners EC funded thematic international projects, national projects supported by Siberian Branch of RAS, RAS and Russian Foundation for Basic Research and projects performed by NIS Partners under contracts with regional/local administrations and petroleum/gas producing and transporting enterprises/companies.

Contractors involved:

The Project Consortium comprises 3 leading in the world research organization from EU, 5 well known research organizations of Russian Academy of Sciences, 1 research and technology development organization of regional level (Khanty-Mansiisk National District) and 1 open joint-stock company of Kazakhstan.

Project coordinator - Danish Meteorological Institute (DMI) has a long-lasting experience in weather forecast and climate modelling and long-range dispersion, transformation and deposition of pollutants. Activity includes development, running and analysing three-dimensional atmospheric models for both operational use and research in weather forecast, climate change and long-range dispersion, transformation and deposition of pollutants. The DMI version of the High Resolution Limit Area Model (HIRLAM) is run operationally for Denmark (5 km horizontal resolution), Europe (15 km resolution), the Arctic region (50 km), and Greenland (15 km). DMI possesses powerful supercomputers that allow NWP simulation with high spatial resolution. DMI has a long-lasting tradition of work on many aspects of air pollution, both nationally and internationally. DMI has participated in 33 projects under the EU's 5th framework programme for research and development.

Siberian Center for Environment Research and Training (SCERT) assists in co-ordination of NIS partner's activity and will manage overall CA performance. SCERT is multidisciplinary research center comprising efforts of several research Institutes of Siberian Branch RAS and Universities from Tomsk, Barnaul, Irkutsk, Krasnoyarsk, Novosibirsk and Moscow in area of regional climate change monitoring and modeling and regional environmental applications.

Max-Planck-Institute for Biogeochemistry, Jena (MPI) leads in complex study of geosphere-biosphere interrelationships, in particular in study of ecosystems and their biochemistry in

interrelationships with climate, land use and biodiversity and in biogeochemistry of the global carbon cycle and has strong positions in Tropospheric chemistry and Three-dimensional modeling of atmospheric transport. It performed number of FP 5 RTD Projects, including the **CarboEurope** project cluster and co-ordinate the Terrestrial Carbon Observing System – Siberia FP5 Project and participate in the FP 6 Integrated Project **CarboEurope.**

International Institute for Applied Systems Analysis (IIASA) is a non-governmental research organization, conducting inter-disciplinary scientific studies on environmental, economic, technological and social issues in the context of human dimensions of global change. The Forestry Project (FOR) devoted to Global Change and Forests and is one of the core of IIASA activity.

Institute for Numerical Mathematics of Russian Academy of Sciences (INM) has more than 25-year expertise in numerical mathematics, climate and regional modelling, ocean modelling, turbulence-closure studies, downscaling methods and studies of the global change including regional consequences. An INM global climate model is based on atmospheric and oceanic general circulation models and equipped with a comprehensive package of physical parameterizations including the planetary boundary layer transport and air-land/air-sea interactions.

Institute of Forest SB RAS (IF) is one of the priority scientific forest biological institutions of the Russian Academy of Sciences. The main scientific studies are focused on: biosphere role, ecological functions and biodiversity of forest ecosystems and on monitoring of state, efficient use and regeneration of forest resources of Siberia.

Ugra Research Institute of Information Technologies (URIIT) has been organized by Government of Khanty-Mansiiskii National District in 2001. Due the fact that at the territory of the District one half all Russia petroleum is produced one of the main area of URIIT is performance of basic and applied studies for oil and gas producing complexes and for saving environment from risks related to the complexes activity.

Institute of Monitoring of Climatic and Ecological Systems SB RAS (IMCES) is actively involved in elaboration of scientific and technological basis for monitoring, modeling and forecasting climatic and ecosystem changes under impact of natural and anthropogenic factors.

Institute of Computational Mathematics and Mathematical Geophysics SB RAS (ICMMG) has been engaged in research on computational and applied mathematics in such areas as the modeling of processes in the atmosphere and ocean, environmental protection problems, methods of mathematical modeling in geophysics, geophysical informatics, simulation of informatics systems, telecommunication systems, software for supercomputers.

"KAZGEOCOSMOS Ltd." has been created for promotion of modern technologies of remote sensing and geoinformatics to oil-gas and other sectors of Kazakhstan economy. Among its tasks are: Processing and complex interpretation of remote sensing data; Forecasting, detection and modelling of disaster situations development; Mapping on the basis of geoinformation technologies, including creation and updating of land use maps, etc. It is specialized in performing aerial and satellite images of the Earth, integrated analysis of the date obtained with the results of ground surveys.

Observers/associated partners: Medias-France**,** Institute of Computational Modelling SB RAS, Institute of Northern Environmental Problems of Kola Science Center (INEP KSC) RAS, Hydrometeorological Research Institute of UzHydroMet (NIGMI), Ugra State University.

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Work performed

During the reporting period the Project Committees carried out overall Project management and administration. In particular the Scientific Committee Meeting was held in IIASA, Laxenburg, in April 2008 and the Annual Project Meeting was held in Tomsk, in July 2008. The co-ordination of project activities was achieved through electronic communication, primarily via the developed and launched project web portal and e-mail as well as direct telephone or personal contacts whenever necessary; activities also included preparation and chairing of regular project management board meetings and technical meetings, keeping minutes and records, and communication to all partners via the web site.

Continuos operation of the bilingual Project web portal and environmental information distributed database (www.risks.scert.ru) was supported and new functionality was added to the embedded into it information systems (http://air.risks.scert.ru/tomsk-mkg/ and http://climate.risks.scert.ru/reanalysis/). This web-portal was used as a powerful tool aimed at dissemination of the CA and relevant projects results and approaches and as an information resource on general environment issues adjusted also for usage in education process. It provides free access to environmental information and basics on environmental monitoring and management to regional administrators, researchers, students and general public thus giving rise the environmental concern in NIS.

Also analysis and synergy search in different level new and recently started projects on Siberian environment was performed during this period. Information on new and recently started environmental RTD projects of relevant thematic was retrieved from all Partners, gathered and systemized. It is structured to allow user clear navigation in it and added to the special database a (http://project.risks.scert.ru/program_project/project_database/projects/) located at the project web portal. Relevant thematic focus groups Reports and the Project Deliverables are made public via the portal as well. The referred to the Project performance information resources are expanded and made accessible in Internet (http://risks.scert.ru/resources/) during this year.

The Workshop on Man-made Environmental Risks in Siberia as well as the thematic experts meetings were organized within thematically more wide event ENVIROMIS-2008 (International Conference on Environmental Observations, Modeling and Information Systems). Special attention was paid to new results of the Enviro-RISKS CA. To expand positive influence of the project results and their usage potential Project observers from different regions of NIS were invited to participate in it. The Program Committee of the Conference was based on the CASC Members mainly. Special attention was paid to dissemination of good practices stories and to successful examples of enhanced in course of CA performance cooperation and gained added value from those. Being an independent part of ENVIROMIS-2008 the Workshop gathered about 118 participants (60 young scientists) from NIS (Russia, Uzbekistan, Kazakhstan,), Europe (Austria, Denmark, France and Switzerland) and USA.

18 researchers and postgraduates participated in the exchange program between project partners.

Results achieved:

Operational and efficient Project Network, participating in the Project result and information dissemination;

Operation of efficient IT based tool for professional and relevant information exchange, which opens results obtained by the Network members to national public, thus rising public awareness and stimulating environment protection and to international research community, thus giving an access to EU researchers to unique information resources on NIS environment;

Improvement of professional skill of NIS young researchers, better understanding of their region environmental situation which should lead to better environment protection and health safety in the targeted regions;

Strengthening NIS research potential in this domain, wider usage of results obtained in FP5/FP6 Programmes and higher level of potential involvement into environmental decision-making at their regions;

Organization of the project dedicated Workshop within the full format scientific and educational event ENVIROMIS-2008 Conference with 118 participants and 60 young scientists among them;

Preparation and making accessible to professional community and general public extensive information resources on Environmental Sciences and Applications in targeted regions;

Elaboration of on the base of dedicated studies of the expert groups practical recommendations for regional level activities in basic and applied environmental problems solving.

Expected end results:

Direct impact of the CA is in elaboration of on the base of dedicated studies of the expert groups practical recommendations for regional level activities in basic and applied environmental problems solving. It includes based on satellite remote sensing methods, local measurements and numerical modeling early detection and monitoring of accidents in process of petroleum/gas production and transporting including their influence on water, soil, vegetation and animals; appearance of new forest fires and flambeau lights, variations in Siberian rivers runoffs and wetland regimes; best approaches to mitigate environmental risks in process of industrial activity in the region and modern technologies for remediation of damaged territories.

Strategic impact of the CA is in dissemination of effective approaches and tools for monitoring, management and remediation of man-made environmental risks in Siberia and in suffering from similar problems regions of NIS. Due synergism and synchronization in project performance it also improves the state-of-the-art of Environmental Science and applications in Russia, NIS and EU. Elaborated by the expert groups practical recommendations being implemented at the Siberian federal District will lead to improvement of well-being and security of local population.

Intentions for use and impact:

Gathered scientific and educational resources, which are made accessible via the Project Portal, will be used for subsequent professional activity by all participants of the organized in course of CA performance events, as well as by personnel of all networked organizations.

Main elements of the publishable results of the plan for using and disseminating the knowledge

Since the performed Project is not aimed directly to generation new knowledge and technology there is no necessity to special measure to protect intellectual property. Possibly exploitable knowledge reported in papers, presented at organized events and published in relevant Proceedings is protected by either authors or publisher copyright.

All shown above and listed below exploitable results provide reliable basis for further additional research and development work. More complete list of project publications by the partners is included into Appendix 4.

For the first year:

1. **Proceedings of Conference on Control and Rehabilitation of Environment** comprises 5 plenary papers, 31 papers on new methods and tools for environmental control, 57 papers on technologies of environmental and climate monitoring, 21 papers on technologies of environmental protection and rehabilitation, 8 papers on monitoring, management and remediation of man-made changes in Siberia. Total number of papers devoted to *specific approaches to environment rehabilitation* is 122.

2. **Proceedings of Conference on Environmental Observation, Modeling and Information Systems (ENVIROMIS-2006)** printed as the Special issue of peer-reviewed Journal "Computational Technologies" in Russian (mainly) and in English (few papers). All papers are provided with bilingual summaries. Total number of papers devoted to s*pecific approaches for basic and applied environmental problems treatment and environment rehabilitation* is 63 in 3 parts of the special issue.

3. **CD** with PowerPoint presentation of Lectures and Invited Papers reported at the **ENVIROMIS-2006** comprises PowerPoint presentations of 5 plenary lectures, 13 invited lectures, 29 invited papers, 52 presentations made on Workshops (total 99 presentations) devoted to different aspects environmental problems treatment and environmental rehabilitation.

For the second year:

1. Baklanov, A., Gordov E.P., Heimann M., Kabanov M.V., Lykosov V.N., Onuchin A.A., Penenko V.V., Pushistov P.Yu., Shvidenko A., Zakarin E.A., et al., 2007: **Enviro-RISKS: Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia. First-Year EC 6FP CA Enviro-RISKS Project Report: Overview and Progress Reports by Partners** /Edited by A. Baklanov. DMI Scientific Report 07-04, ISBN: 978-87-7478-550-7, 109 p. Available from: http://www.dmi.dk/dmi/sr07-04.pdf

2. **Abstracts of Conference on Computational and Information Technologies for Environmental Sciences (CITES-2007)** printed in English. Total number of papers devoted to s*pecific approaches to basic and applied environment problems treatment and environment rehabilitation* is 63.

3. **CD** with PowerPoint presentation of Lectures and Invited Papers reported at the **CITES-2007 Conference and Young Scientists School** comprises PowerPoint presentations of 18 plenary lectures delivered at the School, 5 invited lectures, 29 invited papers, 26 oral presentations made on Conference Workshops devoted to basic and applied aspects environmental problems treatment and environmental rehabilitation.

For the third year:

1. Baklanov, A., Gordov E.P. (Editors), Heimann M., Kabanov M.V., Lykosov V.N., Mahura A.G., Onuchin A.A., Penenko V.V., Pushistov P.Yu., Shvidenko A., Zakarin E.A., et al., 2008: Enviro-RISKS: Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia. Final Scientific Report of EC 6FP CA Enviro-RISKS Project.

DMI Scientific Report 08-05, ISBN: 978-87-7478-571-2, In 4 Volumes. Available from: http://www.dmi.dk/dmi/sr08-05-1.pdf ; ... sr08-05-2.pdf; ... sr08-05-3.pdf; …sr08-05-4.pdf

2. Special Issue of the Computational Technologies Journal, which comprises 19 papers selected by the Program committee from those presented at the CITES-2007 event.

3. **Abstracts of the ENVIROMIS-2008 Conference** printed in English. Total number of papers devoted to *specific approaches to basic and applied environment problems treatment and environment rehabilitation* is 192.

4. **CD** with PowerPoint presentation of Lectures and Invited Papers reported at the **ENVIROMIS-2008 Conference** comprises PowerPoint presentations of 2 invited lectures, 39 invited papers and 108 oral presentations made on Conference Workshops devoted to basic and applied aspects environmental problems treatment and environmental rehabilitation.

5. Zakarin, E., L. Balakay, B. Mirkarimova, N. Tuseeva, K. Pak, A. Baklanov, A. Mahura, J.H. Sørensen (2008) Geoinformation Modeling of Radionuclide Transfer from the Territory of the Semipalatinsk Test Site. DMI Scientific Report 08-06 (available on: www.dmi.dk/dmi/sr08-06.pdf).

Reference to the project public website:

The Project web portal (http://risks.scert.ru) and site (http://project.risks.scert.ru/) provide quite detailed description of the Project and forms an extensive information resource in area of Environmental sciences and their practical applications.

Project logo:

Participants list

A table listing participant name, short name, country, status, date of entry to contract, date of exit from contract.

Partic. Role*	Partic. No.	Participant name	Participant short name	Country	Date enter project**	Date exit project**
CO	01	Danish Meteorological Institute	DMI	Denmark	month 1	month 36
CR	02	Siberian Center for Environmental Research and Training	SCERT	Russia	month 1	month 36
CR	03	Max Planck Institute for Biogeochemistry	MPI	Germany	month 1	month 36
CR	04	International Institute for Applied System Analysis	IIASA	Austria	month 1	month 36
CR	05	Institute of Numerical mathematics	INM	Russia	month 1	month 36
CR	06	Institute of Forest	IF	Russia	month 1	month 36
CR	07	KazGeoCosmos	KGC	Kazakhstan	month 1	month 36
CR	08	Ugra Research Institute of Information Technologies	URIIT	Russia	month 1	month 36
CR	09	Institute of Monitoring of Climatic and ecological Systems	IMCES	Russia	month 1	month 36
CR	10	Institute of Computational Mathematics and mathematical Geophysics	ICMMG	Russia	month 1	month 36

*CO = Coordinator

CR = Contractor

** Normally insert “month 1 (start of project)” and “month n (end of project)”

These columns are need for possible later contract revisions caused by joining/leaving participants

Section 1 – Project objectives and major achievements during the reporting periods

Siberia environment has been subjected to serious man-made transformations during last 50 years. Current regional level environmental risks are: direct damages to environment caused by accidents in process of petroleum/gas production and transporting including their influence on water, soil, vegetation and animals; caused by deforestation (cutting and forest fires) variations in Siberian rivers runoffs and wetland regimes; direct and indirect influence of forest fires, flambeau lights and losses of gas and petroleum during their transportation on regional atmosphere composition; deposition of hazardous species leading to risks to soil, water and consequently to risks in the food chain. These regional problems are typical for number of NIS and some European countries, whose territory are crossed by pipelines and/or are used for petroleum production.

Strategic objective of the project is to facilitate elaboration of solid scientific background and understanding of man-made associated environmental risks, their influence on all aspects of regional environment and possible ways for it remediation by means of co-ordinated initiatives of a range of relevant RTD projects as well as to achieve improved integration of the European research giving the projects additional synergy in current and future activities and potential for current and future practical applications.

The project strategic objective will be reached via achieving the set of specific objectives forming a backbone of the coordination activities of environmentally oriented projects performing/coordinating and recently performed by the Partners.

Scientific background allowing us to reach this objective is formed by a number of different levels RTD projects devoted to near all aspects of the theme but in virtue of synergy lack not resulting in improvement of regional environmental situation. The set comprise coordinated/performed by Partners EC funded thematic international projects, national projects supported by Siberian Branch of RAS, RAS and Russian Foundation for Basic Research and projects performed by NIS Partners under contracts with regional/local administrations and petroleum/gas producing and transporting enterprises/companies. List of the Projects is given in the Appendix 1.

Specific objectives (SO) of the Enviro-RISKS Project are:

(SO1) To set up Project Scientific Committee from coordinators and contractors of relevant projects of different level and Project Steering Committee from those and external to coordinated projects experts in Environmental Sciences and Applications and representatives of Siberian Federal District as end users;

(SO2) To set up expert groups on environmental monitoring, on environmental management and environmental remediation from well known specialists from EU, Russia and NIS;

(SO3) To perform analyses of possible synergy between the different level project on Siberian environment, to determine most potentially important for the region environmental issues and on this basis to organize coordination between EC international projects devoted to study of regional environment with relevant SB RAS funded integration Projects and with projects performed under contracts with regional/local administrations and petroleum/gas producing and transporting enterprises/companies;

(SO4) To develop dedicated web portal as a bilingual tool for dissemination of the CA and relevant projects results and approaches and as an information resource on general environment issues adjusted also for usage in education process and to give an access to environmental information and basics on environmental monitoring and management to regional administrators, researchers, students and general public thus giving rise the environmental concern in NIS management bodies and general public;

(SO5) To develop distributed information system for remote access to structured information resources on Siberia environment, its management under anthropogenic environmental risks and methods of its remediation as an instrument for exchange and dissemination of information between relevant project participants;

(SO6) To gather and systemize environmental information resources obtained in process of environmental studies in Siberia and to perform relevant expert group's studies thus preparing a foundation for usage of elaborated recommendations in the dedicated NIS regions, suffering the same type of man-induced environmental risks;

(SO7) To exchange and disseminate via the developed web portal and at the organized conferences good practices examples of practically important results obtained in course of projects implementation, especially those in area of remediation;

(SO8) To organize and support of exchanges of personnel between Partners paying special attention to exchange of young scientists and postgraduate students;

(SO9) To provide regional administrators with detailed information on efficient tools for mitigation of the environmental risks and for remediation of natural objects subjected to man-induced environment pollution and examples of their successful usage;

(SO10) To organize two thematic conferences devoted to hot environmental topics of regional level monitoring, management and remediation of man-made environmental risks;

(SO11) To elaborate on the base of dedicated studies of the expert groups practical recommendations for regional level activities in basic and applied environmental problems solving and disseminate those via the Project web portal;

(SO12) To elaborate a roadmap for environmental research and development activity in the region under consideration to be used as a foundation for definition, organization and management of joint or common initiatives being also useful for relevant funding agencies for determination of regional priorities.

Project relation with the state of the art

Being a territory, which always is used by the center as a sort of raw and energy source, Siberia environment has been subjected to serious man-made transformations, especially during last 50 years. Related environmental risks have grown significantly during last 10 years due lack of state/regional environmental risks monitoring and management system and in virtue of loosing real control on local activity, especially on those related with forests cutting and petroleum/gas production and transporting. All these activities directly produce quite significant direct environmental risks as well as lead to grows of forest fires number and to appearance of a number of flambeau lights.

Regional level environmental risks caused by these activities are: direct damages to environment caused by accidents in process of petroleum/gas production and transporting including their influence on water, soil, vegetation and animals; caused by deforestation (cutting and forest fires) variations in Siberian rivers runoffs and wetland regimes; direct influence of forest fires, flambeau lights and losses of gas and petroleum during their transportation on regional atmosphere composition by adding to it products generated in process of burning, indirect influence of forest fires, flambeau lights and losses of gas and petroleum during their transportation on regional atmosphere composition by switching on new channels of chemical reactions caused by products generated in process of burning; deposition of hazardous species leading to risks to soil, water and consequently to risks in the food chain. All these factors produce serious threats to local population well-being and health.

In spite of declared at the Siberian Federal District level intention to manage environmental risks in Siberia till now there is no solid background below it. Absence of structured and quantitative information on processes leading to environmental risks and their mechanisms and

as well as absence of coherent pattern of interference of natural and anthropogenic processes at the regional level does not allow one to develop reasonable environment management strategy not blocking industrial activity and diminishing related environmental risks.

It should be added that, mentioned above regional problems are typical for number of NIS and European countries, whose territory is crossed by pipelines and/or is used for petroleum production. Also, in spite of local level of interference, due specific role of Siberia in functioning the Earth System changes in regional environment have quite pronounced global consequences, which, according the IGBP terminology might be a chocking point of the climatic system dynamics.

At the same time there are quite a number of different levels RTD projects devoted to near all aspects of the theme but in virtue of synergy lack not resulting in improvement of regional environmental situation. The set comprise EC funded thematic international projects performed within FP5, FP6 and INTAS, national projects supported by Siberian Branch of RAS, RAS and Russian Foundation for Basic Research and projects performed by research institutions and SME under contracts with regional/local administrations and petroleum/gas producing and transporting enterprises/companies. In spite of the fact that numbers of results obtained in these projects make significant progress in understanding mechanisms of formation of man-made environmental risks, including monitoring and management of environmental crisis situations and suggest reliable ways to their mitigation and remediation of damaged territories, none of the projects is aimed at the whole pallet of monitoring, management and remediation of man-made environmental risks in Siberia.

Summary of the objectives for the reporting period, work performed, contractors involved and the main achievements in the period

During the first two year reported periods the Project Specific objectives **SO1**, **SO2**, **SO3, SO4**, **SO5**, **SO6**, **SO10** were achieved, while progress to the Objectives **SO7, SO8,** and **SO9** was at the planned level and the Objective **SO11, SO 12** were planned to be achieved during the final Project period.

The first year

In particular, the following work was performed and resulted in the listed below main achievements in the period:

While achieving the Objective **SO1** the Project Scientific Committee (PSO) will be set up. It comprises leaders of all groups forming the Consortium and include the Siberian Federal District (SFD) representative as end user. Taking into account the size and scope of a project, a specially constituted Project Technical Committee (PTC) was setup, as management team with dedicated staff covering a range of skills may need to be set up an appropriate management of technical issues arising in course of Project performance. It includes specially appointed representatives from each Partner group. To involve into Project performance additional potential of experts in the field and to ensure and support wide dissemination of results obtained and recommendations elaborated **CA Steering Committee (CASC)** was setup. It includes PSC and comprises number of well known specialists from organizations far beyond the Consortium. CASC monitors overall CA performance, assists in incorporation into set of co-ordinated Projects new initiatives and forms a basis for organization of the expert groups performing planned studies and analysis as well as a basis for Program Committees of the planned Conferences. List of the Committees Members is given in the Appendix 1. The Committees worked efficiently in course of the first year and their Meetings run during the ENVIROMIS-2006 Conference in Tomsk in July 2006 provided valuable feedback into the project management. Mainly P01 performed this activity with assistance of all contractors.

While achieving the Objective **SO2** the four expert groups on environmental monitoring, on environmental management and environmental remediation from well known specialists from EU, Russia and NIS were set up during the kick-off Meeting. All Partners were assigned to themes under consideration:

- Environment Observations– MPI for Bio-geochemistry, IIASA, Institute of Forest SB RAS, KazGeoKosmos, Institute of monitoring of Climatic and Ecological Systems SB RAS and Ugra Research Institute of Information Technologies;
- Modeling – Danish Meteorological Institute, Siberian Center for Environmental Research and Training, Institute of Numerical Mathematics RAS, Institute of Computational Mathematics and Mathematical Geophysics SB RAS;
- Atmospheric Processes – DMI, SCERT, INM, ICMMG, KazGeoKosmos;
- Hydrological processes - INM, Institute of Forest SB RAS (Krasnoyarsk) and URIIT;
- Supporting information - computational technologies (GIS, Web, Databases and GRID) – SCERT, IIASA, INM, IF, KazGeoKosmos, IMCES, URIIT;
- Remediation technologies - IF, KazGeoKosmos, URIIT, IMCES.

Also all coordinated project were assigned to the following Thematic Focuses, relevant **Groups** were determined as well as their Leaders:

G1. **Atmospheric Pollution and Risks**: AR-NARP, EmergPrep, FUMAPEX, GEMS (DMI), Cities of Siberia, Forecast Methods, Risk (ICMMG), Dust, Hydrocarbons (KazGeoCosmos), Tomsk (SCERT) – **Baklanov, Penenko;**

G2. **Climate/Global Change**: TCOS-Siberia (MPI-BGC), AMIP/CMIP (INM), SGBP, SIRS (SCERT, IMCES), EACR (ICMMG), CARBO-North (DMI) – **Heimann, Lykosov;**

G3. **Terrestrial Ecosystems and Hydrology**: Siberia-2 (IIASA), Siberian Taiga (IF), Yugra: Space Monitoring, Water Quality, Land Remediation (URIIT), Great Vasyugan Bog (IMCES), GIS/RS-Agro, Water Oil Poll (KazGeoCosmos) – **Kabanov**, **Shvidenko;**

G4. **Info-Systems, Integration and Synthesis**: ENVIROMIS, ATMOS, ISIREMM (SCERT), GIS (KazGeoCosmos) – **Gordov**, **Zakarin.**

All contractors were involved into this activity.

While achieving the Objective **SO3** the expert groups performed analyses of possible synergy between the different level project on Siberian environment (projects are listed in Appendix 2) and determined most potentially important for the region environmental issues to organize coordination between EC international projects devoted to study of regional environment with relevant SB RAS funded integration Projects and with projects performed under contracts with regional/local administrations and petroleum/gas producing and transporting enterprises/companies. Relevant recommendations were distributed among the Partners to be taken into account in process of planning and preparation of their subsequent activity. All contractors were involved into this work.

While achieving the Objective **SO4** the dedicated project web-portal was developed and launched (http://risks.scert.ru/en/) as a bilingual tool for dissemination of the CA and relevant projects results and approaches and as an information resource on general environment issues adjusted also for usage in education process and to give an access to environmental information and basics on environmental monitoring and management to regional administrators, researchers, students and general public thus giving rise the environmental concern in NIS management bodies and general public. It forms communication, discussion and dissemination Project platform on environmental issues for network participants as well as for NIS professionals and general public. In particular it give an access to e-versions of available educational recourses on basics and applications of Environmental Sciences and e-versions of key Power Point presentations and Proceedings of the ENVIROMIS and CITES environmental

Conferences and Young Scientists Schools. It gives an opportunity for students and young scientists to improve their professional skill and to help spread awareness and knowledge to general public as well; Mainly P02 performed this work, however all contractors were involved into this activity.

While moving to achievement of the Objective **SO5** key software elements required to support operation of the distributed information system for remote access to structured information resources on Siberia environment, its management under anthropogenic environmental risks and methods of its remediation as an instrument for exchange and dissemination of information between relevant project participants were developed by P02 (http://risks.scert.ru/resources/) and some system's elements were launched at P05 and P09 web sites;
Mainly P02 with assistance of P05 and P09 have performed this work; however, all other contractors were involved into this activity as well.

While moving to achievement of the Objective **SO6** environmental information resources obtained in process of environmental studies in Siberia were gathered and systemized by relevant expert group's which forms a solid for elaboration of practical recommendations for the dedicated NIS regions, suffering the same type of man-induced environmental risks.
All contractors were involved into this activity.
While moving to achievement of the Objective **SO7** available good practices examples of practically important results obtained in course of projects implementation, especially those in area of remediation, were described and disseminated via the developed web-portal and at the organized ENVIROMIS-2006 Conference. Mainly P02 performed this work, however, all contractors were also involved into this activity.

While moving to achievement of the Objective **SO8** different sources for support of the Project exchange program were analyzed and used thus giving additional funding to exchanges of personnel between Partners paying special attention to exchange of young scientists and postgraduate students. In particular applications to INTAS and Russian Ministry of Education and Science were submitted and revenant fellowships were obtained to support 2 young scientists. Scientists representing P02, P05, P06, P07, P08 and P010 participated in this program and visited partner's organization. Total number of involved researchers from Partners organizations – 20 (Appendix 3). This activity was lead by P02 and all contractors were involved into it.

While moving to achievement of the Objective **SO9** detailed information on efficient tools for mitigation of the environmental risks and for remediation of natural objects subjected to man-induced environment pollution and examples of their successful usage was gathered and is now in process of substantial editing to compile documents in form readable and encouraging regional environmental administrators. All contractors were involved into this activity.

While moving to achievement of the Objective **SO10** the first thematic conference devoted to hot environmental topics of regional level monitoring, management and remediation of man-made environmental risks was organized within framework of the multidisciplinary international Conference-School on Environmental Sciences and Applications ENVIROMIS-2006 in Tomsk (Russia). It was used also as a forum for dissemination of FP5 and FP6 results in the relevant domain to a targeted group of NIS young and prominent researchers and decision-makers. To stress importance of practical application a special Session was devoted to the Enviro-RISKS project and its first results. Total number of participants – 202, young scientists – 99 (among them 15 scientists from NIS excluding Russia). Researchers from the following NIS countries participated in this event: Kazakhstan, Kyrgyzstan, Moldova, Ukraine, and Uzbekistan.

Scientists from Austria, Belgium, Denmark, Greece, France, Germany, Italy, Netherlands, Romania, Slovakia, Sweden, and USA participated too.
Mainly P02 performed this work; however, all contractors were involved into this activity.

The second year

During the reported period the following Project Specific objectives: **SO5**, **SO6**, **SO10,** were planned to be achieved and were achieved, while progress to the Objectives **SO7, SO8, SO9 SO11,** and **SO 12** are at the planned level and the Objective are planned to be achieved during the final Project period.
In particular the following work was performed and resulted in the listed below main achievements in the period:

While achieving the Objective **SO5** of the distributed information system for remote access was launched into operation and now it is providing users an access to to structured information resources on Siberia environment, its management under anthropogenic environmental risks and methods of its remediation as an instrument for exchange and dissemination of information between relevant project participants (http://risks.scert.ru/). Some system's elements were launched at P05 and P09 web sites and are accessible now as well;
Mainly P02 with assistance of P05, P06 and P09 performed this work , however all other contractors were involved into this activity as well.

While achieving the Objective **SO6** environmental information resources obtained in process of environmental studies in Siberia were gathered and systemized by relevant expert group's which forms a solid for elaboration of practical recommendations for the dedicated NIS regions, suffering the same type of man-induced environmental risks.
All contractors were involved into this activity.

While moving to achievement of the Objective **SO7** available good practices examples of practically important results obtained in course of projects implementation, especially those in area of remediation, were described and disseminated via the developed web portal and at the organized CITES 2007 Young Scientists School and Conference.
Mainly P02 performed this work, however all contractors were involved into this activity.

While moving to achievement of the Objective **SO8** different sources for support of the Project exchange program were analyzed and used thus giving additional funding to exchanges of personnel between Partners paying special attention to exchange of young scientists and postgraduate students. In particular applications to INTAS and Russian Ministry of Education and Science were submitted and revenant fellowships were obtained to support travels of young scientists. Scientists representing P02, P05, P08, P09 and P010 participated in this program and visited partner's organization. Total number of involved researchers from Partners organizations – 19 (Appendix3).
This activity was lead by P02 and all contractors were involved into it.

While moving to achievement of the Objective **SO9** detailed information on efficient tools for mitigation of the environmental risks and for remediation of natural objects subjected to man-induced environment pollution and examples of their successful usage was gathered and is now in process of substantial editing to compile documents in form readable and encouraging regional environmental administrators.
All contractors were involved into this activity.

While achieving the Objective **SO10** the second thematic conference devoted to hot environmental topics of regional level monitoring, management and remediation of man-made

environmental risks was organized within framework of the Young Scientist School and international Conference on Computational and Information Technologies for Environmental Sciences CITES-2007 in Tomsk (Russia). It was used also as a forum for dissemination of FP5 and FP6 results in the relevant domain to a targeted group of NIS young and prominent researchers and decision-makers. . To stress importance of practical application a special Session was devoted to the Enviro-RISKS project and its first results. Total number of participants - 128, young scientists – 60 (among them8 scientists from NIS (without Russia)). Researchers from the following NIS countries participated in the event: Kazakhstan, Ukraine and Uzbekistan. Also scientists from Austria, Denmark, France, Germany, Norway, and Japan participated in it.
Mainly P02 was performed this work, however all contractors were involved into this activity.

While moving to achievement of the Objective **SO11** dedicated studies of the established earlier expert groups were carried out to elaborate finally practical recommendations for regional level activities in basic and applied environmental problems solving and disseminate those via the Project web portal;

While moving to achievement of the Objective **SO12** elaboration of a roadmap for environmental research and development activity in the region under consideration has been started to be used as a foundation for definition, organization and management of joint or common initiatives being also useful for relevant funding agencies for determination of regional priorities.

The third year

During the third year reported period the following Project Specific objectives: **SO7, SO8, SO9 SO11,** and **SO 12,** were planned to be achieved and were achieved.

In particular the following work was performed and resulted in the listed below main achievements in the final period:

While achieving the Objective **SO7** available good practices examples of practically important results obtained in course of projects implementation, especially those in area of remediation, were described and disseminated via the developed web portal and at the organized Enviro-RISKS Workshop within the ENVIROMIS-2008 Conference.

Mainly P02 performed this work, however all contractors were involved into this activity.

While achieving the Objective **SO8** different sources for support of the Project exchange program were analyzed and used thus giving additional funding to exchanges of personnel between Partners paying special attention to exchange of young scientists and postgraduate students. In particular applications to Russian Foundation for Basic Research were submitted and revenant fellowships were obtained to support travels of young scientists. Scientists representing P02, P05, P07, P09 and P10 participated in this program and visited partner's organization. Total number of involved researchers from Partners organizations – 18 (Appendix 3).

This activity was lead by P02 and all contractors were involved into it.

While achieving the Objective **SO9** detailed information on efficient tools for mitigation of the environmental risks and for remediation of natural objects subjected to man-induced environment pollution and examples of their successful usage was gathered and substantially edited compiled documents are mailed to regional environmental administrators of the Siberia Federal Okrug.

All contractors were involved into this activity.

While achieving the Objective **SO11** dedicated studies of the established earlier expert groups were carried out to elaborate finally practical recommendations for regional level activities in basic and applied environmental problems solving and disseminate those via the Project web portal;

All contractors were involved into this activity.

While achieving the Objective **SO12** a roadmap for environmental research and development activity in the region under consideration has been elaborated to be used as a foundation for definition, organization and management of joint or common initiatives being also useful for relevant funding agencies for determination of regional priorities. A copy of this roadmap is submitted to the Russian NCP of cooperation with EU in area of environment.

All contractors were involved into this activity.

Section 2 – Workpackage progress of the period

An overview of the actions carried out in the reporting periods, based on the workpackages which were active or planned to be active during the period.

The first year

In course of the **WP02** performance the dedicated Project web-portal: http://project.risks.scert.ru was designed, developed and launched as a bilingual tool for dissemination of the CA and relevant projects results and approaches and as an information resource on general environment issues adjusted also for usage in education process. It is also provided with specially adjusted Intranet allowing the Network participants share and enlarge all common information resources. After launching the portal permanent operation support, maintenance and updating are carrying out.
These activities form M01 "Launching the Project web-portal into operation".

In course of the **WP03** performance data gathered by Partners during performance of RTD Projects in Siberia are systemized, commented and done accessible for Partners via the Project Portal (http://risks.scert.ru/resources/) . Metadata catalogs are opened to interested parties and specialists. Gathered and systemized environmental information resources obtained in process of environmental studies in Siberia as well as Reports on performed by relevant expert group's studies are done available for Partners as well.
This activity forms an input into M03 "The first results of the expert work on the most critical for the region man-made risks for environment" and M04 "The Recommendations to establishing cooperation between different Projects devoted to Siberian environment".

In course of the **WP04** performance information on performed and ongoing environmental RTD projects of relevant thematic was retrieved from all Partners, gathered and systemized. It was structured to allow user a clear navigation in it and integrated into the project web-portal as a special database and partially translated into Russian thus simplifying its influence in regions with traditionally low level of English knowledge.
Four expert groups on environmental monitoring, on environmental management and environmental remediation from well known specialists from EU, Russia and NIS was setup to perform relevant analytic work and elaborate proper Recommendations also to be published at the web-portal and mailed all senior researchers participating in the Co-ordinated Projects.
Results obtained are in strengthening EU and NIS research potential in this domain, in wider usage of results obtained in relevant RTD activity and in higher level of potential involvement into environmental decision-making at their regions. It also will simplify cooperation between different research groups working at the same territory.
This activity is an input into M03 "The first results of the expert work on the most critical for the region man-made risks for environment" and M04 "The Recommendations to establishing cooperation between different Projects devoted to Siberian environment".

In course of the **WP05** performance the Conference on Man-Made Environmental Risks: Detection, Monitoring, Management and Remediation and the intermediate CASC and PSC meetings was organized within thematically wider Conference ENVIROMIS-2006. Four Sessions devoted to Detection, Monitoring, and Management of man-made environmental risks and Remediation of territories subjected to environmental damages. Special Session was devoted to first result of the Enviro-RISKS CA. To expand positive influence of the project results and their usage potential Project observers were from different regions of NIS were invited to participate in it. Being an independent part of the full format multidisciplinary international Conference on Environmental Sciences and Applications (ENVIROMIS) it gather 202 participants (99 young scientists) from Russia, Kazakhstan, Kirgistan, Ukraine, Uzbekistan,

10 European countries and USA. Currently selected papers presented at the event are in process of publication at the peer-reviewed Journal of Computational Mathematics.
This activity is an input into M03 "The first results of the expert work on the most critical for the region man-made risks for environment" and M04 "The Recommendations to establishing cooperation between different Projects devoted to Siberian environment".

In course of the **WP10** performance targeted audience was provided with new finding, results and good practices cases including those arising from CA activity, Special emphasis was done to delivering to regional administrators (especially those responsible for region environment state) detailed information on novel efficient tools for mitigation of the environmental risks and for remediation of natural objects subjected to man-induced environment pollution and examples of their successful usage. The brief project presentation in Russian and English was prepared and distributed at different Conferences. Several presentations were prepared and delivered at different level Conferences, including regional events, national forums and International Conferences. Also several papers describing the project and its first results were submitted to peer-reviewed Journals. Detailed project description as well as its results are maid available to specialists and general public via the bilingual project web portal.
The performed tasks also included:
Linguistic and substantive editing of the documents issued in process of CA performance and implementation on the project web site all relevant information as an on-line, searchable set of electronic documents;
Preparation of multi-media material describing the project such as fliers, a demo CD,
PowerPoint presentation, and graphical components that can be used in standard scientific publications, or for posters and presentations;
Implementation and maintenance the project web-portal and Database to make the above material on the Internet.
In course of the **WP11** performance a targeted group including mainly postgraduates was selected from NIS Partner organizations and hosting organizations for their training were selected. Relevant sources of their support were determined with main emphasis on extra-project funding. During the first year 20 researchers from Partners organizations participated in the exchange Program.

The second year
In course of the **WP02** performance the dedicated Project web portal (http://risks.scert.ru) was supported in operation as a bilingual tool for dissemination of the CA and relevant projects results and approaches and as an information resource on general environment issues (http://risks.scert.ru/resources/), including those adjusted also for usage in education process. The portal permanent maintenance and updating are carrying out. In particular special modulus were develop to provide qualified user with opportunity to access regional climate dynamics on the base of Reanalysis data (http://climate.risks.scert.ru/) and city of Tomsk air quality dynamics (http://air.risks.scert.ru/tomsk-mkg/). New modules for its internet accessible database, which contains description of the INM climate model and results of numerical experiments with this model were developed and launched it at the INM site (http://kvs.inm.ras.ru/index.html) as a part of the distributed system.
These activities form M01 "Launching the Project web portal into operation".

In course of the **WP03** performance efforts of the previous period were continued. Data on recently started RTD Projects in Siberia were systemized, commented and done accessible for Partners via the Project Portal. Gathered and systemized environmental information resources obtained in process of environmental studies in Siberia as well as Reports on performed by relevant expert group's studies are done available for Partners as well. Gathered and systemized environmental information resources obtained in process of environmental studies in Siberia as

well as Reports on performed by relevant expert group's studies are done available for Partners as well.
This activity forms an input into M03 "The first results of the expert work on the most critical for the region man-made risks for environment" and M04 "The Recommendations to establishing cooperation between different Projects devoted to Siberian environment".

In course of the **WP04** performance information on performed and ongoing environmental RTD projects of relevant thematic was retrieved from all Partners, gathered and systemized. It was structured to allow user clear navigation in it and integrated into the project web portal as a special database and partially translated into Russian thus simplifying its influence in regions with traditionally low level of English knowledge.
Four expert groups on environmental monitoring, on environmental management and environmental remediation from well known specialists from EU, Russia and NIS was setup to perform relevant analytic work. The experts elaborated relevant Recommendations, which also will be published at the web portal and mailed all senior researchers participating in the Co-ordinated Projects.
This activity is an input into M03 "The first results of the expert work on the most critical for the region man-made risks for environment" and M04 "The Recommendations to establishing cooperation between different Projects devoted to Siberian environment".

In course of the **WP05** preparation, reviewing, editing and publication of three issues of the peer-reviewed Journal of Computational Technologies with selected papers, presented at the Conference was carried out. Special attention was paid to selection of materials from the Conference on Man-Made Environmental Risks: Detection, Monitoring, Management and Remediation.
This activity is an input into M03 "The first results of the expert work on the most critical for the region man-made risks for environment" and M04 "The Recommendations to establishing cooperation between different Projects devoted to Siberian environment".

In course of the **WP06** performance a version of the generalized technological implementation plan on the finished to this time Projects performed by Partners with special emphasis on successful remediation stories. Technological implementation Plans prepared by relevant Projects Co-ordinators were analyzed and generalized into united TIP covering the whole range of finished Projects. . Targeted audience was determined and the generalized TIP was disseminated to it. Special attention was paid to delivering information to regional decision makers and environmental managers.
This activity is an input into M04 The Recommendations to establishing cooperation between different Projects devoted to Siberian environment and into M05 The joint TIP and Memorandum on the hottest environment topics demanded by the region under study

In course of the **WP07** performance information on recently started RTD projects within FP6, FP7 RAS, SB RAS and on novel RTD activity of relevant thematic on regional level was gathered from such project co-ordinators/participants entering into the consortium and Members of CASC including those from Siberian Federal District. It was structured to allow user clear navigation in it and integrated into the project web portal as a special database and partially translated into Russian thus simplifying its influence in NIS regions with traditionally low level of English knowledge.
This activity is an input into M04 The Recommendations to establishing cooperation between different Projects devoted to Siberian environment and into M05 The joint TIP and Memorandum on the hottest environment topics demanded by the region under study.

In course of the **WP08** performance the setup expert groups performed dedicated studies and elaborate practical recommendations for regional level activities in basic and applied environmental problems solving. Also they elaborated a initial version of the Memorandum, which indicate a roadmap for environmental research and development activity in the region under consideration to be used as a foundation for definition, organization and management of joint or common initiatives being also useful for relevant funding agencies for determination of regional priorities. The Memorandum will be analyzed by PSC and approved by CASC and after it will be distributed to the targeted audience in NIS and EU, including regional and national decision makers and International funding Agencies. The expert group studies will be compiled, edited and prepared for publication firstly as a DMI Report.
This activity is an input into M04 The Recommendations to establishing cooperation between different Projects devoted to Siberian environment and into M05 The joint TIP and Memorandum on the hottest environment topics demanded by the region under study.

In course of the **WP09** performance the Workshop on Man-made Environmental Risks in Siberia as well as the thematic experts meetings were organized within thematically more wide event CITES-2007 (Young Scientists School and International Conference on Computational and Information Technologies for Environmental Sciences). Special attention was paid to new results of the Enviro-RISKS CA. To expand positive influence of the project results and their usage potential Project observers from different regions of NIS were invited to participate in it. The Program Committee of the Conference was based on the CASC Members mainly. Special attention was be paid to dissemination of good practices stories and to successful examples of enhanced in course of CA performance cooperation and gained added value from those. The whole event gathered 128 participants (60 young scientists) from Russia, Kazakhstan, Ukraine, Uzbekistan, 5 European countries and Japan.
This activity is an input into M03 “The first results of the expert work on the most critical for the region man-made risks for environment” and M04 “The Recommendations to establishing cooperation between different Projects devoted to Siberian environment”.

In course of the **WP10** performance targeted audience was provided with new finding, results and good practices cases including those arising from CA activity, Special emphasis was done to delivering to regional administrators (especially those responsible for region environment state) detailed information on novel efficient tools for mitigation of the environmental risks and for remediation of natural objects subjected to man-induced environment pollution and examples of their successful usage. The brief project presentation in Russian and English was prepared and distributed at different Conferences. Several presentations were prepared and delivered at different level Conferences, including regional events, national forums and International Conferences. Also several papers describing the project and its first results were submitted to peer-reviewed Journals. Detailed project description as well as its results are maid available to specialists and general public via the bilingual project web portal.
The performed tasks also included:
Linguistic and substantive editing of the documents issued in process of CA performance and implementation on the project web site all relevant information as an on-line, searchable set of electronic documents;
Preparation of multi-media material describing the project such as fliers, a demo CD,
PowerPoint presentation, and graphical components that can be used in standard scientific publications, or for posters and presentations;
Implementation and maintenance the project web portal and Database to make the above material on the Internet.

In course of the **WP11** performance a targeted group including mainly postgraduates was selected from NIS Partner organizations and hosting organizations for their training were

selected. Relevant sources of their support were determined with main emphasis on extra-project funding. During the second year 19 researchers from Partners organizations participated in the exchange Program.

The third year

In course of the **WP02** performance the dedicated Project web portal (http://risks.scert.ru) was supported in operation as a bilingual tool for dissemination of the CA and relevant projects results and approaches and as an information resource on general environment issues (http://risks.scert.ru/resources/), including those adjusted also for usage in education process. The portal permanent maintenance and updating are carrying out. Additional tools were developed and implemented to provide qualified user with opportunity to access regional climate dynamics on the base of NCAR, European and Japanese Reanalysis data (http://climate.risks.scert.ru/) and city of Tomsk air quality dynamics (http://air.risks.scert.ru/tomsk-mkg/). New features for the internet accessible database, which contains description of the INM climate model and results of numerical experiments with this model were developed and launched it at the INM site (http://kvs.inm.ras.ru/index.html) as a part of the distributed system.

These activities form M01 "Launching the Project web portal into operation".

In course of the **WP03** performance efforts of the previous period were continued. Data on recently started RTD Projects in Siberia were updated and done accessible for Partners via the Project Portal. Gathered and systemized environmental information resources obtained in process of environmental studies in Siberia as well as Reports on performed by relevant expert group's studies are done available for specialists as well.

These activities form an input into M03 "The first results of the expert work on the most critical for the region man-made risks for environment" and M04 "The Recommendations to establishing cooperation between different Projects devoted to Siberian environment".

In spite of the fact that mainly **WP04** has been finished during the previous period some activity was undertaken. That is CERT integration of the information resources into the project web portal has been finished. Information on new performed environmental RTD projects of relevant thematic was systemized. Also IF finalize activity on gathering and systemization of new relevant thematic project's data devoted to spatial patterns of air temperature trends for the Central and Eastern Asia study.

This activity forms an input into M03 "The first results of the expert work on the most critical for the region man-made risks for environment" and M04 "The Recommendations to establishing cooperation between different Projects devoted to Siberian environment".

In course of the **WP07** performance updated information on recently started RTD projects was added the special database and partially translated into Russian thus simplifying its influence in NIS regions with traditionally low level of English knowledge.

This activity is an input into M04 The Recommendations to establishing cooperation between different Projects devoted to Siberian environment and into M05 The joint TIP and Memorandum on the hottest environment topics demanded by the region under study.

In course of the **WP08** performance the established expert groups performed dedicated studies and elaborated practical recommendations for regional level activities in basic and applied environmental problems solving. Also they elaborated a Memorandum, which indicate a roadmap for environmental research and development activity in the region under consideration to be used as a foundation for definition, organization and management of joint or common initiatives being also useful for relevant funding agencies for determination of regional priorities. The Memorandum will be will be distributed to the targeted audience in NIS and EU,

including regional and national decision makers and International funding Agencies. The expert group studies are prepared for publication firstly as a DMI Report.

This activity is an input into M04 The Recommendations to establishing cooperation between different Projects devoted to Siberian environment and into M05 The joint TIP and Memorandum on the hottest environment topics demanded by the region under study.

In course of the **WP09** preparation, reviewing, editing and publication of the special issue of the peer-reviewed Journal of Computational Technologies with selected papers, presented at the CITERS-2007 Conference was carried out. Special attention was paid to selection of materials from the Conference on Man-Made Environmental Risks: Detection, Monitoring, Management and Remediation.

This activity is an input into M03 “The first results of the expert work on the most critical for the region man-made risks for environment” and M04 “The Recommendations to establishing cooperation between different Projects devoted to Siberian environment”.

This activity is an input into M03 “The first results of the expert work on the most critical for the region man-made risks for environment” and M04 “The Recommendations to establishing cooperation between different Projects devoted to Siberian environment”.

In course of the **WP10** performance targeted audience was provided with new finding, results and good practices cases including those arising from CA activity. As a significant part of it, the Workshop on Man-made Environmental Risks in Siberia as well as the thematic experts meetings was organized within thematically more wide ENVIROMIS-2008 International Conference. Special attention was paid to new results of the Enviro-RISKS CA. To expand positive influence of the project results and their usage Project observers and potential users from different regions of NIS were invited to participate in it. Special attention was paid to dissemination of good practices stories and to successful examples of enhanced in course of CA performance cooperation and gained added value from those. The whole event gathered 118 participants (60 young scientists) from Russia, Kazakhstan, Uzbekistan, 4 European countries and USA. Special emphasis was done to delivering to regional administrators (especially those responsible for region environment state) detailed information on novel efficient tools for mitigation of the environmental risks and for remediation of natural objects subjected to man-induced environment pollution and examples of their successful usage. The brief project presentation in Russian and English was prepared and distributed at different Conferences. Several presentations were prepared and delivered at different level Conferences, including regional events, national forums and International Conferences. Also several papers describing the project and its first results were submitted to peer-reviewed Journals. Detailed project description as well as its results is maid available to specialists and general public via the bilingual project web portal.

The performed tasks also included:

. Linguistic and substantive editing of the documents issued in process of CA performance and implementation on the project web site all relevant information as an on-line, searchable set of electronic documents;

Preparation of multi-media material describing the project such as fliers, a demo CD, PowerPoint presentations and graphical components that can be used in standard scientific publications, or for posters and presentations;

Implementation and maintenance the project web portal and Database to make the above material on the Internet.

In course of the **WP11** performance a targeted group including mainly postgraduates was selected from NIS Partner organizations and hosting organizations for their training were selected. Relevant sources of their support were determined with main emphasis on extra-project

funding. During the third year 18 researchers from Partners organizations participated in the exchange Program.

Table 2.1 Deliverables list (full duration of CA). Status.

Del. no.	Deliverable name	Nature	Delivery date	Status
D10.1	Project description	R	06	Ready
D10.2	Project web portal	D	06	Ready
D2.1	Site development and user Manual	D and R	06	Ready
D4.1	Database development with info on the current environmental RTD projects	D	06	Ready
D2.2	Intranet development and user Manual	D and R	12	Ready
D2.3	Database development and user manual	D and R	12	Ready
D3	Metadata format description and Manual for data transformation	R	12	Ready
D4.2	Synergy between the current projects and Recommendations	R	12	Ready
D1.1	Intermediate report	R	18	Ready
D10.3	Plan for using and disseminating knowledge	R	18	Ready
D7	Database with info on the new RTD projects	D	19	Ready
D.6	Joint Technological Implementation Plan	R	20	Ready
D5.1	First Conference organization	R	20	Ready
D5.2	Publication of the Proceedings (hard copies, CD and e-version on the web)	O	20	Ready
D8.1	Synergy between new projects and Recommendations	R	24	Ready
D8.2	Memorandum and Recommendations on future RTD environmental activity in Siberia.	R	30	Ready
D9.1	The second Conference organization	R	36	Ready
D9.2	Publication of the Proceedings (hard copies, CD and e-version on the web)	O	36	Ready
D10.2	Final report	R	36	Ready
D10.4	Technical implementation plan	R	36	Ready
D10.5	Dissemination report	R	36	Ready
D10.6	Report on raising public participation and awareness	R	36	Ready
D11	Integrated Report on research work performed in course of exchange Program	R	36	Ready

Table 2.2 Milestones list (full duration of CA). Status.

Ms no.	Deliverable name	Delivery date	Status
M01	Launching the Project web portal into operation	10	Achieved
M02	Development of distributed Database on characteristics of Siberian environment and metadata standart	18	Achieved
M03	The first results of the expert work on the most critical for the region man-made risks for environment	20	Achieved
M04	The Recommendations to establishing cooperation between different Projects devoted to Siberian environment	24	Achieved
M05	The Memorandum on the hottest environment topics demanded by the region under study	36	Achieved

Workpackage progress of the period

WP 01 Project Management

(see also the Section 3 – Consortium management)

- **Workpackage objectives**

The objective of the work package is the co-ordination of the project activities, monitoring of time tables, milestones, and Deliverables, as well as the quality assurance procedures. It should provide the basis for an efficient communication and co-operation project participants, and maintain a constructive dialog with the Commission project officers and to set up Project Scientific and Technical Committees from coordinators and contractors of relevant projects of different level and Project Steering Committee from those and external to coordinated projects experts in Environmental Sciences and Applications and representatives of Siberian Federal District as end users. Establish experts group and organize their work.

- Progress towards objectives –

The first year

The project **Launching Meeting**, which gathered key representatives of all Partners, took place in Copenhagen during January 30-31, 2006. Additionally to typical for such meetings management issues its agenda included a special section on Coordinated Projects, where detailed descriptions of major findings were given in more than 20 presentations/reports. Complete information on this meeting including reports presented is available in internet (http://project.risks.scert.ru/management/meetings/kick/). Major result of the meeting is in allocating all to projects to selected **Thematic Focuses** and in establishing relevant **Working Groups**.

Three Thematic Focuses/Groups consider major risks inherent to Siberia environment. These groups (with their leaders) are the following:

1. **Atmospheric Pollution and Risks** (Alexander Baklanov and Vladimir Penenko),
2. **Climate/Global Change and Risks** (Martin Heimann and Vasily Lykosov), and
3. **Terrestrial Ecosystems and Hydrology and Risks** (Michael Kabanov and Anatoly

Shvidenko).

The forth Focus has a generic nature and is devoted to:

4. **Information Systems, Integration and Synthesis** (Evgeny Gordov and Edige Zakarin).

The working groups also form a basis for organization of the thematic Expert Groups, which should elaborate practical recommendations for coordination of new projects on Siberia environment initiated by Partners.

The next Project event, which is the **first year Interim Meeting**, took place within frameworks of the International Conference on "Environmental Observations, Modeling and Information Systems" (ENVIROMIS-2006) held 1-8 July 2006 (Akademgorodok, Tomsk, Russia; http://www.scert.ru/en/conferences/enviromis2006/). Firstly, the special sessions, devoted the state-of-the-art of the targeted activity, were run, at which representatives of Partners and Associated Partners delivered relevant reports. This meeting description as well as presentations of the reports is available in Internet (http://project.risks.scert.ru/management/meetings/second/).

Partner 01 (DMI) leads this Workpackage and performed major part of this activity. DMI organised and hosted the project Launching Meeting at DMI in Copenhagen; coordinated all current work of the project consortium; and prepared, edited and published the First year Scientific Project Report: "Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia". First Report of EC 6FP CA Enviro–RISKS. Editor: Baklanov, A., DMI Scientific Report, 2006.

Partner 02 (SCERT) helped to co-ordinate the current work of the NIS partners of the project consortium; successfully realised the Project Milestone: M01 Launching the Project web-portal into operation (PM10), where all the materials from the above mentioned meetings are now available, see more details about this work below.

The second year

In process of the **WP01** performance the Annual Project meeting was hold in Tomsk, 25 July 2007, during the organized in course of the **WP09** Conference on Computational and Information Technologies for Environmental Sciences (CITES-2007, http://www.scert.ru/en/conferences/cites07/). Firstly, the special session, devoted the state-of-the-art of the targeted activity were run within the Workshop on Man-made Environmental Risks in Siberia, , at which representatives of Partners and Associated Partners delivered relevant reports. This Workshop description as well as presentations of the reports is available in Internet (http://www.scert.ru/en/conferences/cites07/matherials/). After it the Annual Project meeting was hold, which was opened for all participants of the Workshop.

Partner 01 (DMI) leads this Workpackage and performed major part of this activity as the coordinator. DMI coordinated all current work of the project consortium.

Resources deployed are for coordination and organisation of the Annual Project Meeting in Tomsk, Russia and in 4.9 project months personnel activity (project coordination and research activities during project years 1-2).

Partner 02 (SCERT) helped to co-ordinate the current work of the NIS partners of the project consortium. It organized the Annual Project Meeting and supported communications between EU and NIS Project Partners during the whole reporting period as well. Also SCERT co-ordinated overall NIS Partners activities and compiled relevant part in periodic Reports.

Resources deployed are in 5 project months personnel activity (correspondence, elaboration of the Project managing bodies, organization of meeting of the Steering and Technical Committees during CITES-2007 event and in reports preparation)

Partner 03 (MPI-BGC) participated in organization of the Annual Project Meeting in Tomsk, Russia. Resources deployed are in travel support of Prof. Dr. M. Heimann visit to Tomsk.

Partner 04 (IIASA) participated in organization of the Annual Project Meeting in Tomsk. Resources deployed are in travel support of Prof. A. Shvidenko visit to Tomsk.

Partner 05 (INM) participated in organization of the Annual Project Meeting in Tomsk, Russia, where Prof. V. Lykosov presented the report "Climate/Global Change (Thematic group results/findings)" http://www.scert.ru/conferences/cites/2007/presentation/ConferenceEng.html). Resources deployed are in 1 project month Personnel activity.
Partner 06 (IF) participated in organization of the Annual Project Meeting in Tomsk, Russia. Resources deployed are in travel support of IF team leader Prof. Dr. Onuchin A.A. and Dr. Mikheyeva N.A. visits to Tomsk. Resources deployed are in travel support of IF team member N. Mikheeva travel to Tomsk.
Partner 07 (KGC) participated in organization of Annual Project Meeting in Tomsk, Russia. Resources deployed are in partial travel support of KGS team leader Prof. E. Zakarin and Dr. Mirkarimova visit to Tomsk.
Partner 08 (URIIT) participated in organization of Annual Project Meeting in Tomsk, Russia. Resources deployed are in 1 project month Personnel activity covered from internal funding.
Partner 09 (IMCES) participated in organization of the Annual Project Meeting in Tomsk, Russia. Also Prof. Kopylov V.N. was appointed as a new person responsible for project carrying out. He has visited "KAZGEOCOSMOS Ltd", Almaty, Kazakhstan for acquaintance with the project and coordination of works with colleagues who are engaged in similar problems: application of technologies of remote sounding and geoinformation systems in ecological monitoring areas of an oil recovery and gas. Resources deployed are in 1project month Personnel activity
Partner 10 (ICMMG) participated in organization of the Annual Project Meeting in Tomsk, Russia and in organization and management of the ICMMG activity in the frames of the project. Resources deployed are in 1 project month Personnel activity.

The third year

In process of the **WP01** performance firstly the Project Meeting was organized in Laxenburg, Austria, on 18 April 2008, during General Assembly of EGU, which took place in Vienna where near all Partners participated. Main point discussed was preparation of the Expert Groups Reports. Drafts of all four Reports and directions of future work were discussed. Then during the organized in course of **WP10** ENVIROMIS-2008 Conference the Annual Project Meeting as well as Project management Meeting were hold to consolidate Partner's activities before the project finalization and discuss the result obtained.

The co-ordination of project activities is achieved through electronic communication, primarily via project web portal and e-mail lists as well as direct telephone or personal contacts whenever necessary; activities also include the preparation and chairing of regular project management board meetings and technical meetings, keeping minutes and records, and communication to all partners via the web site.

All public deliverables and the Executive Summaries of project internal deliverables will be placed on the project web site. The work also includes the communication with the Commission, and the preparation of the regular management and progress reports, the preparation of review meetings, and compilation of cost statements.

All Partner were involved into this Workpackage, P01 leads.

Partner 01 (DMI) leads this Workpackage and performed major part of this activity as the coordinator. DMI participated in organization of the project Meeting at IAASA and SCERT and took part in the both Meetings; coordinated all current work of the project consortium; and prepared, edited and published the Final Scientific Project Report, comprising four Expert groups Reports.

Resources deployed are for organisation of the Annual Project Meetings at IIASA, Laxenburg, Austria (April 2008) and at SCERT, Tomsk, Russia (July 2008), and in 9 project months personnel activity (project coordination and research activities).

Partner 02 (SCERT) participated in organization of the Project Meeting in Laxenburg and organized the Meeting in Tomsk and was supporting communications between EU and NIS Project Partners during the whole reporting period as well. Also SCERT co-ordinated overall NIS Partners activities and compiled relevant part in periodic Reports. Resources deployed are in travel support and in 3 project months personnel activity.

Partner P03 (MPI-BGC) participated in organization of Project Meetings.

Partner P04 (IIASA) organized the Project Meeting in Laxenburg (April 2008) and participated in organization of the Annual Project Meeting in Tomsk meeting as well as participation in it where Prof. A.Shvidenko presented the report "Terrestrial ecosystems and hydrology (Thematic group results/ finding).

Partner 05 (INM) participated in organization of the Annual Project Meeting in Tomsk, Russia, where Prof. V. Lykosov presented the report "Climate/Global Change (Thematic group results/findings)".

Resources deployed are in 0,5 project month Personnel activity.

Partner 06 (IF) Dr. Onuchin A. participated in in organization of the Project meeting in Tomsk and participated in it in process of performance Work Package 01. Resources deployed are in travel support and 1,5 project months personnel activity on preparation and conducting of audit. The direct costs were salary and payment of audit on the WP 01 Enviro-risks project.. Source of financing is other IF project. No direct costs were charged against WP 01 on the Enviro-risks project.

Partner 07 (KGC) participated in organization of the Project Meetings in Laxenburg, Austrtia and in Tomsk and participated in Laxenburg Meeting. Resources deployed are in 1 project month personnel activity funded from own KGC budget.

Partner 08 (URIIT) participated in organization of the Meeting in Tomsk. Resources deployed are in 1 project month Personnel activity covered from own funds.

Partner 09 (IMCES) participated in organization of the Project Meetings in Laxenburg and in Tomsk and participated in the Tomsk Meeting.

Partner 10 (ICMMG) participated in organization of the Meetings in Laxenburg and in Tomsk and participated in the Tomsk Meeting.

Partner 02 (SCERT) helped to co-ordinate the current work of the NIS partners of the project consortium; successfully realised the Project Milestone: M01 Launching the Project web portal into operation (PM10), where all the materials from the above mentioned meetings are now available, see more details about this work below.

WP 02 Development and support of the Project web portal and environmental information distributed database

- **Workpackage objectives**

To develop, launch and support in operation the Project web portal site as an internet accessible information-computational system, which forms communication, discussion, dissemination and education platform on environmental issues for CA participants as well as for EU and NIS professionals and general public;

To develop and launch distributed information system for remote access to structured information resources on Siberia environment, its management under anthropogenic environmental risks and methods of its remediation as an instrument for exchange and dissemination of information between relevant project participants

- Progress towards objectives –

The first year

In course of the **WP02** performance the dedicated Project web-portal (http://projects.risks.scert.ru) was designed, developed and launched as a bilingual tool for dissemination of the CA and relevant projects results and approaches and as an information resource on general environment issues (http://risks.scert.ru/resources/), including those adjusted also for usage in education process. It is also provided with specially adjusted Intranet allowing the Network participants share and enlarge all common information resources. After launching the portal permanent operation support, maintenance and updating are carrying out. Also as an element of the distributed information system for remote access to structured information resources on Siberia environment an internet accessible database, which contains description of the INM climate model and results of numerical experiments with this model, was launched at the Partner 05 site (http://kvs.inm.ras.ru/index.html) and Partner 09 developed GIS-portal (http://gis.imces.ru/gisportal/) comprising tools for spatiotemporal analysis and visualization of environmental data as an additional element of the Database.

Partner 02 (SCERT) leads this Workpackage and performed major part of this activity. A set of IT tools was developed and adapted to the project's tasks. It includes the site engine and a set web services supporting easy administration by the site content and operation. It allows the dedicated team to support the open for all Internet users Project site, which is organized as an information system, and the open only for the Network participants Project Intranet. The site engine is based on PHP technologies. The approach used allow users to have an access to gathered earlier and in the process of the Project execution information resources in area of basic and applied Environmental Sciences and of relevant national and international organizational activity. The based on the same engine Project Intranet allows the Network participants to exchange by information resources and forms a reliable instrument for a distributed project management. Supported by the developed tools Enviro-RISKS web-portal (http://risks.scert.ru) forms an instrument for the project management as well as for dissemination of results obtained and gathered, including best practices cases and general and specific information resources. Construction of the site, data entry and handling in process of operation is realized from the administrative site. The site is a set of dynamic pages formed on the user query. A tree is an abstract data structure for this set. The key element in the user's work in the site (portal) is query. A query from the user interface on the application server is processed by the system core. The sequence of operations in a query processing consists of creating a query protocol, session processing, testing the user's rights, control over the menu formation and the integrity of the user data during his solution of the subject related problems. The application server is connected with the database server, where the data is accumulated. The latter is used by the applications and in case of necessity the 20-processor cluster can be used, where the calculations are performed. The server part of the software is two-layered: the lower layer contains DBMS MySQL and the Apache web server, on the upper layer there is middleware that can operate in Linux as well as Windows. Most of the code is written in PHP and Java. The used middleware allows one creating a thematic site (portal). The interface for the portal administrator is built up considering the functions of creators of a site or a portal. It is assumed that site creators fulfill the following functions: expert, applied programmer, designer, and system programmer.

Resources deployed are in 18 project months personnel activity (portal software design, development and implementation, portal launching, preparation of e-form of relevant information resources and their translation, maintenance and support of the portal operation as well as in support of the portal Internet accessibility and in hardware for the data storage (Raid massive)

Partner 05 (INM) developed as an internet accessible database, which contains description of the INM climate model and results of numerical experiments with this model and launched it at the INM site (http://kvs.inm.ras.ru/index.html). These numerical experiments were devoted to reproduction of climate change in the 20th century and estimation of possible climate change in

the 21st and 22nd centuries. At the moment, there are 3 sections in menu of this database: 1) the description of the model and experiments, and some selected publications, 2) tools to calculate and plot one-dimensional data, and 3) tools for two-dimensional data post-processing and plotting. Section 1 includes: 1) a brief description of the INM climate model (labelled as INMCM 3.0) and numerical experiments, results of which are stored at the site; 2) the table with description of the specific features of experiments, and 3) electronic copies of scientific papers related to informational subject of this site. Section 2 of menu is devoted to annually and globally averaged characteristics of model variables (2m temperature, precipitation and sea level) received in different experiments with the INM climate model. It is possible to download data, as well as to draw a picture. In Section 3, an user has a possibility to calculate and plot two-dimensional (latitude-longitude) distributions of a number of climate parameters, such as ground temperature, 2m temperature, sea-level pressure, precipitation, snow depth, cloudiness, sea ice concentration, soil water content, etc.
Resources deployed are in 1 project month INM personnel activity (elaboration of the site structure, implementation of the site on the INM server, support and extension of the site content). Additionally 4 person months activity, required to perform relevant modeling as well as supercomputer usage cost were supported from INM own budget.
Partner 06 (IF) prepared necessary environmental information and implemented it at the dedicated database. The following priority directions were selected to develop information system allowing Partners to remote access information resources on Siberia environment, data on its management under anthropogenic environmental risks and methods of its remediation: Landscape transformation, modification of forest types, hydro - clime conditions under the influence both nature and man-course factors; and Evaluation of after-effects of some man's impacts for environmental on the basis of GIS – technologies and ground-based investigations.
Resources deployed are in 1 project month personnel activity (selection and preparation of data).
Partner 07 (KGC) provided the Database under development with information resources on results of air and land pollution problems handling in Kazakhstan.
Partner 08 (URIIT) together with the regional partners: Ugra State University, the Siberian Research Institute of Efficient Nature Management, the Tyumen Research Institute of Ecology and Efficient Nature Management and Tomsk State University, has prepared and represented at the International Conference "Enviromis-2006" and the 5th International Forum "Control and Rehabilitation of the Environment" (Tomsk, July 2006) 10 oral and poster reports on the following directions of URIIT team responsibility: oil pollution of the environment and reclamation of oil polluted lands (5 reports); hydrology and water quality (4 reports) and space monitoring of the environment (1 report). These reports were provided for the development and support of the Project web-portal.
Resources deployed are in 1 person month Personnel cost.
Partner 09 (IMCES) created geoinformation open-code portal as an element of the distributed Database. The GIS-portal http://gis.imces.ru/gisportal/ comprising tools for spatiotemporal analysis and visualization of environmental data developed by us is implemented as a web-application based on CGI protocol, while interaction with a user is implemented by means of HTTP protocol. All software for this GIS-portal is made in Perl computer language. Development of a web-application means realization of some infrastructure that provides development of this web-application itself. In the system described the «CGI Core» work of authorship is used that provides the necessary infrastructure. This application gives handy graphic interface for database using HTML controls. An interfacing has been carried out between GIS-server, data server and computational block on the example of complex analysis of botanic and physico-chemical processing of field investigation of stratigraphic columns of peat deposits at key sites of Great Vasyugan Bog.
Resources deployed are in 1 project month personnel activity.
Partner 10 (ICMMG) provided the Database under development with information resources of atmospheric pollution transport in Siberia.

Contractors involved: P02 (lead), P05, P06, P07, P08, P09 and P10.
Main result of WP02 is in appearance of efficient IT based tool for professional and relevant information exchange. It also opens results obtained by the CA members to national/international public, thus rising public awareness and stimulating environment protection and to international research community, thus giving an access to EU researchers to unique information resources on NIS environment. It also might help to avoid duplication of efforts of different research groups working in Siberia.

The second year

In course of the **WP02** performance the dedicated Project web portal (http://risks.scert.ru) was supported in operation as a bilingual tool for dissemination of the CA and relevant projects results and approaches and as an information resource on general environment issues (http://risks.scert.ru/resources/), including those adjusted also for usage in education process. The portal permanent maintenance and updating are carrying out. In particular special modulus were develop to provide qualified user with opportunity to access regional climate dynamics on the base of Reanalysis data (http://climate.risks.scert.ru/) and city of Tomsk air quality dynamics (http://air.risks.scert.ru/tomsk-mkg/). New modules for its internet accessible database, which contains description of the INM climate model and results of numerical experiments with this model were developed and launched it at the INM site (http://kvs.inm.ras.ru/index.html) as a part of the distributed system.
Partner 02 (SCERT) leads this Workpackage and performed major part of this activity. Resources deployed are in 3 project months personnel activity (additional portal modules software design, development and implementation, maintenance and support of the portal operation as well as in support of the portal Internet accessibility and in Other costs: (Internet traffic costs).
Partner 05 (INM) developed new modules for its internet accessible database, which contains description of the INM climate model and results of numerical experiments with this model and launched it at the INM site (http://kvs.inm.ras.ru/index.html). These numerical experiments were devoted to reproduction of climate change in the 20th century and estimation of possible climate change in the 21st and 22nd centuries. Now, the bilingual (Russian and English) version of this site is implemented and additional datasets are made available. There are 3 sections in menu of this database: 1) the description of the model and experiments, and some selected publications, 2) tools to calculate and plot one-dimensional data, and 3) tools for two-dimensional data post-processing and plotting. Additionally to the coupled atmosphere–ocean general circulation model, an atmosphere model coupled with a simple balance model of the heat content of a homogeneous 50-m ocean layer is used. This model also involves the calculation of sea ice and uses the correction of heat fluxes at the ocean surface. Such a simplified coupled model allows prompt obtainment of an equilibrium response to a prescribed external forcing, for example, to an increase in the CO_2 concentration. Results from the following numerical experiments with this model are launched at the site.
Resources deployed are in 1 project month INM personnel activity (elaboration of the site structure, implementation of the site on the INM server, support and extension of the site content). Additionally 4 person months activity, required to perform relevant modeling as well as supercomputer usage cost were supported from INM own budget.
Partner 06 (IF) prepared new environmental information and implemented it at the dedicated database. Resources deployed are in 0,5 project month personnel activity (selection and preparation of data). Source of financing is other IF project.
No direct costs were charged against WP 02 on the Enviro-risks project.
Partner 06 (IF) prepared new environmental information and implemented it at the dedicated database. Resources deployed are in 0,5 project month personnel activity (selection and preparation of data). Only personnel whose employment contract depends in part on additional external financing were paid from the Project funding.

Partner 07 (KGC) has performed preparation and provision of reports represented at the International conference "CITES-2007" (Tomsk, July 2007) to the Project web-portal. Resouces deployed are in 1 person month Personnel cost.
Partner 08 (URIIT) initiated development of a data bases on computer server for needs of the project. The efforts have been concentrated on creation of a database about the Ugra rivers and databases about oil-polluted Ugra forests. Resources deployed are in equipment (computer for creation in URIIT local network of a DB server) cost.
Partner 09 (IMCES) input into WP02 was in further development of the web-portal and the distributed database in 2007. The portal version was tested that has been based on two different platforms of open-code GIS interpreters. As the first platform we installed and tested the MapServer developed at University of Minnesota (UMN, USA). This product is intended to provide an Internet access to geoinformation data. The MapServer grants API to access to spatially distributed data both in vector (ESRI shape files) and in raster (TIFF, JPG, GIF, ERDAS) formats. As the second platform, we used Geoserver – OpenLayers bond. The server part is based on Geoserver product that is realized on Java (http://geoserver.org/). This product completely support OGC standards (Open Geospatial Consortium http://www.opengeospatial.org/), has modules for supporting all modern database types available, as well as formats of other geoinformation systems. The user's part is based on OpenLayers project (http://www.openlayers.org/) written in JavaScript, that has interface with Google Maps and allows one to create professional interface. Another activity is connected with development of specialized computational and GIS modules for integrated processing of multiparameter data. The most valuable results were obtained when processing long-term data collected in field studies of stratigraphic columns of peat deposits at key sites at Great Vasyugan Bog. Besides, we started development of information-measurement technique for spatiotemporal analysis of pulsed electromagnetic field of the Earth as a source of information on processes and inhomogeneities in lithosphere and probability of natural and technogenic risks associated with these processes. Resources deployed are in one person month IMCES personnel activity.
Contractors involved: P02 (lead), P05, P06, P07, P08, P09 and P10

The third year

In course of the **WP02** performance the dedicated Project web portal (http://risks.scert.ru) was supported in operation as a bilingual tool for dissemination of the CA and relevant projects results and approaches and as an information resource on general environment issues (http://risks.scert.ru/resources/), including those adjusted also for usage in education process. The portal permanent maintenance and updating are carrying out. In particular special modulus were develop to provide qualified user with opportunity to access regional climate dynamics on the base of Reanalysis data (http://climate.risks.scert.ru/) and city of Tomsk air quality dynamics (http://air.risks.scert.ru/tomsk-mkg/). New modules for its internet accessible database, which contains description of the INM climate model and results of numerical experiments with this model were developed and launched it at the INM site (http://kvs.inm.ras.ru/index.html) as a part of the distributed system.

Partner 02 (SCERT) leads this Workpackage and performed major part of this activity. Resources deployed are in 3 project months personnel activity (additional portal modules software design, development and implementation, maintenance and support of the portal operation as well as in support of the portal Internet accessibility and in Other costs: (Internet traffic costs).

Partner 05 (INM) developed developed new modules for its internet accessible database, which contains description of the INM climate model and results of numerical experiments with this model and launched it at the INM site (http://kvs.inm.ras.ru/index.html). Now, this bilingual (Russian and English) site contains results from experiments, which have been carried out both

in AMIP and CMIP modes and were devoted to reproduction of climate change in the 20th century and estimation of possible climate change in the 21st and 22nd centuries.

Resources deployed are in 0,5 project month INM personnel activity (extension of the site content).

Partner 06 (IF) Development and support of the Project web portal IF prepared necessary forest inventory information and implemented it at the dedicated database. Resources deployed are in 1 project month personnel activity (selection and preparation of data).

Contractors involved: P02 (lead), P05 and P06.

Main result of WP02 is in appearance of efficient IT based tool for professional and relevant information exchange. It also opens results obtained by the CA members to national/international public, thus rising public awareness and stimulating environment protection and to international research community, thus giving an access to EU researchers to unique information resources on NIS environment. It also might help to avoid duplication of efforts of different research groups working in Siberia

- **Deviations from the project workprogramme**

There were no deviations from the project workprogramme.

- **List of deliverables, including due date and actual/foreseen submission date**

Table 1: Deliverables List

All deliverables were submitted during the first reporting period.

Table 1: Deliverables List

List all deliverables, giving date of submission and any proposed revision to plans.

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/ Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D2.1	Portal development and user Manual	WP02	PM06	PM06	10PM	10PM	P02
D2.2	Project Intranet development and user Manual	WP02	PM12	PM12	6PM	6PM	P02
D2.3	Database development and user manual	WP02	PM12	PM12	4PM	4PM	P02

***) if available**

- **List of milestones**, including due date and actual/foreseen achievement date

Table 2: Milestones List

List all milestones, giving date of achievement and any proposed revision to plans.

Milestone no.	Milestone name	Workpackage no.	Date due	Actual/Forecast delivery date	Lead contractor
M01	Launching the Project web portal into operation	WP02	PM10	PM10	P02

Input into M02 Development of distributed Database on characteristics of Siberian environment and metadata standard (due date and foreseen achievement date PM 18)

WP03 Gathering and systematization of information resources obtained

- **Workpackage objectives**

To gather and systemize environmental information resources obtained in process of environmental studies in Siberia and to perform relevant expert group's studies thus preparing a foundation for usage of elaborated recommendations in the dedicated NIS regions, suffering the same type of man-induced environmental risks;

To develop environmental metadata standard and establish it within the Consortium

- Progress towards objectives

The first year

In course of the **WP03** performance Data gathered by Partners during performance of RTD Projects in Siberia are systemized, commented and done accessible for Partners via the Project Portal. Metadata catalogs are opened to interested parties and specialists. Gathered and systemized environmental information resources obtained in process of environmental studies in Siberia as well as Reports on performed by relevant expert group's studies are done available for Partners as well.

Contractors involved: P06 (leads), P01, P02, P03, P04, P05, P07, P08, P09 and P10.

Partner 01 (DMI) performed long-term simulation of atmospheric transport and deposition patterns from sources of continuous anthropogenic sulphates and radionuclides emissions located in the Siberian, Kazakhstan, Ural, and other geographical regions. The Danish Emergency Response Model for Atmosphere (DERMA) was employed to perform simulations of air concentration, time integrated air concentration, dry and wet deposition patterns resulted from continuous emissions of chemical risk sites. The geographical locations of the Siberian chemical and metallurgical enterprises situated near the cities of Kemerovo, Norilsk, Novokuznetsk, Chelyabinsk, Ekaterinburg, Nizhniy Tagil, Krasnoyarsk, Zheleznogorsk, and others were selected as representative sources of such emissions. To perform such simulations the European Center for Medium-Range Weather Forecasts (ECMWF) 3D meteorological fields for two years were used as input by the DERMA model. Detailed analyses of simulated concentration and deposition fields for each site allow evaluating spatial and temporal variability of these resulted patterns on regional and hemispheric scales. The results of these simulations are also applicable for GIS integration as well as essential input for further evaluation of doses, impacts, risks, short- and long-term consequences for population and environment from potential sources of continuous emissions.

Partner 02 (SCERT) input into this Workpackage was in development relevant metadata catalogue and in deployment of relevant information resources at the Project portal as well as in providing an access to them. Resources deployed are in 3 project months personnel activity required to perform the above activities.

Partner 03 (MPI) together with partner institutions has performed gathering and systematization of information sources in different areas linked to the Siberian environment in the bounds of several EC projects focusing on causes for and effects on climate change in Eurasia. Most prominent current activities are the ZOTTO project (Zotino Tall Tower

Observatory), the YAK-AEROSIB study and the TCOS-Siberia (Terrestrial Carbon Observing System – Siberia). The chapter 'Observing Biogeochemical Processes in Eurasia' to the First EnviroRISKS CA scientific report was prepared by Prof. Heimann M. and Dr. M. Schumacher.

Partner 04 (IIASA) together with partner institutions has performed gathering and systematization of information sources in different areas linked to functioning of terrestrial biota of the region and assessment of its impacts on major global biogeochemical cycles (carbon, nitrogen). (1) Based on an advanced methodology of systems combination of different information sources (multi-sensor remotely sensed data, results of forest inventory, data of State Land Account etc.), a new map of land cover of West Siberia has been prepared at scale 1:1 million. A special database, which includes live biomass and Net Primary Production (both by components (fractions)) has been coupled with the land cover map. The data are presented by 25 land classes and grid 15'x15'. (2) Important results have been received for development of methodology of a regional *verified* terrestrial biota full greenhouse gas account. The methodology allows a reliable and comprehensive assessment of uncertainties of the terrestrial biota full greenhouse account (FGGA) for large regions. (3) A number of databases (measurements of live biomass and NPP *in situ*, heterotrophic respiration, disturbances) have been developed. (4) An advanced system of models of dynamics and biological productivity of forest ecosystems has been developed based on systematization and unification of all information sources on growth and dynamics of forests in Siberia. The system aims at modelling of impacts of climate change on condition and growth of forests. (5) A special CD-ROM on forests and forest management is being prepared and will be free available for public early 2007. Results of the above activities have been presented on 6 international conferences and published in 11 papers during 2006 (see Appendix 4).

Resources deployed are in 1 month personnel activities. In addition, major part of required resources has been presented by IIASA.

Partner 05 has analyzed information gathered by Siberian scientific organizations during performance of RTD Projects in Siberia with aim to combine data of climate and environment monitoring with results of climate modeling. Results are summarized in a peer-reviewed paper jointly prepared by the INM and IMCES teams (*Kabanov, Lykosov, Monitoring and modeling of climatic changes in Siberia. – Atmos. Oceanic Opt., 2006, 19, 675–685*). Review of empirical regularities recently revealed based on statistical processing of the instrumental data is presented. Among these regularities there are: trends and trajectories of the warming observed in Siberia, interseasonal variations of surface temperature, and temporal periodicities of the warming in different Siberian cities. The possibility of applying modern mathematical climate models to description of regional climatic changes is also discussed. Among the results of mathematical modeling that encourage there are the following: retrievals of regional surface temperature using joint model of general atmospheric and ocean circulation, assessments of the regional consequences of the global warming, the account for regional hydrological processes. Combination of these two methodological approaches (the empirical and mathematical modeling ones) is recognized to be promising; also, some unresolved problems arising at such a combination are shown to be necessarily addressed.

Resources deployed are in 2 project months personnel activity required to perform the above activities.

Partner 06 (IF) leads WP03. The primary objective of IF team was to gather and systemize environmental information resources obtained in process of environmental studies in Siberia. The information of environmental studies in Siberia was gathered in the form of published papers, PowerPoint presentations, data file and intermediate report. It has been analysed and structured along the following topic:

1. Hydrologic systems.
2. Remote sensing and GIS.
3. Monitoring, management and remediation of man-made changes in Siberia.

4. Carbon balance.
Metadata standard to be used in the Database is elaborated as well.
Resources deployed are in 2 person months IF personnel activity (elaboration of investigations, data analysis, transformation of the data) in travels for field works and Consumables (hardware components for computers and office equipment). Additionally 4 person months activity, required to perform relevant analysis and cost of relevant hardware used for the database were supported from own IF budget.
Partner 07 (KGC) input into WP03 concentrated on the using of IGIS project results in it. In process of work data concerning oil-and-gas branch are collected and systematized. Then these data are used in the development of GIS-technology of oil wells and pipelines space monitoring. The structure of metadata base is developed. The Mike 21 model is adapted to conditions of Northern part of Caspian sea for calculation of hydrodynamics and sea oil pollution. Experience of this work will be transferred to the Siberian scientists for usage in the analysis of oil operations influence on Siberian environment. Resources deployed are in 2 person months personnel activity.
Partner 08 (URIIT) together with partner organizations and with the assistance of the Khanty-Mansiysk Autonomous Okrug – Yugra Government and Administrations of other West Siberian has performed gathering and systematization of the following information resources on hydrology and water quality (results, ongoing and future projects): data on the activity of Administrations of the Khanty-Mansiysk Autonomous Okrug – Yugra, Yamal-Nenetskiy Autonomous Okrug; Tyumen, Omsk, Sverdlovsk, Chelyabinsk, Tomsk and Novosibirsk regions in the sphere of territorial waters consumption and protection. Systematization of information resources on hydrology and water quality is prepared and will be realized in the nearest future as a draft Federal Target Program (FTP) on preservation and efficient consumption of natural resources in the Ob-Irtysh basin. Decision on the necessity of the mentioned FTP elaboration was made in the process of the Water Forum realization that was held in the framework of the IV International Ecological Action "Save and Preserve" in May 2006 (Omsk – Khanty-Mansiysk) as well as during the research-practical conference "The Ob-Irtysh basin is the Russia national patrimony" organized by the Tyumen Oblast Duma Council, the Yamal-Nenetskiy Autonomous Okrug State Duma and the Khanty-Mansiysk Autonomous Okrug –Yugra Duma in October 2006 (Salekhard). URIIT acted as an organizer and an active participant of the mentioned actions. Additionally gathering of information resources on oil pollution of the environment and reclamation of oil polluted lands was performed owing to the Project associated partners: the Siberian Research Institute of Efficient Nature Management, the Tyumen Research Institute of Ecology and Efficient Nature Management and Tomsk State University. These resources were actively used with organization of students and postgraduates studies in higher educational institutions in the cities: Khanty-Mansiysk, Surgut, Nizhnevartovsk and Tyumen. Results of remote sensing data analysis were regularly archived in the URIIT Supercomputer Centre and were used for solving environmental risks assessment tasks and the territory population safety threats prevention tasks.
Resources deployed are in 2 person months personnel activity.
Partner 09 (IMCES) in course of WP03 performance carried out systematic observations at research stations in summer and autumn to get supplementary data on environment state in the most characteristic Siberian regions like forests, forest-bog and bog areas. Also common information base is under development that combines field measurements of different formats. In particular, a database on physico-chemical and biological characteristics of peat obtained form stratigraphic columns at key sites of forest-bog systems of different types in West Siberia. This database includes both measurement data and metadata, characterizing conditions and parameters of sampling, botanical composition, peat classification, results of laboratory tests and necessary data for gridding sampling sites on the territory. Results received at processing materials obtained in expeditions at four key sites of Great Vasyugan Bog (GVB) carried out in 2002-2005 will form a basis for data. These sites represent different GVB parts and give its total

characteristics. Comprehensive analysis of 2500 peat samples was carried out. These samples were obtained when processing 63 thoroughly sampled cores over all depth of peat deposits from 2.5 to 5.2 m. As the main characteristics the following ones were investigated: botanic composition and decomposition rate, ash content and density, pH and pigment content, elemental and micro elemental composition, sample radiocarbon dating on ^{14}C and determination of $^{12}C/^{13}C$ ratio. For subsidiary dating of peat upper layers ^{210}Pb and ^{137}Cs content was measured and age of cingulum of a hard pine (Pinus palustris) was determined. To reconstruct hydrological regimes, a calculation was made using ecological scales based on analysis of peat botanic composition. To reconstruct climate, pollen analysis of peat samples was made. Studies have been started of thermal characteristics of peat for consequent simulation of cryogenic processes.
Resources deployed are in 2 person month IMCES personnel activity (processing of observation results) and equipment for data collecting in expeditions (paid from own IMCES funding).

Partner 10 (ICMMG) in course of WP03 performed a study on methods and approaches in usage of data bases for solution of climatic and ecological problems with the help of numerical models. In the frames of RTD projects, current and finished by ICMMG, a concept of data bases analysis with respect to given goal criteria was formulated. The target is in revealing the key aspects that form the processes under study. There are some modifications of the methods realizing the concept and treating different types of data:

- systematic fields of data with regular time-space structure;
- results of asynchronous and nonregular measurements of characteristics of the dynamic systems (atmosphere, water, pollutants, etc);
- generalized characteristics of behavior of the systems under study written as linear / nonlinear functionals in the form of inner products in multidimensional spaces for risk quantification.

The main features of the algorithms were tested on the Reanalysis NCEP/NCAR data base for 53 years.
These new and effective methods are recommended to be used for analysis and synthesis of multi-dimensional and multi-component data fields obtained from measurements and modeling scenarios collected in the project as well.
Resources deployed are in 1 person month ICMMG personnel activity.

The second year

In course of the **WP03** performance efforts of the previous period were continued. Data on recently started RTD Projects in Siberia were systemized, commented and done accessible for Partners via the Project Portal. Gathered and systemized environmental information resources obtained in process of environmental studies in Siberia as well as Reports on performed by relevant expert group's studies are done available for Partners as well.
Contractors involved: P06 (leads), P01, P02, P03, P04, P05, P06, P07, P08, P09 and P10.
Partner 01 (DMI) input into WP03 performing analysis of simulated concentration and deposition fields for each considered risk sites located in the Siberian, Kazakhstan and Ural for evaluating spatial and temporal variability of these resulted patterns on regional and hemispheric scales.
Partner 02 (SCERT) input into this Workpackage was in development relevant metadata catalogs and in deployment of relevant information resources at the Project portal as well as in providing an access to them. Resources deployed are in 2 project months personnel activity required to perform the above activities.
Partner 03 (MPI-BGC) compiled systematic observations over all seasons from the research stations established in the Terrestrial Carbon Observing System – Siberia (TCOS-Siberia) in some of the most characteristic Siberian Taiga and Tundra areas to get supplementary data about the state of the environment.

Partner 4 (IIASA) Resources deployed are in 1 month personnel activities. In addition, major part of required resources has been presented by IIASA.

Partner 05 has analyzed information gathered by Siberian scientific organizations during performance of RTD Projects in Siberia. A special attention was paid to hydrologic consequences of global warming, since observations and climate models show that the present-day changes in the radiative forcing affect the surface heat and moisture budgets, thereby involving the hydrologic cycle.

Resources deployed are in 2 project months personnel activity required to perform the above activities.

Partner 06 (IF) leads WP 03. The primary objective of IF team was to gather and systemize environmental information resources obtained in process of environmental studies in Siberia.

Resources deployed are in 1 person months IF personnel activity (elaboration of investigations, data analysis, transformation of the data) in travels for field works and Consumables (hardware components for computers and office equipment). office equipment for analysis and publication of data and computer support and access, publication services, administrative support and premises (overhead costs). Only personnel with a temporary contract with a view to completing a doctorate and those whose employment contract depends in part on additional external financing were paid from the Project funding. Additionally 2 person months activity, required to perform relevant analysis and cost of relevant hardware used for the database were supported from own IF budget.

Partner 07 (KGC) in course of WP03 performed the system of geoinformation modeling of territorial processes SysGISM (System of GIS - Modeling). SysGISM is intended for the in-depth analysis of space monitoring data. Software UML (Unified Modeling Language) was chosen as a project tool. According to this method SysGISM project was done with UML stage by stage: (1) target setting, (2) analysis, (3) designing, (4) system programming. Project decisions implemented in SysGISM are quite universal and can be used for the region of Siberia that meets the requirements of EnviroRISKS project.

Partner 08 (URIIT) gathered and systematized ground and satellite images data for oil polluted Ugra forests. The work was performed in 10 problem oilfields. Images from Landast, Spot and Meteor -3M satellites have been gathered. Shooting from the satellite ALOS (Japan) was ordered and carried out in the summer 2007. Expedition to the oil polluted and the burnt out forests was organized. Complex satellite and ground expedition date analysis was carried out.

Resources deployed are in 1 project month Personnel activity covered from internal funding..

No direct costs were charged against WP03

Partner 09 (IMCES) in course of WP03 performance in the reported period meteorological observations were carried out at Vasyuganie station (IMCES SB RAS) at sites located within typical oligotrophic phytocenoses (tall ryam, low ryam, open fen, ridge-hollow complex) and eutrophic ones (dwarf birch-sedge, sedge-dwarf shrub community). The main carbon pools and fluxes have been estimated at the phytocenoces under study during vegetation period of 2007 year. Studying of temperature regime of the peat deposit, carried out using automated meters, allowed us to estimate dynamics of the peat deposit heating, course of soil freezing and defrosting, as well as to calculate some thermal and physical parameters of peat and moss. As a result, new data have been obtained on dependence of dynamics of carbon balance elements on local meteorological conditions. The methane and carbon dioxide fluxes have been assessed, as well as biological productivity of the ecosystems under study and total carbon reserves in peat deposit. The CO_2 emission depends on air temperature, air humidity and temperature of active peat layer. The temperature of both peat deposit surface and the upper 10-cm layer have the most strong influence on CO_2 emission. Carbon dioxide content in the air has diurnal dynamics and depends on air temperature and humidity, as well as on peat deposit surface temperature.

Along with systematic observations carried out at research sites of IMCES SB RAS, a number of expeditions were organized during spring, summer and autumn. It gave supplementary data

on environmental state in the most characteristic Siberian regions: forest, forest-bog and bog ecosystems, as well as lakelet deposits in West Siberia, Gorny Altay and Sayan Mountains.
Based on multifactor analysis of bog-forming process genesis, we continued to develop multiparametric method for Holocene climate and landscape reconstruction from peat and lakelet deposits (12 -15 thou. years).
Comprehensive field studies were carried out (in West Siberia and along Sibir – Europe supply pipeline) of spatiotemporal structure of pulsed electromagnetic filed of the Earth in order to develop information-measuring technique for monitoring of lithosphere structures and inhomogeneities.
Resources deployed are in 2 person month IMCES personnel activity (processing of observation results) and equipment for data collecting in expeditions (paid from own IMCES funding).
Partner 10 (ICMMG) in course of WP03 performed analysis of multi-dimensional and multi-component data fields obtained from measurements and modeling scenarios to reveal the main factors and principle components in meteorological fields of climatic scales. Such kind of studies allows one to design a long-term hydrodynamic background for environmental scenarios in the Siberian regions. Resources deployed are in 1 person month ICMMG personnel activity. Additionally 2 person months activity and computer facilities usage cost, required to perform relevant work were supported from own ICMMG budget.

The third year

In course of the **WP03** performance efforts of the previous period were continued. Data on recently started RTD Projects in Siberia were systemized, commented and done accessible for Partners via the Project Portal. Gathered and systemized environmental information resources obtained in process of environmental studies in Siberia as well as Reports on performed by relevant expert group's studies are done available for Partners as well.

Contractors involved: P06 (leads), P01, P02, P03, P04, P05, P06, P07, P08, P09 and P10.

Partner 01 (DMI) input into WP03 performing additional simulations of long-term atmospheric pollution impact and risk from risk-sites in Uzbekistan and Krasnoyarsk region of Russia, and final analysis of simulated concentration and deposition fields for different considered risk sites located in the Siberian, Kazakhstan and Ural for evaluating the integrated risk levels on regional and hemispheric scales. Resources deployed are in 1 project month Personnel activity.

Partner 02 (SCERT) input into this Workpackage was in development relevant metadata catalogs and in deployment of relevant information resources at the Project portal as well as in providing an access to them. Resources deployed are in 3 project months personnel activity required to perform the above activities.

Partner 03 (MPI-BGC) compiled systematic observations over all seasons from the research stations established in the Terrestrial Carbon Observing System – Siberia (TCOS-Siberia) in some of the most characteristic Siberian Taiga and Tundra areas to get supplementary data about the state of the environment.

Partner 4 (IIASA) continued to sytstemize information on regional projects on ecosystems and hydrology of the region. Resources deployed are in 1 month personnel activities. In addition, major part of required resources has been presented by IIASA.

Partner 05 has finished analyses of information gathered by Siberian scientific organizations during performance of RTD Projects in Siberia.

Resources deployed are in 2 project months personnel activity required to perform the above activities funded from own sources.

Partner 06 (IF) leads WP 03. The primary objective of IF team was to gather and systemize environmental information resources obtained in process of forest inventory, hydrological and climatologically studies in Siberia.

Resources deployed are in 3,5 person months IF personnel activity (elaboration of investigations, data analysis, and transformation of the data) and Consumables (hardware components for computers and office equipment). Additionally 2 person months activity, required to perform relevant analysis and cost of relevant hardware used for the database were supported from own IF budget.

Partner 07 (KGC) in course of WP03 performed risk mapping of adverse environmental impact on biota of north - east Caspian Sea region. The problem of evaluation of damage risks to flora and fauna during the accident on the oil pipeline is very important for the region of Caspian Sea. The assumed method can serve as a start for large cycle of investigations: form risks of accidents to vulnerability of biota. It can be used for similar activity in Siberia. Besides, KGC input into this Workpackage was in developement of MigRad (Migration of Radionuclide) software complex as GIS-project oriented at integration of a large volume of various information (mapping, ground-based and satellite-based survey) and modeling on its base local redistribution of radionuclides by rain flows and long-range transfer of radioactive aerosol from the territory of the test site. Resources are deployed in 2 project months personnel activity required to perform the above activities and supported from own KGC budget.

Partner 08 (URIIT) systematized ground and satellite images data for oil polluted Ugra forests. The work was performed in 10 problem oilfields. Images from Landast, Spot and Meteor -3M satellites have been analyzed. Resources deployed are in 1 project month Personnel activity covered from internal funding.

No direct costs were charged against WP03

Partner 09 (IMCES) in course of WP03 performance in the reported period continued systemization of data gathered in course of meteorological observations at Vasyuganie station (IMCES SB RAS) at sites located within typical oligotrophic phytocenoses (tall ryam, low ryam, open fen, ridge-hollow complex) and eutrophic ones (dwarf birch-sedge, sedge-dwarf shrub community).

Resources deployed are in 2 person month IMCES personnel activity (processing of observation results) and equipment for data collecting in expeditions (paid from own IMCES funding).

Partner 10 (ICMMG) in course of WP03 continued studies of multi-component and multi-dimensional fields collected in data bases and obtained quantitative criteria for estimation of informative quality of orthogonal basis subspaces with respect to initial set of climatic and environmental data . The methodology developed in the frames of the finished and current RTD projects allows one to separate information with respect to the scales of disturbances and levels of significance. The deterministic and deterministic-stochastic scenarios for the goals of environmental modelling for Siberian objects were constructed. The revealed regions of increased dynamical activity and risk are considered as objects for target monitoring and designing the strategies of environmental protection.

Resources deployed are in 2 person month ICMMG personnel activity and computer facilities usage cost which were supported from own ICMMG budget.

- **Deviations from the project workprogramme**, and corrective actions taken/suggested: identify the nature and the reason for the problem,

There were no deviations from the project workprogramme.

- **List of deliverables**, including due date and actual/foreseen submission date

Table 1: Deliverables List

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D.03	Metadata format description and Manual for data transformation	WP03	PM12	PM12	12 PM	12PM	P06

*) if available

Deliverable D.03 was submit during the first reporting period

- **List of milestones**, including due date and actual/foreseen achievement date

Table 2: Milestones List

List all milestones, giving date of achievement and any proposed revision to plans.

Milestone no.	Milestone name	Workpackage no.	Date due	Actual/Forecast delivery date	Lead contractor

Input into M03 The first results of the expert work on the most critical for the region man-made risks for environment (due date and foreseen achievement date PM20) and M04 The Recommendations to establishing cooperation between different Projects devoted to Siberian environment (due date and foreseen achievement date PM24).

WP04 Gathering, analysis and synergy search in different level project on Siberian environment

- **Workpackage objectives** and starting point of work at beginning of reporting period

To perform analyses of possible synergy between the different level project on Siberian environment, to determine most potentially important for the region environmental issues and on this basis to organize coordination between EC international projects devoted to study of regional environment with relevant SB RAS funded integration Projects and with projects performed under contracts with regional/local administrations and petroleum/gas producing and transporting enterprises/companies;

To integrate into the web Portal information on performed and ongoing RTD projects on relevant thematic with special emphasis on those comprising NIS based research teams, thus giving access to scientific excellence and disseminating their results as well as examples of success stories;

- **Progress towards objectives** – tasks worked on and achievements made with reference to planned objectives, identify

The first year

In course of the **WP04** performance information on performed and ongoing environmental RTD projects of relevant thematic was retrieved from all Partners, gathered and systemized. It was structured to allow user clear navigation in it and integrated into the project web-portal as a

special database (http://project.risks.scert.ru/program_project/project_database/projects/) and partially translated into Russian thus simplifying its influence in regions with traditionally low level of English knowledge. This activity resulted in launching open in Internet operative Database , which is one of the Deliverables (D4.1) of the project.

Four expert groups on environmental monitoring, on environmental management and environmental remediation from well known specialists from EU, Russia and NIS was setup to perform relevant analytic work and elaborate proper Recommendations also to be published at the web-portal and mailed all senior researchers participating in the Co-ordinated Projects.

Results obtained are in strengthening EU and NIS research potential in this domain, in wider usage of results obtained in relevant RTD activity and in higher level of potential involvement into environmental decision-making at their regions. It also will simplify cooperation between different research groups working at the same territory

Contractors involved P01, P02, P03, P04 (leads), P05, P06, P07, P08, P09, P10

Partner 01 (DMI) made a valuable input into WP04 performing analysis of possible environmental impacts in Siberia and Kazakhstan, performed long-term simulation of atmospheric transport and deposition patterns from sources of continuous anthropogenic sulphates and radionuclides emissions located in the Siberian, Kazakhstan, Ural, and other geographical regions (see WP3 DMI results). The results of these simulations will be used by other CA partners for GIS integration as well as essential input for further evaluation of doses, impacts, risks, short- and long-term consequences for population and environment from potential sources of continuous emissions. DMI performed also analyses of possible synergy between the EC and Nordic projects: FUMAPEX, GEMS, CARBO-North, Arctic Risk and NordRisk.

Partner 02 (SCERT) input into this Workpackage was in structuring relevant information resources to allow user clear navigation in it and in its integration into the project web-portal as a special database as well as in translation of major findings into Russian thus simplifying its influence in regions with traditionally low level of English knowledge.

Resources deployed are in 5 project months personnel activity

Partner 03 (MPI) provided gathering, analysis and synergy search in the bounds of several EC projects focusing on causes for and effects on climate change in Eurasia, e.g. the ZOTTO project (Zotino Tall Tower Observatory), the YAK-AEROSIB study and the TCOS-Siberia (Terrestrial Carbon Observing System – Siberia). A short overview is presented in the chapter 'Observing Biogeochemical Processes in Eurasia' of the First EnviroRISKS CA scientific report and more extended information is available on the project web-portal.

Partner 04 (IIASA), as a partner which leads the WP, provided aggregated analysis of contributions of all partners aiming at determining of most important regional environmental issues and searching possible synergy between the different level projects in order to improve coordination between EC international projects and relevant Russian researches. These results are discussed in Deliverable 4.2. The most important issues on stability of environment and ecosystems, on availability of potential risks and uncontrolled fluctuations of current state and future trajectories of development of natural landscapes and ecosystems in the region are: (1) potential threat for infrastructure originated from thawing of permafrost in major region of oil and gas extraction and elaboration; (2) increased risks of catastrophic wild vegetation (particularly forest) fire and outbreaks of dangerous forest insects; (3) strictly negative ecological impacts of the regional industry on environment that is revealed in atmospheric pollution, soil and water contamination, physical destruction of natural landscapes, some other impacts; (4) lack of knowledge of potential stability, buffering capacity, responses and feedbacks of ecosystems due to climate change and increasing anthropogenic pressure; (5) impact of predicted global change on health and life standard of regional population; and (6) need of cognition of future developments of the changing world as a complex ecological, economic and social system. While separate scientific directions and problems are basically sufficiently elaborated in numerous projects, there is an evident need of more integrated

approaches and considerations using methodology of systems analysis of complicated dynamic weakly organized open systems. This is one of major sources of synergy between projects of different level that allows to define optimal decisions for the entire systems. Another, more practical sources of synergy are (1) improvement and dissemination of advanced modelling approaches and software for solution of typical environmental tasks; (2) improving exchange of science results through developed web portal, conferences, workshops and other activities; (4) development of databases of measurements *in situ* and different empirical models and aggregations which would be free available for users; (5) organizing of joint field expeditions; (4) organizing of thematic schools and training sessions for young scientists; and (5) establishment of large integrated projects. Recently coordination of research in the region is being substantially improved, and the important role in this process play such coordinated bodies and initiatives like Siberian Branch of Russian National Committee of IGBP, SCRET, Enviro-RISKS, IBFRA, NEESPI. Development of a Siberian Regional Integrated Study of a relevant organizational and scientific structure (including, *inter alia*, development of integrated observing systems) and long-period sources of financing is considered as a crucial step in further improvements of all researches in the region.

Partner 05 (INM) made a valuable input into **WP04** performing analysis of possible catastrophic climate change in Siberia, with aim to determine, in particular, most important issues for Siberian environment. The IPCC scenarios for future concentration of greenhouse gases were used to estimate possible both global and regional (in particular, for Siberia) consequences. Accordingly to the INM climate model results, the global warming to the end of 21-st century will be, depending on scenario, of value from 2.0^{o}C to 3.5^{o}C. The most pronounced warming is expected in Arctic and in middle latitudes, especially, in Russia. For example, under scenario A1B the global warming is expected to be about 3.3^{o}C, while the winter warming in Russia is estimated from 4-6^{o}C in southern part to 8-10^{o}C in northern regions. In summer, the warming in Russia is estimated from 5-6^{o}C in south to 3-4^{o}C in north. Thus, one can expect essential consequences of this warming to the Siberia environment, like possible catastrophic shortage of the permafrost area in Siberia to the end of 21-st century. Also the southern part of West Siberia is expected to be more influenced in future by droughts then at present time. However, vegetation period will be longer than now, as well as number of frosty days should be less than at present time.

Resources deployed are in 2 project months personnel activity.

Partner 06 (IF) input into this Workpackage was in gathering and systemization of relevant thematic project's data. As a result of available analyzed data the team of IF selected following regions with differential type of environmental risks for database development: Changing of climatic and hydrological regime (Central Asia, West Siberia, Central Siberia, Far East, Altai-Sayan Mountain Oblast, Transbaikal Mountain, Oblast Near Pribaikal, the forest region Hamar-Daban); Post-fire forest disturbance (Angara river test region); Industrial danger (Krasnoyarskiy kray); The Siberian moth (Northern Asia, Krasnoyarskiy kray); Transformation of Middle Siberian Landscapes at of minerals (East Siberia (Sobinskoe oil field) West Siberia (Tyanskoe oil field, the north Taz-Yenisei region) South Siberia (Arginskii ridge, valley of Chulym river, East Sayan mounting)); and Changing of carbon and nitrogen balance (Yenisei meridian transect, especially North regions).

Resources deployed are in 3 project months personnel activity.

Partner 07 (KGC) input into this Workpackage was concentrated on the using of IGIS project results in it. In the process of the WP04 performance the data on explosion at the Semipalatinsk Nuclear Test Site are collected. On the base of this data the simulation of long range transfer radio nuclides and their dry and wet deposition on Siberian territory were carried out using DERMA model. These results have been discussed on Workshop in Tomsk, Russia. Resources deployed are in 3 person months personal activity covered from internal KGC funding.

Partner 08 (URIIT) with the assistance of partners has performed gathering, analysis and synergy search on Siberian environment in the following directions:

- Hydrology and quality of water resources (local and regional ongoing and planned projects in the Tyumen, Omsk, Sverdlovsk, Chelyabinsk, Tomsk and Novosibirsk regions; Project on Transboundary Monitoring of the Irtysh river at the boundary of Russian Federation and Kazakhstan; Project "Europe Aid/121579/C/SV/RU Monitoring and Warning System for the Ob/Irtysh River Basin");
- Environmental pollution by oil and gas complex enterprises and revegetation of oil-polluted territories of the Khanty-Mansiysk Autonomous Okrug – Yugra (projects on oil polluted lands reclamation performed by request of oil producing companies; projects on organization of local ecological monitoring of oil and gas production license plots realized under the supervision of the Environment Protection Board of KhMAO-Yugra);
- Space monitoring of the environment (Project «Space-Information Technologies for Ecological Analysis of Oil Production Impact on the Environment», Project «Pipelines Monitoring», Project «Detection of Fires with the use of Space Images and Additional Information»; joint projects with the European Space Agency «Use of emote Sensing Data and GIS-technologies for Flood Monitoring in Western Siberia», «Creation of a Quasi-operational System for Space Monitoring of Pipelines Buffer Zone Changes, with the use of ERS-2 SAR».

Resources deployed are in 3 person months Personnel activity.

Partner 09(IMCES) in course of WP04 performance created a standing multilevel analytical system in which leading scientists of IMCES are included as experts to coordinate environmental studies carried out at SB RAS institutes. First level – choice of priorities and investigation fields, is realized by joint councils of SB RAS in different sciences. Council meetings hold twice a year. Second level – research programs that include, as a rule, 5 to 8 matched projects carried out by scientists from several institutes. Now IMCES participate in 5 large projects (Atmospheric processes and their impact on nature and climatic changes in Siberia with regard to anthropogenic impact; Natural and anthropogenic factors of cryogenic systems in Eurasia; Complex monitoring of contemporary climatic and ecosystem changes; Development of distributed information analytical system for investigation of ecological systems; Development of instrumentation for satellite ecological monitoring of Siberia and Far East based on new information and telecommunication methods and technologies). Here the main coordinating work is fulfilled. It includes meetings of the corresponding councils (twice a year), meetings of working groups (at annual conferences and symposia), information exchange via specialized program site. Third level – goal-oriented projects that carried out within one institute. In the reported period IMCES had 5 projects with basic budget and 7 projects financed by Russian Foundation of Basic Research. Research coordination and discussion of results are fulfilled at scientific seminars holding 6 to 8 times a year in the IMCES departments. An overview of researches carried out at the institute was made at scientific session hold in February, 2006.

Resources deployed are in 1 person month IMCES personnel activity (participation in meetings) and in Other costs (Consumables and Equipment required to support infrastructure for organizing meetings and seminars at IMCES). Additionally 4 person months activity, required to perform relevant work were supported from own IMCES budget.

Partner 10 (ICMMG) performed analysis of current state in the scientific area of environmental modeling in Siberia in the focus of CA. There are some scientific teams in different institutes involved in environmental modeling. The leading groups are in Novosibirsk (5), Tomsk (4), Irkutsk (4), Krasnoyarsk (3), Tumen (2), Barnaul (2), Kemerovo (2), Yakutsk (1), Ulan-Ude (1), Chita(1), Omsk (1), Khanti-Mansiisk (1). There are two tendencies in the usage of modeling tools: development of original models of different complexity , and adoption of well-known internet-available models, like MM5, WRF, HIGHSPLIT, etc. On the basis of finished projects, analysis of peculiarities of environmental problems for some Siberian industrial regions and cities and requirements to mathematical models and their information supply was made. The main obstacle in both tendencies for Siberian condition is very bad provision with data of ground-based measurements to initialise and run modeling scenarios. As it is

impossible to change the critical situation with data in the nearest future, specific mathematical methods and models should be developed to provide reconstruction of the multi-dimensional state functions and model parameters using limited number of measurements from different monitoring devices. This is most important for development of the emergency systems which are practically absent in Siberia. Proposal on application of ICMMG models and methods for revealing prerequisites of ecological disasters and for emergency system was prepared for Novosibirsk department of Emergency Ministry of Russia (November 2005). Also Analysis and generalization of the results obtained by 11 teams of the SB RAS project "Ecological problems of Siberian cities" were made. The project is multi-disciplinary and covers such scientific fields as physics, chemistry, biology, medicine, mathematics and informatics concentrating on environmental problems. Recommendations on continuation of studies were discussed. The focus of the future work is on the problems of sustainable development and ecological safety. To maintain scientific collaboration that are already well established is very important for new interdisciplinary studies.
Resources deployed are in 2 person months ICMMG personnel activity. Additionally 2 person months activity and computer facilities usage cost, required to perform relevant work were supported from own ICMMG budget.

The second year
In course of the **WP04** performance information on performed and ongoing environmental RTD projects of relevant thematic was retrieved from all Partners, gathered and systemized. It was structured to allow user clear navigation in it and integrated into the project web portal as a special database and partially translated into Russian thus simplifying its influence in regions with traditionally low level of English knowledge.
Four expert groups on environmental monitoring, on environmental management and environmental remediation from well known specialists from EU, Russia and NIS was setup to perform relevant analytic work. The experts elaborated relevant Recommendations, which also will be published at the web portal and mailed all senior researchers participating in the Co-ordinated Projects.
Partner 01 (DMI) input into WP04 performing analysis of possible environmental impacts in Siberia and Kazakhstan, performed long-term simulation of atmospheric transport and deposition patterns from sources of continuous anthropogenic sulphates and radionuclides emissions located in the Siberian, Kazakhstan, Ural, and other geographical regions.
Partner 02 (SCERT) input into this Workpackage was in structuring relevant information resources to allow user clear navigation in it and in its integration into the project web portal as a special database as well as in translation of major findings into Russian thus simplifying its influence in regions with traditionally low level of English knowledge. Resources deployed are in 5 project months personnel activity.
Partner 03 (MPI-BGC) input was the acquisition of relevant thematic data with specific focus on impacts effective at the level of surface-atmosphere exchanges. No direct costs were charged against WP04.
Partner 05 (INM) made a valuable input into **WP04** performing analysis of possible catastrophic climate change in Siberia, with aim to determine, in particular, most important issues for Siberian environment. The methodology of this analysis is based on mathematical modeling of the present-day climate and on the assessment of future climate change in 21-st century. The IPCC scenarios for future concentration of greenhouse gases were used to estimate possible both global and regional (in particular, for Siberia) consequences. Accordingly to the INM climate model results, the global warming to the end of 21-st century will be, depending on scenario, of value from 2^{o}C to 3.5^{o}C. The most pronounced warming is expected in Arctic and in middle latitudes, especially, in Russia. Resources deployed are in 2 project months personnel activity.

Partner 06 (IF) input into this Workpackage was in gathering and systemization of new relevant thematic project's data. The team of IF has been preparing new data for regions, suffering the same type of man-induced environmental risks for database development. The data of estimation of Boguchanskaya hydroelectric power station building impact on environment included as well as last year's project. Resources deployed are in 3 project months personnel activity funded from IF own budget. No direct costs were charged against WP 04 on the Enviro-risks project. Source of financing is other IF projects.

Partner 07 (KGC) input into this Workpackage was concentrated on the using of IGIS project results in it. In process of work data concerning oil-and-gas branch are collected and systematized. The Industrial Air Pollution model for the multiple industrial sources located in the Kazakhstan sector of Caspian region is formulated and realized in the form of GIS technology. For petroleum gas flare the technology includes the stages of flares detection (according to MODIS data) and flares identification, calculation of combustion products emissions, calculation and visualization of pollution transfer in the space and time.

Resources deployed are in 2 person months personal activity covered from internal KGC funding.

Performing WP04 **Partner 08** (URIIT) concentrated on project of flood forecasting for northern rivers. Floods frequency and preceding hydrological regimes data were gathered. Radar sensing of Ugra rivers during ice motion was performed by ERS-2 satellite in spring, 2007. Hydrological posts date was collected during spring flood period. Resources deployed are in 1 person months Personnel activity covered by own URIIT budget. No direct costs were charged against WP04.

Partner 09 (IMCES) in course of WP04 performance in order to coordinate environmental studies carried out in institutions of SB RAS, a standing multilevel analytic system was created, in which leading scientists form IMCES SB RAS take part.

First level – choice of priorities and investigation fields is carried out by Joint Councils of SB RAS. Two meetings took place in 2007.

Second level – research programs of SB RAS and RAS have been made. IMCES SB RAS coordinates 2 programs: one within RAS programs (6 projects) and one within SB RAS programs (5 projects) that carried out by several institutes. Besides, scientists of IMCES SB RAS participate in other three SB RAS programs and one RAS program. Eight meetings were organized in 2007.

Third level – projects that carried out within one institute. Coordination of research and discussion of results realized via seminars holding monthly. Scientific Council of IMCES SB RAS considered coordination of research twice in 2007.

Resources deployed are in 2 person month IMCES personnel activity. Only personnel whose employment contract depends in part on additional external financing were paid from the Project funding. Additionally 2 person months activity, required to perform relevant work were supported from own IMCES budget.

Performing WP 04 **Partner 10** (ICMMG) fulfilled the following items: Analysis of the current state in the scientific area of environmental modeling in SB RAS in the focus of CA was made and the report on " Generalized quantitative description of climate dynamics for goals of environmental design and ecological risk assessment" for project's workshop in the frames of Cites-2007 on July, 2007 was prepared . The synergy between climatic and environmental air quality studies fulfilled in the different level projects is very well pronounced in this work. The essence is in the incorporation of climatic information in a generalized form into environmental studies. We propose to use such kind of information for construction of deterministic-stochastic scenarios of evolution of the atmosphere as supporting strata while solving the problems of environmental protection and ecological risk assessment. To this goal the technology was developed by ICMMG.

One more point was the subject of analysis in the current period. A large number of numerical schemes used in modern environmental models were considered from the point of view of

monotonicity and self-limiting diffusion arising due to involvement of monotonizators of different kinds. These properties are particularly crucial in the atmospheric chemistry problems in which the small values of the toxic secondary products can be incorrectly calculated due to uncontrolled effects of the self-limiting diffusion. The analysis resulted in the creation of a new class of the discrete-analytical approximations which posses the desired properties: unconditionally monotonicity, stability and trasportivity. The presentation on "Discrete-analytical approximations based on the global and local adjoint problems for the atmosphere, ocean and environment studies" was made at the CITES-2007 conference.
Maintaining scientific collaboration that are already well established is one of the very important goals of CA. Analysis and generalization of the results obtained in 2006 by the former partners of the finished SB RAS multi-disciplinary project "Ecological problems of Siberian Cities" were made. New results were presented by the colleagues at the workshop organized by ICMMG in December, 20, 2006 and recommendations for future work were discussed. One of them was connected with biological theme. The participants of the workshop congratulated the young researcher E. Svirko from Botanical Garden of SB RAS which was awarded by the prize of the Novosibirsk Regional Administration for the work "The use of lichens for bio-indication of atmospheric pollution of the city of Novosibirsk and its environment" fulfilled in the frames of the finished project. The continuation of the work is of interest for future multi-disciplinary studies. The coupling of the results of bio-indication with those of calculations made by numerical models and measurements of pollutants' concentrations in the atmosphere can give a better understanding of environmental problems. The work is directly concerned with searching a generalized characteristic of atmospheric quality. As it is questionable to find out a "carrier" of the long-living memory about the consequences of harmful impacts in the atmosphere itself, the use of biological indicators (lichens) in environmental study is progressive and recommended to be continued in the frames of a new multi-disciplinary project.
Resources deployed are in 1 person months ICMMG personnel activity. Additionally 2 person months activity and computer facilities usage cost, required to perform relevant work were supported from own ICMMG budget.

The third year

In course of the **WP04** performance, in spite of the fact that mainly it has been finished during the previous period some activity was undertaken. That is information on new performed environmental RTD projects of relevant thematic was systemized and integration of the information resources into the project web portal has been finished.

Partners 02 (SCERT) and 06 (IF) performed activity aimed at finalization of this WP. In particular, information on new performed environmental RTD projects of relevant thematic was systemized and integration of the information resources into the project web portal has been finished . Resources deployed are in 2 project months personnel activity supported from extraproject funds.

Partner 06 (IF) input was in systemization of new thematic projects data on spatial patterns of air temperature trends for the Central and Eastern Asia. Those firstly were approximated and mapped on the base of time series among 69 meteorological stations, using the topographic and relief-based spatial variables. Numerical experiments conducted with the model indicate that the proximity to the ocean is a considerable factor moderating temperature changes and the effect of the ocean decreases with increasing elevation above sea level. Spatial variability of climate changes in the result of energy-mass exchange processes occurring in the ocean-land-atmosphere system. The model of climate change trends may be useful for estimating climate-disturbance interactions and impacts (fire danger assessment, permafrost and hydrological processes modeling) in the circumboreal region.

Resources deployed are in 3,5 project months personnel activity and travel support.

There were no deviations from the project workprogramme.

- **List of deliverables**, including due date and actual/foreseen submission date

Table 1: Deliverables List

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D4.1	Database development with info on the current environmental RTD projects	WP04	PM06	PM06	12PM	12PM	P02
D4.2	Synergy between the current projects and Recommendations	WP04	PM12	PM12	8PM	8PM	P04

***) if available**

Relevant Deliverables were submitted during the first reporting period.

WP05 Organization of first conference and experts meeting

- **Workpackage objectives** and starting point of work at beginning of reporting period

To organize first thematic conference devoted to hot environmental topics of regional level monitoring, management and remediation of man-made environmental risks and to run during the Conference PSC and CASC aimed at approval of the experts groups Reports

- **Progress towards objectives** – tasks worked on and achievements made with reference to planned objectives,

The first year

In course of the **WP05** performance the Conference on Man-Made Environmental Risks: Detection, Monitoring, Management and Remediation and the intermediate CASC and PSC meetings was organized within thematically more wide Conference ENVIROMIS-2006. Four Sessions devoted to Detection, Monitoring, and Management of man-made environmental risks and Remediation of territories subjected to environmental damages. Special Session was devoted to first result of the Enviro-RISKS CA. To expand positive influence of the project results and their usage potential Project observers were from different regions of NIS were invited to participate in it. Being an independent part of the full format multidisciplinary international Conference on Environmental Sciences and Applications (ENVIROMIS) it gather 202 participants (99 young scientists) from Russia, Kazakhstan, Kyrgyzstan, Ukraine, Uzbekistan, 10 European countries and USA. Currently selected papers presented at the event are in process of publication at the peer-reviewed Journal of Computational Mathematics.

Contractors involved: P01 and P02 (leads)

Partner 01 (DMI) performed a part of this activity helping for SCERT to organise the conference and workshop. Two representatives from DMI participated in the meeting in Tomsk:

Dr. Allan Gross and Dr. Alexander Mahura as invited lectors and working meeting co-organisers. During 3-8 July 2006, several special technical meetings of the Enviro-RISKS project had been organized by Dr. A. Mahura, where an introduction/discussion on DERMA model results and data use/handling were conducted with representatives/users of the Siberian (Tomsk, Novosibirsk, and Krasnoyarsk), Ural, Kazakhstan, and Uzbekistan teams. The local NIS network for data analysis/visualization had been created (leaded by the SCERT/Tomsk team). The results/data (170 Gb) of DERMA model simulations and visualizations for 25 risk sites were passed to NIS teams participating in the Enviro-RISKS project activities. It is planned to use such data in studies for emergency response to nuclear/chemical/biological danger risk sites located in NIS countries; climatological/synoptical patterns evaluation for different risk sites locations; and long-range and long-term atmospheric transport patterns for evaluation of secondary consequences, risks, vulnerability, and impacts of accidental releases. Two oral presentation – *A. Baklanov, A. Gross, U. Korsholm, A. Mahura, C. Petersen: "Urban meteorology and air quality modelling: advances and systems"* and *A. Mahura, A. Baklanov, J.H. Sørensen: "Long-term simulation of atmospheric transport and deposition patterns from Siberian sources of continuous anthropogenic sulphates emission"* -- were given during the Enviro-RISKS workshop followed by afterwards useful discussions with CA partners and colleagues from the Novosibirsk, Tomsk, Krasnoyarsk, and Moscow universities showing interest in modelling approaches used and possibilities for analysis of modelling results.
Partner 2 (SCERT) leads this Workpackage and performed major part of this activity. Resources deployed are in travel support for key project results users (Project Observers) from different NIS regions, in 12 project months personnel activity (Conference organization and run, preparation of e-form of Conference materials and their implementation on the Project portal) and in expanses to provide participants with welcome bags and printed materials.

The second year

In course of the **WP05** preparation, reviewing, editing and publication of three issues of the peer-reviewed Journal of Computational Technologies with selected papers, presented at the Conference was carried out. Special attention was paid to selection of materials from the Conference on Man-Made Environmental Risks: Detection, Monitoring, Management and Remediation.

Contractors involved: P01 and P02 (leads)

Partner 1 (DMI) performed a part of this activity helping for SCERT to organise reviewing process of the selected papers.

Partner 2 (SCERT) leads this Workpackage and performed major part of this activity. Resources deployed are in 3 project months personnel activity (preparation of Conference materials for publication in peer-reviewed Journal Computational Technologies) and in Consumables.

- **Deviations from the project workprogramme**, and corrective actions taken/suggested: identify the nature and the reason for the problem,

There were no deviations from the project workprogramme.

- **List of deliverables**, including due date and actual/foreseen submission date (see Appendix 2, Table 1)

Table 1: Deliverables List

List all deliverables, giving date of submission and any proposed revision to plans.

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor

D5.1	Organization of the first Conference	WP05	PM12	PM12	12 PM	12 PM	P02
D5.2	Publication of the Proceedings (hard copies, CD and e-version on the web)	WP05	PM20	PM20	4PM	4 PM	P02

***) if available**

- **List of milestones**, including due date and actual/foreseen achievement date

Table 2: Milestones List

List all milestones, giving date of achievement and any proposed revision to plans.

Milestone no.	Milestone name	Workpackage no.	Date due	Actual/Forecast delivery date	Lead contractor

Input into Milestones M03

The first results of the expert work on the most critical for the region man-made risks for environment (due date and foreseen achievement date PM20) and M04

The Recommendations to establishing cooperation between different Projects devoted to Siberian environment (due date and foreseen achievement date PM20).

WP06 Preparation of technical implementation plan on finished Projects

- **Workpackage objectives** and starting point of work at beginning of reporting period

To prepare generalized technical implementation plan on the finished to this time Projects performed by Partners with special emphasis on successful remediation stories.

- **Progress towards objectives** – tasks worked on and achievements made with reference to planned objectives, identify

The first year

Has not started yet.

The second year

In course of the **WP06** performance a version of the generalized technological implementation plan on the finished to this time Projects performed by Partners with special emphasis on successful remediation stories. Technological implementation Plans prepared by relevant Projects Co-ordinators were analyzed and generalized into united TIP covering the whole range of finished Projects. . Targeted audience was determined and the generalized TIP was disseminated to it. Special attention was paid to delivering information to regional decision makers and environmental managers.

Partner 1 (DMI) performed a part of this activity helping for SCERT to compile the generalized TIP. Resources deployed are in 1 project month personnel activity.

Partner 2 (SCERT) leads this Workpackage and performed major part of this activity. Resources deployed are in 5 person months personnel activity

Contractors involved: P01 and P02 (lead. All the rest Partners made a valuable input into performance providing the teams with with TIP on their Projects.

Main result of WP06 is in appearance of generalized Technological implementation Plan covering different tools and aspects useful for Siberia environment remediation.

- **Deviations from the project workprogramme**

There were no deviations from the project workprogramme.

- **List of deliverables, including due date and actual/foreseen submission date**

Table 1: Deliverables List

List all deliverables, giving date of submission and any proposed revision to plans.

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/ Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D6	Joint Technical implementation plan	WP06	PM20	PM20	6PM	6PM	P02

***) if available**

- **List of milestones**, including due date and actual/foreseen achievement date

Input into Milestones:
M04 The Recommendations to establishing cooperation between different Projects devoted to Siberian environment;
M05 The joint TIP and Memorandum on the hottest environment topics demanded by the region under study.
Expected results are in better knowledge about novel and successful remediation technologies and about successful examples of its practical usage.

WP07 Gathering of information on recently started projects in Siberia

- **Workpackage objectives** and starting point of work at beginning of reporting period

To perform analyses of possible synergy between the different level recently started projects on Siberian environment, and on this basis to organize coordination between new EC international projects devoted to study of regional environment with relevant SB RAS funded integration Projects and with projects performed under contracts with regional/local administrations and petroleum/gas producing and transporting enterprises/companies;

To integrate into the web Portal information on recently started RTD projects on relevant thematic with special emphasise on those comprising NIS based research teams, thus giving access to scientific excellence and disseminating their results as well as examples of success stories.

- **Progress towards objectives** – tasks worked on and achievements made with reference to planned objectives, identify

The first year

Has not started yet.

The second year

In course of the **WP07** performance information on recently started RTD projects within FP6, FP7 RAS, SB RAS and on novel RTD activity of relevant thematic on regional level was gathered from such project co-ordinators/participants entering into the consortium and Members of CASC including those from Siberian Federal District. It was structured to allow user clear navigation in it and integrated into the project web portal as a special database and partially translated into Russian thus simplifying its influence in NIS regions with traditionally low level of English knowledge.
Partner 01 input was gathered information on recently started relevant RTD projects, e.g. the EC 7FP project MEGAPOLI, NKS project NordRisk, Danish strategic research center CEEH.
Partner 02 (SCERT) input into this Workpackage was in structuring relevant information resources to allow user clear navigation in it and in its integration into the project web portal as a special database as well as in translation of major findings into Russian thus simplifying its influence in regions with traditionally low level of English knowledge. Resources deployed are in 2 project months personnel activity
Major costs incurred are in Personnel cost – salary and social tax of SCERT personnel involved

Partner 03 (MPI-BGC) input was the acquisition of relevant thematic data with specific focus on impacts effective at the level of surface-atmosphere exchanges. No direct costs were charged against WP04.

Partner 04 (IIASA) input was the acquisition of relevant thematic data with specific focus on terrestrial ecosystems and forest damage. 0.3 PM of direct costs were charged against WP07.

Partner 05 (INM) leaded **WP07** and gathered information on recently started RTD projects within RAS and on novel RTD activity of relevant thematic on regional level. Among those are:
recently started RFBR (**R**ussian **F**oundation for **B**asic **R**esearch) project Mathematical modeling of mesoscale interaction between the atmosphere and hydrologically heterogeneous land (INM, Grant # 07-05-00200, Prof. V. Lykosov), which is devoted to the study of physical processes and mechanisms, which are responsible for the mesoscale interaction between the atmosphere and hydrologically inhomogeneous land surface under cold climate conditions (in particular, in the Western Siberia). A special attention is paid to the modelling admixtures transport, e.g. in the case of snow storm. An advance snow-ice module will be developed and implemented in the mesoscale model on the basis of a thermodynamic ice model and a multi-layer snow model, which includes refined parameterizations of various complex processes, such as accumulation, aging and melting of snow, saltation, diffusion and evaporation of snow particles. Numerical experiments will be carried out to study the formation and evolution of a snow storm;
The RFBR Project Development of new and improvement of known technologies to solve inverse problems of climatology by statistical methods (INM, Grant # 07-05-00328, Prof. A. Chavro), which is aimed on the reconstruction of regional peculiarities of meteorological parameters on the basis of statistical downscaling of climate model output and/or observational data;
The RFBR Project Reproduction of climate anomalies on intra-seasonal scale by coupled model of general circulation of the atmosphere and ocean (INM, Grant # 07-05-00893, Dr. Sci. M. Tolstykh), which is devoted to the study of seasonal climate anomalies on the basis of numerical experiments with the coupled semi-Lagrangian atmospheric model and finite-difference oceanic model;
The RAS Program “Computational and information aspects of solving the huge problems” Project Large-eddy simulation of geophysical boundary layers on computational systems of parallel architecture (INM, Prof. V. Lykosov) is aimed on study of turbulent processes in the atmospheric and oceanic boundary layers, using mathematical models based on modern computational technologies and implemented on supercomputers of parallel architecture with distributed memory.
Resources deployed are in 2 project month personnel activity.

Partner 06 (IF) input into this Workpackage was in gathering and systemization of new SB RAS relevant thematic projects on forestry and environment. Resources deployed are in 2 project months personnel activity.

Partner 07 (KGC) input into this Workpackage was concentrated on gathering information on recently started RTD projects Kazakhstan on novel RTD activity of relevant thematic on regional level.

Performing WP 07 **Partner 08** URIIT collected the information of Lena river (Yakutia, Emergency Management) and Yenisey river (Krasnoyarsky krai, Middle Siberian Rosgidromet department) flood monitoring projects. Project of Samotlor oilfield (company “Surgutneftegaz”) space monitoring was studied. Resources deployed are in 2 person months.

Partner 09 (IMCES) input into this Workpackage was in gathering and systemization of new SB RAS thematic projects on regional climate and environment monitoring. Eight new projects started in 2007. Information on these projects is included into the project database.
Resources deployed are in 2 project months personnel activity.

Partner 10 (ICMMG) input into this Workpackage was in gathering and systemization of new SB RAS thematic projects on mathematical modeling of regional environment dynamics. A

tendency analyses in contemporary approaches to the solution of atmospheric quality and risk assessment problems was fulfilled. On the basis of analysis the conclusion was made on directions of further development of the studies carried out in the frames of the Enviro-Risks project. The top-priority problems were chosen taking into account Siberian region specific character. Development of studies is planned in such a way that a synergy effect to be obtained in the creation of the integrated and adaptive system of models and methods for assessment of ecological future and revealing extreme and risk situations taking into account uncertainties in data and model parameters. Gaining experience in the optimal solution search in multi-criteria statements for design of environmental protecting and mitigation of consequences of the atmospheric quality changes is a primary goal.To this effect, a new project "Optimization models and methods for environment forecast and design" was initiated by ICMMG and supported by Russian Foundation for Basic Research. New sections are also formulated in the current projects in which ICMMG participates. A collaborative work on pollution's source identification and data assimilation was started by ICMMG and DMI . The preliminary results were presented at the CITES-2007 conference. New tendencies in the project's content were discussed in the frames of Workshop on Man-made Environmental Risks in Siberia (Tomsk, Cites-2007) in the report "Atmospheric quality: from risk assessment to sustainable development" prepared by ICMMG.
Resources deployed are in 2 project months personnel activity. Additionally 2 person months activity and computer facilities usage cost, required to perform relevant work were supported from own ICMMG budget. The DMI resources were used during young expert A.V. Penenko visit to work in this direction.
Contractors involved: P01, P02 P03, P04, P05 (lead), P06, P07, P08, P09 and P10
Main result of WP07 is in making information on recently started different level projects devoted Siberia environment available to targeted research and decision-making communities.

The third year

In course of the **WP07** performance additional information on recently started RTD projects within FP6, FP7 RAS, SB RAS and on novel RTD activity of relevant thematic on regional level was gathered from such project co-ordinators/participants entering into the consortium and Members of CASC including those from Siberian Federal District. It was structured to allow user clear navigation in it and integrated into the project web portal as a special database and partially translated into Russian thus simplifying its influence in NIS regions with traditionally low level of English knowledge.

Partner 01 Gathering of information on recently started or ongoing projects in Siberia DMI input was in gathered information on ongoing PhD projects of A. Tridvornov (Krasnoyarsk) and A. Svetlov (Murmansk), 6FP project GEMS, NKS project NordRisk, and recently started relevant RTD projects, e.g. EC 7FP project MEGAPOLI and Danish strategic research center for Energy, Environment and Health (CEEH). Resources deployed are in 1 project month personnel activity.

Partner 02 (SCERT) input into this Workpackage was in structuring relevant information resources to allow user clear navigation in it and in its integration into the project web portal as a special database as well as in translation of major findings into Russian thus simplifying its influence in regions with traditionally low level of English knowledge. Resources deployed are in 2 project months personnel activity

Major costs incurred are in Personnel cost – salary and social tax of SCERT personnel involved

Partner 03 (MPI-BGC) input was the acquisition of relevant thematic data with specific focus on impacts effective at the level of surface-atmosphere exchanges.

No direct costs were charged against WP04.

Partner 04 (IIASA) gathered information on new regional and international RTD projects. Among the projects: the bilateral Russian-Austrian project on the full greenhouse gas account of dark coniferous forests in Central Siberia including the impacts of global change and disturbances on state and functions of regional vegetation, particularly forests; international project on application of remote sensing for forest monitoring in East Siberia (part of GSE FM activities; assessment of productivity of Siberian forests under global change (Institute of Forests of SB RAS and IIASA); some others. Resources deployed are in 1 project month personnel activity. Other resources have been allocated by IIASA.

Partner 05 (INM) leaded **WP07** and gathered information on recently started RTD projects within RAS and on novel RTD activity of relevant thematic on regional level. The RFBR (**R**ussian **F**oundation for **B**asic **R**esearch) project Periodic and stationary solutions in the models of atmospheric dynamics (INM, Grant # 08-05-00738, Dr. A. Gritsoun) is devoted to the study of periodic and stationary solutions in models of the atmosphere. The problem under consideration is closely related to the question: How periodic trajectories are connected with dynamical and stationary regimes of the atmosphere circulation, their predictability and "time of life". A special attention is paid to possible stabilization of a model solution to the given periodic orbit. Numerical experiments will be carried out to study such characteristics of system as mean state, standard deviation, empirical orthogonal functions and corresponding fractions of variability, dimension of attractor, projections of the probability density function on most energy- valuable directions.

The RFBR Project Estimation of feedbacks between vegetation, surface hydrology of Northern Eurasia and Arctic climate on the base of coupled model ocean - atmosphere – vegetation – soil under global climate changes (ICMMG, Grant # 08-05-00457, Prof. V. Krupchatnikoff) is aimed on the study of natural variability of the Earth system. In particular, it is planned to investigate the impact of the North-Atlantic Oscillation in the atmosphere and of the North Atlantic oceanic circulation on climate, surface hydrology and dynamics of vegetation in Northern Eurasia under conditions of increase in greenhouse gases content. Coupled INM climate model and ICMMG land surface model will be used to achieve this aim.

Resources deployed are in 1 project month personnel activity.
Partner 06 (IF) input into this Workpackage was in gathering and systemization of new SB RAS relevant thematic projects on forestry and environment. Resources deployed are in 3,5 project months personnel activity.

Partner 07 (KGC) input into this Workpackage was concentrated on systemization of information on recently started RTD projects Kazakhstan on novel RTD activity of relevant thematic on regional level. No direct cost towards this WP.

Performing WP 07 **Partner 08** URIIT analyzed information on Lena river (Yakutia, Emergency Management) and Yenisey river (Krasnoyarsky krai, Middle Siberian Rosgidromet department) flood monitoring projects. Resources deployed are in 2 person months funded from own budget.

Partner 09 (IMCES) input into this Workpackage was in systemization of new SB RAS thematic projects on regional climate and environment monitoring.

Resources deployed are in 1 project months personnel activity funded from own budget.

Partner 10 (ICMMG) input into this Workpackage was in systematisation of the results on interconnections between global and regional dynamics from the point of view of sensitivity theory. New results on formation of environment protection strategy for risk and uncertainty diminution and advanced scenario approach for assessment of environmental changes were discussed on Enviromis-2008. The collaborative work (ICMMG and DMI) on development the new algorithms for pollution's source identification was continued. The results were presented and discussed on Enviromis-2008 and ECCOMAS-2008.

Resources deployed are in 1 project months personnel activity. Additionally resources deployed are in 2 project months personnel activity and computer facilities usage cost, required to perform relevant work, were supported from own ICMMG budget.

Contractors involved: P01, P02 P03, P04, P05 (lead), P06, P07, P08, P09 and P10

Main result of WP07 is in making information on recently started different level projects devoted Siberia environment available to targeted research and decision-making communities.

- **Deviations from the project workprogramme**

There were no deviations from the project workprogramme.

- **List of deliverables, including due date and actual/foreseen submission date**

Table 1: Deliverables List

List all deliverables, giving date of submission and any proposed revision to plans.

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/ Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D7	Database with structured and partially localised information on performed and ongoing within Consortium RTD projects of Environmental thematic	WP07	PM20	PM20	17PM	17PM	P05

***) if available**

- **List of milestones**, including due date and actual/foreseen achievement date

Table 2: Milestones List

List all milestones, giving date of achievement and any proposed revision to plans.

Input into Milestones:

M04 The Recommendations to establishing cooperation between different Projects devoted to Siberian environment;

M05 The joint TIP and Memorandum on the hottest environment topics demanded by the region under study.

Expected results are in strengthening EU and NIS research potential in this domain, in wider usage of results obtained in finished RTD Projects and in higher level of potential involvement into environmental decision-making at their regions and clarified way to cooperate different levels activities.

WP08 Search for synergy between the different projects on Siberian environment and elaboration of recommendation for new Projects.

- **Workpackage objectives** and starting point of work at beginning of reporting period

To elaborate on the base of dedicated studies of the expert groups practical recommendations for regional level activities in basic and applied environmental problems solving and disseminate those via the Project web portal;

To elaborate a roadmap for environmental research and development activity in the region under consideration to be used as a foundation for definition, organization and management of joint or common initiatives being also useful for relevant funding agencies for determination of regional priorities.

- **Progress towards objectives** – tasks worked on and achievements made with reference to planned objectives, identify

The first year

Has not started yet.

The second year

In course of the **WP08** performance the setup expert groups performed dedicated studies and elaborate practical recommendations for regional level activities in basic and applied environmental problems solving. Also they elaborated a initial version of the Memorandum, which indicate a roadmap for environmental research and development activity in the region under consideration to be used as a foundation for definition, organization and management of joint or common initiatives being also useful for relevant funding agencies for determination of regional priorities. The Memorandum will be analyzed by PSC and approved by CASC and after it will be distributed to the targeted audience in NIS and EU, including regional and national decision makers and International funding Agencies. The expert group studies will be compiled, edited and prepared for publication firstly as a DMI Report.

Partner 01 (DMI) input into WP07 was the following: Dr. A. Baklanov together with Prof. V Penenko headed the focus expert group on 'Atmospheric Pollution and Risk', made the group presentation on the second year meeting and drafted the group report with contributions from different projects.

Partner 02 (SCERT) input into this Workpackage was in elaboration of a roadmap for environmental research and development activity in the region under consideration to be used as a foundation for definition, organization and management of joint or common initiatives being also useful for relevant funding agencies for determination of regional priorities. Also Prof. Gordov together with Prof. E.Zakarin headed the focus expert group on Information technologies and synthesis and prepared relevant input into the focus group report. In particular it describes approached adopted in process of the Siberia environment integrated study information-computational infrastructure development as well as the key elements of this infrastructure. Resources deployed are in 10 person months personnel activity.

Partner 03 (MPI-BGC) leads WP08 and Prof. M. Heimann together with Prof. V. Lykosov headed the focus expert group on climate and global change. Resources deployed are in 2 project months personnel activity.

Partner 04 (IIASA) Prof. A. Shvidenko together with Prof. M. Kabanov headed the focus expert group on Hydrology and Ecosystems. Resources deployed are in 2 project months personnel activity, 1,5 PM are used for the time of the reporting period.

Partner 05 (INM) Prof. V. Lykosov together with Prof. M. Heimann headed the focus expert group on climate. It was based on results of the Atmospheric Model Intercomparison Project

(AMIP) and Coupled Model Intercomparison Project (CMIP). AMIP is a standard experimental protocol for global atmospheric general circulation models (AGCMs). It provides a community-based infrastructure in support of climate model diagnosis, validation, intercomparison, documentation and data access. This framework enables a diverse community of scientists to analyze AGCMs in a systematic fashion, a process which serves to facilitate model improvement. This project has revealed many key mechanisms responsible for climate formation (see http://www-pcmdi.llnl.gov/amip). At the same time, the AMIP can also be viewed as a program of study of the sensitivity of an "ideal" atmospheric model to the level of description of different physical processes. The recent intercomparison of atmospheric general circulation models made within the framework of AMIP II has shown that the best of these models are presently capable of reproducing the main features of the observed atmospheric circulation with good accuracy. Errors in reproducing many climatic quantities with such models are only slightly greater in value than the uncertainties with which these quantities are determined from observations. At the same time, there are also systematic errors in climate reproduction, which are inherent in virtually all of these models. The most complete analysis of climate reproduction with the models participating in AMIP II can be found at http://www-pcmdi.llnl.gov/amip. The AMIP project has been developed in the Coupled Model Intercomparison Project (CMIP), which is the analog of AMIP for global coupled ocean-atmosphere general circulation models. During CMIP performance, the emphasis is made on the reproduction of the sea surface temperature and sea ice distribution (see http://www-pcmdi.llnl.gov/projects/cmip/index.php) because these characteristics were considered to be specified external parameters in the AMIP experiments. At present, CMIP is being performed to compare the climate-change predictions obtained with different climate models under the scenarios proposed by IPCC for possible future variations in the atmospheric concentrations of greenhouse gases, aerosols, and other pollutants. This program is a step forward as compared to a similar comparison that was carried out in 2001 and whose results were reflected in the third IPCC report (IPCC, 2001). The results obtained in the course of this program are reflected in the fourth IPCC report (IPCC, 2007). **INM** participates in the both projects performance**.**
Resources deployed are in 4 project month personnel activity funded from IF own budget.

Partner 06 (IF) input into this Workpackage was in systemization and analysis of hydrology changes in Siberia, which formed an input into the focus group on Hydrology and Ecosystems Resources deployed are in 4 project months personnel activity.

Partner 07 (KGC) input into this Workpackage was in systemization and analysis of GIS usage. Prof. E.Zakarin together with Prof. Gordov headed the focus expert group on Information technologies and synthesis.

Partner 08 (URIIT) input was in systemization and analysis of ecosystem changes under industrial pressure in Siberia, which formed an input into the focus group on Hydrology and Ecosystems. Also the analysis of research of current flood monitoring projects on northern rivers and oil polluted territories was carried out. Methods of satellite images application for solving of monitoring problems were worked out. Resources deployed are in 4 project months personnel activity.

Partner 09 (IMCES) input into this Workpackage was in systemization and analysis of contemporary climatic changes in Siberia which formed an input into focus group on Terrestrial Ecosystems and Hydrology. Climatic influence of Siberian bogs (using Great Vasyugan Bog as an example) was discussed based on results of ground and airborne and spaceborne instrumented observations. Also Prof. M. Kabanov together with Prof. A. Shvidenko headed the focus expert group on Terrestrial Ecosystems and Hydrology. Resources deployed are in 2 project months personnel activity.

Partner 10 (ICMMG) input into this Workpackage was heading (Prof. V. Penenko together with Prof. A. Baklanov) the focus expert group on Mathematical modeling of regional environment dynamics. To obtain synergy in environmental research, the possibility of combined use of the results from different measuring systems by means of special algorithms

developing in ICMMG was analyzed. The monitoring systems were considered which are working in Siberian regions. They are remote and contact, direct and indirect. The proposals were formulated on application of developing algorithms for scientific and practical goals. The proposals were discussed at the all-Russian conference on "Development of monitoring systems of atmospheric composition" , (Moscow, 15-19 October, 2007) which was devoted to the development of the concept of the Federal Targeted Programme of Russia for the period of 2009-2015. The ICMMG proposals were presented to the Commission which is forming the Programme. Resources deployed are in 2 project months personnel activity.

The third year

In course of the **WP08** performance the setup expert groups performed dedicated studies and elaborate practical recommendations for regional level activities in basic and applied environmental problems solving. Also they elaborated a Memorandum, which indicate a roadmap for environmental research and development activity in the region under consideration to be used as a foundation for definition, organization and management of joint or common initiatives being also useful for relevant funding agencies for determination of regional priorities. The Memorandum will be distributed to the targeted audience in NIS and EU, including regional and national decision makers and International funding Agencies. The expert group studies are prepared for publication firstly as a DMI Report.

Partner 01 (DMI) input into WP07 Prof. A. Baklanov together with Prof. V. Penenko headed the focus expert group on the Thematic Focus 'Atmospheric Pollution and Risk' and finalised the Report on Thematic Focus 'Atmospheric Pollution and Risk'. Resources deployed are in 2 project months personnel activity.

Partner 02 (SCERT) input into this Workpackage was in based on detailed analysis of elaboration of recommendations for future initiatives being also useful for relevant funding agencies for determination of regional priorities Also Prof. Gordov together with Prof. E.Zakarin headed the focus expert group on Information technologies and synthesis and prepared relevant input into the focus group report. In particular it describes approached adopted in process of the Siberia environment integrated study information-computational infrastructure development as well as the key elements of this infrastructure.

Resources deployed are in 6 person months personnel activity

Partner 03 (MPI-BGC) leads WP08 and Prof. M. Heimann together with Prof. V. Lykosov headed the focus expert group on climate. Resources deployed are in 3 project months personnel activity.

Partner 04 (IIASA) Prof. A. Shvidenko together with Prof. M. Kabanov headed the focus expert group on Ecosystems and Hydrology. The focus group analysed past and ongoing projects on the topic and enumerated major drivers and threats for natural landscapes originated from anthropogenic activities and climate change in the region. Among the most important problems which require urgent and detailed consideration there are indicated: (1) contamination of water and soils in regions of intensive oil and gas extraction; (2) air pollution, impoverishment of ecosystems and destruction of landscapes in regions of large industrial enterprises, e.g., around Norilsk metallurgical plant; (3) substantial increase of natural and human-induced disturbances, particularly forest fires; and (4) thawing of permafrost and its impact on infrastructure, hydrological cycle and terrestrial ecosystems. It was concluded that the major research projects which are needed for the region should be devoted to the above topics. The integrated systems approach has been pointed out as a major tool for the project. Resources deployed are in 2 project months personnel activity.

Partner 05 (INM) Prof. V. Lykosov together with Prof. M. Heimann headed the focus expert group on climate. Climate models based on the global coupled atmosphere-ocean-land-

cryosphere system modelling exhibit a wide range of dynamical, physical, biological and chemical interactions. The traditional boundaries between weather and climate are conditional. At present, the challenge facing the weather and climate scientists is to improve the prediction of interactions between weather/climate and Earth system. The World Modelling Summit for Climate Prediction was held at the European Centre for Medium-Range Weather Forecasts on 6 – 9 May 2008 with the aim to develop a strategy to revolutionize prediction of the climate in the 21st century, in particular, at the regional level (http://wcrp.ipsl.jussieu.fr/Workshops/ModellingSummit/). It was recognized that considerably improved predictions of the changes in the statistics of regional climate (especially, of extreme events) are required to assess the impacts of climate change and to develop adaptive strategies to ameliorate their effects on environment and society. Despite progress in climate modelling (e.g., within the frame of AMIP and CMIP), the present time ability to provide robust estimates of the risk to society, in particular, from possible catastrophic changes in regional climate, is still constrained by limitations in computer power and scientific understanding. Neither the necessary scientific expertise nor the computational capability is available now in any single nation.

Thus, the Summit suggested to initiate a Climate Prediction Project coordinated by the World Climate Research Programme, in collaboration with the World Weather Research Programme and the International Geosphere – Biosphere Programme. This climate initiative will be a world climate research facility for climate prediction that will enable the national centres to accelerate progress in improving operational climate prediction in wide diapason of time scales, especially, at decadal to multi-decadal lead times.

The world's fastest computers run at hundreds of teraflops, but today's climate models rarely run on machines that can manage more than a few tens of teraflops. This corresponds to spatial resolution of climate models of about a hundred kilometres. There is a general agreement in scientific community that more realistic models will require resolutions in the tens kilometres and even higher (a kilometre or less). Thus, the central component of the above mentioned facility should be dedicated high-end computing facilities (managing hundreds of petaflops) that will permit scientists to employ kilometre-scale modelling of the global climate system.
Access to significantly increased computing capacity will enable scientists to advance understanding and representation of the physical and biogeochemical processes responsible for climate variability and predictability. The Climate Prediction Project will enable the climate research community to make better estimates of model uncertainties and assess how they limit the skill of climate predictions. Climate models should be tested in sub-seasonal and multi-seasonal prediction mode, including use of data assimilation and ensemble systems. Such synergy between the weather and climate prediction efforts will motivate the development of seamless prediction systems. This project will help sustain the excitement of the young generation to better prepare humanity to adapt to and mitigate the consequences of climate change.

Resources deployed are in 2 project month personnel activity funded from INM own budget.

Partner 06 (IF) input into this Workpackage was in systemization and analysis of ecological changes in Baikal region forests under anthropogenic factors, ecological consequences of forest use in Siberia which formed an input into the focus group on Forest Ecosystems. Resources deployed are in 3,5 project months personnel activity.

Partner 07 (KGC) input into this Workpackage was systemization and analysis of risk mapping methods during the accident on the oil pipeline. The assumed method can serve as a start for large cycle of investigations: form risks of accidents to vulnerability of biota. Prof. E.Zakarin together with Prof. Gordov headed the focus expert group on Information technologies and synthesis. Resources deployed are in travel support of KGS team leader Prof. E. Zakarin and Dr. B. Mirkarimova visit to Laxenburg and in 1 project month personnel activity.

Partner 08 (URIIT) input was in Ob, Irtysh and Sosva rivers ecosystem changes under industrial pressure, which formed an input into the focus group on Hydrology and Ecosystems. Also the analysis of research of current monitoring projects ofoil polluted territories was carried out. Methods of satellite images application for solving of monitoring problems were worked out. Resources deployed are in 2 project months personnel activity funded from own budget.

Partner 09 (IMCES) input into this Workpackage was in Searching for synergy between projects and elaboration of recommendations IMCES prepared an input into focus group on Terrestrial Ecosystems and Hydrology based on systemization and analysis of contemporary climatic changes in Siberia. Also Prof. M. Kabanov together with Prof. A. Shvidenko headed the focus expert group on Terrestrial Ecosystems and Hydrology.
Resources deployed are in 2 project months personnel activity funded from own budget.

Partner 10 (ICMMG) input into this Workpackage was heading (Prof. V. Penenko together with Prof. A. Baklanov) the focus expert group on Mathematical modeling of regional environment dynamics.

A comparative analysis of about 30 numerical models for environmental studies was made on the materials of 10 conferences such as ENVIROMIS-2006, 2008, CITES-2007, Siberian aerosols (2005, 2006, 2007), Ecology, Economy, Informatics (2007, 2008), Mathematical modelling in the problems of rational nature management (2008), Mathematical methods in geophysics (2008), etc. The generalised analysis of experience pronounced in the materials shows that the models made and used (adjusted) by Russian scientists in principle correspond to the European level. But the lack of regular measurements data, which are necessary for model realisation, essentially influences on the final results. Even if the well-known codes are used for simulation of real situations, especially in Siberia conditions, the tuning of the models should be fulfilled. But for this again it needs such amount of data which is absent in the moment. Without this the models work under uncertainty conditions and the results are not so good as they are in initially formulated conditions. Nevertheless, there are some very important and crucial points the progress in which can improve the quality of prognosis.

A synergetic effect of theoretical investigations in numerical approximations and applied studies of environmental forecasting is seen in some concrete recommendations on numerical realisation of the models. In particular, a new method of approximation of advection-diffusion- reaction problems developed in the frames of ICMMG projects may essentially enhance the results of modelling because the advection-diffusion-reaction problems are the key elements in each hydrodynamic and environmental model. Constructed on the base of variational principles, the proposed numerical schemes are optimal in forward and inverse modes and open new possibilities for application of inverse modelling techniques to adjoint sensitivity analysis and risk assessment. Application of inverse technique is the base of modern modelling technology. The methods of orthogonal decomposition serve to include the climatic data into the scenarios of environmental modelling. Their use allows one to study evolution of climatic and environmental systems for long time intervals simultaneously. And, finally, new methods of data assimilation with uncertainty assessment and targeted monitoring can be an efficient tool for studying environmental problems in the regions which are insufficiently lightened with regular data.

One more synergy effect in solution of environmental problems is obtained while participation in the complex ecological expertise of the Boguchanskaya hydropower station project in Eastern Siberia. The scenarios of possible changes in the atmosphere behaviour due to projected large artificial water body were calculated by ICMMG in collaboration with the Institute of nature resources, ecology and cryology of SB RAS in Chita. The partner 06 is the leader in this complex project which united the interdisciplinary studies.

Resources deployed are in 1,5 project months personnel activity. Additionally 2 person month ICMMG personnel activity and computer facilities usage cost were supported from own ICMMG budget.

Contractors involved: P01, P02, P03 (lead), P04, P05, P06, P07, P08, P09 and P10

Main result of WP08 is in elaboration of the experts practical recommendations to ways to improve Siberia environment.

- **Deviations from the project workprogramme**

There were no deviations from the project workprogramme.

- **List of deliverables, including due date and actual/foreseen submission date**

Table 1: Deliverables List

List all deliverables, giving date of submission and any proposed revision to plans.

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/ Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D8.1	Synergy description between the different project and recommendation for project participants	WP08	PM24	PM24	15PM	15PM	P03

*) if available

- **List of milestones**, including due date and actual/foreseen achievement date

Table 2: Milestones List

List all milestones, giving date of achievement and any proposed revision to plans.

Milestone no.	Milestone name	Workpackage no.	Date due	Actual/Forecast delivery date	Lead contractor
M04	The Recommendations to establishing cooperation between different Projects devoted to Siberian environment	WP08	PM20	PM20	P02

Input into M05 The joint TIP and Memorandum on the hottest environment topics demanded by the region under study. Due delivery date PM30.

Expected results are in strengthening NIS research potential in this domain, in wider usage of results obtained in research programs and in higher level of potential involvement into environmental decision-making at their regions. Also we wait diminishing of efforts doubling due overlapping thematic of RTD Projects and more clear determination of targets, which should be reached in future environmental RTD activity.

WP09 Organization of second conference and experts meeting

- **Workpackage objectives** and starting point of work at beginning of reporting period

To organize second thematic conference devoted to hot environmental topics of regional level monitoring, management and remediation of man-made environmental risks and to run during the Conference PSC and CASC aimed at approval of the experts groups Reports and prepared Memorandum;

To use the Conference as a forum for dissemination of achieved in the Co-ordinated Projects results.

- **Progress towards objectives** – tasks worked on and achievements made with reference to planned objectives, identify

The first year

Has not started yet.

The second year

In course of the **WP09** performance the Workshop on Man-made Environmental Risks in Siberia as well as the thematic experts meetings were organized within thematically more wide event CITES-2007 (Young Scientists School and International Conference on Computational and Information Technologies for Environmental Sciences). Special attention was paid to new results of the Enviro-RISKS CA. To expand positive influence of the project results and their usage potential Project observers from different regions of NIS were invited to participate in it. The Program Committee of the Conference was based on the CASC Members mainly. Special attention was paid to dissemination of good practices stories and to successful examples of enhanced in course of CA performance cooperation and gained added value from those. The whole event gathered 128 participants (60 young scientists) from Russia, Kazakhstan, Ukraine, Uzbekistan, 5 European countries and Japan.

Partner 1 (DMI) performed a part of this activity helping for SCERT to organise the conference and workshop. Prof. A Baklanov from DMI participated in the meeting in Tomsk as invited lector and working meeting co-organiser. Resources deployed are in 1 project month personnel activity.

Partner 2 (SCERT) leads this Workpackage and performed major part of this activity organizing and running the Workshop and the Conference. Resources deployed are in 10 project months personnel activity and in Consumables.

Contractors involved: P01, P02 (lead), representatives of all the rest Partners participated in the event. Main result of **WP09** is in valuable input into the Enviro-RISKS dissemination activity.

The third year

In course of the **WP09** preparation, reviewing, editing and publication of the special issue of the peer-reviewed Journal of Computational Technologies with selected papers, presented at the Conference was carried out. Special attention was paid to selection of materials from the Workshop on Man-Made Environmental Risks.

Contractors involved: P01 and P02 (leads)

Partner 1 (DMI) performed a part of this activity helping for SCERT to build the scientific program, to involve European scientists and to organize reviewing process of the selected papers.

Partner 2 (SCERT) leads this Workpackage and performed major part of this activity. Resources deployed are in 3 project months personnel activity (preparation of Conference materials for publication in peer-reviewed Journal Computational Technologies) and in Consumables.

Contractors involved: P01, P02 (lead), representatives of all the rest Partners participated in the event.

Main result of **WP09** is in valuable input into the Enviro-RISKS dissemination activity.

- **Deviations from the project workprogramme**

There were no deviations from the project workprogramme.

- **List of deliverables, including due date and actual/foreseen submission date**

Table 1: Deliverables List

List all deliverables, giving date of submission and any proposed revision to plans.

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/ Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D9.1	The second Conference organization	WP09	PM24	PM24	12PM	12PM	P02
D9.2	Publication of the Proceedings (hard copies, CD and e-version on the web)	WP09	PM24	PM24	4PM	3PM	P02

***) if available**

- **List of milestones**, including due date and actual/foreseen achievement date

Table 2: Milestones List

List all milestones, giving date of achievement and any proposed revision to plans.

Expected results are in better knowledge of good remediation practices results and in enhanced potential for national and international cooperation in solving basic and applied environmental problems.

WP10 Documentation and dissemination

- **Workpackage objectives** and starting point of work at beginning of reporting period

Main objective is to provide targeted audience with new finding, results and good practices cases including those arising from CA activity and with special emphasis toward regional administrators;

to maintain and update the web portal and Database as the central elements of the CA dissemination strategy;

to ensure proper level of knowledge management and protection of intellectual properties;

to prepare dissemination material, including knowledge dissemination, describing the project;

to raise public participation and environmental awareness

to participate in appropriate meetings, conferences and exhibitions to publicize the project and its results both in the NIS and the EU.

- **Progress towards objectives**

The first year

In course of the **WP10** performance targeted audience was provided with new finding, results and good practices cases including those arising from CA activity, special emphasis was given to delivering to regional administrators (especially those responsible for region environment state) detailed information on novel efficient tools for mitigation of the environmental risks and for remediation of natural objects subjected to man-induced environment pollution and examples of their successful usage. The brief project presentation in Russian and English was prepared and distributed at different conferences. Several presentations were prepared and delivered at different level conferences, including regional events, national forums and international conferences. Also several papers describing the project and its first results were submitted to peer-reviewed Journals. Detailed project description as well as its results are maid available to specialists and general public via the bilingual project web portal.

The performed tasks also included:

Linguistic and substantive editing of the documents issued in process of CA performance and implementation on the project web site all relevant information as an on-line, searchable set of electronic documents;

Preparation of multi-media material describing the project such as fliers, a demo CD,

PowerPoint presentation, and graphical components that can be used in standard scientific publications, or for posters and presentations;.

Implementation and maintenance the project web-portal and Database to make the above material on the Internet.

In course of the WP implementation project description was prepared, submitted to the Commission and published in Internet (Deliverables D10.1, http://cordis.europa.eu/search/index.cfm?dbname=proj) and project web-portal was launched (Deliverables D10.1, http://risks.scert.ru/en/).

Contractors involved P01, P02 (leads), P03, P04, P05, P06, P07, P08, P09, P10.

Partner 01 (DMI) collected contributions from all partners, prepared, edited and published the First year Scientific Project Report: "Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia". First Report of EC 6FP CA Enviro–RISKS. Editor: Baklanov, A., DMI Scientific Report, 2006. Two overall EnviroRISKS introduction/description papers were written together with E. Gordov (SCERT) and published in the Bulletin of the Russian National Committee for the International Geosphere-Biosphere Programme (4, 2005, pp. 41-43, http://www.scert.ru/files/igbp/EngBul.pdf) and in the ENVIROMIS and CITES conference proceedings.

Partner 02 (SCERT) leads this Workpackage and performed major part of the above activity. Resources deployed are in travel support for presentation of the project results users at different level events and in 5 project months personnel activity (preparation of e-form of information on the Project and its major findings as well as their implementation on the Project portal).

Partner 03 (MPI) provided dissemination activities and information into the First EnviroRISKS CA scientific report and on the EnviroRISKS project web-portal. Resources deployed are in travel support.

Partner 04 (IIASA) provided dissemination activities in several aspects. (1) Information that was collected in the framework of the project has been used in the Fourth IPCC Assessment. (2) A special paper containing analysis of researches which were provided in the boreal biome during two last decades and targeted discussion on relevant future science and public activities on environment/ global change issues has been published in *Mitigation and Adaptation Strategies for Global Change* 11(2006): 5-32 (A. Shvidenko, M. Apps, "The International Boreal Forest Research Association: Understanding boreal forests and forestry in a changing word"). Ways of interconnections of Siberian environmental research with activities of the International Boreal Forest Research Association (IBFRA) discussed at the IBFRA Steering Committee. (4). A special discussion on improving research on terrestrial biota carbon budget has been provided with leaders of the Global Carbon Project. (5) Different finding on global change issues and different CA have been presented as oral presentations at a number of science conferences including: International Conference "Climate Changes and their Impact on Boreal and Temperate Forests" (Ekaterinburg, Russia, 4-6 June 2006); ENVIRONMIS-2006 and SIRS Workshop (Tomsk, 30 June-6 July 2006); International Conference on Regional Carbon Budgets (Beijing, 15-18 August, 2006, www.icrcb.org.cn); 13th International Conference of the IBFRA (Umea, Sweden, 28-30 August 2006, www.ibfra.org); Earth System Science Partnership – Open Science Conference "Global Environmental Change: Regional Challenges" (Beijing, 9-12 November 2006, www.essp.org/ ESSP 2006); (6) Federal Forest Service of the Russian Federation approved models and tables of growth and biological productivity of forests of major forest forming species of Northern Eurasia and recommended these for use in forest management and forestry of the country. The book with the above materials (in press, planned of 10000 copies) contains all respective information for Siberia.

Partner 05 (INM) input into WP10 was in dissemination activity at different Conferences, in particular NATO Advanced Research Workshop "Atmospheric planetary boundary layers (PBLs): nature, theory and application to environmental modelling and security", 16-23 April, 2006, Dubrovnik, Croatia and International Conference "Climate changes and their impact on boreal and temperate forests", 4-8 June, 2006, Ekaterinburg, Russia.
Resources deployed are in travel support.

Partner 06 (IF) input into WP10 was in dissemination activity at different conferences and in linguistic and substantive editing of documents, preparation of PowerPoint presentation, graphical components that can be used in standard scientific publications and presentations. Resources deployed are in personnel activity.

Partner 07 (KGC) input into WP10 was in dissemination activity at different conferences.
Resources deployed are in travel support.

Partner 08 (URIIT) input into WP10 was in preparation and presentation of reports on the work carried out in the framework of the Enviro-Risks Project at various regional seminars in the cities: Khanty-Mansiysk, Salehard, Yakutsk, Tobolsk, Ekaterinburg, Tomsk, Kemerovo. Resources deployed are in one project month Personnel cost. Additionally 2 person months activity supercomputer usage cost, required to perform relevant work were supported from own URIIT budget.

Partner 09 (IMCES) input into WP10 was in preparation and presentation of reports on the work carried out in the framework of the Enviro-Risks Project. Results obtained have been presented at ENVIROMIS -2006 conference and at 5th International Symposium on Control and Rehabilitation of Environment, at Meetings of Scientific Council on Earth sciences in SB RAS, seminars of project leaders, as well as at Workshops dedicated to environmental studies in Siberia organized in the frameworks of above-mentioned conferences. A brochure containing information on new instrumentation for environment monitoring developed at IMCES was prepared and issued.

Resources deployed are in 1 project month IMCES personnel activity (preparation of reports and presentations, compiling booklet about IMCES and brochure with IMCES developments) and in Consumables.

Partner 10 (ICMMG) input into WP10 performance includes consultations on methodological and theoretical aspects for realization of the system for monitoring and control environmental quality in Ust'-Kamenogorsk city (Kazakhstan) periodically given to the group of developers; organization of a workshop of the SB RAS project "Ecological problems of Siberian cities" on December, 8, 2005; presentation of results obtained were prepared and delivered at different Conferences, Workshops and exhibitions. Special survey on existing approaches, needs and priority issues related to the control theory and models and their application to environmental risk assessment was prepared by a group of experts. As a result , the following papers will be published in "Air, Water and Soil Quality Modelling for Risk and Impact Assessment" NATO Science Series, Springer, 2006: V. Penenko (ICMMG), A. Baklanov (DMI), A. Mahura (DMI) , A. Aloyan (INM). Control theory and models and V. Penenko, E. Tsvetova (ICMMG). Variational technique for environmental risk/vulnerability assessment and control. Besides, some oral and poster presentations were made by leading specialists and young scientists in the frames of well-known international and All-Russian conferences. Overall 44 reports/presentations were made by the ICMMG team at different conferences. Resources deployed are in 1 project month IMCES personnel activity and in Travel support.

Resources deployed are in Travel support to participate in following Conferences : International Conference "Tikhonov and contemporary mathematic"; All-Russian Conference "Advanced problems of mathematics and mechanics"); International Conference "Inverse problems: modeling and simulation".

The second year

In course of the **WP10** performance targeted audience was provided with new finding, results and good practices cases including those arising from CA activity, special emphasis was given to delivering to regional administrators (especially those responsible for region environment state) detailed information on novel efficient tools for mitigation of the environmental risks and for remediation of natural objects subjected to man-induced environment pollution and examples of their successful usage. The brief project presentation in Russian and English was prepared and distributed at different conferences. Several presentations were prepared and delivered at different level conferences, including regional events, national forums and international conferences. Also several papers describing the project and its first results were submitted to peer-reviewed Journals. Detailed project descriptions as well as its results are maid available to specialists and general public via the bilingual project web portal.

The performed tasks also included:

. Linguistic and substantive editing of the documents issued in process of CA performance and implementation on the project web site all relevant information as an on-line, searchable set of electronic documents; .

Preparation of multi-media material describing the project such as fliers, a demo CD,

PowerPoint presentation, and graphical components that can be used in standard scientific publications, or for posters and presentations;.

Implementation and maintenance the project web portal and Database to make the above material on the Internet.

Contractors involved P01, P02 (leads), P03, P04, P05, P06, P07, P08, P09, P10.

Partner 1 (DMI) was responsible for project reporting and presentations. DMI collected contributions from all partners, prepared, edited and published the First year Scientific Project Report: "Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia" (electronic publication: http://www.dmi.dk/dmi/sr07-04.pdf).

Partner 02 (SCERT) leads this Workpackage and performed major part of this activity. Resources deployed are in travel support for presentation of the project results users at different

level events (ESSP Open Conference, Beijing, NEESPI-iLEAPS Scientific Symposium on "Research in Northern Eurasia on Land-Atmosphere Interactions, Water and Biogeochemical Cycles" and NEESPI Summit, Helsinki) and in 5 project months personnel activity (preparation of e-form of information on the Project and its major findings as well as their implementation on the Project portal).

Partner 03 input into WP10 was in dissemination activity at different Conferences. Resources deployed are in travel support.

Partner 04 input into WP10 was in dissemination activity at different Conferences. Resources deployed are in WP10 are 1 PM. Total IIASA cost used in WP10 is 0,5 PMs.

Partner 05 input into WP10 was in dissemination activity at different Conferences, in particular XX International Scientific Conference "Mathematical Methods in Engineering and Technologies" (MMTT-20), 28 May -1 June, 2007, Yaroslavl, Russia, International Conference "Hydrological Impact of Climate Change", 13-15 June, 2007, Novosibirsk, Russia, and Workshop "Land Water Resources under Conditions of Changing Climate", 25 – 28 June, 2007, Pskov, Russia. Information about the MMTT-20 conference is given at web-site http://mmtt20.ystu.ru/eng/. In Yaroslavl, V. Lykosov presented the report "Problems of modeling environment". In Novosibirsk, V. Lykosov has presented the report "Climate change and mathematical modelling of climate". In Pskov, V. Lykosov has presented the report "Hydrological aspects of modelling climate and climate change".
Resources deployed are in travel support.

Partner 06 input into WP10 was in dissemination activity at different Conferences and in linguistic and substantive editing of documents, preparation of PowerPoint presentation, graphical components that can be used in standard scientific publications and presentations. Resources deployed are in 0.5 person month personnel activity funded from IF own budget.

Partner 07 input into WP10 was in preparation and presentation of reports on the work carried out in the framework of the Enviro-Risks Project in various regional seminars in Almaty and Astana cities. This work was supported from own KGC budget.

Partner 08 (**URIIT**) input into WP10 was in preparation and presentation of reports on the work carried out in the framework of the Enviro-Risks Project at different organizations and Conferences. In particular, Prof. Kopylov V.N. has visited Space Research Institute RAS in Moscow and presented there an experience in remote sensing ecological monitoring of oil recovery areas. Also he delivered a thematic paper at the 4-th international conference "Space methods and geoinformation technologies in a forestry". Resources deployed are in travel support. Also new results were reported at the Third international congress "GEO-Siberia 2007" April 25-27, Novosibirsk and the Fourth Flood Working Group "Nothern Forum" Advanced Research Workshop, July 15-23, 2007, Anchorage, USA.
Resources deployed are in travel support.

In process of the **WP10** performance **Partner 09** (IMCES) prepared reports on 5 RAN and 13 RFBR projects on environmental investigations carried out in 2007. The results obtained in these projects have been presented at CITES -2007 international conference and young scientists school, at 7th Siberian Workshop on Climate and Ecological Monitoring organized by IMCES SB RAS, at the 2nd International Field Sympoaium: West Siberian Peatlands and Carbon Cycle: Past and Present (3 oral reports, 3 posters) and at General Assembly of European Geosciences Union (1 oral report and 3 posters). The results also were discussed at Meetings of Scientific Council on Earth sciences in SB RAS, seminars of project leaders, as well as at Workshops dedicated to environmental studies in Siberia organized in the frameworks of above-mentioned conferences and other conferences in Siberia and abroad dedicated to environmental studies.
Resources deployed are in 1 project month IMCES personnel activity covered from IMCES own budget.

Partner 10 (ICMMG) input into **WP10 performance** includes consultations on methodological and theoretical aspects for realization of the system for monitoring and control environmental quality in Ust'-Kamenogorsk city (Kazakhstan) periodically given to the group

of developers; organization of a Workshop of the former SB RAS project "Ecological problems of Siberian Cities" on December 20, 2006. Two meetings with the students of the Novosibirsk state university were made. They were the introduction lectures into the specialization (profession) and were devoted to " Environment protection in the conditions of climate change". Some oral and poster presentations were made by the leading and young scientists at the Conferences, Workshops and exhibitions in the cities of Novosibirsk (4 conferences, 2 exhibitions), Ulan-Ude (1 conference), Novorossyisk (2 conferences), Moscow (1 conference), Tomsk (2 conferences) . Resources deployed are in 0,5 project month personnel activity and in partial travel support.
Resources deployed are in travel support to participate in the 15th Seminar on " Ecology, Economy, Informatics"(Novorossyisk) in which the specialists from the state environmental departments of the Regional and Federal districts' administrations were acquainted with the contemporary scientific achievements in the environment sciences. The lecture on " Optimization problems to control atmospheric quality for assessment of ecological risks and prospective state" was given by prof. V. Penenko.

The third year

In course of the **WP10** performance targeted audience was provided with new finding, results and good practices cases including those arising from CA activity, special emphasis was given to delivering to regional administrators (especially those responsible for region environment state) detailed information on novel efficient tools for mitigation of the environmental risks and for remediation of natural objects subjected to man-induced environment pollution and examples of their successful usage. The brief project presentation in Russian and English was prepared and distributed at different conferences. Several presentations were prepared and delivered at different level conferences, including regional events, national forums and international conferences. Also several papers describing the project and its first results were submitted to peer-reviewed Journals. Detailed project descriptions as well as its results are maid available to specialists and general public via the bilingual project web portal.

To enhance dissemination of the results achieved it was decided to organize within the regular multidisciplinary Conference ENVIROMIS 2008 the Special Session on Man-Made Environmental Risks as a Joint Session with Conference on Control and Rehabilitation of Environment to be used to provide a wider audience with the major project finding. The Session was chaired by E.P. Gordov and important project results were delivered to 118 Conference participants in series of 6 Invited and 8 Contributed papers. Additionally, some project results were reported at the other ENVIROMIS Conference Sessions (see relevant Program in the Appendix)

The performed tasks also included:

. Linguistic and substantive editing of the documents issued in process of CA performance and implementation on the project web site all relevant information as an on-line, searchable set of electronic documents;

Preparation of multi-media material describing the project such as fliers, a demo CD,

PowerPoint presentation, and graphical components that can be used in standard scientific publications, or for posters and presentations;

Implementation and maintenance the project web portal and Database to make the above material on the Internet.

Contractors involved P01, P02 (leads), P03, P04, P05, P06, P07, P08, P09, P10.

Partner 01 (DMI) was responsible for project reporting and presentations. DMI collected contributions from all partners, prepared, edited and finalised the project reports. Resources deployed are in travel support for presentation of the project results users at different level

events and in 1 project months personnel activity. The travels were for presentation of the project results for the international scientific community and for end-users at different level events (EGU-2008 Annual Meeting, Vienna and NEESPI Summit, Helsinki; Scientific conference «Ecological problems of the Northern regions and ways for their solution», Apatity, October 2008).

Partner 02 (SCERT) leads this Workpackage and performed major part of this activity. The core SCERT organized element of dissemination activity was the ENVIROMIS-2008 Conference with the embedded Eviro-RISKS Workshop. Also several other Conferences were used to deliver invited and contributed papers disseminating the project results, in particular organized by P04 IIASA Conference (November 14 - 15, 2007, Vienna, Austria), First Workshop of the NEESPI Focus Research Center for Biogeochemical Cycles organized by P03, Max-Planck Institute for Biogeochemistry (Jena, Germany, March 17-19, 2008), EGU General Assembly (12-17 April 2008, Vienna, Austria), 1st International Workshop on Data Analysis and Modelling in Earth Sciences (29 September – 1 October 2008, Potsdam, Germany), and GOFC-GOLD Forest and Land Cover Symposium (13-17 October 2008, Jena, Germany). Resources deployed are in travel support of some ENVIROMIS-2008 participants as well as Prof. Gordov, Mr. Titov and Ms. Shulgina travels to relevant Conferences, in 5 project months personnel activity, in support of Internet traffic to and from the Project web Also some other cost of the Enviro-RISKS Workshop organization were supported from the project funding. In particular, it includes Consumables, coffee-breaks and mailing expenses.

Partner 03 input into WP10 was in dissemination activity at different Conferences. Resources deployed are in travel support.

Partner 04 (IIASA) input into WP10 was in dissemination activity at a number of Conferences. The presentations, mostly plenary and key-note, have been done at: Annual Assemble of the European. Geophysical Union (April 2008, Vienna, Austria); Regional Conference of Northern Eurasia Earth System Science Partnership Initiative (10-15 June 2008, Helsinki, Finland); ENVIROMIS-2008, 28 June – 5 July 2008 (Tomsk, Russia); XIV Scientific Conference of the International Boreal Forest Association (20-26 September 2008, Harbin, China); 10th Saint-Petersburg Forestry Forum (4-10 October 2008, Saint Petersburg, Russia). In addition, some recommendations of the focus group have been delivered to the Russian Federal Agency of Forest Management for possible use in preparation of plans of RTD for 2009. Resources deployed are in travel support and 1 project month personnel activity. Major part of resources has been allocated by IIASA.

Partner 05 input into WP10 was in dissemination activity at different Conferences, including ENVIROMIS-2008, 28 June – 5 July, 2008 (Tomsk, Russia), International Scientific Conference "Parallel computational technologies" (PaCT'2008), 28 January – 1 February, 2008 (Saint-Petersburg, Russia), and International Conference on Mathematical Methods in Geophysics (MMG-2008), 13 – 15 October, 2008 (Novosibirsk, Russia). Information about the PaCT'2008 and MMG-2008 is given at web-sites:

http://agora.guru.ru/display.php?conf=pavt2008 and
http://www.sbras.ru/ws/mag2008/index.en.html, respectively.

In Saint-Petersburg, V. Lykosov presented the invited lecture "Computational technologies of climate system modelling". In Novosibirsk, V. Lykosov has presented the report "Modeling and parameterization of mesoscale dynamics of the atmospheric boundary layer". In Tomsk, V. Lykosov gave the lecture "Mesoscale processes in climate system: modelling and parameterization" and M. Tolstykh presented the report "Simulation of climate anomalies on seasonal scales using general circulation model of the atmosphere". E. Volodin and M. Tolstykh visited on 4-5 February, 2008, the Institute of Multi-Processor Computational Systems of the Southern Federal University (Taganrog, Russia) with the aim to discuss possibilities of implementation of climate and weather forecast models on computers of a special architecture.

E. Volodin gave the lecture "The INM climate model" and M. Tolstykh presented the report "Semi-lagrangian model of the weather forecast".

Resources deployed are in travel support and 1 project month personnel activity.

Partner 06 input into WP10 was in dissemination activity at different Conferences, including ENVIROMIS-2008, EGU General Assembly-2008, IV International Symposium on Transboundary Water Management. Linguistic and substantive editing of the documents issued in process of CA performance and implementation on the project web site all relevant information as an on-line, searchable set of electronic documents, PowerPoint presentation, and graphical components that can be used in standard scientific publications, or for posters and presentations. Resources deployed are in 2,5 person month personnel activity and partial travel support.

Partner 07 input into WP10 was in preparation and presentation of reports on the work carried out in the framework of the Enviro-Risks Project in various regional seminars in Almaty and Astana cities. Oral presentations was made by Dr. B. Mirkarimova on the International Scientific and Practical Conference "Ecological Safety under urbanized territories conditions" within the framework of the First International Forum "Sustainable Development of the Eurasian continent" and the Third International Exhibition "ECOTECHNOLOGY-2008" in Astana city. Resources deployed are in 1 project month personnel activity and additionally resources deployed are in travel support from own KGC budget.

Partner 08 (**URIIT**) input into WP10 was preparation and presentation of reports on the work carried out in the framework of the Enviro-Risks Project at different organizations and Conferences. In particular, it included the Enviro-RISKS Workshop within the ENVIROMIS Conference and the satellite Conference on Control and Rehabilitation of Environment in Tomsk.

Resources deployed are in travel support covered from own funds.

In process of the **WP10** performance **Partner 09** (IMCES) prepared participated in organization of the ENVIROMIS Conference and the embedded Enviro-RISKS Workshop and organized International conference on Control and Rehabilitation of Environment in Tomsk. A number of papers was presented at thematic national and international of different levels.

Resources deployed are in 1 project month IMCES personnel activity covered from IMCES own budget.

Partner 10 (ICMMG) input into **WP10 performance** includes preparation of materials and participation in 6 All-Russian and 6 International scientific events in which about 20 presentations on the project themes were made.

An invited lecture on «Mathematical models for ecological expertise» was prepared and presented on the All-Russian conference on "Mathematical modelling in the problems of rational nature management" (Novorossiisk, 2008). In the frames of this conference a special seminar on "Informational supply of nature management" was organised for the specialists and officers of the nature management departments of some Federal Districts of Russia including Siberian FD.

Together with the other partners, V.Penenko participated in the meeting on " Integrated system for the meteorological elements and air quality forecasting and assessment of emission in the atmosphere of megalopolis, transport nodal points and other objects of infrastructure". The specialists from academician institutes (INM, ICMMG, IMCES), from Siberian research institute of hydrometeorology of Roshyromet and the end-users' representative from the Novosibirsk region administration (vice-governor G.A.Sapojhnikov) discussed the current state of studies and future plans of innovation to the environmental policy in Novosibirsk region. Among others the presentation on "Environmental design and

ecological risk assessment" was made by V. Penenko in which the theoretical aspects as well as some examples of scenario calculations of risk assessment for Siberian objects were presented. Some proposals for future studies in the direction of environmental protection were formulated too. The materials of the meeting are presented on the site http://sibnigmi.lvs.ru/.

In October, 2008 a traditional lecture on « Environmental protection in the conditions of climate change» was made for the students of the Novosibirsk State University as introduction to the profession (specialisation). The results of the studies and the input into the project are summarised in the corresponding part of the collective monograph.

Resources deployed are in partial travel support support for Prof. V.V.Penenko (Tomsk, Novorosiisk), and young expert E.A.Pyanova (Novorosiisk).

- **Deviations from the project workprogramme**, and corrective actions taken/suggested: identify the nature and the reason for the problem,

There were no deviations from the project workprogramme.

- **List of deliverables**, including due date and actual/foreseen submission date

Table 1: Deliverables List

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D10.1	Project description	WP10	PM06	PM06	2 PM	2 PM	P01
D10.2	Project web portal	WP10	PM06	PM06	6PM	6PM	P02
D10.3	Plan for using and disseminating knowledge	WP10	PM18	PM18	4 PM	4 PM	P01
D10.4	Dissemination report	WP10	PM36	PM36	4 PM	4 PM	P02
D10.5	Report on raising public participation and awareness	WP10	PM36	PM36	4 PM	4 PM	P02

***) if available**

- **List of milestones**, including due date and actual/foreseen achievement date

Table 2: Milestones List

List all milestones, giving date of achievement and any proposed revision to plans.

Final project report (due date and foreseen achievement date PM 36)

Expected results are in preparation of proper background for future joint initiative within FP6 and in better environment protection and, consequently, in higher health safety in the regions of the CA operation.

WP11 Exchange of research personnel and postgraduates

- **Workpackage objectives** and starting point of work at beginning of reporting period

To organize and support of exchanges of personnel between Partners paying special attention to exchange of young scientists and postgraduate students

- **Progress towards objectives** – tasks worked on and achievements made with reference to planned objectives,

The first year

In course of the **WP11** performance targeted group including mainly postgraduates was selected from NIS Partner organizations and hosting organizations for their training were selected. Relevant sources of their support were determined with main emphasis on extraproject funding. All in all 20 researchers from the Partners organizations participated in the exchange program during the reporting period.

Contractors involved P01, P02 (leads), P03, P04, P05, P06, P07, P08, P09, P10

Partner 01 (DMI) hosts a number of NIS researchers during this period. Young experts from P07 (KGC) have been sent to Danish Meteorological Institute. The main tasks of this training were to study the possibilities of usage of the DERMA model simulation results, to carry out the calculation of long-term and long-range atmospheric transport of pollutants from sources located on the territory of the Republic of Kazakhstan; and to obtain a permission for usage of DHI Water & Environment MIKE-21 model: 1 week Dr. B. Mirkarimova travel to DMI in January 2006, 2 weeks PhD students K. Pak and N. Tusseyeva travels to DMI in April-May 2006. PhD student Roman Nuterman from the Tomsk University (as a representative of Partner 2) had 1 month visiting program at DMI (December 2005). Draft version of the scientific report was prepared by R. Nuterman together with his DMI co-superviser Dr. A. Baklanov.

Partner 02 (SCERT) leads this Workpackage and performed major part of this activity, in particular in search of extramural funding sources.

Resources deployed are in travel support to DMI to learn DMI DERMA Model and partial travel support (visa cost) for travel to the ACCENT - CMAS Training Workshop on Air Quality Modeling. Other training travels were supported from external sources, including INTAS and Russian Ministry of Education and Science fellowships.

Partner 07 (KGC) input into WP11 was in support of exchange Program. In the process of the WP11 performance the 1 established and 2 young experts have been sent to Danish Meteorological Institute to learn the DERMA model capabilities, to carry out the calculation of long range atmospheric transport of pollutants from sources located on the territory of Kazakhstan and to obtain a permission for usage of DHI Water & Environment MIKE-21 model. Resources deployed are in travel support.

Partner 08 (URIIT) input into WP11 was in support of participation of 3 Ugra State University students in the International Conference "ENVIROMIS-2006".

Resources deployed are in one person month Personnel activity.

Partner 09 (IMCES) input into WP11 was in partial support of Dr. E. Genina participation in FP6 CA CIRCLE Annual Progress Meeting, Vienna, Austria (20-22 September 2006). During the meeting information on projects carried out by IMCES on environmental investigations in Siberia including Enviro-RISKS was presented as well.

Resources deployed are in partial Travel support.

Partner 10 (ICMMG) input into WP11 was in organization of group of young scientists to participates in YSS in framework of ENVIROMIS-2006 Conference. 5 researchers took place in this training event. All relevant travel expanses were covered by SCERT.

The second year

In course of the **WP11** performance targeted group including mainly postgraduates was selected from NIS Partner organizations and hosting organizations for their training were selected. Relevant sources of their support were determined with main emphasis on extraproject funding. All in all 19 researchers from the Partners organizations participated in the exchange program during the reporting period.

Contractors involved P01, P02 (leads), P03, P04, P05, P06, P07, P08, P09, P10

Partner 01 (DMI) hosts a number of NIS researchers during this period and supervised their activity. PhD student Roman Nuterman from the Tomsk University (as a representative of Partner 2) obtained the 2-year INTAS support for his PhD studies under supervision of Dr. A. Baklanov.
Partner 02 (SCERT) leads this Workpackage and performed major part of this activity, in particular in search of extramural funding sources to support participation in the CITES-2007 event young scientists from the Partner's organization. Also SCERT was assisting R. Nuterman in preparation of the application to INTAS .
Set of training travels was supported from external sources, including INTAS and Russian Ministry of Education and Science fellowships.
Partner 05 (INM) organized a travel of seven young scientists to participate in YSS in a framework of CITES-2007 Conference. All relevant travel expanses were covered by SCERT from extra-project resources
Partner 07 input into WP11 performance includes consultation on remote sensing data processing for risk mapping tasks.
Resources deployed are in travel support.
Partner 09 (IMCES) input into WP11 was in extra-project funding support of travel of young scientist Dr. E. Dyukarev to Vienna, to participate in the EGU General Assembly- 2007. The information on projects carried out by IMCES on environmental investigations in Siberia was presented as well.
Partner 10 (ICMMG) input into WP11 was in organization of group of young scientists to participate in YSS in framework of CITES-2007 Conference. The following researchers were in this training event: Dr. Yudin M.S. and young experts Chernova A.V., Penenko A.V. and Pyanova E.A. All relevant travel expanses were covered by SCERT. Young expert Penenko A.V. participated in the Exchange Program during his visit to DMI in February-March 2007. The main goal of the visit was learning the DMI weather-forecasting model system DMI-HIRLAM and development of a tool for incorporation of the data produced by HIRLAM model in a new version of ICMMG 4D transport and diffusion model. The cooperative work was started on development of the algorithms for data assimilation, source revealing and parameter identification. Resources deployed are in 18-day travel support.

The third year

In course of the **WP11** performance targeted group including mainly postgraduates was selected from NIS Partner organizations and hosting organizations for their training were selected. Relevant sources of their support were determined with main emphasis on extraproject funding. All in all 18 researchers from the Partners organizations participated in the exchange program during the reporting period.

Contractors involved P01, P02 (leads), P03, P04, P05, P06, P07, P09, P10

Partner 01 (DMI) hosts a number of NIS researchers (incl. R. Nuterman, A. Penenko) during this period and supervised their activity. PhD student Roman Nuterman from the Tomsk University (as a representative of Partner 2) obtained the 2-year INTAS support for his PhD studies under co-supervision of Prof. A. Baklanov defended his PhD degree. PhD student Alexander Tridvornov from the Krasnoyarsk research center of SORAN (as a co-representative of Partner 6) finalised his PhD thesis under co-supervision of Profs. V. Moskvichev and A. Baklanov and defended his PhD degree. PhD student Anton Svetlov from the Institute of Northern Ecological Problems of the Kola Science Center RAN (as an associated partner) is doing his PhD work under supervision of Prof. A. Baklanov. 0,6 PM personnel activity was used to this end.

Partner 02 (SCERT) leads this Workpackage and performed major part of this activity, in particular in search of extramural funding sources to partially support participation in the ENVIROMIS-2008 event young scientists from the Partner's organization. Also SCERT

supported partially travel of YS A. Titov to IIASA, Austria and INM RAS (Moscow) and T. Shulgina to IIASA, Austria as well was assisting R. Nuterman in finalizing his PhD study. Set of training travels was supported from external sources, including APN and RFBR. SCERT also prepared the Report on results obtained YS in course of the exchange Program. Resources deployed are in YS partial travel support and in 4project months of personnel activity.

Partner 04 (IIASA) hosted SCERT young scientists T. Shulgina (3 months Young Scientist Summer School) and L. Mukhortova (Institute of Forest, Siberian Branch of the Russian Academy of Sciences, Krasnoyarsk). All expenses were covered from outside-project sources.

Partner 05 (INM) organized a travel of fife young scientists to participate in ENVIROMIS-2008 Conference. All relevant travel expenses were covered from extra-project sources. Resources deployed are in 1 project month of personnel activity.

Partner 06 (IF) input into WP11 was in organization of group of young scientists to participate in the ENVIROMIS-2008 Conference**.** Also IF supported partially travel of YS L. Muhortova to IIASA, Austria. Resources deployed are in YS partial travel support.

Partner 07 input into WP11 performance includes training of data processing methods of the hyperspectral scanner CASI: "CASI Hyperspectral Analysis and GIS Integration", "CASI Normalization and data Fusion". This training was carried out in Almaty by experts of ITRES Research Limited (Canada). The following researchers of KGC personnel took place in this training event: N. Tusseyeva, N. Abdrakhmanova. Resources deployed are in training support from own KGC budget and in 1 project month personnel activity.

Partner 09 (IMCES) input into WP11 was in extra-project funding support of travel young scientists K. Shurkina and E. Volkova to Mitilini, Greece, to participate in the Conference on Studying, Modeling and Sensemating of Planet Earth

Resources deployed are in YS partial travel support and in 1 project month of personnel activity covered from own funds.

Partner 10 (ICMMG) input into WP11 was in organization of group of scientists to participate in the ENVIROMIS-2008 Conference. The following researches were in this event: Dr M. Yudin and young scientist Pyanova E.A.

Young scientist A.V.Penenko participated in the Exchange Program during his visit to DMI in June-July 2008. Research scope of the visit was training and collaboration work with DMI on development of a new technique for revealing unknown sources of pollution and determining their emission parameters. During this visit A.V.Penenko participated in the 6th International Conference on Inverse Problems in Engineering: Theory and Practice (Dourdan (Paris), France) and in the 5th European Congress on Computational Methods in Applied Sciences and Engineering (ECCOMAS 2008) in Venice (Italy) with oral presentations on the theme of collaboration studies.

Resources deployed are in YS partial travel support and in 1 project month of personnel activity.

- **Deviations from the project workprogramme**, and corrective actions taken/suggested: identify the nature and the reason for the problem, identify contractors involved

There were no deviations from the project workprogramme.

- **List of deliverables**, including due date and actual/foreseen submission date (Table 1)

Table 1: Deliverables List

List all deliverables, giving date of submission and any proposed revision to plans.

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D.11	Integrated Report on research work performed in course of exchange Program	WP11	PM36	PM36	3PM	3PM	P02

***) if available**

- **List of milestones**, including due date and actual/foreseen achievement date

List all milestones, giving date of achievement and any proposed revision to plans.

Expected results are in enhancing of professional skill of young scientists, which will lead to their more efficient work within Projects performed by their home organizations. At least five PhD Thesis will be finished due the participation in the exchange program.

Section 3 – Consortium management

This section should summarise the status of the project, its management and follow-up activities, including information on:

- Consortium management tasks and their achievement; problems which have occurred and how they were solved
- Contractors: Comments regarding contributions, changes in responsibilities and changes to consortium itself[1], if any
- Project timetable and status, including an updated, frontlined barchart (Table 5). Clarify changes and impact on the planned milestones, if any

- The section should also provide short comments and information on co-ordination activities in the period, such as communication between partners, project meetings, possible co-operation with other projects/programmes etc.

WP01 Project administration

Objectives

The objective of the work package is the co-ordination of the project activities, monitoring of time tables, milestones, and Deliverables, as well as the quality assurance procedures. It should provide the basis for an efficient communication and co-operation project participants, and maintain a constructive dialog with the Commission project officers and to set up Project Scientific and Technical Committees from coordinators and contractors of relevant projects of different level and Project Steering Committee from those and external to coordinated projects experts in Environmental Sciences and Applications and representatives of Siberian Federal District as end users. Establish experts group and organize their work.

Description of work

The first year

In process of the **WP01** performance firstly the Project kick-off Meeting was organized in Copenhagen, during which all the Project Committees including recognized NIS, European and overseas researchers in area of Environmental Sciences as well as end user representatives were organized as a supporting body for overall Project management and administration. Then during the organized in course of **WP05** Conference the Project Intermediate Meeting was hold to consolidate Partner's activities and discuss the result obtained.

The co-ordination of project activities is achieved through electronic communication, primarily via project web-portal and e-mail lists as well as direct telephone or personal contacts whenever necessary; activities also include the preparation and chairing of regular project management board meetings and technical meetings, keeping minutes and records, and communication to all partners via the web site.

All public deliverables and the Executive Summaries of project internal deliverables will be placed on the project web site. The work also includes the communication with the Commission, and the preparation of the regular management and progress reports, the preparation of review meetings, and compilation of cost statements.

All Partner were involved into this Workpackage, P01 leads.

Partner P01 (DMI) leads this Workpackage and performed major part of this activity. DMI organised and hosted the project Launching Meeting at DMI in Copenhagen; coordinated all

[1] Changes to the consortium membership must be addressed in a specific request for an amendment to the contract

current work of the project consortium; and prepared, edited and published the First year Scientific Project Report.

Partner 02 (SCERT) participated in organization of the kick-off Meeting and organized the Project Intermediate Meeting supporting communications between EU and NIS Project Partners during the whole reporting period as well. Also SCERT co-ordinated overall NIS Partners activities and compiled relevant part in periodic Reports. Resources deployed are in travel support and in 5 project months personnel activity.

Partner P03 (MPI) participated in organization of the kick-off Meeting and participated in the Project Intermediate Meeting and SIRS Workshop in Tomsk, Russia. At the kick-off Meeting MPI team member Dr. Marcus Schumacher presented a team report on 'Observing Biogeochemical Processes in Eurasia'. Resources deployed are in travel support.

Partner P04 (IIASA) participated in organization of the kick-off Meeting and participated in the Project Intermediate Meeting and SIRS Workshop in Tomsk, Russia. At the kick-off Meeting team leader Prof. A. Shvidenko presented an analytical report on methodology of the terrestrial biota full greenhouse account with a special emphases to specifics of the boreal zone. Resources deployed are in travel support.

Partner 05 (INM) participated in organization of the kick-off Meeting and participated in the Project Intermediate Meeting in Tomsk, Russia.. The team leader Prof. V. Lykosov has prepared for the kick-off Meeting an analytic report "Mathematical Tools for Modeling Natural and Anthropogenic Changes of Siberian Climate and Environment", which was presented by Prof. E. Gordov. Prof. V. Lykosov has also participated in the Project Intermediate Meeting
Resources deployed are in travel support.

Partner 06 (IF) participated in organization of the kick-off Meeting and participated in the Project Intermediate Meeting in Tomsk, Russia. Resources deployed are in travel support of IF team leader Prof. Onuchin A.A. visits to Copenhagen and in 1 project month Personnel activity.

Partner 07 (KGC) participated in organization of the kick-off Meeting and participated in the Project Intermediate Meeting in Tomsk, Russia. The participants of the kick-off meeting decided to include the project IGIS (Inter-branch Geoinformation System) in list of coordination action. This project is carried out by the "KAZGEOCOSMOS" JSC in frame of State program of Kazakhstan "Development of space activity in the Republic of Kazakhstan for 2005-2007". Resources deployed are in travel support of KGS team leader Prof. E. Zakarin visits to Copenhagen and Tomsk.

Partner 08 (URIIT) participated in organization of the kick-off Meeting and participated in the Project Intermediate Meeting in Tomsk, Russia. Resources deployed are in travel support of URIIT team leader Prof. P. Pushistov visit to Copenhagen.

Partner 09 (IMCES) participated in organization of the kick-off Meeting and participated in the Project Intermediate Meeting in Tomsk, Russia. Resources deployed are in partial travel support of IMCES team leader Prof. M. Kabanov visit to Copenhagen.

Partner 10 (ICMMG) participated in organization of the kick-off Meeting and participated in the Project Intermediate Meeting in Tomsk, Russia. Resources deployed are in partial travel support of ICMMG team leader Prof. V. Penenko visit to Copenhagen (trip to Tomsk was covered by SCERT).

The second year

Then during the organized in course of **WP09** Conference the Annual Project Meeting was hold to consolidate Partner's activities and discuss the result obtained as well as Project management Meeting. At this Meeting necessity to redistribute funding for the rest period of the project carrying out to ensure its successful performance was discussed. Reasons for this are underestimated cost of activities related with development and support of the project web-portal and relevant IT-tools allocated to SCERT (Partner 2), personnel migration and internal problems, which make near impossible for some partners to handle their Euro accounts. In particular it was unanimously decided to limit the URIIT (Partner 8) and IMCES (Partner 9)

funding by the paid yet sums and increase the SCERT (Partner 2) funding adding to it the rest from previously allocated to IMCES and URIIT. The suggested redistribution of the funding is not related with distribution of task between contractors in comparison with the original plan (as stated in Annex I), since Partners 8 and 9 will perform their tasks using their internal funding, the proposed "change" would not have a negative impact on the implementation of the project. These as well as some redistribution between cost categories explained in relevant WP description will not lead to impact on the rest part of the Project performance.
The co-ordination of project activities is achieved through electronic communication, primarily via project web portal and e-mail lists as well as direct telephone or personal contacts whenever necessary; activities also include the preparation and chairing of regular project management board meetings and technical meetings, keeping minutes and records, and communication to all partners via the web site.
All public deliverables and the Executive Summaries of project internal deliverables will be placed on the project web site. The work also includes the communication with the Commission, and the preparation of the regular management and progress reports, the preparation of review meetings, and compilation of cost statements.
All Partner were involved into this Workpackage, P01 leads.
Partner P01 (DMI) leads this Workpackage and performed major part of this activity. DMI co-organisation of the 2nd Annual Project Meeting in Tomsk, Russia, July, 25, 2007; coordinated all current work of the project consortium; and prepared, edited and published the First year Scientific Project Report.
Partner 02 (SCERT) participated in organization of the Annual Project Meeting in Tomsk and was supporting communications between EU and NIS Project Partners during the whole reporting period as well. Also SCERT co-ordinated overall NIS Partners activities and compiled relevant part in periodic Reports. Resources deployed are in travel support and in 5 project months personnel activity.
Partner 03 (MPI-BGC) participated in organization of the Annual Project Meeting in Tomsk, Russia. Resources deployed are in travel support of Prof. Dr. M. Heimann visit to Tomsk.
Partner 04 (IIASA) participated in organization of the Annual Project Meeting in Tomsk. Resources deployed are in travel support of Prof. A. Shvidenko visit to Tomsk. Major costs incurred: Prof. A. Shvidenko travels to meeting in Tomsk.
Partner 05 (INM) participated in the Project Intermediate Meeting in Tomsk, Russia, where Prof. V. Lykosov presented the report "Climate/Global Change (Thematic group results/ findings)" (see http://www.scert.ru/conferences/cites/2007/presentation/ConferenceEng.html).
Resources deployed are in 1 project month Personnel activity.
Partner 06 (IF) Dr. Onuchin A. and Mikheyeva N. visited the Annual Project meeting and Workshop "Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia" in Tomsk in process of performance Work Package 01. Resources deployed are in travel support
Partner 07 (KGC) participated in organization of the Annual Project Meeting in Tomsk, Russia. Resources deployed are in partial travel support of KGS team leader Prof. E. Zakarin and Dr. B. Mirkarimova visit to Tomsk.
Partner 08 (URIIT) participated in organization of the Meeting.
Partner 09 (IMCES) participated in organization of the Annual Project Meeting in Tomsk, Russia, July, 25, 2007. Resources deployed are in 1 project month Personnel activity
Partner 10 (ICMMG) participated in organization of the Meeting and participated in it.

The third year

In process of the **WP01** performance firstly the Project Meeting was organized in Laxenburg, Austria, on 18 April 2008, during General Assembly of EGU, which took place in Vienna where near all Partners participated. Main point discussed was preparation of the Expert Groups Reports. Drafts of all four Reports and directions of future work were discussed. Then during

the organized in course of **WP10** ENVIROMIS-2008 Conference the Annual Project Meeting as well as Project management Meeting were hold to consolidate Partner's activities before the project finalization and discuss the result obtained.

The co-ordination of project activities is achieved through electronic communication, primarily via project web portal and e-mail lists as well as direct telephone or personal contacts whenever necessary; activities also include the preparation and chairing of regular project management board meetings and technical meetings, keeping minutes and records, and communication to all partners via the web site.

All public deliverables and the Executive Summaries of project internal deliverables will be placed on the project web site. The work also includes the communication with the Commission, and the preparation of the regular management and progress reports, the preparation of review meetings, and compilation of cost statements.

During the third project year the Project Scientific and Project Management Committees activity was aimed at realization of the previous year decisions about project funding redistribution between NIS Partners. Then, after The Project Scientific Committee Meeting in IIASA (Laxenburg) in April 2008, where it was decided to enhance project dissemination activity and increase Project budget using Partners own funding to meet the Project objectives properly, activity was aimed to perform this Committee decision. To this end Project Management Committee Meeting h took place in Tomsk, July 5, 2008 and as result the enlarged budget was approved as well as total number of Project person-months was also enlarged up to 271 instead of planned 235. The distribution of planned Project person-months between workpackages is the following: WP1 – 31; WP2 – 32; WP3 – 30; WP4 – 38; WP5 – 16; WP6 – 6; WP7 – 20; WP8 – 45; WP9 – 16; WP10 – 26; WP11 – 11. Also, after getting a comment from the Commission about redundant character of the planned D10.4 Technical implementation plan, those project months were used to increase dissemination activity as well.

All Partner were involved into this Workpackage, P01 leads.

Partner P01 (DMI) leads this Workpackage and performed major part of this activity. DMI participated in organization of the project Meeting at IAASA and SCERT and took part in the both Meetings; coordinated all current work of the project consortium; and prepared, edited and published the Final Scientific Project Report, comprising four Expert groups Reports.

Partner 02 (SCERT) participated in organization of the Project Meeting in Laxenburg and organized the Meeting in Tomsk and was supporting communications between EU and NIS Project Partners during the whole reporting period as well. Also SCERT co-ordinated overall NIS Partners activities and compiled relevant part in periodic Reports. Resources deployed are in travel support and in 3 project months personnel activity.

Partner P03 (MPI-BGC) participated in organization of Project Meetings.

Partner P04 (IIASA) organized the Project Meeting in Laxenburg and participated in organization of the Tomsk meeting as well as participation in it.

Partner 05 (INM) participated in organization of the Project Meeting in Tomsk, Russia and participated in it. Prof. V. Lykosov presented the report "Climate/Global Change (Thematic group results/findings)". Resources deployed are in 0,5 project month Personnel activity.

Partner 06 (IF) Dr. Onuchin A. participated in in organization of the Project meeting in Tomsk and participated in it in process of performance Work Package 01. Resources deployed are in travel support and 1,5 project months personnel activity on preparation and conducting of audit. The direct costs were salary and payment of audit on the WP 01 Enviro-risks project. Source of financing is other IF project. No direct costs were charged against WP 01 on the Enviro-risks project.

Partner 07 (KGC) participated in organization of the Project Meetings in Laxenburg, Austrtia and in Tomsk and participated in Laxenburg Meeting. Resources deployed are in 1 project month personnel activity funded from own KGC budget.

Partner 08 (URIIT) participated in organization of the Meeting in Tomsk. Resources deployed are in 1 project month Personnel activity covered from own funds.

Partner 09 (IMCES) participated in organization of the Project Meetings in Laxenburg and in Tomsk and participated in the Tomsk Meeting.

Partner 10 (ICMMG) participated in organization of the Meetings in Laxenburg and in Tomsk and participated in the Tomsk Meeting.

Deliverables

Regular reports to the Commission (management reports, progress reports, annual reports, and final reports).

Table 1: Deliverables List

Del. no.	Deliverable name	Workpackage no.	Date due	Actual/Forecast delivery date	Estimated indicative person-months *)	Used indicative person-months *)	Lead contractor
D1.1	Intermediate project reports	WP01	PM12 and PM24	PM12 and PM24	3PM	12PM	P01
D1.2	Final report	WP01	PM36	PM36		6 PM	P01

***) if available**

- **List of milestones**, including due date and actual/foreseen achievement date

Table 2: Milestones List

List all milestones, giving date of achievement and any proposed revision to plans.

Milestones as above.

Expected result is in efficient operation of the whole CA.

Table 5 Project time schedule. Ghant Chart: Progress for 1 Nov 2005 – 31 Oct 2008

Gray:	Workplan in accordance with DoW
Blue:	Work is completed according to schedule or prior to schedule
Green:	Work is in progress according to schedule / partner states progress as scheduled.
Red:	Work is delayed / partner states task is pending or delayed.
Yellow:	Information about status missing from partner.

NOTE: Short title are used in some cases

Time schedule for Workpackages tasks		YEAR 1				YEAR 2				YEAR 3			
WPs	**Activity**	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Kick-off meeting	+											
	1st year meeting			+									
	mid-term assessment meeting							+					
	2nd year meeting										+		
	Final meeting												+
WP01	Project administration												
D1.1	Intermediate report												
D1.2	Final report												
WP02	Project web portal and information database												
D2.1	Site development and user Manual												
D2.2	Intranet development and user Manual												
D2.3	Database development and user manual												
WP03	Gathering and systematization of info resources												
D3	Metadata format description and Manual for data transformation												
WP04	Gathering, analysis and synergy search in different level project on Siberian environment.												
D4.1	Database development with info on the current environmental RTD projects												
D4.2	Synergy between the current projects and Recommendations												
WP05	Organization of first conference and experts meeting												
D5.1	First Conference organisation												
D5.2	Publication of the Proceedings (hard copies, CD and e-version on the web)												
WP06	Preparation of technical implementation plan												
D.6	Joint Technical Implemented Plan												
WP07	Gathering of info on recently started projects												
D7	Database with info on the new RTD projects												

Time schedule for Workpackages tasks		YEAR 1	YEAR 2	YEAR 3
WP08	Search for synergy between different projects			
D8.1	Synergy between new projects and Recommendations			
D8.2	Memorandum and Recommendations on future RTD environmental activity in Siberia.			
WP09	Organization of second conference and experts Meeting			
D9.1	The second Conference organization			
D9.2	Publication of the Proceedings (hard copies, CD and e-version on the web)			
WP10	Documentation and dissemination			
D10.1	Project description			
D10.2	Project web portal			
D10.3	Plan for using and disseminating knowledge			
D10.4	Technical implementation plan			
D10.5	Dissemination report			
D10.6	Report on raising public participation and awareness			
WP11	Exchange of research personnel and postgraduates			
D11	Integrated Report on research work performed in course of exchange Program			

Appendix 1 - CA Steering Committee (CASC)

Name	Organization, position	Responsibility, professional skill domain
Dr. Baklanov A.	DMI, Senior Scientist	Chair, pollutant transport modeling
Prof. Gordov E.P.	SCERT, Tomsk, Director	Vice-Chair, computational-information technologies and systems
Prof Heimann M.	MPI for Biogeochemistry, Director	Vice-Chair, biosphere-geosphere interactions
Prof. Shvidenko A.	IIASA, Acting Program Leader	Vice-Chair, forest management
Dr. Begni G.	MEDIAS, France, Director	Environmental databases
Dr. Chaikovski A.	Institute of Physics, Belarus, Lab. Head	Environmental remote sensing
RAS member Dymnikov V.P.	Institute for Numerical Mathematics, Moscow, Director	Theory of climate
Prof. Efimov V.V.	Marine Hydrophysical Institute, Ukraine, Principal Investigator	atmosphere-ocean interactions,
RAS corresponding member Kabanov M.V.	Institute of Monitoring of Climatic and Ecological Systems, Tomsk, Director and SCERT Sci. Cons.	Environmental monitoring, assessment and remediation
Dr. Krutikov V.A.	Institute of Monitoring of Climatic and Ecological Systems, Tomsk, Deputy Director	GIS
Dr. Linders J.	RIVM-CSR, The Netherlands, Deputy Head	Environmental risk assessment
RAS corresponding member Lykosov V.N.	Institute for Numerical Mathematics, Moscow, Main researcher and SCERT Sci. Cons.	climate modeling and environmental modeling
Prof. Onuchin A.	IF, Deputy Director	Forest assessment and remediation
Prof. Penenko V.V.	Institute for Computational Mathematics and Mathematical Geophysics, Novosibirsk, Lab. Head	Environmental modeling
Dr. Pippi I.	Institute of Applied Physics “Carrara”, Italy, Group Leader	Satellite Remote sensing
Prof. Pushistov P.	URIIT, Lab. Head	Environmental modeling and remediation
Prof. Schmullius Ch.	Friedrich - Schiller-University, Germany, Chair	Satellite remote sensing and GIS

RAS member Shokin Yu.I.	Institute of Computational Technologies, Novosibirsk, Director	Information technologies
Prof. Sverchkov S.R.	Director of the Center of strategic development "Siberia"	Analysis and strategic planning of sustainable development of SFD.
Mrs. Shardakova L.	Central Asian Research Hydrometeorological Institute, Uzbekistan, Senior researcher	Local node leader, environment pollution monitoring
RAS member Vaganov E.A.	Siberian Federal State University, Krasnoyarsk, Rector and SCERT Sci. Cons.	Biosphere-geosphere interactions
RAS member Vasiliev O.F.	Novosibirsk Affiliation of the Institute of Water and Ecology Problems SB RAS, Adviser of RAS	Hydrology, including relevant extremes, like floods and draughts
Prof. Zakarin E.A.	"KazGeoCosmos" Limited Liability Company, Director of RS Department	Local node leader, GIS and environmental modeling
Prof. Zilitinkevich S.	Helsinki University, Finland, Marie Curie Chair	Environmental modeling and atmospheric physics

Project Scientific Committee (PSC)

Name	Organization
Prof. Zakarin E.A.	"KazGeoCosmos", Kazakhstan
Prof. Penenko V.V.	Institute for Computational Mathematics and Mathematical Geophysics, Russia
Prof. Shvidenko A.	IIASA, Austria
Prof. Pushistov P.	URIIT, Russia
Prof. Onuchin A.	Institute of Forest, Russia
RAS corresponding member Lykosov V.N.	Institute for Numerical Mathematics, Russia
RAS corresponding member Kabanov M.V.	Institute of Monitoring of Climatic and Ecological Systems, Russia
Prof Heimann M.	MPI for Biogeochemistry, Germany
Dr. Baklanov A.	DMI, Denmark
Prof. Gordov E.P.	SCERT, Russia

Project Technical Committee (PTC)

Name	Organization
Dr. Mirkarimova B.	"KazGeoCosmos", Kazakhstan
Dr. Yudin M.	Institute for Computational Mathematics and Mathematical Geophysics, Russia
Prof. Shvidenko A.	IIASA, Austria

Prof. Pushistov P.	URIIT, Russia
Dr. Korets A.	Institute of Forest, Russia
Dr. Glazunov A.	Institute for Numerical Mathematics, Russia
Dr. Krutikov V.	Institute of Monitoring of Climatic and Ecological Systems, Russia
Dr. Schumacher M.	MPI for Biogeochemistry, Germany
Dr. Baklanov A.	DMI, Denmark
Dr. Okladnikov I.	SCERT, Russia

Appendix 2 - List of projects co-ordinated within CA and Projects, whose results are included into dedicated studies of the Expert Groups

1. Performed Projects

a) Co-ordinated projects

ENVIROMIS-2 (Environmental Observations, Modelling and Information Systems Special Support Action, INCO FP6) Co-ordinator SCERT, Prof. E. Gordov. ENVIROMIS-SSA forms coherent set of coordination, dissemination and education actions directly aimed at environment and health protection and related safety aspects, stabilisation of research and development potential in Russia and other NIS countries. Being based on modern monitoring, information and computational technologies it might indirectly facilitate changes in the industrial production system as well.

- Russian Ministry of Science and Education Program Project **Mathematical modeling of consequences of catastrophic high temperature releases of pollutants** (**ICMMG,** Leader Prof. V. Penenko). The goal of the project is to develop the models for diagnosis and prognosis of environmental changes caused by different types of catastrophic events.
- The Kazakhstan Ministry of Industry and Trade Projects **Remote sensing of land-use and land- cover processes on the ecological stressed territories of Kazakhstan**, **Monitoring and geoinformation modeling of territorial ecological processes for North part of Caspian sea** and **Studding of ecological consequences (temperature anomaly, radioactivity etc.) of nuclear explosions at the Former Semipalatinsk Test Site** (**KGC**, leader Prof "E. Zakarin).
- RAS Program Environmental and climatic changes: natural catastrophes Project **Development of the models and methods for revealing and studying the regions of increased ecological risk taking Siberian region as an example** (**ICMMG**, leader Prof. V. Penenko).The main goal of the project is construction of models and methods and their application to the ecological risk assessment and management in Siberian region.
- RAS Program Computational and informative aspects of solving the huge problems Project **Methods and models for studying and forecasting changes in environment** (**ICMMG,** Prof. V. Penenko) The Project is aimed on the construction of the efficient parallel algorithms and realisations of divers environmental models on supercomputers.
- Khanty-Mansiiskii National District Government Project **Development of hardware and software complex for high resolution space information receiving and processing, including space information archiving and dissemination англоязычное название)** A universal receiving and processing center created in **URIIT** allows information receiving from all existing Russian and foreign nature-resources dedicated satellites and even gives possibility of the Earth's surface detail survey from space.
- Khanty-Mansiiskii National District Government Project **Development of GIS estimation of flooding and fire situation on the territory of the Khanty-Mansiysk Autonomous Okrug for decision making system support of Emergency Center.** The **URIIT** performed project is aimed on operative identification of flooding and fire situations on the territory of the Khanty-Mansiysk National District and giving in-time information to the authorities and emergency units. It is very important to maintain big databases in working condition and presentation of information in the form of electronic maps.
- Khanty-Mansiiskii National District Government Project **Study of flambeau lights and petroleum releases on air and water quality and soil state** (INM, Prof. V. Lykosov)

Modeling of pollutants transport and transformation and of their influence on environment state: **INM.**

- Joint with U. S. Department of Agriculture, Forest Service Project **Modeling and monitoring effects of area burn and fire severity on carbon cycling emission, and forest health and sustainability in Central Siberia. IF** is key performer. The project is aimed at studying the long- term consequences and reconstruction of fire chronology, also at creating empirical models of ecosystem processes, aerosol dynamics and carbon balance as well as tree stand falling down.
- Joint with Northeastern Forest Experiment Station, USDA Forest Service, Radnor, Project **Central Siberian sustainable forest management. IF** is key performer. A contemporary strategy for sustainable and ecologically grounded forest management in boreal forests of Siberia is being elaborated.
- Company Ugansknefegas Project **Remediation of oily lands**. **URIIT** and Monitoring Enterprise perform gathering of oil components, bio processins anf growing plants.
- Company Ugansknefegas Project **Remediation of cuttings storages**. **URIIT** and Monitoring Enterprise perform pumping out of liquid components and processing of cuttings, and improve relief.
- Company Ugansknefegas **Project Bio-cleaning of surface water**. **URIIT** and Monitoring Enterprise perform cleaning of surface water from oil components.
- Company Ugansknefegas Project **Processing of drilling cuttings**. **URIIT** and Monitoring Enterprise perform processing of drilling cuttings to get a material for road construction

b) Projects used in the dedicated studies

- FUMAPEX (Integrated Systems for Forecasting Urban Meteorology, Air Pollution and Population Exposure) (co-ordinated by DMI, Dr A. Baklanov)) Project, which is aimed at improvement of meteorological forecasts for urban areas and link Numerical Weather Prediction (NWP) models to Urban Air Pollution and exposure models leading to an improved Urban Air Quality Information and Forecast System for application in cities in various European climates. FUMAPEX Project forms a solid background for atmospheric pollution formation, transport and transformation in the targeted region. Consortium comprise 16 EU research organizations: Danish Meteorological Institute, German Weather Service, Hamburg University, Centro De Estudios Ambientales Del Mediterrano, Ecole Centrale de Nantes - CNRS, Laboratory of Fluid Mechanics, Finnish Meteorological Institute, ARIANET Consulting, Environmental Protection Agency of Emilia -Romagna Region, The Norwegian Meteorological Institute, Norwegian Institute for Air Research, University of Hertfordshire, INSA CNRS-Universite-INSA de Rouen, Finnish National Public Health Institute, Environmental Protection Agency of Piedmont, Environment Institute - Joint Research Center and Swiss Federal Institute of Technology.
- **SIBERIA 2** – Project aims at understanding the greenhouse gas budget and its interactions with climate change in the Eurosiberian region. The Consortium consists of 14 multi-disciplinary partners from 7 countries (4 partners from Russia). The team has a good spread of institutions: 6 research agencies (all are involved also in policy making), 5 universities, 2 SMEs, 1 governmental agency. **IIASA** and **IF** are key performers of the Project**.**
- **Terrestrial Carbon Observing System – Siberia. (TCOS-Siberia)** (coordinated by MPI for Bio-geochemistry (Jena), Prof. M. Heimann) The principle objective of the project is the implementation of the first components of a continental scale observing system to help determine the net carbon balance of Siberia and its variation from year to year. 12 research

organizations are involved into Project performance, including the **Institute of Forest** SB RAS.

- **Bilateral Austrian-Russian project** (coordinators Prof. E.Vedrova, Institute of Forest, SB RAS, and Prof. A. Shvidenko, International Institute for Applied Systems Analysis, Austria) is addressed to develop a system methodology and to provide the Terrestrial Biota Full Greenhouse Gas Account for Central Siberia. The results of the project are important for implementation of the post Kyoto international negotiation process in Russia.
- **ISIREMM: Integrated System for Intelligent Regional Environmental Monitoring & Management** (Prof. E.Gordov coordinated NIS Partners activity) Performed Project, whose follows up will be useful for CA Project of FP5 INCO PROGRAMME, which addresses the problem of industrial pollution, and in particular, air pollution, and its effects on the human and natural environment will design, develop, implement, and test over a period of three years and in close cooperation between EU and NIS partners, an environmental management information system combining recent results of the FW4 Environmental Telematics Programme with specific developments in modeling and monitoring from a number of NIS institutions. It joined efforts of 3 EU and 5 NIS research organizations, including **ICMMG, IMCES, SCERT and NC REC**.
- ENVIROMIS-SSA (Environmental Observations, Modelling and Information Systems Special Support Action, INCO FP6) Co-ordinator SCERT, Prof. E. Gordov. ENVIROMIS-SSA forms coherent set of coordination, dissemination and education actions directly aimed at environment and health protection and related safety aspects, stabilisation of research and development potential in Russia and other NIS countries. Being based on modern monitoring, information and computational technologies it might indirectly facilitate changes in the industrial production system as well.
- INTAS supported project **ATMOS: Web Portal on Atmospheric Environment** (Prof. E. Gordov coordinates NIS Teams activity). Project involves 2 EU Groups and 5 Russians Teams and is aimed at development a bilingual Internet portal for the domain of Atmospheric Physics and Chemistry, and the related application domain of air quality assessment and management. Among key participants are **SCERT, ICMMG, INM, IMCES.**
- INTAS Project "**Modelling and parameterisation of the 'air-vegetation-snow-soil'** system, including special aspects of the permafrost degradation" The overall goal of this project is to develop tools and provide information for evaluation and understanding effects of the active layer of the cryosphere on climate and for studying potential effects of the global climate change on the permafrost degradation. Project joins efforts of 2 EU and 3 Russian organizations, **INM** Team (Prof. V. Lykosov) plays the key role in it.
- **Atmospheric Model Intercomparison Project (AMIP), Coupled Model Intercomparison Project (CMIP).** AMIP is a standard experimental protocol for global atmospheric general circulation models (AGCMs). It provides a community-based infrastructure in support of climate model diagnosis, validation, intercomparison, documentation and data access. This framework enables a diverse community of scientists to analyze AGCMs in a systematic fashion, a process which serves to facilitate model improvement. CMIP, the Coupled Model Intercomparison Project, is the analog of AMIP for global coupled ocean-atmosphere general circulation models. **INM** participates in the projects performance**.**

SB RAS Interdisciplinary Integrated Project "**Siberian Geosphere – Biosphere Program: integrated regional study of contemporary natural and climatic changes" (SGBP**) In this initiated by **SCERT** and Co-ordinated by **IMCES** (Prof. M. Kabanov) Project efforts of 14 Institutes of SB RAS and RAS as well as 5 Universities are coherently joined to initiate relevant

study of the region. Based on the results of basic research carried out in SB RAS the proposed Programme is, as a matter of fact, a Siberian block of formed by IGBP international project on integration research of all aspects of natural-climatic changes in Northern Siberia**. Among participants are also ICMMG, IF, INM and URIIT.**

- SB RAS Interdisciplinary Integrated project **«Complex Monitoring of Great Vasyugan Bog: modern state and developement processes research» (GVB). (**Co-ordinated by **IMCES,** Prof. M. Kabanov) Main goals of the project are in study of development of the unique natural-climatic complex Great Vasyugan Bog (GVB) as the natural formation of planetary importance under global and regional environmental and climate change and elaboration of remediation methods for damaged by oil producing activity parts of it territory. 16 research organizations perform the Project. Among participants are **ICMMG, IF, SCERT**
- SB RAS Interdisciplinary Integrated project «**Ecological Problems of Siberian Cities**» (Co-ordinator **ICMMG,** Prof V. Penenko). The goal of the project is to conduct multidisciplinary scientific research of answer the basic questions: how do cities change hydrothermodynamic behaviour and composition of atmosphere and how do these changes affect the quality of life, public health and quality of environment. 15 research organizations perform the Project. Among participants are **SCERT** and **IMCES.**
- Ministry of Science and Education RF Program **Integration** Project «**Research of natural and socioeconomic processes dynamics in the interests of education for sustainable devepopment**» (Integration) The Project is aimed at based on modern IT educational and research complex to support delivering lecture course on Problems of Sustainable Development. 7 Russian research and educational organizations are involved into it. **SCERT, IMCES** and **INM** play key roles in its performance.

2. Recently started projects

c) Co-ordinated projects

- RAS Program "Computational and informative aspects of solving the huge problems" Project Large-eddy simulation of geophysical boundary layers on computational systems of parallel architecture (**INM,** Prof. V. Lykosov). The Project is aimed on study of turbulent processes in the atmospheric and oceanic boundary layers, using mathematical models based on modern computational technologies and implemented on supercomputers of parallel architecture with distributed memory.
- RFBR (Russian Foundation for Basic Research) Project Mathematical modeling of mesoscale interaction between the atmosphere and hydrologically heterogeneous land (**INM**, Grant # 07-05-00200, Prof. V. Lykosov). The project is devoted to the study of physical processes and mechanisms, which are responsible for the mesoscale interaction between the atmosphere and hydrologically inhomogeneous land surface (in particular, in the Western Siberia).
- RFBR Project Development of new and improvement of known technologies to solve inverse problems of climatology by statistical methods (**INM**, Grant # 07-05-00328, Prof. A. Chavro). The project major objective is the reconstruction of regional peculiarities of meteorological parameters on the basis of statistical downscaling of climate model output and/or observational data.
- RFBR Project Reproduction of climate anomalies on intra-seasonal scale by coupled model of general circulation of the atmosphere and ocean (**INM**, Grant # 07-05-00893, Dr. Sci. M. Tolstykh). The project is devoted to the study of seasonal climate anomalies on the basis of numerical experiments with the coupled semi-Lagrangian atmospheric model and finite-difference oceanic model.
- RFBR project Periodic and stationary solutions in the models of atmospheric dynamics (INM, Grant # 08-05-00738, Dr. A. Gritsoun) is devoted to the study of periodic and stationary solutions in models of the atmosphere. The problem under consideration is closely related to the question: How periodic trajectories are connected with dynamical and stationary regimes of the atmosphere circulation, their predictability and "time of life". A special attention is paid to possible stabilization of a model solution to the given periodic orbit. Numerical experiments will be carried out to study such characteristics of system as mean state, standard deviation, empirical orthogonal functions and corresponding fractions of variability, dimension of attractor, projections of the probability density function on most energy- valuable directions.
- RFBR Project Estimation of feedbacks between vegetation, surface hydrology of Northern Eurasia and Arctic climate on the base of coupled model ocean - atmosphere – vegetation – soil under global climate changes (ICMMG, Grant # 08-05-00457, Prof. V. Krupchatnikoff) is aimed on the study of natural variability of the Earth system. In particular, it is planned to investigate the impact of the North-Atlantic Oscillation in the atmosphere and of the North Atlantic oceanic circulation on climate, surface hydrology and dynamics of vegetation in Northern Eurasia under conditions of increase in greenhouse gases content. Coupled INM climate model and ICMMG land surface model will be used to achieve this aim.
- SB RAS Program. Project "Studying climate-forming atmospheric processes accounting for effect of global and regional factors". The Project is aimed at studying contemporary climatic changes in Siberia and, based on observational data and modeling results, revealing contribution of atmospheric processes into natural and climatic changes taking into account impact of global and regional factors. The Project is carried out by **IMCES** (leaders Prof. Kabanov and Dr. Ippolitov)

- SB RAS Program. Project "Development of information-measurement techniques for monitoring and modeling atmospheric, hydrospheric and lithosopheric processes in Siberian geosphere." The project is aimed at development of a concept of multicomponent analysis of natural and climatic processes on the base of information-measurement system for instrumented monitoring of contemporary state of natural complexes and modeling evolution of processes that took palce in Siberia in Holocene. The Project is carried out by **IMCES** (leader Prof. Krutikov)
- SB RAS Program. Project "Studying ecosystem changes in Siberia and nature management risks associated with these changes." The Project aimed at revealing regularities in functioning present natural and social systems under climatic changes and anthropogenic impact and development of regional models and forecast risks. The Project is carried out by **IMCES** (leader Prof. Pozdnyakov)
- SB RAS Program. Project "Development of methods and instruments based on optical, radiowave and acoustic effects for srudying natural and technogenic systems." The aim of the Project is development and production of new methods and instruments for environmental protection and geoecology. The Project is carried out by **IMCES** (leader Prof. Tikhomirov)
- SB RAS Program. Project "Diversity in boreal forest ecosystems: dynamic and functional aspects." The Project is aimed at research of functional regularities and regional mechanisms of formation of biological diversity in boreal forest ecosystems under changing environmental and climate changes." The Project is carried out by **IMCES** (leader Prof. Dyukarev)
- SB RAS Program. Project "Development of foundations for information-computational system based on web- and GIS technologies intended for studying regional climatic processes." The Project is aimed at creation of distributed information-analytical system that includes observational databases, analytical methods and modeling algorithms and is intended for interdisciplinary research of consequences of environmental changes caused by both natural and anthropogenic impacts. The Project is carried out by **IMCES** (leader Prof. Gordov)
- RFBR project (07-05-00673) Optimization models and methods for environment quality forecasting and design, Institute of Computational Mathematics and Mathematical Geophysics, Coordinator Penenko Vladimir Viktorovich, **ICMMG**.
- **IF** is key performer of project "Estimation of Boguchanskaya hydroelectric power station building impact on environment". (Co-ordinator **IF,** Prof. Dr. Onuchin A.A.) The EIE BoHPS project aims at the complex evaluation of Boguchanskaya hydroelectric power station building and to develop methods of lowering negative consequences on environment. Atmosphere, hydrology, soil, vegetation and animals are considered within the bounds of the project. The region of investigation is undercurrent of Angara river. Remote sensing techniques and ground-based measurements are used for task solutions.
- The State program «Development of Space Activity in the Republic of Kazakhstan for 2005-2007 years». Task – "To create Interbranch GIS with use of methods of remote sensing and digital cartography". (**KGC**, leader Prof "E. Zakarin).
- The EC FP7 Project MEGAPOLI: "Megacities: Emissions, urban, regional and Global Atmospheric POLlution and climate effects, and Integrated tools for assessment and mitigation" (THEME FP7-ENV-2007.1.1.2.1: Megacities and regional hot-spots air quality and climate), Collaborative Project, Grant agreement no.: 212520, years 2008-2011 (DMI, leader Prof. Baklanov, web-site: http://megapoli.dmi.dk/)

Appendix 3 - List of NIS researchers and young scientists participated in the exchange program organized within CA

P02 (SCERT)

First project year

Prof. A. Starchenko trip to DMI to learn DMI DERMA Model (Janyary 2006) and partial travel support (visa cost) for aspirants D.Vraznnov and A. Titov travel to the ACCENT - CMAS Training Workshop on Air Quality Modeling, 30 July - 8 August 2006, Sofia, Bulgaria.

Travels of Nuterman R.B. to DMI and A.Titov to Leicester University for training were supported from external sources.

Also SCERT supported travels of potential end users of the project results: Drs. A. Azizov, V. Goryeva, N. Rakhmatova and L. Shardakova from Uzbekistan National Hydrometeorology Institute, and Profs. O. Anisimov, V. Krupchatnikov, V. Meleshko, A. Sterin and M. Tolstukh as well as Dr. A. Glazunov from Hydrometeorology Institutes in Moscow, Novosibirsk and Sankt Petersburg,

Additional SCERT during the ENVIROMIS 2006 Conference organised training for external to Project 70 young NIS researchers. To this end support from INTAS and RF Ministry of Education and Science was used.

Second project year

Post graduate student Nuterman R.B. obtained the 2-year INTAS fellowship under supervision of Dr. A. Baklanov (DMI). Also SCERT supported from external sources travels of potential end users of the project results: Drs. A. Azizov, G. Tolkacheva and postgraduates V. Goryeva, and N. Rakhmatova from Uzbekistan. Additional SCERT during the CITES-2007 event organised training for external to Project 60 young NIS researchers. To this end support from APN and RF Ministry of Education and Science was used.

Third project year

SCERT supported partially travel of YS A. Titov to IIASA, Austria and INM RAS (Moscow) and T. Shulgina to IASSA Summer School as well was assisting R. Nuterman in finalizing his PhD study

P04 (IIASA)

Third project year

IIASA provided support of participation of young scientists T. Shulgina during 3 month IIASA Young Scientist Summer Program and together with P07 (IF) provided support for 2 x 1 month visits of Dr. L. Mukhortova to IIASA.

P05 (INM)

First project year

Travel of a group of young scientists to participate in YSS in a framework of Enviromis-2006 Conference. The following researchers took part in this training event: Bogoslovskii N.N., Kostrykin S.V., Sokolov A.A., Ushakov K.V., All relevant travel expanses were covered by SCERT from extra-project resources.

Second project year

Travel of a group of young scientists to participate in YSS in a framework of CITES-2007 Conference. The following researchers took part in this training event: Bogoslovskii N.N., Dmitriev E.V., Kochetkov E.L., Kostrykin S.V., Nogotkov I.V., Stepanenko V.M., Ushakov K.V. All relevant travel expanses were covered by SCERT from extra-project resources

Third project year

Travel of a group of young scientists to participate in ENVIROMIS-2008 Conference. The following researchers took part in this event: Dmitriev E.V., Nogotkov I.V., Sokolov A.A., Stepanenko V.M., Ushakov K.V. All relevant travel expenses were covered from extra-project resources.

P06 (IF)

First project year

Travel of a young scientist to participate in YSS in a framework of Enviromis-2006 Conference: Sofronova T.M. All relevant travel expanses were covered by SCERT from extra-project resources.

Second project year

Travel of a young scientist to participate in YSS in a framework of Enviromis-2007 Conference: Mikheyeva N.A. All relevant travel expanses were covered by IF.

Third project year

Travel of a young scientist to participate in YSS in a framework of Enviromis-2008 Conference: Musokhranova A., Ziryukina N. All relevant travel expanses were covered IF. Also IF supported partially travel of YS Muhortova L. to IIASA, Austria.

P07 (KGC)

First project year

Young experts have been sent to Danish Meteorological Institute. The main task of this training was to study the DERMA model, to carry out the calculation of long range transfer the pollutions from sources located on the territory of Kazakhstan and to get a permission for usage of DHI Water & Environment MIKE 21 model: one week Dr. B. Mirkarimova travel to DMI in January, two weeks Aspirants K. Pak and N. Tusseyeva travels to DMI in April-May 2006.

Second project year

NIS researcher from URIIT prof. V. Kopylov travel to Almaty. The main task of this trip is consultation on remote sensing data processing for risk mapping tasks. Young experts Nataliya Tusseyeva and Nailya Gabbassova have been sent to "International Conference and Young Scientists School on Computational Information Technologies for Environmental Sciences: "CITES-2007", Tomsk.

Third project year

KGC from own budget organized training of N. Tusseyeva and N. Abdrakhmanova on data processing methods of the hyperspectral scanner CASI: “CASI Hyperspectral Analysis and GIS Integration”, “CASI Normalization and data Fusion”. This training was carried out in Almaty by experts of ITRES Research Limited (Canada).

P08 (URIIT)

First project year

Travel of three Ugra State University students in the International Conference “Enviromis-2006”:Doctorates Bolgova V.M., Danilin A.N. and Ermakov I.S. (supported by SCERT from extra-project resources)

Second project year

Prof. V. Kopylov travel to Almaty was supported by KGC.

Third project year

P09 (IMCES)

First project year

Partial support of Dr. E. Genina participation in FP6 CA CIRCLE Annual Progress Meeting, Vienna, Austria (20 - 22 September 2006). During the meeting an insight has been gained on European projects concerning climate impact research coordination and remediation measures undertaken by European countries. The information on projects carried out by IMCES on environmental investigations in Siberia was presented as well.

Second project year

IMCES supported from - funding . travel of young scientist Dr. E. Dyukarev to Vienna, to participate inm the EGU General Assembly- 2007. The information on projects carried out by IMCES on environmental investigations in Siberia was presented as well.

Third project year

IMCES supported travel of young scientists K. Shurkina and E. Volkova to Mitilini, Greece, to participate in the Conference on Studying, Modeling and Sensemating of Planet Earth

P10 (ICMMG)

First project year

Travel of a group of young scientists to participate in YSS in a framework of Enviromis-2006 Conference. The following researchers took part in this training event: Dr. Yudin M.S. and Aspirants Boborykina A.V., Chernova A.V., Penenko A.V. and Pyanova E.A. All relevant travel expanses were covered by SCERT from extra-project resources.

Second project year

Travel of a group of young scientists to participate in YSS in framework of CITES-2007 event was organized. . The following researchers took place in this training event: Dr. Yudin M.S. and young experts Chernova A.V., Penenko A.V. and Pyanova E.A. All relevant travel expanses were covered by SCERT.

Young expert Penenko A.V. participated in the Exchange Program during his visit to DMI in February-March 2007.

Third project year

Dr M. Yudin and young scientist Pyanova E.A. participated in Enviromis-2008.

Young scientist A.V.Penenko participated in the Exchange Program during his visit to DMI in June-July 2008.

Appendix 4 - List of publications

DMI

First project year

1. Baklanov A., Sørensen J.H., Mahura A. Long-Term Dispersion Modelling. Part I: Methodology for Probabilistic Atmospheric Studies, Computational Technologies. 2006. V.11. Special issue, pp. 136-156.
2. Baklanov A., Mahura A., Petersen C., Sattler K., Nielsen N.W. Effects of urbanized areas for NWP DMI-HIRLAM high resolution model operational runs, Computational Technologies. 2006. V.11. Special issue, pp. 157-168.

Second project year

1. Бакланов А.А., Морозов С.В., Махура А.Г., Ригина О.Ю., Назаренко Л.С., Тауснев Н.Л., Кошкин В.В., Федоренко Ю.В., 2006: Моделирование возможных экологических последствий от объектов радиационного риска в европейской Арктике. Науч. ред. А.А. Бакланов, Изд. Кольский Научный центр РАН, УДК 504+551+621.039, 166 стр.
2. Бакланов А.А., Махура А.Г., Морозов С.В., Назаренко Л.С., Ригина О.Ю., Тауснев Н.Л., Кошкин В.В., 2006: Моделирование антропогенного воздействия на окружающую среду Арктики. Науч. ред. А.А. Бакланов, Изд. Кольский Научный центр РАН, УДК 504+551+621.039, 146 стр.
3. Baklanov, A., S. Joffre, and S. Galmarini (Eds.) 2006: "Urban Meteorology and Atmospheric Pollution (EMS-FUMAPEX)". Special Issue of Atmospheric Chemistry & Physics Journal. http://www.atmos-chem-phys.net/special_issue24.html
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5. 242. Baklanov, A. and E. Gordov: 2006: Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia. Journal of Computing Technologies, 11(3): 162-171.
6. Baklanov, A., P. Mestayer, A. Clappier, S. Zilitinkevich, S. Joffre, A. Mahura, N. W. Nielsen, 2006: On the parameterisation of the urban atmospheric sublayer in meteorological models. Atmos. Chem. Phys. Discuss., 5, 12119-12176.
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9. Baklanov A.A., E.P Gordov, 2006: Enviro–RISKS - Man-induced Environmental Risks: Monitoring, Management and Remediation of Man-made Changes in Siberia (FP6 INCO CA project, 2005-2008). The Bulletin of the Russian National Committee for IGBP, No 4, p. 41-43
10. Baklanov A., Mahura A., Petersen C., Sattler K., N.W. Nielsen, 2006: Effects of Urbanized Areas for NWP DMI-HIRLAM High Resolution Model Operational Runs. Journal of Computing Technologies, 11(1): 157-167.
11. Baklanov A, J.H. Sørensen, A. Mahura, 2006: Long-Term Dispersion Modelling: Part I: Methodology for Probabilistic Atmospheric Studies. Journal of Computing Technologies, 11(1): 136-156.

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24. Baklanov A, J.H. Sørensen, A. Mahura, 2007: Methodology for Probabilistic Atmospheric Studies using Long-Term Dispersion Modelling. Environ. Model. Assess., 11 pp., DOI 10.1007/s10666-007-9124-4
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SCERT

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MPI-BGC

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14. L.V. Kasimova, A.N. Panov, Biochemical peat transformation. Rastitel'nye resursy (in press).

15. E.M. Panchenko, A.G. Dyukarev, Ecological and functional zoning of Tom–Ob interfluve and environmental protection. Vestnik TSU (in press).

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4. Pyanova E.A. A numerical study of the reservoir influence on the pollutant transport from the point source. Computational Technologies. 2007 ?. V.12. Special issue [in press].

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V.V. Penenko and E.A. Tsvetova Advanced scenario approach for assessment of environmental changes// Program & Abstracts of Int. conf. Enviromis-2008, Tomsk, p.84-85.

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16. Penenko V.V. Prediction of the atmosphere quality changes from monitoring data with estimation of uncertainty// Atmospheric and Oceanic Optics, v. 21, 2008, N.06, p.426-431.

Appendix 5 – List of conferences organized in the course of Enviro-RISKS project implementation

Program of the International Conference on Environmental Observations, Modeling and Information Systems ENVIROMIS-2006 (1-8 July 2006, Tomsk, Russia), including the Enviro-RISKS Workshop

Opening Session Chair **Evgeny Gordov**

1. Gordov E.P., G. Begni, M.V. Kabanov, V.N. Lykosov, A.Z. Shvidenko, E.A. Vaganov

"Siberia Integrated Regional Study as a basis for International Scientific Cooperation"

2. Kabanov M.V.

"Observed climate change in Siberia"

3. Meleshko V.P.
"Change of hydrological cycle due to climate warming in the Northern Eurasia**"**

4. Liscak P.

"INTAS new approaches to cooperation with NIS"

Session 1. Local and remote observations. Chairs **Luca Fiorani and Alexander Tikhomirov**

Invited reports

1. Fiorani L., Palucci A.

"Local and remote laser sensing of bio-optical parameters in natural waters"

2. Sutorikhin I.A., Pavlov V.E., Khvostov I.V.

"Stability of concentration distribution of chemical elements in snow cover of Altai region**"**

Poster Papers

1. Elnikov A.V., Burlakov V.D., Dolgii S.I., Nevzorov A.V., Zuev V.V.

"Lidar studies of processes of stratospheric-tropospheric exchange"

2. Kataev M.Yu., Boichenko I.V.

"Program of modeling open-path trace laser gas analyzers in infrared spectral region"

3. Krekov G.M., Krekova M.M.

"On effectiveness of rotation vibration-rotation Raman lidars for sounding of meteorological parameters of the cloudy atmosphere"

4. Okladnikov I.G., Fiorani L., Palucci A.

"Active and passive remote sensing of the ocean: lidar-calibrated satellite imagery of CDOM"

5. Palamarchuk Y., Ivanov S.

"Fine-scale precipitations of a cold front observed by the X-band radar"

6. Petrov A.V., Sutorikhin I.A.

"Use of video observations in the analysis and description of industrial aerosol plumes"

7. Suslyaev V.I., Vershinin D.A., Olshukov A.S.

"Research of the Itkul lake bed pollution on a basis of diving method use"

8. Talovskaya A.V., Yazikov E.G.

"Local geochemical observation of dust aerosols within urban and suburb zones"

9. Tarasova O.A., Brenninkmeijer C.A.M., Elansky N.F.

"Variability of the atmospheric methane concentration along the Trans-Siberian Railroad and River Ob and identification of its emission sources"

Session 2. Remote sensing and GIS. Chair **Vladimir Krutikov**

Invited lecture

1. Schmullius C., Bartalev S.

"Integrated Forest Observations in Boreal Ecosystems – contributions of ESA's GOFC-GOLD Land Cover Office and the SIBERIA-II Earth System Science Cluster"

Invited reports

1. Polishchuk Yu., Irodova V.

"Geoinformation analysis of relationship of climatic state and geobotanic structure of West-Siberian territory"

2. Lagutin A.A., Nikulin Yu.A., Shmakov I.A., Zhukov A.P., Lagutin A.A., Reznikov A.N., Sinitsin V.V.

"Retrieval of surface parameters over the Siberian Region using MODIS data**"**

3. Haubold H.

"Satellite based environmental monitoring – the future standard tool or just a fad?"

Poster Papers

1. Balakay L., Dedova T.

"Modeling of oil spreading on the sea"

2. Bigagli L., Nativi S., Mazzetti P., Casadei Della Chiesa F.

"Portraying remotely-sensed data in GIS"

3. Boenko K.A.

"Analysis of visually homogeneous sample of multispectral information as the approach of modern digital map-making"

4. Begni G., Combaz C., Fontannaz D., Leroy M., Tine C., Ultre-Guerard P.

"Earth study and observation in France in 2005"

5. Dergacheva I.V.

"Assessment of potential risk and damage by high mountain lakes outbreak with use of GIS technology"

6. Frotscher K., Thiel C.

"Forest monitoring in the framework of a regional information system for environmental protection"

7. Klimov S.I.

"Practical using of the geoinformation system "Mudslides and Outbreaking Lakes" under conditions of natural disasters increasing"

8. Mirkarimova B.M.

"Geoinformation modeling of air pollution of Northeast Caspian Sea"

9. Novikova N.N., Pakhomov L.A., Permitina L.I., Kurevlyeva T.G., Emelyanov K.S.

"Ensuring possibility space forest monitoring in Russia"

10. Pak K., Grinkov S.

"Development of interbranch GIS"

11. Polyakov A.A., Boenko K.A., Jorov V.A., Kovalevskaya N.M., Yakovchenko S.G.

"Using Landsat and SRTM data for anthropogenic changed landscapes identification"

12. Protasov K.T.

"Modeling of spectral characteristics of terrestrial covers in the dynamics of seasonal radiobrightness variations and detection of non-standard situations by misalignment algorithms from satellite observations"

13. Shavnina Yu.N.

"GIS "Perm krai hydraulic structures""

14. Sivokon M.A., Muratova N.R., Protasov K.T.

"Earth's covers' types identification by algorithm of pattern recognition over cosmic data in areas of spectral and textured characteristics"

15. Sokolov A.A.

"Sensitivity of the atmospheric temperature and humidity retrievals to the spectral resolution of the contemporary IR-radiometers"

16. Torgoev A.D., Schneider J.F., Torgoev I.A., Havenith H.B., Danneells G., Bartolomei A.

"Landslide danger map extraction using GIS and Remote Sensing techniques"

25. Tusseyeva N, Dedova T.
"Using of remote sensing data for phytoplankton monitoring at the shelf of Caspian Sea"

17. Uvarov N.V.

"Channels selection technique for contemporary IR spectrometers using information matrix"

18. Yankovich E., Rikhvanov L.

"Geoinformation system of SPU area"

Session 3. Environmental data handling. Chairs **Gerard Begni** and **Alexander Fazliev**

Invited lectures

1. Nativi S., Domenico B.

"Conceptual data models in Earth Sciences and GIS"

2. Fedotov A., Gordov E., Kolchanov N.

"Distributed information-computational environment for ecological systems investigations"

Invited reports

1. Molorodov Yu.I.

"Data processing in portioned information ambience about atmospheric aerosol"

2. Karatzas R., Bassoukos A.

"Self-deployed, web-based information aggregators for disaster-related information collection and broadcasting"

Poster Papers

1. Belikov D.A., Fazliev A.Z., Lavrentiev N.A., Starchenko A.V., Vrazhnov D.A.

"Use of MM5 and WRF modeling systems in the web portal ATMOS"

2. Bun A., Gusti M., Hamal K., Bun R.

"Analysis and minimization of uncertainty of results of multilevel greenhouse gases inventory"

3. Firsov K.M., Sakerin S.M., Zhuravleva T.B., Kozodoeva E.M., Kozodoev A.V., Privezentsev A.I.

"Development of the information-computational Internet-accessible system "Atmospheric Radiation""

4. Gerlach R., Schmullius C., Hese S.

"Siberian Earth System Science Cluster (SIB-ESS-C)"

5. Glagolev V., Kogan R.

"Development information analytical system of an estimation of fire danger of territory"

6. Kataev M.Yu., Boichenko I.V.

"Distributed information system for solving lidar sounding tasks"

7. Kozodoev A.V., Privezentsev A.I., Fazliev A.Z.

"Typical site of a distributed network for handling spectroscopic data"

8. Kudryavtseva T., Gromov S.

"Development of meteorological and geophysical data visualization package under the RSI IDL building environment"

9. Okladnikov I.G., Titov A.G.

"Web-system for processing and visualization of meteorological data"

10. Petrov A.V., Lovtskaya O.V., Sutorikhin I.A.

"Elaboration and creation of IWEP data base"

11. Rakovsky A.A.

"Decision support system based on current, prognostic and climatic information"

12. Shishlov V.I., Dyukarev E.A.

"Monitoring results processing and identification of changes in the nature-climate system"

13. Timofeev A., Badashova L.

"Aerological Datasets Descriptive Information Presentation technology"

14. Sterin A., Timofeev A.

"Monthly Aerological Dataset - MONADS-2: New version for climate research"

15. Titov A.G.

"RDF Schema for metadata describing meteorology and climate datasets"

16. Turchanovsky I. Yu., Kolobov O. S.

Metasearch XML Gateway of Tomsk Scientific Center SB RAS

Session 4. Urban and Regional Environmental Modeling. Chair **Vladimir Penenko**

Invited lectures

1. **Kurbatskii A.F., Lonchakov A.V., Kurbatskaya L.I.**

"Level-3 mesoscale turbulence model for wind climate and pollutant dispersion in cites"

2. **Baklanov A.**,Gross A.

"Urban meteorology and air quality modelling: advances and systems"

Invited reports

1. Starchenko A.V.

"Multiscale numerical simulation of pollution transport in a near surface air"

2. Koutzenogii K.P., Koutzenogii P.K.
"Dynamics of the daily cycle of a submicron fraction of atmospheric aerosols and chemically active small gaseous pollutants**"**

3. Tolstykh M., Fadeyev R.

"Semi-Lagrangian variable-resolution numerical weather prediction model and its further development"

4. Tolkacheva G., Aksenova L., Kovalevskaya Y., Shardakova L., Goryaeva V.
"Atmospheric fallouts as the ecological indicators of the environment pollution"

5. Raputa V.F.

"Optimization model for assessment environmental pollution under restricted input information"

Poster Papers

1. Bart A.A., Belikov D.A., Reznik V.Ya., Titov A.G., Tsekhanovskaya N.A.

"Theoretical and experimental air pollution investigations in Tomsk during the summer season 2005"

2. Beglet N., Vasiliu A.

"Exergy, ecology and efficient use of energy in industry"

3. Belikov D.A., Starchenko A.V.

"Application of pollution turbulent transport model to analysis of formation of secondary pollutants in the urban atmosphere"

4. Berkovich L.V.

"Hydrodynamic weather forecasting for Moscow and Russia area"

5. Boborykina A.V.

"Optimal choice of source parameters on the base of 3D model of transport and transformation of pollutants in the atmosphere"

6. Chavro A.I., Nogotkov I.V., Dmitriev Ye.V.

"Statistical model for downscaling extreme temperatures in the Moscow region"

7. Chernova A.V.

"Determinate-stochastic method of modeling of the volcanic admixture transportation in the atmosphere"

8. Danilkin E.A., Starchenko A.V.

"Numerical solution of the mixture transport equations with chemical reactions on multiprocessor systems with local memory"

9. Dubickaya S.V., Fomin S.P.

"Influence modeling of detonation large Solid Rocket Motors for the environment state and urban population"

10. Gustokashina N.N., Maksjutova E.V.

"Change of temperature extrema on the territory of Prebaikalia"

11. Ignatov R.Yu

"Precipitation calculation with MM5-model for European regions"

12. Khamidullin I.R., Bayanov I.M.

"Dispersion of industrial pollutions including condensate in surface zone of atmospheric boundary layer"

13. Kilanova N.V., Klimova E.G.

"Application of the Kalman filter for joint estimation of the concentration and emissions of a passive pollution on the observational data"

14. Negoita D.

"Compared cost-to-quality analysis in environmental engineering"

15. Nochvay V.I., Panchuk V.I., Panchuk O.V.

"Modeling of urban air pollution and environmental impact"

16. Nochvay V.I., Shavrina A.V.,Sosonkin M.G.,Dyachuk, Blum O.

"Surface ozone formation in condition of urban atmosphere pollution"

17. Novikova I.V.

"Dynamic downscaling of wind and sea level pressure forecasts over the Baltic sea region using MM5 model"

18. Nuterman R.B., Starchenko A.V.

"Mathematical model of aerodynamics and pollution transport in urban obstacles"

19. Panasenko E.A., Starchenko A.V.

"Numerical solution of some problems of impurity distribution in the atmosphere"

20. Penenko A.V.

"On some theoretical and applied issues of real-time variational data assimilation"

21. Perekhodtseva E.V.
"Hydrodynamic-statistical model of operative forecast to 12-36h ahead of storm wind and heavy rainfalls over the territory of Siberia"

22. Pyanova E. A., Chernova A. V.

"Comparative numerical experiment for the study of the admixture transport processes within the limits of the Euler and Lagrange approaches"

23. Pyanova E. A.

"Study of spreading a passive admixture depending on seasonal weather conditions"

24. Sarmanayev S.R.

"Large eddy simulation of airflow within the limits of urban building"

25. Shalygina I.Yu.

"Validated classifications of meteorological conditions on data of air pollution in Moscow"

26. Shardakova L.Yu., Kovalevskya Yu.I., Usmanova L.V.

"Assessment of air-pollution state in Tashkent"

27. Temirbekov N.M., Madiyarov M.N., Abdoldina F.N., Malgazhdarov E.A.

"Numerical modeling of atmospheric processes in the limited territory and their adaptation for modeling a microclimate of Ust-Kamenogorsk"

28. Ushakov K.V.

"Explicit difference schemes with variable time steps in large-eddy simulation of air flow above a rough surface"

29. Vrazhnov D.A., Starchenko A.V.

"Application of high-order eno-schemes for the prediction of gas-dispersed cloud transport on multiprocessor computers"

30. Yanyushkina S.A.

"Construction adaptive differential grids for numerical modeling atmospheric processes"

31. Yarovaya D.A.

"Numerical simulation of an anomalous cyclone over the Black Sea"

Session 5. Hydrologic Systems. Chair **Stepan Shwartsev**

Invited lecture

1. Endejan M.
"Global Water System Project – information needs and tools"

Invited reports

1. Kuzin V.I., Golubeva E.N.

"Hydrophysical processes in the of the Aral Sea desiccation problem: historical data and numerical modeling"

2. Giupponi C., Crimi J., Begni G., Fourlon E.

"NOSTRUM-DSS project: network on governance, science and technology for sustainable water resource management in the Mediterranean**.** Role of DSS tools"

3. Azizov A.A., Dubinskiy V.M., Lebedeva M.A.

"Monitoring as basis of sustainable groundwater management in Ahangaran River's Valley, Uzbekistan"

4. Onuchin A., Balzter H., Gaparov K., Blyth E., Grekova J.
"Climatic and man-induced patterns of river runoff formation in Central and Northern Eurasia"

5. Shvartsev S. L., Savichev O.G.

"Water quality and management of Tom' river Basin"

Poster Papers

1. Gaev A.Ya., Dubejkovsky S.G., Yakshina T.I., Michailov Yu.V.

"On karst development on the Ural eastern slope"

2. Grankina T.B.

"Mathematical modeling of the ice-snow cover forming process in water body of different mineralization"

3. Kaminskaya E.V., Starchenko A.V.

"Numerical simulation of water flow and mixture transport in a river"

4. Kharanzhevskaya Y. A.

"About formation runoff from bog"

5. Nabieva O.R.

"Application of numerical model for calculation of hydrochemical pollution of the river ob at the emergency dumping of urban sewage"

6. Postnova I.S., Dmitriev V.O., Zhorov V.A., Yakovchenko S.G.

"Territorial zoning according to danger level and flooding risk estimation using GIS-technology"

7. Spitsina T.P., Stepen R.A., Hohlova A.I.

"Allocation of the technogenic factor in the rivers of the urbanized territory"

8. Toropov P.A.

"Hydrologic regime of East European and West Siberian plains in contrasting climatic conditions"

9. Vedukhina V.G., Rotanova I.N., Lovtskaya O.V.

"Typification of river basins by priority types of anthropogenic load on surface waters using cluster analyses"

10. Yushkina O.A., Zemtsov V.A.

"Nonlinear analysis and prediction of west Siberian river flow time series"

11. Zhorov V.A., Yakovchenko S.G., Kovalevskaya N.M., Postnova I.S., Boenko K.A.

"Method of geoinformation databank creation for state water cadastre conducting"

Session 6. Assessment of Soil and Vegetation Cover. Chair **Anatoly Dukarev**

Invited lectures

1. Gustafson E.J., Sturtevant B.R.

"Spatial simulation models for landscape-level forest research and management"

2. Heimann M.

"Monitoring Siberian greenhouse gas budgets by top-down and bottom-up methods"

Invited reports

1. Gutman G.
"Land-cover/land-use interactions with climate in the boreal zone"
2. Krankina O.N.
"Northern Eurasia Land Dynamics Analysis (NELDA)"

3. Shvidenko A., Nilsson S.

"Assessment of the impacts of terrestrial vegetation on the greenhouse gas budget at the regional level: Integrated approach"

4. Dyukarev A.G.

"Recent processes in forest ecosystems in Western Siberia"

5. Liscak P.

"Monitoring of geological factors in Slovakia**"**

6. Krutikov V.A., Kabanov M.V., Preis Yu.I

"Multifactorial stratigraphic analysis of a peat deposit of the Western Siberia for monitoring climatic processes in Holocen"

Poster Papers

1. Alexeeva M., Polishchuk Yu., Dyukarev A.

"Vegetable cove thematic mapping of forest-swamp territory Vasugan plain"

2. Alfyorov I.N., Alfyorova N.S., Albakasov D.A., Malkin A.V.

"On ecological grounds for the further development of the Orenburg gas industrial zone"

3. Gaev A.Ya., Gatskov V.G., Semyachkov A.I., Yakshina T.I., Alfyorov I.N., Alfyorova N.S.

"On the quantitative estimation of the environment vulnerability to the pollution"

4. Balybina A.S., Trofimova I.E.

"Response of the thermal regime of the Angara region's soils to current climate changes"

5. Balybina A.S.

"Climatic factors of radial growth dynamics of coniferous species in the Angara region"

6. Baranovsky N.V., Kuznetsov G.V.

"System of predicting the forest fire inflammations taking into account anthropogenic load and thunder activity"

7. Bilichenko I.N.

"Large-scale research of mountain geosystems"

8. Bondarenko S.L., Zuev V.V.

"Influence of climatic signal on reliability of reconstruction of total ozone content for subarctic regions"

9. Chepulsky S., Tolkacheva G., Shapenova G., Shushakova E.

"Assessment criteria of the surface vegetation conditions in areas subjected to the chronic anthropogenic stress in urban agglomerations"

10. Erokhin D.V., Bartsev S.I., Degermendzhy A.G.
"Forecast of biosphere dynamics using small-scale (low-dimensional) models"

11. Gaev A.Ya., Fominyh A.A., Alfyorov I.N., Alfyorova N.S., Lichnenko E.V.

"On soil pollution estimation"

12. Golovatskaya E.A., Dyukarev E.A.

"Influence of weather and hydrothermal conditions on the carbon dioxide emission from the oligotrophic bog surface"

13. Im S.T.

"Siberian silkmoth outbreak dynamics in mountain taiga forest of Eastern Sayan based on SPOT Vegetation data"

14. Kharuk V.I., Ranson K.J., Dvinskaya M.L., Im S.T.

"Forest-tundra ecotone response to climatic trends in Western Sayani mountains"

15. Khutornoy O.V., Goroshkevich S.N.

"Response of Siberian stone pine growth forms to climate change in the upper treeline of the Altai-Sayan ecoregion"

16. Lubsanova T.M.

"Carbon dioxide emission in Transbaikal soils"

17. Malkanova E.V.
"Seasonal dynamics of carbon dioxide producing by frozen soils in Transbaikalye"
18. Nikolaeva S., Savchuk D.
"Identification of tree and stand growth stages by dendrochronological data"

19. Petrova E.A., Goroshkevich S.N., Politov D.V.

"Distribution of genetic diversity in Siberian Stone Pine (*Pinus sibirica* Du Tour): isozyme markers data"

20. Preis Yu.I., Antropova N.A., Bobrov V.A., Orlova L.A., Sharapova T.A.

"Peat deposit as base object for reconstruction of the condition of environment. Methodical aspects for regions with the continental climate"

21. Rosnowskij I.N., Kopysov S.G.

"About the role of dew in thermal and water balance of ecosystems"

22. Sofronova T.M.

"Performance of various methods of fire weather danger rating in the South Lake Baikal forests"

23. Timoshok E.N., Skorokhodov S.N., Timoshok E.E.

"Development and use of a database for high altitudinal forest flora of the Severo-Chuisky range"

24. Timoshok E.E., Skorokhodov S.N., Timoshok E.N.

"Flora of periglacial forests of the Severo-Chuisky range (Central Altai)"

25. Vereschagina N.G., Vidineeva E.M., Perevozchikov G.V., Chub V.E.

"Some geoecological issues on the Tashkent city territory"

26. Zavatskaya E.S., Bryantseva N.G., Gorchakov L.V., Inisheva L.I., Sokolova I.V.
"Development of the peat's humic acids properties data base"

27. Zhukoff E.A.

"Oldest trees like a part of climatic changes observation system in the Altai-Sayan region"

Session 7. Environment and Climatic Change Assessment and Modeling.

Chairs **Evgeny Gordov** and **Vasily Lykosov**

Invited lectures

1. Lykosov V.N.
"Key problems of regional climate change assessment and modeling**"**
2. Sellberg B.
"Climate research projects from The Swedish Research Council Formas' view"
3. Karol I.L., Kiselev A.A., Frolkis V.A., Rozanov E.V., Zubov V.A.
"Statistical analysis of the photochemical modeling results of the atmospheric composition changes (atmospheric ozone in particular)"
4. Skubnevskaya G.I., Dubtsov S.N., Kozlov A.N., Dultsev E.N., Ankilov A.N.
"Investigation of the effect of sunlight on the oxidation of sulphur dioxide into sulphate aerosol affecting the climate and ecology of the Earth"
5. Heij B.
"Recent information on the impacts of climate change"
6. Penenko V.V., Tsvetova E.A.
"Ecological forecasting with regards to climate-caused risk"

Invited reports

1. Mokhov I.I., Eliseev A.V., Karpenko A.A.
"Climate-carbon cycle interaction in the 20th-21st centuries from global climate models simulations**"**
2. Sterin A.
"Empirical studies of upper-air climate changes: problems, status, prospects"
3. Anisimov O., Reneva S.
"Impacts of changing climate on permafrost: observations and predictive modeling"
4. Begni G., Millier, C., Tourre Y.M., Do Santos F., Senouci M., Combaz C.
"Interdisciplinary and integrated approach to the adaptation to climate change impacts. The national case study of France (GICC research programme) and the regional case study of the Mediterranean basin (ERA-NET CIRCLE Concerted Action)"
5. Koenig M.
"CIRCLE – Climate Impact Research Coordination for a Larger Europe"
6. Georgiadi A.G., Milyukova I.P., Kashutina E.A.
River runoff changes in Lena river basin under influence of recent and future climate warming

Poster Papers

1. Arkhipova I.V., Rotanova I.N.
"Assessment of weather-climatic factors impact on population morbidity (Altai krai as a case study)"
2. Babina E.D.
"Mesoscale structure of test Russian regions climate by MM5 modeling"
3. Badashova L.F., Murkina E.A., Timofeev A.A., Khokhlova A.V.
"Multi-year tendencies of snow cover and sea ice changes in Russia on satellite data"
4. Bogoslovskii N., Tolstykh M.
"Implementation of assimilation scheme for soil variables in the global semi-Lagrangian NWP model"
5. Borovko I.V.
"Response of troposphere circulation on polar stratosphere vortex"

6. Devyatova A. Yu., Ozherel'eva N.V.

"Estimation of geochemical situation in Novosibirsk city"

7. Dyukarev E.A., Ippolitov I.I., Loginov S.V.

"Dynamics of meteorological variables fields in the Arctic in the second half of 20th century"

8. Eliseev A.V., Mokhov I.I.

"Carbon cycle-climate feedback sensitivity to choice of the governing parameters of terrestrial carbon cycle in a climate model of intermediate complexity"

9. Gritsan E.V.

"Estimation of sulfur and nitrogen deposition fluxes as the major components of regional atmospheric balances over Russian territory"

10. Gromov S.S., Rubinstein K.G.

"Dynamic classification for a parameterization of snow cover in GCM"

11. Gustokashina N.N., Maksjutova E.V.

"Change of temperature extrema on the territory of Prebaikalie"

12. Khan V.M., Tischenko V.A., Vilfand R.M.

"Multimodel approach to long-range statistical forecast of surface air temperature over territory of Russia"

13. Khan V.M., Rubinstain K.G.

"Comparison of snow cover characteristics over territory of Russia based on observational and reanalysis data"

14. Martynova Yu.V.

"Research of atmosphere reaction to Northern Atlantic Surface temperature anomalies"

15. Melnikov B.N., Melnikov Yu.B.

"Dialogue theory as instrument to integrations of different scientific discipline within the framework of system approach"

16. Melnikov Yu.B.

"Formally-constructive determination to models and algebra indexed graphs as base to dialogue theory"

17. NakhaevM.I., Shalygina I.Yu., Lezina E.A.

"Winter episodes of high air pollution in Moscow"

18. Rodimova O.B., Bogdanova Yu.V.

"Calculation of radiation fluxes due to CO_2 in the IR spectral region"

19. Shishlov V.I.

"Normalized estimate and analysis of regional features of the warming in the Eurasia"

20. Smirnova E.N.

"Change of wind velocity and frequency of dust storms and drifting dusts in Uzbekistan for the 1971-2000 period"

21. Starovatov A., Gartsman V.

"Extreme values of ozone in surface atmosphere of Tashkent and their connection with attendant geophysical parameters"

22. Sterin A., Timofeev A.

"Long-term changes of monthly variability parameters at standard pressure levels in the upper-air"

23. Tischenko V.A., Khan V.M., Vilfand R.M.

"Analysis of variability of meteorological parameters and teleconnetions for purpose of statistical interpretation of ensemble hydrodinamical forecasts"

Workshop on Development of Siberia Integrated Regional Study, Chair **Evgeny Gordov**

Gordov E.
Siberia Integrated Regional Study Introductory Remarks

Invited reports

1. **Shvidenko A., Nilsson S. and Obersteiner M.**
IIASA Forestry Program and SIRS
2. Baklanov A., Gordov E.

Enviro-RISKS input into SIRS

3. Chebakova N.

"Possible climate-induced hot spots in forest shifts in Siberia in the XXI century"

4. Krupchatnikov V., Kuzin V.
"Modeling Siberia Regional Climate"
5. Krankina O.N.
"NERIN: Norther Eurasia Regional Information Network"
6. Ippolitov I.I., Dyukarev E.A., Kabanov M.V., Loginov S.V.
"West Siberia climate variability in XX century"
7. Krupchatnikoff V.
"Modeling of ecosystem dynamics and carbon cycling with coupled climate model - LPJ-DGV model**"**
8. Pologova N.N., Lapshina E.D., Bleuten W., Dyukarev E.A.
"Estimation of sub-recent carbon accumulation rates in West Siberian peatland"

9. Fomenko A.A., Kovalenko V.A., Kurbatskaya L.I.

"Influence of the Solar activity on thermal conditions in high latitudes of the North hemisphere"

10. Trubina L.K., Koutzenogii K.P.

"Information technologies in geo- and bioecology"

11. Klimova E.

"Dynamical-stochastic approach in the data assimilation problem"

Contributed papers

1. Kostrykin S.V., Schmitz G.
"Climatology of the effective diffusivity in the middle atmosphere based of general circulation model data"

2. Stepanenko V.M., Lykosov V.N., Miranda P.M.

"Numerical modeling of atmospheric circulation above hydrologically heterogeneous land"

3. Yudin M.S., Wilderotter K.

"Simulating atmospheric flows in the vicinity of a water basin"

4. Glazunov A.V.

"Large-eddy simulation of shear-driven turbulence using dynamic SGS closure and high-order numerical scheme"

5. Malbakhov V.M., Dubrovskaya O.A., Klimova E.G., Lezhenin A.A., Shlychkov V.A.

"Estimation of the influence of forest fires on weather and natural-climatic changes in the Asian part of Russia"

6. Protasov A.V.
"Dynamic-probabilistic modeling of upwares in atmosphere with use semi-Lagrangian model of transport of substation"

7. Timoshok E.E. Smelyantseva E.O.

"Age structure of populations of Siberian Stone Pine (*Pinus Sibirica du tour*) at the forest-tundra ecotone of the Severo-Chuisky Range (Central Altai)"

8. Preis Yu.I., Antropova N.A., Orlova L.A.

"Regional features of the bog formation process in the wood zone of the Western Siberia"

9. Blyakharchuk T.A., Wright H., Westover K.S., Bolek O.

"Reflection of abrupt climatic changes of termination of last Glacial Period and Holocene in structure of vegetation and landscapes in Altai mountains by evidence of multi proxy"

10. Rykova V.V.

"Regional databases of the State Public Scientific-Technological Library of SB RAS as the information support of environmental research"

Round Table and Wrap-up Discussion
Moderators: G. Begni, E. Gordov, V. Lykosov, M. Kabanov, V. Krutikov, A. Onuchin

Workshop on Man-Made Environmental Risks: Control and Rehabilitation of Environment

Opening and Plenary Session

1. Adam A.M.

"Environment strategy of Tomsk region administration till 2010 year"

2. Belan B.D., Arshinov M.Yu., Davydov D.K., Inoue G., Krasnov O.A., Machida T.,

Maksyutov S., Nedelec P., Ramonet M., Cias P., Tolmachev G.N., Fofonov A.V.

"Monitoring of greenhouse and oxidizing gases in the atmosphere over Siberia and some its results"

3. Krutikov V.A., Kabanov M.V., Dyukarev A.G.

"Stations of IMCES SB RAS and their instrumental base"

4. Zakarin E.A.

"GIS modeling of territorial processes using remote sensing data"

5. Samokhvalov I.V., Kaul B.V.

"Monitoring of aerosol and clouds using laser polarization sounding"

6. Atanasiu G.

"Using GIS Application for evaluation of urban built infrastructure exposed to dynamic actions"

Session 1. New methods and instruments for environmental monitoring. Chair **A.A. Tikhomirov**

1. Penenko V.V.

"Theoretical concept and methods for targeted monitoring of natural processes"

2. Kozlov V.I., Karimov R.R., Mullayarov V.A.

"Signals of VLF-noise and radio stations Observed IN Yakutsk during THE solar eclipse on March 29, 2006"

3. Kozlov V.I., Solovyev V.S.

"Variations of cloudiness in North-East Asia during stage of increasing activity of 23-rd solar cycle"

4. Fofonov A.V., Belan B.D., Ivlev G.A., Pokrovskii E.V., Uzhegova N.V.

"Investigations of urban atmosphere composition with mobile system"

5. Zuev S.V., Krasnenko N.P.

"Passive method for cloud base height detection"

6. Azbukin A.A., Buldakov M.A., Korolev B.V., Korol'kov V.A., Matrosov I.I., Tikhomirov A.A.

"Possibility of development of a carbon oxide gas analyzer based on Fabry-Perot interferometer"

7. Matrosov I.I.

"Optimization of operating mode of LD2 (D) gas-discharge lamp for gas analyzers of DOG series"

8. Myagkov A.S., Tikhomirov A.A.

"Instrumental realization of gene polymorphism for studying vegetative and animal DNA"

9. Pirogov N.S., Bryukhanova V.V.

"Separation of double scattering component from lidar return"

10. Sutorikhin I.A., Dmitriev B.N., Bykova N.V.

"Geoinformation system of stationary emission sources on Altay krai territory"

11. Zadorozhny O.G., Sutorikhin I.A.

"Improved method of quality control in application aerosol pesticides"

12. Romanov A.I., Sutorikhin I.A.

"Remote monitoring of wet soils"

13. Bezuglova N.N., Petrov S.A., Sukovatov Yu.A., Sutorikhin I.A.

"Reconstruction of concentration field of coal ash precipitating on snow near kuchuksul'fat heat station during winter"

Session 2. Environmental and climate monitoring technologies. Chair **V.A. Krutikov**

1. Malinovskikh A.A.

"Initial stages of secondary succession of the pine forest of Altai territory"

2. Volkova M.A., Komarov A.I., Kuskov A.I.

"Role of synoptic processes in formation of precipitation fields in warm period of year over Tomsk oblast"

3. Zemtsov V.A., Vershinin D.A., Inishev N.G.

"Monitoring of channel deformations under technogenic impact (by the example of Tom' river)"

4. Yushkina O.A.

"Analysis of time variability and prediction of rivers' run-off using nonlinear dynamics methods"

5. Nikolaeva S.A., Bocharov A.Yu., Savchuk D.A.

"Secular dynamics of near-glacier forest productivity (Severo-Chuisky ridge, Central Altay)"

6. Kopysov S.G., Rosnovsky I.N., Davydov V.V.

"Modeling of abiotic ecosystem changes based on heat and water balance coupling equation"

7. Ivanova E.V., Bykova V.V., Osipova N.A.

"New methodological approach to risk assessment of influence of atmospheric chemical pollution on Tomsk population health"

8. Solomatov D.V., Afonin S.V., Belov V.V.

"Method for atmospheric correction of aerospace images of underlying surface"

9. Nemtseva A.N.

"Dendrochronoindication of radioactive contamination of forest ecosystems"

10. Popov A.G., Goroshkevich S.N., Vasil'eva G.V.

"Seed production of Siberian stone pine, mountain pine (*Pinus pumila*) and their hybrids in Northern Pribaikal'e"

11. Podnebesnykh N.V., Sedlyar M.I., Gorbatenko V.P.

"Comparison of barometric formation intensities that determine weather in West Siberia"

12. Ershova T.V.

"Anthropogenic influence on thunderstorm activity"

13. Gorbatenko V.P.

"World wide lightning registration network"

14. Leonova G.A., Bobrov V.A., Palessky S.V., Krivonogov S.K., Malikov Yu.P., Trofimova L.B.

"Use the elemental composition of plankton and sapropel for evaluation of matter fluxes from the atmosphere (by the example of Lake Kirek, Tomsk oblast)"

15. Shishlov V.I.

"Integrated technology of monitoring, identification, assessment calculations and modeling of macrokinetics of multicoherent cycles of climate-forming processes in Northern hemisphere"

16. Dyukarev E.A., Golovatskaya E.A., Duchkov A.D., Kazantsev S.A.

"Experimental study of the heat regime of the peat deposit in summer time"

17. Zotikova A.P., Rudnik T.I.

"Features of power-transforming processes in the needles of Siberian stone pine under climate change"

18. Bender O.G., Rudnik T.I.

"Latitudinal and longitudinal variability of Siberian stone pine needles ex situ"

19. Engel M.V., Afonin S.V., Belov V.V., Kulikov G.E.

"Data-processing web resource of regional satellite data"

20. Ananova L.G.

"Wind characteristics of gusts in Tomsk city"

21. Burlakov V.D., Dolgii S.I., Elnikov A.V., Zuev V.V., Nevzorov A.V., Plyusnin I.I.

"Laser stations of CIS-LiNet network in Tomsk and Surgut for monitoring of stratospheric aerosol"

22. Gayko L.A.

"Influence of the environmental factors on development of the Japanese scallop spat in Pprimorye (sea of Japan)"

23. Bubashkina V.V., Bobrov V.A., Gavshin V.M., Preis Yu.I.

"On the problem of geochemical monitoring of borderlands of the Great Vasyugan Bog (by the example of sphagnous bogs)"

24. Sergeeva M.A., Kharanzhevskaya Yu.A.

"Biochemical activity of oligotrophic bogs under different moisture"

25. Shishlov V.I.

"Information technology for analysis and assessment of rhythms in secular climatic changes"

26. Krivets S.A., Demidko D.A., Bisirova E.M.

"Development of method for evaluation of stone pine forests contidion in Tomsk region"

27. Nesvetailo V.D., Kuskov A.I.

"Spectral structure of summer precipitation amount in southern part of Tomsk oblast since the beginning of XVII century"

28. Ananova L.G., Novozhilova Yu.A.

"Diurnal behavior of glaze repeatability in Tomsk city"

29. Ananova L.G., Kharyutkina E.V.

"Wind effect on runway state in Tomsk airport"

30. Zagorulko V.A.

"Components of regional monitoring for mountainous ecosystems. The landscape-based methodical approach"

Session 3. Methods of environmental control and rehabilitation. Chair **A.G. Dyukarev**

1. Sorokin N.D., Grodnitskaya I.D., Evgrafova S.Yu.

"Microbiological bioindication and soil bioremediation in disturbed forest ecosystems in Siberia"

2. Smelyantseva E.O.

"Dynamics of Siberian stone pine radial growth in forest-tundra ecotone of Severo-Chuisky ridge (Central Altay)"

3. Bekh I.A.

"Monitoring and prospects of recreation forest management in sanitary zone of Seversk"

4. Propastilova O.Yu.

"Studying of natural Siberian stone pine reforestation in mountain-glacial Aktru river basin (Severo-Chuisky ridge, central Altay)"

5. Zavoruev V.V., Kuznetsov A.M.

"Water toxicity during blooming period of blue-green algae"

6. Zavoruev V.V.

"Studying of underground water pollutionи near TBO area"

7. Panchenko E.M.

"Ecologo-functional analysis as a basis for resources conservation and environmental control"

8. Vershinin Y. A., Zubaidullin A. A., Vershinin M. Y.

"Ecological risks assessment when reclamating oil polluted bogs"

9. Volkov V.M., Lushnikov C.V.

"Detection and examination of geological environment contamination by oil products"

10. Lukashevich O.D.

"Sewage water recovery as a problem of water supply ecological safety"

11. Bolotnov V.P.

"Application of flood action index for monitoring of middle Ob' flood-land ecosystem"

12. Kokhanenko A.

"Rational usage of natural resources of Krasnoyarsk Krai south for healing purposes"

13. Sofronova T.M.

"Development of measures to improve estimation of meteorological fire danger in mountain forests of Southern pre-Baikalie"

Session 4. Monitoring, Management and Remediation of Man-made Changes in Siberia: FP6 Coordination Action Enviro–RISKS. Chair **E. Gordov**

1. Baklanov A., Gordov E.

Overview of the Enviro-RISKS state of the art

2. Lykosov V.

"Geophysical boundary layers: modelling and environmental applications"

3. Penenko V.

"Environment quality and emission control in industrial regions "

4. Zakarin E.

"Risk mapping of the consequences of oil pipeline accident"

5. Pushistov P.

"Development and application of information-modeling system for hydrodynamics, chemical and biological characteristics of water bodies with consideration of man-made impact and hydraulic structures, for diagnosis and forecast tasks of hazardous hydrological and ecological situations risks**"**

6. Pushistov P.Yu. Alsynbaev K.S., Chemlyakov N.V., Vtorushin M.N., Ermakov I.S., Danilin A.N., Bolgova V.M., Kazarina O.P., Lisovskiy D.A.
"Problems and results of numerical modeling of a detailed spatial-temporal structure of hydrological mode and water quality characteristics of a Large Northern River (by the example of the Northern Sos'va River, Khanty-Mansiysk Autonomous Okrug – Yugra)"

7. Mahura A., Baklanov A., Sorensen J.H.

"Long-term simulation of atmospheric transport and deposition patterns from Siberian sources of continuous anthropogenic sulphates emissions"

8. Shor E.L., Zubaidullin A.A., Ovechkin F.Yu., Vershinin Yu.A., Lopatin K.I., Soromotin A.V.

"Experience of oil pollution reclaiming in Khanty-Mansiysky region"

9. Zemtsov V.

"Hydrological risks in West Siberia"

10. Shishikin A.S.

"Transformation of Middle Siberian Landscapes at field development of minerals"

Poster Papers

1. Lyapina E.E., Golovatskaya E.A.

"Mercury concentration in soils of Tomsk"

2. Podnebesnyh N.V., Ippolitov I.I., Gorbatenko V.P.

"Large-scale atmosphere circulation over Western Siberia"

3. Nicheporchuk V., Tridvornov A.

"Analysis of sources of industrial danger in Krasnoyarsk region and risk assessment"

4. Goryaeva V., Tolkacheva G., Shardakova L.

"Issues of investigation of chemical composition of precipitation at urban agglomerations"

5. Rakhmatova N., Chub V.E., Vidineeva E.M., Vereshagina S.G.

"Assessment of anthropogenic impact on water quality in the irrigation network of the Tashkent city and the ways of its rehabilitation"

Wrap-up discussion and open meeting of Enviro-RISKS team

Workshop on validation of land cover maps in West Siberia and future expansion of validation site network (NELDA project), Chair **Olga Krankina**

Session 1: Overview

Welcome, NERIN and NELDA overview, and workshop plans - O. Krankina

NERIN fire component and the challenge of mapping fire scars – T. Loboda

Land cover monitoring needs in West Siberia – E. Gordov, V. Krutikov, Yu. Polistchouk

Questions to speakers and discussion

Session 2. Dynamics of Land-Cover and NELDA Test Sites (Phase 1)

1. Alexander Maslov - Major types of land cover change in Central Russia boreal forests and NELDA validation site
2. Anatoly Dyukarev - Characteristics of the West Siberia NELDA site
3. Elena Fedotova – 3 sites (East Siberia and Far East)
4. Questions to speakers and discussion

Session 3. **Planning for NELDA II - new test sites, land cover attributes, and processes to monitor**

1. Garik Gutman – NASA-LCLUC Program outlook
2. Gerard Begni – On potential themes and mechanisms for future cooperation with POSTEL and SIRS projects
3. Proposed additional sites
    a. Eldar Kurbanov -- Monitoring of forest land use change in Povolgie of Russia using Landsat data
    b. Galina Stulina -- TBD
4. Additional suggestions from the audience and discussion

Session 4. NELDA study plan: approaches, methods, and legends (open meeting of NELDA team)

1. Krankina O. - Overview of study plan and draft legend
2. Pologova N. - Types of forest-bog complexes and their reflection by satellite images
3. Kozin E. - Processing of satellite imagery on the basis of the object- oriented approach
4. Workshop wrap-up

Thematic short course "Information engineering and services for the urban environment", Kostas Karatzas, Aristotle University, Thessaloniki, Greece

- Introduction to the urban environment and its related problems (Block 1)
- Basics of ICT for the environment (Block 2)
- Environmental informatics (Block 3)

Program of CITES-2007 Young Scientists School and Conference, including the Enviro-RISKS Workshop

Young Scientists School Program

14 July, Saturday

8:00-9:00 Registration

(IMCES Conference Hall)

9:00-9:30 Opening

9:30-18:00 Lectures

1. Dymnikov V.P.

Computational aspects of active and passive admixtures transport and transformation in atmosphere

2. Kholodov A.S.

Numerical methods of transport equation solving

3. Voevodin Vl.V.

Supercomputer technologies for complex problems solving

4. Klyatskin V.I.

Admixture transport in stochastic media

15 July, Sunday

9:00-13:00 Lectures

(IMCES Conference Hall)

1. Kholodov A.S.

Nonlinear monotonic schemes for transport equation solving

2. Smyshlyaev S.P.

Modeling of chemically interacting gases in atmosphere middle- and underlayer

3. Fazliev A.Z.

Presentation of declarative knowledge in information systems

15:00-19:00 Training sessions (TUSUR Computer classes)

Instructors Akhlyostin A.Yu., Bart A.A., Belikov D.A., Lavrent'ev N.A, Prevezentsev A.I., Titov A.G.

16 July, Monday

9:00-13:00 Lectures

(IMCES Conference Hall)

1. Kuznetsov Yu.I.

Methods for solving stiff equations sets

2. Vyazilov E.D.

Formation of metadata and knowledge in Earth sciences

3. Fazliev A.Z.

Presentation of procedural knowledge in information systems

15:00-19:00 Training sessions (TUSUR Computer classes)

Instructors Akhlyostin A.Yu., Bart A.A., Belikov D.A., Lavrent'ev N.A, Prevezentsev A.I., Titov A.G.

17 July, Tuesday

9:00-13:00 Lectures

(IMCES Conference Hall)

1. Tolstykh M.A.

Semi-Lagrange schemes for transport equation solving

2. Kostrykin S.V.

Pollution transport by vortex systems – theory, laboratory and computational modeling

3. Smyshlyaev S.P., Galin V.Ya.

Influence of natural and anthropogenic factors on atmosphere temperature regime and composition long-tern variability

4. Fazliev A.Z.

Workflows management systems

15:00-19:00 Training sessions (TUSUR Computer classes)

Instructors Akhlyostin A.Yu., Bart A.A., Belikov D.A., Lavrent'ev N.A, Prevezentsev A.I., Titov A.G.

18 July, Wednesday

9:00-13:00 Lectures

(IMCES Conference Hall)

1. Aloyan A.E.

Modeling of admixture transport and transformation in atmosphere

2. Glazunov A.V., Lykosov V.N.

Eddy models and pollution transport

2. Kudashev E.B.

Satellite remote sensing information resources and problems of their integration into international systems of Earth study from space

4. Gordov E.P.

Information-computational systems for city air quality monitoring and modeling

15:00-19:00 Training sessions (TUSUR Computer classes)

Instructors Akhlyostin A.Yu., Bart A.A., Belikov D.A., Lavrent'ev N.A, Prevezentsev A.I., Titov A.G.

19 July, Thursday

Preparation of Reports on the work performed

14:30-15:00 Mazurina O.

European Community Framework Programme for Research & Technological Development (2007-2013) – The EC-Russia Dimension

15:00 – 18:00 Participants Reports on performed work (IMCES Conference Hall)

International Conference Program

20 July, Friday

9:00 Practical Session and boat trip

Invited lecture

1.Shvartsev S.L.

Tom river water composition and quality

July 21, Saturday

8:30-9:30 Registration

(IMCES Conference Hall)

9:30 -10:00 Conference opening

1. APN Workshop on Atmospheric Composition and Air Quality
Chairs Prof. **H. Akimoto** (Japan) and Prof. **E. Gordov** (Russia) (IMCES Conference Hall)
10:00-15:45 Session 1.1. Atmospheric Composition and Air Quality Measurements
(Chair Hajime Akimoto)

Invited lectures

1. Akimoto H.

Tropospheric ozone and its impact on climate and environment

2. Zuev V.V.

Laser gas analysis of the atmosphere: history of development and prospects

Invited reports

1. Kanaya Yu.

Chemistry of tropospheric OH and HO2 radicals: current understanding and questions

2. Raputa V.F.

Models of reconstruction regional pollution on the observed data

3. Takigawa M., Niwano M., Akimoto H., Takahashi M.

Model calculation of tropospheric ozone distribution

Oral report

1. Irie H.

Synergistic use of satellite and ground-based observations to understand air quality issues

16:15-18:00 Poster presentations

(IMCES Conference Hall)

Session 1.1.

1. Dementeva A.L., Zhamsueva G.S., Zayahanov A.S., Tsydypov V.V., Ayurzhanaev A.A.

Research of particularities of circulation and processes of air mass in East Gobi

2. Devyatova A., Saeva O.P.

Dust and aerosol pollution from stationary mancaused sources in Novosibirsk city

3. Goryaeva V.S., Tolkacheva G.A.

Role of atmospheric precipitations as ecological indicators in the monitoring of the environment conditions of the urbanized territories in the arid zones

4. Lyapina E.E., Golovatskaya E.A.

Near surface concentration of mercury in Tomsk

5. Melnikova V.N., Shulgina T.M., Titov A.G.

Statistical analysis of meteorological data of NCEP/NCAR Reanalysis 1 and Reanalysis 2 for West Siberia

6. Panteeva N., Tolkacheva G., Rakhmatova N.

Comparative analysis of long-term variations of Total Column Ozone in Uzbekistan by using ground and satellite data (TOMS)

7. Rakhmatova N., Tolkacheva G., Panteeva N., Starovatov O.

Spatial-temporal variability of Total Column Ozone over Uzbekistan by using ground and satellite (TOMS) data

8. Raputa V.F., Smolyakov B.S., Shuvaeva O.V.

Assessment of volumes of torch burning attendant oil gas by surface monitoring data

9. Talovskaya A.V., Yazikov E.G.

Geochemical composition of dust aerosols within ground "Tomsky" in Tomsk region

18:00- 20:00 Open initial project meeting of APN CAPaBLE project CBA2007-08NSY "Capacity Building to Study Interrelations between Atmospheric Composition, Anthropogenic Load and Climate Change in Northern Asia" (SCERT Seminar Hall)

22 July, Sunday

9:00-15:00 **Session 1.2. Atmospheric Composition and Air Quality Modeling**
(Chairs Alexander Baklanov and Vladimir Penenko)

Invited lecture

1. Kurbatsky A.F., Kurbatskaya L.I.

Thermally driven mesoscale circulation over urbanized areas

Invited reports

1. Starchenko A.V.

Parallel computation for weather research and environment protection

2. Baklanov A.

Integrated systems: on-line and off-line coupling of meteorological and atmospheric chemical transport models

3. Aloyan A.E., Arutyunyan V.O., Yermakov A.N.

Modeling the dynamics and kinetics of gaseous pollutants and aerosols in the atmosphere: estimation of the environmental impact of forest fires

4. Penenko V.V.

Discrete-analytical approximations based on global and local adjoint problems for atmosphere, ocean and environment studies

Oral reports

1. Semenov V., Sorokovikova O., Fokin A.

Modeling of contaminant transport in a megapolis

2. Yudin M.S.

Orographic retardation of a cold atmospheric front near a lake

3. Lezhenin A.A., Shlychkov V.A., Mal'bakhov V.M.

Numerical model study of atmospheric pollutant transport over a rough terrain

4. Klimova E.G.

Data assimilation algorithms based on the dynamical-stochastic approach

15:00-17:45 Session 1.3. Environmental Data Resources and Information Systems
(Chairs Evgeny Gordov, Alexander Fazliev, Edige Zakarin and Galina Tolkacheva)

Invited reports

1. Zakarin E.A., Balakay L.A., Dedova T.V., Mirkarimova B.M.

Risk mapping of adverse environmental impact on biota of North – West Caspian Sea region

2. Tolkacheva G.A., Kovalevskaya Yu.I., Aksenova L.A., Shardakmova L.Yu., Vidineeva E.M., Vereschagina N.G.

Role of ecological indicators and GIS-technologies in the complex assessment of ecological conditions of the industrial agglomerations

3. Serebriakov V.A.,Vershinin A.V.

Distributed interoperable processing in GIS

4. Lavrentiev N.A., Vrazhnov D.A., Starchenko A.V., Fazliev A.Z.

Global and regional models in the informationalcomputational system "Climate"

Oral reports

1. Semenov V., Arutunjan R., Sorokovikova O., Fokin A., Rubinshtein K., Ignatov R., Novikova I., Grizan E., Astachova E.

Mesoscale model of atmospheric dispersion of contamination under temperature and topography inhomogeneity of landscape and its usage in DSS for nuclear accidents NOSTRADAMUS

17:45-19:30 Poster presentations

Session 1.2

(IMCES Conference Hall)

1. Balakay L., Tusseyeva N.

Analysis of distant carrying of pollutants from Kazakhstan territory

2. Baranovsky N.V.

Parallel computing technologies and mathematical modelling of natural fires spread

3. Belikov D.

Model of atmospheric chemistry for air pollution analysis in the city

4. Hamal K., Bun R.

Spatial modeling of greenhouse gas emissions in energy sector on regional level

5. Dubickaya S.V., Fomin S.P

Atmospheric composition changes simulation after detonation of Solid Rocket Motors. The algorithms for solving the negative influence problem

6. Gritsan E.V.

Assessment on simulation of the different precipitation classes by a regional hydrodynamic model for application to analysis of atmospheric pollution transport over the East Asian region

7. Ignatov R.Y., Rubinstein K.G., Gritsan E.V., Novikova I.V.

Using a regional non-hydrostatic model for calculation of meteorological data for the purpose of radionuclide distribution and deposition forecasts over the Kola Peninsula region

8. Ivanova E.V., Kazakov A.L.

Test of the one-dimensional model as to reproduce the seasonal structure of the atmospheric boundary layer over water surface

9. Khamidullin I.R., Bayanov I.M.

Numerical modeling of dynamics of propane escape accompanied by burning in the atmospheric surface layer

10. Kilanova N., Klimova E.

Suboptimal data assimilation algorithms for an estimation of passive pollutions concentration

11. Konstantinov P.I., Rubinstein K.G.

Research of quality of the description a three-dimensional Moscow region- temperature mode by means of mesoscale model MM5

12. Konstantinov P.I., Kislov A.V.

Simulation of summer temperature regime of Moscow region

13. Nochvay V.I., Beyko I.V.

Urban emission parameters control in model of calculation of surface ozone pollution

14. Nuterman R.B., Starchenko A.V., Baklanov A.A.

Development and evaluation of microscale meteorological model for air flow and pollution transport investigation in urban canopy

15. Panasenko E.A., Starchenko A.V.

Numerical solution of some problems of impurity distribution in the atmosphere

16. Penenko A.V.

Pollutant sources identification with the use of variational technique

17. Pyanova E.A.

Numerical study of water body effect on spreading passive admixture from the point source

18. Ushakov K.V.

Explicit difference schemes with variable time-steps in large-eddy simulation

19. Voitsekhovskaya O.K., Golub I.Yu., Shefer O.V., Zaprjagaev A.Yu.

Radiant heat exchange modeling for determination of the thermodynamic parameters of the inhomogeneous gas mixtures

20. Vrazhnov D.A., Starchenko A.V.

Parallel realization of high order schemes for solving problems of gas-disperse cloud transport and particles sedimentation

21. Tridvornov A.A.

Estimation of man-caused and complex risks of emergencies for Krasnoyarsk Krai territory

Session 1.3

(SCERT Seminar Hall)

1. Bart A.A., Belikov D.A., Starchenko A.V., Fazliev A.Z.

Information-computational system for the study of homogeneous boundary layer over Tomsk

2. Boichenko I.V., Kataev M.Yu., Petrov A.I.

Distributed informational system for lidar data processing

3. Bun A., Matthias J.

Russia and Ukraine as potential participants in greenhouse gas market: tendencies and prognosis

4. Dyakonov I.

Informational analytic system GeoMETA

5. Glagolev V., Kogan R.

Elaboration of modules for territorial pollutions spatial analysis on basis of geoinformation systems overlay operations

6. Kataev M.Yu., Chugunov A.G.

Computing features of the slope/aspect ratio according to base SRTM

7. Boichenko I.V., Kataev M.Yu., Sykhanov A.Ya., Chugunov A.G.

Geophysical computing system for solving of the tasks of the atmosphere monitoring from space

8. Kataev M.Yu., Boichenko I.V., Kataev S.G., Kuskov A.I.

Spatial interpolation of the meteoparameters according to the NCEP database

9. Mirkarimova B.M.

Development of the complex model of ecological system dynamics for Northeast Caspian Sea

10. Okladnikov I.G., Titov A.G., Melnikova V.N., Shulgina T.M.

Web-system for processing and visualization of meteorological and climatic data

11. Fazliev A.Z., Kozodoev A.V., Privezentsev A.I.

Information resources formation for the atmospheric spectroscopy

12. Rykova V.V.

Electronic resources of SPSTL SB RAS' own generation as the information base of atmospheric and environmental researches

13. Pyankov S.V., Shavnina Yu.N., Shvalev V.N.

Website «The dangerous natural phenomena of the Perm krai»

14. Shmirko K.A., Salyuk P.A., Bulanov A.V., Glazkov M.N.

Interactive system for data analysis (ISAD) for FEB RAS CCU in laser researches (LR) of environment

15. Timofeev A.A.

Global aerological datasets descriptive information presentation on the Internet

16. Titov A.G., Belikov D.A.

Web-system for Tomsk air quality assessment based on the pollution transport and transformation mathematical model

17. Tusseyeva N., Dedova T., Abdrahmanova N.

Development of GIS technologies of dust storms monitoring and modeling

July 23, Monday

2. Workshop on Climate Change Assessment and Modeling
Chairs Prof. **M. Kabanov** and Prof. **V. Lykosov** (Russia) (IMCES Conference Hall)

9:00-16:45 Session 2.1. Physics of Climate (Chair Vasily Lykosov)

Invited reports

1. Lykosov V.N.

Mathematical modeling climate and climate change: regional aspects

2. Tolstykh A.M.

Modeling of regional atmosphere circulation with the help of a high-resolution hydrodynamic model

3. Krupchatnikoff V.N.

Transport and mixing in two-dimension atmospheric flow on beta- plane

4. Sterin A.M.

Estimating trends in climate time series: effect of statistical techniques on the resultant conclusions

5. KuzinV.I.

To the question of the ocean climate study

Oral reports

1. Rubinstein K., Egorova E.

Experiments with special surface characteristics of a megapolis area by the model of General Circulation of Atmosphere Hydrometcentre of Russia

2. Chavro A.I., Nogotkov I.V., Dmitriev E.V.

Statistical model for reconstructing small-scale fields of extreme temperatures in Moscow region

3. Dmitriev E.V.

Reconstruction of the mean European temperature over the past 600 years using the proxy data

4. Kostrykin S.V.

Choosing and implementation of the new advection scheme in the wave model WAM-4

5. Esau I.

Convective feedback in climate change

6. Dmitriev E.V., Churilova T.Y., Chami M., Khomenko G., Berseneva G.A., Martynov O.V., Shybanov E.B., Lee M. E-G., Korotaev G.K.

Parameterization of the light absorption by components of sea water in the Black sea coastal zone

7. Protasov A.V.

Method of computation of spatio-temporal functions of primary factors on the basis of climatic ensembles of realizations of fields of meteorological elements

8. Salyuk P.A., Akmaykin D.A., Shmirko K.A., Lastovskaya I.A.

Phytoplankton communities in Earth's climate system

9. Platov G.A., Golubeva E.N.

Numerical modeling of the Arctic Ocean and Siberian shelf: problems and approaches

10. Stepanenko V.M., Mikushin D.N.

Numerical modeling of mezoscale dynamics of atmosphere above hydrologically heterogeneous surface

11. Krupchatnikoff V., Borovko I.

Modelling of coupling of the troposphere and stratosphere circulation

16:45- 18:45 Poster presentations

(IMCES Conference Hall)

Session 2.1

1. Bogoslovskii N., Shlyaeva A., Tolstykh M.

Data assimilation of surface and soil variables in the global semi-Lagrangian NWP model

2. Fadeev R.Yu., Tolstykh M.A.

Two-dimensional non-hydrostatic dynamical core for the model of atmosphere

3. Grankina T.B.

Mathematical modeling of the ice-thermal regime of water body

4. Kochetkov E.L.

Numerical modelling of 3-dimensional channel flows with a free surface

5. Nogotkov I.V., Dmitriev E.V.

On the influence of missing values in observational data on accuracy and stability of the retrieval of regional meteorological fields

6. Novikova I.V.

Improvement of dynamic downscaling of wind and sea level pressure forecasts over the Baltic sea region using MM5 model

7. Palamarchuk Y., Ivanov S.

Systematic errors of parameterization schemes in the MM5 model

8. Rodimova O.B., Bogdanova Yu.V.

On thermodynamic behaviour of the coefficients of expansion of the radiation characteristics into series of exponents

9. Shlyaeva A., Tolstykh M.A.

Finite-element scheme for the vertical discretization of the global semi-lagrangian forecast model

Session 2.2

1. Dyukarev E.A., Artyomova E.P.

Estimation of Western Siberia climate variability on different time scales

2. Badashova L.F., Murkina E.A., Khokhlova A.V.

Long-term variation of sea ice extent in Arctic Seas on satellite observations

3. Kharyutkina E.V., Loginov S.V.

Estimates of energetic balance components of cyclones on the Siberian region by reanalysis data NCEP/NCAR

4. Martynova Yu.V.

Estimation of influence of a variation of vegetation of northern hemisphere on dynamics of temperature and humidity during 21 century

5. Shishlov V.I.

Features and tendencies of climatic changes in northern regions of Eurasia

6. Zoloeva M., Rubinstein K.

Variability of the physical properties of the snow cover for general circulation model of atmosphere validation

7. Zolotov S.Yu., Ippolitov I.I., Loginov S.V.

Forecast estimations of change of temperature of ground air with use of a method of wavelet-transformation

July 24, Tuesday

9:00-12:00 Session 2.2. Regional Climate Change Assessment (Chair Michael Kabanov)

Invited reports

1. Polishchuk Yu.M., Dneprovskaya V.P., Bryksina N.A.

Study of warming influence on permafrost state in Western Siberia using space images

2. Begni G., Makhtar-Schuster M., Escadafal R., Fontannaz D.

European DesertNet (E-DN): a new structure to strengthen research about desertification in Europe, including a wider and wiser use of remote sensing technology

3. Azizov A.A., Petrov Yu.V., Skripnikova L.E.

Approaches to climate change evaluating in cities of Uzbekistan

4. Penenko V.V., Tsvetova E.A.

Generalized quantitative description of climate dynamics for goals of environmental design and ecological risk assessment

Oral reports

1. Podnebesnykh N.V., Ippolitov I.I., Gorbatenko V.P.

Dynamic characteristics of cyclonic and anticyclonic activity above the Western Siberia

3. Workshop on Siberia Integrated Regional Study (SIRS) chaired by Dr. **G. Begni** (France), Prof. **E. Gordov** (Russia), Prof. **M. Heimann** (Germany), RAS corr. member **M. Kabanov** (Russia), RAS corr. member **V. Lykosov** (Russia), Prof. **A. Shvidenko** (Austria) and Ac. **E. Vaganov** (Russia) (IMCES Conference Hall)

11:45-15:15 Session 3.1. Development of SIRS information-computational infrastructure (Chair Evgeny Gordov)

Invited reports

1. Gordov E.P.

State of the art of SIRS

2. Gordov E.P., Fedotov A.M., Kolchanov N.A.

Development of Information-computational SIRS Infrastructure: SB RAS input

3. Begni G., Ultre-Guerard P., Leroy M.

Earth observation French space policy and its potential use in the SIRS project

Oral reports

1. Melnikov Yu.B.

Approaches to shaping the mechanism of the a priori determination non-account factors of the risk

2. Pyanova E. A., Faleychik A. A., Faleychik L. M.

Estimation of region of artificial reservoir effect on microclimate using a mathematical model and GIS technologies

15:15-18:15 Session 3.2. Siberia Environment Dynamics in context of global and Northern Eurasia changes (Chairs Michael Kabanov and Alexander Onuchin)

Invited lecture

1. Shvidenko A.Z., Gordov E.P., Kabanov M.V., Lykosov V.N., Onuchin A.A., Vaganov E.A.

Global change in Siberia: realities and expectations

Invited reports

1. Heimann M.

Monitoring biogeochemically driven atmospheric greenhouse gases over Eurasia

2. Kabanov M.V., Krutikov V.A., Ippolitov I.I.

Dynamics of natural processes at Great Vasyugan Bog

Oral reports

1. Dyukarev E.A., Golovatskaya E.A., Veretennikova E.E.

Modeling of carbon balance of southern taiga peatland ecosystems at various scenarios of climate change

2. Preis Yu.I., Antropova N.A., Sharapova N.A.

Regional features of the mire formation in the forest zone of Western Siberia

18:15-19:30 Poster presentations

(IMCES Conference Hall)

Session 3.1

1. Melnikov B.N., Melnikov Yu.B.

Model of the firm development territory as base of the forecasting and analysis of the manifestation risk

2. Murkina E.A., Badashova L.F., Khokhlova A.V.

Long-term variations of snow cover extent and duration over the territory of Western Siberia on satellite observations

3. Noskova N.A., Peremitina T.O., Polishchuk Yu.M.

Questions of deciphering multispectral based on the method of principal component analysis

Session 3.2

1. Dneprovskaya V.P.

Analysis of geobotanic structure of West-Siberian taiga zone in depend of climatic state indices

2. Dubrovskaya O., Klimova E.

Description of distribution of smoke aerosols from forest fires in territory of Siberia

3. Sorokovenko O., Preis Yu. I.

Stratigraphy and dynamics ridge-hollow complexes of Iksinskoe bog (Southern taiga of Western Siberia)

July 25, Wednesday

9:00- 13:00 4. Workshop on Man-made Environmental Risks in Siberia Chairs Prof. **A. Baklanov** (Denmark) and Prof. **E. Gordov** (Russia) (IMCES Conference Hall)

Invited review papers

1. Baklanov A., Gordov E.

Overview of man-made environmental risks in Siberia: major finding and perspectives

2. Penenko V., Baklanov A.

Atmospheric pollution and risks (thematic group results/findings)

3. Heimann M.

Biogeochemical interactions and climate change feedbacks in the permafrost regions (thematic group results/findings)

4. Lykosov V.

Climate/Global change (thematic group results/findings)

5. Kabanov M., Shvidenko A.

Terrestrial ecosystems and hydrology (thematic group results/findings)

6. Gordov E., Zakarin E.

Information systems, integration and synthesis (thematic group results/findings)

Oral reports

1. Mahura A., Baklanov A., Rigina O., Sorensen Je.-H., Bergman R., Golikov V., Amosov P., Segerståhl B., Sickel M., Bergan T., Nielsen S.

Evaluation of doses, risks, vulnerabilities, and consequences for population and environment employing GIS analysis

2. Penenko V.V.

Atmospheric quality: from risk assessment to sustainable development

3. Baklanov A., Aloyan A., Mahura A., Aratyunyan V.

Approaches to evaluation of source-receptor relationship for atmospheric pollutants: trajectory modelling, cluster, probability fields analyses, and adjoint equations

Short oral reports

1. Svetlov A., Baklanov A., Mahura A., Sorensen Je.-H.

Influence of long-term continuous anthropogenic emissions from Russian Arctic sources on Siberian and Ural cities environment

14:20-14:30 Conference closure

15:00-17:00 Enviro-RISKS project management meeting

(SCERT Seminar Hall)

Program of the ENVIROMIS-2008 Conference, including the Enviro-RISKS Workshop

28 June, Saturday

9:00-9:30 Conference Opening
9:30 – 14:50 Session 1. Local and remote observations. Chair **Alexander Tikhomirov**
Invited reports

1. Bogushevich A.Ya., Tikhomirov A.A.

"AMK-03 ultrasonic automated weather station and its possibilities for measured data accumulation and computerization"

2. Balin Yu.S., Kaul B.V., Kokhanenko G.P.

"Lidar investigations of aerosol and cloud fields in the troposphere using the LOSA-S lidar"

Oral reports

1. Ahrends H.E., Stöckli R., Eugster W., Wanner H.

"Automated phenological observations by use of digital photography"

2. Colao F., Fiorani L., Palucci A., Kataev M.Yu., Chugunov A.G., Makrushin A.P., Borilo I.A.

"Application of an isotopic CO_2 lidar to atmospheric CO_2 monitoring"

3. Kataev M.Yu., Borilo I.A., Colao F., Fiorani L., Palucci A.

"Laser sounding of volcanic plumes with a mobile lidar"

4. Kataev M.Yu., Borilo I.A., Sukhanov A.Ya., Colao F., Fiorani L., Palucci A.

"Neural network approach for retrieving gas concentration profile from CO_2-laser lidar data"

5. Yushketova N., Poddubny V., Markelov Yu.

"Measurements of ambient NO_2 concentration in the urban area using passive samplers"

6. Smirnov S.V.

"Operation and results of spectrophotometric measurements with a high temporal resolution at the observatory of IMCES"

7. Nagorsky P.M., Ippolitov I.I., Kabanov M.V., Smirnov S.V.

"Matched oscillations of meteorological, actinometrical and electrical quantities in the surface layer"

8. Kokovkin V.V., Raputa V.F., Morozov S.V.

"Aerosol pollution control in the highway vicinities"

Short oral presentations/reports

1. Kurakov S.A., Krutikov V.A., Ushakov V.G.

"Autonomous profile thermometer"

2. Zuev S.V., Krasnenko N.P.

"Cloud base height's measuring by experimental model of opto-electronic ceilometer"

3. Goryaeva V., Shardakova L.

"Investigation of pollutants wash-out process by precipitation from atmosphere, based on experimental data"

14:50 – 18:05 Session 2. Remote sensing and GIS. Chair **Yury Polishchuk**
Invited reports

1. Polishchuk Yu.M., Dneprovskaya V.P., Bryksina N.A. "Study of warming impact on thermokarst state in continuous permafrost zone of Western Siberia on base of remote sensing data"
2. Afonin S.V., Belov V.V. "Techniques for solution of the problems of thermal sounding of the Earth surface from space"

Oral reports

1. Lane C.R., Reif M., Frohn R.C., Autrey B. "Mapping isolated wetlands with GIS and remote sensing in North Central Florida, USA"
2. Myadzelets A.V. "Geoinformation-based assessment of land disturbance using Earth remote sensing data"
3. Solomatov D.V., Afonin S.V. "Software for thematic processing of data from satellite atmosphere and land surface monitoring systems"
4. Bobrova A.Yu., Skugarev A.A., Gorina N.V., Bazanov V.A. "Use of satellite imagery and gis for assessing carbon balance on the territory of Tomsk oblast"
5. Pugacheva Yu.I., Shevyrnogov A.P."Studying features of NDVI dynamics for vegetation monitoring of the South of Central Siberia"

29 June, Sunday

9:00 – 10:00 Session 2. Remote sensing and GIS.
Invited report

3. Begni G., Kerr Y., Buffet L., Avignon M. "Two major French contributions to study water cycle using European space systems: the SMOS and IASI instruments"

Short oral presentations/reports

1. Pugacheva Yu.I., Sidko A.F., Shevyrnogov A.P. "Analysis of backscattered spectra dynamics of agricultural crops in the south of Krasnoyarsk krai and Khakasia based on ground and satellite measurements"
2. Istomina E.A. "Method of the Jacobian determinant for identification of the boundaries of a geosystems hierarchic level landscape complexes by different space resolution satellite images"
3. Kataev M.Yu., Boichenko I.V. "Research of the sensitivity of the reflected sunlight to variations of the altitude profile of the temperature"
4. Kataev M.Yu., Boichenko I.V., Nikitin A.V., Mikhailenko S.N. "Research of sensitivity of the reflected sunlight to accuracy of spectroscopic information for CO2"
5. Kataev M.Yu., Kataev S.G., Kuskov A.V. "Questions of using of the database NCEP meteorological information in problems of the sunlight transmittance in the atmosphere"

10:00 - 15:10 Session 3. Environmental Information Systems. Chair **Alexander Fazliev**
Invited reports

1. Fazliev A.Z., Lavrentiev N.A.

"State of the art of the web information-computational systems presenting weather and climate processes"

2. Molorodov Yu.I., Korsakov E.V.

"Wavelet - function data processing of atmosphere measurements"

3. Gordov E.P., Okladnikov I.G., Titov A.G.

"Web system for comparative analysis of regional climatic changes"

Oral reports

1. Chesnokova T.Yu., Firsov K.M., Kozodoeva E.V.

"Spectroscopic information presentation in the internet-accessible information-computational system "Atmospheric radiation""

2. Engel M.V., Afonin S.V., Belov V.V., Kulikov G.E.

"Computational capability of regional satellite information Internet resource"

3. Sokolov A.A., Dmitriev E.V., Khomenko G.A.

"Database of bio-optical parameters measurements at costal area of Black sea"

4. Abasov N.V., Vetrova V.V.

"Mobile web-technology geoclimatic data processing"

5. Sokolova I.V., Gorchakov L.V.

"Creation of the humic acids properties data base"

Short oral presentations/reports

1. Titov A.G., Okladnikov I.G., Shulgina T.M.

"Web-system for analysis of climate change indices dynamics for Siberia region"

2. Boichenko I.V., Kataev M.Yu., Petrov A.I.

"Program system for the distributed processing of the lidar data of atmospheric sounding"

3. Boichenko I.V., Kataev M.Yu., Petrov A.I.

"Repository of the data and methods for program systems of lidar sounding data processing"

4. Kataev M.Yu., Kataev S.G., Kuskov A.V.

"Interpolation of the meteorological information of database NCEP on the any spatial point"

5. Kozodoev A.V., Lavrentiev N.A., Privezetsev A.I., Fazliev A.Z.

"Knowledge-based information system on spectroscopy of three atoms molecules"

6. Shevchenko L.B., Lavrik O.L.

"Information support of scientific researches on the environment and ecology protection in State Public Scientific Technical Library of the Siberian Branch of RAS"

7. Bart A.A., Starchenko A.V., Fazliev A.Z.

"Web system for operative description of air quality in the city"

15:10 - 18:00 Poster sessions 1-3

30 June, Monday

9:00 – 15:00 Session 4. Urban and Regional Environmental Modeling. Chair **Vladimir Penenko**

Invited reports

1. Kurbatsky A.F., Kurbatskaya L.I.

"Structure of nocturnal urban boundary layer: study with of nonlocal mesoscale model"

2. Penenko V.V.

"New variational technique for direct and inverse problems of atmospheric chemistry"

3. Raputa V.F.

"Inverse problem for estimation of aerosol falling fields from area sources"

4. Klimova E.G.

"Research of short-term forecast errors structure in the atmospheric boundary layer"

Oral reports

1. Dubrovskaya O.A., Klimova E.G.

"Reconstruction technique for concentration values of smoke loops gas components from forest fires"

2. Raputa V.F.

"Models of nuclei blasts traces reconstruction"

3. Pyanova E.A., Faleychik L.M.

"Influence estimation of unfrozen water in the hydrostation's downstream on the temperature and humidity of the ambient atmosphere"

4. Yudin M.S.

"Simulation of atmospheric front propagation: effects of orography and rotation"

5. Starchenko A.V., Belikov D.A., Yesaulov A.O., Nuterman R.B.

"Meso- and microscale models with high resolution for investigation of urban sublayer aerodynamics"

Short oral presentations/reports

1. Baklanov A., Korsholm U., Mahura A., Gross A., Petersen C.

"DMI-ENVIRO-HIRLAM: a coupled urban meteorological and air pollution model" 2. Mahura A., Petersen C., Baklanov A., Amstrup B.

"Evaluation of the urbanization impact in the operational meteorological and climatological modelling"

3. Gross A., Amstrup B., Baklanov A., Korsholm U.S., Mahura A., Sørensen J.H.

"Chemical weather forecasts for Europe (a part of the EU-project GEMS)"

4. Pyanova E.A.

"Study of the region of water reservoir effect on microclimate of adjacent areas depending on orography"

5. Ushakov K.V.

"Optimization of numerical methods for large-eddy simulation"

6. Panasenko E.A., Starchenko A.V.

"Numerical modeling of parameters of the basic pollution sources in an urban sublayer"

7. Danilkin E.A., Starchenko A.V.

"Numerical method for solution of the equations of an atmospheric boundary layer aerothermodynamics on MCS with the distributed memory"

8. Nuterman R.B., Starchenko A.V., Baklanov A.A.

"On the choice of turbulence closure scheme for airflow modeling inside urban sub-layer"

9. Penenko A.V. "Methodology for localization of multi-point source systems for the advection-diffusion models"

10. Shardakova L.Yu., Kovalevskaya Y.I., Tolkacheva G.A.

"Analysis of dry atmospheric fall- out compositions during dust storms episodes in Aral sea region"

15:00-17:30 Session 5. Hydrology and Climate. Chair **Stepan Shwartsev**

Invited reports

1. Terzhevik A.Yu., Golosov S.D.

"Spatio-temporal dynamics of water temperature and dissolved oxygen in shallow ice-covered lakes"

2. Onuchin A.A., Burenina T.A.

"Hydrological role of forest in Siberia"

Oral reports

1. Kuzin V.I., Golubeva E.N., Platov G.A.

"Numerical simulation of the Bering Sea and the Siberian Rivers water propagation to the Arctic-North Atlantic system"

2. Malakhova V.V., Scherbakov A.V.

"Modelling of the global ocean response on cooling of surface waters with time scale of a glacial cycle"

1 July, Tuesday

09:00 – 10:00 Session 5. **Hydrology and Climate.**

Oral reports

3. Kuskov A.I., Krutikov V.A., Preis Yu.I, Sharapova T.A., Shishlov V.I.

"Reconstruction of cycles water modes of mires and climate"

4. Semenova I.V., Bulgakov A.A., Konoplev A.V., Popov V.E., Alekseeva L.B., Pankratov F.F.

"Assessment of the contaminants wash-off from the Pechora river watershed to the arctic ocean as a result of possible climate change"

Short oral presentations/reports

1. Vtorushin M.N., Pushistov P.Yu, Romanenko R.D.

"Synthesis of field researches and applications of mathematical models for risk analysis and extreme ecological and hydrological situations on water objects forecasting Khanty-Mansiysk Autonomous Okrug-Ugra"

2. Kichigina N.V., Gustokashina N.N., Maksutova E.V.

"Variability of hydroclimatic characteristics of river basins with a different runoff regime"

3. Melnik M.A.

"Methodological approaches to the fractal analysis of watercourse network"

4. Khon A.V., Shevchenko S.O.

"Pilot research of the self-organisation of the system "river-bed-flow""

10:00 -16:00 Session 6. Assessment of Soil, Forestry and Wetland Dynamics. Chairs **Anatoly Dyukare**v, **Charles Lane** and **Alexander Onuchin**

Invited report

1. Dyukarev A.G., Pologova N.N.

"Soil formation process at the interface between landscape zones"

Oral reports

1. PreisYu .I.

"Reconstruction of cryogenic processes in peat deposit of the southern taiga of Western Siberia"

2. Danko L.V.

"Trends and cycles of soil formation in the Baikal region's landscapes in the Holocene"

3. Antipov A.N., Bazhenova O.I., Danko L.V.

"Regional features of semi-arid landscape dynamics in southern Siberia and the desertification problem of Central and Northern Asia"

4. Tokareva O., Polishchuk Yu.

"Analysis of change of dark-coniferous forests state in petroleum production territory using space images Landsat"

5. Zavalishin N.N.

"Dynamic model of vegetation pattern in Nothern Euro-Asia based on probabilistic plant types interaction scheme"

6. Akimov V.S., Goroshkevich S.N.

"Some results for monitoring of crop dynamics in Nizhne-Sechenovo Siberian Stone pine forest in related with weather conditions"

7. Slyusar N.N., Pechurkin N.S., Pis'man T.I.

"Local monitoring of structure-functional features and productivity modelling of halophytic vegetation in the coastal zone salt Lake Kurinka (the South part of Central Siberia)"

8. Golovatskaya E.A., Dyukarev E.A

"Regional carbon balance assessments for mires of southern taiga zone in West Siberia"

9. Glagolev M.V.

"Standard model of methane emission from the West Siberian wetlands"

10. Zavalishin N.N.

"Studying dynamics of the carbon cycle functioning in Russian peatlands under the climate change and human perturbations"

11. Sharapova T.A., Preis Y.I., Antropova H.A.

"Ridge-pool complexes of watershed mires of West Siberia"

12. Kharanzhevskaya Yu.A.

"Influence of forest reclamation on peat moisture"

Short oral presentations/reports

1. Semenova I.V., Semenov V.A., Stepochkina T.I.

"Hydrochemical assessment of restoration of man-disturbed bogs in the south of the non-chernozem zone of Russia under present-day climate conditions"

2. Sukov Ya.V., Preis Yu.I., Golovanov A.N., Abramovskikh A.A.

"Thermal and physical properties of the peat with different botanical composition"

3. Sukov Ya.V., Yakimov A.S., Golovanov A.N.

"Mathematical modelling of process of ignition of peat"

4. Sorokovenko O.R., Preis Yu.I.

"Detailed research of ridge-hollow-pool complex dynamics on peripheral of Iksinskoe bog"

5. Myasnikova S.I.

"Modeling of progressive-age dynamics of the mountain-taiga forest in Pribaikalye and maps of forest management optimization"

16:30 – 18:30 Poster sessions 4-6

2 July, Wednesday

9:00 -19:00 Session 7. Environment and Climatic Change Assessment and Modeling. Chairs **Michael Kabanov** and **Vasily Lykosov**

Invited reports

1. Mokhov I.I., Eliseev A.V., Chernokulsky A.V.

"How efficient is an approach of geoengineering to mitigate the global warming?"

2. Tolstykh M.A., Kiktiev D.B., Zaripov R.B., Zaitchenko M.Yu.

"Simulation of climate anomalies on seasonal scales using general circulation model of the atmosphere"

3. Lykosov V.N., Krupchatnikoff V.N., Kuzin V.I., Golubeva E.N., Platov G.A., Krylova A., Martynova Yu.V.

"Estimation of feedbacks in Northern Eurasia and Arctic climate system under global climate changes"

4. Penenko V.V., Tsvetova E.A.

"Advanced scenario approach for assessment of environmental changes"

5. Koutzenogii K.P., Koutzenogii P.K.

"Atmosphere as colloid"

6. Chavro A.I., Nogotkov I.V., Dmitriev E.V., Khomenko G.A.

"Linear and non-linear dowscaling of surface temperature field in the La Manche region"

Oral reports

1. Eliseev A.V., Arzhanov M.M., Demchenko P.F., Mokhov I.I.

"Future projections of surface thermal and hydrological state in the northern Eurasia with a climate model of intermediate complexity"

2. Golubeva E.N., Platov G.A.

"Climate changes according to the Arctic – North Atlantic ice-ocean numerical model"

3. Stepanenko V.M., Mikushin D.N.

"Numerical modeling of energy and mass exchange between the atmosphere and inner land water bodies"

4. Krupchatnikoff V.N., Borovko I.

"Connection of polar stratosphere vortex dynamics with circulation in troposphere"

5. Podnebesnykh N.V., Ippolitov I.I., Loginov S.V.

"Comparative analysis of baric formations dynamics above Western Siberia: observations and reanalysis data"

6. Kharyutkina E.V., Ippolitov I.I., Loginov S.V.

"Assessments of convection flux energy within cyclone formations based on reanalysis data"

7. Golubyatnikov L.L.

"Model estimations for the impact of climate change on the vegetation dynamics in the Northern Eurasia"

8. Shishlov V.I.

"New methods for description and assessment of climate system changes"

Short oral presentations/reports

1. Dmitriev E.V., Fadeev R.Y., Nogotkov I.V.

"Comparison of methods applied for the reconstruction of the climate over the past millennium with the use of the INMCM3.0 model data"

2. Martynova Yu.V.

"Study of soil humidity influence on summer precipitation quantity against the background of CO_2 concentration increase for Western Siberia"

3. Gustokashina N.N., Kochugova E.A.

"Vertical air temperature distribution over the Irkutsk region"

4. Pankratov F.F., Konoplev A.V., Rychkov A.M.

"Effect of the elemental mercury decrease in atmosphere of the Russian Arctic"

5. Tvorogov S.D., Rodimova O.B.

"Calculation of transmission functions at small pressures"

6. Bogdanova Yu.V., Rodimova O.B.

"Parameterization of the ozone transmission function in the region of the 9.6 micron band"

7. Rodimova O.B.

"Stability of the altitude temperature behaviour in the radiation model with the explicit dependence on temperature"

8. Shulgina T.M., Titov A.G

"Analysis and comparison of basic meteorological and climatic characteristics calculated using NCEP/NCAR Reanalysis and NCEP/DOE Reanalysis AMIP II data"

9. Nikitchuk K.L., Shulgina T.M.

"Analysis of the Siberia regional climate dynamics based on the climate change indices assessment"

10. Bogomolov V.Yu., Gordov E.P., Krupchatnikoff V.N., Vrazhnov D.A., Martynova Yu.V.

"Development of regional model on the basis of WRF model"

11. Pisman T.I., Slyusar N.A.

"Modeling of galophytic plants productivity taking into account the temperature factor"

12. Borodavko P.S.

"Hazard assessment of naturally dammed lakes in Altai mountains"

13. Koshkin D.A., Kochugova E.A.

"Trends of extreme annual temperatures over Predbaikalie"

17:15 – 18:30 Poster session 7

4 July Friday

9:00– 19:00 Session 8. Open Meeting of Russian National Committee for IGBP: Development of Siberia Integrated Regional Study. Chairs **Evgeny Vaganov** and **Evgeny Gordov**

Invited reports

1. Gordov E.P., Vaganov E.P.

"The state of the art of the Siberia Integrated Regional Study"

2. Groisman P. and A. Shvidenko A.

"Northern Eurasia Earth Science Partnership Initiative: An Update"

3. Vasiliev O.F.

"Aral sea problem: On possibilities to restore hydrology regime and ecosystems in its separate parts"

4. Kabanov M.V.

"Integrated studies of climatic changes in Siberia: methods and investigation results"

Invited lectures

1. Lykossov V.N.

"Mesoscale Processes in the Climate System: Modeling and Parameterization"

2. Zuev V.V.

"Study of ozone layer by the dendrochronological technique"

Invited reports

5. Shvidenko A., Schepashchenko D., Nilsson S., McCallum I.

«Major indicators of productivity of Russian forests: a system reanalysis»

6. Begni G., Leroy M., Guerre L.F., Sand, A.

"Two initiatives of interest for northern Eurasia initiated by France: POSTEL and Planet Action"

7. Onuchin A.A., Muspkhranova A.V., Burenina T.A., Korets M.A.

"Spatial regularities of air temperature dynamics in Northern Asia"

8. Gordov E.P., Lykosov V.N.

"The state of the art of the information-computational infrastructure for Siberia Integrated Regional Study"

9. Shishlov V.I., Preis Yu.I., Krutikov V.A.

"System and evolution analysis of environment and climate forming processes in Siberia"

17:30-18:00 Oral reports

1. Zhuravleva T.B., Sklyadneva T.K., Bedareva T.

"Spatiotemporal characteristics of clouds over boreal Siberian zone for simulation of shortwave component of the radiative balance in the "forest-atmosphere" system"

2. Begni G. New Regional Climate Changing Initiative in Mediterranean

18:00-19:00 Discussion

5 July, Saturday

09:00 – 13:00 Session 9. Workshop on Man-Made Environmental Risks. Joint Session with Conference on Control and Rehabilitation of Environment Chair **E.P. Gordov**

Invited reports

1. Baklanov A.A., Gordov E.P.

"Analysis of major anthropogenic risks for Siberia"

2. Onuchin A.A., Burenina T.A., Ziryukina N.V.

"Forest harvesting influence on river flows in Nizhnee Priangarye"

3. Penenko V.V., Tsvetova E.A.

"Formation of environment protection strategy for risk and uncertainty diminution"

4. Shvidenko A., Kabanov M., Baklanov A., Gordov E., McCallum I., Lykosov V., Nilsson S., Onuchin A., Pushistov Yu., Schepaschenko D., Vaganov E.

"Man-made Environmental Risks in Siberia: Terrestrial ecosystems and hydrological cycling"

5. Mahura A., Baklanov A., Sorensen J.H.
"Enviro-RISKSs: overview of applications for short- and long-term modelling and assessment for atmospheric pollutants"
6. Pushistov P.Yu, Vtorushin M.N.

"Basic principles and some results on creation of the monitoring and warning system of natural and man-made emergency situations of the Khanty-Mansiysk Autonomous Okrug-Yugra"

Short oral presentations/reports

1. Baklanov A.A., Gordov E.P., Heimann M., Kabanov M.V., Lykossov V.N., Onuchin A.A., Penenko V.V., Pushistov P.Yu., Shvidenko A.Z., Zakarin E.A.

"Man-induced Environmental Risks: monitoring, management and remediation of man-made changes in Siberia"

2. Baklanov A., Lawrence M., Pandis S., and the MEGAPOLI team "MEGAPOLI: Megacities: Emissions, Urban, Regional and Global Atmospheric POLlution and Climate Effects, and Integrated Tools for Assessment and Mitigation"

3. Kaas E. Siggaard-Andersen M.-L., Karlsson K., Nielsen L.H., Frohn L.M., Brandt J., Hertel O., Baklanov A., Gross A., Korsholm U., Bonlokke J., Sigsgaard T., Sorensen J., Nielsen J.S., Meulengracht Flachs E. Juel K., Bronnum-Hansen H.

"Centre of Energy, Environment and Health (CEEH) - integrated externalities in optimization of future danish energy systems"

4. Petrova I., Mahura A., Dubasov Yu., Podgaisky E.

"Evaluation of atmospheric transport for radionuclides (Xe and Kr) monitoring in North-Western Russia"

5. Amosov P.V., Novozhilova N.V.

"Numerical modeling of the pollution of underground water on sites of the placement of radiation-dangerous objects"

11:50 – 12:20 Poster session 9

Oral reports

1. Nabieva O.R.

"Modelling of pollution distribution in water-currents during emergency break of underwater pipelines"

2. Volkova E.S.

"Particularities of ecological risks in the West Siberian North"

3. Fusella T.S.

"Agroecosystem risk of Tomsk region"

4. Rykova V.V.

"Natural and anthropogenic risks at the territory of Siberia and the Far East: information aspects of the problem"

14:00 – 17:00 Session 10. Workshop on Northern Eurasia Land Dynamics Assessment. Chairs **Olga Krankina**, **A.A. Onuchin** and **Anatoly Shvidenko**

Invited reports

1. Krankina O.

"Mitigation of climate change in the forest sector and the challenge of monitoring land cover in Northern Eurasia"

2. Shvidenko A.

"Boreal Forests dynamic and carbon sequestration"

3. Kirpotin S.N., Polishchuk Yu.M., Bryksina N.A.

"Investigation of West-Siberian permafrost landscape dynamics under global warming"

Oral reports

1. Dyukarev E.A., Pologova N.N., Golovatskaya E.A.

"Spatial structure and dynamics of forest-mire complexes at the key area "Vasuganie""

2. Tsolmon R., Krankina O.

"Monitoring of some environmental issues in North East Asia: dust storms and land cover change"

3. Bondarenko S. L., Loginov S. V., Smirnov S. V.

"Assessment of a meteorological influence on the growth bioproductivity in Siberian region using remote sensing data"

4. Spivak L.F., Terekhov A.G., Vitkovskaya I.S, Batyrbayeva M.Zh.

"Methods for monitoring of long-term changes of the vegetative cover of Kazakhstan on the basis of the satellite information"

17:00 -17:30 Discussion

17:30-18:00 Conference Closure