

# 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

11:00-11:30 Coffee break

##### 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 HO<sub>2</sub> radicals: current understanding and questions

13:00-14:30 Lunch

##### 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

15:45-16:15 Coffee break

### 16:15-18:00 Poster presentations

(IMCES Conference Hall)

#### Session 1.1.

##### 1. Dementeva A.L., Zhamsueva G.S., Zayahanov

##### A.S., Tsydyrov V.V., Ayurzhanov 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., Starovатов 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

**11:00-11:30** Coffee break

**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

**13:00-14:30** Lunch

**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

**16:30-17:00** Coffee break

##### **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., Shvaley 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

**11:00-11:30** Coffee break

**5. Kuzin V.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. Kostykin S.V.**

Choosing and implementation of the new advection scheme in the wave model WAM-4

**13:00-14:30** Lunch

**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

**16:30-17:00** Coffee break

**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 mesoscale 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., Shlyueva 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. Shlyueva 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

**11:00-11:30** Coffee break

#### **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., Ulte-Guerard P., Leroy M.**

Earth observation French space policy and its potential use in the SIRS project

**13:15-14:30** Lunch

## **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

### **16:15-16:45 Coffee break**

### **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)

### **20:00 Conference Dinner**

(Scientists House)

## **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)

**11:00-11:30** Coffee Break

**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

**13:00-14:00** Lunch

**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)