



Partnership conference «Geophysical observatories, multifunctional GIS and data mining»

Kaluga, Russia

30 September – 2 October 2013

Second Circular



kaluga2013.gcras.ru

Sponsors:



Information support:

Dear colleagues,

We invite you to take part in the international partnership conference “Geophysical observatories, multifunctional GIS and data mining”, which will be held on 30 September – 2 October, 2013 in the town of Kaluga, Russia. This conference is the next stage in the collaboration of the partner organizations in different countries, which develop projects in the various fields of geoinformatics.

Two years have passed since the first partnership international workshop “Artificial intelligence in the Earth’s magnetic field study. INTERMAGNET Russian Segment” took place in the town of Uglich, Russia, on 26–28 January, 2011. The workshop formed a basis of several important projects in the area of geomagnetic studies and related fields of geophysics and geoinformatics in Russia. As a prototype of new INTERMAGNET Geomagnetic Information Node, Russian-Ukrainian Geomagnetic Data Center was launched in 2012. Since 2010, three Russian magnetic stations were officially approved as INTERMAGNET observatories. New observatories are being actively deployed in Russia. A new full-scale magnetic observatory was established in Odessa region in the Ukraine. Success of Uglich workshop justified the enlargement of the scope for the partnership conference in Kaluga.

The conference in an ancient Russian town of Kaluga will unite leading scientists and data experts in geophysics, geoinformatics, environmental sciences, applied and advanced system analysis and artificial intelligence. Special emphasis will be placed on geomagnetic studies, systems of ground and space geomagnetic observations, including expected results of the SWARM satellite project (the launch is in October 2013). Other key topics of the conference are: intellectual geoinformation systems and technologies (IGIS), evolutionary mathematical methods, including evolutionary games theory and clustering, pattern recognition and mathematical methods of artificial intelligence. The conference will focus on the applications of these techniques to geophysical, geological, socio-economic and biomedical data and models.

One of the important objectives of the conference in Kaluga is to share knowledge, data and experience among the partner organizations from different countries, which collaborate in the above mentioned areas. Expansion of the magnetic observatory network within the territory of Russia and the Ukraine will help to establish corresponding segment of INTERMAGNET with a sufficiently uniform coverage. It will provide the world scientific community with data, required for more precise modeling of geomagnetic field and recognition of magnetic activity.

Among the main tasks of geoinformatics are development of geoinformation environment and methods of artificial intelligence for data mining data in GIS format. Their integration enables creating of multifunctional integrated geoinformation systems for various purposes.

Kaluga, Russia 30 September – 2 October 2013

The conference will also focus on the comprehensive discussions of the problems of integration of geoscientific, environmental, biomedical and socio-economic data within a complex multifunctional intellectual GIS, provided with a wide range of algorithms for object-orientated analysis (IGIS). Such IGIS is a sophisticated instrument for decision-making support in poverty mitigation, food and water problems, ecology improvement and world overpopulation. The above mentioned problems are the three key research themes of the International Institute for Applied Systems Analysis (IIASA). The partnership conference in Kaluga will also focus attention of partners on the opportunities of joint projects within IIASA's research programs.

PROGRAM COMMITTEE OF THE CONFERENCE

Chair:

Alexei Gvishiani, full member of Russian Academy of Sciences (RAS), Geophysical Center RAS, Chair of National Geophysical Committee RAS, Deputy Chair of Committee on System Analysis of RAS.

Co-chairs:

Arkadii Kryazhinskii, full member of RAS, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria / V.A. Steklov Mathematical Institute RAS, Deputy Chair of Committee on System Analysis of RAS.

Arnaud Chulliat, Institut de Physique du Globe de Paris (IPGP), France

Members of the committee:

- Sergey Anisimov, “Borok” Geophysical Observatory, Schmidt Institute of Physics of the Earth RAS
- Yuri Arskii, full member of RAS, All-Russian Institute of Scientific and Technical Information, RAS
- Mikhail Fedonkin, full member of RAS, Geological Institute of RAS
- Alexander Gliko, full member of RAS, Academician Secretary of Earth Sciences Division of RAS
- Vladimir Kuznetsov, Pushkov Institute of Terrestrial Magnetism, Ionosphere and Radiowave Propagation RAS
- Vladimir Lapshin, Fedorov Institute of Applied Geophysics, Roshydromet
- Leopold Lobkovskii, corresponding member of RAS, Shirshov Institute of Oceanology RAS
- Oleg Pokhotelov, Schmidt Institute of Physics of the Earth RAS
- Alexander Soloviev, corresponding member of RAS, Institute of Earthquake Prediction Theory and Mathematical Geophysics RAS
- Anatoly Soloviev, Geophysical Center RAS
- Vitaly Starostenko, full member of NAS Ukraine, Institute of Geophysics NAS Ukraine
- Yuri Sumaruk, Head of the network of geomagnetic observatories in Ukraine

Kaluga, Russia 30 September – 2 October 2013

- Laszlo Hegymegi, MinGeo, Hungary
- Claude Jaupart, Institut de Physique du Globe de Paris (IPGP), France
- Mikhail Kaban, Deutsches GeoForschungsZentrum (GFZ), Potsdam, Germany
- Pavel Kabat, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria
- Peter Lemke, Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research, Bremerhaven, Germany
- Jeffrey Love, United States Geological Survey (USGS), Golden, USA
- Alik Ismail-Zadeh, International Union of Geodesy and Geophysics (IUGG), Germany
- Linthe Hans-Joachim, Helmholtz Centre, Potsdam, Germany
- Jurgen Matzka, National Space Institute of Technical University of Denmark (DTU), Lyngby, Denmark
- Elena Rovenskaya, International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria
- Donald Saari, Institute for Mathematical Behavioral Sciences, UCI, Irvine, California, USA

CONFERENCE THEMES AND KEY-NOTE SPEAKERS

1. Geophysical observation systems and data mining.

Moderator of the panel discussion: Alik Ismail-Zadeh, secretary general, International Union of Geodesy and Geophysics (IUGG).



- Claude Jaupart “Main research activities of the Paris Institute of Physics of the Earth and the French global system of geophysical observatories”
- Vladimir Lapshin “Prospects of geophysical monitoring in Russia”
- Sergey Tikhotskiy “Academic geophysics demanded in oil and gas complex”
- Nikolay Shapiro “Imaging and monitoring the Earth's interior based on new passive seismic methods”
- Hans-Joachim Linthe “Challenges of the modernisation of Russian geomagnetic observatories - the GFZ Potsdam experiences”

Kaluga, Russia 30 September – 2 October 2013

2. The Earth magnetic field: Russian-Ukrainian INTERMAGNET segment and its analytic center in Moscow.

Moderator of the panel discussion: Alexei Gvishiani, director, Geophysical center RAS



- Anatoly Soloviev “Russian-Ukrainian center for geomagnetic data retrieval and exchange”
- Arnaud Chulliat “The French geomagnetic observation system”
- Carol Finn “Interrelationship between the Sun magnetic activity and the Earth magnetic field based on INTERMAGNET observatories”
- Xavier Lalanne “The new French repeat station network”

3. Geology, geophysics and geoinformatics of the Arctic region: multifunctional observatories and intellectual GIS.

Moderator of the panel discussion: Leonid Vaisberg, the Chairman of the Board of Directors and Scientific Advisor of Mekhanobr-Tekhnika Research and Engineering Company.



- Vasiliy Bogoyavlenskiy “Complex geological and geophysical survey of the Arctic region”
- Leopold Lobkovskii “Contemporary studies and problems of the Arctic Region: climate, resources, geopolitics”
- Renata Lukianova “Magnetic observations in the Arctic and the Antarctic region”
- Matvey Shparo “Travelling around Arctica: How it was”

4. Advanced system analysis, data mining and artificial intelligence in processing of time series of geomagnetic, geophysical, ecological, socio-economic and biomedical observations.

Moderator of the panel discussion: Pavel Kabat, director, “International Institute for Applied Systems Analysis”.



- Pavel Kabat “Three global problem areas of International Institute for Applied Systems Analysis (IIASA)”
- Arkadii Kryazhimskii “On system analysis models”

5. Multifunctional intellectual GIS for geophysical, ecological, socio-economic and biomedical research: evolutionary clustering and evolutionary game theory.

Moderator of the panel discussion: Arkadii Kryazhimskii, Deputy Chair of Committee on System Analysis of RAS.



- Alexey Lushnikov “Evolution models for geomedical statistics”
- Nadejda Komendantova “Generic Multi-Risk Model and Decision-Support Tool for Mitigation of Multiple Natural Hazards Process”

FORMAT OF THE CONFERENCE SESSIONS

Each thematic session will start by a moderated panel discussion of the principal speakers. Then principal speakers will deliver their talks and answer questions. The rest of the oral session and corresponding thematic poster session will be available for the talks submitted by the conference participants.

Working languages:

English will be used as the conference working language. Paper abstracts are also desirable in English, but can be submitted in Russian as well.

ORGANIZING COMMITTEE OF THE CONFERENCE**Chair:**

Alena Rybkina, Geophysical Center RAS, a.rybkina@gcras.ru

Co-chair:

Roman Krasnoperov, National Geophysical Committee RAS

Members:

Andrei Groudnev, Geophysical Center of RAS

Oleg Nikiforov, Geophysical Center of RAS

Olga Pyatygina, Geophysical Center of RAS

Anna Shibaeva, Committee on System Analysis RAS

Nina Titskaya, Geophysical Center of RAS

Anastasiya Odintsova, Geophysical Center of RAS

Sanja Drinkovic, IIASA

Conference fee:

The conference fee is **450** euro (early bird registration, bank transfer before 15.06.2013) or **500** euro (bank transfer after 15.06.2013 or payment in cash upon arrival).

The conference fee includes: transportation Moscow – Kaluga – Moscow, hotel accommodation at “Kwan” 4 hotel (www.kwan-park.ru) (double occupancy), meals (breakfast, lunch, coffee breaks), welcome reception, conference materials and participation in the scientific sessions.*

Single accommodation supplement (on-site) is 70 euro.

Conference fee for one day participation is 215 euro (hotel accommodation, meals in accordance with conference program, conference materials and participation in the scientific sessions)

Abstracts:

Abstracts in MSWord *.doc format should be sent to the e-mail address: conference2013@gcras.ru. Please, specify the preferable form of your presentation (oral or poster). Requirements for the abstracts are on the web-site: www.kaluga2013.gcras.ru. Final decision upon the form of your presentation will be taken by the program committee. It will be published at the conference web-site before 01.09.2013.

Important deadlines:

Early bird registration: before 15.06.2013

Deadline for the abstracts submission: 26.08.2013

Notification about the presentation forms: before 01.09.2013

Deadline for the conference registration: 15.09.2013

Please, register online at the conference website: www.kaluga2013.gcras.ru

For bank transfer for the Conference fee in EURO please use the following account

Supplier: <i>Geophysical center of RAS (GC RAS)</i>		
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Example of the payment document is on the site of the conference: www.kaluga2013.gcras.ru.

SEE YOU IN KALUGA!

Location of the conference: complex “Kwan”

Hotel "Kwan" is a unique in its kind architectural structure, located on the right bank of the Oka River in the 10-minute drive from the city center. In wintertime the main ski slope of the ski resort takes its beginning from the very roof of the hotel.

Address: Russia, Kaluga, Trampilnaya str., 1B

Website: www.kwan-park.ru



Please contact us on your participation

conference2013@gcras.ru

or visit our web site

www.kaluga2013.gcras.ru



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