Welcome to the Third International Summer School for Students and Young Scientists

“Natural and human environment of Arctic and Alpine areas: relief, soils, permafrost, glaciers, biota and lifestyle of native ethnic groups in a rapidly changing climate”

05-17 July 2015, Tomsk-Aktru (Russia)

Earth & environmental sciences – the view from the Highland Altai
The Third International Research-Educational Summer School “Natural environment of Arctic and Alpine areas: relief, soils, permafrost, glaciers and biota as indicators of climatic changes” will start in the cosy city of Tomsk. This famous cultural centre has been named “the Siberian Cambridge”. There will be 3 days for the field excursion to the High Altai (1200 km South from Tomsk). This will cross different landscape zones, such as south taiga, sub-taiga, forest-step, step, mountain taiga, mountain meadow, mountain tundra, glacial and periglacial area. Participants can observe different geographical provinces, such as West-Siberian Plain, Piedmont Altai, High North Altai, High Central Altai and High South-East Altai. All this will provide an opportunity to become acquainted with a great variety of landscapes, different types of relief and paleogeographical relics, well-expressed geological structures and evidences of earthquakes, amazing biodiversity in ecosystems, unique archaeological objects and the dynamic variety of nomadic populations.

The main part of the School (3 days) will be at the Aktru Research Station of the National Research Tomsk State University. The Station was founded by M.V. Tronov, the distinguished scientist and Professor of the Tomsk State University, who is a founder of the Siberian Glaciological Scientific School. There will be various field excursions as well as lectures at the Station and in its surroundings.

The two-day journey back to Tomsk will repeat trans-zonal excursions. Other interesting places will then be seen and elucidated in the lectures.

Location:

Tomsk is situated in Western Siberia at the very geographical centre of Eurasia: an ideal meeting place for analytical minds! Tomsk is on the Tom River in the southwest of Siberian Federal District, Russia, the administrative centre of Tomsk Oblast. One of the oldest towns in Siberia, Tomsk celebrated its 400th anniversary in 2004. There are many beautiful ancient wooden buildings there. With a population of half a million, Tomsk is a city of students: 100,000 students (every fifth citizen) in 6 universities. Neither Moscow nor St-Petersburg has such a large proportion of students and scientists as Tomsk (http://en.wikipedia.org/wiki/Tomsk).

Tomsk State University (TSU), which was established in 1878 by Tsar Alexander II as an Imperial Siberian University, is the first higher educational institution in the Asian part of Russia. Now it is one of the leading Russian National Research Universities (http://inter.tsu.ru/en/index.php).
Aktru Research Station which belongs to Tomsk State University is located in the highest alpine South-East part of the Altai Republic near the border with Mongolia, 2150 metres above sea level. The most striking geographical aspect of the Republic of Altai is its mountainous terrain. The Republic is situated within the Russian part of the Altai Mountains system, which covers a large part of the Republic and continues into neighboring Kazakhstan, Mongolia and China. The region continues to experience periodic notable seismic activity, which is visually made apparent through the mountains' characteristically high and rugged mountain ridges, separated by narrow and deep river valleys. The Republic's highest peak, Mount Belukha (4,506 m), is the highest point in Siberia. Since 2011 Aktru Research Station is observer member of INTERACT - International Network for Terrestrial Research and Monitoring in the Arctic (http://www.eu-interact.org/field-sites/stations-with-observer-status/aktru-scientific-research-station/).

How to get to Tomsk?

Moscow - Tomsk

There are 4 direct 4-hours flights from Moscow to Tomsk, by different Airlines: S7 and Transaero from Domodedovo airport, Utair from Vnukovo airport and Aeroflot from Sheremetyevo airport. There is also a direct train Moscow-Tomsk named “Tomich”, along the famous Trans-Siberian Railway. This takes 2 and a half days.

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<th>Air Company (Airport)</th>
<th>Moscow-Tomsk Flight number &amp; time (departure - arrival)</th>
<th>Tomsk-Moscow Flight number &amp; time (departure - arrival)</th>
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<tr>
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<td>811 (23:30 – 06:45)</td>
<td>812 (07:50 – 09:35)</td>
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<td>153 (22:20 – 05:30)</td>
<td>154 (07:25 – 09:00)</td>
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<td>439 (22:20 – 05:30)</td>
<td>449 (07:00 – 08:10)</td>
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<td>Aeroflot Terminal D</td>
<td>SU 1530 (22:40 – 05:45)</td>
<td>SU 1531 (06:55 – 08:20)</td>
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Novosibirsk - Tomsk

by plane – approximately 40 minutes (Tomk-avia Air Company, flight 5004, departure 17:00, arrival 17:45, 3 times a week – Monday, Wednesday, Friday)
by train - approximately 5 hours
by bus or by car - approximately 4 hours (300 km)

Both Moscow and Novosibirsk have regular international airline connections with a number of cities all over the world.

Who can participate?

We expect to receive about 30 international students and young scientists (age range: 18-35 years old).
Summer School fee

Summer School fee for 2015 is 650 Euro: field trip expenses, accommodation, carriage, campings, food and registration fee are included.

IMPORTANT! Personal outfit

Taking into account the high-mountain field conditions for the Summer School, personal sleeping-bags and tents as well as proper field clothing and shoes are desirable. If you have any problems in these respects, please let us know.

Publication of School Materials

Participants have to prepare presentation of their own investigations, survey paper or just essay in the framework of Summer School thematic.

The lectures/papers of distinguished scientists as well as papers of students and early career scientists will be published in the “Bio-Geo-Clim” Journal.

Contacts

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School coordinator

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Internet: http://biogeoclim.tsu.ru/ru/

Certificate

School graduates will obtain the Certificate from the National Research State University of Tomsk

Application form

Surname
Name
Second name
Date of birth
Name of organization (full name)
Student, master (select necessary)
For students of full-time tuition:
Course (select necessary): I, II, III, IV, V, VI
Specialty
For students of correspondence study
Specialty
For Ph.D candidate of full-time tuition
Course: 1, 2, 3
Specialty
For Ph.D candidate of correspondence study
Specialty
Contact telephone (with city code)
E-mail
Address (with postal index)
Young scientists
Young specialist
Young teacher
Scientific degree, position for advanced researchers

Contact telephone (with city code)
E-mail
Address: (with postal index)
Title of report (small letters)
Form of report: oral, stand (select necessary)
Form of participation: full-time, correspondence (select necessary)
Order hotel
Personal invitation

**Official invitation**

For the official invitation, we require the following data: scanned copy of passport, an official place of study/work and position, and also the postal address to which originals of invitations will be sent.

**Deadlines**

- **30 April 2015** Notification of acceptance of abstract for oral or poster presentation.
- **31 May 2015** Last day for submission of applications.

**Distinguished Visitors**

Terry V. Callaghan – Royal Swedish Academy of Sciences
Distinguished Professor; Professor of Arctic Ecology,
University of Sheffield, UK; Honorary Doctor of Tomsk State University, RF, Lund University, SE and Oulu University, FI; Head of the SCANNET/INTERACT Network. Terry Callaghan has worked on Arctic ecology for 45 years in all 8 Arctic countries as well as working in the Sub Antarctic. He played a fundamental role in establishing a British research base on high Arctic Svalbard and co-ordinated its first research programmes. His research focuses on the relationships between the Arctic environment and the ecology of Arctic plants, animals and ecosystem processes, including ecological responses to changes in climate, atmospheric CO₂ concentrations, and UV-B radiation. Terry Callaghan was a member of the United Nations Environment Programme’s expert panel on Stratospheric Ozone Depletion Effects for many years, and was a lead
author of the Intergovernmental Panel on Climate Change (IPCC 2007) Polar and Ecosystems Chapters as well as the Millennium Assessment of Ecosystems’ Polar Chapter. He made major contributions to the Arctic Climate Impacts Assessments ACIA and SWIPA including outreach in the media, and briefings at all levels from primary schools and families to politicians, religious leaders of the world, Governments and Royalty. During this process, he was formally commended by Arctic Indigenous Peoples’ organisations for including their knowledge and addressing their concerns. He has initiated and chaired many international research groups within the International Arctic Science Committee (IASC) such as FATE (Feedbacks from Arctic Terrestrial Ecosystems), Dynamics of the Tundra Taiga Interface and the International Conferences on Arctic Research Planning (ICARP I and II), and is co-ordinator of SCANNET-INTERACT that includes 44 research stations throughout the Arctic. Terry Callaghan has supervised about 30 PhD students and has produced about 400 scientific publications with over 400 colleagues from about 40 countries. He is included in the web of sciences’ list of “most frequently cited researchers” world-wide. In 2006 he was included in the group award of the Zayed International Prize for the Environment to the authors of the Millennium Ecosystem Assessment and in 2007 he was included in the group award of the Nobel Peace Prize as one of the Lead Authors of the IPCC that was jointly awarded the prize with Al Gore. Also in 2007, he hosted and addressed 27 Ministers of Environment and 50 Ambassadors from around the world and in 2009 hosted Climate Negotiators from the EU countries prior to the 2009 climate meeting in Copenhagen. He was awarded the Vega Medal by the King of Sweden in 2011 and will be awarded the Polar Medal by the Queen of England in 2013.

Vladimir Romanovsky – Professor, Permafrost Laboratory, Geophysical Institute, University of Alaska Fairbanks. Professor Romanovsky is an internationally renowned permafrost researcher who has greatly strengthened this research field. He has been actively building up the network of observation stations for permafrost studies in Alaska and in the circumpacific north. These observation networks are instrumental in collecting baseline data on permafrost and will lay the foundation for further research by other scientists in collaboration with Dr. Romanovsky (Nicslsky et al, 2009; Groisman et al, 2009; O’Donnel et al, 2009; Walker et al, 2009; Panda et al, 2010; Shiklomanov et al, 2010; Jones et al, 2013). One reason for the success and broader impact of Professor Romanovsky’s work is the interdisciplinary approach to permafrost research that he is promoting. His research collaborators come from several fields such as biology, soil science, hydrology, biogeochemistry, marine science, climatology, atmospheric science, and remote sensing. Professor Romanovsky maintains a strong externally funded research program where he is currently a PI on four funded projects and Co-PI on another 9 funded projects. Professor Romanovsky’s strength is also in numerical modeling. Results from field data integrated with such modeling have provided predictions of the thermal state of the permafrost. Since 2009, Professor Romanovsky has authored or co-authored nearly 60 peer reviewed scientific papers. Dr. Romanovsky has extensive experience in coordinating joint projects with Russia. He and his students have worked a lot in the Siberian Arctic. Recently, Dr. Romanovsky is a visiting professor and associate Ecology Department of the Research Institute of Biology and Biophysics, National Research Tomsk State University. As a result Dr Romanovsky’s research there is a larger body of knowledge on permafrost and a better understanding of this phenomenon in the context of the Arctic System.

Vladimir Golovanevskiy – A/Professor, Mining Engineering and Metallurgical Engineering, Curtin University, Australia. A/Professor Vladimir Golovanevskiy holds a PhD in Materials Technology/Thermophysics from the Ukraine Academy of Sciences and Masters (Machine Design) and BEng (Mechanical) degrees from Kharkiv Polytechnic University, Ukraine. He has over 30 years experience in fundamental and applied research, teaching, industry, management and consultancy activities. A/Professor Golovanevskiy worked in a variety of roles in Australia, Russia, Ukraine and Germany in a range of industries from heavy engineering for underground mining to International Space Program to composite materials structures to artificial gems manufacture to cryogenics. He has published over 30 papers in international scientific journals and conference proceedings, written over a 100 confidential reports on materials-related
matters for various Australian and overseas industry groups, and authored international patents in diverse fields including composite materials manufacturing processes, thermophysics, and ore sorting technologies. A/professor Golovanevskiy has global professional networks, with research interests in advanced materials, engineering design, strong magnetic fields and wear management. He is actively engaged in building long-term, sustainable collaborative relationships with industry and research partners nationally and internationally.

Clowacki Piotr – Head of the Polar and Marine Department, Institute of Geophysics, Polish Academy of Sciences, Warsaw. Member of the Committee of Polar Research, Polish Academy of Sciences – since 1990 and Deputy of Chair of this Committee – since 2012.


Riku Paavola – Dr., station manager of Oulanka research station, Thule institute, University of Oulu, Finland. Dr. Paavola is an internationally known researcher in freshwater ecology, specializing in boreal running waters and the community ecology of benthic macroinvertebrates. He has also worked on the ecology of stream fish, algae and bryophytes. He holds a PhD degree in Limnology and Hydrology from the University of Jyväskylä, Finland and an MSc degree in Animal Ecology from University of Oulu, Finland. He has 20 years of experience in freshwater research, teaching and in conducting field studies in areas that range from Fennoscandia to Canada, New Zealand and NW Russia. He is also an active member of the EU FP7 arctic and subarctic research infrastructure project INTERACT. Recently he has also concentrated in developing climate change research related infrastructure at Oulanka research station, developing automated water quality measurement systems for year-around operation in subarctic lake conditions and on projects combining photography and science to visualize northern environmental changes for purposes of outreach and popularization of science.
Preliminary Program:

05 July 2015 (Sunday)

05.30 – 10.00 Arrival and settling
13.00 – 13.50 Lunch
14.00 – 18.30 Free time
19.00 – 21.00 Arrival dinner

6 July 2015 (Monday)

09.00 – 10.00 Registration (Conference-hall, TSU Scientific Library)
10.00 – 12.30 Plenary session of School (Conference-hall, TSU Scientific Library)
13.00 – 13.50 Lunch at cafe «Minutka» (TSU main building, 36 Lenina Pr.)
14.00 – 18.30 Excursion to TSU (Botanical Garden, Museum of Mineralogy, Museum of Paleontology, Herbarium, Zoo museum, Museum of Archeology and Ethnography)
Excursion around Tomsk by car accompanied by the guide, interpreter - Nina K. Rozhanovskaya
19.00 – 21.00 Dinner

07 July 2015 (Tuesday)

08.00 – all day. Departure from Tomsk. Bus excursion to Barnaul-city (400 km from Tomsk). Stay, excursion and overnight stop in South-Siberian Botanical Garden at Altai State University, Barnaul.

08 July 2015 (Wednesday)

08.00 – all day. Departure from Barnaul. Bus excursion to the bank of Katun-river near of Gornyi-Altaisk city (450 km from Barnaul). Stay, excursions and overnight stop in tent camping at the bank of Katun-river.

09 July 2015 (Thursday)

08.00 – all day. Departure from the Katun tent camping. Bus excursion to the Yaloman village in Central Altai (260 km from the Katun tent camping). Stay, excursions and overnight stop in Yaloman tent camping.
10 July 2015 (Friday)

08.00 – all day. Stay, excursions and overnight stop in Yaloman tent camping.

11 July 2015 (Sunday)

08.00 – all day. Departure from the Yaloman tent camping. Bus excursion to the tent camping in Kurai intermountain step basin (200 km from the Yaloman tent camping). Stay, excursions and overnight stop in Kurai tent camping.

12 July 2015 (Monday)

Rising to Aktru Research Station using special off-highway vehicle. Settling in and familiarization with Station.

13 July – 14 July (Tuesday - Wednesday)

Lectures of TSU and invited lecturers, field excursions in Aktru Research Station Campus.
**15 July – 16 July (Thursday – Friday)**

Way back to Tomsk with excursions and stops in interesting places.

**17-20 July**

Departure from Tomsk.

**IMPORTANT! Possible alterations**

Taking into account weather conditions some changes could be made in the field-excursion Program.
Summer School Web-site

will be open on 15 January

Films about First and Second Aktru Summer Schools:

http://www.youtube.com/watch?v=CQ1u4P-S2tE
http://www.youtube.com/watch?v=CD7e9k8iiNg