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

“Natural environment of Arctic and Alpine areas: relief, soils, permafrost, glaciers and biota as indicators of climatic changes”

04-19 July 2011, Tomsk-Aktru (Russia)

Earth & environmental sciences – the view from the High Altai
The First 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 (6 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://www.tsu.ru/).
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.

How to get to Tomsk?

Moscow - Tomsk

There are 3 direct 4-hours flights from Moscow to Tomsk, by different Airlines: S7 and Transaero from Domodedovo airport, Utair from Vnukovo 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>
<td>S7 (Domodedovo)</td>
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<td>Transaero (Domodedovo)</td>
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<td>Utair (Vnukovo)</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).

Late registration fee

A large number of applications have arrived recently. This means that we cannot continue to give free registration, because each new applicant adds costs to our administration. These costs were not anticipated. There will now be a late registration fee of Euros 950. Please note that we are still able to arrange extra transfer, extra settling in, and extra food. Participants are assured that there will be accommodation and transport for everyone.
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

The lectures and some papers of students and young scientists will be published in the “TSU proceedings”.

Contacts

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School coordinator

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Certificate

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

Application form

1. Forename, Surname
2. Date of birth
3. Passport data: number, validity
4. Place of study/work, position
5. Contacts: E-mail, phone
6. Research interests
7. Abstract/poster title (desirable but not necessary)
8. Other data, questions and requests (at the wish of the applicant)

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 2011 Notification of acceptance of abstract for oral or poster presentation.
- 31 May 2011 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; Head of the SCANNET/INTERACT Network. Terry Callaghan has worked on Arctic ecology for 43 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 Assessment (ACIA) 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 (Scandinavian and north European Network of Terrestrial Field Bases) that includes 33 research stations throughout the Arctic. Terry Callaghan has supervised about 30 PhD students and has produced about 350 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 is currently involved in an Arctic Council-initiated assessment of the Arctic’s cryosphere (SWIPA) and has just led the SCANNET network in a bid to the EU for funding to increase access for researchers to the Arctic and to increase environmental monitoring activities. He will lead this 7.3 million Euros international project (INTERACT) for the next 4 years.

Alan Gillespie – Professor, Geological Sciences, University of Washington, 518 Condon. Alan Gillespie is a Quaternary geologist and directs the Remote Sensing Laboratory. His research interests are in glacial geology, geochronology, and landscape evolution, on Earth and Mars. His interest in remote sensing is in both its theory and application to these problems. Gillespie is currently funded by NASA and the Department of Energy. Gillespie has been investigating asynchrony in glacier advances across Central Asia since 1991, research that led to the recognition that this area consists of three or more climatic regions. The last maximum advances in the Kyrgyz Tien Shan and farther east in the same range differed by tens of thousands of years. This intricate granularity is not yet explained fully. Gillespie is also investigating the origin of the giant canyons of the Valles Marineris system on Mars, working with John Adams, Dave Montgomery and others to suggest that geothermal dewatering of hydrous salts distributed throughout the 10-km-deep regolith of the Martian highlands resulted in the removal of material through faults and aquifers on a gigantic scale. The canyons are, essentially, collapse features in a salt karst terrain. Gillespie is also working on hyperspectral thermal infrared remote sensing, using thermal radiation emitted from the land surface to determine mineral composition. He has served as the Chair or Co-Chair for 16 graduate students, and served on the thesis committee for 33 others. He has authored or co-authored 4 books and 185 articles (59 as 1st author). Since 2000 he has been Sr. Editor for the journal Quaternary Research.

Vladimir Golovanevskiy – Professor, Director - Rio Tinto Centre for Materials and Sensing in Mining (RTCMSM), Curtin University of
Technology, Australia, CRICOS Provider Code 00301J

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 25 years experience in fundamental and applied research, teaching, industry, management and consultancy activities. Vladimir 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 and has written over a 100 confidential reports on materials-related matters for various Australian and overseas industry groups. Vladimir has wide professional networks both nationally and globally, 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 to deliver step-change technology benefits to Rio Tinto.

Michael Brett-Crowther – Dr., Editor of the International Journal of Environmental Studies, with which he has been associated for 37 years. Concerned with relations among the six primary problems - food, energy, population, mass poverty, military expenditure, world monetary system. Has lectured in numerous universities and done research at Salford, Newcastle upon Tyne, and Imperial College (London). First Associate of Humboldt State University, California. Now lives in semi-retirement in Midi-Pyrenees, France. Has a long-standing concern with the history and culture of India, and has focused on Indian problems and potential solutions; e.g., December 2007 special issue on energy alternatives in India. ‘Discussed’ Professor Sergey Kirpotin’s work in Jonathan Dimbleby’s BBC series on Russia, and brought its significance into prominence by the August 2009 special issue on Western Siberia.

Jürgen Herget – Prof. Dr., Juergen Herget is Professor of Physical Geography at the Department of Geography, University of Bonn, Germany, and specialist in geomorphology and palaeohydrology. He is working in and on the Altai Mountains since 1999, focusing on the formation, dynamics and decay of naturally dammed lakes. In cooperation with scientists from Tomsk State University, he investigated the high magnitude Pleistocene glacial lake outburst floods from the ice-dammed lake in upper Chuja River valley considering the palaeohydraulic interpretation of flood-related features and structures. Recently, another international project located in the upper headwaters started on recent lake formation considering the influence of the decay of mountain permafrost. In the international scientific network, he is active as secretary of the focus area of Hydrological Change and Climate (InQua) and as executive member of the Fluvial Archives Group (FLAG).

Dr Dennis Black – Dennis Black lectures in ecology and animal diversity at the Albury-Wodonga campus of La Trobe University in Victoria, Australia. His previous research interests include lizard brain morphology and ecology, the systematics of sipnonotid millipedes and studies on the effects of fire and cattle grazing on alpine invertebrate communities. Before working at La Trobe he curated zoological collections at Monash University in Melbourne and at the University of Papua New Guinea, where he also trained local technicians in collecting and museum curatorial techniques. His research interests have taken him to all corners of Australia, and he participated in a La Trobe zoological expedition to Anak Krakatau and on several expeditions to remote Queensland localities sponsored by the Royal Geographical Society of Queensland. He holds a Masters degree in zoology from Monash University and a PhD in systematic entomology from the University of California Davis campus. Current research interests involve continuing taxonomic studies of Australian millipedes and investigations of factors attracting Bogong moths in massive numbers to alpine resort buildings (thereby disrupting the food webs of the wider regions). Honours and PhD students have worked on projects ranging from the ecology of endangered reptiles to effects of disturbances on ant community composition. Dr Black is recognised for his extensive knowledge of Australian Natural History and has an unusually broad range of experiences in field biology, especially insect survey techniques, with specialist expertise and skills relating to collection and extraction of leaf litter and soil invertebrates.
Preliminary Program:

04 July 2011 (Monday)

05.30 – 10.00 Arrival and settling
11.30 – 12.30 Registration (room 308, TSU main building, 36 Lenina Pr.)
13.00 – 13.50 Lunch at cafe «Minutka» (TSU main building, 36 Lenina Pr.)
14.00 – 17.30 Excursion to TSU (Botanical Garden, Museum of Mineralogy, Museum of Paleontology, Herbarium, Zoo museum, Museum of Archeology and Ethnography)
19.00 – 21.00 Arrival dinner

05 July 2011 (Tuesday)

10.00 – 12.30 Excursion around Tomsk by car accompanied by the guide, interpreter - Nina K. Rozhanovskaya
13.00 – 13.50 Lunch at cafe «Minutka» (TSU main building, 36 Lenina Pr.)
14.00 – 18.30 Plenary session of School (Conference-hall, TSU main building, 36 Lenina Pr.)

06 July 2011 (Wednesday)

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.

07 July 2011 (Thursday)

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.

08 July 2011 (Friday)

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.
9 July 2011 (Saturday)

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

10 July 2011 (Sunday)

08.00 – all day. Departure from the Chgan-Uzun tent camping. Rising to Aktru Research Station using special off-highway vehicle. Settling in and familiarization with Station.
11 July – 16 July (Monday - Saturday)

Lectures of TSU and invited lecturers, field excursions in Aktru Research Station Campus.

17 July – 18 July (Sunday – Monday)

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

19 July (Tuesday)

Departure from Tomsk.
IMPORTANT! Possible alterations

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