

WELCOME

to the Sixth International
Summer School for Students
and Young Scientists

Natural and Human
Environment of Arctic
and Alpine Areas:
Relief, Soils, Permafrost,
Glaciers, Biota, and Life
Style of Native Ethnic
Groups in a Rapidly
Changing Climate

July 10-19
2019

AKTRU
INTERNATIONAL
SUMMER SCHOOL





GENERAL INFORMATION

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The main goal of International Summer School Programme is to study a unique natural region Gornyi Altai, lifestyles of native ethnics groups and their adaptations to the rapidly changing climate.

The objectives of this Programme are:

- ◆ to analyze the better practices of complex interdisciplinary and transdisciplinary researches in Life Sciences, Earth Sciences and in social anthropology;
- ◆ to learn about natural objects, processes and interactions between man and landscapes;
- ◆ to improve field research skills and to develop complementary skills, such as group work and partnership.

The School offers its students the most up-to-date scientific background to environmental sciences and sustainability which will shape our future.

Together with several eminent researchers in various fields and from different countries, the young researchers and students explore the major ecoregion of the Altai Republic (Russia, South Siberia). All the participants get the opportunity to see The Golden Mountains of Altai – a UNESCO World Heritage Site – with their own eyes.

The group travels by bus along Chuiskiy Trakt (Highroad), which goes through the Altai Republic, and it is in the list of 10 most beautiful roads of the world, according to National Geographic. On our way, we see a wide range of amazing landscapes, from mixed deciduous birch and dark-coniferous forests on the foothills and humid low-mountains of the Altai, to the semi-arid steppe and semi-desert of the Kurai intermountain depression in the heart of the Altai. Then the group boards all-wheel-drive ex-military vehicles and climbs through the mountain coniferous forests to Aktru station which is located at the upper altitudinal tree-line, at about

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2200 m above sea level. Within a short walking distance, the group goes up almost 1000 more meters to be able to access alpine meadows and high-mountain tundra, and finally, glaciers and the nival environment. There are few places on Earth where it is possible to go through such diverse environmental space within a short time and with such ease. The participants also travel in time: from fascinating lectures and field trips which explain the formation of the landscape following a mega-flood some 25,000 years ago

to compelling evidence of climate change in action at a location where a dynamic tree-line is above glacier snouts and glacial retreat has been recorded for about 100 years, and intensively for about 50 years. In the vicinity, there is also an impressive area where a large palsa plateau (a peatland with permafrost in the peat deposit) was rapidly degrading into an original landscape complex of thermokarst lakes and mire while trees were establishing in small thaw depressions.

The scale of the various phenomena is enormous: the expanses of the taiga forest are vast; the palsa plateau is an analogue of what Fennoscandian palsa plateaus might have looked like at the beginning of the Holocene. The mountains rose from the semi-arid steppes to around 2500 m into a climate regime that supported glacier formation; and the after-effects of the mega-floods such as diluvial terraces (giant bars) and giant ripples on the steppes were of staggering proportions.

Furthermore, the diversity of Altai and Aktru ecosystems is impressive. The centre of plant species evolution of the Northern Asia and biodiversity hot-spot are situated here as the region is a host to many endemic species, some of which are threatened by extinction.

Geographical sections of the International Summer School Aktru 2019 are dedicated to the memory of world-known physical geographer, geomorphologist and glaciologist Alexei Rudoy who was a regular key speaker and guide of past schools and suddenly died on November 2018

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DISTINGUISHED GUESTS

Dr. Terry Callaghan, CMG

Professor, D.Sc.; Distinguished Research Professor, Royal Swedish Academy of Sciences, Sweden; Professor of Arctic Ecology, University of Sheffield, UK; INTERACT founder and coordinator; Professor of Botany, Tomsk State University, Russia; Polar Medal, UK; Vega Medal, Sweden; Joint recipient of Nobel Peace Prize 2007



Dr. Sergey N. Kirpotin

Professor, Director of Bio-Clim-Land (Biota Climate Landscapes) Center of Excellence Tomsk State University, Russia; Arctic Award 2018

Dr. Kirill V. Chistyakov

Professor, Director of the Institute of Earth Sciences, St. Petersburg State University, Russia; Vice-President of Russian Geographical Society



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Dr. Olga N. Solomina

Corresponding Member of Russian Academy of Sciences, Director of Institute of Geography, Russian Academy of Science, Russia, Moscow; Joint recipient of Nobel Peace Prize 2007



Dr. Piotr Clowacki

Dr habil., Associate Professor, Institute of Geophysics, Polish Academy of Sciences; Silver Cross of Merit, Poland

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PROGRAMME CONTENT

◆ Geology and Geomorphology

SCIENTIFIC COORDINATORS

David William Hedding – PhD, Associate professor, Department of Geography, University of South Africa, South Africa

Oleg M. Grinev – PhD, Associate Professor, Faculty of Geology and Geography, Tomsk State University, Russia

◆ Glaciology, Geocryology, Hydrology and Water Resources

SCIENTIFIC COORDINATORS

Piotr Clowacki – Dr. hab., Associate Professor, Head of the Polar and Marine Department, Institute of Geophysics, Polish Academy of Sciences, Poland

Valerii A. Zemtsov – Doctor, Professor, Head of Hydrology Department, Faculty of Geology and Geography, Tomsk State University, Russia

◆ Ecology of Biosystems, Biogeography and Biodiversity

SCIENTIFIC COORDINATORS

Sergey N. Kirpotin – Doctor, Professor, Director of Bio-Clim-Land Centre of Excellence, Tomsk State University, Russia

Andrey S. Babenko – Doctor, Professor, Agricultural Biology Department, Tomsk State University, Russia

◆ Anthropology and ethnology

SCIENTIFIC COORDINATORS

Lidia Ya. Rakhmanova – PhD, senior researcher, Ecosystems and Climate Changes Study Laboratory, Tomsk State University, Russia

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Field excursions

1. Aktru Research Station of TSU (2150 m above the sea level) – **Small Aktru glacier and waterfall** (2235 m above sea level) – Aktru Research Station of TSU (total time of the tour is 4 hours).
2. Aktru Research Station of TSU (2150 m above the sea level) – **Big Aktru glacier** (2455 m above the sea level) – Aktru Research Station of TSU (total time of the tour is 6 hours).
3. Aktru Research Station of TSU (2150 m above the sea level) – **taiga forest (and the tree line), the slope near Uchitel (Teacher) station** (2150 m above the sea level) – Aktru Research Station of TSU (total time of the tour is 4 hours).
4. Aktru Research Station of TSU (2150 m above the sea level) – **Big Aktru glacier – Blue lake** (2840 m above the sea level) – Aktru Research Station of TSU (total time of the tour is 7 hours).
5. Aktru Research Station of TSU (2150 m above the sea level) – **primary successions in the deglaciation areas, Small Aktru glacier** (2235 m above the sea level) – Aktru Research Station of TSU (total time of the tour is 4 hours).

+ Students' presentations.

+ Research work in Aktru Research Station Campus

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PRELIMINARY PROGRAMME

JULY 10
Wednesday

08:50	Arrival of the Aktru Summer School participants to the airport of Gorno-Altaysk. Transportation by bus to the touristic camp (Manzherok settlement). Travel distance is 26 km
10:00–11:00	Breakfast
11:00–13:00	Accommodation and registration
13:00–14:00	Lunch
14:00–18:00	Summer School launch
18:00–20:00	Dinner. Arrival party

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JULY 11
Thursday

07:00–08:00	Breakfast
08:00	Departure of the Summer School participants from the touristic camp (Manzherok settlement) to Kochevnik touristic camp (Chibit settlement), travel distance is 312 km with excursions along the way. "Chuiskiy Trakt is the most scientifically prominent road on the planet" (National Geographic). Lunch is on the way
20:00	Arrival and accommodation in Kochevnik touristic camp
20:30–21:30	Dinner
21:00–23:30	Banya time (Russian sauna)



JULY 12
Friday

07:00–08:00	Breakfast
08:00–09:00	Departure from Kochevnik touristic camp. Arrival to Kurai settlement. Travel distance 43 km
09:00–12:00	Transshipment to special cross-country vehicles. The rise to Aktru Research Station
12:00–13:00	Accommodation and familiarisation with the Station
14:00–15:00	Lunch
15:00–18:00	Acquaintance with the station. Lecture on safety
18:00–19:00	Dinner
19:00–20:00	Lectures
20:00–22:00	Banya time



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JULY 13
Saturday

08:00–09:00	Breakfast
09:00–13:00	Excursion to Small Aktru glacier and waterfall. Open-air discussion
13:00–14:00	Lunch
14:00–18:00	Lectures
18:00–19:00	Dinner
19:00–20:00	Students' presentations
20:00–22:00	Banya time
22:00–00:00	Arrival Party



All events
at the station
depend
on weather
conditions

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JULY 14
Sunday

08:00–09:00	Breakfast
09:00–15:00	Excursion to Big Aktru glacier and field data collection on the retreatment of the glacier. Lunch near the glacier and open-air discussion. Second part of field data collection on the glacier and way back to Aktru station
16:00–18:00	Lectures
18:00–19:00	Dinner
19:00–20:00	Students' presentations
20:00–22:00	Banya time



JULY 15
Monday

08:00–09:00	Breakfast
09:00–17:00	Long field excursion to Big Aktru glacier and Blue lake. Lunch in the field
18:00–19:00	Dinner
19:00–20:00	Students' presentations
20:00–22:00	Banya time

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JULY 16
Tuesday

08:00–09:00	Breakfast
09:00–13:00	Excursion to Small Aktru glacier and field data collection on ecological succession on the retreatment of the glacier
13:00–14:00	Lunch
14:00–18:00	Lectures
18:00–19:00	Dinner
19:00–20:00	Students' presentations
20:00–22:00	Banya time



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JULY 17
Wednesday

08:00–09:00	Breakfast
09:00–13:00	Excursion to the tree-line on Uchitel (Teacher) slope. Biodiversity overview
13:00–14:00	Lunch
14:00–18:00	Students' presentations
18:00–19:00	Dinner
19:00–20:00	Students' presentations
20:00–22:00	Banya time
22:00–00:00	Concert. Certificate award ceremony

JULY 18
Thursday

08:00–09:00	Breakfast
09:00–20:00	Departure from Aktru Research Station to the touristic camp with excursions and stops in interesting places. Travel distance is 421 km. Lunch is on the way
20:00–21:00	Arrival and dinner in touristic hostel (Manzherok settlement)
21:00	Accommodation

JULY 19
Friday

Morning

Departure from Manzherok touristic camp to the airport of Gorno-Altaysk

The detailed programme of the Summer School will be available in March 2019

All events at the station depend on weather conditions

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INTERNATIONAL RESEARCH SUMMER SCHOOL 2019



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Who can participate?

We expect international students and young scientists age ranges from 18 to 35 years old

Registration fee

(includes field trip expenses, accommodation, carriage, camping, and food)

For participants from abroad **1000 USD**

IMPORTANT!

Personal outfit

Taking into account the high-mountain field conditions of the Summer School, it is desirable for all participants to have personal sleeping bags and tents, as well as proper field clothing and shoes. Please let us know if you have any problems with the above.

Certificate

School graduates will obtain the one of National Research Tomsk State University

Deadline

- ◆ **May 31, 2019.** The last day for submission of applications
- ◆ **June 30, 2019.** The last day for the submission of oral or poster presentation

Contact School Managers in order to register:

Olga Shaduyko

e-mail: dolcezzamia@mail.ru

Tatyana Kolesnikova

e-mail: kirpota@inbox.ru

mob.: +7 913 104 2522

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JOIN US!

School Director

Lyudmila P. Borilo
Doctor, Professor,
Director of TSSW Centre,
Tomsk State University

School Scientific Coordinator

Sergey N. Kirpotin
Doctor, Professor,
Director of Bio-Clim-Land
Centre of Excellence,
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Success story

Interview with Terry Callaghan
[www.youtube.com/
watch?v=5f5KSlEbsI](http://www.youtube.com/watch?v=5f5KSlEbsI)

Aktru Summer School 2013
[www.youtube.com/
watch?v=CQ1u4P-S2tE](http://www.youtube.com/watch?v=CQ1u4P-S2tE)



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