



**MONITORING AND EARLY WARNINGS
IN MOUNTAIN SOCIAL-ECOLOGICAL SYSTEMS**
Krasnoyarsk – Gorno-Altai, Russian Federation
15th – 29th July, 2018



Outline

01. Organizers
02. List of participants
03. School objective
04. School description
05. Results



01. Organizers

The School was coorganized by Gorno-Altai State University and Siberian Federal University in cooperation with Russian and international partners.

02. School participants

Totally the School gathered 47 participants from Russia, India and EU countries.

SUNRAISE project partners

- *Russian State Hydrometeorological University, Russia*

Korobchenkova Ksenia
Skorik Yana
Bubnova Olga
Alexeev Denis
Eduard Podgaiskii
Ershova Alexandra

- *Siberian Federal University, Russia*

Rubleva Marina
Pribura Anastasia
Sporykhina Tatiana
Kondrasheva Yulia
Polatarina Tatiana
Tarasova Albina
Blednova Anna
Gette Irina
Rodionova Alexandra
Shashkova Tatiana
Garmash Anastasia
Pakharkova Nina
Sorokina Galina
Viktar Kireyeu
Bezkorovainaia Irina
Zlotnikova Olesya





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- Panko Yulia
- *Gorno-Altai State University, Russia*
Erzhanova Nurgul
Lenskii Artem
Koroteev Ivan
Kolesnikov Ivan
Dvoretiskii Rotsislav
Kireeva Daria
Iurkova Natalia
Zhuravleva Olga
Klimova Oxana
 - *Jawaharlal Nehru University, India*
Kumar Praveen
Mangalasseril Mohammad Anees
 - *Salzburg University, Austria*
Schmid Astrid
Proell Petra
Anderl Tobias Julian
 - *Estonian Life Science University, Estonia*
Valdo Kuusemets
Kadri Kask
Kristel Kirsimäe
Jaak Kliimask
 - *NGO Altai-Sayan Mountain Partnership, Russia*
Tatiana Yashina
 - *Erda Research Technology Education, The Netherlands*
Anton Shkaruba



Participants from other institutions

- *Moscow State University, Russia*
Leonova Glafira
- *Pskov State University, Russia*
Olga Likhacheva
- *Polytechnic Institute of Santarem, Portugal*
Rodrigues Silva Samartinho João Paulo
Martins Jacob Maria do Ceu

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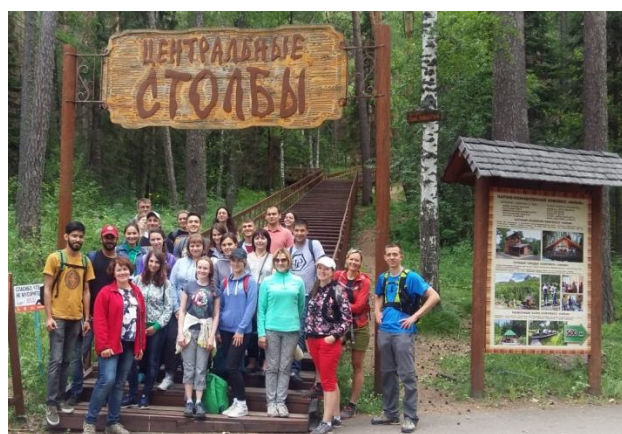
03. School objective

The School was designed as an “action school” aimed at the study and solution of real life problems. That is why its program included not only theoretical material, but also practical course in research methodology and group work on various multidisciplinary projects. The discussions were primarily based on the EU experience that was analyzed for its applicability in socio-economic, political, and biophysical contexts of the Altai Republic.



04. School description

The School started in Krasnoyarsk, where the participants had some introductory lectures followed by a research excursion and a wrap-up seminar in Stolby Nature Reserve.



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Then, the group moved to the Altai Republic, where the main school activities were held. In the tour camp Manzherok, the school's primary location, European and Russian faculty delivered lectures on key school themes.



In order to facilitate the choice of case study projects, GASU faculty introduced the case study areas and told the students about the socio-economic and ecological problems typical for the Altai Republic as a mountain region.



At the next stage, the participants were divided into three groups in accordance with the location of their case studies: the Lake Teletskoye Group, the Katunskiy Reserve Group, and the Manzherok Group.





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Much attention was also paid to the work with local stakeholders. For example, the Lake Teletskoye Group met with the Head of Artybash Rural Settlement Aleksey Kirshin and members of the local Ecological club. The Katunskiy Reserve Group visited office of the Reserve and the Administration of Ust’Koksa District (administrative subdivision). The Manzherok Group worked closely with the director general of LLC “Solar Energy” Andrey Yalbakov, specialists of the solar power station in Maima, and personnel of Gorno-Altai airport weather station.



Meeting with the
Head of Artybash Rural Settlement A. Kirshin



A. Ershova (RSHU) delivered a lecture “Marine Litter” and told the children from the Ecological Club of Lake Teletskoye about plastic waste and micro-plastics in the oceans.



Lecture of A. Yalbakov



Visit to the Solar power station in Maima

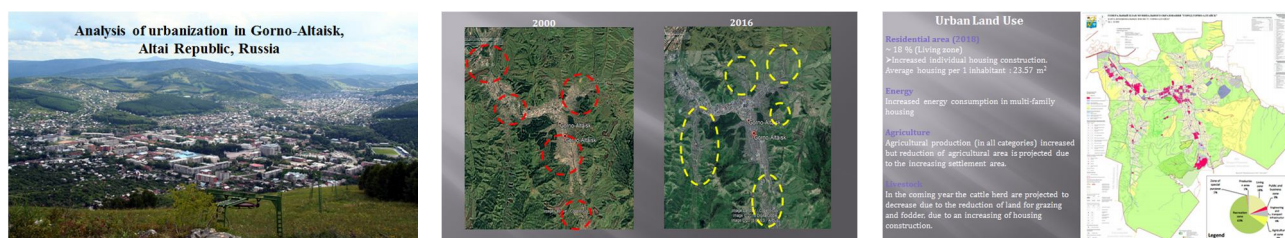
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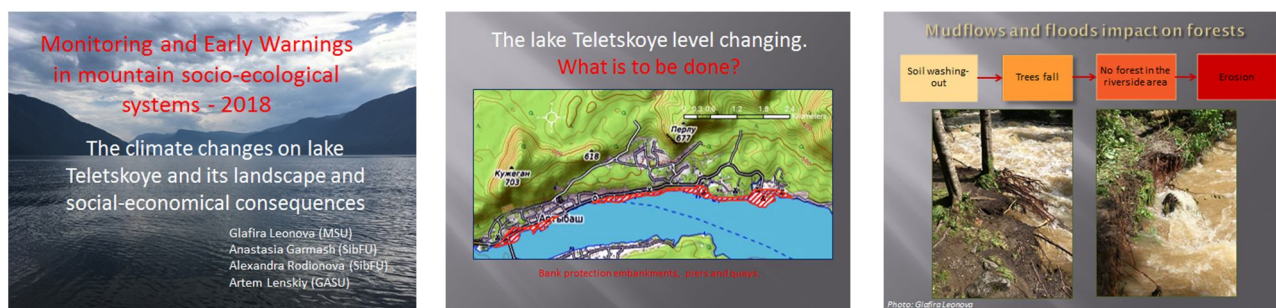
05. Results

After the practical part of the School, all the participants came back to the tour camp Manzherok to present their findings. Finally we got 7 very interesting projects.

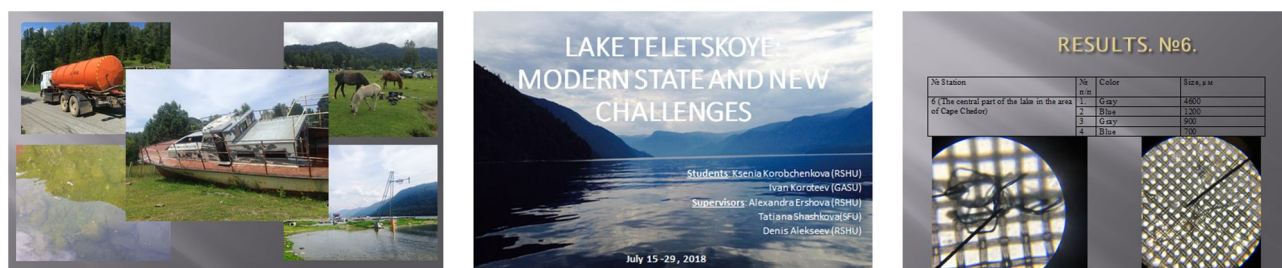
1. Analysis of Urbanization in Gorno-Altai, Altai Republic, Russia



2. The Climate Changes on Lake Teletskoye and Its Landscape and Socio-Economic Consequences



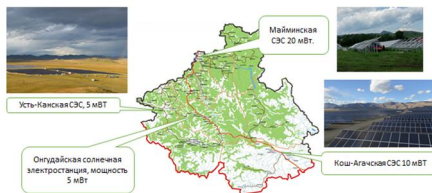
3. Lake Teletskoye: Modern State and New Challenges



4. Problems and Prospects of Tourism Development in Arybash Rural Settlement

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5. Alternative Energy Development in High Mountainous Areas



6. Impacts of Eco-Tourism on Katunskiy Biosphere Reserve

Positives of Eco-tourism

- Economic**
 - Direct revenue from ecotourists
 - Direct employment
 - Ecotourists may patronize for add-ons → culture show
- Environmental**
 - Incentive to protect environment → commitment!
 - Monitoring of state of biodiversity and ecosystems
 - Ecotourists assist in habitat enhancement
 - Excessive tipping, donations, policing, maintenance
- Social**
 - Good public relations → face-to-face contacts
 - Aesthetic/spiritual benefits
 - Fosters environment awareness among ecotourists and local population

Impacts of Eco-tourism on Katunskiy Biosphere Reserve

SUNRAISE Field School, Katunskiy BR, July 22-27, 2018

Marina Rubtsova
Tatyana Potkina
Albina Tarasova
Anna Bludnova
Praveen Kumar

Suggestions

- Good eco-trails
- Better waste management
- Good connectivity (support)
- Scientific research and monitoring
- Use of traditional knowledge in conservation
- Systematic patrolling of the core zone by rangers
- Annual training of rangers
- Transboundary ecotourism
- Use of satellite antipoaching equipment, camera traps, satellite trackers

7. Dynamics of Mountain Landscapes of the Katunsky Biosphere Reserve and Adjacent Territories

Types of changes (2)

Reduction of the area and volume of glaciers

■ Mt. Belukha

2011 Фото Т.В. Яшиной

1897 Фото В.С. Соловникова (из архива Алтайского государственного краеведческого музея, г. Барнаул)

Types of changes (3)

Raising the Forest Boundary

Research methods and results

- The registration areas (3) 4 * 20 meters
- 2 in the middle part of the slope, 1 in the lower part of the slope
- Measured: composition, height, diameter of tree trunks

Type	Average age, years	Average height, m	Average diameter, cm	The cross-section area, cm ²
Larix sibirica	27,8 (6-30)	3	5,6	24,6 *10 (-4)
Pinus sibirica	25,5	5,9	12,5	122,7 *10 (-4)
Betula pendula	-	8	13,4	140,7 *10 (-4)

