



SYLLABUS
Summer School - 2018
“Monitoring and Early Warnings in Mountain Social-Ecological Systems”



Organizers	Gorno-Altai State University and Siberian Federal University
Coordinators	Anton Shkaruba, Nina Pakharkova, Natalia Iurkova
Credits	3 ECTS (90 academic hours)
Location	Krasnoyarsk – Altai Republic, Russia
Course duration	July 15-29, 2018

Summary

The Summer School will be organized by Gorno-Altai State University (Gorno-Altai, Russia) and Siberian Federal University (Krasnoyarsk, Russia) in cooperation with Russian and international partners. It is designed as an “action school” set to explore and find solutions to real life problems, with Altai Mountains, one of the Russia’s-highest mountain system, set as the case study area. The School will include research methodology training and group work on multidisciplinary research projects.

Governance of mountain social-ecological systems involves significant analytical and normative uncertainty not at least due to complex biophysical set-ups, such as interdependencies between diverse and contrast land-use & cover situations, dynamic geophysical processes, and high vulnerability of ecosystems to global and regional environmental change. In order to steer progress towards sustainable development goals (SDGs), of which many relate to mountain systems, governance actors require effective science-policy interfaces capable of timely recognition and communication of early warnings, backed by effective monitoring networks, including citizen science arrangements.

This summer school will build research capacity and strengthen science-policy interactions for addressing these issues in Altai Mountains and beyond. The focus will be on monitoring, reporting and verification systems for governance of mountain social-ecological systems, recognition of early warnings and development of science-policy interfaces. This discussion will be primarily based on the EU experience. It will be analysed for its applicability in Russian (in particular Siberian) socio-economic, political and biophysical context.

Aims and objectives

The goal of the Summer School is to support sustainable governance of mountainous socio-ecological systems in Southern Siberia and beyond through the promotion of European expertise in problem framing and development of sustainable solutions for high mountains under the ever increasing pressure from tourism, recreation, urbanization as well as global environmental change, such as climate change and large-scale environmental pollution. We put emphasis on knowledge co-production exercises involving researchers and representatives of relevant stakeholders. More specifically, the School aims to:

- build knowledge on the principles of the development of ecological and institutional monitoring (including citizen science) through the analysis of the EU experience and its relevance in Russian context, and apply technological and policy innovations in Siberia;



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- build understanding on how are science-policy interfaces in governance of mountain ecosystems designed and how they work; build awareness of EU institutions regulating mountain social-ecological systems and their relevance in other national contexts based on comparisons of EU and Siberian experiences;
- develop understanding of sustainable development goals (SDGs) and sustainability indicators for mountain social-ecological ecosystems, including vulnerability indicators, and their social aspects;
- create the awareness of the concept of early warnings as applied to mountain ecosystems, and of the concept of the precautionary principle and its applications in the EU and elsewhere;
- develop innovative solutions and implementation plan to tackle specific, real-life local challenges (Cases) in co-production process with relevant stakeholders; and, ultimately
- create a cross-border praxis-academia community involved to the governance mountainous socio-ecological systems across Eurasia.

Target student audiences

The School target audience are senior master’s and PhD students, junior researchers and faculty, as well as civil servants, environmental activists and anyone interested in the management and governance of mountain systems, EU studies, and governance of natural resources in general.

Overview of teaching methods

In the School, both traditional, such as lectures, and active teaching methods will be used. The participants will be engaged in group projects on a specific issue in relation to the SDG agenda for mountain systems; the locations provide reach opportunities for setting-up case studies encompassing a broad range of topics.

School schedule

Date	Time	Topics and lecturers	Estimated workload (academic hours)
Krasnoyarsk Part (preparatory school)			
July 16	11:00 – 12:30	Sustainable development and introduction to environmental governance (Anton Shkaruba, Viktor Kireyeu)	2
	14.00 – 16.15	Urbanization in the alps - forms and impacts on the environment (Petra Pröll)	3
July 17	9:00 – 18:00	Field program at Stolby Nature Reserve – an introductory session, a research excursion and a wrap-up seminar (Nina Pakharkova, Viktor Kireyeu)	8
Altai Part			
July 20	09:40 – 11:20	Early warnings and sustainability transition: European and Siberian contexts (Anton Shkaruba)	2
	11:30 – 13:00	Knowledge management, communication strategies and citizen science applications (Viktor Kireyeu, Eduard Podgaiskii)	2
	14.00 – 15.30	Structuring and analysis of policy problems (Olga Likhacheva, Sybille van den Hove – by Skype)	2
	15:40 – 17:10	Mountain ecosystems: policy and management contexts (Olga Zhuravleva)	2
	17:20 – 18:50	Introduction to case studies (Natalia Iurkova, Olga Zhuravleva, Oxana Klimova)	2

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July 21	09:00 – 11:30	Policy frameworks for natural resource governance in Russia (Olga Zhuravleva)	2
	11:00 – 12:00	Selection of cases study groups – a mediation exercise (all the faculty)	3
	12:00 – 13:15	Development of research strategies and plans – mediated group work (supported by all the faculty)	
	14:00 – 17:45	Presentations of case studies, brainstorming and development of research plans (supported by all the faculty)	
July 23-26		Field work in case study locations (supported by group leaders)	44
July 27-28		Work on group projects (including their final presentations)	13
Total: 90 (lectures – 33, work on group projects – 57)			

The research framework

The central component of the School is supervised group research. The research groups (3-5 participants) will be expected to address the issues of socio-ecological monitoring, recognition and communication of early warnings in the context of socio-economic transition to free market and/or transboundary governance of mountain socio-ecological systems. The case studies will be set at three locations in Altai Mountains characterised by a broad range of sustainability issues and disturbing trends. The first one is the Lake of Teletskoye, the second is Katunski Nature Reserve, and the third one is by the Lake of Manzherok.

The overall approach to problem solving will be taken from EU policies concerned with land-use, water and biodiversity governance, risk management and precaution, and mediation of transboundary conflicts. Possible areas of research inquiry may include identification of tipping points and development of sustainability indicators, valorisation of ecosystem services, appropriate governance arrangement for public involvement in environmental decision-making and citizen science (including technological developments, such as internet of things), development of science-policy interfaces and communication of scientific uncertainty, risk management approaches and the applications of the precautionary principle, all in the context of creation of sustainable livelihoods and/or ecological sustainability of Altai Mountains and/or the surrounding regions. The examples of the sectors addressed by group research include game management, forestry, agriculture, energy, tourism (in particular, green and scientific tourism emerging in Russia), local communities (including economics and infrastructure).

The research will be implemented according to research plans prepared during case study introduction and brainstorming sessions at the beginning of the School. All the topics proposed by case study groups need to deal with the identification and analysis of negative trends threatening the sustainability of socio-ecological systems of Altai Mountains, to suggest the directions for addressing the emerging problems and / or (more realistic) for its better understanding and future research inquiry, including (where relevant) the indicators describing the state of the system and its dynamics. We encourage analytical comparisons with the EU context and/or references to EU policies or practices succeeding or failing to address similar issues.