

Outline

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01. Organizers

The workshop was organized by the Siberian Federal University (Krasnoyarsk) in cooperation with the Russian State Hydrometeorological University (St. Petersburg). Due to COVID-19 restrictions the event was partially held online (electronic resource of SFU).

02. Meeting objective

The meeting was aimed at:

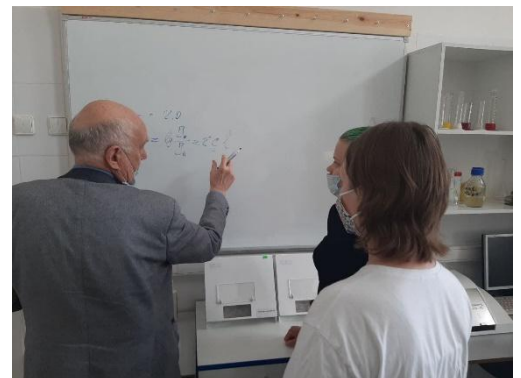
- ✓ discussion of future cooperation between university within signed agreement;
- ✓ approbation of massive open online courses;
- ✓ organization of student field training; and
- ✓ discussion of massive open online courses with employers.

The key task for the SUNRAISE participants was verification efficiency of developed online courses for mass usage.

03. Meeting description (input of the SUNRAISE participants)

During the SUNRAISE project, working meetings were organized with the staff of the Institute of Ecology and Geography. Main attention was paid to the methods of environmental monitoring and biotesting.

The student training program consisted of two parts: offline and online. The first part included offline lectures and fieldwork, visiting a laboratory of environmental monitoring. The second one included



approbation of electronic courses.

Field work was carried out in the Stolby Nature Park. The research field station "Narym" is located on the territory of the national park. Vice director for science Anastasia Knorre held a lecture about ongoing scientific research, environmental monitoring and regional environmental problems.

Students took part in dendrochronological research, assessment of the recreational load in the park. Then students explore using of water resources of the Yenisei and Mana rivers as example. The results of the work are given in the annex.



As a second part of training program students got access to the electronic educational resource "e-Courses" (<https://e.sfu-kras.ru/>). At the end of the lecture block were provided tests to check the progress.

The course "Introduction to the Arctic environment and permafrost zones, with an overview of biophysical, social and economic systems, available knowledge and science-policy interfaces", which was completed on the electronic portal, includes sections:

1. The Arctic and the polar circle (physiographic description of the arctic region) (Makeev V.);
2. A brief history of Arctic exploration (Podgaiskii E., Sanotskaya N.);
3. The weather and climate of the Arctic. Peculiarities of climate change in the Arctic region (Bezkorovainaya I., Prokushkin A.);
4. Arctic water resources (Sanotskaya N.)
5. Soils of Arctic and subarctic zones (Borisova I.);



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6. Flora of the Arctic (Glushkovskaya N., Paxar'kova N.)
7. Wildlife of the Arctic tundra (Fertikova E.);
8. Freshwater habitat in the Arctic (Fertikova E.);
9. Marine biotic communities of the Arctic (Fertikova E.);
10. Assessment and conservation of biodiversity in the Arctic zone;
11. Traditional nature use of indigenous population in the (Grenaderova A.);
12. Arctic natural resource potential;
13. Environmental safety and environmental management in the Arctic zone;
14. Environmental problems of the Arctic;
15. Prospects for the Arctic exploration;
16. International cooperation in the Arctic (Inyakina A.).



The course "Biological control of the environment state" (compiled by N.V. Pakharkova, T.L. Shashkova, Yu.S. Grigoriev), including sections:

1. Biological monitoring as an integral part of environmental monitoring;
2. Biomonitoring at different levels of life organization;
3. Biomonitoring in different environments;
4. Bioindication of air and soil pollution;
5. Bioindication of water pollution;
6. Biotesting of natural and waste waters.

After successfully passing the testing, the certificates were obtained.

From June, 29 to 30 students took part in the conference "Internationalization and ERASMUS + projects in Russia" in a distance format. The conference was aimed at:

- ✓ presenting to a wide audience results, outputs, outcomes and impacts of the Erasmus+ CBHE projects;
 - ✓ mapping the CBHE project themes for the new Programme after 2021; and
- further development of the internationalization of higher education in Russia and strengthening of the Russian higher school presence in the European Higher



Education Area.

At the end of the practice, a meeting was organized with employees of the Institute of Ecology and Geography to discuss the results.

04. Results

Students have successfully completed e-courses, the materials are informative and visual, but there is a need to correct some audio and video materials in certain sections for a better understanding of the information. As a result of the meeting, certificates were received.

