



## PREFACE TO SPECIAL ISSUE "FUNDAMENTAL AND APPLIED ASPECTS OF GEOLOGY, GEOPHYSICS AND GEOECOLOGY"

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Received 1 July 2021; accepted 10 August 2022; published 11 September 2022.

**Citation:** Kuizheva, S. K., M. K. Bedanokov, and S. A. Lebedev (2022), Preface to Special Issue "Fundamental and Applied Aspects of Geology, Geophysics and Geoecology", *Russian Journal of Earth Sciences*, Vol. 22, ES01SI00, doi: 10.2205/2022ES01SI00.

The VI International Scientific and Practical Conference "Fundamental and Applied Aspects of Geology, Geophysics and Geoecology using modern information Technologies" was held in 2021 at the Maykop State Technological University (Maykop, Republic of Adygea) as part of the "Year of Science and Technology in Russia". The Scientific Forum is traditionally held once every two years and arouses great interest among the scientific community.

More than 120 applications for participation in the conference were received from Russia, Abkhazia, Ukraine, France and Mongolia. The International Conference brought together representatives of various scientific centers, educational structures, state institutions, such as the Abkhazian State University, the Institute of Ecology of the Academy of Sciences of Abkhazia, the Geophysical Center of the Russian Academy of Sciences, the Obukhov Institute of Atmospheric Physics of the Russian Academy of Sciences, the Shirshov Institute of Oceanology of the Russian Academy of Sciences, Lomonosov Moscow State University; the Russian State Hydrometeorological University, Southern Federal University, Subbotin Institute of Geophysics of the National Academy of Sciences of Ukraine (Ukraine), Information Research Institute of Meteorology, Hydrology and Environment (Mongolia), Federal Research Center "Marine Hydrophysical Institute of the Russian Academy of Sciences", Ilyichev Pacific Oceanological Institute FEB RAS, Kamchatka branch of the United Geophysical Service of the Russian Academy of Sciences, the Institute of Space Research of the Russian Academy of Sciences, the Institute of Water Problems of the Rus-

sian Academy of Sciences, the Institute of Geography of the Russian Academy of Sciences, the Scientific Center for Arctic Studies, the Center for Geographical Research of the Federal Scientific Center "Kabardino-Balkarian Scientific Center of the Russian Academy of Sciences" and other educational institutions of Russia.

The Conference topics are represented by a wide range of directions:

- problems of geoecology, geophysics and geology;
- problems of earth physics, sea physics, atmospheric physics;
- problems and consequences of global and regional climate change;
- methods of mathematical modeling;
- technologies of rational nature management;
- environmental monitoring and protection technologies;
- biological methods of environmental quality control;
- recycling of industrial and household waste;
- physico-chemical and biological methods of wastewater treatment;
- atmospheric composition, diagnostics and modeling of photochemical and radiation processes;
- dynamic processes in the atmosphere, the problem of predictability of atmospheric phenomena.

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Based on the stated topics, the following sections were formed:

1. Geoecology and environmental protection.
2. Engineering and environmental problems of geology and geophysics.
3. Engineering and environmental problems of geology and geophysics.
4. The composition of the atmosphere.

Within the framework of the Conference, medals and letters of thanks were awarded for the contribution to the development of MSTU to Janbi Ekba, Vice-President of the Academy of Sciences of Abkhazia, Deputy Director for Scientific and Production Work, Doctor of Physical and Mathematical Sciences, Academician of the Academy of Sciences of Abkhazia; Sergey Lebedev, a leading researcher of the Geophysical Center of the Russian Academy of Sciences, Doctor of Physical and Mathematical Sciences; Andrey Kostyan, Chief Researcher of Shirshov Institute of Oceanology of the Russian Academy of Sciences, Doctor of Physical and Mathematical Sciences; Irina Repina, Head of the Laboratory of Interaction of the Atmosphere and Ocean of the Obukhov Institute of Atmospheric Physics of the Russian Academy of Sciences, Doctor of Physical and Mathematical Sciences, Professor of the Russian Academy of Sciences; Vadim Saltykov, Chief Researcher of the Kamchatka branch of the United Geophysical Service of the Russian Academy of Sciences, Doctor of Physical and Mathematical Sciences, Associate Professor; Igor Kozlov, Senior Researcher of the Federal Research Center "Marine Hydrophysical Institute of the Russian Academy of Sciences", Candidate of Physical and Mathematical Sciences; Dmitry Solovyov, Researcher Federal Research Center of "Marine Hydrophysical Institute of the Russian Academy of Sciences"; Elena Zhuk, a junior researcher at the Federal Research Center of "Marine Hydrophysical Institute of the Russian Academy of Sciences"; Ksenia Nazarova, a leading engineer at the Institute of Space Research of the ICI of the Russian Academy of Sciences; Asida Akhsalba, Associate Professor of the Department of Applied Physics of the Abkhazian State University, Candidate of Physical and Mathematical Sciences; Yana Gitsba, Associate Professor of the Department of Applied Physics of the Abkhazian State University, Candidate of Physical and Mathematical Sciences.

At the plenary session the presentation of the book on the environment of Adygea "The Repub-

lic of Adygea Environment" (Springer Publishing House, Germany, 2020) awarded the State Prize of the Republic of Adygea in the field of science for 2021 was held and the following reports were heard: "Modern technologies for medicine"; "The Red Book as one of the preventive measures to maintain biodiversity"; "Boundary layer of the atmosphere above an inhomogeneous surface"; "Interannual and seasonal variability of the main hydrometeorological parameters of the state of the White Sea according to satellite altimetry"; "Actual problems of atmospheric chemistry in the research of the IFA RAS". Overall, 62 plenary and sectional reports were heard during the Conference.

During the discussions held at the Conference sections, topics for further joint scientific research were outlined and plans for cooperation agreements between organizations participated in the Conference were presented.

The special issue of the journal "Russian Journal of Earth Sciences" presents scientific reports that have been tested at the conference "Fundamental and Applied Aspects of Geology, Geophysics and Geoecology using modern information Technologies" and received positive feedback and recommendations. The scientific research presented in the author's texts reveals various aspects of mathematical modeling of various natural processes, the use of big data in ecology, the results of monitoring hazardous natural processes in mountainous areas, the migration of heavy metals in water bodies, renewable energy sources and their importance in the overall energy system, the impact on CO<sub>2</sub> emissions, the spread and variability of rare, endangered plant species in the mountainous regions of the Republic of Adygea and others.

A special issue of the journal "Russian Journal of Earth Sciences" is dedicated to the 100th anniversary of the statehood of the Republic of Adygea.

Chairman of the Program Committee S. K. Kuizheva – Rector of MSTU, Doctor of Economics, Associate Professor.

Chairman of the Organizing Committee M. K. Bedanokov – Dean of the Faculty of Engineering of MSTU, Doctor of Economics, Professor.

Member of the Program Committee S. A. Lebedev – Leading researcher of MSTU, GC RAS, Institute of Space Research RAS, Doctor of Physical and Mathematical Sciences.