

Preface

Dear colleagues,

We have the pleasure of bringing to your notice a special issue of the scientific journal "Ecosystem Transformation" dedicated to the outcomes of the 4th International Symposium "Mercury in the Biosphere: Ecological and Geochemical Aspects" held in Cherepovets in 2025. This event marks a significant milestone in consolidating the efforts of Russian and international researchers dealing with one of the most challenging problems in modern ecology – global mercury pollution.

As rightly noted in the UN policy documents, mercury is a chemical of global concern due to its long-range atmospheric transport, persistence in the environment, bioaccumulation in ecosystems, as well as serious negative effects on human and animal health. To gain a more penetrating insight into these processes, the integrated approach that combines the efforts of specialists in chemistry, biogeochemistry, ecotoxicology, climatology and related disciplines is required.

Being a regular Russian platform for comprehensive discussions of natural and anthropogenic mercury migration, the symposium brought together 183 participants from 14 countries. The researchers came from all over the world, namely from Argentina and South Africa to India and China thereby demonstrating the high international interest in this topic. They made 55 oral and 25 poster presentations covering numerous scientific areas: from sources and monitoring of mercury in the atmosphere, aquatic ecosystems and soils to related legal aspects regulation and modern methods for its determination.

Particularly noteworthy is the All-Russian Forum of Young Scientists, Graduate Students and Undergraduates held within the framework of the symposium, which demonstrates the continuity of scientific schools and the emergence of a new generation of investigators ready to propose innovative approaches to solving global mercury problems.

This issue includes the articles intended not only to summarize the research findings presented at the symposium, but also to provide a comprehensive picture of mercury's behavior in the biosphere. The arts may serve as a scientific basis for giving recommendations on mitigation of negative impacts of this hazardous toxicant on the environment and public health. Importantly, the symposium proceedings can also act as a compelling argument in favor of further steps in practical implementation of the provisions of the Minamata Convention signed by the Russian Federation in 2014.

We express our deep gratitude to all the organizers and participants of the symposium for their fruitful work and do hope that the materials presented in this issue will widely resonate in the scientific community and make a major contribution to solving topical environmental problems.

The Organizing Committee of the 4th International Symposium "Mercury in the Biosphere: Ecological and Geochemical Aspects"



Participants of the 4th International Symposium «Mercury in the Biosphere: Ecological and Geochemical Aspects.»