

TO THE MEMORY OF VALERY EREMEEV
(12.01.1942 – 31.10.2020)



On 31 October, 2020, Academician Valery Eremeev, who headed A. O. Kovalevsky Institute of Biology of the Southern Seas in 1999–2015, passed away.

V. Eremeev was born on 12 January, 1942, in Saratov, where his parents were evacuated at the beginning of the Great Patriotic War. He spent his post-war childhood in Rostov-on-Don. His parents instilled in him a taste for art, culture, and freedom of thought, but at the same time he considered compliance with the laws as a cornerstone duty: mostly thanks to his mother Kaleriya, who was an honored lawyer of the Russian Federation. After finishing school, he entered Rostov-on-Don State University and received a degree in atomic physics.

After graduating from the University, Valery Eremeev started working on assignment: at the Marine Hydrophysical Institution (MHI) in Sevastopol. Later, he served as a sailor in the Red Banner Black Sea Navy. After returning from the service, he resumed scientific activity. In 1968, he started PhD graduate studies at MHI, specializing in marine physics. Six years of hard work on the PhD thesis “Peculiarities of Precision Mass Spectrometric Isotope Analysis of Water Oxygen and Some Issues of ^{18}O Distribution in Atlantic Ocean Waters” resulted in its successful defense at the P. P. Shirshov Institute of Oceanology.

In 1975, at the age of 33, V. Eremeev was appointed MHI scientific secretary. He went on with scientific work and participated in many research cruises. Fortunately, Soviet oceanology provided an opportunity to work on specialized research vessels in various areas of the World Ocean. He was the head and a participant of expeditions to the Atlantic, Indian, and Pacific oceans and visited many countries, such as Sri Lanka and Seychelles, India, Singapore, Egypt and Turkey, Costa Rica and Brazil, Spain, Italy, Yugoslavia, Morocco, and the Republic of Guinea: there were more and more points on the world map, where his scientific curiosity found research objects. A lot of new data, resulting from his research, were obtained in the field of hydrochemistry, ocean geochemistry, hydrophysics, marine ecology, and scientific instrumentation.

In 1982–1992, he headed the Soviet-Guinean research program in oceanography, heliophysics, and testing of structural materials under the conditions of tropical climate, working at the large research center CERESCOR (Conakry Rogbanè), built by the Soviet Union. In 1988, Valery Eremeev

was awarded a Certificate of Honor of the Secretariat for Scientific Research and Education by the Republic of Guinea. Later, he said that the time, spent in Guinea, was one of the happiest in his life, and the reverent attitude towards Africa remained forever.

In 1982–1992, V. Eremeev was a member of the Scientific Council of the USSR State Committee for Science and Technology on the problems of studying seas and oceans. In 1982, he was awarded the diploma of the Presidium of the Supreme Soviet of the Ukrainian SSR for achievements and application of scientific developments in practice. In 1983, he was elected a member of the Ukrainian Geographical Society.

After five years of work as a MHI deputy director for scientific work (1980–1985), at the age of 43, Valery Eremeev became the director of MHI. Three years later, he summarized the accumulated data and defended D. Sc. dissertation “Oceanographic Tracers: Dynamics Simulation, Transport Parameterization, and Practical Applications” at the Institute of Geophysics of the Academy of Sciences of the USSR, in the specialty “Geophysics” and “Marine Physics”. In 1989, the Academy of Sciences noted the importance of the results, obtained under his leadership in the study of mechanisms of transport of substances and physicochemical fractionation of impurities in Atlantic Ocean and Black Sea waters and at the boundaries of the marine environment with the atmosphere and the seabed. He became the Academician V. I. Vernadsky Prize winner in Geology, Geochemistry, Geophysics, and Hydrochemistry.

In 1991, by the decision of the Higher Attestation Commission under the USSR Council of Ministers, V. Eremeev was awarded the academic title of Professor. By the end of the year, the collapse of the USSR was over. A new stage of Valery Eremeev’s life began.

In 1992, he became the scientific director of both the State Scientific and Technical Program of Research and Use of the World Ocean in the Interests of Science, National Economy, and Defense of Ukraine and the National Program of Research and Use of Resources of the Sea of Azov – Black Sea Basin. In the same year, the Academy of Technological Sciences of Ukraine elected him the Academician in geotechnology, and the National Academy of Sciences of Ukraine (the NAS of Ukraine) – a corresponding member in chemical oceanography. Moreover, he became the vice president of the Mediterranean Science Commission for three years. In 1997, V. Eremeev was elected the Academician of the NAS of Ukraine in oceanology.

Since 1999, he headed the Oceanological Center of the NAS of Ukraine, organized on his initiative. Its objectives were to create favorable conditions for the development of fundamental and applied oceanography, as well as to develop a unified concept of rational marine nature management and use of scientific and technical potential of marine institutions and technical means of marine environment state monitoring.

Seemingly, brilliant career and clear prospects. But then Boris Paton, the President of the NAS of Ukraine, urged Valery Eremeev to act as a crisis manager and temporarily director of the A. O. Kovalovsky Institute of Biology of the Southern Seas (IBSS), which was going through a difficult time.

On 8 December, 1999, by the decision of the Presidium of the NAS of Ukraine, the duties of IBSS director were assigned to V. Eremeev (temporarily, for the period *prior* elections). In January 2000, elections were announced, and Institute staff nominated seven candidates, with Valery Eremeev not present among them.

Understanding that there is no obvious leader and the probability of any candidate receiving the required half of scientists' votes is minimal, in March the Presidium of the NAS of Ukraine decided to postpone the elections for a year, with a diplomatic formulation "proceeding from the necessity to avoid complicating the situation in the Institute and to strengthen its management". Boris Paton was sure, that V. Eremeev only, one of the best directors of the institutions in the system of the NAS of Ukraine, would be able to get the accumulated problems sorted out. It was impossible to refuse, and the duties of IBSS director were assigned to Valery Eremeev again.

The entrusted "household" definitely was not in the best condition. Everything was in chaos. The Institute was barely paying part-time wage, having no money for more. The opportunities to collect samples were minimal: the leased RV "Professor Vodyanitsky" was carrying "shuttle traders" to Istanbul; the researchers earned part-time money on loading and unloading the vessel and worked during these cruises as service personnel. Not surprisingly, dissertations were defended only once every few years. Since there was no money for the maintenance of Aquarium inhabitants, it was also in a long-term lease. Boat houses, built at the end of the Soviet regime for small fleet vessels, were leased as well; "Konstantinovskiy saunas" were housed there. The RV "Akademik Kovalevsky" was sold to Turkey in hope of paying off wage arrears. On the day the new director first came to the Institute, there were messages on the notice board about the upcoming sale of small Soviet-built IBSS vessels, to pay debts.

V. Eremeev managed to achieve an increase in IBSS budget financing; soon after his assignment, the directorate began dealing with a matter, long forgotten in the maelstrom of perestroika years: planning of the expeditionary research within the framework of the future Marine Program of the NAS of Ukraine. Since that time, not a single meeting of IBSS Scientific Council was held without a scientific report: Valery Eremeev considered collective discussion of research results the most important factor of science support and planning. In subsequent years, the Institute participated in various academic programs of the departments of General Biology and the Department of Geosciences of the NAS of Ukraine. With the director's support, the Institute was involved in the projects under UNESCO programs, as well as in the 5th, 6th, and 7th Framework Programmes of the European Union. IBSS became one of the leaders in international cooperation among the institutions of the Department of General Biology of the NAS of Ukraine.

Through his efforts, the RV "Professor Vodyanitsky" was returned from lease and later repaired. In 2010 (after more than a 15-year break), research cruises were resumed. Comprehensive monitoring of geological and marine environment state and biota of the Black Sea was restored, using modern technologies of ship measurements, satellite information, and specialized databases.

In 2000, V. Eremeev, with a team of authors, became a laureate of the State Prize of Ukraine in science and technology for the series of works "Regional Oceanology: State of the Environment and Mineral Resources of the Atlantic, Indian, and Southern Oceans and Their Seas". Three years later, he was awarded the title of Honored Worker of Science and Technology of Ukraine. He was a member of the Committee on the State Prizes of Ukraine in science and technology. He was convinced that scientific achievements only become noticeable when they are loudly announced. Therefore, he did his best for the merits of scientists of the Institute in Sevastopol and its branch in Odessa to be known and recognized. At the insistence of Valery Eremeev, scientists of IBSS and its branch applied four times to the Committee on the State Prizes of Ukraine. During the period he was the director of the Institute,

such prizes were deservedly awarded to 10 IBSS hydrobiologists: in 2007 – for a series of scientific works “Productivity, Biodiversity, and Ecological Safety of Black Sea Ecosystems and World Ocean Areas, Promising for Ukraine”, and in 2011 – for the development and creation of the National Collection of Nautical Charts and the Oceanographic Atlas of the Black Sea and the Sea of Azov. He was especially proud of the Atlas and kept this beautiful huge blue book in the place of honor of his office: in the “exhibition” of IBSS monographs.

In spite of numerous scientific titles, unusually broad scientific outlook, membership in several dissertation councils, and chairmanship of MHI dissertation council, V. Eremeev refused to be a chairman of IBSS dissertation council: being an oceanologist, he considered himself not competent enough to assess hydrobiological works. When preparing director’s reports for the Presidium of the NAS of Ukraine, he was never ashamed to ask narrow specialists for clarification, if he did not understand something in their scientific results. As colleagues joked, he did not wear the “halo of the Academician” at work. The opinion of IBSS scientists was always important to him when solving the pressing issues; he listened to everyone and tried to prevent conflicts.

His research interests covered the key problems of oceanography: experimental and nuclear hydrophysics, isotope oceanography, geophysical hydrodynamics, and ocean hydrochemistry. His works in isotope oceanography were related to studying the fundamental regularities of the spatial formation and dynamics of artificial and natural radioactivity areas of the World Ocean and its seas, development of general theoretical approaches to the analysis and forecast of possible consequences of marine disasters of natural and anthropogenic nature, and investigating the problems of radioactive waste disposal and use of water column as a global radiation indicator of cosmic radiation.

Valery Eremeev worked fruitfully on the formation and development of geophysical direction in marine ecological research: studying of physical and chemical aspects of interaction between the ocean and the atmosphere and the development of general concept and analytical technologies for investigating water dynamics and substance transport in marine ecosystems by natural and artificial oceanographic tracers. His most significant results are description of dynamics, interannual and seasonal variability of characteristics of Black Sea hydrogen sulfide zone, oxygen and hydrogen sulfide interaction layer, as well as the influence of various physical, chemical, and hydrodynamic factors on migration and redistribution of elements of basic salt and microelement composition of waters on Black Sea shelf and in depths.

He established a new scientific direction: “operational oceanology”, with the subject being methods and technologies for complex research of the state and dynamics of complex marine systems, aimed at predicting their variability under the influence of natural and anthropogenic factors and developing technologies for sustainable use of the marine environment and resources, as well as theory and methods for modeling marine ecological and economic systems for integrated coastal zone management.

The practical value of V. Eremeev’s results is determined by their direct relation to the problem of radioactive pollution of the marine environment and development of the nuclear navy. These data were used, in particular, to monitor the nuclear powers’ compliance with the Treaty of Moscow, banning nuclear weapon tests in the atmosphere, outer space, and under water, and to establish the principles of organizing the global system for monitoring nuclear tests and preparing the Comprehensive Nuclear-Test-Ban Treaty. Great attention in such research was given to the study of Chernobyl disaster consequences for the ecosystem of the Black Sea and other World Ocean seas. His works significantly

contributed to the formation of scientific bases for various conventions for marine environment protection and to the development and implementation of several national and international oceanographic programs. Highly appreciating Valery Eremeev's scientific achievements, in 2005, the Department of Earth Sciences of the Russian Academy of Sciences awarded him the title of doctor *honoris causa* of RAS. Three years later, he became a laureate of the State Prize of the Russian Federation in science and technology: for creation and implementation of a multicomponent system for obtaining reliable data of ecological estimation and forecast of marginal seas of Russia. In 2007, he was awarded the Order of Ukraine "For Merit" of the III degree.

Theoretical foundations, methods, and means of the global oceanographic observation system, developed under the leadership of V. Eremeev, were the basis of the corresponding programs of the Intergovernmental Oceanographic Commission (IOC) of UNESCO and of several countries of the Black Sea basin. Since 1994, he was a member of the National Commission of Ukraine for UNESCO. Over the years, he was the representative of Ukraine on the Executive Council of IOC of UNESCO and the chairman of its Black Sea Regional Committee, as well as the chairman of the Steering Committee of the Global Ocean Observing System for the Black Sea. In 2011, recognizing his outstanding contribution to the development of marine science and technology, the IOC of UNESCO awarded him a commemorative medal.

Valery Eremeev was the author of more than 500 scientific works, *inter alia* 15 monographs and 3 atlases of the Sea of Azov – Black Sea basin, organizer and participant of numerous oceanographic expeditions, and Editor-in-Chief of "Marine Hydrophysical Journal" (MHI) and "Marine Ecological Journal" (IBSS). An incredible workload did not stop him from working for the good of the city: in 1985–1992, he was a deputy of the Sevastopol City Council of People's Deputies. In 2004, he was awarded the sign "For Services to the Hero City of Sevastopol".

Outstanding scientist and talented leader, he worked until the very end. After leaving IBSS in 2015 and moving to Kyiv, he remained an advisor to the Directorate of the Scientific Hydrophysical Center of the NAS of Ukraine.

The merits of V. Eremeev as a researcher and organizer of science are numerous; his honorary titles and awards are a sign of recognition of undoubted achievements. Among his students, there is one Academician, seven D. Sc., and more than twenty PhDs. But could his destiny be different, if he was nicknamed "professor" by friends in his early childhood?

The staff of the A. O. Kovalevsky Institute of Biology of the Southern Seas is deeply grateful to Valery Eremeev for raising IBSS from the ruins in the 1990s, resuming its marine expeditionary practice, and putting the RV "Professor Vodyanitsky" back at the service of science. For 14 years, he ensured the smooth movement of IBSS to new scientific achievements, with a sense of tact of a talented leader, subtle intelligence, erudition of a prominent scientist, and benevolent humaneness.

Blessed memory to Valery Eremeev, endless gratitude, and respect.

Staff of IBSS

**ПАМЯТИ ВАЛЕРИЯ НИКОЛАЕВИЧА ЕРЕМЕЕВА
(12.01.1942 – 31.10.2020)**

Ушёл из жизни академик Валерий Николаевич Еремеев, возглавлявший ИнБЮМ в 1999–2015 гг. Он автор более чем 500 научных трудов, среди которых 15 монографий и 3 атласа Азово-Черноморского бассейна. В. Н. Еремеев был организатором и участником многочисленных океанографических экспедиций, академиком НАН Украины и почётным доктором РАН.