

**PREFACE**

At present the anthropogenic impact onto the environment, including the atmosphere, reached such an extent that it can hardly resist harmful consequences of the impact. The ecological situation over the territory of Russia is now particularly poor, especially in big cities and highly industrialized regions. In this connection the problems on ecological monitoring of air quality over a city or other local regions become of vital importance.

This topical issue of the journal is devoted to discussions concerning the solution of these problems. Thus the papers by V.S. Komarov, V.E. Zuev, A.N. Kalinenko, and S.A. Michailov present a discussion of some general problems on the ecological monitoring of territories concerned with optimizing the networks for ecological observations, development of automated systems for *in situ* control of atmospheric pollutions, and arrangement of municipal geoinformation systems for intellectual support of ecological problems of the atmosphere. M.V. Kabanov has paid special attention to the concept of climatic and ecological monitoring of Siberia, which is, in this respect, one of the most important regions of Russia. A program of physical investigations and atmospheric measurements on local, regional, and global scales is also discussed in his paper. The paper by Yu.S. Balin et al. presents a discussion of the basic principles, structure, and components of a system for monitoring air pollutions in industrial centers. A description of an automated mobile station for air quality control can be found in paper by V.F. Baryshnikov and co-authors. In papers by G.G. Matvienko and A.A. Grishin as well as in papers by V.S. Komarov, V.I. Akselevich, and co-authors the reader will find a discussion of different aspects of wind velocity sounding with lidar sensing techniques, in application to solution of problems on the climatic and ecological monitoring of the atmosphere. A number of papers (by P.N. Belov and V.S. Komarov; L.T. Matveev and S.A. Soldatenko; R.N. Efremov; S.A. Soldatenko and O.M. Sobolevskii; L.T. Matveev et al.) is devoted to the problems on numerical simulation of the parametrization of the processes of atmospheric pollutions transfer on the local and regional scales. The papers by V.S. Komarov, V.I. Akselevich, and A.V. Kreminskii present an assessment of a version of the method of clustering of arguments in application to solution of the problem on precalculation (retrieving) of the mean wind characteristics. In the papers by Yu.L. Matveev and L.T. Matveev and by M.A. Lokoshchenko et al. one will find a discussion of the results of field experiments on studying the composition and temperature regime of the urban atmosphere. The paper by O.V. Zhil'tsova and A.A. Isaev presents numerical estimates of the Caspian sea level made using the difference technique and the method of clustering of arguments. In the paper by S.A. Mikhailov the reader will find a discussion of some aspects of the problem on developing the information database for regional models of the molecular atmosphere.

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