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Gennadii G. Matvienko
Oleg A. Romanovskii
Editors

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Introduction

In accordance with the schedule of meeting and conferences approved by the Presidium of the Siberian Branch of the Russian Academy of Sciences (SB RAS) for 2017, the V.E. Zuev Institute of Atmospheric Optics SB RAS and Institute of Solar-Terrestrial Physics SB RAS organized the Twenty third International Symposium titled "Atmospheric and Ocean Optics: Atmospheric Physics" in Irkutsk, Russian Federation, 3 - 7 July 2017.

We wish to thank our sponsors for their contribution to the success of the symposium: Federal Agency for Scientific Organizations, Siberian Branch of the Russian Academy of Sciences and the Russian Foundation for Basic Research.
English and Russian were the working languages of the symposium. All poster presentations and oral presentations were made in English and Russian (using synchronous translation via personal audio-equipment).

We conducted five conferences titled:

A. Molecular Spectroscopy and Atmospheric Radiative Processes
B. Optical Radiation Propagation in the Atmosphere and Ocean
C. Optical Investigation of Atmosphere and Ocean
D. Atmospheric Physics and Climate
E. Investigation of the upper atmosphere with the use of global navigation satellite systems (GNSS)

The main topics of the Twenty third International Symposium on Atmospheric and Ocean Optics/Atmospheric Physics included:

- Molecular spectroscopy of atmospheric gases
- Absorption of radiation in atmosphere and ocean
- Radiative regime and climate problems
- Models and data bases for atmospheric optics and physics
- Wave propagation in random inhomogeneous media
- Adaptive optics
- Nonlinear effects at radiation propagation in atmosphere
- Multiple scattering in optical remote sensing
- Image transfer and processing
- Optical and microphysical properties of atmospheric aerosol and suspension in water media
- Transport and transformation of aerosol and gas components in the atmosphere
- Laser and acoustic sounding of atmosphere and ocean
- Diagnostics of state and functioning of plants bio systems
- Structure and dynamics of the lower and middle atmosphere
- Dynamics of the atmosphere and climate of the Asian region

- Physical processes and phenomena in the atmosphere
- Optic techniques for probing the atmosphere
- Structure and dynamics of the upper atmosphere on GNSS observations
- Climatological studies of the upper atmosphere using GNSS
- The relationship processes in the lithosphere, atmosphere, ionosphere, magnetosphere and the Sun according to the GNSS
- Development of methods for monitoring the upper atmosphere with the use of GNSS
- The use of GNSS for the development of empirical and physical models
- Influence of the atmosphere on the quality of GNSS operation

History: A symposium on Atmospheric and Ocean Optics has been held annually since 1994 by the Institute of Atmospheric Optics SB RAS. From 1971 to 2017 the IAO SB RAS organized more than 60 conferences on different scientific topics. The current symposium is the only one in Russia where fundamental problems of propagation in inhomogeneous media and the scattering and absorption radiation are considered. Very few conferences in the world have such a spectrum of interest. It is very attractive that the official languages of symposium are Russian and English.

In the field listed here, the Siberian scientific schools are leaders in our country and well known in the world. This fact can be attributed to the interest in the symposium from the scientists of Russian Federation and other countries of the former.

Present: The Twenty third International Symposium "Atmospheric and Ocean Optics: Atmospheric Physics" was successfully held in Irkutsk, Russia, 3-7 July 2017. The program of the symposium included 8 invited and plenary papers, 183 oral presentations, and more than 220 poster presentations during five poster sessions.

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