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Gennadii G. Matvienko
Oleg A. Romanovskii
Editors

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Introduction

In accordance with the schedule of meetings and conferences approved by the Presidium of the Siberian Branch of the Russian Academy of Sciences (SB RAS) for 2019, the V.E. Zuev Institute of Atmospheric Optics SB RAS, Siberian State University of Geosystems and Technologies and Institute of Solar-Terrestrial Physics SB RAS organized the Twenty Fifth International Symposium on "Atmospheric and Ocean Optics: Atmospheric Physics" in Novosibirsk, Russian Federation, (30 June–5 July 2019).

We wish to thank our sponsors for their contribution to the success of the symposium: Russian Foundation for Basic Research, Ministry of Education and Science of Russian Federation, V. E. Zuev Institute of Atmospheric Optics SB RAS, "Atmosphere" an Open Access Journal by MDPI, Research Institute of Precise Mechanics, Scientific Instruments and Systems, and Siberian Branch of Russian Academy of Sciences.

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. Physics of the troposphere
E. Physics of the middle and upper atmosphere

The main topics of the Twenty Fifth 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 Databases for the Problems of Atmospheric Optics and Physics.
- Wave Propagation in Random Inhomogeneous Media.
- Adaptive Optics.
- Nonlinear Effects at Radiation Propagation in the Atmosphere and Water Media.
- Multiple Scattering.
- Optical Communication.

- Image Transfer and Processing.
- Estimation of the Reliability of Metrological Measurements.
- Optical and Microphysical Properties of Atmospheric Aerosol and Suspension in Water Media.
- Elemental and Ionic Composition of Impurities in the Surface Layer.
- Transport and Transformation of Aerosol and Gas Components in the Atmosphere.
- Laser and Acoustic Sounding of the Atmosphere and Ocean.
- Diagnostics of State and Functioning of Plants' Biosystems and Biological Objects.
- Optical-electronic Complexes for Problems of Optics and Atmospheric Physics.
- Monitoring of Water Bodies According to Remote Sensing Data.
- Active Shooting Systems for Studying the Atmosphere and the Ocean.
- Structure and Dynamics of the Lower Atmosphere.
- Dynamics of the Atmosphere and Climate of the Asian Region.
- The Results of the Monitoring of the Troposphere From the Data Processing Measurements Using the Global Navigation Satellite Systems (GNSS).
- Radiophysical and Optical Techniques for Probing the Terrestrial Atmosphere and Underlying Surface.
- Forecast of Climate Change.
- Modeling of Atmospheric Phenomena Using Interactive Map Services.
- Climate Change Forecast.
- Structure and Dynamics of the Middle and Upper Atmosphere.
- Physical Processes and Phenomena in the Thermosphere and the Ionosphere of the Earth.
- Climatological Studies of the Upper Atmosphere.
- Interrelation of Processes in the Lithosphere, State, Ionosphere, Magnetosphere and the Sun.
- Development of Methods for Monitoring the Upper Atmosphere Using GNSS.
- The Use of GNSS for the Development of Empirical and Physical Models.
- Changes in the Global Gravitational Field of the Earth.

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 2018 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 the symposium are Russian and English.

In the fields 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 the Russian Federation and other countries of the former.

Present: The Twenty Fifth International Symposium "Atmospheric and Ocean Optics: Atmospheric Physics" was successfully held in Novosibirsk, Russia, 30 June–5 July 2019.
The program of the symposium included 11 invited and plenary papers, 154 oral presentations, and 336 poster presentations during five poster sessions.

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