

Foreword

Following to the “Plan of International, All-Russian, and Regional Scientific and Scientific-Technical Meetings, Conferences, Symposiums, Congresses, Seminars, and Schools”, approved by the Presidium of Siberian Branch of the Russian Academy of Sciences for 2008 year, the XV International Symposium “Atmospheric and Ocean Optics. Atmospheric Physics” was held in June 22–28, 2008 onboard the *Alexander Matrosov* ship during its cruise by Yenisei from Krasnoyarsk to s. Vorogovo and backward. The Symposium is one of most representative and regular in Russia in its field.

Organizers of the Symposium were V.E. Zuev Institute of Atmospheric Optics SB RAS (Tomsk) and Institute of Solar-Terrestrial Physics SB RAS (Irkutsk). Co-Chairs of the Symposium were Academician Geli A. Zherebtsov and Professor Gennadii G. Matvienko; Chair of the Organizing Committee was Professor Yurii N. Ponomarev, and Scientific Secretary – Doctor Boris A. Voronin.

In the framework of the Symposium, four Conferences were held by the problems:

A. Molecular Spectroscopy and Atmospheric Radiative Processes.

B. Optical Radiation Propagation in Atmosphere and Ocean.

C. Optical Investigation of Atmosphere and Ocean.

D. Atmospheric Physics.

Participants of the Symposium were 126 scientists (41 of them were younger 33). There were presented 265 reports, including 22 plenary and invited, 120 oral and 123 posters. The Russian regions were presented as follows: 59 scientists came from Tomsk, 13 from Irkutsk, 14 from Moscow and the Moscow Region, 5 from Novosibirsk, 4 from Yakutsk, 3 from St. Petersburg, by 2 from Krasnoyarsk, Tumen', and Vladivostok. Besides, Ekaterinburg, Chita, Voronezh, Obninsk, Nizhny Novgorod, Magadan, and Petropavlovsk-Kamchatskii send their representatives as well. Among foreign participants there were scientists from the USA (3), Belarus (3), China (2), Czech Republic, Spain, and Canada. On the whole, recent scientific results from 122 Russian and foreign Institutes and Universities were reported.

The following investigating directions, gained a wide recognition at the Symposium, should be noted:

- adaptive phase and amplitude-phase correction of turbulent and thermal distortions,
- propagation of femtosecond pulses in the atmosphere,
- working out of novel methods for measurements of the turbulence, flow velocities (wind), including super-sonic jets, as well as cloud altitudes in the atmosphere,
- development of new approaches to problems of underlying surface sensing from space,
- light scattering by non-spherical aerosol particles,
- theoretic problems of modeling fields in laser sensing of atmospheric non-homogeneities,
- detection of ionosphere non-homogeneities during geomagnetic turbulence and neutral atmospheric impacts (cyclones, stratospheric warming, etc.).

Very high activity of participants in debates of the Symposium should be noted: session halls were usually overcrowded; the problems touched and discussion speeches were indicative of high interest of participants to the subject matters of the Symposium, demonstrating them to be urgent and promising for development.

The analysis of the Symposium results and scientific discussions allowed the Program Committee to formulate proposals on bettering the level of preparation of scientific and pedagogical specialists, as well as attracting the youth to promising investigations in scientific and technical directions of priority.

The Symposium was financially supported by Russian Foundation for Basic Research, institutions-organizers (V.E. Zuev Institute of Atmospheric Optics and Institute of Solar-Terrestrial Physics), and SPIE. This support favored the successive conducting of the Symposium, allowed a two-fold decrease of organization expenses for participants younger 33 years, provided for publishing Theses, and preparation of electronic Proceedings.

This thematic issue of ATMOSPHERIC AND OCEANIC OPTICS is formed from materials of invited and oral reports, recommended by Chairs of Conferences. Only small volume of the journal was the cause, limiting the number of publications. A number of papers, received later, will be published in further issues of the journal for 2009.

All papers of the Symposium will be included into electronic Proceedings, which can be found at the site of V.E. Zuev Institute of Atmospheric Optics SB RAS (www.iao.ru), a part of reports is planned to be published in the SPIE digital library.

Chair of the Organizing Committee,
Professor **Yurii N. Ponomarev**