

## Preface

The last meeting of the international working group on Atmospheric Spectroscopy Applications (ASA-2002) was held in Moscow (25–28 August). During this meeting, more than 85 scientists from Russia, France, Germany, USA, UK, Belgium, Japan, Korea, Mexico, took part. The program of ASA-2002 includes 63 oral presentations. Results from realization of joint projects of Russian and western scientists were presented in 17 papers. Several long-term research teams with groups from France and Germany were initiated during the 2nd (Moscow) ASA-1990 meeting, which was also organized by the same organizing committee: A. Barbe (France, University of Champagne-Ardenne), L. Rothman (USA, Smithsonian Observatory, Harvard University), A.I. Nadezhdinskii (Russia, General Physics Institute, RAS), and Yu.N. Ponomarev (Russia, Institute of Atmospheric Optics, SB RAS).

The various topics, which were included into the ASA-2002 program were as follows:

**1. Instrumentation of atmospheric spectroscopy and gas analysis** (Chairmen Prof. P. Varanasi (USA), A. Nadezhdinskii (Russia)).

**2. Atmospheric data. Observations and calculations** (Chairmen: Prof. Yu. Timofeev (Russia), Prof. G. Stiller (Germany), and Prof. A. Barbe (France)).

**3. Laboratory data. Experiment and Theory** (Chairmen: Prof. L. Sinitza (Russia), Prof. R. Gamache (USA), and Prof. VI.G. Tyuterev (France)).

The 7 invited speakers have presented the following reviews: The paper from J.M. Flaud (France) presented the current status of spectroscopy and the international programs concerned with the use of satellite data.

The contribution of R. Gamache (USA) and J.M. Hartmann (France) covered analysis of data on the broadening and pressure shifts of the H<sub>2</sub>O spectral lines.

G. Stiller (Germany) presented the results of the MIPAS/ENVISAT project on measurements of the atmospheric gases profiles.

P. Varanasi (USA) made a review of the modern problems in atmospheric spectroscopy and discussed various criteria of the data base formations for the regular monitoring of atmospheric gases.

The new ideas on the global description of the vibrational-rotational spectra of atmospheric gases and its application to the data base perfection were presented in the paper by VI. Tyuterev (France).

The technology of balloon-borne measurements of the minor atmospheric gases by using FTIR techniques and sun as a source of optical radiation were reviewed in the presentation by G. Toon (USA).

The current status of the analytical diode laser spectroscopy and gas analysis was discussed in the paper by A. Nadezhdinskii (Russia).

The regular papers of the ASA-2002 covered the development of the laser spectroscopy and atmospheric gas analysis instrumentation and software. Progress in the computer codes for calculating the atmospheric radiation and spectroscopic data base perfection was discussed. The new measurements and global fitting of the minor atmospheric gases spectra from far IR to UV spectral range; problems of the line shape and absorption of continua are also presented.

In this special issue of *Atmospheric and Oceanic Optics* the part of invited and regular papers of ASA-2002 are included. They are managed by the guest co-editors of this issue: A. Barbe (University of Champagne-Ardenne, France) and Prof. Yu. Ponomarev (Institute of Atmospheric Optics, SB RAS, Russia), who thank all contributors. Both languages version of this issue (Russian and English) are prepared and printed simultaneously. We hope that this topical issue will be useful for researchers and specialists on atmospheric spectroscopy as well as environmental monitoring.

*Co-editors* – Prof. A. Barbe  
Prof. Yu. Ponomarev