

Preface

Dear colleagues!

Our annual workshop was first held in 1994 as a meeting within the framework of the “Siberian Aerosols” initiative informal project. In studying this problem, we have arrived at a conclusion that aerosol processes (even on the regional scale) cannot be considered separately from the general climate and ecological problems. For this reason, we have incorporated in our team specialists in climate studies and mathematical simulation of the pollution transport and transformation. It also becomes obvious that a particular attention should be paid to aerosol-gas relations.

Moreover, even regardless the aerosol-gas relations, many aspects of changes in the regional atmosphere can drop out of analysis without understanding variations of the gas composition (first of all, greenhouse gases).

Thus, the membership of our workshop and the scope of topics presented at it have extended significantly and gone far beyond the initial framework. At the same time, the interdisciplinary “Siberian Aerosols” project has received financial support from Siberian Branch of the Russian Academy of Sciences. This is pleasant, on the one hand, because our efforts were not lost, but, on the other hand, the formal membership does not cover all scientists that may be interested in these studies. In this connection, an idea appeared to rename the annual workshop held by the Institute of Atmospheric Optics SB RAS as, for example, “Siberian Atmosphere.” After long discussions, on-line poll, and a lot of advice, we decided to keep the old name. The main argument in favor of this decision was the wish to keep on traditions, which cost that much nowadays.

I hope that this topical issue will give a good idea of the scope of the Workshop and of the subjects of many research teams in Russia. I would like to share some thoughts that arose when reading papers (naturally, they are aimed at optics of the atmosphere according to the journal’s title). The previous stage of our research has provided for good understanding of variability of the main parameters of Siberian atmosphere critical for the radiation processes. At the same time, for the further development of few-parameter regional models of optical characteristics of atmospheric aerosol in a wide wavelength range, as well as parameterization of cloud processes and radiative conditions of actual cloud systems, which are needed for calculation of the radiative budget in the general circulation models and evaluation of climate changes the research in this geographic area (midlatitudes of the Northern Hemisphere) have to be continued.

The most poorly studied processes are those occurring in winter and transient seasons (spring–fall). However, in recent decades changes of climate are most pronounced just in these seasons and at these latitudes. The most important aspect causing the need to continue research in different geographic zones of the Northern Hemisphere is, in our opinion, the following: *at the previous stage almost all measurements were conducted in the period, when the stratosphere of the Northern Hemisphere was being self-cleaned after the Mt. Pinatubo eruption. In this period, global circulation of the atmosphere was transformed, statistics of air mass alteration was changed, and, as a consequence, the aerosol-gas composition of the atmosphere varied. The period of planned measurements can be considered as a “background” one because the stratosphere has practically relaxed to its background state, and observations in Siberia in 2000 and early 2001 showed that the weather began approaching its many-year norm.*

In conclusion, I would like to thank all authors, reviewers, and the editorial staff, whose contribution allowed us to publish this issue.

*Professor M.V. Panchenko,
Executive editor*