## PREFACE

Dear colleagues!

This topical issue of *Atmospheric and Oceanic Optics* is largely based on the papers discussed at the IX Workshop "Siberian Aerosols." In addition, it includes the papers, whose authors did not take part in this Workshop, that nevertheless correspond to the main subject of this issue and could be of interest for the research community.

Since this journal is issued on the threshold of the X Workshop, I would like to attract the reader's attention to some features inherent in these workshops in few recent years.

An undoubtedly positive fact is the increasing number of participants, including a sufficient number of young scientists.

In recent years we have seen the markedly increasing number of works completed in cooperation between two or more research institutes. This indicates that our Workshop successfully copes with its main task as an informal coordinator for the research teams:

Traditionally, the workshops cover the following topics;

– Aerosol optical and microphysical properties;
– Aerosol chemistry and aerosol-to-gas relations;
– Gaseous aerosol precursors;
– Aerosol generation, transformation and sink;
– Simulation of atmospheric processes;
– Aerosol and climate;
– Anthropogenic aerosol;
– Methods and facilities for aerosol studies.

At the same time, it should be noted that as our knowledge of atmospheric aerosol extends and becomes deeper the number of works that do no fit the frameworks of these topics increases.

Thus, the development of interdisciplinary relations in theoretical and experimental studies leads to extending topics covered by papers. This point, most valuable in my opinion, already begins to contradict a little bit the name of Workshop – "Siberian Aerosols," which gives rise to some criticism from my colleagues.

For this reason, I venture to occupy the reader's attention a little bit more and by speaking about my point of view concerning the subject of works in the research field under consideration. The somewhat pretentious title "Siberian Aerosols" was formed historically. Certainly, it is clear to all specialists that one should hardly expect appearance of some particular basic physical and chemical properties or processes determining uniqueness of particles in the atmosphere over Siberia. This title should be understood as our desire to state the geophysical nature of the processes occurring in our region and causing generation, transformation and sink of atmospheric particles.

If it is so, it is quite natural to join specialists of almost all fields of environmental research within the framework of one workshop. Let me present some simple (not to say primitive) examples: for correct estimation of the number of generated particles, cooperative efforts of physicists, chemists, biologists, and mathematicians are needed, further description of particle development calls for efforts of weather-chart makers, meteorologists, specialists in computer simulation, climatology, etc. All the capabilities provided by recent instrumentation and observation systems from local to spaceborne are in demand as well. It is also clear that in addition to studying the purely aerosol problems we need the knowledge of other atmospheric constituents, as well as an in-depth understanding of the laws governing the atmosphere on the global and regional scales.

Also I would like to say a few words about the aerosol problems, which are most urgent in my opinion and call for more attention.

Regardless of a wide scope of works on experimental investigation of aerosol in the Siberian atmosphere, the degree of generalization of the results is apparently insufficient. First, it applies to intercomparison of the data on aerosol chemical composition and microstructure.

Orienting at the issues associated with radiative processes, it is necessary to intensify joint efforts on intercomparison of aerosol microphysical characteristics and their optical manifestation with the emphasis on absorbing properties. The particular attention should be paid to a wide coverage of territories and seasons, rather than to point measurements and individual observation series.

Finally, the number of papers devoted to investigation of particles of the nanometer range – just the range, in which their life begins – is still quite insufficient. The number of foreign publications concerning these particles grows very fast, and it seems to me that just in this range we should expect new breakthroughs.

While deliberately stressing this point, I would like to call all the potential participants of the next Xth Workshop to prepare papers and to formulate most promising tasks for the future.

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