



Feature Papers of Aerosol Impacts on Climate and Air Quality

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Message from the Guest Editor

Dear Colleagues,

Aerosol particles play a central role in the composition and radiation budget of the atmosphere. The aerosol distribution on global and regional scales is dependent on emission, chemical processing, removal, and horizontal–vertical transport and may significantly affect local and regional air quality. A variety of measurement techniques and numerical modeling tools is used to study aerosol spatial distribution and its effects on atmospheric composition and radiative transfer. The latter take place through a number of processes, from direct scattering and absorption of solar and planetary radiation to indirect effects related to the formation of cloud droplets and ice particles in the troposphere, or even in the stratospheric polar vortices. Other effects may play a substantial role in atmospheric radiative transfer. A reliable estimate of the direct radiative effects can be reached if the vertical distribution of the particles is known, along with their size distribution and chemical composition. A meaningful representation of the indirect effects needs to take several complex microphysical processes into account.

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Guest Editor





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Message from the Editor-in-Chief

Continued developments in instrumentation and modeling have driven atmospheric science to become increasingly more complex with a deeper understanding of concepts, mechanisms, and interactions. This is the field that innovation built and it has led to a better appreciation for the complexity with atmosphere. Human life is intertwined in this complexity as we strive to better understand our atmosphere. Climate change is constantly stretching the limits of our thinking and forcing new ideas and concepts to be played out. Welcome to the Anthropocene!

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