Special Issue

Aerosol Radiative Forcing

Message from the Guest Editors

The aerosol radiation effect plays an important role in boundary layers. Aerosols can reduce surface solar radiation and increase the temperature in the upper layer by absorbing or backscattering solar radiation. Changes due to aerosols in the PBL temperature have led to a more stable atmospheric stratification and reduced energy transfer. Moreover, more aerosols can suppress the dispersion of pollutants, leading to further increases in aerosol concentrations in the lower PBL. In different typical regions, there are considerable differences in the type and magnitude of aerosols due to local developments and human influence. Therefore, further research based on aerosol composition and radiation are needed. Aerosols can affect solar radiation through absorption, reflection, and scattering. Northwest China is an important source of sand and dust. Dust aerosols not only affect local radiation, but also a wider range of radiations due to long-distance transmission. There is a complex correlation between the chemical composition information of aerosols and the optical and radiative properties of aerosols, requiring further investigation.

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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!

Editor-in-Chief

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