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Global Black Carbon Aerosols

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Deadline for manuscript submissions:
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Message from the Guest Editors

Dear Colleagues,

Light-absorbing black carbon (BC), emitted from incomplete combustion of fossil fuel, biofuel, and biomass, is one of the strongest absorptive aerosols for solar radiation, and is one of the frontal research fields in current atmospheric studies. Once emitted into the atmosphere, BC particles quickly become inhomogeneous during aging processes. BC and its mixtures directly influence local and global climate by strongly absorbing solar radiation. Due to the complexity in geometry and mixing structures, our understanding of BC optical properties is still limited, which makes BC, especially aged BC, one of the largest uncertainties in estimations of aerosol radiative forcing.

This Special Issue focuses on the measurement and modeling of the physicochemical and radiative properties of BC aerosols, including chemical composition, size distribution, mixing state, and optical properties, spatial and temporal distributions, and source apportionment. Moreover, novel methods and techniques for remote sensing of BC properties and other topics related to climate effects of BC and aged BC are also welcome.

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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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