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Carbonaceous Aerosols

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Message from the Guest Editor

Carbonaceous aerosols include black carbon (BC) and organic carbon, and the absorbing organic carbon, named brown carbon (BrC), absorb radiation in the ultraviolet and visible spectra. BC is one of the strongest absorptive aerosols for solar radiation, representing one of the frontal research fields in current atmospheric studies. BC and its mixtures influence local and global climate directly by strongly absorbing solar radiation. Due to the complex geometry and mixing structure, our understanding of optical properties of carbonaceous aerosols is still limited, which makes carbonaceous aerosols one of the largest uncertainties in estimating aerosol radiative forcing.

This Special Issue focuses on the measurements and modeling physicochemical and radiative properties of carbonaceous 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 properties of carbonaceous aerosols and other topics related to climate effects of carbonaceous aerosols 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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