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Black and Brown Light-Absorbing Carbon in the Atmosphere

Guest Editor:

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Deadline for manuscript submissions:
closed (30 September 2020)

Message from the Guest Editor

Dear Colleagues

While the most widely-recognized form of atmospheric light-absorbing carbon (LAC) is black carbon (BC) or soot, more diverse forms of LAC in the atmosphere have been increasingly recognized over the last two decades. Through solvent extractions, light-absorbing organic carbon (so-called "brown carbon", brC) has been demonstrated as a major LAC species and in some scenarios is the dominant LAC species in terms of its contribution to regional radiative forcing. Separately, electron microscopy studies have identified the abundance of "tarballs", the refractory, spherical, and light-absorbing particles formed from the viscous, low-volatility (tar-like) organic compounds present during biomass combustion or residual-fuel combustion

Research is needed to understand these brown carbon species: their origins, fate, formation mechanisms, chemistry, and physical properties. Such research will inform our understanding of combustion emissions and allow climate models to more accurately represent the Earth's present and future atmosphere. This special issue of Atmosphere welcomes submissions addressing these and related research.

Dr. Joel C Corbin
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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