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Black Carbon in Atmosphere: Instrumentation, Chemical–Physical Behavior, Human Health Implications

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Deadline for manuscript submissions:
closed (31 January 2022)

Message from the Guest Editor

Carbonaceous particles, the largest contributor to atmospheric PM, are composed of two main fractions, elemental carbon (EC) and organic Carbon (OC). The use of such methodology is important for different reasons: It is fundamental for the evaluation of atmospheric pollution from combustion processes; it can be used as a specific index of car traffic pollution; it is very significant for the protection of human health due to the high permanence of the carbonaceous particles in the atmosphere and the numerous chemical–physical transformation processes that they can undergo in the atmosphere; the separation between EC and OC is of fundamental importance for the study of the pneumoconiogenic effects and, more generally, for the toxic effects and for the study of the mechanisms of formation of photochemical pollutants. This Special Issue aims to examine the state of the art in this important topic, focusing on theory and on the development of new instrumentation useful for this determination, chemical–physical problems in the atmosphere, health and toxicological implications related to exposure to these pollutants.

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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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Journal Rank: CiteScore - Q2 (*Environmental Science (miscellaneous)*)

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