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Understanding the Formation, Stability, and Reactivity of Environmentally Persistent Free Radicals (EPFR)

Guest Editor:

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Deadline for manuscript submissions:
closed (27 November 2022)

Message from the Guest Editor

Recently, an emergent subset of airborne organic species has received increased attention: environmentally persistent free radicals (EPFR) can be stable for several months in the atmosphere. Rather than consisting of an individual species, EPFR is a *class* of compounds, each of which has an unpaired electron, encompassing a variety of chemical species. Having been observed in biochar, microplastics, combustion soot, fly ash, cigarette smoke, soils, and in Asian dust storms, EPFR are now known to be ubiquitous in atmospheric PM. Despite accounting for less than 0.001% of organic carbon in atmospheric particulate matter, the presence and formation of EPFR is significant from the perspectives of both health effects and atmospheric chemistry. Therefore, the goal of this Special Issue is to gain a better understanding of atmospheric EPFR.

Although all manuscripts relating to EPFR will be considered, topics related to the following are of particular interest:

- The stability of EPFR during atmospheric processing;
- Formation kinetics of EPFR during various atmospheric processes;
- Mechanisms of EPFR formation.

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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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