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Characteristics and Formation of Secondary Organic Aerosols

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Message from the Guest Editors

Secondary organic aerosols (SOAs), formed from the multigenerational oxidation of gaseous precursors, account for a major proportion of submicron particles, can directly or indirectly affect air quality, climate change and human health. However, atmospheric models usually underestimate the measured SOAs due to missing precursors, formation mechanisms and the uncertainty in SOA yield. Although great efforts have been made in the last few decades, a great discrepancy still exists in the modeled and measured SOAs due to the complexity of the precursors and formation mechanisms. Therefore, there is an urgent need to establish the chemical and physical properties of SOAs, both from gas-phase precursors and from particle-phase evolution as a function of atmospheric conditions. A better understanding of the SOA formation mechanisms and characteristics will help to improve the prediction of aerosol loading and help mitigate air pollution around the world. The aim of this Special Issue is to present recent advances in the field of SOA formation, which encompasses SOA precursors from different sources, generated SOAs, and SOA follow-up effects.

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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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