Special Issue

Chemical Composition and Sources of Particles in the Atmosphere

Message from the Guest Editors

Although the contribution of aerosols with various chemical compositions has begun to be recognized, it is still unclear. Sea spray drift and volcanic eruptions, as well as forest or shrub fires, drifting dust or soil, and pollen dissemination, were the principal sources of primary aerosols prior to the industrial revolution. Human activity has had a considerable impact on the chemical composition of aerosols since the dawn of the industrial age. Significant amounts of black carbon, nitrate, sulfate, and organic aerosols are released into the ambient air by vehicle exhausts, industrial emissions, coal burning, biomass burning, and cooking, affecting air quality and aerosol atmospheric impact. The secondary formation mechanism of aerosols is very complex due to their complicated precursors and formation pathways, which has become a rapidly developing field in recent decades. At different times and locations, the fraction of different chemical components and source contributions to aerosols in the atmosphere changed. To better understand aerosol chemical composition and source, as well as to mitigate climate change and protect human health, further research is needed.

Guest Editors

Dr. Shan Huang

Institute for Environmental and Climate Research, Jinan University, Guangzhou 511443, China

Dr. Wei Wei Hu

State Key Laboratory of Organic Geochemistry, Guangzhou Institute of Geochemistry, Chinese Academy of Sciences, Guangzhou 510640, China

Deadline for manuscript submissions

closed (28 April 2023)

Atmosphere

an Open Access Journal by MDPI

Impact Factor 2.3
CiteScore 4.9

mdpi.com/si/125474

Atmosphere
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
atmosphere@mdpi.com

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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!

Editor-in-Chief

Dr. Daniele Contini
Institute of Atmospheric Sciences and Climate (ISAC), National Research Council (CNR), Str. Prv. Lecce-Monteroni km 1.2, 73100 Lecce, Italy

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