

Special Issue

Advances in Air Pollution Control and Air Quality Improvement in Chinese Megacity Clusters: From Formation Mechanisms to Mitigation Strategies

Message from the Guest Editors

Megacity clusters in China, such as the Yangtze River Delta, Beijing-Tianjin-Hebei and Pearl River Delta, serve as critical engines for economic development while facing persistent challenges from complex air pollution. This Special Issue seeks to compile pioneering research that elucidates the physical and chemical mechanisms governing air pollution formation and evolution in these densely populated regions. We particularly encourage submissions employing innovative methodological frameworks, including but not limited to, machine learning-enhanced prediction systems; coupled meteorology–chemistry modeling at high resolutions; advanced source apportionment techniques integrating chemical speciation with multivariate statistical approaches and novel exposure-risk assessment paradigms. Investigations evaluating the efficacy of emission control policies and analyzing the ancillary air quality benefits associated with carbon neutrality pathways are strongly welcomed. This collection aims to establish an international forum for knowledge exchange and to provide robust scientific support for the next generation of air quality management strategies in urbanized regions globally.

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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

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