Special Issue

Observations, Simulations, and Inventories of Carbon Sinks, Sources, and Carbon Dioxide Removal (CDR)

Message from the Guest Editors

The aim and scope of this Special Issue are to promote understanding of carbon sources and sinks at various scales to help achieve carbon-neutral goals around the world. Through observations (ground-based, air-based, satellite-based, etc.), simulations (both forward simulations and inversions), and inventories (using both traditional IPCC methodology and extended near-real-time inventories), useful information can be obtained for policy-makers, combining bottom-up and top-down methods; both consistency and inconsistency are important for the objective recognition of carbon budgets across different scales (global, continental, regional, country-level, provincial, city-level, county, industrial parks, etc.). Moreover, to achieve the climate goals of the Paris Agreement, large amounts of carbon dioxide removal (CDR) are needed, including ~10 GtCO2/yr for the 1.5 □ target; however, CDR technologies still encounter significant challenges in efficiency, economics, and scaling. Therefore, we encourage contributions to this Special Issue to outline more information in this field, as well as novel CDR technologies.

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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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