



Parameterization of Near-Surface Turbulence Processes in Atmospheric Models: Past, Present and Future

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Message from the Guest Editors

The application of atmospheric boundary layer studies arises in many areas. One of the challenges for operational models to accurately forecast daily weather and air quality is the adequate representation of boundary layer processes in the atmospheric models. Although significant progress has been made in this direction, proper representation of various turbulence regimes in the atmospheric boundary layer still present challenges to numerical models.

Relevant topics include, but are not limited to:

Improved understanding of near-surface atmospheric processes through the analysis of in-situ measurements.

Parameterization of surface fluxes of heat momentum and moisture in weather and climate models under varying atmospheric stability conditions.

Modeling and theoretical studies of surface-atmosphere interaction processes and their significance in air-quality and dispersion modeling.

Studies related to the sensitivity of the climate model projections to the representation of atmospheric boundary/surface layer processes.

New observational datasets and microscale scale CFD modeling for atmospheric boundary layer





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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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