



## Flow Dynamics in the Stable Planetary Boundary Layer

Guest Editors:

**Dr. Luca Mortarini**

1. Institute of Atmospheric Sciences and Climate (CNR), 10126 Torino, Italy  
2. Department of Physics, Universidade Federal de Santa Maria, Santa Maria 97105-900, RS, Brazil

**Dr. Daniela Cava**

Institute of Atmospheric Sciences and Climate (CNR), 73100 Lecce, Italy

Deadline for manuscript submissions:

**closed (15 December 2019)**

### Message from the Guest Editors

Dear Colleagues,

Understanding and predicting the dynamic of the stable boundary layer is of paramount importance for the PBL community.

The stable boundary layer is an intricate pattern of turbulent and non-turbulent motions on different scales. The balance of the turbulent kinetic energy production and buoyancy destruction drive the transition between turbulent and non-turbulent states in which a wide range of phenomena, known as the submeso motions, interact, giving rise to intermittent turbulent episodes. In cases of very stable stratification, pollutants are trapped near the ground, strongly affecting air quality. Further, the very stable boundary layer is always associated with low-wind speed episodes, which are important for wind power assessment. Unfortunately, our understanding is still limited, and atmospheric and dispersion models poorly perform in the VSBL because submeso motions are not correctly resolved. The vertical decoupling of the boundary layer complicates the parameterization of the turbulent fluxes with the Monin–Obukhov similarity theory.

Dr. Luca Mortarini

Dr. Daniela Cava

Guest Editor





## 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

## 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!

## Author Benefits

**Open Access:** free for readers, with article processing charges (APC) paid by authors or their institutions.

**High Visibility:** indexed within Scopus, SCIE (Web of Science), Ei Compendex, GEOBASE, GeoRef, Inspec, CAPlus / SciFinder, Astrophysics Data System, and other databases.

**Journal Rank:** CiteScore - Q2 (*Environmental Science (miscellaneous)*)

## Contact Us

---

Atmosphere Editorial Office  
MDPI, Grosspeteranlage 5  
4052 Basel, Switzerland

Tel: +41 61 683 77 34  
[www.mdpi.com](http://www.mdpi.com)

[mdpi.com/journal/atmosphere](http://mdpi.com/journal/atmosphere)  
[atmosphere@mdpi.com](mailto:atmosphere@mdpi.com)  
[X@Atmosphere\\_MDPI](https://twitter.com/Atmosphere_MDPI)