

## The challenge of small-scale turbulence in planetary boundary layers

***Dr. Juan Pedro Mellado***

*Max Planck Institute for Meteorology  
Hamburg, Germany*



Planetary boundary layers are important in a wide variety of contexts: in climatology, since they modulate the fluxes between atmosphere, land and ocean; in meteorology, since they influence weather conditions; in fluid mechanics, since they constitute a paradigm of multi-scale, complex systems. Despite their relevance, our understanding of how turbulence interacts with other phenomena in planetary boundary layers, such as density stratification, radiative transfer and cloud physics, remains limited in crucial ways, particularly at meter and submeter scales. During the last decade, however, direct numerical simulations have provided new insight into these interactions. I will use various examples to illustrate some of these recent advances and to indicate their potential development during the coming years.

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**MPIDS, Seminar room 0.77,  
Am Faßberg 17, Göttingen**

**Max Planck Institute for Dynamics and Self-Organization  
Group Theory of turbulent flows  
Dr. Michael Wilczek**

Email: michael.wilczek@ds.mpg.de, Phone: +49-(0)551/5176-643  
Am Faßberg 17, 37077 Göttingen, Germany