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Atmospheric Optical Turbulence: Measuring, Forecasting, Modelling and Correcting

Guest Editor:

Dr. James Osborn
Centre for Advanced Instrumentation, University of Durham, Durham DH1 3LE, UK

Deadline for manuscript submissions:
closed (15 December 2020)

Message from the Guest Editor

Optical propagation through the Earth's atmosphere is exploited by several fields including, for example, free-space optical communications and optical astronomy. Optical turbulence in the Earth's atmosphere causes a distortion of the wavefront and leads to detrimental performance of these systems.

In both applications, adaptive optics systems can be used to correct for the detrimental effects of the optical turbulence. The performance of these systems is fundamentally limited by the temporal and spatial structure as well as the magnitude of the turbulence. Therefore, high-fidelity measuring, forecasting and modelling is essential to the design and operation of these systems.

Optical turbulence is a dynamic and complex process, making measurements, models, forecasts and correction an active and interdisciplinary research area with significant overlap between the topics. In this Special Issue, we invite colleagues working in this active and important area to submit ground-breaking articles and to help to create an interdisciplinary knowledge base of the state-of-the-art developments in the field.

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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!

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Contact Us

Atmosphere Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland

Tel: +41 61 683 77 34
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mdpi.com/journal/atmosphere
atmosphere@mdpi.com
𝕏@Atmosphere_MDPI