Special Issue

Climate Change and Its Impact on Ground Based Astronomical Observations

Message from the Guest Editor

Climate change is affecting and will increasingly affect astronomical observations. For ground-based astronomical facilities with a typical lifetime of at least 30 years, it is essential to be aware of future climate evolution to optimize observation strategies and instrumental upgrades. New facilities have been introduced and others are in the planning phase. New areas of the world become appropriate for astronomy while others suffer declining interest. Further investigation is needed to better understand the underlying mechanisms of change and assess the impact's severity.

What are the underlying mechanisms of change? Which part of the atmosphere is directly concerned? Most observatories provide in situ measurements of local weather, and several operate dedicated instruments directly monitoring atmospheric turbulence parameters, which can be used to validate the output of the highest resolution global climate models available. The horizontal resolution of the meteorological models is constantly improving, allowing realistic forecasts of the local flow even in such irregular high-altitude terrain where most large facilities are located.

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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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