Special Issue

Cyclones: Types and Phase Transitions

Message from the Guest Editors

There are different types of synoptic-scale cyclones (extratropical, subtropical, and tropical) and phase transitions. The most widely used method to classify cyclone types and phases is the one developed by Bob Hart, called Cyclone Phase Space (CPS). However, this methodology has limitations as it does not allow for the use of universal thresholds in cyclone classification due to its dependency on data resolution. Addressing this issue, the Tenth International Workshop on Tropical Cyclones (IWTC-10) of the World Meteorological Organization (WMO) highlighted the necessity for efforts to develop a universal methodology to identify cyclone types and their transitions. This Special Issue aims to fill this scientific gap. In addition, we aim to publish studies focusing on numerical simulations of cyclones and polar lows from different perspectives: synoptic, seasonal forecasts, and climate projections, using either convection-permitting models or not. The keywords provided below indicate the wide spectrum of topics that can be addressed in this Special Issue.

Guest Editors

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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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