Special Issue

Interactions between Extratropical Cyclones and Atmospheric Rivers

Message from the Guest Editors

Recent studies show that the associated extratropical cyclone (ETC) and atmospheric river (AR) pairs may intensify rapidly due to the positive feedback of diabatic processes between them. This positive feedback may play a role in extratropical cyclogenesis and in strengthening or steering the AR, suggesting a complex relationship between the ETC and AR lifecycle that has not been fully described in the existing literature. Following the few studies to explore the ETC-AR link, there is an urgent need to better understand the interactions between ETCs and ARs. Topics of interest for this Special Issue include but are not limited to:

- Influence of ETC–AR interactions on local precipitation and the water cycle;
- Natural hazards presented by interacting ETCs and ARs;
- Synoptic scale and mesoscale dynamics of ETC–AR interactions;
- Numerical modeling of ETC–AR interactions;
- Future changes in ETC–AR interactions under global warming;
- Coupled ETC–AR lifecycle including external phenomena, such as tropical moisture exports, the Madden–Julian Oscillation, and secondary cyclogenesis.

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About the Journal

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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