



## Impact of Thunderstorms on the Upper Atmosphere

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Deadline for manuscript  
submissions:  
**closed (31 August 2024)**

### Message from the Guest Editor

Thunderstorms play an important role in global atmospheric processes and are also a major player in atmospheric electricity. Aside from the more familiar cloud-to-ground and in-cloud lightning flashes, they also produce electrical phenomena in the upper atmosphere called transient luminous events (TLEs) such as elves, red sprites, and blue jets. These upper atmospheric phenomena associated with thunderstorms are just beginning to be studied, but many details are still poorly understood and their importance is underappreciated.

This Special Issue welcomes papers dealing with the observational methods, data analyses, and modeling of all phenomena associated with the impact of thunderstorms on upper atmospheric processes. Potential topics include but are not limited to the following topics: satellite observations of storm-top phenomena; analysis and modeling of storm-top processes; upward internal gravity wave generation and propagation induced by thunderstorms; observations of storm impact phenomena on the upper atmosphere; upward lightning discharge processes; and the upward transportation of trace chemicals such as ice, water vapor, trace gases, and aerosol particles.





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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!

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