

Lightning Applications in Severe Weather Research

PRICE, Colin^{1*}

¹Department of Geophysical, Atmospheric and Planetary Sciences, Tel Aviv University, Israel

The study of lightning and thunderstorms is important for many practical and scientific reasons. Although lightning is a direct hazard to aviation, power companies, and the public, while igniting many forest fires around the globe, lightning activity within thunderstorms is also related to different types of severe weather. Due to the relationship between cloud electrification and the microphysical and dynamic structure of these storms, changes in lightning characteristics in storms can tell us a lot about the inner workings of thunderstorms. Lightning activity has been related to the likelihood that storms will produce hail, flash floods, tornadoes and other wind damage. In addition, it has been shown that lightning is related to the intensification of typhoons. With regional and global VLF lightning detection networks today supplying data in real time, while in the near future we will have real time lightning data from geostationary satellites, lightning observations provide a useful tool to help in the forecasting of severe weather, and the possibility to provide early warnings for the public in advance of these damaging storms.

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