

A Study of Lightning Activities and Geomagnetic Storms during 1998-2014

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We apply z test statistically examining lightning activities 30 days before and after the geomagnetic storm onset during a 17-year period of 1998-2014. The lightning activities are observed by Lightning Imaging Sensor onboard TRMM (Tropical Rainfall Measuring Mission) satellite, while the storm onset is derived by the Dst index. It is found that lightning activities significantly reduce after the geomagnetic storm, and a greater storm can suppress lightning activities for a longer period. The results also show that the suppression effect is more prominent in the northern hemisphere than that in the southern hemisphere. These implies the storm-generated electric field in the atmosphere and the continental (land) effect being essential.

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