

Characteristics of Sprites and their parent thunderstorm systems in winter of Japan.

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Sprites are transient luminous events at the altitude of the mesosphere induced by cloud-to-ground discharges. To investigate the relationship between the sprites and their parent thunderstorm systems in winter of Japan, the teams from Tohoku University and Stanford University conducted the International Wintertime Sprite Campaign in the periods of December 2001 - February 2002 at Iitate Observatory (37.7N, 140.7E) and January 21- 24, 2002 at Gunma University (36.23N, 139.04E). We captured 22 sprites with multi-anode array photometers (MAPs) and image intensified CCD cameras (IICCDs). Individual thunderstorm system was found to correspond to cold fronts passing over the Sea of Japan or the Pacific Ocean. By combining the sprite data obtained in the period from 1998 up to 2002 with GMS satellite images and radar precipitation maps, we will discuss specific features of luminous events and thunderstorm systems. The obtained results will be compared with the summertime sprites observed in the United States.