

Characteristics of Elves Observed above Japan in winter

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We carried out optical observations of sprites and elves with multianode array photometers and CCD cameras in Dodaira (36.0N, 139.2E) in December 1998 and January 1999, and in Sendai (38.2N, 140.5E) in February 1999. We succeeded in observing elves for the first time in Japan in winter. The occurrences of the elves were related to lightning discharges associated with a cold front. Until now elves were observed only above the North America continent in summer. Because of the bottom altitude of thundercloud in winter is much lower than that in summer, elves in winter are expected to have different characteristics from those in summer. Using data on the location and polarity of lightning discharges, we will discuss the differences in the characteristics of elves above Japan and North America.

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