

## Estimation of the Energies of Electrons Inducing Elves Observed above Japan in Winter

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We carried out optical observations of sprites and elves at Maebashi in Japan from December 1999 to February 2000 with two multi-anode array photometers (MAP) and an image intensified CCD camera (IICCD) and other optical instruments. The two MAP instruments were equipped with filters, red (380-500 nm) and blue (560-800 nm), respectively. We succeeded in capturing spectral data for 4 events of elves during this campaign.

Using these MAP spectral data, we calculated the energies of electrons inducing elves. Furthermore, we compared these results with the characteristics of elves observed in Colorado, USA.

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