
JOURNAL CLUB

Sprite Observations at 1000 Frames per Second

by

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ABSTRACT

Sprites are optical emissions observed sporadically above thunderstorms. They occur at altitudes between 30 and 100 km and lasts from 1 to several 100 milliseconds. Three years ago we built a high speed camera for an auroral rocket program. This camera has turned out to be excellent for sprite research and has provided spectacular images. Analysis indicates that the energy input into the mesosphere associated with a lightning strike in the troposphere sets off a sequence of processes, presumably chemical in nature, to produce optical emissions lasting significantly longer than would be expected from a single lightning impulse. Data were also recorded with a 10 kHz multi-channel photometer system indicating that there is significant ionization. This brings up the interesting question: Do sprites have long term effects on the mesosphere? If so they may be of consequence in relation to global change research.

Friday, September 14
Room 417, IARC Bldg
3:45 pm