

Plasmoid ejection and auroral brightenings

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Geotail plasma and magnetic field observations of 24 plasmoids between 21 and 29 Re have been compared with Polar ultraviolet observations of auroral brightenings.

Both single and multiple plasmoids almost always corresponded to brightenings, but the brightenings were sometimes weak and spatially limited and did not always grow to a global substorm.

The plasmoids were occasionally observed before the brightenings but more frequently were observed 0-2 min after the brightenings, with the delays probably due to the transit time to the observation point.

It seems likely that formation of a near-Earth neutral line causes each brightening in the polar ionosphere, but these formations do not always lead to a full-fledged substorm.