

## **THE MAGNETOSPHERIC RING CURRENT DECAY MECHANISMS**

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We examine the ring current ion lifetimes for the possible mechanisms of its decay. Colomb scattering, charge exchange and plasma instability mechanisms are used for estimation of its lifetime. They are compared with decay characteristic time of the ring current that is different for the main and recovery phase of magnetic storm. The available ion composition data make possible to assume that very short characteristic decay time during main phase of geomagnetic storms is associated with plasma instabilities. The rise of time delay of the ring current with increasing storm intensity during recovery phase is accounted for the ion composition variations with changing the value (and hence position) of the ring current and /or by a rise of energetic proton fraction on low L. The magnetospheric ring current ion composition in connection with its decay is studied. Ion transport to the magnetospheric ring current is discussed. The important role of the field-aligned currents in this process is noted.

ring current, ion composition, characteristic time

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