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Latitude variations of the Storm Time Equatorial Belt, observations and theory.

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The pitch angle distribution of the ring current ions determines the latitude extent of the low altitude STEB (Storm Time Equatorial Belt). The STEB is generated by ENAs from the ring current. An isotropic ring current, prevailing during particle injection, will generate a STEB with maximum intensity off equator, around 38 degrees ILAT. During the storm recovery phase, the pitch angle distribution of the ring current particles develops from an isotropic distribution to a more pancake shaped one. This has the effect that the peak of the ENA production moves from mid latitudes toward the equator. A model for this behaviour of the STEB and the ring current is presented and related to storm time observations performed by the low altitude polar orbiting NOAA satellites.