



An approach to forecast major GIC events

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In addition to provide fascinating auroral displays, the large and violent magnetic substorms may endanger power grids and cause problems for a variety of other important technical systems. Such substorms generally result from the build-up of excessive stresses in the magnetospheric tail region caused by imbalance between the transpolar antisunward convection of plasma and embedded magnetic fields and the sunward convection (return flow) at auroral latitudes. The stresses are subsequently released through substorm processes, which may, among other, cause rapidly varying ionospheric currents in the million-ampere range that in turn endanger power grids through the related "Geomagnetically Induced Current" (GIC) effects. The presentation will discuss the construction of a geomagnetic stress parameter based on a combination of polar cap indices and auroral electrojet monitoring to be used in the forecasting of major GIC events.