



A comparative study of Kp, Ap, Km, Am, Dst and AE index

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Because of its current system, the magnetosphere balance the solar wind impact. If the solar wind parameters change, the magnetospheric balance is upset. The magnetospheric currents react in order to prevent the magnetosphere to be crushed and to re-establish a new equilibrium state. The changes in the different current sheets can be measured on the ground and are used to estimate the magnetospheric activity through the magnetic activity indices. The ring current, or storm, activity is usually estimated using the Dst index, the auroral, or substorm, activity using the AE index, and the global activity using the Kp index. However, Kp is not the only global magnetic index: Ap, Km and Am could also be used. This paper presents a comparative analysis between those six indices using autocorrelation and cross correlation in order to study the inertia of each index and the link which could exist between them.