



The combined Polar Cap (PCC) index as a space weather parameter. Application of the unified PCN and PCS indices.

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The now unified polar cap indices, PCN for the northern polar cap and PCS for the southern polar cap, are derived from analysis of magnetic variations in the polar caps (Troshichev et al., 2006). The indices mainly relate to the transpolar ionospheric electric currents generated by the interaction of the solar wind with the magnetosphere. The presentation discusses the relations between the PCN and PCS indices and the interplanetary merging electric field (MEF) with particular emphasis on the correlation of a combined PC index, PCC, with the MEF. The MEF parameter closely correlates with global disturbances such as magnetic storms that are caused by the impact on the magnetosphere of the enhanced solar wind following eruptive solar activity. The new PCC index resolves the ambiguity implied in having two index series to be proxy for the same merging electric field and to represent global magnetic activity. The presentation provides examples of the close relationship between the new polar cap index and the global magnetic activity level represented by the Dst index. The PCC index can be used to analyze magnetically disturbed conditions and provide forecast of geomagnetic storms.