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The unified Polar Cap (PC) index. Calculation procedures, quality control and interpretation

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Basically, the Polar Cap (PC) index introduced by Troshichev and Andrezen (1985) is derived from polar magnetic variations with respect to the quiet level. The PC index values are calibrated on a statistical basis to approximate values in units of mV/m of of the interplanetary "merging" (or "geo-effective") electric field (MEF) conveyed by the solar wind. The PC index is mainly a measure of the intensity of the transpolar ionospheric current related to the polar cap antisunward ionospheric plasma convection driven by the dawn-dusk electric field generated by the interaction of the solar wind with the Earth's magnetosphere. The index thus provides a measure of the global magnetic activity related to solar wind conditions. The presentation will describe the calculation procedures, the quality control efforts, and discuss the interpretation of index variations. The PC index now available on-line in real time with a latency of around 5 min can be used to analyze magnetically disturbed conditions and provide forecast of geomagnetic storms.