



Critical assessment of the IAGA-endorsed Polar Cap(PC) indices

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On basis of documentation comprising the description in Troshichev (2011) and referenced publications, and upon recommendation from a Task Force group, the IAGA assembly in 2013 in its resolution no. 3 (2013) endorses the Polar Cap (PC) indices, PCN and PCS, in the versions presented jointly by the Russian Arctic and Antarctic Research Institute (AARI) and the Danish Space Research Institute (DTU Space). In the resolution, IAGA “recommends use of the PC index by the international scientific community in its near-real time and definitive forms “. In spring 2014 the IAGA-endorsed PC indices were made available at the technically excellent web portal <http://pcindex.org> . However, issues comprising the handling of reverse convection events in the calculation of index coefficients, and the determination of the reference level (QDC) from which the disturbances are counted, which have not been examined and documented properly, deteriorate the general validity of the indices (Stauning, 2013, 2015). The archival PC index data, furthermore, comprises considerable sections of corrupted index values (Stauning, 2016). The real-time index values display excessive variations with respect to the corresponding posterior index data. Most of these problems, as will be shown, can be avoided by relatively simple modifications of the PC index derivation procedures.