

Interactive comment on “Comment on “Invariability of relationship between the polar cap magnetic activity and geoeffective interplanetary electric field” by Troshichev et al. (2011)” by Peter Stauning

Peter Stauning

pst@dmi.dk

Received and published: 16 January 2021

Copenhagen 16 January 2021/PSt

Reply to Interactive comments by Anonymous Referee #1 on “Comment on “Invariability of relationship between the polar cap magnetic activity and geoeffective interplanetary electric field” by Troshichev et al. (2011)” by Peter Stauning.

The comments by the Anonymous Referee #1 expresses much the same concerns as the commentary note over the mistake in using the interplanetary magnetic field

C1

components IMF By and Bz in their GSE version instead of the prescribed GSM version and also suggests issuing a “persistent warning regarding TJS2006”. As co-author of Troshichev et al. (2006) I share the responsibility for the error. I have some time ago without success suggested to Dr. Troshichev, first and corresponding author of the publication, to issue a corrigendum note to J. Geophys. Res. Space Physics where the article was published. Actually, I have also discovered errors in the calculation code used for the present calculations of the scaling parameters for the “definitive” PCN index values made at the Danish Space Research Institute, DTU Space, co-responsible with AARI for the IAGA-endorsed PC indices. I have informed AARI as well as DTU Space (and IAGA officers) of the supposed failure but received little response. Thus I have submitted a manuscript with description of the errors, which affect the IAGA-endorsed version as well as previous PC index versions issued from AARI. The manuscript is presently in review.

As part of the manuscript discussing PC index versions developed at AARI I have suggested to issue a corrigendum note for the mistake on the GSE representation of IMF components in Troshichev et al. (2006). The suggested text is: “The publication, Troshichev, Janzhura, and Stauning (2006) by mistake used the Interplanetary Magnetic Field (IMF) components BY and BZ in the geocentric solar ecliptic (GSE) system instead of the geocentric solar magnetospheric (GSM) system in the calculation of PC index scaling parameters. The incorrect parameter sets are displayed in the colour-coded diagrams in Fig. 3 of the publication. The remaining part of the article is not much affected by the incorrect scaling parameters. However, the parameter sets, now named AARI#3 versions, based on data from epoch 1998-2001, have been used in further publications issued between 2006 and 2011. Thus, we should caution against uncritical use of relations and conclusions published in papers that may have used the invalid AARI#3 versions of scaling parameters and derived PCN and PCS index values”.

In conclusion, the best approach would be a corrigendum note to Troshichev et al.

C2

(2006) issued jointly by the three co-authors like we did with the previous corrigendum note published in Troshichev, Janzhura, and Stauning (2009). The above corrigendum text submitted to J. Geophys. Res. Space Physics is just an escape solution to rectify the mistake made in 2006 and to caution against its possible consequences. The commentary notes on Troshichev et al. (2011) [TPJ2011] and also the comment on Janzhura and Troshichev (2011) [JT2011] submitted for review at the AnGeo Interactive Discussion portal are about publications issued by Annales Geophysicae and should in my opinion be kept there. Furthermore, as noted by Referee #1 concerning TPJ2011 and equally valid for JT2011, it “provides an opportunity for the authors of TPJ2011 to present a detailed reply about their methods and conclusions”.

Copenhagen 16 January 2021

Peter Stauning

Interactive comment on Ann. Geophys. Discuss., <https://doi.org/10.5194/angeo-2020-52>, 2020.