

## ***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***

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Reply to Interactive comments by Dr. O.A. Troshichev 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.

It may be noted that the comments by Dr. Troshichev confirm that the derivation in Troshichev et al. (2006) of the scaling parameters in the version AARI\_1998-2001

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(i.e. AARI#3 according to McCreedy and Menvielle, 2010) was based on using the interplanetary magnetic field components IMF By and Bz in their GSE representation instead of the prescribed GSM version. This unfortunate feature has never been published before in spite of many references to the publication and use of its scaling parameter illustrations, most recent in Figs. 2.3 and 2.9 of Troshichev (2017: Polar Cap magnetic activity (PC index) and space weather monitoring, ISBN: 978-3-8381-8012-0. On top, this publication holds in its Fig. 9.2 a reproduction of the IMF By and Bz components from Fig. 7 of Troshichev et al. (2006) (also presented in Fig. 1a of the commentary) without mentioning that it presents the GSE and not the GSM version.

However, the main problem dealt with in the commentary is the stated use in Troshichev et al. (2011) of the “solar max” scaling parameters in the version, AARI\_1998-2001 (AARI#3), for the analyses documented in Figs. 1, 2, 3, 6, 7, and 8 while in reality other versions were used as basis for the analyses and conclusions.

The commentary illustrates the considerable differences between the displays in Figs. 1, 2, 3, 6, 7, and 8 of Troshichev et al. (2011) and the corresponding displays resulting from really using the AARI\_1998-2001 (AARI#3) version in the analyses. The commentary also displays in its Fig. 15 the at times quite large differences between PC index values calculated using the AARI\_1998-2001 (AARI#3) scaling parameter version and the corresponding PC index values calculated by using more recent scaling parameter values. Thus, the absence of objections from Dr. Troshichev against the presented material justifies the commentary and verifies that the analyses presented in Troshichev et al. (2011) are incorrect and the conclusions, therefore, are unsubstantiated.

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