

Supplementary Information

Reconstruction of gaps in the past history of solar wind parameters
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Introduction

The provided data files include solar wind parameters, computed auxiliary G and W parameters for TS05 and T96 magnetic field models, relevant status variables as well as selected geomagnetic indices (see main text for details). The purpose of providing the data is to allow others to reproduce the results in this paper, and to allow any other usage of reconstructed solar wind parameters in historical gaps for 1972–2013.

1. readWG.pdf Matlab code to read the data and compute metrics of reconstruction skill in artificial gaps

2. WGhour2_96_07.txt 1996–2007 dataset with natural gaps filled by Qin-Denton

Column format is same for files in 3–6.

2.1 Year

2.2 Day

2.3 Hour

2.4 By IMF component (nT)

2.5 Bz IMF component (nT)

2.6 Vsw solar wind speed (km/sec)

2.7 Den proton density (number protons/cm**3)

2.8 Pdyn flow pressure (nPa)

2.9–2.11 G1–G3 Tsygandenko solar wind parameters (see Tsygandenko, 2002a, 2002b; Tsygandenko et al., 2003)

2.12 Solar wind 8-status variable (see Qin et.al 2007)

2.13 Kp geomagnetic index

2.14 aKp3 average of Kp over preceding times using an exponential fall off with three day time scale

2.15 Dst geomagnetic index

2.16–2.21 Bz1–Bz6 weighted values of Bz used for calculating the W parameters

2.22–2.27 W1–W6 auxiliary parameters for TS05 model (see Tsygandenko and Sitnov, 2005)

2.28 Solar wind 6-status variable (see Qin et.al 2007)

3. WHourG_96_07.txt 1996–2007 data with artificial gaps filled by Qin-Denton

4. WHourFS_96_07.txt 1996–2007 data with artificial gaps filled by SSA

5. WHour2_72_13.txt 1972–2013 data with natural gaps filled by Qin-Denton

6. WHourFS_72_13.txt 1972–2013 data with natural gaps filled by SSA