



The effect of upstream turbulence and its anisotropy on the efficiency of solar wind-magnetosphere coupling

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The importance of space weather and its forecasting is growing as interest in studying geoeffective processes in the Sun – solar wind – magnetosphere – ionosphere coupled system is increasing. This paper introduces the proper selection criteria for solar wind magnetic turbulence events during duskward electric field and southward B_z driven geomagnetic storms. Two measures for the strength of solar wind fluctuations were investigated: the standard deviations of magnetic field components and a proxy for the so-called Shebalin anisotropy angles. These measures were compared to the strength of geomagnetic storms obtained from a SYM-H index time series. We found a weak correlation between standard deviation of interplanetary magnetic field GSM component B_z and SYM-H index, and a strong correlation between Shebalin anisotropy angle and the SYM-H index, which can be the result of an increase of probability of magnetic reconnection in fluctuating magnetic fields.