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A new solar wind-magnetosphere coupling function

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Several works have pointed out recently that IMF Bz variations favor the energy entrance from solar wind to magnetosphere. However, the coupling functions proposed in literature depend only on southern Bz value. In this work a new coupling function is proposed that includes two different terms. Assuming that one of the terms is the Burton injection function, the other one has been considered as linearly related to the standard deviation of Bz. All the intense geomagnetic storm events from solar cycle 23 have been considered in the determination of the new empirical coupling function.