Japan Geoscience Union Meeting 2011
(May 22-27 2011 at Makuhari, Chiba, Japan)

PEM028-P02 Room:Convention Hall Time:May 27 10:30-13:00

A statistical study of IMF Bz fluctuations during the solar cycle 23

Shinsuke Tanizaki[1*], Yasuhiro Nariyuki[2]

[1]AC, KNCT, [2]EE, KNCT

It is well known that the geomagnetic activity is associated with the direction of the interplanetary magnetic field (IMF) : the southward directed IMF (Bz component) allows solar wind plasmas into the magnetosphere due to the occurrence of the day side reconnection. On the other hand, while it is well known that the intensity of IMF fluctuations is of the same order to that of the ambient IMF, most past studies have not discussed the geoeffectiveness of the fluctuations. In the recent studies, the ”Alfvenic” IMF fluctuations often correspond to the occurrence of the auroral storm. However, it is still unclear why the Alfvenic fluctuations play ab important role in the geomagnetic activity.

In the present study, we statistically discuss the Alfvenic IMF Bz component observed by the ACE spacecraft from February 1998 to December 2009 using the higher order statistics and the Shannon entropy in order to quantify the characteristics of the IMF fluctuations.

Keywords: solar wind turbulence, IMF, Alfvenicity