[S12-2] Statistical Study of the Relationship between BBFs and Pi2s

Suk-Kyung Sung[1,2], Khan-Hyuk Kim[3], Dong-Hun Lee[1],
Eun-Young Ji[1], K. Takahashi[4]
[1]*Kyung Hee University, KOREA,* [2]*Seoul National University, KOREA,*
[3]*Korea Astronomy and Space Science Institute, KOREA,* [4]*Johns Hopkins University Applied Physics Laboratory, USA*

The relationship between bursty bulk flows (BBFs) and nightside low-latitude Pi2 pulsations is studied using the magnetic field and plasma data from the Geotail satellite and the ground magnetometer data at the Kakioka station (L = 1.25) over 1-year period (1997). An automated BBF and Pi2 selection procedure resulted in 220 BBFs and 138 Pi2s. Among those events, only 29 cases occur simultaneously in running 10 min time window. We observed that only 9 Pi2 events have a causal relationship with BBF events. Although Kepko et al. [2001] present several examples of BBF-driven Pi2, our statistical result suggest that BBFs do not play a dominant role in exciting low-latitude Pi2 pulsations.

[S12-3] Solar Cycle Variations of the Solar Wind and the Interplanetary Magnetic Field Parameters at 1 AU

Oh, Su Yeon[1], Jin Suk Kim[1], Eun Ah Lee[2], Yu Yi[1]
[1]*Chungnam National University,* [2]*University of Alberta, Canada*

Long-term variations of the averaged density and other parameters of the solar wind and interplanetary magnetic field are analyzed using the 1-hour averaged data obtained by IMP-8 at the Earth's orbit from 1974 to 2000 during solar cycles 21, 22, and 23. Interplanetary measurements spanning the time interval are employed to test the Parker (1958) theory for the large-scale structure of the interplanetary magnetic field. Examination of data recorded by earth-orbiting spacecraft reveals that the interplanetary magnetic field spiral depends upon the solar cycle and its phase, such that the annual mean spiral angle in the years surrounding solar maximum is larger than in the years surrounding solar minimum. The observed variation of the solar wind speed with the solar cycle is shown to account for much of the variation in the winding angle. These statistical properties of the solar wind and the interplanetary magnetic field can provide the realistic heliospheric models, which is critically required to explain the solar cycle variation of the galactic cosmic ray influx over the solar cycle.