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Solar Wind Turbulence as a Driver of Geomagnetic Activity

Abstract:

We carried out simultaneous analyses of interplanetary and geomagnetic datasets for the period of (solar Maunder) least (2009) and maximum (2002) solar activity to determine the nature of solar wind turbulence on geomagnetic activity using AE, ASY-D, and ASY-H indices. We determined the role played by Alfvénic fluctuations in the solar wind so as to find out the nature of the turbulence. Our analyses showed that solar wind turbulence play a role in geomagnetic processes at high latitudes during period of low and high solar activity but does not have any effect at mid-low latitudes.