

PCG033-P04

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Solar wind response of Jupiter's magnetosphere viewed from the radio spectra analysis

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It is well known that aurorae and auroral radio emissions in the earth are primarily driven by interaction between the solar wind and the magnetosphere, while in case of Jupiter, it is thought that some internal processes, probably initiated by the rapid planetary rotation, primarily drive the auroral activity and the solar wind is a limiting control parameter. There are many in situ and remote observations support the idea, however, the role of the solar wind to the magnetic phenomena and pure characteristics of internal processes have not been revealed well.

In order to investigate characteristics of the solar wind and non solar wind controls on Jupiter's magnetic activities in detail, occurrence characteristics of Jupiter's radio emission, particularly in the hectometric wave range observed with WIND/WAVES, have been analyzed. The analysis period is particularly selected for June to September in 2008, when the solar activity was considerably calm and predicted solar wind condition at Jupiter was stable and also showed clear periodicity synchronized with the solar rotation. The results of the analysis show that there are 3 types of HOM: 1) Solar wind related HOM, 2) Non solar wind related and short lived HOM, and 3) Non solar wind related and quasi-periodic HOM. This implies that locations and/or plasma conditions in the source and propagation regions varies with the solar wind variations and effects of the solar wind variations reach to the inner magnetosphere.

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Keywords: Jupiter, magnetosphere, solar wind response, radio emission