

The role of the whistler-mode chorus waves in the outer radiation belt electron flux variability under the influence of the different solar wind structures

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Solar wind structures, such as Interplanetário Coronal Mass Ejections (ICMEs) and High-Speed solar wind Streams (HSSs), can change the outer and inner magnetosphere dynamic. The energy deposited by these solar wind structures can excite the magnetospheric waves in a wide frequency range, such as the whistler-mode chorus waves (from hundreds of Hz up to about 10 kHz). These waves can interact resonantly with the electrons in the outer radiation belt, causing the local loss or local acceleration. Therefore, the analysis of the chorus waves' characteristics through different technics is relevant to identifying the main dynamic mechanisms responsible for the outer radiation belt electron flux variability during the influence of the different solar wind structures. For that, we selected one ICME and one HSS events, which reach the Earth's magnetosphere on March 7 and July 7, 2016, respectively. The result shows that a long period of the chorus wave activities is observed during the Alfvénic fluctuations associated with the HSS, while under the influence of ICME, the chorus waves are observed in a short period.