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A CIR impact study on the radiation belts fluxes

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A magnetosphere is an isolated sphere dropped inside the solar wind where it is in equilibrium. When a solar wind structure impacts the magnetosphere, then, the equilibrium is broken and the whole magnetospheric reacts to prevent a magnetospheric collapse. The CIRs are one of the main solar wind structures. They are not considered as the most disturbing solar wind structure, but the evolution of the magnetic indices indicates that the magnetosphere is disturbed deeply during a CIR impact. The radiation belts are a key region located in the deepest part of the magnetosphere, close to the Earth. They constitute a sensitive region to the variations of magnetosphere activity as the study of the radiation belts fluxes show disturbances and increasing of the high energetic particles fluxes during magnetospheric storms and substorms. The purpose of this work is to understand how a CIR impacts the radiation belts depending on the solar wind parameters. To do so, the NOAA and Ace data have been used during more than a solar cycle, and the electrons fluxes at various L have been analysed depending on the CIR caracteristics.