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CSES observations of the Ring Current variations during the geomagnetic storm of Aug 25th, 2018

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We present here early results of the study of the geomagnetic storm occurred at the end of August 2018, based on data collected by the High Energy Particle Detector (HEPD) experiment on board the CSES satellite.
CSES is a privileged mission for the study of effects of geomagnetic storms by means of low-Earth-orbit (LEO) satellites, due to its multi-instrumental payload, which allows for a continuous and simultaneous collection of electromagnetic field data, plasma parameters, and particle data. Though mild, the mentioned geomagnetic perturbation impacted electron and proton populations even at mid and low latitudes, as clearly highlighted by CSES data. We have investigated the spatial and temporal evolution of the geomagnetic disturbances on the particle environment, in particular the dependence on local time and pointing orientation. An effort has been spent in the identification of the Ring Current (RC) – as well as its variations – through the particle-pressure relation, in comparison to J values recovered by Van Allen probes and ground-based observatories.
The renowned capability of the HEPD detector to observe particles in an extended energy range with good resolution and large acceptance proves a unique opportunity to examine this kind of phenomena under different, unexplored perspectives.