Geophysical Research Abstracts
Vol. 12, EGU2010-9622, 2010
EGU General Assembly 2010

Locations of boundaries of outer and inner radiation belts as observed by Cluster and Double Star

Natalia Ganushkina (1,2), Iannis Dandouras (3), and Henri Rème (3)

(1) Finnish Meteorological Institute, Helsinki, Finland (nataly.ganushkina@fmi.fi), (2) University of Michigan, Ann Arbor, USA, (3) CESR, Toulouse, France

The locations of boundaries of outer and inner radiation belts were obtained using the measurements of background radiation by Cluster and Double Star CIS instruments. We have analysed the Cluster CIS instrument data during the period between April 2007 and June 2009, when Cluster was deep in the radiation belts coming to Earth as close as L = 2. The boundaries of radiation belts were determined based on the appearance and disappearance of a strong background measured by HIA and CODIF sensors. Depending of the orbit, we were able to detect the outer belt boundaries and the outer boundary of the inner belt. Double Star HIA data were analysed for the period between May and September 2007, when data were still available, and the satellite came very close to the Earth at L = 1. Using these data we determined the inner boundaries of the outer belt and outer and inner boundaries of the inner belt based similarly on the background measured. We have studied the locations of the boundaries and the position of the slot dependent on the activity index such as Dst, and solar wind and IMF parameters. The obtained information on the locations of radiation belt boundaries is very useful for radiation belts studies, both modeling and data analysis.