



Quantifying EMIC wave propagation properties using Cluster observations

Meghan Mella (1), Yuri Khotyaintsev (1), Maria Usanova (2), and Ian Mann (2)

(1) IRFU, Sweden (mrmella@irfu.se), (2) University of Alberta, Canada

The effect of electromagnetic ion cyclotron (EMIC) waves on radiation belt dynamics has become a topic of increasing scientific interest. As part of the MAARBLE project, a database of derived high-level wave products is developed from the Cluster data. The wave products are derived using the technique of Santolik et al., 2003, and the EMIC events are chosen based on the method of Bortnik et al., 2007. In initial studies with this database, we are able to statistically quantify the EMIC wave propagation properties. The techniques developed within this project can easily be extended to other spacecraft missions, and also be used in direct comparison to wave products derived from other data sets, such as ground based magnetometer measurements.

This work has received funding from the European Union under the Seventh Framework Programme (FP7-Space) under grant agreement n 284520 for the MAARBLE (Monitoring, Analyzing and Assessing Radiation Belt Energization and Loss) collaborative research project.