Geophysical Research Abstracts
Vol. 19, EGU2017-17573, 2017
EGU General Assembly 2017

Wave particle interactions in Jupiter's magnetosphere: Implications for auroral and magnetospheric particle distributions

Joachim Saur (1), Anne Schreiner (1), Mauk Barry (2), George Clark (2), and Peter Kollman (2)

(1) Universität zu Köln, Institut f. Geophysik u. Meteorolgie, Köln, Germany (saur@geo.uni-koeln.de), (2) Applied Physics Laboratory, Johns Hopkins University, Laurel, MD, USA

We investigate the occurrence and the role of wave particle interaction processes, i.e. Landau and cyclotron damping, in Jupiter's magnetosphere. Therefore we calculate kinetic length and temporal scales, which we cross-compare at various regions within Jupiter's magnetosphere. Based on these scales, we investigate the roles of possible wave particle mechanisms in each region, e.g., Jupiter's plasma sheet, the auroral acceleration region and the polar ionosphere. We thereby consider that the magnetospheric regions are coupled through convective transport, Alfven and other wave modes. We particularly focus on the role of kinetic Alfven waves in contributing to Jupiter's aurora. Our results will aid the interpretation of particle distribution functions measured by the JEDI instrument onboard the JUNO spacecraft.