



## **Jupiter's diffuse auroral emissions - Comparison of HST and Galileo data**

**A. Radioti** (1), A.T. M. Tomás(2), D. Grodent(1), J.-C. Gérard(1), B. Bonfond(1), J. Gustin(1), N. Krupp(3) and J. Woch(3)

(1) LPAP, Institut d'Astrophysique et de Géophysique, Université de Liège, Belgium  
,(2)GeoForschungsZentrum Potsdam, Germany, (3) Max-Planck-Institut für Sonnensystemforschung, Katlenburg-Lindau, Germany

Based on an extensive HST FUV image database obtained between 1997 and 2007, we have studied the morphology and brightness of the equatorward diffuse auroral emissions in both Jovian hemispheres. The emissions are wider and brighter on the dusk side than on the dawn and they often form multiple discrete arcs parallel to the main oval. What could be the origin of these equatorward diffuse emissions and their local time variations is still unclear. Galileo observations have shown changes in the electron pitch angle distributions between the inner and middle magnetosphere of Jupiter (10 to 17  $R_J$ ) which could be associated with auroral emissions, without the need of field aligned currents. We derive the electron precipitation flux for the first time in a global scale, based on Galileo electron measurements between 10 and 17  $R_J$ . We magnetically map this region in the ionosphere and compare the derived energy flux with the brightness of the diffuse emissions. We discuss the possibility that the energetic particle distribution in the middle magnetosphere could account for the multiple structured equatorward diffuse emissions and their local time variations.