



Observational evidence of a localized magnetic anomaly near Jupiter's North Pole

D. Grodent (1), B. Bonfond (1), J.-C. Gérard (1), A. Radioti (1), J.T. Clarke (2), J. Nichols (2)

(1) LPAP, Université de Liège, Liège, Belgium (d.grodent@ulg.ac.be), (2) CSP, Boston University, Boston, Massachusetts, USA

We have analyzed more than 1000 HST/ACS images of Jupiter's ultraviolet auroral emission in the northern hemisphere. A systematic planet center finding algorithm made it possible to infer reliable and consistent jovicentric location of the auroral footprints of Io, Europa and Ganymede. These footprints form reference contours which provide an absolute magnetic mapping from the ionosphere of Jupiter to the equatorial plane, independent of any magnetic field model. So far, the VIP4 magnetic field model is the most accurate in terms of fitting the auroral emissions. However, it cannot reproduce the distorted shape of the satellites UV footpaths in the "kink region" in the northern ionosphere between S3 longitudes 80° - 150° . We show that the model is significantly improved by decreasing the VIP4 surface magnetic field in the kink region and by adding a localized dipolar perturbation field beneath the surface.