

Plasma energization in the Jovian system

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Abstract

Jupiter and its moons form the most diverse plasma laboratory in the solar system. Because of its chemical composition and energetic range measuring and understanding the dynamics of the Jovian plasma has been a challenge for all missions visiting the planet and its moons. In this paper we try to reconstruct energy spectra obtained by the Galileo PLS and EPD sensors in different locations of the Jovian system and discuss the instrumental limitations of this mission in comparison to the capabilities of the Juno and JUICE missions to Jupiter. We also discuss observations relevant for the plasma interaction with the Jovian moons Callisto, Europa and Ganymede in context of the JUICE mission.

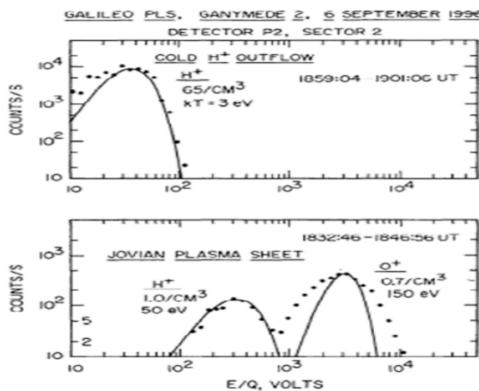


Figure 1: Top: Ion outflow from Ganymede observed by the Galileo PLS sensor on 6 September 1996 and spectra observed in Jovian plasma sheet on the same day (from Frank et al., Geophys. Res.Lett.,24, 2159, 1997)

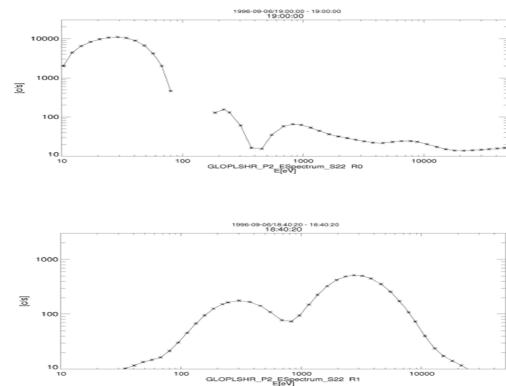


Figure 2: Same as previous figure recently reconstructed from original PLS raw data.