



## **Is Jupiter a colossal comet? Will Juno decide?**

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### **Abstract**

Jupiter is a planet of superlatives: the most massive planet in the solar system, rotates the fastest, has the strongest magnetic field, and has the most massive satellite system of any planet. These unique properties lead to volcanoes on Io, and a population of energetic plasma trapped in Jupiter's strong magnetic field that provides a physical link between the satellites, particularly Io, and the planet. Intense auroral emissions are signatures of magnetospheric dynamics. This presentation provides a rough sketch of the magnetosphere of Jupiter based on previous space missions, briefly describes the current understanding and lists outstanding issues. In particular, what drives the dynamics of the magnetosphere - rotation or the solar wind? How is the magnetosphere coupled to (or decoupled from) the ionosphere? How much of the morphologies of the magnetosphere, aurora and magnetotail (that extends to the orbit of Saturn) is simply Jupiter shedding 1 ton/second of Iogenic plasma into the solar wind? We will also discuss how measurements to be made by NASA's Juno mission (August 2011 launch) will address these issues.