GLOBAL STRUCTURE AND DYNAMICS IN THE MAGNETOSPHERES OF JUPITER AND SATURN

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The magnetospheres around Jupiter and Saturn have both been explored in situ by orbiting spacecraft and have revealed broadly similar global magnetospheric structures as well as some surprising differences. The presence of pervasive global magnetospheric periodicities at Saturn has been a surprising finding of the Cassini mission and supports more restricted findings from Pioneer 11 and Voyagers 1/2. and complete understanding of their origin remains elusive. A full understanding of the origin of these periodicities remains elusive but their identification has re-opened discussions of multiple periodicity mechanisms and active sectors in the jovian magnetosphere. In this talk we will compare and contrast Jupiter and Saturn's differing internal field configurations and strengths, mass transport processes, and solar wind interactions in the context of their effects on global structure and dynamics. The origin of periodicities at both planets will be discussed in general terms and we will consider what lessons Saturn has for Jupiter.

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