



## **The local time-dependant characteristics of flux rope at Saturn**

Ruilong Guo (1), Zhonghua Yao (2), and Yong Wei (1)

(1) Institute of Geology and Geophysics, Chinese Academy of Sciences, China (grl@mail.iggcas.ac.cn), (2) Laboratoire de Physique Atmosphérique et Planétaire, STAR Institute, Université de Liège, Liège, Belgium

Flux rope, which is often called as plasmoid when the guide field is small, is an important process to transfer magnetic flux and plasmas in the magnetosphere of terrestrial and planetary magnetosphere. At Earth, the formation of flux rope in the magnetotail is mainly controlled by the “Dungey-cycle”, which is associated with the acceleration of electrons and loss of plasma in the magnetosphere. At giant planets (i.e. Saturn and Jupiter), the “Vasyliunas-cycle” is an additional important (might be dominant) process to generate flux ropes. The information of how flux rope is formed and evolved at giant planets is pivotal in understanding the energy coupling process at these planets. The Cassini spacecraft has detected an amount of flux rope events in the Saturnian magnetosphere. In this work, the guide field, axis orientation, and electron properties are compared between the flux ropes recorded at different local times. We also compare the characteristics with the flux rope at Earth.