Geophysical Research Abstracts
Vol. 18, EGU2016-3811, 2016
EGU General Assembly 2016

Oxygen Ions Behavior near the Reconnection Region and Current Sheet

Suiyan Fu (1), Tong Wu (1), Werijie Sun (1), Qiugang Zong (1), and George Parks (2)
(1) Peking University, Beijing, China (suiyanfu@pku.edu.cn), (2) SSL, UC Berkeley, California, US (parks@ssl.berkeley.edu)

Oxygen ions originated from the earth ionosphere have been demonstrated as a very important contributor to the magnetosphere plasma. However, whether or how they participate in the dynamic processes in the plasma sheet, like in the current sheet and reconnection, are still not very well understood. Different simulation results shown that oxygen ions may have different behaviors. Here we would like to show an event in which a very thin oxygen current layer embedded in the tail current sheet due to their large gyroradius. We also report an observation event when Cluster come cross a reconnection region, in which high energy oxygen ions are detected. These low pitch angle oxygen ions show an energy dispersion signature at the boundary of the ion flow which is supposed to be the reconnection jet. And perpendicular oxygen ions with a relatively higher energy range are also present at the event. Our observation results are compared with some previous simulation results and possible reasons for the discrepancy are discussed.