

Statistic study of Electrostatic Solitary Waves associated with reconnection by Geotail

S.Y. Li(1), X.H. Deng(1), R.X. Tang(1), M. Zhou(1), Y. Omura(2), H. Kojima(2), K. Shin(2) and H. Matsumoto(2)

(1)Department of Space Physics, Wuhan University, Wuhan, 430079, P.R. China (2)Research Institute for Sustainable Humanosphere, Kyoto University, Uji, Kyoto 611-0011, Japan

We report the observations of Electrostatic solitary waves (ESWs) associated with reconnection by the Wave From Captures of Geotail near the diffusion region by survey the data of Geotail in the magnetotail region and dayside magnetopause. ESWs have been observed along the plasma sheet boundary and near diffusion region, both earthward and tailward of the x-line. By carefully checking the data of particle, field and wave, we studied the scale and characteristics of ESWs, their relative locations with reconnection layer and the relationship with the diffused electrons beams. Comparison with full particle simulations with the observations, we discuss the importance of these solitary waves in collisionless reconnection and their possible generation mechanisms is provided.