Statistical analyses on the source region of the electrostatic solitary waves (ESW)

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Since the discovery of the Electrostatic Solitary Waves (ESW) in the plasma sheet boundary, we have proceeded the collaborations between the Geotail observations and computer experiments. These collaborations concluded that the ESW are generated by the nonlinear evolution of electron beam instabilities. Another interest on the ESW is their source region. The most plausible generation region is the reconnection point, because the high energy electrons can be emitted from the X-points. In the present paper, we show the results of our statistical analyses of the ESW. Based on our statistical analysis results, we conclude that one of the generation regions of the ESW is the near-earth neutral line.