



THEMIS multi-case study of BBF braking in the near-Earth plasma sheet

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Magnetotail reconnection is believed to be responsible for bursty bulk flows (BBFs) in the plasma sheet. They occur in localized channels. The fast earthward flows are suddenly decelerated by the dominant dipolar magnetic field around 10 Re. There they stop and rebound then tailward. The earthward and the tailward flow bursts produce vorticity on their flanks. We employ several THEMIS observations to comprehensively investigate the flow braking. For this sake we use the case-studies when all the five THEMIS probes observed the same BBF. We show how the flows evolve when they originate from different locations in the plasma sheet. We discuss the flow propagation trajectories, deceleration rates, and strength of the tailward rebounds. We also identify, when possible, the properties of vorticity on the flanks of the BBF channel.