



Convection electric field in a twisting magnetotail

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The B_y component of the interplanetary magnetic field (IMF) may influence the magnetotail causing the tail to twist around its axis shifting the tail to an asymmetric configuration. The twisting results for example in the rotation of the plasma sheet and bending i.e. twisting of the closed magnetic field lines by induced additional tail B_y . We investigate Time History of Events and Macroscale Interactions during Substorms (THEMIS) measurements made in a tail-aligned constellation during a time interval on 1-2 January 2009, which previously has been attributed to an interval of an IMF B_y -driven magnetotail twisting. We construct statistical distributions of the tail electric field components during the time interval and infer the characteristic electric field patterns for a positively twisted tail (induced tail $B_y > 0$) and for a negatively twisted tail (induced tail $B_y < 0$), respectively. Subsequently, we infer also the expected ion flow direction and compare it with the measured flow.