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Whistler wave bursts near a reconnection region in the magnetotail¹ L.-J. CHEN, A. BHATTACHARJEE, University of New Hampshire, O. SANTOLIK, Charles University, Prague, Czech Republic, S. MUHLBACHLER, P. DALY, Max-Planck Institute, Lindau, Germany, S. IMADA, National Astronomical Observatory, Japan — Bursts of right-hand polarized electromagnetic waves with frequencies around 100 Hz (a few times less than the local electron cyclotron frequency) and a bandwidth 100-200 Hz are observed near a reconnection site in the magnetotail by the Cluster spacecraft. The waves are interpreted as propagating whistler waves. The burst duration ranges from a few to 10 seconds. The waves have a typical wave length of about 1 electron inertial length (20 km). The strongest burst is observed right before the magnetic field curvature peaks negatively and then reverses sign. The curvature reversal coincides with ion flow reversal, and is interpreted as due to the traversal of the reconnection X-region by the spacecraft. The strongest whistler burst occurs in association with the enhancement of energetic electrons up to 100 keV, and with a strong electron temperature anisotropy. We explore the possibility of inferring information about the reconnection dynamics and the stability of thin current sheets from these wave characteristics.

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