



## Low-frequency fluctuations in the magnetosheath: Double Star TC-1 and Cluster observations

J. Du (1), C. Wang (1), T. L. Zhang (2), P. Song (3), and W. Baumjohann (2)

(1) State Key Laboratory of Space Weather, Center for Space Science and Applied Research, Chinese Academy of Sciences, Beijing, China (jdu@spaceweather.ac.cn), (2) Space Research Institute, Austrian Academy of Sciences, Graz, Austria, (3) Center for Atmospheric Research, University of Massachusetts-Lowell, Lowell, Massachusetts, USA

The Double Star TC-1 magnetosheath pass on 26 February 2004 is used to investigate magnetic field fluctuations. Strong compressional signatures which last for more than an hour have been found near the magnetopause behind a quasi-perpendicular bow shock. The combination of TC-1 and Cluster data gave a direct observation that the interplanetary magnetic field (IMF) cone angle affects the wave characteristics in the magnetosheath.

Based on the magnetosheath data observed by TC-1 and Cluster in 2004, the magnetic field fluctuations are statistically investigated in the range of time periods from 4 s to 240 s. The characteristics of the magnetic field fluctuations are strongly controlled by the angle between IMF and the normal of the bow shock. Generally speaking, the magnetic field fluctuations in the quasi-parallel magnetosheath are more intense than those in the quasi-perpendicular case. With the increase of the local plasma  $\beta$ , both the magnitude and direction of the magnetic field fluctuate more intensely. There exists an inverse correlation between the local temperature anisotropy  $T_{\perp}/T_{\parallel}$  and the plasma  $\beta$ .