

On the thickness Earth's Bow Shock:GEOTAIL high time resolution magnetic field data [2]

Eisuke Kurihara[1], Tomoko Nakagawa[2], Susumu Kokubun[3]

[1] Tohoku Inst. Tech., [2] Communication Engineering, Tohoku Inst. Tech., [3] STEL, Nagoya Univ.

Ramp width of the Earth's bow shock was examined by using high time resolution magnetic field data. One hundred three crossings of bow shock were detected from 3-second magnetic field data obtained from GEOTAIL during the period from March 26, to August 31, 1997. The shock ramp thus obtained was 2-6 times of the ion inertia length.

Ramp width of the Earth's bow shock was examined by using high time resolution magnetic field data. One hundred three crossings of bow shock were detected from 3-second magnetic field data obtained from GEOTAIL during the period from March 26, to August 31, 1997. To obtain accurate ramp width, it is necessary to know accurate shock velocity and transit time of the shock. The shock velocity was calculated from conservation of mass and momentum. It is often difficult to determine the start time of the shock transit because of the presence of

large amplitude upstream waves. In our study, the start of the transit time was determined from variation of k vector of the upstream waves. The shock ramp thus obtained was 2-6 times of the ion inertia length.