

## THE EARTH'S BOW SHOCK AS A COSMIC-RAY-MODIFIED SHOCK: GEOTAIL OBSERVATION

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At the previous ICRC in Utah 1999, we have presented a rare observation of cosmic-ray-modified shock (CRMS) property at a moderately strong interplanetary shock. It has been known, on the other hand, that the earth's bow shock often shows the character of CRMS: the upstream solar wind flow is decelerated by a few tens of km/s in the foreshock region where the suprathermal ions ( $10\text{-}10^2$  keV) diffusively accelerated at the bow shock have non-negligible pressure. However, detailed studies of the CRMS nature of the bow shock have been prevented by the transient variations of the solar wind, and it has not been clear how the deceleration of the solar wind flow correlates with the diffuse ion energy density. In this report, on the contrary, we will present an exceptionally clear example of the bow shock observation as a CRMS. On 8-9 October 1995, the GEOTAIL spacecraft crossed the upstream region of the nose bow shock over 3 hours, during which the solar wind was more or less steady and continuously monitored by the WIND spacecraft cruising in the far upstream region. We have confirmed that the change of the solar wind ram pressure in the shock rest frame ( $\sim 1 \times 10^{-10}$  Pa) was approximately balanced by the sum of the increases of the thermal/magnetic subpressure ( $\sim 2 \times 10^{-11}$  Pa) and the diffuse ion subpressure ( $\sim 8 \times 10^{-11}$  Pa). We will also give a semi-quantitative discussion on the relation between the diffuse ion energy density and the strength of the main shock jump at the bow shock (namely the strength of the 'subshock' in the CRMS terminology).