

The magnetic field in the magnetosheath

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It is crucial to understand the solar wind - magnetosphere interaction. Since the magnetosphere itself is surrounded with the magnetosheath, we have to know various characteristics of the magnetosheath properly. We have obtained average magnetic field structure in the magnetosheath with the Geotail and ACE data. At the bow shock, the magnetic field tends to become parallel to the bow shock. The magnetic field intensity becomes less than twice when the IMF is perpendicular to the bow shock front and more than twice when the IMF is not. In the magnetosheath, the magnetic field tends to follow the shape of the magnetosphere. Hence, even when the IMF is perpendicular to the sun-earth axis or parallel to the sun-earth axis, the basic pattern of the magnetic field is unchanged in the magnetosheath. However, the area where the magnetic field inflects is shifted. The position of the magnetopause is primarily governed by dynamic pressure of the solar wind. In the low dynamic pressure period, the magnetopause position change according to the IMF variations.