The Origin of Radial Interplanetary Magnetic Field and Their Influence in the Magnetopsheric System

Jih-Hong Shue（許志浤）
Institute of Space Science, National Central University, Jhongli, TAIWAN(台灣中央大學 太空科學所）

A radial interplanetary magnetic field (IMF) is a particular magnetic configuration that the orientation of the IMF is parallel to the solar wind velocity. Radial IMF usually occurs in the trailing edge of a high-speed solar wind stream or an interplanetary coronal mass ejection. The magnetospheric system of the Earth, including the bow shock, magnetopause, and magnetosphere, can respond to the radial IMF in a way that is totally different from those for the other orientations of the IMF. The responses include a formation of foreshock bubble upstream the bow shock, a reformation of the bow shock, magnetosheath plasma jets, a thin magnetosheath, a sunward motion of the magnetopause, a distorted magnetopause, and quiet geomagnetic activity in the magnetosphere. In this presentation, the origin of the radial IMF and its influence in the terrestrial magnetospheric system will be reviewed.