

土星磁気圏界面での磁気リコネクション

長谷川 洋 [1]; マスターズ アダム [2]; 藤本 正樹 [3]
[1] JAXA・宇宙研; [2] インペリアルカレッジ; [3] 宇宙研

Magnetic reconnection at Saturn's magnetopause

Hiroshi Hasegawa[1]; Adam Masters[2]; Masaki Fujimoto[3]
[1] ISAS/JAXA; [2] Imperial College; [3] ISAS, JAXA

Magnetic reconnection is an important process that occurs at the magnetopause boundary of Earth's magnetosphere because it leads to transport of solar wind energy into the system, driving magnetospheric dynamics. However, the nature of magnetopause reconnection in the case of Saturn's magnetosphere is unclear, and has been the subject of debate. Here we review this topic, and assess when and where reconnection is likely to occur on the Saturnian magnetopause. We discuss the influence of bulk flow shears and local plasma beta conditions on magnetopause reconnection onset, including their anticipated effect on the reconnection rate. Both these factors are expected to have a negative influence on the reconnection process at Saturn's magnetopause, compared to reconnection at Earth's magnetopause. Studies to date imply that the nature of solar wind-magnetosphere coupling via reconnection can vary between planets, and we should not assume that the nature of this coupling is always Earth-like.