



On the importance of IMF By for the magnetotail and its dynamics

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The IMF By component is known to influence the topology of the magnetotail. However, when investigating tail processes and phenomena, its role and contribution are often neglected. In this presentation, we demonstrate that IMF By may have a significant influence on the magnetotail - an issue that should be taken into account when interpreting magnetotail measurements. We present a THEMIS investigation, which suggests that changing IMF By may result in twisting of the magnetotail. The twist begins farther out in the tail and propagates to the inner magnetosphere where significantly longer response time is observed. In addition, the recent studies using Cluster and THEMIS data suggest that the azimuthal component of earthward perpendicular fast flows in the midnight sector plasma sheet correlate well with IMF By. The azimuthal flow direction is opposite above and below the neutral sheet. The results are discussed in the framework of the present understanding on the influence of IMF By on the magnetotail.