

Magnetotail structures reproduced by a magnetosphere MHD model

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The development of global magnetosphere MHD models started about thirty years ago [e.g., Ogino., 1986; Fedder and Lyon, 1987]. Now there are several major models [e.g., Lyon, Fedder, and Mobarry, 2004; Tóth et al., 2005; Raeder et al., 2008; Tanaka et al., 2010; Janhunen et al., 2012] used widely in the community. In recent years in the U.S., in parallel with the model utilization, the efforts of the validation and verification of models have been actively pursued, for example, targeting global structures during storm events [e.g., Honkonen et al., 2013], bursty bulk flows in the near-earth plasma sheet [Wiltberger et al., 2015], and global evolution of FACs [Merkin et al., 2013]. If the calculated results are far from the reality, it would be hard to rely on its dynamics. Therefore, these examinations are indispensable in order to conduct the true science with magnetosphere simulations. However, it seems that the similar efforts have been missing in Japan. Recognizing the current situation, we test the calculation results of a magnetosphere MHD model in NICT by using observation data. In this talk the focus will be placed on the mid-tail structure, including cross-sections (both in the X_{GSM} - Y_{GSM} and Y_{GSM} - Z_{GSM} planes), lobe-plasma sheet structure dynamically changed by the solar wind/IMF input.