Solar wind influence on the dawn-dusk asymmetry of the Io plasma torus observed by HISAKI/EXCEED

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The dawn-dusk asymmetry of the Io plasma torus has been seen by several observations [e.g., Sandel and Broadfoot, 1982; Steffl et al., 2004]. Ip and Goertz [1983] explained this asymmetry can be caused by a dawn-to-dusk electric field in the Jupiter's inner magnetosphere. However, the question what physical process can impose such an electric field deep inside the strong magnetosphere still remains. The long-term monitoring of the Io plasma torus is a key observation to answer this question. The extreme ultraviolet (EUV) spectrometer EXCEED onboard the HISAKI satellite was launched in 2013 and observed the Io plasma torus from December 2013 to March 2014 (75 days). We investigated the temporal variation of the dawn/dusk ratio of EUV brightness. Then we compared it to the solar wind dynamic pressure extrapolated from that observed around Earth by using magnetohydrodynamic (MHD) simulation. As a result we found clear responses of the dawn-dusk asymmetry to rapid increases of the solar wind dynamic pressure. We will present the initial results of this study.