

# **Geophysical Control of FTE Solar Wind Dependence and Its Implications from Three Years of Cluster Observations**

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Flux transfer events (FTEs) are transient/pathy reconnections on the magnetopause which contribute to the coupling of mass, momentum, and energy between solar wind and the Earth's magnetosphere. Our former studies have shown strong control of high-latitude and low-latitude flank FTEs by some solar wind parameters. In addition, we discovered some surprising strong dependence of such control on latitude and magnetopause location. In this study, we used three years of Cluster observations from February 2001 to July 2003 to have a thorough investigation of the dependence of FTE solar wind control on geophysical parameters, including magnetic local time, magnetic latitude, Earth dipole tilt, and relative location on the magnetopause. We found some systematic dependences from this study, which are expected to reflect the physics of magnetopause reconnection and FTE dynamics. Based on what we obtained from our statistics, we further made a detailed study of the correlations between such dependences and underlying physics, and provided possible explanations to what we have seen from our Cluster FTE statistical results.