Geoeffectiveness of Magnetosheath Jets

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The study on high speed plasma flows in the Earth’s magnetosheath, or commonly known as jets, has been a popular topic for discussion in recent decades. These jets can often be characterised by increases in the dynamic pressure compared to the background plasma. They can propagate through the magnetosheath and impact the magnetopause, causing indentations and possibly triggering waves on the magnetopause and contribute to energy and mass transfer into the magnetosphere. Previous studies suggest that the effects from these impacts are detectable inside the magnetosphere at geostationary orbit, and even at ground level causing geoeffective responses. Case studies show indications where ground based magnetometers, GMAGs, have observed magnetic pulses as a result of impacting jets. By using data from the MMS mission and GMAGs, we conduct an observational study with a larger set of jets compared to previous works. The geoeffectiveness of these jets will be investigated and the properties of the responses in the GMAG observations will be discussed.