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Seasonal and clock angle control of the location of flux transfer events signatures at the magnetopause

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Most models of flux transfer event (FTE) formation produce pairs of structures, which in general move away from the subsolar region and give rise to signatures which can be observed in both the northern and southern hemispheres. The multiple reconnection line (X-line) model is unique as a reconnection-based model that is capable of producing a single flux rope if only two X-lines are present. Raeder [2006] reported the results of an MHD simulation where he studied the effect of the Earth's dipole tilt on reconnection at the dayside magnetopause for a southward IMF orientation; in his simulations, flux ropes were formed by the sequential formation of X-lines, and when the dipole tilt was set to a value representative of solstice the flux ropes moved preferentially towards the winter hemisphere. Some observational evidence has previously been presented for a bias towards FTE signatures being observed in the winter hemisphere; in this presentation, we show further observational evidence for this phenomenon, using an independently-derived data set. Once the seasonal bias is taken into account, we find that the IMF clock angle controls the location of FTE signatures. We also find that the effective dipole tilt (combining the geomagnetic dipole tilt with the IMF tilt angle) provides no clear control of the location of FTE signatures.