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Dynamics of Earth's Magnetotail Observed in a Cross-Tail View

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The size of Earth's magnetotail makes it comparatively difficult to obtain a comprehensive picture of tail dynamics from localized in situ observations alone. Thanks to recent energetic neutral atom (ENA) observations from the IBEX spacecraft we now have an opportunity to observe the global spatio-temporal development of the tail in a cross-sectional fashion. IBEX provides uninterrupted multi-day observation periods covering the near to mid-tail region. These tail observations have to rely on weak signals, necessitating data integration times on the order of 20 minutes. As expected, ENA emissions predominantly emanate from Earth's plasma sheet region. IBEX observations confirm the picture of a highly time variable tail. We are presenting cross-tail IBEX observations focussed on the Spring and Fall periods of 2009 and 2010. Despite the absence of major geomagnetic storms, these observations show a significant variability in overall tail plasma content as well as rich short-term variabilities. We are correlating these long- and short term variabilities with solar wind driving as well as with observations of geomagnetic activity.