



Ion outflow at equinox conditions: North-south asymmetries.

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Ion outflow from the polar cap regions is modulated by solar illumination. Since solar extreme ultraviolet (EUV) irradiance largely controls ionization, one would expect equal ionization and equal outflow from both hemispheres around equinox. However, recent results from the Cluster constellation of spacecraft indicate a persistent north-south asymmetry in cold ion outflow and plasma density in the magnetotail lobes even around equinox. In this paper, we have used observations from the Cluster satellites and incoherent scatter radars (EISCAT) to investigate whether a time-lag in ionospheric properties can explain the observed north-south asymmetries. Preliminary results indicate a time lagged response of the ionosphere. Conditions for ion outflow are comparable in the Northern and Southern hemisphere not around equinox, but several days later.