notchの形成メカニズムとプラズマ圏の回転速度

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Evolution of plasmaspheric notches and their corotation lag seen in the EUV

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Plasmaspheric particles are cold, therefore they move along *ExB* drift path corresponding to electric potential contours on the magnetic equatorial plane. Convection electric field (E_c) induced by the solar wind, usually has a dawn-to-dusk direction, increases their rotation rate in the dawn hemisphere because E_c has the same direction as the corotation electric field. On the other hand, E_c decreases the rotation rate in the dusk hemisphere. However, the departures from corotation were often observed not only in dusk side but also in dawn side.

We identify fine structures (notch:localized low-density regions) as markers to track the rotation of the plasmasphere and measure corotation lags seen in the EUV images of the plasmasphere. We have analysed MLT- and L-value dependence statistically. We have found that these notches drifted at about 21.4 h d^{-1} on the average and there were independence from MLT and L-value. More importantly, we have found that other mechanism might be also responsible for formation of notches than the preceeding theory that notches originate from the westward edge of the plume. In this paper, we will present the characteristics of notches and propose a new mechanism responsible for formation of notches.