ABSTRACT

Until the mid 1970’s it was believed that the solar wind was the source of the matter found in the magnetotail. This belief was disproved when early satellites, flying through the plasma sheet, measured quantities of oxygen that could not be attributed to the solar wind. Since then we have determined that the composition of the plasma sheet changes dramatically with magnetic activity. We have located outward-flowing ions at different latitudes of the ionosphere and identified the mechanisms which are responsible. This talk will argue that ion conics and beams, found primarily in the auroral latitudes, are the primary mechanisms responsible for the variation of the plasma sheet composition, and summarize what is currently known about them.