

Modeling of plasmasphere flux tube refilling

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Modeling of plasmasphere magnetic flux tube refilling by hydrodynamic TUBE-7 of ionosphere-magnetosphere dynamics model is presented. Beginning conditions were calculated by modeling of polar wind characteristics (open flux tube). Almost empty in the beginning, co-rotated flux tubes for $L=3-6$ were refilled for many days. Calculated density profiles of refilling were approximated by simple functions. The approximated profiles were used for development of CDPDM (Convection Driven Plasmasphere Density Model) model - the model of thermal plasma density in the outer plasmasphere. Calculated plasmasphere radial density profiles are compared with satellite measurements. This work was partially supported by grants INTAS 03-50-4872 and HIII-1739.2003.2