

RESEARCH IN MAGNETOSPHERIC PHYSICS AT INPE:
RESULTS AND PERSPECTIVES

by

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ABSTRACT

Results on the following aspects of magnetospheric research at INPE will be presented: (1) Low latitude magnetosphere-atmosphere coupling through X-ray and electric field measurements at balloon altitudes, including investigations on atmospheric electricity; (2) Dynamics of plasmaspheric particles in the presence of large scale electric fields; (3) Ring current energization during intense magnetic storms; (4) Interplanetary origin of intense magnetic storms and substorms; (5) Solar wind-energy and electric field transfer via magnetopause reconnection; (6) Long term behaviour and periodicities of the interplanetary magnetic field polarity; (7) Non linear processes in the magnetosphere and the interplanetary medium. The following research perspectives will be also discussed: (A) Participation of an international Campaign (1989-1990) to investigate electric field structures and particle precipitation events in the low and middle atmosphere using long duration balloon flights; (B) Participation of an international project (1989-1990) to investigate the global atmosphere electrodynamic circuit using a network of Schumann resonance ground detectors; (C) Investigation of wave-particle interactions at the South Atlantic Magnetic Anomaly and VLF waves due to lightning using detectors on board a Brazilian Geophysical Satellite; (D) Participation of the JPL-UVIS Project to study auroral forms and atmospheric holes, due to cometsimals, with high resolution.