

## SOLAR WIND - MAGNETOSPHERE COUPLING

W.D. GONZALEZ AND A.L.C. GONZALEZ

Ministério de Ciência e Tecnologia - MCT

Instituto de Pesquisas Espaciais - INPE

São José dos Campos - SP

In this talk the following aspects of solar wind - magnetosphere coupling will be reviewed: (1) statistical studies on the relationship of interplanetary parameters with magnetospheric dissipation parameters, in order to look for basic observational clues about solar wind - magnetospheric interaction processes, (2) dimensional and theoretical studies on electric field and energy transfer from the solar wind to the magnetosphere, via large scale magnetosphere-reconnection, (3) observational evidences about electric field, magnetic flux and energy transfer due to magnetopause reconnection, (4) observational evidence of transfer processes not related to reconnection, including some relate theoretical expectatives, (5) magnetospheric tail response to magnetopause reconnection, "driven" versus "unloading" hypothesis for energy volume in the tail, (6) dependence of geomagnetic storms and substorms on solar wind parameters, (7) studies on the origin of intense storms and substorms in the interplanetary medium and at the sun, (8) numerical prediction of geomagnetic storms, (9) ionospheric response to changes in solar wind parameters, including high latitude-low latitude ionospheric coupling, and (10) future programs and missions related to solar wind-magnetosphere coupling.

Some or standing problems related to these subjects, not as yet understood, will be also addressed with the main goal of unifying the apparently diverse subjects of research mentioned above.

## REFERENCES

- AKASOFU S.I and FRY, C.F. A first generation numerical geomagnetic storm prediction scheme, Planet. Space Sci, 34, 77, 1986.
- BUTLER, D.M. and K. PAPADOPOULOS, Solar Terrestrial Physics: Present and Future, NASA report 1120, 1984.
- CAROVILLANO, R.L. and J.M. FORBES, Solar Terrestrial Physics, D. Reidel publishing Co., 1983.
- GONZALEZ, W.D. and B.T. TSURUTANI, Criteria of interplanetary parameters causing intense magnetic storms ( $Dst < -100nt$ ). Planet. Space Sci., in press, 1987.
- KAMIDE, Y and J.A. SLAVIN, Solar Wind-Magnetosphere coupling, D. Reidel publishing Co., 1986.
- KRIMINGS, S.M. An implementation plan for priorities in solar-system space physics, National Academy press, 1985.
- STERN, D.P. Energetics of the Magnetosphere, Space Sci. Rev., 39, 193, 1984.
- TSURUTANI, B. T. and W.V. GONZALEZ, The cause of hig-intensity long-duration continuous auroral activity (HILDCAAS): interplanetary Alfvén wave-trains, Planet. Space Sci., in press, 1987.