

AN OVERVIEW OF THE LOW LATITUDE AERONOMY RESEARCH AT INPE

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ABSTRACT

Aeronomy research at INPE focusses on equatorial-low latitude ionospheric and upper atmospheric processes and their mutual interactions as also on their response to solar and magnetospheric variabilities. Experimental investigations are conducted by means of ground based radio and optical techniques as well as rocket borne in situ and optical diagnostics, of the diverse aeronomic parameters of interest. The existing ground based instruments network consists of ionosonds, photometers for E and F region emissions, VHF electronic polarimeters, scintillation receivers, magnetometers, riometers and VLF receivers, that cover the equatorial region and up to some 30°S latitude. An all-sky imaging system and a Fabry Perot interferometer are operational at Cachoeira Paulista and São José dos Campos sites; and a VHF coherent radar is under construction for installation at a magnetic equatorial site. Some recent results will be discussed that will concern mainly observations of waves, winds and plasma drifts, plasma bubble irregularities (including rocket observations) in the equatorial ionosphere, as well as some observations on the aeronomic effects of charged particle precipitation in the South Atlantic Anomaly.