

Space Studies of the Upper Atmospheres of the Earth and Planets including Reference Atmospheres (C)

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ELECTRON DENSITY AND ELECTRON TEMPERATURE IN THE VALLEY BETWEEN THE EQUATORIAL E AND F REGIONS DURING THE PRESENCE OF PLASMA BUBBLES – SOME RECENT ROCKET OBSERVATIONS

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Rocket measurements of electron density and electron temperature made from Brazil show that the electron density and electron temperatures in the valley region between the equatorial E and F regions get modified during the onset of plasma bubbles. During one of the launches the Langmuir probe measured abnormally large electron temperatures below the F-region just before the onset of plasma bubbles but temperatures became normal soon after the onset of bubbles. Recently a Brazilian VS-30 rocket was launched from the equatorial rocket launching station CLBI in Natal, Brazil carrying a Langmuir probe operated alternately in swept and constant bias modes to measure both electron temperature and electron density respectively. The ground equipments operated before and during the rocket launch clearly showed the presence of plasma bubbles above the F-region. At the time of launch the bubble activity was at its peak. The electron density and temperature height profiles could be estimated from the LP data up to the rocket apogee altitude of 139km. These profiles are compared with model electron density and temperature profiles as well as with electron density and temperature profiles observed during other rocket launches under conditions of no plasma bubbles in the F-region.