STUDIES IN EQUATORIAL AERONOMY

"LANGMUIR PROBE STUDIES OF THE LOWER EQUATORIAL IONOSPHERE AT THUMBA"

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S T A T E M E N T

This thesis is the results of Langmuir probe experiments conducted from the Equatorial Rocket Launching Station at Thumba (TERLS). Working at the Physical Research Laboratory under the guidance of Profs. V.A. Sarabhai and Satya Prakash, the author was responsible for the design and development of the Langmuir probe system, the construction and testing of the Langmuir Probe instrumentation used in these experiments, and took part in the prelaunch checks for the Langmuir probe instrumentation on the various rocket flights conducted from Thumba. The author was also responsible for the data analysis and the interpretation of the experimental results.

There have been very few direct experimental studies over the geomagnetic equator so far and the results reported here represent valuable new material. Attempts are made in the thesis to understand the experimental results in terms of processes taking place in the equatorial ionosphere. These attempts reveal interesting new possibilities.

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