ACKNOWLEDGEMENTS

The author wishes to express his grateful thanks to the Directors of the Defence Electronics Research Institute, Hyderabad (India), the Astrophysical Observatory, Kodaikanal (India), Manila Observatory, Manila (Philippines), Radio and Space Research Station, Slough (England, U.K.), Environmental Science Services Administration, Boulder (Colorado, U.S.A.), Geomagnetism Division of the Coastal and Geodesic Survey (now a division of ESSA), Rockville, Maryland (U.S.A.), Max-Planck Institute for Aeronomy, Lindau/Harz (West Germany), Ionosphere Institute, Breisach-Freiburg (West Germany), Posts, Telephone and Telegraph Administration, Berne (Switzerland), Royal Meteorological Institute, Brussels (Belgium), Geophysics Institute in the Technische Hochschule, Stuttgart (West Germany) and the Institute for Physics of the Earth at Hamburg University, Hamburg (West Germany) for kindly supplying ionospheric and other geophysical data of several stations needed for the studies reported in this thesis. The magnetic data of Kodaikanal and Alibag were taken from the published half-yearly volumes of the Indian Meteorological Department. The prompt services of the World Data Centre C1 (Geomagnetism) at Charlottenlund (Denmark) are very much appreciated. The Director of the Broadcasting Corporation of Ceylon, Colombo kindly gave the technical details of its 11.8 MHz transmission for our
experiment on the field-strength measurements for which I am very thankful to him.

I should also make special mention of the helpful discussions which I had with Dr.K.R.Ramanathan of Physical Research Laboratory, Ahmedabad, Prof.Dr.K.Rawer of Arbeitsgruppe für Physikalische Weltraumforschung, Freiburg, Dr.J.Taubenheim of Deutsche Akademie der Wissenschaften, Berlin-Adlershof (DDR) when I was working in Germany, and Dr.W.R.Steiger of University of Hawaii, Honolulu, Dr.B.A.Lindblad of Lund Observatory, Lund (Sweden), and Prof.C.O.Hines of Toronto University, Toronto (Canada) and for communications with Dr.P.M.Millman of National Research Council, Ottawa, in connection with some of the results reported here. My thanks are also due to the Director, Physical Research Laboratory, Ahmedabad for kindly availng the computer and Library facilities.

I am also grateful to Prof.P.D.Pathak, the Head of the Department of Physics for giving necessary facilities and encouragement to carry out the investigations. Thanks are due to all the colleagues in the Department who have helped me in one way or the other during the period of investigation.

Most of the computations and analysis reported here were made by me and my wife. I cannot thank enough my wife Saroj who has done most of the calculations including the scaling of Ionograms for N(h) profiles for the material of
the Chapter VI. She has foregone much pleasure and convenience and provided me with invaluable moral support.

Finally, I am deeply indebted to Dr. K. M. Kotadia for suggesting the study of several problems, for taking keen interest in my studies and for guiding the research work leading to the Ph.D. degree. His keen interest and enthusiasm have been a constant source of inspiration and I have learnt more from him than from anyone else.

(K. G. Jani)