ACKNOWLEDGEMENTS

I am indebted to my research guide Mr. R.R. Nair, Deputy Director, N.I.O., for his constant encouragement and thought provoking suggestions. I am grateful to him for providing me an opportunity to work with multibeam system. I am fortunate to have his guidance and support.

My gratitudes to Dr. B.N. Desai, Director, N.I.O., for permission and facilities extended to carry out this work. I record my gratitudes to late Dr. H. N. Siddiquie, former director of N.I.O., who has motivated me to pursue research in Marine Geophysics.

My friend and colleague Mr. T. Ramprasad has been a constant source of encouragement, I thank him for all the help, together we had many fruitful discussions. I gratefully acknowledge the friendly gestures of my colleagues in the Polymetallic Nodules Project. Special thanks to Mr. M. Shyam Prasad, Dr. V. Purnachandra Rao, Mr. P.S. Rao, Dr. V.K. Banakar, Mr. M. Sudhakar, Mr. B. Nagender Nath and Dr. B. Chakraborty for their encouragement, which helped in keeping my morale high. I am thankful to Mr. B. Nagender Nath for critically reading the first draft and for his valuable suggestions. I extend my sincere thanks to Dr. V.N. Kodagali, who gave some useful tips on the processing of Hydrosweep data and for helpful discussions.
I am thankful to colleagues in the Geophysics group. I am grateful for the suggestions and advices of Dr. Gopala Rao, Mr. L.V. Subba Raju, Mr. G.C. Bhattacharya, Dr. M.V. Ramana and Dr. V.Subrahmanyam. Mr. K. Sreekrishna, Mr. A.K. Chaubey, Mr. G.P.S.N. Murthy and Dr. K.V.L.N. Sarma are thanked for their suggestions. I am grateful to Mr. G.C. Bhattacharya, who introduced me to underway data processing techniques. My sincere thanks to Prof. P. Rajendraprasad, Department of Geophysics, Andhra University for his valuable suggestions.

I extend my thanks to Mr. N. Prabhaharan, Mr. K. Sivakholondu for their assistance in underway data processing. Mr. K. Srinivas, Mr. B. R. Rao, Mr. S. Jaishankar are thanked for their assistance. I am thankful to the staff of N.I.O. Computer Center for the system support during various stages of data processing.

I record my thanks to Instrumentation group, Marine survey group and the Mechanical engineering groups of the Geological Oceanography Division, for their support at sea during the data acquisition. I am thankful to Dr. S.M. Karisiddaiah and Dr. A.B. Valsangkar for their encouragement during the early scientific voyages of my career. I thank the Hydrosweep maintenance group, comprising of Mr. G. Ranade, Dr. B. Chakraborty, Mr. Y.S.N. Raju and Mr. T. Sudhakar for their excellent support during the acquisition of multibeam bathymetric data. Mr. V.D. Khedekar and Mr. D. Pathak are thanked for the instrumentation support during the acquisition of
gravity and magnetics data. The staff of G.O.D. office are thanked for their assistance from time to time.

I thank Mr. Ravindranath Uchil for neatly drafting the illustrations with good care and patience.

This thesis would not have been completed but for the encouragement from my parents and enduring support of my wife Vani. I record my appreciation to my wife and son Siddharth for tolerating my absence at home for long hours.