Acknowledgement

First and foremost I wish to express sincere gratitude to my supervising guide Dr. R. Sajeev, Associate Professor and Head, Department of Physical Oceanography, School of Marine Sciences, CUSAT, for his valuable guidance and immense help in the successful completion of my doctoral work. He helped me to come up with the thesis topic and during the most difficult times when writing this thesis, he gave me the moral support and the freedom I needed to move on. I am thankful to Dr. T. Pankajakshan, NIO, Goa for his advice and support during my research work. His altruistic approach and congruous contact will be always remembered.

My research in this area was initiated while working in the Central Marine Fisheries Research Institute, Kochi and I thankfully acknowledge this institute for the research facilities and financial assistance provided in the initial stage of my work. I acknowledge Cochin University of Science and Technology for the facilities that I got during my Ph. D work. I deeply acknowledge the financial support extended by INCOIS, Ministry of Earth Science, Government of India for the financial support in the form of fellowship and for procuring the data sets. I want to thank CMFRI and NIO for giving me the permission to use the secondary data for the necessary research work.

I wish to express my sincere thanks to Prof. (Dr.) A. N. Balchand and Dr. K. K. Varma, Department of Physical Oceanography for their timely advice and encouragement during the research period. Heartfelt thanks to Mr. Saji. P.K., Assistant Professor, Department of Physical Oceanography and Dr. Benny. N. Peter, Dr. K. Rasheed, Dr. K. M. Santhosh, Lecturers of the Department of Physical Oceanography for their suggestions and encouragement. I take this
opportunity to thank the office staffs of Department of Physical Oceanography and the Library staffs of School of Marine Sciences for their co-operation.

I am deeply thankful to Dr. K. V. Jayalakshmi (Scientist, NIO, Kochi), Dr. K. G. Mini (Scientist, CMFRI, Kochi), Dr. K. Sudheesh Kumar (Assistant Professor, Department of Mathematics & Statistics, University of Hyderabad) and Mr. Joji T. (SAS, Pune) for their help in the statistical analysis, which is a major segment of my work. I greatly appreciate Mrs. Smitha B. R., CMLRE and Dr. Venu. G. Nair, Department of Atmospheric Sciences for their timely help and useful discussions. I am highly indebted to my research colleagues Mr. Phiros Shah and Mrs. Gopika of this department for their support and assistance in my work. I am also grateful to Mr. Krishnamohan, JRF of Department of Atmospheric Sciences for his help throughout my Ph. D. program. I also express my sincere gratitude to Mrs. Sreedevi, Department of Marine Biology for her support and suggestions. I appreciate the kindness and support from my friends of NIO, Goa, for their help during the reference work. The moral support and prayer from all my friends is also greatly acknowledged.

The deepest gratitude goes to my family for their unflagging love and support throughout my life; this thesis is simply impossible without them. The support and encouragement from my family is the greatest strength for me. Here I would like to thank my mother and parents-in-law for their longlasting care and support. Finally, I am greatly indebted to my devoted husband ‘Jayasankar’ and our son ‘Gautham’. They form the backbone and origin of my happiness. Their love and support without any complaint has enabled me to complete this Ph.D. I owe my every achievement to both of them.

Thara K.J
Dedicated to......
  my family