Acknowledgements

I wish to thank Prof. Dr. V. Haak for providing me an opportunity to work in GFZ and for the support and advice throughout the course of this work.

My heartfelt thanks for Dr. S. Maus for providing me an interesting research topic. He not only provided the scientific discussions whenever required but also supported by sharing his new ideas with me without which this work would not have been completed.

I wish to thank Prof. H. Luehr for his consistent support and encouragement throughout this work. I would take this opportunity to thank the CHAMP satellite group for their support and discussions. I particularly like to thank Dr. M. Rother whose help always kept our machines running. Not forgetting the other members of CHAMP data processing group, Dr. W. Mai and Dr. S. Choi, I wish to thank them for providing us the good quality satellite data, which forms the basis of the present work. I wish to thank I. Wardinski and J. Schwarte for their constant help throughout the course of my work. The cooperation and help from my colleagues Dr. P. Ritter, Dr. M. Korte and Dr. H. McCreadie had been a consistent source of encouragement.

I particularly wish to thank Dr. G. Balasis who helped not only reviewing the final version of this thesis but also kept providing me with valuable comments.

Another perennial source of inspiration were the members of the Electromagnetic Deep Sounding group. I particularly wish to thank Dr. O. Ritter and Dr. U. Weckmann, not only for their continuous advice related to technical problems but they also volunteered to read and correct parts of this thesis and of whom I received many valuable comments. I wish to thank Dr. P. Bedrosian for his critical suggestions to improve the thesis.

I should also like to thank Dr. D. N. Ravat, faculty at University of South Carolina, US for his valuable discussions during his visit to GFZ in the summer 2002. I also like to thank Prof. Dr. C. Reeves, faculty at ITC, Holland for his suggestions via email for improving the thesis.