ACKNOWLEDGEMENTS

My days at Wadia Institute have been the journey of learning towards acquainting concepts of Himalayan Orogeny which helped in pursuing my thesis. This has been possible with sincere guidance, help and wishes from many individuals.

I sincerely express my gratitude to Prof. Anil K. Gupta (Director, WIHG) and Dr. P. K. Mukherjee my guides, with whom I have the pleasure of working despite being a novice in this field. I learned the intricacies of the subjects through their meticulous ways of pursuing every aspect of science. Sincere guidance, involvement and concerns from Dr. H.K. Sachan and Dr. Santosh K. Rai are highly appreciable. Their scientific suggestions and support helped me in various laboratory and field activities. Though, there was ample freedom to pursue my own plans including field campaigns to the final data acquisitions but they always prevailed upon critically on the quality of the data. Their innovative suggestions on experimental protocols and discussions were very fruitful.

I express deep sense of gratitude to the Authorities of University of Petroleum and Energy Studies, Dehradun for their guidance and support.

I thank Prof. Zachary Sharp (University of New Mexico, USA) Dr. Sunil K. Singh (PRL, Ahmedabad), Dr. V. C. Thakur, Dr. S. K. Ghosh, Dr. R. Jayangondaperumal, Dr. Vikash and Mr. Satheesh Deekshit (Thermo Scientific, India) for scientific discussion and encouragement during various sessions of interactions with them. Most of the results described in this thesis
would not have been obtained without a close collaboration with Dr. Sunil K. Singh of PRL Ahmedabad and Dr. V. Balram of NGRI, Haydarabad.

I would also like to thank the academic programme committee WIHG for suggestions in improving the thesis.

I take this opportunity to sincerely acknowledge the Department of Science and Technology (DST), Ministry of Science and Technology, Government of India, New Delhi, for providing financial assistance in the form of Fellowship which buttressed me to perform my work comfortably.

Life at Wadia Institute was really pleasant with the companies of Shri Sameer Tiwari, Som Dutt, Anil Kumar, Tanuj Shukla, Ms. Manju Negi, Nikita G. Parmar, Rakhi Rawat, Suman Lata Rawat, Divya Thakur, Dr. Kavita Tripathi, Dr. Shivani Pandey for their untried help during various measurements and compiling the Ph.D. thesis. I am also thankful to Dr. P. P. Khanna, Dr. N. K. Saini, Dr. R. Islam, Dr. Rajesh Sharma, Dr. A.K. Singh, Dr. S. S. Thakur, Dr. V. Balram and Dr. M. Satyanarayanan for their constant support and encouragement during the experimentation.

I also acknowledge the support of library, thin section, documentation unit and stores and purchase section for help during my thesis.

Last but not the least, I owe this thesis to my parents and family members who always stood by me and provided strength in pursuing this work. Their sincere encouragement and inspiration throughout my research work has helped me to lift myself uphill this phase of life. Besides this, several people have knowingly and unknowingly helped me in the successful completion of this PhD dissertation are respectfully acknowledged.

Aditya Kharya