Acknowledgements

Life is under no obligation to give us what we want. I acknowledge and thank life to provide me this opportunity to express my thanks in words to all my well wishers.

I thank Dr. Kanchan Pande, for always encouraging me and giving me full freedom in thinking, acting, and pursuing things in my own way. His friendly nature and optimistic philosophy towards life has always kept me going. I owe a great debt to Prof. Ramesh who has always been very kind to me. I am proud of being associated with scientist of such a high caliber. I learned so many things from him. I learned the quality of being inquisitive and rational. I learned to enjoy learning from him. I am thankful to Prof. T.R.Venkatesan for teaching me and familiarizing me with the Ar-Ar mass spectrometry. Whatever I know about Ar-Ar is due to his painstaking efforts. His exemplary devotion and dedication to work inspired me to keep trying during the difficult times with machine

I am indebted to Prof. K.K.Sharma who provided six samples (LG series) for the present study and his useful suggestions from time to time. I appreciate the help extended by Dr. O.M.Lovera of UCLA to run the FORTRAN programmes of his MDD model.

I have been benefited a lot by encouraging discussions with Prof. Krishnaswami. He encouraged me to pursue my interest in Geodynamics. Lively discussions with prof Somayajulu has always been encouraging. Prof. Murty has patiently listened to my constant cribbing during the rough patch with the instrument. I express my sincere thanks to him for helping me to overcome some of the problems related to the instrument. I got benefited to a great extent by suggestions made by Profs. T.M.Harrison, Mike Searle, C.J. Wilson & Rejean Hebbert. I am also thankful to Dr. K.S. Misra & Prof. Viladakar for their useful suggestions. I thank Prof. Nikhil Desai for taking the responsibility of being a co-guide.

I thank Dr. P.N.Shukla, who helped me a lot with REE analyses and taught me various useful things. Dr. M.M.Sarin very generously taught and helped me during my attempt with ICP analyses. He has been very helpful and a great teacher too, during our course work. I owe a great deal to Ravi Bhushan for providing support and painstaking efforts to go through the thesis, He has been a great company throughout.

I am thankful to Prof. Bhandari, Prof. Goswami, Prof. Bhattacharya, Prof. A.K. Singhvi, Dr J R.Trivedi, Dr. Srinivasan, Dr. S.K.Gupta and academic committee members for their support and encouragement. I also thank members of GSI, Pune for their support.

I thank Nirjhari Sinha, for helping me in mineral separation, Padia ji for his constant support, M.M. Yadav & Deshpande who helped me whenever I needed, Bhavsar bhai, who never refused any help, and Vaghela bhai.

The work could not have been completed without the help of Pandian ji who promptly responded to the frequent calls from our lab. V.G. Shah, Panchal, Pranav & Rahul. Kurup and Siva are thankfully acknowledged for their prompt help. Workshop, particularly Ubale & Nagewadia, has also been to a great help. Library & Computer centre staff is gratefully acknowledged. The stay and duration at PRL has been memorable mainly due to the lively atmosphere at hostel. Our batch has always been referred to as a single entity ('95 Batch). And I am happy to be a part of such a close-knit group with each and every member (Alam, Alok, Dipu, Jitti, Koushik, Mittu, Rajesh, Sankar, Shukla, Som, Sudhir, Sunish, Vinai) being very different in their own and yet always together whenever needed. I have been lucky to have very good seniors (Gautam Da, Prashant, Tarun, Jyoti, Ratan, Siva, Sunil, Kunu, Nandu, Ghosh, Sanjay) and juniors too. My room 058 gang (subrata, Vinai, Prashanto) have been a great company!

Madam Dr. Sheela Kusumgar has been very affectionate to me and I deliciously remember the numerous dinner parties she hosted for us. I never felt away from home during stay in PRL mainly due to affectionate care taken by Deepaji, Shravani, Rashmi & Pauline

Having said all this I must mention that I could have not done this work but for the kind and loving nature of our friends in Ladakh. Particularly I am indebted to the families of Tahira & Yasin Le in Leh who have provided space for samples and arranged for many other things besides hosting many dinners. We have been fortunate enough to stay with Razak family in Choglamsar for one night. And least but not last I am heavily indebted to Tashi Le, Nonu Le who have guided us through trekking to Spongtang and Viru & Yoru who carried tons of samples and tentages on their back without complaining

Finally I must pay my gratitude to my family which I always took for granted and never cared much. No amount of words would be sufficient to express my gratefulness to them particularly my mother, father and brother. Now little Nikki, Nikka and my bhrajai have added extra charm to life.