

Acknowledgements

My days at PRL have been the learning stage for acquainting concepts of fluvial geochemistry 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. S. Krishnaswami (Swami), my guide, with whom I have the pleasure of working despite being a totally novice in this field. I learned the intricacies of the field through his meticulous ways of pursuing every aspect of science. Though, there was ample freedom to pursue my own plans including field campaigns to the final data acquisitions but he always prevailed upon criticaly on the quality of the data. His innovative suggestions on experimental protocols and discussions were very fruitful.

Sincere guidance, involvement and concerns from Dr. Sunil Singh and Prof. M. M. Sarin is highly appreciable. Their scientific suggestions and support helped me in various laboratory activities. I express deep sense of gratitude to Prof. L.S. Chamyal of M.S. University of Baroda, for his guidance and support.

I thank Profs. B. L. K. Somayajulu, J. N. Goswami, A. K. Singhvi, R. Ramesh, S. V. S. Murthy; Drs. S. K. Gupta, P.N. Shukla, J. R. Trivedi, J. S. Ray, D. Banerjee, V. K. Rai and K. K. Marhas for scientific discussion and encouragement during various session of interactions with them. I would also like to thank the academic committee PRL for suggestions in improving the thesis. I am thankful to Prof. B.R. Arora, Director, Wadia Institute of Himalayan Geology, Dehradun for his concern, scientific motivation and encouragement which helped me a lot in final stages of my work. I also acknowledge the help and support of my colleagues at Wadia Institute without which this work would not have been possible.

Life at chemistry laboratory was really pleasant-courtesy the companies of Bhavsar Bhai, Ravi, Rengarajan, Tarun, Pauline, Sneha, Sudheer, Neeraj, Anirban, Gyana, Rahman, Kirpa, Ashwini, Vineet and all the younger students. I also acknowledge the help of my friends who joined PRL with me including

Rudra, Manoj, Vachaspati Pandey, Sanjeev, Pathak, Manish, Prashanta and all who supported me.

The company of Sudeshna, Lokesh, Jayendra, Sarika Tarak, Harish, Jayesh, Sreyas, Manoj, Yogesh, Sanath, Satya, Pathak, Ritesh, Rohit, and other friends kept me rejuvenated. Concerns and suggestions from senior colleagues—Harishji, Dipuda, Shuklaji, Navinji, Deshpandeji, Yadavji at PRL teatimes also helped me in various ways. I also acknowledge the support of Library, workshop, liquid nitrogen plant and Glass blowing section for their help during my thesis.

I owe this thesis to my parents, in-laws and family members who always stood by me and provided strength in pursuing this work. I would like to thank my wife Anuradha, and my sons *Tejas* and *Manas* for their tremendous support and help they extended to me. The moral support of my wife needs due acknowledgement who took care of our children despite my long absence from home.