ACKNOWLEDGEMENTS

My sincerest gratitude to my guide, *Prof. D. M. Maurya* for his benevolent attitude and positive criticism without which the research wouldn't have landed to the conclusion. During these years, I have greatly benefitted from his proficiency in the subject and versatility as a person.

I'm very much grateful *Prof. L. S. Chamyal* for helping me grow as a research student through constant motivation and unwavering guidance throughout my journey.

I would like to acknowledge the financial support offered by *Ministry of Earth Sciences (Govt. of India)* in the form of Junior Research Fellowship in a research project sanctioned to Prof. D. M. Maurya.

I am grateful to the Head, Department of Geology for providing necessary facilities to carry out the present research.

I appreciate the inestimable help provided by *Dr. Atul Patidar* for sharing his profound knowledge about Kachchh and GPR technique that I have used in this thesis. My heartfelt gratitude to *Dr. Alpa Sridhar* who has always inspired me to keep going.

I'm thankful to my lab mates *Dr. Naimisha Vanik*, *Akash Padmalal*, *Abhishek Kumar*, *Dr. Mohamedharoon Shaikh* and *Swarali Vasaikar* for the refreshing tea-time discussions and sharing a valuable part of themselves with me in the lab and during field work.

My appreciation also goes to my friends *Pathik Shah*, *Dhrusti Gujarathi*, *Rushil Gandhi*, *Suketu Acharya*, *Apurv Oza*, *Pooja Oza* and *Hiren Gajjar* for being happy distractions to rest my mind outside of my research. I would like to express my gratitude to my elders *Anand Rao*, *Kalpana Rao*, *Raksha Parikh*, *Kalpesh Parikh*, *Devang Rao*, *Jyoti Rao*, *Hiral Rao* and *Jignesh Rao* for all the blessings they have given to me.

I am indebted for the support offered by my *mother-in-law* and *father-in-law* and for believing in me. The assistance provided by my brother, *Ashish*, in solving the mathematical equations that I have used in this thesis and occasionally pulling me out of the blues, mainly during lockdown due to pandemic, is greatly appreciated.

My deepest gratitude to my supportive and understanding husband, *Akshar*, for being my backup and always being available for me regardless of the time difference between us. I also thank him for helping me with performing the Chi analysis that I have used in this thesis.

I cannot express enough thanks to my *Parents* for the countless times they have prioritised my work over everything else, for emotionally, financially and unconditionally supporting me throughout this journey and for their constant prayers without which I wouldn't have accomplished this thesis.

Finally, I would like to dedicate this thesis to my late grandfather, *Nana*, who would have been the happiest and most proud person to see my thesis.

Prabhuti Tiwari