ACKNOWLEDGEMENTS

I would like to express my deepest and most sincere gratitude to my supervisors **Dr. HK ANASUYA DEVI (External guide)**, **Dr. PANKAJ KUMAR SRIVASTAVA**, **Dr. KS MISRA** & **Dr. RK TRIPATHI** (**Internal guides**) for the whole hearted support in the execution of this research work to the expected level by their invaluable guidance and encouragement. Their vast experience and deep understanding of the subject proved to be of immense help to me and their exemplary ethics enlightened me in many ways.

The research work required clearances from various agencies of my organisation, my sincere thanks to my colleagues who have been a part of the process of getting the required clearances. I would like to thank Gp Capt Srikant Mishra, Wg Cdr Chako and Sgt AK Singh of PI School, IAF for their personal assistance and motivation by the facilitation and interest towards timely accomplishment of this work.

I would like to thank Dr. N. Aparna, Group Head, NRSC Data Centre, ISRO for providing the data of RISAT-1 and believing in my work potential. I would like to thank Mrs. Shefali Aggarwal, Head, PRSD, IIRS, ISRO for valuable guidance and co-ordination efforts in provisioning of data. I would like to thank Team PRSD, IIRS, ISRO for providing all the requirements timely to ensure completion of this research. I would like to thank Shubam Awasti and Neha, M. Tech. Students of PRSD, IIRS for their long interactions and valuable inputs to improvise my work towards this research. I would place in record the personal efforts rendered by my childhood friend, Dr. P Balamurugan, for his confidence in me to complete this work.

The motto of my organisation "**Touch the sky with glory**" has kept me always motivated to fight out the testing times. I hope my work will contribute in the archetypal way to my Organisation and to the mankind.

Finally, I would like to thank my parents, my family and my friends for their love, confidence and support.

S Senthil Kumar March 2018