

## ACKNOWLEDGEMENTS

I am grateful to my thesis advisor, Professor Michael E. Schlesinger, for his guidance and support. His expertise in atmospheric sciences and climate modeling improved my research skills and prepared me for future challenges. I thank my other committee members, Professors Walter Robinson, Mingfang Ting and Don Wuebbles, for their helpful suggestions and comments during my study, and Professor Larry Di Girolamo for his substituting for Professor Walter Robinson on the final examination committee.

I thank Dr. Ming-Dah Chou at NASA for providing me his radiation codes, Professor Georgiy Stenchikov at Rutgers – the State University of New Jersey for his assistance in reconstructing the Pinatubo aerosol optical properties, Professor Mingfang Ting and Dr. Hui Wang for giving me the SVD source code, and Brian Dotty at COLA for creating the graphic package, GrADs, which I used. I also thank Dr. Reto Ruedy for providing me the GISS Surface Air Temperature Analyses, the NASA Langley Research Center, EOSDIS Distributed Active Archive Center for providing me the ERBE satellite data, the NOAA Climate Diagnostic Center for providing me the NCEP/NCAR Reanalysis and the Reconstructed Reynolds Sea Surface Temperatures, and the British Atmospheric Data Center at the Rutherford Appleton Laboratory for providing me the COSPAR International Reference Atmosphere data. I am indebted to Professor Don Wuebbles and Dr. Kenneth Patten at UIUC and Dr. Xuexi Tie at NCAR for providing me the data of ozone depletion induced by the Pinatubo volcanic aerosol, simulated respectively by the LLNL and NCAR 2-D radiative-chemical-transport models. Acknowledgements are also made to the Climate Simulation Laboratory at NCAR and the National Energy Research Scientific Computing Center of the Department of Energy for providing part of the computing time needed for this study.

My special appreciation goes to Dr. Wangqiu Wang for his friendship, encouragement, and numerous fruitful discussions. I feel privileged to have been able to work with Drs. Natasha Andronova, Sergey Malyshey, and Eugene Rozanov. I thank the secretaries, Annetta Clements, Karen Garrelts and Norene McGhiey, for their general support.

This work was supported by the U.S. National Science Foundation and the Carbon Dioxide Research Program, Environmental Sciences Division of the U.S. Department of Energy under Grant ATM 95-22681. Any findings, opinions and recommendations presented in this material are those of the author and do not necessarily reflect the view of NSF and DoE.