

PERSONAL INFORMATION:

- Date of birth: July 19, 1964
- Marital status: married
- Citizenship: United States
- Elected official: elected to 4-year term Monterey City Council 11/2004
- Security clearance: Secret

AREAS OF EXPERTISE:

High performance computing, satellite remote sensing (NPOESS and DMSP programs), radiative transfer, physical principles of remote sensing, thermophysics and heat transfer, precipitation estimation, data analysis, parallel programming, software development.

PROFESSIONAL AND RESEARCH EXPERIENCE:

- Technical Manager, High Performance Computing, NPS, Monterey, California (May 2006 – present).
Leader of High Performance Computing Center at NPS: in less than six months I have taken the center from one computer cluster to six computer clusters.
Acquired IBM Power 4+ SuperComputer as part of HPCMP Reutilization Program
Led effort to refurbish data center for HPC efforts. Currently building 2000 sq foot datacenter with 30 tons of cooling, 500 KVA power, and external gigabit Ethernet connectivity (to be upgraded to 10 GigE).
Have accomplished all of this with zero budget and no fulltime staff. So I'm good at begging, borrowing, and stealing.
Involved with several collaborative efforts with faculty members in Oceanography, Meteorology, Physics, Mechanical and Astronautical Engineering, Information Systems, Electrical and Computer Engineering, Computer Science, Mathematics, and Operations Research.
Developing external relationships with other universities, research organizations, and corporations.
- Physical Scientist, FNMOC, Monterey, California (July 1997 – April 2006).
FNMOC representative to NPOESS Customer Forum (NCF) and Interface Data Processor Segment (IDPS). Member NPOESS CMIS Microwave Operational Algorithm Team (MOAT).
Support of DMSP F-16 SSMIS Calibration/Validation Team
BRAC Administrator, FNMOC, 2004
Responsible for scientific support of operational microwave satellite processing algorithms. Co-chair tri-agency (Navy/Air Force/NOAA) SSM/I Algorithm Research Panel. Ensure that mission sensor capabilities meet performance specifications and standards. Participate in mission requirements definition, design, and implementation. Missions include SSM/I, SSMIS, Windsat (Coriolis), NPOESS CMIS (as NPOESS Microwave Operational Algorithm Team member).
- USRA Visiting Fellow. NASA/Goddard Space Flight Center, Greenbelt, Maryland (January 1996 – June 1997).
Continued development of radiative transfer models with application to remote sensing of precipitation. Development of algorithms related to the retrieval of vertical structure of precipitating systems for application to TRMM (Tropical Rainfall Measuring Mission).
- NASA Global Change Fellow. The University of Iowa, Iowa City, Iowa (1993-1995).
Development of radiative transfer models with application to remote sensing of precipitation. Design and development of precipitation retrieval algorithms. Development and documentation of a general purpose FORTRAN radiative transfer library. Research and design of polarized (VRTE) 3D radiative transfer model based on the discrete-ordinates method. Investigation of radiative properties of non-spherical ice and liquid water particles in the microwave. Participation in workshop on rainfall estimation held in Melbourne, Australia (Third Algorithm Intercomparison Project, AIP-3). Wrote several Fortran and C programs in parallel programming environments (using PVM, MPI, Intel Paragon, and CM-5). Wrote and participated in proposals.
- Iowa NASA Space Grant Fellow. The University of Iowa, Iowa City, Iowa (1990-1993).
Research of a 2-D discrete ordinate radiative transfer model in axisymmetric cylindrical geometries for application to rocket plume base heating modeling. Development of radiative property database for

aluminum and aluminum oxide particles. Augmentation of an existing fluid flow code to account for radiative transfer in dusty shock waves. Porting of computer codes to Cray-YMP and Cray-C90.

- Research Assistant. The University of Iowa, Iowa City, Iowa (1989-1990).
Development of one-dimensional two-stream radiative transfer model for application to heat transfer and fluid flow computations for shock waves in dusty gases.
- Database Programmer, O'Connor & Associates, Chicago Board of Trade, Chicago, Illinois (1988-1989).
Applications programming in a UNIX environment. Liaison between Quantitative Research Department and Database Group. Design, development, and implementation of TCP/IP based network data server. Ad-hoc implementation of SQL database analysis and maintenance tools.
- System Manager, Information Systems Planning, The University of Chicago, Chicago, Illinois (1986-1988).
Management of large IBM mainframe database environment. Provided technical support and tuning of database region. Responsible for coordination of all staff programmers.

EDUCATION:

Graduate Degrees

Ph.D. in Mechanical Engineering
Graduation date: December 1995

The University of Iowa
Iowa City, IA 52242

Dissertation:

A Polarized Multi-Dimensional Discrete-Ordinates Radiative Transfer Model for Remote Sensing Applications

Academic Advisors:

Professor Theodore F. Smith (Department of Mechanical Engineering)

Associate Professor Witold F. Krajewski (Department of Civil and Environmental Engineering)

M. S. in Mechanical Engineering
Graduation date: December 1991

The University of Iowa
Iowa City, IA 52242

Thesis:

Radiative Heat Transfer in a Shocked Particle-Laden Gaseous System

Academic Advisor:

Professor Theodore F. Smith (Department of Mechanical Engineering)

Undergraduate Degree

B. S. in Mathematics
Graduation date: June, 1986

The University of Chicago
Chicago, IL 60637

HONORS, AWARDS, AND SCHOLASTIC ACTIVITIES:

- Bronze Performance Award, Fleet Numerical Meteorology and Oceanography Center, September 20, 2005.
- Letter of Commendation, DOC/NOAA Itr 1650 00S, October 22, 2001.
- Performance Award, Fleet Numerical Meteorology and Oceanography Center, September 2, 1999.
- Letter of Appreciation, Naval Ice Center, Itr 3140, Ser 170, July 2, 1999.
- Letter of Commendation, Chief of Naval Operations Itr Ser N09B33/9U519730, March 15, 1999.
- Letter of Commendation, Naval Research Laboratory Itr 1650 Ser 7300/788, November 24, 1998.
- Promotion to GS-13 Physical Scientist, Fleet Numerical Meteorology and Oceanography Center, August 2, 1998.
- Performance Award, Fleet Numerical Meteorology and Oceanography Center, July 30, 1998.
- NASA Global Change Fellowship, \$22,000 annual award, 1993-4, 1994-5, and 1995-6.
- University of Iowa Department of Mechanical Engineering Award for Excellence for Ph.D. Dissertation 1995.
- University of Iowa Center for Global and Regional Environmental Research (CGRER) Seed Grant, 1992-93.

- NASA Iowa Space Grant Fellowship, \$16,000 annual award, 1990-91 and 1991-92.
- University of Chicago Merit Scholar 1982-1986.
- Sigma Xi Scientific Research Society.

PROFESSIONAL SOCIETIES:

- American Meteorological Society
- Association for Computing Machinery
- American Geophysical Union
- American Institute of Astronautics and Aeronautics
- Iowa Academy of Science
- Sigma Xi, The Scientific Research Society

COMPUTER EXPERTISE:

Languages:

C, C++, FORTRAN, JAVA, Jakarta Struts, XML, HTML, Tcl/Tk, Expect, Perl, LISP, APL, BASIC, 68xxx assembly, SQL.

Systems:

UNIX (Sun Solaris, Linux, NetBSD, FreeBSD, HP-UX, SGI, Cray Unicos), PC-compatibles (Windows'95/NT/3.1/2000, DOS, LINUX, OS/2), Macintosh, IBM mainframes, Intel Paragon.

Other:

X-Windows programming, parallel programming (MPI, PVM, Paragon, CM-5), HTML, WWW, IDL, information technology, data visualization, image processing, user interface, database, client/server, GIS, digital library experience.

PUBLIC SERVICE, CIVIC, AND VOLUNTEER ACTIVITIES:

- Elected official: elected to 4-year term Monterey City Council 11/2004
- Member Board of Directors, Monterey Regional Water Pollution Control Agency 11/2004 - present
- Member Board of Directors, State Theatre Preservation Group, 2003 - present
- Member Monterey Peninsula Sunrise Rotary Club, Monterey, CA, 2002 - present
- Member MPUSD Strategic Task Force – Facilities Subcommittee, 2003
- Old Town Area Plan Committee, Monterey, CA
- Old Town Neighborhood Association, Monterey, CA
- Volunteer “Christmas in the Adobes”, Monterey CA 1999, 2000, 2003, 2004
- Volunteer “First Night Monterey”, Monterey CA 2000, 2001
- Usher, Calvary Chapel Monterey Bay, Monterey CA, 2003 - present

TEACHING EXPERIENCE:

8/94 - 12/94 Teaching Assistant: Intermediate Heat Transfer, The University of Iowa, Iowa City, Iowa.
 1/93 - 5/93 Assistant Instructor: Environmental Remote Sensing, The University of Iowa, Iowa City, Iowa.
 1/93 - 5/93 Adjunct Instructor: Calculus II, Kirkwood Community College, Cedar Rapids, Iowa.
 8/92 - 12/92 Adjunct Instructor: Calculus I, Kirkwood Community College, Cedar Rapids, Iowa.
 8/91 - 12/91 Teaching Assistant: Thermodynamics I, The University of Iowa, Iowa City, Iowa.
 8/89 - 12/89 Teaching Assistant: Engineering I, The University of Iowa, Iowa City, Iowa.
 10/84 - 6/86 Teaching Assistant: Computer Science I, The University of Chicago, Chicago, Illinois.
 10/83 - 6/84 Tutor: Calculus, The University of Chicago, Chicago, Illinois.

REFEREEING:

Paper referee for Journal of the Atmospheric Sciences, Journal of Applied Meteorology, Applied Optics, Journal of Geophysical Research (Atmospheres), Journal of the Meteorological Society of Japan, Journal of Thermophysics and Heat Transfer, Journal of Quantitative Spectroscopy and Radiative Transfer.

PUBLICATIONS AND PRESENTATIONS:

Books:

- Haferman, J. L. *Microwave Scattering by Precipitation*, Chapter 17 in **Light Scattering by Nonspherical Particles: Theory, Measurements, and Geophysical Applications**, Edited by Michael I. Mishchenko, Joachim W. Hovenier, and Larry D. Travis, Academic Press (2000).

Miscellaneous Publications:

- Pollak, K., Haferman, J., and Bertoia, C., *FNMOE Uses Satellite Data in an Ice Forecast Model*, **Naval Meteorology and Oceanography Command News**, pp. 18-19, February/March 1998.

Journal Articles:

- Hong, Y., Haferman, J. L., Olson, W. S., and Kummerow, C. D., *Microwave Brightness Temperatures of Tilted Convective Systems*, **Journal of Applied Meteorology**, Vol. 39, pp. 983-998, 2000.
- Fokianos, K., Kedem, B., Qin, J., Haferman, J. L., and Short, D. A., *On Combining Instruments*, **Journal of Applied Meteorology**, Vol. 37, pp. 220-226, 1998.
- Haferman, J. L., Smith, T. F., and Krajewski, W. F., *A Multi-Dimensional Discrete Ordinates Method for Polarized Radiative Transfer. Part I: Validation for Randomly Oriented Axisymmetric Particles*, **Journal of Quantitative Spectroscopy and Radiative Transfer**, Vol. 58, pp. 379-398, 1997.
- Tsintikidis, D., Haferman, J. L., Anagnostou, E., Krajewski, W. F., and Smith, T. F., *Rainfall Rate Estimation using Neural Nets*, **IEEE Transactions on Geoscience and Remote Sensing**, Vol. 35, pp. 1079-1093, 1997.
- Haferman, J. L., Anagnostou, E., Tsintikidis, D., Krajewski, W. F., and Smith, T. F., *Physically Based Satellite Retrieval of Precipitation using a 3D Passive Microwave Radiative Transfer Algorithm*, **Journal of Atmospheric and Oceanic Technology**, Vol. 13, pp. 832-850, 1996.
- Haferman, J. L., Krajewski, W. F., and Smith, T. F., *Three-Dimensional Aspects of Radiative Transfer in Remote Sensing of Precipitation: The 1986-COHMEX Storm*, **Journal of Applied Meteorology**, Vol. 33, pp. 1609-1622, 1994.
- Roberti, L., Haferman, J., and Kummerow, C., *Microwave Radiative Transfer through Horizontally Inhomogeneous Precipitating Clouds*, **Journal of Geophysical Research**, Vol. 99(D8), pp. 16,707-16,718, 1994.
- Haferman, J. L., Krajewski, W. F., Smith, T. F., and Sánchez, A., *Radiative Transfer for a Three-Dimensional Raining Cloud*, **Applied Optics**, Vol. 32, pp. 2795-2802, 1993.
- Haferman, J. L., Schmitt, R. G., Smith, T. F., and Butler, P. B., *Thermal Radiation Effects on a Shocked Particle-Laden Gas*, **Journal of Thermophysics and Heat Transfer**, Vol. 6, pp. 467-475, 1992.

Conference Proceedings:

- Wessel, J., Cornelius, J., Farley, R. W., Fote, A., Haferman, J., Gardiner, B., Hong, Y., Kunkee, D. B., Poe, G., Swadley, S. D., Tesmer, J., Thomas, B. H., Uliana, E., and Boucher, D., *First observations from DMSP SSMIS (Invited Presentation)*, **AMS 13th Conference on Satellite Meteorology and Oceanography**, Norfolk, VA, September 19-23, 2004.
- Wang, Y., Tesmer, J., Skupniewicz, C., Vermeulen, J., Cornelius, J., and Haferman, J., *Operational Implementation of the NRL Tropical Cyclone Web Page*, **AMS Eighteenth International Conference on Interactive Information and Processing Systems (IIPS) for Meteorology, Oceanography, and Hydrology**, pp. J317-J319, Orlando, FL, January 13-17, 2002.
- Skupniewicz, C. E., Cornelius, J., Haferman, J., Vermeulen, J., and Wang, Y., *Future Satellite Initiatives at Fleet Numerical Meteorology and Oceanography Center*, **AMS Eleventh Conference on Satellite Meteorology and Oceanography**, Madison, WI, October 15-18, 2001.
- Cornelius, C. James, Haferman, J.L., and Skupniewicz, C. E., *Operational Satellite Data Processing at Fleet Numerical Meteorology and Oceanography Center*, **AMS Tenth Conference on Satellite Meteorology and Oceanography**, pp. 40-43, Long Beach, CA, January 9-14, 2000.

- Hawkins, J. D., Turk, J., and Haferman, J., *Tropical Cyclone Structure via Multiple Passive Microwave Sensors*, **AMS Twenty-Third Conference on Hurricanes and Tropical Meteorology**, pp. 178-181, Dallas, Texas, January 10-15, 1999.
- Haferman, J. L., *Microwave Scattering by Precipitation*, **AMS Conference on Light Scattering by Nonspherical Particles: Theory, Measurements, and Applications**, pp. 124-127, NASA/GISS, New York, New York, September 29 - October 1, 1998.
- Haferman, J. and Kummerow, C., *Influence of Microphysical Cloud Model Databases on the Goddard Profiling Algorithm*, **AMS Twenty-Second Conference on Hurricanes and Tropical Meteorology**, pp. 178-179, Fort Collins, CO, May 19-23, 1997.
- Schols, J., Haferman, J., Weinman, J., Prabhakara, C., Cadeddu, M., and Kummerow, C., *Polarized Microwave Brightness Temperature Model of Melting Hydrometeors*, **AMS Ninth Conference on Atmospheric Radiation**, pp. 270-273, Long Beach, CA, February 2-7, 1997.
- Prabhakara, C., Cadeddu, M., Short, D. A., Weinman, J. A., Schols, J. L., and Haferman, J., *Stratiform and Convective Rain Discrimination from Microwave Radiometer Observations*, **International Radiation Symposium (IRS'96) Current Problems in Atmospheric Radiation**, University of Alaska Fairbanks, August 19-26, pp. 498-501, A. Deepak Publishing, 1997.
- Haferman, J. L., Smith, T. F., and Krajewski, W. F., *Polarized Multi-Dimensional Radiative Transfer Using the Discrete Ordinates Method*, **ASME Proceedings of the 31st National Heat Transfer Conference, HTD-Vol. 325**, pp. 125-132, edited by R. D. Skocypec, D. A. Kaminski, T. Tong, S. T. Thynell, and A. M. Smith, ASME, New York, 1996.
- Haferman, J. L., Smith, T. F., and Krajewski, W. F., *Radiative Properties of Atmospheric Particles with Application to Microwave Remote Sensing of Precipitation*, **Preparing for Global Change: A Midwestern Perspective**, pp. 117-125, edited by G. R. Carmichael, G. E. Folk, and J. L. Schnoor, SPB Academic Publishing, Amsterdam, The Netherlands, 1995.
- Haferman, J. L., Smith, T. F., and Krajewski, W. F., *Multi-Dimensional Radiative Transfer Computations Using a Scalable Parallel Implementation of the Discrete-Ordinates Method*, **1994 International Geoscience and Remote Sensing Symposium (IGARSS'94)**, pp. 1623-1625, California Institute of Technology, Pasadena, California, August 8-12, 1994.
- Anagnostou, E. N., Haferman, J. L., Krajewski, W. F., and Smith, T. F., *Comparison of Microwave Brightness Temperatures and Radar Reflectivity Measurements*, **Proceedings Atmospheric Propagation and Remote Sensing III**, SPIE - Vol. 2222, pp. 148-156, Orlando, Florida, April 4-8, 1994.

Theses and Reports:

- Haferman, J. L., *A Polarized Multi-Dimensional Discrete-Ordinates Radiative Transfer Model for Remote Sensing Applications*, **Ph.D. Thesis**, December, 1995.
- Haferman, J. L., *Development of a Multi-Dimensional Polarized Radiative Transfer Model for Satellite Remote Sensing of Precipitation*, **Ph.D. Thesis Proposal**, February, 1994.
- Haferman, J. L., Krajewski, W. F., and Smith, T. F., *Application of a General Purpose Multi-Dimensional Radiative Transfer Model to Simulated Satellite Remote Sensing of Rainfall*, **IIHR Limited Distribution Report No. 211**, Iowa Institute of Hydraulic Research, The University of Iowa, Iowa City, Iowa, 1993.
- Haferman, J. L., *Radiative Heat Transfer in a Shocked Particle-Laden Gaseous System*, **Master of Science Thesis**, The University of Iowa, Iowa City, Iowa, 1991.

Invited Talks:

- "Microwave Scattering by Precipitation," Presented at **NASA Goddard Institute for Space Studies (GISS)**, New York, NY, September 30, 1998.
- "Polarized and Multi-Dimensional Radiative Transfer in Atmospheric Remote Sensing Modeling," Presented at **NASA Goddard Institute for Space Studies (GISS)**, New York, NY, December 13, 1996.

Presentations:

- Haferman, J., *Operational Processing of SSM/I Ice Data at Fleet Numerical Meteorology and Oceanography Center*, **1999 AGU Spring Meeting**, San Francisco, California, December 12-17, 1999.

- Hong, Y., Haferman, J., and Kummerow, C. D., "Microwave Brightness Temperatures of Vertical and Tilted Tropical Convective Systems," **1997 International Geoscience and Remote Sensing Symposium (IGARSS'97)**, Singapore, August 3 - 8, 1997.
- Haferman, J. and Kummerow, C., "Influence of Microphysical Cloud Model Databases on the Goddard Profiling Algorithm," **22nd Conference on Hurricanes and Tropical Meteorology**, Fort Collins, Colorado, May 19 - 23, 1997.
- Haferman, J. L., Anagnostou, E., Tsintikidis, D., Krajewski, W. F., and Smith, T. F., *Microwave Satellite Retrieval of Precipitation Using a 3D Radiative Transfer Model and Comparisons to Radar and Rainage Observations Obtained During TOGA-COARE*, **1995 AGU Spring Meeting**, Baltimore, Maryland, May 29 - June 2, 1995.
- Tsintikidis, D., Krajewski, W. F., Haferman, J. L., Anagnostou, E. N., and Smith, T. F., *Rainfall Estimation and Forecasting Using Neural Networks*, **INFORMS (Institute for Operations Research/Management Science)**, Los Angeles, CA, April 23-26 1995.
- Tsintikidis, D., Haferman, J. L., Anagnostou, E., Smith, T. F., and Krajewski, W. F., *A Comparison of Artificial Neural Networks and Regression Model Results for Estimating Rainfall Rates from Satellite Data*, **Seventh Workshop on Artificial Intelligence Research in Environmental Science (AIRIES'94)**, Biloxi, Mississippi, November 14-17, 1994.
- Haferman, J. L., Anagnostou, E. N., Krajewski, W. F., and Smith, T. F., *Microwave Brightness Temperature and Radar Reflectivity Correlations for Precipitating Atmospheres*, **106th Session Iowa Academy of Science**, St. Ambrose University, Davenport, Iowa, April 22-23, 1994.
- Haferman, J. L., Krajewski, W. F., and Smith, T. F., *Three-dimensional aspects of radiative transfer in remote sensing of precipitation: application to the 1986-COHEX storm*, **Fourth International Conference on Precipitation: Hydrological and Meteorological Aspects of Rainfall Measurement and Predictability**, The University of Iowa, Iowa City, Iowa, April 26-28, 1993.
- Haferman, J. L., and Smith, T. F., *Simulated Satellite Remote Sensing of Rainfall using the Discrete-Ordinates Method*, **The Second Annual Conference of the Iowa Space Grant Consortium**, The University of Northern Iowa, Cedar Falls, Iowa, February 5-6, 1993.
- Haferman, J. L., Krajewski, W. F., and Smith, T. F., *A Study of Three-Dimensional Aspects of Radiative Transfer in Rainy Clouds: Implications for the Satellite Rainfall Estimation*, presented at the American Geophysical Union Spring Meeting, Montreal, Quebec, Canada, May 12-16, **EOS**, Vol. 73 Supplement, p.102, 1992.
- Haferman, J. L., Sánchez, A., Krajewski, W. F., and Smith, T. F., *Application of a Three-Dimensional Radiative Transfer Model to Nonhomogeneous Clouds*, **104th Session Iowa Academy of Science**, The University of Northern Iowa, Cedar Falls, Iowa, April 24-25, 1992.
- Haferman, J. L., and Smith, T. F., *Radiative Transfer in a Solid Rocket Plume*, **The First Iowa Space Conference**, Iowa Memorial Union, The University of Iowa, Iowa City, Iowa, pp. 292-301, 1992.