

JOHN R. HUMMEL

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Educational Background

Ph.D Atmospheric Sciences, University of Michigan, 1978
M.S. Meteorology, Pennsylvania State University, 1975
B.S Engineering Science (Honors Option) Pennsylvania State
University, 1973

Professional Experience

4/94 - Present Argonne National Laboratory
1/14 - Present Director, Center for Integrated Resiliency Analyses, Decision
and Information Sciences Division (DIS)¹
6/07 – 1/14 Co-Group Leader, Complex Adaptive Systems Group, DIS
1/03 - 6/07 Director, Advanced Simulation Technologies Center, DIS
6/02 - 1/03 Director, Advanced Computer Applications Center, DIS
12/00 - 6/02 Deputy Director, Advanced Computer Applications Center, DIS
10/99 - 12/00 Section Leader, Information Sciences, Advanced Computer
Applications Group, DIS
4/94 - 10/99 Program Coordinator, Advanced Computer Applications Center,
DIS

Dr. Hummel is leading the effort to develop integrated resiliency analysis applications for the Global Security Sciences Division at Argonne. In this role, he is coordinating efforts to develop applications that integrate physical, environmental, and social effects in regional resiliency analyses. In addition, he is serving as the Technical Lead for Modeling and Simulation (M&S) Verification, Validation, and Accreditation for the Joint Strike Fighter (JSF) program. In this role he is leading the technical evaluation of M&S resources that will be used to verify contract requirements for the JSF program. He is also leading efforts to develop modeling approaches and tools for the evaluation of societal resiliency. He led the development of Complex Adaptive System Comparative Analysis Dynamic Environment for Emerging Societies, a program focused on developing tools and approaches to study the impacts of integrated social, economic, and ecological process on emerging societies. Dr. Hummel was also the principal investigator on the Joint Munitions Planning System, an ammunition logistics planning tool for the U.S. Army Operations Support Command, and the Weather Effects for the Warfighter system, a tool for analyzing the impact of the environment on weapons systems that is being developed for the Joint planning community. Dr. Hummel also led the effort to develop the Distributed Intelligent Agents for Logistics system for the U. S. Army Logistics Integration Agency and was the developer of the concept for the Integrated Ocean Architecture system that DIS is developing for the U. S. Naval Research Laboratory.

Dr. Hummel also provides independent, high-level evaluation and consulting services to DoD agencies and programs in the areas of modeling and simulation architectures and the development of authoritative environmental representations and tools. For example, he was a member of the JWARS architecture review and the JWARS prototype

¹DIS was renamed the Global Security Sciences Division in October 2014

review committees. In addition, he led an effort to review the Integrated Natural Environment Authoritative Representation Process being developed by the Defense Modeling and Simulation Office.

12/91-4/94 Director, Environmental Physics Directorate
 7/88-12/91 Senior Scientist, Applied Physics Office
 Electro-Optic Systems Operation
 SPARTA, Inc.
 Lexington, MA

Dr. Hummel was the Director of the Environmental Physics Directorate with SPARTA's Electro-Optics Systems Operation in Lexington, MA. He was the Program Manager for the Studies of Optical/Infrared Atmospheric Propagation contract with the Geophysics Directorate of USAF Phillips Laboratory and leading studies related to the physics of natural environments, aerosol physics, scene simulation, processing of weather data, and atmospheric sensing. He was the Program Manager for a contract with the Smart Weapons Operability Enhancement program to develop an integrated package of databases, physics and scene rendering models, and analysis tools for use in generating synthetic infrared scenes of natural environments to support the development of smart weapons sensors.

11/85-4/88 Senior Scientist and Manager, Northeast Division
 OptiMetrics, Inc., Burlington, MA
 9/82-11/85 Staff Scientist, Ann Arbor Office
 OptiMetrics, Inc.

Dr. Hummel was the Program Manager on the Atmospheric Propagation Studies contract with AFGL. Work performed under this effort included the analysis of atmospheric characterization data from the Target Signatures Characterization Facility at WPAFB and the coordination of field test support for AFGL in a study on the impact of thin cirrus clouds on airborne infrared sensors. Dr. Hummel is also the Editor and chief author of Volume II of the High Energy Laser Propagation Handbook.

7/78-8/82 Senior Research Scientist, Physics Department, General Motors
 Research Laboratory (GMR), Warren, MI

Dr. Hummel's research at General Motors focused on the climatic effects of industrial trace gases, aerosols and feedback mechanisms and studies of atmospheric mitigation. While at GMR, he produced a model and database for global surface albedo, a model that is still widely used around the world.

Dr. Hummel has been primary author or a major contributor to more than 60 open books, journal articles, and technical reports and one classified journal article.

PROFESSIONAL ASSOCIATIONS

Military Operations Research Society (Chair of the Environmental Factors Working Group, 2002 – 2004; Chair Composite Group G-Hybrid Warfare, 2013-2014; Co-Chair of Operational Energy Focus Session, 2013; Advisor to Operational Energy and Social Science Methods and Applications Working Groups, 2014; Member Board of Directors, 2007 – 2012; VP for Meeting Operations, 2011-2012; Advisory Director, 2012-Present), American Geophysical Union, Tau Bet Pi.

VOLUNTEER ACTIVITIES

DuPage Children's Museum, Program Committee (2000-Present).