CURRICULUM VITAE

RANDOLPH J. EVANS

Certified Consulting Meteorologist

Experience Synopsis:

Mr. Evans has over 28 years of meteorological and data analysis experience specializing in boundary layer, air pollution, transport and diffusion studies, mesoscale modeling, software development/validation, and geographic information systems. He is a Certified Consulting Meteorologist (CCM #482, certified by the American Meteorological Society) who has directed various research, development, and operational projects. Mr. Evans has presented numerous technical briefings to customers and colleagues at large technical meetings.

Education and Specialized Training:

M.S., Meteorology, University of Oklahoma, 1980

B.S., Geography, University of Georgia, 1977

Independent Consulting Experience

1996-Present: Mr. Evans has provided expert consulting meteorological services to various clients including expert witness testimony in a lawsuit involving the occurrence of precipitation, a lawsuit involving the occurrence of high winds, lawsuit on industrial air pollution, and numerous lawsuits involving wind assessments during Florida hurricanes. Other consulting projects have included providing specific and accurate forecasts of precipitation/no precipitation occurrences for McDonald's Corp. convention outdoor event; providing an assessment report on the probability of occurrence of extreme low temperatures to Florida Power and Light Corp., and weather observing for a major motion picture.

Experience at ENSCO:

1984-Present: As Staff and Senior Scientist/Meteorologist in the GeoSystems (GS) Division of ENSCO, Inc., Mr. Evans has applied, developed, and verified atmospheric transport and diffusion models for long-range and short-range scenarios. Mr. Evans has examined long-range transport patterns associated with arctic haze and has determined long-range climatological transport patterns using an eigenvector/eigenvalue technique. He has also designed an experiment to determine the source term and evaporation rate for a spill of toxic hypergols, incorporated a source term model, a dispersion puff model and a hot spill plume rise model into a short-range hazardous release model, and has evaluated wind flow models for complex terrain applications for the Western and the Eastern Space and Missile Center (ESMC). Mr. Evans has performed research that has led to the determination of horizontal diffusion parameters for long range models. Mr. Evans developed parts of an expert system for classifying explosive hazards for Joint Army Navy NASA Air Force committee using hypertext and expert system tools. As a member of the PET&S IV&V group, Mr. Evans has validated software used for Range Safety missile tracking and weather data collection for ESMC. Mr. Evans was the project director and principal investigator for the Phase II and III SBIR project:

Meteorological Monitoring System (MMS). The MMS is a system of computer workstations designed to monitor real time data at KSC and Cape Canaveral Air Station (CCAS) and to alert forecasters and test directors of adverse weather conditions. Mr. Evans has directed the in-house development of a system that links a geographic information system and emergency response diffusion model. Mr. Evans has completed HAZWOPER training. As a member of the Applied Meteorology Unit at CCAS, Mr. Evans evaluated the Emergency Response Dose Assessment System (ERDAS) for transition to Air Force Range Safety operations. ERDAS contains the mesoscale meteorological model RAMS and the diffusion models HYPACT and REEDM. As a member of the Model Validation Program (MVP) team, Mr. Evans provided RAMS forecasts, HYPACT predictions, and radar wind profiler data to the MVP director. MVP is a tracer study conducted at CCAS to validate diffusion models used in coastal environments at CCAS. He has evaluated the effects of terrain resolution and data availability on RAMS and the SLAM diffusion models. Mr. Evans is a task manager on various tasks including a project to develop mixing height algorithms for a short-range dispersion model and a project to provide RAMS data for a photochemical model. Mr. Evans has been involved in the development of the Global Environmental Micro Sensor (GEMS) systems which is a system of very small airborne sensors networked together to collect meteorological and potentially atmospheric chemical data. Mr. Evans has applied various mesoscale models (RAMS, ARPS, & MM5) and dispersion models (CALMET/CALPUFF, AERMET/AERMOD, HYSPLIT, HPAC/SCIPUFF, and SLAM in numerous research and operational applications. Mr. Evans has bee task lead on verification of the CLUES uncertainty model using ensembles of WRF and RAMS.

Experience Prior to ENSCO:

1980-1984: Mr. Evans was a Staff Scientist for the Meteorology Group and the Modeling Group of Radian Corporation, Austin, Texas. As a member of the Modeling Group, Mr. Evans was responsible for application and verification of computer dispersion and diffusion models for regulatory and research analyses and for preparation of meteorological data bases used in modeling studies. Mr. Evans performed research that determined that surface ozone episodes in Alaska were caused by stratospheric injection. In the Meteorology Group, Mr. Evans' responsibilities included: analysis and validation of meteorological and air quality data from ambient air monitoring and acoustic sounder sites; determination of monitoring site locations; and preparation of site descriptions. Other responsibilities included preparation of climatological reports and environmental assessments.

1977-1980: Mr. Evans was a Research and Teaching Assistant at the National Severe Storms Laboratory and the University of Oklahoma, in Norman, Oklahoma. Mr. Evans conducted research that involved utilization of tall tower data to study the structure of the convective planetary boundary layer.

Publications:

Manobianco, J., J. G. Dreher, M. Adams, M. Buza, R. J. Evans, and J. L. Case, 2008: How nanotechnology can revolutionize meteorological observing with Lagrangian drifters. *Bull. Am. Soc*., **89**, 1105-1109.

Manobianco, J., J. G. Dreher, R. J. Evans, J. L. Case, andM. L. Adams, 2008: The impact of simulated super pressure balloon data on regional weather analyses and forecasts. *Meteorol. Atmos. Phys*., **101**, 21–41.

"MAPIT: An airborne system for urban environmental monitoring", R. J. Evans, J. Manobianco, J. G. Dreher, and M. Adams, *6th Conf. on Urban Meteorology,* Atlanta, GA, Amer. Meteor. Soc., Boston, Jan 2006.

"GEMS: An airborne system for urban environmental monitoring" R. J. Evans, J. Manobianco, J. L. Case, and J. G. Dreher, *5th Conf. on Urban Meteorology,* Vancouver, BC, Amer. Meteor. Soc., Boston, May 2004.

"Using mesoscale model data as input to AERMOD", R.J. Evans, *Preprints, 12th Joint Conf. of Air Pollution Meteorology with AWMA*, Norfolk, VA, Amer. Meteor. Soc., Boston, May 2002.

"Delta II Explosion Plume Analysis at Cape Canaveral, FL: Evaluation of Meteorological and Dispersion Modeling System", R. J. Evans and J. Case, Preprints of the Air and Waste Management Assoc., Orlando, FL, AWMA, Pittsburgh, June 2001

"Meteorological and photochemical modeling of ozone and carbon monoxide episodes for the Paso Del Norte Airshed. Part I: Mesoscale Modeling." R.J. Evans, K. Atchison, M. Capuano, C.A. Emery, M.A. Yocke, K. Costigan, J.W. Yarbrough, R. Karp, and V.H. P. Figuero, 2000.: Air quality modeling. *Preprints, 11th Joint Conf. of Air Pollution Meteorology with AWMA*, Long Beach, CA, Amer. Meteor. Soc., Boston, Jan. 2000.

"Effects of Topographical and Gridded Data Density on Mesoscale Model Performance", R.J. Evans, M.K. Atchison, D. Dean, and S.L. Seely, *Preprints of the 16th Conference on Weather Analysis and Forecasting and 12th Conference on Numerical Weather Prediction,* Phoenix, AZ, Am. Met. Soc., Jan. 1998.

"The Implementation and Evaluation of the Emergency Response Dose Assessment System 9ERDAS) at Cape Canaveral Air Station/Kennedy Space Center", R.J. Evans and C.J. Tremback, *9th Joint Conference on the Applications of Air Pollution Meteorology with AWMA,* Atlanta, GA, Am. Met. Soc., Jan. 1996.

"The Meteorological Monitoring System (MMS)," R.J. Evans, A.V. Dianic, and L.N. Moore, *Preprints of the 10th Conference on Interactive Information and Processing System (IIPS) for Meteorology, Oceanography, and Hydrology,* Nashville, TN, American Meteorology Society, January 1994.

"Linking a Hazardous Spill Model to a Geographic Information System (GIS)," R.J. Evans and B.J. Provoncha, *Preprints of the 10th Conference on Interactive Information and Processing System (IIPS) for Meteorology, Oceanography, and Hydrology,* Nashville, TN, American Meteorology Society, January 1994.

"The Meteorological Monitoring System (MMS) for Kennedy Space Center/Cape Canaveral Air Force Station," R.J. Evans, A.V. Dianic, and L.N. Moore, presented at JANNAF Safety and Environmental Protection Subcommittee Meeting, Monterrey, CA, August 1992.

"The Meteorological and Range Safety Support (MARSS) System," R.E. Lane and R.J. Evans, *Preprints of the Fifth International Conference on Interactive Information and*

Processing Systems for Meteorology, Oceanography, and Hydrology, Anaheim, CA, 226-231, 1989.

"Recognition of Pollutant Transport Patterns Using Principal Components," R.J. Evans, *Preprints of the Sixth Joint Conference on Applications of Air Pollution Meteorology,* Anaheim, CA, American Meteorological Society, Boston MA, 109-112, 1989.

"LOMPUFF: A Source Term and Diffusion Model for Cape Canaveral Air Force Station/Kennedy Space Center," R.J. Evans, Presented at JANNAF Safety and Environmental Protection Subcommittee Meeting, Monterrey, CA, May 1988.

"Estimation of the Average Surface Heat Flux Over an Inhomogeneous Terrain from the Vertical Velocity Variance," M.D. Eilts, A. Sundara-Rajan and R.J. Evans, Boundary Layer Meteorology, 39, 87-91, 1987.

"Source Term Experiment Design," R.J. Evans. and M.M. Hixson, Prepared for the Air Force, Patrick Air Force Base, Florida, July 1986.

"The Structure of the Convective Planetary Boundary Layer Over Urban Terrain," R.J. Evans and A. Sundara-Rajan, *Preprints of the Fifth Symposium on Turbulence, Diffusion, and Air Pollution*, Atlanta, Georgia, American Meteorological Society, Boston, Massachusetts, pp. 69-71, 1981.

"Air Quality and Meteorological Monitoring Study at Prudhoe Bay, Alaska," W.L. Crow, B.W. Lambeth, and R.J. Evans, Prepared for the Prudhoe Bay Unit Operators, January 1981.

"Ozone Transport in Northern Alaska," *Preprints of the AMS/APCA Third Joint Conference on Applications of Air Pollution Meteorology,* San Antonio, Texas, American Meteorological Society, Boston, Massachusetts, pp. 10-12 1981.

Professional Societies:

Certified Consulting Meteorologist (certified by American Meteorological Society, CCM #482, 1991)

Air and Waste Management Association, American Meteorological Society

Security Clearance: Granted July 1984