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Mark Yocke, Ph.D.

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Professional Profile

Dr. Yocke specializes in scientific research, development, evaluation, and application of air pollutant emissions, meteorological, and advanced photochemical air pollution dispersion models. During his four decades of experience, he has been a principal contributor to the development of several notable dispersion models for reactive gas-phase and particle-phase air pollutants, including the Reactive Plume Model (RPM), the Urban Airshed photochemical grid models (UAM-IV and UAM-V), and the Comprehensive Air Model with Extensions (CAMx).

In addition, Dr. Yocke led teams that developed the Complex Terrain Wind Model, the Night Sky Glow (light pollution) Model, the SAI Gaussian Puff Model, and the Emissions Processing System (EPS2.0).

He has designed and managed complex local- and regional-scale air measurement studies and instrument development programs. Dr. Yocke has experience throughout the U.S. and elsewhere in the world. He has been responsible for a range of projects, which required technical innovation and involved integration of modeling, measurements, and data analyses. The focuses of these projects have been strategic air quality planning, visibility/haze assessments, emission control strategy evaluation, regulatory review, emergency response, human exposure analysis, litigation support, and/or forensic air analysis. Dr. Yocke has supported numerous clients both the public and private sectors and served as an expert witness in these fields on many occasions.

Academic Credentials & Professional Honors

Ph.D., Civil Engineering, University of California, Berkeley, 1981

M.S., Engineering, University of California, Davis, 1974

B.S., Engineering, University of California, Davis, 1972

Prior Experience

President, Yocke and Company, 1997-2014

Managing Principal, ENVIRON International Inc., 1995-1997

Vice President, ICF Kaiser Engineers/SAI, 1993-1995

Scientist-Vice President, Systems Applications, Inc., 1974-1992

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Publications

Mahoney LA, Hogo H, Mirabella V, Yocke MA. The development of methodologies for determining emission control measure effectiveness on reducing ozone levels in the Los Angeles Air Basin Using the Urban Airshed Model. Proceedings, 82nd Meeting of the Air Pollution Control Association, Anaheim, CA, 1989.

Yocke MA, et al. Application of the Urban Airshed Model in the Los Angeles Air Basin. Proceedings, 82nd Meeting of the Air Pollution Control Association, Anaheim, California, 1989.

Yocke MA. Mathematical model for predicting night sky glow and its application to Canyonlands National Park. Journal of the Astronomical Society of the Pacific, October 1986.

Yocke MA. Modeling of coal mining, transportation, and handling. Journal of Energy Engineering, August 1986.

Yocke MA. Modeling of night sky glow with various atmospheric aerosol loadings. Presented at 78th Annual Meeting of the Air Pollution Control Association, Detroit, MI, June 1985.

Yocke MA, Gutfreund PD, Morris RE. Performance evaluation of RPM-IISS with airborne plume measurements of the Four Corners and Navajo power plants. Proceedings, 77th Meeting of the Air Pollution Control Association, San Francisco, CA, June 1984.

Yocke MA, Tesche TW. A review of photochemical air quality simulation models. Proceedings, 77th Meeting of the Air Pollution Control Association, San Francisco, CA, June 1984.

Yocke MA. Effects of averaging time on regulatory compliance of power plants. Proceedings, 12th Biennial Technical Meeting of the Air Pollution Control Association, Scottsdale, AZ, October 26-28, 1983.

Yocke MA. Modeling of coal mining, transportation, and handling. Proceedings, Annual Convention of the American Society of Civil Engineers, Houston, TX, October 19, 1983.

Yocke MA, Haney JL. A climatological approach to the siting of wind turbine generators in complex terrain. Proceedings, 63rd American Meteorological Society Meeting, New Orleans, LA, January 10-13, 1983.

Yocke MA. Radioactive atmospheric release emergency response. Proceedings, Spring Convention of the American Society of Civil Engineers, Philadelphia, PA, May 17, 1983.

Yocke MA, Liu MK, Myers TC. A mathematical model for the study of wind turbine wakes. Journal of Energy, November 1982.

Yocke MA, Ruchlis M, Schock MR. Application of a Regional Transport Model to North Dakota. Proceedings, AMS/CMOS Conference on Long Range Transport of Airborne Pollutants, Albany, NY, May 1981.

Yocke MA, Stewart D, Liu MK, Burton CS. Evaluation of RPM-II and simple short-term NO2 model predictions using MISTT data. Proceedings, Second Joint Conference on Applications of Air Pollution Meteorology, American Meteorological Society, New Orleans, LA, March 24 27, 1980.

Yocke MA, Liu MK. The siting of wind-turbine generators in complex terrain. Journal Energy 1980; 4:10-16.

Yocke MA, Liu MK, McElroy JL. Development and validation of a three-dimensional wind model for air quality analysis in complex terrain. Proceedings, NATO/CCMS 9th International Technical Meeting on Air Pollution Modeling, Toronto, Canada, August 28 31, 1978.

Yocke MA, Tesche TW. Numerical modeling of wind fields over mountainous regions in California. Proceedings, Conference on Sierra Nevada Meteorology, American Meteorological Society, South Lake Tahoe, CA, June 19-21, 1978.

Yocke MA, Liu MK. The development of a three-dimensional wind model for complex terrain. Proceedings, American Meteorology Society/Air Pollution Control Association Joint Conference on Applications of Air Pollution Meteorology, Salt Lake City, UT, November 29-December 2, 1977.

Yocke MA, Mundkur PV, Liu MK, Durran D. Development of a mathematical model for simulating power plant plumes. Proceedings, 4th International Clean Air Congress, Tokyo, Japan, April 1977.

Yocke MA, Liu MK, Mundkur PV. Numerical simulation of reactive plumes. Proceedings, 68th Meeting of the American Institute of Chemical Engineers, Los Angeles, CA, November 17, 1975; also Air Series, American Institute of Chemical Engineers, 1976.

Tesche TW, Yocke MA. Application of mountain wind models to snow avalanche forecasting. Proceedings, Avalanche Workshop, National Research Council of Canada and Environment Canada, Banff, Alberta, Canada, November 1-4, 1976.

Tesche TW. Air pollution modeling at the Geysers--II. Identification of Model Requirements. Proceedings, Second Geothermal Environ¬mental Seminar, Lakeport, CA, 1976.

Presentations

Yocke MA, et al. CAMx modeling of the ozone and carbon monoxide benefits of automotive fuel changes in the Paso Del Norte Airshed. Presented at the 93nd Annual Meeting of the Air and Waste Management Association, June 2000.

Yocke MA. Meteorology of the Northeastern Gulf of Mexico. Invited presentation at the US Minerals Management Service 18th Annual Information Transfer Meeting, New Orleans, LA, December 1998.

Yocke MA. Hybrid grid models for regional air quality assessment. Invited presentation at the US Minerals Management Service 16th Annual Information Transfer Meeting, New Orleans, LA, December 1996.

Yocke MA, et al. The Extended Urban/Regional Airshed Model (CAMx) - Initial Development and Testing of an Advanced, Publicly-Available, Nested-Grid Ozone Model that will Emulate UAM-V and Other Advanced Grid Models. Presented at the 89th Annual Meeting of the Air and Waste Management Association, Nashville, TN, June 1996.

Yocke MA, et al. Development of a methodology for source apportionment of ozone concentration estimates from a photochemical grid model. Presented at the 89th Annual Meeting of the Air and Waste Management Association, Nashville, TN, June 1996.

Yocke MA, et al. Application and eEvaluation of the CALMET/CALPUFF modeling system using the Mount Zirkel Visibility Study Enhanced Database. Presented at the 89th Annual Meeting of the Air and Waste Management Association, Nashville, TN, June 1996.

Yocke MA, et al. Evaluation of the Nested-Grid Urban Airshed Model (UAM-V) using the Extensive Lake Michigan Ozone Study (LMOS) Field Study Data Base. Presented at the Air and Waste Management Association 87th Annual Meeting and Exhibition, Cincinnati, OH, June 1994.

Yocke MA, et al. SMOGSAT—An inexpensive system for monitoring/control of motor vehicle usage and emissions. Presented at the 86th Annual Meeting and Exhibition of the Air & Waste Management Association, Denver, CO, June 1993.

Yocke MA. Photochemical monitoring and modeling plan for the Gulf of Mexico Air Quality Study. Presented at the 86th Annual Meeting and Exhibition of the Air & Waste Management Association, Denver, CO, June 1993.

Yocke MA, et al. Upper air meteorological measurements for the Gulf of Mexico Air Quality Study. Presented at the Regional Photochemical Measurement and Modeling Studies Conference, November 1993.

Yocke MA, et al. Pollutant concentrations aloft as measured by aircraft during the Gulf of Mexico Air Quality Study and the Coastal Oxidant Assessment for Southeast Texas. Presented at the Regional Photochemical Measurement and Modeling Studies Conference, November 1993.

Yocke MA, et al. Performance evaluation of the 'Super-Fast' versions of UAM-IV and UAM-V. Presented at the International Specialty Conference: Regional Photochemical Air Quality Measurement and Modeling Studies, San Diego, CA, November 1993.

Yocke MA, et al. Design of the UAM-V integrated photochemical modeling system—Discussion of model components and adaptation of the system to the Lake Michigan, Gulf Coast, and Northeast U.S. Regions. Presented at the International Specialty Conference: Regional Photochemical Air Quality Measurement and Modeling Studies, San Diego, CA, November 1993.

Yocke MA, et al. Application and evaluation of the nested-grid Urban Airshed Model (UAM-V) in the Lake Michigan Ozone Study (LMOS). Presented at the International Specialty Conference: Regional Photochemical Air Quality Measurement and Modeling Studies, San Diego, CA, November 1993.

Yocke MA, et al. Inventory quality and uncertainties associated with the development of an emissions inventory for the minerals management service Gulf of Mexico Air Quality Study. Presented at the International Conference on the Emission Inventory: Perception and Reality, Pasadena, CA, October 1993.

Yocke MA, et al. An update of photochemical monitoring and modeling results for the Gulf of Mexico Air Quality Study. Presented at the International Specialty Conference: Regional Photochemical Air Quality Measurement and Modeling Studies, San Diego, CA, 1993.

Yocke MA, et al. The Variable-Grid Airshed Model (UAM-V): Current status and applications. Presented at the Workshop on Photochemical Air Quality Modeling and the State Attainment Implementation Plans, Robert Wood Johnson Medical School, Piscataway, NJ, May 1992.

Yocke MA, et al. Protocol for application of the Lake Michigan Ozone Study Photochemical Modeling System. Prepared for Lake Michigan Air Directors Consortium, 1992.

Yocke MA, Myers TC. Overview of the Variable-Grid Urban Airshed Model (UAM-V). Prepared at the AWMA Annual Meeting, 1992.

Yocke MA, et al. Effects of grid resolution in the UAM on evaluation of emission control strategies. Prepared for the AWMA Specialty Conference: Tropospheric Ozone and the Environment II, 1992.

Yocke MA, et al. Development of a photochemical modeling system for the Lake Michigan Ozone Study. Prepared for the Lake Michigan Air Directors Consortium, 1991.

Yocke MA, et al. Effects of grid resolution in the UAM on evaluation of emission control strategies. Presented at the AWMA Specialty Conference: Tropospheric Ozone and the Environment II, November 1991.

Yocke MA, et al. Development and testing of UAM-V: A nested-grid version of the Urban Airshed Model. Presented at the AWMA Specialty Conference: Tropospheric Ozone and the Environment II, 1991.

Yocke MA, et al. Development of a nested-grid urban airshed model and application to Southern California. Presented at the 84th Annual Meeting and Exhibition of the Air and Waste Management Association, Vancouver, British Columbia, June 1991.

Yocke MA, Liu MK, Mundkur P. A mesoscale wind model for forest fire simulation. Presented at the Conference on Regional and Mesoscale Modeling, Analysis, and Prediction, American Meteorological Society, Las Vegas, NV, 1975.

Yocke MA, Zemek PG, Menzies RT, Watson J, Laush CT. FluxSense, Inc. Solar Occultation Flux (SOF) by Open-Path Fourier Transform Infra-Red Spectrometry (OP-FTIR) and Ultraviolet Differential Optical Absorption Spectroscopy (UV-DOAS) Measurements. Western States Petroleum Association (WSPA)/American Petroleum Institute (API) Research Paper. January 24,2020