EDITORIAL

Tenth Joint Conference on Applications of Air Pollution Meteorology with the Air and Waste Management Association

This special issue of the *Journal of Applied Meteorology* (JAM) presents peer-reviewed papers that are based on presentations made at the *10th Joint Conference on the Applications of Air Pollution Meteorology* with the Air and Waste Management Association. The conference was held in Phoenix, Arizona, on 11–16 January 1998. Since the first joint conference was held in Salt Lake City in 1977, this conference series has continued to attract large audiences in the fields of air pollution dispersion modeling, boundary layer meteorology, cloud physics, atmospheric chemistry, fluid mechanics, and engineering.

More than 160 papers were presented at the 1998 conference, covering such diverse topics as dispersion model evaluation, flow around obstacles, integrated assessments, meteorological measurements for air quality, coastal and complex terrain, accidental releases, planetary boundary layer processes, emissions modeling, and advanced modeling techniques. Other papers dealt with important subject areas including recent rule making by the U.S. Environmental Protection Agency and the meteorological aspects of ozone episodes, visibility, deposition, and photochemical modeling.

The 14 papers in this special issue represent a broad cross section of the meteorological applications papers presented at the conference. The first paper, by Rappenglück et al., presents detailed meteorological measurements over a major urban area and an analysis of the effects of difficult-to-measure, yet chemically important, species such as peroxyacetyl nitrate on local air quality. New analysis and planning techniques are described in the second paper, by Narasimhan et al. Here, a neural network model produces a good correlation between predicted and observed pollution concentrations for a major North American city. This paper is followed by two, by Stauffer et al. and Tanrikulu et al., that describe a ''field-coherence technique'' that promises to aid in the design of future field campaigns. The fifth paper, by Ludwig and Sinton, evaluates the performance of an objective wind field analysis code that will be of interest to those who need finer wind field resolution in their modeling applications.

Application of a numerical model that simulates both the meteorological and chemical behavior of the atmosphere is described by Barna et al. to evaluate the impact of continued development in the Pacific Northwest. This paper shows the difficulties encountered in using a prognostic meteorological model for air quality applications in a region with complex terrain for situations with light winds. The paper also describes the pattern of ozone formation and transport that occurs during episodic conditions in the region.

The next four papers present model results and observations made during air quality field programs. The first two papers address data and model simulations from the 1995 North American Research Strategy for Tropospheric Ozone (NARSTO) campaign in the northeastern United States. Michelson and Seaman present a method to assimilate winds from the National Weather Service radar network into pollution transport model simulations. Seaman and Michelson show that surface air chemistry observations collected along the east coast of North America are sensitive to mesoscale features of the Appalachian lee trough. Yamada simulates trace gas transport and diffusion over the southwestern United States and compares the model results with tracer data from Project MOHAVE (Measurement of Haze and Visual Effects). Shafran et al. report boundary layer measurements collected in the Lake Michigan Ozone Study that were used to evaluate a new turbulence closure scheme that, together with the Fifth Generation Penn-

sylvania State University–National Center for Atmospheric Research Mesoscale Model (MM5), produced boundary layer trajectories consistent with observed locations of ozone maxima.

Forecasting for emergency response continues to make advances, both in modeling capability and the use of observations. A paper by Yamada describes simulations and verifications of the transport and dispersion of dense gases by using a Lagrangian random puff model. Bowen et al. report on errors that may occur with forecasts made under conditions of strong vertical wind shear at night for a high-altitude, semiarid site. Historical pattern matching, or ''analog forecasting,'' is proposed by Carter and Keislar as a useful tool for short-term mesoscale wind forecasts used in emergency response calculations. Last, Schwarzhoff and Reid classify meteorological patterns that lead to different ozone regimes at Kelowna, British Columbia.

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