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Editorial

Special Issue: Application of Receptor Models

Although dispersion modeling of atmospheric pollutants has improved significantly over the past thirty years, there are still many instances when the models are not sufficient for the full development of effective and efficient air quality management strategies. Therefore, alternative methods are necessary to assist in the identification of pollutant sources and the apportionment of the ambient air concentrations to those sources. Such methods are called receptor models since they are focused on the behavior of the ambient environment at the point of impact as opposed to the source-oriented dispersion models that focus on the transport, dilution, and transformations that begin at the source and follow the pollutants to the sampling or receptor site. Positive Matrix Factorization (PMF), Chemical Mass Balance modeling (CMB), and Unmix are the commonly used receptor models for source apportionment studies. These models have been recognized as applicable to air quality management efforts and are distributed by the United States Environmental Protection Agency. Trajectory ensemble methods such as Potential Source Contribution Function (PSCF) have helped identify the locations of distant sources. Other methods have been developed and applied to specific source-receptor problems.

This special issue of *Atmospheric Pollution Research (APR)* focuses on "Application of Receptor Models" with Dr. Philip K. Hopke of Clarkson University, NY, USA and Dr. David D. Cohen of Australian Nuclear Science and Technology Organization as the Handling Editors. The papers published in this dedicated issue cover a variety studies of source apportionment of atmospheric aerosols and gas-phase pollutants. Nine papers apply air mass trajectory, positive matrix factorization (PMF), chemical mass balance (CMB) and multivariate calibration receptor modeling techniques to characterize regional transport and source contributions of particulate matter. Three papers address emission source characteristics of gas-phase pollutants, especially hydrocarbons.

As the Guest Editors of this special issue of APR, we are grateful to all authors contributing from multiple countries around the world for their efforts in preparing the manuscripts included in this special issue. We also thank to all the reviewers for their willingness to provide their time and expertise. We hope that the APR readers will find this representative collection of papers as a useful and stimulating update on the subject of receptor modeling of atmospheric pollutants.

Philip K. Hopke

Center for Air Resources Engineering and Science
Clarkson University, Potsdam, NY, USA

David D. Cohen

Australian Nuclear Science and Technology Organisation
Locked Bag 2001, Kirrawee DC, NSW, 2232, Australia