

PM2.5 CHEMICAL SPECIATION RESULTS FOR TEXAS - IMPLICATIONS FOR REGIONAL STUDIES

R.J. Tropp¹, J. Engelbrecht¹, S.D. Kohl¹, A. Dickerson¹, J.C. Chow¹,
J.G. Watson¹, R.J. Countess², S.J. Countess², E.L. Michel³

¹*Division of Atmospheric Sciences, Desert Research Institute, Reno, USA*

²*Countess Environmental, Westlake Village, USA*

³*Texas Commission on Environmental Quality, Austin, USA*

PM2.5 chemical speciation results were examined for a three-year period (2000 - 2002) coming from a network of 23 sites in Texas that are part of a national USEPA PM2.5 chemical speciation monitoring program. Three sites are part of the USEPA's Speciation Trends Network (STN) that uses USEPA-designated samplers and a USEPA contract laboratory, while the other 20 sites use alternative samplers, but the USEPA contract laboratory. Data were obtained from the USEPA's Air Quality System (AQS) and supplemented with additional information obtained from the contractor laboratory. Initial results raised questions about the data in AQS, including no blank correction of reported results, potential overestimation of mass from the species reported; and lack of agreement for some basic species, such as total carbon and iron, compared to the results at the Interagency Monitoring for the Protection of Visual Environments (IMPROVE) Big Bend National Park site. A more rigorous analysis of the speciation data was conducted, using additional information supplied by the contractor laboratory, and included the use of blank corrected data, propagated measurement uncertainties, and an assessment of the differences between the corrected and uncorrected data and results. The analysis highlighted the need for careful planning and oversight of regional studies. This paper discusses the potential problems in such studies and provides recommendations to improve the quality and usefulness of PM2.5 chemical speciation network results.