

ADVANCED AIR QUALITY MODELING IN TAIWAN: LOCAL AND TRANSPORTED POLLUTANTSJ. Fu¹, **H-G. Leu**², H-C. Chien², C.C. Jang³¹*University of Tennessee, Knoxville, USA*²*Taiwan Environmental Protection Administration, Taipei, Taiwan*³*U.S. Environmental Protection Agency, Research Triangle Park, USA*

An economic incentive scheme was adopted in the second amendment of the APCA of Taiwan in 1992. Significant progress such as the monthly average concentrations of SO₂, NO_x, and PM₁₀ has been decreased. However, cross-boundary transport of air pollutants is hindering the efforts to further improve Taiwan's air quality. A modeling effort has been undertaken to conduct a Taiwan air quality modeling assessment considered cross-boundary transport of air pollutants by applying an advanced modeling system, the Models-3/CMAQ, developed at USEPA. The 'one-atmosphere' Models-3/CMAQ system was designed to approach air quality as a whole by including state-of-the-science capabilities for modeling multiple air quality issues, including ozone, particulate matter, visibility degradation, acid deposition, and air toxics, at multiple scale. For this study we use the Taiwan Emission Database System (TEDS) that is a comprehensive emission database in Taiwan. Meteorological input fields for the CMAQ model simulations are provided by the Mesoscale Model Version 5 (MM5). 36 km×36 km and 12 km×12 km grid resolutions set up by the MM5 meteorological processing model for episodes in 2001 used in USEPA's Regional Air Quality Modeling in East Asia are used as the boundary conditions and indicated transport for this study. The focus of this paper is the Models-3/CMAQ application to establish feasibility of model simulations over the domain (4 km×4 km), i.e., covering the entire Taiwan and running the model for episodes. This Taiwan modeling application was aimed at studying the formation and regional transport of ozone, PM and acid deposition, for selected episodes in 2001. This paper gives a description of the model configuration and setup and presents some preliminary model simulation results. This application provides an understanding on the formation of regional ozone and haze problems with pollutants transport for the policy makers in Taiwan, but provides the experience for the Taiwan Environmental Protection Administration (TEPA) to refine the model and adapt it more thoroughly to conduct air quality management in Taiwan.