

SOURCE APPORTIONMENT OF PM_{2.5} AEROSOL MASS AT GWANGJU, KOREA DURING ASIAN DUST AND BIOMASS BURNING EPISODIC PERIODS IN 2001

H.L. Lee¹, K.W. Kim¹, **Y.J. Kim¹**, J.S. Han²

¹Kwangju Institute of Science and Technology (K-JIST), Gwangju, Korea

²National Institute of Environmental Research (NIER), Incheon, Korea

Source apportionment of PM_{2.5} has been estimated using the combined results of receptor and back trajectory modeling for aerosol samples collected from Mar 2001 through Feb 2002 at Gwangju, Korea. In order to investigate regional source contribution, using the NOAA/ARL Hysplit 4.5 model, air mass pathway obtained was classified into four types as shown in Figure 1; atmospheric stagnant condition (S), atmospheric condition affected by marine and domestic aerosols (MD), that affected by continental and domestic aerosols (CD), and that affected by continental, marine, and domestic aerosols (CMD) plus Asian Dust (AD) and biomass burning (BB). Increased contributions by marine (1-5%), secondary organic carbon (5-10%), diesel vehicle (0-18%), biomass burning (20-45%) and continental dust (10-20%) were estimated under different atmospheric conditions of MD, CMD, S, BB and AD respectively using the Chemical Mass Balance (CMB) and UNMIX models.

Figure 1. Source apportionment in various atmospheric conditions.

