Preliminary Results on Aerosol Mass-Size Distribution Variation at Rajkot: A Semi Arid Zone in Western India

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Measurements on mass and size distribution of near surface composite aerosols have been made at Rajkot using a ten channel Quartz Crystal Microbalance Cascade Impactor (QCM), since May 2008. The total mass concentration (M_t) varied from 34.80 ± 1.52 to 18.56 ± 1.32 $\mu g/m^3$. The accumulation mode (sub-micron, $r_a \approx 0.05$ to 0.4 μm) aerosol mass concentration (M_a) is found to be minimum (~11.26 $\mu g/m^3$) during the months September to November and maximum (~ 24.42 $\mu g/m^3$) during March to June 2008-09. Coarse mode (super-micron, $r_c \approx 0.8$ to12.5 μm) aerosol mass concentration (M_c) is found to be maximum (~ 14.45 $\mu g/m^3$) during the months of December to February 2008-09 and minimum (~5.30) during March to June 2008-09. The effect of meteorological parameters on the concentration of Mc and Ma has been studied. The results show that seasonal variability of the mass-size distributions of near surface aerosols are very much affected by the meteorological parameters.