



Stable carbon isotopic composition of PM_{2.5} in Taiwan

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Aerosol samples were collected at two sites in Taiwan: an urban site (Taipei, 25° 02' 31.2" N, 121° 37' 0.3" E, 22 m asl) and a remote site in central Taiwan (Mt. Lulin, 23° 28' 07" N, 120° 52' 25" E, 2860 m asl). Collection of the PM_{2.5} samples was carried out with Ecotech Hi-vol air samplers with nominal flow rates of 1130 L/min. and typical collection times of 12 hours (Taipei) or 24 hours (Mt. Lulin). The stable carbon isotopic composition of the total carbon in the aerosol samples was analyzed using an elemental analyzer (Euro Vector, Germany) coupled to a GV-Optima isotope ratio mass spectrometer. The isotopic composition of the total carbon was found to vary between -27 and -24 ‰ compared to VPDB standards for the Taipei sampling site. Generally the $\delta^{13}\text{C}$ was larger the larger the total carbon mass concentration was. At Mt. Lulin the total carbon isotopic composition was observed to be less variable with an average $\delta^{13}\text{C}$ of -24.1 ± 0.7 ‰. The data will be discussed with respect to seasonality and aerosol sources, making use of organic speciation data, including ambient anhydrosugar and polyol concentrations, obtained by high-performance anion exchange chromatography (HPAEC). Furthermore, selected results from compound specific $\delta^{13}\text{C}$ analysis with a GC-IRMS system will be presented.