

**PHYSICOCHEMICAL AND OPTICAL PROPERTIES OF ATMOSPHERIC AEROSOLS DURING
ASIAN YELLOW DUST EVENTS AT PESCADORES ISLANDS, TAIWAN**

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Asian dust storms could transport easterly to west pacific areas such as Korea, Japan, and Taiwan. Most surveys of Asian dusts in Taiwan were conducted in urban areas and only a few have been conducted at its surrounding islands. The objective of this study was to investigate the physicochemical and optical properties of atmospheric aerosols sampled in Pescadores Islands located at the Taiwan Strait during Asian dust storm periods. Mass concentration, size distribution, and optical properties of sea-level atmospheric aerosols were measured. The sampling protocol was conducted to collect sea-level atmospheric aerosols for further physical and chemical analysis. A sampling station was originally established at Xio'men, the northwest tip of Pescadores Islands, since February 2002. Atmospheric aerosols, including PM_{2.5} and PM_{2.5-10}, were measured with a dichotomous sampler, while the size distribution (0.056-18.0 μ m) were measured with a ten-stage multi-orifice uniform deposition impactor. The mass concentration of atmospheric aerosols, particularly PM_{2.5-10}, were 2-3 times higher than background levels. Water-soluble ionic species of atmospheric aerosols including SO₄²⁻, NO₃⁻, Cl⁻, NH₄⁺, K⁺, Na⁺, Mg²⁺, and Ca²⁺ were measured with an ion chromatography. The carbonaceous contents of atmospheric aerosols were analyzed with an elemental analyzer. Elemental and total carbons were determined with and without heating filters at 350°C prior to measurements. Organic carbon could be determined by extracting elemental carbon from total carbon. Thirteen metallic contents of atmospheric aerosols were analyzed with an ICP-AES. Moreover, the scattering and absorption coefficients were continuously measured with an integrating nephelometer and an absorption photometer, respectively.