



**ATMOSPHERIC WATER-SOLUBLE ORGANIC NITROGEN (WSO<sub>N</sub>)  
IN THE EASTERN MEDITERRANEAN: ORIGIN AND IMPLICATIONS  
CONSIDERING MARINE PRODUCTIVITY**

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A total of 674 aerosol and 23 rain samples were collected at a rural site located on the coast of the Eastern Mediterranean, Erdemli, Turkey (36° 33' 54" N and 34° 15' 18" E). Concentrations of NO<sub>3</sub><sup>-</sup>, NH<sub>4</sub><sup>+</sup> and water-soluble total nitrogen (WSTN) were respectively determined by Ion Chromatography and High Temperature Combustion Method. The arithmetic mean aerosol WSON was 23.8 ± 16.3 nmol N m<sup>-3</sup> whilst the volume weighted mean (VWM) concentration of WSON in rain was 21.5 µmol N L<sup>-1</sup>. WSON in aerosol was mainly influenced by coarse particles (66 %). Rain and air mass history were found to influence the daily variability of aerosol WSON. Effect of sporadic dust events on WSON concentrations was statistically 1.3 times larger compared to non-dust events. Correspondingly, dissolved inorganic nitrogen and agricultural activities explained 42 % and 43 % of the aerosol WSON. The atmospheric water-soluble nitrogen flux would sustain one-third and three-quarter of the new production in the coastal and offshore waters of the Cilician Basin.

**Keywords:** water-soluble total nitrogen, arithmetic mean aerosol, Ion Chromatography, High Temperature Combustion Method, Eastern Mediterranean Sea