

**PRINCIPAL COMPONENT ANALYSIS (PCA) APPROACH TO ASSESS TRACE ELEMENTS
SOURCES IN THE COASTAL ZONE OF TYRRHENIAN SEA**

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The aim of the present work is to assess major particulate trace elements at a rural site in Southern Italy, on Tyrrhenian coastal zone (Fuscaldo, Calabria) in order to characterize their emission sources and the spatial and temporal distributions in the Coastal Boundary Layer (MBL). Three seasonal sampling campaigns of two weeks were performed from the end of October 2003 to early May 2004. PM_{2.5}, PM₁₀ particulate size fraction were measured by a Manual Dichotomous Sampler, using 37 ø mm Teflon filters over a 24 hour sampling period. The samples were analysed using the AAS technique after acid digestion treatment in 5 ml H₂NO₃ in a Microwave oven (Model ETHOS 900). Meteorological parameters and ozone concentrations were also measured during the sampling period. All findings have been stored in a database using the MatLab® language in order to standardize the data and calculate the correlation coefficients of the results obtained. The following matrix represents the input to the Principal Component Analysis (PCA) applied, a technique of factorial analysis developed from the solution of equation eigenvalues, in order to carry out a receptor model by a non-deterministic approach in aerosol source evaluation. Details and experimental results are presented and discussed.