

**AN OBJECTIVE ASSESSMENT OF THE RELATION BETWEEN
METEOROLOGICAL PARAMETERS AND THE MAIN AIR POLLUTANTS IN
ATHENS ON A DAILY BASIS**

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ABSTRACT

This work aims to reveal the relations between meteorological parameters and the concentrations of the main air pollutants in Athens. The data basis consists of daily values of 8 pollution and 14 meteorological parameters for the cold and the warm season of the year (November-March and May-September respectively) and for the period 1993-97. Factor Analysis (P-mode) was applied in order to group objectively the parameters showing common variation in time. In this way, the 22 initial variables were reduced to three Factors for the cold period and four for the warm. Consequently, the final three or four Factors can be considered as the main contributors to the formation of the weather and air pollution conditions in Athens basin. Wind speed is the crucial parameter for the accumulation of air pollutants in Athens basin throughout the year. The role of wind direction on air quality appears stronger during the warm period. The secondary pollutant of O₃ is controlled by the primary ones and this is more apparent during summer.