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[Poster]

Correlation between air temperature and air pollution in the city of Skopje

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Abstract: Air pollution represents one of the major environmental challenges in the city of Skopje, with pollutant concentrations exhibiting considerable temporal variability. Meteorological conditions, particularly air temperature, can influence the concentration and dispersion of air pollutants. This study focuses to examine the relationship between air temperature and air pollutants in the city of Skopje during the ten-year period from 2012 to 2021.

The analysis is based on average monthly air temperature and average monthly concentrations of the major air pollutants SO₂, NO_x, PM_{2.5}, PM₁₀, CO, and O₃, taken from five air quality monitoring stations in the Skopje agglomeration. The relationship between air temperature and the concentration of each pollutant is investigated using the Pearson correlation coefficient. The analysis is conducted by monitoring station in order to identify the direction and strength of the linear relationship between temperature and individual air pollutants and to examine spatial differences within the study area.

The results provide insight into the extent to which variations in air temperature are associated with variations in pollutant

concentrations in Skopje. Particular attention is given to pollutants that exhibit stronger positive or negative correlations with temperature and to differences in correlation patterns among monitoring locations. The findings contribute to a better understanding of the relationship between climatic conditions and air quality in Skopje and may provide a basis for further research on the factors influencing air pollution in the city.

Keywords: Correlation, air pollution, air temperature, Skopje