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## Analysis of the pollen phenology distributions and their impact on the modeled concentrations in Thessaloniki, Greece

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This study aims on the analysis of the pollens' phenological distributions in the greater area of Thessaloniki, over the years 2016-2020. The main pollen season of the most contributable taxa of pollen spectrum is presented and its beginning, end and duration are compared with similar European studies. Regularity tests and probability plots revealed the absence of trend in timeseries. Exponential distribution proved to describe pollen concentrations with a small deviation in contrast with the Gaussian, which was used of its simplicity in pollen data analysis. The effect of the exponential distribution, relative to the common Gaussian approach, on the diagnosis of the pollen concentrations is tested for *Quercus* taxa with the WRF-NEMO-CAMx modeling system. The modeling system consists of three models in series, the Weather Research and Forecasting (WRF) meteorological model, the Natural Emissions Model NEMO and the chemistry – transport model CAMx. The overall performance for both approaches is found satisfactory, with the exponential distribution producing slight better results. Significant spatial differences were found in remote areas of the modeling domain, mainly outside of the city of Thessaloniki.

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