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RESEARCH AREA: COMMUNITY

TITLE: A Preliminary Investigation on the Statistical Correlations between SARS-CoV-2 Spread and Local Meteorology

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UNIVPM Research Group: Environmental assessment and air modeling

Research activity description: The statistical correlation between meteorological parameters and the spread of Coronavirus Disease-2019 (COVID-19) was investigated in five provinces of Italy selected according to the number of infected individuals and the different trends of infection in the early stages of the epidemic: Bergamo and Brescia showed some of the highest trends of infections while nearby Cremona and Mantova, showed lower trends. Pesaro–Urbino province was included for further investigation as it was comparably affected by the epidemic despite being the area far from the Po valley. Moving means of the variables were considered to take into account the variability of incubation periods and uncertainties in the epidemiological data. The same analyzes were performed normalizing the number of new daily cases based on the number of checks performed. For each province, the moving mean of adjusted and unadjusted new daily cases were independently plotted versus each meteorological parameter, and linear regressions were determined in the period from 29th of February 2020 to 29th of March 2020. Strong positive correlations were observed between new cases and temperatures within three provinces representing 86.5% of the contagions. Strong negative correlations were observed between the moving means of new cases and relative humidity values for four provinces and more than 90% of the contagions.

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