

# An Assessment of Relation of Environmental Parameters and COVID-19 transmission at the early stage during March-May 2020 in India

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## Abstract

The Corona virus disease 2019 (COVID-19) mainly caused by the novel severe acute respiratory syndrome corona virus 2 (SARS-CoV-2) became a global pandemic by March 2020. Actual there is no strong evidence of weather and COVID-19 spread relation as it is a new virus. This study is mainly focussed on the tropical weather impact on the spatio-temporal spread of COVID-19 during the early stages i.e. March-May 2020 in India, which is a large country where the disease has shown an exponential growth. This study is an attempt to assess the relationship of major environmental parameters like solar radiation, air temperature and humidity with the positive cases of COVID-19 for the period March-May 2020 which is the summer season or pre-monsoon season over India. The time series and significant correlation analysis at daily, weekly scale and the spatial analysis of weather and COVID-19 cases are presented. The results show significant correlation of solar radiation and atmospheric temperature with COVID-19 cases both at daily and weekly scale in India whereas humidity has low correlation in the study period. But the temperature humidity index (THI) a measure of the thermal stress shows positive correlation with the disease spread. These results can be a good input for developing the integrated modelling framework for the COVID-19 forecasting using state of art numerical weather prediction model and disease process modelling.

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