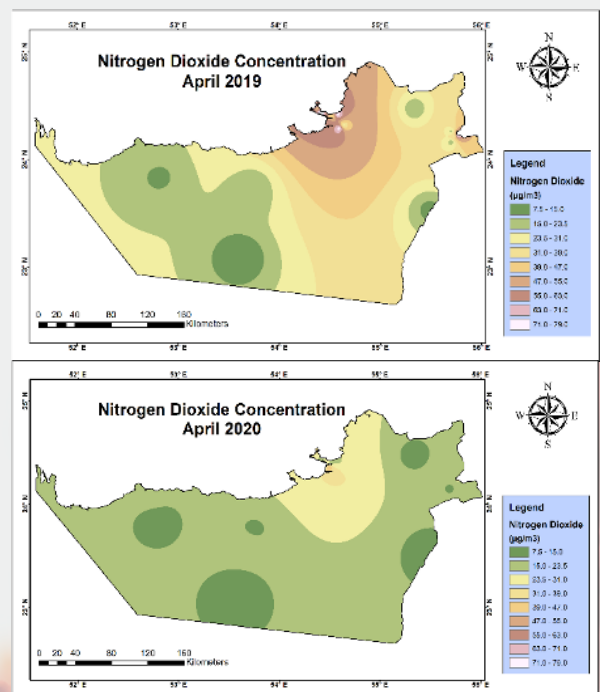


COVID-19 RESEARCH NEWSLETTER

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Impact of Lockdown Measures on Mobility and Levels of Pollutant Nitrogen Dioxide (NO₂) over Abu Dhabi Emirate, United Arab Emirates

The emergence of the COVID-19 pandemic has severely affected the world and caused unprecedented health, economic and social challenges. Preventive measures such as social distancing, wearing a mask and handwashing have been widely adopted. Lockdown or 'stay at home' is one of the options suggested by the World Health Organization (WHO) to control the spread of the virus. Many countries, including the United Arab Emirates (UAE), had imposed lockdown measures to reduce the risk of the pandemic. Lockdown measures initiated by the government of the UAE in March 2020, has had a major impact on the local air pollution levels. The research team investigated the impact of lockdown measures and reduced human activity on the level of the air pollutant nitrogen dioxide (NO₂) in the emirate of Abu Dhabi. NO₂ concentration measurements collected by the Environment Agency - Abu Dhabi (EAD) air quality monitoring stations between the period January - April 2020 indicated a significant reduction in NO₂ concentrations in comparison to a similar timeframe in 2019. To analyze trends in the NO₂ levels among the different station groups, the researched employed the Mann-Kendall trend analysis, which showed a statistically significant downward trend in the NO₂ levels between 2019 and 2020 with a p-value of 0.045. In urban areas, a reduction of 22-60% was observed, whereas suburban area stations reported a reduction of 13-50%. Air quality stations within industrial areas reported a reduction of only 2-20%. The reduction in NO₂ level was associated with a significant reduction in traffic volume within the island of Abu Dhabi of approximately 58%. These results illustrate that NO₂ concentration levels have dramatically declined and air quality has improved over the emirate of Abu Dhabi during the lockdown.



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If you are interested in sharing your COVID-19 related research, please send your contribution to research.office@uaeu.ac.ae