

Study of Improvements in Semi Arid Region Jaipur Air Quality Due to COVID -19 During Lock Down Period

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Abstract: To prevent the COVID-19 epidemic in India, it was decided by government of India to fully lock down to control the pandemic. The first phase of lockdown started from 24th March to 14th April 2020. During this lockdown, no vehicles ran on the roads, no flight flew and all kinds of big and small factories also remained completely closed. During this lock down, a very good thing was seen that air quality level improved a lot after just a few days of the lock down. In this study, status of significant air pollutants are discussed that reduced during lock down period. For this study, six significant air pollutants discussed during lockdown and prior lockdown period for Jaipur city of India, which are the following: PM₁₀, PM_{2.5}, NO₂, NO_x, CO and O₃. It is clearly found in study that the concentration significant air pollutants such as PM_{2.5} and PM₁₀ reduced <35% during the lock down period in contrast with the prior lockdown time. A significant decrease of 62.27% and 48.23% was observed in PM₁₀ and PM_{2.5} levels have during lockdown period in contrast with the most recent year. Along with this, it is seen that there is a decrease in level of NO₂ about - 57.60 %) and -43.56% in the level of CO during the lockdown period.

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References: REFERENCES

Cadotte, M. 2020. Early evidence that COVID-19 government policies reduce urban air pollution. EarthArXiv [10.31223/osf.io/nhgj3](https://doi.org/10.31223/osf.io/nhgj3)

Chauhan, A., Singh, R. P. 2020. Decline in PM_{2.5} Concentrations over Major Cities Around the World Associated with COVID-19. Environ Res, 109634. <https://doi.org/10.1016/j.envres.2020.109634>

Coccia, M. (2020). Factors determining the diffusion of COVID-19 and suggested strategy to prevent future accelerated viral infectivity similar to COVID. Sci Total Environ. 138474.

<https://doi.org/10.1016/j.scitotenv.2020.138474>

Gorai, A. K., Tchounwou, P. B., Mitra, G. 2017. Spatial variation of ground level ozone concentrations and its health impacts in an urban area in India. Aerosol Air Qual Res. 17(4), 951. doi: [10.4209/aaqr.2016.08.0374](https://doi.org/10.4209/aaqr.2016.08.0374)

Liang, W. M., Wei, H. Y., Kuo, H. W. 2009. Association between daily mortality from respiratory and cardiovascular diseases and air pollution in Taiwan. Environ Res. 109(1), 51-58. <https://doi.org/10.1016/j.envres.2008.10.002>

Mahato, S., Pal, S., Ghosh, K. G. 2020. Effect of lockdown amid COVID-19 pandemic on air quality of the megacity Delhi, India. Sci Total Environ. 139086. <https://doi.org/10.1016/j.scitotenv.2020.139086>

Reddy, K. K., Naja, M., Ojha, N., Mahesh, P., Lal, S. 2012. Influences of the boundary layer evolution on surface ozone variations at a tropical rural site in India. *J Earth Syst Sci.* 121(4), 911-922.

<https://doi.org/10.1007/s12040-012-0200-z>

Ogen, Y. 2020. Assessing nitrogen dioxide (NO₂) levels as a contributing factor to the coronavirus (COVID-19) fatality rate. *Sci Total Environ.* 138605. <https://doi.org/10.1016/j.scitotenv.2020.138605>

Sharma, S., Zhang, M., Gao, J., Zhang, H., Kota, S. H. 2020. Effect of restricted emissions during COVID-19 on air quality in India. *Sci Total Environ.* 728, 138878.

<https://doi.org/10.1016/j.scitotenv.2020.138878>

Thorpe, A., Harrison, R. M. 2008. Sources and properties of non-exhaust particulate matter from road traffic: a review. *Sci Total Environ.* 400(1-3), 270-282. <https://doi.org/10.1016/j.scitotenv.2008.06.007>

Vingarzan, R. 2004. A review of surface ozone background levels and trends. *Atmos Environ.* 38(21), 3431-3442. <https://doi.org/10.1016/j.atmosenv.2004.03.030>

Wang, P., Chen, K., Zhu, S., Wang, P., Zhang, H., 2020. Severe air pollution events not avoided by reduced anthropogenic activities during COVID -19 outbreak. *Resour Conserv Recycl.* 158, p.104814.

<https://doi.org/10.1016/j.resconrec.2020.104814>

Watts, J., & Kommenda, N. 2020. Coronavirus pandemic leading to huge drop in air pollution. *The Guardian*, 23.

Dandotiya, B., Sharma, H. K., & Jadon, N. (2020). Ambient Air Quality and Meteorological Monitoring of Gaseous Pollutants in Urban Areas of Gwalior City India. *Environmental Claims*

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