

# New method to investigate the impact of climate change on ozone levels

January 30 2020, by David Bradley

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Credit: George Hodan/public domain

The oxygen in the air that we breathe is  $O_2$ . Two oxygen atoms joined together to form a diatomic molecule. It is essential to life. However, there is another form of oxygen where three oxygen atoms join together

to make an  $O_3$  molecule. We call this triatomic oxygen, ozone. Ozone is present in the upper atmosphere and protects the planet to some extent from harmful ultraviolet radiation from the Sun. However, combustion and other processes at ground level generate ozone as a noxious and toxic pollutant that can cause smog and is deleterious to air quality and so human and environmental health.

Writing in the *International Journal of Environment and Pollution*, an international team has developed an advanced algorithm that can be used to investigate the impact of climate change on ozone levels. Zahari Zlatev of the Department of Environmental Science at Aarhus University in Roskilde, Denmark, Ivan Dimov and Krassimir Georgiev of the Institute of Information and Communication Technologies at the Bulgarian Academy of Sciences in Sofia, Bulgaria, and István Faragó and Ágnes Havasi of the MTA-ELTE Numerical Analysis and Large Networks Research Group in Budapest, Hungary, discuss details in the paper. Their model is built on a system of non-linear partial differential equations. They use it to analyze a sixteen-year timeframe across the whole of Europe and environs.

The team has to some extent overcome the complexities of the data and its uncertainties, but their conclusion is that climate change will ultimately lead to higher levels of an atmospheric pollutant like ozone.

**More information:** Zahari Zlatev et al. Advanced algorithms for studying the impact of climate changes on ozone levels in the atmosphere, *International Journal of Environment and Pollution* (2020). [DOI: 10.1504/IJEP.2019.104522](https://doi.org/10.1504/IJEP.2019.104522)

Provided by Inderscience

Citation: New method to investigate the impact of climate change on ozone levels (2020, January 30) retrieved 25 April 2024 from <https://phys.org/news/2020-01-method-impact-climate-ozone.html>

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