

Research studies ozone, good and bad

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Depending on its altitude, ozone can be either friend or foe. Thanks to new research led by The University of Western Ontario, scientists will now have a better understanding of ozone, its origin and the role – good or bad – it plays in polluting our atmosphere.

Ozone is a colourless, toxic gas named for the Greek word for smell because of its pungent odour.

In the stratosphere, acting as friend, it forms the ozone layer, which fends off harmful ultraviolet solar rays.

During pollution events, ozone turns to foe as it interacts with other pollutants, effectively generated by factories, cars and machinery, and descends from the stratosphere into the troposphere (the lowest layer of the atmosphere), where the ozone itself becomes a pollutant that damages forests, crops and human health.

In this week's *Nature*, a study led by Western physics and astronomy professor Wayne Hocking reveals new discoveries about how ozone moves through our skies and how so-called "ozone intrusions" from higher altitudes can be monitored using a relatively simple radar instrument called a "windprofiler."

The research suggests that "ozone-intrusion events" are associated with relatively sudden changes in the altitude of the boundary between the troposphere and the stratosphere (called the tropopause), which is usually found at an altitude of eight to 12 kilometres.



"We often blame humankind for the problems associated with the ozone layer and ozone pollution, and indeed we have to take responsibility for some significant effects, but this research shows that sometimes the effects we see are just nature in action," said Hocking, who leads Western's Atmospheric Dynamics Group, a research team that studies dynamical motions in the atmosphere at heights from ground level to 100 kilometres altitude.

The research was conducted by releasing balloon-borne, ozone-detecting instruments into the skies above Quebec and Ontario, while measuring tropopause height using windprofilers.

Source: University of Western Ontario

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