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Aerosol expert to give this year's Harold I. Schiff Lecture

An expert in aerosols and their effect on the environment, Douglas Worsnop, vice-president and director of the Center for Aerosol and Cloud Chemistry at Massachusetts-based Aerodyne Research Inc., will give the 18th annual Harold I. Schiff Lecture at York.

His talk "Aerosols in the Atmosphere: From the Ozone Hole to Climate Change," which looks at the difficulty of predicting climate change, will be presented on Wednesday, Dec. 3 at 2:30pm in Room B, Computer Science & Engineering Bldg., Keele campus.

Aerosols are created through emissions from cars, planes, buses, factories, desert sandstorms, volcanic eruptions, living organisms and chemical reactions of gases in the atmosphere. These solid or liquid particles form clouds, which reflect sunlight back into space before it reaches the earth's surface, and help to cool the earth's atmosphere. But these same particles are hazardous to humans and can also enter the world's lakes, streams and oceans as acid rain.



Left: Douglas Worsnop

Predicting the future of climate change is difficult. "Much of the uncertainty in predicting future climate change is associated with the properties of atmospheric aerosols and clouds," says Worsnop. "Though low in absolute concentration, the impact on the earth's radiative balance of sub-micron particles is roughly equivalent to that of greenhouse gases."

Worsnop will look at the effect of aerosols on acid rain production in the troposphere, ozone loss in the stratosphere, the effect of the 1991 eruption of Mount Pinatubo in the Philippines and global climate change in light of what has been discovered in the last 25 years about how aerosols are created and what they do.

In addition, Worsnop will explain what experimental observations of aerosol chemistry have found and how those findings underlie uncertainties regarding aerosol concentrations in the troposphere and stratosphere and how they will effect climate change. He will also compare the effects of the inorganic and organic makeup of aerosols.

Worsnop has pioneered the development of laboratory techniques for measuring the chemical interactions between atmospheric trace gases – ozone, nitrogen oxides and hydrocarbons – and water droplets. His expertise extends to the mechanisms of the formation of polar stratospheric clouds and to measurements of the chemical composition of atmospheric aerosols.

Right: A shot of cumulus clouds by Michael Jastremski, Wikimedia Commons

In 2007, Worsnop was recognized as a Fellow of the American Geophysical Union for his outstanding contributions to the advancement of the geophysical sciences, to the service of the community and to the public's understanding. In addition, he was elected an American Association for the Advancement of Science (AAAS) Fellow in 2005 for his major advances in atmospheric heterogeneous chemical kinetics and the measurement of atmospheric aerosol particle composition and microphysics, including the development of the aerosol mass spectrometer. The AAAS is the world's largest general scientific society, and publisher of *Science* magazine. He is also a recipient of the 2004 Benjamin Y. H. Liu Award for his achievements in atmospheric composition measurement with the Aerodyne aerosol mass spectrometer.



Worsnop joined [Aerodyne Research Inc.](#) in 1985 and was named director of the Center for Aerosol and Cloud Chemistry in 1997, followed by vice-president in 2000. He is also a distinguished professor at the University of Helsinki and an adjunct professor in Boston College's Chemistry Department and the University of Colorado's Department of Atmospheric and Oceanic Science.

The Harold I. Schiff Lecture series was established in honour of the late Professor Emeritus Harold I. Schiff, who was York's founding dean of

the Faculty of Science in 1968. Among his numerous achievements are his major contributions to the development of techniques for measuring trace constituents in the upper atmosphere and to the interpretation of the physics and chemistry of the stratosphere.

An educator and scientist in the field of chemistry, Schiff began at York in 1964 and was named a member of York's Founders Society in honour of his contributions to the early development of the University. While at York, Schiff was chair of the Department of Chemistry and director of the Natural Science Program in 1964; dean of the Faculty of Science from 1965 to 1972; and director of the Centre for Atmospheric Chemistry from 1985 to 1989.

The annual Harold I. Schiff Lecture is organized by [The Centre for Atmospheric Chemistry](#) at York. For more information, e-mail cac@yorku.ca.

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