

UI researcher notes importance of particulate matter on climate, health

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When it comes to predicting climate change, researchers need to take into account the effects of particles in the air.

That's the message presented by University of Iowa researcher Vicki Grassian Friday, Feb. 17, at the 2012 Annual Meeting of the [American Association for the Advancement of Science](#) (AAAS) in Vancouver, British Columbia, Canada.

While the role of [greenhouse gases](#) is important, attention should also be given to the role of [atmospheric aerosols](#) and interfacial chemistry of aerosols on climate, says Grassian, F. Wendell Miller Professor of Chemistry and director of The Nanoscience and Nanotechnology Institute at the University of Iowa.

The ways in which [atmospheric particles](#), such as mineral dust, affect climate are important and poorly understood. These processes include heterogenous chemical interactions with trace [atmospheric gases](#), the ability of particles to nucleate (help form) clouds, and the optical properties of dust itself all contributing to radiative forcing -- the net difference between incoming and outgoing radiation, says Grassian.

Grassian's paper, "Interfacial Chemistry and Climate," discusses her laboratory studies designed to increase understanding of the underlying [physical chemistry](#) of the processes involved.

"When trying to understand particulate matter in the atmosphere and its

chemistry, modelers can overly simplify and field researchers can find the real world's complexity overwhelming," she says. "We design studies that can be used to better understand particles and their impact on climate, the environment, and human health."

As a professor of chemistry in the UI College of Liberal Arts with joint appointments in the College of Engineering and College of Public Health, Grassian has research interests involving how particulate matter, including nanoparticles, affect the chemistry of the environment as well as human health. She plans to expand her future studies in several new directions including better understanding the chemical complexity of sea spray aerosol produced by wave action and the impact of iron-containing natural and anthropogenic dusts on human health.

Provided by University of Iowa Health Care

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