

Biography



Neil M. Donahue

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Neil M. Donahue is the Thomas Lord Professor of Chemistry in the Departments of Chemistry, Chemical Engineering and Engineering and Public Policy at Carnegie Mellon University, where he has been since 2000. He is the founding director of the Center for Atmospheric Particle Studies (CAPS) CMU and is now the director of the Steinbrenner Institute for Environmental Education and Research, which represents all environmental research and education at CMU. CAPS is ranked among the world leaders in research addressing fundamental behavior of atmospheric aerosols and their relationship to both air quality and climate. He is a Pittsburgh native.

Donahue has a Bachelor's degree in Physics from Brown University and a doctorate in Meteorology from MIT. At MIT he worked with Ron Prinn on the chemistry of non-methane hydrocarbons in the marine atmosphere, combining process modelling with in-situ measurements of hydrocarbons in the marine boundary layer and the ocean mixed

layer. Subsequently he spent the better part (the very best part) of a decade in the laboratory of Jim Anderson at Harvard, where he honed his skills as a chemical physicist focused on combining theory with measurements of elementary radical-molecule reaction kinetics over a wide pressure and temperature range to explore and explain the factors controlling reaction barrier heights and overall reactivity in gasphase radical-molecule reactions important to atmospheric chemistry. At CMU he turned his attention to organic particulate matter in the atmosphere, again combining theory and experiments to consider the coupled thermodynamics of phase partitioning and oxidation chemistry through the full life cycle of organic material in the atmosphere. He has shown that organics material is very dynamic, with compounds condensing to and evaporating from the condensed phase frequently during their roughly one-week residence time in the atmosphere, all the while undergoing oxidation chemistry, especially in the gas-phase via OH-radical attack.



Neil Donahue attacks on the famous Rialto Street Climb, one of Pittsburgh's toughest, with a grade of 25%. <http://www.bicycling.com/racing/dirty-dozen/dirty-dozen-2015-climbing-the-steepest-street-in-the-us-for-fun>

Most recently, he joined the CLOUD consortium at CERN to focus on the role that gas-phase organic oxidation chemistry plays during new-particle formation in the atmosphere. The poorly understood role of new-particle formation in climate forcing is one of the leading uncertainties in the climate system.

Donahue is a Fellow of the American Geophysical Union, past local (Pittsburgh) section president of the American Chemical Society, past national board member of the American Association for Aerosol Research, editor of Atmospheric Chemistry and Physics, associate editor of the Journal of Geophysical Research, Atmospheres, and serves on the editorial board of the Journal of Aerosol Science. He has published more than 210 peer-reviewed journal articles, with more than 12,000 total citations and an h-index of 59. He has four papers in Science, four in Nature, and six in PNAS.