

## Ozone, Aerosols and Carbon Gases at the Mt. Bachelor Observatory

D. Jaffe<sup>1</sup>, J. Laing<sup>1</sup>, P. Sheridan<sup>2</sup>, A.E. Andrews<sup>2</sup>, B. Andrews<sup>3,2</sup>, I. Petropavlovskikh<sup>3,2</sup>, A. McClure<sup>3,2</sup> and J. Kofler<sup>3,2</sup>

<sup>1</sup>University of Washington, Seattle, WA 98105; 425-352-5357, E-mail: djaffe@uw.edu

<sup>2</sup>NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO 80305

<sup>3</sup>Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO 80309

The Mt. Bachelor Observatory is a high elevation (2.8 km asl) research site located on the summit of Mt. Bachelor in Central Oregon and is an ideal location to capture background/baseline air entering North America. The site was started by the University of Washington in 2004, with a focus on ozone (O<sub>3</sub>), aerosols, mercury (Hg), and related trace species. The figure below shows an aerial view of Mt Bachelor. Over the past 15 years our research has focused on sources, chemistry, and transport associated with O<sub>3</sub>, aerosols, carbon gases, Hg, and related trace species. In 2011, we started a collaboration with the ESRL/GMD Carbon Cycle and Greenhouse Gas group and in 2018, we began collaborations with the GMD Aerosol and Ozone and Water Vapor groups. With these collaborations, we hope to ensure the site is available for long-term data collection.

In this presentation I will focus on some of our newest results including:

1. Relationship between carbon cycle gases, O<sub>3</sub>, aerosols, and transport patterns.
2. Aerosol size distributions in biomass burning plumes.
3. Observations of aerosol absorption and black carbon in biomass burning plumes.
4. New statistical approach to understand O<sub>3</sub> in the free troposphere.



**Figure 1.** Mt. Bachelor located in Central Oregon (2.8 km asl). Photo by Randy Hopfer.