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Title:

Airborne Observations of Ozone and Other Trace Gases Upwind of National Parks in California and Nevada

Abstract:

The Alpha Jet Atmospheric eXperiment (AJAX) is a research project based at Moffett Field, CA, which collects airborne measurements of ozone, carbon dioxide, methane, water vapor, and formaldehyde, as well as 3-D winds, temperature, pressure, and location. Since its first science flight in 2011, AJAX has developed a wide a variety of mission types, combining vertical profiles (from ~ 8 km to near surface), boundary layer legs, and plume sampling as needed. With an ongoing five-year data set, the team has sampled over 160 vertical profiles, a dozen wildfires, and numerous stratospheric ozone intrusions.

Our largest data collection includes 55 vertical profiles at Railroad Valley, NV, approximately 100 miles southwest of Great Basin National Park, and many of those flights include comparisons to surface monitors in the Nevada Rural Ozone Initiative network. We have also collected a smaller set of measurements northwest of Joshua Tree National Park, and are looking to develop partnerships that can put this data to use to assess or improve air quality in nearby Parks.

AJAX also studies the plumes emitted by wildfires in California, as most emissions inventories are based on prescribed fires. We have sampled a dozen fires, and results will be presented from several, including the Rim (2013), Soberanes and Cedar (2016) Fires.