

DISCOVER-AQ SJV surface measurements and initial comparisons with photochemical model simulations

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NASA's DISCOVER-AQ (Deriving Information on Surface Conditions from Column and Vertically Resolved Observations Relevant to Air Quality) campaign studied the air quality throughout California's San Joaquin Valley (SJV) during January and February of 2013. The SJV is a non-attainment area for EPA's particulate matter (PM_{2.5}) and ozone National Ambient Air Quality Standards. A better understanding of the sources and processes leading to the valley's air pollution levels are needed to support effective emissions control strategy development. The wintertime study was designed to understand the vertical distribution of pollutants including PM, PM precursors, and other trace gases over routine, surface monitoring sites during meteorological conditions known to be conducive to PM_{2.5} formation. EPA's ORD supplemented an existing meteorological monitoring site at the Visalia municipal airport with O₃, NO_x, and NO_y measurements. NASA's P3B aircraft conducted 25 missed approaches (reaching altitudes as low as 32m) over this site throughout the campaign, providing unique opportunities to compare surface and aircraft results collected during different times of day and atmospheric conditions. Data from this surface site and others throughout the SJV will be presented and used to explore the performance of EPA's NO_x monitoring methods (FEMs and FRMs) and the performance of EPA's CMAQ model during this study.