“Ozone in the Lower Atmosphere and its Contribution to High Ozone Concentrations at Ground-Level in the Southern San Joaquin Valley”

CARB Research Seminar for Contract # 14-308

William Vance, Ph.D.

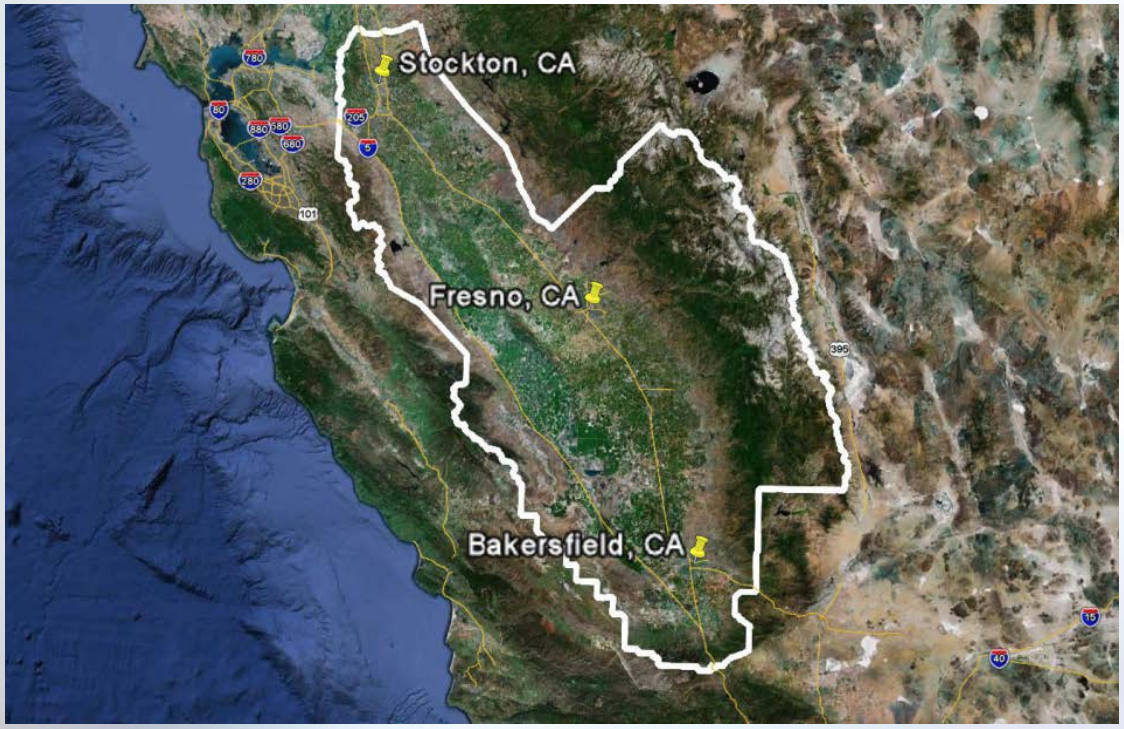
CARB Staff & Research Contract Manager

September 17, 2018

Announcements

- Additional information about the speaker as well as slides and other materials can be found at this link: https://www.arb.ca.gov/research/seminars/faloona/faloona.htm
- For those of you online, questions for the speaker can be sent to sierrarm@calepa.ca.gov
- For our in-person audience: “housekeeping” items.

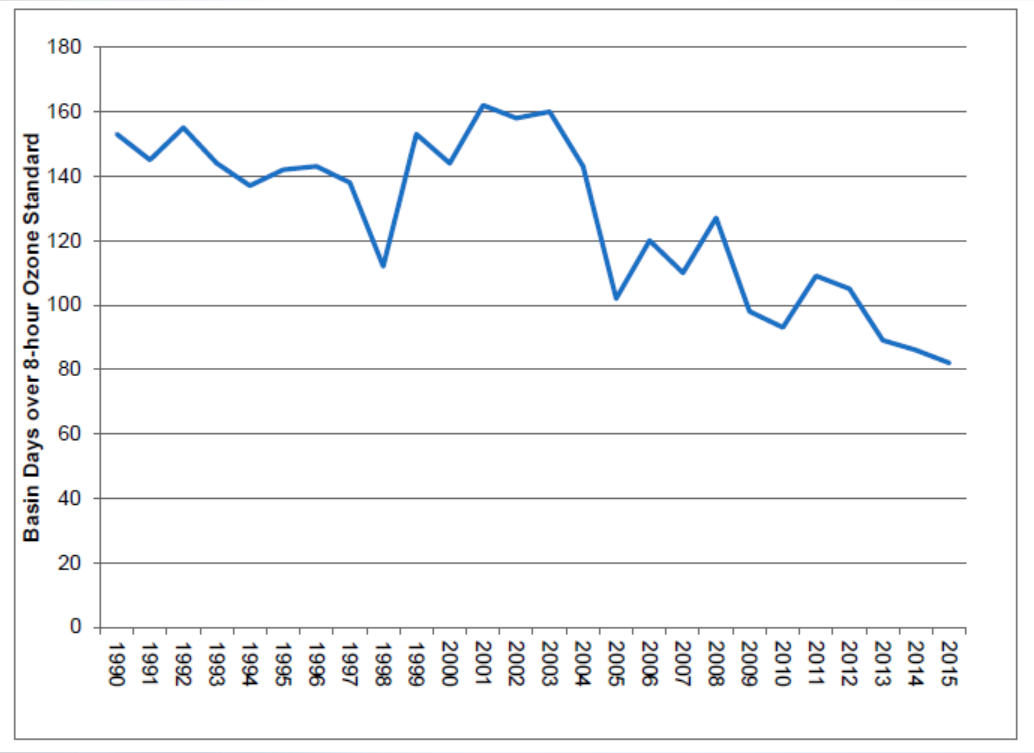
General Overview



San Joaquin Valley APCD 2016

- The unique topographical and meteorological conditions in the San Joaquin Valley present a challenge to regulatory efforts to comply with ozone (O_3) standards.
- The SJV is an intermountain valley approximately 250 miles long and averaging 80 miles wide. It is bounded on the east, west and south by mountains.
- Marine air flows into the basin from the San Joaquin River delta; topographic features restrict air movement into and out of the valley.
- High pressure events limit the vertical transport of pollutants, which allows pollutants to accumulate over time.

Ozone trends



Basin Days over the 2008 8-Hour Ozone Standard

- Ozone is formed in the atmosphere through photochemical reactions between oxides of nitrogen (NOx) and volatile organic compounds (VOC).
- Dominant sources of ozone precursors are NOx and VOCs emitted by gasoline and diesel vehicles, cooking, biomass burning, and regional biogenic emissions.
- Transport of pollutants within the SJV plays a dominant role in violations of Federal ozone standards.
- Regulatory efforts to comply with ozone standards in the SJV require improvements in our knowledge of the factors controlling the ozone formation, transport (horizontally and vertically) and precursor sources.

Today's Speaker — Dr. Ian Faloona

- Dr. Faloona is an associate professor at the University of California, Davis in the Department of Land, Air and Water Resources
- Dr. Faloona received his Ph.D. in meteorology from Pennsylvania State University. After work as a consultant and then a postdoc at the Advanced Study Program at the National Center for Atmospheric Research, he joined the atmospheric science faculty at UC Davis.
- Prof. Faloona's research interests include the airborne investigation of vertical mixing and near-field pollutant dispersion, observational emission estimates, the meteorology of coastal fog, planetary boundary layer dynamics, biogeochemical cycling, and atmosphere/ocean photochemistry.