Update on the 2017 El Paso Ozone Transport Field Study for the El Paso MPO

Dave DuBois
New Mexico State University

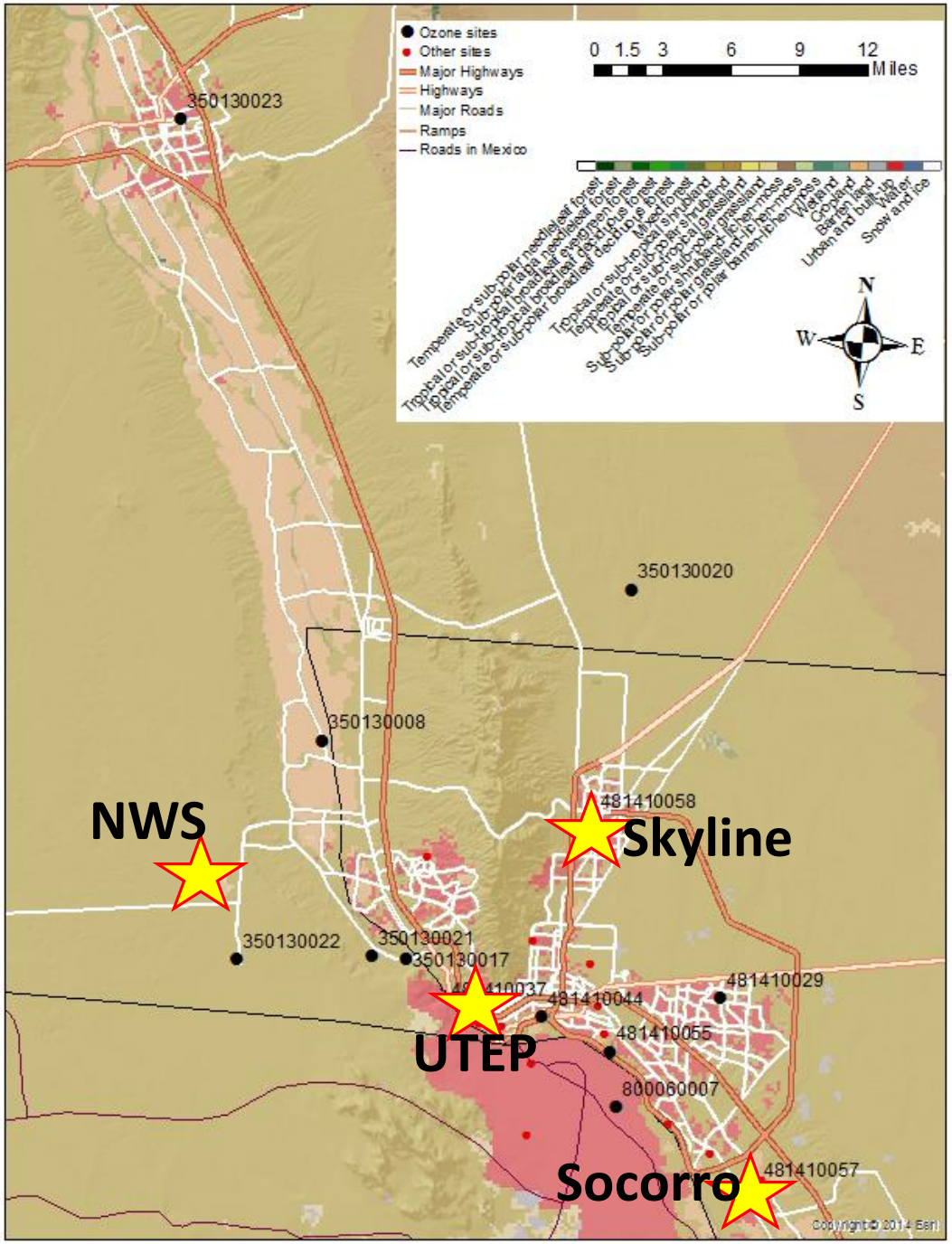
Presented to the 70th Joint Advisory Committee meeting
October 5, 2017

Overview

- Who: New Mexico State University, St. Edwards University & UTEP
- What: Design and conduct a program to collect ozone for the characterization and understanding of physico-chemical processes involved in the formation and destruction of tropospheric ozone in El Paso
- Funded by TCEQ
- When: May-September 2017

Project Goal

- To characterize ozone in and over El Paso through an intensive observation and monitoring study during the summer of 2017



Monitoring Locations

Selected four launching locations:

- TCEQ Skyline Optimist Park
- UTEP
- TCEQ Socorro Hueco Elementary
- National Weather Service

Sounding Instrumentation

- EN-SCI ozonesonde 2Z-V7 connected to iMet radiosonde
- 401-404 MHz receiver and Yagi antenna
- Data acquisition on laptop running NOAA skysonde software

Launch criteria

- Daily weather briefing between coordinators
  - Forecast weather patterns for that day
  - Examine past ozone data from TCEQ and NMED networks; models from NOAA/EPA
- Estimate balloon trajectories and likely landing locations
  - 350 gram balloon up to 25 km
  - 600 gram balloon up to 30 km

Operations this summer

- Recruited students from UTEP (4) and NMSU (5), NMSU staff (3), St. Edwards (3)
- Completed training on May 15-20 with assistance from subcontractor Dr. Gary Morris from St. Edwards Univ.
- Launched 52 ozonesodes this summer (as of Sept. 26)
- Weekly or biweekly project meetings

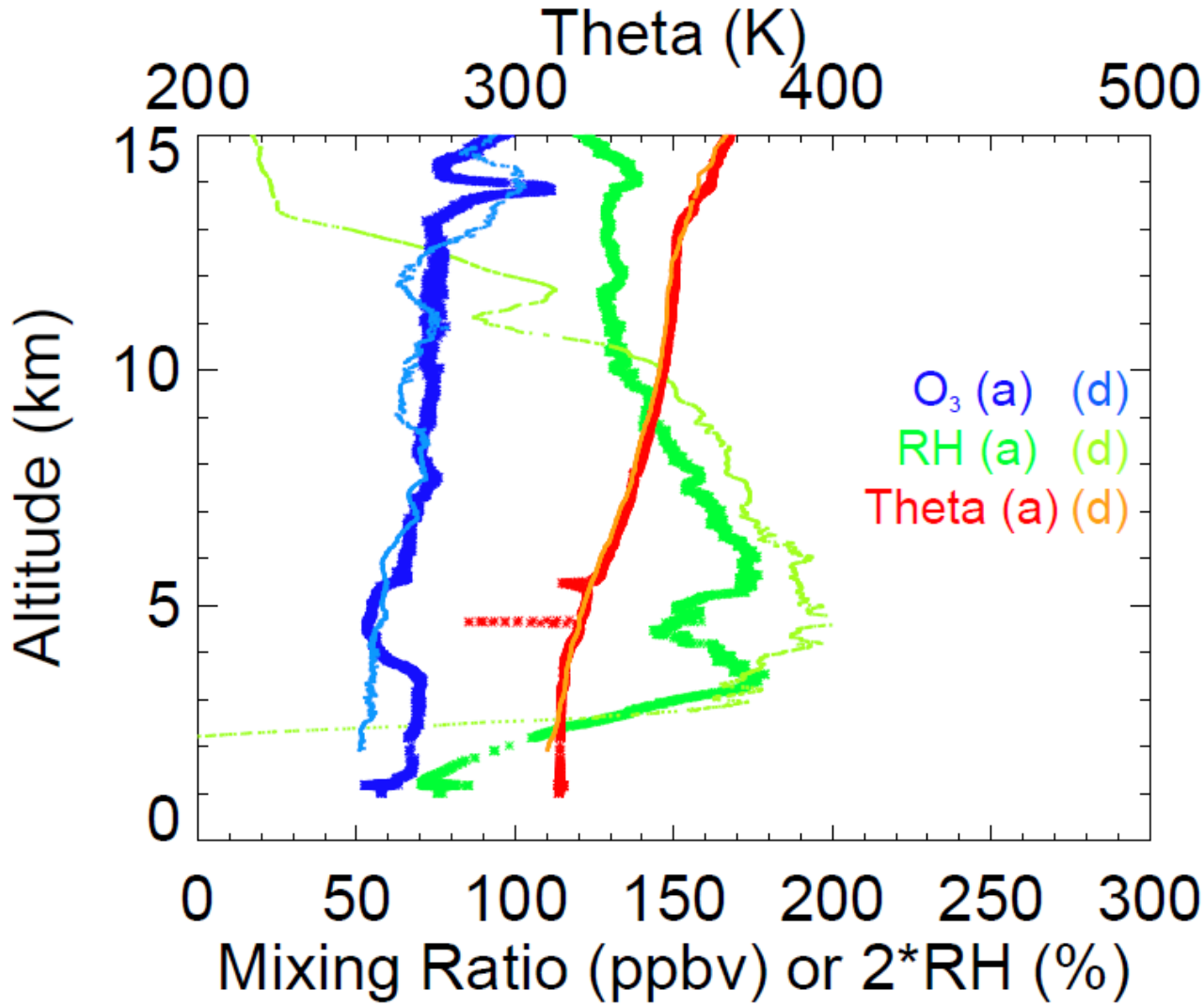
Operations this summer

- During the morning prior to launch, notifications emailed to FAA, El Paso airport, and Biggs Field
- El Paso and Albuquerque airport control towers notified 5-minute to launch by phone
- Notifications also during balloon ascent and descent

Operations this summer

- After launch, quick-look plots prepared by Gary Morris
- Data archived on Dropbox shared with project participants

El Paso (North) - 2017072122



Example ozonesonde profile on July 21 at 5pm MDT from Skyline Park

Launches since May

May	Location
5/15/2017	UTEP
5/16/2017	UTEP
5/16/2017	UTEP
5/16/2017	UTEP
5/17/2017	UTEP
5/17/2017	UTEP
5/18/2017	UTEP
5/18/2017	UTEP
5/23/2017	UTEP
5/25/2017	UTEP
5/30/2017	NWS

June	Location
6/1/2017	NWS
6/5/2017	Skyline
6/8/2017	skyline
6/9/2017	UTEP
6/12/2017	NWS
6/14/2017	Skyline
6/16/2017	NWS
6/19/2017	Skyline
6/20/2017	Skyline
6/21/2017	NWS
6/22/2017	Socorro
6/27/2017	NWS

July	Location
7/1/2017	Skyline
7/3/2017	Socorro
7/6/2017	NWS
7/9/2017	Skyline
7/10/2017	NWS
7/11/2017	Skyline
7/19/2017	NWS & Skyline
7/21/2017	Skyline
7/25/2017	Skyline
7/28/2017	Skyline

August	Location
8/2/2017	NWS
8/8/2017	NWS
8/11/2017	UTEP
8/16/2017	NWS
8/17/2017	NWS
8/18/2017	UTEP
8/21/2017	NWS
8/22/2017	UTEP
8/28/2017	Skyline
8/29/2017	NWS
8/31/2017	NWS

September	Location
9/3/2027	NWS
9/4/2017	NWS
9/6/2017	NWS
9/7/2017	NWS
9/8/2017	Skyline
9/12/2017	Skyline
9/14/2017	Socorro

Next steps

- QA/QC data
- Analysis of data
  - Characterize ozone profiles by location and time
  - Source region attribution using HYSPLIT backtrajectories
  - Examine role of wildfires
  - Analysis of surface ozone data (spatial and temporal)
  - Meteorological analysis

Next steps

- Work on poster and papers to be presented at the American Meteorological Society annual meeting in January
- Final report April 2018
- Discuss peer-reviewed publications

Contact

Dr. Dave DuBois
State Climatologist
New Mexico State Univ.

dwdubois@nmsu.edu

@nmclimate