NMED
New Mexico Environment Department

2015 Ozone NAAQS

DESIGNATION RECOMMENDATION REPORT

Air Quality Bureau
September 26, 2016

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1 Introduction

On October 1, 2015, the United States Environmental Protection Agency (EPA) revised the 2008 8-hour ozone National Ambient Air Quality Standard (NAAQS) from 0.075 parts per million to 0.070 parts per million (ppm) (80 FR 65291; October 26, 2015). Section 107(d)(1)(A) of the Federal Clean Air Act (CAA) requires states to submit to EPA recommendations on area designations no later than one year after the promulgation of a new or revised NAAQS. Areas are to be identified as attainment, nonattainment, or unclassifiable. The deadline for submitting these recommendations is October 1, 2016.

The State of New Mexico recommends that the counties under the jurisdiction of the New Mexico Environment Department (NMED), exclusive of tribal lands and Bernalillo County, be designated as identified in Table 1-1 below. These recommendations rely on air quality monitoring data using the most recent three consecutive years of quality-assured data (2013-2015) and EPA's February 25, 2016 Memorandum, Area Designations for the 2015 Ozone National Ambient Air Quality Standards (Guidance Memo), as the basis for its recommendations. The Guidance Memo can be found on EPA's website at www.epa.gov/ozone-designations/ozone-designations-guidance-and-data. The data for 2013-2015 for all ozone monitors are presented in Appendix A.

NMED conducted an analysis to determine whether New Mexico would recommend the presumptive boundary for Doña Ana County area designation, or propose an alternate boundary. EPA recommends that the Core Based Statistical Area (CBSA) serve as the presumptive boundary when considering the geographic boundaries of an ozone nonattainment area. Since the CBSA that covers Doña Ana County includes El Paso and Hudspeth Counties in Texas, NMED will use the Las Cruces Metropolitan Statistical Area (MSA). The Las Cruces MSA includes the entirety of Doña Ana County and serves as the presumptive boundary. To assist with the nonattainment boundary recommendation, NMED evaluated the 5 factors listed in Attachment 3 of the Guidance Memo, as follows:

- Air quality data;
- Emissions and emissions-related data;
- Meteorological data;
- Geography/topography; and
- Jurisdictional boundaries.

Based on the results of the analysis, NMED has decided to recommend an area smaller than the Las Cruces MSA as nonattainment.

Table 1-1: New Mexico County Designation Recommendations for the 2015 Ozone NAAQS.

County	2013-2015 Design Value (ppm)	Designation Recommendation
Bernalillo County	Not in NMED's jurisdiction	Not in NMED's jurisdiction
Catron County	No data	Attainment/Unclassifiable
Chaves County	No data	Attainment/Unclassifiable
Cibola County	No data	Attainment/Unclassifiable
Colfax County	No data	Attainment/Unclassifiable
Curry County	No data	Attainment/Unclassifiable
De Baca County	No data	Attainment/Unclassifiable
Doña Ana County	La Union --- 0.066	**Nonattainment - partial**
	Chaparral --- 0.067	
	Desert View --- 0.072	
	Santa Teresa --- 0.072	
	Solano --- 0.065	
Eddy County	Carlsbad --- 0.069	Attainment
Grant County	No data	Attainment/Unclassifiable
Guadalupe County	No data	Attainment/Unclassifiable
Harding County	No data	Attainment/Unclassifiable
Hidalgo County	No data	Attainment/Unclassifiable
Lea County	Hobbs --- 0.067	Attainment
Lincoln County	No data	Attainment/Unclassifiable
Los Alamos County	No data	Attainment/Unclassifiable
Luna County	No data	Attainment/Unclassifiable
McKinley County	No data	Attainment/Unclassifiable
Mora County	No data	Attainment/Unclassifiable
Otero County	No data	Attainment/Unclassifiable
Quay County	No data	Attainment/Unclassifiable
Rio Arriba County	Coyote Ranger District --- 0.065	Attainment/Unclassifiable
Roosevelt County	No data	Attainment/Unclassifiable
Sandoval County	Bernalillo --- 0.065	Attainment
San Juan County	Bloomfield --- 0.064	Attainment
	Navajo Lake --- 0.067	
	Substation --- 0.063	
San Miguel County	No data	Attainment/Unclassifiable
Santa Fe County	Santa Fe Airport --- 0.064	Attainment/Unclassifiable
Sierra County	No data	Attainment/Unclassifiable
Socorro County	No data	Attainment/Unclassifiable
Taos County	No data	Attainment/Unclassifiable
Torrance County	No data	Attainment/Unclassifiable
Union County	No data	Attainment/Unclassifiable
Valencia County	Los Lunas --- .066	Attainment/Unclassifiable
(**Bold** – exceeds NAAQS)		

2 Air Quality Data

The ozone monitoring network in Doña Ana County contains 5 federal regulatory design-value monitors operated and maintained in accordance with 40 CFR Parts 50, 53, and 58. Table 2-1 below contains information on the current ozone monitors in Doña Ana County. To determine compliance with the 2015 Ozone NAAQS, a design value must be calculated to compare to the level of the standard. The design value is determined by the 3-year average of the annual 4th highest 8-hour ozone average.

Table 2-1: Doña Ana County Monitoring Data (ppm).

Site Name	AQS ID #	4th Max 8-hour Average			Design Value (2013 – 2015)
		2013	2014	2015	
Desert View	**35-013-0021**	**.071**	**.072**	**.074**	**.072**
Santa Teresa	**35-013-0022**	**.080**	.066	.070	**.072**
La Union	35-013-0008	.067	.065	.070	.066
Chaparral	35-013-0020	.069	.067	.065	.067
Solano Road	35-013-0023	.064	.066	.066	.065
(**Bold** – exceeds NAAQS)					

Within the Doña Ana County monitoring network, two monitors have recorded levels that exceed the revised 8-hour ozone standard of 0.070 ppm for the years 2013-2015 (Figure 2-1). Both the Desert View and Santa Teresa monitors have a 2013-2015 design value of 0.072 ppm. Other monitors within Doña Ana County have design values between 0.065 and 0.067 ppm. Figure 2-2 below shows the location of ozone monitoring sites in Doña Ana County.

Figure 2-1: Doña Ana County 2013-2015 Ozone Monitoring Data.

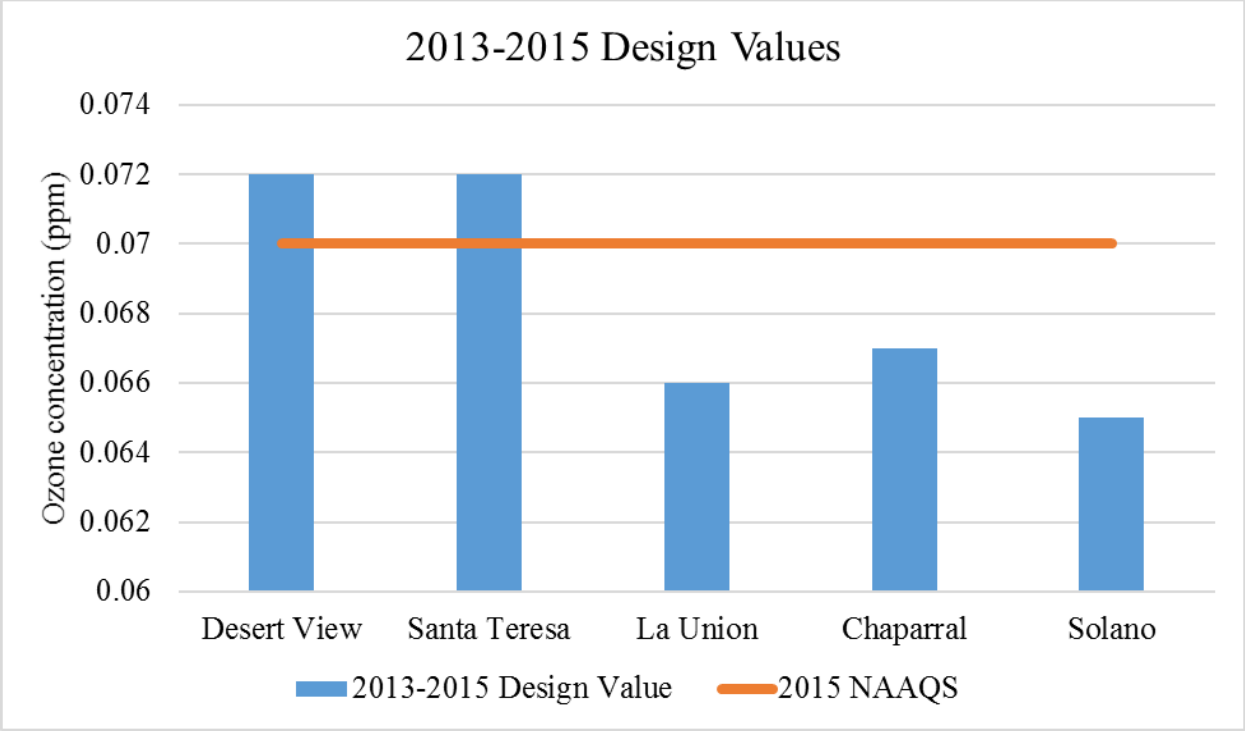
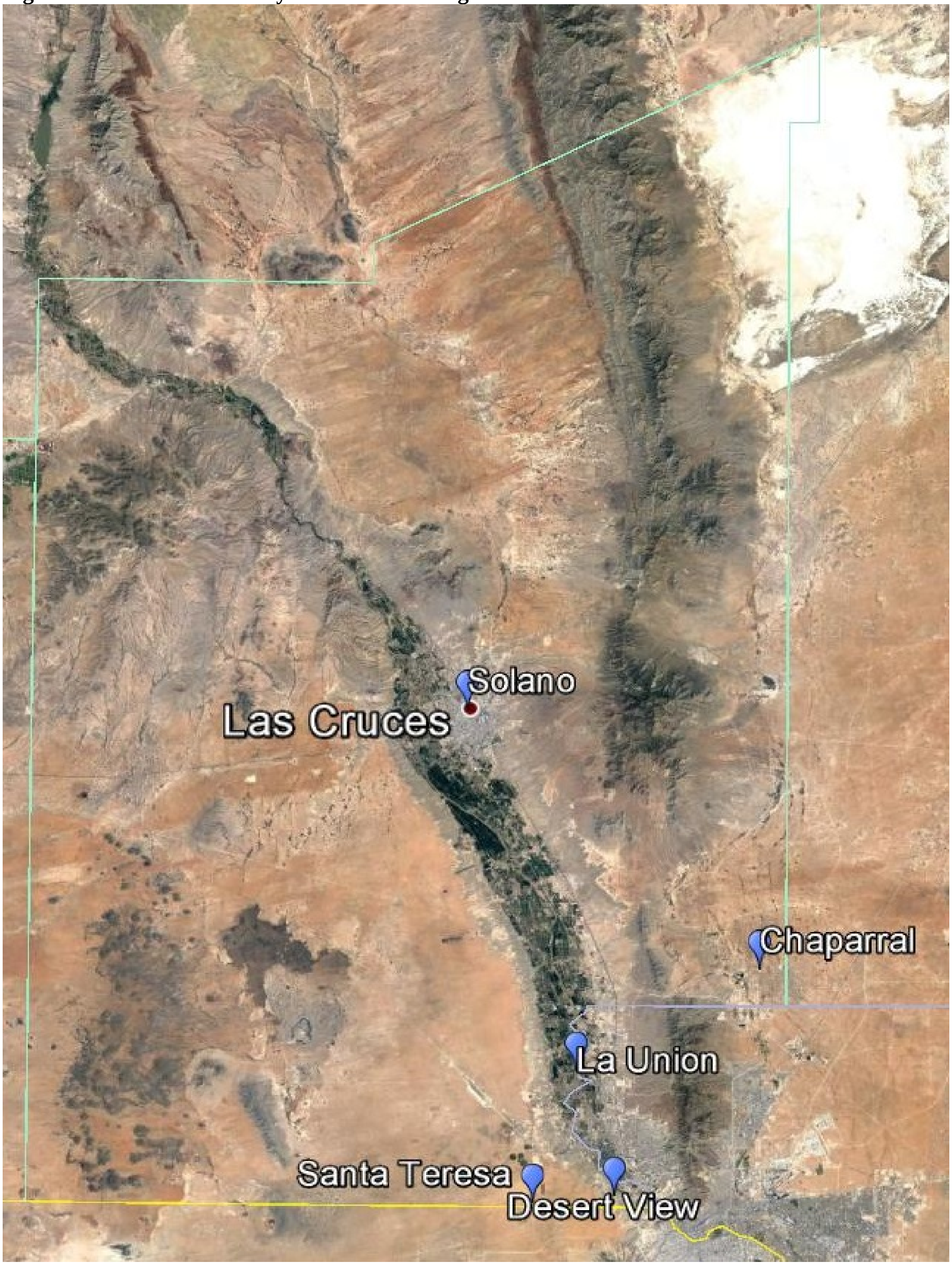


Figure 2-2: Doña Ana County Ozone Monitoring Network.

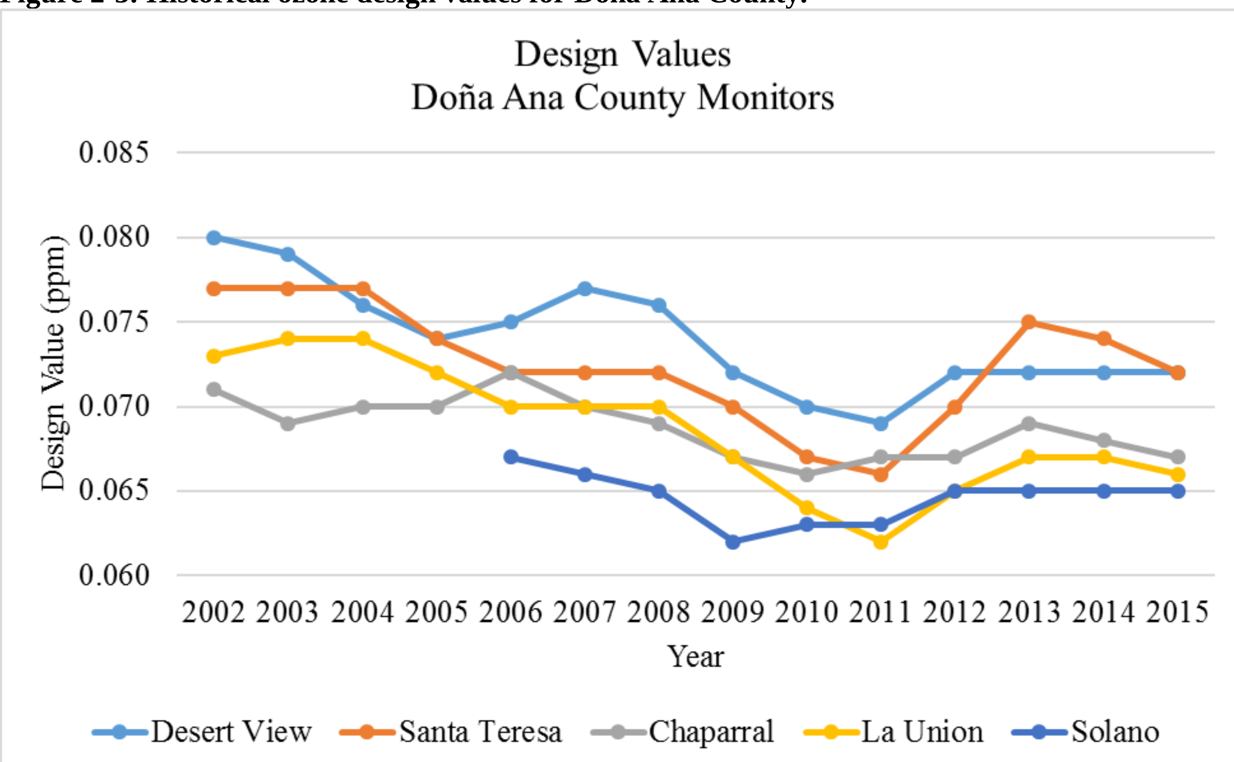


The two monitors that violate the NAAQS are both located in the southern-most portion of the county, north of Mexico and west of Texas. The monitors are located in the city of Sunland Park and the unincorporated area of Santa Teresa, New Mexico, near the international border with Mexico and the state line of Texas.

Established in June 2004, the Desert View monitor is located at 5935 Valle Vista in Sunland Park, New Mexico at an elevation of 3860 feet. This monitoring site measures NO_2, O_3, PM_{10}, $PM_{2.5}$, and meteorological data. Also established in June 2004, the Santa Teresa monitor is located at 104-2 Santa Teresa International Blvd, west of Sunland Park, New Mexico at an elevation of 4100 feet. This monitoring site measures NO_2, O_3, and meteorological data.

Historical 8-hr ozone design values for the Doña Ana County ozone monitors are shown in Figure 2-3 below.

Figure 2-3: Historical ozone design values for Doña Ana County.



3 Emissions and Emissions-related Data

Ozone is not emitted directly from specific sources, but rather is formed as the result of complex atmospheric processes of precursor gases. The primary precursor pollutants are nitrogen oxides (NO_x) and Volatile Organic Compounds (VOC). To determine the sources and levels of NO_x and VOC, NMED evaluated emissions data from Doña Ana County and nearby sources using the 2011 National Emissions Inventory (2011 NEIv2). For purposes of this analysis, NMED interpreted nearby sources to include those sources located in counties (U.S.) and municipalities (Mexico) surrounding the violating monitors within the El Paso-Las Cruces CBSA.

3.1 NO_x Emissions

Total NO_x emissions in Doña Ana County were estimated at 11,506 tons/year for 2011. On-road mobile sources comprise the majority of NO_x emissions, with 7,535 tons/year or 65% of all NO_x emissions. Area sources account for the second largest amount of NO_x emissions, with 2,278 tons/year. One point source in the county, the Rio Grande Generating Station, emitted more than 100 tons/year of NO_x (717 tons/year), accounting for 84% of point source NO_x emissions. The nearby counties have a similar emissions profile, as shown in Figure 3-1.

Emissions data for Ciudad Juárez is coarser than that for the U.S. counties, being classified only by area, mobile, and point sources. For purposes of comparison, NMED classified emissions into these three source categories by including fire emissions into area sources and combining nonroad and onroad emissions into mobile sources. Although a similar pattern for Cd. Juárez emission sources is seen in Figure 3-2, point sources account for a much larger portion of total NO_x emissions.

Figure 3-1: NO_x emissions by county and source category.

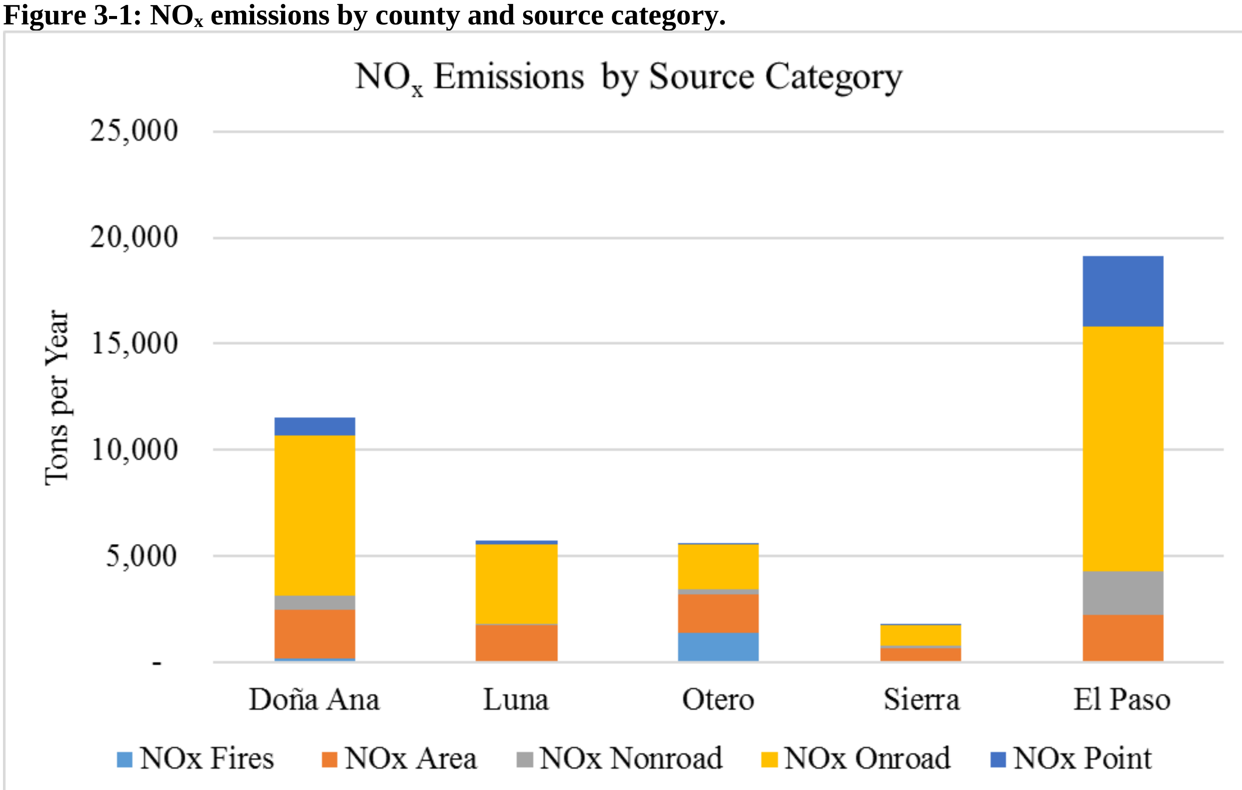
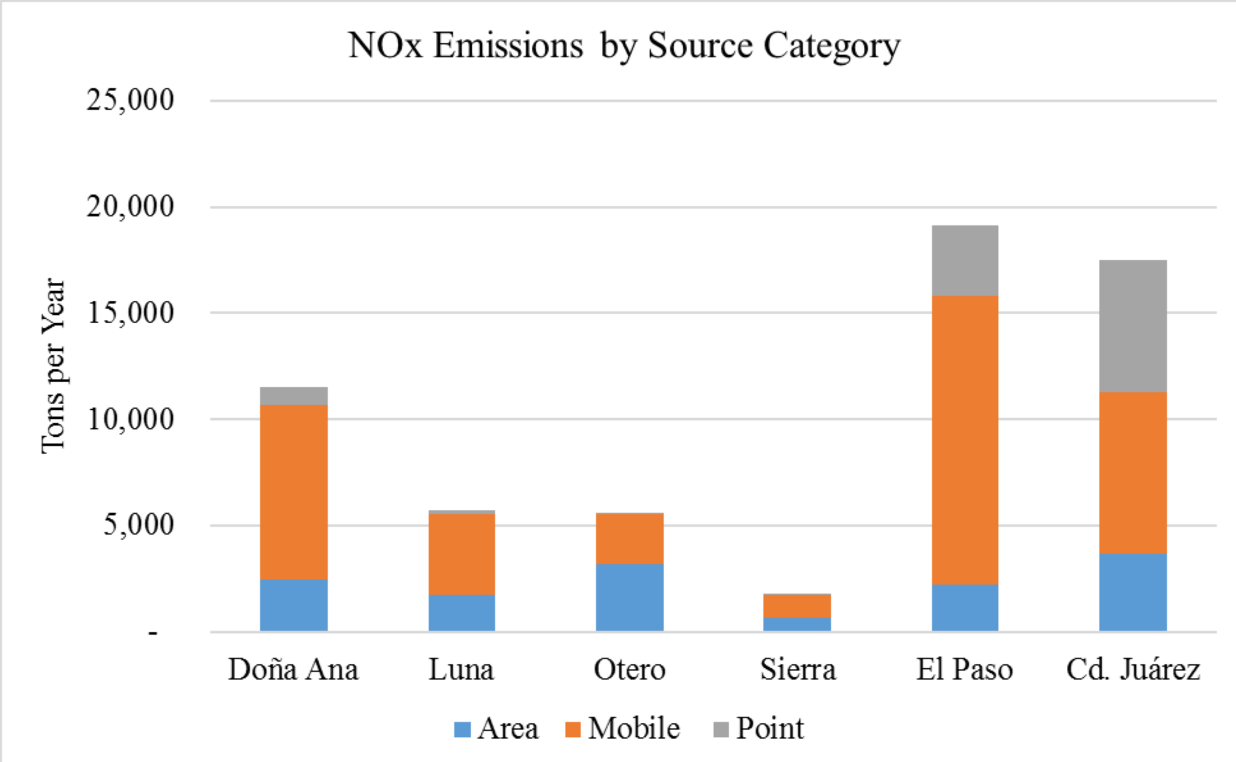


Figure 3-2: NO_x emissions by county including Cd. Juárez.



The areas with the highest NO_x emissions – Doña Ana County, El Paso County, and Cd. Juárez – comprise the Paso del Norte Airshed. El Paso County and Cd. Juárez account for 76% of total NO_x emissions in the airshed (Figure 3-3). Facilities in El Paso County and Cd. Juárez account for 92% of point source NO_x emissions in the airshed (Figure 3-4).

Figure 3-3: Percentage of total NO_x emissions in the Paso del Norte Airshed.

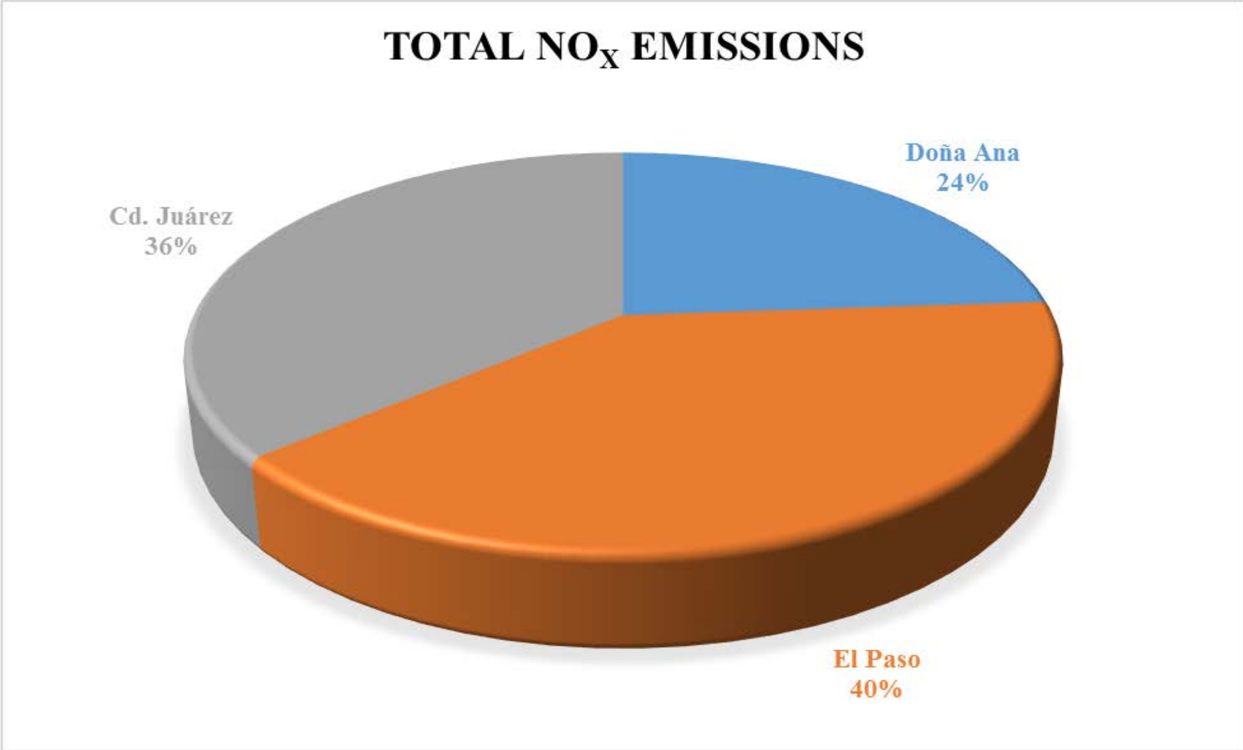
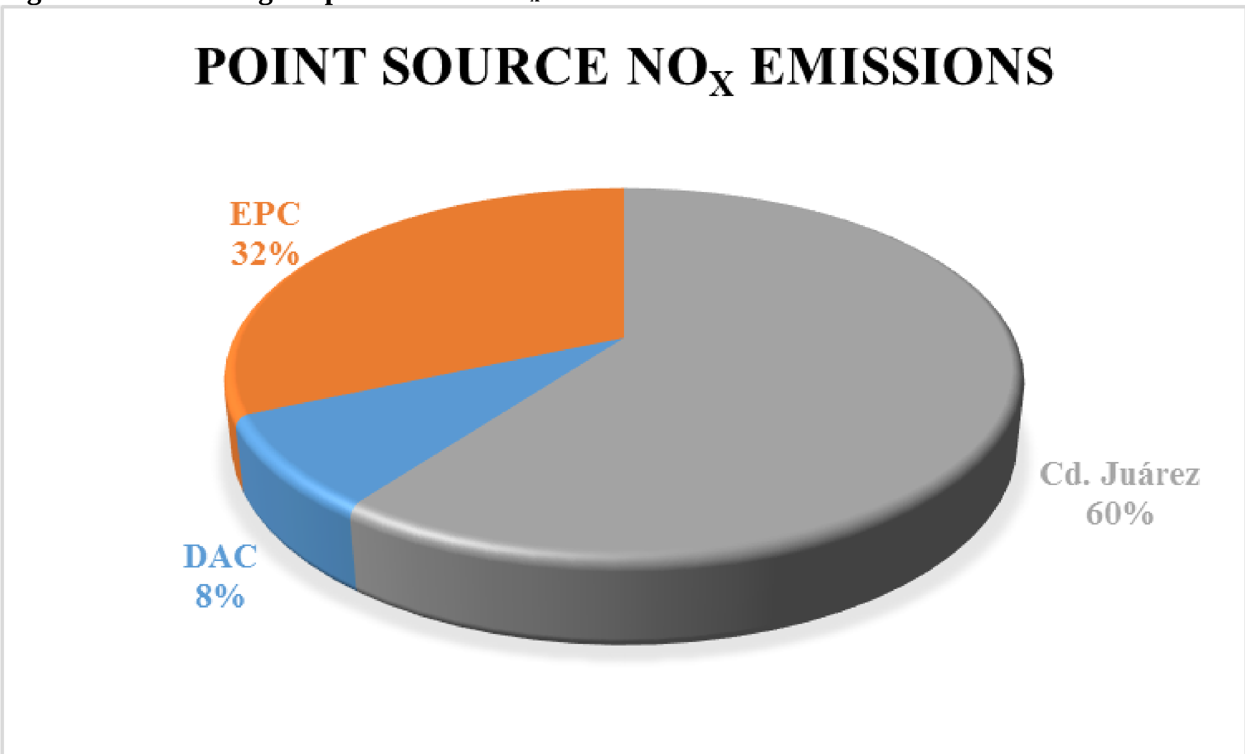


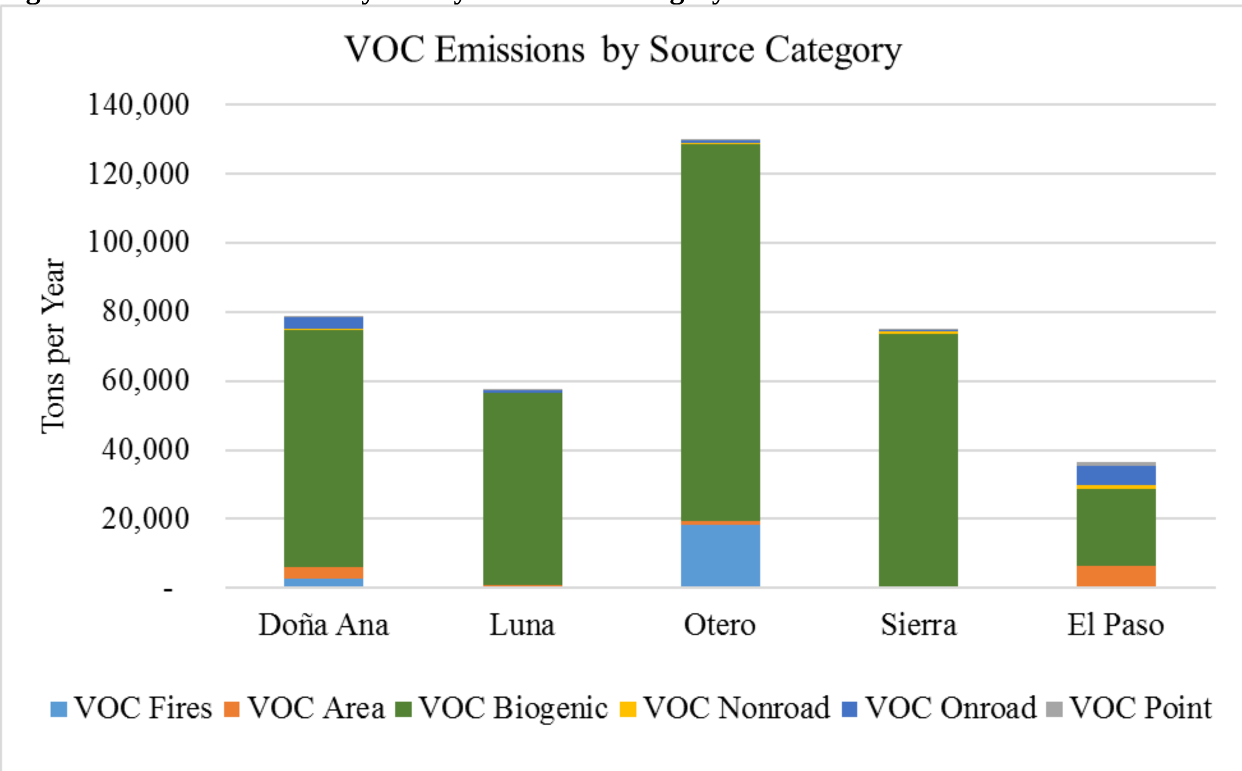
Figure 3-4: Percentage of point source NO_x emissions in the Paso del Norte Airshed.



3.2 VOC Emissions

Total VOC emissions for Doña Ana County were 78,432 tons/year in 2011. Biogenic emissions from plants and soil account for the largest source of emissions, with 68,667 tons/year or approximately 88% of all emissions. On-road mobile and area sources account for nearly the same amount of VOC emissions, with 3,154 tons/year and 3,140 tons/year respectively, followed by fires, with 2,869 tons/year. Most of the nearby counties follow this pattern with the exception of Otero County, which had much higher VOC emissions from fire than the other counties. This is most likely due to the 2011 Donaldson wildfire in the Lincoln National Forest.

Figure 3-5: VOC emissions by county and source category.



Similar to the NO_x emissions profile, the data for Cd. Juárez was classified only by area, mobile, and point sources. To compare emissions from the U.S. and Mexico, NMED classified emissions into these three source categories, but did not include biogenic VOC emissions. Although a similar pattern for Cd. Juárez emission sources is seen in Figure 3-6, area sources account for a much larger portion of total VOC emissions, excluding Otero County where fire accounted for 94% of area source VOC emissions in 2011.

In the Paso del Norte Airshed, El Paso County and Cd. Juárez account for 84% of total VOC emissions in the airshed (Figure 3-7). Facilities in El Paso County and Cd. Juárez account for 99% of point source VOC emissions in the airshed (Figure 3-8).

Figure 3-6: VOC emissions by county including Cd. Juárez.

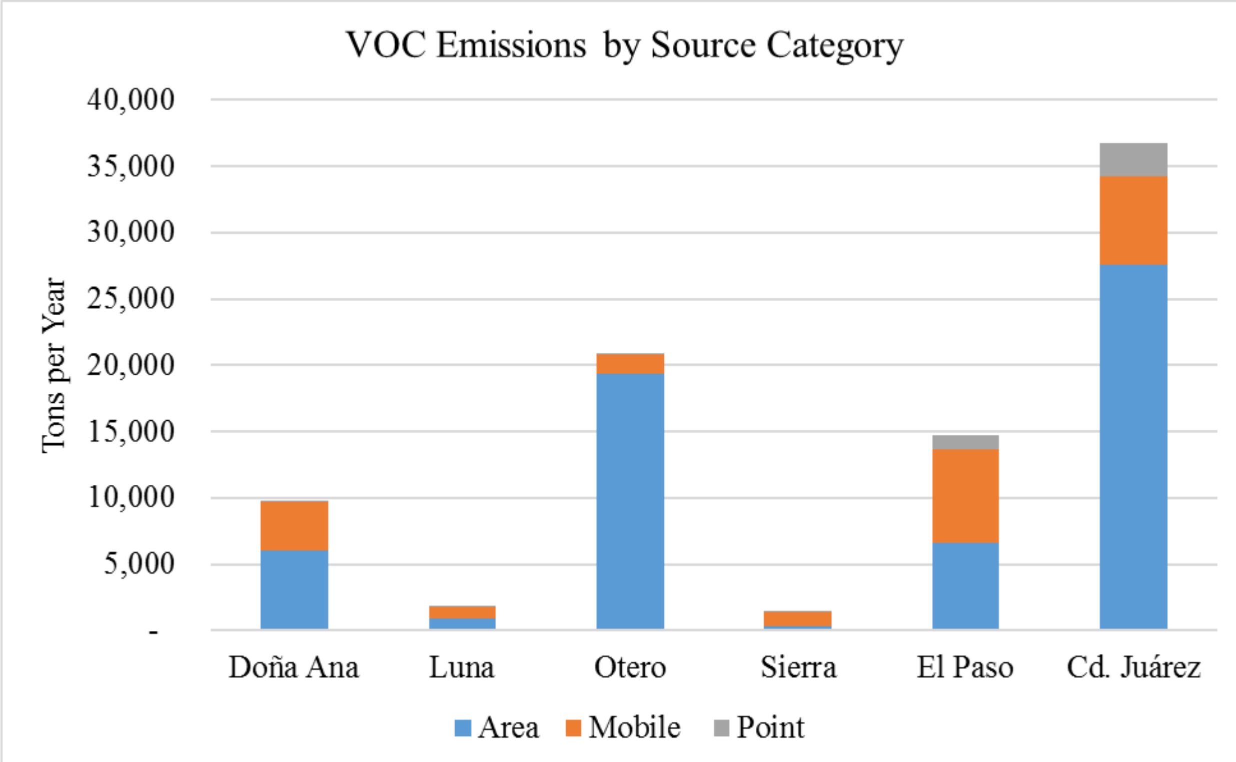


Figure 3-7: Percentage of total VOC emissions in the Paso del Norte Airshed.

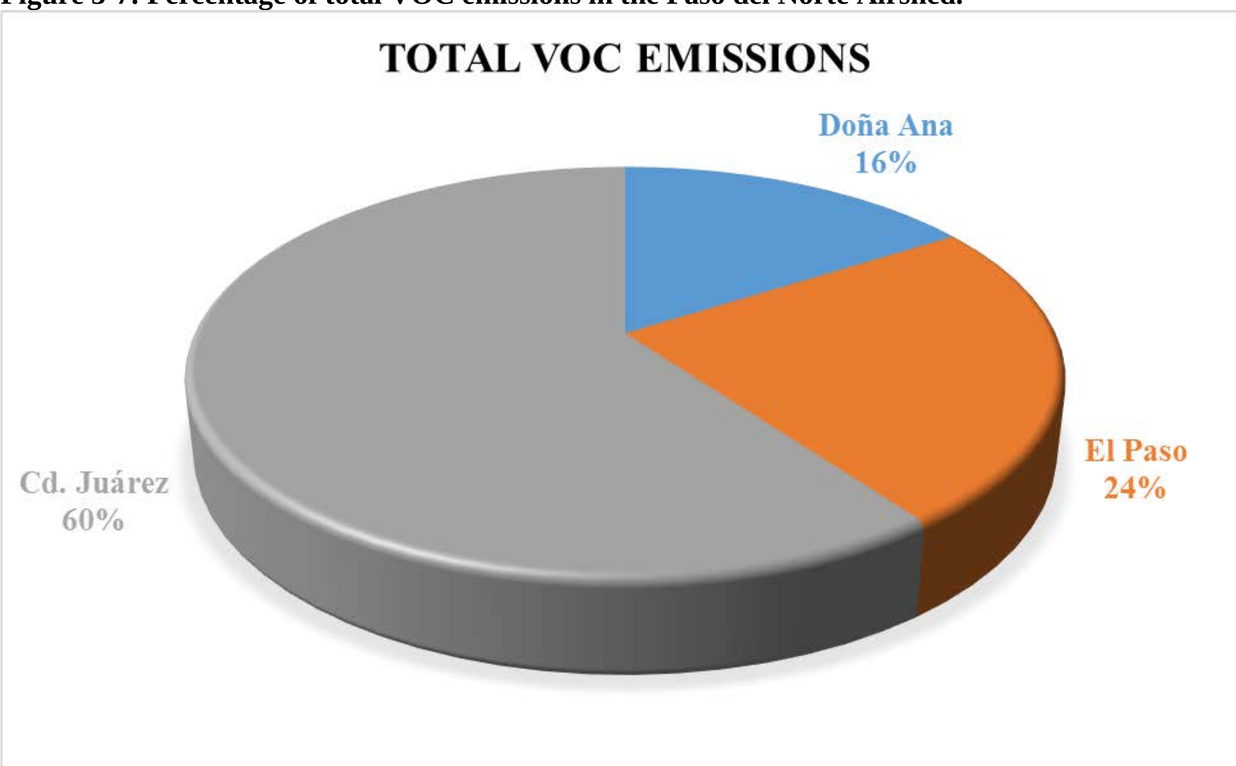
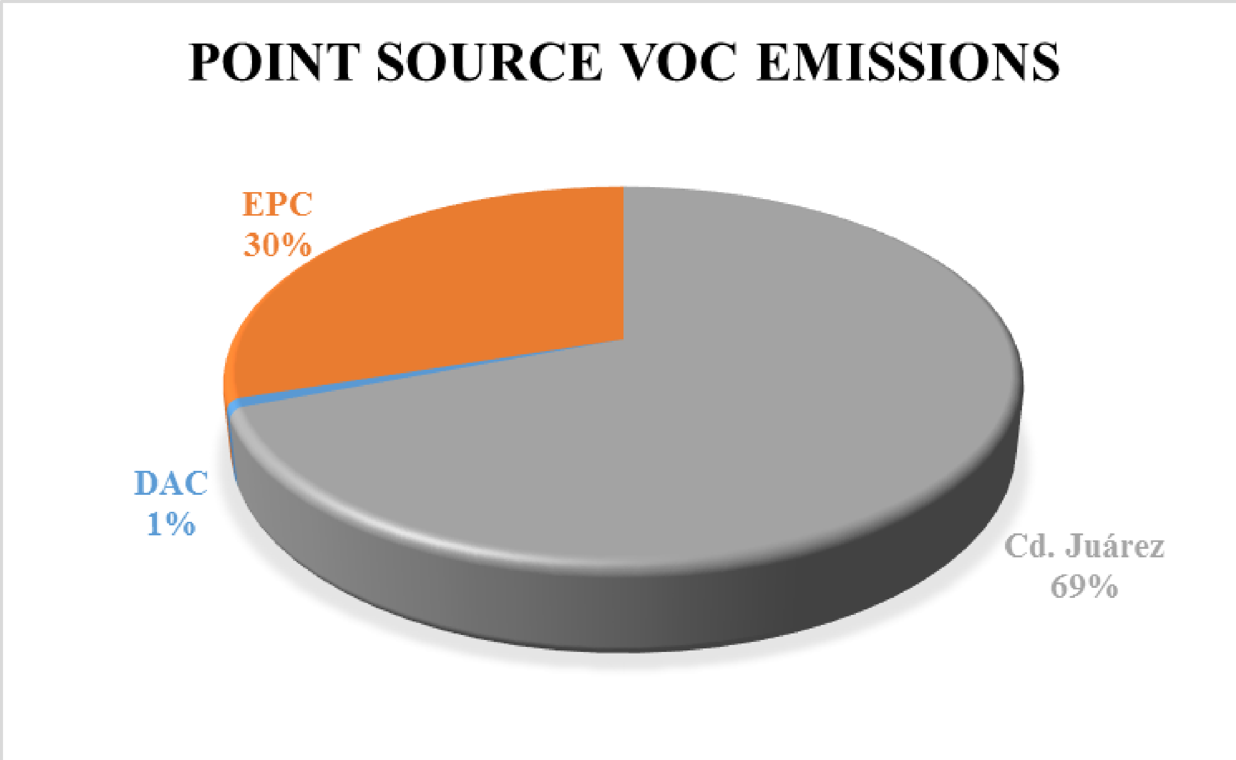


Figure 3-8: Percentage of point source VOC emissions in the Paso del Norte Airshed.



3.3 Population and Degree of Urbanization

Population estimates and related data were obtained from the U.S. Census Bureau and the National Institute of Statistics and Geography in Mexico and are summarized in Table 3-1, below. Estimates for 2014 indicate that approximately 2.4 million people live in Doña Ana County, El Paso County and Cd. Juárez. The majority of the population in the airshed lives in the heavily urbanized areas in the city of El Paso and Cd. Juárez. Doña Ana County residents make up approximately 9% of this population with the majority living in and around the city of Las Cruces, nearly 40 miles to the north of the violating monitors.

To estimate the population in Doña Ana County living near the violating monitors, NMED used 2014 U.S. Census estimates from the city of Sunland Park, and the Census Designated Places of La Union and Santa Teresa (Sunland Park Area). These areas cover approximately 26.5 mi^2 with a population of 20,324. Although the resulting population density of 767 people/mi^2 would classify this area as rural, the U.S. Census Bureau classifies them as urban due to the close proximity and interconnectedness to El Paso and Cd. Juárez.

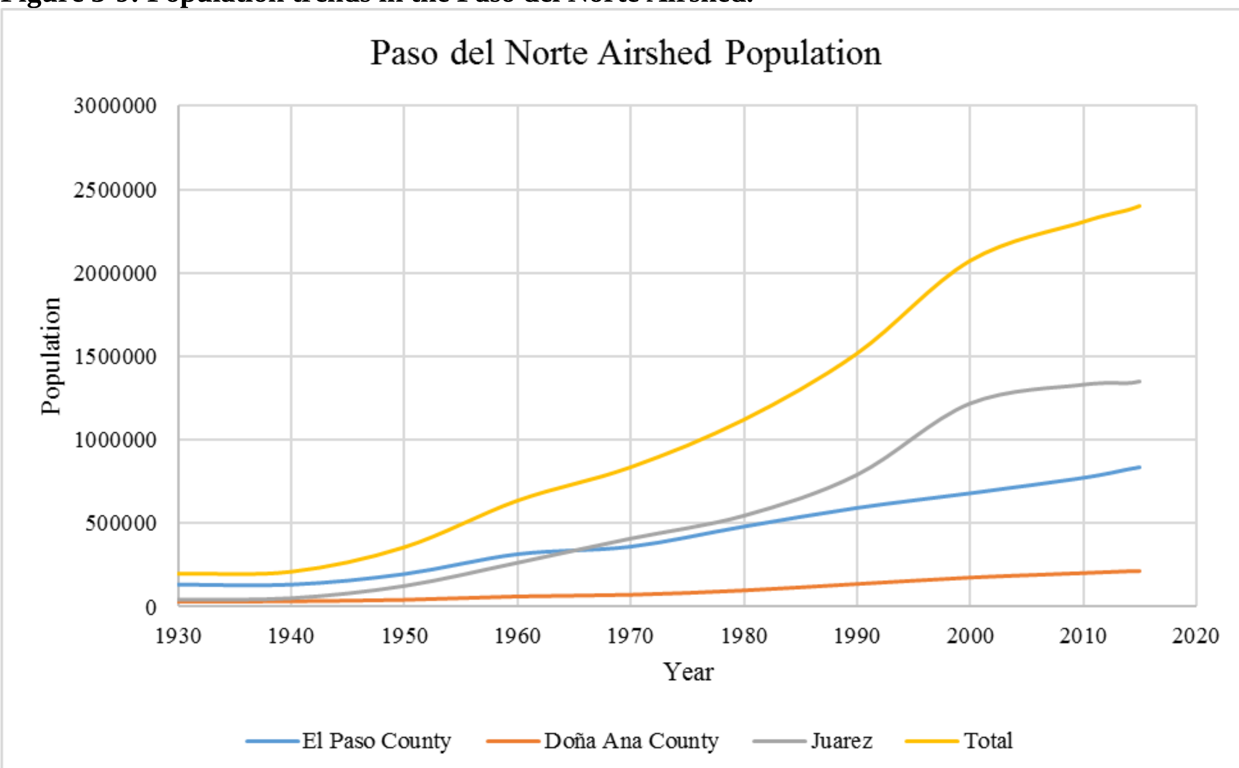
Table 3-1: Population and Population Density.

	Doña Ana County	El Paso County	Cd. Juárez	Sunland Park Area
Population	212,942	823,862	1,341,717	20,324
Land Area (mi^2)	3,808	1,013	73	26.5
Density (people/mi^2)	56	813	18,380	767

After experiencing steady population growth of 4.2% annually throughout the 20th century, Doña Ana County, El Paso County, and Cd. Juárez saw slow to moderate growth from 2000 to 2010 with a 1.1% annual growth rate. This slowdown in growth continued from 2010 to 2014. Much of these population trends are driven by the core urban areas of El Paso and Cd. Juárez (Figure 3-9).

From 2010 to 2014 the Sunland Park Area grew from 18,903 to 20,324 residents for an annual growth rate of 1.9%. Although this is much larger than the 0.79% growth rate for the entire area during this time, the absolute number of people is small.

Figure 3-9: Population trends in the Paso del Norte Airshed.



3.4 Traffic and Commuting Patterns

The major thoroughfares in Doña Ana County are Interstate 25 and Interstate 10. Most vehicular traffic in the county is concentrated in the central and southern parts of the county, in and around Las Cruces, as well as along Interstate 10 which connects to El Paso. Using the Vehicle Miles Traveled (VMT) spreadsheet provided by EPA, Doña Ana County had a total VMT of 2.3 billion miles in 2011. El Paso County had more than double this VMT in 2011 with a total of 5.6 billion miles.

In the Sunland Park Area, the majority of vehicular traffic is limited to a few major thoroughfares, including but not limited to NM Hwy. 28, McNutt Rd., the Pete V. Domenici Memorial Hwy., Country Club Rd., Sunland Park Dr., and Racetrack Dr. Using average daily traffic (ADT) data provided by the El Paso Metropolitan Planning Organization (Appendix B), NMED calculated the Sunland Park Area's VMT to be 62.9 million or 2.7% of the total county VMT (Table 3-2).

Table 3-2. VMT for the Sunland Park Area.

Road/Highway	Distance in miles	ADT	VMT
Hwy 225	3.35	4,560	5,575,740
Hwy 28	5.91	5,510	5,950,778
Hwy 183	1.00	1,080	394,200
Hwy 182	0.98	2,010	718,977
Alvarez Rd/Hwy 273	8.08	11,410	7,233,862
McNutt Rd/Hwy 273	6.69	34,050	20,331,814
Pete Domenici/Hwy 136	7.55	18,360	15,090,852
Airport Rd	1.55	2,920	1,651,990
Sunland Park Dr	0.5	15,390	2,808,675
Racetrack Dr	0.9	1,860	611,010
Country Club Rd	0.57	12,360	2,571,498
Total	**37.08**	**109,510**	**62,939,396**

According to U.S. Census Bureau's 2009-2013 American Community Survey, 14,423 or 16.6% of Doña Ana County residents travel to another county for work (Table 3-3). Although only 5.8% of El Paso County residents travel to another county for work, the absolute number of commuters is the greatest at 18,901. For the remaining counties in New Mexico, 3,991 residents travel to another county for work.

Table 3-3. Travel patterns to work by county.

County Name	Total Workers	Work in Another County	Percent
Doña Ana County	86,740	14,423	16.6%
Luna County	8,538	1,059	12.4%
Otero County	24,232	2,827	11.7%
Sierra County	3,740	105	2.8%
El Paso County	326,519	18,901	5.7%
Total	**449,769**	**37,315**	**8.3%**

Approximately 42% of all inter-county work trips originated in Doña Ana County with a final destination of El Paso County (Table 3-4). Trips originating in El Paso County with a destination of Doña Ana County comprise nearly 29% of all inter-county work trips. More than 70% of the work trips in the region occur between Doña Ana County and El Paso County. Approximately 14% of residents in the U.S. travel to Mexico for work with most of the commuters residing in El Paso County. Another 8.6% of inter-county work trips originate in Luna, Otero, or Sierra Counties with a final destination of Doña Ana County or El Paso County.

Table 3-4. Inter-county work trips.

Residence	Place of Work	Commuting Flow	Percent of Total
Doña Ana County	Luna County	372	1.3%
Doña Ana County	Otero County	528	1.9%
Doña Ana County	Sierra County	245	0.9%
Doña Ana County	El Paso County	11,941	42.0%
Doña Ana County	Mexico	105	0.4%
Luna County	Doña Ana County	339	1.2%
Luna County	El Paso County	55	0.2%
Luna County	Mexico	70	0.2%
Otero County	Doña Ana County	820	2.9%
Otero County	El Paso County	1,181	4.2%
Sierra County	Doña Ana County	21	0.1%
El Paso County	Doña Ana County	8,211	28.9%
El Paso County	Luna County	263	0.9%
El Paso County	Otero County	550	1.9%
El Paso County	Mexico	3,740	13.2%

4 Meteorology

To determine the predominant wind patterns in the area, NMED used data from 2013 to 2015 to create wind rose charts for each violating monitor in Doña Ana County. In addition, the NMED ran HYSPLIT 24-hour back trajectory models for the two violating monitors in Doña Ana County.

Figures 10-1a to 10-24b in Appendix C depict wind data for each violating monitor on the dates with the 4 highest 8-hr ozone averages from 2013-2015. These are arranged by monitoring site and date and include wind roses, which show the frequency of wind direction, and HYSPLIT 24-hour back trajectories, which show the air parcels' likely origins before reaching the monitoring sites. Each trajectory image includes a close-up inset created as a Flash Map from the same kmz file as the Google Earth view.

The majority of wind roses show that winds were relatively calm (below 10 mph) and blew from the east to west, east-southeast to west-northwest, or south-southeast to north-northwest direction. Likewise, the back trajectories show that air parcels moved from these directions to the monitoring sites during the hours contributing to the elevated ozone concentrations. This indicates that winds passed through El Paso and Cd. Juárez before reaching the monitoring sites in New Mexico.

Figure 10-25 in Appendix C shows HYSPLIT back trajectories arriving at the El Paso, TX violating monitor using the EPA designations mapping tool. The trajectories similarly show that air parcels primarily originate from Texas and Mexico. The EPA designations mapping tool may be found at www.epa.gov/ozone-designations/ozone-designations-guidance-and-data.

5 Geography/Topography

The Paso del Norte region lies along the Rio Grande Valley, encompassing El Paso County, TX; Doña Ana County, NM; and Municipio de Ciudad Juárez, Chihuahua, MX. The Rio Grande flows south through Doña Ana County and the Mesilla Valley, serving as a common boundary for the City of Sunland Park, NM, the City of El Paso, TX and Ciudad Juárez, Chihuahua, MX. As the Rio Grande exits New Mexico, the river bends around a large igneous formation named Mount Cristo Rey. The river continues through the valley in a southeasterly direction between El Paso and Ciudad Juárez into the Brad Valley of Texas.

The topography of the Paso del Norte region plays an important part in the transportation of air pollution and is used as a starting point to define the region's air basin boundaries. Elevations in the Paso del Norte region range from 3,773 feet above mean sea level at the valley floor to 6,070 feet above mean sea level at Ranger Peak in the Franklin Mountains. The Franklin Mountains lie to the east/northeast of the Sunland Park area in Texas and the Sierra Juárez range lies to the south in Mexico. Both the Franklin and Sierra Juárez ranges help to define airflow patterns in the Sunland Park area through the creation of downward wind flows off the mountains into the valley areas.

6 Jurisdictional Boundaries

The Paso del Norte region is a unique bi-national, tristate community with shared air pollution problems. The Paso del Norte Air Basin is defined as El Paso County, TX, portions of Doña Ana County, NM and Cd. Juárez, Chihuahua. Within the state of New Mexico, NMED has jurisdictional authority to implement and enforce state and federal air quality regulations with the exception of Bernalillo County in central New Mexico and tribal lands. No tribal lands exist within Doña Ana County.

Transportation planning and programing for the southern portion of Doña Ana County falls under the jurisdiction of the El Paso Metropolitan Planning Organization (MPO). The planning boundary for the MPO covers much of the Paso del Norte airshed in the U.S. For past and present nonattainment areas in the southern portion of Doña Ana County, the El Paso MPO conducts transportation conformity planning.

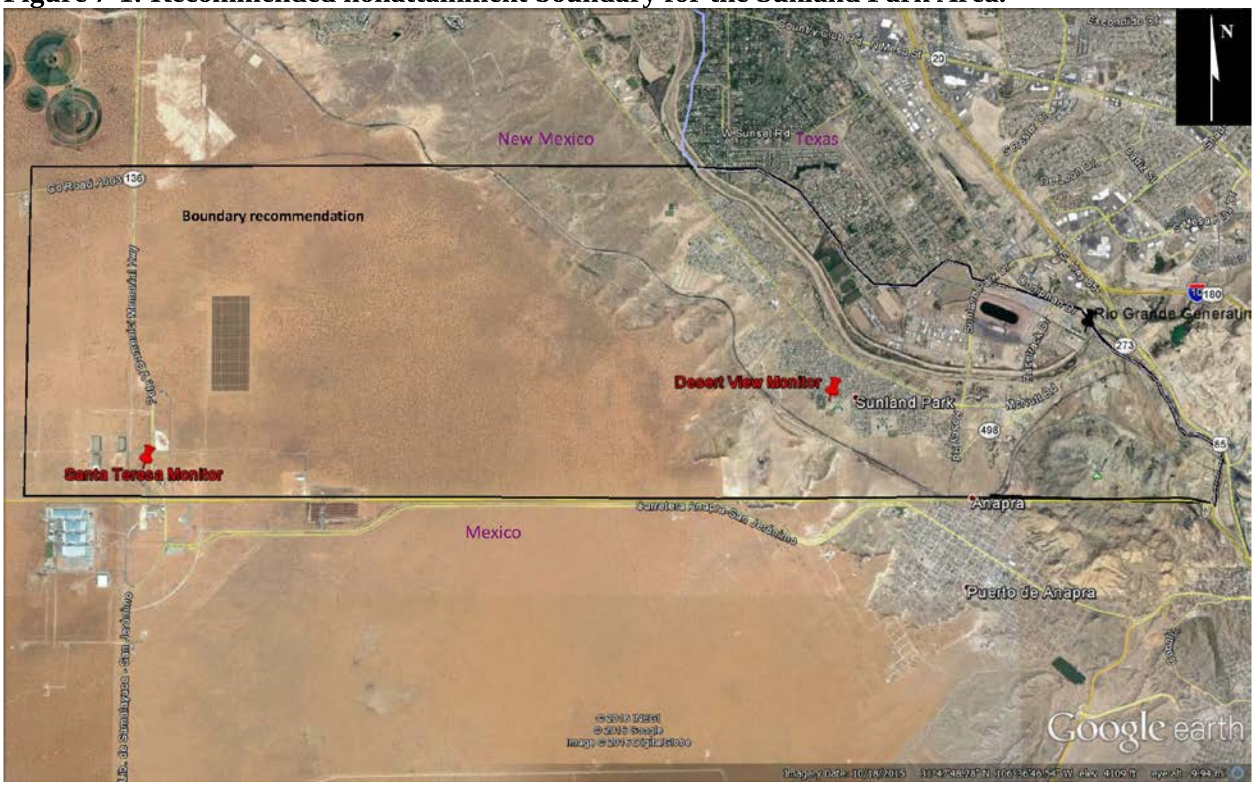
7 Recommended Nonattainment Area Boundary

The Sunland Park Area was previously designated nonattainment for the 1-hour ozone NAAQS in 1995. At that time, the state of New Mexico maintained that the predominant sources contributing to the ozone exceedances at the violating monitors were not within Doña Ana County or NMED's jurisdiction. Presently, the information provided above also supports this assertion. Although designations for nonattainment areas are presumptively based on the CBSA or MSA, basing the boundary on the Las Cruces MSA would result in limited emissions reductions outside of the Sunland Park Area.

NMED recommends a nonattainment area shown in Figure 7-1 and described as follows:

1. Bounded on the north by latitude N31°49’30” (red line);
2. Bounded on the south by the international border between New Mexico and Mexico (yellow line);
3. Bounded on the east by the New Mexico and Texas state line (gray line); and
4. Bounded on the west by longitude W106°42’ (red line).

Figure 7-1: Recommended nonattainment boundary for the Sunland Park Area.



Doña Ana County as a whole accounts for 24% of total NO_x emissions (Figure 3-3) and 16% of total VOC emissions (Figure 3-7) in the region. Point sources within Doña Ana County contribute even less, accounting for 8% of NO_x emissions (Figure 3-4) and 1% of VOC emissions (Figure 3-8) in the region.

The largest and only major source for NO_x in Doña Ana County, the Rio Grande Generating Station, accounts for 84% of point source NO_x emissions and 80% of point source VOC emissions in the county. This facility is located in the Sunland Park Area and is included within the recommended nonattainment area.

The violating monitors (Desert View and Santa Teresa) are located in the southern most portion of the county near El Paso and Cd. Juárez. These monitors are approximately 35 miles south of the Solano monitoring site in Las Cruces, the second largest metropolitan area in New Mexico. As Figure 2-3 shows, the design values for the violating monitors are 0.004 ppm and 0.006 ppm higher than the Solano and La Union monitoring sites, respectively. The design value for the nearest site to the violating monitors, La Union, has not exceeded 0.070 ppm since 2005. The design value for the Solano site has never exceeded 0.067 ppm (2006). In contrast, the 2013-

2015 design value for El Paso is 0.071 ppm, slightly lower than the violating monitors in the Sunland Park Area. This indicates that ozone concentrations at the violating monitors are more indicative of the level monitored in El Paso than the La Union, Chaparral and Solano monitoring sites.

Based on the topography, prevailing winds, and close proximity to two major urban areas, it is evident that the violating monitors in the Sunland Park Area are not the result of emissions from New Mexico sources outside of the recommended nonattainment area.

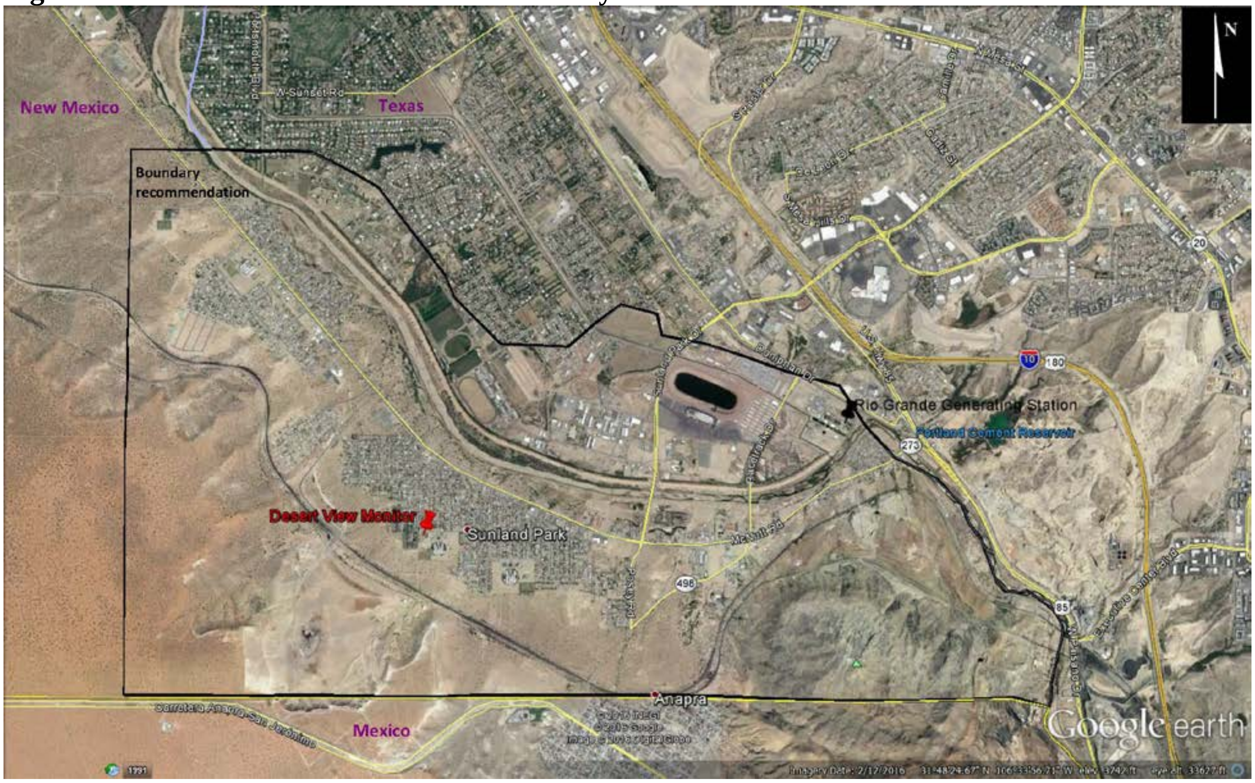
7.1 Alternative Boundary Recommendation

The Guidance Memo indicates that EPA will use data from 2014 to 2016 when determining final nonattainment boundaries. Preliminary data collected through August 2016 indicates that the Santa Teresa monitor will be in attainment of the standard. Although NMED will need to quality assure and validate this data before it can be used for a regulatory determination, the department would like to offer an alternative boundary recommendation for consideration should the current trend hold and the Santa Teresa monitor meets the standard. The alternative boundary recommendation would still include the majority of the population and emission sources in the Sunland Park Area while excluding uninhabited and largely undeveloped desert land.

NMED recommends an alternative nonattainment area shown in Figure 7-2 and described as follows:

1. Bounded on the north by latitude N31°49’30” (red line);
2. Bounded on the south by the international border between New Mexico and Mexico (yellow line);
3. Bounded on the east by the New Mexico and Texas state line (gray line); and
4. Bounded on the west by longitude W106°36’36” (red line).

Figure 7-2: Alternative nonattainment boundary recommendation for the Sunland Park Area.

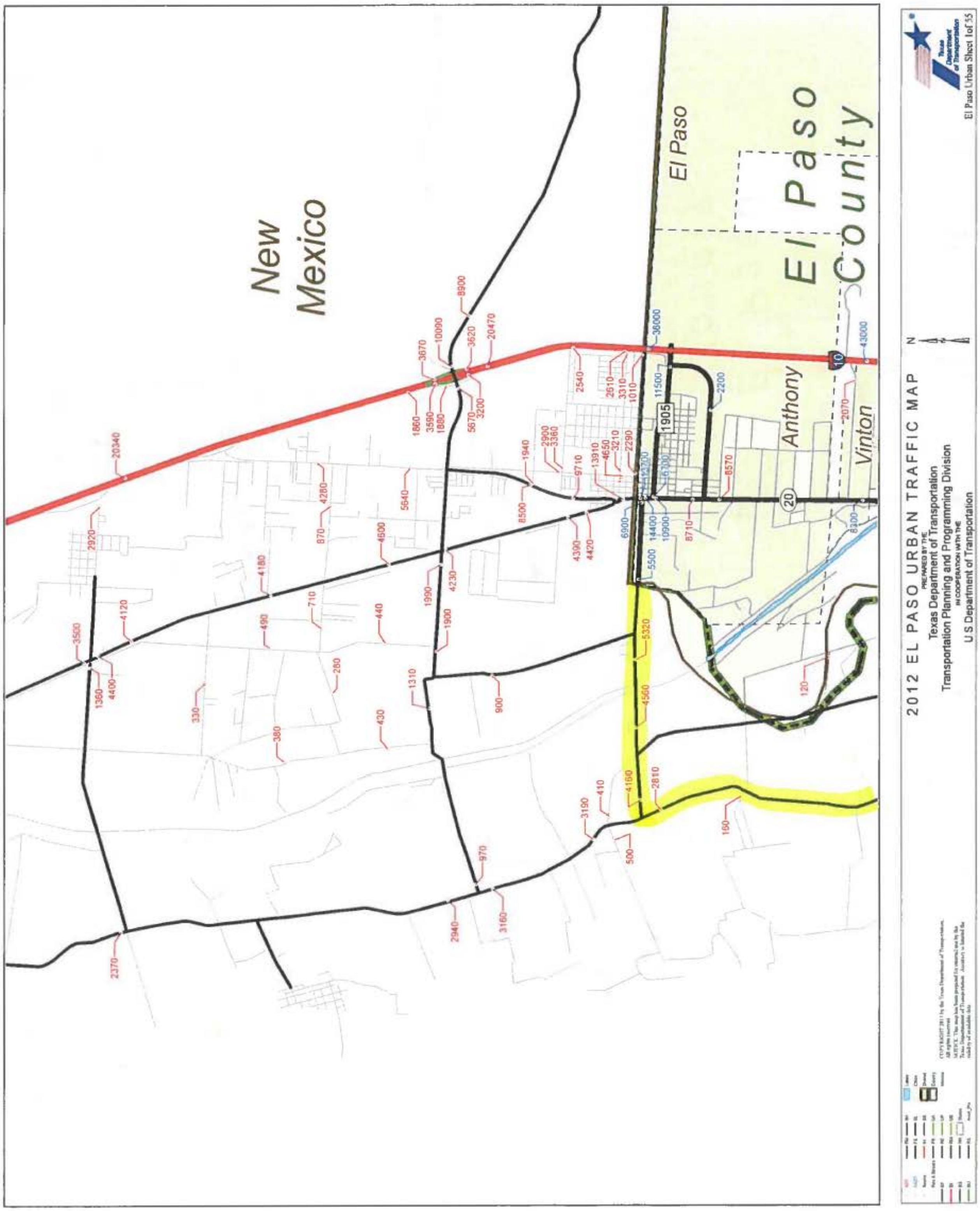


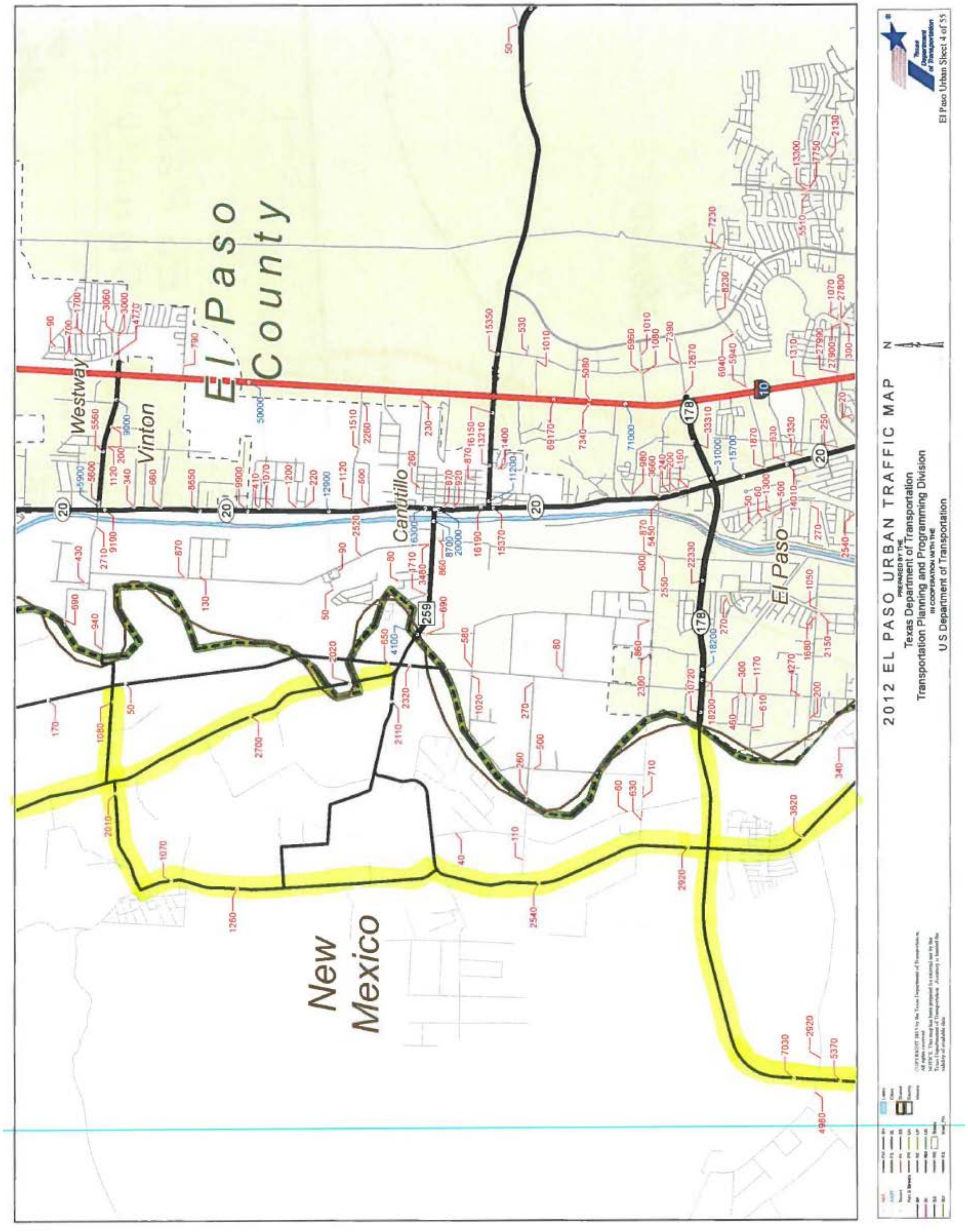
8 Appendix A: Ozone Monitoring Data

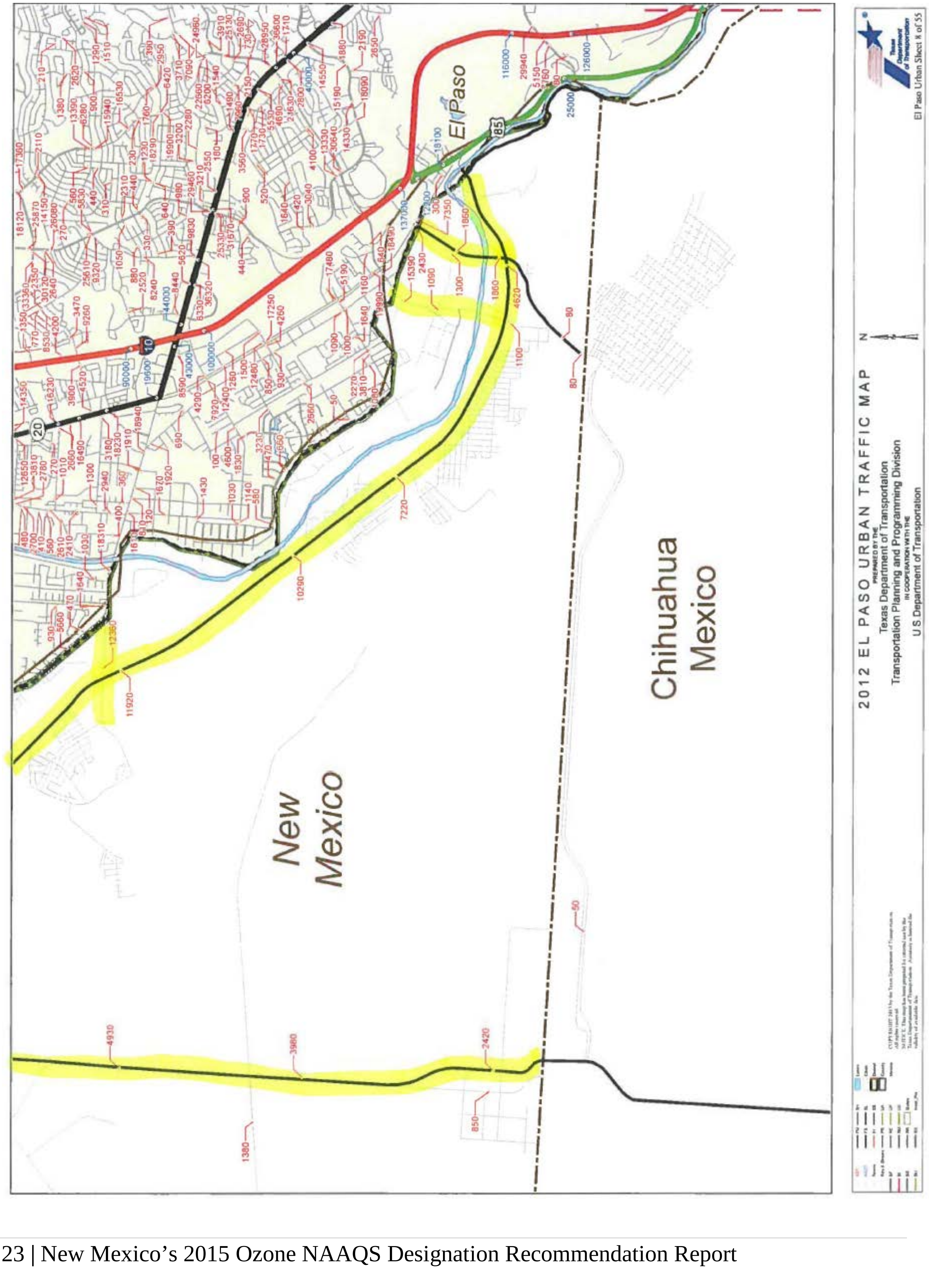
County	Site Name	AQS ID #	4th Max ozone 8-hr average (ppm)			Design Value (2013-2015)
			2013	2014	2015	
Doña Ana	La Union	35-013-0008	.064	.065	.070	.066
	Chaparral	35-013-0020	.070	.067	.065	.067
	Desert View	**35-013-0021**	**.071**	**.072**	**.074**	**.072**
	Santa Teresa	**35-013-0022**	**.080**	.066	.070	**.072**
	Solano	35-013-0023	.064	.066	.066	.065
Eddy	Carlsbad	35-015-1005	.069	.072	.067	.069
Lea	Hobbs	35-025-0008	.068	.068	.067	.067
Rio Arriba	Coyote Ranger District	35-039-0026	.066	.065	.064	.065
Sandoval	Bernalillo	35-043-1001	.067	.062	.066	.065
San Juan	Bloomfield	35-045-0009	.069	.062	.061	.064
	Navajo Lake	35-045-0018	.070	.063	.068	.067
	Substation	35-045-1005	.065	.063	.061	.063
Santa Fe	Santa Fe Airport	35-049-0021	.068	.064	.062	.064
Valencia	Los Lunas	35-061-0008	.072	.064	.064	.066
(**Bold –** exceeds 2015 NAAQS)						

9 Appendix B: Sunland Park Area Traffic Flow Maps

The highlighted road segments in the maps below were used to estimate annual VMT.




2012 EL PASO URBAN TRAFFIC MAP
PREPARED BY THE
Texas Department of Transportation
Transportation Planning and Programming Division
IN COOPERATION WITH THE
U S Department of Transportation
El Paso Urban Sheet 4 of 55
El Paso County
New Mexico
Westway
Vinton
Canutillo
El Paso


New Mexico
Chihuahua Mexico
El Paso
2012 EL PASO URBAN TRAFFIC MAP
PREPARED BY THE
Texas Department of Transportation
Transportation Planning and Programming Division
IN COOPERATION WITH THE
U.S. Department of Transportation
El Paso Urban Sheet 8 of 55

10 Appendix C: Meteorological Data

Wind roses were created by NMED using each NMED station's meteorological data, at http://drdasnm1.alink.com/.

HYSPLIT[1] 24-hour back trajectories were created by NMED on June 24, 2016 as follows:

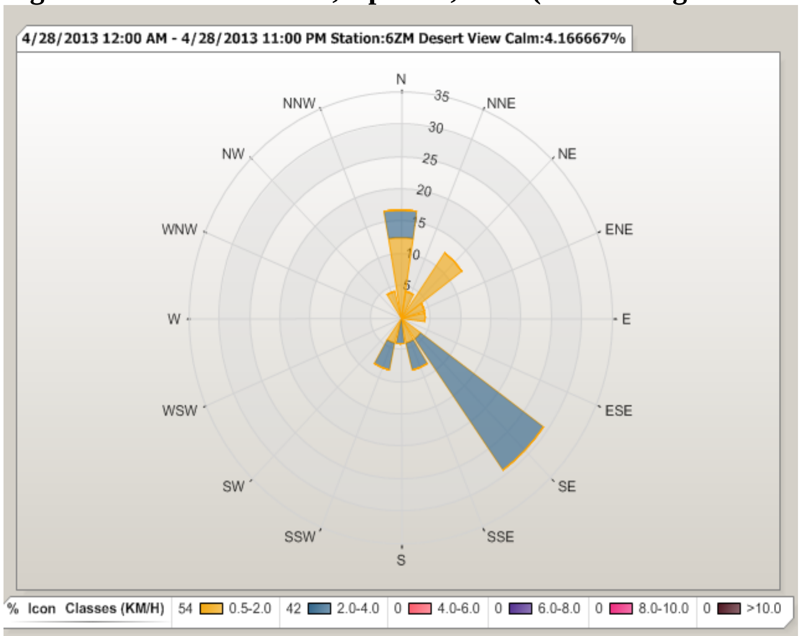
- Model[2] found at http://ready.arl.noaa.gov/hypub-bin/trajtype.pl?runtype=archive, modified January 5, 2016;
- Meteorological data: NAM 12 km (archive); GDAS 0.5 degree (archive) for 8/16/2013 only (NAM 12 data not available for this date);
- Desert View latitude: 31.79611, longitude: -106.58389;
- Santa Teresa latitude: 31.78778, longitude: -106.68278;
- Times are listed as UTC, which corresponds to Mountain Daylight Time (MDT) + 6 hrs.;
- Contributing hours include the 8 hours from which the 8-hr average is calculated;
- 2400 or 2500 hrs. UTC corresponds to 0000 hrs. and 0100 hrs., respectively, of the following day.

[1] *Stein, A.F., Draxler, R.R, Rolph, G.D., Stunder, B.J.B., Cohen, M.D., and Ngan, F., (2015). NOAA's HYSPLIT atmospheric transport and dispersion modeling system, Bull. Amer. Meteor. Soc.,* ***96****, 2059-2077.*

[2] *Rolph, G.D. (2016). Real-time Environmental Applications and Display sYstem (READY) Website (http://www.ready.noaa.gov). NOAA Air Resources Laboratory, College Park, MD.*

10.1 Desert View

Figure 10-1a: Desert View, April 28, 2013 (8-hr average maximum .071 ppm)



Approximately 66% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-1b: Desert View, April 28, 2013 HYSPLIT Back trajectories.

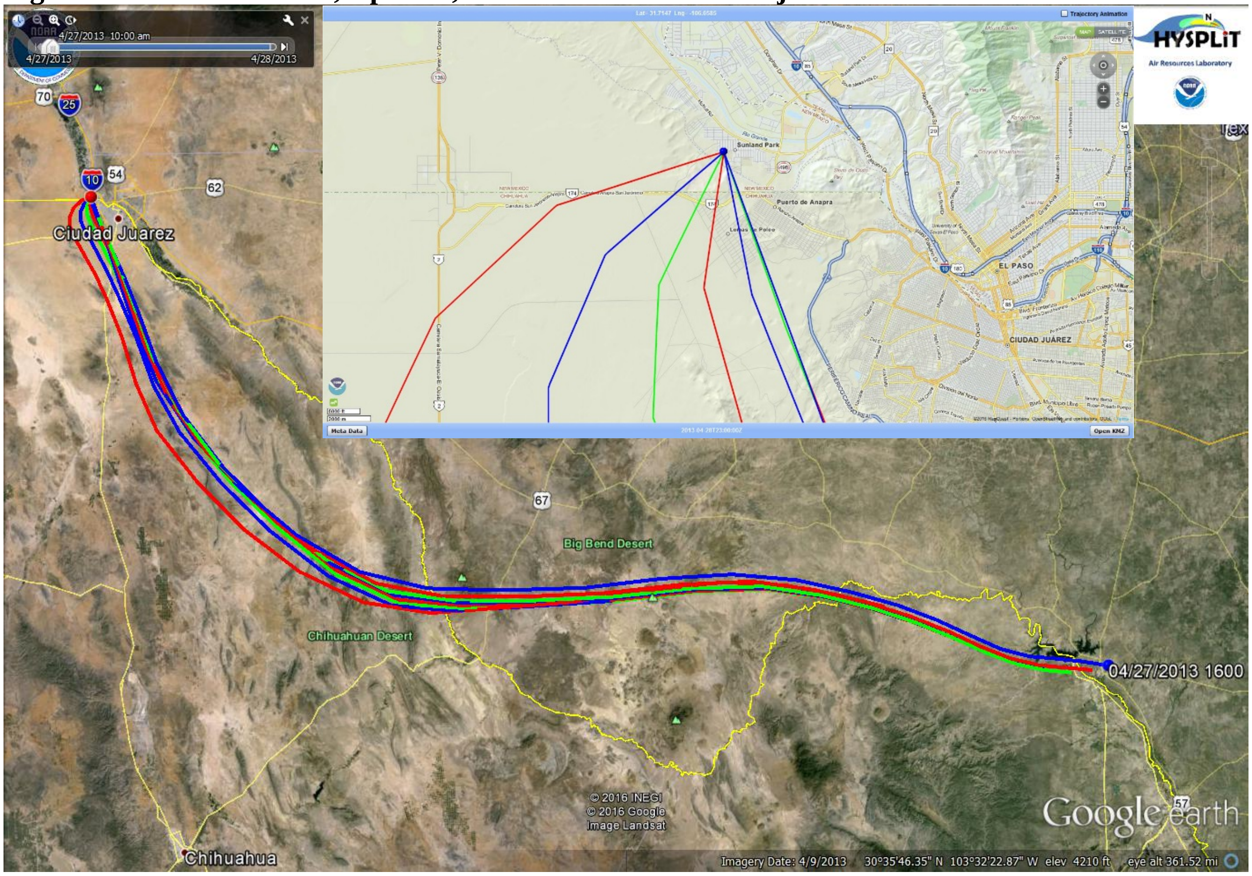
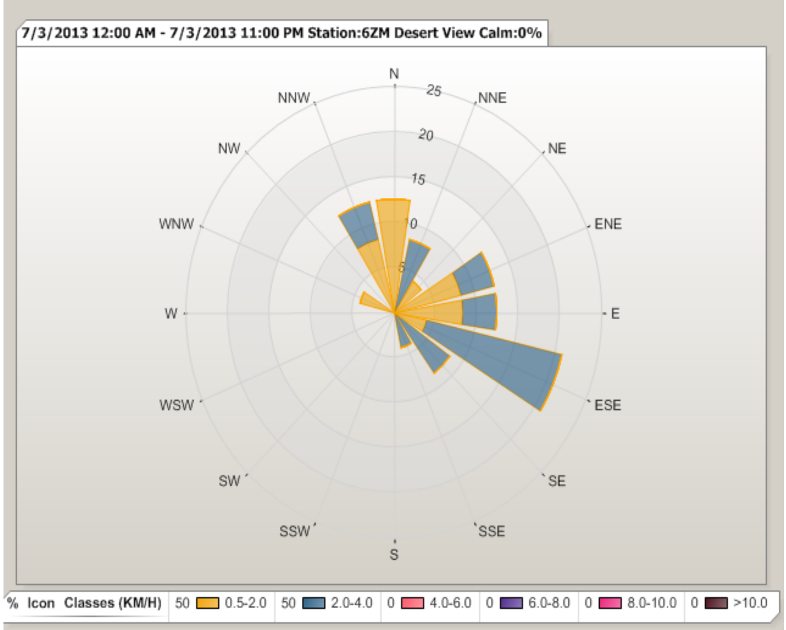


Figure 10-2a: Desert View, July 3, 2013 (8-hr average maximum .076 ppm)



Approximately 61% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-2b: Desert View, July 3, 2013 HYSPLIT Back trajectories.

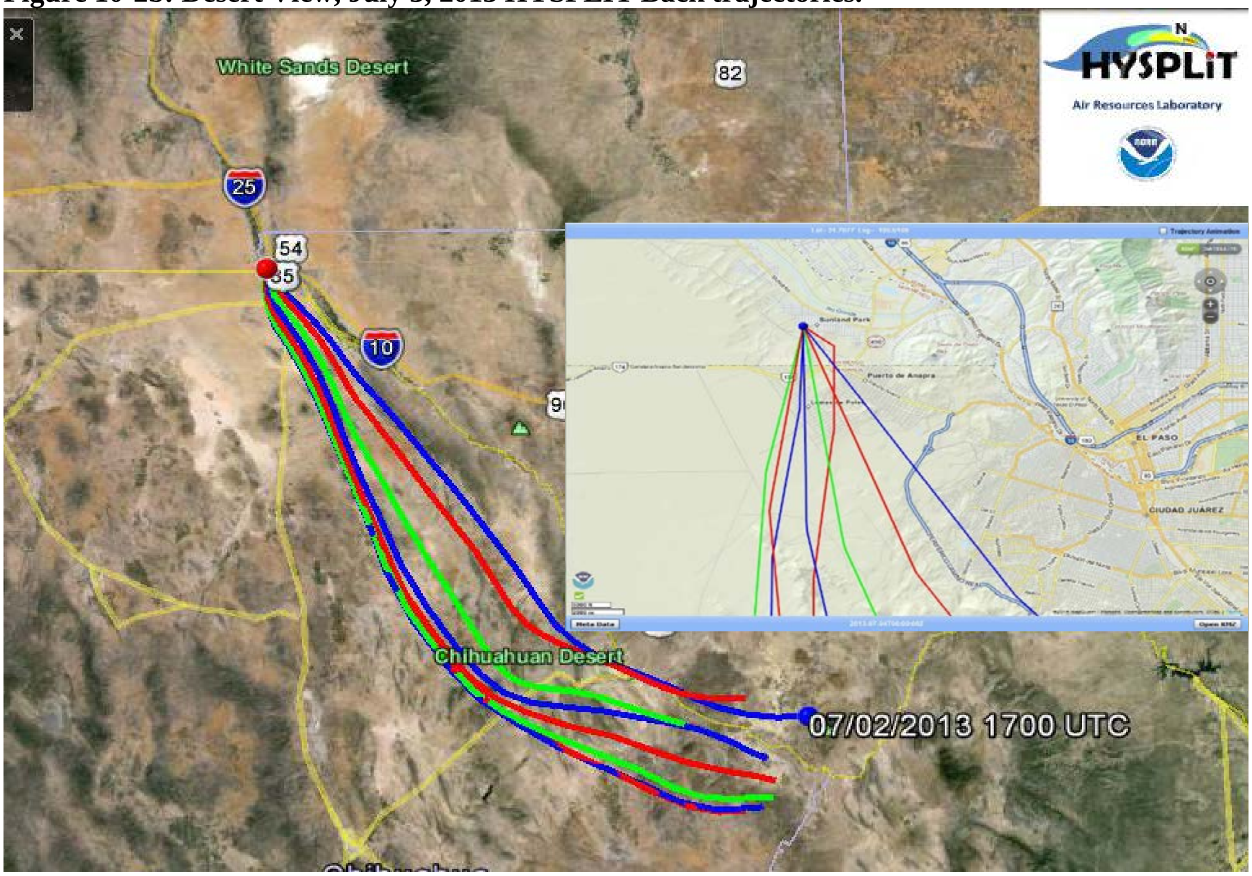
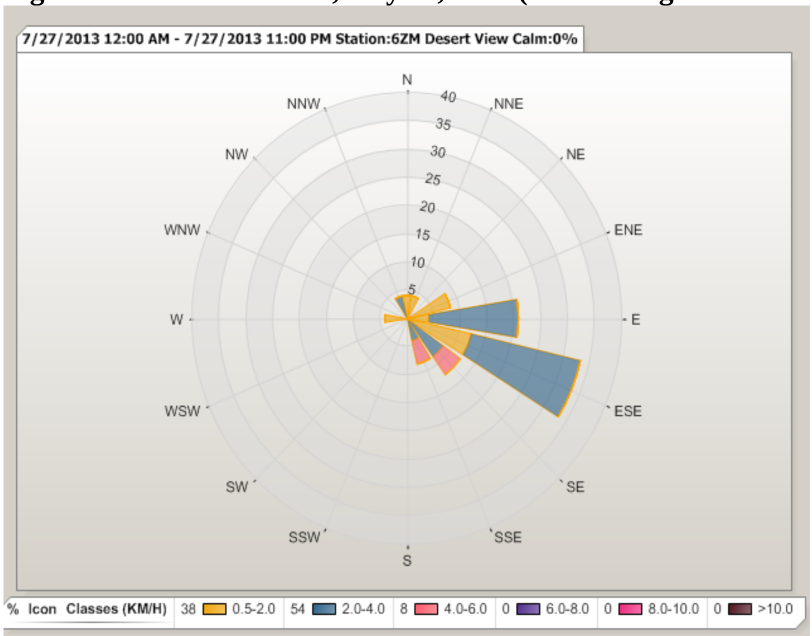


Figure 10-3a: Desert View, July 27, 2013 (8-hr average maximum .072 ppm)



Approximately 84% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-3b: Desert View, July 27, 2013 HYSPLIT Back trajectories.

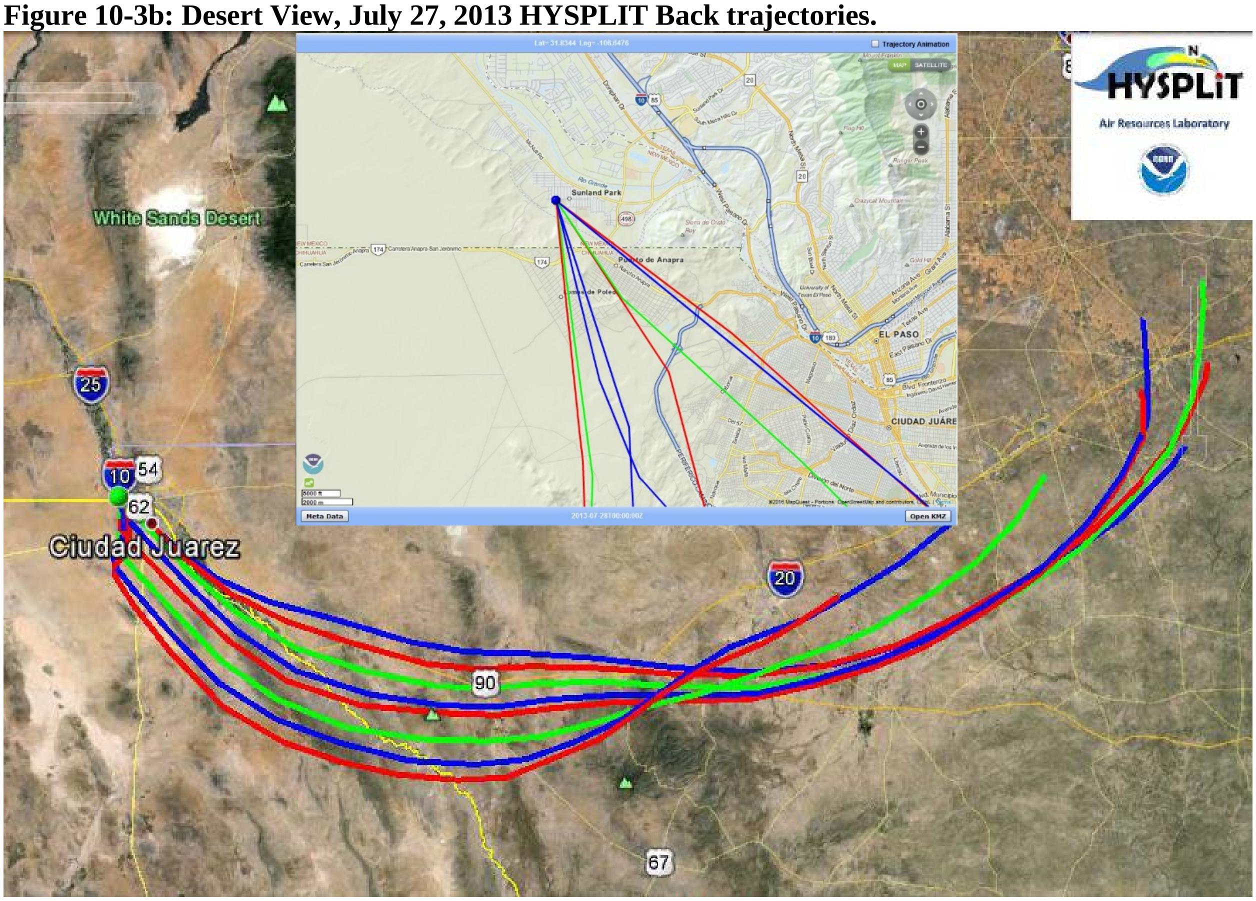
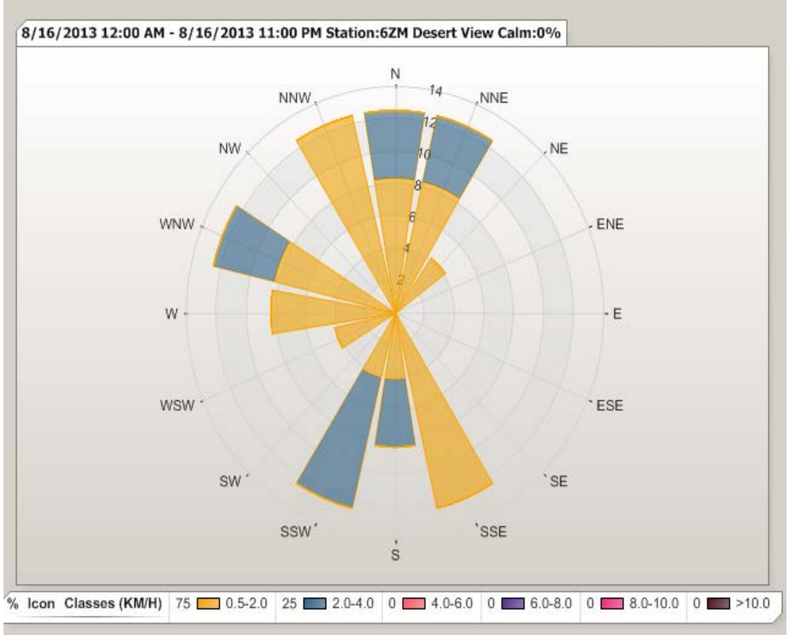


Figure 10-4a: Desert View, August 16, 2013 (8-hr average maximum .072 ppm)



Approximately 49% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-4b: Desert View, August 16, 2013 HYSPLIT Back trajectories.

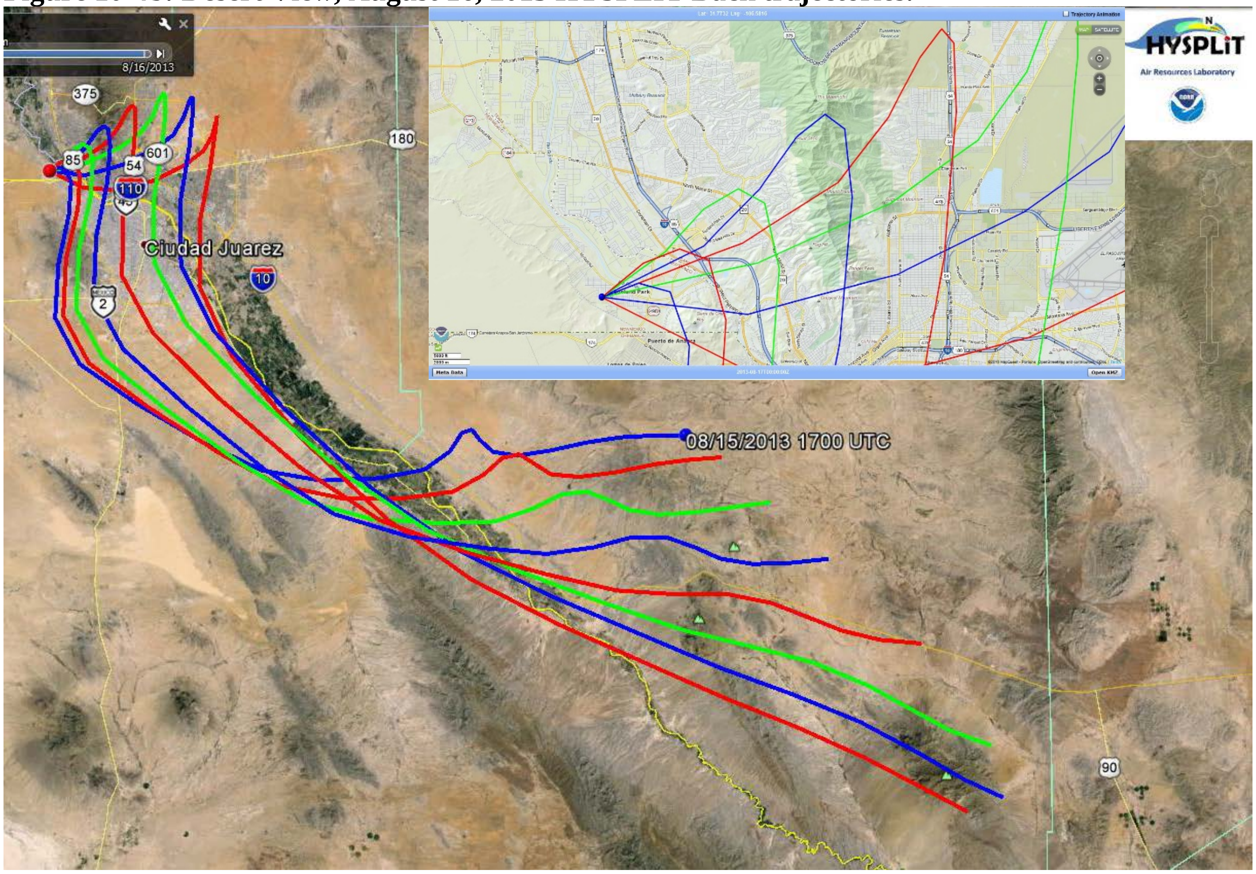
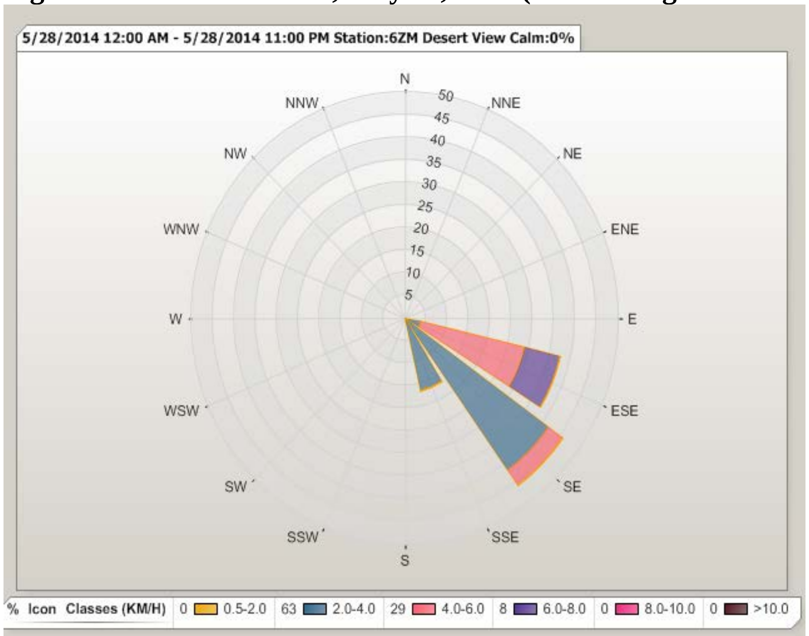


Figure 10-5a: Desert View, May 28, 2014 (8-hr average maximum .072 ppm)



100% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-5b: Desert View, May 28, 2014 HYSPLIT Back trajectories.

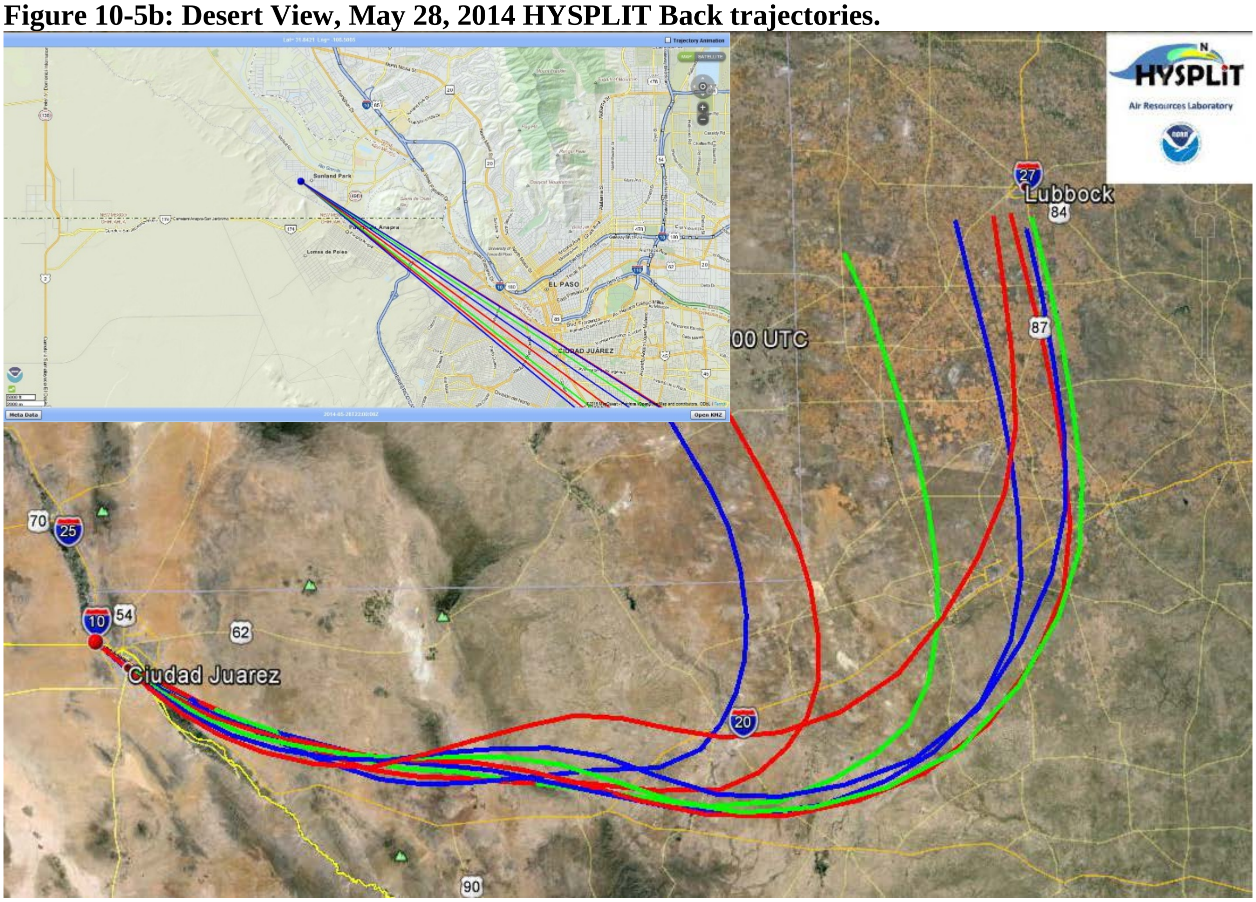
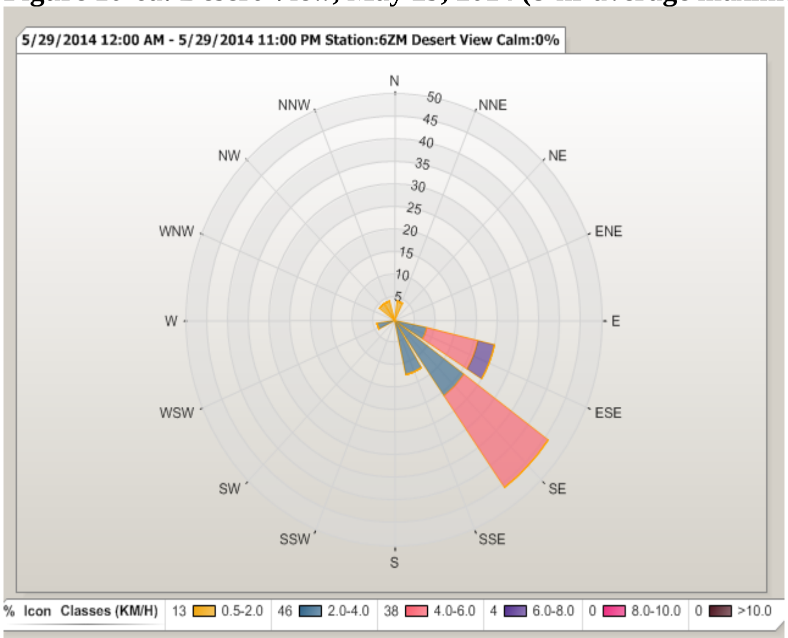


Figure 10-6a: Desert View, May 29, 2014 (8-hr average maximum .072 ppm)



Approximately 83% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-6b: Desert View, May 29, 2014 HYSPLIT Back trajectories.

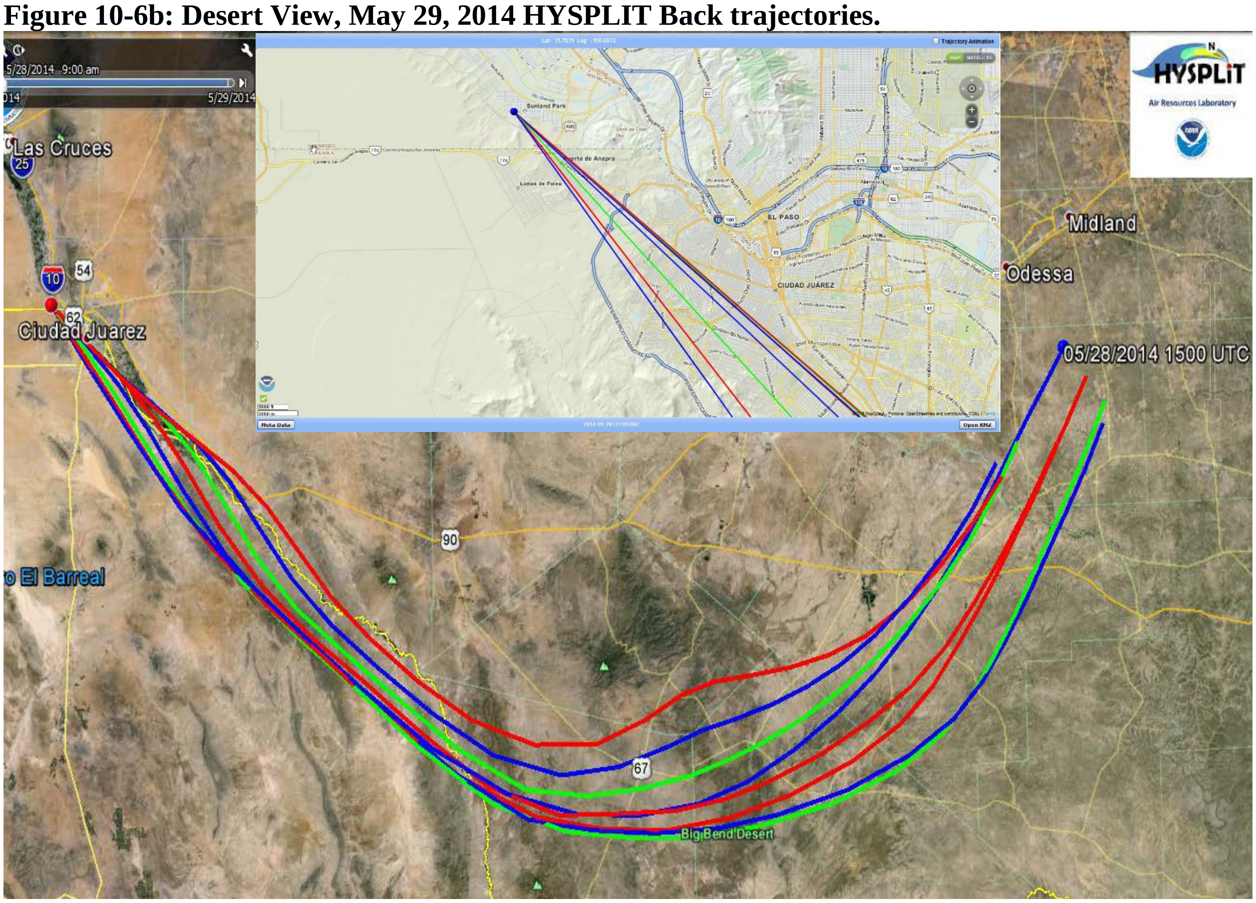
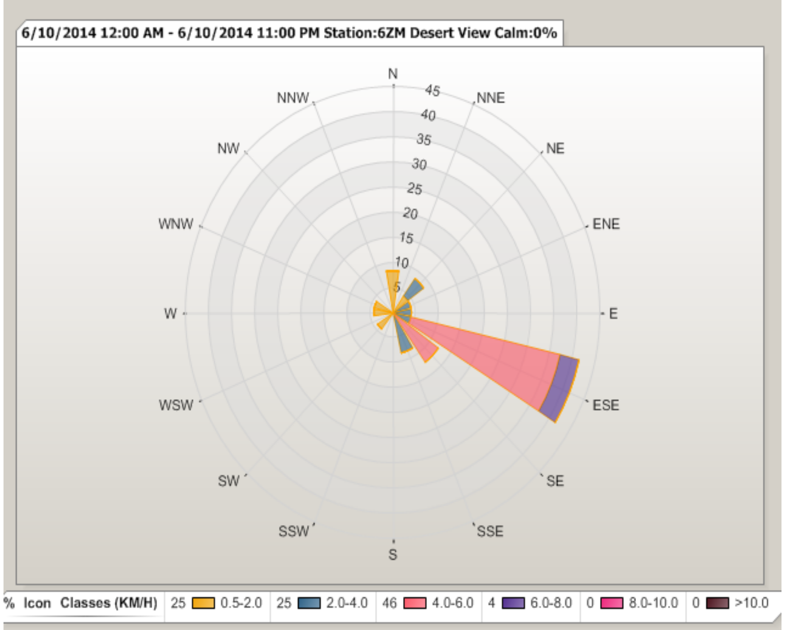


Figure 10-7a: Desert View, June 10, 2014 (8-hr average maximum .076 ppm)



Approximately 79% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-7b: Desert View, June 10, 2014 HYSPLIT Back trajectories.

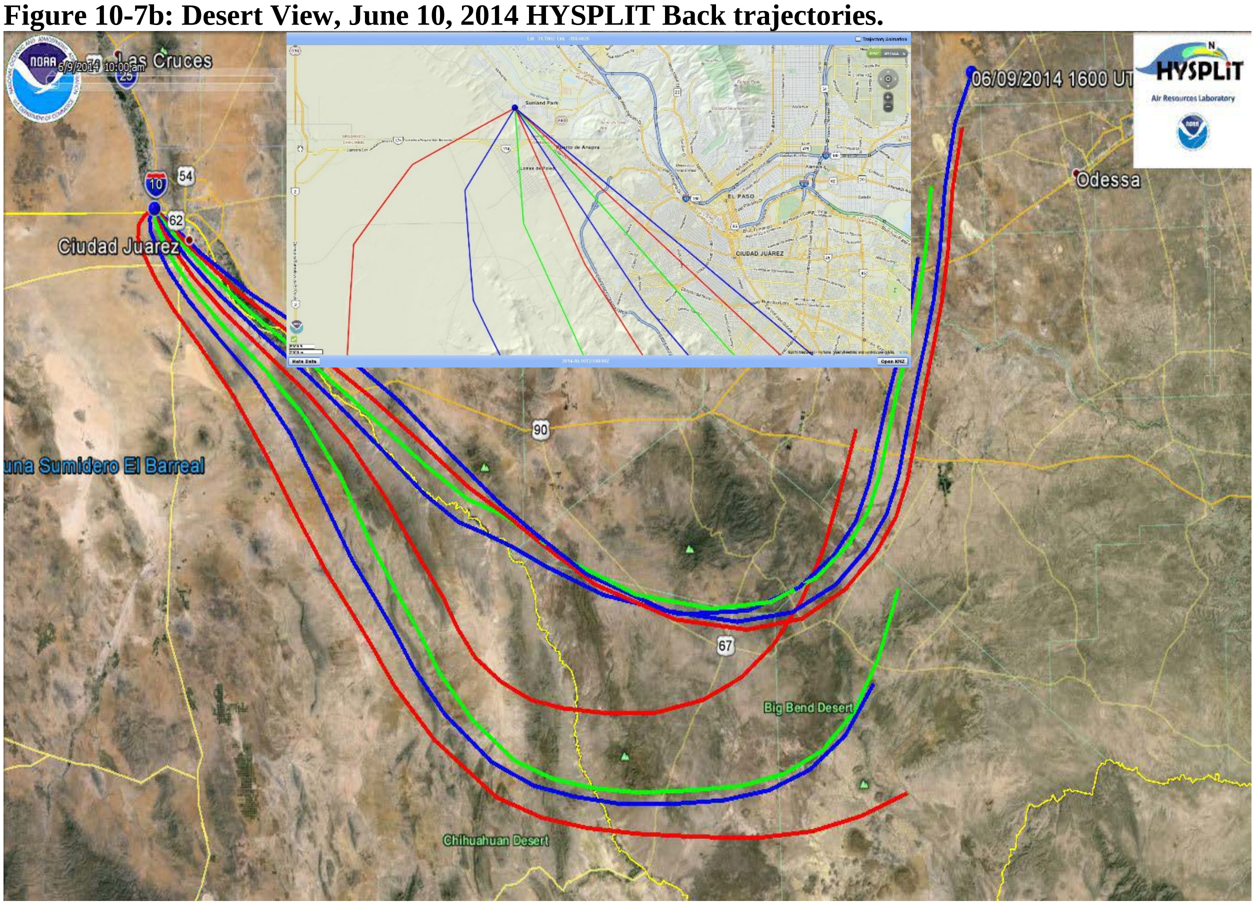
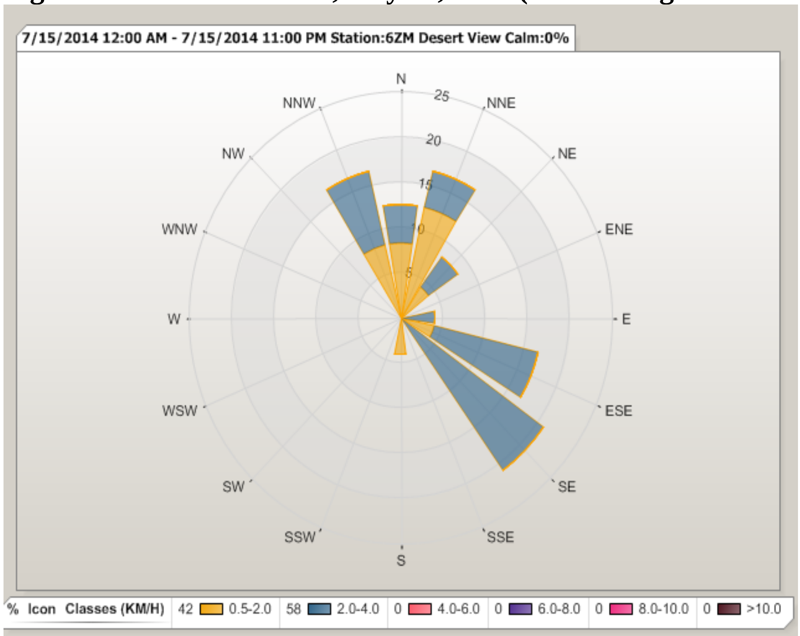


Figure 10-8a: Desert View, July 15, 2014 (8-hr average maximum .072 ppm)



Approximately 70% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-8b: Desert View, July 15, 2014 HYSPLIT Back trajectories.

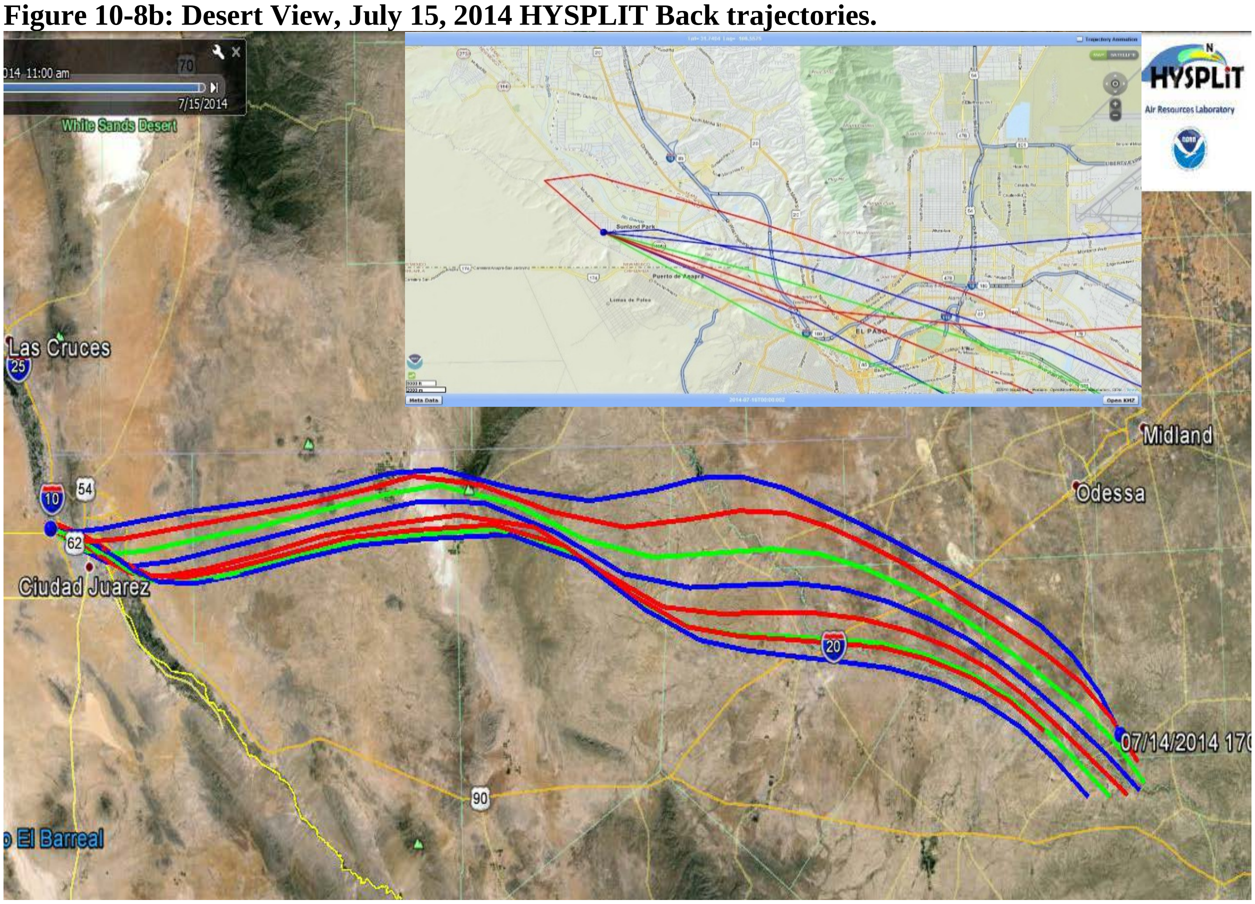
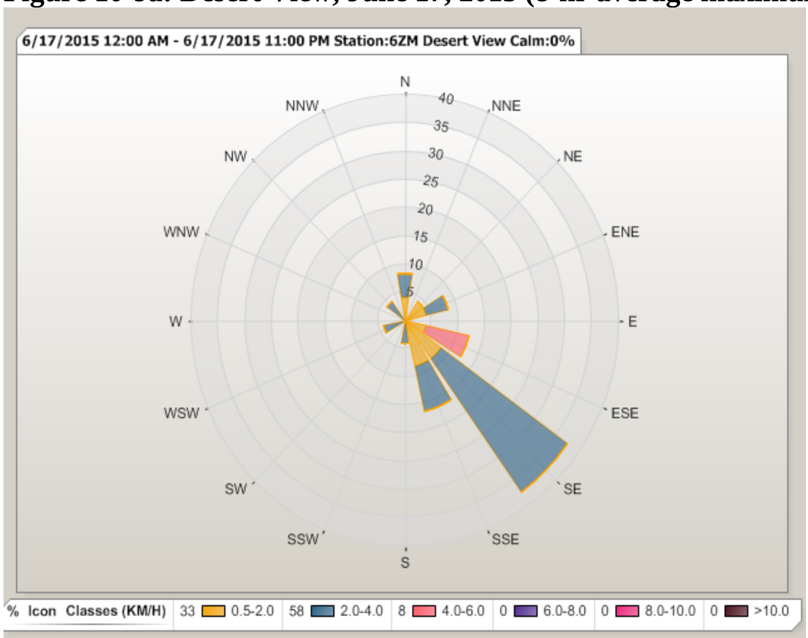


Figure 10-9a: Desert View, June 17, 2015 (8-hr average maximum .077 ppm)



Approximately 80% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-9b: Desert View, June 17, 2015 HYSPLIT Back trajectories.

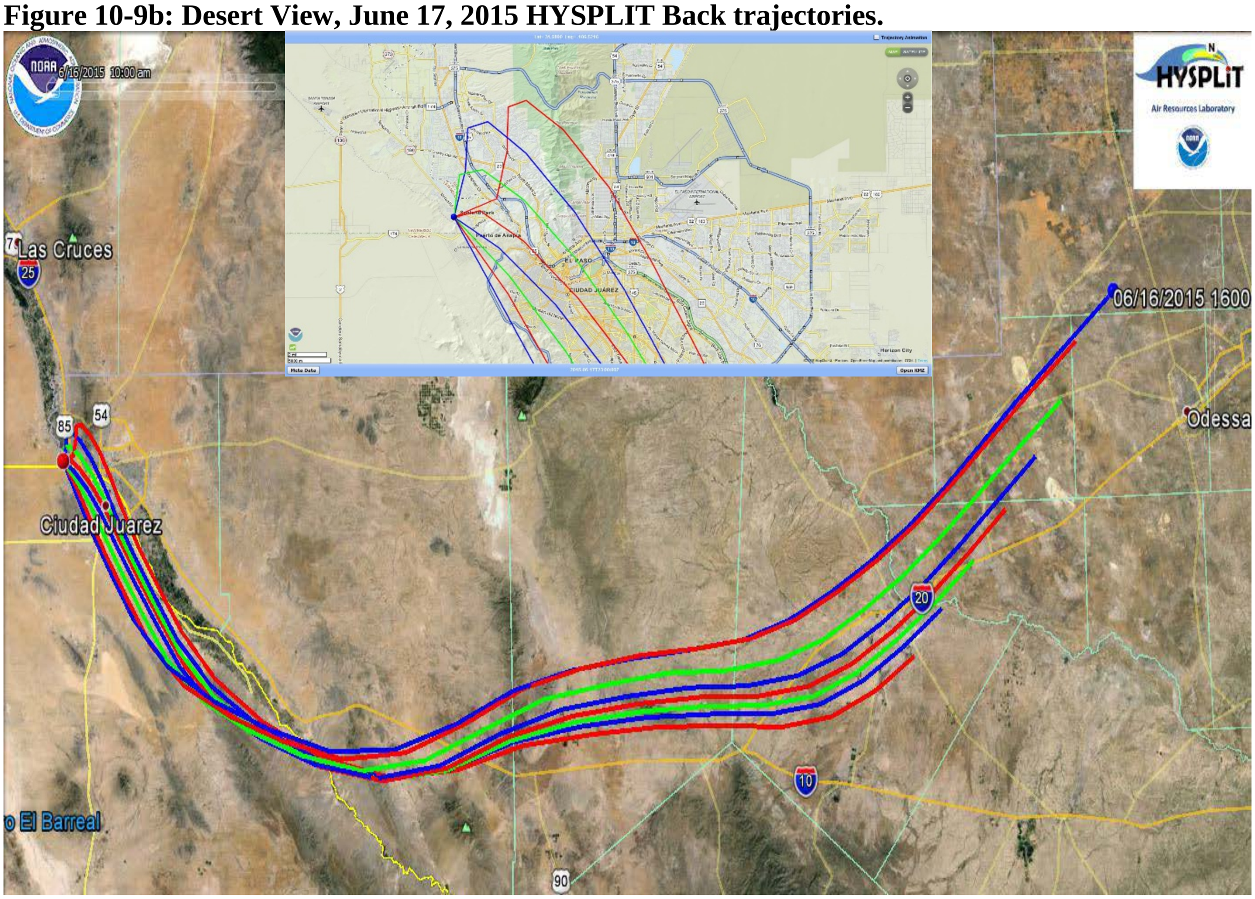
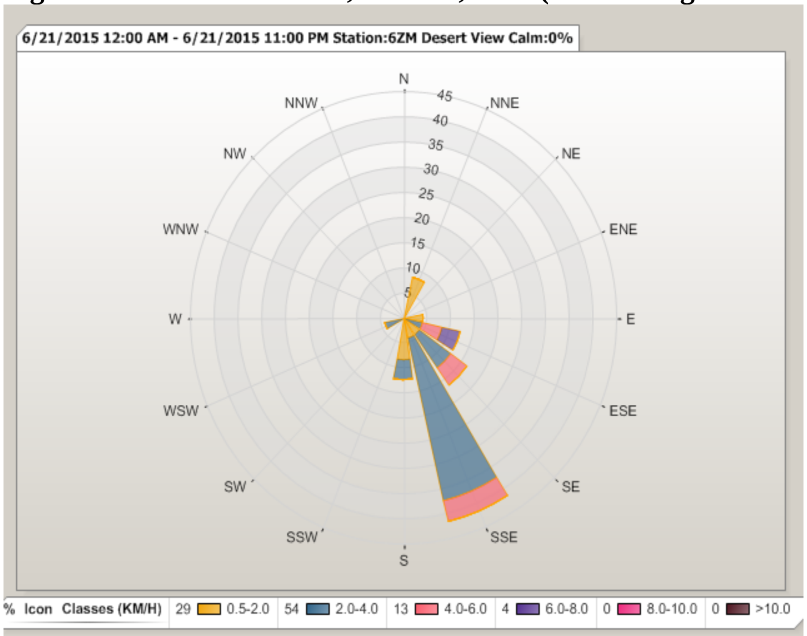


Figure 10-10a: Desert View, June 21, 2015 (8-hr average maximum .074 ppm)



Approximately 96% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-10b: Desert View, June 21, 2015 HYSPLIT Back trajectories.

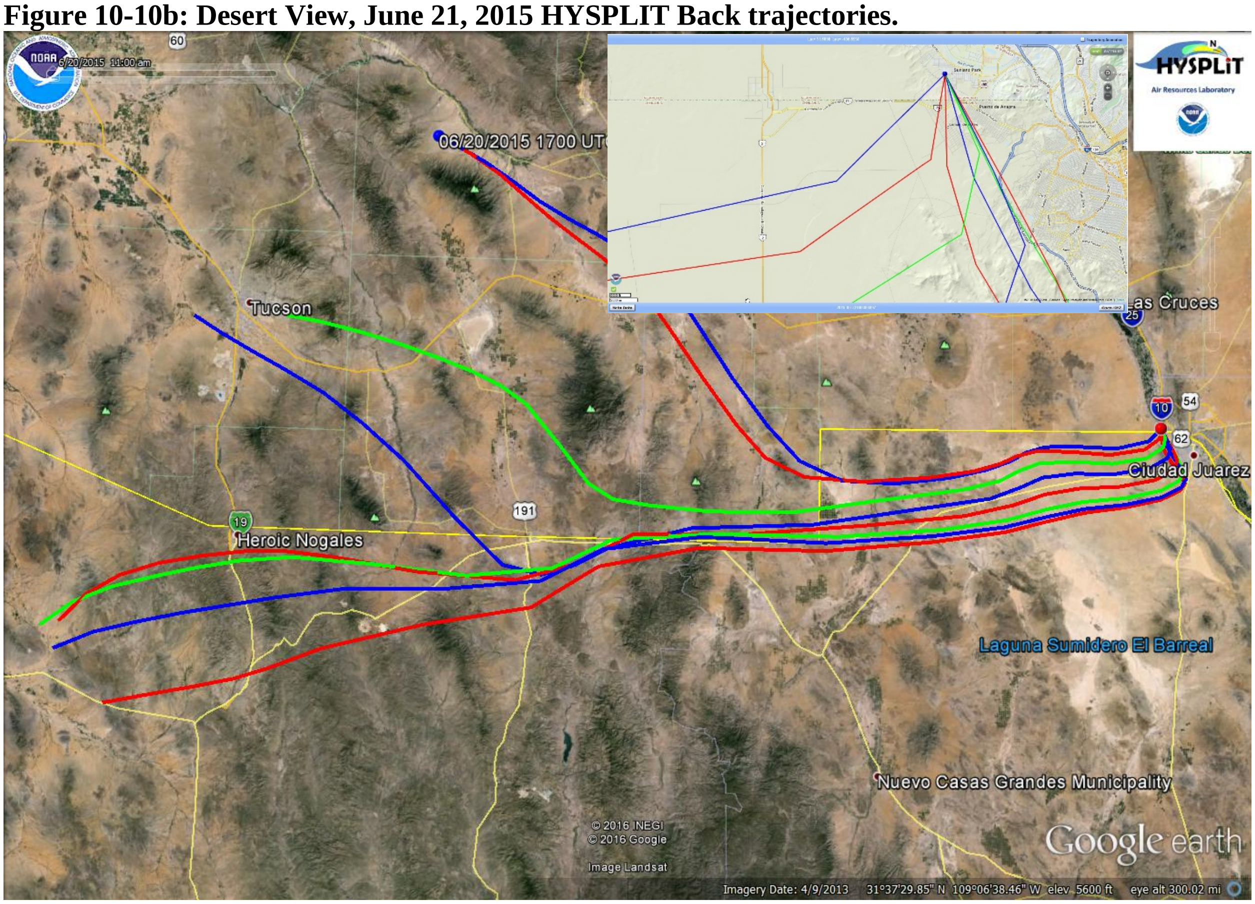
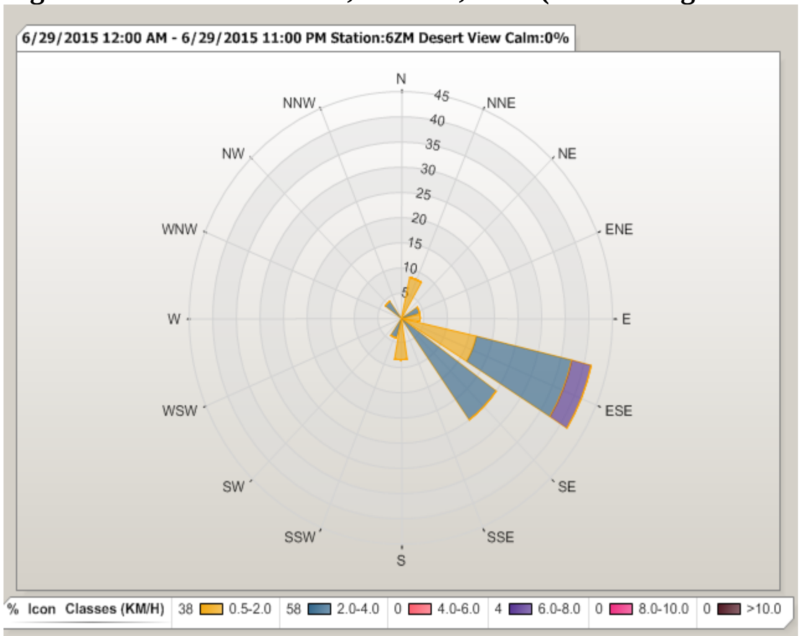


Figure 10-11a: Desert View, June 29, 2015 (8-hr average maximum .076 ppm)



Approximately 96% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-11b: Desert View, June 29, 2015 HYSPLIT Back trajectories.

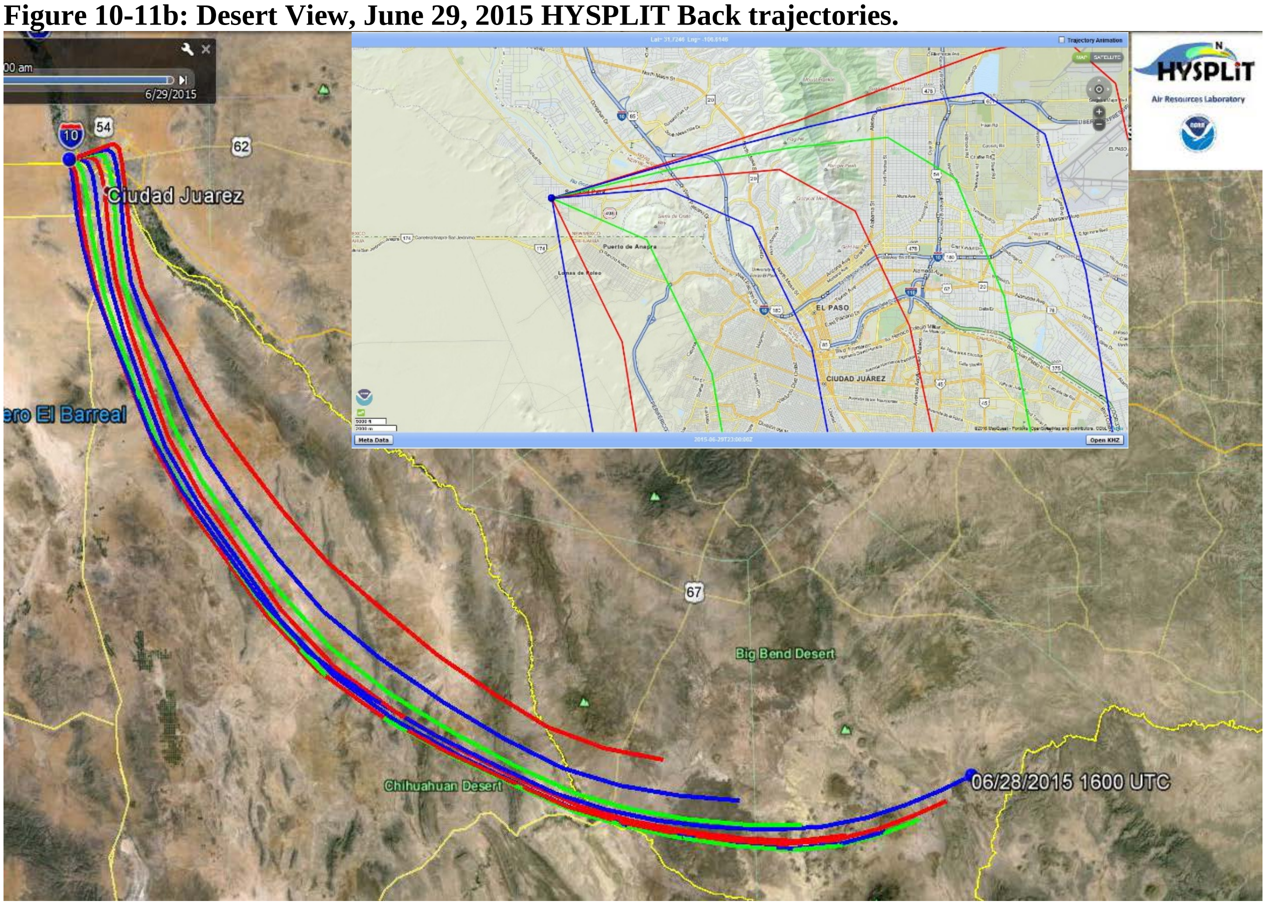
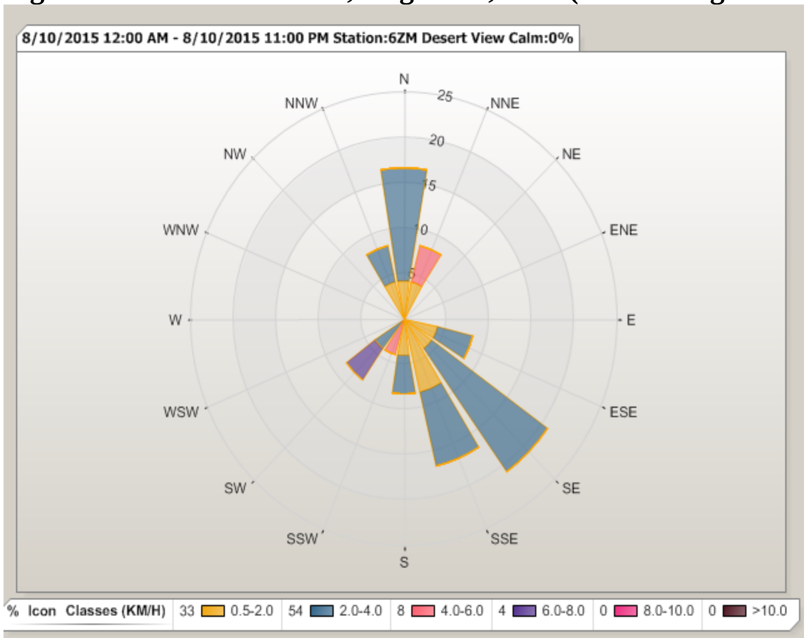
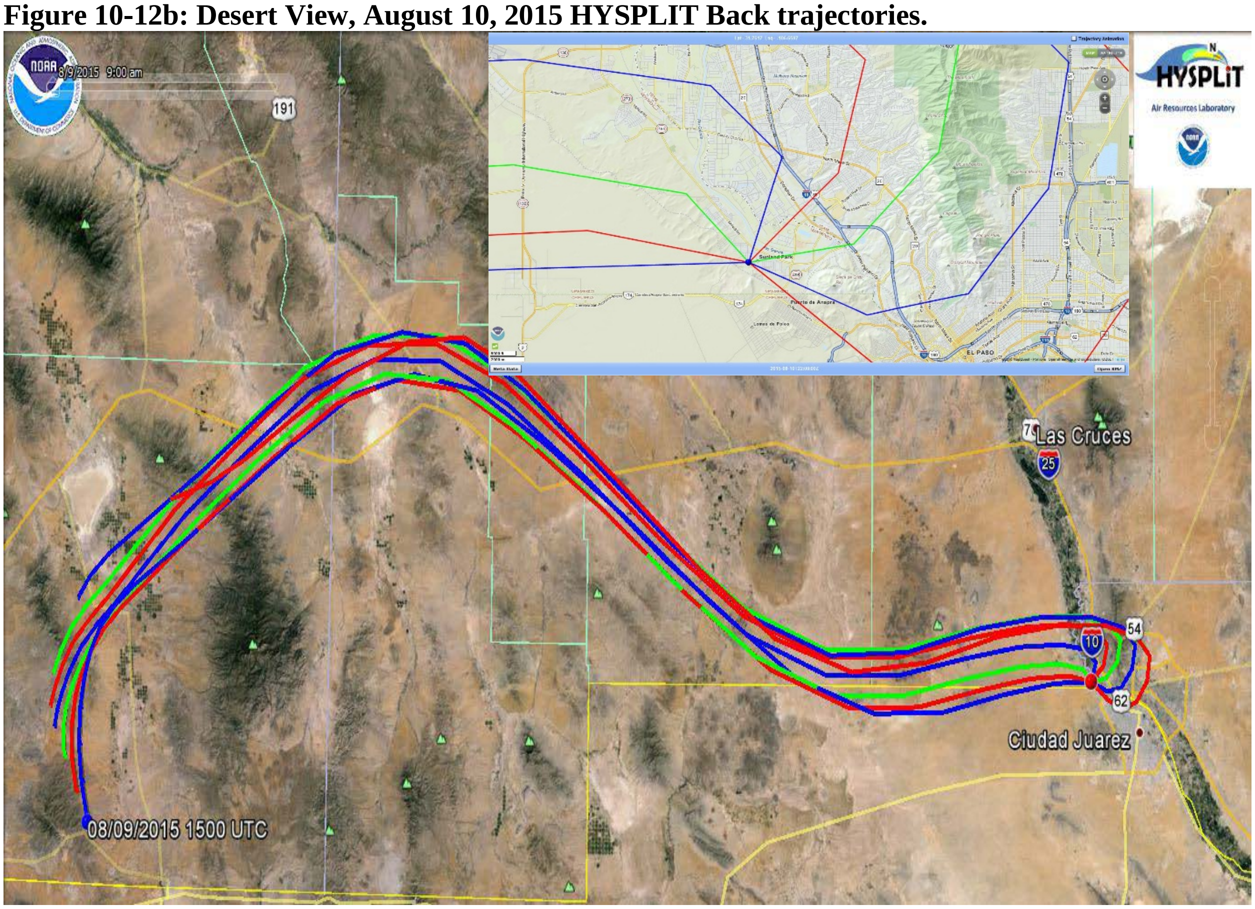


Figure 10-12a: Desert View, August 10, 2015 (8-hr average maximum .077 ppm)



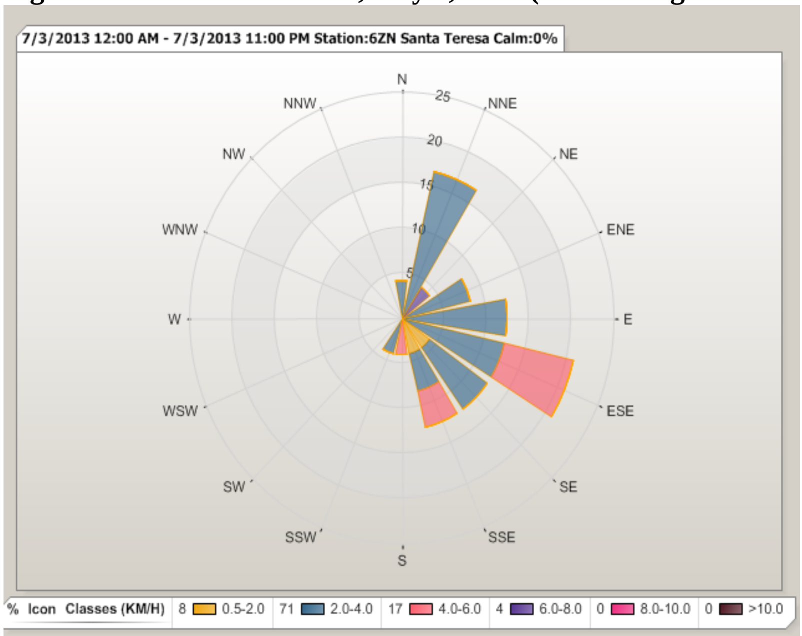
Approximately 74% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-12b: Desert View, August 10, 2015 HYSPLIT Back trajectories.



10.2 Santa Teresa

Figure 10-13a: Santa Teresa, July 3, 2013 (8-hr average maximum .084 ppm)



Approximately 74% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-13b: Santa Teresa, July 3, 2013 HYSPLIT Back trajectories.

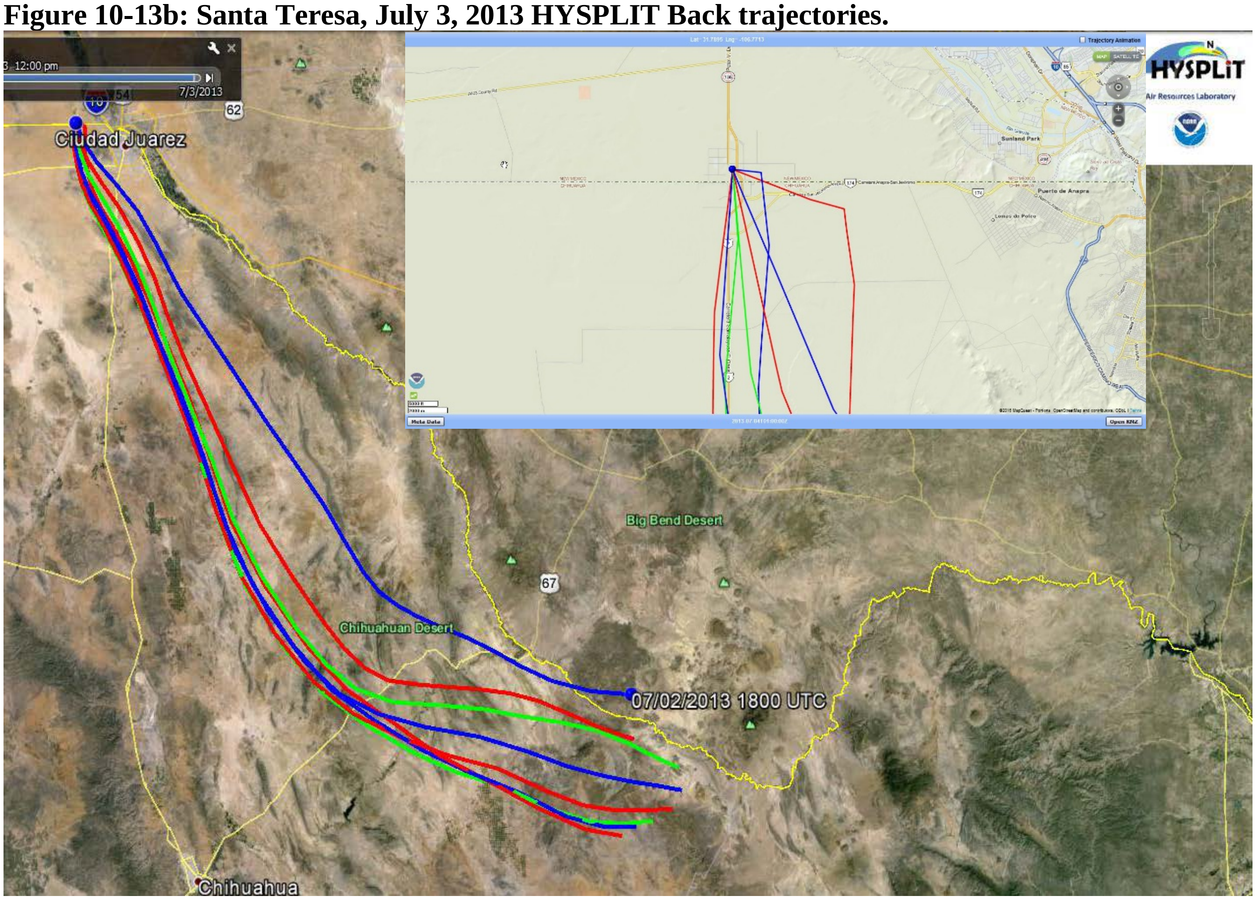
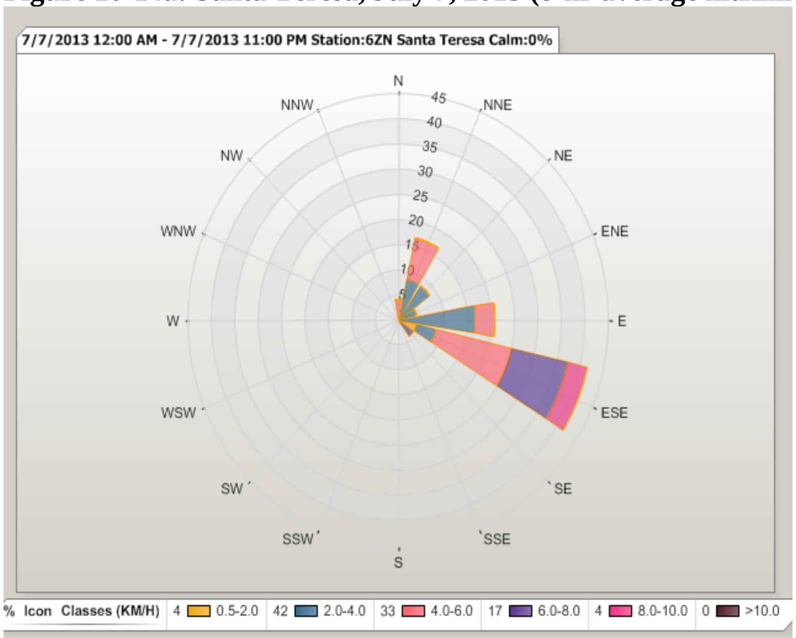


Figure 10-14a: Santa Teresa, July 7, 2013 (8-hr average maximum 0.080 ppm)



Approximately 77% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-14b: Santa Teresa, July 7, 2013 HYSPLIT Back trajectories.

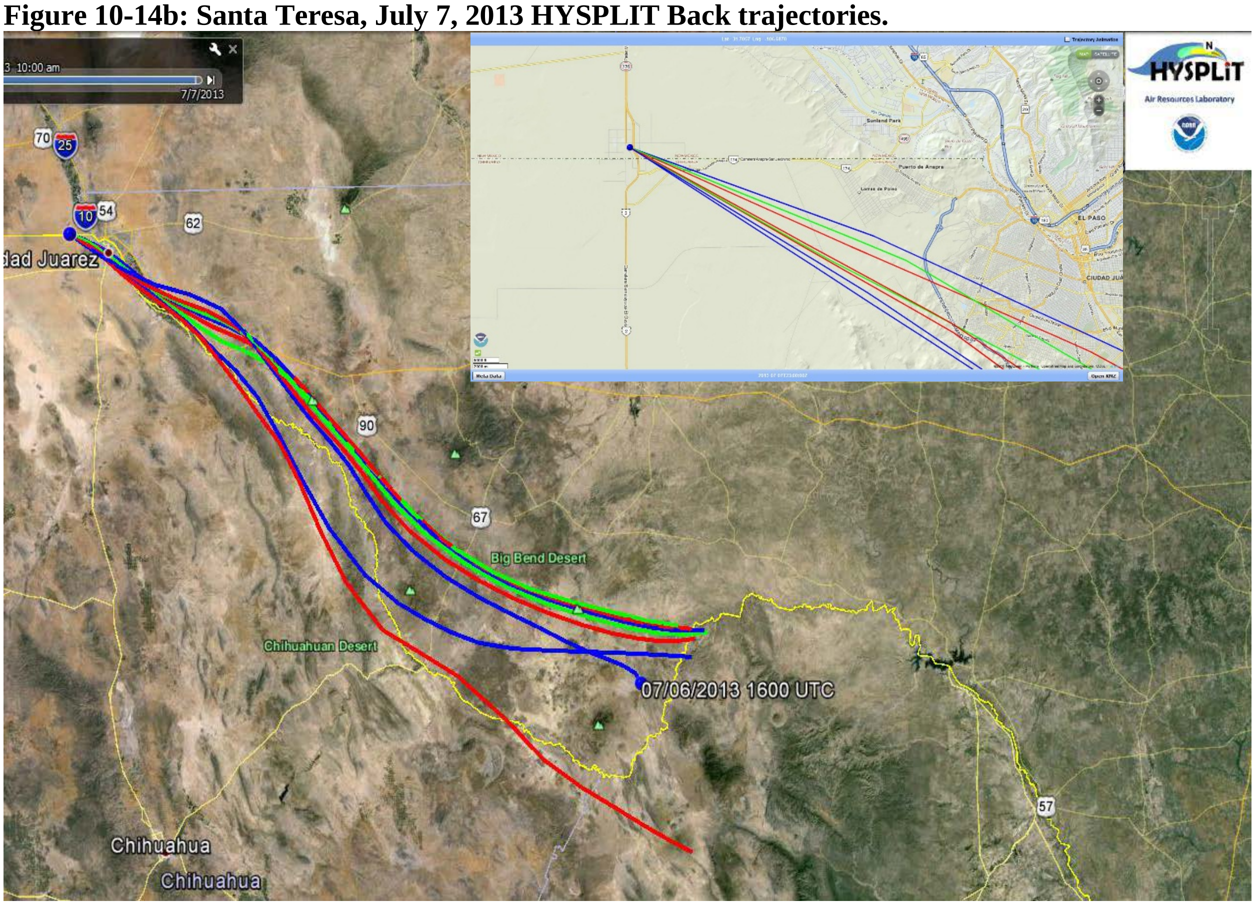
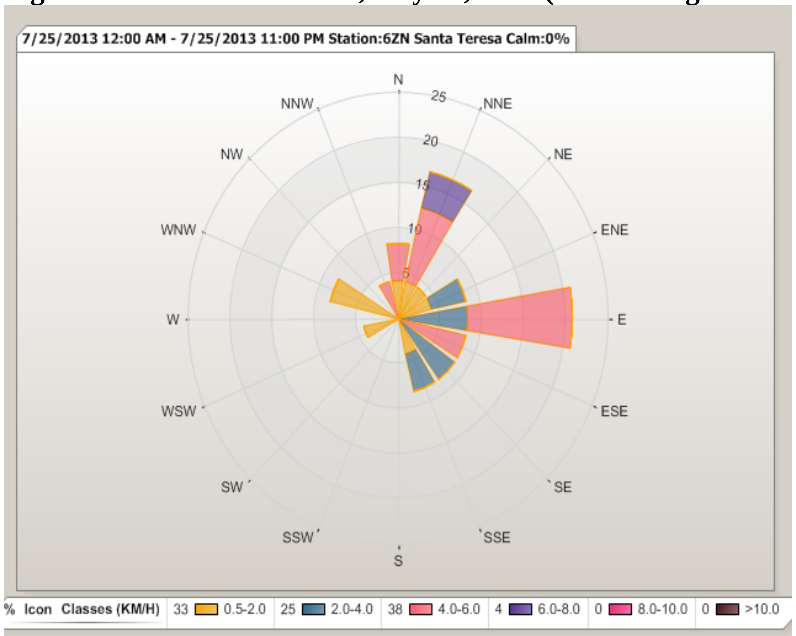


Figure 10-15a: Santa Teresa, July 25, 2013 (8-hr average maximum .081 ppm)



Approximately 57% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-15b: Santa Teresa, July 25, 2013 HYSPLIT Back trajectories.

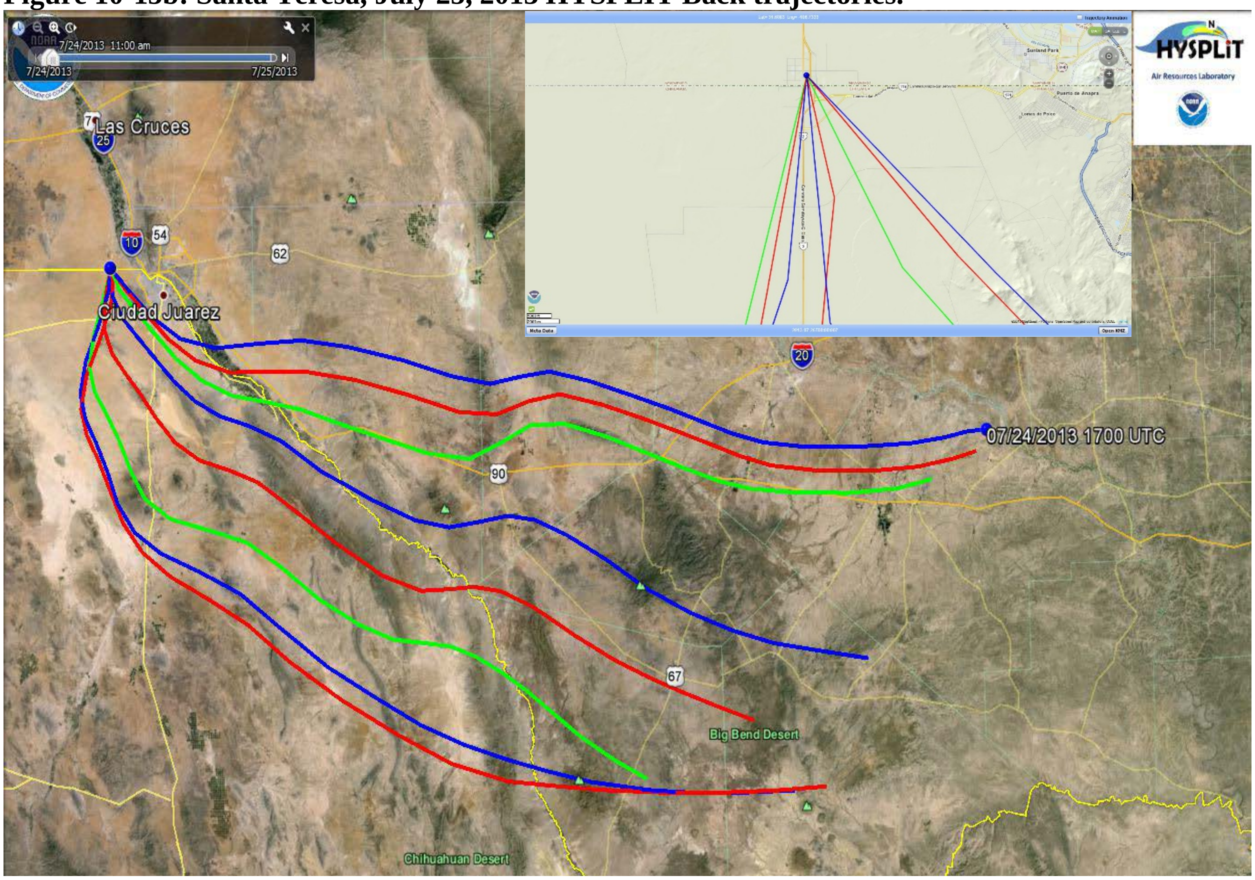
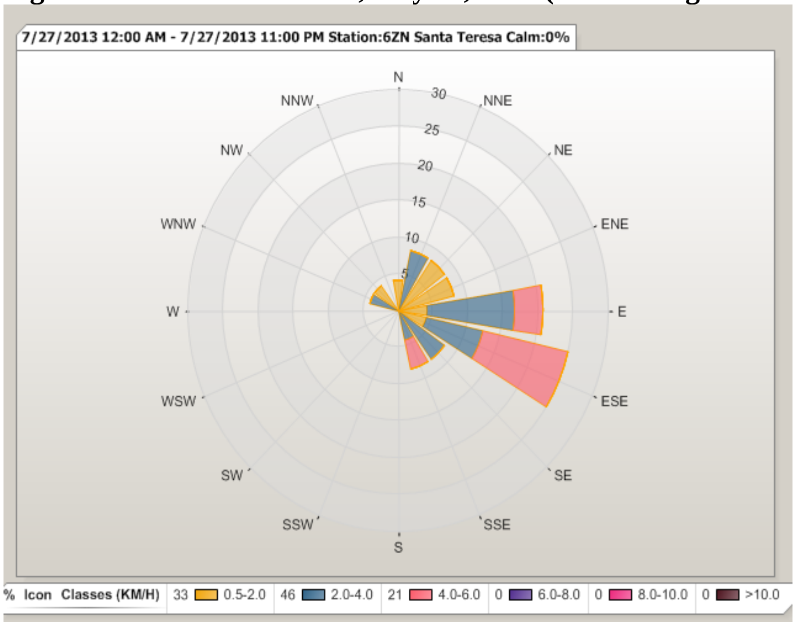


Figure 10-16a: Santa Teresa, July 27, 2013 (8-hr average maximum .089 ppm)



Approximately 76% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-16b: Santa Teresa, July 27, 2013 HYSPLIT Back trajectories.

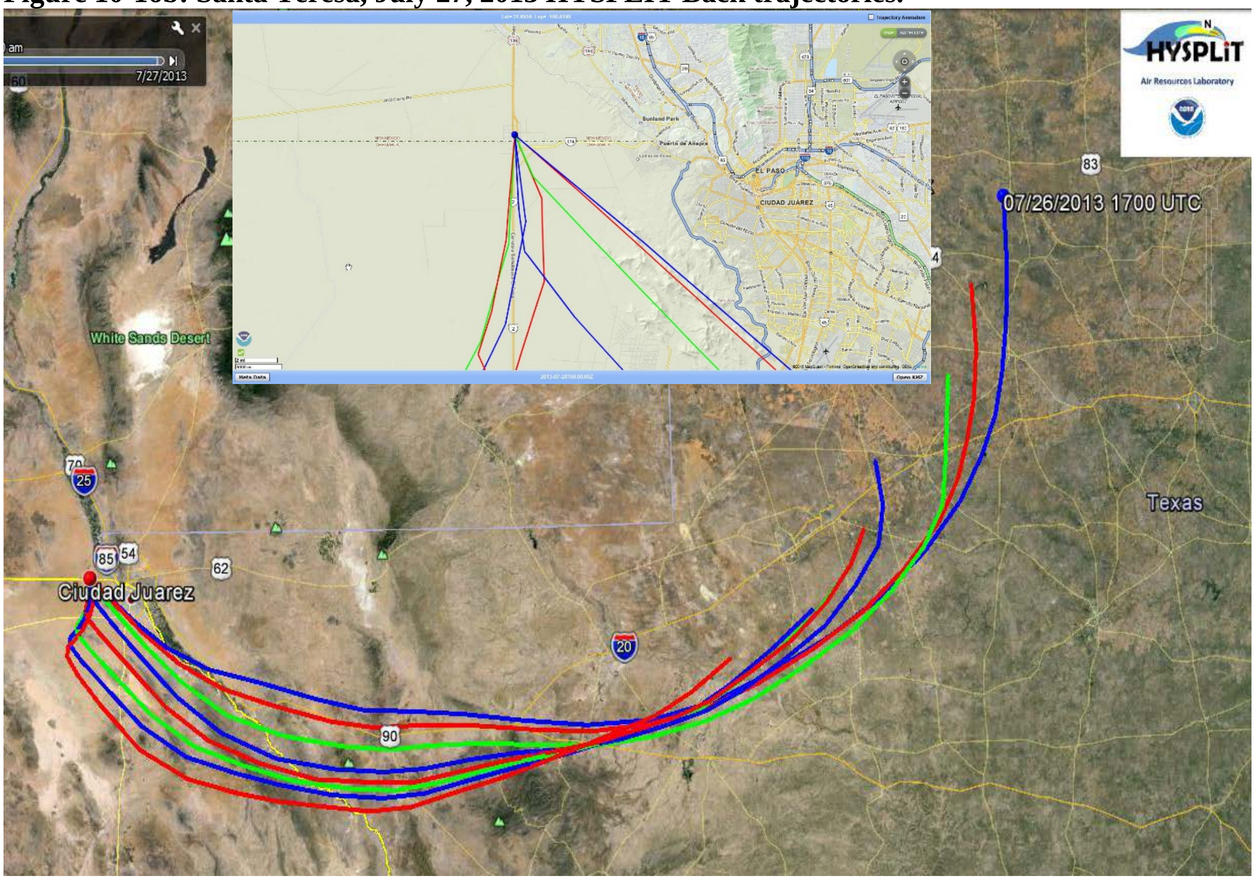
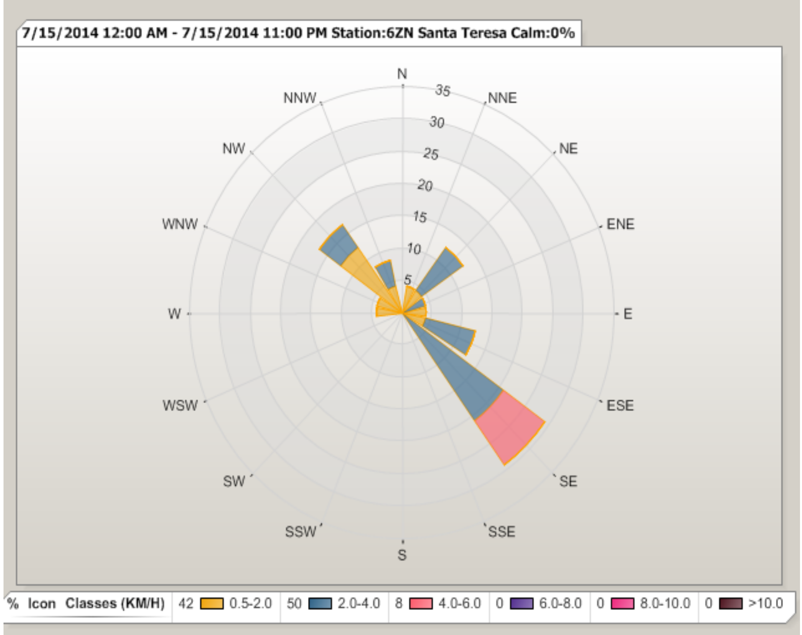


Figure 10-17a: Santa Teresa, July 15, 2014 (8-hr average maximum .077 ppm)



Approximately 61% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-17b: Santa Teresa, July 15, 2014 HYSPLIT Back trajectories.

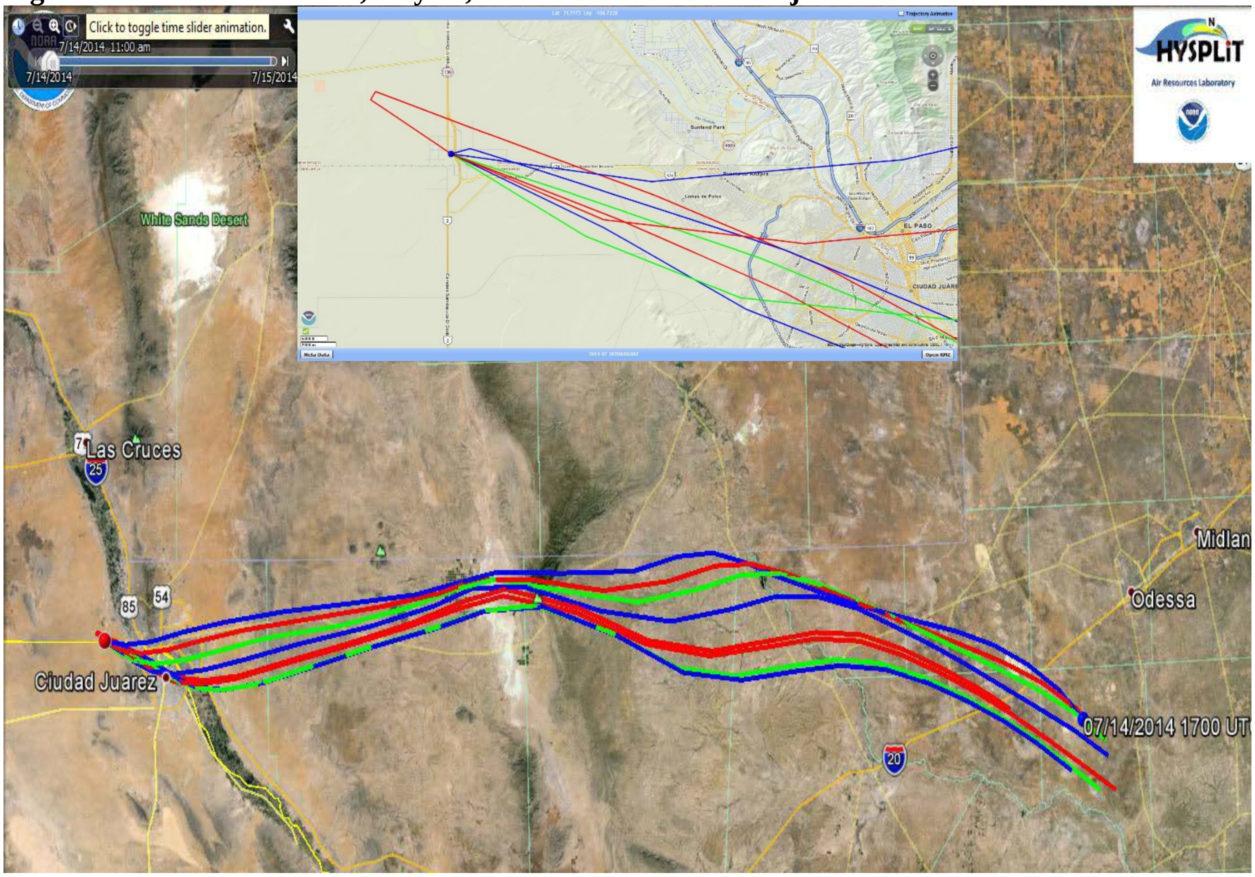
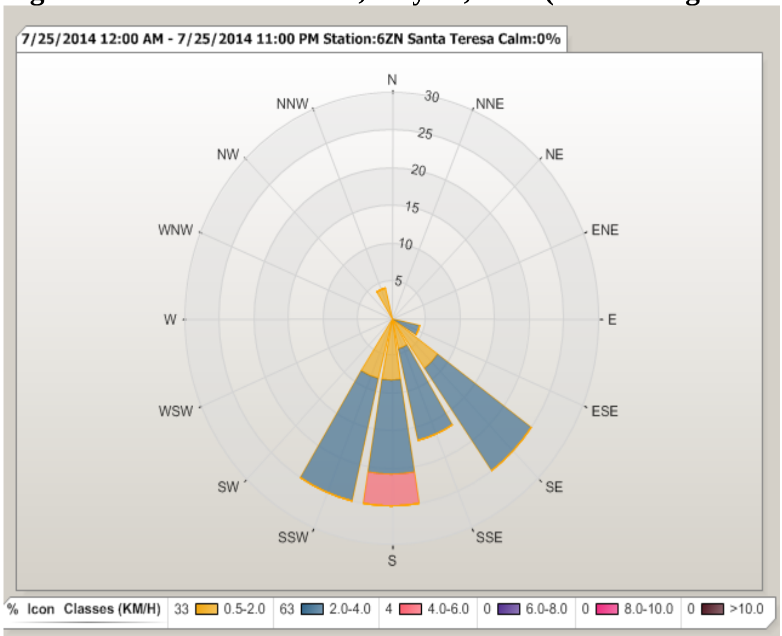


Figure 10-18a: Santa Teresa, July 25, 2014 (8-hr average maximum .064 ppm)



Approximately 96% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-18b: Santa Teresa, July 25, 2014 HYSPLIT Back trajectories.

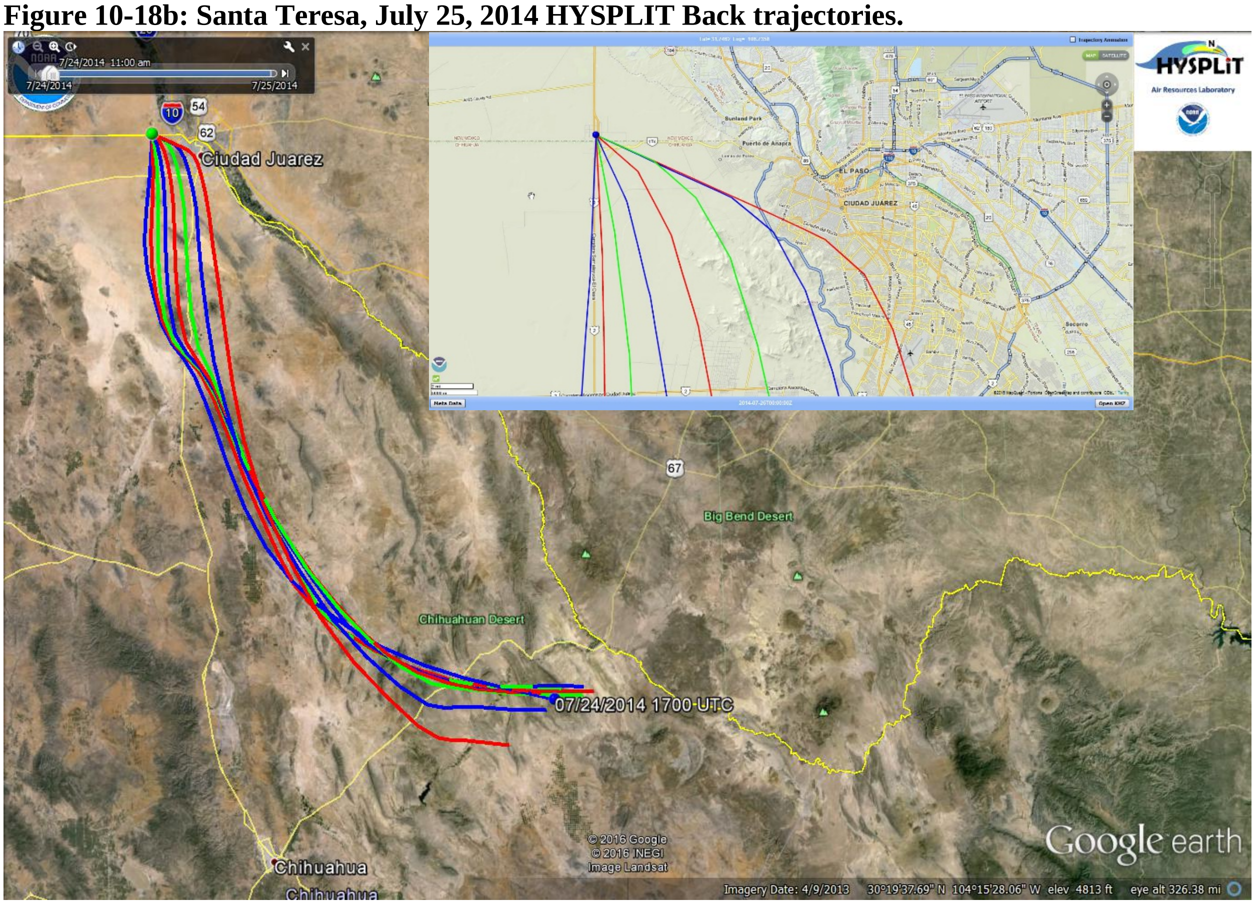
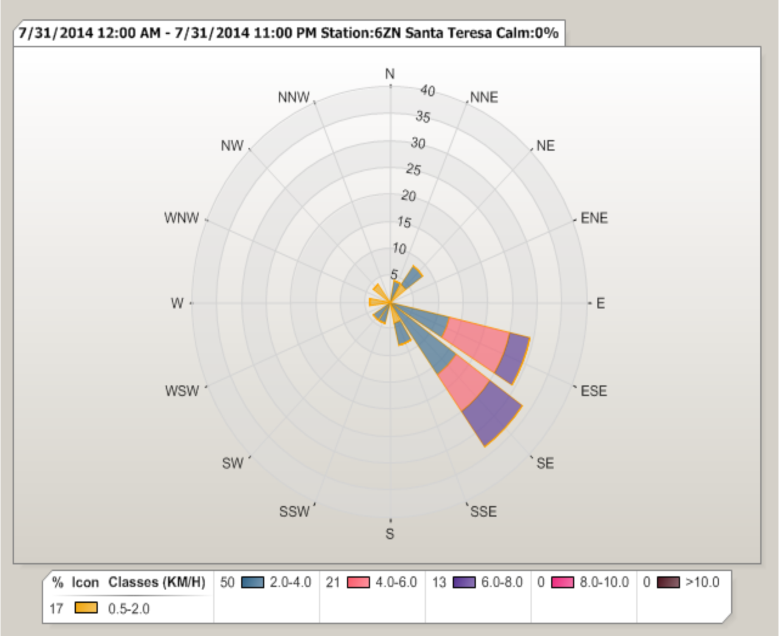


Figure 10-19a: Santa Teresa, July 31, 2014 (8-hr average maximum .068 ppm)



Approximately 72% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-19b: Santa Teresa, July 31, 2014 HYSPLIT Back trajectories.

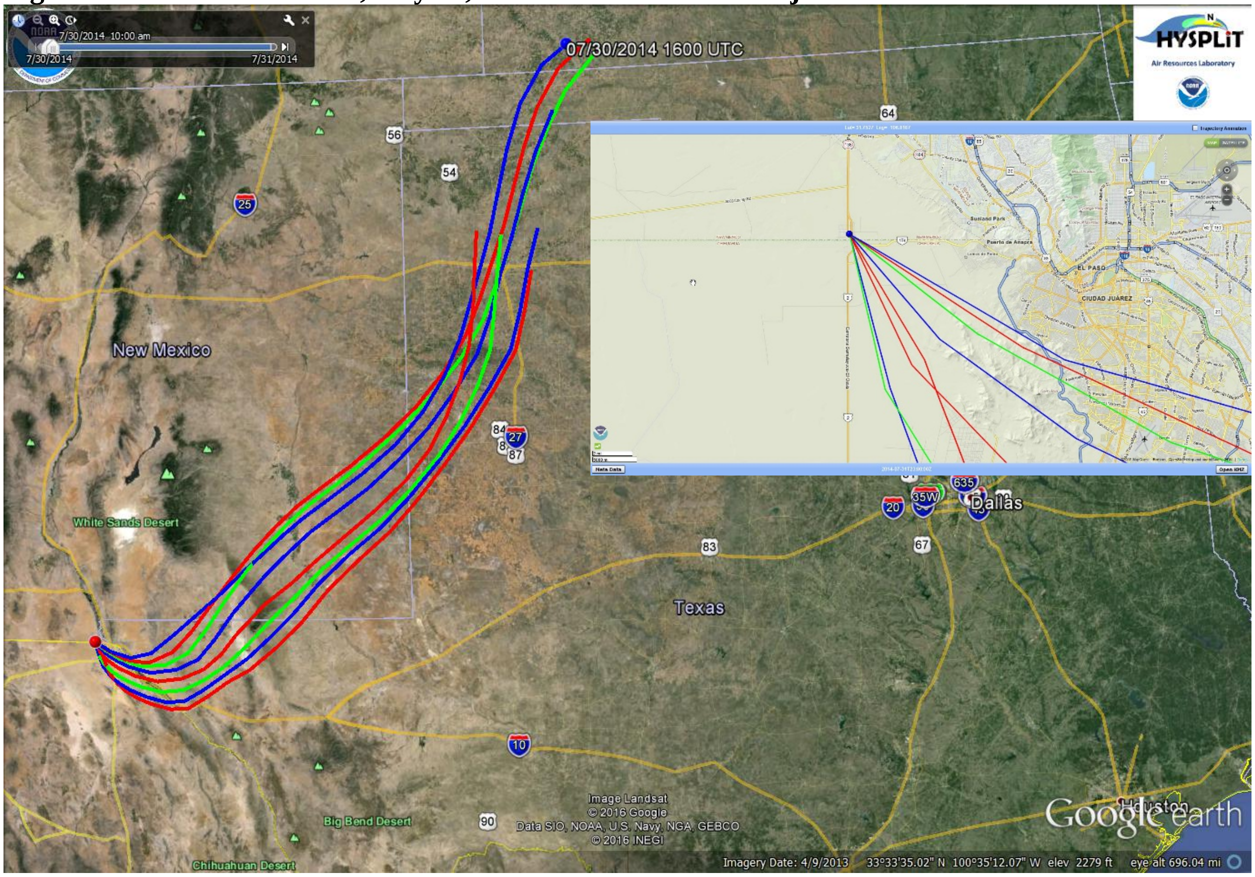
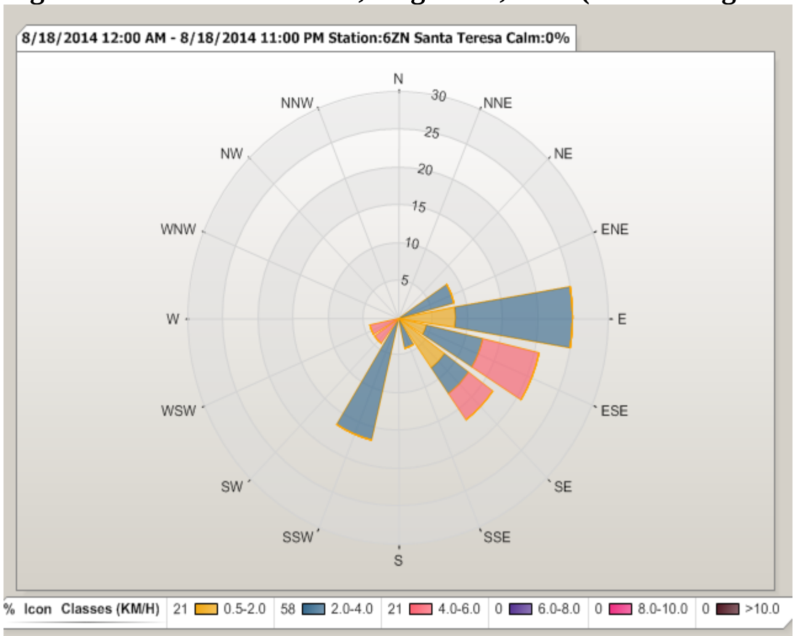


Figure 10-20a: Santa Teresa, August 18, 2014 (8-hr average maximum .069 ppm)



Approximately 92% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-20b: Santa Teresa, August 18, 2014 HYSPLIT Back trajectories.

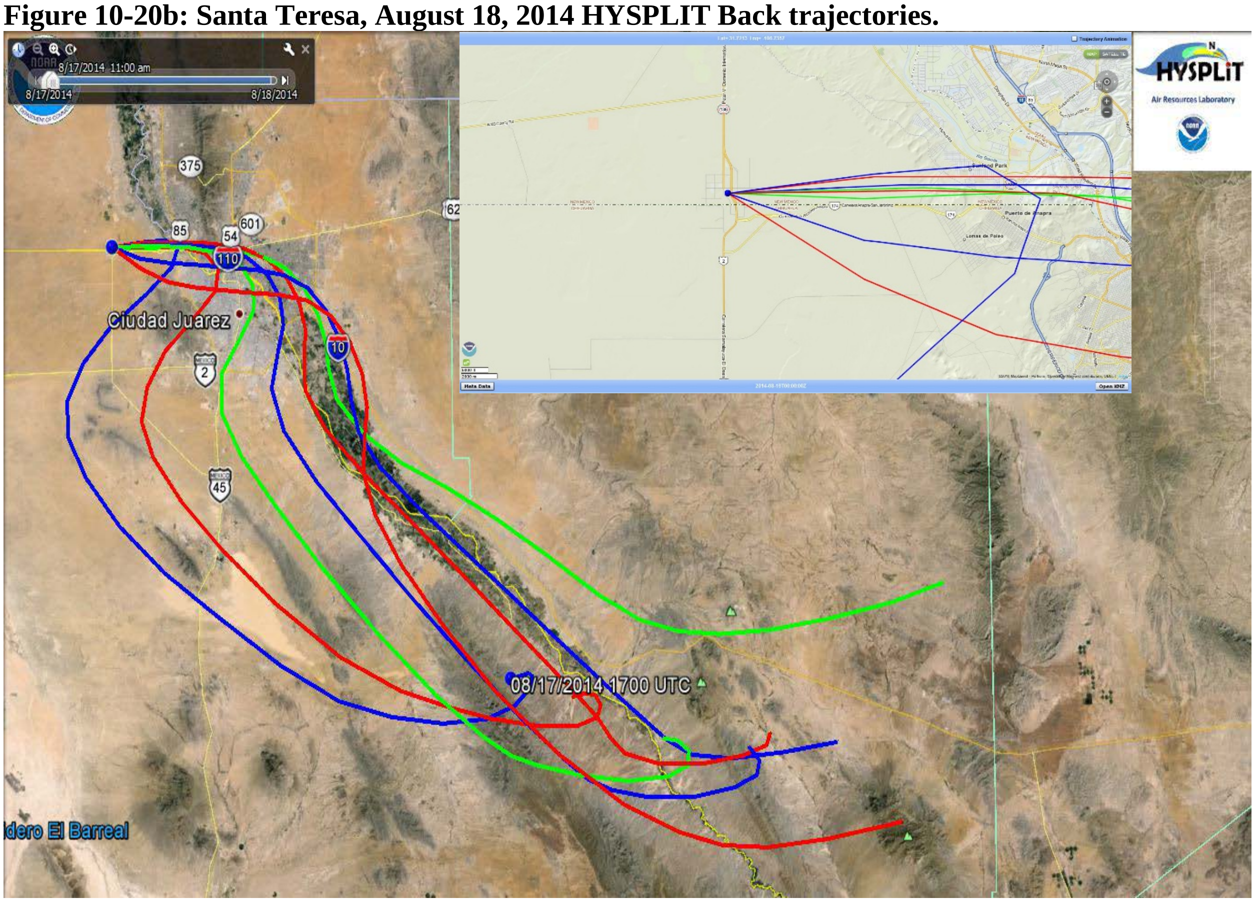
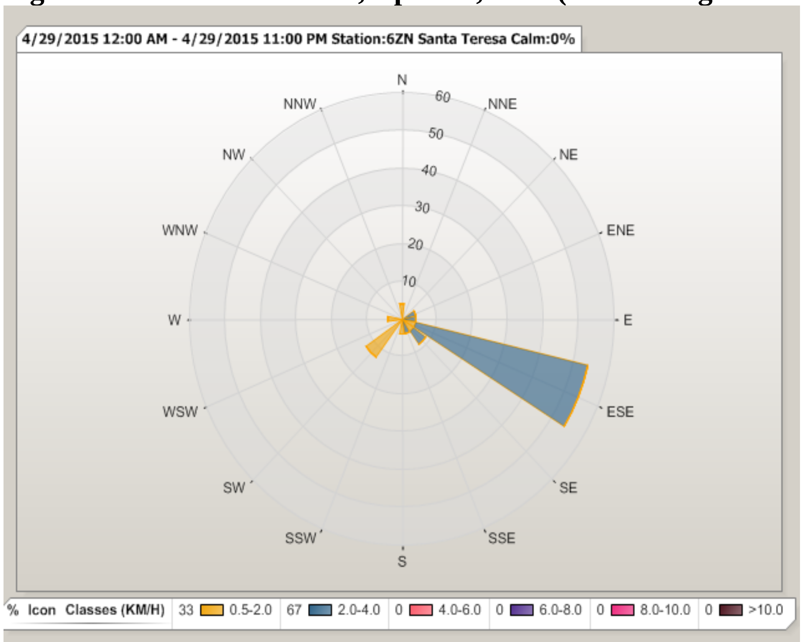


Figure 10-21a: Santa Teresa, April 29, 2015 (8-hr average maximum .070 ppm)



Approximately 77% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-21b: Santa Teresa, April 29, 2015 HYSPLIT Back trajectories.

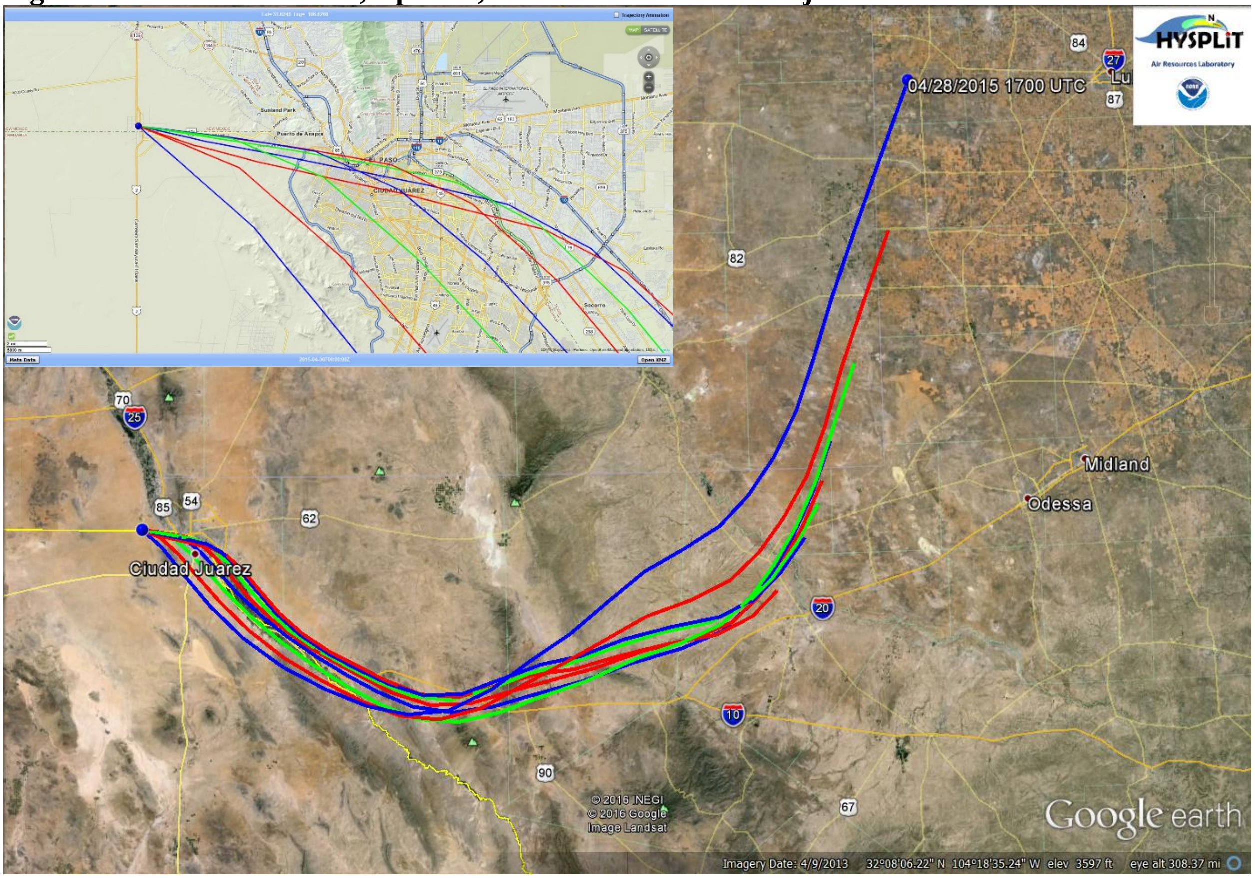
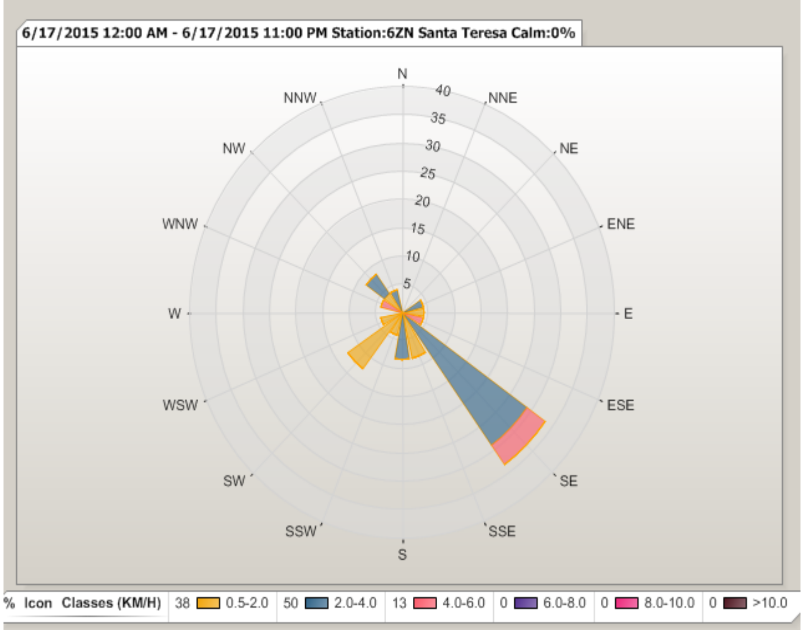


Figure 10-22a: Santa Teresa, June 17, 2015 (8-hr average maximum .070 ppm)



Approximately 66% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-22b: Santa Teresa, June 17, 2015 HYSPLIT Back trajectories.

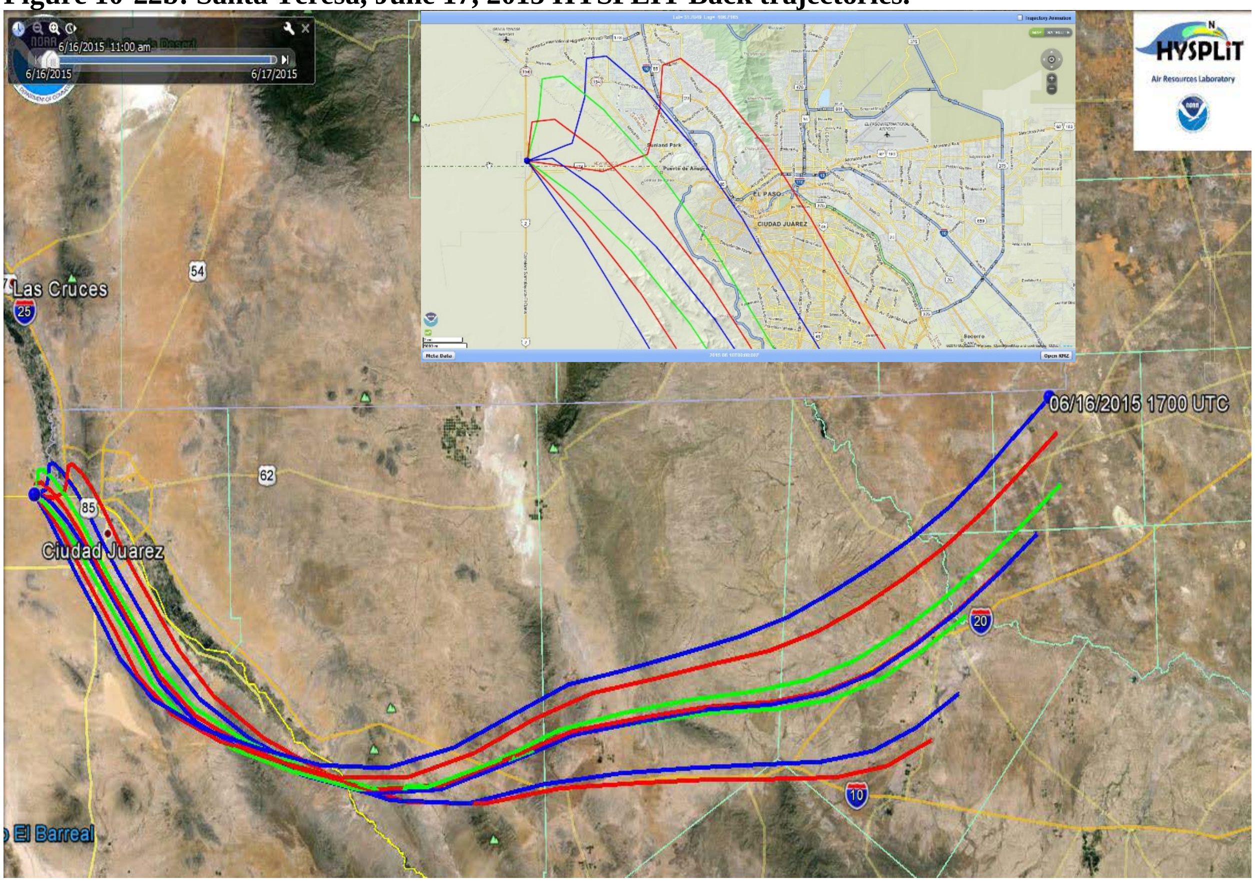
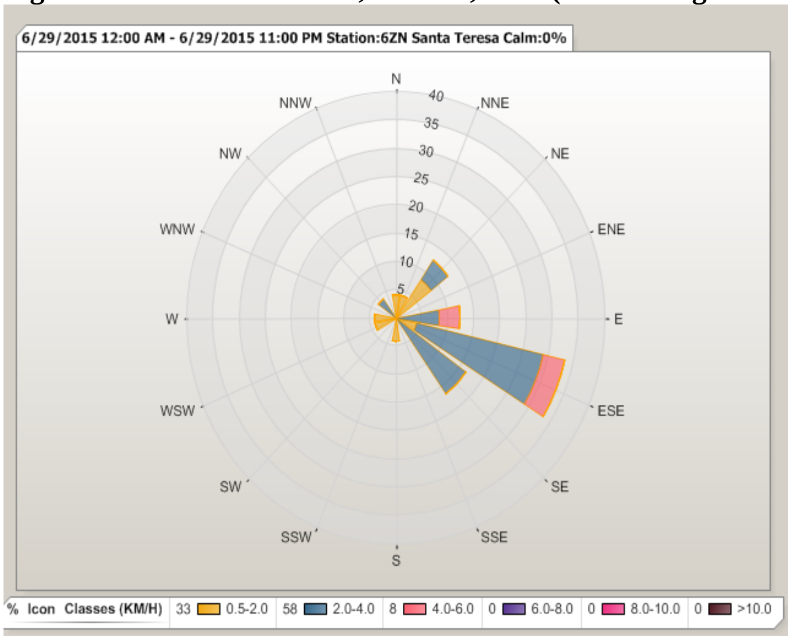


Figure 10-23a: Santa Teresa, June 29, 2015 (8-hr average maximum .074 ppm)



Approximately 84% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-23b: Santa Teresa, June 29, 2015 HYSPLIT Back trajectories.

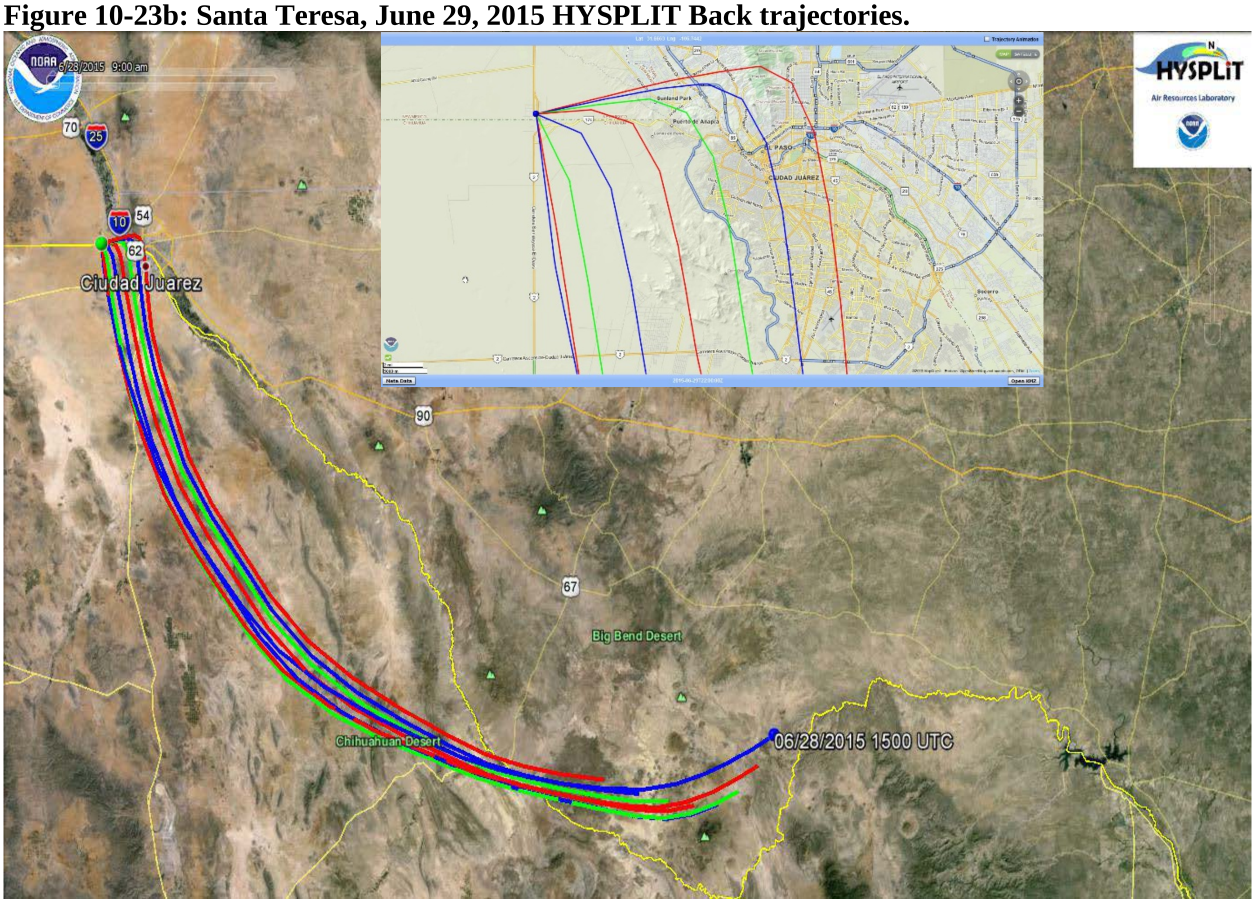
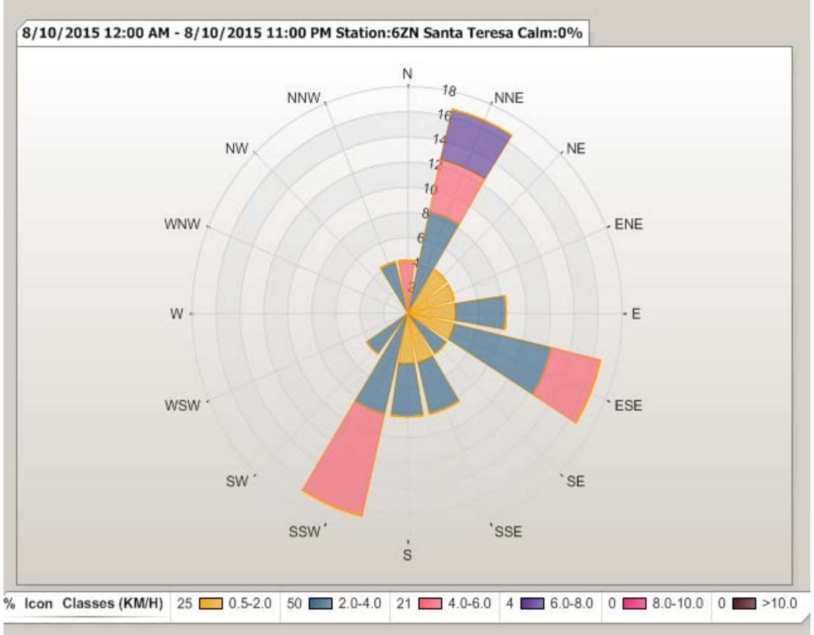


Figure 10-24a: Santa Teresa, August 10, 2015 (8-hr average maximum .072 ppm)



Approximately 70% of the winds on this date blew from the direction of El Paso and Juárez.

Figure 10-24b: Santa Teresa, August 10, 2015 HYSPLIT Back trajectories.

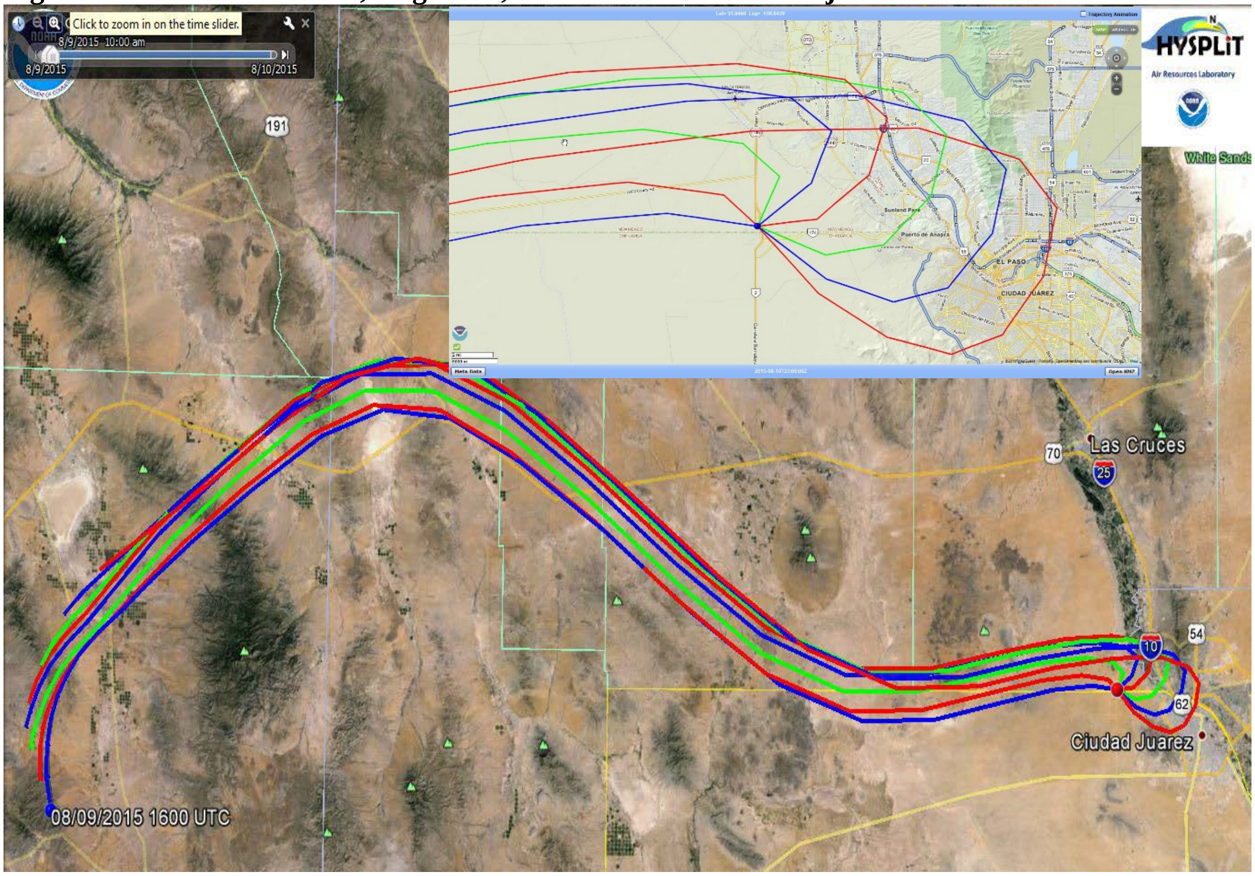


Figure 10-25: Ozone Mapping Tool, HYSPLIT back trajectories for El Paso, TX