Appendix B
Meteorological Data

The following graphs contained wind speed[1] and wind direction data collected from various sites in southeastern California and southwestern Arizona. Note that wind speed measurements may be taken at any time during the hour and by different instruments. Some instruments measure in Scalar which are quantities that are fully described by a magnitude (or numerical value) alone and some measure in Vector which are quantities that are fully described by both a magnitude and a direction. Resultant wind speed is the magnitude of the wind observation into components from south and west, summing over the given period, obtaining the averages, and reconverting the average components into a single vector. The following graphs reflect the observed measured time and not necessarily, a whole hour but all graphs reflect time in PST.

FIGURE B-1
METEOROLOGICAL SITES USED IN THIS DOCUMENT

Fig B-1: The sites depicted are representative of air quality and meteorological sites used in this document. Google Earth base map

[1] National Weather Service; NOAA's Glossary – Wind Speed: The rate at which air is moving horizontally past a given point. It may be a 2-minute average speed (reported as wind speed) or an instantaneous speed (reported as a peak wind speed, wind gust, or squall); http://w1.weather.gov/glossary/index.php?letter=w

IMPERIAL COUNTY SITES
FIGURES B-2 THROUGH B-9

FIGURE B-2
IMPERIAL COUNTY AIRPORT (KIPL)
WIND SPEED, GUSTS AND DIRECTION

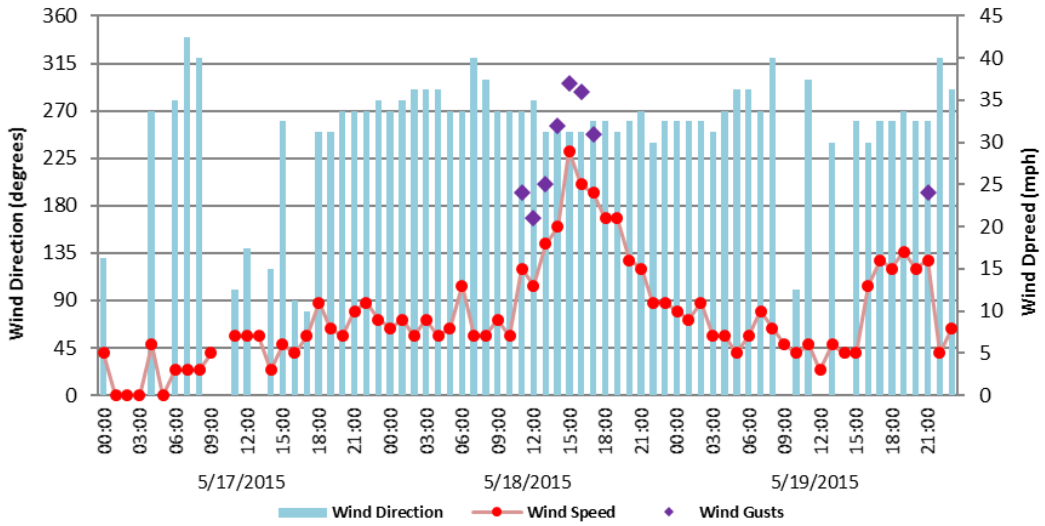


Fig B-2: Imperial Airport meteorological data shows a dramatic increase in wind speed accompanied by gusts over 35 mph during the afternoon hours on May 18, 2015. Wind data from the NCEI'S QCLCD system

FIGURE B-3
NILAND (ENGLISH RD)
WIND SPEED AND DIRECTION

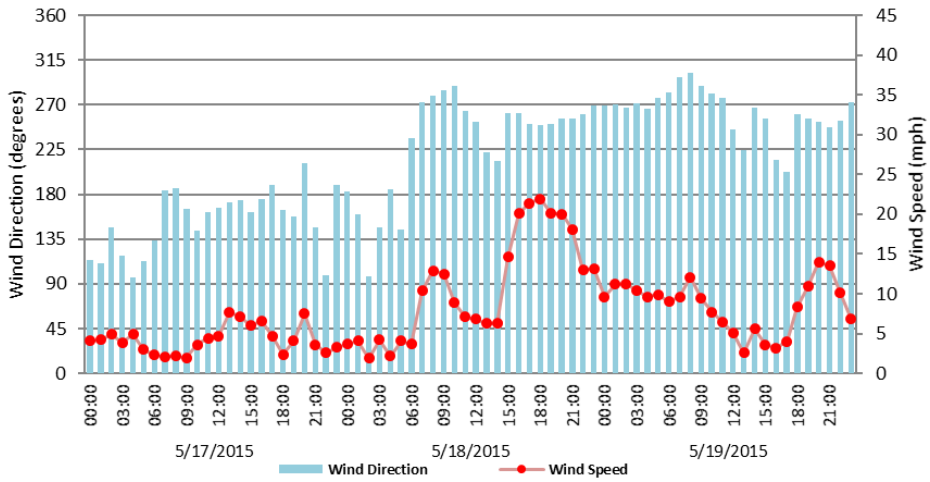


Fig B-3: Niland meteorological data showing an increase in wind speed staring the afternoon hours on May 18, 2015, indicating the impact of wind event. Niland is north of Brawley. Wind data from the EPA's AQS data bank

FIGURE B-4
EL CENTRO NAF (KNJK)
WIND SPEED, GUSTS AND DIRECTION

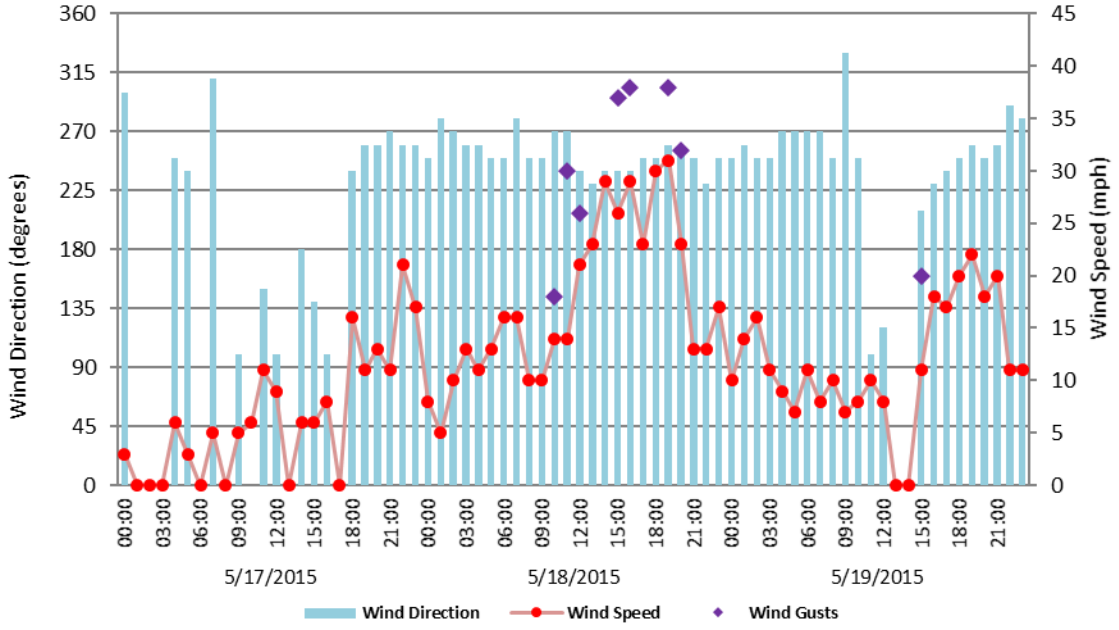


Fig B-4: El Centro NAF meteorological data for May 18, 2015, and May 17, 2015 through May 19, 2015, showing a dramatic increase in wind speed staring the afternoon hours on May 18, 2015, indicating the impact of wind event. El Centro NAF is southwest of Brawley

FIGURE B-5
IMPERIAL COUNTY (KIPL) WIND ROSE MAY 18, 2015

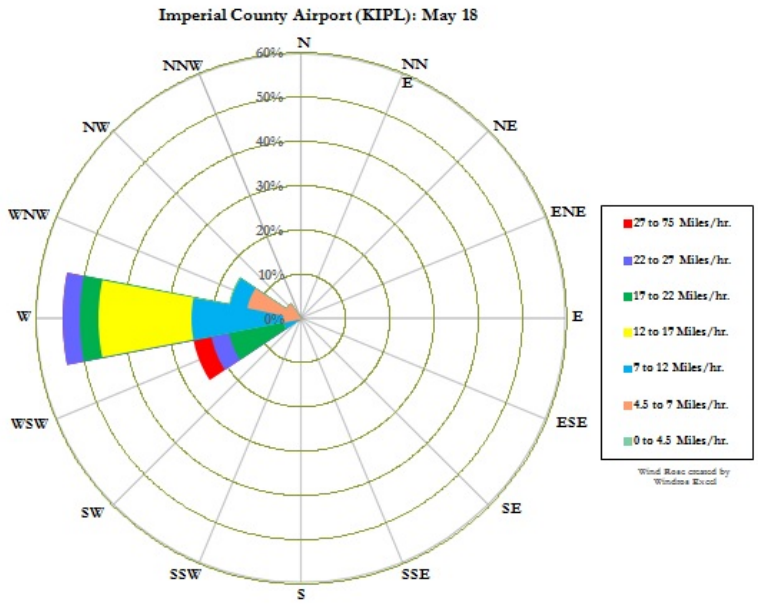
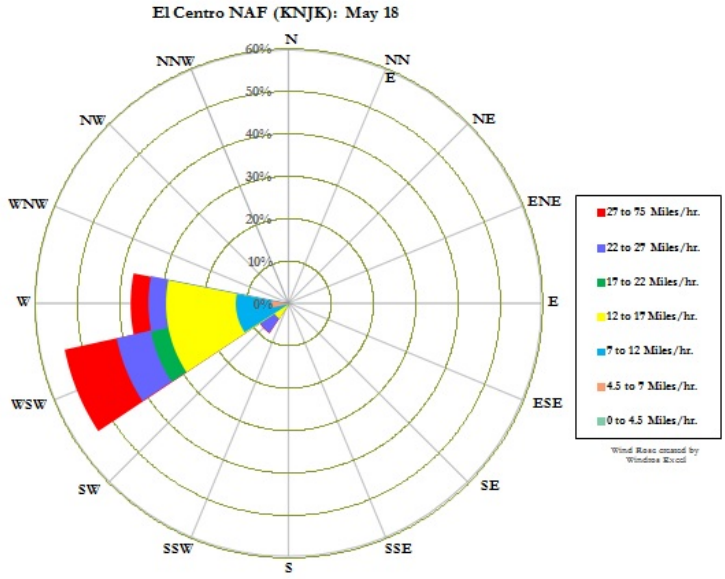


FIGURE B-6
EL CENTRO NAF (KNJK) WIND ROSE MAY 18, 2015



Figs B-5 and B-6: Wind roses for the two closest airfields show winds were strongest from the west and west-southwest

EASTERN RIVERSIDE COUNTY SITES

FIGURE B-7
JACQUELINE COCHRAN (aka DESERT RESORTS) AIRPORT (KTRM)
WIND SPEED, GUSTS AND DIRECTION

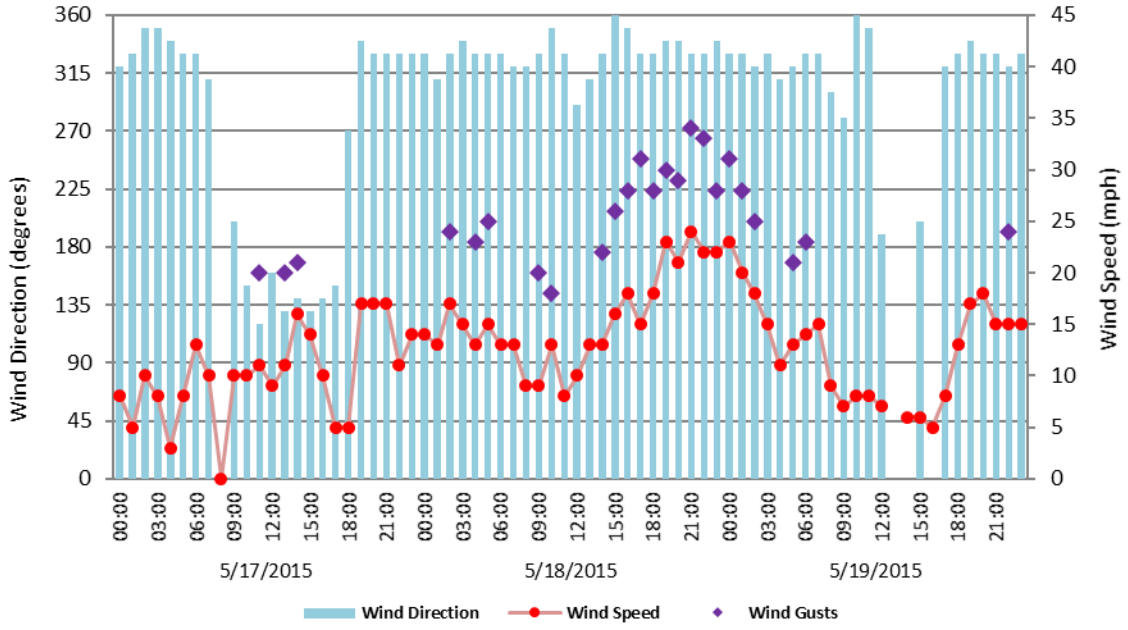


FIGURE B-8
PALM SPRINGS AIRPORT (KPSP)
WIND SPEED, GUSTS AND DIRECTION

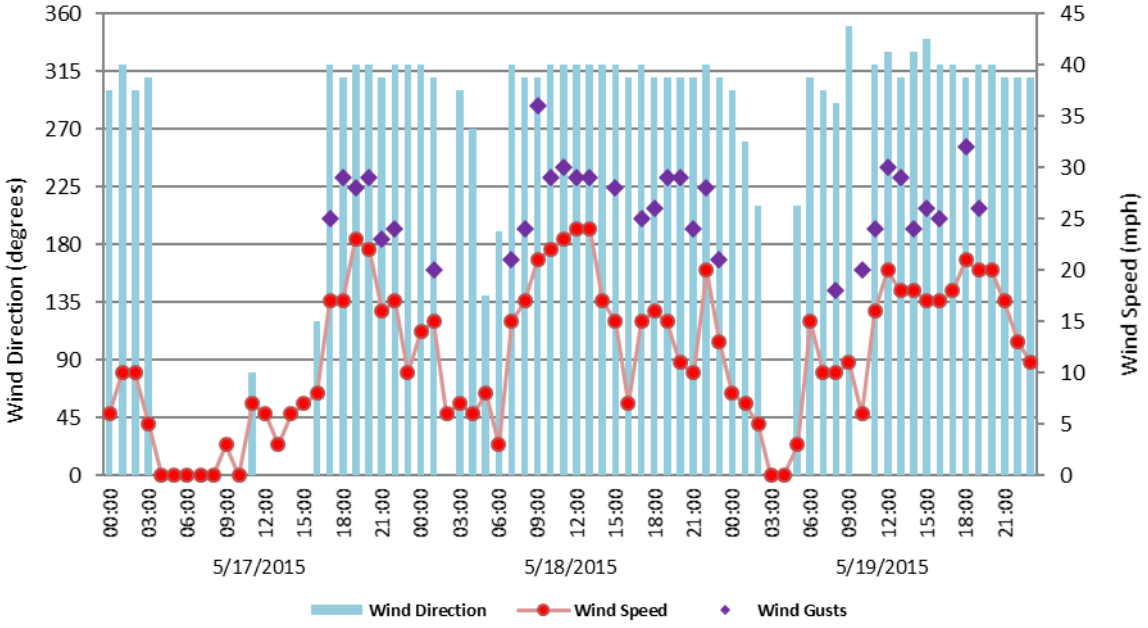
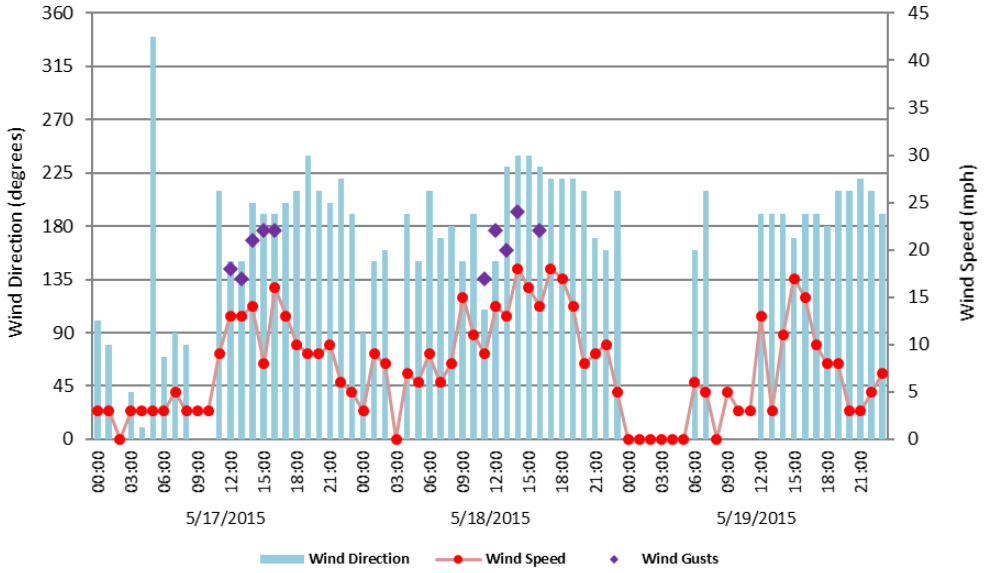


FIGURE B-9
BLYTHE AIRPORT (KBLH)
WIND SPEED, GUSTS AND DIRECTION



Figs B-7 through B-9: Palm Springs Airport (KPSP), Jacqueline Cochran-Thermal Airport (KTRM), and Blythe Airport (KBLH) all show increases in winds and gusts during May 18, 2015. KPSP and KTRM are northwest of Brawley; KBLH is northeast. Data from the NCEI's QCLCD system

SOUTHEASTERN SAN DIEGO COUNTY

FIGURE B-10
CAMPO AIRPORT (KCZZ)
WIND SPEED, GUSTS (AVERAGES) AND DIRECTION

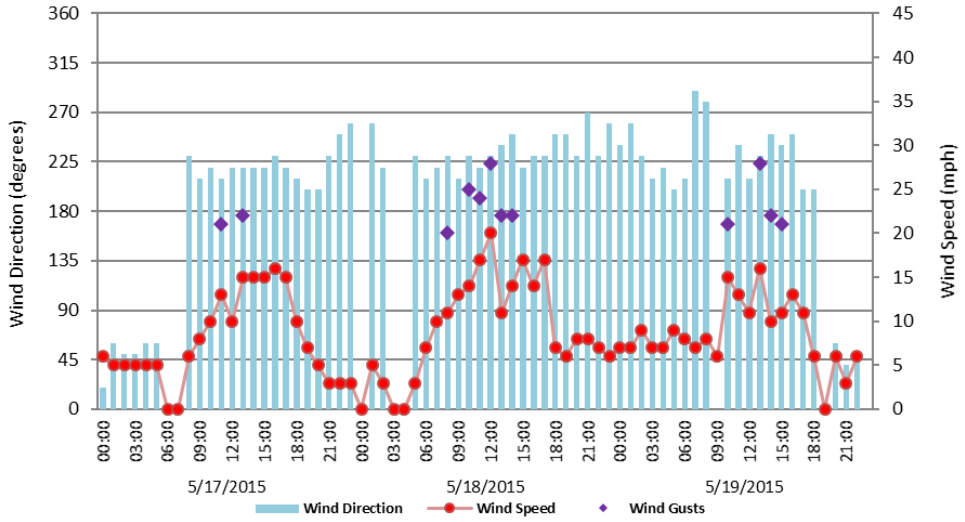


Fig B-10: Campo Airport is located southwest and upstream of Brawley

NORTHERN MEXICO

FIGURE B-11
MEXICALI AIRPORT (MMML)
WIND SPEED, GUSTS (AVERAGES) AND DIRECTION

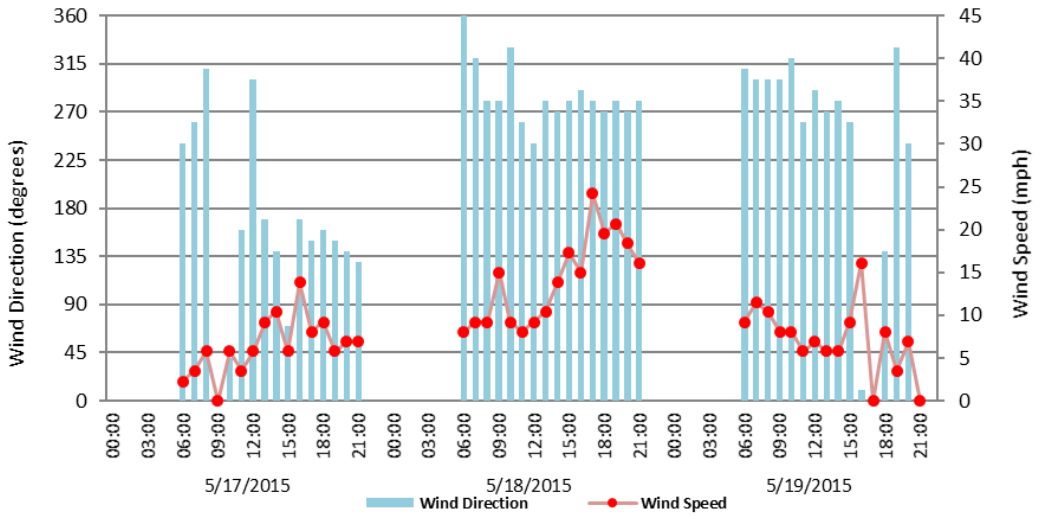


Fig B-11: Mexicali Airport has data missing, but still shows an uptick in wind speed around 15:00. Data from the University of Utah's MesoWest system

SOUTHWESTERN ARIZONA

FIGURE B-12
YUMA, ARIZONA MCAS (KNYL)
WIND SPEED, GUSTS AND DIRECTION

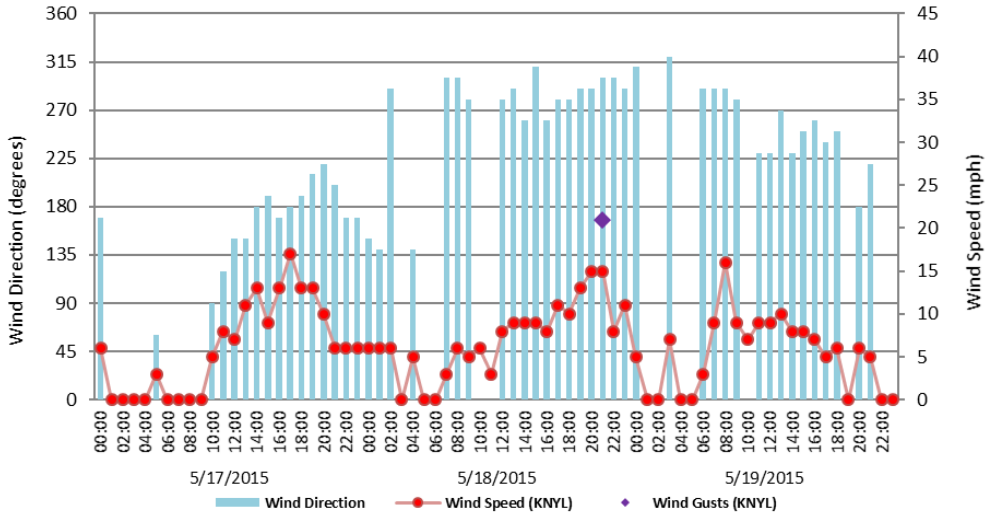


Fig B-12: Yuma, Arizona MCAS is to the southeast of Brawley. Data from the NCEI's QCLCD system

UPSTREAM SITES

FIGURE B-13
SUNRISE-OCOTILLO
WIND SPEED, GUSTS (AVERAGES) AND DIRECTION

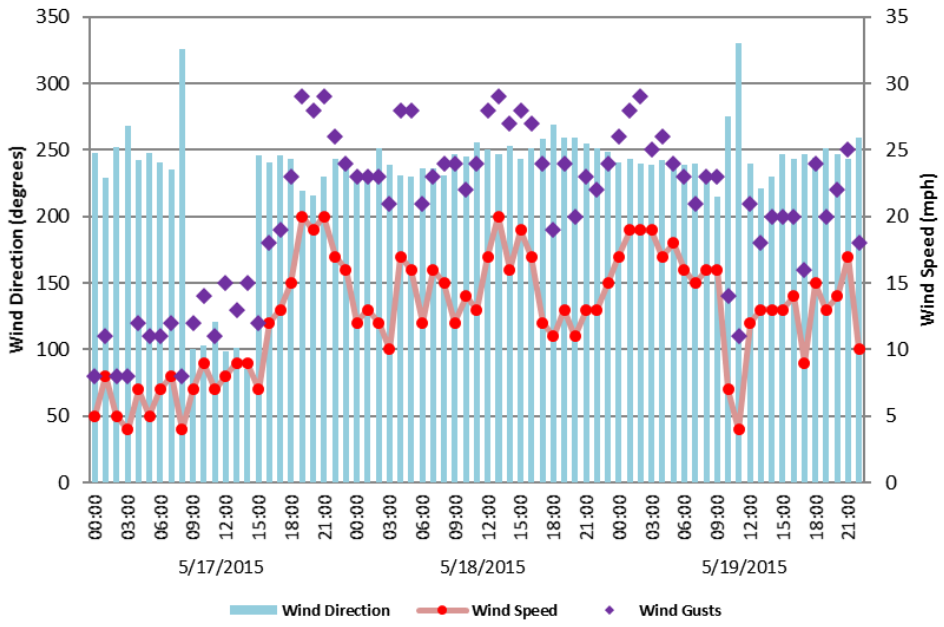


Fig B-13: Sunrise-Ocotillo (MesoWest Station ID: IMPSD) is to the southwest of Brawley

FIGURE B-14
FISH CREEK MOUNTAINS
WIND SPEED, GUSTS AND DIRECTION

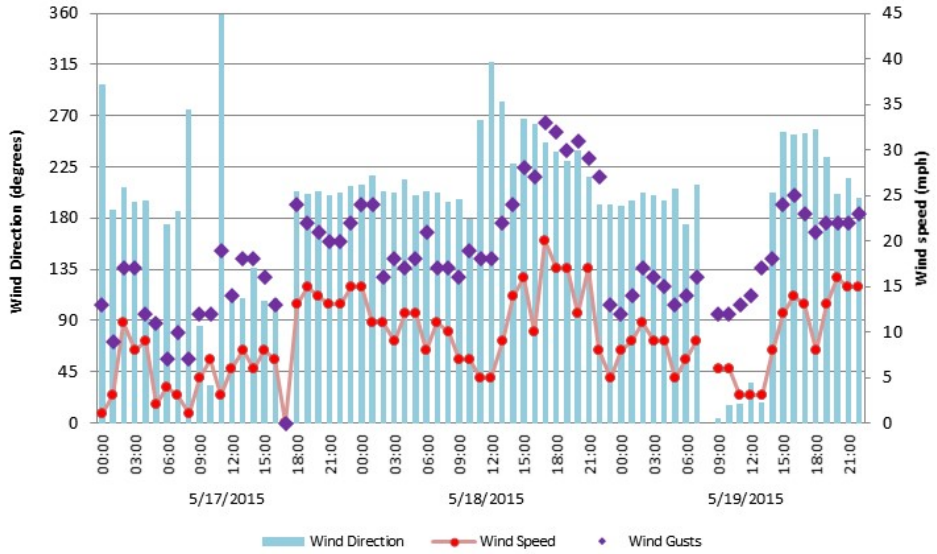


Fig B-14: The Fish Creek Mountains (MesoWest Station ID: FHCC1) is to the west of Brawley

FIGURE B-15
OCOTILLO WELLS
WIND SPEED, GUSTS AND DIRECTION

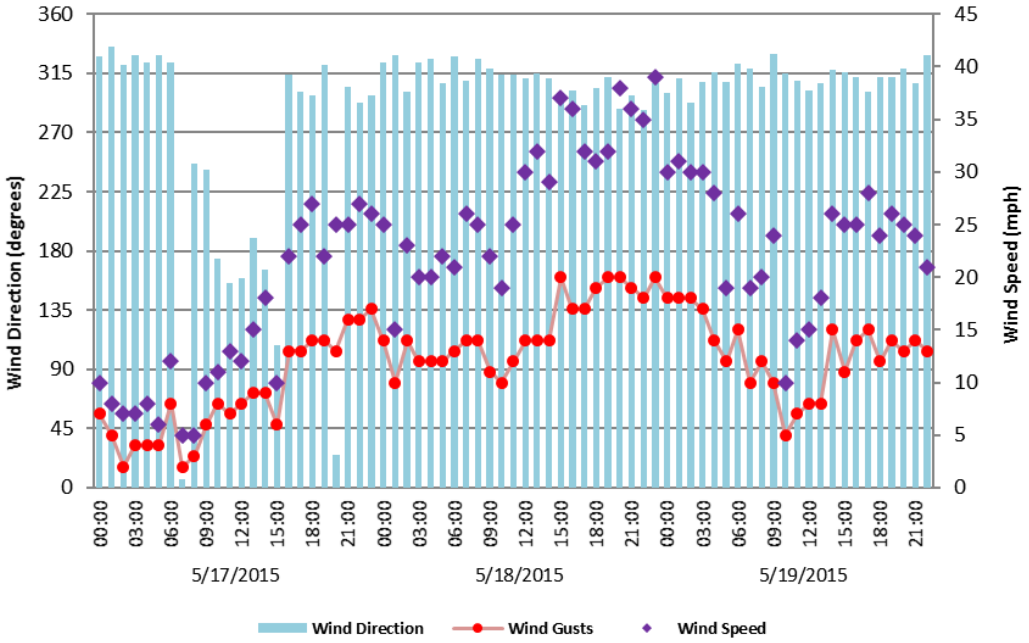


Fig B-15: Ocotillo Wells (MesoWest Station ID: KD6RSQ-5) is located north-northwest of Brawley

FIGURE B-16
IMPERIAL COUNTY AIRPORT QCLCD
FIGURE B-17
IMPERIAL COUNTY AIRPORT QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(may be updated)
HOURLY OBSERVATIONS TABLE
NAF (23199)
EL CENTRO, CA
(05/2015)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: -42 ft. below sea level
Latitude: 32.816
Longitude: -115.683
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
18	0056	5	CLR	10.00		66	18.9	52	10.9	37	2.8	34	8	250		29.93			29.93	AA		29.89
18	0156	5	CLR	10.00		64	17.8	51	10.4	37	2.8	37	5	280		29.92			29.92	AA		29.88
18	0256	5	CLR	10.00		62	16.7	51	10.3	39	3.9	43	10	270		29.91			29.92	AA		29.87
18	0356	5	CLR	10.00		63	17.2	52	11.2	42	5.6	46	13	260		29.91			29.91	AA		29.87
18	0456	5	FEW180	10.00		61	16.1	51	10.7	42	5.6	50	11	260		29.93			29.93	AA		29.89
18	0556	5	FEW180	10.00		65	18.3	53	11.7	42	5.6	43	13	250		29.94			29.94	AA		29.90
18	0656	5	FEW180	10.00		69	20.6	55	12.5	41	5.0	36	16	250		29.95			29.96	AA		29.91
18	0756	5	FEW050 FEW180	10.00		73	22.8	54	12.4	36	2.2	26	16	280		29.96			29.97	AA		29.92
18	0856	5	FEW050 FEW180	10.00		75	23.9	55	12.7	35	1.7	23	10	250		29.97			29.97	AA		29.93
18	0956	5	FEW060 FEW180	10.00		77	25.0	55	12.8	33	0.6	20	10	250		29.95			29.96	AA		29.91
18	1056	5	FEW060	10.00		80	26.7	55	12.9	30	-1.1	16	14	270	18	29.95			29.95	AA		29.91
18	1156	5	FEW060	10.00		82	27.8	56	13.6	31	-0.6	16	14	270	30	29.94			29.95	AA		29.90
18	1256	5	FEW050	10.00		84	28.9	58	14.6	35	1.7	17	21	240	26	29.93			29.93	AA		29.89
18	1356	5	FEW060	10.00		84	28.9	58	14.6	35	1.7	17	23	230		29.92			29.92	AA		29.88
18	1456	5	FEW060	10.00		84	28.9	59	15.2	38	3.3	19	29	240		29.91			29.91	AA		29.87
18	1556	5	FEW060	10.00		82	27.8	60	15.3	41	5.0	23	26	240	37	29.91			29.91	AA		29.87
18	1656	5	FEW055	10.00		78	25.6	59	15.1	44	6.7	30	29	240	38	29.92			29.92	AA		29.88
18	1756	5	FEW055	10.00		76	24.4	58	14.5	43	6.1	31	23	250		29.93			29.93	AA		29.89
18	1856	5	FEW055	10.00		72	22.2	57	13.8	44	6.7	37	30	250		29.94			29.94	AA		29.90
18	1956	5	FEW055	10.00		69	20.6	56	13.1	44	6.7	41	31	260	38	29.95			29.95	AA		29.91
18	2056	5	FEW055	10.00		68	20.0	55	12.7	43	6.1	41	23	260	32	29.97			29.98	AA		29.93
18	2156	5	FEW055	10.00		66	18.9	54	12.4	44	6.7	45	13	250		29.97			29.97	AA		29.93
18	2256	5	CLR	10.00		64	17.8	54	12.2	45	7.2	50	13	230		29.97			29.98	AA		29.93
18	2356	5	CLR	10.00		66	18.9	54	12.4	44	6.7	45	17	250		29.97			29.97	AA		29.93

Dynamically generated Thu Mar 17 11:19:19 EDT 2016 via http://www.ncdc.noaa.gov/qclcd/QCLCD

U.S. Department of Commerce
National Oceanic & Atmospheric Administration

QUALITY CONTROLLED LOCAL CLIMATOLOGICAL DATA
(final)
HOURLY OBSERVATIONS TABLE
IMPERIAL COUNTY AIRPORT (03144)
IMPERIAL, CA
(05/2015)

National Climatic Data Center
Federal Building
151 Patton Avenue
Asheville, North Carolina 28801

Elevation: -58 ft. below sea level
Latitude: 32.834
Longitude: -115.578
Data Version: VER2

Date	Time (LST)	Station Type	Sky Conditions	Visibility (SM)	Weather Type	Dry Bulb Temp (F)	Dry Bulb Temp (C)	Wet Bulb Temp (F)	Wet Bulb Temp (C)	Dew Point Temp (F)	Dew Point Temp (C)	Rel Humd %	Wind Speed (MPH)	Wind Dir	Wind Gusts (MPH)	Station Pressure (in. hg)	Press Tend	Net 3-hr Chg (mb)	Sea Level Pressure (in. hg)	Report Type	Precip. Total (in)	Alti-meter (in. hg)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
18	0053	12	CLR	10.00		64	17.8	53	11.5	42	5.6	45	8	270		29.93			29.86	AA		29.87
18	0153	12	CLR	10.00		61	16.1	51	10.5	41	5.0	48	9	280		29.92			29.85	AA		29.86
18	0253	12	CLR	10.00		61	16.1	51	10.3	40	4.4	46	7	290		29.91			29.85	AA		29.85
18	0353	12	CLR	10.00		60	15.6	51	10.5	42	5.6	52	9	290		29.91			29.85	AA		29.85
18	0453	12	CLR	10.00		58	14.4	51	10.5	44	6.7	60	7	290		29.93			29.87	AA		29.87
18	0553	12	CLR	10.00		61	16.1	53	11.5	45	7.2	56	8	270		29.94			29.88	AA		29.88
18	0653	12	CLR	10.00		67	19.4	54	12.4	43	6.1	42	13	270		29.95			29.89	AA		29.89
18	0753	12	CLR	10.00		71	21.7	55	12.5	39	3.9	31	7	320		29.96			29.90	AA		29.90
18	0853	12	CLR	10.00		74	23.3	54	12.4	35	1.7	24	7	300		29.97			29.91	AA		29.91
18	0953	12	CLR	10.00		77	25.0	56	13.3	36	2.2	23	9	270		29.95			29.89	AA		29.89
18	1053	12	CLR	10.00		79	26.1	55	12.9	31	-0.6	17	7	270		29.95			29.89	AA		29.89
18	1153	12	CLR	10.00		82	27.8	57	13.7	32	0.0	16	15	270	24	29.94			29.88	AA		29.88
18	1253	12	CLR	10.00		83	28.3	58	14.4	35	1.7	18	13	280	21	29.93			29.86	AA		29.87
18	1353	12	CLR	10.00		84	28.9	59	15.0	37	2.8	19	18	250	25	29.91			29.85	AA		29.85
18	1453	12	CLR	10.00		84	28.9	59	15.2	38	3.3	19	20	250	32	29.90			29.83	AA		29.84
18	1553	12	CLR	10.00		81	27.2	59	14.9	40	4.4	23	29	250	37	29.89			29.83	AA		29.83
18	1653	12	CLR	10.00		79	26.1	60	15.3	44	6.7	29	25	250	36	29.90			29.84	AA		29.84
18	1753	12	CLR	10.00		75	23.9	59	14.7	45	7.2	34	24	260	31	29.91			29.85	AA		29.85
18	1853	12	CLR	10.00		71	21.7	57	13.8	45	7.2	39	21	260		29.93			29.87	AA		29.87
18	1953	12	CLR	10.00		69	20.6	57	13.6	46	7.8	44	21	250		29.95			29.88	AA		29.89
18	2053	12	CLR	10.00		67	19.4	55	12.9	45	7.2	45	16	260		29.96			29.90	AA		29.90
18	2153	12	CLR	10.00		65	18.3	54	12.4	45	7.2	49	15	270		29.96			29.90	AA		29.90
18	2253	12	CLR	10.00		64	17.8	54	12.4	46	7.8	52	11	240		29.97			29.91	AA		29.91
18	2353	12	CLR	10.00		63	17.2	54	12.0	45	7.2	52	11	260		29.97			29.91	AA		29.91

Dynamically generated Thu Mar 17 11:21:33 EDT 2016 via http://www.ncdc.noaa.gov/qclcd/QCLCD