



**MONTHLY AIR QUALITY REPORT FOR**  
**JANUARY 2010**

AOI COLOR SCALE

<b>GOOD</b>	<b>MODERATE</b>	<b>UNHEALTHY FOR SENSITIVE GROUPS</b>	<b>UNHEALTHY</b>
<b>0-50</b>	<b>51-100</b>	<b>101-150</b>	<b>151-200</b>

Calendar of maximum AQI values & their corresponding color for January 2010\*

\*Preliminary data

SAMPLE POLLUTANT REPORTING BOX

<b>1</b> (day of month)	<b>O3</b>	<b>CO</b>
	<b>PM10</b>	<b>PM2.5</b>

SUN		MON		TUES		WED		THU		FRI		SAT								
										1	35	36	2	33	23					
										8	65	152	9	44	74					
3	38	24	4	37	25	5	37	20	6	35	24	7	30	23	8	34	26	9	32	22
	42	75		56	67		59	66		68	68		71	100		70	61		43	63
10	31	25	11	35	24	12	36	24	13	33	20	14	38	13	15	38	18	16	34	25
	51	76		73	90		53	53		73	60		26	33		52	59		45	64
17	33	24	18	34	18	19	37	09	20	38	09	21	38	08	22	38	04	23	35	08
	39	58		31	35		20	24		13	21		45	16		08	12		11	26
24	34	13	25	33	17	26	35	19	27	34	14	28	27	09	29	31	14	30	32	18
	19	48		41	66		32	52		31	41		19	45		21	40		24	50
31	36	20																		
	23	57																		

**Calendar of High Pollution Advisories and Health Watches issued during January 2010**

SUN			MON			TUE			WED			THU			FRI			SAT		
															1	<b>B</b>		2		
3		4			5			6			7			8				9		
10		11			12			13			14			15				16		
17		18			19			20			21			22				23		
24		25			26			27			28			29				30		
31																				

**LEGEND**

**HIGH POLLUTION ADVISORIES**

- A** = PM-10 High Pollution Advisory
- B** = PM-2.5 High Pollution Advisory
- C** = Ozone High Pollution Advisory

**HEALTH WATCHES**

- D** = PM-10 Health Watch
- E** = PM-2.5 Health Watch
- F** = Ozone Health Watch

**Calendar of Meteorological Conditions observed in Metro Phoenix during January 2010**

SUN			MON			TUE			WED			THU			FRI			SAT					
															1		<b>E</b>	<b>F</b>	2				
3		<b>E</b>	4		<b>E</b>	5			6			7			8				9				
10			11			12			13	<b>A</b>	<b>B</b>	14			15				16				
17			18		<b>B</b>	19	<b>A</b>	<b>B</b>	<b>C</b>	20		<b>B</b>	21		<b>B</b>	<b>C</b>	22		<b>B</b>	<b>C</b>	23		<b>B</b>
24			25			26			27		<b>B</b>	28		<b>B</b>	<b>C</b>	29		<b>B</b>	<b>C</b>	30			
31																							

**LEGEND**

**ELECTROMETEORS**

- A** = Thunderstorm

**HYDROMETEORS**

- B** = Rain/Drizzle/Hail/Snow
- C** = Fog

**LITHOMETEORS**

- D** = Blowing Dust
- E** = Haze (vsby <10SM)
- F** = Smoke

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**Exceedance days during JAN 2010-**

Total=	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
1	01/01	152	PM-2.5	West Phoenix
		108	PM-2.5	Durango

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**Health Watches issued during JAN 2010-**

Total=	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
0				

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**High Pollution Advisories issued during JAN 2010-**

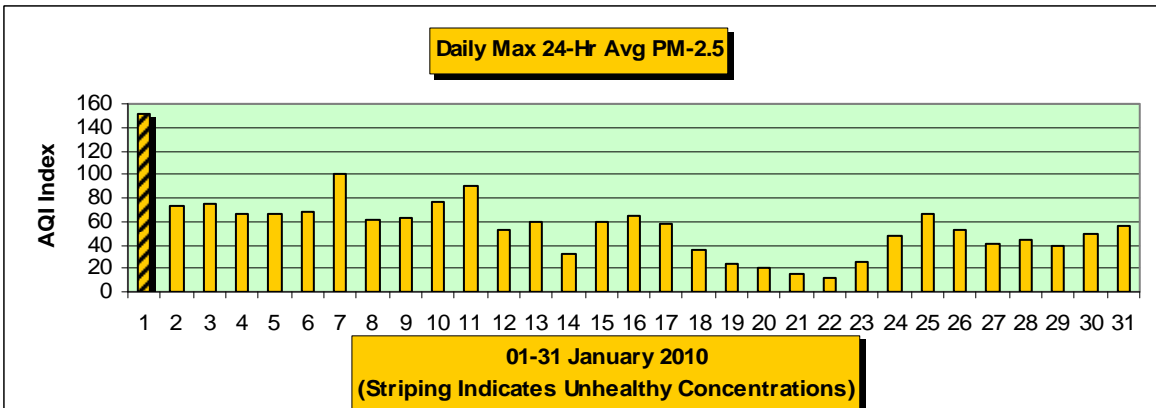
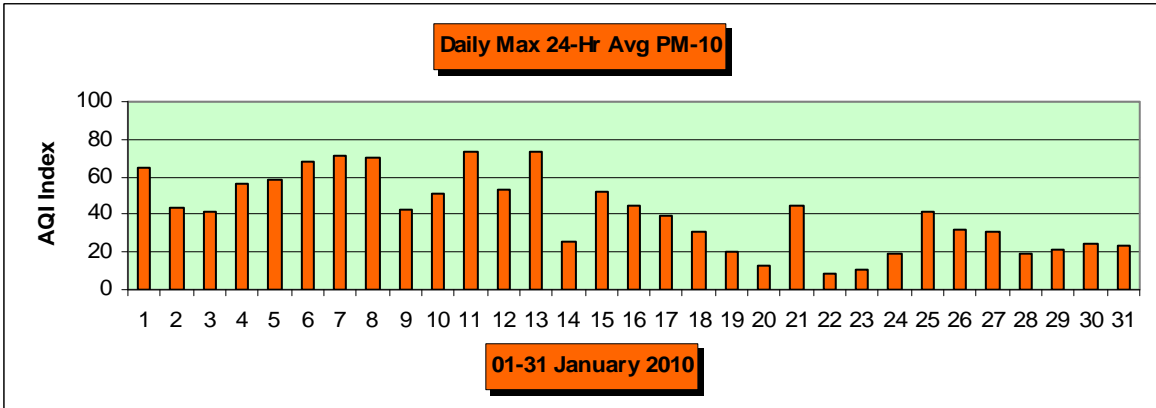
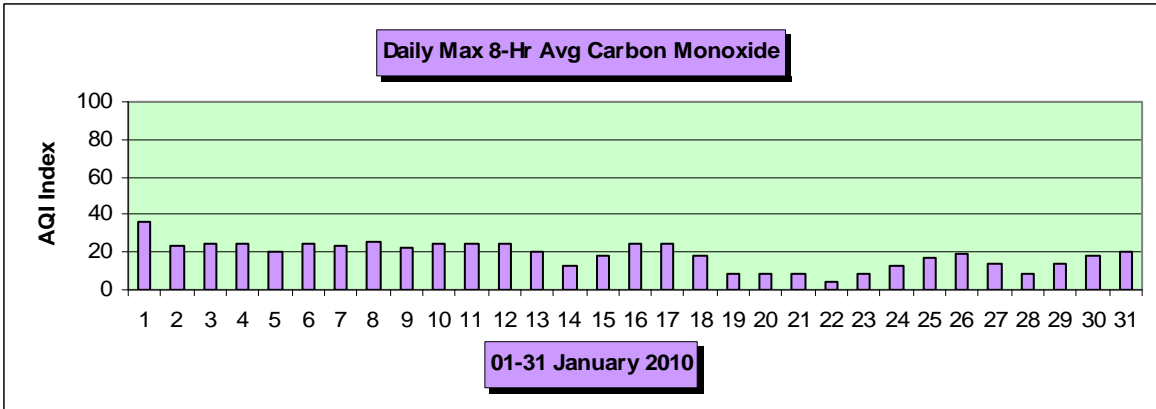
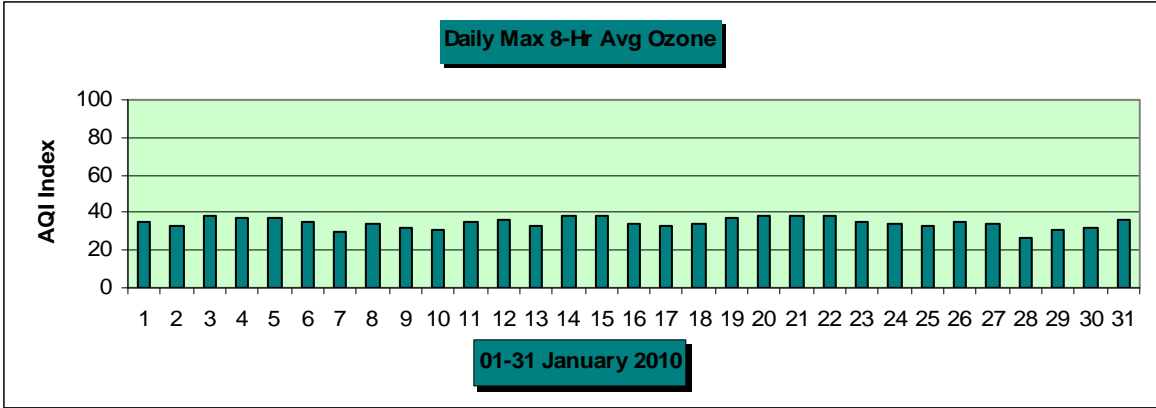
Total=	<u>Date</u>	<u>Max AQI</u>	<u>Pollutant</u>	<u>Site/s</u>
1	01/01	152	PM-2.5	West Phoenix

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**Concentration Recap:**

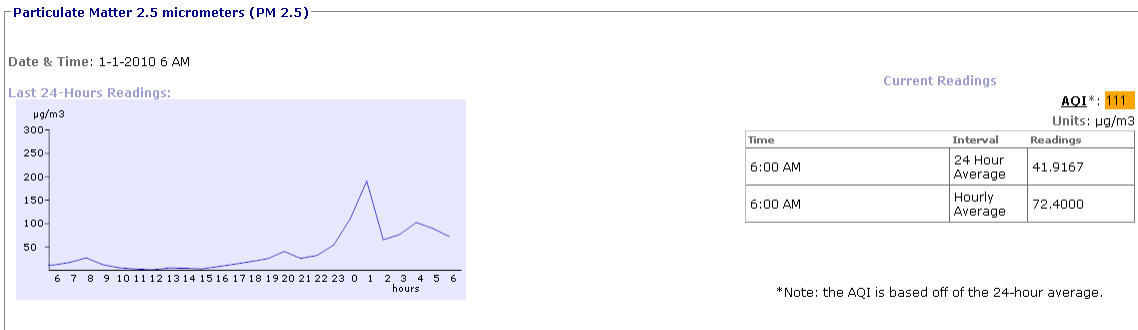
Days in the <b>Good</b> category:	12
Days in the <b>Moderate</b> category:	18
Days in the <b>Unhealthy for Sensitive Groups</b> category:	0
Days in the <b>Unhealthy</b> category:	<u>1</u>
Total Forecast Days:	31

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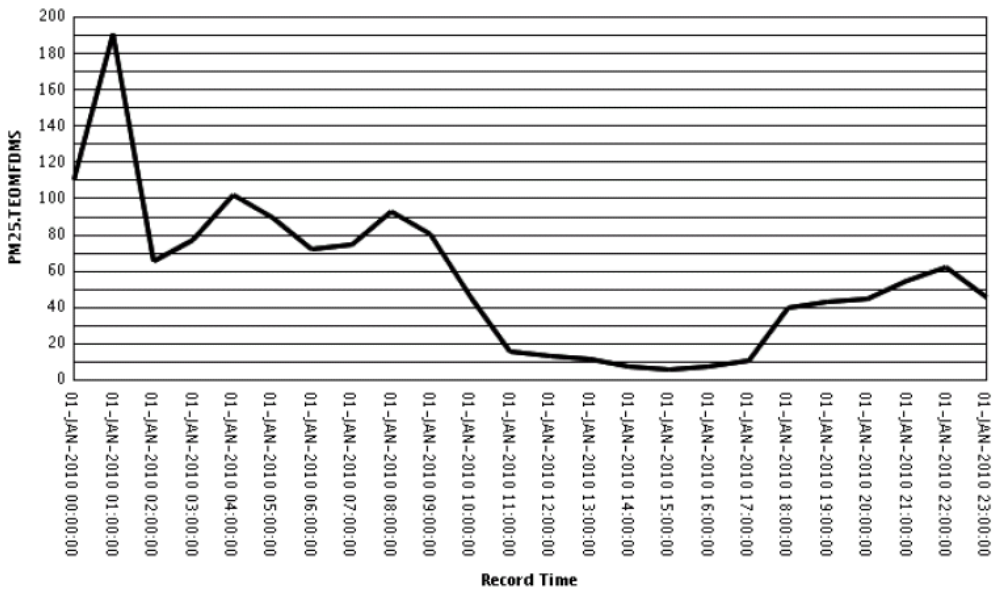


**Narrative:**

The New Year began on a sour note air quality-wise due to a combination of factors on January 1 that contributed to unhealthy air quality. The meteorological factors included the axis of an upper level high-amplitude ridge situated over the AZ/NM border resulting in subsiding and warming air aloft over the Phoenix metro area. The afternoon mixing depth was only 2900' and dispersion was poor to marginal. The very stable and stagnant air mass was further enhanced by the overnight formation of a strong - 7 deg C - surface based radiation inversion that reached to nearly 2100'. On the pollution side of the equation were fine particles (PM-2.5) in the form of smoke produced by the continued use of wood-burning fireplaces and appliances that had begun the previous evening - ostensibly to celebrate the new year - in spite of Maricopa County No Burn Day declarations and ADEQ High Pollution Advisories for December 31 and January 1. The two graphics below illustrate how the fine particle concentrations ramped up at the West Phoenix monitoring site:



Name: WEST PHOENIX



The peak hourly PM-2.5 concentration of 191.1ug/m<sup>3</sup> that was measured at this site at 1:00 a.m. – as well as the 2:00 a.m. 96.0ug/m<sup>3</sup> reading at the Durango site – were instrumental in ultimately producing 24-hour average levels that were in the Unhealthy category of the Air Quality Index at both locations. Daybreak on the 1st revealed a spectacle of smoke over the Valley that was very striking; the following series of images from the local VISNET camera array captures the scene to advantage:







**Live Camera Sites**

- South Mountain
- Estrella Mountains
- White Tank Mountains
- Camelback Mountain
- Superstition Mountains

Phoenix Region Visibility Index

**Current Index** 29

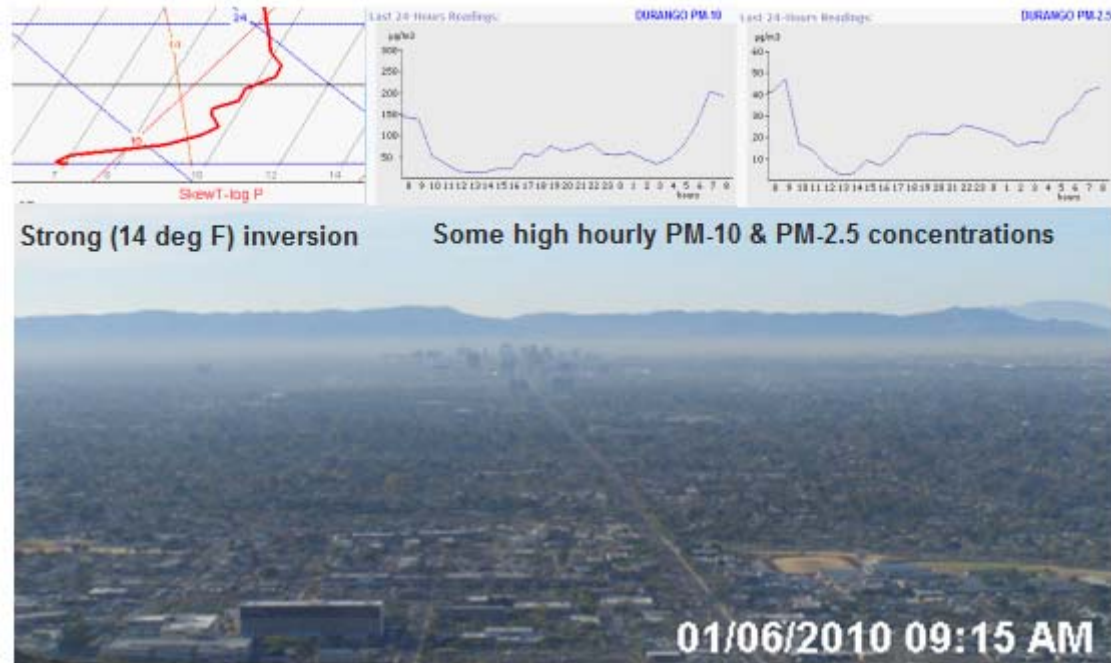
[Details](#)

EXCELLENT
GOOD
FAIR
POOR
VERY POOR

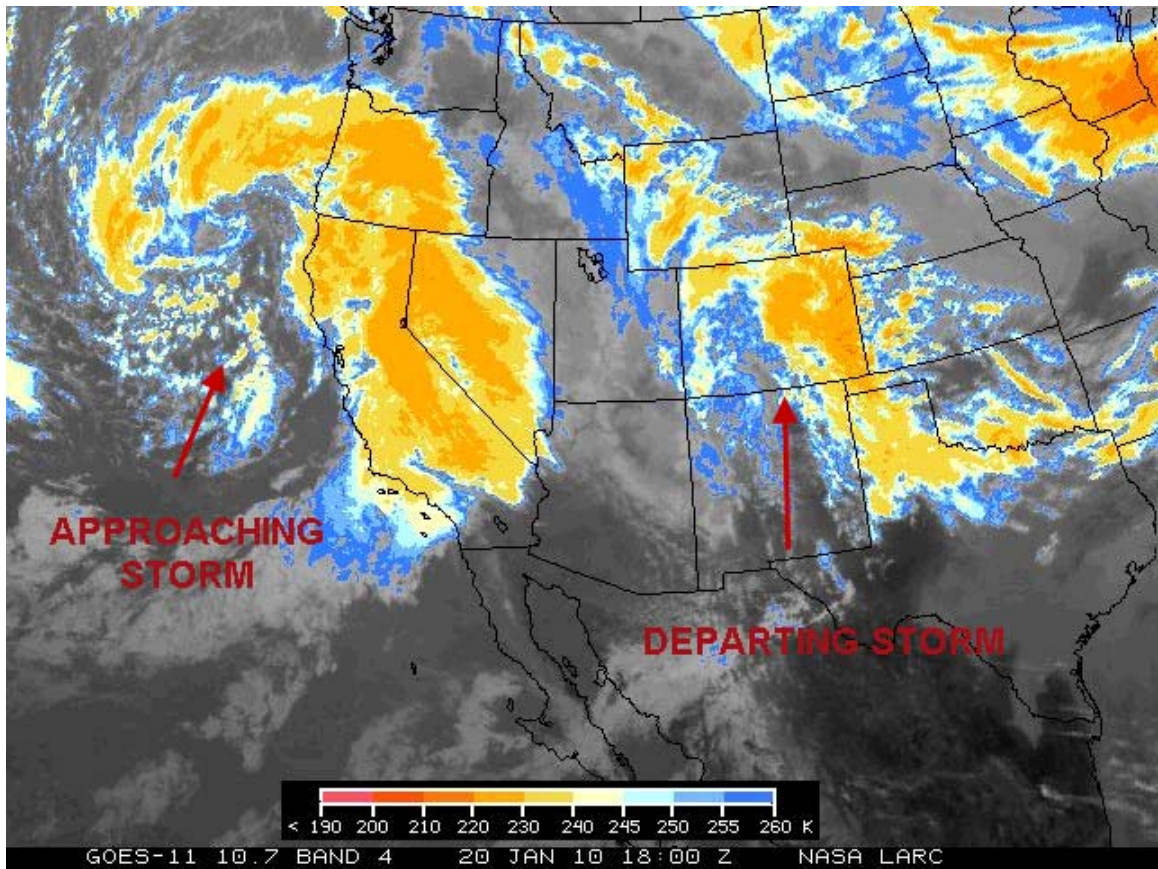
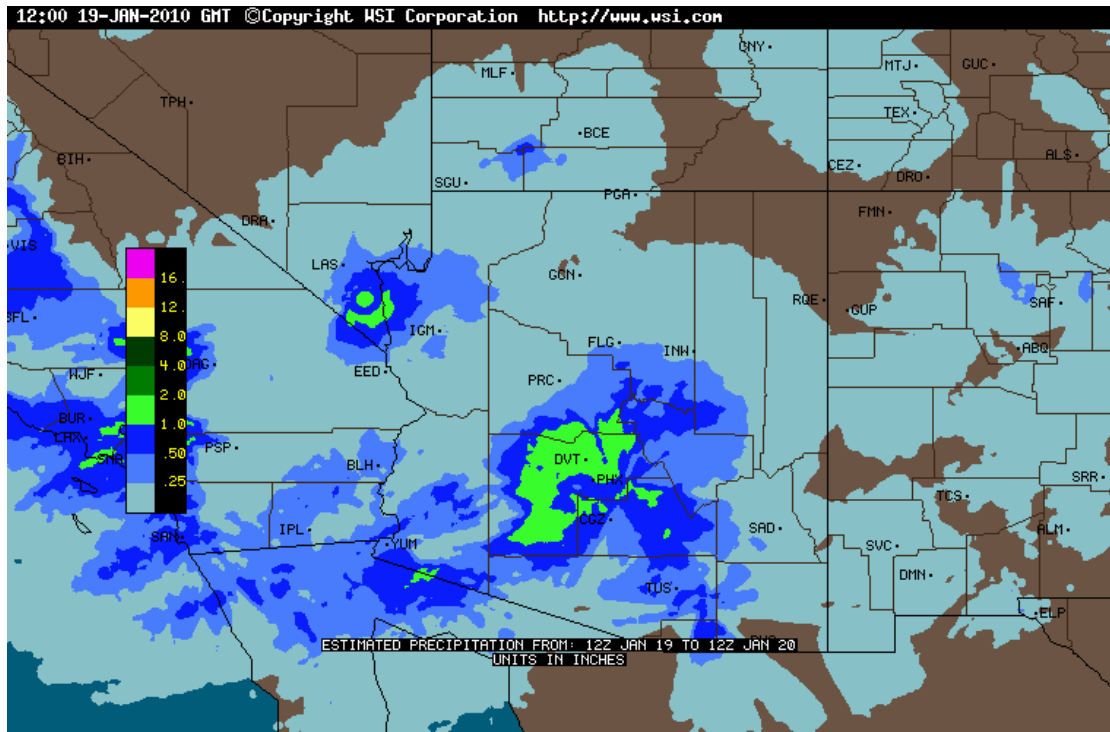




PM-10 (coarse) and PM-2.5 (fine) particle levels then remained elevated to high each day for the next few weeks due in part to the continued presence of high pressure aloft overhead or nearby and its influence on local stagnation due to inversions and unfavorable dispersion. For example, the graphic below shows the situation that existed on the 6th of the month:

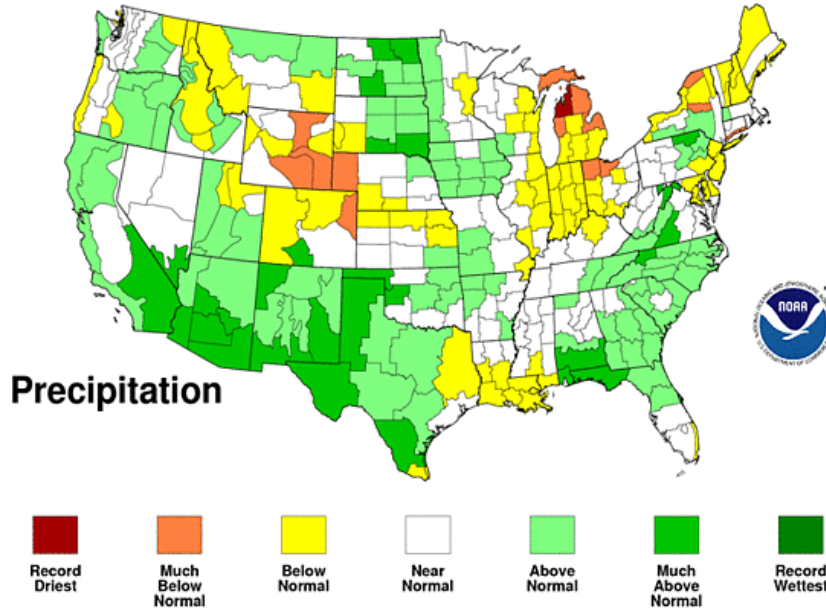


Fortunately for Valley residents, a change in the weather pattern occurred by the 13th as the long-anticipated effects of a strong El Nino cycle began. As the mid-latitude storm track became more active and displaced to the south, the first in a series of trough passages occurred in the metro area on the 14th. This initial feature only produced a few mostly dry thunderstorms along with some gusty outflow winds. A much more significant disturbance arrived on the 18th and 19th that produced very heavy rainfall with totals over one inch fairly common in the Phoenix area. This was followed by an even stronger system on the 21st that managed to leave behind 1-2 inch rainfall totals Valley-wide along with wind gusts in excess of 50 mph that had prompted the issuance of a locally rare High Wind Warning by the National Weather Service. Additional major trough and frontal passages occurred thru the end of the month. In addition to the beneficial rainfall, Valley air quality was excellent from the 16th thru the 31st with all air pollutant levels in the good or low-moderate range of the Air Quality Index. Ultimately, it ended up being a near-record month for precipitation for not only the Phoenix area but also the entire state and region as well as the final series of graphics reveal. -Reith

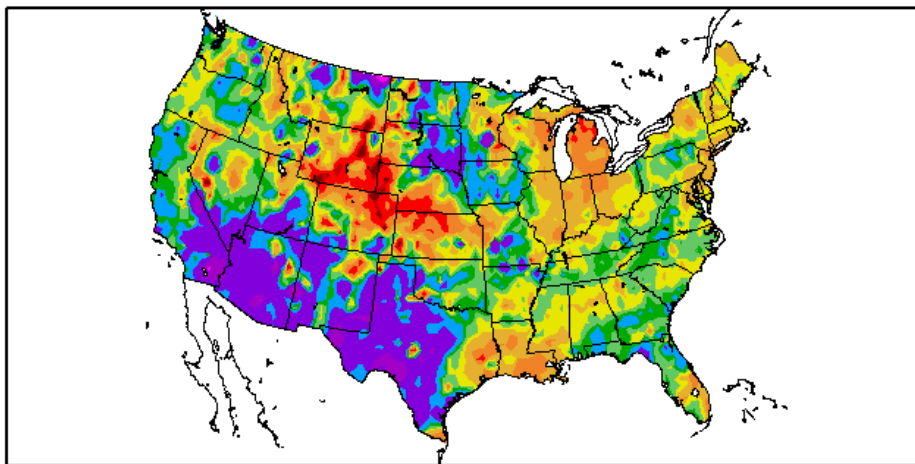


# Jan 2010 Divisional Ranks

National Climatic Data Center/NESDIS/NOAA



Percent of Normal Precipitation (%)  
1/1/2010 – 1/31/2010



Generated 2/2/2010 at HPRCC using provisional data.

NOAA Regional Climate Centers