

Winter Weather Conditions for Yuma County, 2013-2014



John C. Palumbo, University of Arizona

The weather data shown in the following figures and table were recorded at four separate University of Arizona's Arizona Meteorological Network (AZMET) weather stations that provide meteorological data and weather-based information for Yuma County. The variables summarized in this report included average ambient air temperature and freeze events (°F), average wind speed (mph), and monsoon and winter precipitation (inches) for each site. A full description of each location, as well as full access to the data used in this report can be found at the AZMET website: <http://cals.arizona.edu/azmet/>. The AZMET Stations for each location are listed as follows: 1) N. Yuma Valley, located at the Yuma Ag Center at Somerton Ave and Co. 8th St.; 2) S. Yuma Valley, located 3 miles south of Somerton (data started in Nov 2009) ; 3) N. Gila Valley, located west of Laguna Dam Rd. on Ave 7E; 4) Roll, located at Co 4th St and Ave 39E.

Temperatures - Figure 1 Average ambient temperatures varied from previous years at each of the four locations. Temperatures during January and February were considerably warmer this season compared to the last several years as well as the AZMET "normal", particularly in the Yuma Valley. In contrast, temperatures during Nov and Dec were more seasonable in all growing locations. Areawide, temperatures were generally warmer at the Yuma and Gila Valley stations, and generally coolest at the Roll station. In general, average nighttime low temperatures were higher this year relative to last growing season, especially during January and February.

Freeze Events - Table 1 There were considerably fewer freeze events in the Yuma area this season compared to previous years. At the N. Yuma Valley station, no freezing events were recorded this year, and only 2 and 1 were recorded in the S. Yuma Valley and N Gila Valley stations, respectively. The average lowest temperature recorded and the durations for each freeze event were similar to last season in the S. Yuma Valley, but were warmer in the Gila Valley and Roll. There were more freeze events recorded at the Roll station compared to the other three locations this year, and but overall there were considerably fewer freeze events at the Roll location than have been recorded in the previous four growing seasons. The most significant freeze event occurred in Roll on Jan 6 where the low temperature recorded was 27.3 °F where temperatures remained below 32 °F for 3 hours.

Wind speed - Figure 2 Average wind speed varied by month and location. As in previous years, the Roll area appeared to be the least windy among the locations, whereas the North Yuma Valley had the highest average wind speeds recorded. Overall across all locations, winds were lighter in November and February and were slightly higher during December and January. Compared to AZMET normal conditions, wind speeds were generally lower in 2013-2014.

Precipitation - Figure 3 Similarly, rainfall amounts varied by location and time of the year. In the 2013-2014 season, the North Gila and Roll stations recorded had the highest total amounts of precipitation, largely due to severe monsoon storms during August and September, and heavy winter rainfall occurring during January. Winter rainfall was heaviest in the North Gila Valleys and Roll. All growing locations had more cumulative rainfall than the previous years. Monsoon rainfall in the all locations was considerably higher than the AZMET normal.

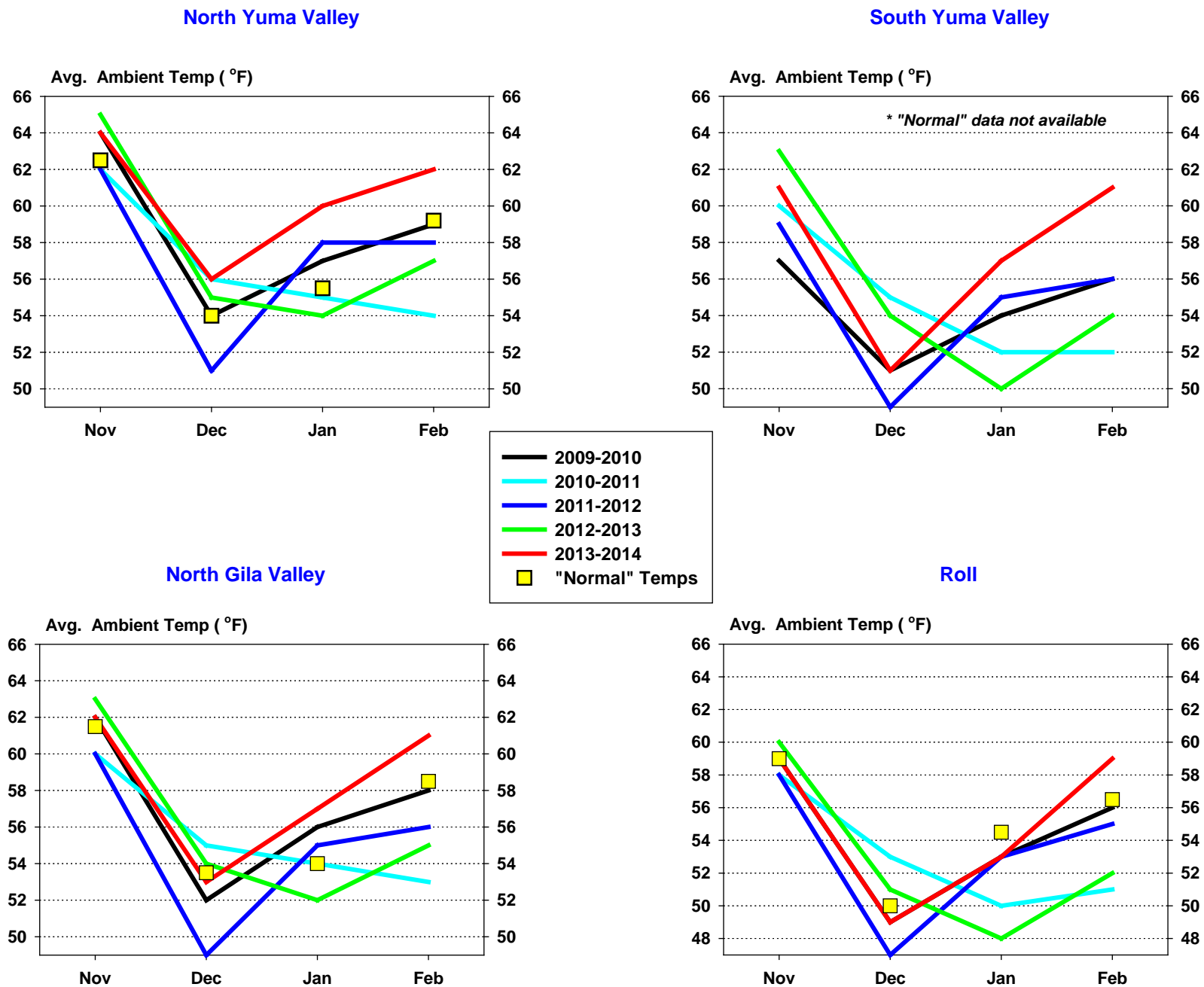


Figure 1. Average Ambient Temperatures (°F) at four AZMET weather station locations within Yuma County, AZ 2009-2014

Table 1. Number of days and duration of temperatures below 32 °F recorded at four AZMET locations within Yuma County, AZ 2008-20114

| N. Yuma Valley (Somerton Ave. and Co. 8) | | | |
|---|--|------------------------------|--|
| Growing season | Days with Temps at or below 32 °F | Avg. Lowest Temp (°F) | Avg. Hrs Temp at or below 32 °F |
| 2009-2010 | 1 | 31.3 | 1 |
| 2010-2011 | 5 | 29.1 | 2.8 |
| 2011-2012 | 2 | 29.5 | 1 |
| 2012-2013 | 4 | 31.8 | 1.2 |
| 2013-2014 | 0 | - | 0 |

| S. Yuma Valley (Somerton Ave and Co. 19) | | | |
|---|--|------------------------------|--|
| Growing season | Days with Temps at or below 32 °F | Avg. Lowest Temp (°F) | Avg. Hrs Temp at or below 32 °F |
| 2009-2010 | 3 | 30.7 | 1.6 |
| 2010-2011 | 11 | 28.4 | 4.5 |
| 2011-2012 | 8 | 30.8 | 2.0 |
| 2012-2013 | 14 | 30.9 | 2.1 |
| 2013-2014 | 2 | 30.7 | 1 |

| N. Gila Valley (Co. 7th St) | | | |
|------------------------------------|--|------------------------------|--|
| Growing season | Days with Temps at or below 32 °F | Avg. Lowest Temp (°F) | Avg. Hrs Temp at or below 32 °F |
| 2009-2010 | 0 | - | 0 |
| 2010-2011 | 7 | 27.7 | 4.9 |
| 2011-2012 | 7 | 30.0 | 3.1 |
| 2012-2013 | 9 | 30.8 | 2.2 |
| 2013-2014 | 1 | 32 | 1 |

| Roll (Co. 4th St. and Ave 39E) | | | |
|---------------------------------------|--|------------------------------|--|
| Growing season | Days with Temps at or below 32 °F | Avg. Lowest Temp (°F) | Avg. Hrs Temp at or below 32 °F |
| 2009-2010 | 19 | 29.1 | 3.3 |
| 2010-2011 | 30 | 28.3 | 4.0 |
| 2011-2012 | 19 | 28.2 | 3.9 |
| 2012-2013 | 43 | 28.9 | 4.1 |
| 2013-2014 | 17 | 30.2 | 1.7 |

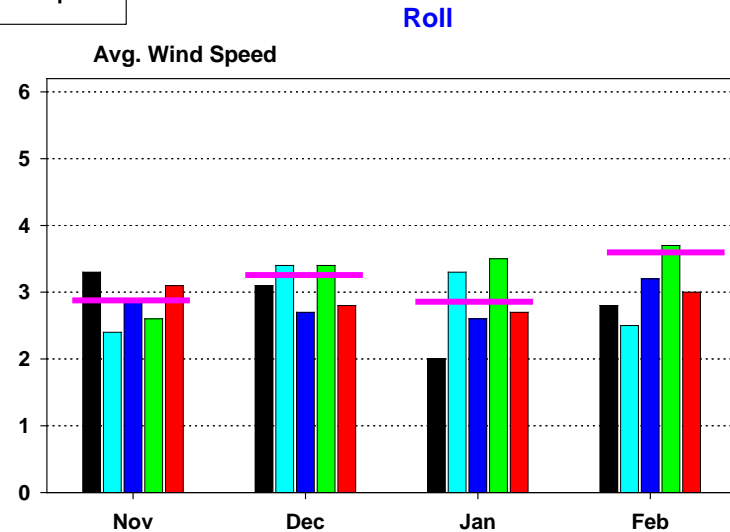
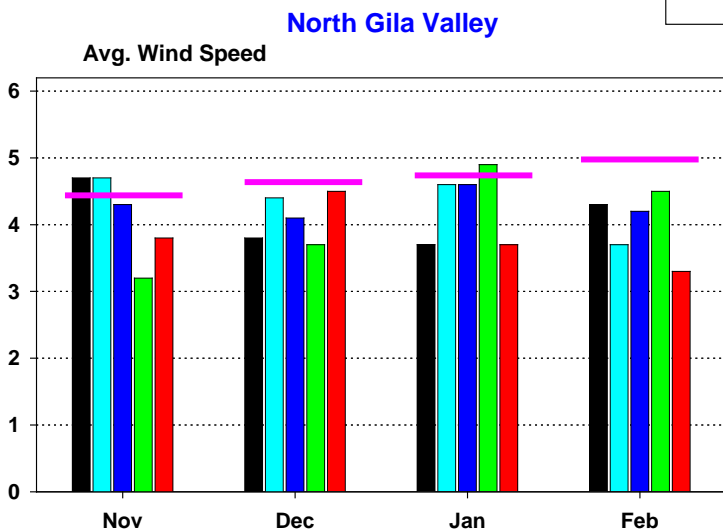
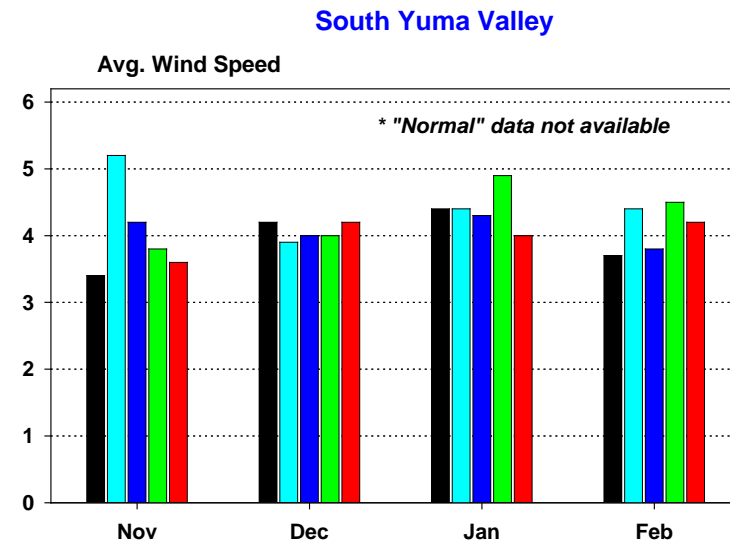
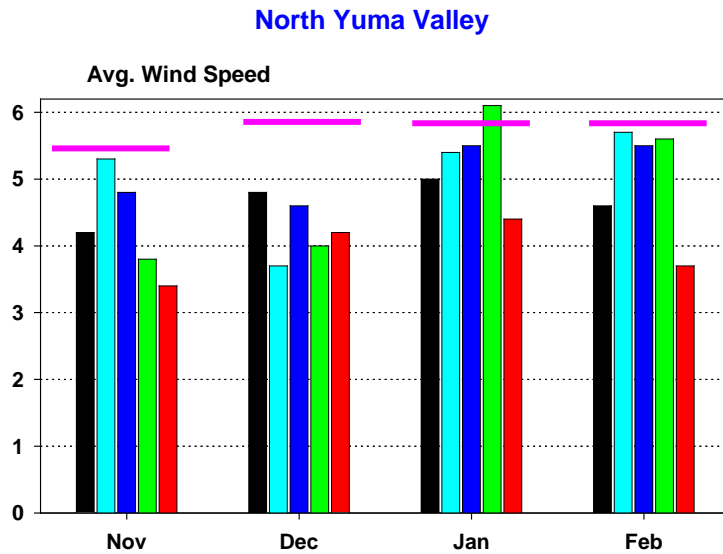


Figure 2. Average wind speed (mph) at four AZMET locations within Yuma County, AZ 2009-2013

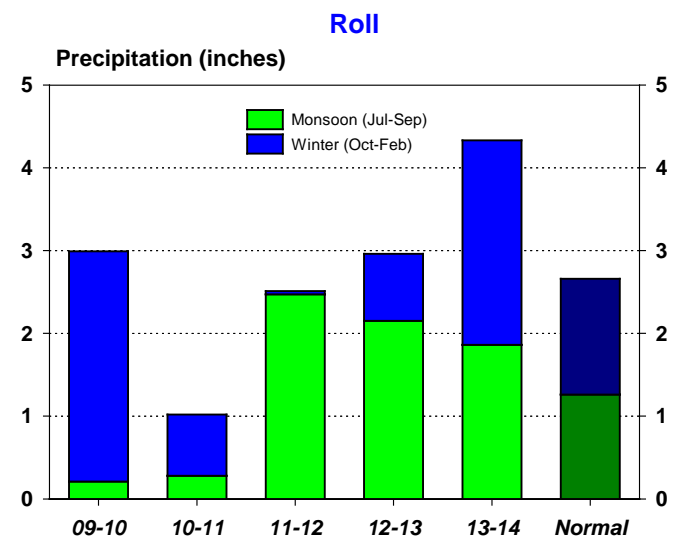
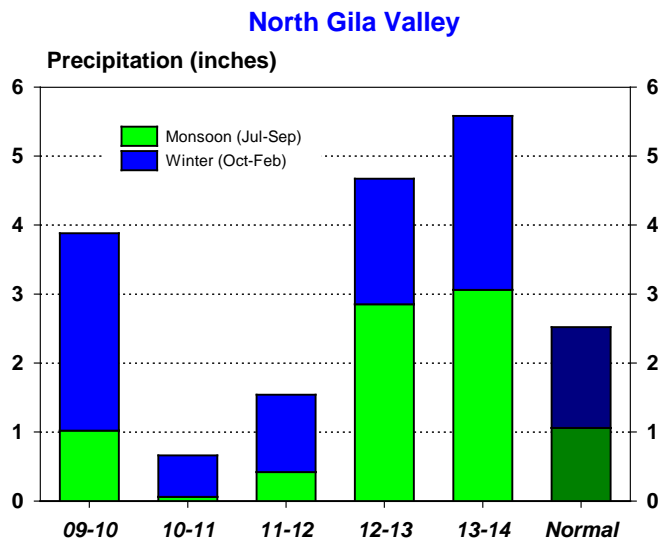
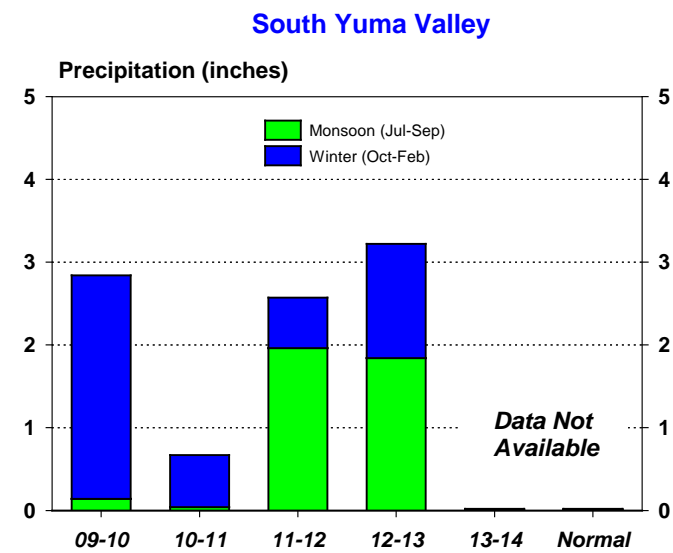
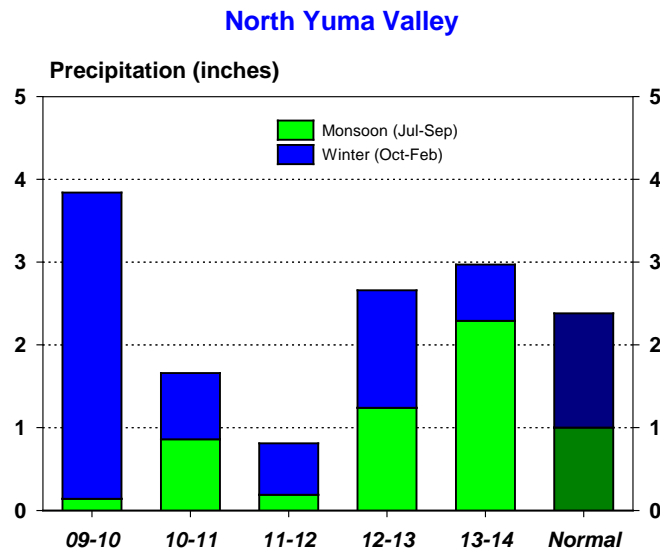


Figure 3. Accumulated monsoon and winter precipitation (inches) at four AZMET locations within Yuma County, AZ 2009-2014