



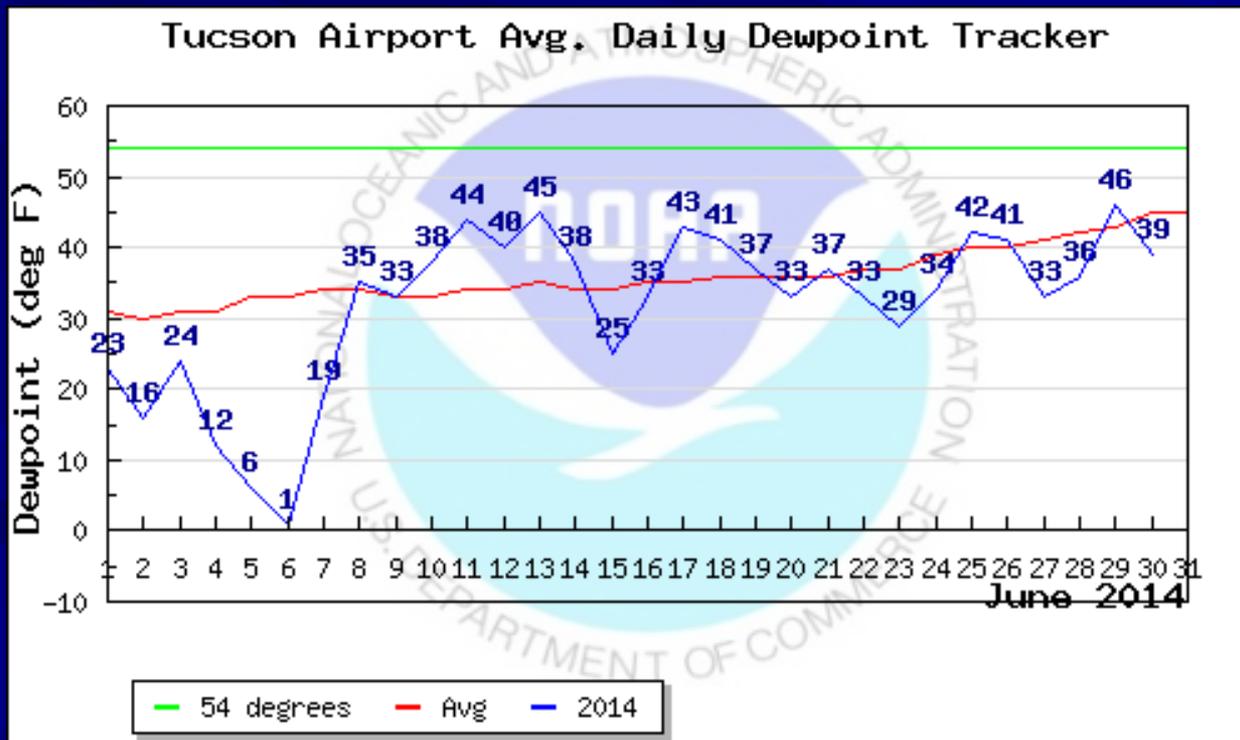
Erin Boyle
Hydrologist
NWS Tucson
Pima County
LDIG Meeting
Sept 10, 2014

2014 Monsoon Season



JUNE

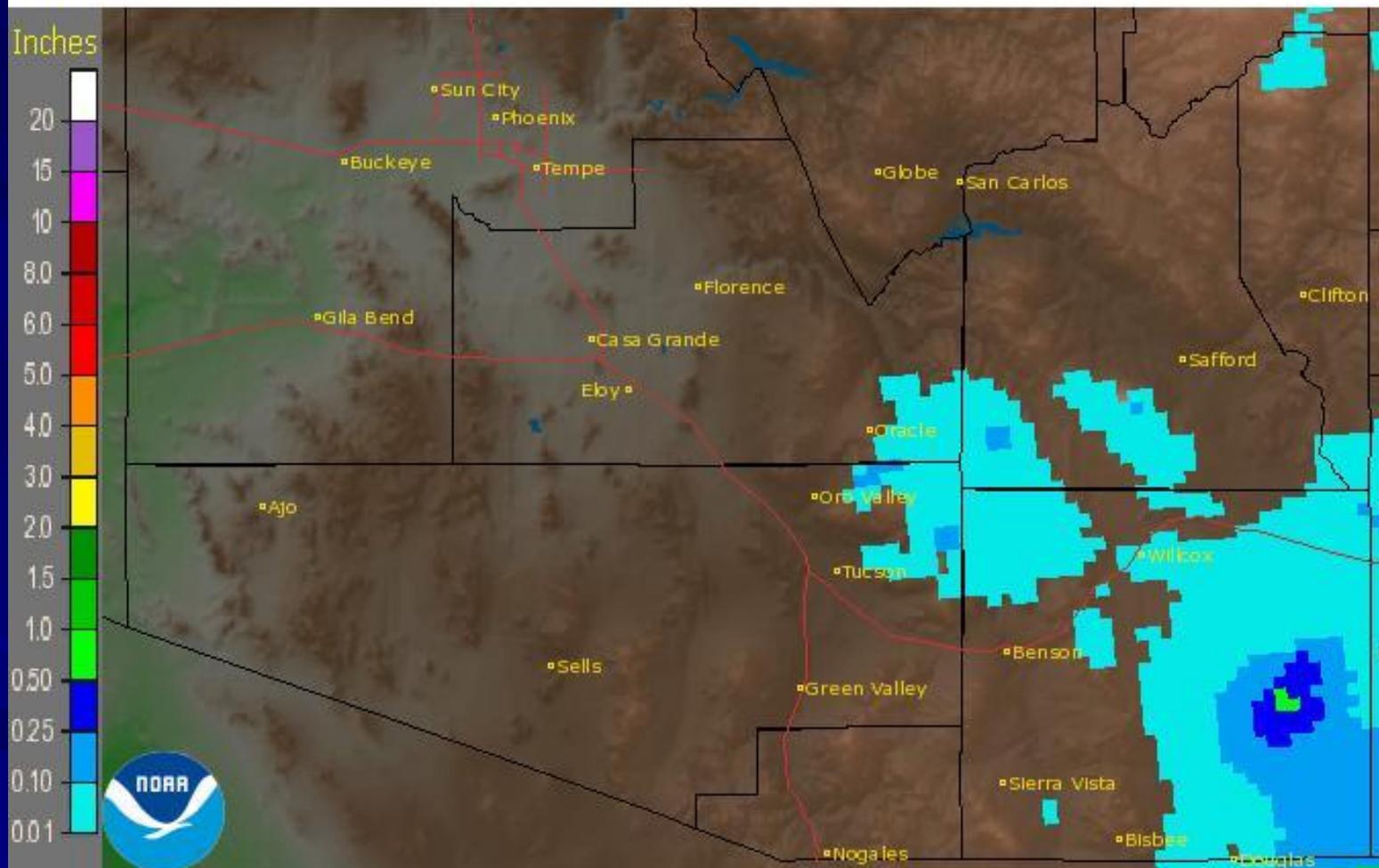
- **3rd Hottest** on record
- 15th with no rain, normal 0.20"
- 29 days triple digits, 2nd most
- Rainlog.org & Pima CO ALERT gages recorded zero to 0.20"



Southeast Arizona June Precipitation

Source: <http://water.weather.gov>

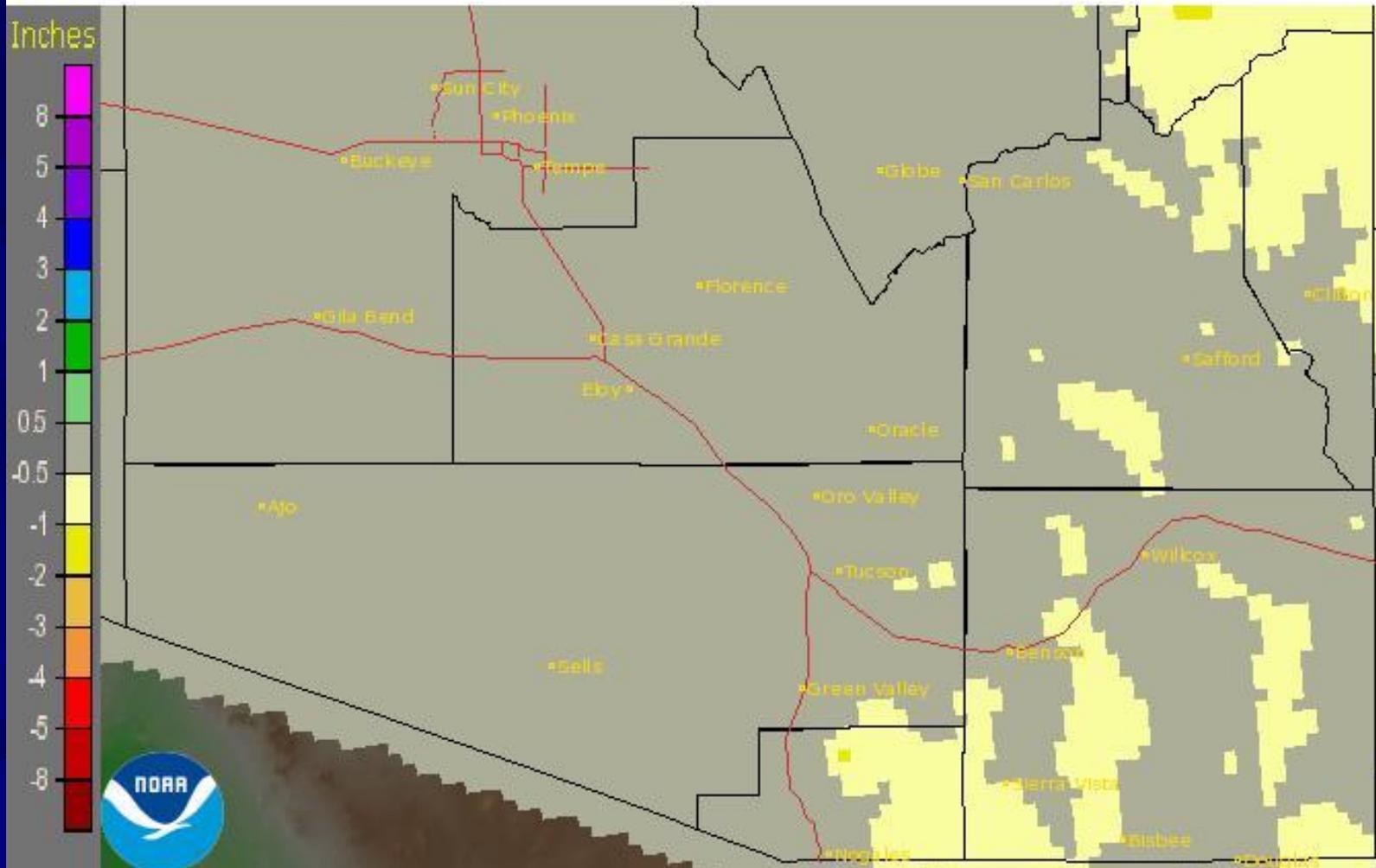
Tucson, AZ (TWC): June, 2014 Monthly Observed Precipitation
Valid at 7/1/2014 1200 UTC- Created 7/3/14 23:56 UTC



June departure from normal precipitation

Source: <http://water.weather.gov>

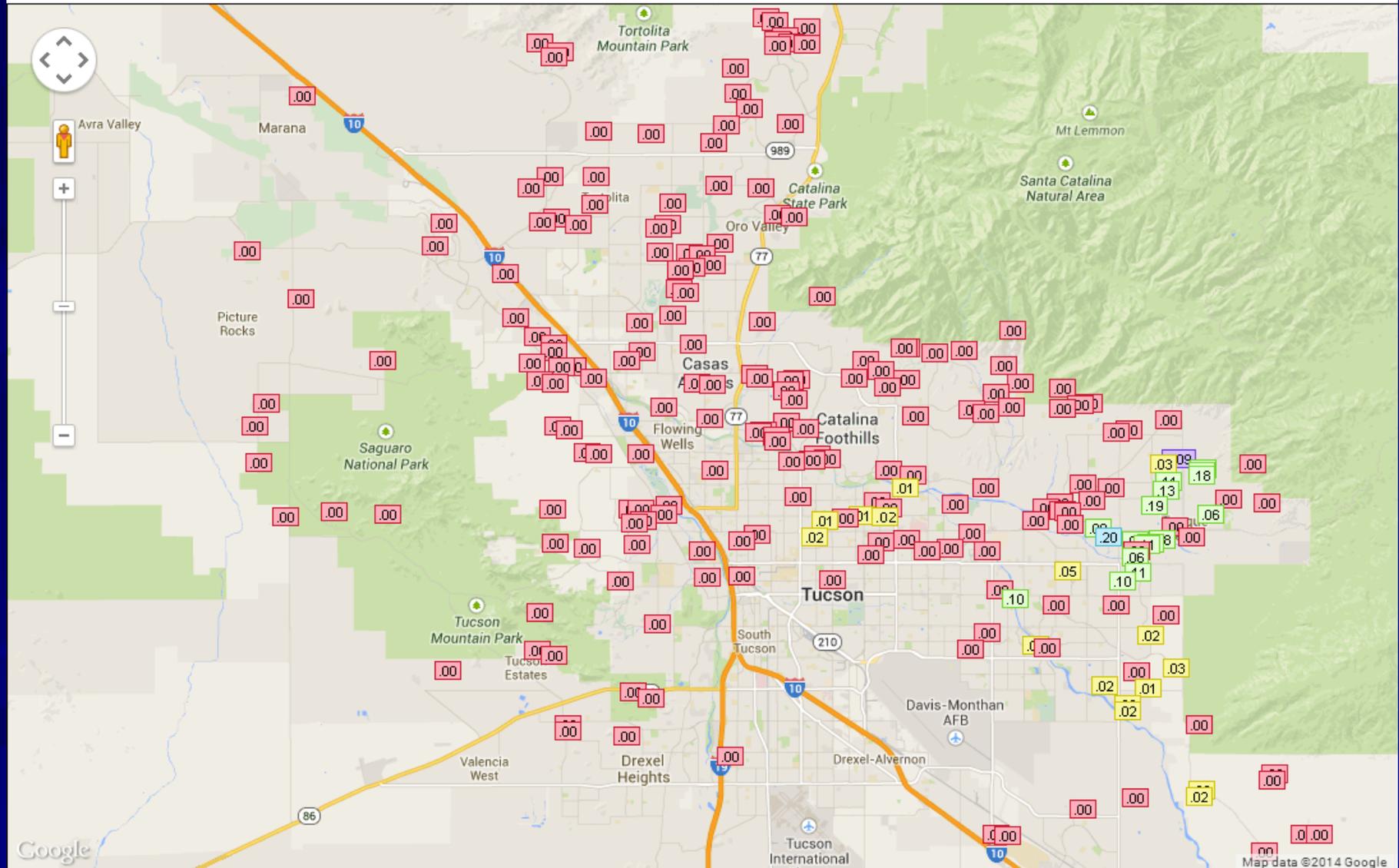
Tucson, AZ (TWC): June, 2014 Monthly Departure from Normal Precipitation
Valid at 7/1/2014 1200 UTC- Created 7/3/14 23:56 UTC



Tucson Area June Precipitation Totals

Source: <http://rainlog.org>

Report of Rainfall Data for 6/2014



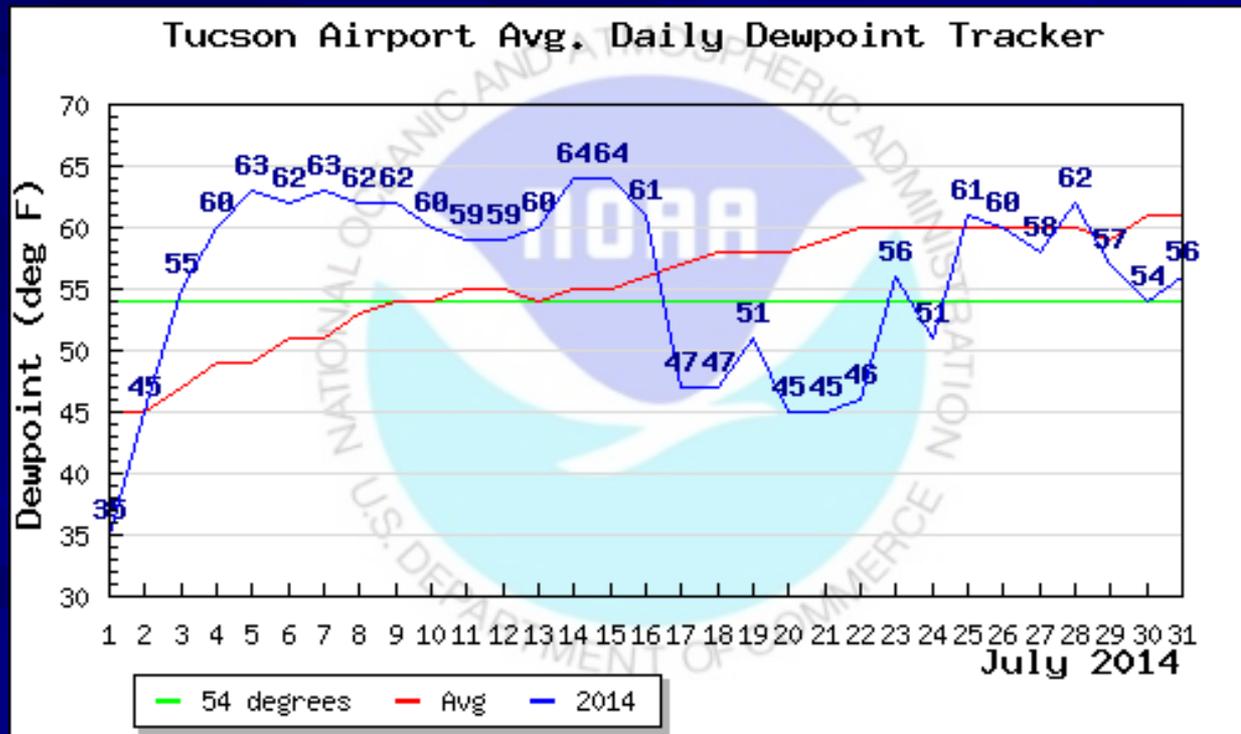
Map Legend (all amounts in inches)

No rain Trace .01 - .05 .06 - .19 .20 - .49 .50 - .99 1.00+

Map data ©2014 Google

JULY

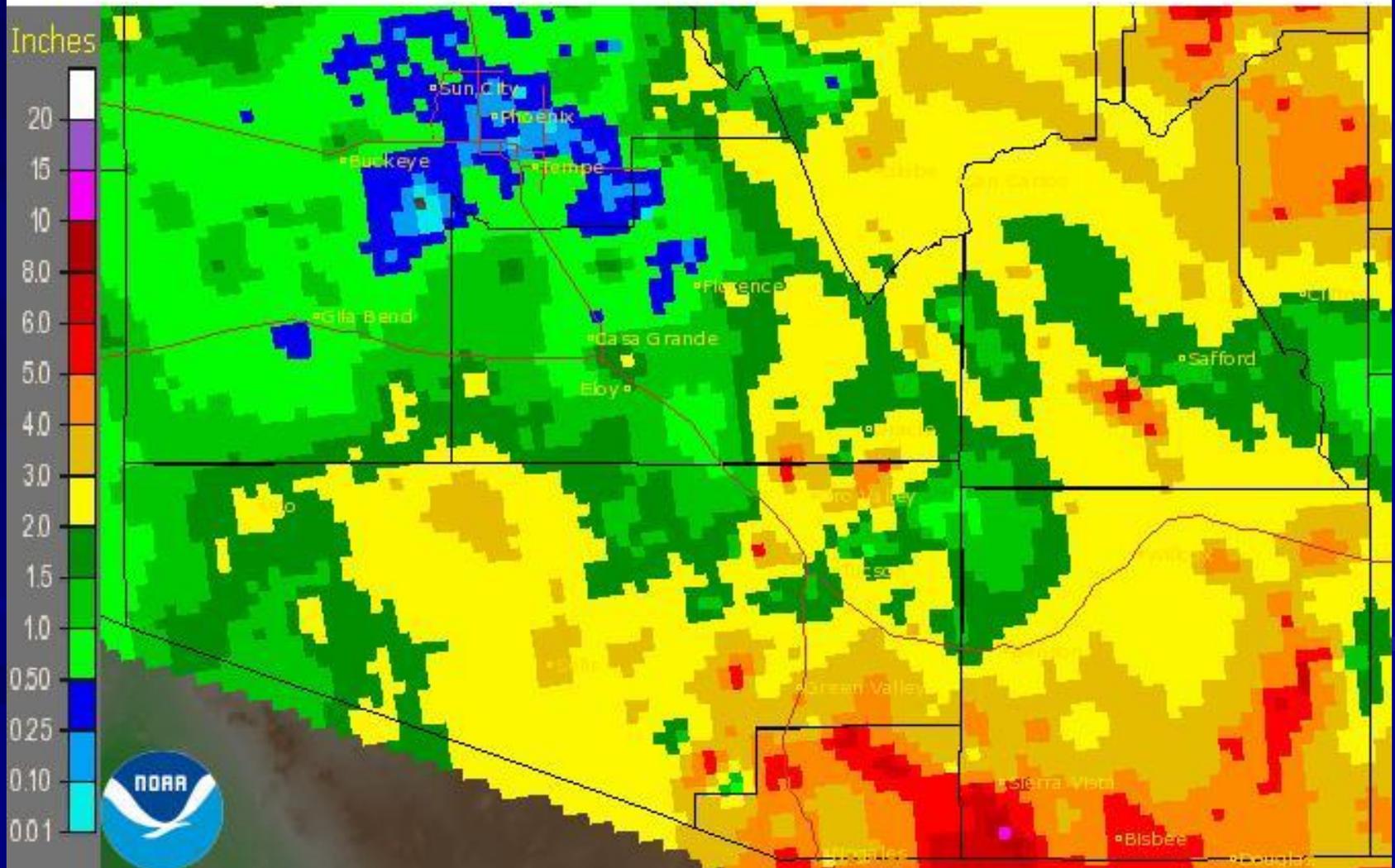
- 13th Warmest & 39th Driest
- 1.43" rainfall at Tucson Airport, normal is 2.25"
- Rainlog.org & Pima County ALERT gages recorded 0.40" to over 5"



Southeast Arizona July Precipitation

Source: <http://water.weather.gov>

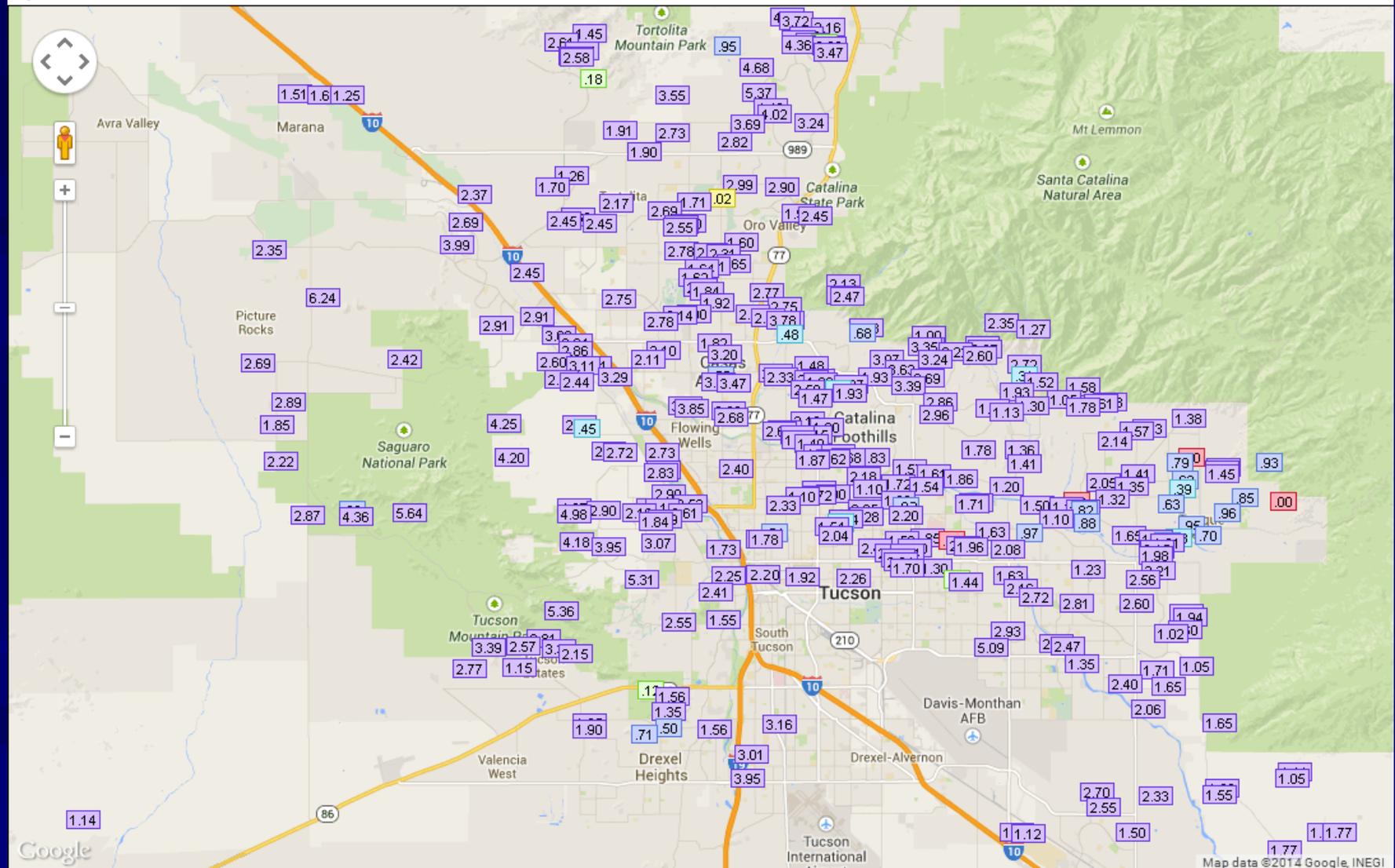
Tucson, AZ (TWC): July, 2014 Monthly Observed Precipitation
Valid at 8/1/2014 1200 UTC- Created 8/3/14 23:56 UTC



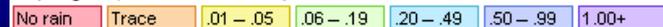
Tucson Area July Precipitation Totals

Source: <http://rainlog.org>

Report of Rainfall Data for 7/2014



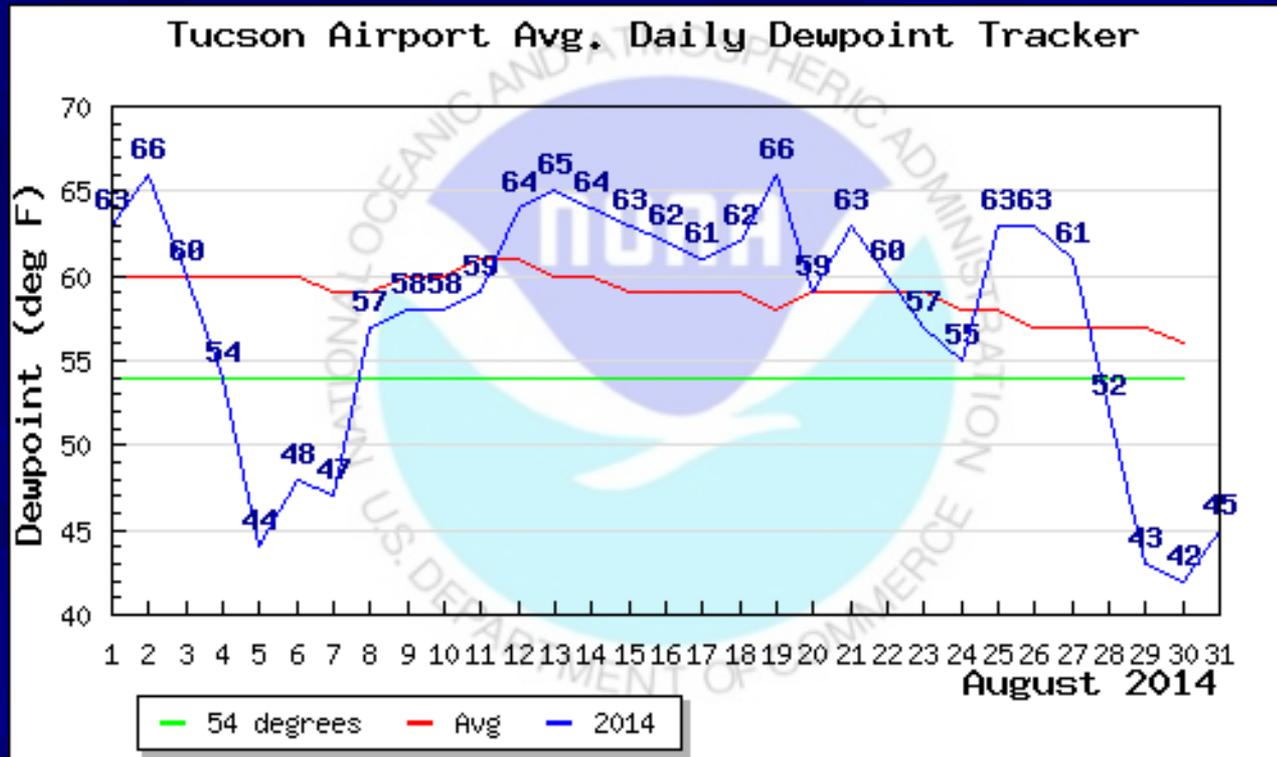
Map Legend (all amounts in inches)



Map data ©2014 Google, INEGI

AUGUST

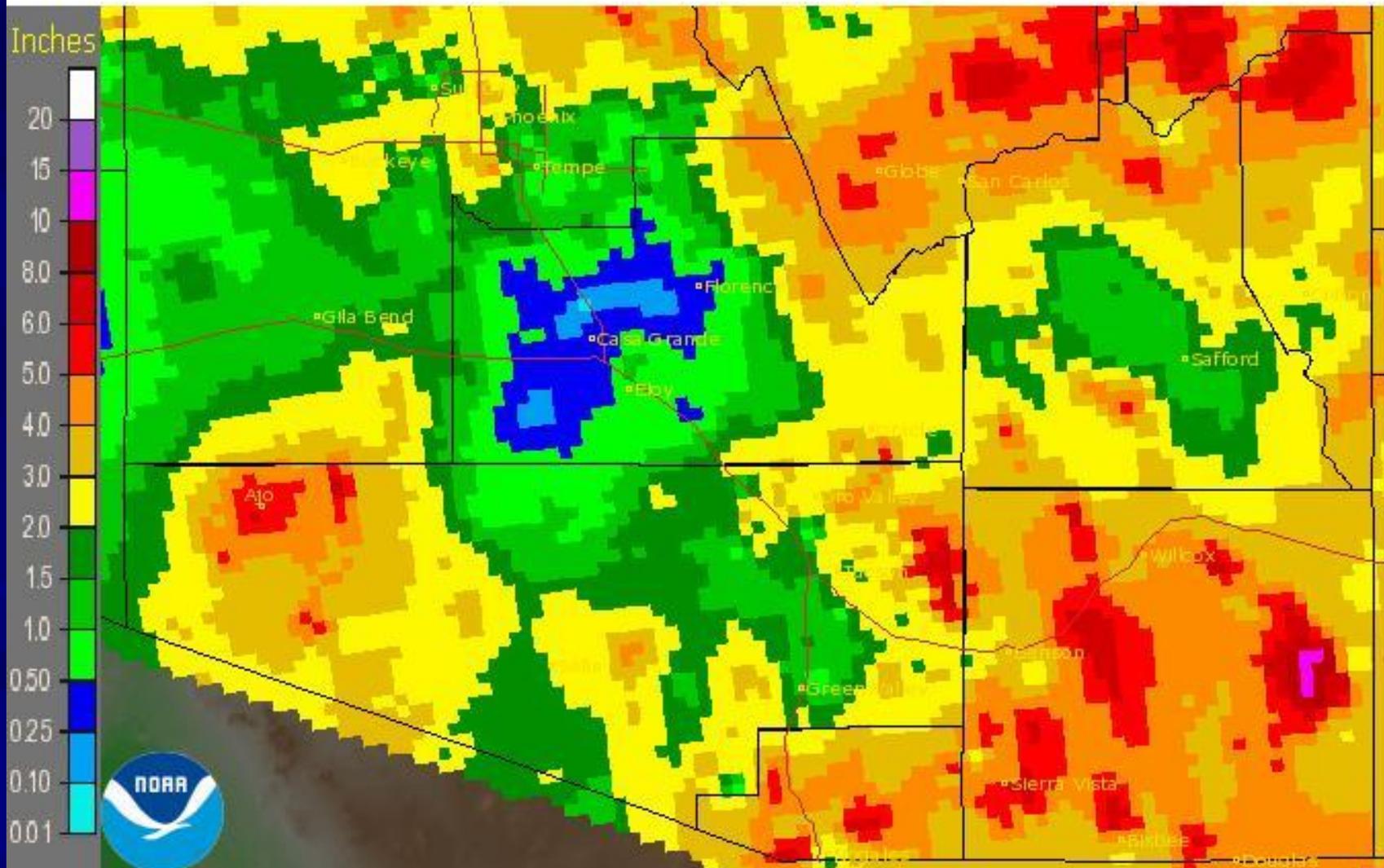
- Coolest since 2006
- 8th straight August w/ below normal rainfall
- 1.89" rain at Tucson Airport, normal is 2.39"
- Rainlog.org & Pima CO ALERT gages recorded 0.90" to over 5"



Southeast Arizona precipitation for August

Source: <http://water.weather.gov>

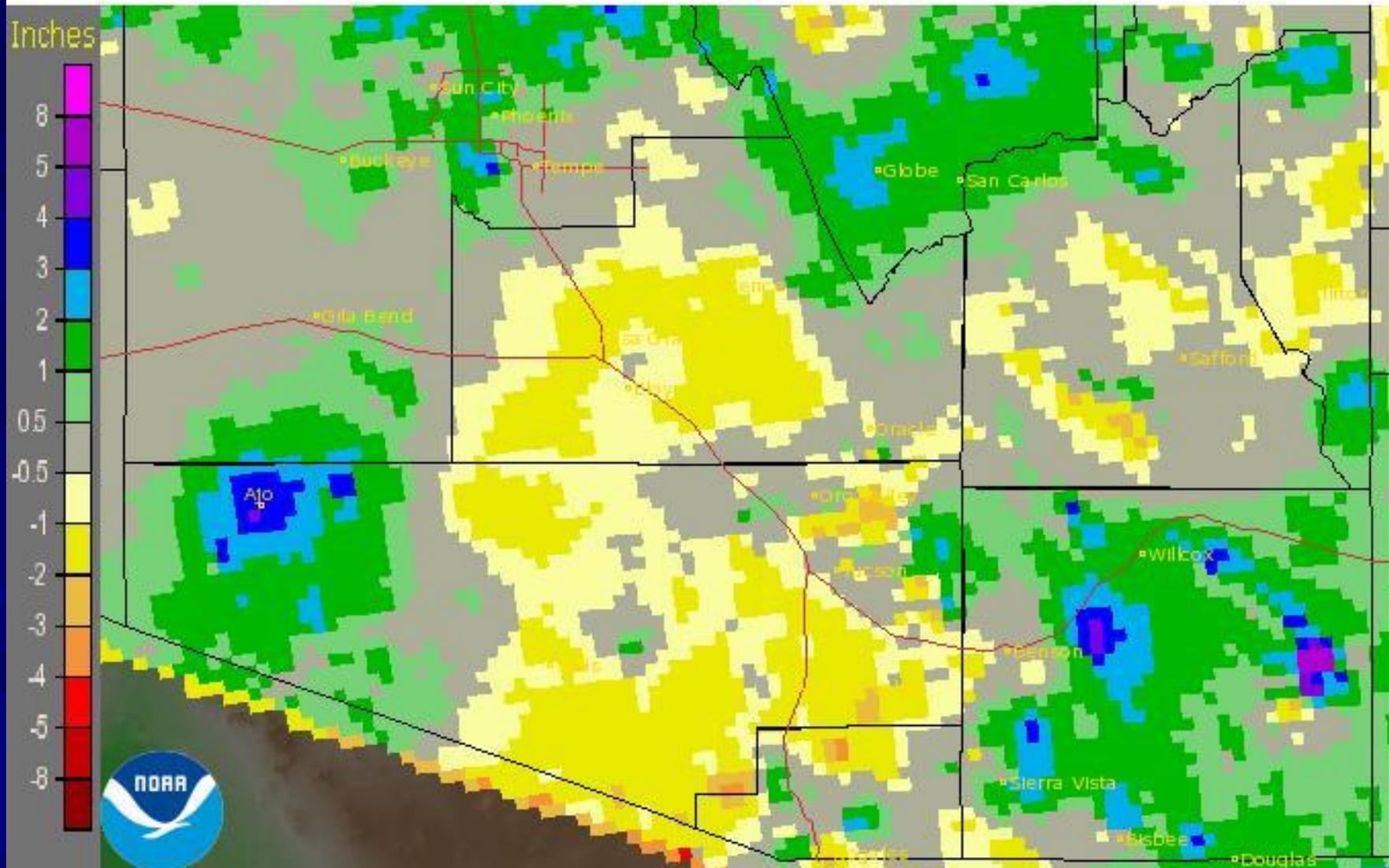
Tucson, AZ (TWC): August, 2014 Monthly Observed Precipitation
Valid at 9/1/2014 1200 UTC- Created 9/3/14 19:56 UTC



August departure from normal precipitation

Source: <http://water.weather.gov>

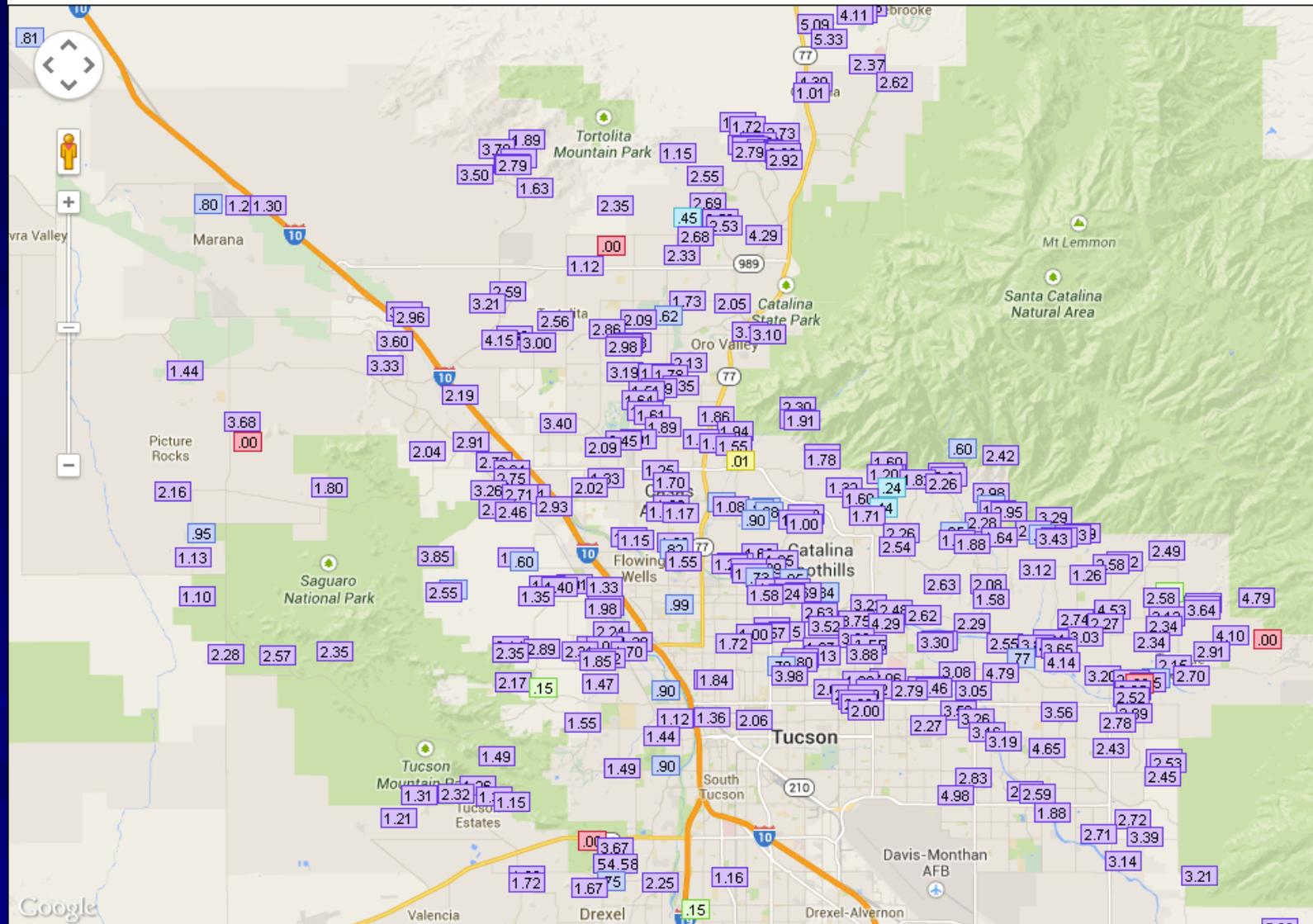
Tucson, AZ (TWC): August, 2014 Monthly Departure from Normal Precipitation
Valid at 9/1/2014 1200 UTC- Created 9/3/14 19:56 UTC



Tucson Area precipitation totals for August

Source: <http://rainlog.org>

Report of Rainfall Data for 8/2014



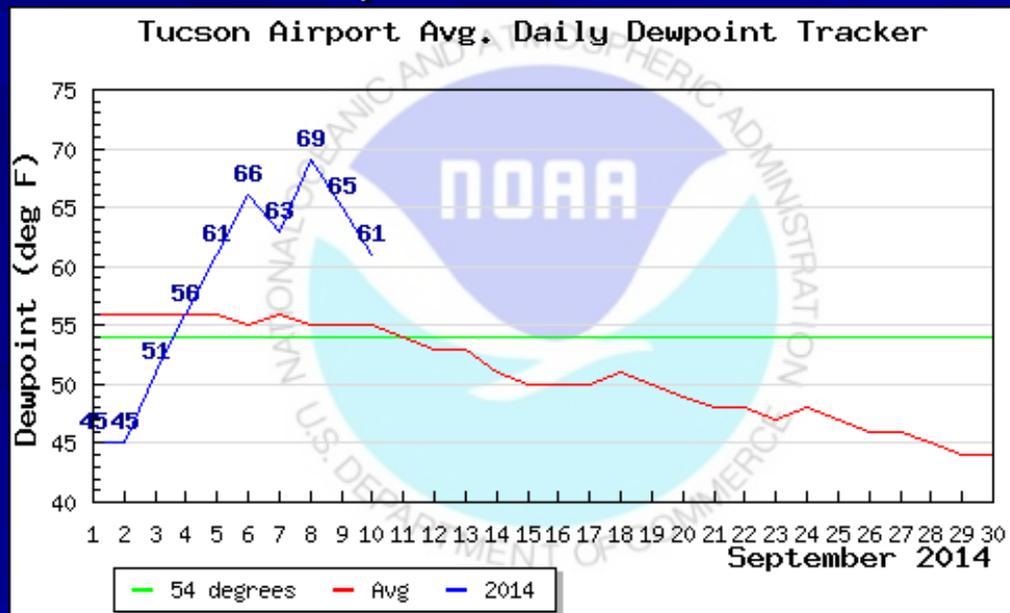
Map Legend (all amounts in inches)

No rain Trace .01 - .05 .06 - .19 .20 - .49 .50 - .99 1.00+

SEPTEMBER

(As of Sept 9)

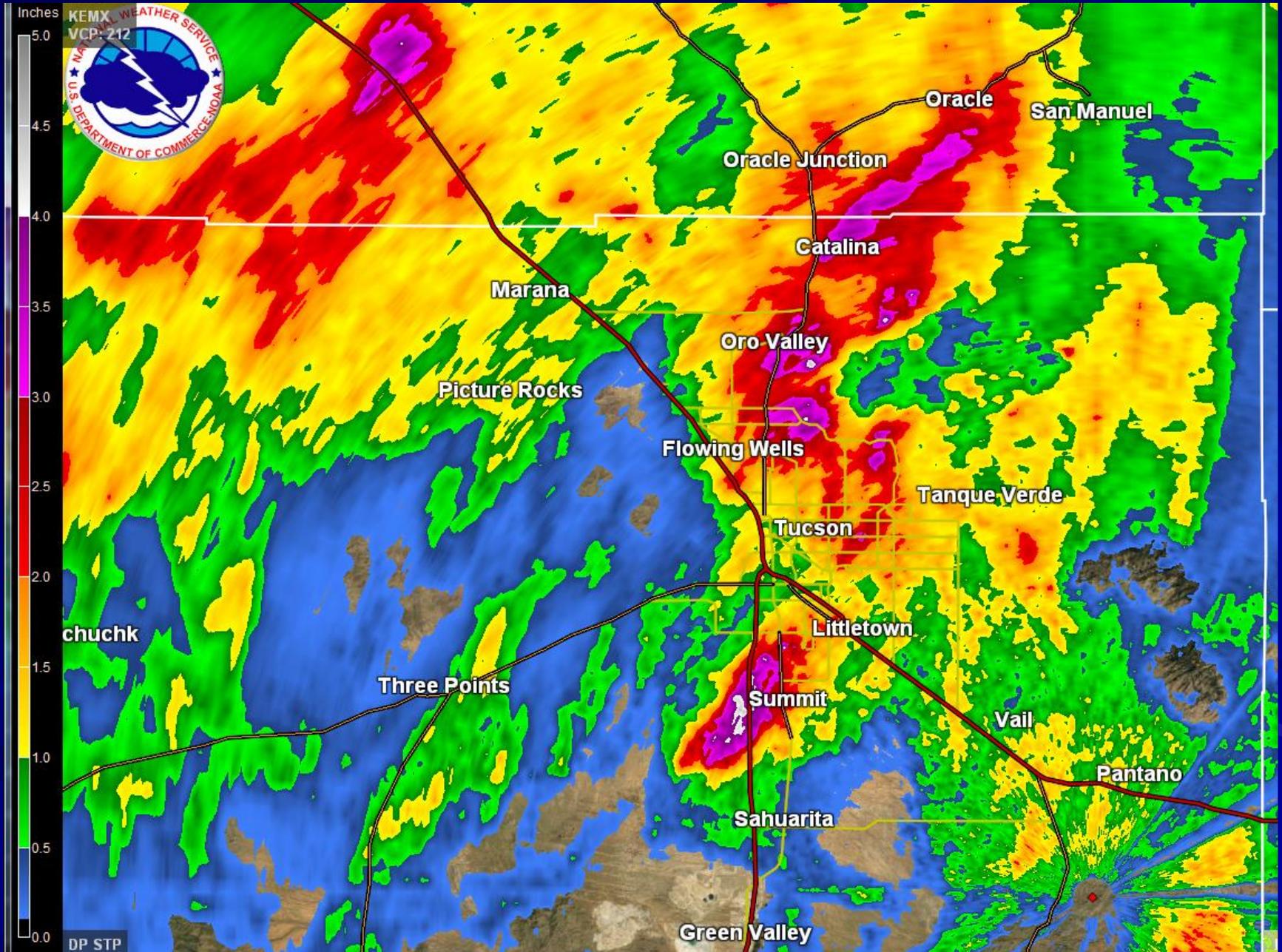
- 2.14" rain at Tucson Airport, monthly normal is 1.29"
- Rainlog.org & Pima Co. ALERT gages recorded 0.12" – 6.93"
- Tucson Airport Rainfall Amounts
 - Calendar Year = 6.07" (8.44" Normal)
 - Water Year = 9.12" (10.83" Normal)



8 SEPTEMBER 2014

- 
- Record rainfall at Tucson Airport 1.84"
 - Widespread flooding and high river flows
 - Santa Cruz River at Valencia = 25,000cfs
 - Santa Cruz River at Congress = 12,800cfs
 - Santa Cruz River at Cortaro = 23,700 cfs
 - Rillito River at La Cholla = 13,500cfs
 - Canada del Oro at Ina = 8,110cfs

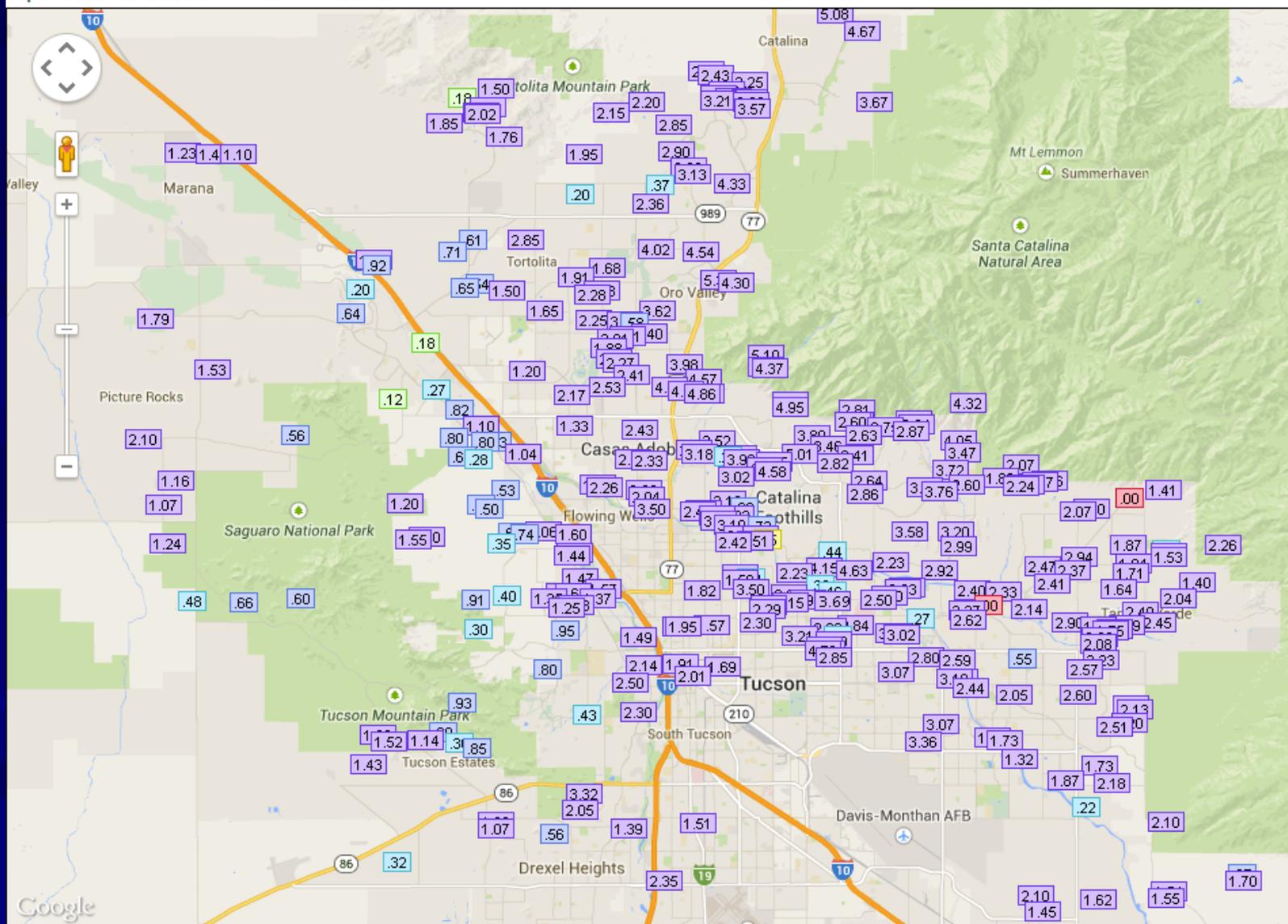
Sept 8, 2014 Tucson Radar Precipitation Estimates



Tucson Area precipitation for September 1-9

Source: <http://rainlog.org>

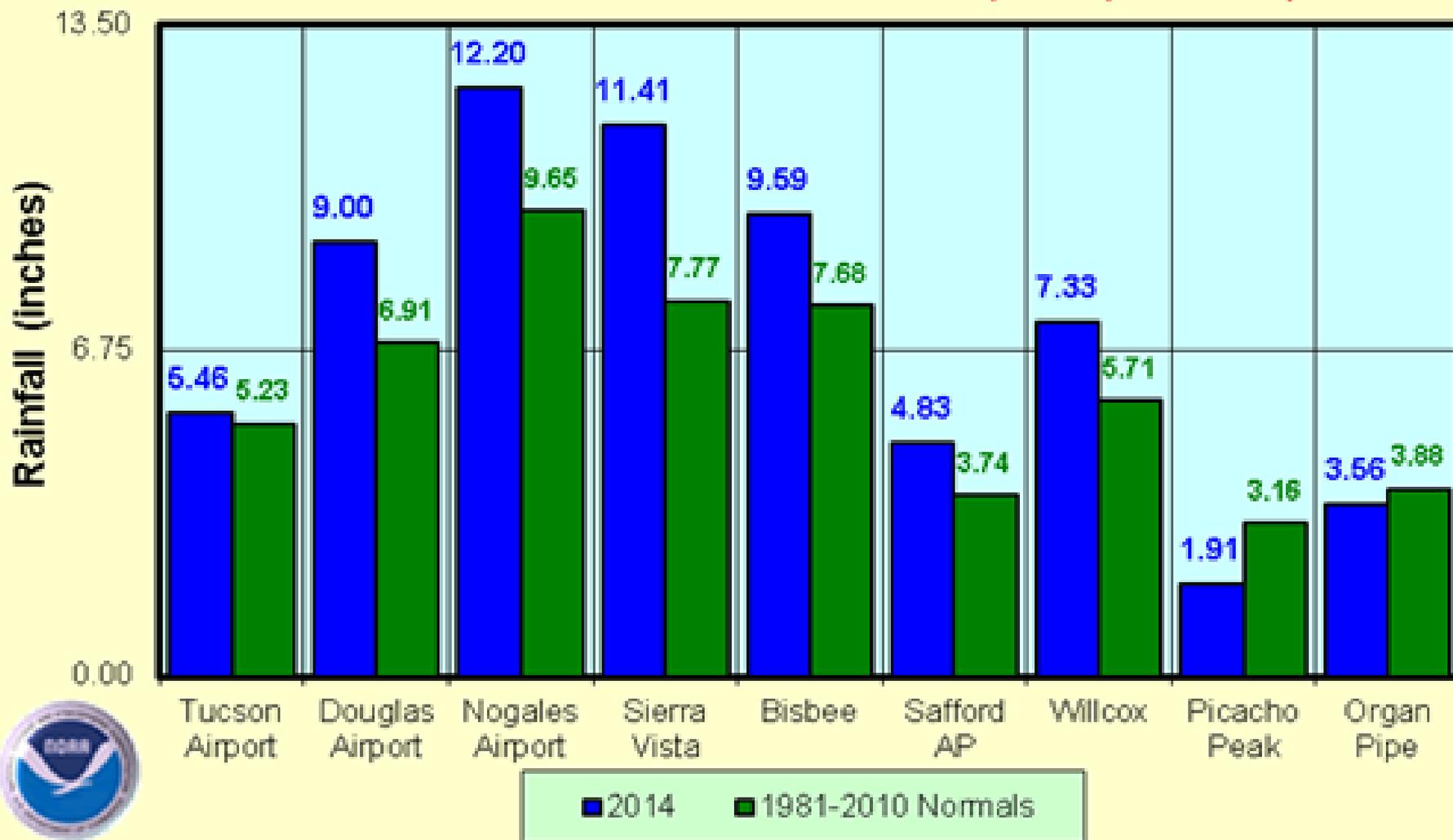
Report of Rainfall Data from 09/01/2014 to 09/09/2014



Map Legend (all amounts in inches)

No rain Trace .01 - .05 .06 - .19 .20 - .49 .50 - .99 1.00+

Preliminary 2014 Monsoon rainfall totals versus normal for selected sites in southeast Arizona. (thru September 8th)



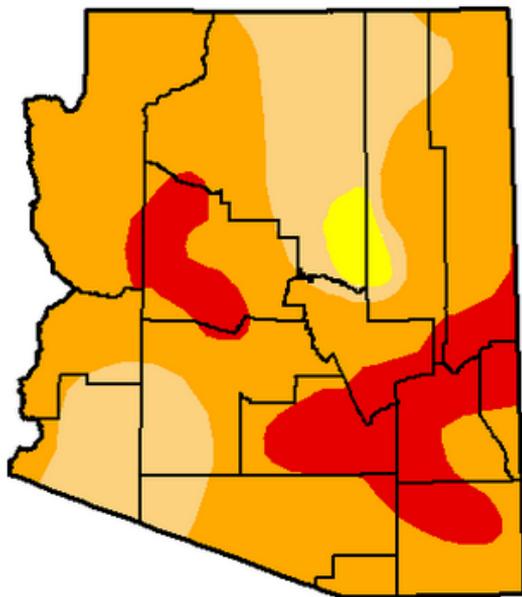
Drought Conditions start of Monsoon & Current

Drought Severity

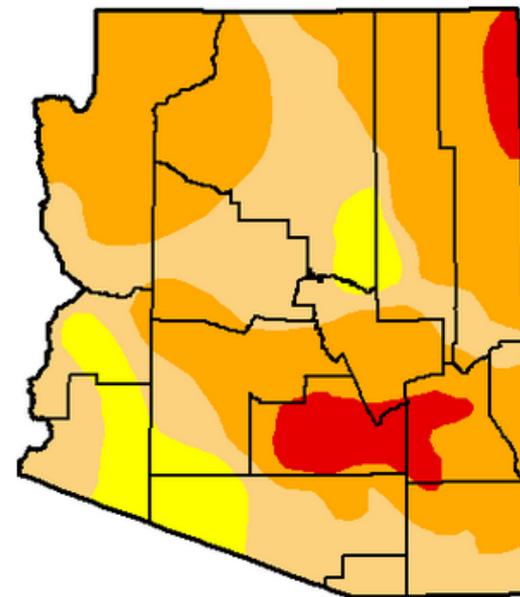
■ D0 - Abnormally Dry
■ D1 Drought - Moderate

■ D2 Drought - Severe
■ D3 Drought - Extreme

■ D4 Drought - Exceptional



June 17, 2014



September 2, 2014

Statistics

Time Series

Narrative

Population Data

Statistics type: Traditional (D0-D4, D1-D4, etc.) Categorical (D0, D1, etc.)

Week	None	D0	D1	D2	D3	D4
2014-06-17	0	1.83	21.87	59.48	16.82	0
2014-09-02	0	9.26	34.14	49.89	6.71	0

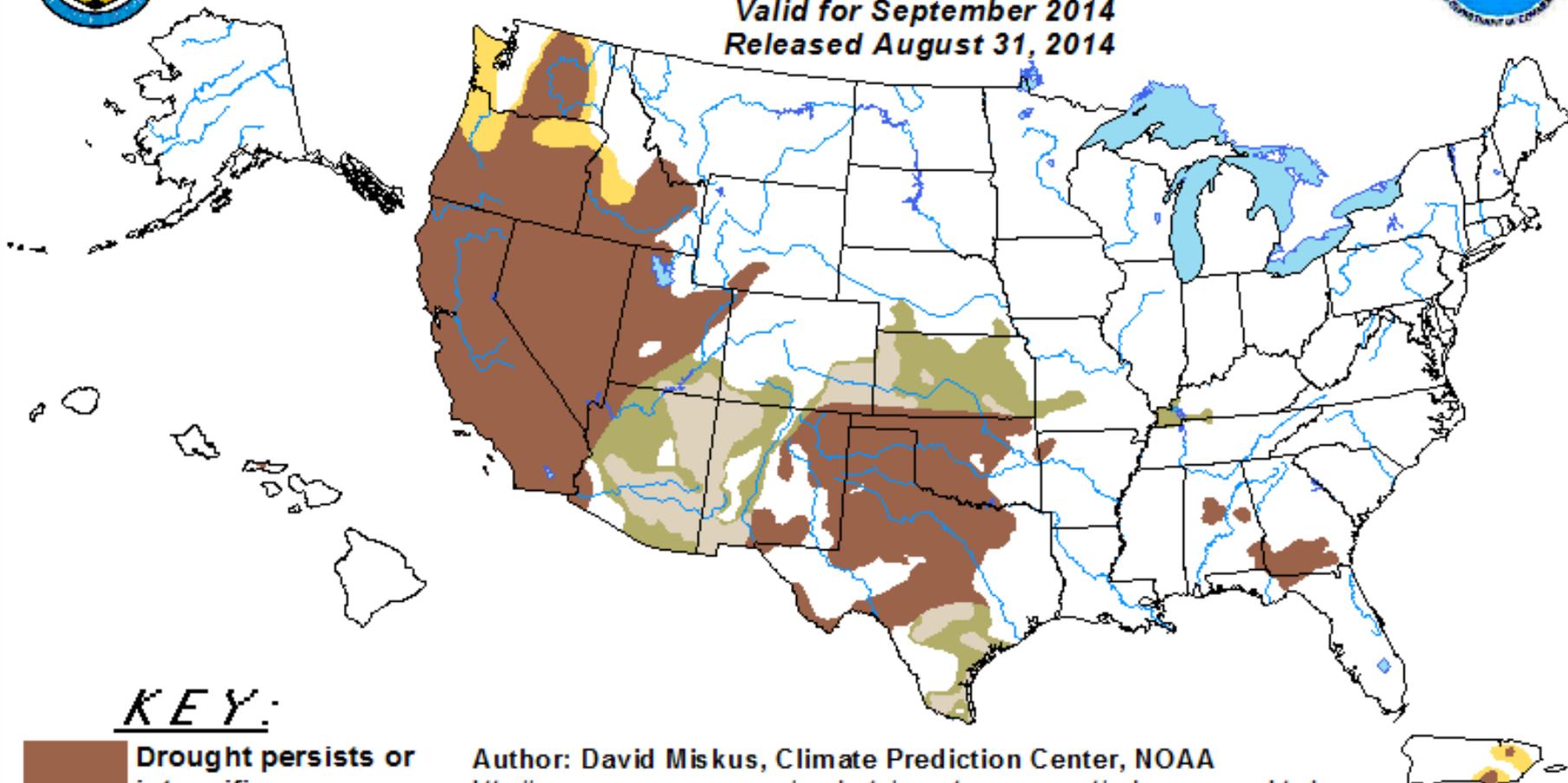


U.S. Monthly Drought Outlook

Drought Tendency During the Valid Period



Valid for September 2014
Released August 31, 2014



KEY:

-  Drought persists or intensifies
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely

Author: David Miskus, Climate Prediction Center, NOAA

http://www.cpc.ncep.noaa.gov/products/expert_assessment/mdo_summary.html

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events – such as individual storms – cannot be accurately forecast more than a few days in advance. Use caution for applications – such as crops – that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity). For weekly drought updates, see the latest U.S. Drought Monitor.

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain. The green areas imply drought removal by the end of the period (D0 or none)

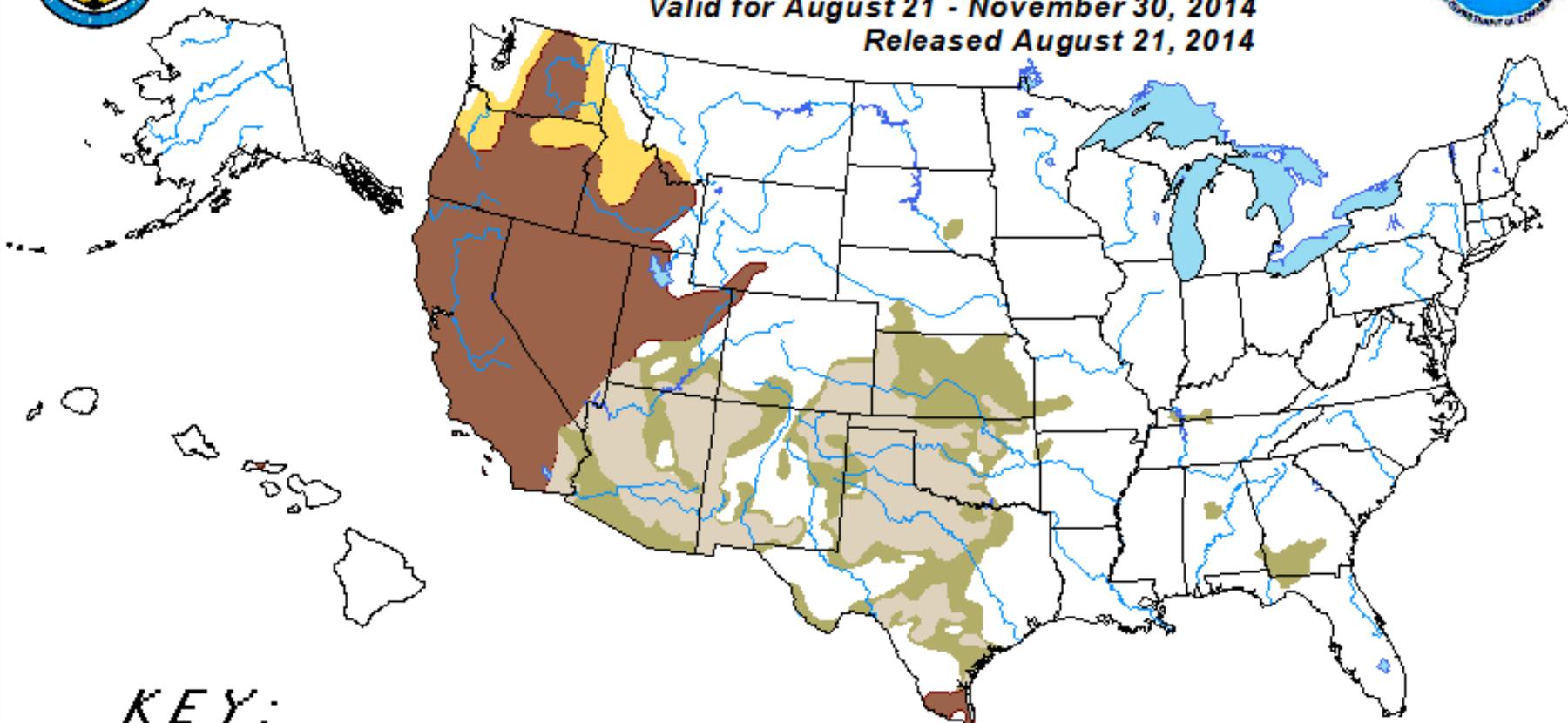


U.S. Seasonal Drought Outlook

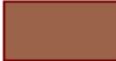
Drought Tendency During the Valid Period

Valid for August 21 - November 30, 2014

Released August 21, 2014



KEY:

-  Drought persists or intensifies
-  Drought remains but improves
-  Drought removal likely
-  Drought development likely

Author: David Miskus, Climate Prediction Center, NOAA

http://www.cpc.ncep.noaa.gov/products/expert_assessment/season_drought.html

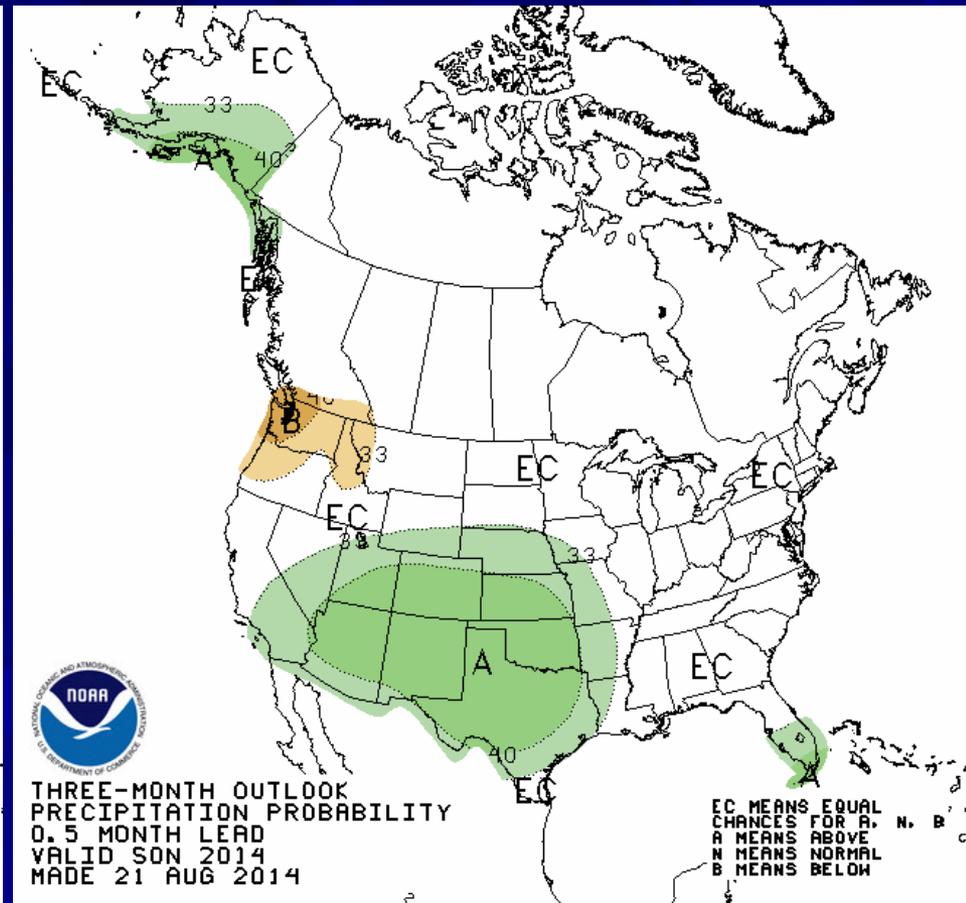
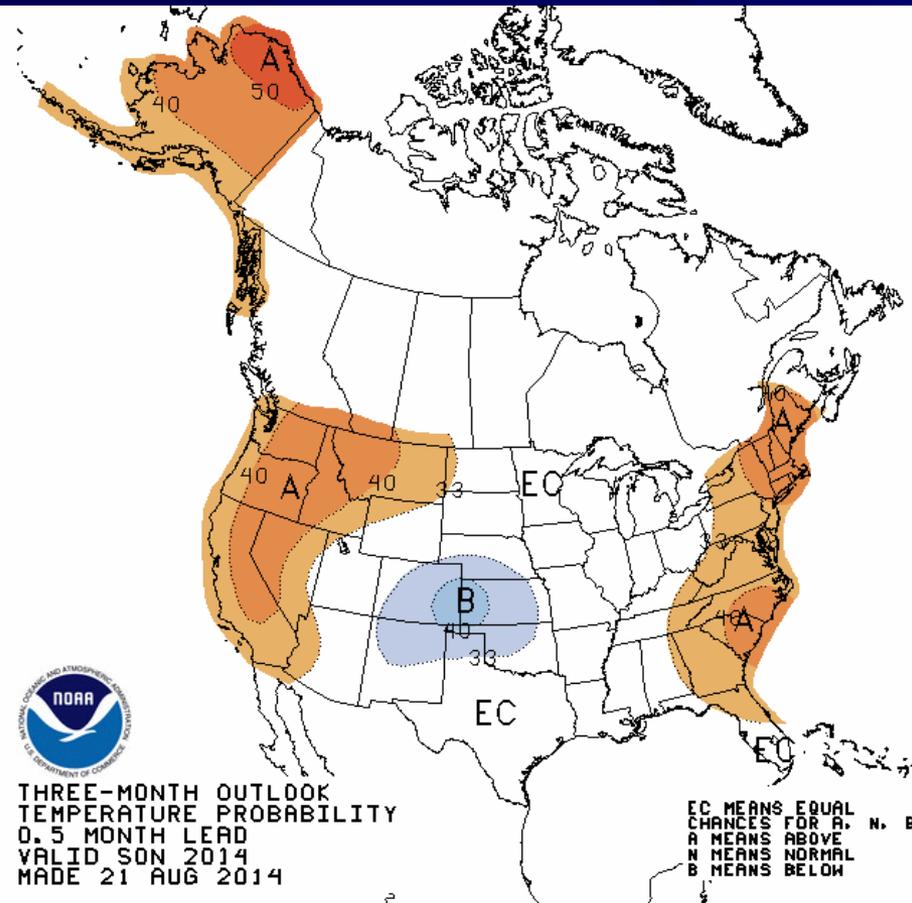
Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Short-term events – such as individual storms – cannot be accurately forecast more than a few days in advance. Use caution for applications – such as crops – that can be affected by such events. "Ongoing" drought areas are approximated from the Drought Monitor (D1 to D4 intensity).

For weekly drought updates, see the latest U.S. Drought Monitor.

NOTE: The tan area areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period although drought will remain.

The Green areas imply drought removal by the end of the period (D0 or none)

September - November Outlook



60-65% Chance El Niño will develop by winter

NOAA's Climate Prediction Center continues the El Niño Watch. Most models continue to predict a weak El Niño to develop September-November and to continue into early 2015.

National Weather Service National Hurricane Center

Home

News

Top News of the Day... [view past news](#)

Last update Wed, 10 Sep 2014 16:25:07 UTC

- **NHC issuing advisories on TS ODILE**
- Annual NWS customer satisfaction survey underway (PDF)
- NWS is soliciting comments through Oct 31 on discontinuing the Coded Marine Verification Forecast
- Joint Hurricane Testbed Announcement of Grant Opportunity posted. See the announcement here (PDF)

Eastern Pacific

Atlantic



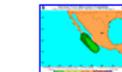
Current Disturbances and 2-Day Cyclone Formation Chance: X < 30% X 30-50% X > 50%
 Tropical or Sub-Tropical Cyclone: ○ Depression ⊙ Storm ⊙ Hurricane
⊙ Post-Tropical Cyclone X Remnants

[Active Storms](#) | [Marine Forecasts](#)

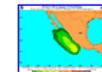
[2-Day Graphical Tropical Weather Outlook](#) | [5-Day Graphical Tropical Weather Outlook](#)

Tropical Storm ODILE

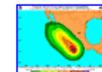
[Home](#) [Public Adv](#) [Fcst Adv](#) [Discussion](#) [Wind Probs](#) [Graphics](#) [Archive](#)



Hurricane Wind Speed Probability



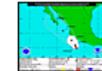
50-knot Wind Speed Probability



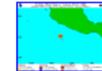
Trop Storm Wind Speed Probability



Warnings/Cone Interactive Map



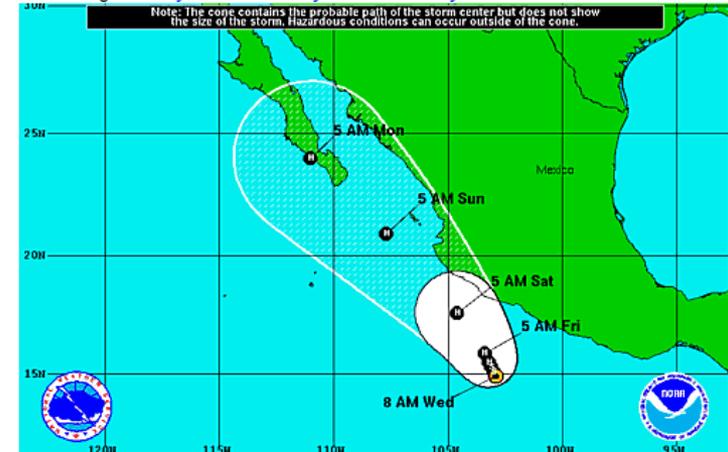
Warnings/Cone Static Images



Warnings and Surface Wind

Coastal Watches/Warnings and 5-Day Forecast Cone for Storm

Click image to zoom in – [Download GIS data](#)
 Other images: [5-Day track on](#) – [3-Day track off](#) – [Interactive](#)



Tropical Storm Odile Wednesday September 10, 2014 8 AM PDT Advisory 2 NWS National Hurricane Center	Current Information: Center Location 14.9 N 102.9 W Max Sustained Wind 40 mph Movement NW at 3 mph	Forecast Positions: ● Tropical Cyclone ○ Post-Tropical Sustained Winds: D < 39 mph S 39-73 mph H 74-110 mph M > 110mph
Potential Track Area: Day 1-3 Day 4-5	Watches: Hurricane Trop.Storm	Warnings: Hurricane Trop.Storm

Disturbance 1: 90% Chance of Cyclone Formation in 48 Hours

As of 11:00 am PDT Wed Sep 10 2014 ...
 Satellite images indicate that a tropical depression may be forming about 850 miles south-southwest of the southern tip of the Baja California peninsula. If current trends continue, advisories will likely be initiated on this system later today or tonight. This system is expected to move slowly northward during the next couple of days and then turn eastward after that.
 * Formation chance through 48 hours...high...90 percent.
 * Formation chance through 5 days...high...90 percent.