2009 Late Winter Arizona Climate Update and Forecasts

Climate Web-Briefing

February 18, 2009

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The University of Arizona

Guest presentation by:
November 2008-January 2009

Departure from Normal Temperature (F)
11/1/2008 – 1/31/2009

http://www.hprcc.unl.edu/maps

Generated 2/11/2009 at HPRCC using provisional data.
NOAA Regional Climate Centers
December 2008

Departure from Normal Temperature (F)
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NOAA Regional Climate Centers
November 2008-January 2009

Percent of Normal Precipitation (%)
11/1/2008 – 1/31/2009

http://www.hprcc.unl.edu/maps

Drier than Avg.

Wetter than Avg.

Generated 2/11/2009 at HPRCC using provisional data. NOAA Regional Climate Centers
Percent of Normal Precipitation (%)  
11/1/2008 - 11/30/2008

Drier than Avg.  
Wetter than Avg.

Generated 12/11/2008 at HPRCC using provisional data.  
NOAA Regional Climate Centers
December 2008

Percent of Normal Precipitation (%)
12/1/2008 - 12/31/2008

http://www.hprcc.unl.edu/maps

Generated 1/11/2009 at HPRCC using provisional data.
NOAA Regional Climate Centers
January 2009

Percent of Normal Precipitation (%)  
1/1/2009 - 1/31/2009

Drier than Avg.  Wetter than Avg.

Generated 2/11/2009 at HPRCC using provisional data.

NOAA Regional Climate Centers
Percent of Average Precipitation (%) for AZ & NM – Last 90 days


http://www.wrcc.dri.edu/anom/wrcc_anom.html
Above Average Temps
Average Temps
Below Average Temps

Tucson, AZ Temperatures and Precipitation – Oct 2008-Feb 2009

http://www.wrh.noaa.gov/twc/
Below Avg. Heights | Above Avg. Heights
SUN, JAN 18, 2009

500-millibar Height contours at 7:00 A.M. E.S.T.
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://drought.unl.edu/dm
**U.S. Seasonal Drought Outlook**

**Drought Tendency During the Valid Period**

*Valid February 5, 2009 - April 2009*

**Released February 5, 2009**

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**KEY:**

- **Drought to persist or intensify**
- **Drought ongoing, some improvement**
- **Drought likely to improve, impacts ease**
- **Drought development likely**

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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 green improvement areas imply at least a 1-category improvement in the Drought Monitor intensity levels, but do not necessarily imply drought elimination.
Snowpack and Streamflows
Greg Smith – Senior Hydrologist
Colorado Basin RFC-NWS-NOAA

www.cbrfc.noaa.gov
Precipitation (Seasonal and December)

http://www.cbrfc.noaa.gov/precip/precip.cgi

Seasonal Precipitation, October 2008 - January 2009
(Averaged by Hydrologic Unit)

% Average
- > 150%
- 126 - 150%
- 110 - 129%
- 100 - 109%
- 90 - 99%
- 70 - 89%
- 50 - 69%
- < 50%
- Not Reported

Monthly Precipitation for December 2008
(Averaged by Hydrologic Unit)

% Average
- > 150%
- 126 - 150%
- 110 - 129%
- 100 - 109%
- 90 - 99%
- 70 - 89%
- 50 - 69%
- < 50%
- Not Reported
Current Snow Conditions (% average)

www.cbrfc.noaa.gov/snow/snow.cgi

Legend
SWE (% Avg)

- No data
- < 25
- 25-50
- 50-75
- 75-90
- 90-110
- 110-125
- 125-150
- 150-175
- > 175

Snow: current (2008)

Verde Basin: 150% (165%)

Upper Salt Basin: 120% (160%)

Gila/San Francisco Basin: 55-90% (70-140 %)

Little Colorado: 145% (165%)
Multi – Station Snow Plot:

Colorado Basin River Forecast Center
Salt River Basin (Incl Verde)

To Date: 150% (10.0 / 6.7)
Seasonal: 141% (10.0 / 7.1)
Accumulation rate 0.0 in/day averaged over last 3 days.

Created 02/16.18:41 UTC
NOAA/CBRFC, 2009

SWE (in)

Date

avg 2009 2008 2008
Water Supply Outlook: (Runoff volumes through May 2009)

- Little Colorado Tributaries: 75-85% of Median
- Salt River (abv Roosevelt): 50-65% of Median
- Upper Gila Basin: 75-85% of Median
- Lake Mead Local Inflow (Feb-July): 80% of average

www.cbrfc.noaa.gov
Online Water Supply Outlook Information:  http://www.cbrfc.noaa.gov/wsup/wsup.cgi

Lower Colorado Water Supply Outlook, February 1, 2009

Prepared by G. Smith
NOAA, National Weather Service
Colorado Basin River Forecast Center
Salt Lake City, Utah
www.cbrfc.noaa.gov

Contents

- Lower Colorado Summary
- Salt Basin Conditions
- Gila Basin Conditions
- Little Colorado Basin Conditions
- Salt Specific Site Forecasts
- Gila Specific Site Forecasts
- Little Colorado Specific Site Forecasts
- Reservoir Contents
- Monthly Streamflows
- Precipitation Maps
- Definitions
- Additional Information

Lower Colorado Summary
Online Water Supply Outlook Information:  [http://www.cbrfc.noaa.gov/wsup/wsup.cgi](http://www.cbrfc.noaa.gov/wsup/wsup.cgi)

<table>
<thead>
<tr>
<th>Reservoir</th>
<th>Usable Capacity</th>
<th>EOM Contents</th>
<th>Percent Usable Capacity</th>
<th>Last Year EOM</th>
<th>Last Year %Capacity</th>
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<tbody>
<tr>
<td><strong>Salt</strong></td>
<td></td>
<td></td>
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<tr>
<td>Roosevelt</td>
<td>1653.0</td>
<td>1642.5</td>
<td>99</td>
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<td>Horse Mesa</td>
<td>245.0</td>
<td>238.9</td>
<td>98</td>
<td>231.3</td>
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<td>Mormon Flat</td>
<td>58.0</td>
<td>55.6</td>
<td>96</td>
<td>56.1</td>
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<td>Stewart Mountain</td>
<td>70.0</td>
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<td>92</td>
<td>68.5</td>
<td>98</td>
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<tr>
<td>Horseshoe</td>
<td>109.2</td>
<td>30.2</td>
<td>28</td>
<td>104.2</td>
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<tr>
<td>Bartlett</td>
<td>178.0</td>
<td>118.4</td>
<td>66</td>
<td>176.9</td>
<td>99</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td><strong>2313.2</strong></td>
<td><strong>2150.1</strong></td>
<td><strong>93</strong></td>
<td><strong>1885.4</strong></td>
<td><strong>82</strong></td>
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<td><strong>Little Colorado</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Lyman Lake</td>
<td>31.0</td>
<td>14.4</td>
<td>46</td>
<td>9.0</td>
<td>29</td>
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<tr>
<td><strong>Bill Williams</strong></td>
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<td></td>
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<tr>
<td>Alamo</td>
<td>1045.0</td>
<td>154.8</td>
<td>15</td>
<td>148.7</td>
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<td><strong>Agua Fria</strong></td>
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<tr>
<td>Lake Pleasant</td>
<td>1145.0</td>
<td>613.0</td>
<td>54</td>
<td>680.8</td>
<td>59</td>
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<tr>
<td><strong>Gila</strong></td>
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<td>San Carlos</td>
<td>885.0</td>
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<td>26</td>
<td>248.7</td>
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<tr>
<td>Painted Rock</td>
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<td>0</td>
<td>0.0</td>
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<td><strong>Colorado</strong></td>
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<td>Lake Powell</td>
<td>24322.0</td>
<td>13154.6</td>
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<td>10880.4</td>
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<td>Lake Mead</td>
<td>27380.0</td>
<td>12573.0</td>
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<td>13005.0</td>
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<tr>
<td>Lake Mohave</td>
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<td>1647.4</td>
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<td>1671.0</td>
<td>92</td>
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<tr>
<td>Lake Havasu</td>
<td>619.0</td>
<td>559.3</td>
<td>90</td>
<td>556.0</td>
<td>90</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>59713.0</strong></td>
<td><strong>28944.0</strong></td>
<td><strong>48</strong></td>
<td><strong>27199.5</strong></td>
<td><strong>46</strong></td>
</tr>
</tbody>
</table>
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Forecasts
TYPICAL JANUARY-MARCH WEATHER ANOMALIES AND ATMOSPHERIC CIRCULATION DURING MODERATE TO STRONG EL NIÑO & LA NIÑA

El Niño

La Niña

Climate Prediction Center/NCEP/NWS
<table>
<thead>
<tr>
<th>Location</th>
<th>3-Month PPT Total (in.)</th>
<th>Deficit (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tucumcari 4NE</td>
<td>0.31</td>
<td>1.28</td>
</tr>
<tr>
<td>Fort Sumner</td>
<td>0.09</td>
<td>1.52</td>
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<tr>
<td>Roswell</td>
<td>0.24</td>
<td>1.29</td>
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<tr>
<td>Carlsbad</td>
<td>0.17</td>
<td>1.22</td>
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<tr>
<td>Hobbs</td>
<td>0.01</td>
<td>1.58</td>
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<tr>
<td>Ruidoso</td>
<td>1.44</td>
<td>2.22</td>
</tr>
</tbody>
</table>

SST Departures (°C) in the Tropical Pacific During Jan. 2009-Feb. 2008

Below average SSTs, strong easterly winds

Mexico

South America

Australia
Global SST Departures (°C) During the Last 4 Weeks
Majority of ENSO forecasts: La Niña conditions through spring 2009.

Figure provided by the International Research Institute (IRI) for Climate and Society (updated 17 January 2009).
The CFS ensemble mean (heavy blue line) indicates La Niña conditions into Spring 2009.
“A RETURN TO NEUTRAL CONDITIONS COULD HAPPEN AS EARLY AS FMA 2009”

NOAA Climate Prediction Center
January 15, 2009
THREE-MONTH OUTLOOK
TEMPERATURE PROBABILITY
1.5 MONTH LEAD
VALID MAR 2009
MADE 15 JAN 2009

EC MEANS EQUAL
CHANCES FOR A, N, B
A MEANS ABOVE
N MEANS NORMAL
B MEANS BELOW
THREE-MONTH OUTLOOK
PRECIPITATION PROBABILITY
1.5 MONTH LEAD
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Pronóstico de anomalía de la lluvia marzo de 2009

http://smn.cna.gob.mx/
Next Briefing: Monsoon Season Forecasts Mid-May...stay tuned.

Please fill out the feedback survey at http://cals.arizona.edu/climate/survey.htm