

# Climate Tools and Data Sources

Finding and Viewing Climate Information



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CLIMATE SCIENCE CENTER

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# Why use climate data?

- Provides physical evidence of what climate was like before we were born or can remember.
- Observations do not change whereas our memory of particular events or time periods might change.
- Can provide supporting material that is required for a project report, grant application, legal proceeding, etc.
- A way to measure past events.



# NM Climate Divisions

- \* **U.S. Climate Divisional Dataset**
- \* For each climate division, monthly station temperature and precipitation values are computed from the daily observations.
- \* <https://www.ncdc.noaa.gov/climate-monitoring/>



# Southern Climate Impacts Preparedness Program (SCIPP)

- Multiple tools useful for New Mexico
  - **Historical Climate Trends Tool**
  - **Average Monthly Temperature and Precipitation Tool**
  - **Southern US Drought Tool**
  - <http://www.southernclimate.org/>



**SCIPP**  
A NOAA RISA TEAM



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# Historical Climate Trends Tool

Climate Trends

16-09-30 3:36 PM

State  
New Mexico (NM) 1

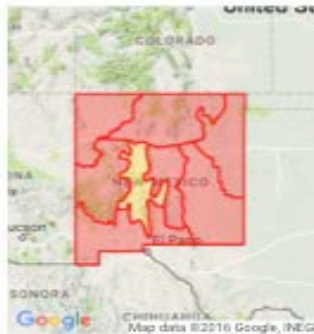
Climate Division

Season

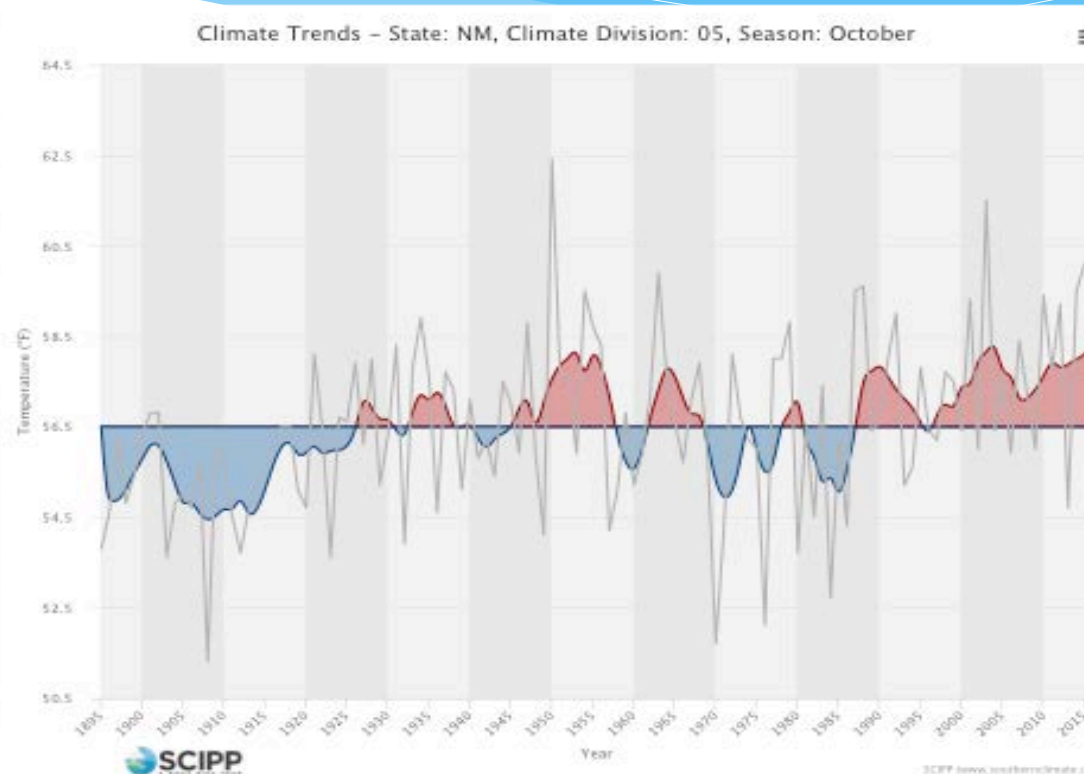
Variable

Chart Info

Download Data



Data Source



<http://charts.sccc.lsu.edu/trends/>

You tube tutorial video

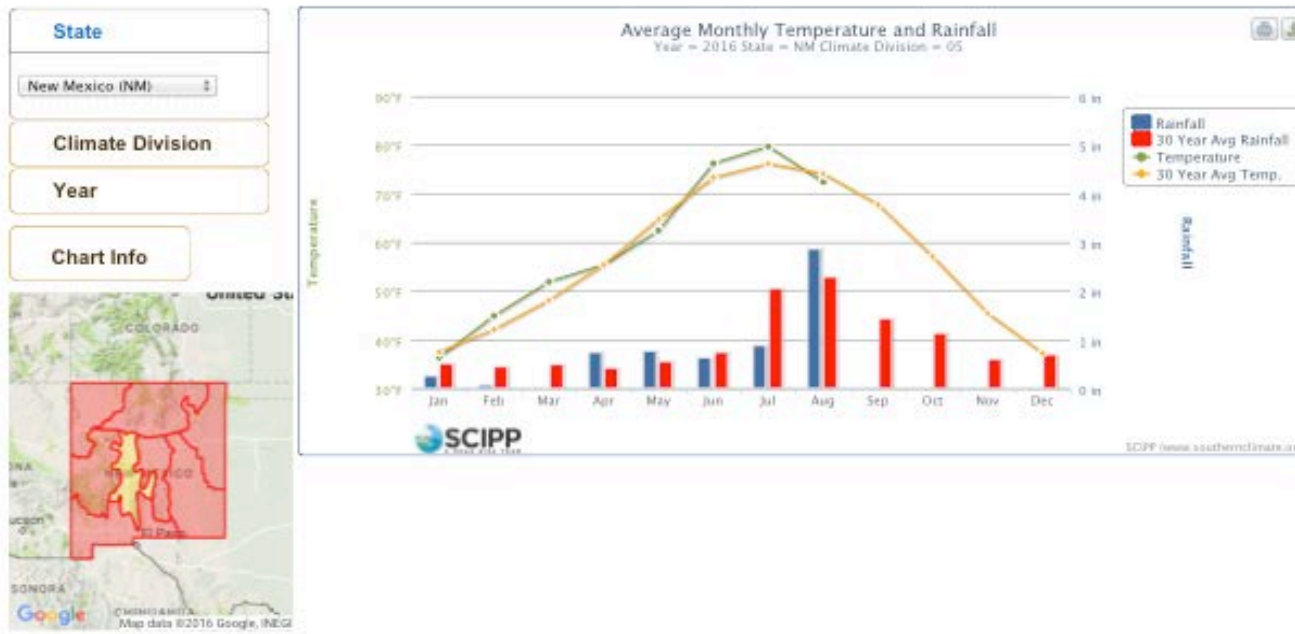
<https://www.youtube.com/watch?v=cOMXUPhw8t>  
&feature=youtu.be



# Average Monthly Temperature and Precipitation Tool

Monthly Averages

16-09-30 3:40 PM



Data Source

<http://charts.srcc.lsu.edu/>

[Tutorial on YouTube](#)

<https://www.youtube.com/watch?v=W6eUVCw2tU>

[4&feature=youtu.be](#)

# Southern US Drought Tool

SOUTHERN US DROUGHT TOOL

State:

Date:

Map Layer:

Time Period:

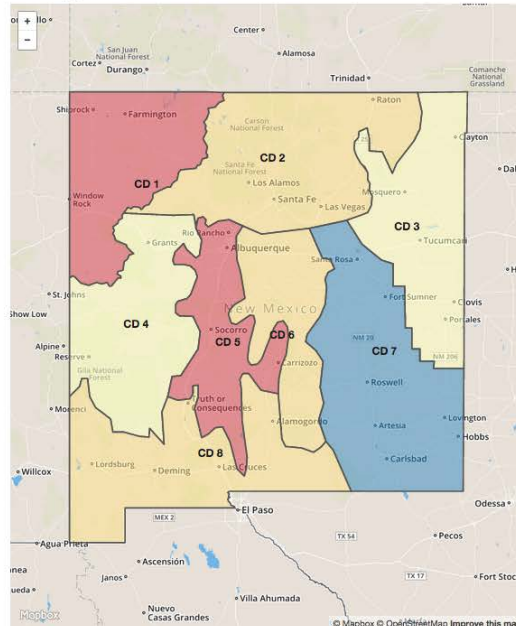
[FAQ](#)

### 30-Day Precip For NM - Aug 30, 2016 through Sep 28, 2016

Climate Division	Total Rainfall	DPN	% of Normal	Driest Rank	Driest on Record	Wettest on Record	SPI	Similar Season In Last 30 yrs (Score)
CD 1	0.73	-0.52	58.4	36/124	0.01(1956)	3.49(1927)	-0.40	2013(9.66)
CD 2	1.64	-0.16	91.3	82/152	0.00(1883)	5.37(1855)	0.16	1996(9.06)
CD 3	2.11	0.26	114.2	83/125	0.00(1895)	7.18(1941)	0.50	1999(9.32)
CD 4	2.24	0.19	109.5	83/123	0.04(1953)	4.84(1975)	0.46	2001(8.85)
CD 5	0.97	-0.38	72	49/124	0.02(1956)	4.49(1893)	-0.17	1992(9.46)
CD 6	1.89	-0.18	91.2	66/121	0.03(1959)	5.64(2013)	0.14	1995(9.26)
CD 7	3.48	1.41	168.4	103/124	0.12(1956)	7.61(1941)	0.97	2006(8.69)
CD 8	1.61	0.08	105.6	72/125	0.03(1959)	4.46(1958)	0.31	2001(9.42)



### Average Rainfall



### Summary of Drought Conditions

Climate Division	30-days	60-days	90-days	180-days	365-days
1	-	-	-	-	-
2	-	-	-	-	-
3	-	-	DO	-	-
4	-	-	-	-	-
5	-	-	DO	DO	-
6	-	-	DO	-	-
7	-	-	-	-	-
8	-	-	-	-	-

<http://drought.srcc.lsu.edu/>

# Climate Assessment for the Southwest

- Links to a variety of other resources with an emphasis on the US Southwest
- <http://www.climas.arizona.edu/>
- Historical droughts from tree-ring paleoclimate tool
  - <http://www.climas.arizona.edu/nm-climate-division-2-climate-reconstruction>



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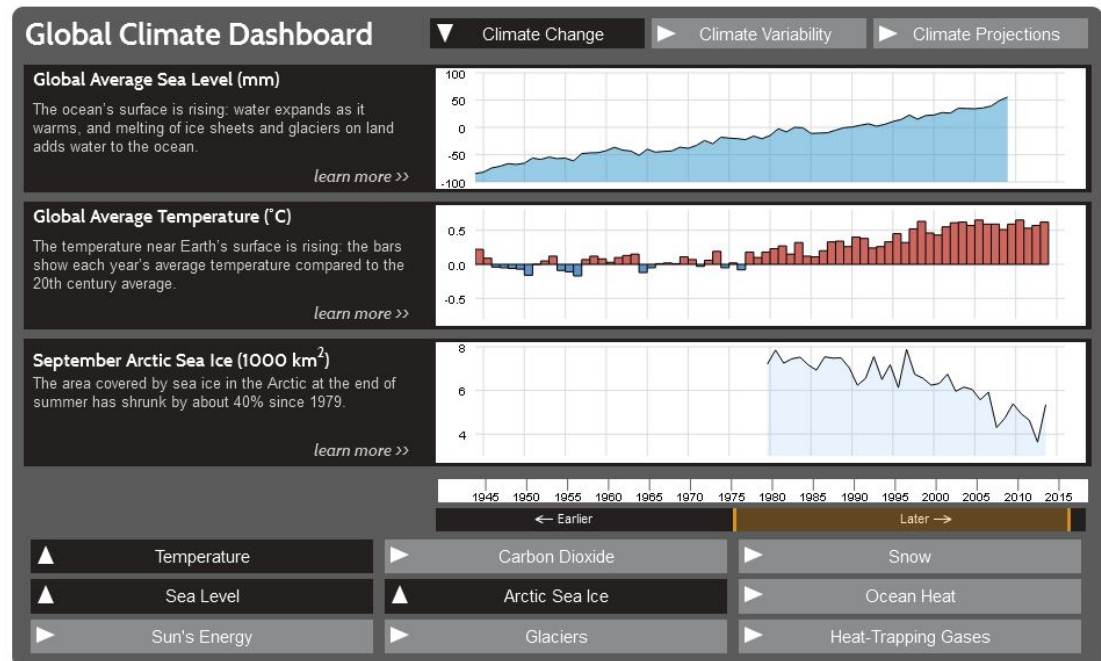
# National Oceanic and Atmospheric Administration

Parent organization for RISA teams  
Have other tools they publish

**Global Climate Dashboard (NOAA)** <https://www.climate.gov/maps-data>

## Description:

Interactive display gives viewer a look at global climate conditions over different periods of time such as temperature, carbon dioxide, spring snow cover, sea level, arctic sea ice and more.



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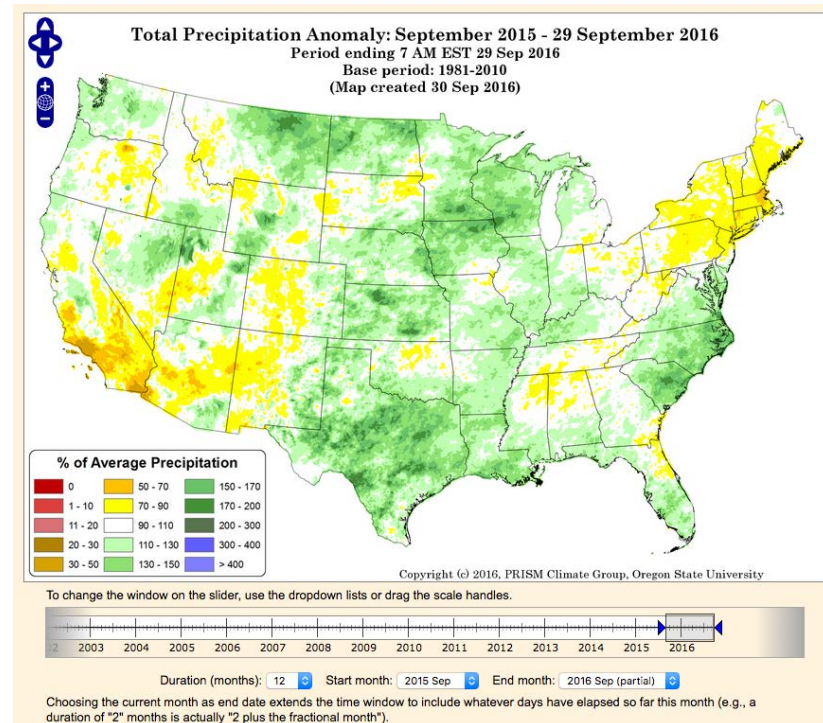
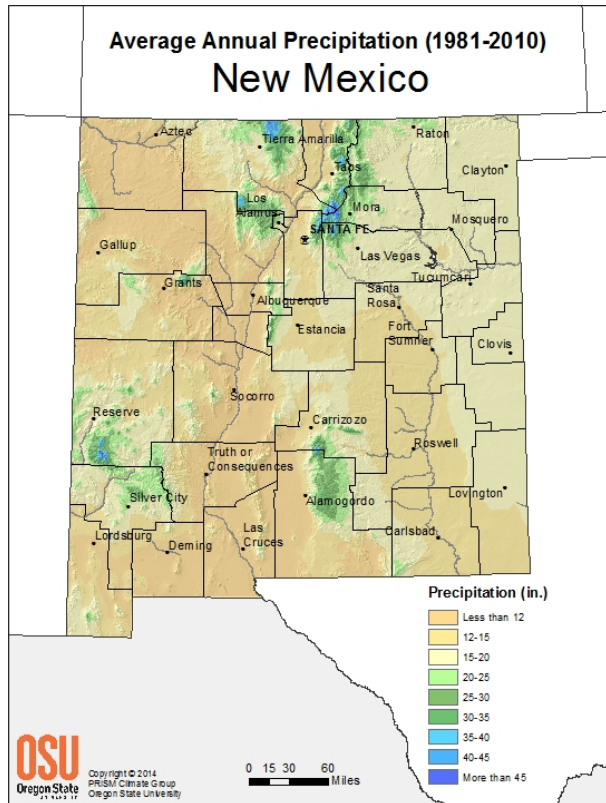


# PRISM Climate Group

Publishes a series of state-level climate maps and data sets

<http://www.prism.oregonstate.edu/>

<http://www.prism.oregonstate.edu/comparisons/drought.php>



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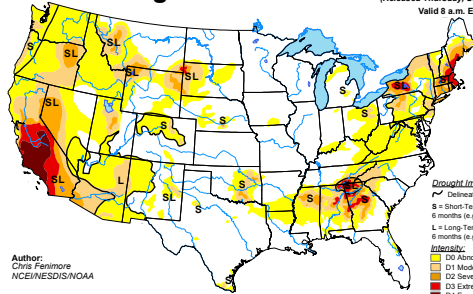


# US Drought Center

Publishes the **US Drought Monitor**

## U.S. Drought Monitor

September 27, 2016  
(Released Thursday, Sep. 29, 2016)  
Valid 8 a.m. EDT

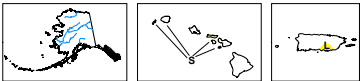


**Drought Impact Types:**  
 ~ Delineates dominant impacts  
 S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)  
 L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

**Intensity:**  
 D0 Abnormally Dry  
 D1 Moderate Drought  
 D2 Severe Drought  
 D3 Extreme Drought  
 D4 Exceptional Drought

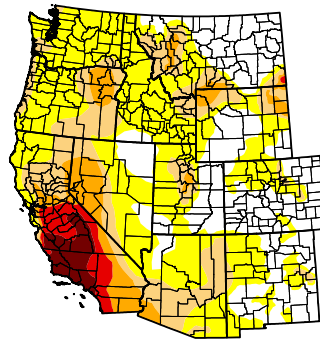
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:  
Chris Fenimore  
NCEI/NESDIS/NOAA



USDA NCEI/NESDIS/NOAA  
<http://droughtmonitor.unl.edu/>

## U.S. Drought Monitor West



September 27, 2016  
(Released Thursday, Sep. 29, 2016)  
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D1	D2-D3	D3-D4	D4	
Current	27.78	72.22	30.95	13.45	5.77	2.81
Last Week 9/20/2016	23.59	76.61	32.27	13.67	5.77	2.81
3 Months Ago 6/28/2016	35.80	64.20	27.65	11.08	5.80	2.81
Start of Calendar Year 1/1/2016	33.17	66.83	45.07	20.30	15.92	6.85
Start of Water Year 5/1/2016	22.77	77.23	57.81	42.42	26.50	7.62
One Year Ago 9/29/2015	23.77	77.23	57.81	42.42	26.50	7.62

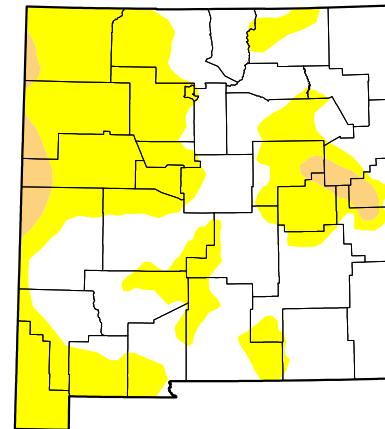
**Intensity:**  
 D0 Abnormally Dry  
 D1 Moderate Drought  
 D2 Severe Drought  
 D3 Extreme Drought  
 D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:  
Chris Fenimore  
NCEI/NESDIS/NOAA

USDA NCEI/NESDIS/NOAA  
<http://droughtmonitor.unl.edu/>

## U.S. Drought Monitor New Mexico



September 27, 2016  
(Released Thursday, Sep. 29, 2016)  
Valid 8 a.m. EDT

	Drought Conditions (Percent Area)					
	None	D0-D1	D1-D2	D2-D3	D3-D4	D4
Current	53.33	46.67	3.85	0.00	0.00	0.00
Last Week 9/20/2016	53.33	46.67	3.85	0.00	0.00	0.00
3 Months Ago 6/28/2016	22.84	77.36	15.62	0.00	0.00	0.00
Start of Calendar Year 1/1/2016	73.76	26.24	0.00	0.00	0.00	0.00
Start of Water Year 5/1/2016	56.70	43.30	7.94	0.00	0.00	0.00
One Year Ago 9/29/2015	56.70	43.30	7.94	0.00	0.00	0.00

**Intensity:**  
 D0 Abnormally Dry  
 D1 Moderate Drought  
 D2 Severe Drought  
 D3 Extreme Drought  
 D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:  
Chris Fenimore  
NCEI/NESDIS/NOAA

USDA NCEI/NESDIS/NOAA  
<http://droughtmonitor.unl.edu/>

[http://www.cpc.ncep.noaa.gov/products/expert\\_assessment/mdo\\_summary.php](http://www.cpc.ncep.noaa.gov/products/expert_assessment/mdo_summary.php)

<http://droughtmonitor.unl.edu/>

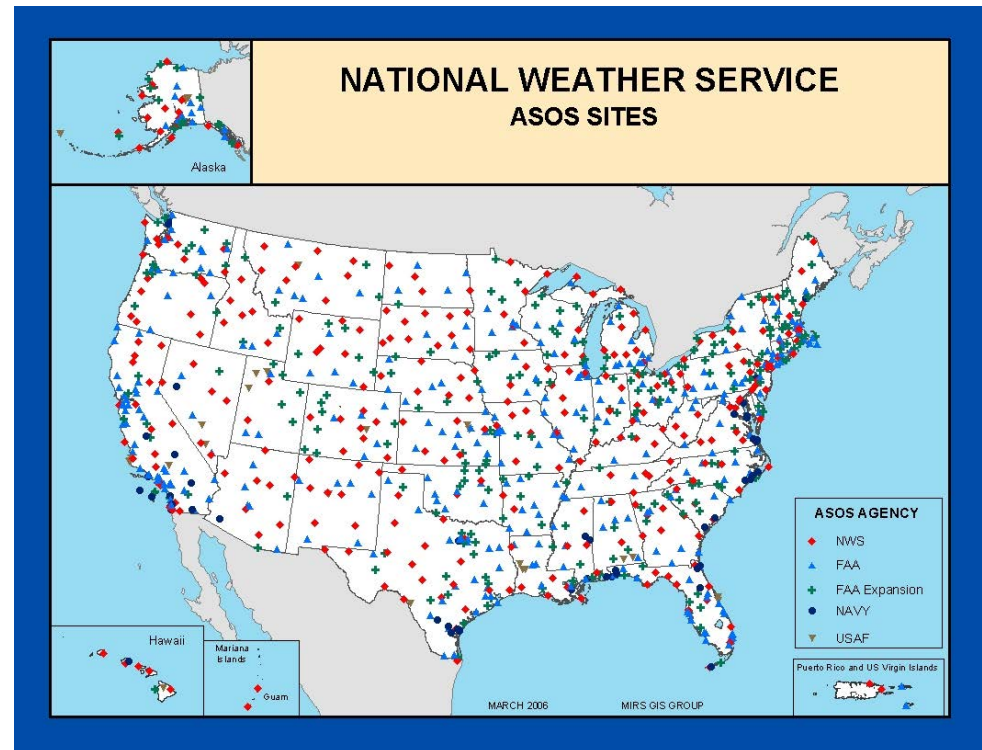
# Weather Observation Networks

- Automated Surface Observing System (**ASOS**)
- COoperative Observer Program (**COOP**)
- Collaborative Community Rain, Hail, and Snow (**CoCoRAHS**)



# ASOS

- The nation's primary surface weather observing network.
- A joint effort between the National Weather Service, Federal Aviation Administration, and Department of Defense.
- Operates 24/7, 365 days per year.
- <http://www.weather.gov/>



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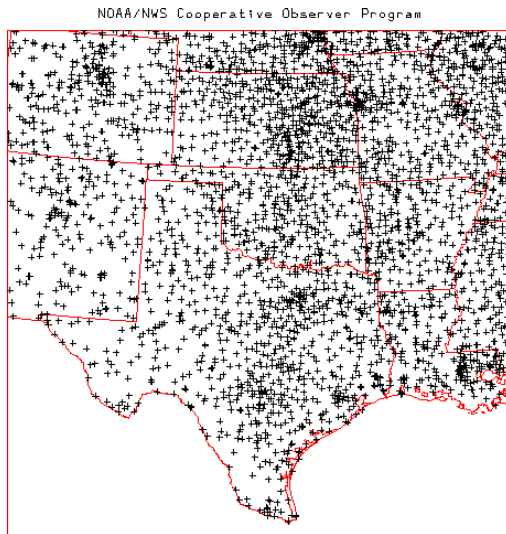
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# COOP

Program dates back to 1870.  
Consists of almost 11,000 volunteers across  
the nation.  
Daily max/min temperature, snowfall, and  
24-hour precipitation totals.  
<http://www.weather.gov/gsp/coop>



# CoCoRAHS

“Volunteers working together to measure precipitation across the nation.”

Established in 1998.  
Precipitation record.

<http://www.weather.gov/ilm/CoCoRaHS>

Be come of weather observer!  
For New Mexico go to

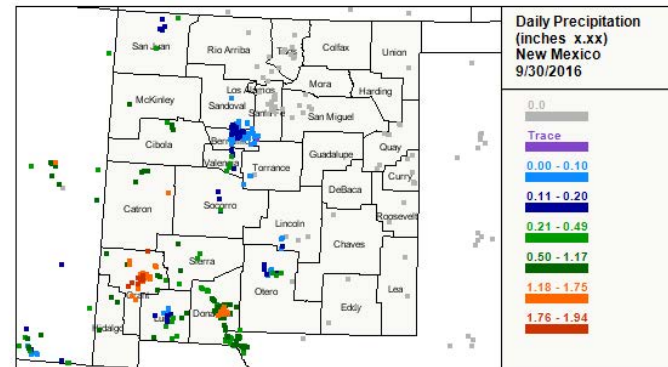
<https://weather.nmsu.edu/cocorahs/>

Be come of weather observer!

## Community Collaborative Rain, Hail and Snow Network (CoCoRaHS)

Are you interested in the weather and climate of New Mexico? Would you like to contribute to the body of knowledge about weather in your area? Do you have five minutes a day to devote to observing the weather?

We'd like you to encourage you to join the CoCoRaHS network of precipitation observers. It's a fun and easy way to keep track of the precipitation falling (or not falling) in your backyard, and it allows you to contribute to a valuable national source of weather information.



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# Office of the New Mexico State Climatologist

- \* Summary data for the state in one place.
- \* <https://weather.nmsu.edu/>
- \* **NM Climate Center**
- \* **Cooperative Observer Program (COOP)**
- \* **FAA Weather Stations**
- \* **Soil Climate Analysis Network**
- \* **Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS)**

The screenshot shows the NM Climate Center website. At the top, there is a navigation bar with links for Home, Weather Station Data, Drought Information, CoCoRaHS, Weather Webcams, and Climate in New Mexico. Below the navigation bar, the page title is "NM Climate Center". The main content area includes a welcome message, a section for "Current Daily Precipitation" with a map of New Mexico showing precipitation data for September 30, 2014, and a section for "Drought Status" with a map of New Mexico showing drought contours for September 15, 2014.

**NM Climate Center**

Welcome to the Office of the New Mexico State Climatologist. This website provides weather and climate information to our community members. Below are the most current precipitation and drought maps for New Mexico.

**Current Daily Precipitation**

The Community Collaborative Rain, Hail and Snow (CoCoRaHS) Network provides daily precipitation data for all 50 states in the United States. Data is gathered by volunteers with rain gauges in their back yards. Figure 1 displays an up-to-date precipitation map of New Mexico. For more information about CoCoRaHS or to sign up as a volunteer, please visit our CoCoRaHS page.

**September 30, 2014 NM CoCoRaHS Data**

Figure 1. Source: CoCoRaHS and NM Climate Center.

**Drought Status**

Our office participates in providing data and ground truth observations to the US Drought Monitor every week. From this information, the Drought Monitor generates a contoured nationwide map where the color of the contours describes the severity of the drought. Figure 2 displays the current drought status for New Mexico. To view the current drought status for New Mexico, please visit our drought status page. To view a drought time-series, please visit our time-series page.

**U.S. Drought Monitor New Mexico**

September 15, 2014

Figure 2. The U.S. Drought Monitor is jointly produced by the National Drought Mitigation Center at the University of Nebraska and the National Oceanic and Atmospheric Administration.



## Other useful mobile apps:

### RadarScope (\$10)

- \* Specialized high resolution radar data and derived products for the entire country.

### iMap Weather Radio (\$10)

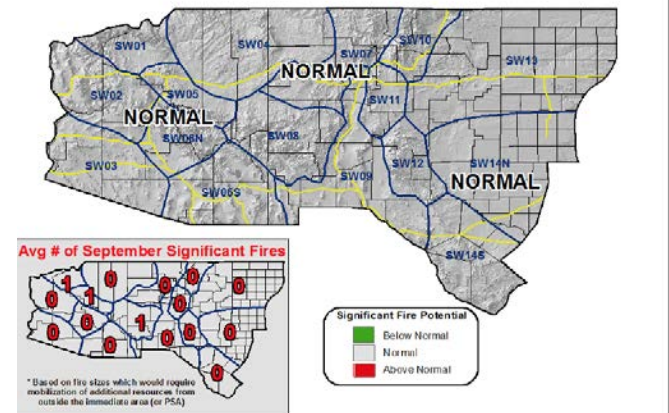
- \* Pushes NWS weather alerts to your phone like a NOAA weather radio.
- \* Both sold by Weather Decision Technologies in Norman, OK



# Fire Outlooks

- \* **NOAA Storm Prediction Center**
- \* [http://www.spc.noaa.gov/products/fire\\_wx/](http://www.spc.noaa.gov/products/fire_wx/)
- \* <http://www.srh.noaa.gov/ridge2/fire/>
- \* **National Interagency Coordination Center**
- \* <http://www.nifc.gov/nicc/predictive/outlooks/outlooks.htm>
- \* For SW USA
- \* <http://gacc.nifc.gov/swcc/index.htm>
- \* New Mexico Fire Info
- \* <https://nmfireinfo.com/>

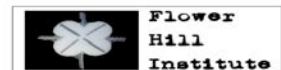
Monthly Significant Fire Potential Outlook  
September 2016



<http://gacc.nifc.gov/swcc/predictive/outlooks/outlooks.htm>



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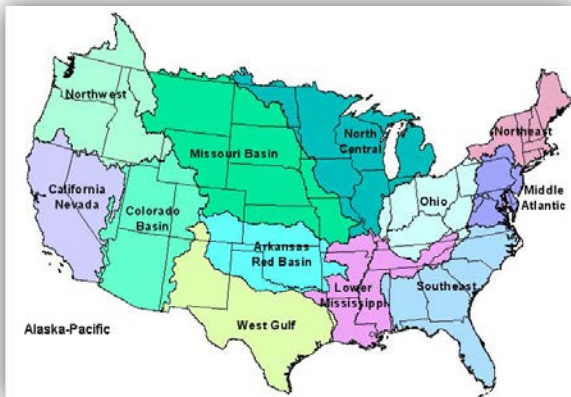
# River Forecast Center Products

Provides flood observation and forecast data.

<http://water.weather.gov/ahps/rfc/rfc.php>

<http://www.cbrfc.noaa.gov/>

<http://www.weather.gov/abrfc/>



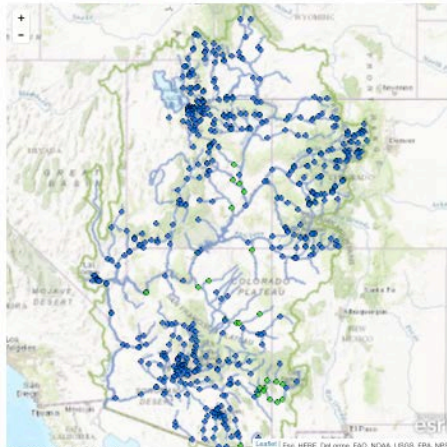
Conditions Map 16-09-30 4:07 PM

**COLORADO BASIN RIVER FORECAST CENTER**  
NATIONAL WEATHER SERVICE | NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

HOME RIVERS SNOW WATER SUPPLY RESERVOIRS WEATHER CLIMATE HELP ABOUT NEWS SEARCH

News Most recent presentations of Water Supply Briefings can be found here: [Read More...](#)

Conditions Map Help



River Conditions

Data Updated: 09/30/21Z Info

Show  Data  Forecast  Reservoir Inflow  Reservoir Outflow  Official Flood  Active

Not Available

- Normal
- Significant Drop
- Near Bankfull
- Above Bankfull
- Above Flood Stage
- Outlook (> 3 days)

Popup Alerts

Snow Conditions

Water Supply Forecasts

Peak Flood Probability

Reservoir Conditions

Daily Precipitation

Monthly Precipitation

Soil Moisture

Map Options

Search Points

Lat: 37.6 Epg. -110.5, Zoom: 6

USA.gov National Oceanic and Atmospheric Administration National Weather Service Colorado Basin River Forecast Center 2242 West North Temple

Disclaimer Information Quality Contact Us Privacy Policy Freedom of Information Act Feedback Original Map

<http://www.cbrfc.noaa.gov/>

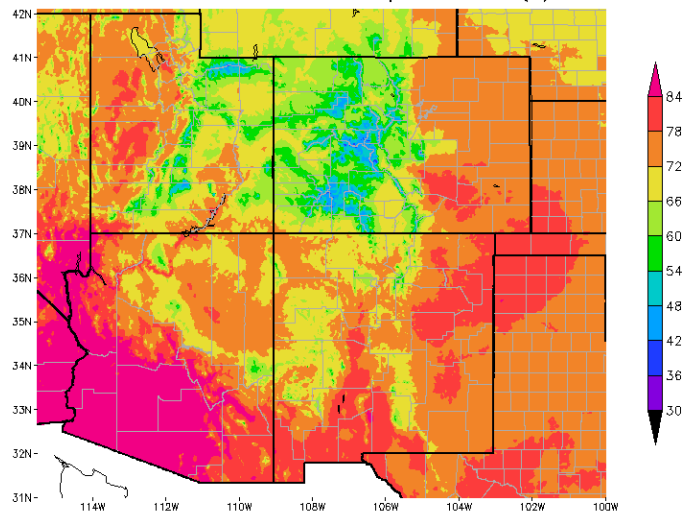
# Sperry-Piltz Ice Accumulation Index

Not just ice, also includes forecasts of precipitation, temperature

<http://www.spia-index.com/>

<http://www.spia-index.com/srIce.php>

NWS WFO SR 1-Hour Temp Forecast (F)

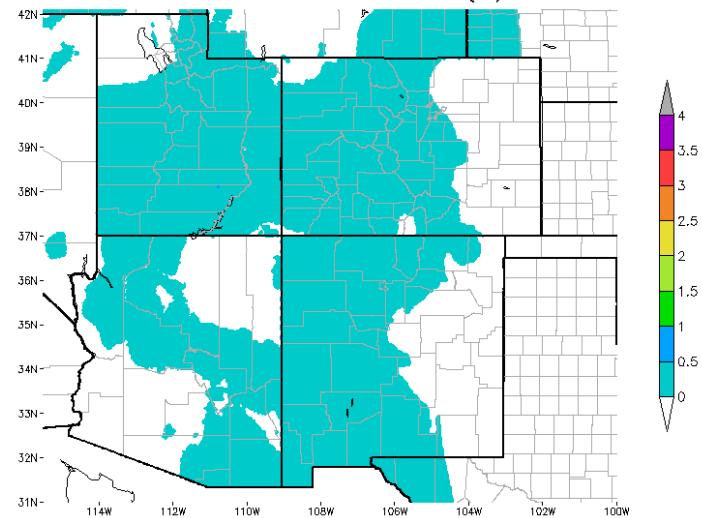


1-Hour Forecast Ending 3-PM MDT SEP/30/2016

GRADS: COLA/IGES

2016-09-30-13:44

NWS WFO SR 6-Hour QPF (in)



6-Hour Forecast Ending 6-PM MDT SEP/30/2016

GRADS: COLA/IGES

2016-09-30-13:43



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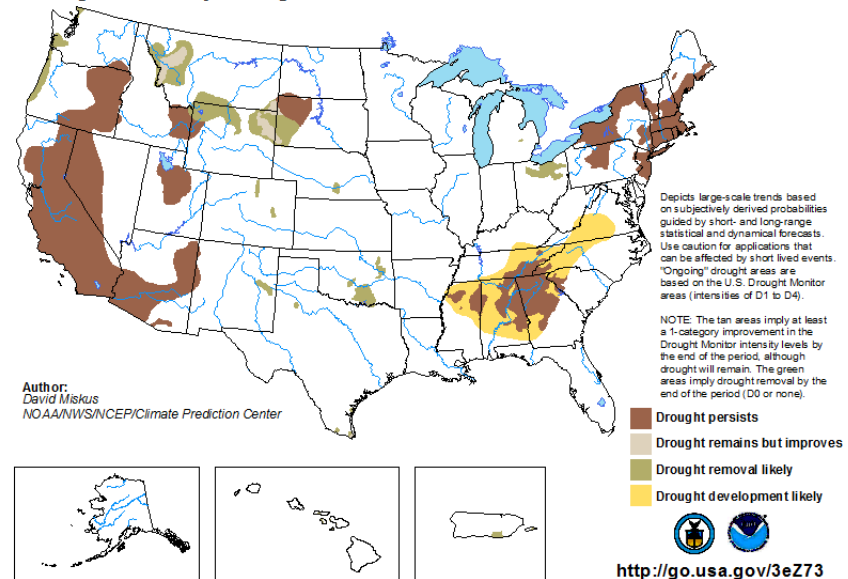
# Climate Prediction Center Outlooks

Users can obtain temperature and precipitation outlooks for seasonal timescales, as well as drought outlooks.

<http://www.cpc.ncep.noaa.gov/>

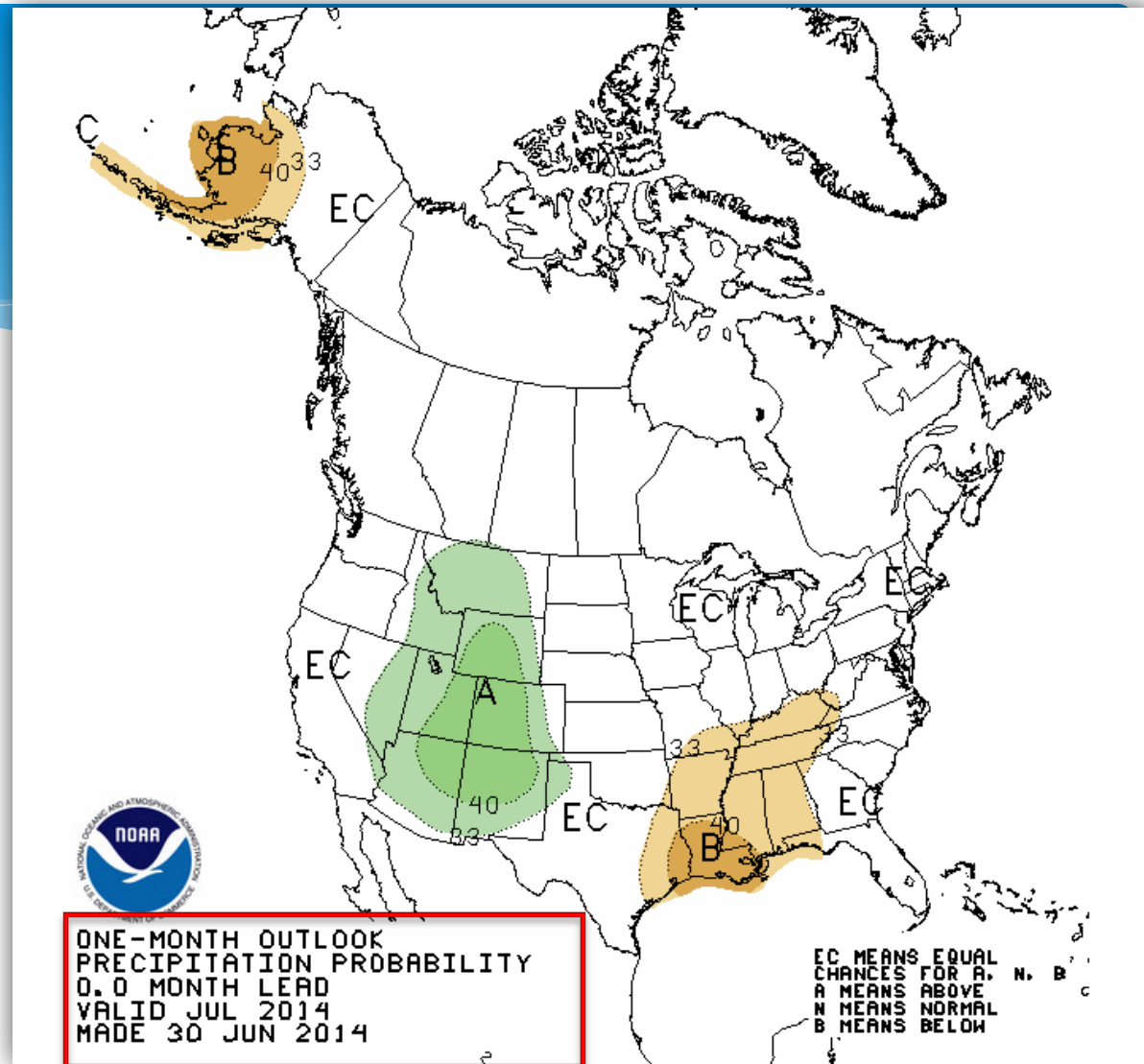
<http://www.cpc.ncep.noaa.gov/products/threats/threats.php>

**U.S. Seasonal Drought Outlook** valid for September 15 - December 31, 2016  
Drought Tendency During the Valid Period Released September 15, 2016



# Example: One Month Outlook - Precipitation

- Probability of above or below average precipitation during the period (e.g., July 2014).
- Keep lead time and forecast period in mind when interpreting.
- “EC” does not mean normal/average!



# Example: Three Month Outlook - Temperature

- Probability of above or below average temperatures during the period (e.g., July-August-Sept).
- Keep lead time and forecast period in mind when interpreting.
- “EC” does not mean normal/average!

