

Local Drought Update, Useful Products for Producers, and a Peek into the Future

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River Authority

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Fort Worth, TX

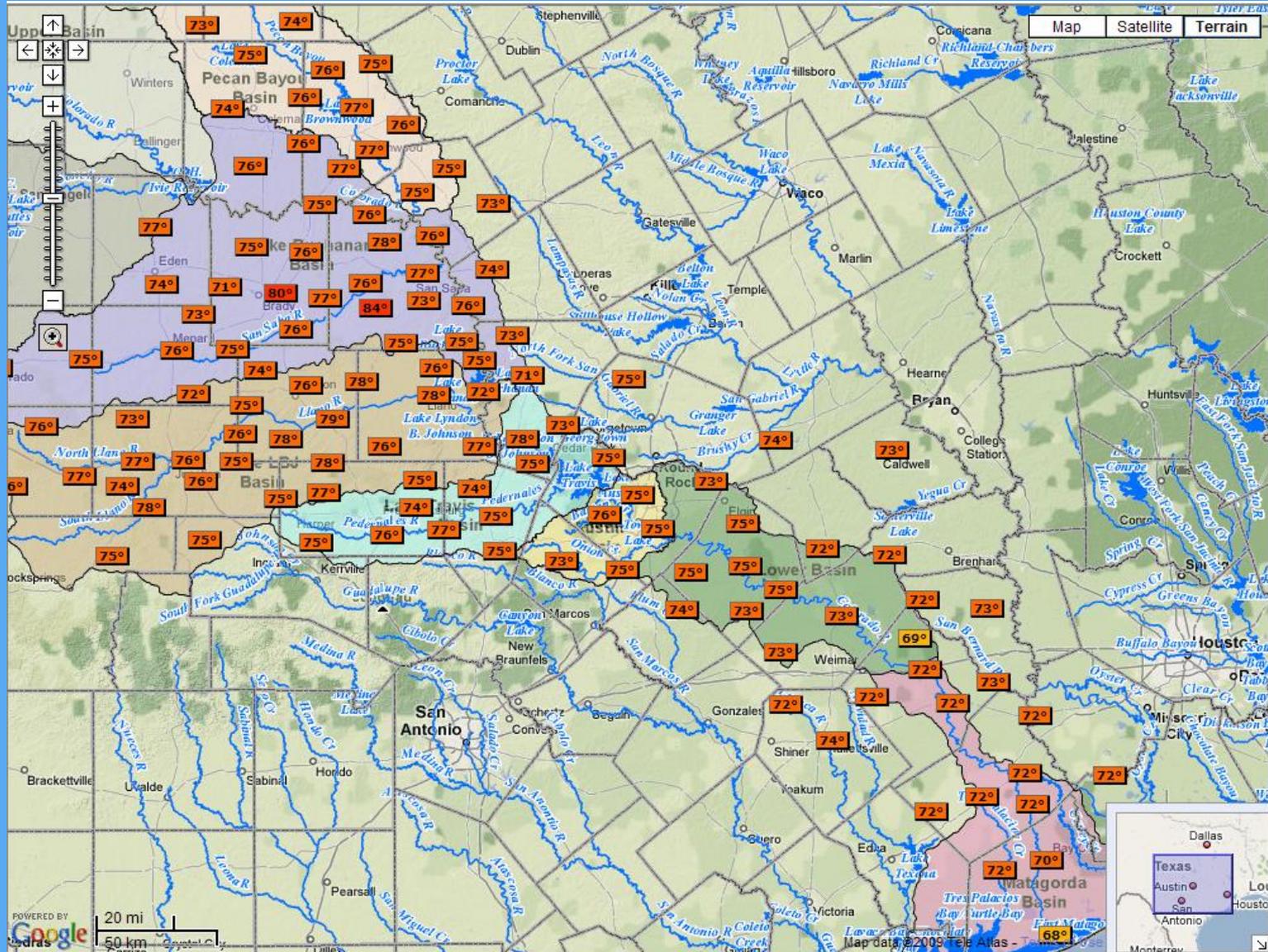
Texas Drought Workshop
February 12, 2009



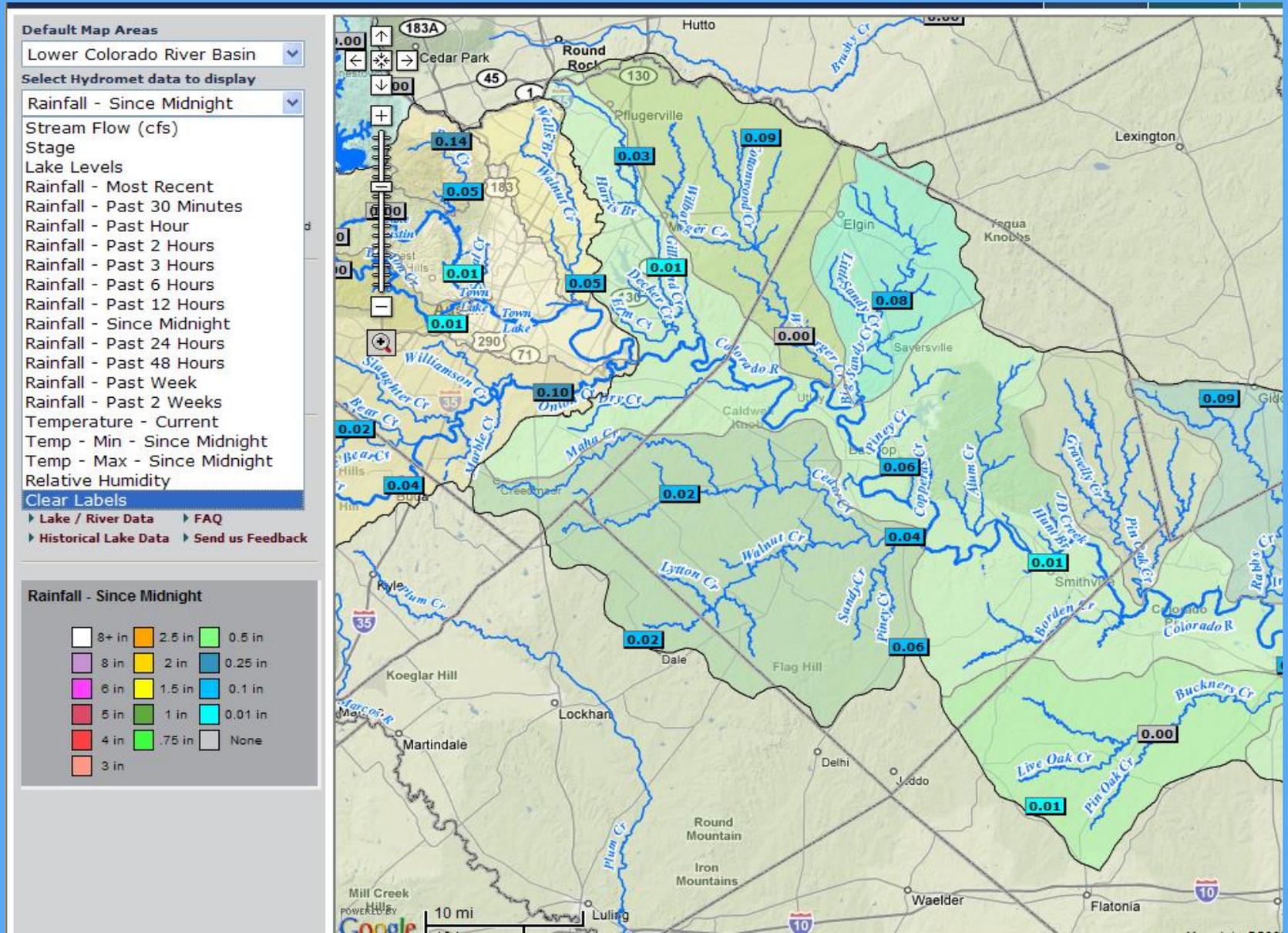
**Tracking Rainfall and
Drought Using Tools
from LCRA**

<http://hydromet.lcra.org>

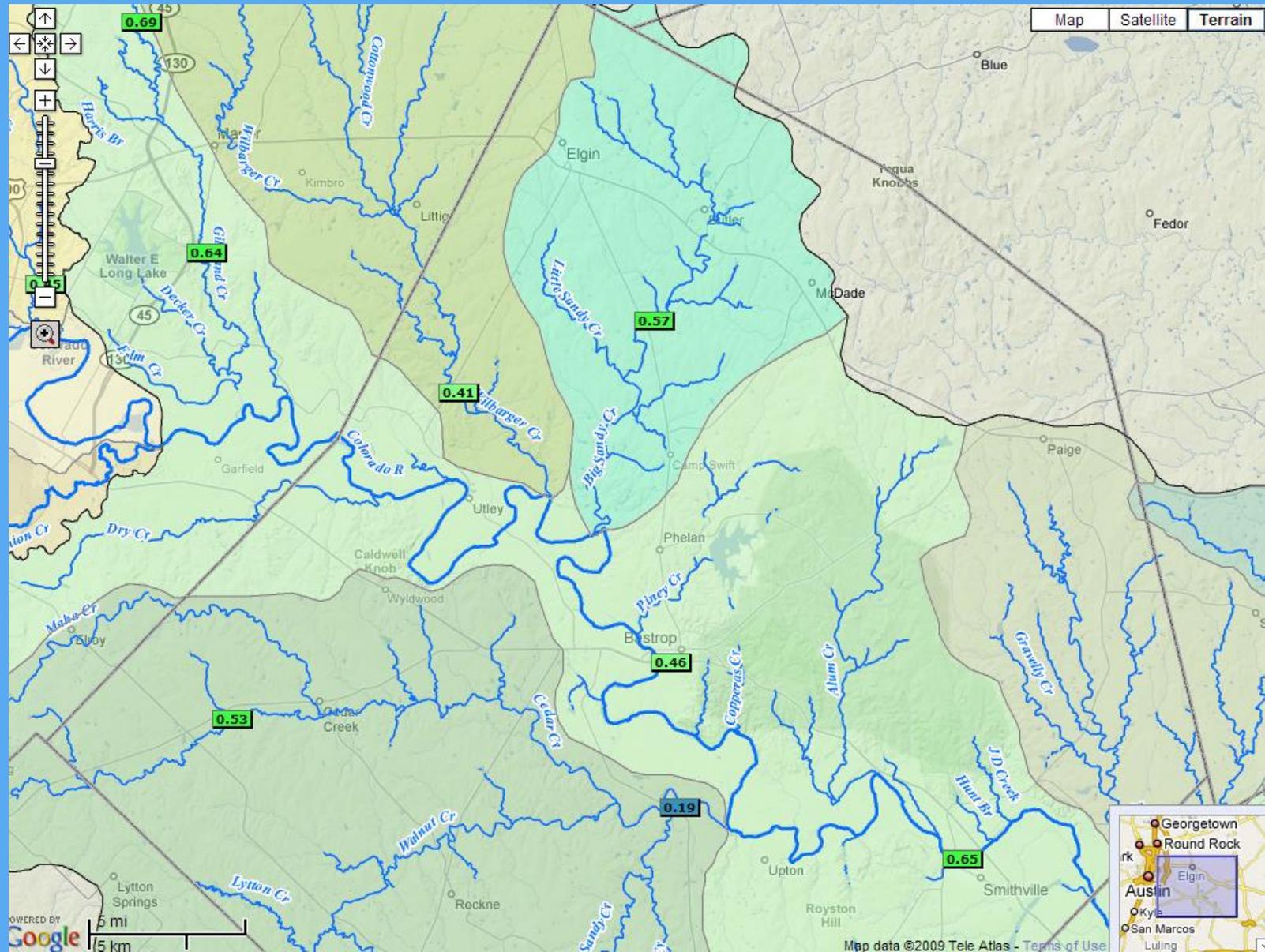
Over 250 Automated Rain and Temperature Gauges



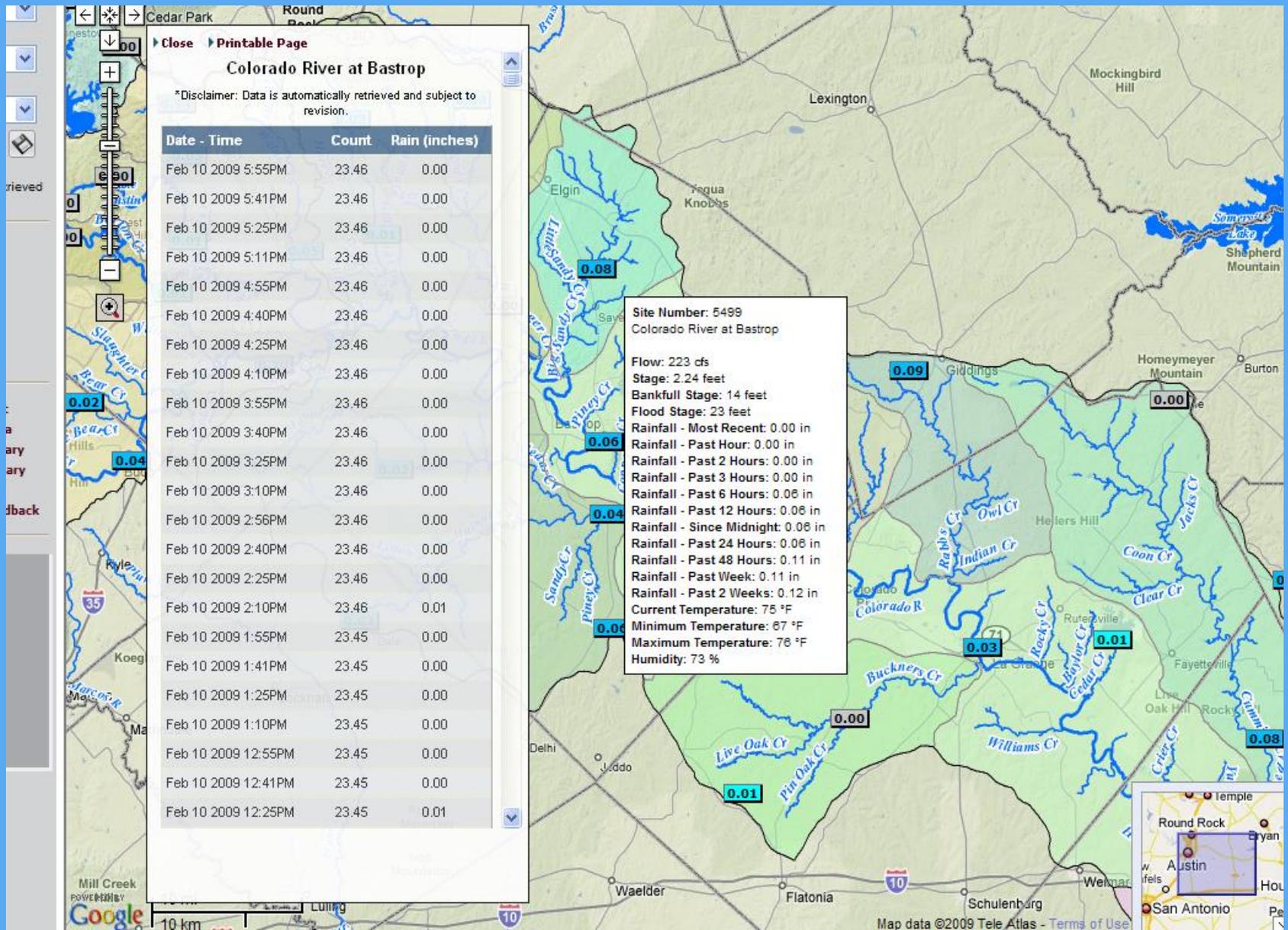
A Choice of Parameters



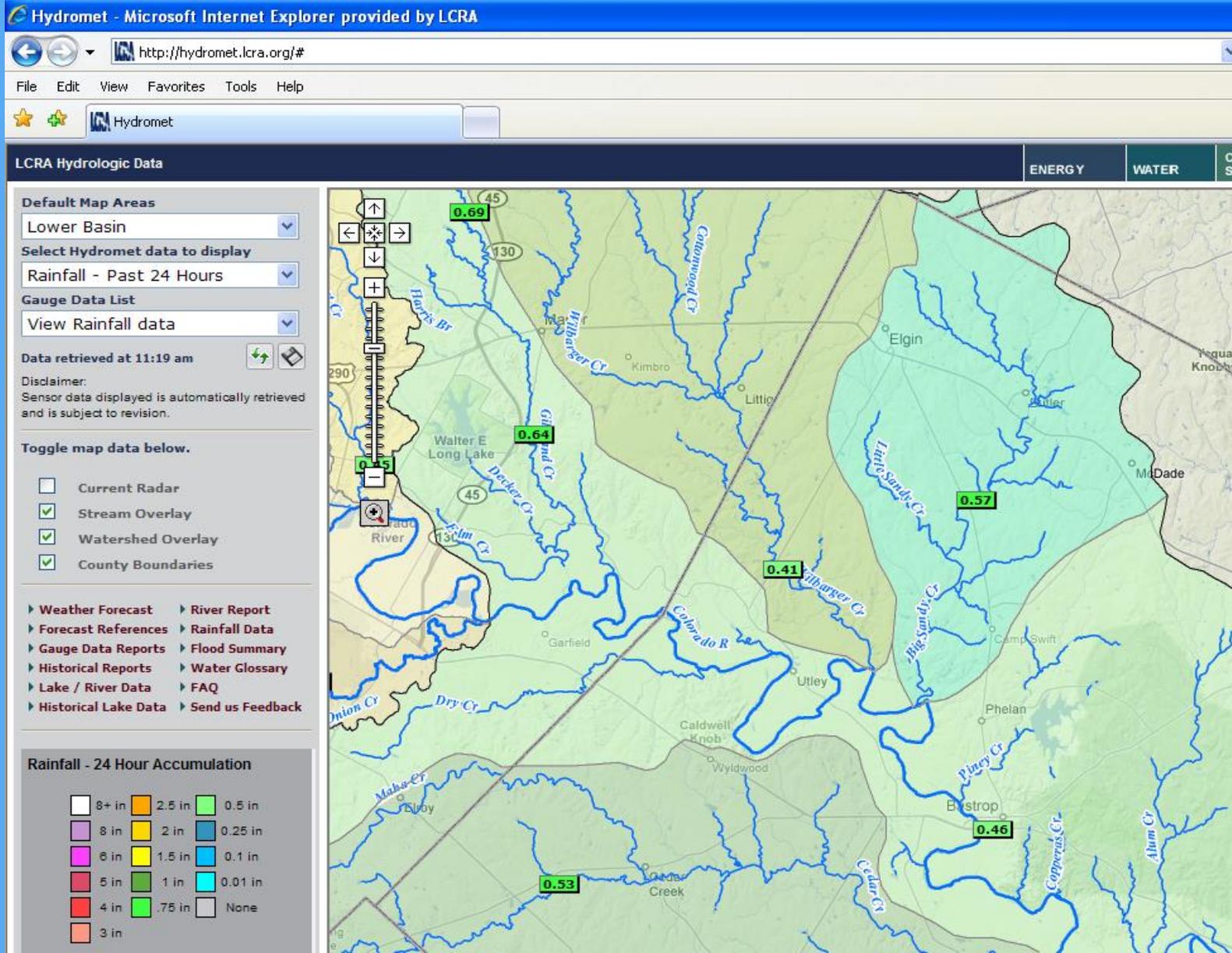
Zoom In to Watershed Levels



Two-Week Historical Look Up



Historical Look Up Tool



Data from Any Gauge is Available

Display historic data for a single sensor.

Select a gauge : 

OR enter a sensor ID # :

starting date and time : February  11  2009  00:00 Midnight 

ending date and time : February  11  2009  11:00 PM 

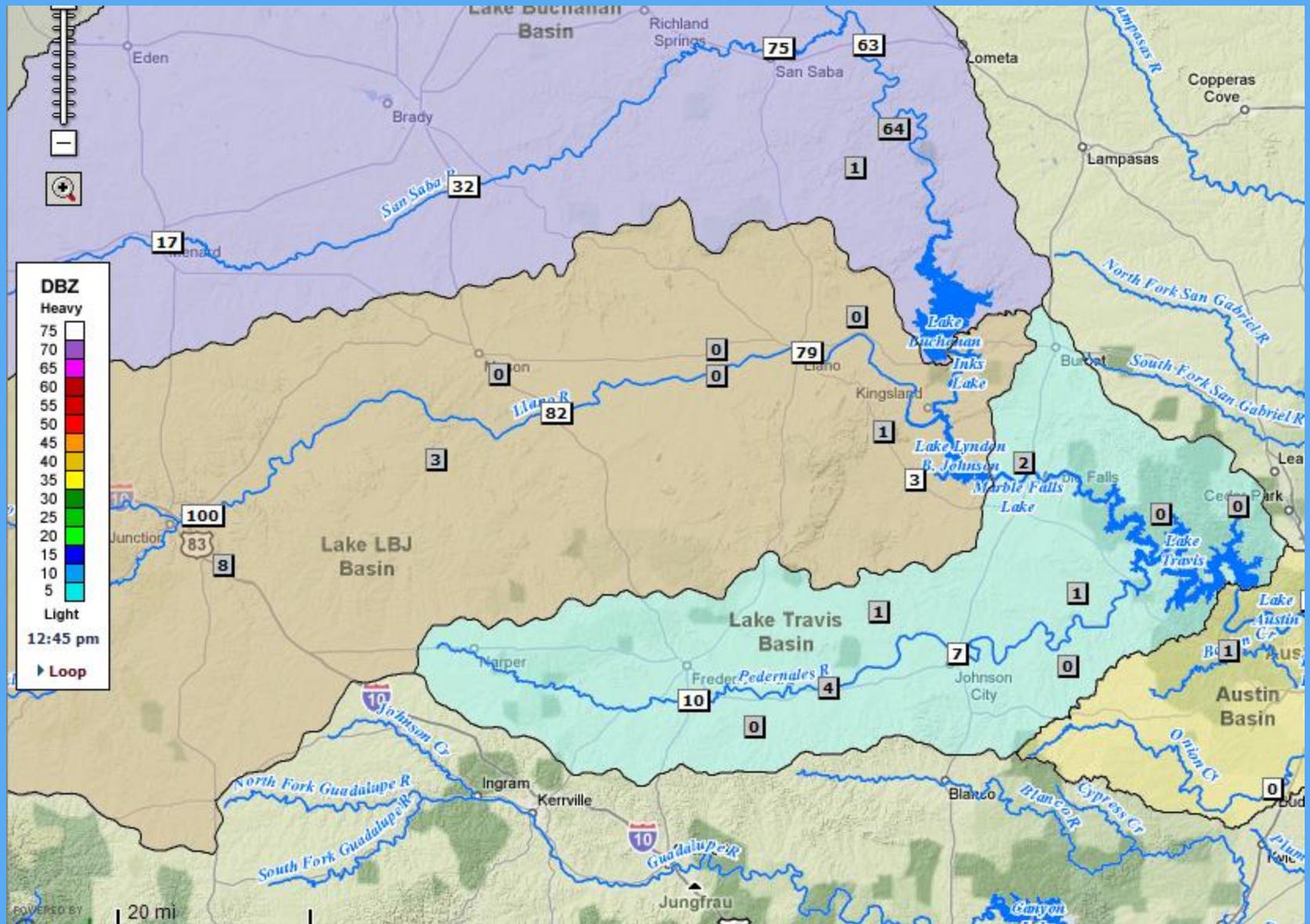
It is now Wed, 11 February 2009, 11:28

Get Historic Data

Reset form

Start Over

Overlay Radar on Top of Gauges





**Bob Rose,
Meteorologist,
Lower Colorado River Authority
512-473-3350
bob.rose@lcra.org**

Your National Weather Service Drought Products and Services

Mark Lenz

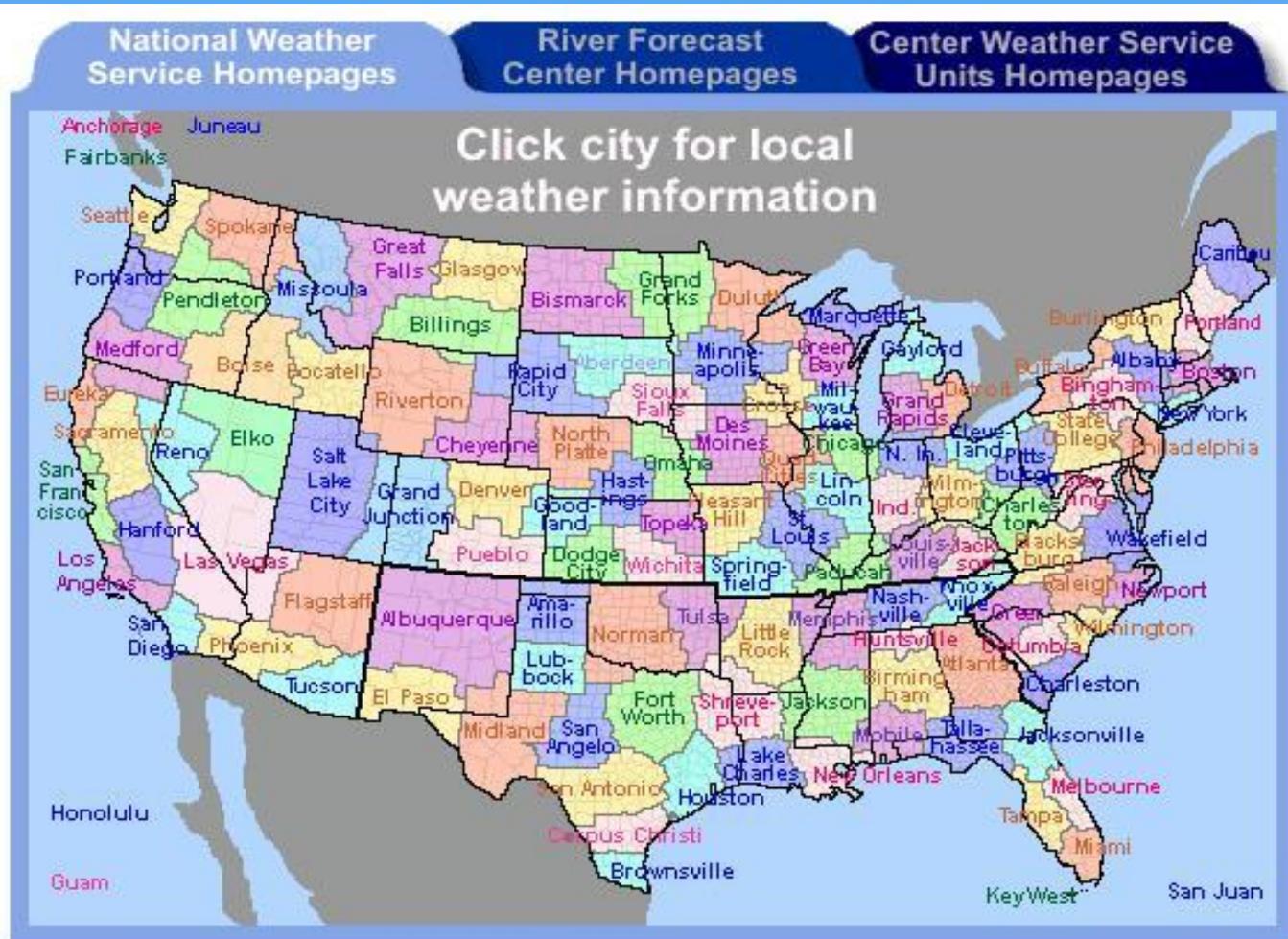
Senior Service Hydrologist

National Weather Service

Austin/San Antonio



The NWS, your Source of Local and State Weather, Water, and Climate Information



www.srh.weather.gov

Latest headlines, forecast for your zip code, and latest drought information statement are all a key feature of your NWS WFO homepage

Austin/San Antonio, TX

News SRH Home Organization Search

Local weather forecast by "City, St" or zip code
City, St Go

Latest Headlines
September 07 to January 09 Rainfall
SKYWARN Training Schedule
TX Severe WX Awareness Week of Feb. 22nd

Graphiccasts

OBSERVED TEMPERATURES & PRECIPITATION

Click on map for Point Forecast (What is point forecast?) **Submit Storm Reports**

Click on the map below for the latest forecast.

En Español

Read watches, warnings & advisories. Zoom Out

High Wind Warning
Red Flag Warning
Small Craft Advisory
Wind Advisory
Blowing Dust Advisory
Fire Weather Watch
Hazardous Weather Outlook
Short Term Forecast

Last map update: Tue, Feb. 10, 2009 at 1:22:22 pm CST

Click here to select the most recently issued NWS Austin San Antonio products.

Drought Information

Satellite and Radar

CoCoRaHS

www.srh.noaa.gov/exw

Entering your Zip Code or clicking in your County allows you to receive a 7 day forecast for your area!

www.weather.gov

National Weather Service Forecast Office

Austin/San Antonio, TX

News SRH Home Organization Search

Local weather forecast by "City, St" or zip code

City, St Go

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- High Wind Warning
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- Wind Advisory
- Blowing Dust Advisory
- Fire Weather Watch
- Hazardous Weather Outlook
- Short Term Forecast

Last map update: Tue, Feb. 10, 2009 at 3:44:25 pm CST

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www.srh.noaa.gov/ewx

7 Day Forecast for your area includes Current Local Conditions and Highlights any expected High Impact Weather.

Bastrop TX

Enter Your "City, ST" or zip code

NWS Austin/San Antonio, TX
Point Forecast: Bastrop TX [Similar City Names]
30.12°N 97.31°W

Mobile Weather Information
Last Update: 11:34 am CST Feb 10, 2009
Forecast Valid: 2pm CST Feb 10, 2009-6pm CST Feb 16, 2009

Forecast at a Glance

This Afternoon	Tonight	Wednesday	Wednesday Night	Thursday	Thursday Night	Friday	Friday Night	Saturday
50% Chance Tstms Hi 76°F	50% Severe Tstms Lo 52°F	Sunny Hi 78°F	Mostly Clear Lo 40°F	Mostly Sunny Hi 74°F	Mostly Cloudy Lo 50°F	Mostly Sunny Hi 74°F	Mostly Clear Lo 41°F	Partly Sunny Hi 64°F

Detailed 7-day Forecast

Hazardous weather condition(s):

→

Hazardous Weather Outlook
Red Flag Warning
Short Term Forecast

This Afternoon: A chance of showers, with thunderstorms also possible after 3pm. Mostly cloudy, with a high near 76. Windy, with a south wind between 20 and 25 mph, with gusts as high as 30 mph. Chance of precipitation is 50%.

Tonight: A 50 percent chance of showers and thunderstorms. Some of the storms could be severe. Mostly cloudy, then becoming mostly clear toward daybreak, with a low around 52. South wind 15 to 20 mph becoming west northwest. Winds could gust as high as 30 mph.

Wednesday: Sunny, with a high near 78. North northwest wind between 10 and 15 mph, with gusts as high as 25 mph.

Wednesday Night: Mostly clear, with a low around 40. North

Current Conditions

Giddings-Lee County Airport

Lat: 30.17 Lon: -96.98 Elev: 485
Last Update on Feb 10, 1:25 pm CST

Overcast

72°F

(22°C)

Humidity:	73 %
Wind Speed:	S 12 G 23 MPH
Barometer:	29.80"
Dewpoint:	63°F (17°C)
Visibility:	10.00 mi.
More Local Wx:	3 Day History:

Radars and Satellite Images

www.srh.noaa.gov/ewx or 830-606-3617

NWS Drought Page

- City, St
- Current Hazards
 - Watches/Warnings
 - Severe Weather Outlooks
- Current Conditions
 - Observations
 - Satellite Images
 - Rivers & Lakes
 - AHPS
- Radar Imagery
 - New Braunfels
 - Brackettville
 - Nationwide
- Forecasts
 - Graphic Forecasts
 - Public Forecasts
 - Aviation
 - Fire Weather
 - Marine/Tropical
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- Climate
 - Local
 - National
 - More...

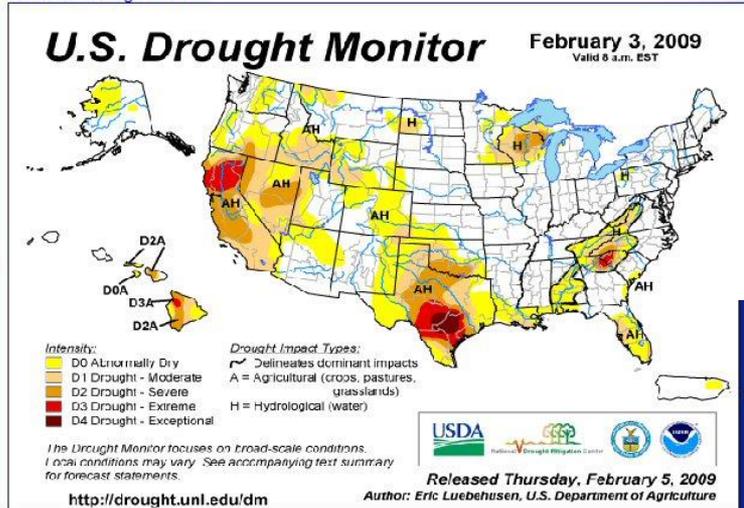
South Central Texas Drought Statement

Drought Information PDF Brochure

PDF files may be viewed using the freely available Adobe Reader

U.S. Drought Monitor

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Precipitation Maps

Precipitation Analysis

Outlooks

US Seasonal Drought Outlook
Monthly and Seasonal Outlooks
El Niño/La Niña Information

Individual Drought Indices

Keetch-Byram Drought Index - (Texas A&M SSL)
Palmer Drought Index - (TexasWaterInfo)

Links

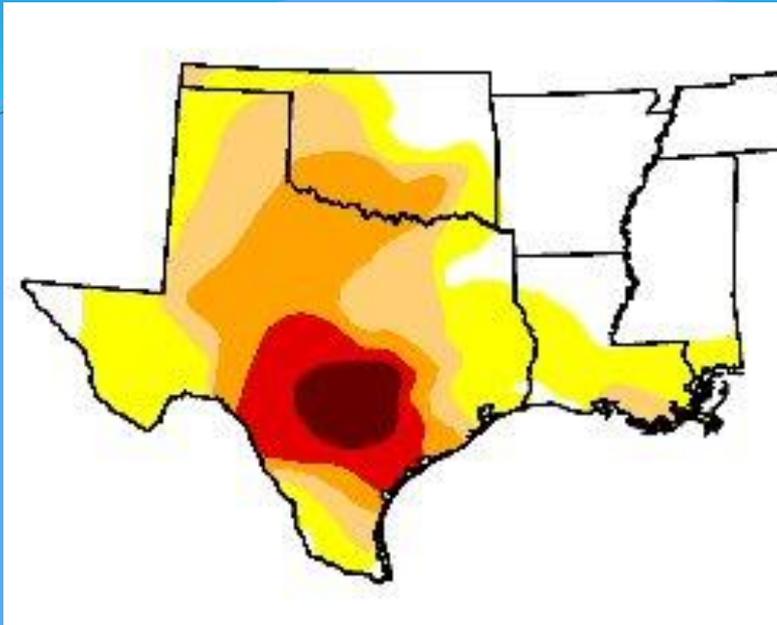
South Central Texas Climate Page
NOAA Drought Information Center
(NEW) Experimental Precipitation Analysis
TxWin Drought Monitoring
Texas Commission on Environmental Quality
USGS WaterWatch
Climate Summary Maps
Texas Burn Ban/Local Disaster Declaration Map

All references to web servers are provided for information only, and are not an official source for information. Please read **DISCLAIMER** regarding availability and timeliness of information.

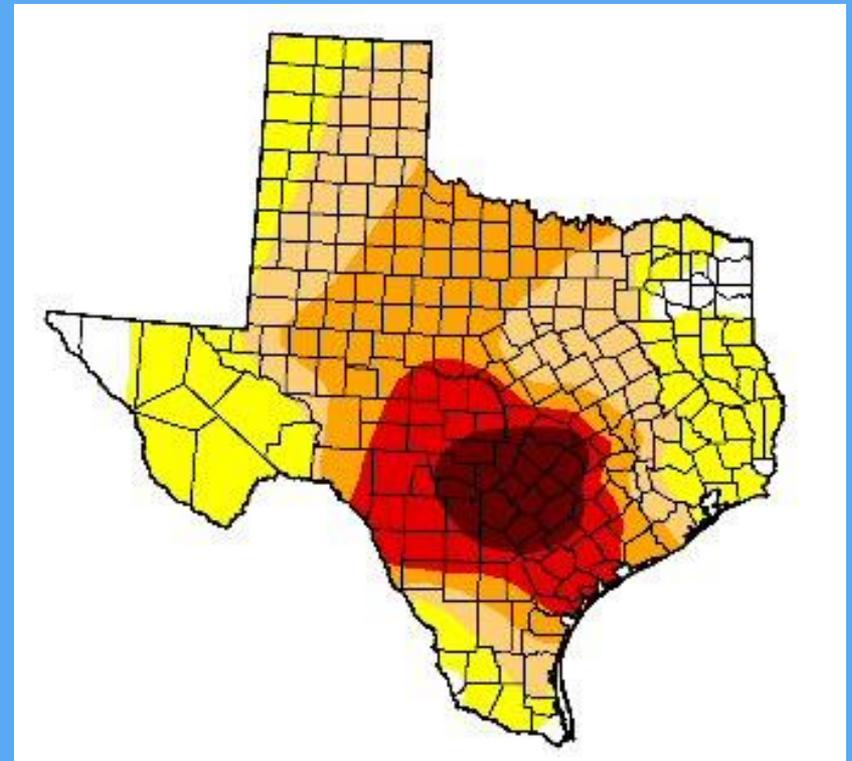
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State Level DM



County Level DM

DROUGHT INFORMATION STATEMENT

NATIONAL WEATHER SERVICE AUSTIN/SAN ANTONIO TX
202 PM CST MON FEB 2 2009

...DROUGHT CONDITIONS CONTINUE ACROSS SOUTH CENTRAL TEXAS...

SYNOPSIS...

RAINFALL DURING THE MONTH OF JANUARY WAS WELL BELOW NORMA SOUTH CENTRAL TEXAS. DURING THE MONTH SEVERAL COLD FRONTS ACROSS THE REGION AND PROVIDED COLDER AND DRIER AIR TO TH REGION...BUT LITTLE OR NO PRECIPITATION. MANY LOCATIONS R GENERALLY LESS THAN ONE HALF OF AN INCH OF RAINFALL.

THE LACK OF RAINFALL DURING JANUARY JUST CONTINUED THE LO OF RAINFALL DEFICITS THAT BEGAN BACK IN SEPTEMBER 2007. J NORMALLY THE DRIEST MONTH...BUT THE LACK OF RAINFALL HAS PUT MOST LOCATIONS AT BELOW NORMAL RAINFALL TOTALS TO BEG

THE US DROUGHT MONITOR (USDM) VALID JANUARY 29TH SHOWED A OF (D4)...EXCEPTIONAL DROUGHT CENTERED OVER HAYS...COMAL. BEXAR...WILSON...CALDWELL...BLANCO...GILLESPIE...KENDALL. GUADALUPE...TRAVIS AND BASTROP COUNTIES. AROUND THE (D4) THERE WAS A LARGE AREA OF (D3)...EXTREME DROUGHT SEVERITY COVERED MUCH OF THE REMAINDER OF SOUTH CENTRAL TEXAS. SUR THE (D3)...EXTREME DROUGHT REGION WAS A SMALL AREA OF (D2 SEVERE DROUGHT THAT COVERED THE SOUTHERN PORTIONS OF MAVE ZAVALA AND FRIO COUNTIES.

SUMMARY OF IMPACTS...

South Central Texas Drought Statement

PDF Brochure



DROUGHT INFORMATION STATEMENT SOUTH CENTRAL TEXAS WFO AUSTIN/SAN ANTONIO, TX ISSUED: FEBRUARY 7, 2009



Summary

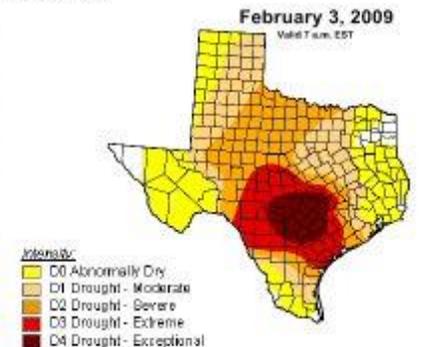
Very dry conditions have persisted across South Central Texas since the end of January. Freezing rain fell across the Hill Country and adjacent areas overnight on January 27-28th. This event was the only source of measurable precipitation over the last two weeks. The liquid equivalent of the rainfall amounts averaged a few hundredths of an inch, but higher amounts of over one tenth of an inch were reported across the Austin Metro Area. Figure 1 depicts the accumulated rainfall over the two-week period from January 23 through February 6. Figure 2 shows the accumulated year-to-date rainfall total for 2009 as a percent of normal.



Figure 1 - Total Observed Rainfall January 23, 2009 through February 6, 2009.



Figure 3, the U.S. Drought Monitor, issued through the National Drought Mitigation Center on February 3rd, shows the long term drought conditions range from extreme to exceptional across the majority of the region. Drought conditions have remained steady, or worsened over the last two weeks due to little rainfall. The area of D4, exceptional drought, has expanded, and now covers nearly two-thirds of South Central Texas. Lower than normal rainfall is forecast over the next several weeks, so drought conditions will likely persist or worsen. The dominant impacts of the drought are both hydrological and agricultural. Water usage remains steady, so area reservoir, lake, and river levels continue to fall.



USDA
Released Thursday, February 5, 2009
Author: Eric Luebbehusen, U.S. Department of Agriculture

Figure 3 - February 3rd USDM, Drought Monitor County Level

The U.S. Drought Monitor is a comprehensive drought monitoring effort between government and academic

Regional Temperature and Precipitation (RTP)

:	STATION	HIGH	LOW	24-HR
:	NAME	TEMP	TEMP	PCPN
:				
KATT	: CAMP MABRY ASOS	: 75 /	63 /	0.29
KAUS	: BERGSTROM ASOS	: 76 /	62 /	0.16
KBAZ	: NEW BRAUNFELS ASOS	: 79 /	64 /	0.13
KBMQ	: BURNET ASOS	: 72 /	52 /	0.25
KDRT	: DEL RIO ASOS	: 72 /	52 /	0.00
KGTU	: GEORGETOWN AWOS	: 72 /	55 /	0.29
KHDO	: HONDO ASOS	: 74 /	63 /	T
KHYI	: SAN MARCOS AWOS	: 77 /	64 /	0.20
K3T5	: LA GRANGE AWOS	: 75 /	64 /	0.00
KSAT	: SAN ANTONIO ASOS	: 77 /	64 /	0.14
KSSF	: STINSON ASOS	: 76 /	63 /	0.15
KERV	: KERRVILLE AWOS	: 74 /	62 /	0.00
KT82	: FREDERICKSBURG AWOS	: 68 /	54 /	0.00
KUVA	: UVALDE AWOS	: 74 /	57 /	0.00
KECU	: ROCKSPRINGS AWOS	: 66 /	52 /	0.00
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Issued 630-645 am and pm (CST) or 730-745 am and pm (CDT)

National Weather Service Homepages **River Forecast Center Homepages** Center Weather Service Unit Homepages

Click city for local weather information

Additional SR pages: [Spaceflight Meteorology Group](#) | [Riverwatch](#) | [NWS/FAA Academy](#)

From NWS homepage, you can access current and historical rainfall data with two easy mouse clicks.

Southern Region Headquarters

SRH Home Organization Search

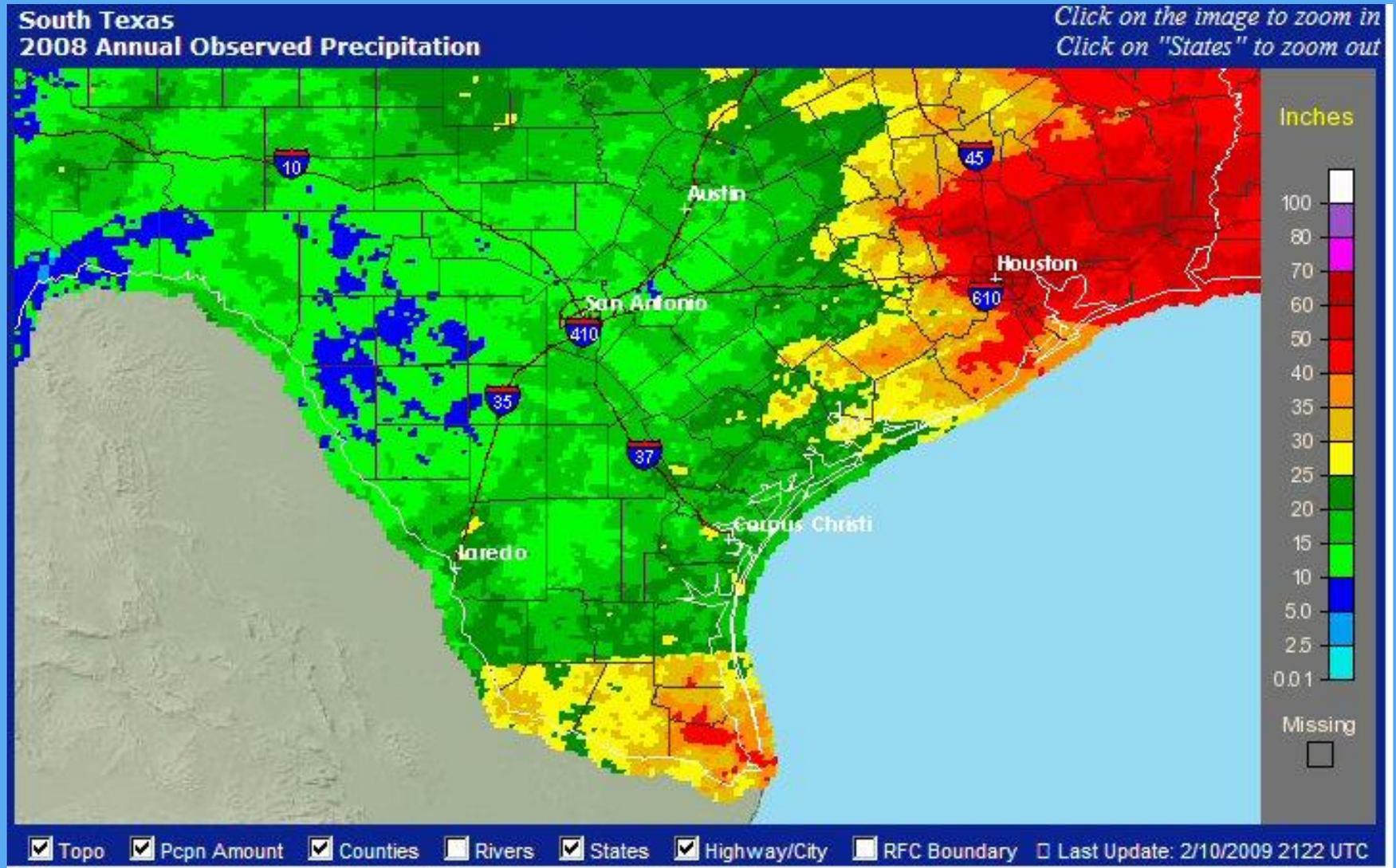
Precipitation Analysis **Flash Flood Guidance** **Current River Status**

www.srh.weather.gov

National Weather Service Homepages **River Forecast Center Homepages** Center Weather Service Unit Homepages

Click RFC area for local information

2008 Annual Observed Precipitation

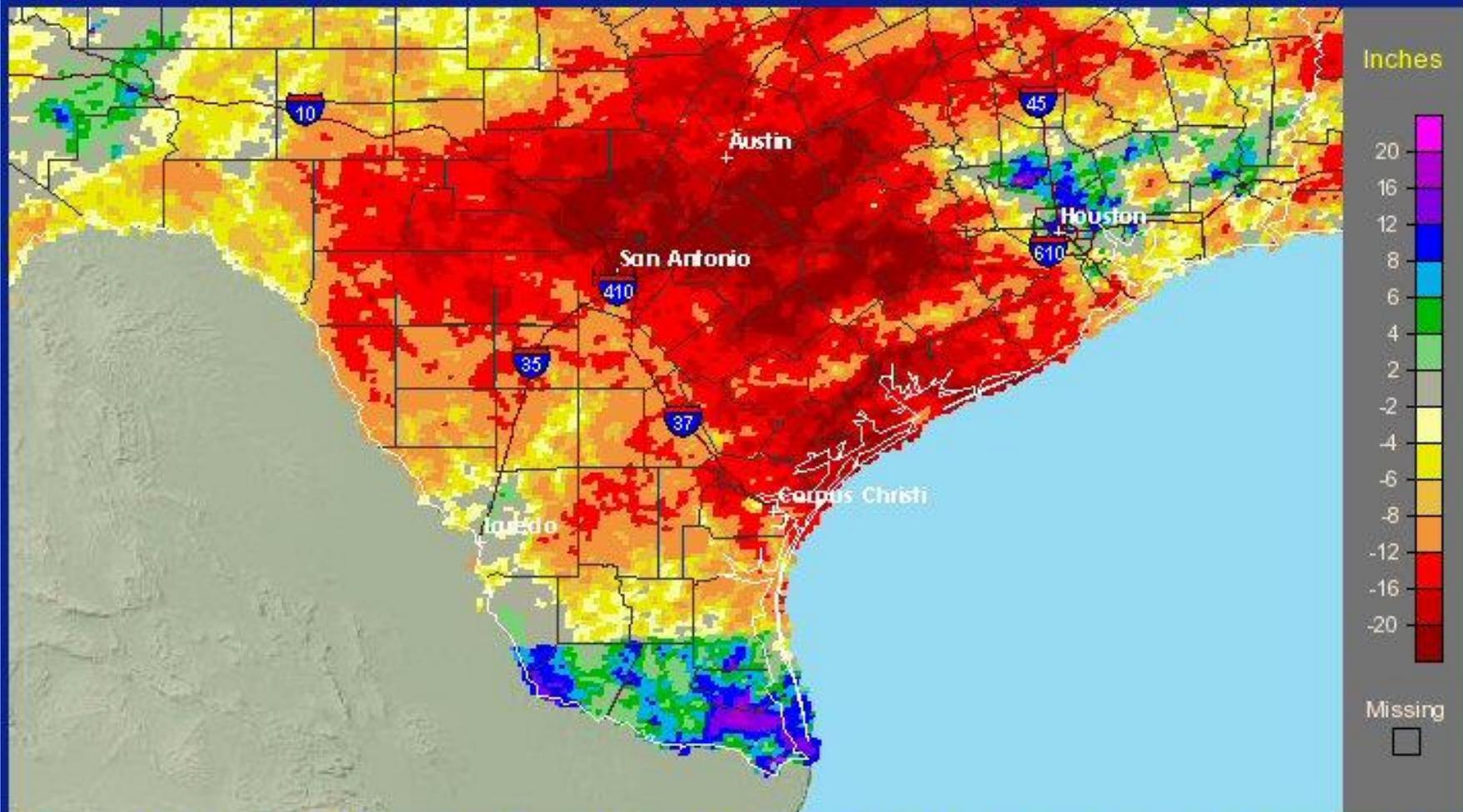


2008 Annual Departure from Normal Precipitation

South Texas

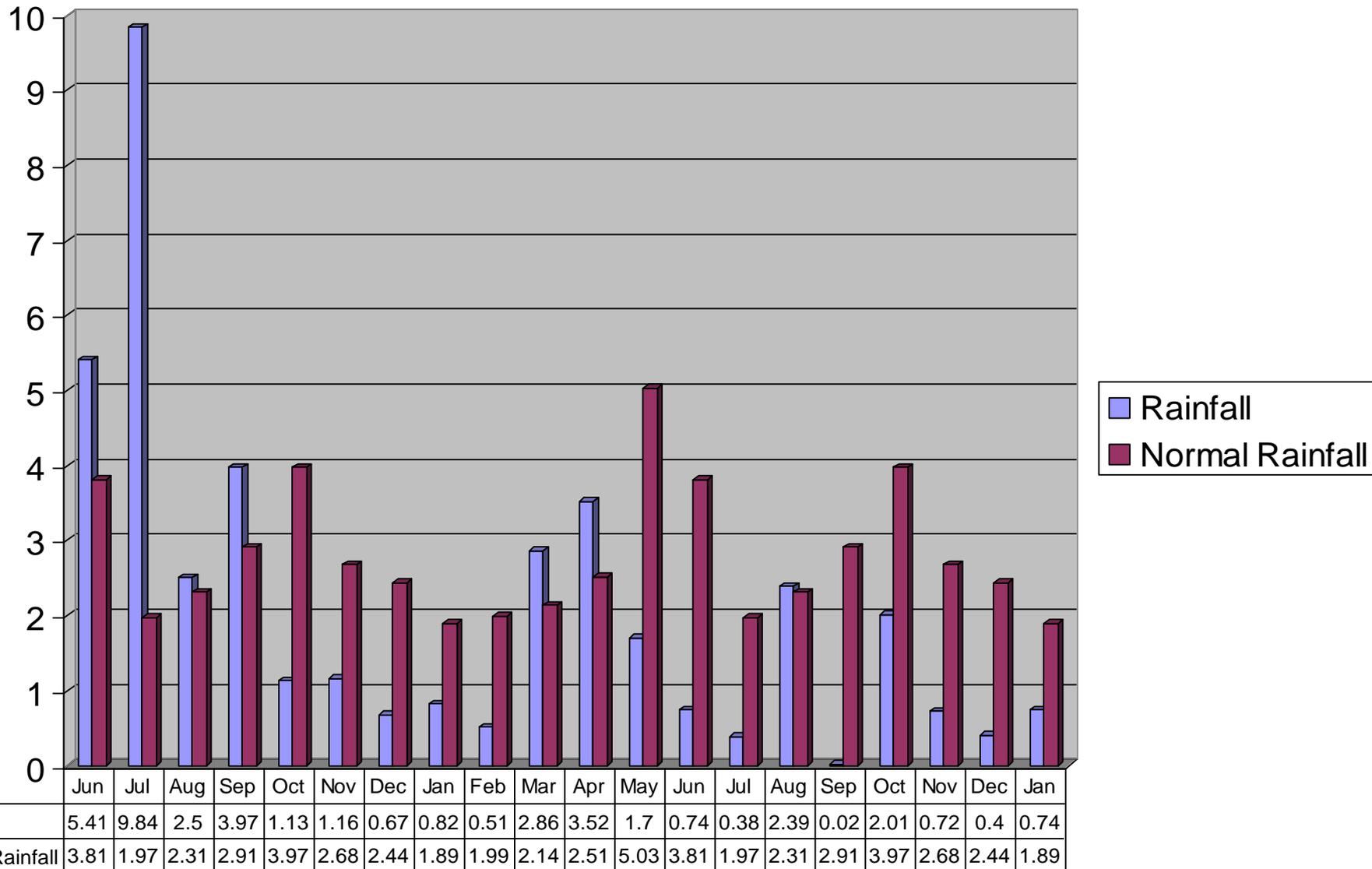
2008 Annual Departure from Normal Precipitation

Click on the image to zoom in
Click on "States" to zoom out

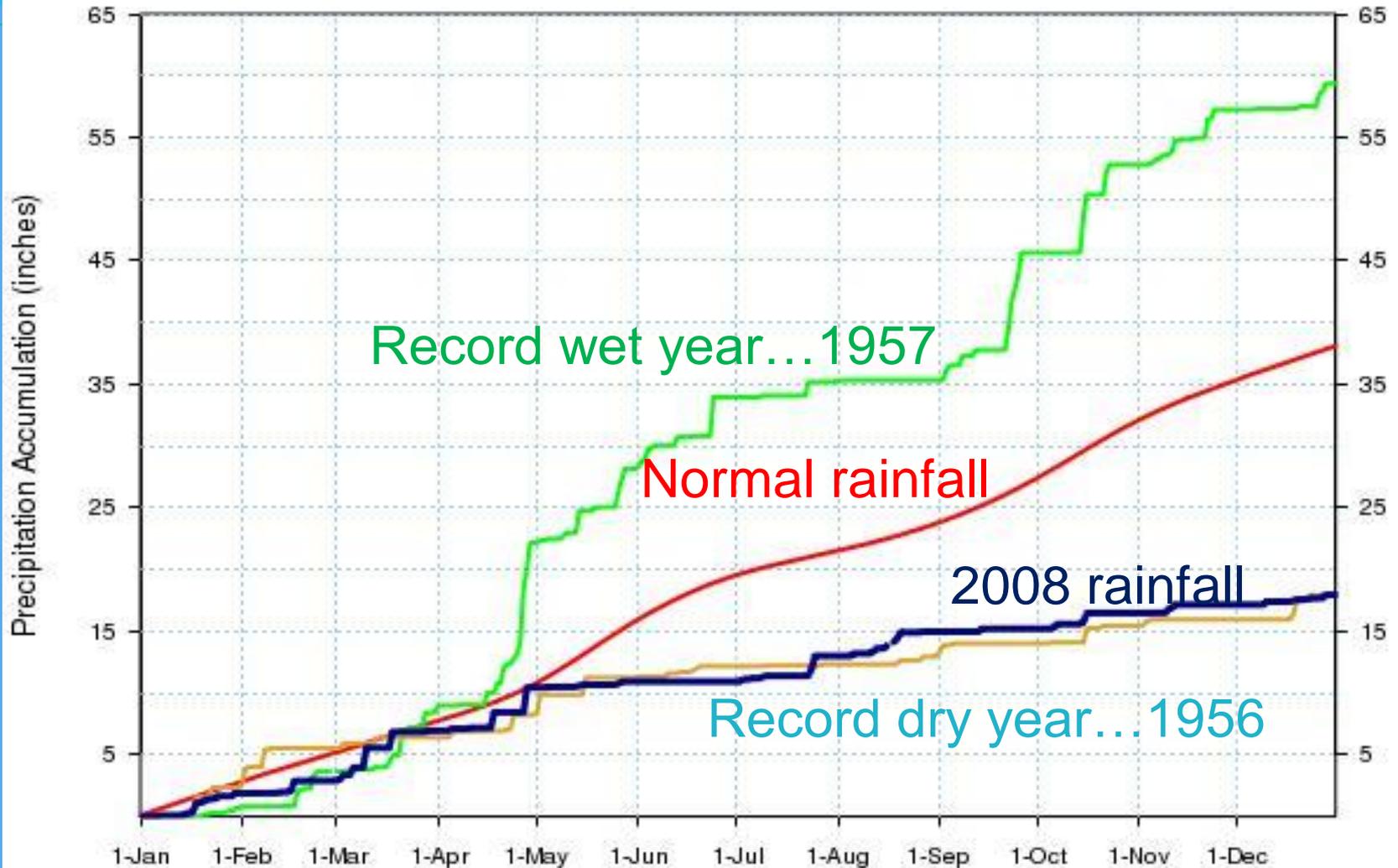


Topo Pcpn Amount Counties Rivers States Highway/City RFC Boundary Last Update: 2/10/2009 2122 UTC

June 2007 - January 2009 rainfall for Austin Mabry



Precipitation Summary for SMITHVILLE Jan 1 - Dec 31

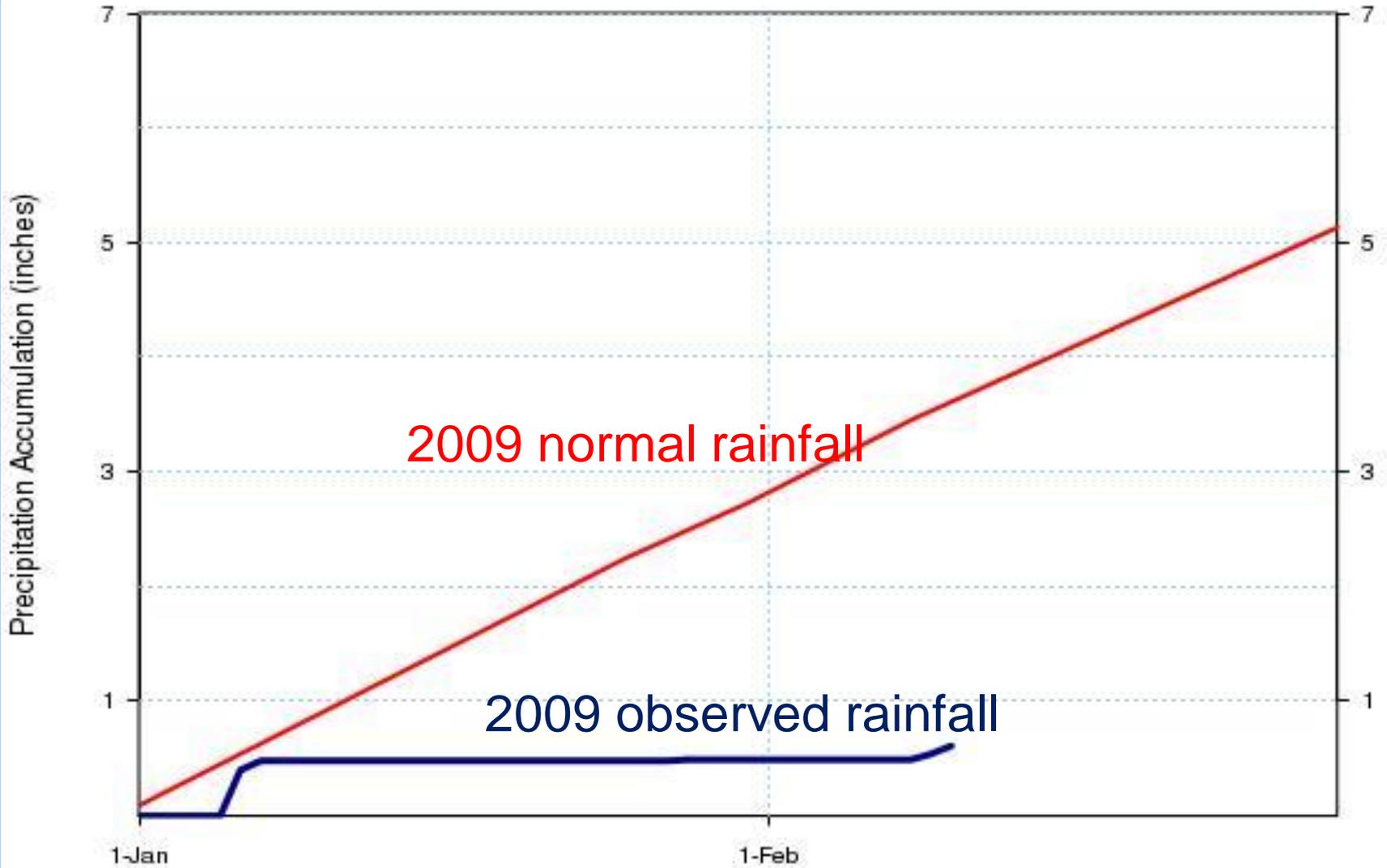


Heavy dark blue line is precipitation accumulation for 2008. Smooth red line is normal.
Green line is accumulation for wettest period (1957). Tan line is accumulation for driest period (1956).
Period of record for wettest and driest: 1917 - 2009.

17.95" of rain in 2008 was 2nd driest year on record, behind the 17.94 in 1956.

Precipitation Summary for SMITHVILLE

Jan 1 - Feb 29



Heavy dark blue line is precipitation accumulation for 2009. Smooth red line is normal.

U.S. Drought Monitor

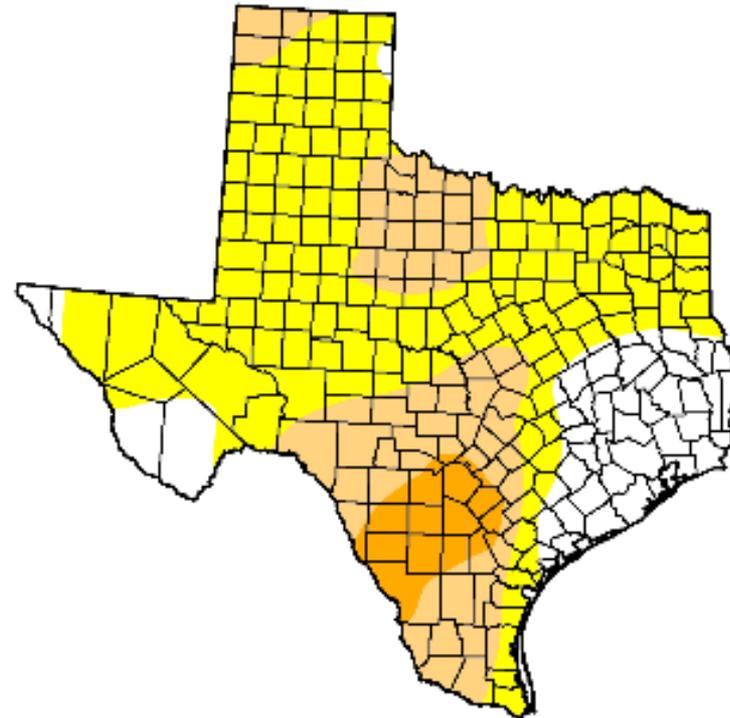
Texas

February 5, 2008

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	17.1	82.9	29.4	5.9	0.0	0.0
Last Week (01/29/2008 map)	23.9	76.1	24.9	0.0	0.0	0.0
3 Months Ago (11/13/2007 map)	51.4	48.6	0.0	0.0	0.0	0.0
Start of Calendar Year (01/01/2008 map)	52.0	48.0	11.6	0.0	0.0	0.0
Start of Water Year (10/02/2007 map)	97.9	2.1	0.0	0.0	0.0	0.0
One Year Ago (02/06/2007 map)	51.3	48.7	33.5	21.1	12.9	2.4



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

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

<http://drought.unl.edu/dm>



Released Thursday, February 7, 2008

Author: J. Lawrimore/L. Love-Brotak, NOAA/NESDIS/NCDC

U.S. Drought Monitor

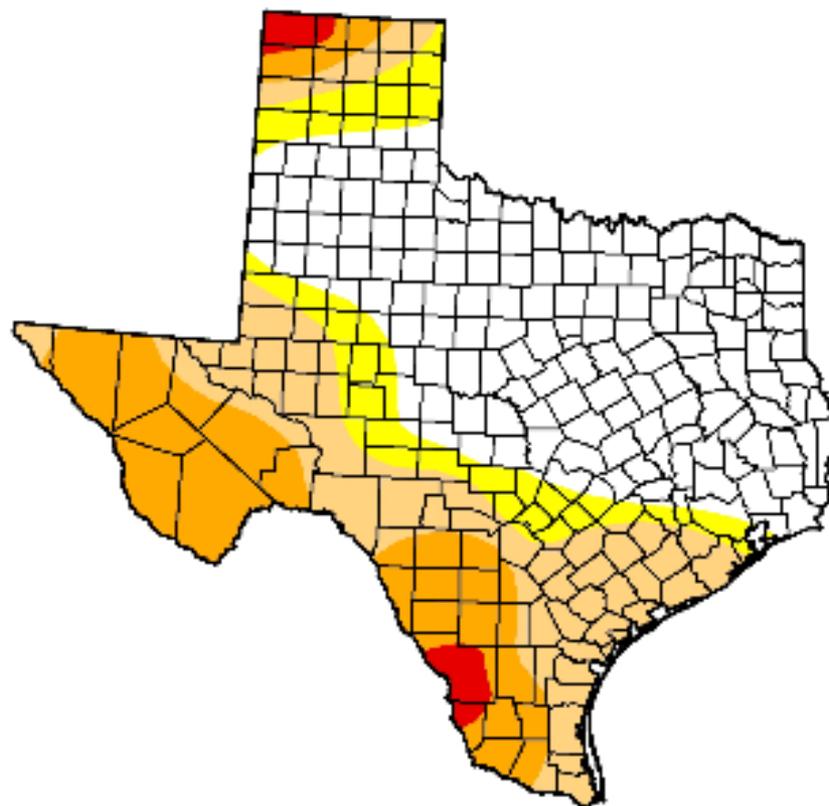
Texas

May 20, 2008

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	47.2	52.8	42.1	20.3	1.9	0.0
Last Week (05/13/2008 map)	46.7	53.3	36.6	24.3	6.9	0.0
3 Months Ago (02/26/2008 map)	29.0	71.0	44.2	19.3	2.0	0.0
Start of Calendar Year (01/01/2008 map)	52.0	48.0	11.6	0.0	0.0	0.0
Start of Water Year (10/02/2007 map)	97.9	2.1	0.0	0.0	0.0	0.0
One Year Ago (05/22/2007 map)	96.0	4.0	0.0	0.0	0.0	0.0



Intensity:

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- D3 Drought - Extreme
- D4 Drought - Exceptional

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

<http://drought.unl.edu/dm>



Released Thursday, May 22, 2008

Author: David Miskus, JAWF/CPC/NOAA

U.S. Drought Monitor

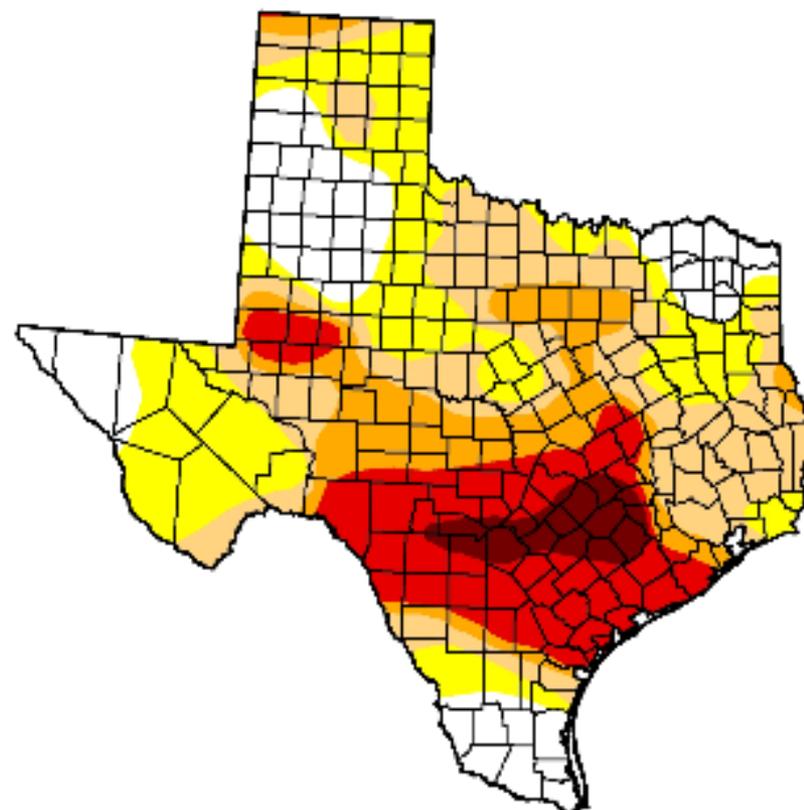
Texas

August 12, 2008

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	17.0	83.0	57.3	33.6	20.3	4.0
Last Week (08/05/2008 map)	13.3	86.7	64.5	35.5	19.6	3.2
3 Months Ago (05/20/2008 map)	47.2	52.8	42.1	20.3	1.9	0.0
Start of Calendar Year (01/01/2008 map)	52.0	48.0	11.6	0.0	0.0	0.0
Start of Water Year (10/02/2007 map)	97.9	2.1	0.0	0.0	0.0	0.0
One Year Ago (08/14/2007 map)	99.9	0.1	0.0	0.0	0.0	0.0



Intensity:

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- D4 Drought - Exceptional

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<http://drought.unl.edu/dm>



Released Thursday, August 14, 2008

Author: Eric Luebehusen, U.S. Department of Agriculture

U.S. Drought Monitor

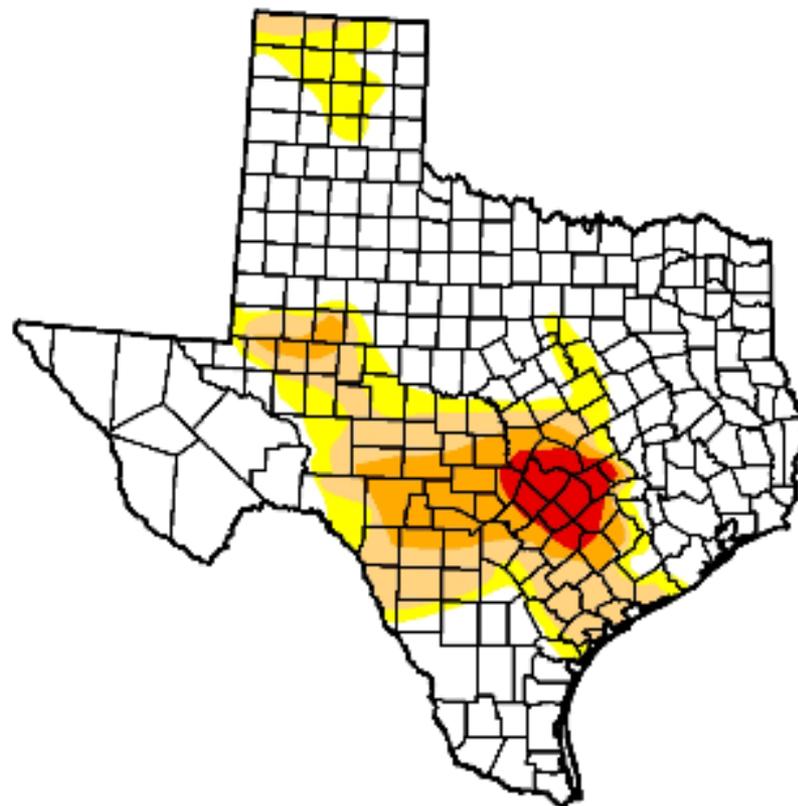
Texas

September 23, 2008

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	68.2	31.8	21.3	9.7	2.8	0.0
Last Week (09/16/2008 map)	69.0	31.0	20.9	8.3	2.4	0.0
3 Months Ago (07/01/2008 map)	8.0	92.0	65.3	44.4	24.9	4.2
Start of Calendar Year (01/01/2008 map)	52.0	48.0	11.6	0.0	0.0	0.0
Start of Water Year (10/02/2007 map)	97.9	2.1	0.0	0.0	0.0	0.0
One Year Ago (09/25/2007 map)	98.3	1.7	0.0	0.0	0.0	0.0



Intensity:

- D0 Abnormally Dry
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- D3 Drought - Extreme
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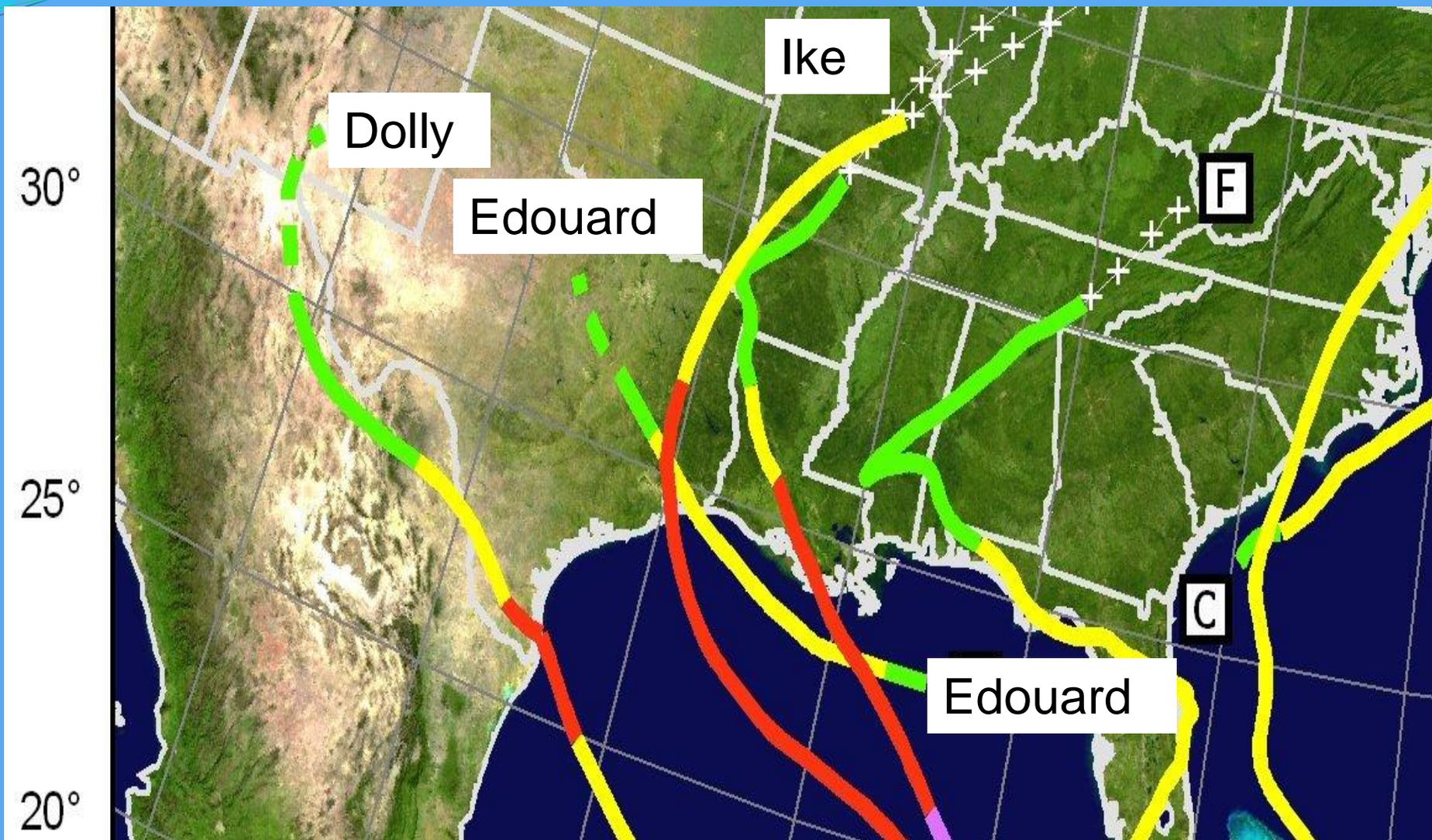
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

<http://drought.unl.edu/dm>



Released Thursday, September 25, 2008
 Author: R. Heim/L. Love-Brotak, NOAA/NESDIS/NCDC

Hurricane 2008 Tracks – Dolly, Edouard and Ike



U.S. Drought Monitor

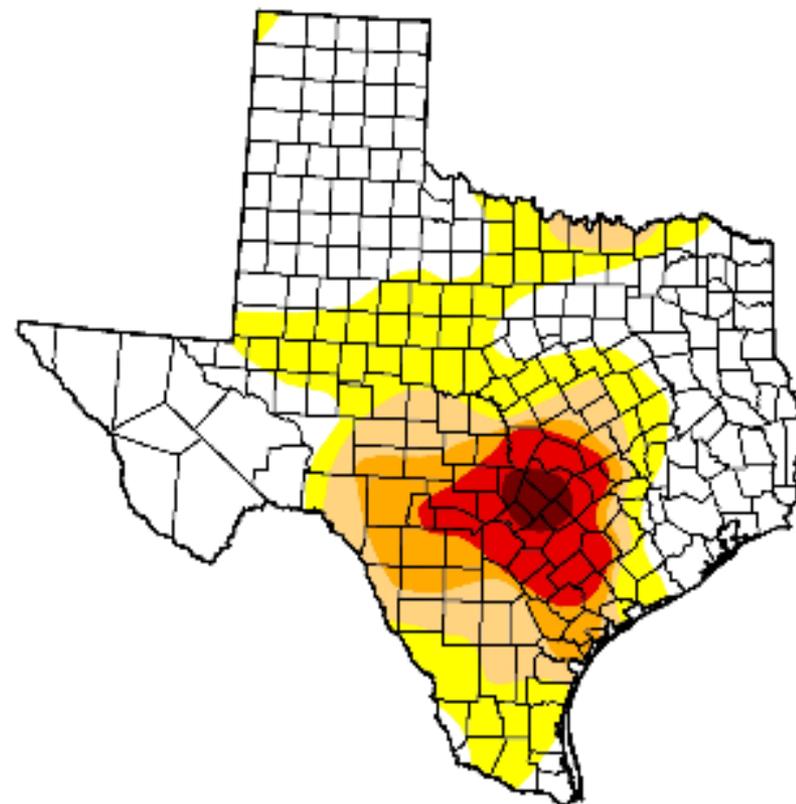
Texas

December 2, 2008

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	53.0	47.0	24.5	14.2	7.5	1.2
Last Week (11/25/2008 map)	57.8	42.2	24.3	14.2	7.1	0.0
3 Months Ago (09/09/2008 map)	52.9	47.1	25.1	10.0	3.0	0.0
Start of Calendar Year (01/01/2008 map)	52.0	48.0	11.6	0.0	0.0	0.0
Start of Water Year (10/07/2008 map)	67.2	32.8	20.5	11.0	3.6	0.0
One Year Ago (12/04/2007 map)	41.9	58.1	5.9	0.0	0.0	0.0



Intensity:



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



Released Thursday, December 4, 2008

Author: M. Brewer/L. Love-Brotak, NOAA/NESDIS/NCDC

<http://drought.unl.edu/dm>

U.S. Drought Monitor

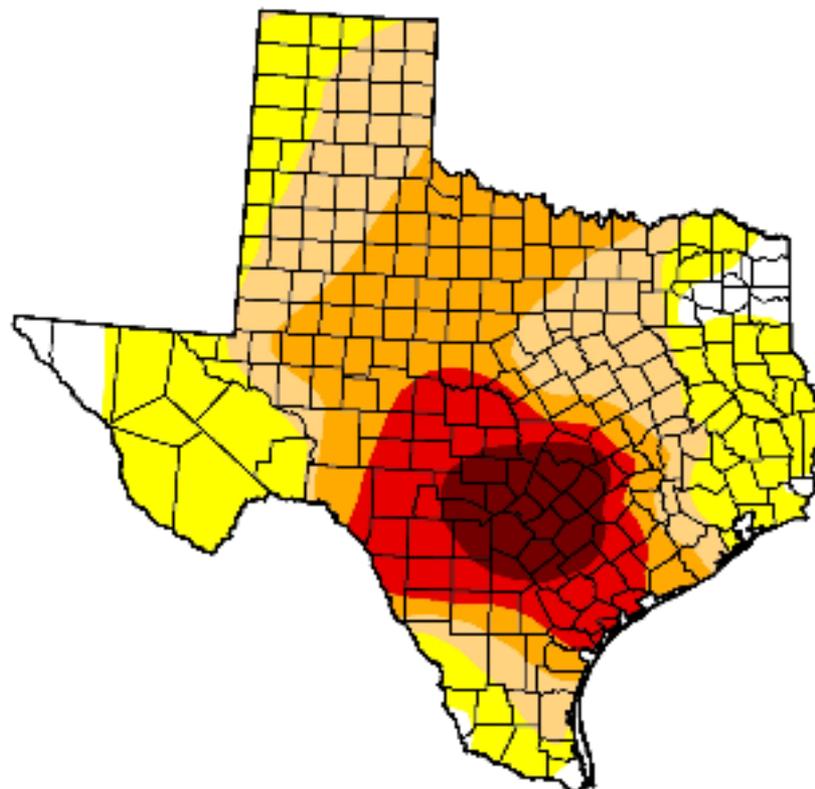
Texas

February 3, 2009

Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	4.6	95.4	66.8	42.6	19.6	6.7
Last Week (01/27/2009 map)	11.6	88.4	62.1	37.5	16.5	4.2
3 Months Ago (11/11/2008 map)	59.2	40.8	22.4	14.5	6.8	0.0
Start of Calendar Year (01/06/2009 map)	41.7	58.3	24.5	15.0	9.1	4.2
Start of Water Year (10/07/2008 map)	67.2	32.8	20.5	11.0	3.6	0.0
One Year Ago (02/05/2008 map)	17.1	82.9	29.4	5.9	0.0	0.0



Intensity:

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



Released Thursday, February 5, 2009

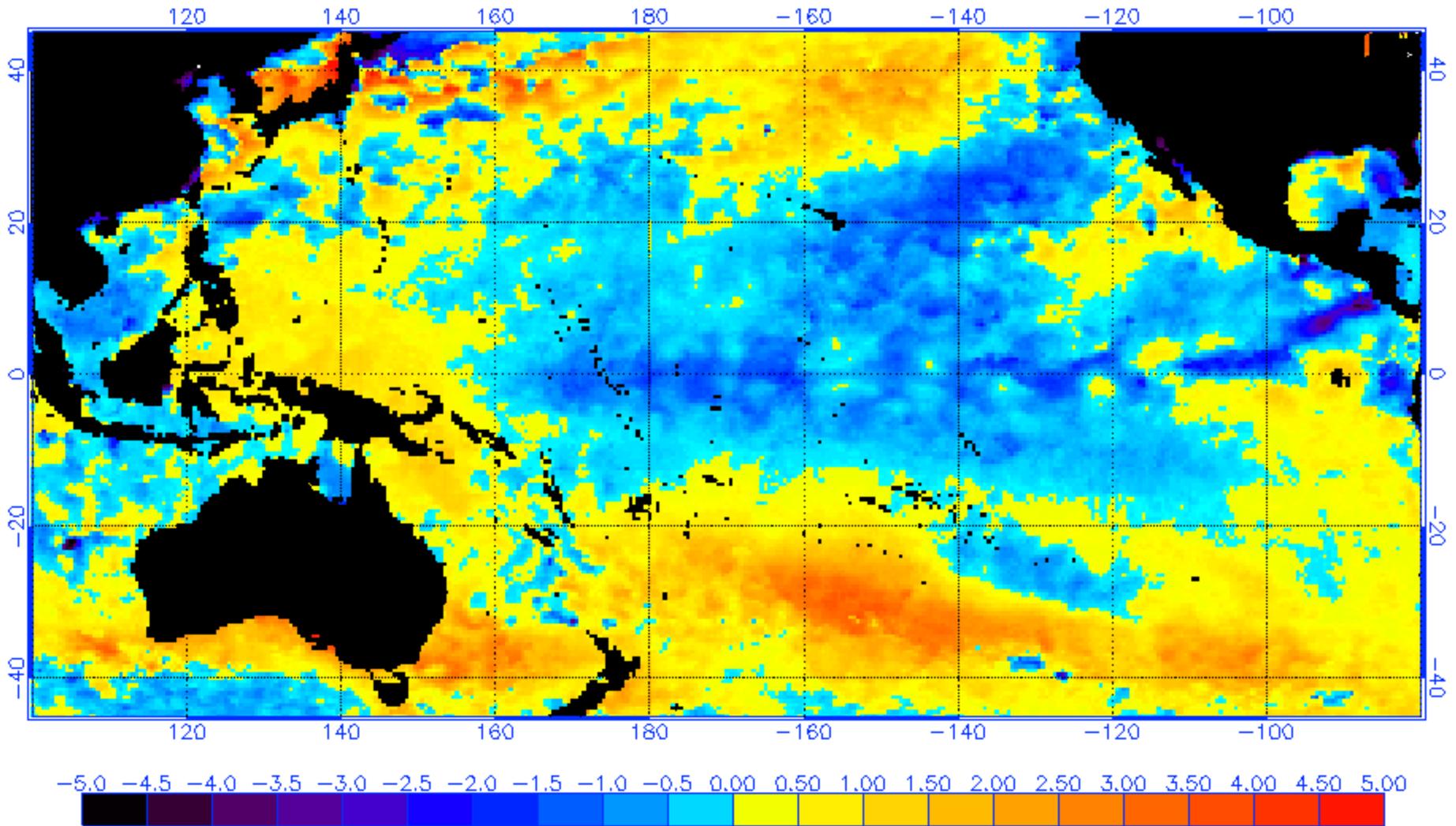
Author: Eric Luebehusen, U.S. Department of Agriculture

<http://drought.unl.edu/dm>

According to Texas State Climatologist, Dr. John Nielsen-Gammon, the short and long-term dryness at this time of the year averaged across the central part of the state is the second driest on record. The only period showing greater dryness was during the drought of 1917-1918.

This means the period from September through January has been even drier than similar periods found during the drought years of the 1950s! I think this statement puts into perspective the intensity of the current drought and the reason why stock tanks are dry and cattle and wildlife are dying in the fields.

NOAA/NESDIS SST Anomaly (degrees C), 2/9/2009



La Niña

VARIABLE

POLAR
JET
STREAM

BLOCKING
HIGH
PRESSURE

Cold

Wet

Wet

Warm

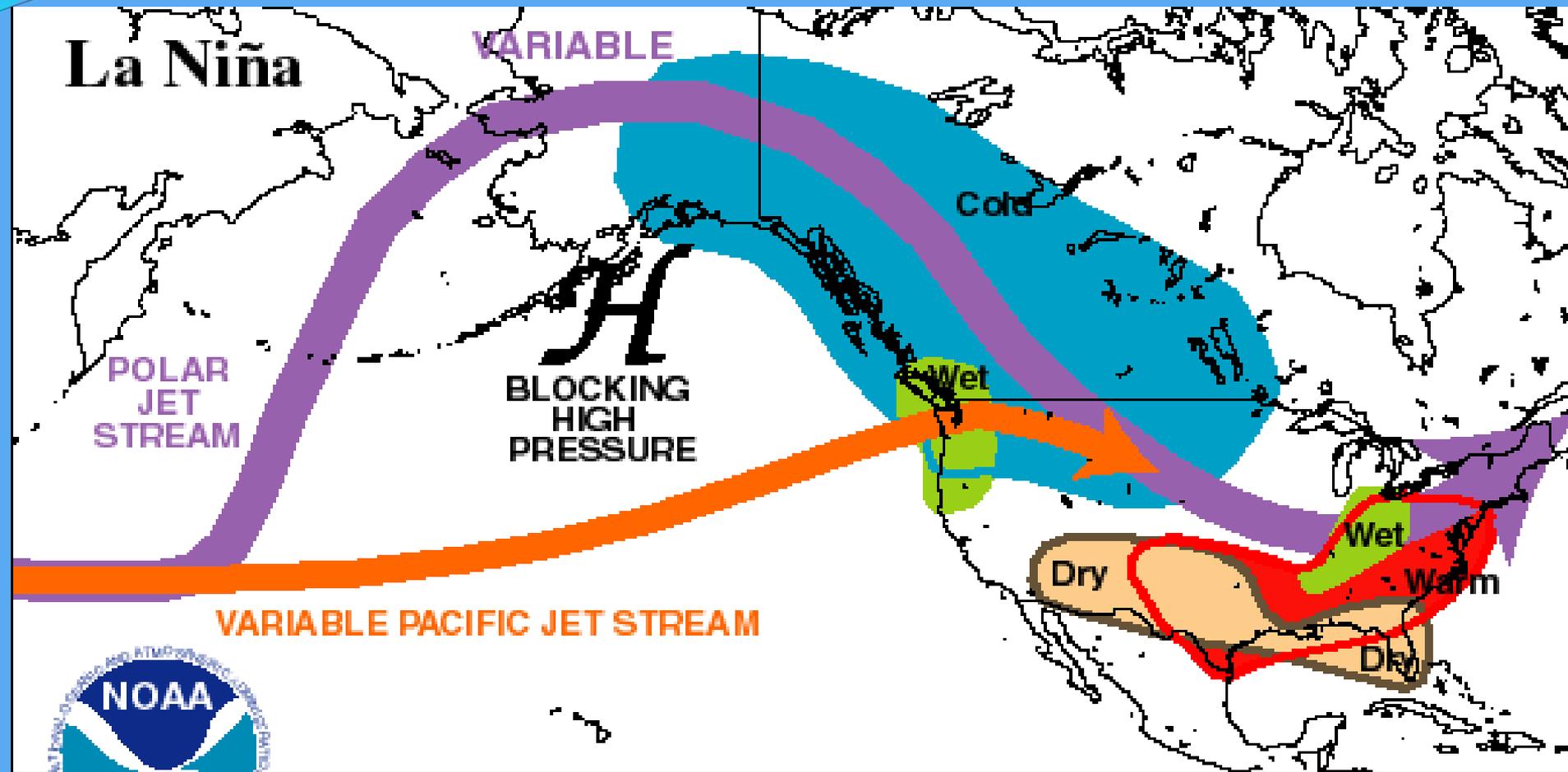
Dry

Dry

VARIABLE PACIFIC JET STREAM

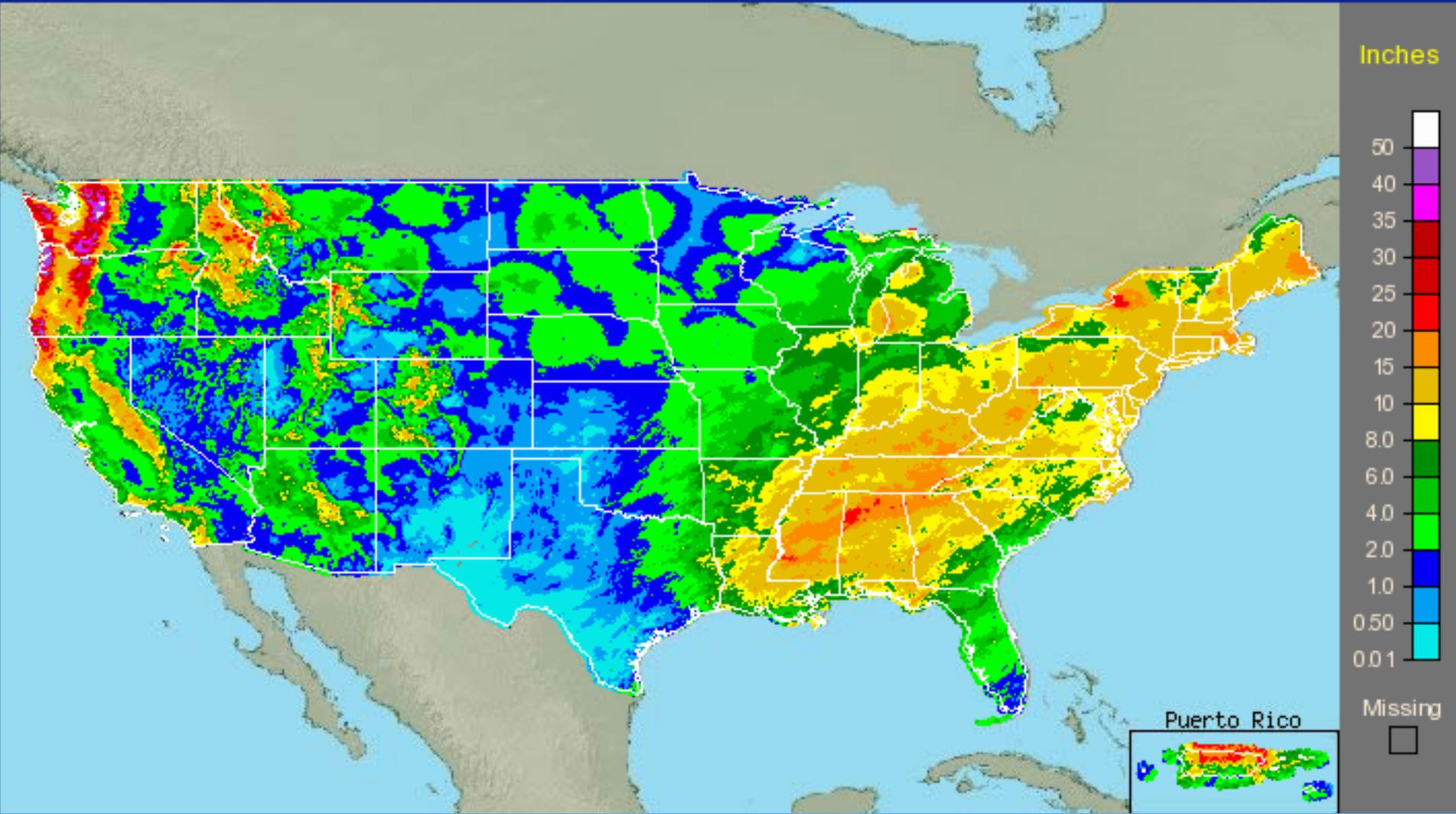


Climate Prediction Center/NCEP/NWS



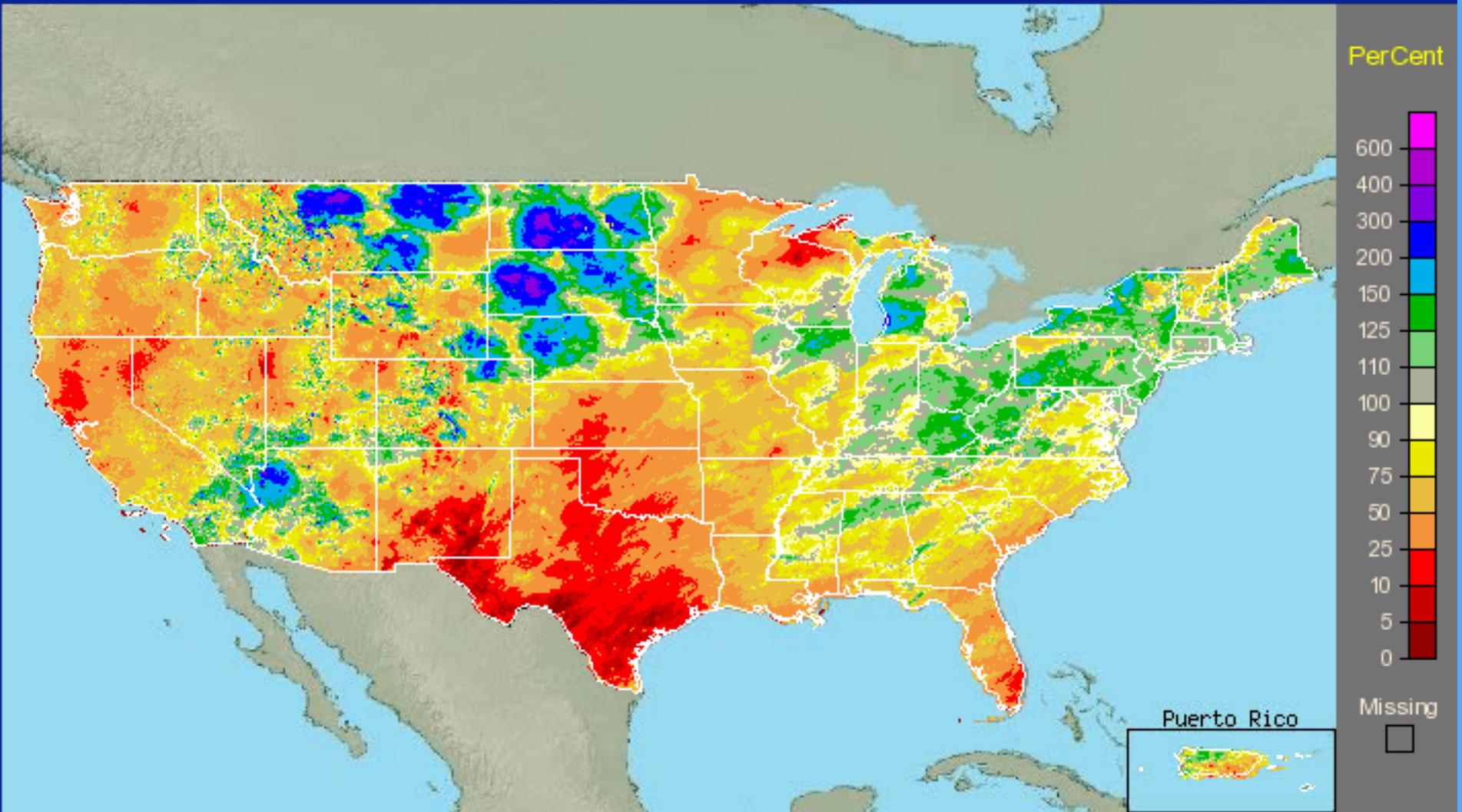
Continental United States
90-Day Observed Precipitation - Valid 2/10/2009 1200 UTC

Click on the image to zoom in
Click on "States" to zoom out



Continental United States
90-Day Percent of Normal Precipitation - Valid 2/10/2009 1200 UTC

Click on the image to zoom in
Click on "States" to zoom out

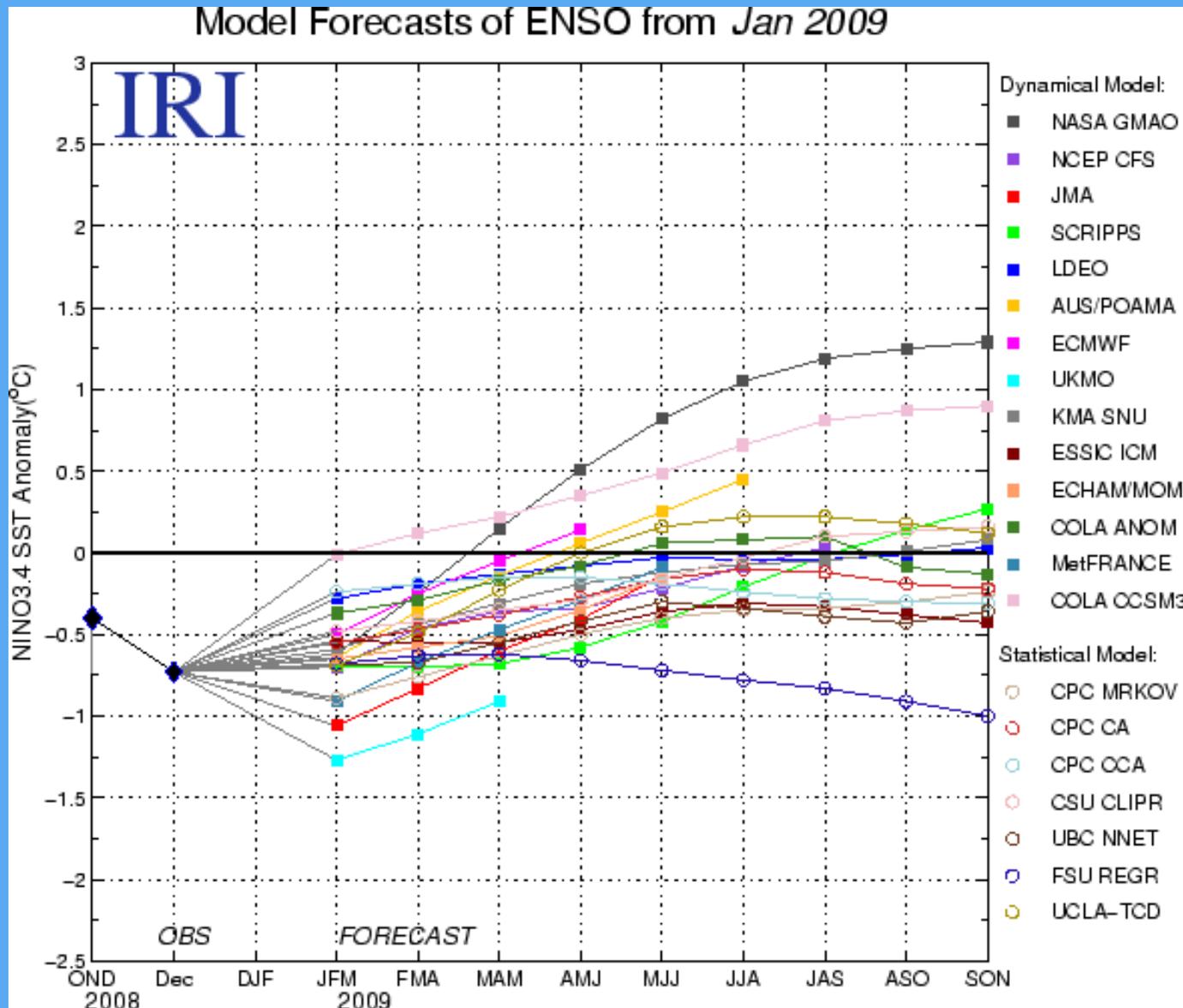


For Austin Mabry from 1856 to 2009, the driest September to December, plus the next January to December, and the following January rainfall is listed below.

1.	19.79	Sep. 1955	to	Jan. 1957
2.	21.75	Sep. 1916	to	Jan. 1918
3.	23.74	Sep. 2007	to	Jan. 2009
4.	25.38	Sep. 1878	to	Jan. 1880
5.	26.86	Sep. 1954	to	Jan. 1956
6.	28.19	Sep. 1938	to	Jan. 1940
7.	28.52	Sep. 1953	to	Jan. 1955
8.	29.00	Sep. 1947	to	Jan. 1949
9.	29.66	Sep. 1905	to	Jan. 1907
10.	29.85	Sep. 1911	to	Jan. 1913



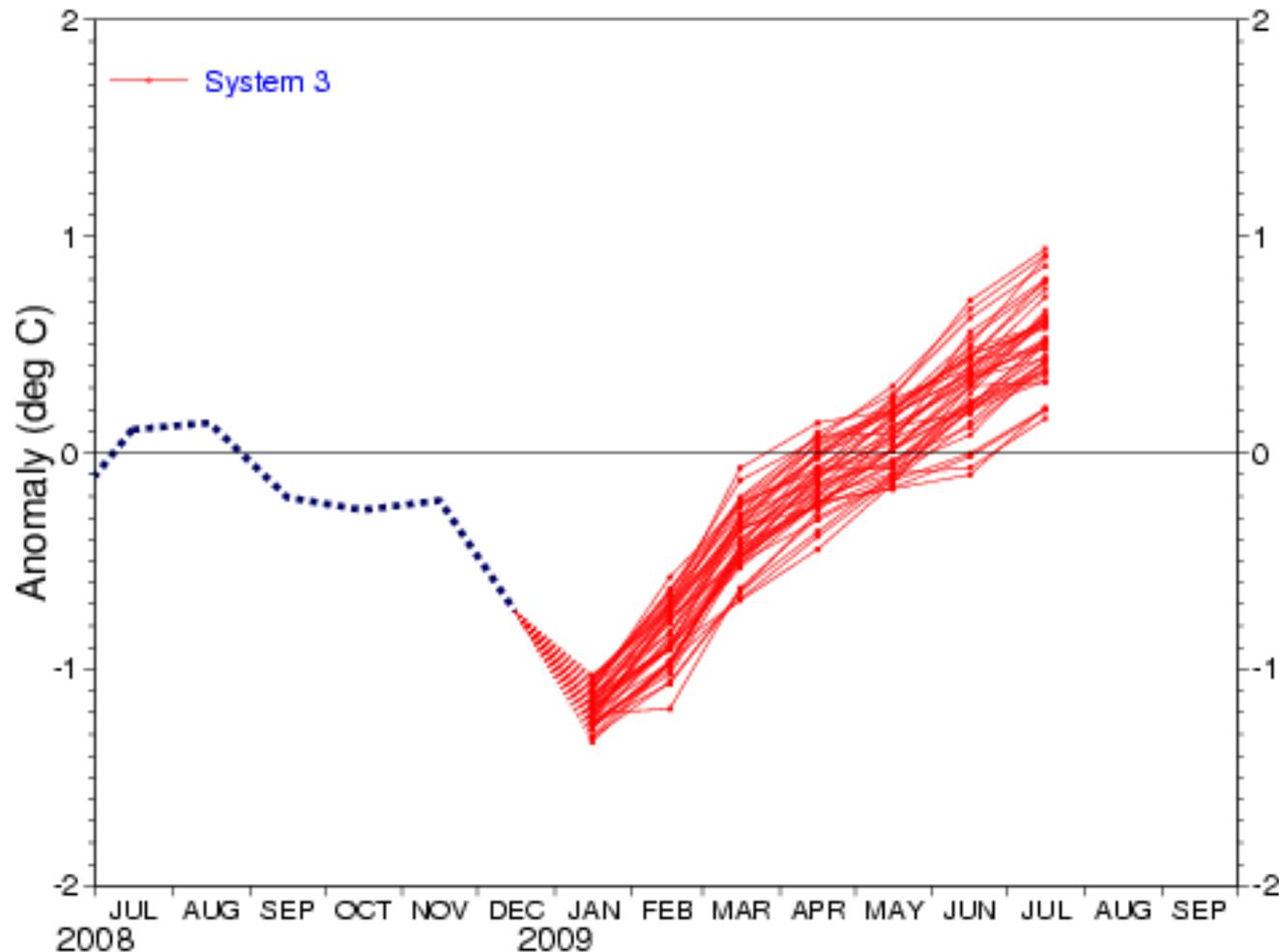
“Plume” forecast for central Pacific Ocean Sea Surface temperatures.



Latest European Model Guidance

NINO3.4 SST anomaly plume ECMWF forecast from 1 Jan 2009

Monthly mean anomalies relative to NCEP adjusted OIv2 1971-2000 climatology



Forecast issue date: 15 Jan 2009

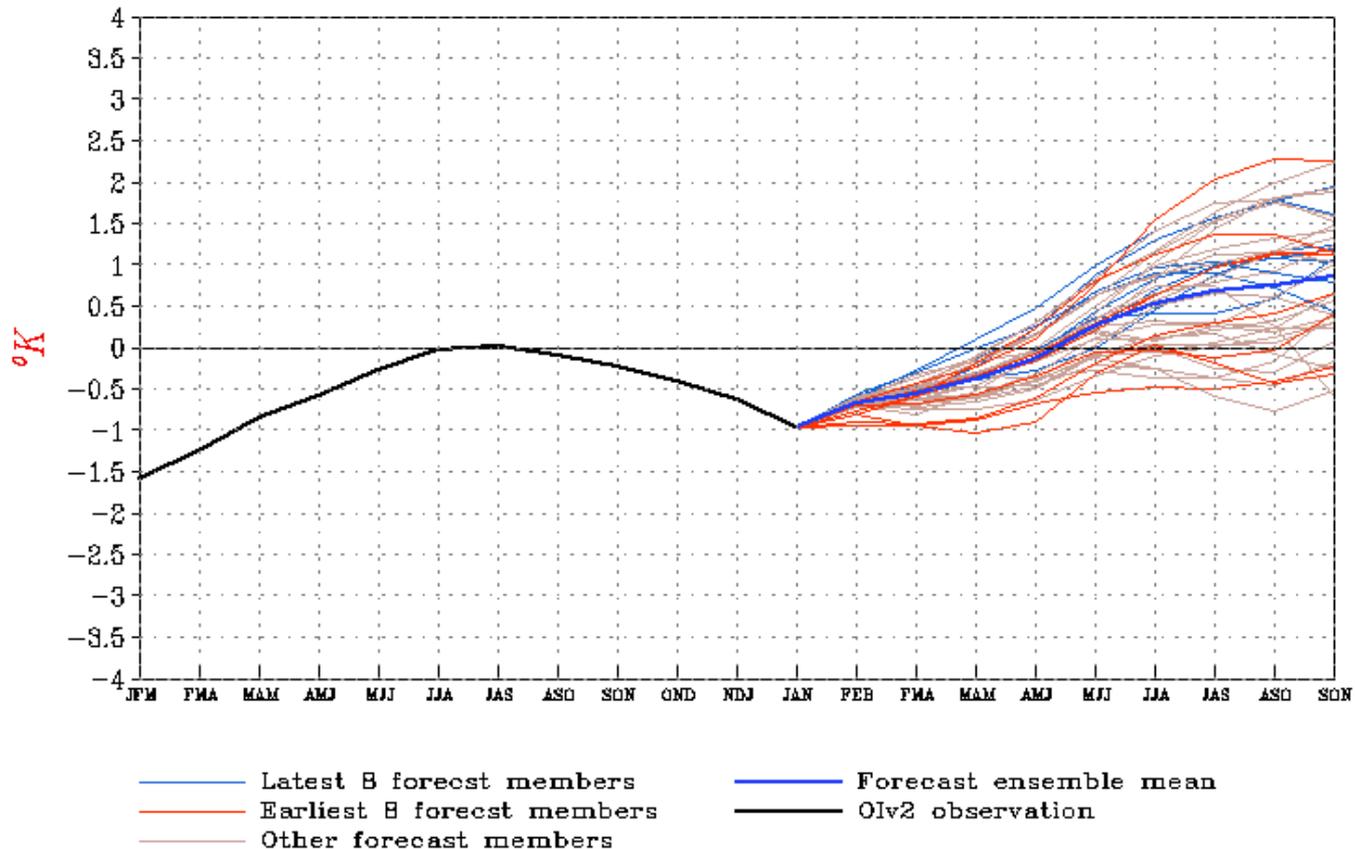
Latest Guidance from the US Model



NWS/NCEP

Last update: Wed Feb 11 2009
Initial conditions: 31Jan2009-09Feb2009

Forecast *Nino3.4* SST anomalies from CFS





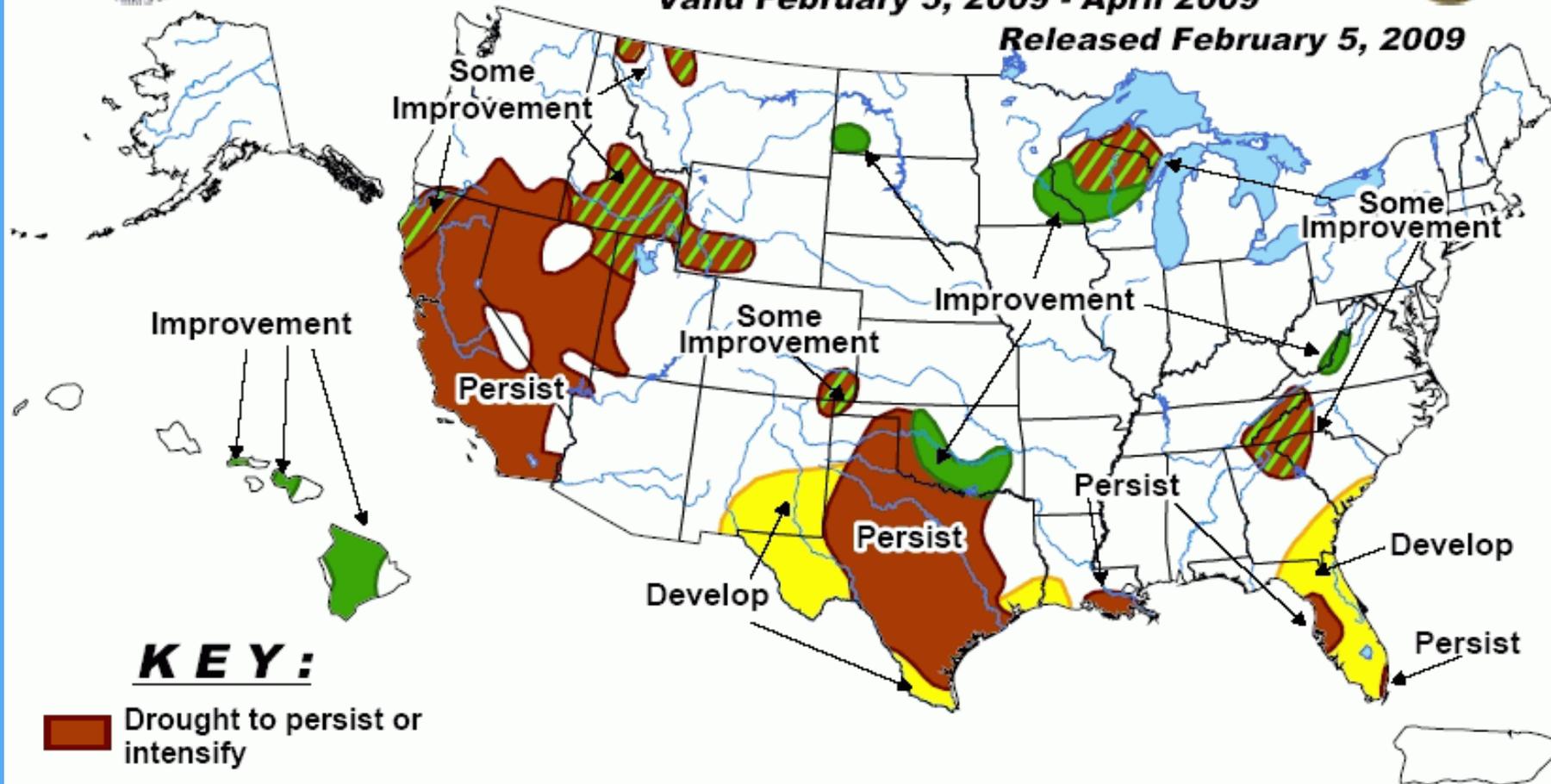
U.S. Seasonal Drought Outlook

Drought Tendency During the Valid Period

Valid February 5, 2009 - April 2009



Released February 5, 2009

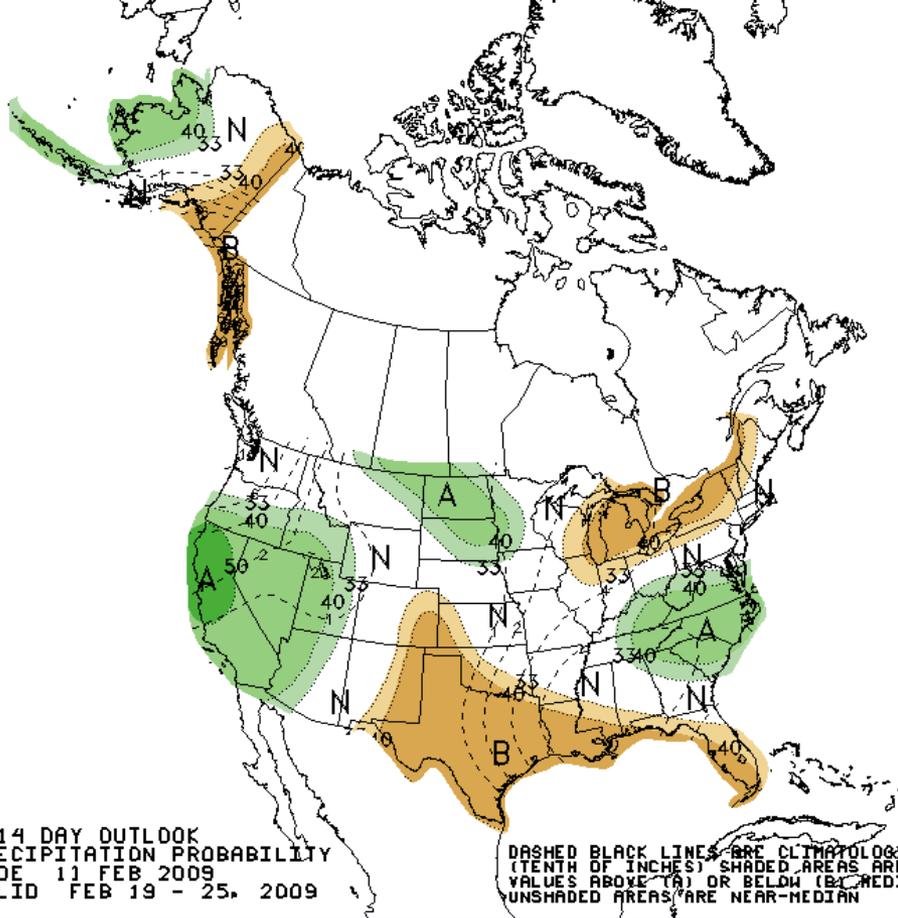


KEY:

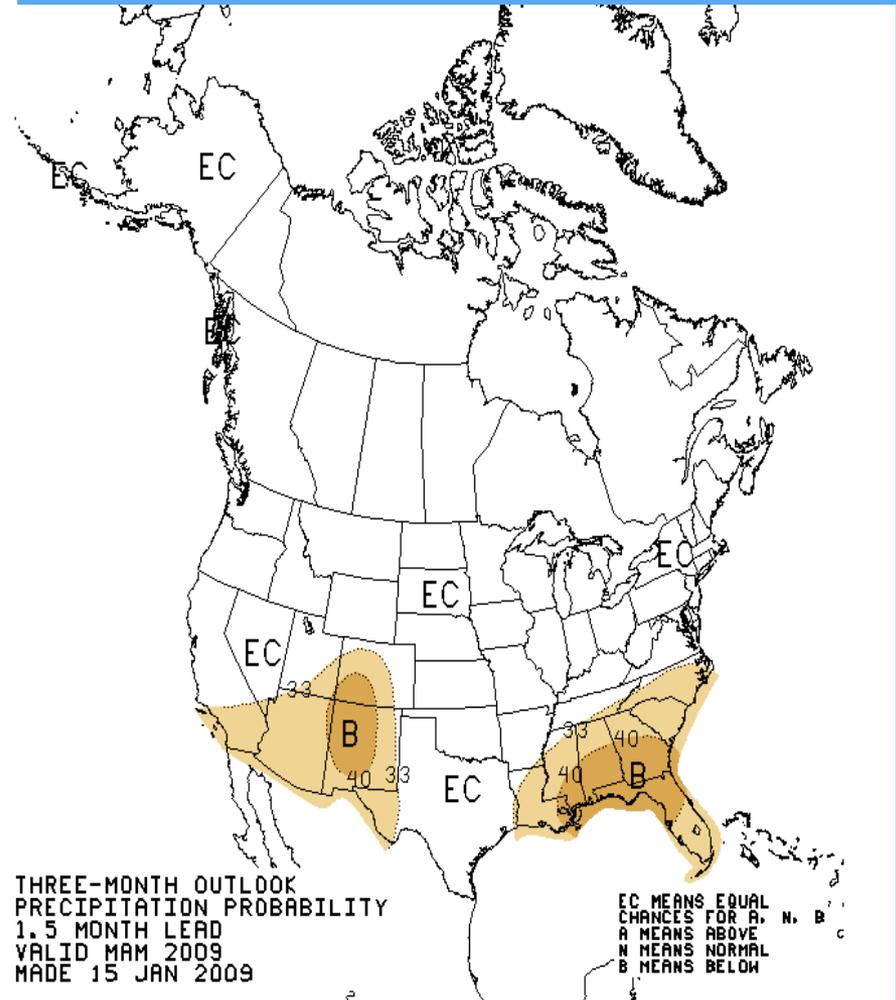
-  Drought to persist or intensify
-  Drought ongoing, some improvement
-  Drought likely to improve, impacts ease
-  Drought development likely

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.

March/April/May Rainfall Forecast

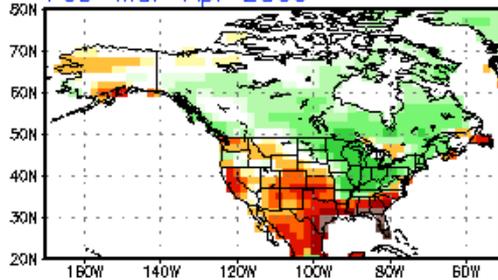


Week 2 Rainfall Forecast

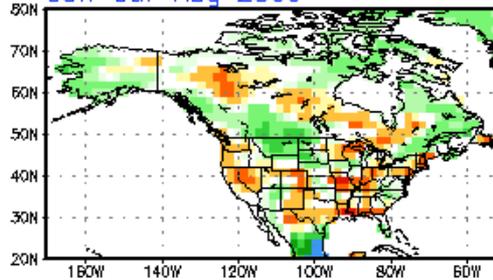


CFS seasonal Prec forecast (mm/month)

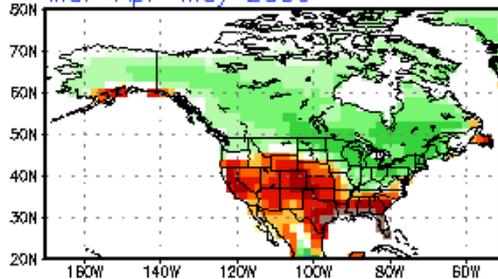
Feb-Mar-Apr 2009



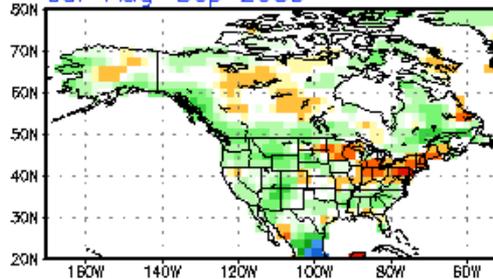
Jun-Jul-Aug 2009



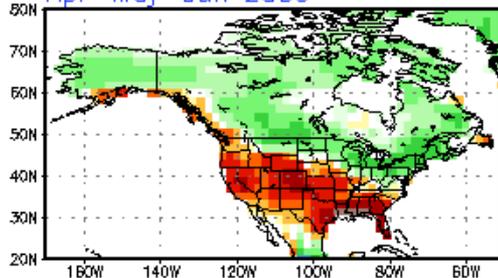
Mar-Apr-May 2009



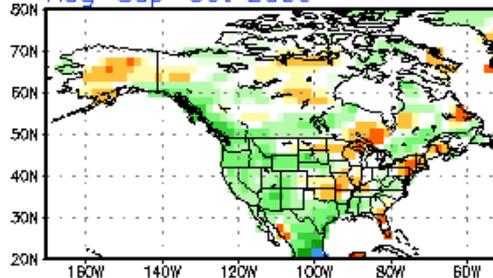
Jul-Aug-Sep 2009



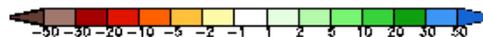
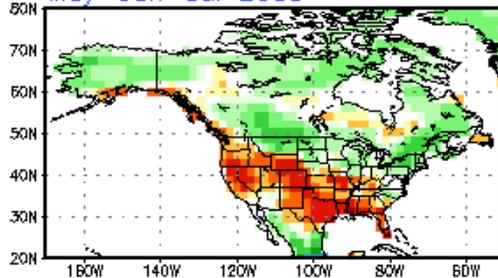
Apr-May-Jun 2009



Aug-Sep-Oct 2009



May-Jun-Jul 2009



Last update: Tue Feb 10 2009

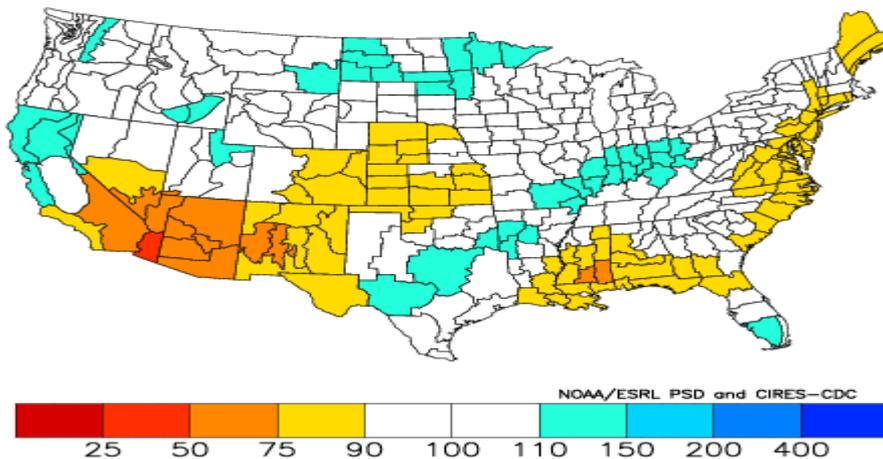
Initial conditions: 30Jan2009-08Feb2009



NWS/NCEP

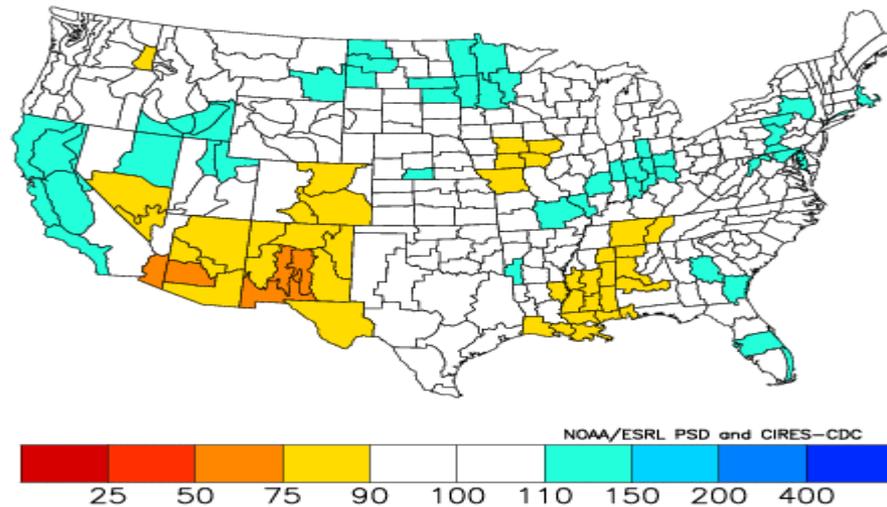
March/April/May Rainfall as a % of normal for weak La Nina events during January/February

Composite Percent of Normal Precipitation 1971–2000
Mar to May 1957, 1963, 1968, 1972, 1975, 1985, 1996, 2006



April/May/June Rainfall as a % of normal for weak La Nina events during Jan/Feb.

Composite Percent of Normal Precipitation 1971–2000
Apr to Jun 1957,1963,1968,1972,1975,1985,1996,2006



Early Outlook for the 2009 Season

- *“We foresee a somewhat above average Atlantic tropical season in 2009. We anticipate an above-average probability of United States major hurricane landfall.”- Klotzbach and Gray, Colorado State University.*
- Named storms 14 (average 9.6)
- Hurricanes 7 (average 5.9)
- Intense Hurricanes 2.3 (average 3)