THE UNIVERSITY OF ALABAMA IN HUNTSVILLE

The Alabama Climate Report

Brought to you by the Office of the Alabama Climatologist

Volume 6, Number 12, September 2016

Dr. John Christy, Alabama State Climatologist

How many ways are there to measure heat discomfort? When we're talking about weather in Alabama, that isn't necessarily a rhetorical question.

One measure that has been discussed quite a bit recently is the number of days when the temperature hits 90° or more. It was a hotter than normal summer, and the heat continued through September. In Montgomery, for instance, there were 27 September days when the temperature hit 90° or more.

Add that to all the other 90° days starting in May, and Montgomery has enjoyed a grand total of 119 days this year that hit or exceeded the 90° mark. That includes a 91° day on Monday!

But that isn't a record. That would probably have come in 1954, when the capital saw 127 days of temperatures 90° or above.

The Southeast Regional Climate Center says a normal year in Montgomery (for the past half century) would get only 78 days of 90° heat. But that half century mark misses many of the hottest years in the state's climate record.

The SRCC website gives us 90° norms for four cities, and we can compare that to this year's results:

City	2016	Normal
Birmingham	96 days	60 days
Huntsville	105	53
Mobile	90	77
Montgomery	119	78

Other cities and their 2016 hot day tallies include:

Dothan	107
Anniston	100
Tuscaloosa	96
Muscle Shl.	93

Looking back at some of the hottest hot seasons in the state climate record, you would have to include 1954: 127 90° days in Montgomery, 110 in Huntsville, 107 in Birmingham and 102 in Muscle Shoals.

It was also toasty in 1925, when Muscle Shoals hit 90° on 128 days, Huntsville 117 times, Birmingham 110 times and Montgomery 104.

To get back to our rhetorical question, when measuring discomfort you might also consider a station's average high temperature for a month. Montgomery saw 27 days of 90° or hotter temperatures in September 2016, but the average high was less than 94.5°.

You can compare that to Birmingham's September in 1925, when the monthly average high temperature was 97.5°. Or July 1902 in Decatur, when the average high temperature for all of July was 98.13°.

You might also look at the extremes. Montgomery hit 100° (on the nose) only three times this year, while Birmingham nudged up to 100° only once, in late June. While there have been some years when no station in Alabama hit the 100° mark, there also have been times when stations saw 100°+ for more than a week at a time.

So, yes, it has been hot since late May, and more often hot than is normal even during an Alabama summer. While it has been persistently hot, my native Alabama associates note that it hasn't really been miserable this year. And while they aren't as reliable as real data, I suppose memory and your individual tolerance for heat are two other ways of measuring discomfort.

As is most often the case, hot weather is in part a function of drought. Sunlight will do one of two things when it hits the surface. It will evaporate water, which cools the atmosphere, or it will be converted to heat energy. This summer much of Alabama saw little rain and an abundance of heat energy.

Several stations around the state reported their driest Septembers on record, including:

City	09/16 rain	Old record	Date
Auburn	0.14″	0.36″	1919
Decatur	0.09″	0.11″	1901
Huntsville	0.47″	0.48″	1998
Russellville	0.06″	0.34″	1999
Valley Head	0.52″	0.77″	1960

By comparison, Fairhope had slightly more rain than normal in September — 6.34″ — and an average temperature that was exactly its norm for September.

On an unrelated note, we are all keeping an eye on hurricane Matthew. If it stays out at sea (as expected), Thursday will mark the 4,000th day since the last major (category 3 or stronger) hurricane hit the continental U.S. As the official 2016 hurricane season nears an end, every day that passes sets a new record for the longest gap between major hurricanes.

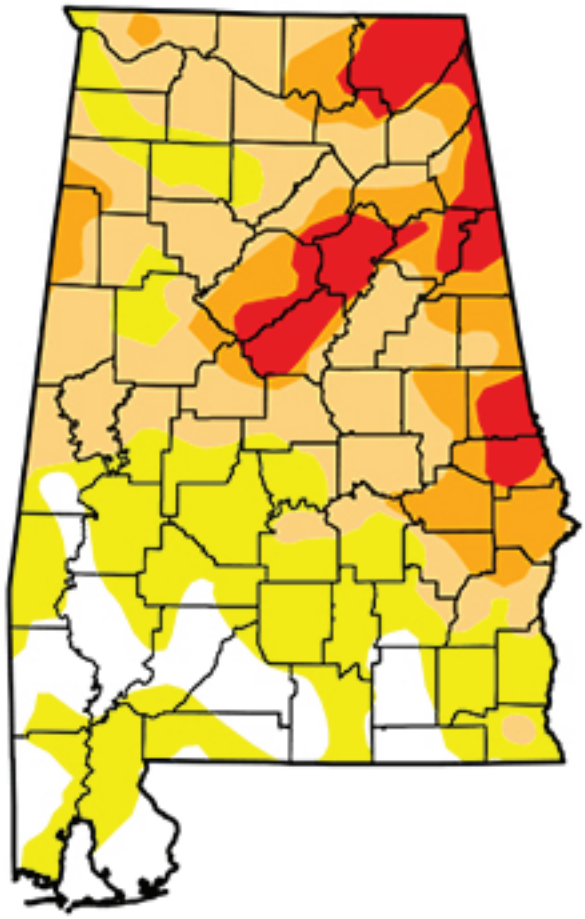
With a few cooler nights under our belts it is time to start looking ahead to brisk autumn nights and cold winter days. We are getting conflicting data regarding the forecast for this winter. The wooley bear caterpillar report indicates a warmer than normal winter upcoming, while persimmons seem to point to cold and snow.

I will wait to see how high the spider web index goes before making up my mind.

NOAA, on the other hand, is predicting a neutral winter in which there is neither an El Niño Pacific Ocean warming event nor a La Niña Pacific Ocean cooling event.

Without the guiding atmospheric circulations caused by those events, winter weather in Alabama is more likely prone to significant swings. That includes very cold episodes. In fact, 11 of the past 12 times Arctic weather penetrated all the way into Florida came during neutral winters.

- John Christy



October 4, 2016

(Released Thursday, Oct. 6, 2016)

Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	13.49	86.51	55.35	23.05	8.97	0.06
Last Week 9/27/2016	17.15	82.85	47.12	17.94	6.36	0.00
3 Months Ago 7/5/2016	35.70	64.30	43.03	18.60	3.32	0.00
Start of Calendar Year 12/29/2015	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 9/27/2016	17.15	82.85	47.12	17.94	6.36	0.00
One Year Ago 10/6/2015	43.26	56.74	7.20	0.00	0.00	0.00

Intensity:

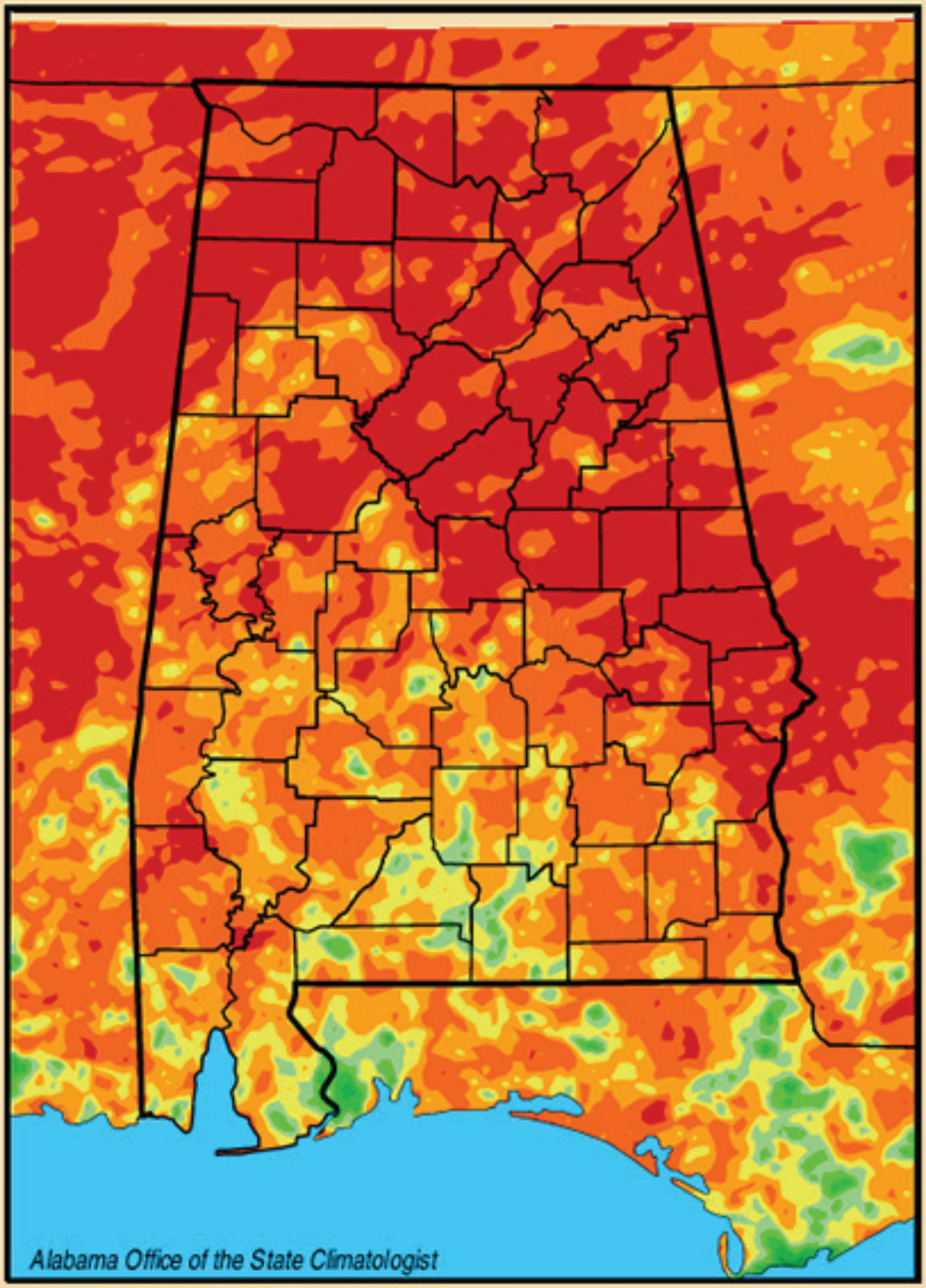
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

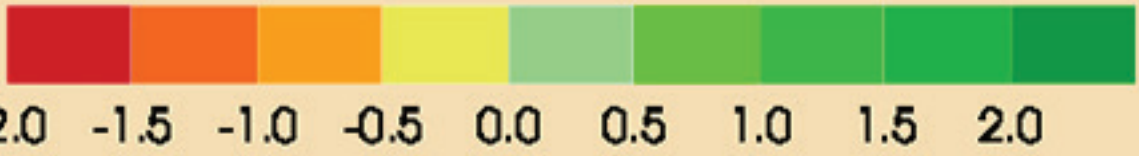
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

Author:
Brian Fuchs
National Drought Mitigation Center

http://droughtmonitor.unl.edu/

Lawn-and-Garden Moisture Index for October 4, 2016





Alabama Monthly Climate Summaries

Sept. 2016

	Station Began	Sept. Mean Sept. Norm	Sept. Hi Temp Record Hi		Sept. Low Temp Record Low		Total Precip. Normal Prec.	Wettest Sept. Driest Sept.		Heaviest Day Record Day	
Anniston	2/1903	79.3° 73.8°	99° 101°+	9/15/16 9/1/57	47 34	9/30/16 9/30/67	0.61" 3.32"	7.22" 0.33"	1975 1984	0.33" 3.99"	9/2/16 9/21/95
Auburn	1/1893	79.4° 75.9°	96° 108°	9/25/16 9/5/25	51 34	9/30/16 9/30/67	* **0.14**" 3.60"	10.19" 0.36"	1956 1919	0.11" 6.48"	9/26/16 9/26/56
Birmingham	1/1930	80.4° 73.8°	98° 102°	9/25/16 9/19/31	50 37	9/30/16 9/30/67	0.68" 4.05"	10.43" 0.16"	1977 1984	0.32" 3.70"	9/18/16 9/27/79
Brewton	4/1977	76.2° 75.1°	92.7° 101°+	9/24/16 9/15/72	50.1 32	9/30/16 9/30/67	2.82" 5.51"	25.20" 0.90"	1998 1995	1.22" 9.30"	9/17/16 9/28/98
Calera	9/1900	79.6° 73.6°	98° 101°	9/25/16 9/15/80	50 33	9/30/16 9/30/67	0.70" 3.76"	12.75" 0.07"	1906 1955	0.39" 7.05"	9/2/16 9/29/1906
Clanton	2/1893	76.2° 73.0°	95.1° 101°+	9/24/16 9/16/80	48.3 36	9/30/16 9/30/67	3.72" 4.66"	10.30" 0.37"	1979 1990	2.15" 5.20"	9/11/16 9/28/79
Courtland		75.2° M	94.2° M	9/25/16	47.0 M	9/30/16	1.41" M	M M		1.35" M	9/13/16
Cullman	7/1907	75.0° M	95.1° M	9/25/16	46.9 M	9/30/16	1.10" M	M M		0.44" M	9/10/16
Decatur	2/1880	78.1° 74.4°	99° 104°	9/25/16 9/9/25	46 37	9/30/16 9/27/1899	* **0.09**" 2.95"	8.49" 0.11"	1946 1901	0.08" 4.34"	9/10/16 9/10/46
Dothan	2/1902	80.1° 76.9°	97° 100°	9/23/16 9/3/40	51 45	9/30/16 9/29/67	0.76" 5.02"	13.86" 0.63"	1929 1940	0.38" 8.00"	9/17/16 9/30/29
Fairhope	8/1917	77.3° 77.3°	92.6° 100°	9/2/16 9/10/54	53.8 41	9/30/16 9/30/67	6.34" 5.97"	24.11" 0.57"	1998 1984	2.56" 9.18"	9/17/16 9/28/98
Gadsden	7/1893	74.4° 73.1°	94.4° 102°	9/25/16 9/3/54	46.7 33	9/30/16 9/30/67	1.14" 4.13"	9.29" 0.25"	1979 1984	0.69" 4.07"	9/2/16 9/22/58
Gainesville Lock	6/1948	77.6° 74.9°	97.9° 102°	9/24/16 9/10/80	51.7 38	9/30/16 9/30/67	0.73" 3.61"	11.85" 0.26"	1974 1984	0.42" 4.26"	9/17/16 9/5/49
Greensboro	2/1890	76.6° 76.1°	94.5° 104°+	9/15/16 9/5/54	50.3 39	9/30/16 9/30/67	2.01" 3.93"	9.13" 0.58"	1974 1984	2.01" 4.79"	9/17/16 9/5/49
Highland Home	3/1892	77.4° 74.7°	93.3° 102°	9/24/16 9/11/80	52.7 37+	9/30/16 9/30/67	1.38" 4.03"	13.19" 0.50"	1975 1984	0.65" 6.35"	9/17/16 9/26/53
Huntsville	1/1959	79.4° 72.9°	99° 101°	9/25/16 9/7/90	49 37	9/30/16 9/30/67	* **0.47**" 3.94"	9.78" 0.48"	1980 1998	0.31" 3.93"	9/10/16 9/25/80

Alabama Monthly Climate Summaries

Sept. 2016

	Station Began	Sept. Mean Sept. Norm	Sept. Hi Temp Record Hi	Sept. Low Temp Record Lo	Total Precip. Normal Prec.	Wettest Sept. Driest Sept.	Heaviest Day Record Day
Mobile	3/1900	80.2° 77.2°	95° 9/2/16 99°+ 9/4/90	54 9/30/16 42 9/29/67	5.24" 6.01"	24.13" 1998 0.74" 1984	1.57" 9/26/16 8.60" 9/28/98
Montgomery	6/1948	82.1° 76.3°	98° 9/25/16 101°+ 9/10/80	51 9/30/16 39 9/30/67	2.24" 4.22"	9.47" 1998 0.81" 1984	1.78" 9/17/16 8.72" 9/26/53
Muscle Shoals	12/1940	77.8° 72.9°	99° 9/25/16 103° 9/4/54	47 9/28/16 39+ 9/23/82	0.50" 4.30"	10.13" 1979 0.17" 1984	0.23" 9/18/16 5.71" 9/13/79
Russellville	9/1953	73.9° 71.2°	94.4° 9/25/16 102°+ 9/6/54	43.2 9/30/16 30 9/30/67	* 0.06" 4.18"	10.06" 1975 0.34" 1999	0.06" 9/13/16 5.33" 9/14/79
Scottsboro	10/1891	74.4° 71.5°	96.5° 9/25/16 105°+ 9/6/54	46.4 9/30/16 36+ 9/27/40	1.26" 4.81"	10.99" 1977 0.95" 1984	0.72" 9/10/16 4.92" 9/28/79
Selma	1/1895	76.9° 76.2°	98.0° 9/24/16 105° 9/6/54	47.3 9/30/16 40 9/30/67	0.39" 3.87"	10.96" 1998 0.35" 1990	0.29" 9/17/16 6.15" 9/29/98
Talladega	2/1888	77.2° 71.8°	97.9° 9/25/16 103° 9/4/54	46.9 9/30/16 35 9/30/67	1.13" 3.76"	8.04" 1979 0.40" 1976	0.53" 9/1/16 4.00" 9/23/75
Thomasville	9/1891	76.1° 76.2°	93.9° 9/24/16 104° 9/11/80	50.4 9/30/16 39 9/29/67	2.74" 4.13"	13.42" 1998 0.07" 1984	2.27" 9/17/16 7.30" 9/8/74
Troy	6/1908	78.5° 75.8°	95° 9/23/16 104° 9/8/54	47 9/30/16 38 9/30/67	1.48" 3.52"	13.29" 1998 0.63" 1978	1.20" 9/17/16 7.46" 9/1/37
Tuscaloosa	6/1948	79.8° 75.6°	99° 9/24/16 104° 9/1/51	49 9/30/16 37 9/30/67	0.33" 3.48"	10.91" 2009 0.00" 1955	0.33" 9/17/16 6.28" 9/3/01
Valley Head	1/1893	73.1° 69.3°	93.5° 9/15/16 100°+ 9/7/54	44.6 9/30/16 29 9/30/67	0.52" 4.27"	9.77" 1977 0.77" 1984	0.31" 9/18/16 5.38" 9/17/60
Statewide Sept. 2015		77.68° /	99° 5 stations	43.2° Russellville	1.50"	25.20" Brewton	2.56" Fairhope
Sept. Norm		74.38° /	108° Auburn	29° Valley Head	4.20"	0.00" Tuscaloosa	9.30" Brewton

M: *Data is missing or not available*

**New Record*

#This data is missing this month due to an instrument malfunction

^ This record differs from long-term data in the AOSC climate database:
http://nsstc.uah.edu/alclimate/climate/daily_climate_and_normals.php

New Local Climate Records[1]

September 2016

Maximum High Temperature, Daily

	New Record	Previous Hottest Day	Previous Record	Period of Record
02 September 2016				
MOBILE DWNTN AIRPT	95	1964-09-02	94	67
10 September 2016				
CLAYTON	97	2010-09-10	96	60
15 September 2016				
ANNISTON METRO ARPT	99	1980-09-15	96	113
HAMILTON 3 S	99	1980-09-15	98	54
MUSCLE SHOALS AIRPRT	97	2010-09-15	96	75
16 September 2016				
HAMILTON 3 S	99	2010-09-16	97	54
HUNTSVILLE INTL ARPRT	96	1998-09-16	95	57
SYLACAUGA 4 NE	95	1972-09-16	94	61
24 September 2016				
BESSEMER 3 WSW	98	2010-09-24	93	39
CLAYTON	98	2010-09-24	94	60
GADSDEN	95	2010-09-24	94	63
SYLACAUGA 4 NE	96	1993-09-24	94	61
25 September 2016				
ATMORE	96	1954-09-25	95	76
BESSEMER 3 WSW	97	1998-09-25	92	39
CHATOM	97	1996-09-25	96	66
CLAYTON	96	2010-09-25	93	60
DEMOPOLIS L&D	96	1980-09-25	94	64
GAINESVILLE LOCK	97	2010-09-25	96	58
GUNTERSVILLE	95	1911-09-25	94	106
HALEYVILLE	96	1961-09-25	91	113
MOULTON 2	93	2010-09-25	92	59
SAND MT SUBSTATION	93	2010-09-25	92	66
SCOTTSBORO	97	1931-09-25	96	124
SYLACAUGA 4 NE	97	2010-09-25	93	61
26 September 2016				
ALEXANDER CITY	96	2010-09-26	94	46
BELLE MINA	96	2007-09-26	94	66
BESSEMER 3 WSW	96	1998-09-26	95	39
CLAYTON	96	1958-09-26	94	60
GAINESVILLE LOCK	96	2010-09-26	95	58
GENEVA NUMBER 2	93	2009-09-26	92	40
GUNTERSVILLE	96	1911-09-26	95	106
JASPER	96	2007-09-26	91	55
MARION JUNCTION 2 NE	99	2010-09-26	95	66
MOULTON 2	97	1998-09-26	93	59
SAND MT SUBSTATION	96	1954-09-26	90	66
SCOTTSBORO	97	1935-09-26	95	124
SYLACAUGA 4 NE	96	2010-09-26	94	61
TALLADEGA	97	1933-09-26	96	122
THORSBY EXP. STATION	95	2010-09-26	94	58
VERNON	99	1961-09-26	97	59
FT BENNING LAWSON FD	93	2011-09-26	91	67
BIRMINGHAM AIRPORT	94	1945-09-26	92	86
27 September 2016				
GAINESVILLE LOCK	94	1998-09-27	93	58
HAMILTON 3 S	96	1998-09-27	95	54
SYLACAUGA 4 NE	92	1986-09-27	91	61
VERNON	97	1969-09-27	92	59
30 September 2016				
GADSDEN	96	1954-09-30	94	63

Precipitation, Daily

	New Record	Previous Year	Previous Record	Period of Record
3 September 2016				
ASHLAND	2.27	1980-09-03	1.37	76
11 September 2016				
BILLINGSLEY	1.22	1944-09-11	0.96	77
12 September 2016				
JACKSON	0.91	1990-09-12	0.86	54
13 September 2016				
EVERGREEN	1.65	1919-09-13	1.55	120
17 September 2016				
DAUPHIN ISLAND No. 2	2.41	1975-09-17	1.28	40
GREENSBORO	2.24	1942-09-17	1.39	124
18 September 2016				
PLANTERSVILLE	2.07	1982-09-18	1.80	76
SELMA	2.90	1958-09-18	2.65	121
19 September 2016				
EVERGREEN	1.42	1914-09-19	1.17	120
GENEVA NUMBER 2	0.80	2006-09-19	0.71	40
JACKSON	1.08	1986-09-19	0.70	54

[1] http://lwf.ncdc.noaa.gov/extremes/records/

Community Collaborative Rain, Hail & Snow Network (CoCoRAHS)

September 2016

	Total Precip.	# Stations
Autauga	2.32	2
Baldwin	6.74	22
Barbour	n.a.	0
Bibb	n.a.	0
Blount	1.23	8
Bullock	n.a.	0
Butler	0.99	1
Calhoun	0.78	2
Chambers	n.a.	0
Cherokee	0.29	1
Chilton	1.83	2
Choctaw	2.11	1
Clarke	4.33	1
Clay	n.a.	0
Cleburne	n.a.	0
Coffee	3.42	1
Colbert	0.95	6
Conecuh	n.a.	0
Coosa	1.00	1
Covington	n.a.	0
Crenshaw	n.a.	0
Cullman	1.15	4
Dale	3.20	1
Dallas	1.88	1
DeKalb	0.69	3
Elmore	1.31	5
Escambia	1.94	1
Etowah	n.a.	0
Fayette	0.43	2
Franklin	n.a.	0
Geneva	n.a.	0
Greene	n.a.	0
Hale	n.a.	0
Henry	n.a.	0

	Total Precip.	# Stations
Houston	1.60	1
Jackson	1.22	7
Jefferson	0.83	13
Lamar	n.a.	0
Lauderdale	1.44	10
Lawrence	0.59	2
Lee	0.48	4
Limestone	0.99	10
Lowndes	n.a.	0
Macon	0.71	1
Madison	1.11	41
Marengo	n.a.	0
Marion	2.88	1
Marshall	0.90	10
Mobile	3.98	14
Monroe	3.07	2
Montgomery	1.34	5
Morgan	0.94	6
Perry	n.a.	0
Pickens	1.02	1
Pike	n.a.	0
Randolph	1.11	2
Russell	0.99	2
St. Clair	1.17	6
Shelby	0.44	16
Sumter	n.a.	0
Talladega	0.90	4
Tallapoosa	0.69	3
Tuscaloosa	1.06	5
Walker	n.a.	0
Washington	3.23	1
Wilcox	3.20	2
Winston	1.67	2

Normal September Precipitation*

Abbeville	4.00"
Alberta	3.65"
Alex City	4.14"
Aliceville	3.41"
Andalusia	4.78"
Ashland	4.17"
Athens	3.74"
Bay Minette	5.93"
Bessemer	4.18"
Billingsley	3.56"
Centreville WSMO	4.56"
Chatom	4.64"
Claiborne L&D	3.83"
Clayton	4.12"
Dauphin Isl.	4.95"
Elba	4.27"
Eufaula WR	3.67"
Evergreen	4.02"
Fayette	3.50"
Geneva 2	4.28"
Greenville	4.02"
Haleyville	4.24"
Hamilton 3S	4.39"
Heflin	4.08"
Hurtsboro	3.10"
Jasper	4.16"
Lafayette	3.97"
Livingston	3.16"
Melvin	4.05"
Milstead	3.57"
Moulton	4.24"
Oneonta	3.66"
Perryville	3.65"
Plantersville	3.82"
Rock Mills	3.68"
Rockford	4.23"
Sylacauga	4.07"
Union Springs	3.54"
Uniontown	2.99"
Vernon	3.84"
Warrior L&D	3.24"
Wetumpka	3.46"

*Southeast Regional Climate Center
www.sercc.com

Alabama State Climatologist
John R. Christy
Alabama State Climatologist
The University of Alabama
in Huntsville
christy@nsstc.uah.edu
256-961-7763

Contact:

Phillip Gentry
UAHuntsville Communications
The University of Alabama in Huntsville
gentry@nsstc.uah.edu
256.961.7618

Bob Clymer
Assistant State Climatologist
The University of Alabama in Huntsville
bob.clymer@nsstc.uah.edu
256-961-7771

http://nsstc.uah.edu/alclimatereport