



Air Quality Summary—September 2011



Baton Rouge Area

OZONE

There were four days that exceeded the National Ambient Air Quality Standard (NAAQS) for ozone in the Baton Rouge area during the month of September 2011. Please refer to the table below for detailed information.

Air Quality Action Days: 9/1/11—PM_{2.5} (cancelled mid-day), 9/10/11 and 9/14/11—Ozone, code orange (USG)

PM_{2.5}

There were no violations of the NAAQS for PM_{2.5} in the Baton Rouge area during the month of September 2011. Please see the chart on the next page for detailed information on PM_{2.5} levels throughout the state.

Other Areas of the State

OZONE

Please refer to the table below for detailed information on ozone levels during the month of September 2011.

Air Quality Action Days:

New Orleans

9/1/11—PM_{2.5} (cancelled mid-day), 9/14/11—Ozone, Code Orange/USG

Shreveport

9/10/11—Ozone, Code Orange/USG

PM_{2.5}

There were no violations of the NAAQS for PM_{2.5} during the month of September, 2011.

Statewide 8-HR Ozone Readings Above 75 ppb - September 2011

DATE	AQI	8-HR OZONE Concentration (ppb)	MONITORING SITE
9/9/11	135	89	Shreveport Airport
	129	87	Dutchtown
	122	84	Carville
	111	80	Vinton
	106	78	Carlyss
	104	77	Dixie
9/10/11	129	87	Carville
	127	86	Capitol
	124	85	Dutchtown
	119	83	LSU
	109	79	Convent
	106	78	Vinton
	101	76	Lafayette
	101	76	Meraux

DATE	AQI	8-HR OZONE Concentration (ppb)	MONITORING SITE
9/10/11 (cont'd)	101	76	Pride
	101	76	Thibodaux
9/11/11	109	79	French Settlement
	104	77	Garyville
	101	76	Vinton
9/12/11	119	83	Meraux
	116	82	Madisonville
	111	80	Kenner
	111	80	Shreveport Airport
	106	78	French Settlement
9/13/11	132	88	Shreveport Airport
	119	83	Dixie
	119	83	Madisonville
9/29/11	101	76	Shreveport Airport



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Good

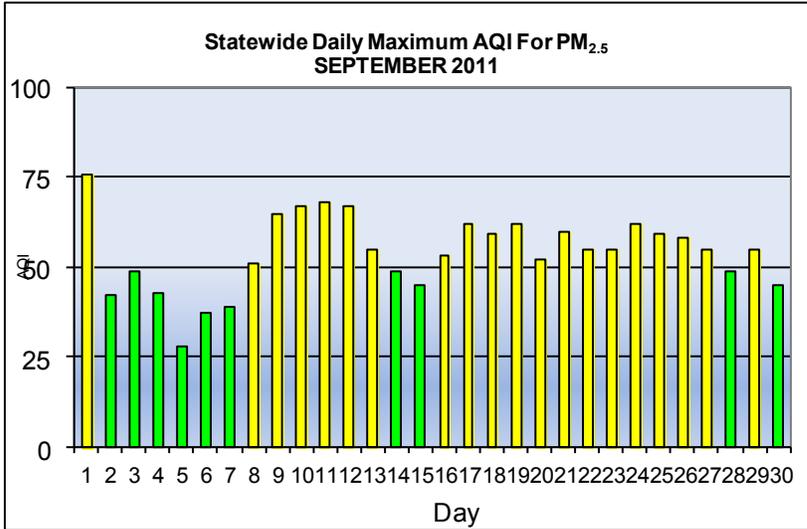
Moderate

Unhealthy for Sensitive Groups

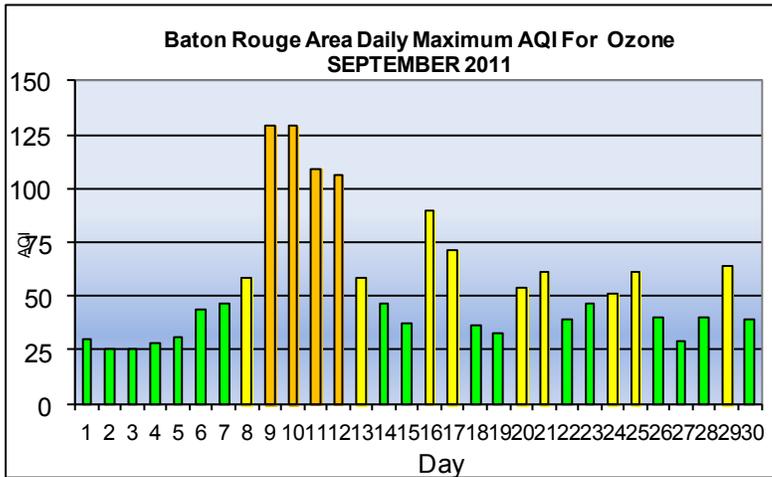
Unhealthy

Very Unhealthy

Hazardous



Statewide High PM _{2.5} 24-Hour Average Readings - September 2011			
DAY	UG/m3	AQI	SITE
1	25.5	76	Alexandria
2	13	42	Monroe
3	15	49	Monroe
4	13.2	43	Madisonville
5	8.5	28	Alexandria
6	11.5	37	Alexandria, Shreveport Airport
7	12.1	39	Alexandria
8	15.6	51	Alexandria
9	21.1	65	Port Allen
10	22.2	67	Alexandria
11	22.4	68	French Settlement
12	22	67	Monroe
13	17	55	Monroe
14	15	49	Monroe
15	14	45	Port Allen, Monroe
16	16.5	53	Alexandria
17	20	62	Port Allen
18	18.7	59	Alexandria
19	20	62	Chalmette Vista
20	15.8	52	Alexandria
21	19	60	Lafayette
22	17	55	Monroe
23	17	55	Port Allen, Alexandria, Shreveport Airport
24	20	62	Port Allen
25	18.9	59	Shreveport Airport
26	18.2	58	Thibodaux
27	17.2	55	Shreveport Airport
28	15	49	Alexandria
29	17.3	55	Alexandria
30	14	45	Monroe



Baton Rouge Climate Summary—September 2011

*Prepared by: Jay Grymes

(based on available preliminary data as of November 5, 2011)

What a difference a month makes! -- a twist to an often over-used cliché, but it seems appropriate for the Baton Rouge area when we look at September's weather. After record-setting heat in August accompanied by intensifying drought, September opened with *Tropical Storm Lee*. *Lee* not only "broke the drought" for the Baton Rouge area but also ended a 35-consecutive-day run of daily highs at or above 90°.

September's monthly average temperature for the 'Red Stick' was 75.9°F, 2.7° below the 30-year normal -- the first "cooler-than-normal" month of 2011 since January! After a summer of record temperatures for metro Baton Rouge, September's departure was much welcomed and likely provided a modest amount of relief to energy demands and air-conditioning loads for businesses and residences.

Lee's clouds and rains helped keep highs in the upper 70's to mid 80's for a string of days in early September. In addition, as remnants of *Lee* continued to move north of Louisiana, the wrap-around "backside" circulation helped transport cooler and less-humid air from the north and northwest into the metro area. This provided a brief run of comfortable "fall-like" days, with morning lows dipping into the 50's at Metro AP (Sep 6-10).

But the "autumn feel" was not to last, with temperatures running from near-normal to above-normal for much of the latter half of the month.

Daily maximums during September 2011 at Metro AP climbed to 90° and above on nine dates, including a 4-day run near month's end (Sep 25-28). The thermometer reached 93° on three days: Sep 1, 13 and 27. With the exception of the "fall spell" following *Lee*, most daily minimums were in the 60's and 70's, roughly normal for this time of year.

Table 1: Average "daylight hours" sky conditions (to 12,000 ft) during September 2011, based on automated ASOS observations from Baton Rouge's Metro Airport.

Sky Condition: Sunrise to Sunset (Sky Coverage)	Clear to Mostly Sunny (0/10ths – 3/10ths)	Partly Cloudy / Partly Sunny (4/10ths – 6/10ths)	Mostly Cloudy to Cloudy (7/10ths – 10/10ths)
No. Days	19	7	4

Skies over Baton Rouge were generally "fair" for more than half of the month (Table 1). All four "Cloudy to Mostly Cloudy" days during September occurred in association with *T.S. Lee* (Sep 2-5). In fact, skies were mainly clear for an 8-day stretch following *Lee*.

Sunrise-to-sunset periods for Baton Rouge during September -- excluding 'Civil Twilight' -- ranged from 12.8 hours (Sep 1) to 11.9 hours (Sep 30).

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Without doubt, *T.S. Lee* was a true 'drought-buster' for the Baton Rouge metro area. From September 1-5, *T.S. Lee* delivered between 7" to 13" of rain to the metro area -- as much or more rain than many area sites had received over the previous 8 to 10 weeks! In fact, *Lee's* rains prompted nuisance street flooding across the metro area as well as flooding along portions of the lower Amite River -- a reminder that flooding (usually a short-term, meteorological event) can occur in the midst of a prolonged drought (a longer-term, climatological event).

A look at the daily data through September shows that the 'dry pattern' that plagued the greater Baton Rouge area during the spring and summer of 2011 re-developed during the latter half of the month, with a majority of the regional sites reporting less than 2" of rain after September 6th.

For Metro Airport, September is only the third month of 2011 with above-normal rainfall. Metro AP's 9.90" of rain is more than double the September norm and ranks as the "wettest" September since 2005 (*Hurricane Rita*). In addition, September 2011 is Baton Rouge's "wettest" month since August 2010.

Table 2 shows that half of the 20 selected sites in the region recorded in excess of 10" of rain for the month, with Livingston recording more than 15" of rain -- more rain than that site recorded from May through August! The regional average rainfall was 10.24", with a regional median of 9.95". September raindays (days with ≥ 0.01 "") ranged from 5 to 11 days, with a median of 7 raindays for the 20 sites, a bit below the long-term monthly average.

September 2011 reports from the Metro Airport ASOS weather platform included:

- only 1 day with thunder (average is 6-7 days), and that was not associated with *T.S. Lee*;
- 19 days with fog, including three days (Sep 20, 23 & 28) with "dense" fog (visibility less than 1/4-mile); and
- notable smoke and/or haze on 6 dates (Sep 3, 7, 13, 17, 18 & 25).

Winds at the Metro Airport ASOS platform averaged 5.7 mph during September 2011 -- slightly below-normal for the month in spite of the effects associated with *T.S. Lee*. Although daily winds averaged roughly 12-17 mph during *Lee's* passage, there were no other days during September with daily winds averaging 10.0 mph or more. In fact, daily winds averaged under 5.0 mph during more than half of the days during the month.

Peak winds at Metro AP during *T.S. Lee's* impact only reached 39 mph, reflecting *Lee's* relatively modest wind intensities as the storm moved inland to the west of the metro area. Peak gusts in excess of 30 mph were recorded on 7 different dates -- Sep 3-5 (*T.S. Lee*), 22, 24, 28 & 29 -- with the occurrences on the final four dates related to frontal weather.

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Table 2: September 2011 rainfall for selected stations across the greater Baton Rouge metro area. (Data are preliminary and provided courtesy of the National Weather Service, the LSU Southern Regional Climate Center, the U.S. Geological Survey, the LSU AgCenter, and the CoCoRaHS Volunteer Network.)

Rainfall-Recording Site	Monthly Rainfall	Monthly DFN	No. Days ≥ 0.01 "	No. Days ≥ 1.00 "
BR - Metro AP	9.90"	+5.36"	8	2
<i>NWS Cooperative Network Sites</i>				
BR - Concord Estates	8.62"	+4.26"	8	3
BR - Sherwood Forest	10.07"	+5.42"	7	3
Denham Springs	11.75"	+7.48"	6	3
Gonzales	11.36"	+6.84"	7	4
Livingston	15.04"	+10.37"	7	3
New Roads	11.11"	+6.22"	7	2
<i>USGS HydroWatch Selected Sites</i>				
Clinton (07377195)	10.41"	--	9	3
Zachary (07377750)	10.07"	--	11	4
Central (07378100)	M	--	M	M
Prairieville (07380107)	M	--	M	M
Milldale (07377230)	12.71"	--	10	3
Pt. Vincent (07380120) (0.1")	9.50"	--	7	2
French Settlement (07380200)	7.59"	--	10	2
<i>LSU AgCenter LAIS Automated Stations</i>				
LAIS - Ben Hur Farm	10.00"	--	10	2
LAIS - St. Gabriel Res Sta	M	--	M	M
<i>CoCoRaHS Volunteer Observers</i>				
Shenandoah 0.8 W (LA-EB-36)	M	--	M	M
Monticello 3.0 ENE (LA-EB-19)	12.50"	--	5	4
Brownfields 5.8 NE (LA-EB-9)	8.80"	--	7(e)	3(e)
Baton Rouge 2.5 E (LA-EB-27)	9.14"	--	7	3
Baton Rouge 2.7 SW (LA-EB-2)	9.55"	--	7	3
Zachary 3.5 WNW (LA-EB-28)	9.55"	--	7	3
LSU Campus (LA-EB-33)	9.04"	--	8	3
WAFB-TV, Downtown BR	8.14"	--	8	2

DFN - Departure-from-Normal
M - Monthly Report Unavailable
"--" - Normals Not Available

(i) - Monthly Report May Be Incomplete
(e) - Estimated Value
(0.1") - 0.1" Resolution Only

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Drought Status:

According to the weekly **U.S. Drought Monitor**, most of the greater Baton Rouge metro area was rated as under “Severe Drought (D2)” to “Extreme Drought (D3)” at the end of August. Seven to ten inches of rain, thanks to *Tropical Storm Lee*, changed that.

Lee's rains were more than enough to eliminate the drought, with rain surpluses sufficient to keep the metro area out of drought through the remainder of the month. However, with the return of a "drier-than-normal" pattern following *Lee*, moisture in the near-surface soil layers was quickly depleted during the latter half of September. While the month ended with drought conditions "officially" confined to western Louisiana -- according to the **Drought Monitor** (Figure 3) -- more dry weather during October would push the region back into drought.

Tropical Outlook:

September closed with *Philippe* spinning in the Atlantic, the 17th 'named' storm of the Atlantic Hurricane Season. As was anticipated at the start of the season, 2011 continued a trend that began in 1995 with annual storm counts running above to well-above the long-term average.

Louisiana added *Lee* to 'her' recent list of landfalls, the first since 2009's *Ida*. August's *Irene* will rank among the nation's costliest tropical events when the economic tally is completed. But heading into October, we are on the "climatological downslope" for tropical landfall threats for the U.S. coastlines.

Extended Outlook:

La Niña has become well-established and projections suggest that the current *La Niña* event (as indicated by cooler-than-normal sea-surface temperatures in the equatorial Pacific) will persist through the winter and possibly into at least the early spring. For south Louisiana, the presence of *La Niña* at this time of year tends to be associated with "drier-than-normal" winters and springs -- a look back into the 1950s indicates that November-thru-April rainfall was below-average for about 70% to 80% of the past winter *La Niñas*.

What this association does not provide is useful guidance as to the magnitude of the rainfall departure -- "how MUCH below normal?"

What we do see during *La Niña* winters and springs, on average, is a noteworthy drop in the frequency and magnitude of winter and spring flooding along south Louisiana rivers (this excludes the Mississippi River). Yet in most of these winter *La Niñas*, rainfall deficits are not so great as to generate serious drought conditions.

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Figure 1: September 2011 *Daily Max/Min Temperatures and Precipitation* as recorded by the LSU AgCenter/LAIS Weather Station located at LSU-Ben Hur Farm (Nicholson Drive).

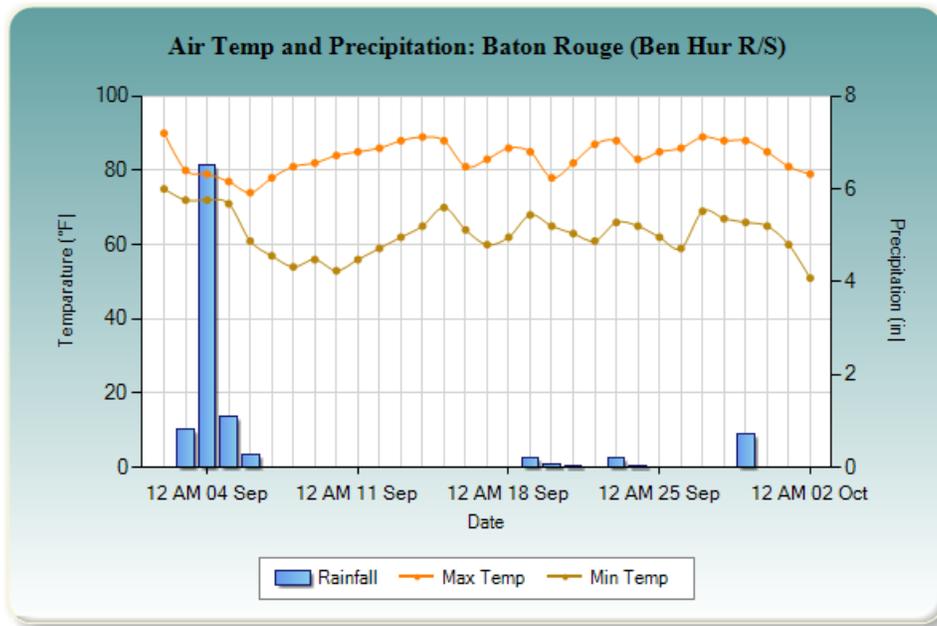
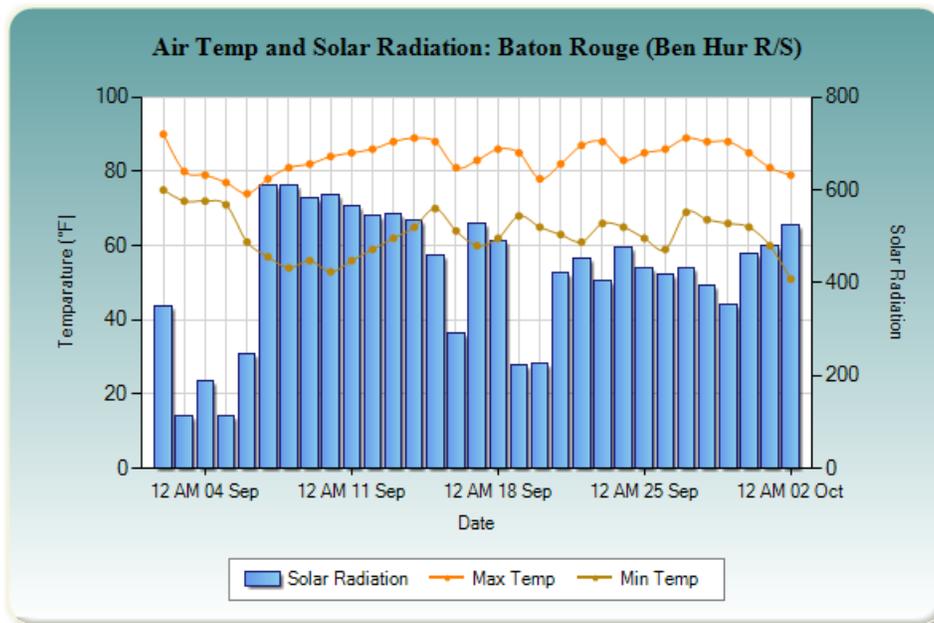


Figure 2: September 2011 *Daily Solar Radiation and Max/Min Daily Temperatures* as recorded by the LSU AgCenter/LAIS Weather Station located at LSU-Ben Hur Farm (Nicholson Drive).



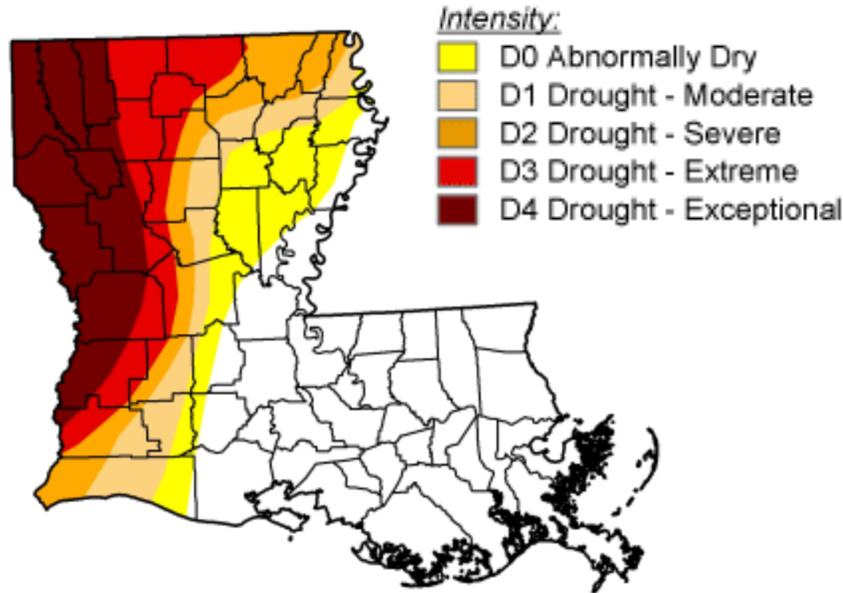
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Figure 3: Weekly **U.S. Drought Monitor** depiction for 27 September 2011.

Source: <http://drought.unl.edu/DM/>



Acknowledgements:

- National Weather Service offices serving Louisiana
- LSU Southern Regional Climate Center (SRCC)
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- LSU AgCenter / LAIS Weather Monitoring Program
- CoCoRaHS Volunteer Network
- U.S. Drought Monitor (<http://drought.unl.edu/DM/>)
- NWS Climate Prediction Center (NWS/CPC)
- NWS Storm Prediction Center (NWS/SPC)
- NWS Hydrometeorological Prediction Center (NWS/HPC)
- NOAA/National Climatic Data Center (NCDC)
- WAFB-TV (Ch. 9), Baton Rouge

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Jay Grymes, LSU AgCenter Climatologist and WAFB Chief Meteorologist, provides the climatology portion of this report as a free service to DEQ and the citizens of Louisiana.