



# Air Quality Summary—September 2009



## **Baton Rouge Area**

### **OZONE**

There were no days that exceeded the National Ambient Air Quality Standard (NAAQS) for ozone in the Baton Rouge area during the month of September 2009.

*Ozone Action Days: None*

### **PM<sub>2.5</sub>**

There were no exceedances of the NAAQS for PM<sub>2.5</sub> in the Baton Rouge area during the month of September 2009. Please see the chart on the next page for detailed information on PM<sub>2.5</sub> levels throughout the state in September.

## **Other Areas of the State**

### **OZONE**

There were no days that exceeded the National Ambient Air Quality Standard (NAAQS) for ozone in any area of the state during the month of September 2009.

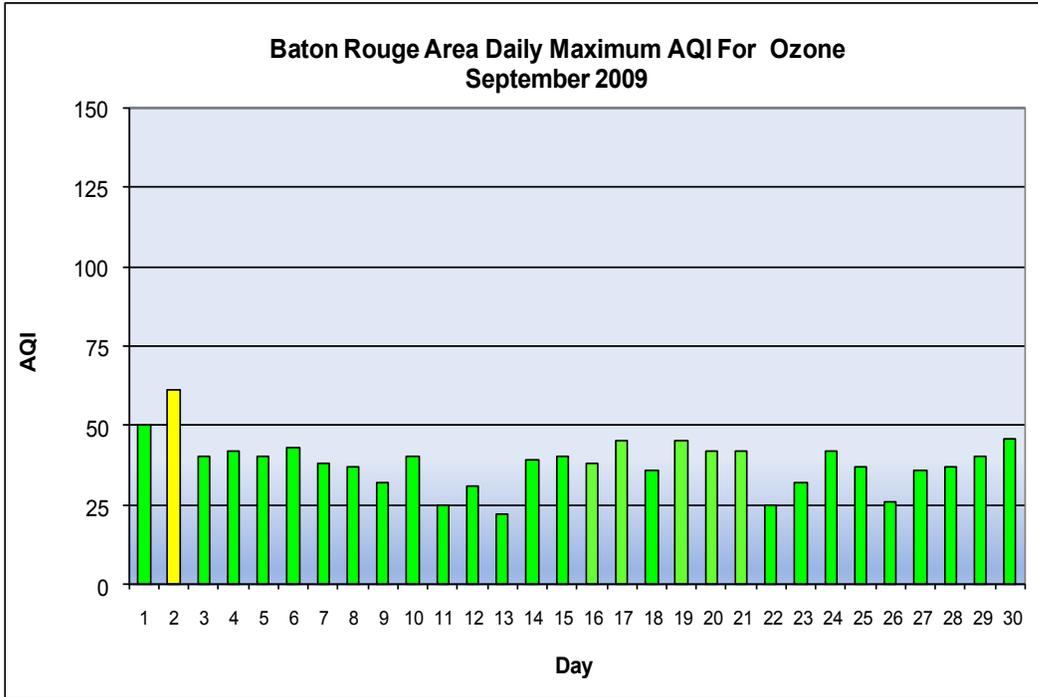
*Ozone Action Days: None*

### **PM<sub>2.5</sub>**

There were no exceedances of the NAAQS for PM<sub>2.5</sub> for any area of the state during the month of September 2009. Please see the chart on the next page for detailed information on PM<sub>2.5</sub> levels throughout the state in September.



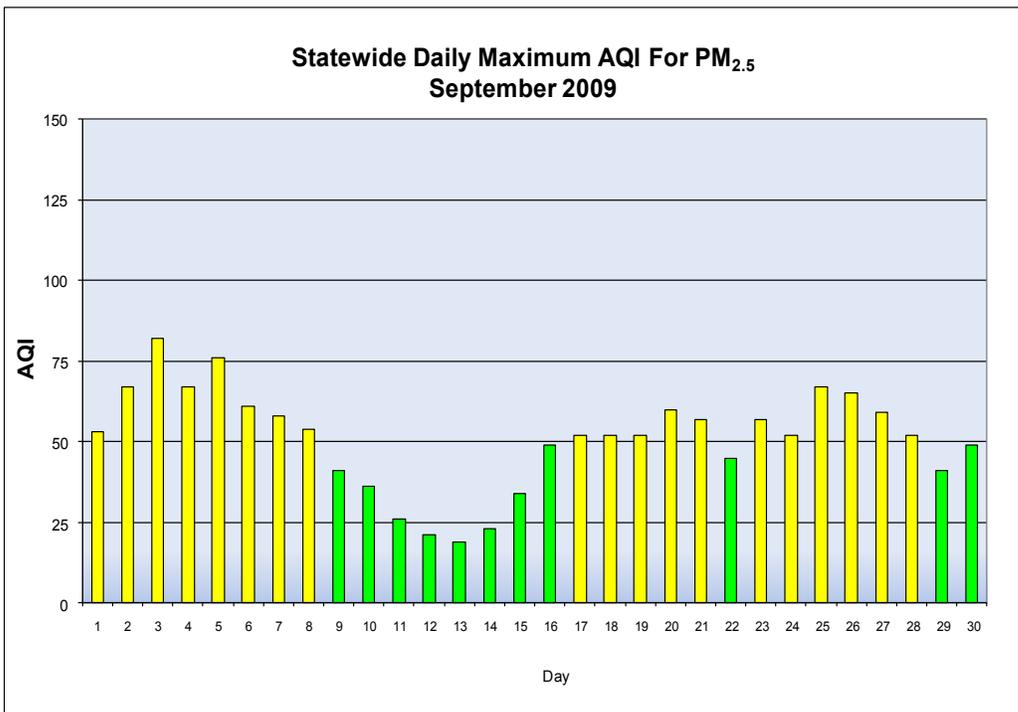
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|         |                                |
|---------|--------------------------------|
| 0-50    | Good                           |
| 51-100  | Moderate                       |
| 101-150 | Unhealthy for Sensitive Groups |
| 151-200 | Unhealthy                      |
| 201-300 | Very Unhealthy                 |

### Statewide High PM<sub>2.5</sub> 24-Hour Average Readings - September

| DAY | UG/m3 | AQI | SITE               |
|-----|-------|-----|--------------------|
| 1   | 16.5  | 53  | Shreveport Airport |
| 2   | 22    | 67  | Port Allen         |
| 3   | 28.1  | 82  | Westlake           |
| 4   | 21.8  | 67  | Shreveport Airport |
| 5   | 25.8  | 76  | Shreveport Airport |
| 6   | 19.7  | 61  | Shreveport Airport |
| 7   | 18.5  | 58  | Shreveport Airport |
| 8   | 16.7  | 54  | Shreveport Airport |
| 9   | 12.6  | 41  | Shreveport Airport |
| 10  | 11    | 36  | Port Allen         |
| 11  | 8.1   | 26  | Shreveport Airport |
| 12  | 6.5   | 21  | Shreveport Airport |
| 13  | 5.8   | 19  | Capitol            |
| 14  | 7     | 23  | Chalmette Vista    |
| 15  | 10.6  | 34  | Chalmette Vista    |
| 16  | 15.1  | 49  | Chalmette Vista    |
| 17  | 16    | 52  | Chalmette Vista    |
| 18  | 15.8  | 52  | Chalmette Vista    |
| 19  | 16    | 52  | Port Allen         |
| 20  | 19    | 60  | Port Allen         |
| 21  | 18    | 57  | Port Allen         |
| 22  | 14    | 45  | Port Allen         |
| 23  | 18    | 57  | Port Allen         |
| 24  | 16    | 52  | Port Allen         |
| 25  | 22    | 67  | Port Allen         |
| 26  | 21    | 65  | Port Allen         |
| 27  | 18.9  | 59  | Chalmette Vista    |
| 28  | 16    | 52  | Port Allen         |
| 29  | 12.6  | 41  | Westlake           |
| 30  | 15    | 49  | Port Allen         |



# Baton Rouge Climate Summary—September 2009

*\*Prepared by: Jay Grymes*

(based on available preliminary data as of October 25, 2009)

September 2009's monthly temperature averaged 79.2°F for Metro Airport, running 1.7° above the September norm and extending Metro AP's run of warmer-than-normal months to eleven consecutive months -- and every month but one since mid-2007! Through the first nine months (Jan-Sep) of 2009, preliminary average temperatures rank as the 3rd warmest for this period since 1930 at Metro AP, just behind 1990 and 2006.

Daytime highs reached the 90°s on 14 dates, with the month's highest reading of 92°F recorded on September 4th and 28th. These summer-like days were partially offset by 'almost cool' readings on September 11-13, when highs failed to reach the 80°s. Yet most of the month was warm to very-warm by September standards, with daily average temperatures running above the norm for 22 of the month's 30 days.

Although monthly temperatures were above-normal, clouds were common throughout the month, with nearly half of all September days rated as "mostly cloudy to cloudy" (Table 1). A review of NWS/HPC Daily Weather Maps shows that the middle of the month was marked by a run of days with unstable weather across the lower Mississippi Valley. An upper-level low persisted over the Southern Plains during the period, with an attendant surface low and linked frontal boundaries drifting from the northwestern Gulf towards the ArkLaTex. The "stacked" complex accounted for much of the month's rains before finally exiting the region on September 18-19. This wet-weather period was followed by frontal periods on September 23-26 and on September 28-29.

Table 1: Average "daylight hours" sky conditions (to 12,000 ft) during September 2009, based on automated ASOS observations from Baton Rouge's Metro Airport.

| Sky Condition:<br>Sunrise to Sunset<br>(Sky Coverage) | Clear to<br>Mostly Sunny<br>(0/10ths – 3/10ths) | Partly Cloudy /<br>Partly Sunny<br>(4/10ths – 6/10ths) | Mostly Cloudy<br>to Cloudy<br>(7/10ths – 10/10ths) |
|---|---|--|--|
| No. Days  | 5   | 12   | 13   |

Daylight hours (official sunrise-to-sunset period, excluding 'Civil Twilight') declined from approximately 12.8 hours (Sep 1) to 11.9 hours (Sep 30) through the month.

Metro Airport recorded 5.55" of rain during September 2009, slightly above the monthly norm. But unlike August, when Metro AP proved to be the "wettest" site in the metro area, September totals were above-normal for most reporting sites in the region, ending a five-month run of drier-than-normal weather for much, if not most, of the greater metro area.

Of the sites included in Table 2, 18 were deemed to have complete daily rain reports for September. Of those, all but four reported more than 4.0" of rain for September, while seven sites recorded 6.0" or more for the month. Based on those 18 sites, rainfall for September averaged 5.84" for the greater Baton Rouge metro area (areally-unweighted), with 5.57" as the group median. Much of the metro area averaged about an inch of above-normal rain for the month, although the report from Livingston shows rains there were more than double the monthly norm.

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Table 2: September 2009 rainfall for selected rainfall reporting 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, and the LSU AgCenter.)

| Rainfall-Recording Site                     | Monthly Rainfall | Monthly DFN   | No. Days ≥ 0.01" | No. Days ≥ 1.00" |
|---|------------------|---------------|------------------|------------------|
| <b>BR - Metro AP</b>                        | <b>5.55"</b>     | <b>+0.71"</b> | <b>12</b>        | <b>2</b>         |
| <i>NWS Cooperative Network Sites</i>        |                  |               |                  |                  |
| BR - Concord Estates                        | 5.02"            | +0.66"        | 9                | 1                |
| BR - Sherwood Forest                        | 6.50"            | +1.85"        | 11               | 2                |
| Brusly 2 W                                  | 5.59"            | +1.12"        | 12               | 1                |
| Central                                     | M                | M             | M                | M                |
| Clinton - LDAF                              | M                | M             | M                | M                |
| Denham Springs                              | 4.41"            | +0.14"        | 7                | 2                |
| Gonzales                                    | 6.01"            | +1.48"        | 14               | 0                |
| Jackson 3 E                                 | M                | --            | M                | M                |
| Livingston                                  | 10.54"           | +5.87"        | 14               | 3                |
| New Roads                                   | 2.21" (i)        | M             | M                | M                |
| Oaknolia                                    | 2.98" (i)        | M             | M                | M                |
| Port Allen                                  | 1.50" (i)        | M             | M                | M                |
| Plaquemine 2 N                              | 3.80"            | -1.28"        | 7                | 0                |
| St. Francisville                            | M                | M             | M                | M                |
| Zachary                                     | M                | M             | M                | M                |
| <i>LSU AgCenter LAIS Automated Stations</i> |                  |               |                  |                  |
| LAIS - Ben Hur Farm                         | 5.29"            | --            | 15               | 2                |
| LAIS - Burden Plantation                    | 5.42"            | --            | 12               | 2                |
| LAIS - St. Gabriel Res Sta                  | 6.09"            | --            | 16               | 2                |
| <i>CoCoRaHS Volunteer Observers</i>         |                  |               |                  |                  |
| Old Jefferson 0.9 W (LA-EB-21)              | 6.82"            | --            | 12               | 3                |
| Shenandoah 0.8 W (LA-EB-36)                 | 6.31"            | --            | 12               | 1                |
| Monticello 3.0 ENE (LA-EB-19)               | 3.24" (i)        | --            | M                | M                |
| Brownfields 5.8 NE (LA-EB-9)                | 5.48"            | --            | 10               | 1                |
| Baton Rouge 2.5 E (LA-EB-27)                | 8.43"            | --            | 12               | 4                |
| Baton Rouge 2.7 SW (LA-EB-2)                | 4.35"            | --            | 12               | 1                |
| Zachary 3.5 WNW (LA-EB-28)                  | 3.59"            | --            | 10               | 0                |
| LSU Campus (LA-EB-33)                       | 5.90"            | --            | 14               | 1                |

DFN - Departure-from-Normal

(i) - Monthly Report May Be Incomplete

M - Monthly Report Unavailable

(e) - Estimated Value

"--" - Normals Not Available

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(based on available preliminary data as of October 25, 2009)

Rainday counts (Table 2, No. Days  $\geq$  0.01") were generally above normal across the metro area. Long-term averages suggest that the metro area averages about 9-10 days with measurable rainfall during September, while Table 2 indicates a metro area median of 12 raindays for September 2009 and a median of 1-2 days with an inch or more of rain.

The Metro AP ASOS platform recorded thunder on 9 dates during September 2009, compared to a long-term average of 6.4 days according to the **"Normals, Means and Extremes"** for Baton Rouge (NCDC). September records show 21 days with fog, including a brief run of "heavy" fog (visibility less than 1/4-mile) on September 7th. Notable smoke and/or haze was reported on four dates: September 12, 19, 21 and 26.

The ASOS reported an average wind speed of 4.3 mph for September, considerably less than the 25-year average of 5.6 mph. Daily wind speeds averaged below 5.0 mph on 21 of 30 dates, and winds only averaged above 10.0 mph on September 15th (10.2 mph). Yet gusts in excess of 20 mph were relatively frequent, occurring on 21 September days, with peak gusts above 30 mph on September 13, 14, 18 and 19.

The weekly **U.S. Drought Monitor** as of September 29th (Fig. 3) shows marked improvement for the Baton Rouge area in terms of drought status, thanks to a wetter-than-normal September. Note, however, that experts still consider the metro area -- along with a relatively broad swath through central Louisiana -- as remaining "drier than normal" for this time of year. While September rains all but eliminated shallow-depth moisture shortages, deeper soils remain drier-than-normal for early fall. (As we move further into the fall season, these deeper soil-water shortages become somewhat less important with regard to the environmental health of the natural landscape.)

## *The Extended Outlook:*

Continued strengthening of El Niño (the warmer-than-normal phase of ENSO<sup>1</sup> with regard to surface-water temperatures over the equatorial Pacific) suggests that a return of wetter-than-normal weather is likely across south Louisiana in the coming months. A look at south Louisiana winters since the 1950s shows that rainfall was above normal for roughly 2-in-3 "winter-springs" (November thru April) when El Niño was present, with several El Niño winters coinciding with more than double-the-normal rainfall!

Three-month NWS Climate Prediction Center outlooks continue to call for better-than-average chances for "wet" weather across south Louisiana through the close of 2009 and into early 2010. The outlooks also include a tendency for cooler-than-normal weather across south Louisiana through the winter and into the early spring.

ENSO<sup>1</sup> - El Niño / Southern Oscillation

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(based on available preliminary data as of October 25, 2009)

Figure 1: September 2009 *Daily Max/Min Temperatures and Precipitation* as recorded by the LSU AgCenter/LAIS Weather Station located at LSU-Ben Hur Farm (Nicholson Drive).

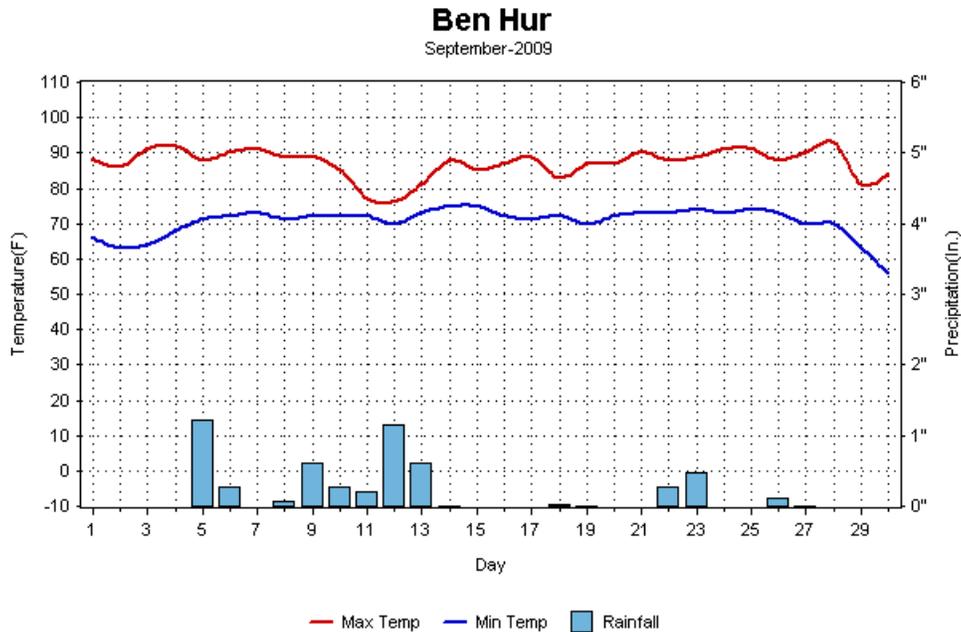
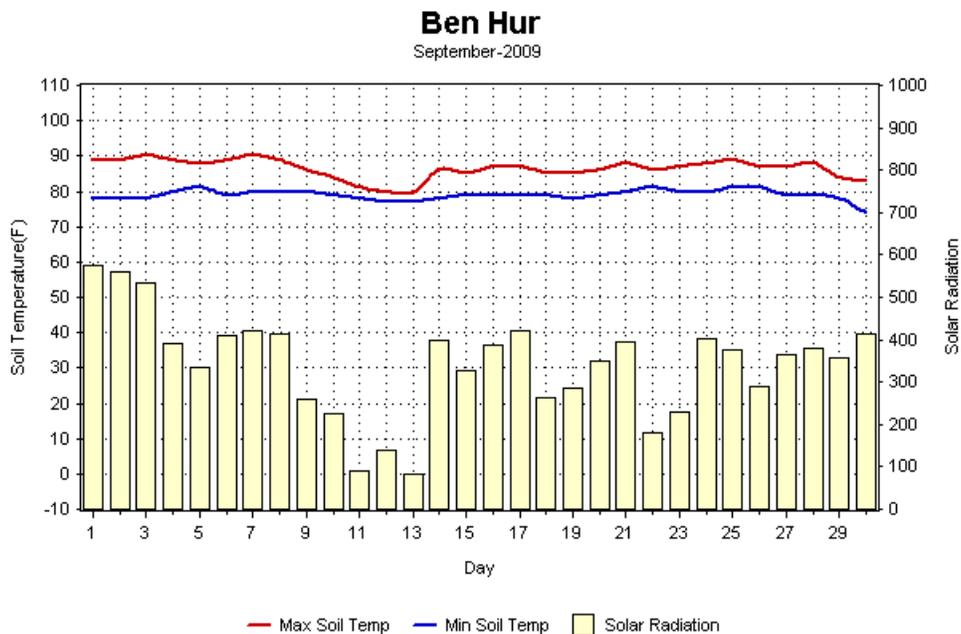


Figure 2: September 2009 *Daily Solar Radiation and Max/Min Soil Temperatures (4 in. depth)* as recorded by the LSU AgCenter/LAIS Weather Station located at LSU-Ben Hur Farm.



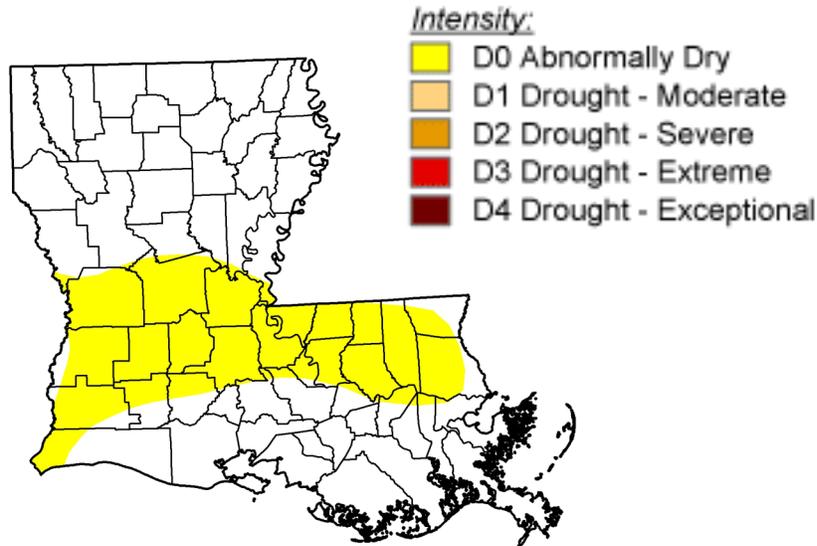
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Figure 3: Weekly **U.S. Drought Monitor** depiction for 29 September 2009.

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



## Acknowledgements:

- National Weather Service offices serving Louisiana
- LSU Southern Regional Climate Center (SRCC)
- Louisiana Office of State Climatology (LOSC)
- LSU AgCenter / LAIS Weather Monitoring Program
- 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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25 October 2009

\*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.