



Air Quality Summary—January 2013



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 January, 2013. Please see the graph on page two for daily air quality index levels in the Baton Rouge area during January.

No Action Days were called for the Baton Rouge area during the month of January.

PM_{2.5}

There were no violations of the NAAQS for PM_{2.5} in the Baton Rouge area during the month of January, 2013. Please see the chart and table on the next page for detailed information on PM_{2.5} levels throughout the state.

Other Areas of the State

OZONE

There were no days that exceeded the National Ambient Air Quality Standard (NAAQS) for ozone in areas of the state other than Baton Rouge during the month of January, 2013.

No Action Days were called for any area of the state during the month of January.

PM_{2.5}

There were no violations of the NAAQS for PM_{2.5} during the month of January, 2013. Please see the graph and table on the next page for detailed information on PM_{2.5} levels throughout the state.



Air Quality Summary—January 2013



Good

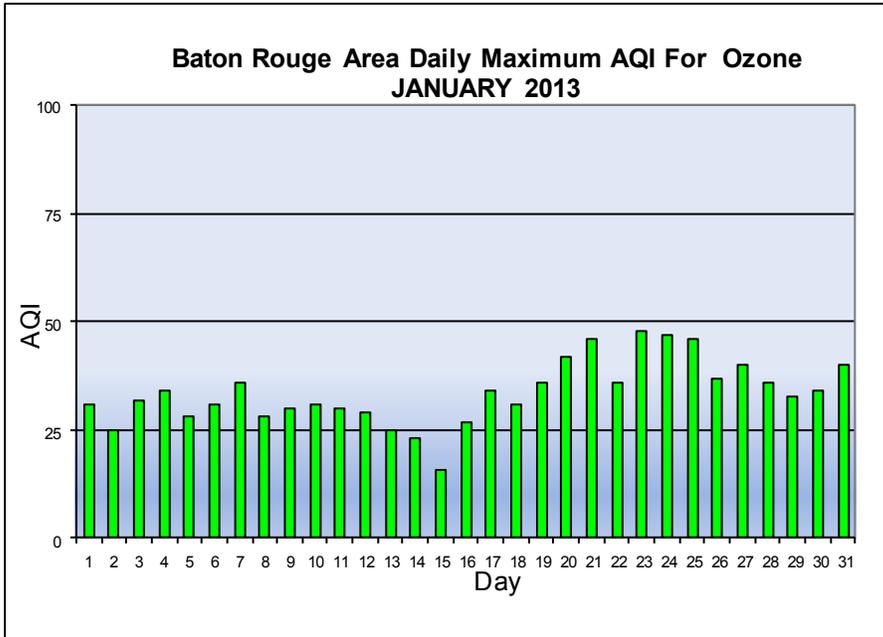
Moderate

Unhealthy for Sensitive Groups

Unhealthy

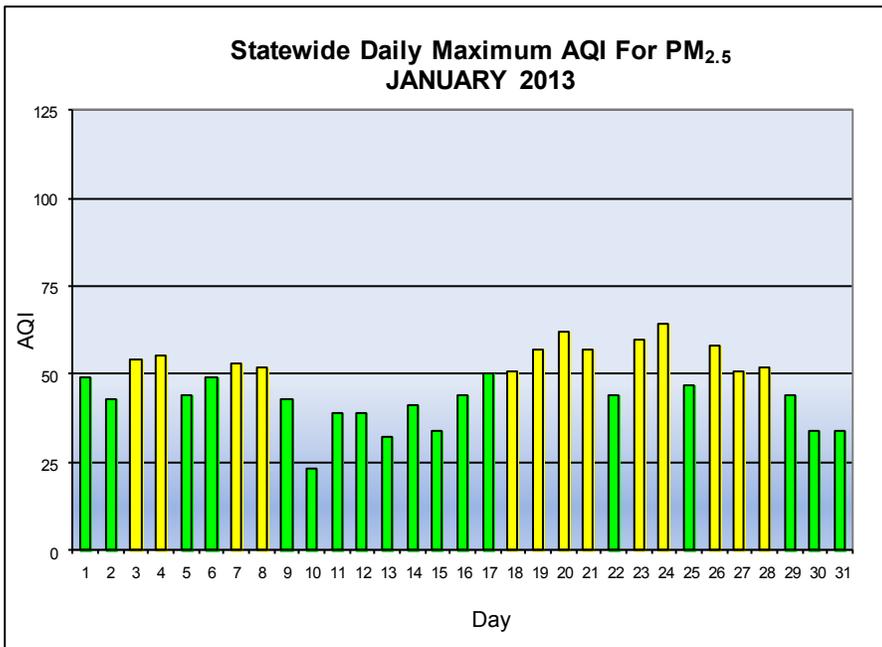
Very Unhealthy

Hazardous



Statewide High PM_{2.5} 24-Hour Average Readings - JANUARY 2013

DAY	UG/m3	AQI	SITE
1	15.2	49	City Park
2	13.2	43	Monroe
3	16.6	54	Monroe
4	17.1	55	Monroe
5	13.6	44	Monroe
6	15	49	Monroe
7	16.4	53	Monroe
8	15.9	52	City Park
9	13.1	43	Monroe
10	7.1	23	Monroe
11	12	39	Chalmette Vista
12	12	39	Monroe
13	9.8	32	Monroe
14	12.5	41	Monroe
15	10.6	34	Monroe
16	13.4	44	Monroe
17	15.3	50	Monroe
18	15.6	51	Lafayette
19	18.1	57	Lafayette
20	19.9	62	Lafayette
21	17.8	57	Westlake
22	13.7	44	Port Allen
23	19.1	60	Monroe
24	20.7	64	Monroe
25	14.5	47	Monroe
26	18.5	58	Monroe
27	15.7	51	Monroe
28	15.9	52	Monroe
29	13.7	44	Monroe
30	10.5	34	Monroe
31	10.6	34	Monroe



Baton Rouge Climate Summary—January 2013

**Prepared by: Jay Grymes*

(based on available preliminary data as of February 21, 2013)

January Weather Highlights:

- near-record to record rainfall for the region
- a rare “freeze-free” January
- hints of snowflakes on Jan 16-17

January 2013’s monthly average temperature was 54.4°F for Baton Rouge’s Metro Airport, 2.7° above the monthly norm. Although far from the record for January (64.6°, Jan 1950), January 2013 falls within the top third of the “warmest” Januarys for Baton Rouge (based on records back to 1905). More noteworthy was the total absence of freezes through the month. A review of daily records for past Januarys shows only four “freeze-free” Januarys for Baton Rouge over the past 83 years (since 1930, the extent of the digital daily records available through the LSU Climate Center). The previous “freeze-free” January occurred in 1974, with the other two during 1937 and 1932. Even the record warm January 1950 had one freeze.

After a wet but mild New Year’s Day, daily temperatures for Baton Rouge stayed below normal for six consecutive days. Mild temperatures, by winter standards, returned during Jan 8-13, with highs in the 70°s on Jan 11-13. A strong cold front on the 13th ended that run of spring-like temperatures, with Jan 16th proving to be one of the chilliest days of the winter, as temperatures remained in the 30°s throughout the day.

The final third of January 2013 was quite warm given the time of year, highlighted by an eight-day run (Jan 23-30) with afternoon temperatures climbing above 70° each day. That period also included the month’s high of 81° on the 29th. (While 80° days during January are not rare, less than half of all past Januarys for Baton Rouge have had one or more 80° days.)

The “freeze-free” month still managed a number of days with lows in the 30°s, including an eight-day run during Jan 14-21. The month’s lowest temperature was 33°, recorded on the mornings of the 4th and 19th. Lows fell to 35° or lower on 11 additional January days.

Table 1: January 2013 Temperature and Degree-Day Summaries

Temperatures & Departures (°F)									
Monthly MeanT		Monthly MaxT		Monthly MinT	3-Month MeanT	YTD MeanT			
54.4°	+2.7°	63.9°	+1.6°	44.9°	+3.7°	56.1°	+0.9°	54.4°	+2.7°

Cooling Degree-Days & %Normal				Heating Degree-Days & %Normal			
Monthly CDDs		Seasonal* CDDs		Monthly HDDs		Seasonal* HDDs	
21	162%	21	162%	341	80%	918	88%

*CDD Season: Jan 1 thru Dec 31

*HDD Season: Jul 1 thru Jun 30

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(based on available preliminary data as of February 21, 2013)

There were six significant frontal periods during January 2013 (Appendix 2). Of these, four were notable rain-makers: Jan 1, Jan 8-11, Jan 13-16 and Jan 30. The first three frontal passages accounted for the most of January's rain, driving monthly totals to near-record and record levels and pushing the Amite and Comite rivers (Figs. 5a & 5b) into flood.

There were two "dry" frontal passages during the latter half of January: Jan 21-22 and Jan 27. These relatively weak fronts not only generated little or no rain across the region but did little to modify temperature trends. In fact, the two fronts produced little in the way of significant cloud cover and failed to even create notable wind shifts during their passages.

January 2013's rain total for Baton Rouge Metro Airport was 14.67" -- 8.95" above normal and well more than twice the monthly norm. For the historical Baton Rouge rainfall record, January 2013 ranks as the second "wettest" January of all time (records back to 1888), just shy of the 14.94" recorded during January 1998. In fact, January 2013 ties May 1989 as the 13th "wettest" month for any time of year since 1888, and the area's "wettest" month since December 2009.

When combined with the "wet" December 2012, the past two months rank as the "wettest" December-January on record with 22.77" -- more than double the two-month normal -- and setting the stage for what could be one of the "wettest" winters (Dec-Jan-Feb) on record for metro Baton Rouge.

A look at the daily distribution during January 2013 shows that the vast majority of rain fell during the first half of the month (Fig. 1), making it the "wettest" first half for any January since at least 1930 (the period of digital daily records). In fact, given the nearly 14" of rain during the first two weeks of the month -- and coming on the heels of a "wet" December -- it is somewhat surprising that flooding wasn't a bigger issue for the area.

Table 2: Distribution of January 2013 rain totals based on sites (Table 2) with complete monthly records for the month (31 sites).

No. Sites ≤ 14.00"	No. Sites 14.01" -15.00"	No. Sites 15.01" -16.00"	No. Sites 16.01" -17.00"	No. Sites 17.01" -18.00"	No. Sites > 18.00"
5	5	5	6	5	5

Based on the 31 sites in Table 3 (with complete monthly totals), metro area regional rainfall for January 2013 averaged a whopping 15.96", with a median of 16.11" -- both numbers being much more than double the January regional average (roughly 5.6"). All twelve NWS Cooperative sites with monthly normals posted above-normal totals for January, with half of them recording double-digit departures. In fact, a look at Table 2 shows that Metro Airport's near-record total for the month (14.67") falls within the lower third of the regional monthly totals (Tables 2 and 3).

Most of the metro area sites recorded measurable rainfall on 12 to 14 days during January (by comparison, Metro AP averages 10-11 January raindays), with the majority of sites recording 5 to 7 days with one-inch or more of rain (compared to a long-term average of 2 days for January).

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(based on available preliminary data as of February 21, 2013)

Table 3: January 2013 rainfall for selected sites 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 LSU AgCenter, and the CoCoRaHS Volunteer Network.)

Rain-Reporting Site	Monthly Rainfall		No. Days		Year-to-Date	
	Total	DFN	≥0.01"	≥1.00"	Total	DFN
<i>NWS Cooperative Stations</i>						
BR – Metro Airport	14.67"	+8.95"	14	6	14.67"	+8.95"
BR - Concord Estates	18.51"	+12.95"	13	6	18.51"	+12.95"
BR - Sherwood Forest	16.43"	+11.02"	13	7	16.43"	+11.02"
Clinton	10.96" <i>(j)</i>	--	M	M	10.96" <i>(j)</i>	--
Denham Springs	12.72"	+7.41"	10	4	12.72"	+7.41"
Dutchtown	18.08"	--	16	7	18.08"	--
Gonzales	16.13"	+10.75"	14	5	16.13"	+10.75"
Livingston	17.68"	+12.26"	12	6	17.68"	+12.26"
New Roads	18.09"	+12.15"	13	5	18.09"	+12.15"
Oaknolia	13.30"	+7.10"	12	5	13.30"	+7.10"
Plaquemine	15.80"	+10.63"	13	8	15.80"	+10.63"
Port Allen	15.28"	+9.59"	13	5	15.28"	+15.28"
St. Francisville	12.61"	+6.18"	14	5	12.61"	+6.18"
St. Gabriel	13.21"	+8.06"	14	3	13.21"	+8.06"
<i>CoCoRaHS Volunteer Observers</i>						
Baton Rouge 2.7 SW (LA-EB-2)	17.98"	--	13	7	17.98"	--
Baton Rouge 3.5 E (LA-EB-14)	16.83"	--	13	6	16.83"	--
Baton Rouge 2.5 E (LA-EB-27)	16.11"	--	14	5	16.11"	--
Baton Rouge 4.3 S (LA-EB-41)	17.37"	--	14	6	17.37"	--
Baton Rouge 1.4 WSW (LA-EB-46)	17.15"	--	13	6	17.15"	--
Baton Rouge 5.3 S (LA-EB-47)	18.81"	--	15	7	18.81"	--
Baton Rouge 2.1 S (LA-EB-48)	17.40"	--	13	5	17.40"	--
Brownfields 5.8 NE (LA-EB-9)	11.02" <i>(j)</i>	--	M	M	11.02" <i>(j)</i>	--
Inniswold 2.8 S (LA-EB-42)	15.17"	--	17	6	15.17"	--
Monticello 4.6 NNE (LA-EB-31)	14.93"	--	12	5	14.93"	--
Shenandoah 1.5 E (LA-EB-22)	14.95"	--	15	4	14.95"	--
Zachary 3.5 WNW (LA-EB-28)	13.90"	--	14	5	13.90"	--
Gonzales 4.0 S (LA-AS-5)	15.95"	--	16	5	15.95"	--
Prairieville 1.8 NW (LA-AS-10)	15.93"	--	13	6	15.93"	--
Port Vincent 4.4 W (LA-AS-2)	16.56"	--	12	6	16.56"	--
Wakefield 0.9 WNW (LA-WF-4)	14.29"	--	13 ^(e)	6 ^(e)	14.29"	--
<i>Additional Metro Area Sites</i>						
LSU Campus (LA-EB-33)	18.19"	--	13	7	18.19"	--
WAFB-TV, Downtown BR	14.51"	--	14	6	14.51"	--
LSU Ben Hur Farm	16.36"	--	14	6	16.36"	--

DFN - Departure-from-Normal "--" - Normal Not Available
M - Missing Value (e) - Estimated Value (j) - Incomplete Total

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Figure 1: January 2013 *Daily Maximum and Minimum Temperatures and Precipitation* from the Baton Rouge Metro Airport ASOS.

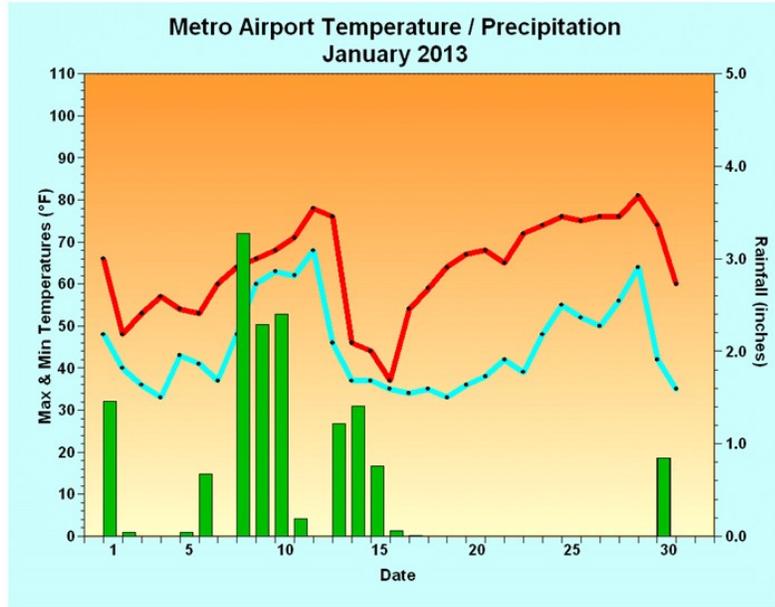
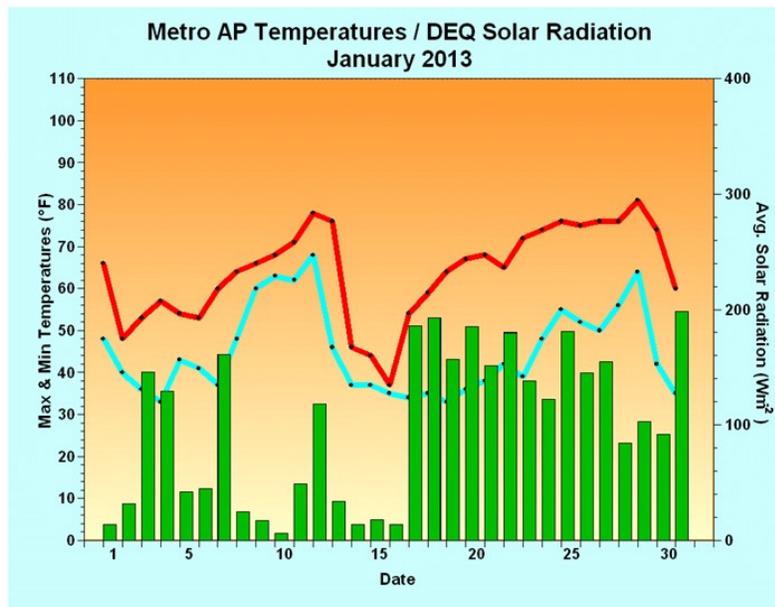


Figure 2: January 2013 *Daily Average Hourly Solar Radiation* as recorded at DEQ’s Capitol site and *Daily Maximum and Minimum Temperatures* from the Baton Rouge Metro Airport ASOS.



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For those looking for a little winter “feel,” the frontal period of Jan 13-16 closed with a few snowflakes and snow/sleet wintry mixes late on the 16th and into the early morning of the 17th. Public reports of light, intermittent snow showers and sleet mixes were received from across the metro area, but there were no indications of accumulations anywhere in the region.

The run of extremely wet weather during the first half of January was marked by 9 consecutive days -- and 11 of 12 days during Jan 5-16 -- with mostly-cloudy to cloudy skies. But as is evident in Fig. 1 (rainfall) and Fig. 2 (solar radiation), the latter half of the month included an extended run of fair weather. That period included 7 consecutive days -- Jan 17-23 -- with clear to mostly sunny skies, providing area residents with a much-appreciated “dry-out.”

Table 4: January 2013 additional reports and observations for the ASOS (Automated Surface Observing System) weather platform at Baton Rouge Metro Airport (BTR).

No Days:	Jan 2013	Median*
Thunderstorms	3	2
“Heavy” Fog (Vis** ≤ ¼ mi.)	1	3
Fog / Mist (Vis** < 7.0 mi.)	21	15
Smoke / Haze (Vis** < 7.0 mi.) Haze / Smoke (Vis** < 7.0 mi.)	3	2

Median* - based on observations during 2000-2012

Vis** - Sensor Equivalent Visibility; Fog/Mist are distinguished from Haze/Smoke through evaluation of temperature and humidity at the time of observation

Average Daily Wind Speeds:

	< 3.0 mph (Near Calm)	3.0 mph < 5.0 mph	5.0 mph < 10.0 mph	10.0 mph < 15.0 mph	≥ 15.0 mph
No. Days	3	7	15	6	0

Average “Daylight” Sky Conditions (to 12,000 ft):

	Clear to Mostly Sunny (0/10ths – 3/10ths)	Partly Cloudy To Partly Sunny (4/10ths – 6/10ths)	Mostly Cloudy To Overcast (7/10ths – 10/10ths)
No. Days	12	5	14

Sun:

Sunrise - Sunset Period	Jan 1	Jan 15	Jan 31
	10.2 hours	10.4 hours	10.7 hours

Moon:

Last Quarter	New Moon	First Quarter	Full Moon
Jan 4	Jan 11	Jan 18	Jan 26

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Thunderstorms were reported by the ASOS platform only on the 10th and 13th of January. Based on the stormy weather and frontal passages, especially during the first half of January, it seems likely that there may have been additional thunderstorm activity on other days within the region, but at distances too far away to be “detected” by the ASOS.

Thunderstorms on both Jan 10 and 13 not only generated regional rains, but also were associated with severe weather (Tables 7 & 8). Active weather on Jan 10th prompted Tornado Watches and Warnings for EBR Parish (as well as surrounding parishes), and a tornado touchdown was confirmed within the greater metro area on each of those two dates.

Fog was a frequent “visitor” during January 2013: the 21 days with Fog/Mist at Metro Airport are the most for any January since 2000, at least. Fog/Mist was reported on 10 consecutive days -- Jan 8-17 -- with a 5-day run of fog again near month’s end (Jan 26-30). There were an additional 3 days during January when visibility was reduced (Smoke/Haze) but not associated with “fog,” based on the ASOS evaluation. However, January 26th was the only day during the month with “heavy” fog: ASOS visibility decreased to 0.25 miles or less for much of that morning, including a period between 7:00-8:00am when visibility was assessed as essentially “zero.”

Winds at Metro Airport averaged 6.6 mph during January 2013, below the 28-year average of 7.3 mph for the month. Daily winds averaged above 10.0 mph on Jan 9-10, 12-13, and 29-30, all associated with frontal periods. Daily winds averaged less than 3.0 mph on Jan 20-21 and again on Jan 26. Peak gusts topped 20.0 mph on 19 days, with gusts exceeding 30.0 mph on 5 dates. Maximum gusts during January reached 41 mph on Jan 30th.

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Table 5: January 2013 significant Preliminary ‘Local Storm Reports’ as posted by the NWS for the greater Baton Rouge metro area. (Final reports/confirmation available through the NWS.)

Date	Time (CST)	Event	Location	Parish
1 / 10	7:31 AM	EF-1 Tornado	1 S Plaquemine	IBR
1 / 13	6:35 AM	EF-0 Tornado	Zachary	EBR
1 / 13	7:31 AM	T-Storm Wind Damage	1 NE Olive Branch	EF

Location approximated in whole miles from town center

Table 6: January 2013 Watches and Warnings issued for East Baton Rouge Parish.

Date(s)	Approx. Time in Effect (CST)	Event
1 / 09	12:36 AM - 1:48 AM	Flash Flood WARNING
1 / 09 - 12	5:35 AM - 7:51 AM	Flood WARNING: Comite River
1 / 09 - 19	5:35 - 1:13 AM	Flood WARNING: Amite River
1 / 10	4:36 AM - Noon	Tornado Watch (WW 001)
1 / 10	6:15 AM - 2:00 PM	Tornado Watch (WW 002)
1 / 10	6:58 AM - 3:45 PM	Areal Flood Advisory
1 / 10	7:46 AM - 8:15 AM	Tornado WARNING
1 / 10	7:50 AM - 8:15 AM	Tornado WARNING

Note that the Baton Rouge metro area had the dubious distinction of being included within the first two severe weather watches (WW001 & WW002) issued for the U.S. during 2013.

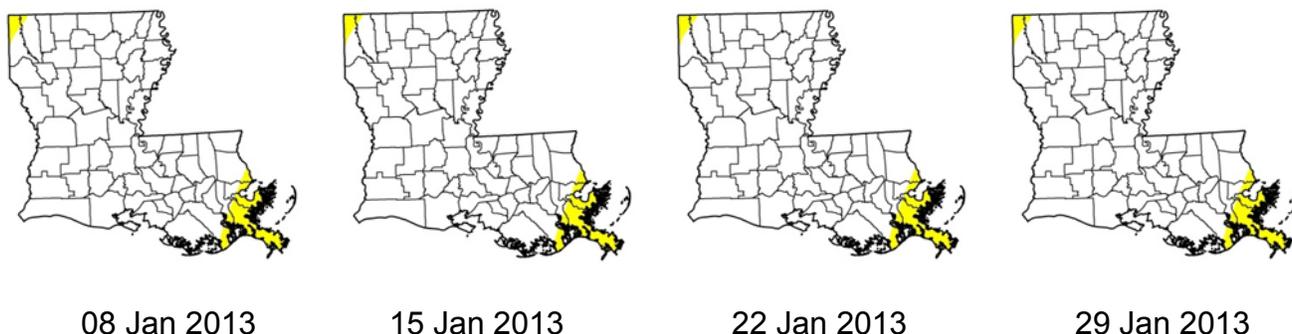
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Figure 3: Louisiana’s weekly **U.S. Drought Monitor** for January 2013.

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



Given the excessive rains for the Baton Rouge metro area over the past two months, it comes as no surprise that the weekly **U.S. Drought Monitor** (Fig. 3) shows the extended Baton Rouge metro area as drought-free. Indeed, given the recent wet spell, it is safe to assume that the region will remain drought-free for the next couple of months, at least.

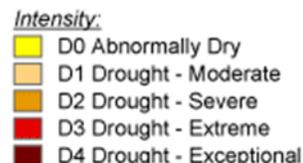
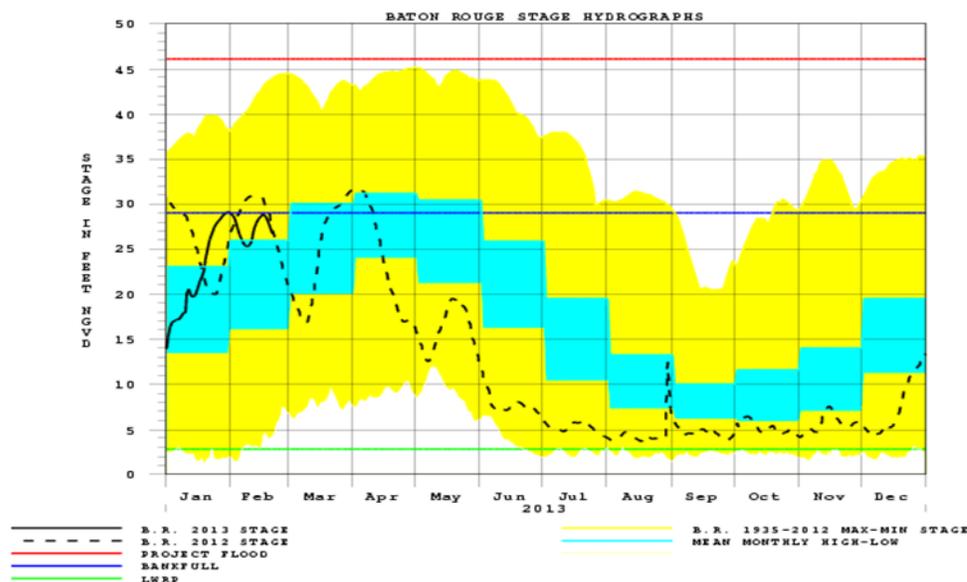


Figure 4: Mississippi River Daily Stage for 2012 & 2013 as of 23 Feb 2013, with comparisons to long-term averages and extremes.



Source: <http://www.rivergages.com>, U.S. Army Corps of Engineers

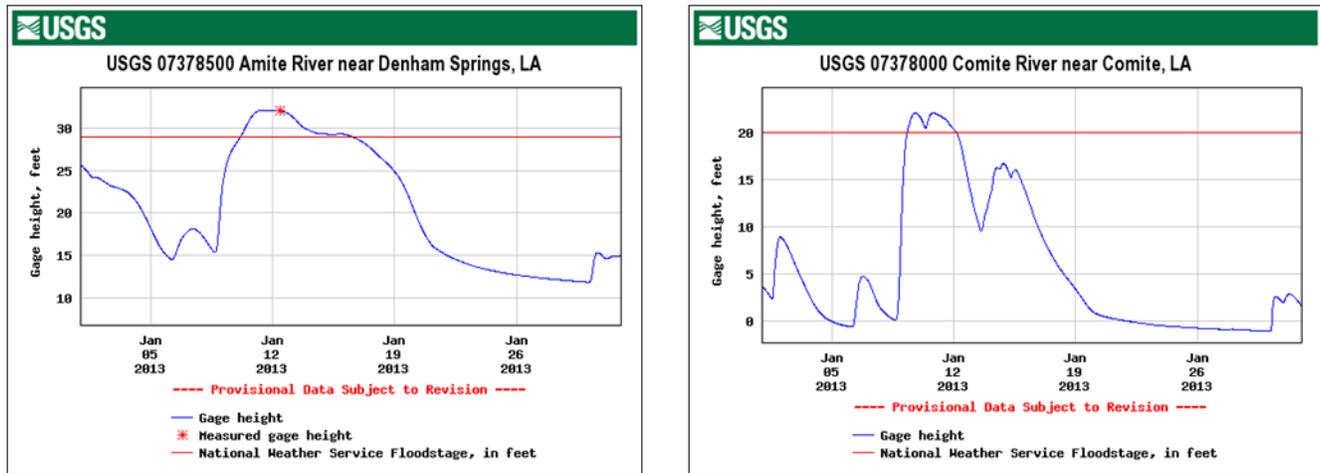
January water levels for the Mississippi River at Baton Rouge River (solid black line) were near average for much of the month, rising to slightly-above mean-daily levels during the latter third of January and continuing above-average into February.

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Figure 5a & 5b: Daily river stages, Amite River near Denham Springs and Comite River near Comite (Joor Rd.) during January 2013.



Source: USGS Louisiana Hydrowatch.

Heavy rains during the first half of January pushed the Amite River/Denham Springs into minor flood from Jan 10-16, with the river reaching a peak stage of 32.1 ft on Jan 11-12 (Flood Stage: 29.0 ft).

The Comite/Joor Rd. was in flood during Jan 9-12, with a peak stage of 22.2 ft on Jan 9 (Flood Stage: 20.0 ft).

Acknowledgements:

- National Weather Service offices serving Louisiana
- LSU Southern Regional Climate Center (SRCC)
- Louisiana Office of State Climatology (LOSC)
- LSU AgCenter / LAIS AgWeather 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 Weather Prediction Center (NWS/WPC)
- NOAA/National Climatic Data Center (NCDC)
- Iowa Environmental Mesonet (<http://mesonet.agron.iastate.edu/>)
- U.S. Geological Survey, Louisiana District (USGS)
- U.S. Army Corps of Engineers, New Orleans District (USACE)
- WAFB-TV (Ch. 9), Baton Rouge

Prepared by:

Jay Grymes
WAFB-TV Chief Meteorologist & LSU AgCenter Climatologist
28 February 2013

*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.

Baton Rouge Climate Summary—January 2013

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Appendix 1: January 2013 Daily Data from Baton Rouge Metro Airport

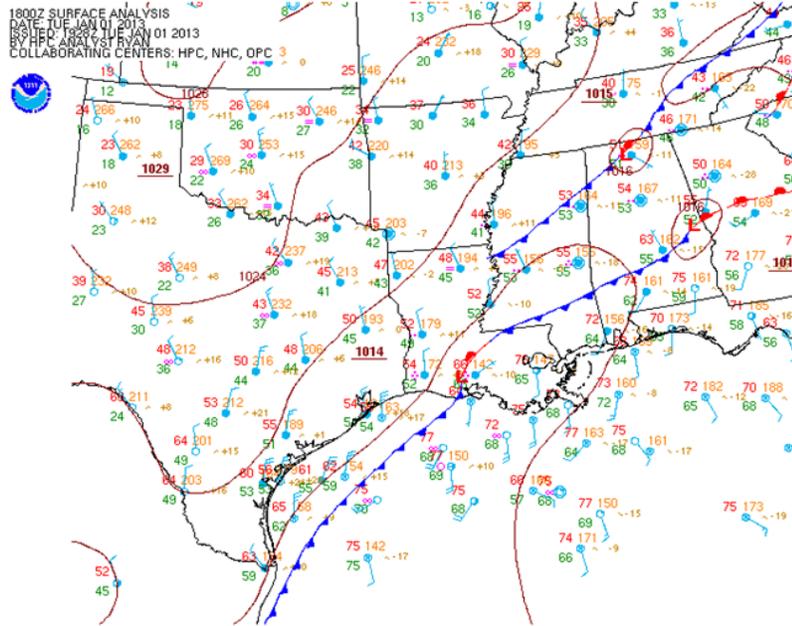
Date	Max Temp	Min Temp	Avg Temp	AvgT DFN	Daily HDD	Daily CDD	Precip
1	66	48	57	+5	8	0	1.46
2	48	40	44	-8	21	0	0.04
3	53	36	45	-7	20	0	0
4	57	33	45	-7	20	0	0
5	54	43	49	-3	16	0	0.04
6	53	41	47	-5	18	0	0.67
7	60	37	49	-3	16	0	0
8	64	48	65	+4	9	0	3.27
9	66	60	63	+11	2	0	2.29
10	68	63	66	+14	0	1	2.40
11	71	62	67	+15	0	2	0.19
12	78	68*	73	+21	0	8	0
13	76	46	61	+9	4	0	1.22
14	46	37	42	-10	23	0	1.41
15	44	37	41	-11	24	0	0.76
16	37*	35	36	-16	29	0	0.06
17	54	34	44	-8	21	0	0.01
18	59	35	47	-5	18	0	0
19	64	33*	49	-3	16	0	0
20	67	36	52	0	13	0	0
21	68	38	53	+1	12	0	0
22	65	42	54	+2	11	0	0
23	72	39	56	+4	9	0	0
24	74	48	61	+9	4	0	0
25	76	55	66	+14	0	0	0
26	75	52	64	+12	1	0	0
27	76	50	63	+11	2	0	0
28	76	56	66	+14	0	1	0
29	81*	64	73	+21	0	8	0
30	74	42	58	+6	7	0	T
31	60	35	48	-5	17	0	0.85
Avg. / Sum	63.9	44.9	54.4	--	341	21	14.67"
DFN / %Nrm	+1.6	+3.7	+2.7	--	80%	162%	+8.95"

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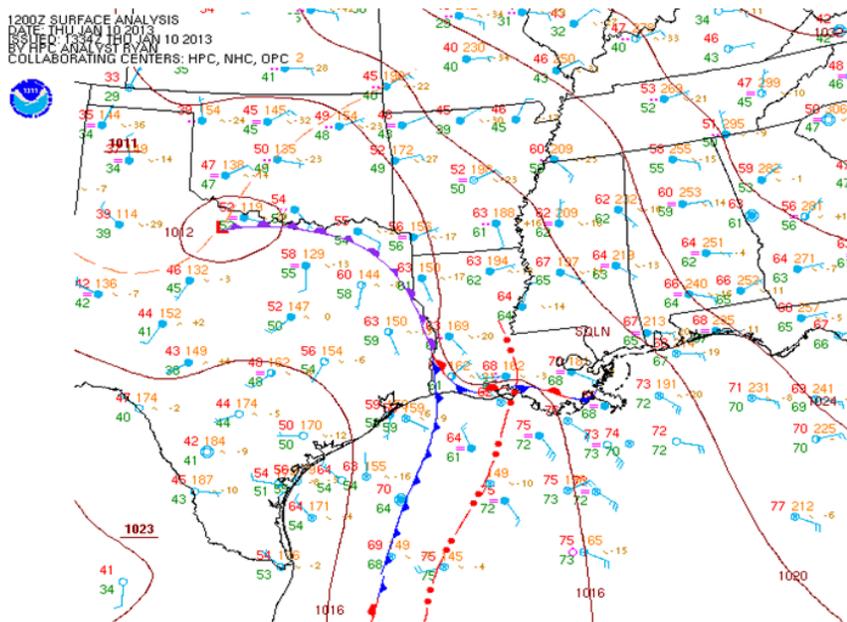
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Appendix 2: Surface Weather Charts for January's Significant Weather.



Jan 1: A slow-moving front eases from NW to SE thru region, delivering 1.46" of rain to Metro AP during the middle of the day.

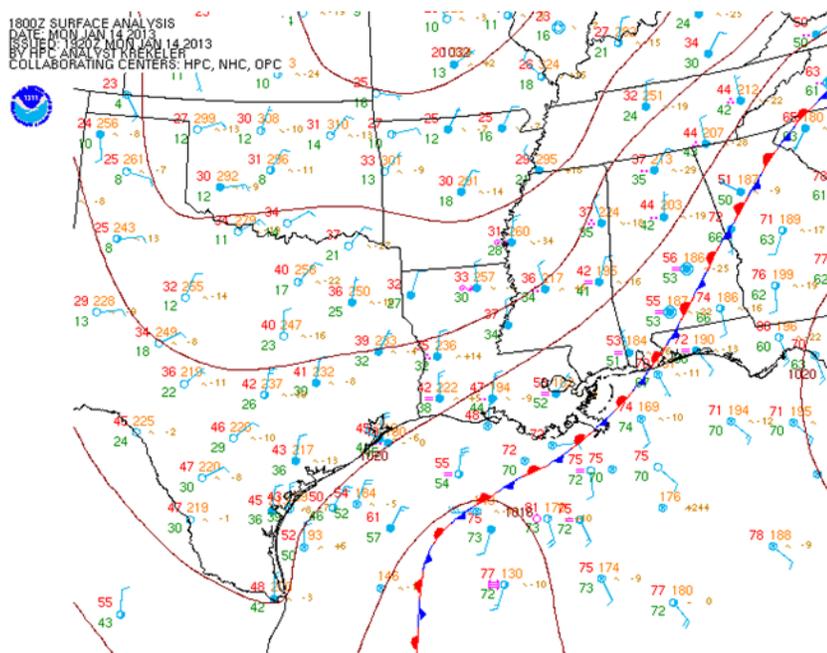


Jan 8-11: A stationary front lingered near the Louisiana coast from Jan 8-10, with a surface low developing over Texas. That low eventually lifted into the mid-Mississippi Valley, dragging a slow-moving cold front across Louisiana early on 11th. Note the pre-frontal squall line on the morning of the 10th (depicted here). The 4-day event produces more than 8" of rain at Metro AP.

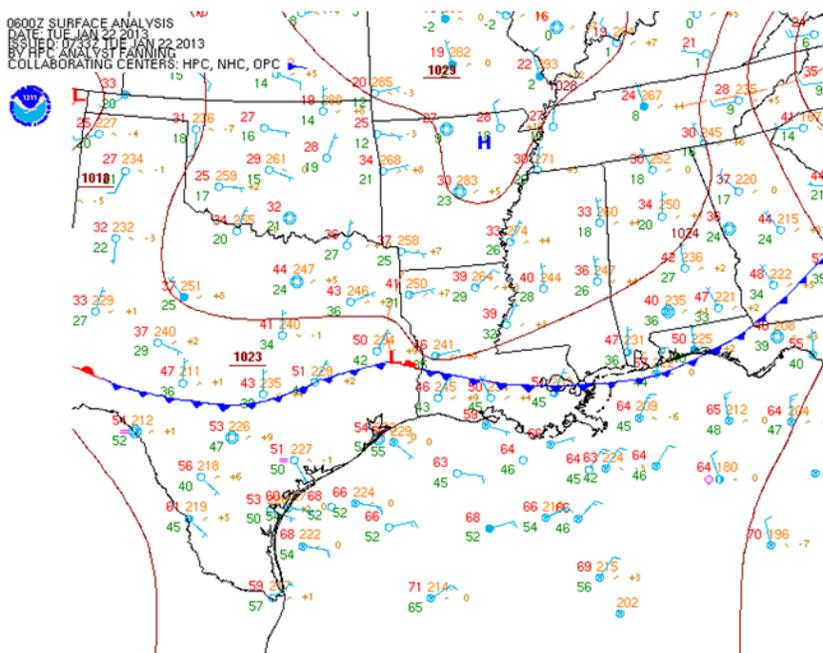
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Jan 13-16: A cold front slid from NW to SE through Louisiana, passing through EBR Parish at mid-day on the 13th. The front then stalled along the coast on the morning of the 14th (shown here), lingering there into the morning of the 16th. Pre-frontal and overrunning showers and storms accounted for more than 3" of rain at Metro AP.

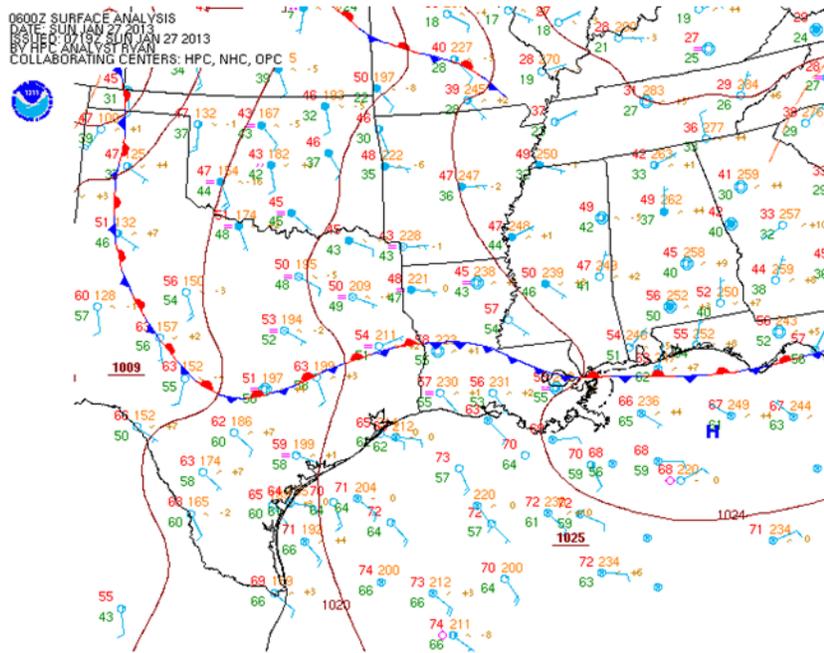


Jan 21-22: A "dry" north-to-south moving cool front slides through EBR Parish early on 22nd, delivering no rain and only dropping temperatures a couple of degrees for one day.

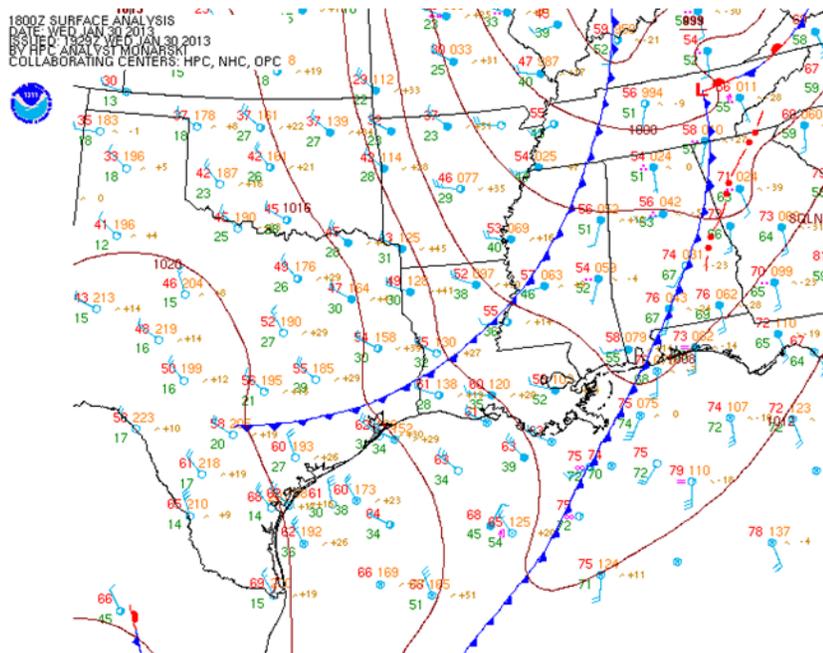
Baton Rouge Climate Summary—January 2013

*Prepared by: Jay Grymes

(based on available preliminary data as of February 21, 2013)



Jan 27: A weak, “dry” front slips through EBR Parish during the morning, producing no rain and having no impact on the warm temperatures (highs in the mid to upper 70°s) at that time.



Jan 30: Back-to-back cold fronts moved through Louisiana, the first producing 0.85” of morning rain at Metro AP. The second front was mainly “dry,” passing through EBR Parish that afternoon.