

Ken Scheeringa
(765) 494-8105



Indiana State Climate Office

Monthly Weather Report



<http://www.iclimat.e.org>



Sep 3, 2010

August 2010 Climate Summary

Summary

For the sixth month in a row the state average temperature was above the 30 year (1971-2000) normal. Yet compared to summer thus far, lower dew points on some August days left Hoosiers more comfortable than on the many hot and humid days of June and July. Daily state average temperatures were above normal on 23 days during August, below normal on 4 days, and right about normal on 4 days. The state average August temperature of 76.1° was 3.4° above normal. This ranks August 2010 as the 12th warmest August on record since 1895. The most recent August that was warmer was 2007, when the average temperature of 76.8° was the 8th warmest August on record. Fifteen years ago the August 1995 temperature averaged 77.9°, good for 5th warmest August in the record books. The warmest August on record was in 1947 with an average temperature of 79.4°.

The lower August 2010 dew points reflected a drying out trend this month compared to early summer. This trend toward lighter rainfall was expected in Indiana due in part to the La Nina weather pattern which has developed in our hemisphere this summer. A very persistent high pressure block over much of the country has re-routed or weakened storm systems headed for Indiana in recent weeks. August precipitation totals averaged between 2.3 inches and 1.5 inch north to south across our state. Amounts were just 60 percent of normal in the north, 50 percent in central, and 40 percent of normal in southern Indiana. For the state overall August 2010 precipitation is 1.85 inch, which is 1.94 inch below normal. This meager total ranks August 2010 as the 3rd driest August on record in Indiana. Only the August 1996 total of 1.67 inch and the 1.59 inch amount in August 1897 were less than the August precipitation this year. As usual in summer there were a few downpours in local areas this month. For instance the CoCoRaHS observer in Hartford City measured 6.10 inches in the rain gauge there while 5.24 inches was observed in Portland.

Damage caused by heavy summer thunderstorms has been common and continued the first half of August. But the atmosphere grew quiet over Indiana the second half of the month with no storm damage reported. Trees falling on power lines with each passing storm has been typical this summer. More such reports trickled in on August 3rd, 4th, 11th, 14th, and 15th. Small hail was noted in the August 4th storm while the storm of August 14th started a small fire.

The recent lack of rainfall has allowed early stage (D0) drought to creep into Indiana for the first time since the end of March. A tiny portion of extreme southwest Indiana was reported dry the first half of August. By August 24th the entire southern half of the state was experiencing D0 drought.

At the close of August this area had expanded to include two-thirds of the state, adding portions of northwest and northeast Indiana. Field crops continue to advance well ahead of schedule due to the very warm summer but now the lack of rain and dry soils are threatening to limit yield potential in late planted crops.

August 1st – 7th

The massive ridge of high pressure in our upper atmosphere continues to dominate the national weather scene. High temperatures and humidity have combined in a dangerous heat wave pattern that is quite similar to the summer of 1980. Indiana is on the northern fringe of this ridge where occasional cool shots of Canadian air have breached the ridge and slightly dampened the intensity of the heat in northern counties but at the price of one or more days of severe weather each week.

Daily temperatures rose daily from 1° above normal at the start of the week, peaking at 9° above normal at mid week, as a surface high pressure system drifted east of Indiana and warmer air in advance of a low pressure center approached our state. A triplet of cold fronts from Canada then marched through Indiana during the remaining three days, gradually dropping temperatures back to normal by the end of the week. Overall for the week daily temperatures averaged 3° above normal. Normally this first week of August daily maximum temperatures vary from 84° to 90° north to south across our state. Daily minimums typically range between 65° in far northern Indiana to 69° in the far southwest.

Rain continues to fall frequently as Indiana lies along the northern boundary of the large dome of hot air. The bulk of this week's rain came in mid week with the passage of the three cold fronts in quick succession. Totals for the week averaged about 1.5 inch in northern Indiana, nearly 0.9 inch in central, and 0.3 inch in the south. Usually we would expect about 0.9 inch in the north, 1.0 inch in central, and about 1.1 inch in southern Indiana this first August week. The heaviest single day amount from the CocoRaHS network was 3.52 inches observed in Crown Point on the morning of August 3rd. For the week the Monticello observer noted 4.07 inches while the Crown Point observer totaled 3.90 inches.

Like last week severe thunderstorms with heavy rains, small hail, and high winds brought down numerous trees and power lines across the state. On August 3rd trees and power lines fell in the Kokomo and Flora area. Much more damage occurred the next day with fallen trees reported throughout the northern half of the state, including in the communities of Portage, Valparaiso, Toto, Lagro, Galveston, Linden, Kirklin, Cicero, Winchester, Richmond, Hartford City, Eaton, Selma, and Lebanon. Several of these trees and downed power lines blocked main highways for a time. Damage was far less in southern Indiana as noted in Brookville, Deputy, and Madison. Pea size hail was observed at Denver in Miami county with 60 mph winds. Roofs were partly blown off of hog barns in Winchester and some sorghum acreage was flattened.

August 8th – 14th

The summer dome of high pressure in the upper atmosphere over most of the country persisted yet another week but gave some signs of weakening. Troughs of Canadian low pressure have eroded the east and west edges of the high dome along the ocean coasts off and on the past few weeks but

each time the high pressure system has bounced back and held its ground. A stronger Canadian trough mid week battered the high system from the north and has flattened the dome into the southern half of the country by the end of this week. At ground level the drier Canadian air entered the eastern states via the back door but the displaced hot air moved westward into Indiana behind a new warm front.

Temperatures to start the week began at 1° above normal then ramped up to 8° above normal two days later. The hot weather continued the remainder of the week at 8° to 10° above the state average normal temperatures each day. For the week overall state averaged temperatures came in at 7° above normal. Daily normal maximum temperatures this second week of the month range between 84° and 90° north to south across Indiana. Normal minimums vary between 64° in far northern Indiana to 68° in the southwest.

A noticeable drying trend is underway as the rainfall pattern now drifts northward into Michigan. On average about a half inch of rain fell in northern Indiana this week, two thirds inch in central, and one third inch in southern Indiana. Typically this week about 0.9 inch should fall in the north and around 0.8 inch in central and southern areas of the state. The city of Lawrence in Marion county recorded 3.04 inches on the morning of August 14th and 3.63 inches for the week, among the highest CoCoRaHS totals noted.

Excessive heat warnings have been posted almost daily for the past few weeks around Indiana. In central Indiana this hot spell has been the longest in 22 years with heat indices approaching 110 on some days. The summer warmth has definitely impacted the development of field crops as seasonal growing degree day units are accumulating at a record pace. The early planting start in April along with the warm growing season and timely rains has raised expectations for another record Indiana crop yield this year.

Severe weather occurred on two days this week. On August 11th trees fell on power lines in 50 mph winds at Bell City in Cass county. More reports of fallen trees came from nearby Delphi. In central Indiana trees came down in Fortville and Alpine. The action moved south on August 14th as more trees were toppled at Marengo, Lexington, and Hanover. The fallen trees at Hanover caused a small fire when power lines were caught among the trees.

August 15th – 21st

For weeks now a high pressure ridge block in the upper atmosphere has dominated the country and appears invincible. But recent signs show it may be vulnerable after all. A low pressure trough in central Canada not only strengthened this week and broadened coast to coast, but eroded away the northern edge of the ridge in the vicinity of Indiana and nearby states. This allowed a moderate cool down in our state in mid week at least for a few days.

A surface cold front to start this week tugged statewide temperatures downward to 1° below normal by August 17th. A second cold front stalled in northern Indiana on August 20th, allowing temperatures to rebound to 4° to 6° above normal. A warm but drier air mass from southwestern states arrived with more comfortable less humid conditions as the week came to a close. Normally this time of year daily maximum temperatures should range from 84° in northern Indiana to 91° in

the far southwest. Daily minimums typically vary between 64° and 68° north to south across our state.

A drying trend this month continued as average rainfall was light across Indiana this week and fell mostly on the last day. Weekly totals averaged near a quarter inch in northern and central Indiana and about three quarter inch across the south. Typically about 0.9 inch would be expected in northern Indiana this week trending downward to about 0.7 inch in the south. The heaviest single day amounts around Indiana were much less than in recent weeks, with just 1.36 inch reported on August 21st by the CoCoRaHS observer in Birdseye. This same amount had fallen in Jeffersonville on August 15th. The greatest weekly totals included 2.53 inches at Sellersburg and 2.44 inches in Jeffersonville.

The cold front which passed through Indiana on August 15th caused yet another round of tree, crop, and power line damage. In northeast Indiana, several trees fell and corn was flattened near Churubusco in Whitley county. In Noble county trees and power lines came down with reports of damage to small structures and corn. In south central Indiana some trees blocked local roads in Clark county.

August 22nd – 31st

The hot and humid summer of 2010 may be nearing its end. Episodes of below normal temperatures and lower humidity are appearing more frequently and lasting longer. Daily average temperatures which began at 5° above normal on August 22nd retreated to normal two days later. Temperatures continued falling and remained below normal over the next 3 days, dropping to as low as 7° below normal on August 26th. But then temperatures recovered to close the month at 7° above normal. Cool spells this summer have been rare particularly those lasting more than a day. Overall for this period statewide temperatures averaged 1° above normal. Daily normal maximum temperatures range from 84° to 90° north to south across Indiana. Daily minimums typically vary between 64° and 68° this final week of August.

Rainfall becomes less each week as dew points have lowered and the atmosphere this month continues to dry out. Only one cold front crossed the state this period, on August 25th. The front was followed by a high pressure ridge which sprawled across much of the country, slowing other weather systems to a crawl. Rainfall totals this interval averaged just 0.1 inch in northern Indiana, 0.05 inch in central, and 0.15 inch in southern Indiana. This is far below the 1.10 to 1.20 inch normal total for this time of year. There were a few localized heavier rain showers. On August 22nd the CoCoRaHS reporter at Bluffton received 1.74 inch and Lanesville recorded 1.16 inch. The next day Paoli noted 0.96 inch. With only one rain day weekly totals at Bluffton and Paoli equaled the single day amount. A small shower at Lanesville raised their weekly total to 1.20 inch.

After several consecutive weeks of damaging storms it seemed eerily quiet. No severe storms this week meant no severe weather impacts, a welcome break to storm weary residents.

August Summary

Region	Temperature		
	Temperature	Normal	Deviation
Northwest	75.0	71.6	3.5
North Central	74.4	71.0	3.4
Northeast	73.9	70.6	3.3
West Central	76.0	72.8	3.2
Central	75.5	72.2	3.3
East Central	74.7	71.4	3.3
Southwest	79.1	75.2	3.9
South Central	78.2	74.5	3.6
Southeast	77.3	73.8	3.5
State	76.1	72.7	3.4

Region	Precipitation			
	Precipitation	Normal	Deviation	Percent of Normal
Northwest	2.49	3.81	-1.32	65
North Central	2.18	3.83	-1.65	57
Northeast	2.06	3.68	-1.62	56
West Central	1.55	3.96	-2.42	39
Central	1.68	3.75	-2.07	45
East Central	2.45	3.55	-1.09	69
Southwest	1.48	3.67	-2.19	40
South Central	1.48	3.91	-2.43	38
Southeast	1.55	3.90	-2.35	40
State	1.85	3.79	-1.94	49

Summer 2010 (June - August)

Region	Temperature		
	Temperature	Normal	Deviation
Northwest	74.3	71.8	2.6
North Central	73.7	71.2	2.5
Northeast	73.6	70.9	2.8
West Central	75.6	73.0	2.6
Central	75.2	72.4	2.8
East Central	74.5	71.6	2.9
Southwest	78.7	75.2	3.5
South Central	77.8	74.4	3.4
Southeast	76.9	73.6	3.3
State	75.7	72.8	2.9

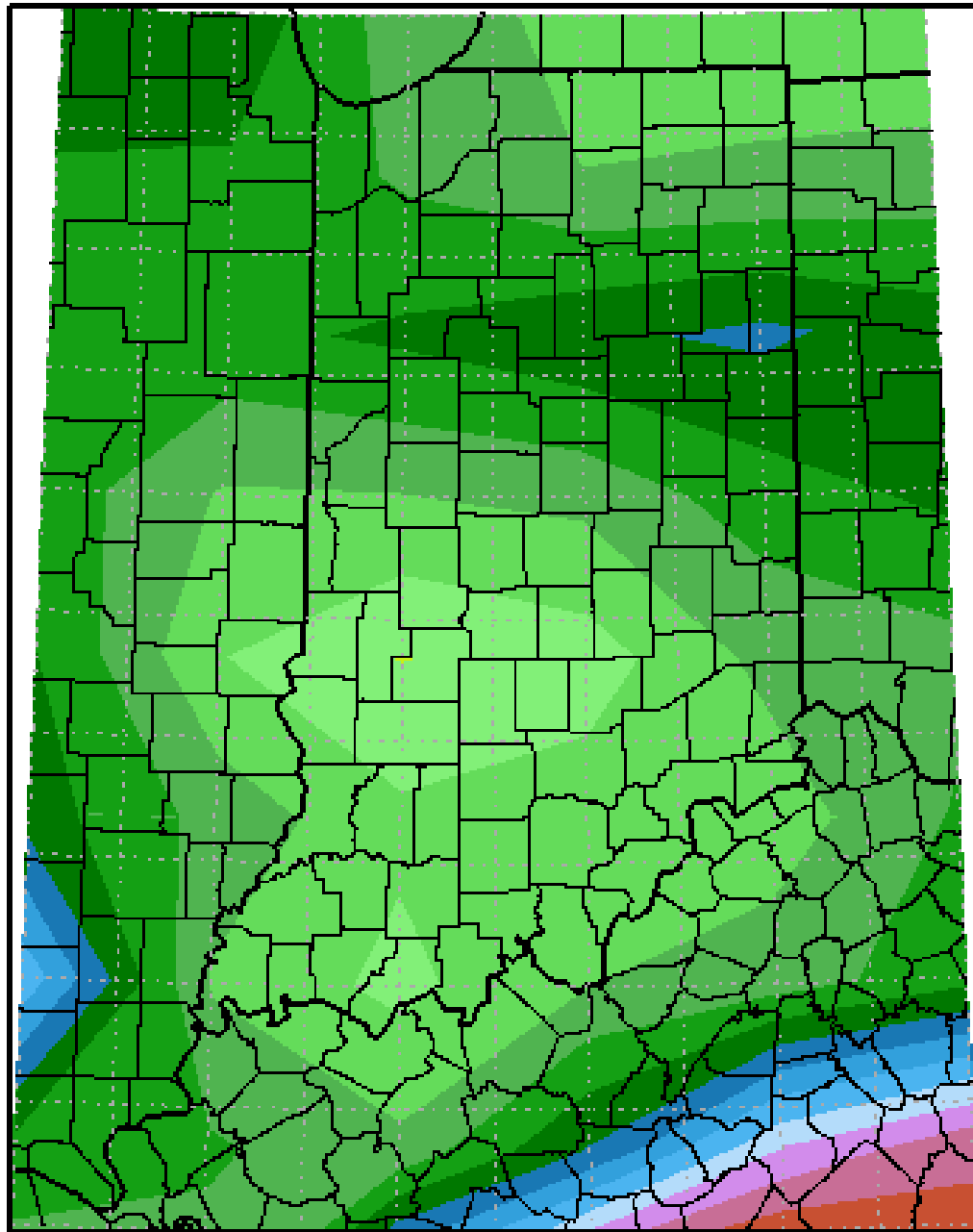
Region	Precipitation	Precipitation		Percent of Normal
		Normal	Deviation	
Northwest	14.91	12.01	2.90	124
North Central	13.46	11.93	1.53	113
Northeast	11.51	11.42	0.09	101
West Central	15.05	12.68	2.37	119
Central	15.83	12.11	3.72	131
East Central	14.60	11.88	2.72	123
Southwest	11.69	12.04	-0.34	97
South Central	12.08	12.32	-0.24	98
Southeast	12.78	12.23	0.54	104
State	13.65	12.08	1.57	113

2010 Annual to date

Region	Temperature	Temperature	
		Normal	Deviation
Northwest	53.9	52.1	1.8
North Central	53.7	51.6	2.1
Northeast	53.5	51.2	2.3
West Central	55.1	53.8	1.4
Central	55.0	53.3	1.7
East Central	54.3	52.5	1.9
Southwest	58.5	57.0	1.5
South Central	57.6	56.4	1.1
Southeast	56.8	55.6	1.3
State	55.5	53.8	1.6

Region	Precipitation	Precipitation		
		Normal	Deviation	Percent of Normal
Northwest	28.38	26.06	2.32	109
North Central	27.05	26.00	1.05	104
Northeast	25.89	25.15	0.75	103
West Central	28.63	28.74	-0.11	100
Central	29.86	28.31	1.54	105
East Central	28.69	27.48	1.21	104
Southwest	28.82	31.58	-2.75	91
South Central	29.30	31.93	-2.64	92
Southeast	28.96	31.05	-2.09	93
State	28.50	28.54	-0.04	100

**Total Precipitation in Inches
August 1, 2010 to August 31, 2010**

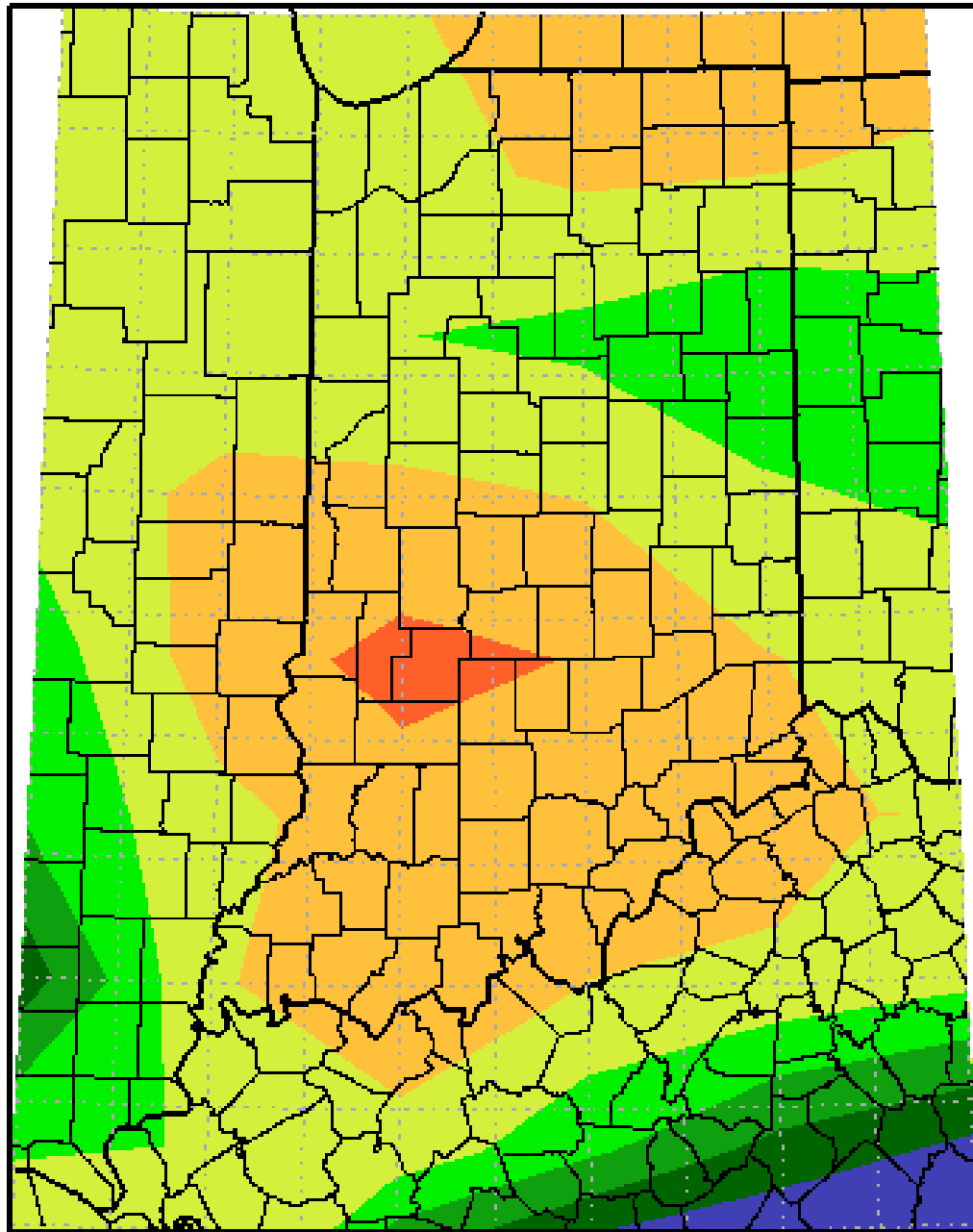


Midwestern Regional Climate Center

Illinois State Water Survey

Champaign, Illinois

Total Precipitation Percent of Mean August 1, 2010 to August 31, 2010

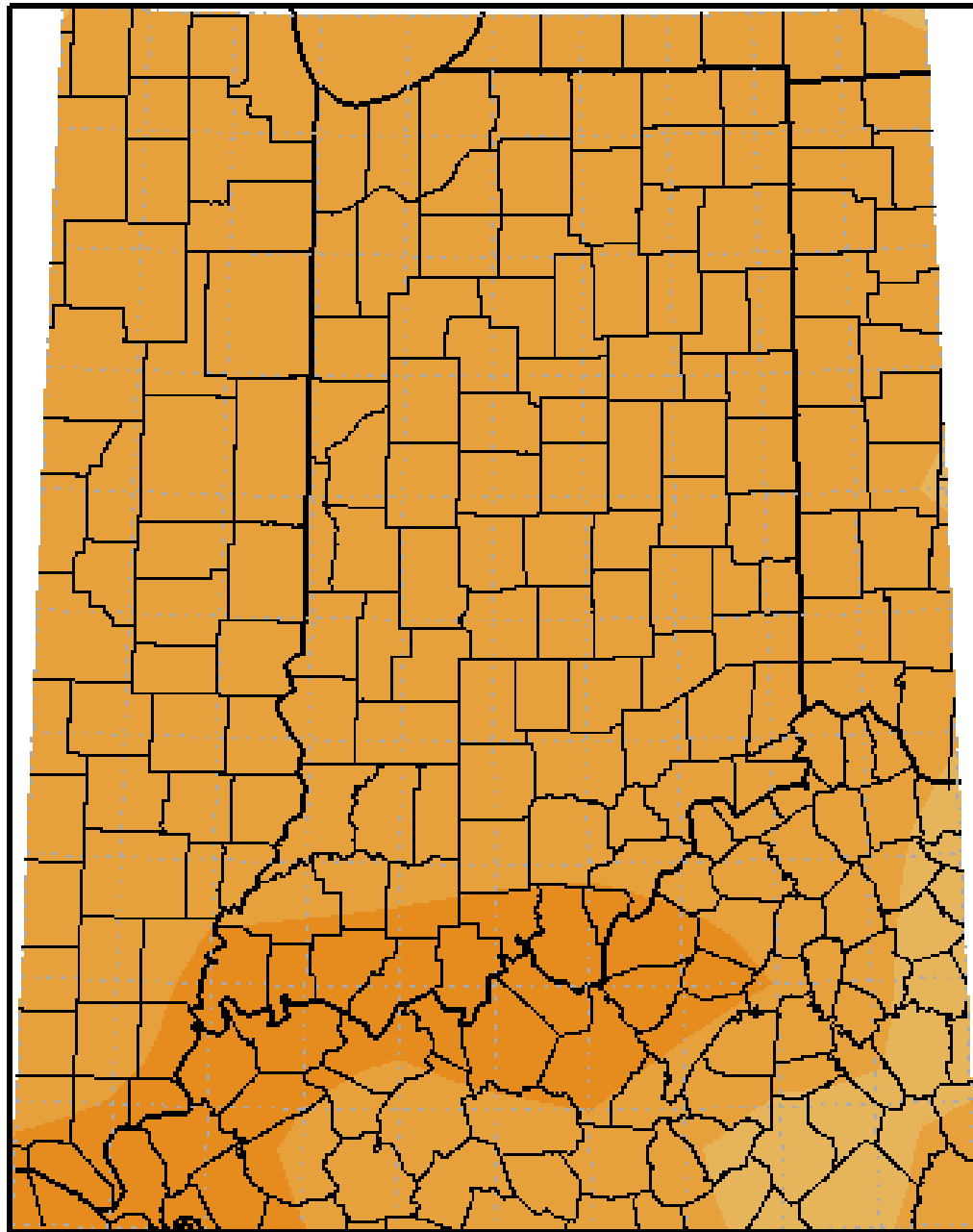


Midwestern Regional Climate Center

Illinois State Water Survey

Champaign, Illinois

**Average Temperature Departure from Mean in Degrees F
August 1, 2010 to August 31, 2010**



Midwestern Regional Climate Center

Illinois State Water Survey

Champaign, Illinois

Drought Summary from the U.S. Drought Monitor

Below is a drought summary for the state of Indiana from the U.S. drought monitor. Areas in white are not experiencing any drought. Yellow areas are abnormally dry, but not entirely considered a drought. Drought begins when the moisture levels become more severe, with beige, orange, red, and brown indicating increasing levels of drought (moderate, severe, extreme, and exceptional, respectively). The table below indicates how much of the state is not under drought conditions, and also how much of the state is under drought conditions from its respective column upwards.

For example, August 31st has 36.34% of Indiana under no drought, and 63.67% of Indiana under at least D0 through D4 drought status. This is followed by 0.01% as D1 through D4 status. To obtain the amount that is D0 status, simply subtract the D1-D4 column from the D0-D4 column, thus giving you the percentage of area with abnormally dry conditions (63.66%) . Please note, however, that these areas are not exact, and much of this drought map has been created from reports throughout the state and estimation, so use this information as a general view rather than for specifics.

Intensity:



Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
08/31/10	36.34	63.67	0.01	0.00	0.00	0.00
08/24/10	53.16	46.84	0.01	0.00	0.00	0.00
08/17/10	97.53	2.47	0.01	0.00	0.00	0.00
08/10/10	97.53	2.47	0.00	0.00	0.00	0.00
08/03/10	97.53	2.47	0.00	0.00	0.00	0.00

August 3rd Drought Summary



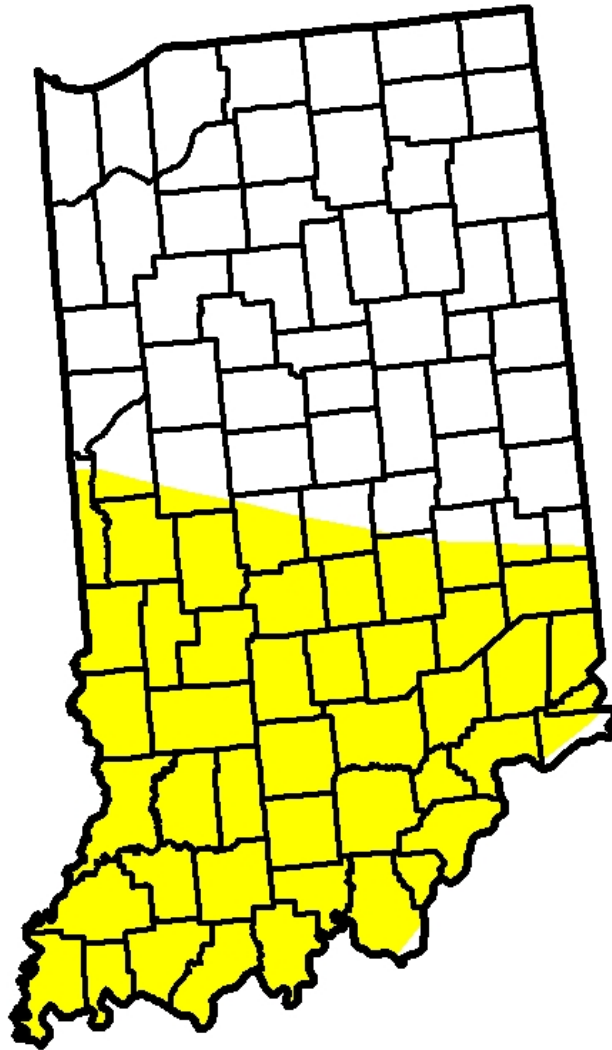
August 10th Drought Summary



August 17th Drought Summary



August 24th Drought Summary



August 31st Drought Summary

