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Indiana State Climate Office

Monthly Weather Report

Nov 4, 2009



<http://www.iclimat.org>

October 2009 Climate Summary

Summary

October is often a pleasant weather month in Indiana but not this year. October 2009 enters the state weather record books as one of the wettest and coldest Octobers of the past century.

Temperatures were definitely on the cool side this month. It wasn't until October 20th that a string of 22 consecutive days of below normal temperatures was broken. October 2009 ranks as the 10th coldest October on record with a statewide average temperature of 50.3F degrees, nearly 4F degrees below normal and the coldest since 1988. It wasn't quite as cold as the Octobers of 1987 and 1988 which place as the 5th and 4th coldest Octobers in Indiana, respectively, in the past 115 years.

Rainy days were a regular feature of October 2009. The statewide average precipitation of 6.74 inches was the 4th wettest October in Indiana, behind the 2nd wettest October recorded in 2001 with its average of 7.72 inches. A typical October would receive about 2.90 inches of precipitation around the state.

The cumulative impact of delayed spring planting, a cool summer, an early freeze in some areas and now a wet rainy autumn has created one of the most difficult harvest seasons Indiana and Midwest farmers have seen in years. Field dry down of the major crops, corn and soybean, has been much slower than normal. This poses a dilemma as to whether to harvest wet crops now and incur increased costs to dry these crops to suitable storage moisture levels. An alternative is to leave crops in the field to slowly dry naturally over winter but accept losses due to weather and disease exposure which will lower grain quality and profits received in spring. There are crop insurance policy and marketing implications as well. In response to these concerns Purdue Extension has issued a resource guide [Managing the 2009 Harvest](http://www.agry.purdue.edu/ext/corn/news/articles.09/HarvestConcerns2009.pdf), online at <http://www.agry.purdue.edu/ext/corn/news/articles.09/HarvestConcerns2009.pdf> which examines the many tradeoffs when planning a strategy to harvest, store, and market field crops in the existing challenging weather situation.

October 1st – 7th

After a cold October start air temperatures warmed slowly but daily averages remained below normal all week. Daily state average temperatures that began 10F degrees below normal recovered to 5F below normal by mid week and just shy of normal by week's end. Normal maximum temperatures in Indiana at the start of October range from 70F to 75F degrees and minimums from about 48F to 53F degrees north to south across the state.

Low pressure in the upper atmosphere to our northwest spawned a series of cold fronts across Indiana keeping skies cloudy with light precipitation, less than a tenth inch, falling nearly every day. For the week total precipitation amounts were near 1.2 inch in northern and central Indiana and 1.0 inch in the south. Almost 3 inches was reported at isolated locations around the state. Normally about 0.8 inch of precipitation is expected this first week in October.

The first frost of the autumn season hit parts of northern and central Indiana on October 1st. Fortunately this was not a killing frost in which temperatures 28F degrees or lower end the growing season for most crops. The Indiana Agricultural Statistics office reports that only half the state's corn crop has matured and is safe from frost at this time.

October 8th – 14th

Reminiscent of July, October has so far been a persistently cool month. The state averaged temperature on every day since September 28th has remained below normal. Climatology tells us that daily maximum temperatures this time of year should range from 64F to 72F degrees north to south across the state. Daily minimums typically span from 44F degrees in northern Indiana to 46F in the south.

As the week began temperatures warmed slowly to a state averaged departure of 3F degrees below normal as a high pressure center drifted east of Indiana. A cold front then crossed our state with a stronger front right behind it ready to reinforce the cold air mass. Skies cleared on October 11th behind this second front and temperatures tumbled to a chilly average departure of 11F degrees below normal. This weather system marched quickly to our east. A brief warm up was cut short by a new surge of Arctic cold into the Midwest on October 13th as averaged departures dipped to 12F degrees below normal. Weather systems were now moving quickly. As the week ended this system also rapidly departed Indiana but temperatures moderated little. The state averaged temperature departure overall for the week was 8F degrees below normal.

Rain fell at the start and end of the period with three nearly dry days sandwiched in between. Weekly rainfall totals were heavy, averaging 1.5 inch in northern Indiana, around 2 inches in central, and varied widely across the south, from 2.6 to more than 4 inches. Normally about 0.8 inch total precipitation would be expected this week in October. On October 9th southern Indiana averaged over 2 inches, the wettest day of the week. The greatest single report was 5.10 inches, measured by the CoCoRaHS observer at Palmyra in Harrison county that morning. Generally less than a half inch fell on the other days it rained.

The heavy rain on October 9th caused scattered road closures across southern Indiana, especially in an area between Jasper and Sellersburg. Some roads in Floyd county were damaged to the point that water and gas lines were exposed and were closed indefinitely.

October 15th – 21st

A run of 22 consecutive days with below normal state averaged temperatures finally ended late this week. The week had opened with yet more unseasonable cold in Indiana as state averaged daily

temperatures dipped to a bone numbing 13F degrees below normal. A low pressure system exited our state to the east as it was replaced by a massive cold high pressure center from Canada on October 17th. The next day this high pressure center drifted southeastward, exchanging cold northerly winds for a warmer southerly wind flow on the back side of this system. Temperatures recovered dramatically to a state averaged departure of just 3F degrees below normal on October 19th. The long cold spell was finally over. On October 20th the state averaged temperature rose to 4F degrees above normal and then to 6F degrees above normal at the end of this reporting week. Overall for the week statewide temperatures averaged 6F degrees below normal. Normally this week in October daily maximum temperatures range from 61F to 70F degrees north to south across Indiana while daily minimums average around 43F degrees.

The extended presence of the high pressure system this week shut down the wet weather conditions too familiar this month. Rainfall averaged a quarter inch statewide the first reporting day of the week then dwindled to a few hundredths over the next two days. Dry or nearly dry weather dominated the state the remainder of the week. The state averaged rainfall for the week as a whole totaled a third of an inch, which is less than half the normal 0.8 inch per week in Indiana in October.

October 22nd – 31st

Broad high pressure anchored off the Atlantic and Pacific Ocean coasts this week favored a repeated setup of low pressure troughs and centers over the Midwest. At times these troughs caused a split in the jet stream flow across the country, not unusual during El Nino events. At ground level this weather pattern appeared as coupled low pressure centers linked by sluggish fronts between them. Daily average air temperatures alternate above and below normal often in this pattern. After a warm start at 6F degrees above normal, average daily temperatures fell to 4F degrees below normal by October 24th. Over the next two days temperatures gradually recovered to 3F degrees above normal. A retreat to subnormal temperatures came the next day but was short lived. On October 27th daily average temperatures lifted to 3F degrees above normal. Temperatures remained on the warm side rising to as much as 9F degrees above normal on October 30th. A strong cold front finally chased away the warmth as the month exited cold. Normally for this final period in October daily maximum temperatures range from 60F to 66F degrees north to south across Indiana while minimums typically vary between 39F and 42F degrees.

Clouds and rain were more common than sunshine this period. Rainfall normally would total near 0.75 inch these last 10 days of October. This time totals were heavier, averaging from about 2.5 inches in central and southern Indiana to 4.2 inches in the northwest. Merrillville, a CoCoRaHS station, measured 6.55 inches for the interval while the Valparaiso cooperative station recorded 6.06 inches, the highest total precipitation amounts in the state. Precipitation averaged more than an inch on October 22nd as an intense complex low pressure system approached our state. Rains eased up as this system moved past Indiana the next day, adding less than a half inch. Only a few hundredths of rain fell the next two days as high pressure quickly moved to our east, ushering in warm southerly winds as it journeyed eastward. The following storm system stalled near Indiana, turning light rains into moderate showers on October 27th and adding another half to three quarters inch moisture to the ground. This storm system then raced suddenly to the Atlantic Coast, opening a fair weather gap on October 28th before the next system arrived late on October 29th, trudging its way toward

Indiana. By the time it did arrive on October 30th, the system had absorbed lots of moisture as evidenced by the 2.63 inches of rain which fell at Valparaiso in the much colder air.

October Summary

Temperature

Region	Temperature	Normal	Deviation
Northwest	49.0	52.9	-3.9
North Central	48.7	52.2	-3.5
Northeast	48.4	51.8	-3.4
West Central	50.4	54.1	-3.7
Central	50.1	53.5	-3.4
East Central	49.7	52.7	-3.0
Southwest	52.8	56.7	-3.9
South Central	51.8	56.0	-4.1
Southeast	51.5	55.2	-3.7
State	50.3	54.0	-3.7

Precipitation

Region	Precipitation	Normal	Deviation	Percent of Normal
Northwest	7.13	2.92	4.21	244
North Central	6.15	2.95	3.19	208
Northeast	5.61	2.70	2.91	208
West Central	6.93	2.90	4.03	239
Central	6.08	2.82	3.26	215
East Central	5.36	2.73	2.63	197
Southwest	8.33	3.04	5.28	274
South Central	7.83	3.02	4.82	260
Southeast	6.51	2.98	3.52	218
State	6.74	2.90	3.84	232

Autumn to date

Temperature

Region	Temperature	Normal	Deviation
Northwest	56.5	58.6	-2.2
North Central	56.2	58.0	-1.8
Northeast	56.0	57.6	-1.5
West Central	58.0	59.9	-1.9
Central	57.7	59.3	-1.6
East Central	57.2	58.5	-1.3
Southwest	60.6	62.4	-1.8
South Central	59.5	61.6	-2.2
Southeast	59.1	60.9	-1.9
State	57.9	59.7	-1.8

Precipitation

Region	Precipitation	Normal	Deviation	Percent of Normal
Northwest	8.05	6.13	1.91	131
North Central	7.27	6.25	1.02	116
Northeast	6.91	5.90	1.02	117
West Central	8.30	5.93	2.37	140
Central	8.39	5.81	2.59	145
East Central	7.30	5.52	1.78	132
Southwest	13.80	6.18	7.62	223
South Central	14.06	6.13	7.93	230
Southeast	11.61	5.95	5.66	195
State	2.87	5.99	3.62	160

Annual-to-date

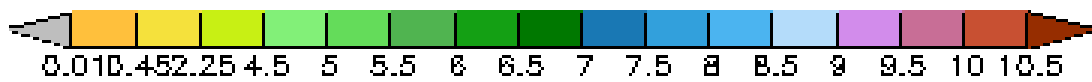
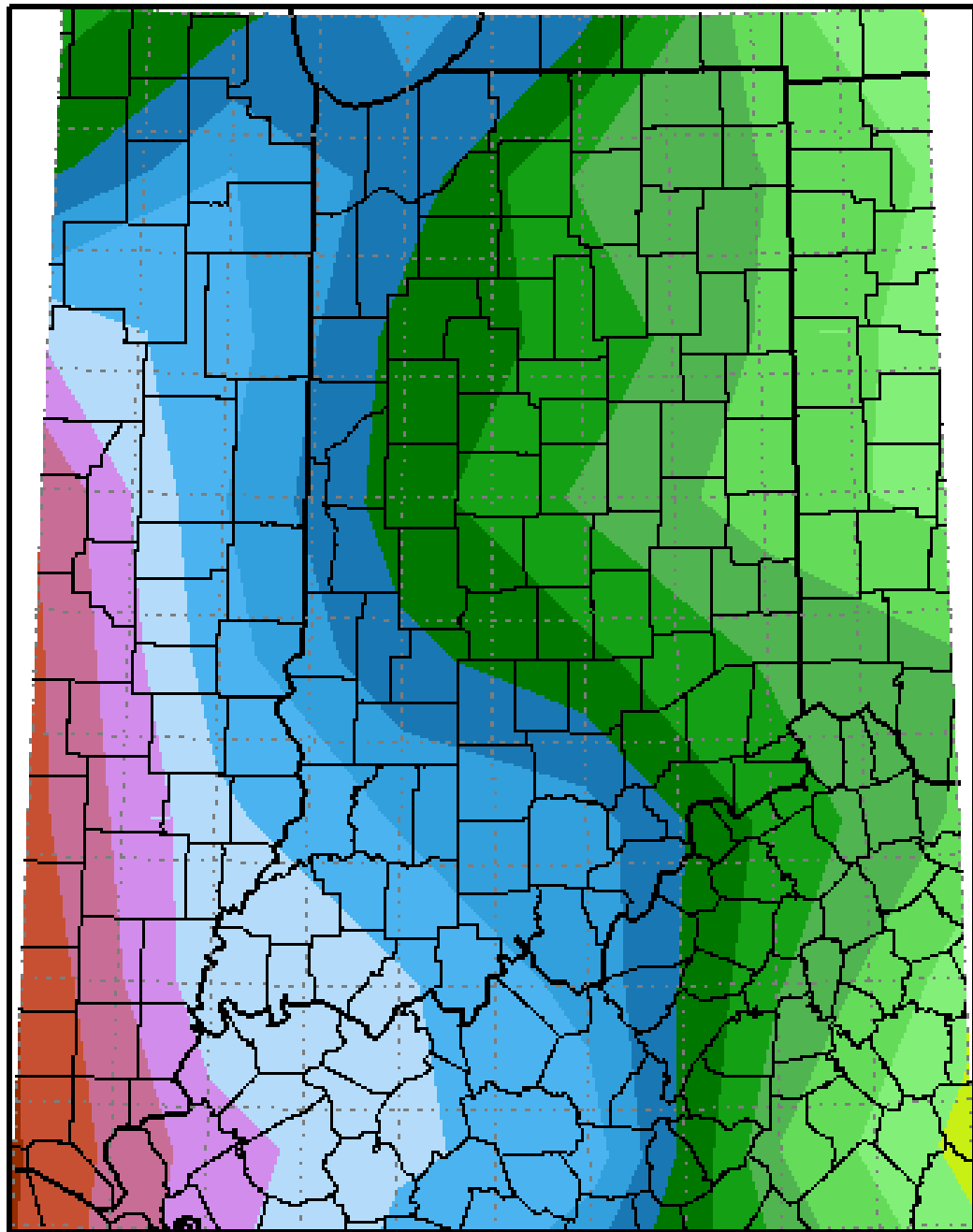
Temperature

Region	Temperature	Normal	Deviation
Northwest	51.9	53.4	-1.5
North Central	51.6	52.9	-1.3
Northeast	51.5	52.5	-1.0
West Central	54.0	55.0	-1.0
Central	53.7	54.5	-0.9
East Central	53.1	53.7	-0.6
Southwest	57.4	58.1	-0.7
South Central	56.2	57.5	-1.3
Southeast	55.6	56.6	-1.0
State	54.0	55.0	-1.0

Precipitation

Region	Precipitation	Normal	Deviation	Percent of Normal
Northwest	38.61	32.20	6.41	120
North Central	38.22	32.25	5.97	119
Northeast	37.02	31.04	5.97	119
West Central	42.54	34.67	7.87	123
Central	40.84	34.12	6.72	120
East Central	33.19	33.00	0.18	101
Southwest	49.08	37.75	11.33	130
South Central	50.28	38.06	12.22	132
Southeast	45.24	37.01	8.23	122
State	42.08	34.53	7.55	122

Total Precipitation in Inches October 1, 2009 to October 31, 2009

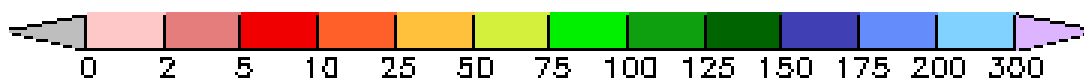
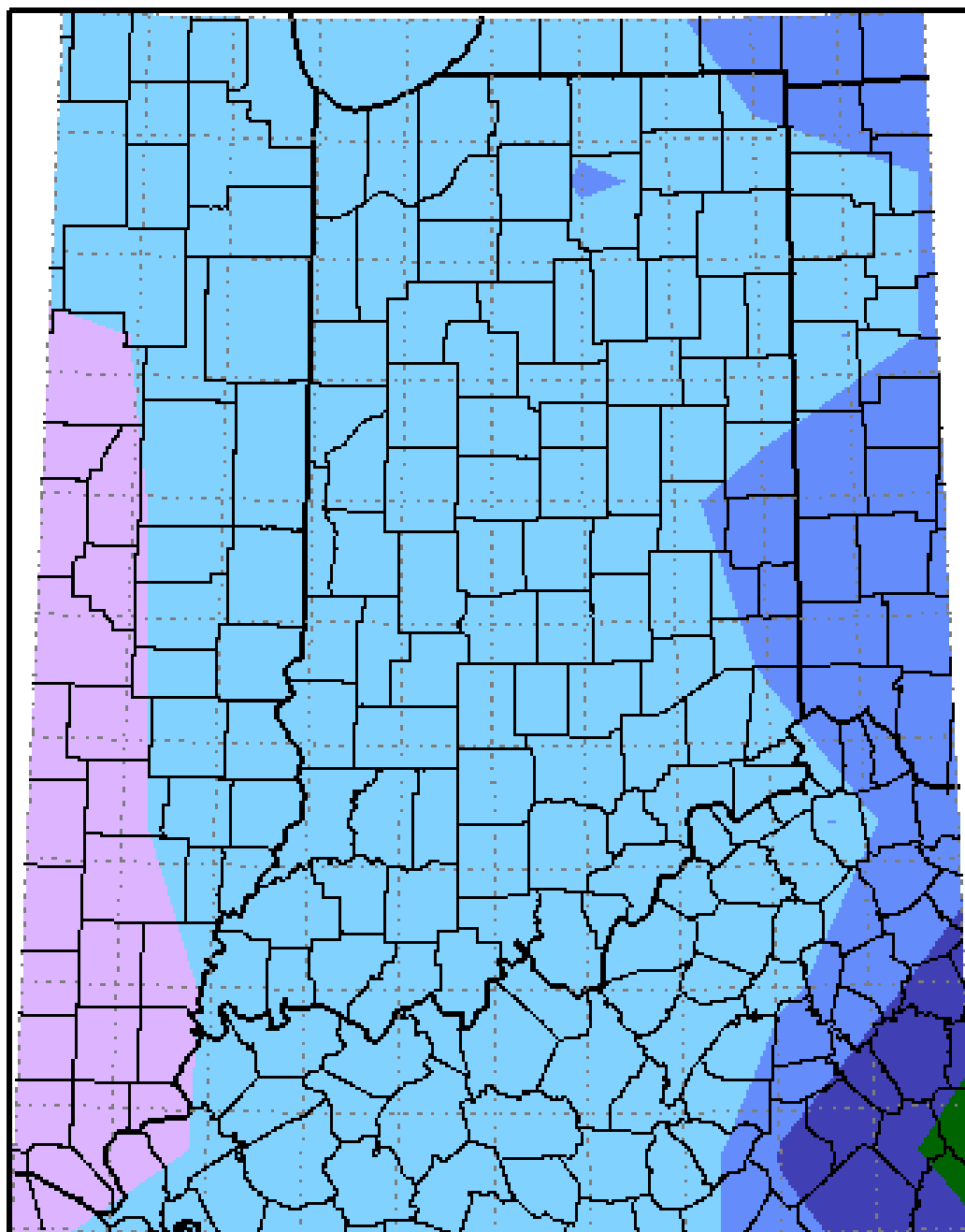


NOAA Midwestern Regional Climate Center

Illinois State Water Survey

Champaign, Illinois

Total Precipitation Percent of Mean October 1, 2009 to October 31, 2009

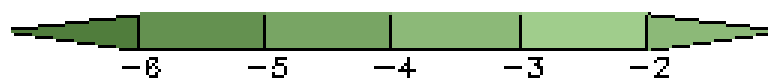
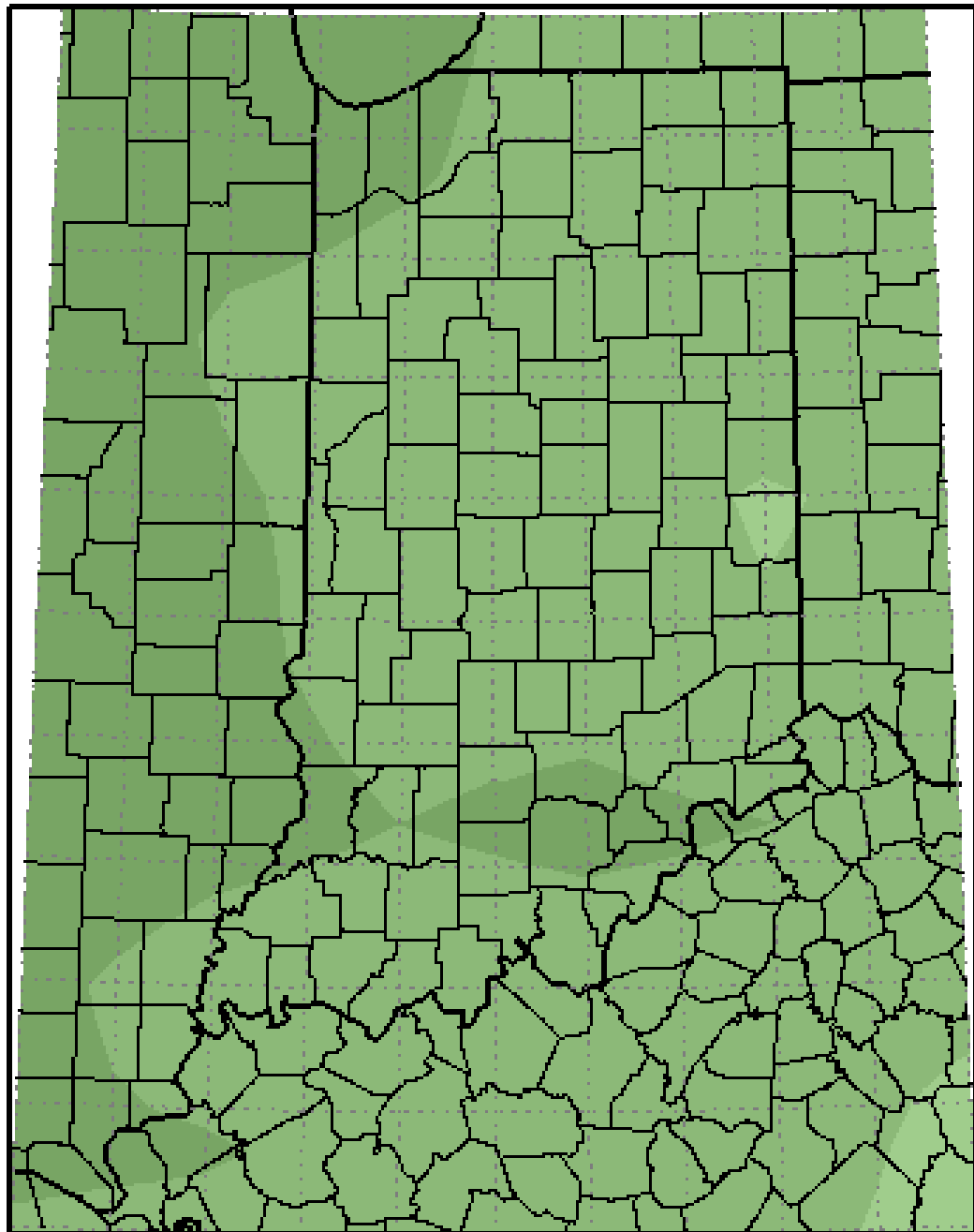


NOAA Midwestern Regional Climate Center

Illinois State Water Survey

Champaign, Illinois

Average Temperature Departure from Mean in Degrees F
October 1, 2009 to October 31, 2009



NOAA 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.

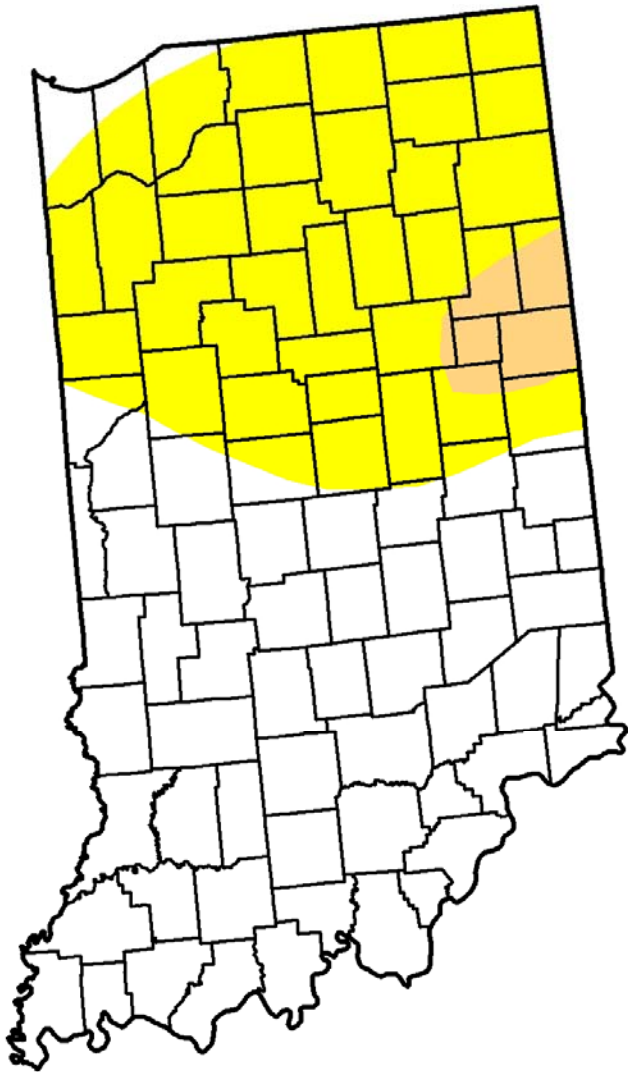
For example, September 29th has 56.8% of Indiana under no drought, and 43.2% of Indiana under at *least* D0 through D4 drought status. This is followed by 3.5% as D1 through D4 status. To obtain the amount that is D0 status, simply subtract the D1-D4 column from the D0-D4 column, thus giving you the percentage of area with abnormally dry conditions (39.7%). 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:

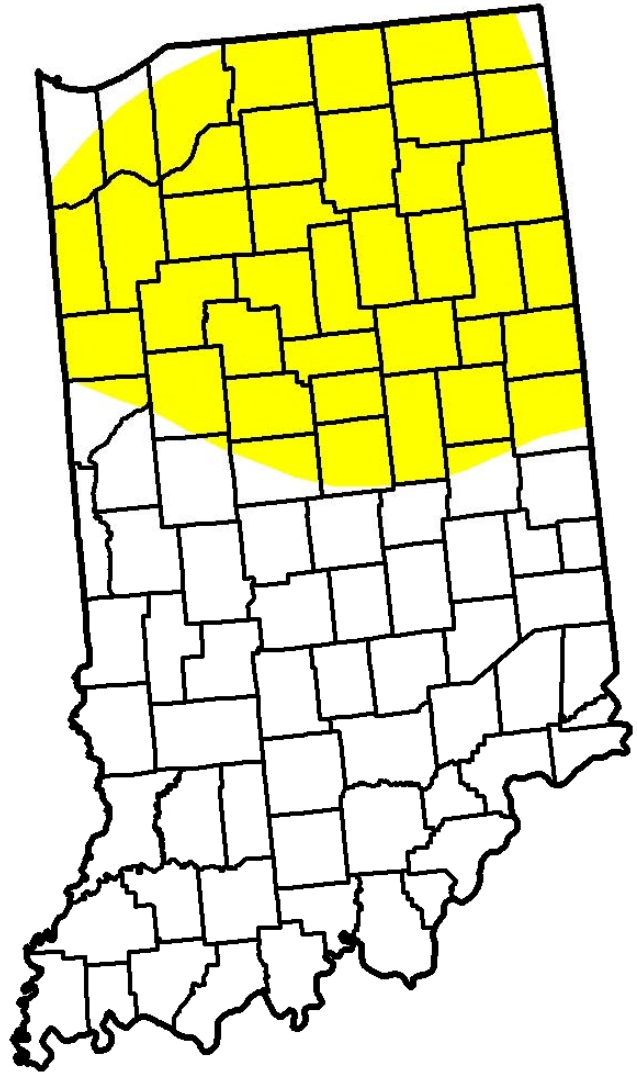


Week	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
10/27/09	100.00	0.00	0.00	0.00	0.00	0.00
10/20/09	100.00	0.00	0.00	0.00	0.00	0.00
10/13/09	100.00	0.00	0.00	0.00	0.00	0.00
10/06/09	57.53	42.47	0.00	0.00	0.00	0.00
09/29/09	56.79	43.21	3.48	0.00	0.00	0.00

September 29th Drought Summary



October 6th Drought Summary



October 13th Drought Summary



October 20th Drought Summary



October 27th Drought Summary

