Autumn 2007 Outlook

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Now that summer is moving on, what does the autumn in store for Southeast Lower Michigan? Below are the analogue years chosen since the late 1800s for this fall. The overall Pacific SST (sea surface temperatures) area indicative of weak La Nina for the analogue years, after Neutral to weak La Nina summers. The chart is color coded for easy identification (see legend at the bottom left). Note the surplus of orange and yellow intimating overall, mild and dry weather dominated, but weren't exclusive to those falls.

Analogue La Nina Autumns

DETROIT	SEP	OCT	NOV	FALL AVE		FALLS
1886	65.3	55.5	38.7	53.2	1	
1889	62.7	46.9	40.2	49.9	1	
1900	66.9	60.1	38.7	55.2	1	
1916	63.1	52.9	40.5	52.2	2	
1924	59.4	57.4	39.8	52.2	3	
1947	65.4	60.3	37.2	54.3	2	
1952	64.8	48.1	42.8	51.9	4	4
1958	63.8	55.0	42.9	53.9	3	
1964	64.4	51.4	44.9	53.6	4	
1973	64.9	56.2	41.4	54.2	5	
1988	63.3	46.0	42.2	50.5	2	2
1998	68	53.8	43.8	55.2	6	6
Ave	64.3	53.6	41.1	53.0		
Norm	63.9	51.9	40.7	52.2		

FLINT	SEP	OCT	NOV	FALL AVE		FALLS
1900	64.3	56.3	37	52.5	1	
1916	57.9	48.3	37.5	47.9	1	1
1924	54.9	55.4	42.2	50.8	2	
1947	63.6	59.3	34.9	52.6	3	
1952	60.9	44.5	39.5	48.3	1	
1958	60.7	51.8	40	50.8	4	
1964	60.1	46.1	41.5	49.2	2	
1973	62.6	55.3	40.3	52.7	5	
1988	61.2	44.8	41.4	49.1	3	3
1998	65.4	51.5	41.8	52.9	6	6
Ave	61.2	51.3	39.6	50.7		
Norm	60.7	49.2	38.1	49.3		

SAGINAW	SEP	OCT	NOV	FALL AVE		FALLS
1900	65.8	58.2	36.9	53.6	1	
1916	60.8	50	38.5	49.8	1	
1924	56.4	54.1	38.1	49.5	2	
1947	62.8	58.2	34.3	51.8	2	
1952	61.2	44.1	39.1	48.1	1	
1958	61.1	52.2	39.8	51.0	3	
1964	60.2	47.3	41.6	49.7	4	4
1973	62	55.1	39.3	52.1	3	
1988	60.3	44	39.9	48.1	2	2
1998	66	52.3	41.4	53.2	4	4
Ave	61.7	51.6	38.9	50.7		
Norm	60.7	49.5	38.0	49.4		

DETROIT	SEP	OCT	NOV	FALL TOT		FALLS
1886	4.2	1.04	2.17	7.41	1	
1889	0.56	1.05	2.36	3.97	1	
1900	1.88	2.85	3.10	7.83	2	
1916	2.74	2.48	1.21	6.43	2	
1924	2.61	0.47	0.60	3.68	3	
1947	3.96	1.31	1.80	7.07	4	
1952	2.3	1.46	2.87	6.63	5	
1958	3.83	1.11	3.17	8.11	3	3
1964	2.12	0.50	0.81	3.43	6	
1973	1.82	2.01	3.21	7.04	7	
1988	3.65	3.57	4.29	11.51	1	1
1998	1.5	1.34	1.36	4.20	8	8
Ave	2.60	1.60	2.25	6.44		
Norm	3.27	2.23	2.66	8.16		

Color Legend:	Temps	Degrees
	Below	1.0>
	Normal	0.0-1.0
	Above	1.0>

Rain	Inches
Below	1.00>
Normal	0.00-1.00
Above	1.00>

FLINT	SEP	OCT	NOV	FALL TOT		FALLS
1900	1.6	2.95	4.4	8.95	1	
1916	2.72	3.34	1.85	7.91	2	2
1924	3.6	0.95	0.93	5.48	1	
1947	6.61	3.36	1.79	11.76	1	
1952	1.88	0.59	4.59	7.06	2	
1958	2.52	1.25	1.41	5.18	3	
1964	2.23	0.61	1.2	4.04	4	
1973	2.8	2.73	4.93	10.46	2	
1988	3.03	2.76	4.94	10.73	3	3
1998	1.28	2.23	1.58	5.09	5	5
Ave	2.83	2.08	2.76	7.67		
Norm	3.76	2.34	2.65	8.75		

Color Legend:	Temps	Degrees
	Below	1.0>
	Normal	0.0-1.0
	Above	1.0>

Rain	Inches
Below	1.00>
Normal	0.00-1.00
Above	1.00>

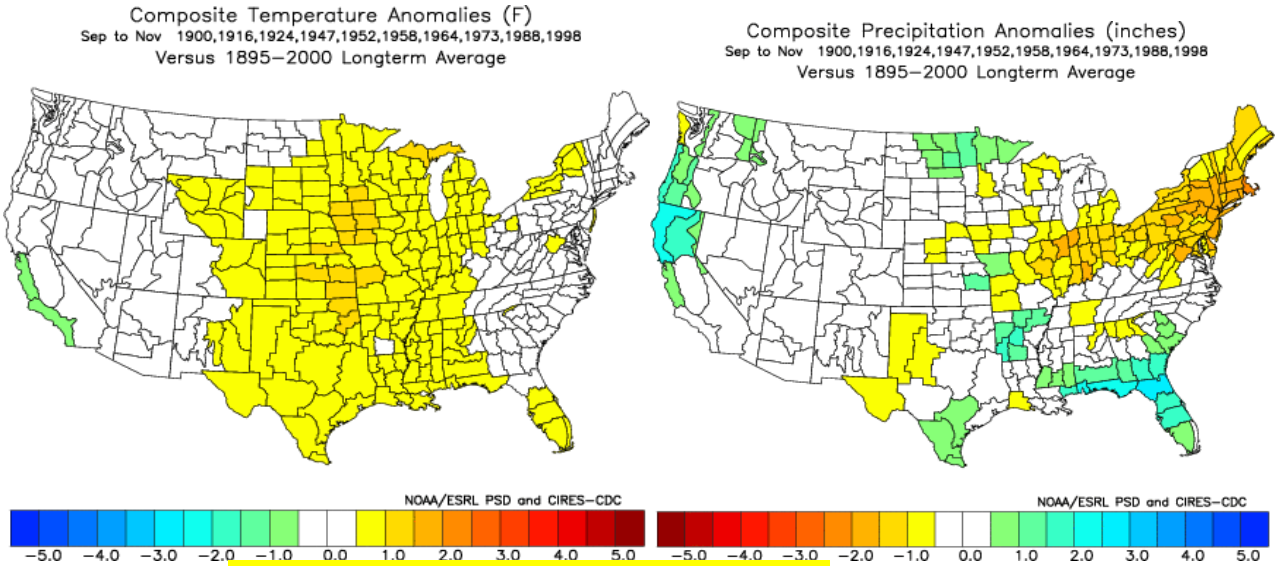
SAGINAW	SEP	OCT	NOV	FALL TOT		FALLS
1900	1.31	3.62	4.4	9.33	1	
1916	1.51	2.69	1.58	5.78	1	
1924	3.15	0.38	0.61	4.14	2	
1947	3.74	1.41	1.89	7.04	2	
1952	2.09	0.18	3.76	6.03	3	
1958	3.19	3.68	3.51	10.38	1	
1964	3.45	0.99	1.92	6.36	4	4
1973	1.78	2.36	2.69	6.83	3	
1988	4.87	2.82	5.81	13.50	2	2
1998	1.89	3.99	2.05	7.93	4	4
Ave	2.70	2.21	2.82	7.73		
Norm	3.95	2.49	2.65	9.09		

Color Legend:	Temps	Degrees
	Below	1.0>
	Normal	0.0-1.0
	Above	1.0>

Rain	Inches
Below	1.00>
Normal	0.00-1.00
Above	1.00>

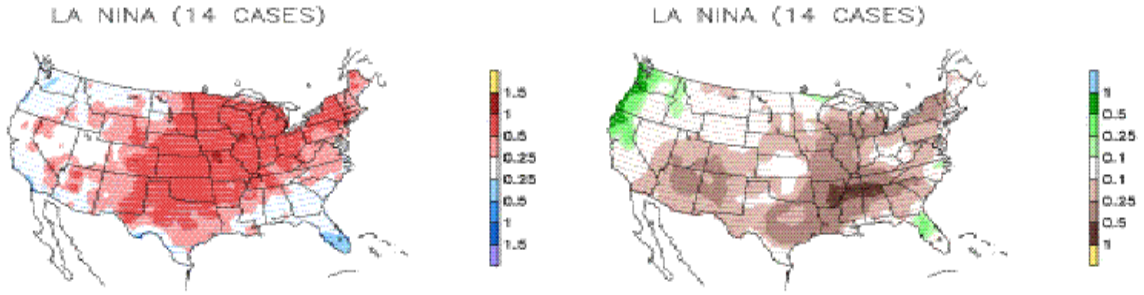
A Relatively Mild and Dry Autumn

Our analogue fall data (above) and subsequent composite maps of those years (below), suggest a - mild and somewhat dry autumn over Southeast Lower Michigan. Out of the 12 La Nina autumns at Detroit, half /6/ where warmer than normal, four contained near normal temperatures and just two averaged below normal. Interesting (and also like our summer analogue data) as one looks further north to around Saginaw (when comparing ten autumns) the number of above normal autumns drops off to 4 with an additional four near normal. However, Flint's rankings (above, near normal and below) are almost identical to Detroit. Therefore (and nearly a duplicate to our summer outlook), a clear majority of the falls averaged normal to above in the temperature department. On the precipitation side of things, a decided eight averaged drier than normal at Detroit, while 5 out of the 12 were drier at Flint and 4 drier than on average at Saginaw. Only one was wetter than normal at Detroit, while 3 out of the 12 were wetter at Flint and 2 were wetter at Saginaw.

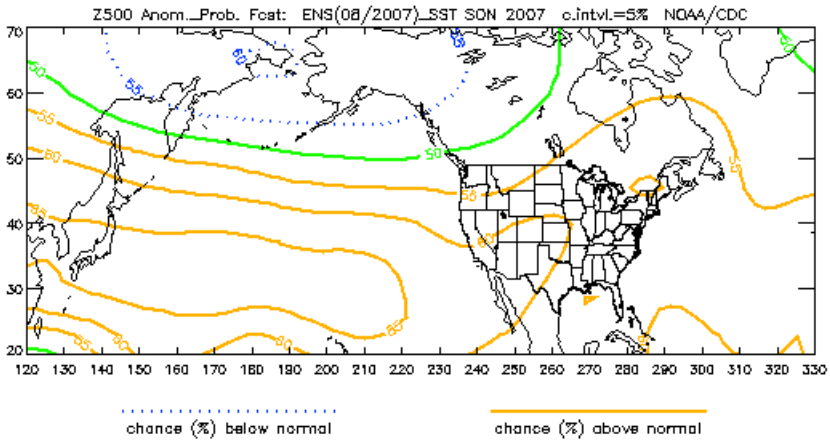


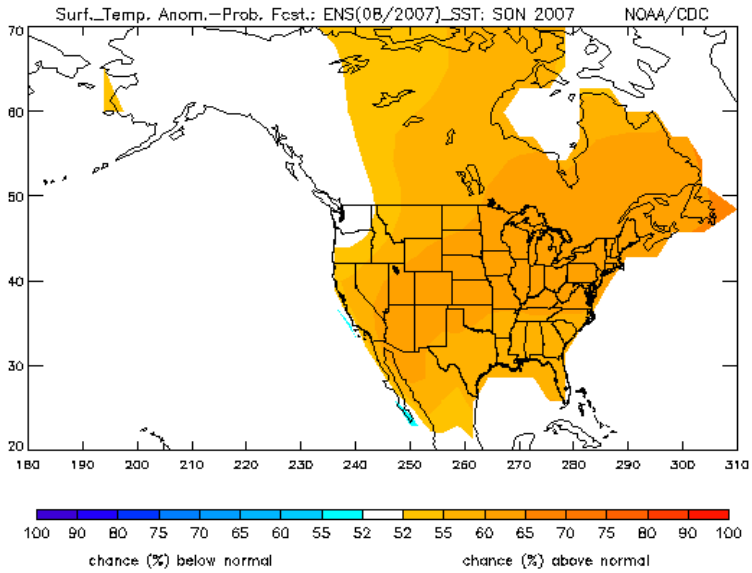
Temps - Autumn - Pcpn

Our particular set of La Nina data (since 1895, maps above) pretty well mimics the La Nina cases studied since 1950 (maps below) with generally above normal temperatures and below normal precipitation. Therefore, both our fall analogue data and La Nina case study maps agree and suggest temperatures normal to above and below normal rainfall this autumn.



The latest upper air consensus from the SST data paints a broad ridge of high pressure from the Desert SW, northeast across the Great Lakes and SW Ontario, to New England for the fall. The second map relates the chances of below and above normal temperatures expected under this dominating ridge. As you can see, nearly all of the country is painted with above normal temperature chances for the fall and this too agrees with our autumn findings, locally and nationally.



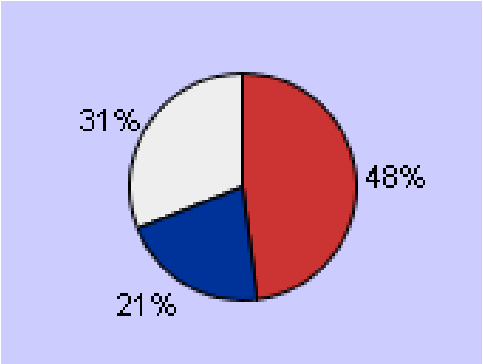


The latest national season outlook from the CPC can be found at:
http://www.cpc.ncep.noaa.gov/products/predictions/long_range/lead01/off_index.html

In the Summer Outlook you were introduced to the three month pie-charts relating chances of above, below or near normal temperatures and precipitation.
Below is the temperature pie-chart for Detroit for the fall. More information can be found at:
http://www.weather.gov/climate/background.php?wfo=dtx&site=202103

Autumn
Temps: Chances of above /48%/, below /21%/ or near normal /31%/ at Detroit

Detroit

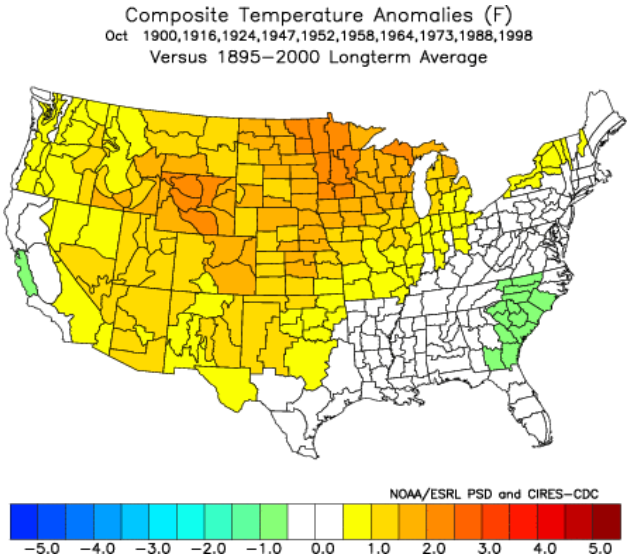


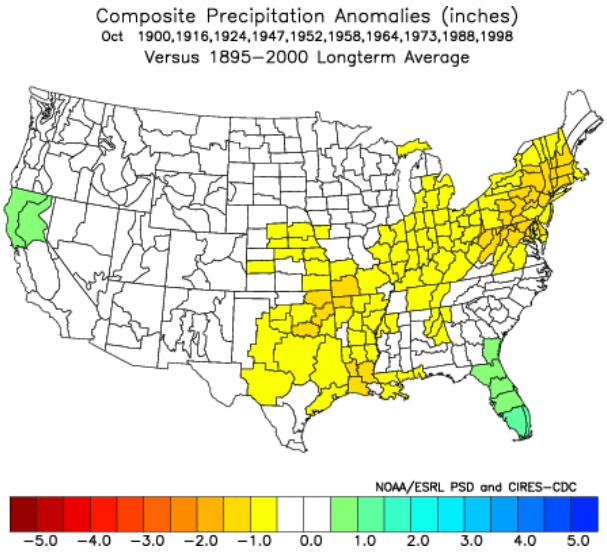
Frost and Freeze Trends:

Just because our "guidance" indicates a mild fall it doesn't necessarily mean our frosts and freezes will be later than on average. Checking back on the years in our study reveals some interesting frost/freeze statistics. Using just data from Detroit it was estimated a frost and possible freeze occurred in most areas when overnight lows fell in the lower to mid 30s for the first time. While this is just an estimate, it does show a wide range of dates. The earliest date temperatures fell into that zone was Sep 25th, 1947 while the latest was several weeks later back in 1900 when the lower to mid 30s weren't reached until Nov 6th! In spite of the wide differences, it's interesting to note that both years contained abnormally warm Octobers with average temperatures around 60 /normal 51.9/. That goes to show you that the overall temperature trend of the fall can have little to do with when the frosts and freezes occur.

Indian Summer this Fall?

Reflecting on the available data above, the likelihood of a period or two of Indian Summer weather during the fall looks promising. Note the temperature and precipitation patterns for October below (the prime month for Indian Summers) from our analogue years. It also should also be mentioned that Indian Summer weather can occur into late fall (or even early winter). Check out the article on Indian Summer at: http://www.crh.noaa.gov/dtx/stories/i-summer.php





Temps - October Pcpn

Notable Dates This Autumn

Autumn Officially Begins: Sunday, September 23rd, 2007 at 5:51am EDT
Harvest Moon: Wednesday, Sep 26th, 2007 (closest full moon to the beginning of fall)
Average First Freeze Date: October 21st (Detroit area), October 11th (Flint and Saginaw area)
Halloween: Wednesday, October 31st, 2007
Thanksgiving: Thursday, November 22, 2007

Have a nice fall and join us here back late Oct or early Nov for the Winter 2007-08 Outlook.