



Office of the Washington State Climatologist Newsletter

October 17, 2007

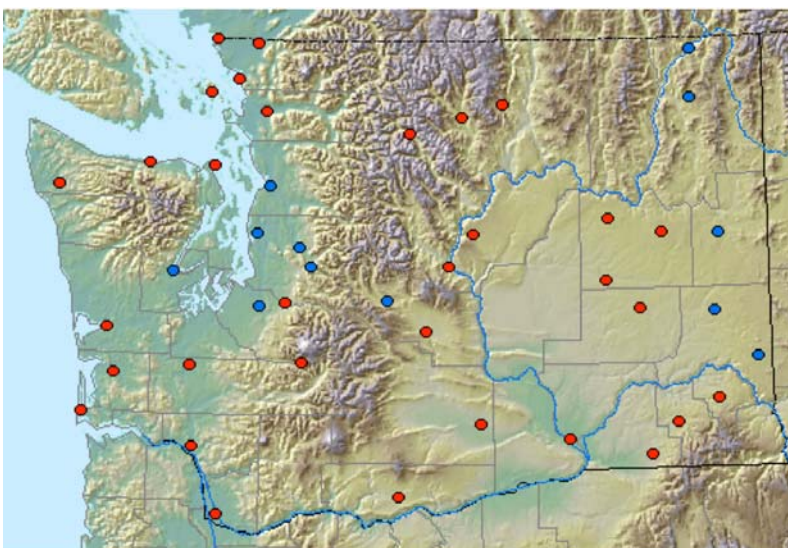
New at OWSC

Station Surveys

Every year, we take a trip around a portion of the state to photo document weather stations and become familiar with the state's geography. This year as part of enhancing Washington's Climate-Hydrology networks (ewach.net) we have expanded our photo documentation effort and aim to photo document and rate all of the state's Historical Climatology Network (HCN) stations, which will be used to provide recommendations for the National Climatic Data Center's (NCDC) HCN modernization project. Each station survey includes pictures taken from and toward the station in 8-compass point directions and using a GPS receiver to verify the elevation and latitude/longitude coordinates of the station. Using the information from the surveys, each station is rated using a scheme we developed based on NOAA's Environmental Real-time Observation Network (NERON) project and the Cooperative Observer Program (COOP) station siting standards from NOAA. By the end of the year, we hope to have completed our station surveys and publish the results in a report online.

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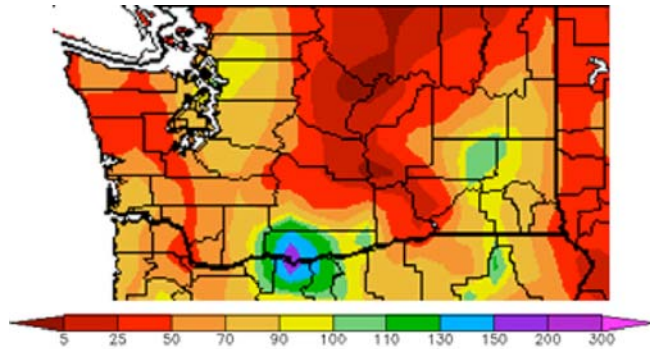
HCN stations surveyed (red) by OWSC as of October 15th, 2007. Stations denoted by blue circles have not been surveyed. Of the 44 HCN stations in Washington, 12 stations remain to be surveyed. *This includes the Seattle station which is no longer active.*

Climate Summaries

August

The temperatures across the state for August were normal with an average temperature of 65.1°F, 0.1°F warmer than the 1901-2000 average.

Precipitation was below normal throughout the region in what is typically a dry month. The driest areas were along the coast and Okanogan region, which received less than 25% of normal precipitation for the month.



August Percent of Normal Precipitation.

Source: High Plains Regional Climate Center

<http://www.hprcc.unl.edu>

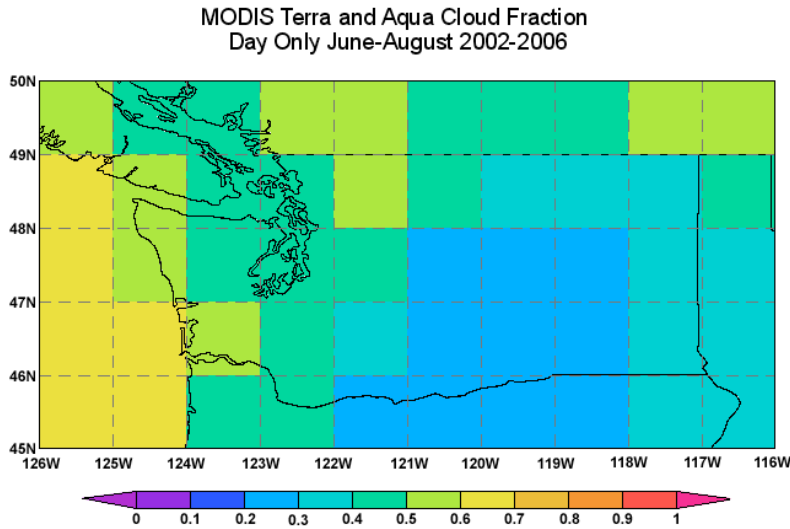
August Climate Summary for Various Cities

City	Temperature (°F)			Precipitation (inches)		
	Average	Normal	Departure from Normal	Total	Normal	% of Normal
Coast						
Hoquiam	63.2	60.9	2.3	0.75	1.50	50%
Long Beach	58.4	59.1	-0.7	0.20	1.79	11%
Quillayute	60.0	59.6	0.4	1.30	2.66	49%
Western WA						
Bellingham	61.2	62.6	-1.4	0.33	1.34	25%
Everett	63.7	63.9	-0.2	1.36	1.35	101%
Olympia	62.4	63.7	-1.3	0.56	1.10	51%
Seattle	65.6	65.6	0.0	0.73	1.02	72%
Vancouver	68.7	65.5	3.2	0.49	1.07	46%
Cascades						
Mt. Rainier (Paradise)	50.1	52.6	-2.5	0.98	2.28	43%
Ross Dam	65.5	65.9	-0.4	0.69	1.22	57%
Stampede Pass	55.4	56.7	-1.3	1.37	2.19	63%
Eastern WA						
Lind	68.0	70.0	-2.0	0.04	0.38	11%
Republic	63.0	63.7	-0.7	0.00	1.07	0%
Spokane	68.4	68.6	-0.2	0.57	0.68	84%
Walla Walla	73.6	74.7	-1.1	0.81	0.88	92%
Wenatchee	72.0	72.9	-0.9	0.04	0.35	11%
Yakima	68.6	69.3	-0.7	0.12	0.36	33%

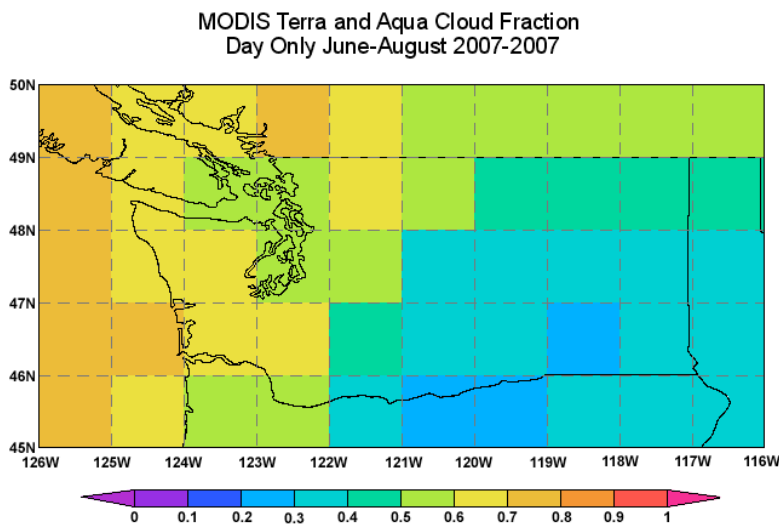
Normal is defined as the 1971-2000 average.

Summer (June- August)

NOAA's National Climatic Data Center reported that U.S. temperatures for June-August 2007 were the 6th warmest on record since 1895 and the 17th warmest for Washington. What seemed like an unusually cool summer this year across western Washington was actually normal when compared to the 1971-2000 average and only slightly above normal east of the Cascades. The common perception that this summer was cooler than normal might be related to the fact that cloud cover (see figures below) was somewhat greater this summer than in recent summers.



2002-2006 (above) and 2007 (below) average day-time summer cloud fraction from NASA's MODIS satellite data.
Source: <http://www.climate.washington.edu/modis>

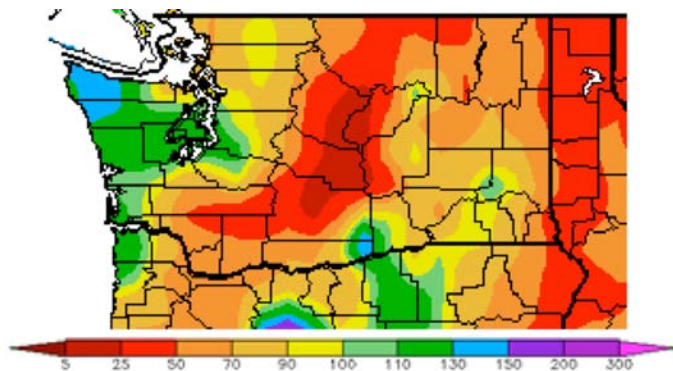


Summer Max/Min Temperature Summary for Various Cities

City	Max Temperature (°F)			Min Temperature (°F)		
	Avg.	Normal	Departure from Normal	Avg.	Normal	Departure from Normal
Coast						
Hoquiam	68.8	66.3	2.5	55.2	52.2	3.0
Long Beach	64.6	65.0	-0.4	49.9	50.7	-0.8
Quillayute	66.3	67.1	-0.8	50.8	48.9	1.9
Western WA						
Bellingham	69.4	69.4	0.0	52.4	53.0	-0.6
Everett	72.5	71.7	0.8	53.9	53.1	0.8
Olympia	73.9	75.0	-1.1	49.8	48.8	1.0
Seattle	73.8	73.4	0.4	55.3	54.2	1.1
Cascades						
Mt. Rainier (Paradise)	58.3	59.3	-1.0	43.5	40.5	3.0
Ross Dam	75.3	74.3	1.0	53.2	52.7	0.5
Stampede Pass	63.5	62.9	0.6	46.4	45.4	1.0
Eastern WA						
Lind	85.6	84.9	0.7	52.1	51.8	0.3
Republic	80.7	79.0	1.7	46.9	45.7	1.2
Spokane	81.8	79.7	2.1	55.7	52.8	2.9
Walla Walla	86.5	86.4	0.1	61.0	58.7	2.3
Wenatchee	84.4	83.8	0.6	59.7	57.8	1.9
Yakima	85.7	84.4	1.3	52.4	49.1	3.3

Normal is defined as the 1971-2000 average.

Precipitation was greatest along the tip of the Olympic peninsula, greater than 130% of normal, a stark contrast to last year's drought. However, the majority of the state received below normal precipitation especially along the east slope of the Cascades in central Washington which received less than 25% of normal. Cumulative precipitation at 5 Yakima reservoirs (Keechelus, Kachess, Cle Elum, Bumping, and Rimrock) between April 1 and September 30 was 18.91" (43% of average), its lowest since records began in 1912, which breaks the previous record of 20.72" set in 1939. On October 10, Governor Chris Gregoire asked that 10 counties in eastern Washington be declared as farm disaster areas due to drought and wildfires.



Summer (June-August) Percent of Normal Precipitation.
 Source: High Plains Regional Climate Center
<http://www.hprcc.unl.edu>

Summer Climate Summary for Various Cities

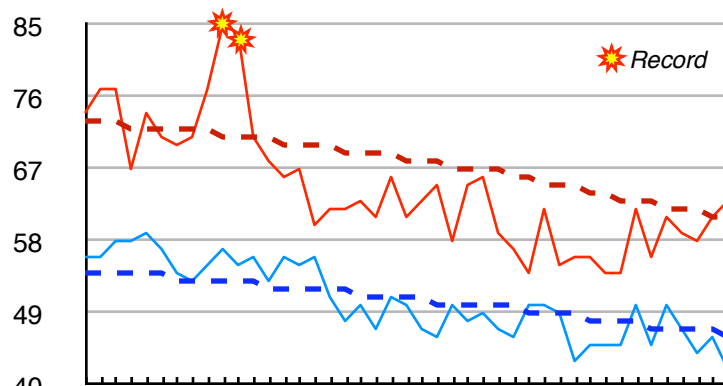
City	Temperature (°F)			Precipitation (inches)		
	Average	Normal	Departure from Normal	Total	Normal	% of Normal
Coast						
Hoquiam	62.0	59.3	2.7	5.80	5.12	113%
Long Beach	57.2	57.8	-0.6	3.09	6.47	48%
Quillayute	58.6	57.9	0.7	10.25	8.50	121%
Western WA						
Bellingham	60.9	61.2	-0.3	3.24	4.59	71%
Everett	63.2	62.4	0.8	4.80	4.91	98%
Olympia	61.9	61.9	0.0	3.71	3.70	100%
Seattle	64.6	63.8	0.8	3.51	3.30	106%
Vancouver	63.8	63.9	-0.1	3.81	3.60	106%
Cascades						
Mt. Rainier (Paradise)	50.4	49.4	1.0	3.08	8.28	37%
Ross Dam	64.3	63.4	0.9	3.41	4.26	80%
Stampede Pass	55.3	53.7	1.6	5.03	7.95	63%
Eastern WA						
Lind	69.1	67.8	1.3	0.58	1.36	43%
Republic	63.6	61.8	1.8	1.44	4.10	35%
Spokane	68.7	66.3	2.4	1.59	2.62	61%
Walla Walla	73.7	72.3	1.4	2.58	2.76	93%
Wenatchee	72.1	70.8	1.3	0.07	1.29	5%
Yakima	69.1	67.8	1.3	0.34	1.20	28%

Normal is defined as the 1971-2000 average.

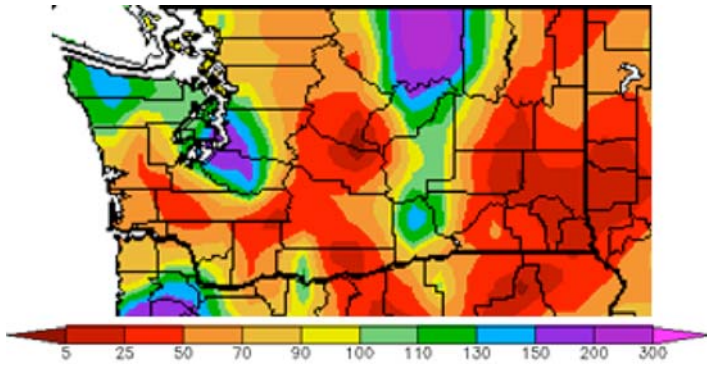
September

The combination of cooler and warmer than average temperatures in western and eastern Washington respectively, led to near normal temperatures statewide. The average temperature was 58.4°F, 0.1°F warmer than the 1901-2000 average. The last day of 70+ temperatures ended as the onset of Autumn abruptly began for western Washington and cool cloudy weather moved into the region on

September 13th. Only one other time since records began for Seattle (1948, as recorded at Sea-Tac AP) has the last temperature observation of 70 or greater occurred at an earlier time (Sept. 6, 1955). The cooler than normal temperatures continued into October with 31 consecutive days of the maximum temperature at or below normal, the longest such streak for the September-October months.



Seattle maximum (red) and minimum (blue) temperatures compared to normal (dashed line) from September 1st - October 13th.



September Percent of Normal Precipitation.
 Source: High Plains Regional Climate Center
<http://www.hprcc.unl.edu>

Precipitation for the month varied widely across the state with the Puget Sound lowlands and Okanogan region receiving the greatest precipitation (greater than 150% of normal) and the east slopes of the cascades and Spokane region receiving the least (less than 50% of normal). Eastern Washington continues to remain designated as a D0 (abnormally dry) by the Drought Monitor and is expected to improve in the coming months.

September Climate Summary for Various Cities

City	Temperature (°F)			Precipitation (inches)		
	Average	Normal	Departure from Normal	Total	Normal	% of Normal
Coast						
Hoquiam	59.6	59.5	0.1	2.50	2.89	87%
Long Beach	53.6	57.4	-3.8	0.46	3.29	14%
Quillayute	56.1	56.8	-0.7	3.67	4.15	88%
Western WA						
Bellingham	55.8	57.9	-2.1	1.65	1.58	104%
Everett	57.9	58.7	-0.8	1.88	2.09	90%
Olympia	57.8	58.7	-0.9	2.24	2.03	110%
Seattle	59.9	61.0	-1.1	3.16	1.63	194%
Vancouver	61.9	60.8	1.1	1.85	1.78	104%
Cascades						
Mt. Rainier (Paradise)	45.9	47.7	-1.8	1.36	4.74	29%
Ross Dam	59.6	59.5	0.1	1.44	2.18	66%
Stampede Pass	50.2	51.0	-0.8	2.05	4.26	48%
Eastern WA						
Lind	63.5	61.1	2.4	0.01	0.54	2%
Republic	53.3	55.0	-1.7	0.92	0.92	100%
Spokane	59.6	59.2	0.4	0.37	0.76	49%
Walla Walla	65.3	65.3	0.0	0.43	0.84	51%
Wenatchee	65.0	63.7	1.3	0.11	0.39	28%
Yakima	60.1	60.7	-0.6	0.19	0.39	49%

Normal is defined as the 1971-2000 average.

Outlook

The Climate Prediction Center's 3-month outlook for November-December-January is for equal chances of above, below, or normal temperatures for Washington with a slight tilt toward the odds of above normal precipitation for everywhere except along the coast. The greatest odds of above normal precipitation are in the southeast quadrant of the state.

The forecast for winter (Dec-Jan-Feb) temperature calls for equal chance conditions and a slightly increased probability for above normal precipitation for eastern Washington and equal chance conditions for western Washington.

Sea-surface temperatures (SSTs) in the tropical Pacific have increasingly become colder over the summer, developing into La Niña. Recent SST trends and model forecasts, indicate that La Niña conditions will likely strengthen during the next several months. The majority of the models are predicting weak-to-moderate La Niña conditions through early 2008 with a continuation of ENSO neutral conditions through summer.

Historically, La Niña conditions favor above normal precipitation for the state with cooler than average winter temperatures around western Washington. However, with the current long-term warming trend, La Niña merely offsets the trend and yields near normal temperatures.

For other seasonal outlooks, including local temperature outlooks, see <http://climate.washington.edu/outlook.html>.

