



Office of the Washington State Climatologist

June 3, 2009

May Highlights

The general weather conditions were so different between the first and second half of May, it was as if the state transitioned to summer overnight. May started out cool and wet, with a strong low pressure system moving in on the 4th, producing heavy rain and wind through the 6th. Figure 1 shows a map of CoCoRaHS 24-hour precipitation measurements on the morning of May 5th. The precipitation totals were impressive, with parts of Mason, Grays Harbor, and Kitsap counties receiving over 2 inches of rain in 24 hours. Some locations in western WA received as much precipitation as expected for the entire month of May with this storm. Aberdeen, for example, received 4.37 inches of precipitation on May 5th through the 7th which was already 0.63 inches more than the May 1971-2000 climatological normal (3.74 in). The precipitation fell as snow in the southern Cascades, dropping 22 inches of new snow at Paradise over the course of 3 days. In the midst of this strong low pressure system, a funnel cloud was spotted north of Davenport on May 6th, and it was later confirmed by the Spokane National Weather Service that a weak tornado (EF0) did indeed touch down in a 4-mile stretch, causing some damage to trees (Spokesman Review, 5/12/09).

By the 11th, many more locations had precipitation totals higher than the total monthly normal. Another strong low pressure system came in on the 14th, helping to set records for the wettest first two weeks of May at SeaTac Airport (3.04 inches), Olympia Airport (4.28 inches), and Hoquiam (5.16 inches). The second two weeks of May, however, were very dry and warm, with most of the state receiving not more than a trace of precipitation since May 20. Temperatures were well above normal and even caused minor flooding in Kittitas and Yakima counties due to an increased amount of snowmelt.

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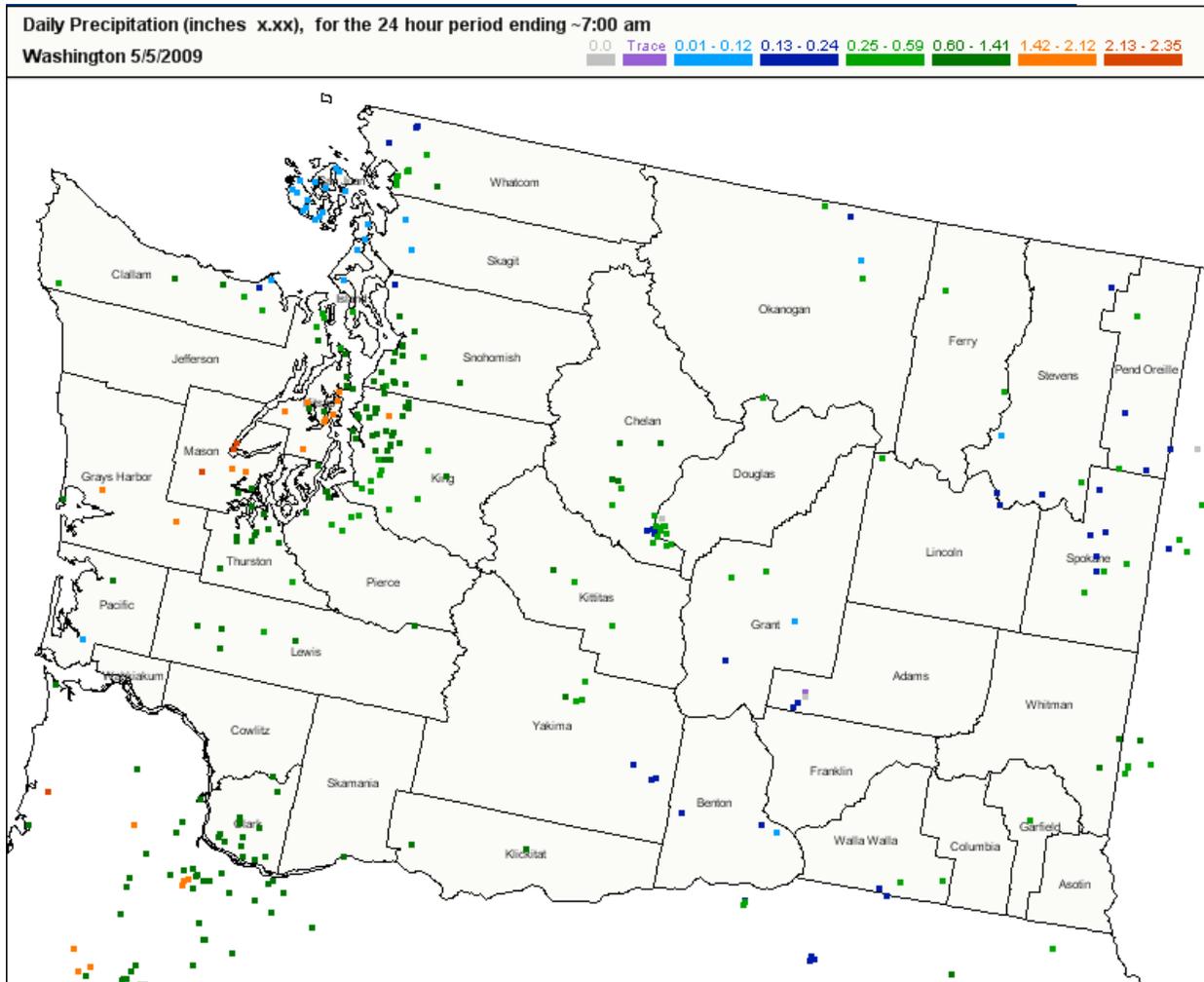


Figure 1: Precipitation that fell on May 4th and was measured on the morning of May 5th by CoCoRaHS observers.

Snowmelt, Flooding, and Snowpack

The sunny and warm days at the end of May caused accelerated snowmelt in the Yakima Basin, which in turn caused some minor flooding. When asked whether this was a concern for the availability of water from the snowpack later in the season, Marilyn Lohmann of NWS Pendleton assured us that the flooding was minor, and that the snowpack in the Yakima Basin was still well above normal. Figure 2 shows the snow water equivalent (SWE) for Washington as of June 2, 2009. The Upper and Lower Yakima Basin currently have 97% and 146% of normal, respectively. While the Yakima region seems of little concern for the upcoming summer, the northern Cascades and the Olympic mountains will undoubtedly face unwanted consequences due to the low snowpack. Figure 3 shows the NWS River Forecast Center's latest predictions on summer streamflow for Washington. Released on May 29th, the center predicted 59% of normal streamflow for the Okanogan River near Tonasket from now

through September, 68% for Methow near Pateros, 73% for Chelan by the Lake Chelan Dam and 79% for the Dungeness River near Sequim on the Olympic Peninsula.

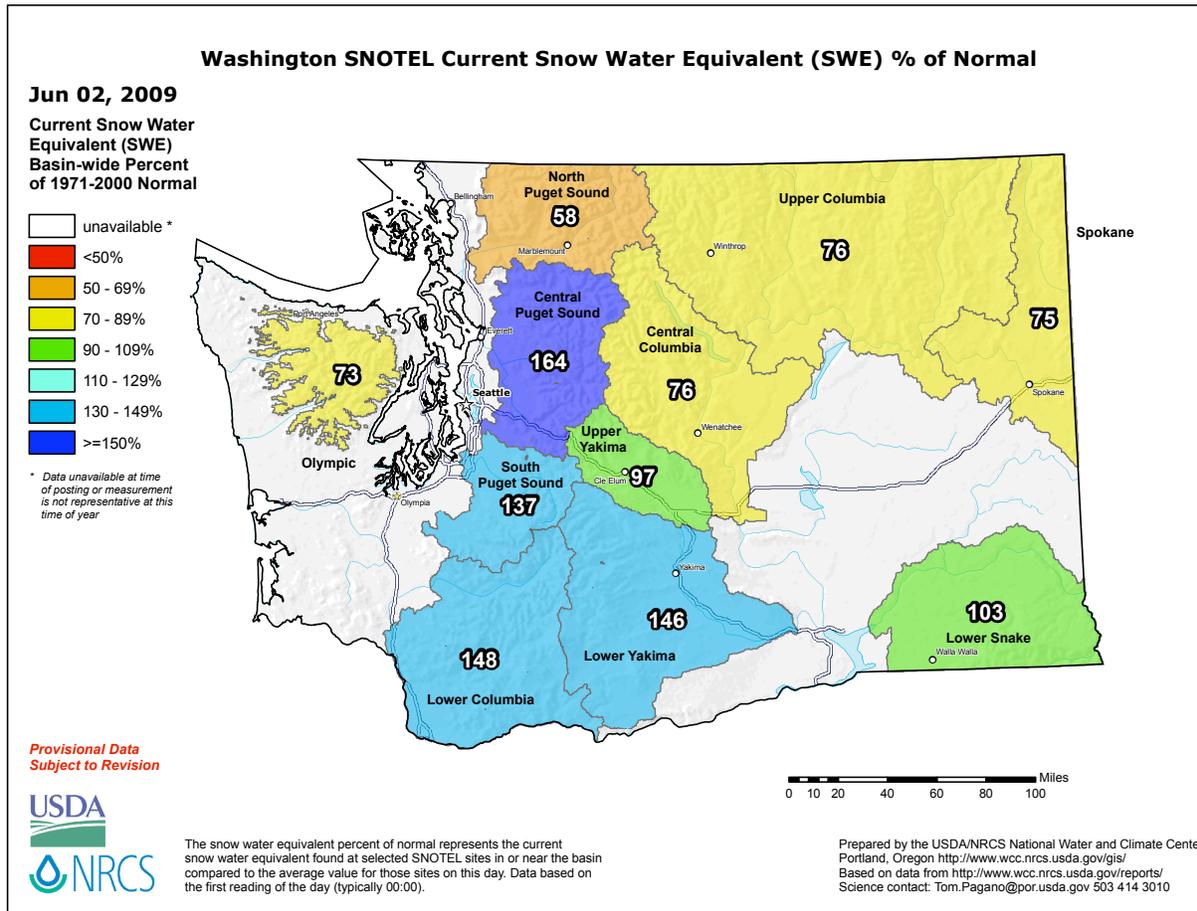


Figure 2: Snowpack (in terms of SWE) percent of normal for Washington as of June 2, 2009. Image is from the National Resources Conservation Service.

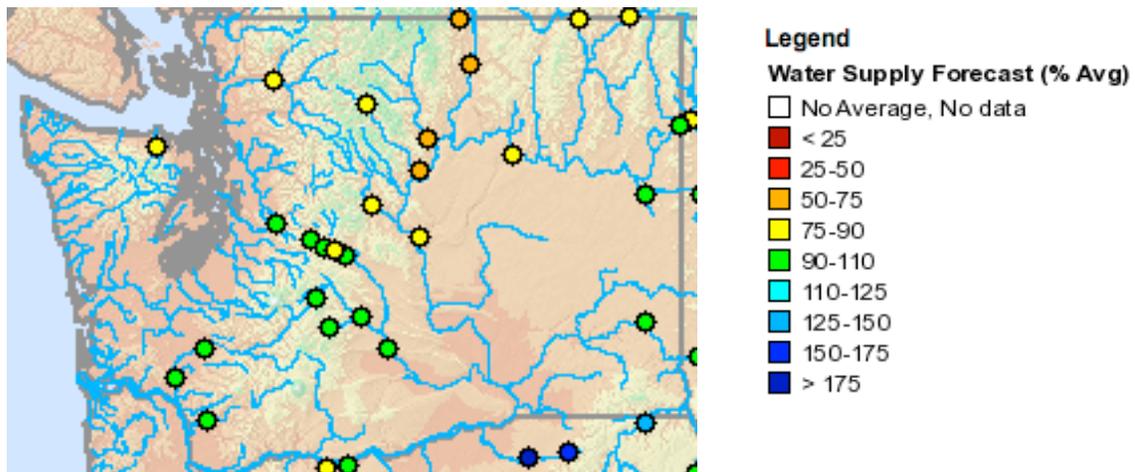
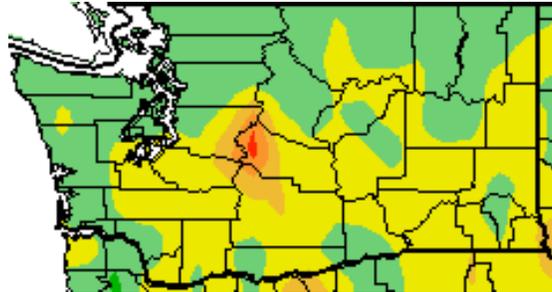


Figure 3: Predicted streamflow for June through September from the NWS River Forecast Center (http://www.nwrfc.noaa.gov/water_supply/ws_fcst.cgi).

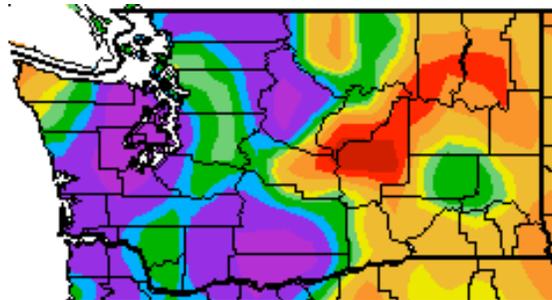
Climate Summary

The plot of temperature departures from normal from the High Plains Regional Climate Center shows that temperatures were generally near normal throughout the state, within -2 to 2°F of normal. This is a change from recent months where the state has had consistently below normal temperatures. Vancouver was a warm spot, with the average temperature 3.7°F warmer than normal (Table 1).

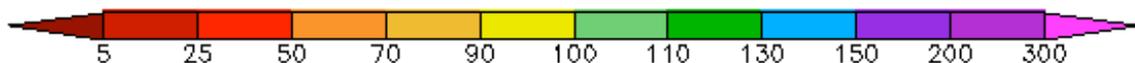
Precipitation for the month of May was more variable, with most of the Puget Sound and western Washington having well-above normal precipitation for the month. The exception was in the northwestern Olympic Peninsula, where one station reported precipitation between 70-90% of normal. Eastern Washington was relatively dry for the month, especially throughout Ephrata and Spokane (23% of normal and 58% of normal, respectively; Table 1), but other locations like the Ritzville and Yakima areas had precipitation at or above normal.



Temperature (°F)



Precipitation (%)



(May temperature (°F) departure from normal (top) and May precipitation % of normal (bottom).

Source: High Plains Regional Climate Center (<http://www.hprec.unl.edu>).

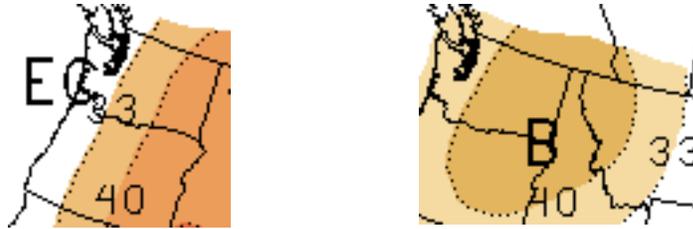
	Temperature (°F)			Precipitation (inches)		
	Avg	Normal	Departure from Normal	Total	Normal	% of Normal
Olympia	53.8	53.3	0.5	4.69	2.27	207
Quillayute	50.0	51.2	-1.2	4.32	5.51	78
Seattle	55.7	55.9	-0.2	3.79	2.10	180
Sea-Tac	56.2	55.8	0.4	3.61	1.78	203
Vancouver	59.5	55.8	3.7	3.37	2.64	128
Spokane	55.7	54.4	1.3	0.93	1.60	58
Omak	57.3	57.6	-0.3	1.23	1.08	114
Ephrata	60.2	60.4	-0.2	0.15	0.64	23
Pullman	54.2	53.2	1.0	2.25	1.77	127
Pasco	60.7	61.6	-0.9	0.52	0.67	78
Yakima	57.9	56.2	1.7	0.76	0.51	149

Table 1 - May Climate Summaries from locations in western Washington and eastern Washington (highlighted in orange) from NWS (climate normal baseline is 1971-2000).

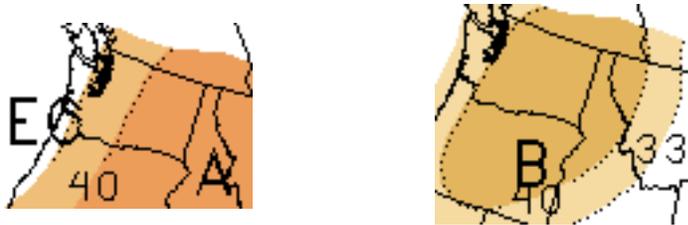
Outlook

The seasonal climate forecast by the NOAA Climate Prediction Center for June-July-August (JJA) calls for at least a 33% chance of warmer than normal temperatures throughout central WA. Eastern Washington has at least a 40% chance of above normal temperatures, while western WA has equal chances for below, equal to, or above normal temperatures for JJA. The JJA precipitation outlook calls for at least a 33% chance of below average precipitation for western WA and at least a 40% chance of below average precipitation for eastern WA.

The outlook for July-August-September (JAS) is very similar to the JJA outlook. It calls for at least a 33% (central WA) or a 40% (eastern WA) chance of above normal temperatures for most of the state except the Olympic Peninsula. There is at least a 33% chance of below normal precipitation for the Olympic Peninsula, and at least a 40% chance of below normal precipitation for the rest of the state.



(June-July-August outlook for temperature (left) and precipitation (right) from the CPC).



(July-August-September outlook for temperature (left) and precipitation (right) from the CPC).

According to the Climate Prediction Center, the La Niña has weakened completely and the Pacific Ocean is now in an ENSO-neutral state. The neutral state is expected to last into the summer (<http://www.cpc.noaa.gov/products/precip/CWlink/MJO/enso.shtml>).

The Climate Prediction Center's outlook for a warm and dry summer is not ideal for easing the drought-like conditions in the northern Cascades which is an area that we will be keeping an eye on in the coming months.

Happy Birthday, WA CoCoRaHS!



Thank you, observers, for a great first year of CoCoRaHS in Washington State! In one year, Washington has gained 586 observers. OWSC and the National Weather Service appreciate the dedication and time that our observers give to taking measurements especially during the heavy snowfall and rain experienced across the state this past year. As we enter the dry season, please remember that it's just as important to enter your precipitation measurement when there isn't any precipitation as when there is. We also have a number of observers that are signed up but either haven't started taking measurements or have stopped. If you have questions about getting started, please contact us at wash.cocorahs@gmail.com. If you are certain that you will not be taking measurements again, also please contact us so that we can get a more accurate count of participating observers. It's never too late to start! We are always looking for new volunteers, so if you're interested in observing or know someone who is, please register at www.cocorahs.org.