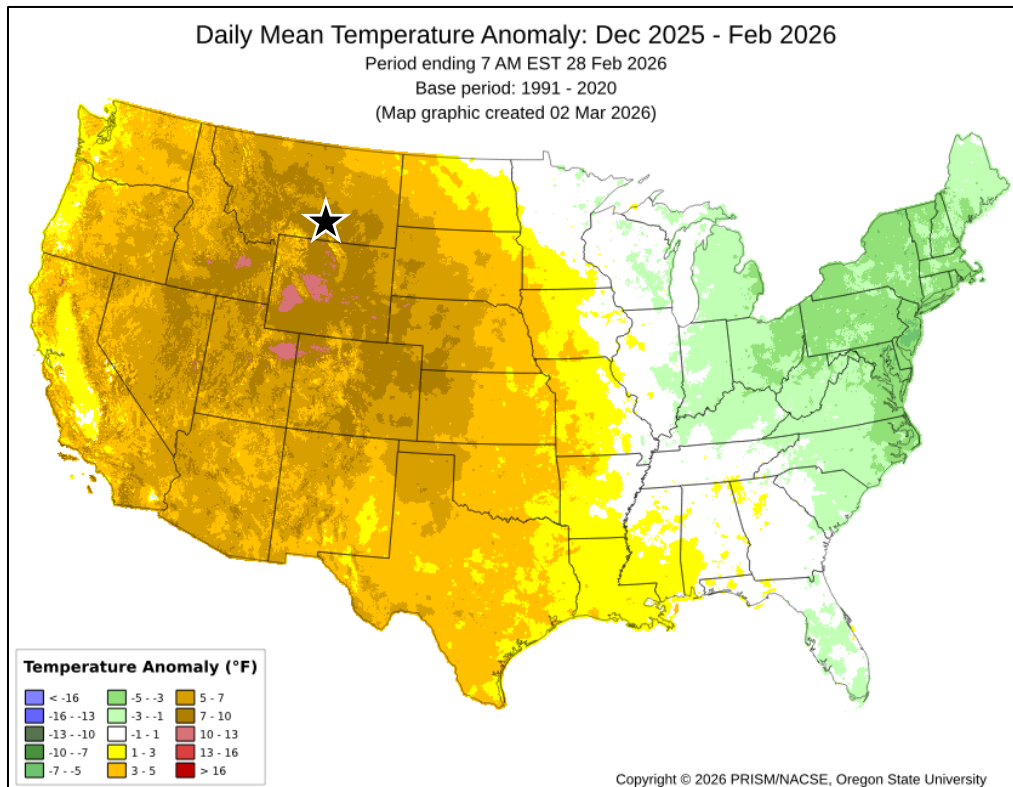


Warm 2025-26 Meteorological Winter

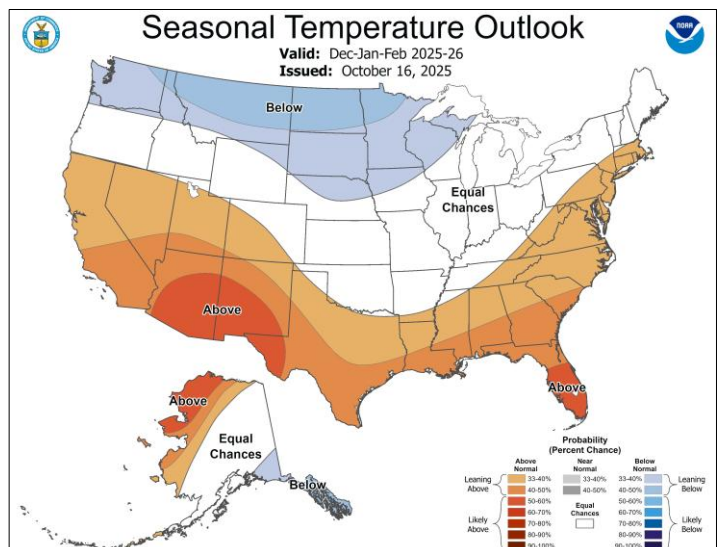
National Weather Service – Billings, MT

OVERVIEW: The 2025-26 meteorological winter (December-January-February) was a very warm one, not just for our region but across the western and central U.S. Locally, Livingston & Sheridan had their warmest winter on record, Billings & Baker were 2nd warmest, and Miles City was 3rd warmest. The winter was not without brief cool spells, but warm air masses and frequent downslope winds dominated our weather. The map below shows average temperature departure from normal across the country. The east was cooler than normal while west and central parts were much warmer. Why did this happen?



METEOROLOGY: The winter outlook released by the Climate Prediction Center in October highlighted our region for elevated probabilities of below normal temperatures (shown at right) and above normal precipitation. This clearly did not happen. There was no one reason for the anomalously warm and dry winter, and in fact it is difficult to determine a clear explanation. Here are a few factors:

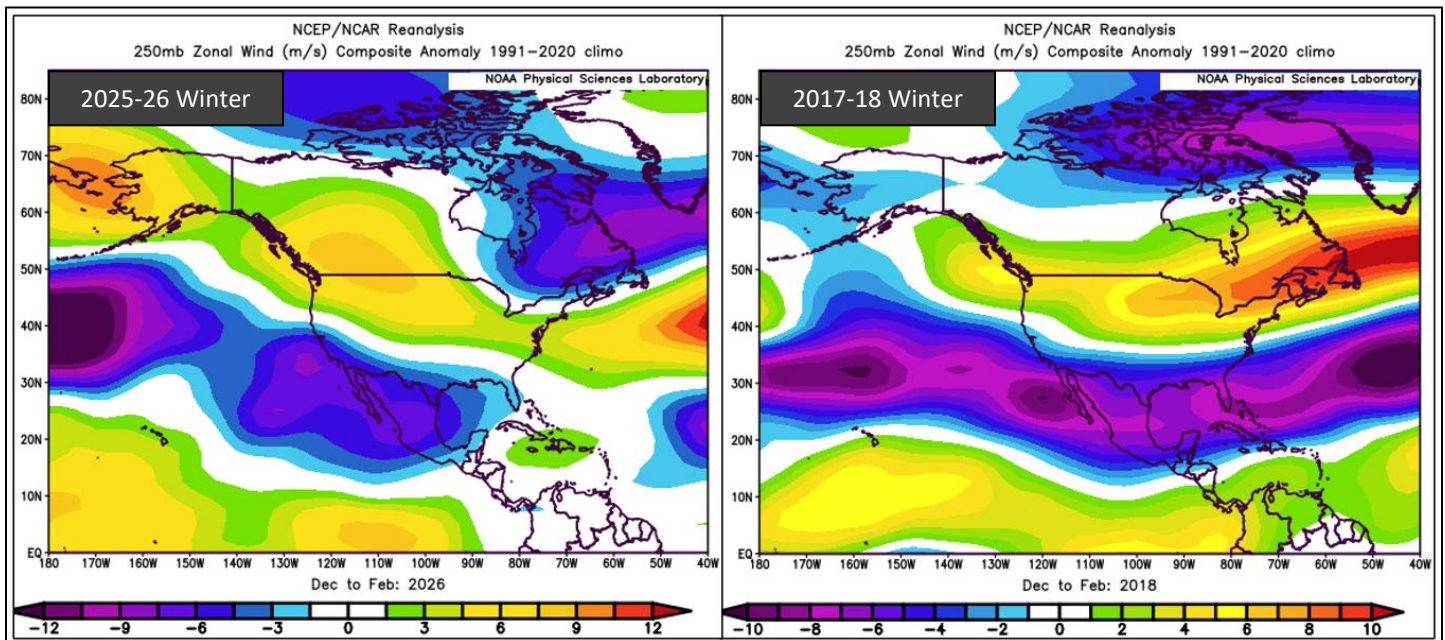
- La Niña conditions in the tropical Pacific Ocean historically favor a strong Pacific jet, but unfortunately an enhanced zonal jet this year was favored over western Canada, rather than over the Pacific northwest and northern Rockies. This was a result of cold air persistently pooled to our north. For the most part, cold air plunges through the winter tracked east of us, into the north central and eastern U.S., while warmer & drier downslope winds prevailed along the eastern



slopes of the mountains. Generally speaking, given our frequent proximity to much colder air, it was highly unusual to not see more frequent arctic plunges and overrunning snowfall in eastern Montana and Wyoming.

- Sea surface temperatures across the northern Pacific Ocean (and most oceans, really) have been warmer than normal. It is possible that this will increasingly favor a Pacific jet being offset to the north of what would historically happen during La Niña. Over the past 30 years or so, we have seen several La Niñas lean warm & dry, including the 2025-26. This is something that will need to be studied.
- Snow cover itself plays a large role in winter temperatures. High albedo from snow cover reflects solar energy, and in addition to energy lost in melting the snow, results in much cooler surface temperatures. The frequent lack of snow cover this winter contributed to temperatures remaining quite mild for long stretches of time.

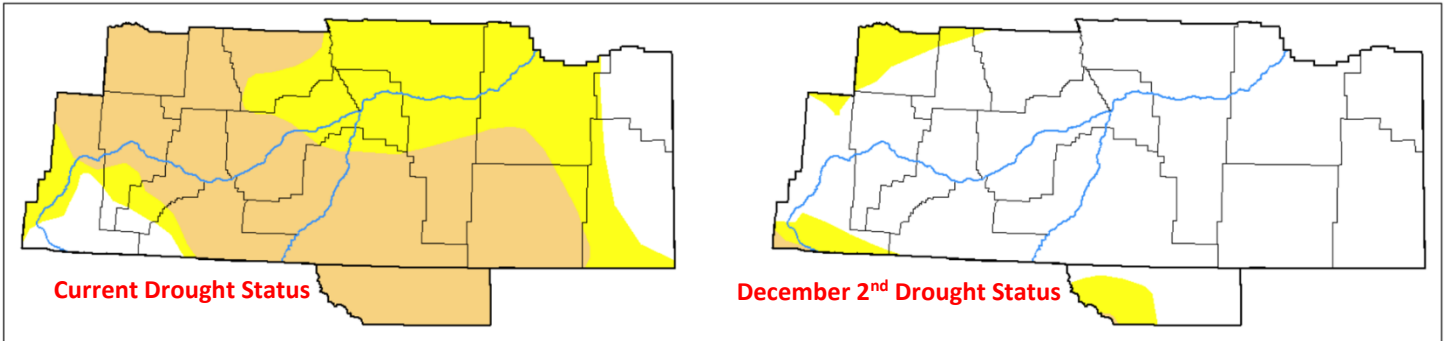
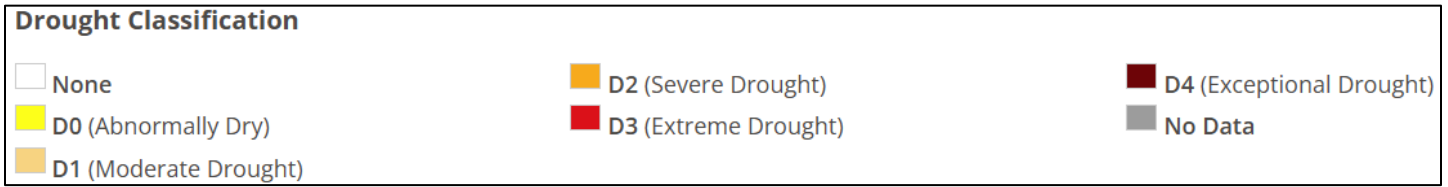
Below is a comparison of 250mb (upper level) zonal wind anomalies from the 2025-26 winter and the 2017-18 winter, during which we saw cold temperatures and record snowfall. La Niña conditions existed during both seasons. Notice that during the 2025-26 winter (left), stronger zonal (westerly) winds were focused over west and southwest Canada, rather than near the Canada/U.S. border as they were in 2017-18 (right). Also note the higher zonal winds over the Bering Sea and Alaska this most recent season. Again, these anomalies matched up with the persistent presence of cold air to our north in northern Canada and Alaska. These seemingly small differences can yield very different results in terms of seasonal weather. Just ask anyone along the east coast about this winter!



TEMPERATURE & PRECIPITATION STATISTICS: The table below is a summary of winter temperature statistics at each of our main climate stations.

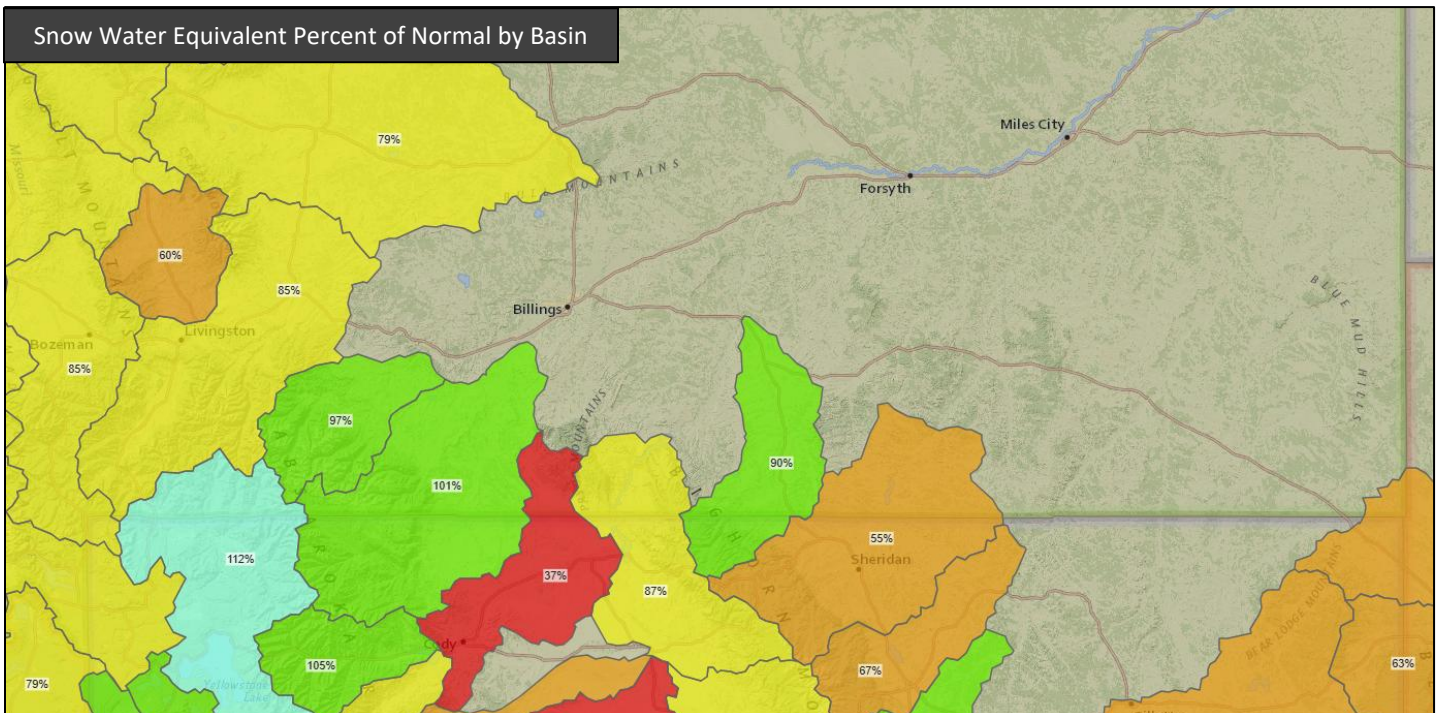
SITE	Average Temp	Departure from Normal	Rank	Precipitation	Departure from Normal	Rank	Snow	Departure from Normal	Rank	Period of Record Begins
Billings	36.0°	+ 8.0°	2 nd warmest	1.82"	+ 0.13"	43 rd wettest	17.3"	- 12.2"	16 th lowest	1934
Livingston	36.2°	+ 8.0°	WARMEST	1.27"	- 0.14"	32 nd driest	<i>This stations do not report snowfall</i>			1948
Miles City	28.9°	+ 7.1°	3 rd warmest	1.14"	+ 0.38"	36 th wettest				1937
Sheridan	33.0°	+ 8.2°	WARMEST	2.07"	+ 0.27"	53 rd wettest				1907
Baker	25.7°	+ 6.0°	2 nd warmest	1.68"	+ 1.03"	WETTEST				1998

DROUGHT CONDITIONS: The persistent warm & dry weather since the fall has allowed moderate drought to develop over much of south central and southeast Montana, and north central Wyoming. Below is the current drought monitor (left) and the drought status at the beginning of December (right).



LOOKING AHEAD: As of early March, there remains significant cold air in Alaska and northern Canada, and there yet may be periods of snow/cold weather before the winter season is truly over. Furthermore, winter temperatures and precipitation do NOT correlate to spring and summer conditions. Just under half of our annual precipitation (at lower elevations) occurs during the spring months, April through June. It is during our wet season that precipitation becomes very important. Even normal precipitation during the spring would result in a solid green up of our local vegetation, which in turn promotes wet thunderstorm activity and modified temperatures. Conversely, a dry and warm spring results in a poor green up, less thunderstorm activity, and a quicker transition to the warm & dry summer months (i.e., fire season).

Snow water conditions in the high country as of March 2nd (image below) are above normal for a few basins (Yellowstone Headwaters & Clarks Fork), and 55-80% of normal for most others. An earlier than normal melt out of the high elevation snow pack would result in below normal water supply in area rivers as we move through mid and late summer. But as already stated, much remains to be seen over the next couple of months.



FINAL THOUGHTS: Current La Niña conditions are expected to transition to ENSO neutral for the summer. There is potential for El Niño to develop by late summer or fall. Our region historically sees cooler and wetter weather, and increased thunderstorm activity, during El Niño summers. In the meantime, the best way to avoid a hot and dry summer is to have a wet spring, so keep your fingers crossed.

Just for fun, below is a seasonal snowfall analysis from the National Operational Hydrologic Remote Sensing Center.

