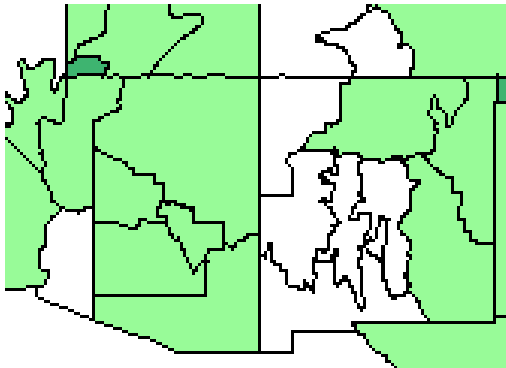




NAVAJO NATION DROUGHT STATUS REPORT

NN Dept. of Water Resources, Water Management Branch

P.O. Drawer 678 Fort Defiance, Arizona 86504 Ph. (928) 729-4004, Fax (928) 729-4126



- +3.00 and above (exceptionally wet)
- +2.00 to +2.99 (extremely wet)
- +1.25 to +1.99 (very wet)
- +0.75 to +1.24 (moderately wet)
- -0.74 to +0.74 (near normal)
- -1.24 to -0.75 (moderately dry)
- -1.99 to -1.25 (very dry)
- -2.99 to -2.00 (extremely dry)
- -3.00 and below (exceptionally dry)

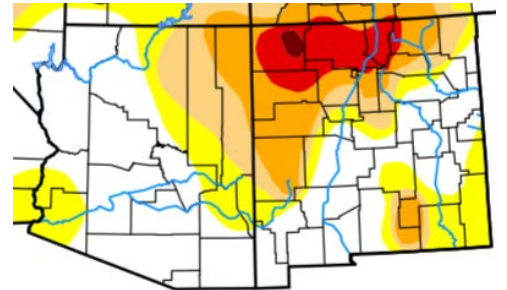
Navajo Nation Drought Stage

Location	6 month SPI February	Stage as of February
NE AZ	0.86	Normal
NW NM	0.43	Normal
SE UT	1.08	Normal

Drought Intensity Category

Navajo Nation Drought	US Drought	
Normal	Normal	D0
Alert	Moderate	D1
Warning	Severe	D2
Emergency	Extreme/Exceptional	D3 & D4

- Intensity:**
- D0 Abnormally Dry
 - D1 Moderate Drought
 - D2 Severe Drought
 - D3 Extreme Drought
 - D4 Exceptional Drought
- Drought Impact Types:**
- ~ Delineates dominant impacts
 - S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
 - L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)



National Drought Summary for February 26, 2019

Summary: A pair of late-winter storms blanketed large areas of the West with snow, easing drought; bolstering high-elevation snowpack; and further improving spring and summer runoff prospects. The first storm system, which swept across the Southwest from February 20-22, produced heavy precipitation in core drought areas of the Four Corners States and deposited measurable snow in locations such as Las Vegas, Nevada, and Tucson, Arizona. The second storm—in actuality a series of disturbances—began to affect parts of the Northwest during the weekend of February 23-24 and later delivered another round of heavy precipitation across northern California. Farther east, drenching rain resulted in aggravated and expanded flooding from the northern Mississippi Delta into the southern Appalachians. Rainfall totaled 4 to 12 inches or more in the flood-affected area, with some of the highest amounts occurring in the Tennessee Valley. On February 23-24, thunderstorms spawned several tornadoes in Alabama, Georgia, and Mississippi. Farther north, a blizzard briefly engulfed portions of the northern and central Plains and upper Midwest. The short-lived but fierce storm produced several inches of snow, driven by wind gusts in excess of 60 mph, mainly on February 23-24. High winds also raked the southern Plains—without the benefit of significant precipitation—compounding the effects of short-term dryness on winter wheat and rangeland health.

West: As described in the summary section, major storm systems affected core drought areas in Oregon and the Four Corners region, respectively, leading to locally significant reductions in the coverage of dryness (D0) and moderate to exceptional drought (D1 to D4). By late February, nearly all Western river basins, except a few in southern New Mexico, are experiencing near- to above-average snowpack. In addition, the recent spate of cold weather has maximized snow accumulations, even at middle and lower elevations. According to the California Department of Water Resources, the average water content of the Sierra Nevada snowpack by February 26 stood at 36 inches—150% of average for the date and approximately 130% of average peak value. In Oregon, extreme drought (D3) was eradicated, while substantial reductions were realized in the coverage of moderate to severe drought (D1 to D2). Drought was nearly pushed out of California, with only a lingering sliver of moderate drought (D1) along the Oregon border. Major improvements were also introduced in parts of Nevada, Idaho, Utah, Colorado, and Arizona. Extreme drought (D3) was nearly eased out of southern Colorado, leaving a remnant area of extreme to exceptional drought (D3 to D4) across northern New Mexico. In another example of a major reduction, the former large Western area of moderate drought (D1) was split into three pieces, with cuts across Nevada/Idaho, and Utah/Wyoming/Colorado, respectively.

Looking Ahead: The storm system currently affecting the West will lose some organization while traversing the central and eastern U.S. Nevertheless, 5-day rainfall totals could reach 1 to 3 inches or more in the Southeast, while periods of generally light snow will affect portions of the Plains, Midwest, and Northeast. During the weekend and early next week, a strong surge of cold air will engulf the Plains and Midwest, with sub-zero temperatures expected as far south as northern sections of Kansas and Missouri. In addition, sub-freezing temperatures could reach into the Deep South. Farther west, a new storm system should arrive in California during the weekend, with wintry precipitation rapidly spreading eastward across portions of the southern U.S. by early next week. Outside of the contiguous U.S., Alaska's drought areas will continue to experience cold, mostly dry weather during the next few days, while locally heavy showers over Hawaii's Big Island will shift east of the state by late in the week. Elsewhere, conditions over Puerto Rico will favor a slight increase in shower activity, although no widespread, organized rainfall is expected into early next week.

The NWS 6- to 10-day outlook for March 5 – 9 calls for the likelihood of colder-than-normal conditions nationwide, except for near-normal temperatures in southern Florida and above-normal temperatures in parts of the Southwest. Meanwhile, wetter-than-normal weather from California into the middle Mississippi Valley should contrast with below-normal precipitation in the upper Great Lakes region and most areas east of the Mississippi River.

For further enquires contact Mr. Carlee McClellan, Senior Hydrologist, Ph. (928) 729-4125, Email: cmcclellan@navajo-nsn.gov

February 2019

Southwest Drought At Glance

Climate Summary by CLIMAS February 2019

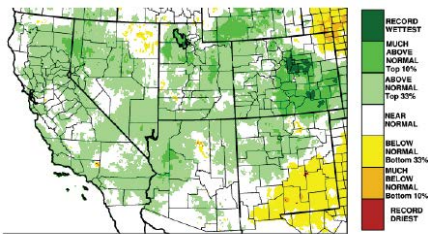


Figure 1: Jan 2019 - Precipitation Rankings

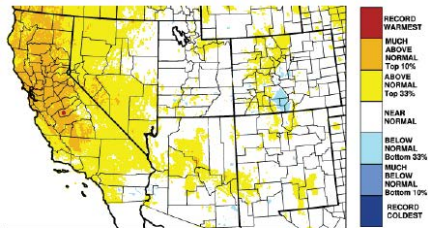


Figure 2: Jan 2019 - Temperature Rankings

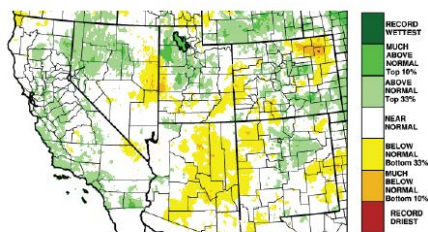


Figure 3: Nov 2018 - Jan 2019 - Precipitation Rankings

January Precipitation and Temperature: January was wetter-than-normal across much of northern Arizona and New Mexico, near-normal in southern Arizona, and below-normal across most of southern New Mexico (Fig. 1). January temperatures were normal to above-normal (Fig. 2). Winter storms brought wet and cool conditions to the region in February – including some heavy snow forecast later in the week of Feb 18. These storms feel like a departure, but may simply be closer to normal winter conditions in the Southwest, with expectations having shifted after persistent warm and dry winter conditions over the past few years or decades.

Seasonal & Annual Precipitation and Temperature: Nov-Jan precipitation was mostly normal to below-normal across Arizona and most of New Mexico (Fig. 3), while the temperature rankings were normal to above-normal in Arizona, and below-normal to above-normal in New Mexico. Water year precipitation includes a particularly wet October, and most of the Southwest recorded above-normal precipitation since Oct. 1, while 12-month totals highlight above-normal precipitation in southern Arizona and New Mexico, and persistent precipitation deficits in the four corners region (Fig. 4).

Drought: The Feb. 14 U.S. Drought Monitor (USDM) shows modest but widespread improvements in regional drought conditions, with much of Arizona and the four corners region seeing up to two levels of improvement in their drought designation (Fig. 5). Persistent drought conditions remain in the Four Corners region, although characterizations of drought extent and intensity are reduced on this map. Accumulated precipitation deficits built up over seasons and years, and weekly snapshots may struggle to capture the nuance of drought conditions that work across multiple timescales. This also applies to drought recovery, where above-normal precipitation in the short term is likely insufficient to make up for years of drought, but above-normal cool season precipitation should help in both short and long-term timescales.

Snowpack & Water Supply: Snow water equivalent (SWE) increased since last month. SWE values (as of Feb. 20) in northern Arizona and New Mexico are near normal, ranging from 90-110 percent of average, while southern stations are lower, ranging from less than 25-percent to 75-percent of average (Fig. 6). Heavy snowfall forecast for Feb 21-22 would increase these values considerably, but it remains to be seen how widespread this event will be in the Southwest. Reservoir storage remains a persistent concern, as water levels have been impacted by long-term drought and accumulated precipitation deficit. Most of the reservoirs are at or below their long-term averages, and a few of the Rio Grande reservoirs are especially low.

El Niño Tracker: In the on-again, off-again saga, we are back “on” for a weak El Niño in 2018-2019, with a possible second year of El Niño in 2019-2020 (reminiscent of the sequence in 2014-2015 and 2015-2016). The atmospheric conditions are finally catching up with the ocean, and while the equatorial waters had cooled, they remain borderline weak El Niño, and a pulse of warm sub-surface water is poised to help. What this means for the Southwest, especially in the cool season that remains, is up in the air. Given a choice, and considering the accumulated drought conditions over the past months and years, anything that hints at wetter and cooler than average conditions – or even to simply have a ‘normal’ southwestern winter – is welcome.

Precipitation and Temperature Forecast: The three-month outlook for March through May calls for increased chances of above-normal precipitation in most of Arizona, New Mexico, west Texas, and northern Sonora (Fig. 7, top). The three-month temperature outlook calls for slightly increased chances of above-normal temperatures in pockets of Arizona and Sonora, but otherwise would suggest equal chances of above, below, and near normal temperatures (Fig. 7, bottom).

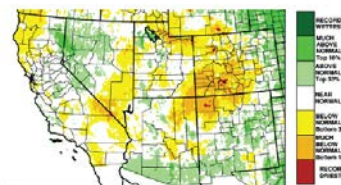


Figure 4: Feb 2018 - Jan 2019 - Precipitation Rankings



Figure 5: US Drought Monitor - Feb 12, 2019

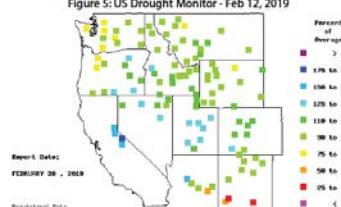


Figure 6: Snow Water Equivalent (SWE) - Feb 20, 2019

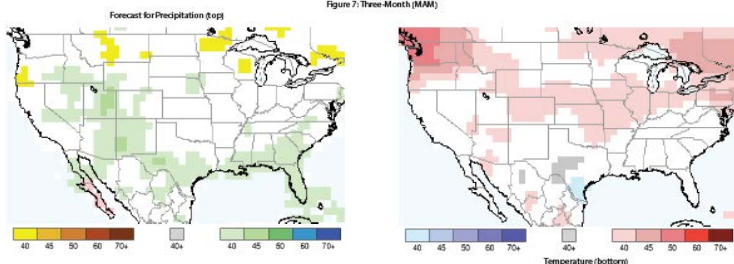
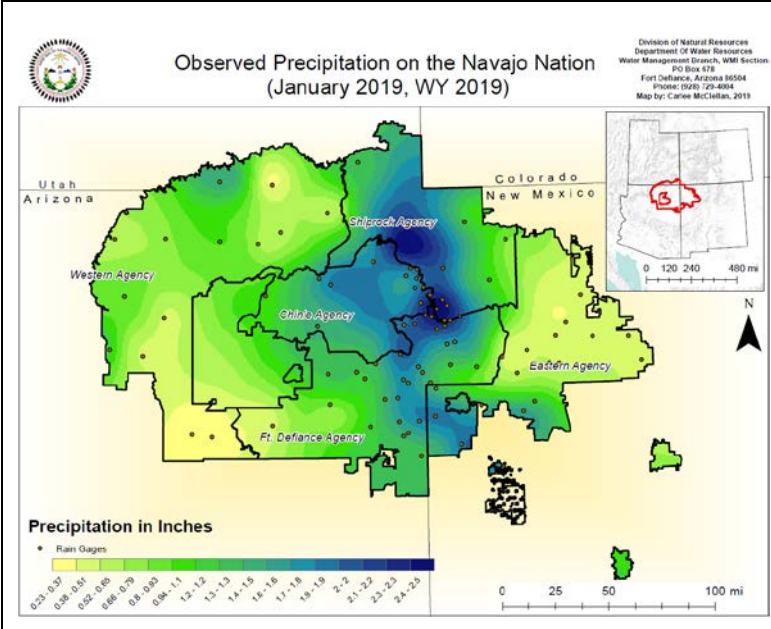


Figure 7: Three-Month (MAM)

Published by the Climate Assessment for the Southwest (CLIMAS), with support from University of Arizona Cooperative Extension, the Arizona State Climate Office, and the New Mexico State Climate office.

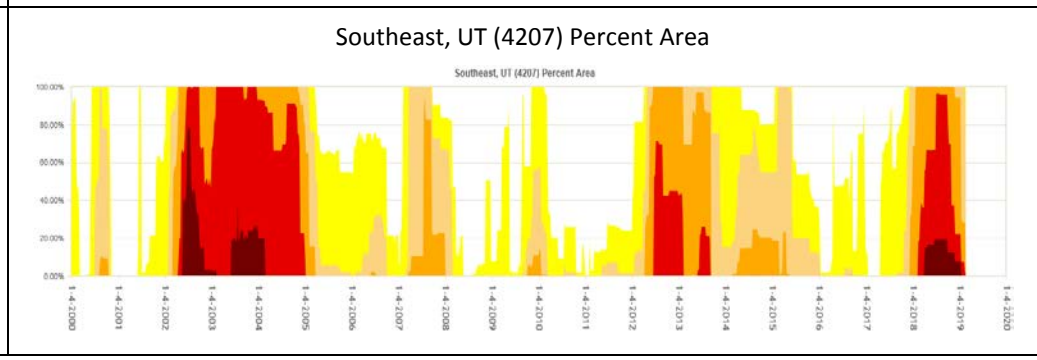
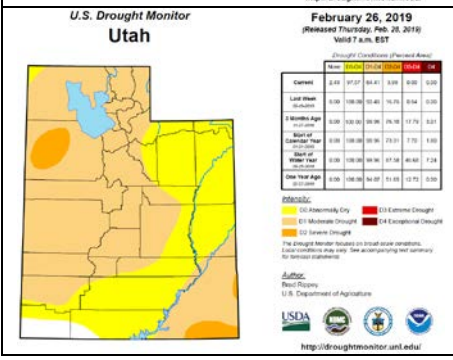
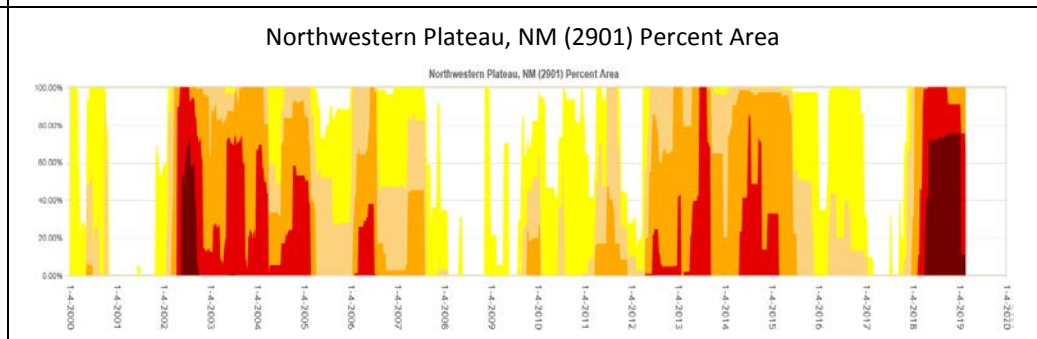
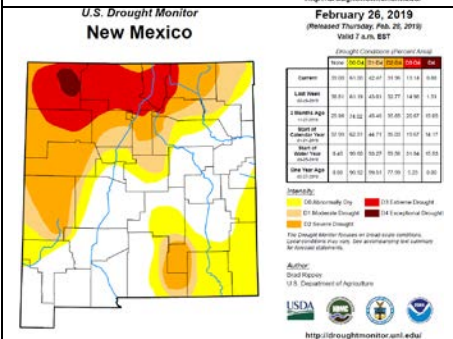
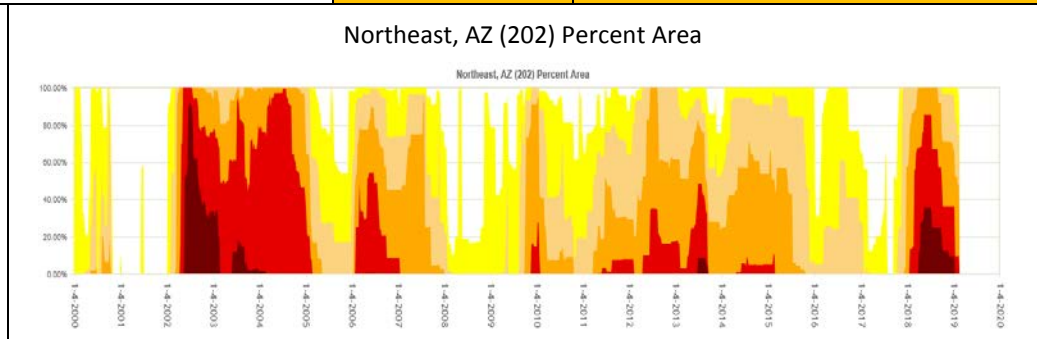
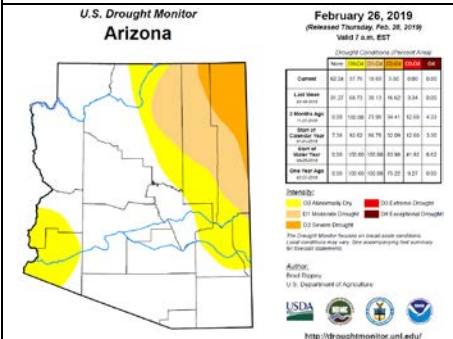
Navajo Nation Precipitation Summary



Agency	January	Avg	% of Avg
Chinle	2.16	1.35	160%
Eastern	0.87	0.59	147%
Fort Defiance	1.42	1.16	122%
Shiprock	1.50	1.14	132%
Western	0.64	0.74	86%

Useful Drought Related Sites:

<p>NWS-CPC Seasonal Outlook http://www.drought.unl.edu</p> <p>USGS Daily Stream Flow www.usgs.gov/water/</p> <p>Western Regional Climate Center www.wrcc.dri.edu</p> <p>CLIMAS Southwest Climate Outlook www.climas.arizona.edu</p>	<p>New Mexico Governor's Drought Task Force http://www.ose.state.nm.us/DroughtTaskForce/index.html</p> <p>ADWR Drought Program http://www.azwater.gov/azdwr/StatewidePlanning/Drought</p> <p>Utah Division of Water Resources http://www.water.utah.gov/DroughtConditions/</p> <p>Navajo DWR-Water Management Branch http://www.frontiernet.net/~nndwr_wmb/</p>
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February 2019