

National Drought Summary for 4/10/2018

Summary: A series of storms systems with varying amounts of precipitation swept across most of the lower 48 States this week, including the Far West which was mostly dry last week. After a very dry February, normally one of the wettest months of the year in California, repeated storms have brought welcome precipitation to most of the state, gradually increasing WYTD precipitation and Sierra snows closer to normal. Decent precipitation (2-6 inches, locally to 10 inches) also fell on western Oregon and Washington and in the Cascades. In the Southwest, however, storms have generally bypassed this region this winter (and this week), and after a disappointing 2017 summer monsoon, drought conditions expanded and worsened. To the east, light to moderate precipitation fell on the northern and central Rockies, north-central Plains, the western Corn Belt, and most locations in the eastern third of the Nation. The greatest amounts (1.5-4 inches) fell on the lower Mississippi and eastern Ohio Valleys, eastern Carolinas, and north-central Florida. Subnormal temperatures prevailed across much of the contiguous U.S. east of the Rockies (except Florida), and averaged above-normal in the Southwest. Showery weather continued across Hawaii and Puerto Rico (where no drought existed) while drier weather occurred across Alaska.

Northeast: Light to moderate (1-2.5 inches) precipitation fell on non-drought areas of the Appalachians, central New York, and eastern Maine while little or no precipitation was reported in the mid-Atlantic (Maryland, Delaware, and New Jersey) and southward into Virginia. Promising storm systems have failed to deliver anticipated precipitation totals in the Delmarva region, and as a result, a gradual increase in short-term deficits plus lowering USGS stream flows called for an expansion of D0 in central Maryland southward into Virginia (*see Southeast region*). Due to the unseasonably cold weather since March, however, moisture demands from plants and trees are still minimal due to their delayed growth, but both could rapidly increase once temperatures rebound. In contrast, many 7-, 14-, and 28-day average USGS stream flows have dropped below their tenth percentile in central Maryland into Virginia due to the lack of significant precipitation, thus D0 was expanded in central and the eastern shore of Maryland southward into Virginia.

Southeast: Most areas of the Southeast region reported light to moderate (0.5-2 inches) precipitation, including moderate to heavy totals in north-central Florida (3-8 inches), eastern Carolinas (1.5-2.5 inches), and western Alabama (1.5-3 inches). In contrast, light (less than 0.5 inches) or no precipitation occurred in most of Virginia, central North Carolina, western South Carolina, most of Georgia, and southern Florida. As previously mentioned in the *Northeast summary*, D0 and D1 was expanded in Virginia in response to disappointing totals from recent storm systems that have created short-term deficiencies (2-4 inches at 60- and 90-days; 4-8 inches at 6-months), along with USGS stream flows in the lower tenth percentile. Some of the impacts are due to a very dry November and December, but have been tempered from a cold March and early April that has limited plant development and growth (and soil moisture uptake). Similarly, subnormal precipitation has fallen on most of South Carolina, Georgia, eastern Alabama, and Florida during the past 6-months, with 6-month deficits running between 6-12 inches. The January-March 2018 precipitation rankings from NCEI showed that South Carolina and Georgia had the 18th and 26th driest such period since 1895, respectively. Plus with all short-term indices (SPIs, soil moisture models, CPC blends, USGS stream flows, EDDI) showing drought conditions, D0

and D1 was expanded northward into north-central Georgia and northern South Carolina to reflect this. In contrast, significant rains fell on the eastern Carolinas, western Alabama, and north-central Florida, easing D0 and D1 conditions in the first two areas while eradicating D0 in the latter. Elsewhere, enough rain was measured on remaining drought areas for status-quo.

South: Like last week (and many other recent weeks), significant precipitation fell mainly on non-drought areas of Arkansas, Mississippi, Tennessee, Louisiana, and eastern sections of Oklahoma and Texas, and bypassed the drought in western Texas and Oklahoma. With the early October rains falling out of the most recent 6-month period, SPIs plunged to D3 and D4 levels across northern New Mexico, northern Texas, western Oklahoma, southern Colorado, and southwest Kansas. The early October rains seemed like a long-faded memory as most non-irrigated winter wheat fields and pastures in the panhandles of Texas and Oklahoma were in very poor or dead condition. According to NASS/USDA April 8 reports, 61%, 57%, 44%, and 19% of Texas, Oklahoma, Kansas, and Colorado winter wheat was in poor or very poor condition, respectively, and 41%, 40%, 37%, and 26% of Colorado, New Mexico, Oklahoma, and Texas pastures and ranges were in similar condition (Kansas N/A). In parts of northern Texas, soils were dry down to 1-3 feet, whereas other locations were dry in the upper 12-18 inches, and Level 2 water restrictions were in place for Canyon, TX. While some areas benefited from the early October rains and were kept at D3, D4 was expanded into northeastern New Mexico, northern Texas,, western Oklahoma, and southwestern Kansas where the impacts matched the indices. In contrast, with additional light rains in central and southern Texas, plus heavier rains from last week, minor adjustments (mostly improvements) were made to the D0-D2 areas, except for some D2 expansion north of Del Rio that missed out on the rains during the past 2 weeks. In southern Louisiana, light showers (0.5-1.5 inches) fell on the D0 area, but the heaviest rains fell north and south (offshore), thus no changes were made.

Midwest: Mostly light precipitation and unseasonably cold air covered the Midwest this week. The greatest totals (more than 1.5 inches) fell on non-drought portions of the Ohio Valley (central Indiana, most of Ohio, eastern Kentucky), while 0.5-1 inch of liquid equivalent (mainly snow) occurred in eastern South Dakota, northern Iowa, southern Minnesota, central Wisconsin, and lower Michigan. Little or no precipitation fell on southern Iowa and northern Missouri; however, the D1 was slightly adjusted (reduced) in northeastern Missouri upon reassessment of indices out to 12-months (wet, normal, or D0 at the worst). In Wisconsin, another round of light snow was enough to remove some D0 in central sections, and D0 was returned to extreme southeastern portions near Lake Michigan where enough short-term indicators were at D0 or drier. No changes were made to the frozen, snow-covered D0/D1 area in northern Minnesota.

High Plains: Another week of light precipitation (snow) and subnormal temperatures enveloped the northern Plains, with some heavier amounts (0.5-1 inch) falling on northern and eastern South Dakota and the Black Hills. In east-central South Dakota, 4-8 inches of snow fell from Aberdeen southeastward past Watertown, and with this moisture, a slight D0 removal was made where indices out to 6-months were wet, and since this D0 was short-term, it was easier to justify its removal; however, the D0 was kept where frost depths were deeper (down to 2-4 feet) in the northeast. After several weeks of gradual improvements in eastern Montana and the western Dakotas, no changes were made this week as precipitation was lighter. In northern Colorado, some decent precipitation fell on the central Rockies, finally allowing for some small 1-category improvements in northwestern and north-central sections of the state as WYTD indicators climbed above various D0-D2 percentile thresholds. Farther south, similar

to other south-central Plain states, Kansas saw little or no precipitation (less than 0.25 inches) as not only short-term indices (6-months or less) but also longer-term tools (9- and 12-months) indicated drier conditions than depicted. Accordingly, the D4, D3, D2, and D1 borders were slightly extended northward to reflect the severe conditions and growing deficits (8-14 inches at 12-months in central Kansas). The April 8 NASS/USDA winter wheat rating for Kansas stood at 44% in poor or very poor condition, with Kansas the top state for winter wheat production. No changes were made between the border of Nebraska and Kansas as a few extra snow events this year across this area have contributed enough moisture to prevent deterioration, at least for now.

West: After experiencing rather tranquil weather last week, stormy weather returned to the Far West as has thankfully been the case since early March - after a near-record dry February (third driest February in California since 1895, according to NCEI). With the continued train of spring storms providing badly-needed moisture to California, additional improvements were made to areas with the greatest weekly totals (3-8 inches) that have also neared their normal WYTD precipitation. With most major reservoirs above their April 10 historic average and stream flows nearing 7-day record highs due to the combination of heavy rains and some snow melt, D0 was removed from northern and central coastal and Sierra Nevada locations, while D1 was improved to D0 near and south of Fresno to near Bakersfield. Although WYTD deficits remained, this latest storm caused flooding, and coupled with last winter's surplus precipitation, conditions have improved with the spring storms. April 10 snow water equivalents (SWE), however, remained below normal, with northern (36%), central (51%), and southern (39%) Sierras seeing some snow melt from lower elevation rains. Statewide, the SWE summary stood at 11.7 inches, or 43% of normal for April 10. Likewise, additional precipitation over northeastern Nevada (D0 to nothing hole) and along the Nevada-Oregon border (D1 to D0) warranted a 1-category improvement.

In contrast, another week of disappointing dry and warm weather in the Southwest led to additional deterioration. In southern California, after reassessing reservoir conditions at Lakes Cachuma, Casitas, and Piru in Santa Barbara and Ventura counties, the earlier March rains did little to increase their levels, thus D2 was returned to those counties. While higher terrains in California's Owen Valley and eastward into Nevada did fairly well with March storms, the lower elevations did not, and when combined with a poor fall and winter, D1 conditions were expanded into southern Nevada. In addition, D2 was increased in east-central Colorado with 6-month SPIs between -1 and -2.5. D3 now covered southeastern Utah, southwest Colorado, and central New Mexico as another dry and warm week dropped WYTD basin average precipitation to 50, 43, and 19-27% of normal, respectively, while the mountain snows have completely melted in eastern Arizona and most of New Mexico (0% SWE). In southeastern Utah and northeastern Arizona, D4 areas were added to reflect both the poor winter conditions and the weak and early ending summer monsoon of last year (12-month indices at D4). In northeastern New Mexico, D4 was extended into Union and Colfax counties as near- or record dry 6-month precipitation, above-normal temperatures, low humidity, and strong winds combined to produce very poor **irrigated** winter wheat, along with bare, dead, or very poor pasture and range conditions according to field observations.

Alaska, Hawaii, and Puerto Rico: Similar to last week, no dryness or drought was in Hawaii or Puerto Rico, and with continuing showery (wet) conditions at both locations, none was drawn. In Alaska, drier weather and mostly seasonable temperatures (except in northern locations) prevailed after a wet and snowy March in southwestern, northern, and interior sections. Light to moderate precipitation (0.5-2

inches) fell along the southern and southeastern coasts, enough to maintain but not quite improve D0 and D1 in the area yet.

Looking Ahead: During April 12-16, 2018, more precipitation is expected for the Pacific Northwest southward into northern California and the Sierra Nevada, and then eastward across the northern sections of the Rockies and Plains. Widespread moderate precipitation (0.5-2 inches) is anticipated for most of the eastern third of the Nation, with the greatest totals (2-4 inches) targeting the lower Mississippi and Tennessee Valleys, the north-central Great Plains, and the upper Mississippi Valley and Great Lakes region. Heavy snow should blanket the north-central Plains and upper Midwest. Unfortunately, the Southwest and southern half of the Plains is expected to remain dry. Temperatures should average below normal across much of the lower 48 States, especially in the northern Plains and upper Midwest, while the mid-Atlantic and Ohio Valley experience unseasonable warmth for a change.

For the ensuing 5 days (April 17-21), odds favor above-median precipitation across much of the West, Rockies, and Plains, except near to below-median totals in southern Arizona and most of New Mexico and Texas. The upper and middle Mississippi Valleys, Great Lakes region, northern New England, and southern half of Alaska also favor above-median precipitation chances, while sub-median totals are likely for the Southeast, Appalachians, and mid-Atlantic. Subnormal temperatures are a good bet across much of the lower 48 States except in the southern Plains and extreme southern Florida, with Alaska tilting toward above-normal readings in the west and below-normal in the east.

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