

ZCZC OKCESGTUA ALL
TTAA00 KTUA DDHMM

Flood Potential Outlook
National Weather Service, ABRFC, Tulsa, Oklahoma
1205 PM CST, Wednesday, March 6, 2019

COLORADO
-- ARKANSAS RIVER BASIN--

The Rocky Mountains

The potential for flood conditions will be near normal this spring along the Arkansas River and the headwaters of its tributaries. Flooding here is usually caused by rapid snowmelt along with heavy, individual precipitation events.

As measured at high altitude SNOTEL monitoring stations, the mountains of the Arkansas River Basin have received approximately 119 percent-of-median precipitation and have accumulated 132 percent-of-median snowpack this water year. (A more detailed table is included below.) At the end of February, mountain reservoirs in the Arkansas River basin (Turquoise, Twin Lakes, Pueblo) were at 55 percent-of-capacity. This represents 94 percent-of-average storage and 79 percent of last year's storage.

S N O W - P R E C I P I T A T I O N U P D A T E

Based on Mountain Data from NRCS SNOTEL Sites
As of Wednesday: March 6, 2019

BASIN Data Site Name	ELEV. (Ft)	SNOW WATER EQUIVALENT			TOTAL PRECIPITATION		
		Current	Median	Median %	Current	Median	Median %

ARKANSAS RIVER BASIN							
APISHAPA	10000	11.3	6.8	166	14.5	9.9	146
BRUMLEY	10600	11.9	7.9	151	12.0	10.6	113
FREMONT PASS	11400	17.2	12.3	140	16.7	12.3	136
PORPHYRY CREEK	10760	18.0	12.6	143	15.3	12.4	123
SOUTH COLONY	10800	17.0	15.9	107	19.6	17.1	115
WHISKEY CK	10220	12.9	9.3	139	15.6	12.8	122
				-----			-----
Basin wide percent-of-average				132			119

Units = inches for the Current and Average Snow Water Equivalent
and Total Precipitation values

The Climate Prediction Center (CPC) Seasonal Outlooks for Spring (MAR-APR-MAY) indicate equal chances (33.3%) for above, near, or below normal temperatures across Colorado. The precipitation outlook for the

same period indicates increased chances (33-40%) for above median precipitation in the Arkansas River Basin of Colorado.

The U.S. Drought Monitor of March 5, 2019 indicates that the mountain headwaters of the Arkansas River are currently experiencing Severe Drought (D2) conditions. Conditions improve with eastward extent. The plains of Eastern Colorado are experiencing widespread Moderate Drought (D1) conditions, with a small area of Abnormally Dry (D0) along the Kansas border. The CPC Seasonal Drought Outlook of February 21, 2019 shows that drought conditions are expected to remain but improve for the next three months across Colorado.

Current estimates from the CPC indicate that soil moisture across the plains of eastern Colorado is generally near to above normal.

The Ensemble Streamflow Prediction (ESP) model does not indicate a greater than 50 percent chance of flooding at any forecast point. The table below contains a summary of some potential maximum stages from the model output.

Colorado Ensemble Streamflow Prediction

As of Tuesday: March 5, 2019

Mar 5 - Jul 3 50% Exceedence

Weekly

Station	Flood Stage(ft)	50% exceedence Maximum Stage (ft)	50% exceedence Maximum Stage (ft)
Leadville	9.0	7.8	7.1
Salida	8.0	4.9	4.4
Wellsville	9.0	6.3	5.8
Parkdale	9.0	5.5	4.8
Canon City	10.0	8.3	7.8
Portland	9.0	5.8	4.9
Pueblo	8.0	6.6	5.2

The Southeastern Plains

The potential for flood conditions will be near normal this spring. Normal conditions for southeastern Colorado reflect a low probability of flooding.

Estimates from the National Operational Hydrologic Remote Sensing Center (NOHRSC) indicate there is a slight snowpack in the plains of southeast Colorado with snow-water equivalents less than one inch. According to the CPC, soil moisture estimates in the plains of the Arkansas River Basin are near to above normal.

According to the USGS stream gages, flows along Fountain Creek in central Colorado are above seasonal normals. The mainstem of the Arkansas River is flowing at near to above normal levels, also. These flows continue all the way to the Kansas border. At the end of February, reservoirs affecting the Arkansas River below Pueblo (Meredith, Trinidad, and John Martin) were at 27 percent-of-capacity. This

represents 108 percent-of-average storage and 57 percent of last year's.

The ESP model indicates a probability of flooding greater than 50 percent at La Junta (LXHC2) on the Arkansas River. The table below shows the probability of flooding during the next 120 days at four forecast points in the plains of southeast Colorado.

Colorado Ensemble Streamflow Prediction
As of Tuesday: March 5, 2019

Fcst Point Station ID	% Probability Minor Flooding	% Probability Moderate Flooding	% Probability Major Flooding
ARCC2	Not Expected	Not Expected	Not Expected
LXHC2	54	19	3
LAPC2	29	15	8
LMAC2	11	7	4

Precipitation during the last 90 days has been above average across much of southeast Colorado, although there is some dryness along the New Mexico border in the plains.

The high plains of Eastern Colorado are experiencing Severe Drought (D2) conditions, especially with westward and southward extent. Moving northward and eastward, a transition to Moderate Drought (D1) and Abnormally Dry (D0).

The CPC Seasonal Drought Outlook of February 21, 2019 shows that drought conditions are expected to remain but improve during the next three months across Southeast Colorado.

```

*****
*
*   This, and additional Water Supply Information,
*   can be found on our Web Page at:
*
*   www.weather.gov/abrfc/water_supply
*
*****

```

NEW MEXICO -- CANADIAN RIVER BASIN

The potential for spring flooding for northeastern New Mexico is near normal. Normal conditions in northeast New Mexico reflect a low probability of flooding. Flooding in New Mexico is generally driven by rapid snow melt runoff or high-intensity rainfall.

The Sangre de Cristo Mountains mark the headwaters of the Canadian River in New Mexico. These mountains have experienced about 118 percent-of-median precipitation this water year and have accumulated 112 percent-of-median snowpack.

S N O W - P R E C I P I T A T I O N U P D A T E
 Based on Mountain Data from NRCS SNOTEL Sites
 As of Wednesday: March 6, 2019

BASIN Data Site Name	ELEV. (Ft)	SNOW WATER EQUIVALENT			TOTAL PRECIPITATION		
		Current	Median	Median	Current	Median	Median
				%		%	%

SANGRE DE CRISTO MOUNTAIN RANGE BASINS							
CULEBRA #2	10500	12.9	10.9	118	12.3	10.6	116
GALLEGOS PEAK	9800	11.8	10.2	116	15.4	12.1	127
NORTH COSTILLA	10600	8.1	6.2	131	12.4	12.1	120
RED RVR PASS #2	9850	8.3	7.3	114	9.7	8.3	117
TOLBY	10180	8.2	7.0	117	12.2	10.5	116
TRINCHERA	10860	11.2	8.3	135	10.4	9.3	112
WESNER SPGS	11120	13.1	12.8	102	17.9	15.2	118

Basin wide percent-of-average				112			

					118		

The Climate Prediction Center (CPC) Seasonal Outlooks for northeastern New Mexico indicate there are equal chances (33.3%) for above, near, or below normal temperatures during the next three months. Precipitation outlooks for the same period indicate increased chances (40-50%) of above median precipitation.

Snow cover models from National Operational Hydrologic Remote Sensing Center (NOHRSC) show some snowpack in the plains of northeastern New Mexico, especially closer to the Colorado border. Soil moisture in northeastern New Mexico is generally near normal at this time.

Many stream gages on the Upper Canadian River and its tributaries are affected by ice at this time of year. A generalized statement of current streamflow is therefore, difficult to make. However, the Canadian River at Sanchez is currently running below normal, while further downstream, the Canadian River at Logan is also showing above normal flow. At the end of February, the contents of Conchas Reservoir constituted 50 percent of the reservoir capacity and 64 percent-of-average contents at this date. Contents of Eagle Nest Reservoir were at 43 percent-of-capacity and 62 percent of average.

The U.S. Drought Monitor of March 5, 2019 indicates the headwaters of the Canadian River in the mountains of northern New Mexico are in Extreme Drought (D3). This is a result of the near-historic dryness from last year. Moving eastward, there is steady improvement from D2, to D1, to D0 near the Texas Panhandle. The CPC's US Seasonal Drought Outlook of February 21, 2019 calls for drought conditions to remain but improve during the next three months.

A summary of some potential maximum stages from the ESP model output are presented in the table below.

New Mexico Ensemble Streamflow Prediction
 As of Tuesday: March 5, 2019
 Mar 5 - Jun 3 50% Exceedence

Station	Flood Stage(ft)	Weekly 50% exceedence	
		50% exceedence Maximum Stage (ft)	50% exceedence Maximum Stage(ft)
Vermejo R @Dawson	9.0	5.3	3.9
Cimarron R @Cimarron	5.0	2.3	1.6
Mora R @Golondrinas	5.5	2.2	1.8

 * This, and additional Water Supply Information, *
 * can be found on our Web Page at: *
 * *
 * www.weather.gov/abr/c/water_supply *
 * *

SOUTHERN KANSAS

The potential for flood conditions in southern Kansas will be near normal this spring, except along the Neosho River below John Redmond Dam in eastern Kansas. Flood potential is above normal here. Most flooding in Kansas is directly related to specific precipitation events.

Rainfall during the last 90 days has been hit and miss across southwestern and south-central Kansas. Areas from Dodge City westward received significantly above normal precipitation, while areas south and southeast of Dodge City have been relatively dry. Southeast Kansas fared a little better, but precipitation was still hit and miss. Generally, precipitation across Southeast Kansas was near normal.

Snowpack estimates from the National Operational Hydrologic Remote Sensing Center (NOHRSC) indicate some snowpack in southern Kansas. Snow-water equivalents are less than one inch. Soil moisture conditions in southern Kansas are varied, with most areas currently above normal. The largest anomaly is across the western parts of the state.

Streamflows across Kansas are generally near to above seasonal normals.

Reservoir storage in southern Kansas is near design conditions. U.S. Army Corps of Engineers data indicate that Corps reservoirs currently have almost all of their flood control storage available.

The Climate Prediction Center's (CPC) Seasonal Outlook (MAR-APR-MAY) indicates there are equal chances (33.3%) for above, near, or below normal temperatures across Kansas. The outlook indicates increased chances (33-40%) of above median precipitation across Kansas.

The U.S. Drought Monitor of March 5, 2019 indicates no drought across all of Kansas. The US Seasonal Drought Outlook of February 21, 2019 indicates Kansas should remain drought-free during the next three months.

The table below displays the probability of flooding for selected Dodge City forecast points during the next 3 months. Current model output indicates that chances of minor flooding in western Kansas are relatively low (< 20%).

Select Points in Western Kansas
Kansas Ensemble Streamflow Prediction
As of Tuesday: March 5, 2019

Fcst. Point Station ID	% Probability Minor Flooding	% Probability Moderate Flooding	% Probability Major Flooding
COOK1	19	7	Not Expected
BETK1	31	18	3
ENWK1	49	21	4
FRGO2	22	8	4
ZENK1	39	27	23

The table below presents some south-central and southeast Kansas forecast points where the ESP model indicates a greater than 10 percent chance of minor flooding during the next 90 days.

Select Points in South-central and Southeast Kansas
Kansas Ensemble Streamflow Prediction
As of Tuesday: March 5, 2019

Fcst. Point Station ID	% Probability Minor Flooding	% Probability Moderate Flooding	% Probability Major Flooding
AGAK1	25	5	Not Expected
AGSK1	28	15	5
ALBK1	38	20	Not Expected
ALMK1	56	45	8
ARCK1	76	27	11
ARKK1	30	9	Not Expected
ATOK1	38	8	Not Expected
BLPK1	32	20	13
CBNK1	80	13	3
CNUK1	72	40	9
COWK1	35	Not Expected	Not Expected
CFVK1	27	10	Not Expected
CTWK1	55	44	Not Expected
DRBK1	36	19	16
EDWK1	17	16	9
EREK1	70	52	33
FLRK1	56	13	Not Expected
FRNK1	49	14	Not Expected
GTBK1	20	3	Not Expected

HAVK1	58	55	49
HTCK1	85	75	16
HTDK1	55	28	4
IDPK1	45	Not Expected	Not Expected
IOLK1	52	22	9
LYNK1	50	Not Expected	Not Expected
MDKK1	51	25	5
MULK1	39	32	27
OSWK1	86	72	15
OXFK1	55	32	5
PECK1	41	9	Not Expected
PPFK1	84	74	Not Expected
PLYK1	54	48	28
SEDK1	33	18	15
TOWK1	38	28	4
WFDK1	42	30	18
AMCK1	23	15	Not Expected
EMPK1	74	48	Not Expected
EPRK1	48	46	Not Expected
LRYK1	38	38	Not Expected
NEOK1	76	70	Not Expected

```

*****
*
*   This, and additional Water Supply Information,
*   can be found on our Web Page at:
*
*   www.weather.gov/abrfc/water_supply
*
*****

```

SOUTHWEST MISSOURI

The potential for flood conditions in southwestern Missouri will be near normal this spring. Most flooding in southwestern Missouri is related to specific heavy rainfall events. Therefore, current conditions do not necessarily indicate an increased or decreased risk of spring flooding.

Precipitation during the last 90 days has been slightly above average across Southwest Missouri.

The Climate Prediction Center's (CPC) Seasonal Outlook (MAR-APR-MAY) indicates there are equal chances (33.3%) for above, near, or below normal temperatures across Southwest Missouri. The outlook indicates increased chances (33-40%) of above median precipitation.

Snowpack estimates from the National Operational Hydrologic Remote Sensing Center (NOHRSC) indicate some snowpack in Southwest Missouri. Snow-water equivalents are less than one inch. Soil moisture in Southwest Missouri is currently above normal. Streamflow in that part of the state is near normal for this time of year.

The U.S. Drought Monitor of March 5, 2019 indicates no drought in Southwest Missouri. CPC's US Seasonal Drought Outlook of February 21, 2019 indicates Southwest Missouri should remain drought-free during the next three months.

The table below presents some southwestern Missouri forecast points where the ESP model indicated a greater than 10 percent chance of minor flooding over the next 90 days. These are not extreme conditions and do not reflect an above normal potential for flooding.

Select Points in Southwest Missouri
Ensemble Streamflow Prediction
As of Tuesday: March 5, 2019

Fcst. Point Station ID	% Probability Minor Flooding	% Probability Moderate Flooding	% Probability Major Flooding
CHTM7	58	20	Not Expected
JOPM7	12	6	Not Expected
TIFM7	35	17	Not Expected
WCOM7	49	Not Expected	Not Expected
BXTK1	42	12	3

```

*****
*
*   This, and additional Water Supply Information,
*   can be found on our Web Page at:
*
*   www.weather.gov/abrfc/water_supply
*
*****

```

ARKANSAS

The potential for flood conditions in western Arkansas will be near normal this spring. Flooding in western Arkansas usually occurs in response to specific heavy precipitation events. Also, the Arkansas River may flood in response to upstream conditions.

Precipitation totals during the last 90 days for western Arkansas have been significantly above average. Many areas across Central Arkansas have seen more than 150% of their normal precipitation during this period.

Soil moisture conditions in western Arkansas are significantly above normal.

Corps of Engineers projects in southwestern Arkansas all have much of their flood control capacity available at this time. Streamflows in western Arkansas are all near to above normal, as well.

The Climate Prediction Center's (CPC) Seasonal Outlook (MAR-APR-MAY)

indicates there are equal chances (33.3%) for above, near, or below normal temperatures across western and central Arkansas. The outlook indicates increased chances (33-40%) of above median precipitation.

The U.S. Drought Monitor of March 5, 2019 indicates no drought in western Arkansas. CPC's Seasonal Drought Outlook of February 21, 2019 indicates Arkansas should remain drought-free during the next three months.

```
*****
*
*   This, and additional Water Supply Information,
*           can be found on our Web Page at:
*
*           www.weather.gov/abrfc/water_supply
*
*****
```

OKLAHOMA

The potential for flood conditions in Oklahoma will be normal across the state. Flooding in Oklahoma usually occurs in response to specific heavy precipitation events.

Precipitation totals for the last 90 days are above normal across the eastern 3/4 of Oklahoma, while much drier across the far-western part of the state. However, it has also been above normal across the central part of the Oklahoma Panhandle.

The Climate Prediction Center's (CPC) Seasonal Outlook (MAR-APR-MAY) indicates there are equal chances (33.3%) for above, near, or below normal temperatures across Oklahoma. The outlook indicates increased chances (33-40%) of above median precipitation.

Soil moisture across Oklahoma is currently above normal, although conditions are closer to normal across Southwest Oklahoma.

Stream and river discharges in Oklahoma are near to above seasonal normals across much of the state.

Reservoir storage in Oklahoma is near design conditions. U.S. Army Corps of Engineers data indicate that Corps reservoirs currently have almost all of their flood control storage available.

The U.S. Drought Monitor of March 5, 2019 indicates much of Oklahoma is experiencing no drought conditions, with the exception of western Oklahoma and parts the Panhandle. Western Oklahoma is experiencing Abnormally Dry (D0). Conditions deteriorate across a small area of far-southwest Oklahoma, where Moderate Drought (D1) is indicated.

CPC's Seasonal Drought Outlook, released February 21, 2019 calls for improvement of the dryness across western Oklahoma during the next three months.

*
* This, and additional Water Supply Information, *
* can be found on our Web Page at: *
*
* www.weather.gov/abrfc/water_supply *
*

TEXAS

The potential for flood conditions in North Texas will be near normal this year. In the Panhandle, the potential for flooding will also be near normal. Flooding in North Texas and the Panhandle usually occurs in response to specific heavy precipitation events.

Precipitation totals for the last 90 days across northern Texas along the Red River east of Wichita Falls have been significantly above normal. On the other extreme, much of the Texas Panhandle received well below normal precipitation during the past 90 days.

Streamflows across northern Texas are a mixed bag with above and near normal flows common. A few locations in the Panhandle have below normal flows currently.

The Climate Prediction Center's (CPC) Seasonal Outlook (MAR-APR-MAY) indicates there are equal chances (33.3%) for above, near, or below normal temperatures across Texas. The outlook indicates increased chances (33-40%) of above median precipitation.

Soil moisture conditions at the end of February were generally above normal across much of Texas.

The U.S. Drought Monitor of March 5, 2019 shows Moderate Drought (D1) across parts of the Texas Panhandle and Northwest Texas. This area of D1 drought is surrounded by an area of Abnormally Dry (D0) conditions. The CPC US Seasonal Drought Outlook of February 21, 2019 indicates drought conditions should improve across Texas.

*
* This, and additional Water Supply Information, *
* can be found on our Web Page at: *
*
* www.weather.gov/abrfc/water_supply *
*

Thanks to the USGS for streamflow condition data, the U.S. Army Corps of Engineers for reservoir condition data, the Natural Resource

Conservation Service for SNOTEL data, and the Climate Prediction Center for the precipitation and temperature outlooks, the soil moisture deficits, and the Drought Outlook.

\$\$