NWS FORM E-5 U.S. DEPARTMENT OF COMMERCE HYDROLOGIC SERVICE AREA:
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
NATIONAL WEATHER SERVICE **SAN JOAQUIN VALLEY - HANFORD, CA**

REPORT FOR:

MONTHLY REPORT OF RIVER AND FLOOD CONDITIONS

MONTH: **FEBRUARY** YEAR: **2019**

TO: Hydrometeorological Information Center, W/OH12x1
National Weather Service/Office of Hydrology
1325 East-West Highway #7116
Silver Spring, MD 20910

SIGNATURE:

Kevin Durfee
(In Charge of Hydrologic Service Area)

DATE: March 4, 2019

When no flooding occurs, include miscellaneous river conditions, such as significant rises, record low stages, ice conditions, snow cover, droughts and hydrologic products issued (WSOM E-41).

+---+
¦ ¦ An **X** inside this box indicates that no flooding occurred for the month
+---+ within this hydrologic service area.

February, 2019 was overly wet and frequently stormy. Besides areal flooding, the month brought a variety of weather extremes which included isolated tornadoes, hail producing thunderstorms, damaging winds, atmospheric rivers, freezes in the San Joaquin Valley and rare snowfall at low elevations in addition to very heavy snow accumulations over the high Sierra.

The majority of storm systems that trekked through the HSA during the month originated in western Canada and consequently brought frequent invasions of Arctic air southward into the Golden State. Each one of these cold storms dumped a sizeable amount of snow over the highest elevations of the Sierra. By the end of February, the snowpack over the high Sierra was nearly 3 times its depth from the beginning of the month and averaged about 150 percent of normal. In locations such as Tuolumne Meadows (elevation 9,000 feet) snow piled to a depth of nearly 7 feet by month's end. The downside of these cold storms is that they brought accumulating snow to elevations that rarely receive snow. This happened on several occasions. The first occurrence came on the night of the 4th into the morning of the 5th with repeat occurrences on the 10th, the 17th and again from the 20th into the 21st. Schools closed in several foothill communities on the 5th where local snow accumulations of up to 8 inches were observed. Weather spotters reported a dusting of snow as low as the 1,000 foot elevation in the wake of some of these storms. Snow even mixed in with rain in a handful of San Joaquin Valley locations on the 17th and again during the predawn hours of the 20th. Farther south, snow clogged roads disrupted travel through the Kern county mountain passes at times. Caltrans had to close Interstate 5 through the Grapevine and Highway 58 through Tehachapi on the 10th , again from the 17th into the 18th, and for a third time on the 21st because of snow and ice.

The Arctic air associated with a few of these storms plunged temperatures below the freezing mark in several locations of the San Joaquin Valley. The first invasion of unseasonably cold air occurred from February 6th through the 7th. It was followed by a second Arctic blast from the 10th through the 11th with reinforcing cold shots on the 18th and again on the 21st. Frost and sub-freezing minimum temperatures were fairly widespread in the San Joaquin Valley during the predawn hours of the 6th and 7th, the 11th and 12th and for a final time on the 22nd and 23rd. Thermometer readings dropped as low as the mid 20s in the coldest spots of the valley during these freezes. The frequent outbreaks of cold weather brought the monthly average temperature over the HSA to slightly to much below normal by month's end.

Scattered thunderstorms, a few which reached severe levels, erupted in the cold and unstable air mass following the Arctic frontal passages on the afternoon of the 2nd and the 15th. In both instances, isolated EF0 tornadoes touched down in the Sierra foothills. One was observed about 8 miles south of Mariposa on the afternoon of February 2nd and another EF0 tornado was sighted about 9 miles southwest of Coarsegold on the afternoon of the 15th. Luckily, the tornadoes touched down in rural areas with little if any damage to property. Additionally several funnel clouds were observed in the San Joaquin Valley and foothills in the wake of each of these cold fronts. The storm system that trekked through the HSA from the 13th through the 14th packed the biggest punch. Strong southeasterly winds associated with this storm system felled

numerous trees and caused areal power outages in the San Joaquin Valley and adjacent foothills.

The hydrologic impacts each of these storms produced across the HSA were truly noteworthy. Although much of the western half of the San Joaquin Valley and the Kern County desert were rain shadowed by a majority of these storms, these areas still received at least an inch of rain for the month. The highest precipitation totals occurred in the orographically favored areas of the HSA, namely the western slopes of the Sierra Nevada where 5 to 15 inch totals were common. Some locations in the Tulare County mountains received precipitation totals in excess of 20 inches for the month. During the first week of February, hydrologic impacts were relatively minor. However, flood prone areas saw a recurrence of high water, particularly in Merced county. Water topped the Mariposa Creek bridge along State Route 59, for example, and kept this portion of the highway closed for several days during the month. Street and urban flooding also became problematic in the usual poor drainage areas. By the end of the month, most retention ponds were nearly full, valley irrigation canals were flowing with an abundance of water and moderately high water levels were occurring on many of the mainstem rivers. The Merced River at Stevinson rose above its respective Monitor stage on the 15th and remained above monitor stage through the end of February. Water came close to topping Crane Valley Dam above Willow Creek in the Madera county foothills from the 13th through the 15th. The downstream town of North Fork was put on alert for the threat of potential flooding. Luckily rain ended before water could overtop the dam, but it was a close call. Water levels also rose in the major reservoirs. By the beginning of March, San Luis Reservoir was at 97 percent capacity, Buchanan Dam was 75 percent full with Friant Dam not far behind. The water capacity of the major reservoirs throughout the central California interior ended up averaging 52 percent of normal by the beginning of March.

HYDROLOGIC PRODUCTS ISSUED

Flash Flood Warnings*

Ferguson/Detwiler Burn Scar	2004Z	14-FEB

*Note: Numerous Flash Flood Statements were issued as follow-ups to the Flash Flood Warnings

Flash Flood Watches

Foothills and higher elevations of the Sierra below 5,000 ft	1323Z	11-FEB

Flood Advisories

West side of San Joaquin Valley from Fresno County southward	0443Z	03-FEB
San Joaquin Valley and adjacent foothills (Merced Co/Madera Co)	2352Z	03-FEB
Central Merced County (Hwy 59 in the vicinity of Mariposa Creek)	1513Z	04-FEB
San Joaquin Valley and adjacent foothills (Fresno County northward)	2254Z	04-FEB
San Joaquin Valley and adjacent foothills of Fresno County	0042Z	05-FEB
Central Merced County (Hwy 59 in the vicinity of Mariposa Creek)	2129Z	08-FEB
Urban and Small Stream for the Kern County desert	1804Z	14-FEB
Urban and Small Stream for the San Joaquin Valley	2135Z	15-FEB

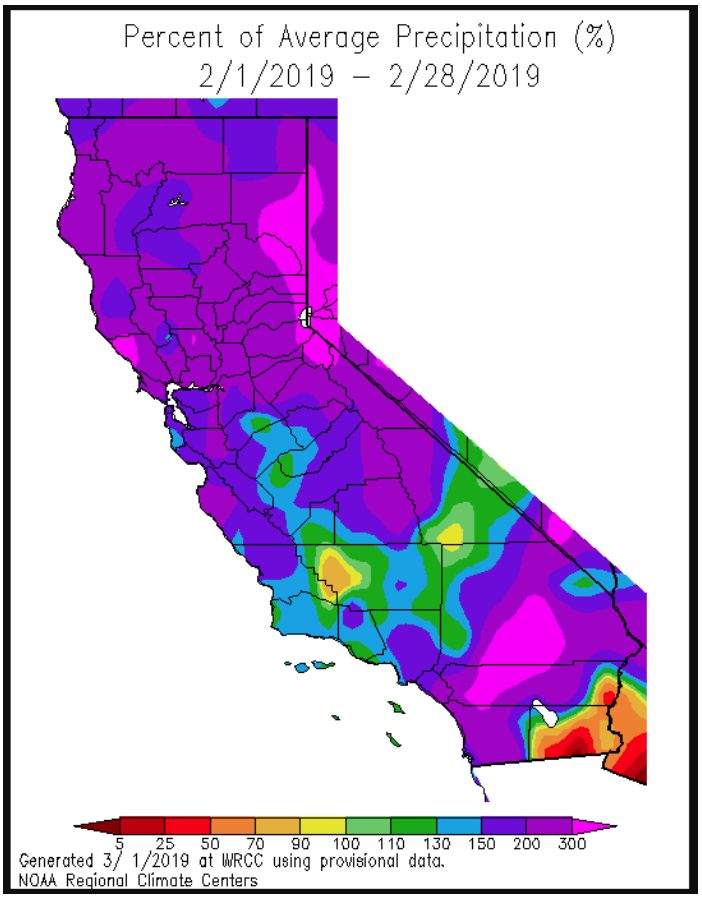
Hydrologic Outlooks

For the entire Hydrologic Service Area	1833Z	27-FEB

Hydrologic Statements

Merced River @Stevinson/San Joaquin River @Newman	0519Z	15-FEB
Merced River @Stevinson/San Joaquin River @Newman	1015Z	15-FEB
Merced River @Stevinson/San Joaquin River @Newman	1744Z	15-FEB
Merced River @Stevinson	1658Z	16-FEB
Merced River @Stevinson	1708Z	17-FEB
Merced River @Stevinson	1629Z	18-FEB
Merced River @Stevinson	1653Z	19-FEB

Merced River @Stevinson	2243Z	19-FEB
Merced River @Stevinson	2229Z	20-FEB
Merced River @Stevinson	1645Z	21-FEB
Merced River @Stevinson	2240Z	21-FEB
Merced River @Stevinson	1607Z	22-FEB
Merced River @Stevinson	1750Z	23-FEB
Merced River @Stevinson	1728Z	24-FEB
Merced River @Stevinson	2151Z	24-FEB
Merced River @Stevinson	2156Z	25-FEB
Merced River @Stevinson	1719Z	26-FEB
Merced River @Stevinson	1914Z	27-FEB
Merced River @Stevinson	2112Z	28-FEB



CC:

W/OH12x1
W/WR2
CNRFC
WFO HNX
WFO STO