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: **JULY** YEAR: **2015**

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: August 3, 2015

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.

The first ten days of July brought weather very atypical for early Summer. A rare occurrence of thunderstorms in the San Joaquin Valley and measurable snow over the high Sierra were two such examples. July, 2015 was literally only hours old when a large complex of strong thunderstorms containing gusty winds and frequent vivid lightning moved westward from the Mojave desert through the Kern County mountains and finally into the southern San Joaquin Valley. As these storms rumbled westward during the predawn hours of July 1st, several locations in the Kern County mountains and desert reported wind gusts of 45 to 55 mph. Outflow winds from these thunderstorms diminished considerably by the time they rumbled into the southern San Joaquin valley around daybreak. The following night brought another round of thunderstorms, only farther north. During the early morning hours of July 2nd, a band of thunderstorms, approximately 50 miles wide, equipped with frequent vivid lightning rattled residences from Tulare County northwestward into Fresno County and western Merced County. Mother Nature's remarkable light show both nights was the result of an upper level disturbance that was embedded in a northwestward influx of rich tropical moisture between an upper level ridge of High pressure centered over the Four Corners Region and a weak area of Low pressure off the southern California coast. Unfortunately, these thunderstorms were not big rain producers and ended up starting a handful of fires over the higher terrain. However, there was a report of minor flooding along Highway 14 in the Kern County desert in the vicinity of Red Rock Canyon on the morning of the 1st. It wasn't until the latter part of Independence Day weekend that a drier and more stable air mass finally swept into the HSA.

Another upper level low developed over the eastern Pacific by July 6th. As this feature inched its way toward the central California coast, it produced a strengthening onshore flow which in turn brought ocean cooled air into the San Joaquin Valley on the 7th and 8th. This system changed character by the time it pushed inland over the central California interior on the morning of the 9th. Isolated thunderstorms, some with very heavy rain and vivid lightning, blossomed over the coastal ranges and over the middle of the San Joaquin Valley in Kings County and western Tulare County shortly before daybreak. Lightning struck a home in Hanford where it ignited a tall palm tree, tore up some concrete and created an 18-inch hole in the ground. The lightning bolt traveled through this hole and struck a water pipe which blew holes in the water line of that home and shattered windows. Lightning also struck a utility pole just a few blocks away in the city of Hanford. Although this area of low pressure looked innocently starved for moisture at first, monsoonal moisture became entwined in its counter clockwise circulation by the time it made landfall into central California on the morning of the 9th. The air was cold enough aloft with this system to produce a slushy 3 inches of snow over the highest elevations of Yosemite National Park. According to a long time weather spotter in Tuolumne, it was the first time since 1976 that accumulating snow ever fell in the month of July. Otherwise, this area of low pressure produced numerous wet thunderstorms over the Sierra. Up to a half inch of rain fell in the San Joaquin Valley during the predawn hours of the 9th while as much as 1.5 inches of rain drenched some localities in the southern Sierra Nevada.

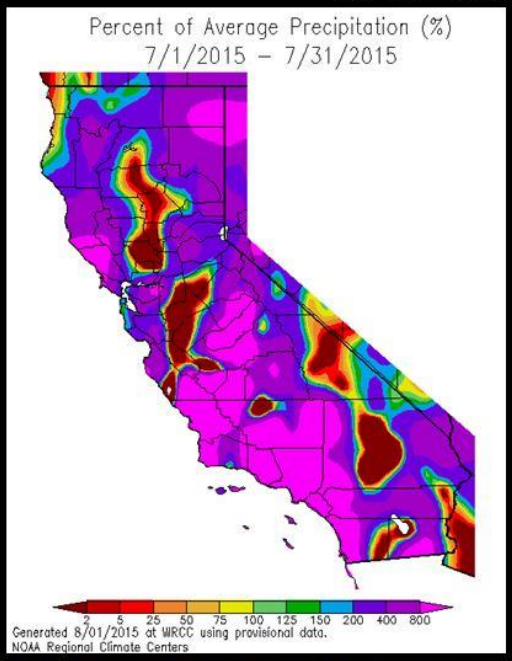
As this Low pressure system exited into the Great Basin during the early morning hours of the 10th, wraparound moisture associated with it produced a few light showers in Merced County and Mariposa County. A brisk onshore flow continued in the wake of this system and kept temperatures several degrees below normal throughout the HSA. In the San Joaquin Valley in addition to the Kern County desert, high temperatures were no warmer than the 80s on the 9th and 10th, but it was a nice break from the long stretches of triple digit heat in previous weeks. The weather pattern remained dry and rather benign from the 11th through the 17th while a weak upper level trough of Low pressure sat along the West coast. A prevailing onshore flow during this period brought shallow intrusions of marine air into the San Joaquin Valley where high temperatures remained below the century mark. This pattern would be repeated from the 22nd through the 27th but not before yet another significant monsoonal surge across central California.

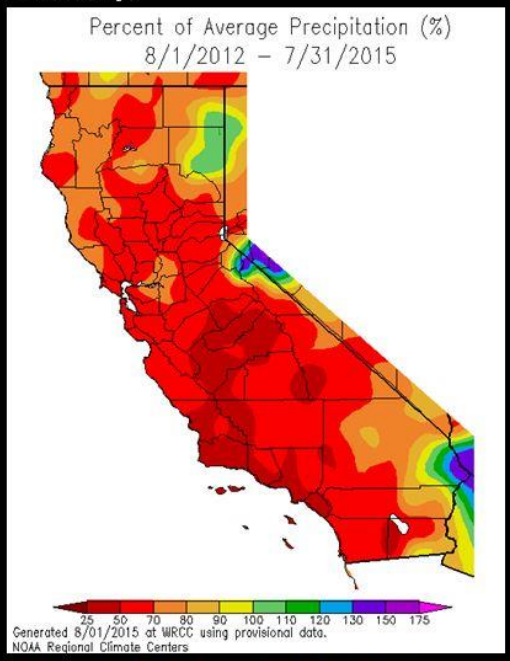
By the third weekend of the month, all eyes again turned to the Tropics as an abundance of moisture from Hurricane Dolores began to feed northward into the Golden State. Although Dolores eventually weakened into a tropical depression on her way northwestward well off the coast of Baja, her tropical moisture was channeled northward into the HSA during a 4-day period that began on the 18th and lasted through the 21st . Numerous showers and thunderstorms erupted over the mountains and desert during this period while isolated thunderstorms rumbled through portions of the San Joaquin Valley and adjacent foothills. Incidences of flash flooding became a daily occurrence in Kern County, mainly In the desert and in the vicinity of wildfire burn scars in the mountains. It began with flooding in the desert on Garlock Road and Red Rock Canyon Road during the afternoon of the 18th, and was later followed by mud and debris flows in the Frazier Park area that evening. The next day brought another deluge of heavy rain in the Tehachapi mountains, thanks to slow moving thunderstorms. The rain exacerbated flooding in the vicinity of Frazier Park and also produced severe flooding in the Tehachapi area on the 19th. Runoff eventually flowed out of the Tehachapi mountains and into the south end of the San Joaquin Valley that night. Places as far north as Wheeler Ridge were impacted by water and mud flows nearly a foot deep just off of Interstate 5. Other roads that were closed due to mud flows included Highway 202 and a portion of westbound Highway 58 in the vicinity of Tehachapi in addition to secondary roads in the Frazier Park area. The threat of flash flooding expanded northward into the foothills and higher elevations of the Sierra on the 20th and 21st. Nearly stationary thunderstorms in the vicinity of Oakhurst produced almost two inches of rain in less than one hour and caused flash flooding in North Fork during the early evening hours of the 20th. On the following evening, a similar scenario played out near El Portal where a mud and debris flow closed a small portion of Highway 140. The highway remained impassable to traffic leading into Yosemite National Park. However, CALTRANS was able to successfully clear debris from the highway within a day or so of the flash flood.

As mentioned above, the HSA finally got a welcome respite from thunderstorms by the 22nd as a dry southwesterly flow aloft pushed tropical moisture east of California. Dry weather was relatively short-lived, however. By the evening of the 29th, monsoonal moisture was already making inroads into southeastern Kern County. The last two days of July brought a renewed threat of thunderstorms to the mountains and desert. Unlike the previous bout with the monsoon, moisture was high based, so most thunderstorms produced little if any rain. Nonetheless, lightning from them sparked new wildfires, particularly in the Tulare County mountains. Thunderstorms with flash flood potential were more abundant in southern California and did cross the Kern County line on the afternoon of the 30th and produced minor flooding in the Frazier Park area. Nearly an inch and a half of rain fell in a short period of time near Lebec on the 30th. A southeasterly flow aloft brought isolated showers and thunderstorms into the San Joaquin Valley and adjacent foothills during the early morning hours of the 31st with little if any measurable rain.

In summary, July, 2015 ended up as the wettest July ever in Fresno and the 6th wettest on record in Bakersfield. This is an impressive statistic since records for both locations date back to the late 19th century! In Fresno, this July was a tenth of an inch wetter than the previously wettest July 102 years ago, with an observed monthly rainfall of 0.43 inches. Although July, 2015 was abnormally wet, the month's rain was merely a proverbial "drop in the bucket" compared to the long term drought. (See image below) Historically low flows continued on the mainstem rivers. Meanwhile, water capacities at the major reservoirs averaged only 14 percent of normal at the end of the month. Temperature-wise, July, 2015 averaged slightly cooler than normal throughout the HSA.

California's reality check…the long term drought greatly overshadowed an unusually wet July.





Several northward influxes of tropical moisture brought an abundance of rain to much of the Golden State in July. The map on the left shows how much wetter than normal July, 2015 was. But it's a proverbial "drop in the bucket" to what is needed to erase the long term drought. The map on the right shows how large of a 3-year precipitation deficit still exists across much of California.

HYDROLOGIC PRODUCTS ISSUED THIS MONTH

Flood Advisory…..Kern County Desert	1214Z	01-JUL
Urban/Small Stream Flood Advisory…San Joaquin Valley	1551Z	09-JUL
Flash Flood Watch…Kern County Desert	1834Z	18-JUL
Small Stream Flood Advisory…Kern County Desert	2122Z	18-JUL
Flash Flood Warning…Kern County Mountains nr Frazier Park	0018Z	19-JUL
Small Stream Flood Advisory…Kern County Mountains/Desert	0156Z	19-JUL
Flash Flood Watch…Southern Sierra Nevada	0803Z	19-JUL
Flash Flood Warning…Kern County Mountains nr Weldon, Onyx	2049Z	19-JUL
Flash Flood Warning…Kern County Mountains/Way Fire Burn Scar	2145Z	19-JUL
Flash Flood Warning…Madera County Foothills near Minarets	0018Z	20-JUL
Small Stream Flood Advisory…Frazier Park	0058Z	20-JUL
Flash Flood Warning…Kern County Mtns-Caliente Creek Watershed	0103Z	20-JUL
Flash Flood Warning…Kern County Mountains-vicinity of Tehachapi	0208Z	20-JUL
Flash Flood Warning…Kern County Mountains-vicinity of Frazier Park	0319Z	20-JUL
Flash Flood Warning…Kern County Mountains-Kelso Creek Watershed	0359Z	20-JUL
Flash Flood Warning…Kern County Mountains-vicinity of Tehachapi	0549Z	20-JUL
Urban/Small Stream Flood Advisory…south end of San Joaquin Valley	1220Z	20-JUL
Small Stream Flood Advisory…Foothills and higher elevations of Mariposa and Madera County	2326Z	20-JUL
Small Stream Flood Advisory…Foothills and higher elevations of Fresno County	2329Z	20-JUL
Flash Flood Warning…Kern County Mountains-vicinity of Tehachapi	0549Z	20-JUL
Flash Flood Warning…Yosemite N.P. in the vicinity of North Fork	0022Z	21-JUL
Flash Flood Warning…Oakhurst area	0051Z	21-JUL
Small Stream Flood Advisory…southern Sierra-Yosemite to Kings Canyon	2330Z	21-JUL
Flash Flood Warning…Highway 140 near El Portal	0055Z	22-JUL

Flash Flood Watch…Kern County Mountains and Desert	0354Z	30-JUL
Small Stream Flood Advisory…Kern County Mountains near Frazier Park	2043Z	30-JUL

Note…numerous Flash Flood Statements were issued as follow-ups to the Flash Flood Warnings

cc:

W/OH12x1
W/WR2
CNRFC
WFO HNX
WFO STO