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: **DECEMBER** YEAR: **2013**

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: January 6, 2014

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).

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

The month was pathetically dry. One could say it was a fitting end to an excessively dry calendar year. In Fresno, 2013 was the driest calendar year ever in the historical archives that date back to the late 1800s. Merced, Hanford and Visalia also had an unprecedented dry 12-month period. In Bakersfield, 2013 was the ninth driest calendar year on record. (See specific details below) The 1.99 inches of rain that fell at the Hanford Municipal airport in 2013 was lower than the climatologically driest place in the United States…Death Valley, CA…which has a normal annual rainfall of 2.36 inches! A strong upper level ridge of high pressure that anchored itself off the California coast for much of the month was the primary blame for the persistently dry weather throughout the HSA. This ridge effectively slowed and blocked any storm systems that approached California from the west. In the San Joaquin Valley, the air mass stagnated so badly under the inversion that it created a number of unhealthy air days. The absolute worst day of air pollution in the valley in months occurred on the 18th. According to media reports, the AQI that day was allegedly higher than it had been all year.

Measurable rain in the San Joaquin Valley, as meager as it was, fell on only one day, December 7th. The rain was associated with a southward moving cold front that produced a tenth of an inch in the south valley to nearly three tenths of an inch in Merced county. This system also briefly interrupted an intensely cold spell of weather throughout the central California interior, and the precipitation that fell from it was in the frozen form at elevations as low as 1,000 feet. Snow at higher elevations accumulated to a depth of nearly 5 inches in the Sierra foothills while up to a foot of the white stuff blanketed the Sierra crest. A small accumulation of snow and ice closed Interstate 5 through the Grapevine during the morning hours of the 7th.

A storm system that had the potential to bring beneficial precipitation to parched central California ended up being largely a missed opportunity from the 19th into the 20th. Unfortunately, the storm developed and remained too far offshore. However, it did brush the Tehachapi mountains with some light rain. A cold front that was simultaneously moving through the HSA on the 20th brought isolated showers to the higher elevations of the Sierra. Otherwise, the only benefit of this system was that it cleansed the San Joaquin Valley and brought a noticeable improvement in air quality by the 20th.

In addition to being abnormally dry, December 2013 was truly a month of temperature extremes. A relatively dry cold frontal passage on the 3rd heralded an invasion of an Arctic air mass that took up residence over the central California interior until about the middle of the month. The San Joaquin Valley suffered agricultural ravages of a hard freeze during this period. Minimum temperatures were in the 20s practically every morning except on the 7th as mentioned above. December 5th, 6th and 10th were the most harshly cold mornings with thermometer readings between 19 degrees and 23 degrees in the coldest locations of the San Joaquin Valley. The Hanford municipal airport reported 25 nights of below freezing minimum temperatures this month. On the chilliest days, high temperatures in the San Joaquin Valley remained below 50 degrees.

December, 2013 also had its share of exceptionally mild days, too. On several days, temperatures peaked above 70 degrees in the Sierra foothills. Downslope winds warmed the extreme south end of the San Joaquin valley into the lower 70s on occasion. During the predawn hours of Christmas morning, the temperature rose to 71 degrees at the CHP weather station at the foot of the Grapevine, making it the 2nd warmest location in the continental U.S at that time besides Miami, Florida. Meadows Field airport, Hanford municipal airport and Fresno's Yosemite International airport had 17 days this December with maximum temperatures above 60 degrees. Nonetheless, the month of December ended up slightly colder than normal. From Christmas eve through the morning of the 28th, Red Flag conditions prevailed over the mountains with persistently low single digit relative humidities at several locations. It was the first time a Red Flag Warning was ever issued in the southern Sierra for so late in the year The unseasonably dry fuels over the mountains were the result of an absence of snow and a scarcity of precipitation. In fact, when the first snow survey of the season was conducted over the high Sierra on January 2nd, 2014, the snowpack was assessed at only 20 percent of normal.

NO HYDROLOGIC PRODUCTS WERE ISSUED THIS MONTH.

STATIONS THAT SHATTERED RECORDS FOR DRIEST CALENDAR YEAR

STATION	2013 RAINFALL (inches)	PREVIOUS RECORD (inches)	1981-2010 NORMAL (inches)	% OF NORMAL
FRESNO	3.01	3.55 in 1947	11.50	31
HANFORD (city)	2.24	3.37 in 1947	8.96	25
HANFORD (airport)	1.99	4.00 in 2007	10.10	20
LINDSAY	2.91	4.03 in 1947	12.46	23
LOS BANOS	2.28	2.98 in 1953	9.95	23
MERCED (airport)	3.79	6.00 in 2007	12.50	30
VISALIA	3.47	4.10 in 1910	10.93	32
LODGEPOLE	11.73	18.54 in 1953	45.48	26
YOSEMITE N.P. (south entrance)	10.84	13.65 in 1976	41.25	26

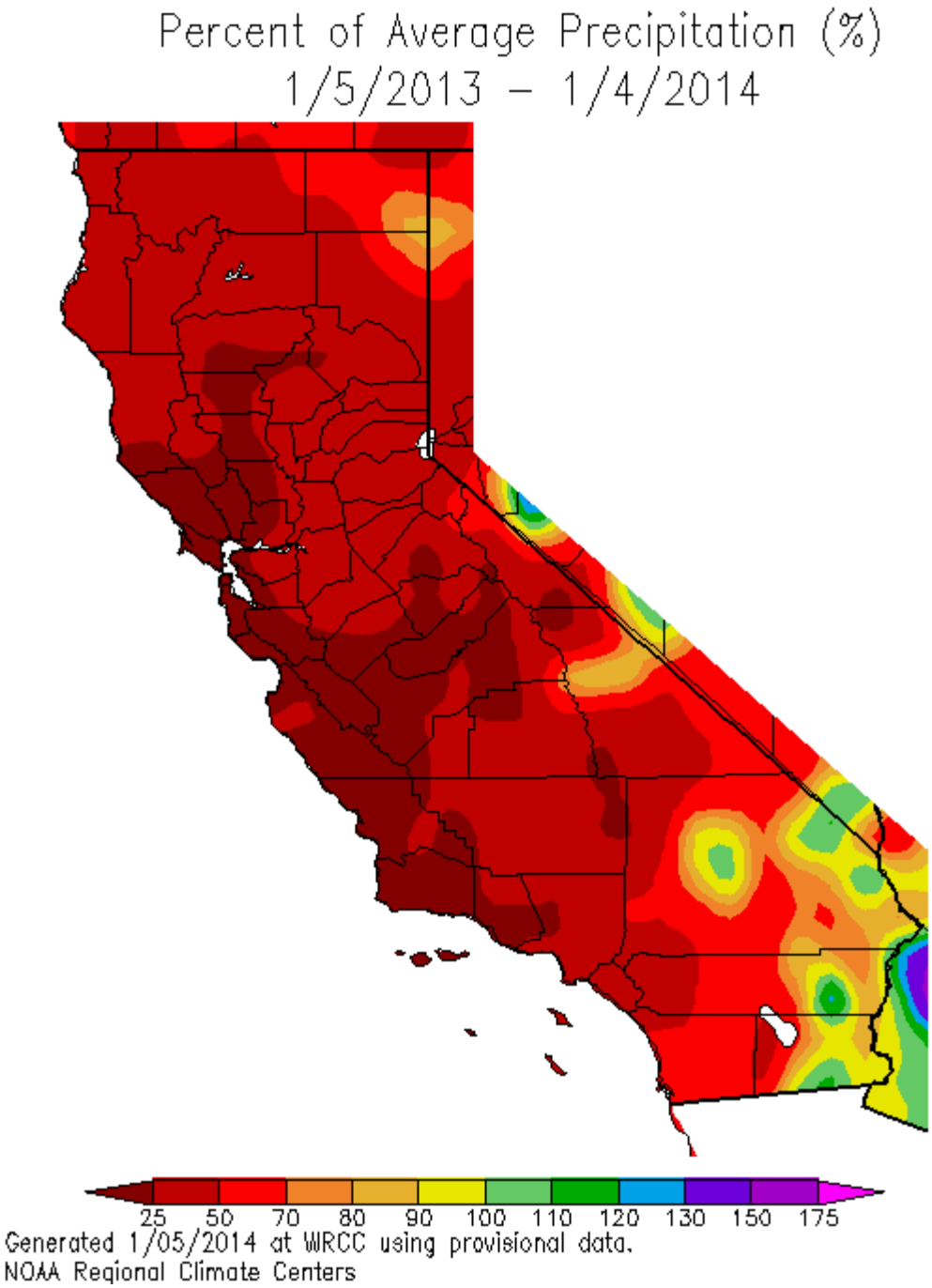
BAKERSFIELD (Meadows Field) had its 9th driest calendar year on record with 3.43 inches of rain. The driest year on record at Meadows Field is 1959 with 1.89 inches of rain.

In central California, the rain season runs from July 1st through June 30th. Listed below is a list of locations and their precipitation totals so far this season as of January 1st, 2014 with respect to normal.

SEASONAL TOTALS AS OF JANUARY 1, 2014

AIRPORT	ACTUAL	NORMAL	% OF NORMAL
MERCED	1.01	3.93	26
FRESNO	0.73	3.74	20
HANFORD	0.39	3.44	11
BAKERSFIELD	1.07	2.12	50

The precipitation deficit from a yearly perspective, statewide, is also pitifully low as you can see in the map below. (next page)



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W/OH12x1
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CNRFC
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