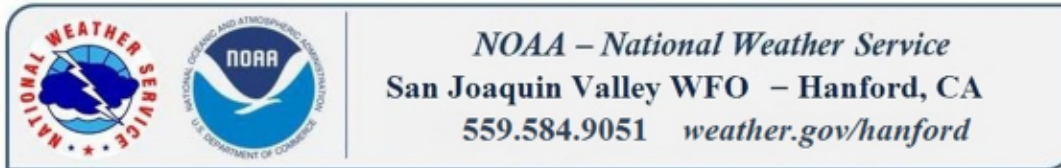

Tuolumne River Information Sheet

Monday, March 20, 2017

10:00 AM

1. Don Pedro Reservoir Maximum
- | | | |
|------------------------|--------------------------|---------------------|
| a) Elevation: | 812.54 Feet | 830 Feet |
| b) Storage: | 1,813,321 Acre-Feet | 2,030,000 Acre-Feet |
| c) Inflow (4 hrs Avg.) | 6,677 Cubic Feet/ Second | |
2. Release From Don Pedro (3 Hr Avg.) :
- | | | |
|--|---------------------------|--|
| a) Release to River @ La Grange: | 9,552 Cubic Feet/ Second | |
| b) Release to TID Main Canal at La Grange fo | 953 Cubic Feet/ Second | |
| c) Release to MID Main Canal at La Grange: | 337 Cubic Feet/ Second | |
| d) Total Release from Don Pedro: | 10,842 Cubic Feet/ Second | |
3. Turlock Lake Reservoir Maximum Winter
- | | | |
|---------------------|------------------------|------------------|
| a) Elevation: | 230.9 Feet | 237 Feet |
| b) Storage: | 20,491 Acre-Feet | 34,400 Acre-Feet |
| c) Inflow (24 hrs) | 774 Cubic Feet/ Second | |
| d) Release (24 hrs) | 658 Cubic Feet/ Second | |
| e) Inflow (4 hrs) | 826 Cubic Feet/ Second | |
4. Flow at 9th Street
- | | | |
|---------------|--------------------------|--|
| a) Elevation: | 53.97 Feet | |
| b) Flow: | 9,760 Cubic Feet/ Second | |
5. Flow on Dry Creek
Crab Tree Road: 18 Cubic Feet/ Second
6. U.S. National Weather Service watershed forecast for next 6 days ending:
- | | Inches | Freezing Level | Day |
|----|--------|----------------|-----|
| a) | 0.2 | 9,400 | Mon |
| b) | 1.3 | 7,700 | Tue |
| c) | 0.3 | 6,500 | Wed |
| d) | 0.0 | 6,700 | Thu |
| e) | 0.7 | 7,500 | Fri |
| f) | 0.7 | 6,100 | Sat |
| | 3.2 | | |
7. Information

Visit <http://www.tid.com/flows> for up to date information

Notes: Additional Information**NWS Comments: Monday, March 20, 2017 3:58 AM****...Two Significant Storms to Impact the Area This Week...**

Updates in Yellow

Impacts

- Slick roadways, potential for increased traffic accidents and longer travel times next week
- Mountain travel delays and possible chain controls north of Kings Canyon
- Strong gusty winds on Tuesday may bring localized power outages and downed trees.
- Thunderstorms may bring locally heavy rainfall, hail and frequent lightning

Forecast Confidence

- **High for Today - Wednesday Weather System**
- **Medium for thunderstorms on Tuesday; High for Wednesday thunderstorms**
- **Medium for Friday - Saturday Weather System**

Timing & Strength

- **Tonight - Wednesday:** Widespread precipitation with strong gusty winds. Snow levels around **8000** feet on Monday Night into Tuesday, then lowering to 5000 feet on Wednesday. Afternoon/evening thunderstorms possible on Tuesday, though more favorable on Wednesday.
- **Friday - Saturday:** Another storm system expected to arrive Friday with widespread significant precipitation possible.

Weather Summary

Unsettled weather is anticipated to return to the region **tonight** and continue through Wednesday. There is a chance of afternoon and evening thunderstorms on Tuesday and again on Wednesday; some could become strong, especially on Wednesday, due to colder, more unstable air. **A wetter system is expected to move in on Friday and continue into Saturday, with thunderstorms once again possible on Saturday.**

NWS will continue to provide updates as the situation develops.

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1. Watershed Reservoir Status

DON PEDRO / TUOLUMNE RIVER WATERSHED

	3/19/2017 Sunday	3/18/2017 Saturday	3/17/2017 Friday	3/16/2017 Thursday	3/15/2017 Wednesday	3/14/2017 Tuesday	3/13/2017 Monday
Computed Natural Flow (cfs)	7,407	7,692	8,180	7,293	5,842	5,838	5,273
Don Pedro							
Elevation (Feet) ^(Max = 830.0, Min = 530.0)	812.9	813.7	814.5	815.3	816.3	817.2	817.9
Storage (AF) ^(Max = 2,030,000 Min=309,000)	1,817,583	1,827,119	1,836,693	1,846,307	1,858,379	1,869,296	1,877,821
Gain/(-Loss) (AF)	-9,536	-9,574	-9,614	-12,072	-10,917	-8,525	-9,780
Avg. Inflow (cfs)	6,440	6,016	6,388	5,217	5,222	5,695	5,129
Avg. Flows at La Grange							
TID Canal (cfs) ^(Max = 2500)	764	757	621	555	529	495	303
MID Canal (cfs) ^(Max = 1900)	338	338	339	339	338	337	336
River (cfs) ^(Max = 5000)	10,146	9,749	10,274	10,409	9,859	9,161	9,421
Total (cfs)	11,248	10,843	11,235	11,303	10,726	9,993	10,060
Hetch Hetchy Reservoir							
Elevation (Feet) ^(Max = 3806 Min = 3620)	3,774.2	3,773.8	3,773.0	3,772.3	3,772.1	3,771.9	3,771.9
Storage (AF) ^(Max = 360,360, Min=0)	299,580	298,840	297,360	296,072	295,704	295,336	295,336
Gain/(-Loss) (AF)	740	1,480	1,288	368	368	0	0
Avg. Release (cfs)	1,722	1,444	1,433	1,370	1,367	1,439	1,437
Avg. Inflow (cfs)	2,095	2,190	2,082	1,556	1,553	1,439	1,437
Cherry Valley Reservoir							
Elevation (Feet) ^(Max = 4700 Min = 4440)	4,677.6	4,677.4	4,676.8	4,676.1	4,675.7	4,675.2	4,675.2
Storage (AF) ^(Max = 270,570 Min=0)	230,067	229,733	228,730	227,561	226,893	226,058	226,058
Gain/(-Loss) (AF)	334	1,003	1,169	668	835	0	0
Avg. Release (cfs)	873	522	508	507	508	506	746
Avg. Inflow (cfs)	1,041	1,028	1,097	844	929	506	746
Lake Eleanor Reservoir							
Elevation (Feet) ^(Max = 4660.5 Min = 4620.9)	4,656.2	4,655.6	4,654.9	4,654.0	4,650.9	4,650.9	4,650.9
Storage (AF) ^(Max = 27,016 Min=0)	22,611	22,053	21,405	20,593	17,796	17,796	17,796
Gain/(-Loss) (AF)	558	648	812	2,797	0	0	0
Avg. Release (cfs)	595	588	630	340	320	340	580
Avg. Inflow (cfs)	876	915	1,039	1,750	320	340	580
Avg. Div. to S.F. Pipeline (mgd)^(Max = 300)	84	54	84	84	0	84	84
Rain Fall (Inches)							
Hetch Hetchy	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cherry Valley	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Moccasin	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sonora	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Yosemite	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Don Pedro	0.00	0.00	0.00	0.00	0.00	0.00	0.00

* Computed Natural Flow is a calculated value representing what the flow in the river at La Grange would be without human diversion, storage, or release. Due to the nature of the calculation, this value may be negative.

** Inflow is a calculated value representing the flow of water into a reservoir. Inflow to a reservoir is not necessarily equal to the Computed Natural Flow. Due to the nature of the calculation, this value may be negative.

Note: cfs is a rate of flow in cubic feet per second; a flow of 1 cfs over a 24-hour period (cfs/day) ≈ 1.98 acre-feet (AF); mgd is a rate of flow in million gallons per day (megagallons per day); a flow rate of 1 mgd ≈ 1.55 cfs; a flow of 1 mgd over a 24-hour period ≈ 3.1 AF.

2. California Nevada River Forecast Center Reports

a. CNRFC 6 Day, Rainfall Forecast

11:6 Mon Mar 20 2017													
	Q P F (Inches)							FREEZING LEVEL (x1000 feet)					
	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Sat/25	Total	Mon/20	Tue/21	Wed/22	Thu/23	Fri/24	Sat/25
ORESTIMBA CK-NEWMAN	0.3	0.2	0.1	0.0	0.5	0.1	1.2	9.4	7.8	6.2	7.1	8	6.2
TUOLUMNE - H HETCHY	0.2	1.4	0.3	0.0	0.6	0.7	3.2	9.5	7.8	6.6	6.8	7.6	6.2
ELEANOR CK - LK ELNR	0.2	1.3	0.3	0.0	0.6	0.6	3.0	9.4	7.7	6.5	6.7	7.5	6.1
CHERRY CK-CHERRY VLY	0.2	1.3	0.3	0.0	0.7	0.7	3.2	9.4	7.7	6.5	6.7	7.5	6.1
TUOLUMNE - DON PEDRO	0.2	1.1	0.3	0.0	0.6	0.5	2.7	9.4	7.7	6.4	6.8	7.4	6.1
TUOLUMNE - MDSTO LOC	0.1	0.4	0.1	0.0	0.3	0.2	1.1	9.5	7.8	6.3	6.9	7.7	6.2
STANISLAUS - N MELNS	0.2	1.1	0.3	0.0	0.7	0.5	2.8	9.3	7.6	6.4	6.7	7.4	6.1
STANISLAUS - RPN LOC	0.2	0.3	0.1	0.0	0.4	0.1	1.1	9.4	7.7	6.3	6.9	7.6	6.1
% of Watershed								13%	25%	35%	35%	30%	40%

TURLOCK IRRIGATION DISTRICT

b. CNRFC 6 Day, 6 Hour Rainfall Forecast

NATIONAL WEATHER SERVICE FORECASTED RAINFALL (INCHES) :Run Mar 20 2017 20:56 GMT												
PACIFIC STANDARD TIME ENDING 6 HOUR TIME PERIOD	Modesto			Don Pedro			Hetch Hetchy			Cherry Valley		
	AMOUNT	24 HR.		AMOUNT	24 HR.		AMOUNT	24 HR.		AMOUNT	24 HR.	
	FOR PERIOD	AMOUNT	Total	FOR PERIOD	AMOUNT	Total	FOR PERIOD	AMOUNT	Total	FOR PERIOD	AMOUNT	Total
03/20/2017 16:00 (04 PM) Mon	0.00			0.00			0.00			0.00		
03/20/2017 22:00 (10 PM) Mon	0.02			0.00			0.00			0.00		
03/21/2017 04:00 (04 AM) Tue	0.32			0.28			0.24			0.22		
03/21/2017 10:00 (10 AM) Tue	0.15	0.49	0.49	0.72	1.00	1.00	0.64	0.88	0.88	0.67	0.89	0.89
03/21/2017 16:00 (04 PM) Tue	0.11			0.55			0.48			0.47		
03/21/2017 22:00 (10 PM) Tue	0.06			0.32			0.28			0.28		
03/22/2017 04:00 (04 AM) Wed	0.04			0.06			0.05			0.07		
03/22/2017 10:00 (10 AM) Wed	0.03	0.24	0.73	0.04	0.97	1.97	0.04	0.85	1.73	0.04	0.86	1.75
03/22/2017 16:00 (04 PM) Wed	0.06			0.19			0.16			0.18		
03/22/2017 22:00 (10 PM) Wed	0.01			0.11			0.10			0.07		
03/23/2017 04:00 (04 AM) Thu	0.00			0.04			0.04			0.03		
03/23/2017 10:00 (10 AM) Thu	0.00	0.07	0.80	0.00	0.34	2.31	0.00	0.30	2.03	0.00	0.28	2.03
03/23/2017 16:00 (04 PM) Thu	0.00			0.00			0.00			0.00		
03/23/2017 22:00 (10 PM) Thu	0.00			0.00			0.00			0.00		
03/24/2017 04:00 (04 AM) Fri	0.00			0.00			0.00			0.00		
03/24/2017 10:00 (10 AM) Fri	0.00	0.00	0.80	0.00	0.00	2.31	0.00	0.00	2.03	0.00	0.00	2.03
03/24/2017 16:00 (04 PM) Fri	0.06			0.14			0.10			0.13		
03/24/2017 22:00 (10 PM) Fri	0.10			0.29			0.24			0.26		
03/25/2017 04:00 (04 AM) Sat	0.17			0.32			0.27			0.31		
03/25/2017 10:00 (10 AM) Sat	0.00	0.33	1.13	0.00	0.75	3.06	0.00	0.61	2.64	0.00	0.70	2.73

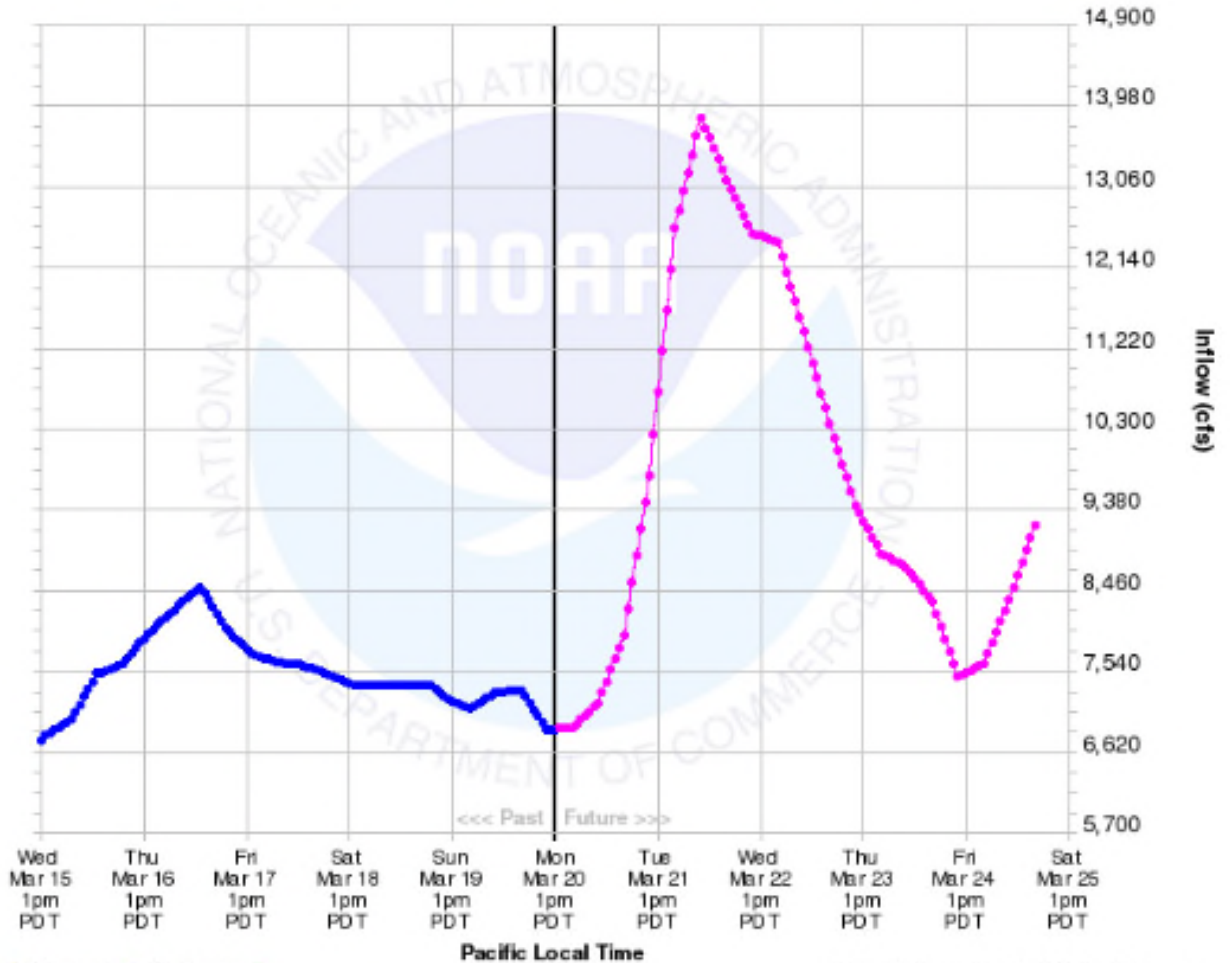
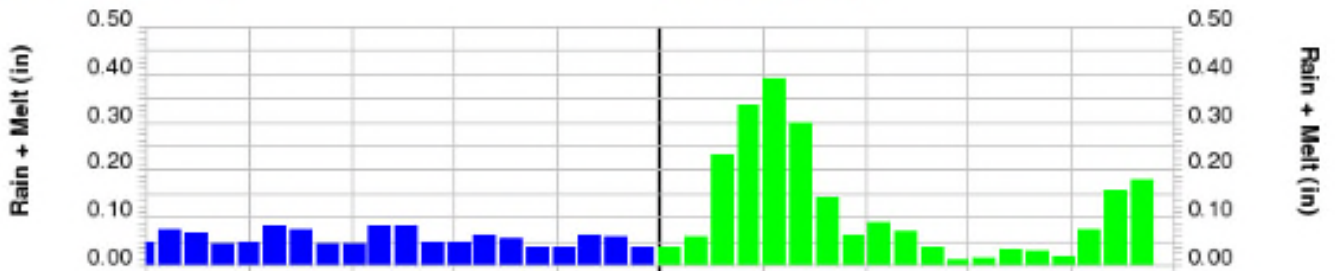
c. Don Pedro Forecasted Full Natural Flow (Not Inflow)

TUOLUMNE RIVER - NEW DON PEDRO RESERVOIR (NDPC1)

Latitude: 37.70° N Longitude: 120.42° W Elevation: 272 Feet
 Location: Tuolumne County in California River Group: San Joaquin
 Plot Type: Full Natural Flow

Issuance Time: Mar 20 2017 at 1:51 PM PDT Next Issuance: Mar 21 2017 at 9:00 AM PDT

Monitor Stage: N/A Flood Stage: N/A



Observed ● Forecast ● Guidance ●
 Created: 03/20/2017 at 1:55 PM PDT (NDPC1 Forecast Run Time = 2046Z)

California Department of Water Resources
 NOAA / NWS / California Nevada River Forecast Center

d. Dry Creek Flows (Forecasted Flows to 9th Street today)

DRY CREEK - MODESTO (DCMC1)

Latitude: 37.66° N

Longitude: 120.92° W

Elevation: 88 Feet

Location: Stanislaus County in California

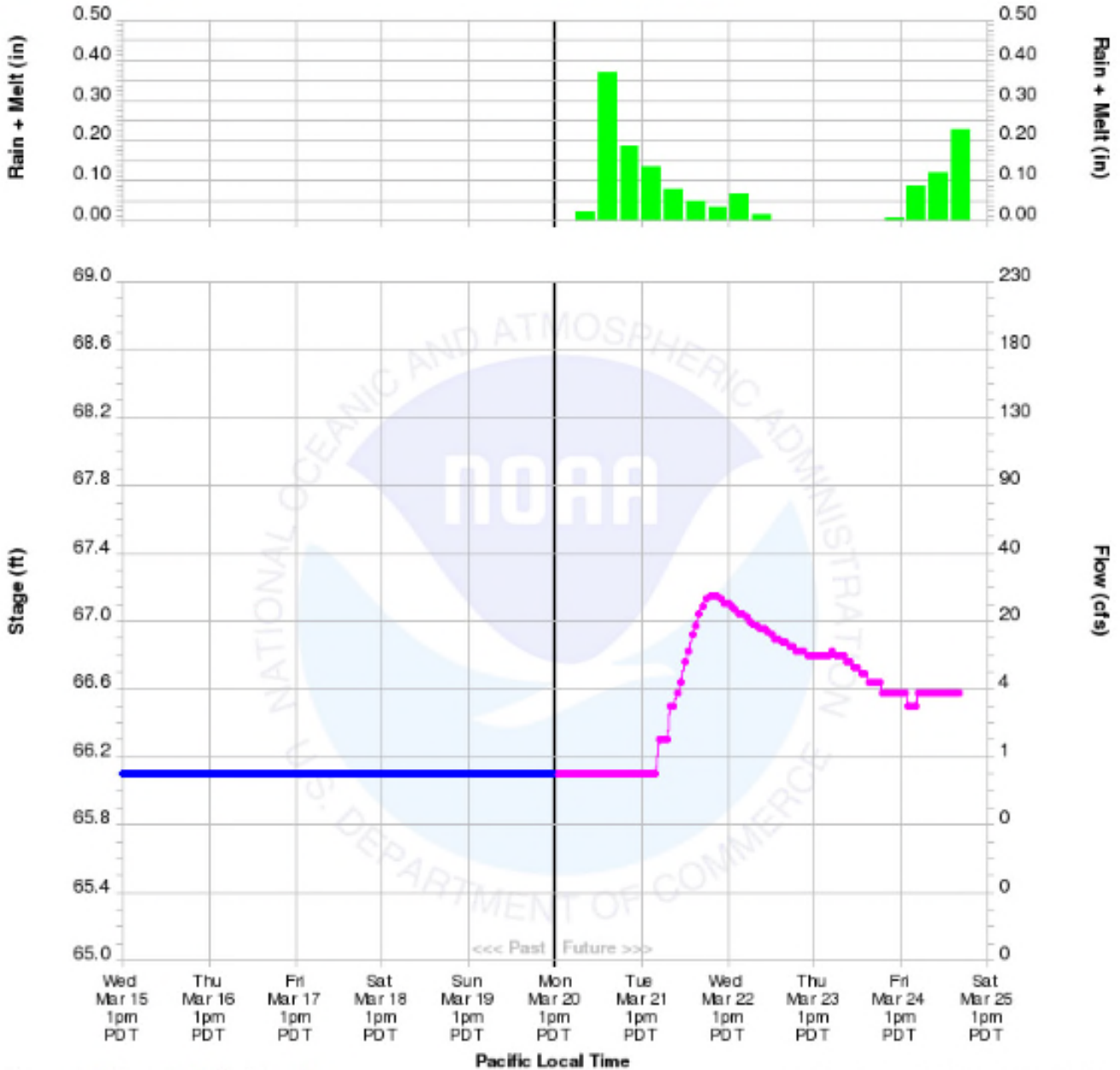
River Group: San Joaquin

Issuance Time: Mar 20 2017 at 1:51 PM PDT

Next Issuance: Mar 21 2017 at 9:00 AM PDT

Monitor Stage: N/A

Flood Stage: N/A

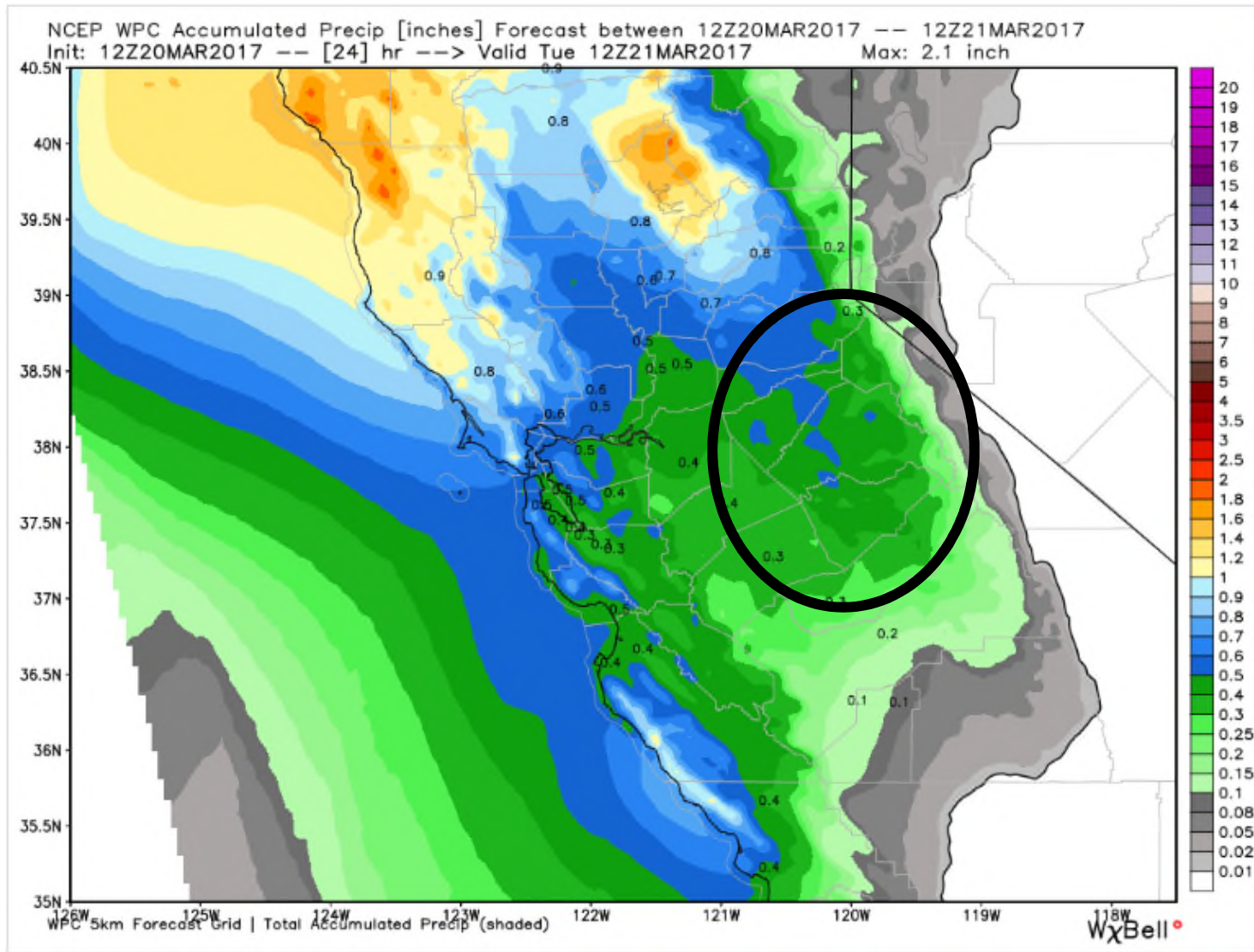


Observed ● Forecast ● Guidance ●
Created: 03/20/2017 at 1:53 PM PDT (DCMC1 Forecast Run Time = 2046Z)

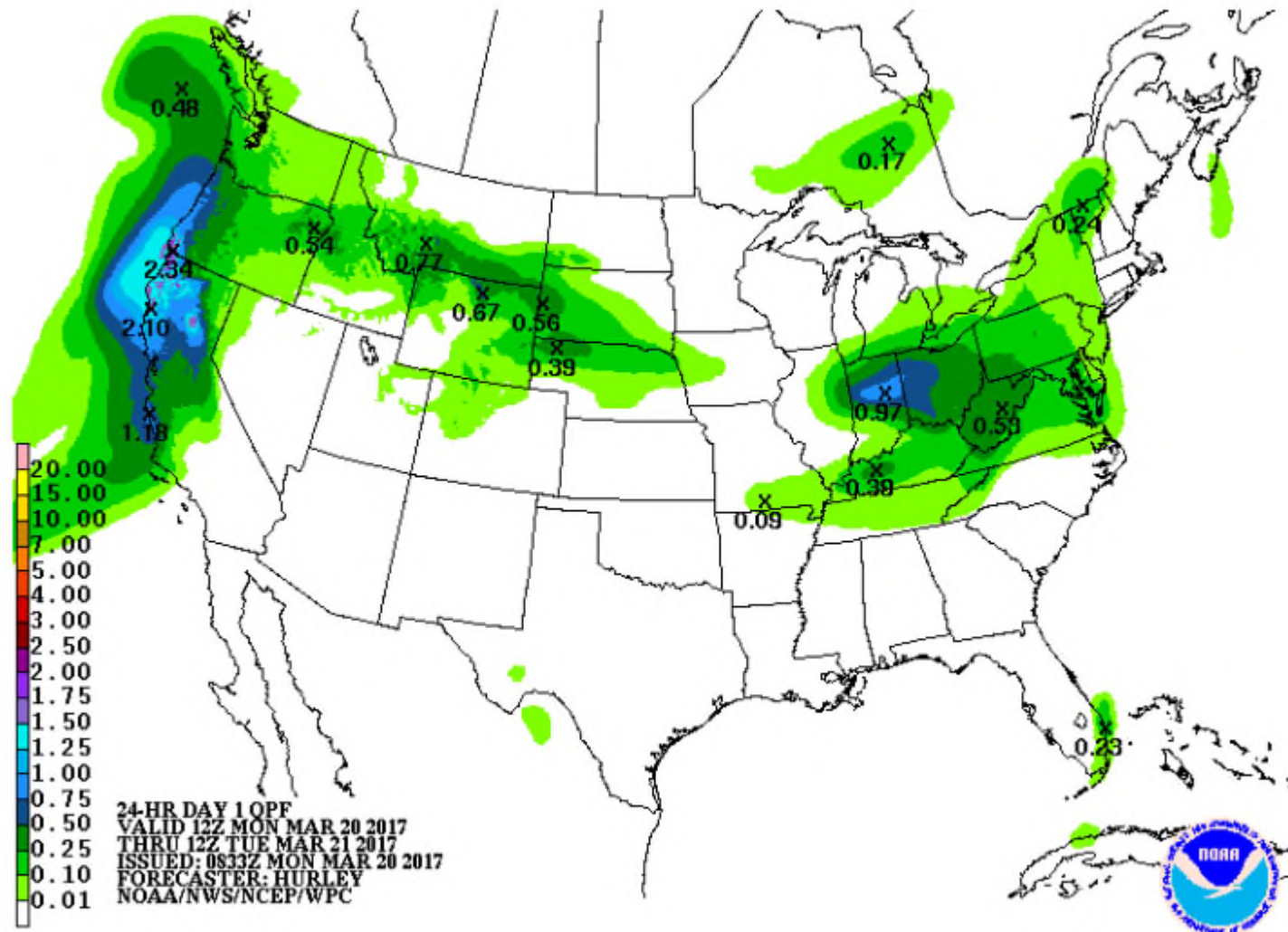
California Department of Water Resources
NOAA / NWS / California Nevada River Forecast Center

3. Rainfall Forecasts

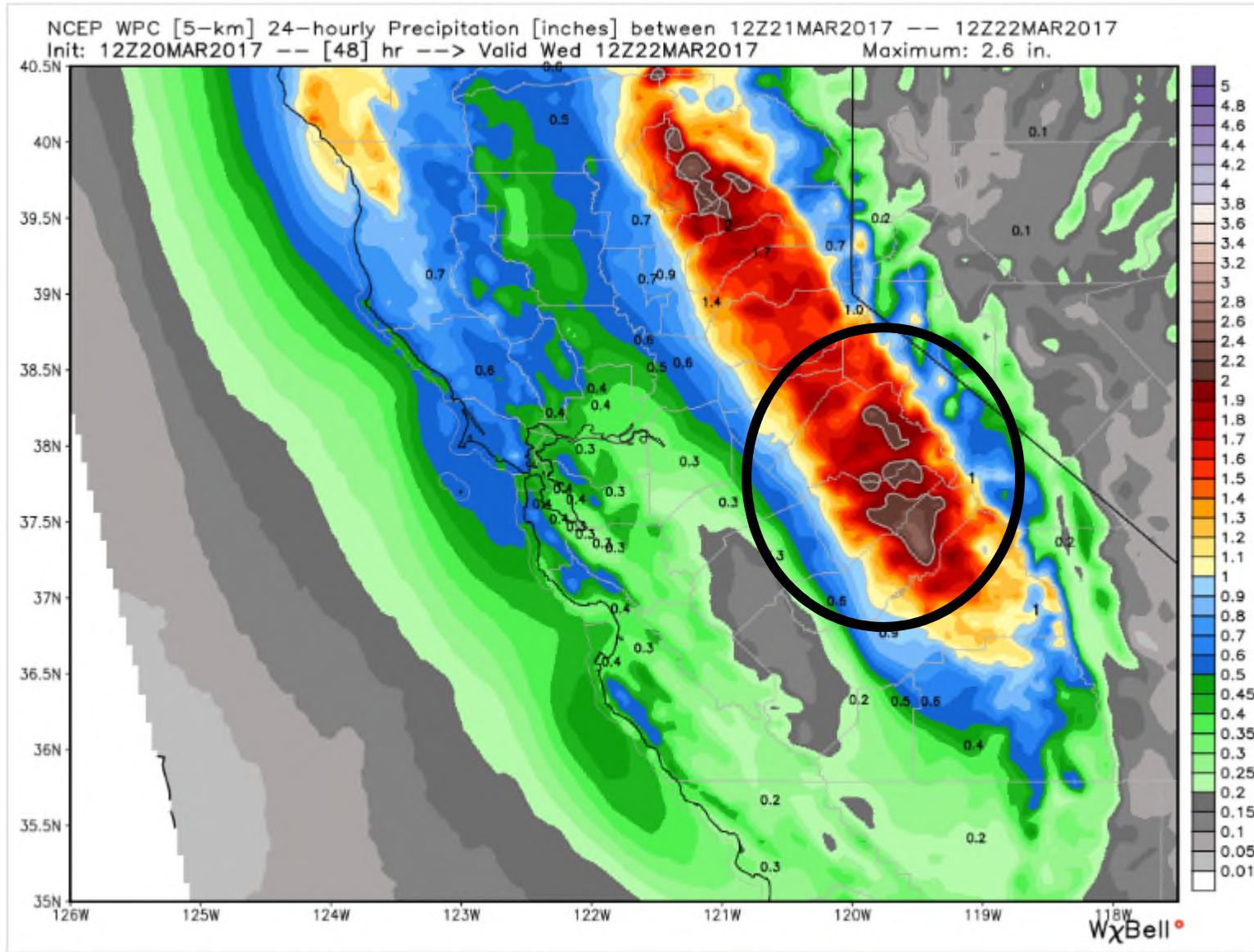
a. NCEP WPC Accumulated Precip. Detailed; Day 1 Total QPF



b. Day 1 Total QPF

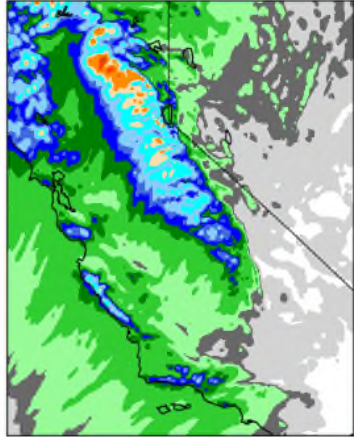


c. Day 2 Total QPF

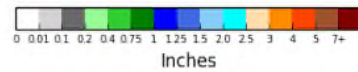
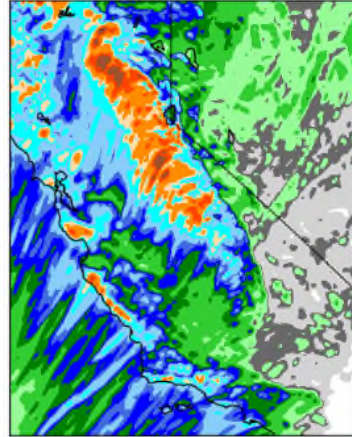


d. 48 Hour Mean, Max and Minimum Ensemble Accumulation of Precip

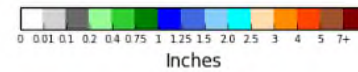
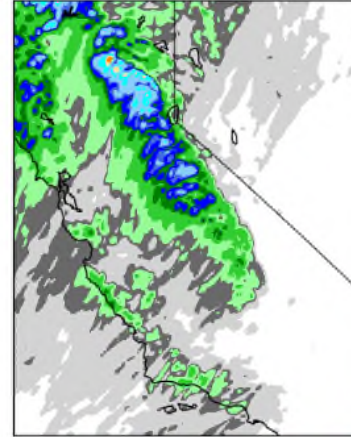
Ensemble Mean 48-hr Accum Precip



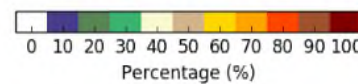
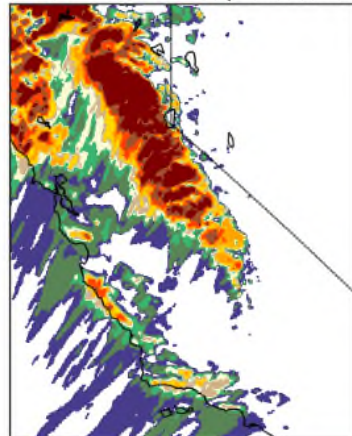
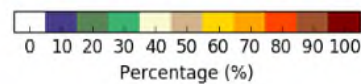
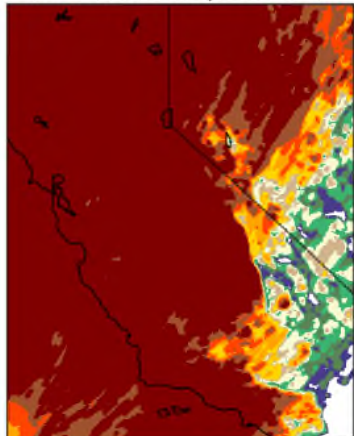
Ensemble Max 48-hr Accum Precip



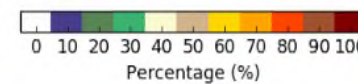
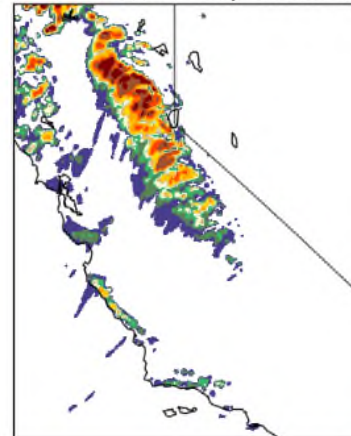
Ensemble Min 48-hr Accum Precip



Prob of 48-hr Accum Precip Greater than 0.01" Prob of 48-hr Accum Precip Greater than 1"

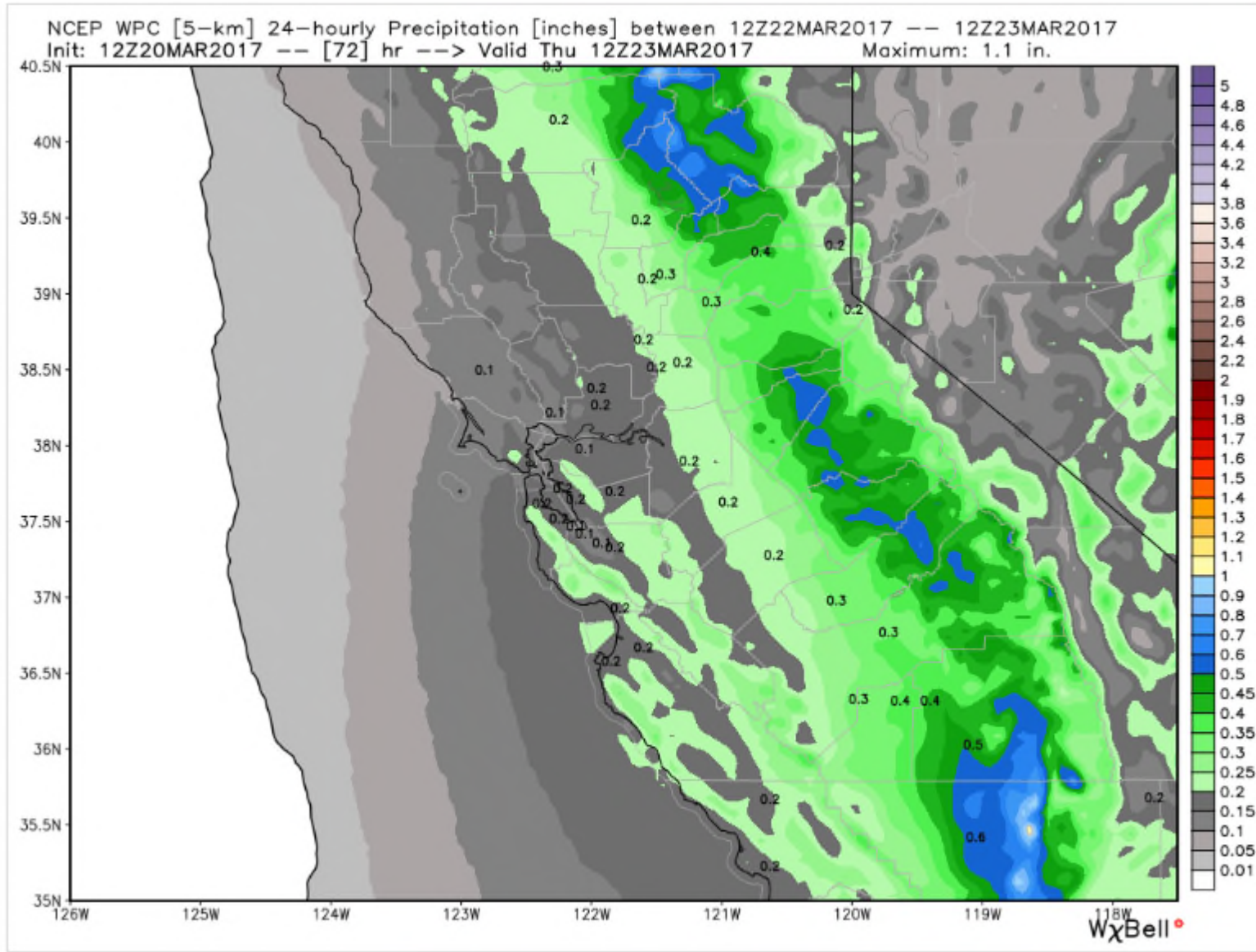


Prob of 48-hr Accum Precip Greater than 2"

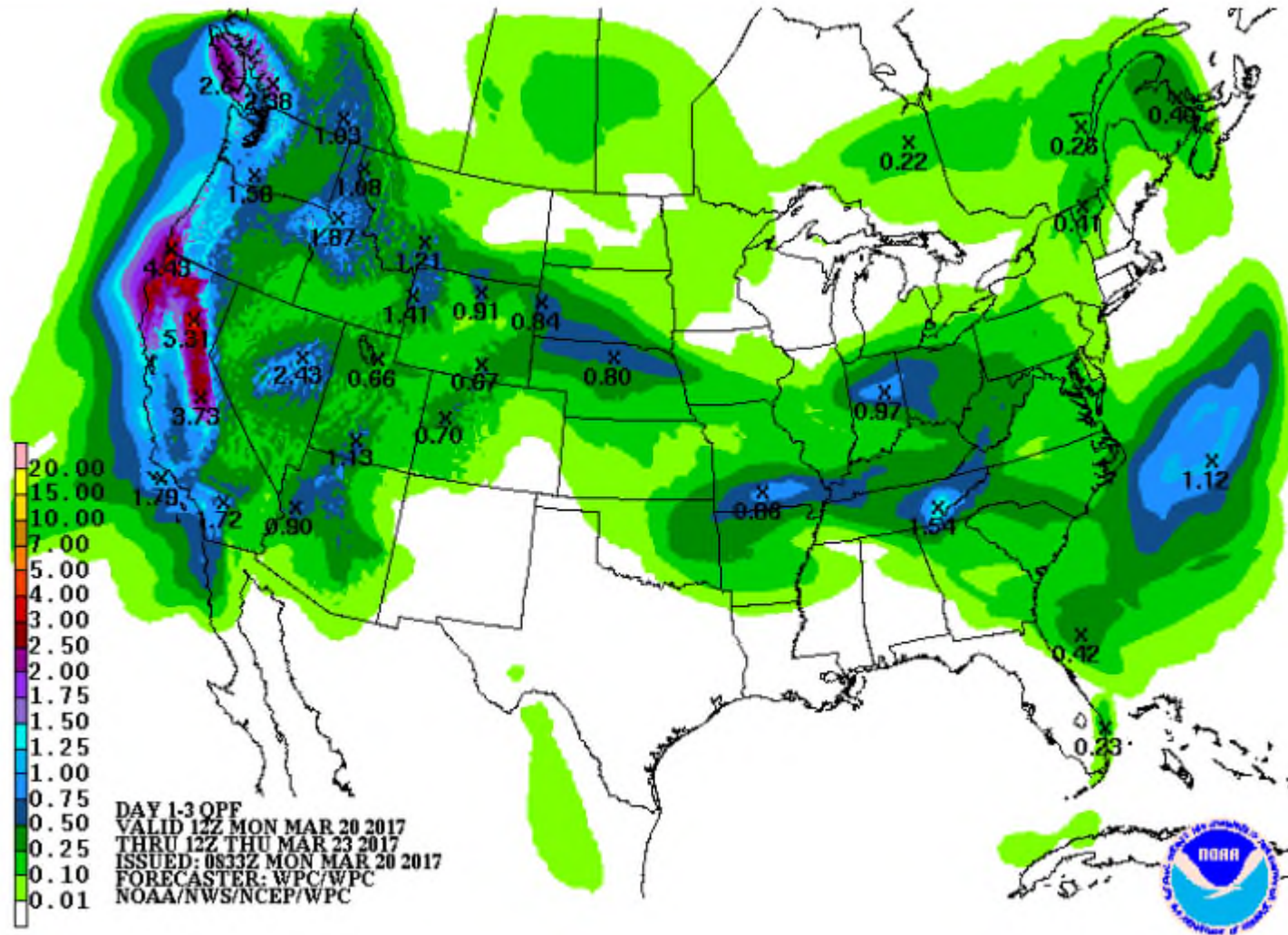


Initialized at 201703200000Z
NCAR Ensemble (10 members)

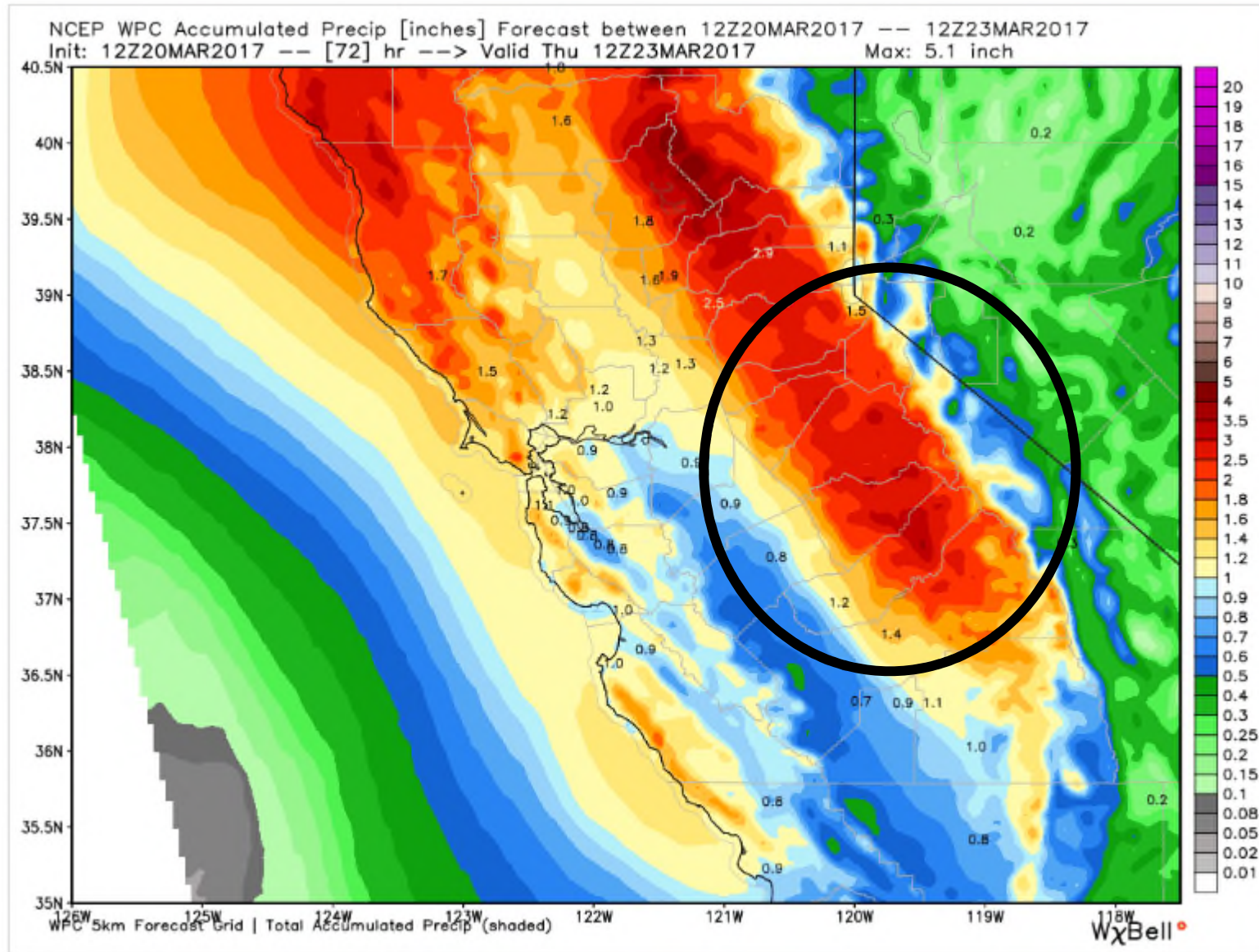
e. Day 3 QPF



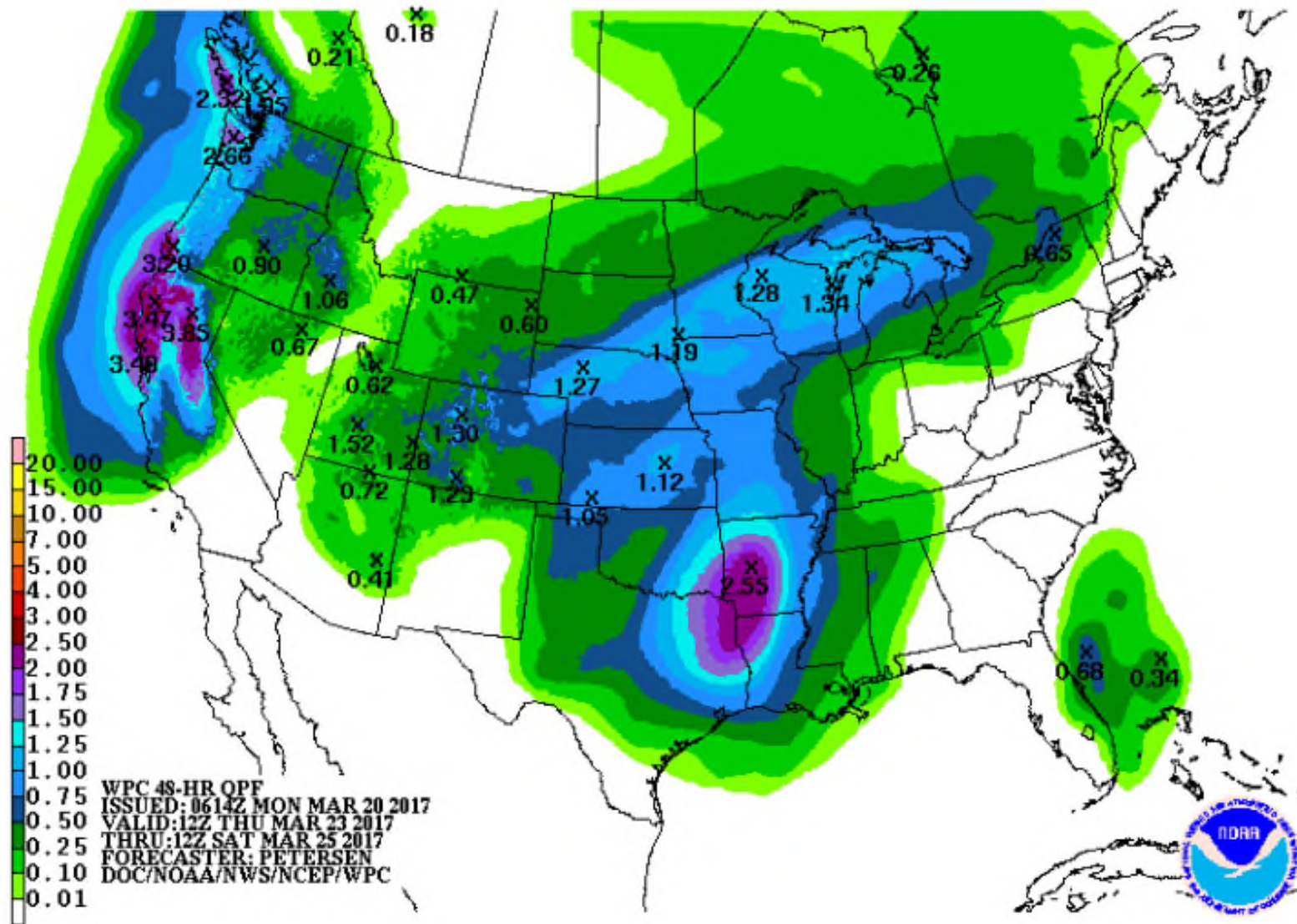
f. Days 1-3 Total QPF



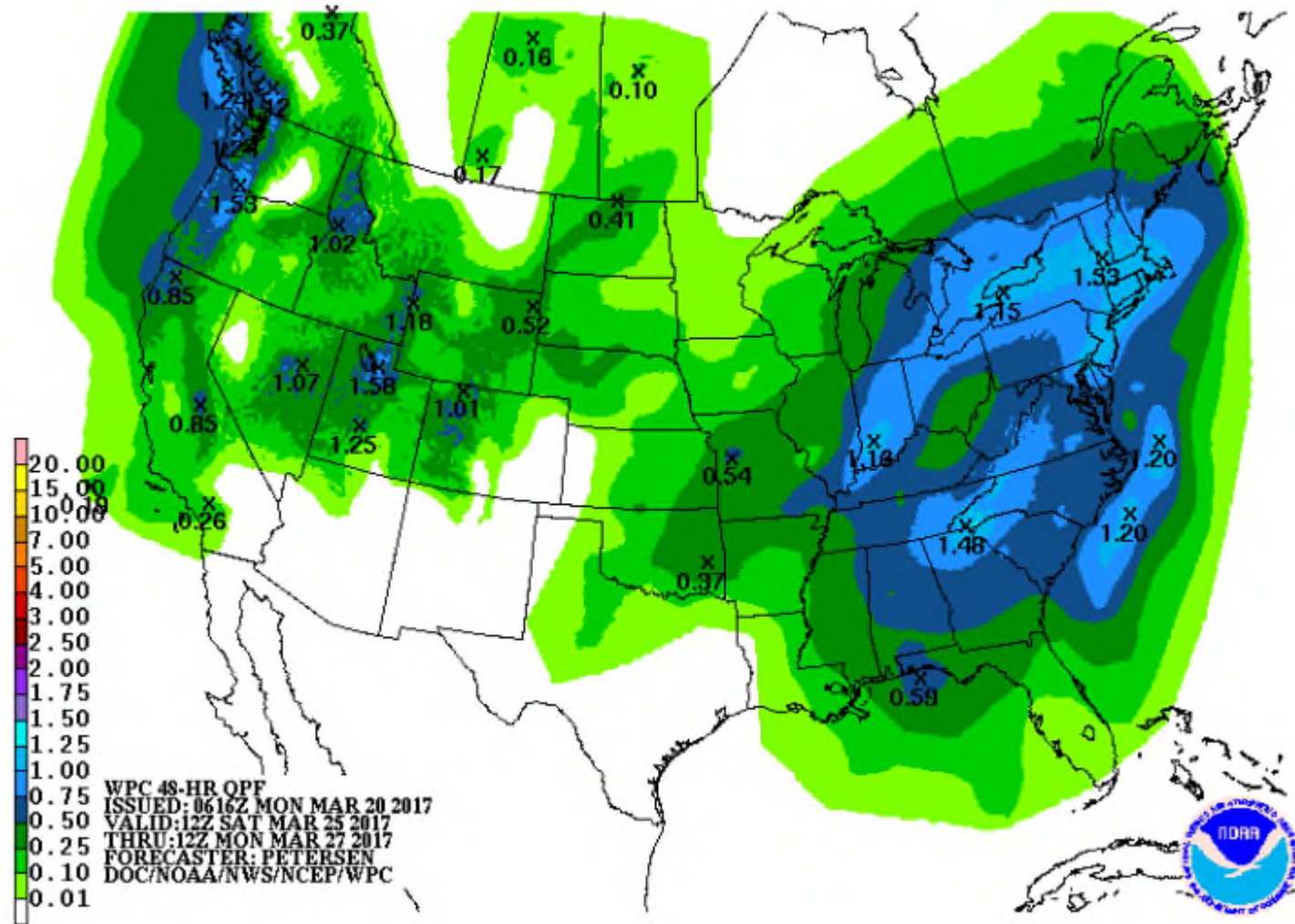
g. NCEP WPC Accumulated Precip. Detailed; Days 1-3, 72 hours Total QPF



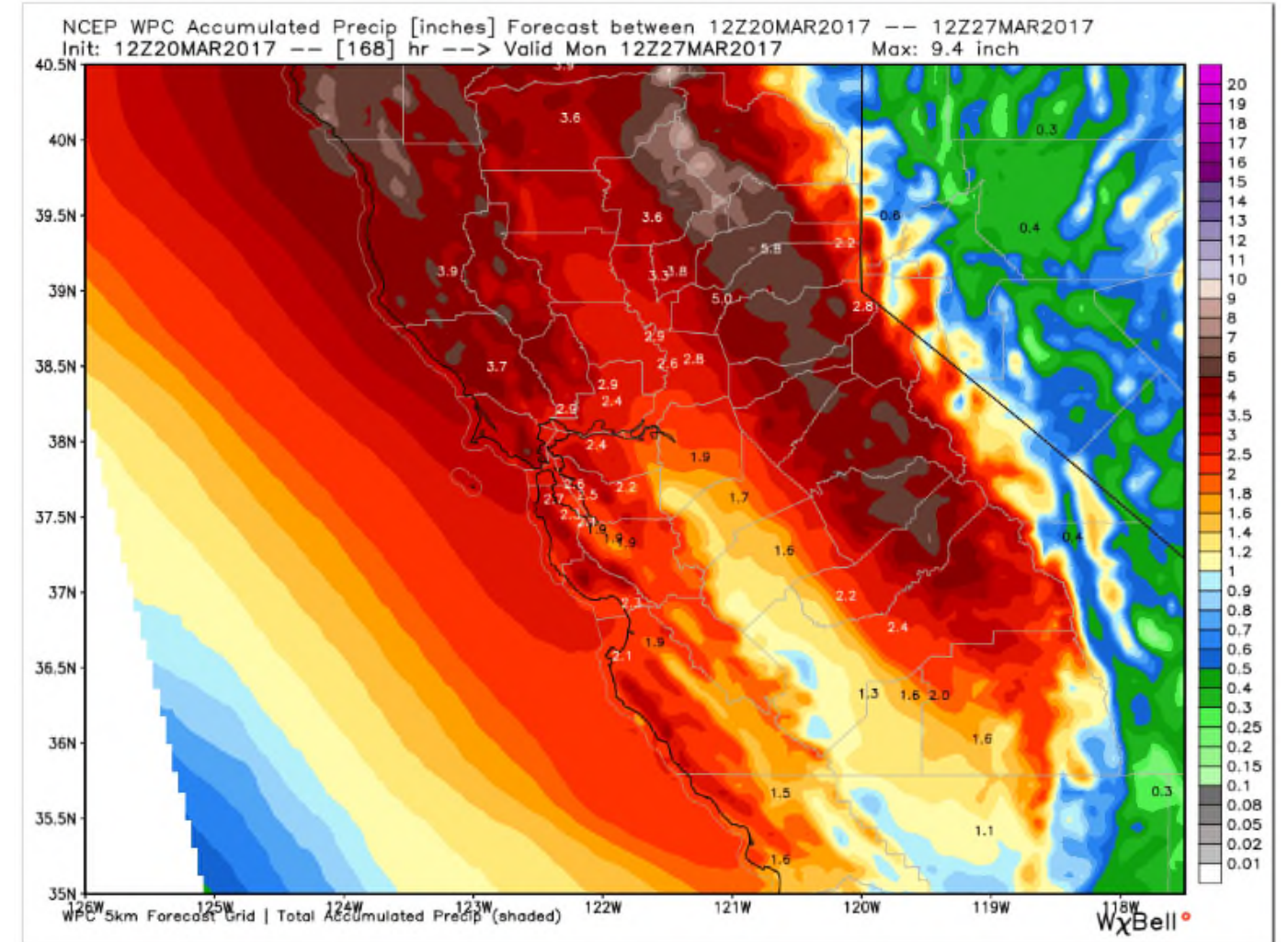
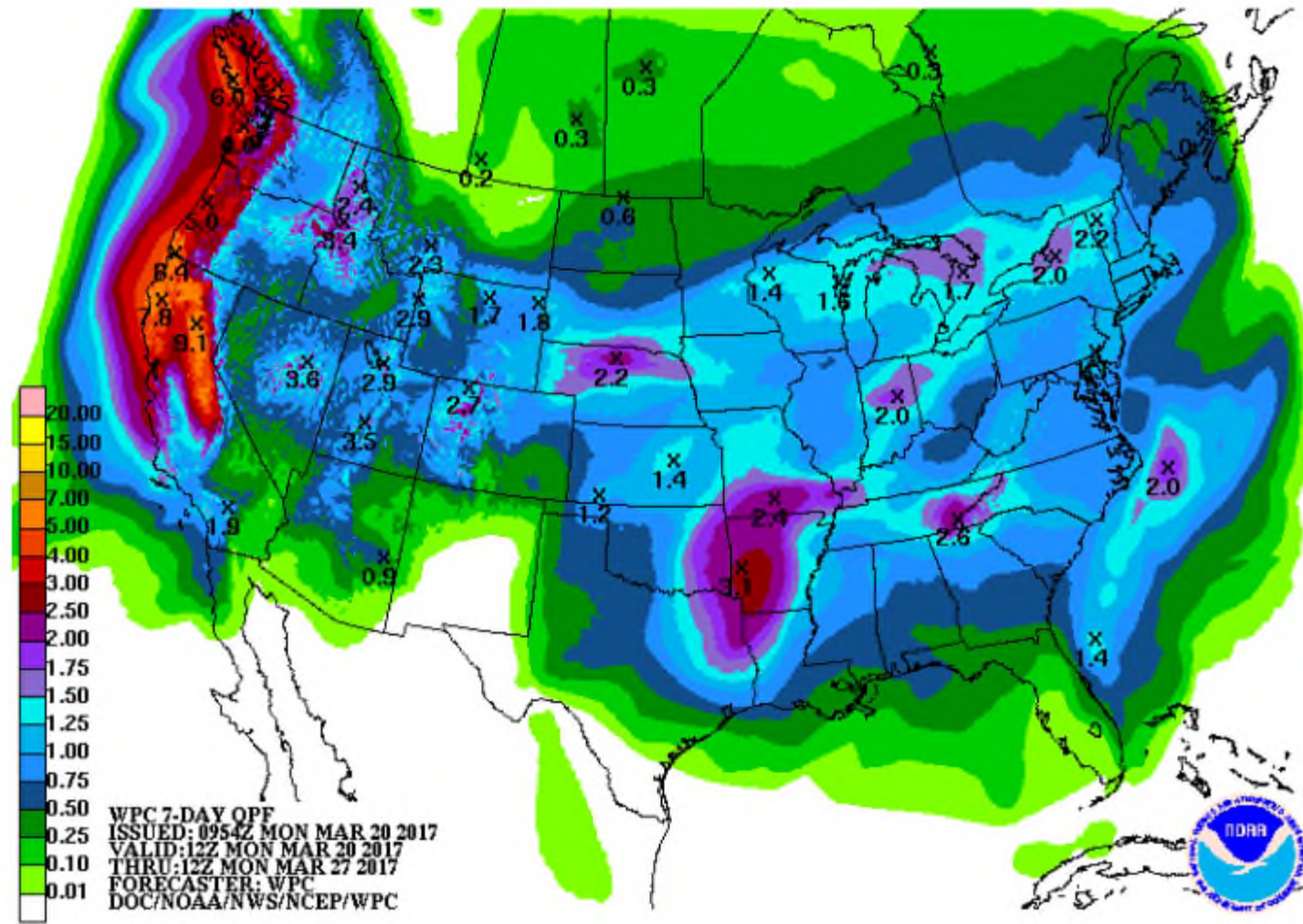
h. Days 4 and 5 Total QPF



i. Days 6 through 7 Total QPF

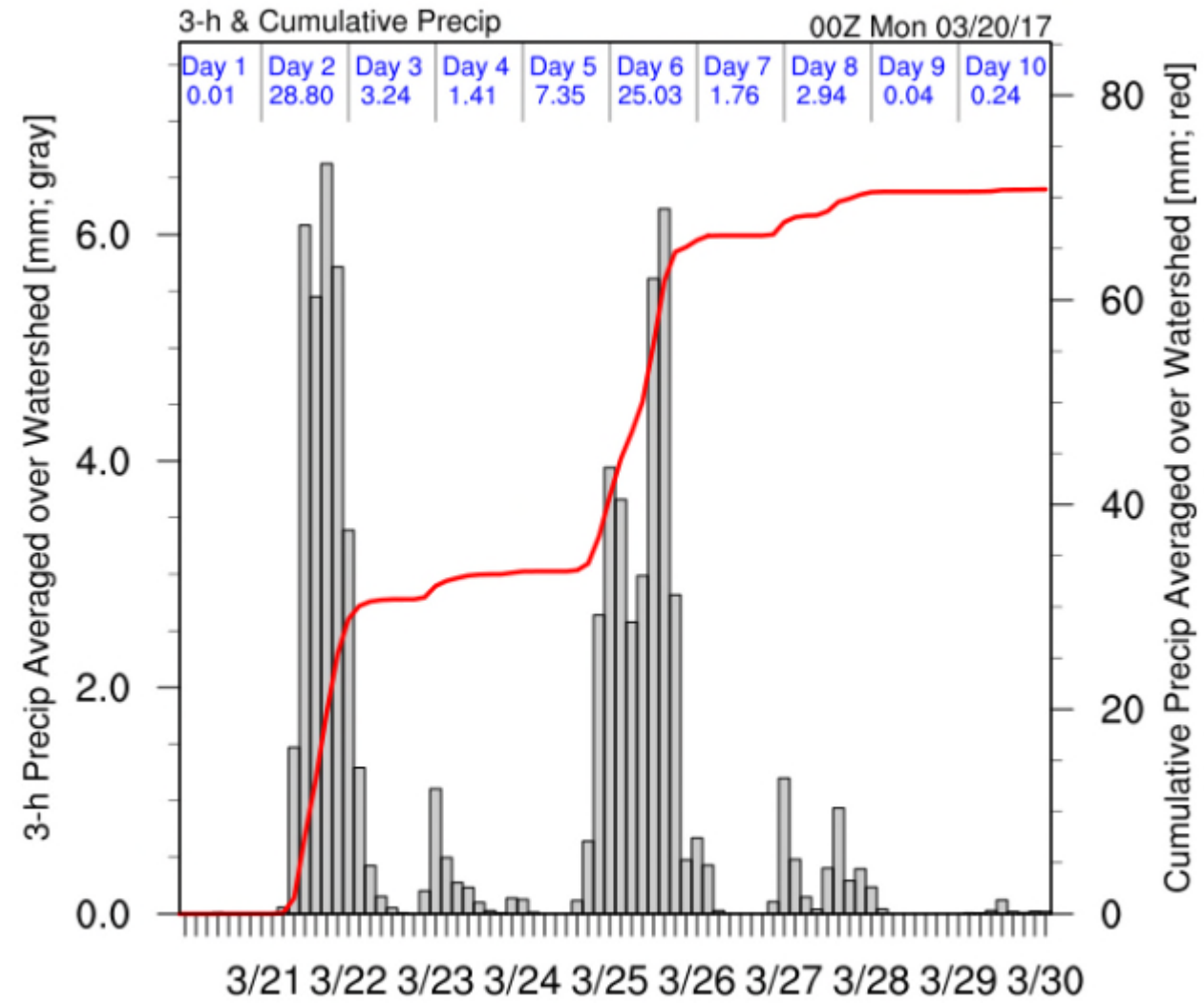


j. Days 1 through 7 Total QPF



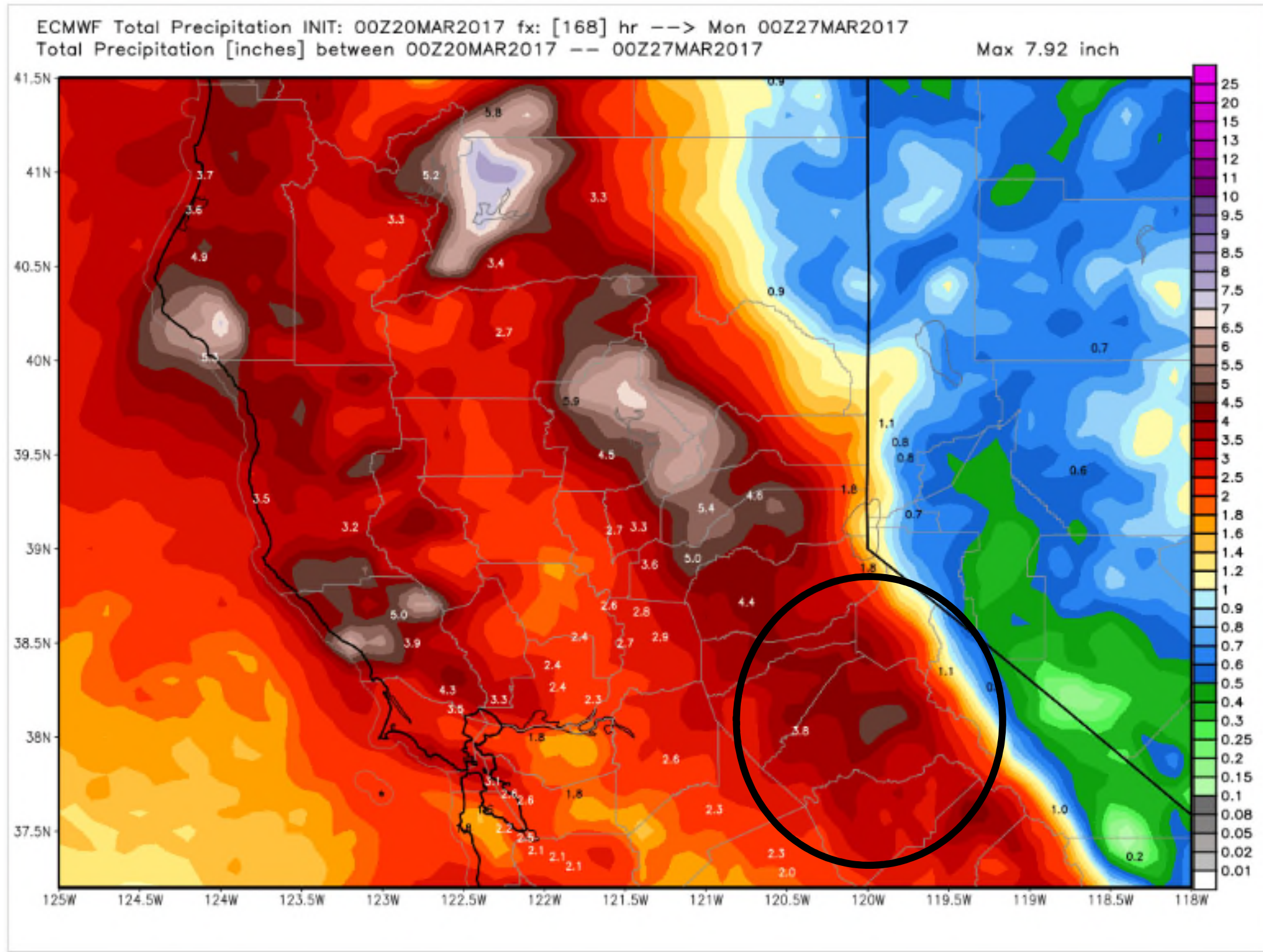
k. 10 Day Forecast

Upper Tuolumne Watershed



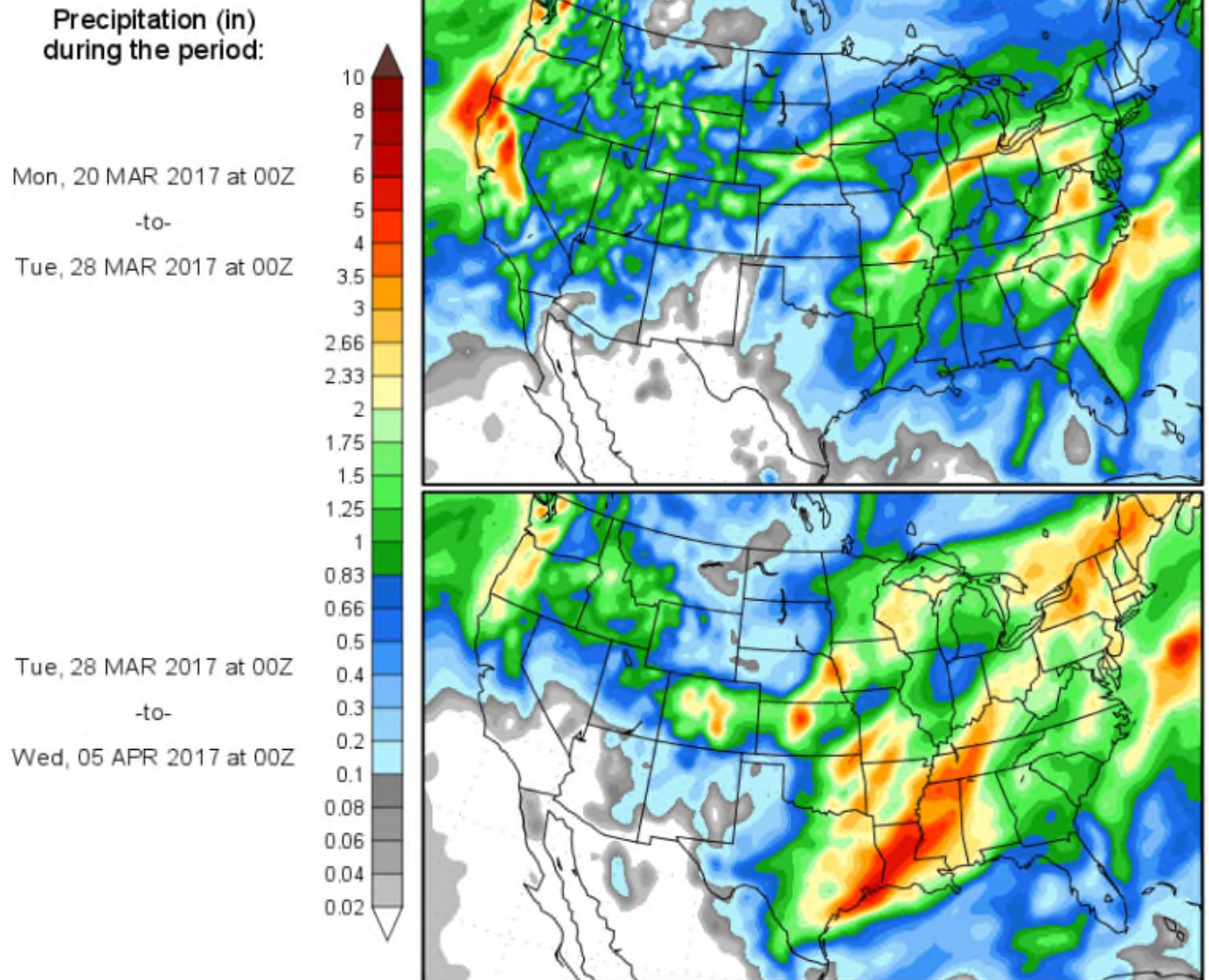
Total: 71 mm | 278491 AcreFeet

I. European Center 10-day HRES (ECMWF); Days 1 through 7 Total QPF Detailed

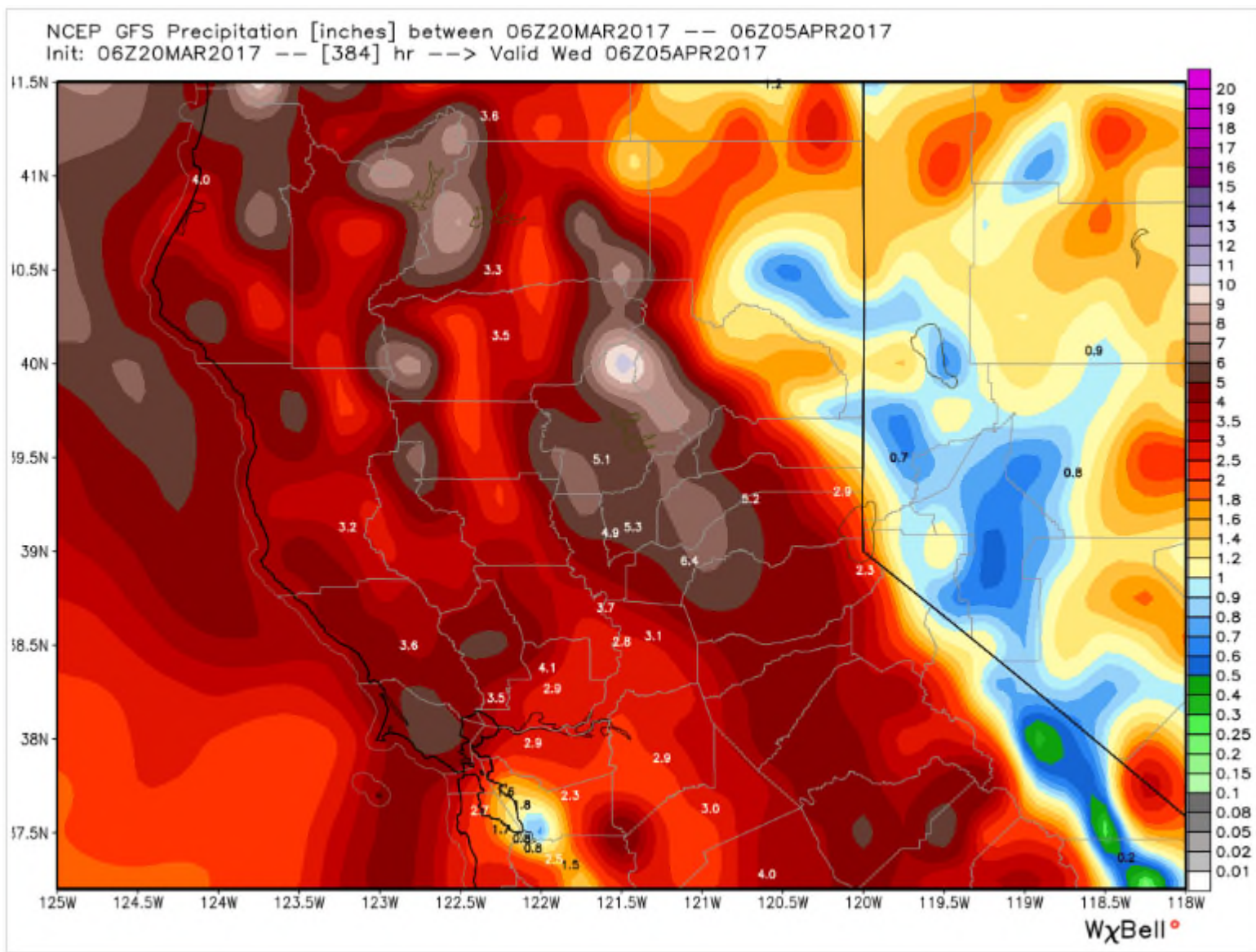
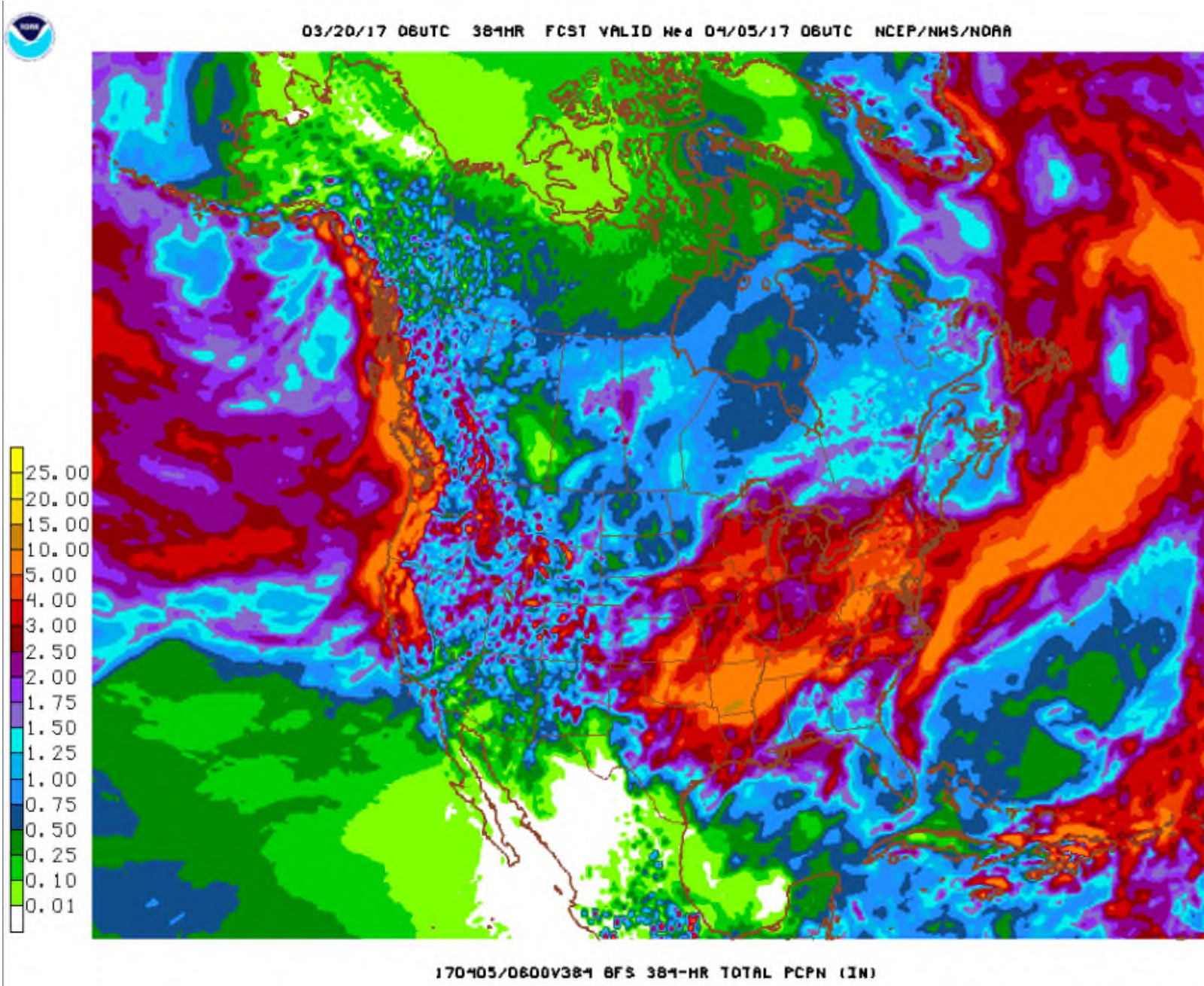


m. GFS Days 1 through 16, 384 Hour Total QPF

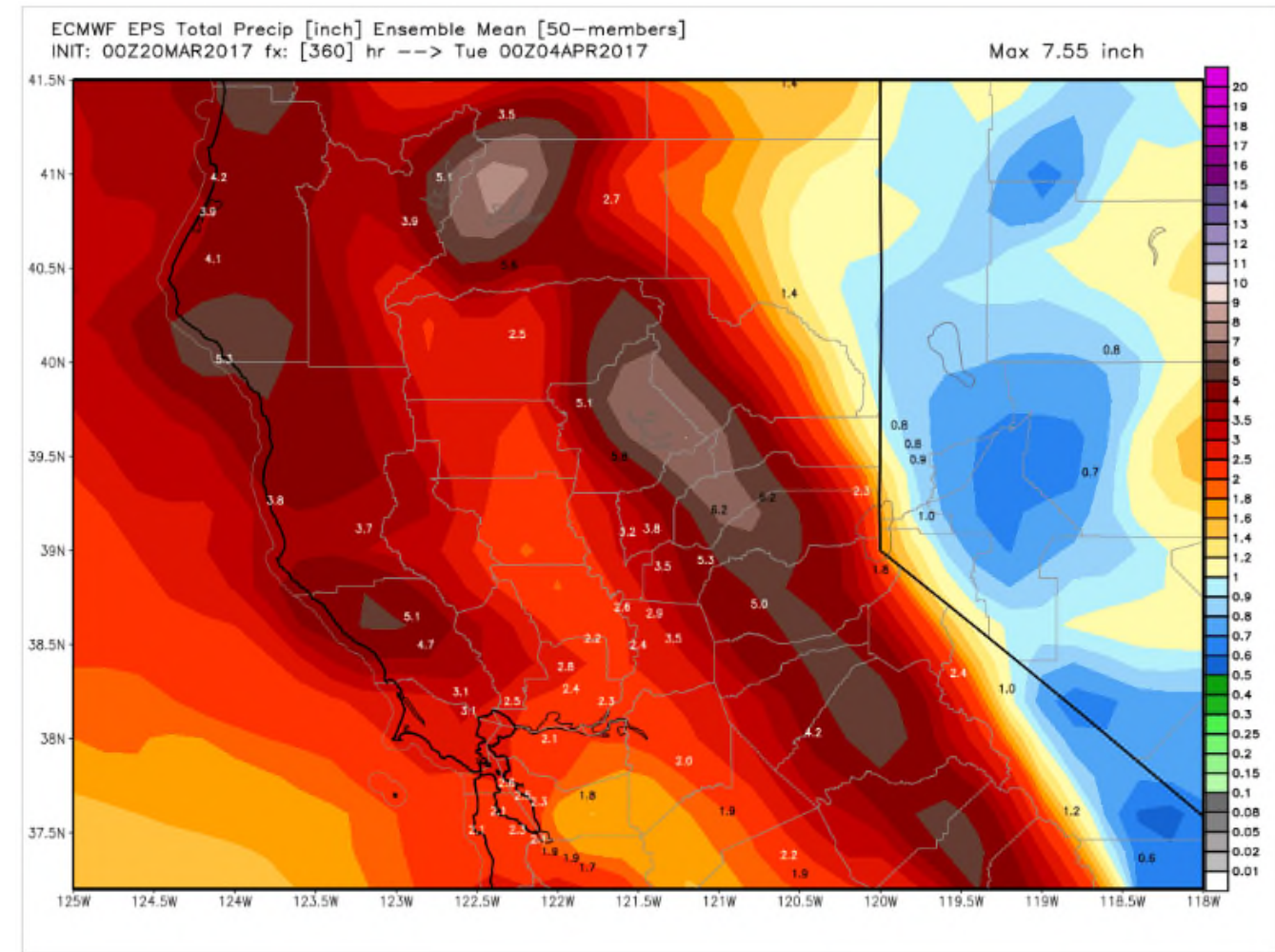
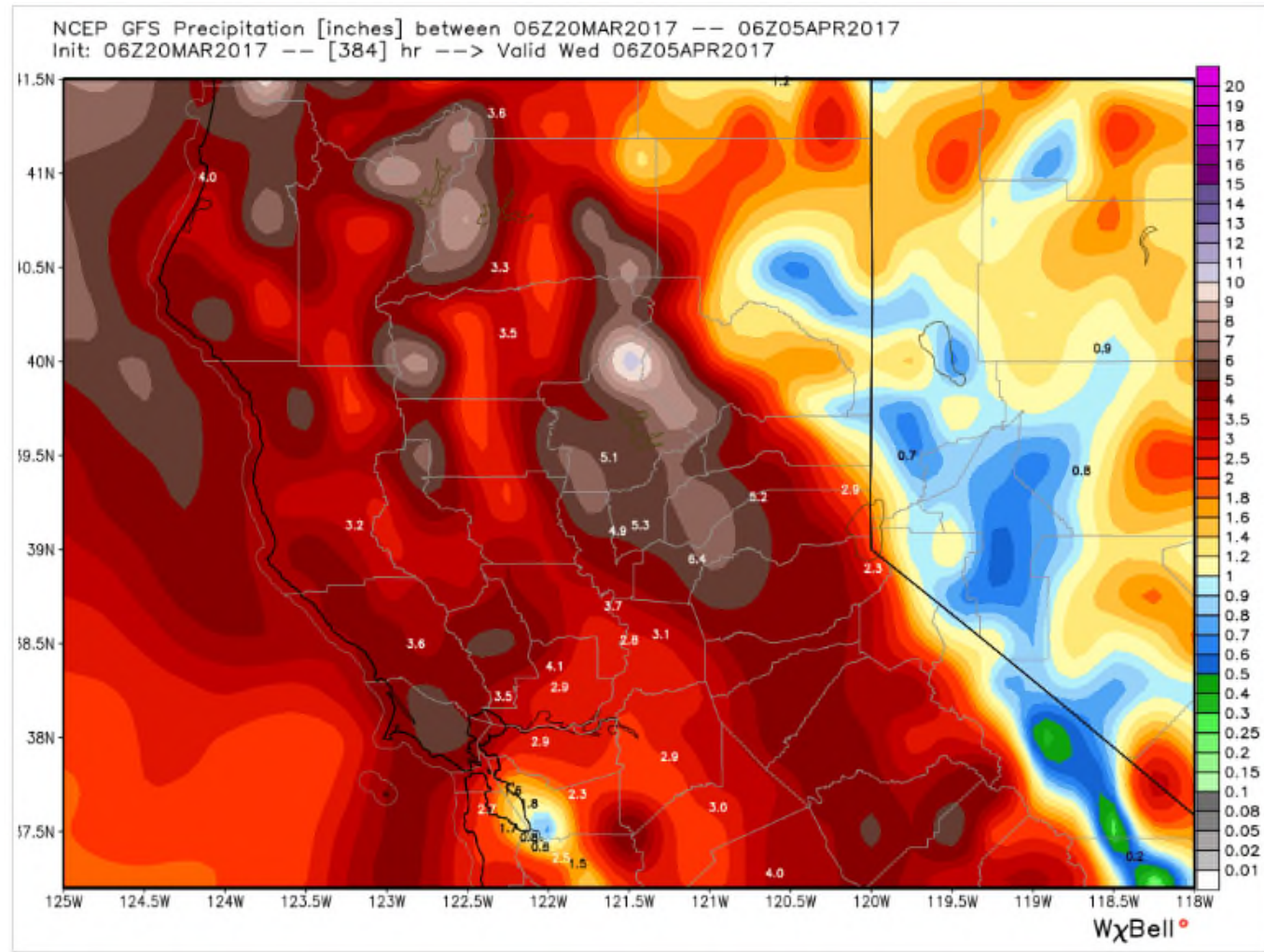
Precipitation Forecasts



n. GFS Days 1 through 16, 384 Hour Total QPF



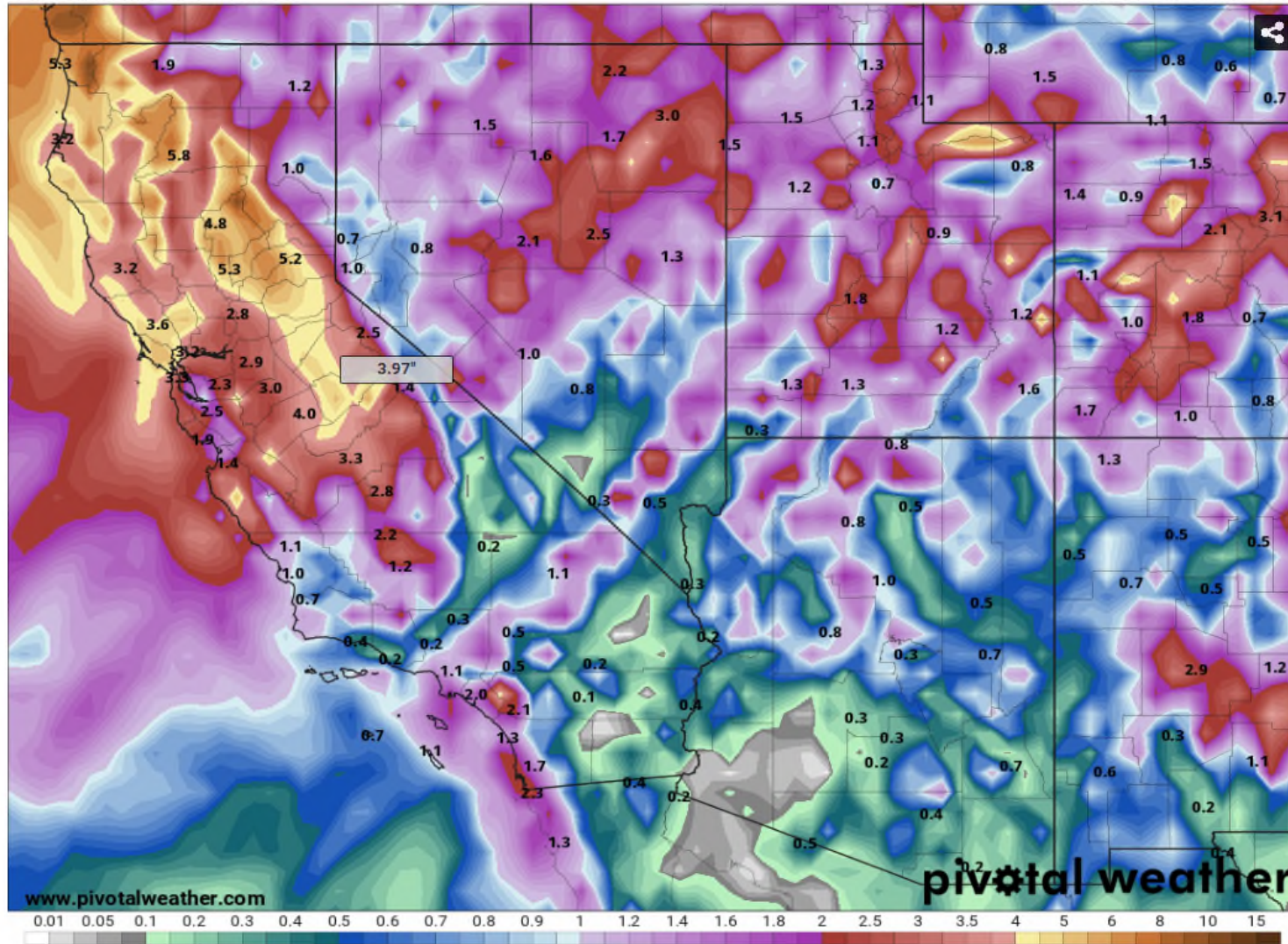
o. GFS vs ECMWF EPS



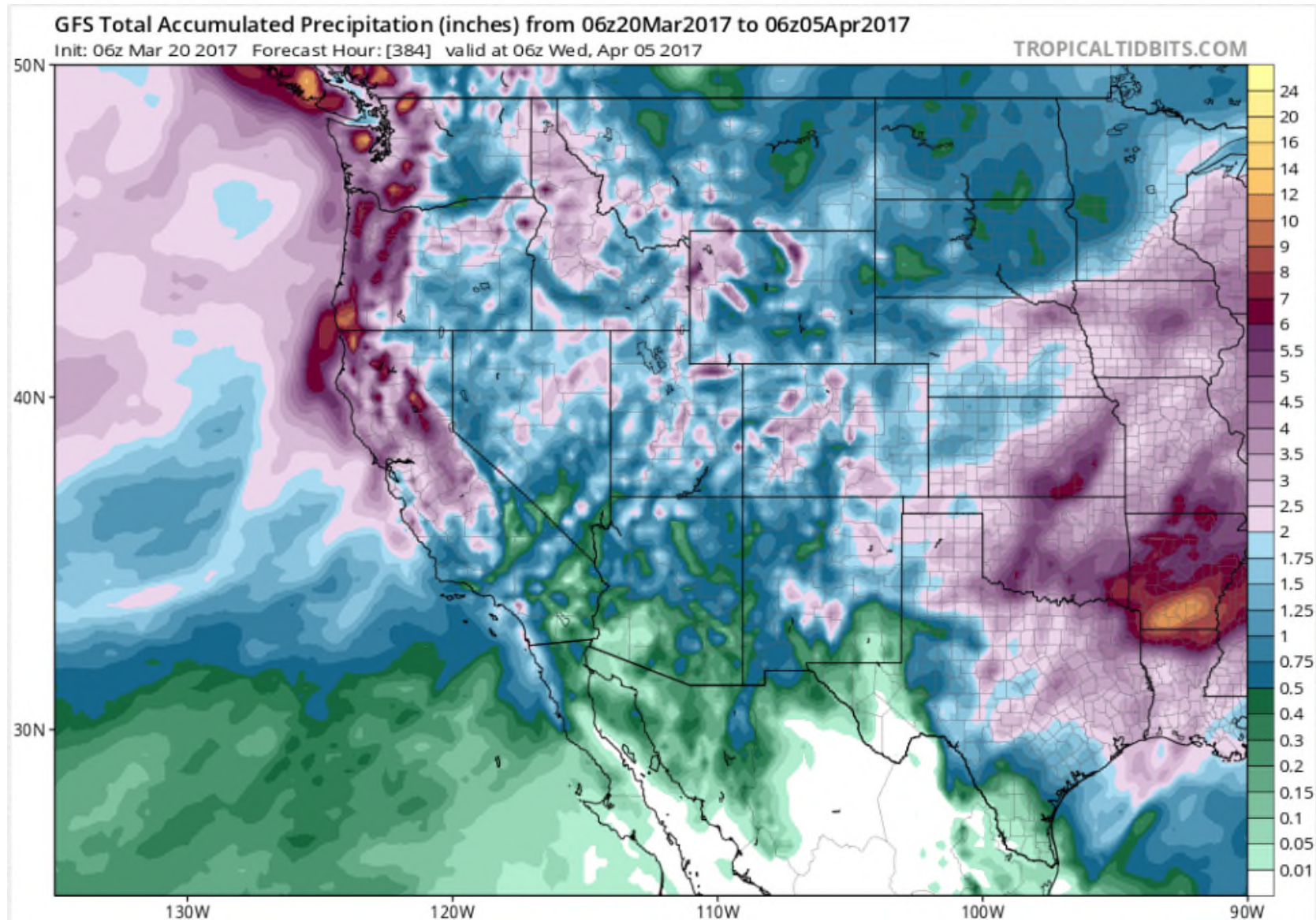
p. GFS Days 1 through 16, 384 Hour Total QPF; 3rd Party Re-Processed

Total Accumulated QPF (in) over model run
F384 Valid: Wed 2017-04-05 06z

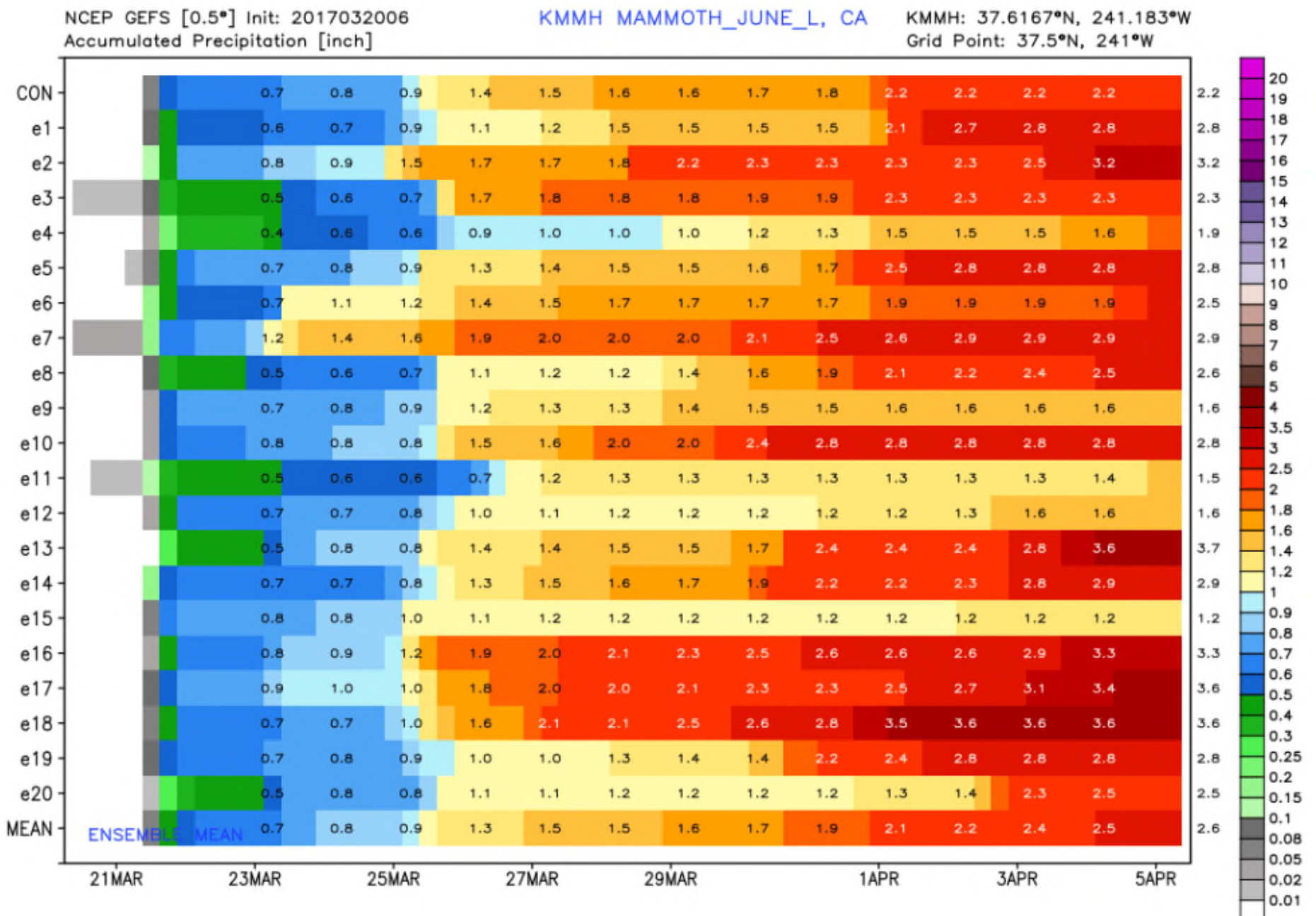
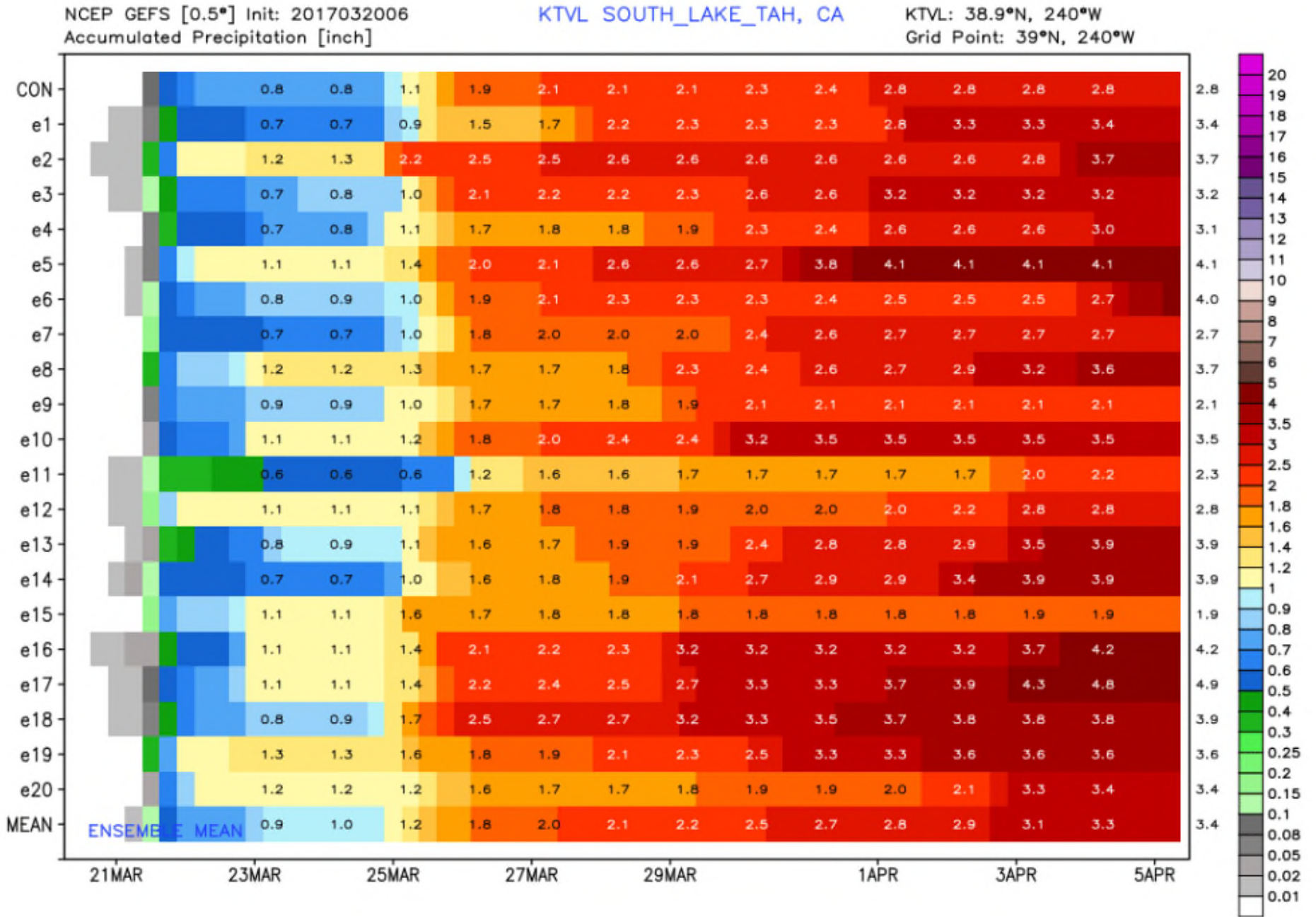
Init: Mon 2017-03-20 06z GFS



q. GFS Days 1 through 16, 384 Hour Total QPF; 3rd Party Re-Processed



r. NCEP GEFS Ensemble; 16 Day Forecast for South Lake Tahoe to Mammoth_June Lake



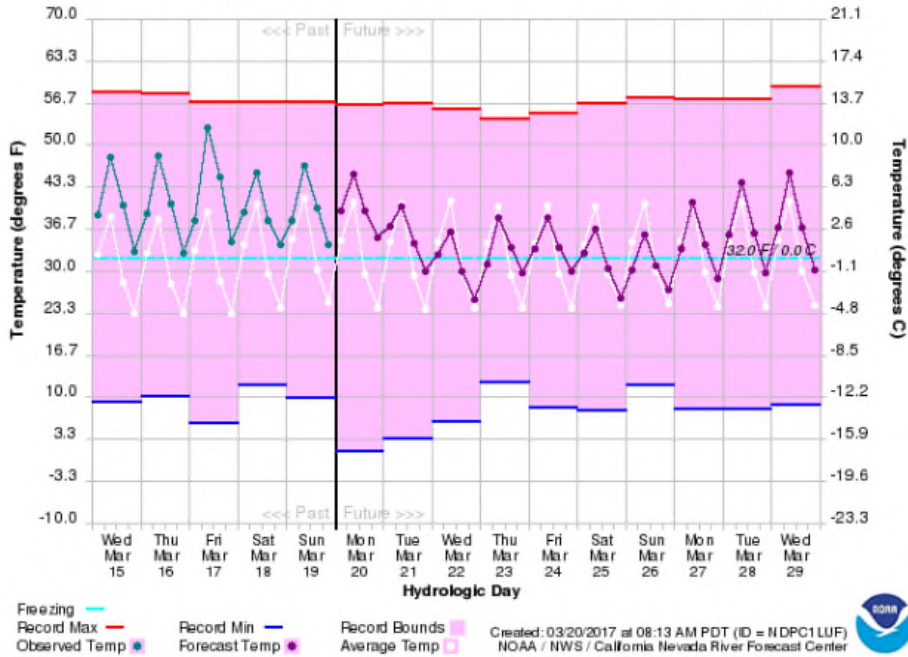
4. Temperature Forecast 10 days (Upper and Middle Watershed)

TUOLUMNE RIVER - NEW DON PEDRO RESERVOIR (NDPC1)

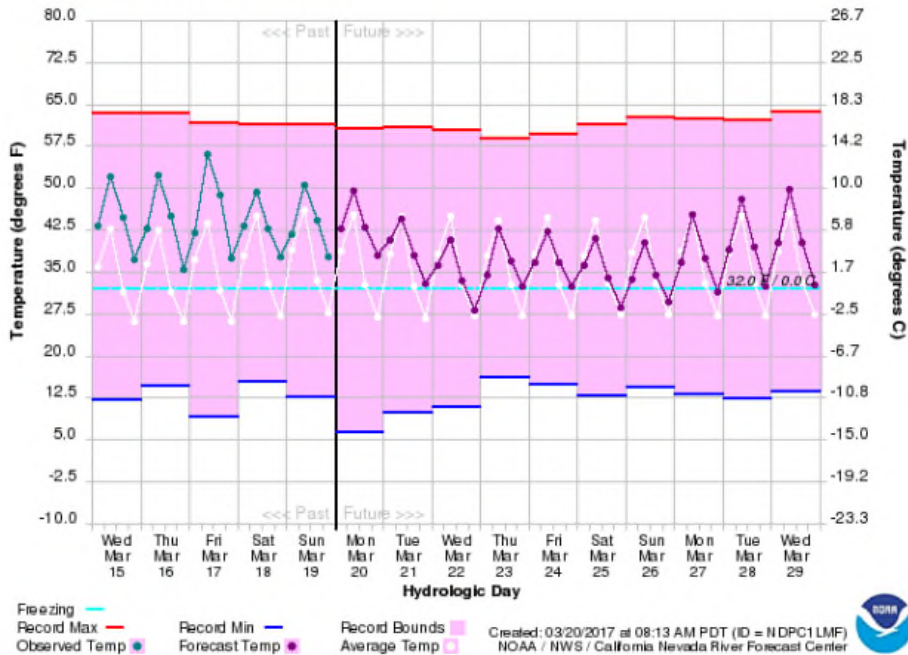
River Group: San Joaquin

Issuance Time: Mar 20 2017 at 8:20 AM PDT

Temperature: Local Upper Basin

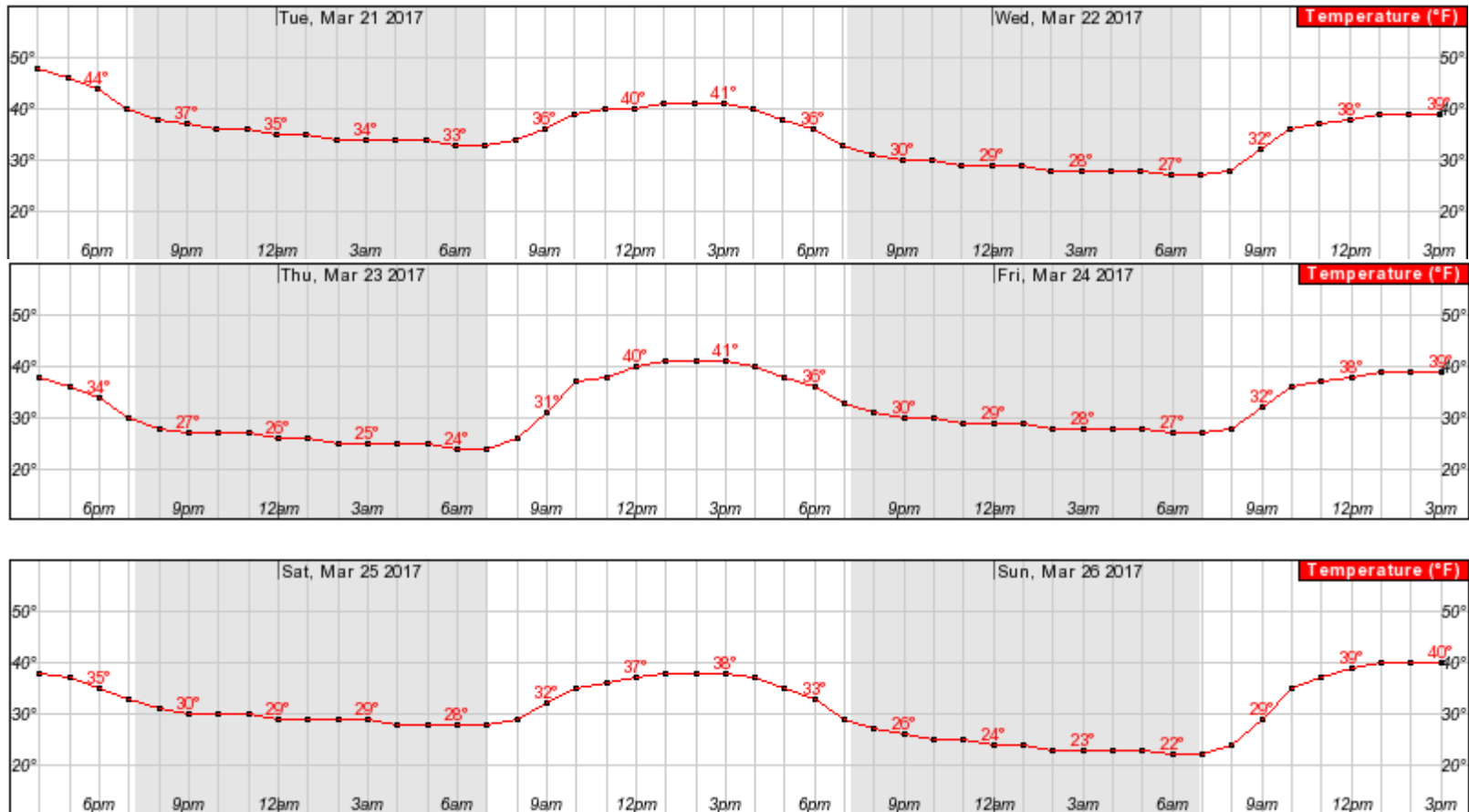


Temperature: Local Middle Basin



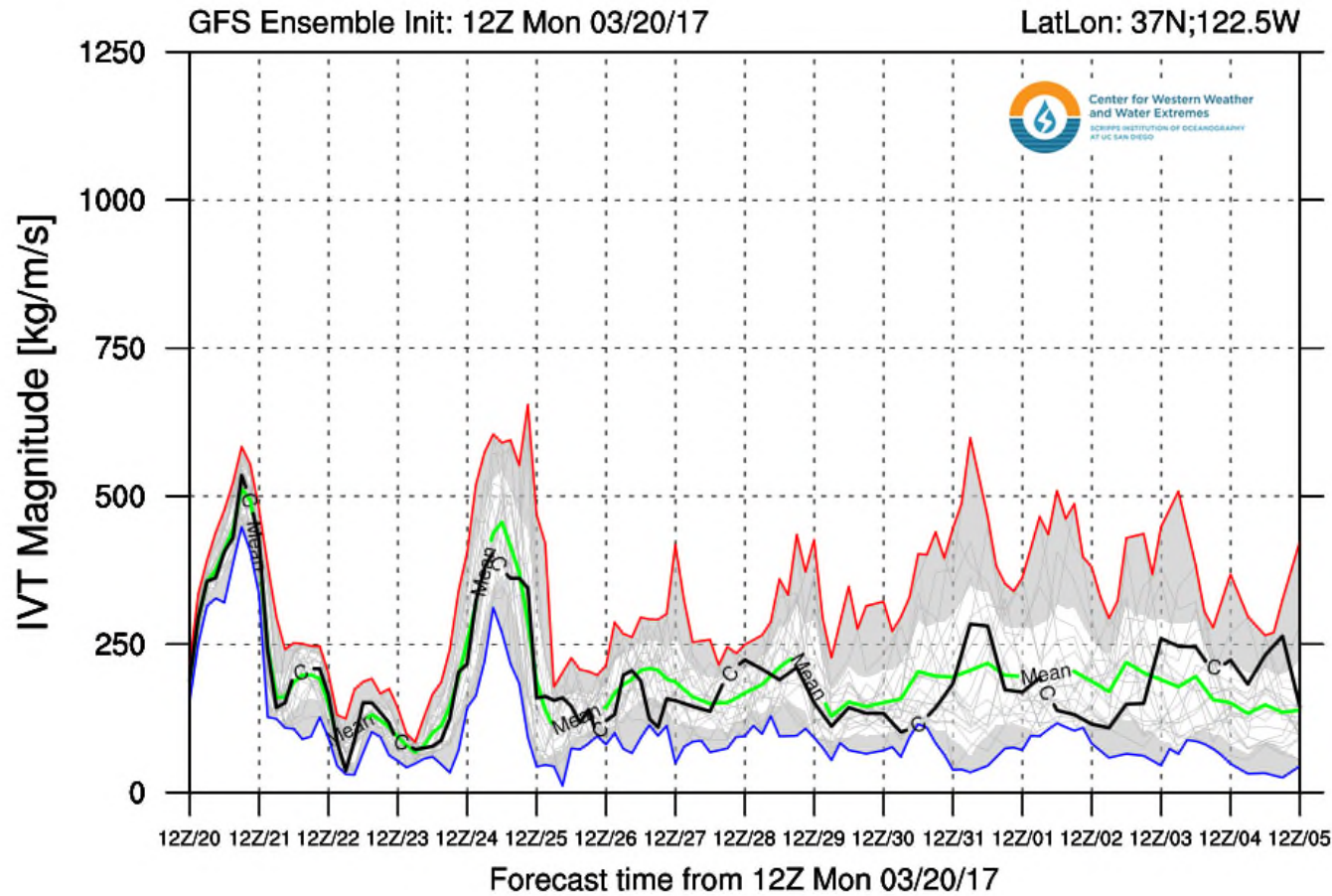
5. Temperatures (7,178 feet)

Point Forecast: 21 Miles NNW Yosemite Valley CA
38.02N 119.77W (Elev. 7178 ft)



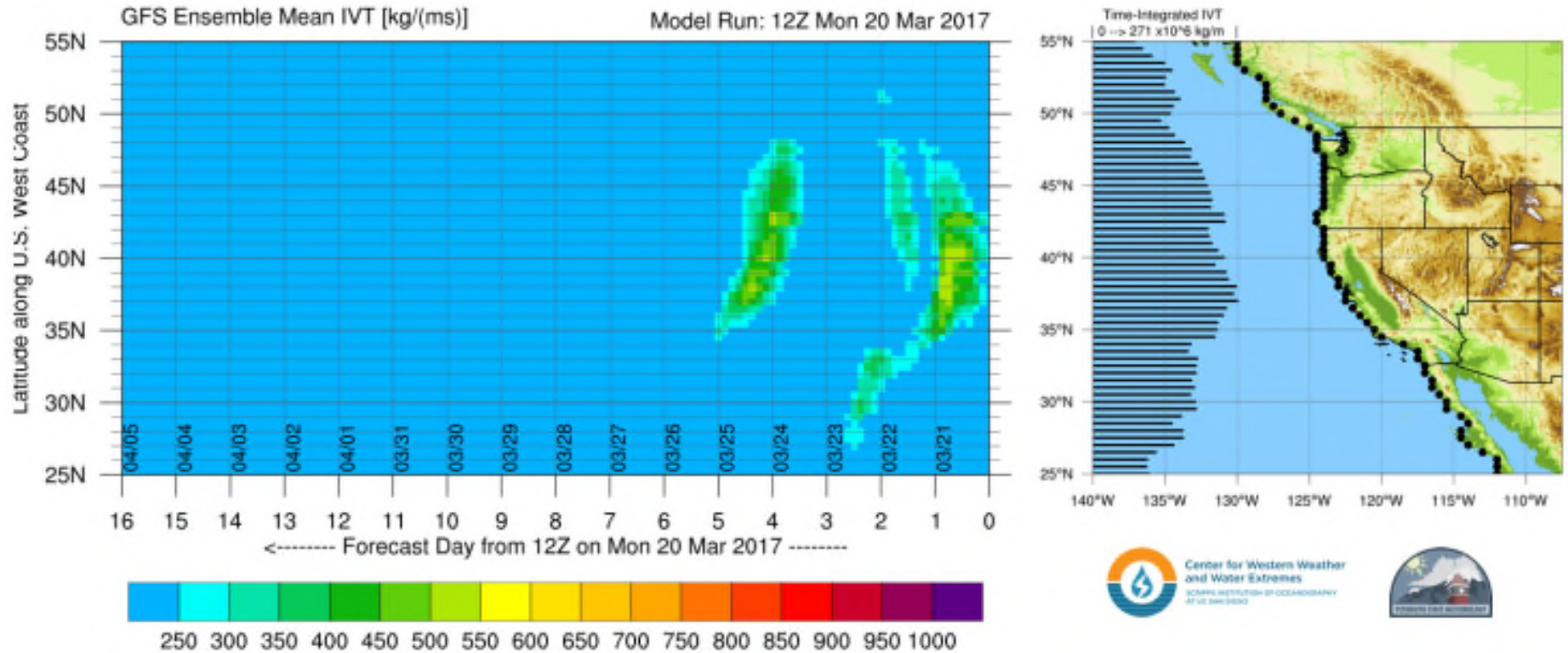
6. Atmospheric River Prediction

a. Integrated Water Vapor Transport (IVT) Forecast



The plume diagram above represents the integrated water vapor transport (IVT) forecast for each of the 20 perturbed GFS ensemble models (thin gray lines), the unperturbed GFS control forecast (black line), the 20-member ensemble mean (green line), and the maximum ensemble value at that forecast hour (red line) and minimum ensemble value at that forecast hour (blue line). The white shading represents the +/- 1 standard deviation forecast from the ensemble mean.

b. Ensemble Mean of Coastal kg/m/s



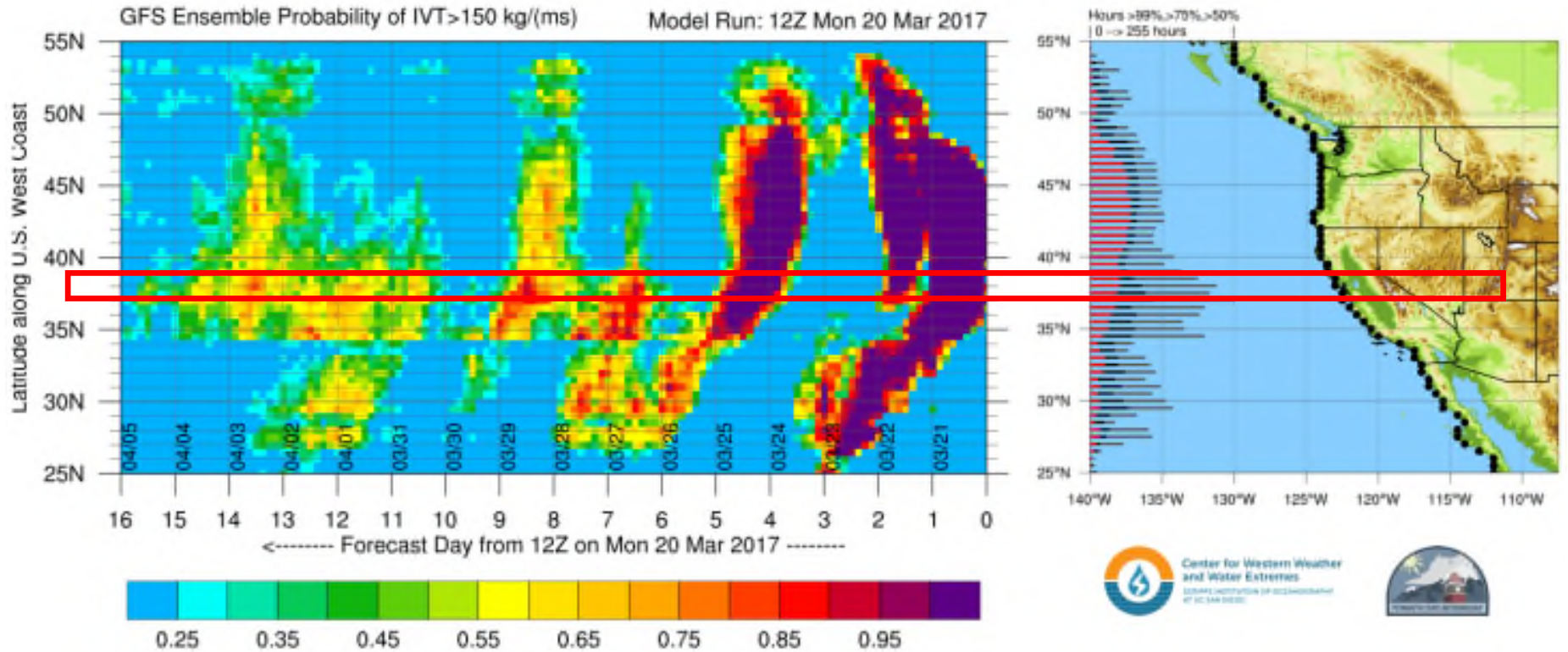
What does the diagram show?

The magnitude of integrated vapor transport (IVT) at different latitudes along the U.S. West Coast from "today" through the next 16 days at 3-hour increments. The landfall locations are the black dots in the right-most panel. The IVT magnitude is shaded on a scale from <200 kg/m/s to >1000 kg/m/s. The right map-panel graphically depicts the total 16-day time-integrated IVT for that location in millions of kg/m.

These contain the probability of having "atmospheric river" conditions, (i.e., high water vapor content) at different latitudes along the U.S. West Coast from "today" through the next 16 days at 3-hour increments. Evidence suggest that IVT magnitudes >250 kg/m/s are typically consistent with "AR conditions", whereas IVT magnitudes >500 kg/m/s are consistent with strong ARs. The values of 150 kg/m/s should be used for inland locations. The landfall locations are the black dots in the right-most panel. The probability is shaded on a scale from 0% (blue) to 100% (purple).

The diagram also graphically depicts the number of hours a location along the coast may expect to see AR conditions at different fraction thresholds: Gray bars for number of hours with a probability >50%, black bars for number of hours >75%, and red bards for number of hours >99%. The higher this number, the longer AR conditions are likely and the more precipitation may be expected!

c. Ensemble Probability of Coastal IVT > 150 kg/m/s,



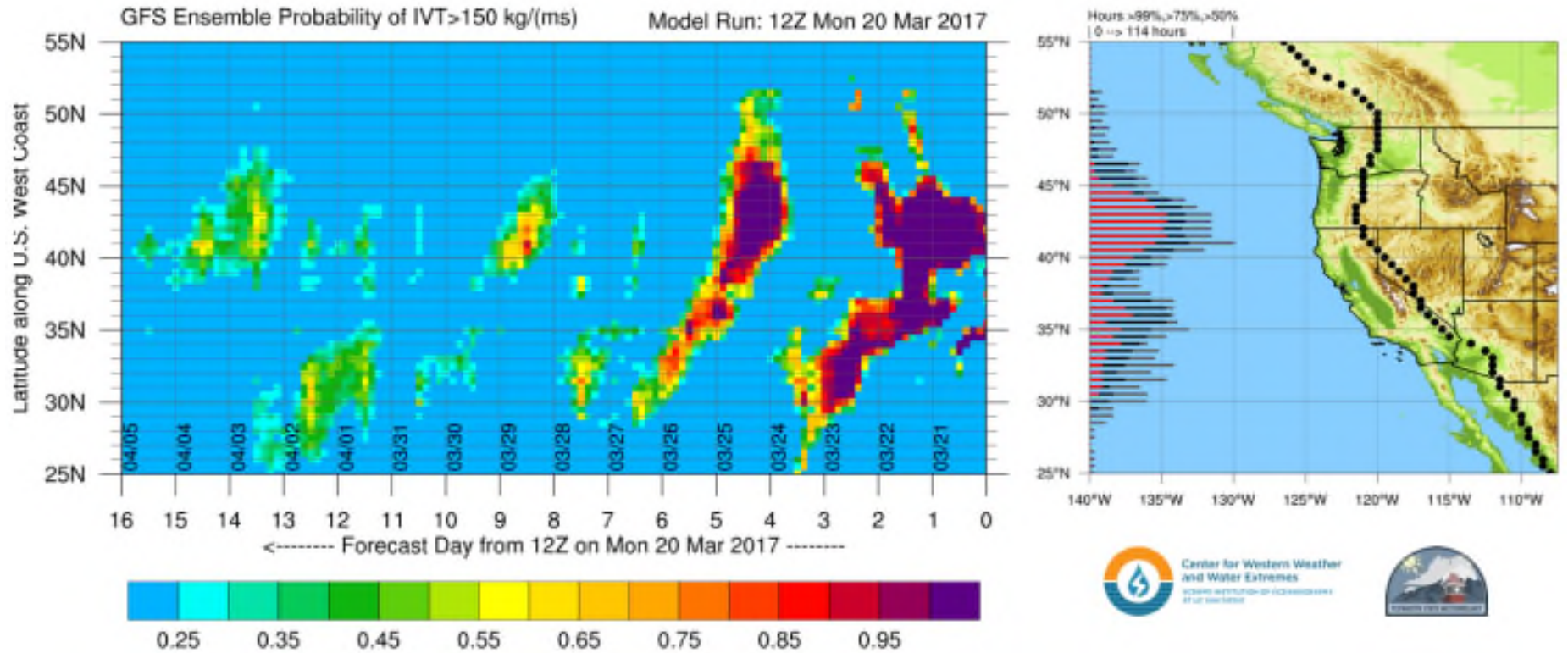
What does the diagram show?

The magnitude of integrated vapor transport (IVT) at different latitudes along the U.S. West Coast from "today" through the next 16 days at 3-hour increments. The landfall locations are the black dots in the right-most panel. The IVT magnitude is shaded on a scale from <200 kg/m/s to >1000 kg/m/s. The right map-panel graphically depicts the total 16-day time-integrated IVT for that location in millions of kg/m.

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d. Ensemble Probability of Inland IVT > 150 kg/m/s,



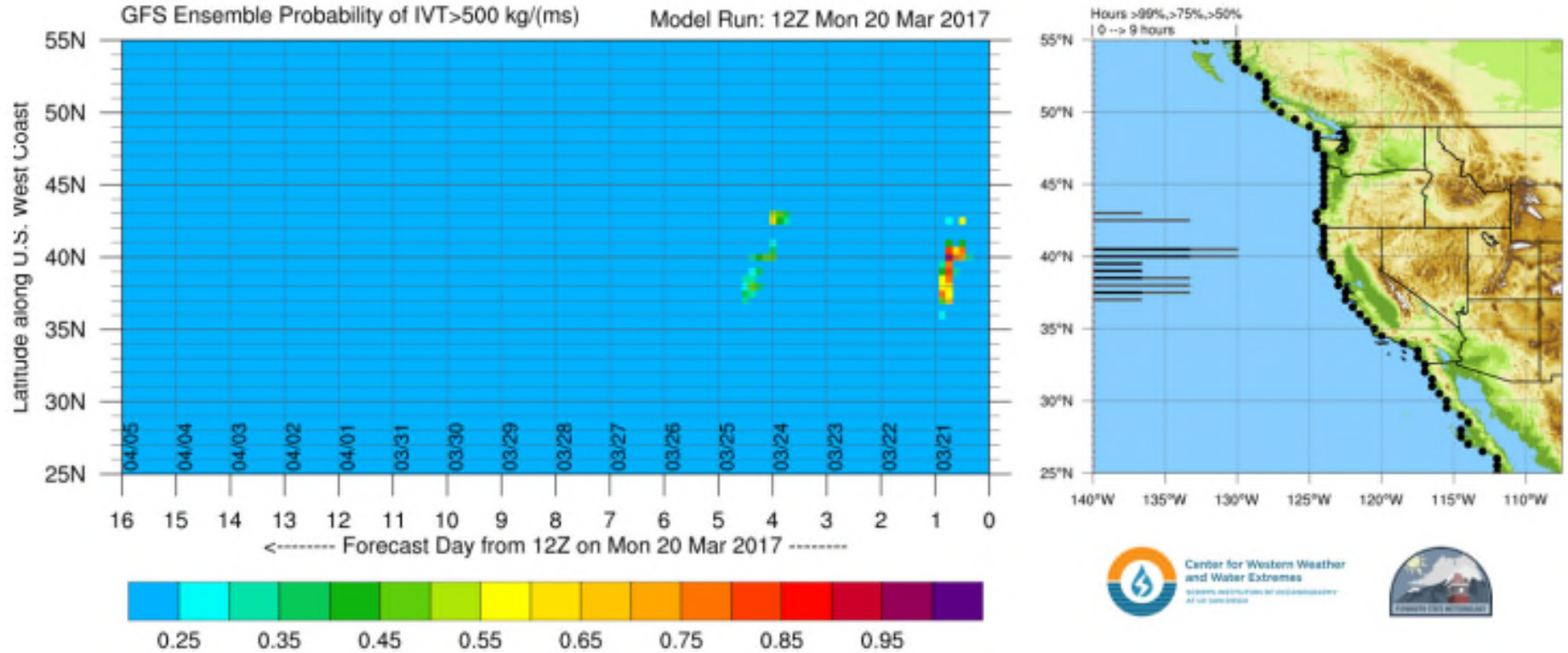
What does the diagram show?

The magnitude of integrated vapor transport (IVT) at different latitudes along the U.S. West Coast from "today" through the next 16 days at 3-hour increments. The landfall locations are the black dots in the right-most panel. The IVT magnitude is shaded on a scale from <200 kg/m/s to >1000 kg/m/s. The right map-panel graphically depicts the total 16-day time-integrated IVT for that location in millions of kg/m.

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e. Ensemble Probability of Inland IVT > 500 kg/m/s



What does the diagram show?

The magnitude of integrated vapor transport (IVT) at different latitudes along the U.S. West Coast from "today" through the next 16 days at 3-hour increments. The landfall locations are the black dots in the right-most panel. The IVT magnitude is shaded on a scale from <200 kg/m/s to >1000 kg/m/s. The right map-panel graphically depicts the total 16-day time-integrated IVT for that location in millions of kg/m.

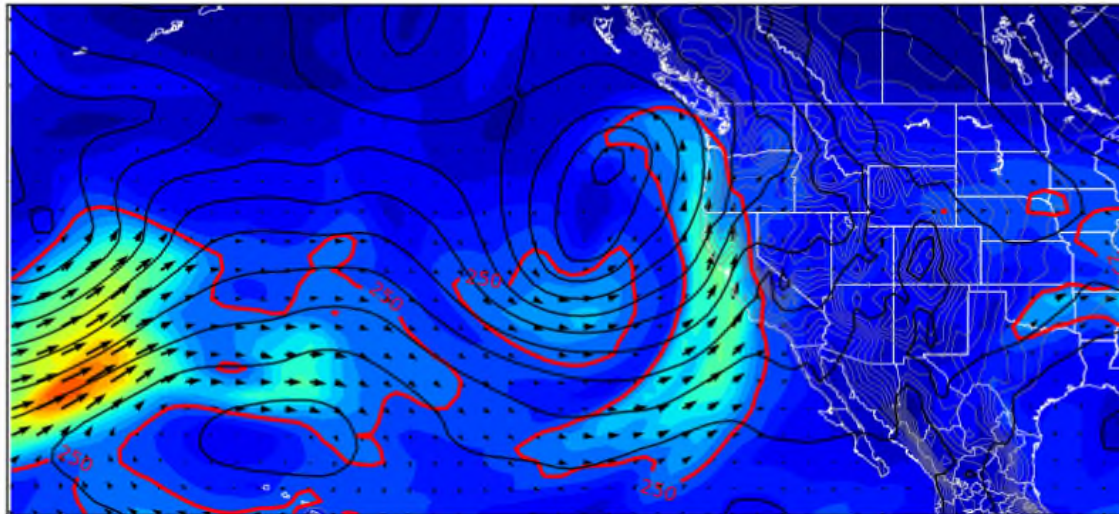
These contain the probability of having "atmospheric river" conditions, (i.e., high water vapor content) at different latitudes along the U.S. West Coast from "today" through the next 16 days at 3-hour increments. Evidence suggest that IVT magnitudes >250 kg/m/s are typically consistent with "AR conditions", whereas IVT magnitudes >500 kg/m/s are consistent with strong ARs. The values of 150 kg/m/s should be used for inland locations. The landfall locations are the black dots in the right-most panel. The probability is shaded on a scale from 0% (blue) to 100% (purple).

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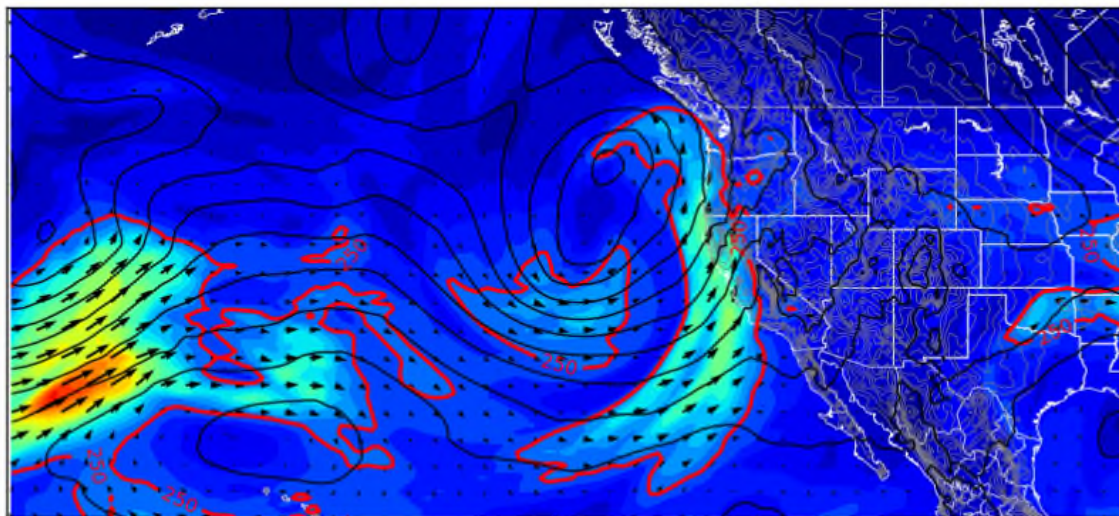
f. (WRH ENSEMBLE GRAPHICS) Integrated Water Vapor Transport ($\text{kg m}^{-1} \text{s}^{-1}$)

Integrated Water Vapor Transport ($\text{kg m}^{-1} \text{s}^{-1}$)
18-h forecast valid 06:00 UTC Tue 21 Mar 2017

GEFS
Ensemble
Mean



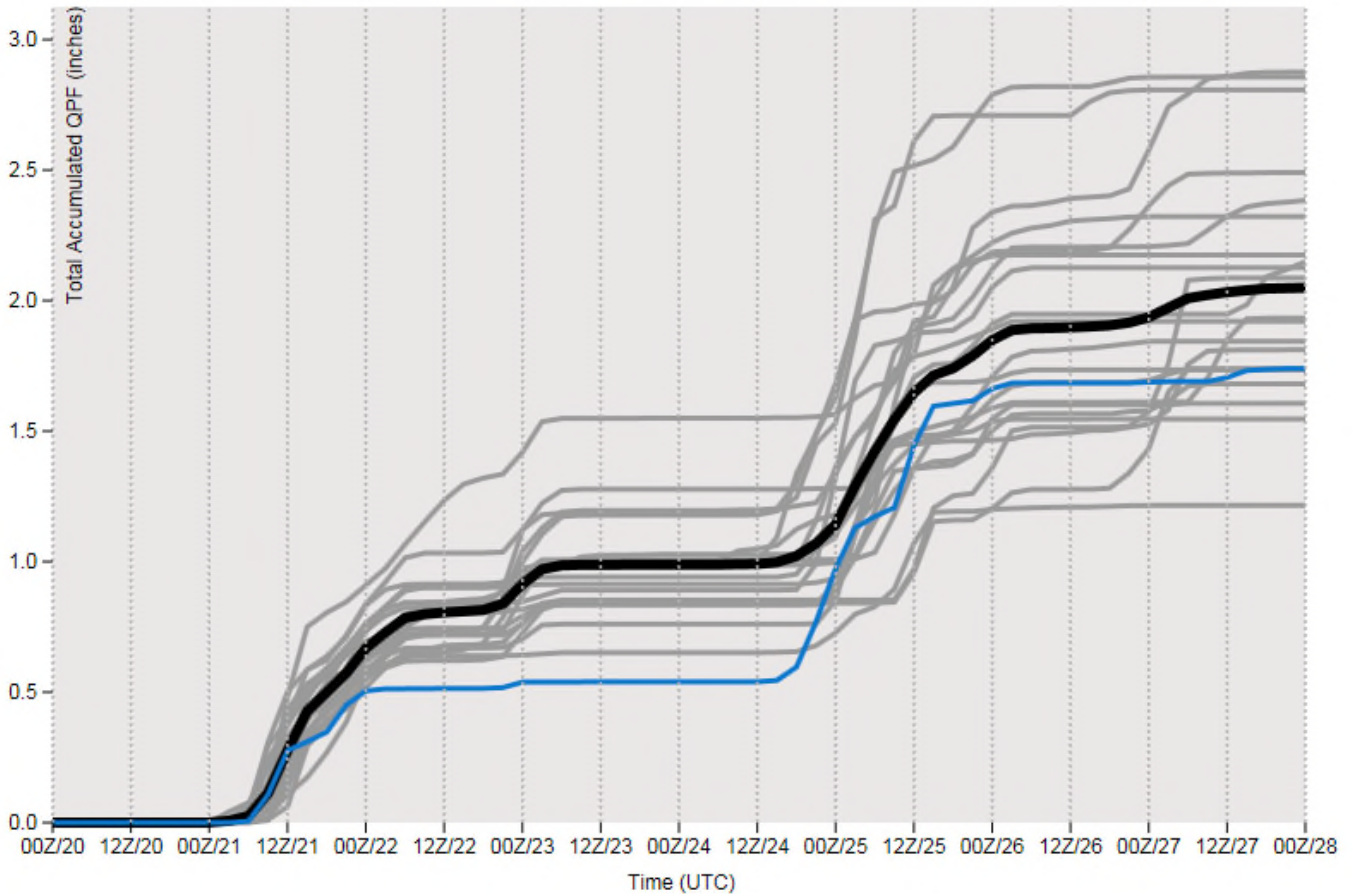
GFS



7. Other Rainfall Graphics

a. Plume Diagram for Modesto

EMC's GEFS plumes for: KMOD
00 UTC 20 March 2017 cycle



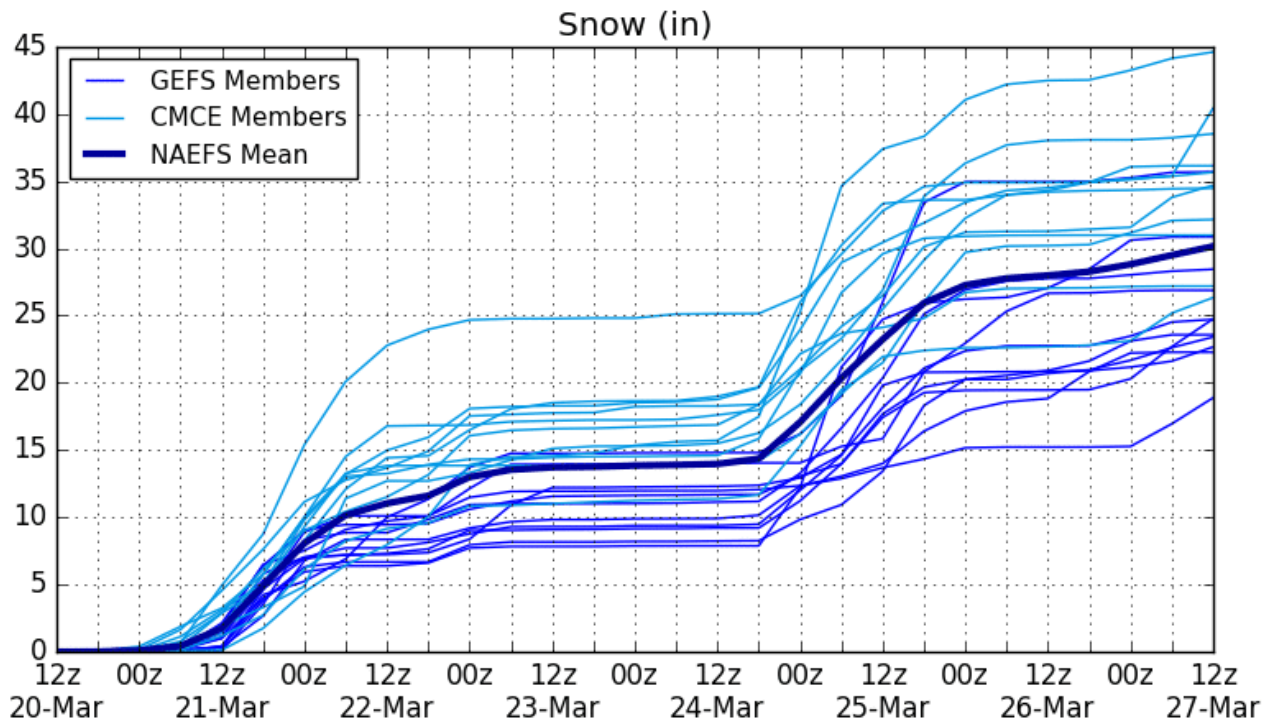
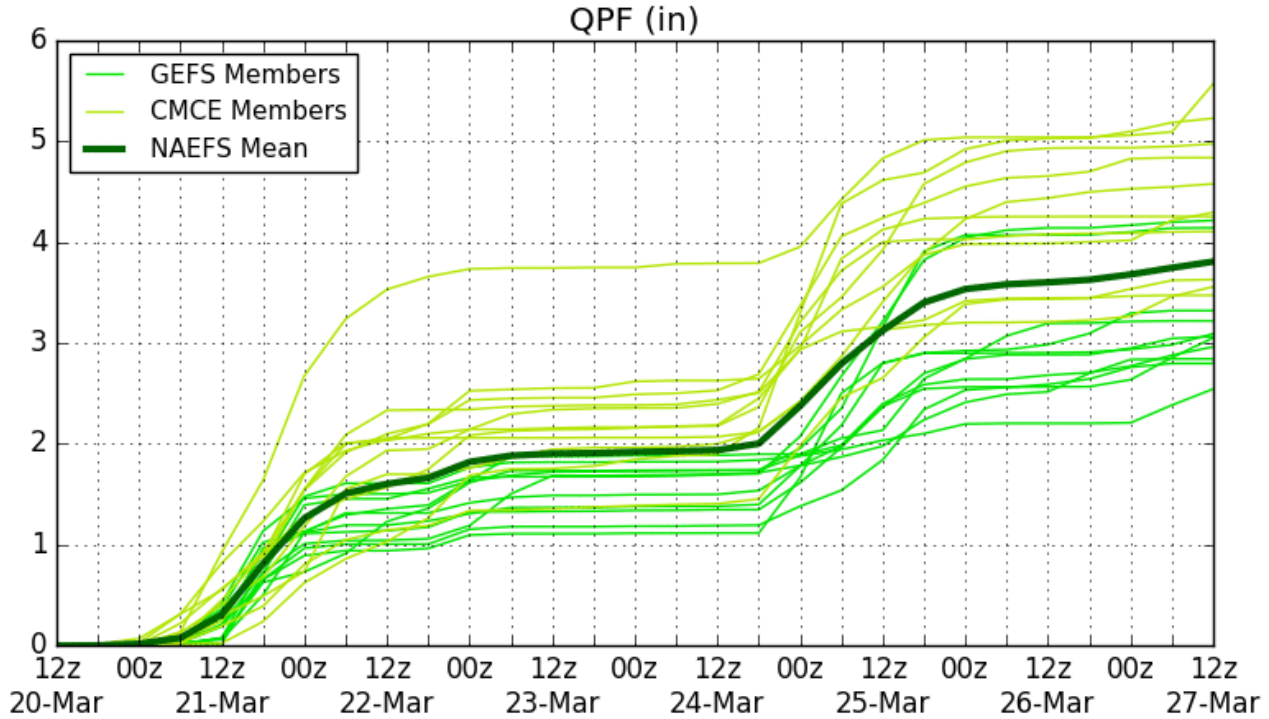
y min y max Set y axis Reset y axis

This page will not update until Wednesday (22 March) due to the NAMv4 implementation.

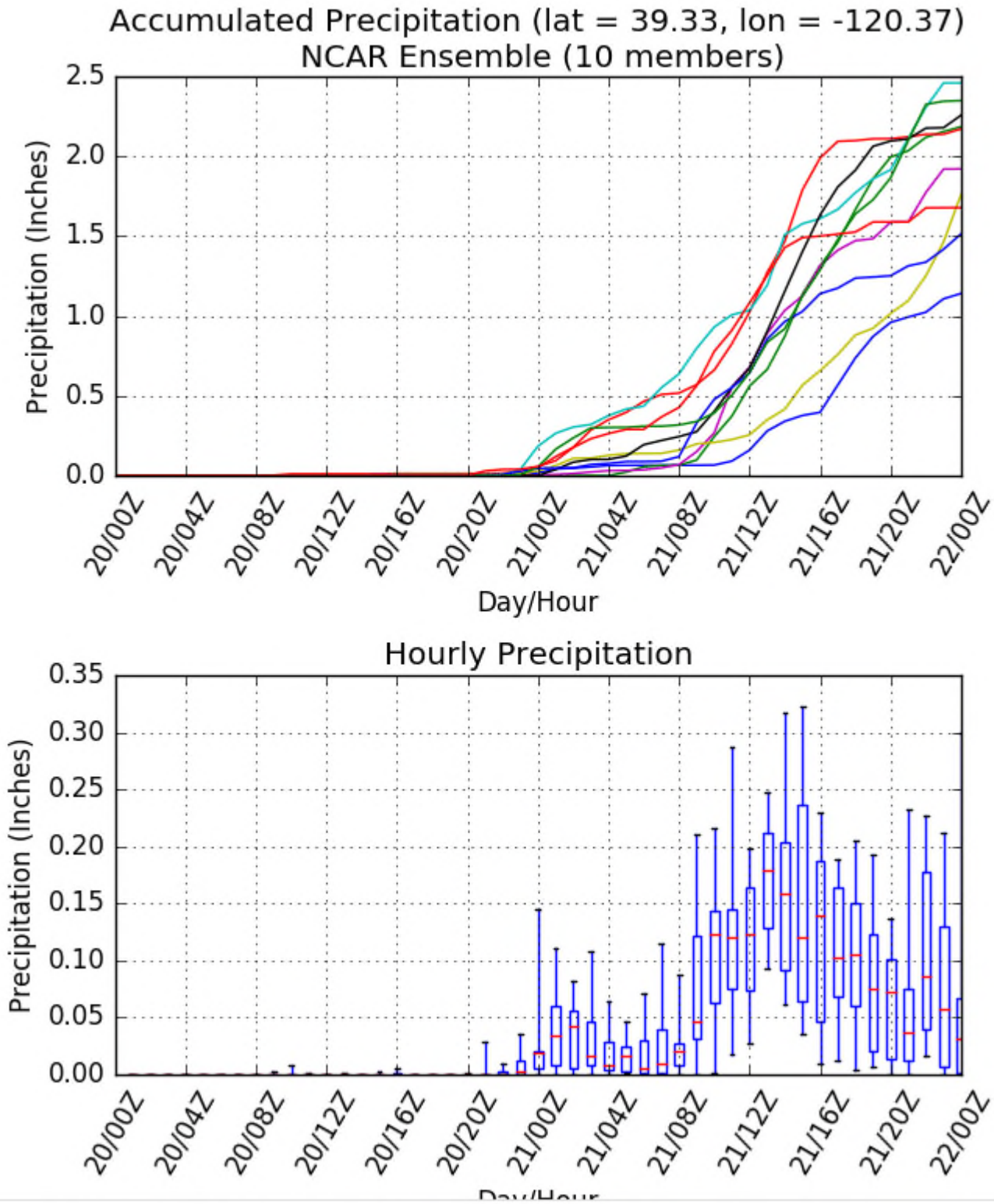
About the plumes: Data for each station is interpolated from a 0.5-degree grid for both the GEFS (gray lines for control and perturbed members; black for mean) and GFS (blue line). The precipitation-type plot uses the closest gridpoint to each station as opposed to interpolation and does not contain a trace for the GFS. In the 3-h accumulation plots, F00 values are derived from the previous cycle's forecast. All observed data are derived from hourly station reports. Zoom for more CONUS stations.

b. Plume Diagram (Snow Labs)

NAEFS Downscaled Guidance at 39.32 N 120.37 W
Model Run: 12Z 2017-03-20

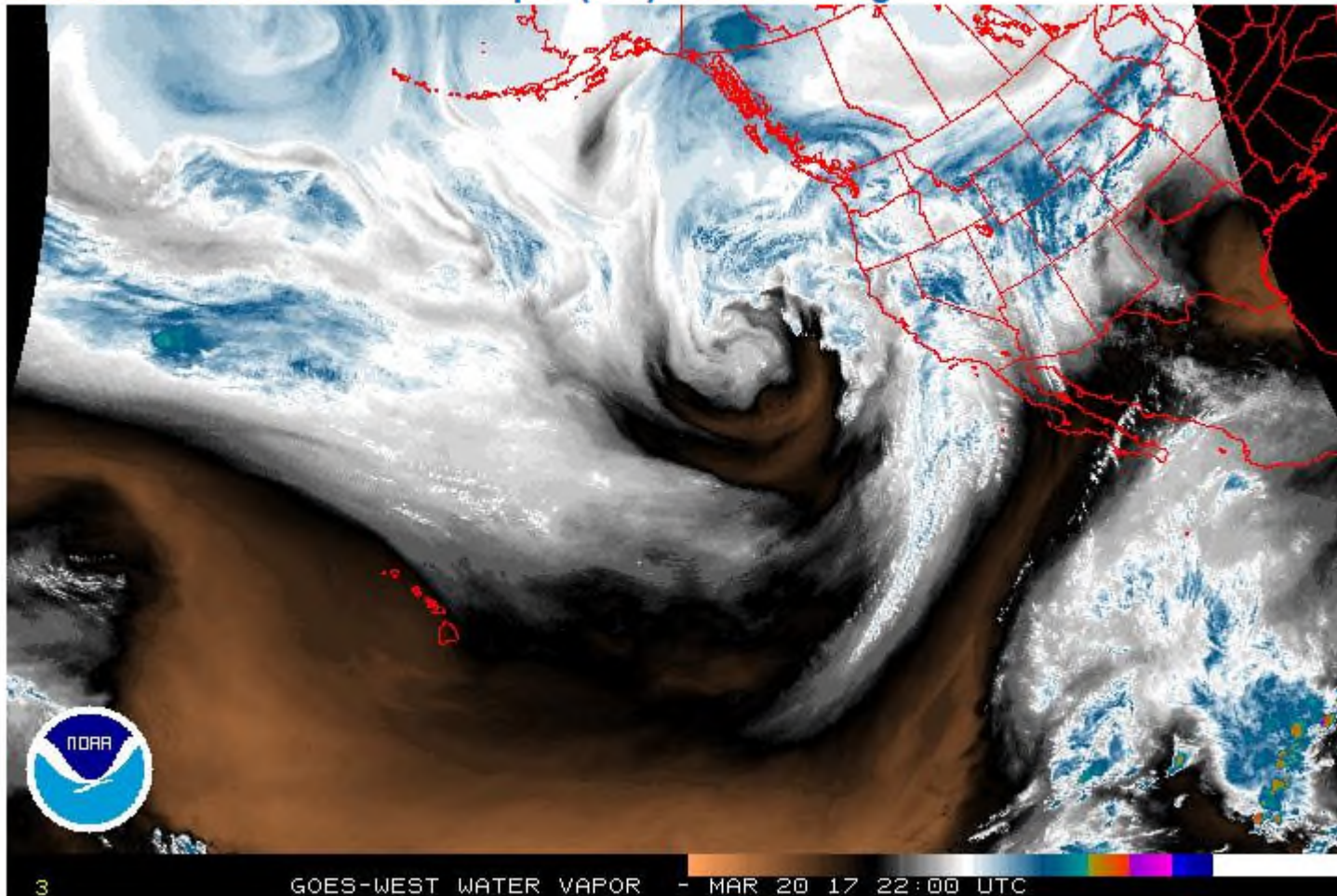


c. Ensemble Forecasts (Snow Labs)



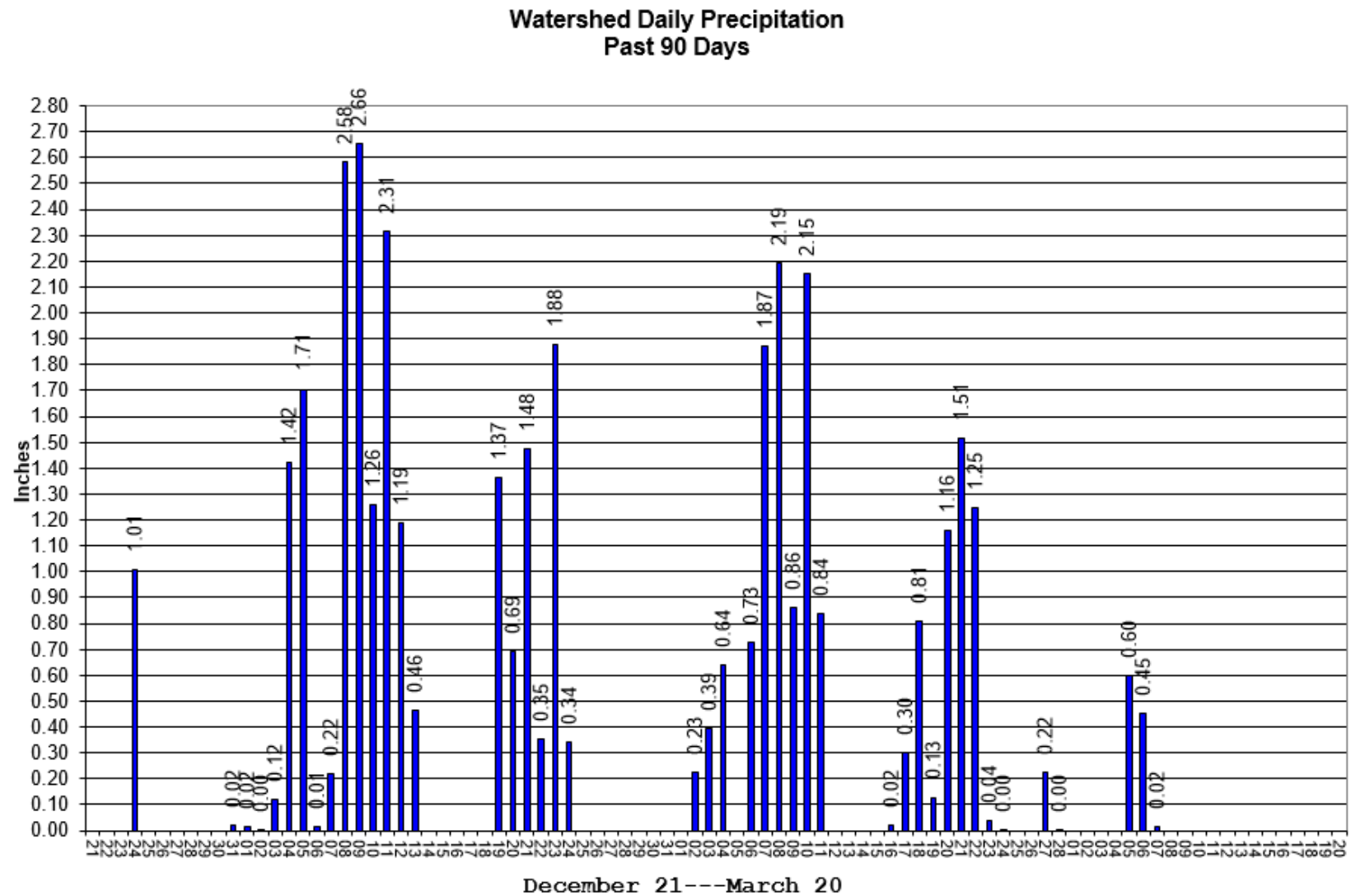
8. Satellite Imagery

Eastern Pacific 16km Water Vapor (WV) Satellite Image

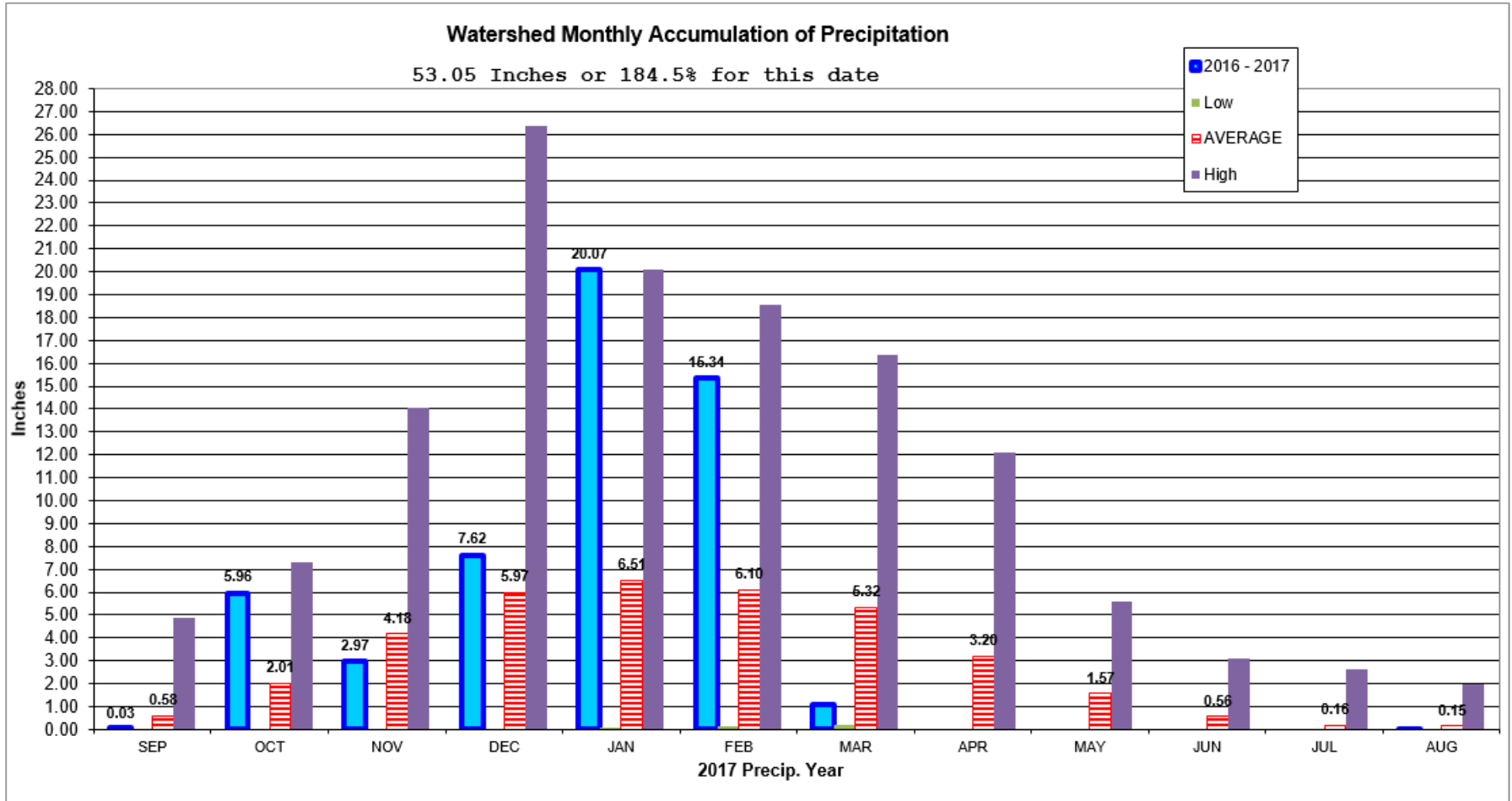


10. Actual Rainfall

a. Daily Water Shed Rainfall Amounts for the Tuolumne Watershed

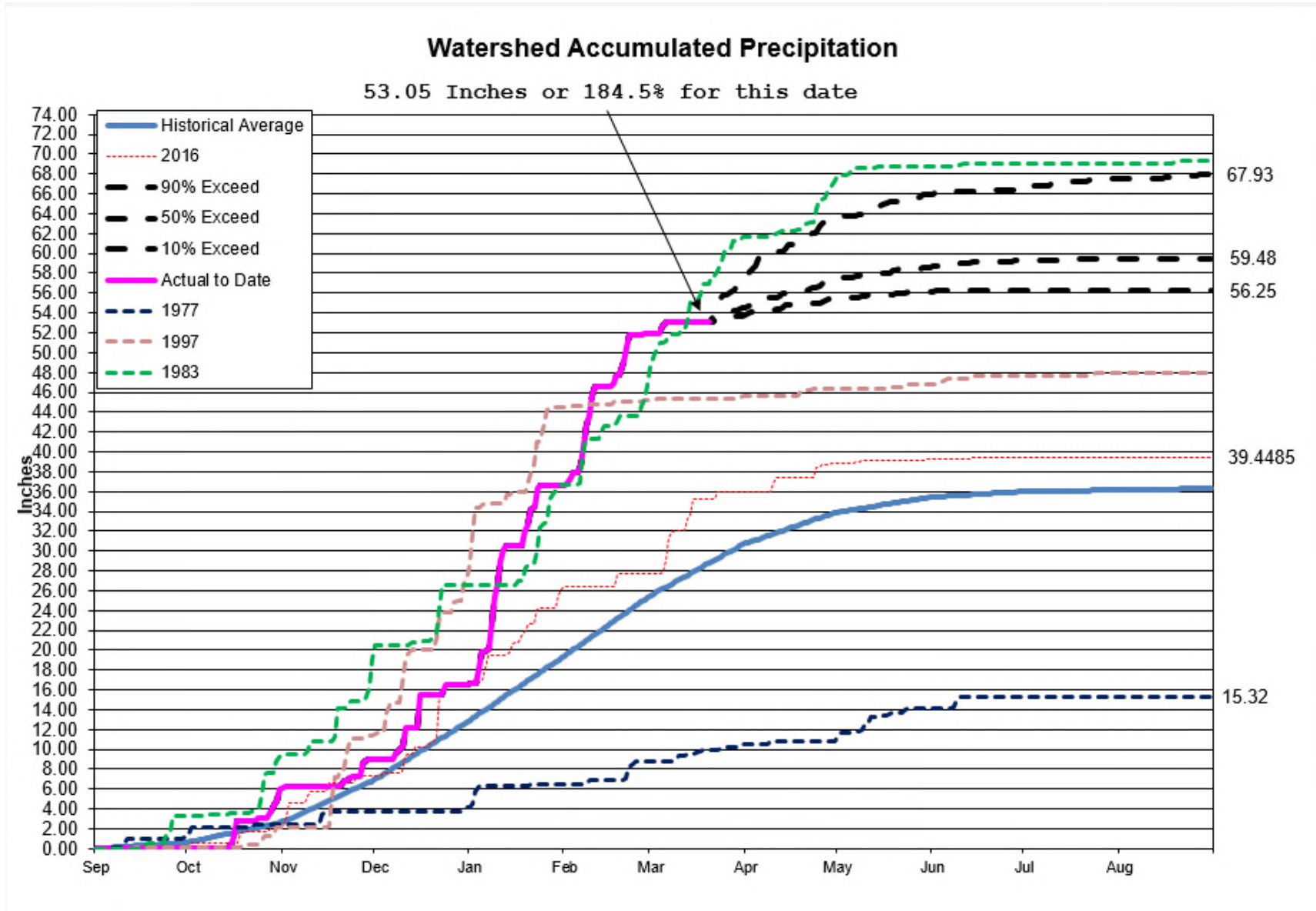


b. Monthly Rainfall Totals for Tuolumne Watershed



Date	9/30/16	10/31/16	11/30/16	12/31/16	1/31/17	2/28/17	3/31/17	4/30/17	5/31/17	6/30/17	7/31/17	8/31/17
Low	0.00	0.00	0.00	0.00	0.09	0.14	0.19	0.00	0.00	0.00	0.00	0.00
Average	0.58	2.01	4.18	5.97	6.51	6.10	5.32	3.20	1.57	0.56	0.16	0.15
High	4.90	7.28	14.06	26.38	20.07	18.58	16.38	12.12	5.57	3.08	2.65	1.98

c. Annual Accumulation of Rainfall for Tuolumne Watershed

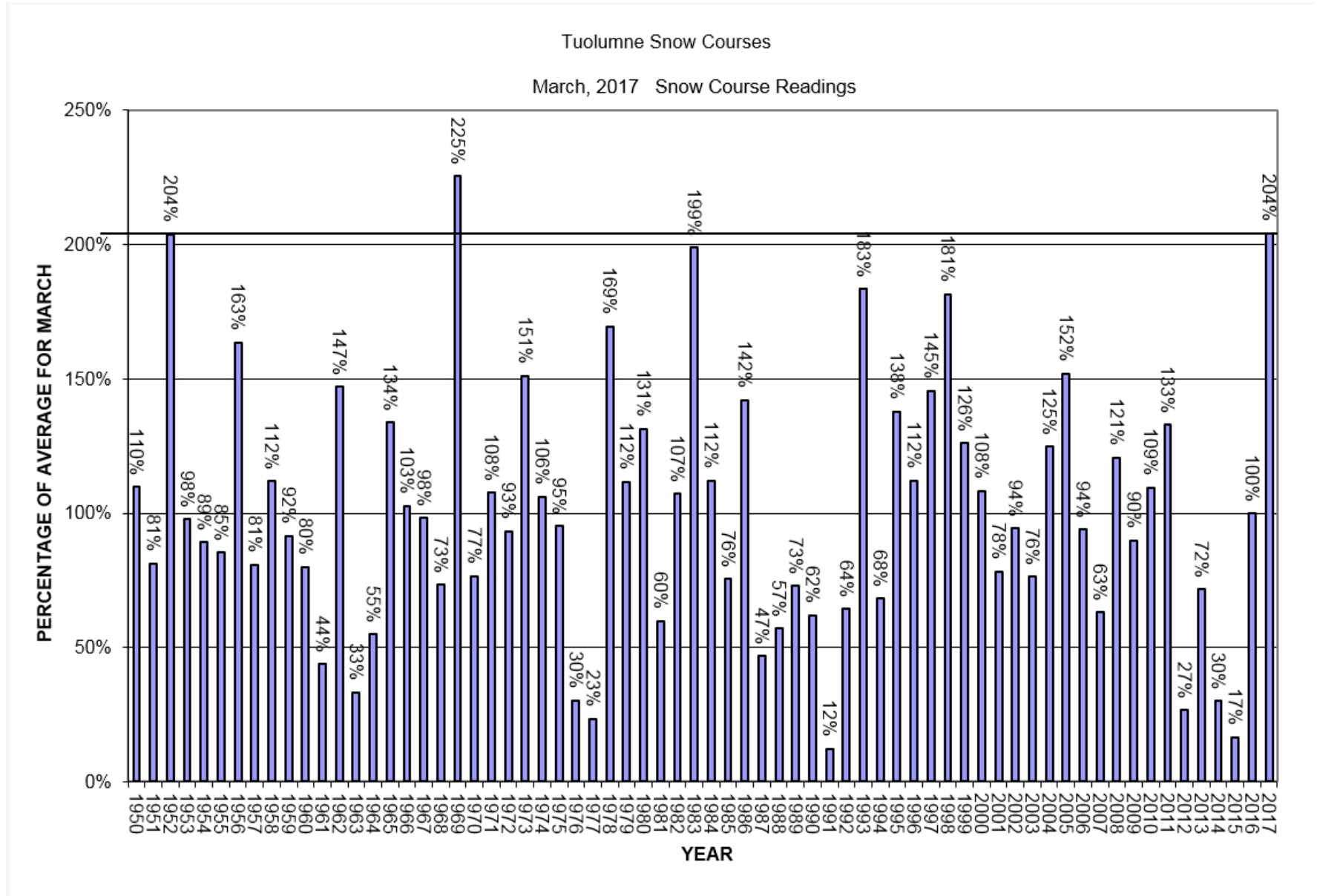


11. Snow Data

a. Snow Course Measurements

Mar 2017 SNOW COURSE READINGS										
TUOLUMNE BASIN SNOW COURSE SURVEY DATA										
Snow Course	Number	Elevation	Ave. W. C.		Depth	W. C.	Density	% of 01APR	% of 01Mar	% of 01Apr
			on 01APR	Date						
DANA MEADOWS	157	9,800	30.1	2-Mar	149.0	65.5	44%	218%	256%	219.7%
RAFFERTY MEADOWS	158	9,400	32.5							
BOND PASS	159	9,300	43.7	28-Feb	192.0	87.0	45%	199%	249%	202.0%
NEW GRACE MEADOW	368	8,900	46.6	24-Feb	199.0	85.0	43%	182%	213%	181.6%
TUOLUMNE MEADOWS	161	8,600	22.3	22-Feb	133.0	49.5	37%	222%	233%	220.0%
HORSE MEADOW	162	8,400	45.8	1-Mar	170.5	81.5	48%	178%	223%	178.5%
WILMER LAKE	163	8,000	42.9	24-Feb	195.5	83.5	43%	195%	233%	197.3%
SACHSE SPRINGS	165	7,900	36.7	3-Mar	140.5	63.5	45%	173%	198%	174.0%
HUCKLEBERRY LAKE	166	7,800	40.4	2-Mar	159.5	73.5	46%	182%	220%	181.6%
SPOTTED FAWN	164	7,800	44.8	2-Mar	162.5	70.0	43%	156%	189%	158.3%
PARADISE MEADOW	167	7,650	38.6	24-Feb	146.0	67.0	46%	174%	210%	172.0%
KERRICK CORRAL	348	7,000	23.0	25-Feb	98.5	39.5	40%	172%	172%	170.9%
UPPER KIBBIE RIDGE	168	6,700	17.8	3-Mar	69.5	29.5	42%	166%	162%	157.9%
VERNON LAKE	169	6,700	21.6	24-Feb	92.0	39.0	42%	181%	192%	176.5%
LOWER KIBBIE RIDGE	173	6,700	24.2							
BELL MEADOW	172	6,500	14.8	25-Feb	68.5	27.5	40%	186%	177%	166.1%
BEEHIVE MEADOW	171	6,500	22.2	24-Feb	75.5	30.5	40%	137%	135%	124.9%
Average	17 TOT.	7,862			136.8	59.5	42.9%	181%	204.1%	178.7%

b. Snow Course History for March 1

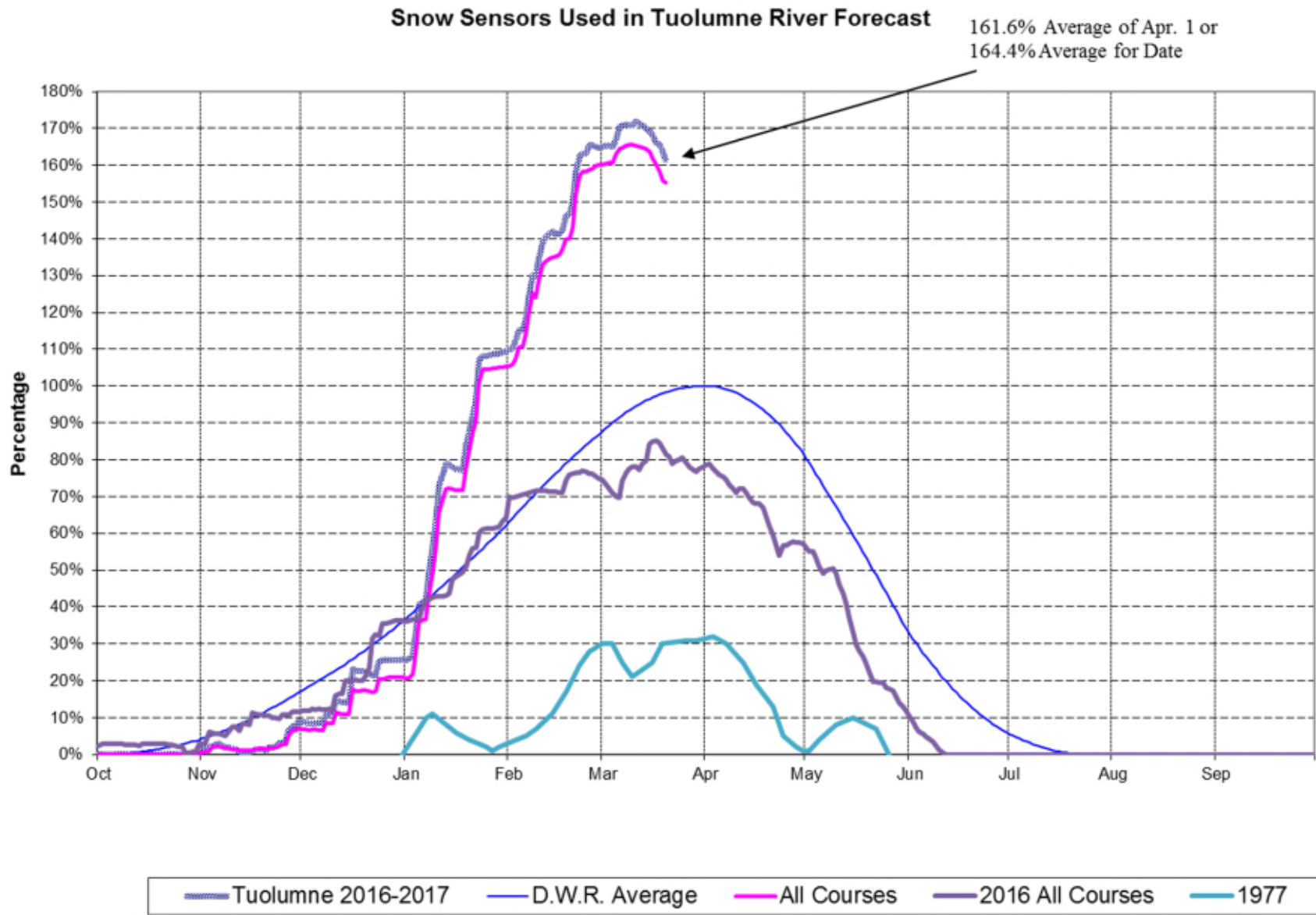


c. Tuolumne Snow Sensors (There are issues with the numbers)

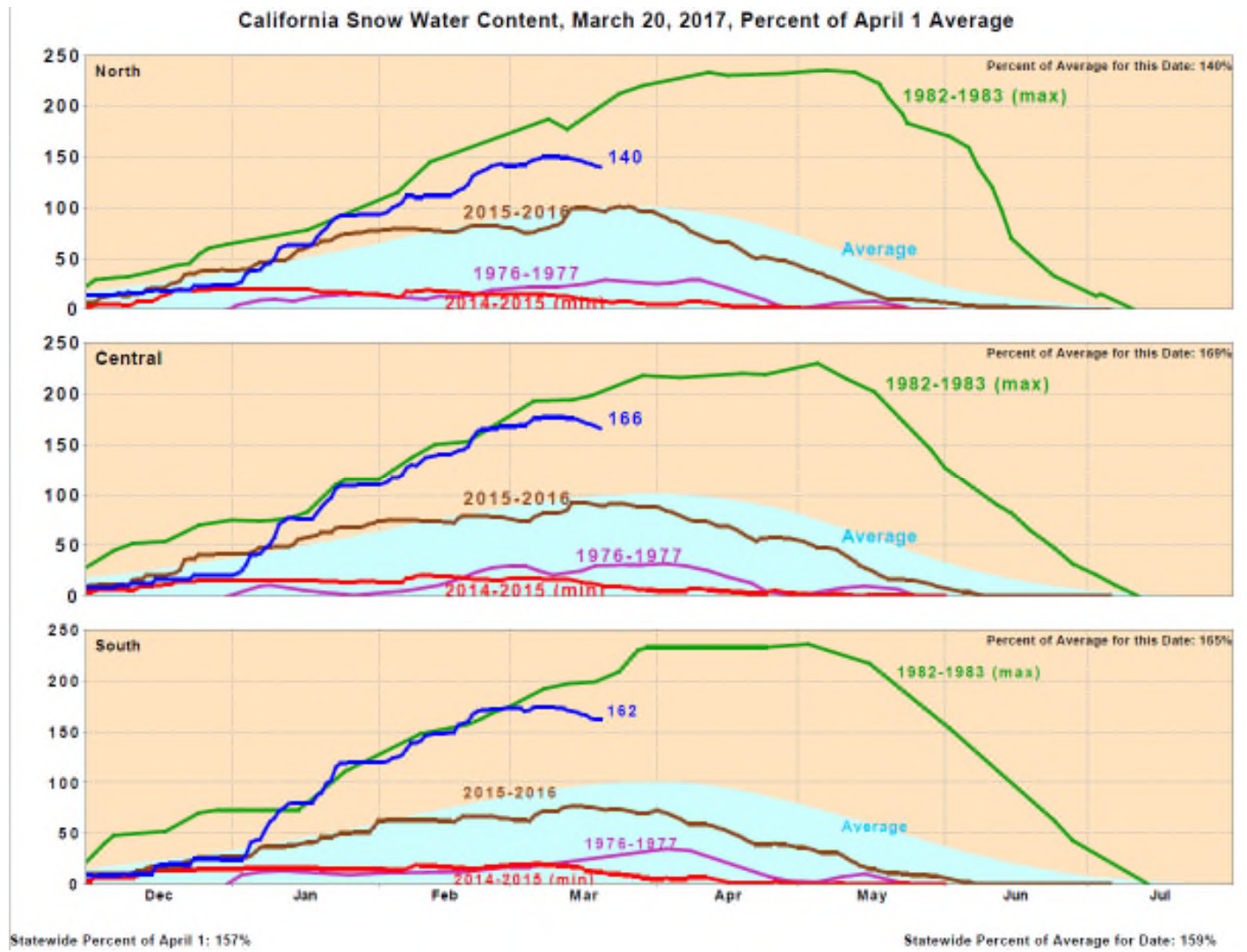
DEPARTMENT OF WATER RESOURCES - CALIFORNIA DATA EXCHANGE CENTER
SNOW WATER EQUIVALENTS (IN INCHES) ---

BASIN NAME STATION NAME	COOPERATIVE AGENCY	ELEV FEET	As of 03/20/17		PERCENT OF APR 1	LAST WEEK	DIFF. FROM LAST WEEK
			APR 1 AVG	TODAY			
TUOLUMNE							
* DANA MEADOWS	DWR	9800	27.70	45.86	165.56%	49.16	-3.30
* SLIDE CANYON	DWR	9200	41.10	63.48	154.45%	74.80	-11.32
* TUOLUMNE MEADOWS	DWR	8600	22.60	42.48	187.96%	43.74	-1.26
* HORSE MEADOW	DWR	8400	48.60	88.02	181.11%	86.89	1.13
* PARADISE	DWR	7650	41.30	76.99	186.42%	76.10	0.89
* LOWER KIBBIE	DWR	6600	27.40	25.76	94.01%	29.55	-3.79
				AVERAGE	161.59%	AVERAGE	-2.94
MERCED							
TENAYA LAKE ²	DWR	8150	33.10				
OSTRANDER LAKE	DWR	8200	34.80	--	0.00%	--	0.00
* GIN FLAT	DWR	7050	34.20				
				AVERAGE	0.00%	AVERAGE	0.00
MONO LAKE							
GEM PASS	LADWP	10750	31.70	41.33	130.38%	41.32	0.01
STANISLAUS							
DEADMAN CREEK	USBR	9250	37.20	59.88	160.97%	60.00	-0.12
* GIANELLI MEADOW	USBR	8350	55.50	66.60	120.00%	76.32	-9.72
* LOWER RELIEF	DWR	8100	41.20	--	0.00%	--	0.00
STANISLAUS MEADOW	USBR	7750	47.50	72.00	151.58%	74.40	-2.40
BLOODS CREEK	USBR	7200	35.50	39.96	112.56%	45.24	-5.28
BLACK SPRINGS	USBR	6500	32.00	32.28	100.88%	35.52	-3.24
				AVERAGE	107.66%	AVERAGE	-3.46
WALKER							
* VIRGINIA LAKES RIDGE	SCS	9200	20.30	32.80	161.58%	32.70	0.10
LOBDELL LAKE	SCS	9200	17.30	33.30	192.49%	33.30	0.00
* SONORA PASS	SCS	8750	26.00	46.40	178.46%	48.00	-1.60
LEAVITT MEADOWS	SCS	7200	8.00	19.10	238.75%	21.50	-2.40
				AVERAGE	192.82%	AVERAGE	-0.98

d. Graph of Tuolumne Snow Sensors



e. DWR Graphs of California Snow Sensors



12. Tuolumne Full Natural Flow

a. Don Pedro Release (District Preliminary Data, USGS adjustments not included)

WY2017 Don Pedro Release												
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT
DAY	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS
1	1,015	446	178	182	8,506	10,854						
2	973	682	179	412	9,185	11,229						
3	759	435	179	4,229	9,136	11,082						
4	968	214	178	8,723	9,234	11,090						
5	964	166	196	9,635	9,295	11,101						
6	1,179	548	180	10,668	8,890	11,077						
7	686	262	213	6,319	8,423	11,092						
8	602	169	189	1,766	8,144	11,099						
9	801	166	182	5,722	8,242	11,357						
10	1,315	165	175	4,012	7,349	11,489						
11	598	167	174	5,150	9,474	11,501						
12	773	165	175	6,207	9,956	10,970						
13	1,327	166	178	6,718	10,863	10,062						
14	1,293	179	178	7,887	11,447							
15	1,042	230	178	8,244	11,711							
16	852	178	175	8,554	11,832							
17	1,174	177	181	8,715	11,510							
18	1,474	432	180	7,126	11,283							
19	1,205	924	179	5,803	11,522							
20	1,162	223	179	4,982	12,713							
21	994	178	184	6,374	15,000							
22	315	179	180	4,805	14,832							
23	168	211	177	6,844	14,715							
24	430	430	180	7,910	14,541							
25	1,076	182	178	8,293	13,944							
26	1,557	181	179	8,576	13,906							
27	673	181	179	8,195	10,619							
28	488	199	179	8,207	10,346							
29	408	192	176	8,190								
30	401	177	179	8,340								
31	405		179	8,424								
Average C.F.S.	873	273	180	6,620	10,951	9,600						
Total Monthly A.F.	53,708	16,269	11,095	407,030	608,166	285,627						
Total October-September Don Pedro Release=				1,381,895	A.F.		APR-JLY =	0	A.F.			

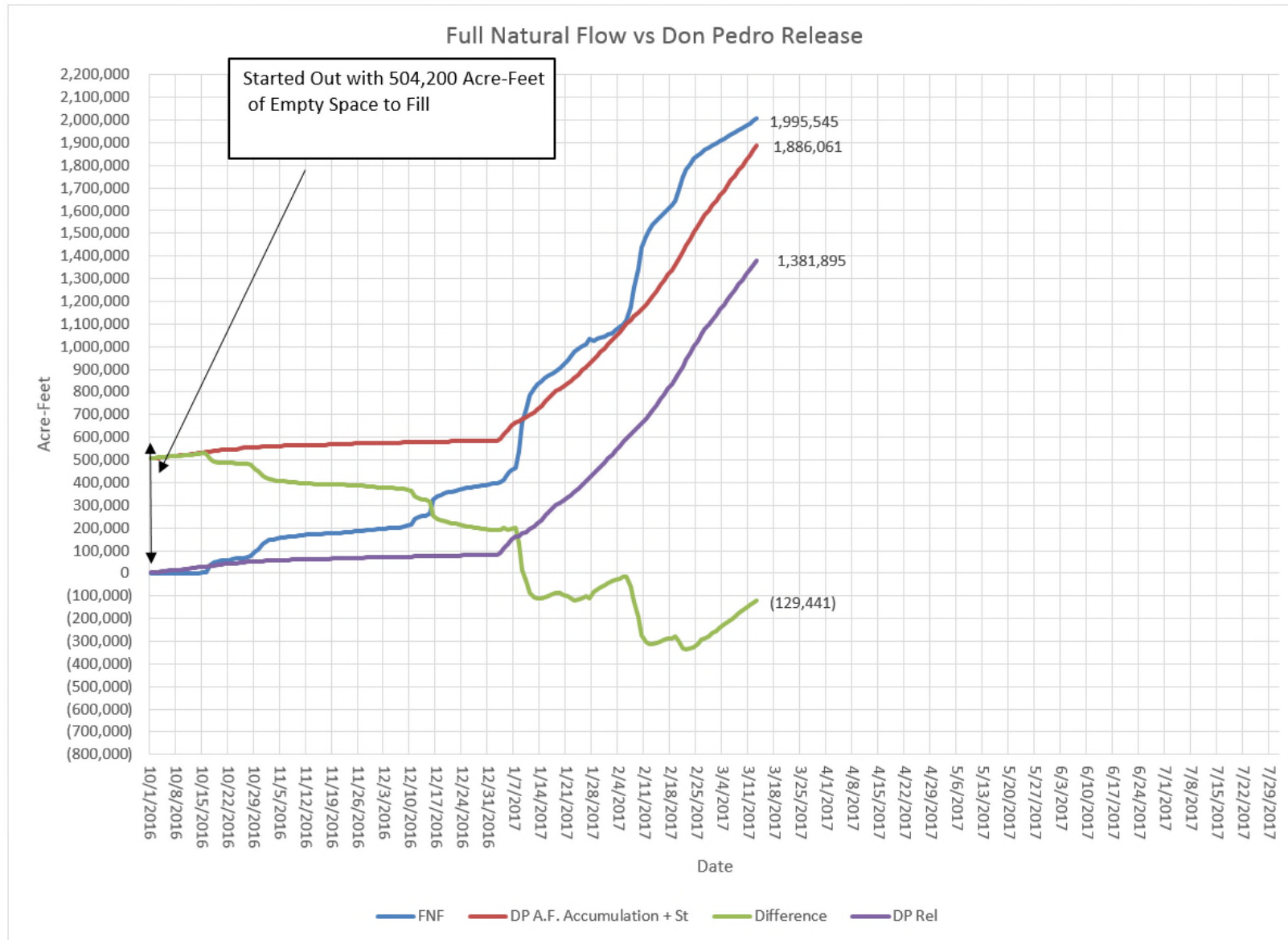
TURLOCK IRRIGATION DISTRICT

b. 2016-2017 Full Natural Flow or Runoff

DAY	WY2017 Computed Natural Flow											
	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT
	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS	CFS
1	217	5,422	867	1,647	3,231	5,507						
2	(256)	2,982	37	1,317	3,410	4,682						
3	(212)	1,714	953	1,947	6,910	4,752						
4	183	1,956	661	5,473	7,718	4,521						
5	504	1,231	724	14,538	5,324	5,996						
6	118	1,078	519	7,479	7,935	4,777						
7	(8)	1,147	685	4,892	30,594	4,677						
8	(160)	1,067	875	35,352	42,212	4,529						
9	258	923	2,127	64,577	41,847	4,311						
10	(248)	1,313	3,727	31,653	48,136	5,798						
11	(55)	366	11,354	28,725	23,298	4,585						
12	243	1,208	4,142	15,648	14,569	5,675						
13	(616)	353	2,573	10,021	11,876	5,893						
14	864	699	1,917	6,977	9,220							
15	236	581	4,209	6,447	8,393							
16	1,882	547	32,120	5,510	8,461							
17	14,942	693	6,447	4,006	8,881							
18	6,171	903	3,356	4,183	9,854							
19	2,078	(130)	2,634	7,419	8,171							
20	1,605	502	2,350	9,289	22,239							
21	1,484	456	1,814	8,934	31,550							
22	637	789	1,966	8,526	17,496							
23	996	576	1,534	11,590	11,764							
24	1,603	851	2,664	6,533	12,182							
25	768	498	1,828	5,469	7,143							
26	1,443	592	1,085	4,560	4,726							
27	896	1,278	1,530	12,010	6,263							
28	3,110	1,168	1,499	(4,543)	5,393							
29	9,836	1,113	1,539		2,912							
30	4,829	545	1,175	3,624								
31	11,762		1,103	3,223								
Average C.F.S.	2,100	1,081	3,226	10,643	14,957	3,650						
Total Monthly A.F.	129,145	64,304	198,377	654,418	830,670	130,320						
DWR 50 YR Average	18,213	57,604	104,365	155,525	156,073	202,324	270,005	448,035	368,246	143,830	33,814	16,303
Total October-September Computed Natural Flow=				2,007,234	A.F.			APR-JLY =		0	A.F.	



13. 2016-2017 Difference between Full Natural Flow and Don Pedro Releases



14. CNRFC Runoff Forecasts

a. California Nevada River Forecast Center Seasonal (April-July) Trend Plot

TUOLUMNE RIVER - NEW DON PEDRO RESERVOIR (NDPC1)

Latitude: 37.70° N

Longitude: 120.42° W

Elevation: 272 Feet

Location: Tuolumne County in California

River Group: San Joaquin

Issuance Time: Mar 20 2017 at 9:43 AM PDT

2017 Seasonal Trend Plot (Year View)

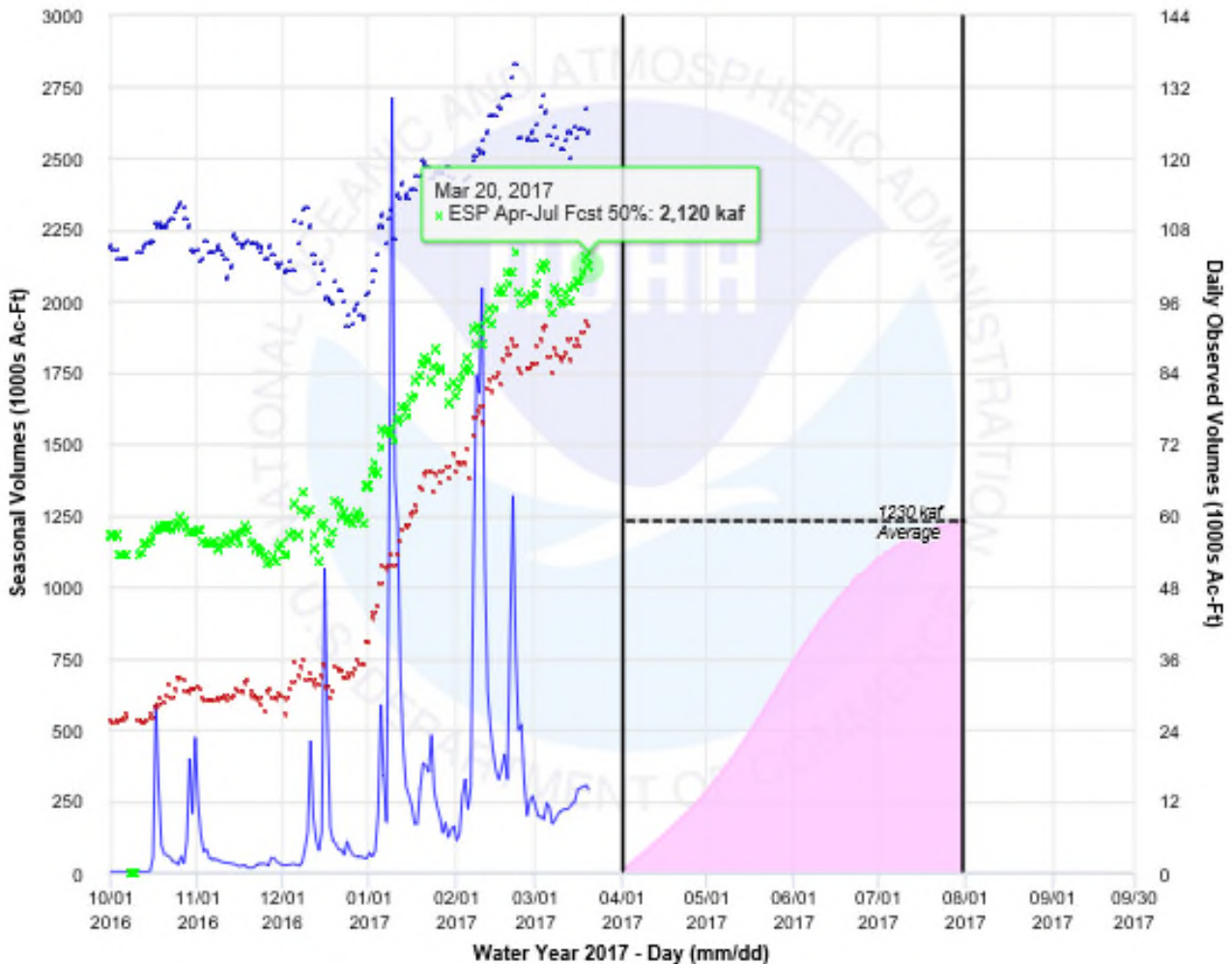
Tabular View | Select a Different Water Year: 2017

Switch to Seasonal View

TUOLUMNE - NEW DON PEDRO (NDPC1) 03/20/2017

Most Probable: 2120 kaf | 173% of Average

Created: 03/20/2017 at 09:39 AM PDT



Observed Season to Date Percent of Average: N/A% (M kaf) Season to Date Average: kaf
 Historical Apr-Jul Vol Max: 2680 kaf in 1906 Historical Apr-Jul Vol Min: 301 kaf in 1977

-- 30-Year Apr-Jul Vol Mean Season to Date Avg ● NWS Apr-Jul Fcst - Season to Date Obs - Daily Obs
 ■ ESP Apr-Jul Fcst 10% ■ ESP Apr-Jul Fcst 25% ■ ESP Apr-Jul Fcst 50% ■ ESP Apr-Jul Fcst 75% ■ ESP Apr-Jul Fcst 90%

b. California Nevada River Forecast Center Water Year Trend Plot

TUOLUMNE RIVER - NEW DON PEDRO RESERVOIR (NDPC1)

Latitude: 37.70° N

Longitude: 120.42° W

Elevation: 272 Feet

Location: Tuolumne County in California

River Group: San Joaquin

Issuance Time:

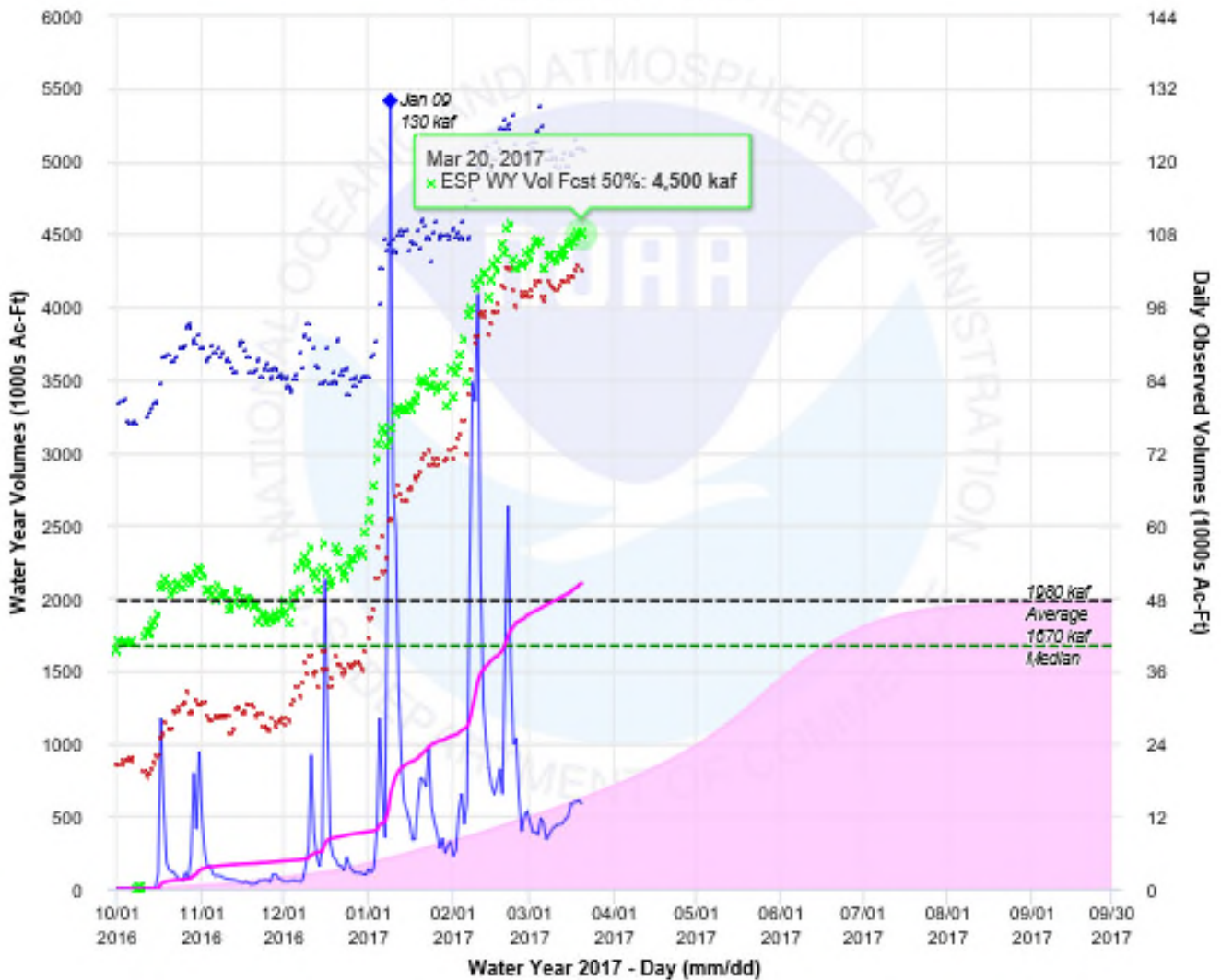
Mar 20 2017 at 9:49 AM PDT

2017 Water Year Trend Plot

Tabular View | Select a Different Water Year: 2017

TUOLUMNE - NEW DON PEDRO (NDPC1) 03/20/2017
Most Probable: 4500 kaf | 227% of Average | 271% of Median

Created: 03/20/2017 at 09:42 AM PDT



Observed to Date Percent of Average: 340% (2100 kaf) Water Year to Date Average: 619 kaf

- WY Volume Average
- - - WY Volume Median
- WY to Date Obs
- WY to Date Avg
- Daily Obs
- ◆ Obs Peak
- ESP WY Vol Fcst 10%
- ESP WY Vol Fcst 25%
- ESP WY Vol Fcst 50%
- ESP WY Vol Fcst 75%
- ESP WY Vol Fcst 90%

c. Water Year Accumulation Plot; CNRFC

TUOLUMNE RIVER - NEW DON PEDRO RESERVOIR (NDPC1)

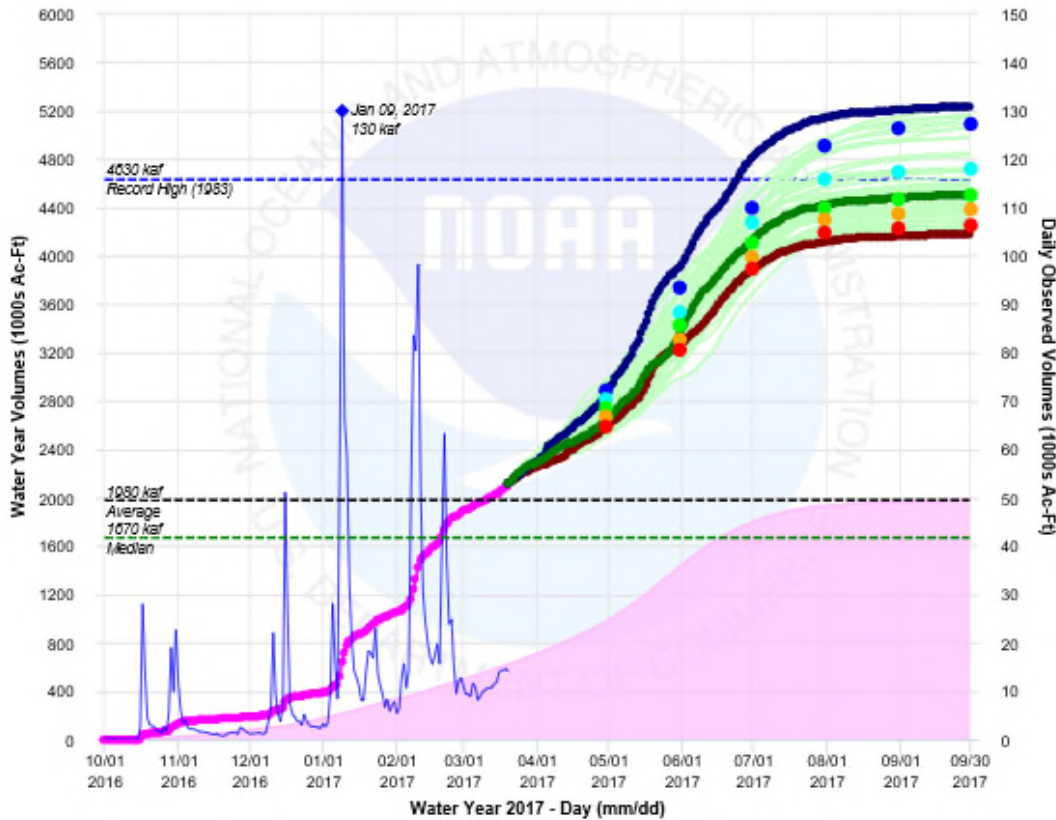
Latitude: 37.70° N Longitude: 120.42° W Elevation: 272 Feet
 Location: Tuolumne County in California River Group: San Joaquin

Issuance Time: Mar 20 2017 at 9:47 AM PDT

2017 Water Year Accumulated Volume Plot CSV Ensemble File Download: Forecast Group | NDPC1

TUOLUMNE - NEW DON PEDRO (NDPC1) 03/20/2017
 Most Probable: 4500 kaf | 227% of Average | 271% of Median

Created: 03/20/2017 at 09:41 AM PDT



Observed to Date Percent of Average: 338% (2100 kaf) Water Year to Date Average: 621 kaf

- 90%: 4250 kaf ● 75%: 4380 kaf ● 50%: 4500 kaf ● 25%: 4720 kaf ● 10%: 5090 kaf
- Min Trace (2008: 4180 kaf) — Median Trace (1972: 4500 kaf) — Max Trace (2006: 5230 kaf)
- Volume Med — Volume Avg — Traces (1950-2008) — Record High — Record Low
- Accum to Date Avg — Accum to Date Obs — Daily Obs — Obs Peak

[Hide All](#) [Show All](#)

Tabular Monthly Volume Accumulation (1000s of Acre-Feet)												
Probability	Nov 1 2016	Dec 1 2016	Jan 1 2017	Feb 1 2017	Mar 1 2017	Apr 1 2017	May 1 2017	Jun 1 2017	Jul 1 2017	Aug 1 2017	Sep 1 2017	Oct 1 2017
10% (Max)	--	--	--	--	--	--	2890	3740	4400	4910	5050	5090
25%	--	--	--	--	--	--	2820	3530	4270	4630	4690	4720
50% (Most Prob)	--	--	--	--	--	--	2740	3430	4110	4400	4470	4500
75%	--	--	--	--	--	--	2670	3310	3990	4300	4350	4380
90% (Min)	--	--	--	--	--	--	2590	3220	3890	4190	4230	4250

d. California Nevada River Forecast Center 10 Day Ensemble

TUOLUMNE RIVER - NEW DON PEDRO RESERVOIR (NDPC1)

Latitude: 37.70° N

Longitude: 120.42° W

Elevation: 272 Feet

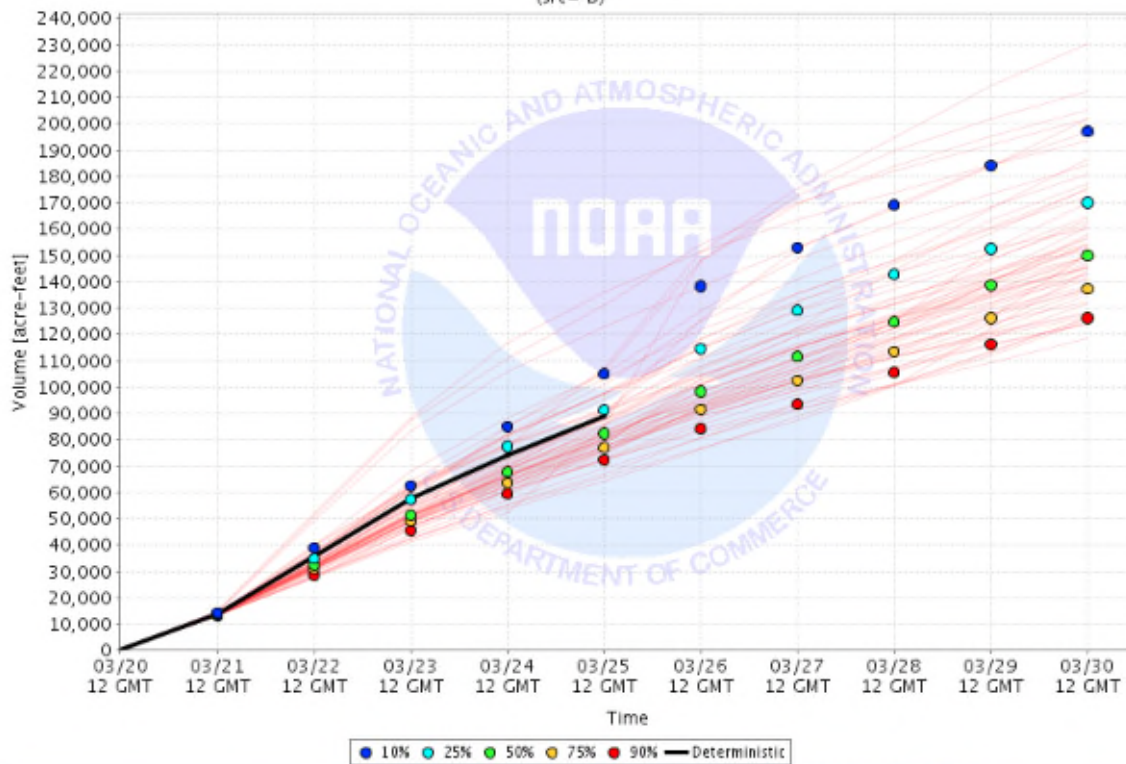
Location: Tuolumne County in California

River Group: San Joaquin

Issuance Time: Mar 20 2017 at 8:29 AM PDT

10-Day Accumulated Volume Plot

Volume Accumulation For TUOLUMNE-NEW DON PEDRO D
 Latitude: 37.701668 Longitude: -120.42111
 Forecast for the period 03/20/2017 - 03/30/2017
 This is a conditional simulation based on the current conditions as of 03/20/2017
 (src = D)



Tabular 10-Day Streamflow Volume Accumulation (1000s of Acre-Feet)										
Probability	Mar 21	Mar 22	Mar 23	Mar 24	Mar 25	Mar 26	Mar 27	Mar 28	Mar 29	Mar 30
10% (Max)	14.2	38.9	62.8	84.9	105.1	138.3	153.0	169.2	184.1	197.2
25%	13.9	34.8	57.3	77.5	91.3	114.5	129.1	142.8	152.6	170.1
50% (Most Prob)	13.7	32.3	51.4	67.7	82.4	98.3	111.6	124.8	138.6	150.0
75%	13.5	31.1	49.2	63.6	77.1	91.5	102.4	113.5	126.3	137.3
90% (Min)	13.3	28.7	45.6	59.5	72.3	84.3	93.5	105.7	116.2	126.2

Text Product (RNOWRK10D)
 10-Day Streamflow Volume Accumulation

15. DWR Monthly Runoff Forecast (March 1 Forecast)

B120 (03/10/14 1220)

Department of Water Resources
California Cooperative Snow Surveys

March 1, 2017 FORECAST
OF UNIMPAIRED RUNOFF
(in thousands of acre-feet)

April-July Forecast

	April thru July	Percent of Average	80% Probability Range
Stanislaus River below Goodwin Res.	1340	196%	1170 - 1790
Tuolumne River below La Grange	2280	191%	2020 - 2900
Merced River below Merced Falls	1230	197%	1090 - 1580
San Joaquin River inflow to Millerton Lk	2460	200%	2180 - 3050

Water-Year (WY) Forecast and Monthly Distribution

	Oct thru Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Water Year	80% Probability Range	WY %
Stanislaus, Gdw.	669	627	250	330	510	380	120	28	16	2930	2630 - 3680	255
Tuolumne, LaGrange	1048	829	360	470	720	725	365	70	28	4615	4150 - 5650	242
Merced, McClure	512	487	190	250	420	410	150	36	15	2470	2215 - 3065	249
San Joaquin, Mil.	700	530	290	450	740	820	450	135	45	4160	3680 - 5140	232

16. DWR Monthly Update

B120UP (03/16/17 1349)

22 35

DEPARTMENT OF WATER RESOURCES
California Cooperative Snow Surveys

WATER SUPPLY FORECAST UPDATE
2017 April-July Unimpaired Runoff (1,000 Acre-feet)

1 2

Mar 1 %Avg Mar 14 %Avg

Stanislaus River, below Goodwin Res. (blw New Melones)					average =		682		
90% Exceedance	1170	172%	1200	176%		90%	1170	1200	
50% Exceedance	1340	196%	1350	198%		50%	1340	1350	
10% Exceedance	1790	262%	1740	255%		10%	1790	1740	

Tuolumne River, below La Grange Res. (blw Don Pedro)					average =		1193		
90% Exceedance	2020	169%	2050	172%		90%	2020	2050	
50% Exceedance	2280	191%	2270	190%		50%	2280	2270	
10% Exceedance	2900	243%	2790	234%		10%	2900	2790	

Merced River, below Merced Falls (blw Lake McClure)					average =		623		
90% Exceedance	1090	175%	1080	173%		90%	1090	1080	
50% Exceedance	1230	197%	1200	193%		50%	1230	1200	
10% Exceedance	1580	254%	1500	241%		10%	1580	1500	

San Joaquin River, below Millerton Lake					average =		1228		
90% Exceedance	2180	178%	2190	178%		90%	2180	2190	
50% Exceedance	2460	200%	2430	198%		50%	2460	2430	
10% Exceedance	3050	248%	2920	238%		10%	3050	2920	

17. California Reservoir Report (20170319 Report)

*** ADDITIONAL SECTION-7 DATA ***

Shasta:		
Sacramento River Natural Flow at Shasta (sfd)		18445
Keswick Release at 0800 hrs (sfd)		7689
Oroville:		
Thermolito Release at 0800 hrs (sfd)		48000
Indian Valley:		
Rumsey Flow at 0700 hrs (cfs)		2460
Folsom:		
Nimbus Release at 0800 hrs (sfd)		5548
Camanche:		
Salt Springs: Storage (acft)	117880	
	Precipitation (in)	0.00
	Temperature (F)	43
Pardee: Storage (acft)	193010	
	Inflow (sfd)	3015
	Precipitation (in)	0.00
Lower Bear Storage (acft)	41709	
Tiger Creek Precipitation (in)	0.00	
Caples Lake: Snow (Water Content Inches)	54.10	
	Precipitation (in)	0.00
	Temperature (F)	38
Calaveras Big Trees: Precipitation (in)	0.00	
	Temperature (F)	43
Mokelumne River Natural Flow @ Camanche (acft)	6476	
New Melones:		
Donnels: Storage (acft)	57342	
	Outflow (sfd)	1291
Beardsley: Storage (acft)	79149	
	Outflow (sfd)	2004
	Precipitation (in)	0.00
Stanislaus River Nat. Flow @ New Melones (acft) ...	1400	
Tulloch:		
Goodwin Release to River at 0700 (cfs)	1007	
Don Pedro:		
Hetch Hetchy: Storage (acft)	299580	
	Outflow (sfd)	1722
	Precipitation (in)	0.00
Cherry Valley: Storage (acft)	230067	
	Outflow (sfd)	873
	Precipitation (in)	0.00
Toulumne River Natural Flow @ Don Pedro (acft)	14664	
New Exchequer:		
Flow Below McSwain (cfs)	7210	
Friant:		
Madera Canal Flow (cfs)	879	
Friant-Kern Canal Flow (cfs)	1211	
San Joaquin River Flow (cfs)	7965	
Friant Spillway Flow (cfs)	0	
San Joaquin River Natural Flow @ Friant (acft)	14716	
Edison: Storage (acft)	28067	
Florence: Storage (acft)	8760	
Huntington: Storage (acft)	30573	
	Precipitation (in)	0.00
Shaver: Storage (acft)	55717	
Mammoth: Storage (acft)	120328	
Redinger: Storage (acft)	22278	
Crane Valley: Storage (acft)	34880	
	Precipitation (in)	0.00
Kerckhoff: Storage (acft)	3954	
Truckee:		
Lake Tahoe: Elevation (ft)	6226.89	
	Outflow (cfs)	504
	Precipitation (in)	0.00
Truckee River: Flow at Farad (cfs)	4300	
	Flow at Reno (cfs)	4300

18. San Joaquin Reservoir Operations (20170319 Report)

*** Section Seven Projects ***

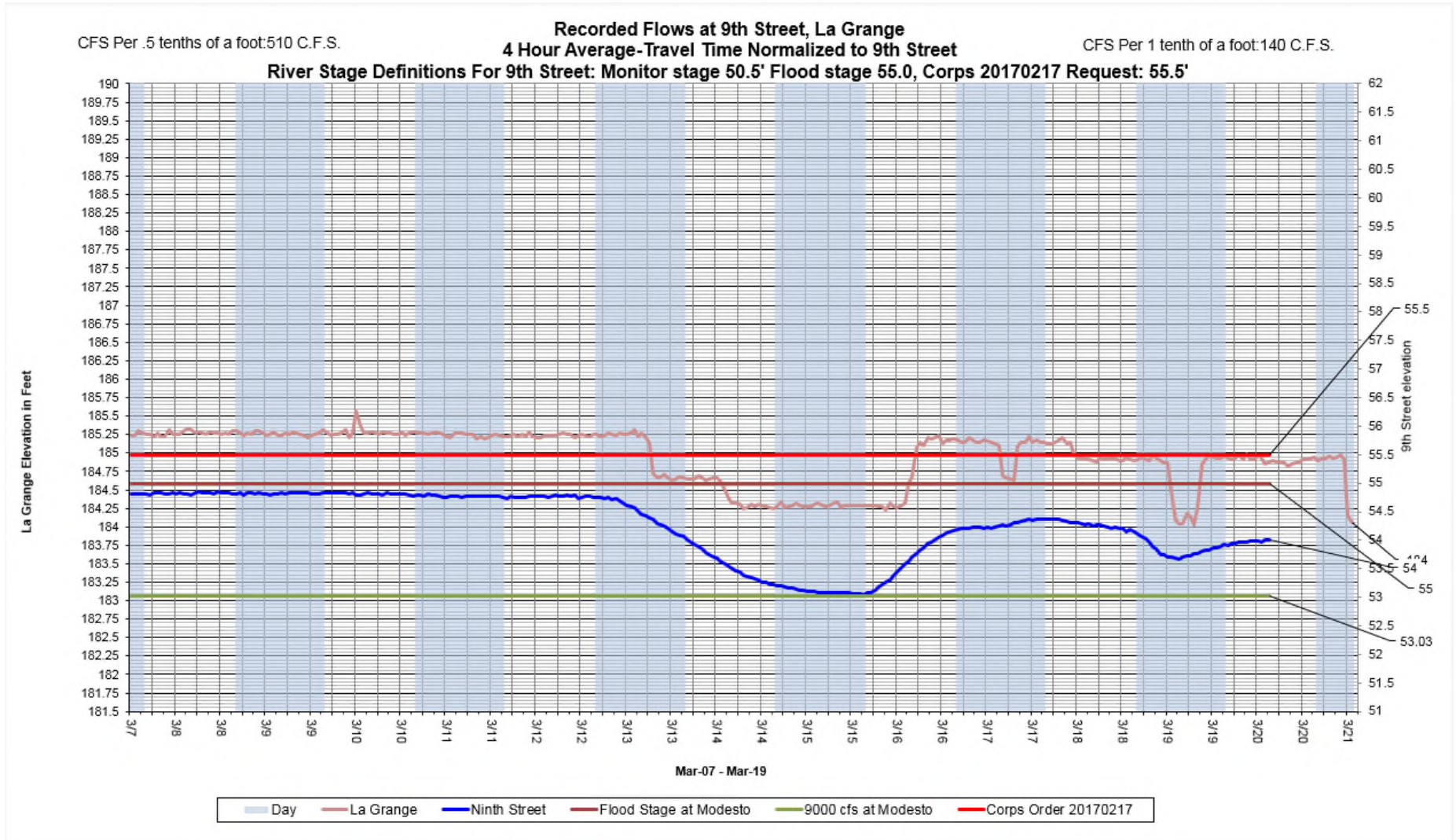
	Pool Elev (ft-msl)	Storage Storage (acft)	Storage Change (acft)	Outflow (sfd)	Inflow (sfd)	Precip (inches)
Shasta:	1030.97	3558058	22299	6703	17990	0.01
Oroville:	853.95	2861685	-52940	46827	20166	0.00
New Bullards Bar:	1922.34	813264	5412	1848	4577	0.00
Indian Valley:	1473.05	254300	200	11	166	0.00
Folsom:	412.75	470575	11012	5590	11163	0.00
Camanche:	223.21	329920	-2140	4974	3710	
New Melones:	1024.94	1711248	-1309	1330	680	0.00
Tulloch:	500.59	55943	725	1000	1367	0.00
Don Pedro:	812.91	1817583	-9536	11248	6440	0.00
New Exchequer:	823.90	751258	-6588	7211	3889	0.00
Del Valle:	703.49	40262	50	29	54	0.00
Los Banos:	328.92	21105	38	0	19	
Friant:	507.72	239081	-4059	10055	8016	0.00
Big Dry Creek:	416.14	5776	-131	41	-25	0.00
Prosser:	5701.37	9065	-77	550	511	
Boca:	5596.07	32605	26	1300	1313	0.00
Stampede:	5934.32	180025	390	900	1097	

19. San Joaquin Storage (20170319 Report)

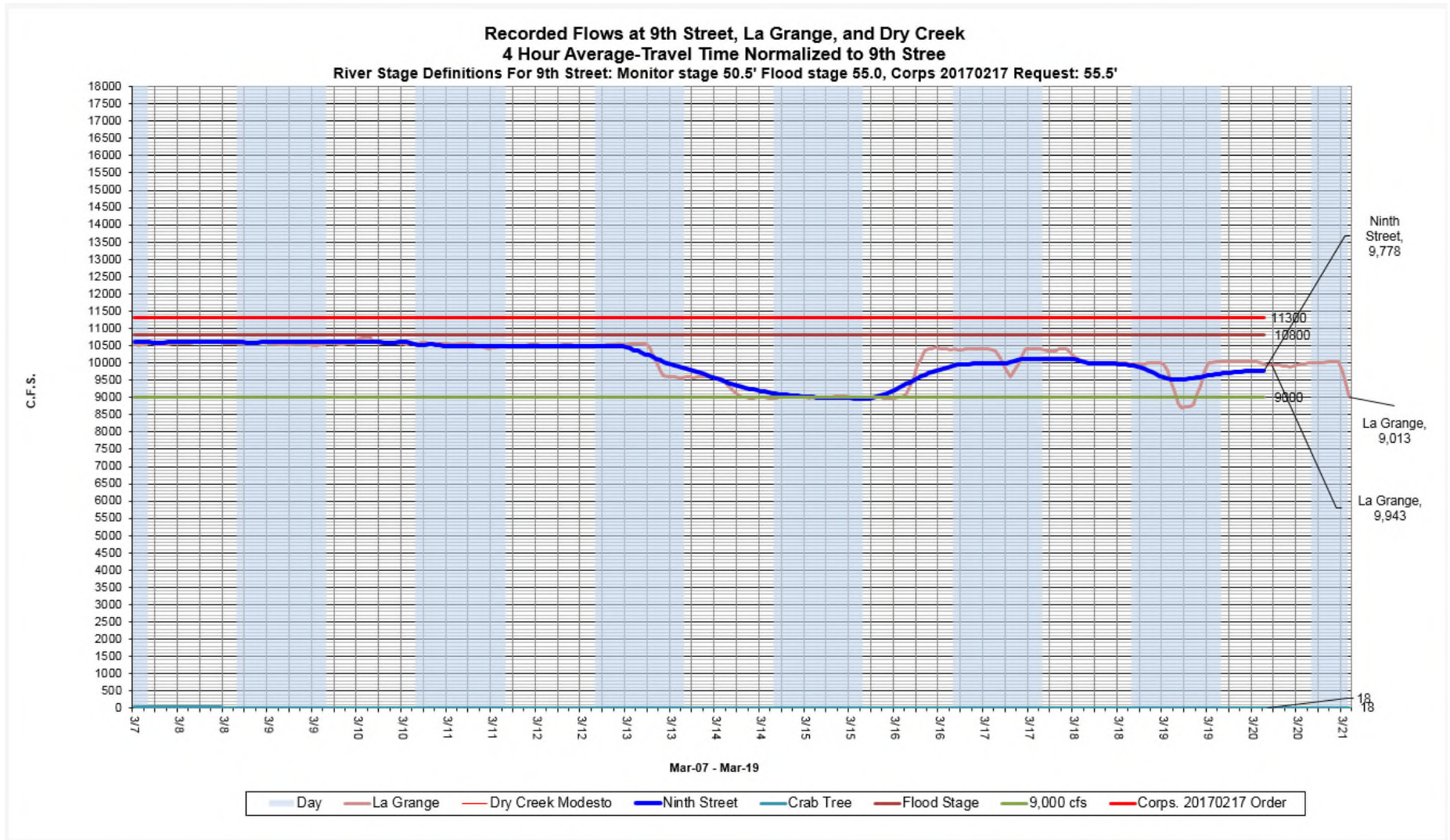
----- San Joaquin Valley -----							
	----- Storages -----				Flood Control		
	Gross Pool	Top of Conservation	Actual Res	% of Gross Pool	Above Top of Conserv	Rain Parameters	Snow
	(acft)	(acft)***	(acft)		(acft) (**)	(in)	(acft)
EBMUD Reservoirs:							
Camanche:	417,100	247,969	329,920	79	81,951 (48)	----	942,229
Pardee:	197,950		193,010	98			
Salt Springs:	140,000		117,880	84			
Lower Bear:	49,000		41,709	85			
New Hogan:	317,100	192,235	198,144	62	5,909 (5)	7.00	---
Farmington:	52,000	0	6	0	6 (0)	----	---
New Melones:	2,420,000	1,970,000	1,711,248	71	-258,752 (0)	----	1,552,521
Beardsly:	97,800		79,149	81			
Donnells:	64,300		57,342	89			
Tulloch:	67,000	57,000	55,943	83	-1,057 (0)	----	---
Don Pedro:	2,030,000	1,398,707	1,817,583	90	418,876 (66)	----	2,549,006
Hetch Hetchy:	360,400		299,580	83			
Cherry Vly:	268,200		230,067	86			
Eleanor:	26,000		22,611	87			
New Exchequer:	1,024,600	643,955	751,258	73	107,303 (28)	----	1,353,141
Burns:	6,800	0	6	0	6 (0)	----	---
Bear:	7,700	0	3	0	3 (0)	----	---
Owens:	3,600	0	1	0	1 (0)	----	---
Mariposa:	15,000	0	174	1	174 (1)	----	---
Los Banos:	34,600	21,206	21,105	61	-101 (0)	----	---
Buchanan:	150,000	112,005	116,387	78	4,382 (12)	7.49	---
Hidden:	90,000	35,918	34,866	39	-1,052 (0)	7.89	---
Friant:	520,500	485,924	239,081	46	-246,843 (0)	----	2,640,140
Mammoth:	122,700		120,328	98			
Total U/S:	628,500		304,557	48			
Big Dry Creek:	30,200	200	5,776	19	5,576 (19)	----	---
<hr/>							
BASIN TOTALS	7,186,300	5,165,117	5,281,501	73	116,384 (6)		
TOTAL FLOOD SPACE ENCROACHED					624,188		
w/US Storages	9,018,450		6,627,406	73			

** Percent Encroached

20. Flows along the Tuolumne River



21. Flows along the Tuolumne River

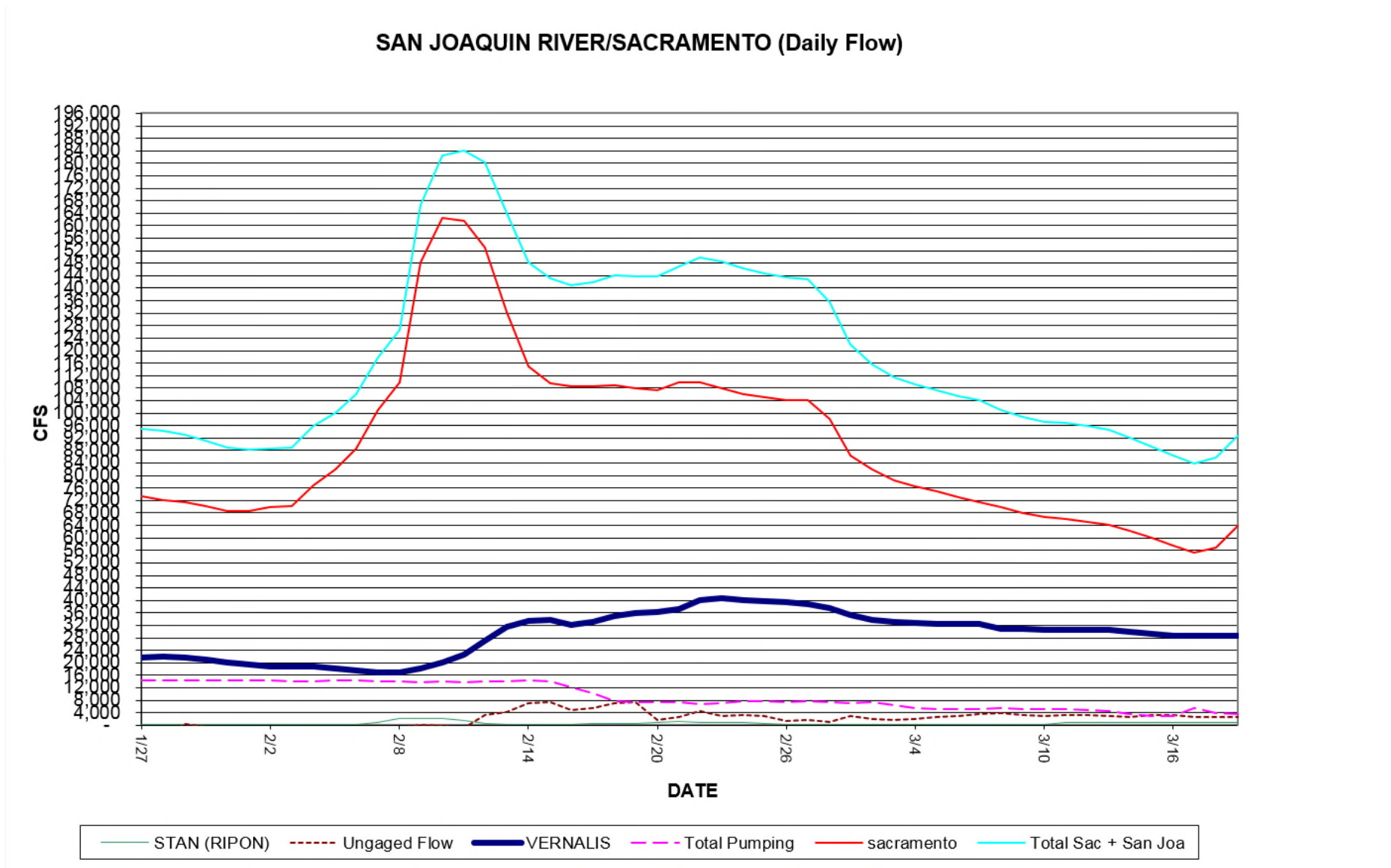


TURLOCK IRRIGATION DISTRICT

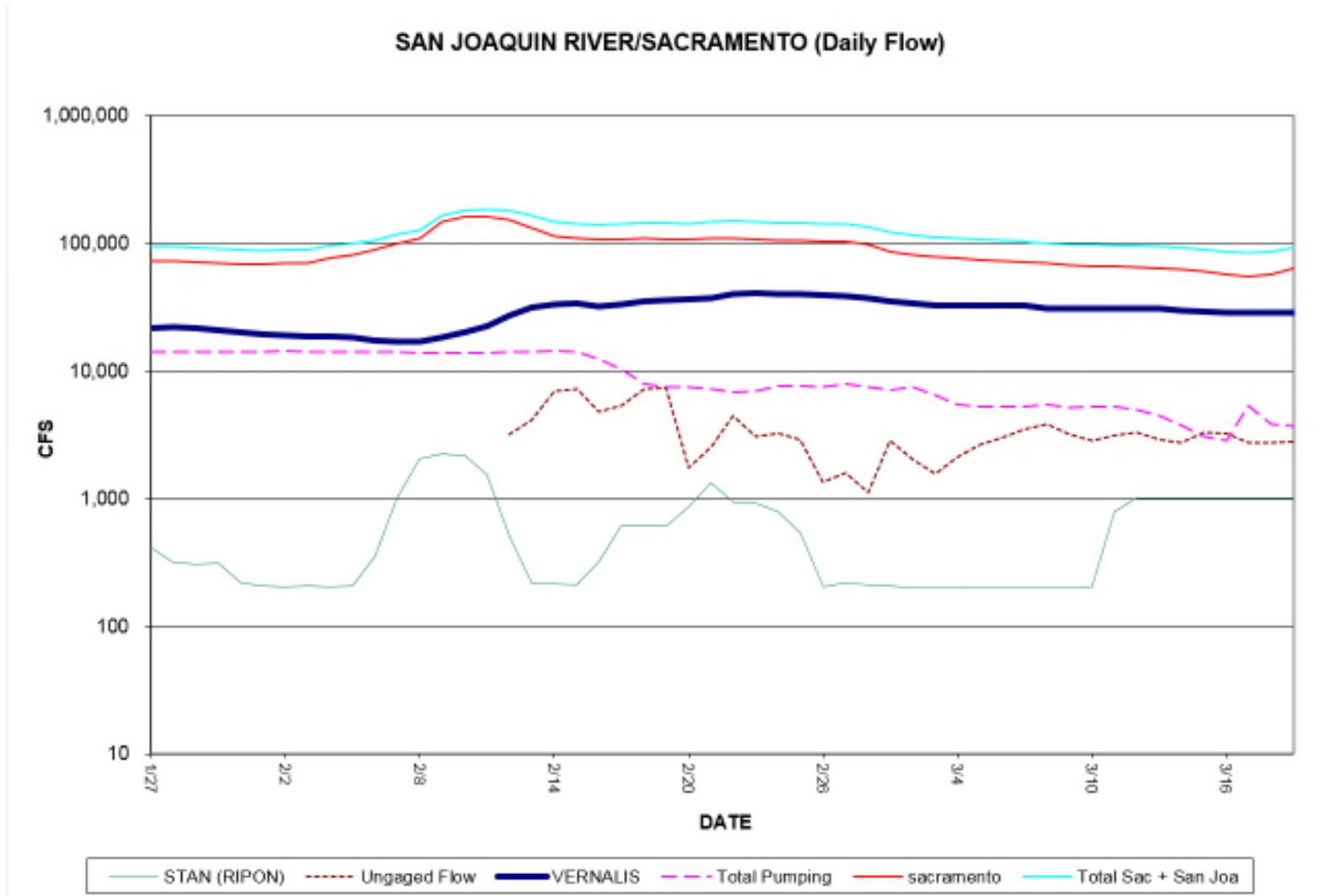
22. Flows along the San Joaquin

Tuolumne River Flows																
3/20/2017 17:20																
SCHEDULE FOR 2016 - 2017 Fish Flow Year																
DATE		Number of	VERNALIS		STAN (RIPON)		TUOL LA GRANGE		Mer. at Cressey		Mer. Near Stevenson		San Joaquin Near Newman		Above Merced	
From:	To:	DAYS	Actual Flow	Forecasted Flow	Actual Flow	Forecasted Flow	Actual Flow	Forecasted Flow	Actual Flow	Forecasted Flow	Actual Flow	Forecasted Flow	Actual Flow	Calculated Flow	Forecasted Flow	
17-Feb-Fri	17-Feb-Fri	1	33,200		617		10,200		7,502		4,645		15,879	11,234		
18-Feb-Sat	18-Feb-Sat	1	35,000		617		10,000		7,102		4,852		21,367	16,515		
19-Feb-Sun	19-Feb-Sun	1	36,000		612		10,200		6,325		4,628		21,471	16,843		
20-Feb-Mon	20-Feb-Mon	1	36,400		875		11,600		6,016		4,516		21,388	16,872		
21-Feb-Tue	21-Feb-Tue	1	37,300		1,351		13,800		5,651		4,430		20,971	16,541		
22-Feb-Wed	22-Feb-Wed	1	40,100		937		13,700		6,491		4,352		20,929	16,577		
23-Feb-Thu	23-Feb-Thu	1	40,800		925		13,600		8,340		5,291		21,154	15,863		
24-Feb-Fri	24-Feb-Fri	1	40,100		788		13,700		8,611		5,816		20,933	15,117		
25-Feb-Sat	25-Feb-Sat	1	39,800		539		13,900		8,553		5,921		19,983	14,062		
26-Feb-Sun	26-Feb-Sun	1	39,300		204		13,900		8,486		5,963		19,688	13,725		
27-Feb-Mon	27-Feb-Mon	1	38,700		219		10,600		8,462		5,883		19,104	13,221		
28-Feb-Tue	28-Feb-Tue	1	37,500		212		10,200		8,429		5,898		18,692	12,794		
1-Mar-Wed	1-Mar-Wed	1	35,400		207		10,500		7,759		5,844		18,146	12,302		
2-Mar-Thu	2-Mar-Thu	1	33,700		200		10,900		7,586		5,821		17,542	11,721		
3-Mar-Fri	3-Mar-Fri	1	33,000		202		10,700		7,544		5,826		17,088	11,262		
4-Mar-Sat	4-Mar-Sat	1	32,700		202		10,700		7,433		5,798		16,738	10,940		
5-Mar-Sun	5-Mar-Sun	1	32,400		205		10,700		6,061		5,682		16,238	10,556		
6-Mar-Mon	6-Mar-Mon	1	32,400		205		10,700		6,993		5,304		15,525	10,221		
7-Mar-Tue	7-Mar-Tue	1	32,400		205		10,700		7,445		5,627		15,321	9,694		
8-Mar-Wed	8-Mar-Wed	1	31,000		205		10,700		7,426		5,782		15,283	9,501		
9-Mar-Thu	9-Mar-Thu	1	30,800		205		10,700		7,417		5,729		14,950	9,221		
10-Mar-Fri	10-Mar-Fri	1	30,700		205		10,700		7,398		5,749		14,813	9,064		
11-Mar-Sat	11-Mar-Sat	1	30,700		789		10,700		7,396		5,694		14,629	8,935		
12-Mar-Sun	12-Mar-Sun	1	30,700		1,007		10,300		7,383		5,720		14,296	8,576		
13-Mar-Mon	13-Mar-Mon	1	30,700		1,015		9,400		7,371		5,677		13,796	8,119		
14-Mar-Tue	14-Mar-Tue	1	30,000		1,008		9,140		7,365		5,729		13,579	7,850		
15-Mar-Wed	15-Mar-Wed	1	29,200		1,006		9,800		7,048		5,681		13,379	7,698		
16-Mar-Thu	16-Mar-Thu	1	28,600		1,006		10,400		6,938		5,619		13,229	7,610		
17-Mar-Fri	17-Mar-Fri	1	28,600		1,007		10,300		6,628		5,521		13,175	7,654		
18-Mar-Sat	18-Mar-Sat	1	28,800		1,007		9,740		6,550		5,440		13,138	7,698		
19-Mar-Sun	19-Mar-Sun	1	28,700		1,007		10,100		6,534		5,452		12,883	7,431		

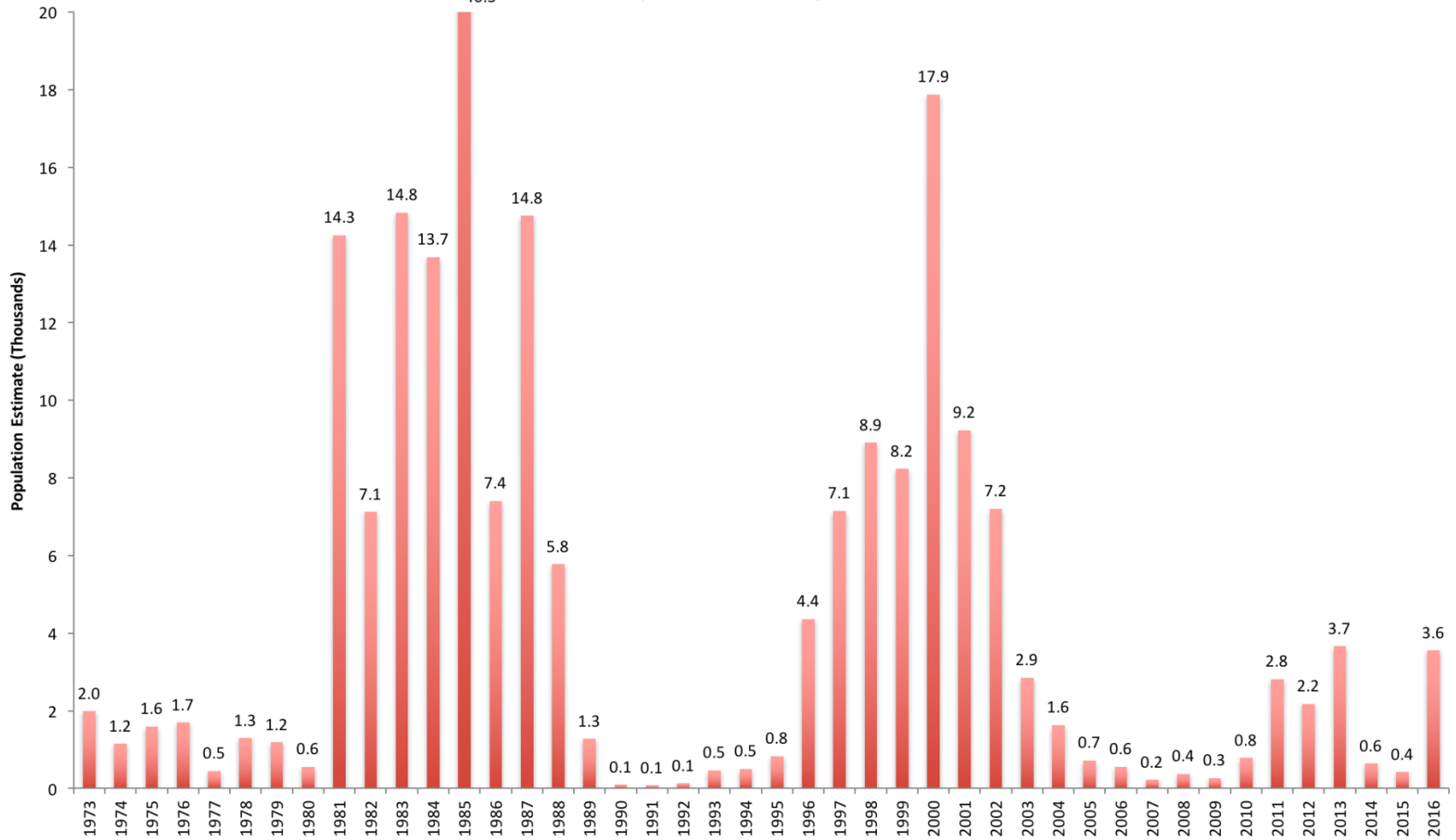
23. San Joaquin River/Sacramento (Daily Flow)



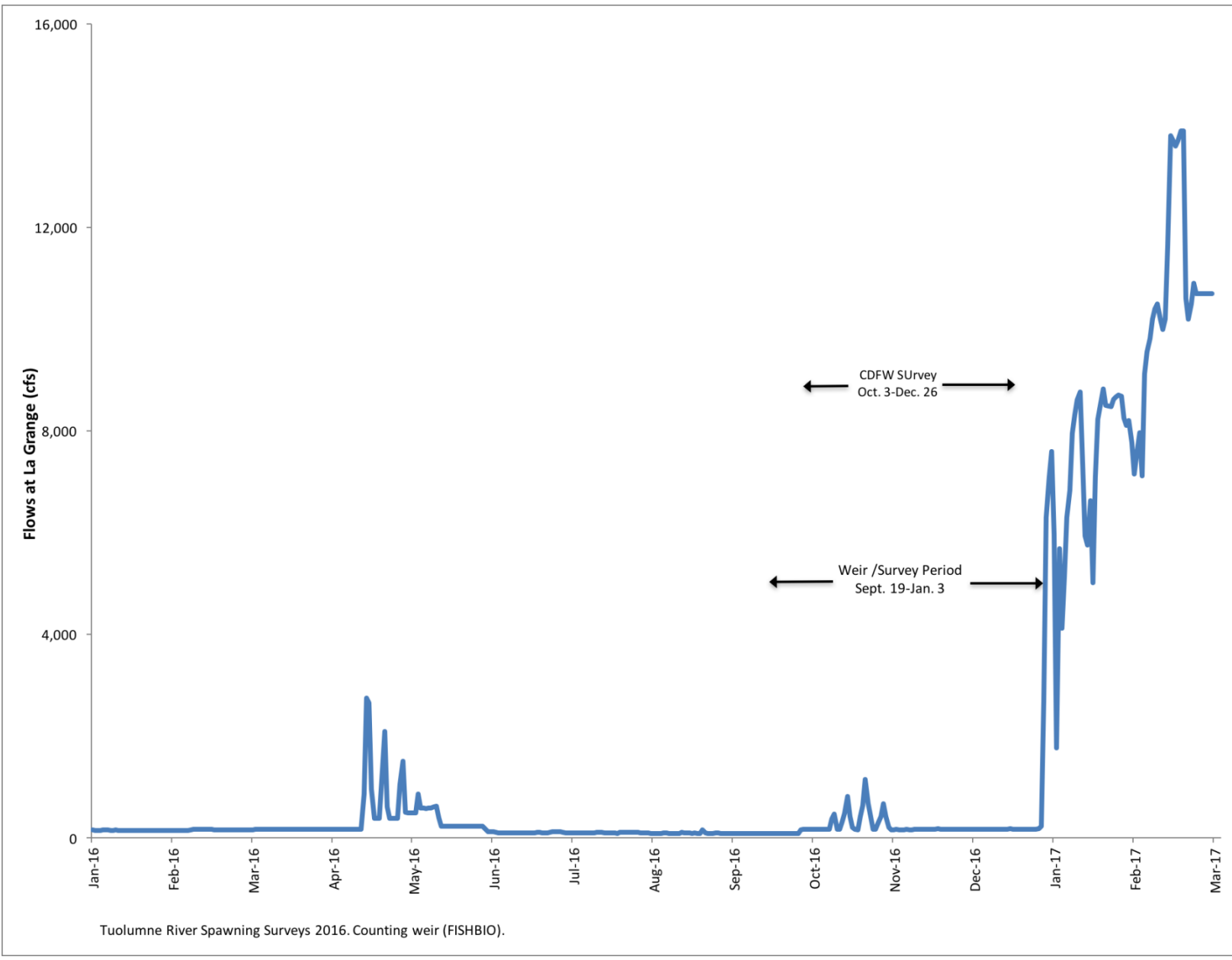
24. San Joaquin River Contribution (Daily Flow)



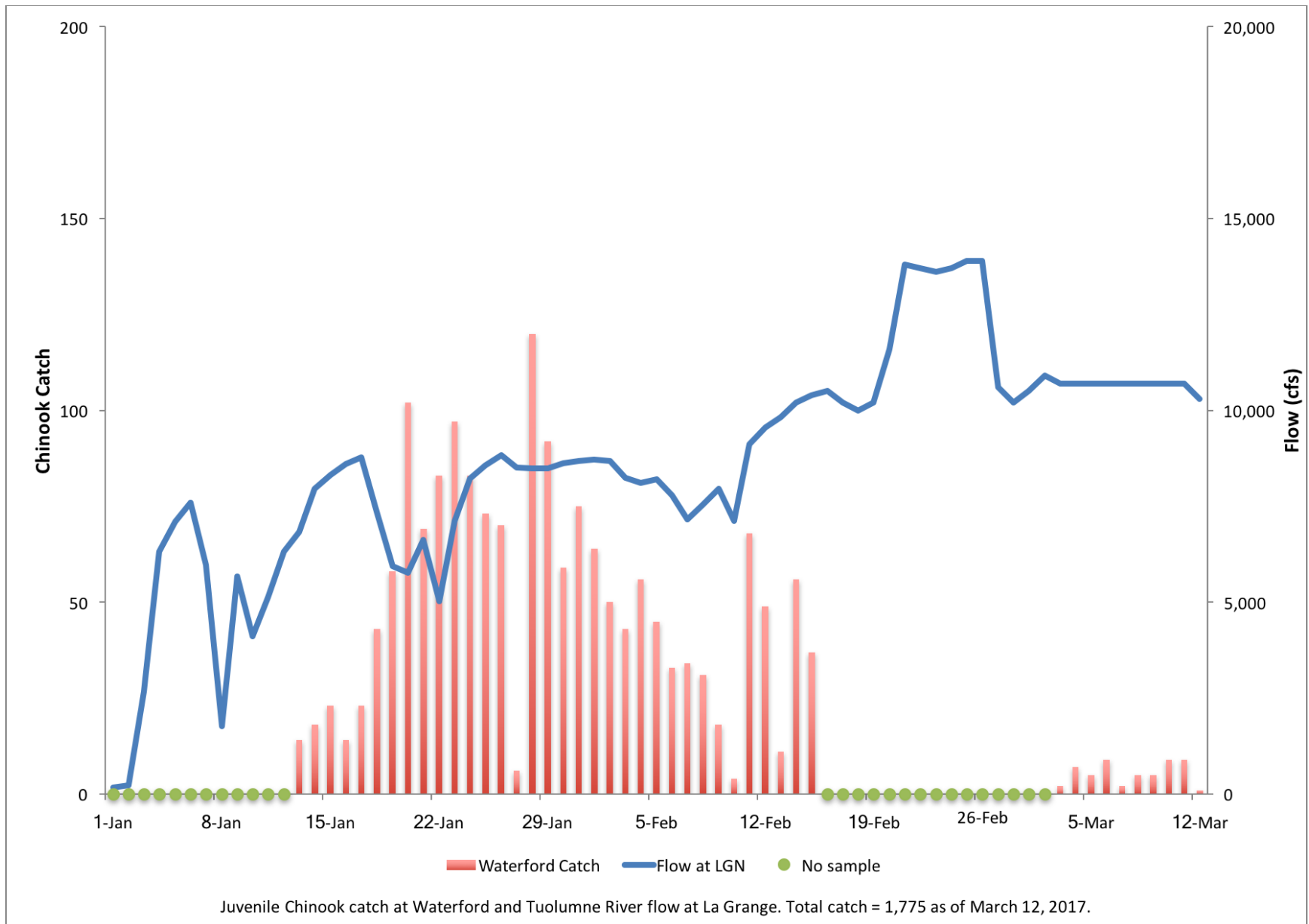
Tuolumne River Salmon Run (Estimates/Counts)

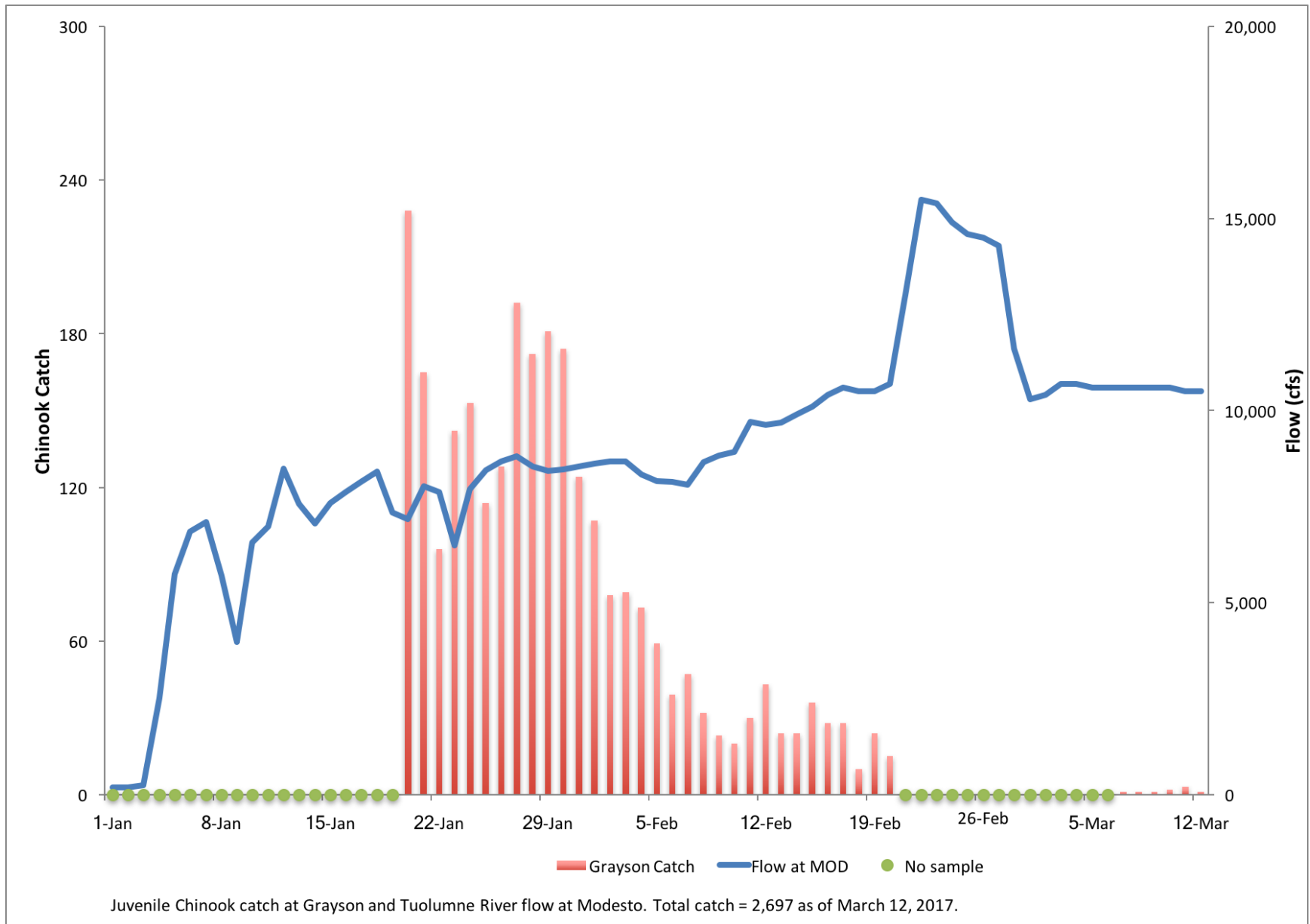


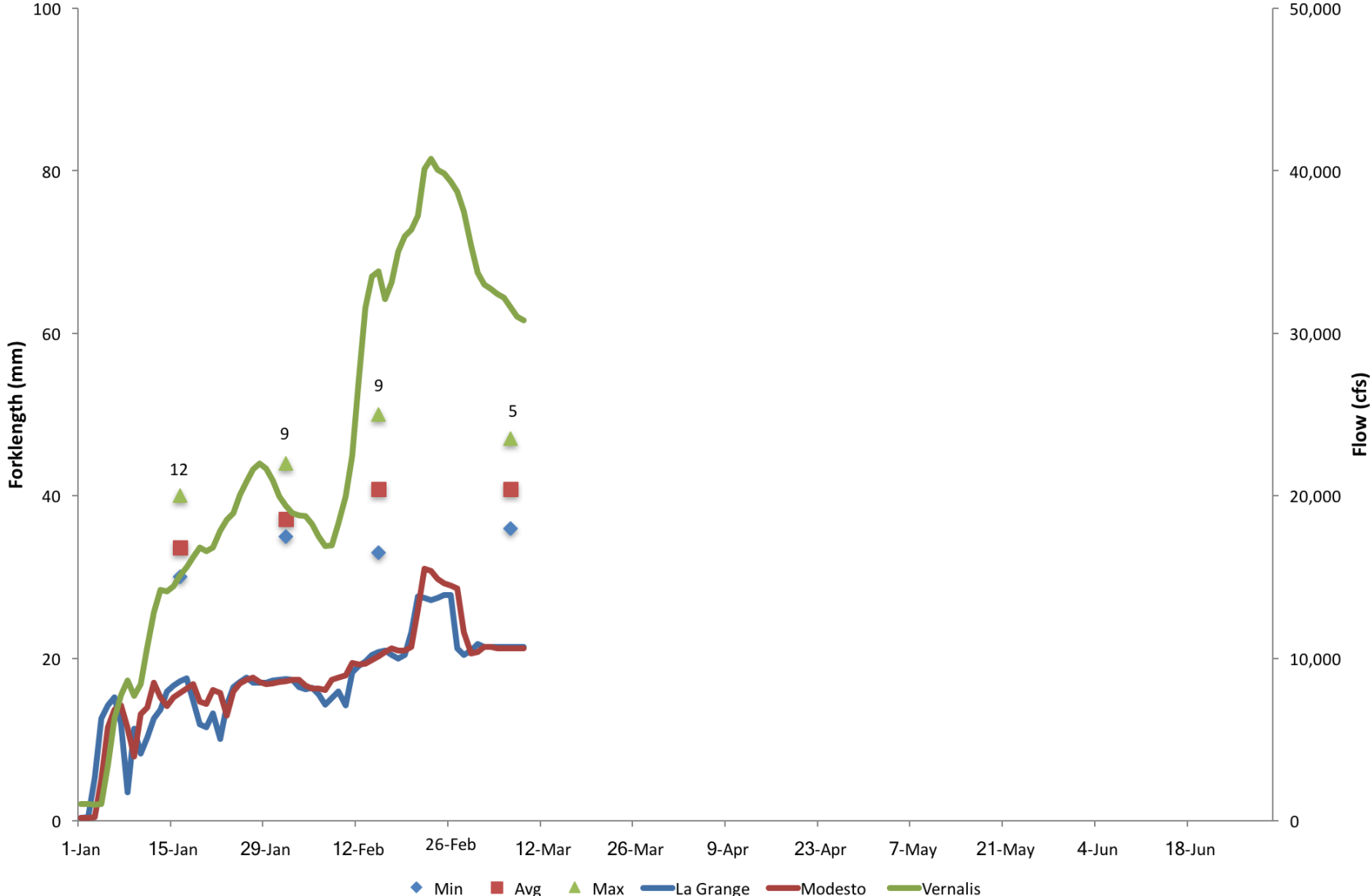
Years 2009-2016 are based on counting weir results from September 1 through December 31. All previous years are from CDFW carcass surveys. Survey periods may vary for both periods.



Tuolumne River Spawning Surveys 2016. Counting weir (FISHBIO).







Juvenile salmon catch in the Tuoumne and San Joaquin river seine and river flow at La Grange, Modesto and Vernalis. Number in parenthesis is total catch for survey date.