

CW3E AR Update – Post-Event Summary: 5-6 March 2016

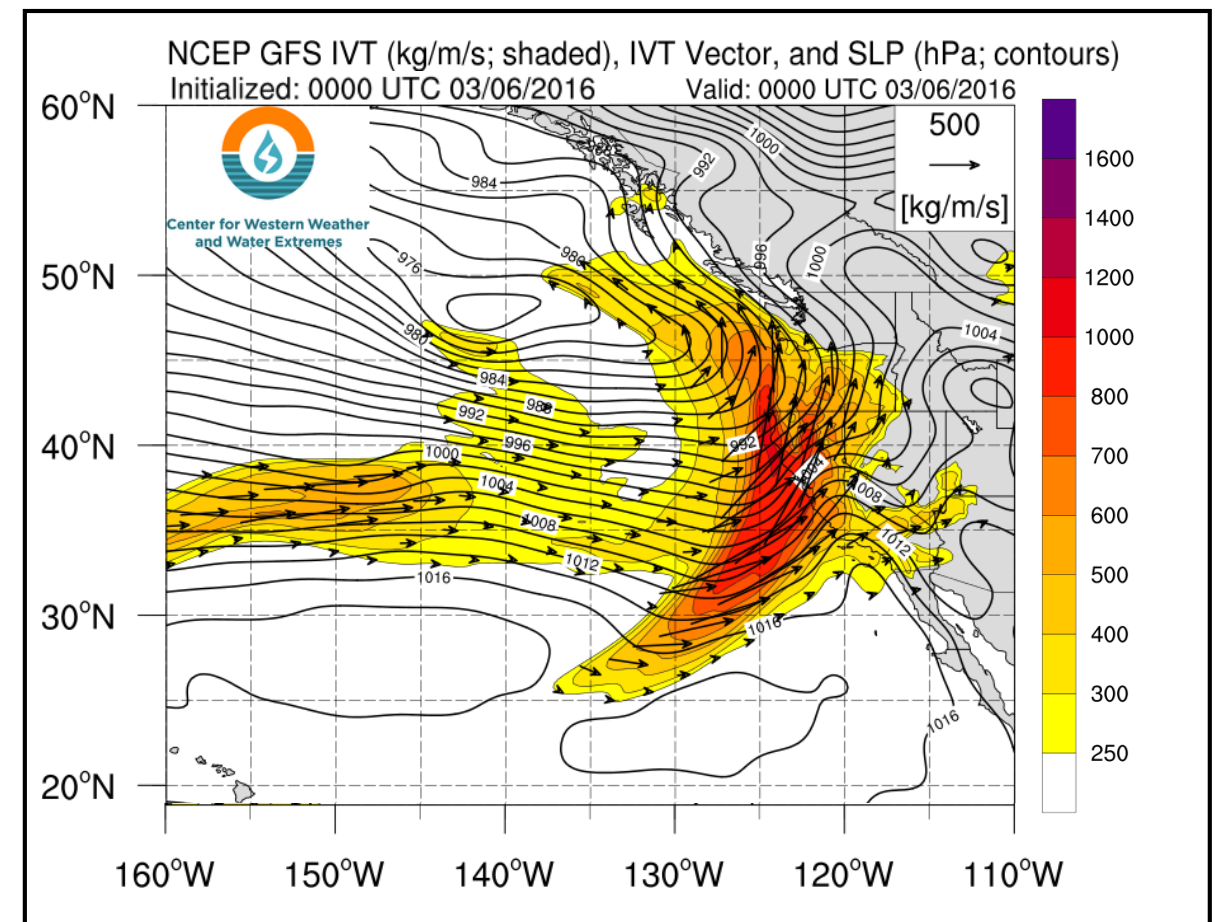
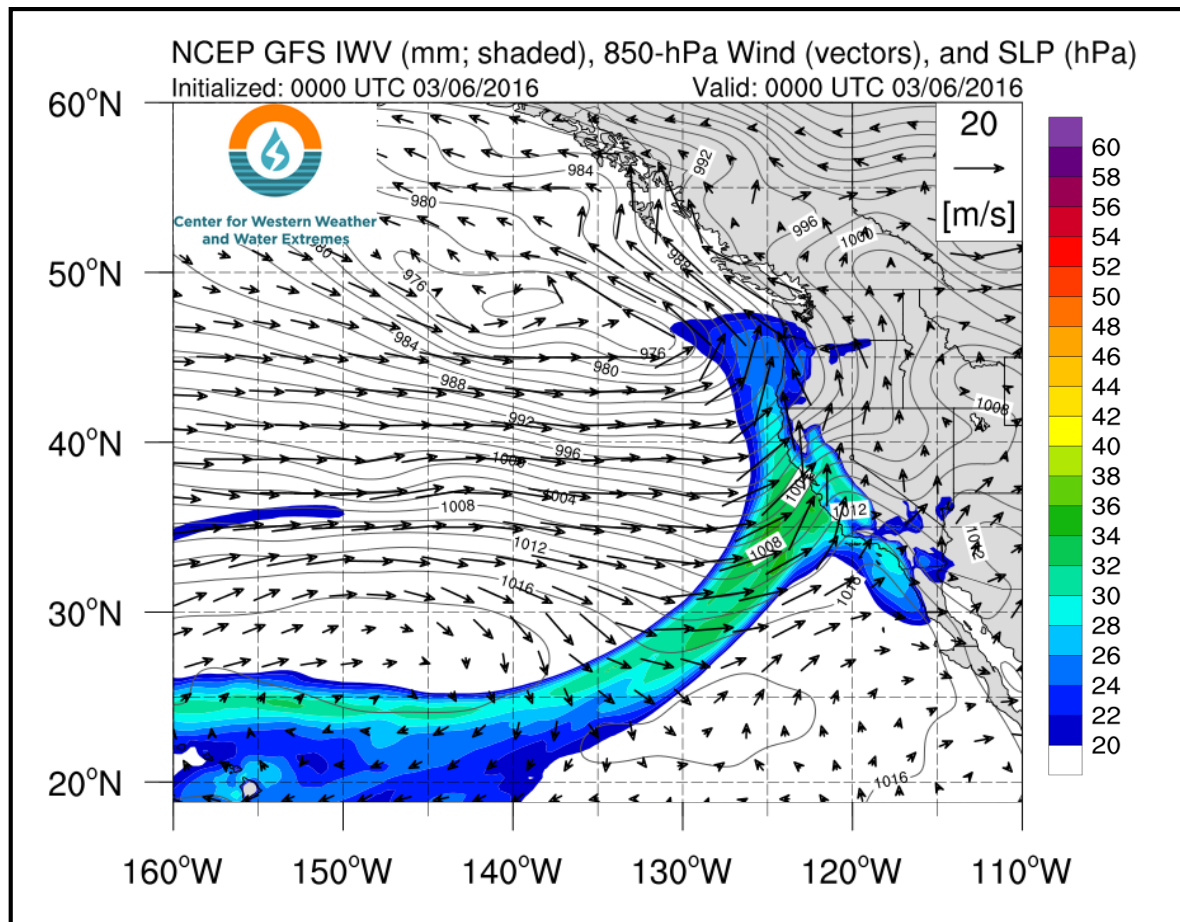


Center for Western Weather
and Water Extremes

SCRIPPS INSTITUTION OF OCEANOGRAPHY
AT UC SAN DIEGO

Moderate strength Atmospheric River made landfall over northern California on 5-6 March 2016

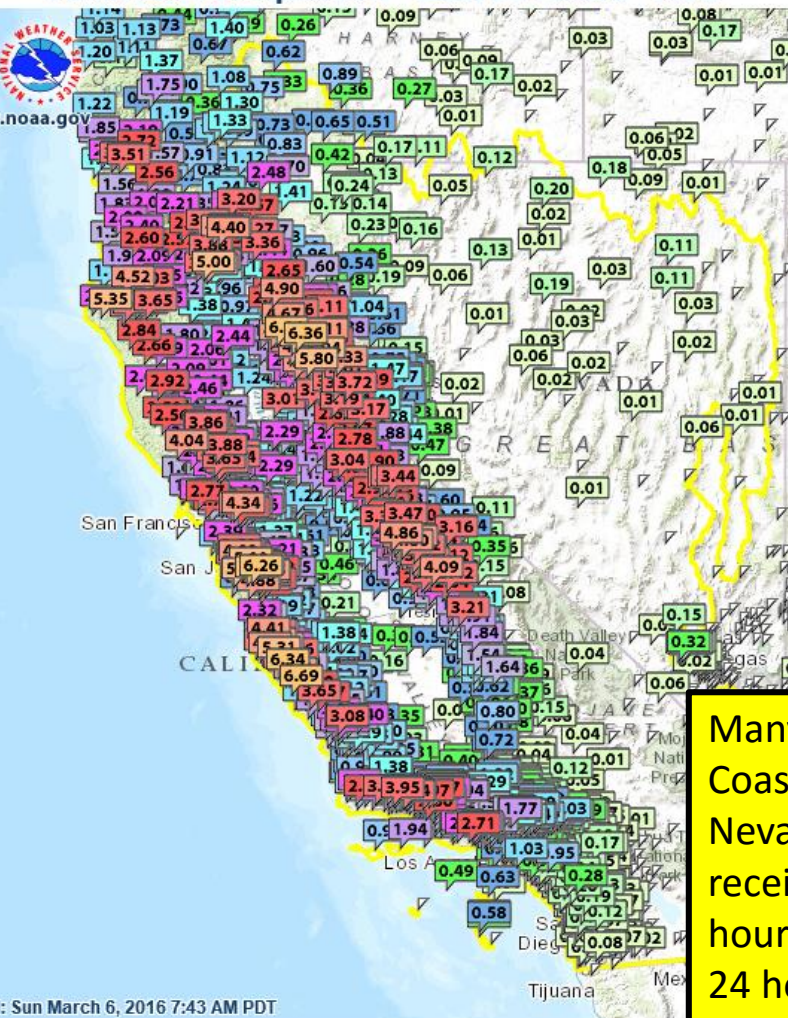
- Impacts throughout Northern California
- 72-hr precipitation over 10 inches (R-Cat 1 event)



Observed Precipitation

7am PST 5 – 6 March

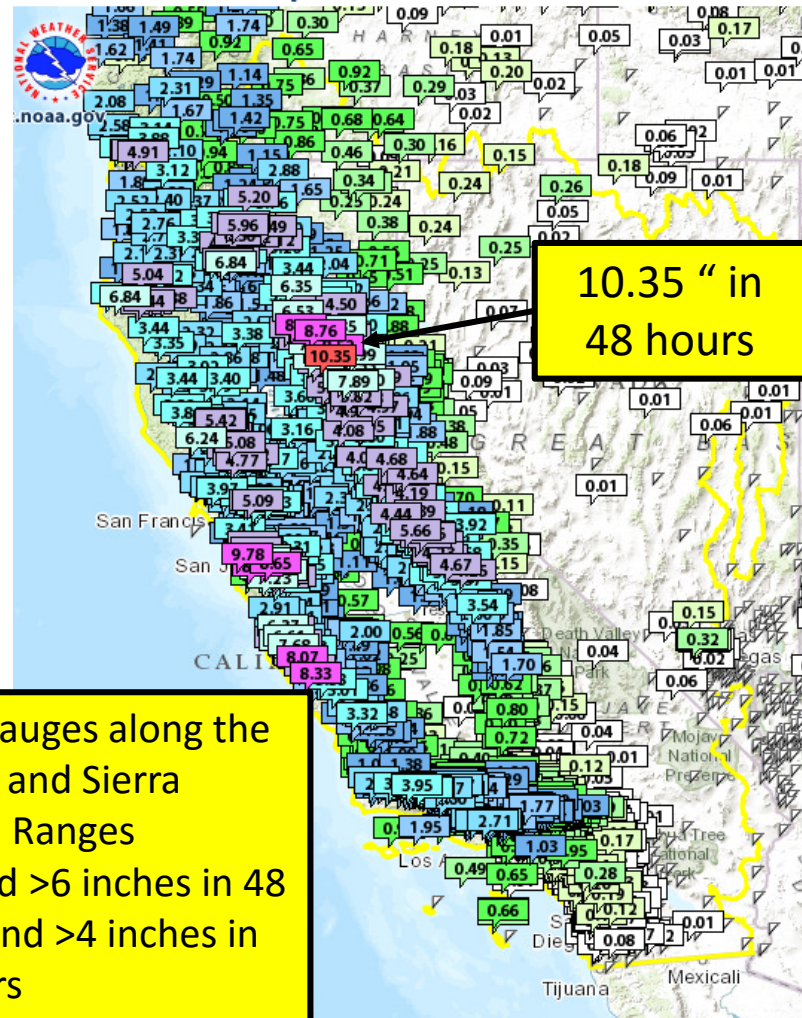
Observed Precipitation - Last 24 Hours - Raw



Many gauges along the Coastal and Sierra Nevada Ranges received >6 inches in 48 hours and >4 inches in 24 hours

7am PST 4 – 6 March

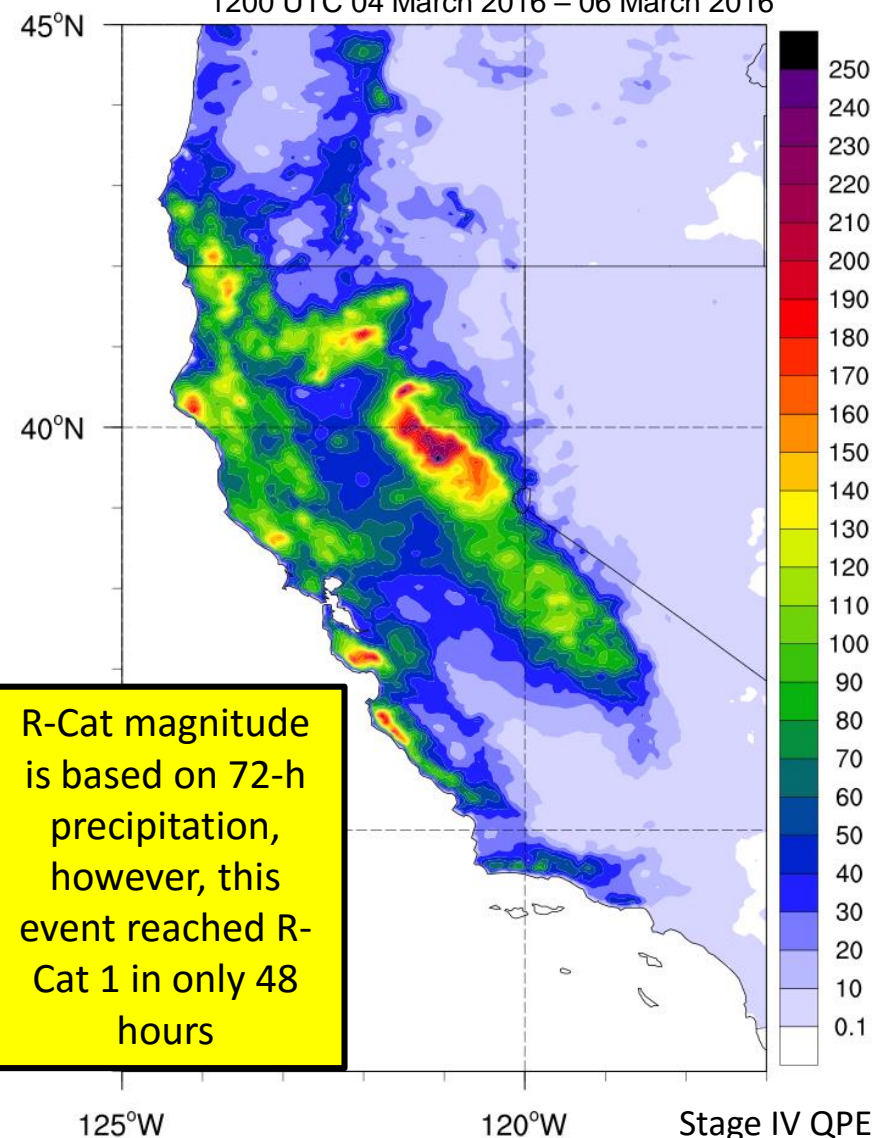
Observed Precipitation - Last 48 Hours - Raw



10.35 " in 48 hours

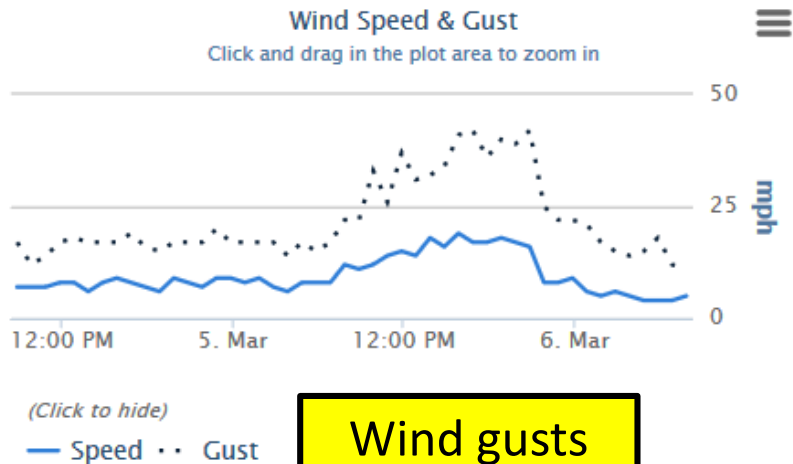
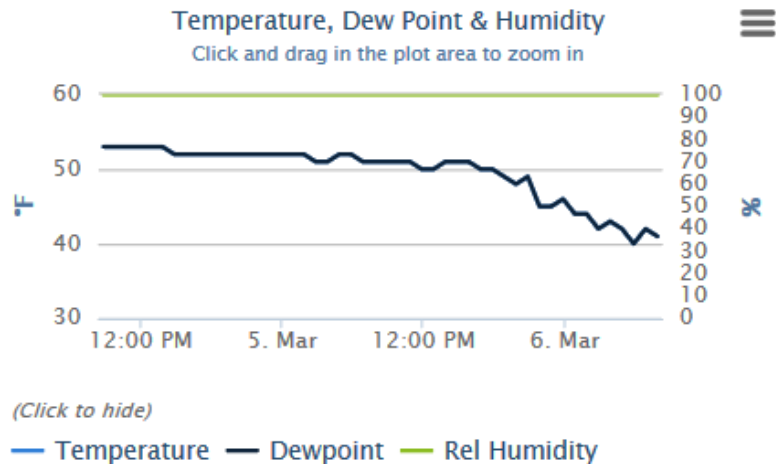
48-h Accumulated Precipitation (mm)

1200 UTC 04 March 2016 – 06 March 2016

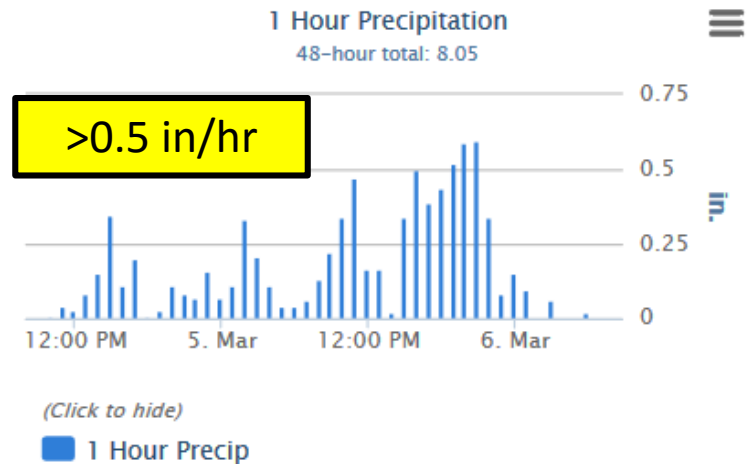


R-Cat magnitude is based on 72-h precipitation, however, this event reached R-Cat 1 in only 48 hours

Ben Lomond, Ca Observations



Wind gusts
>35 mph

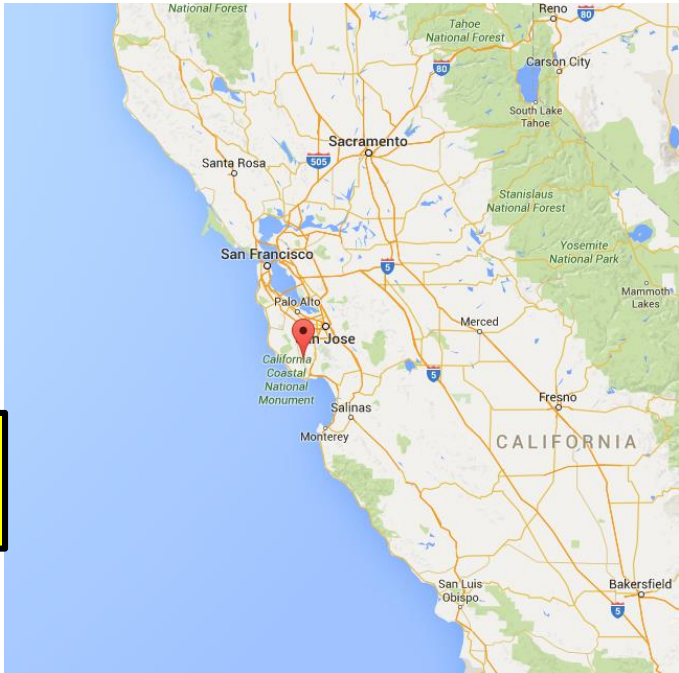


Weather Conditions for:
BEN LOMOND, CA. [BNDC1](#) (RAWS)
Elev: 2598 ft; Latitude: 37.130936; Longitude: -122.172606

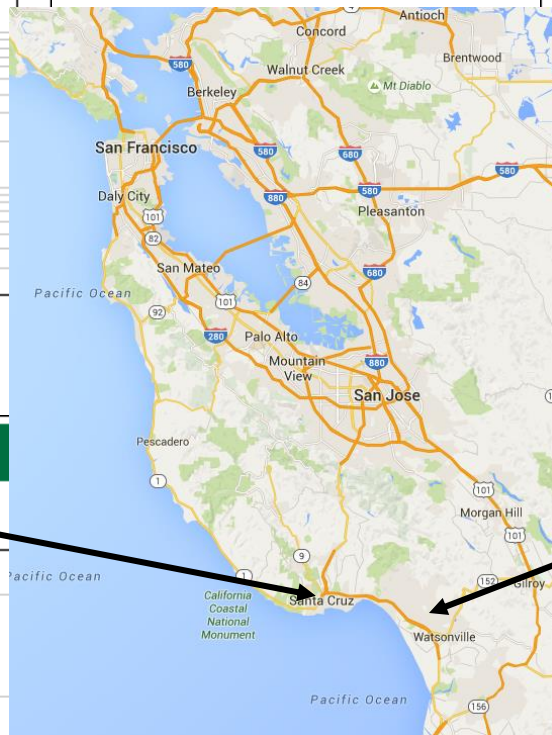
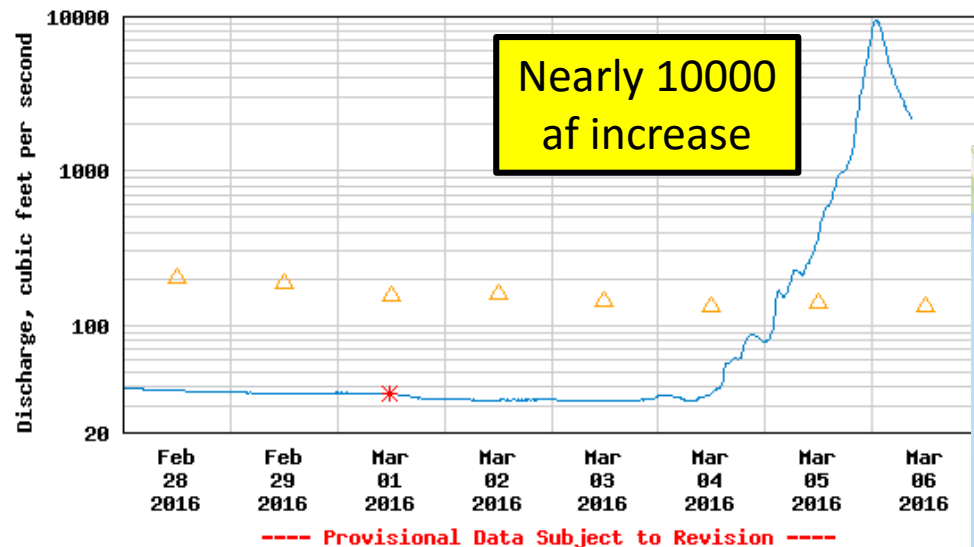
Current time: Sun, 06 Mar 8:38 am PST
Most Recent Observation: Sun, 06 Mar 7:50 am
[Explanation of Wx and Clouds columns.](#)

Time	Temp.	Dew	Relative	Wind	Wind	Fuel	Fuel	Solar	Solar	Precip	Precip	Precip	Precip	Quality
		Point	Humidity	Direction	Speed	Temp	Moisture	Radiation	Pct	Accumulated	1 hour	6 hour	24 hour	Control
(PST)	(f)	(f)	(%)		(mph)	(f)	(%)	(W/m²·m)	of psbl	(inches)	(inches)	(inches)	(inches)	
06 Mar 7:50 am	41	41	100	WSW	5G11	41	27	36	16%	50.13		0.08	5.52	OK
06 Mar 6:50 am	42	42	100	W	4G12	42	27	8	--	50.13		0.08	5.65	OK
06 Mar 5:50 am	40	40	100	W	4G18	40	27	0	--	50.13	0.02	0.18	5.71	OK
06 Mar 4:50 am	42	42	100	W	4G15	42	27	0	--	50.11		0.31	5.73	OK
06 Mar 3:50 am	43	43	100	WSW	5G14	43	27	0	--	50.11		0.39	5.77	OK

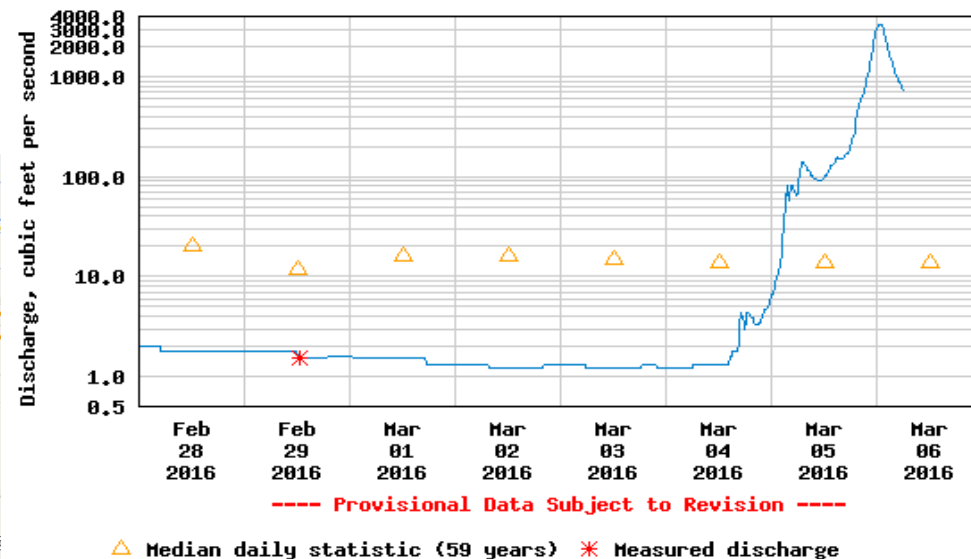
>5 inches
in 24 hours



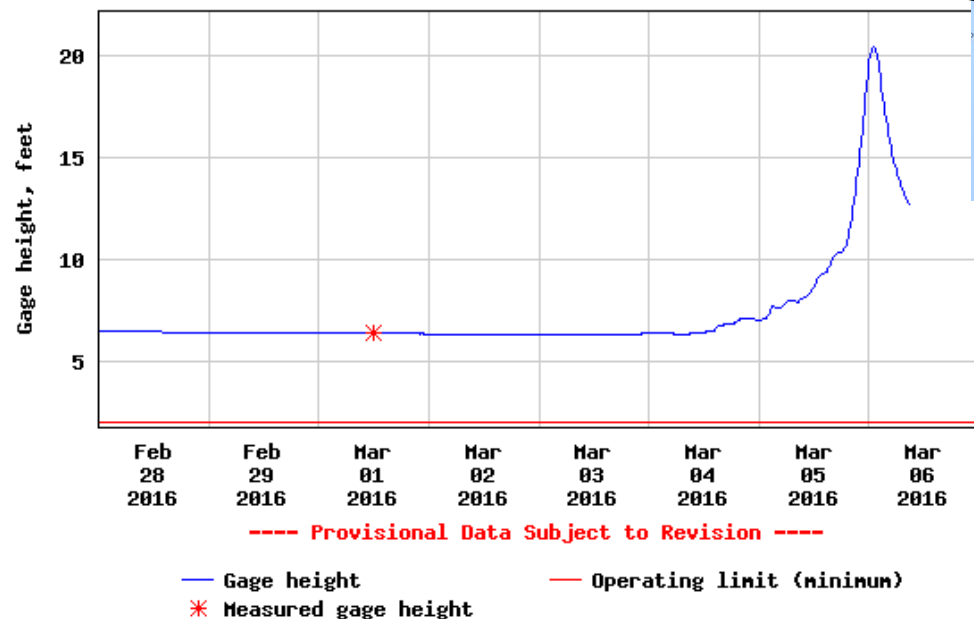
USGS 11161000 SAN LORENZO R A SANTA CRUZ CA



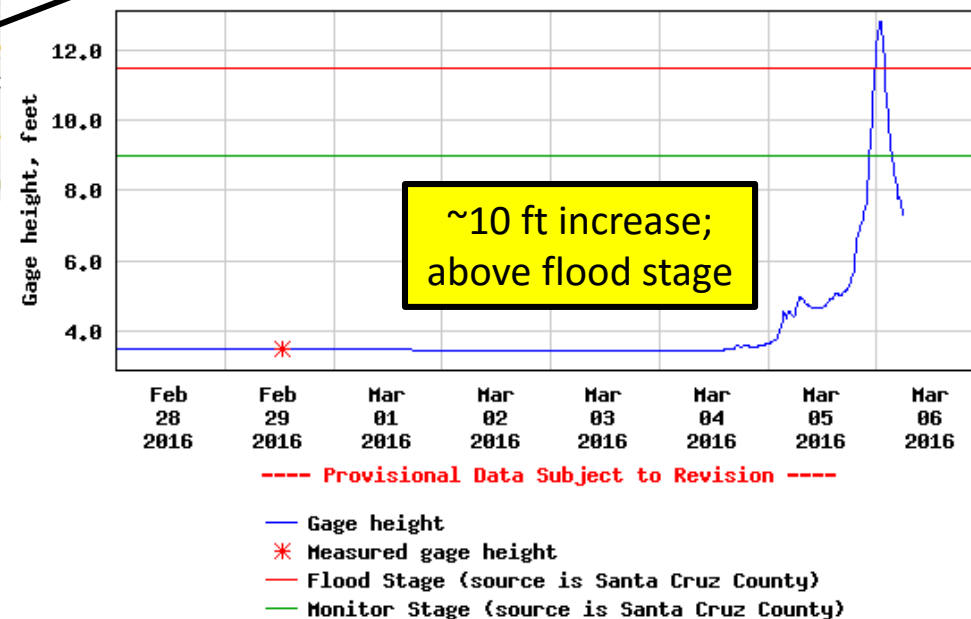
USGS 11159200 CORRALITOS C A FREEDOM CA



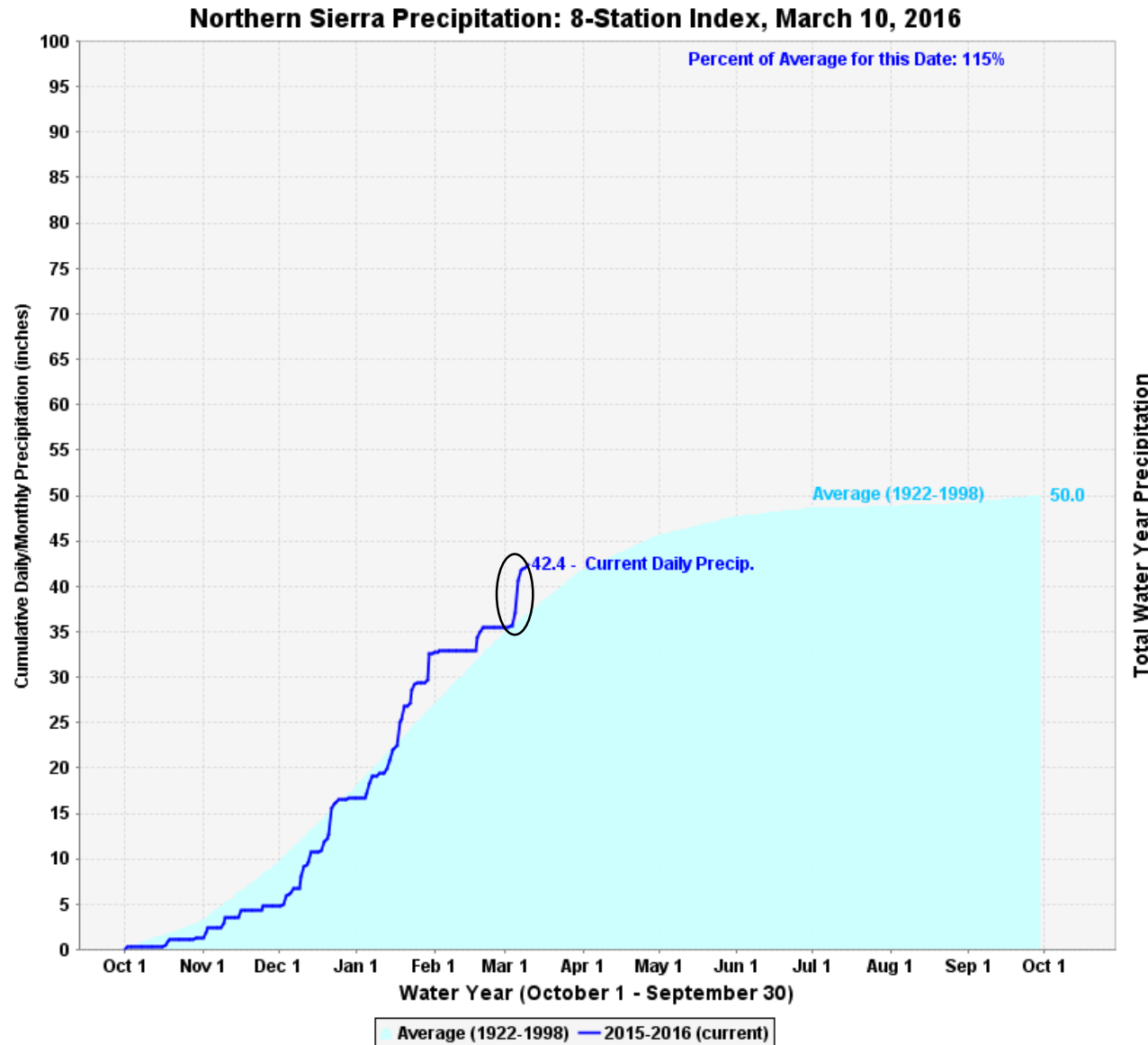
USGS 11161000 SAN LORENZO R A SANTA CRUZ CA



USGS 11159200 CORRALITOS C A FREEDOM CA



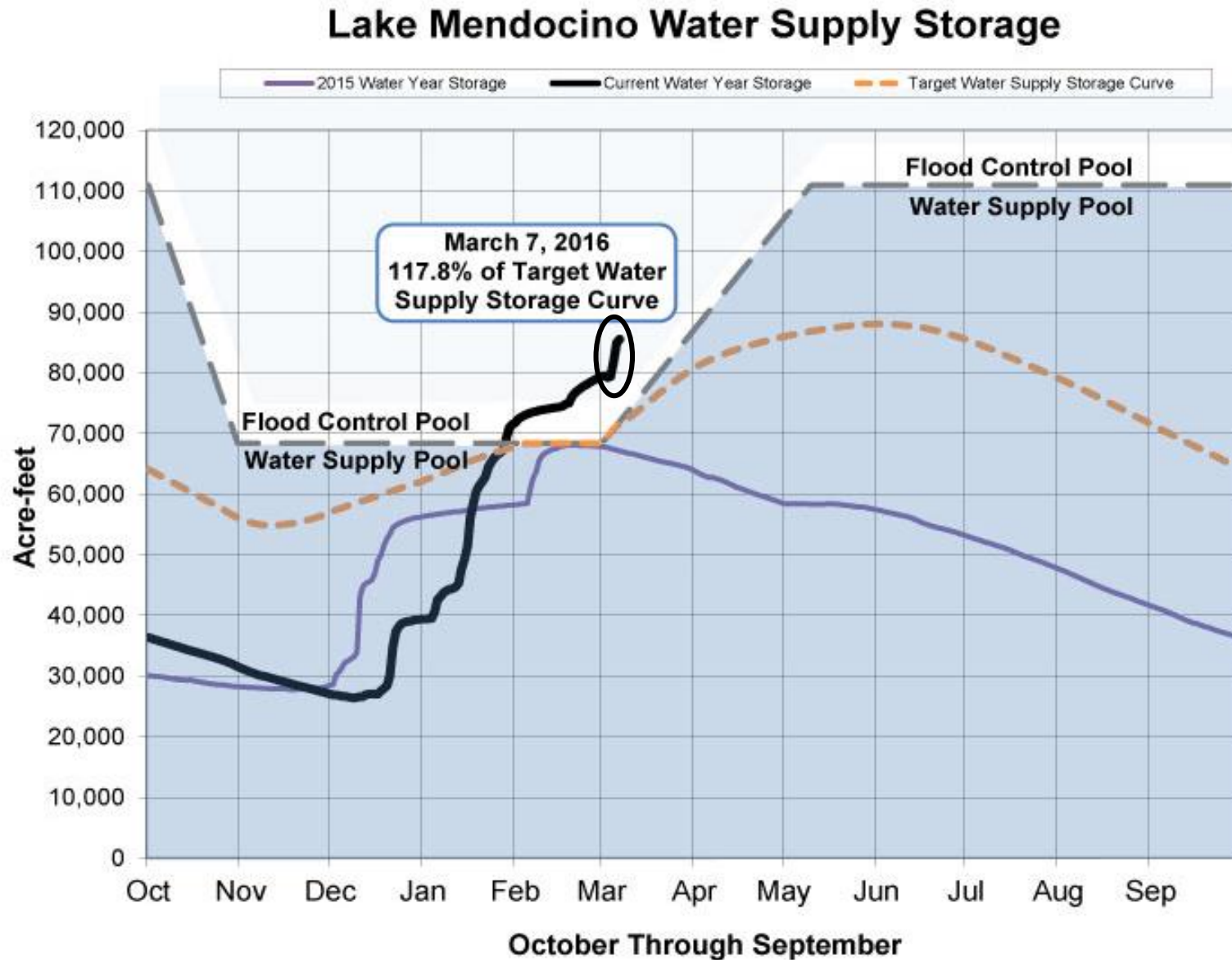
Northern Sierra Precipitation: 8-Station Index



~7.5 inches of precipitation
measured by the 8-Station Index

Increased water-year-to-date
accumulation from average to
~115% of average

Lake Mendocino Storage

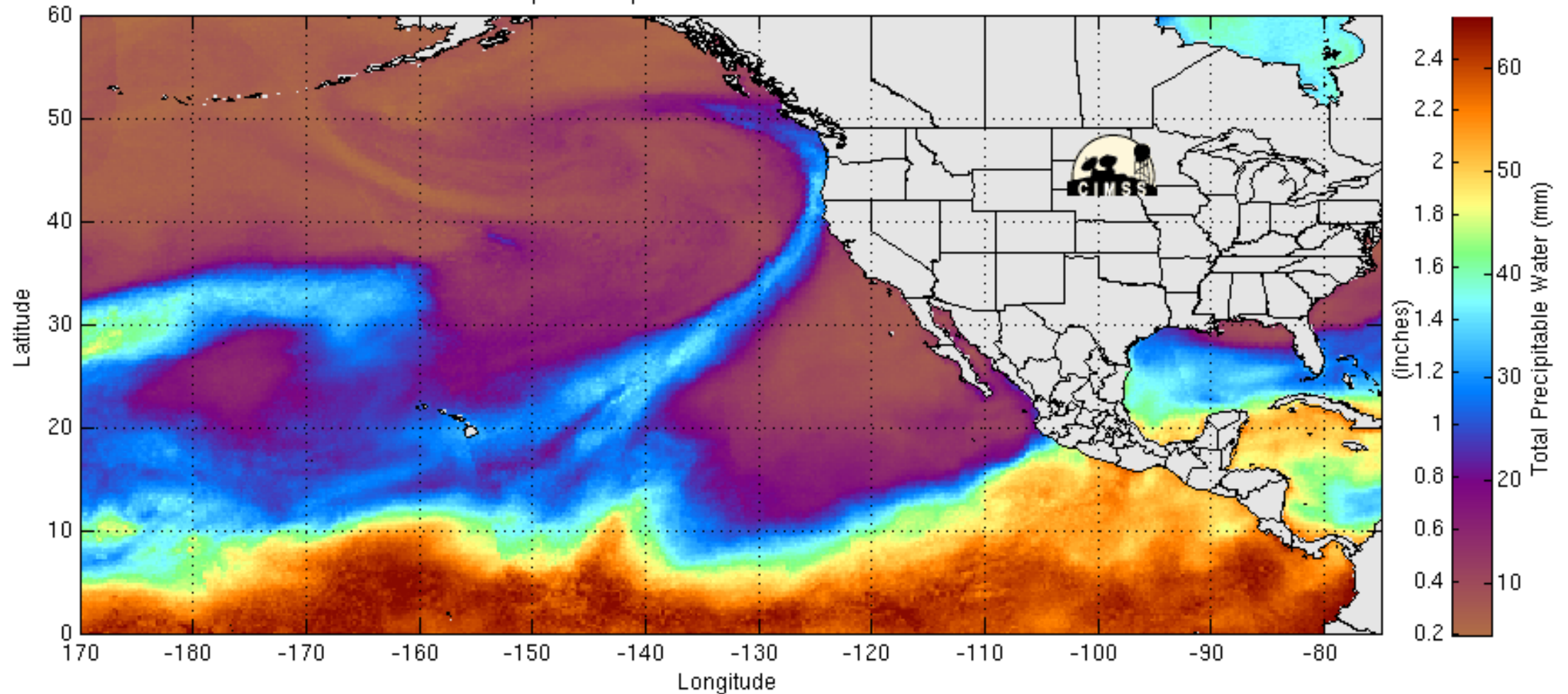


Increase in storage of
~8000 af

Storage remains above
the Target Water Supply
Storage Curve

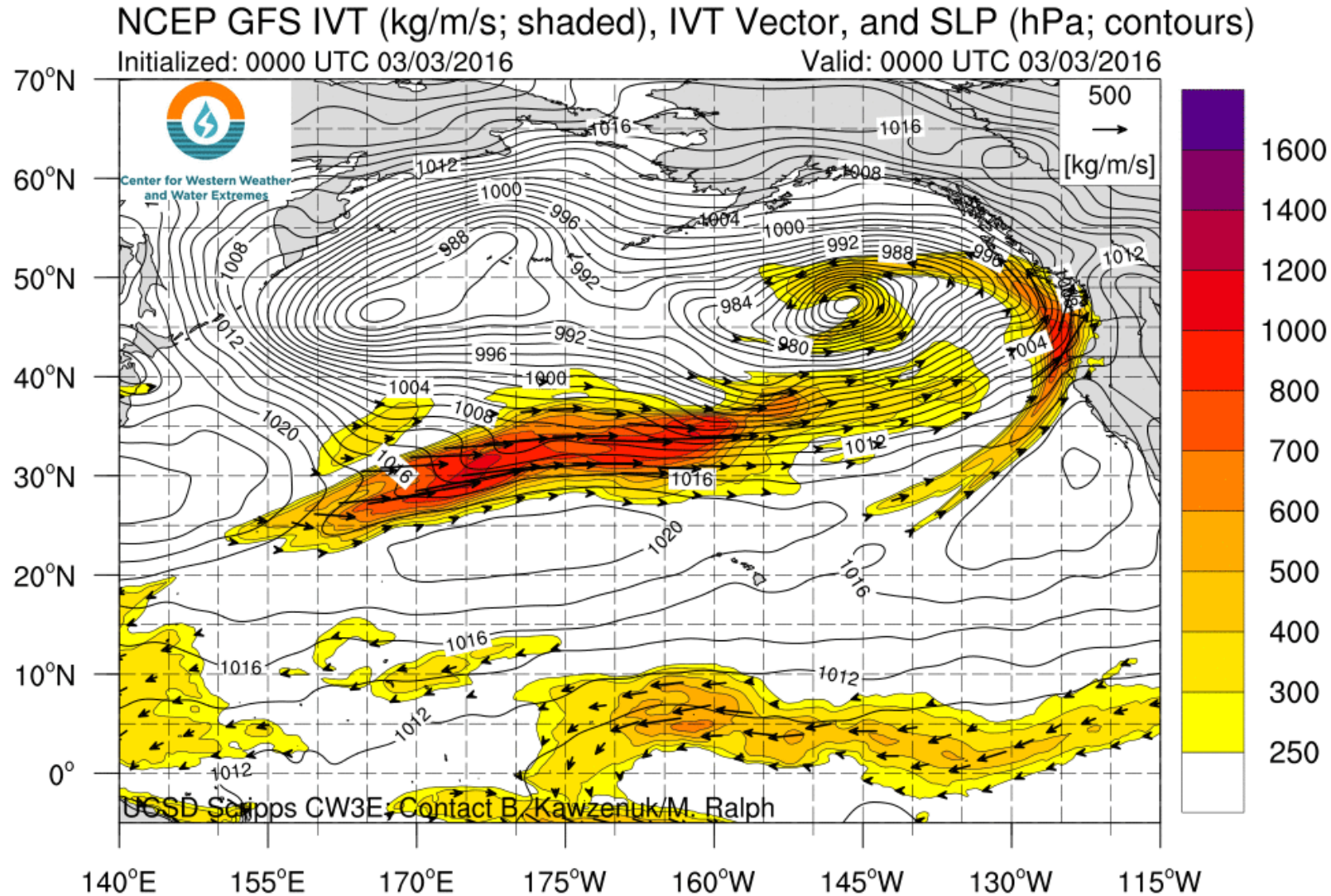
SSMI Integrated Water Vapor

Morphed composite: 2016-03-03 00:00:00 UTC



AR developed over the Central North Pacific and made landfall over Northern California
AR entrained moisture from previous decaying AR off California coast prior to landfall

GFS Analysis of Integrated Water Vapor

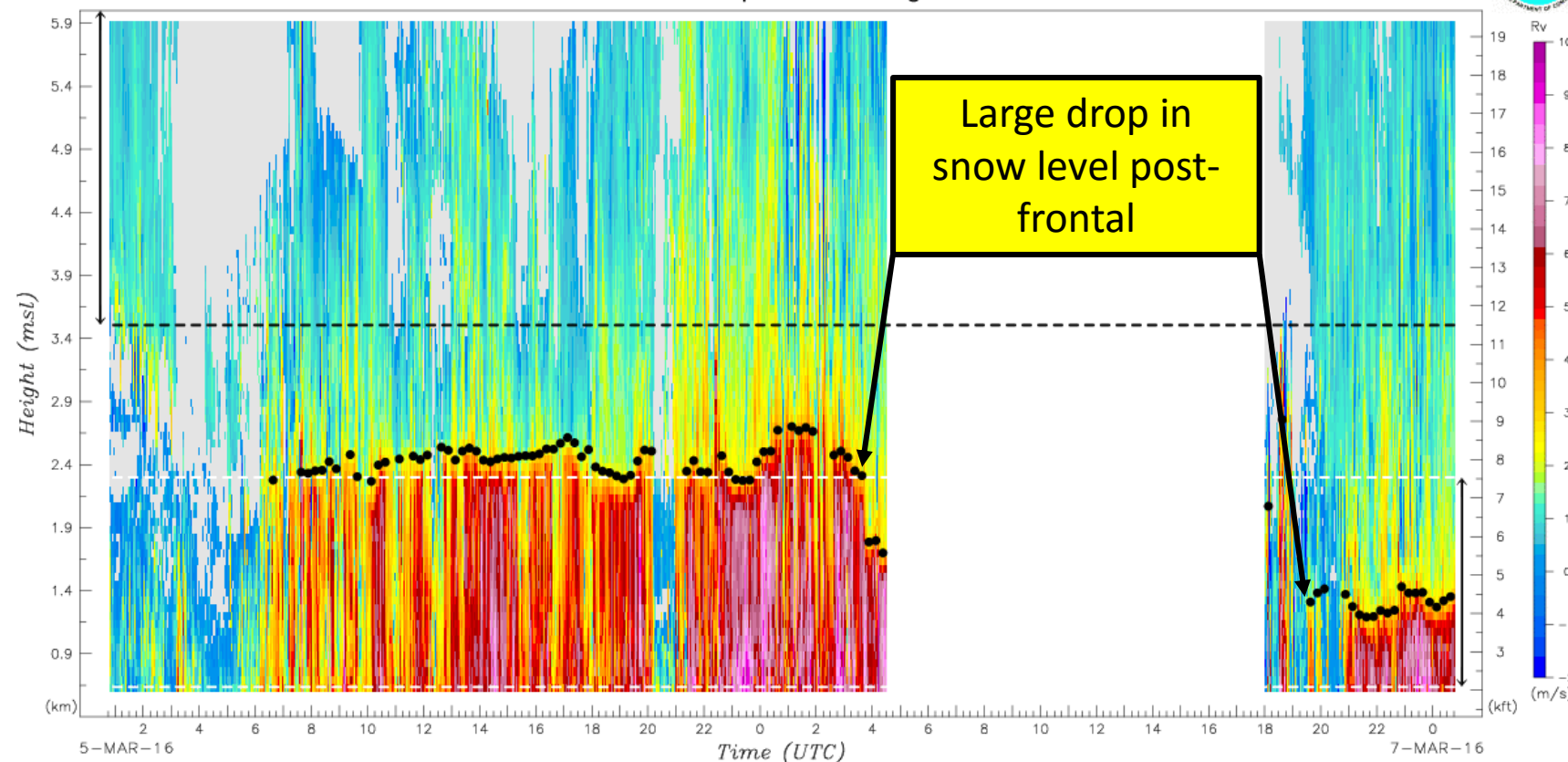


AR developed over the Central North Pacific and made landfall over Northern California
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Cazadero, Ca Snow Level Radar

Heavy bright band
precipitation began
~0600 UTC 5 March 2016

ESRL Physical Sciences Division
S-band Precipitation Profiling Radar



Cazadero, CA (CZC)
38.6107 N, 123.2152 W, 478 m

- Snow Level

--- KMUX NEXRAD 0.5 degree elevation (black)

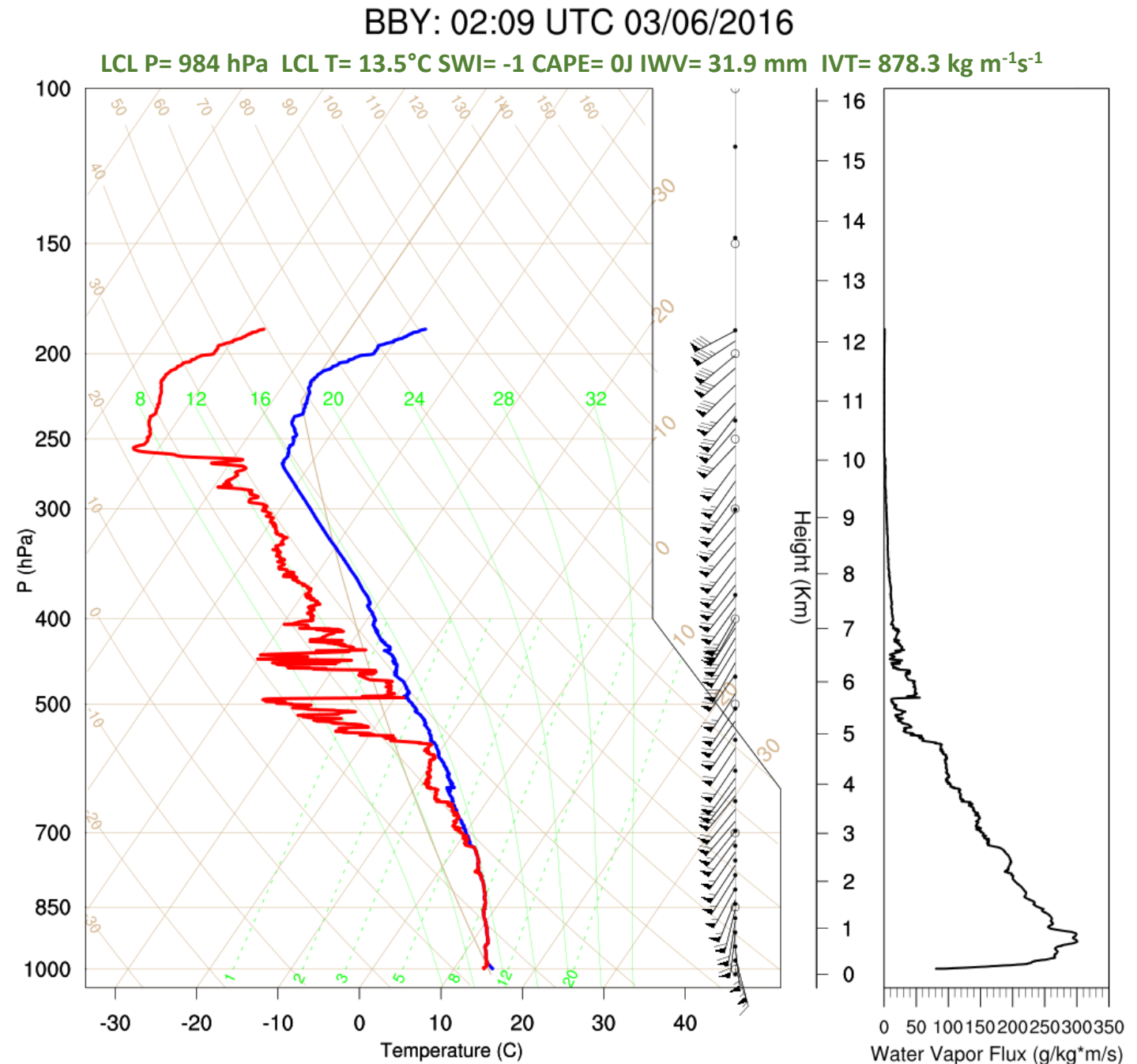
--- KPIX C-band 0.0 degree elevation (white)

Time (UTC)	0115	0215	0315	0415	0515	0615	0715	0815	0915	1015	1115	1215	1315	1415	1515	1615	1715	1815	1915	2015	2115	2215	2315	0015
Snow Level (m)	none	none	none	none	none	2277	2340	2352	2366	2396	2455	2475	2509	2439	2461	2503	2571	2364	2312	2510	2389	2343	2279	2503
Snow Level (ft)	none	none	none	none	none	7468	7675	7716	7760	7858	8054	8118	8231	8001	8072	8211	8432	7753	7585	8234	7835	7685	7476	8211
Sfc Temp (C)	12.18	12.00	12.01	12.11	12.16	12.11	12.16	12.21	12.27	12.13	11.90	11.93	11.81	11.76	11.71	11.57	11.64	11.84	11.95	11.92	12.06	12.36	12.35	12.2

[illegible]

Bodega Bay 0200 UTC Sounding

- Saturated atmosphere up to ~550 hPa
- IWV = 31.9 mm IVT = $878.3 \text{ kg m}^{-1}\text{s}^{-1}$
- Winds >50 knots throughout the troposphere
- Majority of water vapor flux between 950–700 hPa



Event Summary

- A moderate strength Atmospheric River made landfall over Northern California during 5-6 March 2016
- Maximum 48-h precipitation of >10 inches occurred over the Sierra Nevada
- Widespread precipitation >6 inches occurred over the Coastal and Sierra Nevada Ranges
- Several rivers reached above flood stage in Northern California