

# HMT-West 2011 IOP 7 Summary

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## Overview

IOP 7 was conducted from:

- 00 UTC 6 March 2011 – 00 UTC 7 March 2011 (soundings)
- 00 UTC 6 March 2011 – 1730 UTC 7 March 2011 (radar)

A total of 7 sondes were launched from the Lincoln field site (4 hour frequency). No NWS sondes were launched.

The precipitation event was associated with a weak Atmospheric River (AR) that impacted the west coast of northern California (see Fig. 1). The AR was part of a weak wave embedded within a larger trough anchored in the east Pacific (Fig. 2).

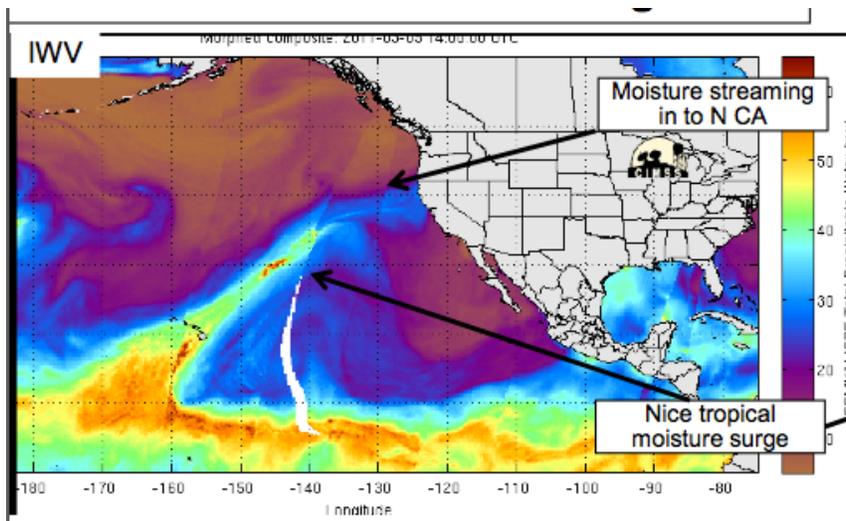


Figure 1. SSM/I integrated water vapor ~14 UTC on 5 March 2011.

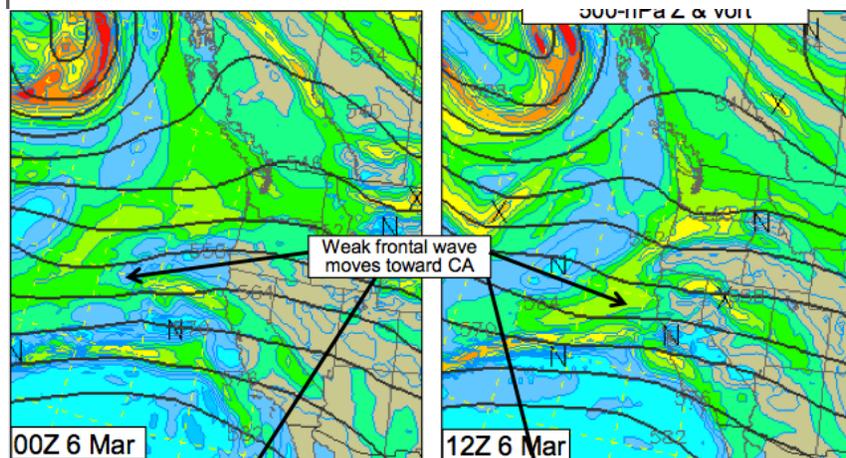


Figure 2. Forecast 500 mb heights and vorticity for 00 (left) and 12 (right) UTC from the 12 UTC GFS (5 March 2011).

The precipitation in IOP 7 came primary in 2 bouts. The first was associated with warm advection ahead of a weak cold front during the daytime hours of 6 March, which provided the feed for the AR subtropical moisture (Fig. 3; Table 1) and widespread precipitation (Fig. 5). A second, more vigorous short wave passed through the region overnight on 7 March (Fig. 4; Table 1) and produced additional precipitation that was mostly orographically forced and confined to the west slopes of the Sierra (Fig. 6). Based on the wind profiler observations in Fig. 3 and 4, there was no significant Sierra barrier jet in IOP 7.

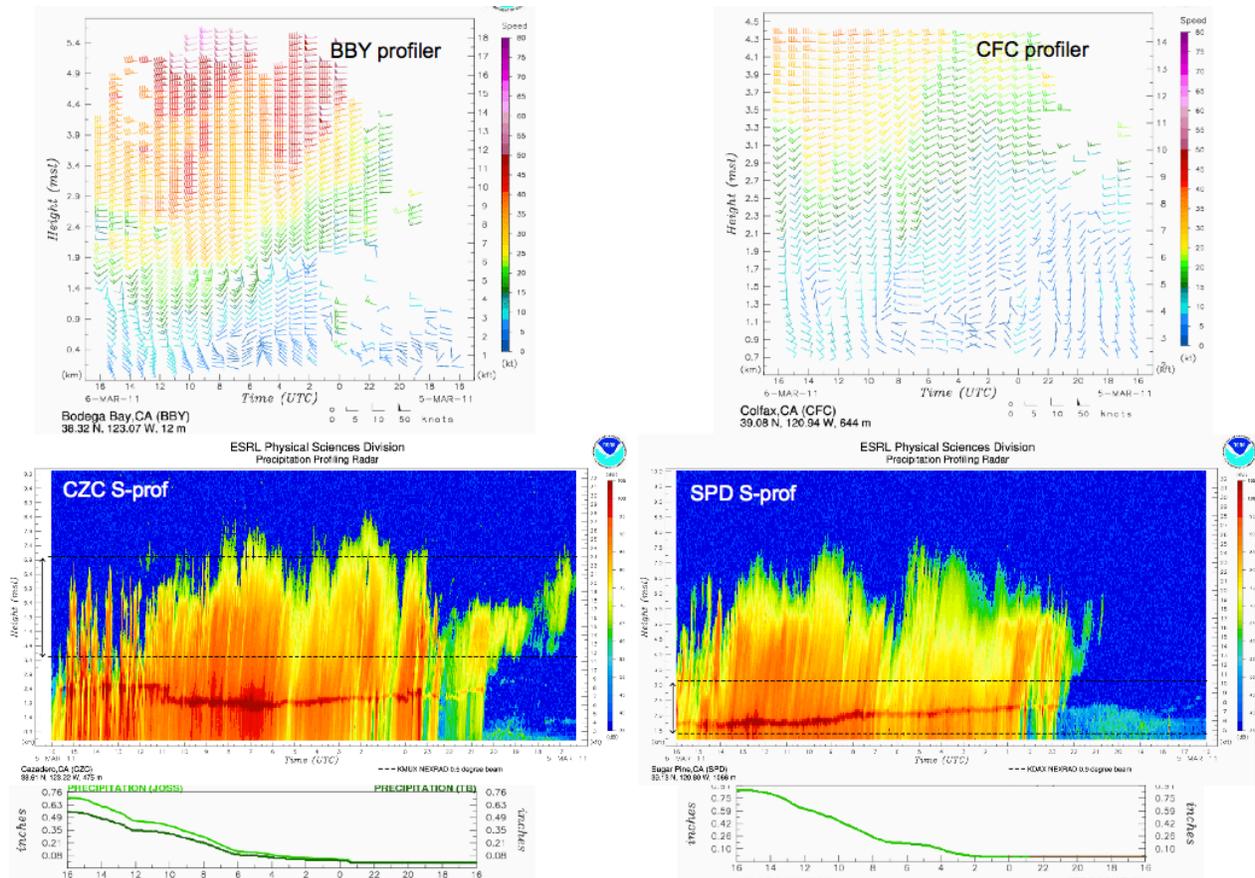


Figure 3. (top) wind profiler time series from Bodega Bay (BBY) and Colfax (CFC), (middle) precipitation profiler time series from Cazadero (CZC) and Sugar Pine Dam (SPD), and (bottom) tipping bucket accumulated liquid precipitation from CZC and SPD on 6 March 2011.

Table 1. Approximate precipitation (in) accumulated on 6-7 March, based on real-time, web display data.

Site	Elevation (m)	6 March Accumulation (in)	7 March Accumulation (in)
ATA	1085	1.2	0.71
LHM	37	0.54	0.12
CFX	725	1.0	0.61
BLU	1610	1.03	0.55
NDN*	2100	0.87	0.70

CNH	2020	0.96	0.75
SPD	1066	1.0	0.97
WDC	2012	0.39	0.73

\*ETI gauge

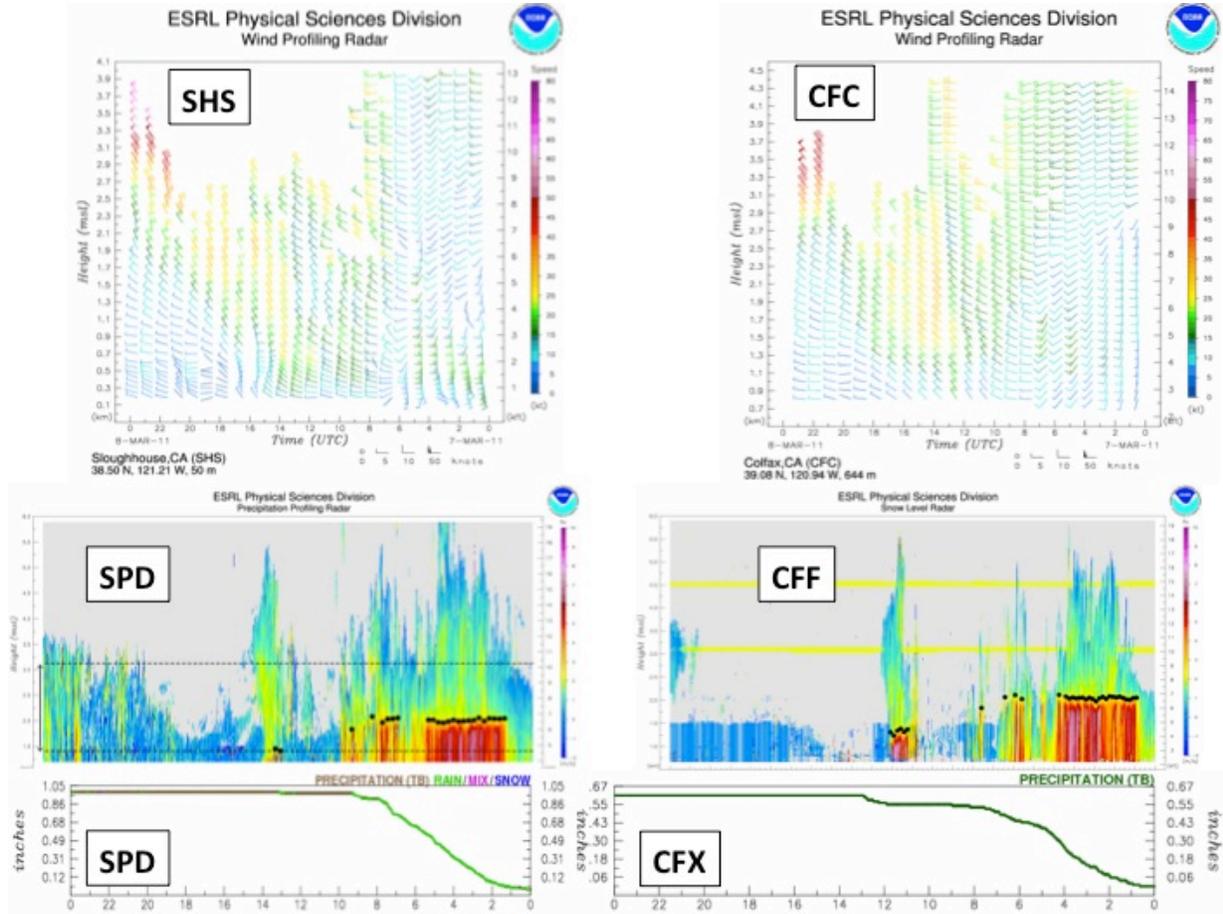


Figure 4. (top) 7 March wind profiler time from Sloughhouse (left) and Colfax (right). (middle) Snow level time series from Suger Pine Dam (left) and Colfax (right). (Bottom) tipping bucket time series from Suger Pine Dam (left) and Colfax (right)

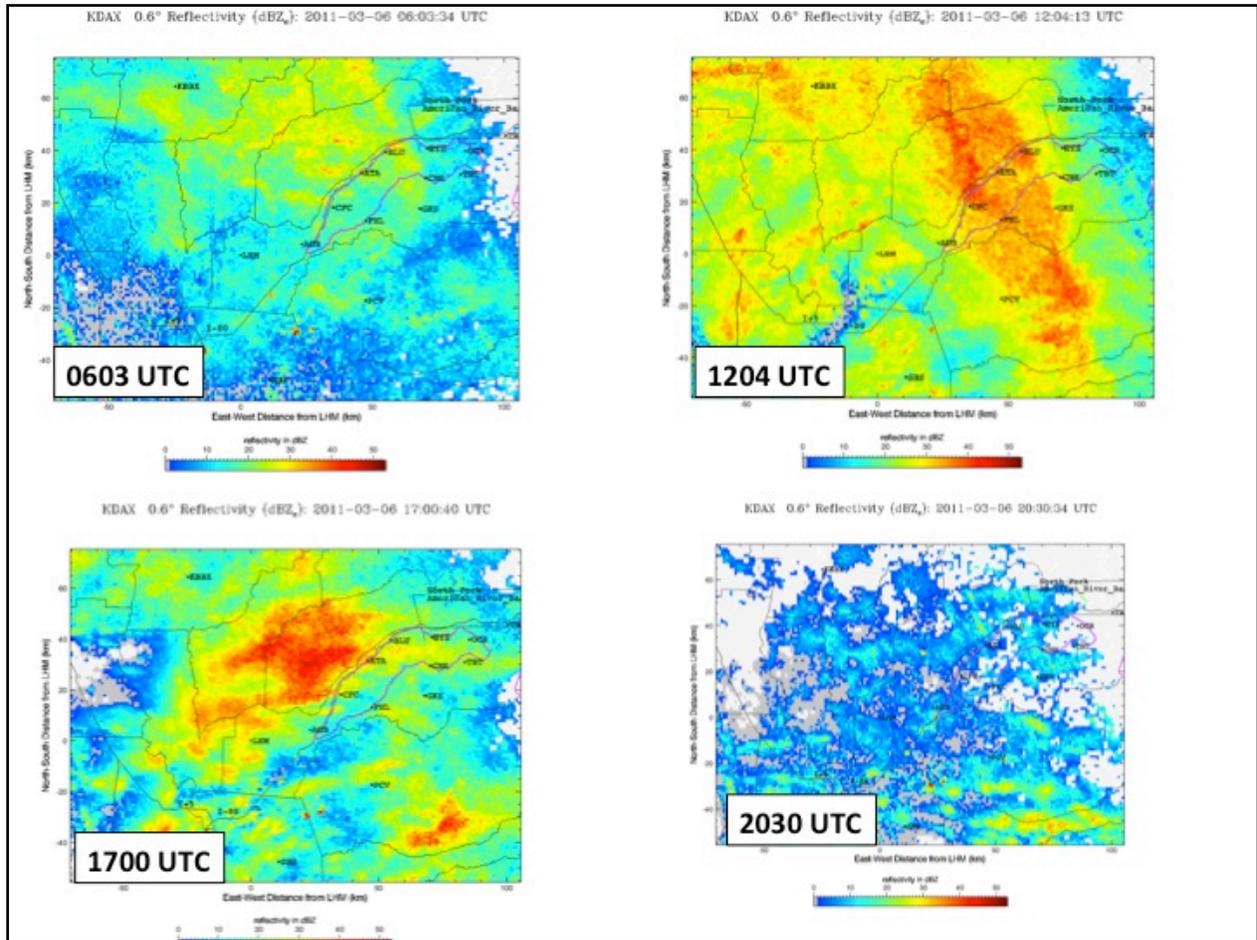


Figure 5. KDAY CAPPI images for 6 March 2011.

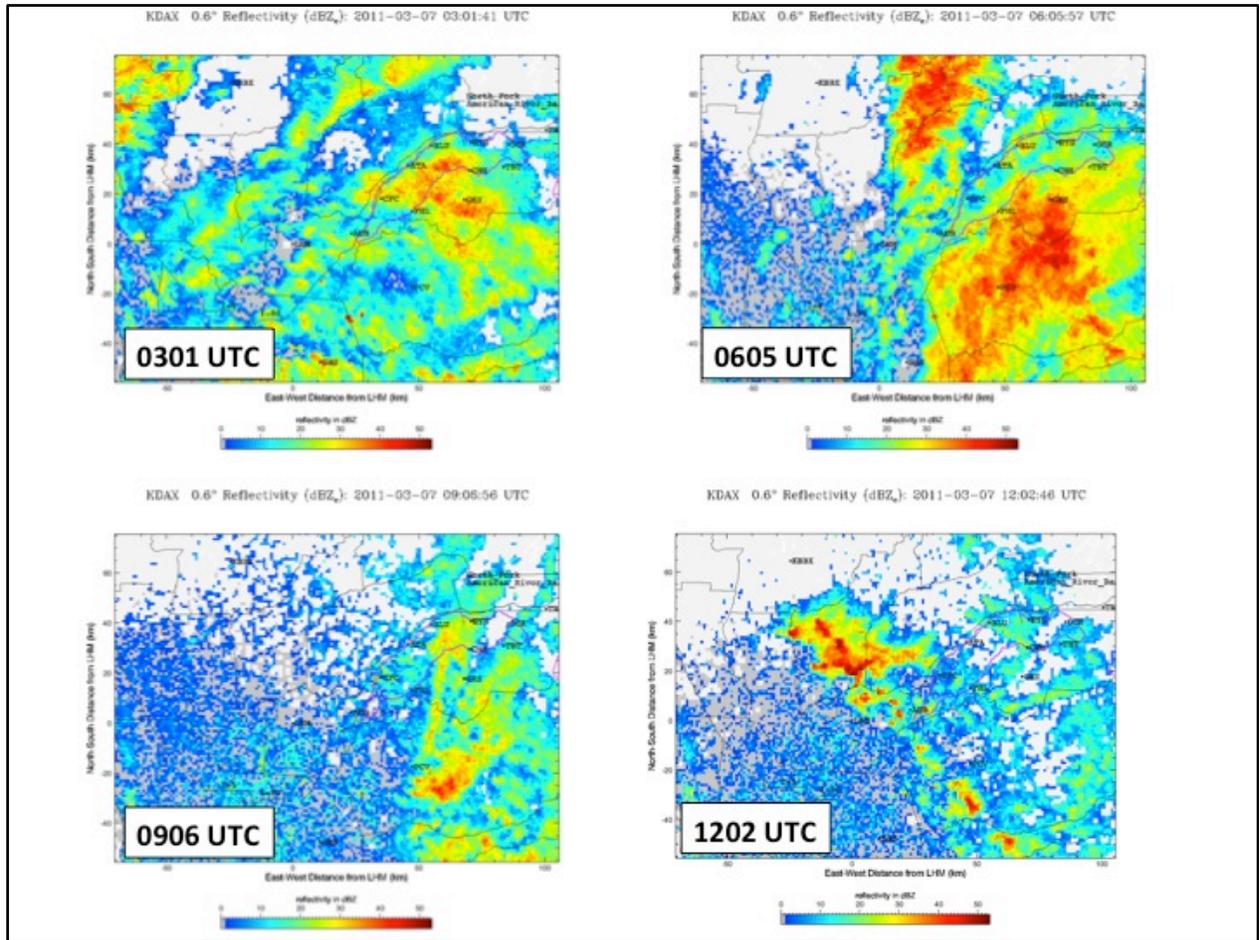


Figure 6. KDAX images for 7 March 2011.

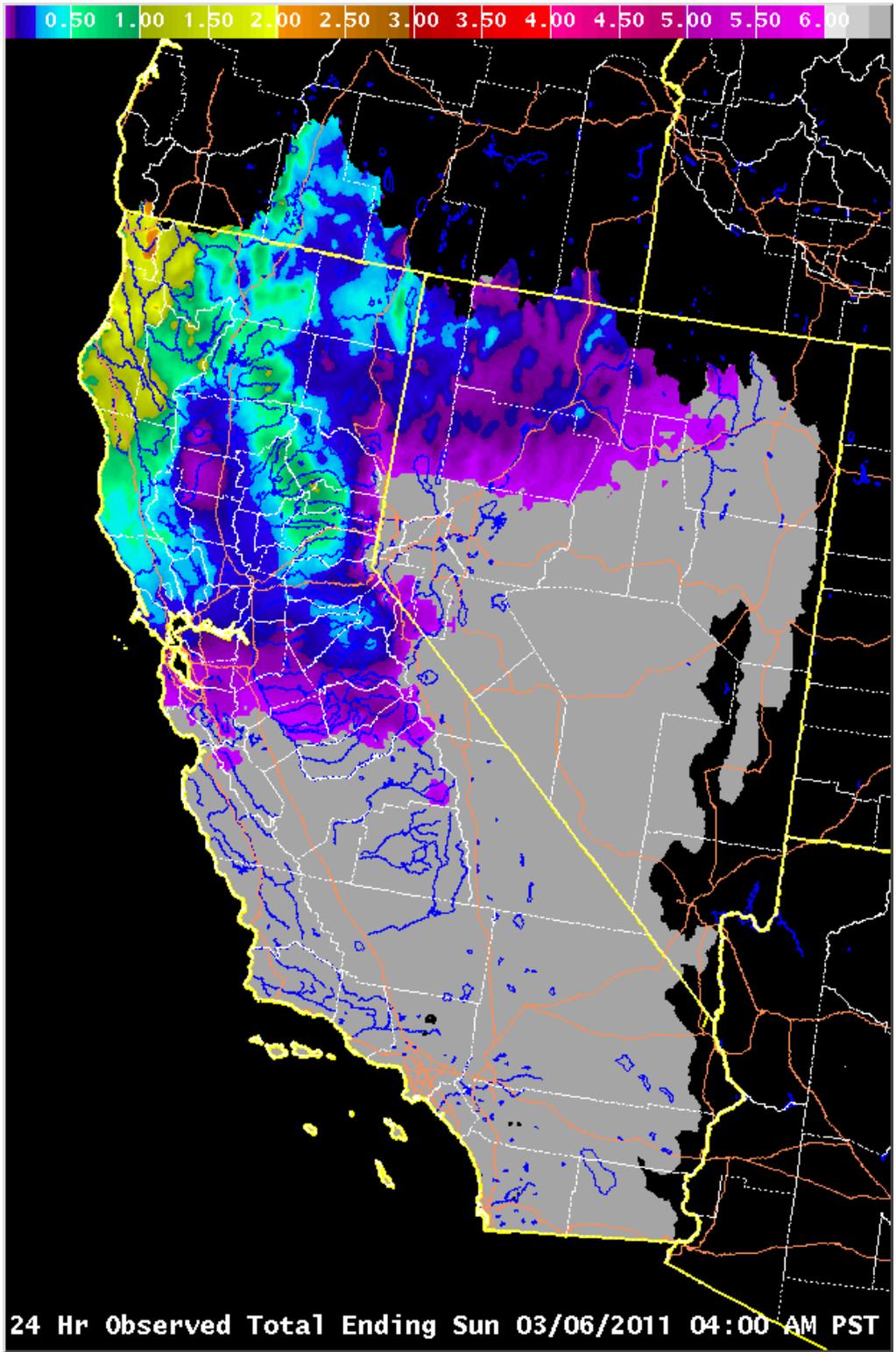


Figure 7. CNRFC gauge-only QPE for 6 March 2011, based on Mountain Mapper.

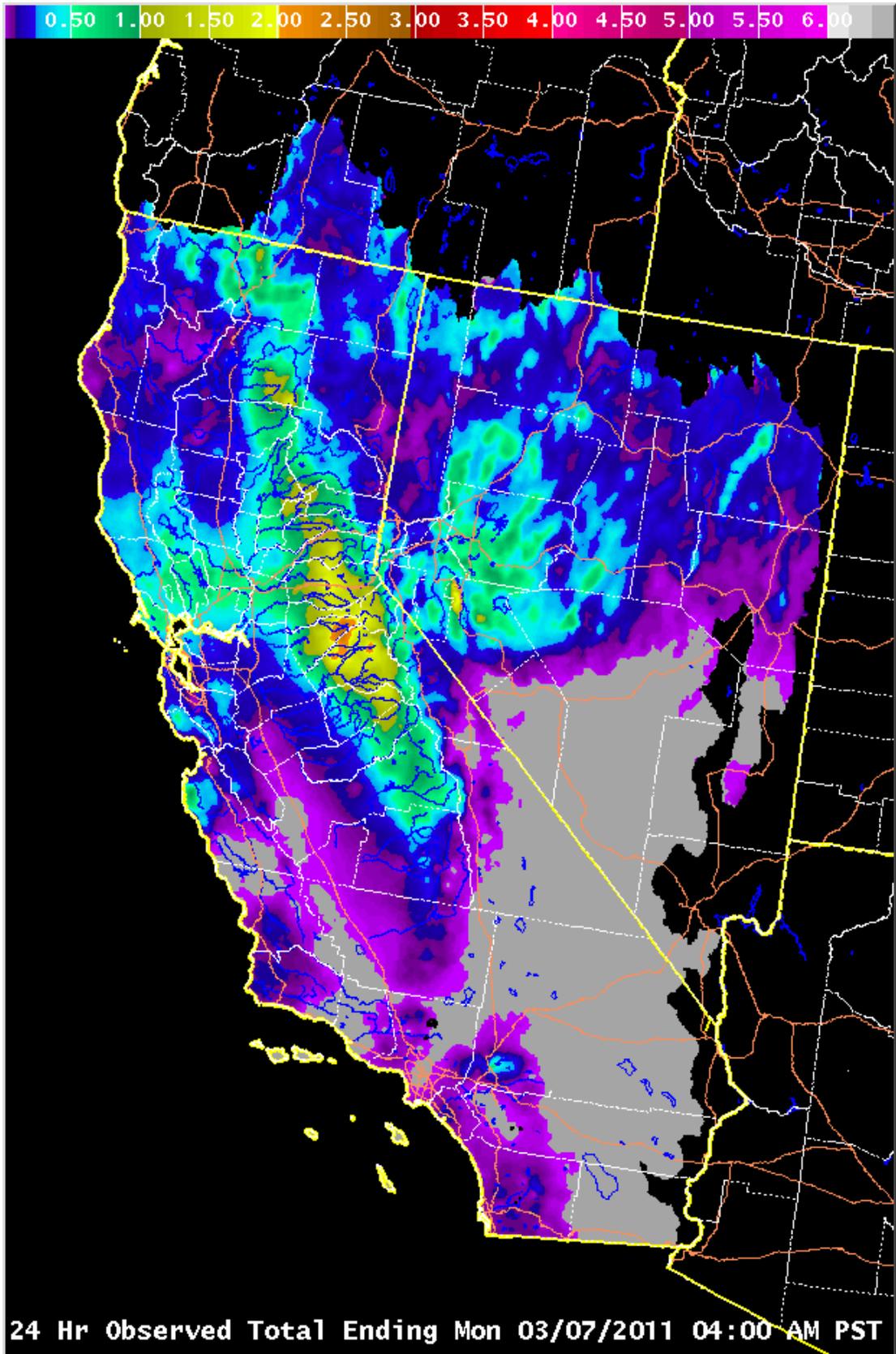


Figure 8. Same as Fig. 7, except for 7 March 2011.