# DFO Flood Event 4434

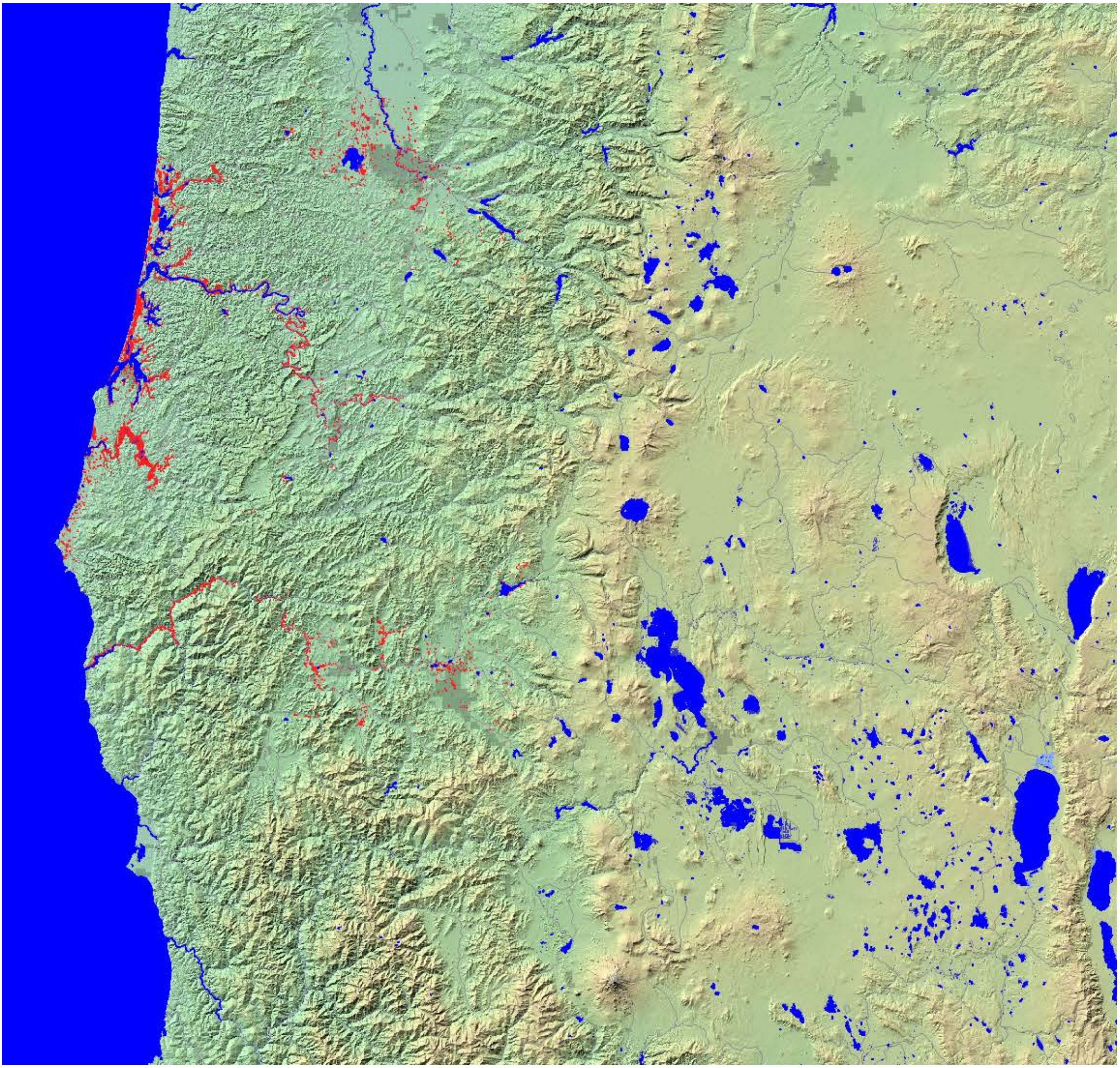
***Draft***

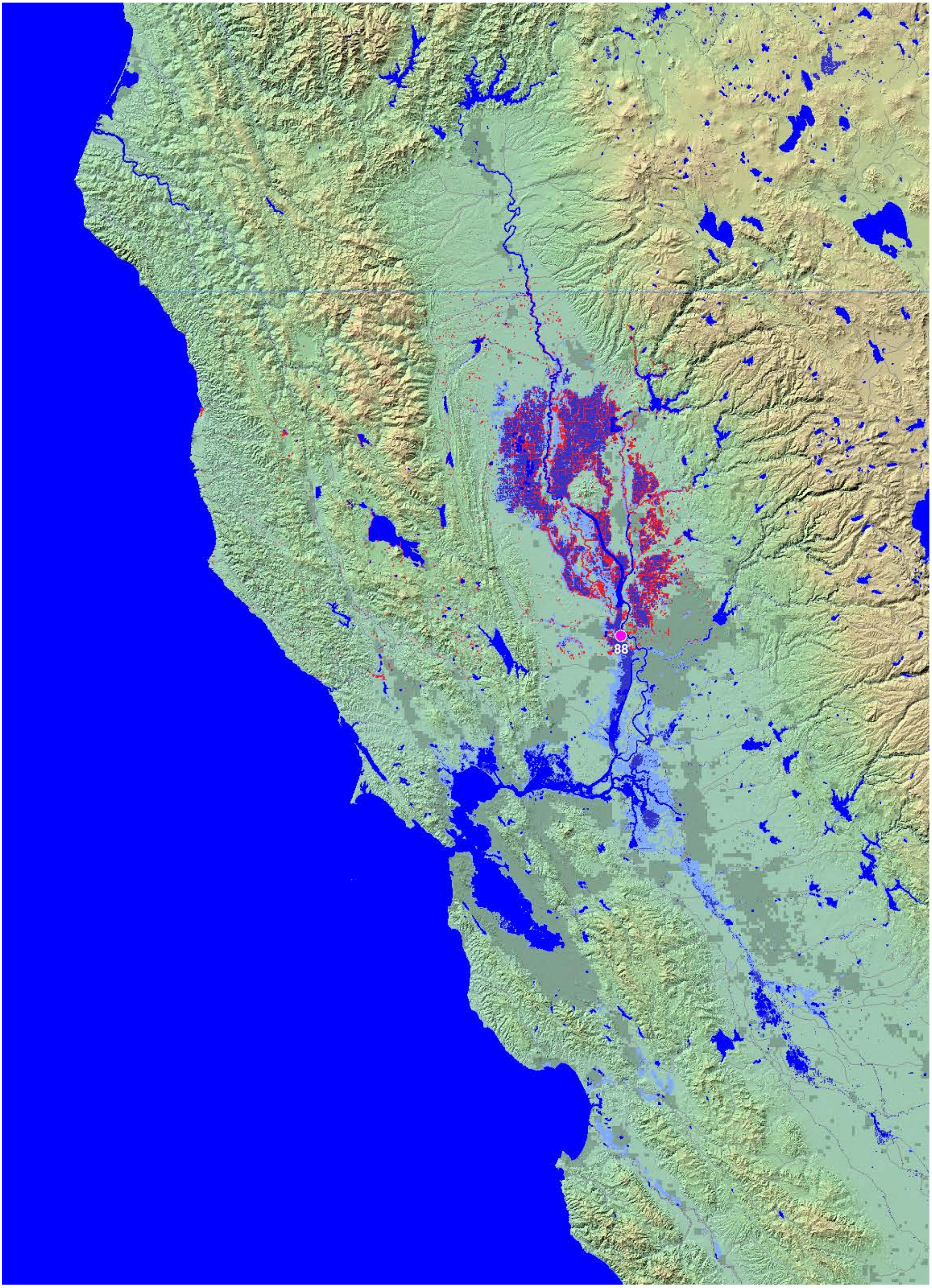
***pdf version***

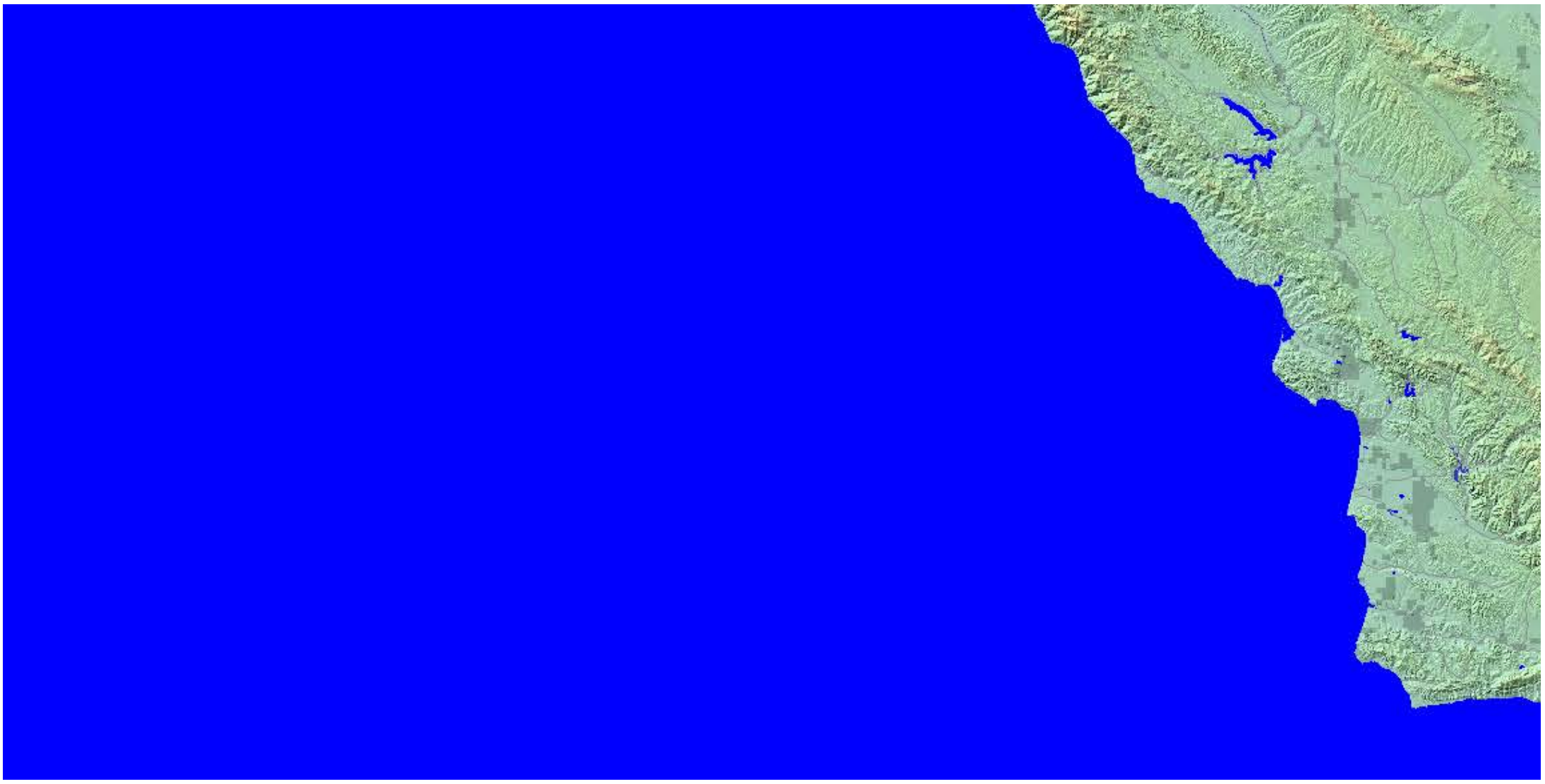
***California and Oregon, January, 2017***

## Flood Map

**Layers, top to bottom: Dark Blue is normal annual water extent mapped via Landsat or NASA SRTM. Red is flood water mapped from ESA Sentinel 1 SAR data (January 11-13, 2017). Blue is pre-flood ("normal") surface water mapped using ESA Sentinel 1, or from NASA SRTM.**




88

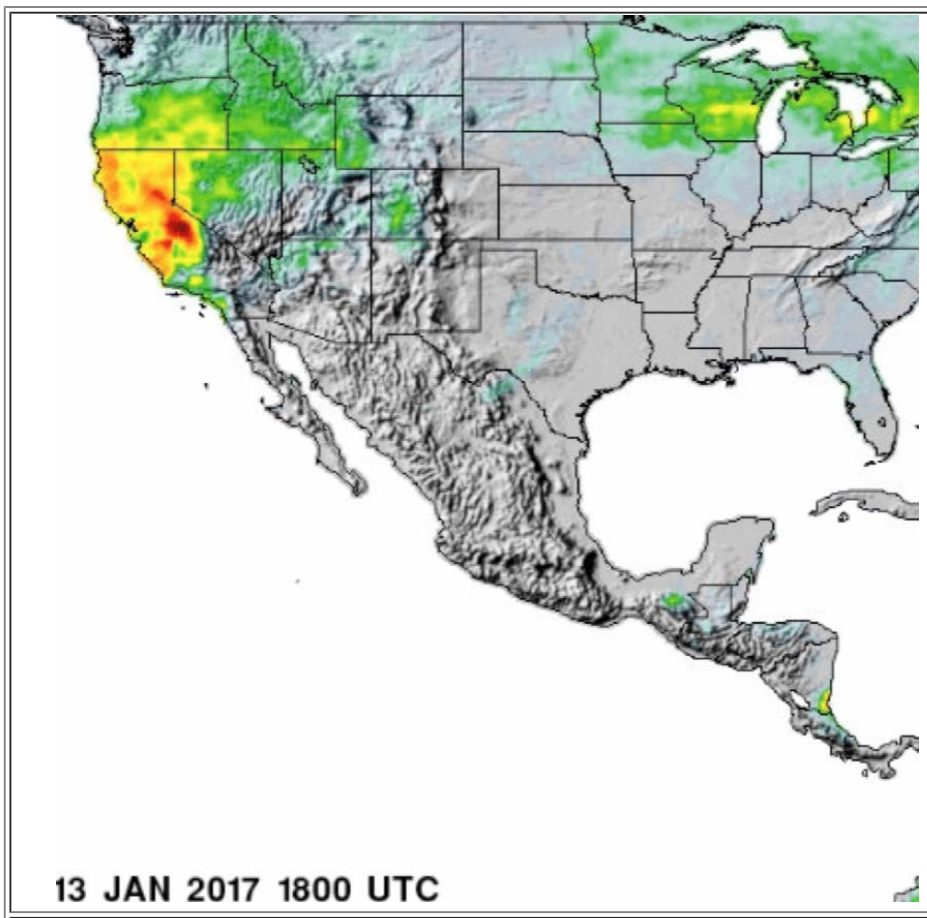


[*Large Geotif version*]

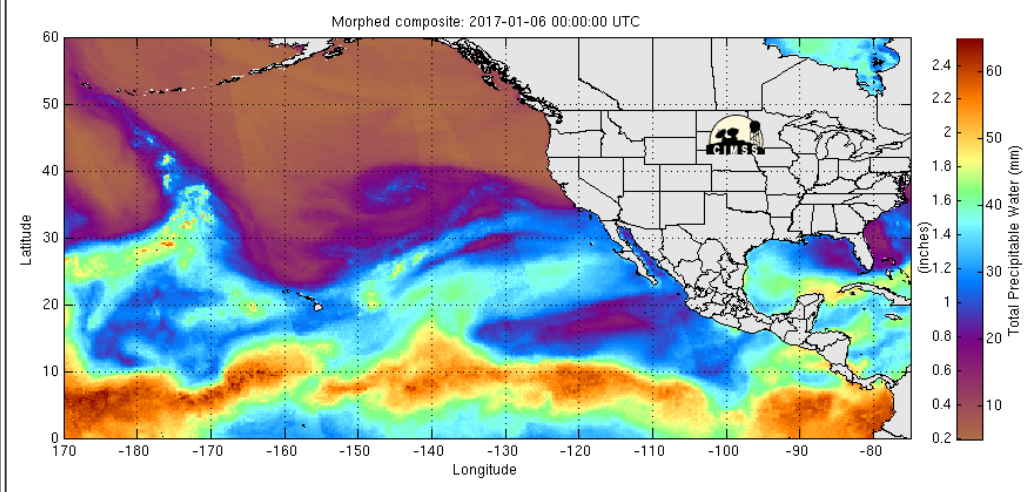
[*Google Earth kmz version*]

## Related Data

***Satellite-measured precipitation, modeled flooding, and atmospheric moisture related to this flood event***




**7-day accumulated rainfall from NASA Satellite Precipitation**




**SSMI/SSMIS/AMSR2 Total Precipitable Water**

**Flood depth above threshold, from GFMS.**

## Explanation

### Event Reporting:

The Flood Observatory maintains a Global Active Archive of large flood events, 1985 to present. It is available to the public in both spreadsheet and GIS formats (both formats together provide the complete Archive). New events are entered into this archive each week. As of the end of 2016, there were 4432 events; each has a unique archive number.

## Event Mapping:

In some cases, severe or damaging floods become the focus of Observatory inundation mapping. As part of collaborations with other organizations, and the Global Flood Partnership, the Observatory's maps and other data are made available to the public. With attribution, they can be used freely, including for commercial purposes, under the terms of the Creative Commons Attribution 3.0 Unported License. Geotif versions and GIS files are also provided for these maps through the links below. This event is selected for Observatory production of map and GIS data products.This web page and associated image and map (GIS) files are the permanent Flood Observatory record of this event.

## This Event:

This Flood List link provides a summary. According to Flood List (January 12, 2017): "The first storm in the series arrived in the middle of last week, the week of January 2, and brought rain to northern and central California. The next storm occurred over the weekend of January 7 and 8 and brought heavy rains again to mostly northern and central California although southern California also received significant amounts. This event lead to widespread flooding, down trees and mudslides, especially in the Sierra Nevada where hurricane force winds occurred and Interstate 80 was closed due to a massive mudslide. Blizzard, winter storm, high wind, and flood warnings are already in effect as the third plume of moisture in this series is already making its way through the interior part of the state where several feet of snow are expected in the Sierra Nevada "

## Suggested citation:

Brakenridge, G.R.., date accessed, "DFO Flood Event 4434", Dartmouth Flood Observatory, University of Colorado, Boulder, Colorado, USA, http://floodobservatory.colorado.edu/Events/2017USA4434/2017USA4434.html

## Image Data Sources:

NASA Landsat 8 and ESA Sentinel 1data used in this map were obtained from the the U.S. Geological Survey Hazards Data Distribution System. Landsat 8 is jointly managed by NASA and the United States Geological Survey. Flood modeling results are from the NASA/University of Maryland Global Flood Monitoring System (GFMS), Drs. Robert Adler and Huan Wu, University of Maryland/ESSIC.

**GIS Data Sources**:

GIS files supporting this Flood Event Map are located here. In this map, GIS normal and flood inundation limits from ESA Sentinel data published by UNOSAT/UNITAR are included (black frame).

Click here for access to the automated daily MODIS-derived .shp file GIS record (record commences in 2011). Choose appropriate 10 deg x 10 deg map sheet directory and appropriate dates; longitude and latitudes refer to upper left map sheet corner.

The Global Surface Water Explorer provides part of the (dark blue) maximum surface water extent layer. It is based on Landsat data at a spatial resolution of ~ 30m (*Jean-Francois Pekel, Andrew Cottam, Noel Gorelick, Alan S. Belward, High-resolution mapping of global surface water and its long-term changes. Nature 540, 418-422, 2016*). On the map, it is shown together with NASA NRT Global Flood Mapping maximum water extent for the years 2013-2015. DFO creates these annual water extent layers from data provided by that project by accumulating into one annual file all of the daily .shp files.

## Related Data:

Global Flood Monitoring System (GFMS) displays, if provided, are from the University of Maryland. Reference: Wu, H., R. F. Adler, Y. Tian, G. J. Huffman, H. Li, and J. Wang (2014), Real-time global flood estimation using satellite-based precipitation and a coupled land surface and routing model, Water Resour. Res., 50, doi:10.1002/2013WR014710. Global Flood Awareness System (GloFAS) displays, if provided, are from the European Commission Joint Research Centre and the European Centre for Medium-Range Weather Forecasts. Reference: Alfieri, L., Burek, P., Dutra, E., Krzeminski, B., Muraro, D., Thielen, J., and Pappenberger, F.: GloFAS – global ensemble streamflow forecasting and flood early warning, Hydrol. Earth Syst. Sci., 17, 1161-1175, doi:10.5194/hess-17-1161-2013, 2013.

## Support provided by:

The Disasters Program of NASA Applied Sciences to the University of Colorado. GPM and AMSR-2 satellite microwave data for River Watch specially processed first within GDACS at the Joint Research Center of the European Commission. DFO participates in the Global Flood Partnership.



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