

Quick Look at Major Atmospheric River Impacting Northern California

Updated: 21 November 2024

A long-duration atmospheric river (AR) will continue to impact Northern California into the weekend, bringing additional heavy precipitation and high-elevation snowfall.

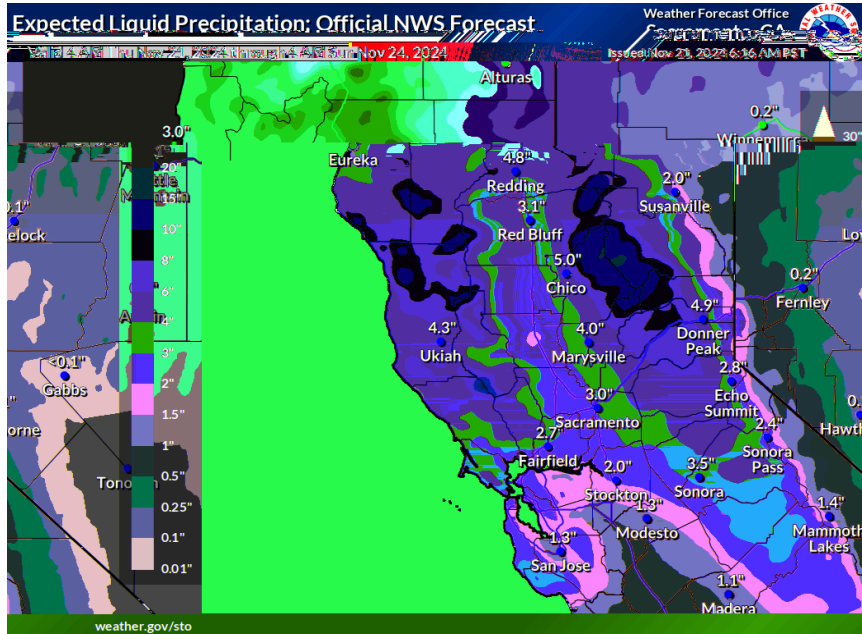
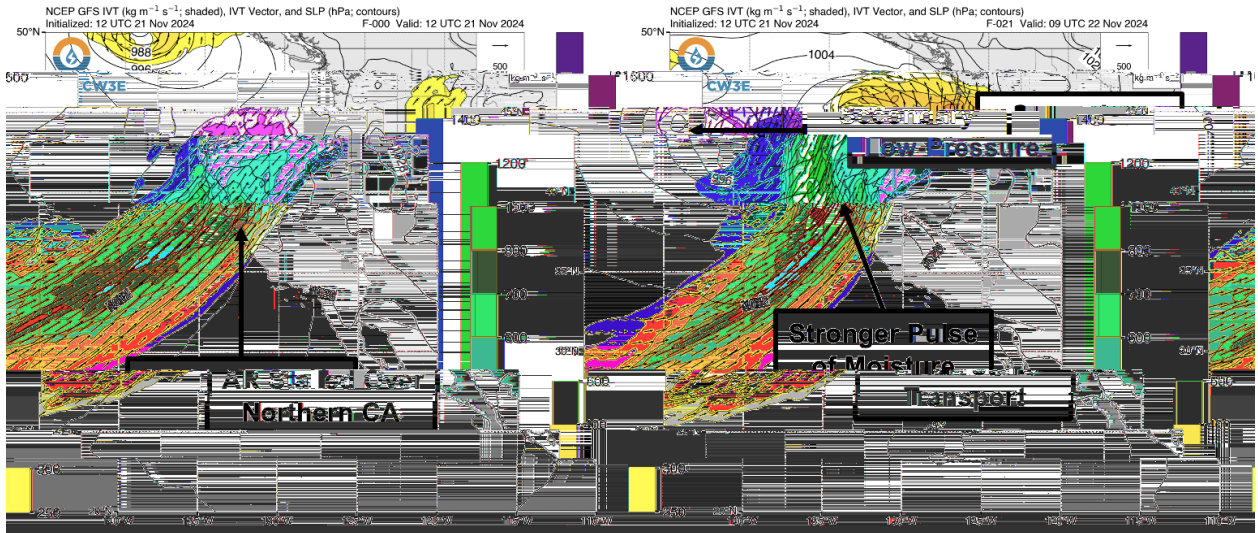
Forecast Highlights:

- The strong AR that made landfall on Tuesday (19 Nov) has stalled over Northern California, with orographically favorable southwesterly moisture transport supporting persistent moderate-to-heavy precipitation rates.
- This AR has already produced > 5 inches of precipitation over the Northern California Coast Ranges. Sonoma County Airport in Santa Rosa, CA, recorded 7.22 inches of rainfall during the 24-hour period ending 4 AM PST today (21 Nov), which corresponds to a 50-year return period event based on NOAA Atlas 14.
- Over the next 24 hours, a secondary low-pressure system will rapidly develop in the cold sector of the AR, resulting in a stronger pulse of moisture transport across coastal Northern California and the Sacramento Valley late tonight into early Friday morning (22 Nov).
- As the secondary low-pressure system moves northward, the AR is expected to gradually weaken Friday (22 Nov) into Saturday (23 Nov).
- The National Weather Service (NWS) is forecasting at least 4–10 inches of additional precipitation in the Northern California Coast Ranges, Klamath Mountains, Southern Cascades, and Northern Sierra Nevada, and 2–5 inches of precipitation in the Sacramento Valley, Central Sierra Nevada, and portions of the Bay Area. The heaviest precipitation (> 10 inches) is forecast over the Feather River Basin.
- Additional heavy rainfall is expected to cause significant hydrologic impacts today into Saturday (23 Nov). The latest NWS Weather Prediction Center (WPC) Excessive Rainfall Outlook (ERO) shows a **high risk (≥ 70%; level 4 of 4)** of rainfall exceeding flash flood guidance over portions of Humboldt, Trinity, and Mendocino Counties, as well as a **moderate risk (≥ 40%; level 3 of 4)** over the rest of the Northern California Coast Ranges and the Northern Sierra Nevada.
- Six stream gages are forecast to exceed flood stage in Northern California over the next 5 days, including the Russian River at Hopland. The Eel River at Fernbridge is forecast to reach major flood stage (25.0 feet) on Friday (22 Nov). A Flood Warning has been issued for both locations, as well as the Mad River at Arcata and the Navarro River at Navarro.
- An additional 12–36 inches of snowfall are forecast in the higher terrain of the Klamath Mountains and Sierra Nevada through Sunday morning (24 Nov), with moderate-to-major winter storm impacts likely above 6,000 feet.

Stay alert to official NWS forecasts, watches, and warnings at [weather.gov](https://www.weather.gov) and follow guidance from local emergency management officials

GFS IVT Analysis: Valid 4 AM PST 21 Nov

GFS IVT Forecast: Valid 1 AM PST 22 Nov (F-21)

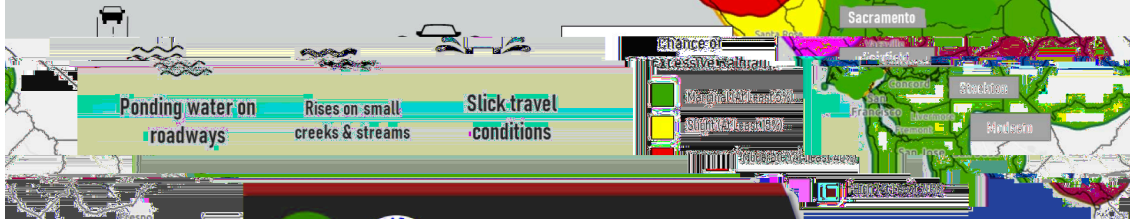
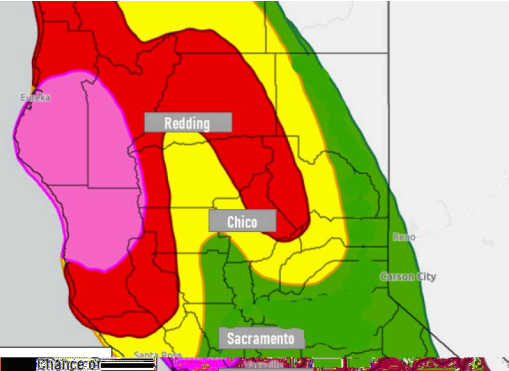


Moderate to Heavy Rain

Thursday, November 21 - Saturday, November 23, 2024

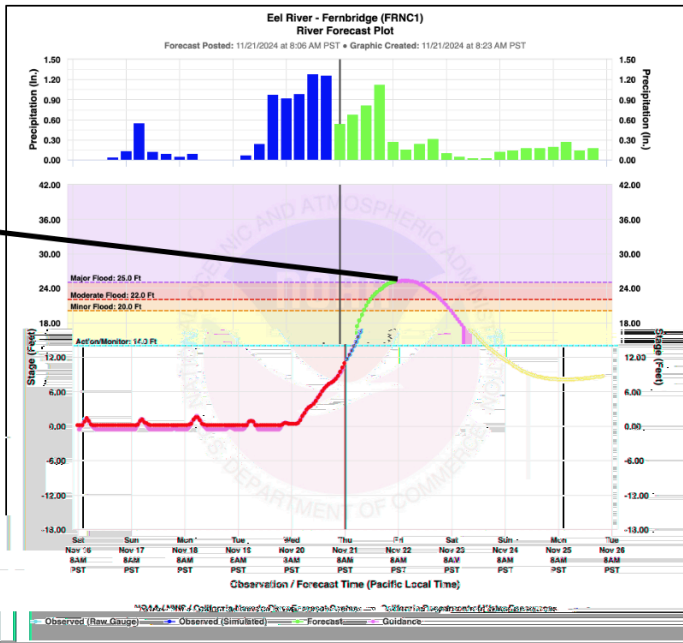
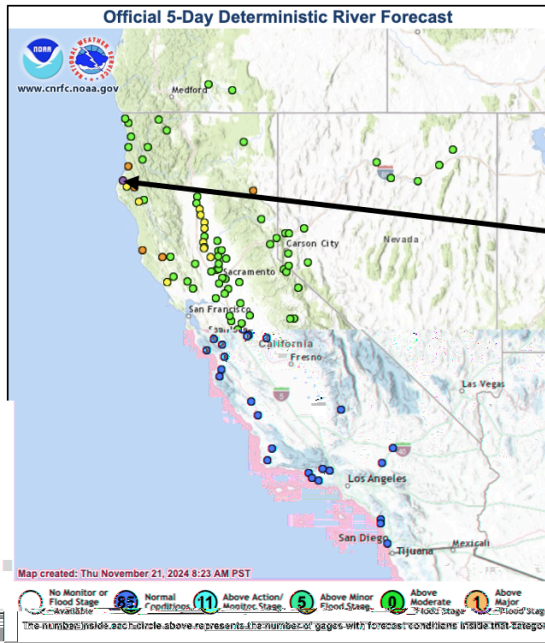
Forecast

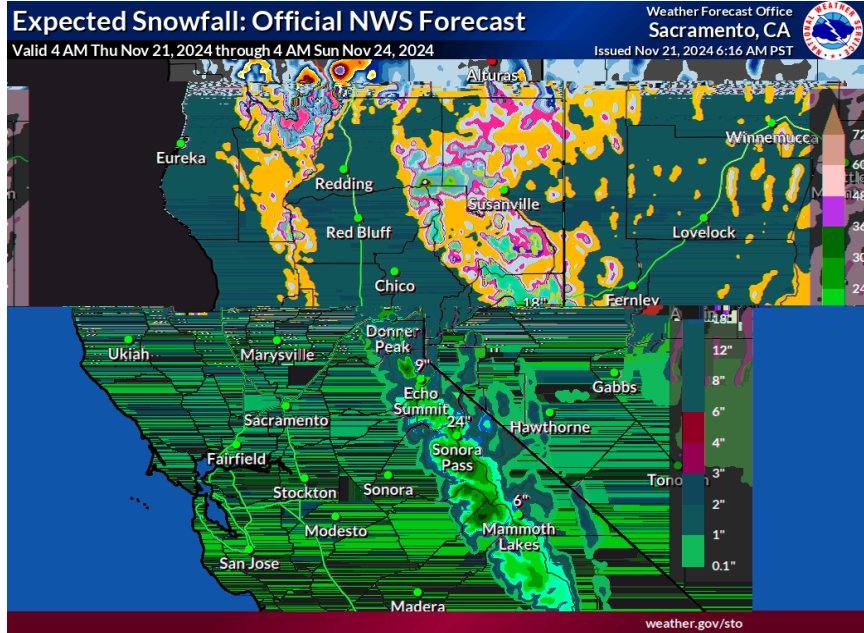
An active weather pattern will bring periods of Moderate to locally Heavy Rain through Saturday, heaviest expected north of Interstate 80



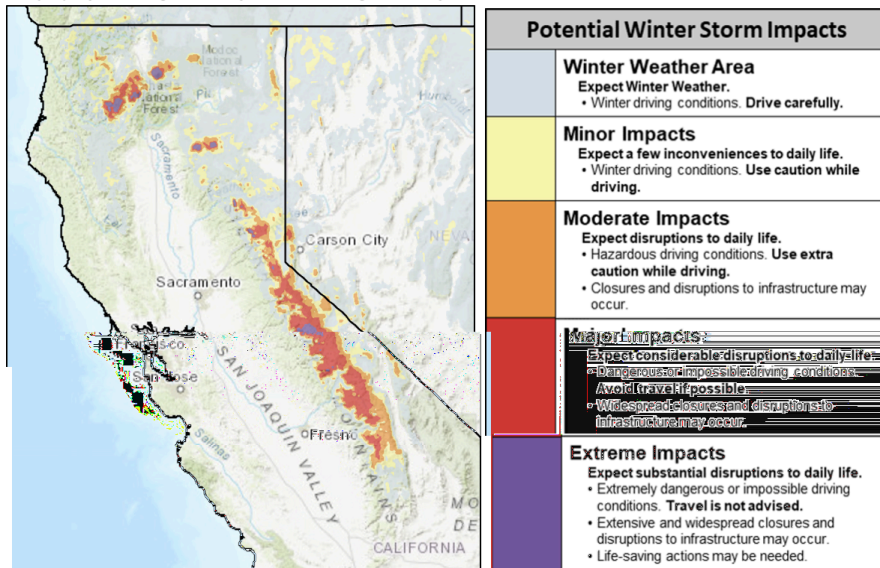
National Weather Service Sacramento, CA
weather.gov/sto

Updated: Thursday, November 21, 2024





WPC Winter Storm Severity Index
Valid: 9 AM PST 21 Nov – 4 AM PST 24 Nov



Additional Considerations:

- Visit cnrfc.noaa.gov/ for specific river and stream forecasts and weather.gov/ for point specific watches, warnings, and forecasts.

In-depth AR forecasts products can be found here:
<https://cw3e.ucsd.edu/iwv-and-ivt-forecasts/>

Update by C. Castellano
c1castellano@ucsd.edu