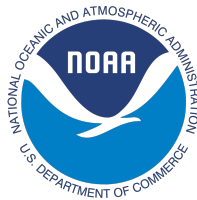
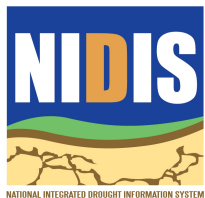


California-Nevada Drought Early Warning System

Southern California Winter Status Update

February 9, 2017
La Jolla, CA



Western Regional
Climate Center

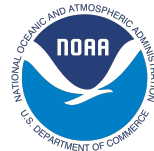
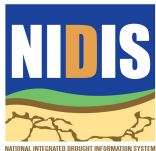


California-Nevada Drought Early Warning System
Southern California Winter Status Update

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Martin Johnson House, Scripps Institution of Oceanography, UCSD, La Jolla, CA

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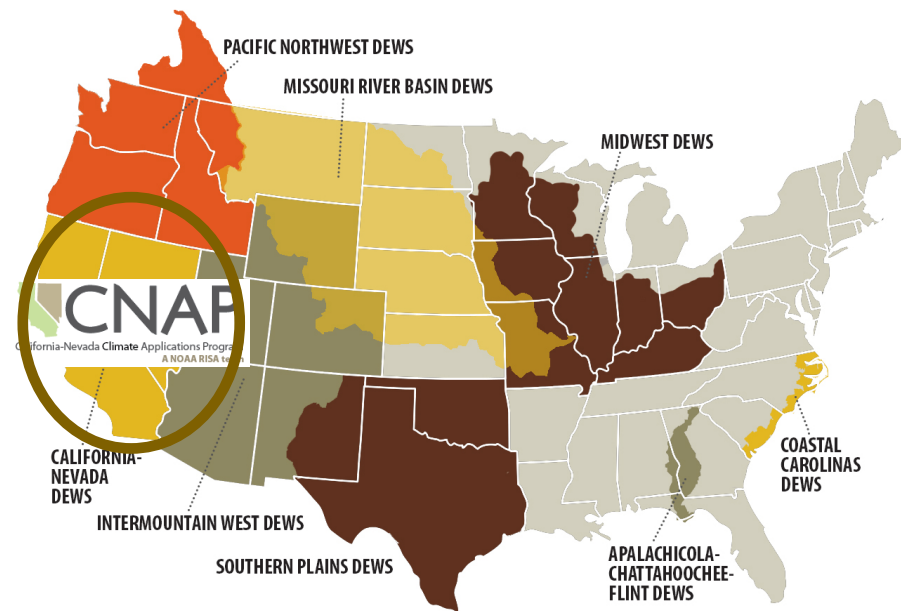


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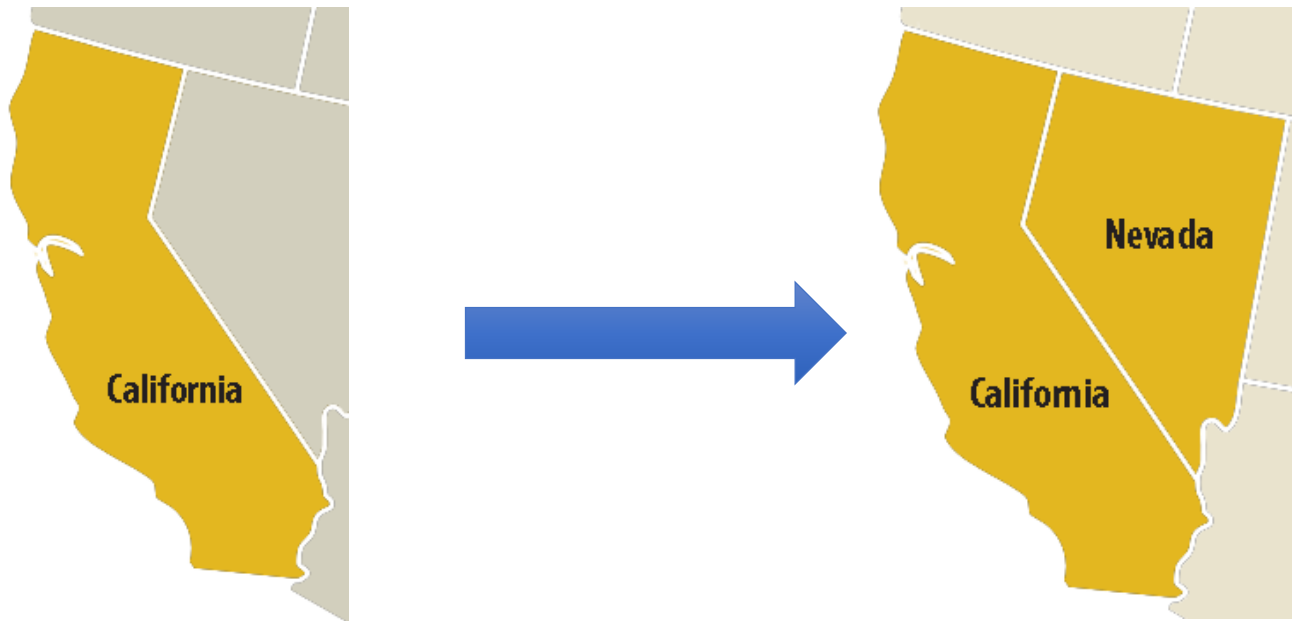


What is the National Integrated Drought Information System (NIDIS)?

- A NOAA program with an interagency mandate.
- Provide a better understanding of how and why droughts affect society, the economy and the environment.
- Improve accessibility, dissemination and use of early warning information for drought risk management.
- Build off of a network of Regional Drought Early Warning Systems (DEWS) to create a National Drought Early Warning System.



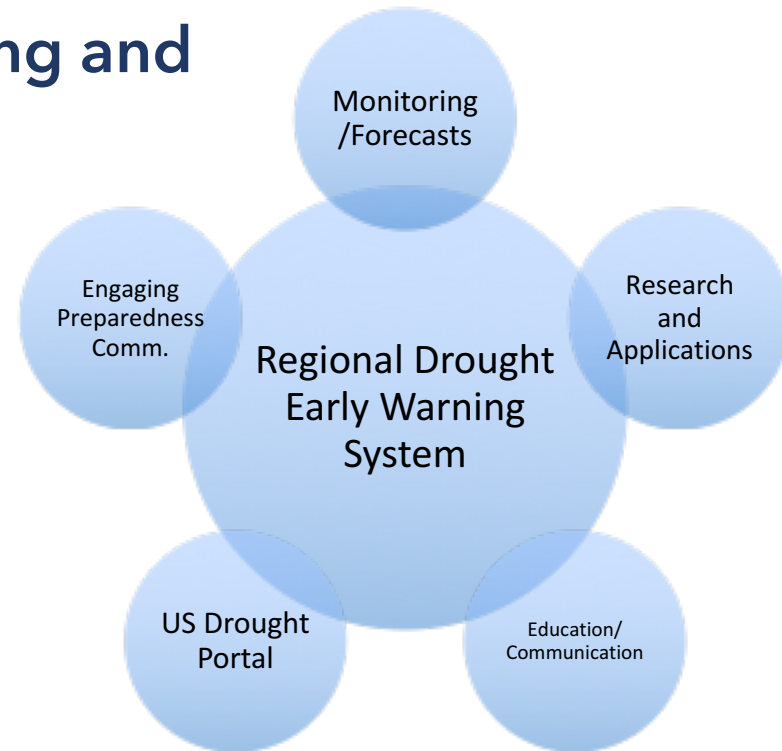
New opportunities with the newly expanded California-Nevada DEWS



Regional Drought Early Warning Systems (DEWS)

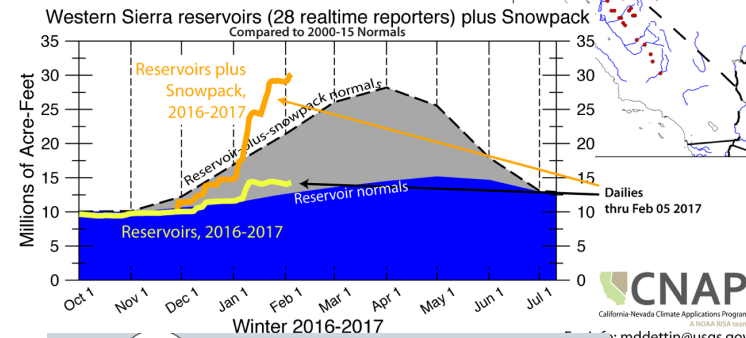
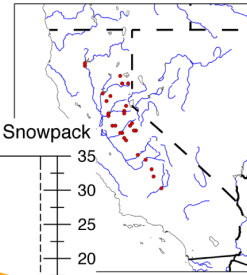
Working with communities and existing networks to build capacity for better decision making for drought planning and mitigation.

- Drought & Risk Assessments
- Climate Outlook Forums
- Education & Outreach Webinars
- Engaging the preparedness community
- Builds capacity to utilize existing products
 - Provide test beds for new products
- Develop new/utilize existing communication networks

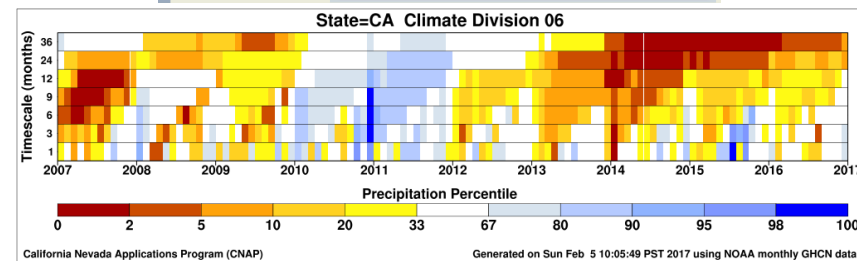


Continue Development of Drought Early Warning in CA & NV

- Climate Outcome Likelihood Tool
- Evaluating and understanding seasonal forecast skill using the National Multi-Model Ensemble (NMME)
- Development of a historical catalogue of atmospheric rivers
- Investigation of the impacts of drought & climate impacts on wildfire
- Evaluation of water supplies in California, including water stored in state's snowpack, reservoirs, and to the extent possible, groundwater storage
- Evaluation of historical atmospheric circulation patterns related to major precipitation events and lack thereof to aid forecasts of drought and drought busting
- Drought scenario planning with local agency planners and water utilities using downscaled climate model projections focused on California
- Near real time ground water pumping in the Central Valley with USGS



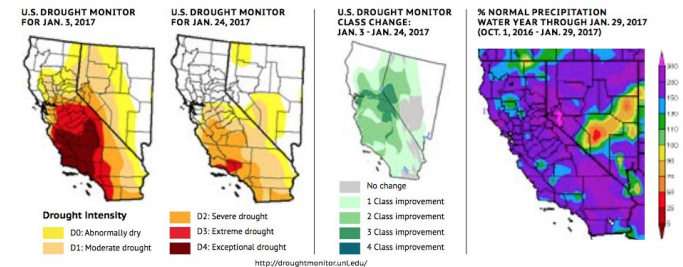
CNAP
California Nevada Climate Applications Program
A NOAA RISA team
mddettin@usgs.gov



California Nevada Applications Program (CNAP) Generated on Sun Feb 5 10:05:49 PST 2017 using NOAA monthly GHCN data

2016-2017 CA-NV DEWS Activities

- Stakeholder and decision maker engagement through at the state and regional scale.
- Fall 2016 Drought & Climate Outlook Series
 - Southern California (Riverside, CA)
 - North Central Coast (Seaside, CA)
 - Central Valley (Fresno, CA)
- Drought & Climate Outlook Webinars
 - Slides, webinar recording, and 2 page summary on drought.gov
 - Next Webinar: *March 27th at 11 am PT*
- Timely two page informational handouts
 - Seasonal Forecasting
- CA-NV DEWS Strategic Plan
- More information: <https://drought.gov/drought/dews/california-nevada>



CURRENT CONDITIONS

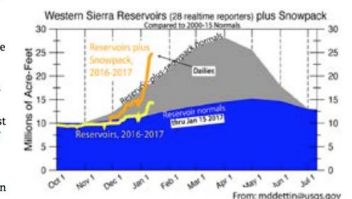
Drought conditions have improved greatly in California and Nevada, with removal of drought in parts of Nevada and Northern California and slower, albeit notable, drought reduction in Southern California. Much of this improvement has been since January 1, 2017, with widespread one to three class improvements in the past 4 weeks. As of January 24, only 51.4% of California and 5.93% of Nevada remain in moderate to exceptional drought according to the U.S. Drought Monitor (USDM) (compared to 97.17% and 73.26% at this time last year, respectively).

These improvements are due to near and above normal precipitation region-wide. Since the beginning of the 2017 water year (WY 2017) precipitation totals across both states are above normal, with much of the region receiving over 200% of normal January precipitation. These marked improvements are in large part the result of several large (and frequent) precipitation events called atmospheric rivers, in January. Atmospheric rivers (ARs) are narrow corridors of high water vapor transport in the lowest 2 km of the atmosphere. ARs can produce abundant and often intense rainfall and are especially important in California because they can boost rainfall totals (especially important for the replenishment of rain-fed reservoirs, surface water supplies and groundwater aquifers) but can also result in natural hazards such as flooding, intense runoff and landslides.

Snow drought, an increasingly common occurrence in the West in recent years, is a result of above average temperatures causing precipitation that would normally be expected to fall as snow to occur instead as rain. The most basic definition of snow drought is above normal precipitation accumulation and below normal snow water equivalent (SWE) occurring at the same time. This can

result in diminished snow accumulation and increased, or early runoff. In late 2016, the Sierra Nevada snowpack in California was 66% of normal, despite above normal precipitation from several ARs, due to above normal temperatures during storms resulting in temporary snow drought conditions. However, continuous storms through mid-January 2017 brought heavy snowfall and lower snow levels and resulted in greatly improved regional snowpack. As of January 19, SWE observations are above normal for this time of year. Nevada SNOTEL sites show 125% to greater than 200% above normal for this time of year, while California Department of Water Resources (CA DWR) north, central, and south automated snow sensors in the Sierra Nevada are at 145%, 175%, and 203% of normal, respectively.

Currently California's snowpack is 108% of the April 1st normal and many reservoirs in Northern California are near or above historical normals with some nearing flood control release



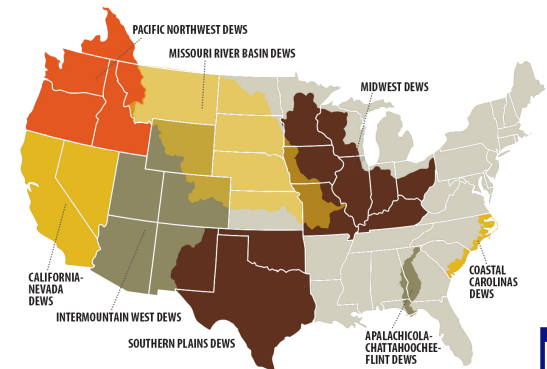
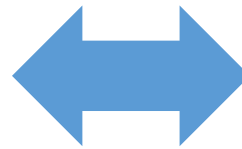
Development of the CA-NV DEWS Strategic Plan

- Roadmap for moving forward with the CA-NV DEWS
- Identify existing and new drought-related activities throughout the region
- Living document w/ 2-yr time frame
- Focus is on activities in the region



Benefits of a DEWS Strategic Plan

- Fostering a regional network
- Collaboration and coordination
- Reference to help generate policy and governmental support
- Resource to assist with leveraging funds
- Foster sharing of activities and info within and across other DEWS

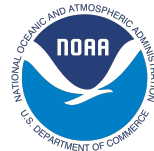
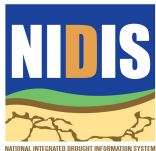


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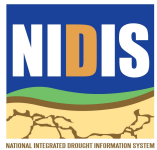
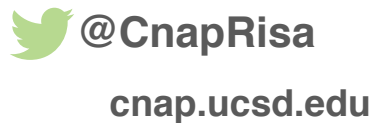


California-Nevada Drought Early Warning System

Stay up to date on
CA-NV DEWS & Events at:

[https://www.drought.gov/drought/
dews/california-nevada](https://www.drought.gov/drought/dews/california-nevada)

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