



## PSL*advance*



— MARCH 2025 —

### The Latest News

#### PSL helping to pilot drought early warning framework



PSL and National Integrated Drought Information System (NIDIS) are working with the California State Climatologist/California Department of Water Resources , the NOAA-supported California-Nevada Adaptation Program , and NOAA's National Weather Service and National Centers for Environmental Information to create a better early warning system for predicting drought and its impacts.

The team has initiated a pilot of a drought resilience framework for nine (9) Southern California counties over the 2024-2025 winter, the region's wet season. This Water Year 2025 Pilot uses customized weather data and forecasts to create future drought scenarios that can help local users in specific industries, like farming, water management, and public health, plan ahead and make decisions such as initiating water conservation plans before drought hits.

[Learn more](#)

# APPLYING NOAA SCIENCE TO HELP MANAGE TOO MUCH AND TOO LITTLE WATER

A new NOAA Research video highlights the direct impact of PSL's scientific work on water management in the San Francisco Bay Area. Water management is one of the NOAA Research's societal challenges.

The video touches on several PSL-involved projects such as Forecast Informed Reservoir Operations (FIRO), Advanced Quantitative Precipitation Information project, and the Atmospheric Rivers (AR) Portal and AR observation network. These projects help NOAA and PSL partner Sonoma Water improve their water management strategies. Better strategies lead to more efficient water capture and release in the area.

[Watch the video](#)

## PSL and GSL enter agreement with AI startup Brightband for NNJA project

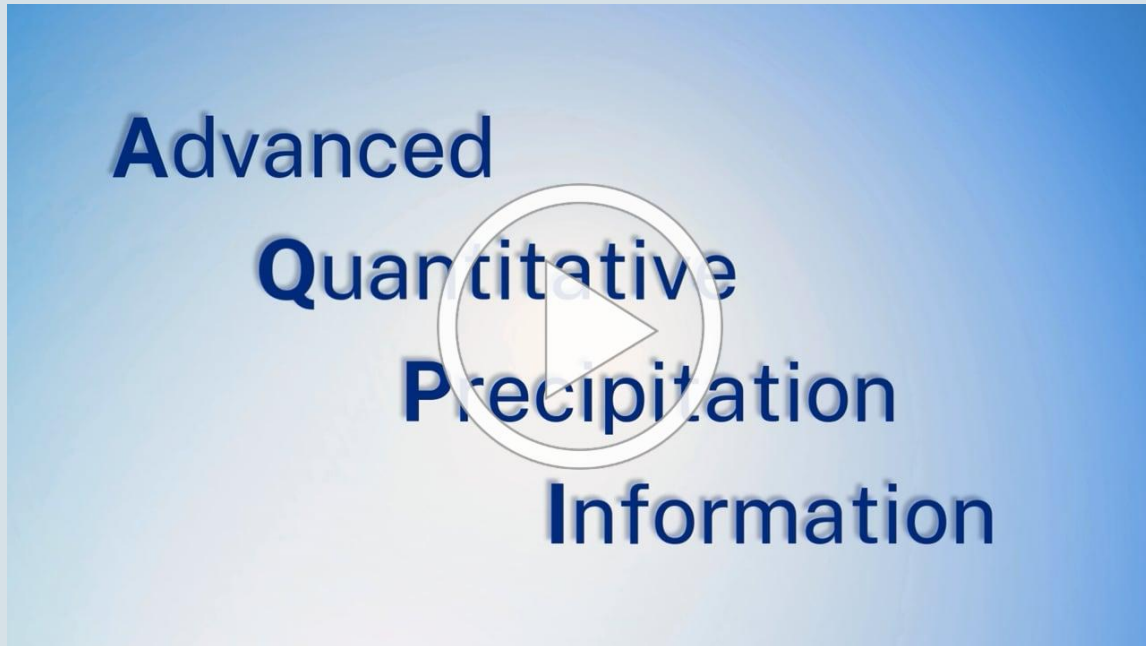


PSL and NOAA's Global Systems Laboratory and the artificial intelligence startup Brightband have entered into a two-year Cooperative Research And Development Agreement (CRADA) to transform the NOAA NASA Joint Archive (NNJA) of observational data from satellites, weather balloons and surface stations into an open-source data a

repository that will support a suite of geospatial foundation AI models. The joint archive is a collaboration between NOAA and NASA that has developed a homogenized repository of Earth System observations from 1970 to present.

[Learn more](#)

## AQPI Video: Enhancing Precipitation Monitoring in the San Francisco Bay Area



When big storms hit California, accurate precipitation data is crucial for reservoir operations, flood protection, and emergency preparedness. However, the state's coastal mountain ranges where the heaviest precipitation can occur pose significant challenges for monitoring.

The Advanced Quantitative Precipitation Information (AQPI) project, based in the San Francisco Bay Area, enhances weather radar data, surface measurements, and forecasting for better short-term precipitation predictions. Improved monitoring boosts public safety by enhancing early warnings and storm tracking, especially for atmospheric rivers, including their cascading impacts such as flooding, landslides, and debris flows.

Learn more about this project in a new video from PSL and Sonoma Water.

[Watch the video](#)

## Awards



## Slivinski and Thompson named PECASE winners

PSL's Laura Slivinski and Elizabeth Thompson have been named Presidential Early Career Award for Scientists and Engineers (PECASE) winners. Nearly 400 scientists and engineers were honored by the White House on January 14, 2025. PECASE is the highest honor bestowed by the U.S. government on outstanding scientists and engineers early in their careers.

[Dr. Slivinski](#) was nominated for co-leading the development of the 20th Century Reanalysis version 3 data set, a pioneering 200 year reconstruction of global weather that has helped NOAA better understand and predict global changes. The data set was a joint project between NOAA, the Cooperative Institute for Research In Environmental Sciences at CU Boulder, and the Department of Energy. Dr. Slivinski specializes in a variety of data assimilation projects and approaches, including the development of a global rapidly-updating data assimilation system and the recent evaluation of several machine-learning models within a cycled data assimilation system.

[Dr. Thompson](#) was nominated for her significant work on precipitation, air-sea interactions, and oceanography and how they affect the world. She has played a critical role in a series of international tropical research field campaigns such as ATOMIC, DYNAMO, and PISTON, as well as helping to develop NOAA's Precipitation Prediction Grand Challenge. Her research supports the improvement of Earth System prediction models, and our fundamental understanding of the coupled ocean-atmosphere Earth system.

## Seminars and Publications

### PSL Seminars

PSL live streams science seminars every other week for most of the year. Presenters include both internal NOAA and external researchers. All seminars are at 2pm MDT ([UTC-6](#)) unless otherwise noted.

**March 25: Evaluating a Machine Learning Approach Leveraging**



**MRMS to Improve Quantitative Precipitation Estimation for Atmospheric Rivers** - Oscar Chimborazo, Howard University

**April 8: Spatial Clustering of Low Probabilities Events: Possible Implications for Decision Support Services** - Phil Schumacher, Cooperative Institute for Research in the Atmosphere (CIRA) - NOAA Global Systems Laboratory

**April 22: Identifying preferred weather conditions for prescribed fires in northern California** - Rochelle Worsnop, NOAA Physical Sciences Laboratory, Hydrology Applications

Division

Visit the [PSL Seminars](#) page for more info on other upcoming seminars and to sign up for seminar email reminders.

*Please note: due to privacy concerns, the seminars are not recorded.*

## Publication Spotlights

For a full list of PSL publications from this and past years, visit the [PSL Publications](#) database.



**Bold names** indicate PSL and PSL Cooperative Institute authors.

### January 2025

**Adler, B.**, Caicedo, V., **Butterworth, B.J.**, et al. The short life of upvalley wind in a high-altitude mountain valley in the Colorado Rocky Mountains. *ESS Open Archive*. January 24, 2025. DOI: [10.22541/essoar.173776281.16090218/v1](https://doi.org/10.22541/essoar.173776281.16090218/v1)

**Amaya, D. J.**, Maher, N., Deser, C., Jacox, M. G., **Alexander, M. A.**, **Newman, M.**, **Dias, J.**, & Lou, J. (2025). Linking Projected Changes in Seasonal Climate Predictability and ENSO Amplitude. *Journal of Climate*, 38(3), 675-688. <https://doi.org/10.1175/JCLI-D-23-0648.1>

**Barsugli, J. J.** et al. (2025). Climate Risk Reduction: Hazards and Processes for Operationalizing Climate Information into ASCE Standards and Manuals of Practice. <https://doi.org/10.25923/0d8c-dw27>

### February 2025

**Agarwal, N.**, Amrhein, D. E., & Grooms, I. (2025). Cross-attractor transforms: Improving forecasts by learning optimal maps between dynamical systems and imperfect models. *Geophysical Research Letters*, 52, e2024GL110472. <https://doi.org/10.1029/2024GL110472>

### Accepted and Awaiting Publication

Kukal M, and **Hobbins MT** (2024), Thirstwaves: Prolonged periods of agricultural exposure to extreme atmospheric evaporative demand for water. Accepted at *Earth's Future*.

**Towler E**, **Stovern D**, **Acharya N**, **Abel MR**, **Currier WR**, **Bellier J**, **Cifelli R**, **Mahoney K**, **Mossel C**, **Scheuerer M**, **Thorstensen A**, **Viterbo F** (2025), Implementing and evaluating National Water Model ensemble streamflow predictions using post-processed precipitation forecasts, Accepted at *Journal of Hydrometeorology*.

**Toride, K.**, **M. Newman**, **A. Hoell**, **A. Capotondi**, **J. Schlör**, **D. J. Amaya** (2025), Using Deep Learning to Identify Initial Error Sensitivity for Interpretable ENSO Forecasts, Accepted at *Artificial Intelligence for the Earth Systems*

**Currier, W.R.**, **R. McCrary**, **M. R. Abel**, **T. Eidhammer**, **B. Kruyt**, **A. Smith**, **T. Enzinger**, **K.**

## Leadership Update



### Pulwarty named Acting PSL Director

With Dr. Robert “Robin” Webb’s retirement, PSL Senior Scientist Dr. Roger Pulwarty has been named PSL Acting Director.

Dr. Pulwarty brings a wealth of experience and a distinguished record of publications and achievements in research, risk management, and services. He has been nationally and internationally recognized as a role model in bringing science to the table to inform societal and economic decision-making through his outstanding contributions to early warning, impact assessment, and disaster risk reduction.

[See the org chart](#)



### ABOUT PSL

The Physical Sciences Laboratory (PSL) is one of ten NOAA Research Laboratories and one of four labs co-located in the David Skaggs Research Center in Boulder, Colorado. PSL conducts research to advance the prediction of water availability and extremes.

[psl.noaa.gov](https://psl.noaa.gov)

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