

AR Recon Workshop 2025
October 27–30, 2025
Center for Western Weather and Water Extremes
Scripps Institution of Oceanography, University of California, San Diego - La Jolla, CA
Scripps Seaside Forum

Zoom Link: <https://ucsd.zoom.us/j/91576649376?jst=2>

All times PST and inclusive of presentation and questions/discussion
Italics indicate a virtual presentation

Monday, 27 October 2025

MC: Anna Wilson

11:30 - 12:30 PM: Arrival & Check-in

12:30 - 1:00 PM: Welcome (MC) & Opening Remarks

Marty Ralph, Center for Western Weather and Water Extremes
Meenakshi (Meena) Wadhwa, Director of Scripps Institution of
Oceanography
Vijay Tallapragada, NOAA/NCEP/NWS

Session 1, 1:00-2:30pm: The Importance of AR Recon

Moderator: Chris Davis, NCAR

1:00 - 1:30 PM: Marty Ralph, CW3E

1:30 - 1:45 PM: *Cary Talbot, USACE*

1:45 - 2:00 PM: Grant Davis, Sonoma Water

2:00 - 2:15 PM: *Karla Nemeth, CA Department of Water Resources*

2:15 - 2:30 PM: Chuck Cullom, Upper Colorado River Commission

2:30 - 2:45 PM: Break

Session 2, 2:45-5:00pm: Operations, Capability and Observational Strategy

Moderator: Sam Bartlett, CW3E

2:45 - 3:05 PM: General Operations Overview - Anna Wilson, CW3E

3:05 - 3:25 PM: Airborne Radio Occultation - Jennifer Haase, SIO

3:25 - 3:45 PM: Lagrangian Drifter Laboratory - Luca Centurioni, SIO

3:45 - 4:05 PM: WindBorne Systems Plans for ARRecon 2026 - Todd Hutchinson,
WindBorne Systems

4:05 - 4:25 PM: Overview of US West Coast Observations: Radiosondes and
Ground-Based Networks - Subin Yoon, CW3E

4:25 - 4:45 PM: *NWS Observations - Rob Handel, NOAA/NCEP*

4:45 - 5:00 PM: Closing Discussion

Tuesday, 28 October 2025

MC: Jay Cordeira

8:00 - 8:45 AM: ARO Working Group Side meeting- All welcome to listen in
<https://ucsd.zoom.us/j/91655860512>; Robert Scripps room

Session 3, 9:00am-10:00am: Flight Targeting Methods

Moderator: Jeri Wilcox, CW3E

- 9:00 - 9:20 AM: Expanding AR Recon's Essential Atmospheric Structures Framework for GARRP - Jay Cordeira, CW3E
- 9:20 - 9:40 AM: Extension of Ensemble Sensitivity for Western Pacific Operations and GARRP - Ryan Torn, University at Albany
- 9:40 - 10:00 AM: Ensemble Sensitivity from NCEP EMC - Xingren Wu, NOAA/NCEP

Session 4, 10:00am-12:30pm: Modeling, DA and Impact Studies I

Moderator: Jia Wang, CW3E

- 10:00 - 10:15 AM: Assessing the Impact of December 2023 East Coast Dropsondes on GFS Precipitation Forecast Skill - Peyton Capute, CW3E
- 10:15 - 10:30 AM: *Performance Assessment of ARAFS in Forecasting AR Landfalls and Precipitation* - Keqin Wu, NOAA/NCEP
- 10:30 - 10:45 AM: Evaluating the Impact of Dropsonde Observations on GFS Forecast Accuracy - Xingren Wu, NOAA/NCEP

10:45 - 11:15 AM: Break

- 11:15 - 11:30 AM: Surface pressure observations in the IFS - David Lavers, European Centre for Medium-Range Weather Forecasts
- 11:30 - 11:50 AM: Leveraging AI/ML models in AR Recon Planning - Aneesh Subramanian, University of Colorado at Boulder
- 11:50 - 12:10 PM: Investigating Impacts of AR Recon Data on Eastern US QPF Skill - Minghua Zheng, CW3E
- 12:10 - 12:30 PM: AR Recon and Implications for Water Management: How do Dropsondes improve water inflow forecasts? - Taylor Dixon, CW3E

12:30 - 2:00 PM: Lunch

Session 5, 2:00-4:00 PM: Modeling, DA and Impact Studies II

Moderator: Ryan Torn, University of Albany

- 2:00 - 2:30 PM: Airborne Radio Occultation Working Group Report-Out - Jennifer Haase, SIO
- 2:30 - 4:00 PM: Modeling, DA and Impact Studies Panel Discussion
- Minghua Zheng, CW3E
 - Rachel Weihs, CW3E

- Xingren Wu, NCEP/NWS
- Ivette Hernandez Baños, NSF NCAR
- *Cary Talbot, USACE*
- David Lavers, ECMWF

Session 6, 4:00 - 6:00pm: Evening Poster Session and Reception

Wednesday, 29 October 2025

MC: David Lavers

8:30 - 9:00 AM: Arrival

Session 7, 9:00-10:30am: AR Recon in the West Pacific Panel

Moderator: Peyton Capute, CW3E

Panelists:

- Marty Ralph, CW3E
- Ryan Torn, University of Albany
- Jay Cordeira, CW3E
- Xingren Wu, NCEP/NWS

10:30 - 11:00 AM: Break

Session 8, 11am-12:30pm: New Technologies

Moderator: Shawn Roj, CW3E

- 11:00 - 11:15 AM: RAPID-FIRE (Radar-based Precipitation Identification For Intense Rain and Extreme Impacts): Mobile Radar Deployment that Leverages AR Recon Forecasts - Jon Rutz, CW3E/Jana Houser, Ohio State University
- 11:15 - 11:30 AM: Water vapor sounding with the Vapor In-Cloud Profiling Radar - Matt Lebsock, NASA JPL
- 11:30 - 11:45 AM: *A new role for an old sensor - Integrating AXBT observations into the Atmospheric River sensing strategy - Beth Sanabia, University of Washington*
- 11:45 - 12:00 PM: *Targeting extreme weather events with the A-size Directional Wave Spectra Barometer Drifters (ADWSBD) - Martha Schonau, SIO*
- 12:00 - 12:15 PM: Moored buoy observations of air/sea fluxes and ocean boundary layer response - Drew Lucas, SIO
- 12:15 - 12:30 PM: Observing Atmospheric Rivers with NASA's Current and Next Generation Satellite Missions - Derek Posselt, NASA JPL

12:30 - 2:00 PM: Lunch

Session 9, 2:00-4:30pm: Scientific Advances in Physical Process Understanding

Moderator: Allison Michaelis, NC State

2:00 - 2:25 PM: Relationships between severe weather and ARs over the Southeast U.S.

- with linkages to AR Recon - Chris Davis, NCAR
- 2:25 - 2:50 PM: *Investigating the impact of MBL dynamics on the evolution of ARs and our ability to predict onshore precipitation* - Kevin Lupo, CW3E
- 2:50 - 3:15 PM: Interactions between Short-Wave Troughs and Atmospheric Rivers and Their Impacts on Forecasts - Zhenhai Zhang, CW3E
- 3:15 - 3:45 PM: Break**
- 3:45 - 4:10 PM: Factors influencing precipitation forecasts when assimilating ARO observations in Atmospheric Rivers - Nghi Do, SIO
- 4:10 - 4:35 PM: Evaluating Ocean effects on AR forecast skill using a coupled atmosphere-ocean-wave model - Bruce Cornuelle, SIO

Thursday, 30 October 2025

MC: Aneesh Subramanian

8:30 - 9:00 AM: Arrival

Session 10, 9:00am-12:30pm: Global Atmospheric River Reconnaissance Program Coordination

Moderator: Alex Tardy, CW3E

- 9:00 - 9:15 AM: GARRP Coordination Overview - David Lavers, ECMWF
- 9:15 - 9:30 AM: *NAWDIC* - Annika Oertel, Karlsruhe Institute of Technology
- 9:30 - 9:45 AM: *NURTURE* - Steven Cavallo, University of Oklahoma
- 9:45 - 10:00 AM: The Global Precipitation Experiment - Marty Ralph, CW3E
- 10:00 - 10:15 AM: Synergy Across WWRP Endorsed Field Programs in January-February 2026 - Chris Davis, NSF NCAR
- 10:15 - 10:30 AM: Mediterranean Extreme Events Experiment - Luca Centurioni, SIO
- 10:30 - 11:00 AM: Break**
- 11:00 - 11:15 AM: Sea-Air Fluxes and Atmospheric River Initiation - Anna Wilson, ONR/CW3E
- 11:15 - 11:30 AM: AR Recon University Coordinated Radiosonde Program - Allison Michaelis, NC State
- 11:30 - 11:45 AM: TEPEX - Aneesh Subramanian, University of Colorado at Boulder
- 11:45 - 12:00 PM: *The Polar Night Experiment (PONEX) Aircraft Campaign: Overview* - Zen Mariani, Environment and Climate Change Canada
- 12:00 - 12:30 PM: Facilitated Discussion

12:30 - 2:00 PM: Lunch

GARRP Discussion & Closing

- 2:00 - 2:30 PM: GARRP Communications Plan - David Schroeder, CW3E
- 2:30 - 3:30 PM: Closing Discussion - Marty Ralph and Vijay Tallapragada

Tuesday Evening Poster Session

Tuesday, 28 October 2025

Session 6: Evening Poster Session

4:00 - 6:00 PM:

- Peyton Capute, CW3E “Application of Ensemble-based Sensitivity Analysis for Atmospheric Rivers over the Northern Atlantic Ocean”
- Jia Wang, CW3E “Impacts of atmospheric river reconnaissance dropsondes on ECMWF Integrated Forecasting System precipitation forecasts”
- Noah Barton, SIO/IGPP “A Machine learning approach to quantifying observation error of airborne radio occultation in atmospheric rivers”
- Donata Giglio, University of Colorado Boulder “Adaptive Sampling of the Upper Ocean by Autonomous Floats during Atmospheric River precipitation”
- Minghua Zheng, CW3E “Atmospheric River Reconnaissance: Mission Planning, Execution, and Incorporation of Operational and Science Objectives”