

AR Recon Workshop 2024

22 - 24 October 2024

NOAA Center for Weather and Climate Prediction - College Park, MD

All times EST and inclusive of presentation and questions/discussion

Tuesday, 22 October 2024

MC: Anna Wilson

8:30 - 9:00 AM: Arrival & Check-in

9:00 - 9:30 AM: Welcome & Opening remarks

AR Recon motivation, Workshop Objectives, RAOP framework

Marty Ralph, Center for Western Weather and Water Extremes

Vijay Tallapragada, NCEP

Session 1: Operations, Capability and Observational Strategy

Moderator: Aneesh Subramanian, University of Colorado, Boulder

9:30 - 10:00 AM: Air Force 53rd Wx Recon Squadron AR Recon: Past, Present, and Future

Lt. Col Ryan Rickert USAF 53rd WRS

10:00 - 10:20 AM: NOAA Aircraft Operations Center Update and Plans for 2025

Nick Underwood, NOAA AOC (virtual)

10:20 - 10:50 AM: ARO Working Group Update, ARO Update and Plans for AR Recon 2025

Jennifer Haase, SIO and Bing Cao, SIO

10:50 - 11:15 AM: Break

11:15 - 11:30 AM: CW3E Field Observations Updates and Plans for AR Recon 2025

Anna Wilson, CW3E

11:30 - 12:00 PM: Global Drifter Program: Ocean Observations Update and Plans

Luca Centurioni, Lagrangian Drifter Laboratory, SIO (virtual)

12:00 - 12:15 PM: WindBorne: Observations Update and Plans for AR Recon 2025

Todd Hutchinson, WindBorne

12:15 - 1:45 PM: Lunch

Session 2: AR Recon Flight Planning and Execution

Moderator: Chris Davis, National Center for Atmospheric Research

1:45 - 2:15 PM: AR Recon Sampling Priorities

Marty Ralph, Center for Western Weather and Water Extremes

Vijay Tallapragada, NCEP

2:15 - 2:30 PM: Enhancing Winter Storm Reconnaissance Mission Coordination for the Upcoming Winter Season

Rob Handel, NWS/NCEP Central Operations

2:30 - 4:00 PM: Panel Discussion - AR Recon Ops 2025 (keep, start, stop); WestPac Ops
~5 min overviews from:

Brian Kawzenuk (Forecast Lead, CW3E)

Shawn Roj (Flight Track Coordinator, CW3E)

Anna Wilson (Mission Director Perspective, CW3E)

Jim Doyle (Adjoint Sensitivity, NRL)

Ryan Torn (Ensemble Sensitivity - ECMWF)

Xingren Wu (Ensemble Sensitivity - GEFS/CMC)

Session 3: Evening Session

4:00 - 6:00 PM: Poster Session

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Wednesday, 23 October 2024

MC: Xingren Wu

Session 4: The Importance of AR Recon

- 8:30 - 9:00 AM: Arrival
9:00 - 10:00 AM: Keynote Talk
Ken Graham, NOAA National Weather Service
10:00 - 10:30 AM: AR Recon and Implications for Water Management
Cary Talbot, US Army Corps Engineer Research and Development Center

Session 5: Modeling, DA and Impact Studies, Part I

Moderator: Ryan Torn, SUNY Albany

- 10:30 - 10:50 AM: CW3E Modeling Status and Future Plans - Overview
Luca Delle Monache, CW3E
10:50 - 11:10 AM: CW3E DA Infrastructure
Colin Grudzien, CW3E (virtual)
11:10 - 11:30 AM: Break
11:30 - 11:50 AM: Impacts of Dropsonde Data on Satellite Radiance Assimilation in GFS
Minghua Zheng, CW3E
11:50 - 12:10 PM: Data Impact for AR Recon with GFS
Xingren Wu, NCEP
12:10 - 12:30 PM: High-resolution regional model for ARs
Keqin Wu, NCEP

12:30 - 2:00 PM: Lunch

Session 6: Modeling, DA and Impact Studies, Part II

Moderator: Minghua Zheng, CW3E

- 2:00 - 2:30 PM: AR source regions and buoy impact studies over the N. Pacific
Jim Doyle and Carolyn Reynolds, NRL
2:30 - 2:50 PM: An overview of AR Recon drifting buoys and their impacts
David Lavers, ECMWF
2:50 - 3:15 PM: Impacts of AR Recon dropsondes on IFS precipitation forecasts
Jia Wang, CW3E
3:15 - 3:30 PM: Modeling, DA, and Impact studies at the University of Colorado Boulder
Aneesh Subramanian, CU Boulder
3:30 - 3:50 PM: Assessing the impacts of assimilating airborne radio occultation (ARO) observations during an 11-flight sequence of ARs
Ivette Hernandez Banos, NCAR
3:50 - 4:15 PM: Break
4:15 - 5:30 PM: Panel Discussion on Model Validation and Diagnostics:
Laurel DeHaan (CW3E)
David Lavers (ECMWF)
Carolyn Reynolds (NRL)
James Nelson (NOAA/NWS WPC)

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Thursday, 24 October 2024

MC: David Lavers

Session 7: Scientific Advances in Physical Process Understanding

Moderator: Sam Bartlett, CW3E

- 8:30 - 9:00 AM: Arrival
- 9:00 - 9:30 AM: The Precipitation Prediction Grand Challenge in the West: Advancing the Accuracy and Usefulness of Atmospheric River Forecasts
Dave Novak, NOAA NCEP WPC
- 9:30 - 10:00 AM: A Climatology of West Coast Landfalling AR Forecast Sensitivities
Ryan Torn, SUNY Albany
- 10:00 - 10:30 AM: UFS Physics Development
Fanglin Yang, Head of Physics and Dynamics, NOAA NCEP
- 10:30 - 11:00 AM: Break**
- 11:00 - 11:30 AM: Dropsonde Observations of the Stable Marine Boundary Layer in ARs & Decoupling from the Ocean Surface Through Downward Heat Flux
Matthew Simpson, CW3E (virtual)
- 11:30 - 11:45 AM: WWRP/WCRP/WMO Efforts
Chris Davis, NCAR
- 11:45 - 12:00 PM: Discussion
- 12:00 - 1:30 PM: Lunch**

Session 8: Coordination with other Field Campaigns

Moderator: Jin Huang, NOAA

- 1:30 - 1:45 PM: Coordination opportunities and obstacles - *Opener*
- 1:45 - 2:00 PM: NAWDIC - *Annika Oertel, IMKTRO, KIT (virtual)*
- 2:00 - 2:15 PM: NURTURE - *Steven Cavallo, Univ. of Oklahoma (virtual)*
- 2:15 - 2:30 PM: AR Testbed - *Jim Nelson, NOAA NWS*
- 2:30 - 2:45 PM: GPEX - *Xubin Zeng, Univ of Arizona (virtual)*
- 2:45 - 3:00 PM: ONR/SAFARI - *Josh Cossuth & Dan Eleuterio, ONR*
- 3:00 - 3:30 PM: Break**
- 3:30 - 3:45 PM: TEPEX - *Aneesh Subramanian, Univ. of Colorado*
- 3:45 - 4:00 PM: NOAA OMAO - NW Pac - *Nancy Hann, NOAA (virtual)*
- 4:00 - 4:15 PM: AR Recon Coordinated Radiosondes - *Allison Michaelis, NIU*
- 4:15 - 4:45 PM: Facilitated Discussion - *How to best coordinate with these other efforts:*
Moderator: Jin Huang, NOAA
Xubin Zeng, Univ of Arizona (virtual)
Allison Michaelis, NIU
Nancy Hann, NOAA (virtual)
Alexandre Ramos, IMKTRO, KIT (virtual)

Session 9: Closing

- 4:45 - 5:00 PM: Closing Remarks
Marty Ralph, Center for Western Weather and Water Extremes
Vijay Tallapgrada, NCEP

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Tuesday Evening Poster Session

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Session 3: Evening Poster Session

4:00 - 6:00 PM:

Laurel Dehaan, CW3E: Using machine learning to predict impacts of dropsondes on precipitation forecasts

Mike Warner, UCACE Seattle: Weather forecast improvement implications for US Army Corps of Engineers Water Management and Emergency Management in the Pacific Northwest

Brian Kawzenuk, CW3E: Atmospheric River Reconnaissance – An Overview of Activities during Water Year 2024

Bing Cao, CW3E: Observation Characteristics of Airborne GNSS Radio Occultation in Atmospheric Rivers: Accuracy, Resolution, and Pathway to Near-real-time Operation

Poster author: Nghi Do; Presenting author: Jennifer Haase, CW3E: Examining the Impact of Airborne Radio Occultation Observations on Short Term Precipitation Forecasts of an Atmospheric River Using MPAS-JEDI

Noah Barton, CW3E: Airborne Radio Occultation Observations of Mid-Tropospheric Features in Tropical Cyclones

Jia Wang, CW3E: Assimilating NEXRAD into a Regional Model for Improved Precipitation Forecasts during Two Landfalling Atmospheric Rivers

Vijay Tallapragada, NCEP: Data Impact for Winter Storm with GFS

Samuel Bartlett, CW3E: Sampling of an East Coast AR