



Atmospheric River Reconnaissance Workshop

Programme

Tuesday Agenda

The time displays according to the selected time zone.

The selected timezone is Europe/London

08:30 to 09:30	Opening	
08:30 to 09:15	Arrival and registration	
09:15 to 09:30	Opening remarks Video recording	Florian Pappenberger (ECMWF)
09:30 to 14:00	Session 1: AR Recon in Water Year 2023 - Part I Moderator: David Lavers (ECMWF)	
09:30 to 10:00	AR Recon Motivation and Achievements Presentation slides Video recording	Marty Ralph (CW3E)
10:00 to 10:20	US Air Force Reserve Command Perspective on AR Recon: Past, Present, and Future Presentation slides Video recording	Ryan Rickert (53 WRS Hurricane Hunters)
10:20 to 10:40	AR Recon 2023 Airborne Radio Occultation (ARO) Observations in Zonal ARs and Cutoff Lows Presentation slides Video recording	Jennifer Haase (Scripps Institution of Oceanography, UCSD)
10:40 to 11:10	Group photo and coffee break	
11:10 to 11:25	Mesoscale Analysis of Landfalling Atmospheric Rivers in California during December 2022 and January 2023 Presentation slides Video recording	Brian Kawzenuk (Center for Western Weather and Water Extremes)
11:25 to 11:45	Impacts of Long-Duration Weather Balloon Observations on North American Forecasts Presentation slides Video recording	Todd Hutchinson (WindBorne Systems)

11:45 to 12:00	Overview of US West Coast Observations: Radiosondes and Ground-Based Hydrometeorological Networks Presentation slides Video recording	Anna Wilson (Scripps Institution of Oceanography, UCSD)
12:00 to 12:30	Discussion Video recording	
12:30 to 14:00	Lunch break	
14:00 to 15:30	Session 2: AR Recon in Water Year 2023 - Part II Moderator: Anna Wilson (Center for Western Weather and Water Extremes)	
14:00 to 14:15	NOAA G-IV Status Review Presentation slides Video recording	Richard Henning (NOAA Aircraft Operations Center)
14:15 to 14:30	Diagnosing Forecast Sensitivity of Atmospheric Rivers Using an Adjoint Presentation slides Video recording	James Doyle (Naval Research Laboratory)
14:30 to 15:00	Application of Ensemble Sensitivity during the 2022/2023 AR-Recon Season Presentation slides Video recording	Ryan Torn (University at Albany, SUNY)
15:00 to 15:30	Importance of AR Recon Observations to Water Management Presentation slides Video recording	Cary Talbot (US Army Corps of Engineers)
15:30 to 16:00	Discussion Video recording	
16:00 to 16:30	Break	
16:30 to 18:30	Session 3: Poster session Location: Weather Room	
16:30 to 18:30	Reception and poster session	

Wednesday

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09:15 to 09:30	Welcome	
09:20 to 09:30	Welcome to day 2	Marty Ralph (CW3E)
09:30 to 14:00	Session 4: Modeling, DA and Impact Studies - Part I Moderator: Jon Rutz (Center for Western Weather and Water Extremes)	
09:30 to 10:00	NOAA Aircraft AR support: now and future Presentation slides Video recording	Nancy Hann (NOAA)
10:00 to 10:30	Unifying Targeted Aircraft Reconnaissance Observations for Improving Atmospheric River and Winter Storm Forecasts Presentation slides Video recording	Vijay Tallapragada (NOAA/NWS/NCEP/EMC)
10:30 to 10:50	Impact of Dropsonde Data on NCEP Operational GFS Forecasts from 2022-2023 Atmospheric River Reconnaissance Presentation slides Video recording	Xingren Wu (Axiom at EMC/NCEP/NOAA)
10:50 to 11:05	Coffee break	
11:05 to 11:25	Atmospheric River Analysis and Forecast System (AR-AFS): Atmospheric River Reconnaissance 2023 Dropsonde Data Impact Study Presentation slides Video recording	Keqin Wu (Lynker at ECM/NCEP/NOAA)

11:25 to 11:45	Sub-Seasonal Prediction skill of GFSv12 for Atmospheric Rivers and Associated Precipitation Forecasts over the U.S. West Coast Presentation slides Video recording	Murali Nageswara Rao Malasala (NOAA)
11:45 to 12:15	Improving Sampling Strategies for Atmospheric River Reconnaissance Presentation slides Video recording	Luca Delle Monache (CW3E/SIO/UCSD)
12:15 to 12:30	A Review of AR RECON Modeling, DA and Impact Studies at the U. S. Naval Research Laboratory Presentation slides Video recording	Carolyn Reynolds (Naval Research Laboratory) James Doyle (Naval Research Laboratory)
12:30 to 13:30	Lunch break	
13:30 to 17:00	Session 5: Modeling, DA and Impact Studies - Part II Moderator: Xingren Wu (NOAA/National Centers for Environmental Prediction/Environmental Modeling Center)	
13:30 to 14:00	The Utility of a Two-dimensional Forward Model for Bending Angle Observations in Regions with Strong Horizontal Gradients	Michael Murphy (GMAO, NASA Goddard Space Flight Center)
14:00 to 14:20	Observing System Experiments for the 2023 AR Recon Season Presentation slides Video recording	David Lavers (ECMWF)
14:20 to 14:30	Special presentation Video recording	
14:30 to 15:00	ARO at ECMWF: current activities and future plans Presentation slides Video recording	Sean Healy (ECMWF)
15:00 to 15:45	ECMWF 48r1 celebration	
15:45 to 16:30	The World Weather Research Programme: Activities and Plans Relevant to AR Recon Presentation slides Video recording	Chris Davis (National Center for Atmospheric Research)

16:30 to 17:00	Ocean surface and subsurface measurements for AR Recon and subseasonal AR predictability Presentation slides Video recording	Timothy Higgins (University of Colorado Boulder) Aneesh Subramanian (University of Colorado Boulder)
19:00 to 22:00	Workshop dinner	
19:00 to 22:00	Bel and the Dragon, Reading town centre	

Thursday Agenda

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10:00 to 10:05	Welcome	
10:00 to 10:05	Welcome to day 3	Vijay Tallapragada (NOAA/NWS/NCEP/EMC)
10:05 to 14:00	Session 6: Scientific Advances in Physical Process Understanding Moderator: Sam Bartlett (Center for Western Weather and Water Extremes)	
10:05 to 10:35	Precipitation efficiencies in a climatology of extratropical cyclones Presentation slides Video recording	Helen Dacre (University of Reading)
10:35 to 11:05	The effects of diabatic heating in WCBs on jet stream perturbations and predictability Presentation slides Video recording	John Methven (University of Reading)
11:05 to 11:35	The North Atlantic Waveguide, Dry Intrusion, and Downstream Impact Campaign (NAWDIC) Presentation slides Video recording	Christian Grams (IMK-TRO, Karlsruhe Institute of Technology)
11:35 to 12:00	Aircraft dropsonde observation of atmospheric rivers associated with tropical cyclones in the western North Pacific Presentation slides Video recording	Kazuhisa Tsuboki (Nagoya University)
12:00 to 12:30	Discussion	
12:30 to 14:00	Lunch break	
14:00 to 15:30	Session 7: The Future of AR Recon Moderator: David Lavers (ECMWF)	

14:00 to 15:45

**Panel discussion on new directions
and closing remarks**

- Marty Ralph, Center for Western Weather and Water Extremes
- Vijay Tallapragada NOAA/National Centers for Environmental Prediction/Environmental Modeling Center
- Florian Pappenberger, European Centre for Medium-Range Weather Forecasts

[Video recording](#)

NAWDIC Workshop 2023

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09:00 to 15:45	NAWDIC Workshop 2023 Moderator: David Lavers (ECMWF)	
09:00 to 09:20	NAWDIC-HALO and NAWDIC-KITcube: Seamless observation strategy from synoptic- to micro-scale Presentation slides Video recording	Christian Grams (IMK-TRO, Karlsruhe Institute of Technology)
09:20 to 09:40	AR Recon and potential collaborations with NAWDIC Presentation slides Video recording	Marty Ralph (CW3E)
09:40 to 10:00	CAPRI - The UK contribution to NAWDIC Presentation slides Video recording	John Methven (University of Reading)
10:00 to 10:10	French contribution to ground-and airborne measurements of the lower troposphere during NAWDIC Presentation slides Video recording	Julian Quinting (Karlsruhe Institute of Technology)
10:10 to 10:30	U.S. plans for contributions to NAWDIC Presentation slides Video recording	Steven Cavallo (University of Oklahoma)
10:30 to 10:50	Hydrological Perspective Presentation slides Video recording	Andrew Wade (University of Reading)
10:50 to 11:20	Coffee break	
11:20 to 12:30	Breakout Groups (Assigned) <ul style="list-style-type: none">• Group 1: Atmospheric Rivers Moderator: Julian Quinting, Rapporteur: Jim Doyle• Group 2: Dry Intrusions Moderator: Christian Grams, Rapporteur: Anna Wilson	

12:30 to 14:00

Lunch break

14:00 to 15:20

Case Study

15:20 to 15:45

Breakout Groups Report Out and Closing Discussion

Christian Grams (IMK-TRO, Karlsruhe Institute of Technology)
