



Atmospheric River Reconnaissance Workshop

Programme

Tuesday Agenda

The time displays according to the selected time zone.

The selected timezone is Europe/London

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| 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) |

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| 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

Agenda

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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) |

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| 11:25 to 11:45 | Sub-Seasonal Prediction skill of GEFSv12 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) |

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| 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

Agenda

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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)
