



ARTMIP Atmospheric River Tracking Method Intercomparison Project

Atmospheric River Tracking Method Intercomparison Project (ARTMIP) Workshop

Agenda

Gaithersburg, MD, April 23rd-24th, 2018

Gaithersburg Marriott Washingtonian Center, Lakeside Ballroom

The goal of ARTMIP is to understand and quantify uncertainties in atmospheric river (AR) science based on choice of detection/tracking methodology.

<http://www.cgd.ucar.edu/projects/artmip/>

Monday, April 23rd

7:45am – Breakfast

**Those with posters hang them during this time. Poster viewing during breaks. **

8:30am – Welcome from DOE and remarks on programmatic needs (*Gary Geernaert, Renu Joseph*)

8:45am – Welcome and workshop introduction and goals (*Jon Rutz, Christine Shields*)

9:00am – Self introduction by ARTMIP participants

9:15am – Introduction and perspectives from other programs (*Christine Shields, moderator*)

[*e.g., USGCRP/CEWEX: Jennifer Saleem-Arrigo; NASA: Jared Entin; NOAA: Daniel Barrie/Annarita Mariotti*]

9:30am – Advances and gaps in AR science (*Jon Rutz, moderator*)

- 09:30-09:45: Marty Ralph: AR Reconnaissance
- 09:45-10:00: Ruby Leung: Modeling and diagnostics of ARs
- 10:00-10:15: Alexandre Ramos: Atmospheric Rivers research in Europe
- 10:15-10:30: Irina Gorodetskaya: ARs in Polar Regions

10:30 – 11:00 – Break

11:00am – ARTMIP Experimental Design, Goals, and Updates on the Geoscientific Model Development overview paper (*Christine Shields*)

11:15am – Tier 1, MERRA-2 data comparison, Overview Paper (*Jon Rutz*)

11:30am – Current Analysis by ARTMIP Participants (*Ruby Leung, moderator*)

- 11:30-11:40 Ashley Payne (Duration)
- 11:40-11:50 Juan Lora (Intensity)
- 11:50-12:00 Bin Guan (Gleckler Diagram)
- 12:00-12:10 Scott Sellar (Case Study)
- 12:10-12:20 Marty Ralph (ARDT)
- 12:20-12:30 Swen Brands (European Re-analysis) (*Remote*)

12:30pm – Lunch

1:30pm – Overview paper for Tier 1 Discussion (*Jon Rutz, lead*)

A discussion of the preliminary results for the GRL paper, with a focus on:

- Understanding the AR climatologies emerging from analysis of the Tier 1 data
- Discussion of analysis presented before lunch
- Discussion on the identification and selection of uniform, global precipitation data sets for the GRL paper
- Assign needed analysis roles and discuss the timeline for the paper
- Do we need to adjust metrics?
- Can we state recommendations of algorithmic type yet?

2:30pm – Break / Poster Session

3:30pm – More on Tier 1 Analyses and Science Questions (*Jon Rutz, lead*)

Discussion of other analyses the group and/or individuals should pursue based on the Tier 1 (i.e., 1980-2017) AR catalogs. (Volunteers to lead other papers, form collaborations). Examples include:

- Regional analyses of precipitation,
- Climatology of ARs in Polar Regions
- Trends over that 37-year period.
- Other case studies

5:15pm – Adjourn

Tuesday, April 24th

7:45am – Breakfast

8:30am – Tier 2 Update (*Christine Shields, Michael Wehner lead*)

- Review Tier 2 Topics and science questions: Climate Change, CMIP5, Re-analysis
- Update on the status of Tier 2 data sets and availability
- Guidance on how the group should move forward

9:00am – Tier 2 Discussion (*Christine Shields, Michael Wehner, Ruby Leung lead*)

The group discusses what is needed for Tier 2 analysis and identifies some topics that should be pursued as a part of ARTMIP:

- Solicit Re-analysis and CMIP5 interest and leads and participants
- Discussion on next steps: Products/models, input data, staging catalogues, etc.
- Develop timeline

10:00am – Break

11:00am – Emerging Needs and Opportunities (*Ruby Leung and Aneesh Subramanian, lead*)

12:00pm – Lunch

1:00pm – Breakout Groups (*Determined by group, leads for Tier 2 topics*)

Unstructured time for groups to meet and discuss Tier 2 (or Tier 1) analyses related to precipitation, climate change, reanalyses, etc. This should be a free-flowing time where participants are encouraged to switch between groups and explore different ideas.

2:45pm – Break

3:15pm – Full group reconvenes and discusses key outcomes from breakout groups (*Christine Shields, lead*)

- Goals established and key analyses to pursue
- Data that is needed (and who will produce it)
- Roles within each group
- Next steps, timeline, future meetings and workshops.

5:00pm – Workshop Ends

Poster Session

"A Comparison of Modeled, Observed, Observation Corrected Precipitation Associated with Atmospheric River Enhanced Extreme Precipitation Events in the United States" (**Allison Collow**)

"Genesis, Pathways, and Terminations of Intense Global Water Vapor Transport in Association with Large-Scale Climate Patterns" (**Brian Kawzenuk**)

"Diversity in Detection Algorithms for Atmospheric Rivers: A Community Effort to Understand the Consequences" (**Christine Shields**)

"Topological Data Analyses and Machine Learning for Detection, Classification, and Characterization of Atmospheric Rivers" (**Grzegorz Murzynski**)

"Assessing Uncertainty in Deep Learning Techniques that Identify Atmospheric Rivers in Climate Simulations" (**Travis O'Brien**)

"A Tracing Algorithm for Analyzing the Atmospheric River Life Cycles: Origins/Terminations, Lifetime, Intensity, and Propagation" (**Yang Zhou**)

"A Conditional Method to Detect Atmospheric Rivers on the Southwest Coast of South America" (**Maximiliano Viale**)