

Notes from breakout session on 2016-08-08

*From notes provided by each breakout group

Questions posed for session:

Related to chosen theme:

- 1) What do you think the term “atmospheric river” communicates to your target audience? If decision-makers in group, what does “atmospheric river” mean to them? Any notable examples of misinterpretation of the term by target audience?
- 2) How can AR research benefit this theme? What has been done and what are some potential future directions?
- 3) What information, data, tools would support application of AR science (or QPF in general) within this theme?

Breakout Group: Ecological Impacts

Not many takers, but few that gathered thought there were good opportunities for merging AR science with ecology/landscape management. This will be addressed in talks by Dettinger, C. Albano.

Breakout Group: Natural Hazards 1

Q1:

Target audience is emergency managers

Pineapple express more understood- ARs not understood by public

-ARs are not all bad but a public perception that they are

-duration clustering- had comment that better

Classify intensities of ARs, maybe 1-5, 3 color scale weak, moderate, high

Do better ?? of this-CalOES study from last year

Consistent message among partners

Q2:

Track forecasts—can do for hurricanes and there is benefit, why not ARs

More real data- monitor LLJ in AR, like “hurricane hunters”

Funding –west coast project- could do old school “knocking on doors”

money- how can we save \$\$ economy

ARs are national problem

Look to private sector for AR funding—google funding?

Q3:

Next generation models-

Profilers for barrier jet obs in more locations, other regions

Drones—use drones to make observations

SIGNES (?) satellite, ocean winds, Indian ocean
Improved MJO forecasts

Breakout Group: Natural Hazards 2

Q1:

AR communicates impending storm, flood, wind
Support flood support, impact
Name may not be beneficial—where is the benefit in the AR name?
Geographical audience matters
AK- need to think about icing because it is a warm storm
Misconceptions—is that the jet stream? Firehose concept

Q2:

Benefits for situational awareness—flood, avalanche, landslides
Diversity of impacts
Risk
A global definition would be beneficial
Research simulations may confuse theme's message
Research ??? ingredients beyond water vapor

Q3:

Convey impact to populations (SPC, NHC)
Hazards map, green yellow red, colorful
Map covers to 75 N, 20 S
Which basin? Duration, rainfall rates, 0.2"/hr
Snow levels <6000 ft in Pacific NW
Connect to Rapid Refresh

Breakout Group— Water resources 1

Q1:

-AR is a graphic image—descriptive, memorable, effective with graphic to complement, associated with hazards more than benefits. Need to manage peoples expectations. Need to convey importance of ARs—not just good or bad.
-Some confusion between natural AR variability and climate change
-There is lack of familiarity with AR term still, term only used sometimes, international usage needed.
-Would be helpful to publish forecasts for number of ARs in a season for situational awareness

Q2:

Quantify skill at forecasting no ARs (dry weather) is useful for FIRO/rule curves.
-Need improvements of AR forecasting of orographic enhancement and small scale QPF reatures at watershed scale. Understanding multi-year, multi-decadal variability

Q3- number of events, clustering, persistence, ARs and soil moisture

Breakout Group: Water resources 2

Q1:

For communicating ARs to congressional office, influential groups, need elevator speech

Pineapple express versus atmospheric river term—not rank with Godzilla event, polar vortex—Mayan express, flooding in central Louisiana

People familiar with Pineapple express, Mayan express, then ARs. Name needs to be a little more catchy!

-Atmospheric rivers are a middle phenomena—not a direct impact- relate to direct versus indirect impacts

-Drought, for example, is slow, not direct impact like a hurricane or tornado

-Perhaps have community vote, crowd source naming??

Q2:

AR research benefits to water resources—

Urban runoff?

of landfalling ARs per year?

Benefit immediate and could be disasters

How do we think in water resources perspective? B/c fill reservoir and then release extra!

AR+more information- what will AR bring to us?

Address uncertainty—narrow for ENSO—high uncertainty with AR (intensity, location)

Future directions—weekly to monthly ARs, skill = 0, no discussion on uncertainty, not useful at this level of skill

Long term commitment of staffing—new water transfer program—long term processing

Local agencies—sell less water, raise rates and dip reserves

Admin procedures need to be put into place to take advantage of these forecasts

Groundwater lags surface hydrology by years—fish habitat (physical instead of flows)—reservoir release is a small part

Q3:

Predictability—need online, make like Jay Cordeira tool subseasonal scale and same visualization type

Some info on AR duration

landfalling ARs per year? Subseasonal scale, intensity

Make a scale for ARs

Breakout Group: Climate

Definitions, fundamental processes in climate models, aerosols, dust

Future climate change—thermodynamics, SSTs, storm types, past into future

Climate extremes—Weaver (1962?) CA floods

Changes in ARs from Reanalysis from Weaver storm types

Drought termination

MJO-extratropics—variability of ARs

Q1:

ARs expected to cause precip, disconnect that moisture drives precip extreme? Or just precipitation.

Rivers have headwaters/downstream—not the case with ARs

Misconception that all ARs make landfall

Pineapple express more familiar to people

River in the sky

Q2:

GPM and paleo-studies—communicating uncertainty is challenge