

Precipitation Committee Meeting

Joint Assembly, Fort Lauderdale, 29 May 2008

Participants

Jeff McCollum, Eyal Amitai, Brian Nelson, and Ana Barros

AGU Meeting Planning

2008 Fall Meeting (San Francisco)

The following special sessions were reviewed and approved:

- *QPE/QPF Validation/Verification: New approaches to validation/ verification of quantitative precipitation estimation and forecasts*
Conveners: Paul Kucera et al. (see below)

WE SUGGEST THE FOLLOWING TITLE: New approaches to validation/ verification of quantitative precipitation estimation and forecasts

- *Ensemble and Probabilistic Estimation and Forecasting of Precipitation for Hydrologic Prediction*
Conveners: Dong-Jun Seo, Zoltan Toth, someone from academia? (see below)
- *Detecting Climate Change in Hydrological/Precipitation Data Sets*
Conveners: Scott Curtis and Yang Hong (see below)

2009 Joint Assembly (Toronto)

The following topics were discussed as potential special sessions:

- General Session on Precipitation (Conveners: Eyal Amitai et al.)

General Discussion Topics

Joint Assembly

- It would be desirable to group the precip sessions together rather than spread them out over the week

Old/new business; additional issues

- As the Joint Assembly is now called "The Meeting of the Americas" and will rotate between the U.S., Canada, Central America, and South America, it would be desirable to recruit Canadian and Latin American members to the Precip Committee.

Primary discipline: Hydrology-Precipitation

Session title: QPE/QPF Validation/Verification: New approaches to validation/verification of quantitative precipitation estimation and forecasts

Description:

Typical quantitative precipitation estimation (QPE)/quantitative precipitation forecasts (QPF) validation/verification is often performed using a point to grid method (e.g., rain gauge observations to a radar rainfall grid or forecast grid point). Recent advancements in observational systems and numerical weather prediction (NWP) models have provided great improvements in resolution and prediction of precipitation. However, use of standard validation/verification measures (mean error, bias, mean absolute error, and root mean squared error, etc.) often indicate poorer performance because, among other things, they are unable to account for small-scale noise or discriminate types of errors such as displacement in time and/or space (location, intensity, and orientation errors, etc.) in the precipitation estimates/forecasts. This issue has motivated recent research and development of many new verification techniques such as, but not limited to, scale decomposition, fuzzy neighborhood, and object-based methods for evaluating spatial precipitation estimates and forecasts.

The session welcomes all contributions related to the validation/verification of quantitative precipitation estimation/forecasts. The conveners are especially interested in studies that focus on the development of new spatial validation/verification techniques, applications of these methods, and studies that use combined spatial and point to grid or grid-to-grid techniques. A goal of the session is to improve the understanding of spatial methods and how to combine this additional information with the results that are obtained from a traditional validation/verification system.

Session Conveners:

Paul Kucera, Barb Brown and Eric Gilleland
National Center for Atmospheric Research, Boulder, Colorado, USA

Emad Habib
The University of Louisiana, Lafayette, Louisiana, USA

Beth Ebert
Centre for Australian Weather and Climate Research (CAWCR), Bureau of Meteorology,
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National Oceanic and Atmospheric Administration, Boulder, Colorado, USA

Cosponsor(s): Atmospheric Sciences

Index terms: 1854, 1853, 1855, 1840, 1816

Ensemble and Probabilistic Estimation and Forecasting of Precipitation
for Hydrologic Prediction

This special session seeks contributions from the research, operational and user communities that address generation, post-processing and application of ensemble/probabilistic Quantitative Precipitation Estimate (QPE) and Quantitative Precipitation Forecast (QPF) for uncertainty-based hydrologic monitoring and prediction of soil moisture, flash and river floods, water resources and other water-related variables. The session builds on the past ensemble prediction sessions held in recent AGU meeting to provide a continuing forum for advancing and expediting interdisciplinary research and research-to-operations in ensemble hydrometeorological and hydrologic prediction. The space-time scale of relevance is from 1 km to the continental scale and from the current time to the seasonal-to-interannual scale into the future.

Contributions that deal with methods for generating probabilistically unbiased precipitation forcing via real-time or retrospective post-processing of numerical weather prediction (NWP) model output, model output statistics (MOS), precipitation observations from rain gauges, radars and/or satellites are welcome. Contributions that deal with application and validation of and user-experiences with ensemble/probabilistic precipitation forcing for hydrology, water resources and other water-related applications are strongly encouraged. Contributions that deal with methods for and application and validation of down- or re-scaling of raw precipitation forcing to application-specific scales, and for seamless blending of multi-scale precipitation forcings across scale are also sought.

Co-Conveners:

Dong-Jun Seo

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A 3rd co-convenor from academia (if anyone is interested, please let me know)

Notes to the Hydrology-Precipitation Committee:

- 1) We would like the committee to consider the above session to be joint with Atmospheric Sciences and Nonlinear Geophysics.
- 2) NOAA/NWS/OHD is proposing two other related sessions: "Hydrologic Ensemble Prediction" (to the Hydrology-Surface Water Committee) and "Verification of Hydrologic, Hydrometeorological and Hydroclimatological Forecasts" (to the Hydrology committee). The co-conveners of these sessions will cross-coordinate for coherence and to avoid overlap.

15-19 December, San Francisco, CA
2008 Fall Meeting:
<http://www.agu.org/meetings/fm08/>

Detecting Climate Change in Hydrological/Precipitation Data Sets

Sponsor: Hydrology

CoSponsor: Atmospheric Sciences; Global Environmental Change

Description: Detecting climate signals in hydrological variables is a challenge for several reasons. Precipitation varies greatly in time and space, and its intensity and frequency statistics are controlled by the surface (temperature, evapotranspiration) and large-scale atmospheric dynamics. All precipitation estimates from gauges, radars, or satellites are also subject to measurement error, and the records are often incomplete. Because of these problems, other complementary moisture variables are likewise examined for climate change. For example, streamflow is the integrated response of precipitation over a watershed, thus eliminating some of the random errors and lessening the impact of data gaps in precipitation. However, long-term continuous measurements of the surface hydrology are rare. Also, river basin boundaries can be trans-national and discharge rates can be highly regulated. Finally, satellites have been helpful in providing precipitation and hydrological estimates where no surface measurements exist, giving scientists a better understanding of “global” climate changes. Detecting long-term variations and trends are problematic though, due to the short, and often inhomogeneous satellite-based products. The goal of this session is to report on climate changes (interannual to long-term trends) in regional to global precipitation, drought, evaporation, soil moisture, streamflow, or other hydrological variables, with an emphasis on novel methods to extract meaningful results from imperfect observational data records. In that spirit, papers concerned with the detection of past and future climate change using hydrological/precipitation models are also welcome.

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