

Precipitation Committee Meeting

AGU Fall Meeting, San Francisco, 14 December 2006

Participants

Sankar Arumugam, Li-Chuan Chen, Scott Curtis, Emad Habib, Yang Hong, Rick Lawford, Jeff McCollum, and Ana Nunes

AGU Meeting Planning

2007 Spring Meeting (Acapulco)

The following submitted special sessions were given:

- ***Mid-Summer Droughts: Causes and Implications***
Conveners: Curtis, Scott; and Romero Centeno, Rosario
- ***Remote Sensing of Precipitation (Posters)***
Conveners: Hong, Yang; McCollum, Jeff; and Sánchez-Sesma, Jorge
- ***General Session on Precipitation***
Conveners: Amitai, Eyal; Gebremichael, Mekonnen; Habib, Emad; and Testik, Firat Y.
- ***Regional and Universal Aspects in Hydro-Meteorological Extreme-Event Scaling***
Conveners: Ba, Khalidou Mamadou; Carsteanu, Alin Andrei; Diaz-Delgado, Carlos; and Magagi, Ramata
- ***In addition, John Roads sent a message that he and Mike Bosilovich will chair a CEOP session***

2007 Fall Meeting (San Francisco)

The following topics were discussed as potential special sessions:

- Predictability of Precipitation; proposed by Ana Nunes, who would like to find co-conveners
- Role of precip in hydrologic cycle; suggested by Rick Lawford

- Using satellite data in applications; suggested by Yang Hong
- One or two other topics were suggested

The final fall meeting sessions will be arranged June 10-23, 2007, and posted on the web July 4.

General Discussion Topics

Technical Chairs committee meeting

The following items from the Dec. 13 Tech. Chairs committee meeting were relayed:

- Convener responsibilities
 - Must make sure student presentation in their sessions are judged
 - Must make clear to invited presenters that oral presentations are not guaranteed. It depends on the number of abstracts in the session; oral sessions are given to the sessions with the most submitted abstracts.

Precipitation Committee membership

- Yang Hong is officially the deputy chair and will take over as chair when Jeff McCollum's terms ends July 1, 2008.
- The continued request by the Hydrology Section presidents for student committee members was discussed. A good opportunity for a student to join would be to co-convene a session with a member who has come up with an idea and is looking for co-conveners to help organize a session.

Old/new business; additional issues

- Li-Chuan Chen from the University of Iowa volunteered to update the precip committee website maintained by Allen Bradley at the U. of Iowa

Mid-Summer Droughts: Causes and Implications

Regional climate studies have noted bimodal distributions of summertime precipitation. These features of the annual cycle are referred to as mid-summer droughts (MSD), and nowhere in the world is the MSD more pronounced than in southern Mexico and Central America, where it is referred to as “canicula” or “veranillo”, depending on the region where it is experienced. Here rainfall is reduced by roughly 40% in the middle of the summer season. The lack of clouds and enhanced evaporation leads to hydrologic drought. Such variability offers a challenge to rain-fed agriculture and water supply, especially in communities dependent on monsoonal rains. In the eastern Pacific the MSD appears to contribute to a reduction of tropical storms.

The reasons for mid-summer droughts are complex, being related to both large-scale circulation and local geography. In the Caribbean and Japan, the MSD is thought to be caused by the westward extension of sub-tropical high pressure centers. On the eastern Pacific side of southern Mexico the MSD may be strengthened by local processes such as gap winds through the Sierra Madre mountains and air-sea interactions.

This session welcomes general contributions regarding climate diagnostics and prediction of the MSD phenomenon over Mexico and elsewhere, as well as MSD impacts on hydrology and water management. Observational and modeling studies are encouraged.

[Curtis, Scott](#)

East Carolina University

[Romero Centeno, Rosario](#) Universidad Nacional Autónoma de México

Remote Sensing of Precipitation (Posters)

This special session will cover a broad range of topics related to all aspects of remote sensing of precipitation. Contributions are equally sought from both the research and operational communities to facilitate discussion and exchange of experience. The session will consist entirely of poster presentations. Papers are solicited on the estimation, validation, and error/uncertainty assessment of precipitation measured by ground-based, underwater, shipborne, airborne, or spaceborne remote sensors, such as active (radar) and passive (SSM/I, TMI, AMSR-E) microwave, visible (VIS), infrared (IR), or sound-based (hydrophone) sensors. Papers focused on the error estimation for areal averages of precipitation derived from rain gauges, radar, and satellites, in combination or alone, are especially encouraged, as well as papers on the assimilation of remotely sensed precipitation (including the handling of associated uncertainties) into atmospheric and/or hydrologic models, and new technologies for remote sensing of precipitation. In addition, contributions focused on the space-time variability of precipitation across the full range of scales (as hemispheric, synoptic, mesoscale and local ; and as decadal, inter-annual, intra-annual, monthly, daily, and hourly data) and the effects of urbanization and pollution on precipitation, particularly as revealed from remotely sensed data over cities and mega-cities, are welcomed as well.

[Hong, Yang](#)

GEST and NASA Goddard Space Flight Center

[McCollum, Jeff](#)

FM Global

[Sánchez-Sesma, Jorge](#)

Instituto Mexicano de Tecnología del Agua

General Session on Precipitation

Precipitation is a very important meteorological parameter that strongly affects (and sometimes controls) many human activities. Numerous hydrologic applications demand accurate precipitation measurements (i.e. by in situ instruments) or quantitative estimates (i.e. by remote sensors), and there is an increasing demand for accurate precipitation forecasts from numerical weather prediction models. This session will host papers on all aspects of precipitation, with emphasis on measurements (ground-based in situ sensors, estimation of accuracy of measurements, comparison of measuring instrumentation), estimation (methodologies used for the estimation, validation, and assessment of error and uncertainty of precipitation as measured by remote sensors), space-time variability (spatial pattern and temporal dynamics of precipitation using stochastic methods and/or nonlinear dynamics based on datasets derived from remote sensing, field experiments and numerical simulations), hydrologic applications of the estimates (use of remotely-sensed precipitation estimates in hydrological applications such as rainfall-runoff modeling, flash-flood forecasting, flood warning and monitoring, modeling and analysis of urban drainage systems, and propagation of precipitation estimation uncertainties into hydrologic predictions), and forecasting (quantitative precipitation forecasts from numerical weather prediction models, probabilistic approaches, verification of precipitation forecasts using different techniques, quantitative precipitation forecasting with radar data and validation, experimental model studies on precipitation forecasting).

[Amitai, Eyal](#)

NASA/GSFC & George Mason University

[Gebremichael, Mekonnen](#)

Civil and Env. Engineering, University of Connecticut

[Habib, Emad](#)

Department of Civil Engineering, The University of Louisiana
at Lafayette

[Testik, Firat Y.](#)

Civil Engineering Dept., Clemson University

Regional and Universal Aspects in Hydro-Meteorological Extreme-Event Scaling

The asymptotic behavior of hydro-meteorological scaling laws allows for a phenomenologically-based estimation of extreme events, which can be much more reliable, when correctly validated, than usual extrapolations of probability distributions. For this session we encourage contributions describing studies that have used this approach, with particular emphasis on the impact of such work on regionalization and prediction in ungauged basins. Examples of relevant topics include validation of scaling laws, evidence of universal parameters across climates, and regional behavior of climate-dependent parameters.

[Ba, Khalidou Mamadou](#) Interamerican Center of Water Resources (CIRA-UAEM)
[Carsteanu, Alin Andrei](#) Cinvestav, Mathematics Department
[Diaz-Delgado, Carlos](#) Interamerican Center of Water Resources (CIRA-UAEM)
[Magagi, Ramata](#) Applied Geomatics Department, University of Sherbrooke

Section, for which the session is proposed:

Hydrology

Session Title:

Integrated approaches to regional water and energy cycle studies and the Coordinated Enhanced Observing Period (CEOP)

Session Description:

Fundamental problems in understanding and eventually predicting the water and energy cycles extend across many space and time scales. The observations and models used to research these problems, likewise, span point, region, continental and global scales. Data from a multitude of sources all have importance in addressing the problems, including in-situ stations, satellite retrievals and the model-based analysis of observations. Utilizing the breadth of these resources to address research questions is a tremendous challenge. One example, the Coordinated Enhanced Observing Period (CEOP, <http://www.ceop.net>), is an element of the World Climate Research Programme (WCRP) initiated by the Global Energy and Water Cycle Experiment (GEWEX) to advance and improve methods for integrating observations and science issues related to the global energy and water cycle. Its guiding goal is: "To understand and model the influence of continental hydroclimate processes on the predictability of global atmospheric circulation and changes in water resources, with a particular focus on the heat source and sink regions that drive and modify the climate system and anomalies." During its Phase 1, CEOP has established a unique integrated data system by combining, in-situ and satellite observations, and coordinating the observation data with numerical weather prediction model outputs in the local, regional and global scales.

This session solicits papers on recent research directed at two primary scientific areas: (i) to diagnose, simulate and predict water and energy fluxes and reservoirs over land on diurnal to annual temporal scales as well as apply these predictions for water resource applications; (ii) to document the seasonal march of the monsoon systems, assess their driving mechanisms, and investigate their possible physical connections. Also papers on NWP model evaluation and intercomparison as well as satellite algorithm validation will be encouraged that have taken advantage of the CEOP and other integrated datasets.

This session will demonstrate the potential of the CEOP and integrated datasets for advancing research into hydrological processes and their linkage with the energy cycle, evaluating weather and climate model physics, development and validation of advanced satellite algorithms as well as development of downscaling techniques for hydrology and water resources management.

Key words:

Energy budgets (1814)

Water budgets (1876)

Instruments and techniques: Modeling (1894)

Land/atmosphere interactions (1843)

Remote sensing (1855)

Co-conveners:

John Roads

Experimental Climate Prediction Center (ECPC)

Scripps Institution of Oceanography, UCSD

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