

**Surface Water Technical Committee
Draft Session Proposals for Spring 2004**

1. A Changing Arctic Landscape

(Joint with H, IP)

This session will focus on changes in the Pan-Arctic region. The magnitude and spatial extent of high latitude warming in the last century is well documented. In many arctic regions this warming is associated with increased precipitation, increased river discharge, a longer growing season, and a change in the distribution of plant species, and higher net primary productivity. Borehole temperature measurements also indicate strong subsurface warming, reflecting changes in the trends of both surface air temperature and solid precipitation. As far as carbon sequestration is concerned, there is evidence that coastal and Boreal regions may be affected differently to climate change. While this session will primarily focus on the ongoing and expected terrestrial changes, abstracts focusing on the underlying atmospheric and oceanic mechanisms responsible for landscape change are welcome. Abstracts that incorporate both simulations as well as observational evidence of change for the purpose of large-scale synthesis are also encouraged.

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Index Terms: 1833,1836,1719,4805,1851

2. Advanced methods for predicting streamflow.

Convenors: Martyn P. Clark and Lauren E. Hay.

This session will focus on the development of application of advanced methods for predicting streamflow. The streamflow prediction problem can be disaggregated into three main research themes: (1) development of methods to specify hydrologic initial states at the start of the forecast period (e.g., through data assimilation), (2) development of methods to improve the accuracy of hydrologic (or land-surface) model simulations throughout the forecast period, and (3) development of methods to provide local-scale (downscaled) forecasts of climate variables on multiple time scales that are used to drive hydrologic and land-surface models. Research papers are solicited for each of these three research themes. Papers are also solicited on advanced methods for forecast verification, as well as papers describing the use of advanced streamflow forecasting methods in water resource management applications.

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Index Terms:

1833, 1854, 1860, 1869, and 1899.

3. Probabilistic Hydrometeorologic Forecasts for Water Resources Applications

Probabilistic weather and climate forecasts are now routinely available for inclusion into hydrological models and can generate forecasted flows. The skill of these forecasts has been steadily improving over the years particularly in short term precipitation estimates. However, corresponding progress in the optimal use of these data for probabilistic hydrologic forecasts has so far been limited. This can be attributed to several factors: (1) there is a discrepancy between the spatial scales of weather and climate forecasts and those needed for hydrologic modeling; (2) all weather and climate forecasts are known to contain biases. Methodologies and techniques to downscale and rescale weather and climate forecasts and to remove biases in those forecasts are being developed and progress has been made to use weather and climate forecasts for hydrologic and water resources applications. This session will focus on aspects associated with probabilistic hydrometeorologic forecasts, including but not limited to: ensemble forecast and verification strategy, statistical techniques for downscaling/rescaling and bias reduction, probabilistic techniques for hydrologic and water resources applications and methodologies for coupling and linking atmospheric and hydrological models. For more information, please contact the session conveners.

Conveners:

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4. Watershed Intercomparison and Classification

Convener: Kellie Vache, Oregon State University

Co-Convener: Jeff McDonnell, Oregon State University (or some one else?)

Hillslope and watershed hydrologists have spent decades describing detailed processes in individual experimental catchments around the world. Indeed much of our work, and much of the "journal reward process" has been geared towards documenting the idiosyncrasies of "yet another catchment". The science now appears to be mired in a morass of process complexity, where first order controls in specific environments are difficult to separate from second, third and fourth order effects. This session is aimed at watershed intercomparison as a means to developing typologies that may ultimately lead to basin classification. Papers are sought that explore topics like: mesoscale basin intercomparisons, intercomparisons within or between specific regions or within certain climate regions, new approaches to classification (via for instance, database development, data processing, data mining), intercomparison of specific process drivers (e.g preferential flow, saturation excess overland flow etc) or process hierarchical approaches across sites (e.g. decision trees). Intercomparisons are sought across scales-from plot to hillslope to catchment to mesoscale watershed including re-analysis of existing data.

Possible Invited Speakers:

Ross Woods

Malcolm Anderson

Tim Burt
Julia Jones

5. Groundwater - Surface Water Interaction: Linking Disciplines

The role played by groundwater - surface water interaction has been increasingly recognized as important to our understanding of physical and biogeochemical processes in the hyporheic zone, aquatic ecology, and conjunctive groundwater - surface water use. This session invites abstracts that deal with multi-disciplinary approaches to resolving field characterization and the implications of groundwater - surface water interaction, including mathematical description.

Index terms: groundwater, surface water, interaction, hyporheic

Conveners:

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6. Advances in Small Catchment Hydrologic Measurement Methods: Successes and Failures of the Duct Tape and Silicone Caulk Brigade

Investigation of the variety of mechanisms through which small catchments transmit water and chemical fluxes has required field scientists to develop a host of prototype instruments, often by combining existing technology in innovative ways. Typically, the goals of the researcher are to develop equipment to make a measurement for which no instrument is commercially available, to modify such equipment for reliable use under field conditions or to decrease per sensor cost to increase the spatial coverage of measurement. The goal of the session is to simultaneously expand the toolkit of field researchers while reducing the frequency of failed experimental approaches in future. Papers are sought that relate successes and/or failures of the innovative measurement approaches or equipment modifications employed by the hydrologic field research community.

Conveners

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