CGU_H_10: Recent Advances and Outstanding Challenges in Large-scale Watershed Modelling and Analysis

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Session Description

Recent advances in data availability at regional and global scales are enabling the development of improved hydrological modelling and forecasting systems. However, there remains outstanding challenges in studying water cycle under climate and environment change, accurate assessment and management of current and future water resources, and decision making incorporating natural water systems with human systems under uncertainty. This session aims at bringing together researchers from various fields to share specific expertise across disciplines and discuss possible solutions to current problems with a focus on large scale modelling. Topics include, but are not limited to:

a) Representing or evaluating different components of the terrestrial water cycle fluxes and storage (e.g. river discharge, evapotranspiration, soil moisture, groundwater, snow, lakes) and their impact on hydrological modelling and water resource management
b) Evaluating model performance and improvements in cold regions
c) Dealing with data scarcity in northern regions
d) Representing small-scale hydrological processes in coarse-scale models (e.g. regionalization, sub-grid parameterization)
e) Integrating human systems (e.g. irrigation, groundwater extraction, dam and reservoir operation) into hydrological models
f) Understanding and predicting the current and future state of large scale water resources in a changing climate and environment
g) Modelling and forecasting of extremes: floods and droughts

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