

THE GREAT SALT LAKE BASIN HYDROLOGIC OBSERVATORY – A COMMUNITY RESEARCH PLATFORM FOR MOUNTAIN CLIMATE SCIENCES

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Through the Consortium of Universities for the Advancement of Hydrologic Sciences, Inc. (CUAHSI) NSF plans to establish a network of hydrologic observatories. The mountain west is a high priority area for detailed observations because of the sensitivity, uncertainty and vulnerability of mountain systems and rapid human population growth with critical dependence of human and natural ecosystems on mountain water resources. The Great Salt Lake basin serves as a microcosm for much of the western U.S. in that the hydrologic system is driven by snowmelt in the mountains that supplies water to the relatively arid valleys. The region is dominated by nonlinear interactions between snow deposition and loss in the mountains, streamflow and groundwater recharge at high and mid-elevations, and evaporation from the desert floor. A planning group is working on a multi-million dollar long term plan and proposal for the Great Salt Lake Basin Hydrologic Observatory which would include a focus on mountain and snow hydrology. Hydrologic Observatories would be shared national facilities and our planning group welcomes participation and suggestions from the wider community with a stake in mountain and snow hydrology and related fields. This presentation will describe the physical aspects of the Great Salt Lake Basin, the scientific questions and research opportunities that the GSLBHO would provide, and the measurement infrastructure contemplated for this hydrologic observatory. A multi-scale nested sampling design is being proposed to allow for the integration and quantification of spatial and temporal heterogeneity in mountain environments while exploiting synergy through co-location of measurements for different disciplinary fields of hydrologic science. The presentation will focus on mountain and snow aspects of this observatory with the intention of prompting feedback as to how the observatory can be best designed to meet the needs of mountain and snow researchers.