Hydrology and Water Resources Seminar

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**Title: RiverWare for Managing Hydropower in Complex River Basins**

**Abstract**

Hydropower has become an increasingly essential component of the energy generation resource mix, particularly as power utilities increase their renewable energy portfolio. CU's Center for Advanced Decision Support for Water and Environmental Systems (CADSWES) has developed and applied RiverWare software to model both power and nonpower reservoir uses. RiverWare is widely used in practice by power utilities and system operators for both planning and operations in systems where hydropower must be managed in conjunction with a wide array of complex environmental requirements and other nonpower constraints. Practical optimization of hydropower in operational settings presents many challenges, including the handling of multiple, competing objectives and the need to derive reasonable linear representations of nonlinear processes.  These challenges have led to research innovations at CADSWES. We will discuss these hydropower modelling challenges, novel approaches to address these challenges, how these innovations have been utilized in operations applications, previous research, and future research topics.