Bruce Podwal Seminar Series

*Understanding the variability and changes in hydrological extremes, their connections with large-scale climate, and implications on food and socio-economy*

**Tuesday, March 8, 2016**
12pm in the Civil Engineering Conference Room (ST-105)

**Indrani Pal, PhD**
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**Abstract**
This talk will cover multiple topics, including the following:

**First, climate extremes and food.** Climate variability and extremes are expected to increase due to environmental changes; this may have significant negative impacts for agricultural production and food price. This research focuses on the quantification of the impacts of climate variability and extremes on crop production in the United States, and explores the predictability of crop production using statistical techniques. This talk will share some of the published and unpublished results from this area of research.

**Second, streamflow droughts (low flows and streamflow deficit).** Scientists expect that rivers in many regions will run dry ever before and for longer spans of time. Despite how low flows and related streamflow deficit has direct ties to water scarcity and drought, relatively few studies evaluated how they have changed over time. The study of low river flows is critically important to society, which can help resource specialists manage, for example, municipal water supply, irrigation, industry allocations, river navigation, recreation, and wildlife conservation. This talk will share some of the published and unpublished results covering the regional changes in streamflow drought indicators across the conterminous U.S., as well as their connections with large-scale climate.

**Third, floods and losses.** A disproportionate share of the global economic and human losses caused by environmental shocks is borne by people in the developing nations. The mountain region of Hindu-Kush Himalaya (HKH) in South Asia is threatened by numerous flooding events annually. An efficient disaster risk reduction often needs to rest upon location-based synoptic view of vulnerability. Resolving this deficit improves the ability to take risk reduction measures in a cost-effective way, and in doing so, strengthens the resilience of societies to flooding disasters. One research aim is to identify the vulnerable locations across HKH boundary from the perspective of reported history of economic and human impacts due to occurrence of flooding disasters. This talk will share some of the published results indicating that the complex interactions between natural and socio-economic drivers play a major role to define and characterize the type and magnitude of vulnerability of HKH countries to disaster occurrence and impacts.

**Biography**
Indrani Pal is an Associate Research Scientist at Columbia Water Center, NY. She received an MPhil and a PhD from University of Cambridge, UK and a postdoctoral training from Columbia University. The major focus of her research includes hydrological droughts and floods and understanding their implications on food and socio-economy.

Light refreshments will be served.