SESSION: (B4) S2D forecasts for decision making

(B4-06)

UDECIDE: Understanding Decision-Climate Interactions on Decadal Scales

James Done (1), Jeffrey Czajkowski (2), Tapash Das (3), Ming Ge (1), Joshua Hewitt (4), Jennifer Hoeting (4), Heather Lazrus (1), Rebecca Morss (1), Armin Munévar (3), Erin Towler (1), Mari Tye (1) and Alex Van Zant (5)

National Center for Atmospheric Research, USA (1), Wharton, University of Pennsylvania, USA (2), CH2M, USA (3), Department of Statistics, Colorado State University, USA (4), Rutgers Business School, USA (5).

Water resource and flood managers increasingly require predictive climate information in decision-relevant terms to enable appropriate planning and adaptation to future conditions. A number of decisions stand to benefit from predictive information on decadal scales. The UDECIDE (Understanding Decision Climate Interactions on Decadal Scales) project brings together practitioners, engineers, statisticians, social scientists and climate scientists to understand the role of decadal climate information for water resource and flood management decisions.

UDECIDE proceeds in two overlapping parts. Part 1 explores current information needs and use, through in-depth understanding developed across flood and water resource managers in Colorado and California. Part 2 explores what can be skillfully predicted on decadal scales through the development of new statistical-dynamical modeling techniques. Prototype presentations of decadal predictions are developed at the intersections of what is needed and what is skillful. These presentations are tested with stakeholders and iterated upon to build understanding of the role of decadal climate prediction for decisions.

This presentation will outline the emerging points of intersection. Potential roles for decadal climate prediction based on interviews with water resource and flood managers will be presented. These potential roles have informed the development of a new geostatistical model of precipitation that simultaneously accounts for the effects of local and remote covariates, and global dynamical modeling of atmospheric river characteristics and predictability under decadal modes of variability. Implications for water and flood risk management practice over the next decade will be discussed.