

Pursuit: Understanding causal pathways and feedbacks within complex water management systems

Time of Event:

Wednesday, June 5, 2019 - 09:00 to Friday, June 7, 2019 - 17:00

Understanding causal pathways and feedbacks within complex water management systems

Here we propose that a better understanding of causal pathways and feedbacks within water systems—the causality and feedbacks between hydroclimatic conditions, human and ecosystem needs, and reservoir operations—could lead to more sustainable management outcomes when dynamic, competing needs for water exist. This is because feedbacks between hydroclimate, human consumptive and non-consumptive uses, and ecosystem needs are common; yet, these interactions are rarely considered in models examining sustainable water infrastructure management. This interdisciplinary working group has two objectives: First, we will evaluate the relative merits and limitations of a wide range of statistical and mathematical techniques in detecting causal networks from time-series data. Our comparison will include novel methods such as convergent cross-mapping, which can capture the feedback loops and non-linearities that are often present in complex socio-environmental systems. Second, we will apply these methods to the Lower Colorado River, an over-allocated system with abundant empirical data on hydroclimate, human demand for water (municipal use, irrigation), hydropower production, downstream river ecosystem integrity, and regulatory constraints.

To learn more about the Pursuit, click [here](#). [1]

Event type:

Project Meeting

Event Attendance:

Private Working Group

Source URL:

<https://www.sesync.umd.edu/events-announcements/thu-2019-01-10-1018/pursuit-understanding-causal-pathways-and-feedbacks-within>

Links

[1]
<https://www.sesync.org/project/propose-a-pursuit/understanding-causal-pathways-and-feedbacks-within-complex-water>