**Bringing insight to the decision-maker: communicating complex, multi-dimensional data using visual analytics in water resources applications**

Timothy Adams\*, Patrick Ray?

University of Massachusetts Amherst, Amherst, MA

**Abstract**

Researchers and analysts in the field of water resources often struggle to communicate the full depth of their insight to decision-makers. The multi-dimensional complexity inherent in water resources problems and the time and resource constraints of decision-makers exacerbate this challenge. Visual analytics provides an effective method to communicate complex information through its mantra “analyze first, show the important, zoom, filter and analyze further, details on demand”, though its use in water resources applications has been limited. We demonstrate the application of the mantra and other core visual analytics principles in a decision-support tool designed for a climate risk assessment and adaptation setting study of a proposed dam in the Mwache river basin in Kenya. The method begins with pre-analysis, which filters out irrelevant design choices based on baseline performance metrics. Interactive filtering options allow the user to rapidly explore performance tradeoffs. Linked views between heterogeneous plots elucidate the connection between the objective and decision spaces. Selecting multiple designs allows the user to explore an in-depth, side-by-side comparison of performance and robustness metrics for only the most relevant options. The visual analytics method therefore enables the researcher or analyst to guide decision-makers in exploring and engaging with the data in a way that accelerates the learning process necessary for meaningful insight into water resources problems.

Notes:

- if you do Mwache, it’d be nice if the simulation was actually correct and we didn’t have the weird “NA to 80” issue.

**Details**

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