Using Temporal Configuration to Visualize and Analyze Streamflow Properties - Theory and Application

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Zoom: https://cuboulder.zoom.us/j/98861379124
(passcode: water)

Abstract:

Over 2,400 different hydrologic metrics exist to quantify the streamflow properties such as magnitude, frequency, duration, timing, and rate of change. These values are often composition-based statistics such as count, mean, median, standard deviation, or variance. An important consideration is that composition metrics

cannot quantify a fundamental hydrologic property – the temporal configuration of streamflow. Presented is a novel approach using raster and lag(1) hydrographs, change-in-flow plots/matrices, and flow sequence plots. The resulting products are a combination of visualizations and table-plot hybrids that provide streamflow information across the entire hydrologic regime. This type of information is not possible with existing metrics but is highly customizable and can easily integrate into other existing analysis efforts. Multiple streamflow examples are provided to show the application and utility of these new techniques.
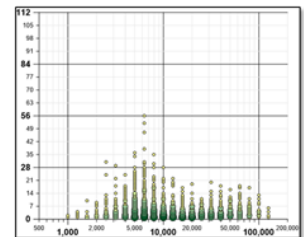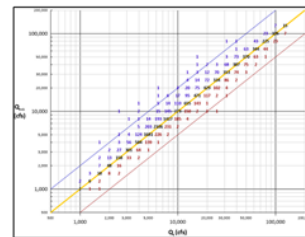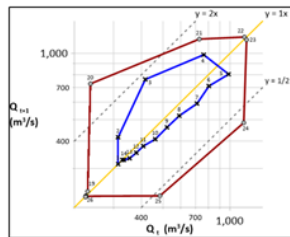
Speaker Bio: Dr. Richard Koehler is the CEO of Visual Data Analytics in the Boulder, Colorado area and has over 40 years of experience in water resources. He is a recently retired federal hydrologist with his last position as the National Hydrologic and Geospatial Sciences Training Coordinator for NOAA's National Weather Service where he also worked as a forecast hydrologist at two NWS River Forecast Centers. He is also a retired lieutenant commander with NOAA where he served aboard oceanographic research and hydrographic survey ships. Other positions include director of water resources for a private consulting firm and as water resources hydrologist for Cochise County, Arizona.

His PhD from the University of Arizona (watershed management and remote sensing), his MS from the US Naval Postgraduate School (hydrographic sciences) and his MS, BS (watershed management) both from the University of Arizona. He has always been fascinated with water, data, and patterns which explains this presentation.