



EXTREME HYDROLOGY R&D



Need

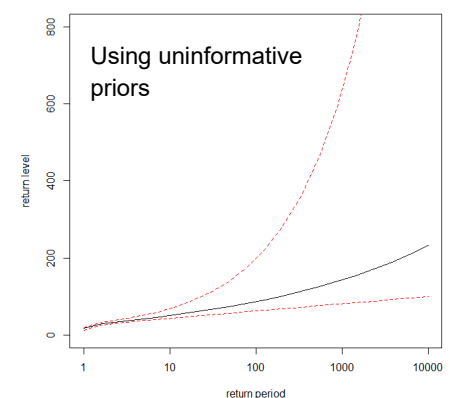
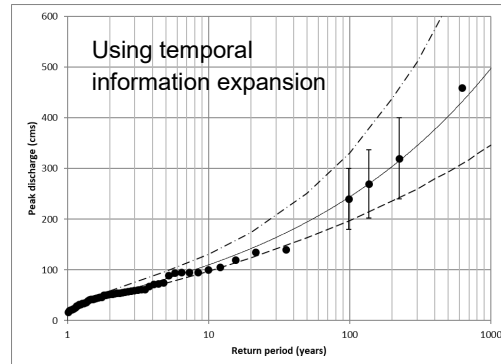
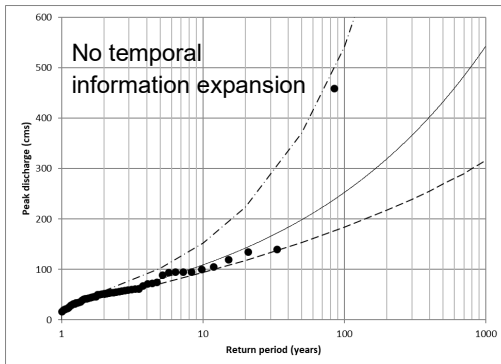
There exist multiple ongoing efforts within the USACE that are each focused on one or more individual component parts of hydrologic engineering applications of extremes; however, readily available, internally vetted, and targeted and digestible training modules to accompany these efforts does not exist. In addition, hydrologic process characterization for extremes analyses in some cases needs better guidance for practice application. Moreover, some of the tools associated with methodologies underpinning the previously mentioned efforts could be, via R&D, either accelerated in terms of their development and delivery for use by the practice community or adapted, for specific applications, to accommodate additional data types for a more comprehensive analysis of extremes.

Approach

- Develop and deliver targeted and digestible extreme hydrology training modules for the USACE practice community
- Accelerate the development and delivery of HEC's stochastic weather generator
- At-site flood frequency analysis software development to include treatment of historical flood data, and causal information expansion data
- Adapt a spatial/spatiotemporal Bayesian Hierarchical Model and/or a max-stable process model to include treatment of historical flood data

More Information

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Combining at-site systematic records with additional spatial, temporal, and process-based data types improves understanding

Spatial process of extreme daily precipitation

