US Army Corps of Engineers
Engineer Research and Development Center

Watershed Analysis Tool

Need

UASCE has a need to provide software applications to the field that fully encompass the risk analysis (assessment) requirements and expectations that have been set forth in USACE guidance. Software applications developed will aim to address recommendations made by the National Research Council (NRC) regarding USACE risk analysis tools and methods, and carry significant and enduring implications for flood protection in the United States. HEC-WAT (Watershed Analysis Tool) with the Flood Risk Analysis (FRA) compute option will meet the recommendations made by NRC and meet USACE guidance in regards to risk analysis (assessment).

Approach

HEC-WAT aims to address recommendations made by NRC regarding USACE risk analysis tools and methods, and carries significant and enduring implications for flood protection in the United States. We are enhancing HEC-WAT to provide software applications to the field that fully encompass the risk analysis (assessment) requirements and expectations that have been set forth in USACE guidance.

Outcomes

The default set of HEC-WAT software is the main CEIWR-HEC software packages: HEC-HMS, HEC-ResSim, HEC-RAS, HEC-FIA, and others. The HEC-WAT also includes the capability to include the other pieces of software (i.e., GSSHA, CE-QUAL-W2). Milestones are as follows:

- Release of HEC-WAT software that will allow field offices to perform an integrated water resources study across multiple disciplines. This version will have a limited FRA compute option, since the default set of CEIWR-HEC software will have limited parameter sampling capabilities.
- Release of HEC-WAT software that fully encompasses the risk analysis (assessment) requirements and expectations that have been set forth in USACE guidance. The FRA compute option will be fully implemented.
- Release of HEC-WAT software with enhanced distributed compute efficiency, additional compute types and improved outputs.
- Release of HEC-WAT software that will truly perform system-wide benefit analyses assessing risk and uncertainty in complex, interdependent systems with a life-cycle approach.

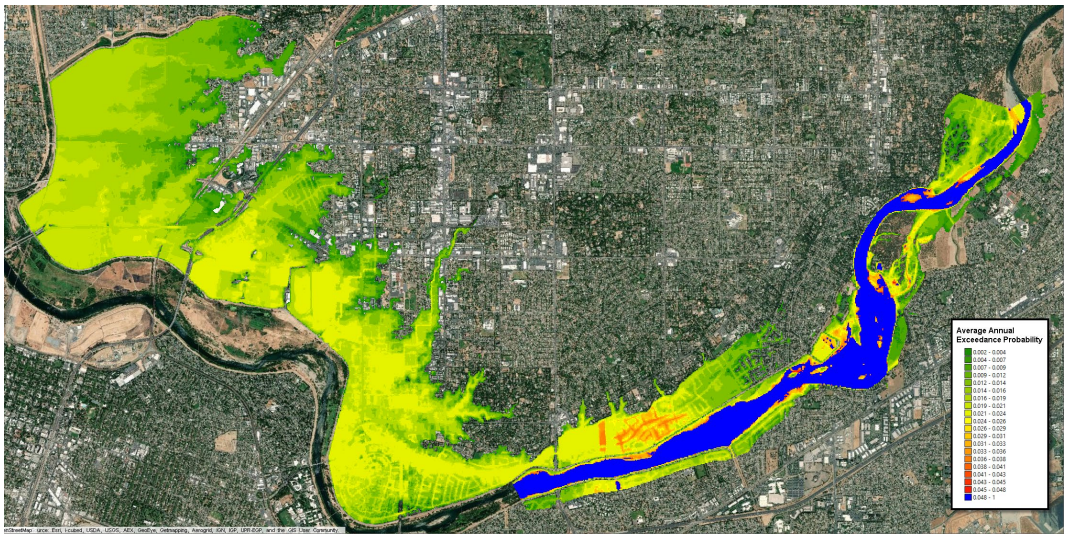

Figure 1 AEP grids to support Floodplain mapping through systems approach

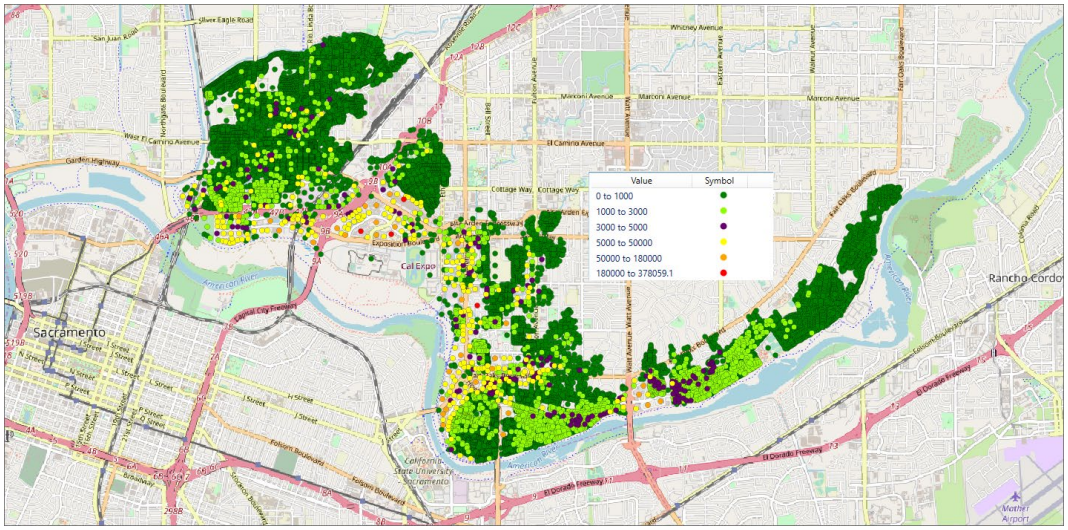

Figure 2 Expected Annual Damages per structure to support actuarial insurance rates

More Information

For more information on HEC-WAT, see the following site:

http://www.hec.usace.army.mil/software/hec-wat/

or contact william.p.lehman@usace.army.mil