U.S. Army Corps of Engineers (USACE)
BUILDING STRONG®

Hydrologic Engineering Center (CEIWR-HEC) Suite of Software

Mission

- Mission focus emphasizes the primary need to serve the USACE engineering practitioners at the field level and to enable USACE to successfully accomplish civil works studies, projects and operations.
- CEIWR-HEC software, methods and related products have become the world's standard and CEIWR-HEC software has become synonymous with hydrologic and hydraulic engineering analysis.
- Software is used worldwide for five major reasons: exceptional software; fully supported/maintained; documentation; training; availability.
- The Center's suite of software includes applications that are supported by a library of utility programs, which includes Geographic Information System (GIS) support.
- Additional information about CEIWR-HEC and its software is available on the CEIWR-HEC web site at www.hec.usace.army.mil.

HEC Software

- CWMS
- HEC-DSSVue
- HEC-EFM
- HEC-FDA
- HEC-FIA
- HEC-GeoEFM
- HEC-GeoHMS
- HEC-GeoRAS
- HEC-GridUtil
- HEC-HMS
- HEC-LifeSim
- HEC-RAS
- HEC-ResPRM
- HEC-ResSim
- HEC-RPT
- HEC-RTS
- HEC-SSP
- HEC-WAT

Hydrologic Modeling System (HEC-HMS)

- Computes streamflow throughout a river basin given precipitation and watershed characteristics.
- Event & continuous simulation, multiple routing/ runoff methods, gridded precipitation, losses & runoff, snowmelt, dam break.
- Represent a wide range of hydrologic systems, from large river basin water supply & flood hydrology, to small urban or natural watershed runoff.
- Industry standard hydrologic modeling tool that is used worldwide. Used by all USACE District & Division offices. Certified for FEMA studies. Adopted by multiple agencies.

River Analysis System (HEC-RAS)

- Computes river velocities, stages, profiles, and inundated areas given streamflow & geometry.
- Steady & Unsteady Flow; Sediment Transport; Water Quality & Temperature.
- Industry standard hydraulic tool that is used worldwide. Used by all USACE District & Division offices. Important tool for dam and levee safety studies.
- NWS, NRCS, USGS and FHWA have adopted HEC-RAS for one-dimensional river hydraulics modeling. Eighty percent of FEMA Floodplain/ Floodway analyses are performed with HEC-RAS.
- Two-dimensional capabilities are available.

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Reservoir System Simulation (HEC-ResSim)

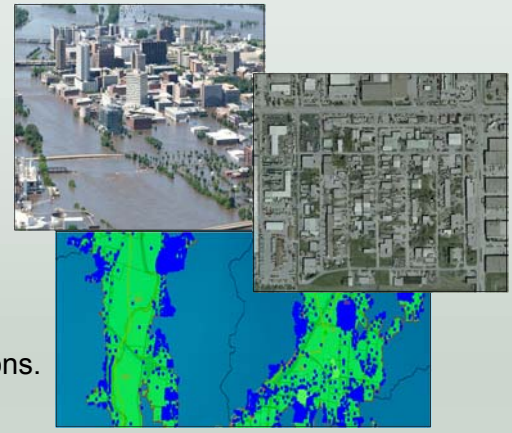
- Simulates reservoir operations for flood management, low flow augmentation & water supply for planning studies, detailed reservoir regulation plan investigations, and real-time decision support.
- Coupled with CE-QUAL-W2 for water quality.
- Quickly becoming industry standard.
- Used domestically and internationally.

Flood Damage Reduction Analysis, HEC-FDA

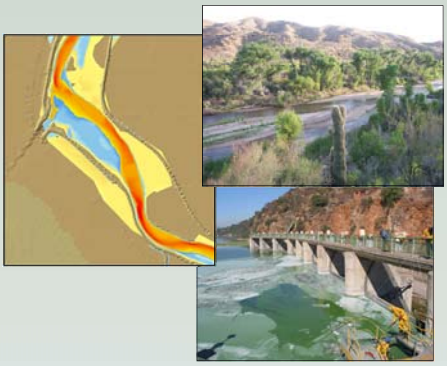
- Software to perform flood risk management analyses; plan evaluation and plan formulation Tool.
- Compare plans using Expected Annual Damage (EAD) damage reduction benefits & project performance.
- Certified through PMIP 2009. Since 1996, HEC-FDA uses risk analysis procedures.
- Used by all USACE District & Division offices for performing flood risk management analysis. Most widely used planning tool for plan formulation/alternative analysis.
- Helps answer the question "Which proposed flood damage reduction plan is the best from an economic standpoint"?

Flood Impact Analysis, HEC-FIA

- Software to perform project benefit analysis including loss-of-life consequences; evaluate flood risk management measures (structural and non-structural) using risk and uncertainty and including systems approach and GIS capability.
- Computes damages to structures and other contents of the floodplain (including agricultural and environmental) given river stages & damage relationships. Also computes Loss-of-Life.
- Used extensively for dam & levee safety studies.
- Impact Response Report useful to Emergency Management Operations.



Ecosystems Function Model, HEC-EFM



- Planning tool for use in ecosystem restoration and water resources management.
- Evaluates habitat provided by restoration alternatives & ecosystem responses to reservoir management decision-making.
- Aligns with other hydrologic & hydraulic models to perform environmental benefits analyses as part of decision support systems.
- Has been used to assess floodplain reconnections, drought contingency planning, stream restoration, dam removal, endangered species management, reservoir reoperations, and environmental flow analyses.
- Certified through USACE PMIP in 2013.