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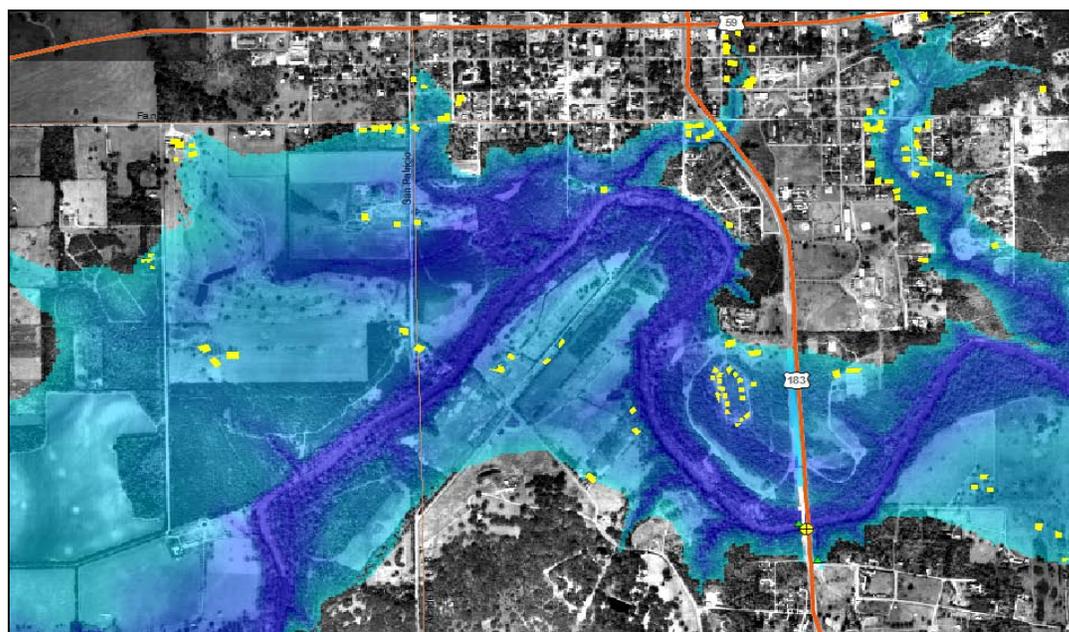
Flood & Coastal Storm Damage Reduction R&D Program

HEC-GeoRAS

Advanced Geospatial Support for Hydraulic Modeling

Description

HEC-GeoRAS is set of ArcGIS tools specifically designed to process geospatial data for use with the Hydrologic Engineering Center's River Analysis System (HEC-RAS). The extension allows users with limited GIS experience to create a HEC-RAS import file containing geometric data from an existing digital terrain model (DTM) and complementary data sets. Results exported from HEC-RAS may also be processed to evaluate flood-prone areas, identify inundation depths, and evaluate flow velocities. Inundation results mapped using HEC-GeoRAS are utilized for flood mitigation and planning, flood damage reduction studies (Flood Impact Analysis (HEC-FIA)), and ecosystem rehabilitation efforts Ecosystems Functions Model (HEC-EFM).



Inundation maps are essential for developing emergency action plans and performing spatially distributed damage calculations.

Benefits

The use of GIS tools allows engineers to more effectively and efficiently develop detailed hydraulic models for riverine modeling studies, environmental restoration efforts, dam break analysis, and floodplain mapping. The benefits of using HEC-GeoRAS within the geospatial environment are clearly evident when modeling large river systems.

Status

HEC-GeoRAS is currently available for ArcGIS 9.3. New features provide improved floodplain delineation methods; interpolation and visualization of velocity, ice thickness, shear stress, and stream power results; animation of inundation depths, boundaries, and velocities; and export of results to KML format for display in Google Earth.

Distribution Source(s)

HEC-GeoRAS is available from the HEC Web site at: www.hec.usace.army.mil.

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<https://swwrp.usace.army.mil/>

Available Documentation

Detailed documentation has been developed in a User's Manual, available from HEC's Web site. The documentation details the methods and tools, how to use the software, and has several examples (with example data) that provide step-by-step instruction.

Available Training

HEC offers a PROSPECT course titled *Hydrologic Engineering Application of Geographic Information Systems* that highlight the use of HEC-GeoRAS. Instruction for HEC-GeoRAS is also provided in the *Advanced Steady Flow Analysis with HEC-RAS and Hydrology and Hydraulics for Dam Safety Studies* PROSPECT courses.

Available Support

Support for HEC-GeoRAS is available to all U.S. Army Corps of Engineers employees. Users can e-mail the RAS Team for support at HEC.RAS@usace.army.mil or call HEC with questions and comments. Suggestions and bugs may also be submitted via HEC's Web page.

Application

HEC-GeoRAS has become a standard tool used for developing geometric data for HEC-RAS and mapping inundation results. HEC-GeoRAS has been instrumental in developing numerous hydraulic models including the Hurricane Katrina IPET simulations. HEC GeoRAS is integral to the Corps involvement with FEMA Map Modernization work and the Corps' Dam and Levee Portfolio Risk Assessment programs.

Point of Contact

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Additional information can be found at www.hec.usace.army.mil.

Partners

HEC-GeoRAS was designed by the Hydrologic Engineering Center and developed through a Cooperative Research and Development Agreement with Environmental Systems Research Institute, ESRI. The Cold Regions Research Engineering Laboratory worked with HEC to develop ice thickness mapping.