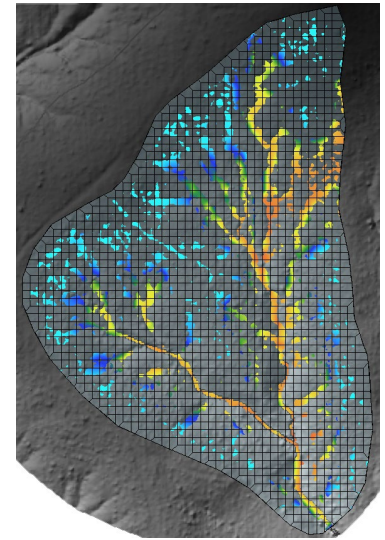




Enhanced Sediment Simulation with HEC-HMS

Need The Corps is increasingly involved in watershed studies where sediment is a major factor. The sediment may be an environmental concern because of hazardous chemicals sorbed to the sediment particles and consequently the target of an environmental restoration study. The sediment may adversely affect sensitive species which the Corps is required to protect, such as salmon that require clean gravel for laying eggs. Sediment inflow to reservoirs reduces available flood and conservation storage in the pool. In all these cases, an effective hydrologic simulation tool including erosion and sediment transport capabilities is required in order to develop an accurate assessment of the current conditions in the watershed, and evaluate potential changes to moderate the negative aspects of sediment.

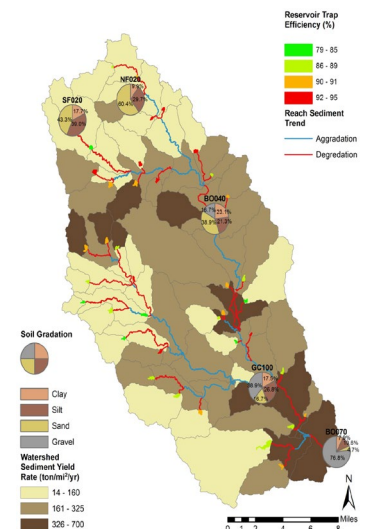


Sediment concentrations at Lucky Hills, AZ Experimental Watershed

Approach Develop integrated multi-scale (lumped, semi-distributed, fully distributed, and subgrid), and multi-physics (meteorology, hydrology, and hydraulics) modeling capabilities within the Hydrologic Modeling System (HEC-HMS). The existing lumped subbasin erosion and one-dimensional (1D) sediment channel routing capabilities are being augmented with fully distributed two-dimensional (2D) overland flow, and sediment transport capabilities.

Outcomes The product of the work unit is the enhanced features in HEC-HMS. The 2D overland flow will be included in Version 4.5 and 2D sediment in the subsequent version.

HEC-HMS is used in almost every hydrology-related USACE mission areas and is used by all USACE District and Division offices for design and operations. By enhancing HEC-HMS's capabilities with 2D overland flow and sediment transport, the USACE and its partners will benefit from the improved model flexibility and gridded capabilities.



Lumped sediment erosion model of Upper North Bosque River, TX watershed

More Information

P: Alejandro Sanchez, PhD, Alejandro.Sanchez@usace.army.mil
Co-PI: William Scharffenberg, PhD

For more information on HEC-HMS, see: <http://www.hec.usace.army.mil/software/hec-hms/>