

## USDA-NRCS WEPP Implementation Project

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The Water Erosion Prediction Project (WEPP) was initiated by the United States Department of Agriculture (USDA) in 1985. At that time, the USDA-Agricultural Research Service (ARS) provide leadership for the project, with substantial direction from the federal user agencies: the USDA-Soil Conservation Service (SCS), USDA-Forest Service (FS), and USDI-Bureau of Land Management (BLM). WEPP was developed as a process-based computer simulation model, to eventually replace the empirically-based Universal Soil Loss Equation (USLE) technology. Extensive field experiments were conducted on benchmark soils in 1987-88 on cropland and rangeland soils, in order to develop hydrologic, hydraulic, and erodibility parameters, and parameterization equations. Model computer code was largely developed from 1986-1994 at ARS laboratories in West Lafayette, Indiana and Tucson, Arizona, and the complete and validated WEPP model for hillslope and watershed simulations was released at a special SWCS symposium in Des Moines, Iowa in the summer of 1995.

WEPP technology has been integrated into USDA-FS programs, and a number of targeted specialized web-based interfaces developed by the FS for their own users. However, the SCS and subsequently the Natural Resources Conservation Service (NRCS) did not work on including WEPP into their programs during the period from 1998 to 2013. Three years ago, the NRCS Ecological Sciences Division, under the Deputy Chief for Science and Technology initiated a cooperative project with ARS to begin integration of the WEPP model technology into NRCS field office programs, for prediction of sheet and rill erosion, and to eventually proceed to utilize WEPP's abilities to simulate runoff, erosion and sediment losses from field-scale cropland watersheds. The designated interface will be web-based and utilize existing NRCS databases for soils, crops, tillage, and other operations. Updating of the CLIGEN weather station parameter files using more recent climate records is also part of the project.

This presentation will provide information on status of the ARS-NRCS WEPP implementation project, web-based interfaces under development, the updated climate database, and preliminary results of some comparison studies between WEPP and RUSLE2 erosion predictions. WEPP erosion model simulations are to be included within the NRCS Integrated Erosion Tool (IET), currently under development at their Information Technology Center in Fort Collins, Colorado. Future directions for WEPP model simulations for agricultural watersheds will also be presented.

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