

GEOWEPP

Model Uses GeoWEPP is a continuous simulation model that allows for simulation of soil and water conservation management in terms of agricultural land, range land and forested sites in small watersheds.

Major Categories Decision Support; Geomorphology; Hydrology and Water Use

Subject Knowledge Level
Basic

Minor Categories Erosion; Desired Future Conditions; Watershed Conditions

Technical Difficulty Level
Intermediate

Model Type Physical Model

Geographic in Nature?
Yes

Abstract

The Water Erosion Prediction Project (WEPP) model is a continuous simulation, process-based model that allows simulation of small watersheds and hillslope profiles within those watersheds for assessing various soil and water conservation management options for agricultural, rangeland, and forest sites. Beside the continuous improvement of the Windows WEPP interface for hillslope and small watersheds, additional work is in progress to allow WEPP simulations based on using digital sources of information through the linkage with Geographic Information Systems (GIS). The Geo-spatial interface for WEPP (GeoWEPP) utilizes digital geo-referenced information such as digital elevation models (DEM) and topographical maps to derive and prepare valid model input parameters and defaults to start site-specific soil and water conservation planning for a small watershed with a single soil and land use for each sub-catchment. The integration of orthophotos, soil surveys, land use maps, climate data, and precision farming data as well as multiple soil and land use within each sub-catchment is currently under development. The goal of the GeoWEPP project is to provide a series of interfaces for users with different levels of GIS knowledge that are capable to utilizing these different data sources in a standard format either provided by GIS users, by precision farmers with Global Positioning Systems (GPS) databases and/or through accessing commonly readily available U.S.-nationwide data sets that are free of charge.

Future Developments

Unknown

Model Limitations

Unknown

Model Features

- Windows-based user interfaces allowing for data entry, management and results displays
- Integration of GIS technology for information on elevation, slope, soils, climate, etc
- Provides interfaces for different levels of knowledge so various people can use the model

Required Data Types

GIS data, in the form of DEMs and topography, soil surveys, land use, climate and agricultural practices.

Model Outputs

Data pertaining to likelihood of erosivity in various locations across the modeling region.

Source

A collaborative research project of Department of Geography, University at Buffalo - The State University of New York (SUNY), Buffalo, New York, Agricultural and Biological Engineering, Purdue University, West Lafayette, Indiana, and Agricultural Research Service (ARS), National Soil Erosion Research Laboratory (USDA-NSERL), West Lafayette, Indiana.

Source (URL)

<http://www.geog.buffalo.edu/~rensch/geowepp/>

Hardware Requirements

None noted.

DOS	<input type="checkbox"/>	Supported Platforms	
		UNIX	<input type="checkbox"/>

Software Requirements

ArcView 3.x; Spatial Analyst 1.x or later.

Windows	<input checked="" type="checkbox"/>	Macintosh	<input type="checkbox"/>
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Cost, Licensing and Availability

Free, available from the link above.