SMPDBK GUI (SDB-J)
Version 1.0.0-05-01-2009
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Application Description

The National Weather Service (NWS) developed a simplified procedure for predicting downstream flooding produced by a dam failure. This procedure, known as the Simplified Dam Break (SMPDBK) Flood Forecasting Model, produces information needed for delineating areas endangered by dam-break flood waters. The original Fortran code was developed in 1983 and revised in 1991. The current Java GUI replaces the awkward Fortran-based GUI while continuing to use the original FORTRAN calculation portion (sdbk.exe).

Changes to SMPDBK (sdbk.exe)

All of the algorithms in sdbk.exe are identical to the algorithms in the 1991 version of SMPDBK. The following changes were made to the graphical component of SMPDBK.

- ***Cross Section Display*** – The total cross sectional area is displayed in SDB-J. In SMPDBK, only the active portion of the cross section (BS) was displayed – this is incorrect. The total section (BS+BSS) should be displayed.

- ***Point of Interest Near the Dam*** – When the point of interest is located less than one mile from the dam, SMPDBK would default to the dam location (mi 0), and then display info at the downstream–most cross section. In sdbk.exe, the code was modified to properly move the point of interest to the closest cross section. SDB-J will display info at the cross section closet to the river mile as long as the point of interest is farther than 0.01 miles below the dam. If the point of interest is less than 0.01 miles below the dam, SDB-J will display the cross section info at the dam.

- ***Point of Interest Message*** – The message stating that the point of interest has been moved always printed out in SMPDBK. In SDB-J, the message prints out only if the point of interest is not located at any of the actual cross sections. A different message displays if no point of interest is given.

Enhancements to SMPDBK

The following enhancements have bee added to SDB-J.

- ***Input GUI*** – The SMPDBK GUI allows the user to enter the data in a simpler easier way. A detailed description of the input parameters is in the SMPDBK documentation.

- ***Graphical Output Display*** – The user may now view all of the cross sections without rerunning the application.

- ***Additional Input Parameters*** – The latitude and longitude have been added as input parameters to allow for future GIS integration.

System Information

Operation System – Windows 2000, XP and Vista
Language – Java 1.6+
Directory – c:\Program Files\River Mechanics\SMPDBK GUI
Files

- sdbj.exe – Fortran executable for SMPDBK algorithms
- sdb-j.jar – Java classes for SDB-J
- sdb-j.ico – SDB-J icon
- sdb-j.bat – batch file to execute SDB-J
- smpdbk.pdf – pdf file containing SMPDBK documentation

Acknowledgement

The initial development of the SMPDBK GUI was done by members of the River Mechanics Group in the National Weather Service Office of Hydrology in 2004.

Warranty

There is no warranty (implied or otherwise) associated with SDB-J. It is made available as-is. The developer is not responsible for the results generated by the application.