

FLO-2D Porting Document (Version 2009)

This document will describe the data file changes necessary to update older model data files to version 2009. Porting descriptions are listed from version 2004 to version 2006, version 2006 to 2007, and version 2007 to 2009.

Porting from Version 2007 to Version 2009

There are very few data input changes to convert Version 2007 data files to Version 2009. Except for adding groundwater model MODFLOW switch in CONT.DAT and the new CHANBANK.DAT file, all the changes involve optional data or components. The optional data file revisions do not require any 2007 data files modifications for the FLO-2D model to run. To convert v2007 data files to v2009 simply open the v2007 data files in the GDS and save them. Nothing else is necessary. Another approach is to simply review the data files with the Data Input Manual description and make any necessary changes.

CONT.DAT

Surface water - groundwater interaction can now be simulated through the integration at runtime with the MODFLOW model. The new switch parameter to initiate the groundwater model is IMODFLOW at the end of line 3 after the ISED parameter. For a default of no groundwater simulation set IMODFLOW = 0.

CHAN.DAT

The critical model revision that must be addressed is the elimination of the IQDIR channel extension direction from the CHAN.DAT file. The data input change is automated in the GDS and FLOENVIR. The required data revision is as follows:

Delete IQDIR from Line 2. This can be done manually. It is only necessary, however, to open and save the CHAN.DAT in the GDS or FLOENVIR and save the files and the IQDIR variable will be deleted and a new data file CHANBANK.DAT will be generated. This new file contains the left and right bank channel elements and it is automatically generated when the channel is saved in the GDS and FLOENVIR. After the CHANBANK.DAT is generated, it may be necessary to make some minor adjustments to the automated selection of the right banks. Again this can be done graphically in the GDS or FLOENVIR.

Optional Data File Revisions

The Courant Number can now be assigned in TOLER.DAT as line 2. See the PDF handout entitled "Courant Number Instructions".

Levee fragility curves can be assigned in the BREACH.DAT file and the global and individual levee curve assignment to the levee elements is accomplished in the LEVEE.DAT file. The new levee fragility curve data is appended to the each file. Refer to the respective data file descriptions to input the fragility curve parameters.

For surface water/groundwater interaction at runtime, review the required MODFLOW parameters in the MODFLOW.DAT file in the Data Input Manual.

Additional Output Files

Three new output files are now generated:

FPINFILTRATION.OUT contains the total cumulative infiltration by grid element.

VELTIMC.OUT and **VELTIMFP.OUT** lists maximum velocity and time of occurrence in descending order for the channel and floodplain respectively.

Porting from Version 2006 to Version 2007

Convert Version 2006 FLO-2D data files to the Version 2007. These data file revisions were made to simplify the data input and to accommodate new variables. No conversion program was created to perform the data file revision because they are so simple. Edit the data files as follows:

CONT.DAT

Delete INPLOT. This variable is now assigned automatically.

CHAN.DAT

Delete ICHDEP from Line 1. This variable is now assigned automatically. Please note that more than one line 1 may appear in the file.

LEVEE.DAT

Add ILEVFAIL to Line 1. This is new switch to identify the levee failure mode. Set ILEVFAIL = 0 for no levee failure. Set ILEVFAIL = 1 for prescribed level failure rates of breach opening. Set ILEVFAIL = 2 for initiating the levee or dam breach failure routine.

The following data files changes are optional and are not required to make a Version 2006 data set model run with the Version 2007 model.

CONT.DAT

Revised AMANN to accept -99 to turn the depth variable n-values for the floodplain.

INFLOW.DAT

Line 4 has been added to enable automatic assignment of water surface elevation for reservoirs or ponded areas. Line 4 includes the character 'R', a grid element within the reservoir area IRESGRID and the water surface elevation RESERVOIREL of the FLO-2D simulation. See INFLOW.DAT file description in the Data Input Manual.

TOLER.DAT

Revised WAVEMAX values to include a negative number that will turn off the dynamic wave stability criteria. See the TOLER.DAT file description for a complete discussion of the new stability criteria options.

The SCS curve number routine for infiltration has been added to the FLO-2D, but will not be functional until July 1, 2007.

INFIL.DAT

Add INFMETHOD in line 1. INFMETHOD is a new switch to identify the infiltration equation. Set INFMETHOD = 1 to simulate infiltration with the Green-Ampt method. Set INFMETHOD = 2 to simulate infiltration with the SCS curve number method. If you set INFMETHOD = 1, no further changes are necessary to the version 2006 INFIL data file. If you use the SCS method, you will have add a new line 4 with the SCSCNALL and new line 5 with INFILCHAR = 'S', INFGRID(N), SCSCN(N); the individual grid element SCS values.

Porting from Version 2004 to Version 2006

A program called CONVERT.EXE can be downloaded from the website www.flo-2d.com to automatically port from version 2004 to version 2006. Simply download the program and copy it into a folder that contains the 2004 FLO-2D data files (*.DAT). Double click CONVERT.EXE to run the program and it will find and convert the data files in the folder. Once the data files have been updated to Version 2006, the preceding porting instructions can be used to update the data files to Version 2009.

Porting from Model Earlier than Version 2004

Any FLO-2D version data files prior to Version 2004 have to be updated manually by reviewing the data file descriptions in the data input manual. Open the old version data files in WordPad® or any ASCII editor and adjust the data parameter format. For large or complex models, it may be cost effective to have the FLO-2D staff convert the data files to 2009 for an hourly fee. For more information, email us at contact@flo-2d.com.