DSM2 Bay-Delta Tutorial 2: Marsh Geometry

Purpose: The purpose of this tutorial is to take a closer look at geometry and practice using the cross-section importing tool.

1. **Reopen the historical tutorial**
   a. In windows, navigate to *\{DSM2_home}\tutorial\historical*.
   b. In the GUI, open historical_tutorial.

2. **Find the data:**
   a. You should have a zipped directory marked suisun_marsh_geometry in the tutorial folder. Use the Windows Extract All facility to unzip it.
   b. The top folder has a channels file called channels-suisun.inp. Only channels that have changed (e.g., new Mannings coefficient) are included.
   c. The irreg-calib-version file contains cross-section files named in the usual way: a channel number, then an underscore, then a fractional distance (.txt).

3. **Process the channels.**
   a. In the layer panel, create a new layer called suisun_geometry_2006. In the description, note that the data was provided by Suisun Marsh, Kate Le in December 2006. Select the layer as the editing layer in the Channels View.
   b. Open channels-suisun.inp, and transfer the contents to Excel. The intent of the rest of this section is simply to reorganize the data to match the column structure of the GUI.
   c. If the text columns are clumped into one column in Excel, use the Data>Text To Columns feature to separate them (choose Deliminated columns, with delimiter "Space" and "Tab" checked).
   d. In Excel, add a column for the layer. Enter the layer number for suisun_marsh_layer in the first row and copy this value to all the other rows. If you mess this up (try it on one row!!) the entries will be forced to the editing layer.
   e. In Excel, add a column for the "used" column. Enter TRUE into this column in the first row, and copy it to the other rows.

f. In Excel, swap the up node and down node columns by cutting and then selecting Insert>>Deleted Cells.
g. At this point, your geometry in Excel should be in identical form to the GUI Channel View. We are only modifying channels, not creating new ones. That is why we won't need to do anything with initial conditions. If we were adding new channels, we would have to add corresponding entries in the Channel Initial Conditions View.
h. Copy the new channels. Do not include the headers.
i. Right click in the top (Channels) table of the Channel View in the GUI. Press control-v or in the application Edit menu select "Paste Row"
j. Save your changes.
k. Process the Cross Sections
l. In the GUI, select the Tools > Import Cross Section tool. Use the file chooser and select all the files in the /suisun_grid/irreg-calib-version folder. Press OK. What happens? You will find you do not have all the required channels.
m. Working a few at a time, note the missing channels that were not in the channels-suisun.inp file you processed and copy and paste them over from the standard grid. It does no harm to use the importer to learn what is missing. Do *not* use the "with subtables" method of copying – we do not want the old cross-sections to be copied.
n. When you finally have all the channels, the importer should work. At this point, you should have bathymetry for the entire Suisun Marsh Grid.

4. Run the model and tune the grid

a. Obtain a command prompt in the study directory.
b. Run the model for January-March 1996.
c. How is the new geometry?