

C H A P T E R 6

Viewing HEC-RAS Water Surface Profiles

HEC-GeoRAS facilitates the import of water surface profile data exported from HEC-RAS results. Inundation area and depth are calculated during the import process and may be mapped using HEC-GeoRAS. Mapping options allow the user to view the extent of inundation for multiple profile data and determine the depth of inundation for a given event.

Mapping functions are performed in ARCPLOT.

Chapter 6 discusses the options for viewing exported HEC-RAS water surface profile data.

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- Importing an HEC-RAS Export File
- Inundation mapping
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Importing an HEC-RAS Export File

Water surface profile results exported from HEC-RAS are imported by selecting **Import RAS Export File** from the **RASPost** menu on the project manager. The window shown in Figure 6.1 will be invoked, allowing the user to select the file to be imported. Right clicking over the input box will allow the user to select from a popup list any file with the *.gis* extension in the current directory, while pressing the button to the right of the input field will invoke a file browser.

After selecting the import file, enter the name of a new cross section coverage to create. The new cross section coverage will contain the geometric data *from the RAS results*. Water surface elevations from the user selected water surface profiles will be added to the new cross section coverage during the import process.

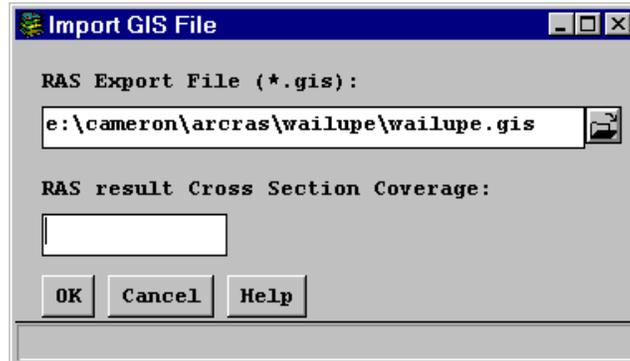


Figure 6.1 Import RAS Export File window

Pressing **OK** invokes the window shown in Figure 6.2 and allows the user to select the water surface profile data to process. The window also allows the user to select the grid-cell resolution of the depth grid that will be created. Pressing **OK** will create an inundation coverage and depth grid for each water surface profile selected and dismiss the windows.

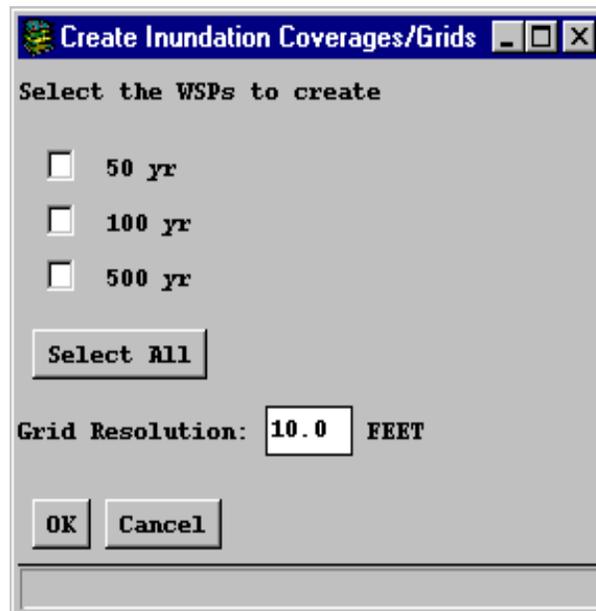


Figure 6.2 Create Inundation Coverages/Grids window

Two coverages will be created for each profile: a polygon coverage having the prefix $f_$ and a depth grid having the prefix $d_$, followed by the water surface profile name. A water surface TIN having the prefix $t_$ will be created but will be deleted after the water surface coverages have been

created. Underscores will replace any blanks in the water surface profile names. The coverages are created in the current workspace. The files *wsp.menu*, *wsp_draw.menu*, and *tempindex9999* will also be created in the current directory during this process. If the files already exist, they will be overwritten.

Profile names must be 11 characters or less. Inundation coverages will not be created for profiles with name longer than 11 characters.

Inundation Mapping

To view the coverages created, select **Inundation Mapping** from the **RASPost** menu. The Inundation Mapping window will be displayed along with a display window. The display window may be sized to the user's preference.

Mapping options are performed in ARCPLOT.

Inundation Mapping Menu

The Inundation Mapping window is organized by function. At the top of the mapping window are the File and Help menus. The upper portion of the window allows the user to select the coverages and corresponding colors to be displayed. The lower part of the menu provides the user with display window options. The Inundation Mapping window is shown in Figure 6.3.

File menu options include the Command Line, Print and Exit options, while the Help menu provides online help for users.

Command Line: Allows the user to issue commands at the Arc Plot prompt. Type &RETURN to return to the user interface.

Print: Print provides options for printing inundation map results.

Exit: Exit dismisses the mapping window and display and quits ARCPLOT. The user is returned to the project manger.

Help: Provides an ascii help file for mapping coverages.

ArcDoc: Provides access to the ARC/INFO help system.

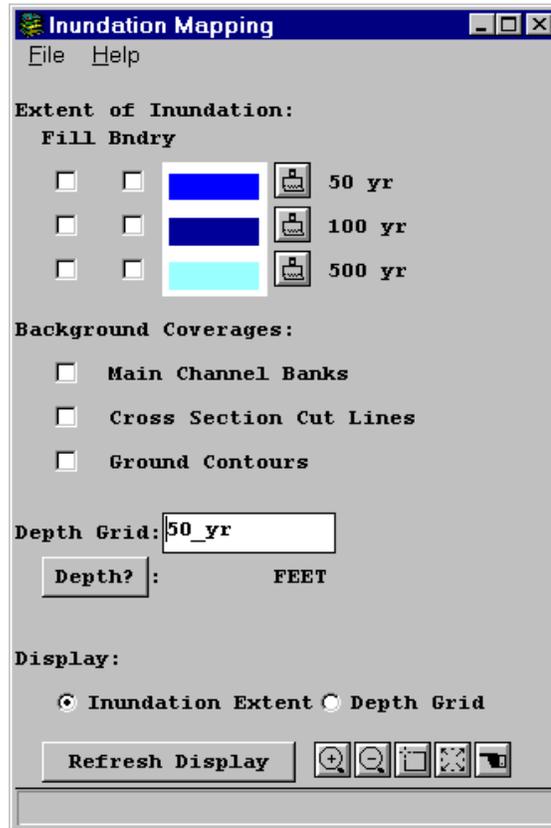


Figure 6.3 Inundation Mapping window

Coverage Display Options

Coverage display options allow the user to select the inundation extent coverages, background coverages, and the depth grid to be displayed. Inundation polygons and depths grids cannot be displayed at the same time. The extent of inundation may be viewed as a filled polygon or as a boundary polygon by selecting *Fill* or *Bndry*, respectively. These options may be mixed and matched as desired.

To select the color for the extent of inundation coverages, press the  button beside the profile name. A color palette will be displayed. If the user dismisses the palette before choosing a color, no color will be assigned to the coverage.

Selection of the depth grid is performed by right clicking in the input field or typing the exact name. A right click will result in a popup list from which the depth grid may be selected. Pressing the **Depth?** button will allow the user to interactively determine the water depth at a given

location. The water depth and corresponding units will be displayed to the right of the button. Use the cross-hairs and left click to select the location; right click to exit.

Background coverages may be displayed with the inundation coverages by selecting the corresponding check box. The Ground Contours, Main Channel Bank Stations, and Main Channel Invert coverages are the available background coverages, at this time. Background coverages will be displayed behind the inundation polygons but in front of the depth grid. Inundation mapping for exported water surfaces is shown in Figure 6.4.

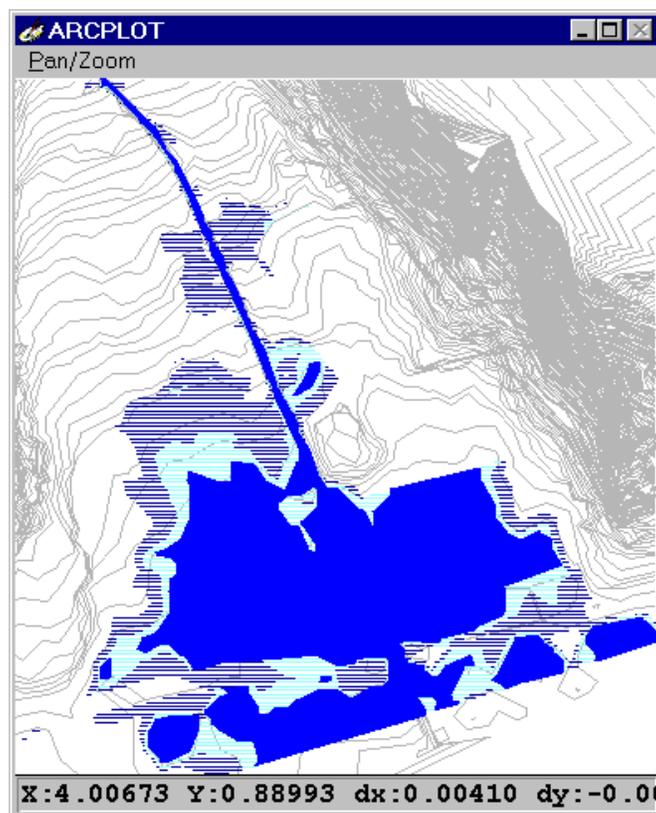


Figure 6.4 Inundation polygons

Window Display Options

Window display options allow the user to update the content of the display window. The *Display:* Poly Grid choice determines whether the inundation polygons or depth grid will be drawn to the display window. The polygons and depth grid may not be displayed simultaneously. The remaining display buttons are discussed below.

Refresh Display: Refreshes the display window with the selected coverage and display choice options.



ZoomIn: Zooms into the center of the window by a factor of 2. Use the left mouse button to select the location to zoom in to. Right click when finished zooming.



ZoomOut: Zooms out of the center of the window by a factor of 2. Use the left mouse button to select the location to zoom to. Right click when finished zooming.



ZoomExtent: Allows the user to specify the extent of the view using cross-hairs to select opposite corners.



FullView: Displays the entire extent of the coverage.



Pan: Allows the user to pan through the image without changing the scale of the view. Use the left mouse button to select the location to pan to. Right click when finished panning.

For each option, a left click perform the operation and a right click quits.

Printing Map Results

Map results displayed in the Inundation Mapping window may be modified and printed from the Print Map window. To access the Print Map window show in Figure 6.5, select **Print** from the **File** menu on the Inundation Mapping window.

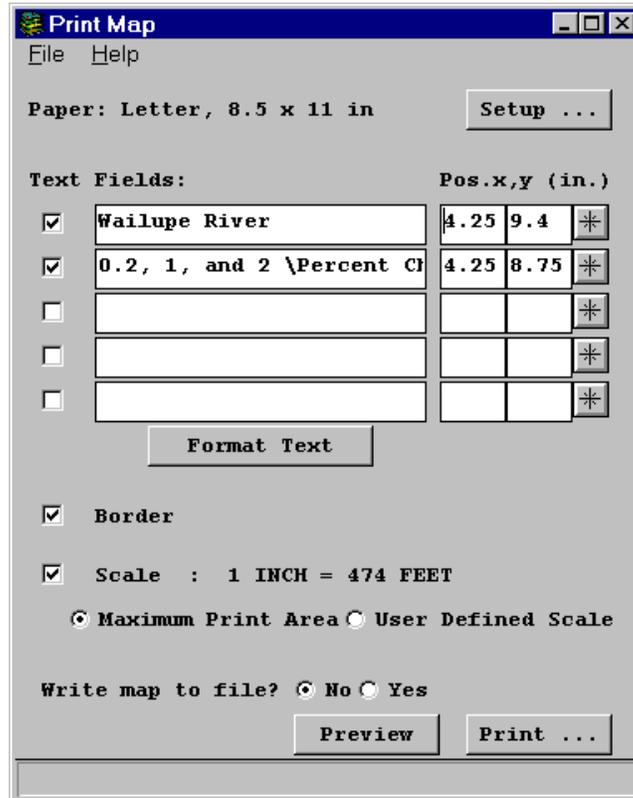


Figure 6.5 Print Map window

At the top of the Print Map window is a menu bar with the File and Help menus. The remainder of the menu is dedicated to modifying the page and presentation of the inundation map for printing.

The File menu options include Preview, Print, Command Line, and Exit, while the Help menu options provides access to online help.

Preview: Displays the entire page as it will be printed. Shown in Figure 6.6 is an inundation map displayed using the preview option.

Print: Writes the map to a file and brings up the ARC/INFO printing interface to print the map file.

Command Line: Allows the user to issue commands at the ARCPLOT prompt. Type &RETURN to return to the user interface. *Only experienced ARC/INFO users should use this option.*

Exit: Dismisses the Print Map window and returns control to the Inundation Mapping window.

Help: Displays a help file specific to the printing options

ArcDoc: Accesses the ARC/INFO online help system.

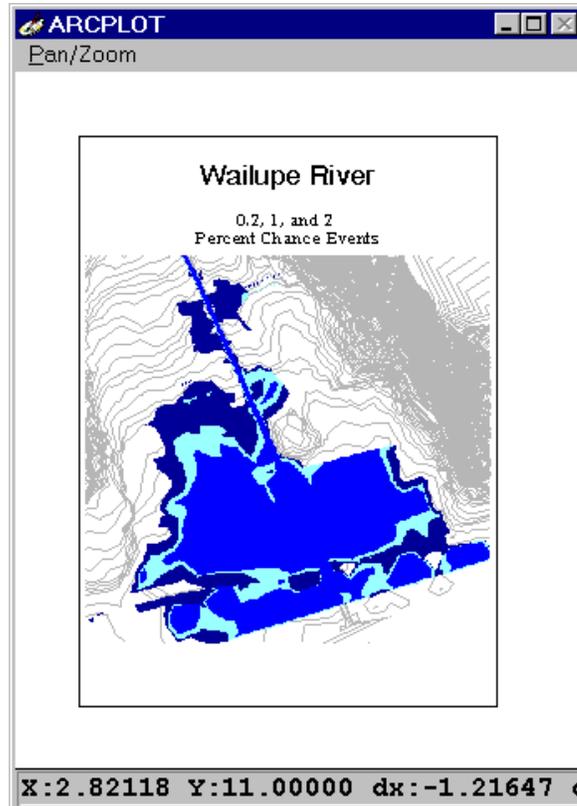


Figure 6.6 Preview of an inundation map

Options provided to the user for modifying the page presentation include the capabilities for selecting the page and page setup; displaying and formatting text; displaying a border; and specifying and displaying the map scale. Viewing a map presentation before printing a map is performed using the **Preview**, while the **Print** option writes the map to a file and accesses the ARC/INFO printing interface.

Page Setup

The type of paper currently selected for printing is displayed near the top of the Print Map window in the *Paper* field. To the right of the *Paper* field is the **Setup** button. Pressing the **Setup** button accesses the Page Setup window shown in Figure 6.7. The Page Setup window allows the

user to identify the *Paper* and *Orientation* and specify the *Page Margins* and *Internal Margins*.

Paper size options are provided for standard sizes. The user may select from the standard paper sizes listed by clicking the right mouse button while the cursor is over the *Paper* input box. The default paper size is Letter, 8.5 x 11 in.

Paper Standard	Size
Letter	8.5 x 11 in
Legal	8.5 x 14 in
B	11 x 17 in
C	17 x 22 in
D	22 x 34 in
E	34 x 44 in
F	44 x 68 in

Orientation choices are *Portrait* and *Landscape*. *Portrait* specifies that the first dimension listed after the name is the width of the paper while *Landscape* specifies that the second dimension is the paper width. *Portrait* is the default paper orientation.

Page Margins indicate where the *Border* will be drawn, if so desired. The margins are be specified in inches from the papers edge. One inch *Page Margins* are the default.

Internal Margins determine the area available for the map to be displayed. The margins are specified in inches inside of the *Page Margins*. The default margins are 1.0 inch from the top page margin and 0.1 inch from the remaining edges.

The **OK** button applies the Page Setup setting and dismisses the window. **Cancel** dismisses the window without changing the setup.

Text

Text options allow the user to enter five labels and specify the format and location of the text displayed. The *Text Fields* on the Print Map window

allow the user to type in the labels for the map. To enter a label, select a text field using the left mouse button and begin typing. Text with percent signs (%) on each side is not allowed, while backward slashes (\) will result in the text continuing on the next line, much like a carriage return. The corresponding checkboxes to the left of the *Text Fields* determine which text will be displayed when the **Preview** and **Print** option are used.

The position of the text may be specified by entering the coordinates manually or by pressing the  button and selecting the text placement with the cross-hairs provided. The positioning of the text in relation to the cross-hairs placement depends upon the justification setting for the text field.

To format a text field press the **Format Text** button. The window shown in Figure 6.8 will be displayed. The label text will be displayed on the left portion of the window with the formatting value displayed in corresponding fields to the right.

To select a *Font*, press the right mouse button over a selected font field to invoke the list of available fonts, or type in the entire name into the field. At this time, Courier, Helvetica, Palacio (Palantino), and Times fonts are available in normal, italic, bold, and bold italic. Helvetica is the default.

Font Size may be specified by typing in the desired size. Press the carriage return after entering the size. Size 16 pt font is the default.

Justification refers to the alignment of the label in relation to the cross-

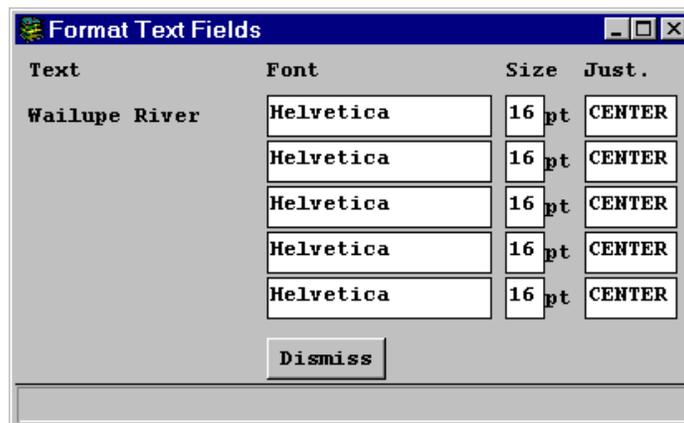


Figure 6.8 Text formatting window

hair position described earlier. LEFT, CENTER, and RIGHT justification choices are available. LEFT justification means that the bottom left-hand corner of the label will be located at the coordinate position shown on the Print Map window, while CENTER means the text will be centered above the position specified, and RIGHT means that the right-hand bottom corner of the label will be located at the position specified. Right click over the *Just.* field to invoke a popup list or type in the justification choice as listed above.

OK closes the Format Text Fields window, keeping any changes made.

Border

To display a border when using **Preview** and **Print** select the corresponding checkbox. The border will be drawn in black at the *Page Margins* specified using **Page Setup**.

Map Scale

To display the map scale on the printed map, select the corresponding checkbox. The map scale will be printed at the bottom left-hand corner, just below the border. The *Maximum Print Area* choice is used to print the map using the entire display area as determined from the *Internal Margins*. The *User Defined Scale* provides the user with a response window for entering a specific scale. The scale is defined as 1 inch to X map units, where X is the scale and map units are determined from the DTM. The display area is reduced to fit the longest side of the map.

Preview

To preview the map before printing, use the **Preview** option from the **File** menu. During preview, the map displayed from the Inundation Mapping window will be shown along with any items that have the corresponding checkbox checked.

To change the map displayed during preview, select **Exit** from the **File** menu to return to the Inundation Mapping window. From the Inundation Mapping window the user may adjust the map view as desired, before returning to the Print Map window.

Print

To print the map, select **Print** from the **File** menu. This will write the map to a file before accessing the ARC/INFO printing interface. If the user wishes to save the map to a file, select the *Yes* choice for *Write map to file?* Otherwise, a temporary file *tempprintfile.gra* will be used to print the map.

From the printing interface select the file to print and printer **Driver** (Window NT) or printer (UNIX) and press **Print**. When finished printing press **Quit**, to return to the Print Map window.

To print from UNIX, a print queue file must be setup.

Exit

To exit from the Print Map window, select **Exit** from the **File** menu. The user will be returned to the Inundation Mapping window.