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Chapter 1 : CARA INSTAL ArcGIS | Tutorial ArcGis 9 3 1

In this tutorial you'll see how to explore data with ArcCatalog, add data to ArcMap, explore and symbolize data on a map, add elements to a map layout, and print a map. Watch the tutorial.

Now open the attribute table of River featureclass, and you will see that the information. Computer Requirements You must have a computer with windows operating system, and the following programs installed: Additional datasets that may be useful are aerial photograph s and land use information. Download the zip file on your local drive, and unzip its contents. Close the Extensions window. The ApUtilites menu contains functions mainly for data management. The Help menu is self-explanatory. You will learn about functions associated with these menus and buttons in the following sections. It is then cumbersome to find out which feature classes were used during pre-processing, and which feature classes contain results for visualization. If you right click on the BaxterGeometry data frame, and then click on Propertiesâ€¦, you will see No Projection in the Coordinate System tab. Close the data frame properties window. To create a geometry file, you need terrain elevation data. You must have the same coordinate system for all the data and data frames used for this tutorial or any GeoRAS project. You can check this by right-clicking on the data frame and looking at its properties. If you wish, you can click on individual attribute to create a single layer at a time, or you can click on All to create all layers. For this tutorial, click on ALL to create all layers. After creating RAS layers, these are added to the map document with a pre-assigned symbology. Since these layers are empty, our task is to populate some or all of these layers depending on our project needs, and then create a HEC-RAS geometry file. Creating River Centerline Let us first start with river centerline. So there are three reaches: Zoom-in to the most upstream part of the upper Baxter reach to see the main channel black outline shown in the above figure. To create the river centerline in River feature class , start editing, and choose Create New Feature as the Task, and River as the Target as shown below: Using the Sketch tool highlighted above , start digitizing the river centerline from upstream to downstream until you reach the intersection with Tule Creek tributary. To digitize the upper Baxter River reach, click in the direction of flow and double click when done at intersection with Tule Tributary. If you need to pan, click the pan tool, pan through the map and then continue by clicking the sketch tool do not double-click until you reach the junction. After finishing digitizing the upper Baxter Reach, save the edits. Before you start digitizing the Tule Creek tributary, modify some editing options. Close the snapping box, and then start digitizing the Tule Tributary from its upstream end towards the junction with the Baxter River. When you come close to the junction, zoom-in, and you will notice that the tool will automatically try to snap or hug! Double click at this point to finish digitizing the Tule Tributary. Finally, digitize the lower Baxter reach from junction with the Tule Tributary to the most downstream end of the Baxter River. Again make sure you snap the starting point with the common end points of Upper Baxter Reach and Tule Tributary. Save edits, and stop editing. Snapping of all the reaches at the junction is necessary for connectivity and creating HEC-RAS junction so make sure the three reaches are snapped correctly. After the reaches are digitized, the next task is to name them. We can treat the main stem of the Baxter River as one river and the Tributary as the second river. With the button active, click on the upper Baxter River reach. You will see the reach will get selected, invoking the following window: Click on the tributary reach, and use Tule Creek and Tributary for River and Reach name, respectively. Now open the attribute table of River featureclass, and you will see that the information you just provided on river and reach names is entered as feature attributes as shown below: Before we move forward let us make sure that the reaches we just created are connected, and populate the remaining attributes of the River feature class. This will populate the remaining attributes. Now open the attribute table for River, and understand the meaning of each attribute. HydroID is a unique number for a given feature in a geodatabase. The River and Reach attributes contain unique names for rivers and reaches, respectively. The FromNode and ToNode attributes define the connectivity between reaches. For example, each river has a station number of zero at the downstream end, and is equal to the length of the river at the upstream end. Close the attribute table, and save the map document. Creating River Banks Bank lines are used to distinguish the main channel from the overbank floodplain areas. Information related to bank locations is used to assign different properties for crosssections. Creating bank lines is similar to creating the channel centerline, but there are no specific guideless with regard to line orientation and connectivity - they can be digitized either along the flow direction or against the flow direction, or may be continuous or broken. To create the channel centerline in Banks feature class , start editing, and choose Create New Feature as the Task, and Banks as the Target as shown below: Although there are no specific guidelines for digitizing banks, to be consistent, follow these guidelines: Digitize banks for all three reaches and save the edits and the map document. Creating Flowpaths The flowpath layer contains three types of lines: The flowpath lines are used to determine the downstream reach lengths between cross-sections in the main channel and over bank areas. If the river centerline that we created earlier lie approximately in the center of the main channel which it does , it can be used as the flow path centerline. Use the sketch tool to create flowpaths. The left and right flowpaths must be digitized within the floodplain in the downstream direction. These lines are used to compute distances between cross-sections in the over bank areas. Again, to be consistent, looking downstream first digitize the left flowpath followed by the right flowpath for each reach. After digitizing, save the edits and stop editing. Now label the flowpaths by using the Assign LineType button. Click on the button notice the change in cursor , and then click on one of the flow paths left or right, looking downstream , and name the flow path accordingly as shown below: Label all flow paths, and confirm this by opening the attribute table of the Flowpaths feature class. The LineType field must have data for each row if all flowpaths are labeled. Cross-section cutlines are used to extract the elevation data from the terrain to create a ground profile across channel flow. The intersection of cutlines with other RAS layers such as centerline and flow path lines are used to compute HEC-RAS attributes such as bank stations locations that separate main channel from the floodplain , downstream reach lengths distance between crosssections and Mannings n. Therefore, creating adequate number of cross-sections to 10 produce a good representation of channel bed and floodplain is critical. Certain guidelines must be followed in creating cross-section cutlines: Even though it is not required, but it is a good practice to maintain a consistent spacing between crosssections. In addition, if you come across a structure eg. Structures can be identified by using the aerial photograph provided with the tutorial dataset. For example, we will use one bridge location in this exercise just downstream of the junction with tributary as shown below bridge location is shown in red: Follow the above guidelines and digitize cross-sections using the sketch tool. While digitizing, make sure that each cross-section is wide enough to cover the floodplain. This can be done using the cross-sections profile tool. Click on the profile tool, and then click on the cross-section to view the profile. For example, if you get a cross-section profile shown in Figure A below, then there is no need to edit the cross-section, but if you get a cross-section as shown in Figure B below, then the cross-section needs editing. This tool stops the edit session so you will have to start the edit session every time after viewing the cross-section profile. Since all these attributes are based on the intersection of cross-sections with other layers, make sure each cross-section intersects with the centerline and overbank flow paths to avoid error messages. This tool will assign station number distance from each cross-section to the downstream end of the river to each cross-section cutline. This tool assigns bank stations distance from the starting point on the XS Cutline to the left and right bank, looking downstream to each cross-section cutline. This tool assigns distances to the next downstream cross-section based on flow paths. When you used the profile tool earlier to view the cross-section profile, the program used the underlying terrain to extract the elevations along the cutline. After this process is finished, open the attribute table of XSCutLines3D feature class and see that the shape of this feature class is now PolylineZ. Creating Bridges and Culverts After creating cross-sections, the next step is to define bridges, culverts and other structure along the river. Since we used aerial photograph while defining the crosssections, our job of locating the bridge is done. Using the sketch tool on the editor toolbar, the digitize bridge location just downstream of the tributary junction. Save your edits and stop editing. Besides these attributes, you must enter additional information about the bridge s such as the name and width in its attribute table as shown below. A new feature class Bridges3D will be created. You can check it is PolylineZ by opening its attribute table. For example, areas behind bridge abutments representing contraction and expansion zones can be considered as ineffective flow areas. Use the sketch tool to define ineffective areas. The figure below shows an example of ineffective area for the bridge downstream of the tributary junction Note: The position of ineffective areas will be stored in a new table named IneffectivePositions. Leave current user elevations unchecked, and Click OK. Open the attributes of the IneffectivePositions table shown below to understand how this information is stored.

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ArcMap Tutorial Index. This tutorial is available as a PDF. Open the ArcMap tutorial PDF. Return to the Tutorials Index page.

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Chapter 4 : ArcGIS Help - ArcGIS tutorials

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ArcMap, and browse to baxter_tin to add the terrain to the map document. You must You must have the same coordinate system for all the data and data frames used for this tutorial (or.

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