

1. The Digital Elevation Model (DEM)

ArcGIS 9 is employed here to determine the hydrological database for the catchment using the The Geographical Information System (GIS).

Our first goal is to create a Digital Elevation Model (DEM) of our study area where the altitude is recorded in a raster format. (The map is broken down into pixels where information of the elevation is assigned for and stored in each pixel.

Using the contour shapefile provided on the HydroAsia platform, a Triangular Irregular Network (TIN), where it is a representation of the 3D vectorial point file, is created using the 'create TIN from feature' function in '3D analyst' tools.

And from this file, a Digital Elevation Model (DEM) representative of the catchment's elevation is created by simply using the 'Convert TIN to Raster' function in the '3D analyst' tools.

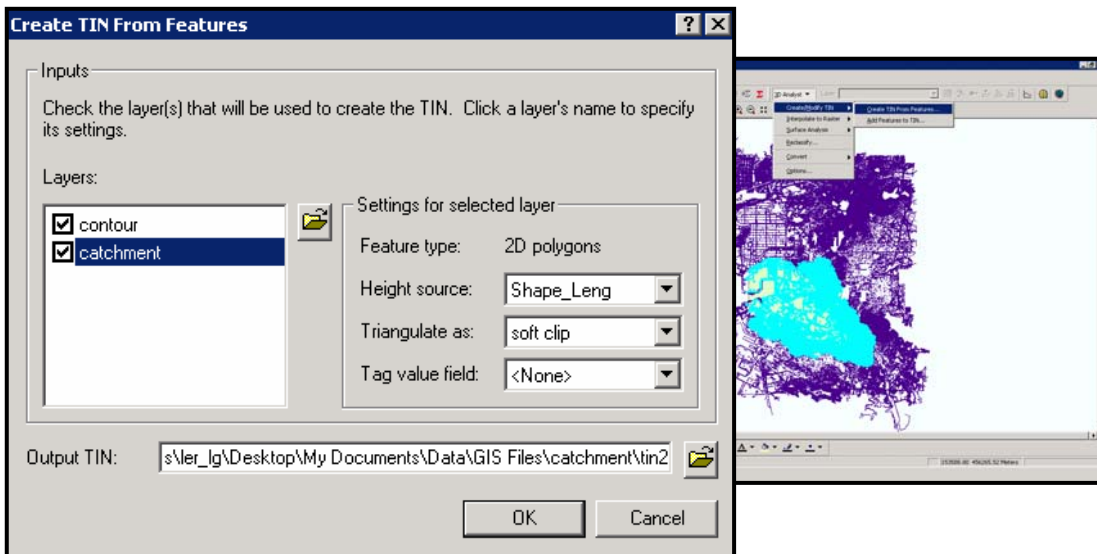


Figure 1.1 – Creating TIN file

In the 'Create Tin From Feature' dialogue box, we use the catchment shapefile as a 'softclip' to narrow down the creation of TIN to the area of interest.

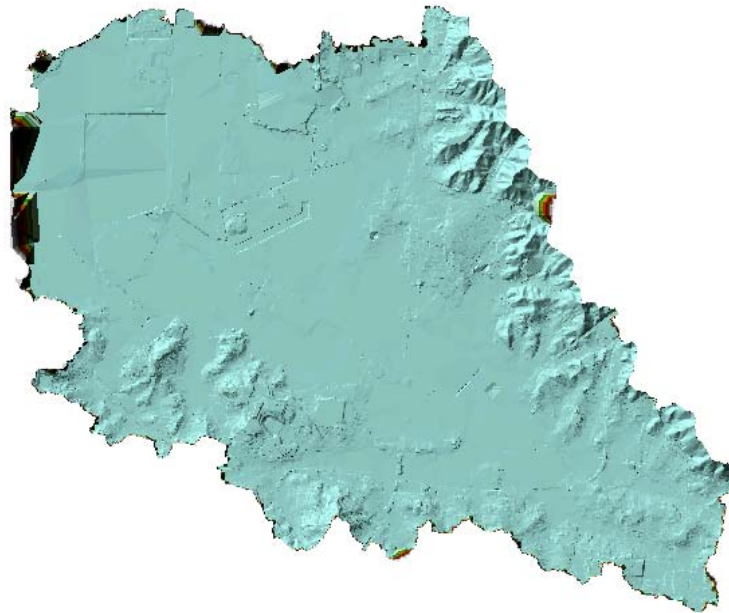


Figure 1.2 – TIN file of the Catchment

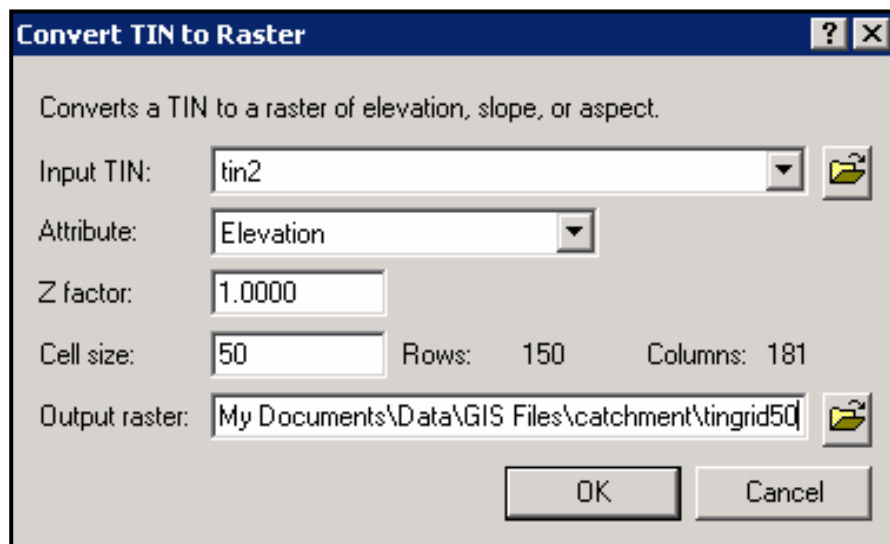


Figure 1.3 – Conversion of TIN to RASTER

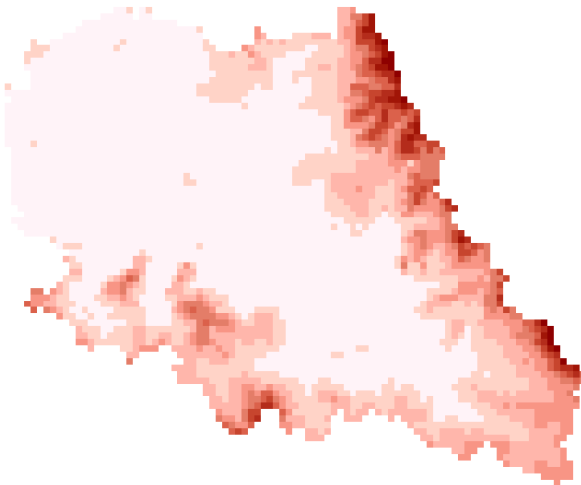
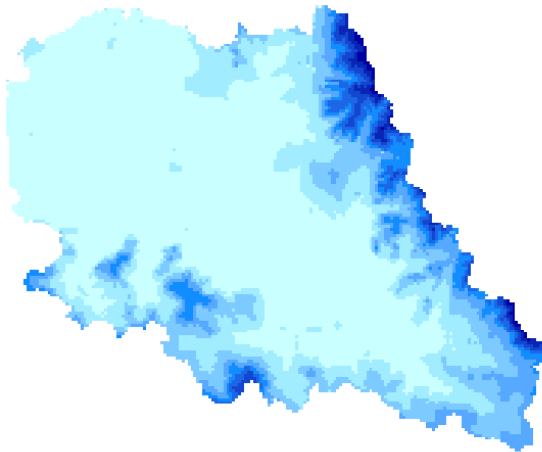
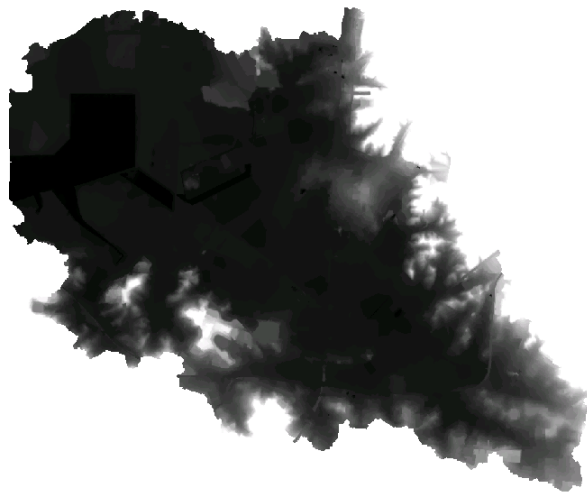


Figure 1.4 – DEM of Grid Size 5x5, 50x50 & 100x100 (Top to Bottom)