

Working with OGDE DEM data in ArcMap 9.x

Introduction

The Ontario Geospatial Data Exchange (OGDE) provides a Digital Elevation Model (DEM) data set which covers the province of Ontario up to the 51st parallel. The time period covered is from January 8, 2001 - December 20, 2002. Cell resolutions are 20 metres in northern Ontario and 10 metres in southern Ontario. Data are in binary floating point (.flt) format.

I. DEM data and documentation from OGDE

DON'T FORGET

In general when working with ESRI software:

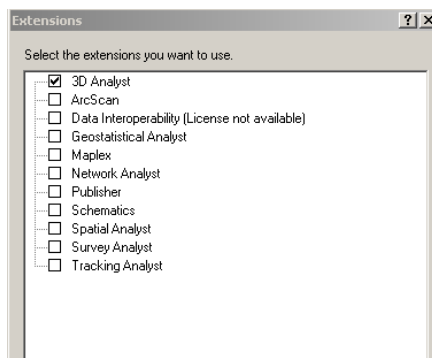
- Files cannot be placed in a directory which has a space in the name, or a space anywhere in the path to the directory.
- File names cannot be over 13 characters long.
- File names cannot contain special characters; for example, #, @, %
- Underscores are permitted.

Put the DEM data folder in a directory that has no blanks in the path name -- not on the Desktop. **C:\temp** is always a good choice.

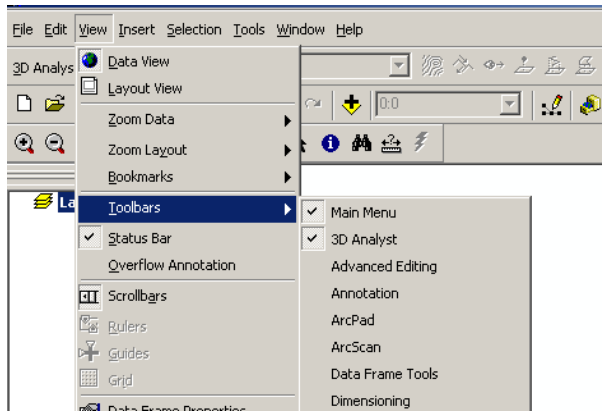
The folder should include a file of grid elevation data (.dem), a geographic referencing header file (.hdr), a graphic index to adjoining tiles of DEM data and metadata. Since DEM data available from OGDE are binary floating point number files, it is necessary to copy the original .dem file and give it a **.flt (floating)** extension.

Name	Size	Type
Metadata		File Folder
dem082.dem	79,573 KB	DEM File
dem082.hdr	1 KB	HDR File
DEM Tiles Version 1-1 - Provin...	117 KB	Adobe Acrobat Document
dem082.flt	79,573 KB	FLT File

II. 3D Analyst



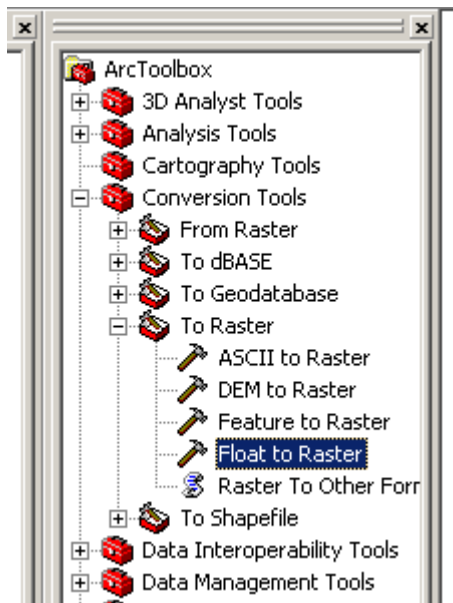
In **ArcMap**, turn on **3D Analyst** under **Tools ... Extensions**.



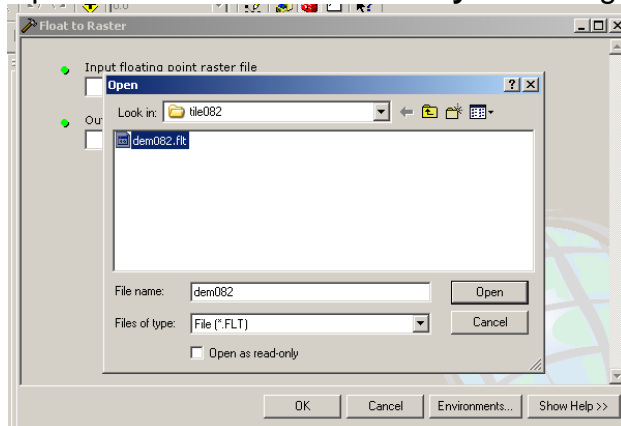
Turn on the 3D Analyst Toolbar under **View ... Toolbars.**

III. Convert to raster for use in ArcGIS

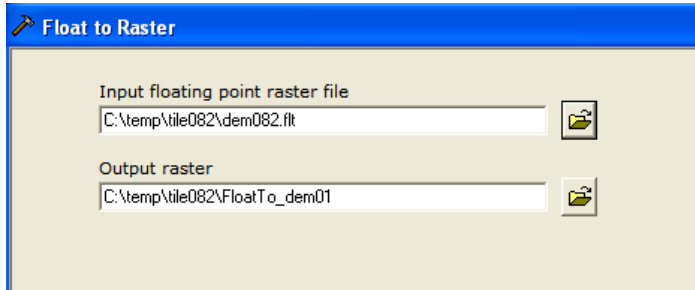
Open **ArcToolbox ... Conversion Tools ... To Raster ... Float to Raster.**



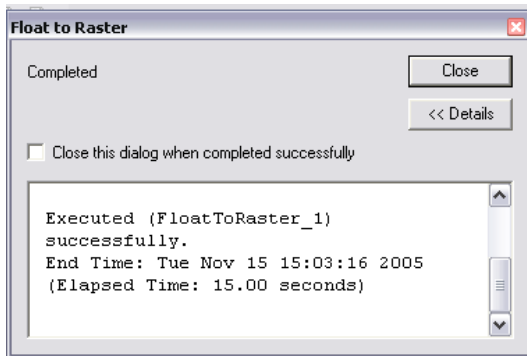
Open the **Float to Raster Utility** and navigate to the Input floating point raster file.



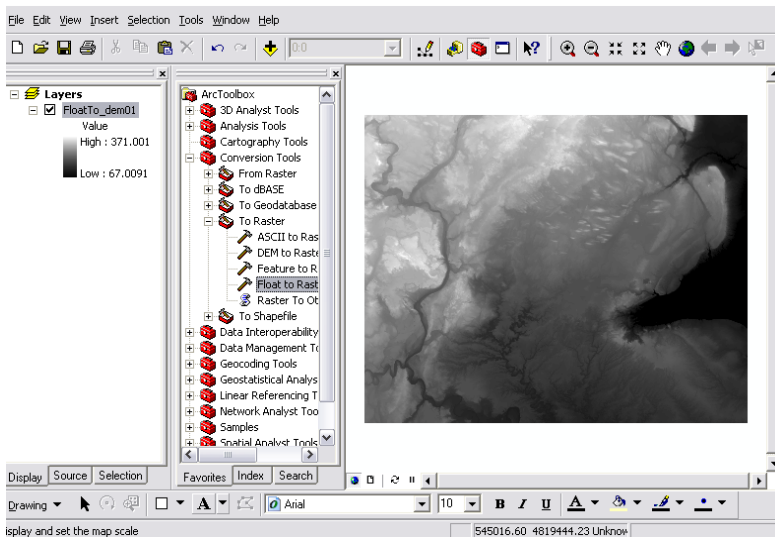
You may need to change the default Output raster name to something shorter. In this example the default Output name is **FloatTo_dem01** (13 characters, the maximum length permitted) There is no extension needed on the file name when using this Utility in ArcToolbox.

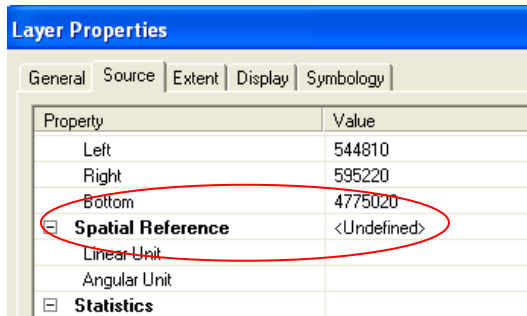


Click OK and the Float to Raster utility will execute.



After this executes, the raster image will open in ArcMap. If an error occurs, check file-name and path syntax.





However, the spatial reference or projection for the data is still undefined. (Right click on the layer name and check its Properties.) Defining the projection will permit overlaying of other georeferenced files.

IV. Setting the Projection for a DEM file

The Metadata file delivered in the DEM folder provides information that will help define the file's projection in ArcGIS for the first time:

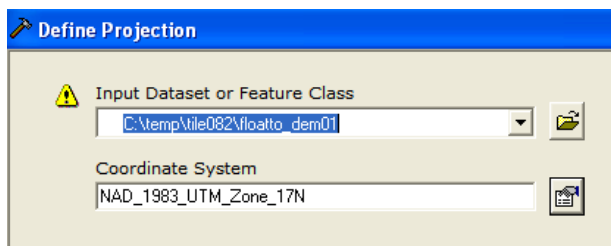
MAPPING INFORMATION

Grid Coordinate System Used: Universal Transverse Mercator

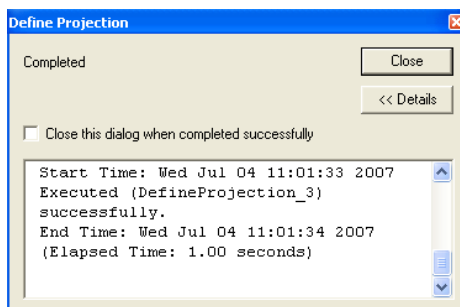
Map Projection: Transverse Mercator

Horizontal Geodetic Datum: NAD83

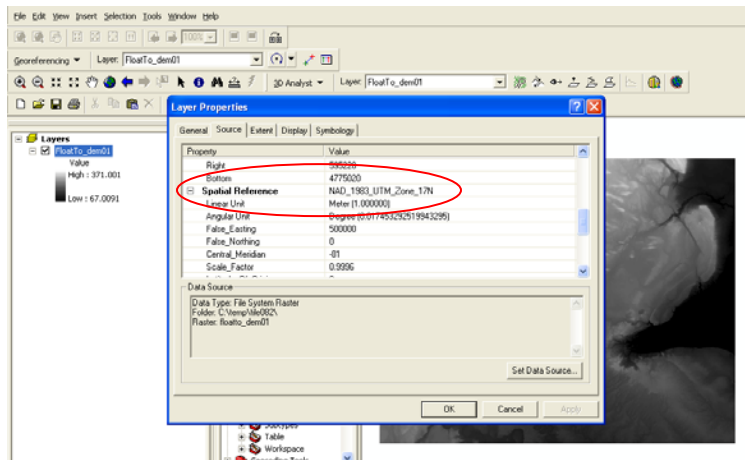
In ArcToolbox, select **Data Management Tools ... Projections and Transformations ... Define Projection**. Browse to the file (in this example, *floatto_dem01*)



In the coordinate System window, select **Projected Coordinate Systems ... UTM ... NAD83 ... NAD83 UTM zone 17N**. (Not sure what Zone your data is in? Look at the graphic index that is included with the delivered DEM data or go to http://library.queensu.ca/webdoc/maps/guides/ont_dem_tile_index.pdf)



The projection definition has taken place successfully.



Back in ArcMap, right click on the raster file name and, under the Properties tab, scroll down to the Spatial Referencing section to verify that the projection has been set to NAD 83 UTM Zone 17N.