

Title : Grid Projector
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Date : May 28, 1999

Requires : Spatial Analyst

The extension allows a user to take a grid in a known projection and then project the grid to another user chosen projection.

This extension is similar in operation to ESRI's projector extension. I even borrowed some of the code from the projector extension to make things easy on the user since most have used the projection extension and also because I am a firm believer in code reuse.

To install the extension just place the gridproj.avx file into your ArcView Ext32 directory and then in Arcview choose File->Extensions and Choose the "Grid Projector" Extension by checking the box to the left and pressing OK.

You will see one new button added to the View GUI which has an icon which looks like the following.



To use the extension make the grid theme you want to reproject active and press the above button. You will be ask to enter the input projection in not geographic and you will be ask to enter the ouput projection. You will then be ask the view you would like to place the newly projected grid theme in.

Give it a few minutes especially if the grid is large. You will see a message of what is going on in the bottom left message area of your ArcView application..

I have not tried this extension with all different types of projections. I have tested a fair number and one thing I have found is that if you project a grid and then if you try to project it again into another projection you may get an error. The problem, I believe is with a singular matrix. When you go from one projection to another and then another, the cellsize stays the same but your absolute extents can change. This can sometimes cause a problem with the warp. To avoid such problems, if you need a grid to be in more than one projection, then always project the grid from the original. That is lets say you have a grid in Geodetic and you want a copy in UTM Zone 15 and one in Robinson. Then always project from the Geodetic original for both new projections.

Thats all there is to it. If you discover a bug fix it and send me the corrected version or let me know and I will fix it. If you are interested then the information below explains how this extension works.

Extension Inards

Someone about a week ago ask me if there was an extension or script to reproject a grid theme. I did not no of any but after thinking about it for a while I decided there would be an easy way to achieve grid reprojection and this extension was born.

The whole thing is actually pretty easy.

The user chooses the grid theme by making it active. Then if the grid is determined to be geographic then they input the ouput projection. Other wise they enter the input and output projection.

Next I generate an equally spaced point shape file over the extents of the input grid. There are 101 rows and 101 columns used for a total of 10201 points placed over the grid. These points are used as FROM control points.

Next this temporary shape file is reprojected to the user output projection and written to another temporary shapefile. This shapefile contains the same points as the first only they are in the new output projection and they are used as the TO control points.

Finally the warp request is used with the FROM and TO Control points with a third order polynomial fit which generates the new reprojected grid. Since a large number of control points are used, the new grid fit is rather good.

Thats all there is to it.

Have fun

-peace K.