"Clip" a GRID using a Polygon Shapefile

These instructions enable you to "clip" a grid layer in ArcMap 8.x using Spatial Analyst. Basically, you set the Analysis Options so that processing occurs only within a mask set to the shapefile.

ORIGINAL DATA THEMES

POLYGON.shp   a polygon shapefile
RASTER   sample raster grid file

CREATED DATA THEME

RASTER_POLY   the clipped/extracted grid

1. In ArcMap, choose TOOLS → EXTENSIONS and enable Spatial Analyst
2. Choose TOOLS → CUSTOMIZE and make the Spatial Analyst toolbar visible
3. Add the **RASTER** grid and **POLYGON.shp** polygon data

To "clip" a grid in ArcGIS, all you need to do is set the appropriate Analysis Options and then call on the Spatial Analyst Raster Calculator.

4. Choose SPATIAL ANALYST → OPTIONS
5. Under the GENERAL tab, set the Analysis Mask to "Same as Layer **POLYGON**"

This sets the "clip" layer because processing is only allowed inside the chosen vector features.

6. Under the EXTENT tab, select "Same as Layer **POLYGON**" as the Analysis Extent

This ensures that the output raster will not be larger in extent than the POLYGON layer. If you keep this the same as the original grid, you will get a lot of NoData.

7. Also, under the EXTENT tab, select "Same as Layer **RASTER**" as the Snap to Raster layer

This ensures that the output raster cells line up with the input cells - you may opt to ignore this or use a different layer, which may involve resampling.

8. Under the CELL SIZE tab, select "Same as Layer **RASTER**" as the Analysis Cell Size
9. Click OK

Now when you perform any operation in Spatial Analyst, the output will be within the POLYGON mask (so you may need to remember to reset or set it to None when finished).
Finally, TO CLIP ANY EXISTING RASTER:

10. Choose SPATIAL ANALYST → RASTER CALCULATOR
11. Double click on the **RASTER** layer to enter it in the expression box
12. Click EVALUATE

This is essentially the same as multiplying all values by one.

13. Right click on the "Calculation" and MAKE PERMANENT by saving with a new name; e.g. **RASTER_POLY**