

Essential Geoprocessing Tasks

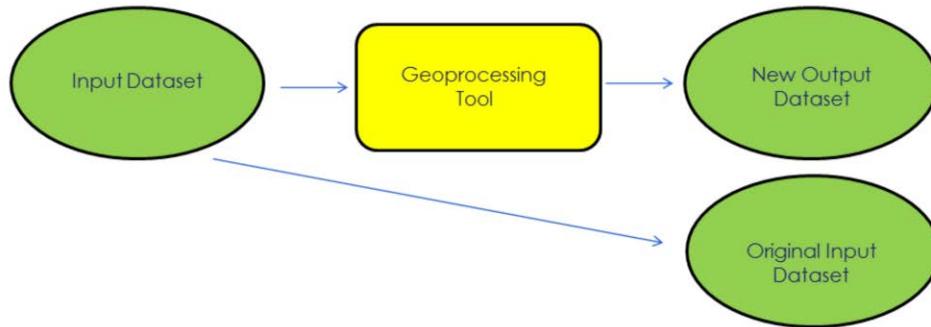
GIS II: Data Management



- Define geoprocessing
- Learn how to use common geoprocessing tools
- Examine geoprocessing settings and environments



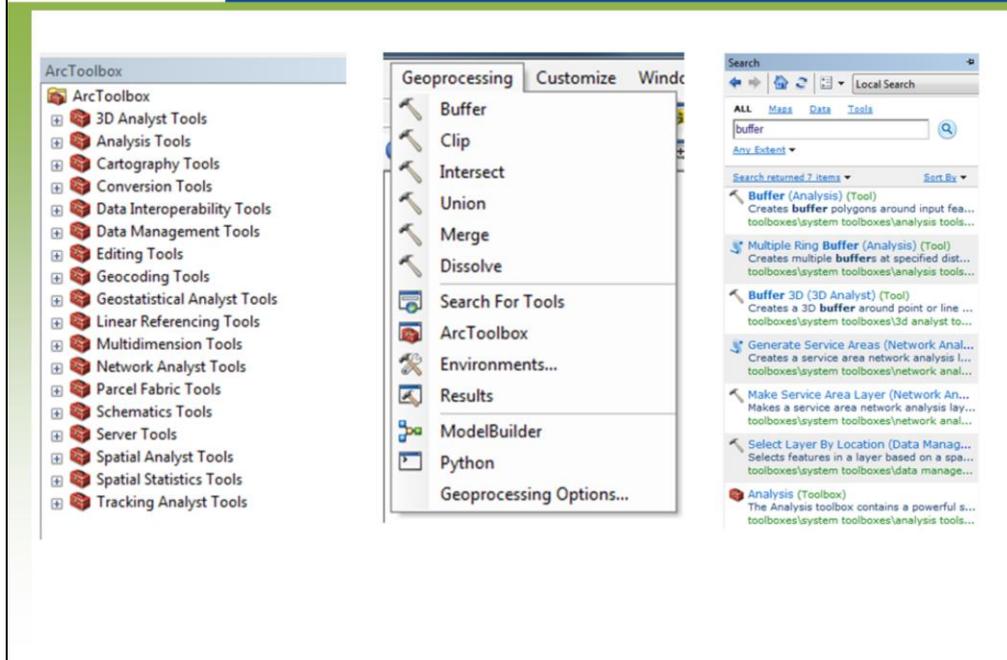
- Any operation that transforms spatial data
 - Data management
 - Spatial analysis
 - Automation of tasks
 - Modeling
- In most cases, geoprocessing tasks create a new dataset



Geoprocessing is a catch-all term for the manipulation of geographic data.

Most of the tools in ArcToolbox are geoprocessing tools.

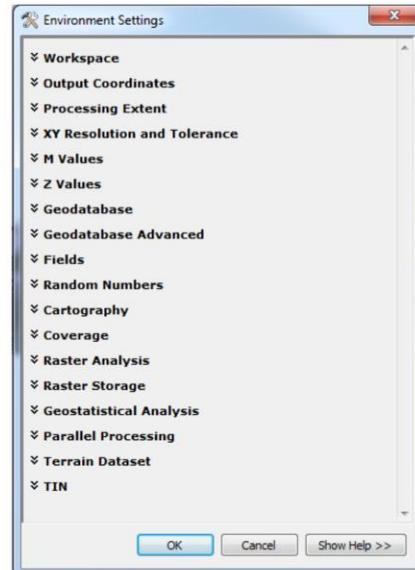
In most cases, you don't need to worry about "messing up" your data by running a geoprocessing tool because your input dataset remains intact.



There are several places to look for geoprocessing tools.

- ArcToolbox contains all of the tools, but there are hundreds of tools and remembering where tools are can be difficult.
- The Geoprocessing menu has a few of the most commonly used tools for easy access. From this menu you can also adjust geoprocessing options and environments.
- The Search box allows you to type in a keyword and search – make sure you are clear about which tool you select (some have similar names).

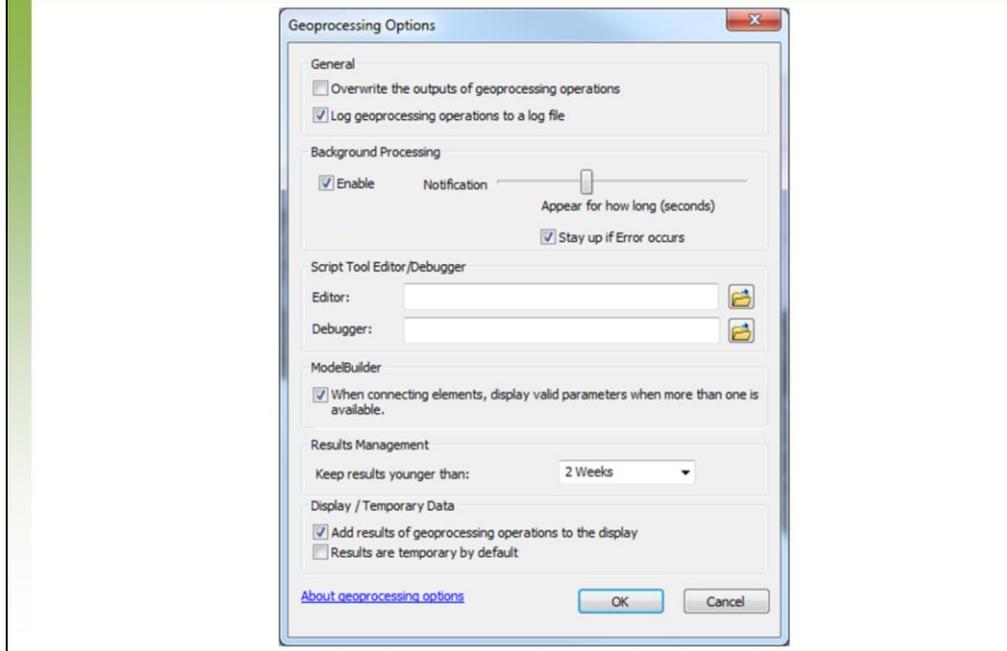
- Can set options for individual tools and globally
- Common settings to change:
 - Workspace
 - Output Coordinates
 - Processing Extent



Workspace – where your files save to by default.

Output coordinates – coordinate system for any new file you output.

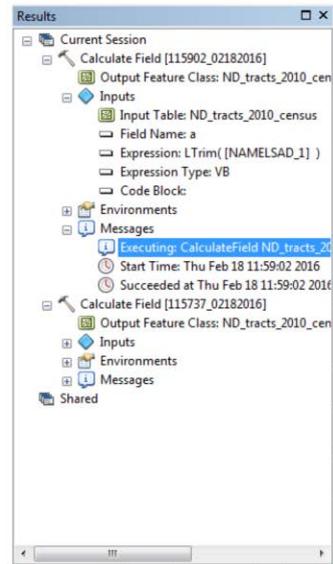
Processing extent – the geographic extent (bounding coordinates) of your data.



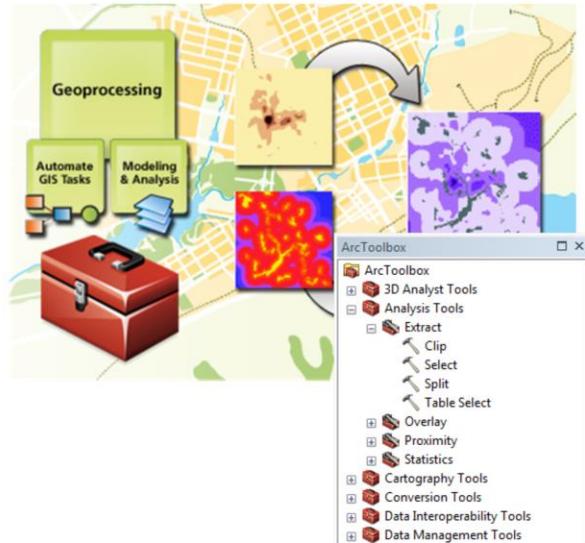
May want to check the option to “overwrite the outputs of geoprocessing operations” – this will make it possible for you to save over files.

Having background processing enabled means that tools will run in the background of ArcMap while you continue to work – this may not be desirable if you are running a very memory intensive process.

- Results are saved in the MXD
- Review input parameters
- Check warning/error messages
- Documents Geoprocess
- Re-run the analysis



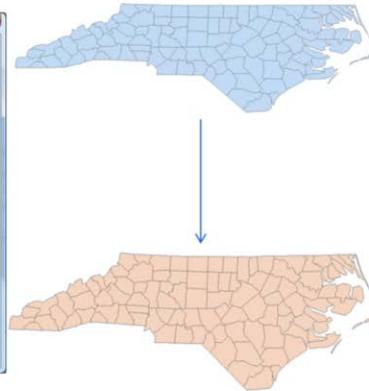
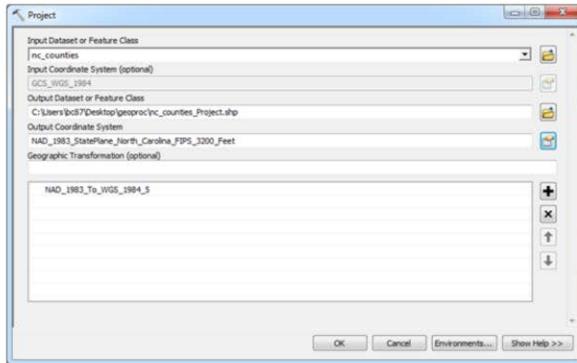
- **Extract**
- **Overlay**
- **Proximity**
- **Conversion**
- **Data Management**
- **Geocoding**
- **Network Analyst**
- **Spatial Analyst**
- **Spatial Statistics**



Some common tools:

- Extract
 - Clip
- Overlay
 - Spatial Join
- Proximity
 - Buffer
- Conversion
 - To/from raster, vector, KML, geodatabase, CAD
- Data Management
 - Merge
 - Dissolve
 - Project

- The Project tool takes an input dataset, transforms its coordinate system, and returns an output dataset.



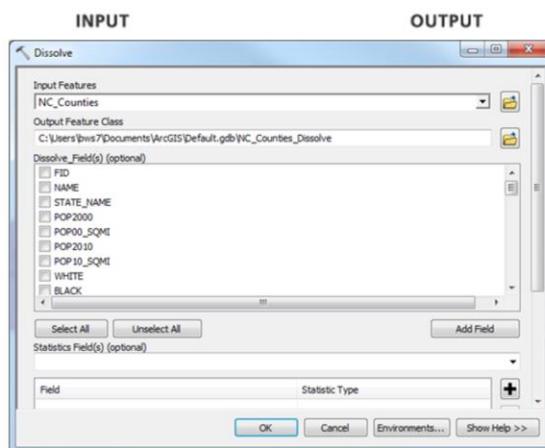
This is a geoprocessing tool you are already familiar with.

Many of the tool dialogs will be similar – set your input, output and parameters.

- Merges multiple input datasets into one output dataset
- Merges both spatial and tabular information
- Combines common fields within attribute tables

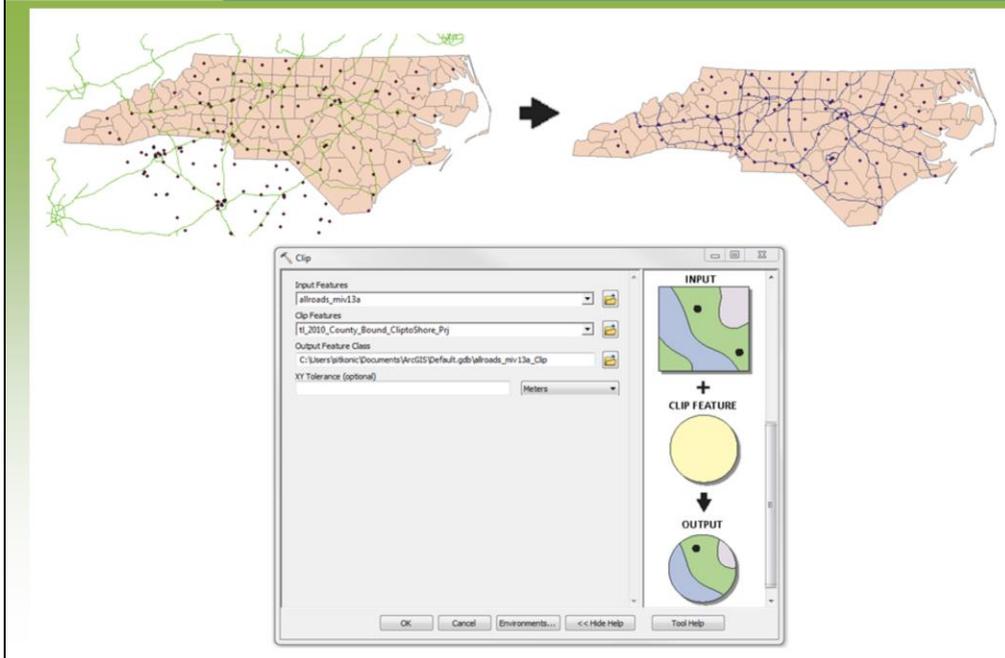


This tool is helpful if your data comes in multiple parts.



Aggregates features based on specified attributes. It dissolves the boundaries between features that have the same value of attribute you select.

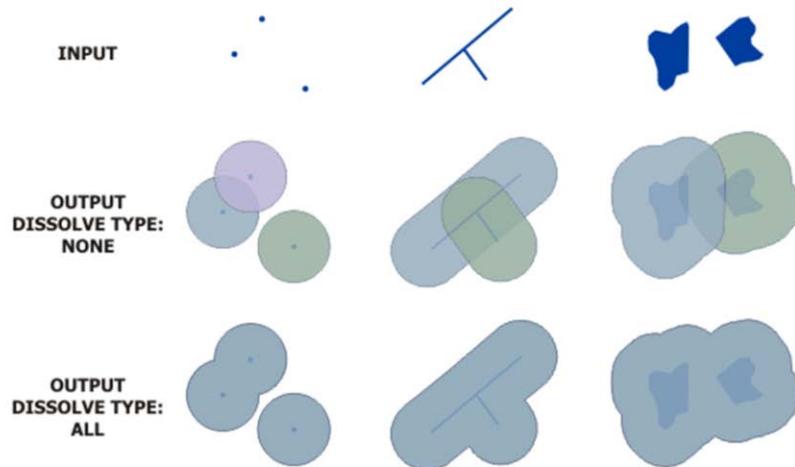
For example, if you have counties that each have a code for the health region they belong to, you can dissolve using the health region code to create boundaries of the health regions.



Use this tool to cut out a piece of one feature class using one or more of the features in another feature class as a cookie cutter.

It can be very useful to click the show help button which demonstrates how the tool works.

- Input features can be points, lines, or polygons
- Output feature will always be polygons



Used to find the area within a given distance of a set of features