

Introduction to ArcView Lecture 2

PART B

NPS Introduction to GIS: Lecture 2

Based on NINC, ESRI and Other Sources

Getting Data Into ArcView

Organizational Hierarchy

Projects

(Can contain many views)



Views

(Display themes from many data sources)



Themes

(Use symbols to represent real-world features by points, lines or polygons)

ArcView Data Sources

- Vector data (data that stores the location, shape and attributes of each feature)
 - Shapefiles (the ArcView format for storing location and attribute information for each feature).
 - ARC/INFO Coverages (in “coverage” format)
 - MapInfo Files
- ARC/INFO’s raster data format (called a **Grid**)
- Image Data
- Tabular (matrix) data

Vector Data

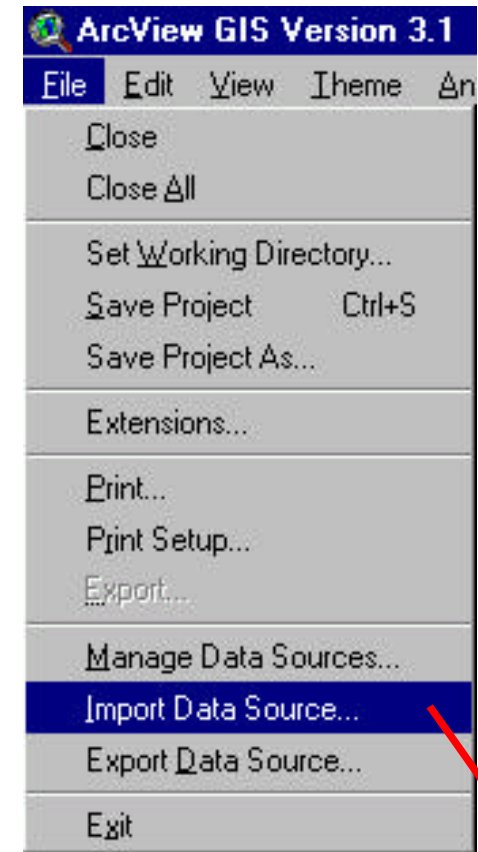
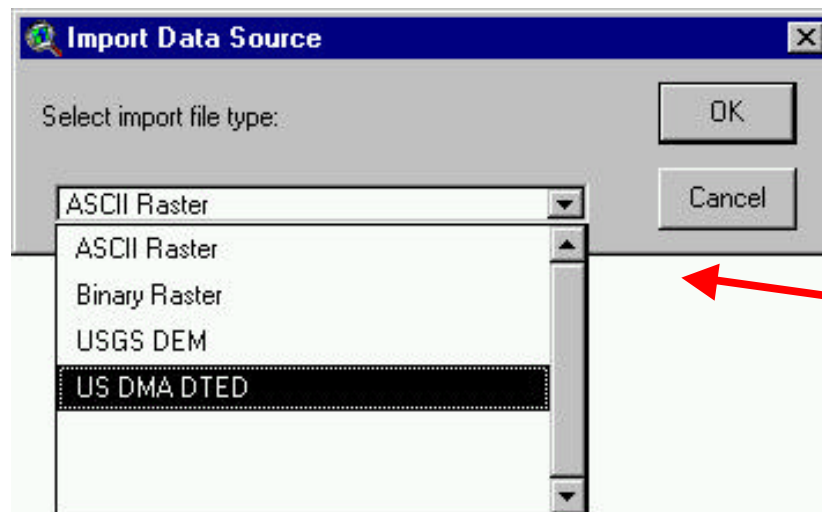
- A **shapefile** is the native ArcView format that is used for vector data
- Each shapefile is a collection of files
 - Spatial data (shape geometry) **.shp**
 - Spatial data index **.shx**
 - Attribute data **.dbf**

Raster Data

- ArcView themes (known as **image themes**) can be created from image data (e.g., satellite images, aerial photographs, scanned documents).
- Image Themes do not have attribute tables. Can be manipulated by using the Image Legend editor.
- ArcView supported image types:
 - Erdas IMAGINE (with IMAGINE Image extension)
 - JPEG files (with JPEG extension)
 - National Image Transfer Files (with NITF extension for military users)
 - Hot Linking to GIF & MacPaint
 - Other image types (BMP, BSQ, BIL, & BIP, MrSID, Image Catalogs, Sun rasterfiles, TIFF, GeoTIFF, & TIFF/LZW compressed)

Matrix Data*

- USGS DEM
 - *Spatial Analyst* or *3D Analyst* Extensions
- NIMA DTED
 - *Spatial Analyst* or *3D Analyst* Extensions



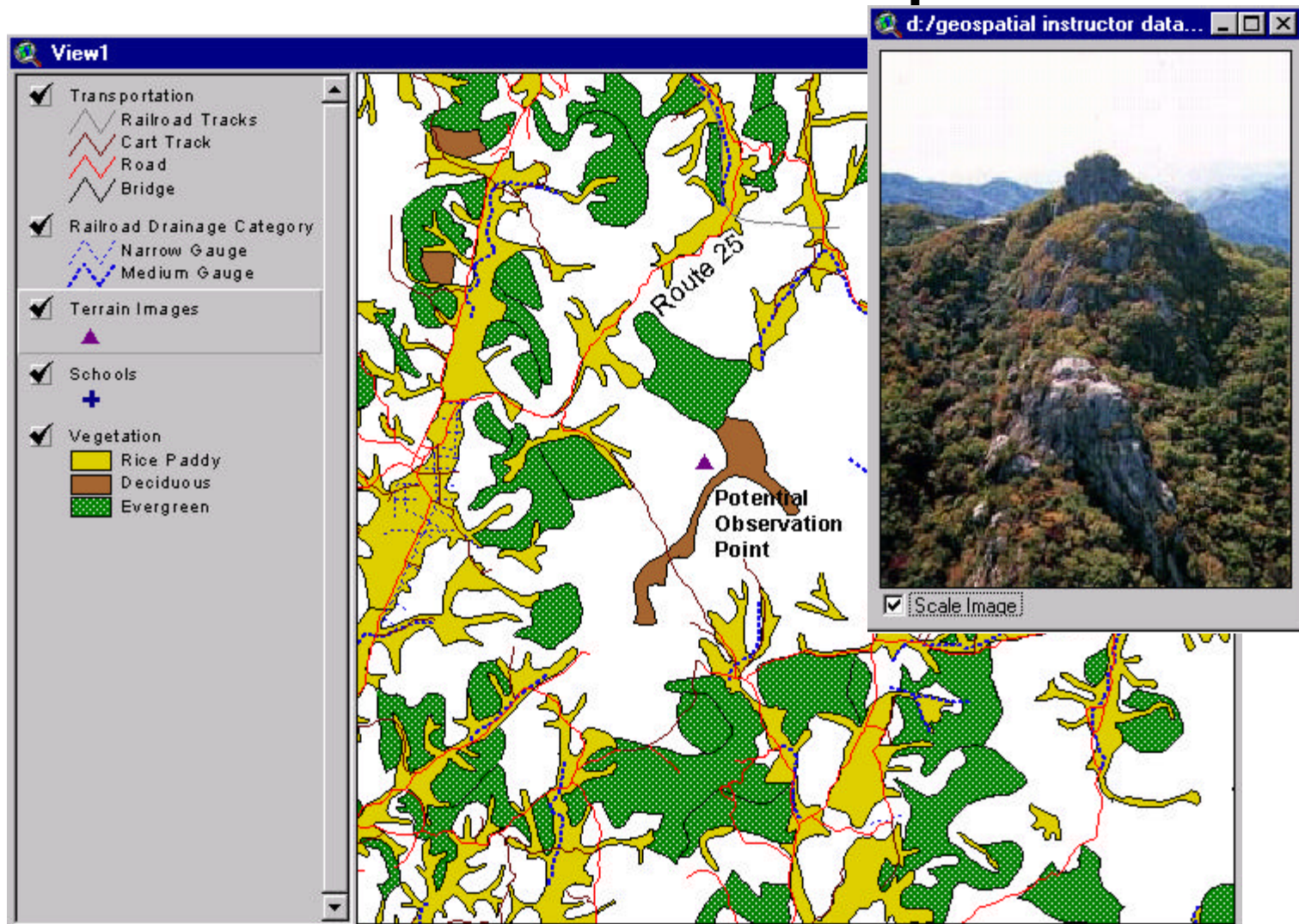
* ArcView Import

Creating Hot Links

Can be linked to:

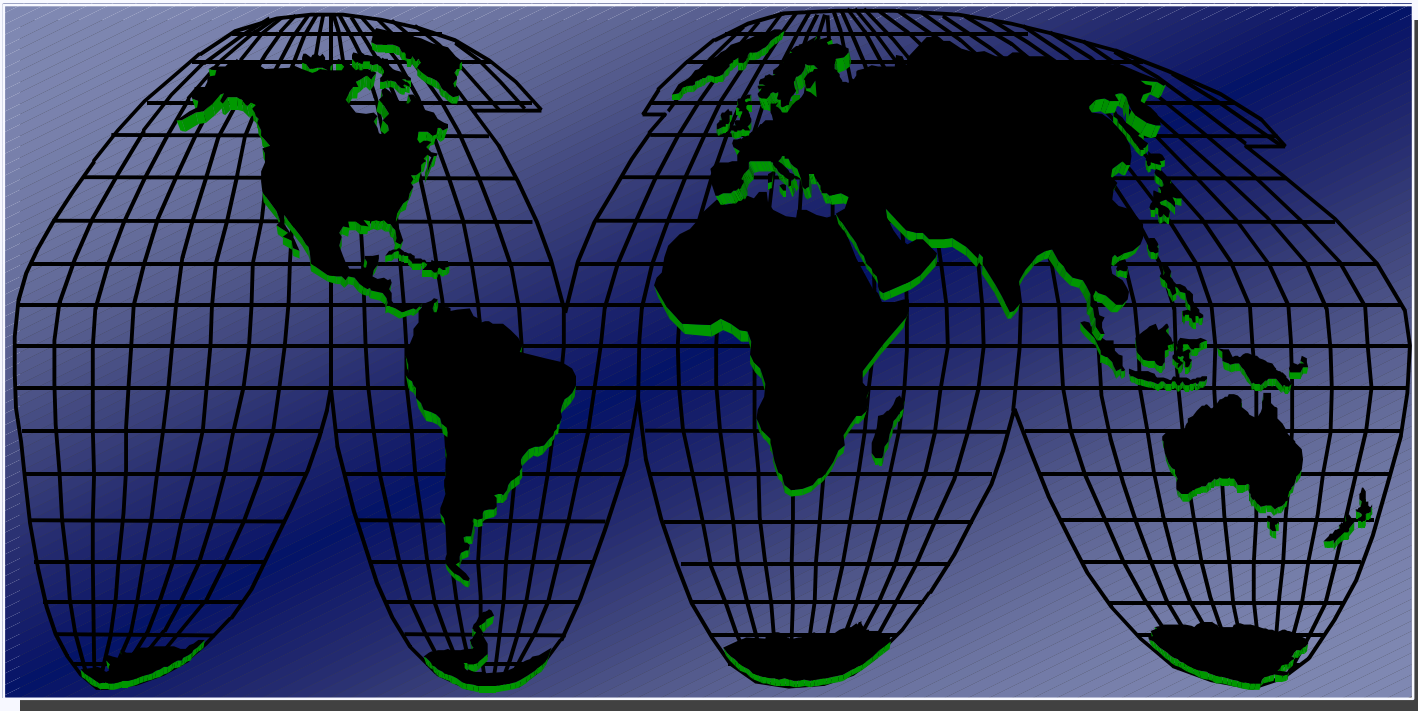
- An image
- An Avenue script
- A Word document
- A video application
- The Web

Hot Link Example



Referencing Views to the Real World

Requires a map projection – a formula that converts positional data (lat., long.) on an ellipsoidal surface to (x,y) coordinates on a planar surface.



Map Projections

When Working with a View :

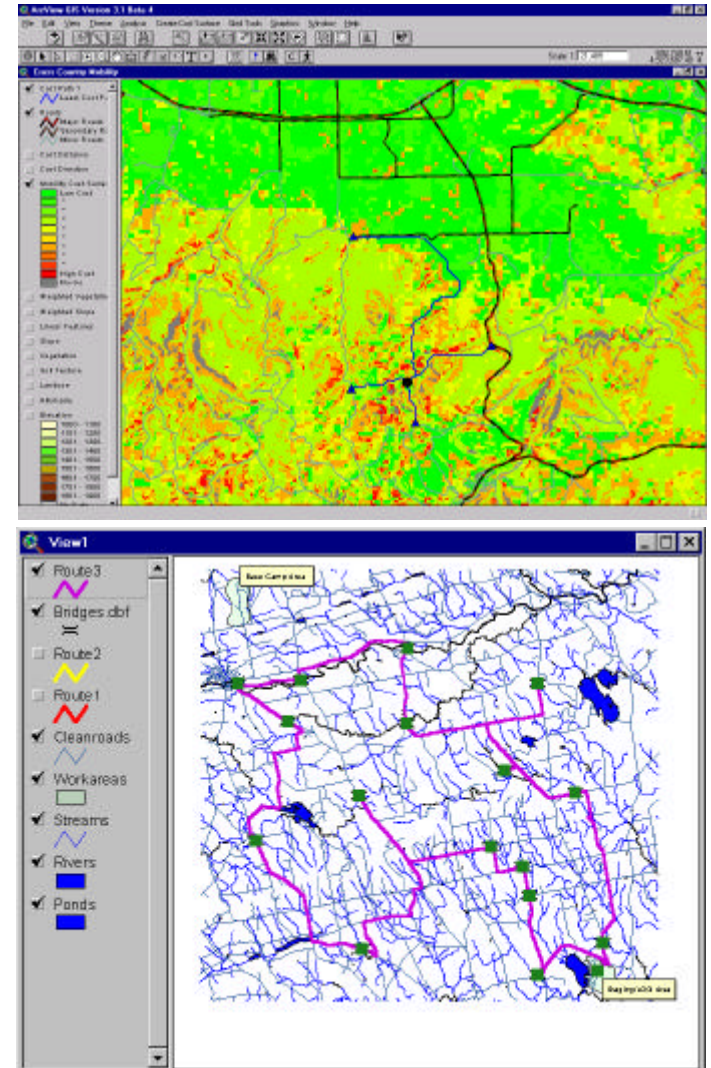
- **Original data** must be in decimal degrees to be projected
- **Only the view of the data is changed**, the source coordinates are unchanged
- Projection units can be specified
- **Image and grid themes are unaffected** by the projection properties specified for a view – they are assumed to be in the correct projection already.
Always use the image/grid theme projection for the view!!

ArcView Extensions

- Provide additional capabilities
- User interface changes to reflect the additional capabilities
- May be loaded and unloaded during a session
- Will automatically load when required by an existing project

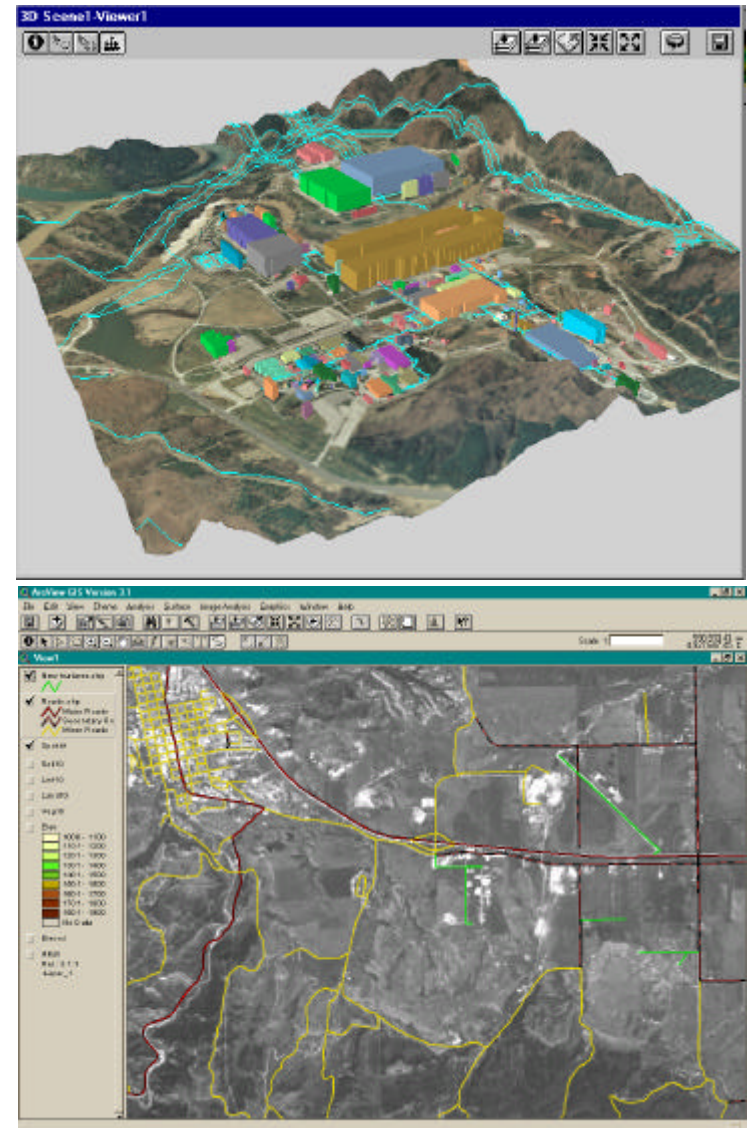
Optional Extensions

- ArcView *Spatial Analyst*
 - Converts feature themes to grid themes
 - Contouring
 - Cell-based map analysis
- ArcView *Network Analyst*
 - Efficient travel routing
 - Travel directions



Optional Extensions

- ArcView *3-D Analyst*
 - Analyzing & displaying surface data.
 - TIN data models, 3D shapes, and interactive perspective viewing.
- ArcView *Image Analysis*
 - Joint venture w/ERDAS
 - Basic Image Processing
 - Display, enhance, and analyze remotely sensed imagery



Summary

- Documents / Projects
 - Views
 - Tables
 - Charts
 - Layouts
 - Scripts
- Data Input
- Using Projections
- ArcView Extensions