Software for Data Analysis in Remote Sensing

There are many software uses in remote sensing to get best result to data analysis for example:

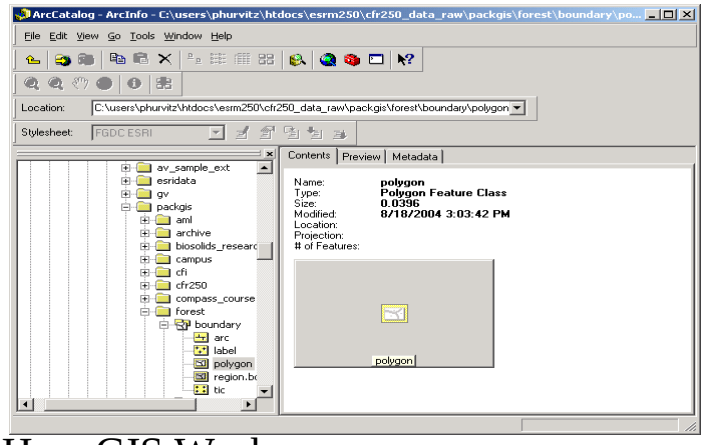
-Geomatica, PCI Geomatics
-ERDAS IMAGINE
-GRASS GIS
-Opticks (Open Source)
-RemoteView
-IDRISI
-TNTmips gis, MicroImages,USA
-ENVI
-OpenEV (Open Source)
-Orfeo toolbox (Open Source)
-SOCET SET
-ECognition

Introduction to GIS

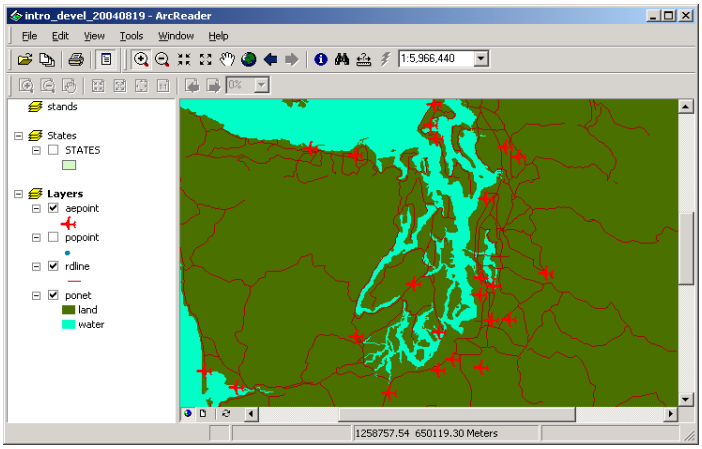
A geographic information system (GIS) is a framework for gathering, managing, and analyzing data. GIS integrates many types of data. It analyzes spatial location and organizes layers of information into visualizations using maps and 3D scenes. With this unique capability, GIS reveals deeper insights into data, such as patterns, relationships, and situations.

All ArcGIS products share common applications

ArcCatalog-window to database



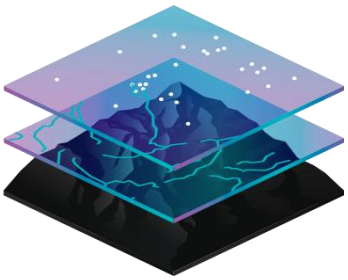
ArcMap-displaying



How GIS Works

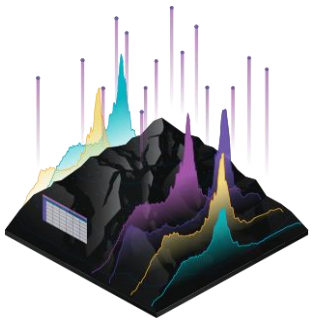
GIS technology applies geographic science with tools for understanding and collaboration. It helps people reach a common goal: to gain actionable intelligence from all types of data.

Maps



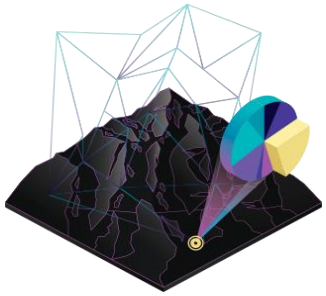
Maps are the geographic container for the data layers and analytics you want to work with.

Data



GIS integrates many different kinds of data layers using spatial location. Most data has a geographic component. GIS data includes imagery and features.

Analysis



Spatial analysis lets you evaluate suitability and capability, estimate and predict, interpret and understand, and much more, lending new perspectives to your insight and decision-making.

GRASS GIS

Geographic Resources Analysis Support System (commonly termed GRASS GIS) is a geographic information system (GIS) software suite used for geospatial data management and analysis, image processing, producing graphics and maps, spatial and temporal modeling, and visualizing. It can handle raster, topological vector, image processing, and graphic data

GIS Data Formats

•There are two formats used by GIS systems to store and retrieve geographical data:

1-Raster 2– Vector

Vector Format

Data are associated with

Points: are located by coordinates

Lines: are described by a series of connecting vectors (line segments described by the coordinates of the start of the vector, its direction, and magnitude or length)

Polygons: polygons are described by a series of vectors enclosing the area boundaries enclosing areas

Raster Format

Data are divided into cell, pixels, or elements

•Cells are organized in arrays •Each cell has a single value

•Row and Column Numbers are used to identify the location of

the cell within the array

•Perhaps the most common example of raster data is a digital image