

2-Day: Water Resources Applications for Intermediate

Overview

This course covers fundamental GIS concepts as it applies to water resources applications. Upon completion an attendee will know how to query a GIS database, manipulate tabular data, edit spatial and attribute data, and present data clearly and efficiently using maps and charts in the context of water and watershed.

Participants will learn how to use ArcGIS including: ArcMap™, ArcCatalog™, and ArcToolbox™ and explore how these applications work together to provide a complete GIS solution.

This 2-day course is for those who are new to ArcGIS and new to GIS in general. This course will introduce basics of GIS for water related applications on Day 1, followed by hands-on experience working with water related data on Day 2 (including DEMs, water quality, soils, landuse/landcover data).

Prerequisites and Recommendations

Participants should know how to use MS windows software. This course provides the fundamental ArcGIS knowledge and experience needed to enroll in Advanced GIS applications for Water Resources workshops

Module I: Review of GIS applications from Beginner

Learning Objectives

- Review of GIS applications for water resources
- Working with GPS data
- Water Budget Analysis
- Applications of Geoprocessing tools
- Role of remote sensing water resources applications

Case Study: Working with GPS data of weather stations

Case Study: Advanced Image classification and Water Budget Analysis

Case Study: Application of Geoprocessing tools to watershed analysis



Module II: Introduction to Geocomputation and Working with Raster Data

Learning Objectives

- Introduction to Geocomputation
- Introduction to Watershed Characterization

Case Study: Review of Raster Data and Map Algebra

Case Study: GIS application of Revised Universal Soil Loss Equation

Case Study: Urbanization within a Watershed

Module III: Integration of Spatial Data and Analysis

Learning Objectives

- Foundation of Query
- Integration of Data
- Introduction to DEMs and Flow calculation

Case Study: Application of DEMs for water resources



Module VII: Comprehensive Application of GIS

Learning Objectives

- Introduction to water related modeling
- Integration of soils, landuse and slope data
 - Introduction to DRASTIC
 - Introduction to SWAT

Case Study: Water Quality and Data Integration