

Comparing Urban Sprawl and Sediment Loading in the Chesapeake Bay



Topic: Environmental management

Problem Statement: Using remote sensing and GIS, can students develop a useful model to investigate whether there is any relationship between land use and sediment loading?

Level: Intermediate to Advanced

Software: ArcGIS, ENVI, Excel, Word, PowerPoint

Description: Remote sensing provides a powerful way to visualize changes in land use; it is also an excellent tool for recognizing sedimentation of major rivers and water bodies. Assessing remote sensing imagery for changes in land use (i.e., increasing urbanization/impervious surface area) and combining this with a GIS watershed model provides a powerful set of conceptual and practical tools to better understand the science and engineering behind the contemporary major policy debate over urban sprawl and watershed protection.

The Learning Unit offers hands-on experience integrating a variety of resources as students examine this major policy issue in the mid-Atlantic region. They also gain practical experience in planning, managing, and completing a medium-sized, data-intensive environmental assessment project.

Key words: Land cover, land use, image processing, image enhancement, vegetation indices, unsupervised classification, sediment, erosion, impervious, DEM

