CLEAR Releases New Series of Connecticut Land Cover Data

The University of Connecticut's Center for Land Use Education and Research (CLEAR) has completed a first-of-its-kind series of four dates of digital land cover data. The datasets include eleven consistently interpreted land cover classes that depict Connecticut's landscape patterns as they existed in 1985, 1990, 1995 and 2002. The land cover classes are developed areas, turf and grass, other grasses and agriculture, deciduous forest, coniferous forest, water, non-forested wetlands, forested wetlands, tidal wetlands, barren areas, and utility rights-of-way.

Land Cover and Satellite Images
The land cover data were interpreted from medium-resolution Landsat satellite imagery. Sensors aboard the satellite detect radiation reflected from the earth's surface and store these data as images. The images, which are made up of millions of squares with a ground resolution of 30 meters (~ 100 feet) on a side, are converted via computer programs and human expertise into land cover maps. Land cover, as its name implies, shows the “covering” of the landscape. This is to be distinguished from land use, which is what is permitted, practiced or intended for a given area. For example, an area of low-density rural residential land use, as permitted by local zoning, likely will appear as forest in a Landsat image—there are a lot more trees than houses. Similarly, downtown Hartford, which is classified mostly as a “Developed” land cover is a mixture of uses that include offices, restaurants, stores, apartments, roads, parking lots, etc. From the satellite image it’s not possible to determine what the land uses are but we can describe the area as being developed.

Land Cover Change
Although remotely sensed land cover maps have been around for quite some time, comparing different land cover datasets has been difficult. Satellite sensors are continually evolving as are the techniques to extract land cover information from them. Land cover derived from images
from different years taken by different sensors (and perhaps at different seasons of the year) typically cannot be compared directly with a high degree of accuracy. CLEAR’s challenge was to solve this “apples and oranges” problem by using a technique called “cross-correlation analysis.” This allowed us, for the first time, to provide comparable data which shows how Connecticut’s landscape has changed over the last 17 years.

**Explore the Data Online or Download a Copy**

The four dates of Connecticut’s land cover individually can be viewed and explored through an interactive mapping system on the CLEAR website (go to [http://clear.uconn.edu](http://clear.uconn.edu) and follow the Projects link to “Connecticut’s Changing Landscape”). Also on the site is a composite land cover change map that depicts increases in developed land cover classes between 1985 and 1990, 1990 and 1995 and 1995 and 2002. For reference, the mapping site includes outlines of Connecticut’s 169 municipalities and regional watersheds.

You’ll also find summary statistics about statewide land cover for each date, large-format pdf maps that can viewed online or downloaded, change statistics and a number of charts and graphs. Plans are on the drawing board to analyze and publish land cover change information at the municipal and regional watershed level.

For individuals and organizations with geographic information systems, the land cover datasets for the entire project area, the state, counties or major watersheds can be downloaded, analyzed and used in a wide variety of applications.