GOFC-GOLD Regional Networks Workshop: Monitoring Land Change with Remote Sensing

July 27-August 7, 2015, Boston University

Hosted by Department of Earth & Environment, Boston University
685 Commonwealth Avenue, Boston, MA 02215

Primary Instructors

Curtis Woodcock, Professor
curtis@bu.edu
617-353-5746 (office)
857-234-0774 (cell)

Pontus Olofsson, Research Asst. Professor
olofsson@bu.edu
617-353-9374 (office)
617-510-9463 (cell)

Chris Holden, PhD Student
ceholden@bu.edu

Eric Bullock, Research Asst.
bullocke@bu.edu

Overall Approach

The overall aim of the workshop is to produce maps of land-cover and land-cover change, and to estimate the area of these different land categories using the imagery you acquired at the Earth Resources Observation and Science (EROS) Center. To accomplish this, lectures will be given each morning on topics forming the background for the image processing steps used during the workshop. Some lectures present current or past research projects in our lab that are intended to provide context and examples of successful applications of remote sensing. Lectures will be followed by demonstrations of the image processing steps involved in mapping and monitoring land-cover and land-use. There will be daily assignments that will use the demonstrated methods. The assignments build toward the production of a land-cover change map and estimates of the areas of interest. Note that special attention will be paid to methods of accuracy assessment and area estimation. At the end of the workshop, each participant will provide a brief presentation of the results of their efforts during the workshop. Lectures are given in room 132 on the first floor, and the labs are held in room 435 further down the hall.

Schedule

Week 1: The goals of first week are to get acquainted to the software, produce a land-cover map and preprocess imagery for detection and mapping of land-cover change.

Day 1 (Jul. 27)
Lecture: *Introduction to remote sensing* (Curtis)
Assignment: *Introduction to software; data organization; select images* (Pontus, Chris, Eric)

Day 2 (Jul. 28)
Lecture: *Mapping Forest Vegetation* (Curtis); *Image compositing* (Pontus)
Assignment: *Introduction*, continued (Pontus, Chris, Eric)

Day 3 (Jul. 29)
Lecture: *Land-cover classification: strategies, methods, algorithms* (Curtis)
Assignment: *Supervised image classification* (Pontus)

Day 4 (Jul. 30)
Lecture: *Monitoring forest mortality* (Curtis); *Urban growth in China* (Curtis)
Assignment: *Supervised image classification*, continued (Pontus)

Day 5 (Jul. 31)
Lecture: *Change detection including time series analysis of change* (Curtis)
Assignment: *Change detection and classification* (Pontus, Chris, Eric)

Week 2: The goals of second week are to produce a map of land-cover change and to estimate areas of map categories.

Day 6 (Aug. 3)
Lecture: *Carbon budgets and land use change* (Pontus)
Assignment: *Change detection and classification*, continued (Pontus)

Day 7 (Aug. 4)
Lecture: *Estimation of area and accuracy* (Pontus)
Assignment: *Estimation of area and accuracy* (Pontus)

Day 8 (Aug. 5)
Lecture: -
Assignment: *Estimation of area and accuracy*, continued (Pontus)

Day 9 (Aug. 6)
Complete and review work; prepare presentation of work (Pontus, Chris, Eric)
Evening: BBQ dinner at Curtis's place!

Day 10 (Aug. 7)
Participant presentations and reception (all)