Global Forest Cover Change
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Earth System Data Records of Global Forest Cover Change

A Web-based Labeling Tool for Validating Forest Cover Change Products

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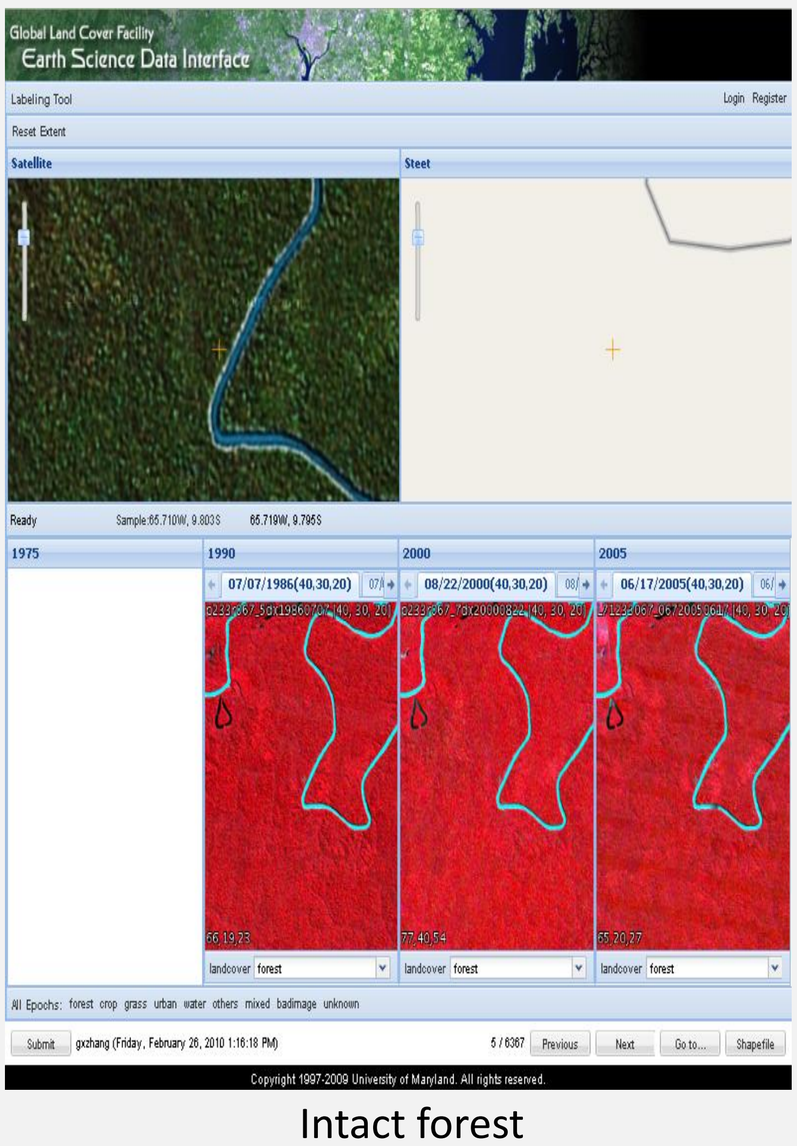
Introduction & Rationale

Mapping and monitoring deforestation is an urgent requirement for the reduction of carbon emissions through schemes such as UN-REDD. Remote Sensing has played a vital role in such efforts in the past and will continue to do so even more in the future. However, one of the requirements for assessing accuracy of results obtained from remote sensing data are reliable validation datasets. For many regions of the world, obtaining reliable ground data or validation data for accuracy assessment of remote sensing results are nearly impossible. Thus, there is a need for innovative and cost-effective methods to obtain training and validation data.

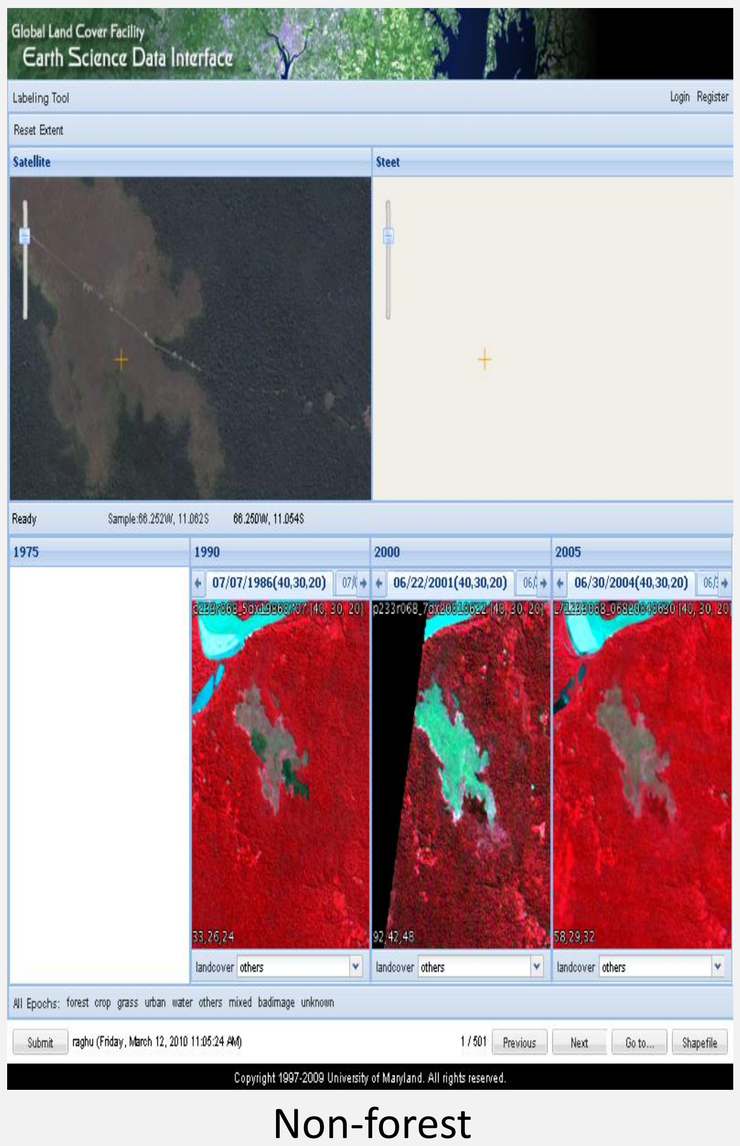
Global Land Survey (GLS) data produced by the USGS offers a unique opportunity to monitor land cover change over multiple epochs (circa 197,1990, 2000 and 2005). These data are currently being used by the Global Forest Cover Change team to produce high-resolution forest cover change products globally, for the first time ever. To support and enhance the quality of the products being produced, a web-based land lover/ land use labeling tool developed in-house at the Global Land Cover Facility (GLCF) allows users to perform a quick assessment of land cover change and also collect sample points that can be used for training and validation of wall-to-wall coverage products.

Methodology

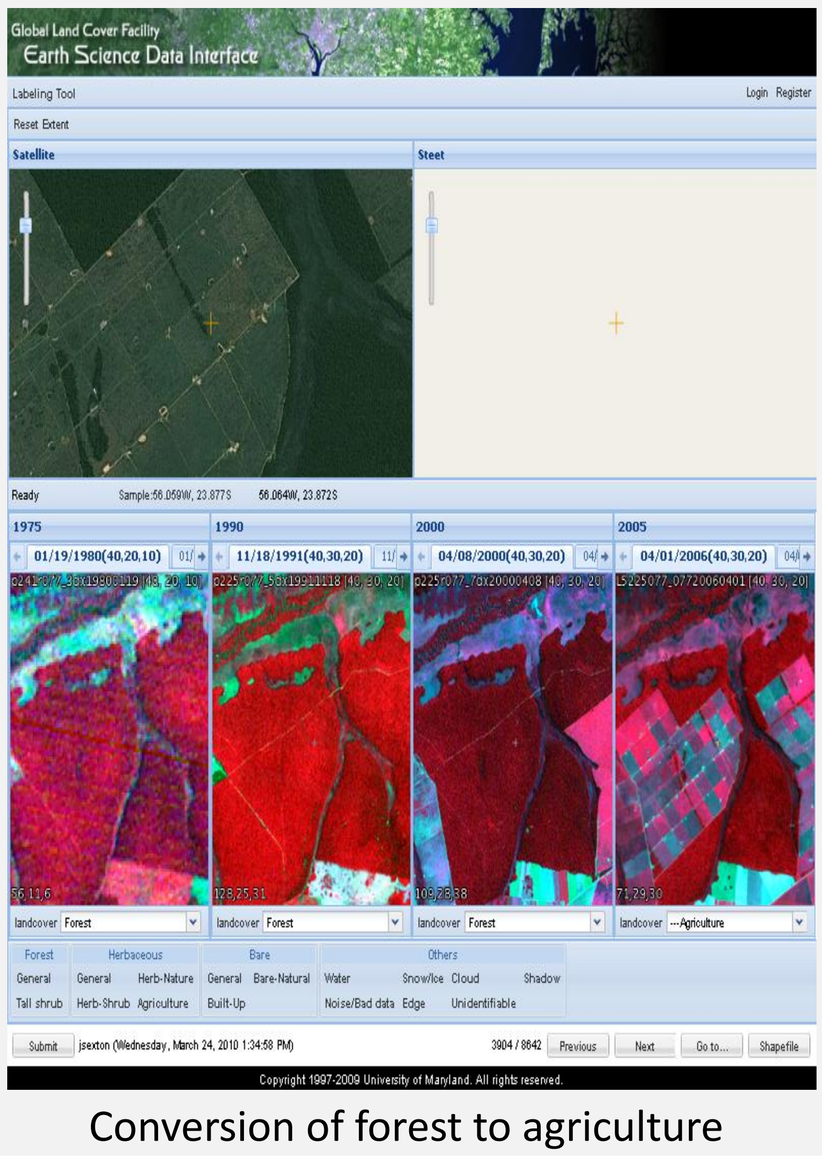
A set of samples points (study sites) for a country/region under study are obtained using suitable sampling schemes and used as input to the labeling tool. On a single webpage, GLS imagery for four epochs are previewed using multiple band combinations and the sample points are then overlaid on top of them. Ancillary information such as maps and high-resolution images are also incorporated via Google maps.



Intact forest



Non-forest



Conversion of forest to agriculture

Key Features

- ✓Allows for quick visual assessment to be performed over large regions using multiple sampling strategies
- ✓Multiple band combinations allow users to extract the best possible information about changing land features
- ✓Implementation of such tools could be the only way to obtain validation data for remote regions of the world that are inaccessible
- ✓Users can incorporate visual interpretation techniques such as image texture and context, that are typically hard to incorporate into machine-based classification algorithms
- ✓Enables the interpreter to track changes in land cover that may be human-induced, such as conversion from forest to agriculture

Acknowledgements

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