Status of Global Land Cover Validation Dataset Development

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Validation of a global land cover product requires probability sampling and acquisition of reference land cover information of the entire globe.

“. . . a requirement that can only be met in a practical way by using fine-resolution remote sensing.”

- Strahler et al., 2006
Global Validation Dataset -

- Based on:

- Validation dataset production methods publish in:

- Key attributes
  - 500 5x5km samples stratified by climate and population
  - Based on high resolution commercial satellite imagery
  - Presence/absence of trees, bare ground, water determined for every 2m pixel
  - All results openly available
Full Global Sample = 500 sites
Stratified random selection, based on modified Köppen climate zones and population
Identifying, downloading and pre-processing of no-cost commercial high resolution data for the 500 validation sites allowed the project to leverage the USGS licensing arrangement between commercial vendors and NGA.

Over **1100 individual scenes** of commercial data imagery were identified, downloaded and pre-processed during the contract year.
QuickBird data

Reference classification

U.S. Department of the Interior
U.S. Geological Survey
QuickBird data

U.S. Department of the Interior
U.S. Geological Survey

Reference classification converted to % tree cover equivalent
30m Global Land Cover

VCF Tree 30 m - from collaborators at University of Maryland

Reference classification converted to % tree cover equivalent
Hansen et al. 2010 Percent Tree Cover (30m)
30 Meter Global Land Cover

Global Land Cover
These global land cover layers are the product of a collaboration between USGS and the University of Maryland, Department of Geographical Sciences. Thirty meter resolution raster data layers for circa 2010 tree cover and bare ground and a persistent surface water layer 2000-2012, have been derived from Landsat 7 ETM+ data. The tree cover and bare ground data are per pixel estimates, 1 to 100% (given as integers values 1-100), the water layer is a thematic layer (2 = water).

Global Land Cover Reference Data
USGS has produced a set of thematic classifications of very high resolution commercial remote sensing data for a 500 site global sample. The four primary classes (Tree, Water, Barren and Other Vegetation) relate to the themes of the 30 m global land cover described above.

http://landcover.usgs.gov/glc/