

GLOBAL LAND SURVEYS FROM SPACE OBSERVATIONS: PAST, PRESENT AND FUTURE

Garik Gutman

Land cover is a critical component of the Earth system, influencing land-atmosphere interactions, greenhouse gas fluxes, ecosystem health, and availability of food, fiber, and energy for human populations. The recent Integrated Global Observations of Land (IGOL) report calls for the generation of maps documenting global land cover at resolutions between 10m and 30m at least every five years. Despite 35 years of Landsat observations, there has not been a unified global analysis of land cover trends nor has there been a global assessment of land-cover change at Landsat-like resolution. Based on the experience with the Global Land Surveys (GLS) 1975, 1990 and 2000, NASA and United States Geological Survey (USGS) jointly supported development of GLS-2005 initiative, which has produced a global 30-m spatial resolution geo-corrected data set for the 2004-2007 period relying mostly on Landsat data. Going beyond the earlier initiatives, this data set established a baseline for monitoring changes on a 5-year interval and paved the way toward continuous global land-cover monitoring at Landsat-like resolution in the next decade. Due to the use of data from international cooperators Landsat-5 receiving ground stations, the GLS-2005 project developed a prototype for future international activities to provide improved global access to mid-resolution data. The ultimate goal is to develop an ongoing, routine, mid-resolution global record of land-cover changes. Mapping of the GLS-2010 dataset is underway, and the product will become available in 2012. To prevent data gaps in case observations from one or both Landsats become unavailable joint international effort under the CEOS Land Surface Imaging Constellation is critical to provide the necessary coverage, thus setting the stage for a global, integrated, international system for mid-resolution monitoring.

Dr. Garik Gutman
NASA Headquarters
300 E Street SW, Washington, DC 20546 USA
1-202-358-0276
ggutman@nasa.gov