



ECV IN BRIEF

- Domain:** Terrestrial
- Subdomain:** Biology
- Scientific Area:** Biosphere
- ECV Stewards:** Martin Herold
- Products:** Maps of Land Cover;
Maps of High Resolution Land Cover;
Maps of Key IPCC Land Use, Related Changes and Land Management Types

Land Cover

Land cover is the observed (bio)-physical cover on the Earth’s surface. It influences climate by modifying water and energy exchanges with the atmosphere and by changing greenhouse gas and aerosol sources and sinks. Land-cover conditions are inherently dynamic (i.e. seasonality) and distributions are linked to regional climatic conditions, so changes in cover can be due to climate change on a regional scale as well as directly due to human activities.

ECV Product¹

PRODUCT	DEFINITION	REQUIREMENTS				
		FREQ.	RESO.	REQUIRED MEASUREMENT UNCERTAINTY	STABILITY	STAND./ REF.
Maps of land cover	Primary unit are categories (binary variables such as forest or cropland) or continuous variables classifiers (e.g. fraction of tree canopy cover in percent)	Annual	250m	15% (maximum error of omission and commission in mapping individual classes), location accuracy better than 1/3 IFOV with target IFOV 250 m	15% (maximum error of omission and commission in mapping individual classes), location accuracy better than 1/3 IFOV with target IFOV 250 m	No agreed standards but see GLCN (2014) and GOFC-GOLD (2015a)

¹ Current Products and Requirements as in the Implementation Plan 2016 (GCOS-200). GCOS is reviewing and will update the requirements until 2022. More information on: gcos.wmo.int and climatedata.wmo.int.

Maps of high resolution land cover	Primary unit are categories (binary variables such as forest or cropland) or continuous variables classifiers (e.g. fraction of tree canopy cover in percent). Secondary outputs include surface area of land cover/use types and land cover/use changes (in ha)	5 year	10 - 30m	5% (maximum error of omission and commission in mapping individual classes), location accuracy better than 1/3 IFOV with target IFOV 10-30 m	5% (maximum error of omission and commission in mapping individual classes), location accuracy better than 1/3 IFOV with target IFOV 10-30 m	
Maps of key IPCC land use, related changes and land management types	IPCC Good Practice Guidelines land use categories (forest land, cropland, grassland, wetland, settlement, other land)	1-10 years (incl. historical data)	10-1000 m (depending on time period)	20% (maximum error of omission and commission in mapping individual classes), location accuracy better than 1/3 IFOV with target IFOV	20% (maximum error of omission and commission in mapping individual classes), location accuracy better than 1/3 IFOV with target IFOV	IPCC (2006)

Data Sources²

- ▶ ESA-CCI Land Cover data
<http://www.esa-landcover-cci.org/>
- ▶ MODIS global land cover data:
<https://modis.gsfc.nasa.gov/data/dataproduct/mod12.php>
- ▶ Copernicus Global Land Monitoring Service
<https://land.copernicus.eu/global/products/lc>
- ▶ GOF-C-GOLD
<http://www.gofcgold.wur.nl>
- ▶ CEOS Working Group on Calibration and Validation Land Product Validation Subgroup
<https://lpvs.gsfc.nasa.gov/>
- ▶ Satellite ECV Inventory by the CEOS/CGMS Working Group on Climate (WGClimate)
<http://climatemonitoring.info/ecvinventory>

Global Land Cover

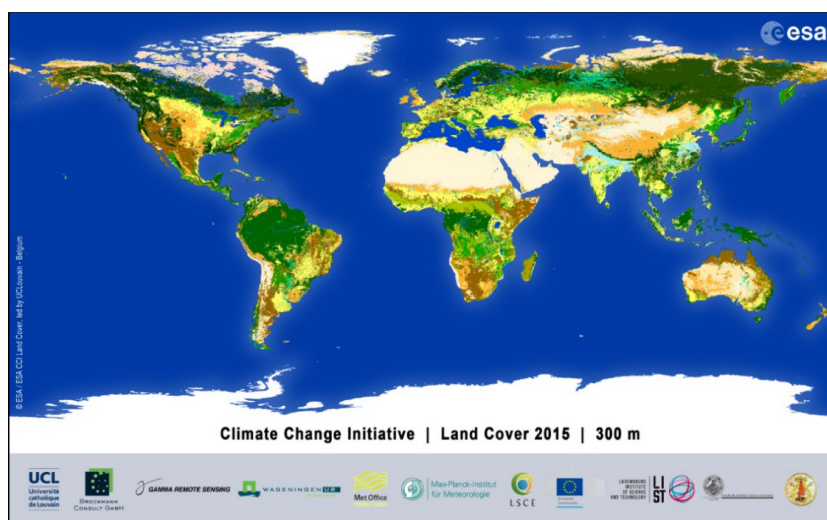


Figure: Global land cover data for the year 2015 (<http://www.esa-landcover-cci.org/>)

Legend and interactive map under:
<http://maps.elie.ucl.ac.be/CCI/viewer/index.php>

² This list provides sources for openly accessible data sets with worldwide coverage for which metadata is available. It is curated by the respective GCOS ECV Steward(s). The list does not claim to be complete. Anyone with a suitable dataset who would like it to be added to this list should contact GCOS.