

# GOFC-GOLD



Global Observation of Forest  
and Land Cover Dynamics

## GOFC-GOLD

Global Observation of Forest Cover and Land Dynamics



Land Cover  
Project Office



## Annual Report 2012

May 2013

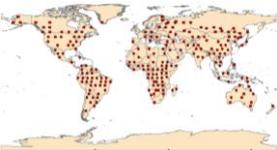


## Overview

In its seventh year of operation, the GOFC-GOLD Land Cover Project Office (LC-PO) successfully fulfilled the requirements and challenges posed by the international community and ESA as contracting agency. Reliable environmental observations are of crucial importance to understand climate change and its impacts, to sustainable development, natural resources management, conservation, biodiversity and understanding of ecosystems and biogeochemical cycling. The project office has further strengthened its position as an established international focal point for global and regional land cover observations, and is a key actor of GOFC-GOLD implementation towards operational land monitoring globally and on the European, regional and national level.

GOFC-GOLD (Global Observation of Forest Cover - Global Observation of Land Dynamics) as technical panel of the Global Terrestrial Observing System (GTOS) provides the platform for international communication and cooperation for actors involved in global Earth Observation including data producers (e.g. space agencies, land cover facilities), the scientific community, and data users (FAO, UNEP, global modeling community etc.). These activities improve the value of current and future land cover datasets for a multitude of applications and contribute to the overall goal of operational observations of the land surface.

## Contribution to key international activities

	GOFC-GOLD Land Cover Project office involvement	Major achievements in 2012
	<p><b>United Nations Framework Convention on Climate Change:</b>                      Organisation of an expert workshop on national forest monitoring and reducing emissions from deforestation and forest degradation (REDD).</p>	<ul style="list-style-type: none"> <li>• Coordination of GOFC-GOLD REDD working group</li> <li>• Development of REDD Sourcebook version COP 18</li> <li>• Participation in IPCC expert panel on remote sensing techniques for forest monitoring</li> <li>• Review for the 2013 Revised Supplementary Methods and Good Practice Guidance Arising from the Kyoto Protocol</li> </ul>
	<p><b>Group on Earth Observation:</b>                      Contribution to the GEO work plan 2009-2011, coordination and participation in land cover and forest monitoring tasks.</p>	<ul style="list-style-type: none"> <li>• Lead of GEO SB-02 task on Global Land Cover</li> <li>• Participation in redaction of GFOI Method and Guidance document and R&amp;D Plan</li> </ul>
	<p><b>GCOS- Terrestrial Observation Panel for Climate (TOPC):</b>                      Panel bridging GTOS with GCOS</p>	<ul style="list-style-type: none"> <li>• GOFC-GOLD LC PO now represents GOFC-GOLD at TOPC/GCOS</li> </ul>
	<p><b>ESA-Land Cover CCI:</b></p>	<ul style="list-style-type: none"> <li>• Climate user requirement analysis survey</li> <li>• Key role in dataset comparison and accuracy assessment</li> </ul>
	<p><b>Global Land Cover Validation:</b>                      Activities towards synergy and improved usability of land cover products</p>	<ul style="list-style-type: none"> <li>• Joint activities with CEOS WGCV, i.e. co-organization of land cover validation workshops</li> <li>• Design and development of reference data web portal for global land cover mapping</li> </ul>
	<p><b>Regional networking and capacity building:</b> Organisation and participation in workshop on capacity building involving the GOFC-GOLD regional networks.</p>	<ul style="list-style-type: none"> <li>• Capacity Building Workshop on land cover monitoring in Sofia, Bulgaria</li> <li>• Organization of an expert workshop on national forest monitoring and REDD+ MRV</li> <li>• Publication of a joint report with CIFOR on the outcomes of the aforementioned workshop</li> </ul>

## European Space Agency Sponsorship



With the establishment of a GOFC-GOLD land cover project office at the **Wageningen University**, the European Space Agency has taken responsibility to participate and contribute to the international cooperation and communication to coordinate and improve global observations of land.

The Land Cover Project Office (PO) helps to strengthen the **GOFC-GOLD framework**, to coordinate, promote and fulfill the GOFC-GOLD Land Cover implementation plan, and to support the European Space Agency and related projects and services. ESA is investing 200 K € over a 2 year period (2012-2013) to support the LC-PO. In conjunction with the advent of the Sentinel constellations, and several regional and global mapping activities (e.g. Land Cover Climate Change Initiative), ESA has strengthened its position in coordination of land observations and extended their activities for an improved match between data products and user needs.

The ESA LC-PO office is led by Prof. Martin Herold, the Co-chair of the GOFC-GOLD Land Cover Implementation Team (LC-IT) jointly with Curtis Woodcock from Boston University. The Project Office is located at the Department of Geo-information at Wageningen University, The Netherlands. Dr. Brice Mora is the Project Officer. The management, coordination and execution of the GOFC-GOLD activities are in close cooperation with the GOFC-GOLD-Chair Anthony Janetos.

Despite fostering the implementation of GOFC-GOLD objectives, a major objective of the PO is to support ESA in the coordination of land cover harmonization and validation activities focused on the development of a user information service for the reporting and exchange of validation results and information relating to the operational activities of satellite platforms and data delivery.

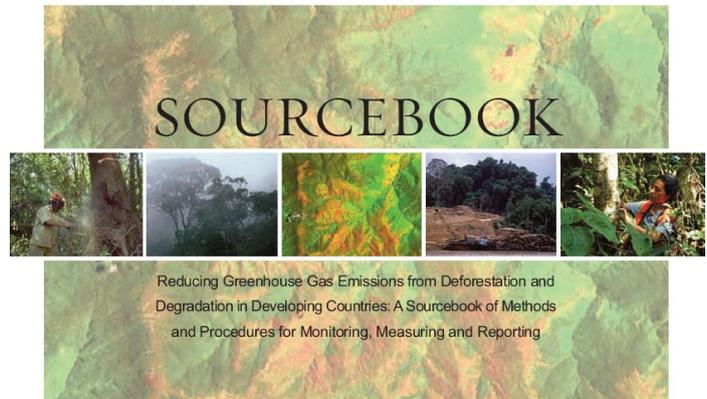
## Summary of activities and achievements in 2012

- **State of the art in global land cover assessment/validation**
  - Role as International focal point for global and regional land cover observations
  - Strong cooperation with CEOS Cal-Val group on development of land cover validation standards and implementation procedures (i.e. for ECV monitoring)
  - Development of validation datasets
  - Development of reference data portal
- **UNFCCC support on Reducing emissions from deforestation:**
  - Coordination of GOFC-GOLD working group to evolve internationally agreed technical protocols for using Earth observation in monitoring emissions from tropical deforestation
  - Participation in UNFCCC methodological expert meetings related to REDD
  - Coordination the development of the next version of the GOFC-GOLD REDD Sourcebook and present the progress during UNFCCC meetings (COP-18)
  - Sourcebook downloaded 4,400 times this year
  - Publication of reports on national forest monitoring and drivers of deforestation and forest degradation
- **Participation in GEO process as part of the GEO 2009-2011 work plan activities**
  - LC-PO acts as leader for global land cover task (SB-02)
  - Active participant in forest monitoring (GFOI) task
- **Land cover map product applications**
  - Participation in the ESA Land Cover Climate Change Initiative
- **Reference datasets from GLOBCOVER projects**
  - Promotion of GLOBCOVER as contribution to GCOS implementation plan and GEO tasks
  - Consolidation of the GlobCover 2005 reference datasets for future dissemination via the GOFC-GOLD reference data portal under development
- **Participation in key events to foster international cooperation**
  - GOFC-GOLD science meetings and capacity building
  - Contacts and communications with GOFC-GOLD regional networks
  - Participation in CEOS / GEO BON meetings to foster the use of remote sensing data for biodiversity studies in forested environments along with good practices
  - Participation in meetings and workshops on: ESA, UNFCCC, GTOS, GEO, scientific conferences (sensors, techniques on land cover and forest monitoring)
- **Documentation, publication, and outreach:**
  - 8 deliverables submitted to ESA
  - Update and maintenance of website, development and distribution of four GOFC-GOLD newsletters, downloaded 3,000 each, in average.
  - Profiles created on social medias: Facebook, Twitter, subscription to some appropriate LinkedIn groups (remote sensing and REDD+)
  - Contribution to GOFC-GOLD report series
  - Scientific publications (11 peer-reviewed papers and reports published)
  - Development of a reference data portal for global land cover mapping activities

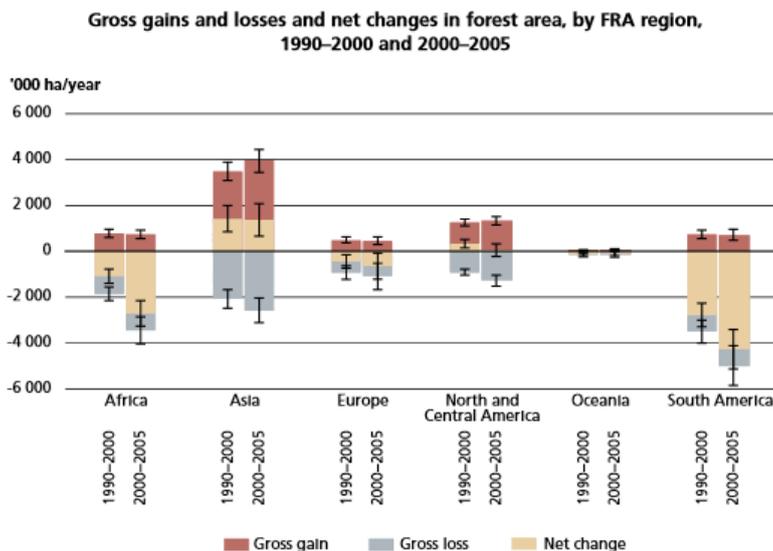
## Activities to support UN Conventions 1/2

Major activities of the LC-PO in 2012 have been dedicated to the issue of reducing carbon emissions from deforestation and degradation in developing countries (REDD). International negotiations are underway within the UNFCCC to include incentives for developing countries to avoid deforestation in a post Kyoto agreement. A key issue is the technical feasibility of determining historical deforestation rates and monitoring future land change that would enable tropical countries to obtain carbon credits for reducing deforestation.

The LC PO is working also on the so-called REDD+ co-benefits such as biodiversity and community services, and related issues such as benefit sharing.



The GOFC-GOLD REDD Sourcebook – A synthesis of available methods and approaches for monitoring deforestation and forest degradation and the related Carbon stock changes



Source: FAO. <http://www.fao.org/forestry/fra/remotesensingsurvey/en/>

In 2005, the GOFC-GOLD Land Cover IT has established a working group to assess satellite observation capabilities and develop consensus technical guidelines for operational implementation of such policy. A related technical sourcebook has been developed, maintained and presented every year at the UNFCCC Conference of Parties events since 2007. This GOFC-GOLD REDD Sourcebook keeps being updated every year to consider the evolution of the IPCC requirements and the scientific and technological progress made in the field of remote sensing techniques developed for forest monitoring. An emphasis is put notably on the evolving technologies such as Radar and Lidar sensors. The REDD **sourcebook** has been **downloaded 4,400 times** this year.

The Sourcebook plays a major role in UNFCCC-related capacity building. For instance the Sourcebook is considered as a key document for the FAO UN-REDD programme.

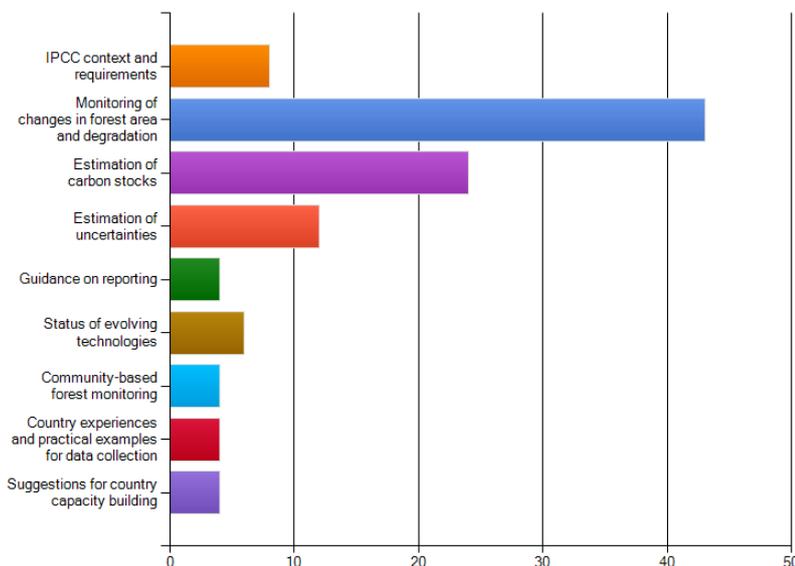
## Sourcebook user survey

The survey made in partnership with Dr Heather Lovell from University of Edinburgh, aimed to identify what the Sourcebook is used and most useful for, and to gather feedback on improvements that could be made. A total of 116 people responded via an online form and a few phone interviews.

The survey revealed that people from a **mix of professions use the Sourcebook**: academia (46%), corporate (22%), government/policy (19%) and voluntary sector (13%); typically with expertise in remote sensing and/or tropical deforestation/degradation assessment.

The **majority of Sourcebook users are happy with the level of technical detail** in the Sourcebook (64%), with a minority (18%) stating that it needs more detail and precision (e.g on degradation monitoring, estimation of uncertainty), and some believing it is too detailed (14%).

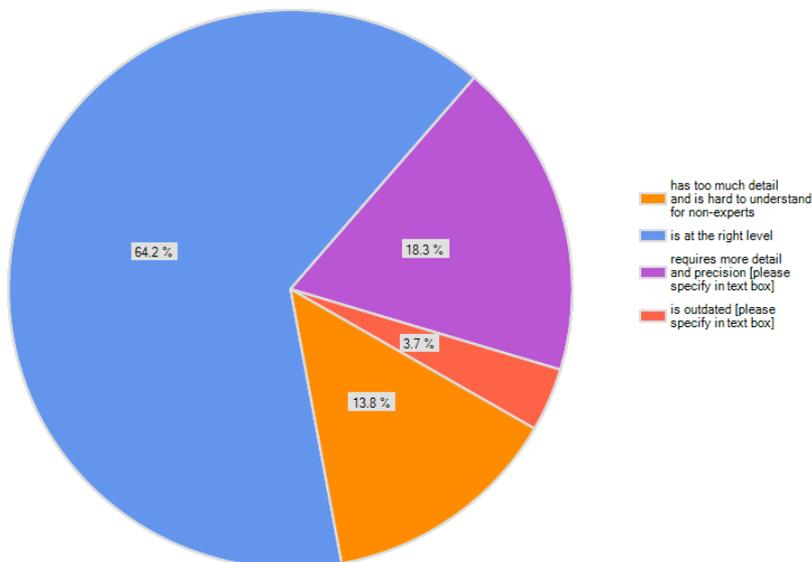
Which section of the GOFC-GOLD Sourcebook has been most useful to you?



There was **strong support for training materials associated with the Sourcebook** to be developed (#53), and to make the Sourcebook more interactive (#41). Other **suggestions for revisions and additions** included: information on policy (UNFCCC/SBSTA) decisions (#39), bringing in more authors (#34), and updating particular sections (#30) – with the following sections gaining strongest support for an update: Monitoring of changes in forest area and degradation (#42), Estimation of uncertainty (#29), Status of evolving technology (#29).

The next update of the Sourcebook will be based on the findings of this survey.

I find that the technical content of the GOFC-GOLD Sourcebook... (please complete)



## Activities to support UN Conventions 2/2

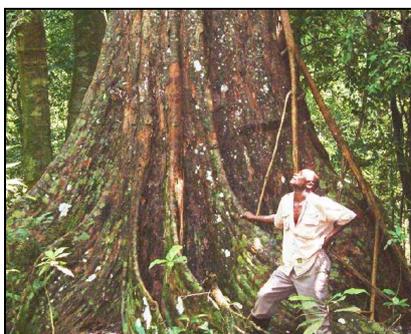
### Workshop on step-wise approaches for national forest monitoring and REDD+ MRV capacity development

The GOFC-GOLD LC-IT and the Center for International Forestry Research (CIFOR) organised a small expert workshop on step-wise approaches for national forest monitoring and REDD+ MRV capacity development, in Wageningen on September 3-5, 2012. Twenty seven experts coming from Brazil, Germany, Guyana, India, Indonesia, Mexico, Norway, Tanzania, Vietnam, the USA and the Netherlands, participated to this meeting. National institutions such as Ministries, as well as Universities and international institutions (World Bank, FAO, IPCC, UNFCCC, European Commission, ESA) were represented.

Details on the workshop can be found on the GOFC-GOLD LC Project Office website: [http://www.gofcgold.wur.nl/sites/CIFOR\\_workshop.php](http://www.gofcgold.wur.nl/sites/CIFOR_workshop.php)

A joint GOFC-GOLD/CIFOR report synthesising the presentations and the discussions of the workshop was released for the last UNFCCC Conference of Parties (COP 18) held in Doha, Qatar in November 2012.

[http://www.cifor.org/publications/pdf\\_files/Books/BWijaya1201.pdf](http://www.cifor.org/publications/pdf_files/Books/BWijaya1201.pdf)

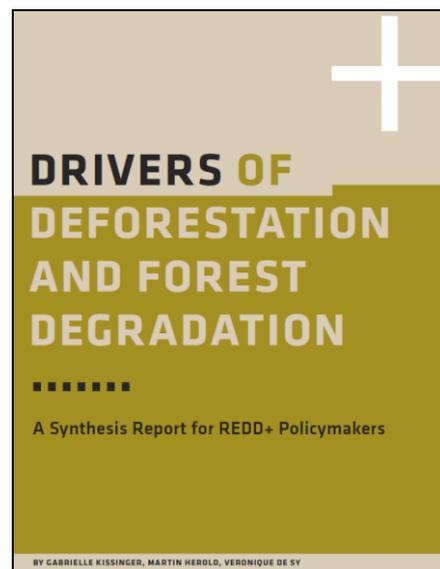


#### Capacity development in national forest monitoring

Experiences and progress for REDD+

Edited by  
Brice Mora, Martin Herold, Veronique De Sy,  
Anief Wijaya, Louis Verchot and Jim Penman

### Synthesis report on drivers of deforestation and forest degradation for REDD+ policy makers



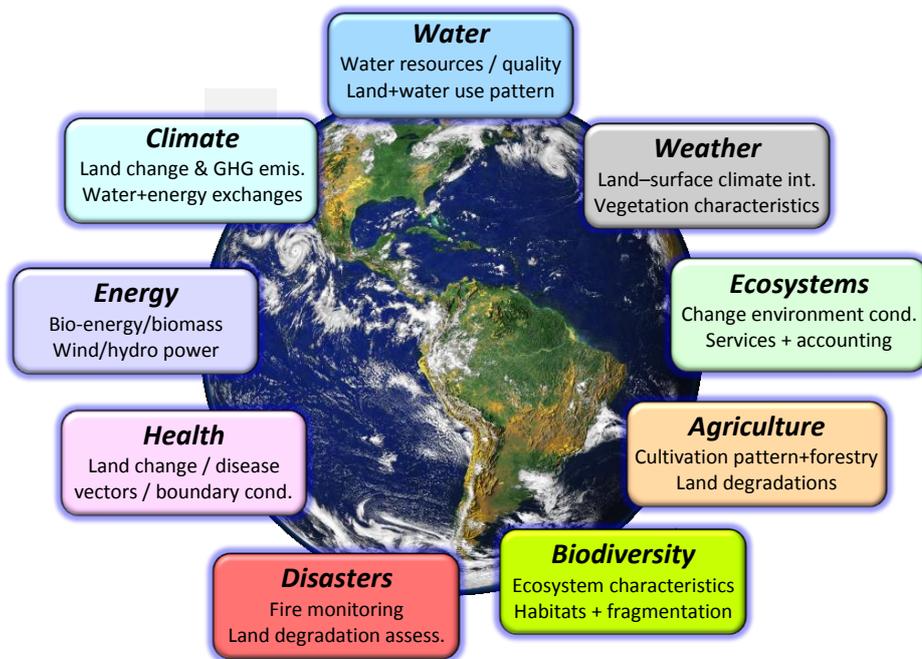
A synthesis report was published on summer 2012 for REDD+ policymakers on the drivers of deforestation and forest degradation. The report highlights the role of commercial agriculture as the most important direct driver of deforestation worldwide. Due to underlying causes such as increasing economic and population growth and meat consumption, the importance of this driver is likely to remain so in the future. The report stresses the importance to know what drives deforestation and forest degradation, in order to be able to design and monitor effective REDD+ policies to halt it.

The report can be accessed here:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/65505/6316-drivers-deforestation-report.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65505/6316-drivers-deforestation-report.pdf)

## Societal benefits from land cover observations

Land Cover information is relevant for all areas of societal benefits as addressed by the Group on Earth Observation (GEO)



The LC-IT leads and/or contributes to a series of tasks from the GEO work plan 2009-2011:

- SB-02: leading the Global Land Cover and Land Cover Change task
- Forest Carbon tracking – Global Forest Observation Initiative task (GFOI):
  - . participating in the redaction of a Method and Guidance Document
  - . participating in the R&D plan

### GOFC-GOLD Contribution to GEO

- GOFC-GOLD provides an operational framework for land observations within GTOS.
- The land domain is least advanced compared to other fields of observation (ocean, atmosphere).
- GOFC-GOLD provides a communication and cooperation platform between data producers, data users, and the science community to cooperatively improve observation, data products definition, assimilation, and dissemination.
- Implementation builds upon and enhances established partnerships and observing systems, and stable funding and staffing is essential for a comprehensive GEOSS implementation.
- Potential of international capacity building (linkage to GOFC-GOLD regional networks).

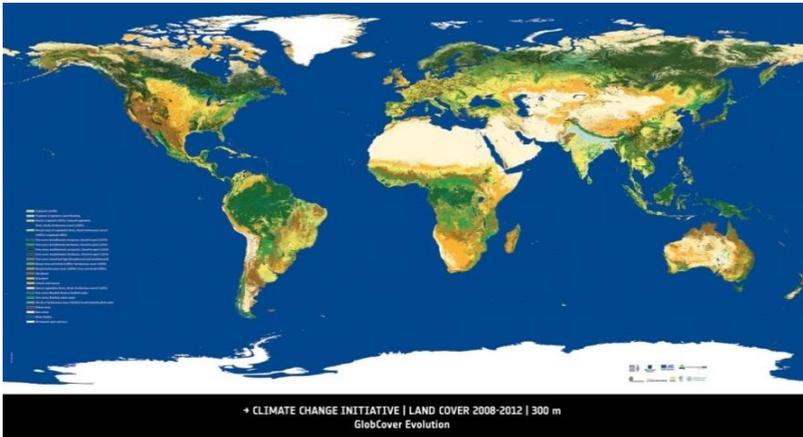
The PO leads the **GEO task SB-02 Global Land Cover and Land Cover Change**.

The task aims to:

- Provide a suite of global land-cover and land-cover change datasets, based on improved and validated moderate resolution land-cover maps.
- Develop <50m global land-cover and land-cover change data sets, based on international community consensus and including a robust accuracy assessment.
- Improve the use of time-series products to characterize the nature and extent of land-cover change and dynamics.

Various activities of the Land Cover IT contribute to the progress of this task (see summary of activities and achievements above).

# Global Land Cover Observation and Assessments

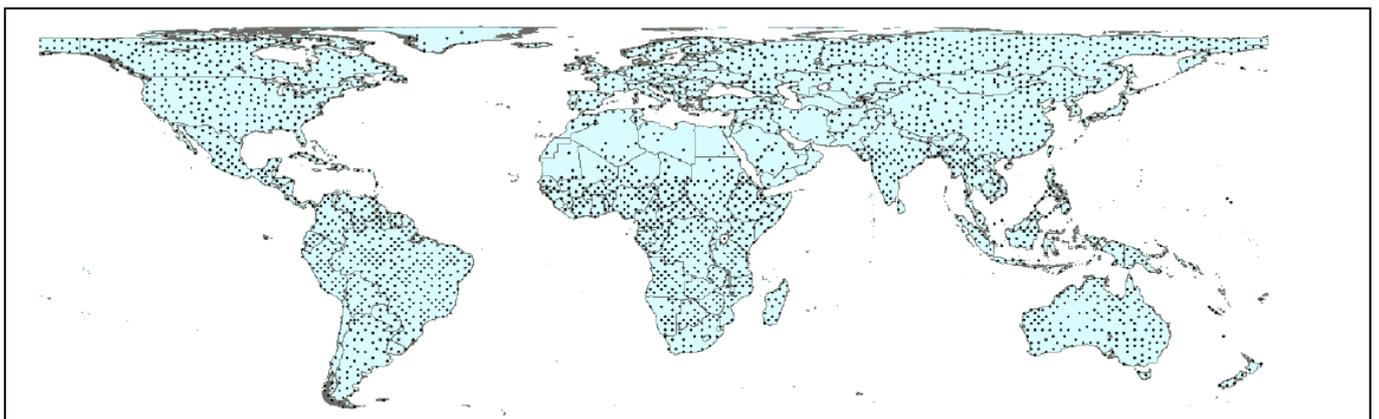


## The Challenge

There is a need for detailed and accurate information about land cover and land cover change on all geographic scales from different communities (e.g. climate modellers, biodiversity community). Monitoring capabilities for land cover needs to move from research to operational monitoring. Furthermore, operational data and products need to be better defined, flexible, and openly available.

## GOFC-GOLD activities:

- Support of coordination mechanisms for land surface observations
- Support improved match between observations, data products and user needs
- Establish international standards and protocols especially with respect to harmonization and validation
- Improve adequacy and advocacy of land cover products based on user requirements
- Maintain GOFC-GOLD regional networks
- Work towards continuity and consistency of land cover observations
- Implement coordinated research, demonstration and operational projects
- Support to share data, information and knowledge
- Develops a reference data web portal for global land cover mapping initiatives
- Consolidation of GlobCover 2005 reference dataset
- Participation in the production of reference data for global land cover mapping using optical very high spatial resolution satellite images



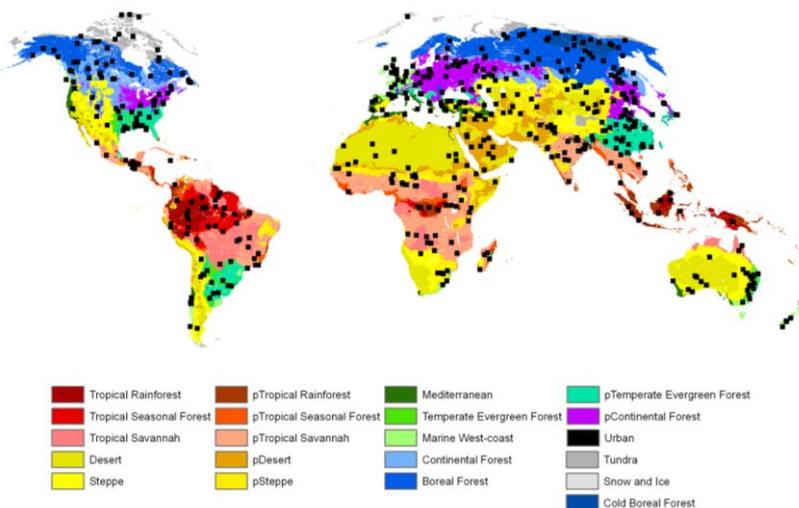
*Primary Sampling Units (PSU) for the ESA Land Cover Climate Change initiative*

## Harmonization and Validation activities

### Joint GOFC-GOLD and CEOS WGCV initiative

The GOFC-GOLD land cover implementation team and the CEOS land validation subgroup have been working on developing and implementing a land cover harmonization and validation framework.

In January 2012 the GOFC-GOLD LC PO organised a workshop in Boston to progress on the development of a new reference dataset for global land cover mapping activities. A set of 500 optical very high spatial resolution satellite images (<1 m) is being acquired over the locations of the sample plots. Production of the land cover information for these plots is on-going. The sample plots will be made available on a web portal hosted on the GOFC-GOLD LC PO website.



### A GOFC-GOLD reference data portal for global land cover mapping

The GOFC-GOLD LC PO has been working on the development of a reference data portal. Several datasets will be made available eventually such as: GLC2000, GlobCover 2005, STEP, VIIRS, Chinese validation dataset, GOFC-GOLD/Boston VHSR dataset.

#### Objectives of the portal

- Provide most appropriate databases based on internal quality criteria and a consolidation
- Allow open and easy access to available datasets
- Foster use of recommended practices for land cover validation in the GLC mapping community
- Each dataset provided along with detailed information and recommendations for an appropriate use
- Direct users to most appropriate dataset(s) according to specific needs



# Presentation, publications and outreach

## GOFC-GOLD LC PO Newsletter and social medias



The LC-PO is continuously producing documentations and outreach materials. Several **reports, newsletters, and scientific papers** have been produced, edited, released and circulated.

The quarterly newsletter is distributed to a comprehensive list of actors (3,500+) involved in land cover monitoring. The four **newsletters** released this year were **downloaded 3,000 times** in average. **Social medias** (Facebook, Twitter, LinkedIn groups) are used to advertise our activities, progress and achievements as well.

The GOFC-GOLD LC-PO **website has been updated** and contains a variety of services to users including documentation on access to global and regional land cover map products and in-situ observations.

## Land Cover PO website



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Last updated: April 11 2013

Reports and deliverables have been submitted to ESA. They include status reports and results from prototype studies. The LC-PO has contributed to the GOFC-GOLD report series. Further input and documentation was provided to UNFCCC COP 18, GEO tasks, and GFOI Method and Guidance Document (still under development). The LC-PO has completed several scientific publications in the peer-reviewed literature.

## Scientific papers



### Assessing capacities of non-Annex I countries for national forest monitoring in the context of REDD+

Erika Romijn<sup>a\*</sup>, Martin Herold<sup>a</sup>, Lammert Koistra<sup>a</sup>, Daniel Murdiyarso<sup>b</sup>, Louis Verchot<sup>b</sup>

<sup>a</sup>Laboratory of Geo-Information Science and Remote Sensing, Wageningen University, P.O. Box 47, 6700 AA Wageningen, The Netherlands  
<sup>b</sup>Center for International Forestry Research, Jl. CIFOR, Situ Jagde, Bogor 16115, Indonesia

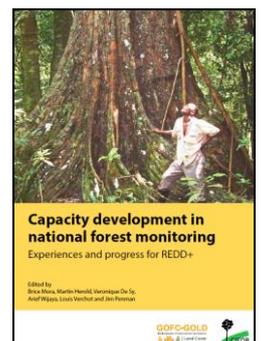
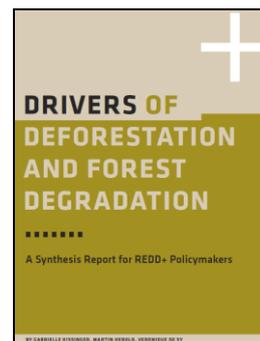


### Synergies of multiple remote sensing data sources for REDD+ monitoring

Veronique De Sy<sup>1</sup>, Martin Herold<sup>1</sup>, Frédéric Achard<sup>2</sup>, Gregory P Asner<sup>3</sup>, Alex Held<sup>4</sup>, Josef Kellndorfer<sup>5</sup> and Jan Verbesselt<sup>1</sup>

<http://gofcgold.wur.nl>

## International reports



## Workshops and Travel

The LC PO Director and Project Officer have organized, contributed and participated in several workshops and meetings to foster international cooperation and communication and for outreach and capacity building purposes. Most prominently in 2012, the LC-IT PO has organized a 3-day expert workshop on stepwise approaches for national forest monitoring and REDD+ MRV. We gathered key international stakeholders from scientific research institutions, consulting organisations, and national forest services in developing countries.

## Financial overview

The GOFC-GOLD LC-PO is operated through ESA's Technical Officer Olivier Arino under ESA ESRIN contract. All expenses have been documented in Quarterly Status Reports submitted to the ESA technical officer.

<b>Financial summary 2012</b>	
<b>Revenues</b>	K €
ESA sponsorship 1 <sup>st</sup> installment received (35K)	100,0
Additional funding WU Chair group (38,3K), Sponsors (6K)	44,3
<b>TOTAL</b>	<b>144,3</b>
<b>Expenses</b>	
Personnel costs:	
- PO executive officer	122,7
Travel & subsistence	
- PO director & officer	14,3
Consumables	
- operating & communication costs	1,2
- Publications/Brochures/other	0,1
- Workshop subsistence	6,0
<b>TOTAL</b>	<b>144,3</b>

<b>Workshops (co-)organized by the GOFC-GOLD LC PO</b>		
Date	Venue	Workshop
January	Boston, U.S.A.	GOFC-GOLD LC-IT meeting on reference datasets for global land cover mapping
April	Frascati, Italy	GOFC-GOLD Side Event at ESA Sentinel-2 Preparatory Symposium
September	Wageningen, Netherlands	GOFC-GOLD/CIFOR expert workshop on national forest monitoring and REDD+ MRV
<b>Participation in international meetings</b>		
Date	Venue	Workshop
April	Sofia, Bulgaria	GOFC-GOLD SCERIN Formulation Workshop
June	Tromso, Norway	GEO GFOI meeting on Method and Guidance Document
June	Louvain-La-Neuve, Belgium	Meeting at UCL on consolidation of GlobCover 2005 reference dataset
October	Jena, Germany	ESA GlobBiomass - User Consultation Meeting
October	Munich, Germany	CEOS Biodiversity/Conservation Workshop
October	Hayama, Japan	IPCC Expert meeting on Role of Remote Sensing in Forest and National GHG Inventories
November	Frascati, Italy	
November	Doha, Qatar	UNFCCC Conference Of Parties 18

Additional funds were obtained from sponsors supporting GOFC-GOLD workshops (April 2012 in Sofia, and September 2012 in Wageningen). Sponsors were START, CIFOR, and in-kind contributions from Wageningen University (WU). Note the table reports another financial contribution which consists in the financial overhead from the institution (WU) hosting the GOFC-GOLD LC-PO.

## Activities and objectives for 2013

Building upon the seven successful years of LC-PO operation, the PO will continue to act as focal point for global and regional land cover observations, and as such provide an international interface assisting data producers and land cover mapping programs, and user organizations. The arena of land cover observations remains heterogeneous despite the advent of new synergies fostered by international initiatives (e.g. GEO Tasks). One of the key general roles of the LC-PO is to coordinate and moderate among the different land cover observation actors. Key activities to achieve progress for **international coordination and cooperation** in particular to evolve common ground for land cover monitoring are:

- Ensure implementation of agreed validation protocols (GEO and CEOS)
- Production of validation data for global land cover mapping derived from optical very spatial resolution satellite images
- Facilitate access to consolidated reference datasets for global land cover mapping
- Capacity building in particular for developing countries (REDD)
- Encourage free and open data assimilation and dissemination mechanisms for satellite and in-situ data, and land cover mapping products (i.e. for global land cover validation data)

Over the last years GOFC-GOLD has been working on defined objectives and priorities from several international institutions (political and strategic level) involved in land cover and forest monitoring activities. In this context, the LC-PO work plan for the next year includes the organization of a new GOFC-GOLD symposium aimed to present progress made by the different ITs and discuss with main sponsors and collaborators what future activities of GOFC-GOLD should be focusing on. The work plan includes also the support of the **UNFCCC REDD activities** (focus on technical guidance, the development of the sourcebook and capacity building), **GCOS implementation plan** for observing essential climate variables in the terrestrial domain (focus on land cover and biomass), continue to contribute to the **GEO process** concerning forest and land cover observations via the coordination of the Global Land Cover and Land Cover change task, and the participation in the redaction of the Method and Guidance Document and R&D from the GFOI.

The LC-PO will further contribute to several on-going land cover mapping projects. Most prominently, the LC PO will further assist ESA in the validation of the **LC-CCI** products and participate in the **GlobBiomass** project. The joint activities with the **CEOS** land validation subgroup will foster the leading role of the PO in global land cover validation procedures and implementation activities (i.e. access to reference data and harmonization). All these activities will be in accordance with on-going international developments on the strategic level including cooperation with GTOS.

A series of key international workshops and a symposium will be organized and attended from LC-PO members (see table below). All progress and developments will be documented and communicated through presentations and reports to ESA, GOFC-GOLD and the public through the LC-PO Newsletter, reports, and social medias (Facebook, Twitter, LinkedIn groups).

## Participation of the GOFC-GOLD LC PO in upcoming events

Date	Location	Purpose and objective
February, 2013	Sydney, Australia	GEO Global Forest Observations Initiative (GFOI) expert meeting on Method and Guidance Document
April, 2013	Wageningen, Netherlands	GOFC-GOLD Symposium aimed to present progress made by the different teams and discuss future activities of GOFC-GOLD with main sponsors and collaborators
May, 2013	Beijing, China	ISPRS / GEO workshop on Global Land Cover mapping activities
June, 2013	Wageningen, Netherlands	Joint workshop with WWF NL aimed to identify and discuss scientific solutions to current REDD+ policy challenges
June, 2013	Bonn, Germany	The 38th session of the Subsidiary Body for Scientific and Technological Advice (SBSTA)
June, 2013	Geneva, Switzerland	GEO Work Plan Symposium – Report on progress made for GLC Task SB-02
June, 2013	Prague, Czech Republic	Present expertise on land cover monitoring at GOFC-GOLD Land Cover Office, capacity development on RS-based mapping techniques
July, 2013	Maputo, Mozambique	GOFC-GOLD Regional Network meeting
September, 2013	Edinburgh, Scotland	ESA Living Planet Symposium, presentation of the GOFC-GOLD LC global land cover reference dataset web portal
November, 2013	Warsaw, Poland	UNFCCC Conference Of Parties 19
March, 2014	Berlin, Germany	Organization of a GOFC-GOLD special session on Progress on global land change monitoring at Global Land Project conference

## Acknowledgement

The globe picture on the cover page was made by Mike Fisk, photographer. Title of the photography is: ‘Electric bolts shooting from a glass Earth’.

## More information and contact

Information and documentation about GOF-C-GOLD, GTOS, and the LC-PO activities can be found on the following web pages:

ESA	<a href="http://www.esa.int/">http://www.esa.int/</a>
ESA Data User Element	<a href="http://dup.esrin.esa.it/">http://dup.esrin.esa.it/</a>
GTOS	<a href="http://www.fao.org/gtos/">http://www.fao.org/gtos/</a>
GOF-C-GOLD	<a href="http://www.fao.org/gtos/gofc-gold/">http://www.fao.org/gtos/gofc-gold/</a>
GOF-C-GOLD LC Project Office	<a href="http://www.gofcgold.wur.nl/">http://www.gofcgold.wur.nl/</a>
GOF-C-GOLD report series	<a href="http://www.fao.org/gtos/gofc-gold/series.html">http://www.fao.org/gtos/gofc-gold/series.html</a>
LC-IT Newsletter	<a href="http://www.gofcgold.wur.nl/sites/letter.html">http://www.gofcgold.wur.nl/sites/letter.html</a>
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