

GEO Forest Community of Practice: Overview of Forest Observation Tasks

Michael Brady
Presented by Jinlong Fan

2nd GEO Forest Symposium
1-3 July 2009, Chang Rai, Thailand



Community of Practice

- A Community of Practice (CoP) is a user-led community of stakeholders, from providers to the final beneficiaries of Earth observation data and information, with a common interest in specific aspects of societal benefits to be realized by GEOSS implementation.



Objectives

- Identify, gather, and seek agreement on their particular user community requirements;
- Provide a forum for cooperation of activities where GEOSS adds value to existing initiatives, to identify linkages and opportunities for collaborative strategic and technical projects and to coordinate the delivery of some GEOSS targets to enable the realization of societal benefits.
- Report on progress and provide updates to the User Interface Committee, GEO and other stakeholder communities as appropriate;
- Advise the User Interface Committee, other CoPs and GEO on matters relating to their particular area of interest or societal benefit, and on cross-cutting issues of interest to the CoP.
- Provide an informal point of contact for members or other jurisdictions on the specific benefit or interest area that affect more than one organization;



The GEOSS for forests is incomplete

- Combining remote and in situ / NFI type observations is under utilised
 - *Essential for accounting and tracking of forest carbon (nationally and globally)*
- Need to engage user communities and networks not yet involved in GEO and earth observation (creation of GEO Forest Community of Practice)
- Lack of co-ordinated long term observation plans
- Earth observation challenges:
 - *varying user requirements*
 - *observation continuity (satellite, in situ)*
 - *move from research to operations*
 - *harmonization of forest information*
 - *data access issues (regional/national data sets, in situ)*
 - *capacity building and outreach*



A world map is shown in a light grey color, centered on the Atlantic Ocean, against a dark green background with a grid pattern. The map is semi-transparent, allowing the text to be overlaid on it.

GEO Community of Practice for Forest Observations US-06-02

- Michael Brady, Canada
- Zhiliang Zhu, USA
- Göran Boberg and Hakan Olsson, Sweden
- Erkki Tomppo, Finland
- Martin Herold and Christiane Schmullius, GOF-C-GOLD

1. Identify, gather, and seek agreement on user community requirements for forest observations, their present status and gaps to be filled
2. Advise the User Interface Committee, other CoPs and GEO on matters relating to forest observations and related societal benefits, and on cross-cutting issues of interest
3. Provide GEO with information about organisations and networks that could help carry out forest observation related GEO tasks
4. Support the forest observation community with information about activities and plans in the GEO process

Forest Observation User Communities

Membership determined by range of uses for forest observations and information

(1) Global Change Science

(2) Timber, Fuel and Fiber (incl. agro forestry)

(3) Watershed Protection

(4) Biodiversity and Conservation

(5) FCCC and other Environmental Agreements

(6) Recreation and Tourism

(7) Sustainable Forest Management

(8) Forest Perturbations and Protection (fire, insects, disease)



Current activities

- Recruiting new members: USFS
- Populating GEO Registry: forest data and systems
- Confirming forest related tasks in new work plan
- Refining GEO 2015 targets for forest observations
- Developing generic UI process guide for upcoming events
- Engaging with members to further work plan tasks and the UIC Process:
 - *GEOSS in the Americas Symposium, Sep 08*
 - *GOFC-GOLD Land Cover Symposium, Oct 08*
 - *1st GEO Forest Symposium, Nov 08*
 - *Forest meeting at CEOS SIT-23, Feb 09*
 - *Canberra Carbon Workshop, Apr 09*
 - *Forest Workshop at ISRSE, May 09*
 - *2nd Forest Symposium, Jul 09*
 -



e.g., User interface process has been initiated

- During the August 2007 meeting of the UIC a 2-year process was agreed to identify user priorities and gaps in EO
- The process is to identify critical Earth observation priorities common to many GEOSS SBAs:
 - involving scientific and technical experts,
 - taking account of socio-economic factors, and
 - building on the results of existing systems' requirements development processes.
- Forest CoP is leading the Initiation of an Advisory Group for the forest portion of Agriculture SBA (working with Agriculture Monitoring CoP)
- Canadian Forest Service, as a contribution to the FCoP provides an analyst for



24 GEOSS tasks require forest observations

- *24 tasks identified with need for forest observations*
- *Tasks in all SBAs*
- *Tasks linked to all user communities:*
 - *Global Change Science – 10 tasks*
 - *Timber, Fuel and Fiber – 4 tasks*
 - *Watershed Protection - 2 tasks*
 - *Biodiversity and Conservation - 8 tasks*
 - *FCCC and other Environmental Agreements - 5 tasks*
 - *Recreation and Tourism - 1 task*
 - *Sustainable Forest Management - 3 tasks*
 - *Forest Perturbations and Protection (fire, insects, disease) - 10 tasks*



8 main forest tasks

1. Forest Mapping and Change Monitoring
2. Global Land Cover
3. Virtual Constellations-Land Surface Imaging sub task
4. Implementation of a Fire Warning System at Global Level
5. Key Terrestrial Observations for Climate
6. Regional Networks for Ecosystems
7. Communities of Practice
8. Forest Carbon Tracking (new)



e.g., Coordinated and integrated GEO forest tasks

Task in Previous Work Plan	Same Task in Current Work Plan	
	Overarching Task	Sub-Task
AG-06-04 Forest Mapping and Change Monitoring	Cross-Cutting Products and Services	US-09-03b
DA-07-02 Global Land Cover	Global Data Sets	DA-09-03a
DA-07-03 Virtual Constellations-Land Surface Imaging	Interoperable Systems for GEOSS	AR-09-02a
DI-06-13 Implementation of a Fire Warning System at Global Level	Warning Systems for Disasters	DI-09-03b
CL-06-03 Key Terrestrial Observations for Climate	Advocating for Sustained Observing Systems	AR-09-03a
EC-06-07 Regional Networks for Ecosystems	Ecosystem Observation and Monitoring Network	EC-09-01c
US-06-02 Pilot Communities of Practice	User Engagement	US-09-01b
CL-09-03b Forest Carbon Tracking	Global Carbon Observation and Analysis System	CL-09-03b





AG-06-04

Forest Mapping and Change Monitoring

Loyche Wilkie, Mette (FAO)

Adam Gerrand (FAO)

Ivan Petiteville, CEOS



Group on
Earth Observations

Task Description

- Integrate international efforts on assessment and monitoring of forests and forest changes using a combination of ground and satellite information and internationally agreed standards.
- **POC: FAO**
- **Lead: GTOS, USA**



Global Land Cover Task DA-07-02

Provide a suite of global land cover datasets, initially based on improved and validated moderate resolution land cover maps and eventually including land-cover change at high resolution

Martin Herold & Tom Loveland

GOFC-GOLD project office / USGS (task leads)

With contributions from C. Woodcock (UBoston), J. Townshend (UMaryland), M. Brady (Canadian Forest Service), C. Steenmans (European Env. Agency), O. Arino (ESA) & C. Schmullius (UJena)

www.fao.org/gtos/gofc-gold
www.gofc-gold.uni-jena.de

 **GOFC-GOLD**

Global Observations of Forest Cover and Land Dynamics

Virtual constellations task DA-07-03



Land Surface Imaging Constellation Study Team Report

Designed to ensure the relevant synergy with High Resolution
Multispectral Imager Continuity

21st CEOS Plenary

Agenda item: 9.3

Presented by: G. Bryan Bailey



A Global Early Warning System for Wildland Fire **DI-09-03b**



Bill de Groot, *Canadian Forest Service*

Johann Goldammer, *Global Fire Monitoring Centre, University of Freiburg*

Graham Mills, *Centre for Australian Weather and Climate Research*

Tim Lynham, *Canadian Forest Service*

Ivan Csiszar, *University of Maryland, National Oceanic and Atmospheric Administration*

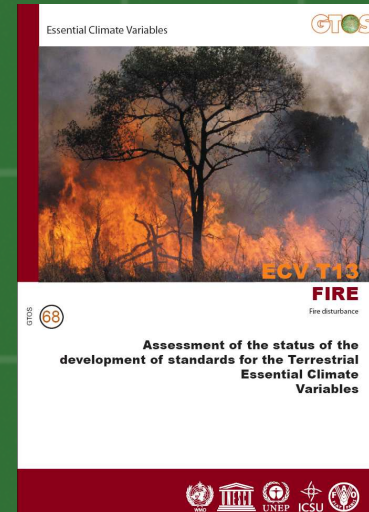
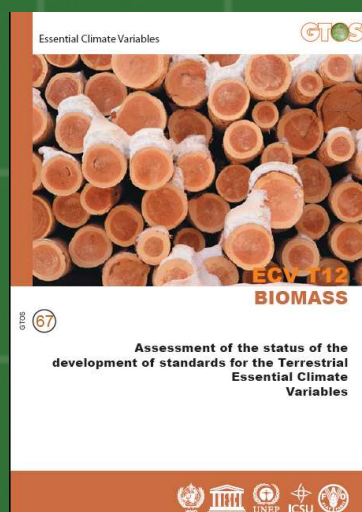
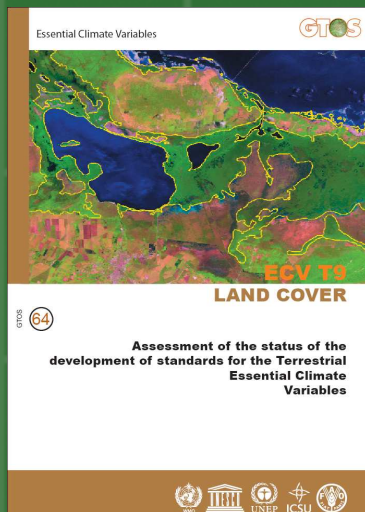
Chris Justice, *University of Maryland*

GOFC-GOLD GLOBAL OBSERVATION OF FOREST
AND LAND COVER DYNAMICS

Key terrestrial observations for climate

CL-06-03 Task Lead: GTOS

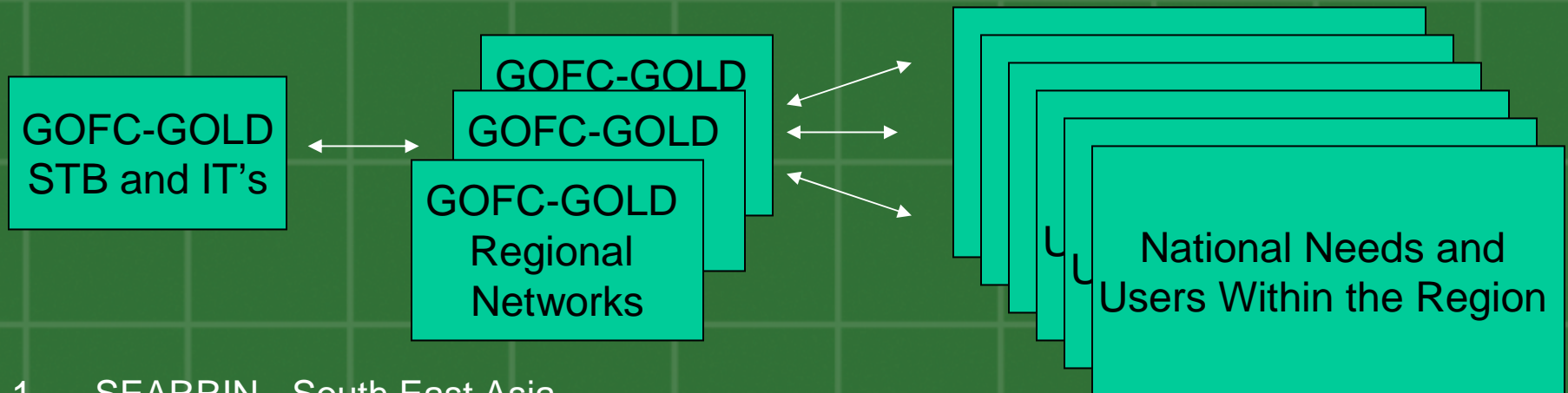
1. **A Framework for Terrestrial Climate-Related Observations: Implementation Options** (Progress reports to the UNFCCC meetings of the Subsidiary Body for Scientific and Technological Advice, 2006, 07, 08)
2. **Assessing the Status of the Development of Standards for the Essential Climate Variables (ECV) in the Terrestrial Domain** (Progress reports to the UNFCCC meetings of the Subsidiary Body for Scientific and Technological Advice, 2006, 07, 08)



Develop a global network of organization-networks and coordinate activities to strengthen observing capacity in developing countries

EC-06-07 Regional Networks for Ecosystems

Providing the interface between global and national level data users and needs



1. SEARRIN - South East Asia
2. OSFAC - Central Africa
3. Miombo - Southern Africa
4. SAFNET – Southern Africa
5. NEARIN – Northern Eurasia
6. East Asia (initiated early 2005)
7. Latin America
8. West Africa



e.g., Key 2015 GEOSS Forest Observation Targets

- Global, internationally accepted, validated, high resolution land cover datasets provided by operational programs (DA-07-02). Near real-time operational monitoring of forest and land cover change, using a combination of ground and satellite information, and internationally agreed standards (AG-06-04).
- Wildland fire is an important and widespread agent of forest damage and loss. Global systems and networks are in place, providing early warning (DI-06-13) and rapid detection (DI-06-09 geostationary fire network) of fire, using commonly understood terminology and allowing for mutual assistance across boundaries.
- Continuously monitor terrestrial carbon storage globally using established systems for forest monitoring, carbon observation and associated modeling, based on improved methods for measuring biomass and carbon fluxes, in situ and remotely.



How to get involved? GEO Forest task events

- *GEOSS in the Americas Symposium, Panama, Sep 08*
- *GOFC-GOLD Land Cover Symposium, Germany, Oct 08*
- *1st GEO Forest Symposium, Brazil, Nov 08*
- *Task meetings at CEOS SIT-23, USA, Feb 09*
- *Task workshop, Australia, Mar 09*
- *Forest workshop & papers at ISRSE, Italy, May 09*
- *Task contributions at UNFCCC SBSTA, Germany, Jun 09*
- *GOFC-GOLD Biomass Workshop, USA, Jun 09*
- *2nd GEO Forest Symposium, Thailand, Jul 09*
- *GEO Plenary, USA, Nov 09*
- *UNFCCC CoP, Denmark, Dec 09*



[http://www.earthobservations.org/ cop_ag_for_au.shtml](http://www.earthobservations.org/cop_ag_for_au.shtml)

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About the Community of Practice

Forests are amongst the Earth's greatest natural resources and are relevant to all nine of the GEO Societal Benefit Areas (SBAs). The current lack of globally consistent map products for forests, however, is significantly limiting efforts to understand these vital ecosystems. Filling this gap and advancing our knowledge about the status of, and trends in, the world's forest resources and their long-term ability to provide multiple societal benefits will require the coordinated development of Earth observation systems.

The Forests Community of Practice (FMCP) is supporting the forest-related outcomes in the 10-Year Implementation Plan for the Global Earth Observing Systems of Systems (GEOSS). The goals of the FMCP are to link existing and planned forest observation systems around the world, identify new systems where gaps currently exist, and improve access to, and use of, in-situ, aerial and satellite Earth observations.

To ensure steady progress on GEO's forest-related Tasks, the FMCP organizes regular events focused on ensuring that GEOSS encompasses an integrated forest monitoring system of systems. These events promote coordination, facilitate data sharing and inter-operability, and foster the development of sustained operational systems based on these capabilities.

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**Thank you,
Questions?**

GEO Forest Community of Practice

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