Report of the Meeting of the Executive Committee of Global Observation of Forest Cover / Global Observation of Land Cover Dynamics (GOFC-GOLD

Joint Research Center

Ispra, Italy

17 - 18 March 2003

Townshend, J.R.

GOFC-GOLD Report No. 17

Global Observation of Forest and Land Cover Dynamics (GOFC-GOLD) is a coordinated international effort to ensure a continuous program of space-based and in situ forest and other land cover observations to better understand global change, to support international assessments and environmental treaties and to contribute to natural resources management.

GOFC-GOLD encourages countries to increase their ability to measure and track forest and land cover dynamics by promoting and supporting participation on implementation teams and in regional networks. Through these forums, data users and providers share information to improve understanding of user requirements and product quality.

GOFC-GOLD is a Panel of the Global Terrestrial Observing System (GTOS), sponsored by FAO, UNESCO, WMO, ICSU and UNEP. The GOFC-GOLD Secretariat is hosted by Canada and supported by the Canadian Space Agency and Natural Resources Canada. Other contributing agencies include NASA, ESA, START and JRC. Further information can be obtained at
http://www.fao.org/gtos/gofc-gold

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1. Welcome and introductions

The meeting was opened by Dr. Alan Belward (Vice-chair of GOFC/GOLD). Brief introductions were made by each of the participants.

2. Principal Objectives and Attendees (John Townshend)

This meeting of the Executive Committee (Excom) of the STB was held with the following goals:

- to assess progress in carrying out the plans of GOFC/GOLD,
- to further develop strategies for their implementation
- to consider possible modifications to the plans.
- to set the basis for the next STB

The Executive Committee consists of the following people: Chair, Vice-Chair, Executive Director, Co-chairs of Land Cover and Fire Implementation Teams, Director of GTOS, START representative, NASA representative. In addition there were several additional attendees at this meeting: representatives of regional networks, certain members of Implementation Teams and other potential contributors to GOFC/GOLD.

The meeting was divided into two principal sections. Firstly there was as a review of current status involving an examination of the soundness of existing strategy, progress made to date in implementation, the relation of GOFC/GOLD to other international activities, status of Implementation Teams and the status of Regional Networks. Second we examined evolving plans changing priorities for Land Cover and Fire Implementation Teams (including links with networks), developing the Regional Networks, the possibility of new Implementation Teams and development of a funding strategy.

The agenda of the meeting contained in Appendix 1 was approved with addition of presentations in relation to the relation of GOFC/GOLD to other international activities and the status of Regional Networks. The list of attendees is given in Appendix 2.

3. Status and goals of GTOS and the role of GOFC/GOLD within GTOS

Jeff Tschirley (Executive Director of GTOS) outlined the role of GTOS, and its relationships with the roles of the Global Climate Observing System and Global Ocean Observing System. He stressed the importance to GTOS of certain key data sets such as fire, land change and use. He stressed the importance of monitoring progress developing a project vision for next ten years, the setting of targets and communicating our work to the scientific community.

Bob Scholes (Chair of GTOS) emphasized the importance of regional networks of pilot programs and the need to combine regional observations to create a global scale perspective. He stated the key central role of GOFC/GOLD within GTOS. Land cover at high resolution is key to monitoring biodiversity and the need to combine ground measurements and remote sensing. Appendix 3 contains a copy of his presentation.

4. Introductory Statement by Chair of GOLD/GOFC STB (John Townshend)

The planning documents produced by GOFC/GOLD identify its primary strategy as developing operational forest monitoring capabilities at regional and global scales by developing prototype projects along three primary themes:

- Forest Cover Characteristics and Changes
- Forest Fire Monitoring and Mapping
- Forest Biophysical Processes

As part of this process, it was proposed to assemble teams to execute prototype projects, develop consensus algorithms and standard methodologies for product generation and product validation in conjunction with in-situ measurements, and develop and demonstrate procedures for improved data access for the user community. It was necessary to identify gaps and overlaps in earth observation data, ground systems, methods, and scientific knowledge from the experience gained in developing and executing GOFC prototype projects.

- The ultimate objective is to lead to sustained, ongoing operation without the need for major funding by CEOS members. Based on these over-arching objectives the following second order strategic priorities were identified:
- Create and strengthen partnerships between CEOS members and user agencies;
- Identify gaps and overlaps in CEOS member programs and make recommendations how these might be resolved;
- Lead to increased operational use of earth-observation data for policy decision-making at national, regional, and global levels;
- Provide validated products which can be used to derive credible information concerning the forest component of the carbon budget for research and policy use;
- Promote common data processing standards and interpretation methods, which are necessary for inter-comparison of regional studies;
- Stimulate advances in the state of the art in the management and dissemination of large volume datasets and information from multiple sensors;
- Use data from multiple sensors, in combination with in-situ data, to produce validated prototype information products which satisfy clearly identified requirements of user agencies;
- Enhance the use of earth-observation information products for forest management and scientific research concerning forest biophysical processes.
- Promote common data processing standards and interpretation methods, which are necessary for inter-comparison of regional studies;

- Stimulate advances in the state of the art in the management and dissemination of large volume datasets and information from multiple sensors;
- Use data from multiple sensors, in combination with in-situ data, to produce validated prototype information products which satisfy clearly identified requirements of user agencies;
- Enhance the use of earth-observation information products for forest management and scientific research concerning forest biophysical processes.

Overall it was concluded that these priorities still seem to be sound, but some changes in emphasis have become apparent. Principally there has been a transition from forest cover to all land cover types. Also in terms of scope we likely were overly ambitious, in part because resources have been more limited than expected. Also within our strategy no template to measure our progress has been developed. Furthermore refocusing may be advisable on a limited set of key issues, primarily.

- Making observation systems operational.
- Making products more available.
- Ensuring use of products.

The chairman then provided a template for assessing progress in operationalizing products identified by GOFC/GOLD as being of high priority. This is included in Appendix 4. It was concluded that considerable progress has been made in moving towards operational products since the initiation of GOFC/GOLD.

5. Introductory comments by the Executive Director, Bryan Lee

Bryan Lee (Executive Director of GOFC/GOLD) outlined his priorities for GOFC/GOLD as follows

1. Double or triple budget
2. Monitor and report annually actions and achievements for the past year.
3. Support and work with regional networks
4. Engage other communities
5. Have discussions with respect to the name of GOFC/GOLD

6. Relation of GOFC/GOLD to other international activities

6.1. GTOS

Jeff Tschirley discussed other GTOS activities related to GOFC/GOLD including the developing Coastal GTOS activity; the database of long-term ecological measurements can be located from the TEMS Web site and the TCO activity. A full copy of his presentation can be found in Appendix 5.

ACTION: TCO Meeting in Sheffield. It was agreed that GOFC should be represented.

6.2. UNEP

Asbindu Singh (UNEP-DEWA) stressed the need to improve upon land cover statistics for the individual countries. He noted the need for forest statistics including ones of degraded forests. (See Appendix 6 for his presentation).

6.3. UNGLCP

Jeff Tschirley described progress in developing the UN Global Land Cover Project which will be based on a bottom-up approach from individual countries rather than the global and regional top down approach of GOFC/GOLD.

6.4. FAO/FRA

Dave Skole reported on recent discussions with FAO's Forest Resource assessment and the proposal to have a systematic sample of sites at every 1 degree intersection globally.

6.5. UNFCC Adequacy Report -

Alan Belward reported on current work in preparing the second GCOS Adequacy Report. As chair of TOPC he is responsible for terrestrial observations. He was asked to distribute copies of the current draft. Gaps in observation of land cover as it relates to other issues such as biodiversity, etc., also need to be made clear to policy makers. (See Appendix 7 for his full presentation)

ACTION: Alan Belward to circulate revised chapter on terrestrial observations to be distributed

6.6. CEOS Working Group

Chris Justice made a presentation on behalf of Jeff Morisette, chair of the CEOS CalVal WG Land Products Validation sub-group. This group has been working with GOFC/GOLD and helping the organization developing validation procedures. He stressed the need to get regional networks to help with this. It is a high priority –to have documented standards and products to meet user needs. (See Appendix 8 for the full presentation).

ACTION: Thank Jeff Morisette and Jeff Privette for their help on behalf of the CEOS WGCV LPV group.

6.7. Interagency Strategy for Disaster Reduction Working Group

Johann Goldammer reported on the relationship between several UN activities and GOFC/GOLD and in particular on the Interagency Strategy for Disaster Reduction Working Group. During discussion the need for careful coordination between different complementary networks was stressed. (See Appendix 9 for the full report).

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6.8. NEESPI

Garik Gutman (NASA) outlined the role of the burgeoning Northern Eurasian Earth Science Partnership Initiative and its relation to the proposed North European Regional Information Network (NERIN) and the Siberian Far East Regional Information Network (SFERIN). (See Appendix 10 for the full report).

6.9. Millennium Ecosystem Assessment (MA)

Bob Scholes (GTOS) reported on progress in the Millennium Ecosystem Assessment. (See Appendix 11 for the full report)

ACTION: John Townshend – Distribute report from Tony Janetos.

6.10. Fluxnet

Bob Scholes (GTOS reported on the rapid expansion of Fluxnet in many regions of the world.

6.11. Global Forest Watch

Lars Laestadius (GFW) reported on the Global Forest watch.
It is a network of organizations in many countries. It is not driven by governments or by industry. Its roles are:
What it does:

1. Produce state of forest report – compilation of data
2. Illegal logging monitoring
3. Mapping of forest condition – create protocol for forest conservation modeling
4. Global Forest Watch is creating a new user community

Aim to map intactness of forest – deforestation mapping is not enough; there is a demand for forest intactness mapping intactness map and to monitor naturalness over time and space.

The protocol is to look for disturbances and remove these from the intactness map; they use all information/data they can acquire including topographic information, Landsat data, and road structure information. Fires are a problem and they should be distinguished as natural or not natural occurrences. Funds needed to develop a global intactness map.

7. Status and planned future activities of Fire Implementation Team. (Chris Justice/Johann Goldammer/Ivan Csiszar)

An overview was provided of the work of the Fire Implementation team by Ivan Csiszar. The full presentation can be found in Appendix 12.

The following issues were identified as needing particular attention for the success of the Team's work:

- Strengthening Networks
  - Funding for regional networks – POC's, Activities
  - Relationship between fire and land cover components of the regional networks
  - Harmonization of the GTOS Networks and the UN, GOFC Regional Fire Networks and activities
- Improve Outreach, Visibility and Level of Engagement
  - Harmonized web sites, inventory of documents
  - PR Material
  - Visibility within the UN System
  - Greater involvement - Europe, Japan, China, Temperate Asia
- Clarify Roles and Responsibilities
  - IT Members – assign responsibilities
  - Regional Network – leads and national POCs
- GOFC/GOLD DIS – next step
  - Improve data access /sharing
  - Accuracy reporting – validation protocols
  - GOFC Product endorsement, data standards (the GOLD Standard)

During discussion the importance of data policy was stressed to allow the unfettered exchange of data. Johann Goldammer emphasized the link between fire and changing fire regimes and stresses.

8. Status and planned future activities of Land Cover Implementation Team (Dave Skole)

The report discussed four main topics:

> Summary of activities of the Forest and Land Cover Implementation Team (Appendix 13)
> Status of Actions of the Cover Implementation Team arising from the Toulouse Plan. (Appendix 14)
> FAO/UNEP Expert Consultation on Strategies for Global Land Cover Mapping and Monitoring (Appendix 15)
> Informal Meeting on Information Framework for Global; Monitoring of Forests, land Use and the Environment (Appendix 16).

The work of the Land Cover Implementation Team is based on the Toulouse Plan. The need for inter-comparison and validation was stressed, along with the need for coupling of efforts to operational end users. Partnering with FRA is regarded as crucial, as well as with Global Land Cover Network (GLCN). Also there is a strong need to partner with UNEP, with GOFC/GOLD helping to broker the data. Latin America and China regional networks should be a high priority. (See Appendix 17 for the full presentation).

9. Status of Regional networks

9.1 SE Asia (Mastura Mahmud, Chris Elvidge)

9.1.1. SEARRIN (Mastura Mahmud, See Appendix 18 for full presentation)
9.2 African networks (Dominick Kwesha, Opha Dube)
9.2.1. Miombo Network (Dominick Kwesha, See Appendix 19 for full presentation)
9.2.2. Observation par Satellite des Forets d'Afriqu Centrale (OSFAC), See Appendix 20 for full presentation)
9.2.3. Southern Africa Fire Network (SAFNet), (Opha Dube, See Appendix 21 for full presentation)
9.3 Eurasian networks (Olga Krankina, Dmitry Ershov, Olga Gershenzon, (Vyacheslav Kharuk)
9.3.1. Natural and Anthropogenic Disturbances in Siberian Forests (NELDA), (Vyacheslav Kharuk, See Appendix 22 for full presentation)
9.3.2. Transparent World – International Effort (Olga Gershenzon, See Appendix 23 for full presentation)
9.3.3. North European Regional Information Network (NERIN), (Olga Krankina, See Appendix 24 for full presentation)
9.3.4. Russian Fire Regional Network, (Dmitry Ershov, See Appendix 25 for full presentation)
9.3.5. Siberia Network (Christiane Schmullius, See Appendix 26 for full presentation and Appendix 27 for Siberia II Poster)
9.4 South American potential network (Joao Pereira, See Appendix 28 for full presentation))

10. Charges to Parallel Break-out Groups

Group 1 Changing priorities for Land Cover Implementation Team (Chair: Christiane Schmullius)

- Are current priorities in the right order?
- Should there be new priorities?
- Are there new stakeholders, who should be involved?
- Interactions with other international bodies: should they be changed?
- How can the LC IT improve the performance of networks?
- How can networks enhance the work of the Land Cover IT?

Group 2 Changing priorities for Fire Implementation Team: (Chair Ivan Csiszar)

- Are current priorities appropriate?
- Should there be new priorities?
- Are there new stakeholders, who should be involved?
- Interactions with other international bodies: should they be changed?
- How can the Fire IT improve the performance of regional networks?
- How can regional networks enhance the work of the Fire IT?

Group 3 Developing the Regional Networks (Chair: Bob Scholes)

- How do we decide when a new network should be initiated?
- What are the responsibilities of those in the network?
- What are the responsibilities of GOFC/GOLD as an organization to a new network

- What is the level of resources needed to initiate a new network?
- What is needed to sustain networks (including resource requirements)
- Links with Implementation Teams
- How close should they be?
- Are there major topics not being considered by IT's which are important to regional networks?
- How can networks enhance the work of IT's.
- Integrating Regional networks
  Between Land Cover and Fire
  Between GOFC/GOLD and other GTOS activities

11 Reports from Break-out groups.

11.1) Group 1: Changing priorities for Land Cover Implementation Team (including links with networks, See Appendix 29)

11.2) Group 2: Changing priorities for Fire Implementation Team (including links with networks, See Appendix 30).

11.3) Group 3: Developing the Regional Networks (See Appendix 31)

GTOS, GOFC/GOLD, and UNEP

Responsibilities:

(a) Ensure global products accessible and usable
(b) If global community imposes cost on region – need funding from top.
(c) Work to facilitate progress for regional funding – sources outside – regions need to be shown how to tap funding sources
(d) Responsible initiator
(e) Responsibility of networks – receivers of information, but also provide feedback.
(f) Work within standards
(g) Enhance capacity responsibilities beyond their group and contribute to others

Funding Needs:

(a) Continuity of funding important – outlook in 3-year cycle, not workshop to workshop approach.
(b) Key coordination – community websites
(c) Incremental costs – hardware, etc.
(d) Need core support within regions, yes, global support.

During the discussion it was questioned whether networks be specifically in land cover or fire, or integrated. Bob Scholes stated that they should initially be narrowly defined, but allowed to develop over time depending upon circumstances of the area. Developing

user capacity building should be ongoing effort. There is a need to develop a long vision to keep networks going in part because not many organizations fund networks and they need human resources and money. Regional networks often overlap in ways, but this is usually helpful and not competitive. They can be very helpful for national agencies preparing for big programs. The main issue is to know who is doing what – we should better inform each other of various network activities.

12. Setting up of a Biophysical Implementation Team

Bob Scholes (GTOS) discussed the need for a Biophysical Implementation Team taking account of the Global Carbon Network and Fluxnet. In Figure 1 the relative responsibilities of the groups are indicated.

Land surface parameters: Who is responsible for what?

GOFC/GOLD	Both	TCO-Fluxnet
(Global scale)	Tree cover fraction	(patch scale)
(Global scale)	LAI	(patch scale)
(Global scale)	FPAR	(patch scale)
Albedo		Net radiation
[Height]		Roughness length
[Aboveground biomass]		Soil & litter carbon density
Land cover		Net Ecosystem Exchange
[Surface temperature]		Bowen ratio
		Gsmax, Bulk conductance
		A-Ci curves
[Leaf type]		Leaf nitrogen content
		Radiation use efficiency
		Specific Leaf Area
		Horizontal fluxes

Figure 1
A joint panel might be needed for high-level coordination; but some cross membership between panels might be sufficient. The particular contribution of GOFC/GOLD in terms of biophysical variables relates to the remote sensing expertise rather than in situ which is covered by other groups. TCO, should lay out framework within which GOF/GOLD can operate.

It was agreed that Christiane Schmullius will represent GOFC/GOLD at the Sheffield TCO meeting.

13. Development of a funding strategy for GOFC/GOLD (Townshend/Lee)

The following provides a proposed framework for ensuring that appropriate funding is obtained for GOFC/GOLD. There are three types of funding which need to be considered: a) funding of the GOFC/GOLD organizationally; b) funding of GOFC/GOLD activities leading to implementation; c) funding of actual implementation when long term observations and product generation is taken over by operational

agencies. The third item is not dealt as yet in this strategy and it is unlikely that GOFC/GOLD would be responsible directly for such funds, but as our plans are developed such costings may need to be made at least in outline so that the feasibility of them being executed can be assessed.

13.1 Organizational requirements for resources:

The following describes some of the bare bones support needed for the operation of GOFC/GOLD as an organization.

1.1 GOFC/GOLD Overall

i) GOFC/GOLD Executive Director (time and travel)
ii) GOFC/GOLD Office
iii) GOFC/GOLD Chair support (time and travel)
iv) STB Meeting (annual) and other meeting organization
v) Communications (telecons of Executive Committee)
vi) Outreach Publications
vii) Web page support
viii) Attendance and displays at symposia.

1.2 Implementation Teams

i) IT Chairs (time and travel)
ii) IT support person (50% FTE?)
iii) IT annual meeting
iv) Communications

1.3 Regional networks

It is anticipated that all Regional networks will need some start up resources. GOFC/GOLD will then have to help individual networks obtain resources from governmental or international/NGO sources for them to be sustained. Costs of attendance at STB should be dealt with under 1.1 iv. This topic is the subject of item 11 of the agenda and will be built into the funding strategy subsequently.

i) Initiation (costs of one or two initial meetings)
ii) Sustaining costs (maintaining web sites, organizing regional meetings, office support etc)

Appropriateness of MA model (umbrella grant?). Help will be needed in developing (ii)

13.2 Resources for implementation activities

Above and beyond the organizational costs there will likely be specific activities which the Implementation Teams and Regional Networks will wish to seek resources for. It is anticipated that proposals would be developed for these and agencies and other funding

sources would be approached on a case-by-case basis AND/OR that a portfolio be developed allowing agencies and funders to choose from alternatives.

Using the model of most other international bodies the majority of funding for implementation will be obtained either by agencies agreeing to take on responsibilities or by individual laboratories or groups seeking funds within their own countries.

13.3 Current available support

Currently support comes from the following sources (there may be omissions and I would be pleased to receive information on other sources)

Canadian Space Agency, Canadian Forest Service for i) the Executive Director ii) GOFC/GOLD office support, iii) travel for selected meetings.

NASA for support of i) the Chair of the STB, ii) travel funds through START for members of Regional Networks, iii) research underpinning the work of GOFC-GOLD through its LULC program, iv) start up funds for regional networks.

JRC for provision of meetings and especially travel for members of developing countries.

Other agencies have from time to time provided resources (e.g. Eumetsat, CNES).

CEOS by providing support for activities of its Working Groups especially the WGCV.

Regional Network support

13.4 Additional support needed.

We need to estimate given first our funding requirements (sections 1 and 2) and second the funds and other types of support currently available (section 3) what is the balance of funding needed, both for basic organizational support and for specific implementation activities.

13.5 Potential sources of funding

5.1 International bodies

5.2 National entities

5.3 Foundations

The accompanying Excel sheet lists some of these potential sources (see Appendix 32).

13.6 Prioritization in seeking funds

We need to match our needs (section 4) with the priorities of funding sources (section 5). This will be then used to determine who is approached for what purpose. The likely

approach will be to first contact potential funders explaining (if needed) the goals of GOFC/GOLD and an assessment made of the likelihood of success. This will be used to determine whether or not to seek funds.

It is anticipated that initially the Chair and the Executive Director will take a lead in obtaining funds especially for the organizational underpinnings of the organization. The reality is that like all international groups efforts will be needed at all levels in gaining necessary support.

The need clearly to identify users was stressed by Alan Belward who explained the relationship between the global observing bodies and the key types of users (see Appendix 33).

14. Close of Meeting.

The meeting closed at 4.30pm. Thanks were given to Alan Belward and the staff of JRC who made the meeting so successful.