
Integrated Global Observing Strategy
Partnership
Thirteenth IGOS Partners Meeting
Geneva, Switzerland
23 May 2006

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Item 7.2

Land Theme Report

SUMMARY AND PURPOSE

The IGCO Theme Team provides a brief update on the status of development of the Land Theme.

ACTION PROPOSED

The meeting is invited to take note of the contents of the report and provide any comments for the guidance of the theme team.

IGOL Theme team members: John Townshend and John Latham (IGOL co-chairs), Olivier Arino, Roberta Balstad, Alan Belward, Richard Conant, Dris El Hadani, Chris Elvidge, Jay Feuquay, Angas Hopkins, Tony Janetos, Chris Justice, Jiyuan Liu, Mengxue Li, Tom Loveland, Doug Muchoney, Dennis Ojima, Francesco Palazzo, Christiana Schmuilius, Ashbindu Singh, Jeff Tschirley, and Kirokazu Yamamoto

IGOL RESULTS, PROGRESS, AND PLANS

To date we have held three Theme Team meetings that have resulted in a draft IGOL Theme Report. Internal Theme Team review of the current draft IGOL Theme Report (version 4) will be completed by 15 May 2006. Compilation of those review comments and production of a next version, complete with illustrations, will be completed by 30 June 2006. This version of the report will be widely circulated for review. After revisions and a final Theme Team review, the final IGOL Theme Report will be completed by 1 October 2006.

IGOL Theme Team members Townshend (meeting co-chair), Janetos (meeting co-chair), Conant, Hopkins, and Muchoney coordinated a biodiversity observation meeting (in Washington, DC 3-4 November 2005) to solicit input from the biodiversity community on observational priorities. IGOL Theme Team members Justice (meeting chair), Conant, Muchoney, Palazzo, and Tschirley held another meeting to discuss observations for agricultural production monitoring (Rome, Italy 8-10 March, 2006). Discussions at these meetings have contributed to defining the biodiversity and agricultural observation needs discussed in the IGOL Report.

IGOL REPORT STRUCTURE

Since work on the IGOL Theme Report began (following the first Theme Team meeting in Rome, Italy 13-15 September, 2004) it has been recognized that the Theme Report should emphasize societal benefits and should assess responsiveness of variables and measurements to conventions, assessments, and land and resource management needs. Thus the IGOL Theme Report focuses on human influences on the environment and vice versa, and it addresses land observation needs related to the nine Global Earth Observation System of Systems (GEOSS) societal benefit areas (agriculture, biodiversity, ecosystems, disasters, health, energy, climate, water, and weather).

1. Introduction

The first chapter of the report serves discusses the intended audience and impact of the IGOL Report, considers the time-horizon over which the report is likely to impact land observation investments, and provides an outline of the document.

2. The need for IGOL

This chapter of the report serves as an introduction to the GEOSS societal benefit areas and how human well-being relative to those GEOSS societal benefit areas can be improved through more and better information about the land.

3. Stakeholders

This short chapter describes stakeholder groups and their needs. We have identified several international conventions, organizations, and projects that rely upon land observations. The IGOL Theme Report also considers the needs of decision makers, land use planners, and natural resource managers within governments and non-profit organizations, and the needs of the scientific community.

4. Relationship of IGOL to other IGOS themes

The IGOL Theme Report contains a short chapter describing the relationship of IGOL to other IGOS Themes. This chapter explains which components that are land-related are covered in other IGOS Themes and areas of overlap with other IGOS Themes.

5. Products and observables

The next Chapter of the IGOL Theme Report discusses land observation requirements that arise from the nine societal benefit areas, the degree to which current observations meet those requirements, and how expanded or improved observations can be used for development or policy related to those societal benefit areas. Importantly, the IGOL Theme Report will discuss how improved access to observations or new methods of interpreting observations can enable better use of observations for nine classes of land observation:

- land cover, land cover change (including effects of fire);
- land use, land use change;
- ecosystem dynamics and surface biophysical properties (e.g., albedo, LAI, etc.)
- biodiversity
- agricultural production;
- soils;
- human settlements (including tenure, farming systems, etc.);
- water availability and use;
- topography.

Within discussions related to each of these the report characterizes observation needs/technical requirements, current status of observations, current plans for new observations, and major gaps and necessary enhancements.

6. Data integration issues

This chapter of the IGOL Theme Report describes cross-cutting issues related to data integration. The main components of this section are a discussion of (1) quality assessment and validation, (2) fusion of multiple observations, and (3) data-model assimilation. These cross-cutting issues need to be addressed to best aid the development and utilization of land data resources.

7. Delivering information

Sound product development and reliable information distribution systems underpin successful integration of land data into decision-making, but such systems are not always immediately self-evident.

The IGOL Theme Report thus identifies important considerations that should be addressed in development of future land observation products and systems. Since sustainable infrastructure for data use and monitoring is so important, capacity building is considered in this section of the IGOL Report.

8. Implementation

The report closes with recommendations for a strategy to achieve the desired aims for land observation. We discuss the roles and responsibilities of national agencies, the scientific community, and information users. We review their respective roles and responsibilities and we identify potential pitfalls and solutions. We feel that the IGOL Theme Report will serve as a sound guide for future investments in land observation capable of connecting information suppliers and users.

IGOL THEME REPORT – PRELIMINARY CONCLUSIONS

The main observational and product priorities identified by the IGOL Theme Team are:

- data continuity of Landsat-class data
- global, high resolution, annual, multi-year, wall-to-wall land cover and land cover change mapping;
- enhanced availability of hyperspatial data
- near real time or rapid response data for detection of land cover change/disturbance, fire, floods, and drought and pest impacts on crops;
- land use products – multi-state sampling of global land use;
- Improved agricultural monitoring – crop acreage, crop types and distribution, crop growth and yield
- global 30m digital elevation models
- enhance urban and rural settlement and infrastructure products;
- enhanced georeferenced, disaggregated (gridded) population data;
- biomass products and vertical ecosystem structure;
- greatly enhanced systems (including protocols and standards) for in-situ observations