


# Global Forest Observations Initiative

Frank Martin Seifert (ESA / Co-Chair SDCG),  
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*“Through collaborative action, GFOI seeks to foster forest monitoring and assessment that is robust, reliable, and achievable at reasonable cost, and supports planning for national development priorities including, climate change mitigation and adaptation.”*

## Wall-to-wall monitoring

- Integration of ground data and remote sensing
- Captures leakage
- Capture small changes

## Consistency with UNFCCC and IPCC

- Follow IPCC guidelines
- Vital for reporting REDD+ and GHGs to UNFCCC
- Maps 5 REDD+ categories onto IPCC methods

## Affordable and Practical

- Based on medium resolution data (10-30m)
- Can use higher resolution data if needed
- Based on widely useable methods

## Co-operation with Partners

- FAO, World Bank and others to coordinate capacity development
- GOFC-GOLD
- IPCC and UNFCCC

- Founded under Group on Earth Observations (GEO) in 2011
  - First work plan was 2012-13
  - Operational ever since
- Lead partners: currently Australia, Norway, USA, FAO & CEOS
- Experts from UNFCCC, IPCC, World Bank FCPF, universities, technical and policy experts and other
- Open to new partners



# GFOI | GFOI Leads Group

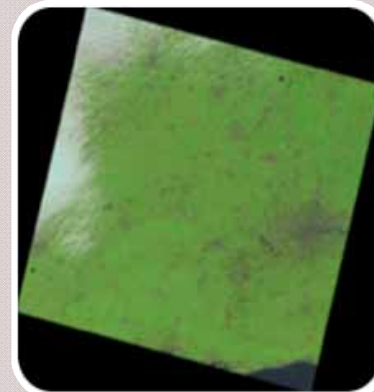
Representation from all major contributing organisations. Overall responsibility for GFOI.

- Australia: Anthony Bennie
- CEOS: Shimada Masanobu
- FAO: Anssi Pekkarinen
- Norway: Henrik Fliflet
- USA: Sylvia Wilson / Evan Notman

\*\*Open to new members with additional contributions\*\*



# GFOI Components



## Space Data

- GFOI works with space agencies through CEOS to ensure the long-term, global acquisition of core satellite data
- Helps countries to meet their individual data needs.

## Capacity Building

- GFOI provides capacity building in coordination with others such as UN-REDD. It supports the use of satellite and ground data to monitor forests, and estimate GHG emissions.

## Methods and Guidance

- Guidance on integrating remote-sensing and ground-based observations for estimation of emissions and removals of greenhouse gases in forests.

## Research and Development

- Identifying and promoting R&D needed for improved practical, global implementation of National Forest Monitoring.

## GFOI Office at FAO, Rome

- Provides overall coordination and administrative support to the GFOI Leads, components, activities and partners.

# GFOI Space Data Coordination

## Implementation of Baseline Global Data Acquisition Strategy

- Assuring the **availability and continuity of consistent time-series** of optical and radar (SAR) satellite data over global forest cover.
- At least one **annual national cloud-free optical** coverage over each country.
- Based on **publicly open satellite data** – “core data”

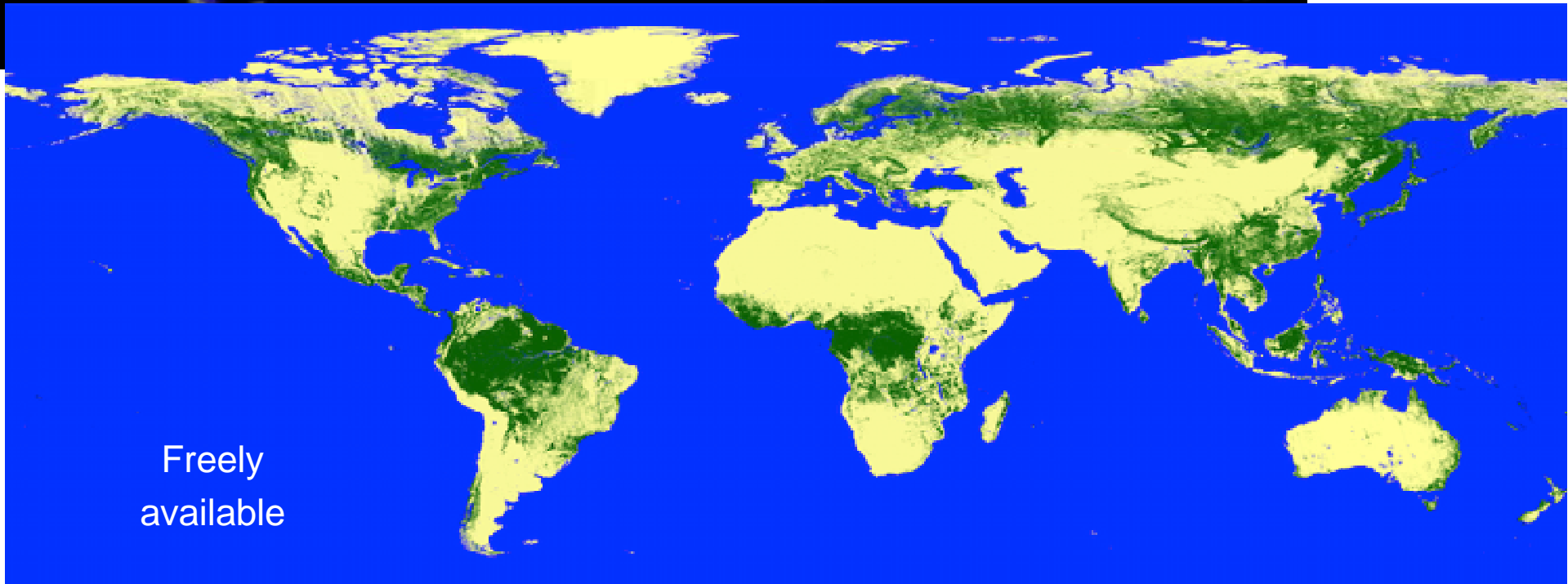
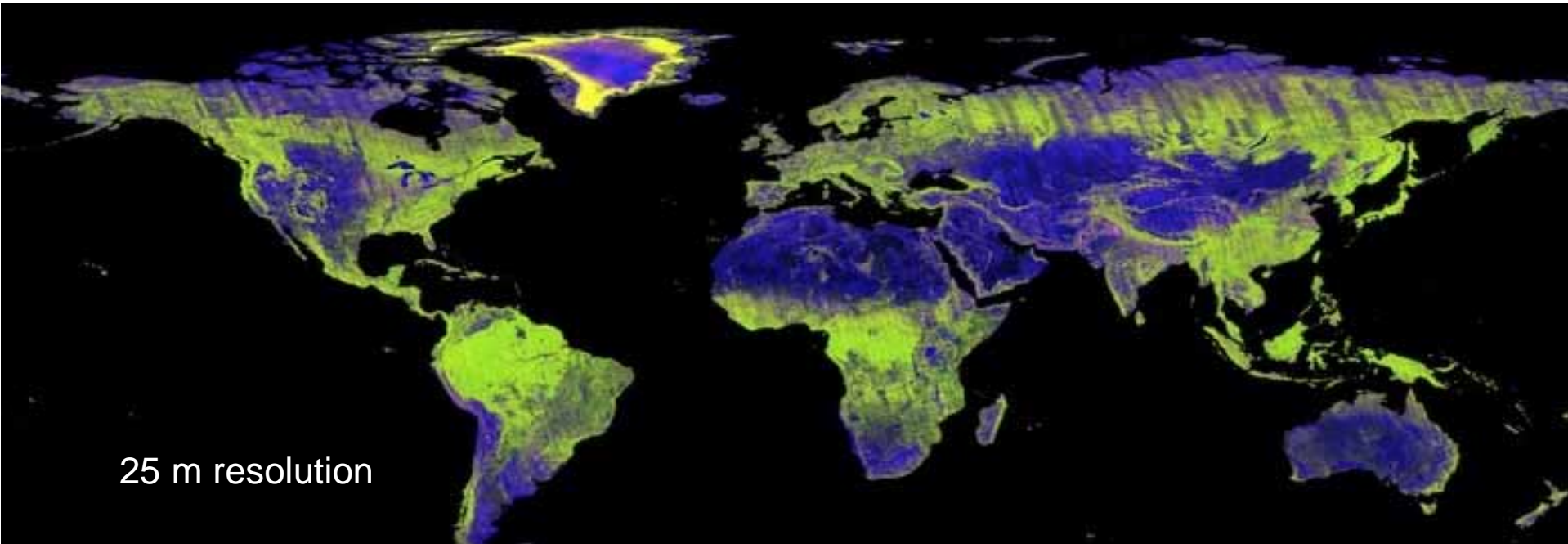
## Space Data Services Available

- A coordinated strategy for national data acquisitions accommodating countries' specific technical **requirements, heritage, or experience**.
- Demonstrating data exploitation solutions e.g. **data cube, Analysis Ready Data**.
- Covers a wider range of satellite data sources, including **commercial**.

## Data Supply in Support of GFOI R&D Activities

- Includes **support for science** studies assisting the **development and evolution of the MGD** for GFOI.

# GFO | ALOS-2 PALSAR-2 Global Mosaic







# Combining Sentinel-1, PALSAR-2 & Landsat for NRT deforestation detection in dry forest (Bolivia)

- Size: 100 x 100 km
- Tropical dry broadleaf forests
- Frequent cloud cover
- Method: “Bayesian approach” (Reiche et al., 2015, RS) used for combining time series and NRT deforestation detection (open source)

**Credit: Johannes Reiche**



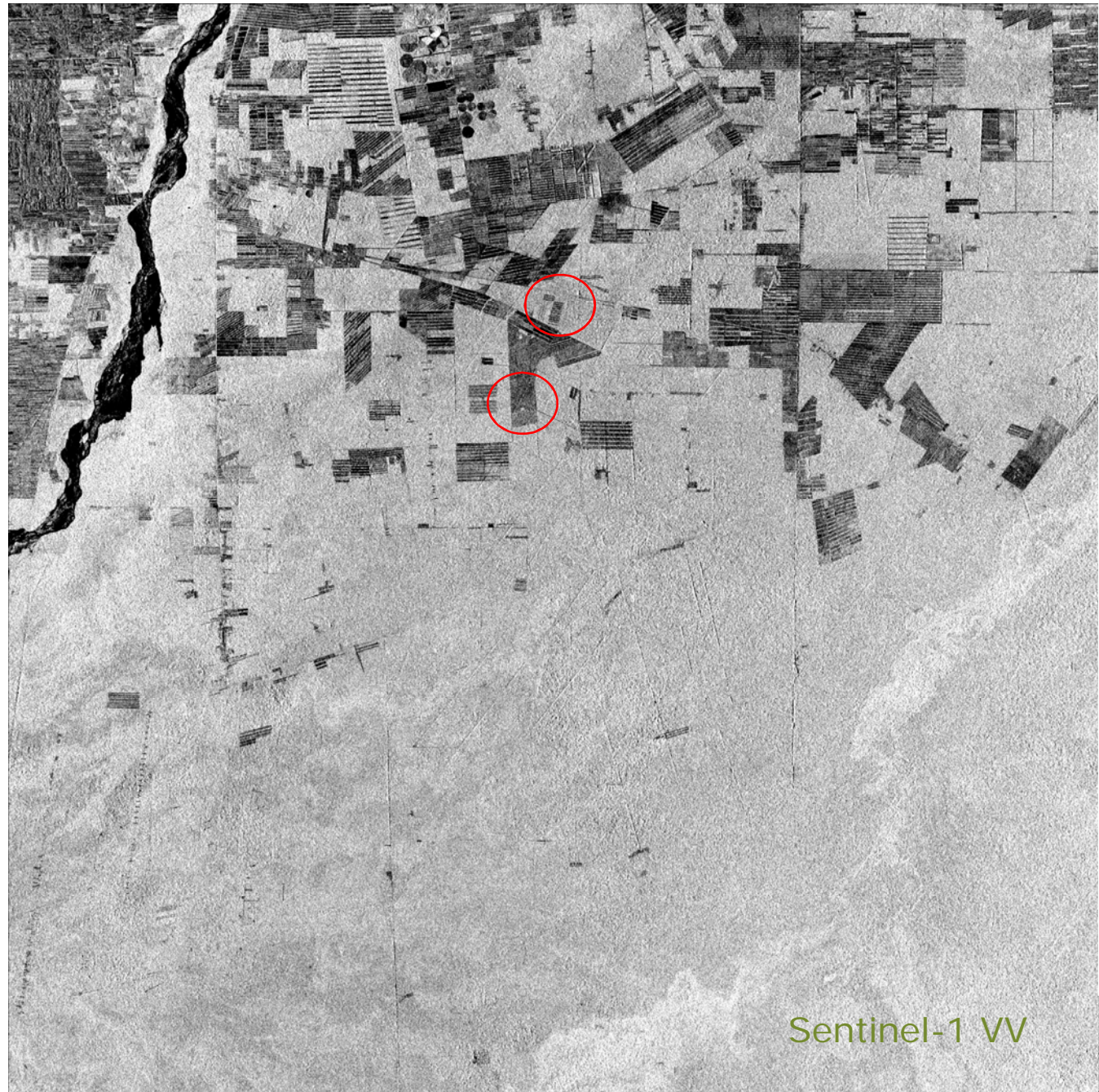
Sentinel-1 VV



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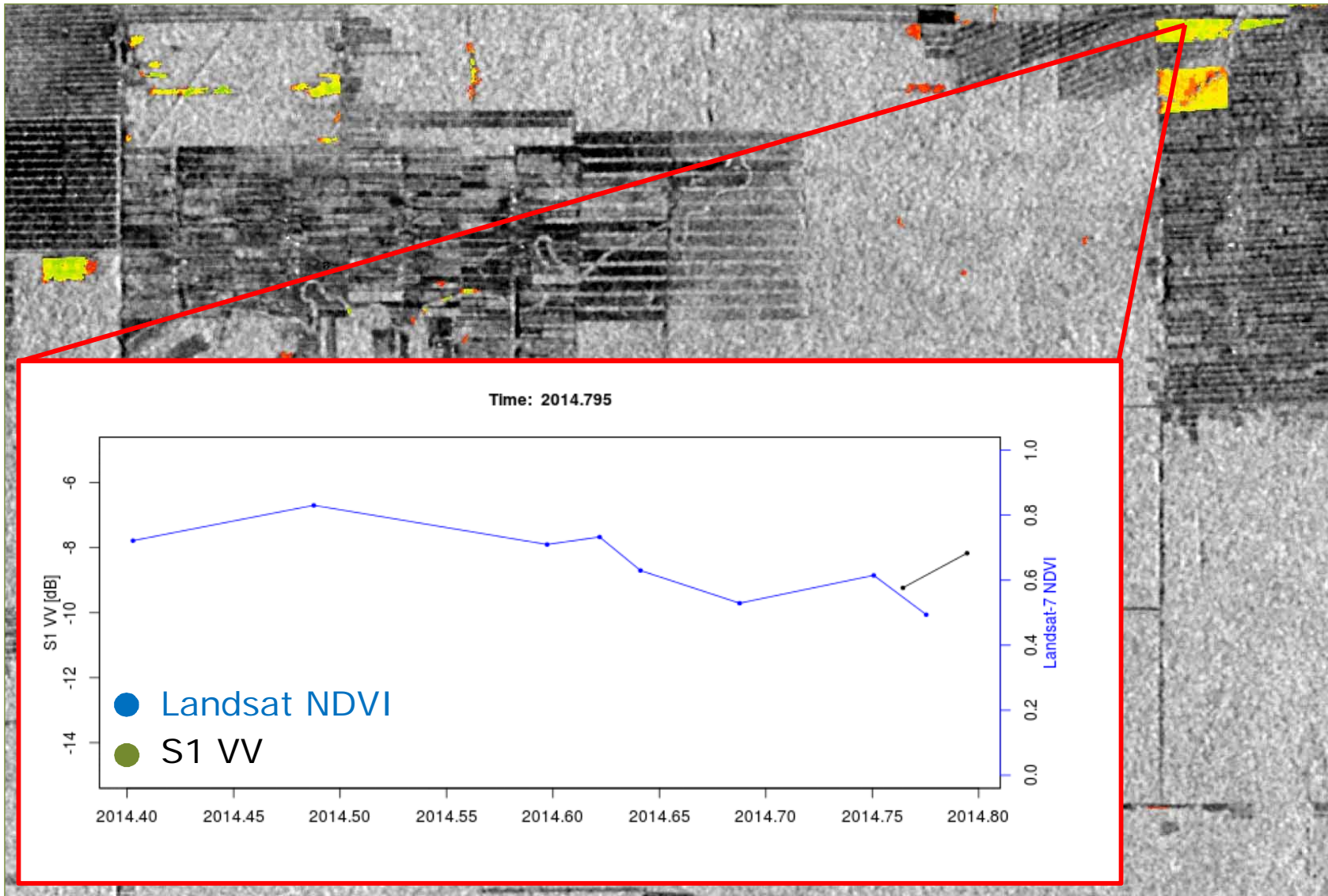


Sentinel-1 VV



# Combining Sentinel-1 & Landsat (Bolivia)

Fortnightly (two-weekly) monitoring 10/2015 – 04/2016



Credit: Johannes Reiche

# GFOI Methodological Advice from GFOI

- **GFOI Methods and Guidance Document (MGD)** intended to form the **backbone of GFOI**;
- **Logical and systematic guide** for countries to follow in developing their national forest monitoring systems;
- Consistent with **UNFCCC Paris Agreement** and **Warsaw Framework on REDD+**;
- Provides **operational link** between IPCC methods and all REDD+ activities identified by UNFCCC
- Consistent with the annual review of scientific developments provided by **GOFC-GOLD Sourcebook**
- Aimed at technical implementers, negotiators and national responsible for REDD+ implementation;
- V1 first published in Jan 2014 and updated V2 in Nov 2016
- New web application **REDDcompass** available at [www.gfoi.org/REDDcompass](http://www.gfoi.org/REDDcompass)



# GFOI Capacity Building

- Interface of GFOI with REDD countries;
- Jointly implemented through **US SilvaCarbon**, and **UNREDD at FAO**;
- Builds upon their existing work programmes and country partnerships and includes **bilateral activities** from Australia and Norway;
- **Tailored** to meet country needs and requests;
- Aims to build up **networks of experts** in countries;
- Intended to use **MGD** as core syllabus;
- Workshops, one-on-one training, in-country experts, training trainers, webinars and open sources tools;

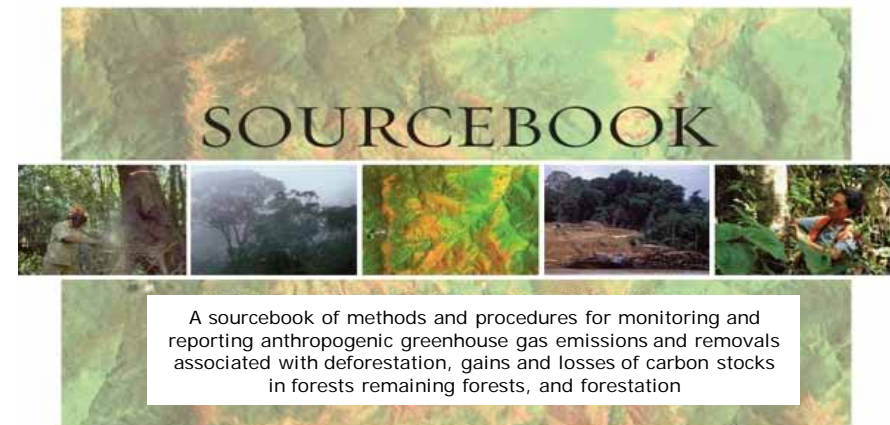


 SilvaCarbon



# GFOI R&D Component

- Coordinate global R&D activities on forest monitoring to help meet country needs
- Prioritizing remote sensing topics for the use in NFMS, e.g.
  - Forest degradation
  - Biomass estimation
  - Sensor interoperability
  - Use of global data sets
  - Accuracy assessment and uncertainty;
- Country focus through development of MGD modules
- Conducting Expert Workshops and supporting R&D sites





**GFOI Open Forum @ ESA in Frascati Italy, Feb  
2016**

# GFOI Review 2016

- A recent review found that the GFOI has been largely successful in pursuing its initial goals.
- It has demonstrated that via an informal-collaborative:
  - effective capacity building cooperation can be achieved
  - operational guidance developed,
  - data needs addressed and;
  - development of new technologies pursued for the benefit of developing countries.
- However, GFOI now needs to chart a new course for the current global context, inc the Paris Agreement.
  - closer engagement with new partners, inc REDD+ countries.



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# GFOI Phase 2

- Current Lead partners are supportive of continuing GFOI.
  - Planning recently commenced for Phase 2.
- Primary goal of coordinated capacity building on forest monitoring for the benefit of developing countries.
- Redesign process currently underway, welcome contributions to this.
- Seeking new partners for GFOI Phase 2. This can include;
  - coordinating new or existing activities through GFOI or;
  - contributions towards the core function of coordination.



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