

GFOI R&D Session on integrating EO and ground data for enhanced forest-related biomass estimation

Acknowledgements:



WorldForest

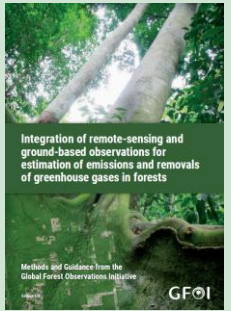
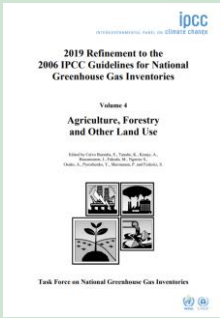
Collaboration:



Using EO-derived biomass maps: From user needs to recommendations and guidance

How can biomass maps support biomass/
biomass change estimation?

Group of experts [EO, NFI, country rep.] working on a
more extensive recipe in a series of workshops
between 2022-2024



2019 -2020



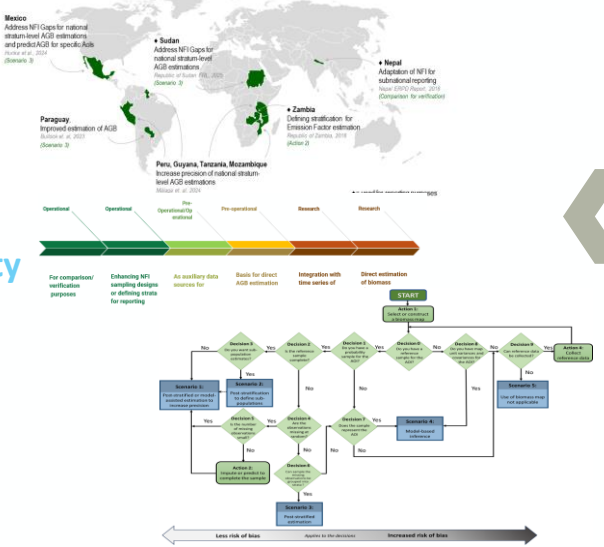
UMD/USGS/GFOI
USA, 2023



GFOI/ESA/GFZ
Germany, 2024

Integrating reference data and biomass maps

- Synthesis of country case studies
- Assessment of operational maturity of datasets and methods
- Decision tree for method selection to enhance the precision of forest carbon stock estimates



Download MGD Modules



Biomass Maps

Information on the potential and limitations of global or regional biomass datasets in the context of National greenhouse gas inventories.

GFOI Rapid Response Module: Guidance to inform the use of space-based forest biomass-related data in MRV procedures

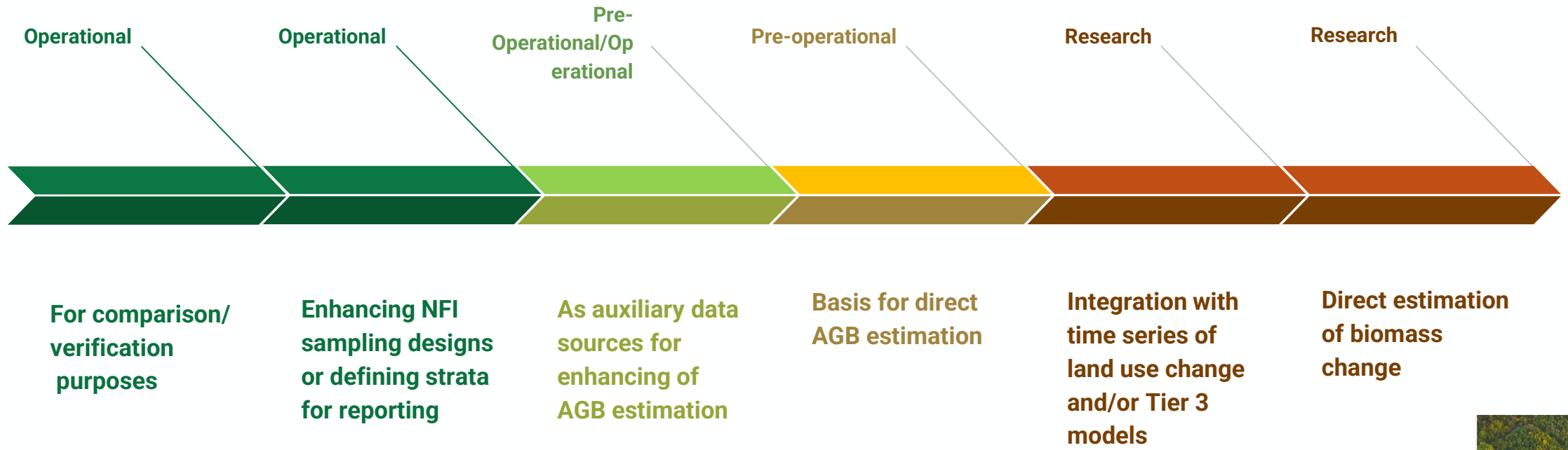
Author team: Natalia Málaga^{1,2}, Daniela Requena Suarez^{1,a,b}, Neha Hunke³, Carly Green³, Erik Næsset⁴, Javier García-Pérez⁵, Naikoa Aguilar-Amuchastegui⁶, Chad Babcock³, Maria José Sanz⁷, Sandro Federici⁸, Alexs Arana⁸, Ricardo De la Cruz⁸, Jorge Carranza⁸, Ake Rosenqvist⁹, Frank Martin Seifert⁵, Ruben Valbuena¹⁰, Martin Herold¹⁰.

<https://www.reddcompass.org/mgd>

Assessing the maturity level of EO-based biomass applications



Using GFOI's Criteria for Assessing the Maturity of REDD+ concepts (CALM framework)



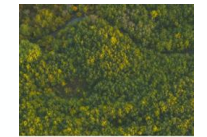
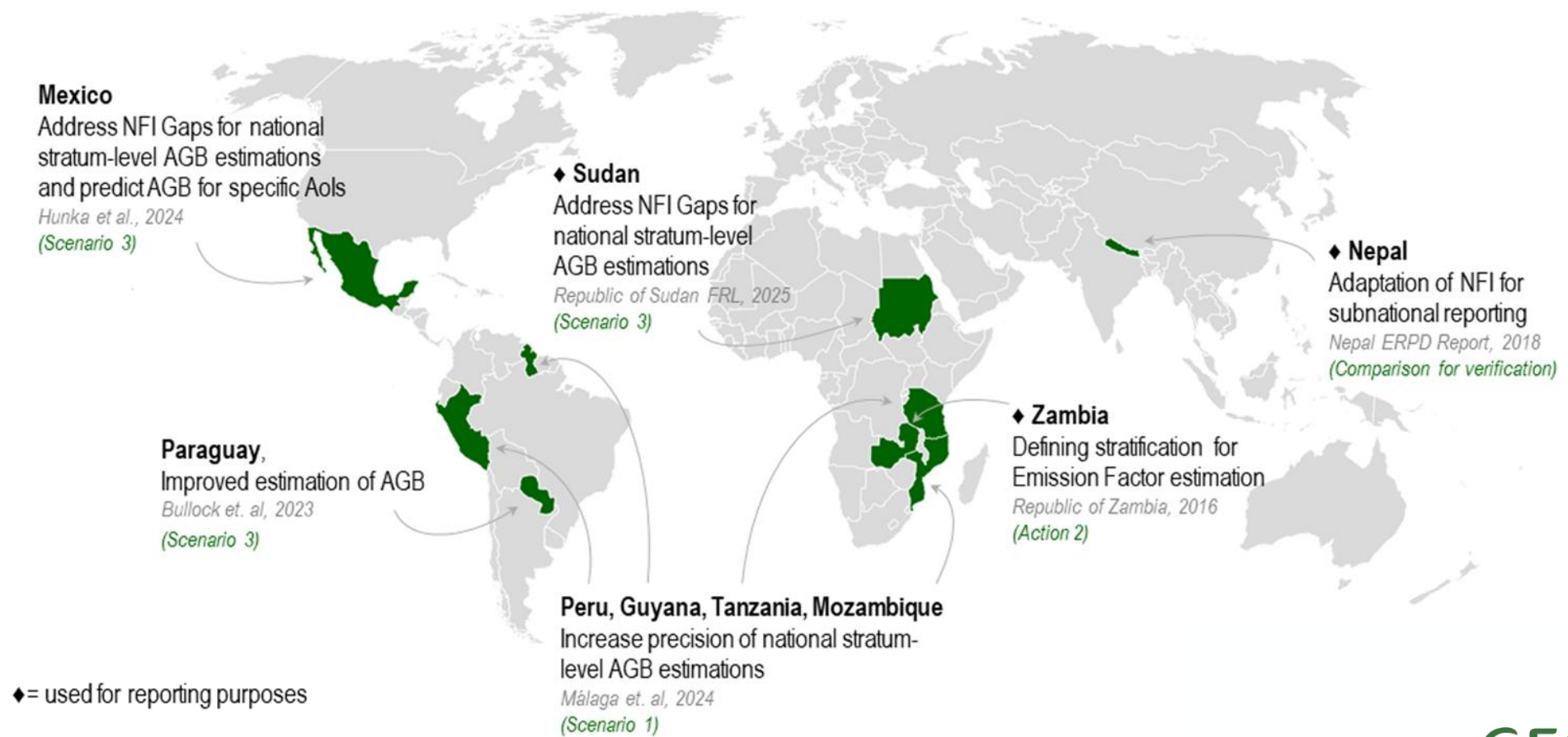
Biomass Maps



Information on the potential and limitations of global or regional biomass datasets in the context of National greenhouse gas inventories.



Country case studies on the use of EO biomass maps for reporting purposes



GFOI
Global Forest Observations Initiative

Biomass Maps
Information on the potential and limitations of global or regional biomass datasets in the context of National greenhouse gas inventories.

[Download MGD Modules](#)

Aim for today

Dive into current **challenges, opportunities and perspectives** for integrating forest biomass information from forest inventories, national statistics and Earth Observation to strengthen the monitoring and reporting of forest biomass for environmental assessments and climate action.

Discussion pathways

1. Key considerations **informing the design of new ground-based campaigns** to ensure both compatibility with and added value from EO datasets
2. Lessons learned from experiences **combining and harmonizing** different existing in-situ data (e.g., National Forest Inventories, among others) for their integration with EO datasets
3. Assessment of inferential strategies for the **integration of EO-based biomass datasets with in-situ data** to enhance the precision of biomass estimates at different geographical scales.

Presentation / Discussion Session	Time
Welcome words and introduction to the workshop (N. Hunka, ESA)	11:50-11:55
Overview on GFOI recommendations on the use of EO-based biomass data in MRV procedures (D. Requena Suarez, GFZ)	11:55-12:00
Lightning Presentation Round	12:00-12:30
<ul style="list-style-type: none"> ▪ Designing EO-compatible forest inventories: considerations and opportunities for improved biomass estimation (J. Breidenbach) 	12:00-12:05
<ul style="list-style-type: none"> ▪ Harmonizing national statistics for integration with EO biomass maps to produce biomass increment estimates across Europe (V. Avitabile, JRC) 	12:05-12:10
<ul style="list-style-type: none"> ▪ Integrating EO biomass maps with NFI data to enhance the precision of estimates (N. Málaga, GFZ) 	12:10-12:15
<ul style="list-style-type: none"> ▪ Worldforest perspectives on the integration of NFI data information with EO products for small-area estimation: Case studies of Peru and Brazil (C. Sannier, GAF) 	12:15-12:20
Quick Q&A	12:20-12:35
Discussion Sessions running in parallel	12:35-13:25
Group 1: Key considerations in the design-phase of field-campaigns	
Moderators: J. García-Perez (FAO), G. Costello (Caribou)	
Group 2: Requirements and considerations when harmonizing existing NFI data to make it interoperable with EO data	
Moderators: V. Avitabile (JRC) and D. Requena Suarez (GFZ)	12:35-13:10
Group 3: Current and emerging opportunities to integrate EO products with existing NFIs for enhancing biomass estimation for MRV or environmental monitoring purposes.	
Moderators: N. Málaga (GFZ) and N. Hunka (ESA)	
Group feedback session (5 min per group)	13:10-13:25
Final remarks and next steps	13:25-13:30

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Lightning presentations: 5 minutes max!



3 parallel discussion groups focusing on opportunities challenges and perspectives

▪ **GROUP 1:**

Key considerations in the design phase of new field surveys while leveraging from EO information

▪ **GROUP 2:**

Requirements and considerations when harmonizing existing NFI data to make it interoperable with EO data

▪ **GROUP 3:**

Current and emerging opportunities to integrate EO products with existing NFIs for enhancing biomass estimation for MRV

- **Opportunities:** what does EO products enable that wouldn't be possible doing without them
- **Challenges:** what are the remaining challenges on...(topic of subgroup)
- **Perspectives:** what should we prioritize going forward on.../where do you see the most potential for impact

▪ **Today's approach, per question:**

1. Self reflection (1 minute)
2. Discussing with a partner (2 minutes)
3. Group discussion (7 minutes)



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Acknowledgements:



In collaboration with



Interested in the session's outputs?

Contact

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- Daniela.Requena.Suarez@gfz.de

Workshop summary will be available at <https://gfoi-rd.gfz.de/>