



Committee on Earth Observation Satellites

# A CEOS AFOLU Roadmap

## Discussion Paper

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13<sup>th</sup> WGClimat

14<sup>th</sup> October 2020

Virtual Meeting





- Space agencies (CEOS & CGMS) have emphasised ECVs and Physical Climate via the GCOS framework very effectively for the past decade
- The importance of NDCs to Paris Agreement, and specifically the Global StockTake (GST), raises new challenges around country needs and implications for using EO data with greater emphasis on mitigation and adaptation, and national-level datasets
- A whole new dimension to our climate coordination - both a huge opportunity and a significant challenge
  - *“...if Land Use, Land Use Change and Forestry targets involved in the initial NDCs were implemented in full, this would represent approximately a quarter of pledged mitigation efforts up to 2030 “*
- **SIT-35 action: JAXA and ESA explore the development of a CEOS AFOLU (Agriculture, Forestry and Other Land Uses) Roadmap. The aim of the Roadmap is to assess the will, direction and capability of the relevant CEOS Agencies, with the SIT Chair team supporting communications with Principals and identifying team nominees.**



United Nations  
Climate Change



## Paris Agreement



Adaptation

Loss & Damage

Capacity Development  
/ Technology transfer

National Reporting /  
Global Stocktake

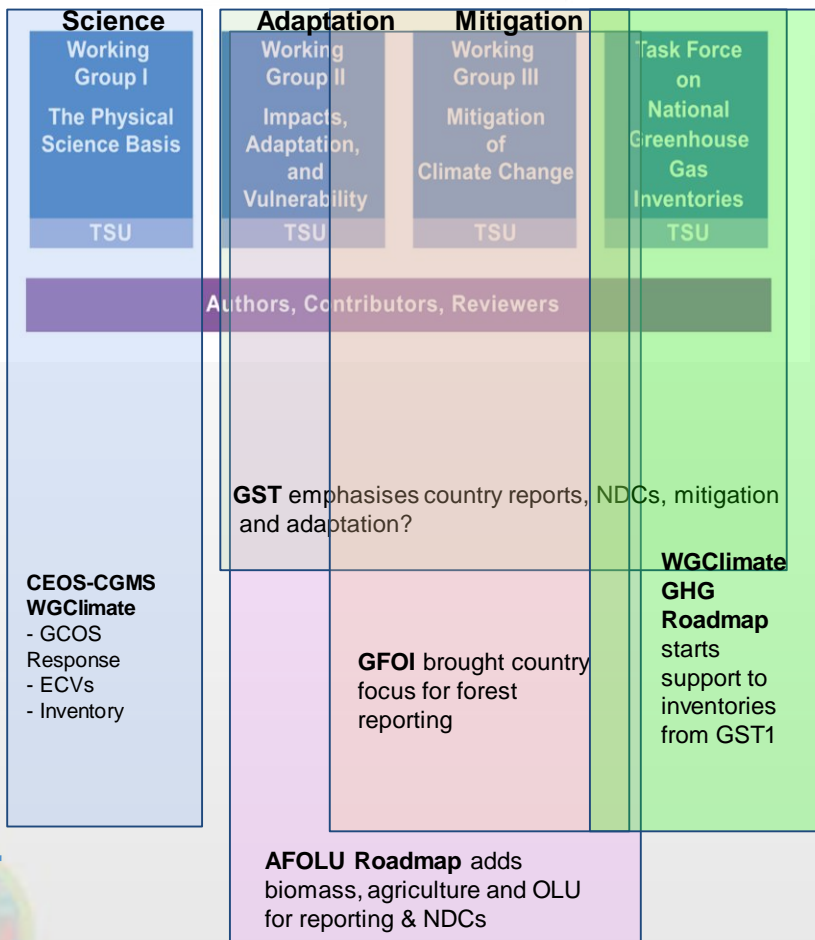
Mitigation

Transparency Framework

Global Stocktake

Systematic Observations

Earth Observation



**New GEO WG?**  
- SG2 proposes a focus on IPCC WGII & III



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**Stephen Ward, JAXA**

**Ake Rosenqvist, JAXA**

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**Ian Jarvis, GEOGLAM**

**Alyssa Whitcraft, GEOGLAM**

**Steven Labahn, USGS**

**Michael Falkowski, NASA**

**Laura Duncanson, UMD**

**Brad Doorn, NASA**

**Christine McMahon-Bognor,  
NASA**

**Brian Killough, NASA**

**Team building up and monthly calls since SIT-35**



## **Title: A CEOS Roadmap for AFOLU Inputs to the UNFCCC Global Stocktake Process** (A Discussion Paper for CEOS Plenary)

### **Context:**

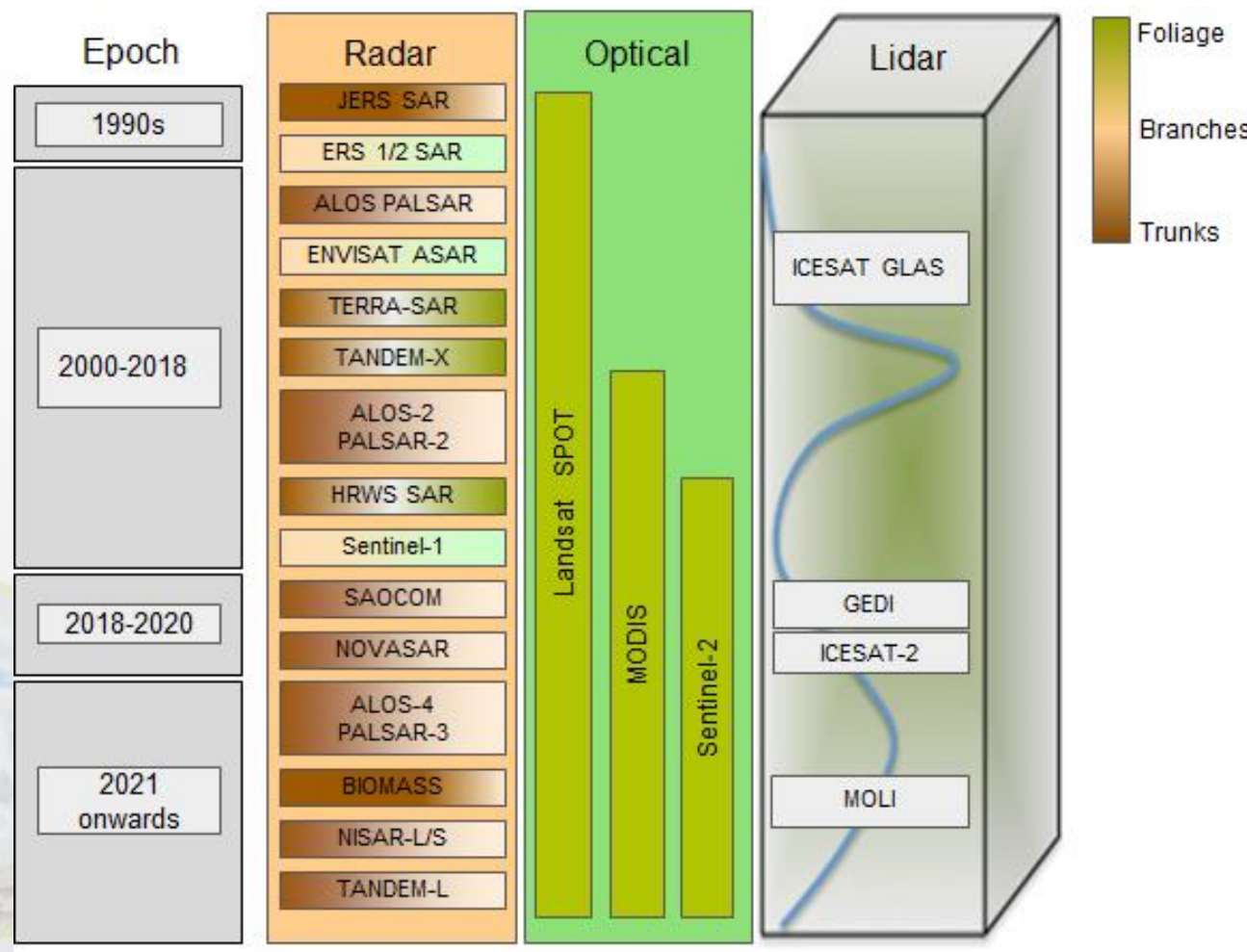
- 1. Introduction**
- 2. Opportunity of the Global Stocktake**
- 3. EO Capabilities in support of AFOLU**
- 4. Deployment of Capabilities**
- 5. Potential Roadmap Actions**
- 6. Summary and Next Steps**
- 7. References**
- 8. Appendices**



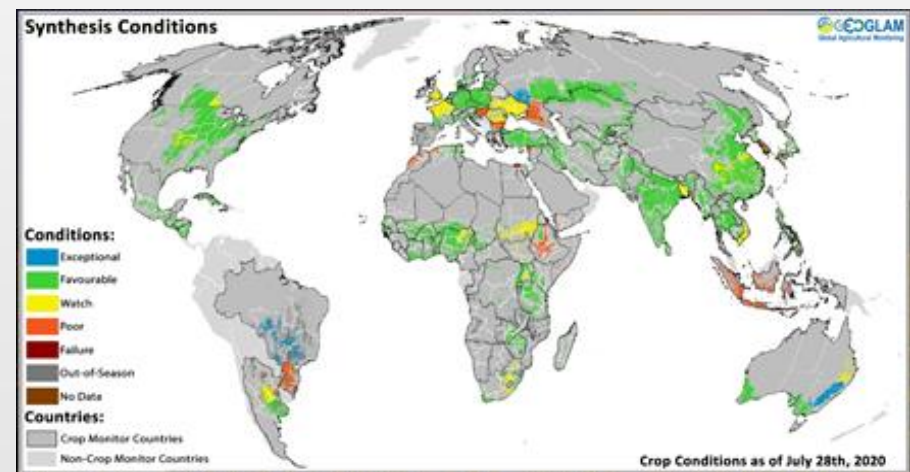
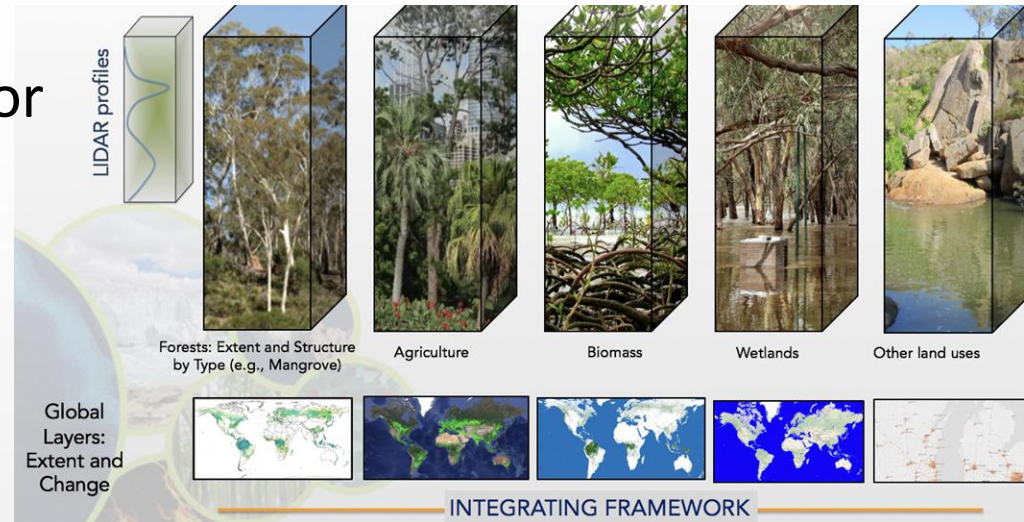


- 1. Provide the case to CEOS and its agencies for investing in development of an AFOLU Roadmap**
- 2. Provide a clear statement of the technical capabilities of CEOS agency EO satellite data and their characteristics**
  - capabilities and datasets for inclusion in the UNFCCC Synthesis Report on Systematic Observations
- 3. Propose a specific way forward for 2021 and deliverables for GST1 as the critical first deadline**

*“If supported by CEOS agencies, a full CEOS AFOLU Roadmap will identify opportunities for using EO data to quantify the extent and dynamics of land activities and impacts at the global level and in relation to the NDCs that individual countries are engaged in and which national-level datasets might support. It would assess the EO data and derived products that are available or anticipated over the next five years and beyond, and identify further work needed to maximise opportunities presented by the GST for CEOS agency data; this may include data production activities, but also education and capacity-building measures.”*



- Lays out the range of capabilities of EO satellites for
  - Agriculture
  - Forest (extent and structure)
  - Biomass (AGB)
  - Other Land Use
- Identifies the main deployment of these capabilities as datasets available to support both convention and national level
  - Agriculture, Forest, Biomass, OLU also





- ❑ **Improving EO capabilities to better meet the needs of the Convention and Parties**, globally and on national level
- ❑ **Providing new measurements** that do not currently form part of CEOS agency capabilities
- ❑ **Engaging with countries and stakeholders** (such as GFOI and GEOGLAM) in case studies to improve understanding and uptake of EO data by countries
- ❑ Taking actions to **assure the policy relevance of new capabilities** (e.g., through measures such as the CEOS Biomass Protocol)
- ❑ **Increasing efficiencies and effectiveness in the process by which climate data requirements are set** (e.g., by GCOS) and to which CEOS and CGMS space agencies respond.
- ❑ **Pragmatic focus for delivery to GST1 and GST2** like GHG Roadmap



## **Agriculture (in cooperation with GEOGLAM):**

- Global crop productivity maps for reference years
- Country cases for agricultural land use and change, agriculture management practices and agricultural biomass burning supporting reporting of NDCs

## **Forestry:**

- Global forest cover and tree density maps (in cooperation with GFW and UMD)

## **Biomass:**

- Global above ground biomass maps in GST1 reference year 2021 with 2020 as backup and historical datasets from previous years (Contributions of CCI biomass with inputs from GEDI and IceSat-2 missions and WGCV LPV team)
- Country cases of carbon stock in forests supporting reporting of NDCs (in cooperation with GFOI)

## **Other Land Use: (TBD)**

- Effort thus far within CEOS has mainly been undertaken by the agency representatives to the Forest and Biomass Team within the Land Surface Imaging Virtual Constellation (LSI-VC), with contributions from the LSI-VC GEOGLAM team and from further volunteer experts.
- LSI-VC is the home for the thematic expertise within CEOS for matters relevant to AFOLU, including the specialist groups on forests and biomass and on agriculture.
- The Roadmap team has consulted with the LSI-VC Co-Leads and confirmed their strong support for housing the AFOLU Roadmap task within LSI-VC in future when the time is right.
- This is assumed to include an interface as needed to the GHG Task team within the CEOS-CGMS WGClimate, and with WGClimate as the established lead for the CEOS interface to UNFCCC.
- Proposed institutional arrangements will be included in the AFOLU Roadmap and developed in consultation with the main CEOS agencies investing in the supporting activities.