CONCEPT NOTE:

SIXTH WORKSHOP: ADVANCING EO AND AI INTEGRATION FOR AGRICULTURAL STATISTICS

HOST COUNTRY: BRAZIL

ORGANIZERS:

- UN Regional Hub for Big Data in Brazil
- UNCEBD Task Team on Earth Observation
- FAO (Food and Agriculture Organization of the United Nations)

DATE

- Sixth Workshop: April 7–11, 2025

FORMAT:

- **Sixth Workshop:** Remote synchronous and asynchronous activities

THE WORKSHOP

This workshop is part of a structured series aimed at building capacity for integrating Earth Observation (EO) and Artificial Intelligence (AI) in agricultural statistics. These initiatives are designed to address the growing demand for accurate, timely, and reliable agricultural data in Latin America and the Caribbean. They offer participants opportunities for hands-on learning, collaboration, and the development of actionable strategies to enhance their statistical systems.

A structured workshop has been planned as part of the 2024-2025 Work Program, continuing the approach of the previous workshop series. For reference, the materials and outcomes of the previous workshops are available here: https://hub.ibge.gov.br/index.htm.

This initiative aims to equip National Statistical Offices (NSOs) in Latin America and the Caribbean with the knowledge and tools to integrate Earth

Observation (EO) and Artificial Intelligence (AI) into their agricultural statistics. This series builds on the extensive work carried out by FAO EOSTAT program in more than 25 countries, and on the agenda of the Task Team on Earth Observations for Agricultural Statistics established under the Committee of Experts on Big Data and Data Science for Official Statistics. A collection of success stories has proven the potential of EO to address statistical challenges, particularly in agriculture, leading to an increased interest in geospatial data.

The workshop aligns with the "learning by doing" method, progressively introducing foundational knowledge and advancing to hands-on applications. The sixth workshop will focus on introducing essential EO and AI concepts and tools to equip participants with fundamental knowledge and skills necessary to apply these technologies to agricultural statistics in their respective contexts.

WORKSHOP LANGUAGE: English.

MODE OF PARTICIPATION

Tasks and mini projects are planned to be taken individually.

CERTIFICATION

Participants must attend at least 80% of the total workshop duration to have a certificate issued.

TARGET AUDIENCE

The workshops are mainly aimed at technicians and employees of National Statistical Offices in Latin America and the Caribbean.

SIXTH WORKSHOP AGENDA "Foundations of Geospatial Technologies and AI for Agriculture in Latin America"

Workshop		
Day 1 – April 7 (Synchronous) - Introduction to Integrating EO and AI in Agricultural Statistics		
Sessions	**Activity**	**Time (GMT-3)**
Topic: Introduction to Integrating EO and AI in Agricultural Statistics Presenters: Lorenzo De Simone, PhD (FAO)	Welcome and workshop overview.	10:00–10:15
	Presentation: Overview of Earth Observation (EO) and Artificial Intelligence (AI) applications.	10:15–10:45
	Presentation: update on the Joint Task Team on EO data for Agricultural Statistics	10:45–11:15
	Discussion: Relevance of EO and AI for Latin America.	11:15–11:45
	Q&A and daily wrap-up.	11:45–12:00

Day 2 – April 8 (Asynchronous) - Self-paced learning (Duration: ~2 hours).		
Sessions	**Activity**	**Time**
Self-paced learning		

Day 3 - April 9 (Synchronous) - Methodologies for Integrating EO and In-Situ Data		
Sessions	**Activity**	**Time (GMT-3)**
Topic: Methodologies for Integrating EO and In-Situ Data Presenter: Sophie Bontemps (University of Louvain) Lorenzo De Simone, FAO	Recap of the week and introduction to methodologies.	10:00–10:15
	Presentation: Integrating satellite and field data for agricultural statistics.	10:15–10:45
	Case Studies: Successful applications Zimbabwe, Spain,	10:45–11:15
	Group Activity: Brainstorming integration strategies for participants' countries.	11:15–11:45
	Q&A and reflection.	11:45–12:00

Day 4 – April 10 (Asynchronous) - Self-paced learning (Duration: ~2 hours).		
Sessions	**Sessions**	**Sessions**
Self-paced learning		

Day 5 - April 11 (Synchronous) - Fundamentals of Satellite Image Time Series (SITS) and Self-Organizing Maps (SOM)		
Sessions	**Activity**	**Time (GMT-3)**
Topic: Fundamentals of Satellite Image Time Series (SITS) and Self-Organizing Maps (SOM) Presenters: Gilberto Câmara (FAO Brazil) Estefania Pizarro from INE Chile Lorenzo De Simone, FAO	Introduction to SITS and its applications in agriculture.	10:00–10:15
	Presentation: Using SITS to improve in-situ data quality.	10:15–10:45
	Demonstration: How SOM reduces errors in field data collection.	10:45–11:15
	Case Study: Collaboration with Chile's Ministry of Agriculture.	11:15–11:45
	Wrap-up, next steps, and closing remarks	11:45–12:00