



EC-ESA Joint Earth System Science Initiative



22-24 November 2023 | ESA-ESRIN, Frascati, Italy

Summary Agriculture Sessions

November 22-24, 2023



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→ THE EUROPEAN SPACE AGENCY

Showcase latest results and inform about project activities



5 different sessions show casing different ESA and RTD projects

- Crop stressors and Climate adaptation
- Food security yield and scaling up
- Small scale farming African cases and nutrition
- Session on inter project collaboration
- Demonstration of AVL

Goals

- Looking for synergies between project
- common challenges
- Research gaps and new topics
- networking



Some findings

- Earth observation and ML will play an **increasing role to inform policies & programmes**, e.g. due to climate extremes, pest & diseases, conflicts, extreme weather events (and as part of Green Deal).
- Key actions to rise to the challenge: **need for sustained solutions with long term continuity**, scale up co-development efforts to less developed nations, better integration across sectors & science domains.
- **Transfer science in solutions for society**, e.g. yield forecasts, irrigation advice, nitrogen application advice.
- Share information about project activities & results: bring projects together at **networking events**, joint website with links to projects, short stories,..., education / capacity building to promote project results and ensure sustainability, responsibility of companies/organizations to share info via online channels (incl. social media).
- Potential **cooperation/synergies** with other projects/initiatives and common European agricultural data spaces.
- Use of **drones** for scaling up, use/usability of **thermal, hyperspectral** information at field level & **FLEX**.
- Earth observation for resilient agriculture, agro-ecological practices, regenerative agriculture & carbon farming.
- **Free & open access to in-situ data**, interoperability & **federated** data infrastructures.

Challenges & pathway to solutions



• In situ data

- Standards / meta data
- Sharing / curation / FAIR
- Infrastructure

GEOGLAM In situ data working group

Partnership AgData / Agri Data Space

- infrastructure, repositories, share data

GEOGLAM->JECAM

RESOURCES!!!!

• Outreach and visibility -> coordination

- Who is doing what where?
- Interaction between projects

EuroGEO, Agri action group:

- Mapping / coordination of European Activities and outputs. Identify gaps.

GEOGLAM

- International Collaboration – Service / Product delivery

GEO

- Improve access to national data

• Transfer science in solutions for society

- Co-design and co development

Copernicus (Land service)

- Operational services, R&I required

Knowledge Centre on Earth Observation (KCEO)

- Strategic Research Agenda for Copernicus services



Research topics for the future



- EAV potential important driver
- Monitoring and forecasting of
 - Yield
 - Biotic and abiotic stress/disturbance factors (e.g. climate impacts, extreme events, pests and diseases)
 - Crop Nutrient quality (providing healthy diets! Rather than food only)
 - Crop management practices
- Mapping
 - In season crop type mapping
 - Change mapping



- EO for Agriculture under pressure Workshop
 - Co-organised by EC-ESA
 - **13-16 May @ESRIN**
 - Impact on Climate and Environment
 - Crop stressors and Climate Adaptation
 - Food Security and SDG2
 - New Technologies and Infrastructure
- Followed by **Agriculture Science Cluster launch** and meeting on **17 May**

Thank You

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&

The whole agricultural
team