OPEN DATA & OPEN KNOWLEDGE Workshop

- GEOGLAM in situ data coordination driven by Essential Agriculture Variables (EAVs)
GEOGLAM?

■ GEOGLAM is an open, cooperative initiative bound together by common interest and good intent

■ Low overhead, driven primarily by in-kind work contributions towards a common vision for food security decision support

■ Authoritative provider of independent, timely, science based information for decision support
**Essential**: key ‘building blocks’ to produce relevant and timely information products

**Agriculture**: related to agricultural productivity and land use

**Variables**: they can be measured or inferred, and change over space and time

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### Essential Agricultural Variables for GEOGLAM

Co-leads: Whitcraft (UMD/NASA Harvest) & Gilliams (VITO)

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**Systematic Acquisitions (Wall-to-Wall, Year-Round Monitoring)**

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<tbody>
<tr>
<td>50 - 500 m</td>
<td>500 m - 10 km</td>
<td>10 - 30 m</td>
<td>10 - 30 m</td>
<td>3 - 10 m</td>
<td>3 - 10 m</td>
<td>&lt;3 m</td>
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<tr>
<td><strong>Cloud Free Obs. Frequency (Goal to Threshold)</strong></td>
<td>1-2x daily</td>
<td>daily</td>
<td>weekly</td>
<td>2-4x weekly</td>
<td>1-2x weekly</td>
<td>1-2x yearly</td>
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### Tasked Acquisitions (Small Croplands, Hotspots; Refining via Sampled Wall-to-Wall/Year-Round)

<table>
<thead>
<tr>
<th>Coverage Notes</th>
<th>Wall-to-Wall</th>
<th>Cropland Extent (cloudy &amp; rice)</th>
<th>Cropland Extent (non-cloudy)</th>
<th>Refined Sample of All Fields</th>
<th>Cloudy Croplands</th>
</tr>
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<tbody>
<tr>
<td><strong>Agriculture Mask</strong></td>
<td>Monthly</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td><strong>Cropland Mask</strong></td>
<td>Monthly</td>
<td>X</td>
<td>X</td>
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A decade ago the major constraint to operational monitoring was access to free and open EO data, then the major hurdle became the cost and availability of big data analytics; the next constraint was access to mature, reproducible analytical tools. Great progress has been in all these areas...

One of the last major constraints to progress:

Open access to high quality, well managed in situ data for training and validation

Current in situ data access is insufficient for the development of systematic operational monitoring capacities required to address our policy priorities

Some incremental coordination leveraging our existing activities could have a major impact at relatively low cost

“the whole can be greater than the sum of the parts”
GEOGLAM initiated a working group on in situ data in 2021.

Early 2022 an initial workplan and guidance document was developed by the WkGrp.

GEOGLAM was able to leverage significant effort by WorldCereal to create a global reference data set for crop mapping.

November 2022 GEOGLAM convened a workshop in Geneva to review and refine the workplan towards the development of a detailed action plan (currently in draft).

Key actions were developed, some in development, within existing resources and capacities, some require incremental support (i.e. funding, staff time, technical resources).
The case of cropland and crop type mapping

■ Need for a global, extensive, open reference data repository with recent data on crop types and land cover

■ No current solution of sufficient, high quality (open) reference data so started a journey...
The case of cropland and crop type mapping
Next steps

- Gaps assessment for EAVs implementation, including in situ data needs
- Institutionalize, sustain, and update the WorldCereal reference data repository and Encourage and Enable the community to share data following the open science and open data principles
- Explore business models to strengthen and sustain harmonization hubs (data holdings)
- Implement a demo distributed architecture with hosting capability using the open source CKAN solution under the neutral GEO/GEOGLAM umbrella, with an implementation of STAC, and common API to query the data
Joint Workshop: Community-led good-practices for cropland and crop type validation

12-14 September 2023 | USDA National Agricultural Library Beltsville, MD

- Supports CEOS AFOLU Stocktake

- Jointly organized by GEOGLAM & CEOS:
  LPV Leadership: Sophie Bontemps (UCL) & Sasha Tyukavina (UMD)
  EAV Leadership: Sven Gilliams (VITO) & Alyssa Whitcraft (UMD)

- Supported by:
  NASA Land Cover & Land Use Change Program
  NASA Applied Sciences Agriculture Program
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