

Agriculture and soil - examples of earth observation-based products

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CARDINAL REQUIREMENTS

- fast generation and validation of a world land cover based on Sentinel-1 and Sentinel-2 constellations
- 10 land cover classes
- 10 meters resolution
- 75% overall accuracy

Contract by VITO, Brockmann Consult, CS, IIASA, GAMMA, WUR with key users from EU DGs, FAO, GEO, OECD, CIFOR, UNCCD, WRI



WorldCereal

Global Crop Mapping at Field Scale

Demonstrate timely monitoring of global agricultural productive area for improved international & national reporting as well as market transparency.



World Cereal

WorldCereal, an EO based system for global cropland monitoring

WorldCereal aims to develop an **efficient, agile and robust** EO based system for **timely global crop monitoring at field scale**.

The OpenSource WorldCereal system will be able to:

- ✓ Create local to global annual cropland extent maps at 10 m resolution
- ✓ Update the crop maps on a seasonal basis
- ✓ Differentiate between actively irrigated and rainfed fields
- ✓ Produce global maps of maize and wheat, two of the major staple crops

WorldCereal is a global R&D challenge aiming to **engage the global agricultural community** to achieve optimal results.



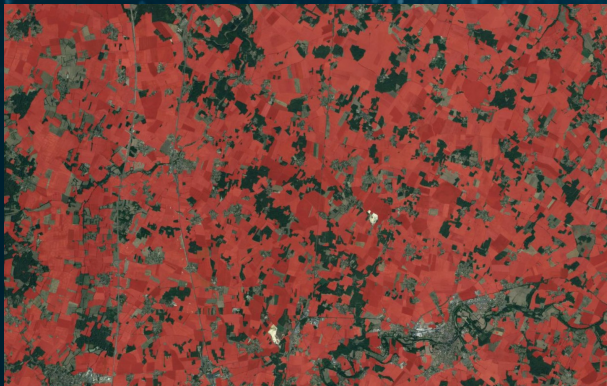
Large scale demonstration

Civray, France

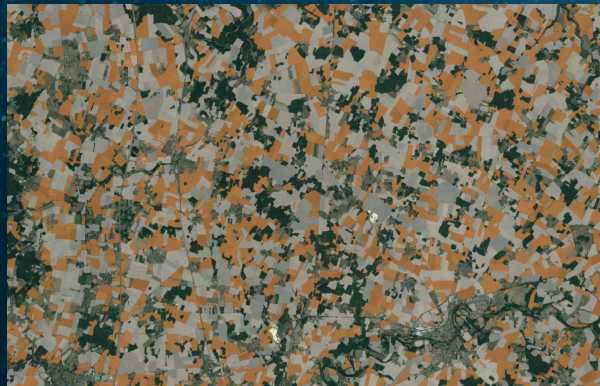


- performed on 1.5M km² in three continents covering different agricultural zones
- five areas in Argentina, Spain, France, Ukraine and Tanzania. The benchmark year for this demonstration was 2019
- the cropland classifier is overall 90% and crop type wise 80% accurate

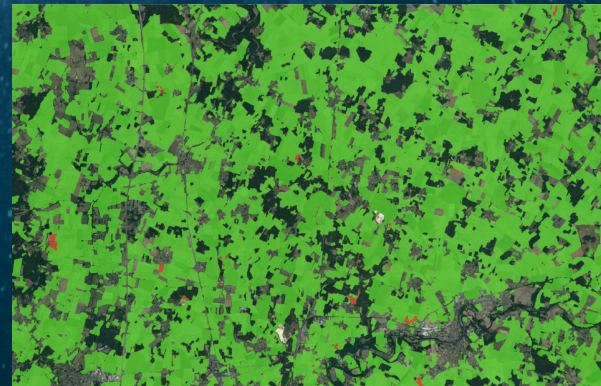
cropland (11/18)



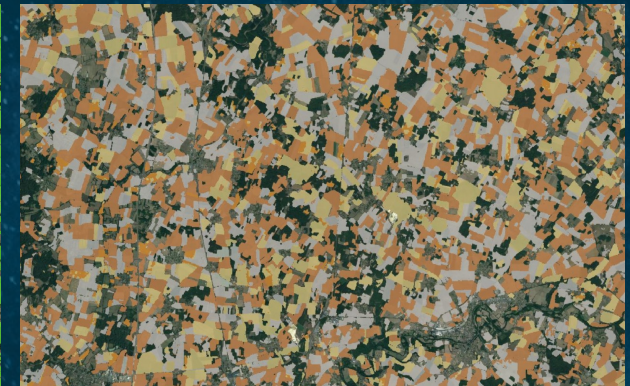
wheat (08/19)



cropland (08/19)



corn and wheat (11/19)



Products and access

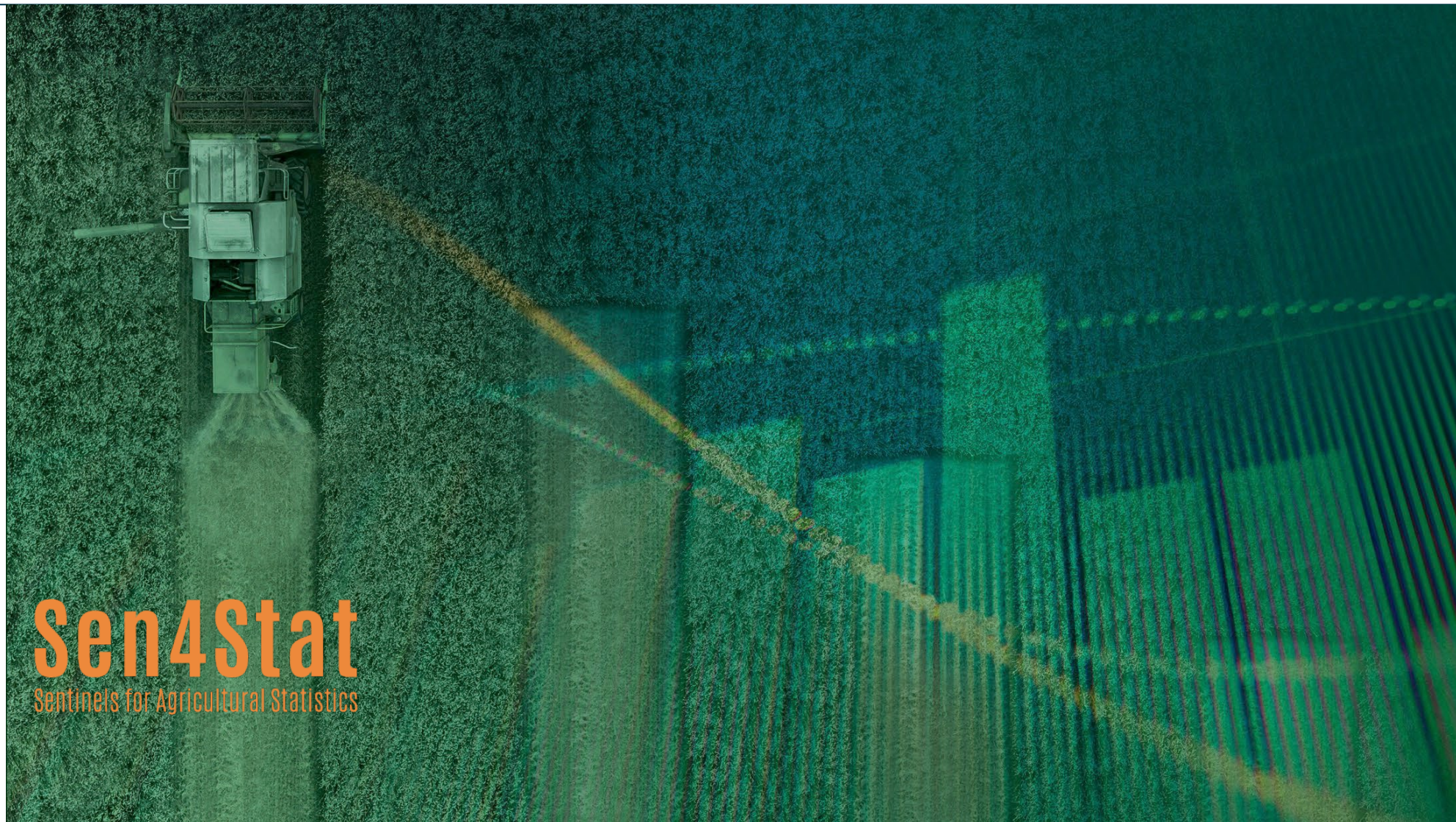




- increased direct sourcing
- cascading compliance
- certification
- traceability
- transparency
- landscape approaches

- Agri-Food related indicators measurable by EO data:
- supplier farm sizes (large vs. small)
 - land use change (crop vs. non-crop)
 - crop types change (cash crop vs. staple)
 - yield estimation (per crop)

Sentinels for Agricultural Statistics



- Engage **agricultural National Statistical Offices (NSO)** to demonstrate the **benefit of EO information** within their operational workflows
- **Provide & demonstrate validated algorithms**, open source **tools, products** and **best practices** for national agricultural statistics with EO **facilitating the uptake of EO information** in the NSO



WORLDISOILS

Monitoring global topsoil using space-borne EO data



The WorldSoils project aims to develop a pre-operational Soil Monitoring System to provide yearly estimations of Soil Organic Carbon

