

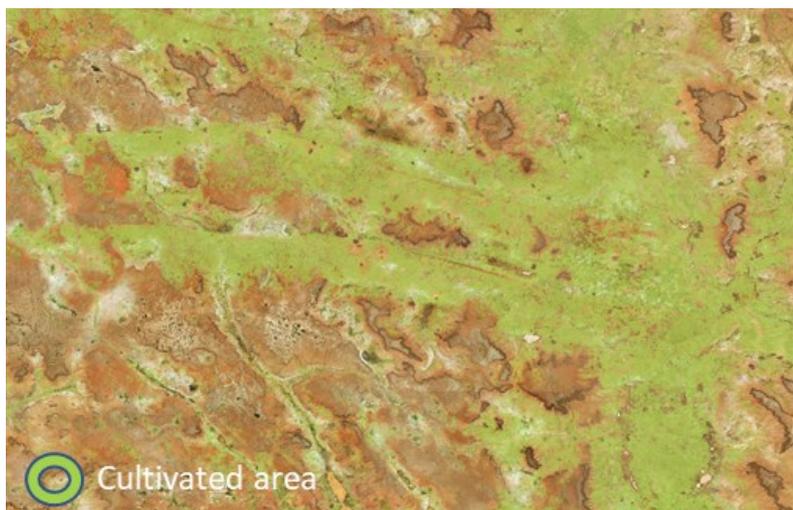


CROP AREA, TYPE AND STAGE MAPPING

Maps of crop area, type and stage of development are used by many institutes, such as national agricultural agencies, regional agricultural bodies, statistical offices, NGO's, etc., to estimate crop inventories of what, where, and when certain crops are grown. Such information can feed into models of supply and yield prediction, soil productivity, land use intensity, indicators of crop stress and damage from natural disasters, as well as monitoring general agricultural practices.

The availability of Earth Observation (EO) data at a high temporal frequency – a combination of optical and radar data that can 'see' through clouds – allows for mapping of the temporal behavior of crop production. EO can provide users with detailed information on the location and extent of crop area, distinguishing irrigated from non-irrigated cropland and give an overview of the main crop types occurring. Seasonal information on crop status and development can also be provided and from long term time series analysis trends and patterns of shifting cropping practices can be revealed.

EO based crop area, type and status mapping can provide national and regional authorities with improved agricultural statistics and crop production assessments; it can help aid agencies to decide when and where to intervene in food insecure countries and it can help farmers to better manage their stocks through better knowledge on existing growing conditions.



*Cultivated area in South-Niger representing growth season 2017
(© Copernicus Sentinel data/Satelligence).*

PRODUCT SPECIFICATIONS

CONTENT

- This service provides a detailed mapping and monitoring of extent of cultivated area, specific crops and their intensity across the landscape

GEOGRAPHIC COVERAGE

- Globally available

TEMPORAL COVERAGE

- Available since 2000. Local scale products may be available for earlier periods, but fragmented in time and space (since 1980's).

SPATIAL RESOLUTION

- From 10 to 250m resolution allowing for local to regional analysis

FREQUENCY

- Weekly to annually (seasonally)

LIMITATIONS

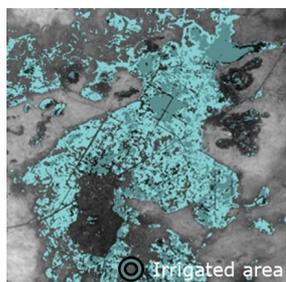
- Mapping of crop types requires local ground data to calibrate the image classification in a specific area for the first time
- Use of optical imagery will be limited in areas with persistent cloud cover

The EO service on mapping crop area, type and stage includes several interrelated EO products which provide users with key information on various aspects of the cropping system and as a basis for crop statistics and performance monitoring.



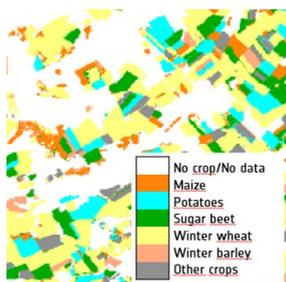
Cropland mask

The Cropland mask is a binary map showing the extent of crop land versus non-cropland within a given region



Irrigated vs. non irrigated land.

The cropland mask can be further analysed to provide a separation of the crop area into Irrigated vs. non irrigated land.



Crop types

With adequate in-situ data the irrigated and non-irrigated crop land can be classified into major crop types.



Crop stage

The crop stage can be monitored using EO derived vegetation status indicators such as the Normalized Difference Vegetation index (NDVI) and the Leaf Area Index (LAI).

Delivery

The crop area, type and stage development mapping information can be delivered as

- Geodata (GeoTIFF, ASCII, or similar)
- Metadata (INSPIRE or similar)
- Cartographic presentations (PDF, PNG or similar)

Derived maps and information from the crop area, type and stage development mapping service are typically made available through one or more of the following approaches:

- An email can be dispatched to relevant recipients whenever new information is generated
- Data can be made available on a dedicated password protected ftp server ready for the client to pull/push the data.
- Data can be viewed online through a dedicated password protected web portal. The system can be customized and scaled in complexity to meet specific needs.

SUMMARY

- Worldwide coverage
- Available in resolutions from 10 – 250m allowing local to regional analyses
- Data available in near real-time
- Password-protected, web-based broadcast system provides access from a standard browser with local GIS or smart phone

EO4SD — Earth Observation for Sustainable Development — is an ESA initiative started in spring 2016 and focusing on top-priority international development issues including water resource management. The overall objective is to achieve a step increase in the uptake of satellite-based information in the national, regional and global programs of International Finance Institutions. Water Quality and temperature monitoring is one of the EO services being demonstrated under the EO4SD on water resource management.

For more information please contact:

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