




The Food Security & Sustainable Agriculture showcase; Remote sensing based crop monitoring for Early Warning - The GEOGLAM Crop Monitor Impact

Summary

The purpose of Group on Earth Observations Global Agricultural Monitoring Initiative (GEOGLAM) is to **increase market transparency and improve food security** by producing and disseminating relevant, timely, and actionable information on agricultural conditions and outlooks of production at national, regional, and global scales. It achieves this by strengthening the international community's capacity to utilize coordinated, comprehensive, and sustained Earth observations.

Sponsor	Project	Solution provider
 <p>The e-shape project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement 82085</p>		

Taxonomy

Land

Agriculture

Monitoring crops

Map disaster areas

User profile

GEOGLAM, the GEO Global Agricultural Monitoring initiative was initially launched by the Group of Twenty (G20) Agriculture Ministers in June 2011, in Paris. The initiative forms part of the G20 Action Plan on Food Price Volatility, which also includes the **Agricultural Market Information System** (AMIS, <http://www.amis-outlook.org>), another inter-institutional initiative hosted by the UN Food and Agriculture Organization (FAO). The G20 Ministerial Declaration states that GEOGLAM "will strengthen global agricultural monitoring by improving the use of remote sensing tools for crop production projections and weather forecasting". By providing coordinated Earth observations from satellites and integrating them with ground-based and other in-situ measurements, the initiative will contribute to generating **reliable, accurate, timely and sustained crop monitoring information and yield forecasts**.



Service description

The aim is to demonstrate how Copernicus data can be used, in combination with other ancillary datasets (in situ data, static maps,...), to provide improved indicators for agricultural monitoring in an operational setting.

Through previous discussions with and among the end users, the **EAV** (essential Agricultural Variable) crop calendar was identified as a suitable showcase, given its relevance in many monitoring systems, while it is currently not available at the Sentinel 1&2 resolution and at a larger scale. We will build on existing methodologies that are currently incorporated in different operational services, but with further improvements and adaptations that will be required to tackle issues that arise when monitoring agricultural areas at such a high resolution. On the other hand, because of the high resolution, parcel-level monitoring now becomes feasible in many regions of the world. This parcel-level monitoring has many advantages, which open up opportunities to also improve the definition of crop calendars with EO data.

Customer experience

Since 2011 GEOGLAM has had significant success developing global scale monitoring products that help reduce market volatility and provide early warning for food security organizations. In recent years GEOGLAM has had great success working with national governments to co-develop systems that produce information that is quickly turned into proactive policies and programs. These users are driving the **need for higher resolution data and more quantitative metrics on agriculture state and change over multiple time frames** (within season to decadal). "To meet global food security challenges GEOGLAM requires reliable access Copernicus data within robust, cloud-based computing infrastructures. The E-Shape initiative will provide a significant step forward in this regard."

Need

- To strengthen global agricultural monitoring making use of Copernicus data and infrastructure
- Provide improved indicators for agricultural monitoring based on in situ, meteo, soil and RS data
- Demonstrate methodologies implementable at national scale in support of ministries of agriculture

Challenges

- Provide up to date and consistent data for global agricultural monitoring in support of GEOGLAM, AMIS and SDG2
- Demonstrate the usefulness of new information products at national scale
- Upgrade GEOGLAM's distributed analytical network to a shared cloud based solution

Results

- National food security programs require timely accurate information on emerging threats
- Co-developed monitoring systems, operated by governments are the best avenue to turn information into decisions that have impact
- The information produced by ministries is trusted, deemed authoritative, and created close to the decision makers
- The monitoring information can be quickly used to respond to food security challenges
- Overall, national monitoring systems provide better information faster, in a setting where saving days and weeks can save thousands from hardship

National Impact Stories, Food Security Africa- Uganda

Karamoja Uganda, 2017

- 2006, 2014 and 2017 in Uganda: 2017 is the first time that the Karamoja region has been included in the national impact stories.
- In 2017, the region was the most severely affected by drought, with a significant increase in the number of people who are malnourished, and a significant increase in the number of people who are displaced.
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The past year has been a year of challenges for the Karamoja region, with a significant increase in the number of people who are malnourished, and a significant increase in the number of people who are displaced.

World Bank Country and Lending Categories - 2017



References

Learn more about the service: <https://cropmonitor.org/>

Learn more about e-shape: www.e-shape.eu

A question? Contact the Helpdesk: <https://helpdesk.e-shape.eu>