

Satellites data and products for improving contract design and implementation

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Overview

Satellites provide data, products and information for

- **Inputs in product design**
- **Context (ie crop monitors)**
- **Improving efficiency ie Smodis dataset**
- **reducing implementation costs ie sampling frame**
- **Technologies for development of automation in data processing/assessments(with inbuilt and manual data quality audits)**

Crop masks – Evaluation within the right context

Problem

- Development of a cropland maps depicting cropland extent, major and other crops and system used (rain-fed/irrigated) and change maps.

Milestones

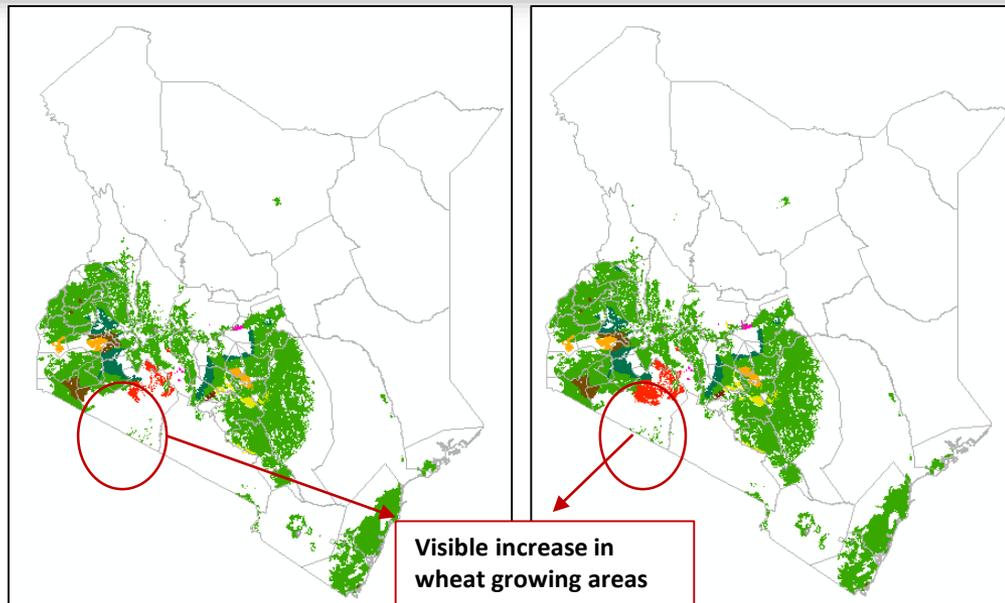
- Used to assess cropland changes
- Input to FEWSNET food security assessments
- Input in the Kenya National Crop Monitor
- Used as an input to development of the GIS based sampling frames for the crop insurance program

Planned

- Research on semi automation of in season cropland mapping

Product Users

- FEWSNET
- Ministry of Agriculture, Livestock & Fisheries
- University of Maryland (AST)

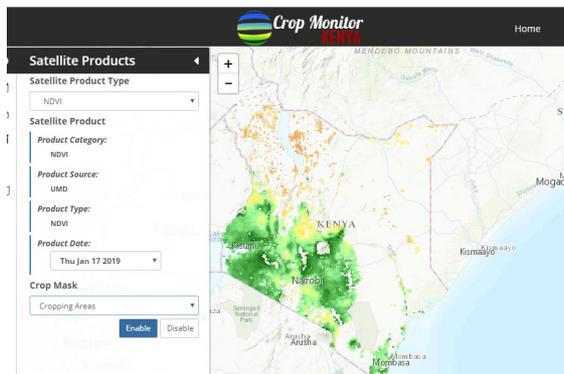


Wall to wall cropland maps for 2000-2015

Change Between 2000 and 2015

- Total change: 5394km² of land converted to cropland

Input in the Kenya crop Monitor



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Crop conditions monitoring – trends , end of season outlook

Problem

In Kenya, dependence on rainfed production systems, inadequate actionable information on in-season crop conditions create a challenge for food security decisions, especially in the face of emergencies such as drought.

Inputs

- County crop calendars
- Crop masks

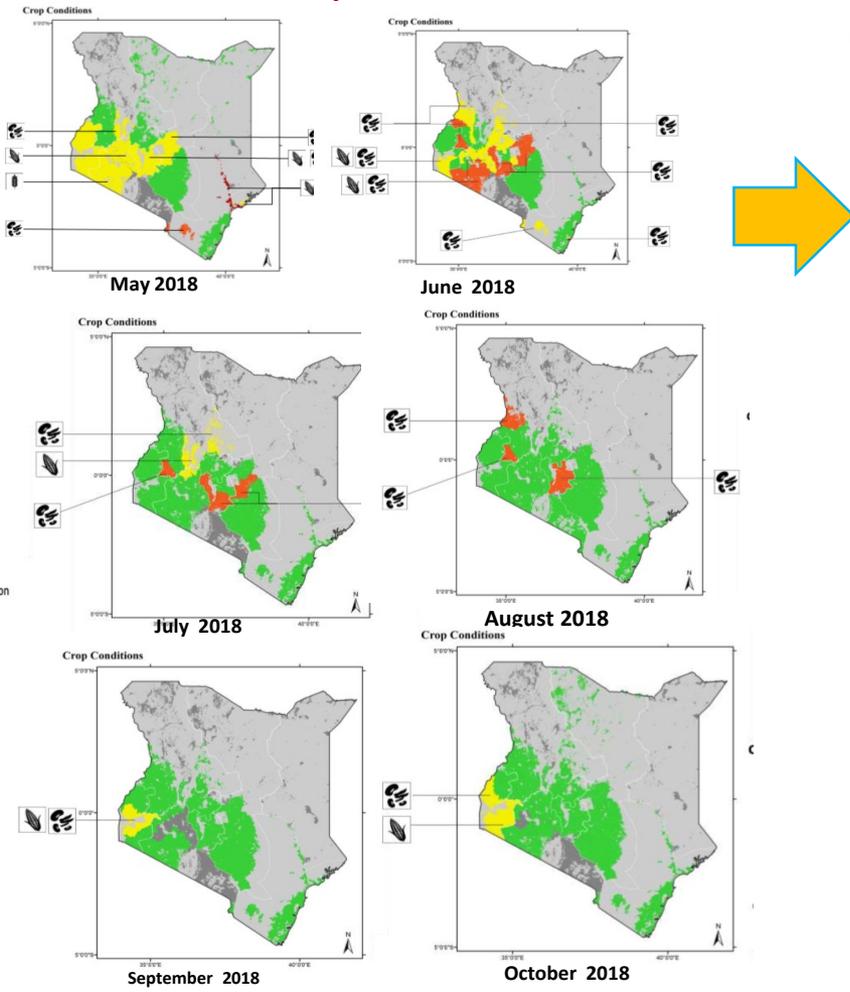
Product Users

- Ministry of Agriculture, Livestock & Fisheries
- FAO
- FEWSNET
- Extension officers
- Food security Agencies

Milestones

National Synthesis maps providing a summary of the overall crop conditions

Improved reporting and communication crop situation to govt and food security stakeholders



CROP CONDITIONS BULLETIN: September 2018

CROP CONDITIONS BULLETIN: October 2018

National Synthesis (Maize, Beans and Wheat)

SUMMARY
In parts of Western and Nyanza regions, poor distribution of the short rains resulted in crop stress and the areas are under watch. Conditions are expected to improve especially with the forecasted enhanced rainfall in the month of November. Overall a reduction in average prices was observed in the markets for maize and beans, however wheat prices recorded an increase. In the northern rift areas around Mt Elgon harvesting of the long rains season crop is ongoing. In other parts of the country the onset of the short rains has delayed and land preparation is still ongoing with minimal dry planting especially upper and lower eastern, central.

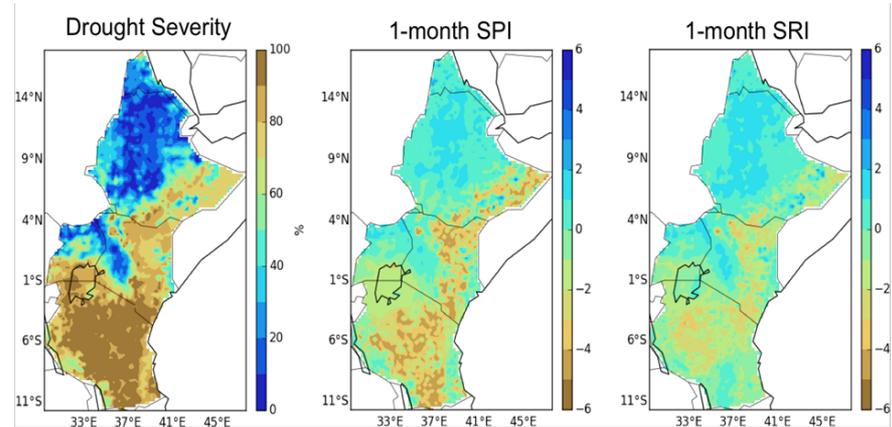
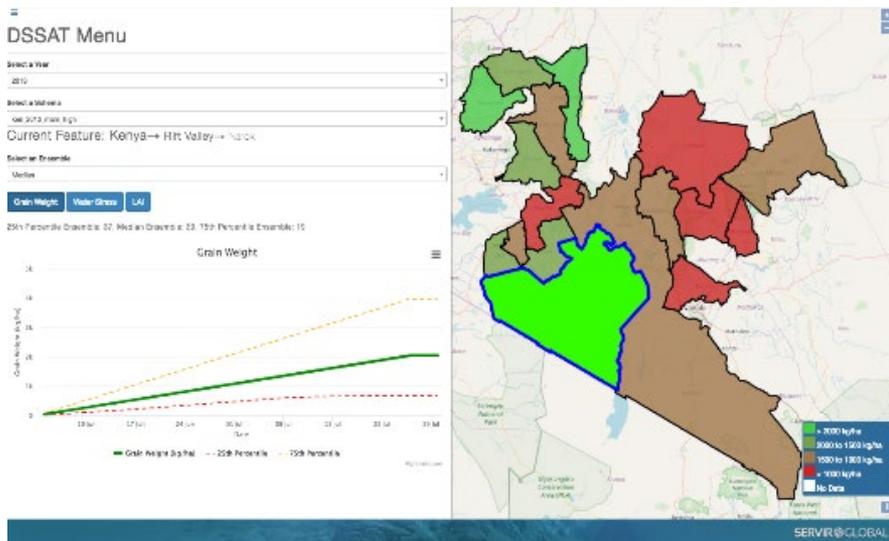
OUTLOOK (Kenya Meteorological Services (KMS) State Department of Crops Development (SDCD))
Despite the delayed onset in the short season rains, the conditions are expected to improve with the November forecast indicating the likelihood of enhanced rainfall in the Western, Nyanza, Rift valley and Central Regions. In the Eastern parts of the country near average rainfall is expected. The forecasted enhanced rainfall especially in the Lake Victoria Region is expected to improve the conditions for crop production especially in areas where the late onset had resulted in crop stress.

1 | Page State Department of Crops Development www.kilimo.go.ke

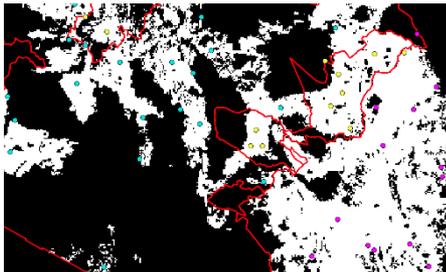
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Drought and yield monitoring in Kenya

Ability to estimate crop stress(drought) and estimate yields

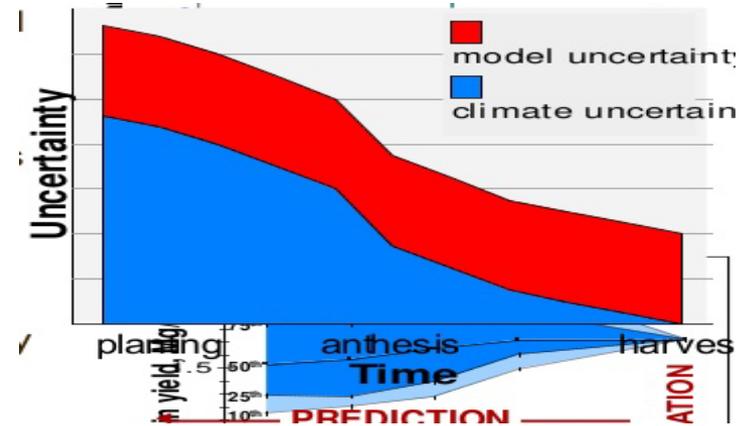


Customizations for improved assessments



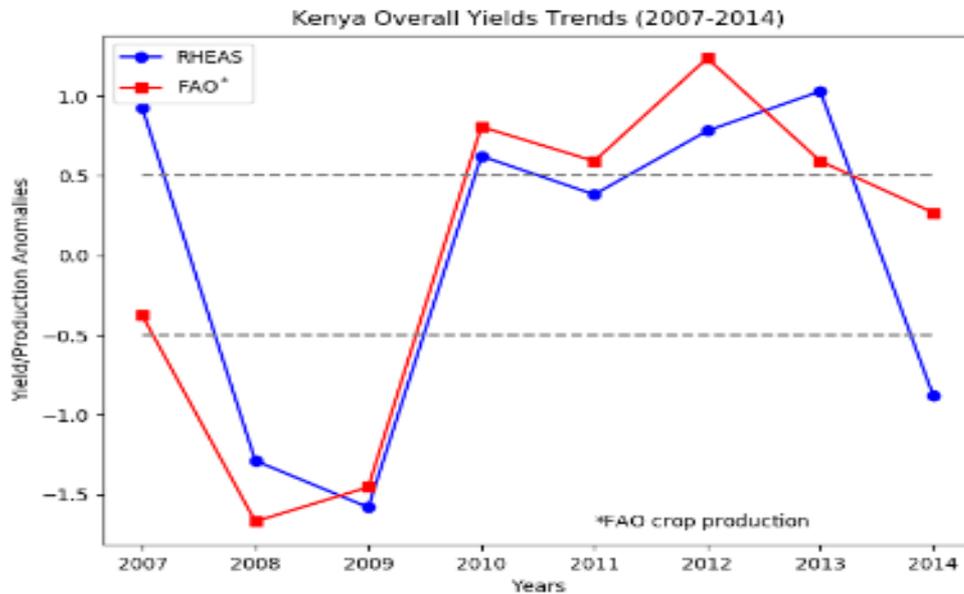
- Addition of cropland maps
- Altitude specific cultivars
- Higher resolution soil maps
- Addition of county specific crop calendars
- Adjusted Fertilizer application rates

Simulations restricted to cropland under maize



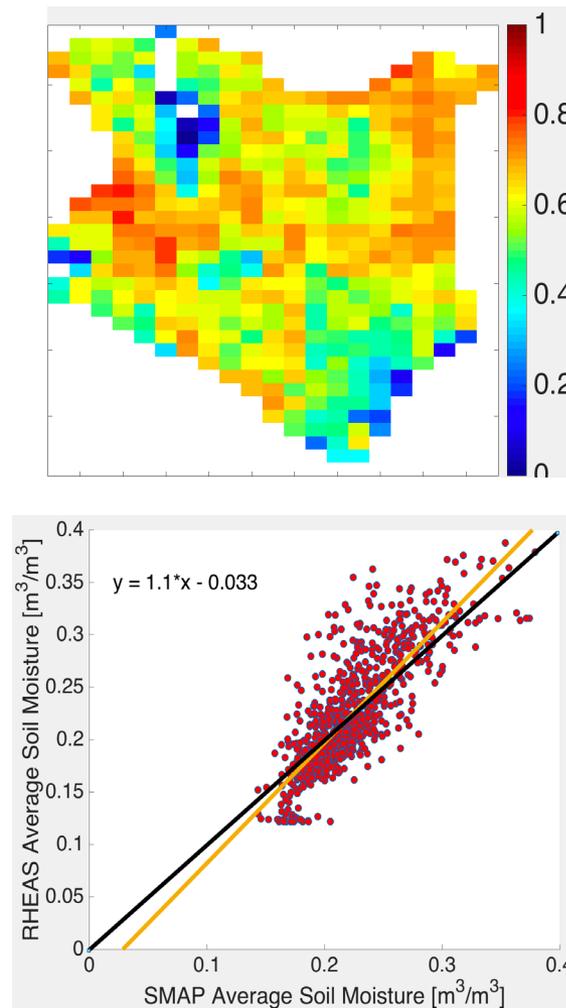
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Promising results



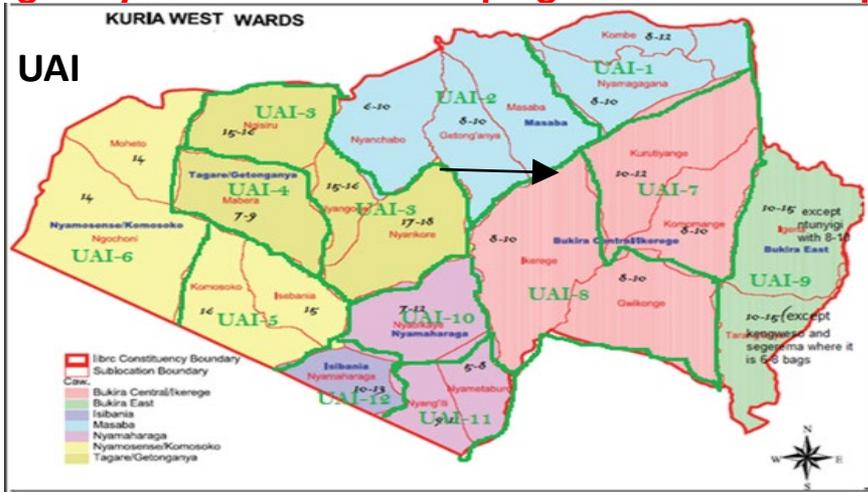
Comparison of model simulated yields and FAO production data

Validation of soil moisture



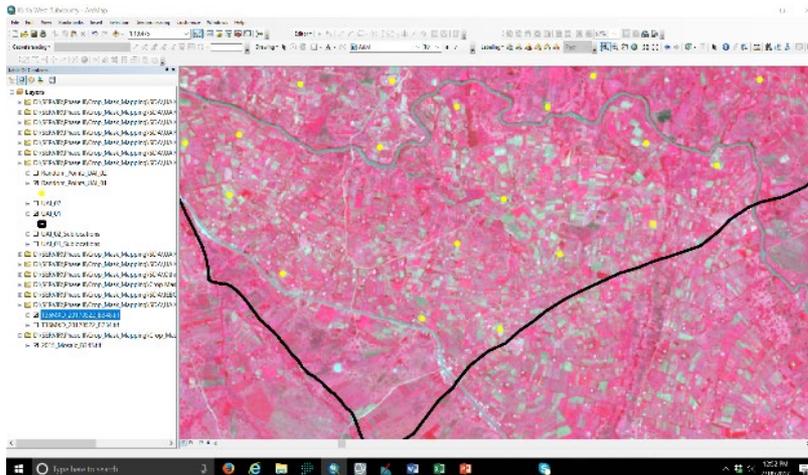
Support for Insurance activities

Supporting Kenya MOALFI in developing a GIS based Sampling frame



- Planned semi automation of data processing
- Capacity building for national and county officers

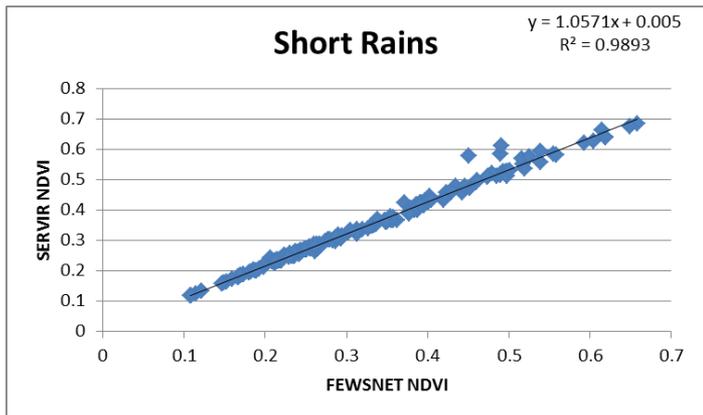
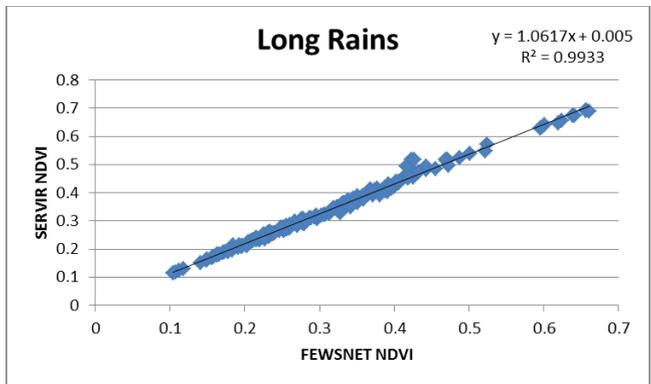
Identification of Unit Areas of Insurance based on admin units, homogeneity in AEZ, crop types



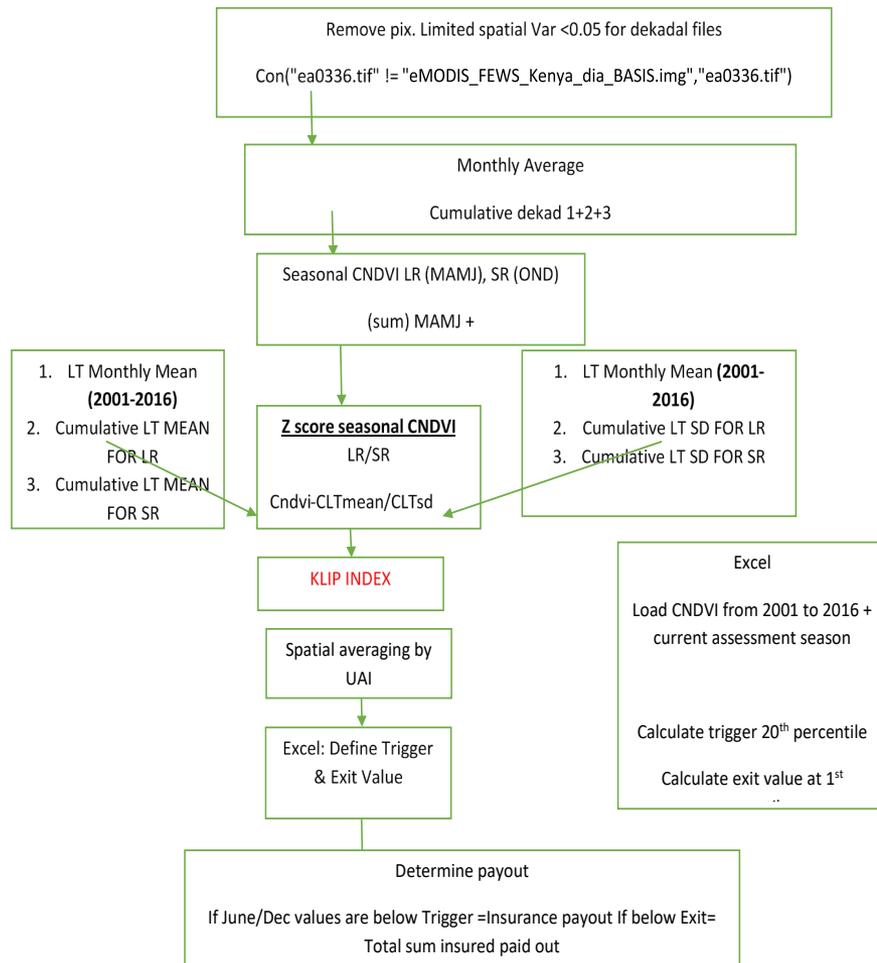
Sampling frame- points for each UAI derived from cropland maps(30m) and validated with Sentinel (10m)

Improved datasets and automation of processing workflows

Development of an improved latency Servir Modis NDVI Dataset



Automated workflow for KLIP



- Improved latency NDVI dataset- initial tests demonstrate close correlation to existing datasets being applied in IBLI.

 THANK YOU

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