

GEOGLAM Crop Monitor for Early Warning

*Strengthening agricultural decisions in countries
at risk of food insecurity*

Christina Justice, Inbal Becker Reshef, Brian Barker

www.cropmonitor.org

@GEOCropMonitor

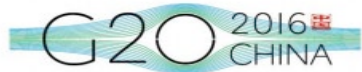
GEOGLAM: The GEO Global Agricultural Monitoring Initiative

(Adopted alongside AMIS by G20 in France in 2011, reaffirmed in China in 2016)



G20 Final Declaration

44. We commit to improve market information and transparency in order to make international markets for agricultural commodities more effective. To that end, we launched:
- The "Agricultural Market Information System" (AMIS) in Rome on September 15, 2011, to improve information on markets ...;
 - The "**Global Agricultural Geo-monitoring Initiative**" (**GEO-GLAM**) in Geneva on September 22-23, 2011. This initiative will coordinate satellite monitoring observation systems in different regions of the world in order to enhance crop production projections and weather forecasting data.



implementation of the concrete initiatives of the 2011 G20 Action Plan on Food Price Volatility and Agriculture in dedicated forums: Agricultural Market Information System (AMIS) and the Rapid Response Forum, GEO Global Agricultural Monitoring Initiative (GEOGLAM) for market and production international monitoring, and risk management tools, such as the Platform for

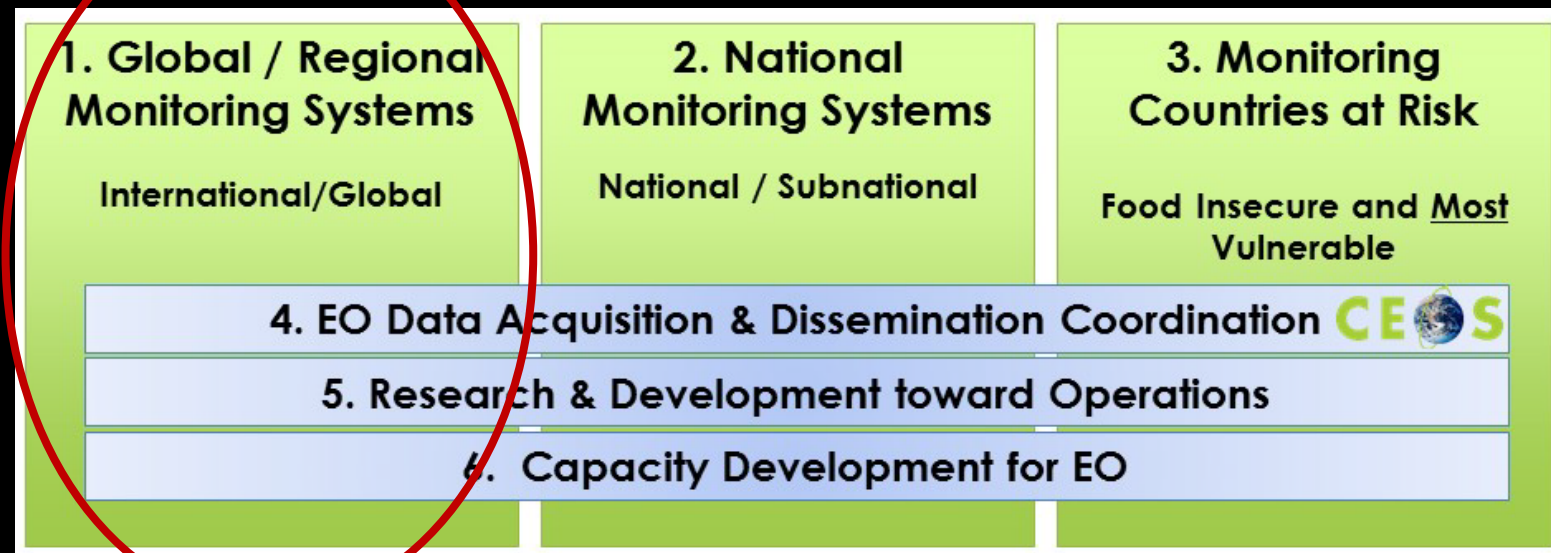
Vision:

Strengthen international community's capacity to provide actionable, science-driven, open, information at sub-national to global scales, in support of policies, investments and decisions, in food security, & ag. Markets

- Through use of coordinated Earth Observations (EO)
- Building on existing systems



The GEOGLAM Components



AMIS: Agricultural Market Information System

Improve market information and transparency

AMIS Agricultural Market Information System

HOME ABOUT MARKET MONITOR INDICATORS ANALYSES EVENTS STATISTICS

Monitoring markets

April update: The global cereal supply is proving to be exceptionally high this season in view of the latest upward adjustments to wheat and maize inventories.

LATEST NEWS
Market Monitor
Latest edition
Market Indicators
New series available

ANALYSES
Price transmission from global benchmarks
Read more
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MEETINGS
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Contact us © AMIS 2015

AMIS Agricultural Market Information System

HOME ABOUT MARKET MONITOR INDICATORS ANALYSES EVENTS STATISTICS

Supply & Demand Crop Monitor Policy Developments International Prices Futures Markets Ethanol Update

Crop Monitor

last release: Apr 2015

DOWNLOAD THE MONITOR

OVERVIEW WHEAT MAIZE RICE SOYBEAN

Exceptional Favourable Watch Poor Out of Season No Data

Countries: AMIS Countries Non-AMIS Countries

Crops: Maize Wheat Soybean Rice

Map description

Highlights

- Wheat:** In the northern hemisphere winter wheat has mostly resumed vegetative growth and conditions are generally favourable. In the EU, conditions are generally good. In the US there is still concern due to dry conditions in the Southern Plains. In China, conditions are favourable and in the Russian Federation and

Tweets

AMIS @AMISoutlook
Crop Conditions in AMIS countries (as of 28 March 2015). Full report at bit.ly/amisoutlook #commodities pic.twitter.com/PeghDax5wE @ Show Photo

AMIS @AMISoutlook
AMIS outlook for April now online bit.ly/amisoutlook

Tweet to @AMISoutlook

SUBSCRIBE TO THE AMIS MARKET MONITOR

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inter-Agency Platform to enhance food market transparency and encourage coordination of policy action in response to market uncertainty www.amis-outlook.org

Launch of Global Operational Crop Assessments: AMIS Request to GEOGLAM

- Provision of timely and transparent monthly crop condition assessments in primary agricultural production areas
- Reflecting an international consensus, building on existing systems
- Four Major Crops: Wheat, maize, soybean, rice
- Focus: main production/export countries (AMIS Countries), stabilizing/calming markets, avoid unexpected food price shocks
- Output: Crop Monitor for AMIS, published in the AMIS Market Monitor



Operational Monthly Bulletin Since 2013

> 40 contributing organizations



Contents

| | |
|---------------------------------------|----|
| Feature article - The China Conundrum | 1 |
| World supply-demand outlook | 2 |
| Crop monitor | 4 |
| Policy developments | 7 |
| International prices | 9 |
| Futures markets | 11 |
| Market indicators | 12 |
| Monthly (Co)stock updates | 14 |
| Fertilizer outlook | 15 |
| Clearer freight market update | 16 |
| Explanatory notes | 17 |

No. 65 – February 2019

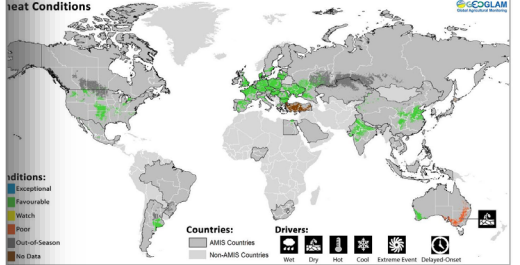
Markets at a glance

| | From previous forecast | From previous season |
|-------|------------------------|----------------------|
| Wheat | ▲ | ▼ |

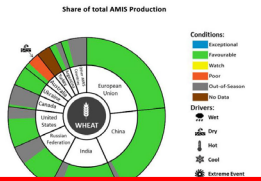
The outlook for AMIS crops remains positive, notwithstanding pockets of unfavourable weather in the southern hemisphere. Tighter export supplies and brisker demand provided some support to prices. However, 2019 began on a generally quiet note as positive near-term supply prospects tended to temper price gains. The absence of several market reports in the wake of the Chinese Government shutdown also contributed to the market dynamic.

No.58 – February 2019 GEOGLAM Crop Monitor

Wheat Conditions for AMIS Countries

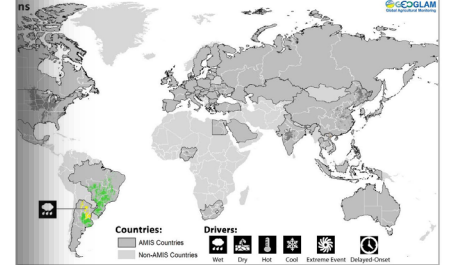


Wheat: In the EU, winter wheat conditions are variable with no major frost events observed. In China, winter wheat conditions are favourable with a layer of insulating snow cover in the eastern and central regions. Total sown area is slightly up from last year. In the Russian Federation, conditions are variable for winter wheat with adequate snow cover. Sown area has increased compared to last year. In India, conditions are favourable. In the US, winter wheat conditions are favourable. In Canada, conditions are variable.

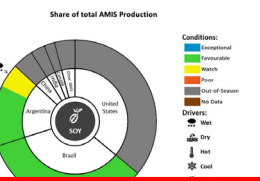


February 2019 GEOGLAM Crop Monitor

Soybean Conditions for AMIS Countries

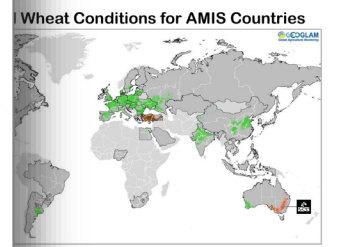


In South America, there is an increase in total sown area compared to last year. Conditions are variable with pockets of dryness that in Mato Grosso do Sul and a stent rainfall pattern along with beneficial weather prevented larger crop losses. In Argentina, conditions are in the reproductive stage. In Brazil, spring-planted and summer-planted and flooding delayed reduction of total sown area. Producers are expected to deal with.



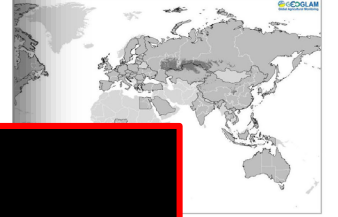
February 2019 GEOGLAM Crop Monitor

Crop Season Specific Maps



For crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of January 28th. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

Wheat Conditions for AMIS Countries



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- First time the international community comes together to produce operational crop assessments
- Bridging the gap between the EO, Policy and Economics communities

The Market Monitor is a product of the AMIS team, giving a synthesis of major market news, the market situation and outlook by region. Visit us at: www.amis-outlook.org

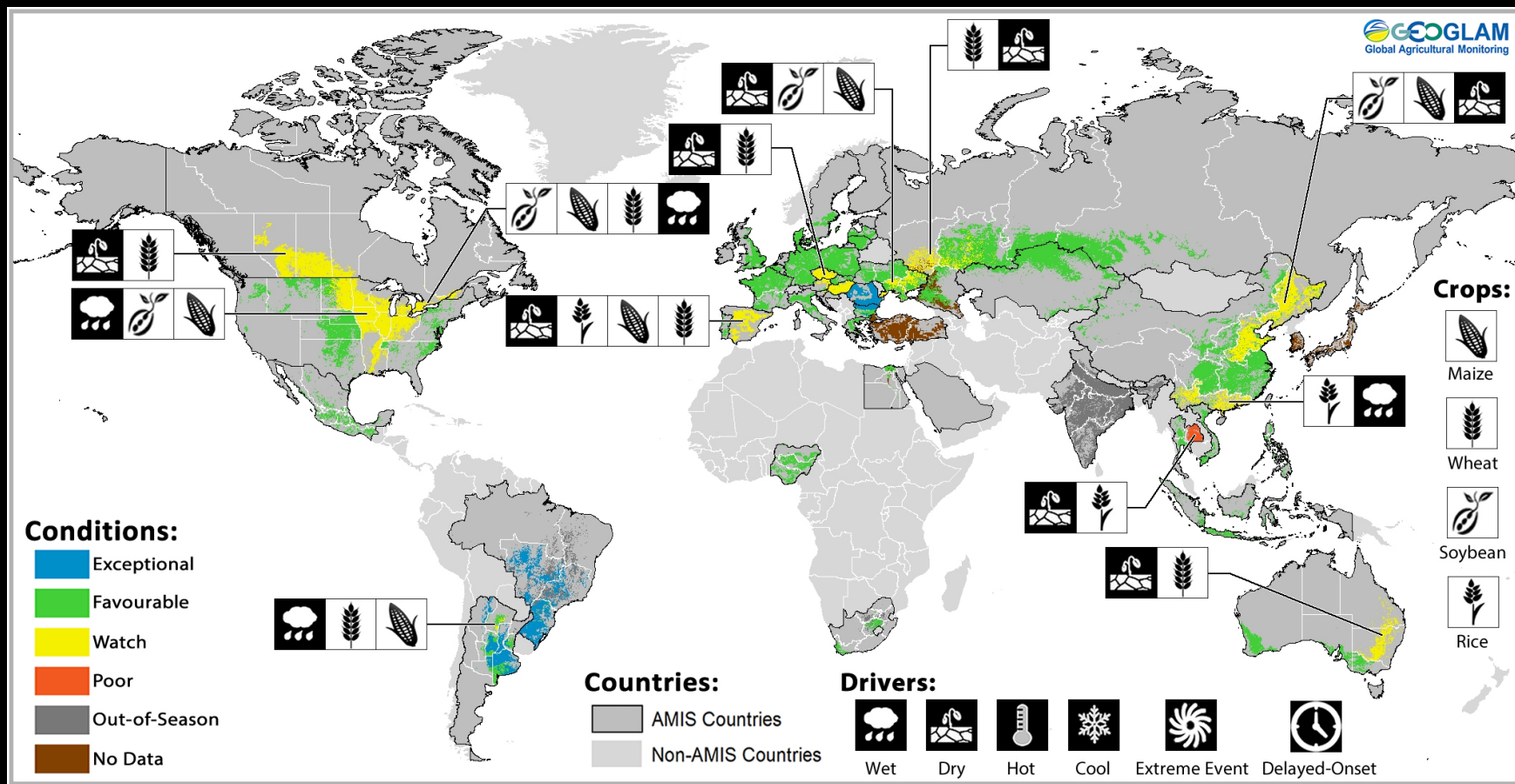


GEOGLAM AMIS Crop Monitor Partners



43 partners and 16 inter-governmental organizations over 28 countries actively participating in the GEOGLAM community

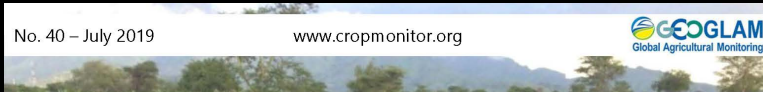
Crop Monitor: an international consensus assessment – June 28th



Crop condition and driver map synthesizing information for all four AMIS crops. **Crops that are in other than favourable conditions are displayed on the map with their crop symbol.** (Cropland area shown is an aggregation of all cropland areas) Becker-Reshef et al.

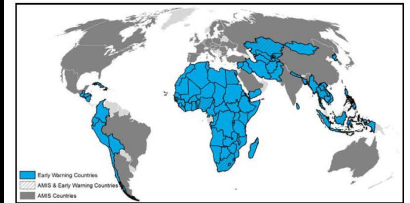
Crop Monitor for Early Warning

- Grew out of the success of the AMIS Crop Monitor
- Recognition even more pressing need for enhanced, reliable, vetted information on crop conditions within countries at risk
- Response to the Early Warning Community's request



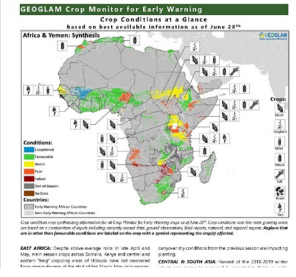
Overview:

In **East Africa**, production prospects are poor for main season cereals in parts of Somalia and Kenya due to a delayed onset of rains and dry conditions. In **West Africa**, main season maize planting continues across the south of the region and conditions are favourable with good rains received. In the **Middle East and North Africa**, winter wheat crops are generally favourable due to good rains throughout the season except in parts of Morocco where poor production has resulted from dry conditions, and in Syria and Iraq due to ongoing conflict. In **Southern Africa**, winter wheat planted in May is favourable, except in Zambia, where dry conditions have carried over from the previous season. In **Central and South Asia**, winter cereals for harvest in August are favourable despite some dry conditions in May. In **Southeast Asia**, harvest of dry-season rice is complete in the north and favourable yields resulted except in parts of Thailand and Philippines. Planting of wet-season rice is underway and conditions are favourable with good rains at the start of the season. In **Central America** and the **Caribbean** *primera* season planting started in May and there is some concern due to irregular rainfall and dry conditions.



Contents:

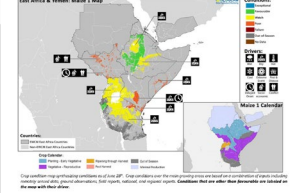
- Conditions at a Glance.....2
- Global Climate Outlook.....3
- East Africa & Yemen: Regional Climate Outlook3
- West Africa.....6
- Middle East & North Africa.....7
- Southern Africa.....8
- Central & South Asia9
- Southeast Asia.....10
- Central America & Caribbean: Regional Climate Outlook11
- Appendix – Terminology & Definitions.....13



Global Climate Outlook: Most if Africa conditions are good and favourable to continue.

Most if Africa conditions are good and favourable to continue. In the Northern Hemisphere, winter (NH) wheat for July is favourable and will continue to be so until the end of 2019. However, wheat in the Northern Hemisphere of South America, the Global Climate Outlook is mixed for the region. In the Middle East and North Africa, winter wheat crops are generally favourable due to good rains throughout the season except in parts of Morocco where poor production has resulted from dry conditions, and in Syria and Iraq due to ongoing conflict. In Southern Africa, winter wheat planted in May is favourable, except in Zambia, where dry conditions have carried over from the previous season. In Central and South Asia, winter cereals for harvest in August are favourable despite some dry conditions in May. In Southeast Asia, harvest of dry-season rice is complete in the north and favourable yields resulted except in parts of Thailand and Philippines. Planting of wet-season rice is underway and conditions are favourable with good rains at the start of the season. In Central America and the Caribbean, *primera* season planting started in May and there is some concern due to irregular rainfall and dry conditions.

Source: GEGLAM Global Climate Outlook



Central and southern parts of the subregion experience winter conditions ranging from mixed to mixed during the month of the month. In the Northern Hemisphere, winter (NH) wheat for July is favourable and will continue to be so until the end of 2019. However, wheat in the Northern Hemisphere of South America, the Global Climate Outlook is mixed for the region. In the Middle East and North Africa, winter wheat crops are generally favourable due to good rains throughout the season except in parts of Morocco where poor production has resulted from dry conditions, and in Syria and Iraq due to ongoing conflict. In Southern Africa, winter wheat planted in May is favourable, except in Zambia, where dry conditions have carried over from the previous season. In Central and South Asia, winter cereals for harvest in August are favourable despite some dry conditions in May. In Southeast Asia, harvest of dry-season rice is complete in the north and favourable yields resulted except in parts of Thailand and Philippines. Planting of wet-season rice is underway and conditions are favourable with good rains at the start of the season. In Central America and the Caribbean, *primera* season planting started in May and there is some concern due to irregular rainfall and dry conditions.

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Objective and Partners

- Exchange information, build consensus and reduce uncertainty in countries most vulnerable to food insecurity, to strengthen agricultural decision making
- Monthly publication, first bulletin published Feb 2016
 - Building on C4AMIS bulletin
 - 8 crops: main food security crops for each region
- Strong focus on continued expansion to regional networks, and national partners

Quality of the product depends on the inputs and commitment of the contributors

Early Warning partners



ICPAC
IGAD Climate Prediction
& Applications Centre



Applied • Geosolutions

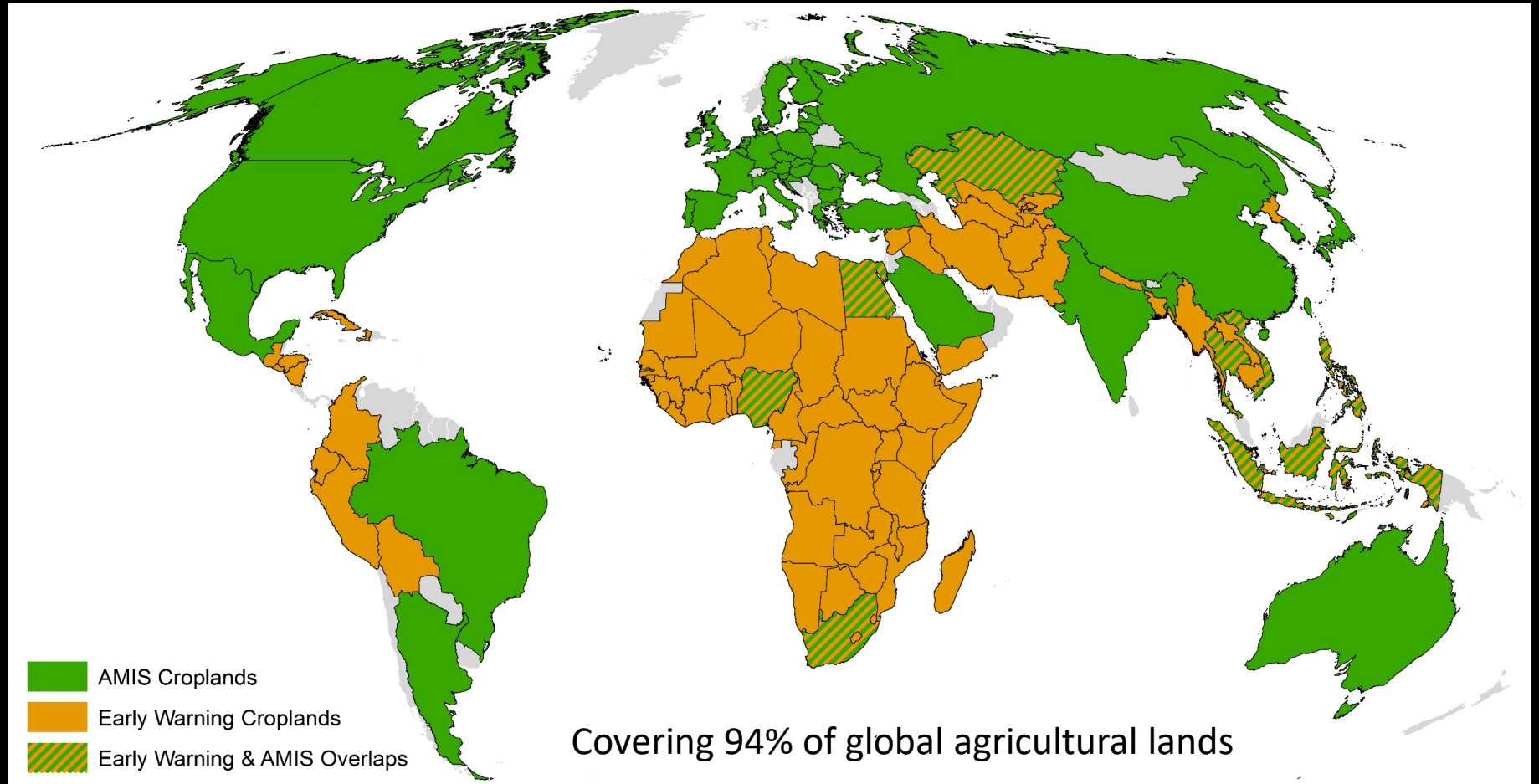


Agricultural Market
Information System



Climate
Hazards
Center
UC SANTA BARBARA

Countries Covered: AMIS vs. EW





Monthly Crop Monitor Process

- Partners submit crop condition information, data through Crop Assessment Tool
- Submitted crop conditions are compiled into summary and discrepancy maps and sent out for review
- Telecon held with all partners to discuss assessment and review discrepancies
- Bulletin compiled, reviewed and published on first Thursday of month
 - Released at same time as AMIS Market Monitor

Total process is about 10 days long

Crop Condition Reporting Interface



Dashboard

Map

Batch Assessments

Archive

Settings

Admin

Logout

Monthly Assessment

Crop

Maize 1

Assessment period

April 15 - May 14 (CURRENT)

Condition

Select a Condition

Trend

Select a Trend

Confidence

Select a Confidence Level

Provenance

Select a Provenance

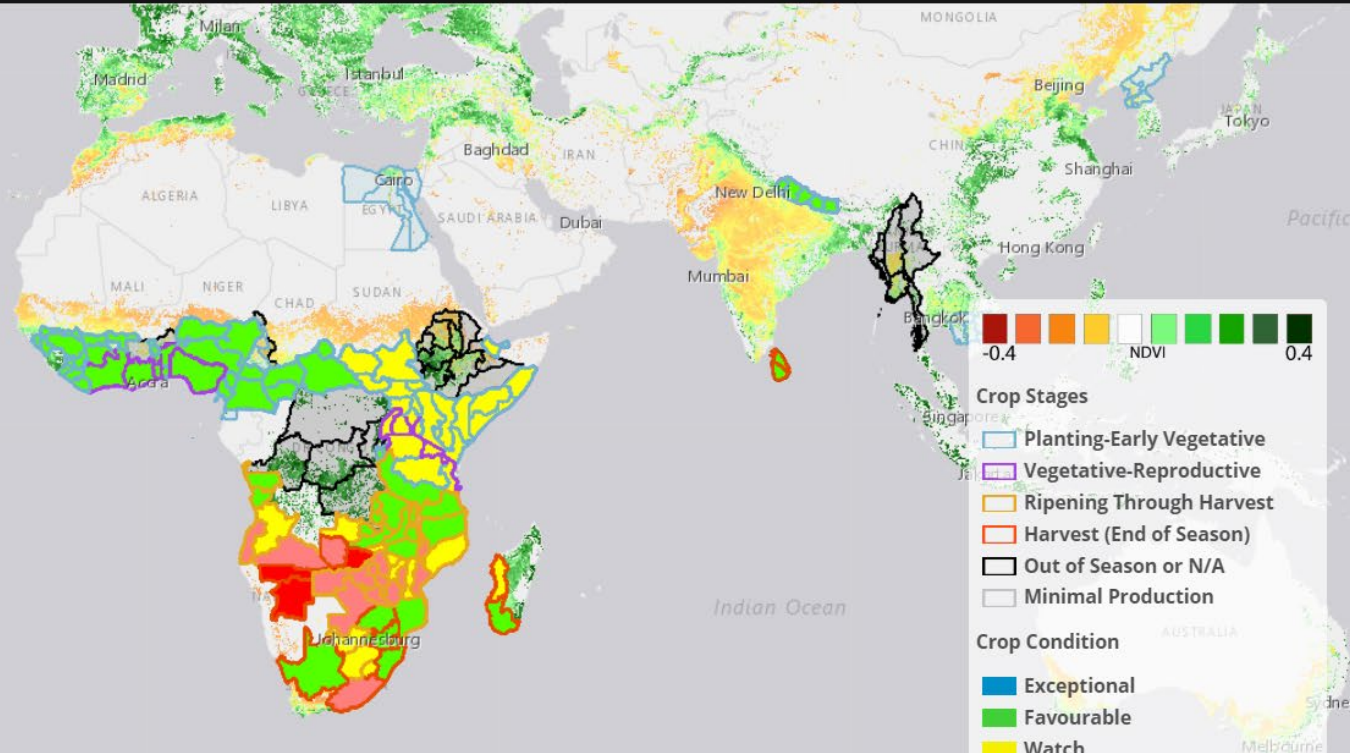
Observed Date

2019-05-08

Drivers

Wet

Dry



The reporting process is carried out globally every month on the web-based Crop Assessment Tool

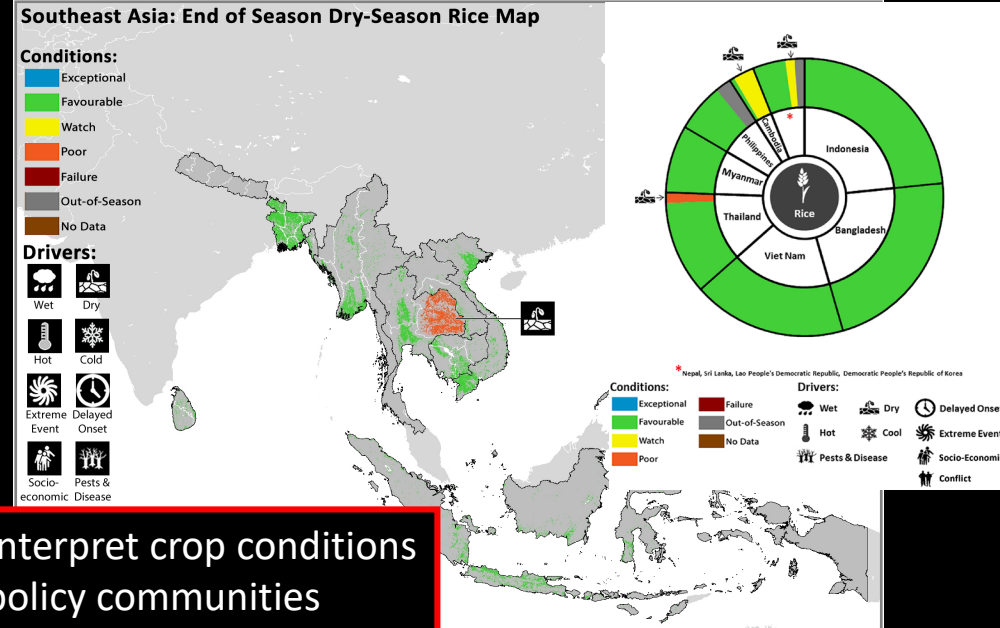
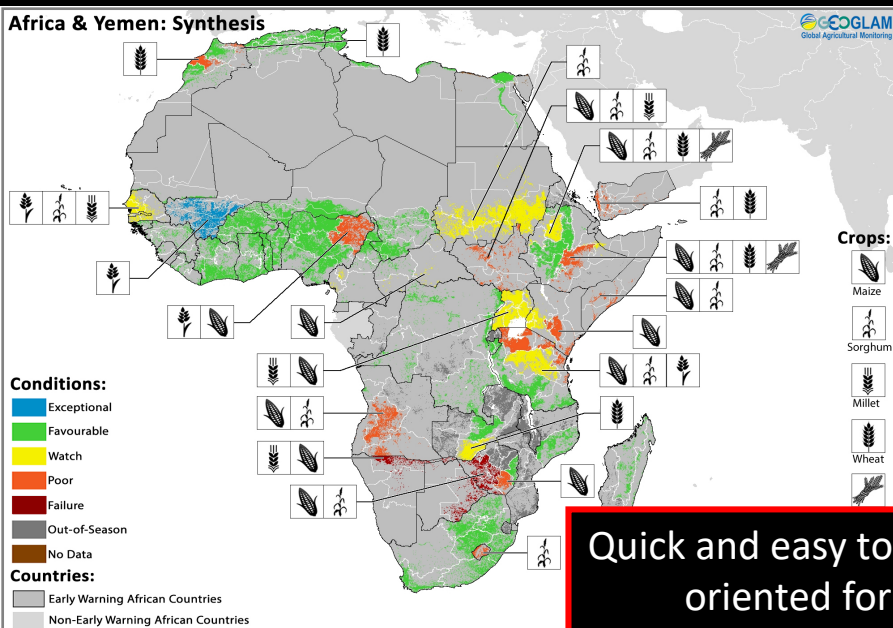


CM4EW Products

Crop specific & regional synthesis maps & pie charts

- Synthesis maps provide an overview of regional conditions
- Crop specific maps convey the drivers behind those conditions

Conditions as of June 28th 2018



Quick and easy to interpret crop conditions oriented for policy communities

CM4EW Climate Forecasts and Outlook

- Collaboration with UCSB Climate Hazards Center to produce:
 - Global Climate Outlooks (El Nino/La Nina)
 - Regional Short and Long-term Forecasts for at risk areas

Regional Outlook: Mixed rainfall across the Horn of Africa in July

For the first half of July, higher than normal rainfall is forecast for large areas of the region including in eastern Chad, western Sudan, South Sudan, some of Ethiopia's highland areas, Uganda, western Kenya, and northern DRC. Most of the western sector received highly above-average rainfall in June. Heavy rains and saturated soils could increase flooding and landslide risks. If the current two-week forecast were to materialize, season-to-date (from July 1st to July 15th) rainfall totals could be higher than average by 50 mm to 200+ mm in Uganda, South Sudan, and western Kenya, southwestern Ethiopia, and parts of southern Sudan (Figure 1-left). Surpluses like these would rank this period in 2019 as being one of the wettest of 1981-2018 in southern South Sudan, Uganda, and western Kenya.

In some northeastern areas of East Africa and in Yemen, models are indicating the potential for below-normal rainfall in July. The CFSv2 model forecast for July 2019 shows rainfall deficits in eastern Sudan, northern Ethiopia (excluding highland areas), Eritrea, and also western Yemen (Figure 1-right). The GEFS forecast for the first two weeks of July, released July 2nd, also indicates potential for below-normal July rainfall in this general area. These forecasts diverge to some extent on specific locations and intensity. From July 3rd to July 9th is a high likelihood of below-normal rainfall in parts of eastern Sudan, in Ethiopia near the Sudan border, and northeastern Ethiopia. At present, the forecast for July 10th to July 16th is comparatively less pessimistic.

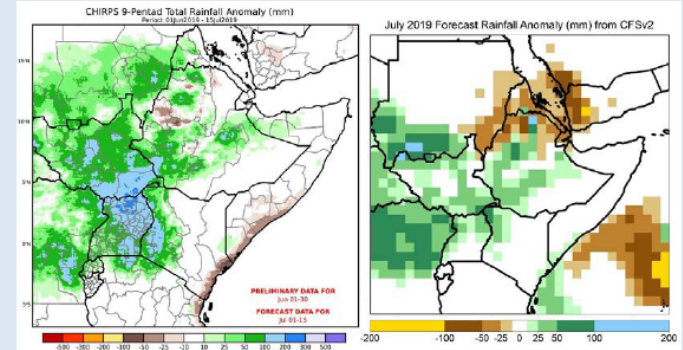


Figure 1. On the left, a preliminary estimate of June 1st through July 15th, 2019 rainfall in terms of the difference from the 1981 to 2018 average (Source: UCSB CHC). This Climate Hazards Center Early Estimate combines CHIRPS preliminary rainfall with an unbiased version of the 15-day GEFS ensemble mean forecast from July 1st. On the right, the July 2019 rainfall forecast issued on June 30th from the National Centers for Environmental Prediction (NCEP) coupled forecast system model version 2 (Source: NWS/NOAA/CPC). It shows the forecast monthly total in terms of the difference from the 1982 to 2010 average. Source: UCSB Climate Hazards Center

Global Climate Outlook: Weak El Niño conditions are present and forecast to continue.

Weak El Niño conditions are present and are forecast to continue through the Northern Hemisphere summer (58% chance July to September) and with lower odds for fall and winter (51-55% chance). Associated with this event are increased chance below normal July to September rainfall in the Maritime Continent, eastern Australia, Central America, the Caribbean, and northern South America. The Indian Ocean Dipole is forecast to be positive during July to November. Such conditions tend to reduce the influence of El Niño on Indian summer monsoon rainfall, enhance rainfall in parts of East Africa, and suppress rainfall in southern and central Australia.

Source: UCSB Climate Hazards Center

Press / Land & Agriculture

Dry and brown Southern Africa will need food aid

BY EMKO TERAZONO AND ANDREW ENGLAND, FEBRUARY 15 2016, 05:52

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Vegetation Status and Crop Production Perspectives



WFP VAM Report

Southern Africa Growing Season 2015-2016: A Season of Regional Drought

vam Food security analysis

FEWS NET

Southern Africa Special Report

Illustrating the extent and impact of drought

Monitoring the globe

A severe drought, related to El Niño, is ongoing across the region. This report presents a series of maps which illustrate the current lean season. While April/May harvests will provide some relief, the current and expected impacts on crop and rangeland conditions, food prices, and expected impacts on the population are severe.

FEWS NET Special Report

Already informing agricultural decisions

Southern Africa

Friday 25 March 2016 09:40

ANA

W

ARC, South Africa

FINANCIAL TIMES

MARKETS OPINION LIFE & ARTS PORTFOLIO

Financial Times

Southern Africa warned of severe food crisis

AFRICA Thursday 24 March 2016 - 4:04pm

The Family Food Security (FEWSNET) report for 2016-2017 drought which

In a new special report, FEWSNET expected for April/May, the

GEO Announces Launch of Early Warning Crop Monitor: A New Tool to Fight Food Insecurity

White Paper White Paper Reveals of Hidden Gains in Goodness Software

Agricultural Commodities + Follow

South African corn withers amid worst drought on record

Impact of extreme weather on food prices set to remain severe

Financial Times

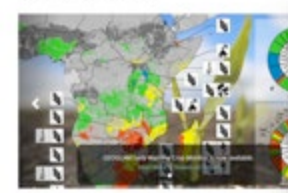
Humanitarian RESPONSE

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SOUTHERN AFRICA

United Nations Office for the Coordination of Humanitarian Affairs

OCHA



WFP World Food Programme

FEWS NET

European Commission

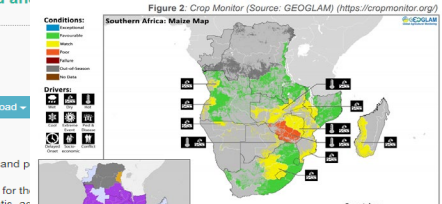
Food and Agriculture Organization of the United Nations

Joint Statement

El Niño Set to Have a Devastating Impact on Southern Africa's Harvests and Food Security

Special alert: Food and Nutrition Security Working Group, 8 February 2016

Figure 2. Crop Monitor (Source: GEOGLAM) (https://cropmonitor.org)



Conditions: Poor, Fair, Good, Very Good, Excellent

Drivers: El Niño, Drought, etc.

Highlights

- Erratic rainfall, high temperatures and poor soil fertility in Southern Africa.
- In the absence of consistent rains for the growing season, water supplies for domestic, agricultural and industrial use are likely to be severely constrained.
- Urgent action is required by member states to ensure that the available cereal production, ascertain the available cereal production, ascertain the available cereal production, ascertain the available cereal production.

Crop Monitor Impact – Southern Africa 2018

United Nations Office for the Coordination of Humanitarian Affairs



Figure 2: Crop Monitor (Source: GEOGLAM) (<https://cropmonitor.org/>)

Humanitarian RESPONSE

Search Southern Africa

OPERATION

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SOUTHERN AFRICA Contacts Events Documents Maps/Infographics

Special alert: Food and Nutrition Security Working Group,



Urgent Actions:

“There is urgent need for members states and development partners to determine the scale and extent of the possible impact of the prolonged dry spell on the agricultural season (crop and livestock) to inform appropriate response actions for food security and nutrition and build the resilience of vulnerable populations in the region. Recommended actions include increased monitoring of the situation, ascertaining available cereal stocks, fast-tracking of planned crop assessments and annual... off season production where possible.”

UNOCHA Request: Rapid Response mechanism for more detailed and frequent assessments

- These conditions are likely to produce in the 2018/19 cons
- Urgent action is required by production, ascertain the available cereal stocks and implications on food security and nutrition and livelihoods.

Application Date:
2018

CM4EW Rapid Response Reporting

- In-depth mid month updates on crop condition and impacts on agriculture
- Updated forecast, remote sensing analysis, market and price information, field reports
- March
 - Southern Africa summer cropping season forecast and updates
- April
 - Zambia crop failure and production highlight
 - US Spring/Summer flooding
 - Cyclone Idai flood extent and impact
 - Flooding in Iran and Iraq and agricultural impact
- June
 - East Africa 2019 cropping concerns

SPECIAL REPORT www.croponitor.org

Special Update: Flood Impacts in Iran and Iraq

Highlights:

- Heavy rainfall in the last two weeks of March led to severe flooding across much of Iran and Iraq, including the south of Iran, southern Iraq and a large extent of Iraq.
- Heavy rainfall continued into the start of April causing further flood extent in Iraq.
- Harvest of the 2019 winter barley is already underway, and what will be flooding is expected to have an impact on harvest activities and overall production.

In Iran, heavy rain starting on March 19th led to flash flood events across North Gilan, Mazandaran, Golestan, and Semnan provinces in the north of the country, resulting in deaths and severe infrastructure damage. Worst affected areas of 6 percent of average annual rain in the first 24 hours of the downpour. Average rainfall totals for the two days of at the height of the downpour were about recorded throughout the whole month. This followed an already very wet winter significantly above the 5-year average (Figure 2).

Heavy rainfall continued through the end of March and into the start of April and has with the worst affected areas over Lorestan, Chaharmahal and Chalus provinces. With flooding occurring in agricultural areas, some cropping areas were affected and (Figure 3). Damages in road infrastructure are likely to challenge internal movement.

Flooding in Iran: Agricultural Impacts

Figure 1: Recent flooding in Iran since March and its associated impact on agricultural areas. The main crop in the northern provinces (area 1) is rice, followed by wheat and barley. On the west (area 2), the main crop is sugar cane, and to a lesser extent wheat and barley.

SPECIAL REPORT www.croponitor.org

Start of U.S. 2019 Spring/Summer Season April 18th, 2019

Highlights:

- In mid-March a bomb cyclone, also called a "bomb cyclone", struck the U.S. Great Plains and Great Lakes region.
- The storm brought both large volumes of snow and rainfall to the region leading to flooding along many rivers and across frozen ground.
- The most notable flooding occurred in Nebraska. While large areas in northern Iowa and southern Minnesota experienced temporary field saturation.
- Sowing of maize, soybeans, and spring wheat have not yet begun or entered their most active periods in most of the main producing states, where the majority of fields are sown around late April and May.
- High soil moisture levels in many areas will benefit early development of spring/summer crops.
- Forecasts for the short term will benefit sowing activities, while over the next three months there will be a slight probability of increased rains in the U.S. Great Plains and Great Lakes region, benefiting early crop development.

In mid-March, a bomb cyclone, also called a bomb cyclone, struck the central plains and the U.S. Great Plains and Great Lakes region. A bomb cyclone (bomb cyclone) is when the barometric pressure drops by at least 24 millibars (measurement of air pressure) over 24 hours, which happens when a warm air mass collides with a cold air mass and starts moving in a cyclonic manner. These storms are associated with very strong winds and heavy rain and/or snow.

The bomb cyclone dropped heavy snow and rainfall atop of an already deep snow pack that then melted and was unable to infiltrate into the frozen ground. Excess of water then ran into the ice-covered rivers that were already at a high level due to the abundant rainfall last fall. River ice cover broke up and caused artificial damming, resulting in flooding along many rivers and across many low-lying areas where the frozen ground prevented the infiltration of the rainfall in the first place (Figure 1). Since then most of the

Figure 2: Bomb cyclone path through the Great Plains and Great Lakes region in March 2019.

SPECIAL REPORT www.croponitor.org

Production Highlight: Crop failure over the high southern Zambia

The main cropping season across southern Africa started with a late planted area in some of the key maize growing areas for the region Zambia. This was followed by several long dry spells that negative and most damaging of which lasted 4 to 6 weeks across many parts.

The high producing region of southern Zambia was at the epicenter of the 2019 rainfall dataset indicates that several districts in southern district season since at least 1981. These include districts that are top districts in the country (out of 75 districts). Southern Zambia as a re average NDVI, cumulative precipitation, and soil moisture through expected to be significantly below average across these areas, representative from IAPWS, Zambia Ministry of Fisheries and Livestock districts in southern and central Zambia. The team observed that southern Zambia, many seasoned farmers who had planted several enter crop this year, as large maize fields permanently wilted (e.g. 1 Given the high capital investment required for farming, the severe impact the capacity of these high-producing farmers to plant in assistance.

In addition to the direct impacts on farming, there are reports of dam ground water levels with implications not just for crops but also for years. Zambia is a surplus maize producer and an important net drought, national maize production is expected to be below average. Preliminary estimates for 2019 maize production are between 2- production is associated with declines in southern, western and together make up close to one-third of the national maize output (Z System). While production and carry-over stock may be sufficient to potential will most likely be affected. According to the latest FAO Analysis (FPMA) report, prices of maize in March were 60 percent h situation, together with a currency depreciation, corroborate the p conditions and below average production prospects across the re Cyclone Idai across neighboring countries, regional maize supply is

Figure 2: Maize fields in southern Zambia showing impacts from drought conditions through

Figure 3: Zambia, National average, retail, maize (white)

SPECIAL REPORT www.croponitor.org

Zimbabwe: Cyclone Idai brought torrential rain and heavy winds over the eastern province of Manicaland.

The following is a previously dry season with cumulative rainfall at 80 percent of the average and the heavy rain received from Idai resulted in riverine floods, flash floods and landslides over the most affected districts of Chimanimani and Chipinge. An estimated 270,000 people are in need of humanitarian assistance (UNOCHA). Prices of maize meal products, which rose sharply in February, were around 50 percent higher on a yearly basis, according to the latest GIEWS FPMA report¹. Several factors collaborate to this spike, such as volatile and weaker currency (which negatively impacted production and transportation costs) and crop stagnation, among others.

SPECIAL REPORT www.croponitor.org

Floods (FAO GIEWS). However, final production will depend on the full impact of the floods which is still being assessed.

Figure 2: Agro-climatic indicators over the current 2019 winter/summer season in Zimbabwe, June

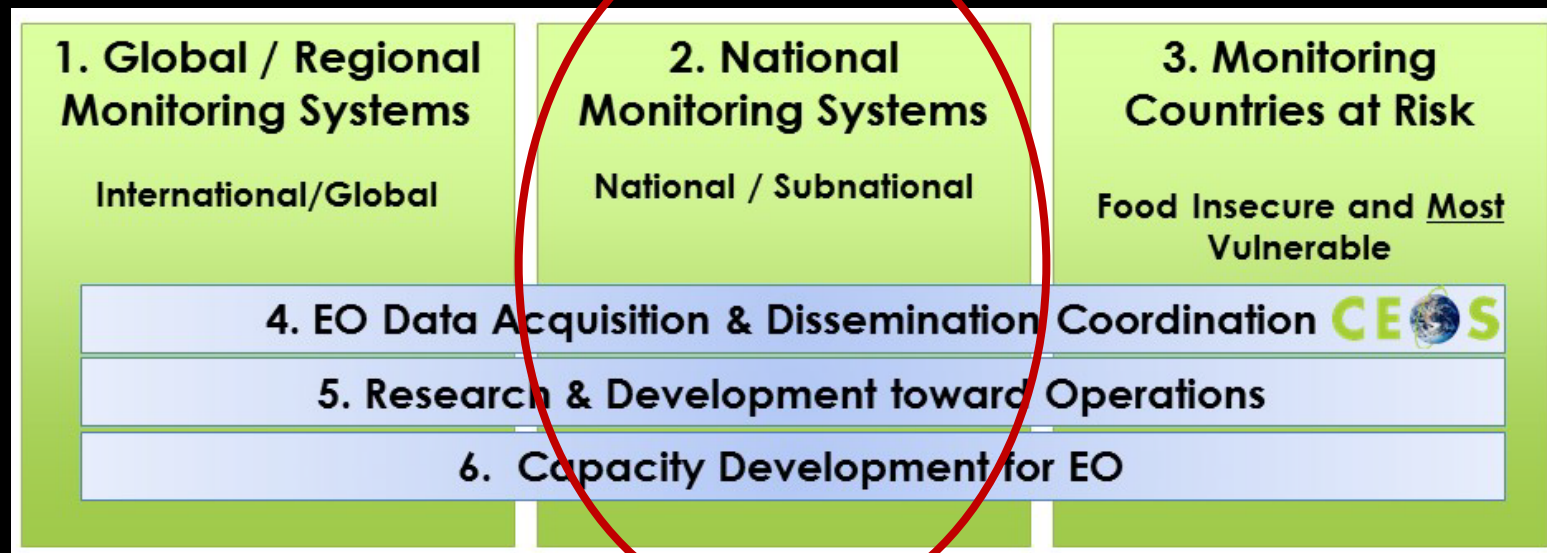


CM4EW Next Steps

- Continue Rapid Response reporting for more detailed and frequent updates
- Development of Rangelands component to CM4EW reporting
- Continued focus on strengthening regional & national partnerships & expanding participation
- Develop/enhance best available baseline products
 - Currently updating global crop masks
- R&D on crop condition indicators
- Expand stakeholder dialogue to enhance products and their utility



The GEOGLAM Components



Development of National Crop Monitors, Facilitating National Food Security Reports

Operational: Tanzania, Uganda, Kenya

In development: Rwanda, Mali, Vietnam

THE UNITED REPUBLIC OF TANZANIA
MINISTRY OF AGRICULTURE LIVESTOCK AND FISHERIES
NATIONAL FOOD SECURITY BULLETIN

Volume 7, 2016 | www.agriculture.go.tz | 31 July 2016

Crop Conditions

Fig.1 This crop condition map synthesizes information for all crops as of 31st July 2016. Crop conditions over the main growing areas are based on a combination of national and regional crop analyst inputs along with remote sensing data and rainfall data provided by the Tanzania Meteorological Agency.

MAIN HIGHLIGHTS

- Currently it is out of season therefore it is only cassava found in the fields other crops have been harvested and farmers are busy sheeling and storing their produce.
- The 2015/16 Preliminary Food Crop Production Forecast amounts 16,172,841 tonnes grain equivalent of which 9,457,108 tonnes constitute cereals and 6,715,733 tonnes comprise non-cereals.
- Requirement for 2016/17 marketing year amounts 13,159,326 tonnes of which cereals make up 8,355,767 tonnes and non-cereals constitute the rest, 4,803,559 tonnes.
- Based on these availability and requirement figures, a self-sufficiency status of 123% is attainable in terms of total food crops whereby cereals make up 113% and non-cereals make up 140%.
- In terms of pao/surplus analysis, this is respectively, 3,013,535 tonnes surplus of total food, of where cereal is 1,301,341 tonnes and non-cereal is 1,912,194 tonnes.
- At national level the upper end self-sufficiency is impressively evidenced by 11 regions that will definitely produce surplus, 12 regions will be definitely self-sufficient and 2 regions will be definitely deficit.
- Towards operational setting to curb food insecurity in the country vulnerable areas are well signposted in 43 districts in 15 regions out of the current total of 26 regions.

Contents

General crop conditions: 1
 National highlights: 1
 Remote sensing crop vegetation conditions: 2
 This bulletin's major highlights: 2
 Food production: 2
 National vulnerability: 2
 International: 2
 Mozambique: 2
 Terms and conditions: 2

BULLETIN TANZANIA - JULY 2016

MOHS 16 day NDVI for July 2016 as it compared to 2014 and 2015 and the longterm

MOHS 16 day NDVI for 27 July 2016 for Pwani Region as it used to 2014 and 2015 and 18 year mean.

versus Requirement and Gap/Surplus

| Cereals | 9,457,108 |
|--------------|-------------------|
| TOTAL | 16,172,841 |
| | 13,159,326 |

U - NIEWS
 The Official Government of Uganda Inter-Ministerial/Agencies
 Monthly National Integrated Multi-Hazard Early Warning Bulletin

Vol. 02 | 15th MARCH to 15th APRIL 2018 | Issue No. 17

CROP & PASTURE CONDITIONS MAP OF UGANDA

Crop and Pasture Conditions

Key to Conditions

1. Favourable Conditions: crops from slightly below to slightly above average. Conditions are not far from average, but there is a potential risk to production.

Drivers: No data, favourable, March

Conditions: No data, favourable, March

Early Warning for Regions: According to Uganda National Meteorological Authority (UNMA), by late February, rain had covered the entire country with the peak expected around mid to late April through early May in most of the regions. Land preparation and planting is ongoing in all regions except for some districts in Karamoja region where there is delayed planting.

West Nile: The region is under "favourable" pasture conditions with improving rainfall during the first ten days of March. Western: Pasture conditions in the region have improved to "favourable" due to increased rainfall in last two weeks of February with exception of northern parts of Bulira.

Maize: Maize fields (4) in Mwanera and 10 also affected Maize and Rice (and was reported during March

A Publication of the Office of the Prime Minister – Department of Relief, Disaster Preparedness and Management

U-NIEWS DISTRIBUTION

- 7,000 people by Email (Ministers, MP's, Ministries, technical offices...)
- 15 million phones; SMS
- 200 publications distributed to top leaders

Kenya

| Region | Bulletins | Deaths |
|--------|-----------|--------|
| Meru | 0.535 | 54 |

REGIONAL HAZARDS

1) (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100)

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RDS

1) (1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12) (13) (14) (15) (16) (17) (18) (19) (20) (21) (22) (23) (24) (25) (26) (27) (28) (29) (30) (31) (32) (33) (34) (35) (36) (37) (38) (39) (40) (41) (42) (43) (44) (45) (46) (47) (48) (49) (50) (51) (52) (53) (54) (55) (56) (57) (58) (59) (60) (61) (62) (63) (64) (65) (66) (67) (68) (69) (70) (71) (72) (73) (74) (75) (76) (77) (78) (79) (80) (81) (82) (83) (84) (85) (86) (87) (88) (89) (90) (91) (92) (93) (94) (95) (96) (97) (98) (99) (100)

Source: UNMA, 2016

A Publication of the Office of the Prime Minister – Department of Relief, Disaster Preparedness and Management

Replicable and scalable over other countries

National Food Security Bulletin, published by the Tanzania Ministry of Agriculture Food Security, National Food Security Division

The Inter-Ministerial/Agencies Monthly National Integrated Multi-Hazard Early Warning Bulletin, published by the Uganda Office of the Prime Minister

The Eastern Africa Crop Monitor, launched May 2018

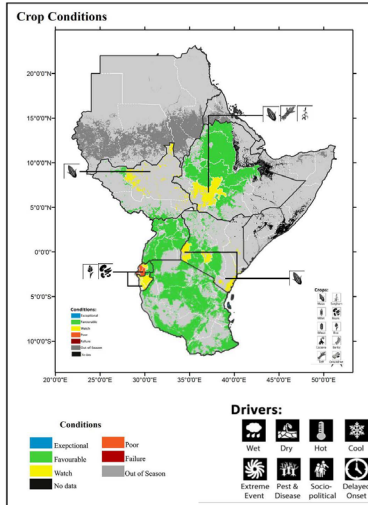
Replicable and adaptable at the regional scale

- IGAD Climate Prediction and Applications Centre (ICPAC) East Africa Crop Monitor
- Launched in Djibouti May 2018
- Published in The Greater Horn of Africa Climate Outlook Forum (GHACOF) Bulletin
- 19 analysts trained and 11 national focal points
- Strong regional support
- Eastern Africa Grain Council – key contributor

EASTERN AFRICA CROP MONITOR BULLETIN

Overview

- Eastern Africa has been experiencing average to above a favorable crop conditions.
- Watch conditions prevailed in Rwanda, Burundi for rice a season maize mostly due to water logging and flooding
- Poor conditions have been reported in Rwanda due to excess
- Prices of grain staples in the region were below the 5-year of adequate stocks. With inbound stocks from Tanzania a expected to decrease towards the end of quarter-2 of 20



Regional Crop Conditions | May 2018 | WWW.ICPAC.NET

Ethiopia | May 2018 | WWW.ICPAC.NET

Rwanda | May 2018 | WWW.ICPAC.NET

Kenya | May 2018 | WWW.ICPAC.NET

Uganda | May 2018 | WWW.ICPAC.NET

Tanzania | May 2018 | WWW.ICPAC.NET

Regional Summary: With most countries reporting average to above average yields, overall favorable crop conditions have been reported. Some areas under watch for wheat, maize, sorghum and rice are expected to be harvested in the next few weeks, which are the peak harvest periods. In the eastern part of the region, crop conditions are generally favorable to good. In the western part, crop conditions are generally average to good. In the southern part, crop conditions are generally average to good. In the northern part, crop conditions are generally average to good.

Ethiopia Summary: The eastern part of the region continued good, with average to good yields and above average yields. Overall, crop conditions are generally favorable to good. In the western part, crop conditions are generally average to good. In the southern part, crop conditions are generally average to good. In the northern part, crop conditions are generally average to good.

Rwanda Summary: Currently, crop conditions are generally average to good. In the western part, crop conditions are generally average to good. In the southern part, crop conditions are generally average to good. In the northern part, crop conditions are generally average to good.

Kenya Summary: During the month of April, most of the area in the country continued to receive adequate rainfall with some areas receiving surplus rainfall. The prevailing conditions are generally favorable to good. In the western part, crop conditions are generally average to good. In the southern part, crop conditions are generally average to good. In the northern part, crop conditions are generally average to good.

Uganda Summary: Maize and beans are favorable in the eastern part of the region. In the western part, crop conditions are generally average to good. In the southern part, crop conditions are generally average to good. In the northern part, crop conditions are generally average to good.

Tanzania Summary: Most areas in the region are generally average to good. In the western part, crop conditions are generally average to good. In the southern part, crop conditions are generally average to good. In the northern part, crop conditions are generally average to good.



What is the real need?

Actions in advance of crisis

Kenya Example: better information informing decisions - 2019 main cropping season

Kenya National Crop Monitor

CM4EW

Release of emergency grains early in the season by the Min. of Ag

National crop conditions bulletin-March 2019

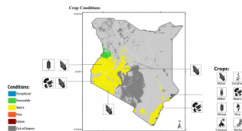
April 10, 2019 / in Uncategorized / by Charles Njehu

Late onset of the 2019 long rains and prevailing dry conditions affected the early planted crop resulting in water stress and wilting being observed in most parts of the country

Planting in the Central ,coastal ,lower eastern region is expected to commence once the long rains commence in April

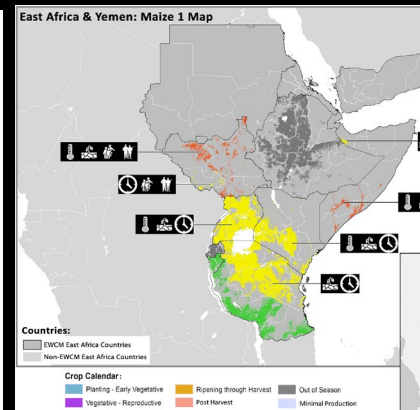
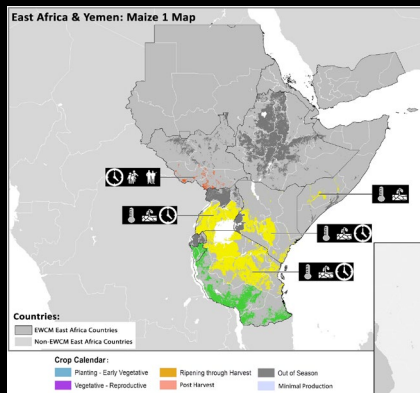
Fall army Worm infestation were observed in Kisii and Nyamira. In West Pokot infestation of the Fall Army Worm in the irrigated areas which was observed in February has been contained.

Prices of maize, beans and wheat remained stable, with a slight increase observed in selected markets.



National Crop Conditions Bulletin_March 2019

March



ECONOMY

Maize prices fall after release of emergency grains

SUNDAY, MAY 12, 2019 22:00

May 12th, Business Insider



Workers harvest maize in Uasin Gishu. FILE PHOTO | NMG



Maize prices have started declining following the government decision to release three million bags from the strategic food reserves to ease the grains shortage and curb rising flour prices.

National Crop Conditions Bulletin -April 2019

May 8, 2019 / in Uncategorized / by Charles Njehu

Key messages

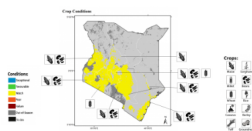
Late onset, poor distribution and erratic patterns of the 2019 long rains affected the early planted crop resulting in water stress, wilting and poor germination in most parts of the country.

Planting was delayed in some parts of the country and this is expected to cause a reduction in total production.

With the onset of the rains late in April, planting and replanting is expected to begin and continue in May.

Fall army Worm infestation were observed Narok, Laikipia, West Pokot, Trans Nzoia and Elgeyo Marakwet

Notable increase in the prices of maize, beans and wheat was observed in selected markets.



National crop bulletin April 2019

April

<http://www.kilimo.go.ke>

<https://cropmonitor.org>

Early in the season is key!



June Special Report: East Africa main season cropping concerns – summarizing season before harvest

SPECIAL REPORT

East Africa 2019 cropping concerns

Highlights:

- Central and southern parts of East experienced weather conditions among the on record during the onset of the March-May season up to mid-April (Figure 1).
- Severe dryness caused substantial planting concerns across Somalia, Kenya, Uganda, and in receiving areas in central and eastern Ethiopia.
- Southeastern and coastal Kenya, and southern Somalia, have experienced some of the most substantial rainfall on record.
- Above-average rainfall in early May in Kenya late April to early June in Somalia may have improved vegetation conditions, but damage to early and mid-season dryness was irreversible across eastern Kenya and southern Somalia. However, recent rains may have helped off-season crop development in riverine areas.
- Crop production is expected to be 40-50% below average in Somalia and southeastern coastal marginal agriculture areas of Kenya.
- This will result in the second consecutive year with a below-average crop output. Food insecurity is increasing concern.

Season Progress to Date:

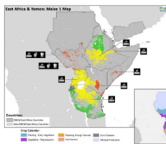
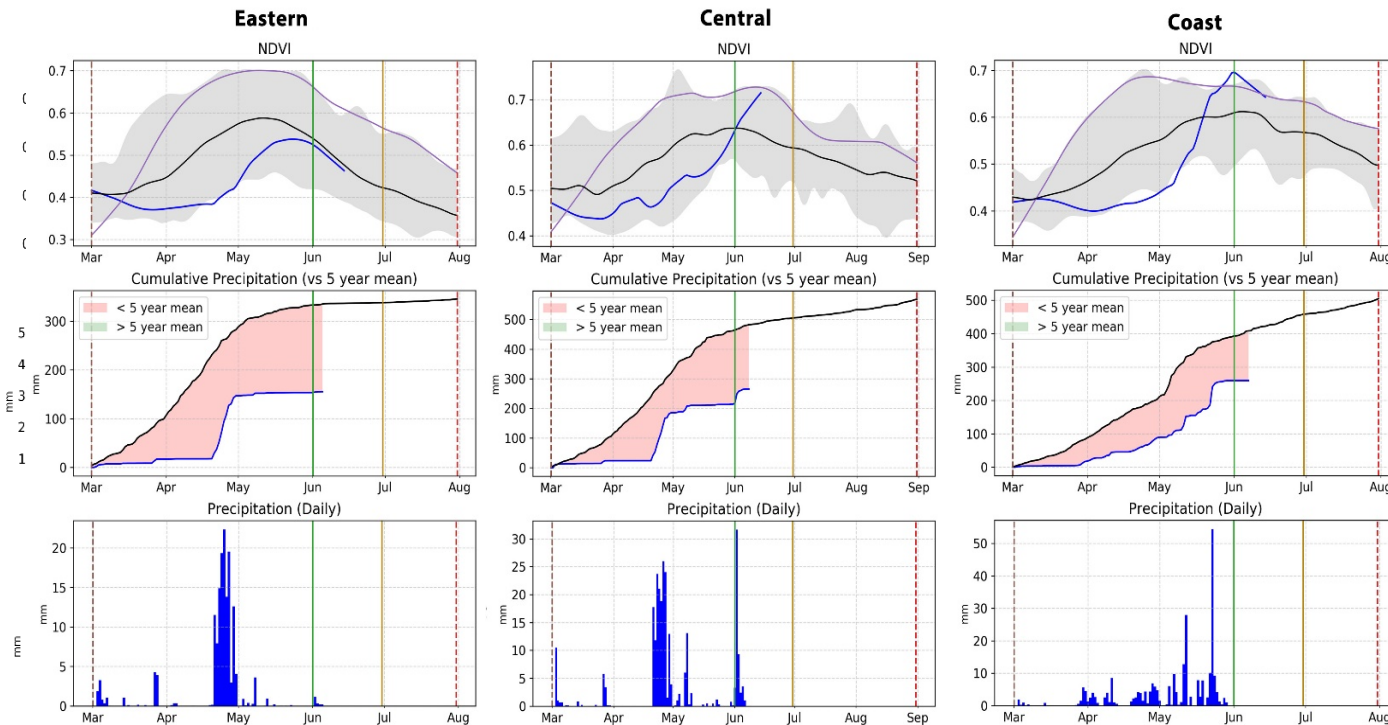


Figure 2. Crop condition map synthesizing conditions as of June from the June CHMIS bulletins. Crop conditions over growing areas are based on a combination of high-resolution satellite data, ground observations, field reports and regional experts (source: CHMIS June Bulletin).

The Crop Monitor 6.0.2

2019 Kenya Long Rains Maize Season

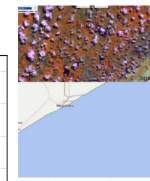


- Legend**
- 2019
 - 2018
 - 5 year Mean
 - 10 year Min/Max
 - Planting
 - Greenup
 - Senescence
 - Harvest

Data Sources

- NDVI: UMD GLAM system
 - Temperature: NOAA CPC
 - Precipitation: CHIRPS
 - Evaporative Stress Index: NASA ESI
 - Soil Moisture: SMAP
 - Growing degree days: NOAA CPC temperature
- Crop growth stage dates are based on the 5 year average GEOGLAM best available crop calendars

monitor.org
 GEOGLAM
 Global Agricultural Monitoring



Top areas in Somalia, Lower Shabelle province close to Meriis in well and bare or sparsely vegetated soil in green. The image is the same view of the year in 2018 (a very good crop season)

The two-week weather forecast, as of June 17th, indicates above average rainfall in western Ethiopia, western Ethiopia, parts of eastern Sudan, central and southern South Sudan, much of Uganda, and parts of western Kenya. Most of the eastern Horn has been dry since early June and no substantial rains are forecast, signaling the end of the March/April to May/June season in those areas. In the western sector this wet two-week forecast is consistent with a wet pattern during the past several weeks. Figure 7 shows the current expectation for rainfall totals (the difference from average) from mid-May to the end of June, based on the forecast and available rainfall estimates.

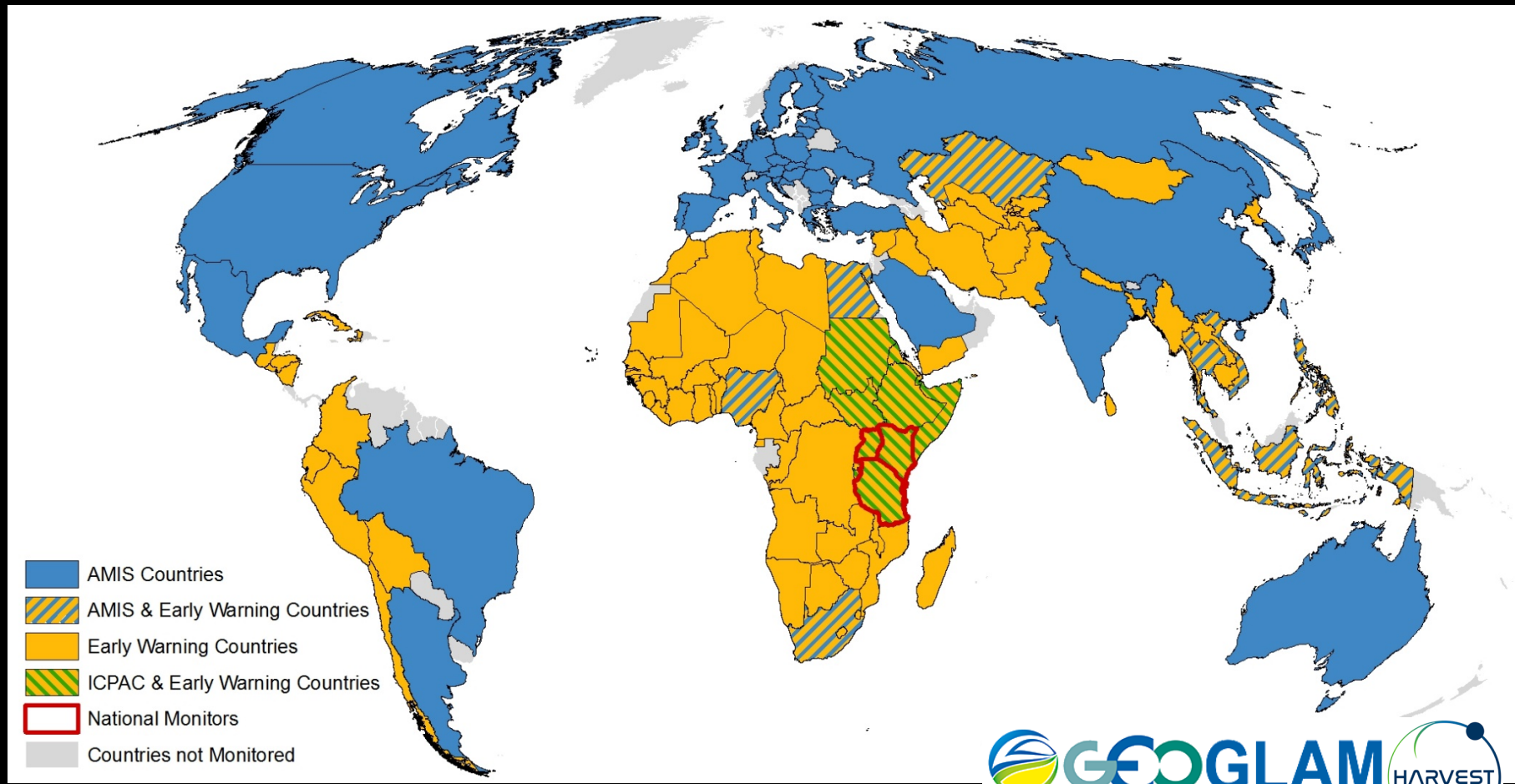
The Indian Ocean Dipole is expected to be in a positive mode through October, based on recent observations and forecasts. Associated warm ocean temperatures in the tropical western Indian Ocean may be conducive for above average rainfall in East Africa. The latest North American Multi-Model Ensemble seasonal forecast shows model agreement as to moderately higher than normal chances for above normal rainfall in parts of Sudan, South Sudan, Ethiopia, Uganda, and Kenya. However, there is substantial uncertainty at this point as to how July to September rains will perform. Thus far in June the TCZ has been farther north than usual and has helped avert early onset of seasonal rains in the northern sector.

U.S. Global Initiative
 GEOGLAM
 Global Agricultural Monitoring

Targeti

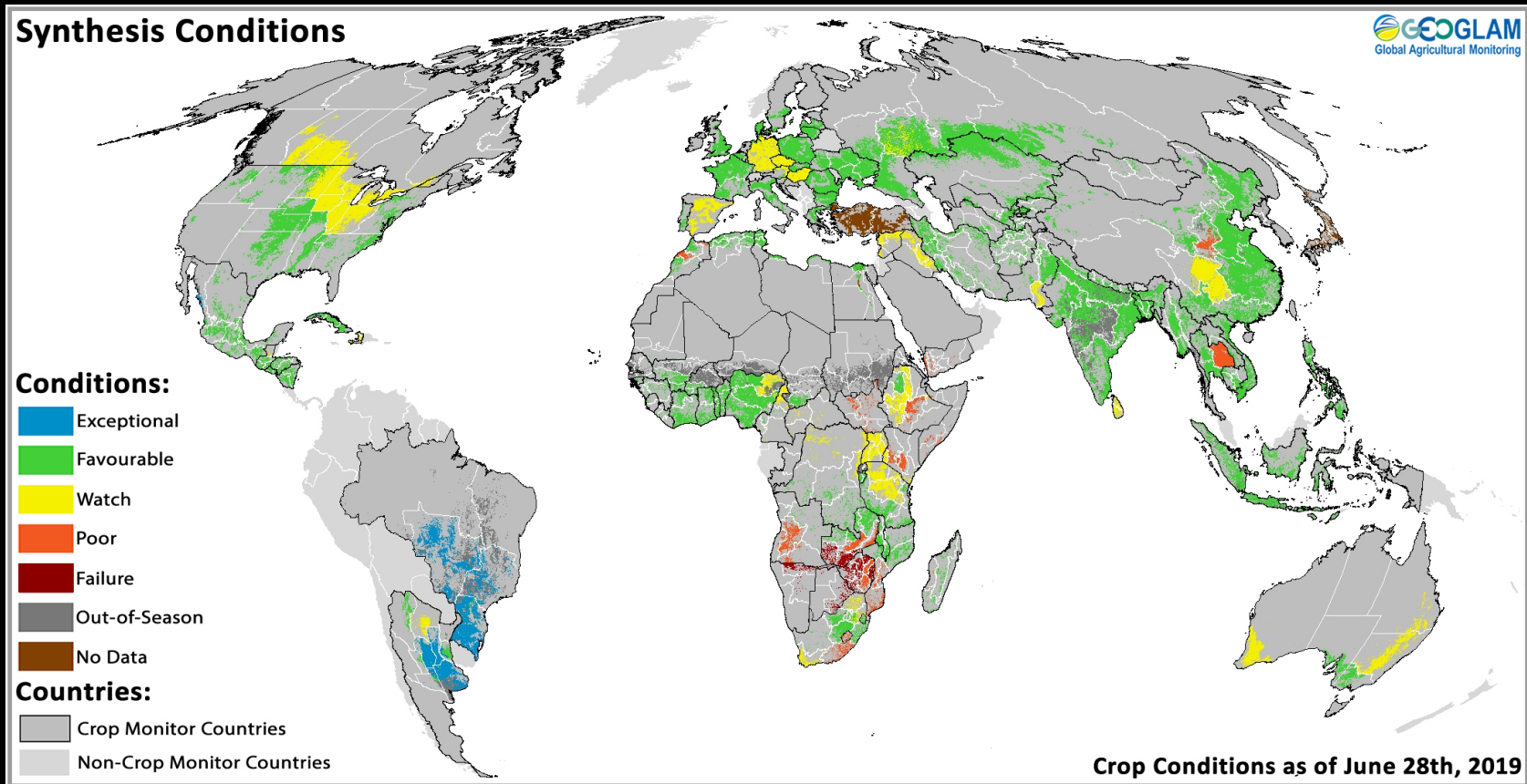
season

Crop Monitor coverage



GEOGLAM Global Crop Monitor – June 2019

Consensus crop conditions covering 94% of all global agricultural lands



Crop condition map synthesizing information over all Crop Monitor for AMIS and Crop Monitor for Early Warning crops as of June 28th 2019 (Cropland area shown is an aggregation of all cropland areas).



GEOGLAM Crop Monitor

- GEOGLAM Crop Monitor provides a public good: open, timely, science-driven, actionable information on crop conditions
- Proven effective & scalable mechanism for coordination of crop assessments
- First time the International and Early Warning communities have come together on a monthly basis
 - to produce joint assessments that reflect a consensus
- End user driven with strong community & high level support
 - Bridging the gap between the policy and EO communities
- Increasing communication and knowledge transfer amongst national, regional & international organizations
 - Thereby strengthening national monitoring systems
- Internationally recognized as a highly valuable source of information
 - Already informing decisions

Drought And Starvation Should Trump Other Perceptions Of The Migrant Caravan

Marshall Shepherd Senior Contributor @ Science



ICPAC signs an MOU with NASA Harvest

Kenya's first National Crop Monitor strengthen food security

By News Desk - 08/14/2018

REPORT from Intergovernmental Authority on Development

Published on 09 Jul 2019 — View Original



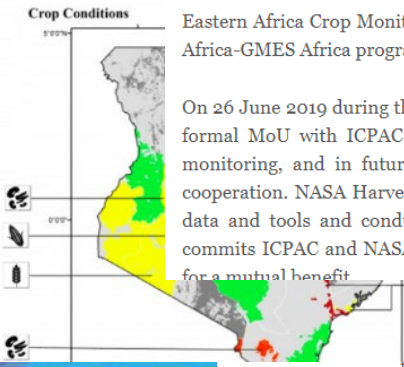
Webinar on Wednesday, Aug 14, 2019
LaserGIS Asset Data Collection in GNSS Impaired Environment

IGAD Climate Prediction and Applications Centre-ICPAC has been deliberate on the organization's goal of early warning information for early action. Agriculture and Food Security is now a sector priority area in the Greater Horn of Africa based on IGAD assessment of the region. For this end, ICPAC has now formalized her partnership with NASA Harvest.

NASA Harvest is a new, multidisciplinary Consortium commissioned by NASA and led by the University of Maryland to enhance the use of satellite data in decision making related to food security and agriculture both in the US and worldwide. ICPAC has been engaging in seasonal agriculture monitoring and early warning in the outfit of Eastern Africa Crop Monitor supported by NASA Harvest and Global Monitoring for Environment and Security and Africa-GMES Africa programme.

On 26 June 2019 during the NASA Harvest Conference in Washington DC, the University of Maryland-USA signed a formal MoU with ICPAC to support and collaborate in the thematic application areas of agriculture and crop monitoring, and in future atmospheric monitoring. The MoU is aimed at formal recognition of the technical cooperation. NASA Harvest choose ICPAC as global example of an institution that utilizes Earth Observation (EO) data and tools and conducts research activities and also as a regional policy organization of IGAD. The MoU commits ICPAC and NASA Harvest (represented by University of Maryland) to closer working in applied research for a mutual benefit.

The map below above shows a satellite-derived product called Normal Difference Vegetation Index (NDVI) anomalies. It uses visible and near infrared light detected by the satellites to assess crop conditions. In the NDVI from June to August 2018 is compared to the long-term average the 13-year period 2000 to 2013. There is a lot of "brown," which indicates conditions are lower than average in the regions that many have fled.



Office of the Pr Uganda

019





Thank you

www.cropmonitor.org

@GEOCropMonitor

Contact: [Christina Justice, justice@geoglam.org](mailto:justice@geoglam.org)