

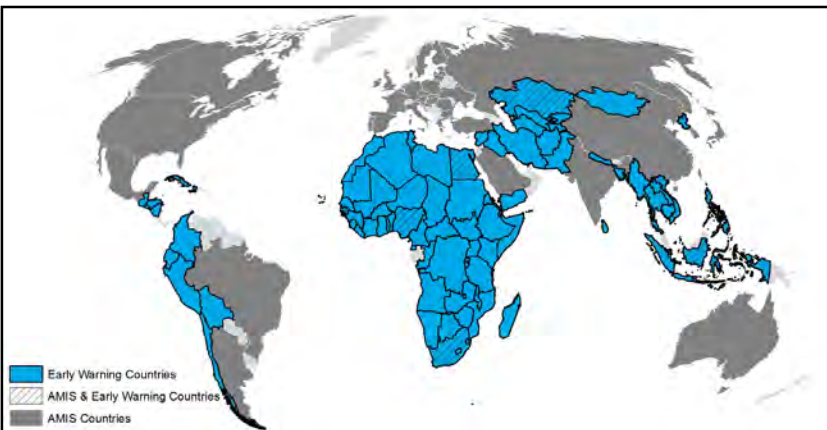


Crop Monitor

EARLY WARNING

Overview:

In **East Africa**, heavy rainfall continued in May, benefiting crop development for main season cereals but causing further flooding and desert locust development. In **West Africa**, conditions are favourable for main season maize across the south of the region and planting of main season cereals started in May in parts of the Sahel under favourable conditions. In **North Africa**, harvest of winter wheat crops is complete or nearing completion and production prospects are below-average in Morocco and parts of Algeria and Tunisia due to lack of precipitation and above-average temperatures. In the **Middle East**, harvest is underway for winter wheat crops and conditions are generally favourable except in areas affected by conflict. In **Southern Africa**, harvest of main season maize is complete and average yields resulted across much of the region due to rainfall improvements following a delayed and below-average start to the season, except in Zimbabwe, southern Mozambique, and southern Madagascar where below-average yields resulted. In **Central and South Asia**, planting of spring wheat continued in May under favourable conditions and winter wheat harvesting is expected to begin in June under favourable conditions. In northern **Southeast Asia**, harvest is complete or nearing completion for dry-season rice, and final yields are expected to be poor due to below-average precipitation received throughout the growing season and a shortage of irrigation water. In **Central America and the Caribbean**, recent rainfall benefitted planting activities for *Primera* season cereals; however, there are some areas of concern in northern Honduras and Nicaragua where irregular rains have delayed the start of the season.



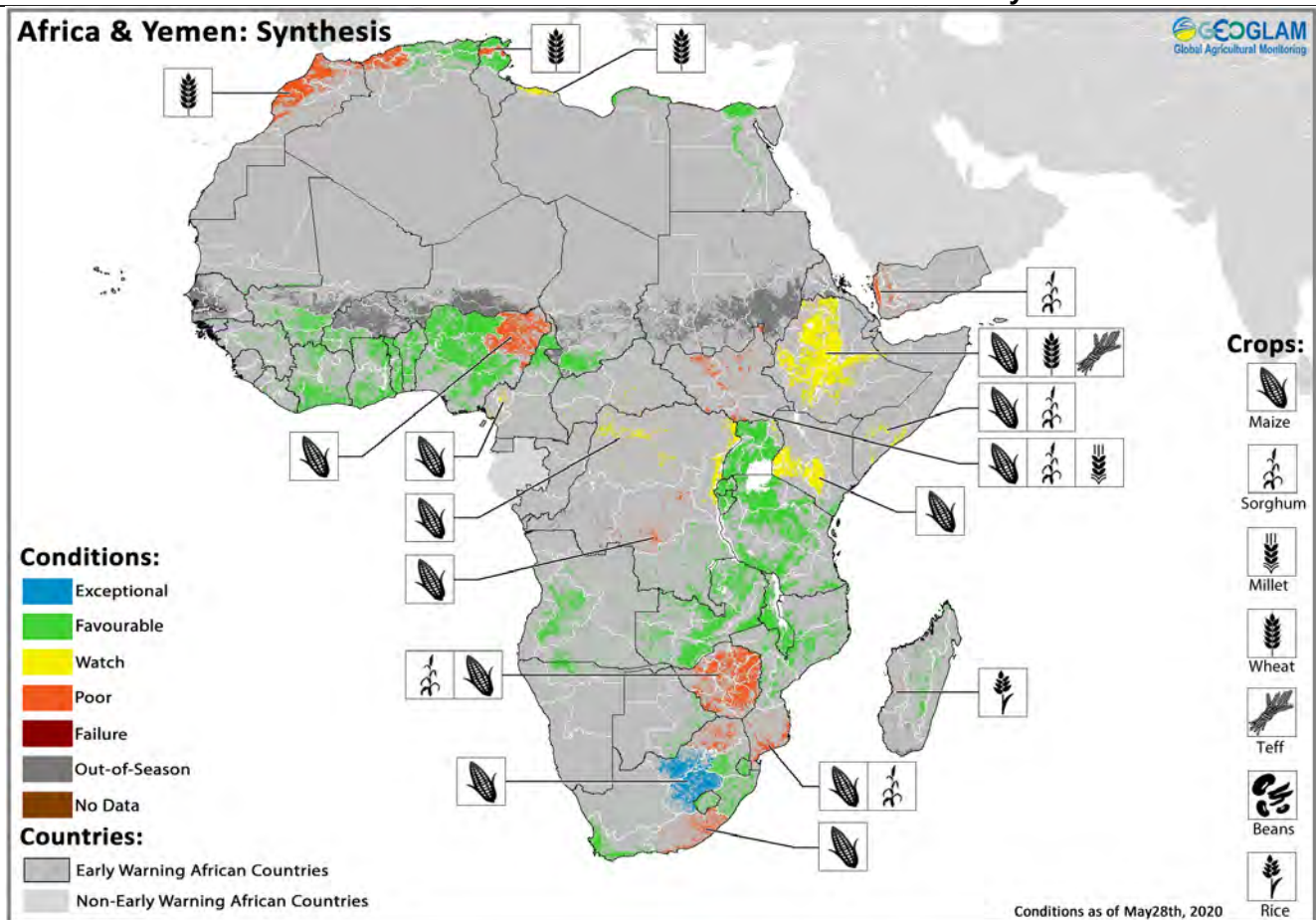
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GEOGLAM Crop Monitor for Early Warning

Crop Conditions at a Glance

based on best available information as of May 28th



Crop condition map synthesizing information for all Crop Monitor for Early Warning crops as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Regions that are in other than favourable conditions are labeled on the map with a symbol representing the crop(s) affected.**

EAST AFRICA: The March to May (MAM) rainfall season was one of the wettest on record, benefiting the development of main season crops in many areas but also resulting in riverine and flash flooding. Abundant rains have further protracted the desert locust outbreak, which remains a concern across the region. Harvest is complete for main season cereals across southern Tanzania and final yields were favourable while in Ethiopia, harvest will start next month for the secondary *Belg* season and production prospects are below-average due to reduced planted area and desert locust impacts.

WEST AFRICA: Across the south of the region, planting activities for main season maize are continuing under favourable conditions and planting of main season cereals in southern parts of the Sahel started with a timely onset of the seasonal rains in May. Forecasts indicate above-average seasonal rains will continue across the Sahel; however, there is some risk of desert locust invasion from East Africa and the Arabian Peninsula.

MIDDLE EAST & NORTH AFRICA: In North Africa, harvest continues for winter wheat crops and production prospects are below-average in Morocco and parts of Algeria and Tunisia due to lack of precipitation and above-average temperatures. In the Middle East, harvest is underway for winter wheat crops and conditions are generally favourable except in Syria and Iraq

where conflict and socio-economic concerns continue to impact agricultural activities.

SOUTHERN AFRICA: Harvest is complete for main season maize crops and average yields resulted across much of the region due to rainfall improvements following a delayed and below-average start to the season. However, below-average yields are expected in Zimbabwe, southern Madagascar, and southern Mozambique due to damage from early season dryness followed by dry spells, which resulted in crop wilting.

CENTRAL & SOUTH ASIA: Planting of spring wheat began in April under favourable conditions, and harvesting of winter wheat will begin in June.

SOUTHEAST ASIA: In the north, harvest is nearing completion for dry-season rice and final yields are expected to be poor due to below-average precipitation received throughout the growing season and a shortage of irrigation water. In Indonesia, harvest is nearing completion for wet-season rice and planting activities for dry-season rice are likely to be delayed.

CENTRAL AMERICA & CARIBBEAN: Increased rainfall in May benefitted planting activities for *Primera* season cereals except in areas where below-average and hot temperatures persisted. Torrential rainfall in the main producing southwestern region could disrupt planting operations.

Alert: COVID-19 continues to pose a threat to global food security

The COVID-19 pandemic continues to pose a critical threat to food security with the largest impacts foreseen among already vulnerable populations. The scale and severity of global food insecurity has increased due in large part to the measures taken to stem the spread of the virus through quarantine and movement restrictions which have, in turn, restricted access to income-earning activities, resulting in negative impacts on poor households and their ability to purchase food. Areas of particular concern are those where the food security situation is already critical due to the impact of shocks including conflict, floods, and the current desert locust outbreak. Also, urban areas where poor households mainly rely on the daily wages obtained through casual labour, petty trading, food vending, construction activities, and domestic work are severely affected by the restrictive measures. Some countries eased containment measures over the past month; however, many restrictions remain in place which continue to limit household income and food access along with the broader economic contraction.

While global supply chains continue to operate at near-normal levels and food markets remain well balanced, localized disruptions and price fluctuations are adversely impacting food markets in several countries and impacting food access for the most vulnerable populations. For more economically vulnerable countries, movement restrictions and quarantine measures are hindering food logistics, disrupting food transport and cross-border trade, limiting market access, and impacting supply chains with varying effects on the availability and prices of food and agricultural inputs. Countries continue to make efforts to support the flow of these goods both internally and externally.

COVID-19 restrictions have also disrupted agricultural production in some areas through labour supply shortages and are impeding farmers' access to seeds and other inputs, which could result in declines in planted area and yields. Field surveys and assessments, which are important information for food market functioning and efficiency and help to inform humanitarian interventions, have been impeded or halted in some areas where movement restrictions are preventing access. This introduces some uncertainty in overall market conditions.

The GEOGLAM Crop Monitor community will be monitoring crop conditions with a view to providing sufficient early warning to allow for appropriate actions in case of any production shortfalls that could further aggravate the prevailing difficult situations in many countries.

Resources: <https://fscluster.org/coronavirus>; <http://www.fao.org/2019-ncov/en/>; <https://fews.net/> <https://www.ifpri.org/covid-19>; <https://insight.wfp.org/covid-19/home>

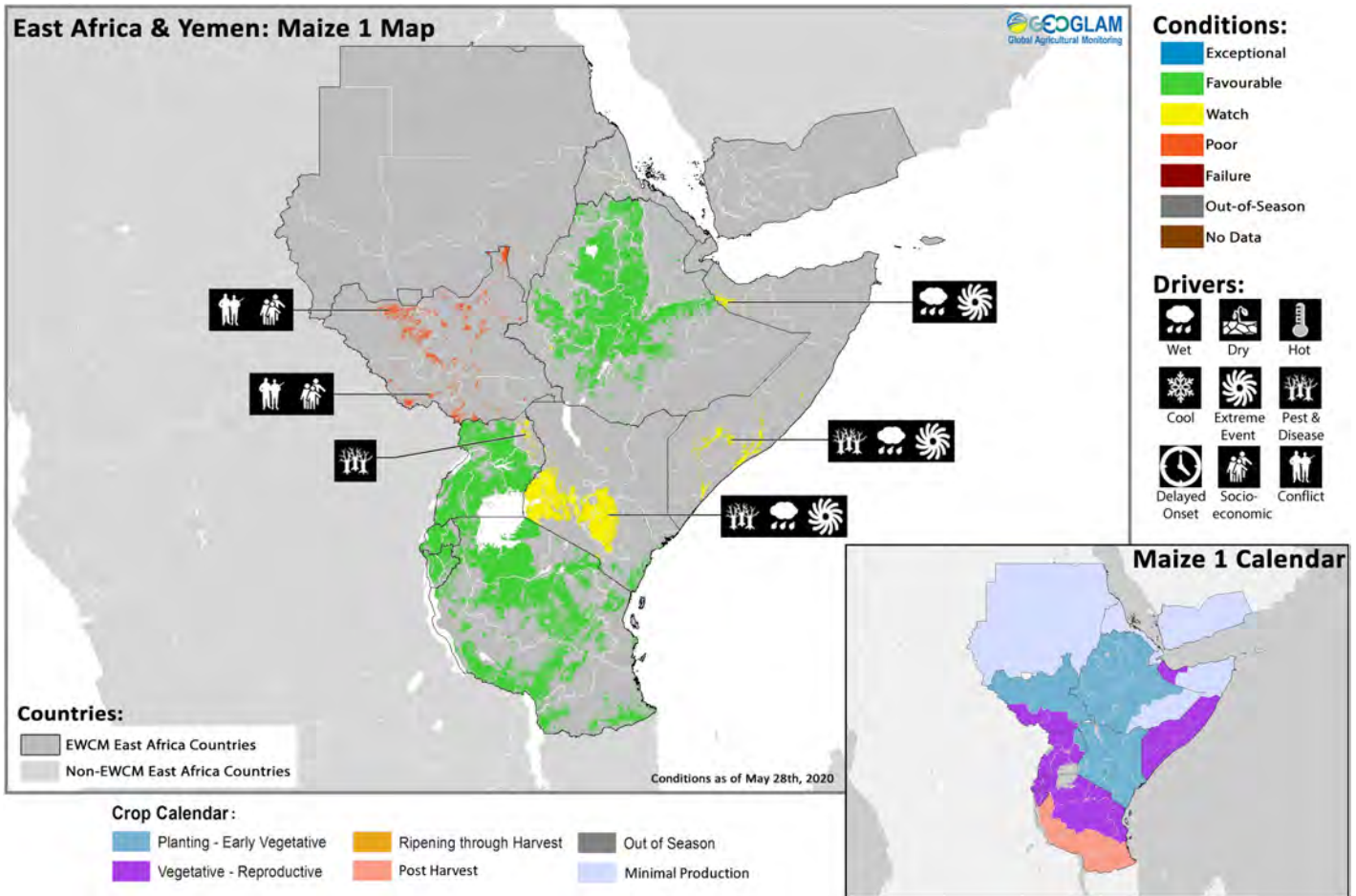
Global Climate Outlook: ENSO neutral conditions likely to continue through Summer 2020

El Niño-Southern Oscillation (ENSO) is currently neutral and is expected to remain so through the northern hemisphere summer. By the end of the year (October – December), there are equal chances of either remaining neutral or La Niña conditions. La Niña conditions during October-December typically reduce rainfall in East Africa, Central Southwest Asia, southern Brazil, and central Argentina, and increase rainfall in Southern Africa, Australia, and eastern Brazil.

Recent assessments by the Climate Hazards Center (blog [here](#)) and the FEWS NET Food Security Outlook team, point out that October-November-December (OND) sea surface temperature and rainfall forecasts indicate conditions conducive to below-normal OND East African rains. While La Niña conditions tend to produce dry outcomes in East Africa, it will not necessarily result in an East African drought. The overall structure of the predicted OND sea surface temperatures resemble some prior drought years, and could result in a poor short rainy season in East Africa, exacerbating an already difficult food security situation.

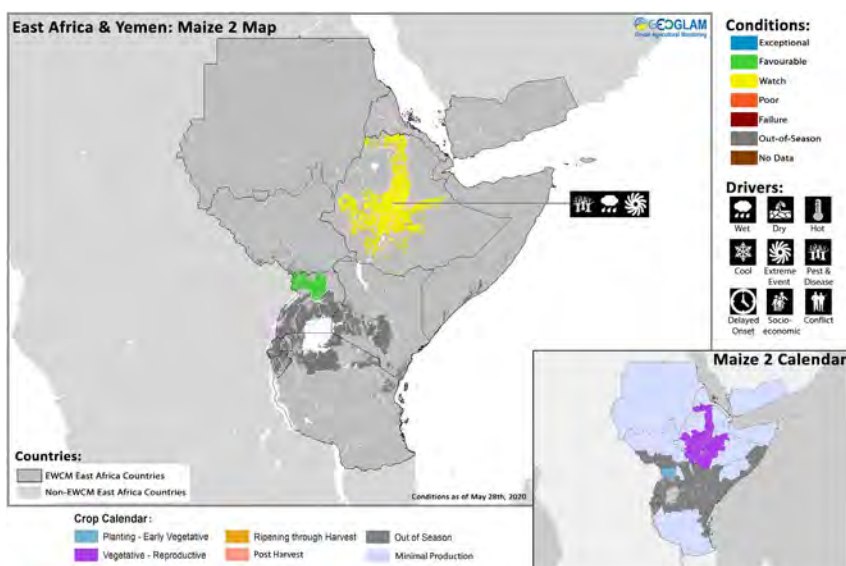
Source: UCSB Climate Hazards Center

East Africa & Yemen



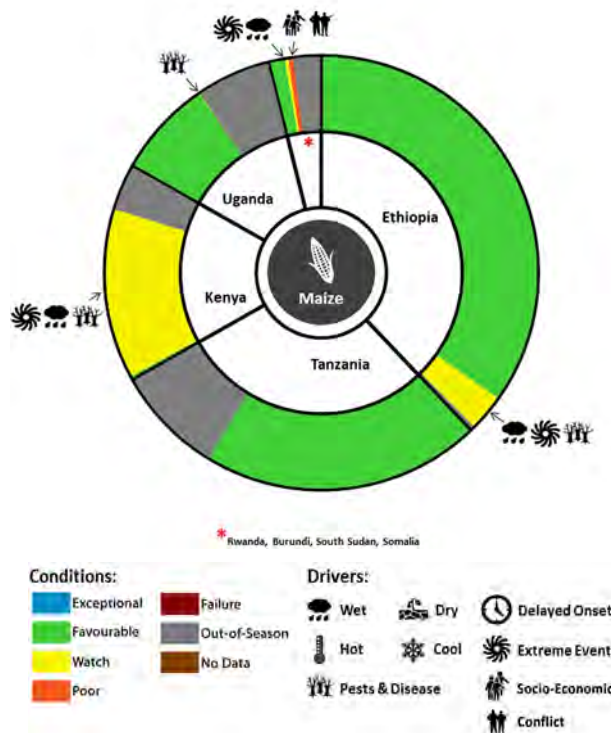
Crop condition map synthesizing Maize 1 conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable are labeled on the map with their driver.**

In East Africa, the March to May (MAM) rainfall season was one of the wettest on record, benefiting the development of main season crops in many areas but also resulting in riverine and flash flooding. In May, flooding resulted in **Uganda, Burundi, Rwanda,** western and central **Kenya,** and **Somalia.** Persistent heavy rains throughout the MAM rainfall season have saturated basins and increased the risk of additional flooding in June. Forecasts indicate rains from June to September are expected to start early with wetter than average rains in western and central **Sudan,** southwestern **Ethiopia,** southeastern **South Sudan,** western **Kenya,** and eastern and central **Uganda** (See Regional Outlook Pg. 8). In addition, desert locust swarms are expected to increase in June as new generations hatch and move northward into areas of **Ethiopia, Eritrea, Somalia,** and **Sudan.** Additionally, COVID-19 restriction measures are causing supply chain disruptions and limiting access to seeds and other agricultural inputs in some areas and notably in **Tanzania, South Sudan, Sudan** and **Ethiopia.** Particularly in **Sudan** and **South Sudan,** disruptions to trade and markets have decreased domestic availability of staple foods, putting upward pressure on prices in markets already affected by below-average 2019 cereal outputs and macroeconomic challenges. In addition, COVID-19 curfew regulations have restricted the ability of desert locust areal control measures to take place in key breeding areas. In **Ethiopia,** planting operations started in May for the main *Meher* season under generally favourable conditions due to good soil moisture from the above-average rains received over the previous months; however, there is continuing concern due to potential desert locust impacts. Harvest will start in June for *Belg* season maize crops and production and yields are expected to be below-average due to reduced planted area in part due to the delays in agriculture input distribution associated with COVID-19 restrictions and the slow start to the season along with the ongoing desert locust outbreak that was protracted by average to above-average seasonal rains. In addition, abundant rains caused flooding since late-April in areas of Somali, Afar, SNNP, Dire Dawa, and Harari, displaced 107,000 people, and caused damage to livestock and infrastructure. In early May, the overflow of the River Dawa along the Kenya-Ethiopia border resulted in devastating floods in surrounding villages. Concern remains across much of the country due to the current desert locust outbreak as breeding has increased in the Ogaden and Afar where hopper bands are present and near Dire Dawa where hopper bands and adults formed groups and swarms. Control operations are underway. In **Sudan,** land preparation activities are underway for main season cereal crops, and there is an increased risk from desert locust impacts. In May, swarms were present in Blue Nile, White Nile, and South Kordofan states, and adults remained in the Nile Valley. Surveillance and control operations of desert locusts will be critical to prevent potential spread west towards the eastern part of the Sahel region in eastern Chad. Additionally, trade and market disruptions amidst the COVID-19 pandemic, in combination with below-average 2019 cereal output, fuel shortages, high prices of agricultural inputs and transportation, and



Crop condition map synthesizing Maize 2 information as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

Victoria is impacting Kisumu, Siaya, Busia, Migori, and Nyanza counties, and additional flooding occurred in central and western areas. According to Kenya’s National Irrigation Board, the recent floods around the Lake Victoria Basin have damaged an estimated 3,035 hectares of rice paddy in Kisumu, Homa Bay, and Busia, which account for 40 percent of national rice production and replanting is currently underway. The heavy rainfall has also provided favourable conditions for the further breeding of desert locusts in the centre and north, particularly in Turkana, Marsabit, Samburu, Isiolo, Laikipia, Meru, and Embu countries. Swarms are also present south of Lodwar, and there are hopper bands along the Tana River. While ground and control operations are underway in the northwest, they have been slowed down by the continued heavy rainfall, flooding, and landslides. Additionally, COVID-19 related movement restrictions are causing further delays in efforts to combat locusts. In bi-modal rainfall areas of **Uganda**, covering most of the country, harvesting of 2020 first season crops is about to start and crop prospects are generally favourable. In the unimodal rainfall agropastoral Karamoja Region, the April-September rainy season had an early onset in March and cumulative precipitations between March and mid-May are estimated at about twice the long-term average. The abundant rains benefited germination and establishment of crops and improved rangeland conditions. In April through the beginning of May, heavy rains and severe flooding occurred over the western and northern regions, causing damage and population displacement. In southeastern areas, due to persistent above-average rainfall, Lake Victoria water levels have risen to unprecedented levels in recent weeks and have flooded the surrounding areas, displacing local populations and resulting in regional electricity black-out. In the Kasese district of southwestern Uganda, overflows of the Nyamwamba, Mubuku, Nyamughasana, and Lhubiriha rivers continue to cause flash floods and have displaced over 100,000 people. In early May, the overflow of the Sundet and Kere Rivers caused landslides in Kween District of central-east Uganda, and in Kabale District, heavy rains collapsed the main highway to Rwanda. A desert locust swarm was present in Kaaborg district and is likely to move towards South Sudan. In **South Sudan**, main season cereal crops are in vegetative to reproductive stage and while above-average rains have benefitted crop development, there is continuing concern due to ongoing conflict and socio-economic difficulties. While the security situation has been improving since the 2018 peace agreement, there have been several outbreaks of intercommunal violence in recent months which threatens to revert security improvements made in the last two years and could put further strain on the already precarious food security situation. Furthermore, as a result of COVID-19 prevention measures, import screenings have disrupted imports from Uganda, and reduced imports from Sudan, resulting in market price surges of main



For detailed description of the pie chart please see description box on pg. 17.

significant depreciation in the country’s currency could limit farmers’ access to agricultural inputs and output markets for the main season and continue to put upward pressure on prices and limit household access to staple foods.

In **Kenya**, early onset of rains in February and above-average rains since March have benefitted crop development for *Long Rains* cereals. However, abundant rains also caused flooding across many areas and have protracted the current desert locust outbreak. Since the beginning of the *Long Rains* season in March, 116,000 people have been displaced as flooding was reported in 36 of 47 counties and landslides occurred in the Rift Valley and central and coastal regions. Floods have impeded farm inputs and destroyed cropland in worst-affected areas. Since the beginning of May, the Tana River County has been affected by flooding. Additionally, the rising water level of Lake

staple foods in the capital of Juba. In **Somalia**, production prospects are poor for *Gu* season cereal crops planted in April due to extreme rainfall triggering widespread flooding in April and May as well as the continued development of desert locusts. At the end of April through the start of May, torrential rains caused river levels to increase considerably along the Shabelle and Juba, resulting in widespread riverine flooding and flash flooding across Hiraan, Bay, Bakool, and Puntland. Belet Weyne district in Hiraan region has been one of the most affected districts following the flooding of the Shabelle river on May 12th, and 85 percent of Belet Weyne town and much of its vicinity was inundated. Areas affected by the recent riverine flooding are the main maize producing regions including the lower Shabelle, which on average accounts for more than 60 percent of total maize output for the *Gu* season. Before the recent flooding, *Gu* season production was expected to be 15 to 25 percent below-average due to flooding and desert locust damage. With the recent increase in flooding in May, and notably over the major producing areas of the country, *Gu* production could be further reduced. Additionally, new locust swarms are developing and could cause damage to recently planted *Gu* season crops. Breeding is underway in central areas of Galkayo and Galmudug and hopper bands and groups are present in the northwest on the plateau and coast near Bulhar and in the northeast near Garowe. In the **United Republic of Tanzania**, harvest will finish in June for the *Msimu* crops in the main producing southern highlands and production prospects are generally favourable due to above-average rains throughout the season and despite localized flood events. Conditions are generally favourable for *Masika* crops planted in March over the bimodal cropping areas due to above-average March to May rains, which benefited crop development. However, abundant rains also caused flooding in March and April in northeast and coastal regions of Morogoro, Mara, Manyara, Mwanza, Simiyu, Kigoma, and Kilimanjaro, resulting in localized crop losses. Fall Armyworm infestations in Mara, Manyara, Singida, and Kilimanjaro regions are expected to result in localized crop losses. In **Burundi**, while above-average rainfall has been generally beneficial to crop development, there is some concern for Season B crops due to flooding from late April to early May across Muyinga Commune, Ruyigi Commune, Ruuyigi Province, Bugarama Commune, and Rumonge Province causing damage and population displacement. In **Rwanda**, Season B crops for harvesting in July have benefitted from above-average rains throughout the season; however, abundant rains also caused flooding in many areas. Heavy rains continued into May across much of the country and particularly the North, West, and Southern provinces, triggering floods and mudslides and resulting in casualties and severe damage. Rice crops which are nearing maturity have been the most affected by the flooding as the impact has been largely over marshland areas and yield reductions are expected. In **Yemen**, planting activities continued for main season sorghum crops for harvest from September and below-average yields are expected due to impacts from flooding, desert locusts, and ongoing conflict and socio-economic issues. Abundant rains since late-March have been beneficial to recently sown sorghum crops in the central highlands and coastal areas; however, heavy rains also resulted in flooding in the central and southern areas. Additionally, above-average rains have also provided favourable ecological conditions for desert locust breeding as hopper bands and mature swarms have formed in the absence of survey and control operations and have affected cropping areas of Lahj and Hodeida governorates. Impacts from floods and desert locust are compounded by the ongoing conflict which continues to debilitate agricultural activities and livelihoods by limiting the availability of inputs and constraining access to fields.

Alert: Desert locust swarms continue to form across East Africa with significant concern over Kenya, Ethiopia, Somalia, and Yemen.

Significant concern remains for the ongoing desert locust outbreak and potential impact in the Horn of Africa. **Yemen, Kenya, Somalia, and Ethiopia** continue to face the highest risk of invasion as second-generation hoppers and young adults are now emerging where adult swarms have been laying eggs since March, which will coincide with the beginning of harvest in bimodal areas. Areas with agro-pastoral farming face a high threat of locust invasion as pastoral regions continue to be the most impacted. Heavy rainfall in southern and equatorial parts of the subregion continue to promote favourable breeding conditions, and wind movement poses risk of invasion into cropping areas of eastern **Ethiopia**, southern **Eritrea**, and southern **Sudan**. Furthermore, there is a risk that swarms will migrate to summer breeding areas of **Sudan** where they could then invade West Africa. In **Kenya**, locusts have impacted crops in Turkana where hopper bands have hatched, and hopper groups and swarms have been reported in Turkana East, Turkana South, and Marsabit. Late maturing swarms were also present south of Lodwar and new infestations emerged along the Tana River. Climatic conditions are favourable for desert locust development in northern and eastern areas and control operations are currently underway. In **Ethiopia**, hopper groups and swarms have been reported in the Ogaden and Dira Dawa regions, and breeding and hopper band formation occurred in Afar and eastern portion of the highlands. Locusts are projected to move from the northeast to northern areas and from south to western and northeastern areas. Conditions are highly suitable for development in southern, eastern, and western areas. In **Somalia**, adults and hopper groups are present in northwestern areas of Bulhar and Boroma, central areas of Galkayo and Galmudug, and in the northeast near Garowe. Climatic conditions are favourable for desert locust development in the northeast, and damage to cereal crops is likely in areas where crops were recently planted and still at early development stages. In **Sudan**, planting activities for main season cereals will begin in June, coinciding with desert locust summer breeding and posing significant risk of crop damage. Locusts have moved into southern coastal areas of Blue Nile, White Nile, and South Kordofan states from eastern South Sudan, and further cross border movement is likely. Adults also remain in the Nile Valley. In **South Sudan**, locusts are projected to move from south to north-eastern areas, and conditions are highly suitable for locust development in the northwest. In **Yemen**, breeding has continued in the interior where recent rains occurred and swarms have formed. In **Uganda**, locusts are projected to move into northern areas from South Sudan; however, risk of invasion is low in **Uganda, Tanzania, Rwanda, Burundi**, southern **Kenya**, and southern **Somalia** due to projected southerly and southwesterly wind movement in Somalia.

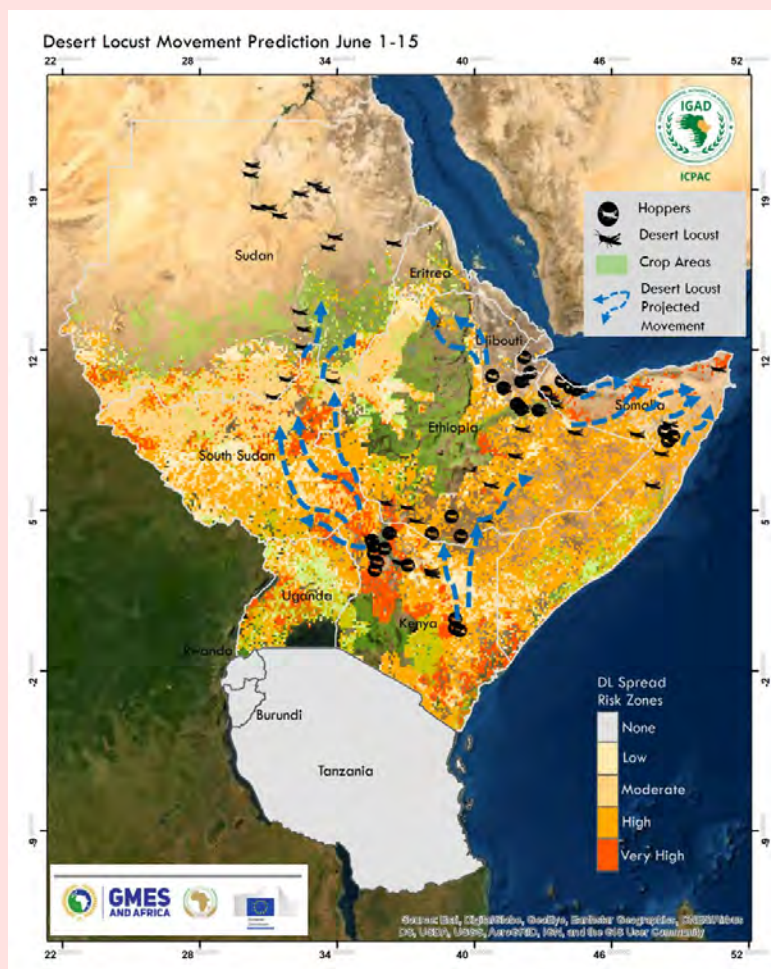


Figure 1. Desert locust risk and movement prediction for June 1-15. Source: IGAD ICPAC

Regional Outlook: Above-average rains are expected to continue across parts of the region exacerbating flood impacts.

Following nearly [eight months of above-average rainfall](#), which resulted in widespread flooding and associated crop and infrastructure damage, above-average rainfall continued through the first dekad of May in northern Tanzania, Uganda, western Kenya, central Ethiopia, and parts of Somalia (Figure 1-left). Of those listed, the continued above-average rainfall in early May was particularly worrisome in southwestern Somalia, where March-to-May flooding along the Shabelle and Juba rivers affected over half a million individuals, including over 200,000 displaced and dozens of fatalities. Elsewhere, May rainfall was average to well below-average, including western Tanzania, Burundi, Rwanda, northern Uganda, parts of Kenya, southern Somalia, and western and eastern Ethiopia (Figure 1-middle and right).

The 15-day forecast suggests average to below-average rainfall may persist for the first half of June, with the exception of continued above-average rainfall in northern Tanzania, Uganda, and central Ethiopia. The middle and right panels in Figure 1 show how the forecasted rainfall could affect the [post-April 26th rainfall anomaly](#). Rainfall totals could exceed 100 mm, or more than 150 percent of the average, in northern Tanzania, southern Uganda, central Kenya, and central Ethiopia, further exacerbating flooding issues from the beginning of the season. While a brief reprieve in the rains is necessary for receding floodwaters, April-to-present rainfall totals are expected to be less than 50 percent of the historical average in western Tanzania, parts of Kenya, eastern Ethiopia, and southern Somalia. While the October-December season is months away, climate models are quite skillful for this season in eastern East Africa, and indicate an increased chance of below normal rains (CHC blog [here](#)).

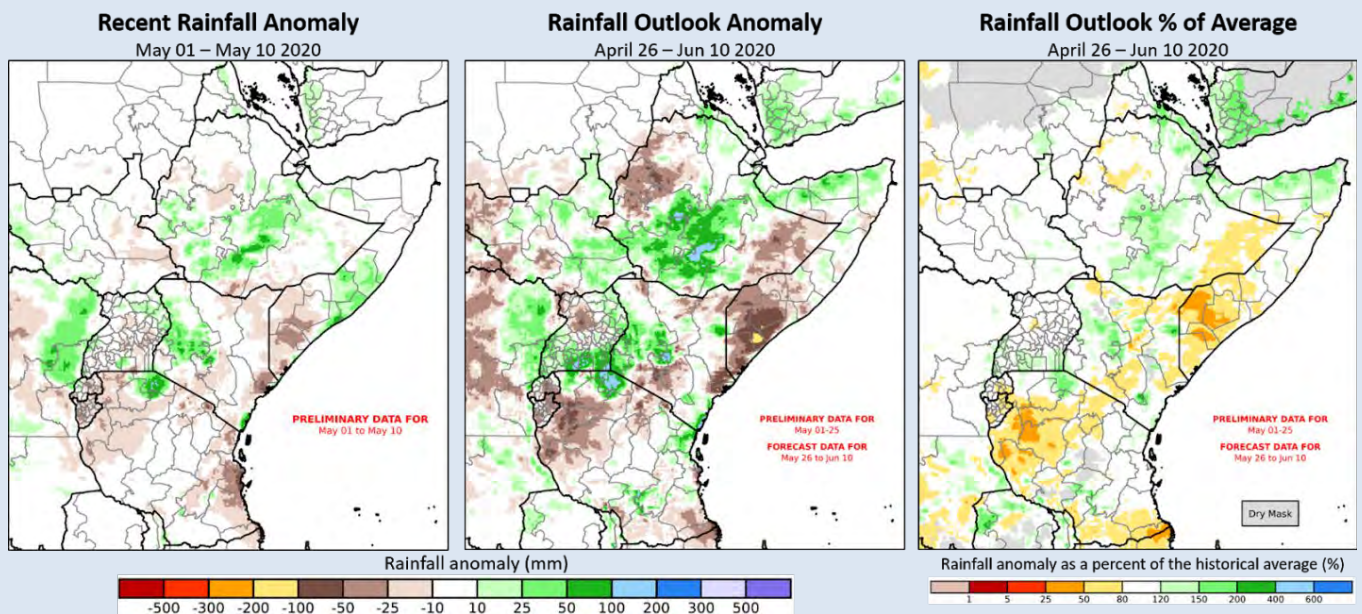
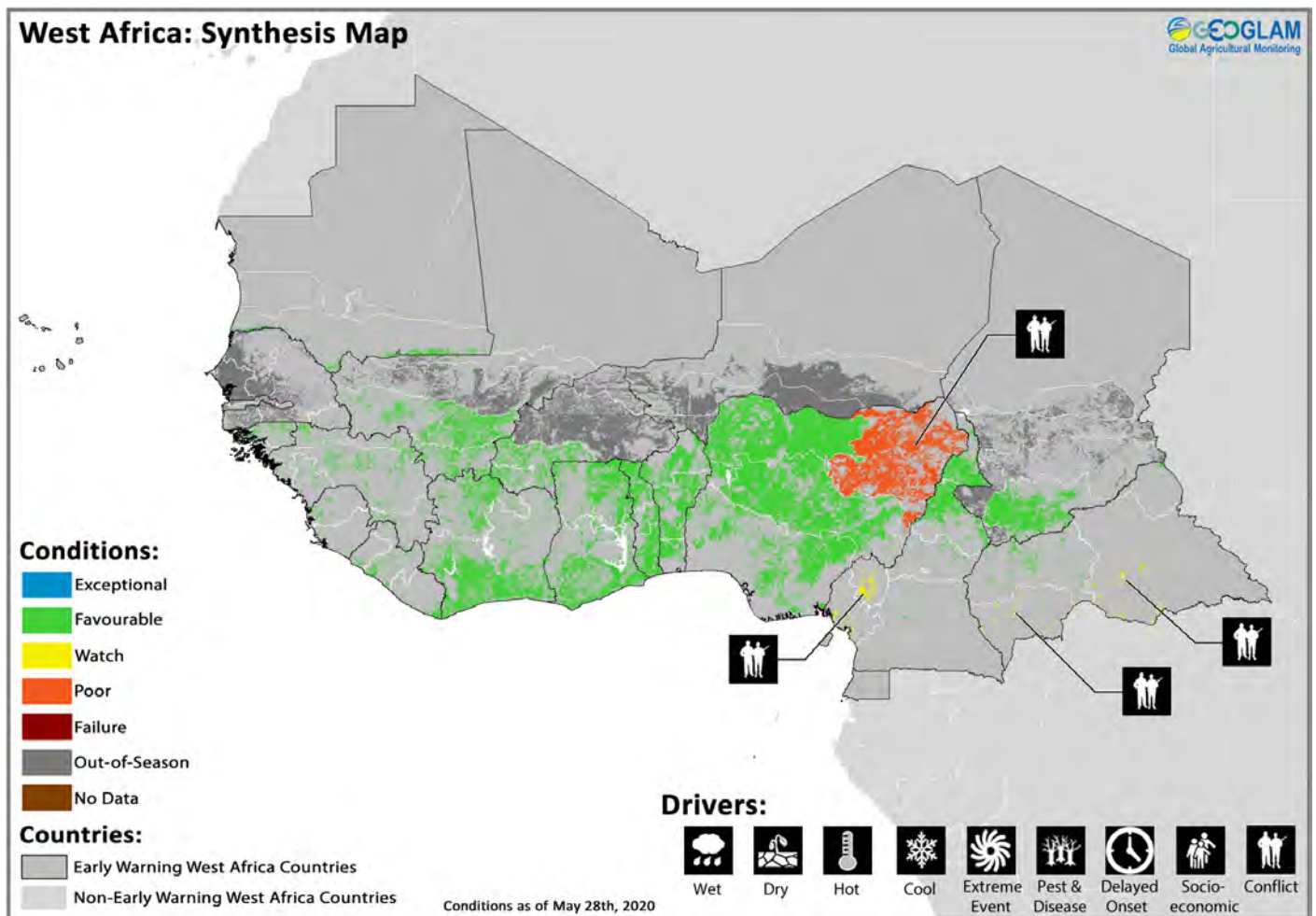


Figure 1. All three panels are UCSB Climate Hazards Center Early Estimates. The left panel is a recent rainfall anomaly early estimate for May 1st to 10th. The middle and right panels are both extended outlooks. They show how the post-April 26th anomaly would change if the 15-day unbiased GEFS forecast from April 30th materializes. The left and middle panels show the anomaly as a difference (mm) from the historical average, whereas the panel on the right shows the outlook as a percentage (%) of the historical average.

Source: UCSB Climate Hazards Center.

West Africa



Crop condition map synthesizing information as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

Across the southern bi-modal regions, planting activities for main season maize crops to be harvested in September are continuing under generally favourable conditions; however, May rainfall was slightly below-average and short-term forecasts indicate below-average rains are expected to continue in the first week of June with seasonal forecasts indicating the potential of below-average seasonal rains from June to August (See Regional Outlook Pg. 10). Since the beginning of the season, the conditions have been average to above-average in most planted areas, supporting the development of wheat and rice crops. Following the timely onset of rains in coastal countries along the Gulf of Guinea including **Ghana, Cote D'Ivoire, Benin, Togo, Nigeria, Liberia, and Sierra Leone**, planting of main season maize was completed by end of April and harvest is expected to start in July and August. Across the north of the region in **Burkina Faso, Chad, Mali, and Niger**, planting has started for main season cereals and conditions are favourable due to a timely onset of the seasonal rains. While cumulative rainfall is average to above-average in most planted areas, there is some concern for maize crops in **Cameroon** where rains were well above-average between March and early-May, particularly in central regions, reaching levels twice the long-term average. In parts of **Cameroon**, the **Central African Republic**, and northeast **Nigeria**, ongoing conflict continues to impact agricultural activities. In southern **Mauritania**, harvest has concluded for off-season rice crops and final yields were favourable. There is some risk of a desert locust invasion from East Africa in the coming months. If swarms arrive in Sudan before the summer rains and reach the eastern part of the Sahel, they could reach eastern **Chad** and **Mauritania** as soon as mid-June. There is also a risk of a locust invasion from the Arabian Peninsula. While the current threat of invasion remains low, swarm movement will depend on rainfall, winds, and breeding patterns. Countries most exposed to the desert locust invasion are **Burkina Faso, Chad, Mali, Mauritania, Niger, and Senegal**.

Regional Outlook: Below-average June to August seasonal rains are likely across the south of the region while above average rains are expected across the Sahel.

The start of the West Africa primary rainy season was average to below-average throughout much of the region, with deficits of 25-50 mm, or 80 percent of the average, in Guinea, southern Mali, Liberia, western Côte d'Ivoire, Burkina Faso, northern Benin, and western Nigeria. May rainfall was slightly above average in Sierra Leone, eastern Côte d'Ivoire, Ghana, Togo, and eastern Nigeria.

Both short- and long-term forecasts predict a likelihood of continued relatively dry conditions across the southern half of the region. If the 15-day forecasted rainfall comes to fruition, post-May rainfall deficits would exceed 25 mm over much of the region, and range from 50-100 mm, or less than 80 percent of the historical average, in northern Benin, southern Mali, and Nigeria (Figure 1-left). While still early in the season, the 3-month probabilistic forecast indicates a likelihood of below-normal rainfall conditions for June-August, while the northern marginal cropping areas may have above-normal rainfall for the same period (Figure 1-right).

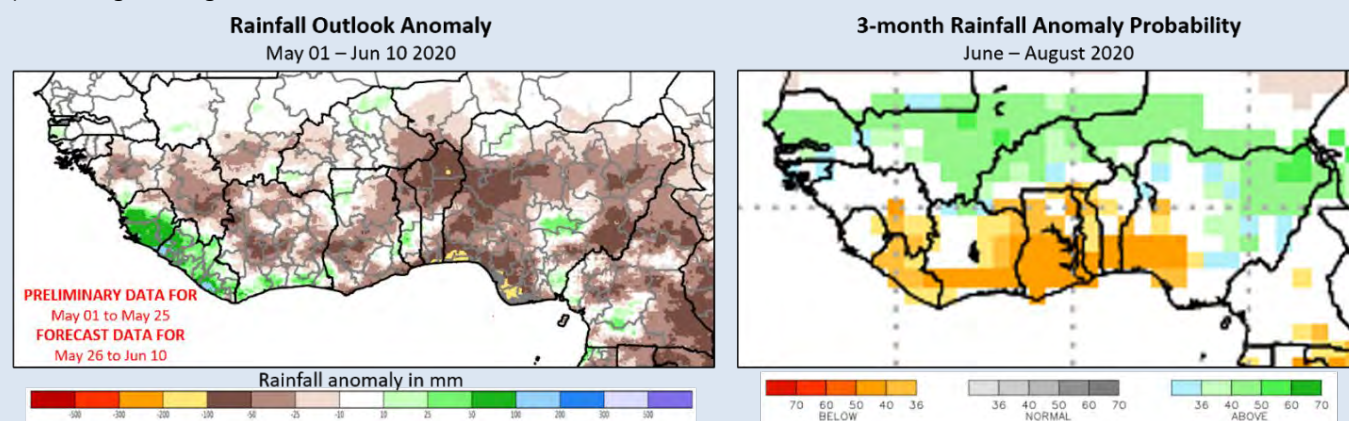
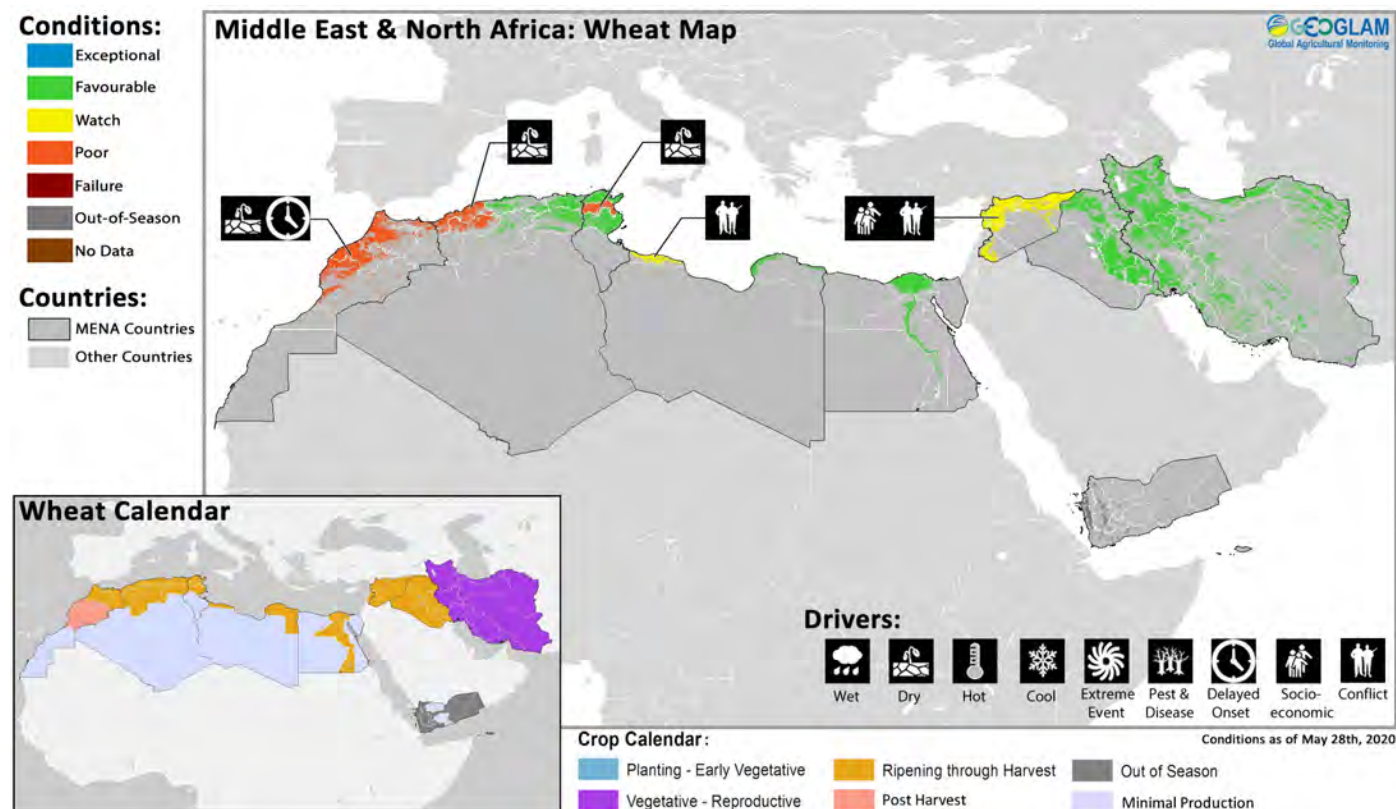


Figure 1. Estimated and forecast rainfall since May 1st and a 3-month forecast. The left panel is an extended seasonal outlook. It shows how the post-May 1st anomaly will change if the 15-day unbiased GEFS forecast from May 26th materializes. This compares 2020 rainfall amounts to the 1981-2019 CHIRPS average. On the right is the 3-month NMME experimental probabilistic forecast for June to August 2020, based on May conditions. The forecast probability is calculated as the percentage of all 79 NMME ensemble members that fall in a given tercile (above/below/near normal).

Source: UCSB Climate Hazards Center.

Middle East & North Africa

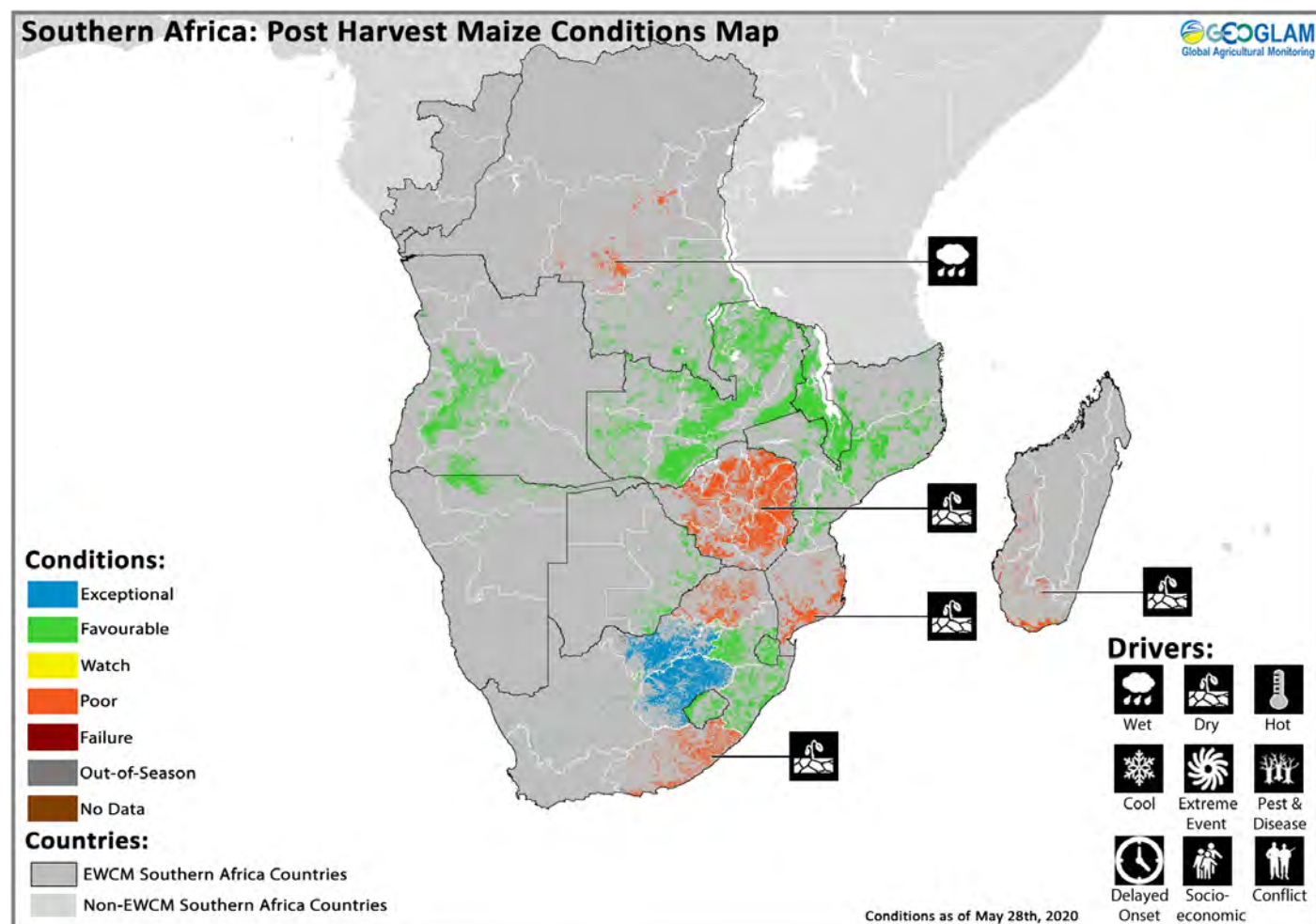


Crop condition map synthesizing information as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

In the Middle East, harvest is underway for winter wheat crops and conditions are generally favourable except in **Syria** where ongoing conflict continues to impact agricultural activities. In **Iran**, harvest will start in June for winter wheat crops and conditions are favourable although below the previously expected exceptional harvest due to impacts from desert locusts which are present in the main producing regions of Fars and Khuzestan. Desert locust breeding is ongoing in the spring breeding areas along Iran's southern coast, where adults are forming groups and small swarms and moving north in Sistan and Balochistan to South Khorasan where they are laying eggs and will move east to the Indo-Pakistan summer breeding areas. In **Iraq**, harvesting of winter wheat is underway and yield prospects are favourable. In **Syria**, harvesting began for winter wheat, and while agro-climatic conditions are favourable, conflict and other socio-economic drivers continue to constrain production.

In North Africa, harvesting of winter cereals is complete in **Morocco** and nearing completion across the rest of the region. Below-average yields resulted in **Morocco** and are expected in north west **Algeria** and central **Tunisia** where crops were unable to recover from severe early season dryness, lack of precipitation, and above average temperatures. **Morocco** experienced its second consecutive season of poor harvests with final winter wheat yields estimated to be 18 percent below-average due to persistent dry conditions across the country since the beginning of December, including in the main producing Marrakech-Safi and Casablanca-Settat regions. In **Algeria**, harvesting began for winter wheat crops and below-average yields are expected in the northwest and southwest due to rainfall deficits throughout the season. In contrast, favourable yields are expected in the east including Bouira, Mila, and Guelma due to above-average rains during the season. National yields are expected to be near-average. In **Tunisia**, harvest will complete in June for winter wheat crops and average yields are expected in the north and south-central regions. While in central Tunisia, production prospects for barley are eight percent below the five-year average due to rainfall deficits early in the season. In **Libya**, harvest will complete in mid-June for winter wheat crops and favourable yields are expected due to good rains throughout the season. However, continuing military operations around Tripoli have had a negative impact on agricultural activities. In **Egypt**, harvest will finish in June for winter wheat and barley crops and favourable yields are expected due to sufficient irrigation supply. Planting activities have begun for main season maize and summer-planted rice crops, and harvest continues under favourable conditions for winter wheat crops.

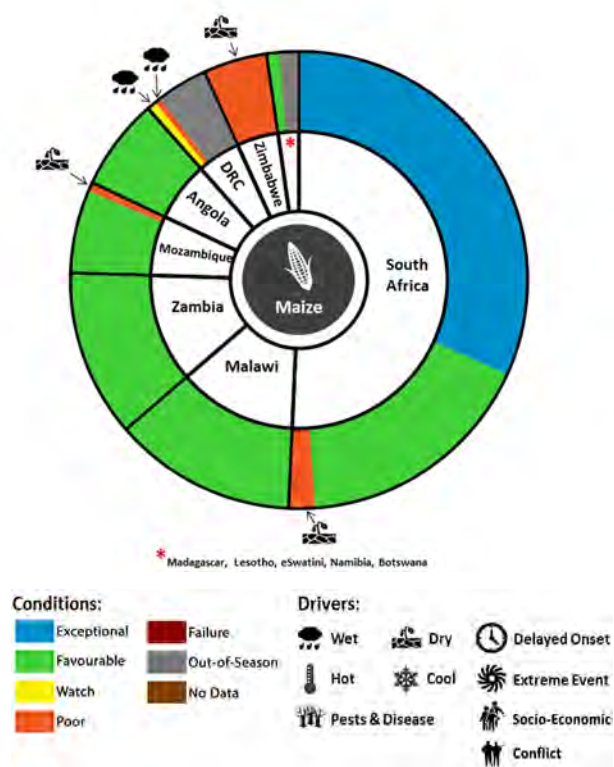
Southern Africa



Crop condition map synthesizing information as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

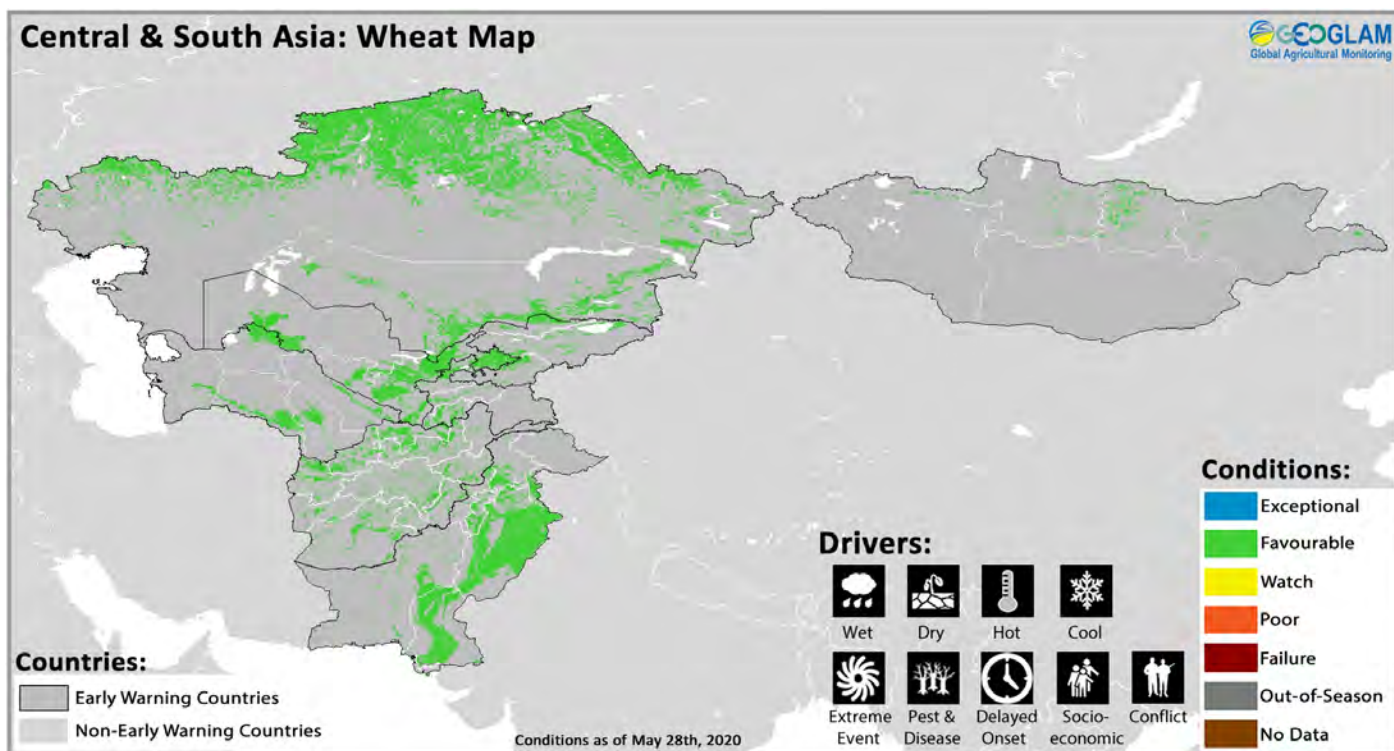
In Southern Africa, harvest is complete or nearing completion for main season maize crops. Following a delayed start to the season and one of the driest October-December rainfall periods since 1981, rainfall improved from late January to mid-February, reducing seasonal deficits. Final yields were generally favourable with a bumper maize harvest in **South Africa** and average to near-average yields in **Zambia, Botswana, northern Mozambique, Angola, Lesotho, Namibia, eSwatini, and Malawi**. In central and eastern areas of the region, a delayed start to the season followed by dry spells in December and February to March damaged crops and resulted in permanent wilting in some areas. Below-average yields are expected in **Zimbabwe, southern Madagascar, southern Mozambique, and parts of southern and central Zambia**. COVID-19 restrictions may drive up food insecurity in the region and could contribute to an early start to the lean season in **Mozambique, Zimbabwe, and the Democratic Republic of Congo** and worsen food insecurity. In **Zimbabwe**, harvesting of main season maize crops is nearing completion, and below-average yields and production is expected due to poor rainfall received throughout the season, resulting in extreme moisture stress exacerbated by above-average temperatures and resulting in crop wilting. This is the second consecutive year of below-average maize harvest and food insecurity is of severe concern. In Manicaland, Mashonaland Central, Mashonaland East, Mashonaland West, and Midlands, planting activities for winter wheat have started; however, dry conditions from the main maize season may affect reservoir levels and replenishment. In **Mozambique**, harvesting of main season cereals is mostly complete, and crop production is expected to be near-average in the north, central, Manica, and Sofala regions due to average cumulative rainfall. However, in southern regions and parts of Tete, production is anticipated at a below-average level due to delayed planting and below-average cumulative rainfall resulting in moisture deficits and deterioration of vegetation conditions. In **Angola**, harvesting of main season cereals is complete and conditions are generally favourable due to good rainfall received throughout the season, except in the south where erratic rainfall throughout the season resulted in moisture stress. However, above-average production in central and northern areas and national cereal output is expected to be near-average. In **Zambia**, harvest is nearing completion for main season maize crop and is favourable, reflecting average to above-average rainfall received since mid-January that eliminated early-season rainfall deficits. The national yield is foreseen to be slightly above-average. However, in parts of the main producing south and central areas and Lusaka, slightly below-average yields are expected as rainfall was erratic and unevenly distributed throughout the season causing moisture stress. Overall, official estimates place this year's maize output as the third-highest on record. Planting has begun for winter wheat crops in central

and southern areas under favourable conditions. In **Botswana**, despite a poor distribution of rainfall throughout the season, final yields of main season cereals in northern and eastern areas are favourable as cumulative rainfall was mostly average. Production is estimated to be above 2019 cereal output, except in northern regions where dry conditions impacted millet crops. In **eSwatini**, despite early-season dryness, near-average cumulative rainfall resulted in average yields for main season maize crops. In the **Democratic Republic of Congo**, harvesting of main season maize crop is complete in central and Katanga regions, and below-average yields are expected due to impacts from persistent heavy rains, FAW infestations, and ongoing conflict and other socio-economic factors. Favourable yields are estimated for main season sorghum crop in Katanga. Planting activities are continuing for second season maize crops in the eastern and northern regions, and there is concern due to persistent heavy rains that resulted in waterlogging and rising water levels along with flooding in Djugu, Ituri Province. In **Lesotho**, harvest is complete for main season cereal crops and despite below-average planted area due to early season dryness, final production is estimated to be near-average due to improved rainfall from December through March that boosted crop yields. Planting operations began for winter wheat crops under favourable conditions. In southern **Malawi**, harvesting of main season maize is complete, while in the central and northern regions, farmers are still harvesting. Average to above-average yields are expected in north and central areas where favourable rainfall throughout the season supported crop development and total national production is estimated at above the five-year average. Some crop losses resulted due to localized flooding in late December and February in the north, and in the south due to below-average rainfall from late February to April causing moisture stress; however, these did not impact national production. In **Madagascar**, harvesting is nearing completion in the south and below-average production is expected due to below-average seasonal rainfall, particularly in coastal areas, which resulted in reduced water availability and crop losses. In the northwest, above-average rainfall caused localized flooding in Melaky; however, crop damage was minimal. In central and west areas, conditions are favourable despite dry conditions during the season, and in the east, crop prospects are favourable as crop damage from Cyclone Herold in March was minimal. In **Namibia**, harvesting of main season cereals is nearing completion and national production prospects are near-average due to good rains over the past months. In the marginal producing Kunene region, below-average rainfall contributed to abnormal dryness while in Zambezi region, Armyworm and African Migratory Locusts have been reported and will likely have a localized impact on final yields. In **South Africa**, beneficial rains since December are likely to result in a bumper harvest across the main cereal-producing provinces, while in the Eastern Cape and Limpopo, some yield reductions are possible due to early season dryness.



For detailed description of the pie chart please see description box on pg. 17.

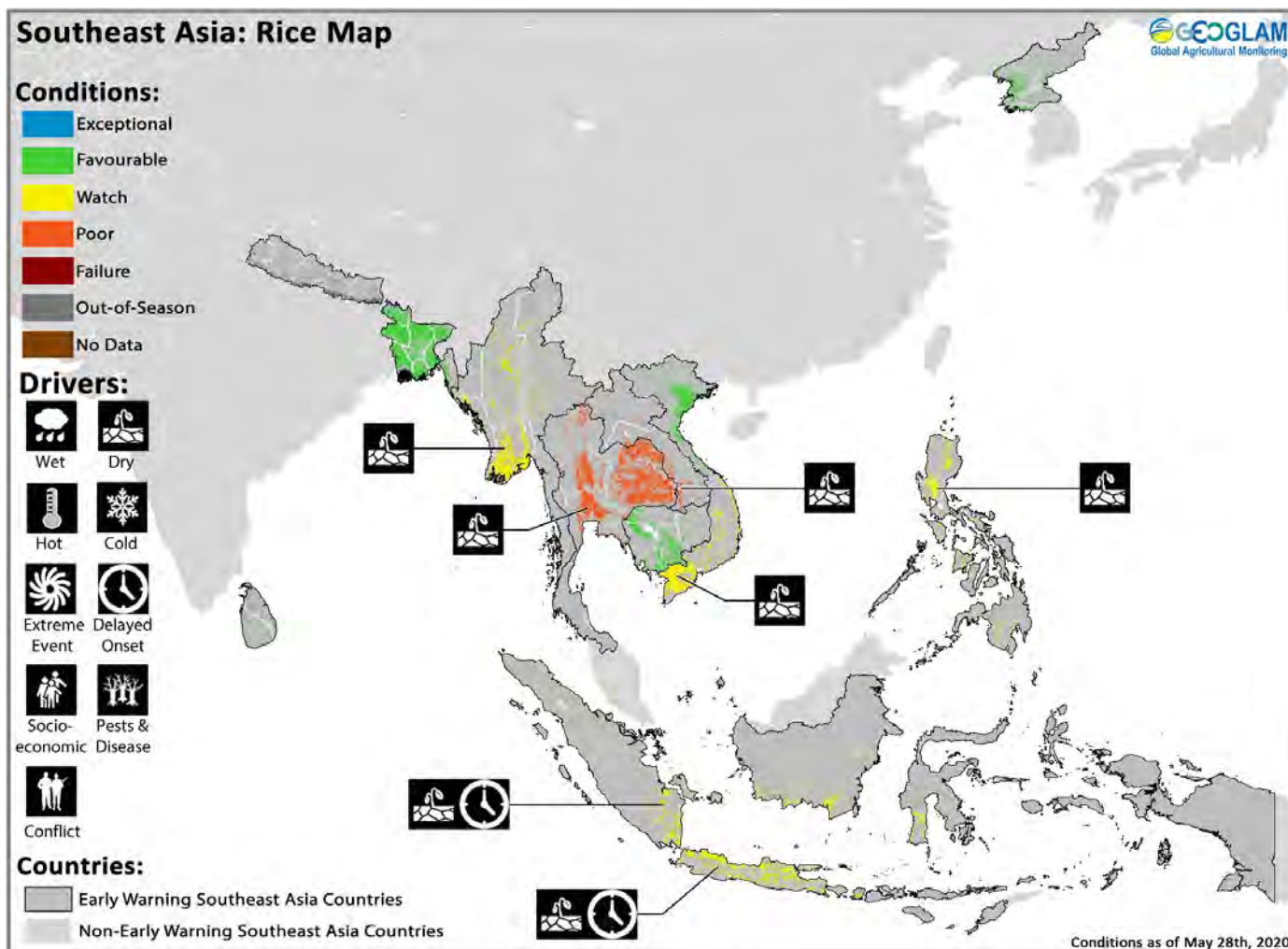
Central & South Asia



Crop condition map synthesizing information as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

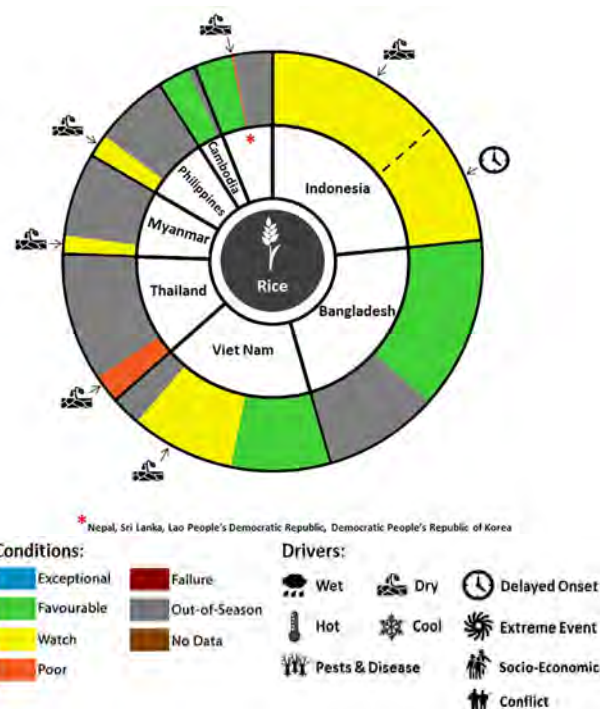
Across Central Asia, planting of spring wheat continued in May and harvesting of winter wheat is expected to begin in June and overall conditions are favourable. In the south and southeast of **Kazakhstan**, precipitation levels have improved since March and conditions are favourable for winter wheat. In the north and south, sowing of spring wheat to be harvested from August began in the second dekad of May under favourable conditions due to good precipitation received across much of the country; however, the rains also disrupted sowing activities in some areas. In **Uzbekistan**, planting began in April for spring wheat crops, and conditions are favourable for the development of winter wheat crops following adequate rainfall since March which improved earlier dry conditions. In **Afghanistan**, conditions are favourable for spring wheat crops planted in March due to average to above-average cumulative rainfall. Snow depths are below-average in eastern and northeastern areas, and above-average temperatures in April have led to snowmelt in lower elevations in eastern, central, and southern areas. Harvest for winter wheat crops will complete in June and production prospects are favourable due to above-average planted area. While average yields are expected, some crops in the east, north, and west provinces have been affected by rust disease due to excess rains in late April and early May and affected areas are expected to see a decrease in yields. In **Mongolia**, planting started in April for spring wheat crops to be harvested in September and conditions are favourable due to good weather and sufficient irrigation supply. In **Pakistan**, harvest will complete in June for the 2020 *Rabi* winter wheat crop and production prospects are favourable although slightly below the previously expected bumper harvest due to localized losses from desert locust swarms that have affected the main producing areas of Punjab and Sindh provinces (summer breeding areas) since January and unseasonable weather in March and April which caused damage to standing crops. Planting started in May for main season maize crops and there is some concern due to potential desert locust impacts as swarms have recently spread to Balochistan (winter/spring breeding areas) in the southwest where spring breeding will continue in June. Furthermore, the region is facing additional disruptions in the supply chain of agricultural inputs such as seeds, fertilizers, and pesticides due to control measures in response to the COVID-19 pandemic which could impact planting activities.

Southeast Asia



Crop condition map synthesizing rice conditions as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.**

In northern Southeast Asia, harvest is complete or nearing completion for dry-season rice, and final yields are expected to be poor due to below-average precipitation received throughout the growing season and a shortage of irrigation water, except in **Vietnam** where sufficient solar radiation during the growing stage will benefit yields. Land preparation and sowing operations are underway in parts of the region for wet-season rice; however, a delay in planting due to poor rainfall and continuing dry conditions is likely to reduce planted area. Forecasts indicate below-average rains are expected to continue across the north of the region in June while above-average rains are expected across Indonesia (See Regional Outlook Pg. 16). In **Indonesia**, harvesting of wet-season crops continues into the fifth month. While production is 36.5 percent higher than last year at 1.3 million hectares, yields are estimated to be slightly lower than last year due to the prolonged drought. Sowing of dry-season crops continues to be delayed by the protracted wet-season rice crop as planting continued until the end of February and early March in some areas. In the **Philippines**, harvesting of dry-season rice continues with below-average yields expected due to insufficient irrigation water supply during the reproductive stage. Additionally, Tropical Cyclone Vongfong (Ambo) made initial landfall on May 14th in San Policarpo, Eastern Samar Province, causing damage to roads, bridges, and agriculture. In **Thailand**, conditions are poor as harvesting of dry-season rice continues. A shortage of irrigation water and rainfall



For detailed description of the pie chart please see description box on pg. 17.

during the season resulted in a large reduction of sown area compared to last season and reduced yields, and production is expected to be lower as well. Land preparations have begun for wet-season rice, and planted area is expected to decrease compared to last season due to low rainfall. In **Viet Nam**, conditions are favourable for the dry-season (winter-spring) rice in the north. In the south, harvesting of dry-season (winter-spring) rice is ongoing under favourable conditions with higher yields than last year expected. Sowing progress of wet-season (summer-autumn) rice in the south is slow due to the effects of dry conditions and salinity. In **Laos**, harvesting of dry-season rice is ongoing, and although harvested area is higher than last year, final production and yield are expected to be lower than last year at 397 thousand tonnes and 4.1 tonnes per hectare respectively due to lack of irrigation water. Land preparation activities are underway for wet-season rice. In **Myanmar**, harvest is underway of dry-season rice with a current yield of 3.4 million tonnes, similar to last years' level. Some farmers have begun seeding activities for wet-season rice. In **Cambodia**, wet-season rice sowing started in May and crop conditions are favourable due to improved rainfall. In **Sri Lanka**, planting of the minor *Yala* rice crop is underway and conditions are favourable due to improved seasonal rains and government support in the form of free irrigation water supplies and fertilizer subsidies are expected to result in above-average planted area. In **Bangladesh**, harvest is complete for main *Boro* season rice and favourable production resulted due to good weather conditions during much of the growing season and despite concerns over shortage of labor for harvest due to COVID-19 restrictions. Tropical cyclone Amphan made landfall in coastal areas on May 20th with strong wind and storm surges that resulted in flood damage, population displacement, and damage to an estimated 47,000 hectares of *Boro* cropland, accounting for less than 1 percent of total planted area. Planting of the *Aman* rice crop, which accounts for 35 percent of annual output has just started under favourable conditions. In **Nepal**, harvest is underway in the south for the 2019/2020 wheat crop and will complete in the north in June. Prospects for production are favourable as precipitation amounts were near-average over most of the country, and the snow coverage during winter months has been adequate to protect crops from winterkill. Planting of the 2020 maize crop is progressing under favourable conditions. In the **Democratic People's Republic of Korea**, planting is ongoing for the main cropping season under favourable conditions as rainfall in the second dekad of May improved previously dry conditions except in the north where a small rainfall deficit remains.

Regional Outlook: Below-average rainfall is expected to continue across the north while above-average rains are expected across Indonesia.

Rainfall in late April and May was well below-average in the northern half of the region (Figure 1-left), further increasing the seasonal rainfall deficits from [December to April](#), which recorded less than 80 percent of the historical average rainfall across Myanmar, Laos, Thailand, Cambodia, Vietnam, eastern Malaysia, and the southern Philippines. In contrast, May rainfall was 50-200 mm above-average, or over 120 percent above-average, across Indonesia (Figure 1-left), providing favorable conditions for the start of dry-season rice planting.

Both short- and long-term forecasts predict rainfall across Indonesia will continue to be above-average. Figure 1-middle indicates how the 15-day forecasted rainfall would affect the to-date seasonal rainfall anomaly. Rainfall totals could be more than 100 mm, or 120 percent above-average across much of Indonesia, while deficits in the northern half of the region could exceed 100 mm, (<80% of average). The long-term forecast shows a relatively high probability of above-normal rainfall through August 2020 (Figure 1-right). The long-term forecast for northern Southeast Asia is less conclusive.

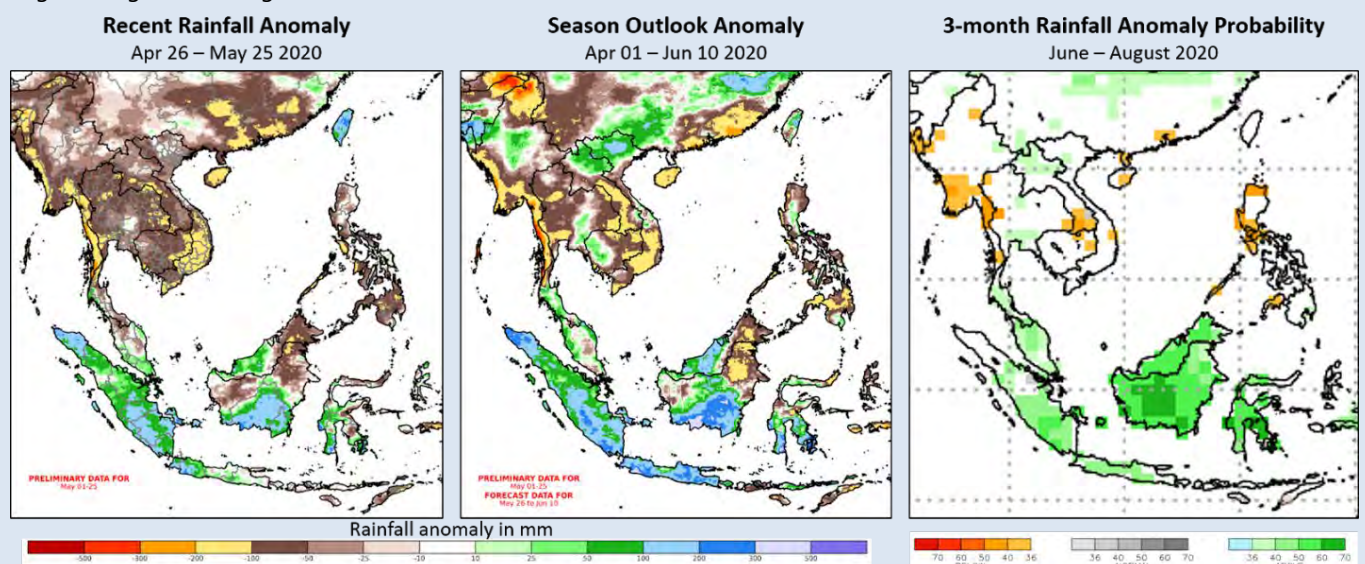
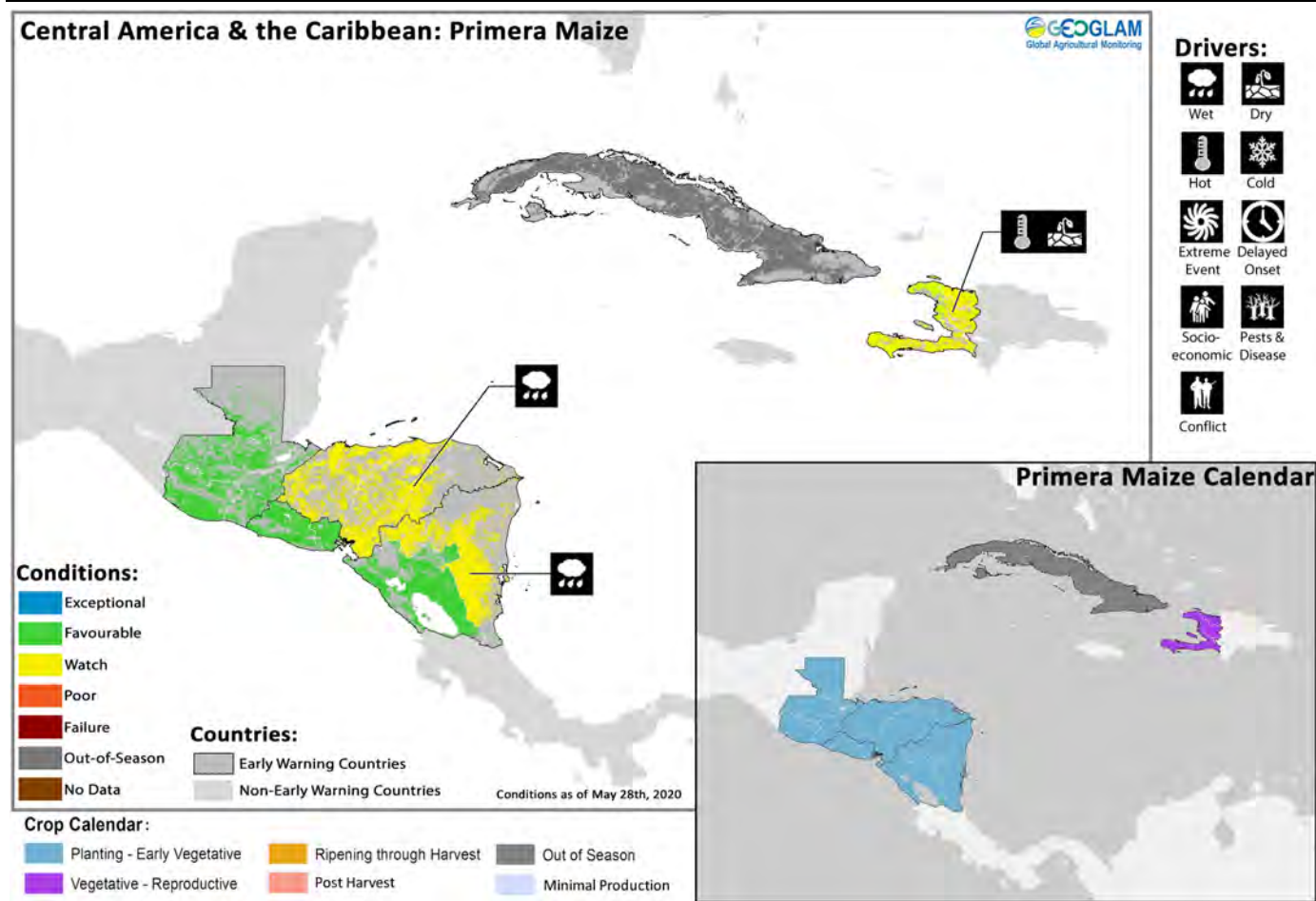


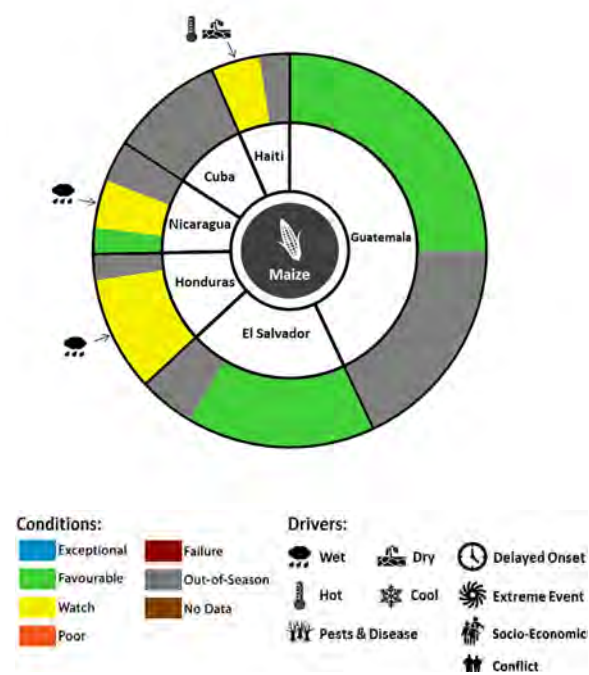
Figure 1. Estimated and forecast rainfall since April 1st and a 3-month forecast. The left panel is the UCSB Climate Hazards Center Early Estimate for April 26th to May 25th, based on preliminary CHIRPS for May 1st to May 25th. The middle panel is an extended seasonal outlook. It shows how the post-April 1st anomaly will change if the 15-day unbiased GEFS forecast from May 26th materializes. These compare 2020 rainfall amounts to the 1981-2019 CHIRPS average. On the right is the 3-month NIMME experimental probabilistic forecast for June to August 2020, based on May conditions. The forecast probability is calculated as the percentage of all 79 NIMME ensemble members that fall in a given tercile (above/below/near normal).

Central America & Caribbean



Crop condition map synthesizing information as of May 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable are labeled on the map with their driver.**

In Central America and the Caribbean, planting activities for *Primera* season crops have begun under generally favourable conditions, with some areas of concern along the Caribbean coast of northern **Honduras** and **Nicaragua** where irregular rains have delayed the start of the season while in south **Guatemala** and **Honduras**, May rainfall totals were significantly above average and exceeded 200 percent of the average in some areas. Forecasts indicate average to above-average precipitation is expected to continue through June across much of the region and seasonal rainfall forecasts from June to August indicate above-average conditions across much of the region favouring *Primera* season crops (See Regional Outlook Pg. 18). In **Guatemala**, increased precipitation in May improved soil moisture and supported planting operations for *Primera* season crops. However, in north and central regions, a delay to the start of the season is expected as rainfall in April and May was irregular and below-average with above-average temperatures. In **El Salvador**, the eastern region received above-average precipitation in the second dekad of May and land preparation activities are underway for the start of planting in late May and early June. Additionally, on May 31st, Tropical Storm Amanda made landfall in Guatemala, causing significant flooding in parts of Guatemala and in Sonsonate, La Libertad, and San Salvador departments of El Salvador. The floods affected recently planted crops, and replanting will take place as water levels recede. In **Honduras's** key producing southern-western region, above-average rains in May helped restore the soil moisture deficits that were observed in April. However, conditions are wetter than normal and if wet conditions continue, it could disrupt the ongoing planting operations. In **Nicaragua**, conditions are generally favourable, though some planting activities were delayed in the northern region due to a late and irregular onset of rains. In **Haiti**, planting operations continued for main season crops, and there is continuing concern due to below-average rainfall and high temperatures that are affecting crop development.



For detailed description of the pie chart please see description box on pg. 17.

Irregular precipitation and dry conditions since the end of March has delayed agricultural activities for the Printemps season in the North, Northeast, West, Center and Haut-Artonite, and a reduction in yields is expected. In **Cuba**, harvest of second season rice crops is complete and below-average yields resulted due to below-average precipitation and high temperatures during the season. Planting operations continued for main season rice and conditions are favourable as improved rains in May replenished soil moisture, favouring planting operations and crop germination.

Regional Outlook: Above-average seasonal rains are expected from June to August across much of the region.

Following a below-average start to the *Primera* season, below-average rainfall continued in May in parts of northern Nicaragua, eastern Cuba, and Haiti. However, elsewhere in the region, May rainfall was well-above average, including May totals exceeding 200 percent of average in Guatemala, Honduras, and western Cuba.

Short-term (not shown), medium-term (Figure 1-middle), and long-term forecasts (Figure 1-right) indicate above-average rainfall is expected across most of the region. Figure 1-left indicates how the anticipated 15-day forecasted rainfall could impact the May deficits. While precipitation totals in western Nicaragua and Haiti could remain below around 80 percent of the average, the rest of the region could exceed 120 percent of the historical average. The 30-day and 3-month forecasts predict this above-normal rainfall is likely to continue across the region for the next several months, including in Nicaragua, likely providing favorable planting conditions for the start of the *Primera* growing season.

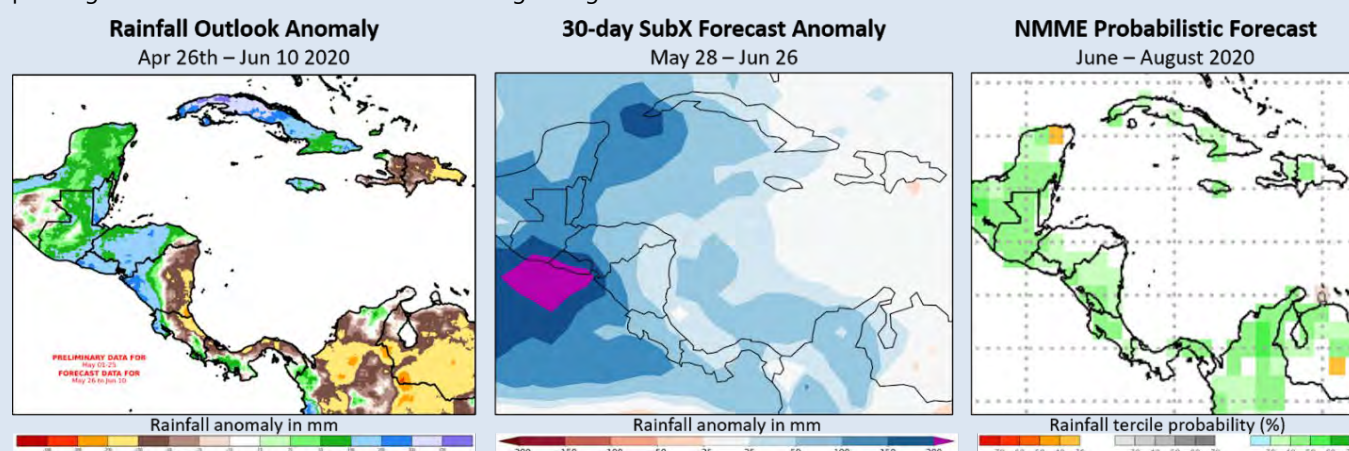


Figure 1. Estimated and forecast rainfall since April 26th. The left and middle maps depict rainfall in terms of the difference from average. The left panel is the extended outlook for April 26th to June 10th. This Climate Hazards Center Early Estimates are based on preliminary CHIRPS for May 1st to 25th, and the 15-day unbiased GEFS forecast from May 26th. This graphic compares 2020 rainfall amounts to the 1981-2019 CHIRPS average. The middle panel is a 30-day forecast from May 28th. The image shows the average of four Subseasonal Experiment (*SubX*) model forecasts from that day. The anomaly is based on the 1999 to 2016 model average. Skill assessments of *SubX* can be accessed at <http://cola.gmu.edu/kpegon/subx/index.html>. The right panel is the NMME probabilistic forecast for the month of June based on April conditions. Source: UCSB Climate Hazards Center.

Pie Chart Description: Each slice represents a country's share of total regional production. The proportion within each national slice is colored according to the crop conditions within a specific growing area; grey indicates that the respective area is out of season. Sections within each slice are weighted by the sub-national production statistics (5-year average) of the respective country. The section within each national slice also accounts for multiple cropping seasons (i.e. spring and winter wheat) and are a result of combining totals from multiple seasons to represent the total yearly national production. When conditions are other than favourable icons are added that provide information on the key climatic drivers affecting conditions.

Information on crop conditions in the main production and export countries can be found in the Crop Monitor for AMIS, published June 4th, 2020.

For detailed description of the pie chart please see description box on pg. 17.

Appendix

Crop Conditions:

Exceptional: Conditions are much better than average* at time of reporting. This label is only used during the grain-filling through harvest stages.

Favourable: Conditions range from slightly lower to slightly better than average* at reporting time.

Watch: Conditions are not far from average* but there is a potential risk to final production. The crop can still recover to average or near average conditions if the ground situation improves. This label is only used during the planting-early vegetative and the vegetative-reproductive stages.

Poor: Crop conditions are well below-average. Crop yields are likely to be 10-25% below-average. This is used when crops are stunted and are not likely to recover, and impact on production is likely.

Failure: Crop conditions are extremely poor. Crop yields are likely to be 25% or more below-average.

Out of Season: Crops are not currently planted or in development during this time.

No Data: No reliable source of data is available at this time.

"Average" refers to the average conditions over the past 5 years.



Drivers:

These represent the key climatic drivers that are having an impact on crop condition status. They result in production impacts and can act as either positive or negative drivers of crop conditions.

Wet: Higher than average wetness.

Dry: Drier than average.

Hot: Hotter than average.

Cool: Cooler than average or risk of frost damage.

Extreme Events: This is a catch-all for all other climate risks (i.e. hurricane, typhoon, frost, hail, winterkill, wind damage, etc.)

Delayed-Onset: Late start of the season.

Pest & Disease: Destructive insects, birds, animals, or plant disease.

Socio-economic: Social or economic factors that impact crop conditions (i.e. policy changes, agricultural subsidies, government intervention, etc.)

Conflict: Armed conflict or civil unrest that is preventing the planting, working, or harvesting of the fields by the farmers.



Crop Season Nomenclature:

In countries that contain multiple cropping seasons for the same crop, the following charts identifies the national season name associated with each crop season within the Crop Monitor for Early Warning.

MENA				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Egypt	Rice	Summer-planted	Nili season (Nile Flood)	

East Africa				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Burundi	Maize	Season B	Season A	
Ethiopia	Maize	Meher Season (long rains)	Belg Season (short rains)	
Kenya	Maize	Long Rains	Short Rains	
Somalia	Maize	Gu Season	Deyr Season	
Somalia	Sorghum	Gu Season	Deyr Season	
Uganda	Maize	First Season	Second Season	
United Republic of Tanzania	Maize	Long Rains	Short Rains	
United Republic of Tanzania	Sorghum	Long Rains	Short Rains	

West Africa				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Benin	Maize	Main season	Second season	
Cameroon	Maize	Main season	Second season	
Cote d'Ivoire	Maize	Main season	Second season	
Ghana	Maize	Main season	Second season	
Mauritania	Rice	Main season	Off-season	
Nigeria	Maize	Main season	Short-season	
Nigeria	Rice	Main season	Off-season	
Togo	Maize	Main season	Second season	

Southern Africa				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Democratic Republic of the Congo	Maize	Main season	Second season	
Mozambique	Maize	Main season	Second season	

Southeast Asia				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Bangladesh	Rice	Boro	Aman	
Cambodia	Rice	Wet season	Dry season	
Indonesia	Rice	Main season	Second season	
Lao People's Democratic Republic	Rice	Wet season	Dry season	
Myanmar	Rice	Wet season	Dry season	
Philippines	Rice	Wet season	Dry season	
Sri Lanka	Rice	Maha	Yala	
Thailand	Rice	Wet season	Dry season	
Viet Nam	Rice	Wet season (Autumn)	Dry season (Winter/Spring)	

Central & South Asia				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Afghanistan	Wheat	Winter-planted	Spring-planted	
Kazakhstan	Wheat	Winter-planted	Spring-planted	
Kyrgyzstan	Wheat	Winter-planted	Spring-planted	
Tajikistan	Wheat	Winter-planted	Spring-planted	

Crop Season Nomenclature:

In countries that contain multiple cropping seasons for the same crop, the following charts identifies the national season name associated with each crop season within the Crop Monitor for Early Warning.

Central America & Caribbean				
Country	Crop	Season 1 Name	Season 2 Name	Season 3 Name
Cuba	Rice	Main season	Second season	
El Salvador	Beans	Primera	Postrera	
El Salvador	Maize	Primera	Segunda	
Guatemala	Beans	Primera	Postrera	Apante
Guatemala	Maize	Primera	Segunda	
Haiti	Maize	Main season	Second season	
Honduras	Beans	Primera	Postrera	
Honduras	Maize	Primera	Segunda	
Nicaragua	Beans	Primera	Postrera	Apante



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Contributing partners



*EC contribution is provided by the Joint Research Centre of the European Commission