

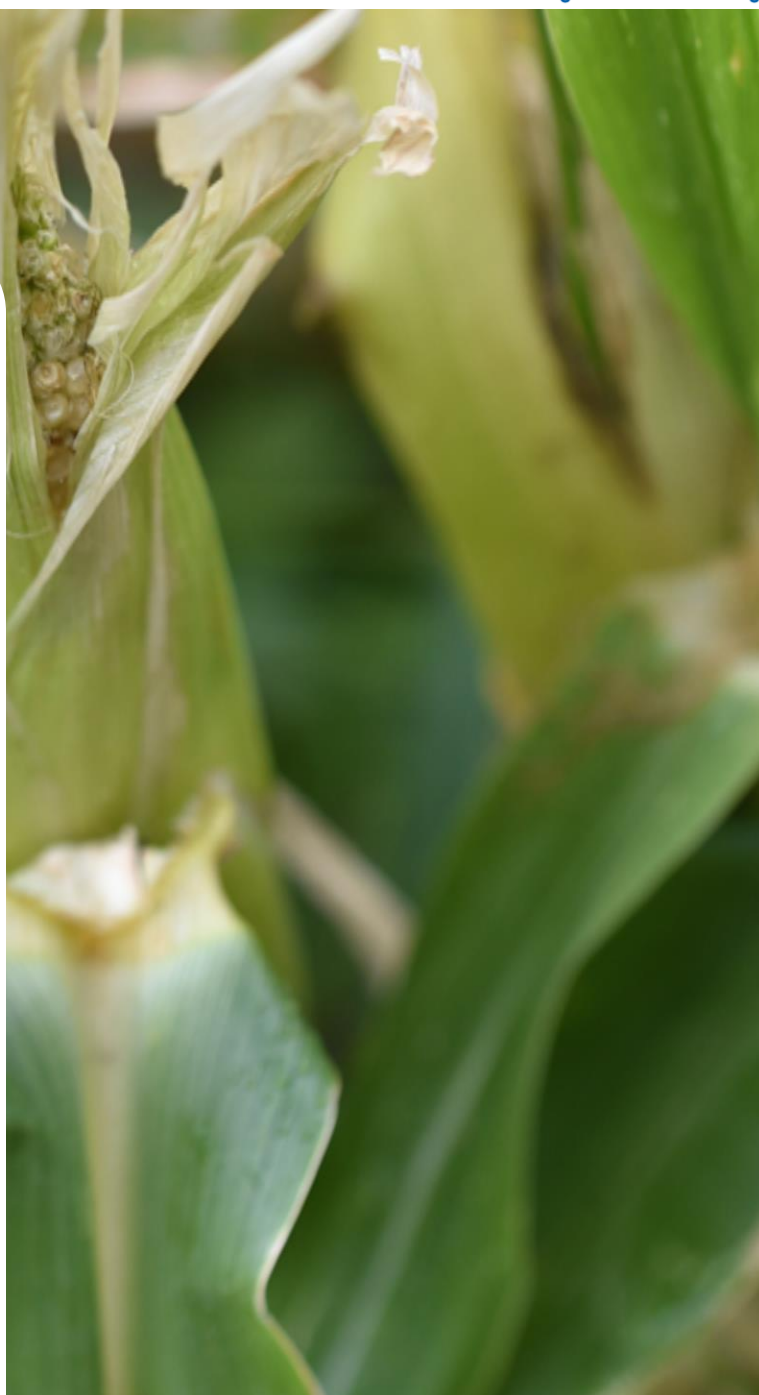
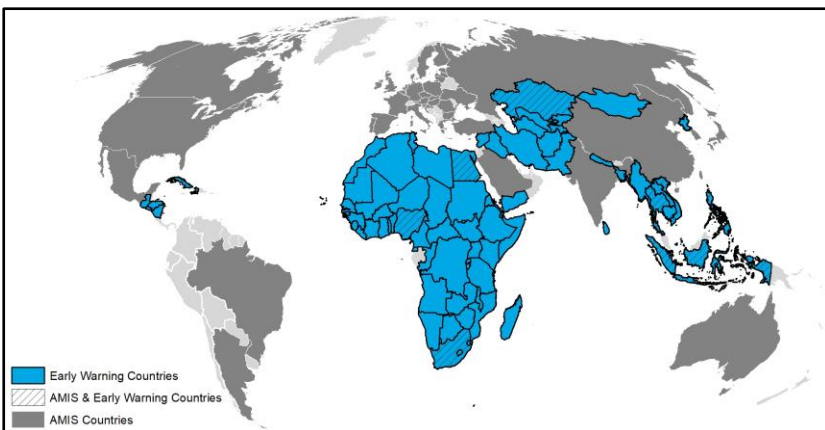


Crop Monitor

EARLY WARNING

Overview:

In **East Africa**, harvesting of main season cereals is nearing completion in the south with concern in areas impacted by persistent dry conditions, flash floods, protracted conflict, and socio-economic challenges. *Belg* season maize crops in Ethiopia finalized under poor conditions. In **West Africa**, harvesting of main season maize is underway in the south while planting and development continues in the north, and conditions are generally favourable except in regions affected by new and persisting conflicts. In the **Middle East and North Africa**, harvesting of winter wheat crops finalized under mixed conditions as persistent dryness and above-average temperatures resulted in well below-average yields in parts of Syria and Iraq and below-average yields in parts of Iran, Algeria, Morocco and marginal producing areas of Tunisia. In **Southern Africa**, winter wheat crops are in vegetative to reproductive stage for harvest from September, and conditions are generally favourable. In **Central and South Asia**, there is considerable concern for both winter and spring wheat crops as persistent drought conditions has resulted in below to well below-average yields in many areas, particularly in Afghanistan. In northern **Southeast Asia**, overall conditions for wet and dry-season rice are favourable with some concern in localized mainland areas impacted by droughts and floods. In **Central America and the Caribbean**, harvesting of main/*Primera* season cereals is underway under generally favourable conditions except in parts of Haiti where dry conditions and hot weather are impacting crops.



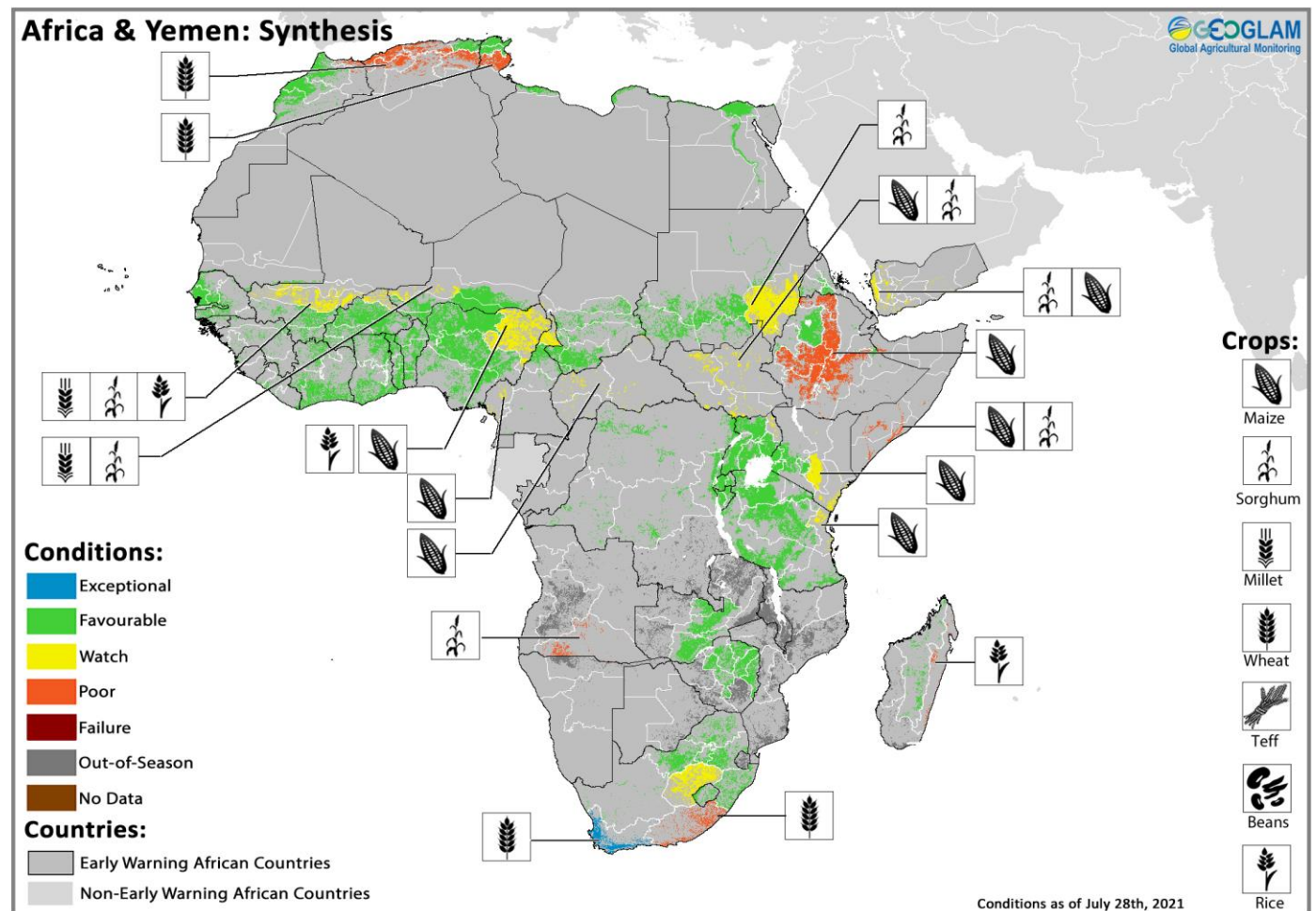
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GEOGLAM Crop Monitor for Early Warning

Crop Conditions at a Glance

based on best available information as of July 28th



Crop condition map synthesizing information for all Crop Monitor for Early Warning crops as of July 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: Harvesting of main season cereals is wrapping up in some regions, and there is concern in parts of Kenya, South Sudan, the United Republic of Tanzania, and Somalia due to dry conditions as well as in areas impacted by heavy rainfall and flash floods. Protracted conflict and socio-economic challenges remain a concern in South Sudan, Yemen, and Tigray region in Ethiopia. In Ethiopia, harvesting of *Belg* season (Short Rains) maize crops finalized under poor conditions due to persistent dryness.

WEST AFRICA: Harvesting of main season cereals has begun in the south while planting and development continues in the north, and conditions are generally favourable except in conflict affected regions.

MIDDLE EAST & NORTH AFRICA: Harvesting of winter wheat crops finalized under mixed conditions as dry and hot conditions throughout the season resulted in well below-average yields in parts of Iraq and Syria and below-average yields in parts of Iran, Algeria, northeastern Morocco, and marginal producing areas of Tunisia. In Egypt, conditions are favourable for the planting of *Nili* season (Nile Flood) rice crops and development of summer-planted rice and main season maize crops.

SOUTHERN AFRICA: Winter wheat crops are in vegetative to reproductive stage for harvest from September, and overall conditions are favourable except in parts of South Africa. Land preparation and planting of 2021/2022 main season cereals will begin in September.

CENTRAL & SOUTH ASIA: Harvesting of winter wheat crops is wrapping up, and there is significant concern as crops have failed in parts of Afghanistan, and below-average yields are expected in several areas due to persistent drought conditions. Similarly, there is concern for spring wheat crops across parts of the region and expectations of poor yields in parts of Afghanistan.

SOUTHEAST ASIA: Conditions are favourable for wet-season rice development in the north with some concern in localized areas impacted by droughts and floods. In Indonesia, conditions are favourable for both dry and wet-season rice due to sufficient rainfall received in late June.

CENTRAL AMERICA & CARIBBEAN: Harvesting of main/*Primera* season cereals is underway under generally favourable conditions except in Haiti. Planting and development of second season cereals is underway in Central America under favourable conditions.

Global Climate Outlook: 30-day Forecast of Areas with Above or Below-Average Precipitation

The 30-day precipitation forecast indicates a likelihood of above-average rainfall over the southeastern US, coastal Mexico, Guatemala, Belize, Nicaragua, Costa Rica, Panama, eastern Venezuela, Guyana, Suriname, French Guiana, northern Brazil, southern Chile, parts of the Sahel, southeastern Germany, northwestern Austria, western Belarus, southeastern Finland, northwest and southern parts of the Russian Federation, northwestern Iran, northern Mongolia, eastern China, Taiwan, the Democratic People's Republic of Korea, the Republic of Korea, parts of India, western Sri Lanka, Bangladesh, northwestern Myanmar, southern Thailand, southern Philippines, Malaysia, Indonesia, Papua New Guinea, Tasmania, and southern New Zealand. There is also a likelihood of below-average rainfall in central Canada, parts of the US Midwest, the Dominican Republic, Colombia, northeastern Peru, central Chile, western Bolivia, Uruguay, southern Brazil, Sierra Leone, southwestern Cameroon, central Italy, Bosnia and Herzegovina, Montenegro, western Serbia, western Bulgaria, eastern parts of the Russian Federation, central and western China, southern Japan, parts of India, Nepal, Myanmar, southern Laos, parts of Cambodia, Viet Nam, and central and northern Philippines.

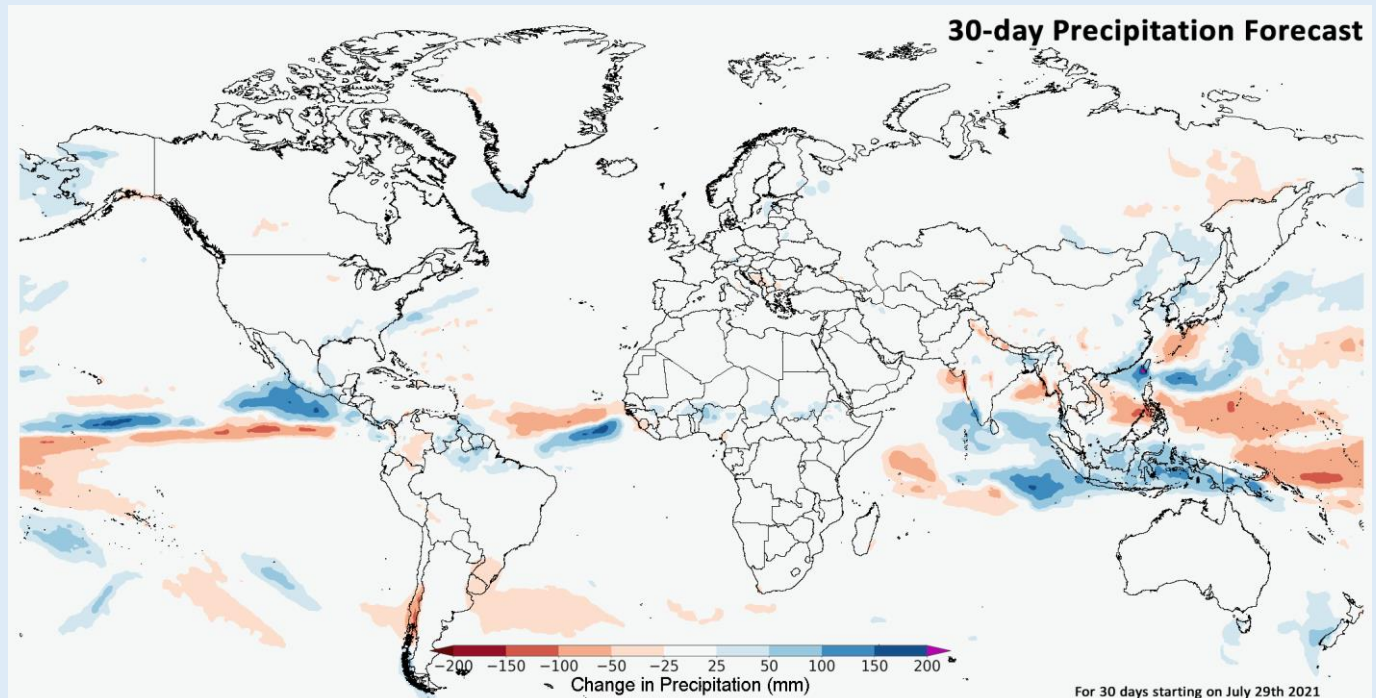


Figure 1. Forecast of areas with above or below-average precipitation over the next 30-days starting on July 29th, 2021. The image is the multimodel mean of precipitations anomaly from the Subseasonal Experiment ([SubX](#)) model forecasts for that day. The anomaly is based on the 1999 to 2016 model average. Skill assessments of SubX can be accessed [here](#).

Source: UCSB Climate Hazards Center

Climate Influences: La Nina Watch issued and negative IOD event is currently underway

Neutral El Niño-Southern Oscillation (ENSO) conditions are present and are expected to continue into September. A La Niña event will potentially develop during the September-to-November season and last through early 2022 (62% chance for October to December; 66% to 54% chance for November to March). The IRI/CPC has issued a La Niña Watch.

A negative Indian Ocean Dipole (IOD) event is underway. Negative IOD conditions are expected to continue through November or December, according to the Australia Bureau of Meteorology forecast (96% to 63% chance for August to December). Negative IOD conditions typically increase the chances of above-average rainfall in parts of southern and eastern Australia and other regions during August to December, and below-average rainfall in parts of East Africa from September to December.

Source: UCSB Climate Hazards Center

Desert Locust Update: Swarms in Ethiopia likely to continue north to northern Ethiopia, Sudan, and Eritrea where wetter than normal conditions are expected

From June through early July, swarms continued to be reported in parts of northern **Ethiopia**, northwestern **Somalia**, and **Djibouti**. Hoppers have also been reported in northwestern regions of **Somalia** where they are breeding and where reproductive activities are underway, and adults have been reported in parts of eastern **Sudan**. Locust presence poses a risk to crops in parts of **Ethiopia**, **Sudan**, and **Somalia** where swarms were present during the critical main season cereal planting period.

As of late July, a few small immature swarms persist in northwestern **Somalia**. In **Ethiopia**, swarms are likely to be present in Afar region where above-average rains since mid-July allowed them to mature, and some early egg-laying may have occurred. There is a risk to *Meher* season crops in Ethiopia as forecast high rainfall in July and August could give rise to new swarms from late September. A few swarms may also continue to the northern Ethiopian highlands where they could move to **Sudan** and **Eritrea** for breeding. Additionally, control operations in Tigray and Afar are likely to be negatively impacted by on-going conflict in Tigray, and locust numbers could increase. Some swarms may also be present in southern **Djibouti** where recent rainfall was received. In **Yemen**, good rains in July will likely allow for a generation of summer breeding and the formation of small hopper bands in the interior.

From July 29th through August 12th, wetter than normal conditions are expected in parts of northern **Ethiopia**, **Eritrea**, **Djibouti**, **South Sudan**, **Sudan**, and western **Yemen** (See Regional Outlook Pg. 8). The availability of green vegetation will continue to be suitable for locusts in northern parts of the subregion that receive above-normal rainfall. Additionally, wind movement is likely to favour north-east and northwest locust movement from northern **Ethiopia** and **Eritrea** north to **Eritrea**, eastern **Sudan**, **Yemen**, and **Saudi Arabia**.

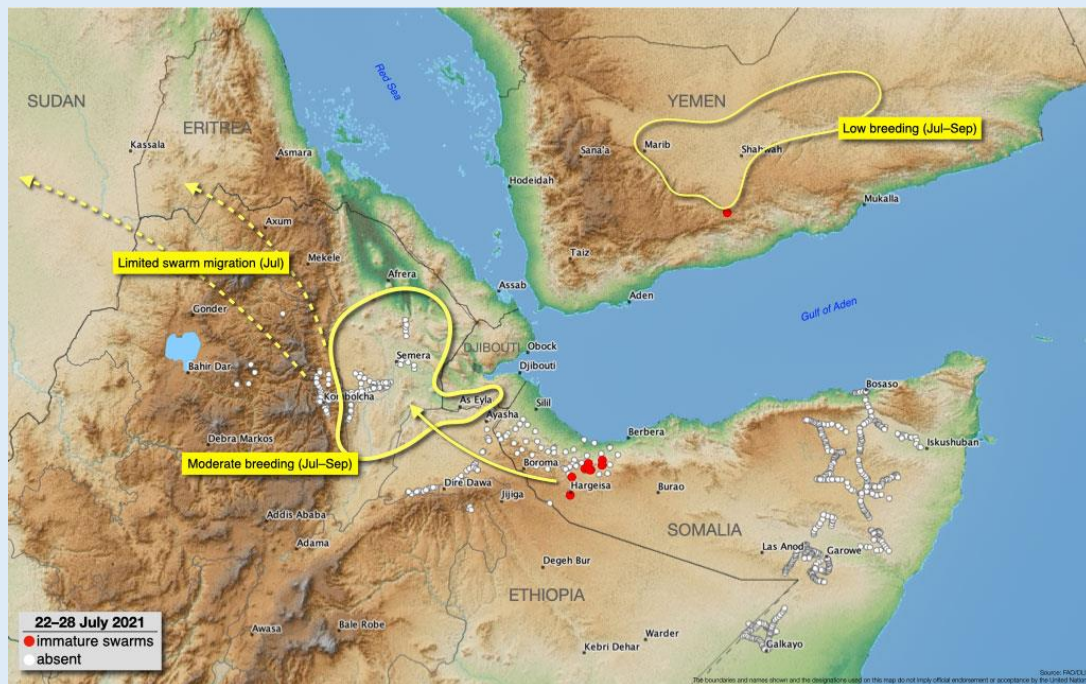


Figure 1. Desert Locust Situation Threat, July 22-28 2021. Source: FAO DLIS

Seasonal Forecast Alert: Third consecutive below-average rainfall season likely across eastern East Africa during OND 2021

After poor October–November–December (OND) 2020 and March-to-May (MAM) 2021 rainy seasons, long-lead pessimistic rainfall forecasts are indicating an alarming possibility for a third poor rainfall season in eastern East Africa during OND 2021. In areas of eastern and southern Ethiopia, eastern Kenya, and southern Somalia that were impacted by sequential dry seasons during 2020–2021 (See Crop Monitor for Early Warning [February 2021](#) and [July 2021](#) reports, Ethiopia 2021 [Belg Report](#)), multiple international and regional forecasting centers indicate that OND 2021 precipitation is likely to be below-normal again. The WMO forecast from July (Figure 1- top left) identifies a 40-to-60% chance for below-normal OND 2021 rainfall in these areas and elsewhere. The downscaled 3-month lead forecast from ICPAC also shows a similar pattern (Figure 1-top right). The NMME also predicts most-likely below-normal rainfall in this region (See East Africa Regional Outlook Pg. 8). In areas that strongly depend on OND rains, a poor OND 2021 outcome could mean a long wait before the next chance for a substantial harvest in early 2023. Forecast OND 2021 sea surface temperature conditions in both the equatorial Pacific and equatorial Indian Ocean resemble patterns known to suppress rainfall in East Africa during OND. There are indications for coinciding La Niña and negative Indian Ocean Dipole (IOD) events. Very warm conditions are forecast for the equatorial western and eastern Pacific and Indian Oceans where substantial warming trends have occurred in recent decades. Extremely warm conditions in these areas can amplify both climate modes. Warm equatorial west Pacific OND temperature predictions have been a robust [feature](#) of recent strong gradient [La Niñas](#) and associated East Africa OND droughts. Sea surface temperature forecasts from dynamical climate models anticipate these conditions (Figure 1-middle). The IOD is currently in a moderate negative state, according to the latest analysis from July 28th. [Australia Bureau of Meteorology multimodel forecasts](#) indicate the IOD event will continue at least mid-way through the OND 2021 season. While ENSO conditions are currently neutral, CPC/IRI has issued a La Niña Watch due to indications from some models and observations that a La Niña event will develop from September to November and continue into early 2022 (62% chance for OND 2021).

A [statistical forecast](#) for OND 2021 precipitation for eastern East Africa, based on NMME-forecasts of OND sea surface temperatures (Figure 1-right), identifies a range of probable outcomes, from average to below-average precipitation, with the most-likely outcome being moderate drought conditions. The model predicts a standardized precipitation index (SPI) value around -1 for OND 2021, which is more severe than in OND 2020 (SPI ~ -0.8). The statistical framework draws on well-established relationships between regional precipitation and SST gradients related to the IOD, ENSO, and a La Niña-like Pacific SST gradient. The latter gradient incorporates western Pacific influences, which has amplified eastern East Africa drought impacts during many recent La Niña-like events. Many recent dry OND seasons have been associated with strong-gradient La Niñas, and prior FEWS NET [research](#) has shown that such events are associated with an elevated risk of sequential OND and MAM droughts. Emergent climate conditions will need to be closely monitored since the arrival of a strong-gradient La Niña, combined with poor 2020 and 2021 OND/MAM outcomes, could set the stage for three or even four consecutive poor seasons in eastern East Africa.

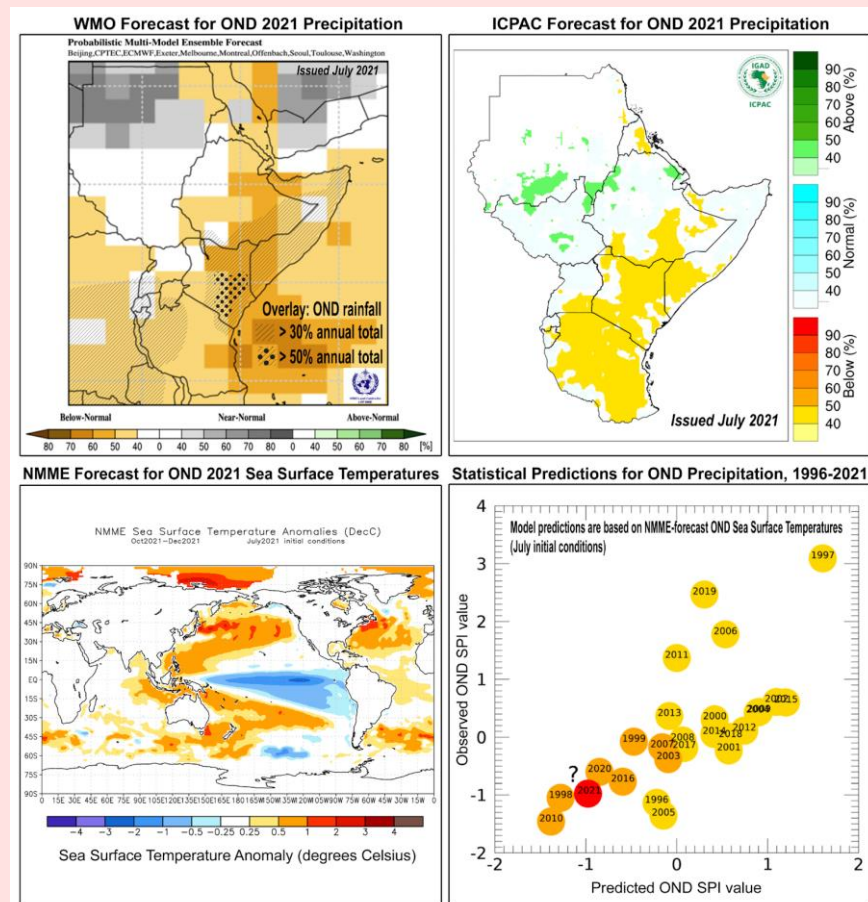
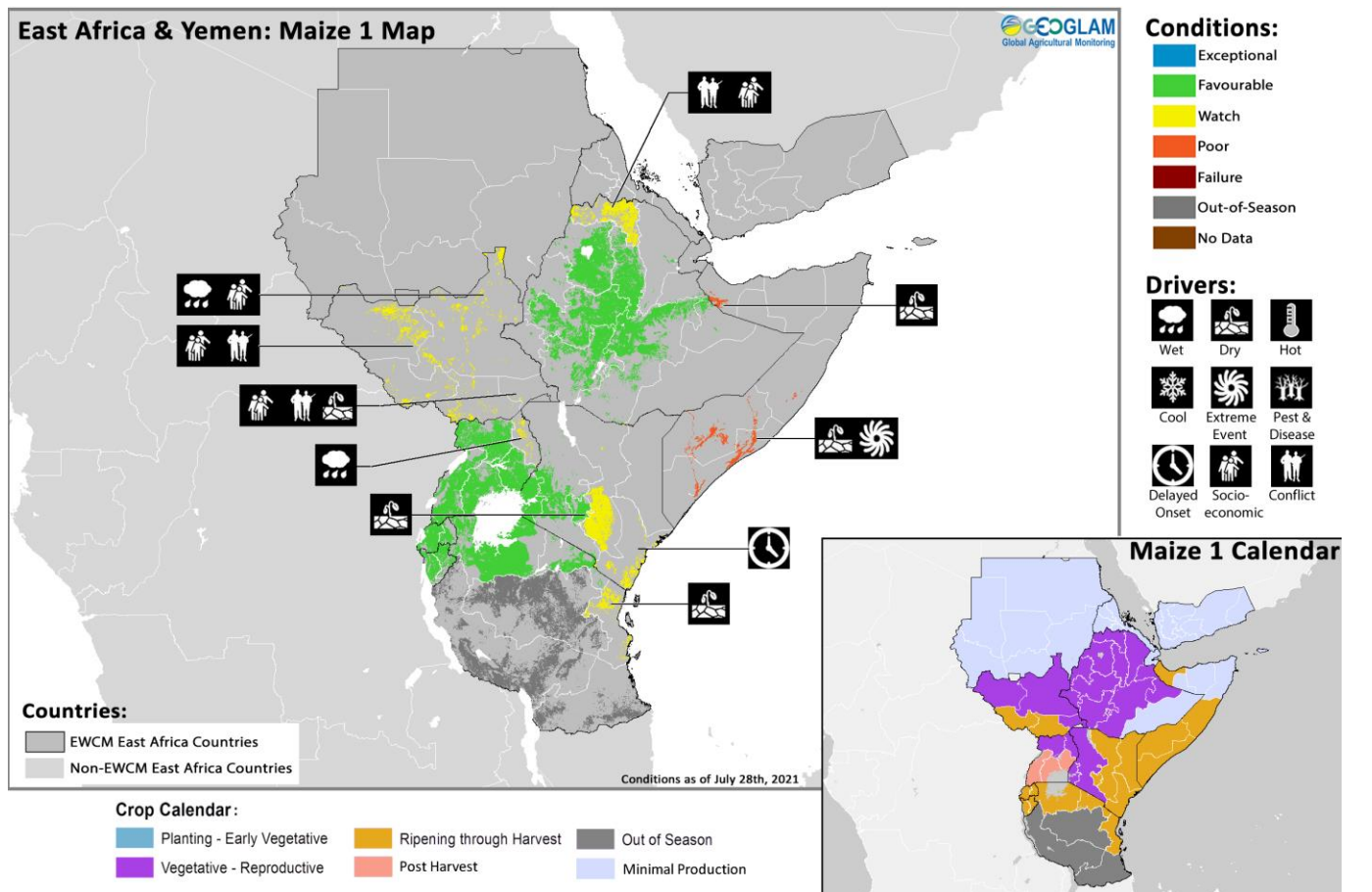


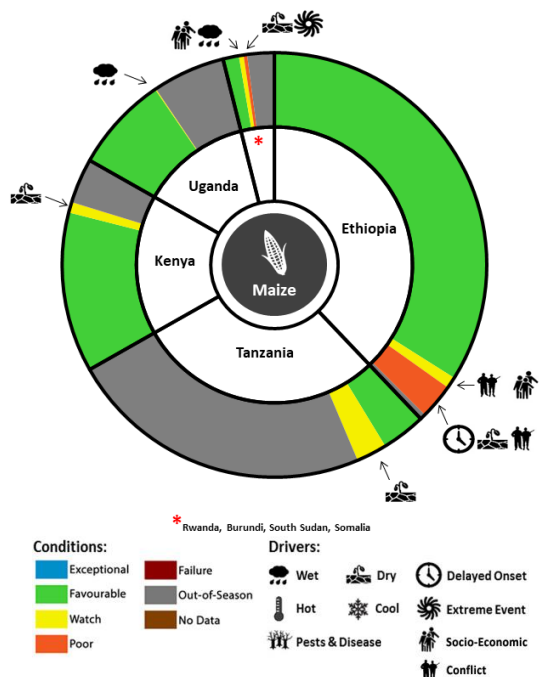
Figure 1. Top Left- WMO probabilistic forecast for October–November–December (OND) 2021 precipitation, based on models initialized in July. The overlay shows the importance of OND rainfall to annual totals. Base image from [WMO Lead Centre Long-Range Forecast Multi-Model Ensemble](#). Top right-- ICPAC's downscaled probabilistic forecast for October–November–December (OND) 2021 precipitation. Image from [ICPAC](#). Bottom left-- NMME sea surface temperature anomaly forecast for OND 2021, based on models initialized in early July. Image from [CPC NMME forecasts](#). Bottom right-- Scatterplot of predicted and observed Eastern East Africa OND Standardized Precipitation Index (SPI) values. The statistical model forecast uses July-initialized NMME forecasts for 1999 to 2021 OND sea surface temperatures for predictor regions. The overall R-squared of the regression is 0.45. The red circle shows the regression forecast for OND 2021. Past seasons, or "analog," that are similar to the current situation (orange circles) can be used for assessing historical impacts and comparison to updated forecasts. More details are provided in a [Climate Hazards Center Blog](#). Source: UCSB CHC

East Africa & Yemen



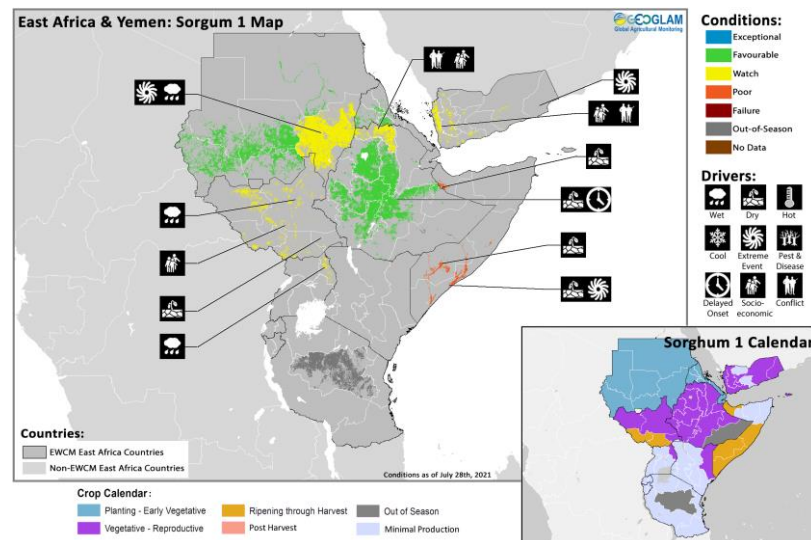
Crop condition map synthesizing Maize 1 crop conditions as of July 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable are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

Across the north of the subregion, harvesting of main season cereals is underway in **South Sudan** while planting and development continues in **Ethiopia, Sudan, Yemen, Djibouti, and Eritrea**. There is concern in parts of eastern **Sudan** and northern **South Sudan** impacted by continued flooding as above-average rainfall amounts since late April led to excessive streamflow in the Blue and White Nile, Atbara, and Sobat-Pibor-Akobo river basins in western **Ethiopia**, eastern **Sudan**, and northern **South Sudan**. This resulted in localized riverine floods and elevated the risk of flooding in other nearby areas. Elsewhere in **Sudan** as well as in **Djibouti** and **Eritrea**, planting conditions are favourable. Additionally, conflict and socio-economic issues continue to impact agricultural activities across **South Sudan, Yemen** and Tigray region in **Ethiopia**. In **Ethiopia**, harvesting of *Belg* season (Short Rains) maize crops finalized under poor conditions as delayed rainfall onset, dry conditions throughout the season, and conflict impacted yield. *Meher* season (Long Rains) cereals continue to develop under generally favourable conditions except in Tigray region due to protracted conflict. In the south of the subregion, harvesting of main season cereals is wrapping up in **Uganda**, the **United Republic of Tanzania, Burundi, Kenya, Rwanda, and Somalia**. Overall conditions are mixed as crops in northeastern **Kenya** and **Somalia** are unlikely to recover from persistent dryness throughout the season. Additionally, heavy rainfall and flash flooding impacted crops in parts of **Somalia** and northeastern **Uganda**, and there is continued concern in parts of coastal and eastern **Kenya** and northern coastal **United Republic of Tanzania** impacted by dry conditions. Elsewhere, conditions are generally favourable.

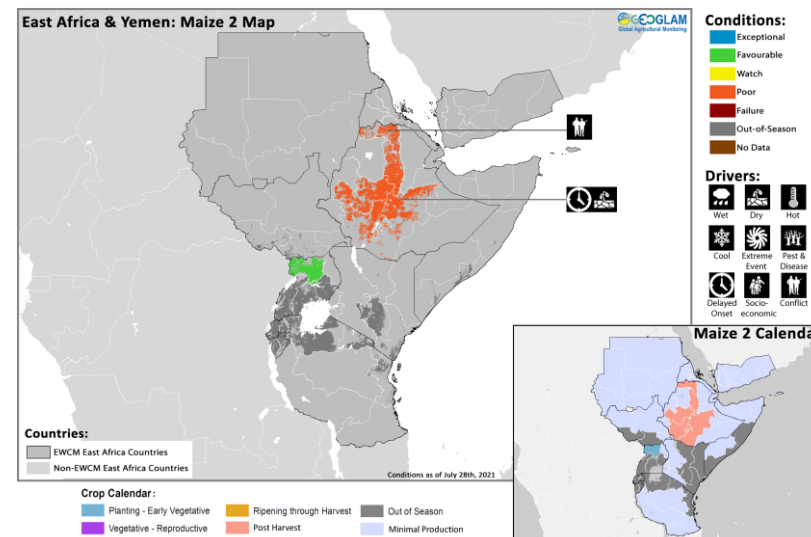


For detailed description of the pie chart please see description box on Pg. 17.

Northern East Africa & Yemen



Crop condition map synthesizing conditions as of July 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.**



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South Sudan, harvesting of first season cereals is underway with concern due to continued flooding across parts of the country, dry conditions in the southeast, and ongoing conflict and socio-economic issues that continue to impact agricultural activities. From late April, above-average rainfall has resulted in flooding in Bahr el Ghazal and Greater Upper Nile regions with significant crop damages over Aweil South county of northern Bahr el Ghazal. Land preparation is underway for second season maize and sorghum crops, and planting will begin in August. In **Djibouti**, planting of main season sorghum and millet crops commenced under favourable conditions, and harvest will take place from November. In **Eritrea**, planting of main season sorghum and winter wheat crops began under favourable conditions for harvest from November. In **Yemen**, main season sorghum and spring wheat crops are in vegetative to reproductive stage for harvest from September, and there is continued concern due to effects of socio-economic challenges and localized conflict as well as recent flash flooding in al-Mahrah, Hadramawt, Shabwa, Abyan, and Al Jawf governorates in the centre and east of the country. In the west, vegetation conditions are near-average despite some dry spells; however, forecast above-average rainfall through mid-August increases the risk of flooding (See Regional Outlook Pg. 8).

Southern East Africa

In bimodal areas of **Uganda**, harvesting of first season maize crops finalized in July while harvest of millet crops is underway, and overall conditions are favourable. In unimodal areas, first season maize and millet crops are in vegetative to reproductive stage, and conditions are favourable except in Karamoja region where excess rainfall in Moroto, Kotido, and Amudat districts is impacting crop development. Conversely, in the southwest, poor rains in some areas are likely to result in localized production shortfalls for the first season harvest in affected areas. In the northwest, planting of second season maize crops continued under favourable conditions for harvest from mid-October. Elsewhere, land preparation is underway for second season maize crops, and planting will begin in August.

In **Kenya**, harvesting of *Long Rains* maize crops is underway, and conditions are favourable in main producing unimodal areas of the west, Rift Valley, and centre. Conversely, there is concern for crops in minor producing bimodal areas of the east, northeast, and southern coast as delayed rainfall onset and dry spells may impact crops and reduce production. Following the below-average *Long Rains* season from March to May, the overall June through August (JJA) season will likely be characterized by rainfall concentrated over the western region while the coastal strip and remaining areas will mostly remain dry (See Regional Outlook Pg. 8). In **Somalia**, harvesting of *Gu* season maize and sorghum crops is underway and will finalize in August, and crops are unlikely to recover due to dry conditions throughout the season as well as flash flooding in some areas. In central and southern areas, delayed onset of seasonal rains in late April impacted planting activities and germination. In early May, above-average precipitation benefitted crop development but also resulted in localized crop losses and displacement due to flash flooding. Then in mid to late-May, erratic and below-average rainfall was followed by an early cessation of seasonal rains. Dry conditions in May adversely affected both rainfed and irrigated cropping conditions as low water levels along the Juba and Shabelle rivers limited irrigation water availability. Consequently, planted area and yield were affected in the main producing areas, and overall *Gu* season production is projected to be 20 to 40 percent below-average. In **Burundi** and **Rwanda**, conditions remain favourable for the continued harvesting of main Season B crops to be finalized in August. In the **United Republic of Tanzania**, harvesting is nearing completion for *Masika* season cereals in northern bimodal areas and for *Msimu* season rice in central and southern unimodal areas, and conditions are generally favourable except along the northern coast where below-average and erratic rains continue to impact crops. However, sorghum crops may be less impacted as they are typically more resilient to dry conditions.

Regional Outlook: Above-normal rainfall expected in northern areas through August while drier than average conditions are forecast for parts of the south.

Wetter-than-average conditions affected northern areas of the region in recent weeks while drier-than-average conditions affected portions of central-southwestern Ethiopia, Uganda, and Kenya's northern Rift Valley. Rainfall surpluses were widespread in Sudan and in northern Ethiopia, with some areas receiving amounts more than 150 percent of average. Preliminary estimates for June 26th to July 25th show amounts that are 50 mm to over 100 mm above-average in portions of central and eastern Sudan and in northern Ethiopia (Figure 1-left). In South Sudan, most areas received either average or above-average rainfall amounts. Wetter-than-average conditions are forecast to continue in many northern surplus areas during July 29th to August 12th, according to the unbiased GEFS forecast from July 29th (Figure 1-middle). Drier-than-average conditions are forecast for Uganda, western Kenya, and for portions of southwestern and central Ethiopia and southeastern South Sudan. The SubX ensemble forecast (not shown) indicates mainly near-average rainfall over the next 30 days. Some models forecast recurring above-average rainfall in portions of northern Ethiopia, Sudan, and South Sudan.

July WMO and NMME forecasts for August to September generally agree that normal to above-normal rainfall is likely to continue in the northern areas. They also indicate above-normal rainfall in Uganda and western Kenya. Central and southeastern Ethiopia, central and eastern Kenya, Somalia, and northeastern Tanzania will likely be hotter than normal (not shown).

There are heightened risks for a third consecutive below-average rainfall season in eastern areas, and corresponding successive poor agricultural production prospects for the eastern Horn (See Seasonal Forecast Alert Pg. 5). Long-range forecasts show increased chances of below-normal October-to-December rainfall in these areas (Figure 1-right). This is consistent with increased chances of a La Niña event (62% chance for La Niña, according to the CPC/IRI July official forecast) and for the currently active negative Indian Ocean Dipole event to continue into that season (~90% chance for October-November, according to the Australia Bureau of Meteorology).

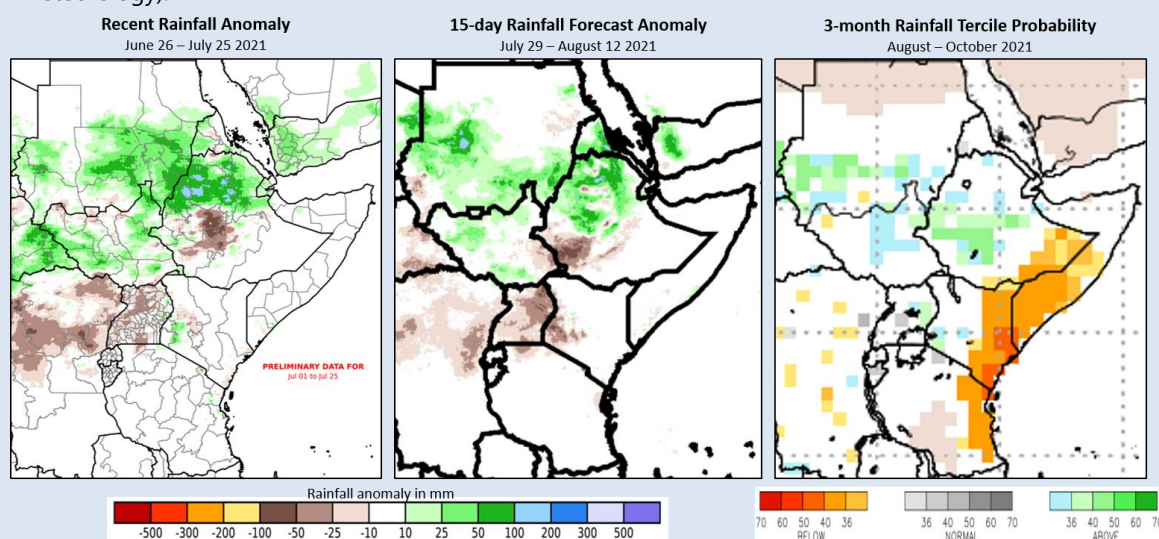
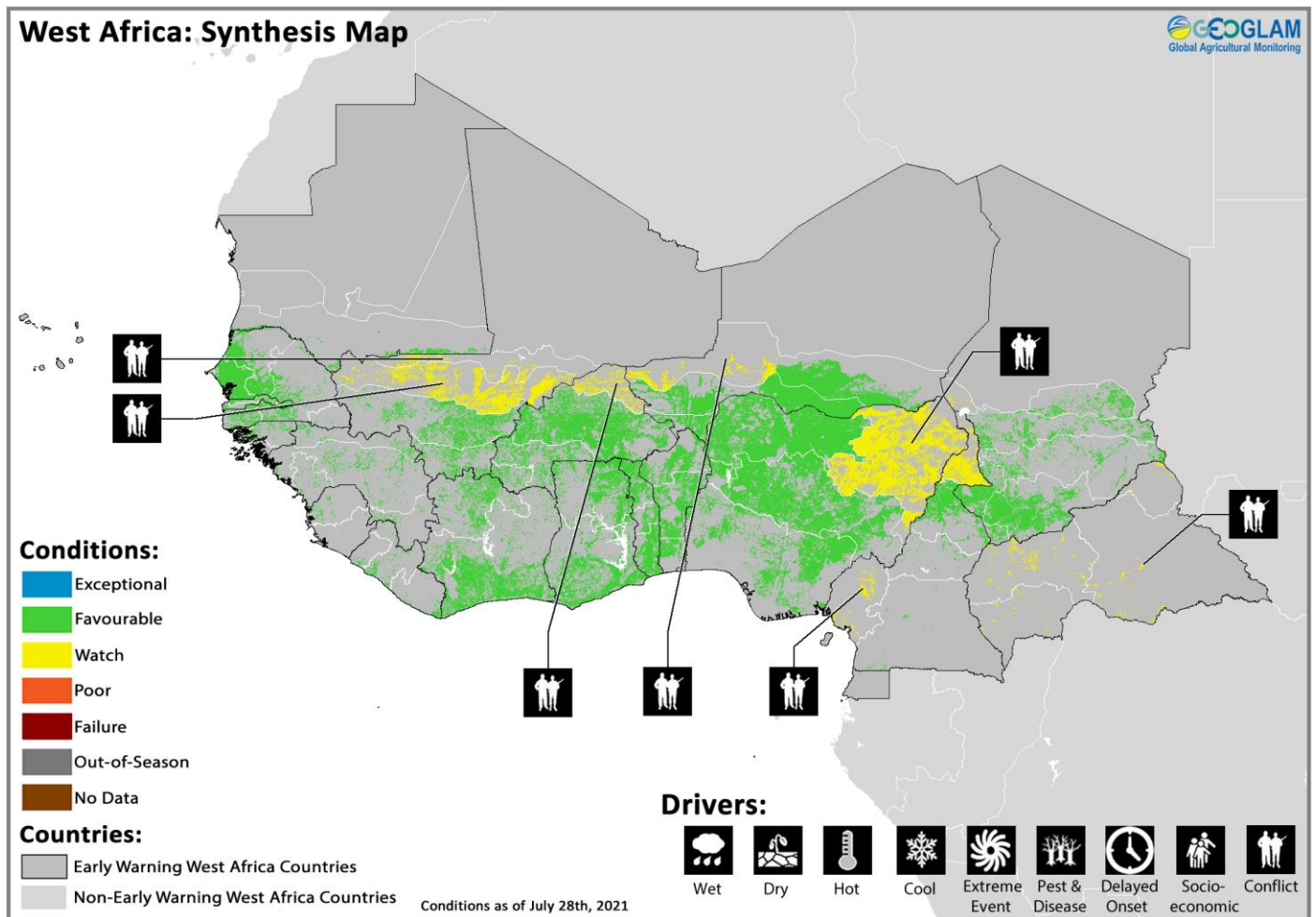


Figure 1. Recent rainfall anomaly, a 15-day rainfall forecast anomaly, and a 3-month rainfall forecast probability. The left panel is a CHC Early Estimate, which compares June 26th to July 25th, 2021, rainfall amounts to the 1981-2020 CHIRPS average. The middle panel is the unbiased GEFS 15-day forecast anomaly for July 29th to August 12th, 2021, from July 29th. The right panel is a 3-month NMME probabilistic rainfall forecast for August to October, 2021, based on July 2021 initial 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). White color indicates there is no dominant category across the model forecasts. NMME image from the [NOAA CPC Climate Forecasts](https://www.noaa.gov/climate-forecasts).

Source: UCSB Climate Hazards Center

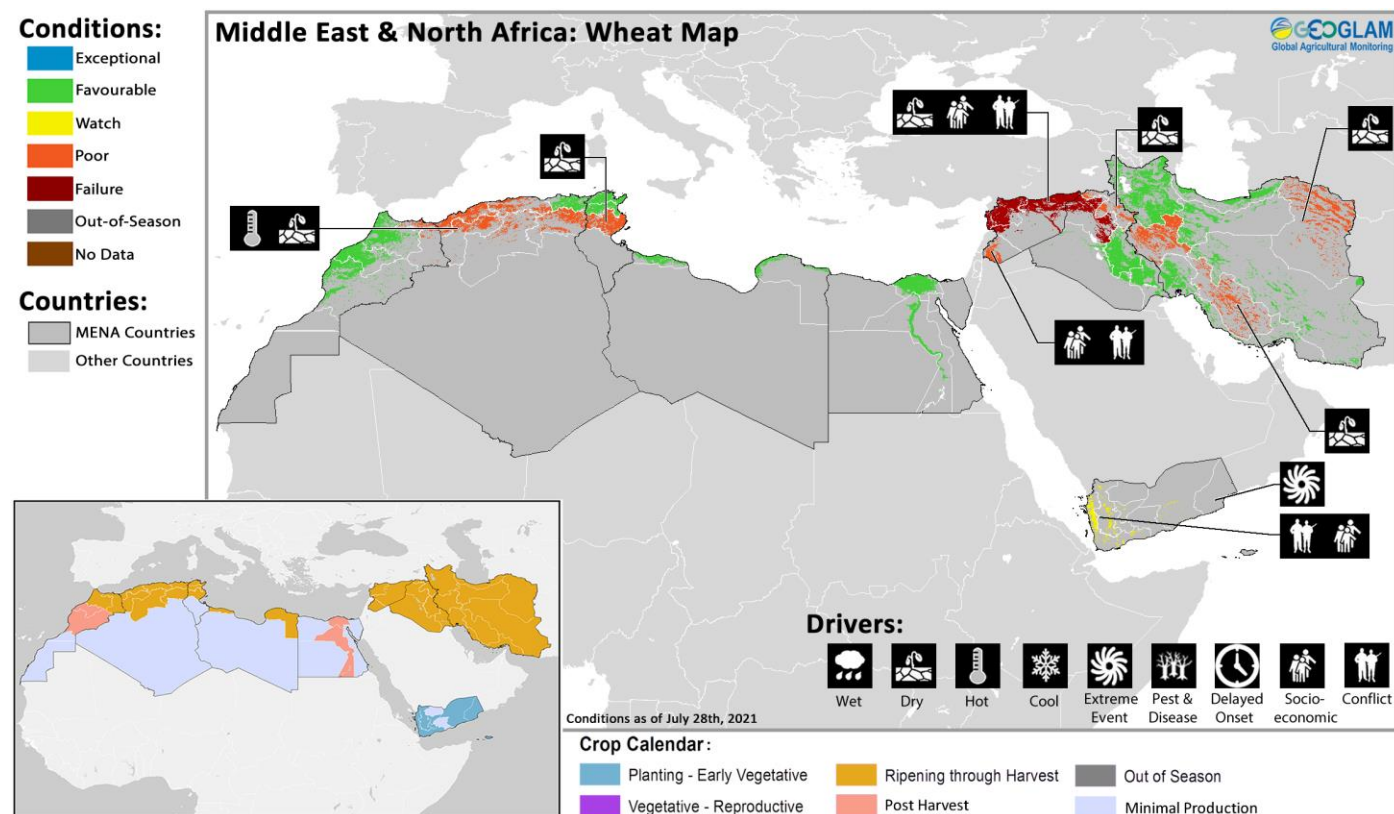
West Africa



Crop condition map synthesizing information as of July 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 south of the subregion, harvesting of main season maize is underway in southern **Benin**, southern **Ghana**, eastern **Liberia**, **Nigeria**, and **Togo** while planting and development of main season sorghum continued in **Benin**, **Cameroon**, **Cape Verde**, the **Central African Republic**, **Cote d'Ivoire**, **Gambia**, **Ghana**, **Guinea-Bissau**, **Liberia**, **Nigeria**, **Senegal**, **Sierra Leone**, and **Togo**. Additionally, planting and development of second season cereals is underway in **Cameroon** and central **Nigeria**. In the north of the subregion, planting and development of main season cereals is underway in **Burkina Faso**, **Chad**, **Mali**, and **Mauritania**. Throughout the subregion, conditions are generally favourable except in Far North and Southwest regions in **Cameroon**, Lac region in **Chad**, the **Central African Republic**, northern **Burkina Faso**, northeastern **Nigeria**, and central **Mali** where conflict continues to disrupt agricultural activities as well as in southwestern **Niger** where a deteriorating security situation is disrupting agricultural livelihoods. Increased rainfall in May and June improved crop prospects for first season cereals in **Benin**, **Ghana**, and **Togo** while in **Chad**, recent above-average rains led to localized flooding across Tandjilé, Mandoul, Ennedi-Ouest, N'Djamena, and Batha regions. In **Nigeria**, timely rainfall onset and sufficient precipitation in May and June benefitted crop germination and development across much of the country. However, concern remains in the northeast as conflict and socio-economic concerns continue to constrain access to fields and agricultural inputs. In **Niger**, a deteriorating security situation in the southwestern regions of Tillabéri and Tahoua has increased the number of displaced persons in 2021, further disrupting agricultural livelihoods and activities for the current agricultural season.

Middle East & North Africa

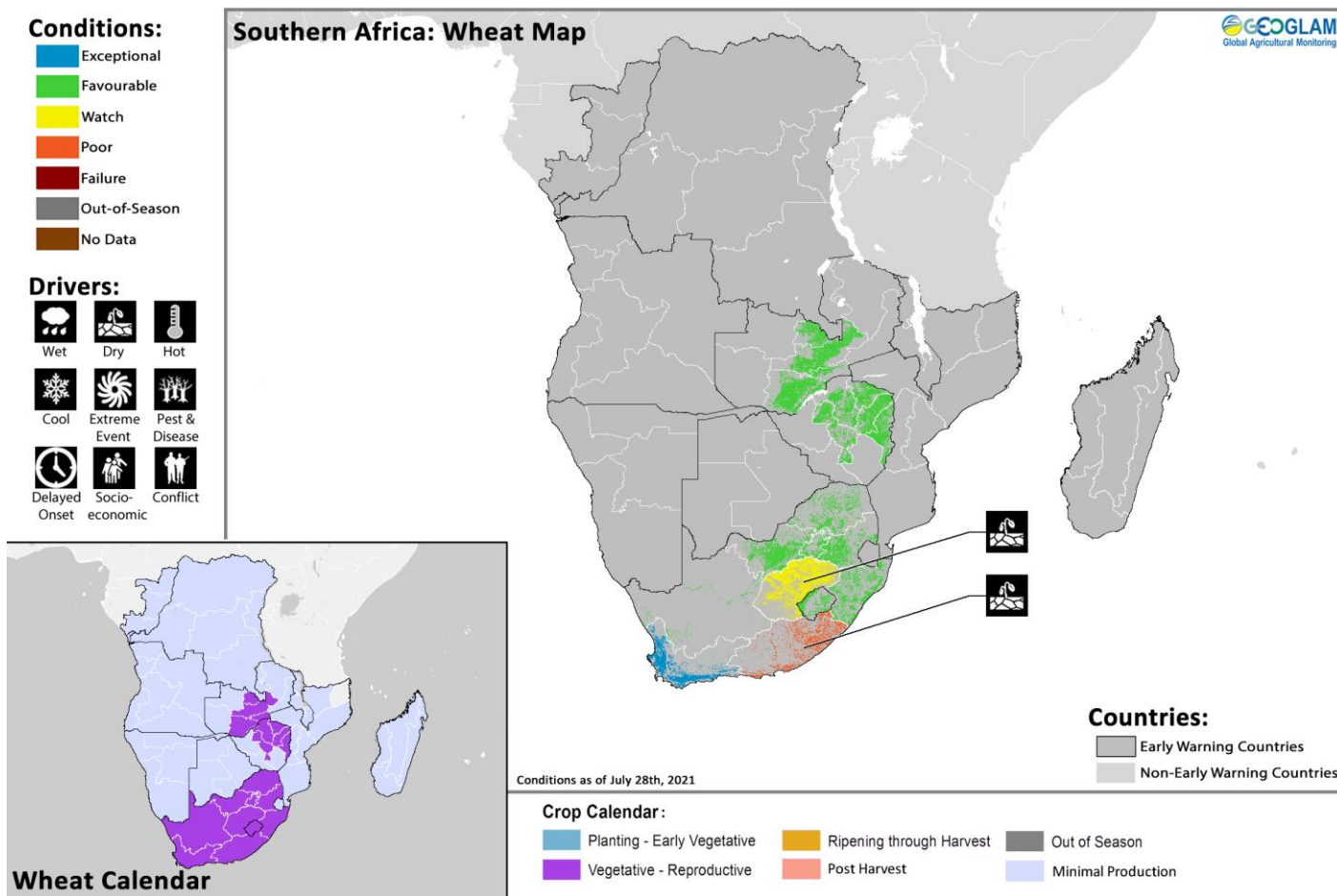


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In the Middle East and North Africa, harvesting of winter wheat crops finalized across the subregion. In North Africa, persistent dry and hot conditions throughout the season resulted in below-average yields in **Algeria**, northeastern **Morocco**, and in marginal producing areas of southwestern **Tunisia**. In **Morocco**, dry and hot conditions impacted yields in the northeast while final yields were near-average in the northwest. In **Algeria**, above-average temperatures and drought throughout the season resulted in below-average yields in most areas except for the northeast where yields are near-average. In **Tunisia**, below-average vegetation conditions throughout most of the season due to drought resulted in below-average yields in marginal producing southwestern areas as rainfall at the end of the season was too late for crops to recover. However, this is not expected to have a large impact on national production, and elsewhere in the country, yields are near-average. In **Libya**, final yields are near-average, although production is limited due to protracted conflict and socio-economic challenges. In **Egypt**, main season maize and summer-planted crops continue to develop under favourable conditions for harvest from September. Planting of *Nili* season (Nile Flood) crops began in July under favourable conditions, and harvest will begin in December.

In the Middle East, persistent dry conditions and hot weather resulted in below-average yields in parts of **Iran**, northeastern **Iraq**, and southwestern **Syria** and well below-average yields in northwestern **Iraq** and parts of **Syria**. Additionally, conflict and socio-economic challenges impacted final yields throughout **Syria** despite favourable weather conditions in the southwestern tip of the country. In **Iraq**, erratic and below-average precipitation resulted in below-average yields in rainfed areas of the north and northeast and well below-average yields in main producing Ninewa governorate and parts of Dahuk, Erbil, Sulaymaniyah, and Salah Al Din provinces. In **Syria**, dry conditions resulted in below-average yields in northwestern governorates and well below-average yields in parts of Raqqa, Aleppo and Deir-zor. Despite favourable agro-climatic conditions in Quinetra, Dara'a, and Sweida governorates in the southwest, protracted conflict and socio-economic challenges impacted yields throughout the country. In **Iran**, final production is expected to be near-average in parts of the northwest and other areas and below-average in Golestan and Khorasan provinces in the northeast, Fars province in the south, and Zanjan, Kordestan, Kermanshah, Hamedan, Markazi, Esfahan, and Lorestan provinces throughout the country due to irregular distribution of rainfall, including a strong dry spell during April across all regions and during May in the west as well as high temperatures since early April. The country-wide heatwave accelerated the senescence of winter cereals in most regions, shortening grain filling, and increased water evaporation in dams, aggravating water shortages for irrigation.

Southern Africa

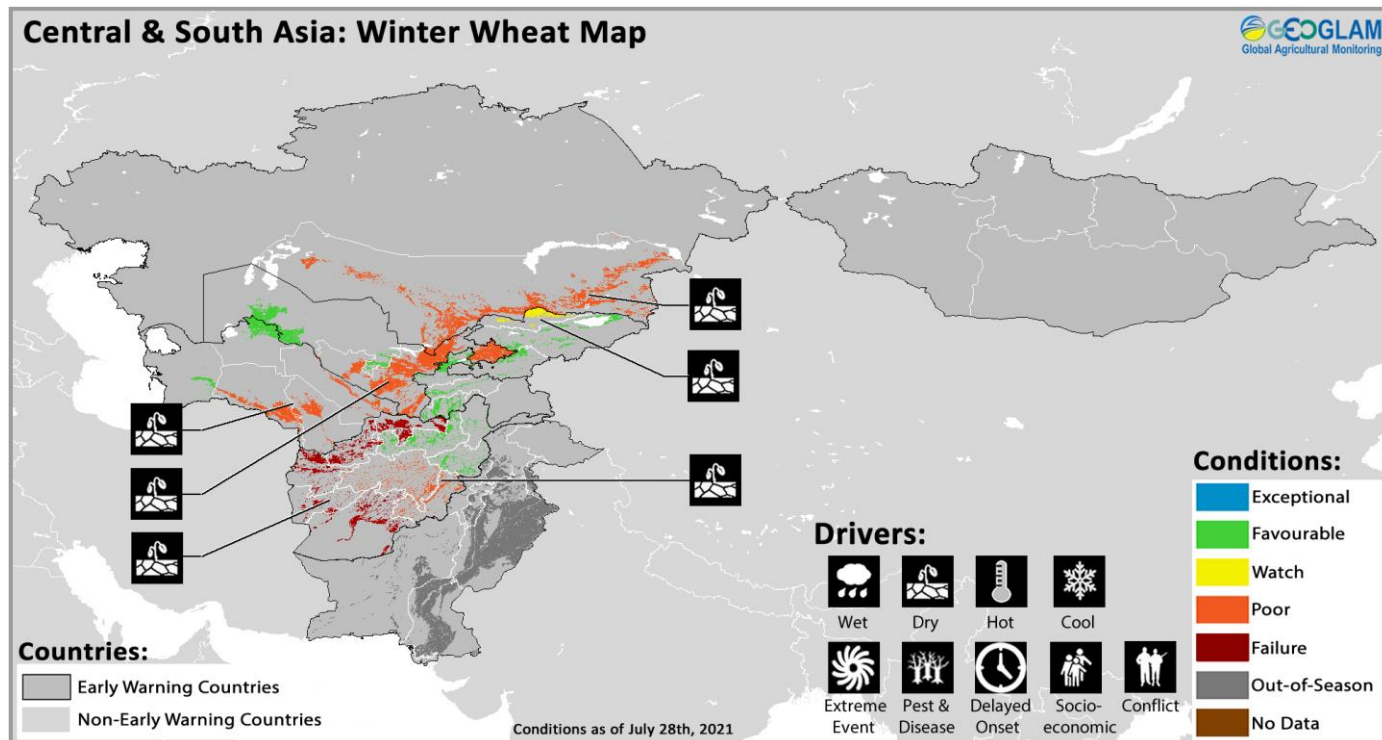


Crop condition map synthesizing information as of July 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled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

Winter wheat crops are in vegetative to reproductive stage in **Lesotho, South Africa, Zimbabwe, and Zambia** for harvest from September, and conditions are generally favourable. In the Western Cape of **South Africa**, which produces the majority of the country's rainfed wheat crop, rainfall is near-average, and yields are likely to be above-average. Conversely, crops in the minor producing Eastern Cape are unlikely to recover as dry conditions over large parts of the region will negatively impact dry-land and irrigated cultivation. Additionally, there is concern in the Free State region as additional rains will be needed in spring for dry-land production. Elsewhere in the country, earlier summer rains are likely to support irrigation water availability for mostly irrigated crops. Overall, planted area is slightly higher than the previous year, and yields are expected to remain near to above-average; however, yields are also expected to decrease from last year's record high.

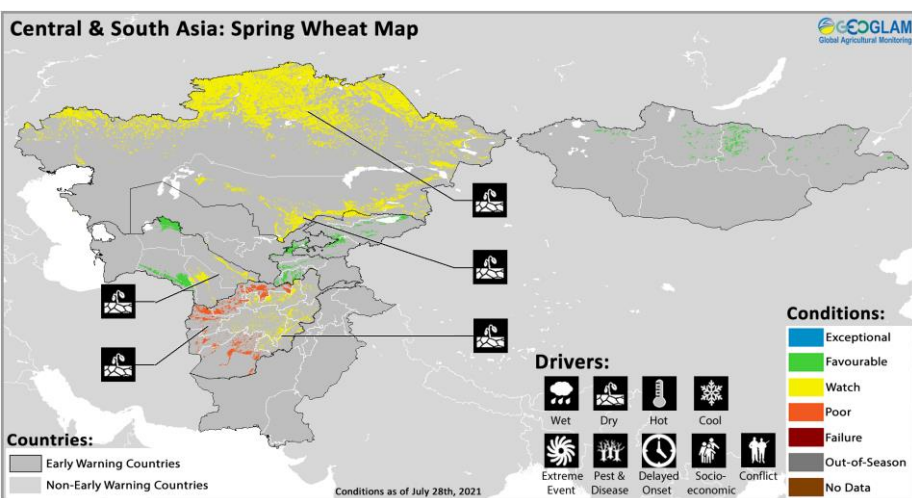
In Southern Africa, land preparation and planting of 2021/2022 main season cereals will begin in September. In the **Democratic Republic of Congo**, planting and development of main season cereals is underway while harvesting of second season maize crops is nearing completion, and overall conditions are favourable. While agro-climatic conditions have been conducive for crop growth, conflict continues to disrupt agricultural activities.

Central & South Asia



Crop condition map synthesizing Winter Wheat information as of July 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 Central and South Asia, harvesting of winter wheat crops continued in **Afghanistan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan** to be finalized in August. Overall conditions are mixed as crops in parts of west and southern **Afghanistan** have failed, and crops in central **Afghanistan**, southern **Kazakhstan, Turkmenistan**, and south, southeast, and central east **Uzbekistan** are unlikely to recover from persistent dryness throughout the season. There is also concern in northern **Kyrgyzstan** due to dry conditions. In many areas from central **Turkmenistan** to eastern **Kazakhstan**, seasonal precipitation since April has ranked as the driest or second driest in 40 years. Seasonal precipitation totals were less than 75 percent of average in many areas and around 50 percent of average in worst affected areas. Additionally, seasonal temperatures were above-average across the region. Areas in southern and western **Kazakhstan** recorded record high temperatures during a July heatwave. Conversely, conditions remain favourable in east and northeastern **Afghanistan**, central and southern **Kyrgyzstan, Tajikistan**, west and northern **Turkmenistan**, and parts of **Uzbekistan**, and yields are likely to be near-average. In **Uzbekistan**, crops in parts of the south, southeast, and central east are unlikely to recover from irregular temperatures and dry conditions from December 2020 through May 2021, excluding March. However, vegetation conditions in the far eastern Namangan, Fergana, and Andijan regions remain average. Additionally, in Navoiy region of the central north, crop growth appears to be delayed, and biomass is below-average. In **Kyrgyzstan**, below-average



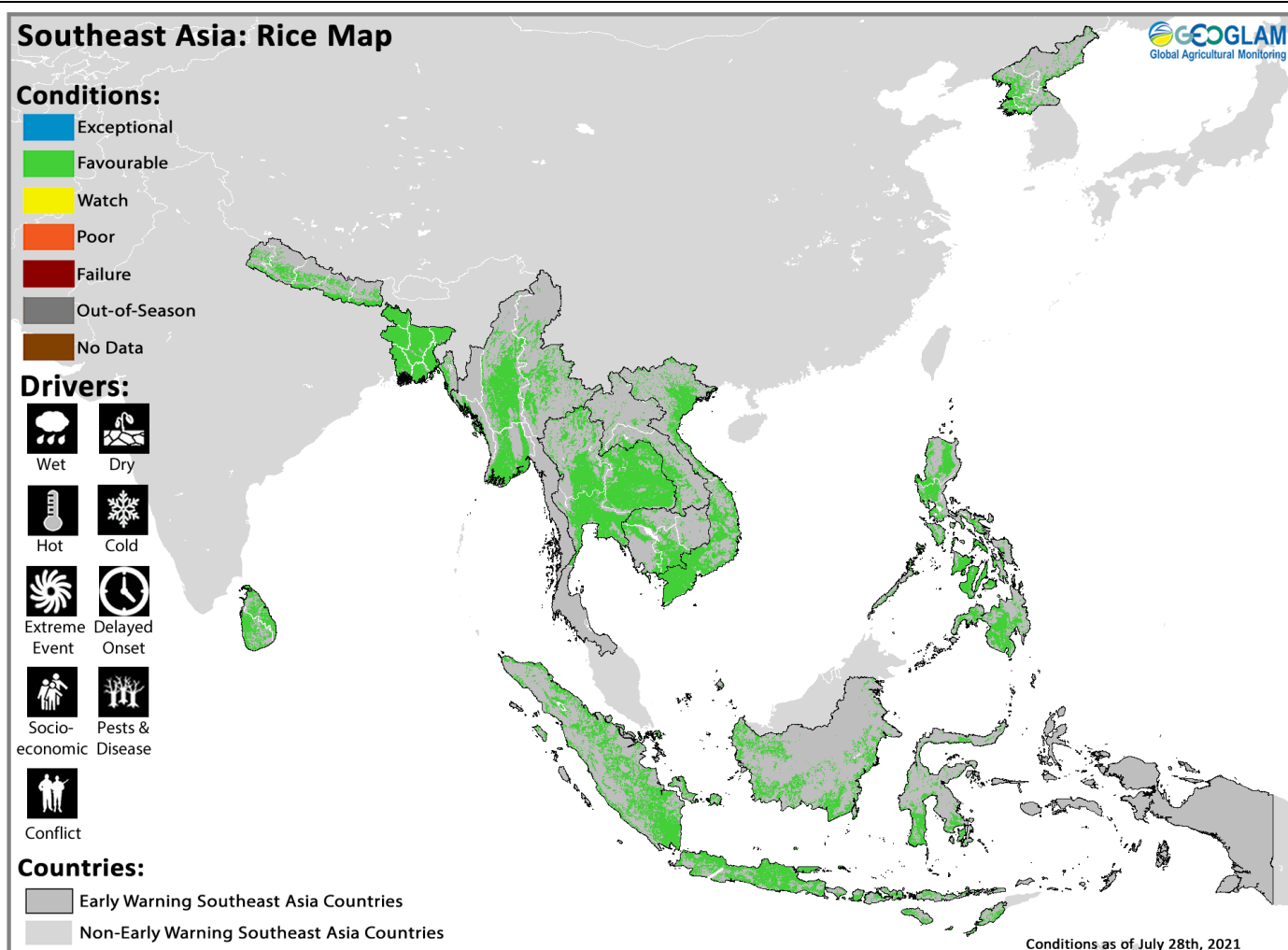
Crop condition map synthesizing Spring Wheat conditions as of July 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable are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

precipitation since late-May decreased soil moisture levels, and below-average temperatures in key wheat producing regions in the north and northwest may impact winter wheat yields. In **Turkmenistan**, prospects for winter crops are below-average in the eastern Mary, Lebap, and Ahal regions as low rainfall since January, with the exception of March, as well as erratic temperatures throughout most of the season and possibly reduced irrigation have likely impacted crop development. In **Tajikistan**, weather conditions have been generally favourable throughout the season, resulting in near-average vegetation conditions. In **Afghanistan**, winter wheat yield is expected to be below-average across the country with significant yield declines across most of the north, south, and west, though yields in the

northeast will be near-average. Significant reductions are expected for rainfed wheat production, which is concentrated in the northern rainfed belt and accounts for the majority of wheat grown in the country. Irrigated wheat production is also likely to be impacted, particularly in the west and south, though not as significantly as rainfed wheat. In **Pakistan**, planting of *Kharif* (summer) rice crops is underway under favourable conditions supported by adequate irrigation water supplies due to rainfall and melting of snow in the northern areas, and harvest will begin in October. Planted area is forecast to be close to the previous year's high level.

Harvesting of spring wheat crops is underway in **Afghanistan** while crops continue to develop in **Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, and Turkmenistan**. There is concern in parts of central and northeastern **Afghanistan, Kazakhstan**, northern **Kyrgyzstan**, and eastern **Turkmenistan** where dry conditions are impacting crop development, and below-average production is likely in north, south, and western **Afghanistan**. Conversely, conditions are favourable in central and southern **Kyrgyzstan, Mongolia, Tajikistan**, and central **Turkmenistan**. In **Kazakhstan**, there is concern across much of the country as below-average rainfall and warmer than average temperatures since May negatively affected soil moisture levels and resulted in below-average vegetation conditions, including parts of the main producing Kostanay and Akmola provinces in the north. As such, additional precipitation is needed to sustain yields. In **Kyrgyzstan**, low precipitation and soil moisture levels from late-May in the north could reduce spring wheat output. In **Mongolia**, growing conditions are favourable and have benefitted from average to above-average precipitation since the start of the season in April. Irrigated supplies are reported to be adequate, and 2021 planted area is estimated to be close to 430,000 hectares.

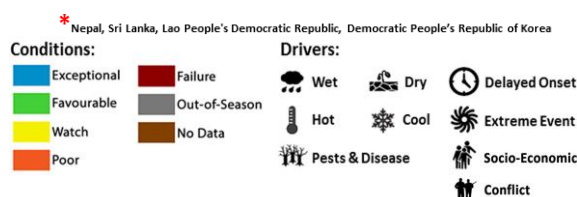
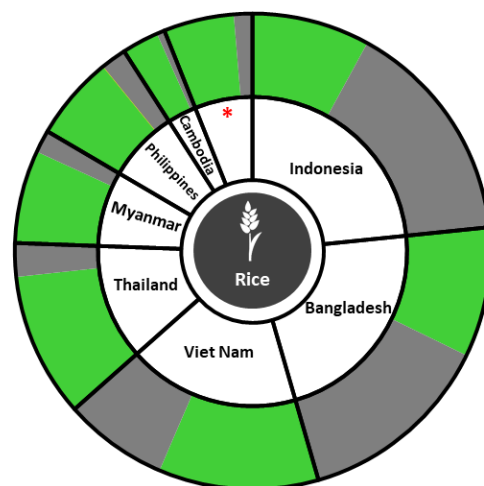
Southeast Asia



Crop condition map synthesizing rice conditions as of July 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, wet-season rice crops are mostly in tillering to grain filling stage, and overall conditions are favourable due to sufficient rainfall, though there is some concern in localized areas impacted by droughts and floods. Total planted area is expected to slightly increase from the previous year due to stable weather conditions, and harvesting of early-planted crops is underway. In **Indonesia**, conditions for dry-season rice crops have improved from the previous month due to sufficient rainfall received in late June. While planting progress remains delayed due to the protracted wet-season, rainfall in late June benefitted early

crop growth, and harvesting of early-planted crops is underway. In the **Philippines**, wet-season rice crops planted in April and May are now in the maturing stage, and growing conditions have improved from the previous month due to good weather and sufficient rainfall from the second half of June through the first half of July. While some northern provinces experienced a tropical depression in the first week of July, no crop damage has been reported. However, from July 22nd, Typhoon Fabian brought heavy rainfall and flooding to some regions, and further monsoon rains are expected to persist in southern regions through August (See Regional Outlook Pg. 15). In **Thailand**, wet-season rice crops are in the tillering stage under favourable conditions due to sufficient rainfall received from April to July. Planted area is expected to expand due to favourable weather conditions and high paddy prices, and the Government is expected to implement an income insurance program for wet-season rice production. Growing conditions have improved from the previous year, and production is expected to increase. In northern **Viet Nam**, summer-autumn (wet-season) rice is in seeding to tillering stage, and growing conditions are favourable due to better irrigation preparation compared to the previous year. In the south, summer-autumn (wet-season) rice is in young panicle forming to grain filling stage under favourable conditions, and harvesting of early-planted crops has begun in the Mekong River Delta. In lowland areas of **Laos**, wet-season rice is in tillering to young panicle forming stage under favourable conditions due to good weather conditions and sufficient irrigation water supply for paddy growth. Planted area has progressed to 780,000 hectares accounting for 101 percent of the national production plan. While some northern provinces experienced flooding from heavy rainfall in early June, no damage has been reported. In upland areas, wet-season rice crops are in young panicle forming stage under favourable conditions. In **Myanmar**, wet-season rice crops are in tillering stage under favourable conditions as monsoon weather benefitted planting activities. Planted area has reached 1.6 million hectares, accounting for 26 percent of the national plan, and planting progress is slightly faster compared to the previous year. In **Cambodia**, wet-season rice is in flowering to grain filling stage under favourable conditions, and some areas have begun harvesting activities. Planted area has reached 2.26 million hectares accounting for 87 percent of the national plan. Planting progress is slightly faster than the previous year due to good precipitation received at the beginning of the rainy season. However, drought conditions occurred in localized areas of the northwest, accounting for 1.4 percent of planted area. In **Sri Lanka**, Yala season maize and rice crops continue to develop under generally favourable conditions for harvest from August, and planted area is expected to be above the five-year average. Some small localized damage occurred to paddy crops due to flooding in June and July, but the impact was minimal. In **Bangladesh**, planting of Aman season rice crops continued in July under favourable conditions for harvest from mid-November. In **Nepal**, main season maize crops continue to develop under favourable conditions for harvest from August. Planting of main season rice crops continued in July for harvest from November, and overall conditions are favourable. In the **Democratic People's Republic of Korea**, main season cereals, which account for 90 percent of annual output, are developing under favourable conditions for harvest from August. Favourable weather conditions since April benefitted planting activities and have led to above-average vegetation conditions. A heatwave in July across the country recorded temperatures at above the 10-year maximum; however, no crop damage has been reported.



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

Regional Outlook: Above-average rainfall forecast to continue across the south in August while below-average rainfall is forecast in parts of Myanmar, Laos, Viet Nam, and the Philippines

Wetter-than-average conditions affected southern areas of the region as well as in northwestern Thailand and central Myanmar in recent weeks, while drier-than-average conditions affected northern Myanmar, eastern Thailand, Cambodia, Vietnam, and the North Kalimantan region of Indonesia. Preliminary estimates for June 26th to July 25th (Figure 1-left) show substantial rainfall deficits in central Vietnam where drier-than-average conditions have prevailed since May. Portions of the Sulawesi region of central Indonesia received 150 to over 200 percent of average rainfall over the past month.

Forecasts indicate that a similar regional pattern can be anticipated for the next month. The SubX forecast from July 29th (Figure 1-middle) indicates above-average rainfall across most of Indonesia as well as in central Malaysia and southern Thailand. Below-average rainfall is forecast in western and central-southern Myanmar, southeastern Laos, central Vietnam, and in the central Philippines.

Forecasts for September-to-November rainfall indicate increased chances of wetter-than-normal conditions in most southern and eastern areas, from Thailand to the Philippines, and into Indonesia. Particularly for southeastern areas of the region, WMO (Figure 1-right) and NMME multimodel ensemble forecasts suggest relatively high confidence in this long-lead outlook.

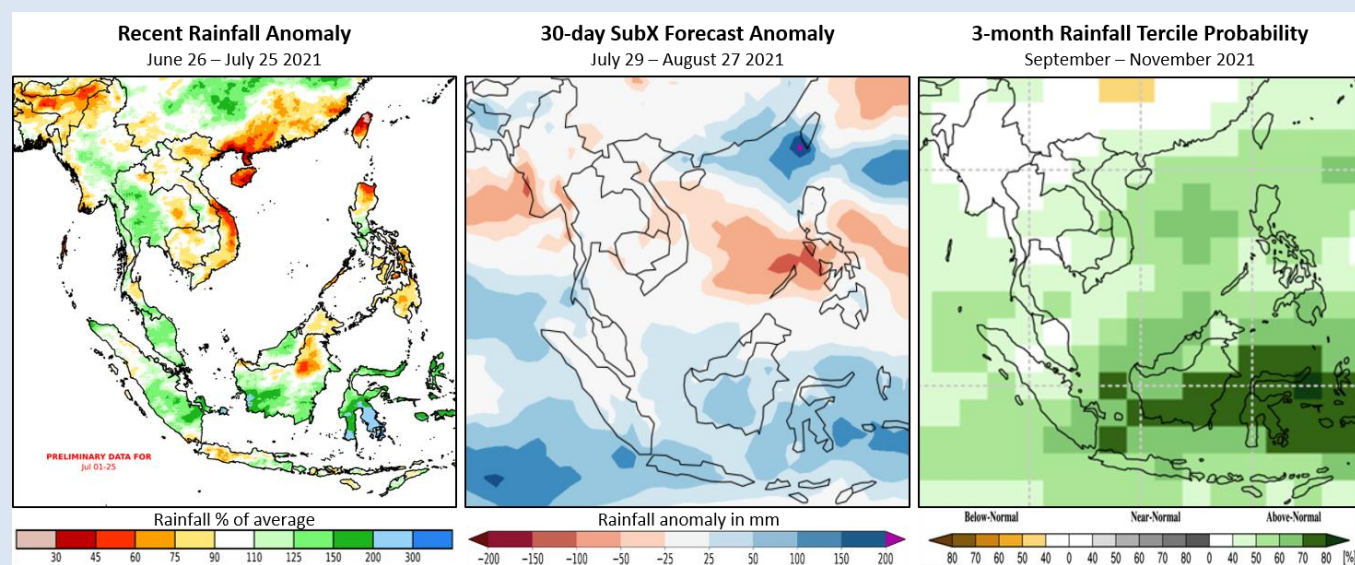
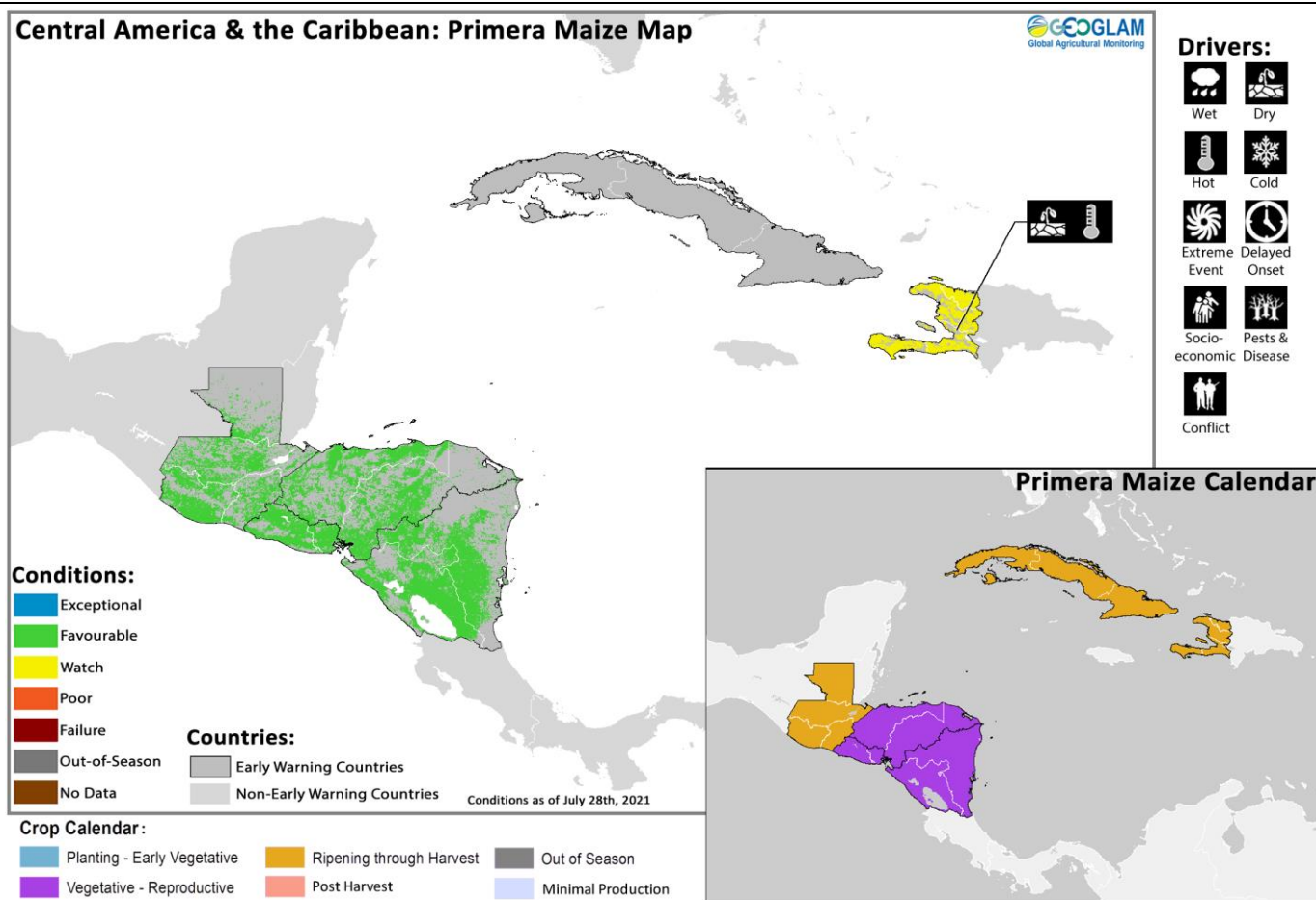


Figure 1. Recent rainfall anomaly, a 30-day rainfall forecast anomaly, and a 3-month rainfall forecast probability. The left panel is a CHC Early Estimate, which compares June 26th to July 25th, 2021, rainfall amounts to the 1981-2020 CHIRPS average. The middle panel is a 30-day forecast rainfall anomaly from July 29th. The image shows the average of five 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 [here](#). The right panel is a probabilistic forecast for most-likely September-October-November 2021 rainfall tercile from the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble, based on July conditions. White color indicates that there is no dominant category across the model forecasts.

Source: UCSB Climate Hazards Center

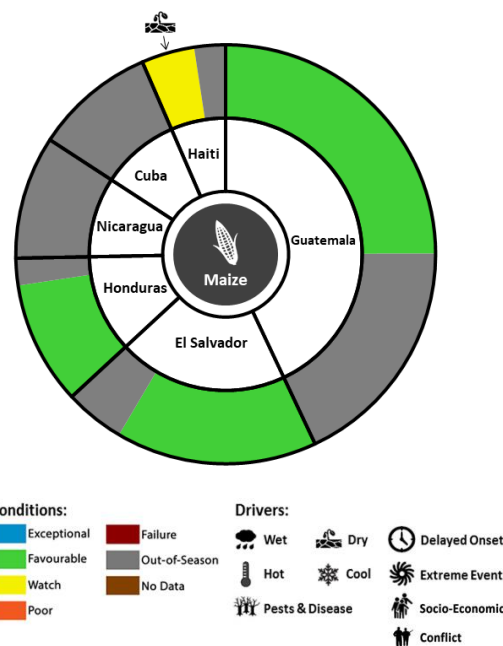
Central America & Caribbean



Crop condition map synthesizing information as of July 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, harvesting of *Primera* season maize and bean crops commenced in **Guatemala** while crops continue to develop in **El Salvador, Honduras, and Nicaragua** for harvest from October. Overall, conditions are favourable as recent rainfall has reduced previous deficits, and forecast average to above-average rainfall is likely to be sufficient for normal crop development through the remainder of the season (See Regional Outlook Pg. 17). In **Nicaragua**, recent rainfall has resulted in favourable conditions despite reduced accumulation in some areas earlier in July. In **Guatemala**, crop development is normal despite previous rainfall deficits in the southeast. In **Honduras**, crops are developing under favourable conditions despite previous rainfall deficits, and land preparation is underway for *Segunda* season maize and bean crops for the start of planting in August.

In the Caribbean, harvesting of main season cereals continued in **Haiti** and **Cuba** while planting and development of second season cereals is underway. In **Haiti**, erratic and below-average rainfall in combination with high temperatures are impacting crop development despite the passage of Hurricane Elsa in early July which brought heavy rains. Land preparation of second season maize and bean crops is underway, and planting will begin in August. In **Cuba**, harvesting of main season maize crops continued in July and will finalize in November, and conditions are favourable. However, production is expected to be below-average due to a decrease in planted area as well as dry conditions from April to May that affected late-planted crops. Second season rice crops are in vegetative to reproductive stage for harvest from October, and conditions are favourable. From July 4th to 6th, Tropical Storm Elsa brought torrential rains to the country, resulting in localized crop losses. However, agricultural production was not severely



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

affected, and increased water levels in reservoirs are expected to provide sufficient irrigation water supply for irrigated paddy crops. Forecast average July to September precipitation amounts are likely to benefit yields throughout the country; however, an expected above-average Atlantic hurricane season from June to November could result in flooding and crop damage (See Regional Outlook Pg. 17).

Regional Outlook: Average rainfall is forecast for the region in August with the possibility of some areas of above-average rainfall in southern Guatemala

Drier-than-average conditions affected Belize, western and central El Salvador, eastern Honduras, northeastern Nicaragua, and portions of Guatemala and Haiti in recent weeks, while wetter-than-average conditions affected southwestern Honduras and western Nicaragua. Figure 1-left shows preliminary estimates for June 26th to July 25th (Figure 1-left) percent of average rainfall. The GEFS probabilistic forecast from July 29th (Figure 1-right) indicates mixed conditions across the region during July 30th to August 5th. Above-average rainfall is forecast for central Guatemala, eastern Belize, and portions of western and eastern Honduras. The SubX 30-day forecast from July 29th (See Climate Influences Pg. 3) indicates mainly average rainfall in the region and the possibility of above-average rainfall in southern Guatemala. Some models indicate above-average rainfall in Nicaragua, Honduras, and El Salvador, but there is a low level of agreement.

For September-to-November rainfall, long-range forecasts from the NMME (Figure 1-bottom) and the WMO (not shown) indicate that normal or above-normal rainfall is likely for most areas of the region.

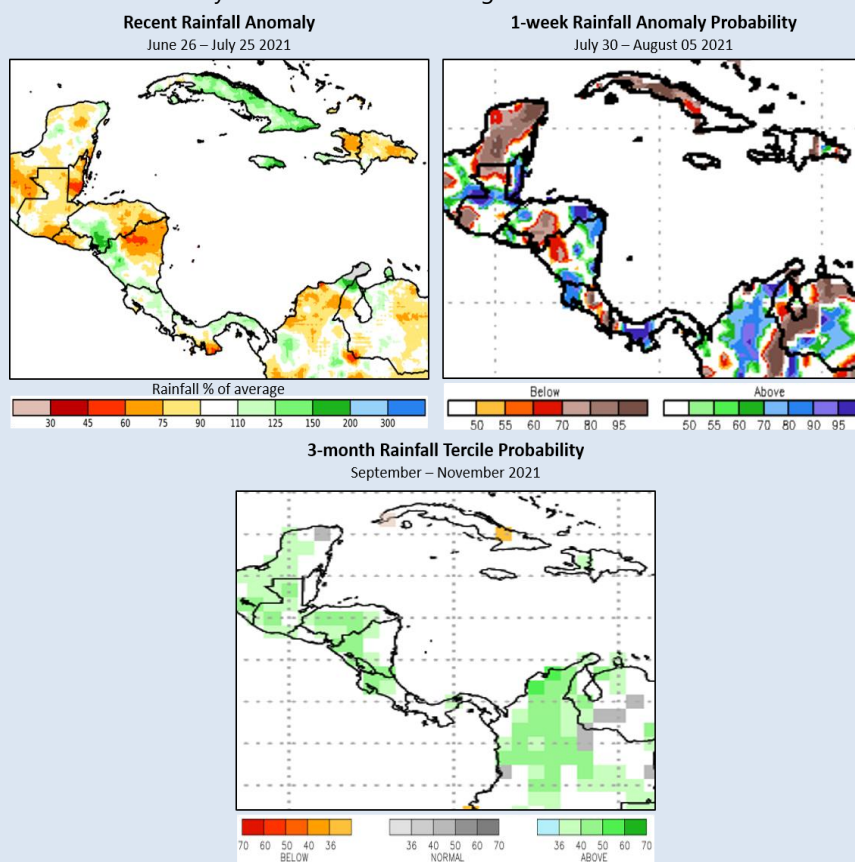


Figure 1. Recent rainfall anomaly, a 1-week probabilistic rainfall forecast, and a 3-month rainfall forecast probability. The top-left panel is a CHC Early Estimate, which compares June 26th to July 25th, 2021 rainfall amounts to the 1981-2020 CHIRPS average. The top-right panel is the GEFS week 1 forecast for July 30th to August 5th, 2021, which shows the chances for above-average (> 120% of average) and below-average (< 80% of average) rainfall. The bottom panel is a 3-month NMME probabilistic rainfall forecast for September to November, 2021, based on July 2021 initial 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). White color indicates there is no dominant category across the model forecasts. NMME image from the [NOAA CPC Climate Forecasts](#).

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 August 5th, 2021.

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.

Note: In areas where conflict is a driver of crop condition, crop conditions are compared to the pre-conflict average rather than the average conditions over the past 5 years. In areas where conflict is protracted and based on expert analysis on a case by case basis, crop conditions will be compared to the average conditions over the past five 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.

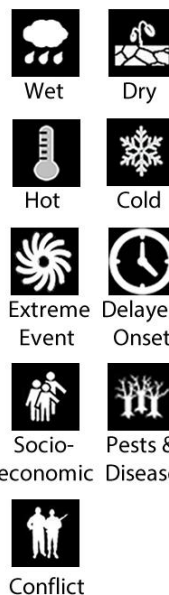
Extreme Events: This is a catch-all for all other climate risks (i.e. hurricane, typhoon, frost, hail, winterkill, wind damage, etc.)

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



Global Agricultural Monitoring

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Cover Photo by Christina Justice

Contributing partners



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