

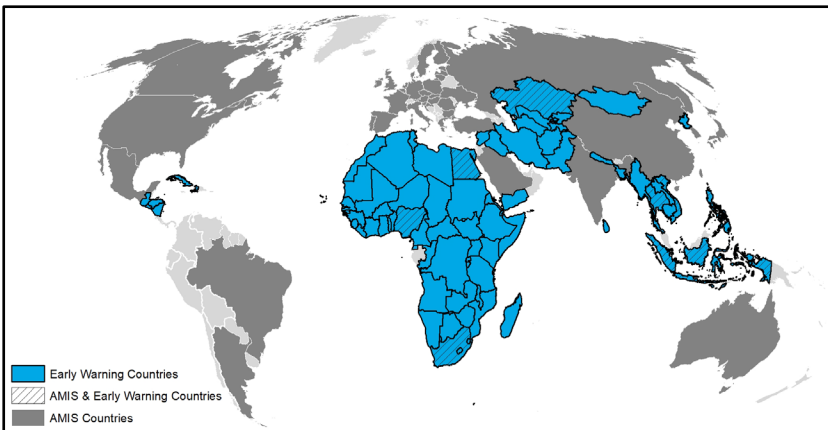
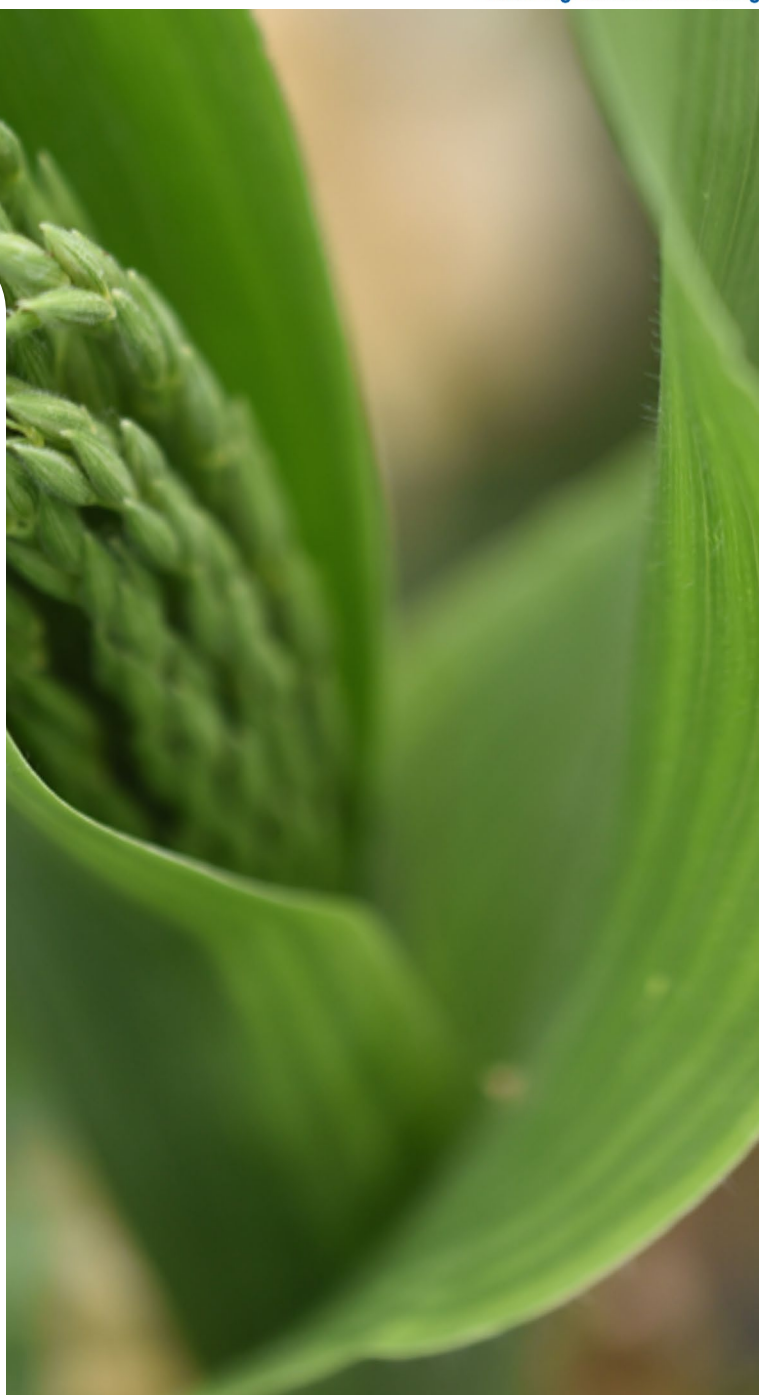


Crop Monitor

EARLY WARNING

Overview:

In **East Africa**, planting of main season cereals is underway in the north while crops are in ripening through harvest stage in the south, and overall conditions are mixed due to persistent dryness. In Ethiopia, *Belg* (Short Rains) cereals are unlikely to recover from delayed onset and below-average rainfall. In **West Africa**, planting and development of main season cereals continued under favourable conditions with concern in regions affected by dry conditions and conflict. In the **Middle East and North Africa**, harvesting of wheat crops is wrapping up with well below-average yields expected in parts of northern Morocco, Algeria, Tunisia, Iraq, and Syria, and below-average yields possible in parts of Iran due to persistent dry conditions. In **Southern Africa**, harvesting of main season cereals finalized last month with favourable and exceptional end of season conditions except in areas where significant drought and high temperatures impacted yields. Planting of winter wheat crops continued under favourable conditions. In **Central and South Asia**, harvesting of winter wheat crops continued under mixed conditions due to persistent dryness in some areas. There is also concern for spring wheat crops in Kazakhstan and Afghanistan due to dry conditions. In northern **Southeast Asia**, harvesting of dry-season rice finalized under generally favourable conditions. Planting and development of wet-season rice is underway with some concern in parts of the Philippines impacted by Typhoon Dante. In Indonesia, harvesting of wet-season rice is nearing completion with good yields expected in most regions. In **Central America and the Caribbean**, planting and development of *Primera* season maize and bean crops continued in Central America while harvesting of main season cereals is underway in the Caribbean, and overall conditions are favourable.



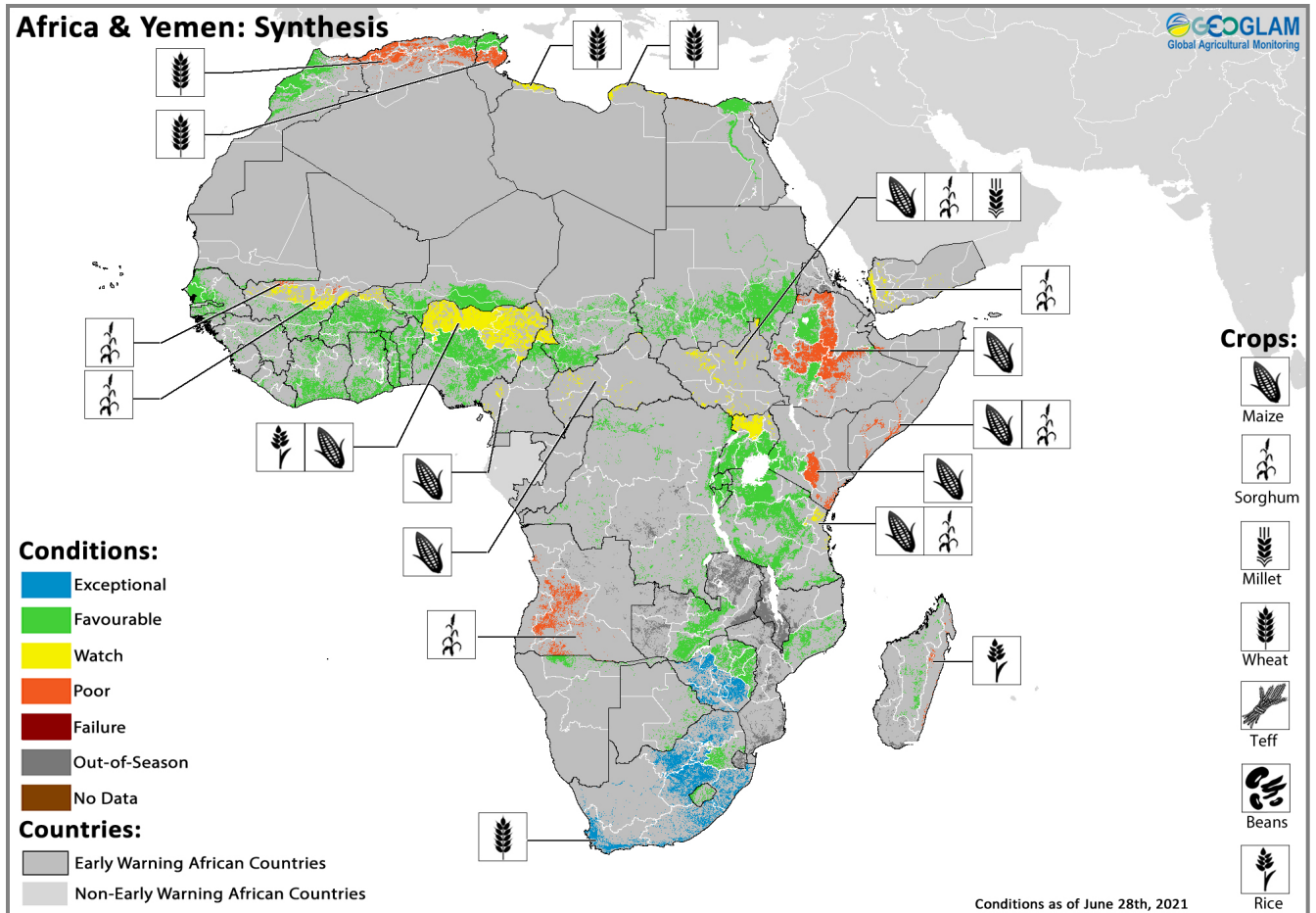
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GEOGLAM Crop Monitor for Early Warning

Crop Conditions at a Glance

based on best available information as of June 28th



Crop condition map synthesizing information for all Crop Monitor for Early Warning crops as of June 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: Planting of main season cereals is underway in the north while crops are developing in the south, and overall conditions are mixed due to delayed rainfall onset and persistent dry conditions in areas of Kenya, Somalia, and Uganda. In Ethiopia, conditions are generally favourable for *Meher* (Long Rains) cereals, except in conflict-affected Tigray region. However, *Belg* (Short Rains) cereals are unlikely to recover from persistent dryness, and production prospects are poor.

WEST AFRICA: Planting and development of main season cereals continued under favourable conditions with concern in areas impacted by delayed rainfall onset and dry conditions as well as in conflict-affected regions.

MIDDLE EAST & NORTH AFRICA: Harvesting of wheat crops is wrapping up, and well below-average yields are expected in northern Morocco, parts of Algeria, Tunisia, and the main producing regions in Iraq and Syria due to drought conditions and above-average temperatures. There is also concern in parts of Iran due to persistent dryness as well as in Syria and Libya due to ongoing conflict and socio-economic challenges.

SOUTHERN AFRICA: Harvesting of main season cereals mostly finalized last month with generally favourable to exceptional end of season conditions except in parts of Madagascar, Angola,

Namibia, and Mozambique that experienced moderate to significant yield declines due to persistent drought conditions and high temperatures. Planting of winter wheat crops continued in June under favourable conditions.

CENTRAL & SOUTH ASIA: Harvesting of winter wheat crops continued under mixed conditions due to persistent dryness in parts of Kyrgyzstan, Turkmenistan, Uzbekistan, Kazakhstan, and Afghanistan. Spring wheat crops continue to develop under favourable conditions except in parts of Afghanistan and Kazakhstan due to dry conditions.

SOUTHEAST ASIA: In the north, harvesting of dry-season rice finalized under generally favourable conditions except in Myanmar, and planting and development of wet-season rice crops is underway with concern in the Philippines due to heavy rain from Typhoon Dante. In Indonesia, harvesting of wet-season rice is wrapping up with generally good yields expected except in South Kalimantan due to flooding earlier in the season.

CENTRAL AMERICA & CARIBBEAN: Planting and development of *Primera* season maize and bean crops continued in Central America while harvesting of main season cereals is underway in the Caribbean, and overall conditions are favourable despite localized crop losses in Guatemala due to flooding and landslides as well as in Honduras due to dry 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 southern United States, northwest Mexico, Costa Rica, Panama, eastern Venezuela, Guyana, Suriname, French Guiana, Southern Chile, Sierra Leone, Liberia, Cote d'Ivoire, Romania, southeast India, Bhutan, south-central and northeast China, Democratic People's Republic of Korea, Republic of Korea, central Japan, Viet Nam, Lao People's Democratic Republic, Thailand, Cambodia, the Philippines, and eastern Indonesia. There is also a likelihood of below-average rainfall in eastern and southern Mexico, Guatemala, Honduras, El Salvador, southern Columbia, southern Brazil, Uruguay, central Chile, Gambia, southern Senegal, Guinea-Bissau, western Guinea, north-central India, Bangladesh, and western Nepal.

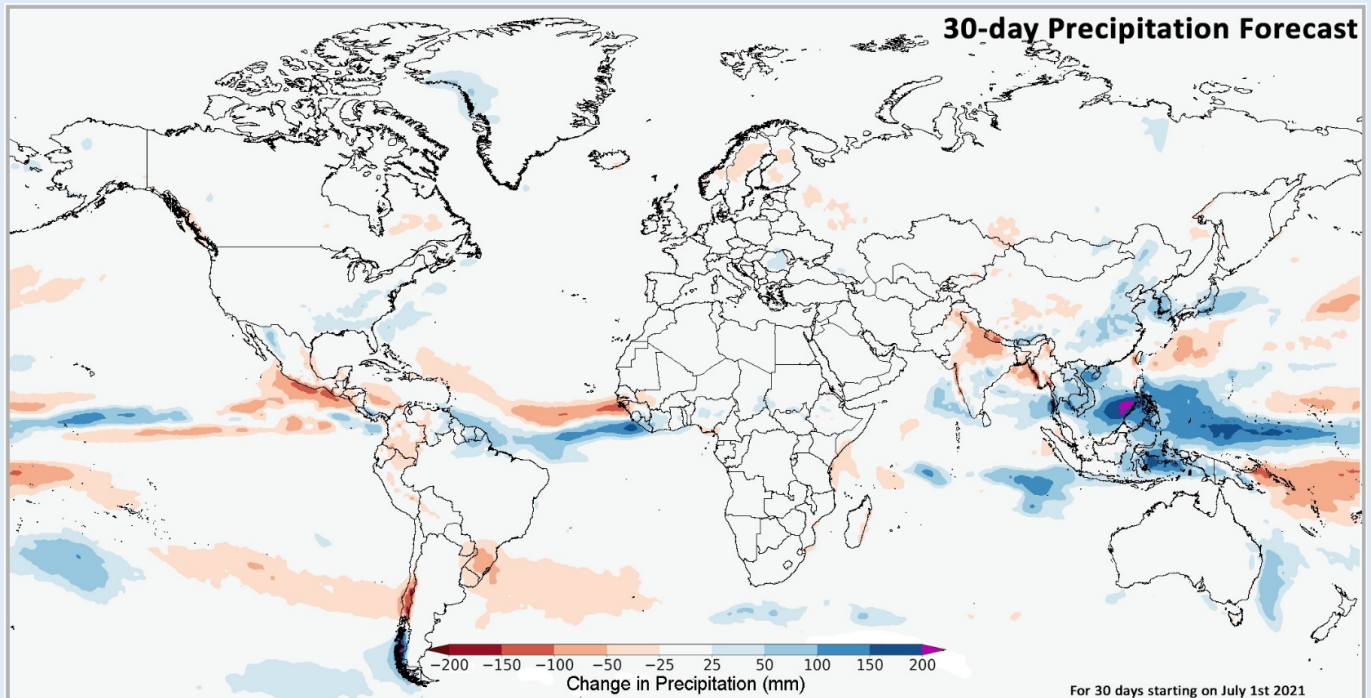


Figure 1. Forecast of areas with above or below-average precipitation over the next 30-days starting on July 1st, 2021. The image is the multimodel mean of precipitations anomaly from the Subseasonal Experiment ([SubX](#)) model forecasts for that day. The anomaly is based on the 1999 to 2016 model average.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

Source: UCSB Climate Hazards Center

Climate Influences: Neutral ENSO is present and negative IOD is forecast to develop Summer 2021

Neutral El Niño-Southern Oscillation (ENSO) conditions are present and are expected to continue from July through September (64% chance). IRI/CPC forecasts in July indicate increased chances for La Niña (62% chance) during October to December 2021.

A negative Indian Ocean Dipole (IOD) event is likely to develop in July or August and persist for several months, according to Australia Bureau of Meteorology forecasts and recent sea surface temperatures. Negative IOD conditions can increase the chances of above-average rainfall in parts of southeastern Australia during July to November and below-average rainfall in parts of East Africa from September to December.

Source: UCSB Climate Hazards Center

Desert Locust Alert: Swarms in Somalia, Ethiopia, and Djibouti are expected to move to northeastern Ethiopia for summer breeding from August to October

In the Horn of Africa, heavy rains in late April and early May have resulted in ideal conditions for large-scale breeding and an increase in locust numbers. In June, many groups of locust nymphs formed in the northwest and parts of the east, giving rise to increasing numbers of immature swarms in northwestern **Somalia**, eastern **Ethiopia**, and southeastern **Djibouti**. Swarms that have already formed are expected to move during late June and early July to northeastern **Ethiopia** for summer breeding from August to October. A new generation of swarms from late June are expected to move to Afar region from eastern **Ethiopia** and northern **Somalia** for August and September summer breeding when rains are forecast to be above-average. However, the current infestation is significantly lower than the previous year.

In **Ethiopia**, abundant rains in late April and early May allowed remaining swarms to mature and lay eggs in Oromiya and Somali lowland areas. Instar hopper bands and immature swarms are present in the northeast near the borders of Djibouti and Somalia. In late June, an immature swarm was seen near the Amhara and Afar border, and one immature swarm reached Afar. In **Sudan**, breeding occurred near the Nile, and scattered adults appeared in summer breeding areas. In northern **Somalia**, ongoing breeding poses a risk to *Gu* season production. Breeding in the north is expected to continue until grounds dry, and there remains a risk of movement to northern Yemen and northeastern Ethiopia. In early July, immature swarms were declining in the northwest, though there had been increased sightings in adjacent areas of Ethiopia and Djibouti, indicating expected migration towards northeastern Ethiopia. In **Djibouti**, late instar hopper bands and immature swarms are present in the south. In **Saudi Arabia**, breeding ended in the north, and immature groups moved south into Yemen. In **Yemen**, swarms appeared in the northern highlands where they will likely move to the interior for summer breeding. However, some swarms could migrate to Afar region where forecast above-average July to September rains could increase the scale of summer breeding.

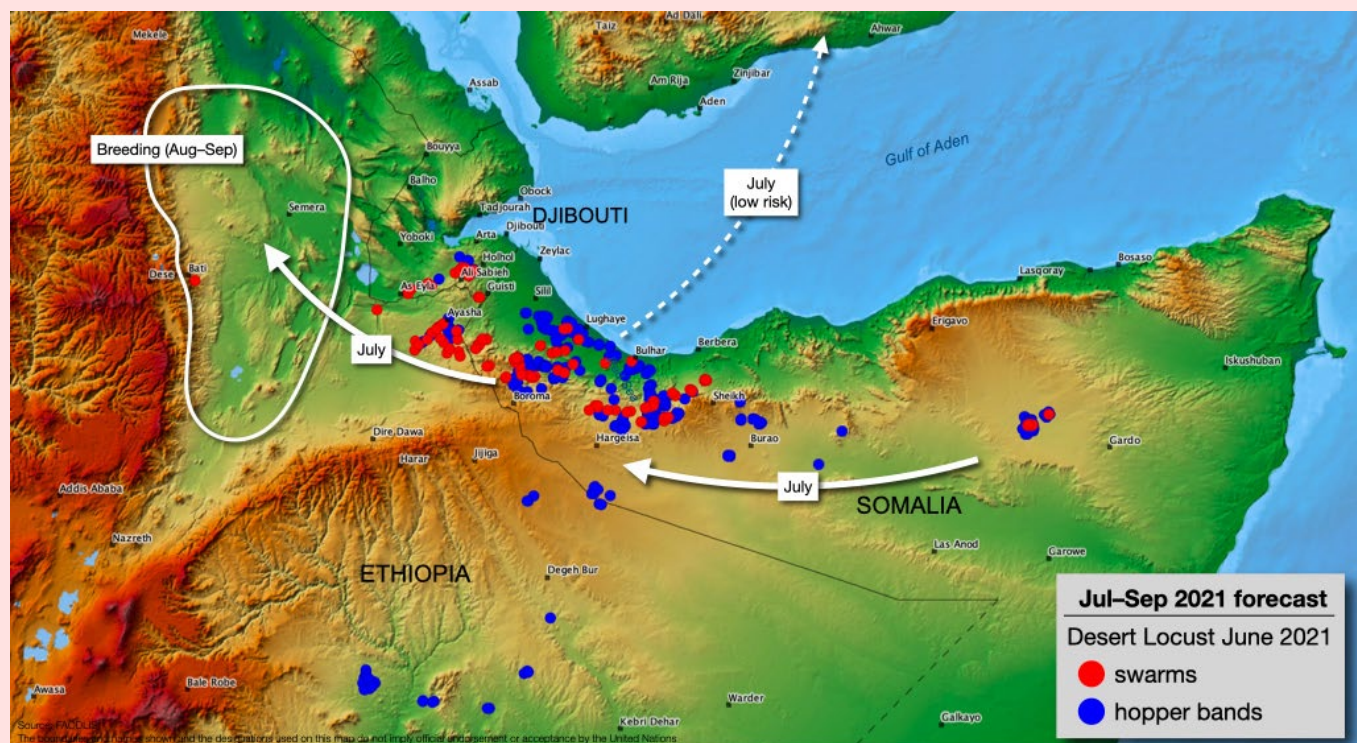
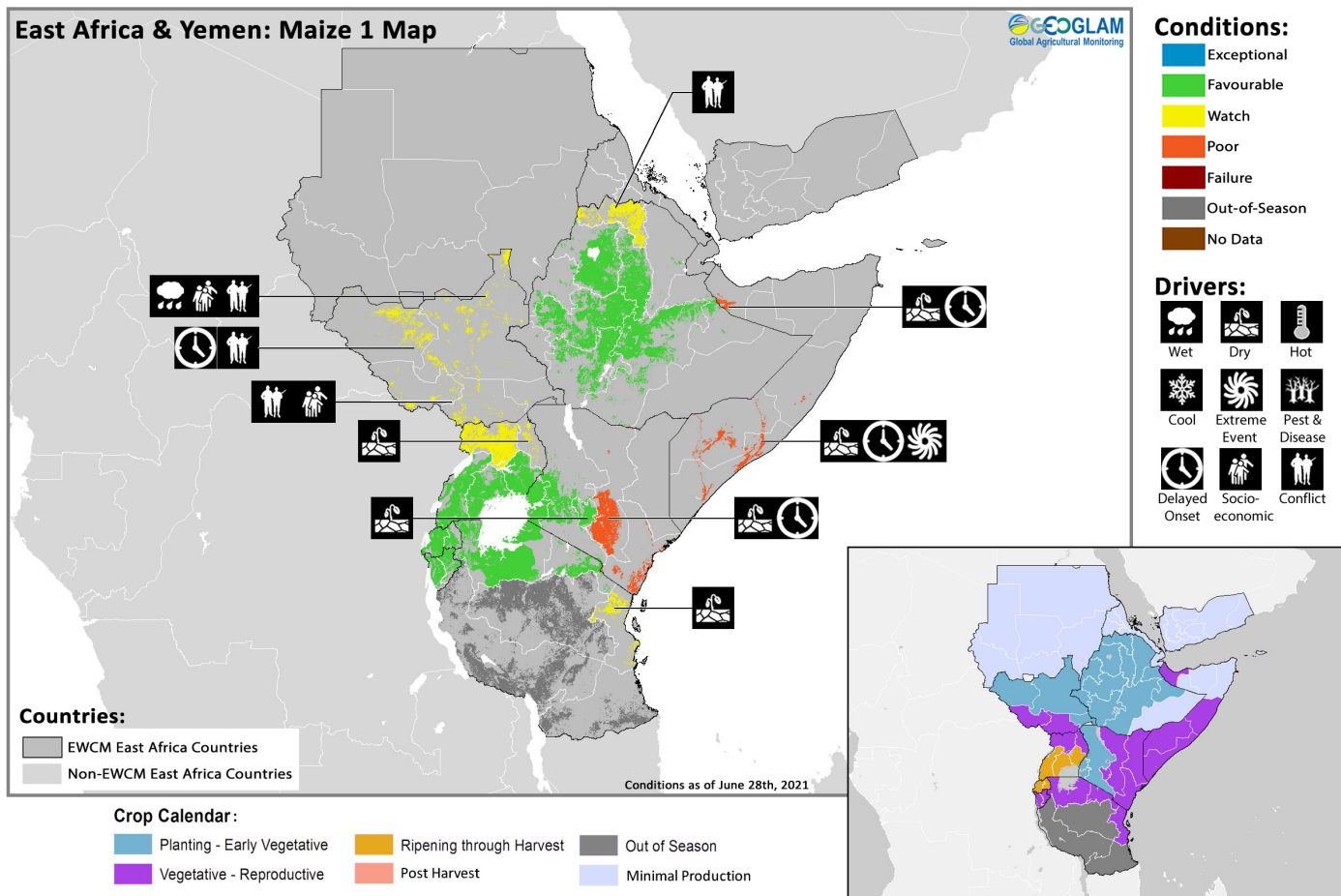


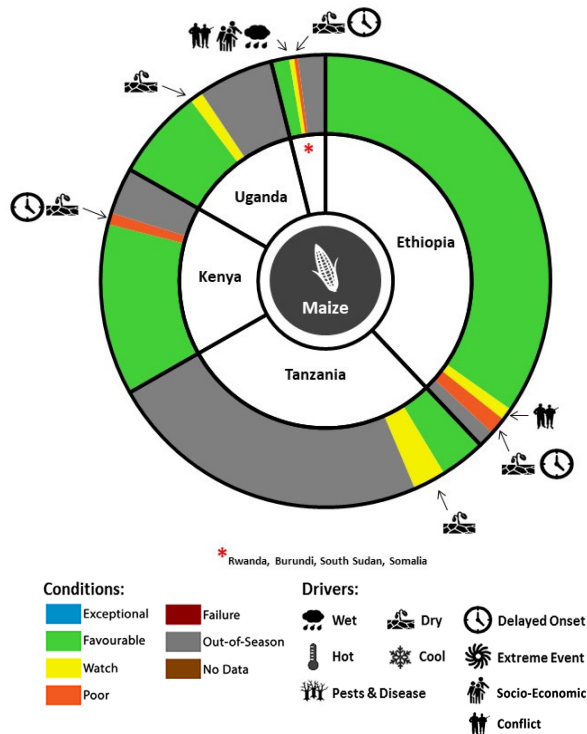
Figure 1. Desert Locust Forecast, July-September 2021. Source: FAO DLIS

East Africa & Yemen

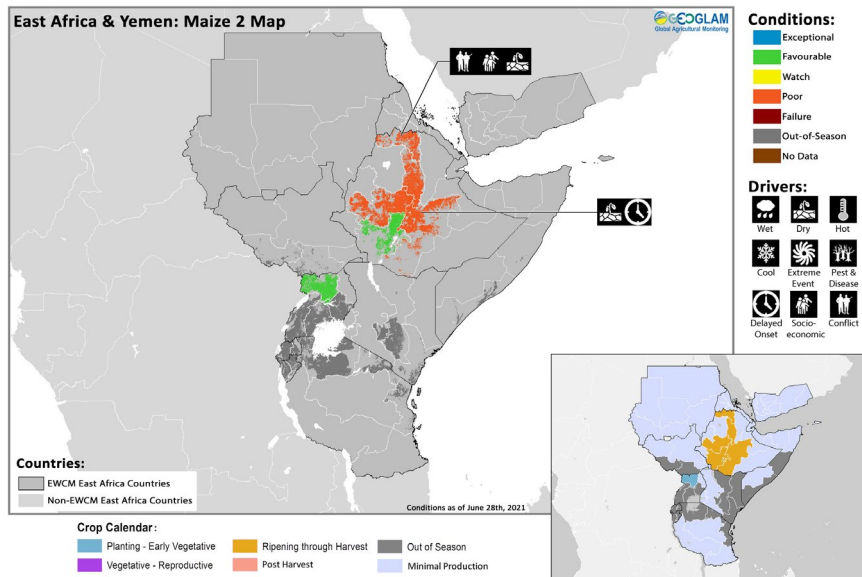


Crop condition map synthesizing Maize 1 crop conditions as of June 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable are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

Across the north of the subregion, planting and development of main season cereals continued in July. While conditions are favourable in **Sudan**, there is continued concern in **South Sudan** due to delayed rainfall onset in the northwest and flooding in the northeast. Additionally, ongoing conflict and socio-economic challenges continue to impact agricultural activities throughout **South Sudan** and **Yemen**. Land preparation of main season cereals is underway in **Djibouti** and **Eritrea**, and planting will begin in July. In **Ethiopia**, conditions are generally favourable for continued planting of main *Meher* season (Long Rains) cereals except in Tigray region due to protracted conflict. Conversely, *Belg* season (Short Rains) cereals are unlikely to recover from persistent dryness, and production is likely to be poor. Across the south of the subregion, harvesting of main season cereals is underway in **Uganda**, the **United Republic of Tanzania**, and **Rwanda** while crops continue to develop in other regions. Overall, conditions are mixed as crops in bimodal areas of **Kenya** and in **Somalia** are unlikely to recover due to persistent drought conditions as well as flash flooding in parts of **Somalia**. Additionally, there is some concern in north and northeastern **Uganda** due to delayed rainfall onset and dry conditions in combination with localized torrential rain and flash flooding. Conversely, crops in main producing areas of West and Rift Valley **Kenya** and in northern areas of the **United Republic of Tanzania** are developing under overall favourable conditions. Above-average July rainfall is forecast for northern portions of the subregion and western Kenya while most other areas will likely have average or dry conditions, which is normal for this time of year. For the July through September period (JAS), wetter than average conditions are forecast over **Eritrea**, northern **Ethiopia**, **South Sudan**, **Sudan**, and **Uganda**.



For detailed description of the pie chart please see description box on Pg. 18.



Crop condition map synthesizing Maize 2 conditions as of June 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.**

region. February to May *Belg* rainfall was erratic over most cropping areas with cumulative amounts ranging from 30 to 80 percent below-average in southern Tigray, eastern Amhara, and eastern Oromia regions. This resulted in delayed and reduced plantings and germination failures. While rainfall improvements in April and May benefitted vegetation conditions, they were too late for crop recovery. As of mid-April, severe drought was estimated to have affected more than 70 percent of cropland, and final yields are expected to be below-average except in SNNP region where yields are average. In southern Tigray, *Belg* planting activities were particularly affected as ongoing conflict has resulted in input shortages. Throughout Tigray, armed conflict continues to be reported, particularly in North-Western, Central, and Eastern Zones, and rural communities have been particularly affected as many farms have been destroyed, and productive assets such as seeds have been lost. In **Sudan**, planting of main season millet and sorghum crops began in June under favourable conditions, and harvesting will take place from November. However, fuel shortages and high prices of agricultural inputs continue to inflate production and transportation costs. In **South Sudan**, planting and development of first season cereals continued in June for harvest from July. In the northwest, delayed rainfall onset is impacting planting activities, and in Jonglei, Unity, and Upper Nile states in the northeast, the combined impacts of protracted conflict and flooding has severely hindered agricultural activities. There is also ongoing concern throughout the country due to conflict and socio-economic challenges. In addition, forecasts indicate a likelihood for above-average rains from June to September which could increase the risk of localized flooding (See Regional Outlook Pg. 7). In **Yemen**, despite generally favourable agro-climatic conditions, there is continued concern due to effects of socio-economic challenges and localized conflict.

Southern East Africa

In bimodal areas of **Uganda**, harvesting of first season cereals began in June under generally favourable conditions. In these areas, the March to May rains performed relatively well, supporting production activities. In northern and Karamoja unimodal areas, planting activities started in April, and crops were subsequently affected by delayed onset and below-average rainfall from May to June, followed by heavy rainfall and flash flooding in some localized areas. With forecasts of above-average rainfall in July, the risk of additional flash flooding is high and poses a concern for crops (See Regional Outlook Pg. 7). Recent dry spells are also impacting crops in localized areas of the southwest. In southern and marginal rainfall areas of **Kenya**, *Long Rains* crops are about to be harvested, and cereal production is expected at below-average levels as seasonal rains were delayed and ended pre-maturely, and cumulative rainfall from March to mid-May was 30 to 75 percent below-average, resulting in germination failures. Replanting occurred in April, and replanted maize crops benefitted from recent rains in the coastal region. However, rainfall subsided in early June, and several late planted crops did not reach maturity. By contrast, in major unimodal rainfall growing areas of Central, Rift Valley, and Western provinces, conditions for *Long Rains* crops are mixed as dry spells have resulted in moisture stress in some areas. However, prospects remain favourable as the impact of the recent dry-spells was localized, and forecast above-average June to September rainfall is likely to benefit yields. In **Somalia**, *Gu* season cereals are unlikely to recover due to delayed rainfall onset, persistent drought conditions, and flash flooding in some areas along the Shabelle river. In April, the start of *Gu* season planting was significantly affected as April to June *Gu* rains came late in some parts of the country and were mostly below-average. Moderate to severe drought conditions affected more than 80 percent of the country, and the Government declared drought on April 25th. At the same time, heavy rains from late April caused riverine and flash flooding along areas of the Shabelle river where the water level rose and broke banks. In Middle Shabelle region, floods in Jowhar district displaced 66,000 people and destroyed 40,000 hectares of farmland. However, the risk of flooding has been reduced due to poor rainfall over Juba and Shabelle riverine areas and upstream catchments in the Ethiopian highlands. Following suppressed rains in May, most regions received little to no rainfall in the first dekad of June, resulting in drier-than-normal ground conditions and an early cessation of rains before late-planted crops attained maturity. Overall *Gu* cereal

Northern East Africa & Yemen

In **Ethiopia**, planting of main *Meher* season cereals continued under favourable conditions, including in the main producing areas of western Oromia, western Amhara, and Benishangul Gumuz regions. While a timely onset of *Kiremt* rains allowed the season to start, some areas have had below-average performance in June; however, soil moisture is sufficient for crop growth. Forecast average to above-average rainfall for the June to September period over most cropping areas is likely to benefit vegetation conditions (See Regional Outlook Pg. 7). Despite favourable agro-climatic conditions, there is continued concern in Tigray region due to ongoing conflict that has hindered agricultural activities. Harvesting of *Belg* season (Short Rains) maize crops began in June, though it is delayed by a month in some regions. Overall, *Belg* crops are unlikely to recover given the delayed rainfall onset and poor performance throughout the season as well as ongoing conflict in Tigray

production is estimated to be 20 to 40 percent below-average. In **Rwanda**, harvesting of main Season B crops, accounting for 40 percent of aggregate cereal production, began under favourable conditions, and above-average production is expected. Despite heavy rainfall in late April and early May that resulted in flooding and mudslides in parts of Northern and Eastern provinces, the above-average February to May long rainy season has generally benefitted germination and yields. In **Burundi**, main Season B maize and rice crops continue to develop under favourable conditions for harvest from July. In northern bimodal areas of the **United Republic of Tanzania**, harvesting of *Masika* season cereals continued in June, and harvesting will finalize in August. Conditions are generally favourable except along the northern coast where below-average and erratic rains were received in Tanga, Kilimanjaro, and Arusha regions, resulting in localized production shortfalls. In central and southern unimodal areas, harvesting of *Msimu* season rice crops continued in June under favourable conditions to be finalized in early August.

Regional Outlook: Above-average rainfall forecast for July across parts of the north while below-average October to December rainfall is forecast across east and southeastern areas

Drier-than-average conditions affected the region in recent weeks. Rainfall from May 26th to June 25th was 25 mm to 100 mm below-average in many areas of Ethiopia, South Sudan, Uganda, and Kenya, according to preliminary estimates (Figure 1-left). In most of the deficit areas, these correspond to 80 percent of average or lower. Some areas received around half of typical amounts or lower, including portions of southeastern South Sudan, northeastern and southwestern Uganda, Rwanda, portions of central and coastal Kenya, and southern Somalia. In maize growing zones along much of Kenya's coastal strip, rain gauges report poor rainfall performance through most of the season and improved rainfall in June. In Sudan, northwestern South Sudan, and southeastern Tanzania, May 26th to June 25th totals are above-average.

Above-average rainfall is forecast during July 6th to 20th in northern Ethiopia, South Sudan, eastern and western Sudan, and in portions of western Kenya, according to the unbiased GEFS forecast from July 6th (Figure 1-middle). Drier-than-average conditions are forecast for portions of eastern Uganda, western and coastal Kenya, northeastern Tanzania, and southwestern Somalia. The SubX ensemble forecast indicates mainly near-average rainfall over the next 30 days. Some models forecast above-average rainfall in portions of northern Ethiopia, Sudan, and South Sudan later in the month; however, there is low confidence in those forecasts, and close monitoring is recommended.

June WMO and NMME forecasts for July to September generally agree that normal to above-normal rainfall is likely in northern areas, while southeastern Ethiopia, central-eastern Kenya, Somalia, and northeastern Tanzania will likely be hotter and drier than normal (not shown).

Long-range forecasts show increased chances of a below-normal October-to-December rainfall season in eastern areas (Figure 1-right), coincident with increased chances for a La Niña (62% chance for La Niña, according to the CPC/IRI July official forecast) and a negative Indian Ocean Dipole (~60% chance for October-November, according to the Australia Bureau of Meteorology). There are heightened risks for the third consecutive below-average season in that part of the region, and successive poor agricultural production prospects for the eastern Horn.

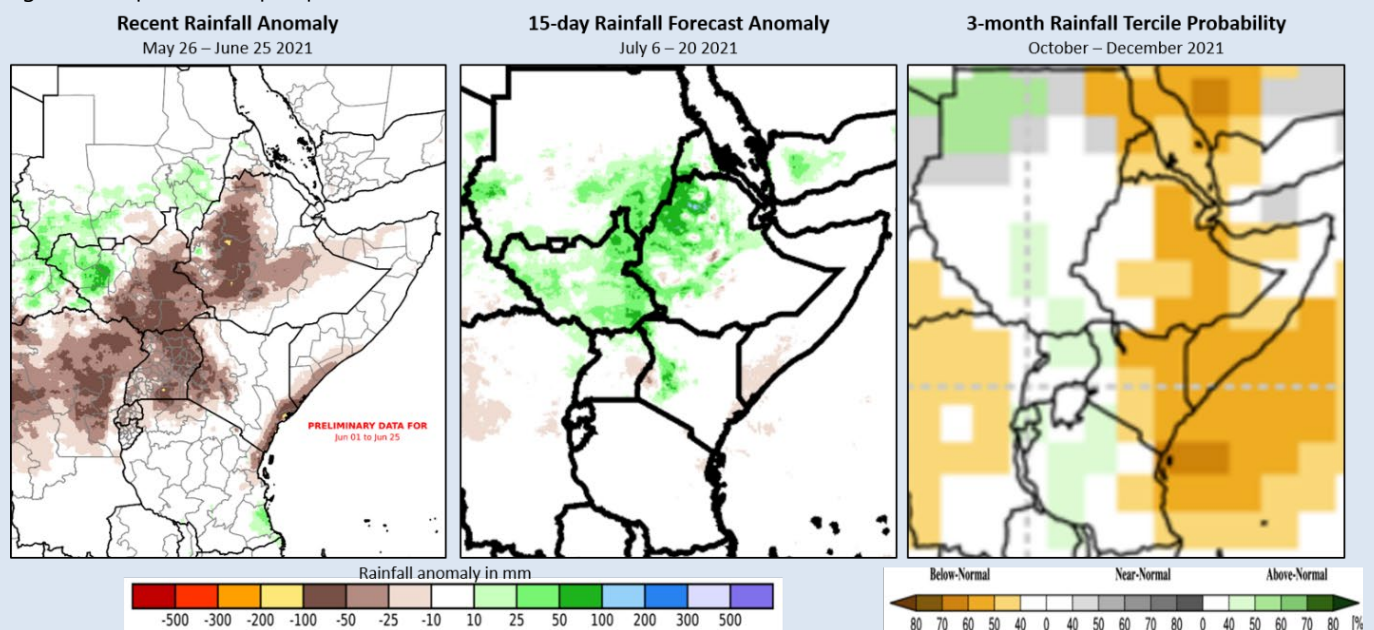
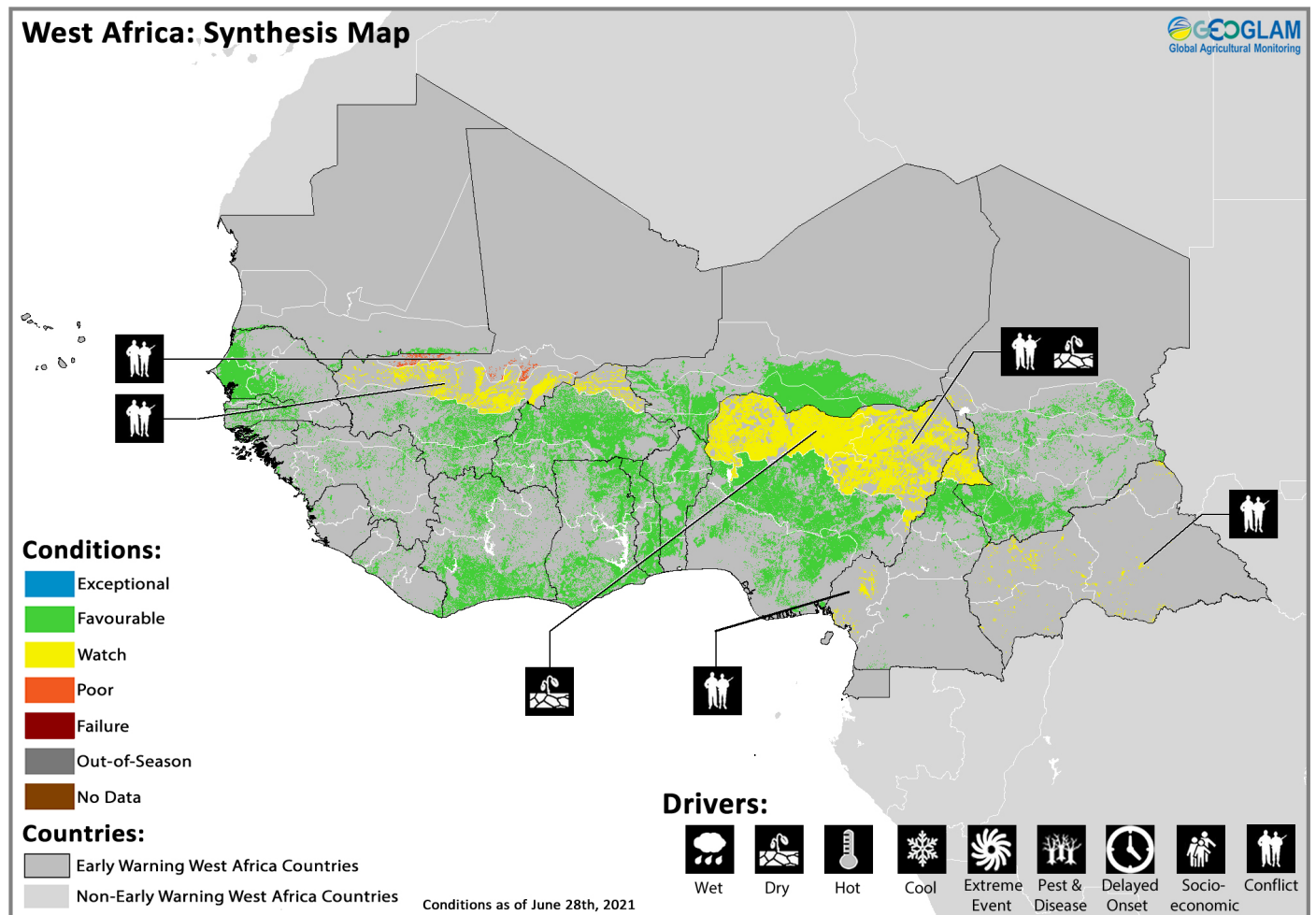


Figure 1. Recent rainfall anomaly, a 15-day forecast anomaly, and a 3-month rainfall forecast probability. The left panel is a CHC Early Estimate, which compares May 26th to June 25th, 2021, rainfall amounts to the 1981-2020 CHIRPS average. The middle panel the unbiased GEFS 15-day forecast anomaly for July 6th to 20th, 2021, from July 1st. The right panel is a probabilistic forecast for most-likely October to December rainfall tercile from the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble, June 2021. White color indicates that there is no dominant category across the model forecasts.

Source: UCSB Climate Hazards Center.

West Africa



Crop condition map synthesizing information as of June 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 West Africa, main season maize is in vegetative to reproductive stage across the south of the subregion in **Sierra Leone, Liberia, Cote d'Ivoire**, southwestern **Burkina Faso**, southern **Ghana, Togo, Benin, Nigeria**, and **Cameroon**. Planting of main season sorghum and millet continued across the north of the subregion in central and southern **Senegal, Gambia, Guinea**, southern **Mali**, southern **Niger, Burkina Faso**, northern **Ghana**, northern **Benin**, northern **Cameroon**, southern **Chad**, and the **Central African Republic**. Conditions are generally favourable for planting and development of main season cereals. Rains have been above-average in **Sierra Leone**, northern **Liberia, Burkina Faso**, southern **Cameroon**, and western parts of the **Central African Republic** during these early stages of the 2021 rainy season. Conversely, delayed rainfall onset and poor seasonal rainfall distribution have resulted in below-average cumulative seasonal rainfall amounts in westernmost and coastal parts of the subregion as well as around the Lake Chad Basin, causing concern in parts of **Nigeria** and **Cameroon**. There is also concern in areas where conflict continues to disrupt agricultural activities, including the Far North and Southwest regions in **Cameroon**, Lac region in **Chad**, the **Central African Republic**, northern **Burkina Faso**, northeastern **Nigeria**, and central **Mali**. In **Liberia**, above-average rainfall has supported crop development, though risk of flooding remains in riverbank areas. In **Togo**, cumulative rainfall from early March has been average to above-average, supporting crop development. However, forecasts indicate below-average rainfall with possible dry spells between June and September that could impact planted crops (See Regional Outlook Pg. 9). In the **Central African Republic**, while forecast average precipitation amounts between July and September are likely to benefit crops, ongoing conflict and displacements throughout the country continue to impact agricultural activities. In **Nigeria**, planting of off-season rice crops continued in June for harvest from October, and there is concern due to conflict in the northeast as well as current dry conditions in central and northern parts of the country. In **Cameroon**, planting and development of main and second season cereals is underway with some concern in the Far North as dry conditions are impacting planting activities. Additionally, ongoing conflict in the Far North and Southwest regions continue to limit growing area and inputs. Forecast average rainfall amounts in unimodal northern areas from July through September is likely to benefit yields. Conversely, in bimodal central and southern areas, drier than average conditions are expected (See Regional Forecast Pg. 9).

Regional Outlook: Above-normal July to September rainfall is forecast across the Sahel and central Guinea coast.

Rainfall deficits from May to early June in some southern areas of the region improved with substantial rains received in recent weeks. Heavy rains occurred along the Guinea Coast in late June and produced localized flash flooding and fatalities in Ghana. May 1st to June 25th rainfall estimates (Figure 1-top left) show mixed conditions across the region, with early season rainfall deficits in Niger and northern Nigeria, and surpluses in Burkina Faso, southern Mali, and Liberia. The wet period in late June likely reduced some of the large deficits shown near Ghana.

During the first week of July, there are increased chances for above-average rainfall in western areas, from Senegal to southern Mali and the western Gulf of Guinea, according to the NOAA Climate Prediction Center week-1 outlook. Rainfall may be below-average in southern Cameroon during that week. The SubX 30-day forecast indicates above-average July rainfall in the western and central Gulf of Guinea, and below-average rainfall from coastal Guinea to southern Senegal (Figure 1-top right). Several SubX models forecast above-average July rainfall in portions of Niger and Chad.

June WMO and NMME (Figure 1-bottom) forecasts for July to September show increased chances for above-normal rainfall in the Sahel and the central Guinea Coast. Areas of central Nigeria and central and southern Cameroon may be drier than normal. Recent northward movement of the Inter Tropical Convergence Zone, and sea surface temperatures in the Atlantic Ocean and Gulf of Guinea, thus far support the forecast of above-normal July-to-September rainfall. Conditions should be closely monitored to identify changes to this situation and assess at-risk locales for flooding and dry spells.

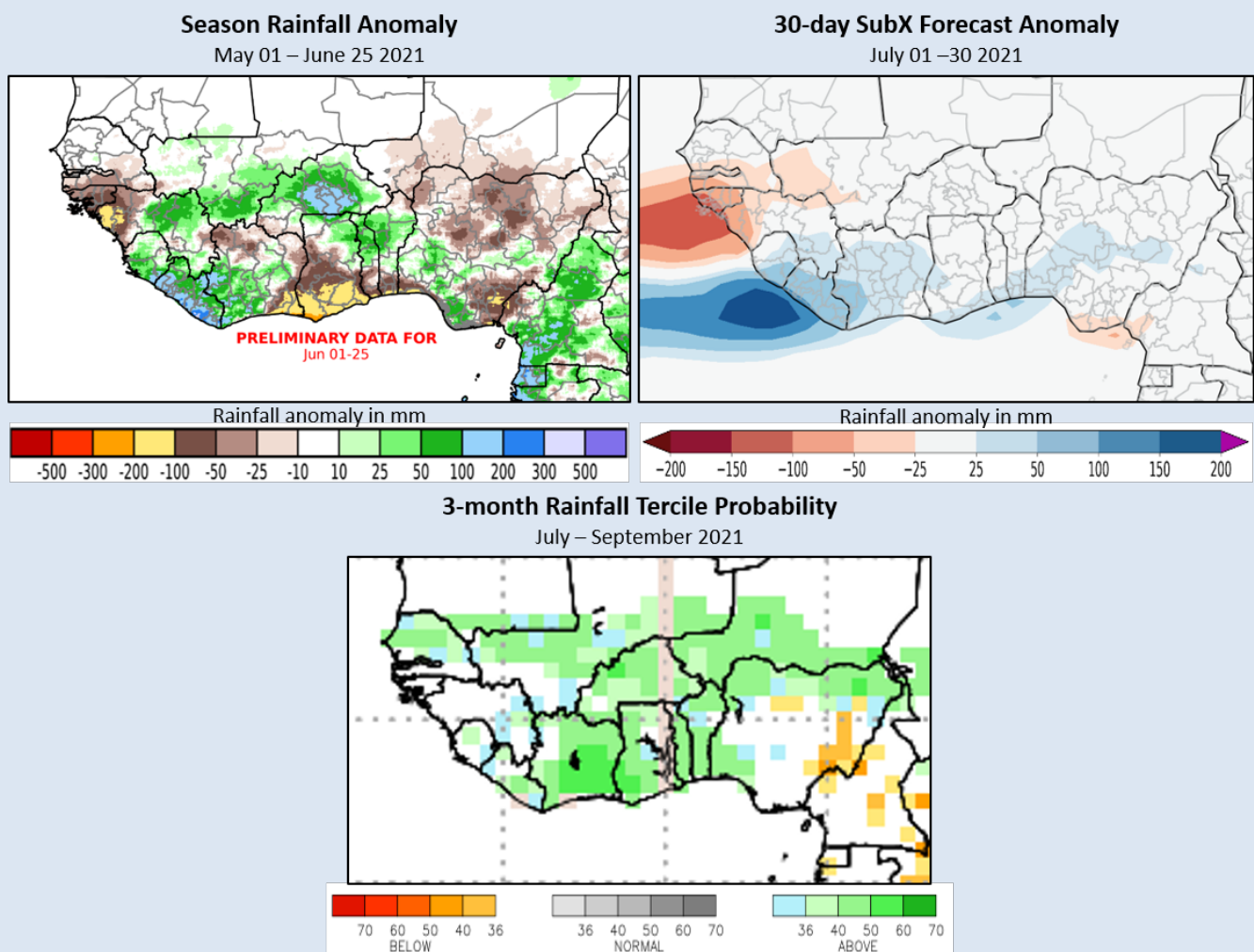
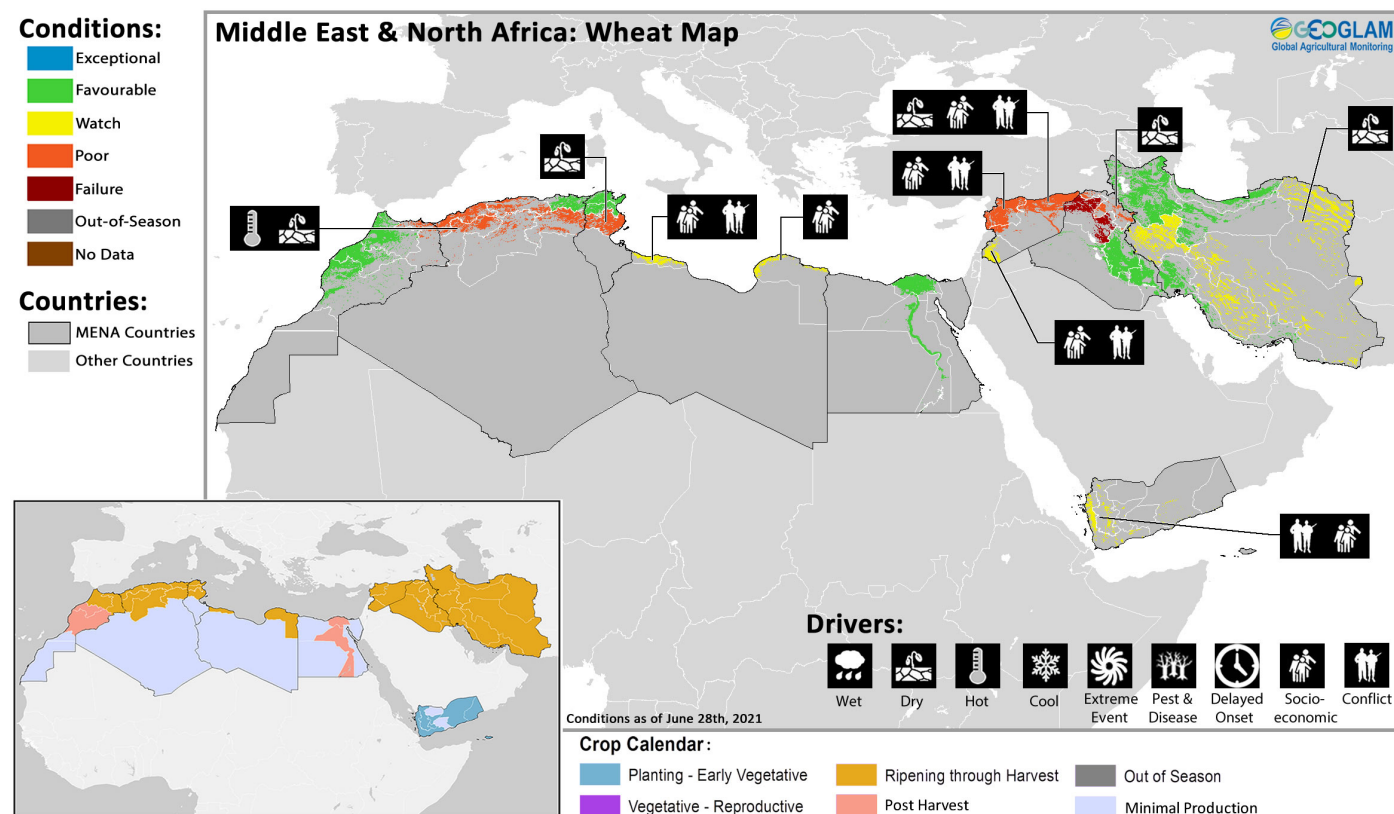


Figure 1. A May-to-present season rainfall anomaly, a 30-day forecast rainfall anomaly, and a 3-month forecast rainfall tercile probability. The top-left panel is a CHC Early Estimate, which compares 2021 rainfall amounts to the 1981-2020 CHIRPS average. The map indicates how May 1st to June 25th rainfall would compare to the historical average, as a percent of average. The top-right panel is a 30-day forecast rainfall anomaly from July 1st. 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 bottom panel is a 3-month NMME probabilistic rainfall forecast for July to September, 2021, based on June 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.

Middle East & North Africa

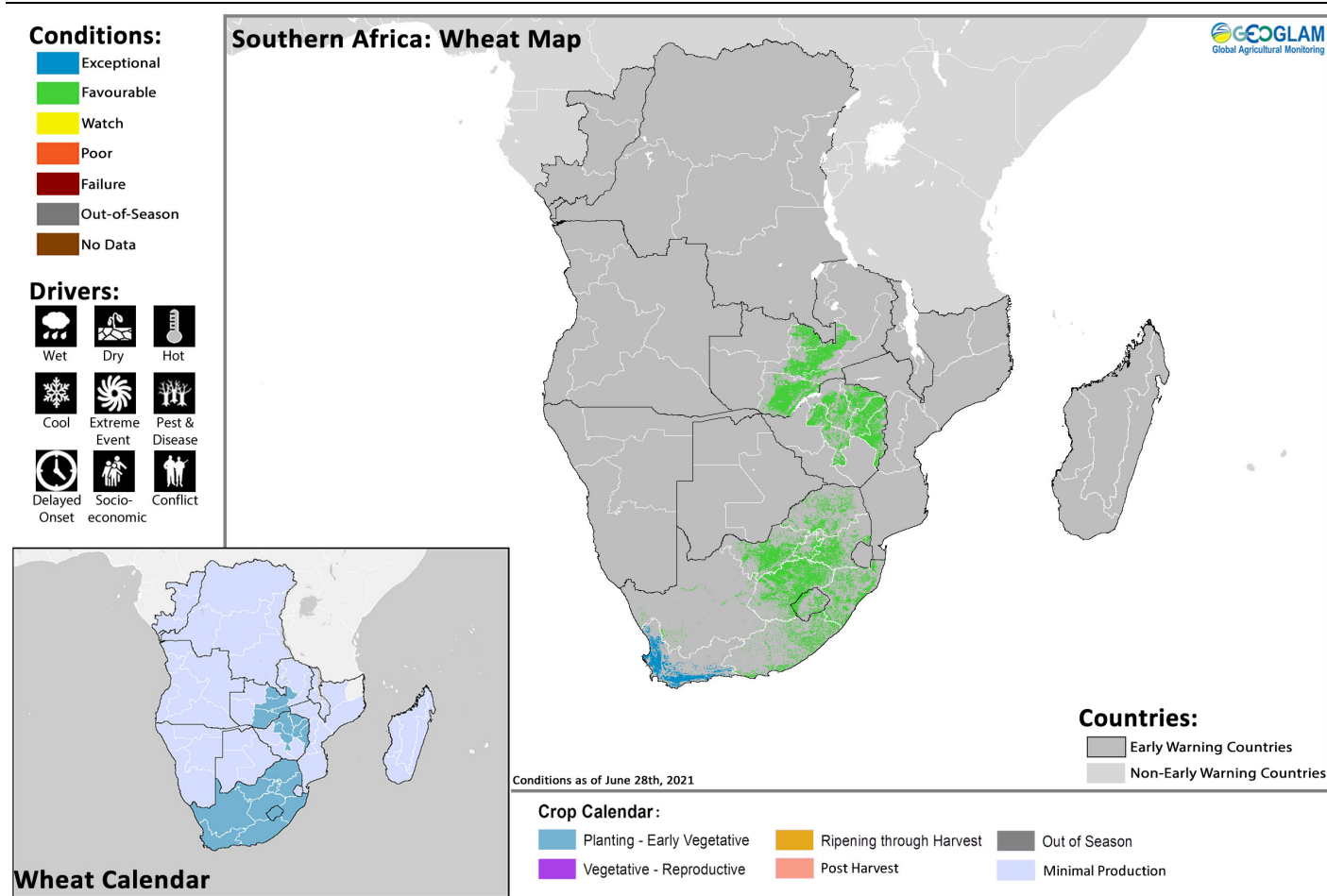


Crop condition map synthesizing information as of June 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled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

In North Africa, harvesting of winter cereals finalized in **Egypt** and **Morocco** and is wrapping up in **Algeria**, **Libya**, and **Tunisia**. Overall harvesting prospects are favourable except in most parts of **Algeria**, northeastern **Morocco**, and parts of central **Tunisia** where crops were impacted by persistent dryness and yields are projected to be below-average. In **Morocco**, yield outlooks are near to slightly above-average due to favourable rainfall and temperature conditions throughout the season, with the exception of marginal producing regions in the northeast. In **Algeria**, above-average temperatures in combination with drought negatively impacted vegetation conditions. Below-average cereal yields are expected in most areas except in the northeast where conditions remain favourable. In **Tunisia**, January to mid-February rainfall was slightly below-average. While crops in north and central areas recovered with improved rainfall in the second half of the season, below-average production is likely in the marginal producing central provinces of Kasserine and Kairouan, which together make up 6.5 percent of national cereal production. In **Libya**, overall yield is expected to be near-average; however, conflict and socio-economic challenges continue to impact agricultural activities. In **Egypt**, main season maize and summer-planted rice crops are developing under favourable conditions for harvest from September. Land preparation is underway for *Nili* season (Nile Flood) rice crops that will begin next month.

In the Middle East, harvesting of wheat crops is wrapping up, and yields are well below-average in the main producing Ninewah province in **Iraq** and Hassakeh province in **Syria** due to persistent seasonal dryness combined with impacts from ongoing conflict and socioeconomic challenges. There is also concern in parts of **Iran** due to dry and hot conditions. In **Iraq**, substantial rainfall in November 2020 benefitted sowing activities at the beginning of the season. In central and southern areas, which rely on supplemental irrigation, the season progressed normally despite above-average temperatures. Conversely, in rainfed areas of the north and northeast, erratic and below-average precipitation in the main producing Ninewa governorate and parts of Dahuk, Erbil, Sulaymaniyah, and Salah Al Din provinces impacted crops. Additionally, high temperatures from early April further impacted yield prospects in drought-affected areas. In **Syria**, poor rainfall performance and high temperatures in Hassakeh, parts of Idleb, eastern Aleppo, and Raqqa resulted in poor yield prospects. In the main producing Hassakeh governorate, cumulative rainfall was 50 percent below-average, resulting in well below-average yields for rainfed crops. Additionally, conflict-induced high fuel prices, limited input availability, currency depreciation, and damaged irrigation infrastructure have hampered agricultural activities and contributed to the poor harvest. In **Iran**, conditions are favourable in the northwest. Conversely, Golestan and Khorasan provinces in the northeast as well as Kordestan, Kermanshah, Lorestan, Esfahan, and Fars provinces in the centre-west and centre-south experienced below-average and irregular distribution of rainfall from March to April as well as high temperatures in April which may have impacted crop development.

Southern Africa

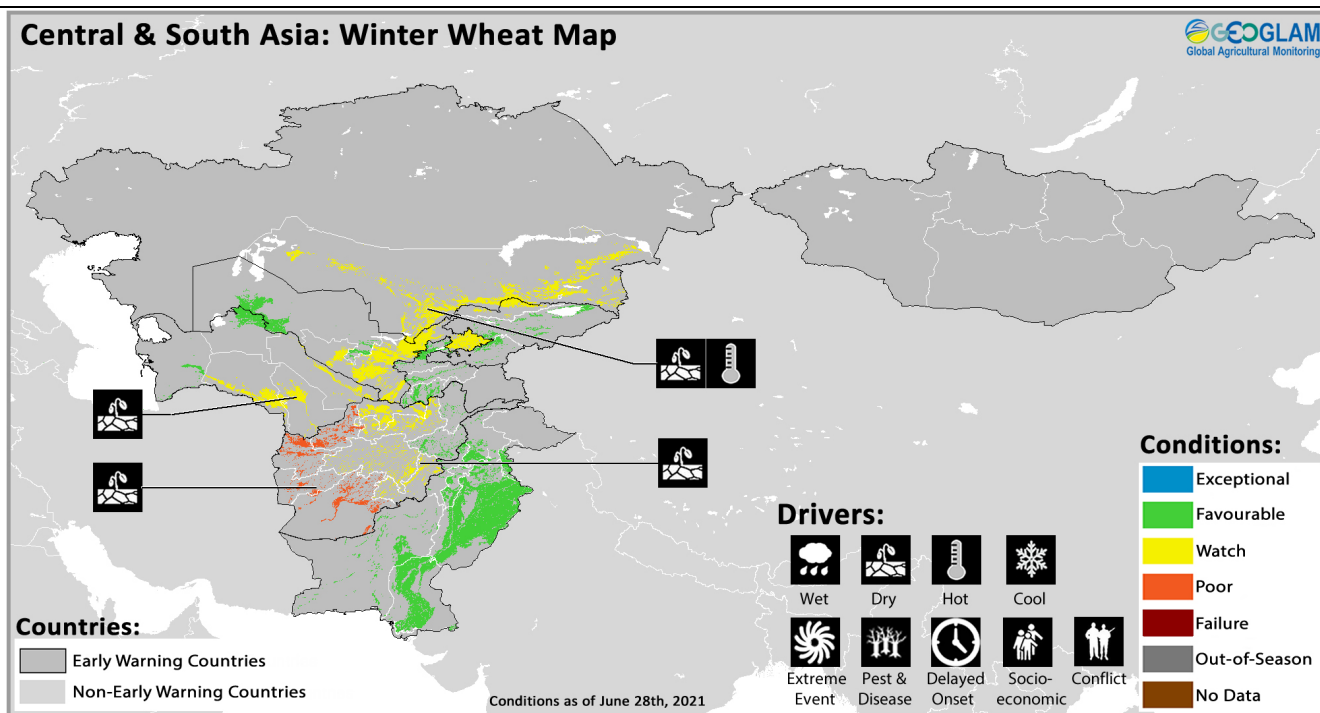


Crop condition map synthesizing information as of June 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled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

In Southern Africa, harvesting of 2020/2021 main season cereals is almost complete with generally favourable end of season conditions in most areas. Exceptional yields resulted in parts of **South Africa**, central and northern **Malawi**, and **Zimbabwe** due to favourable agro-climatic conditions throughout the season. However, parts of east and southern **Madagascar**, south, central, and northwestern **Angola**, and northwestern **Namibia** experienced moderate to significant yield declines due to persistent drought conditions and high temperatures. Cabo Delgado province in northeastern **Mozambique** also experienced yield declines due to the combined impacts of dry conditions and ongoing conflict. Overall national output was near-average but below the 2020 high level. In the **Democratic Republic of Congo**, planting and development of main season cereals and second season maize crops continued under favourable conditions.

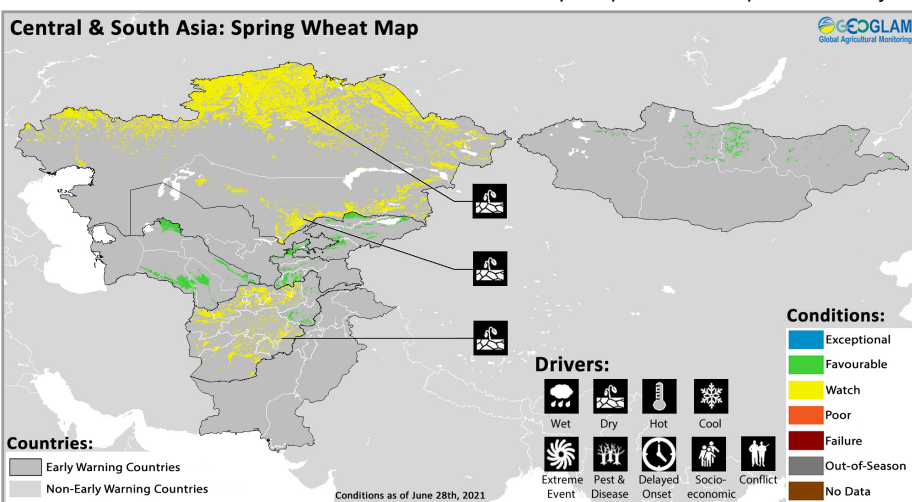
Planting of winter wheat crops continued in **Lesotho**, **South Africa**, **Zimbabwe**, and **Zambia** for harvest from September, and overall conditions are favourable. In **Zimbabwe**, a 50 percent increase in planted area has been reported, and in **South Africa**, conditions in the Western Cape are exceptional.

Central & South Asia



Crop condition map synthesizing Winter Wheat information as of June 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 finalized in **Pakistan** under favourable conditions while harvesting continued in **Afghanistan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan**. Overall conditions are mixed as persistent dryness continues to impact crops in northern **Kyrgyzstan**, the eastern half of **Turkmenistan**, center-west and south **Uzbekistan**, southern **Kazakhstan**, and **Afghanistan**. In southern **Kazakhstan** where the majority of winter-planted wheat is grown, conditions have worsened as high temperatures and below-normal precipitation has limited crop growth and shortened the grain filling stage, leading to decreased yields. In **Turkmenistan**, despite irrigation, prospects for winter crops are below-average as biomass in March and April in the eastern Mary, Lebap, Ahal regions was below-average. 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 despite localized flood damage in the main producing Khatlon province in early May. In **Afghanistan**, rainfed winter-planted crops are unlikely to recover in the south and west while concern remains in central areas due to persistent dry conditions throughout the season. However, irrigated crop yields in the aforementioned regions are only slightly below-average. Conversely, conditions are favourable in the northeast as late precipitation in April and early May was sufficient to recover rainfed crops. In



Crop condition map synthesizing Spring Wheat conditions as of June 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.**

Pakistan, harvesting of winter wheat crops finalized in June under favourable conditions with an above-average crop expected. Planting of *Kharif* (summer) rice crops commenced, and overall conditions are favourable. Spring wheat crops continue to develop in **Afghanistan, Kazakhstan, Kyrgyzstan, Mongolia, Tajikistan, and Turkmenistan**, and overall conditions are favourable except in south, west, and central **Afghanistan** where below-average precipitation is impacting rainfed crops and in the main producing areas of **Kazakhstan**, including Severo, Kustanayskaya, and Akmolinskaya, where high temperatures and below-average precipitation negatively affected growth from the second half of May. In **Kyrgyzstan, Tajikistan, and Turkmenistan**, planting of the minor spring wheat crop is complete, and harvest is

expected to take place between August and September. In **Mongolia**, conditions are favourable due to a timely onset of spring rains, and planted area is expected to increase due to strong demand.

Regional Outlook: Below-average precipitation forecast for parts of the region in July and likelihood of abnormally high temperatures in northern and central regions

Drier-than-average conditions affected the region in recent weeks. Precipitation totals from May 26th to June 25th were between 50 and 80 percent of average in southern Kazakhstan, eastern and western Uzbekistan, Kyrgyzstan, Tajikistan, eastern Afghanistan, and northern Pakistan, according to preliminary estimates (Figure 1-top left). These dry conditions followed below-average precipitation in April, May, and earlier. Precipitation deficits since April 1st are widespread in central and northern Afghanistan and across Central Asia (Figure 1-top right). CHIRPS estimates rank this period in 2021 as being one of the driest in the past 40 years in many areas, from central Turkmenistan to eastern Kazakhstan.

Moderate precipitation amounts of 25 mm or higher are forecast during the first half of July in portions of southern and eastern Kyrgyzstan, eastern Tajikistan, northern Pakistan, and in localized areas of southeastern Kazakhstan, according to the July 1st GEFS forecast. SubX forecasts indicate below-average July precipitation in portions of Kyrgyzstan, eastern Kazakhstan, and central-eastern Pakistan.

During late June and early July, well above-average temperatures affected central and southwestern Kazakhstan, Uzbekistan, Turkmenistan, and southwestern Afghanistan. While weather disturbances could cool temperatures in the upcoming week in some areas, abnormal heat is forecast for northern and central regions through most of July (Figure 1-bottom left). This could increase risk of heat stress in sensitive wheat-cropping areas.

For July to September, there are increased chances of continued below-normal precipitation in the northeast, and above-normal precipitation in southern Afghanistan and Pakistan, based on the June WMO seasonal forecast (Figure 1- bottom right). Hotter-than-normal seasonal temperatures are forecast across the region, except for central and southern Pakistan.

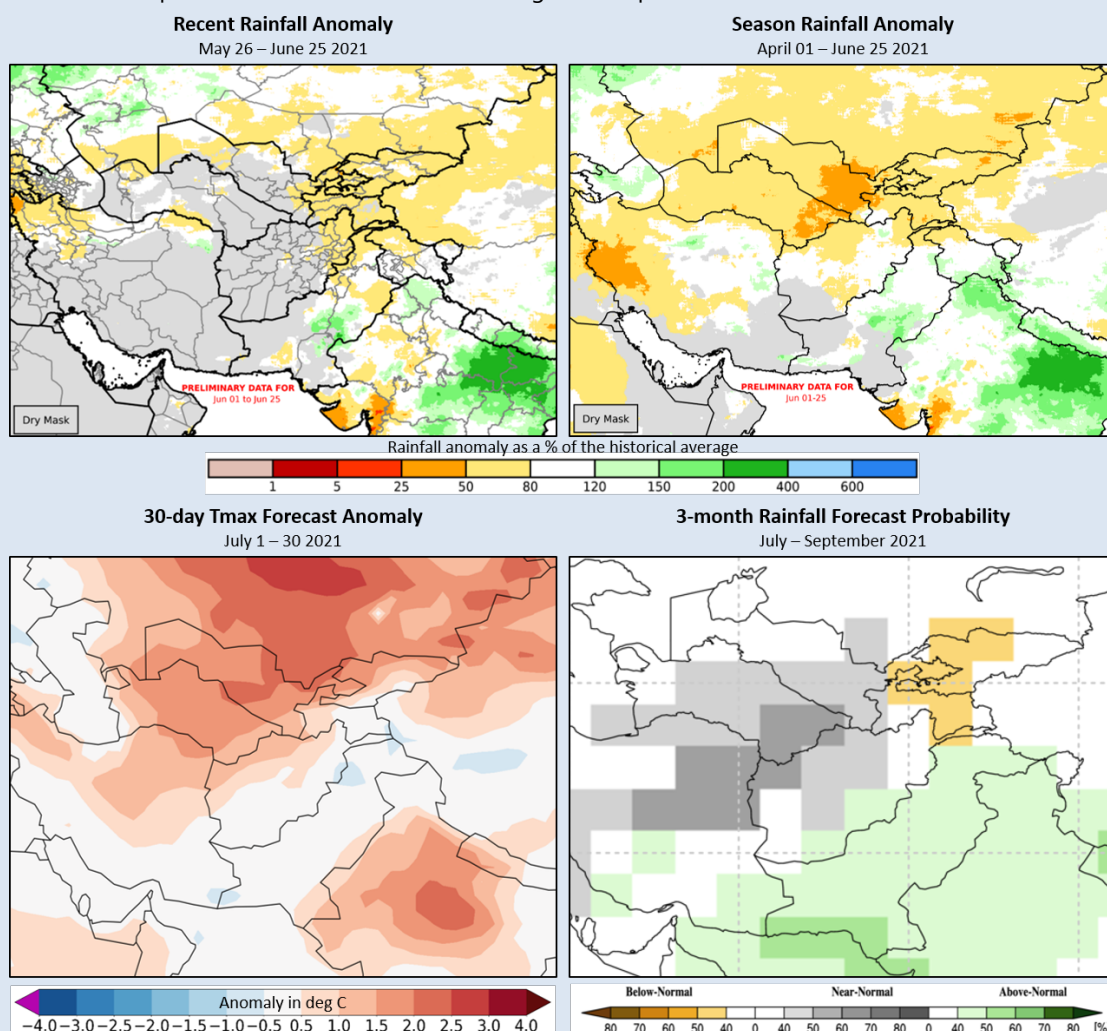
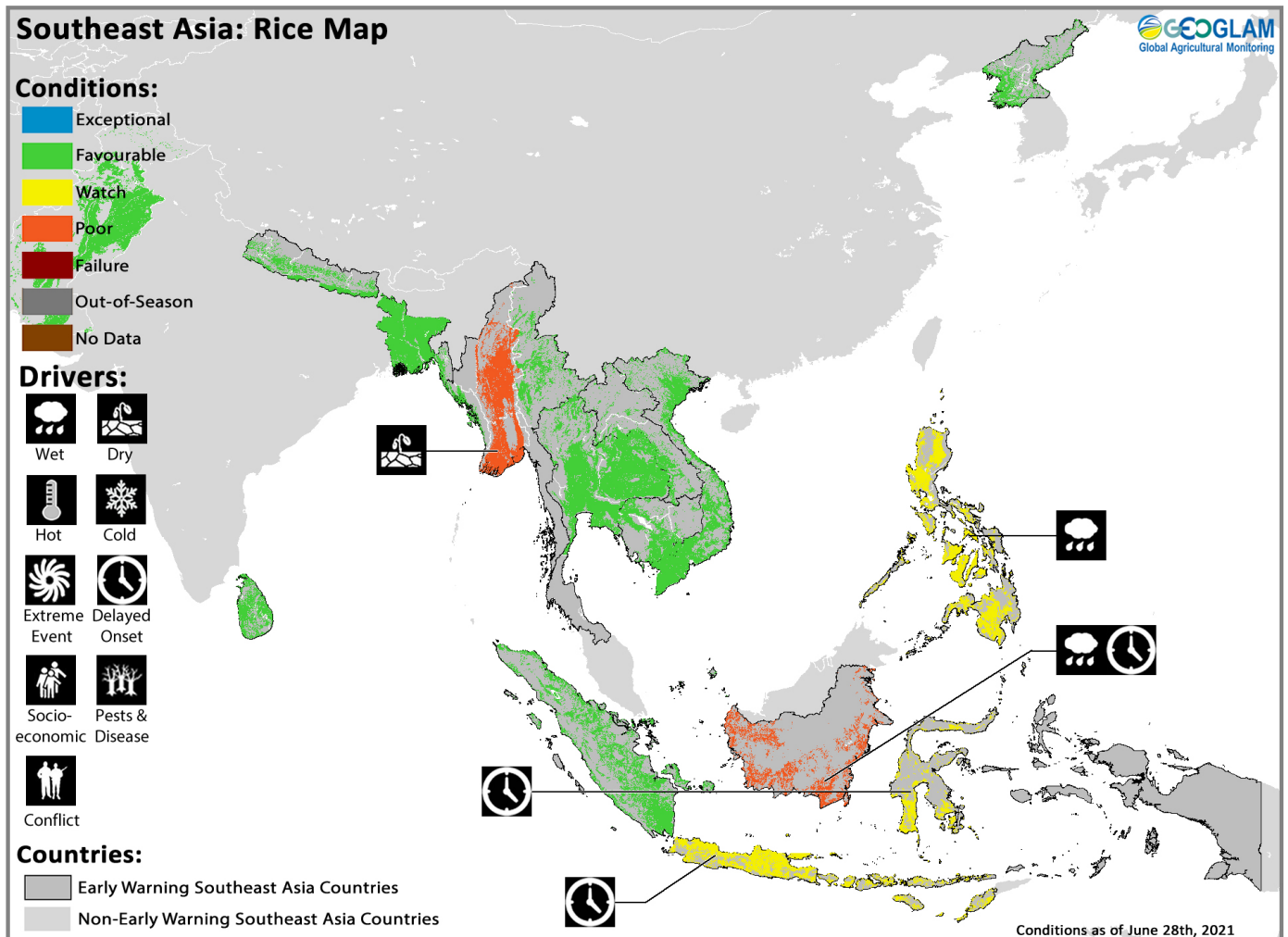


Figure 1. Recent rainfall anomaly, season-to-date rainfall anomaly, 30-day maximum temperature forecast anomaly, and a 3-month rainfall forecast probability. The top two panels are CHC Early Estimates, which compare 2021 rainfall amounts to the 1981-2020 CHIRPS average. The top-left panel indicates the percent of average rainfall from May 26th to June 25th. The top-right panel shows the percent of average rainfall from April 1st to June 25th. The bottom left panel shows the 30-day SubX maximum temperature (T_{max}) forecast anomaly for July 1st to July 30th, 2021. The image shows the average of three Subseasonal Experiment (SubX) model forecasts from July 1st. The panel on the bottom right is a probabilistic forecast for most-likely July to September rainfall tercile from the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble, June 2021. White color indicates that there is no dominant category across the model forecasts.

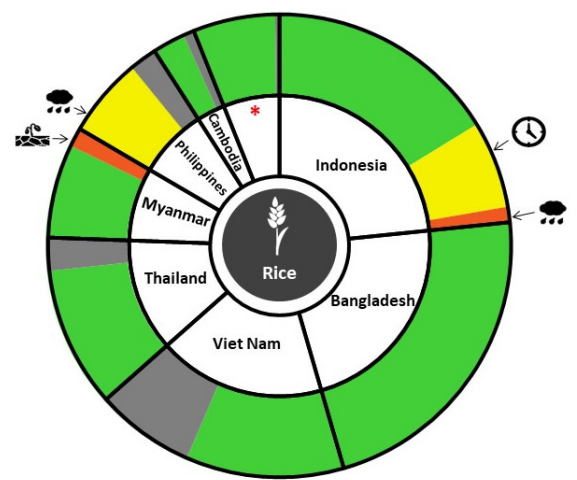
Source: UCSB Climate Hazards Center.

Southeast Asia

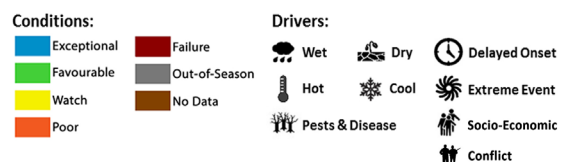


Crop condition map synthesizing rice conditions as of June 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are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

In northern Southeast Asia, harvesting of dry-season rice is now complete in most regions with generally favourable end of season conditions except in western **Myanmar** where insufficient irrigation water supply earlier in the season impacted crops. Wet-season rice crops are in seeding to tillering stage, and growing conditions are generally favourable with sufficient rainfall. However, heavy rains from Typhoon Dante in the **Philippines** may impact sowing activities. An early onset of seasonal rains may allow farmers to start planting earlier than normal. In **Indonesia**, harvesting of wet-season rice finalized in June under generally favourable conditions except in South Kalimantan where flooding earlier in the season impacted harvested area. Overall harvested area is expected to reach 5.9 million hectares, slightly higher than the previous year despite minor yield reductions. Planting of dry-season rice continues to be delayed due to the protracted wet-season. In the **Philippines**, wet-season rice is in tillering to young panicle forming stage, and there is concern as heavy rains from Typhoon Dante in the first week of June may have damaged some cropping areas. However, growing conditions are expected to improve as rainfall is forecast to return to near-normal levels. In **Thailand**, wet-season rice is in sowing to early tillering stage under favourable conditions. Farmers are able to plant earlier than the previous year due to an early onset of rainfall, and sown area is expected to increase. Yield is also expected to increase compared to last year's drought-affected crop as the rainy season is likely to be sufficient for cultivation. In **Viet Nam**, harvesting



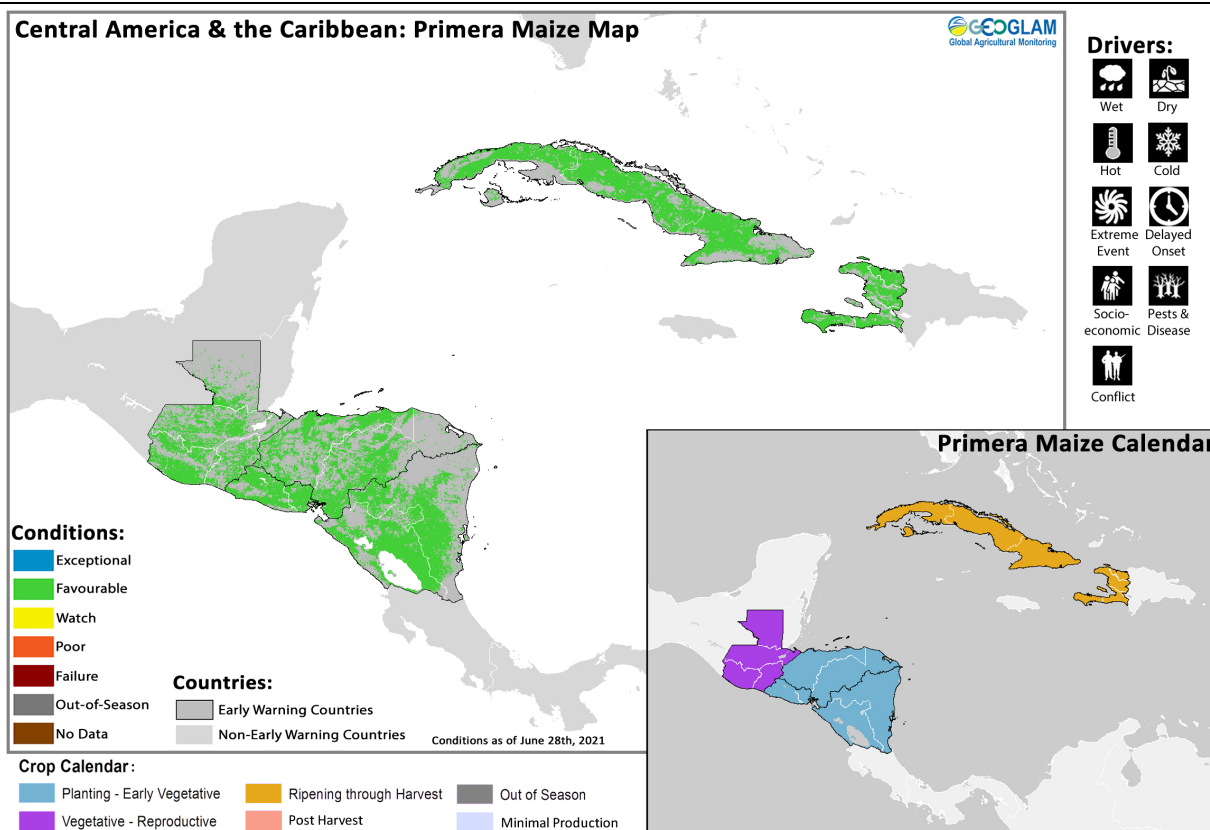
* Nepal, Sri Lanka, Lao People's Democratic Republic, Democratic People's Republic of Korea



For detailed description of the pie chart please see description box on Pg. 18.

of winter-spring (dry-season) rice finalized in the north under favourable conditions with yield estimated at 6.3 tons per hectare, slightly higher than the previous year due to warm weather and better irrigation preparation. Sowing of summer-autumn (wet-season) rice is underway, and conditions are favourable with sufficient rainfall received. In lowland areas of **Laos**, wet-season rice is in land preparation to seeding stage, and overall conditions are favourable with sufficient irrigation water supply. The national planting plan is 770,000 hectares, slightly higher than the previous year, and planting progress has reached 212,000 hectares. In upland areas, crops are in seeding to tillering stage under favourable conditions, and the national planting plan is 100,000 hectares. In **Myanmar**, harvesting of dry-season rice has reached 88.6 percent of the total planted area of 920,000 hectares. Overall production is estimated at 3.94 million tons, 18 percent lower than the previous year due to lack of irrigation water in the planting season. However, estimated yield of 4.83 tons per hectare is similar to last year. Planting of wet-season rice is underway with a national planting plan of 6.09 million hectares, and progress is similar to the previous year. Conditions are favourable, and monsoon rain is expected to benefit planting activities and crop development. In **Cambodia**, planting of wet-season rice has reached 1.67 million hectares and 64 percent of the national planting plan. Crops are in tillering to early panicle forming stage, and conditions are favourable in most provinces with sufficient rainfall and sunlight. In **Sri Lanka**, *Yala* season maize and rice crops are developing under favourable conditions for harvest from August. In **Bangladesh**, harvesting of *Boro* season rice crops, which represent 55 percent of annual rice output, finalized in June under favourable conditions. Planting of *Aman* season rice crops began in late June under favourable conditions. In **Nepal**, harvesting of winter wheat crops finalized in June under favourable conditions with a bumper crop expected. Planting and development of main season maize and rice crops continued in June under favourable conditions. In the **Democratic People's Republic of Korea**, planting and development of main season maize and rice crops continued in June for harvest from August, and production prospects are generally favourable with above-average biomass as rainfall and temperatures have been average to above-average in the last three months. However, economic constraints, particularly resulting from the global impact of the COVID-19 pandemic, in combination with localized typhoon damages in the previous season have increased the population's vulnerability to food insecurity, and 2020/21 production will be critical.

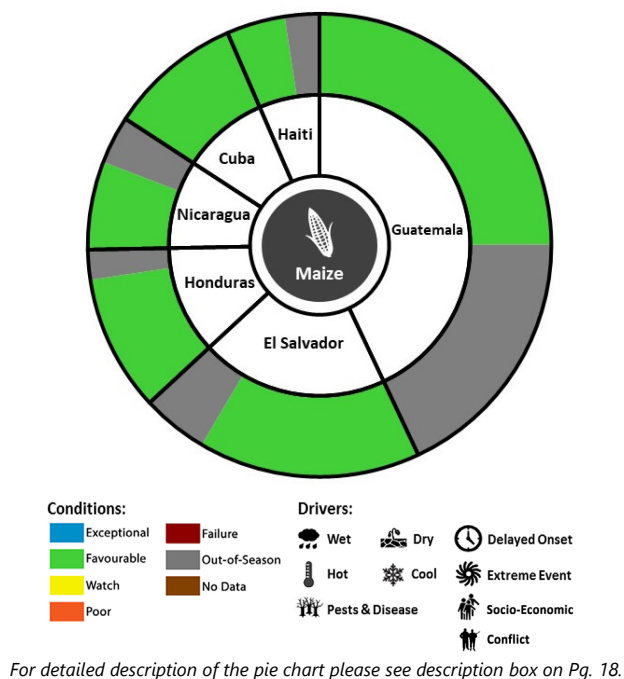
Central America & Caribbean



Crop condition map synthesizing information as of June 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, planting and development of *Primera* season maize and bean crops continued in **Guatemala, El Salvador, Honduras, and Nicaragua** for harvest from July, and overall conditions are favourable. In **Nicaragua**, precipitation increased from the second dekad of June, improving soil moisture deficits and providing conducive conditions for crop development. In the centre-north of the country in Nueva Segovia and Jinotega departments, rainfall improvements were not enough to raise cumulative precipitation above the five-year average; however, crop development is normal. In **Guatemala**, substantial rainfall increases in the second dekad of June were generally favourable for crop germination and overall development but resulted in localized flooding, landslides, and crop damage in some lowland areas, including in Alta Verapaz, Baja Verapaz, and Quiché departments. In **Honduras**, parts of Olancho, Valle, Choluteca, El Paraíso, and Francisco Morazán in the east and southeast of the country experienced delayed rainfall onset, resulting in some resowing activities. While some localized areas in Olancho and El Paraíso departments in the east continue to experience below-average rainfall, precipitation from the second dekad of June has been generally adequate and well-distributed, resulting in improved soil moisture and yield prospects. Harvesting of second season rice crops finalized in June under favourable conditions as above-average precipitation in the first quarter of 2021 provided adequate supplies for irrigation water.

In the Caribbean, conditions are generally favourable for harvesting of main season cereals. In **Haiti**, sufficient March to April rainfall benefitted crop emergence and development. In May, precipitation was below-average, particularly in minor producing south and northern areas (See Regional Outlook Pg. 17). Erratic and below-average rainfall in combination with high temperatures reduced yields in some localized areas of the north. However, crop conditions are generally near to above-average, particularly in Ouest and Centre departments as well as in the main producing Artibonite department where crops were aided by irrigation. While limited access to agricultural inputs is reported to have constrained planted area, the government has introduced programs to improve input access and yields, such as implementing price ceilings on fertilizers, installing a hydro-electric dam in the North-East department, and cleaning irrigation canals. Land preparation is underway for second season bean and maize crops which will begin next month, and



forecast above-average precipitation for the July to September period is likely to benefit both main and second season cereals. In **Cuba**, harvesting of main season rice crops finalized under favourable conditions. Despite below-average precipitation in April and May, early seasonal rains supported crop development, resulting in average yields. Harvesting of main season maize crops continued in June under favourable conditions. Additionally, increased rainfall from mid-June restored soil moisture deficits and reservoir levels, providing conducive conditions for the continued planting of second season rice crops.

On July 3rd and 4th, Hurricane Elsa hit the southern peninsula of **Haiti** as a Category 1 storm, bringing strong winds and heavy rain; however, the impact was much lower than expected following a decrease in storm strength. Elsa was then downgraded to a tropical storm before making landfall in southeastern **Cuba** and continuing through the northwest, bringing strong winds and heavy rains to central and western portions of the country. While crops in localized areas were impacted, overall production was not significantly affected. In fact, heavy rainfall in June improved previous soil moisture deficits and were generally favourable for both main and second season crops.

Regional Outlook: Likelihood of above-average rainfall along the Caribbean Coast while below-average rainfall is forecast for the Pacific Coast

Rainfall during recent weeks was mixed in the region. Figure 1-top-left shows how rainfall from June 1st to 30th compares to average, based on preliminary estimates.

In Honduras, Nicaragua, and the Gulf of Fonseca region, rainfall was consistently below-average in May, and in some areas, dry conditions persisted through the middle of June. Substantial rainfall in late June eased some of these deficits, including in the Gulf of Fonseca, western and central Honduras, and western and eastern Nicaragua. In many of the areas affected by the dry May, the rainfall season is long, and farmers could avoid risk to crops through delayed planting. Earlier deficits are potentially more concerning in areas like southern-central Honduras and north-central Nicaragua, where seasonal rains peak from May to June. Areas that also received high rainfall amounts in late June are El Salvador and portions of central and western Guatemala and Haiti. Recent rains partially improved deficits in Haiti; however, these came late in the season, and April 1st to June 25th total are below-average in eastern and southwestern areas (not shown).

According to the GEFS forecast for the 7th to 20th, from July 6th, there are increased chances of wetter-than-average conditions in Caribbean Coast areas, central Guatemala, and northern Costa Rica. Pacific coast areas, from southern Guatemala to northwestern Nicaragua, have increased chances of below-average rainfall. Figure 1-top-right shows the GEFS probabilistic forecast for the first week. Below-average July rainfall is forecast in Pacific Coast areas of the region, northern Belize, and in portions of Haiti and the Dominican Republic, based on the SubX 30-day forecast (Figure 1-bottom).

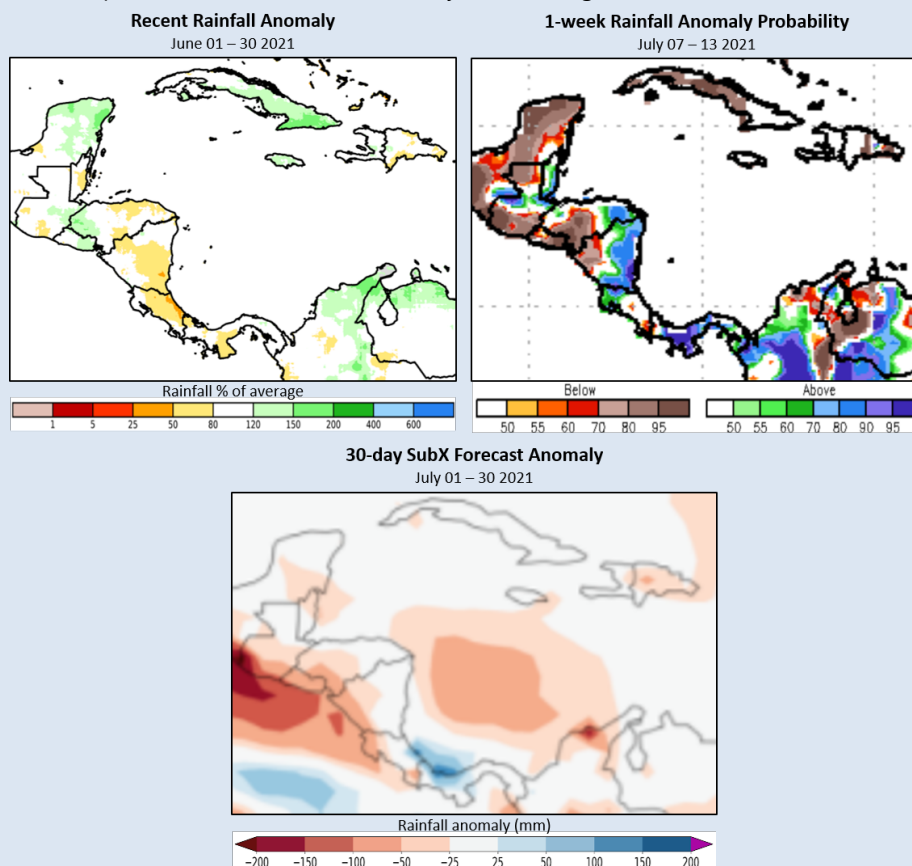


Figure 1. Recent rainfall anomaly, a 1-week probabilistic rainfall forecast, and a 30-day rainfall forecast anomaly. The top-left panel is a CHC Early Estimate, which compares June 1st to 30th, 2021, rainfall amounts to the 1981-2020 CHIRPS average. The top-right panel is the GEFS week 1 forecast for July 7th to July 13th, 2021, which shows the chances for above-average (> 120% of average) and below-average (< 80% of average) rainfall. The bottom panel is a 30-day forecast rainfall anomaly from July 1st. 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](https://www.ccmr.cornell.edu/subx/).

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 slide 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 July 8th, 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



GEOGLAM

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