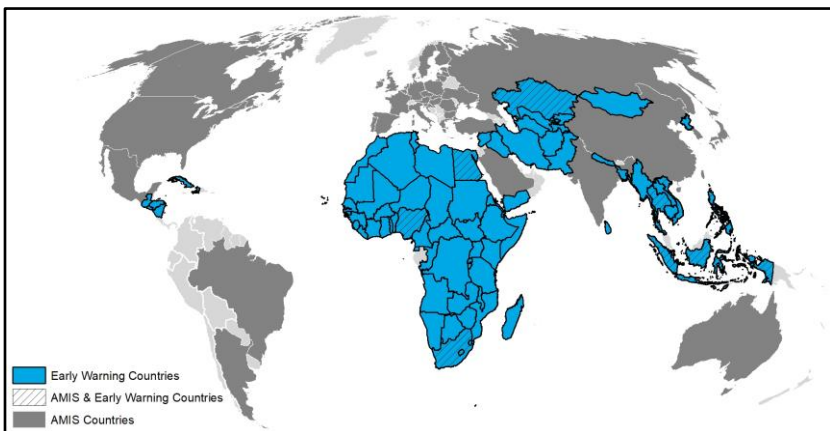GEOGLAM
Global Agricultural Monitoring

Crop Monitor
EARLY WARNING

Overview:

In **East Africa**, harvesting of main season cereals is underway in the north, and conditions are mixed due to persistent dryness in parts of South Sudan and Ethiopia as well as flooding in some areas. Throughout the south of the subregion, land preparation is underway for secondary cereals. Persistent dry conditions are forecast through the OND 2022 rainfall season, which would result in an unprecedented fifth consecutive season of below-average rainfall for many of these areas with severe implications for food security (See Seasonal Forecast Alert Pg. 5). In **West Africa**, harvesting activities are nearing completion in the south and are just beginning along the Sahel, and overall conditions are favourable except in conflict-affected areas as well as localized areas impacted by rainfall deficits and flooding. In the **Middle East and North Africa**, land preparation is underway for wheat crops, and planting will begin in October. In **Southern Africa**, harvesting of wheat crops is underway while land preparation and planting of main season cereals is just beginning, and conditions are favourable except in southern South Africa. In **Central and South Asia**, harvesting of spring wheat is nearing completion with below-average yields expected in most areas of Afghanistan and concern in northeastern Kazakhstan. In Pakistan, *Kharif* season crops are likely to be impacted by unprecedented monsoon rains and flooding (See Pakistan Special Alert Pg. 13). In **Southeast Asia**, conditions remain favourable for wet-season rice in the north and dry-season rice in Indonesia with sufficient rainfall received. In Sri Lanka, a severe economic crisis is expected to result in significant *Yala* season yield declines. In **Central America and the Caribbean**, harvesting of *Primera* season cereals is nearing completion while planting of *Segunda/Prostrera* season cereals is just beginning, and conditions are favourable except in western Cuba and parts of Haiti.
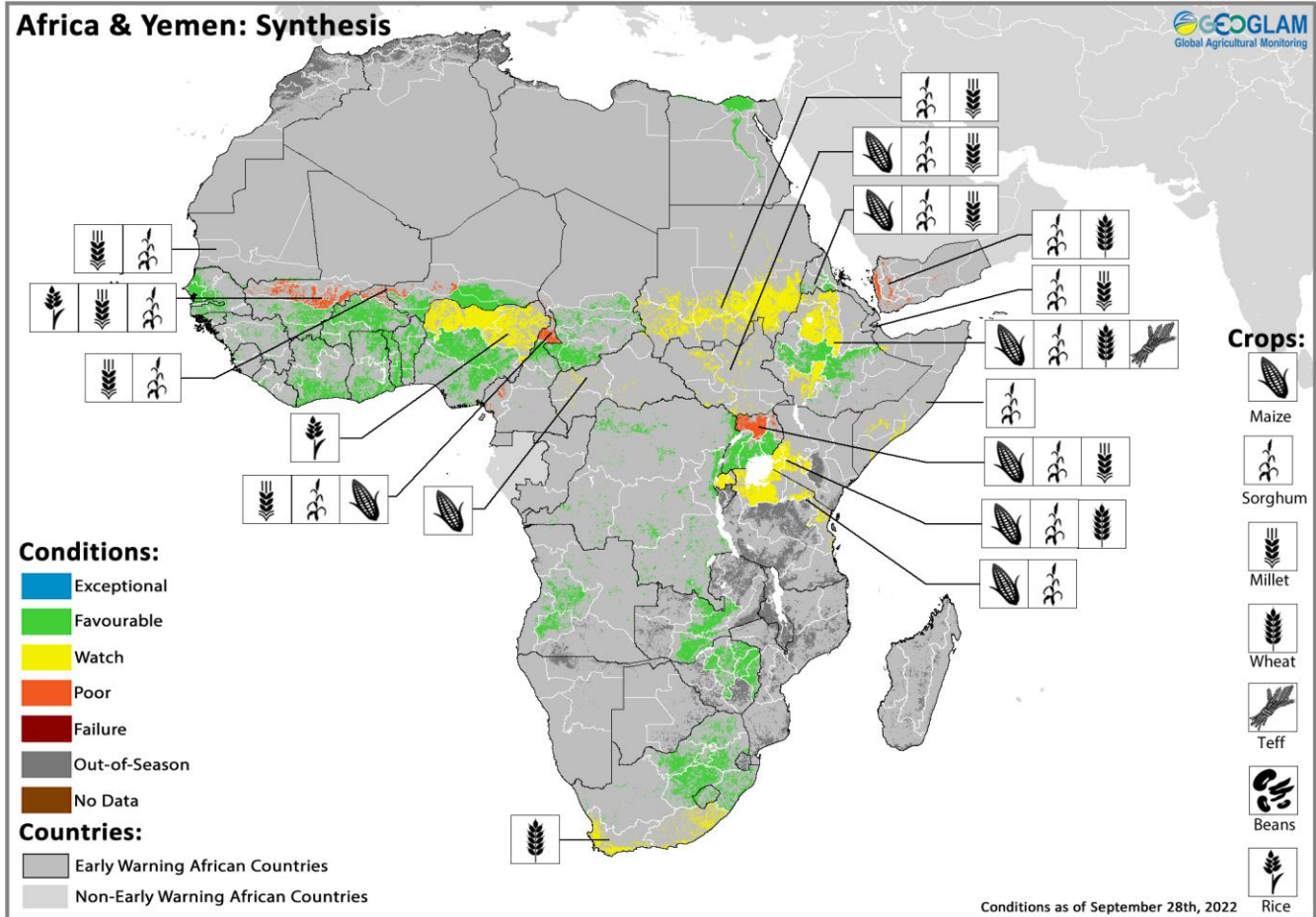
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AMIS Countries

GEO GROUP ON EARTH OBSERVATIONS

The Crop Monitor is a part of GEOGLAM, a GEO global initiative.

GEOGLAM Crop Monitor for Early Warning
Crop Conditions at a Glance
based on best available information as of September 28ᵗʰ

*Crop condition map synthesizing information for all Crop Monitor for Early Warning crops as of September 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 underway throughout the subregion. In the north, dry conditions continue to impact crops in parts of South Sudan and Ethiopia while flooding is causing concern in parts of Sudan, South Sudan, northeastern Ethiopia, and Yemen. In Ethiopia, climatic conditions are favourable for *Meher* season (Long Rains) crops, except in areas impacted by dry conditions and flooding. In the south of the subregion, land preparation is underway for secondary cereals, and concern remains due to persistent dry conditions that are forecast to continue through OND 2022 and would result in an unprecedented fifth consecutive below-average rainfall season (See Seasonal Forecast Alert Pg. 5).

WEST AFRICA: Harvesting of main season maize is nearing completion along the south of the subregion while harvesting of main season cereals is just beginning along the Sahel, and conditions are generally favourable except in conflict-affected regions as well as localized areas impacted by rainfall deficits and flooding.

MIDDLE EAST & NORTH AFRICA: Land preparation is underway for wheat crops, and planting will begin in October. Increased chances of drier and warmer than normal conditions in west and eastern areas through December could impact planting activities for cereal crops.

SOUTHERN AFRICA: Harvesting of wheat crops is underway while land preparation of main season cereals is just beginning, and average to above-average rains are forecast in central and southern areas into early 2023 (See Regional Outlook Pg. 10).

CENTRAL & SOUTH ASIA: Harvesting of spring wheat is nearing completion with poor conditions in most areas of Afghanistan. Elsewhere, conditions are generally favourable except in northeastern Kazakhstan due to potential yield declines. In Pakistan, *Kharif* season crops are likely to be impacted by severe monsoon rainfall and unprecedented flooding in affected areas (See Pakistan Special Alert Pg. 13).

SOUTHEAST ASIA: Conditions remain favourable for wet-season rice planting and development in the north and dry-season rice harvesting in Indonesia with sufficient rainfall received. In Sri Lanka, significant yield declines are expected for *Yala* season maize and rice crops as the country continues to be impacted by a severe economic crisis with major disruptions to agricultural production.

CENTRAL AMERICA & CARIBBEAN: Harvesting of *Primera* season cereals is nearing completion while planting of *Segunda/Postrera* season cereals is underway, and conditions are generally favourable despite increased heavy rains in September. In Cuba, there is concern in the west where Hurricane Ian made landfall in September.

Global Climate Outlook: Two-week Forecast of Areas with Above or Below-Average Precipitation

The two-week forecast (Figure 1) indicates a likelihood of above-average rainfall over Alaska in the US, Central Brazil, southeast Bolivia, northeast Argentina, southern Poland, South Sudan, Uganda, northern and eastern India, southern Thailand, southern Viet Nam, southern Philippines, southern Indonesia, southwest Papua New Guinea, and northern and eastern Australia.

There is also a likelihood of below-average rainfall over the central Canada, northcentral and southeast US, western and southern Mexico, southeast Colombia, Venezuela, Guyana, Suriname, French Guiana, northern and southern Brazil, Uruguay, southern Chile, northern Portugal, northwest Spain, eastern Romania, Bulgaria, North Macedonia, Greece, Turkey, southern Ukraine, southern and eastern Russia, Georgia, Armenia, Azerbaijan, Syria, northern Iraq, northern Iran, central Mali, Burkina Faso, northeast Ethiopia, northeast Somalia, southern Kenya, eastern Tanzania, southern Zambia, Zimbabwe, Mozambique, eastern Madagascar, eastern and western Kazakhstan, Kyrgyzstan, eastern Uzbekistan, eastern Turkmenistan, northern Afghanistan, northern Pakistan, central Mongolia, northern and southern China, Sri Lanka, Democratic People's Republic of Korea, western Republic of Korea, and northwest Indonesia.
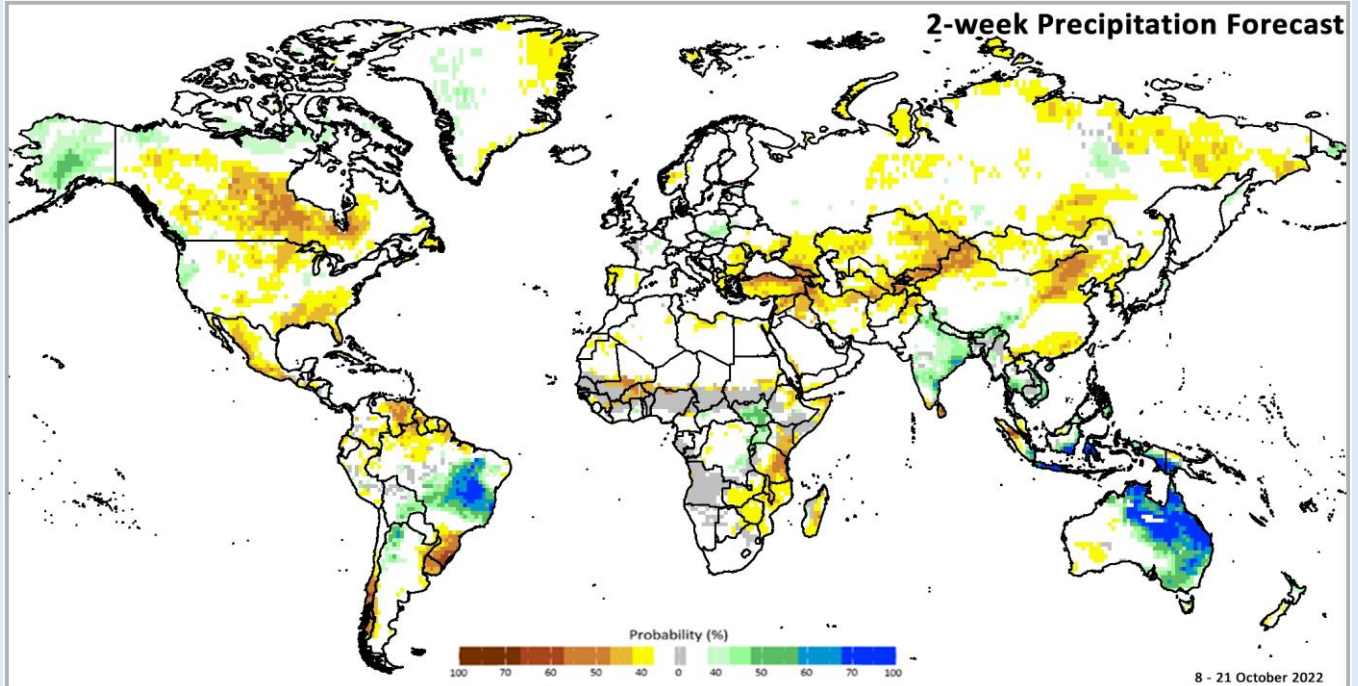

Figure 1: IRI SubX Precipitation Biweekly Probability Forecast for 8 – 21 October 2022, issued on September 30th, 2022. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: IRI Subseasonal Forecasts Maproom

Climate Influences: La Niña phase is present and forecast to continue into early 2023 and Negative Indian Ocean Dipole conditions are present and forecast through November

The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. La Niña conditions will likely continue into early 2023 (89% chance for October to December and 65% chance for December to February), according to the IRI/CPC.

Negative Indian Ocean Dipole (IOD) conditions are present and are expected to continue through at least November (78% chance), according to the Australia Bureau of Meteorology.

Associated with the co-occurring La Niña and negative IOD conditions there are very high risks of severe drought impacts across the Horn of Africa, and heavy rainfall and flooding in Australia and southeast Asia. Additionally, La Niña conditions for a third year in a row raises concerns about repeat dry conditions in eastern East Africa, southern South America, Central and Southern Asia, and southern North America, where multiple rainfall seasons have been below-average since late 2020. Historically, co-occurring La Niña and IOD events have led to very dry conditions in East Africa during boreal fall, and fall La Niñas are very often followed by poor spring rains as well, even if La Niña strength wanes.
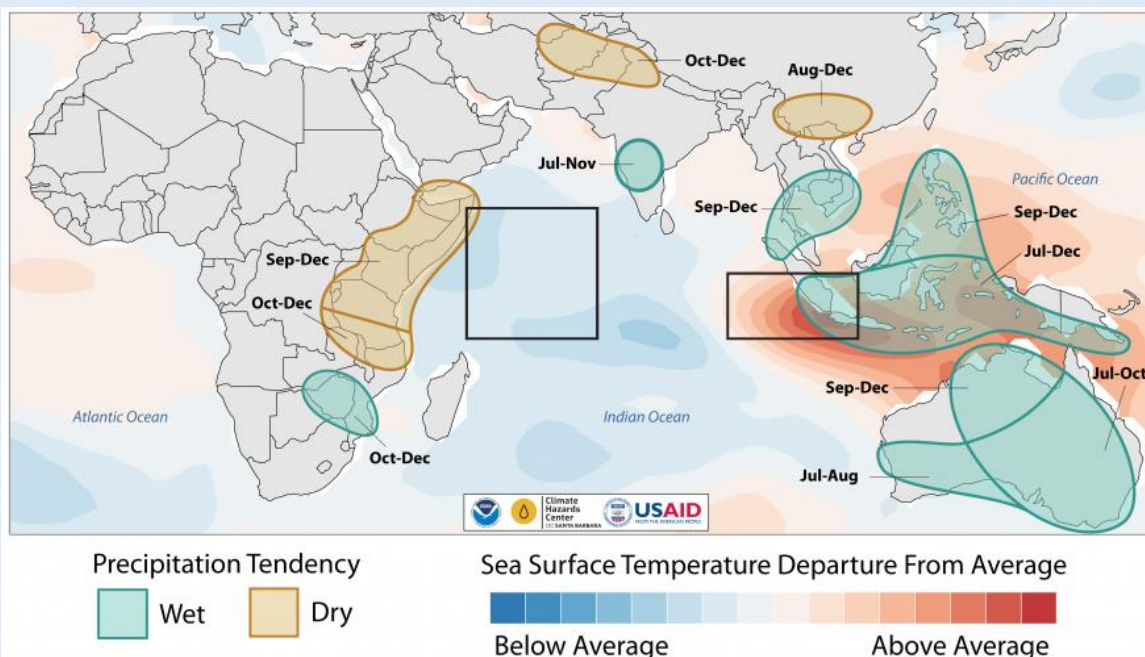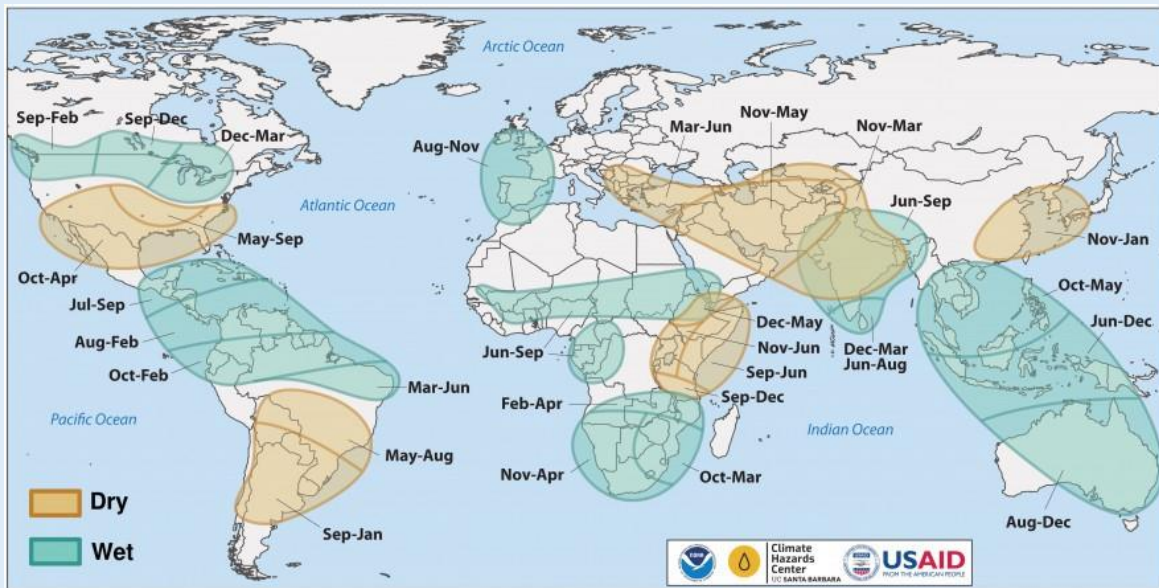
Source: UCSB Climate Hazards Center

Figure 1. Precipitation tendency during La Niña (top) and negative Indian Ocean Dipole conditions (bottom). Source: FEWS NET Agroclimatology Fact Sheets on La Nina and the Indian Ocean Dipole. Source: NOAA & CHC & FEWS NET

Seasonal Forecast Alert: High likelihood of unprecedented fifth consecutive below-normal rainfall season in eastern East Africa for OND 2022 and possibility for dry MAM 2023

The June-to-September (JJAS) 2022 rainfall season brought mainly average to above-average totals to northern areas, in Sudan, Eritrea, Djibouti, and central and northern Ethiopia, and mainly below-average rainfall conditions in the south (Figure 1-left). In Ethiopia, while ample and oftentimes heavy and flood-producing rains were focused in the north, rainfall was persistently below-average in southern and eastern areas, following record-low March-to-May 2022 rains in many of these areas. In South Sudan, JJAS rainfall conditions were also mixed, with surpluses primarily in eastern areas, and below-average amounts in central and southern locations. In Kenya, JJAS rainfall was average-to-above-average in western areas and below-average in central areas. In Uganda, many central and northern locations had record or close-to-record low rainfall from June to early August, and also from March to May, based on the 42-year CHIRPS data. While these areas received periodic above-average rainfall towards the end of the JJAS season, prolonged dry conditions created major challenges for crop production.

In Ethiopia, below-average rainfall impacted both the *Belg* and *Kiremt* seasons (Figure 1-middle) in densely populated locations in the southern and central Rift Valley and the southeast highlands in Oromia. According to the Ethiopia Monitoring Report from September 29th, "*Many of these areas in the south and east have received less than 400 mm since March, with totals drier than in any previous season. In the eastern highlands, high land surface temperatures also indicate soil moisture depletion, poor growing conditions, and shortages of rangeland resources, particularly over the adjoining pastoral and agro-pastoral regions.*" Ongoing drier-than-average conditions in southern Ethiopia will continue to have adverse effects, such as in portions of southern Ethiopia where seasonal rains should be continuing into November but are off to a slow start. The two-week unbiased GEFS forecast indicates below-average rainfall through October 12th in these areas.

The region is likely on the verge of another below-normal rainfall season, the fifth in-a-row, for the October-to-December (OND) 2022 season. Impacts in northern and eastern Kenya, southern Ethiopia, and Somalia could be devastating, due to widespread emergency levels of food insecurity across the region and a projection of Famine by the end of the year in parts of Bay region in Somalia. Forecasts for OND 2022 rainfall in eastern and southern areas of the region continue to be very pessimistic. The latest SubX (Figure 1 middle-right), unbiased GEFS, and ECMWF extended range forecasts, from September 29th, all indicate below-average rainfall during the next several weeks, in many of these areas. Similarly, the latest ICPAC (Figure 1-right), WMO, NMME, and C3S seasonal forecasts predict below-average conditions for OND overall. Strong sea surface temperature gradients in the tropical Indian and Pacific Oceans create atmospheric conditions that tend to suppress OND rainfall in southern and eastern Ethiopia, Somalia, Kenya, Tanzania, and in some cases, also in some western areas. A combination of La Niña and strong negative Indian Ocean Dipole conditions are expected during most or all of the OND 2022 season. This has been responsible for several of the most severe and widespread OND droughts in the past.

Raising concerns for March-to-May (MAM) 2023 rainfall is a forecast strong Pacific Ocean 'Western V Gradient' sea surface temperature pattern. These conditions have very frequently occurred during or following recent La Niñas, and have often resulted in below-normal or poorly distributed MAM rainfall in eastern areas. Climate models lack skill in long-range MAM rainfall predictions, but have good skill in identifying if a strong Western V Gradient will be present. The alarming situation highlighted by the OND and MAM forecasts is that the region will very likely experience a 5th and will also likely experience a 6th in-a-row poor rainfall season. A fifth season of drought would be unprecedented, and would exacerbate dire levels of food insecurity already present across parts of the region. While the MAM outlook may change, at present, forecast ocean conditions appear conducive to a 6th drought.
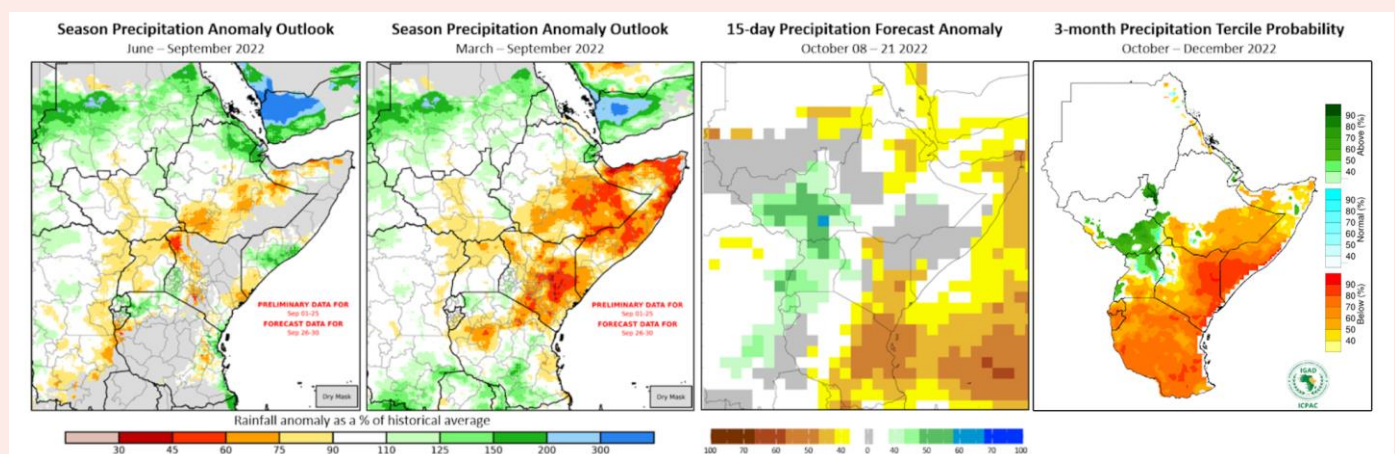

Figure 1. June-to-September and March-to-September, 2022 seasonal precipitation anomalies, and forecast data for October 8th to 21st and October-to-December 2022 precipitation. The left two panels are CHC Early Estimates, which compare current precipitation totals to the 1981-2021 CHIRPS average for their respective accumulation periods. These show the percent of average for June to September, 2022 (left), and for March to September (middle-left). Preliminary data is used for September 1st - 25th, and CHIRPS-GEFS forecast data is used for September 26th - 30th. Middle-right: Probabilistic forecast for above- and below-normal precipitation during October 8th to 21st. From the IRI SubX Precipitation Biweekly Probability Forecast issued on September 29th. IRI SubX is based on statistically-calibrated tercile category forecasts from three SubX models. Right: ICPAC probabilistic forecast for October-November-December 2022 precipitation tercile, based on September initial conditions. Source: UCSB Climate Hazards Center

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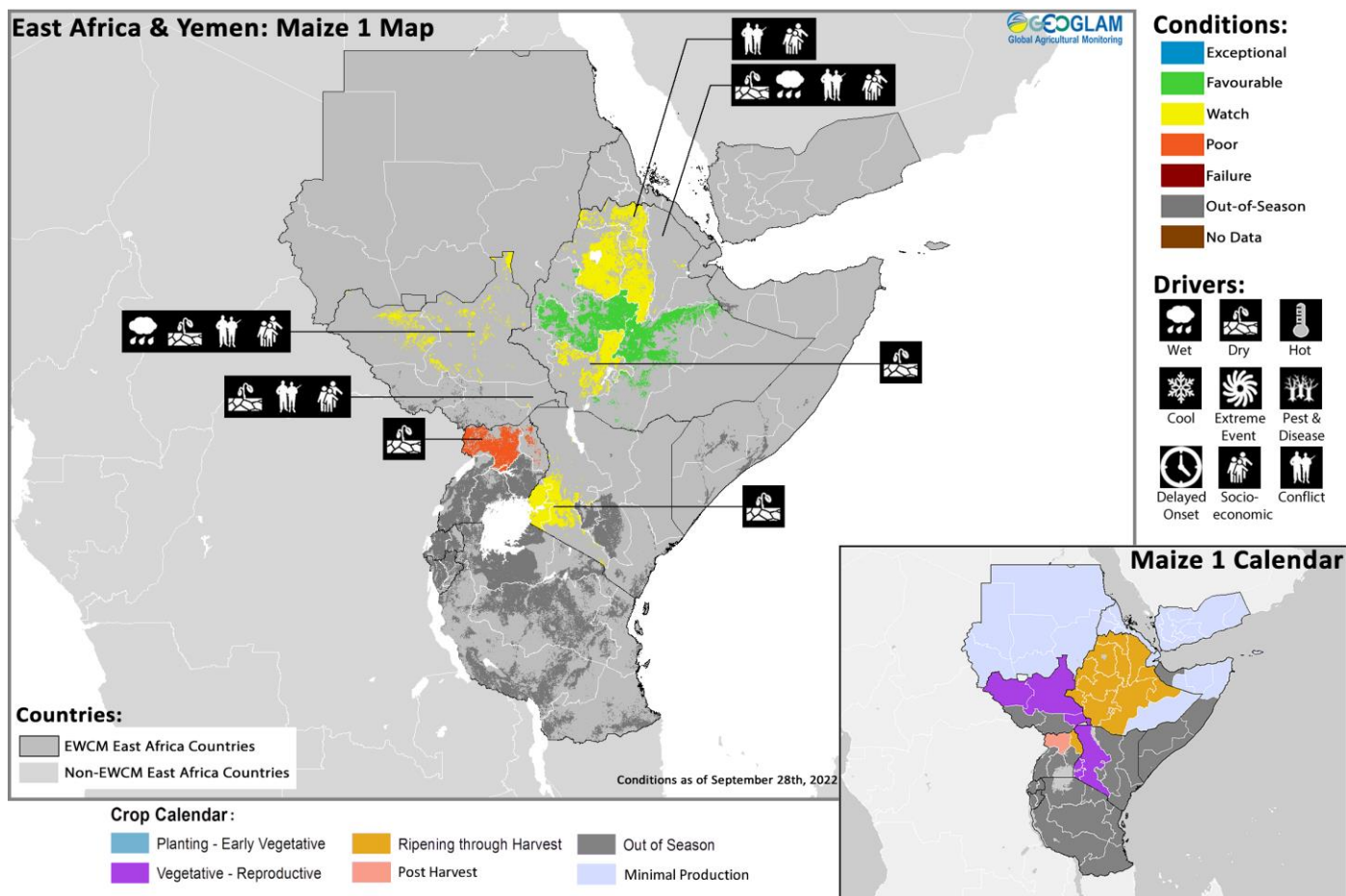
*Crop condition map synthesizing Maize 1 crop conditions as of September 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable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

Across the north of the subregion, harvesting of main season cereals is underway in **Yemen** while crops continue to develop in **Djibouti**, **Eritrea**, **South Sudan**, and **Sudan** for harvest from October. Concern remains in most areas due to persistent dryness across parts of **South Sudan**, flooding in low lying areas of Bahr el Ghazal and Upper Nile regions of **South Sudan**, parts of **Sudan**, and western **Yemen**, and conflict and socio-economic challenges in **Sudan**, **South Sudan**, and **Yemen**. In **Ethiopia**, harvesting of *Meher* season (Long Rains) cereals has just begun while winter wheat continues to develop for harvest from November. Climatic conditions are favourable except in SNNPR region located in the southwest due to continuing dry conditions as well as in Afar region located in the northeast due to insufficient soil moisture and flooding in some areas. Additionally, persisting conflict continues to impact agricultural activities in the northern parts of the country.

Across the south of the subregion, harvesting of main season cereals is underway in northern **Uganda** and bimodal and minor producing areas of **Kenya**, and crops are unlikely to recover from persistent dry conditions throughout the season. Main season cereals continue to develop in unimodal and major producing regions in **Kenya**, and concern remains due to persistent dry conditions that are forecast to continue through the remainder of the year. Planting of second season cereals continues in **Uganda** under favourable conditions while land preparation is underway in **Rwanda**, **Somalia**, and the **United Republic of Tanzania** for planting from October.

Below-average rainfall for the October to December 2020, March to May 2021, October to December 2021, and March to May 2022 rainfall seasons have resulted in prolonged drought conditions across **Somalia**, south and southeastern **Ethiopia**, and north and eastern **Kenya**. The subregion experienced an uneven start to the June to September seasonal rains, and despite rainfall improvements in late July and August, many areas continue to be affected by compounded impacts of four consecutive below-average rainfall seasons since late 2020. The ongoing drought in **Somalia**, **Ethiopia**, and **Kenya** is expected to worsen with the coming October to December Short Rains season, which is also expected to be below-average (See Seasonal Forecast Alert Pg. 5).

Northern East Africa & Yemen

In **Ethiopia**, harvesting of *Meher* season (Long Rains) cereals has just begun while winter wheat continues to develop for harvest from October. Concern remains in SNNPR, located in the southwest of the country, due to below-average rains since June, especially in southern parts of the region. Agro-climatic conditions have also degraded in Afar, located in the northeast of the country, due to insufficient soil moisture in southern parts of the region as well as heavy rainfall and flooding in some areas. Additionally, concern remains in the northern regions of Tigray, Amhara, and Afar where conflict and related socio-economic challenges continue to impact
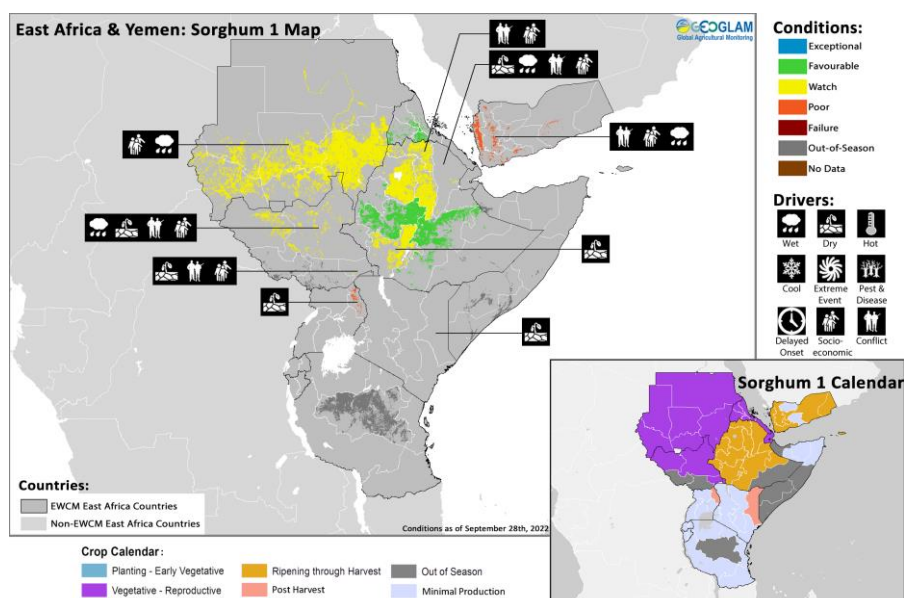
Crop condition map synthesizing Sorghum 1 conditions as of September 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable are labeled on the map with their driver.**

agricultural activities. Land preparation is underway for main season teff and sorghum crops in the southeast, and planting will begin in October. During the June to September *Kirempt* rainfall season, the timely onset of the rains benefitted agricultural activities and planting of short maturing crops. Between June and August, heavy *Kirempt* rainfall occurred in northwest, west, and central parts of the country and resulted in increased dam water levels, flash floods, and river overflows in Addis Ababa, Amhara, and Gambella regions. According to the Amhara regional report, 14,291 hectares of crop fields were damaged in 15 woredas. Conversely, impacts of drought have continued to worsen and expand with more areas affected, particularly in Afar region. If forecasts of below-average rains for the October to December *deyr/hageya* season materialize, it would be the fifth consecutive failed rainy season for affected areas (See Seasonal Forecast Alert Pg. 5). In **Sudan**, main season millet and

sorghum crops continue to develop for harvest from November. Although the rains have performed favourably for crop development, torrential rains and flash floods continue to impact many areas throughout the country. Additionally, the country continues to face macroeconomic challenges that influenced planted area. In **South Sudan**, first season cereals are in vegetative to reproductive stage for harvest from October while planting of second season maize and sorghum crops is underway. Concern remains in Kapoeta, located in the southeast, due to insufficient soil moisture over the past four months. Concern also remains in Bahr El Ghazal and Upper Nile regions as Parts of Unity, Lakes, and Warrap states had insufficient moisture while low lying areas were subject to flooding (See Seasonal Forecast Alert Pg. 5). Furthermore, ongoing conflict and socio-economic challenges continue to impact agricultural activities throughout the country. In **Djibouti**, main season millet and sorghum crops are in vegetative to reproductive stage for harvest from November, and crops have improved from previous concerns of dryness. In **Eritrea**, main season sorghum and wheat crops are in vegetative

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

to reproductive stage for harvest from November, and overall conditions remain favourable. In **Yemen**, harvesting of spring wheat finalized this month while harvesting of sorghum crops is underway, and below-average yields are expected due to conflict and related socio-economic challenges throughout the country as well as heavy rains and widespread flooding that impacted much of the country from the second half of July through August, particularly in the west where seasonal precipitation is well above-average (See Seasonal Forecast Alert Pg. 5).

Southern East Africa

In **Somalia**, harvesting of *Gu* season maize and sorghum crops finalized last month under poor conditions as four consecutive seasons of poor rains resulted in persistent drought and the longest dry spell in four decades. Land preparation of *Deyr* season maize and sorghum crops is just beginning, and planting will begin in October. In **Uganda**, harvesting of first season cereals is nearing completion in the north, and below-average yields are expected due to generally poor seasonal rainfall performance throughout the season and despite increased rainfall in September that resulted in some crop improvement. Planting and development of second season maize crops is underway, and conditions have improved due to recent rainfall received. Following a period of prolonged drought, heavy rains hit much of the country since late July. Additional heavy rains in early September resulted in flooding and landslides in the mountainous regions in the east and western parts of the country. In **Kenya**, harvesting of Long Rains crops finalized last month under failure conditions in the northeast and poor conditions in the east and coast due to poor seasonal rainfall performance and prevailing drought conditions. Long Rains cereals continue to develop in unimodal and major producing areas of the west and Rift Valley as well as in the unimodal central region. Conditions in the centre remain favourable as a recently constructed dam is expected to increase production compared to previous years. Conversely, conditions in the west and Rift Valley have
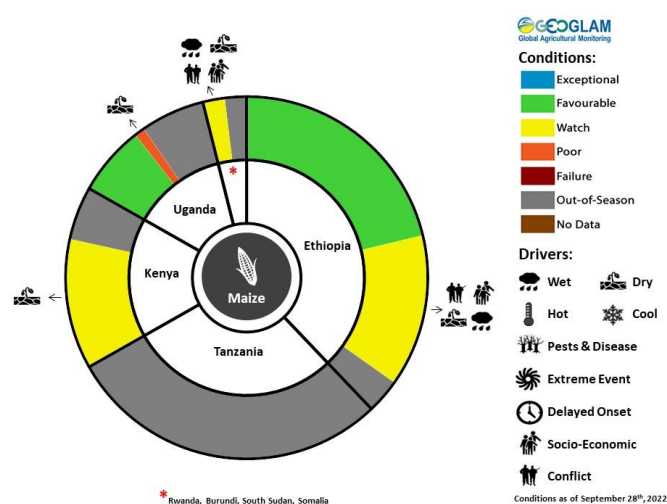
downgraded to watch due to dry conditions. According to a recent assessment by the Ministry, production in high and medium potential cropping areas is expected to decline 10 to 15 percent. At the national level, production of Long Rains cereals is expected to decline 25 percent compared to average. Additionally, land preparation is underway for Short Rains maize crops in the bimodal and minor producing northeast, coast, and east as well as in the unimodal central region, and planting will begin in October. In **Rwanda** and **Burundi**, land preparation is underway for Season A crops, and planting will begin in October. In the **United Republic of Tanzania**, land preparation is underway for *Vuli* season maize and *Masika* season wheat crops in the north, and planting will begin in October.

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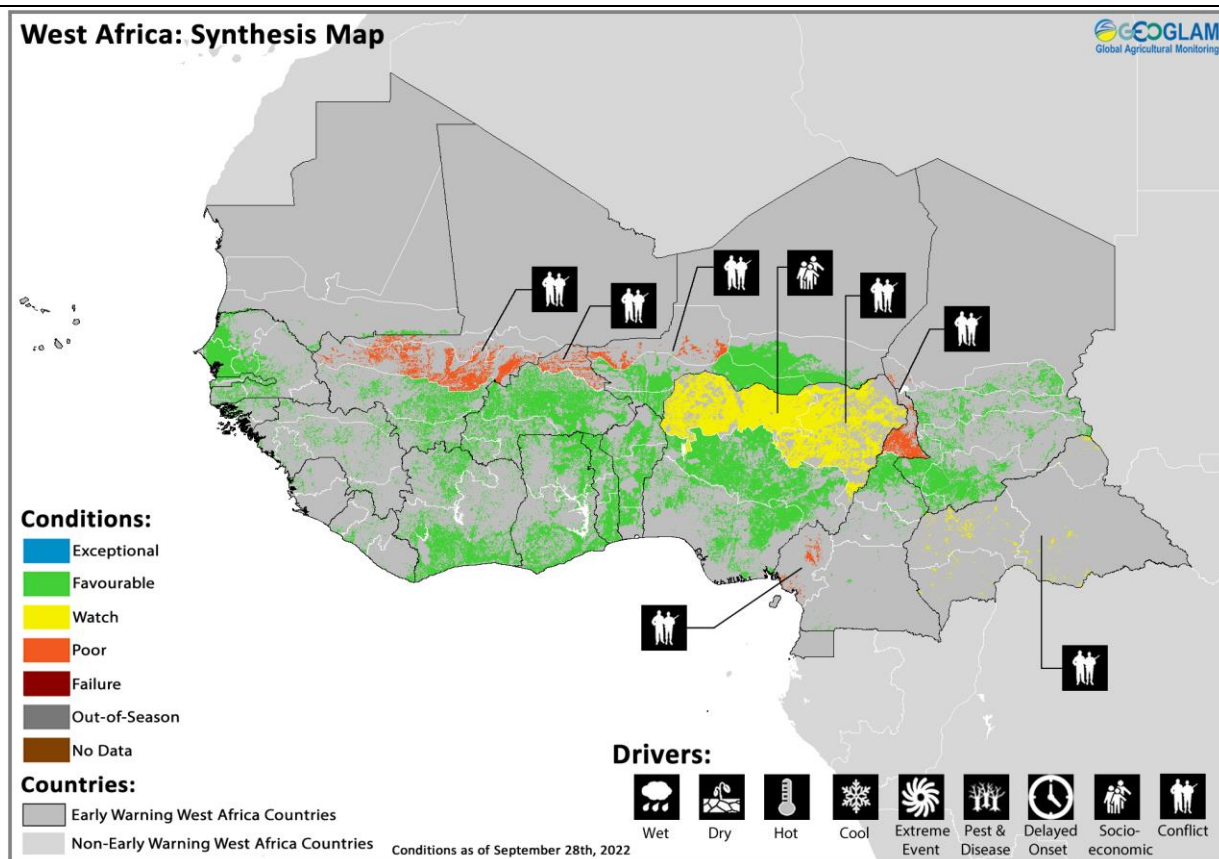
Crop condition map synthesizing crop conditions as of September 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. ***Crops that are in other than favourable conditions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

Along the south of the subregion, harvesting of main season maize crops finalized in **Liberia**, **Cote d'Ivoire**, southern **Ghana**, southern **Togo**, and southern **Benin**. Harvesting is nearing completion in northern **Ghana**, northern **Togo**, northern **Benin**, and northern **Cameroon** while planting and development continues in **Guinea**, central **Cameroon**, and the **Central African Republic**. Harvesting of second season maize crops finalized in southern **Cameroon** while planting and development continues in **Cote d'Ivoire**, southern **Ghana**, southern **Togo**, southern **Benin**, and southern **Nigeria**. Across the Sahel, harvesting of main season cereals is underway in southern **Senegal**, **Guinea-Bissau**, **Mali**, **Burkina Faso**, **Niger**, and **Chad** while crops continue to develop in **Gambia** and **Mauritania**. Throughout the subregion, conditions remain generally favourable for crop development except in localized areas impacted by seasonal rainfall deficits and flooding as well as in areas impacted by persisting insecurity. In **Mauritania**, crops in the central west have improved from previous dry conditions due to rainfall improvement from mid-August. However, localized parts of southwestern **Mauritania**, central and southern **Senegal**, western **Mali**, **Guinea**, **Sierra Leone**, **Liberia**, western **Cote d'Ivoire**, central **Ghana**, northwestern **Niger**, central and southern **Nigeria**, southwestern **Cameroon**, and west-central areas of the **Central African Republic** are being impacted by seasonal rainfall deficits from April to the end of the second dekad of September that range from slight to moderate. Additionally, heavy rains and flooding continue to impact many parts of the subregion, particularly in **Chad** as well as in parts of **Niger** and northeastern **Nigeria**. In **Chad**, a timely onset of the seasonal rains was followed by erratic rainfall distribution in May and June and torrential rains from July through September. While the rains helped to mitigate earlier deficits, the unprecedented flooding resulted in the destruction of 300,000 hectares of crops. In **Niger**, flooding has been impacting parts of the country since late June. The rise of the water level of the Niger River basin resulted in significant flash flooding in August, and recent heavy rainfall in September further impacted southern parts of the country. In **Nigeria**, a timely start to the 2022 rainy season followed by average to above-average rainfall amounts between July and September supported planting activities and crop establishment. However, flooding along riverine areas in central and northeastern states impacted agricultural livelihoods and assets and affected about 640,000 hectares of crops. Concern also remains in areas impacted by ongoing conflict, including central **Mali**, northern **Burkina**

Faso, western **Niger**, northeastern **Nigeria**, Lac region in **Chad**, the Far North and Southwest regions of **Cameroon**, and the **Central African Republic**. In **Chad**, persisting conflict and intensified clashes between farmers and pastoralists have impacted field access and agricultural activities, limiting planted area and yield expectations. Overall cereal production for 2022 is forecast at a slightly below-average level of 2.7 million tonnes as a result of insecurity, low fertilizer application, and flooding. In northeastern **Nigeria**, a recent decrease in violent incidents allowed more farmers to cultivate. However, high prices of fuel and fertilizer as well as erratic rainfall distribution are expected to impact crop outcomes. Conversely, conditions in north central and northwestern **Nigeria** have degraded as rising intercommunal clashes and crime, separate from the conflict in the northeast, are impacting field access and agricultural activities.

Middle East & North Africa

In the Middle East and North Africa, land preparation is underway for wheat crops in **Morocco**, **Algeria**, **Tunisia**, **Libya**, **Syria**, **Iraq**, and **Iran**, and planting will begin in October. There are increased chances of drier and warmer-than-normal conditions during October to December (OND) 2022 in west and eastern areas of the region, according to several international forecasting centers. Last year, below-average OND rainfall was a precursor to longer dry conditions and poor crop production outcomes in these areas. In **Iran**, harvesting of rice crops finalized under favourable conditions. In **Iraq**, planted area of rice crops has decreased in the main producing provinces due to the ban on irrigated crops as a result of limited irrigation water supply, and a strong reduction in rice production is expected. In **Egypt**, harvesting of summer-planted rice crops is underway while main season maize and *Nili* season (Nile Flood) rice crops continue to develop for harvest from October, and conditions remain favourable.

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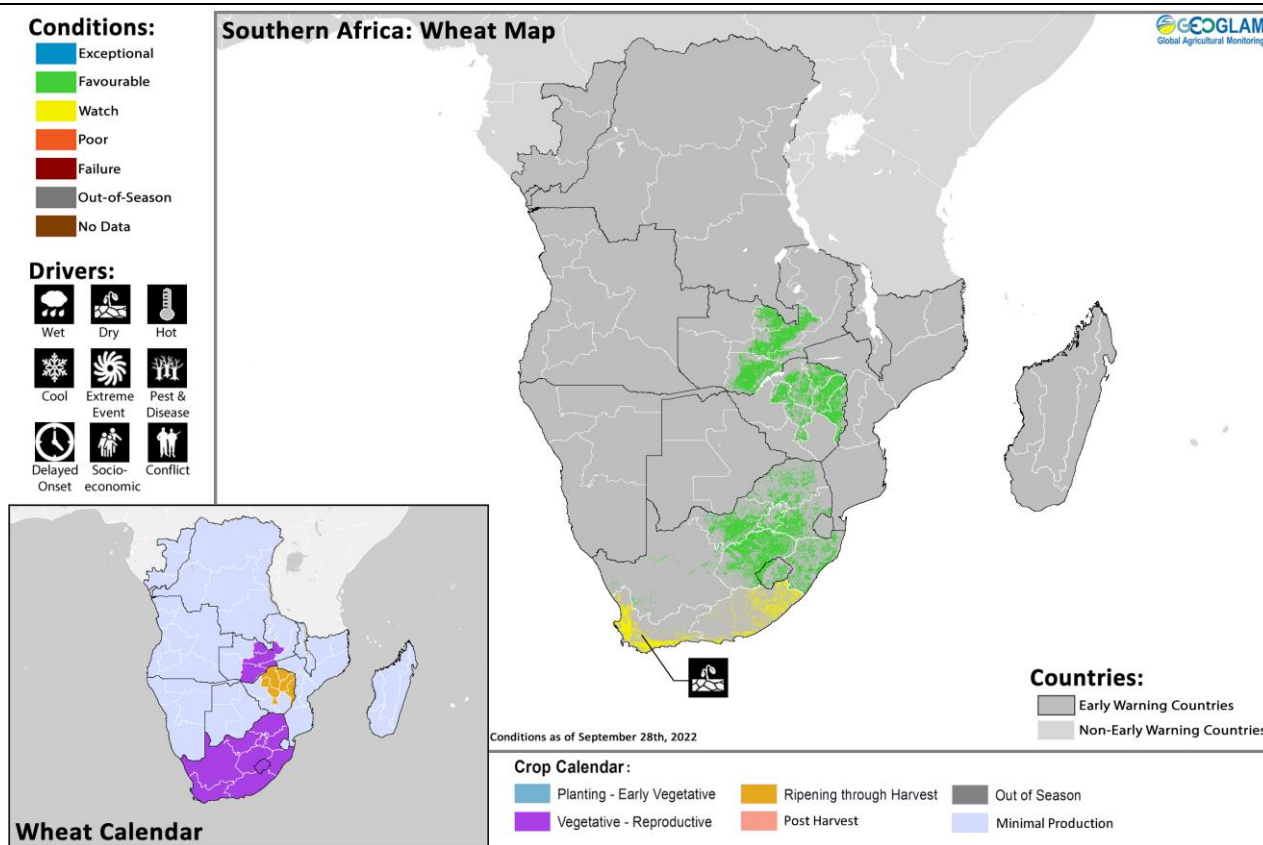
*Crop condition map synthesizing wheat conditions as of September 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions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

In Southern Africa, harvesting of wheat crops is underway in **Zimbabwe** while crops continue to develop in **Lesotho**, **South Africa**, and **Zambia** for harvest from October, and conditions are generally favourable except in southern **South Africa** where dry conditions persist. In the main producing Western Cape of **South Africa**, relatively dry conditions during most of winter may result in lower production in the winter rainfall area. In the Eastern Cape, conditions have downgraded to watch as earlier drought resulted in relatively empty dams over parts of the province; however, regular showers during winter supported adequate soil moisture levels. Conditions over the interior are favourable where ample water in most river systems is supporting irrigated wheat, and soil moisture levels are relatively high following wet conditions during autumn and in some areas during winter. In the **Democratic Republic of**

the Congo, harvesting of sorghum crops is nearing completion in the north while planting and development of main season cereals continues throughout the country, and overall conditions are favourable.

Planting of main season sorghum crops is underway in **Angola** under favourable conditions, and land preparation for main season cereals is already underway in **eSwatini**, **Lesotho**, and **Mozambique** and will start across the rest of the subregion in October through November. While October rainfall is likely to be below-average, above-average precipitation is expected for November and December across much of the centre and south of the subregion (See Regional Outlook Pg. 10).

Regional Outlook: Average to above-average rainfall is anticipated in most central and southern areas during OND 2022 into early 2023

Normal or above-normal rainfall is anticipated in most central and southern areas during late spring 2022 to early summer 2023, while northeastern areas and Madagascar may receive below-normal rainfall. The season will likely begin with a drier-than-average October in central and northern areas, based on WMO (Figure 1-left) and NMME forecasts and indications from more recent GEFS and ECMWF forecasts.

From November to January, wetter-than-normal conditions are most likely to occur in South Africa, Lesotho, eSwatini, southern portions of Zimbabwe and Mozambique, and in eastern Botswana. La Niña conditions are conducive to those rainfall outcomes, and seasonal climate model forecasts support that outlook. Figure 1 shows the latest WMO forecast for November-to-January (middle) and the SARCOF outlook for December-to-February (right). Models indicate elevated chances of wetter-than-normal conditions across central areas, though with lower confidence.

Close monitoring of early-to-mid season rainfall performance is recommended. During the 2021-2022 season, crops in multiple central and eastern areas of the region were impacted by persistent dryness and damage from several severe tropical storms. During late 2022, ongoing negative Indian Ocean Dipole and La Niña conditions could potentially have strong effects on reducing rainfall in northeastern Mozambique, northern Malawi, eastern Zambia, and northern Madagascar. Associated with forecast sea surface temperature patterns in the southern Indian Ocean, tropical cyclones that develop are likely to take a westward path across the basin, which would increase the chances of landfall in eastern Madagascar and other eastern coast areas. In southern Madagascar, southwestern Angola, and northwestern Namibia, below-average rainfall has had adverse impacts for several years in a row, and the SARCOF outlook highlights a possible recurrence of below-normal December-to-February rainfall in Madagascar again.
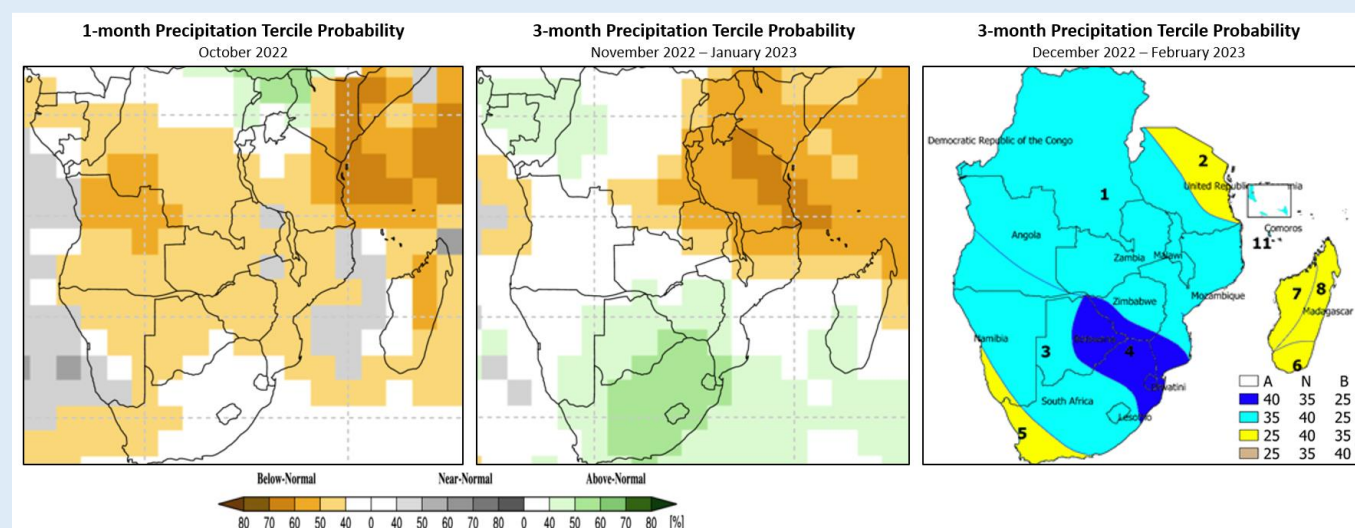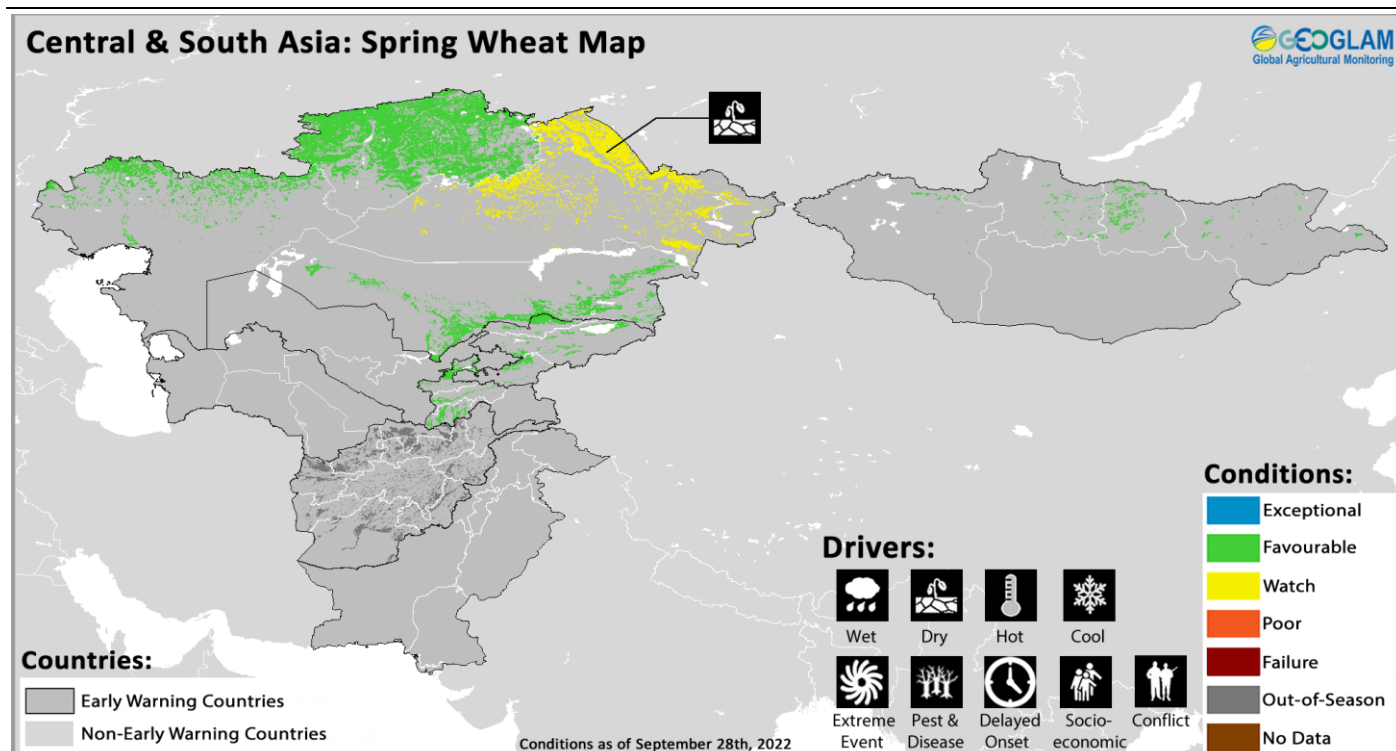

Figure 1. Precipitation forecasts for October 2022 and November 2022 to February 2023. Left and middle: WMO probabilistic forecasts for October 2022 and November-December-January 2022-2023 precipitation tercile, based on September initial conditions. Image from WMO Lead Centre Long-Range Forecast Multi-Model Ensemble. Right: Southern Africa Climate Outlook Forum (SARCOF 26) forecast for December-January-February 2022-2023 precipitation. Dark and light blue hues indicate above-normal to normal and normal to above-normal rainfall categories, respectively. Yellow indicates normal to below-normal rainfall. Image from the Southern Africa Development Community (SADC).
Source: UCSB Climate Hazards Center

Central & South Asia

Central & South Asia: Spring Wheat Map

GEOGLAM
Global Agricultural Monitoring

Drivers:
Wet, Dry, Hot, Cool, Extreme Event, Pest & Disease, Delayed Onset, Socio-economic, Conflict

Countries:
Early Warning Countries
Non-Early Warning Countries

Conditions as of September 28th, 2022

Conditions:
Exceptional
Favourable
Watch
Poor
Failure
Out-of-Season
No Data

*Crop condition map synthesizing Spring Wheat conditions as of September 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 finalized last month with failure conditions in parts of north, central, and southern **Afghanistan**, and poor conditions resulted in east and western regions of **Afghanistan** and Mary region of southeastern **Turkmenistan** due to persistent dry and hot conditions throughout the season. Elsewhere, yields are near-average. In **Uzbekistan**, 2022 wheat output is estimated at a slightly above-average level of 6.1 million tonnes, following overall conducive weather conditions during the season. Planting of 2023 winter wheat is underway in southern **Kazakhstan**, **Kyrgyzstan**, and **Tajikistan** under favourable conditions, and planting will begin next month in **Afghanistan**, **Pakistan**, **Turkmenistan**, and **Uzbekistan**. However, there is concern due to the below-average precipitation forecast through the fall and winter 2022-2023 period which, if forecasts materialize, would be the third consecutive year of below-average rainfall during this period and may impact water resources and irrigation supply (See Regional Outlook Pg. 12).

Harvesting of spring wheat finalized last month in **Afghanistan** and **Mongolia** and is nearing completion this month in **Kazakhstan**, **Kyrgyzstan**, and **Tajikistan**. Poor conditions resulted in most areas of **Afghanistan** due to persistent hot and dry conditions, and there is concern in northeastern **Kazakhstan** due to previous dry conditions. Elsewhere, conditions are favourable with near-average yields expected. In northern **Kazakhstan**, which is the major producing region for spring wheat and makes up 95 percent of total wheat production, conditions in the north centre have improved from previous concerns regarding below-average precipitation during the season. Additionally, sufficient rainfall throughout the season in the northwest benefitted crop growth and yield. Conversely, conditions in the northeast have downgraded as limited rainfall in July negatively affected yield for the region. According to the Ministry of Agriculture, the country is expected to harvest 13.4 million tonnes of wheat, which is near to slightly above-average. According to the JRC MARS Bulletin issued September 26th, yield at the national level is forecast to be 2 percent below-average, and production is expected to be 4 percent above-average. However, both yield and production are expected to be well above the previous year's poor performance. In **Mongolia**, localized dry spells in west and southern parts of the country during summer months is likely to have resulted in slight yield declines of the 2022 wheat crop, harvested by September.

In **Pakistan**, harvesting of *Kharif* (summer) season rice and maize crops has just begun, and overall conditions are mixed as the country continues to be affected by severe monsoon rainfall and unprecedented flooding (See Pakistan Special Alert Pg. 13). Crops are unlikely to recover in Sindh province, and summer crops may also be impacted in Balochistan, Khyber Pakhtunkhwa, and Punjab provinces.

Regional Outlook: Third consecutive year with below-normal rainfall for fall and winter 2022-2023 is expected

5-month Precipitation Tercile Probability
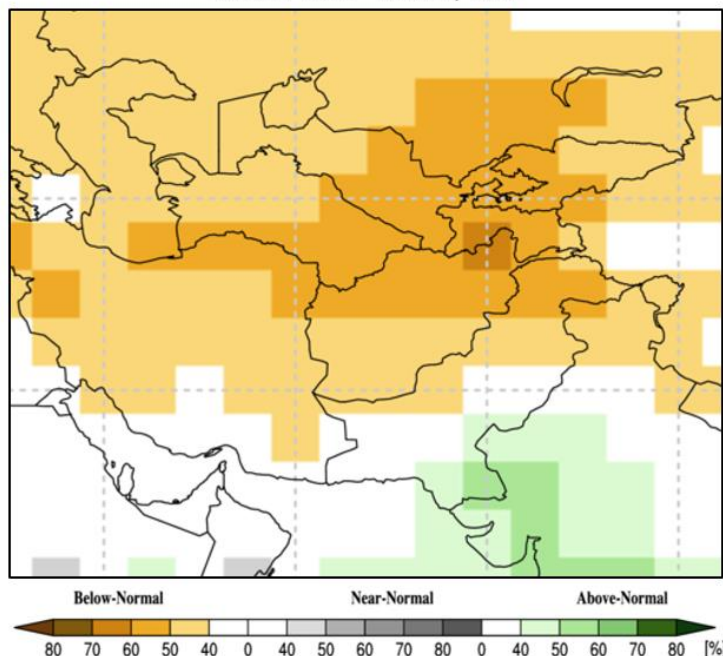#### October 2022 – February 2023

Figure 1. Forecast for October-to-February 2022-2023 precipitation. WMO probabilistic forecast for October-to-February 2022-2023 precipitation tercile, based on models initialized in September. From WMO Lead Centre Long-Range Forecast Multi-Model Ensemble.
Source: Climate Hazards Center

A third consecutive year with below-normal precipitation is expected during the fall and winter of 2022-2023 due to La Niña conditions that are forecast to persist through early 2023. That pessimistic outlook has been supported by seasonal climate model forecasts for several months (See CM4EW July and August 2022 Bulletins). As we begin the October-to-May precipitation season, the latest seasonal forecasts remain firm in this regard. According to the WMO forecast for October 2022 to February 2023, below-average precipitation is likely across the region, with a 50 to 60% chance of below-normal precipitation from central Afghanistan to southern Kazakhstan (Figure 1). More recent, shorter-range forecasts from late September, the SubX multi-model ensemble and the ECMWF extended range forecast, also predict below-average precipitation and above-average temperatures in October.

Many areas in Central and Southern Asia where drier-than-normal conditions are forecast in 2022-2023 received below-average precipitation throughout the 2020-2021 and 2021-2022 winter and spring crop growing seasons. Moreover, in 2022 the snowpack in southern areas was the lowest in 20 years. In Afghanistan, the dry conditions in winter and spring heavily impacted wheat production during 2021 and 2022, and severe hydrologic drought conditions are now present in central and northern areas. This will continue to affect water availability. Below-average winter precipitation can have long-lasting impacts on water resources, particularly if snowpack is affected. Given the pessimistic forecasts and the multi-year drought conditions, the situation is highly concerning.

Special Alert: Unprecedented Monsoon Rainfall and Flooding in Pakistan resulted in widespread damage to agricultural areas in Sindh, Balochistan, and Punjab

In Pakistan, the monsoon season from June to September is prone to heavy rainfall and flooding. This year, significantly higher than average monsoon rainfall levels from mid-June through the end of August as well as unusual melting of glaciers caused the main river Indus and its tributaries to overflow, resulting in devastating flooding and landslides that impacted agricultural lands and critical agricultural infrastructure, particularly in southern parts of the country. In the first three weeks of June, the country received 60 percent of the total normal monsoon rainfall. The monsoon rains then peaked in late August, and by this time the country had received 2.9 times the amount of rainfall compared to the 30-year average, affecting Balochistan, Sindh, Gilgit-Baltistan, Punjab, Azad Jammu and Kashmir, and Khyber Pakhtunkhwa (KPK) provinces. Sindh province was the most affected by the unprecedented heavy rains and flooding, followed by Balochistan and Punjab provinces (Figure 1). According to the Prime Minister, the event is the worst in the country's history, and according to the Federal Minister for Climate Change, Sindh province received 784 percent more rainfall than average, and Balochistan received 496 percent more rainfall than average for the month of August. Floods and landslides since the start of the season have impacted more than 33 million people throughout the country, according to a joint report by the Government of Pakistan and the United Nations released on August 30th.

Between August 1st and August 29th, 75,000 km2 of land was impacted by floodwaters, representing about a fourth of the country's land area, including 48,530 km2 appearing to be croplands, according to analysis done by the United Nations Satellite Center (UNOSAT). Flooding throughout the country has caused significant losses to the 2022 *Kharif* season crops, including rice, maize, cotton, sugarcane, vegetables, and orchards. According to preliminary official estimates as of September 27th, 2.6 million hectares of standing *Kharif* season crops have been affected, including 1.9 million hectares in Sindh, 365,000 hectares in Balochistan, 285,000 hectares in Punjab, and 60,700 hectares in Khyber Pakhtunkhwa. Overall, this area represents about 35 percent of the total area planted to cereal, sugarcane, and cotton. In the mostly rural District of Badin of Sindh province, around 70 percent of crops have been affected by the heavy rains. Furthermore, flooding has resulted in damage to agricultural inputs, including seed stocks, fertilizers, and machinery at the household level, which is likely to impact *Rabi* wheat planting from October. Damage to irrigation infrastructure is also expected to impact *Rabi* wheat outcomes as it is 90 percent irrigated. Regarding the livestock sector, preliminary official estimates show that 1.1 million animals, including cattle, goats, donkeys, and sheep, died due to drowning or starvation as grazing land was covered by water and feed stocks were lost. Most of the animal deaths are reported in Balochistan province, followed by Sindh, Punjab, and Khyber Pakhtunkhwa respectively.
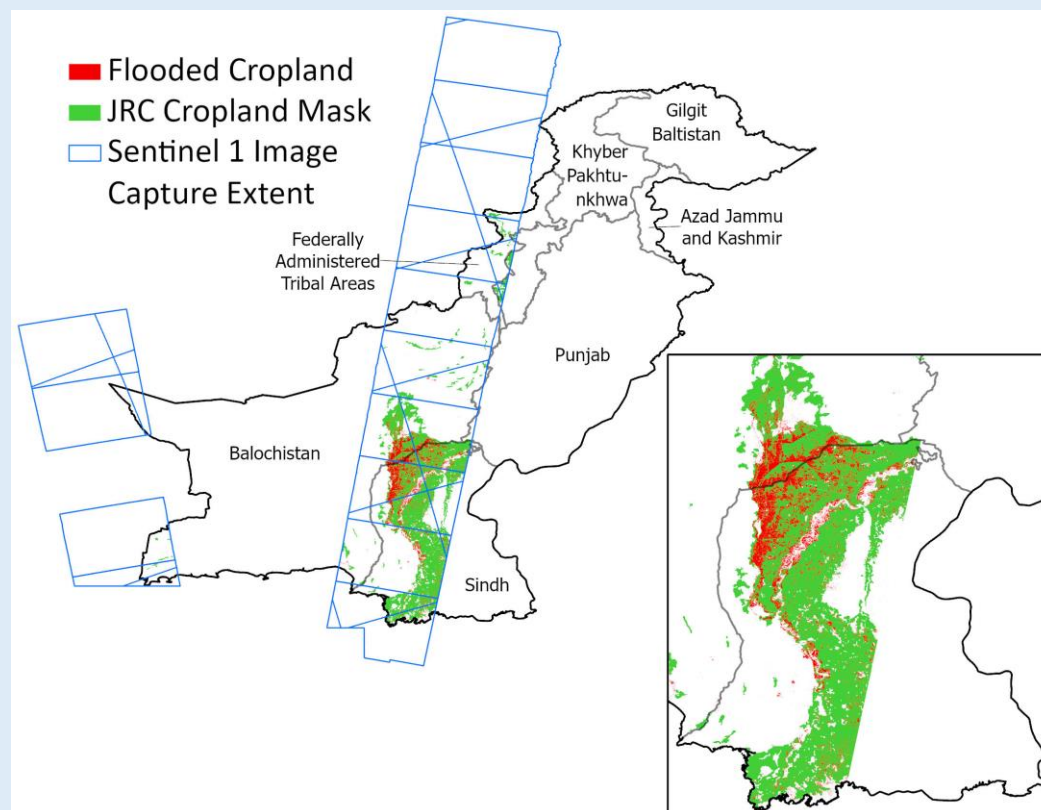
As of September 16th, increasing floodwaters continued to impact districts in Sindh, Balochistan, and Punjab provinces while floodwaters began to stagnate or recede in other parts of the country. Additionally, large floods were still inundating villages and agricultural areas along the river Indus. Overall, the impact of heavy rains and floods on production in the agricultural and livestock sectors has been severe, with significant implications for the food security situation across the country. As of September 20th, many parts of the country, especially in southern Sindh province, remained under water, and it could take up to six months for the flood waters to recede in the most impacted areas.

Figure 1: Left full extent: Flooded cropland area (red) in Pakistan as of August 30th, 2022 overlaid on total cropland area mask (green) clipped to the Sentinel 1 image capture extent. Right zoomed in extent: Flooded cropland area (red) in Sindh Province as of August 30th, 2022 overlaid on total cropland area mask (green) clipped to the Sentinel 1 image capture extent. Source for Cropland Mask: JRC ASAP. Source for Sentinel 1 Image Capture Extent and Flooded Cropland: Global Flood Monitor
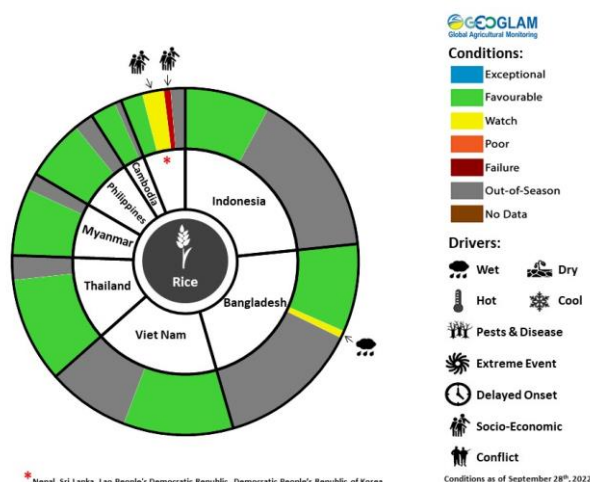
Southeast Asia
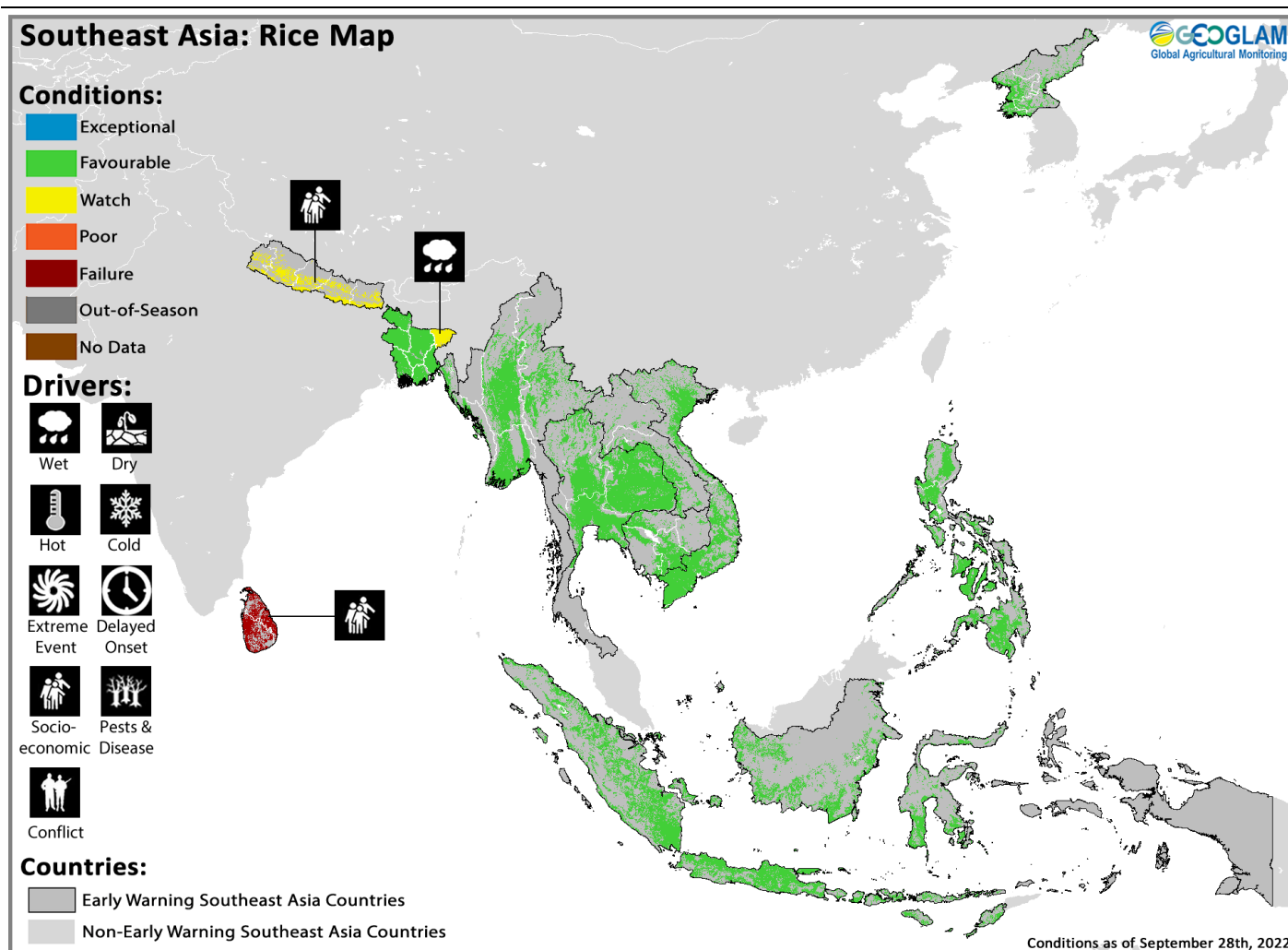
*Crop condition map synthesizing rice conditions as of September 28th. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions are labeled on the map with their driver.***

In northern Southeast Asia, planting of wet-season rice is nearing completion. Crops are developing under favourable conditions with sufficient rainfall received, and overall yield is expected to be near-normal for the subregion. While heavy rainfall and flooding impacted some regions from August through early September, no significant damage was reported. In **Indonesia**, sowing of dry-season rice enters the late stages as harvesting of earlier sown crops continues under favourable conditions with good rainfall received from August to early September. Total planted area is 4.6 million hectares, similar to the previous year's level. In the **Philippines**, wet-season rice sown between April and May is now fully harvested while rice sown between July and August is in the tillering stage under favourable conditions. However, on September 22nd, Tropical Cyclone Noru (locally named Karding) formed in the western Philippines Sea and began moving westward as it attained super typhoon strength. The storm made landfall on September 25th and is the 11th tropical cyclone to hit the country this year and the most powerful typhoon to hit the island of Luzon this year. For the remainder of the season, low-pressure areas, southwest monsoon, and two to three tropical cyclones are expected to affect the country. In **Thailand**, wet-season rice is in the young panicle forming stage under favourable conditions. Planted area in the Northeastern region decreased due to farmers planting other crops such as sugarcane as well as the delay in planting last year due to heavy rainfall and flooding. Conversely, planted area in the Northern and Central regions increased due to sufficient water supply and satisfied paddy prices compared to the previous year. The Meteorological Department forecasts above-average rainfall, including monsoon rains from September to October, that increase the risk of flooding. However, yield is expected to increase from the previous year when there was extensive flood damage. In **Viet Nam**, wet-season rice is in the young panicle forming to grain filling stage under favourable conditions in the north. In the south, harvesting is ongoing for summer-autumn rice (wet-season) with a yield of 5.7 tons per hectare, the same as the previous year, while the other wet-season rice (autumn-winter rice and seasonal rice) continues to develop under favourable conditions. Typhoon Noru made landfall in the central region on September 27th, bringing typhoon-force winds and torrential rainfall to Quang Tri, Thua Thien Hue, Da Nang, Quang Nam, and Quang Ngai provinces. However, crop damage from the storm was minimal. In **Laos**, wet-season rice is in the young panicle forming to grain filling stage under favourable conditions with good weather and sufficient irrigation water supply in all regions. While some paddy fields in the central and southern lowland areas were impacted by heavy rainfall and flooding in the second half of August, no significant damage has been reported. Additionally, some northern upland areas were impacted by pests, but the damage is not significant. In **Myanmar**, planting of wet-season rice is

nearing completion at 5.6 million hectares accounting for 92.6 percent of the national planting plan. Sufficient monsoon rainfall favoured the planting work, and progress is similar to the previous year. Heavy monsoon floods occurred in most areas with 1,900 hectares of planted area affected and 1,400 hectares damaged. However, replanting operations have been carried out, and overall conditions remain favourable with crops now at the panicle forming stage. In **Cambodia**, planting of wet-season rice is nearing completion at 2.6 million hectares accounting for 101 percent of the national planting plan. While conditions remain generally favourable, heavy rainfall continued to affect agricultural areas this month and seemly to a greater extent than the previous year. Around 60 percent of the cultivated area has been harvested with yield estimated at 3.9 tones per hectare less than previously expected. In **Sri Lanka**, harvesting of *Yala* season maize and rice crops is nearing completion with significant yield declines expected. The country continues to be impacted by a severe economic crisis with major disruptions to agricultural production. According to the FAO CFSAM impact report published in

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

September 2022, overall production of paddy, which is the country's main staple crop, is forecast at 3 million tonnes for 2022, a 42 percent decrease from the previous year and the lowest level since 2017 when drought impacted output due to reduced application of agrochemicals. Production of maize, which is mostly used as animal feed, is expected to decline 40 percent compared to the five-year average. Furthermore, reduced incomes for farmers has decreased their purchasing power at the same time when agricultural input prices are soaring. As such, farmers are likely to cultivate less land for the upcoming 2022/23 *Maha* planting season, which will begin in October. In **Nepal**, harvesting of maize crops finalized in September under favourable conditions. However, yields are expected to decrease by 5 to 7 percent as crops were impacted by the high price of fuel and fertilizer. Rice crops are in vegetative to reproductive stage for harvest from November, and concern remains due to similar issues. Land preparation is underway for wheat crops, and planting will begin in October. In **Bangladesh**, main season maize crops and *Aman* season rice crops are in vegetative to reproductive stage for harvest from October, and conditions remain generally favourable except in Sylhet where previous heavy monsoon rains and runoff from northeastern India may impact crop outcomes. In the **Democratic People's Republic of Korea**, harvesting of maize crops finalize in September while harvesting of rice crops is nearing completion. Overall conditions are favourable, with crop biomass average to above-average in all provinces due to ample rainfall.

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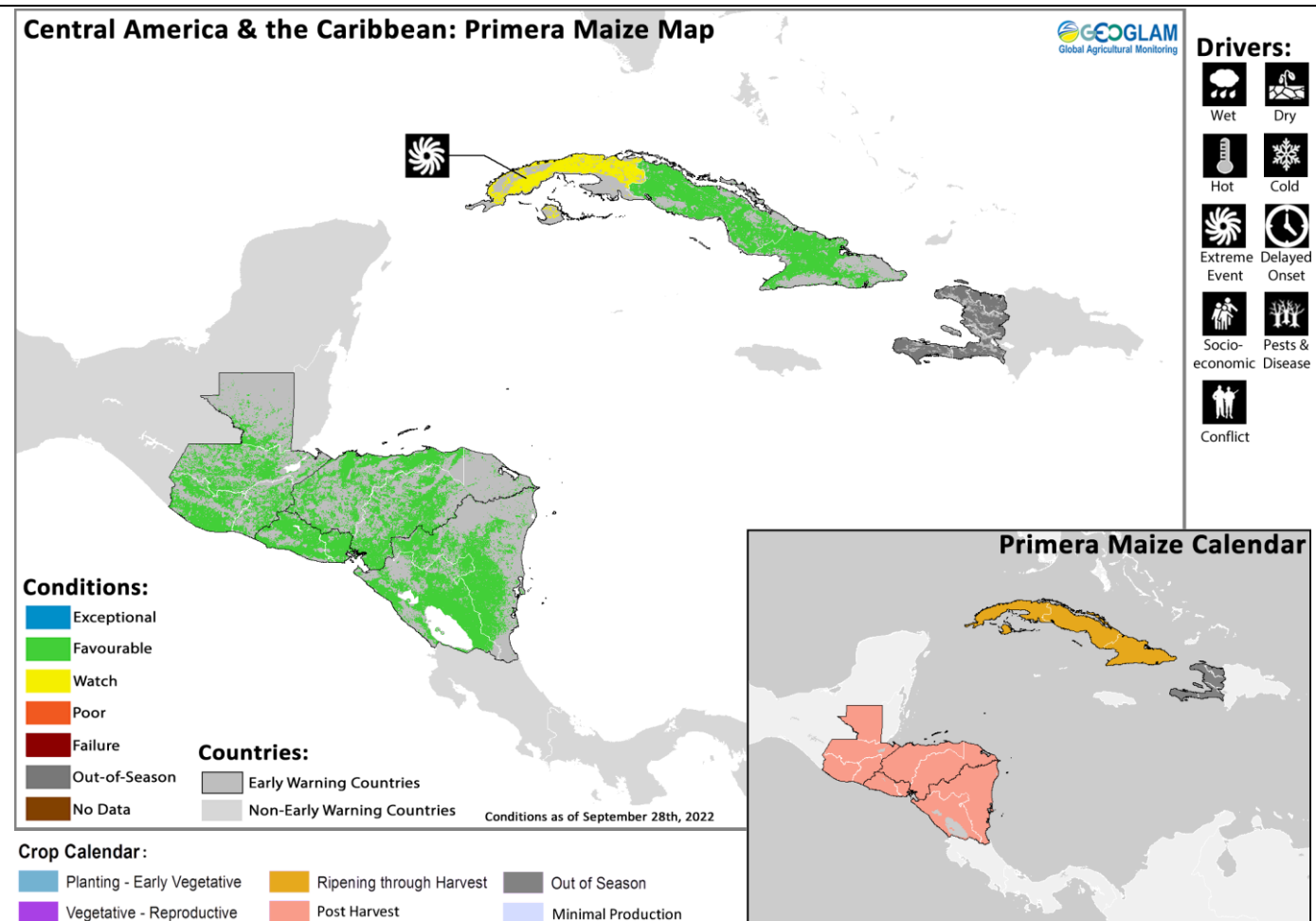
Crop condition map synthesizing Primera season maize conditions as of September 28ᵗʰ. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable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

In Central America, harvesting of *Primera* season cereals is nearing completion in **El Salvador**, **Guatemala**, **Honduras**, and **Nicaragua** under generally favourable conditions despite heavy rains in September that resulted in significant damage to infrastructure, agriculture, and related livelihoods in landslide-prone areas of **El Salvador**, **Guatemala**, and **Honduras**. However, the increased rainfall could impact harvesting activities. Planting of *Segunda/Postrera* season cereals is now underway in **El Salvador**, **Guatemala**, **Honduras**, and **Nicaragua** for harvest from December, and planting conditions are favourable. However, the excess moisture and mud conditions from the recent increased rainfall could impact *Segunda/Postrera* season sowing activities and result in a delay to the start of the season.

In **El Salvador**, *Primera* season crop yields are generally favourable throughout the country despite below-average rainfall in the western producing region (See Regional Outlook Pg. 17). In **Guatemala**, *Primera* season crop yields are generally good due to overall favourable precipitation amounts and distribution. In **Honduras**, although precipitation has been above-average in the south and western areas since July (See Regional Outlook Pg. 17), it did not negatively affect production prospects as the major producing regions are located in the east and centre of the country where yields are favourable. The Honduran Permanent Contingency Commission (COPECO) estimates 140,000 hectares of crops have been affected, and 11,000 hectares of crops have been destroyed by the impacts of heavy precipitation from the ongoing rainy season. In **Nicaragua**, precipitation has been below-average in the eastern region since August (See Regional Outlook Pg. 17). However, due to good soil moisture from earlier rainfall, it did not significantly impact crops, and overall yields are favourable. In **Haiti**, harvesting of main season rice crops is underway, and yields are expected to be below-average due to rainfall deficits and temperature increases during the *Printemps* season. However, increased precipitation in August could have benefitted
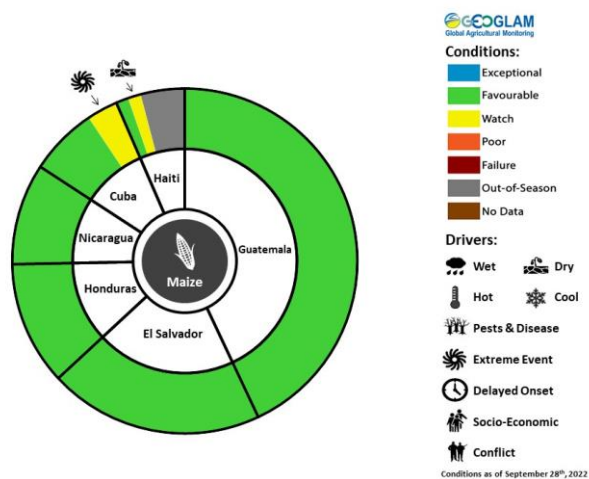
For detailed description of the pie chart please see description box on Pg. 17.

some later-planted crops and replenished reservoirs to some extent. Second season maize and bean crops are in vegetative to reproductive stage for harvest from October, and conditions remain favourable except in parts of the Nord-Ouest where rainfall and vegetation biomass is below-average due to the extended rainfall deficit. Dry conditions are likely to continue in the south and northwest through early October (See Regional Outlook Pg. 17). In **Cuba**, harvesting of main season maize and second season rice crops is underway, and there is concern in areas of the west impacted by Hurricane Ian. On September 24th, Tropical Depression Nine strengthened into Tropical Storm Ian before moving across the Caribbean Sea and generating showers over parts of Central America. The storm then intensified and moved across Cuba, becoming the fourth hurricane and second major hurricane of the 2022 Atlantic hurricane season. On September 26th, Hurricane Ian made landfall in Pinar Del Río province, impacting western Cuba with heavy rains and sustained wind. According to a September 29th report from the Cuban Ministry of Agriculture, damage to cereal crops was marginal.

Regional Outlook: Near-average rainfall forecast for the next two weeks across parts of Guatemala, Honduras, and Nicaragua

In recent weeks, between August 26th and September 25th, rainfall was above-average in western and central Honduras, western Nicaragua, eastern El Salvador, Belize, and in portions of western, northern, and eastern Guatemala (Figure 1-left). Rainfall was below-average in Haiti, eastern Honduras, eastern Nicaragua, western El Salvador, and southern Santa Rosa and Jutiapa Departments in Guatemala.

Areas in central and northern Guatemala with rainfall deficits improved during September. Drier-than-average conditions are forecast for most of central and northern Guatemala for the next two weeks. As of mid-October, near-average season rainfall totals are expected across Guatemala, with localized wetter and drier areas (Figure 1-middle). In eastern Honduras and northeastern Nicaragua, where conditions have been drier than average, near-average rainfall is expected during the next two weeks.

In Haiti, most areas received below-average rainfall between August 1st and September 25th. Drier-than-average conditions are forecast through October 10th in the south and northwest, and average amounts are forecast elsewhere, based on the two-week GEFS forecast. Average to below-average season-to-date totals may be present as of mid-October. There is uncertainty for rainfall performance through the remainder of the season, as longer-range forecasts diverge.
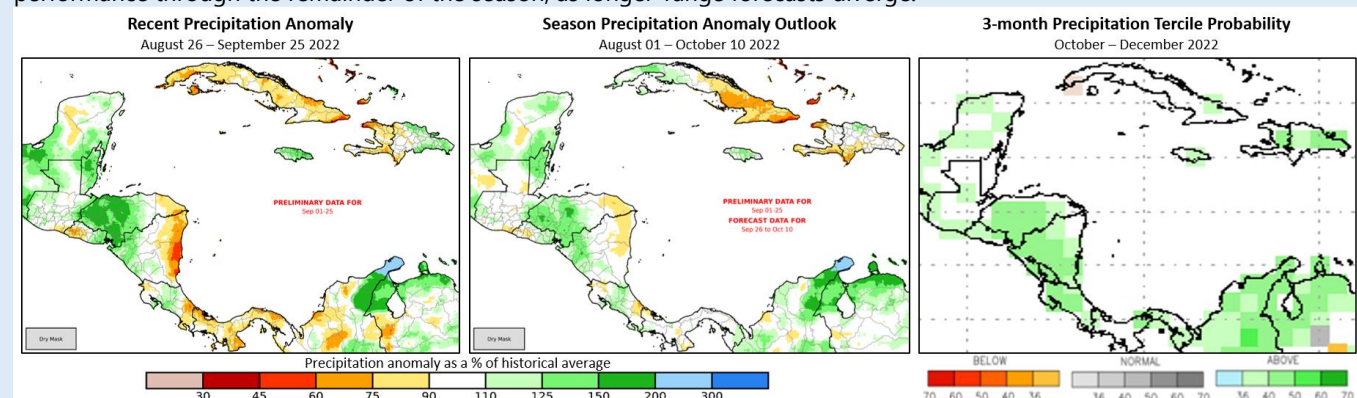

Figure 1. Recent and August-to-October 10th, 2022 precipitation anomalies, and forecast data for October-to-December 2022 precipitation. The left two panels are CHC Early Estimates, which compare current precipitation totals to the 1981-2021 CHIRPS average for their respective accumulation periods. These show the percent of average for August 26th to September 25, 2022 (left), and for August to October 10th (middle). Preliminary data is used for September 1st - 25th. In the middle panel, CHIRPS-GEFS forecast data is used for September 26th - October 10th. Right: NMME probabilistic precipitation forecast for October-to-December, 2022, based on September 2022 initial conditions. The forecast tercile probability is calculated as the percentage of all 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 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 October 6th, 2022.

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.

🟦	Exceptional
🟩	Favourable
🟨	Watch
🟧	Poor
🟥	Failure
⬜	Out-of-Season
🟫	No Data

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.

Wet Dry
Hot Cold
Extreme Event Delayed Onset
Socio-economic Pests & Disease
Conflict

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 & Carribean				
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

Contributing partners

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