

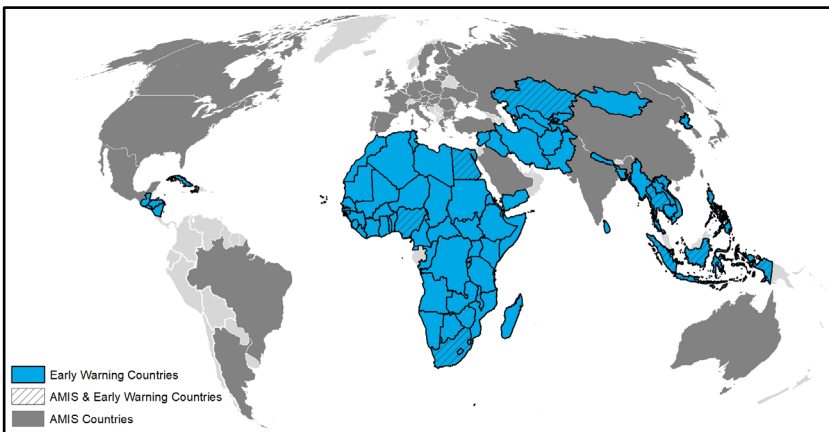


# Crop Monitor

## EARLY WARNING

### Overview:

In **East Africa**, planting is underway for secondary *Belg* season crops in Ethiopia, land preparation is underway for the start of the main *Long Rains* crops in the south, and there is some concern due to dry conditions and forecast below-average March to May rains in eastern East Africa (See Forecast Alert Pg. 5 and Regional Outlook Pg. 8). In **West Africa**, harvesting of most main and second season cereals finalized in January with generally favourable end of season production, and conditions are favourable for the continued development and harvesting of second season rice crops. In the **Middle East and North Africa**, conditions are generally favourable for wheat development except in parts of Morocco, Algeria, and Syria due to dry conditions and in Syria and Libya due to ongoing conflict and socio-economic challenges. In **Southern Africa**, conditions are favourable for the development of main season cereals; however, there is some concern in areas impacted by dry conditions as well as in central and southern Mozambique where Tropical Storm Guambe compounded recent impacts from Tropical Storm Eloise. In **Central and South Asia**, there is some concern for winter wheat crops where below-average precipitation has been received for the past three months and is forecast to continue through May (See Regional Outlook Pg. 15). In northern **Southeast Asia**, there is concern for dry-season rice development in parts of Myanmar and Thailand where dry conditions have decreased irrigation water availability and in parts of the Philippines and northern Viet Nam where flooding and cold weather impacted crops. In **Central America and the Caribbean**, *Apante* season bean crops are in vegetative to reproductive stage in Nicaragua and Haiti, and overall conditions are favourable.



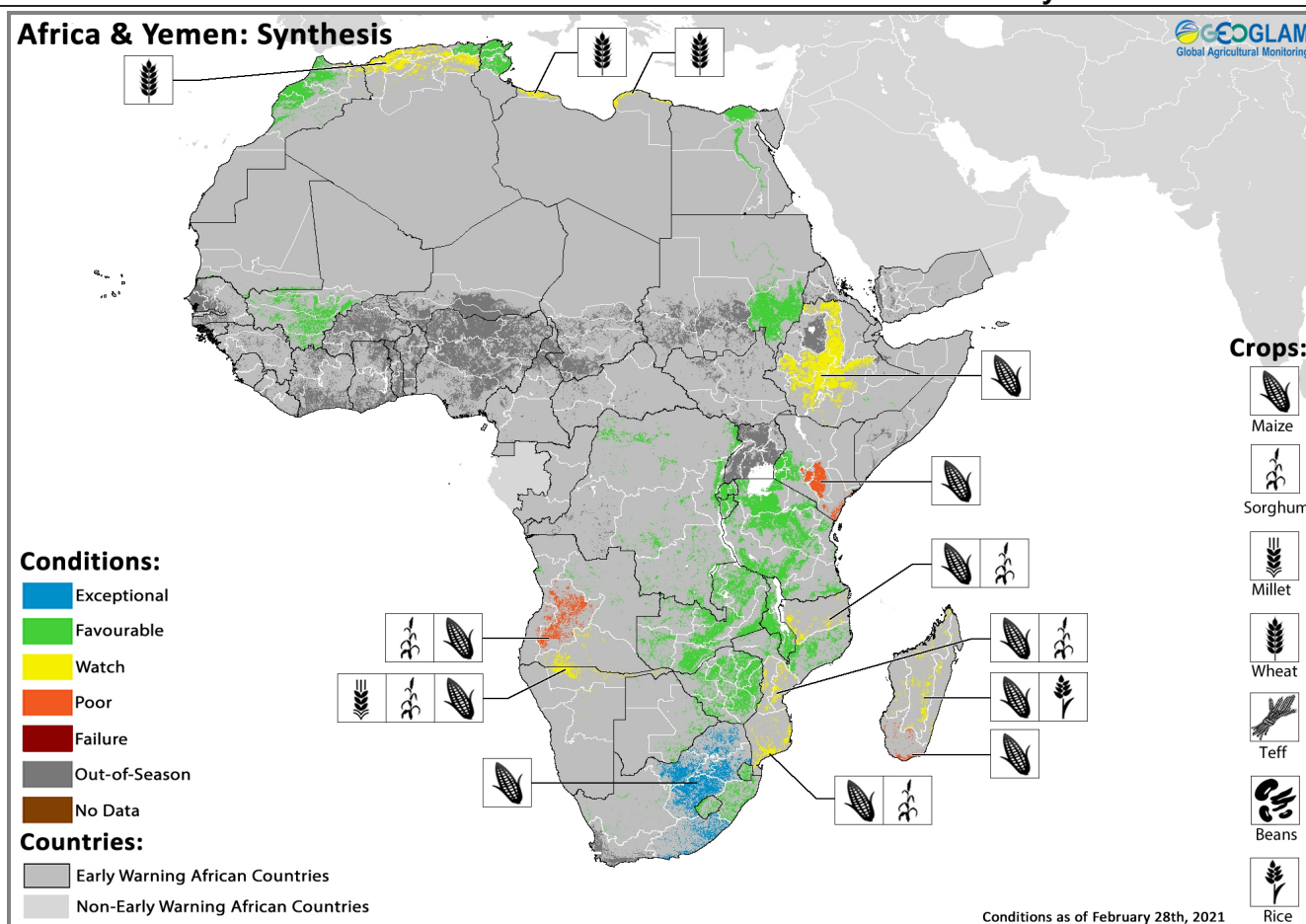
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# GEOGLAM Crop Monitor for Early Warning

## Crop Conditions at a Glance

based on best available information as of February 28<sup>th</sup>



Crop condition map synthesizing information for all Crop Monitor for Early Warning crops as of February 28<sup>th</sup>. 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:** Land preparation and planting has begun for secondary *Belg* season crops in Ethiopia, and there is concern in areas where dry conditions are impacting planting activities. Across the south of the subregion, land preparation is underway for the start of the March to May *Long Rains* cropping season, and there is heightened concern due to forecast below-average March to May rains across eastern East Africa (See Forecast Alert Pg. 5 and Regional Outlook Pg. 8).

**WEST AFRICA:** Harvesting of most main and second season cereals finalized in January with favourable end of season production except in areas impacted by ongoing conflict. In Mali and Mauritania, conditions are favourable for the continued development and harvesting of second season rice crops.

**MIDDLE EAST & NORTH AFRICA:** Wheat crops are in vegetative to reproductive stage under generally favourable conditions except in Algeria, eastern Morocco, and northeastern Syria where below-average rainfall is impacting crop development and in Syria and Libya where conflict and socio-economic challenges continue to impact agricultural activities.

**SOUTHERN AFRICA:** Main season cereal crops are mostly in vegetative to reproductive stage throughout the subregion for harvest from March, and conditions are generally favourable. However, poor production is expected in parts of southwestern

Angola and southern Madagascar that were impacted by dry conditions. There is also concern in northern Mozambique due to continued dry conditions as well as in central and southern provinces where Tropical Storm Guambe has compounded the impacts of Tropical Cyclone Eloise and resulted in further above-average rainfall and flooding.

**CENTRAL & SOUTH ASIA:** Winter wheat crops are exiting dormancy stage, and there is concern in parts of the subregion where below-average precipitation has been received and is forecast to continue for the March to May period (See Regional Outlook Pg. 15). Planting of spring wheat crops will take place from March.

**SOUTHEAST ASIA:** In the north, there is concern in parts of Myanmar and Thailand where dry conditions have decreased irrigation water availability and parts of the Philippines and northern Viet Nam where flooding and cold temperatures impacted crops. In Indonesia, wet-season rice crops are developing under generally favourable conditions except in recent flood-affected areas.

**CENTRAL AMERICA & CARIBBEAN:** *Apante* season bean crops are in vegetative to reproductive stage in Nicaragua and Haiti while planting of second season rice crops began in northern Honduras, and overall conditions are favourable.

### **Global Climate Outlook: Global 30-day Subseasonal Rainfall Forecast Anomaly for March 2021**

The 30-day SubX forecast indicates a likelihood of above-average rainfall over the US Tennessee Valley, east Colombia, southern Venezuela, Guyana, Suriname, French Guiana, northern and southeast Brazil, Bolivia, northwest Argentina, central Morocco, Zambia, Zimbabwe, Mozambique, western Madagascar, the Philippines, and West Papua Indonesia. There is also a likelihood of below-average rainfall across the US gulf coast, southern Guatemala, northeast Brazil, southern Brazil, Uruguay, central and eastern Argentina, Ireland, France, Switzerland, Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Albania, western Greece, western Turkey, Cameroon, Equatorial Guinea, Gabon, northern Republic of Congo, southern Central African Republic, northern Democratic Republic of Congo, Uganda, southcentral Ethiopia, southwest Kenya, Rwanda, northern and coastal Tanzania, Angola, northern Namibia, eastern Madagascar, northwest India, western Nepal, southeast China, Indonesia, western Papua New Guinea, and northern Australia.

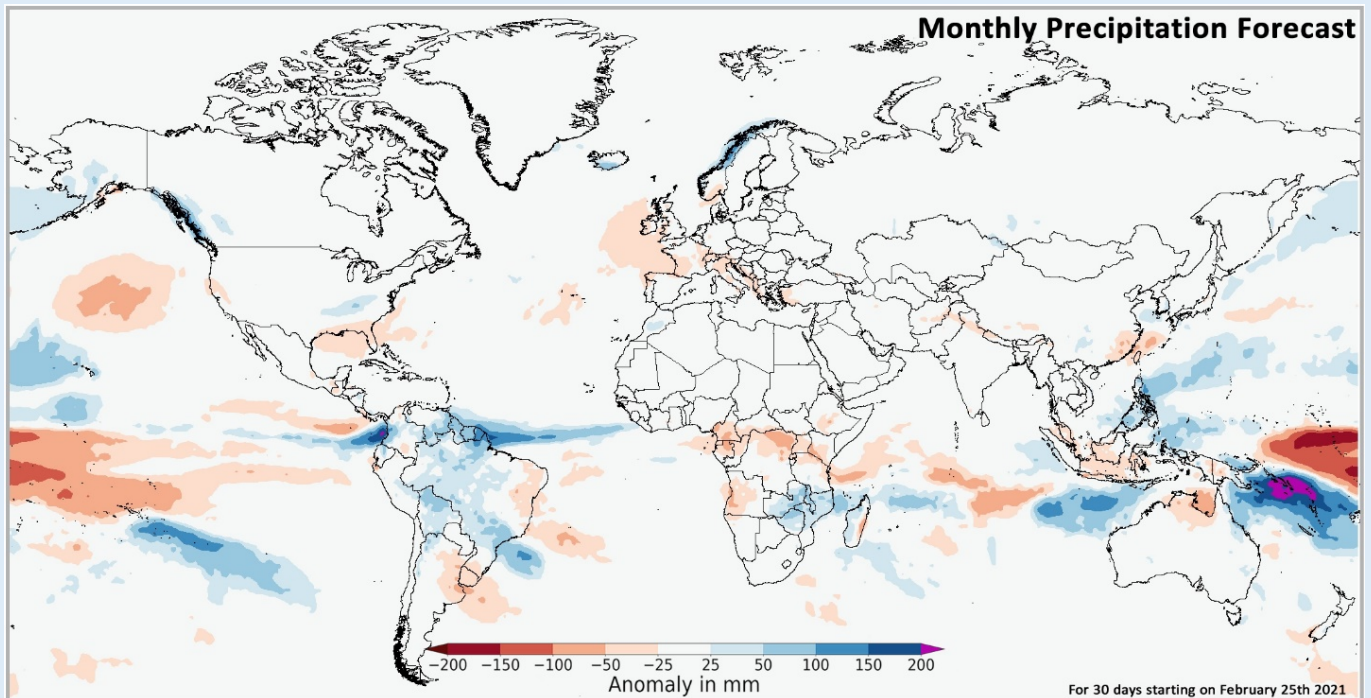


Figure 1. Multimodel mean subseasonal forecast of global rainfall anomaly for the 30-days starting from February 25th showing areas of above or below-average rainfall. The image shows the average of four Subseasonal Experiment (SubX) model forecasts from that day. The anomaly is based on the 1999 to 2016 model average. Skill assessments of SubX can be accessed [here](#).

Source: UCSB Climate Hazards Center

### **Climate Influences: La Niña is present and expected to continue through Spring 2021**

The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. This La Niña event is well developed, with below-average ocean temperatures in the central-eastern equatorial Pacific and tropical atmosphere circulation consistent with La Niña. [La Niña](#) conditions are expected to continue (~80% chance for February to April and ~60% chance for March to May) and then transition to ENSO neutral (60% chance for April to June).

La Niña conditions typically reduce March-to-May rainfall in East Africa, the northern Middle East, southern Central Asia, Afghanistan, Pakistan, and the southern United States. La Niña conditions typically increase March-to-May rainfall in Southeast Asia and March-to-April rainfall in Southern Africa. Southernmost India and Sri Lanka typically see increased rainfall into March.

Source: UCSB Climate Hazards Center

***Desert Locust Alert: Breeding is underway in southern Ethiopia and northern Kenya, and more swarms are expected.***

As of late February, the most affected regions include central, south, and northeastern **Ethiopia**, north, east, and central regions of **Kenya**, and parts of **Somalia**. As such, there is a high risk of significant impact to crops and rangelands in **Ethiopia**, **Kenya**, and **Somalia** as high numbers of swarms recorded are likely to breed in time for the start of the new cropping season. Immature swarms continue to migrate southwards from breeding areas in eastern **Ethiopia** and central **Somalia** to southern **Ethiopia** and northern **Kenya**. In southern **Ethiopia** and northern **Kenya**, recent light to moderate rainfall in late February could be sufficient to allow swarms to mature and lay eggs and eventually result in another generation of breeding; however, ongoing control operations and forecast poor spring rains are likely to limit spring breeding from March to June (See Forecast Alert Pg. 5 and Regional Outlook Pg. 8). In northern **Ethiopia** and **Eritrea**, forecast wind direction is likely to favour northwest locust swarm movement. A few adult groups and small swarms are forming along the Red Sea coastal plains in **Sudan** and **Eritrea**. Overall, current swarms are smaller in size and less numerous than a year ago, and swarms have not matured or laid eggs as very little rainfall since the end of the October to December (OND) *Short Rains* in 2020 has not been conducive for reproduction.

*East Africa Update*

In **Kenya**, immature swarms persist mainly in north and central counties as of mid-February, though they are now declining, and swarms are no longer arriving from the north. While rain has fallen in southern counties, more rain would be needed in the north to support further egg laying. However, with the onset of the March to May (MAM) *Long Rains*, mature swarm invasions are expected to persist in north and parts of the southeast with hopper invasions in coastal areas. Climatic conditions are suitable for locust development in northeast, east, coastal, and southwestern areas. In **Ethiopia**, immature swarms remain in the south, east of the Rift Valley, and northeast in the Harar Highlands. There are also cross-border movements near Jijiga and northwest Somalia and along the border with Kenya. High numbers of swarms pose a risk to young crops with the beginning of *Belg* season planting in mid-February. In **Somalia**, a locust upsurge has particularly affected the southern states where swarms have migrated and destroyed crops. Late instar hopper bands remain in Puntland in the northeast and in Somaliland in the northwest, and new immature swarms continue to form in both areas. In the northern part of the country, wind movements may allow swarms to invade more crop and grazing areas. Climatic conditions are suitable for locust development in north, central, and southern areas, and forecast northeasterly winds are likely to favour mature swarm movement south and westward towards Kenya and Somali region in eastern Ethiopia. In the **United Republic of Tanzania**, some swarms invaded the northern Kilimanjaro region from Kenya in late February, and small immature swarms were reported near Arusha in the northeast. Climatic conditions are suitable for locust development in the north. In **Sudan**, a few swarms remain on the central coast where breeding is underway. In **Eritrea**, local breeding is underway on the central coast, and climatic conditions are favourable for locust development in coastal areas.

*Arabian Peninsula Update*

In **Saudi Arabia**, hopper groups and bands are present on the northern Red Sea coast, and mature adult groups and swarms are laying eggs in the interior where hatching is expected in March. A few groups could reach Kuwait and southwest Iran with southwesterly wind movement. Early rains and above-normal temperatures could give rise to widespread hatching and band formation. In **Yemen**, a few solitarious adults persist along the Red Sea coastal plains.

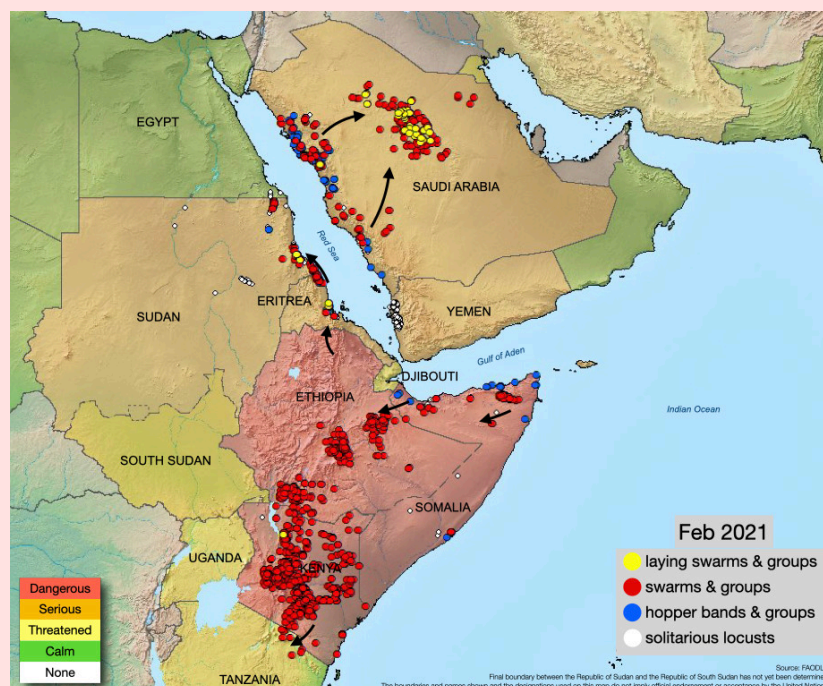


Figure 1. Desert Locust Update February, 2021. Source: FAO DLIS

### **Forecast Alert: La Niña could lead to sequential dry eastern East African October-December and March-May rains**

Current and forecast ocean and atmosphere conditions continue to raise concern about a below-average 2021 March-April-May (MAM) Long Rains season in eastern East Africa. A Pacific temperature configuration conducive to drier outcomes is currently present and is forecast to remain active for MAM 2021.

In recent years, La Niña or La Niña-like conditions have often provided early indication of below-average MAM rains in eastern East Africa. A much warmer-than-average western and subtropical Pacific, combined with cooler-than-average eastern Pacific temperatures, tends to produce a teleconnection that disrupts typical moisture patterns, leading to an increased chance of drier-than-normal conditions. An [analog assessment](#) of MAM seasons in the past 20 years has shown a greater than 50% chance of below-normal rainfall in eastern areas.

This below-normal outlook for MAM 2021 in eastern East Africa is based on current La Niña conditions (Figure 1- top left) and forecast La Niña presence through the season, accompanied by very warm (1 to 2+ standard deviations above average) western and subtropical northern Pacific sea surface temperatures (Figure 1- bottom left). In February to April, March to May, and April to June, [current assessments](#) indicate ~80%, ~60% and ~40% chances of La Niña. It should also be noted, however, that very warm west Pacific sea surface temperatures can also produce La Niña-like eastern East African droughts, as in 2017 ([BAMS article](#)).

The ICPAC GHACOF57 forecast indicates that there is a 66% of eastern East Africa receiving normal or below-normal rains. The most up-to-date dynamic forecasts from multiple modeling centers show increased chances of below-normal eastern East Africa outcomes (See Regional Outlook, pg. 8).

A complimentary and independent statistical forecast for regional eastern East Africa rainfall, using January 2021 Pacific Ocean region SST as a predictor, emphasizes the concerning similarity between 2021 Pacific conditions and many previous seasons with below-normal outcomes (Figure 1-right). Similar to the dynamic models, this statistical forecast shows a range of outcomes for MAM 2021 rainfall, with an 80% chance of very poor to average outcomes. Most, but not all, recent La Niña seasons have been dry. Possibilities also remain for influential changes in Indian Ocean conditions and hard-to-predict weather events like tropical cyclones or intraseasonal atmospheric modes. At present, the most predictable aspect of global climate, the El Niño-Southern Oscillation, underscores heightened concerns for possible back-to-back, below-average rainfall seasons in eastern East Africa. Because La Niña negatively impacts both the short and long rains, it has been a factor in many of the worst recent food crises in this region (e.g., 1999/2000, 2010/11, and 2016/17). In most of eastern Kenya, eastern Ethiopia, and Somalia, normal rainfall conditions typically result in fairly poor agricultural outcomes, with seasonal totals less than 300 mm and growing seasons of less than two months. So there is a general consensus among national, regional, and global forecasts that 2021 March-May agricultural production prospects are not likely to be favorable for most parts of the eastern Horn. Observed and forecast weather conditions will be closely monitored through the season.

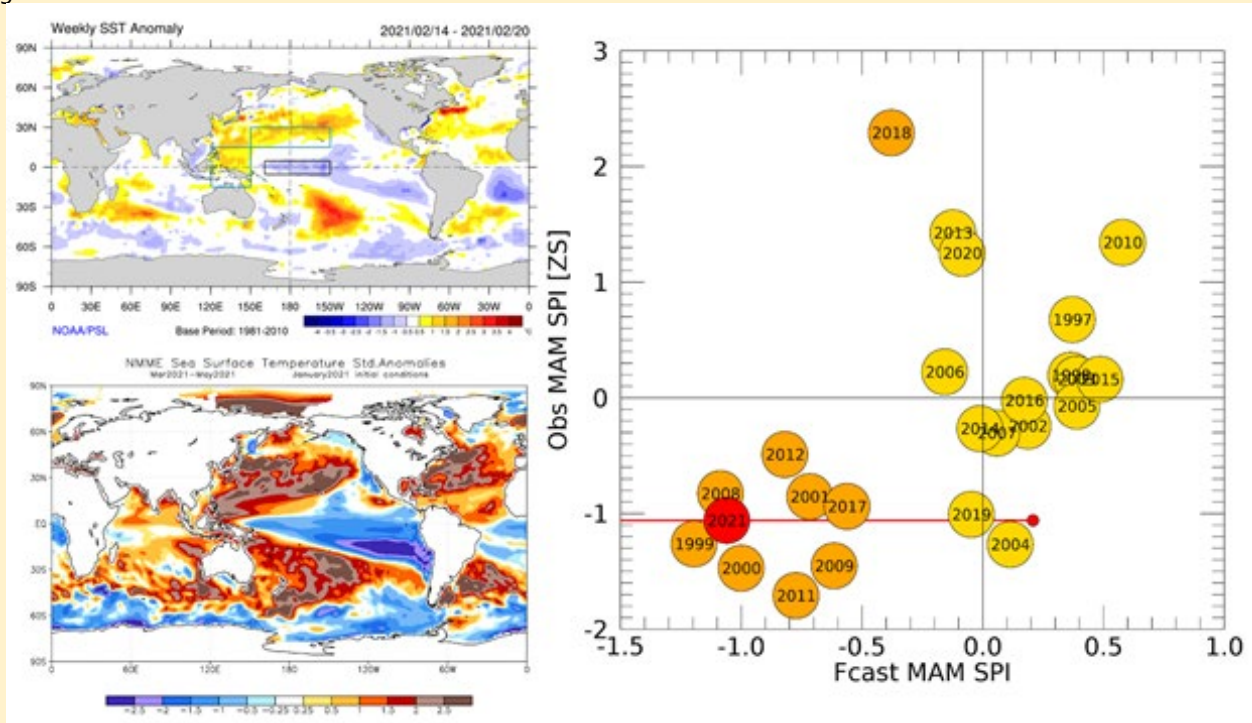
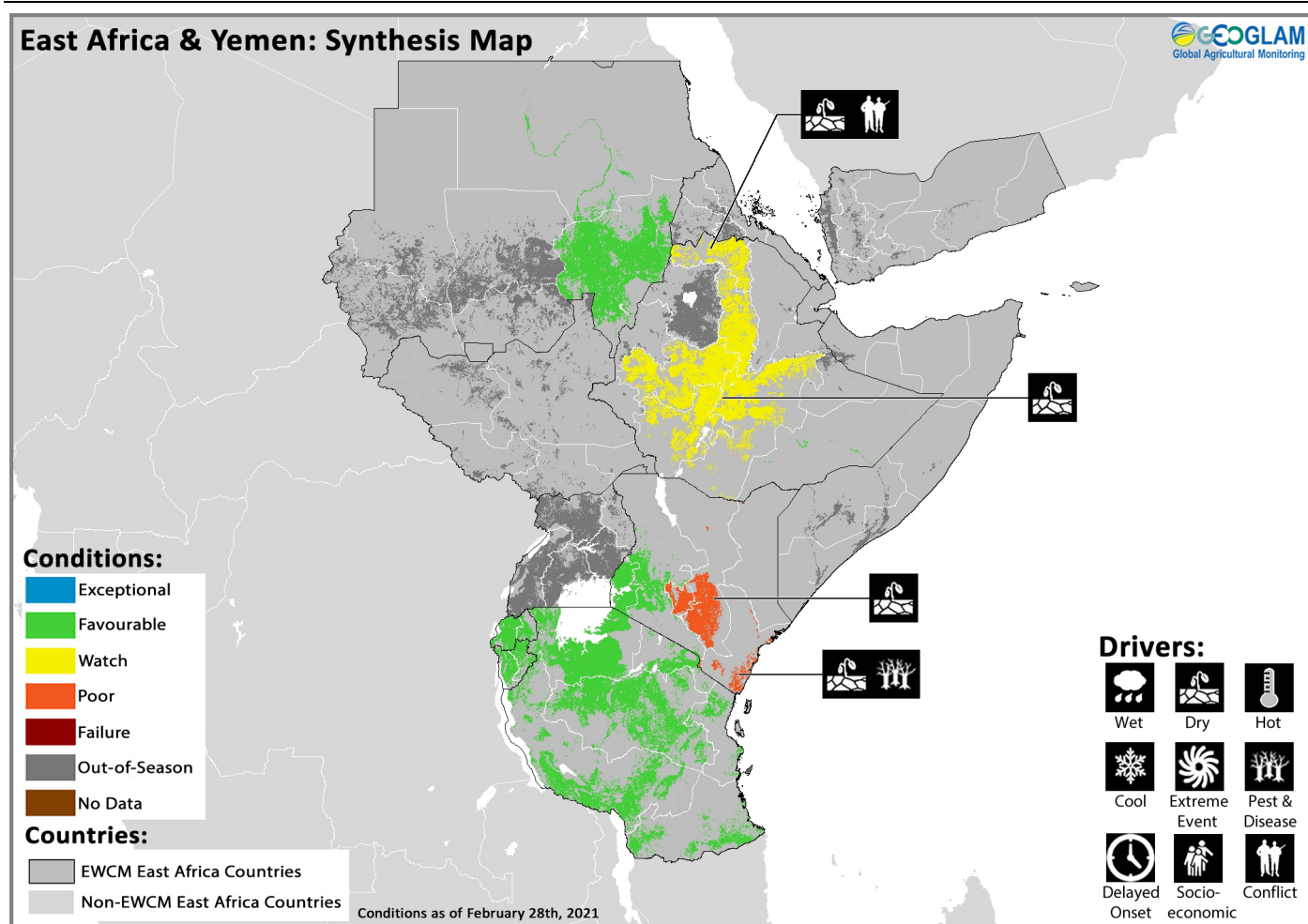


Figure 1. Global sea surface temperatures and forecast eastern East Africa March-April-May precipitation. Top left: Observed February 14 to February 20, 2021 sea surface temperature (SST) anomalies. Image from [NOAA PSL Map Room](#). Bottom left: North American Multi-Model Ensemble (NMME) forecast March to May 2021 SST standardized anomalies based on February 2021 initial conditions. Image from the [NOAA CPC NMME webpage](#). Right: Scatter plot of regression-based forecasts for 1997 to 2021 eastern East Africa March-April-May precipitation. Forecast predictors are observed January SST in the western and subtropical northern Pacific and in the central-eastern equatorial Pacific (Nino4 region). These regions are overlaid on the top-left SST map. The red circle on the scatter plot shows the statistical model prediction for the MAM 2021 standardized precipitation (SPI) value. The red line shows the 80% confidence interval. Bold lines demarcate the below-normal rainfall category based on a 1981-2010 baseline (=below -0.5 Z). Other years with much warmer-than-average western and subtropical Pacific SST and cooler-than-average central-eastern Pacific January SST are colored orange. This image updates the December SST-based regression detailed in the [UCSB CHC Blog](#).

East Africa & Yemen

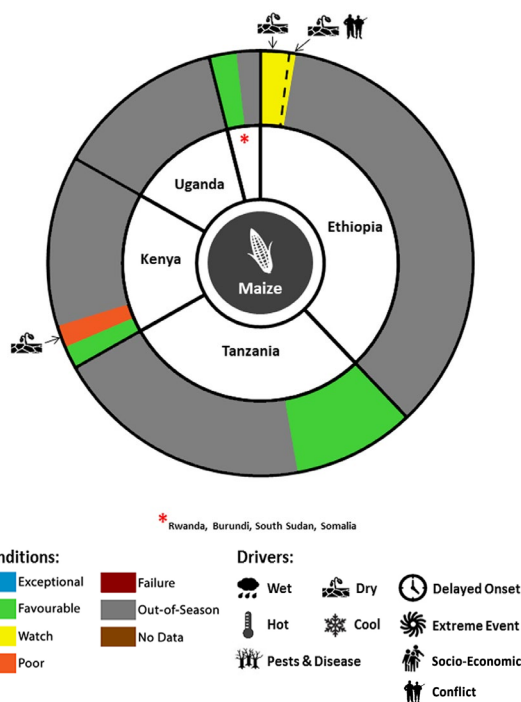


Crop condition map synthesizing crop conditions as of February 28<sup>th</sup>. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Conditions that are other than favourable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

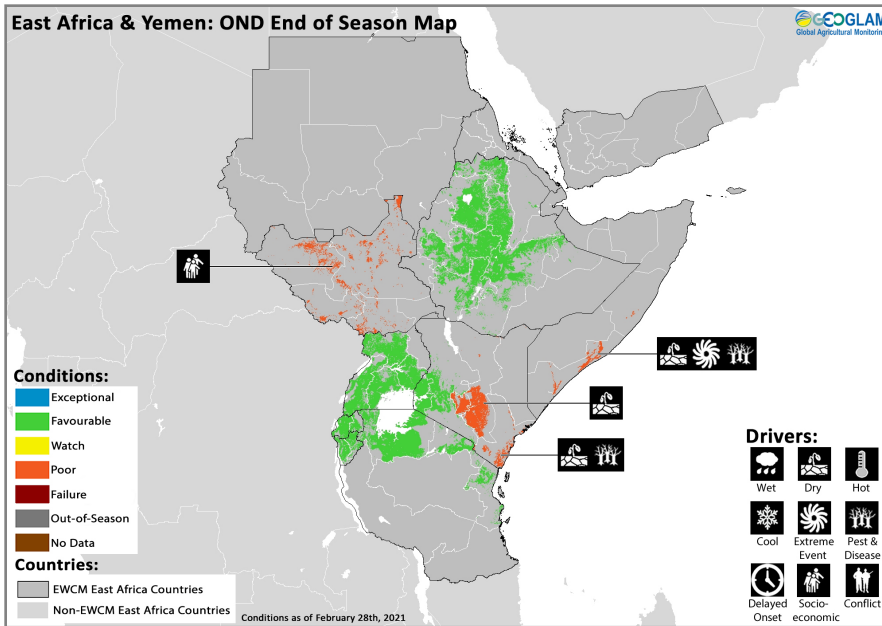
In East Africa, harvesting of main season cereals finalized across the north of the subregion in January with favourable end of season production across **Sudan**, western and Rift Valley **Kenya**, and **Ethiopia** while harvesting of October to December *Short Rains* cereal crops finalized in the south of the subregion with poor final production in **South Sudan**, parts of **Somalia**, and southeastern, coastal, and central **Kenya**. Winter wheat crops are currently in vegetative to reproductive stage across eastern **Sudan** and northern **United Republic of Tanzania** under favourable conditions. Land preparation and planting is underway for the start of the secondary *Belg* season in **Ethiopia**, and dry conditions are a concern. Land preparation is underway across southern parts of the subregion for the start of the main March to May *Long Rains* cropping season. Drier-than-average rainfall conditions are forecast through April in the north and east of the subregion with wetter or near-normal conditions in the south and west (See Forecast Alert Pg. 5 and Regional Outlook Pg. 8).

Northern East Africa & Yemen

In **Ethiopia**, harvesting of main season cereals finalized under favourable conditions in January while planting of secondary *Belg* season cereals began in mid-February with concern due to dry conditions in some areas (See Forecast Alert Pg. 5 and Regional Outlook Pg. 8). Furthermore, the continued depreciation of the nation's currency has resulted in increased production and transportation costs. In Tigray region, conflict continues to displace farmers and disrupt agricultural activities. In **Sudan**, winter wheat crops are developing



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



Crop condition map synthesizing crop conditions as of February 28<sup>th</sup>. 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.**

season with the onset of the March to May rainfall. In areas where recent rainfall was received, including western **Kenya**, **Rwanda**, and **Burundi**, early planting activities have begun. Forecasts indicate a heightened concern for below-average March to May rains across eastern East Africa which may affect planting activities (See Forecast Alert Pg. 5 and Regional Outlook Pg. 8). In **Kenya**, harvesting of *Short Rains* maize crops finalized in January under poor conditions in the central and east as crops were unable to recover in areas impacted by dry conditions throughout the season as well as in coastal areas impacted by desert locust presence (See Desert Locust Alert Pg. 4). Planting of *Long Rains* sorghum crops began in February under favourable conditions, and planting of *Long Rains* maize crops will begin in March; however, some farmers planted earlier with the unexpected onset of heavy rains in February. In the main producing southern unimodal areas of the **United Republic of Tanzania**, *Msimu (Long Rains)* cereal crops are developing under favourable conditions for harvest from May. In northern bimodal areas, planting of *Masika (Short Rains)* sorghum crops began in mid-February under generally favourable conditions despite desert locust presence in north and northeastern areas (See Desert Locust Alert Pg. 4).

under favourable climatic conditions for harvest from March. However, the difficult macro-economic situation in combination with fuel shortages and high prices of agricultural inputs continue to inflate production and transportation costs. A surge in inter-communal violence in West, South, and North Darfur states in January triggered 183,000 new displacements, more than the total displacements in 2020. While overall displacements have declined in recent years, disputes between farmers and herders over scarce resources in combination with remaining political insecurity and recent flooding continue to drive displacements.

#### *Southern East Africa*

Harvesting of October to December *Short Rains* cereal crops finalized in the south of the subregion in February with poor final production in **South Sudan**, parts of **Somalia**, and southeastern, coastal, and central **Kenya**. In **Somalia**, **Kenya**, **Uganda**, **South Sudan**, **Rwanda**, and **Burundi**, land preparation is underway for the start of the main cropping

### Regional Outlook: Below-average March-May rains likely for parts of eastern East Africa

During February 1st to February 28th, above-average rainfall occurred in central, western, and parts of northwestern and southeastern Tanzania, in Rwanda and Burundi, western Kenya, and in parts of southern Uganda. Southern South Sudan and northern Uganda received average to below-average rainfall. In Ethiopia, conditions were mixed with below-average rainfall in some southwestern and central areas, while some had localized above-average rainfall. Figure 1-left shows an outlook for February 1st through March 15th rainfall anomaly and includes a forecast from March 1st.

During early to mid-March, wetter-than-average conditions are forecast to increase surpluses in Tanzania, Rwanda, and Burundi and may also influence western Ethiopia. Below-average rainfall is forecast across many equatorial and northern areas, including in Kenya, Uganda, southwestern to northeastern Ethiopia, and in parts of northern Tanzania. Figure 1-left shows the February 1st to March 15th anomaly if the unbiased GEFS forecast from March 1st materializes. There is fairly high confidence in the forecast for drier-than-average conditions in early to mid-March, as indicated by the probabilistic SubX forecast (Figure 1-middle). According to the NOAA Climate Prediction Center, the forecast dryness in western areas is associated with an area of anomalous lower-level divergence. See here for the latest NOAA CPC [week 1](#) and [week 2](#) outlooks.

The [February 25th](#) SubX 30-day forecast shows several weeks of suppressed rainfall in the region and 30-day deficits in southeastern and central Ethiopia, across Kenya, in southwestern Somalia, northeastern DRC, Uganda, Rwanda, and northern and eastern Tanzania. Forecast deficits indicate a potential delay in some *Belg* and *Long Rains* season cropping areas.

Due to the ongoing [La Niña](#) and a 60% chance of La Niña persisting through March-April-May 2021 (MAM), there is heightened concern for below-average rainfall in eastern East Africa during MAM (See Forecast Alert Pg. 5). Several international centers' dynamical model ensemble forecasts show increased chances for below-normal MAM rainfall in eastern areas. The ensembles tend to vary in their depiction of where rains are most likely to be below-normal. The World Meteorological Organization (WMO) ensemble forecast includes most of eastern East Africa, while the Greater Horn of Africa Climate Outlook Forum 57 (GHACOF) highlights below-normal rainfall as being most likely in northeastern Ethiopia (Figure 1-right). According to GHACOF57, many western and southern areas are more likely to receive above-normal rainfall in MAM. These areas include parts of Tanzania and western Kenya where wetter-than-average conditions were recently observed.

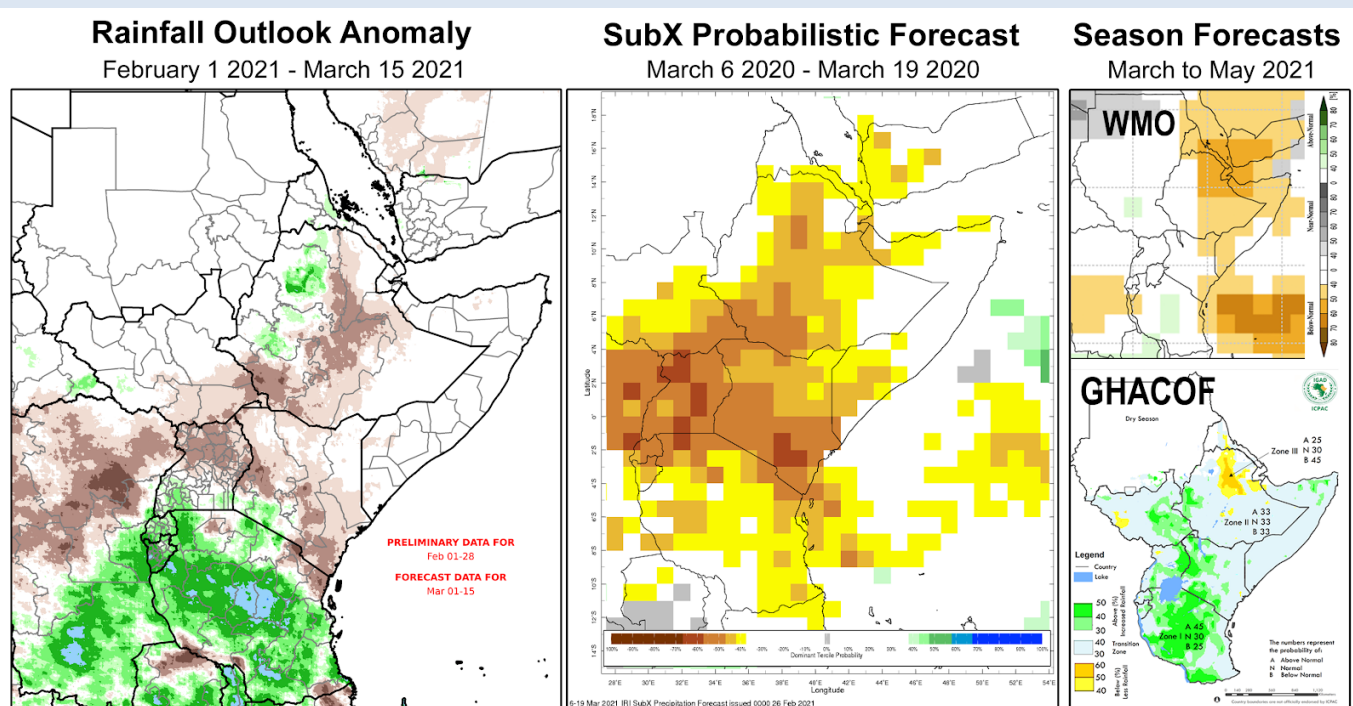
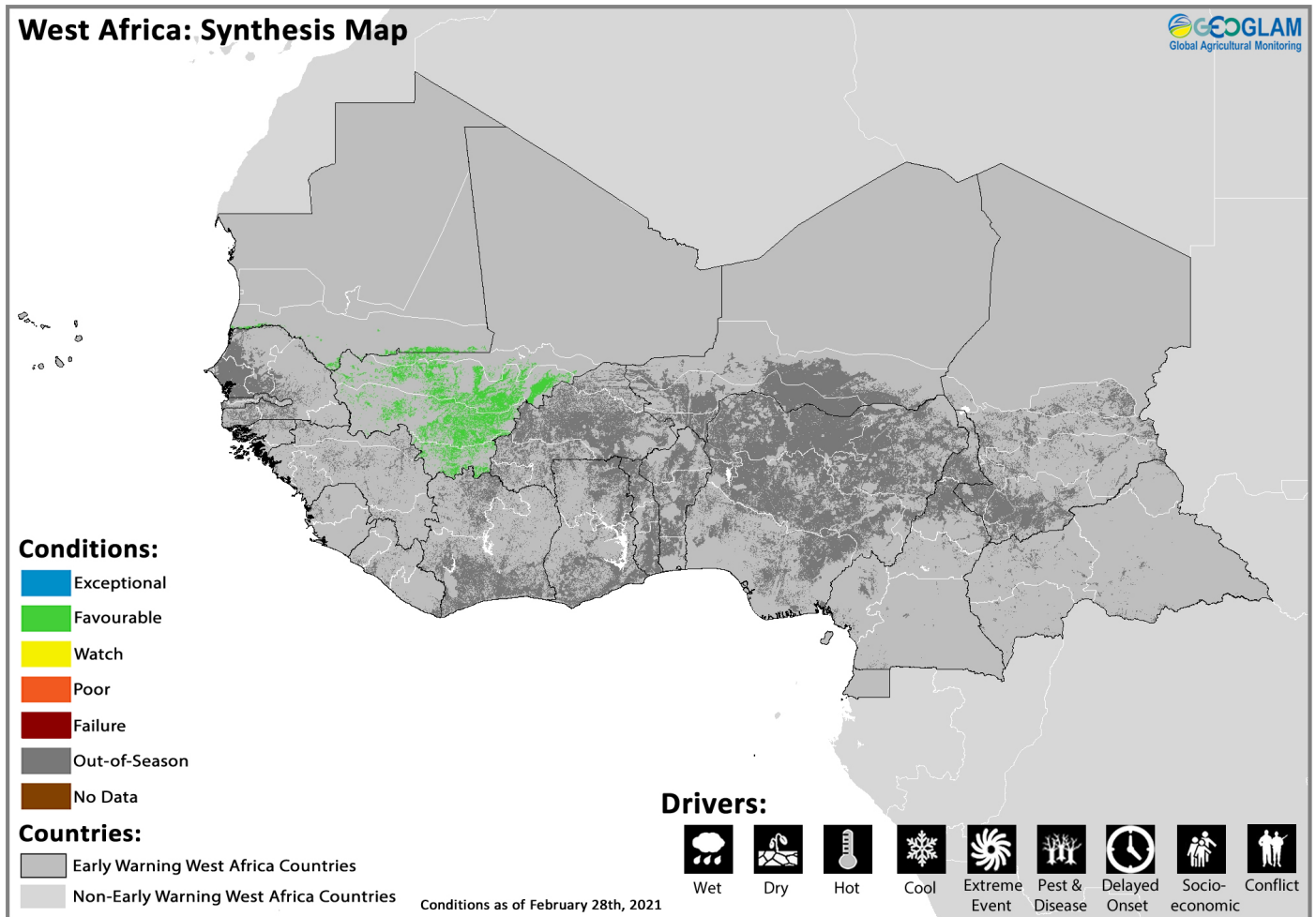


Figure 1. Recent rainfall outlook and forecasts. The left panel shows a UCSB Climate Hazards Center Early Estimate, which compares 2021 rainfall amounts to the 1981-2020 CHIRPS average. The map shows the difference from average for February 1<sup>st</sup> to March 15<sup>th</sup> if the 15-day unbiased GEFS forecast from March 1<sup>st</sup> materializes. The middle panel shows the SubX Precipitation Biweekly Probability Forecast for March 6<sup>th</sup> to March 19<sup>th</sup>, issued February 26<sup>th</sup>. The map shows probabilities for below-normal rainfall ranging from ~40% (yellow) to ~60% (middle brown) to ~70% (darker brown). Image from [IRI Map Room for Subseasonal Forecasts](#). The right panel shows probabilistic forecasts for most-likely March-April-May rainfall tercile, from the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble, February 2021 initial conditions (top), and from the ICPAC Greater Horn of Africa Climate Outlook Forum 57 (GHACOF), February 2021 (bottom). WMO map from <https://www.wmolc.org/home>. GHACOF map from <https://www.icpac.net/seasonal-forecast/>.

Source: UCSB Climate Hazards Center.



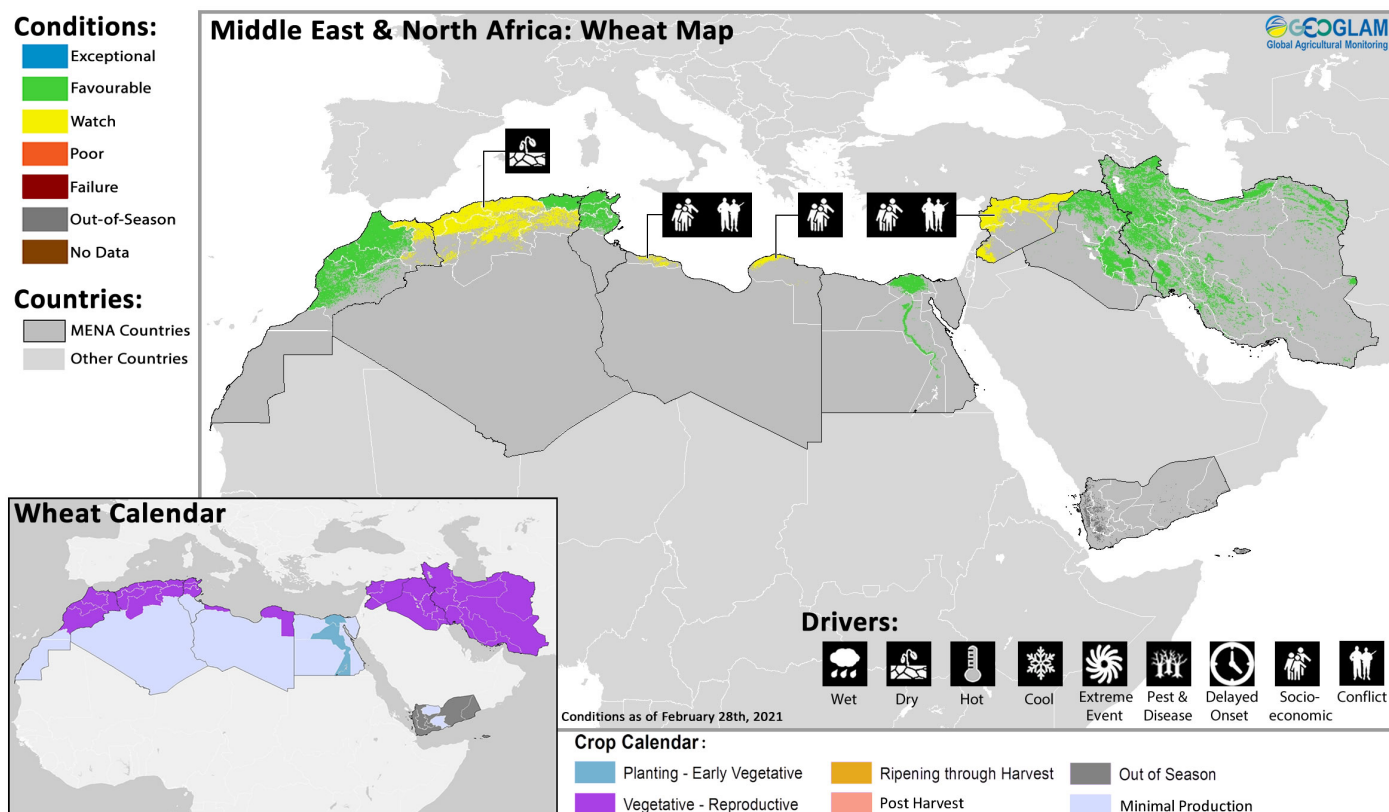
## West Africa



Crop condition map synthesizing information as of February 28<sup>th</sup>. 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, harvesting of most main and second season cereals finalized across the subregion in January with overall favourable end of season production except in **Cape Verde** due to dry conditions as well as in regions impacted by ongoing conflict. In **Mali**, harvesting of second season rice crops began in February under favourable conditions and will finalize in April. In **Mauritania**, off-season rice crops continue to develop under favourable conditions for harvest from March. Field preparation is underway for main season cereals and second season maize crops across southern parts of the subregion, and planting will begin in March.

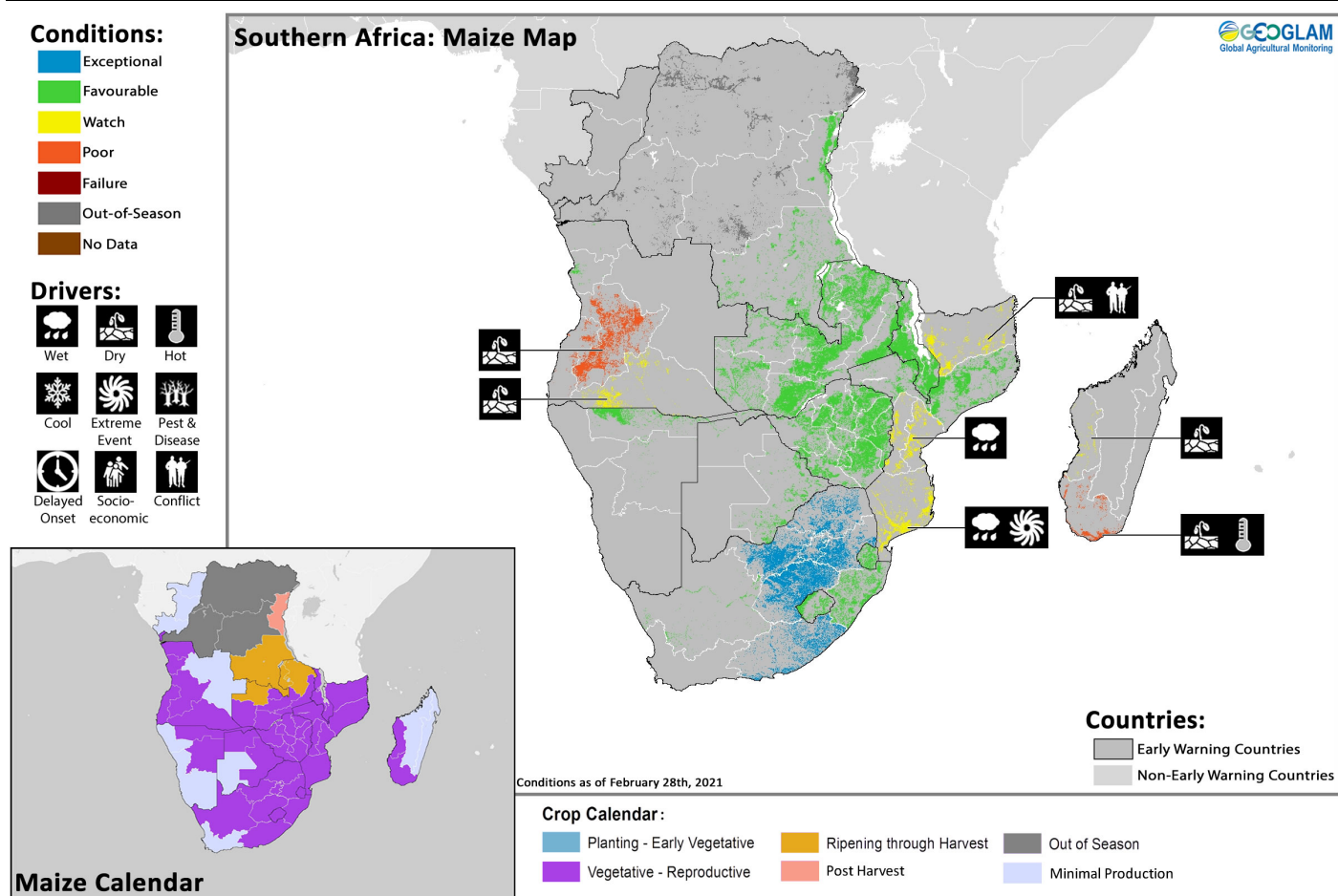
## Middle East & North Africa



Crop condition map synthesizing information as of February 28<sup>th</sup>. 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.**

Throughout the Middle East and North Africa, wheat crops, for harvest from May onwards, are in vegetative to reproductive stage. Crop conditions are generally favourable, particularly in central regions of **Morocco** as abundant rainfall and mild temperatures are benefitting crop development. Conditions in southern **Morocco** and **Tunisia** have improved from the previous month due to enhanced rainfall in February. However, there is concern for crops throughout **Algeria** and in northeastern **Morocco** where rainfall deficits since the beginning of the season are impacting crop development. Across these areas, rainfall has been less than 80 percent of the average for the November 1<sup>st</sup> to February 20<sup>th</sup> period, and rainfall totals between January 21<sup>st</sup> and February 20<sup>th</sup> were below-average in northern **Algeria** and northern **Morocco**. Below-average yields can be expected if there is no improvement in rainfall leading up to the start of harvest in May. In Al Hasakah Governorate of **Syria**, the main wheat-producing region in the northeast of the country, continued below-average precipitation and dry conditions in February delayed crop growth. Furthermore, ongoing conflict and socio-economic challenges continue to constrain access to agricultural inputs and limit agricultural activities throughout **Syria** and **Libya**. Current climatic conditions are generally favourable in **Iran** and **Iraq** with the exception of parts of eastern **Iran** and Ninewah Governorate in **Iraq** where dry conditions are present. The 30-day SubX forecast from February 25<sup>th</sup> indicates mainly average rainfall conditions are likely for March while several international centers forecast increased chances of below-normal March-April-May rainfall in areas of North Africa and the Middle East.

## Southern Africa

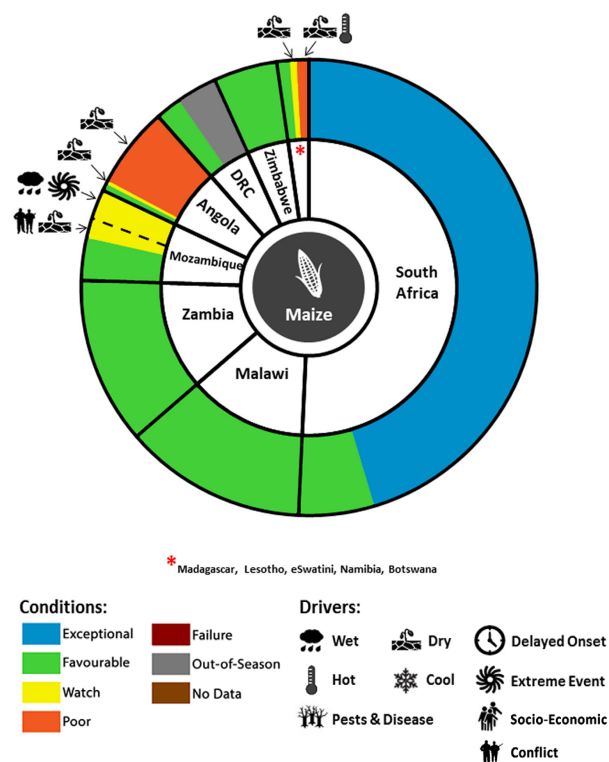


Crop condition map synthesizing information as of February 28<sup>th</sup>. Crop conditions over the main growing areas are based on a combination of inputs including remotely sensed data, ground observations, field reports, national, and regional experts. **Crops that are in other than favourable conditions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

In Southern Africa, crops are developing throughout **Angola, Botswana, eSwatini, Lesotho, Madagascar, Malawi, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe** for harvest from April. While crop conditions are generally favourable throughout the subregion, stressed crops in southwestern **Angola** and southern **Madagascar** are unlikely to recover due to impacts from prolonged drought, and there is concern in northeastern **Mozambique** and northwestern **Namibia** as below-average and uneven rainfall from the beginning of the October to April rainy season has resulted in abnormal dryness and drought that is impacting main season cereals. Conversely, **Botswana** and parts of **Namibia, South Africa, and Zimbabwe** received more than double their average rainfall from October through February, and there is concern in central and southern provinces of **Mozambique** where one tropical storm and two tropical cyclones between December and February resulted in crop damage. Less than a month after Tropical Cyclone Eloise brought heavy rains and flooding to southeastern Africa in late January, an area of low pressure developed off the southeastern coast of Africa and made landfall in southern **Mozambique** on February 12<sup>th</sup>. The storm then re-entered the Mozambique Channel on February 16<sup>th</sup> where it strengthened to a moderate tropical storm and peaked as a tropical cyclone, named Tropical Cyclone Guambe, on February 19<sup>th</sup>. In southern **Mozambique**, torrential rain and extensive flooding from Guambe affected part of the coast and adjacent interior in the Sofala and Inhambane provinces, especially in areas between the cities of Beira and Inhambane. Guambe also brought heavy rains and some flooding over northeastern **South Africa**. Outbreaks of African Migratory Locust (AML) and other locust species were recently reported in northern **Namibia**, western **Botswana, Zambia**, southern **Angola**, and Free State of **South Africa**; however, they are currently not significantly impacting cropping areas. Throughout the subregion, meteorological conditions have been generally conducive to crop growth and development; however, COVID-19 restrictions and conflict in some regions continue to impact agricultural activities.

In the **Democratic Republic of Congo**, harvesting of main season maize and sorghum crops is underway while planting and development of second season maize crops continued in February for harvest from March. In **Angola**, there is concern for main season cereal crops throughout western areas as inadequate and erratic rainfall from the start of the season as well as above-average temperatures have exacerbated crop stress. In the southwest, season-to-date rainfall has been the driest in the 40-year record, and crops are unlikely to recover (See Regional Outlook Pg. 13). In **Zambia**, harvesting operations for the main season maize crops are ongoing under overall favourable conditions with good rains received throughout the season. However, persistent heavy rainfall over

the past few decades increases the risk of flooding, and AML presence remains a concern. In **Malawi**, cumulative rainfall is average to above-average, but rains have been poorly distributed in some southern parts, leading to moisture stress. The erratic rains and presence of Fall Armyworm (FAW) may result in localized crop losses; however, current conditions are generally favourable for ongoing main season maize crop development. In **Mozambique**, there is some concern for crop development in central and southern areas due to continued above-average rainfall and cyclone activity over the past months. While the impacts of Tropical Cyclone Eloise on January 23<sup>rd</sup> were not as severe as the impacts from Tropical Cyclone Idai in 2019, torrential downpours resulted in widespread flooding and affected approximately 242,000 hectares of crops. Above-average rainfall then continued throughout most parts of the region in February and was compounded by Tropical Storm Guambe on February 12<sup>th</sup> which brought additional heavy rainfall and flooding, increasing the risk of further flooding and waterlogging in areas affected by Tropical Cyclone Eloise. The 2021 cyclone season is still active, and more cyclones could further impact crop development. However, heavy rainfall is also likely to improve crop production after several years of drought conditions. Conversely, abnormal dryness persisted in the northwest in February, and rainfall deficits since the start of the cropping season have negatively affected crops and curbed cereal production prospects for harvest from April. While forecasts indicate average to above-average rainfall for the February-April period, the rains may be too late to permit substantial recovery (See Regional Outlook Pg. 13). Also, ongoing conflict in Cabo Delgado province has negatively impacted planted area and poses a further threat to agricultural activities. In **Namibia**, conditions are generally favourable for the development of main season maize and millet crops in east and central provinces; however, there is concern in the minor producing western areas as rainfall performance has been poor for much of the season, and persistent drought conditions continue in the northwest in Kunene Region with significant crop losses expected. In **Botswana**, conditions of the main season cereal crops are favourable due to adequate rainfall; however, torrential rains over the past few decades may result in waterlogging and potential localized flooding. In **Zimbabwe**, conditions are favourable for maize crop development, and good rainfall throughout the season has increased water availability but caused leaching and waterlogging in some areas. In **Madagascar**, there is significant concern for main season maize and rice crops throughout the country as abnormal dryness continued over eastern coastal and central parts of the country while drought persisted in the south. From the beginning of the main cropping season in October 2020, dry conditions prevailed across the southern coast, resulting in rainfall totals 40 to 60 percent below-average as of January 2021. Despite recent rainfall improvements over east, west, central, and northern areas in late January and early February that partially reduced strong rainfall deficits, cumulative rainfall for the season remains below-average in these areas. The severe drought in the south, which led to a decline in the planted area and extremely poor vegetation conditions, is likely to result in main 2020/2021 cropping season yield and production declines which would follow several consecutive years of below-average harvests. While forecasts indicate potential rainfall improvements in March and April, it would be too late for crops to recover (See Regional Outlook Pg. 13). In **eSwatini**, heavy rains from Tropical Cyclone Eloise in January were followed by additional rainfall in February. While the rains increase the risk of flooding throughout the region, they have been beneficial for alleviating moisture deficits in many areas, and conditions are favourable for maize crop development. In **Lesotho**, cumulative above-average rains are favourable for maize and sorghum crop development. In **South Africa**, main season maize crops are in vegetative to reproductive stage under favourable to exceptional conditions due to widespread above-normal rainfall over most of the summer grain-producing region. Maize production is estimated to increase to a well above-average level and could reach the second highest production on record. However, in February, heavy rainfall led to localized flooding in the Orange River basin, and additional flooding occurred in Northern Cape and KwaZulu Natal.



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

**Regional Outlook: Above-average March rainfall is likely across the northeast while below-average rainfall over Angola and eastern Madagascar may worsen rainfall deficits**

Substantially wetter-than-average conditions were observed in recent weeks in central, southwestern, and northern areas (Figure 1-left). Tropical Cyclone Guambe brought torrential rains to central and southern Mozambique in mid-February. Rainfall estimates also depict highly above-average rainfall (more than 200% of average) in eSwatini, Botswana, and northeastern Namibia. Rainfall was less than 50% of average in southwestern Angola, western Namibia, and southern South Africa and less than 80% of average along Madagascar's east coast and in northeastern Mozambique.

For the 2020-2021 season overall, many central and northeastern areas have had consistent rainfall, with some heavy rain events, and average to above-average totals. In western and central Angola, northwestern Namibia, southern and eastern Madagascar, and northeastern Mozambique, prevailing conditions have been drier than average. Figure 1-middle shows an outlook for October 1st, 2020 to March 15th, 2021 percent of average rainfall, which includes a GEFS forecast from March 1st.

Wetter-than-average conditions are anticipated during the first half of March in the northeast, including in northern Zambia, Malawi, northern Mozambique, and northern Madagascar. Drier-than-average conditions are anticipated in southern and central areas, according to the NOAA Climate Prediction Center on March 1st. See here for the latest NOAA CPC [week 1](#) and [week 2](#) outlooks. A longer range SubX forecast, for [weekly](#) and 30-day totals from February 25th (Figure 1-right), shows mainly near-average conditions in late March with some exceptions. Some models maintain above-average rainfall in the northeast. Angola, northwestern Namibia, and eastern Madagascar may continue to see below-average rainfall.

The SubX forecast of below-average next 30-day totals in western and central Angola and northwestern Namibia is especially concerning (Figure 1-right). These areas have had few substantial rain events, and the 2020-2021 season, so far, may be one of the driest in the 40-year record. See [here](#) for a rank map of October 1st to March 15th rainfall, which includes observed, preliminary, and forecast data.

Rainfall estimates, the SubX forecast, and March-April-May rainfall forecasts from several international centers collectively indicate that many central and northeastern areas could end the 2020/21 season with above-average amounts, while most aforementioned deficit areas will remain a concern. In most areas, rainfall is typically much lower after March, and the season ends by May.

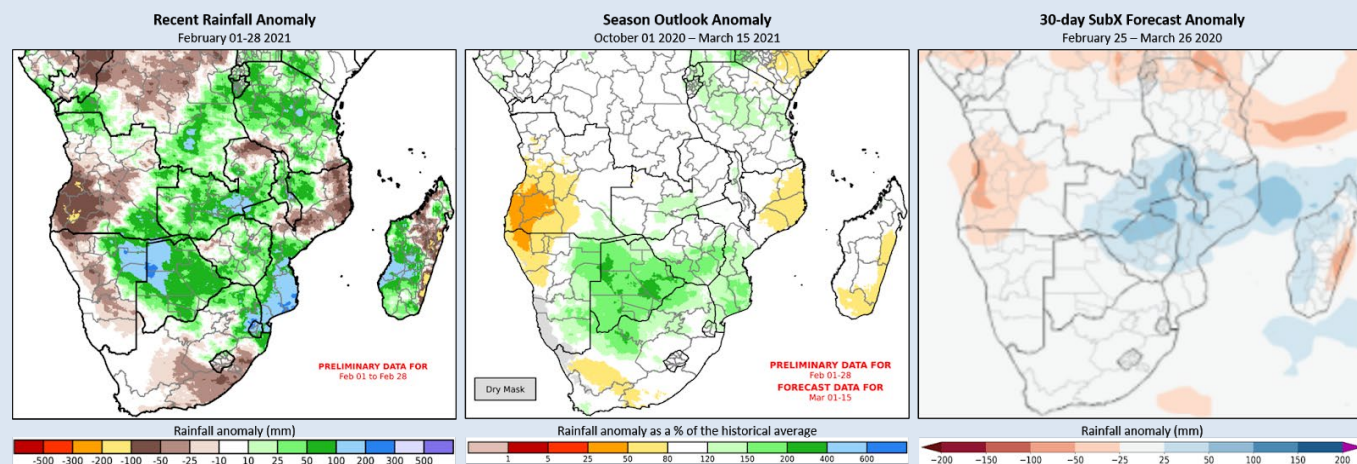
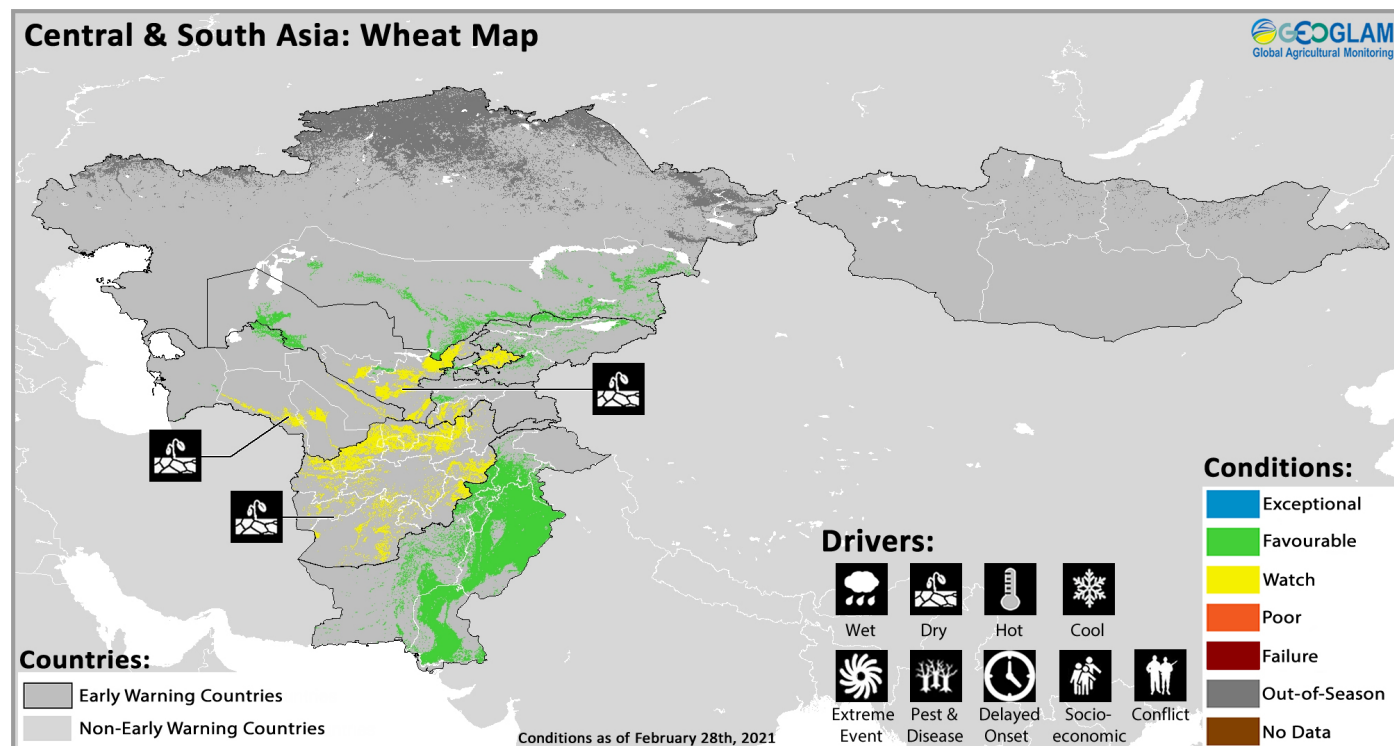


Figure 1. Estimated recent and 2020-2021 season-to-date rainfall and a 30-day forecast. The left and middle panels are UCSB Climate Hazards Center Early Estimates, which compare 2020-2021 rainfall amounts to the 1981-2020 CHIRPS average. The left map shows the difference from average for February 1<sup>st</sup> to 28<sup>th</sup>. The middle map shows the percent of average for October 1<sup>st</sup> to March 15<sup>th</sup>, if the 15-day unbiased GEFS forecast from March 1<sup>st</sup> materializes. The right panel is a 30-day forecast from February 25<sup>th</sup>. The image shows the average of five Subseasonal Experiment (SubX) model forecasts starting from that day; model initial conditions were within several days. The anomaly is based on the 1999 to 2016 model average. Skill assessments of SubX can be accessed [here](#).

Source: UCSB Climate Hazards Center.

## Central &amp; South Asia



Crop condition map synthesizing information as of February 28<sup>th</sup>. 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, winter wheat crops are exiting dormancy stage across **Afghanistan, Kazakhstan, Kyrgyzstan, Pakistan, Tajikistan, Turkmenistan, and Uzbekistan**, and there is concern across **Afghanistan** and parts of southwestern **Tajikistan**, east and central **Turkmenistan**, and eastern **Uzbekistan** where below-average precipitation has been received. In the past three months, many parts of Central Asia have experienced below-normal rainfall which is forecast to continue for the next three months (See Regional Outlook Pg. 15). Planting of spring wheat crops will begin in March in **Afghanistan, Tajikistan, and Turkmenistan**. In **Kazakhstan**, conditions are favourable as the south, southeast, and western regions experienced slightly above-normal temperatures and received heavy precipitation in early February, benefitting soil moisture levels. Also, satisfactory precipitation since November 2020 resulted in sufficient snow water volumes in most of the main producing southern regions except in Turkestan province where snow cover was still absent as of the first dekad of February. Snow cover is also satisfactory in the west. In **Afghanistan**, below-average precipitation has prevailed throughout much of the country from December through February, resulting in significant moisture deficits of 60 percent of average since early January and depleted snow water volumes. Forecasts indicate continued below-average precipitation totals for much of Afghanistan while some northern areas may experience above-average precipitation (See Regional Outlook Pg. 15). The deficit conditions may not be completely alleviated in the coming months, and impacts may be felt on final yields during May-June. However, the rainfall would enhance water availability for irrigated winter wheat and facilitate in land preparation and planting of spring wheat crops to begin in March. In **Pakistan**, growing conditions of mostly irrigated winter wheat crops are favourable and generally better than the previous year due to improved weather conditions and adequate irrigation water supplies. In the minor rainfed areas, growing conditions are favourable due to timely and well-distributed rains. Overall planted area has increased from the previous year due to high domestic prices and a year-on-year increase in support price for wheat.

### **Regional Outlook: Below-average precipitation likely to continue across much of the region for March-May**

Prevailing drier-than-average conditions during the October to May season, including during recent weeks, have resulted in much of the region having [less than 80% of average](#) cumulative precipitation for the season-to-date. Between January 21st and February 20th, precipitation estimates show drier-than-average conditions across most areas and low amounts of rainfall with less than 50% of average for that period across Afghanistan, northern Pakistan, southern Tajikistan, and in parts of southern and eastern Iran and northern India. In western Iran and northern Central Asia, rainfall was mainly average, and some areas received above-average amounts. Figure 1-left shows the current precipitation anomaly outlook for October 1st 2020 to March 5th 2021, which includes a forecast from February 21st.

Current estimates for October 1st to February 20th precipitation are showing the 2020-2021 season as, so far, being among the [driest of the past 40 years](#) in many areas. According to model estimates for snowpack, season-to-date snow accumulation is at near record low-levels in several basins in Afghanistan. The current SubX forecast, from [February 25th](#), shows average to below-average next 30-day precipitation totals for Afghanistan, northern Pakistan, and northern India. Most of the models forecast above-average precipitation in northeastern Pakistan and in northern reaches of the region in week one. In week two, some models forecast above-average precipitation in northern Afghanistan, Tajikistan, and in areas to the north.

Dynamical model seasonal forecasts from several international centers retain a pessimistic outlook with increased chances of below-normal precipitation and above-normal temperatures during March-April-May (Figure 1-right) and in later months. Prevailing and forecast conditions are consistent with a historical tendency for below-normal precipitation during La Niña. The current [La Niña](#) will likely persist through March-April-May (~60% chance). Based on observed and forecast conditions, there is a high level of concern for snowpack and water availability for winter and spring cereals as well as for flooding risk associated with warmer-than-average spring temperatures.

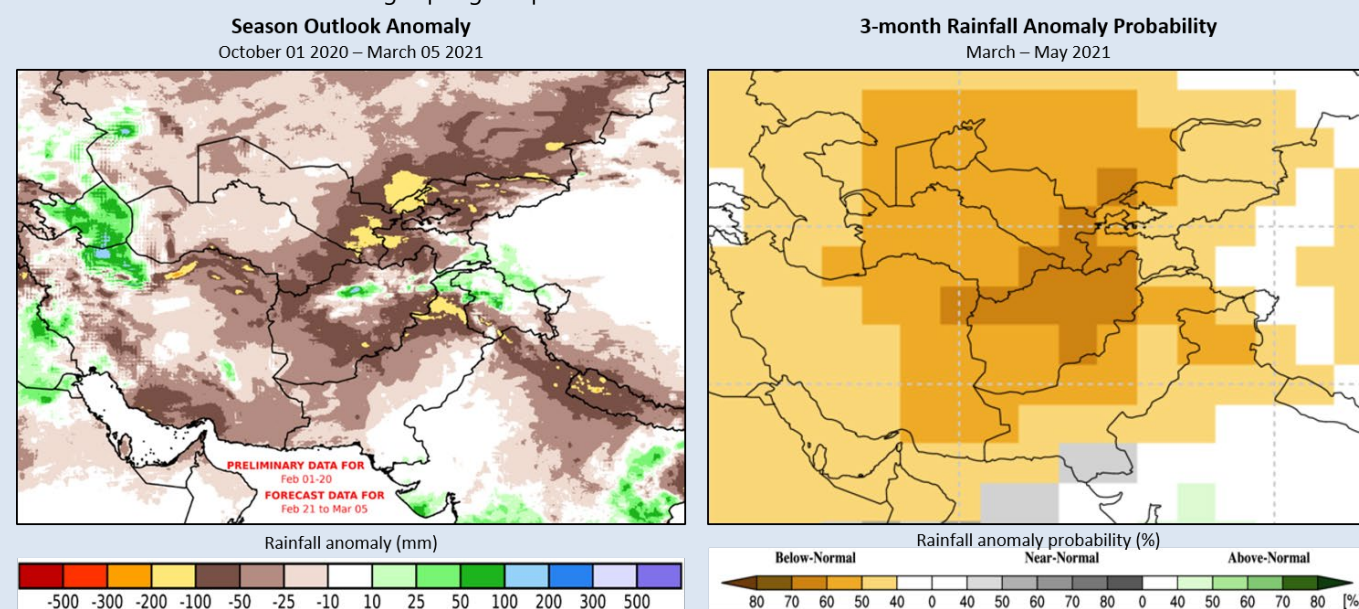
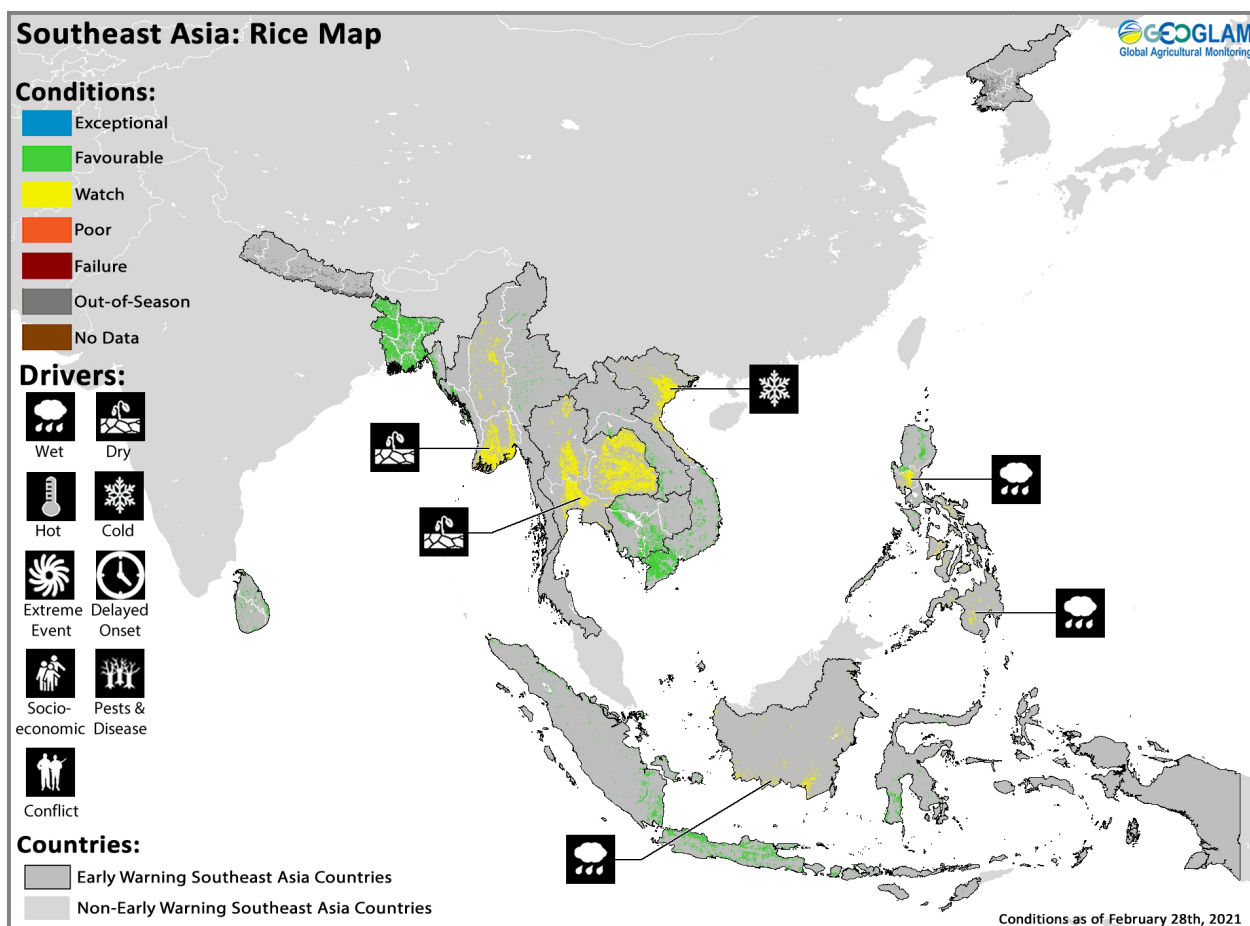


Figure 1. Estimated and forecasted rainfall since October 1<sup>st</sup>, and a 3-month probability forecast. The left panel is a UCSB Climate Hazards Center Early Estimate, which compares 2020/21 rainfall amounts to the 1981-2020 CHIRPS average. The map shows the difference from average for October 1<sup>st</sup> to March 5<sup>th</sup>, if the 15-day unbiased GEFS forecast from February 21<sup>st</sup> materializes. The right panel is a probabilistic forecast for most-likely March-April-May rainfall tercile from the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble, February 2021. White color indicates that there is no dominant category across the model forecasts. Image from <https://www.wmolc.org/home>.

Source: UCSB Climate Hazards Center.

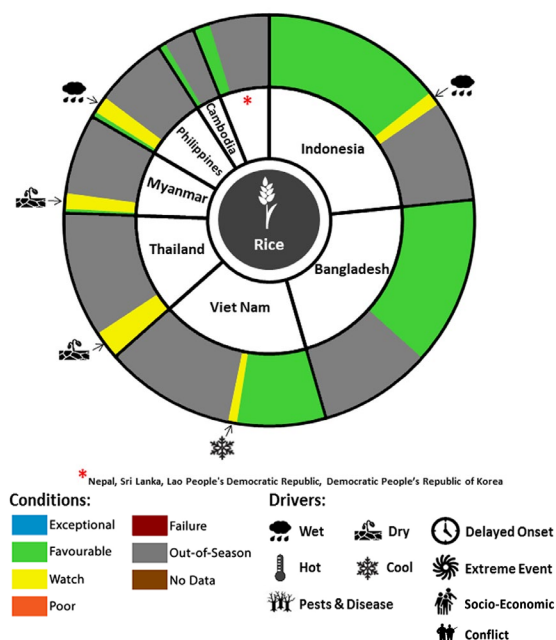
## Southeast Asia



Crop condition map synthesizing rice conditions as of February 28<sup>th</sup>. 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, dry-season rice is in vegetative to reproductive stage with concern in western **Myanmar** and **Thailand** where dry conditions have decreased irrigation water availability. As a result, overall planted area is estimated to decrease throughout the subregion, and some farmers are substituting other crops. There is also concern in northern **Viet Nam** where cold temperatures are impacting crop development as well as in the **Philippines** where a low-pressure area in the second half of January resulted in flooding and subsequent crop damage. Forecasts indicate March to May rainfall may be above-average across much of the region; however, this will have little impact on the growth of irrigated dry-season rice (See Regional Outlook Pg. 18)

In **Indonesia**, harvesting of wet-season rice is ongoing under mixed conditions due to flooding in South Kalimantan. Yields of earlier sown crops are slightly lower compared to last year due to a reduction in rainfall earlier in the season. In the **Philippines**, dry-season rice is in panicle forming to heading stage under mixed conditions as flooding in late January has damaged crops in the provinces of Western and Eastern Visayas and some provinces of Mindanao. Elsewhere, growing conditions are favourable. In **Thailand**, dry-season rice in young panicle forming and grain filling stage remains under mixed conditions due to a lack of irrigation water, which is also expected to reduce the total sown area this year compared to last year. However, farmers in some areas are planting more than the irrigation plan due to the expected high transaction price. In **Viet Nam**, conditions are favourable in the south as the sowing of the winter-spring (dry-season) crop is complete. Total sown area is 1.89 million hectares, similar to the previous year, and harvesting has begun in some Mekong River Delta provinces. In the north, sowing of the winter-spring (dry-season) crop has begun, and total sown area is estimated to be 78,800 hectares, an 8 percent reduction compared to last year due to cold weather in January. In **Laos**, dry-season rice is in seeding and tillering stage under favourable conditions. Planting is progressing at a slower pace compared to last year due to cold



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



temperatures and shortage of water supply in the fields, and planted area is expected to decrease slightly from the previous year. In **Myanmar**, dry-season rice planting has reached 750,000 hectares accounting for 81.8 percent of the national plan, similar to last year's planting progress. While current weather conditions are favourable for crops that are mostly in the tillering to panicle forming stage, there is concern in western parts of the country where scarcity of stored water in the dams and reservoirs is leading to a considerable reduction in planted area. Farmers may substitute other crops depending on the availability of irrigation water. In **Cambodia**, dry-season rice is in maturity to harvesting stage under favourable conditions. Up to 22 percent of the total planted area has been harvested with slightly higher yields than last year at 4.3 tonnes per hectare. In **Sri Lanka**, harvesting of earlier sown *Maha* season maize and rice crops began in February under favourable conditions. Planting of *Maha* season rice crops is almost complete with a planted area of 794.3 hectares, surpassing the previous year's above-average level despite minor crop damages in Batticaloa, Trincomalee, Ampara, and Matara districts due to floods. Planting of *Maha* season maize crops is also nearing completion, and planted area is expected to reach 112,900 hectares, above the previous year's above-average level. However, 12,950 hectares accounting for 10 percent of planted area has been damaged by Fall Armyworm (FAW) in Eastern, North Central, and Uva provinces. In **Bangladesh**, harvesting of *Aman* season rice crops finalized in January with production close to the five-year average. Planting of the mostly irrigated *Boro* season rice crop, which accounts for 55 percent of annual output, is now complete, and crops are developing under favourable conditions for harvest from mid-April. Favourable weather conditions since the beginning of November 2020 in combination with strong domestic prices and ample irrigation water availability following above-average June-October monsoon rains supported planting activities and crop germination. Additionally, in an attempt to increase productivity of paddy, the Government encouraged hybrid rice cultivation through a series of measures including financial support and provision of hybrid seeds. In **Nepal**, harvesting of main season rice crops finalized in January under favourable conditions. Planting of main season maize crops began in February under favourable conditions for harvest from August.

### **Regional Outlook: Above-average March-May rainfall likely across much of the region while below-average rains are likely in parts of Indonesia**

Precipitation totals for December 1st, 2020 to February 20th, 2021 are near-average or above-average in most areas. In the Philippines, parts of southern Thailand, and Vietnam, totals are greater than 150% of average. In central Indonesia, conditions have been drier than average with totals of around 80% of average in some areas. Southern mainland Thailand and nearby areas have been seasonably drier but also more so than usual. The outlook for December 1st to March 5th, which includes a forecast from February 21st, shows potential season-to-date rainfall compared to average.

March to May will most likely be wetter than normal in the Philippines, Malaysia, and mainland countries, according to models from international centers (Figure 1-right). Forecasts have highest confidence in above-normal rainfall in the Philippines (~60 to 70% chance). Prevailing and forecast above-normal rainfall are consistent with a historical tendency for precipitation during La Niña, which is [currently active and forecast](#) to remain active during March-April-May (~60% chance). Warmer-than-normal conditions are expected in maritime areas. Drier-than-normal conditions are forecast for central Indonesia.

The current SubX forecast, from [February 25th](#), shows a week of below-average rainfall followed by mixed rainfall conditions through March with next 30-day totals being average to below-average in parts of Indonesia and Malaysia and above-average in the Philippines.

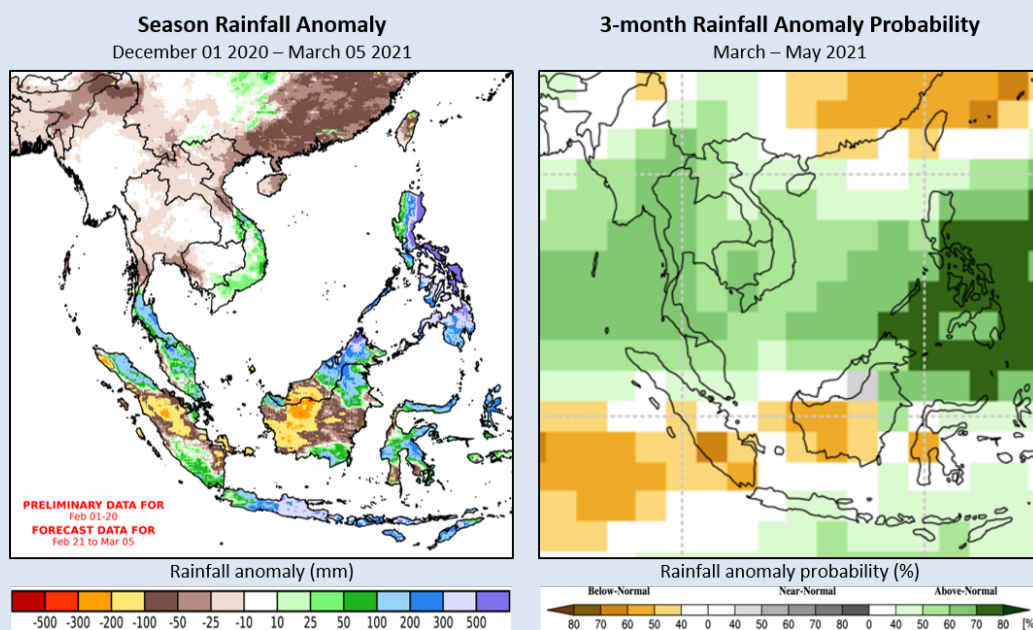
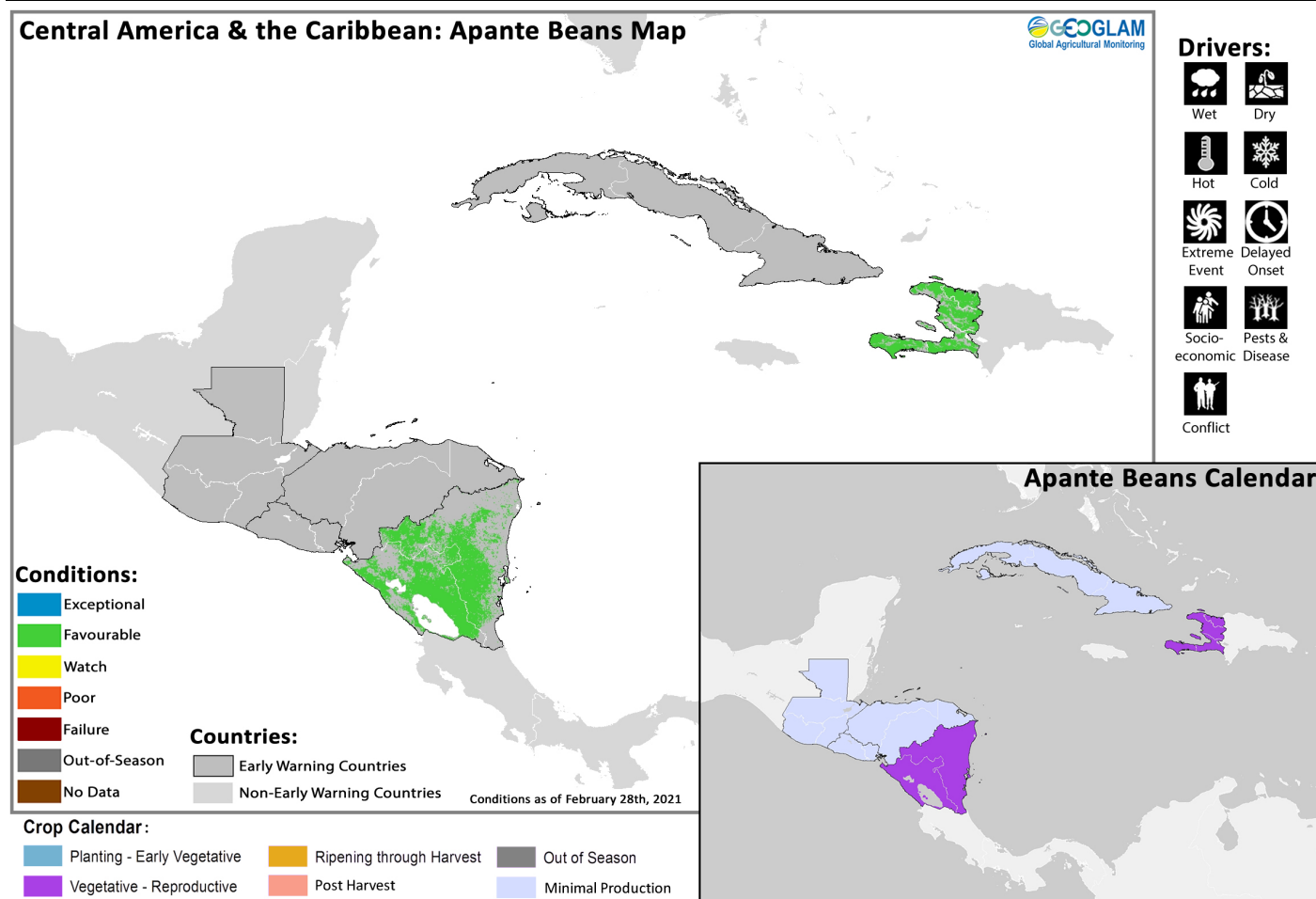


Figure 1. Estimated and forecast rainfall since December 1<sup>st</sup>, 2020, and a 3-month probability forecast. The left panel is a UCSB Climate Hazards Center Early Estimate, which compares 2020/21 rainfall amounts to the 1981-2020 CHIRPS average. The map shows the difference from average for December 1<sup>st</sup> to March 5<sup>th</sup>, if the 15-day unbiased GEFS forecast from February 21<sup>st</sup> materializes. The right panel is a probabilistic forecast for most-likely March-April-May rainfall tercile from the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble, February 2021. White color indicates that there is no dominant category across the model forecasts. Image from <https://www.wmolc.org/home>. Source: UCSB Climate Hazards Center.

## Central America &amp; Caribbean



Crop condition map synthesizing information as of February 28<sup>th</sup>. 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, *Apante* season bean crops are in vegetative to reproductive stage in **Nicaragua** under favourable conditions in the main producing central regions, including the highlands in Matagalpa and Jinotega. In northern **Honduras**, planting of second season rice crops began in February for harvest from May. Conditions are favourable in the key producing departments of Atlántida and Colón with average yields reported, reflecting adequate supplies of irrigation water due to abundant rainfall in January. In **Haiti**, harvesting of second season rice crops is underway while *Apante* season bean crops are still developing for harvest from March. While rainfall amounts were slightly below-average in January, particularly in the northern region, overall crop conditions are favourable. Planting of main season cereals will begin in March for harvest from June. In **Cuba**, planting and development of main season maize and rice crops is underway for harvest from April, and overall conditions are favourable.

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

Information on crop conditions in the main production and export countries can be found in the Crop Monitor for AMIS, published March 4<sup>th</sup>, 2021.

# Appendix

## Crop Conditions:

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

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

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

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

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

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

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

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

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

## Drivers:

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

**Wet:** Higher than average wetness.

**Dry:** Drier than average.

**Hot:** Hotter than average.

**Cool:** Cooler than average or risk of frost damage.

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

**Delayed-Onset:** Late start of the season.

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

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

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



**Crop Season Nomenclature:**

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

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

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

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

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

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

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

**Crop Season Nomenclature:**

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

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



# Global Agricultural Monitoring

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Prepared by members of the GEOGLAM Community of Practice, coordinated by the University of Maryland Center for Global Agricultural Research and funded through NASA Harvest.



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

Cover Photo by Kenneth Mwangi

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