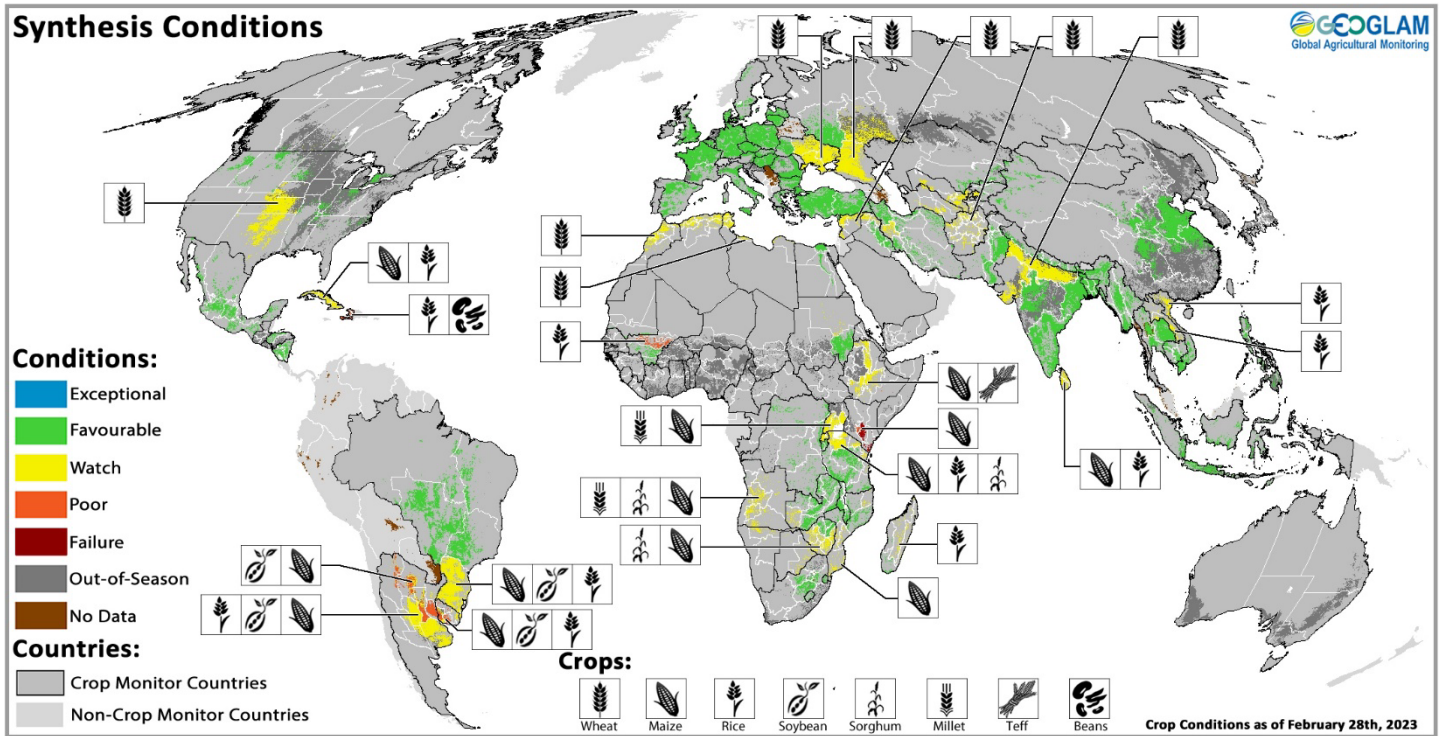


# GEOGLAM Global Crop Monitor

Synthesized from the Crop Monitor for AMIS, the Crop Monitor for Early Warning, and direct submissions from individual countries.



Crop condition map synthesizing information for all Crop Monitor 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, and 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.**

	Wheat	Maize	Rice	Soybean	Legend:
<b>Current Conditions</b>					Positive  Better
<b>Compared to last month</b>					Mixed  Similar
<b>Compared to last year</b>					Negative  Worse

See Appendix I for detailed methodology description

## Global Crop Overview

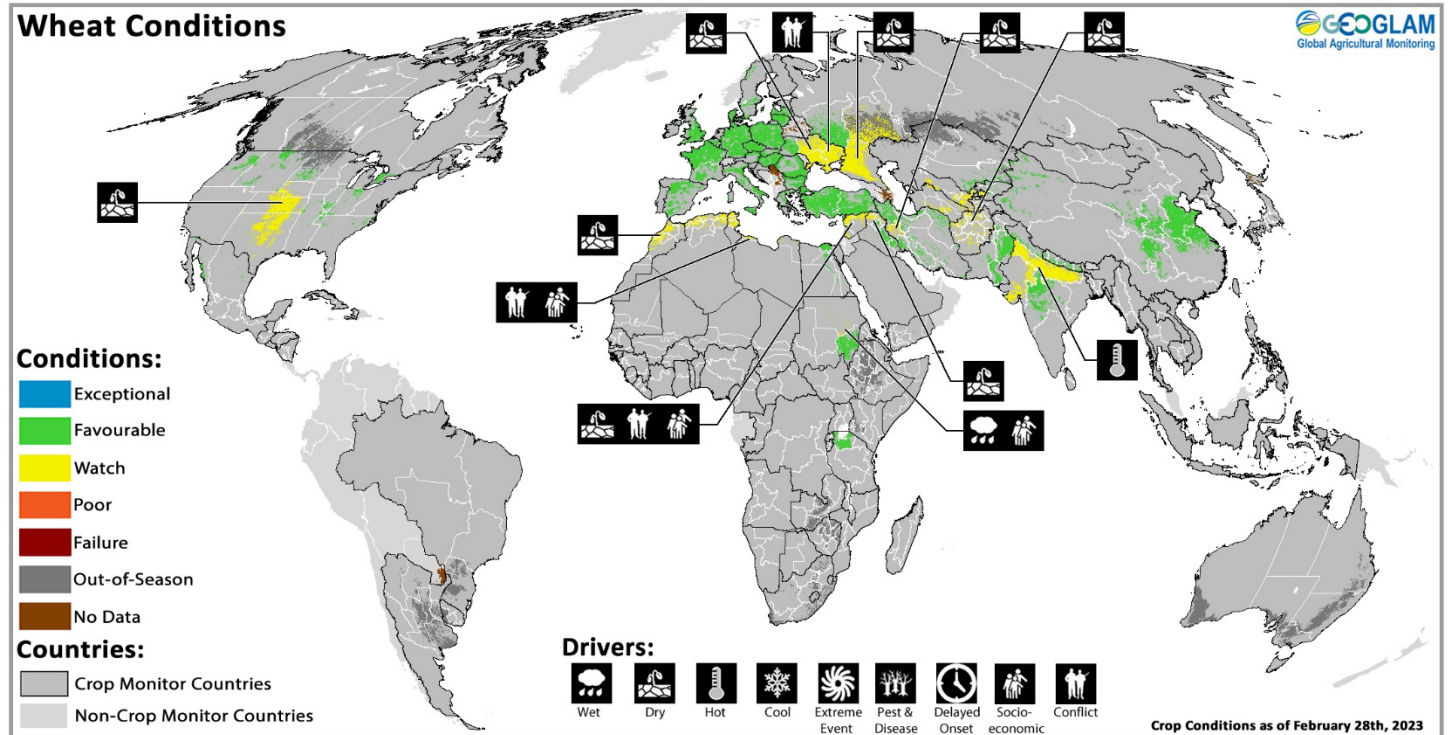
Global crop conditions at the end of February are positive for rice, mixed for wheat and maize, and negative for soybeans. For **wheat**, there are areas of concern in Ukraine, the Russian Federation, India, the US, MENA, and Central Asia. For **maize**, conditions are mixed in southern South America, East Africa, and parts of Southern Africa. For **rice**, overall conditions are generally favourable except for in South America, northern Viet Nam, the Caribbean, and parts of Sub-Saharan Africa. For **soybeans**, hot and dry conditions continue to impact yields in southern South America. The remaining crops are covered in the [CM4EW](#) publication.

## Global Climate Influences

The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. A transition to a neutral ENSO state is likely, with a 94% chance of ENSO neutral conditions in March-April-May, according to the IRI/CPC. ENSO neutral conditions are expected through July, after which El Niño conditions may develop, with a 60% chance of El Niño in August-September-October. While long-range forecasts made at this time of year can be unreliable, El Niño events can have widespread, global impacts. For further details see page 6.

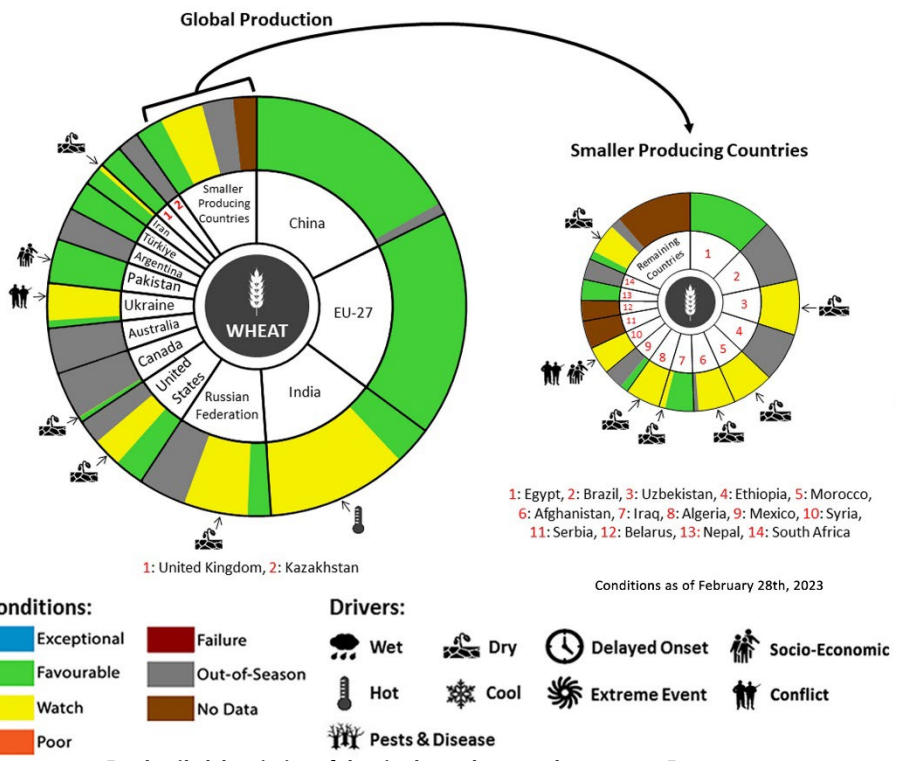
Source: UCSB Climate Hazards Center

# WHEAT



Wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of February 28<sup>th</sup>.

In **North America**, dry soil conditions persist in the US across the central and southern Great Plains. In Canada, conditions are generally favourable. In Mexico, sowing is wrapping up under favourable conditions. In **Europe**, conditions are favourable in the EU with the hardening process complete in most countries, while progressing in the south. In the UK, conditions are favourable. In Türkiye conditions are generally favourable despite the diminished water reservoirs due to the dry and warm winter. In Ukraine, there was little rain over the past month, however, there is enough soil moisture at this time to start the vegetation process in the spring. The ongoing war remains a major factor in the eastern and southern regions. In the Russian Federation, dry conditions remain in the Volga district and have worsened in the Southern Caucasus. In **Central Asia**, winter wheat continues to develop under mixed conditions due to persistent dryness across Afghanistan, Tajikistan, Turkmenistan, and Uzbekistan. In Kazakhstan, winter wheat is under favourable conditions. In **South Asia**, winter wheat is under generally favourable conditions in India as harvesting begins in some regions, however, temperatures in the northern and western growing regions have risen above-average as the crop enters the critical yield developmental stage. In Pakistan, conditions have improved since the 2022 floods. In Nepal, conditions are favourable with an above-average total sown area. In **East Asia**, winter wheat is under favourable conditions in China. In **MENA**, conditions are mixed in Morocco, Algeria, and Tunisia despite recent rainfall improvements. In Libya, conditions have improved from previous dry conditions, but conflict remains a problem. Conditions remain mixed in northwest Iraq and northeast Syria due to dry conditions. Additionally, conflict remains an issue across Syria. In Iran, conditions are generally favourable, except for spot areas in the northeast and northwest due to a lack of rain. In **Sub-Saharan Africa**, residual flood impacts in northern Sudan. Conditions are favourable in northern Tanzania.

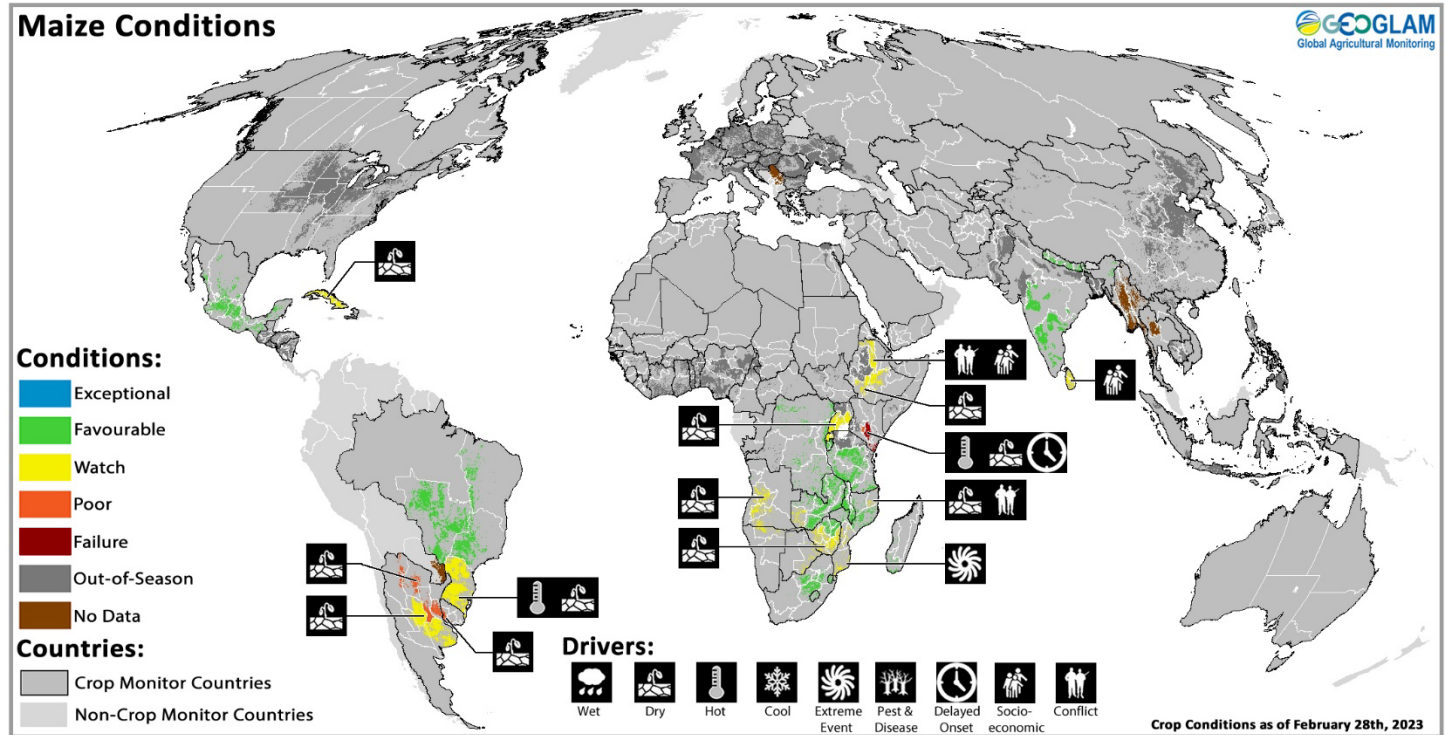


For detailed description of the pie chart, please see box on page 5.

\* Assessment based on information as of February 28<sup>th</sup>



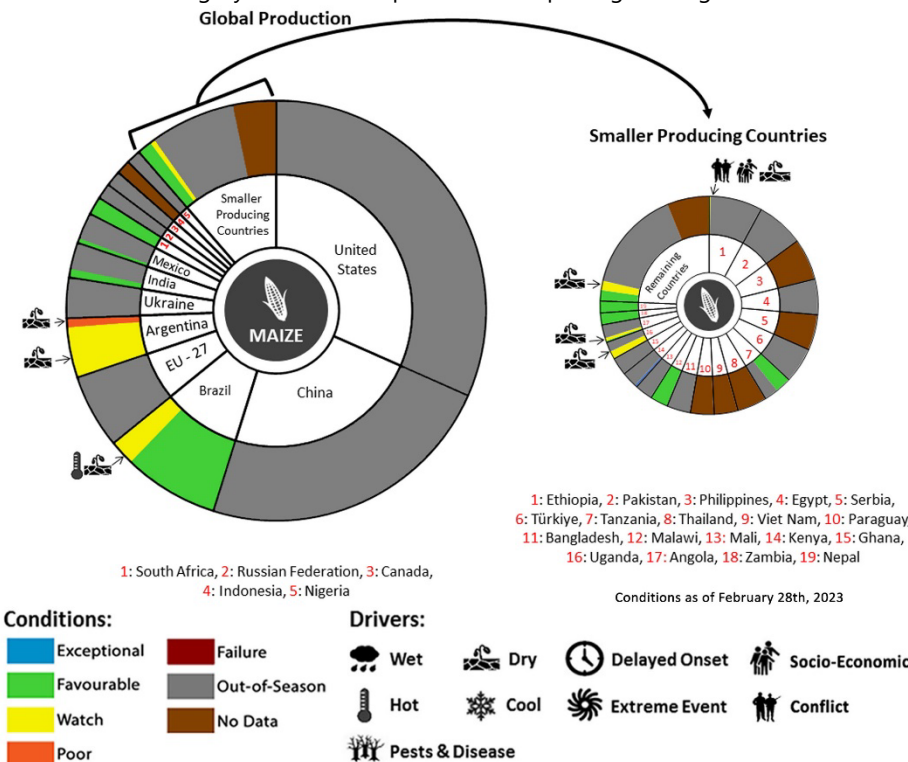
# MAIZE



Maize crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of February 28<sup>th</sup>.

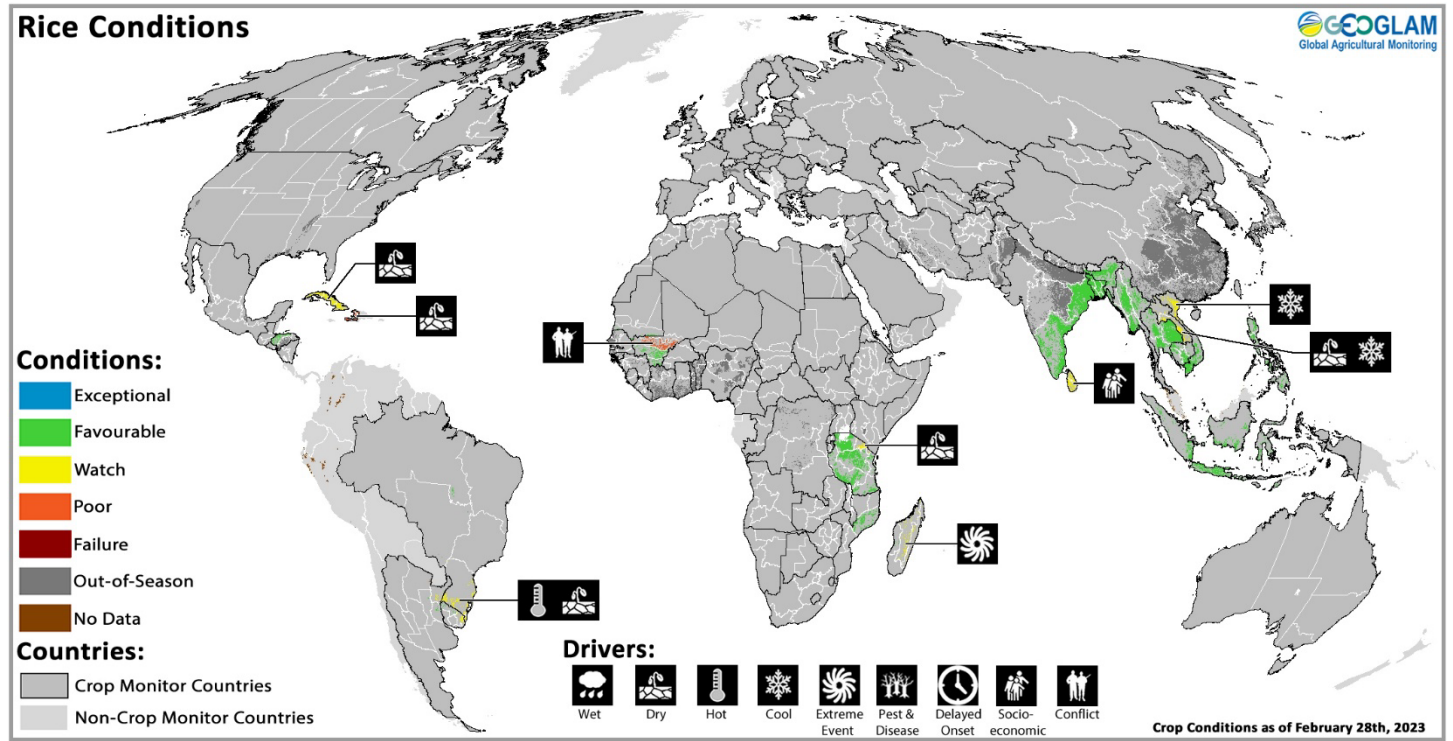
In **Central America & the Caribbean**, sowing in Mexico of the autumn-winter crop (smaller season) is wrapping up under favourable conditions. In Cuba, sowing of the main season crop is ongoing with concern for developing dry conditions. In **South America**, harvesting is progressing in Brazil for the spring-planted crop (smaller season) under favourable conditions, except in Rio Grande do Sul due to a persistent lack of rain and high temperatures throughout the season. Sowing is ongoing for the summer-planted crop (larger season) under favourable conditions despite an earlier delay in sowing due to mixed weather conditions. In Argentina, harvesting of the early-planted crop (typically larger season) is beginning in the north under poor conditions due to hot and dry weather during the key reproductive stages. The late-planted crop (typically smaller season) is entering the critical period for yield development under hot and dry weather, however, there is still the potential to partially compensate for the losses if rains are received in the short term. In Uruguay, conditions are poor due to the prolonged drought. In **South Asia**, conditions are favourable in India for the *Rabi* crop

with an increase in total sown area compared to last year. In Sri Lanka, harvesting of *Maha* season crops is now underway with concerns for yields over a lack of inputs. In **East Africa**, harvesting of second-season cereals mostly finalized in February under mixed conditions as crops in Somalia, bimodal agriculture areas of Kenya, north-central and northwestern Uganda, and northern bimodal areas of the United Republic of Tanzania. In Ethiopia, sowing of *Belg* season crops is now underway, and there is a concern due to dry conditions as well as residual pockets of conflict and related socio-economic challenges in the north. In **Southern Africa**, harvest is just beginning in Angola and Zambia. Conditions remain mixed across the region due to reduced early-season rainfall in southern Angola, northern Namibia, Botswana, and southern Zimbabwe, which may lead to a reduction in planted area. Additionally, a dry spell in January resulted in crop damage across parts of Botswana, southern Zimbabwe, and parts of southern Mozambique. In South Africa, conditions are generally favourable owing to above-average rainfall since October.



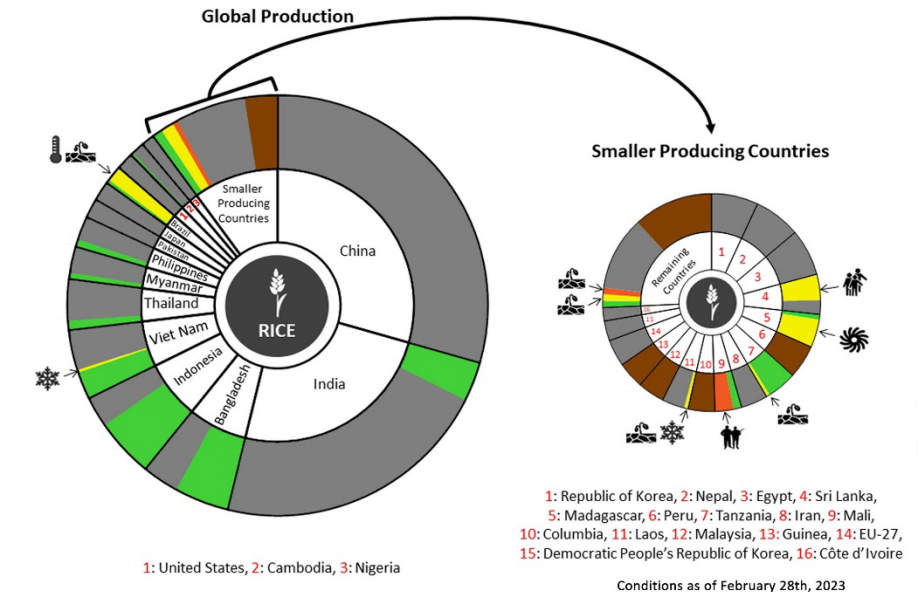
For detailed description of the pie chart, please see box on page 5.

# RICE



Rice crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of February 28<sup>th</sup>.

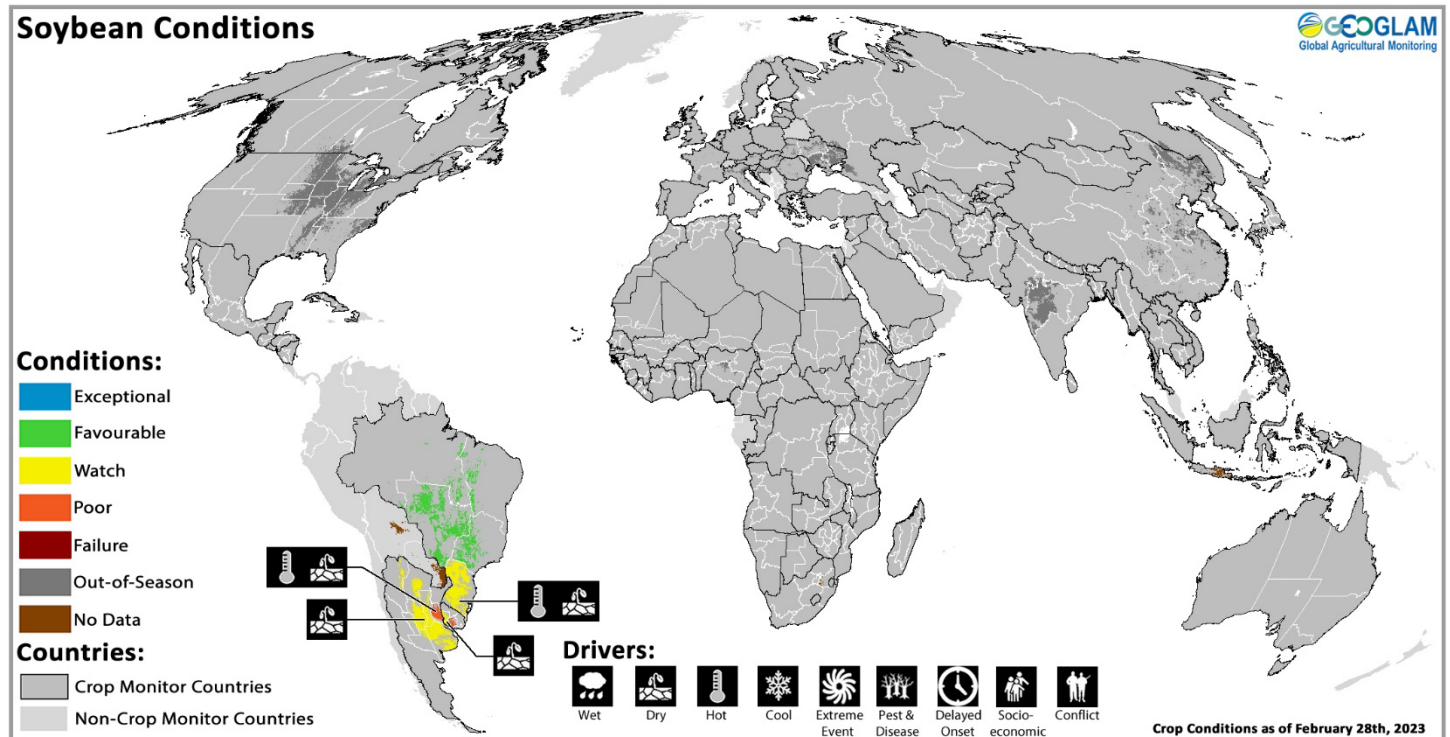
In **South Asia**, transplanting of the *Rabi* crop in India is almost completed with an increase in total sown area compared to last year. In Bangladesh, both *Boro* and *Aus* season crops are in the vegetative to reproductive stage under favourable conditions. In Sri Lanka, harvesting of *Maha* season crops is now underway, and there is concern regarding the impact of lingering agricultural input constraints, including mainly fertilizer and pesticides, on cereal output. In **Southeast Asia**, sowing in Viet Nam of dry-season rice (winter-spring rice) is continuing in the South with some provinces beginning to harvest. In the North, sowing of dry-season rice (winter-spring rice) is beginning with a slow start due to prolonged cold weather. In Thailand, dry-season rice is in the young panicle-forming to grain-filling stages under good water availability and weather conditions. In the Philippines, dry-season rice continues to develop under favourable conditions despite excessive rainfall. In Indonesia, sowing of wet-season rice continues with a large increase in total sown area compared to last year due to plentiful rainfall. Harvesting of earlier sown rice is continuing. In the **Americas**, sowing of the main season crop is ongoing in Cuba under dry conditions. In Haiti, harvest begins under poor conditions for the second-season crops. In Brazil, harvesting is beginning under dry conditions in the south. A reduction in total sown is estimated. In Argentina, conditions are favourable as crops reach the grain-filling stages. In Uruguay, conditions are generally favourable, however, some crops have been affected by a limitation of irrigation waters. In **Sub-Saharan Africa**, the ongoing conflict in central Mali continues to impact crops. In Tanzania, conditions are generally favourable for *Masika* season crops. In Madagascar, crops have been impacted by the passage of Tropical Storm Cheneso and Tropical Cyclone Freddy.



For detailed description of the pie chart, please see box on page 5.

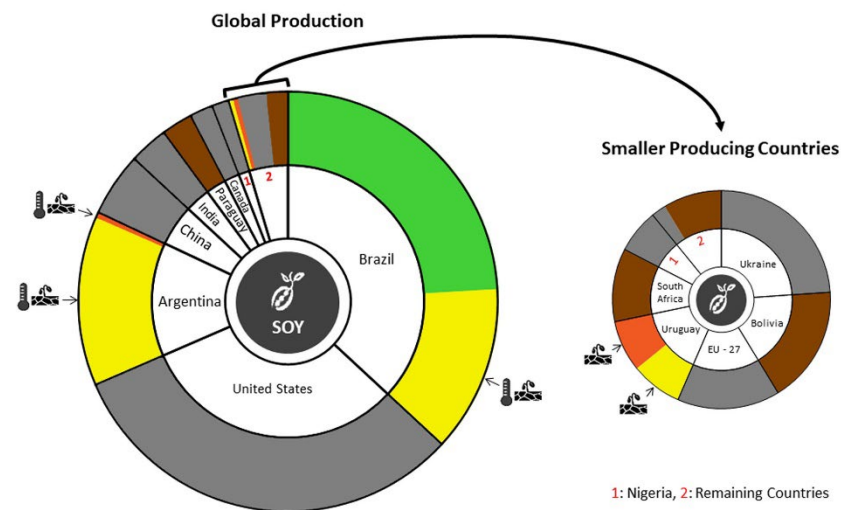


# SOYBEAN



Soybean crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of February 28<sup>th</sup>.

In **South America**, harvesting is ongoing in Brazil under favourable conditions except for in the south, due to the lack of rain and high temperatures in Rio Grande do Sul. An increase in total sown area is estimated compared to last year. In Argentina, the early-planted crop (larger season) and the late-planted crop (smaller season) continue to be affected by the high temperatures and lack of rainfall during the critical yield development stages. Heavy yield losses are expected, with the most affected areas located in the east. An early frost in the western areas may have impacted the late-planted crop. In Uruguay, a continued lack of rainfall and soil moisture is reducing the yields of the crops.



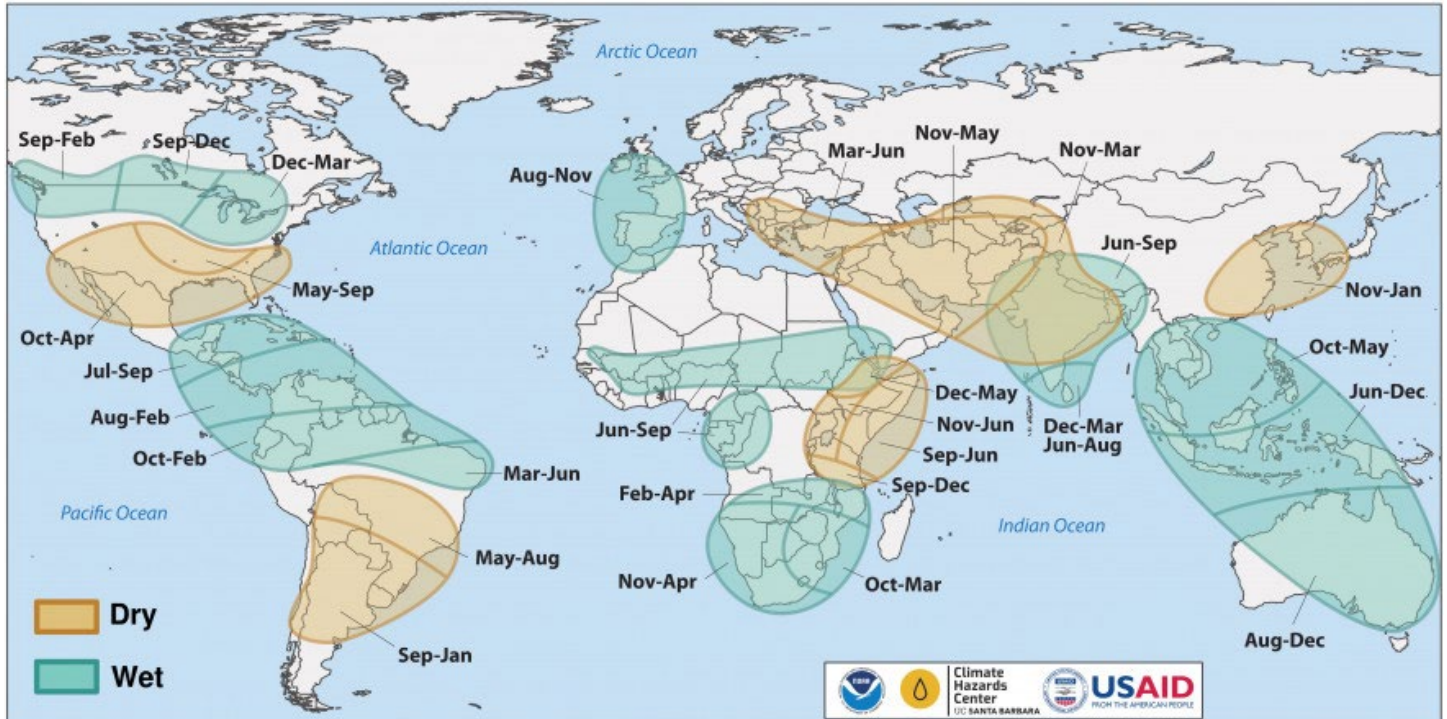
**Pie Chart Description:** Each slice represents a country's share of total Global production (5-year average). Main producing countries (representing 90-95 percent of production) are shown individually, with the remaining 5-10 percent grouped into the "Smaller Producing Countries" category. The proportion within each national slice is coloured 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 (e.g., spring and winter wheat). When conditions are other than 'favourable', icons are added that provide information on the key climatic drivers affecting conditions.

## Global Climate Influences

The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. A transition to a neutral ENSO state is likely, with a 94% chance of ENSO neutral conditions in March-April-May, according to the IRI/CPC. ENSO neutral conditions are expected through July, after which El Niño conditions may develop, with a 60% chance of El Niño in August-September-October. While long-range forecasts made at this time of year can be unreliable, El Niño events can have widespread, global impacts.

Seasonal forecasts indicate La Niña precipitation impacts may continue through the next several months. While a transition to ENSO-neutral is anticipated during this time, atmospheric responses to La Niña can linger. For eastern East Africa, where multi-year drought continues to severely impact food security, yet another below-normal rainy season is likely, based on forecast La Niña-like sea surface temperature gradients during spring.

Source: UCSB Climate Hazards Center



Location and timing of likely above- and below-average precipitation related to La Niña events. Based upon observed precipitation during 21 La Niña events since 1950, wet and dry correspond to a statistically significant increase in the frequency of precipitation in the upper and lower thirds of historical values, respectively. Statistical significance at the 95% level is based on the resampling of precipitation during neutral El Niño-Southern Oscillation conditions. Source: [FEWS NET & NOAA & CHC](#)



## Regional Outlooks

Both the two-week forecast (Figures 1 & 2) and the long-term March-April-May (MAM) 2023 forecast (Figures 3 & 4) are influenced by the current La Niña phase.

In **North America**, the two-week forecast (Figures 1 & 2) indicates potential areas of below-average precipitation in Canada over parts of Quebec and the Pacific Northwest in the US. Areas of above-average precipitation are possible over the central Appalachians in the US. During the same time, temperatures are likely to be below-average across most of the central and western US and Canada. Above-average temperatures are possible in southern Florida of the US. The long-term March-April-May 2023 forecast (Figures 3 & 4) shows possible below-average precipitation across the majority of the southwest US. During the same time, temperatures are likely to be above-average across much of the southern US. For further details, see the [CM4AMIS](#) Regional Outlook for the United States.

In **Central America & the Caribbean**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation across most of central Mexico, eastern Cuba, Haiti, the Dominican Republic, Costa Rica, and Panama. During the same period, temperatures are potentially above-average in eastern Mexico. The long-term March-April-May 2023 forecast (Figures 3 & 4) suggests likely below-average precipitation across northern Mexico, Honduras, Nicaragua, Costa Rica, and Panama. During this time, temperatures are likely to be above-average across Mexico, Cuba, Haiti, the Dominican Republic, and Honduras. For further details, see the [CM4EW](#) seasonal forecast alert for Central America and the Caribbean.

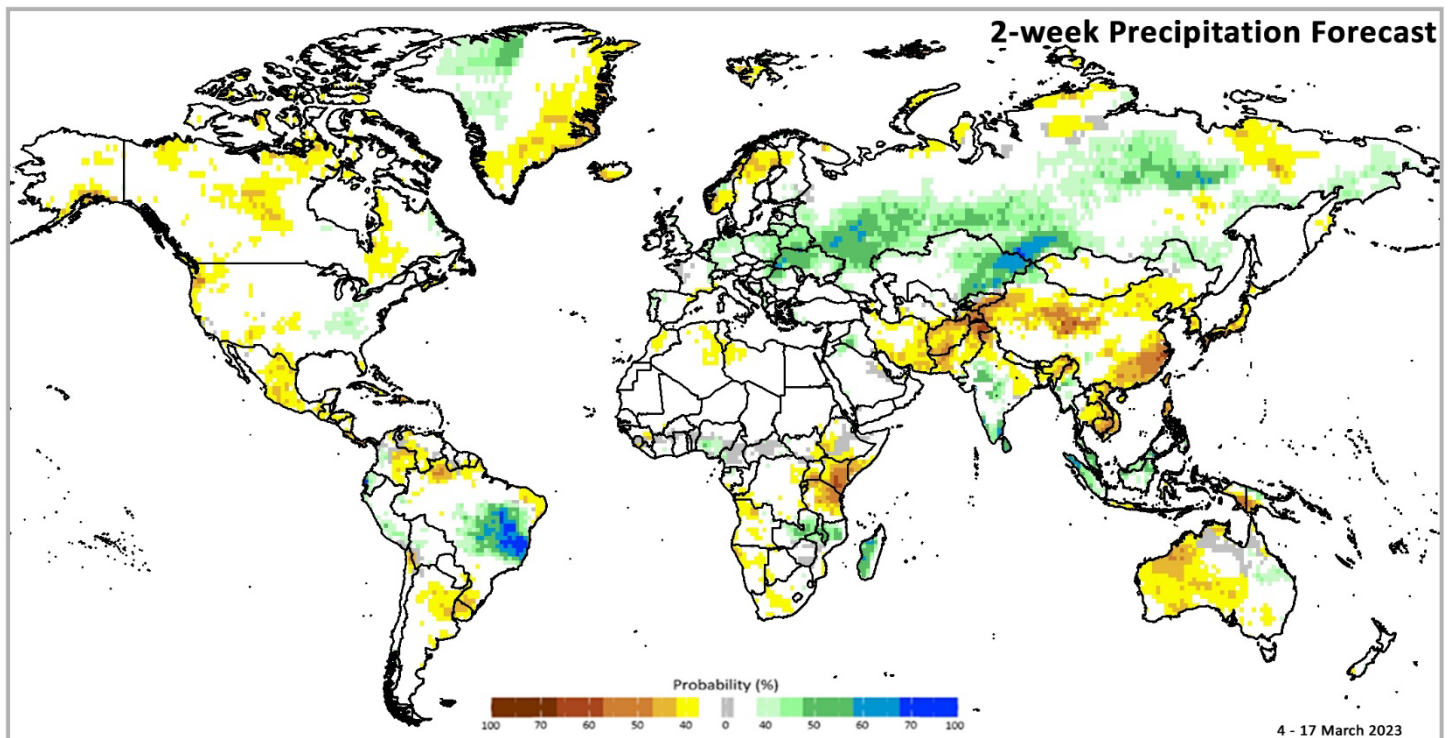


Figure 1: IRI SubX Precipitation Biweekly Probability Forecast for 4 – 17 March 2023, issued on 24 February 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](#)

In **South America**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation in eastern Columbia, western Venezuela, northern and southern Brazil, northern Chile, Uruguay, and central Argentina. Above-average precipitation is likely over central and eastern Brazil. During this time, temperatures are likely to be above-average in eastern Brazil and southern Argentina, while below-average in Venezuela, Guyana, southern Suriname, and southern Paraguay. The long-term March-April-May 2023 forecast (Figures 3 & 4) suggests likely above-average precipitation across central and northern Brazil, while below-average precipitation in eastern Columbia, Venezuela, Guyana, and northern Suriname. During that time, temperatures will likely be above-average across Argentina, Uruguay, and southern Bolivia. For further details, see the [CM4AMIS](#) Regional Outlooks for Argentina and Brazil.

In **Europe**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over southern Norway and northern Sweden, while above-average precipitation is likely in Germany, eastern Poland, Lithuania, Belarus, central and western Ukraine, eastern Slovakia, eastern Hungary, northwestern Romania, and the central Russian Federation. During this time, temperatures are likely to be below-average in Norway, Sweden, Poland, Lithuania, eastern Latvia, Belarus, western Ukraine, Slovakia, northwest Romania, and the northwest Russian Federation. The long-term March-April-May 2023 forecast (Figures 3 & 4) predicts no dominant tercile for precipitation over Europe. During the same period, temperatures will potentially be above-average across all of Europe.

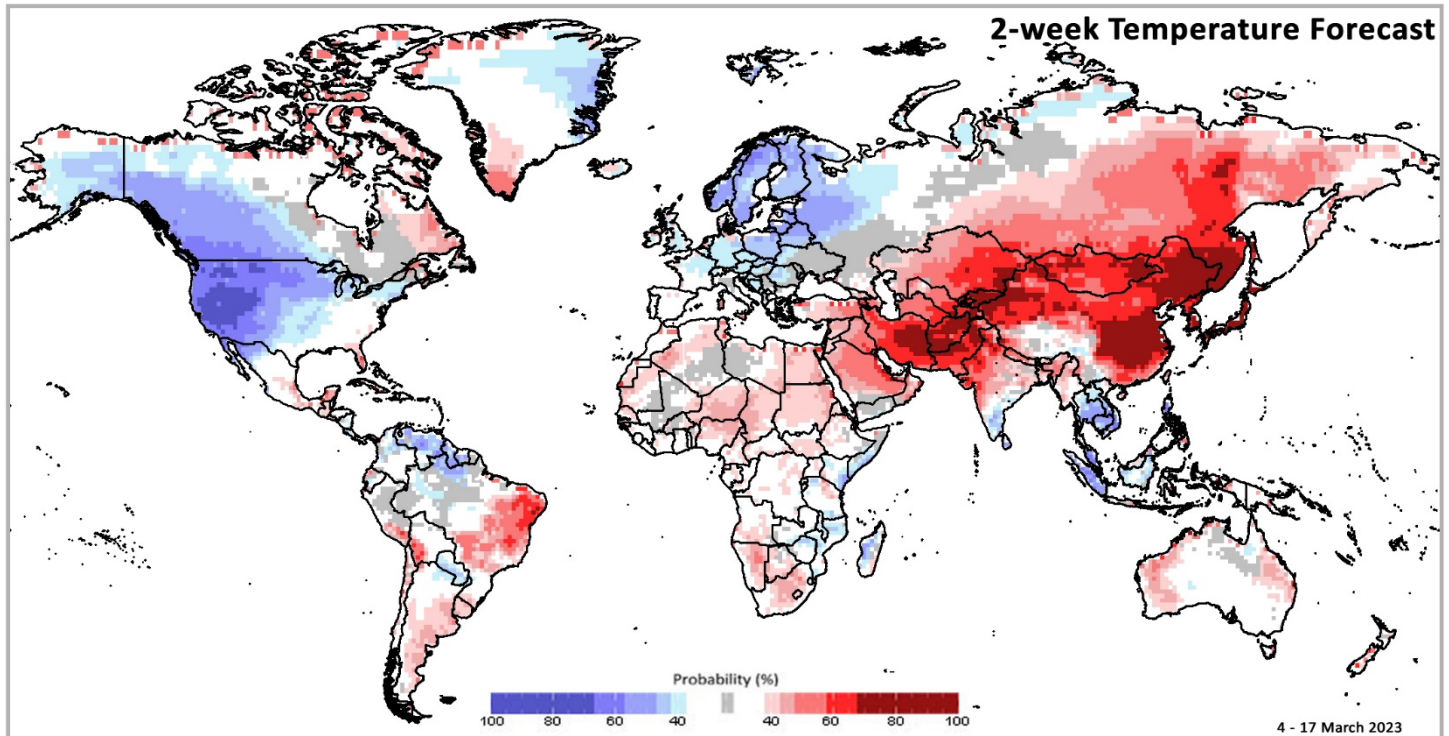


Figure 2: IRI SubX Temperature Biweekly Probability Forecast for 4 – 17 March 2023, issued on 24 February 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](https://climate.geog.udel.edu/iri/subseasonal/forecasts/maproom/)

In **MENA**, the two-week forecast (Figures 1 & 2) indicates a small likelihood of below-average precipitation in central Morocco, eastern Algeria, southern Tunisia, and western Libya, while a higher likelihood in southern and eastern Iran. There is likely above-average precipitation in western Iraq. During this time, temperatures are likely to be above-average in parts of northern Morocco, Tunisia, Egypt, Syria, Lebanon, Saudi Arabia, and Iraq, with the highest likelihood in Iran. The long-term March-April-May 2023 forecast (Figures 3 & 4) predicts a small likelihood of above-average precipitation across Iraq and Saudi Arabia. During this time, temperatures are likely to be above-average across most of the region. For further details, see the [CM4EW](#) regional outlook for MENA.

In **Sub-Saharan Africa**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation in eastern and southern Ethiopia, southern Somalia, southern Uganda, northern and eastern Kenya, northern Angola, northwest Namibia, and central South Africa. Above-average precipitation is likely in southern Nigeria, central Zambia, southern Malawi, northern Mozambique, and central and western Madagascar. At the same time, temperatures are likely to be above-average in northern Nigeria, Niger, Chad, northern Cameroon, Sudan, South Sudan, Namibia, and central South Africa, while below-average along coastal Kenya, southern Somalia, and western Madagascar. For the long-term March-April-May 2023 forecast (Figures 3 & 4), precipitation is likely to be below-average over Uganda, western Kenya, southern Somalia, and northern Tanzania, while above-average over southern Africa. During this time, temperatures are likely to be above-average across most of central Africa. For further details, see the [CM4EW](#) regional outlook for Southern Africa along with the seasonal forecast alert for East Africa.



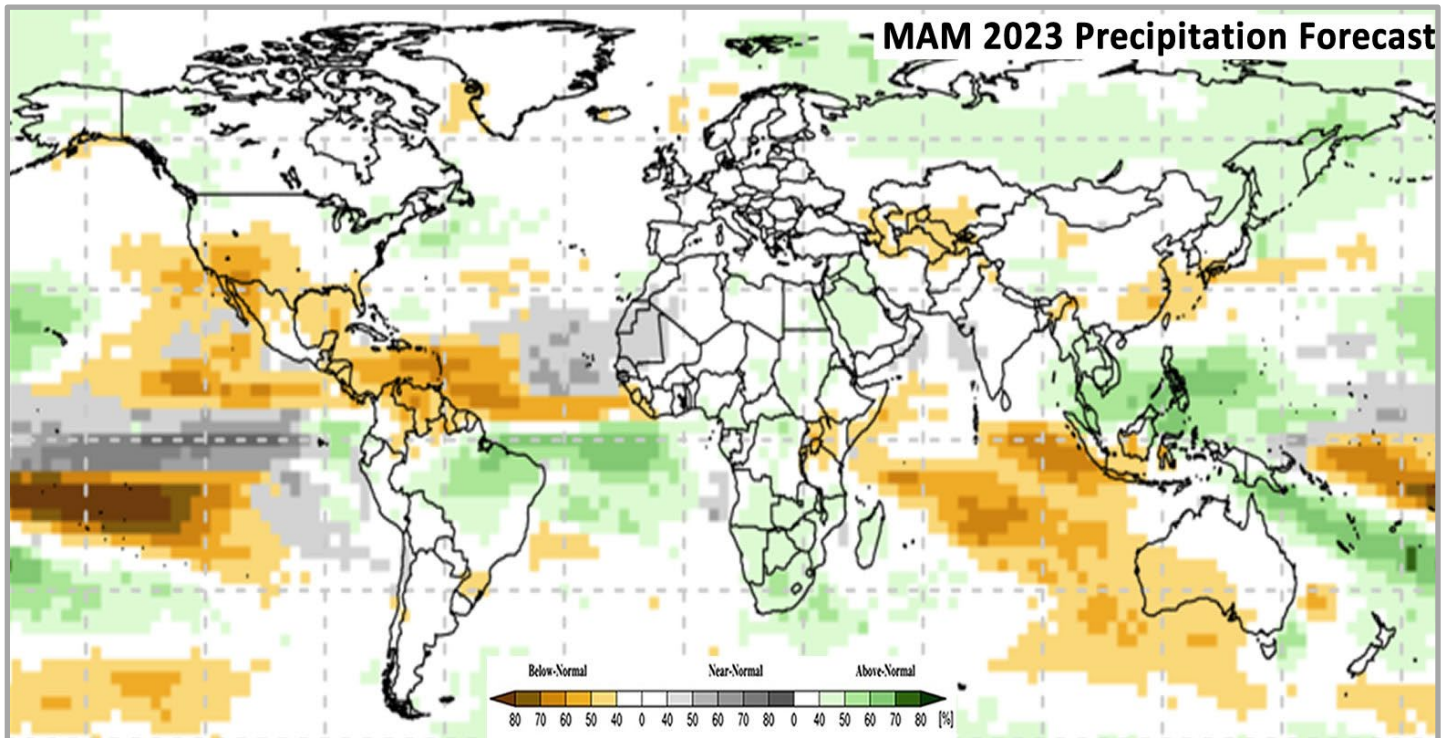


Figure 3: Probabilistic forecast for most-likely March-April-May (MAM) 2023 rainfall tercile, based on February conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: [WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble](#)

In **Central Asia**, the two-week forecast (Figures 1 & 2) indicates likely above-average precipitation in western and southern Kazakhstan, while below-average precipitation in southern Kyrgyzstan, Tajikistan, and Afghanistan. During this time, temperatures are likely to be below-average across the entire region. The long-term March-April-May 2023 forecast (Figures 3 & 4) predicts likely below-average precipitation in southern Kazakhstan, Uzbekistan, Turkmenistan, and western Tajikistan. At the same time, temperatures are likely to be above-average across the entire region.

In **South Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation in Pakistan, northwestern and northeastern India, and Bangladesh, while above-average precipitation over central and southern India and Sri Lanka. During this time, temperatures are likely to be above-average in Pakistan, western and northern India, Nepal, and northern Bangladesh, while below-average in southern India and Sri Lanka. The long-term March-April-May 2023 forecast (Figures 3 & 4) indicates no dominant tercile for precipitation, while likely above-average temperatures.

In **East Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation in parts of western and southeast China, the Democratic Republic of Korea, the Republic of Korea, and Japan. During this time, temperatures are highly likely to be above-average across the region. The long-term March-April-May 2023 forecast (Figures 3 & 4) suggests likely below-average precipitation over southeast China and southern Japan. During that time, temperatures are likely to be above-average across the entire region.

In **Southeast Asia & Oceania**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation in northern Myanmar, Viet Nam, Laos, Cambodia, eastern Thailand, the northern Philippines, southern Indonesia, southwest Papua New Guinea, and western Australia, while above-average over Malaysia, and northern Indonesia. During this time, temperatures are likely to be below-average in Thailand, Laos, Cambodia, southern Viet Nam, the northern Philippines, Malaysia, and western Indonesia, while above-average across eastern and western Australia and New Zealand. The long-term March-April-May 2023 forecast (Figures 3 & 4) precipitation is predicted to be above-average across Thailand, southern Viet Nam, Cambodia, the Philippines, and western Malaysia, while below-average in Indonesia and western Australia. During the same time, temperatures are likely to be above-average in Myanmar, Indonesia, Papua New Guinea, Tasmania in Australia, and New Zealand, while below-average in southern Viet Nam and Cambodia.

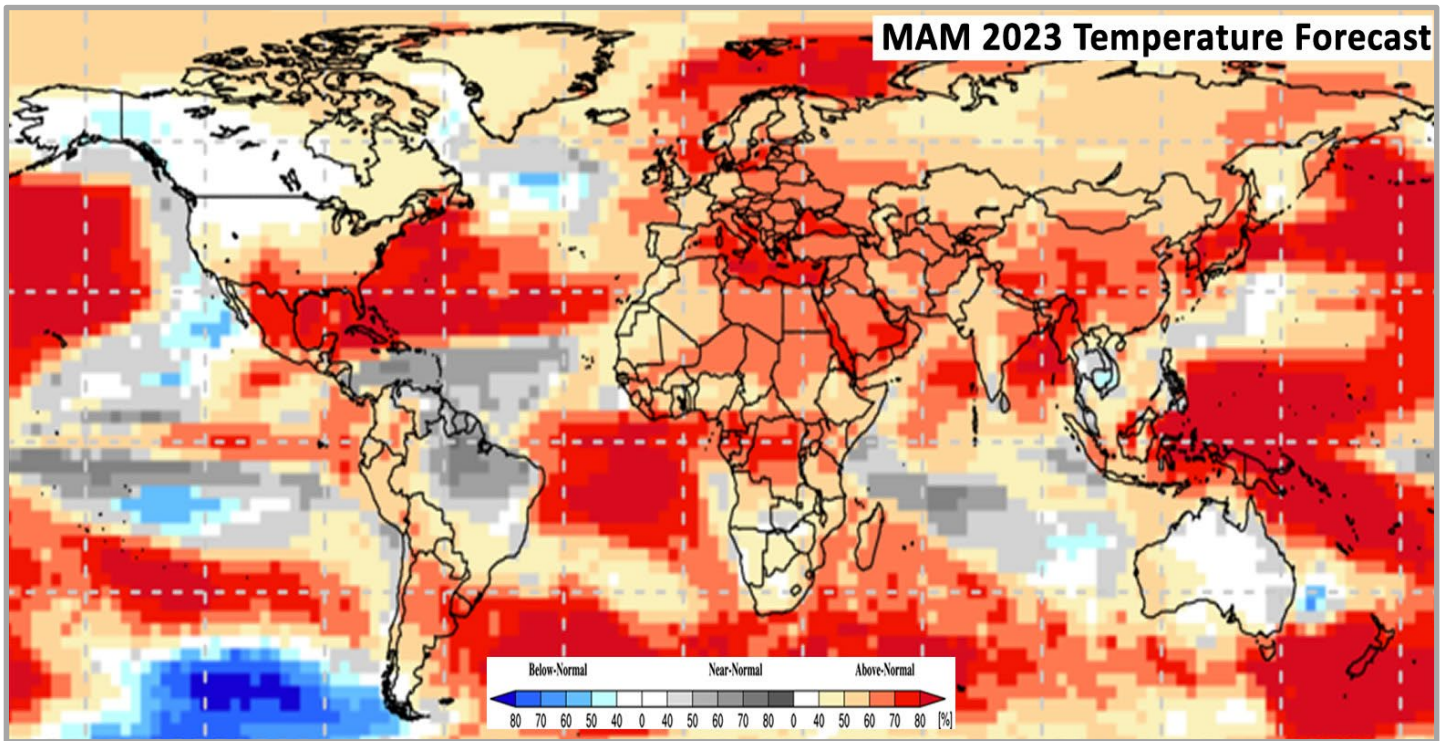


Figure 4: Probabilistic forecast for most-likely March-April-May (MAM) 2023 temperature tercile, based on February conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: [WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble](https://www.wmo.int/en/lead-centre-for-long-range-forecast-multi-model-ensemble)



The Crop Monitor is a part of GEOGLAM, a GEO global initiative.  
 Prepared by members of the GEOGLAM Community of Practice  
 Coordinated by the University of Maryland with funding from NASA Harvest  
 Synthesized from the Crop Monitor for AMIS, the Crop Monitor for Early Warning, and direct submissions from individual countries

<https://cropmonitor.org/>

@GEOCropMonitor



## Appendix 1: Terminology & Definitions

### Crop Conditions:

**Exceptional:** Conditions are much better than average\* at the 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 more than 5-25% below-average. This is only used when conditions are not likely to be able to recover, and an impact on production is likely.

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

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

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

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



### Drivers:

These represent the key climatic, environmental, and anthropomorphic 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:** Wetter than average (includes water logging and floods).

**Dry:** Drier than average.

**Hot:** Hotter than average.

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

**Extreme Events:** Catch-all for all other climate risks (i.e., hurricane, typhoon, frost, hail, winter kill, wind damage, etc.). When this category is used the analyst will also specify the type of extreme event in the text.

**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 Condition Indicators:

**Current Crop Conditions:** The current crop condition indicators are based on only the crops that are currently in season. Crops with "No Data" are not counted. The crop condition is considered "Positive", with a green-coloured crop symbol, when 85-100% of active crops are currently under favourable to exceptional conditions. The crop conditions are considered "Mixed", with an orange-coloured crop symbol, when only 70-85% of active crops are under favourable to exceptional conditions. The crop conditions are considered "Negative", with a dark red-coloured crop symbol, when only 0-70% of active crops are under favourable to exceptional conditions.

**Crop Condition Comparisons:** Crop condition changes are measured between the current month's conditions compared to the previous month and exactly one year ago. Only active crops are considered. If there is a -5% change in global crop conditions, then the crop conditions are considered "Deteriorating" (indicated by a down arrow). If there is a +5% change in global crop conditions, then the crop conditions are considered "Improving" (indicated by an up arrow). Otherwise, crop conditions are considered "Stable" (indicated by a dash).