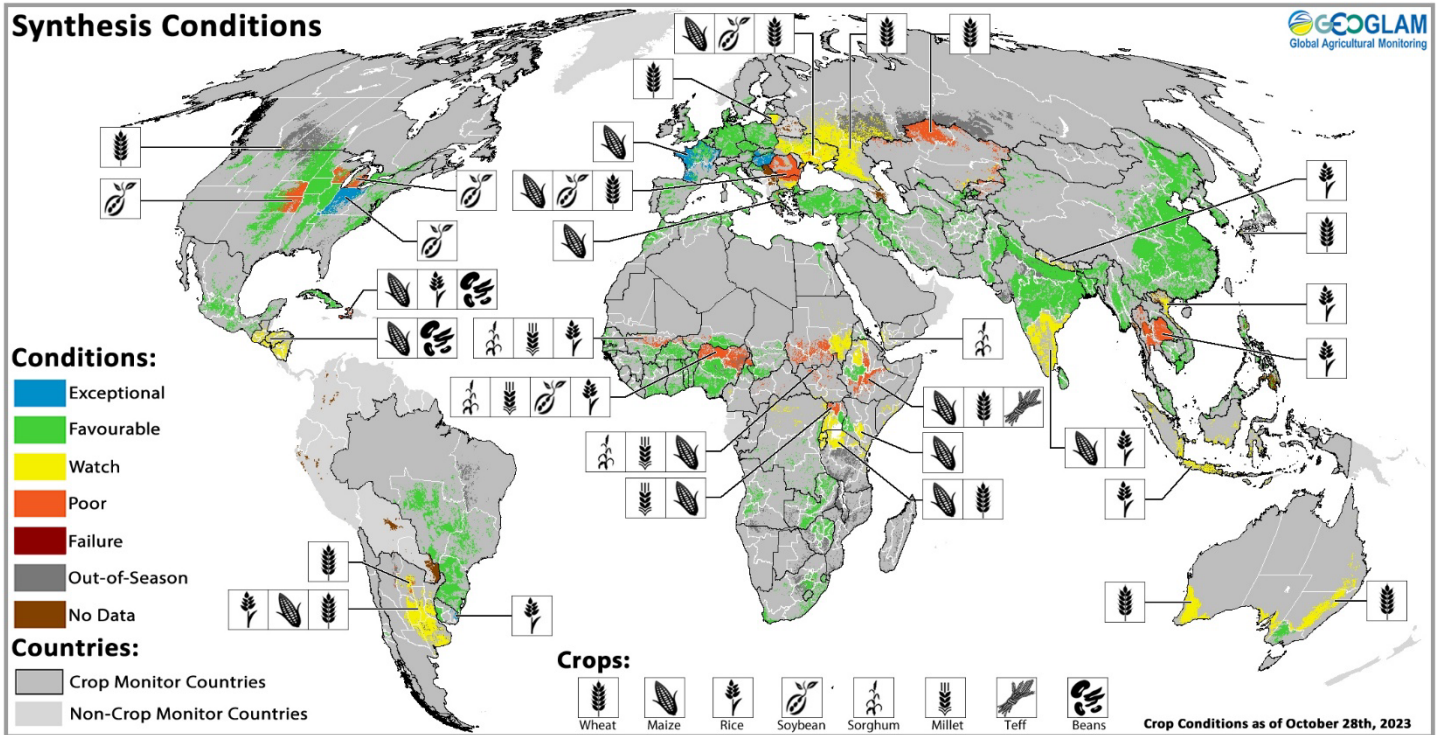


GEOGLAM Global Crop Monitor

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 October 28th. 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:
Current Conditions					Positive
Compared to last month	↑	↑	↓	—	↑ Better
Compared to last year	—	↑	↑	—	— Similar
					↓ Worse

See Appendix I for detailed methodology description

Global Crop Overview

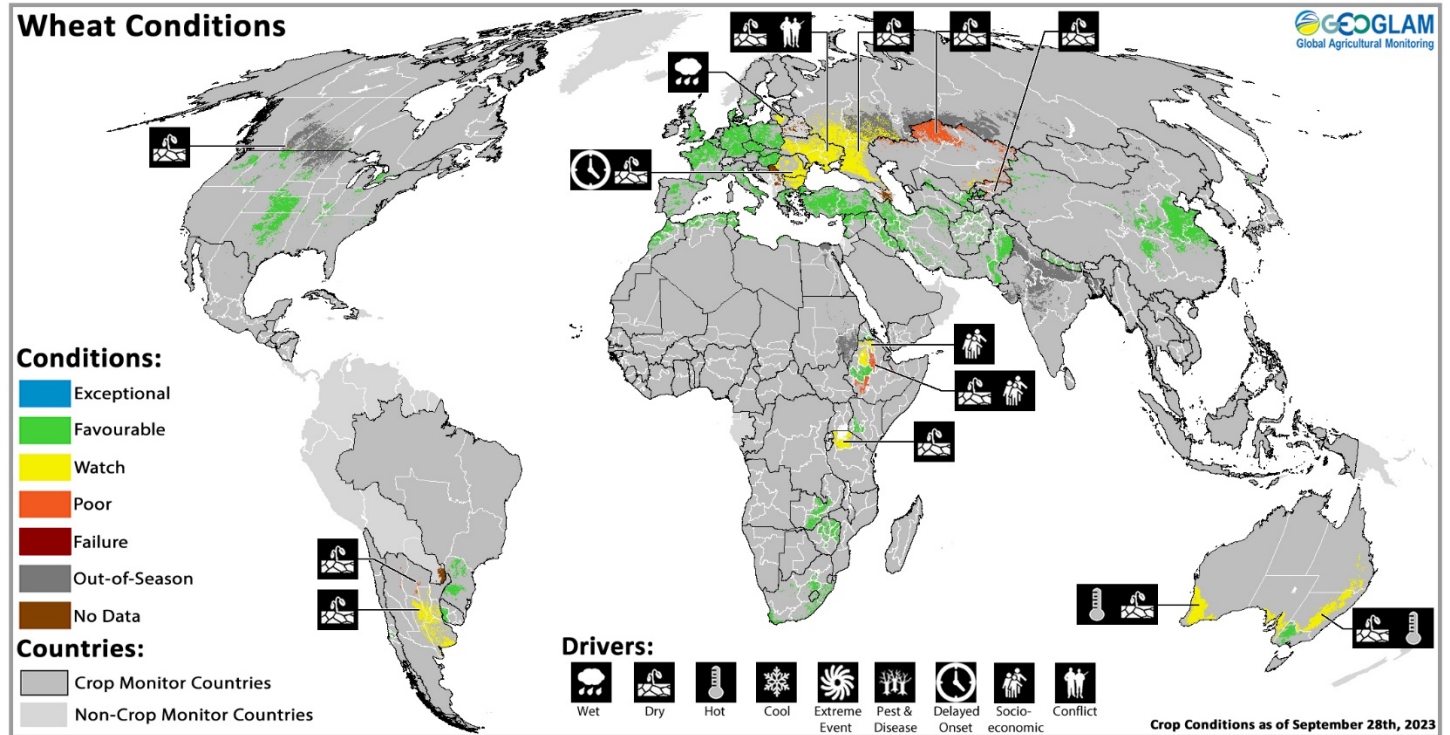
Global crop conditions at the end of October are mixed for wheat and rice, while positive for maize and soybeans. For **wheat**, areas of concern are in southeastern Europe, Ukraine, the Russian Federation, Kazakhstan, Australia, Argentina, and East Africa. For **maize**, conditions are overall positive as harvesting continues in the Northern Hemisphere and sowing begins in the Southern Hemisphere. For **rice**, conditions are mixed primarily due to dry conditions in Thailand and Indonesia and a delayed start to the season in southern India. For **soybeans**, conditions are favourable as harvesting wraps up in the Northern Hemisphere. The remaining crops are covered in the [CM4EW](#) publication.

Global Climate Influences

The ongoing El Niño event will likely reach a strong level of intensity during November 2023 to January 2024 (75 percent chance), then weaken and remain active into March to May 2024 (80 percent chance). The ongoing positive Indian Ocean Dipole (IOD) event has also increased to a strong level of intensity during recent weeks and will likely remain positive through at least December. For further details see page 6.

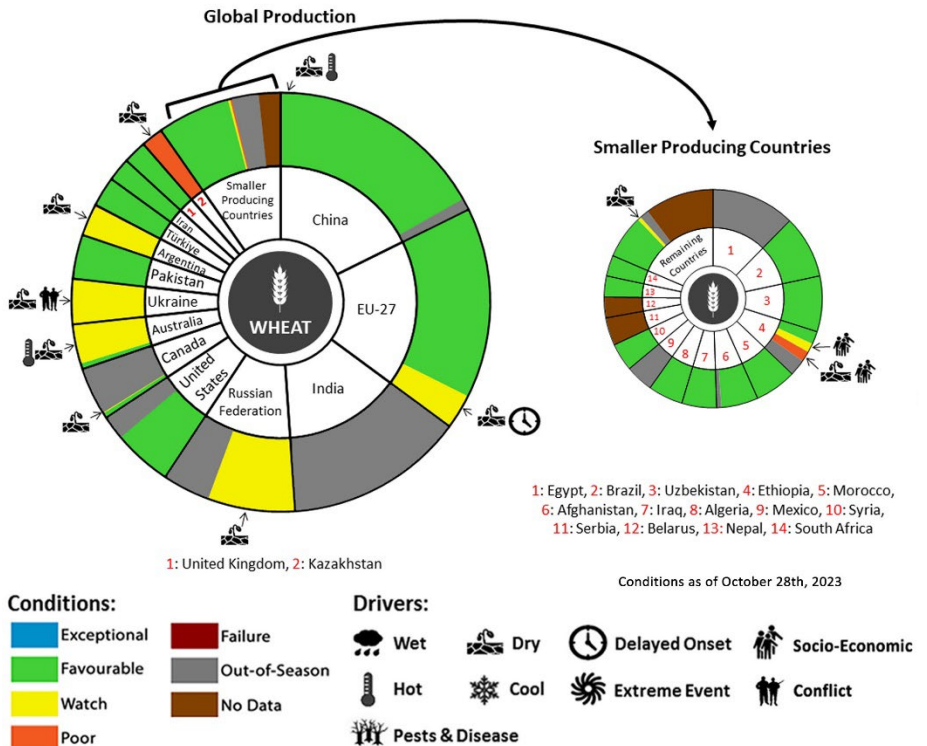
Source: UCSB Climate Hazards Center

WHEAT



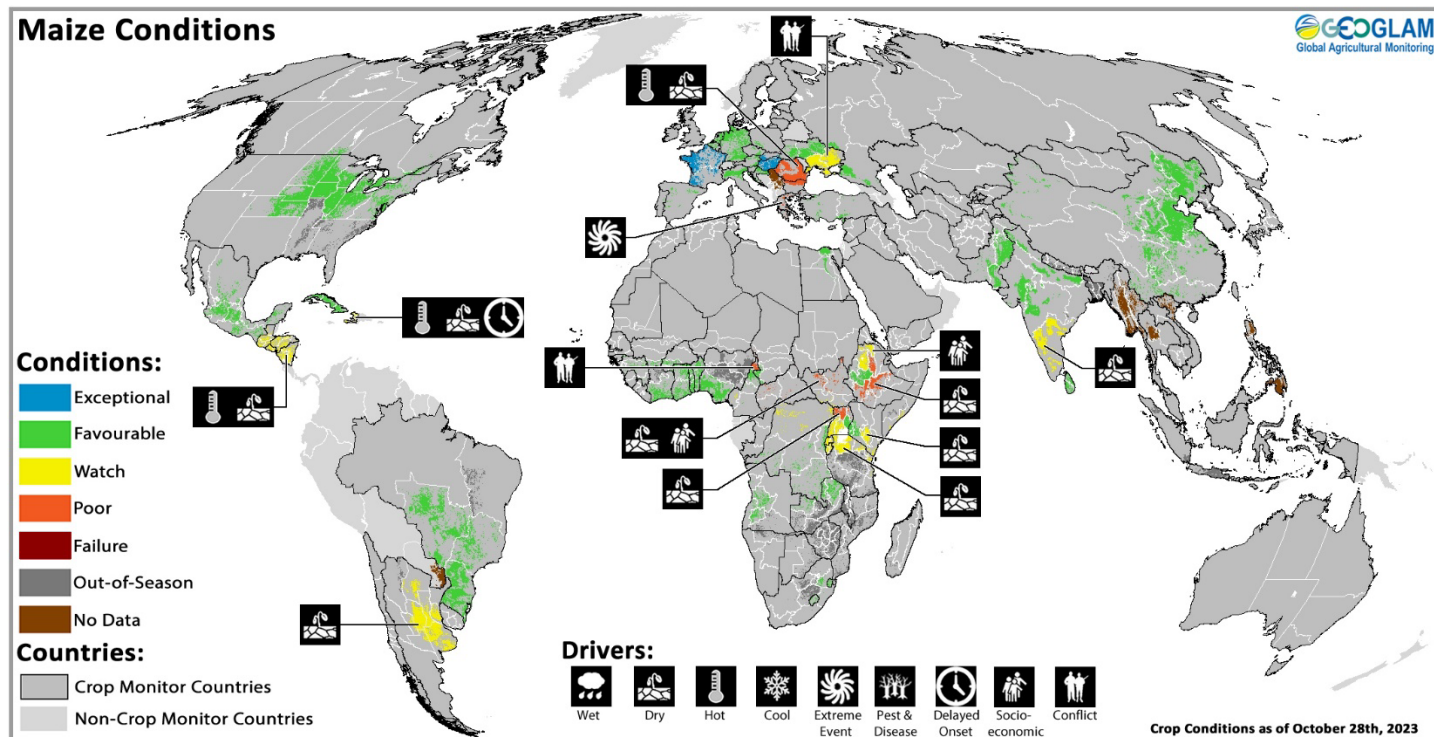
Wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of October 28th.

In **North America**, dry conditions in the US favoured winter wheat planting, and warm weather promoted emergence and establishment. In Canada, winter wheat planting is now underway with concern in Alberta and Saskatchewan due to fall drought conditions, raising concern for crop emergence. In **South America**, conditions have deteriorated in Argentina due to inadequate soil moisture with yields likely to be affected. In Brazil, harvest is nearing completion under favourable conditions despite excessive rains received in some areas of the main producing South region. In Uruguay and Chile, conditions are favourable. In **Europe**, winter wheat planting continues in the EU with concern in Bulgaria and Romania due to dry and hard topsoil and in Lithuania due to wet conditions. In the UK, conditions are favourable for the start of winter sowing. In Türkiye, rains received in October have established favourable soil moisture for sowing and germination. In Ukraine, limited October rains mostly abated drought and were conducive for planting, though dryness remains a concern for crop emergence. In the Russian Federation, insufficient precipitation in October increased dryness, especially in the Volga region, though cooler temperatures helped to lessen some of the dry impacts. In **Central Asia**, spring wheat harvesting for 2023 was finalized under poor conditions in Kazakhstan and Kyrgyzstan due to persistent seasonal dryness. Winter wheat planting for harvest in 2024 is just beginning, and conditions are mixed. In **South Asia**, sowing is just beginning in Pakistan and Nepal under favourable conditions. In **East Asia**, winter planting begins in China under favourable conditions except in the south where there are wet soils. In **Oceania**, hot and dry conditions in the east and west of Australia are likely to reduce yields to below-average levels. In **MENA**, land preparation is underway for sowing, with the bulk of the sowing to be carried out in November. In **Southern Africa**, harvesting continues under favourable conditions in Zimbabwe, Zambia, South Africa, and Lesotho. In South Africa, wet conditions during the winter supported production over the winter rainfall region and provided sufficient water supply over the irrigated interior. Forecast drier conditions for the remainder of the season are expected to support harvesting activities. In **East Africa**, dry conditions combined with socio-economic challenges continue to disrupt production.



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

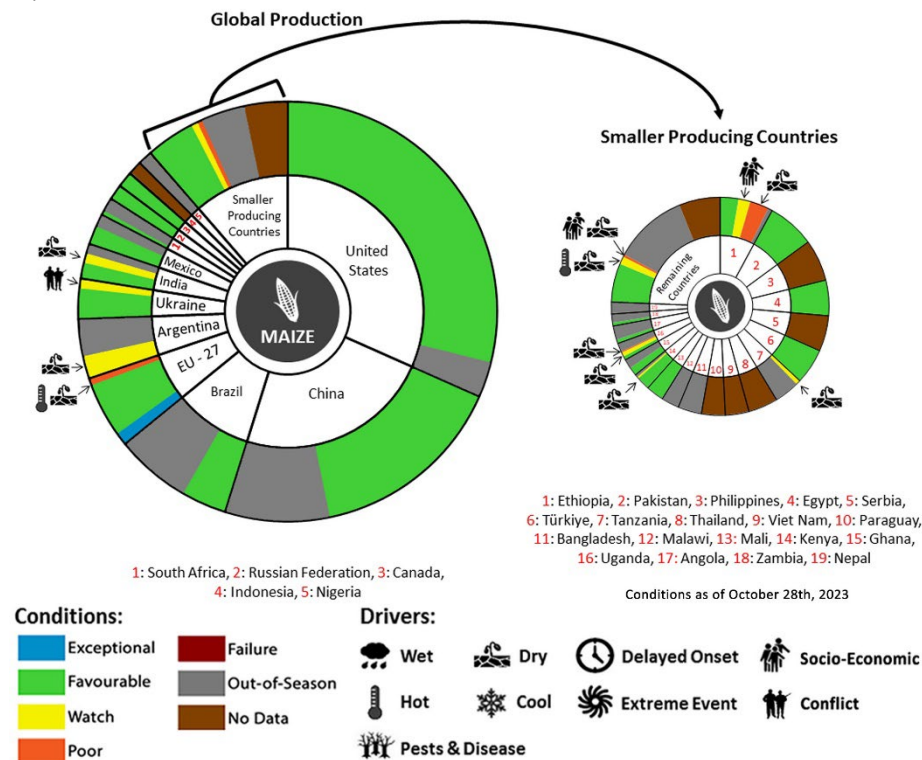
MAIZE



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 October 28th.

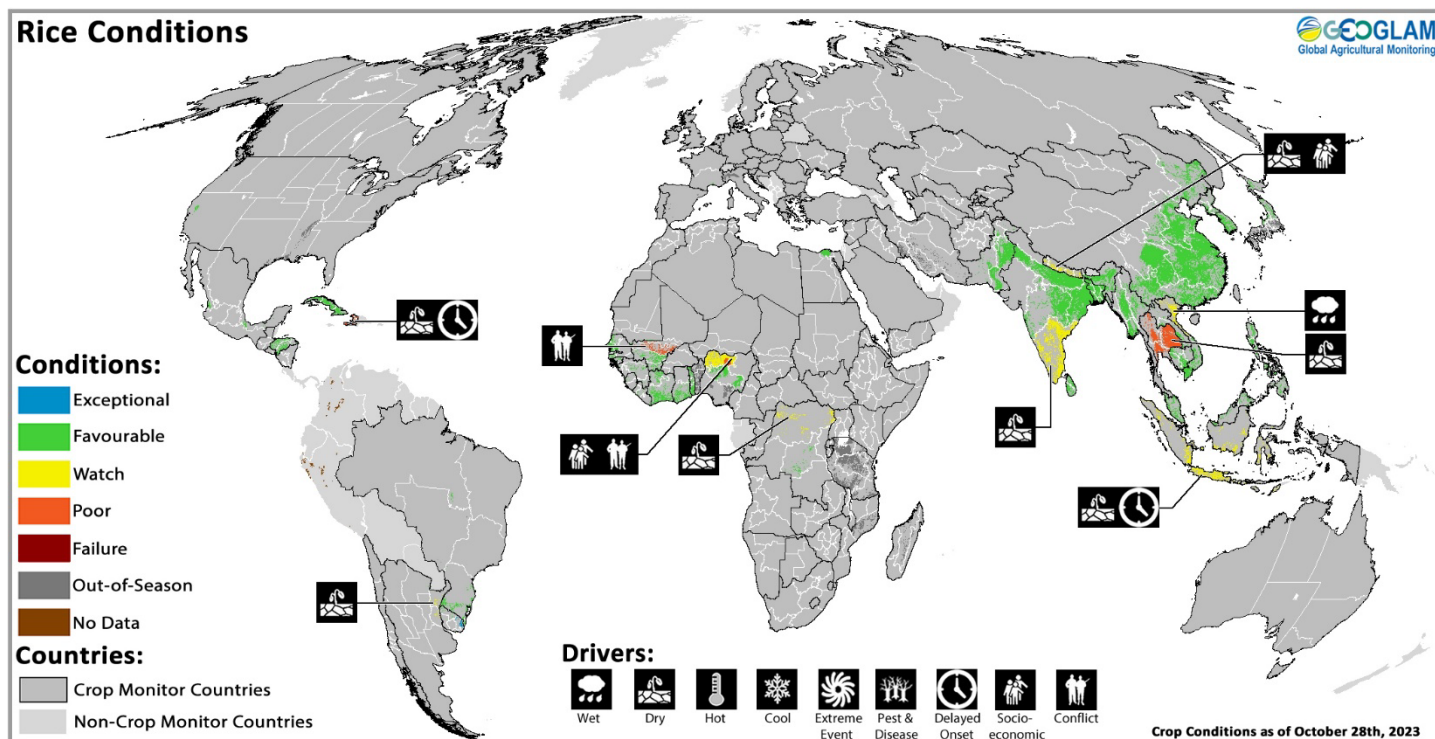
In **North America**, harvesting is ongoing in the US after the crop improved from previous dryness with near-average yields expected. In Canada, harvesting continues under favourable conditions despite localized drought impacts in Manitoba and early-season dryness in Ontario. In **Central America & the Caribbean**, harvesting of the Spring-Summer crop (larger season) in Mexico is beginning under favourable conditions despite earlier below-average rainfall. Conditions for the *Postrera/Segunda* season are mixed across Guatemala, El Salvador, Honduras, and Nicaragua due to persistent hot and dry weather. In Cuba, harvesting of the main season crop is continuing. In Haiti, harvesting of *Été* season crops is ongoing with expected yield declines. In **South America**, sowing of the spring-planted crop (smaller season) in Brazil is ramping up with good soil moisture in the main producing South region. In Argentina, a lack of rainfall is delaying the sowing of the early planted crop (usually larger season) in almost all growing regions. In Uruguay, conditions are favourable as sowing begins albeit delayed due to a lack of rainfall. In **Europe**, conditions are mixed in the EU with exceptional outcomes in France and Hungary, while poor outcomes are expected in Greece due to flood events and in Bulgaria and Romania due to the rainfall deficit and high daily temperatures. In Ukraine, harvesting is underway with a higher yield than last year in non-occupied regions. In the Russian Federation, harvesting finalized under favourable conditions despite dry impacts in the southwest. In **East Asia**, harvesting in China of both the spring and summer-planted crops finalized under favourable conditions despite below-average rains received along the north. In **South Asia**, harvesting conditions of the *Kharif* crop in India are favourable except in the south where delayed and erratic monsoon rains have led to prolonged dry spells. In Sri Lanka, harvesting of the *Yala* season crop finalized under favourable conditions. In **East Africa**, harvesting of the main season crops is ongoing in the north with persistent seasonal dryness impacting South Sudan, northern Uganda, and Ethiopia. In the south, sowing of the secondary season crops is ongoing under mixed conditions due to the residual dryness. In **West Africa**, harvesting of main season crops is complete or nearing completion in all countries. Additionally, second season crops are in the vegetative to reproductive stage along the Gulf of Guinea countries. In **Southern Africa**, sowing is beginning in Angola, Zambia, Zimbabwe, South Africa, eSwatini, and Lesotho, and initial conditions are favourable.

harvesting is underway with a higher yield than last year in non-occupied regions. In the Russian Federation, harvesting finalized under favourable conditions despite dry impacts in the southwest. In **East Asia**, harvesting in China of both the spring and summer-planted crops finalized under favourable conditions despite below-average rains received along the north. In **South Asia**, harvesting conditions of the *Kharif* crop in India are favourable except in the south where delayed and erratic monsoon rains have led to prolonged dry spells. In Sri Lanka, harvesting of the *Yala* season crop finalized under favourable conditions. In **East Africa**, harvesting of the main season crops is ongoing in the north with persistent seasonal dryness impacting South Sudan, northern Uganda, and Ethiopia. In the south, sowing of the secondary season crops is ongoing under mixed conditions due to the residual dryness. In **West Africa**, harvesting of main season crops is complete or nearing completion in all countries. Additionally, second season crops are in the vegetative to reproductive stage along the Gulf of Guinea countries. In **Southern Africa**, sowing is beginning in Angola, Zambia, Zimbabwe, South Africa, eSwatini, and Lesotho, and initial conditions are favourable.



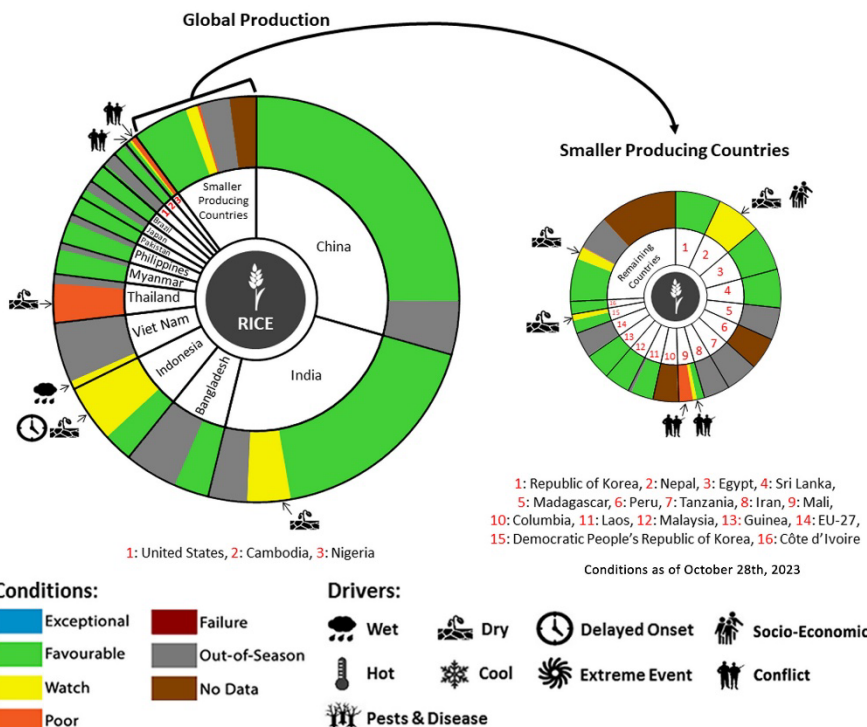
For detailed description of the pie chart, please see box on page 5.

RICE



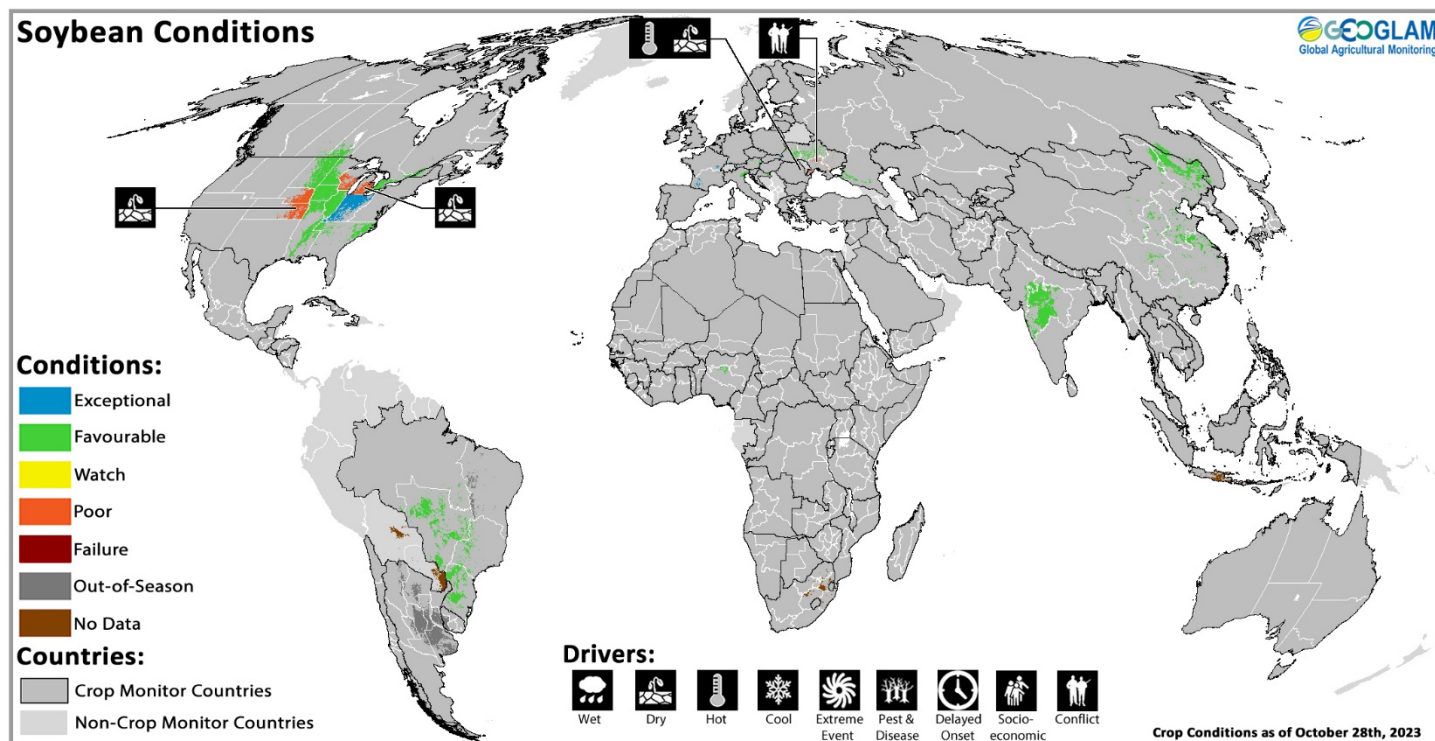
Rice crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of October 28th.

In **East Asia**, harvesting of the single-season crop in China finalized under favourable conditions despite previous dry and hot weather in the south and southwest. In Japan, harvesting finalized under favourable. In the Republic of Korea, harvesting finalized under favourable conditions with an expected yield increase compared to the previous year. However, production will decrease due to a reduction of planted area. In the Democratic People’s Republic of Korea, rice harvesting finalized in October. In **South Asia**, the late monsoon rains in India postponed the start of the Kharif season in the south. Elsewhere, conditions are favourable as harvest begins in the north. In Pakistan, Kharif season rice harvesting is underway. In Bangladesh, conditions are favourable for *Aman* season rice with an increase in production expected due to an increase in sown area and good yields. In Nepal, conditions are mixed due to insufficient rainfall and high input costs. In Sri Lanka, harvesting of the *Yala* season finalized as the sowing of the *Maha* season begins. In **Southeast Asia**, wet-season rice in Indonesia is sowing at a slow pace due to limited rainfall received. Dry-season rice is currently being harvested. In northern Viet Nam, wet-season rice yields are expected to decrease due to heavy rain and flooding in the central region. In the south, the other wet-season (autumn-winter and seasonal) rice is under favourable conditions. In Thailand, conditions have been downgraded due to the impacts of drought early in the season as well as recent prolonged flooding. In the Philippines, wet-season rice conditions are favourable despite two tropical cyclones that brought heavy rains to parts of Luzon. In Myanmar, wet-season rice is under favourable conditions. In Cambodia, sowing of wet-season rice is nearing completion. In Laos, wet-season rice is in the grain filling to early harvesting stage. In Malaysia and Brunei, harvesting of dry-season rice is nearing completion under favourable conditions. In the **Americas**, harvesting finalized in the US. In Mexico, harvesting of the Spring-Summer crop is beginning. In Cuba, harvesting of second-season crops continues. In Haiti, *Printemps* season harvesting finalized under poor conditions. In Brazil, sowing of the mostly irrigated crop continues under favourable conditions. In Uruguay, despite a delayed start, sowing has caught up. In Argentina, sowing is just beginning under mixed conditions due to dryness in the main producing eastern provinces. In **Sub-Saharan Africa**, harvesting of the main season crops is nearing completion with conflict continuing to be an issue in northern Nigeria and Mali.



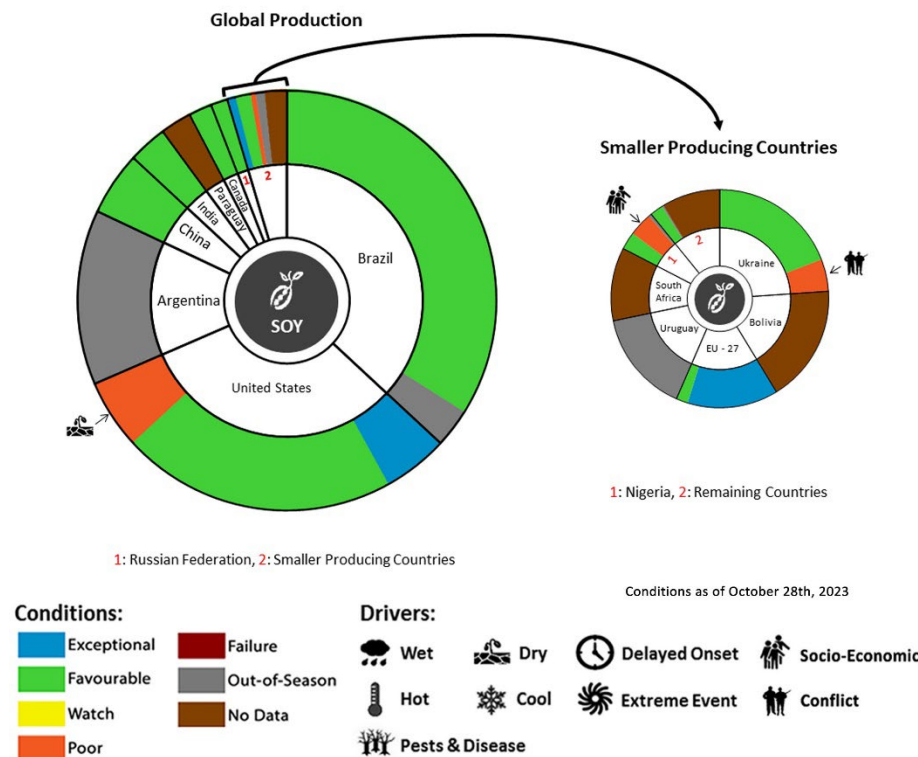
For detailed description of the pie chart, please see box on page 5.

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 October 28th.

In **North America**, harvesting finalized in the US under mixed conditions as pervasive dryness impacted some north-central areas, though yields are expected to be average at the national level. In Canada, harvesting continues under favourable conditions with improvement in Quebec despite crop disease in some fields. In **South America**, sowing activities are slightly delayed in Brazil due to excessive rains in the South region and limited precipitation in irrigated areas, but conditions remain favourable. In **Europe**, harvesting is finalized in the EU under generally favourable conditions with above-average yields expected in Hungary, Slovakia, and France. Conversely, poor yields resulted in Romania due to persistent precipitation deficits and heat stress in the main producing southern regions since early August. In Ukraine, harvesting is mostly complete under favourable conditions except in conflict-affected areas. In the Russian Federation, harvesting continues under favourable conditions. In **Asia**, harvesting finalized in China under favourable conditions with improvement in the south and southwest. In India, following a dry spell in August, enhanced rains in September led to crop recovery. In **Africa**, conditions are favourable in central Nigeria, however, the ongoing conflict remains an issue in the northern states.



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.

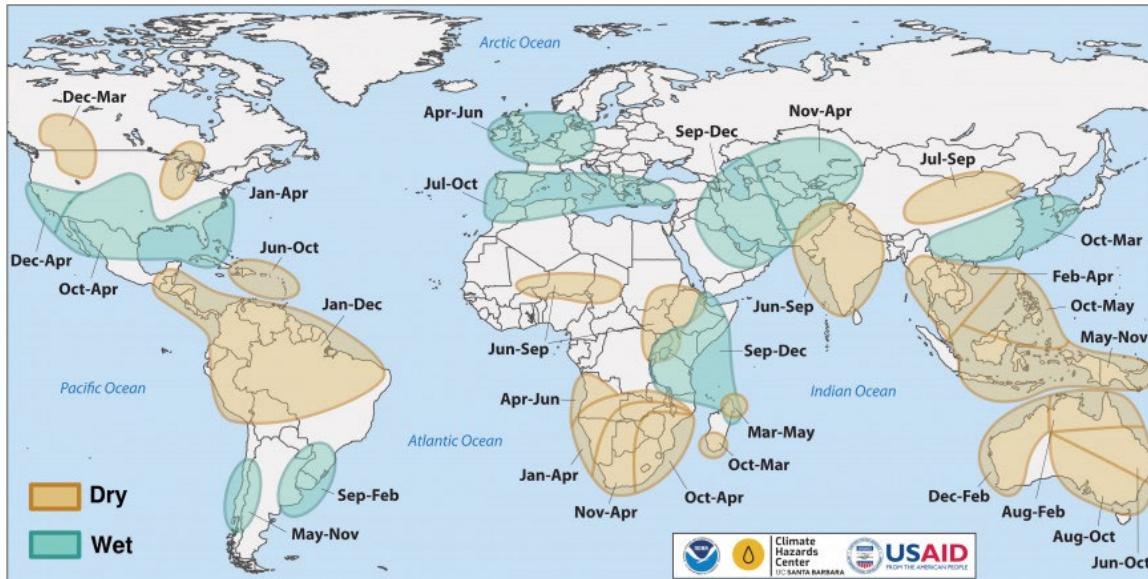
Global Climate Influences

The ongoing El Niño event will likely reach a strong level of intensity during November 2023 to January 2024 (75 percent chance), then weaken and remain active into March to May 2024 (80 percent chance), according to the IRI/CPC forecast.

El Niño events tend to enhance precipitation in Central Asia, southern North America, south-eastern South America, east and southern East Africa, and south-eastern China. Drier-than-average conditions tend to occur in Central America, northern South America, parts of the northern U.S. and Canada, Southern Africa, Northern China, the Maritime Continent, and Australia.

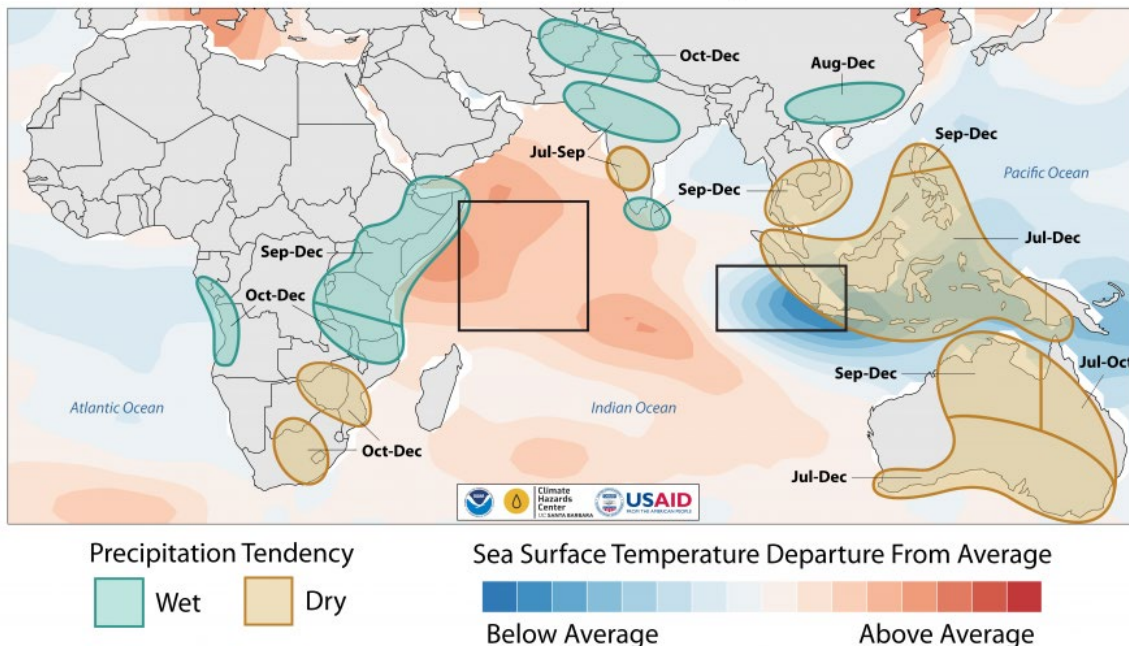
The ongoing positive Indian Ocean Dipole (IOD) event increased to a strong level of intensity during recent weeks. The IOD will likely remain positive through at least December, according to the Australian Bureau of Meteorology. These conditions tend to enhance the drying influences of El Niño in Australia and the Maritime Continent, and substantially increase the chances of a wet and intense East Africa short rains season.

Source: UCSB Climate Hazards Center



Location and timing of likely above- and below-average precipitation related to El Niño events. Based upon observed precipitation during 22 El Niño events since 1950, Source: [FEWS NET & NOAA & CHC](#)

Positive Indian Ocean Dipole



Location and timing of wet and dry conditions based on precipitation during positive IOD events during 1960–2020, The IOD-related sea surface temperatures are based on a linear regression between the Dipole Mode Index and sea surface temperature for July to September. Source: [FEWS NET & NOAA & CHC](#)

Regional Outlooks

Both the short-term (two-week) and the long-term November–December–January 2023–2024 forecast (Figures 3 & 4) are influenced by the currently ongoing El Niño and positive Indian Ocean Dipole (IOD) events.

In **North America**, the two-week forecast (Figures 1 & 2) indicates potential areas of below-average precipitation over the Canadian west coast and the northern Prairies, while above-average precipitation in the US southeast. During the same time, temperatures are likely to be above-average over much of the US, while below-average over northern Quebec in Canada. The long-term November–December–January 2023–2024 forecast (Figures 3 & 4) shows a leaning of above-average precipitation over the US Southeast and Mid-Atlantic regions. During the same time, temperatures are slightly leaning toward being above-average across all of North America, with the highest probability over eastern Canada. 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 central Mexico, while likely above-average precipitation in eastern Mexico, eastern Cuba, and the Dominican Republic. During the same period, temperatures are likely to be above-average across the region, except for along the Gulf coast in Mexico and in Honduras. The long-term November–December–January 2023–2024 forecast (Figures 3 & 4) suggests above-average precipitation in Cuba and Haiti. During this time, temperatures are highly likely to be above-average across the entire region. For further details, see the [CM4EW](#) Regional Outlook on Central America & the Caribbean.

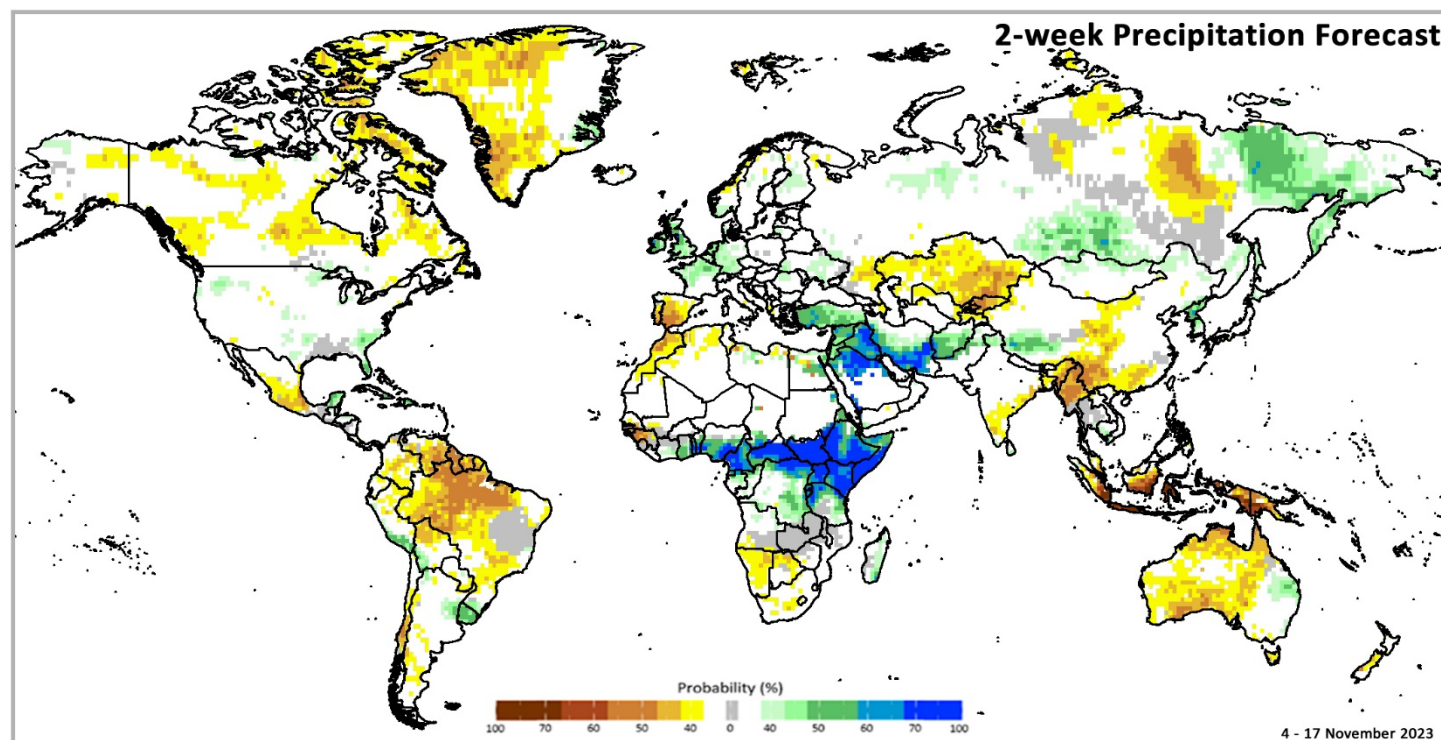


Figure 1: IRI SubX Precipitation Biweekly Probability Forecast for 4 – 17 November 2023, issued on 27 October 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](#)

In **South America**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over central Columbia, Venezuela, Guyana, Suriname, French Guiana, northern and northwest Brazil, northern Bolivia, and central Chile, while above-average over southern Peru, western Bolivia, Uruguay, and central east Argentina. During this time, temperatures are likely to be above-average across most of the continent. The long-term November–December–January 2023–2024 forecast (Figures 3 & 4) suggests likely below-average precipitation across eastern Venezuela, Guyana, Suriname, French Guiana, central and northern Brazil, Bolivia, and Chile, while above-average over western Ecuador, southern Brazil, Uruguay, and central Argentina. During that time, temperatures will highly likely be above-average over the majority of the continent except for southern Chile, Argentina, and Uruguay. For further details, see the [CM4AMIS](#) Regional Outlook for Argentina and Brazil.

In **Europe**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over Portugal, Spain, and the southern regions of the Russian Federation, while above-average over Ireland, the UK, northern France, Belgium, the Netherlands, western Germany, and Türkiye. During this time, temperatures are leaning to be above-average across most of Europe. The long-term November-December-January 2023-2024 forecast (Figures 3 & 4) indicates a slight leaning towards above-average precipitation across Europe. During the same period, temperatures are leaning above-average across most of Europe, with a higher likelihood over Spain, Portugal, and southern Italy.

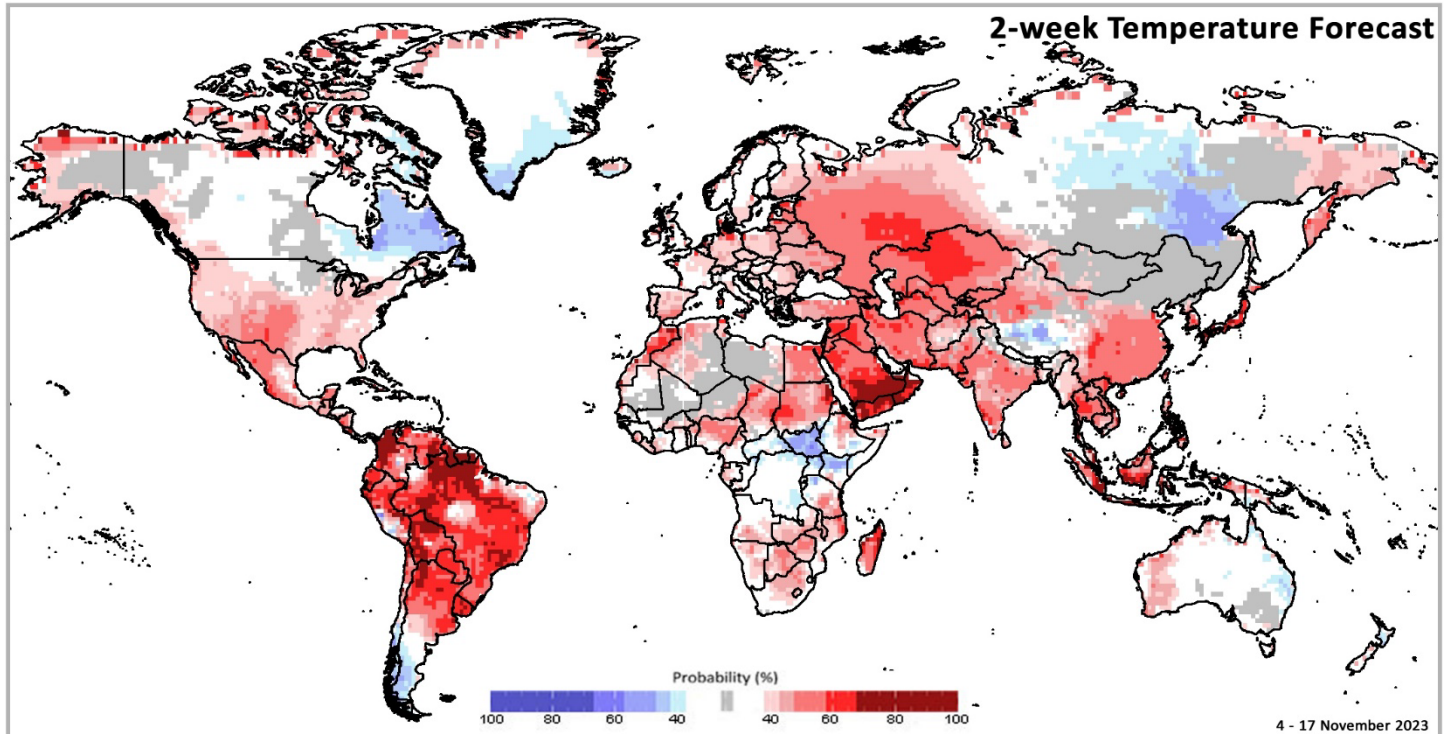


Figure 2: IRI SubX Temperature Biweekly Probability Forecast for 4 – 17 November 2023, issued on 27 October 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](#)

In **MENA**, the two-week forecast (Figures 1 & 2) indicates a likelihood of below-average precipitation over Morocco, and Algeria, while above-average over parts of Egypt, Jordan, Saudi Arabia, Iraq, Syria, and southern Iran. During this time, temperatures are likely to be above-average over Morocco, Algeria, Tunisia, Egypt, Jordan, Saudi Arabia, Iraq, Syria, and southern Iran. The long-term November-December-January 2023-2024 forecast (Figures 3 & 4) indicates likely above-average precipitation over Syria, Iraq, Saudi Arabia, and Iran. During this time, temperatures are highly likely to be above-average across the entire region.

In **Sub-Saharan Africa**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over southern Senegal Guinea-Bissau, western Guinea, Namibia, and northern Botswana, while above-average Togo, Benin, southern Nigeria, Cameroon, southern Chad, the Central African Republic, South Sudan, northern DRC, Ethiopia, Eritrea, Somalia, Kenya, Uganda, northern Tanzania, Rwanda, and Burundi. At the same time, temperatures are likely to be above-average in Sierra Leone, Liberia, northern Benin, Nigeria, Chad, Sudan, central Ethiopia, southern Angola, Zambia, southern Tanzania, Malawi, northern Mozambique, Zimbabwe, Botswana, Namibia, central South Africa, and Madagascar, while below-average over South Sudan, Uganda, northern Kenya, and northern Tanzania. For the long-term November-December-January 2023-2024 forecast (Figures 3 & 4), precipitation is likely to be above-average across southern West Africa across to Somalia and Tanzania, with the highest probabilities over Cameroon, eastern DRC, southern South Sudan, Uganda, southern Ethiopia, Kenya, Somalia, and Tanzania. During this time, temperatures are highly likely to be above-average across all of Sub-Saharan Africa except for Kenya, Uganda, and northeast Tanzania. For further details, see the [CM4EW](#) regional outlook for East Africa.

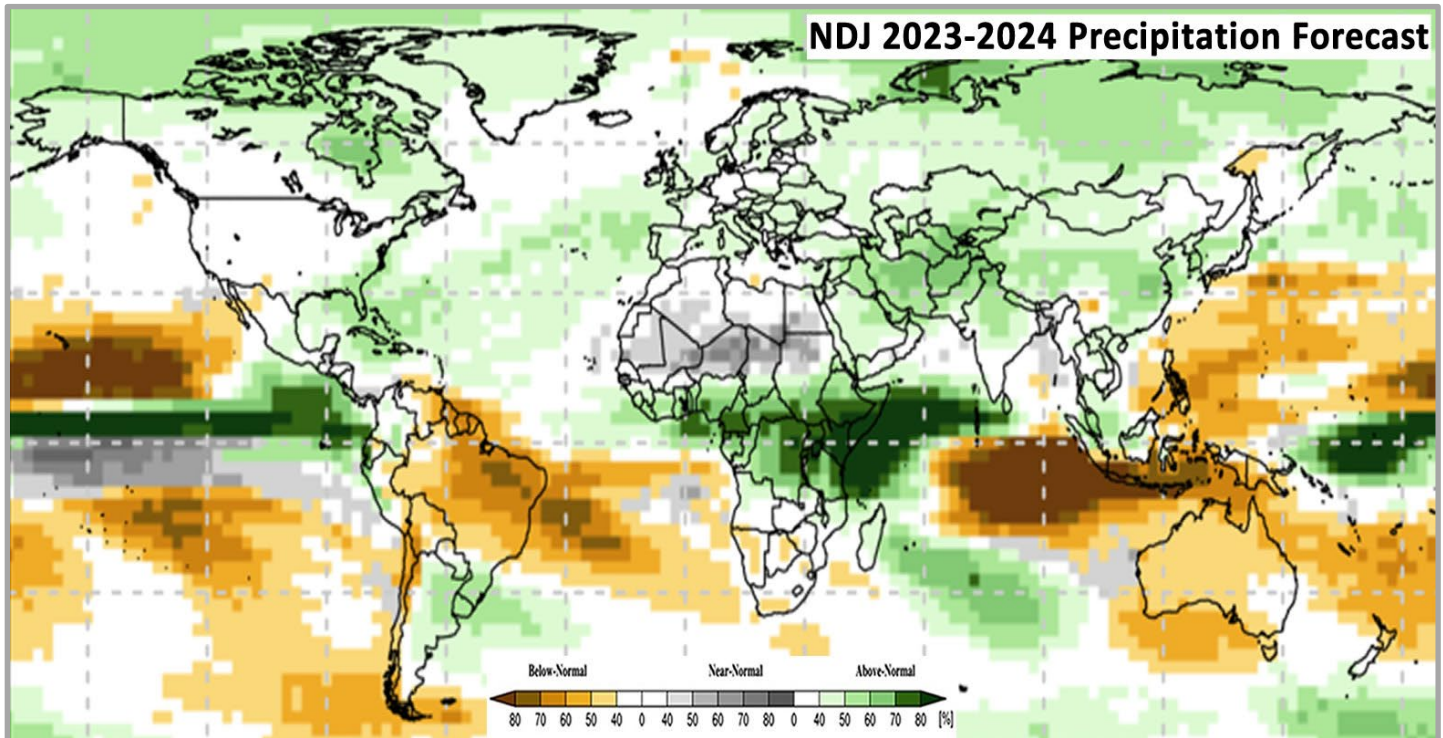


Figure 3: Probabilistic forecast for most likely November–December–January (NDJ) 2023–2024 rainfall tercile, based on October conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: [WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble](#)

In **Central Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over Kazakhstan, Kyrgyzstan, and Tajikistan, while above-average over Afghanistan. During this time, temperatures are likely to be above-average across the region. The long-term November–December–January 2023–2024 forecast (Figures 3 & 4) indicates likely above-average precipitation over the region. At the same time, temperatures are leaning above-average across the entire region. For further details, see the [CM4EW](#) regional outlook for Central and Southern Asia.

In **South Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over southern and eastern India and Bangladesh, while above-average over western Pakistan. During this time, temperatures are likely to be above-average over most of the region. The long-term November–December–January 2023–2024 forecast (Figures 3 & 4) indicates above-average precipitation over Pakistan, northern and central India, western Nepal, and Sri Lanka. At the same time, temperatures are highly likely to be above-average across the region. For further details, see the [CM4EW](#) regional outlook for Central and Southern Asia.

In **East Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over parts of central and southern China, while above average over the Democratic People's Republic of Korea and northern Republic of Korea. During this time, temperatures are likely to be above-average across northwest and southeast China, the Republic of Korea, and Japan. The long-term November–December–January 2023–2024 forecast (Figures 3 & 4) indicates a leaning to above-average precipitation over most of China, the Republic of Korea, the Democratic Republic of Korea. During that time, temperatures are highly likely to be above-average across the entire region.

In **Southeast Asia & Oceania**, the two-week forecast (Figures 1 & 2) indicates a leaning towards below-average precipitation in eastern Myanmar, Indonesia, Papua New Guinea, and most of Australia, while likely above-average precipitation over Queensland Australia. During this time, temperatures are likely to be above-average over eastern Myanmar, Thailand, Laos, Cambodia, Vietnam, the Philippines, Malaysia, Indonesia, Papua New Guinea, and western Australia, while below-average over southern Queensland Australia. The long-term November–December–January 2023–2024 forecast (Figures 3 & 4) indicates below-average precipitation over the Philippines, Indonesia, Papua New Guinea, Australia, and northern New Zealand, while above-average western Malaysia. During the same time, temperatures are likely to be above-average across the entire region.

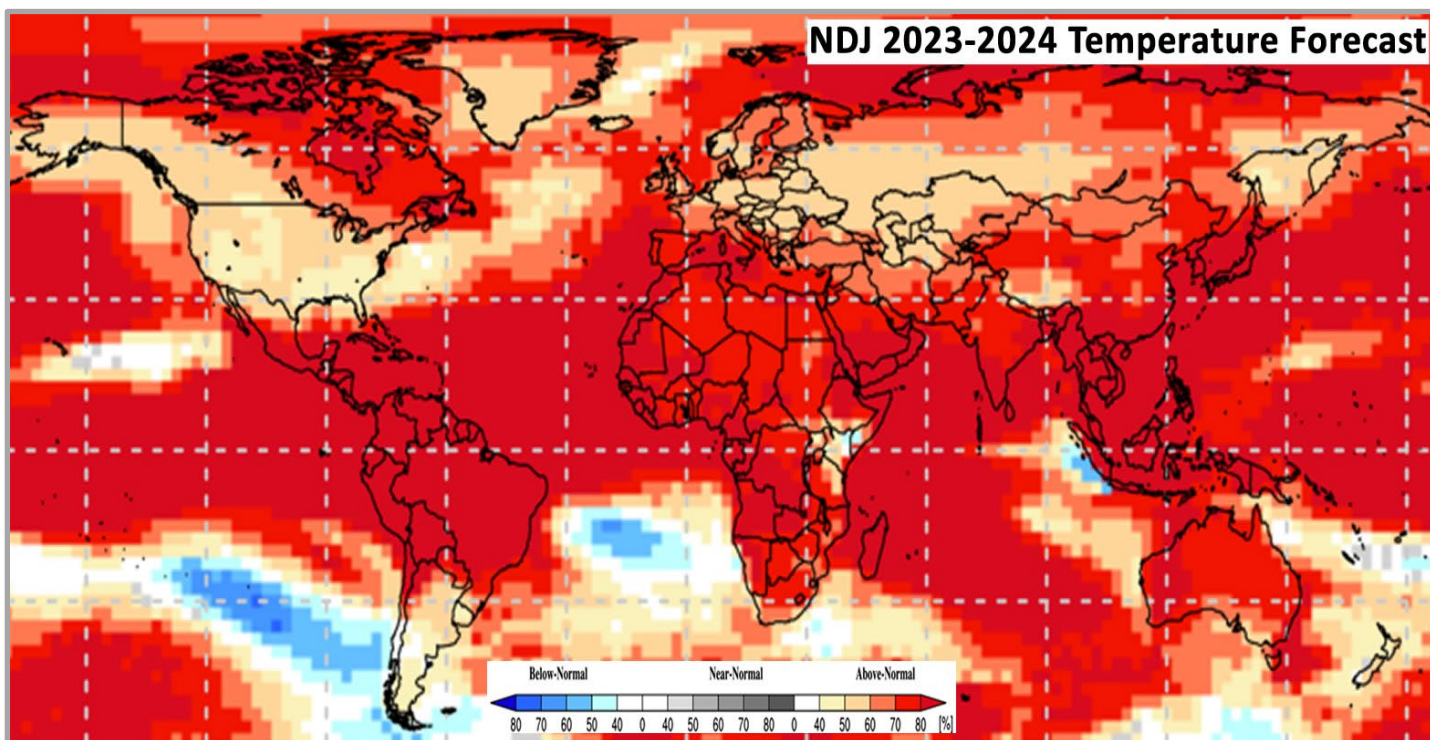


Figure 4: Probabilistic forecast for most likely November–December–January (JAS) 2023–2024 temperature tercile, based on October conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: [WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble](https://www.wmo.int/en/lead-centre-for-long-range-forecast)



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).