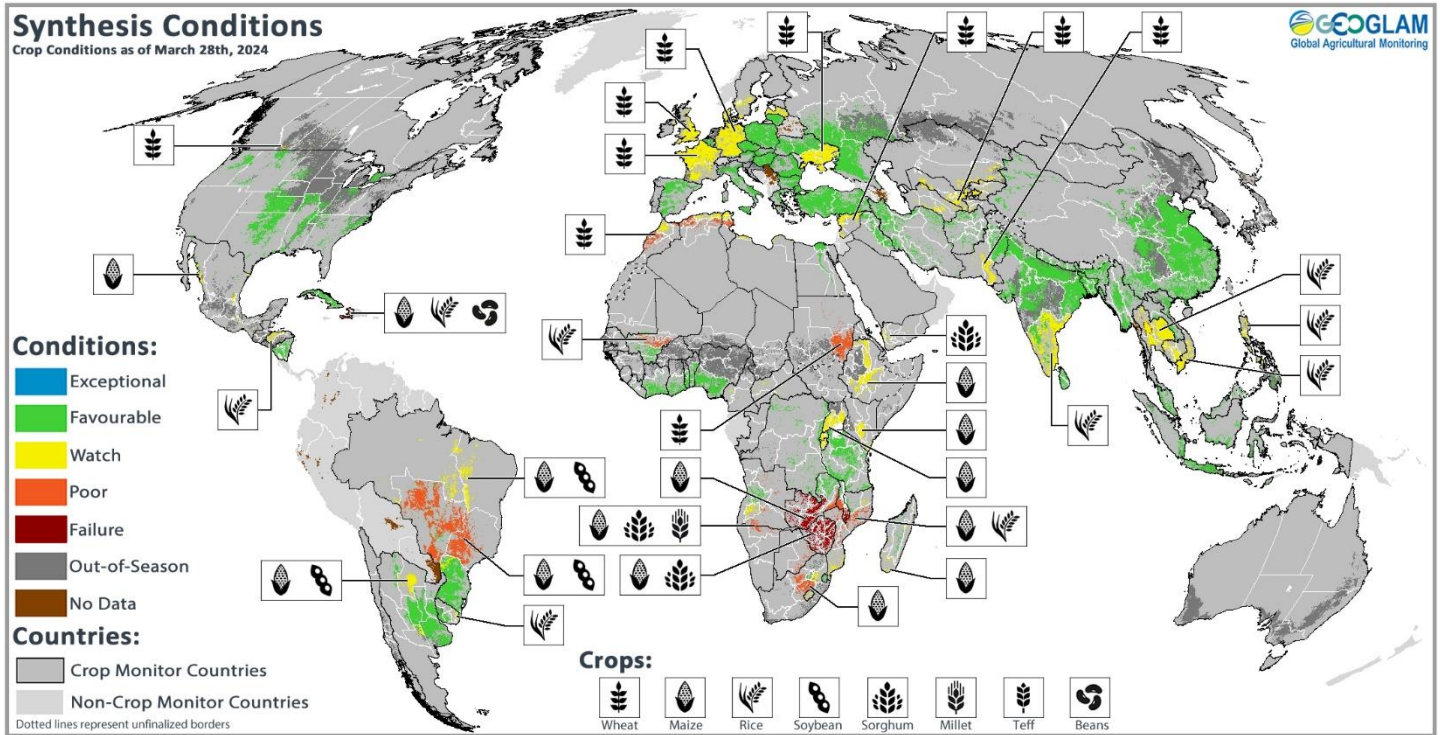


GEOGLAM Global Crop Monitor

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 March 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 labelled 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					Worse
					Mixed
					Negative

See Appendix I for detailed methodology description

Global Crop Overview

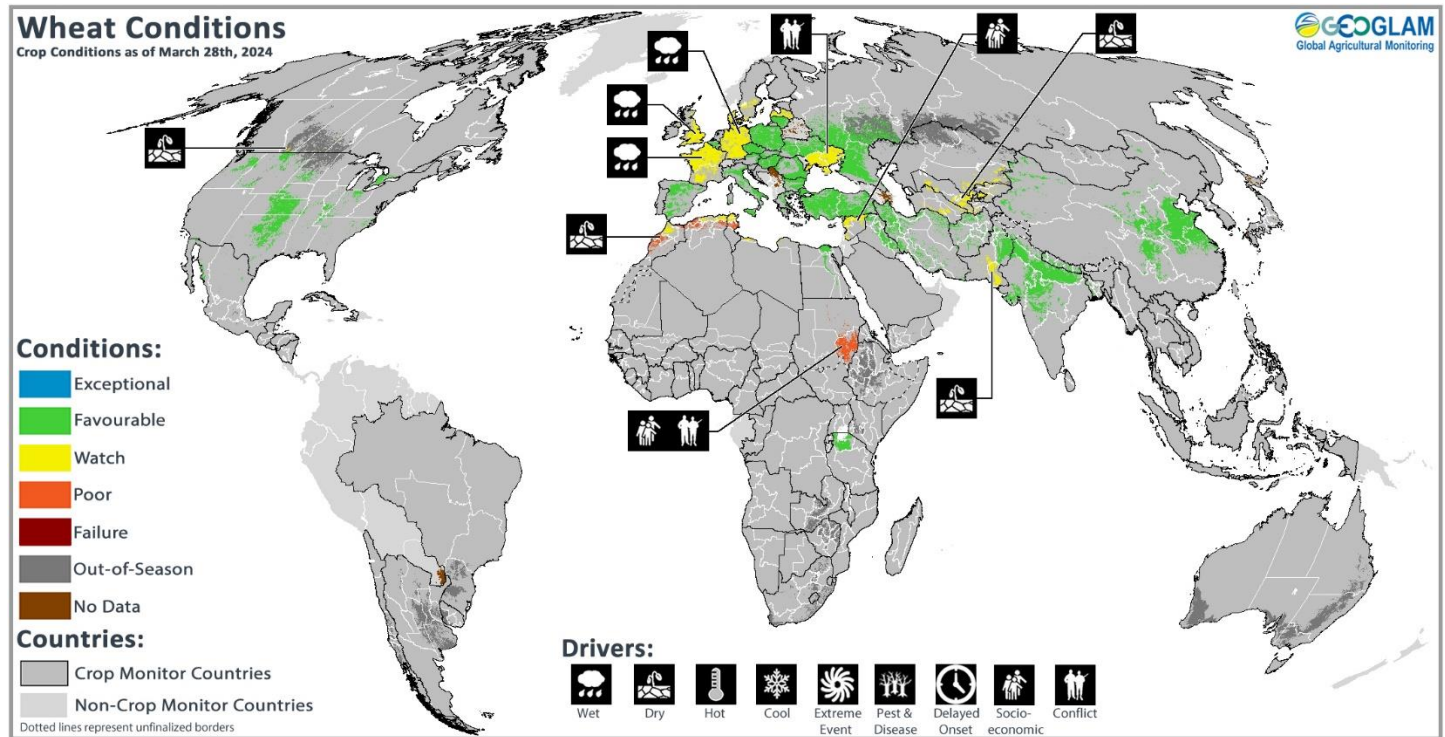
Global crop conditions at the end of March are mixed for wheat, maize, and rice, while negative for soybeans. For **wheat**, areas of concern are in Europe, North Africa, and Central Asia. For **maize**, areas of concern are in South America, Southern Africa, and East Africa. For **rice**, dry conditions are a concern in southern India and northern Southeast Asia. For **soybeans**, hot and dry weather has negatively impacted crops in Brazil and parts of Argentina. The remaining crops are covered in the [CM4EW](#) publication.

Global Climate Influences

The ongoing El Niño event is weakening, and neutral ENSO conditions are likely by April to June (83% chance). A quick shift to persistent La Niña conditions is anticipated. The CPC/IRI predicts a 75% chance of La Niña by July to September 2024, and chances remain high throughout the forecast period. For further details, see [page 6](#).

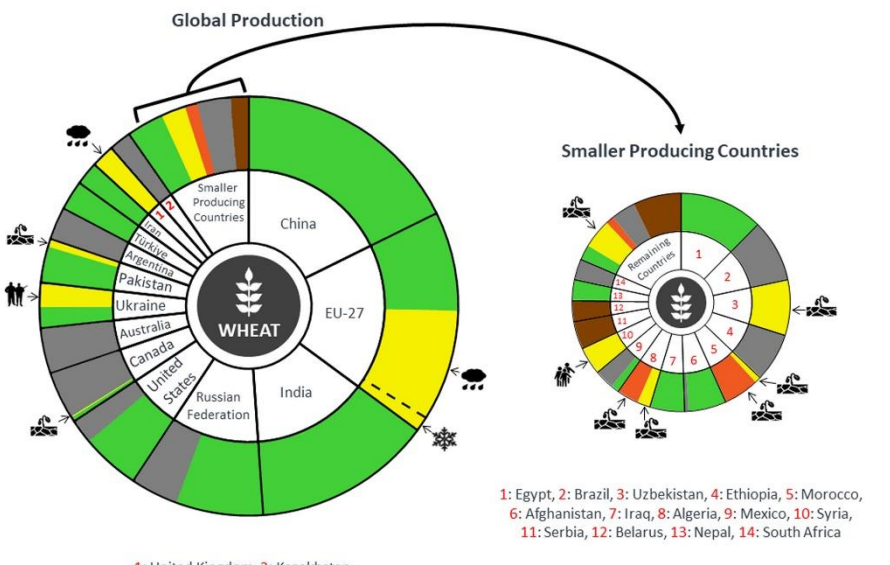
Source: UCSB Climate Hazards Center

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 March 28th.

In **North America**, improving soil moisture across the US during the winter months is supporting winter wheat as it begins breaking dormancy. In Canada, winter wheat conditions are generally favourable, however, dry conditions remain across much of the Prairies. In Mexico, conditions are favourable for winter wheat. In **Europe**, adverse winter weather in the EU has negatively impacted crops, resulting in plans for resowing in the north and reduced yield potential in the south. However, since February, crop conditions have improved in some countries, supporting a near-average yield forecast for the EU as a whole. In the UK, continuing excessive rainfall is a concern. In Türkiye, crop development is ahead of average owing to a mild winter and ample rainfall. In Ukraine, a very warm February and March with supportive soil moisture conditions have resulted in the regrowth of winter wheat a month earlier than usual, however, the active warzone in the south and east remains a concern for agriculture. In the Russian Federation, winter wheat conditions remain stable with additional precipitation forecast for the next two weeks. In **Central Asia**, increased rains over the past month have slightly improved vegetation conditions, mostly in southern Kazakhstan and Tajikistan. Conditions remain favourable in Afghanistan due to enhanced rainfall from late February. In **South Asia**, harvesting has begun in India under favourable conditions. In Pakistan, conditions are generally favourable except in the minor-producing rainfed areas known as the Barani due to dry conditions. There is an increase in the total sown area this year. In Nepal and Bangladesh, harvesting begins under favourable conditions. In **East Asia**, winter wheat conditions are favourable in China as spring wheat sowing begins. In **MENA**, wheat continues to develop under mixed conditions. In Morocco, Algeria, and Tunisia, crops are almost entirely rainfed, and yields are expected to be below-average due to a mix of dry and hot conditions for the third year in a row. In Egypt, conditions are favourable. In Syria and Libya, agro-climatic conditions are more favourable, however, socio-economic concerns remain. In Iraq and Iran, good rainfall outcomes continue to benefit crop growth with generally near-average yields expected. In **East Africa**, harvesting is beginning in Sudan with below-average yields expected as a result of the persisting insecurity and macroeconomic issues.



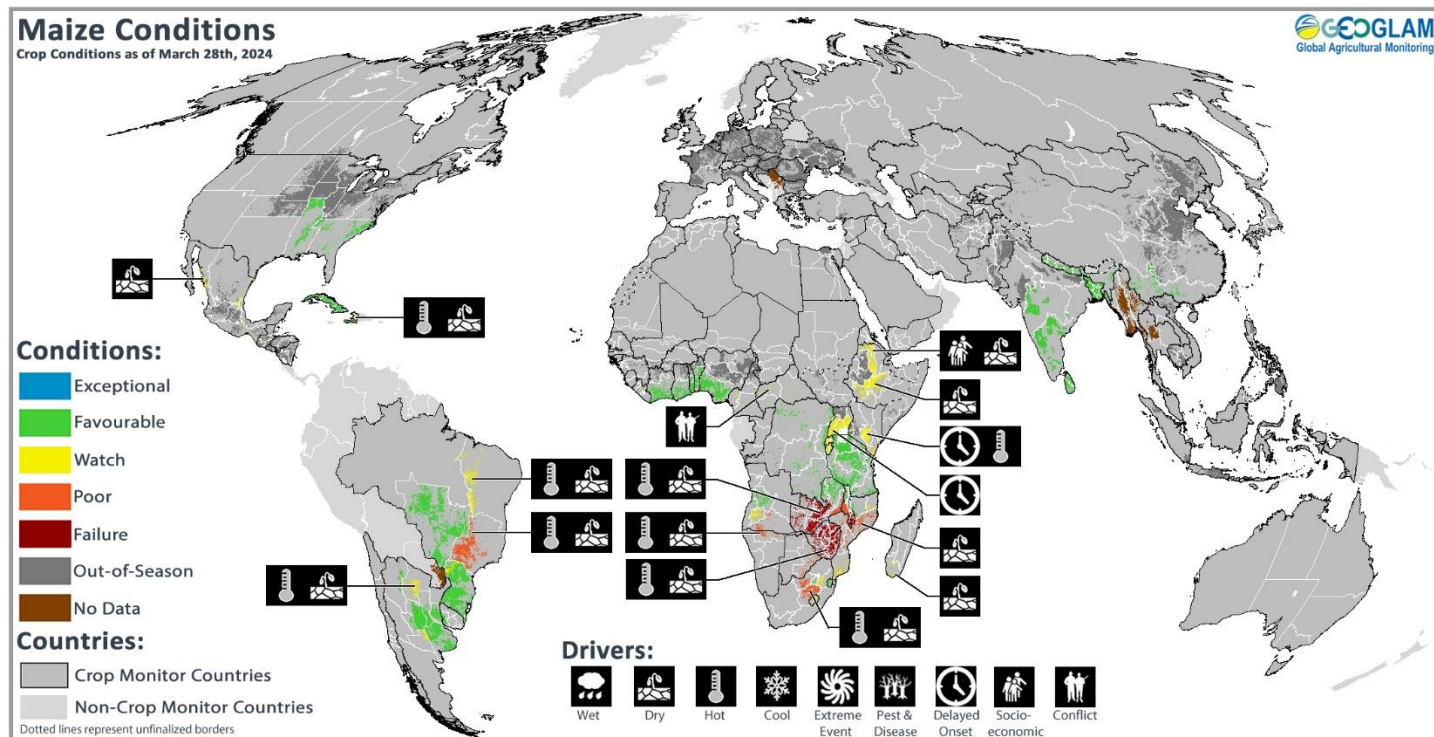
1: United Kingdom, 2: Kazakhstan



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

* Assessment based on information as of March 28th, 2024

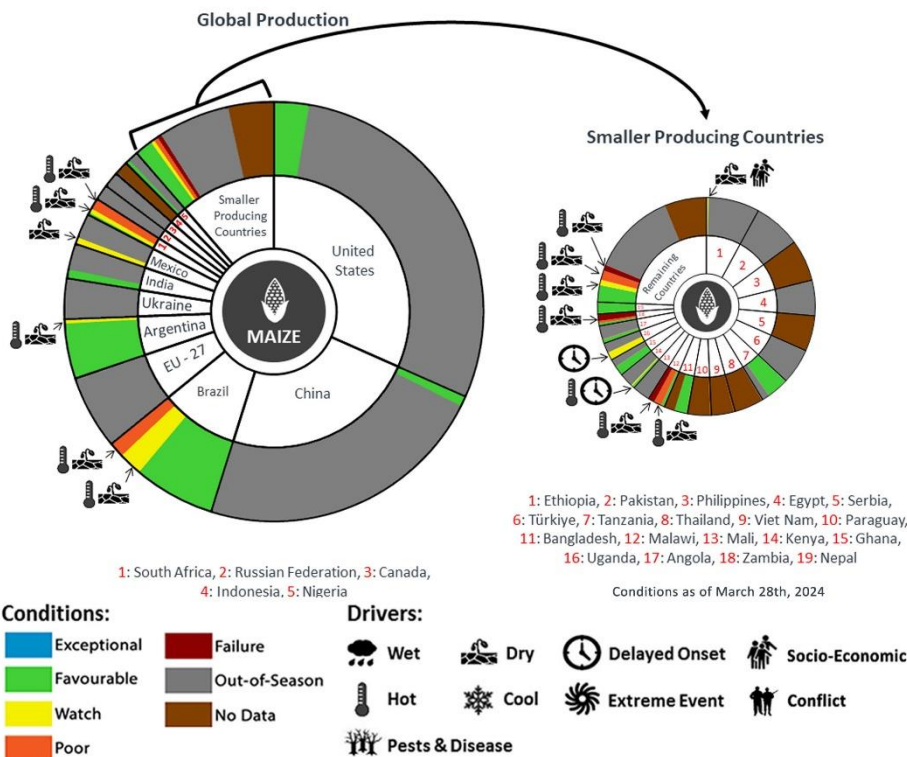
MAIZE



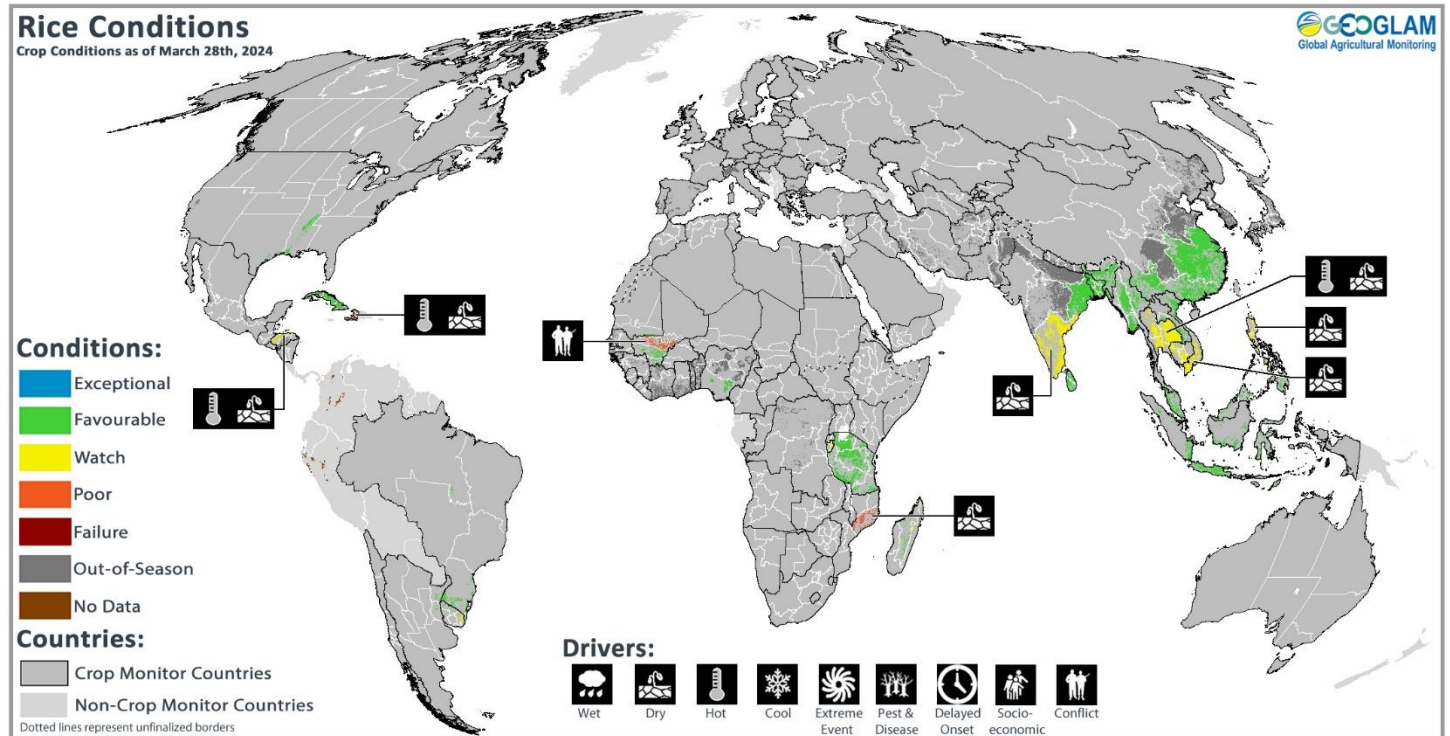
Maize crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of March 28th.

In **South America**, harvesting is progressing in Brazil for the spring-planted crop (smaller season) under mixed conditions, particularly in the Southeast region, where yields are significantly reduced due to an earlier lack of rainfall and high temperatures. Sowing of the summer-planted crop (larger season) is wrapping up with developing concerns in the southeast and south regions due to irregular rainfall and high temperatures. In Argentina, widespread rains are delaying the harvest of the early-planted crop (larger season), while conditions remain generally favourable for the late-planted crop (smaller season), albeit with growing concern due to incidences of pests and diseases (leafhopper and Spiroplasma). In Uruguay, harvesting is ongoing under favourable conditions. In **Central America & the Caribbean**, dry conditions remain a concern in Mexico for the Autumn-winter season (smaller season) due to reduced irrigation water reserves. In Cuba, harvesting of main-season maize began in early March, and production is expected to increase from the previous year due to adequate weather outcomes and increased fertilizer availability. In Haiti, dry conditions are impacting the sowing of the *Primtemps* season. In **North America**, sowing is beginning in the US. In **Asia**, conditions are favourable in India for the *Rabi* (smaller season) crop. In Bangladesh, harvesting is ongoing for the winter crop (larger season) and the sowing of the summer crop (smaller season) begins. In Sri Lanka, harvesting of *Maha*

season crops wrapped up under favourable conditions. In China, the sowing of spring maize is beginning in the south. In **East Africa**, sowing of *Belg* season crops continues in Ethiopia with concern due to insufficient rainfall and soil moisture conditions. Sowing of main season crops is now underway in bimodal and minor producing areas of Kenya, bimodal areas of Uganda, Burundi, and Rwanda, and with concern due to delayed rainfall onset and early season dry conditions. In Tanzania, the sowing and development of *Masika* season crops continue under favourable conditions. In **Southern Africa**, hot and dry conditions in South Africa have dominated since mid-January over a large part of the summer grain production region and have had a major negative impact on crops, particularly in the provinces of Free State and North West. Persistent hot and dry conditions experienced throughout much of the season have resulted in failure conditions in southern Malawi, part of Zambia, and Zimbabwe and are expected to result in below-average yields across much of the region including in south and eastern Angola, Namibia, Botswana, parts of Zimbabwe, parts of Zambia, central Malawi, and central Mozambique.

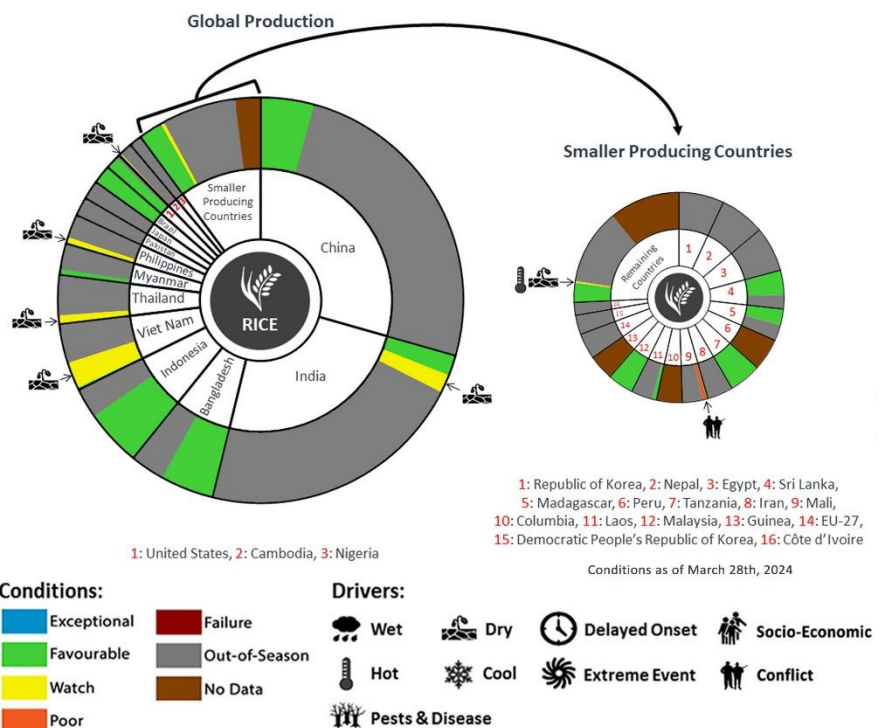


RICE



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 March 28th.

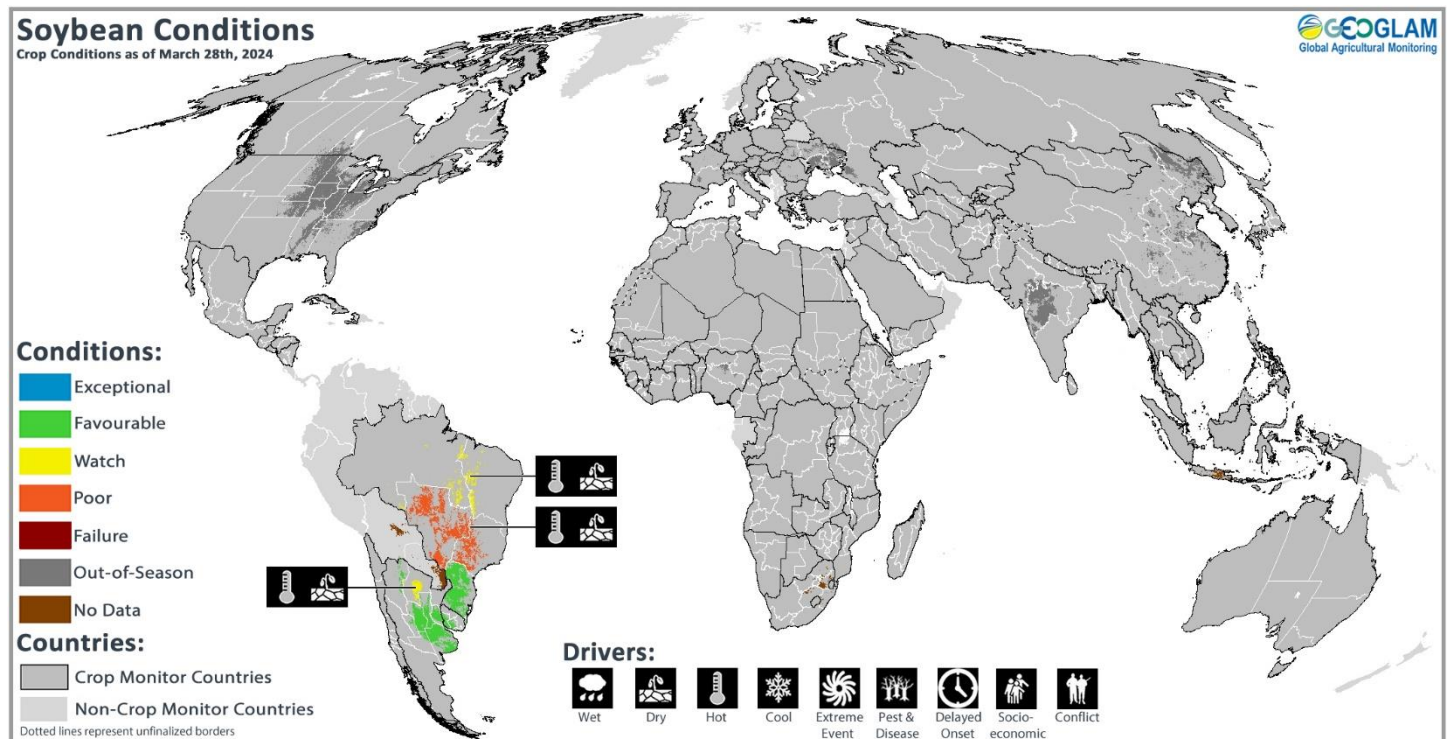
In **South Asia**, harvesting for the *Rabi* crop (smaller season) is beginning under generally favourable conditions, except in the southern states due to reduced water availability during sowing and the season. In Bangladesh, conditions are favourable for the development of the *Boro* crop (largest season) and as sowing begins for the *Aus* crop (smallest season). In Sri Lanka, harvesting of *Maha* season crops wrapped up under favourable conditions. In **East Asia**, conditions are favourable in China as the sowing of the early-planted crop begins. In **Southeast Asia**, the total sown area for wet-season rice in Indonesia is below last season's, however, intensive rainfall in February and March may encourage further sowing past the traditional end. The harvesting of earlier sown crops continues under favourable conditions. In Viet Nam, dry-season rice (winter-spring rice) sowing is continuing in the north, while in the south, harvesting of dry-season rice (winter-spring rice) is ongoing under mixed conditions due to saltwater intrusion in the Mekong Delta caused by dry weather. In Thailand, hot and dry conditions are negatively impacting crop development for dry-season rice. In the Philippines, below-average rainfall is affecting dry-season rice across most of the country except in Mindanao. In Myanmar, conditions are favourable with a slight reduction in the total sown area this year. In Cambodia, dry-season rice is being negatively impacted by hot and dry conditions. In Laos, the sowing of dry-season rice is wrapping up under favourable conditions. In Malaysia, harvesting of wet-season rice is ongoing as the sowing of dry-season rice begins. In Brunei, around 80 percent of irrigated areas and 40 percent of rainfed areas have been harvested. In the **Americas**, sowing has begun in the southern US. In Cuba, second-season rice is under favourable conditions. In Haiti, harvesting of second-season rice wraps up under poor conditions. In Brazil, harvesting continues under favourable conditions. In Uruguay, harvesting is ongoing albeit slowly due to excessive rainfall. In Argentina, harvesting is ongoing. In **Sub-Saharan Africa**, conflict continues to be an issue in northern Mali as dry conditions impact crops in Mozambique.



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

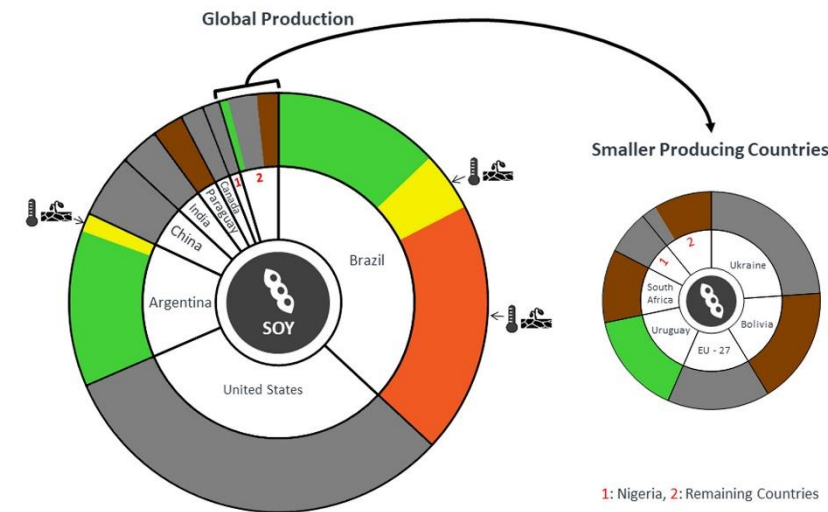
* Assessment based on information as of March 28th, 2024

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 March 28th.

In **South America**, harvesting continues in Brazil under mixed conditions with yields below-average in the Central-West, Southeast, Northeast, and North regions due to a lack of rain and high temperatures during crop development. In the Central-West and Southeast regions, harvesting is further advanced and with the lowest yields, while in the Northeast and North regions, harvesting is not as far advanced and the negative impact on yields is smaller so far. In Argentina, abundant rains since mid-March have supported crop development and recovery from earlier dry conditions. Harvest is slowly beginning for the early-planting crop (typically larger season) with good yields as the late-planted crop (typically smaller season) enters the reproductive stages. In Uruguay, conditions are favourable with good water availability.



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.

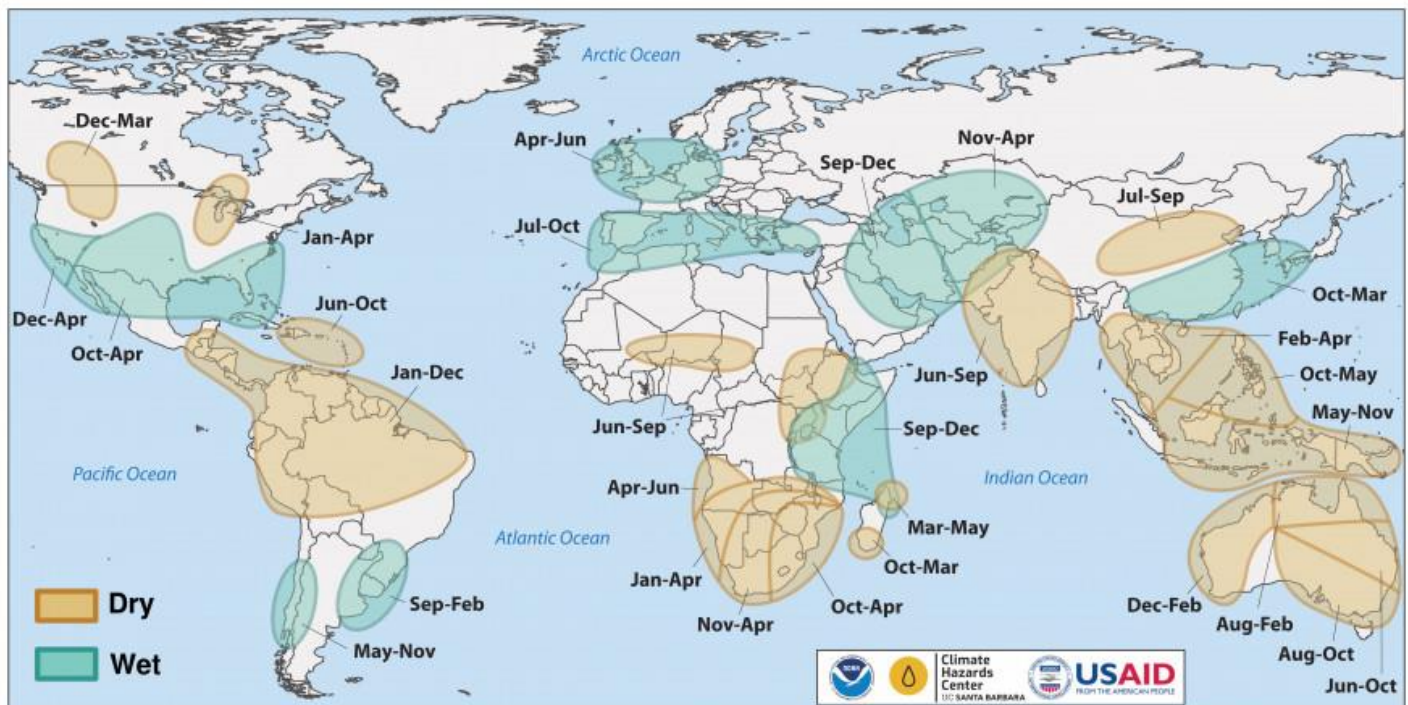
Global Climate Influences

The ongoing El Niño event is weakening, and neutral ENSO conditions are likely by April to June (83% chance). A quick shift to persistent La Niña conditions is anticipated. The CPC/IRI predicts a 75% chance of La Niña by July to September 2024, and chances remain high throughout the forecast period.

Globally, record-high temperatures in the latter half of 2023 and 2024 reflect the influences of the strong 2023-2024 El Niño and climate change. Heat extremes will very likely continue during 2024. Abnormally dry and hot conditions during mid-season development can particularly harm crops, as has been ongoing in parts of South America since July 2023 and most recently during March and March of Southern Africa’s current main growing season.

Related to current El Niño conditions, drier-than-average conditions may continue in Southern Africa, Southeast Asia, the northern Maritime Continent, and parts of South America. La Niña conditions, if these develop, would continue a multi-year pattern of climate extremes. The strong and impactful 2023-2024 El Niño was preceded by three years of La Niña and associated multi-year droughts, especially in eastern East Africa, central-southern Asia, and southern South America.

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

Regional Outlooks

Both the two-week (Figures 1 & 2) and the long-term April-May-June 2024 forecasts (Figures 3 & 4) are influenced by the currently ongoing El Niño event along with a warming global climate.

In **North America**, the two-week forecast (Figures 1 & 2) indicates potential areas of below-average precipitation over the northern Prairies in Canada, and the US Pacific coast, while potential areas of above-average precipitation over the pockets of the US south and mid-west. During the same time, temperatures are likely to be above-average over all of Canada and the northern US. The long-term April-May-June 2024 forecast (Figures 3 & 4) shows a leaning toward above-average precipitation over the US east coast. During the same time, temperatures are likely to be above-average across both Canada and the US. For further details, see the [CM4AMIS](#) Regional Outlook for the US.

In **Central America & the Caribbean**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over southern Mexico, while above-average over eastern Nicaragua, Costa Rica, and Panama. During the same period, temperatures are likely to be above-average over central and southern Mexico, Guatemala, Nicaragua, and Costa Rica. The long-term April-May-June 2024 forecast (Figures 3 & 4) suggests below-average precipitation over most of Mexico, while above-average precipitation over El Salvador, Honduras, Nicaragua, Costa Rica, and Panama. During this time, temperatures are highly likely to be above-average across most of the region except for western Mexico. For further details, see the [CM4AMIS](#) Regional Outlook for Mexico.

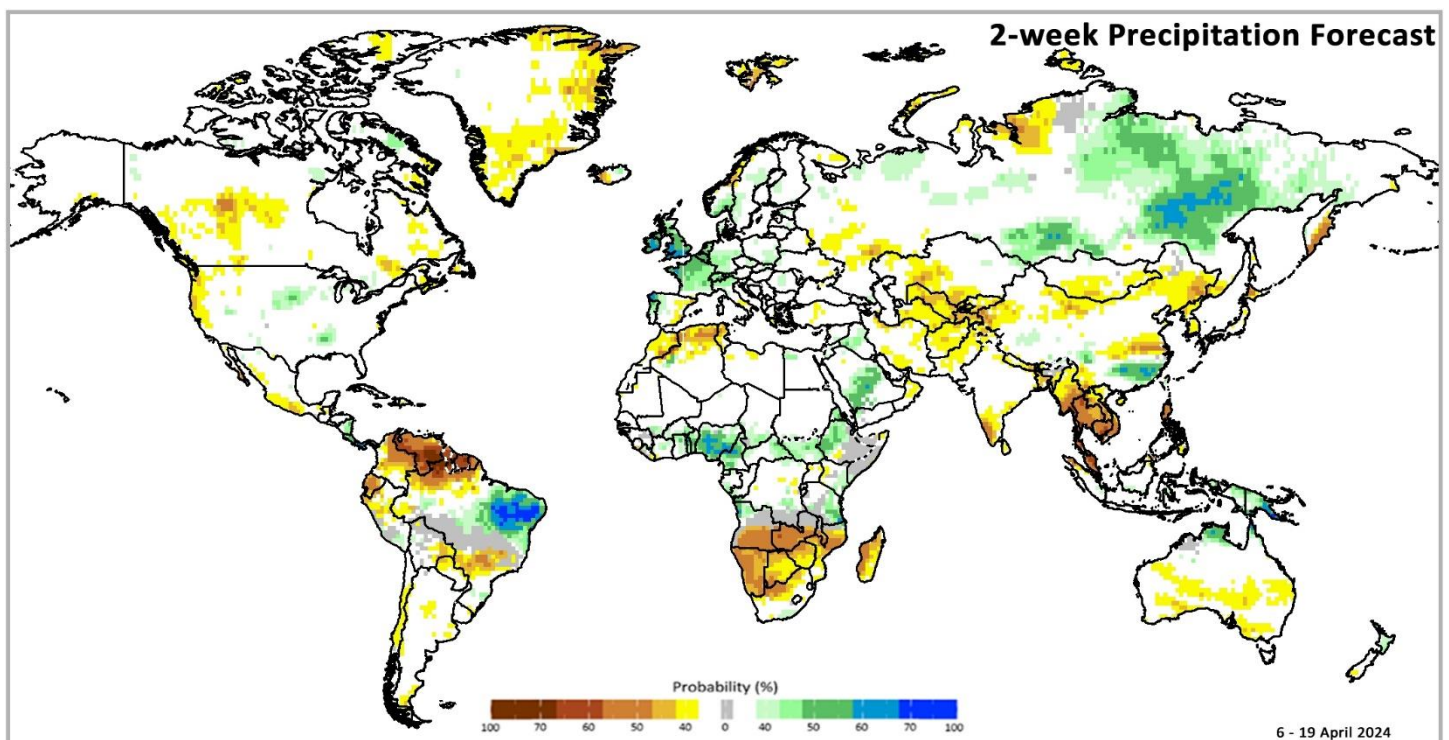


Figure 1: IRI SubX Precipitation Biweekly Probability Forecast for 6 – 19 April 2024, issued on 29 March 2024. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](#).

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

In **Europe**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over eastern Spain, northern Norway, and central Russian Federation, while above-average over Ireland, the United Kingdom, northwest Spain, northern Portugal, France, Belgium, the Netherlands, central Germany, Switzerland, northern Italy, southern Norway. During this time, temperatures are likely to be above-average over most of Europe, with the highest likelihood over southeastern Europe. The long-term April-May-June 2024 forecast (Figures 3 & 4) indicates only a slight leaning to above-average over Eastern Europe, Ukraine, Belarus, and the Russian Federation. During the same period, temperatures are likely to be above-average across Europe, with the highest likelihood over southern Europe.

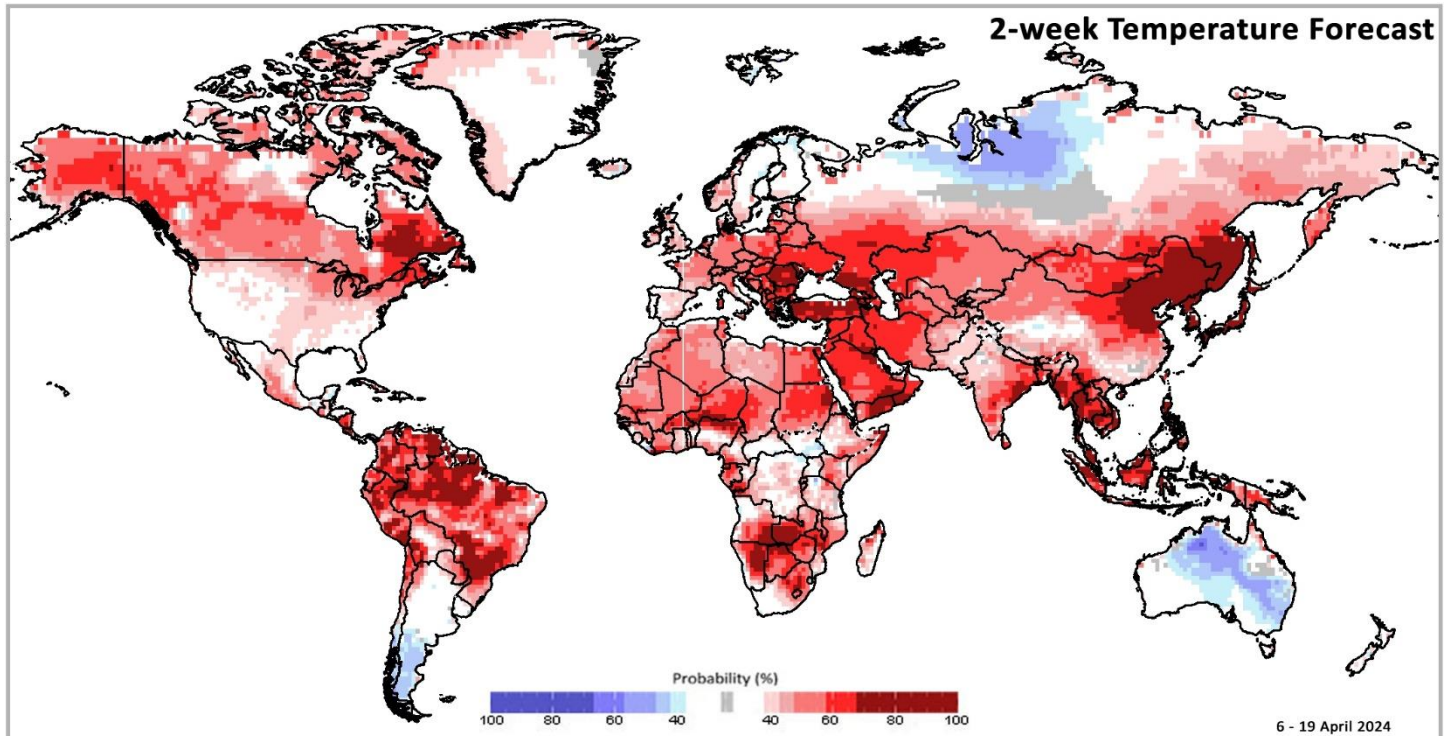


Figure 2: IRI SubX Temperature Biweekly Probability Forecast for 6 – 19 April 2024, issued on 29 March 2024. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](#)

In **MENA**, the two-week forecast (Figures 1 & 2) indicates a slight leaning to below-average precipitation over northern Morocco, northern Algeria, and Tunisia, while above-average precipitation over central Iraq and central Saudi Arabia. During this time, temperatures are likely to be above-average over most of the region. The long-term April-May-June 2024 forecast (Figures 3 & 4) indicates precipitation is likely to be above-average across southern Saudi Arabia, Yemen, and Oman. During this time, temperatures are highly likely to be above-average across the entire region. For further details, see the [CM4EW](#) regional outlooks for MENA.

In **Sub-Saharan Africa**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over southern Angola, Zambia, southern Malawi, Mozambique, Zimbabwe, Namibia, Botswana, northern South Africa, Madagascar, while above-average over southeast northern Ghana, Togo, Benin, Nigeria, Cameroon, southern Chad, western Central African Republic, South Sudan, Eritrea, western Ethiopia, southeast Kenya, eastern Tanzania, northwest Angola. At the same time, temperatures are likely to be above-average along the Gulf of Guinea, Kenya, eastern Somalia, southeastern Angola, Zambia, Namibia, Botswana, Zimbabwe, Malawi, central Madagascar, central Mozambique, and central South Africa. For the long-term April-May-June 2024 forecast (Figures 3 & 4), precipitation is likely to be above-average across eastern South Sudan, southwestern Ethiopia, southern Somalia, Uganda, Kenya, eastern DRC, and northern Tanzania, while below-average over southern Angola, Zambia, Namibia, Botswana, Zimbabwe, South Africa, southern Mozambique, and Madagascar. During this time, temperatures are highly likely to be above-average across all of Sub-Saharan Africa except for coastal South Africa and coastal Namibia. For further details, see the [CM4EW](#) regional outlooks for Southern Africa and the East Africa MAM season.

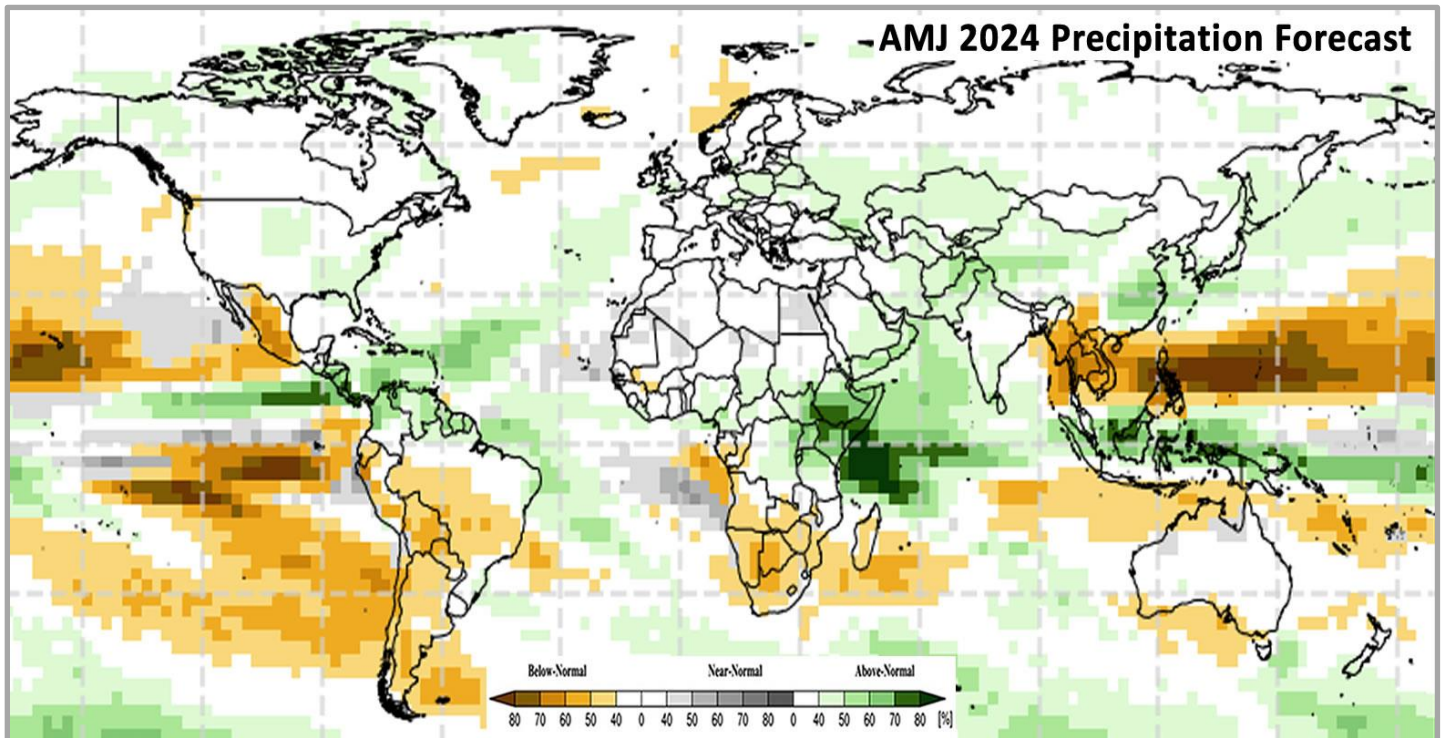


Figure 3: Probabilistic forecast for most likely April-May-June (AMJ) 2024 rainfall tercile, based on March conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: [WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble](#)

In **Central Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over central and southern Kazakhstan, Uzbekistan, Turkmenistan, Kyrgyzstan, Tajikistan, and Afghanistan. During this time, temperatures are leaning towards being above-average across the entire region. The long-term April-May-June 2024 forecast (Figures 3 & 4) indicates a slight leaning toward above-average precipitation over most of the region, particularly in northeastern Afghanistan. At the same time, temperatures are likely to be above-average across the entire region except for northern Kazakhstan.

In **South Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over northern Pakistan, northwestern and south India, eastern Nepal, and Bangladesh. During this time, temperatures are likely to be above-average over the entire region, particularly in eastern India. The long-term April-May-June 2024 forecast indicates a slight leaning to above-average precipitation over northern Pakistan and northwestern India. At the same time, temperatures are likely to be above-average across southern Pakistan, central and southern India, Bangladesh, and Sri Lanka.

In **East Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over southern Mongolia, northwestern and northeastern China, the Democratic Republic of Korea, the Republic of Korea, and northern Japan, while above-average over southeastern China. During this time, temperatures are likely to be above-average over most of the region except for southwest and southern China. The long-term April-May-June 2024 forecast (Figures 3 & 4) indicates a leaning toward above-average precipitation over western and southeastern China. During that time, temperatures are highly likely to be above-average over the entire region except for northeast China and northern Mongolia.

In **Southeast Asia & Oceania**, the two-week forecast (Figures 1 & 2) indicates potential above-average precipitation over eastern Indonesia, and Papua New Guinea, while below-average over Myanmar, Thailand, Laos, Vietnam, the Philippines, western Malaysia, and central Australia. During this time, temperatures are likely to be above-average over Myanmar, Laos, Thailand, Cambodia, Vietnam, the Philippines, Malaysia, Indonesia, and Papua New Guinea, while below average across northern and eastern Australia. The long-term April-May-June 2024 forecast (Figures 3 & 4) indicates likely above-average precipitation over Indonesia, Malaysia, and Papua New Guinea, while below-average over Myanmar, Thailand, Laos, Cambodia, Vietnam, and the Philippines. During the same time, temperatures are highly likely to be above-average across the entire region except for southcentral Australia.

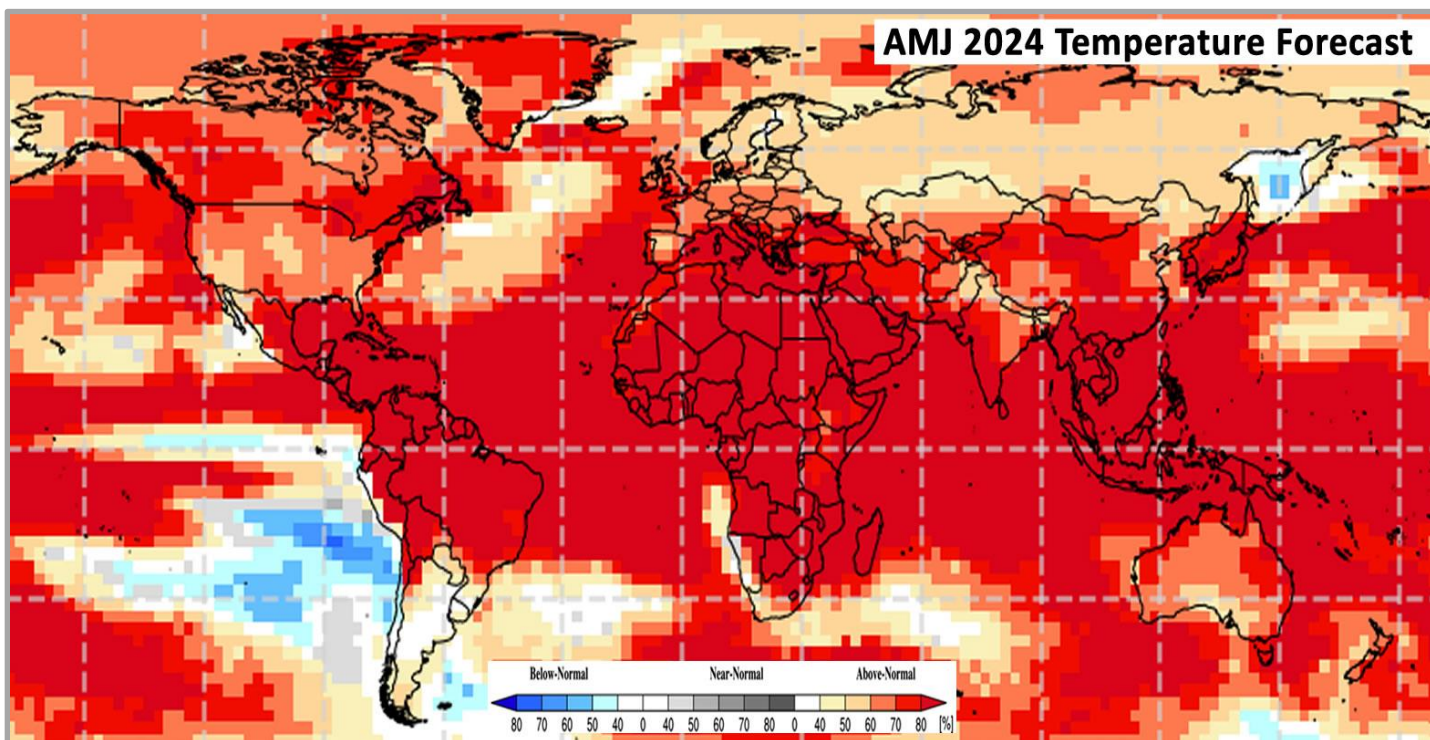


Figure 4: Probabilistic forecast for most likely April-May-June (AMJ) 2024 temperature tercile, based on March conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: [WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble](https://www.wmo.int/en/lead-centre-for-long-range-forecast-multi-model-ensemble)



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.

2024 Global Crop Monitor release dates:
 1 February, 7 March, 4 April, 2 May, 6 June, 4 July, 1 August,
 5 September, 3 October, 7 November, 5 December

<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 currently.

*"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).