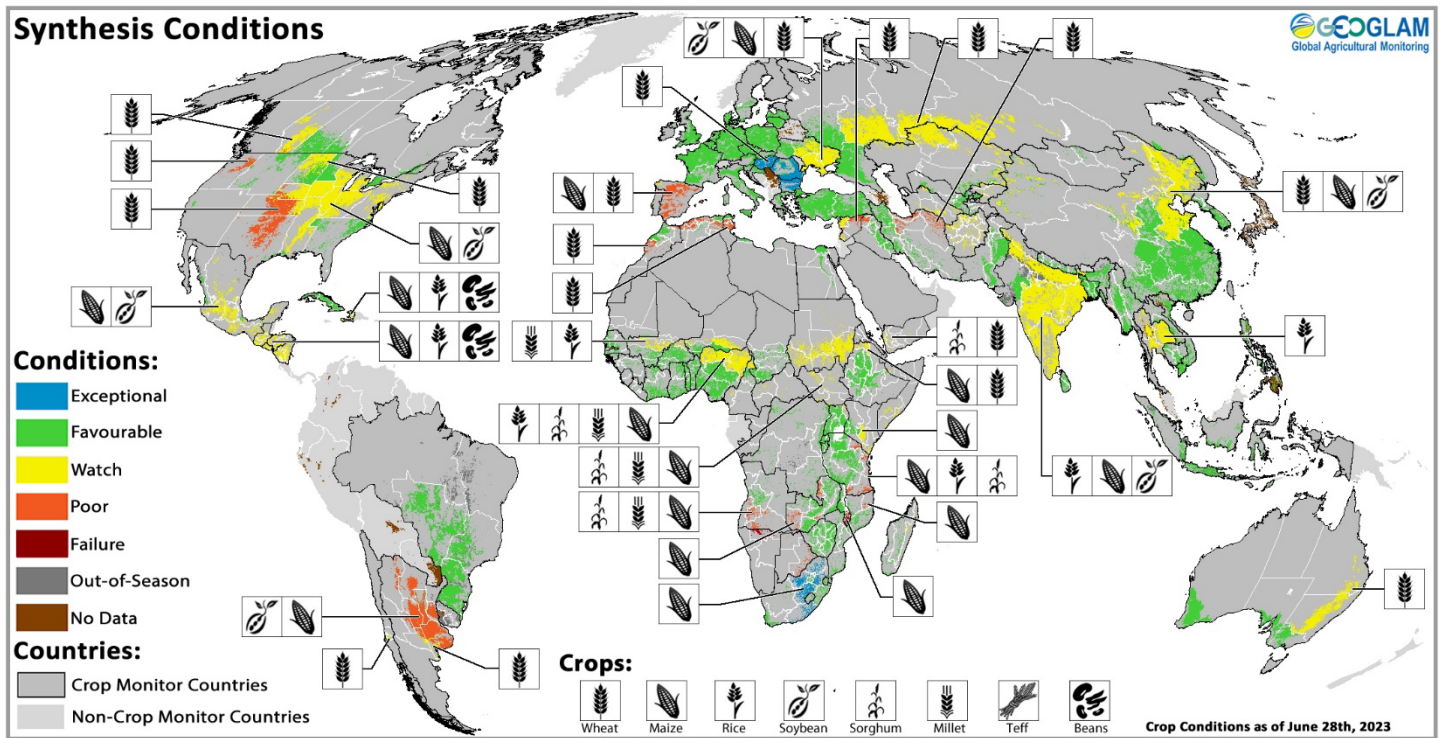


GEOGLAM Global Crop Monitor

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 June 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 Better
Compared to last month					Mixed Similar
Compared to last year					Negative Worse

See Appendix I for detailed methodology description

Global Crop Overview

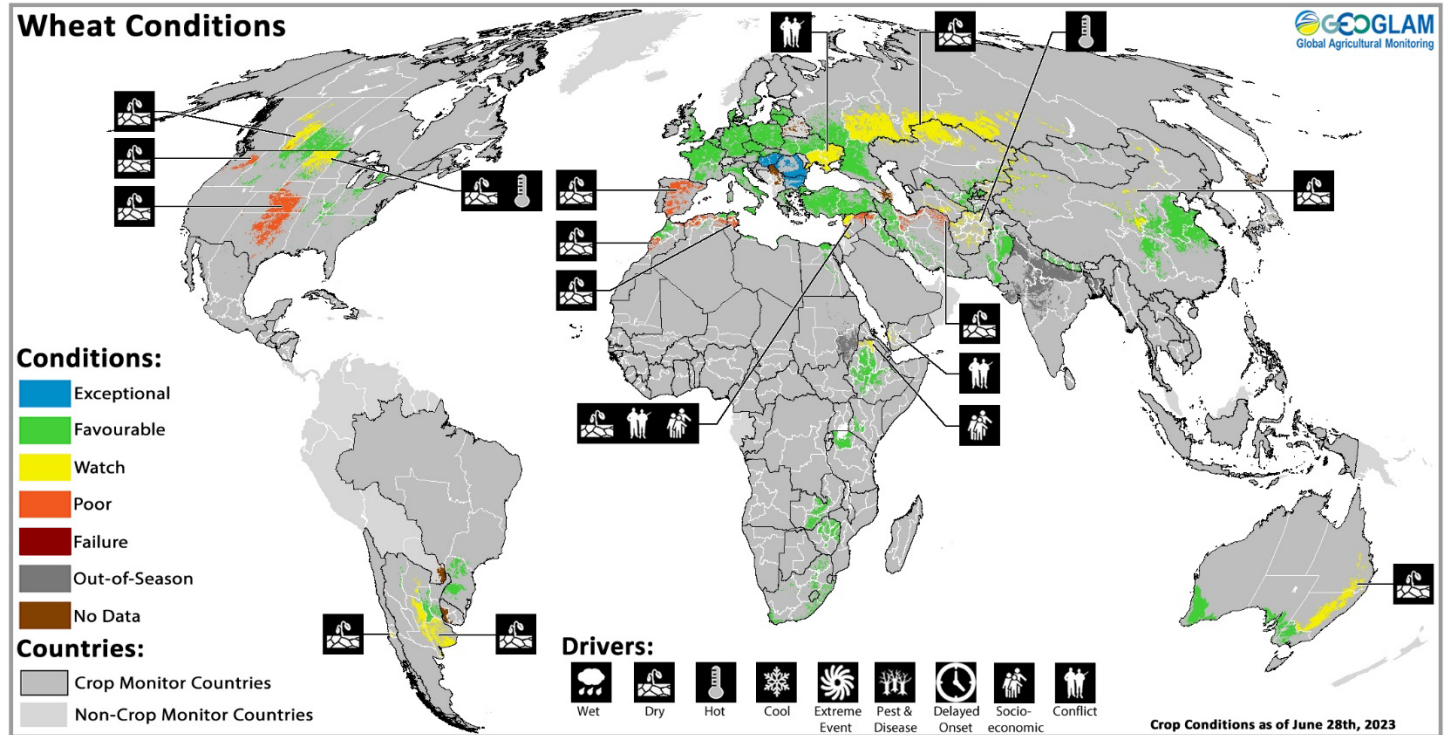
Global crop conditions at the end of June are mixed for wheat and rice, while negative for maize and soybeans. For **wheat**, areas of concern are in Europe, North America, MENA, Central Asia, Australia, and Argentina. For **maize**, conditions are negative primarily due to developing dry conditions in the US, Central America, northern China, and Ukraine, plus a delayed start to the monsoon in India. For **rice**, conditions are mixed due to a delayed start to the monsoon in South and Southeast Asia. For **soybeans**, conditions are mixed due to developing dry conditions in the US, China, and Ukraine. The remaining crops are covered in the [CM4EW](#) publication.

Global Climate Influences

The El Niño-Southern Oscillation (ENSO) is currently in the El Niño phase. Models predict that this will likely be a moderate or strong El Niño event that is expected to last through early 2024. Positive Indian Ocean Dipole (IOD) conditions may also develop during July to November, according to the Australian Bureau of Meteorology forecast. For further details see page 6.

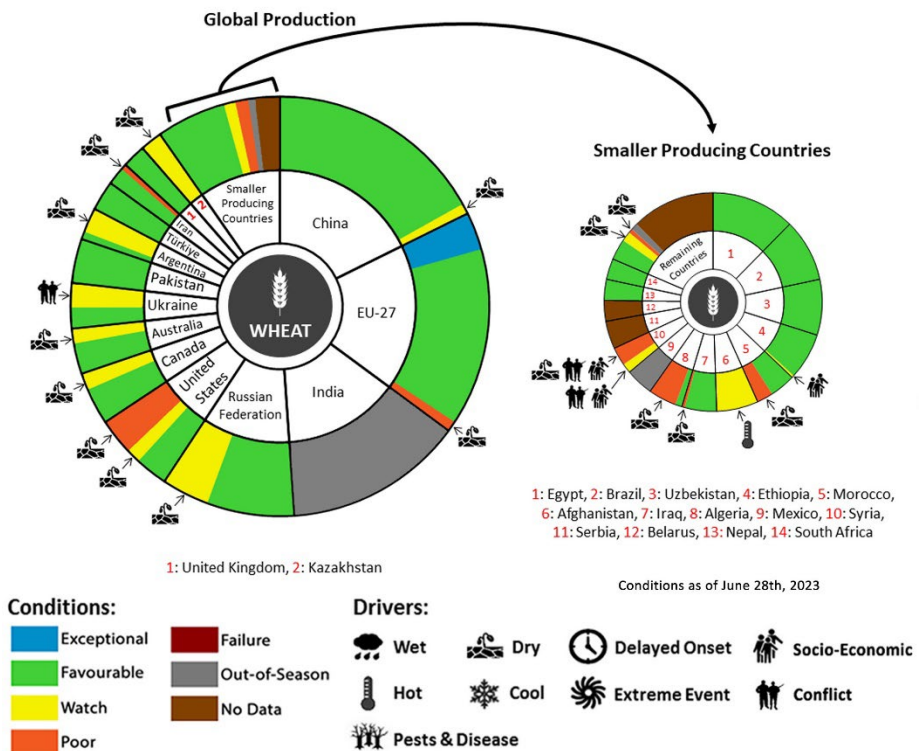
Source: UCSB Climate Hazards Center

WHEAT



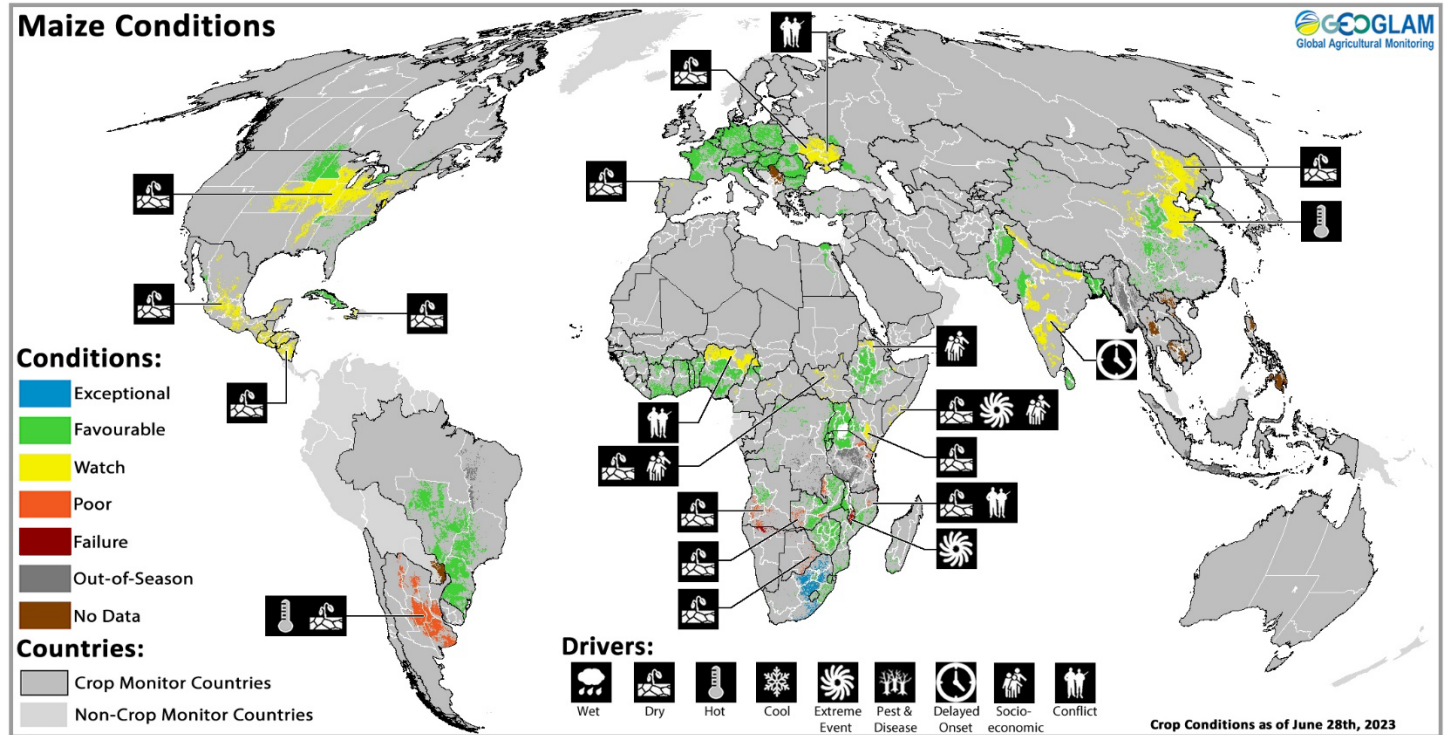
Wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of June 28th.

In **North America**, harvesting of winter wheat in the US is underway with poor conditions in the central and southern Great Plains due to prolonged drought. Spring wheat is under mixed conditions in parts of the Dakotas due to recent hot and dry weather. In Canada, conditions are mixed for both winter and spring wheat due to expanding drought across the western Prairies. In **South America**, sowing is beginning in Argentina under mixed conditions as soil moisture levels begin to recover. In Brazil, sowing is continuing with an expected increase in total sown area. In Chile, dry conditions are continuing. In **Europe**, conditions are favourable in the EU, except for the Iberian Peninsula due to a catastrophic drought. In the UK, a wet spring has supported conditions through a dry May and June. In Türkiye, conditions are favourable thanks to ample spring rainfall. In Ukraine, harvesting is beginning in the south under favourable conditions away from the war zones. In the Russian Federation, harvesting of winter wheat is beginning under favourable conditions. Spring wheat sowing is wrapping up under dry conditions. In **Central Asia**, winter wheat harvesting is continuing in Afghanistan, Turkmenistan, parts of Uzbekistan, parts of Kazakhstan, Kyrgyzstan, and Tajikistan due to dry conditions. In **South Asia**, harvesting in Pakistan and Nepal is wrapping up under favourable conditions. In **East Asia**, harvesting of winter wheat in China is wrapping up after record rainfall during the harvest that has likely degraded grain quality and localized yields. Spring wheat is under developing dryness in the north. In Mongolia, spring wheat is developing. In **Oceania**, average to above-average June rainfall in Australia has benefited crop establishment and growth across most of the country; however, dry conditions persist across the east. In **MENA**, harvesting is wrapping up as seasonal drought has resulted in poor yields in parts of Morocco, Algeria, Tunisia, Syria, Iraq, and Iran. In **Sub-Saharan Africa**, sowing is continuing under favourable conditions in Zambia, Zimbabwe, South Africa, and Lesotho.



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

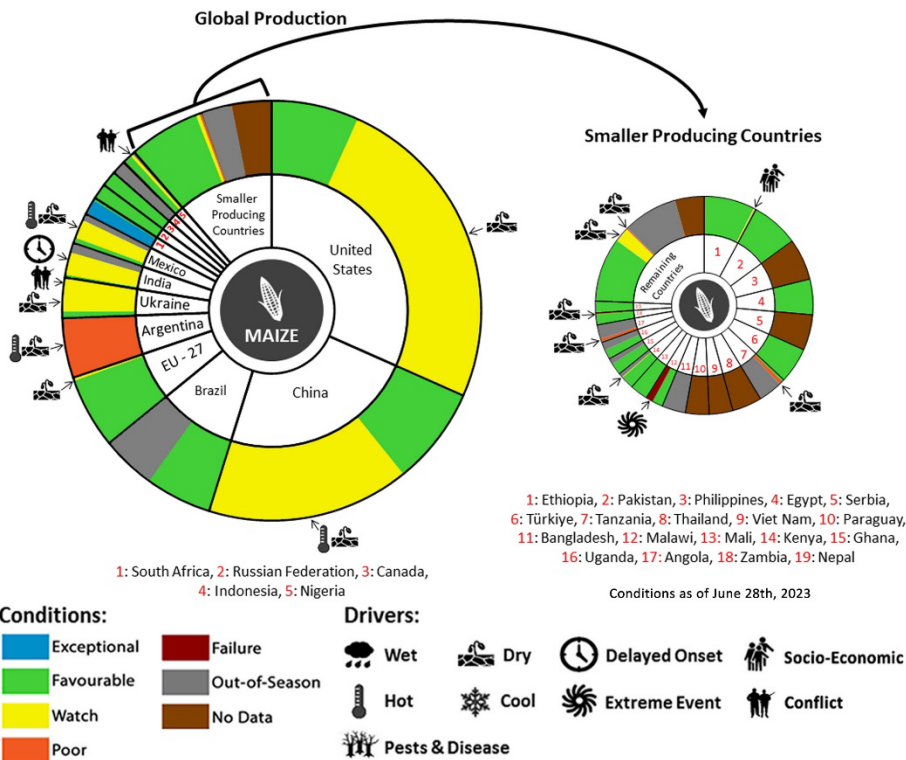
MAIZE



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 June 28th.

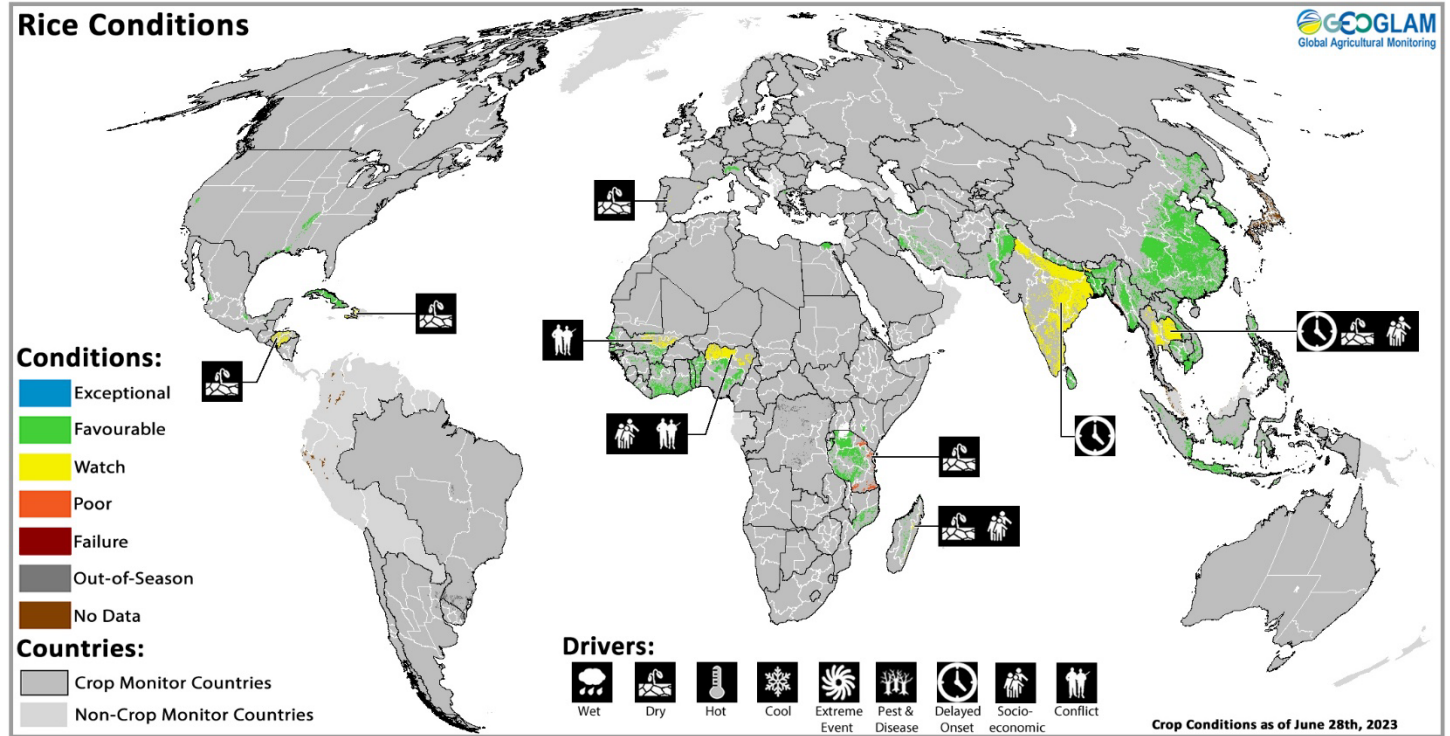
In **South America**, the summer-planted crop (larger season) in Brazil is primarily in the ripening to harvesting stages under favourable conditions. There is an increase in total sown area compared to last year. In Argentina, conditions are poor as the harvest is wrapping up for the early-planted crop (typically larger season) and as harvesting of the late-planted crop (typically smaller season) proceeds slowly. In **Central America & the Caribbean**, harvesting in Mexico of the Autumn-Winter crop (smaller season) wraps up as the Spring-Summer crop (larger season) suffers under drought conditions. Hot and dry conditions are impacting crops in Guatemala, El Salvador, Honduras, and Nicaragua. In Cuba, harvesting of the mains season crop is wrapping up. In **North America**, drought conditions are developing in the US across much of the Corn Belt following an extremely dry spring. Good rains over the next month will be important for maintaining yields. In Canada, sowing is wrapping up under favourable conditions. In **Europe**, conditions are generally favourable in the EU as rain

returns to the southern regions. In Ukraine, conditions are mixed due to recent hot and dry weather in the central regions and the implications of the ongoing war. In the Russian Federation, conditions are favourable. In **East Asia**, conditions are mixed in China as dryness develops in parts of the northeast and extreme heat is experienced in parts of the North China Plain. In **South Asia**, sowing of the *Kharif* crop in India is off to a delayed start due to the late onset of the monsoon. In Sri Lanka, *Yala* season crop conditions are favourable. In **East Africa**, sowing of the main season crops is underway in the north under mixed conditions. In the south, harvesting of main-season cereals is beginning with concerns due to dry conditions. In **West Africa**, sowing of main-season crops continues under generally favourable conditions. In **Southern Africa**, harvesting is wrapping up under mixed conditions due to dryness in southern Angola, central Namibia, and northeast Mozambique and resulting in crop failure in northern Namibia.



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

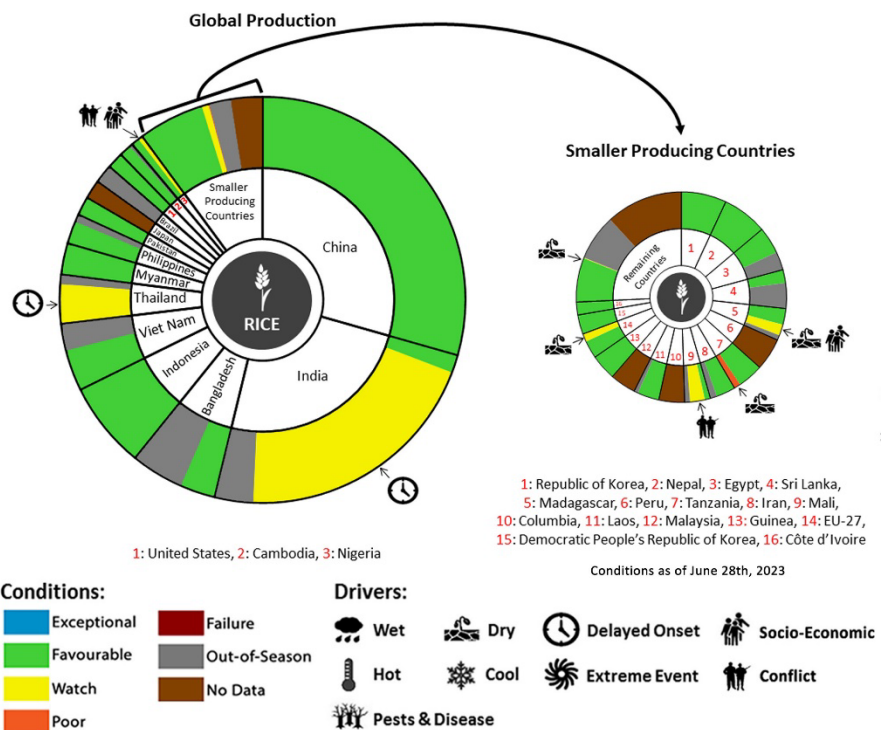
RICE



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 June 28th.

In **East Asia**, harvesting of early-season rice in China is beginning under generally favourable conditions as the sowing of late-season rice begins. Above-average rainfall in the south is supporting favourable conditions for single-season rice. In the Republic of Korea, conditions are favourable with a reduction in the total sown area compared to last year. In the Democratic People's Republic of Korea, sowing is continuing. In **South Asia**, sowing of the *Kharif* crop in India and Pakistan is beginning after a slightly delayed start due to the late onset of the monsoon. In Bangladesh, *Aus* season rice is developing as sowing continues for *Aman* season rice. In Sri Lanka, *Yala* season crops are under favourable conditions. In **Southeast Asia**, harvesting of wet-season rice is wrapping up in Indonesia under favourable conditions, albeit with a slight reduction in the harvested area compared to last year. Conditions are favourable as the sowing of dry-season rice continues. In Viet Nam, harvesting of dry-season rice (Winter-Spring) is ongoing in the north under favourable conditions while the sowing of wet-season rice (Summer-Autumn) begins.

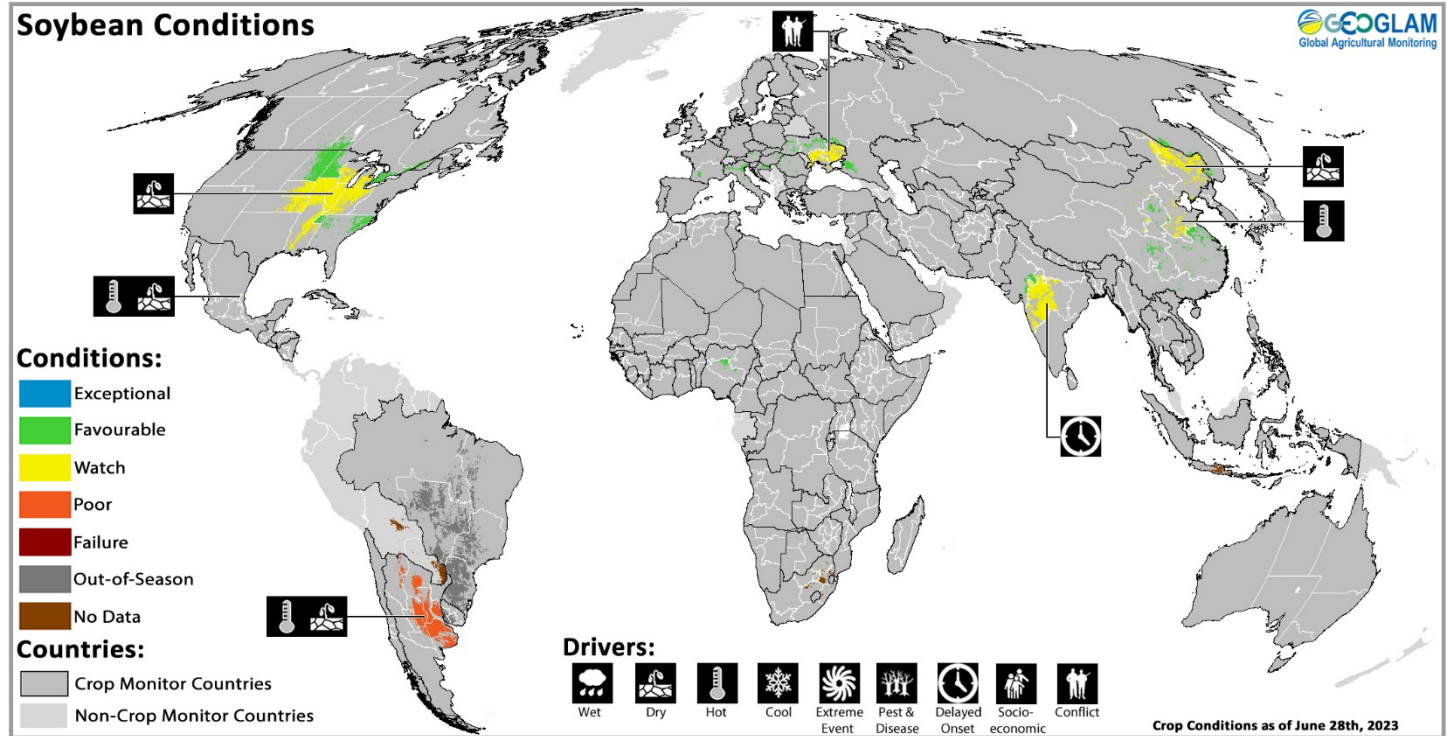
In the south, wet-season rice (Summer-Autumn) is in favourable conditions. In Thailand, sowing of wet-season rice has begun under mixed conditions due to a later-than-normal start of the rainy season and the high cost of agricultural inputs. The total sown area is expected to be reduced compared to last year. In the Philippines, wet-season rice is in the tillering to young panicle-forming stage under favourable conditions. In Myanmar, harvesting of dry-season rice is wrapping up as the sowing of wet-season rice begins. In Cambodia and Laos, sowing of wet-season rice is continuing. In the **Americas**, conditions are favourable in the US. In Mexico, sowing of the Spring-Summer crop is beginning. In Cuba, harvesting of main season crops is wrapping up as the sowing of second season crops is underway. In **Sub-Saharan Africa**, harvesting of *Masika* season rice is underway in Tanzania under poor conditions. Conflict continues to be an issue in northern Nigeria and Mali.



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

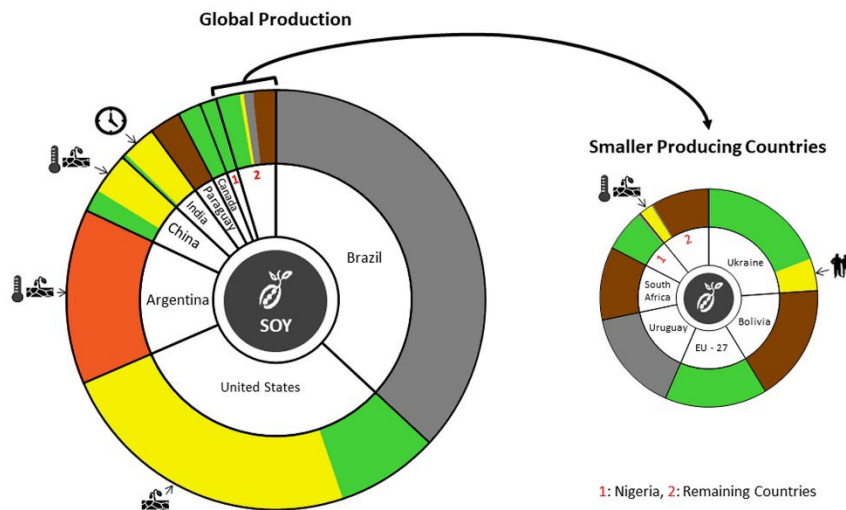
* Assessment based on information as of June 28th

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 June 28th.

In **South America**, harvesting is wrapping up in Argentina for both the early-planted crop (larger season) and the late-planted crop (smaller season) with poor yields and lower quality due to drought and extreme heat throughout the season. In **North America**, an extremely dry spring in the US has reduced crop conditions across much of the main growing areas. Good rainfall during July and August will be important to preserve yields. In Canada, sowing is completed, and conditions are favourable. In Mexico, hot and dry conditions have impacted the Spring-Summer crop. In **Europe**, conditions are favourable in the EU. In Ukraine, sowing is wrapping up under generally favourable conditions away from the frontlines of the war. In the Russian Federation, conditions are favourable. In **Asia**, conditions are mixed in the main producing areas of China due to extremely high temperatures in the North China Plain along with developing dry conditions in the northeast. In India, a slower-than-normal start to the monsoon has delayed the start of sowing this season.



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.

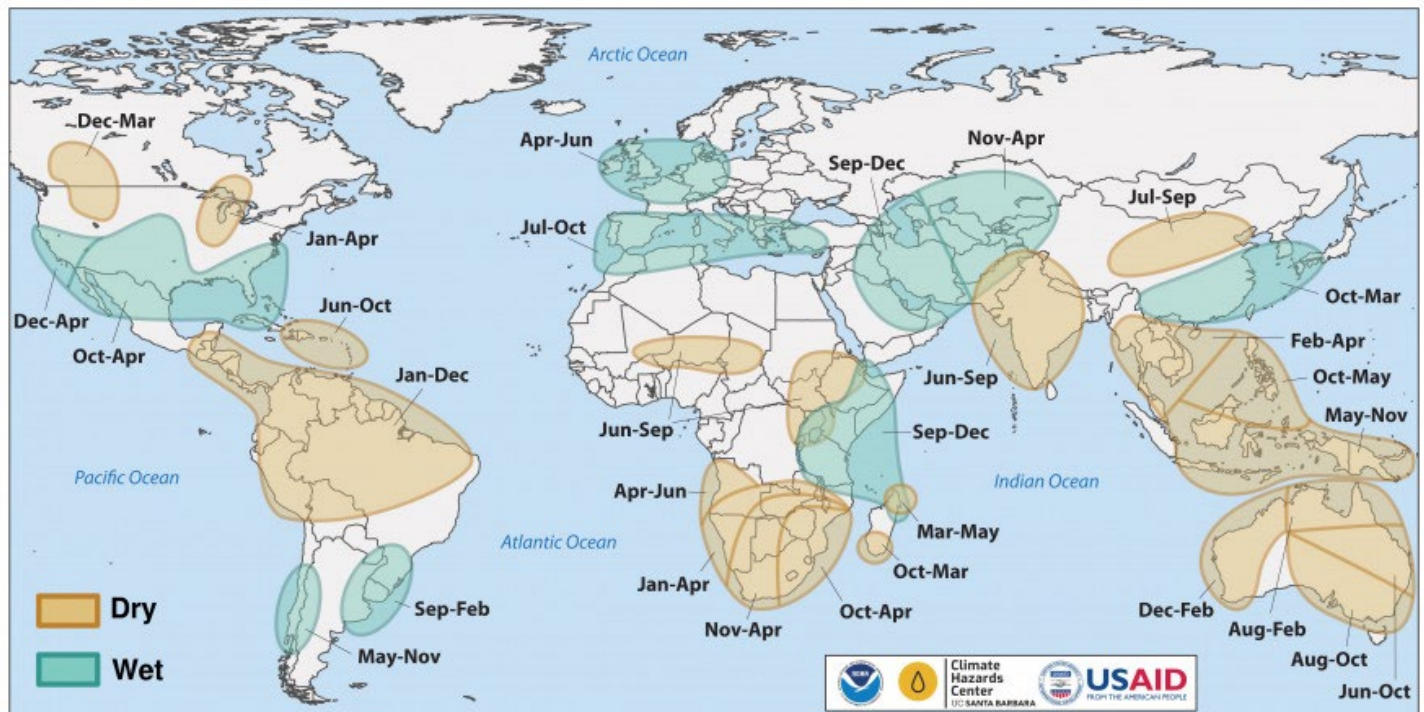
Global Climate Influences

The El Niño-Southern Oscillation (ENSO) is currently in the El Niño phase. Models predict that this will likely be a moderate or strong El Niño event that is expected to last through early 2024.

El Niño events tend to enhance rainfall in Central Asia, southern North America, south-eastern South America, southern Europe, eastern and southern East Africa, and southern and eastern China. Drier-than-average conditions tend to occur in Central America, the Caribbean, northern South America, parts of western and northern East Africa, Southern Africa, India, Northern China, the Maritime Continent, and Australia.

Positive Indian Ocean Dipole (IOD) conditions may also develop during July to November, according to the Australian Bureau of Meteorology forecast. Positive IOD conditions can enhance El Niño-related drying influences in Australia and the Maritime Continent, and wetting influences during the East Africa short rains.

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, 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

The long-term July-August-September 2023 forecast (Figures 3 & 4) is influenced by the current El Niño and the likely development of a positive Indian Ocean Dipole (IOD).

In **North America**, the two-week forecast (Figures 1 & 2) indicates potential areas of below-average precipitation over the US Pacific Northwest and the Southwest, while areas of above-average precipitation are possible over the eastern Mid-west and New England of the US. During the same time, temperatures are likely to be above-average over British Columbia, Ontario, and Quebec in Canada, along with the US Mid-west, New England, Southeast, and Southern Great Plains. The long-term July-August-September 2023 forecast (Figures 3 & 4) shows a leaning of below-average precipitation over the US Southwest and the Canadian Great Lakes region. During the same time, temperatures are likely to be above-average across all of North America. 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 northern Mexico, Guatemala, and Honduras. During the same period, temperatures are likely to be above-average across Mexico, Guatemala, Belize, El Salvador, and southern Honduras. The long-term July-August-September 2023 forecast (Figures 3 & 4) suggests below-average precipitation across western Mexico, Honduras, and Nicaragua, while above-average over eastern Mexico, 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 for Central America and the Caribbean.

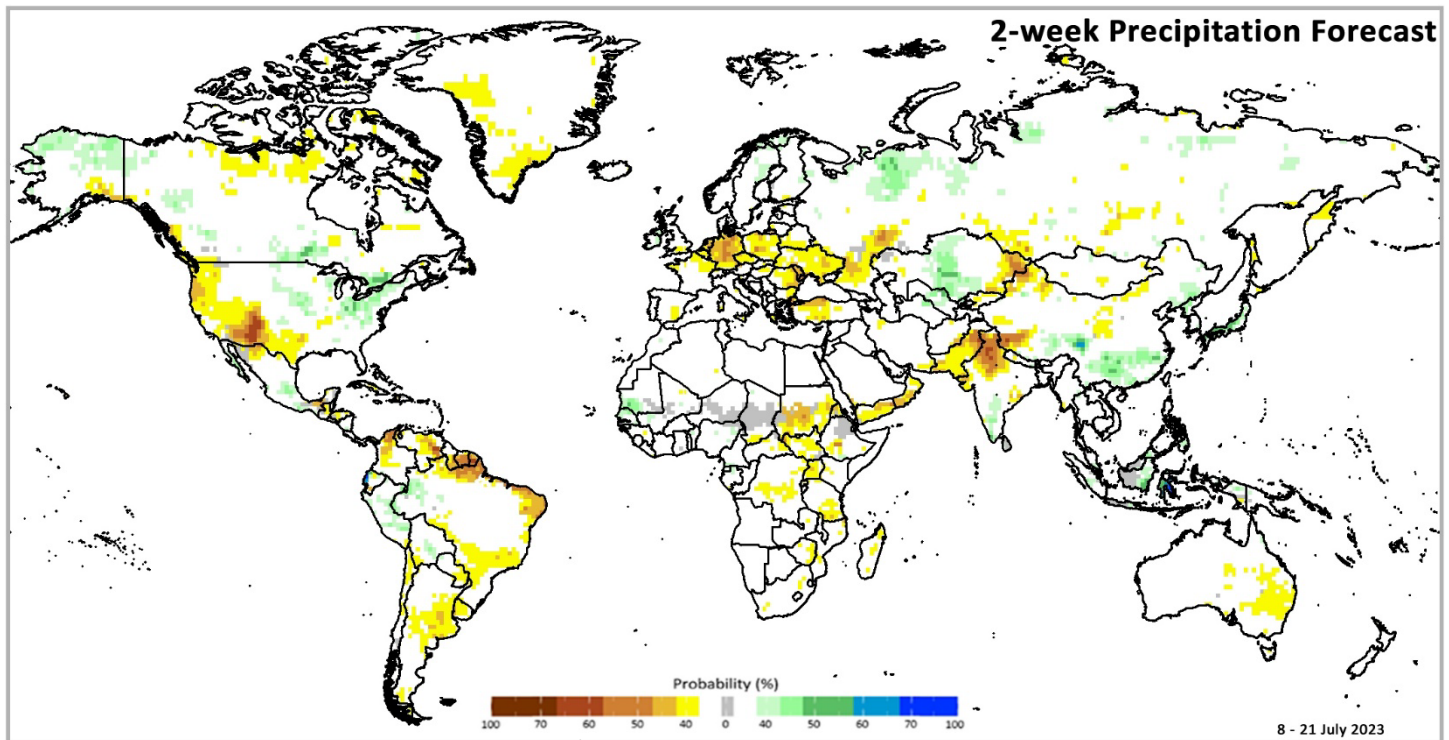


Figure 1: IRI SubX Precipitation Biweekly Probability Forecast for 8 – 21 July 2023, issued on 30 June 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](#)

In **South America**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over northern Colombia, eastern Venezuela, southern Guyana, Suriname, French Guiana, northern and northeast Brazil, Uruguay, and central Argentina, while above-average over western Brazil and parts of Peru. During this time, temperatures are likely to be above-average across the northern half of the continent except for southern Venezuela. The long-term July-August-September 2023 forecast (Figures 3 & 4) suggests likely below-average precipitation across the northern half of the continent, while above-average over southern Brazil. During that time, temperatures will highly likely be above-average over the majority of the continent except for Paraguay, Uruguay, and southern Argentina. 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 Belgium, the Netherlands, Germany, Czechia, Poland, eastern Romania, Moldova, Ukraine, Türkiye, southern Belarus, and the western and central regions of the Russian Federation. During this time, temperatures are leaning to be above-average across most of western and central Europe. The long-term July-August-September 2023 forecast (Figures 3 & 4) indicates a leaning towards above-average precipitation across Portugal, Spain, southern France, and Italy, while leaning towards below-average across Belgium, the Netherlands, Germany, Denmark, southern Norway, southern Sweden, northern Poland, Lithuania, Latvia, Estonia, and western Belarus. During the same period, temperatures are highly likely to be above-average across all of Europe.

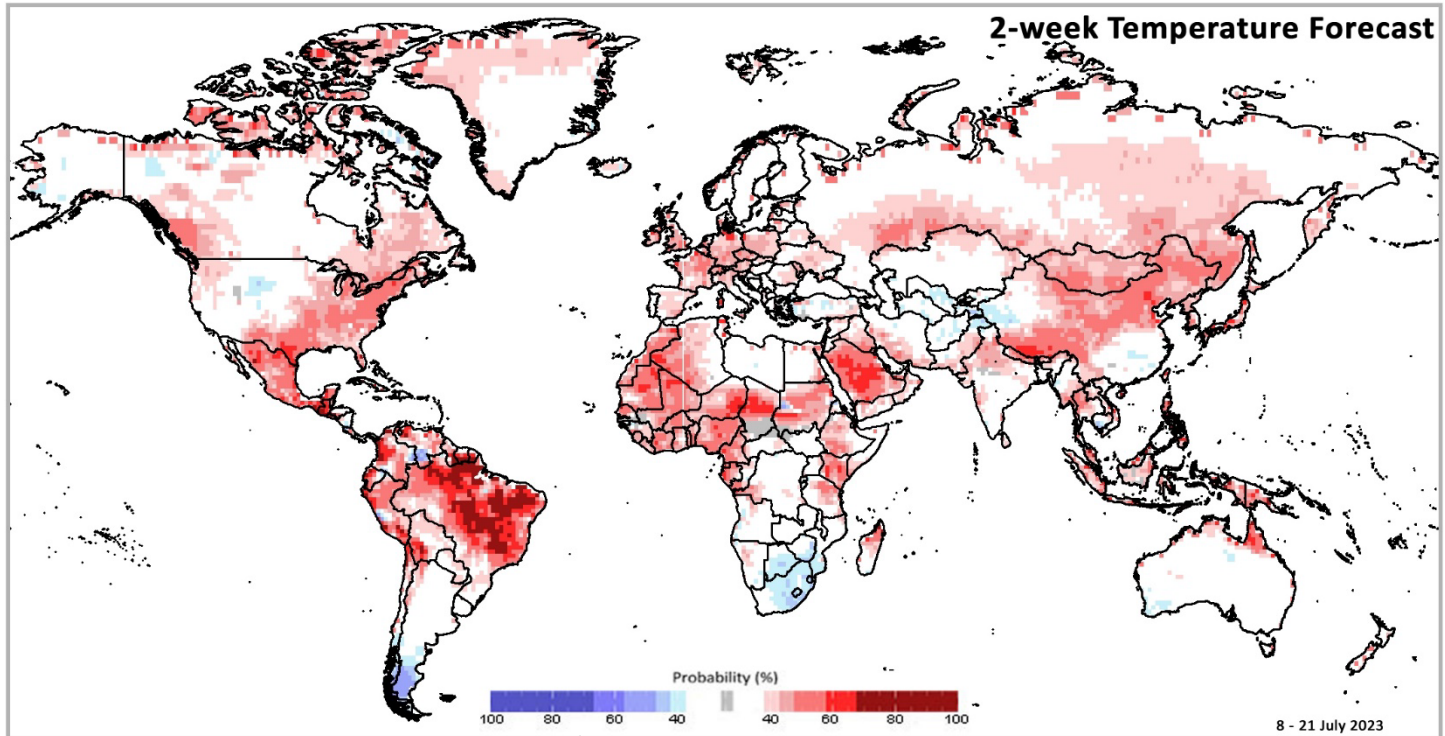


Figure 2: IRI SubX Temperature Biweekly Probability Forecast for 8 – 21 July 2023, issued on 30 June 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](#)

In **MENA**, the two-week forecast (Figures 1 & 2) indicates a likelihood of below-average precipitation over Yemen and Oman. During this time, temperatures are likely to be above-average over Morocco, Algeria, Tunisia, Saudi Arabia, southern Iraq, and southern Iran. The long-term July-August-September 2023 forecast (Figures 3 & 4) indicates likely above-average precipitation over Morocco, Algeria, and Tunisia, while near-average across the rest of the region. 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 Sudan, South Sudan, central Ethiopia, Uganda, central Democratic Republic of Congo, and southern Tanzania, while above-average over southwest Mauritania and northern Senegal. At the same time, temperatures are likely to be above-average across western Africa, Chad, Sudan, Ethiopia, Kenya, northern Tanzania, Gabon, western Congo, and northern Madagascar, while below-average over Botswana, Zimbabwe, South Africa, and Lesotho. For the long-term July-August-September 2023 forecast (Figures 3 & 4), precipitation is likely to be above-average across western Africa, Chad, and southern Somalia, while below-average over South Sudan, southern Ethiopia, Uganda, western Kenya, northern Tanzania, Rwanda, and Burundi. During this time, temperatures are highly likely to be above-average across all of Sub-Saharan Africa. For further details, see the [CM4EW](#) regional outlook for East Africa.

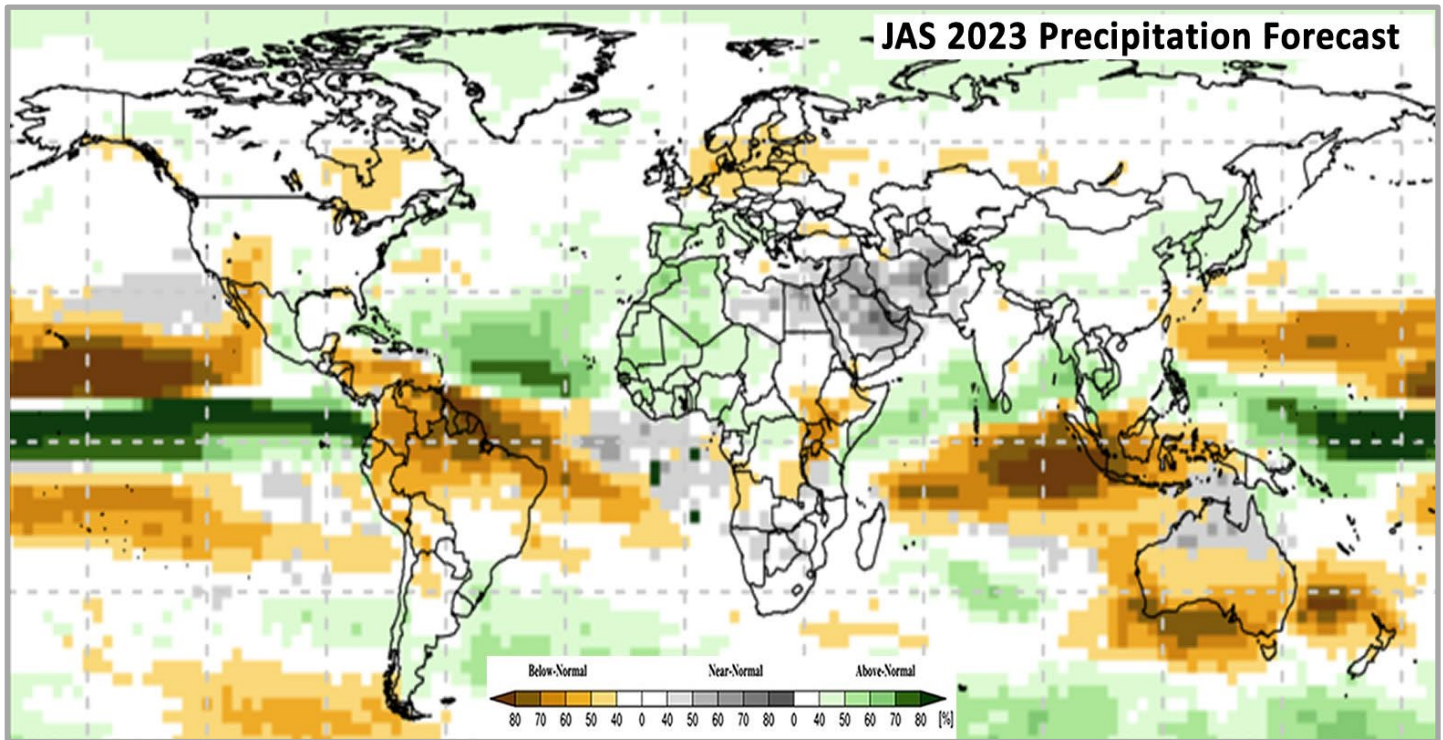


Figure 3: Probabilistic forecast for most-likely July-August-September (JAS) 2023 rainfall tercile, based on June conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: [WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble](#)

In **Central Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over eastern Kazakhstan, while above-average over central Kazakhstan and Uzbekistan. During this time, temperatures are leaning to above-average in northern and eastern Kazakhstan, while leaning to below-average in central Uzbekistan and Tajikistan. The long-term July-August-September 2023 forecast (Figures 3 & 4) indicates likely near-average precipitation over most of the southern portion of the region. At the same time, temperatures are highly likely to be above-average across the entire region.

In **South Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over Pakistan and northwest India. During this time, temperatures are likely to be above-average over central Pakistan, northwest India, and Nepal. The long-term July-August-September 2023 forecast (Figures 3 & 4) indicates no dominant tercile for precipitation over the region. At the same time, temperatures are highly likely to be above-average across most of the region, except for central Pakistan and western India.

In **East Asia**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over parts of northwest and southwest China, while above average over southern China, and Japan. During this time, temperatures are likely to be above-average across Mongolia, most of China, the Republic of Korea, the Democratic Republic of Korea, and Japan, while leaning toward below-average southwest China. The long-term July-August-September 2023 forecast (Figures 3 & 4) indicates a leaning to above-average precipitation over northeast China, the Republic of Korea, the Democratic Republic of Korea, and Japan. 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 Australia, while likely above-average precipitation in Sulawesi Indonesia. During this time, temperatures are likely to be above-average over southern Myanmar, northern Thailand, Laos, Vietnam, the Philippines, Malaysia, Indonesia, Papua New Guinea, and northern Australia, while below-average over southern Cambodia. The long-term July-August-September 2023 forecast (Figures 3 & 4) is indicating be below-average precipitation over Indonesia, Malaysia, southern Australia, and northern New Zealand, while above-average over southern Myanmar, Thailand, Cambodia, southern Vietnam, and the Philippines. During the same time, temperatures are likely to be above-average across the entire region except for northern Australia. For further details, see the [CM4EW](#) Regional Outlook for Southeast Asia.

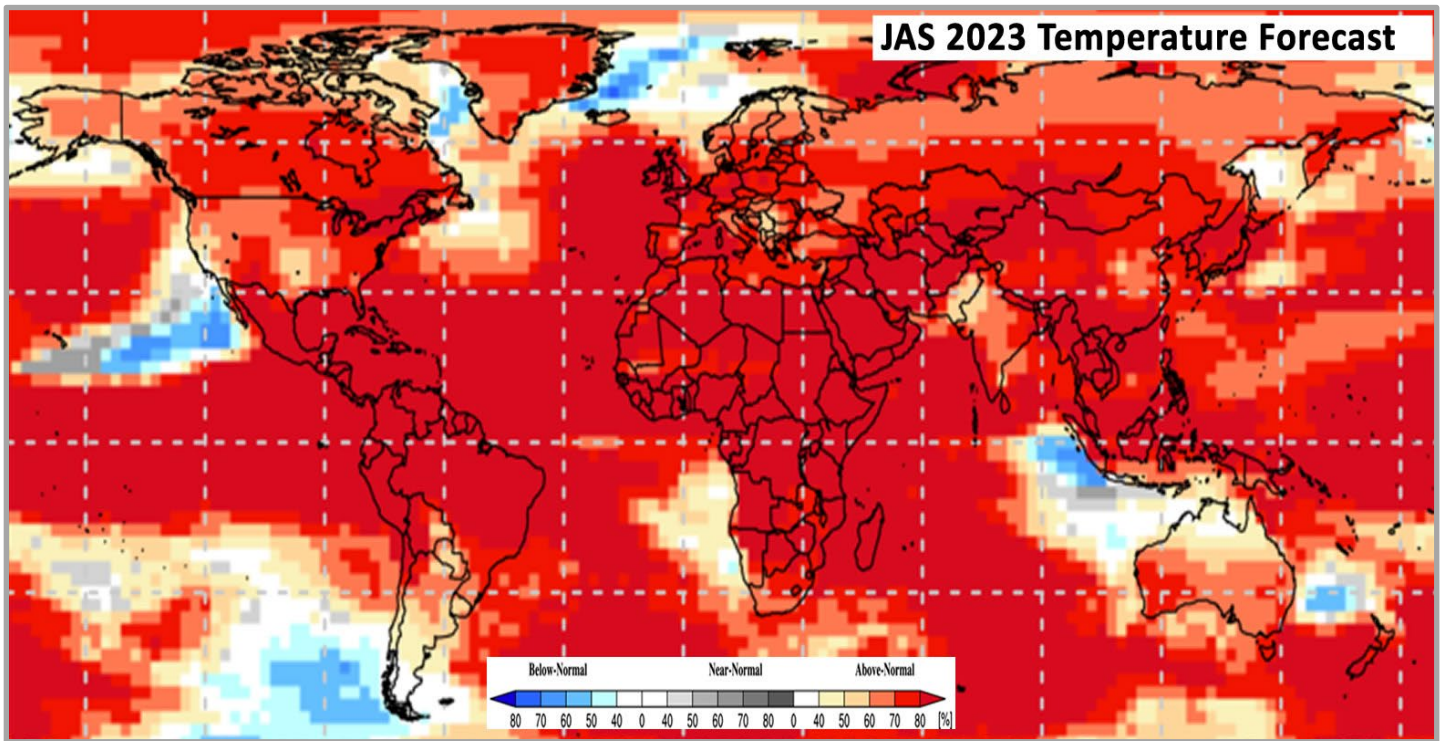


Figure 4: Probabilistic forecast for most-likely July-August-September (JAS) 2023 temperature tercile, based on June conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: [WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble](https://www.wmo.int/en/lead-centre-for-long-range-forecast-multi-model-ens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



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.*

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

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.

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

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).