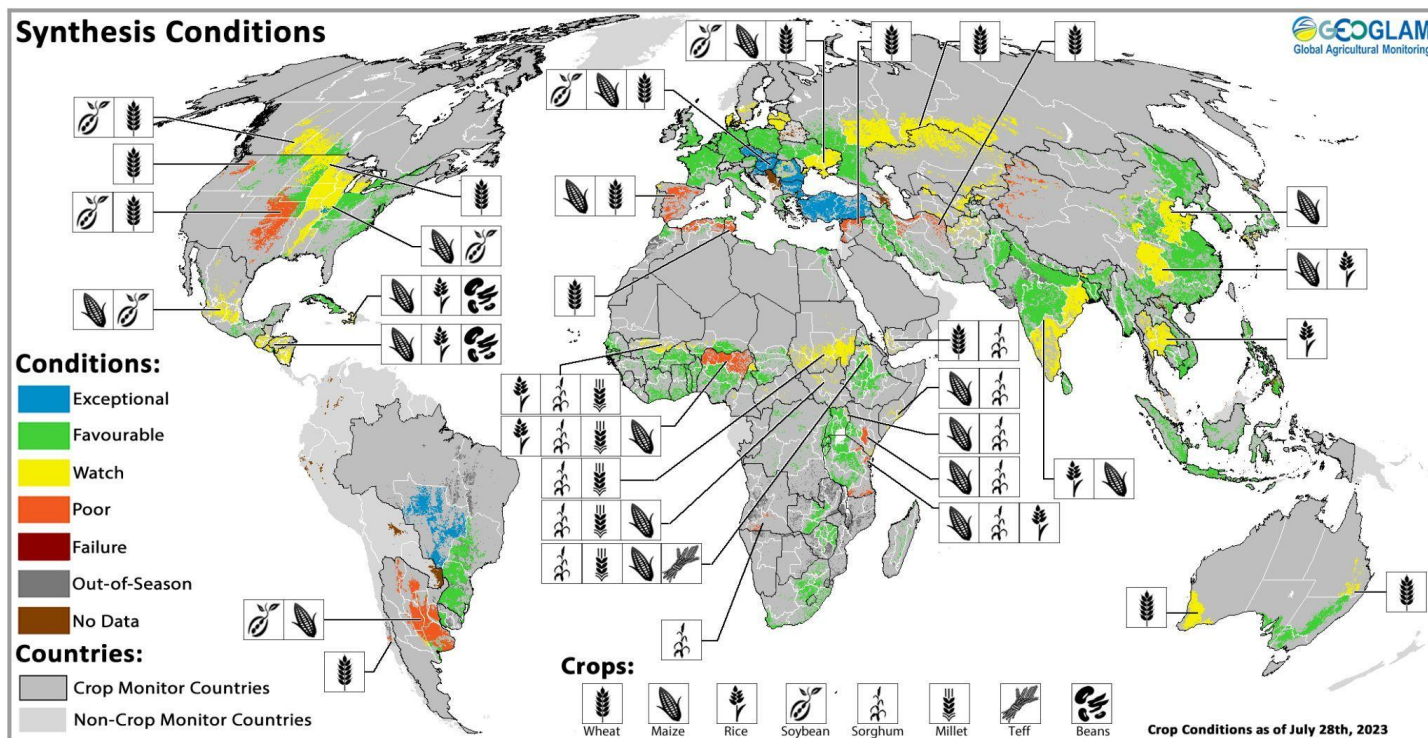


GEOGLAM Global Crop Monitor

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 July 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					Mixed
					Negative
					Similar
					Worse

See Appendix I for detailed methodology description

Global Crop Overview

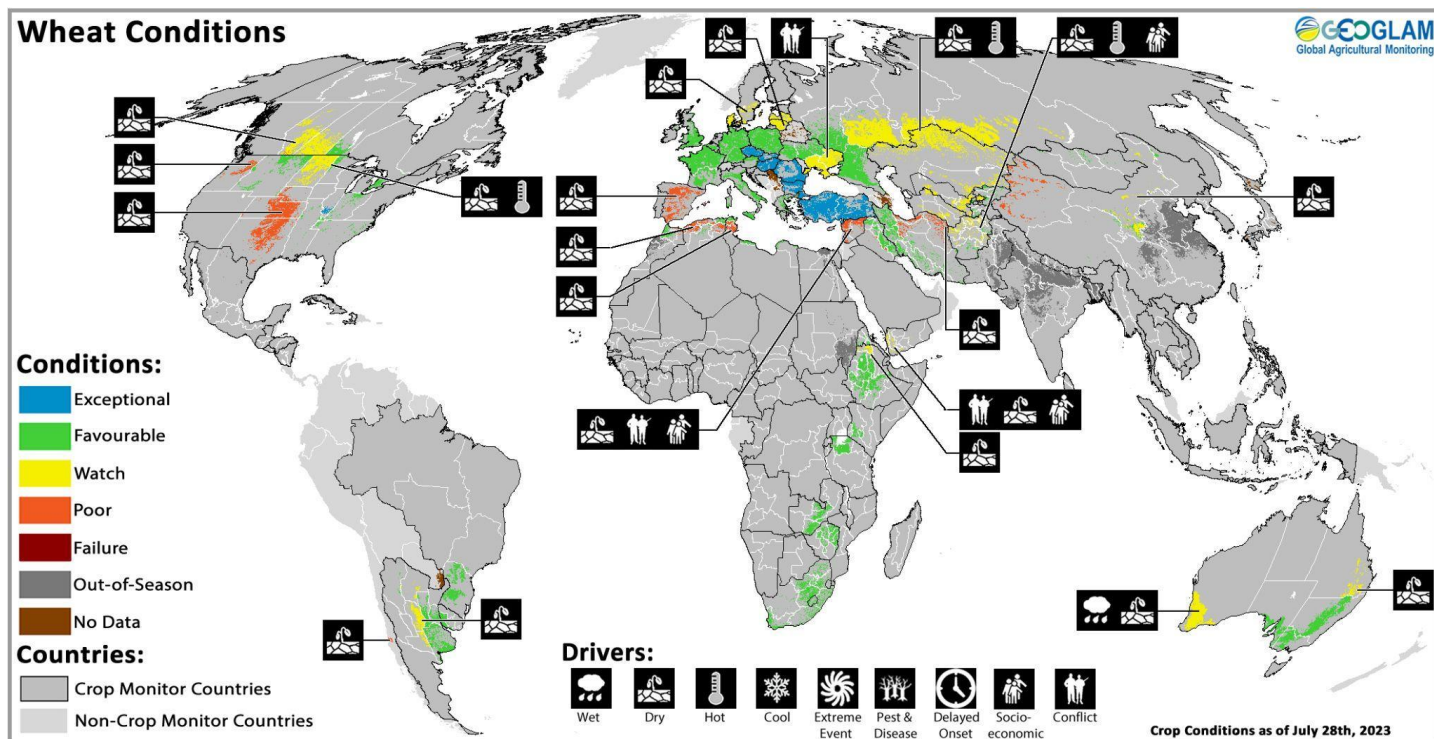
Global crop conditions at the end of July are mixed for rice, while negative for wheat, maize and soybeans. For **wheat**, areas of concern are in Europe, North America, MENA, Central Asia, and Argentina. For **maize**, conditions are negative primarily due to developing dry conditions in the US, Central America, northern China, and Ukraine, while the Southern Hemisphere is wrapping up harvesting under poor conditions. For **rice**, conditions are mixed due to a delayed start to the monsoon in South and Southeast Asia. For **soybeans**, recent rains improved conditions in the US and China but could not offset the dryness. In Argentina, harvest was finalized under poor conditions. 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. This event is forecast to reach a peak strength of moderate-to-strong intensity during November to January and to remain active until February to April (85% chance), according to the IRI/CPC forecast. For further details see page 6.

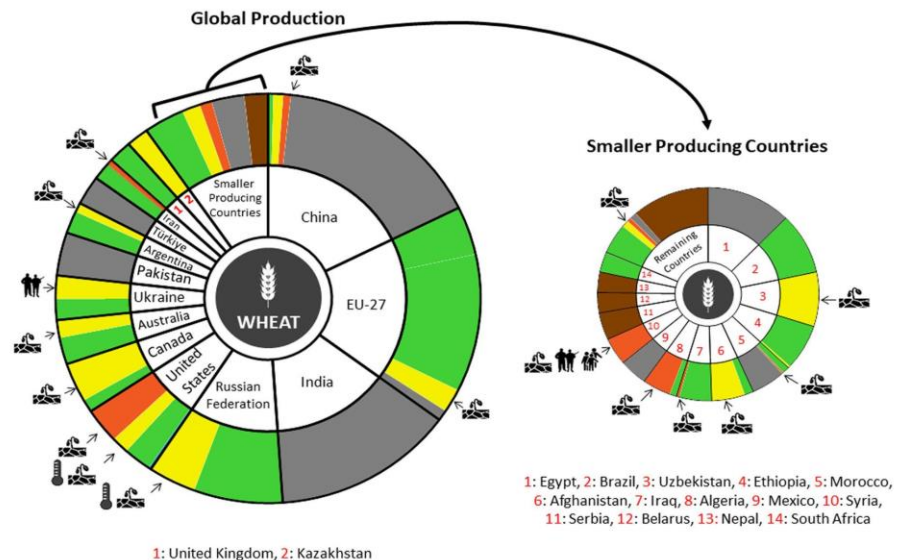
Source: UCSB Climate Hazards Center

WHEAT

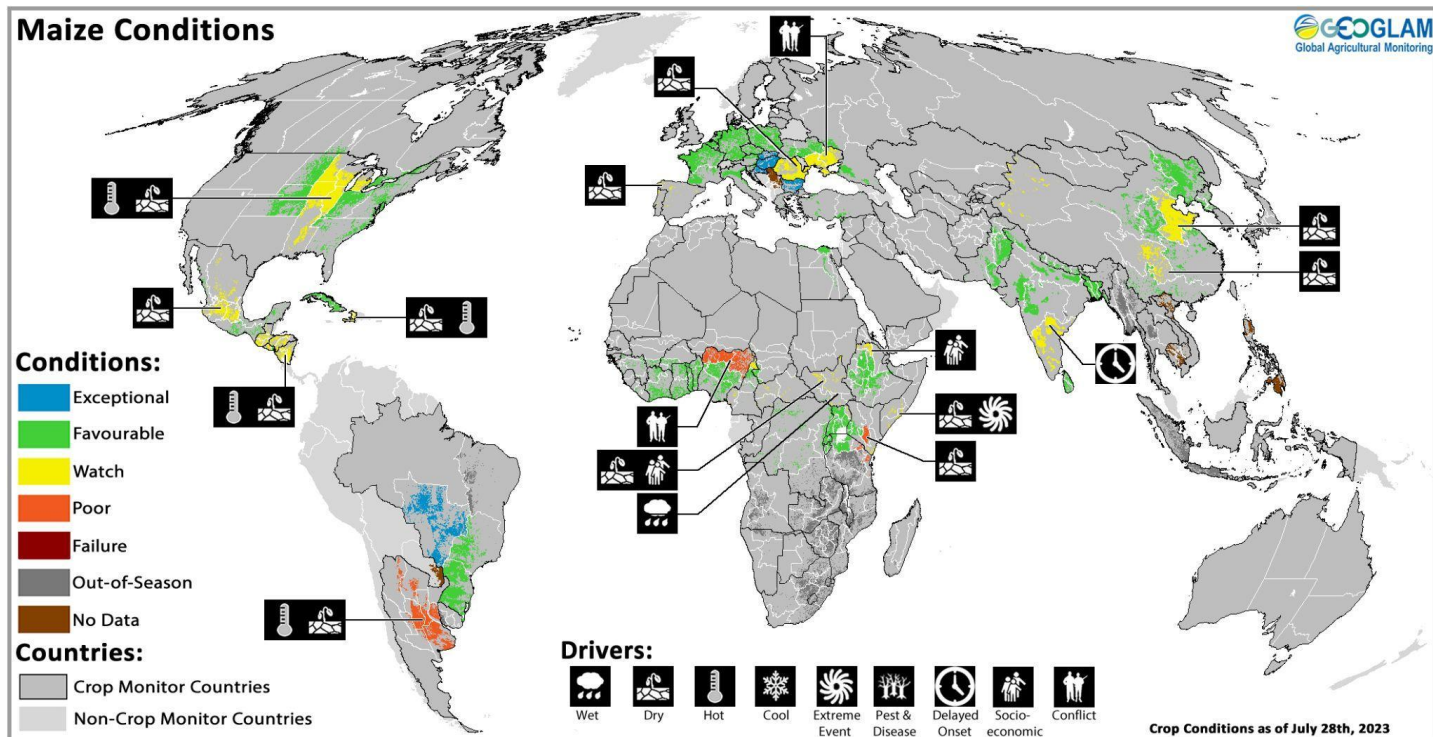


Wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of July 28th.

In **North America**, harvesting of winter wheat in the US is wrapping up under 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 as drought continues to expand across the western Prairies. In **South America**, in Argentina, recent rains have allowed sowing to advance and have improved conditions; however, further rainfall is needed to support the crop. In Chile, dry conditions are continuing. In **Europe**, conditions are overall favourable as harvesting continues with poor yields in Spain balanced by exceptional yields in parts of central and southeast Europe. In the UK, conditions are favourable. In Ukraine, harvesting is continuing away from the war zones with an increase in yields compared to last year. In the Russian Federation, harvesting of winter wheat is continuing under favourable conditions. In **Central and South Asia**, wheat development and harvesting continues throughout Turkmenistan, Uzbekistan, Kazakhstan, Kyrgyzstan, Tajikistan, Afghanistan, and Mongolia under mixed conditions, with concerns in most of the region due to continued dry conditions following poor rainfall. In **Oceania**, in Australia, near-average July rainfall has benefited crops in most regions; however, soil moisture levels remain below-average in Queensland and northern parts of Western Australia. In **MENA**, Wheat harvesting finalized across the subregion under mixed conditions with persistent dry conditions contributing to below-average yield outcomes in most areas in Morocco, Algeria, and Tunisia as well as in northeastern Syria, northwestern Iraq, and north-central and northeastern parts of Iran. In **West Africa**, planting and development of main season cereals continues in most regions while harvesting is now underway in a few countries, and agro-climatic conditions remain favourable with near-average yields expected, except in the conflict-affected areas. In **Southern Africa**, Wheat development is underway in Zambia, Zimbabwe, South Africa, and Lesotho, and overall conditions remain favourable.



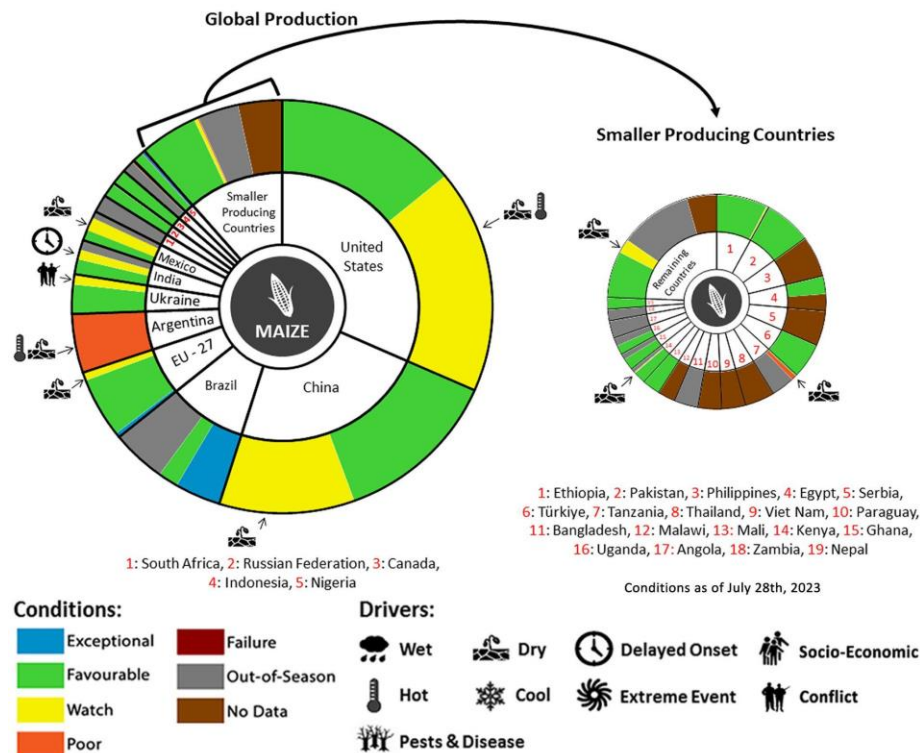
MAIZE



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 July 28th.

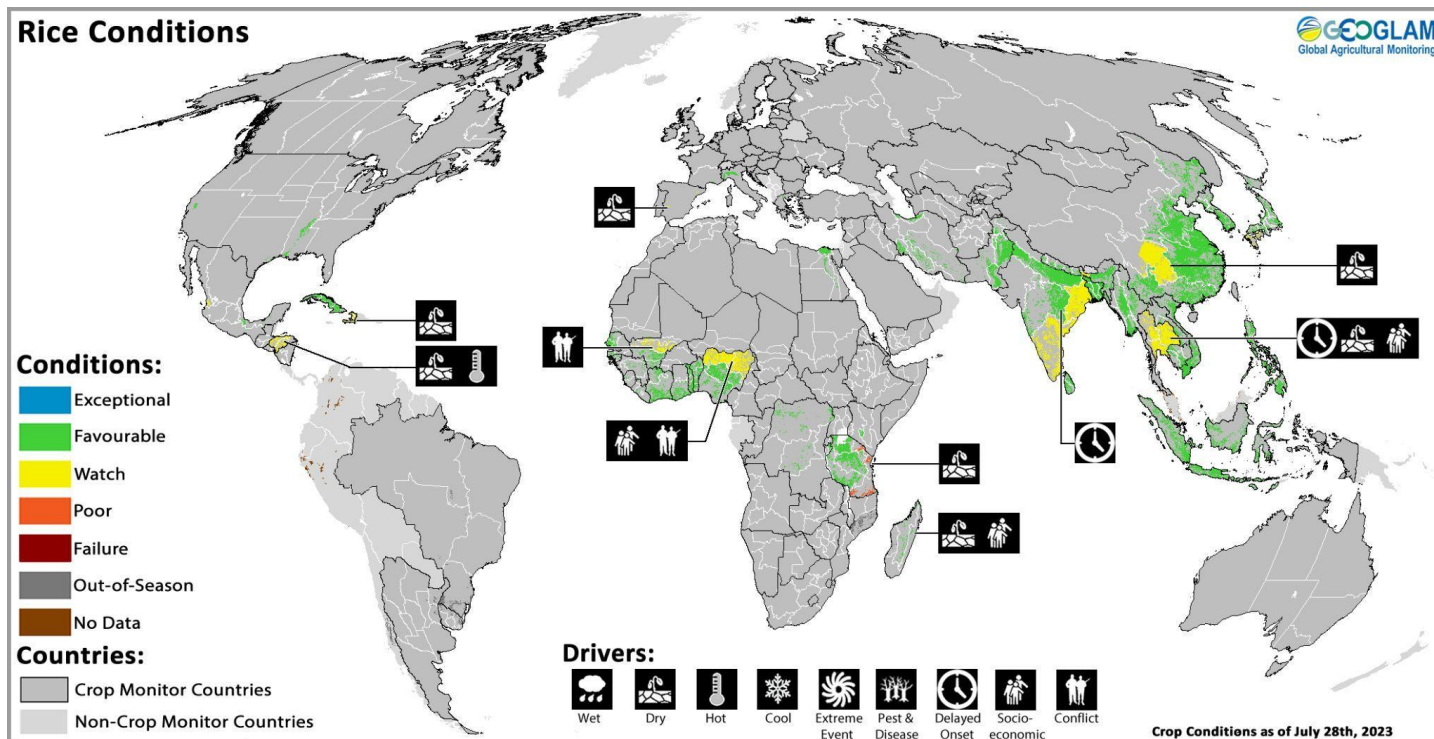
In **South America**, in Brazil, harvesting of the summer-planted crop (larger season) is continuing with record yields being recorded in the Central West region. There is an increase in total sown area compared to last year. In Argentina, harvesting is continuing for the late-planted crop (typically smaller season) under poor conditions due to the prolonged drought and extreme heat. In **Central America & the Caribbean**, harvesting of the Autumn-Winter crop (smaller season) wraps up under favourable conditions as the Spring-Summer crop (larger season) continues to be impacted by drought. Harvesting of Primera season cereals is just beginning in Guatemala while crops continue to develop in El Salvador, Honduras, and Nicaragua for harvest from August. There is concern in almost all regions as below-average and erratic rains and high temperatures since late 2022 leading to a reduction in agricultural water availability. In **North America**, after an extremely dry spring, rains and lower temperatures have improved conditions in parts of the eastern and far western Corn Belt in the US. In **Europe**, conditions are

generally favourable as dryness in Romania and Spain is balanced out by higher yield expectations in central and eastern Europe. In Ukraine, conditions are favourable away from the ongoing war due to sufficient July rainfall. In **East Asia**, conditions remain mixed due to earlier dryness in parts of the North China Plain and developing dryness in the southwest. In **South Asia**, sowing of the *Kharif* crop in India is wrapping up with improved conditions. In **East Africa**, harvesting of main season cereals is underway in southern South Sudan while planting and development continues elsewhere in South Sudan, Sudan, Eritrea, Djibouti, and Yemen. In **West Africa**, harvesting of main season cereals is now underway in eastern Liberia, southern Ghana, southern Togo, southern Benin, and Nigeria. Planting and development of second season maize crops is underway in Nigeria and Cameroon. In **Southern Africa**, harvesting of main season cereals finalized last month across the subregion under mixed conditions due to extended dry periods with above-average temperatures in some central and western areas.



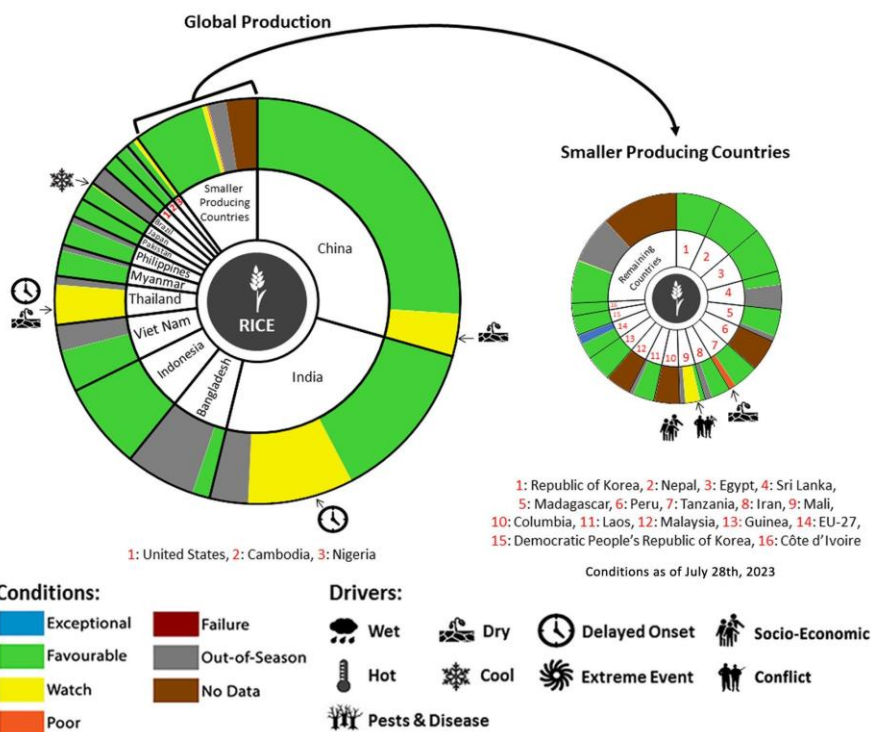
For detailed description of the pie chart, please see box on page 5.

RICE



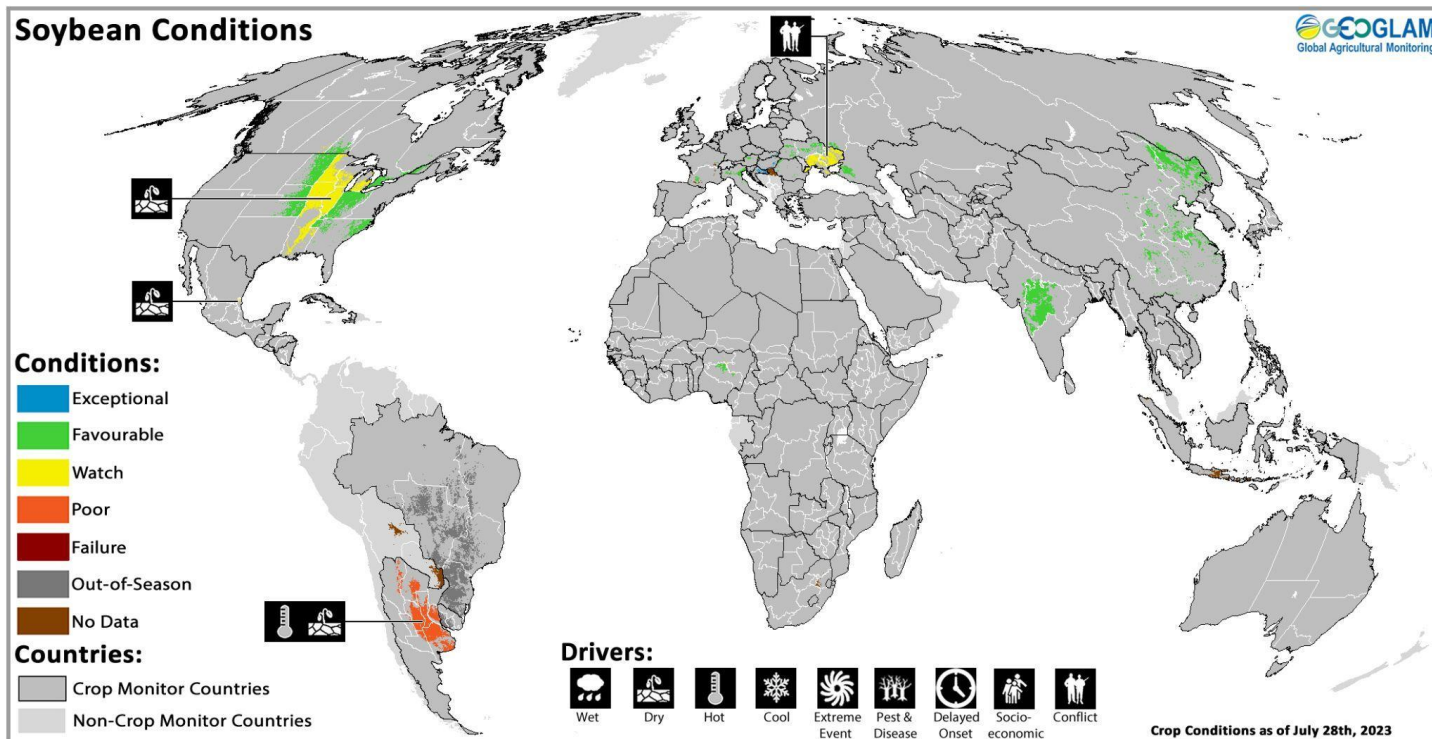
Rice crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Conditions are based upon information as of July 28th.

In **East Asia**, conditions are favourable as the harvesting of early-season rice is wrapping up and the sowing of late-season rice continues. Single-season rice is under generally favourable conditions despite developing dryness in the southwest of China. In **South Asia**, transplanting of the Kharif crop has quickly picked up pace after an initial delay due to the late arrival of the monsoon rains. In Bangladesh, harvesting is underway for Aus season rice, which represents 10 percent of total rice production, and planting continues for Aman season rice, which accounts for 35 percent of total production. Furthermore, harvesting of summer season maize is nearing completion while sorghum planting is underway, and overall conditions are favourable. In Sri Lanka, Yala season maize and rice crops are in vegetative to reproductive stage for harvest from August, and agro-climatic conditions are favourable. In **Southeast Asia**, conditions are favourable as the harvesting of wet-season rice wraps up while the sowing of dry-season rice enters the fourth month under favourable conditions due to sufficient irrigation water for Indonesia. In Viet Nam, harvesting of dry-season rice (Winter-Spring) is wrapping up in the north under favourable conditions. Wet-season rice (Summer-Autumn) is under favourable conditions in both the north and the south, while the sowing of the other wet-season rice (Autumn-Winter) is beginning in the south. In Thailand, wet-season rice is under mixed conditions due to delayed and below-average rains, and there is also a high risk of damage from pests and diseases. In the Philippines, wet-season rice sown from April to May is currently in the maturing stage under favourable conditions. In Japan, conditions are mixed as near-normal temperatures from the planting to heading stage were followed by a lack of adequate sunlight levels in June and July that impacted parts of the south. In the **Americas**, conditions are favourable in the US.



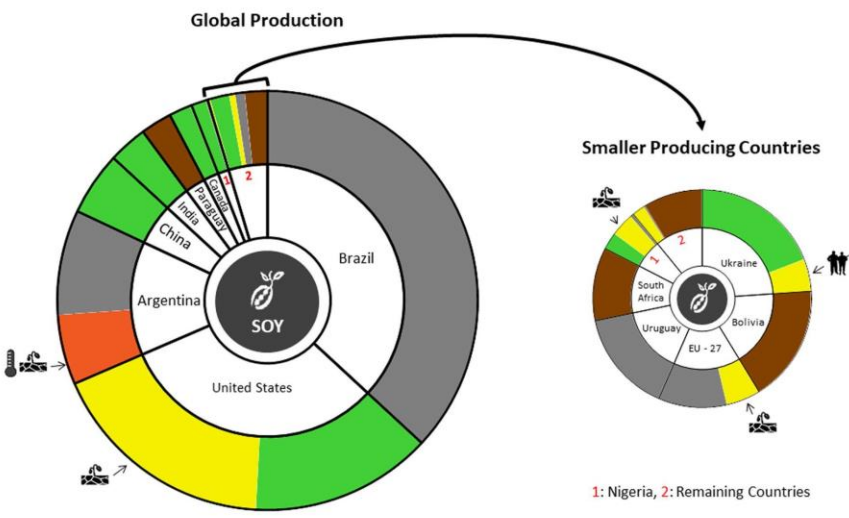
For detailed description of the pie chart, please see box on page 5.

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 July 28th.

In **South America**, harvest finalized in Argentina under poor conditions due to persistent drought and extreme heat. In **North America**, conditions have improved particularly in the eastern Corn Belt in the US; however, good rainfall over the next month will be needed to preserve yields. In Canada, conditions are favourable except in Saskatchewan due to drought. In Mexico, hot and dry conditions have impacted the Spring-Summer crop. In **Europe**, conditions are favourable. In Ukraine, conditions are favourable away from the frontlines of the war as the rains in July were enough to maintain soil moisture levels. In **Asia**, ample showers during July have improved soil moisture conditions in the main producing northeast region of China and in the North China Plain just in time for the critical reproductive stage. In India, sowing of the majority of the crop has been completed after initial delays. There is an increase in total sown area compared to last year.



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.



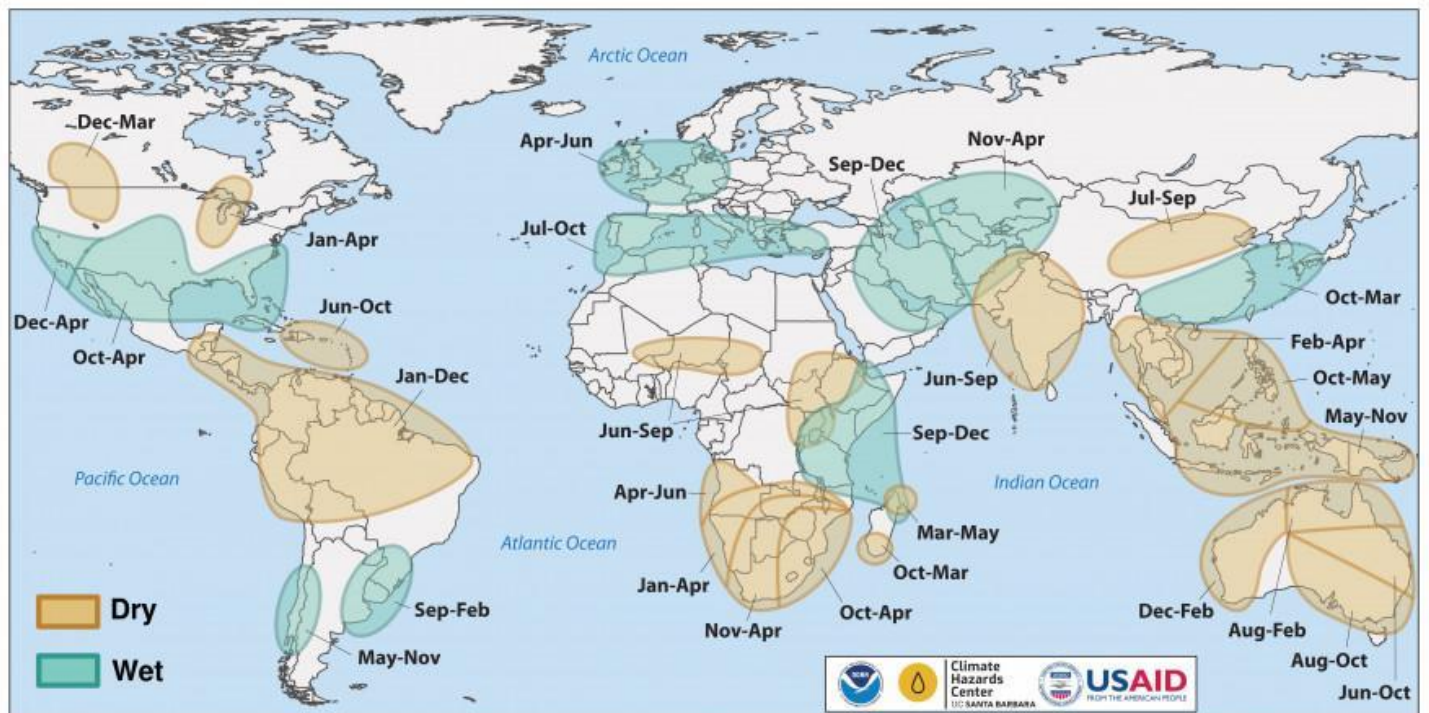
Global Climate Influences: El Niño Advisory and Positive IOD Watch

The El Niño–Southern Oscillation (ENSO) is currently in the El Niño phase. This event is forecast to reach a peak strength of moderate-to-strong intensity during November to January and to remain active until February to April (85% chance), according to the IRI/CPC forecast.

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 are forecast for August to December, according to the Australian Bureau of Meteorology. Positive IOD conditions typically 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 during El Niño events.

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 6 – 10 August 2023 outlook indicates a likelihood of above-average precipitation across much of the US from the Pacific Northwest, particularly around northern Idaho, extending to the southeast near northern Florida and up into the northeast. Below-average precipitation is expected in the southwest, particularly around Arizona, extending from southeastern Nevada to southern Texas. During the same time, temperatures are likely to be above-average across the Pacific, south, and east while below-average temperatures are likely in the Rocky Mountains, particularly around Colorado, as well as in the Midwest and northeast.

In **Central America & the Caribbean**, Rainfall conditions are likely to worsen during the next several weeks in southern Guatemala, El Salvador, western and eastern Honduras, Nicaragua, and southern Haiti. Rainfall will be below average in these areas, based on GEFS and ECMWF forecasts from July 27th.

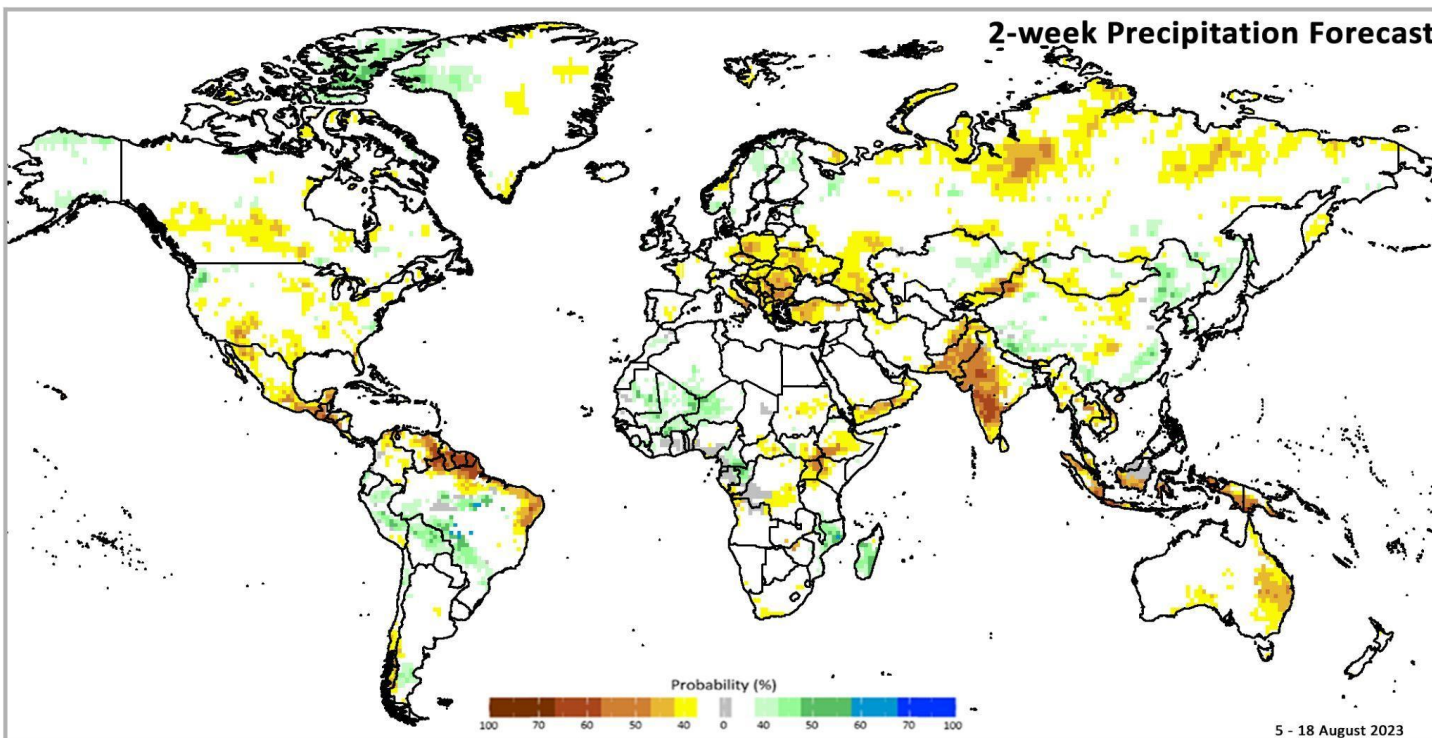


Figure 1: IRI SubX Precipitation Biweekly Probability Forecast for 5 – 18 August 2023, issued on 30 July 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](#)

In **South America**, the two-week forecast (Figures 1 & 2) indicates a likelihood of above-average rainfall over Ecuador, Peru, Bolivia, central and western Brazil, northern Chile, 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 much of central and eastern Europe, western Turkey, the North Caucasus region and northern parts of the Russian Federation,

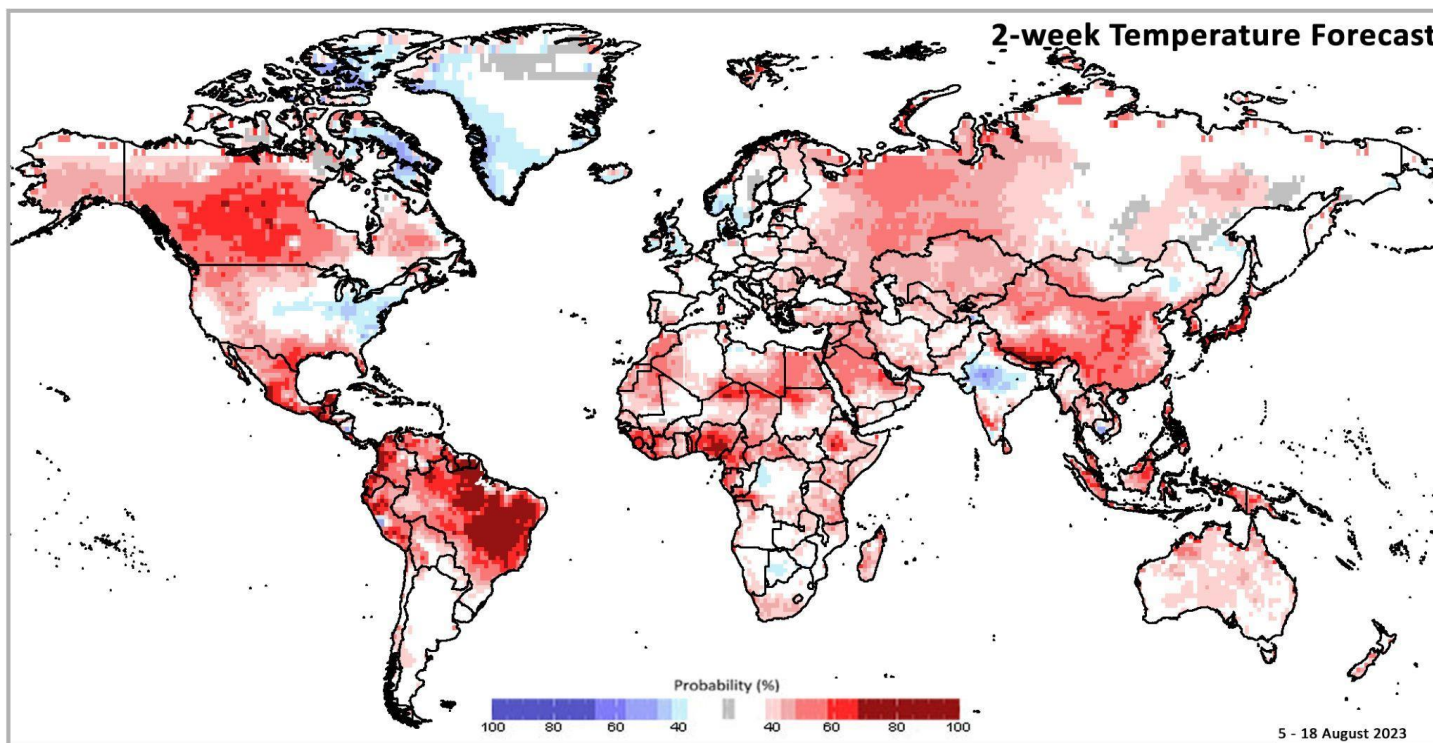


Figure 2: IRI SubX Temperature Biweekly Probability Forecast 5 – 18 August 2023, issued on 30 July 2023. The forecast is based on statistically calibrated tercile category forecasts from three SubX models. Source: [IRI Subseasonal Forecasts Maproom](#)

In **MENA**, the two-week forecast (Figures 1 & 2) indicates a likelihood of above-average precipitation over Morocco, Mauritania, Mali.

In **Sub-Saharan Africa**, the two-week forecast (Figures 1 & 2) indicates likely below-average precipitation over the Central African Republic, northern Sudan, eastern South Sudan, Ethiopia, Uganda, western Kenya, northern United Republic of Tanzania, the Democratic Republic of Congo, southern Zambia and northwestern Zimbabwe, southern South Africa. For further details, see the [CM4EW](#) regional outlook for East Africa.

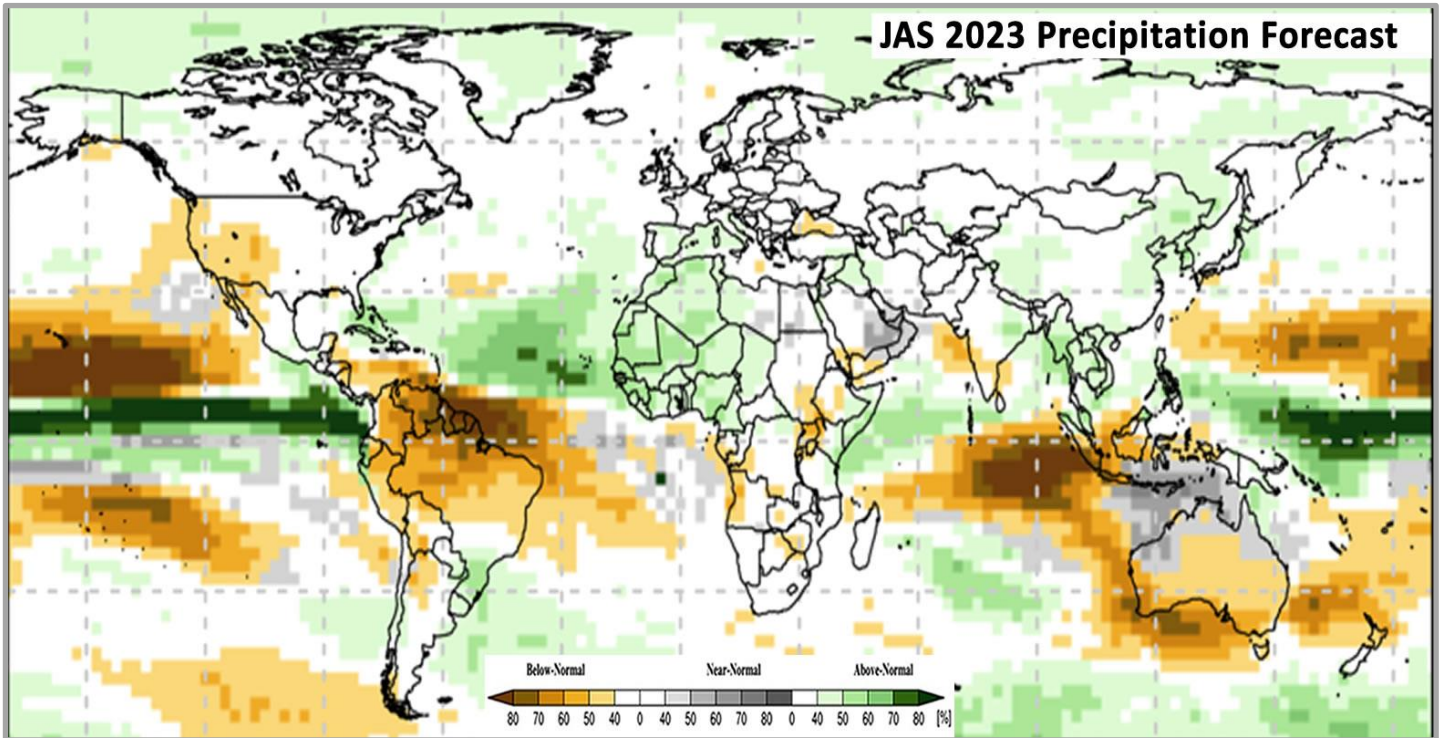


Figure 3: Probabilistic forecast for most-likely July-August-September (JAS) 2023 rainfall tercile, based on July conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: [WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble](#)

In **Central Asia**, the two-week forecast (Figures 1 & 2) indicates likely above-average precipitation over northeastern Kazakhstan, northern Mongolia, southwest, south, and eastern China, northeastern India. The forecast indicates below-average precipitation western Turkey, the North Caucasus region and northern parts of the Russian Federation, Yemen, Oman, Iran, eastern Afghanistan, southeastern Kazakhstan, Kyrgyzstan, Pakistan, India

In **Southeast Asia & Oceania**, the two-week forecast (Figures 1 & 2) Cumulative rainfall since April 1st will likely remain below-average in northern Thailand, northern Laos, northern Vietnam, and Bangladesh for the next several weeks (Figure 1 middle-left). During late July to early August, below-average rainfall is likely in northern Thailand, eastern Vietnam, and Indonesia, based on GEFS and ECMWF forecasts from July 27th. August to October rainfall will likely be below-normal in Indonesia, according to most international forecast ensembles, as well as in some of the ongoing deficit areas in Thailand, based on NOAA's new hybrid C3S/machine-learning-based forecast system (Figure 1-middleright) and a similar outlook from the NMME. Models strongly agree that temperatures will be above-normal across the region during that time (Figure 1-right). For further details, see the [CM4EW](#) Regional Outlook for Southeast Asia.

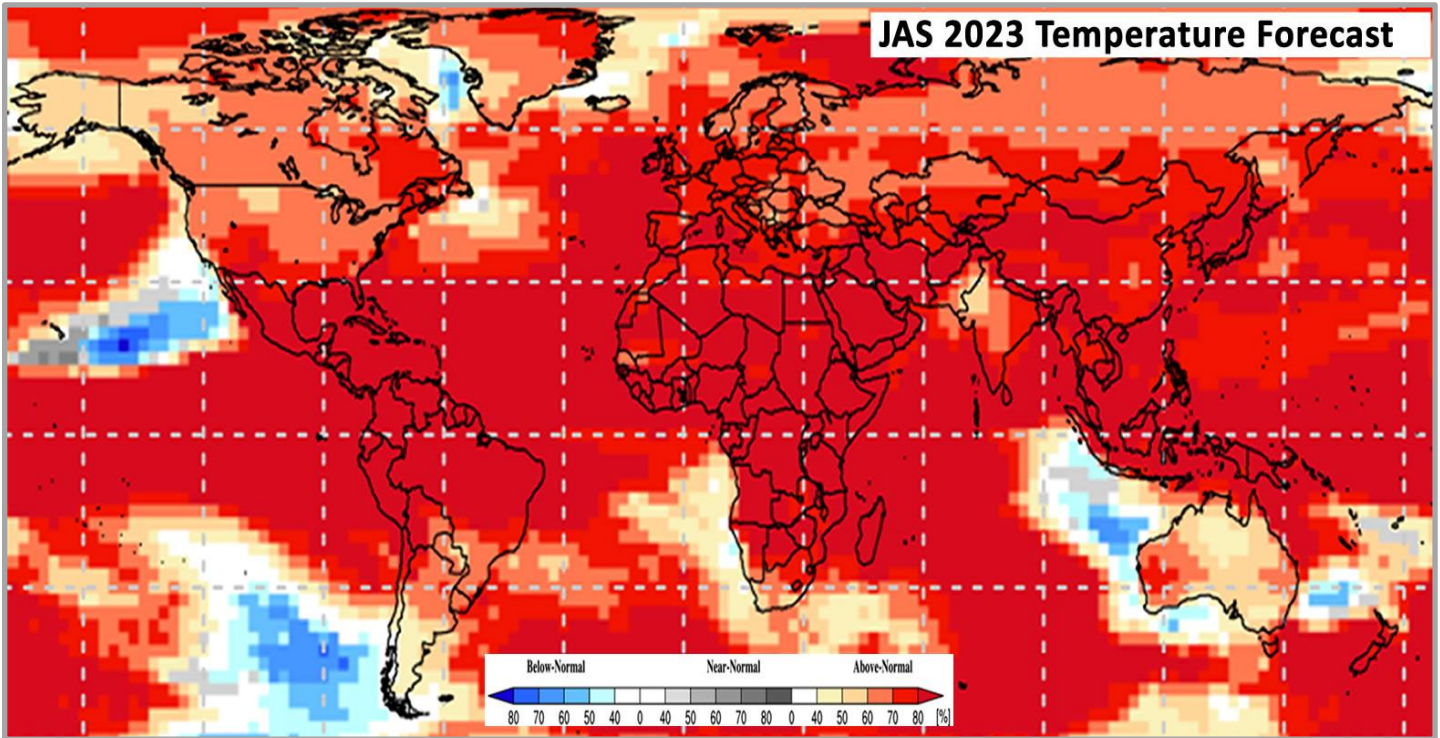


Figure 4: Probabilistic forecast for most-likely July-August-September (JAS) 2023 temperature tercile, based on July conditions. The white colour indicates that there is no dominant category across the model forecasts. Source: [WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble](https://www.wmo.int/en/lead-centre-for-long-range-forecast-multi-model-ens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



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

Crop Conditions:

Appendix 1:

Terminology & Definitions

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).