Overview:
As of the end of February, conditions are generally favourable for maize and soybeans while mixed for wheat and rice. For wheat in the northern hemisphere, there are areas of concern for winter wheat primarily due to dryness and recent cold conditions. For maize in the southern hemisphere, conditions are generally favourable with some dryness continuing to affect crops in South America while conditions in South Africa are exceptional. Rice conditions are mixed with adverse conditions across southeast Asia. Soybean conditions are generally favourable in the southern hemisphere, except for some areas in Argentina.
At a glance for AMIS countries (as of February 28th)

Crop Conditions at a Glance

**Wheat** - In the northern hemisphere, areas of concern for winter wheat remain in parts of the EU, China, the Russian Federation, Ukraine, Turkey, the US, and Canada.

**Maize** - In the southern hemisphere, conditions are mixed in Brazil for the spring-planted crops and the late-planted crop in Argentina. Conditions in South Africa are exceptional.

**Rice** - Rabi rice in India is under favourable conditions. In Southeast Asia, wet-season rice in Indonesia and dry-season rice in the northern countries are under mixed conditions. Harvesting has begun in Brazil.

**Soybeans** - In the southern hemisphere, conditions are generally favourable in Brazil, while Argentina is under mixed conditions.

Forecasts at a Glance

**Climate Influences** - El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. La Niña conditions are expected to continue (~80% chance for February to April and ~60% chance for March to May) and then transition to ENSO neutral (60% chance for April to June).

**Argentina** – Rainfall over the next two weeks is expected to be below-average, particularly over the core soybean growing areas.

**Black Sea Region** – The mid-term March-April-May (MAM) 2021 outlook has an increased probability of above-average temperatures across the region and below-average rainfall in the southeast of the Russian Federation and Kazakhstan.

**The United States** - For both the March and the mid-term March-April-May (MAM) 2021 outlooks, warmer than average conditions are likely across the majority of the US. Below-average rainfall is likely across the southeast and the central and southern Great Plains, while above-average rainfall is likely in the Midwest.

**Southeast Asia** - March to May will most likely be wetter than average in the Philippines, Malaysia, and mainland countries, while drier than average in central Indonesia.

* Assessment based on information as of February 28th
Wheat Conditions for AMIS Countries

Wheat: In the EU, conditions are generally favourable for winter wheat with some minor areas of concern in south-eastern Europe due to a recent cold spell, which may have affected crops with limited snow cover. In the UK, conditions are favourable. In Ukraine, conditions are generally favourable with adequate snow cover protection, however, below-average soil moisture in the south may affect crops in the spring. In the Russian Federation, conditions remain mixed for winter wheat due to continuing dry conditions since last fall in the Southern and North Caucasus. In Turkey, conditions are mixed due to continuing dry conditions and recent cold weather that may have led to winterkill. In China, conditions are mixed for winter wheat with below-average rainfall in the east reducing crop growth. In India, conditions are favourable with an increase in total sown area compared to last year. In the US, winter wheat continues are under watch conditions due to dryness and recent below-average temperatures throughout the Great Plains. In Canada, conditions are favourable in the main producing province of Ontario, however, below-average snowfall in the Prairies along with recent cold weather has placed the crop at risk of winterkill.

For detailed description of the pie chart please see box on page 6.

* Assessment based on information as of February 28th
Maize Conditions for AMIS Countries

Maize Conditions

Maize crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

Maize: In **Mexico**, sowing of the autumn-winter crop (smaller season) is ongoing under favourable conditions. In **Brazil**, conditions are mixed for the spring-planted crop (smaller season) as the harvest begins. A lack of rains in the main producing South Region during the critical grain-filling stage has noticeably reduced yields. However, the remaining regions are under favourable conditions. Sowing of the summer-planted (larger season) crop is ongoing under favourable conditions with an expected increase in total sown area compared to last year mainly in the Northeast, Central-West, and South regions. In **Argentina**, conditions have improved for the early-planted crop (usually larger season), however, a lack of February rains and high temperatures has affected the late-planted crop (usually smaller season) while going through critical developmental stages. Due to a lack of rainfall in the spring, a large amount of crop sowing shifted to the late-planted season, making the two seasons about the same size this year. In **India**, conditions are favourable for the Rabi crop. In **South Africa**, conditions are exceptional with ample rainfall bolstering the crop.

* Assessment based on information as of February 28th
Rice: In India, Rabi rice is under favourable conditions as transplanting is wrapping up in the eastern states. In Indonesia, harvesting of wet-season rice is ongoing under mixed conditions due to flooding in South Kalimantan. Yields of earlier sown crops are slightly lower compared to last year due to a reduction in rainfall earlier in the season. In Viet Nam, conditions are favourable in the south as the sowing of the winter-spring (dry-season) crop is complete and harvesting has begun in some Mekong River Delta provinces. In the north, sowing of the winter-spring (dry-season) crop has begun and is expected to see a reduction in total sown area compared to last year due to cold weather. In Thailand, dry-season rice remains under mixed conditions due to a lack of irrigation water, which is also expected to reduce the total sown area this year compared to last year. In the Philippines, dry-season rice is under mixed conditions as flooding has damaged crops in the provinces of Western and Eastern Visayas and some provinces of Mindanao. In Brazil, harvest has begun under favourable conditions. Total sown area has increased compared to last year.
Soybean Conditions for AMIS Countries

**Soybean Conditions**

Soybean crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in other than favourable conditions the climatic drivers responsible for those conditions are displayed. Crop Season Specific Maps can be found in Appendix 2.

**Soybeans**: In Brazil, harvesting is ongoing under favourable conditions, albeit delayed compared to the average due to the late start to the season. There is an increase in total sown area compared to last year. In Argentina, conditions are mixed across both the early-planted crop (larger season) and the late-planted crop (smaller season) as a lack of rainfall along with high temperatures in February has affected the crops particularly in Buenos Aires, La Pampa, Santa Fe and Entre Ríos. The crops are currently going through critical developmental stages and additional rainfall is needed to ensure good yields.

**Information on crop conditions in non-AMIS countries can be found in the GEOGLAM Crop Monitor for Early Warning, published March 4th**

*assessment based on information as of February 28th*
Climate Forecasts for AMIS Countries

Climate Influences: La Niña Advisory

The El Niño-Southern Oscillation (ENSO) is currently in the La Niña phase. This La Niña event is well developed, with below-average ocean temperatures in the central-eastern equatorial Pacific and tropical atmosphere circulation consistent with La Niña. La Niña conditions are expected to continue (~80% chance for February to April and ~60% chance for March to May) and then transition to ENSO neutral (60% chance for April to June).

La Niña conditions typically reduce March-to-May rainfall in East Africa, the northern Middle East, southern Central Asia, Afghanistan, Pakistan, and the southern United States. La Niña conditions typically increase March-to-May rainfall in Southeast Asia and March-to-April rainfall in Southern Africa. Southernmost India and Sri Lanka typically see increased rainfall into March.

Source: UCSB Climate Hazards Center

Global 30-day Subseasonal (SubX) Rainfall Forecast Anomaly

Multimodel mean subseasonal forecast of global rainfall anomaly for the 30-days starting from February 25th showing areas of above or below-average rainfall. The image shows the average of four Subseasonal Experiment (SubX) model forecasts from that day. The anomaly is based on the 1999 to 2016 model average. Skill assessments of SubX can be accessed [here](#). Source: UCSB Climate Hazards Center

The 30-day SubX forecast indicates a likelihood of above-average rainfall over the US Tennessee Valley, east Colombia, southern Venezuela, Guyana, Suriname, French Guiana, northern and southeast Brazil, Bolivia, northwest Argentina, central Morocco, Zambia, Zimbabwe, Mozambique, western Madagascar, the Philippines, and West Papua Indonesia. There is also a likelihood of below-average rainfall across the US gulf coast, southern Guatemala, northeast Brazil, southern Brazil, Uruguay, central and eastern Argentina, Ireland, France, Switzerland, Italy, Slovenia, Croatia, Bosnia and Herzegovina, Montenegro, Albania, western Greece, western Turkey, Cameroon, Equatorial Guinea, Gabon, northern Republic of Congo, southern Central African Republic, northern Democratic Republic of Congo, Uganda, south-central Ethiopia, southwest Kenya, Rwanda, northern and coastal Tanzania, Angola, northern Namibia, eastern Madagascar, northwest India, western Nepal, southeast China, Indonesia, western Papua New Guinea, and northern Australia.

* Assessment based on information as of February 28th
Argentina: Current Water Reserves and Climate Forecast

- In the province of Buenos Aires, rainfall remained below-average, which has caused water reserves to decline, especially in the north and west of the province.
- The center and southwest of Chaco and the center and south of Entre Ríos are also identified as areas with below-average soil moisture.
- In Córdoba and Santa Fe, rainfall has normalized and currently, the soil moisture reserves for soybeans are estimated to be fair to adequate.


Short-term Rainfall Forecast

Over the next two weeks, rainfall is expected to be below-average, not only in the core area, but also in the north of the country. For the week of March 2nd, no rains are expected in most of the soybean core area. During the week of March 9th, the rain forecast for the soybean core zone will not exceed 20mm.

* Assessment based on information as of February 28th
**30-day Soybean Water Stress Probability Scenarios**

PROBABILITY OF WATER STRESS IN 30 DAYS = 60%

PROBABILITY OF WATER STRESS IN 30 DAYS = 50%

The scenarios were developed by ORA-MAGyP based on the weather forecast of the SMN [https://www.smn.gob.ar/pronostico-trimestral](https://www.smn.gob.ar/pronostico-trimestral)

* Assessment based on information as of February 28th
Black Sea Region Outlook

Over the next three months (March-April-May), there is the probability of below-average rainfall in the Southern and Northern Causes along with southern areas of the Central and Volga districts in the Russian Federation. There is a probability of below-average rainfall across much of Kazakhstan with the strongest possibility in southern Kazakhstan. In addition, there is an increased chance of above-average temperatures for the next three months for the Russian Federation, Ukraine, and Kazakhstan with the strongest chances in the very southern areas.

3-month Rainfall Anomaly Probability

March-April-May 2021

3-month Temperature Anomaly Probability

March-April-May 2021

3-month (March-April-May 2021) probabilistic forecasts of precipitation and air temperature anomalies. The most likely category for below-normal, above-normal, and near-normal is depicted in blue, red, and grey shadings respectively. White areas indicate equal chances for all categories in both cases. The baseline period is 1993–2009. The figure is generated by the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble. Images from https://www.wmolc.org/home.

* Assessment based on information as of February 28th
United States Climate Outlook

For the March outlook in the United States, below-average temperatures are likely across the west coast with the highest chances occurring in Washington, Oregon, and northern California. Conversely, the eastern two-thirds of the Contiguous United States (CONUS) is likely to experience above-average temperatures, with the highest likelihood centering in the Great Lakes region and the Gulf Coast states. For precipitation, there is a likelihood of below-average rainfall in the southwest extending into the southern and central Great Plains, with the highest likelihood in Colorado, New Mexico, and western Texas. Above-average precipitation is likely from the Tennessee Valley north to the Great Lakes.

For the mid-term March-April-May (MAM) 2021 outlook, above-average is likely over most of CONUS with the highest likelihood (over 70%) centered over west Texas and southeast New Mexico. Below-average temperatures are likely in the Pacifica Northwest and Northern Rockies. For precipitation, below-average precipitation is likely over the Southwest, southern and central Great Plains, and across the Gulf Coast states. The highest likelihood for below-average precipitation is centered in Arizona and New Mexico. Above-average precipitation is likely in the Pacific Northwest and Northern Rockies. Additionally, above-average precipitation is also likely in the Midwest extending into northern New England and northeast Great Plains.

March-April-May Temperature and Precipitation Outlooks


Source: NOAA Climate Prediction Center

* Assessment based on information as of February 28th
Southeast Asia Current Seasonal Conditions plus 3-month Forecast

Precipitation totals for December 1st, 2020 to February 20th, 2021 are near average or above-average in most areas. In the Philippines, parts of southern Thailand, and Vietnam, totals are greater than 150% of average. In central Indonesia, conditions have been drier than average, with totals of around 80% of average in some areas. Southern mainland Thailand and nearby areas have been seasonably drier, but also more so than usual. The outlook for December 1st to March 5th, which includes a forecast from February 21st, shows potential season-to-date rainfall compared to average.

March to May will most likely be wetter than normal in the Philippines, Malaysia, and mainland countries, according to models from international centers (Figure 1-right). Forecasts have the highest confidence in above-average rainfall in the Philippines (~60 to 70% chance). Prevailing and forecast above-average rainfall is consistent with a historical tendency for precipitation during La Niña, which is currently active and forecast to remain active during March-April-May (~60% chance). Warmer-than-average conditions are expected in maritime areas. Drier-than-normal conditions are forecast for central Indonesia.

The current SubX forecast, from February 25th, shows a week of below-average rainfall followed by mixed rainfall conditions through March, with the next 30-day totals being average to below-average in parts of Indonesia and Malaysia, and above-average in the Philippines.

* Assessment based on information as of February 28th

Figure 1. Estimated and forecast rainfall since December 1st, 2020, and a 3-month probability forecast. The left panel is a UCSB Climate Hazards Center Early Estimate, which compares 2020/21 rainfall amounts to the 1981-2020 CHIRPS average. The map shows the difference from average for December 1st to March 5th, if the 15-day unbiased GEFS forecast from February 21st materializes. The right panel is a probabilistic forecast for most-likely March-April-May rainfall tercile from the WMO Lead Centre for Long-Range Forecast Multi-Model Ensemble, February 2021. The white color indicates that there is no dominant category across the model forecasts. Image from https://www.wmolc.org/home. Source: UCSB Climate Hazards Center
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% below average. This is only used when conditions are not likely to be able to recover, and impact on production is likely.
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 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

Crop Season Nomenclature:
In countries that contain multiple cropping seasons for the same crop, the following chart identifies the national season name associated with each crop season within the Crop Monitor. Within the Crop Monitor for AMIS countries, the larger producing season (most recent 5 years) has been assigned to the first season.

<table>
<thead>
<tr>
<th>Country</th>
<th>Crop</th>
<th>Season 1 Name</th>
<th>Season 2 Name</th>
<th>Season 3 Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>Soybean</td>
<td>Spring-planted</td>
<td>Summer-planted</td>
<td></td>
</tr>
<tr>
<td>Brazil</td>
<td>Maize</td>
<td>Summer-planted (larger producing season)</td>
<td>Spring-planted (smaller producing season)</td>
<td></td>
</tr>
<tr>
<td>Canada</td>
<td>Wheat</td>
<td>Winter-planted</td>
<td>Spring-planted</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>Maize</td>
<td>Spring-planted</td>
<td>Summer-planted</td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>Rice</td>
<td>Single-season</td>
<td>Late-season</td>
<td>Early-season</td>
</tr>
<tr>
<td>Egypt</td>
<td>Rice</td>
<td>Summer-planted</td>
<td>Nili season (Nile Flood)</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>Maize</td>
<td>Kharif</td>
<td>Rabai</td>
<td></td>
</tr>
<tr>
<td>India</td>
<td>Rice</td>
<td>Kharif</td>
<td>Rabai</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td>Rice</td>
<td>Wet-season</td>
<td>Dry-season</td>
<td></td>
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<tr>
<td>Mexico</td>
<td>Maize</td>
<td>Spring-planted</td>
<td>Autumn-planted</td>
<td></td>
</tr>
<tr>
<td>Nigeria</td>
<td>Maize</td>
<td>Main-season</td>
<td>Short-season</td>
<td></td>
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<td>Nigeria</td>
<td>Rice</td>
<td>Main-season</td>
<td>Off-season</td>
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<td>Dry-season</td>
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<tr>
<td>Russian Federation</td>
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<td>Spring-planted</td>
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<tr>
<td>Thailand</td>
<td>Rice</td>
<td>Wet-season</td>
<td>Dry-season</td>
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<tr>
<td>United States</td>
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<td>Winter-planted</td>
<td>Spring-planted</td>
<td></td>
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<tr>
<td>Viet Nam</td>
<td>Rice</td>
<td>Wet-season</td>
<td>Dry-season</td>
<td></td>
</tr>
</tbody>
</table>

* Assessment based on information as of February 28th
Appendix 2: Crop Season Specific Maps

Winter Planted Wheat Conditions for AMIS Countries

Winter wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

Spring Planted Wheat Conditions for AMIS Countries

Spring wheat crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

* Assessment based on information as of February 28th
Maize 1 Conditions for AMIS Countries

Maize 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

Maize 2 Conditions for AMIS Countries

Maize2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

* Assessment based on information as of February 28th
Rice 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

Rice 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

* Assessment based on information as of February 28th
Rice 3 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

Soybean 1 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

* Assessment based on information as of February 28th
Soybean 2 crop conditions over main growing areas are based upon a combination of national and regional crop analyst inputs along with earth observation data. Condition information is based upon information as of February 28th. Where crops are in less than favourable conditions the climatic drivers responsible for those conditions are displayed. The crop calendar is provided as a point of reference to provide information on what part of the life cycle the crops are currently in for each area.

* Assessment based on information as of February 28th
The Crop Monitor is a part of GEOGLAM, a GEO global initiative.

Photo courtesy of Brian Barker

https://cropmonitor.org/

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