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The Canadian Agriculture Weather Prognosticator

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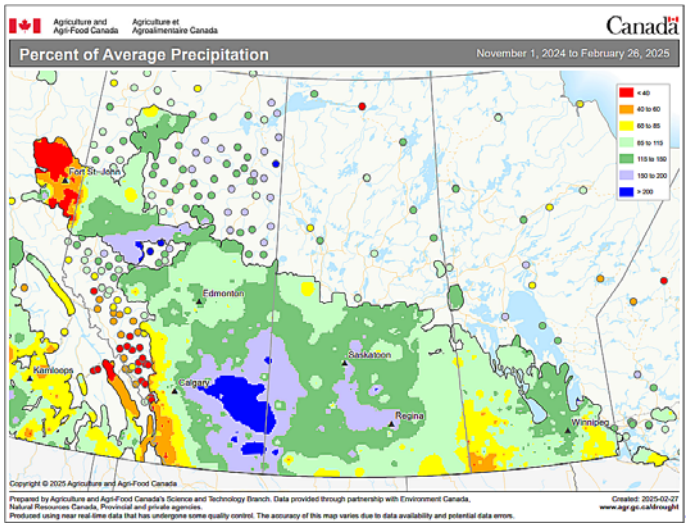
World Weather

- Argentina is turning too wet in the southwest while too dry in the far north.
- Brazil will have 20-25% of its Safrinha corn crop planted much later than desired and at risk of lower yields this year.
- India will be warmer than usual in March, but not excessively hot
- China's rapeseed and wheat are expected to begin development in favorable weather
- Southern Russia and Ukraine weather will be somewhat favorable for improved winter crop conditions this late winter and spring
- Central U.S. dryness will have many analysts looking for drought in 2025
- North Africa winter crop production may be down this year
- Eastern U.S. Midwest will be plenty wet this spring.

Another 30-Days Of Limited Precipitation

Winter is not usually a good time to make up soil moisture deficits especially once frost is in the ground. Normal precipitation is also quite light making it difficult for a serious change in soil moisture to take place and February was no exception.

Most of the dryness relief that occurred in the Prairies since late last summer occurred in November when two storm systems rolled across the region producing some significant precipitation. That was also a period when persistent warm weather from the summer and autumn gave way to winter coolness.



Some precipitation has occurred periodically since that time, but none of it seriously changed soil moisture in the Prairies like that of November. The most recent 30 days failed to bring much moisture to the region, but that is typical of February. The greatest moisture deficits occurred in central and southern Manitoba, far southeastern Saskatchewan and the British Columbia portion of the Peace River Region where it was more notably drier biased.

February's precipitation (or lack thereof) had little to no impact on the moisture profile. Normally late March and especially April is the first time in the new growing season that precipitation can be great enough to seriously improve soil moisture, though that is dependent upon snow cover and temperatures.

March weather has not changed greatly from last month's expectations; however, precipitation was removed from a part of the southwestern and central Prairies due to the return of colder weather during mid– to late-March. That puts greater pressure on April weather to get soil moisture to adequate levels for planting and yet getting rain in April could lead to delays in the start of fieldwork.

North America is still under the influence of drought, although dryness in the Prairies is not nearly as serious as it was in recent past years at the start of the growing season. That does not mean all worry is gone over the coming growing season.

As World Weather, Inc. suggested in the previous prognosticator, the arrival of the solar maximum of sunspot numbers brings a good potential for change. Some of the weather change coming has al-

Another 30-Days Of Limited Precipitation (from page 1)

ready been hinted at by the wetter start to the growing season last spring and early summer and the greater precipitation of November. The better snow of this winter also suggests better times may be lying ahead.

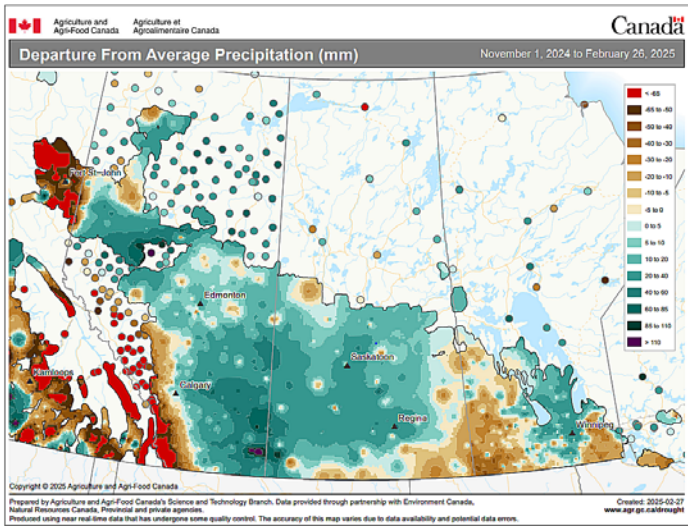
With all of that said, significant moisture deficits remain in the soil across much of the southern Prairies and in a small region west of the Highway Two corridor in Alberta. Snow free conditions in southern Alberta has many producers on the edge of their seats concerned about drought potentials for yet another year.

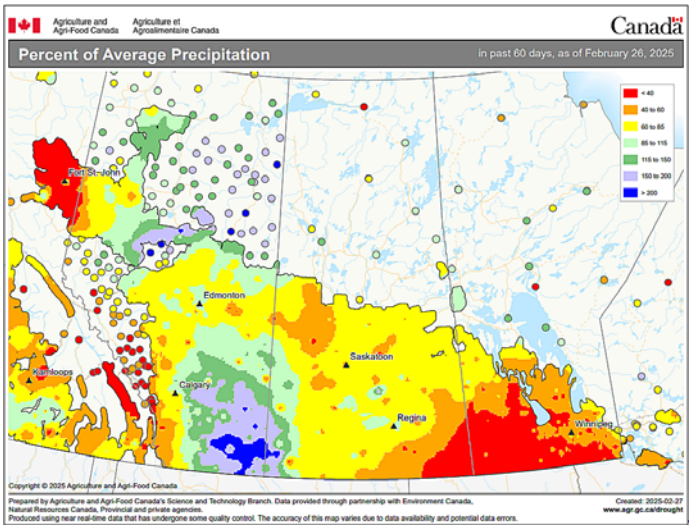
World Weather, Inc. does not anticipate any serious changes to the moisture profile or precipitation pattern during March. Moisture during the month will be below normal for most areas and temperatures will be near to below normal except in far western Alberta where readings may be warmer biased.

Not much fieldwork usually occurs in March, though sometimes the snow free areas in the southwestern Prairies can get a head start on fieldwork for some cool season crops like peas. Not this year, though. Colder-than-usual temperatures may return to the region for a little while in mid- to late March setting back any warming that might occur early in the month. That will likely delay any early season fieldwork until April.

April will be the first month in which fieldwork will be possible starting in the southwestern Prairies where temperatures will be warmest. The warmer weather in April is likely to bring on some periodic precipitation and that will add to some of the delays in getting into some fields.

Increasing precipitation in April will be just the beginning of a wetter trend for parts of the Prairies. May will be wetter and June wettest. Farmers may be faced with new challenges this year. Instead of fighting drought and dryness there may be some areas in the Prairies that cannot plant because of wet field conditions. That will have to be closely monitored.





Complicating the wetter planting season this year will be the potential for additional cold biased conditions later in March and possibly lingering into early April. The cool weather will conserve soil moisture through slower evaporation, but if seasonal rains begin with the arrival of warmer temperatures in April, May and June there will be some potential that conditions will be poor for fieldwork and early season crop development—at least for a little while.

The one feature that will help to curtail some of the potential rainfall this spring is the solar maximum. The winter and spring seasons following the peak of the sunspot cycle tend to have less rain than in other years. The influence of the solar cycle could be perfect in restricting the impact of wet weather during the spring and early summer.

July weather should trend a little drier especially in the southern Prairies and temperatures will also warm better during that month and crops will have a chance to improve with less precipitation and warmer biased conditions.

August weather should be more favorably mixed to support ongoing crop development and general fieldwork.

The bigger and more persistent droughts in history have always had difficulty breaking down, but please be sure to note that all of them did eventually break down and in many cases rain became heavy and persistent in the first year ending drought.

There is some potential that such conditions might occur in 2025, but the forecast will remain a little tenuous until the first significant rain begins to fall and that may be a while as noted above. May and June should be wetter than April which is not unusual for most production years.

March Has Potential For Change; April More likely

Weather in the Prairies will have some potential for change in the next few weeks; however a stratospheric warming event may bring just enough cooling to North America during March to prevent the change from being significant. At the time of this writing the Stratospheric event is still being heavily scrutinized and there is much debate over its influence on North America. Unfortunately this is a change taking place in the upper atmosphere at the time of this writing and it may take a week for a clearer picture to come into focus for March.

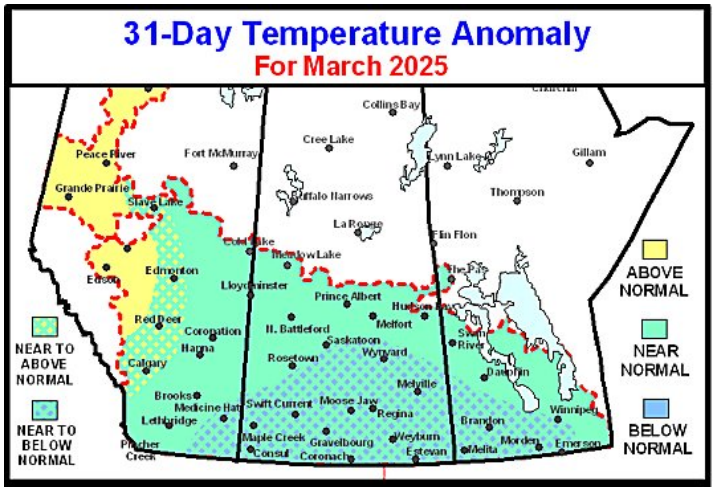
With that disclaimer stated, March weather should be similar to that of February from a precipitation perspective. The month will start out warmer than usual and should trend cooler in the middle to latter part of the month. The intensity of the coming colder weather should not be anything like that of the cold surges of January or February, but some cooling should be expected.

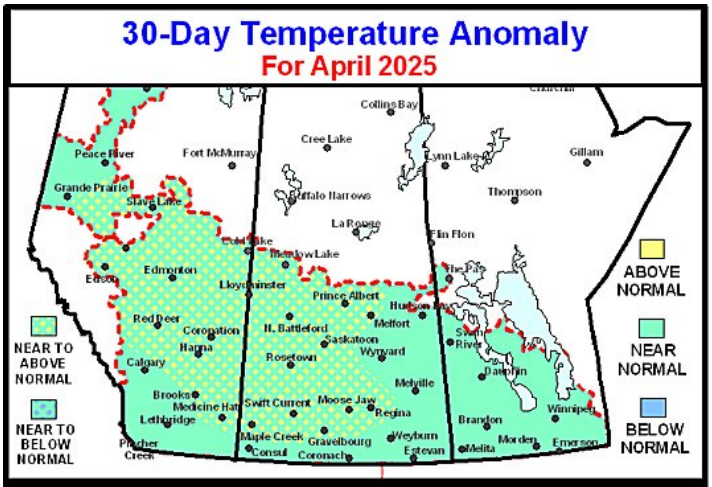
There will be potential for rain and snow to fall as the transition from the dry and warm bias of early month gives way to the cooler and dry bias for mid– to late month. The lack of moisture in the atmosphere should prevent a major storm from evolving, but if for some reason moisture flux into the Prairies occurs over the next couple of weeks there might be just a single storm of significance for a part of the east. That is not in the official outlook today, but it could be inserted in the Prairies weather outlook next week depending on how the stratospheric warming event plays out.

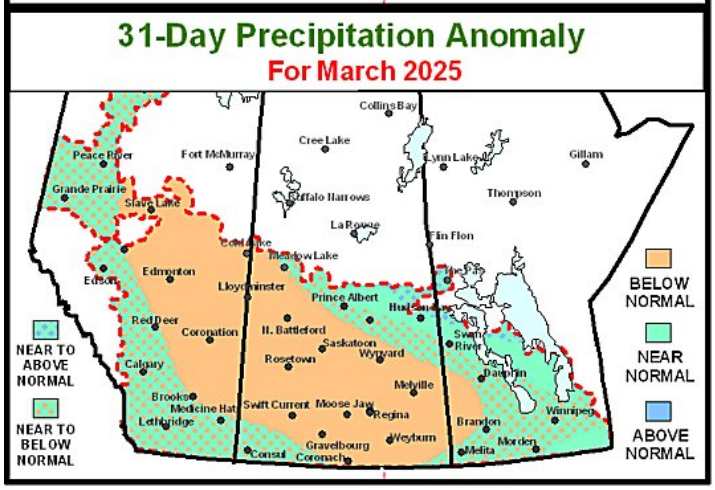
For now, March is unlikely to provide great amounts of moisture to the Prairies and that will leave the region with status quo soil moisture at the end of this month with some areas a little drier. The greatest precipitation may occur in northeastern Saskatchewan and northern and eastern Manitoba.

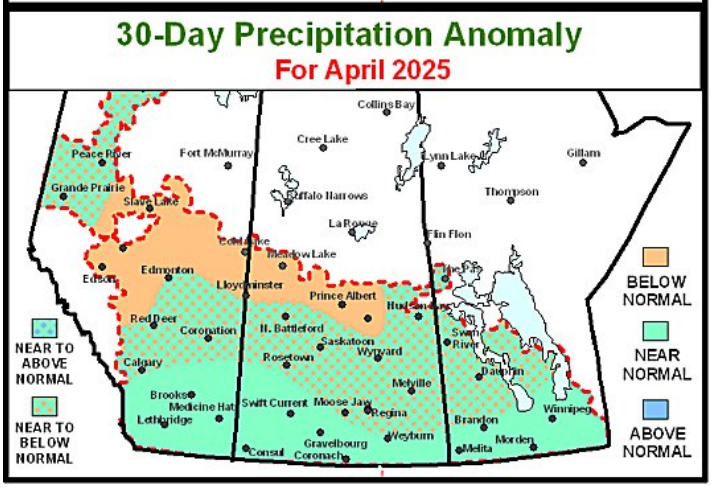
April weather will be trending warmer and the jet stream will come far enough to the north to bring some welcome moisture across the southern Prairies. No big soaking rain or major snow event is anticipated, but a little better pattern is anticipated that should generate a few periods of precipitation.

The warmer weather of April should allow more moisture to be retained in the atmosphere which should set the stage for greater rainfall a little later in spring. May and June are currently looking to be wetter for the Prairies and that could interfere with farming activity. The south should be wettest.

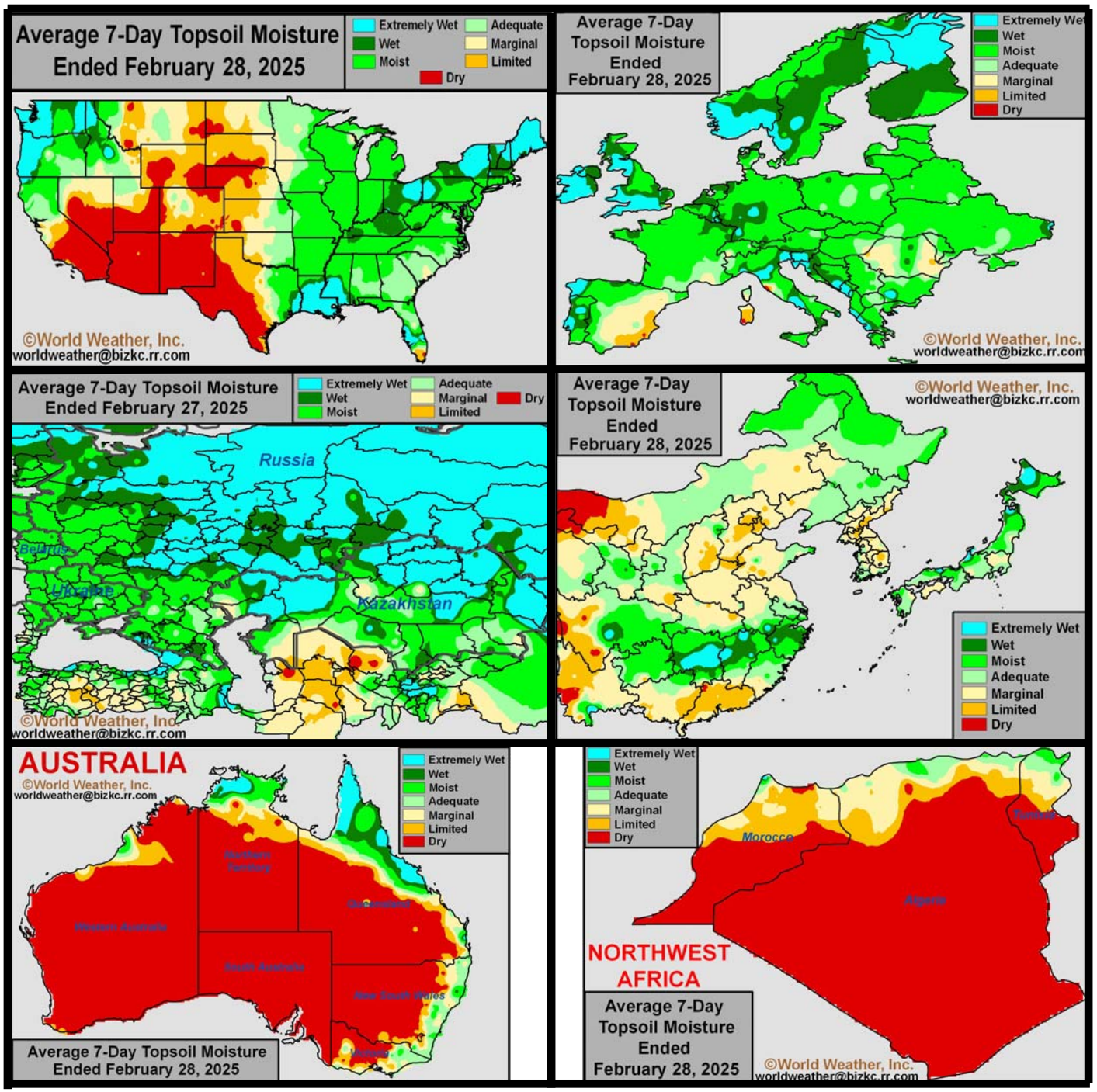








Selected Weather Images From Around The World



U.S. soil moisture is still rated favorably in the heart of the Midwest, the Delta and southeastern states. These areas will get significant precipitation in the coming two weeks to maintain adequate to excessive topsoil moisture. Dryness in the Great Plains remains a concern and that dryness may prevail through March before there is a better chance for rain in April "for some areas". Europe weather has maintained favorable soil moisture across most of the continent. Dryness in southern Spain should be eased in the next week to ten days. Dryness in the lower Danube River Basin may prevail for a while. In the former Soviet Union, dryness last autumn from Ukraine into western Kazakhstan has been eased, but not eliminated and greater precipitation must occur this spring to protect production. China's drier bias in both the far south and east-central areas will be partially eased in the next ten days resulting in a favorable outlook for wheat and rapeseed. Morocco and northwestern Algeria will get some needed rain this month.

May, June Weather "Should" Turn Wetter

May and June weather in the Prairies "should" trend wetter this year. That statement is based on 1) the 18-year cycle, 2) the demise of La Nina (expected by late March, and 3) the negative phase of Pacific Decadal Oscillation (PDO). There has also been some favorable winter precipitation in the Prairies this year, admittedly that came mostly from November, but the unusual cold in January and February stifled the precipitation bias.

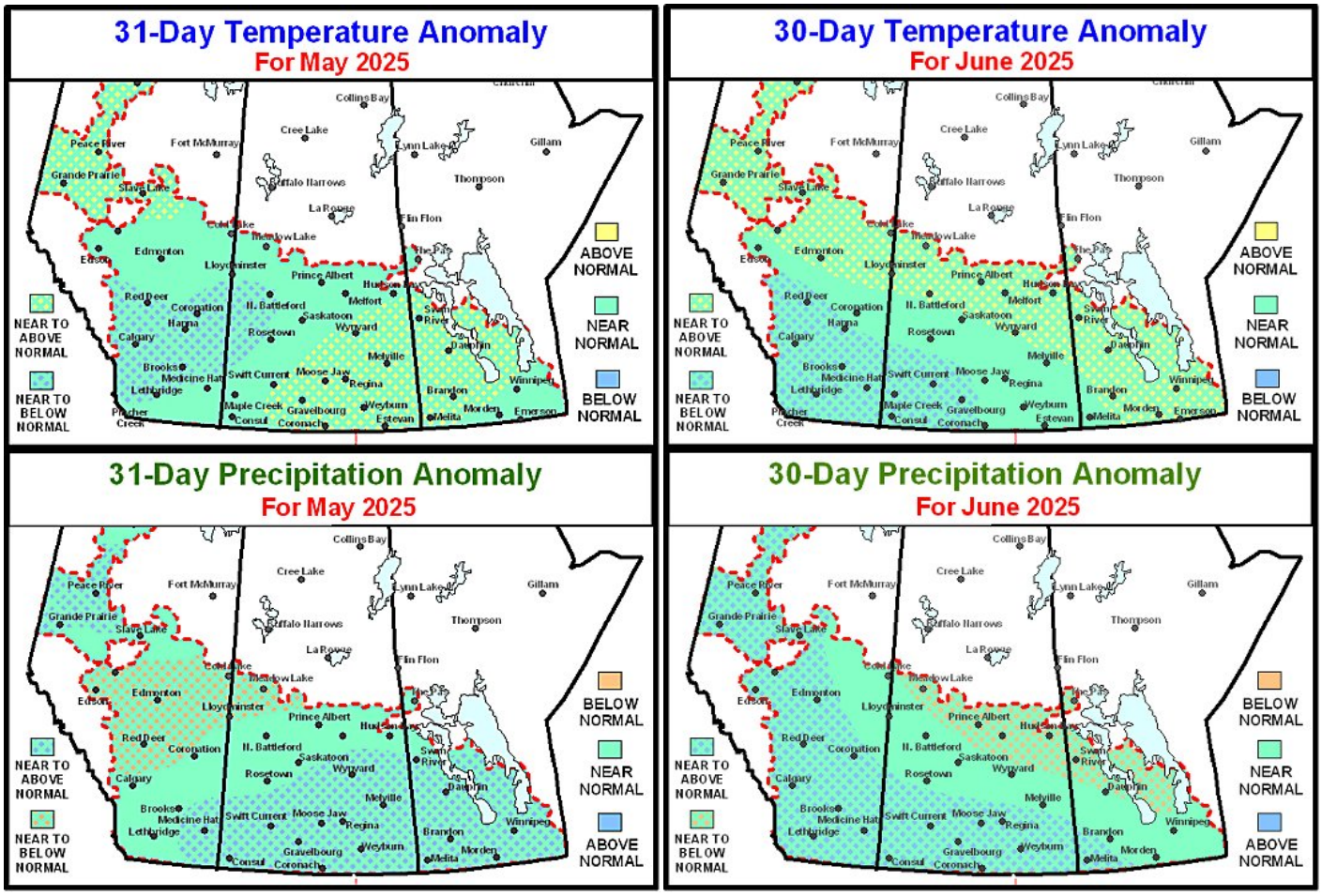
As noted in the Feb. 1 Canadian Prairies Agricultural Weather Prognosticator, there have been two short term weather patterns dominating the winter season. Both patterns do not promote much precipitation in the Prairies and one of the patterns is warm biased while the other is cool biased. These two patterns will prevail into spring and that provides some argument against the wetter outlook for May and June.

There is also influence coming from the solar (sunspot) maximum suggesting May and June precipitation will be more limited. These conflicting arguments make the late spring and early summer outlooks very challenging and of lower than usual confidence.

Dryness in the U.S. Plains and across a part of the Prairies is always a concern when coming into spring and that bias coupled with the solar cycle and the two short term weather patterns mentioned previously have left much debate in the outlook.

World Weather, Inc. believes that the 18-year cycle data will have the greatest influence on the Prairies along with the negative PDO. The solar maximum influence should not be ignored by any means, but its influence is a little weaker than the 18-year cycle data. In addition to that there are five analog years being looked at for 2025. The first four years all have some flavor of wet-biased weather in June and the fifth year is a parallel with neutral ENSO conditions that are likely this summer and that comes from 1968.

1968 seems to parallel or reinforce the four 18-year cycle years in supporting better rainfall in May and June and that is the reason we have chosen to release our preliminary outlook maps of May and June showing a wetter bias. <u>These outlook maps will be further scrutinized over the next few weeks and have a potential to be reduced in their predicted rain distributions. However, World Weather, Inc. does not see another serious drought year for 2025</u>. Some dryness is still possible, but there will be some timeliness in whatever rain does fall to support crops.



U.S. Plains Dryness Will Not Improve Much In March

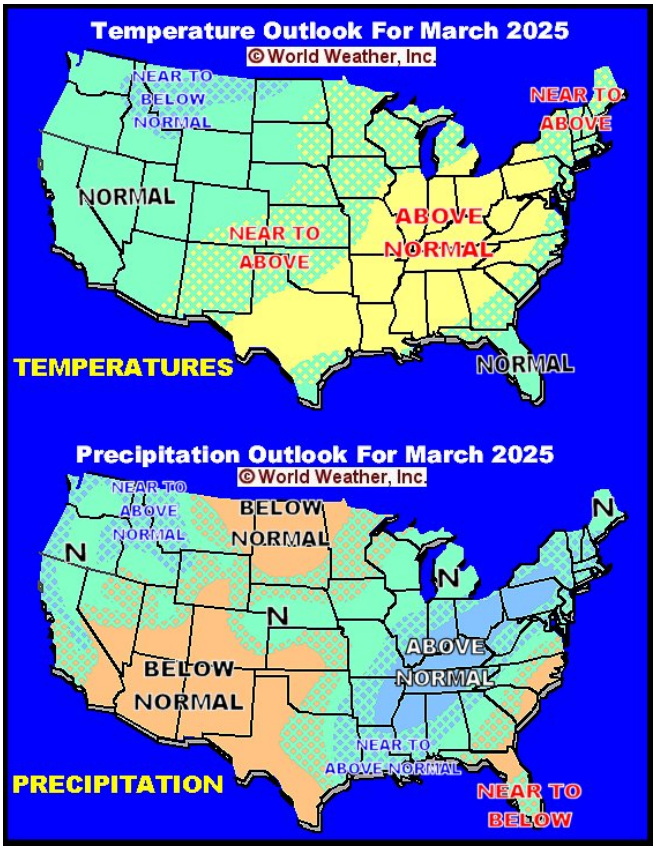
Weather in most of the U.S. Plains during February was not very great leaving moisture deficits in place that may become an issue as the warm season arrives. March is unlikely to bring much change to the region, although a little more rain and snow will fall in Nebraska, northwestern Kansas and northeastern Colorado. Precipitation will remain limited in the northern and southwestern Plains while the lower and eastern Midwest, Delta, Tennessee River Basin and northeastern states are wet biased.

Most of winter wheat production areas in the central U.S. experienced some cold weather in February and precipitation was restricted. The same limited precipitation bias also occurred in the upper Midwest while the northwestern Plains were wetter biased. Concern remains over the lack of soil moisture in the central and southwestern Plains and the upper Midwest with some lingering worry over moisture deficits in both Canada's Prairies and the northwestern U.S. Plains.

November brought significant moisture to central North America from the Prairies into the central and southwestern Plains and a part of the western Midwest. That stormy weather has carried crops through the winter, although precipitation in December, January and February was certainly not greater than normal and most of it was lighter than usual. However, temperatures were cold in January and much of February and that helped to conserve soil moisture. Some snow fell during the colder weather and that has melted into the topsoil allowing some moisture replenishment in a few areas.

Most of the moisture deficits in the central United States and Canada's Prairies are about the same today as they were in early December and change is not very likely for a while longer. The biggest threat to soil moisture is the warmer temperatures that will dominate the first half of March. The warmer bias will induce faster drying rates and that may lead to greater moisture deficits by the time April comes along.

March weather will perpetuate a wet bias in the Delta, Tennessee River Basin and northeastern states as well as the lower and eastern Midwest. Those areas are wet biased today and they will remain that way a month from now. Similarly, dryness in a part of the southern Great Plains, the southwestern desert region, northern Mexico and the southern Rocky Mountain region will also prevail during March as will dryness in the northern Plains. There is also a narrow band of poor soil moisture from northern Florida into eastern Virginia and that, too, will prevail in March while the Pacific Northwest does relatively well with precipitation as will the Sierra Nevada and some of the central valleys of California.



Temperatures during March are predicted to be warmer than usual in the eastern half of the United States, mostly due to the first half of the month. There is some potential for cooling in late March and more likely in April and a close watch on that potential will be warranted since some wheat will have resumed growth by then.

The warmer biased temperatures in March will also increase evaporation from the drier areas in the Plains making the need for rain much greater as April approaches.

If the March weather outlook is correct, the start of spring planting may be delayed in the Delta and Tennessee River Basin along with the lower Midwest while fieldwork in the southern Plains is a little slow and winter wheat development may be slow in areas that have low soil moisture. Fieldwork in the northern Plains and upper Midwest could advance swiftly in April if time timely rain falls while the ground is not excessively wet. March should be the last month for these anomalies, although there is potential for more drying in the central Plains and a part of the southwest Corn and Soybean Belt.

The bottom line is that March is unlikely to provide enough change in weather to seriously change the moisture profile that is in place today. Warmer temperatures may reduce some of the soil moisture in the Plains and that should be closely monitored because it will be imperative for greater rain in April to protect production potential.

Eastern North America To See Late Season Frost, Freezes

NOTE: While reading this interesting article about late season frost and freezes in U.S. crop areas and possibly Ontario and Quebec It is important to recognize that western Canada will likely experience drier biased conditions while these cold events occur in eastern North America. Notice the ridge of high pressure over western Canada. This will keep Alberta out of the cold when these events take place, but there could be some impact on Manitoba and eastern Saskatchewan.

The examples of this cold are for April with the greater impact on the United States; however a similar pattern is possible in the east half of Canada and the northeastern United States late in the spring as well. Again, during that bout of cold in the east the western Prairies will be briefly drier and warmer biased.

Warm weather in North America this week has provided a great sigh of relief for folks suffering from bitter cold earlier this month; however, additional cold surges are likely this spring. World Weather, Inc. believes other bouts of colder than usual weather are likely after a period of warming like that which is under way now and the impact could be somewhat threatening to winter and early-planted spring crops later in the year.

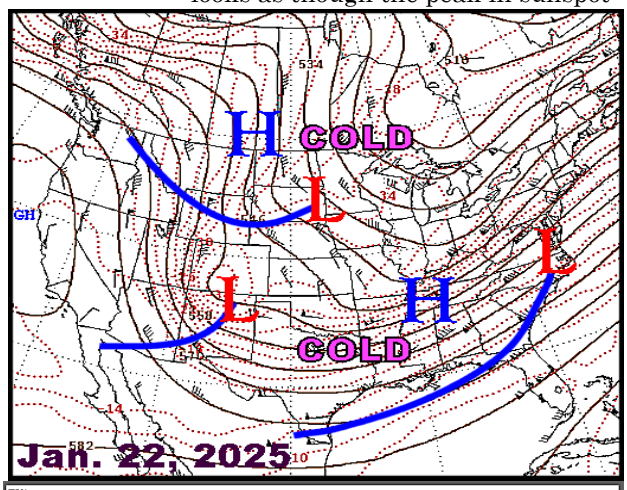
A couple of impressive cold surges occurred in North America this winter impacting areas from Canada to northeastern Mexico and the southern United States. Some forecasters and analysts have claimed that these events were random and unexpected, but World Weather, Inc. has identified similar patterns in the winter of 1970-71 and 2006-07 and to a lesser degree 1988-89. In each of those winters there were alternating periods of warm and cold weather and in the cases of 1970-71 and 2006-7 there were a couple of very impressive deep troughs of low pressure that impacted North America just like that of this year.

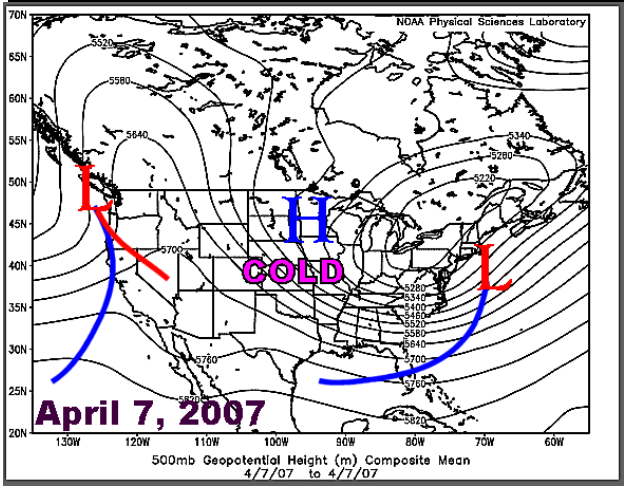
Some will remember the great Easter freeze of 2007 that damaged all kinds of crops across the southern United States. Winter wheat was impacted along with some early season spring crops and a host of fruit trees and shrubs. An exact repeat of the 2007 freeze is not expected, but the same pattern that presented impressive cold surges like that of January and earlier this month were seen in those winters as well.

That fact and the very low humidity remains from multiple years of drought from Canada's Prairies into the U.S. Plains and upper Midwest will contribute to more wild swings in temperature. Recent afternoon temperatures in the 60s Fahrenheit as far north as southern South Dakota contrasted sharply with low temperatures that were in the lower -30s and -20s in the same state no more than a week earlier. The same kind of wild temperature swings have impacted all areas from Canada's Prairies to Texas and a few neighboring areas to the east in the Gulf of Mexico coast states.

Low relative humidity always allows the air to heat and cool much faster and more significantly than air that is fully charged with moisture. Until significant precipitation returns to the Prairies and the Plains, the wildly swinging temperature pattern will continue. The returning upper air patterns from 1970-71 and 2006-07 are already providing an environment for big temperature changes, but the low relative humidity is exaggerating those changes and this will likely continue.

It is also very important to note that winter seasons that follow the solar maximum tend to be colder biased in North America and that was certainly the case this year. It looks as though the peak in sunspot



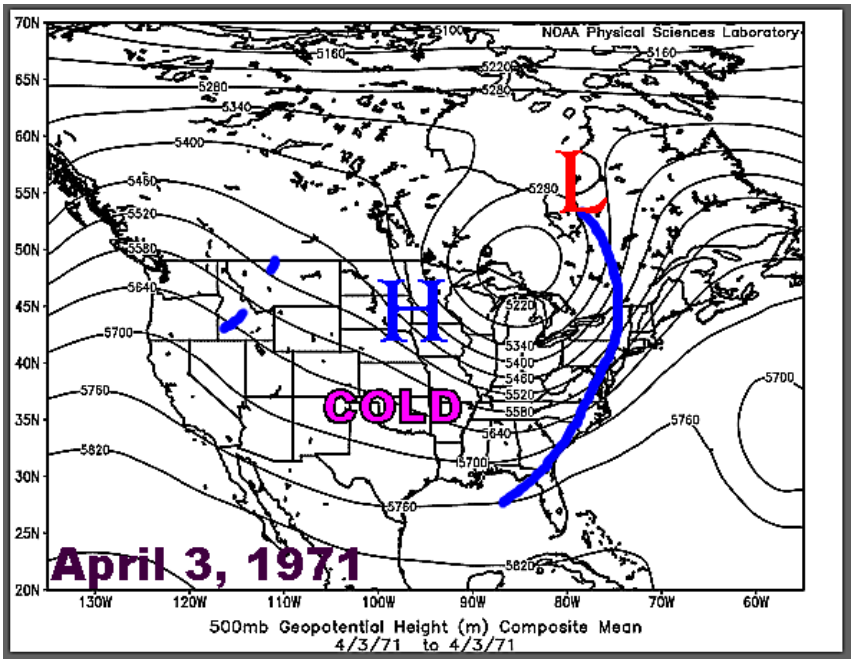


Eastern N. America To See Late Season Frosts (continued from [page 7)

numbers (solar maximum) occurred in August of 2024 and looking at the previous seven times that such a peak in the cycle has occurred since 1900 the results have generally been similar. Adding this fact to the dry air over North America and the returning upper air pattern of the past all adds up to more wild swings in temperature.

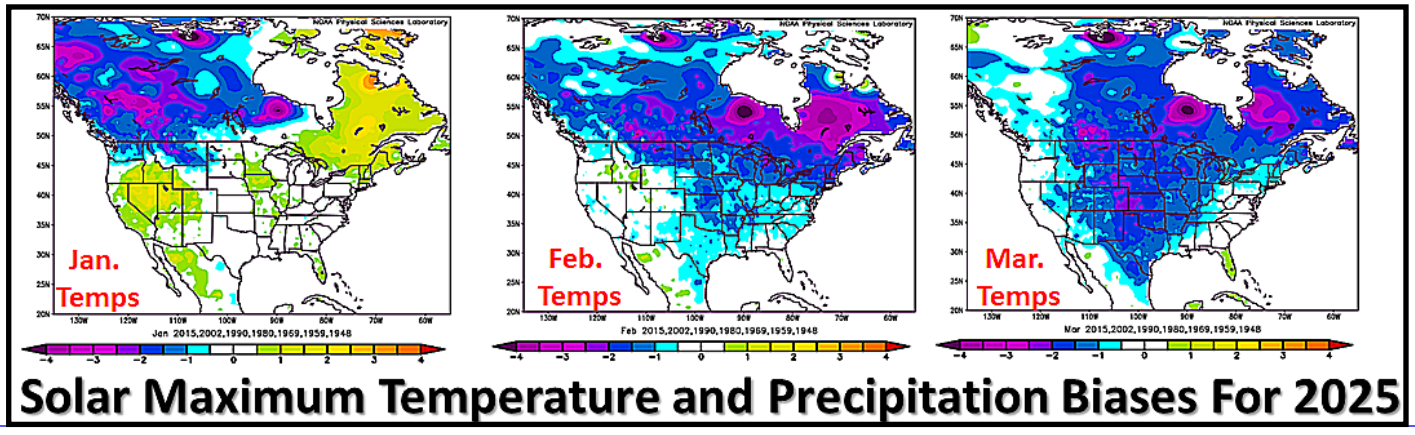
These predicted swings in temperature have occurred in the past and no one should tie these events into climate change. With that said, World Weather, Inc. fully expects to see additional infrequent bouts of significant cold air into the middle of North America this spring and if there is enough warm weather prior to the cold surges it will be possible that some winter wheat and possibly a few early planted spring crops will get nipped when the deeper cold surges return.

This week's warm weather will help to wake up dormant crops in the southern U.S. Plains, Delta and southeastern states, but aggressive crop development is not very likely unless the warm period lasts more deeply into mid-March which is a possibility. Keeping an eye on soil temperatures, crop development and the long term weather trends will help to make a difference on producer decision making this spring. Some areas of the Midwest and Great Plains will need to be cautious about planting too early so that a sudden surge of cold air does not damage newly emerged and developing crops. This is not much of a concern for the next few weeks, but more so for possibly later in the spring season when planting is normally getting under way.



Some highly controversial weather modeling is trying to predict stratospheric warming events has revealed the potential for dramatic warming in the stratosphere a week from now. If that event occurs as advertised in recent days there could very well be a split in the polar vortex placing one deep upper level low pressure system over a part of Canada and another over northeastern Europe or northwestern Russia during mid-March.

If the polar vortex does split with each of the vortices moving into the positions noted above, the odds will become favorable for a new surge of cold into North America during the second half of this month. It is still unclear what the timing might be for this and it is still somewhat debatable over the significance of the event to begin with, so, much caution is advised.



Argentina Flooding May Be Serious For A Few Areas

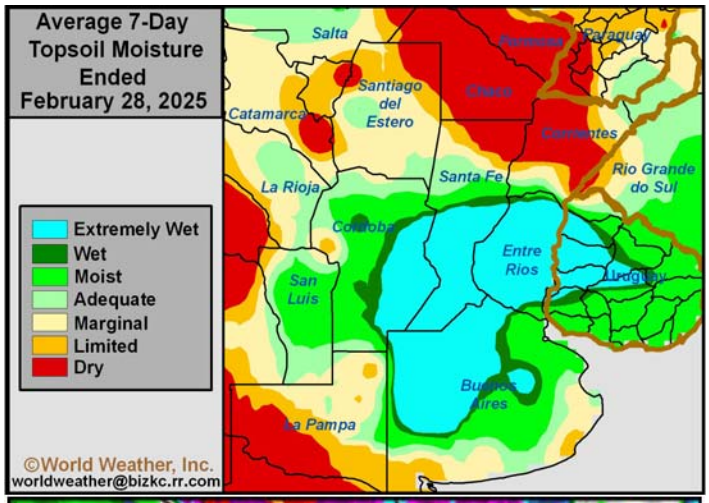
Argentina has dealt with excessive heat and drought-like conditions at times during the spring and summer this year. Some of the early season crops were damaged by such conditions and yields are down from those originally anticipated this year. Rain began to improve the moisture profile early this month and the improvement for some central areas may have put back some of the lost production potential; however, now the nation's key production areas are bracing for heavy rain that will create a new problem with flooding.

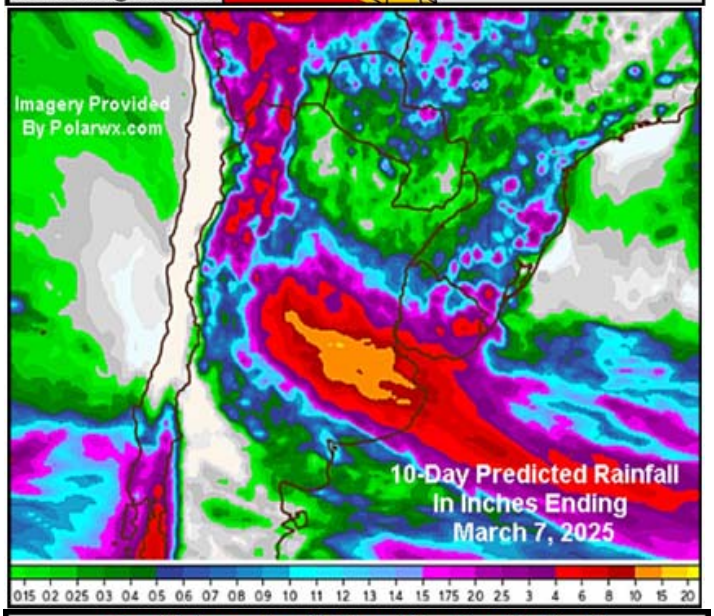
The latest soil assessment for Argentina clearly shows the area most impacted by rain in the past week. Western, central and northern parts of Buenos Aires and some areas in southeastern Cordoba, southern Santa Fe and southern Entre Rios are excessively wet today. Some of that has come from the past two nights of moderate to excessive rainfall. Sunday night brought in 3.00 to 5.00 inches of rain with some 7.00-inch amounts resulting in local flooding, but the ground had been dry for a long enough period of time that none of that flooding likely lingered very long. Rain last night was much lighter and occurred a little farther to the north.

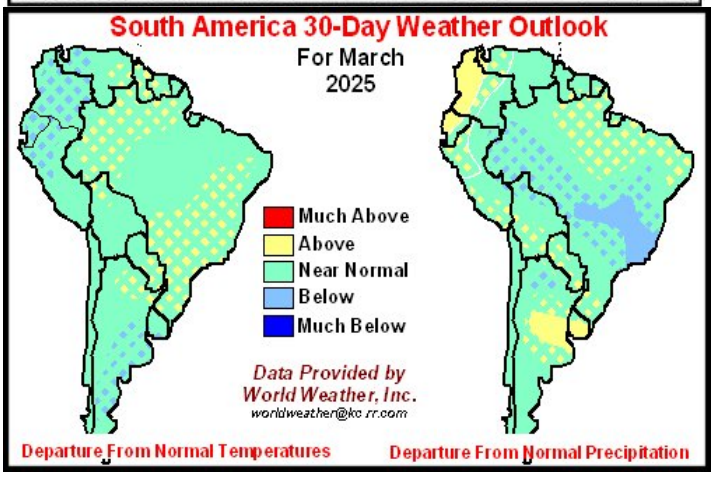
The pattern in Argentina continues wet-biased for the next week to ten days. Rain will fall on a near daily basis in this coming week with additional rain totals for the entire period varying from 4.00 to more than 10.00 inches. Concern over flooding is high because of most computer weather forecast models suggesting no more than a day or two of dry weather will occur between rain events leaving the ground to become progressively wetter so that flooding becomes more inevitable. A part of Buenos Aires is seen with standing or running water in it during the latter part of this week into next week. That could damage some crops and certainly some property. Drier weather will be imperative immediately after this heavier rain event takes place.

World Weather, Inc. believes a short term break in the wet bias may occur for a little while in early March, but additional heavy rain will be possible a little later in the month. Sunseed will be the first crop to be impacted by the wet bias with a decline in crop quality expected.

Early season corn will experience slower maturation rates and delayed harvesting, but it should survive. Soybeans, sorghum, peanuts and late season corn will be impacted by the wet weather and will require drier weather later in March to prevent a negative impact from evolving.



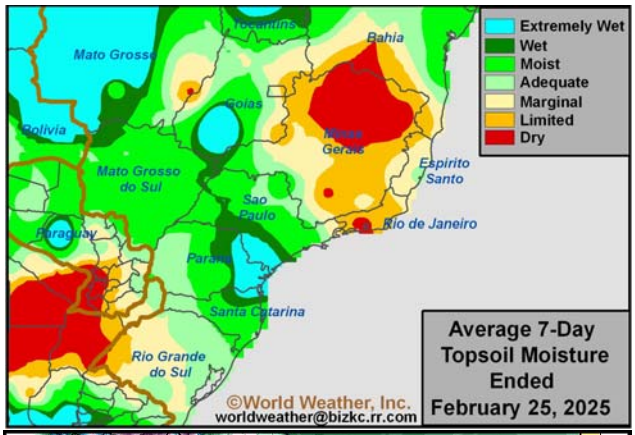




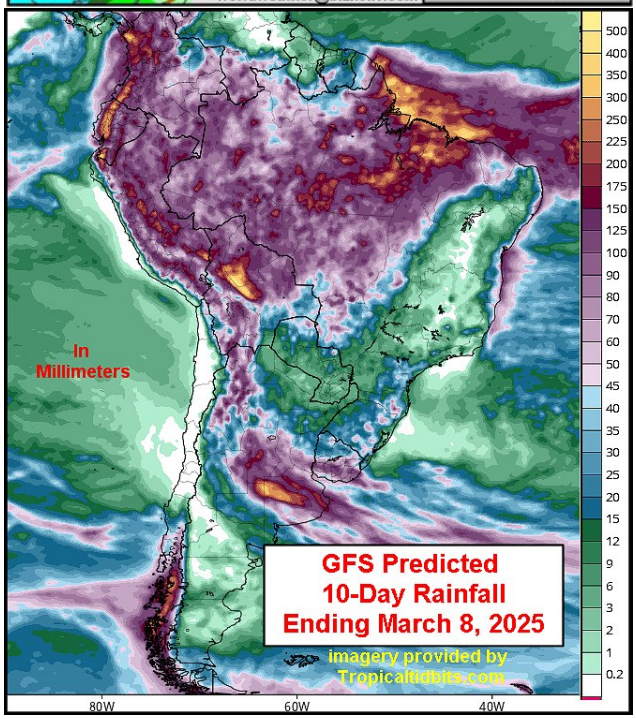
Center South, NE Brazil Dryness Threatens Crops

Brazil soybean and first-season corn harvesting remains a little behind last year's pace despite significant gains in the past week. Rainfall varied significantly across the main production areas with many areas in the far south and northeast receiving little or no rain. In addition to the lag in soybean harvesting, Safrinha corn planting remains a little behind last year's pace as well.

Moisture decreased significantly in much of Minas Gerais and southern Bahia recently. Most locations outside southwestern Minas Gerais have short to very short topsoil moisture. Subsoil moisture is adequate or marginally adequate. Other production areas had adequate to excessive moisture.



Harvesting is ongoing across Brazil. As of February 23, soybean harvesting was 36.4% complete, up from 25.5% the previous week but down from 38% this time last year. First-season corn harvesting was 20.9% complete compared to 24.9% this time last year. Dry bean harvesting was 53.9% complete, well ahead of 40.2% this time last year. Rice harvesting was 11.7% complete, up from 5.9% last year. The lack of abundant rain was beneficial as producers were able to make significant harvest progress.



Significant progress was also made for Safrinha corn planting during the past week due to the lack of abundant rainfall and more aggressive soybean harvest. Planting was 53.6% complete as of February 23, down from 59.0% this time last year. While drier weather is needed in the short-term to maintain a more aggressive soybean harvest pace and Safrinha corn planting pace, timely rain will still be needed to limit drying. Some of the Safrinha corn areas in center south Brazil still have enough moisture to support aggressive establishment and early-season development, though rain may be needed later in March to maintain a good outlook for the corn.

A large section of Brazil will trend drier than usual during the coming week. Mato Grosso, Mato Grosso do Sul, Goias, and Rio Grande do Sul will continue to receive rain on a frequent basis despite lighter precipitation amounts. Moisture totals by next Tuesday morning will range from 0.50 to 2.00 inches with local amounts of 3.00 inches or more in Mato Grosso and Mato Grosso do Sul. Other locations will receive 0.10 to 1.00 inch of rain, though several areas in Minas Gerais and southern Bahia will be mostly dry. Below normal precipitation will potentially persist for much of crop country during the March 5 – 11 period as well.

The lack of abundant rain will continue to support a good environment for aggressive soybean, first-season corn, and other crop harvesting for much of Brazil in the coming weeks. Periods of erratic rain in center-west and southern Brazil may limit the harvest at times, though significant progress is still expected. Safrinha corn planting will also advance swiftly in the main production areas. Center-west Brazil will receive enough rain to support relatively good establishment and early-season development, although the rain may slow fieldwork forcing more planting in March raising the potential for dryness during reproduction. Significant rain will still be needed later in March to support ideal long-term crop prospects. Other production areas in southern and center-south Brazil may trend a little too dry for ideal Safrinha corn establishment and the need for significant rain will increase later in March.