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The Canadian Agriculture Weather Prognosticator

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World Weather At A Glance

- Center west Brazil is still too dry, but should start getting rain for soybean planting soon
- Southern Brazil has been inundated by too much rain and replanting of corn and soybeans will have to occur
- Russia's Southern Region and Ukraine dryness has been eased and unusually warm late season temperatures should improve winter crop establishment
- Australia dryness cut into winter wheat, barley and canola yields in the west, but conditions in the southeast have been more favorable
- Argentina has begun receiving drought relieving rain, but the moisture comes too late for winter wheat. Corn, sunseed, soybean and peanut planting should improve
- Western Europe is trending much wetter and long term drought relief is expected as rivers and streams rise.

October Moisture Offers Hope For Change

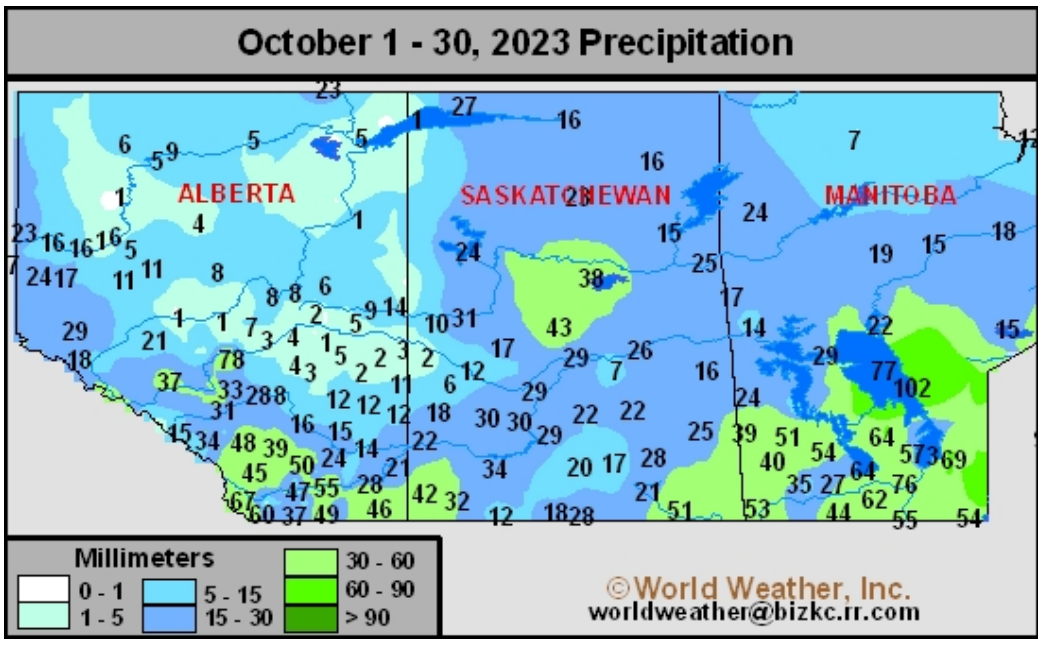
A bitter cold finish to October was perhaps a little disappointing for some folks, but seeing how most of this year's harvest was done before the weather turned sour it really has not been a bad autumn and more importantly both September and October had enough precipitation to help ease some of the dryness across the Prairies.

Moisture deficits are still tremendous in many areas and drought is still very much present in a large part of the Prairies, but the rain and snow that fell in October in southern parts of Alberta and across portions of both Saskatchewan and Manitoba will prove useful in the spring.

One of the most beneficial features to the sudden cold spell in October was the fact that snow fell in the drought stricken regions of southern Alberta and southwestern Saskatchewan without frost in the ground. The temperatures turned bitter cold after the snow fell which means when warming occurs in early November the moisture from that snow is likely to soak into the topsoil and that is great news for some of the driest areas.

Moisture totals in October were in the 20-55 millimeter range (0.79 to 2.15 inches) in some of the driest areas south of Highway One in Alberta and in the southwest part of Saskatchewan. Greater precipitation fell in Manitoba and southeastern Saskatchewan with moisture totals of 25 to 64 millimeters or 1.00 to 2.50 inches. Other areas in Saskatchewan received some light moisture as well.

The one region failing to get much moisture was east-central into northern parts of Alberta. Some of this drier area in October received moisture in September and northern Alberta certainly has a low need for moisture after



October Moisture Offers Hope For Change (continued from page 1)

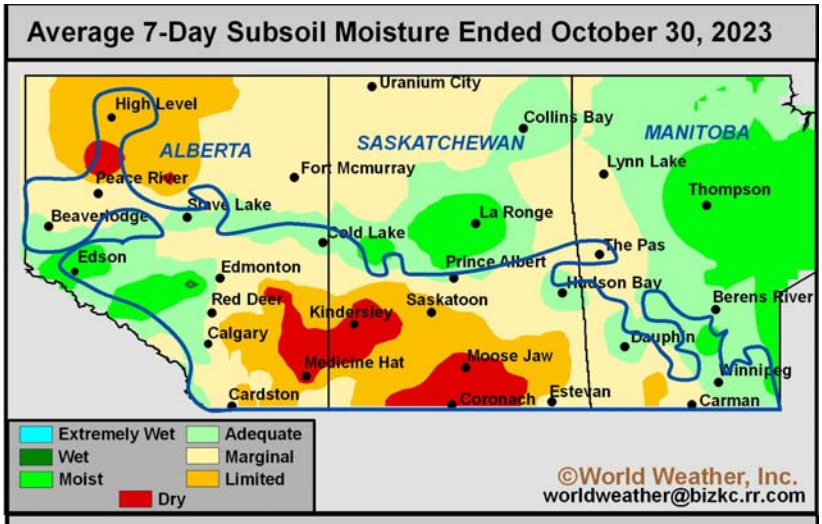
another wet year especially in north-central parts of the province.

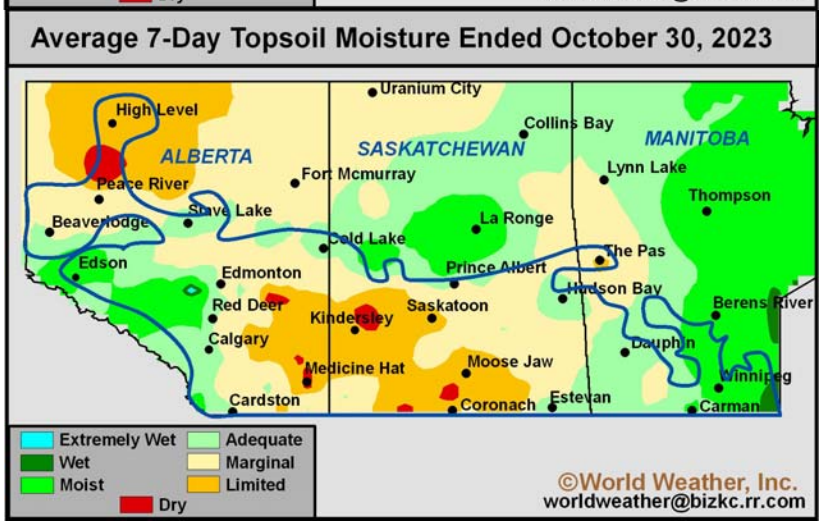
Overall, the precipitation noted in September and October offered some real hope that perhaps some change has occurred in the atmosphere that will support a better 2024 precipitation pattern and growing season. With that said, no serious change has been made to the winter outlook. World Weather, Inc. still believes winter will be drier than usual and western parts of the Prairies will be warm biased while the east sees periods of cool and warm weather with late winter warmest relative to normal.

The lack of substantial winter precipitation makes the precipitation of October and September all the more important. Even though there is a tremendous need for more moisture than that which occurred it will at least be some use in the spring. The only concern is that some areas in the Prairies have been dry for so long and have endured such a punishing drought that the autumn moisture will be dissipated in the soil because of its degree of dryness and it may still be hard to find in the spring.

Frequent bouts of rain and snow will be needed in the spring of 2024 to support the best planting and early season crop development. There is concern over a possible slow start to the spring in the sense of rainfall being restricted early on. Research is ongoing for the spring and summer and opportunities for moisture are expected to be better than those of 2023, but that pattern may not be ideal. Of course when is the weather ideal in Canada?

Soil assessments made at the end of October show huge moisture deficits remaining across the heart of the production region from eastern Alberta through much of Saskatchewan. Some areas have a little more moisture than others and the snow lying on top of the ground in parts of the Prairies will present some moisture seepage into the soil during the warmer days of November.





The best soil moisture in late October was noted along the tree line in northern Saskatchewan and in the north-central through northeastern fringes of Alberta's crop country. The most favorable moisture profiles are in western Alberta (not including the Peace River Region) and in portions of central and eastern Manitoba. Top and subsoil moisture in these wetter biased areas is rated favorably while most other areas have huge moisture deficits and short to very short moisture ratings in both the top and subsoil.

The best possible news for the winter is that perhaps if temperatures are warm biased at times there could be few opportunities for higher moisture content in any new snow that falls and that could provide some additional needed moisture in the spring. The below average precipitation bias for the winter does not mean no precipitation and with a little luck there may be some benefit from winter moisture.

Snow cover across the Prairies at the end of October was poorly distributed, but present in many areas. Most of the snow was not deep enough to provide much change in soil moisture when it melts; however, portions of interior western Alberta and areas in far southern Manitoba have several inches to melt. Snow that was once on the ground in southern Alberta and southwestern Saskatchewan has already melted quite a bit.

In the meantime, northern parts of the Peace River Region needs drought relief like other areas in the Prairies. The region will have to wait until spring for relief.

Western Australia Still Lacks Rain For Canola, Wheat

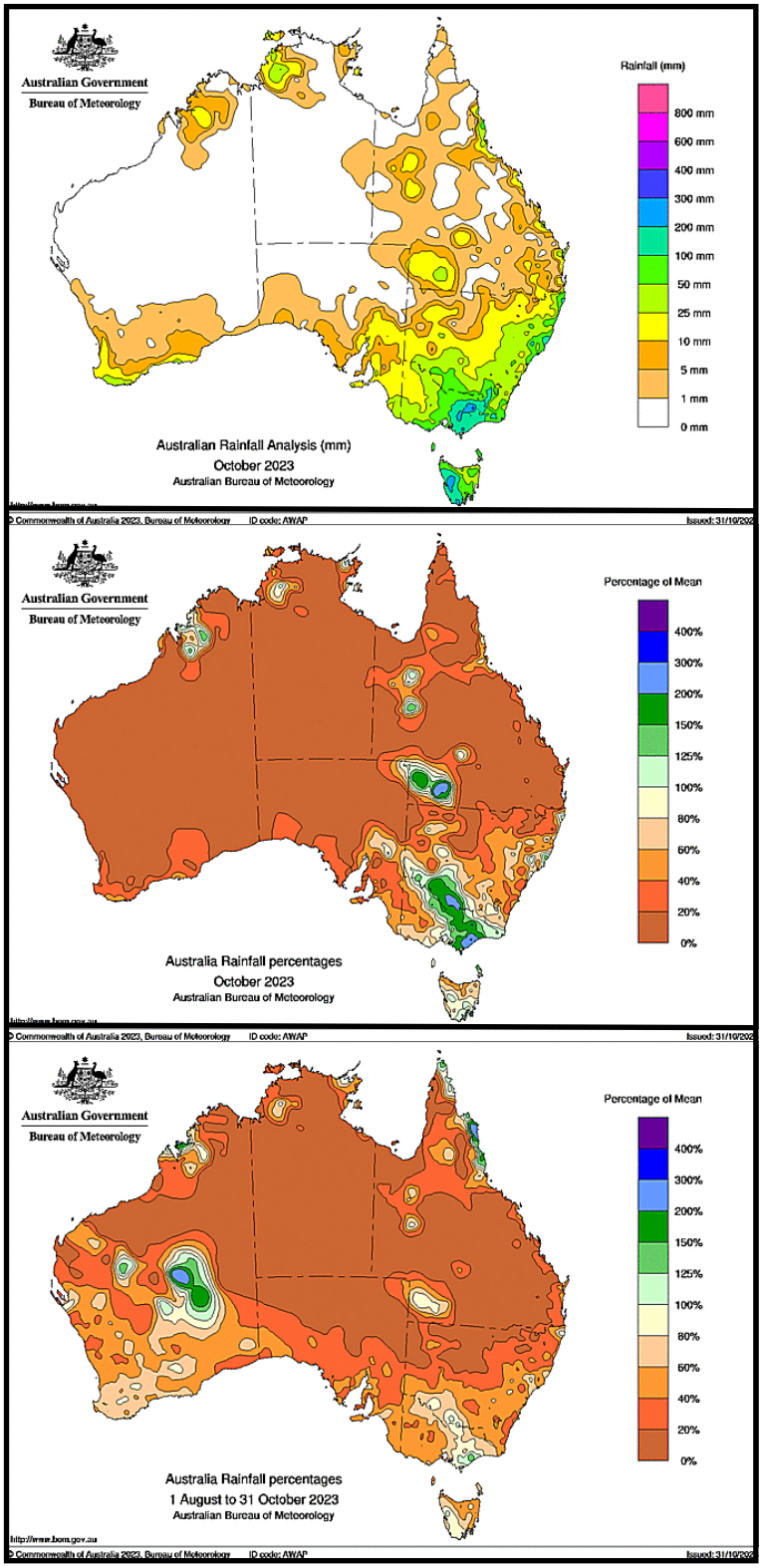
Like flipping a light switch, rain in mid-September across Western Australia ceased in a significant manner. September 13-14 was the last general rain noted in the state where canola, wheat and barley are usually produced in abundance. The reduction in precipitation was not too serious initially because of early season rainfall leaving subsoil moisture in favorable shape to carry on normal crop development for a while.

It was not long after that, though, that temperatures started to heat up and it was getting more and more difficult for crops to handle the limited rainfall and declining soil moisture.

The month of October is normally the most important month of the season for southern Western Australia due to that being the time that most winter crops reproduce and fill. Hope was running high for a favorable production year early in the month, although dryness impacted some of the minor production areas in the north in September cutting into some of the yields there.

October rainfall was minimal, to say the least. Few areas reported more than 10 millimeters of moisture during the entire month. The only greater rain was up against the coast where crops are not quite so numerous. The occasional bouts of very warm to hot temperatures, little to no rain and steadily declining soil moisture resulted in rising crop moisture stress that eventually cut into yield potentials.

Each of the winter crops produced in Western Australia reproduce at slightly different times, but the dryness prevailed throughout October eventually impacting virtually all of the state's crops. It is unclear today how much damage has occurred to this year's production, but with little to no rain expected into the middle of November the prospects are not looking very good.

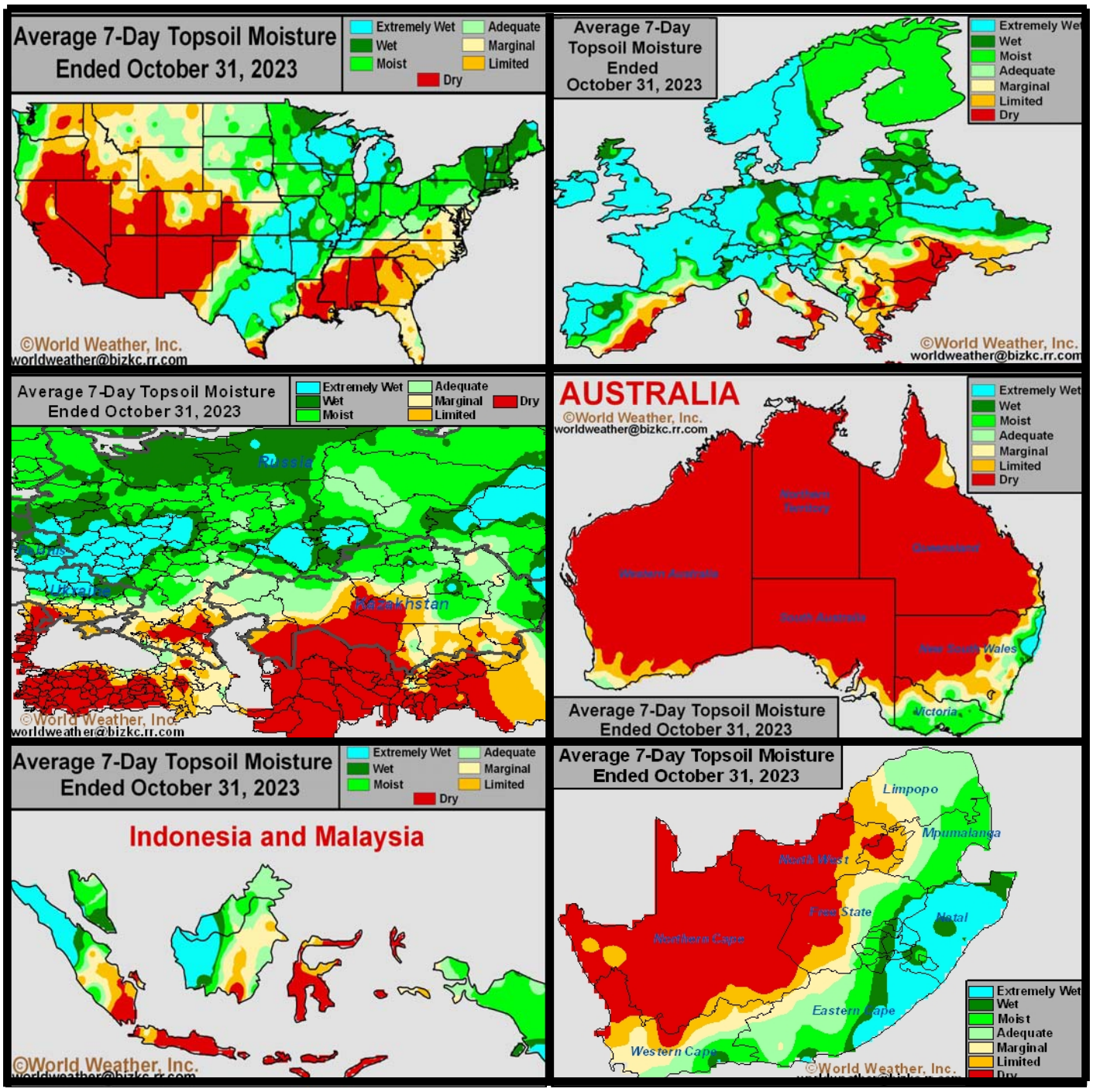


Problems with production in Western Australia would not be nearly as big of a deal if drought was not also impacting Queensland, northern New South Wales and northern parts of Western Australia during their reproductive seasons. Irrigated crops likely performed well, but dryland production was slashed.

There was also a notable drying trend in central and southern New South Wales during the latter part of September and early October raising concern for production there as well. However, favorable subsoil moisture carried crops through the dry period and around mid-October a substantial rain event developed bringing significant rain to Victoria and the southern half to two-thirds of New South Wales. Rain was well timed and sufficient to restore favorable production.

Victoria and southern New South Wales will have the best yields this year, but that will not be nearly enough to counter losses in all other production areas. Time is running out for a fix in Western Australia where harvesting begins soon.

Selected Weather Images From Around The World



Soil moisture improvements occurred recently in the United States, western and northern Europe, portions of Russia's Southern Region and Ukraine. Improved soil moisture was needed in each of these areas for winter crops to establish favorably in Ukraine and southern Russia. Those areas were too dry during much of the planting season leading to poor emergence and stands. The rain recently in Russia and Ukraine occurred while temperatures were well above normal and the warmth was expected to continue into the first half of November setting the stage for better crop establishment. Europe's rain is slowing fieldwork and late season planting may be sluggish for a while. Some of the excessively wet areas may need to replant some winter grain and oilseed. A boost in precipitation also occurred in southern and eastern South Africa where summer crop planting should improve after more rain falls in this coming week. Southern Indonesia's El Nino induced drought will see no meaningful relief prior to the end of this year.

November, December Weather Lacking Precipitation

October rain and snow was a God-send, although much more moisture was needed to restore soil moisture to normal and end a multi-year drought. As mentioned in last month's Prognosticator, winter is not likely to provide a tremendous amount of moisture to the Prairies.

El Nino winters are usually warmer and drier than usual throughout the Prairies. There have been some exceptions and even though the official forecast is not calling for much moisture of significance there is always hope.

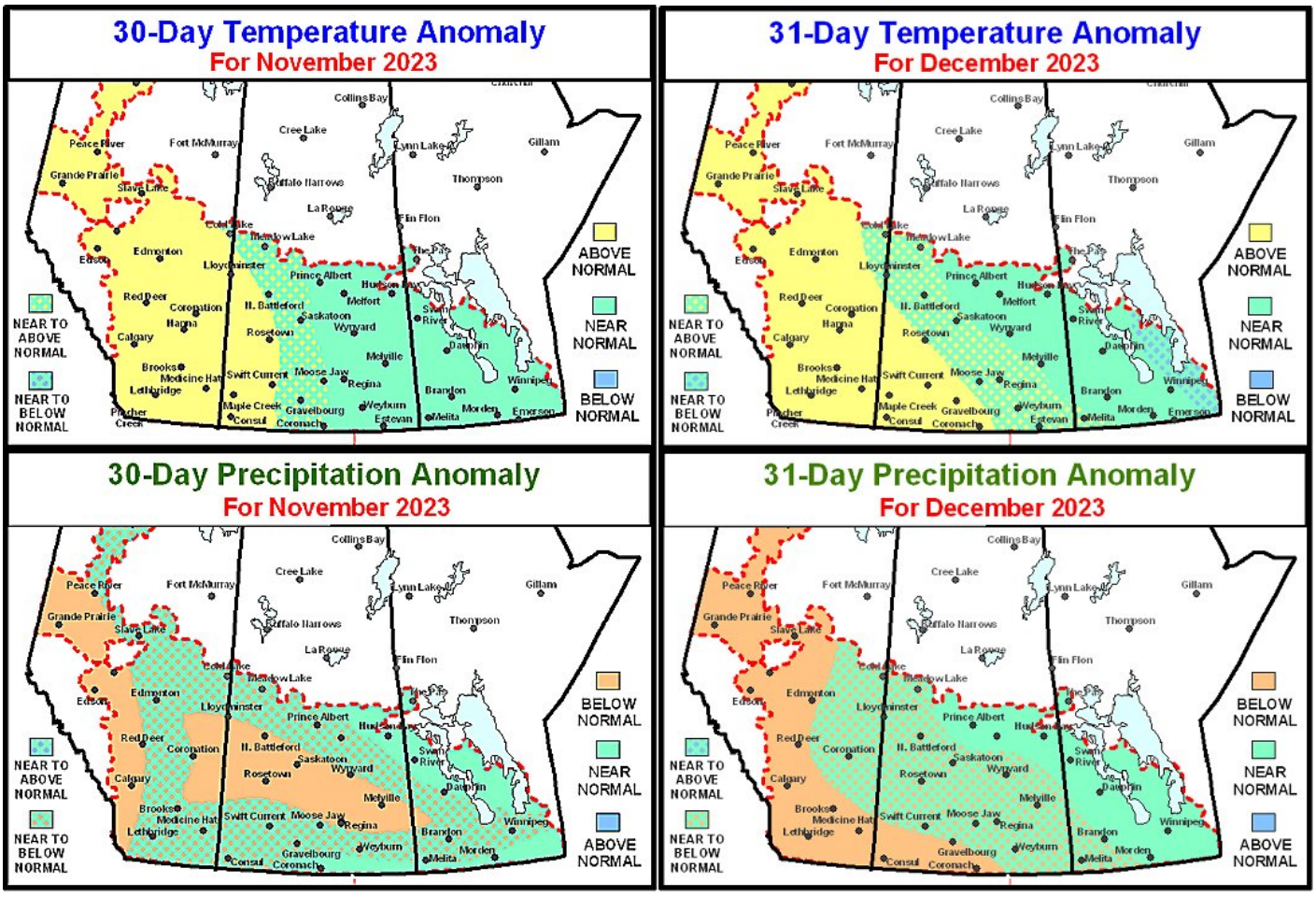
The dominating weather feature from November through February and into March should be a ridge of high pressure over western Canada. The ridge will provide warmer than usual temperatures to most of western Canada, but especially in Alberta and western Saskatchewan. Some computer forecast models have been suggesting a few bouts of much colder weather similar to that which has evolved in this past week. The sudden change from warm to cold weather will leave potential for a significant snow event or two and that will be our lingering hope for the winter.

The warmer than usual temperatures should help keep significant frost out of the ground in some areas for a little while longer. That could lead to better topsoil moisture potential if a significant snow event or two can occur before the ground freezes up.

Recent past years of dryness in the Prairies have proven educational in the sense that frost has a very difficult time setting into dry soil. Moisture is needed to freeze in the soil to create a frost barrier and the driest areas in the Prairies do not have much moisture and that should keep frost levels low.

November and December precipitation should be greatest in northeastern Saskatchewan through portions of Manitoba and that could translate into a close to normal precipitation bias. As good as that may sound there will be need for greater moisture.

Looking farther ahead into the heart of winter and early spring, World Weather, Inc. is not looking for huge changes to the weather pattern, but the door of opportunity for a surprise storm system to come along will remain wide open. For now, that potential will be greatest in the second half of winter and/or early spring. A close watch for signs of change in the dominating weather pattern is warranted due to the widespread need for significant moisture.



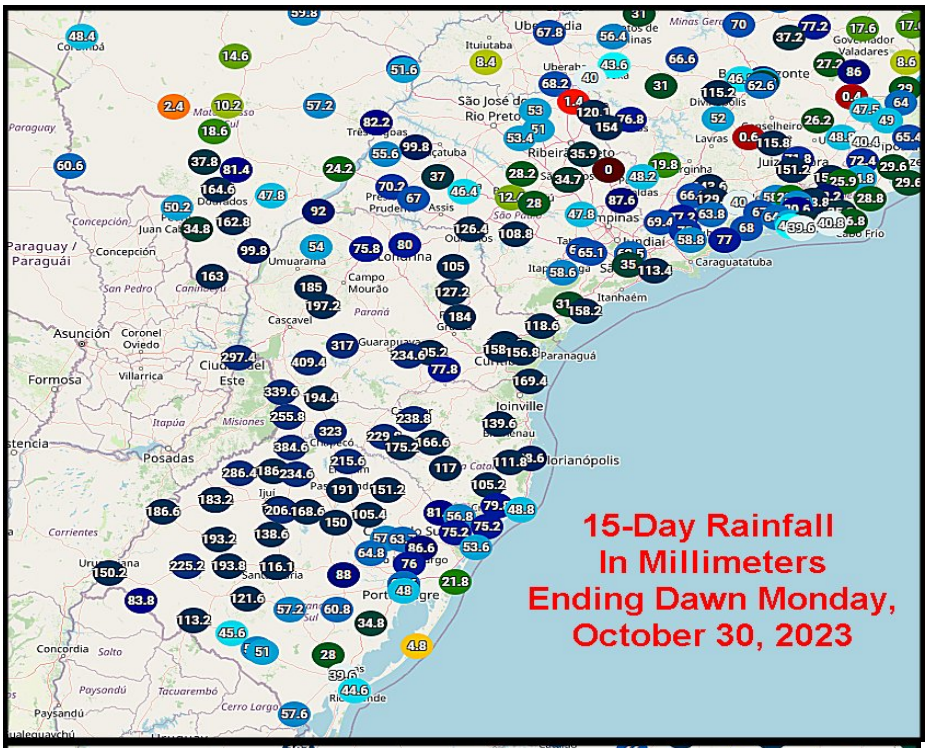
Southern Brazil, Paraguay Flooding Warrants Replanting

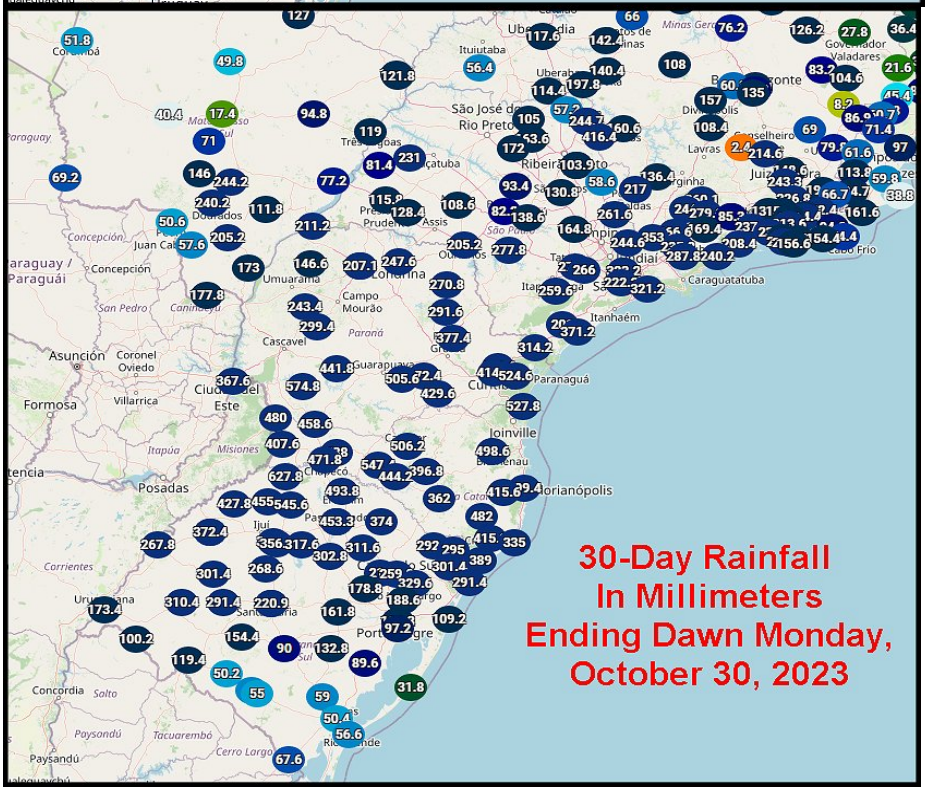
Southern Brazil and southern Paraguay weekend rainfall may have been "the last straw" for the 2023 early season crops. Rainfall during the weekend ranged from 4.00 to more than 13.00 inches – all of which fell over saturated soil resulting in 100% runoff. The situation has likely led to widespread flooding of agriculture land and serious flooding on many rivers and streams.

The greatest rain during the weekend occurred from southern Paraguay through much of western and southern Parana and into Santa Catarina with some moderate rain in areas that surrounded this. The ground was saturated or nearly saturated last Friday, although some drying had occurred for a brief period of time late last week.

One weekend of excessive rain would have created some flooding on its own, but this was not the first weekend of rainy weather. In fact, southern Brazil has been experiencing wave after wave of excessive rain and there is no way that this past weekend's rainfall did not occur without serious flooding. An assessment is likely to come forth over the next few days and World Weather, Inc. believes replanting of many crops will be necessary and that could have some impact on Safrinha corn planting and production later this year as well.

The rainy weather in southern Brazil is one problem and the lack of rain and excessive heat during a part of early October in center west Brazil is another problem. Replanting may also be occurring in Mato Grosso especially now that improved rainfall is finally in the forecast. Rain will also impact northeastern parts of the nation during the coming week to ten days.





Rain totals in the past 15 days in southern Brazil have ranged from 7.00 to more than 14.00 inches in western and northern Rio Grande do Sul, southern Paraguay, Santa Catarina and portions of southern Parana.

Rainfall for the 30 days ending this morning had ranged from 10.00 to 24.68 inches in western, central and northern Rio Grande do Sul, Santa Catarina and southern Parana as well as parts of Paraguay. In contrast, some areas in Mato Grosso, northern Mato Grosso do Sul and much of northeastern Brazil failed to

South Brazil, Flooding Warrants Replanting (continued from page 6)

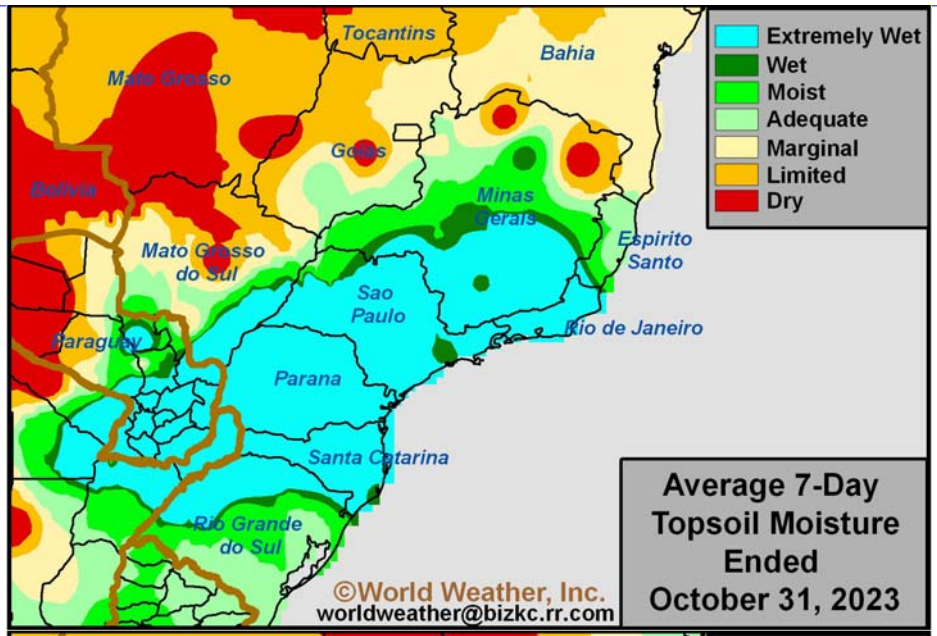
get more than 0.80 inch of rain and temperatures were frequently hot.

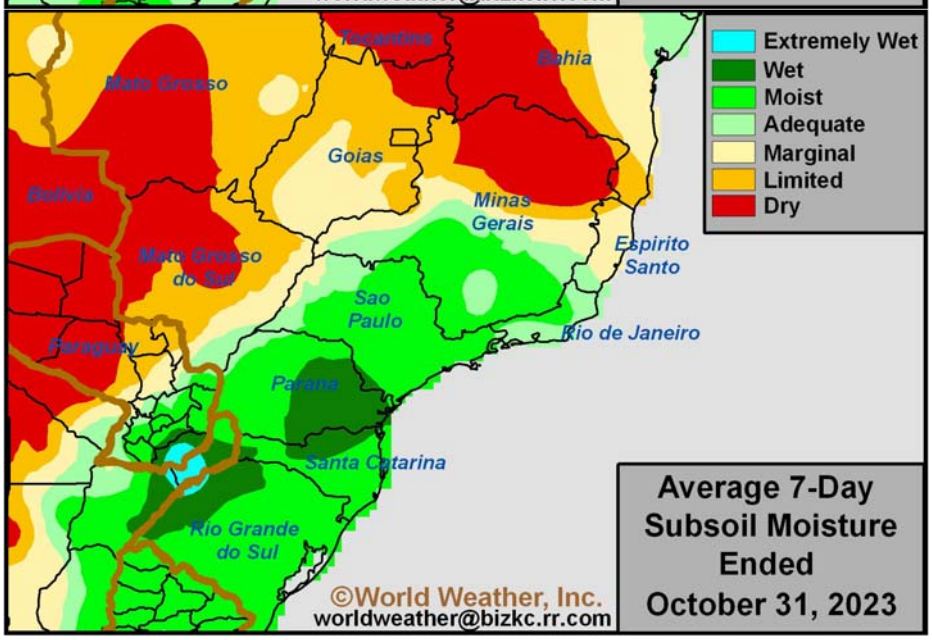
The wet weather is not over. Waves of rain will continue through this workweek, although the resulting rainfall will not be nearly as excessive as that of the weekend. With that said any more rain would not be welcome and amounts are expected to range from 2.00 to 5.00 inches and possibly a few greater amounts.

In the meantime, rain in Mato Grosso and northern Brazil in general is not likely to be nearly as great, but will range from 0.20 to 0.75 inch with a few greater amounts through the coming weekend. Southern Brazil will finally get a break in its rainy pattern with a full week of drying expected from Saturday of this week to the following Saturday, Nov. 11.

Additional showers and thunderstorms are expected in center west and northeastern Brazil next week while southern Brazil is drying out. World Weather, Inc. does not believe the rain will last quite long enough to fully charge the soil with moisture, but sufficient rain should occur to improve planting and emergence potentials. A return of lighter than usual precipitation is possible near mid-month in November, but by then sufficient rain should have fallen to improve short term crop emergence and development.

Southern Brazil will trend wetter again during mid-November limiting the break from excessive rain to mostly this weekend and next week. The returning wet weather could maintain some concern over the overall condition of corn, soybeans, cotton and rice. Replanting is already necessary and returning excessive rain later in November could return another bout of crop damage.





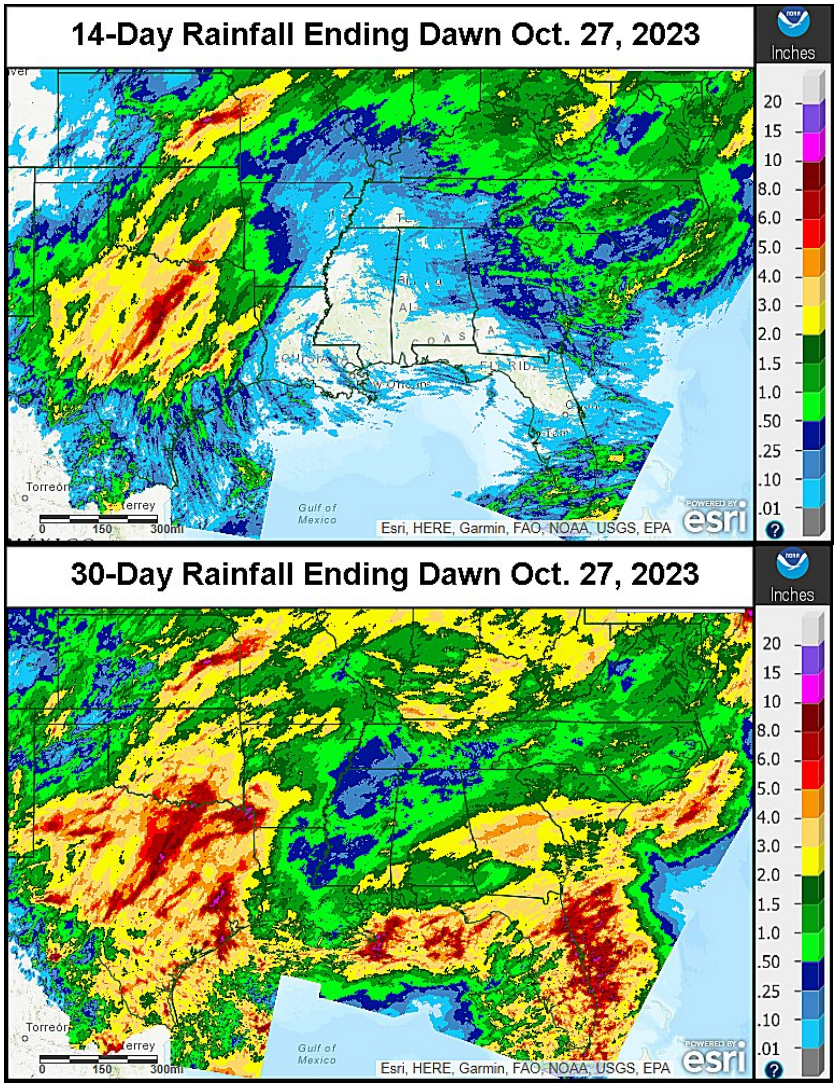
Central portions of Brazil's crop country are expected to see the best mix of weather during the next few weeks and production potentials may be highest from southern Mato Gross do Sul and parts of southern Goias into Sao Paulo and portions of Minas Gerais.

Northeastern Brazil will get some timely rainfall this weekend and early next week, but drying is expected thereafter and that will return concern over low soil moisture by mid-month.

Paraguay, like southern Brazil is exceptionally wet and in desperate need of drying. Some rain is expected, but it will not last long.

U.S. Southeast Drought Expanding

Another period of very dry weather is under way in the southeastern United States right now. More than two weeks have passed since significant rain fell in parts of the Delta and interior southeastern states; including most of the Tennessee River Basin. At harvest time this is not usually much of a concern. However, some of this drying has been ongoing for a longer period of time. Some temporary relief occurred earlier this month from southeastern Mississippi and much of Florida to Georgia and South Carolina. That rain event (resulting from a tropical moisture feed into the region) brought much needed relief to dryness for a little while, but now the region is drying out additionally.



Not all of the original dry area was relieved earlier this month. Portions of southern Alabama, the western Florida Panhandle and southwestern Georgia failed to get much more than an inch of rain while others in the same region reported 1.00 to 1.50 inches. That sounds like welcome rain, but as dry and warm as it was prior to and following that period of rain the moisture only provided temporary relief.

At harvest time, dry weather is usually welcome and not a concern, but peanut lifting cannot occur when the ground is bone dry because the peanuts will be lost or damaged in the process of lifting them out of dry soil. Cotton has benefited most from the dry conditions and parts of Georgia, Alabama and northwestern Florida may have some the best yielding and quality cotton in the country outside of some irrigated areas in West Texas.

Dryness in the southeastern states and Delta is part of the same pattern that dried out the eastern U.S. Midwest late last summer and the 60-day percent of normal chart reflects this trend even better.

Research of similar years showed a tendency for drought that is present in the interior southeastern states during the middle of autumn, like this; tends to keep the moisture deficits and the drought classification through the late autumn and winter. Precipitation falls, but not in the usual quantities that would normally ease dryness and remove the drought status. That makes the Delta and interior southeastern United States a very important region to watch this winter.

If the World Weather, Inc. winter outlook is correct there is reason to believe that dryness will remain from the Delta into the interior part of the southeastern states and the lower eastern Midwest. Another worry to add into this is that winter temperatures look to be below normal in the southeastern states rather persistently and if that verifies, early spring is likely to be cool-biased as well. Years in which there are multiple months of below-normal temperatures in the winter, tend to have at least one month in the spring that is exceptionally warm and in some cases multiple months. If that happens in

U.S. Southeast Drought Expanding (Continued from Page 8)

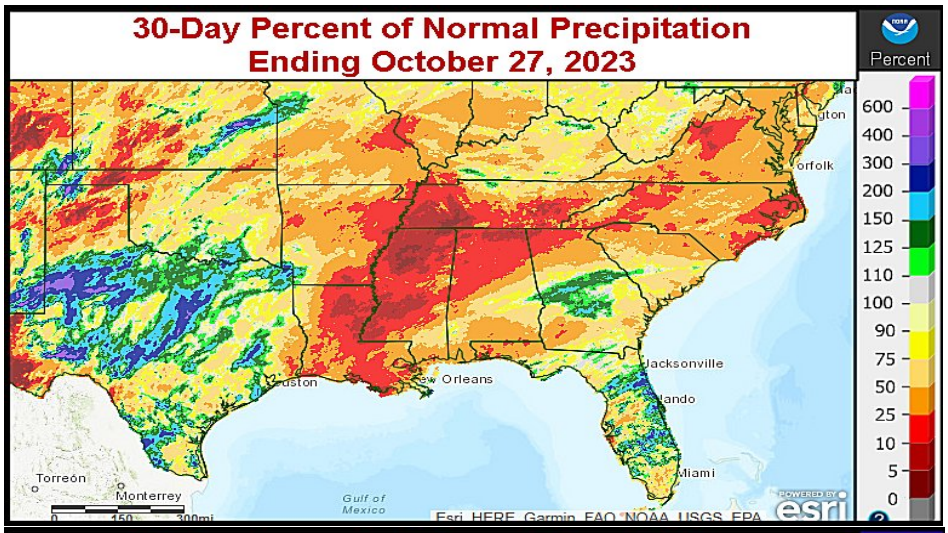
2024 and the drought status survives the winter there could be some notable dryness threatening crops in the spring even though they may get planted quickly because of less than usual rainfall.

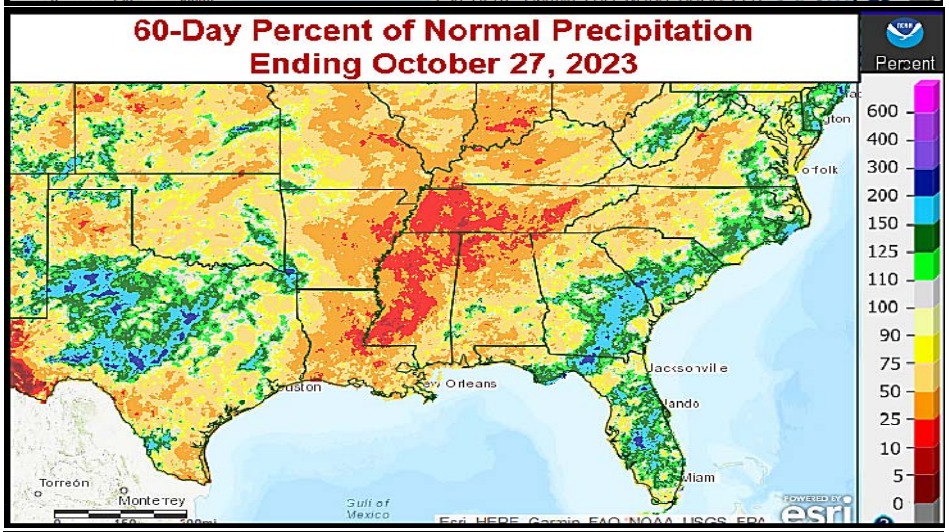
BOTTOM LINE

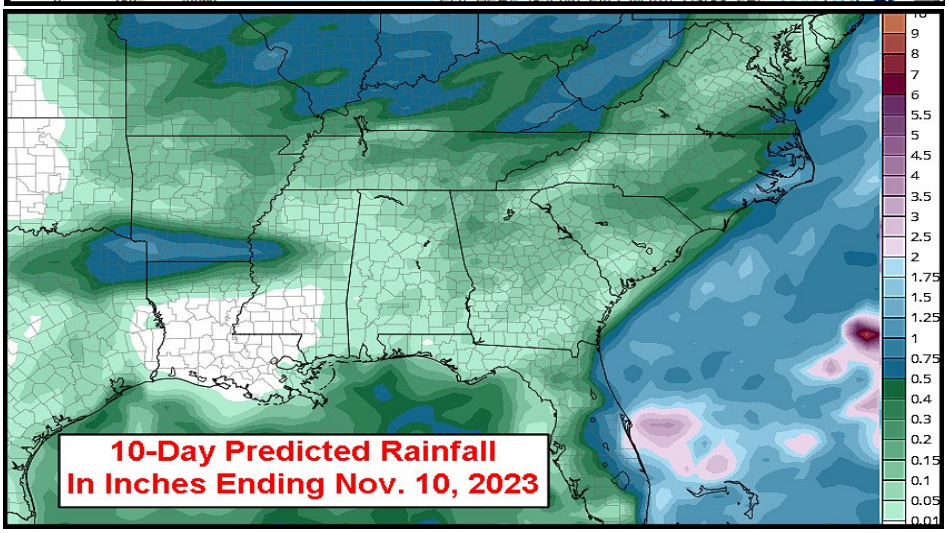
The point of this discussion is to raise awareness of the significance of dryness that is under way in the Delta and parts of the southeastern states as well as the lower eastern Midwest. Greater awareness is also needed in the statistical data suggesting dryness that evolves this way tends to last longer than some would like to see. If these tendencies continue there could be an accelerated dry and warm issue in the spring – at least for a little while that might excite a few markets and concern some producers. The trend needs to be monitored, but there is no ensurance that what has happened in the past will happen again in 2024. World Weather, Inc. will continue to watch this.

El Nino years like this one usually produce above normal precipitation in the southern United States and cooler than usual temperatures. If that were to evolve normally there would be relief to dryness in the southeastern states; however, there seems to be a strong 18-year cycle bias this winter for deep troughs of low pressure to drop into the eastern part of North America and if that occurs the El Nino bias will be washed out leaving the drier bias in place and that is the reason for concern for spring weather in 2024 in the southeastern U.S.

If El Nino has its way relief will occur to the dry biased areas beginning in December and lasting through February and probably into March or April.







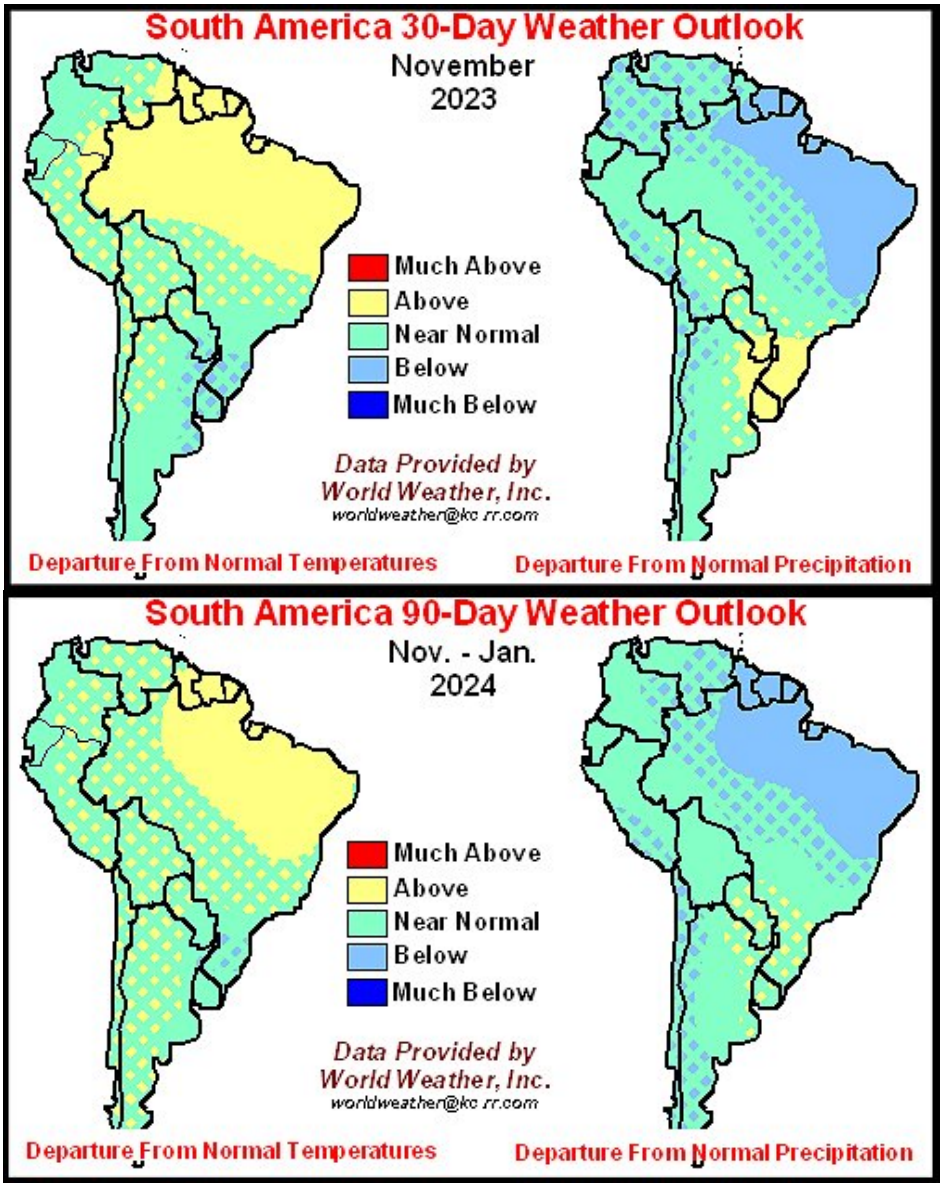
No South America Outlook Changes For November

No changes have been made to the South America weather outlook for November or for the November through January period. A wetter bias will remain in southern Brazil, Uruguay, Paraguay and eastern Argentina while below normal precipitation occurs from the lower and middle Amazon River Basin into northeastern Brazil.

Argentina will see near normal rainfall in the western grain areas while the east is wetter biased and that should dominate both November and the November through January period.

The bottom line should be one of much improved Argentina summer crop production potential in 2023-24. Brazil, however, will have a slightly smaller than expected soybean crop based on poor early season crop weather in Mato Grosso and neighboring areas as well as flooding in the south and eventual dryness in northeastern parts of the nation. Corn production in Brazil might also be at risk if there is too much replanting of early season soybeans because of the later planted Safrinha corn could yield lighter than usual.

Wheat production has been cut in southern Brazil because of flooding rain and lost grain quality. Argentina will have a bigger crop of wheat than last year, but still small.



2024 Canada Prairies Growing Season Commentary

Recent phone calls to the World Weather, Inc. office have demonstrated a great concern/curiosity over weather in the Prairies during the 2024 growing season. Research is under way and our first assessment of the situation will be made in early December, though the official outlook will be released in February. No definitive statement can be made at this time, but with El Nino prevailing this winter, moisture deficits in the Prairies will not likely go away and we will enter spring with some serious moisture deficits in same areas that are too dry today. El Nino is expected to abate in the spring and neutral ENSO conditions are anticipated. That gives the 18-year cycle data most of the influence along with ocean surface temperatures. The 18-year cycle data has presented a little better mix of weather than this past summer. World Weather, Inc. is seeing a periodic return of weather patterns like last summer; however, the pattern does not look persistent and that should translate into a better production year in 2024, although a full restoration of subsoil moisture is not very likely.