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The Canadian Agriculture Weather Prognosticator

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World Weather At A Glance

- Drought continues from western Canada to Mexico
- Dryness is most serious from interior southern Alberta through the west-central U.S. high Plains region to western Texas and northeastern Mexico
- North Africa is too dry for durum wheat
- Eastern Spain is struggling for greater precipitation
- India's winter weather was drier biased in January and February and then it turned too wet in March hurting yield and crop quality
- Rapeseed in Europe is rated well and China's crop is starting off well
- Australia's wheat, barley and canola planting season begins late this month and the planting prospects are great, but concern is rising over El Nino induced dryness later this year.
- South America weather has been improving

Warming Brings A "Chance" For Moisture

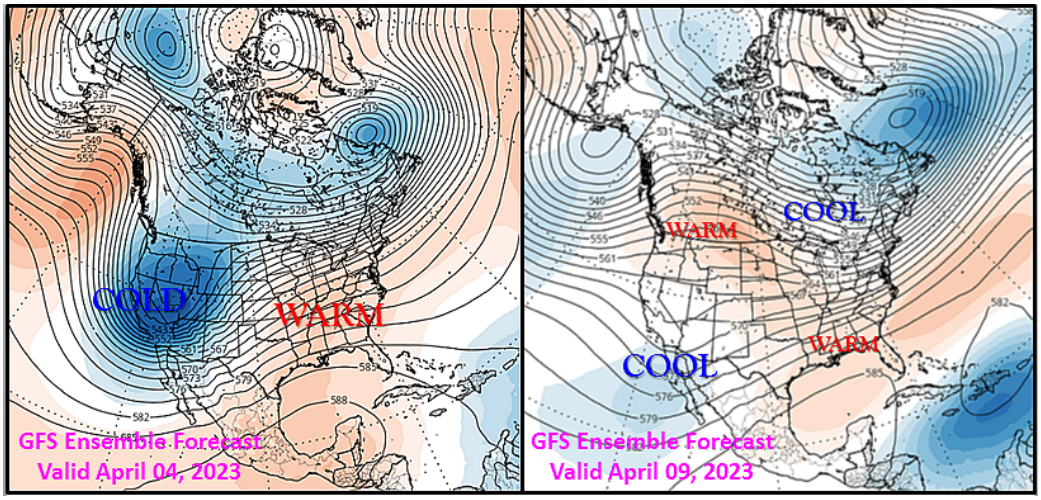
March was colder than usual and because of the dominating cold air there were not many opportunities for significant precipitation resulting in ongoing dryness for many areas. The first week in April will be similar, but warming is likely after that and will raise the potential for some improved snowmelt conditions. Precipitation "chances" will improve too, but the pattern does not change very much.

Before the drought stricken region of the Prairies begins any celebration over the prospects for improved precipitation, it is important to note that the coming pattern change (shown below) comes without a heightened improvement for precipitation. There will be more opportunities for light precipitation during April than in April, but a "wet" weather pattern is certainly not expected and if it turns wetter it will only last for a short period of time.

The pattern change expected mostly weakens many of the dominating features of March. That includes less cold air for Canada and less storminess for California and the U.S. upper Midwest and Red River Basin. However, the changes include the development of a high pressure ridge aloft over western Canada which is liable to suppress rain and snowfall while bringing temperatures high enough to melt snow. Soil temperatures will rise and runoff in those areas with significant snow on the ground will evolve soon . The coolest bias to temperatures will shift to Manitoba and Ontario. The eastern Prairies will still experience some warming, though temperatures will not rise as easily above normal there as they will in the western Prairies.

Bringing warmer air temperatures to the Prairies will immediately allow for an increase in atmospheric moisture, but the weather patterns below are not offering much reason to anticipate large amounts of precipitation. There will be some potential for rain and snow, but most events should be brief and light enough to limit the impact.

The needs for moisture remains high in east-central and southern Al-



Warming Brings A "Chance" For Moisture (continued from page 1)

berta and central through west-central and interior southwestern Saskatchewan where there is not much snow to melt and portions of those areas have extremely low soil moisture. The most chronically dry areas are still in the interior south part of Alberta and in many RM districts in west-central through the interior southwestern part of Saskatchewan.

Manitoba continues to have an abundance of moisture down deep following last year's crazy wet weather that impacted parts of the region. Southern Manitoba—especially near the Red River—should be bracing for a serious flood event in the next few weeks as the Red River swells with runoff water from a very deep snowpack near and south of the U.S. border. Four to eight inches of moisture is tied up in the Red River Basin of the United States with another large storm system expected in the region next week. All of that moisture, when the snow melts, will flood the Red River Basin and the moisture will then take weeks to flow northward through a part of southern Manitoba setting the stage for delays in early spring fieldwork.

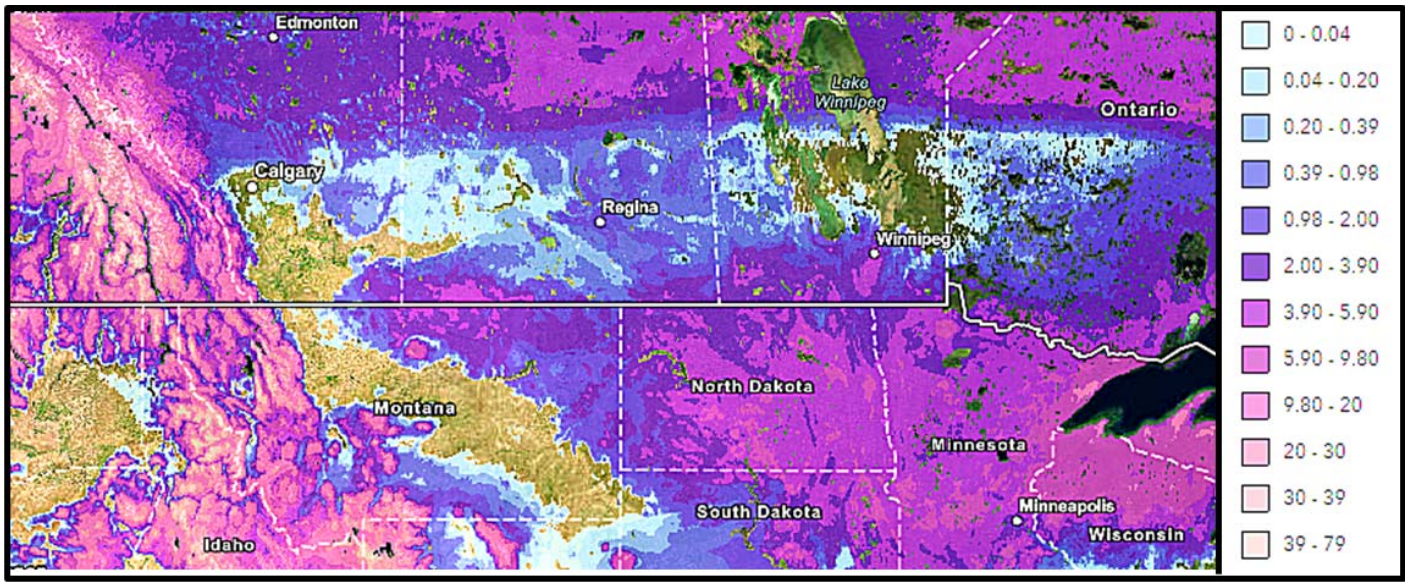
Limited spring precipitation in east-central parts of Saskatchewan should not be nearly the problem that it might be in the southwestern Prairies because of favorable soil moisture (in many areas) and plenty of snow to melt during this month. A similar situation is present across crop areas in northernmost Saskatchewan, northwestern Manitoba and in many northern and western Alberta locations.

Alberta's moisture profile is not ideal. The interior south is certainly much too dry and there is not much snow left to melt. Warm and dry biased weather in April might not bode well in that region. There would also be some concern for the remainder of Alberta where precipitation was just 50-80% of normal during the past six months. Soil conditions dried down during the growing season of 2022 and the autumn was equally dry in some areas. The snowmelt will certainly be welcome in northern and western Alberta, but timely follow up precipitation will be very important to put down worry that drought will evolve this year because of the poor moisture profile coming into spring.

April will bring warmer weather and it will bring a "chance" for improved precipitation, but mostly because of widely swinging temperatures and a small improvement in atmospheric moisture that will be rained or snowed out whenever the temperatures move back and forth between warm and cool. However, the bottom line is not going to be a month of abundance for soil moisture improvements.

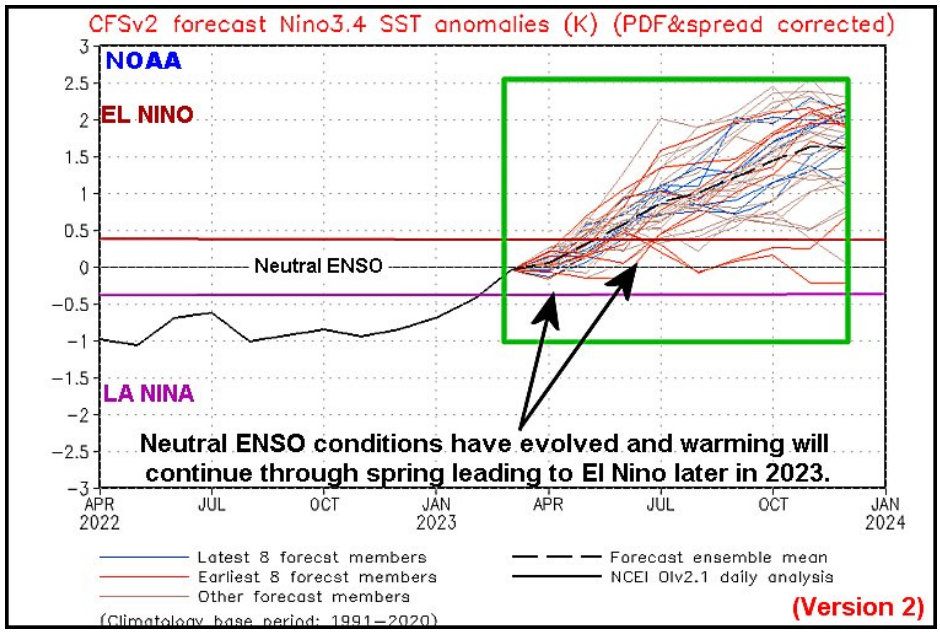
Dryness will continue a concern in April, despite the fact that some snow and rain are expected. The moisture will help improve planting conditions as soil temperatures rise, but without a question the drought stricken areas in the west will need follow-up moisture to support crops that get planted and have enough moisture to germinate and emerge. The driest areas, though will continue to struggle for great enough moisture to support early planted crops this year without routinely occurring follow up precipitation and that may not be in the cards for a while.

A more frequent precipitation pattern is coming for the summer in many of the driest areas, but spring weather and spring moisture will be a little tenuous possibly resulting in a slow start to fieldwork and a big need for better weather in May.



Atmospheric Changes Raise Summer Rain Potential

A multi-year, moderately strong, La Nina event has finally abated, but because this ENSO event was so persistent and significant the atmosphere has not relaxed from the "footprint" left behind. That is why there is lingering drought in North America and Argentina and why it is still raining heavily in Indonesia and Malaysia as well as in India and parts of West Africa. The influence of La Nina was so great that it will take a few more weeks for the atmosphere to relax back to a more "normal" pattern. However, at about the same time "normal" weather evolves there will be some aggressive changes in the atmosphere toward a developing El Nino pattern.



World Weather, Inc. has learned over the past four to five decades that rapid transitions from La Nina to El Nino can result in atmospheric confusion. The U.S. National Oceanic and Atmospheric Administration (NOAA) has suggested El Nino may evolve in June and be dominating the weather from July through December and beyond. The transition is likely advertised to occur too quickly and it may take a little longer, but moving from one phase of ENSO to another is likely to create atmospheric confusion.

In the past, this "confusion" has led to some anomalous weather in pockets around the world. There is concern that while we wait for El Nino's influence on world weather there may be "eddies" of anomalous weather. One such "eddie" that has occurred in the past has included dryness in the central United States and a part of the western Midwest. This is of great interest this year because that area of dryness aligns well with the negative phase of Pacific Decadal Oscillation (PDO) that has already been responsible for the stormy weather in California and the Red River Basin of the North in the U.S. and for developing a ridge of high pressure in the southeastern United States recently and a deep trough of low pressure in the western states (see graphic on page 1).

There is a strong potential for a ridge of high pressure to form in the central United States during the summer season this year that will have influence on Canada weather. That ridge today is a minor looking event in the southeastern United States far removed from the Prairies and too weak to be an issue. However, as time moves along this spring the ridge will have potential to intensify and build northward. As late spring and summer arrive the ridge may shift to the west and take up a position in the U.S. Plains.

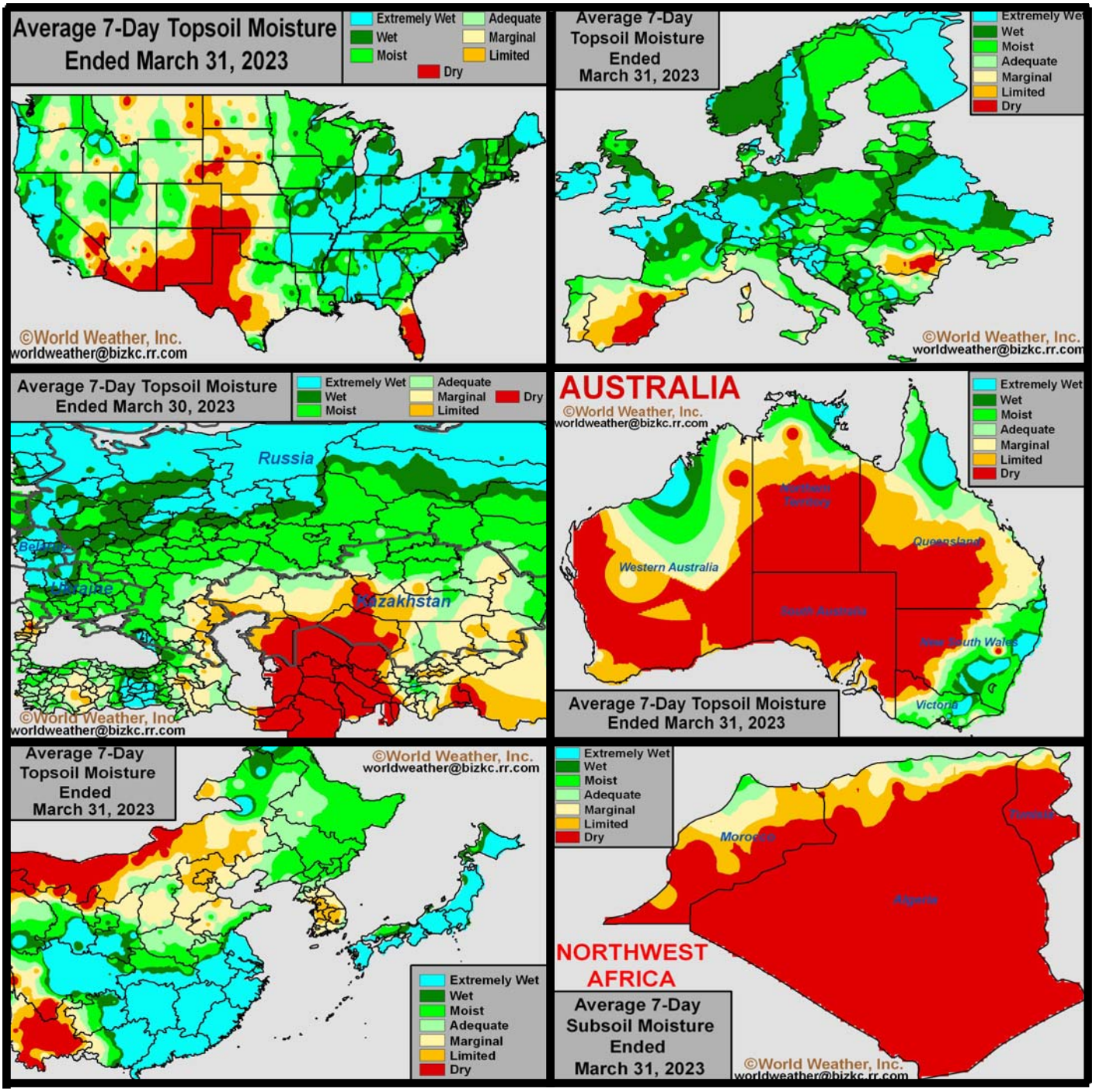
The negative phase of PDO will help to produce a strong trough of low pressure in the western United States and reinforce a high pressure ridge in the central U.S. This feature and set up in North America will bring a change to Canada weather. Storms coming into the northwestern United States will move from west to east toward the high pressure ridge. However, once the storms reach the ridge they will be turned northward moving up the back side of the high pressure ridge and into Canada's Prairies.

The set up has confidence high for a change in summer weather in the Prairies this year. After a spring full of limited precipitation there will be a good chance for a change toward wetter weather. The swath of land most vulnerable to the wet biased conditions will be largely determined by the high pressure ridge's amplitude and location.

Early indications suggest the Prairies will be dominated by the pattern shown on page one into early May, but there will be opportunities for brief periods of rain and dry weather during the month while the ridge of high pressure is too far away to have influence.

When summer arrives, though, the ridge of high pressure will evolve in the eastern U.S. Great Plains and western Midwest and drift to the west during June and July. This should lead to more enhanced rainfall in portions of the Prairies as the ridge of high pressure builds into the southeastern Prairies. The initial wet weather will be in the southeastern Prairies, but as the ridge shifts to the west it will push the wettest conditions that way as well resulting in some greater rainfall impacting many areas in the Prairies—eventually including some of the driest areas in the southwest.

Selected Weather Images From Around The World



Not much change occurred around the world in March. U.S. Midwestern crop areas along with those in the Delta and southeastern states remained plenty moist if not a little too wet. California continued to get an abundance of snow and rain and the snowpack in the Red River Basin of the North remained substantial. North Africa wheat areas dried out additionally stressing crops and hurting production potentials. China's rapeseed areas are abundantly wet today and are poised to produce well this year. Rain will fall in the North China Plain and Yellow River Basin in this coming week bringing a big boost to topsoil moisture for winter wheat development and spring planting. Australia is still a little too dry for the start of autumn planting, but that does not usually begun until late April. Europe and the CIS have been plenty wet recently with significant snowmelt in western and northern Russia occurring while frequent precipitation fell. Eastern Spain and a part of Romania are too dry and need moisture.

April, May Weather Not Good For Drought Busting

Frustrations over dry soil in snow free areas will rise during April. The month is not likely to be completely dry, but the changes coming will restrict rainfall. The biggest concern is warmer temperatures. The warmth will help melt snow and where it is deep that may prove to be of benefit; however, wherever the snow is minimal net drying is likely.

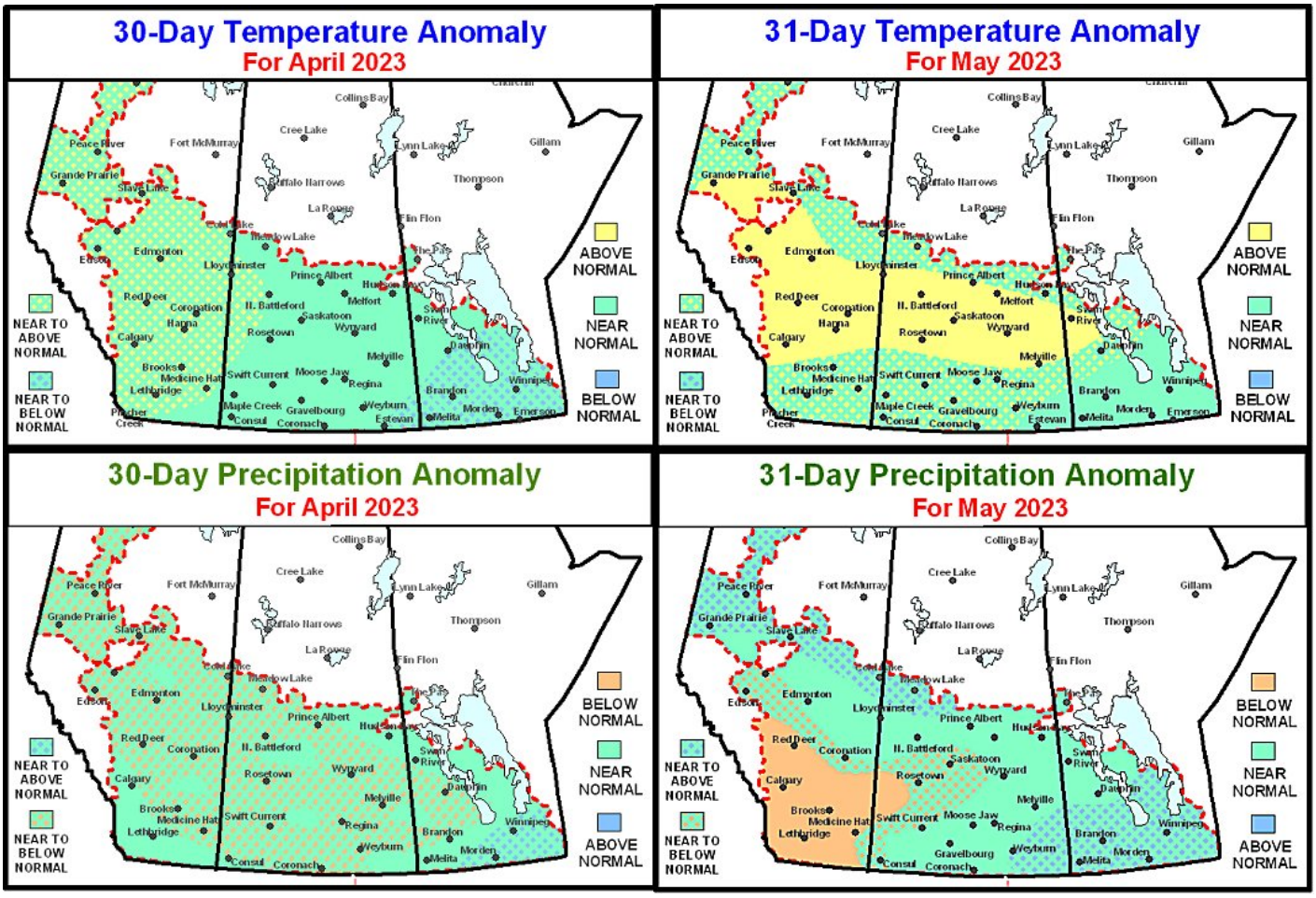
Planting moisture will be abundant in areas losing snow cover, but for those areas already snow free the ground is going to firm up again and concern over yet another year of drought will be on the rise. Totally dry weather is not expected in April and enough mixing of warm and cold air will occur to help induce some bouts of light precipitation. Perhaps the moisture will be greater than usual, but the odds are high that precipitation will be lighter than usual. Any precipitation will be welcome.

Some lingering coolness will occur in this first week of April, but temperatures will ebb their way into a more normal regime for a while later this month in the central and eastern Prairies while the west gets a little warmer than usual.

Most of the longer range forecast tools used for this year have all suggested May would be the driest and warmest month relative to normal. If that proves to be true there may be a restricted amount of planting that will take place in the drier areas. Another way to look at this, though, is from a contrarian perspective. If all of the recent past years similar to this created below average precipitation and above normal temperatures then the odds are rising for a year that bucks the trend. Perhaps, but for now the forecast has to go with the most obvious anomaly and that is dryness for the southwest. In the meantime, a boost in precipitation will be possible in the eastern and far northern Prairies and that should occur while temperatures are near to above normal.

Near to above normal temperatures during May will accelerate drying rates and for the wetter areas across the north and eastern Prairies that would be welcome result. It would help counter some of the precipitation, although soil conditions might still be a little wet after melting snow and the light precipitation that occurs during April and May.

The most favored time period for change across the Prairies is in late May and mostly June at which time precipitation in the Prairies should be increasing. The greatest rain, though would likely hold off until the summer at which time western Alberta will be drying out



Summer Weather Should Improve In The Prairies

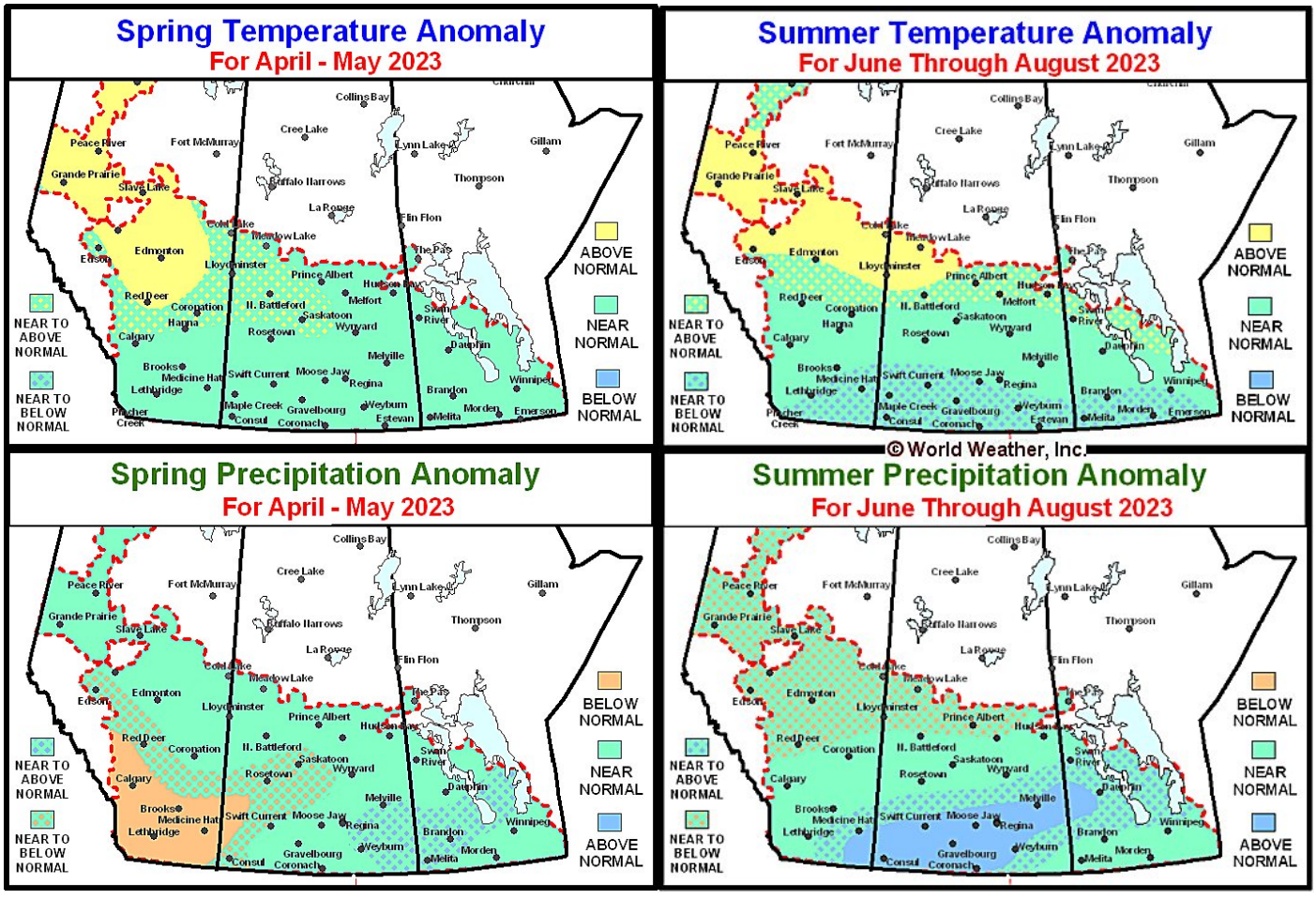
Spring weather this year is going to be a challenge, especially for those areas still running much too dry to support a crop. Most of the Prairies that have at least some moisture in the subsoil will probably get along on marginal precipitation this spring. But without any question the driest areas will have to have at least a couple of precipitation events that will keep the topsoil moisture great enough to get crops up and then sustain them until greater rain falls.

The driest areas in the southwest are of great concern because of the bias for dry and warm weather in May and the not so great precipitation outlook for April. Early planting would not necessarily bode well this year because of low confidence in getting timely rainfall in some of that region. However, for those fields that do get some timely rain the set up will be good for crops to be sitting and waiting for the better rains coming this summer. Planting early would be a big gamble for the driest areas because of low confidence in the distribution of spring rainfall. Certainly if your farm has received moisture over the winter and the topsoil is a little firm planting after the first topsoil moistening event makes sense, but for those who have missed most of the better precipitation events this winter it might be worth planting late, but don't let the calendar run too far ahead of you.

There will be some potential for a cool summer in the southwestern Prairies this year and a late autumn or early September frost cannot be ruled out, although it is still too early make such a statement. The eastern Prairies should be warmer a little later into the autumn, but a September frost event cannot be ruled out yet. Please be sure to note that frost and freeze forecasts for the end of the summer cannot be accurately predicted this far in advance.

A good mix of rain and sunshine should dominate the Prairies this summer. The only area that may end up drying out will be western and northern Alberta. Confidence in that is also low at this time, but it is the one region that could be drier biased through a part of the summer.

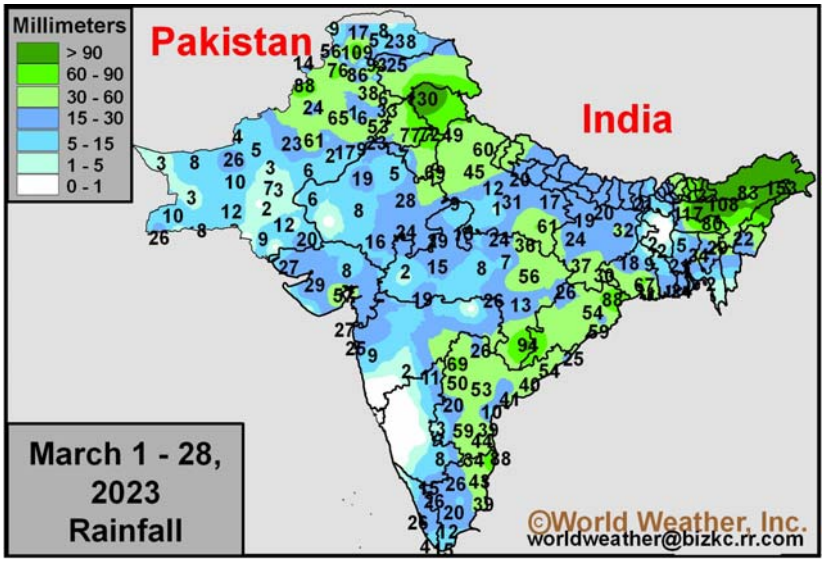
Manitoba's excess moisture from 2022 will make it easy for rain and snow to saturate the ground again this spring. Flooding will be serious in southern Manitoba and that is where some of the greatest rain may fall during early summer possibly resulting in too much moisture. However, that area of greatest rain should shift to the northwest in July and August leaving a part of Saskatchewan rather wet.



India Wetter Bias Is Winding Down After Crop Damage

Wheat and other moisture sensitive crops in India have suffered from recent rain. Grain and some oilseed and pulse crop quality declines are suspected in a number of areas, although the impact on total production has likely been low for many crops. Wheat may have been most impacted in northern production areas.

India had already suffered from drier and warmer than usual weather during reproduction and the recent rain proved to be untimely except for some of the latest maturing crops. A weather disturbance moving through Pakistan last week was supposed to bring another round of showers to northern and some central India locations during the weekend ending early next week. The storm's moisture was expected to raise the potential for some additional downward pressure on far northern crop quality. Most winter crops are too far advanced to fully utilize the moisture, but some late season crops may have improved from rain recently.



Many areas in the Eastern States have received enough rain in recent weeks to bolster soil moisture to adequate or marginally adequate levels. However, soil moisture remains short to very short in the remaining production areas. It is very important to note that grain quality problems to wheat and some other crops is not determined by soil moisture, but on how frequent the maturing grain and oilseeds are moistened during the period. Wheat head sprouting and oilseed quality declines occur when those parts of the crop are kept wet or are frequently wet.

Rabi crop conditions are highly variable in India. Severe storms promoted hail and strong winds earlier in March in portions of Punjab, Haryana, Himachal Pradesh, Uttarakhand, northern Uttar Pradesh, and neighboring areas. These locations represent a significant portion of India's winter wheat, along with some rapeseed, barley, mustard, and spices. Production was already expected to be a little below normal this season due to the drier than normal environment earlier in the growing season. The hazardous weather was widespread enough to further reduce production potentials, most notably for wheat. Dryness has also impacted production potentials for the grains, oilseeds, and remaining crops in southern, eastern, central, and the remaining portions of western India. Some of the crops are irrigated to varying degrees and production impacts for these crops should be minimal. More significant losses are expected in the dryland areas.

A new weather disturbance moving through Pakistan will bring rain to northern and portions of western India later into early next week. Punjab, Haryana, Himachal Pradesh, Uttarakhand, and neighboring areas will receive additional moisture that will threaten crop quality. The precipitation and that which fell in March may reduce crop quality for the more advanced crops. Yield potentials will remain below normal.

Southern and the remaining portions of eastern India will also see a mix of spotty rainfall and sunshine through the middle of next week. Kerala and immediate neighboring areas will receive some of the most significant rain. The remaining winter crop areas will either be dry or not receive enough rain to counter evaporation.

Late-season development conditions will remain less than favorable for western, central, southern, and much of eastern India, though the rain will still be welcome for the crops that have not yet started to mature. The lack of significant rain will be beneficial for aggressive maturation and early-season harvesting.

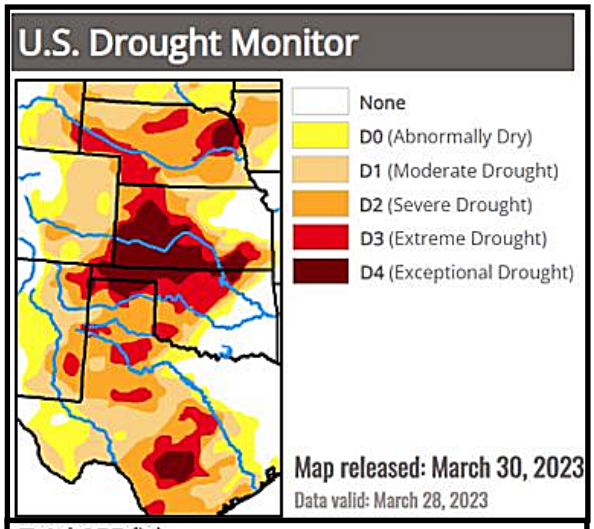
Southern, eastern, and extreme northern India will continue to have a few opportunities for erratic rainfall April 6 – 12. Western and central India will otherwise be dry or mostly dry. The lack of significant rain will be beneficial for more aggressive maturation and harvesting in the main Rabi crop areas.

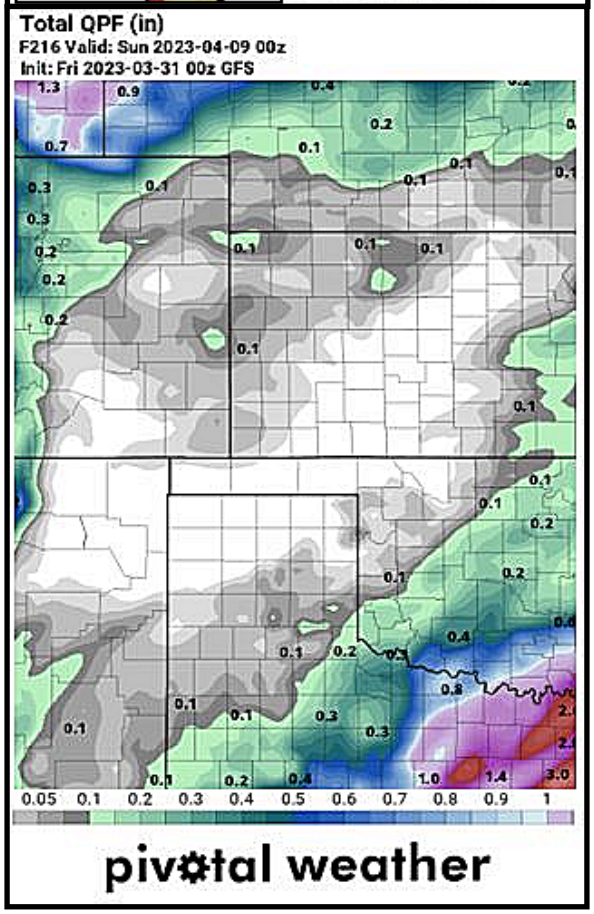
Dry Conditions To Persist In U.S. Southern Plains

Extreme to exceptional drought continues to impact the U.S. Southern Plains. The general lack of precipitation has further intensified the dry conditions. A chance of showers in west Texas on April 7 - 8 may bring a small bout of much needed moisture; however, significant amounts of rain will be needed over an extended period of time to make any meaningful impact of the moisture profile in the region. Early season wheat development and spring planting of some crops will continue to see poor developing conditions due to the lack of moisture.

Soil conditions continue to be dry in the U.S. Southern Plains, further exacerbating the ongoing drought in the region. Lack of adequate precipitation in recent months has been to blame for these dry conditions, although recent precipitation on March 25 – 27 made a slight improvement to the moisture profile in northeastern Colorado, northwestern Kansas, and southwestern Nebraska. Overall, exceptional drought continues to plague much of western Kansas and the Oklahoma Panhandle with moderate to severe drought still impacting southwestern Nebraska and the Texas Panhandle.

Dry conditions are expected to continue through at least the next week. High wind speeds have already been occurring often in portions of the drought region in recent weeks and the strong wind will continue at times into next week. Today's strong wind speeds are due to a Northern Plains storm center in northwestern Iowa and moving to the Great Lakes region in the next 24 hours. Wind speeds will be between 30 and 40 mph with gusts in excess of 60 mph expected. Numerous Red Flag warnings, fire weather watches, high wind warnings, and blowing dust advisories have been issued through at least the end of today across the crop region as the high winds amplify the aforementioned risks Dry Conditions to Persist in U.S. Southern Plains 2 given the persistent dry conditions. Another system in the Northern Plains is expected to bring strong winds again next week around April 4 – 5.





A chance of showers and thunderstorms are possible in West Texas April 7 – 8. Between 0.10 and 0.25 inch of rain is expected with this system over this two-day period. Current models suggest there is a potential for thunderstorms to occur in West Texas April 9 – 10 bringing around 0.75 inch of rain or higher, although this forecast may change drastically in the coming days. Overall, from today into April 9, minimal precipitation up to around 0.25 inch is expected in the Southern Plains in the next week.

While anticipated showers late next week will be beneficial to the moisture profile, significantly more precipitation will be needed to make any meaningful improvement to the soil and drought conditions. Soil temperatures are warming to 45 degrees Fahrenheit or above in much of the Texas Panhandle, which is now stimulating dormant and semi semi-dormant crops into developing. Some greening occurred earlier this month when temperatures turned warm, but colder air arrived in time to keep new growth to a minimum. Minimal rainfall in the near future will further perpetuate poor conditions for crop development in the region.

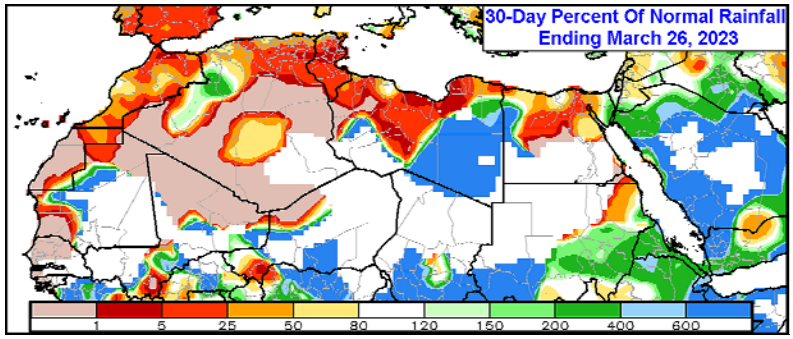
North Africa Still Waiting On Significant Rain

North Africa's winter wheat and barley areas were mostly dry during the past week and rainfall was below normal during March. Rainfall varied from 5-50% of normal rainfall during the past month, though portions of northwestern Algeria and pockets along the northeastern Algeria and Tunisia coastlines received 50-80% of normal precipitation.

North-central Morocco and much of extreme northeastern and north-central Algeria and far northern areas of Tunisia still have adequate to marginally adequate subsoil moisture despite the drier than normal environment during the past month. Vegetative health for these locations is generally favorable, though there are pockets where the environment is becoming increasingly harsh for the wheat and barley. Vegetative health in northwestern Algeria and the remaining portions of Morocco is otherwise poor. Much of North Africa is in need of rain in the near future as crops approach and enter reproduction. Some of the early developing crops were already filling and they will have the lowest potential to benefit from improved rainfall should it evolve. The most advanced crops are suspected of being in southwestern Morocco.

Overall, production potentials are less than normal for much of northwestern Africa this year. Drought in southwestern Morocco kept farmers from planting this season. Dryness in northeastern Morocco has also reduced production potentials for the country despite the better conditions in north-central Morocco. Algeria and Tunisia have both struggled with dryness over the growing season as well that has reduced production potentials. Timely rain in the near future would still benefit the most immature crops.

Dry or mostly dry weather is slated for northwestern Africa through Friday as a high-pressure ridge settles over the region. Tunisia and northeastern Algeria will receive varying amounts of rain over the weekend with a few isolated showers early next week as a strong trough pushes across the Mediterranean Sea and neighboring areas. Moisture totals by next Tuesday morning in Tunisia and northeastern Algeria's main production areas will range from 0.25 to 1.00 inch with local amounts over 1.50 inches along the coastlines.



North-central Algeria will also receive up to 0.50 inch of rain from this event. Morocco and northwestern Algeria will otherwise remain dry or mostly dry this weekend into early next week. There is potential for an active weather pattern across northwestern Africa April 5 – 11, though confidence is low for the exact amount of precipitation that will occur.

Tunisia and much of northeastern and north-central Algeria will welcome the rain that evolves this weekend and early next week. Tunisia's crops reproduce last relative to those of other North Africa crop areas leaving the most potential for crop improvement in that region if rain occurs frequently and significantly in the next few weeks.

Warmer temperatures and limited rain some of the crop areas in North Africa will lead to rising levels of stress and the impact on crops will be determined by their stage of development and whether or not significant rain evolves in the next few weeks.

Those crops that still have marginally adequate to adequate subsoil moisture will manage the drier days in this coming week without much difficulty, although if no rain falls the situation may be different in another week to ten days especially with temperatures heating up.

The potential for precipitation during the April 5 – 11 period will be important across North Africa. This rainfall could improve filling and reproduction in the driest locations before most of the crops start to mature. However, if the rain fails to verify, many crops in Morocco and northwestern Algeria may mature early and further production losses will be possible. Several of this morning's GFS model runs bring a cut-off low pressure system into northwestern Africa during this second week of the outlook and that is the source of the rain predicted for the region. The European model also suggests this disturbance will evolve over the eastern Atlantic, though some of the more recent model runs keep the disturbance from entering northwestern Africa and brings the system into the Iberian Peninsula instead. Rain amounts and coverage will be dependent on where the upper-level disturbance tracks.

U.S. April Weather Promises Change For Some; Not All

U.S. weather in April will change so that the frequent storms in California, the upper Midwest and the northeastern Plains will cease—at least for a little while. The wetter bias that has been prevailing recently in the Delta, lower Midwest and southeastern states will likely continue resulting in more delay to early season corn and rice planting.

One of the more significant changes in April will be a boost in rainfall from Texas to Missouri and eastern Kansas. Some increase in precipitation may also occur in the west-central and southwestern Great Plains during April, but the increase in precipitation is not likely to make a big change in the production potential for hard red winter wheat. Any moisture would be welcome, but the crop needs frequent precipitation and seasonable temperatures to restore as much production potential as possible.

The southeastern United States will experience warmer and drier than usual weather for a little while in April. That will reverse the recent trend change that has brought rain to many areas that had been previously drying out. This alternating period of rain and sunshine will continue into May supporting crop development and planting.

May weather will be similar to that of April, although a return of stormy weather may occur in both California and the upper Midwest. A moisture feed from Texas to Missouri and eastern Kansas will also continue while the warm and dry weather that was once confined to the southeastern states in April will expand to the north and west.

U.S. temperatures will trend a little warmer during May, but the most anomalous warm weather should be in the interior eastern states and in the northern Rocky Mountain region as well as the northwestern Plains.

One of the few areas that will not see much change during May will be in the west-central and southwestern Plains where rainfall will continue near to below average. Another will likely be in the western Midwest where precipitation is expected to see periodic precipitation. Flooding in the Red River Basin of North may still be lingering in May as well.