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The Canadian Agriculture Weather Prognosticator

Volume X, Issue XX http://www.worldweather.cc March 20, 2019

WORLD WEATHER ISSUES

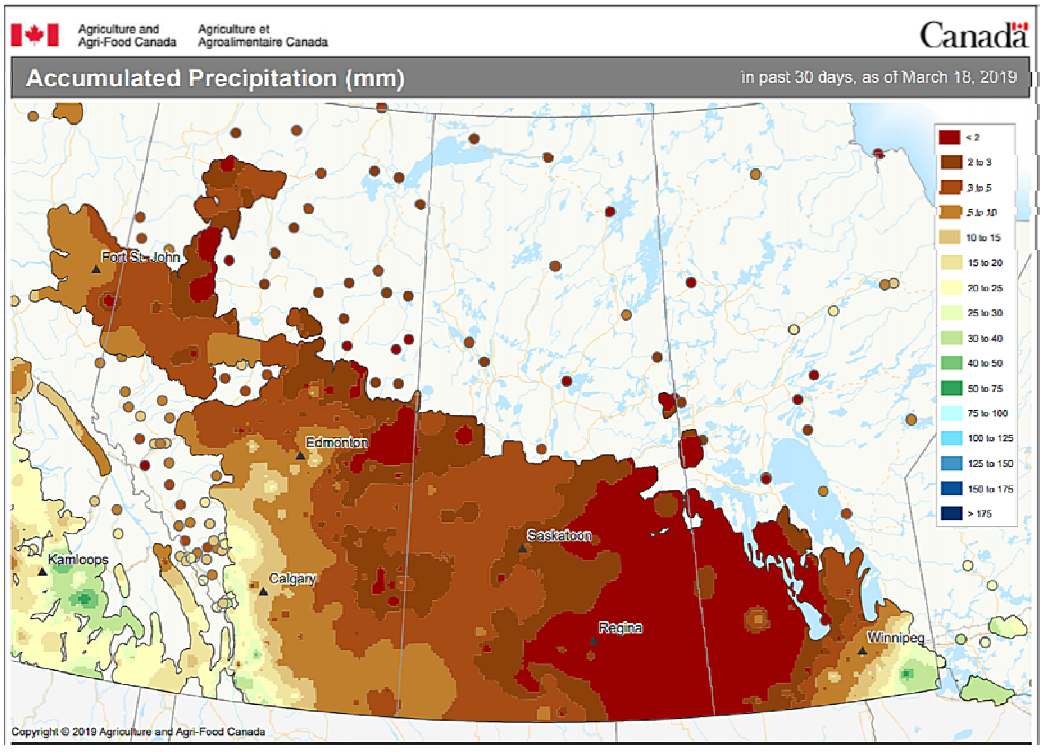
- Dryness Remains In Northern China, But There Is Plenty Of Time For Relief Before The Growing Season Starts
- Europe And Western CIS Crop Areas Are Slowly Warming Up And Are Favorably Moist For Spring Crop Development
- North Africa And SE Spain Are Trending Too Dry, But Some Rain Will Fall This Week
- U.S. River Flooding Is Quite Significant And There Is Need For Dry Weather Immediately
- Wheat Production From India, Pakistan, Middle East, Europe, The CIS And China Should Be Good This Year
- Frost Is Likely In Far Southern Argentina Thursday; Some Crop Damage Is Possible
- Drying likely in Argentina And Far Southern Brazil In The Coming Week
- U.S. Flooding Will Continue For At Least The Next Two Weeks
- Eastern Australia Will Remain Drier Than Usual, Despite A few Showers

Fears Of Another Spring Drought

Drier-biased weather has wasted no time resuming in the Prairies over the past 30 days. Many areas have received minimal precipitation so far this month and had it been warmer that would have been a significant turn of events. Thankfully, it was cool until recently and the drier bias had little impact on the Prairies leaving the impression that spring 2019 will not be too bad because of the snow cover that accumulated in February.

As we noted in the last Prognosticator, the snowfall that was received last month was a bit of a misnomer because of the bitter cold environment that it evolved and fell in. The very cold temperatures last month put much fluff into the snow making it look impressive for many areas, but the moisture content was low. Already at the writing of this report, portions of central Saskatchewan and east-central and interior southern Alberta were becoming snow free. A few others were also getting into the same state. If it were warm enough to plant and no frost was in the soil the snow-melt moisture would be helpful in bolstering topsoil moisture for planting of spring crops. But conditions are not favorable for farming activity—at least not yet.

Several areas south of Highway One in Saskatchewan, Manitoba and Alberta still had significant snow on the ground and some of those areas have much greater snow water equivalencies that will attempt to improve soil moisture for a while this spring ahead of planting.



Fears Of Another Spring Drought (continued from page 1)

Abundant to excessive snow covers the ground in southern Manitoba and in many areas across the northern-most parts of the Prairies. Soil conditions are saturated beneath the snow in northern and western Alberta and portions of northwestern and northeastern Saskatchewan as well as northern Manitoba. These wetter biased areas are not looking forward to the mess of standing and running water through fields during the peak of the snow melt season.

Flooding this spring is liable to be most significant in the Peace River Country and in southern Manitoba because of saturated soil, frost in the ground and quick melting of snow. River and stream flows will rise significantly and many areas will start experiencing standing and running water through the fields and across roadways.

Flooding in southern Manitoba will be serious and the potential for widespread standing water over the next few weeks will steadily increase if temperatures rise above average and prevail there for a while in late March and April. The good news is that there will be alternating periods of warm and cool weather which may slow the snowmelt rates, but flooding is still imminent.

So with all the talk of flooding and significant runoff why is the title of this article "Fears of Another Spring Drought", you ask? Simply because the one large area in the Prairies that does not have much snow to melt or is already snow free is a big part of the region that was driest over the past two years.

El Nino has kicked back into a more viable stage of strength over the past few months and at the same time the Polar Vortex over eastern Canada is fading. These conditions are combining to stymie precipitation and push temperatures well above average. The scene is very similar to that of previous El Nino events except for the past few weeks that were colder than normal.

The past El Nino events that have impacted the Prairies always brought along warmer than usual temperatures and this year's event was too wimpy to fight back against the stratospheric warming that occurred in January and the southward shift of the Polar Vortex over parts of Canada in February. However, precipitation during the winter was often lighter than usual. The most recent 30 days have been quite dry in many areas.

Limited precipitation in the Prairies resulted because of strengthening El Nino, the demise of the Polar Vortex and a significant bout of stormy weather in the United States that kept most of the North America atmospheric energy tied up in that part of the continent.

El Nino's intensity is beginning to reach a plateau and will level over the next few weeks. This change will allow more traditional El Nino conditions to dominate the Prairies through the next 30 days. This will include warmer than usual temperatures and restricted precipitation from central through south-central and southwestern Saskatchewan to southern Alberta. Again, these areas are the same ones that were reporting significant moisture deficits over the past couple of years. Soil moisture is already lowest in a part of this region and adding another 30 days of warm and dry biased conditions to the situation will lead to topsoil moisture depletions and rising concern over El Nino-induced dryness during the spring season.

El Nino events of 2015, 2009 and 2002 all produced below average precipitation during most of the spring seasons. Such an event this year would not bode well for early season crop planting or development because it will not take long for favorable moisture to diminish as time moves along into April. World Weather, Inc. is expecting the North American jet stream and storm track to be most active in the United States from the central and southwestern Plains through the heart of the lower and eastern Midwest and into a part of the northern Delta and Tennessee River Basin areas.

Returning frequent precipitation to that part of North America will restrict atmospheric energy from bringing very many significant storms to the Prairies. That does not mean, nor should it be interpreted as, absolute dryness for the region this spring. A few timely precipitation events will occur to support planting, but there will be frequent concerns about the success of germination, emergence and establishment in the driest parts of the central and southwestern Prairies.

In the meantime the wetter biased areas in the Prairies this spring will likely occur in the Peace River region and in southern Manitoba. These areas either already have saturated field conditions or soon will as the snow melts. Delays in farming activity are expected in both of these wetter biased areas because of excessive moisture while dryness in the central through southwestern parts of the Prairies struggle for moisture at times.

The summer outlook for the Prairies still looks good for a reversal in weather allowing the drier areas to get some rain and the wetter areas a chance to dry down for a while.

Getting to the summer season and seeing the weather reversal evolve will be challenging. Dryness in parts of the Prairies will raise much concern and worry over getting crops planted, emerged and established at the optimal time of the year. The same worry is expected for the excessively wet areas of northern Alberta and southern Manitoba with spring flood water expected to be a problem for planting for at least a part of this spring

60 Days Of Limited Changing Weather

Warmer-than-usual temperatures will overtake much of the Prairies this week and the pattern is expected to stay with us through much of April. The warmer biased conditions will help to melt snow and allow for quick drying so that flooding does not last for an excessive amount of time. However, the end of March and early April will be plagued by flooding in both southern Manitoba, and the northwest part of Alberta.

Precipitation in the next two months will frequently be lighter than usual across the heart of Saskatchewan into southern and east-central Alberta. Areas to the northwest and southeast will experience some bouts of greater than usual precipitation at times.

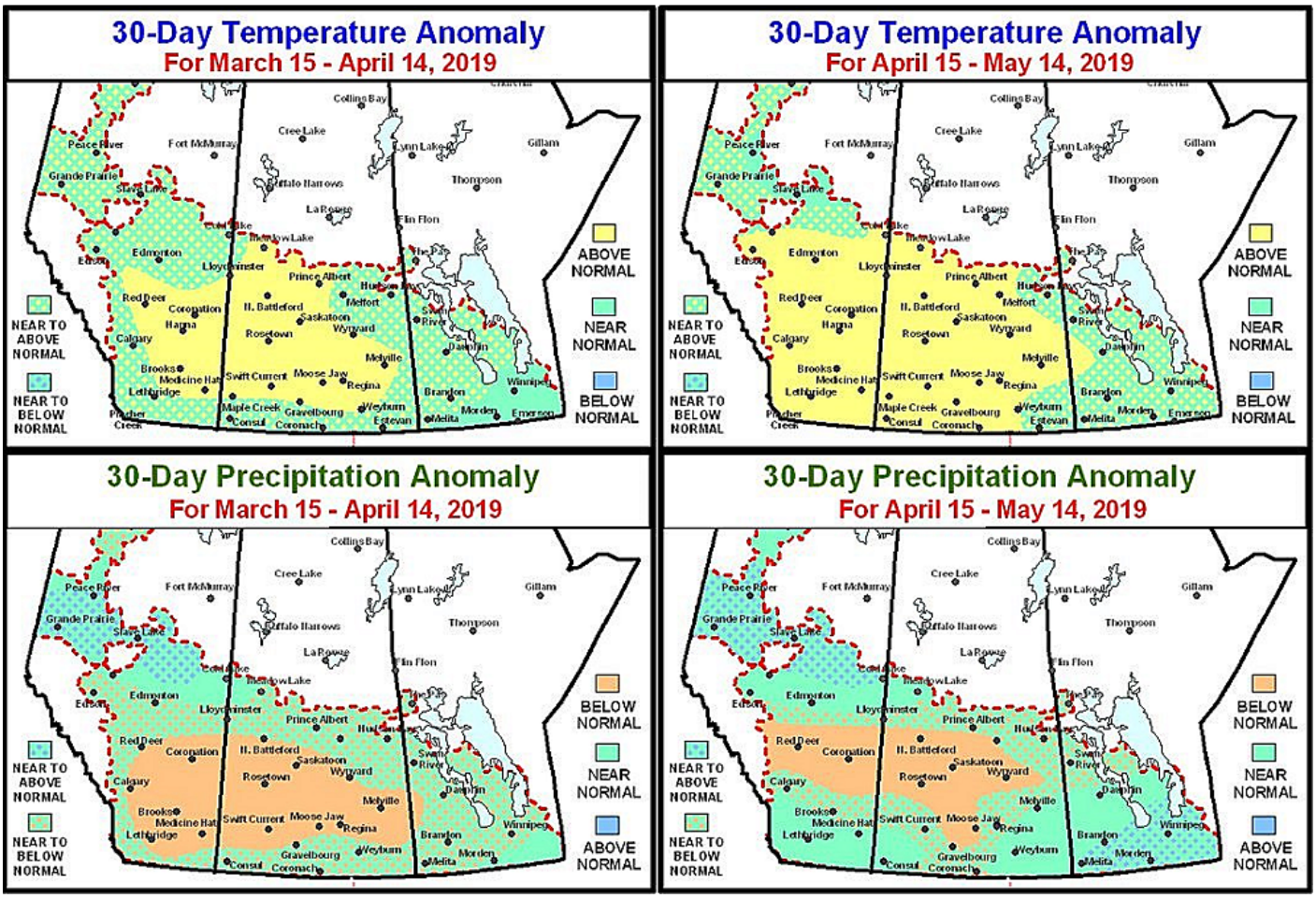
Many areas north of Highway 16 in Alberta will receive just enough precipitation to limit drying in the region and to raise worry over delays in farming activity. Much hope will be placed upon El Nino conditions to last long enough this summer to bring some needed drying to the northwestern parts of the Prairies and end the recent three years of wetter biased weather.

Temperatures in both the March 15 to April 14 period and from April 15 to May 14 will be warmer biased. There will be a few bouts of unseasonably warm weather like that which is occurring in Alberta this week. The extremely warm conditions will not persist through the entire spring, but the short term bouts of cooling that are expected will not likely be great enough to bring down average temperatures below the "near to above average" category and many areas will be warmer than usual.

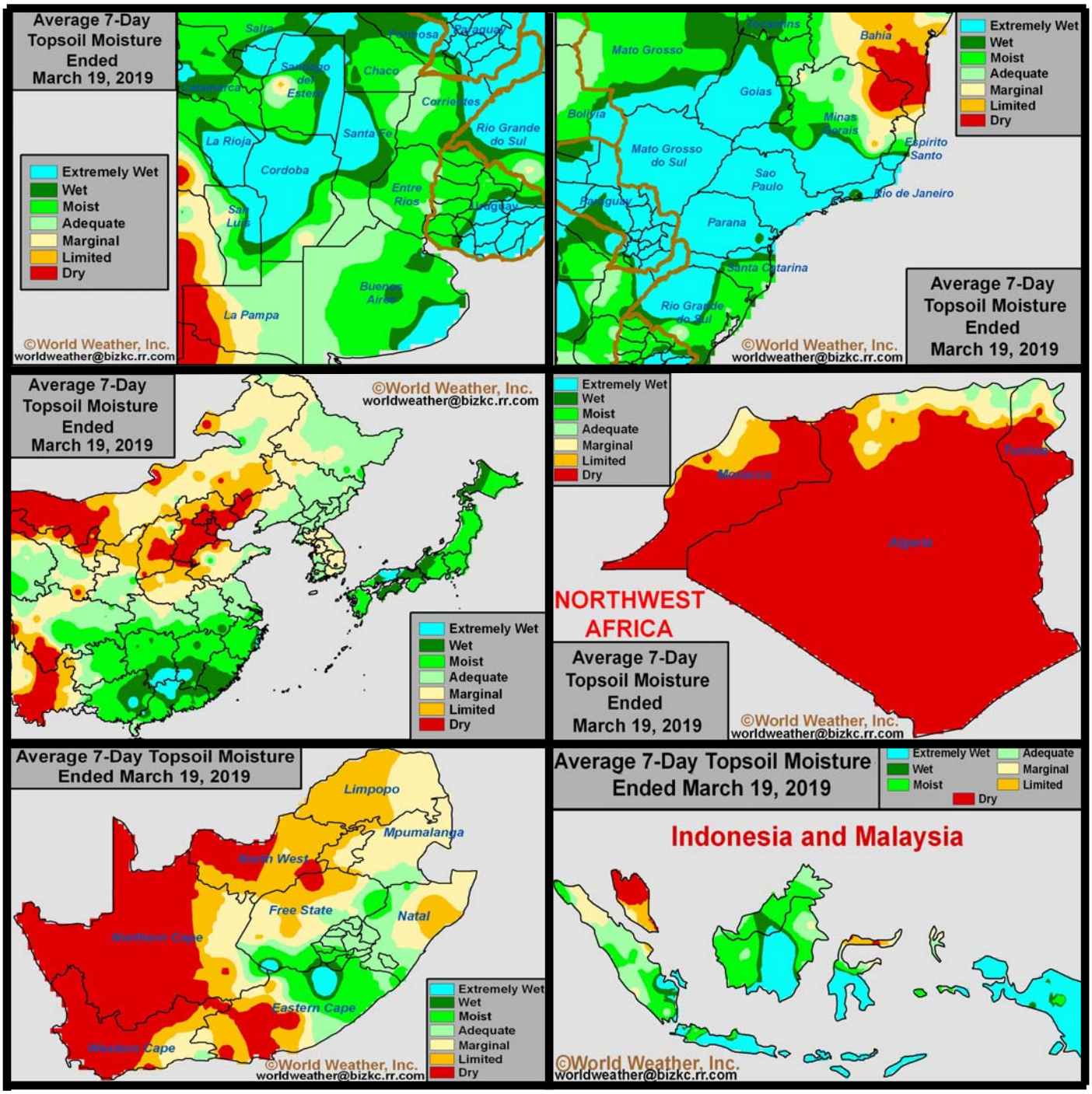
Precipitation over the next several weeks will be near to below average. Some areas will be quite dry and with the warmer than usual bias to temperatures their field conditions may become too dry for farming activity when the frost free period finally begins.

Warmer biased conditions will be least frequent and least significant in the eastern Prairies. Crop conditions in that particular region will improve with the warmer bias, but there will still be a few shots of cooler air periodically and that may aggravate the needed drying trend leaving some farmers frustrated over poor field working conditions.

Flooding in the southeastern corner of the Prairies may be aggravated by a few short term bouts of significant precipitation, but one or two large storms will impact the region instead of frequent small ones.



Selected Weather Images From Around The World



South America soil moisture is nearly ideal with favorable moisture available for late season summer crops to feed upon during periods of drier biased weather. One such period of drying is under way now in Argentina and the nation will become dependent on subsoil moisture for a while to support late season crop development. Worry over dryness in northern China is just beginning to reach the eyes of a few traders, but another month of limited moisture is expected before seasonal rainfall normally arrives. Little change will occur in this coming 30 days. El Nino has not had much influence on Indonesia so far during in this episode. Rainfall has been routine and sufficient to support normal crop development. Peninsular Malaysia and a few northern Sumatra locations are a little dry and need greater rainfall, but other areas in palm oil producing areas are in good shape with little change likely. Europe's dryness is limited to Romania and southeastern Spain. North Africa has dried down quite a bit recently and rain must fall o support winter wheat and barley production. Conditions in the United States are different with flooding the biggest concern.

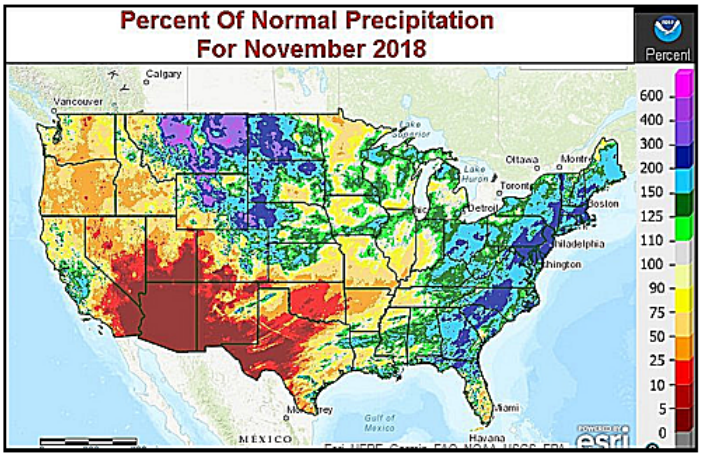
U.S. Wet Weather Far From Over; Warming To Help

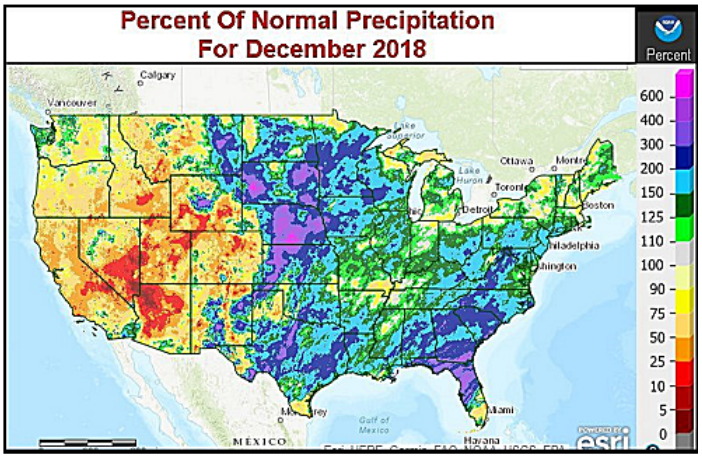
Multiple months of above average precipitation have been recorded in the central and eastern United States this year. However, despite some media commentary about this being unprecedented we need to keep it all in perspective. Yes, some areas have reported record setting wet conditions, but some of that wetness was for a single month and not the entire period and even though the ground is excessively wet across portions of the northern Plains, Midwest and Delta we have been here before. The focus of our attention should not be on where we have been and how bad the situation is today, but more on what will happen next. Flooding through the end of March and into early April is one thing, but continued wet weather the remainder of April and May is a totally different situation and could have significant implications for planting this spring.

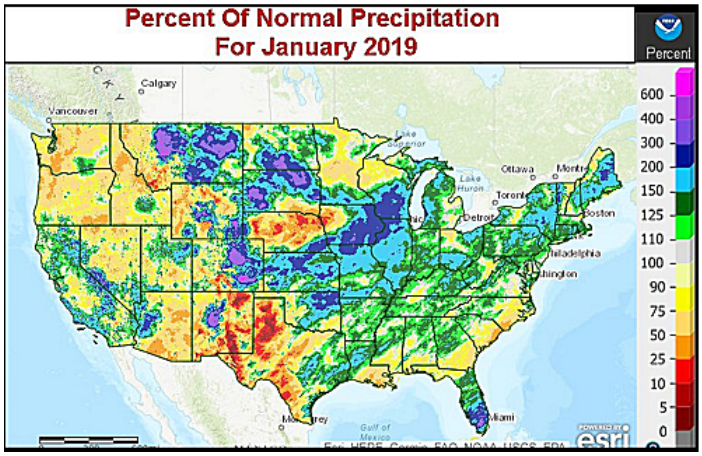
Today's farming technology enables farmers to plant a huge amount of acreage in a very short period of time. All that is needed is a decent-sized window of rain free conditions. Producers have planted in the mud many times before and will do it again if it means a loss in production potential. With that said, World Weather, Inc. does not believe the wet weather pattern is over, but there is reason to believe the excesses in precipitation in the northern Plains and upper Midwest may be over for a while. The odds are good that the north-central United States will receive near to below average precipitation over the next several weeks. Confidence in that statement comes from the returning strength in El Nino conditions, a statistical record suggesting record cold Februaries are often followed by near to below average precipitation and by the solar cycle predictor for April warmer than usual conditions.

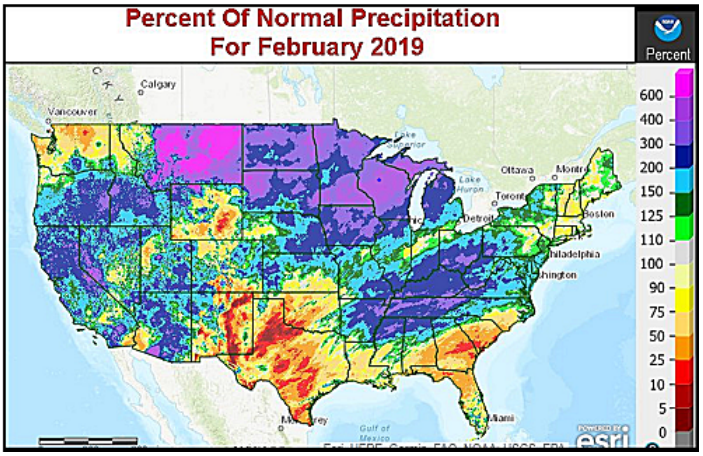
Totally dry weather is not expected in the upper Midwest or northern Plains. However, the frequency and significance of precipitation events over the next few weeks should be less than that of February. That statement combined with better drying conditions between rain events due to warmer biased temperatures should help improve the situation a little faster than feared. With that said, though, flooding over the next few weeks will be substantial from the upper Missouri River Basin into the Red River Basin and to a lesser degree of significance the upper Mississippi River Basin.

A few weeks are needed to melt the remaining snow cover and to allow worsening flood conditions to peak and allow time for receding flood water. This process will take a while and early season planting in the northern Plains is not very likely this year and that sends fear through



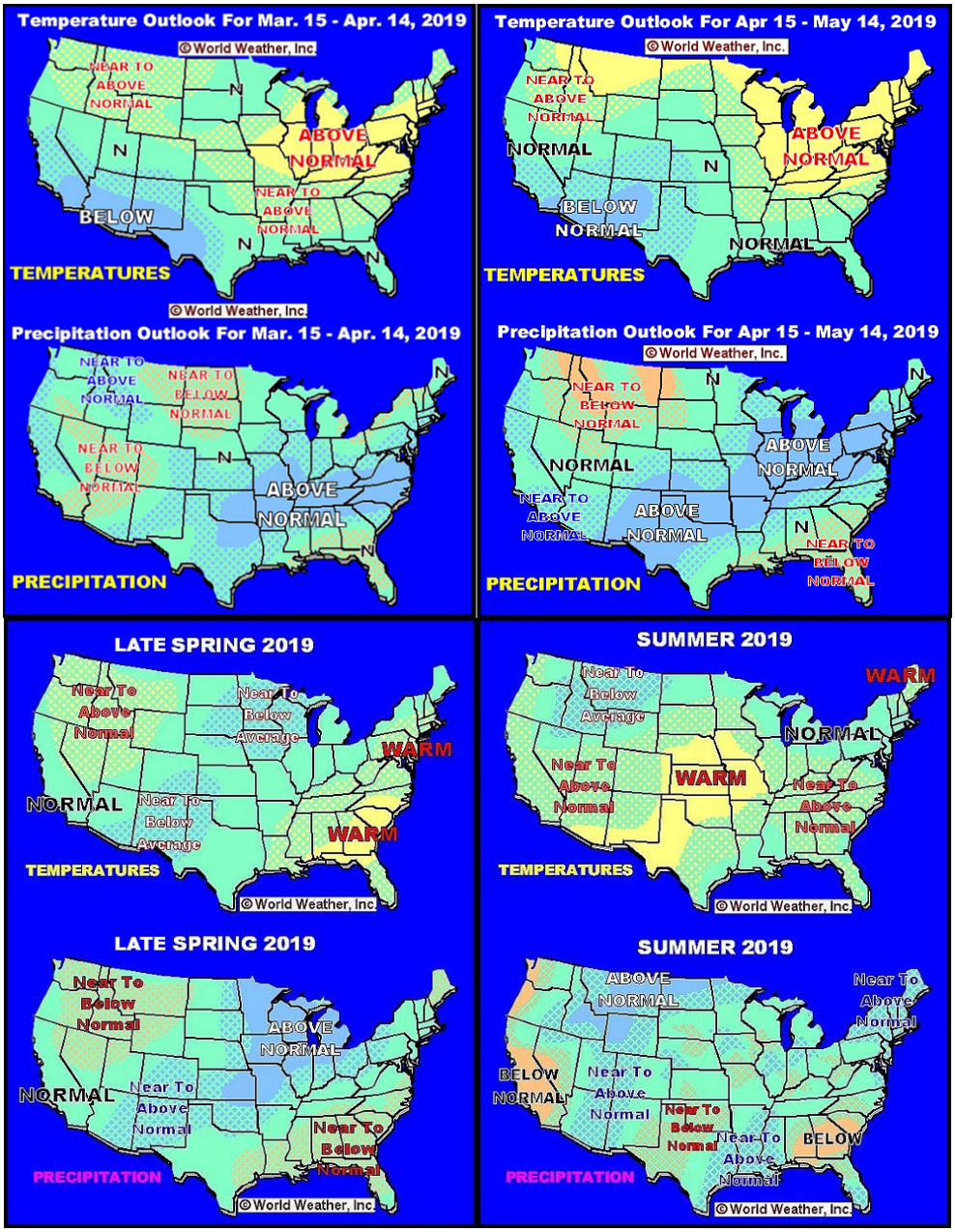






U.S. Wet Weather Far From Over (continued from Page 5)

the blood of many farmers. Spring wheat produces best when planted early and many of the corn and soybeans that have been planted in the region and across the border into southern Canada are dependent upon a long growing season. Delayed planting will shorten the growing season unless another autumn with prolonged warmth is expected. World Weather, Inc. is not ready to make such a prediction on the autumn outlook and there may be more reason to look for normal frost and freeze dates or possibly some earlier than usual coolness than to expect an extended growing season.



In the meantime, while the northern Plains and upper Midwest experience less frequent and less significant precipitation in the next few weeks, frequent rain will be falling in the lower and eastern Midwest, northern Delta and a part of the central and southern Great Plains. The pattern will be a compromise between A classic El Nino spring pattern and this year's lunar cycle which suggests a jet stream pattern that will often bring storms across the central and southern Plains to the heart of the Midwest and the middle and upper Atlantic Coast States.

Many areas in the eastern an northern United States will be warmer than usual in late March and especially April. Some of the warmth will continue in May, but there is a good chance that cooler biased conditions will return to the north-central states for a little while in May. The west to southwesterly flow of air aloft in late March and April should promote more frequent storm systems across the heart of the Midwest resulting in poor planting weather. The warm weather is expected to support good drying rates when rain is not falling, but the frequency of rain will be such that producers will have to plant in the mud because ideal conditions may not evolve before optimum planting dates pass. That suggests incentive for planting intentions to change from corn to soybeans in the Midwest and possibly from corn to soybeans, cotton or sorghum in the Delta and parts of the Tennessee River Basin.

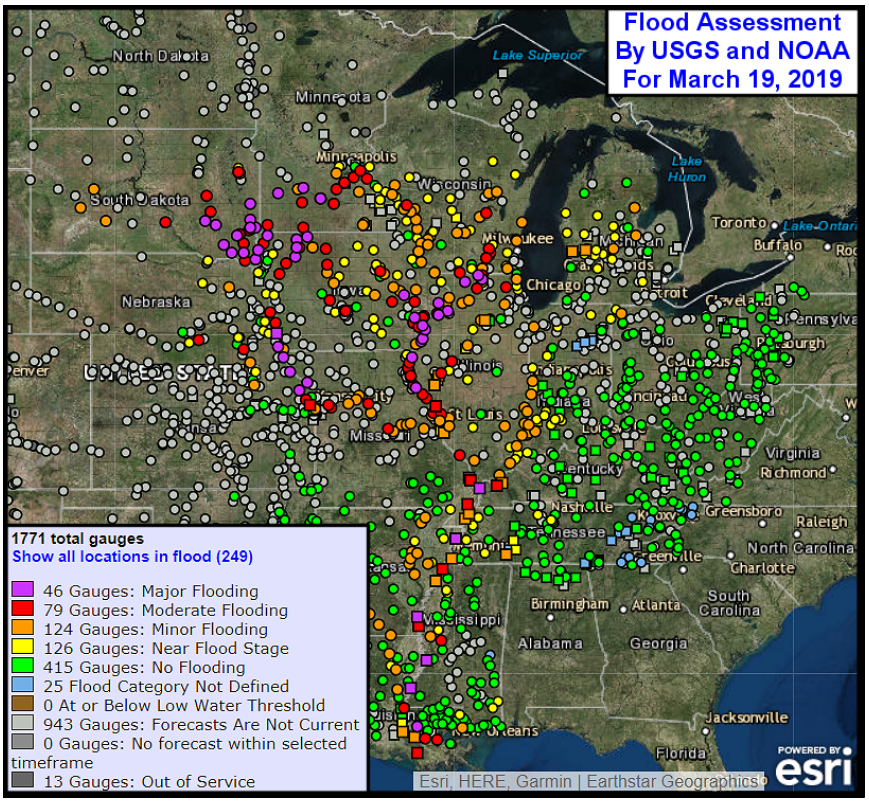
One of the biggest fears is that this extended period of wet weather will turn dry late this summer. The same thing occurred in 1983 and in a few other years. Nature has a tendency to follow prolonged periods of wet weather with a notable dry bias. Sometime the switch occurs in late summer or Autumn and sometimes in the middle of summer. Trying to determine when this may take place will be very important in determining if and when dryness might evolve and how that might impact the growing season.

U.S. Wet Weather Far From Over (continued from Page 6)

First we have the statistics that already suggest a prolonged period of wet weather is often followed by a trend toward drier biased conditions and that can occur in the summer or autumn. In addition to that fact we are in a solar minimum. Solar minimum years tend to produce a drier bias in the Midwest during August. It does not occur in each solar cycle, but it happens in the majority of them. There is also an association with solar minimum years with warmer than usual weather in April and June.

Adding to that trend is the El Nino and Pacific Decadal Oscillation (PDO) mixes. El Nino events of the past have been favorable for perpetuating frequent precipitation and milder biased summers. However, data from the past has revealed that drought has occurred in some El Nino events and not all behave in the same manner. This year's El Nino has certainly not fallowed tradition in recent months, although the recent strengthening has begun to change that. More of the world is reporting more traditional El Nino conditions over the past few weeks than at any other time since the event began last autumn. The key with El Nino and its influence on the world and the Midwest will be predicated upon its intensity and organization during the coming summer and autumn seasons.

El Nino was not supposed to have survived this long, according to the Australian Bureau of Meteorology. However, World Weather Inc. pointed out many months ago that El Nino might not fully evolve until the solar minimum was reached and that seems to be the case. Now it looks like El Nino will be around for a while. However, cycles in the atmosphere may raise the potential for weakening conditions during the summer season. The weakening may be short term and minor or could be more substantial.



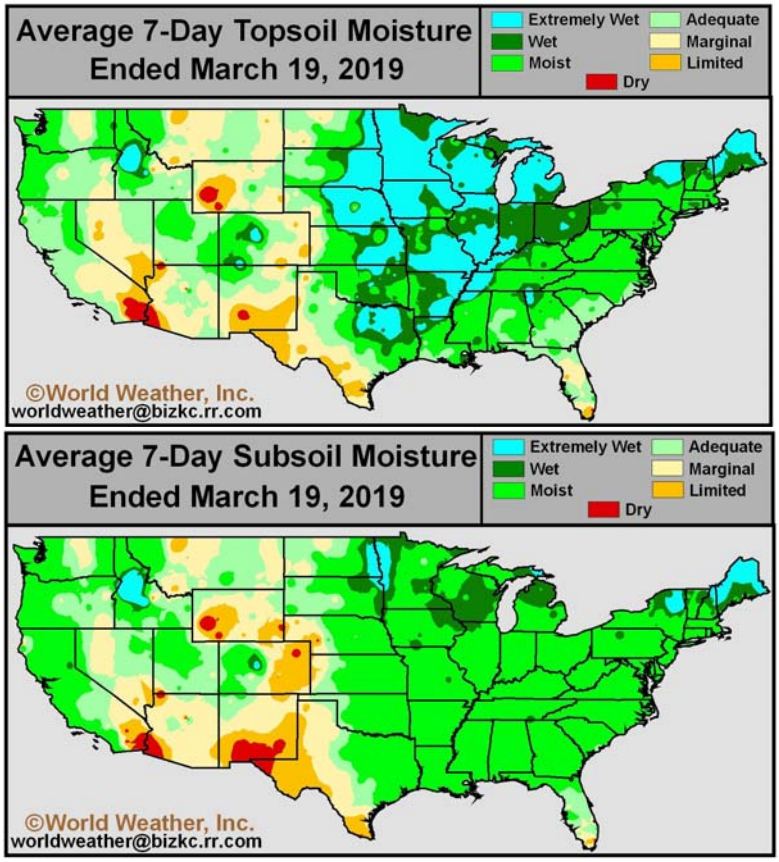
The mere fact that El Nino may weaken in the summer raises the potential for other weather patterns to possibly have a greater influence on world and U.S. weather trends. As long as El Nino is robust it will try to dominate world weather. As soon as weakening begins traditional weather associations with El Nino will begin to wane or diminish.

Forecasters are watching very closely Pacific Decadal Oscillation (PDO). There has been some "tendency" in the past couple of years for the negative phase of PDO to evolve. Negative PDO is associated with cool weather off the west coast of North America. The more significantly cool the ocean water becomes there the more negative PDO will become and the greater potential for a trough of low pressure to evolve and prevail over the western United States during summer. A trough in the western states can make those areas a little milder than usual during the summer with greater precipitation in the northwestern Plains and Canada's Prairies and sometimes in the U.S. Pacific Northwest. Having a deeper trough of low pressure in the western U.S. allows a stronger ridge of high pressure to develop in the central United States and that can induce a drier and warmer weather scenario for the Plains and western Corn Belt while a drier and milder regime occurs in the eastern Midwest.

If El Nino weakens this summer and PDO continues to drift deeper into its negative phase there will be a better potential that late summer weather could trend drier in key summer crop areas in the Midwest

U.S. Wet Weather Far From Over (continued from Page 7)

and some neighboring areas. The solar cycle already suggests a drier finish to the summer is possible and the same is implied in some of the statistical evidence associated with record cold Februarys in the north-central states.



There will already be a tendency for drier than usual weather in the southeastern states and lower Delta during the May through July period this summer. This association comes from the lunar cycle, the solar minimum and a statistical association with record cold Novembers in Iowa, Illinois and Missouri. Having a drier bias in the southeastern United States during the summer will make it very easy for the dry bias to build northward if El Nino weakens and PDO strengthens in a negative phase.

CONCLUSIONS

- Abundant to excessive rainfall will continue periodically in the central and eastern U.S. in April and probably a part of May.
- Flooding may recede in the lower Midwest, Delta and Tennessee River Basin for a while, but greater rain events coming up in April and May could return some of the excessive moisture and at least induce local flooding once again
- Flooding in the upper Midwest and northern Plains will be very serious for the balance of March and early April, but conditions will improve in late April and May, despite a few more weather systems at that time.
- Planting will be delayed in this region, but there will be opportunity to get into the fields and get this year's crops planted, although not necessarily in an optimum manner
- April and June will be warmer than usual in the northern and eastern United States and across Canada
- Delayed planting may occur in parts of the lower and eastern Midwest, northern Delta and parts of Tennessee this spring
- Summer will start out quite favorably for crop areas in the Midwest and northern Delta while the lower Delta into the southeastern states will trend drier than usual
- Late Summer (August and September) may trend drier than usual in the Midwest possibly threatening late summer crop yields.

Frosty in Argentina Thursday Morning

Another earlier than usual cold airmass will impact Argentina this week. Temperatures will fall low enough to induce a little frost and some light freezes Thursday morning in southeastern parts of the nation. Buenos Aires will be most impacted with a few of its late season corn and soybeans to be possibly impacted. Most low temperatures will slip to the range of +1 to+4 Celsius, but a few extremes of –1 to 0 are also expected. Some of the cool air will be in southern La Pampa as early as Wednesday, March 20, 2019.