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The Canadian Agriculture Weather Prognosticator

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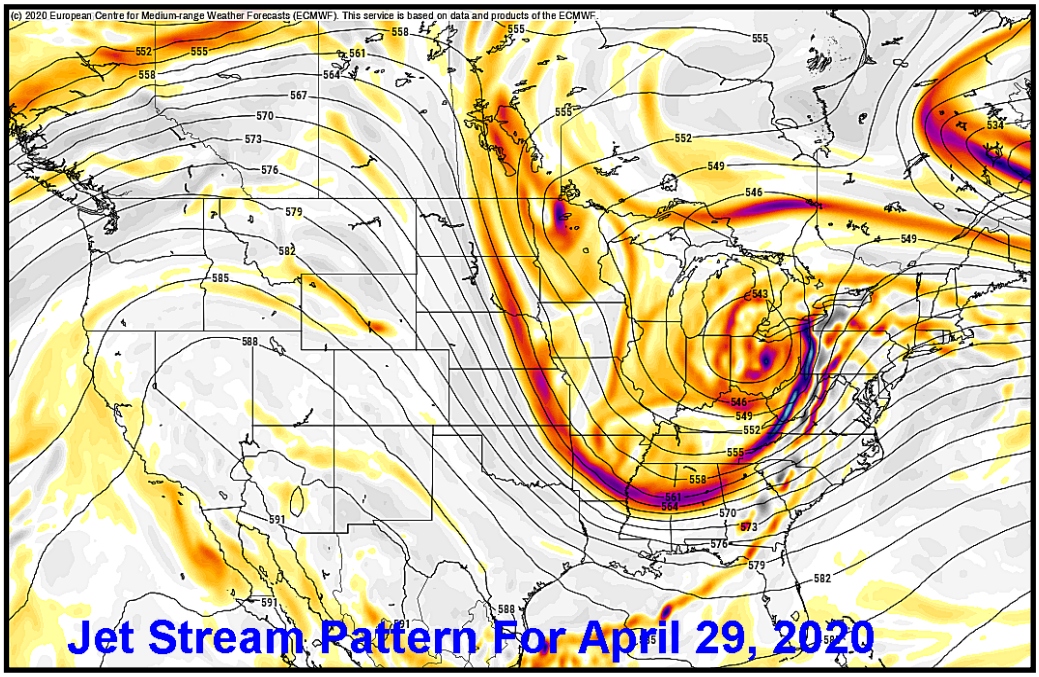
WORLD WEATHER ISSUES

- Europe and western portions of the former Soviet Union are enduring 30-40 days of very low precipitation
- Winter crops from SE Europe to Kazakhstan did not establish well last autumn and production is already expected to be lower. Any additional dry and warm weather this spring could make dryness a bigger impact on small grain, oilseed and some pulse production
- South America weather remains good, but second season corn in southern Brazil will need unusually great amounts of rain in May to support reproduction after being planted late
- U.S. planting is off to a slow start once again, but the situation is not nearly as extreme as last year. The delays will continue for another ten days and then some improvement is probable
- Southern Australia is still expected to see favorable precipitation this autumn for wheat, canola and barley
- India is harvesting huge winter crops

High Pressure Ridge: A Sight For Sore Eyes



A high pressure ridge evolving along the west coast of North America promises to help support a weather pattern change in the next two weeks that should lead to better weather across much of the Prairies. The ridge will likely produce warmer temperatures—a taste of which was already present in a part of the western Prairies at the time of this writing on April 21. The mid-afternoon temperature at Regina and Yellow Grass, SK reached 24 degrees Celsius this day while Brooks, AB reached 22. The warmth was a wonderful change and well received after recent temperatures were substantially below average. It was not much more than a week ago that temperatures were reported in the –20s with record and near record cold readings.

Spring has been seriously delayed in many areas. Frost remains in the ground in many areas and a slow start to fieldwork is expected. But, with that said, the coming high pressure and waves of warmer weather will take us a long way down the road toward improving field conditions.

The ridge is not only needed to bring warmer temperatures to the Prairies, but to induce drier conditions, as well. The past few weeks have been brutal on the wet fields of western and northern Alberta where worry is running very high over the fate of this year's planting.

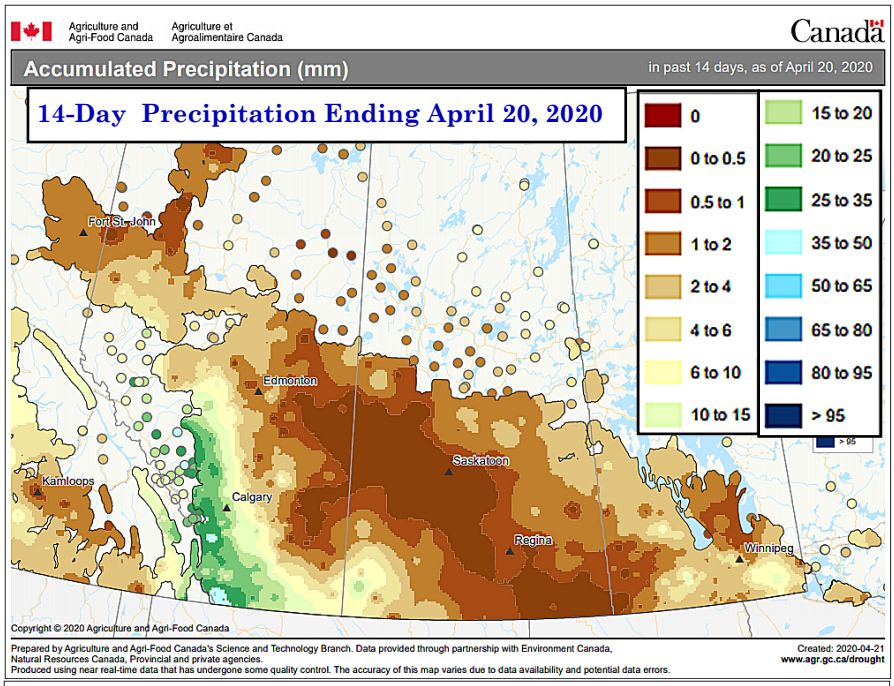
The ground is still much too wet in western and northern Alberta and parts of both northern Saskatchewan and northern Manitoba where a snowpack remains and must be melted before there is any chance of firming up the soil. Once the snow has melted suffi-

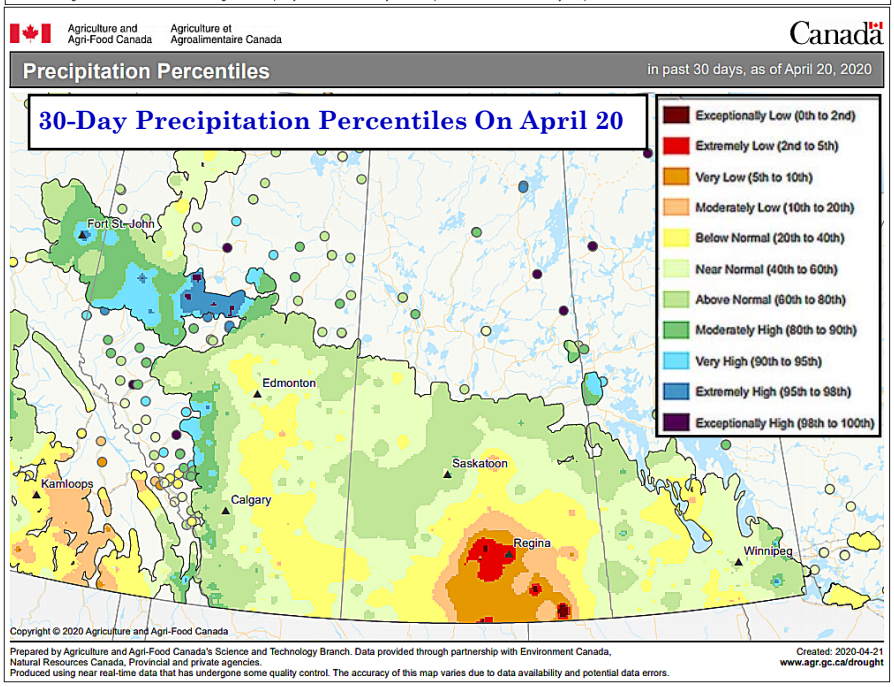
High Pressure: A Sight For Sore Eyes (continued from page 1)

ciently drying time will be needed to firm the ground and then enough warming will be needed to get soil temperatures up to an optimum level to support seed germination. In the meantime, there is much 2019 crop still standing in some of these areas and that must be dealt with before any planting can occur.

The ridge of high pressure may be a sight for sore eyes, but it has to prevail long enough to get the Prairies in better shape for fieldwork. Many of the snow free areas in the central and southern Prairies will see the top inches of soil thaw out quickly, but frost deeper in the soil will take some time to come out and only after that time will conditions be sufficient for planting and establishment.

With the sun now at a higher angle in the sky and longer days beginning to emerge there is more hope that the warmer weather will be sustainable long enough to get some tractors rolling and some planting under way. Already in a few southern areas there is some fieldwork beginning. Reports of pea and wheat planting have been received from a few areas, but most of that activity has been limited to the warmer areas in the southwestern Prairies and southward into the northern U.S. Plains. The ridge of high pressure will help fix that so that a much larger percentage of farmers in the Prairies will be getting into the fields soon.





There is one concern in regard to the high pressure ridge and that is in its strength and stability. The jet stream in North America remains very active with plenty of energy in it. The ridge of high pressure will not be capable of holding steady across the Prairies without periodically breaking down. Each time the ridge breaks down there will be an opportunity for precipitation. This could turn out to be a frustrating environment because the warming is needed to raise soil temperatures, melt snow and firm the ground for more aggressive planting. Brief breaks in the high pressure ridge will also bring some shots of cooler air periodically and small weather disturbances will move in and out of the region producing some occasional precipitation.

A stronger ridge of high pressure with more staying power might be more desirable, but we rarely get what we want in the Prairies and we must be thankful for what we have. There is "opportunity" for improvement over the next couple of weeks and even though the scenario will not be perfect it will be an improvement.

Temperatures will be near to above average with the west warmest. Precipitation will be close to normal, but that may be wetter than desired.

Warming In May; A Little Wetter In June

The high pressure ridge that is expected to evolve over the next ten days should prevail into the first half of May with some well above average temperatures in the western Prairies. A change toward cooler weather should occur after that, but World Weather, Inc. believes the cold might not be potent or long lasting enough to bring the warm anomalies down in western parts of the Prairies. We have likely erred on the warm side of normal in this forecast and we may have to reduce the temperature anomaly in the next prognosticator, but a warm bias should dominate May. The cool off expected near and after mid-May should not bring the kind of anomalous temperatures we have seen in the past, but that does not mean frost and freezes will not occur.

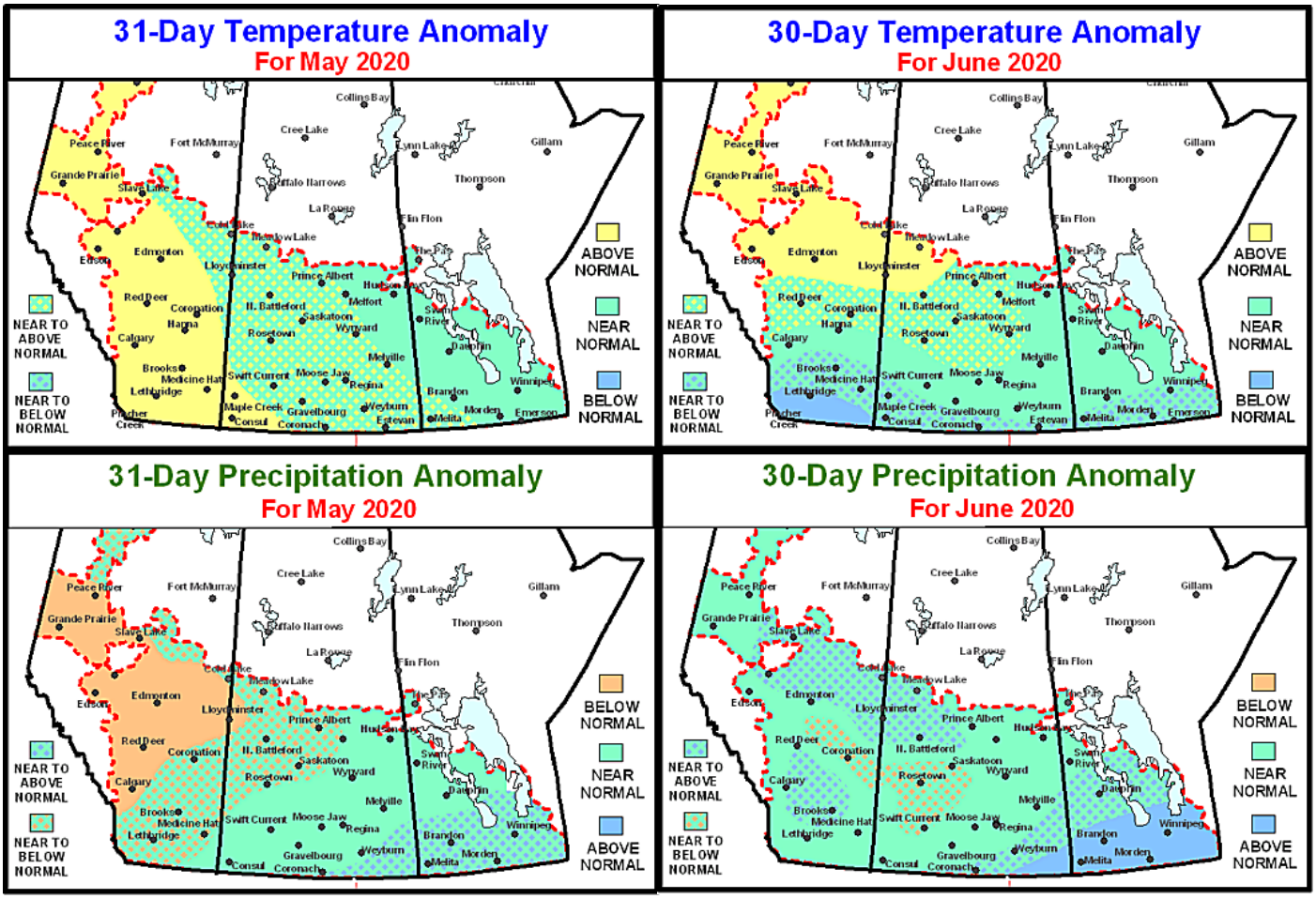
The ridge of high pressure expected into the first half of May will help to suppress precipitation events. Western and northern portions of Alberta has some of the greatest need for becoming warmer and drier to get the snow to melt, firm up the topsoil and raise soil temperatures for harvesting 2019 crops and planting of 2020 crops.

Other areas in the Prairies will experience progressively less anomalous temperatures as one travels to the east from Alberta.

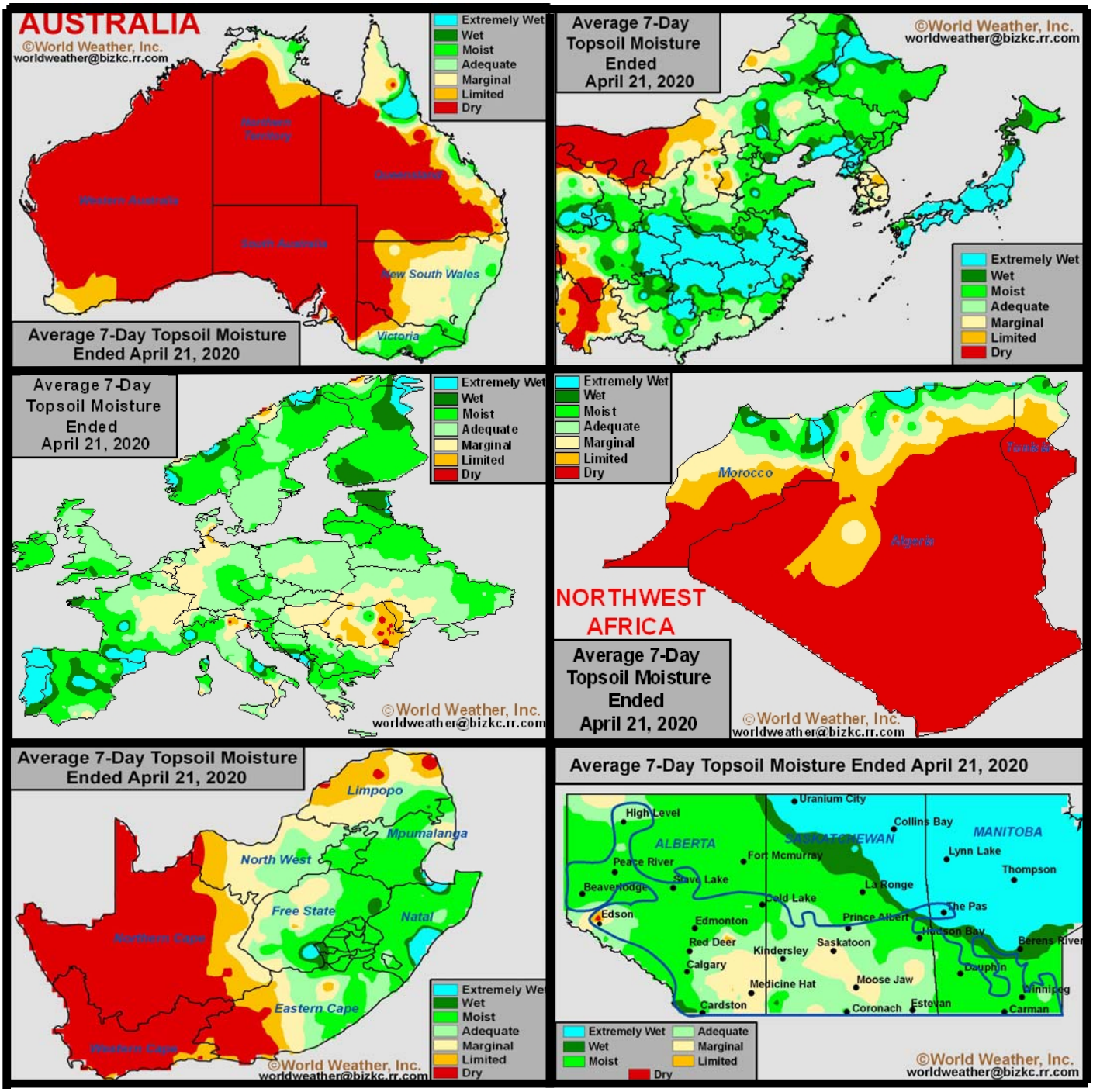
Precipitation in May will be greatest and most significant when the transition to cooler weather occurs near mid-month and again when warming returns late in the month. The southeastern Prairies will be wettest. Some precipitation will fall in west-central Saskatchewan and east-central Alberta where a dry bias will be in place over the next few weeks, but the rain will not be great enough to completely break down the drier bias.

June weather is expected to remain warmer biased in the northwest and north-central parts of the Prairies while southern areas trend a little cooler at times. The coolness will come from cloudiness and rainfall at times and from another cooler bout of air that may settle into the south-central Prairies in mid-June.

Precipitation is expected to become better distributed across the Prairies in June as a summer time weather pattern begins to evolve. However, the frequency of rain should not be so great to cause serious late season planting delays, but there will be some disruption especially in the southeast. The drier bias in west-central Saskatchewan and east-central Alberta will remain in June, but it should be minimized.



Selected Weather Images From Around The World



Northern China has seen the greatest improvement in soil moisture this month. Dryness that was lingering in the North China Plain and Yellow River Basin was eased, although additional moisture is needed. In the meantime, southern China is still rearing from the incredible amount of rain that fell from March 1 through the first week in April in which some areas reported 20-36 inches of rain. New South Wales, Australia is drying out raising need for rain in all of southern Australia's wheat, barley and canola production areas in the next few weeks. The planting season has arrived in Australia, but until significant rain falls fieldwork will be limited. Europe and the western CIS are drying out and need significant moisture to prevent crop moisture stress from evolving this spring. Dryness is most significant in Romania, Moldova, southwestern Ukraine and neighboring areas. North Africa wheat quality may be declining because of frequent rain while the crop is maturing. South Africa summer crop areas have seen greater than usual rain and their wheat planting should go well. Central parts of Canada's Prairies would benefit from some rain.

Worry Over Returning Cold Remains For late May

A word of caution is warranted here while everyone is celebrating the arrival of warmer temperatures. It has been a terribly long winter and everyone wants to get out and get this growing season under way. But, World Weather, Inc. remains concerned that we may not have seen the last of the colder than usual air masses in North America. There are a few reasons to be cautious about the potential for returning cold weather.

First World Weather, Inc. has observed some repeating patterns in the atmosphere this season that have been quite persistent and sometimes quite potent. There seems to be a 30-day and a 60-day pattern occurring together. If you go back and look at our daily temperatures for the winter you will notice our coldest readings occurred during the middle part of each month. This was especially noted in December, January, February and March and April. These bouts of cold were often followed by a warmer finish to the month.

The 60-day part of the cycle seems to bring on greater warmth in the last days of the month and early days of the following month in 60-day intervals. This was noted in late December and early January, late February and early March and it may be occurring again right now. These 60-day warm periods are more notable than any other warm period that occurs in the 30-day cycle and usually bring some notable warmer than usual temperature anomalies.

If this cycle is prevailing then the current warm up will bring us a nice period of warmer than usual conditions over the next two to three weeks. If the 30-day and 60-day cycles are still in tact that would suggest a change back to some notable cooling is possible in the second half of May after an extended period of spring weather that will have many of us working in the fields aggressively.

If the cycles are repeating the return of colder weather should occur near or shortly after the middle of May. Because of seasonal warming, the cold should not be as potent as it has been, but still cold enough to return frost and freezes to many areas. That is not unusual for the spring and most producers will not be planting the frost and freeze sensitive crops until May anyway. So that is a good thing.

Just remember no matter how warm it gets in the next few weeks do not forget this cycle. It is better to err on side of being too cautious rather being too zealous for planting. We will know by mid-May whether this pattern is still prevailing and that is not too late to delay canola and other frost sensitive crops. If the pattern does repeat again then we may have to consider its possible return again in mid-June and that could prove to be problematic for many crops. We are not advocating such a late frost or freeze event, but it is a concern. The pattern must break down.

Why do we believe the pattern may continue, you ask? For one, the Gulf of Alaska ocean temperatures are still warmer than usual and have actually been warming additionally in recent weeks. That will help to maintain the northwesterly flow of air aloft that has been bringing the colder shots of air into the region periodically.

We are also seeing patterns similar to 1966, 2002 and 2005 and in each of those years there were some returning bouts of cold periodically through the spring season. **The most important part of this repeating pattern is that in some of these past years the colder air shots have shifted more to the east as time moves along.** That implies that Alberta might see less and less of these colder shots of air as we move into May and June, but Manitoba and eastern Saskatchewan may continue to see this pattern periodically.

World Weather, Inc. has also done a recent study looking at near record warm temperatures in the southeastern United States in March followed by unusually cold Aprils in the northwestern U.S. Plains and southwestern Prairies. We found that quite often there was a tendency for southwestern Prairies and northwestern U.S. Plains to experience additional cool weather during the spring and summer in these years.

With that said, we are moving into a significant warming trend right now and the next ten days will be warm enough in the southwestern Prairies and northwestern Plains to remove those areas from our study of years with near record warmth in the southeastern U.S. and near record cold in the northwestern Plains and southwestern Prairies because by the end of April the cold temperature anomalies will have warmed and will not qualify as near record cold. So, our fingers are crossed that the warming trend under way now will be sustainable so that this latter study no longer fits.

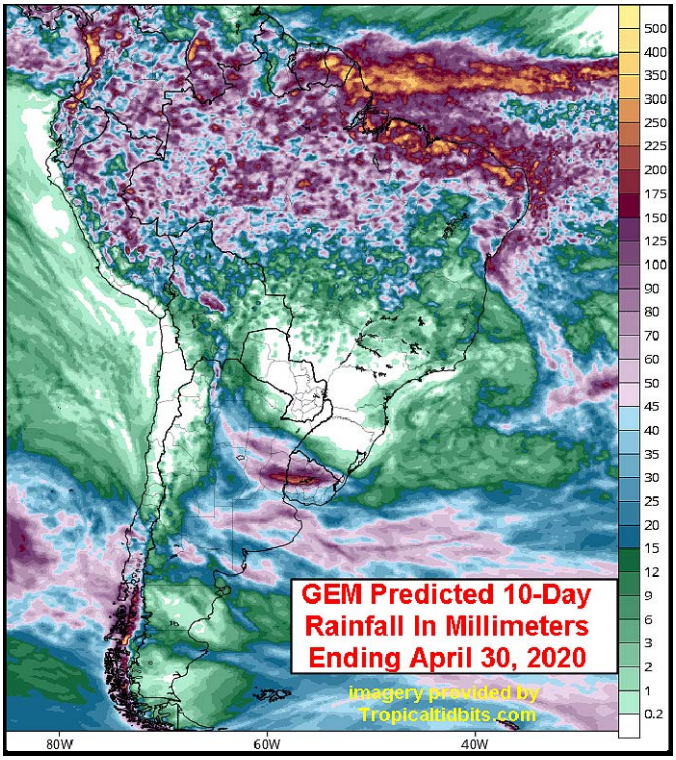
If the above study does not fit 2020 then we will have a better "potential" to avoid a cool summer like that of the years in our study.

One last reason remains in support of the returning cool pattern and that is the 18-year cycle itself maintains a split jet stream in North America with the northern branch over Canada prevailing in a northwest to southeast orientation bringing additional shots of cold air through the Prairies. However, the 18-year cycle years also suggests the cold will favor the eastern Prairies more than the west as noted earlier.

The bottom line in our cautious statement is that we will likely see returning cold in mid– to late May and may again in June, but these cooler periods will favor Manitoba and eastern Saskatchewan more than Alberta and by June the cold intensity should have mellowed to avoid a serious frost threat to crops.

Brazil Southern Safrinha Corn To Finish April Dry

Safrinha corn and cotton conditions remained favorably rated over the past week along with late full season crops. Timely rainfall and/or favorable soil moisture are supporting plant development and production potentials remain mostly on target. However, reproduction for late Safrinha corn is still several weeks away and a couple of well-timed rain events will be needed to protect soil moisture and ensure the best yield potentials. Southern and some east-central parts of Brazil are expected to be dry or mostly dry through the end of April suggesting topsoil moisture will be rated very short at the beginning of May. Subsoil moisture may be in a steady decline at that time as well putting much pressure on rainfall in early to mid-May. In the meantime, dry conditions will be good for summer crop maturation and harvest progress, but rain is needed soon for winter wheat planting and establishment.



Topsoil moisture is adequate to excessive from much of Mato Grosso and Mato Grosso do Sul into Goias, Bahia, and northwestern Minas Gerais. Rio Grande do Sul has a shortage of moisture due to a lack of rain in recent weeks. The remaining portions of southern and center-south Brazil have marginally adequate to slightly short topsoil moisture.

Mato Grosso and Mato Grosso do Sul into Goias and a band from west-central and northwestern Minas Gerais into eastern Minas Gerais and neighboring areas reported near to above normal precipitation since the beginning of the month. Rainfall April 1 – 20 ranged from 75% to 150% of normal with pockets that received 150-300%. Bahia, southern Brazil, and the remaining portions of center-south Brazil have been drier or much drier than normal so far this month.

As of April 16, soybean harvesting was 92% complete in Brazil. Harvesting may have been sluggish in the wetter locations during the past week, though most producers had opportunities to get into the fields. The lack of rain from southern Brazil into Minas Gerais generally helped support more aggressive harvesting and fieldwork. In the meantime these areas would benefit greatly from a general soaking of rain to support ideal second-season corn growth. Center-west Brazil, Goias, and Bahia have plenty of moisture for second-season corn and other late full season crops. Sugarcane and coffee likely benefited from the drier bias since those crops were maturing with the harvest season to get underway soon if it has not already begun.

Portions of Rio Grande do Sul and neighboring areas into Parana remain a little too dry to support ideal winter wheat planting and establishment. Although planting has not yet begun in several locations, some producers have started putting wheat in the ground in Parana. Only 1%of the wheat crop had been planted in Parana as of late last week. A general soaking of rain is needed in the near future to support more widespread planting.

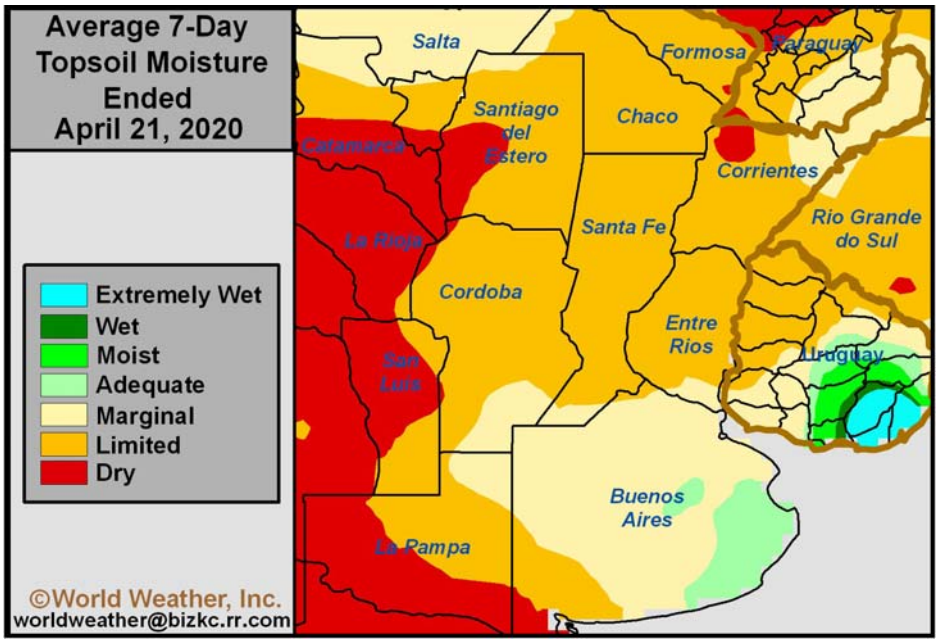
Precipitation will be variable across Brazil this week. Eastern Mato Grosso and Goias into western Bahia and northwestern Minas Gerais will again see a mix of erratic rainfall and sunshine. The rain will continue to support aggressive corn growth. Late season harvesting and general fieldwork may be sluggish at times, though producers will find times to get into the fields between rain events.

The remaining production areas in Brazil will be drier or much drier than normal this week. Brief periods of light rain are still expected from Mato Grosso do Sul into Rio de Janeiro, Espirito Santo, and neighboring areas, though resulting rainfall will be too light to counter evaporation. The lack of rain will support aggressive late season soybean harvesting. Second season corn development conditions will be mostly favorable in center-west Brazil, though portions of Sao Paulo, Parana, and Minas Gerais will likely become too dry for ideal corn conditions. A good shot of rain would be welcome at the end of April and early May.

There is potential for more rain in early May, but model divergence leaves confidence very low. The European forecast model suggests a ridge of high pressure will be over Brazil in early May preventing significant rain from evolving while the GFS model suggests rain from Argentina this weekend and early next week will eventually move into southern Brazil. World Weather, Inc. still favors the drier European model solution and that could lead to crop stress as Safrinha corn moves closer to reproduction.

Argentina Harvest Will Slow This Weekend

Harvesting in Argentina advanced swiftly during the past week due to dry and warm weather. Fieldwork for this time of year is slightly ahead of the 2019 harvest due to periods of dryness in recent weeks. Dry weather will persist for much of the country today and Wednesday before rain potentials increase for late this week. Two disturbances will promote several waves of erratic rain starting Thursday and continuing through early next week that will likely disrupt the harvest. Rainfall will be greatest in southern and eastern sections of Argentina's production region. Several days of dry weather may be needed following the rain events before aggressive harvesting resumes. The moisture will be good for the most immature summer crops and will improve topsoil moisture for winter crop planting in late May and June.



Argentina's entire Agricultural region was dry during the past week. Temperatures were mild to warm for this time of year with highest afternoon readings peaking in the 80s and lower 90s Fahrenheit. Dry and warm weather promoted aggressive drying across the region. Topsoil is rated short to very short of moisture except southeastern Buenos Aires where it was marginally adequate to slightly short. Subsoil moisture was rated adequately in Buenos Aires and marginally adequate to slightly short elsewhere.

Argentina's Agriculture Ministry reported harvesting advanced swiftly across Argentina during the past week due to the lack of rain. Cotton harvesting as of last Thursday was 34% complete compared to 32% last year. Rice harvesting was 76% done behind last year's pace of 89%. Sunseed harvesting was 98% done while corn harvesting was 27% compared to 31% in the previous year. Soybean harvesting was 33% done compared to 29% last year and sorghum harvesting was 28% complete – similar to last year.

Production in Argentina is still expected to be favorable this year, although yield losses have occurred in a number of crop areas because of heat and dryness both in the spring and again in March.

Dry weather will persist for much of Argentina today and Wednesday. A disturbance tracking to the south of the country will produce rain in southern Argentina Thursday and early Friday. Scattered showers and isolated thunderstorms will then spread across the main production areas late Friday through early next week as another disturbance slowly travels over the country. Rain totals by next Tuesday morning will generally range from 0.75 to 2.50 inches with local amounts over 3.00 inches from Buenos Aires and eastern La Pampa into Entre Rios and Corrientes. Northern Cordoba and much of Santiago del Estero into southeastern Formosa will also only receive 0.10 to 0.75 inch of rain and local amounts over 1.00 inch by next Tuesday morning.

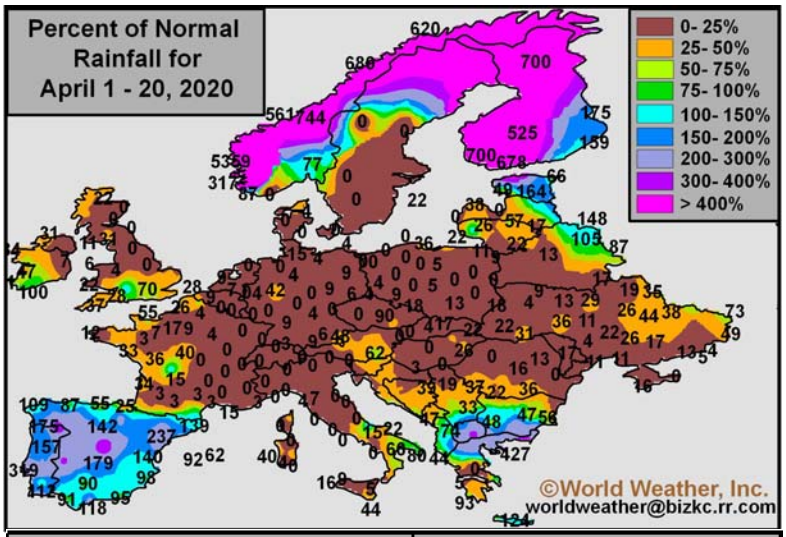
Temperatures will be warmer biased during the next several days before dropping to more seasonable levels. Daytime highs through Friday will be in the upper 70s and 80s with pockets in the lower 90s for the northern half of the production region. Southern Argentina will often warm to the upper 60s and 70s with pockets in the lower 80s through Friday. Highs over the weekend and early next week will drop to the 70s and lower 80s in the northern half of the country and the 60s and lower 70s in the southern half of Argentina.

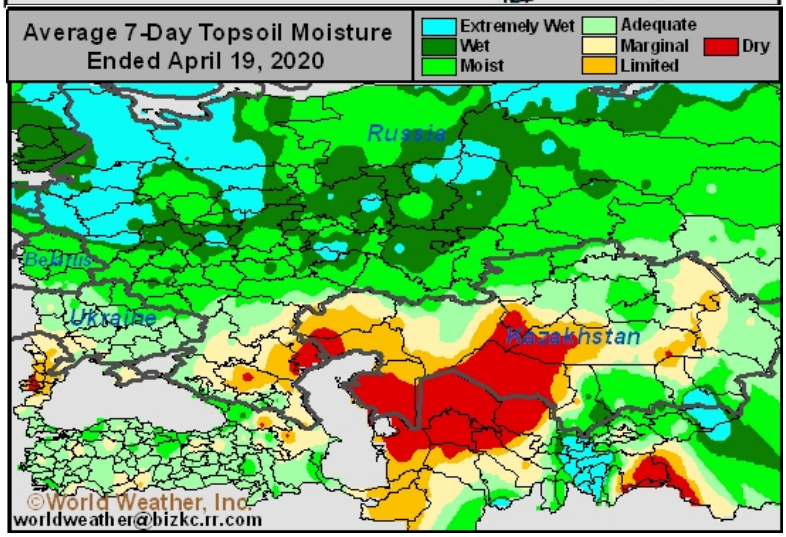
The environment will remain favorable for aggressive harvesting today and Wednesday. Minor fieldwork delays will be possible in southern Argentina Thursday and Friday as the initial rain falls. Areas farther north will continue harvesting aggressively through at least Friday afternoon. Widespread rain over the weekend and early next week will then delay harvesting and general fieldwork in much of the country. The rain will have no negative impact on summer grain or oilseeds, but cotton fiber quality might be briefly discolored. The moisture will be welcome to the most immature summer crops and will help maintain some ground moisture for future wheat planting in late May and June.

Black Sea, Europe Weather Update

Very little change occurred in Europe or the western Commonwealth of Independent states (CIS); including western Russia, Ukraine, Kazakhstan and Russia's Southern Region during the weekend. Limited precipitation was noted and temperatures were mild to warm in Western Europe and cool in Eastern Europe and the western CIS.

The outlook remains quite dry for this coming week to ten days with only light amounts of precipitation expected except in the Iberian Peninsula and southern France where some frequent showers and thunderstorms are expected. Temperatures will be trending warmer in Eastern Europe and the western CIS this weekend into next week resulting in some acceleration in the drying rates and evolving stress for early developing winter crops with the driest soil. It is still very important to note that soil temperatures have not been warm enough for aggressive crop development for very long in either Eastern Europe or the western CIS making dryness a minor issue up until now. Warming in the coming weeks will have a greater impact on soil and crop conditions warranting a closer watch on the situation.





The biggest concern is that dryness was prevailing last autumn from southeastern Europe through Ukraine into Kazakhstan and winter crops failed to emerge and establish as well as usual. Winterkill was minimal, but early spring precipitation has not been great enough to sustain the brief improvement in topsoil moisture that occurred from winter precipitation. Now that the air is warming it will not be long before topsoil moisture is exhausted once again and the need for rain will begin to skyrocket.

A huge amount of real estate has been involved with the limited precipitation pattern in recent weeks. Nearly all of the European continent has been notably drier than usual with only the Iberian Peninsula and portions of northern and western Russia staying in an active weather pattern. There is another small region in southern Bulgaria, northern Greece and Macedonia that have also been wet.

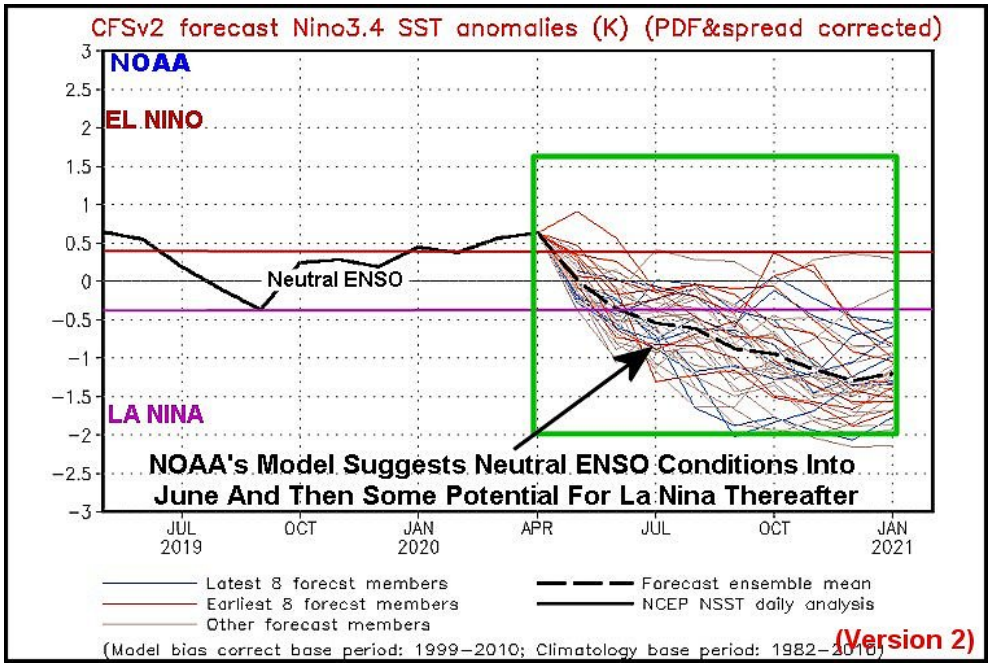
While precipitation across Europe has been limited there has been abundant moisture in the western and northern parts of Russia and some neighboring areas of the eastern Baltic States. However, some areas in the western Baltic States, Belarus, Ukraine and areas east to western Kazakhstan have received less than 0.45 inch of moisture. Had the temperatures been warmer this month the limited precipitation would have had a greater impact on soil moisture. But it has been cool and that has soil moisture still rated favorably, although in a decline that will become more notable when it turns warmer this weekend into next week.

Romania, Moldova and immediate neighboring areas represent the most serious dryness in the European continent, but topsoil moisture is in decline and now that seasonal warming has begun it will not be too much longer before topsoil moisture becomes rated short to very short in a larger part of the continent.

NOAA ENSO Model Thinks La Nina Possible By July

Cooling in the eastern equatorial Pacific Ocean continues to occur mostly down deep in the ocean while surface temperature anomalies remain warmer than usual. The environment is not supportive of El Nino or La Nina conditions at this point in time, although some folks continue to look at the warm central equatorial Pacific Ocean surface temperatures as a quasi-Modoki El Nino. Modoki events do tend to suppress rainfall in the Philippines and California and that has certainly been the case in recent months.

In the meantime, cooling below the surface of the ocean will eventually reduce the depth of the warm ocean surface water and raise the potential for more normal or possibly a little cooler than normal ocean temperature bias in the eastern equatorial Pacific. That would result in additional support of neutral ESNO conditions and remove the Modoki El Nino environment. Not many computer forecast models allow the cooling water to be more significant, but the U.S. National Oceanic and Atmospheric Administration (NOAA) has a model that suggests La Nina Like conditions may evolve by July. World Weather, Inc. believes this forecast is too aggressive.



The accompanying graphic of NOAA's CFSv2 model has been presented here before many times. World Weather Inc. presents the latest model forecast once again to point out its consistency with previous forecasts covering the past few months. The model has been quite persistent in its forecast that La Nina like conditions to evolve during the summer this year and slowly gain significance late in the third and fourth calendar quarters. There has been a slight reduction in the predicted intensity of the La Nina event advertised in recent weeks. There was a period of time when the NOAA model was predicting a moderate La Nina during the second half of the Northern Hemisphere summer season, but there has been some moderation in that outlook recently.

World Weather, Inc. still believes the model is a little too aggressive with its forecast, but it is sure hard to ignore the past few months of persistent forecasting by this model. A La Nina event developing this summer could remove precipitation from some mid-latitude Northern Hemisphere locations and help enhance the potential for a drier finish to the growing season in 2020. World Weather, Inc. already believes there will be a tendency for below average precipitation in July and August this year across portions of the U.S. Midwest and dryness may occur a little sooner than that in the U.S. Delta and interior southeastern states. However, cool temperatures in August may help to limit the impact of the lighter than usual precipitation. July, on the other hand, will be warmer biased and if La Nina is around the warmer and drier bias in July could bleed more into August and possibly provide a more notable drier finish to the 2020 growing season. The same thing could happen in a part of Russia and Ukraine where there is already a drier than usual tendency well under way.

Most other forecast models predicting ENSO conditions are not nearly as aggressive with the cooling in the equatorial eastern Pacific Ocean as the NOAA model and most forecasters believe that the evolution toward La Nina will require more time. The phenomenon is possible later this year, but July just seems to be too soon for such an event given the current status of the ocean.