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The Canadian Agriculture Weather Prognosticator

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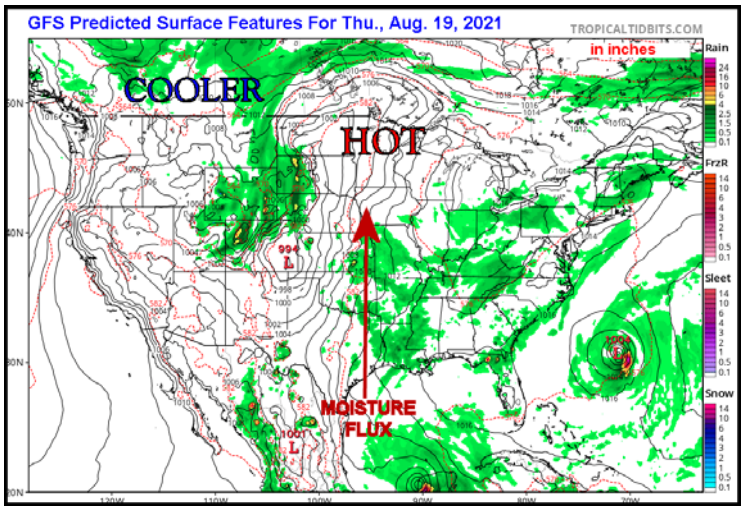
World Weather At A Glance

- U.S. Midwest summer crop weather continues very good in the east, but fair to poor in the northwest
- Ontario and Quebec corn and soybeans have performed well this year
- Southeastern Europe is too dry and warm to hot
- Kazakhstan and southern Russia's New Lands spring wheat and sunseed suffered from heat and dryness
- Australia winter crops still poised for a good start this spring, although dryness remains in Queensland
- South Africa wheat conditions have improved
- Western Argentina wheat areas still dry
- Pulses, oilseeds and coarse grain in Ukraine and southern Russia are in much better shape than last year, but some areas are dry.
- NW India needs rain
- China remains wet

Eastern Prairies To See Classic Rain Setup

It has been a very long time coming, but a "classic" set up for rain is evolving in the northeastern U.S. Plains, upper Midwest and eastern Canada's Prairies this week. The Gulf of Mexico is opening up as a moisture source at about the same time a mid-latitude storm system moves from the Pacific Northwest into the northern Plains and eastern Canada's Prairies. The storm is being aided by a strong temperature contrast including much cooler air funneling into the western Prairies and northwestern Plains. The cold and moisture is being preceded by extremely warm to hot air and the net result should be the quick development of rain and thunderstorms that will bring much needed moisture to all three of these areas.



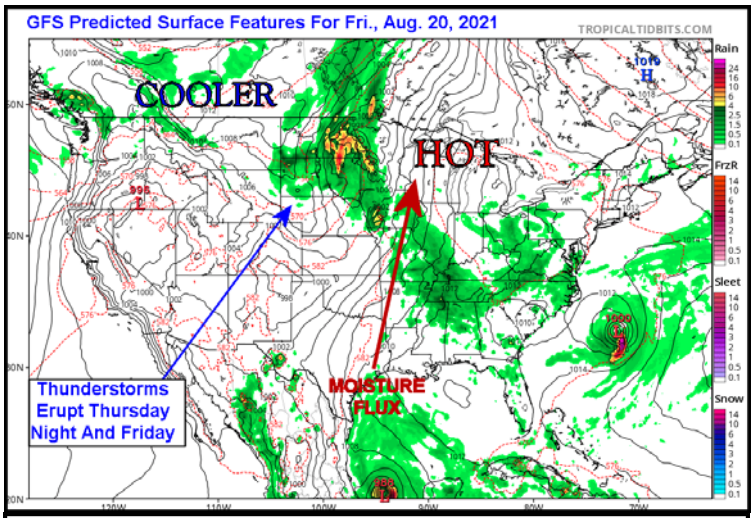
This year's drought in the northern U.S. Plains and Canada's Prairies has been perpetuated because of no good moisture feed into the region. For months, weak weather disturbances have passed across the region, but failed to produce significant rain because of dry air in the Prairies, dry soil and no moisture intrusion into the region. This week's weather pattern is quickly changing.

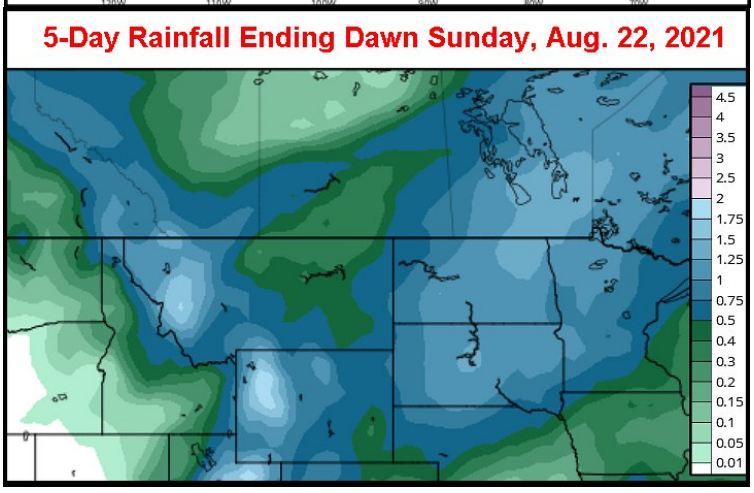
The recent landfall of Tropical Storm Fred and its movement into the Appalachian Mountains helps to remove a moisture flux inhibition in the southeastern states. Worry over Tropical Storm Grace was also on the rise because it was feared that Grace would get into the western Gulf of Mexico and become large enough to hinder northward moving moisture out of the Gulf of Mexico and into the Great Plains. The latest forecast for Tropical Storm Grace is for it to be located far enough to the south to the Gulf of Mexico to minimize its potential to interfere with the moisture flux that is expected to evolve as the mid-latitude storm comes east out of the U.S. Pacific Northwest. Grace will likely move into east-central Mexico during the weekend and its circulation is not expected to be great enough to interfere with rain potentials in the northern U.S. Plains or Canada for late Thursday and Friday of this week.

The approaching storm from the Pacific Northwest has already turned the winds to the south across the Great Plains and some moisture flux is already

Eastern Prairies To See Classic Rain Setup (continued from page 1)

taking place across the region. A deepening low pressure center in the northwestern Plains will enhance the northward transport of air and moisture from the Gulf of Mexico Wednesday. A new low pressure center is expected to evolve in the northern Plains Thursday that will enhance the moisture feed and create a more definitive frontal boundary separating this week's 90- and 100-degree Fahrenheit heat in the northern Plains and southeastern Canada's Prairies from autumn like conditions in central Montana and Alberta. Temperatures in these two western areas will be limited to the 50s and 60s briefly during the second half of this week.





The temperature contrast, moisture flux and low pressure center will combine Thursday afternoon to eventually to create a notable line of rain and thunderstorms. The line of storms will evolve meagerly from western Nebraska to western North Dakota at first. The precipitation may diminish briefly Friday morning over the central Dakotas and then in the heat of the afternoon and evening blow up again into a more aggressive line of storms that will move from the eastern Dakotas into Manitoba and Minnesota that will continue moving east into Ontario and Wisconsin Friday night into Saturday morning.

Rainfall of 0.50 to 1.50 inches and a few totals over 2.00 inches will result in this scenario with the eastern Dakotas, western Minnesota and eastern and south-central Manitoba getting the greatest rainfall. Some hail and damaging wind will be possible. Most of the cool pool of air over Montana and Alberta will be quickly moderated Friday into Saturday, but a second disturbance will push across these same areas during the weekend reinforcing the cooler air and producing a little more rainfall in the southern and eastern Prairies and a few areas across the northern U.S. Plains and upper Midwest. Rainfall in this second event will vary from 0.20 to 0.75 inch with a few totals over 1.00 inch.

A third event will come through the Prairies during the early part of next week, but it will have less moisture to work with as the Gulf of Mexico moisture source begins to dwindle. However, temperatures will fall notably behind this last event to cool off the Prairies a third time and this time it might be cool enough for a little patch or two of frost in northern Alberta or northwestern Saskatchewan early to mid-week next week.

Once the cold air is in place, the Prairies, northern Plains and upper Midwest will fall back to a drier weather pattern. A new high pressure ridge will soon evolve after that and bring back some warming temperatures while limiting rainfall into the last days of August.

THE BOTTOM LINE

Rain will finally fall across the eastern Prairies in a significant enough manner to moisten the topsoil for more than a couple of days. A part of the eastern Northern Plains will also benefit from the moisture as will the upper U.S. Midwest. The moisture comes much too late for spring wheat, early canola, peas, lentils or barley – most of which are being harvested. However, the rain will be good for late season crops like corn, soybeans and flax especially in areas that have not been as seriously stressed by drought as southern and east-central Alberta and the heart of Saskatchewan have. A full restoration of production potential is certainly not expected, but some yield increase is possible for soybeans filling pods and for any corn that is still in the dough stage of development.

Not much follow up rain will occur for a while and that may leave some of these crop areas to dry back down, but by the time it becomes as dry as it is today most crops will be finishing up for the season – at least in Canada.

Short Term Dryness Relief For Some Areas

The greatest rainfall in the balance of August will occur over the balance of this week, the weekend and early next week. After that much drier weather will resume and prevail with some minor disruptions into the last days of this month.

Enough rain will fall in the coming five days to end the month with an above average amount of moisture in eastern and central parts of Manitoba, a small part of southeastern Saskatchewan, along the front range of mountains in southwestern Alberta and in a small part of northeastern Alberta and northwestern Saskatchewan. Near to below average precipitation is expected in the remainder of the Prairies through August 31. The heart of the Prairies will be driest.

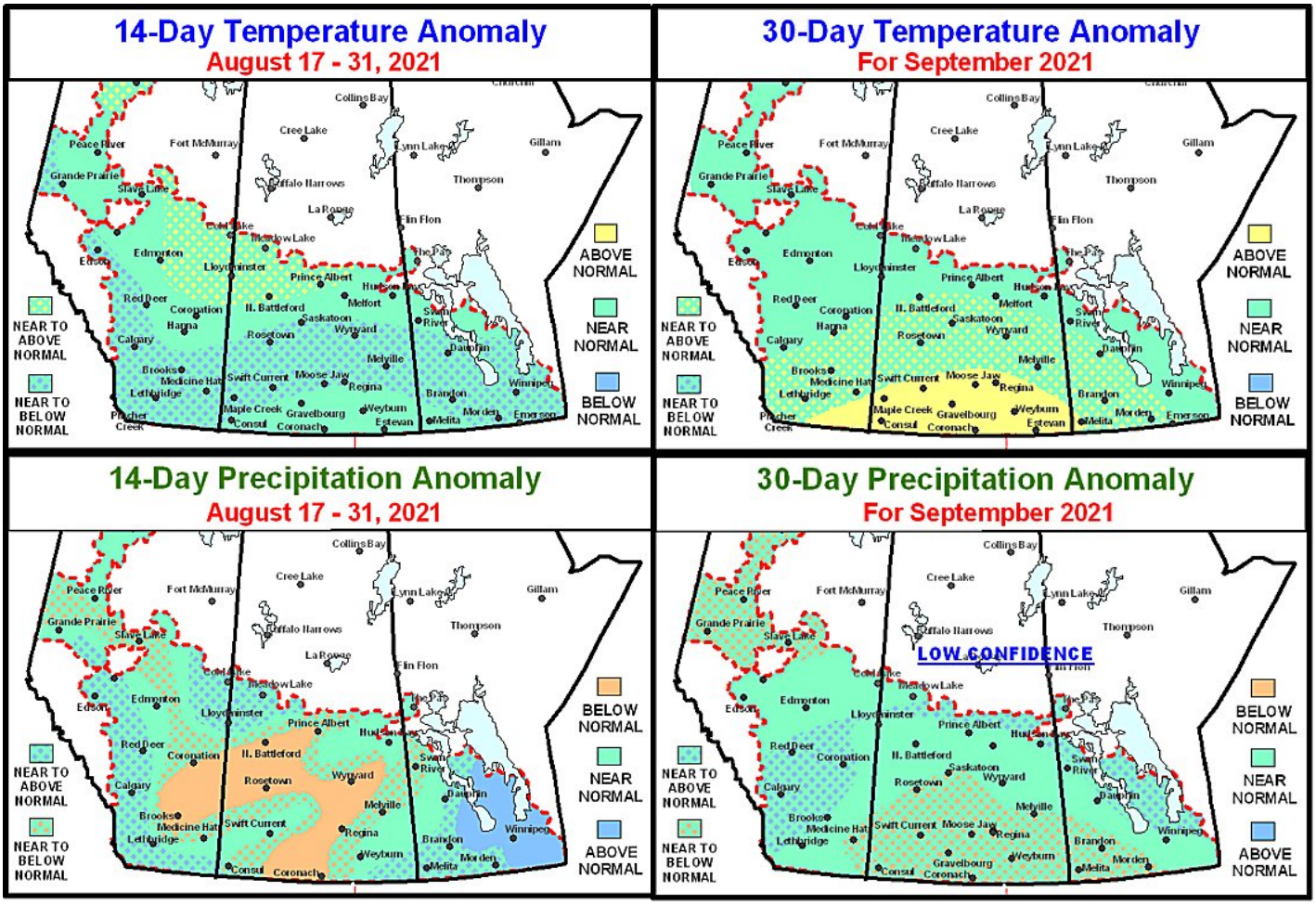
Temperatures will be quite cool over the balance of this week, the weekend and early next week except for the first day or two in the outlook when the eastern Prairies will continue to be quite warm. Cooling will then overtake the east as well as the west. Sufficient cooling is expected so that a little soft frost evolves during the early to middle part of next week. Warming will follow that event pushing temperatures above average for the last week of this month.

For the average of temperatures during the balance of August a large part of the Prairies will be near to below normal. A portion of northeastern Alberta and northwestern Saskatchewan will be a little warmer than usual mostly because of warmer temperatures next week.

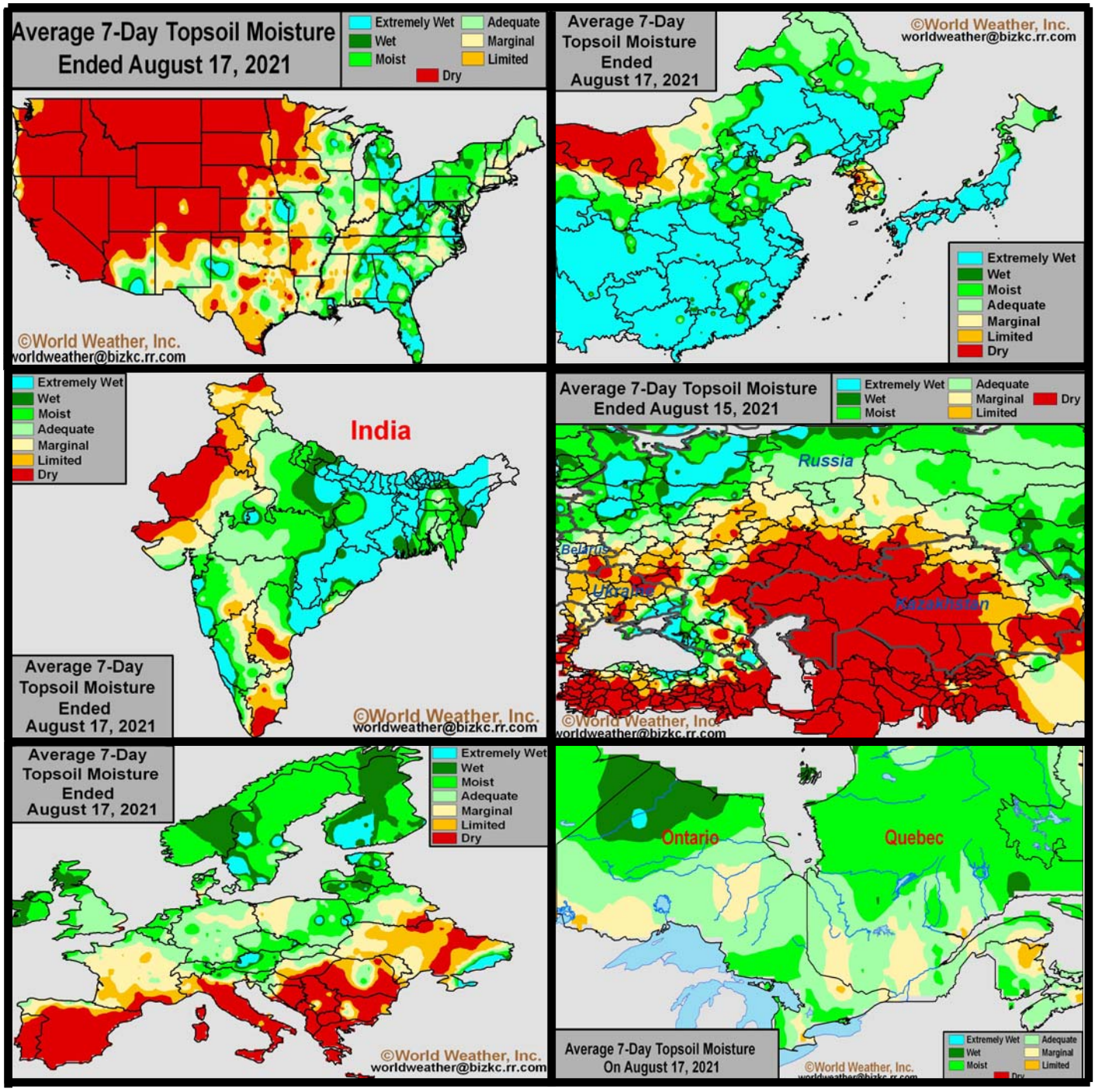
September is still the most challenging month to forecast so far this year. The month promises quite a mix of weather from colder than usual conditions to warmer than usual conditions periodically. Precipitation will be nearly as varied as the temperatures making it difficult to fully discern who will have greater than usual moisture and who will have less than usual amounts.

For now, September is advertised to be warmer than usual in the central and southern Prairies while areas to the north experience near normal readings.

Precipitation in September is expected to be near to below average in south-central parts of the Prairies while near to above normal amounts occur in northeastern Manitoba and east-central through southwestern Alberta. Precipitation will be close to normal elsewhere except in the Peace River Region where precipitation will be near to below normal. Most other areas will receive near normal precipitation.



Selected Weather Images From Around The World



The driest areas in the world's crop regions right now include Canada's Prairies, the northern and western United States, Kazakhstan, southern portions of Russia's New Lands, southeastern Europe (the Balkan Countries) and western Argentina. Out of these areas Canada has suffered greatest with both the U.S. northern Plains and Kazakhstan following close behind. These are all important spring wheat production areas and that explains why wheat prices are so high. Canola and sunseed have also suffered cuts in production as will soybeans, corn, flax and other crops produced in Canada and other dry areas. In contrast, a large part of the U.S. Midwest, Delta and southeastern states' crops are rated favorably along with much of the remainder of Europe. Ukraine has much better crop conditions this year relative to last year. China has suffered from too much rain and parts of India have had some flooding as well while the northwest part of that nation and Pakistan have been suffering from poor rainfall.

Canada's Bigger Picture For 2021-22

This year's drought in the Prairies has hurt production in nearly all of the Prairies excepting some areas in western, central and northern Alberta. The most unsettling part of the situation is that drought is unlikely to break down greatly enough this autumn to ease concern about the spring and summer of 2022.

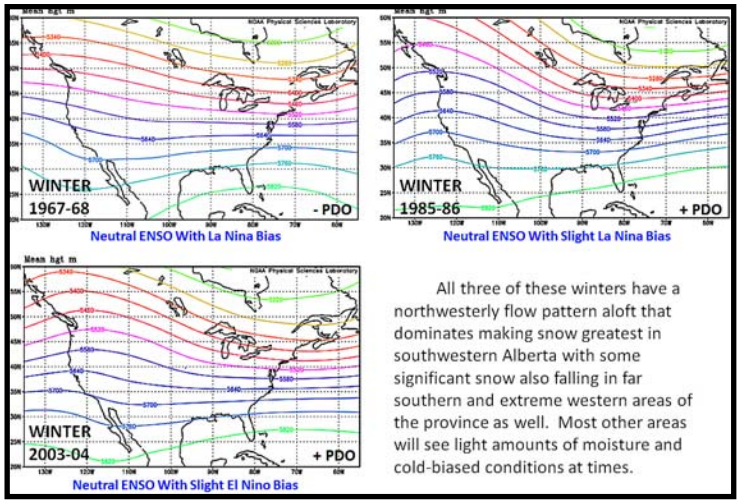
Work has begun on the winter, spring and summer outlooks for 2022. The research has begun early this year because of huge concerns across the Prairies about the prospects of another year of serious dryness. Once in a serious drought it is very difficult to break out of it especially in Canada where the growing season is so short. Moisture needs to get back into the soil before seasonal cold kicks in and freezes the ground solidly. Once the ground is frozen moisture does not get into the soil until the spring thaw is completed. If the ground freezes without much moisture in it there will be concern that snow that falls during the winter will just melt and run off without soaking into the ground.

Last autumn's weather was ideal with soil temperatures staying warm until snow covered the ground. That helped to keep frost out of the ground which was so important when spring rainfall was restricted. The winter snowpack (not that there was very much of it) melted and soaked into the ground much better than in years past because of the lack of frost. Winter 2020-21 was also a warmer winter except for a short period in February when bitter cold gripped the region.

This year's autumn and winter are going to be a little different. First, there will be some precipitation, but a "fix all" in soil moisture is certainly not expected. The autumn will be warm, but the heart of winter will be cold. Frost is expected in the ground, although without much moisture in the soil the frost may not be as hard to melt in the spring as it is in some years.

There will also be more snow this winter than last year, although that is not saying too much since much of the Prairies were snow free during the majority of the winter. Snow this year is expected to stick around much better due to colder biased temperatures over a larger part of the winter season.

Snowfall may be greater than usual along the front range region of southwestern Alberta and possibly south of Highway One in that provinces as well as far southwestern Saskatchewan. Snowfall elsewhere will be light with below average amounts expected in the central and northwest parts of the Prairies while accumulations may be a little better at times in the southeastern portions of the region.



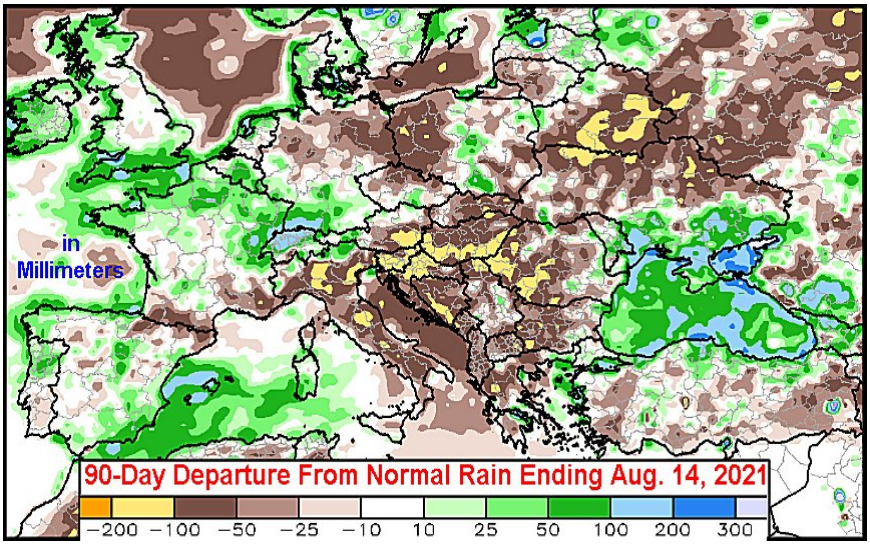
La Nina will be in control of the Prairies this year and it will be occurring simultaneously with the negative phase of Pacific Decadal Oscillation (cool ocean surface water off the west coast of the United States) and while we are moving farther away from the sunspot minimum. La Nina events at this point in the solar cycle may not be strong, but they can be persistent and that in combination with the negative PDO can result in more ridge building in the spring and summer 2022 in the central parts of North America all the while restricting precipitation in the central United States and to some degree Canada's central Prairies during the heart of winter.

Portions of the Prairies have now completed four years of drought, although this was certainly the most severe of the four years. Soil moisture is extremely low in nearly all levels of soil which places huge pressure on weather this autumn to trend wetter long enough to put some moisture back into the ground for use in the spring. An uneven distribution of autumn precipitation is expected with many areas likely to come into spring with ongoing notable moisture deficits and if spring precipitation is not well distributed there may be delays in planting, germination and emergence. That will add more pressure on spring rainfall to occur in a timely manner to bolster soil moisture enough to support planting without being so wet as to delay fieldwork.

Data collection and early assessments of the 18-year cycle data has begun. The pattern does not look abundantly wet for the Prairies during the winter or spring, although a few bouts of precipitation are expected. Much of the weather in spring will be determined by how long La Nina prevails. If La Nina abates quickly there will be some potential to receive moisture in April and May before ridge building begins in the middle of North America. However, if La Nina is stronger than expected and lasts deeply into spring the potential will be high that moisture totals in the spring will be less than usual except near the front range of the Rocky Mountains.

SE Europe Too Dry; Unirrigated Crop Stress To Prevail

Crop moisture stress has been a frequent issue in southeastern Europe in recent weeks. Weather conditions over the past week were very warm with limited rainfall resulting in an expansion of crop stress and concern over the fate of unirrigated crops in the region. The driest conditions have been in the Balkan Countries for much of the summer, although there have been a few breaks. Portions of Romania will receive some rain this week that will alleviate a minor amount of dryness. However, drier biased conditions will persist in most other areas in the Balkan region for the next ten days and possibly two weeks resulting in more crop stress and downward pressure on unirrigated crop production.



Mid-summer has been the driest period for southeastern Europe and for neighboring areas to the northeast through parts of Ukraine and Belarus to west-central Russia; however, many of these areas were wetter biased in the spring. Moisture deficits over the 90-day period ending Saturday vary from 1.00 to 3.00 inches with a few areas running more than 4.00 inches in rears relative to normal rainfall.

The limited rainfall combined with warm temperatures accelerated evaporation resulting in a net loss in soil moisture and that is how the region became so dry after having favorable spring rainfall. Other areas in Europe have also accumulated some moisture deficit this summer; including Italy, northern Germany and western Poland, but these areas have not been as warm and have managed to conserve soil moisture through lower evaporation.

Subsoil moisture is still rated well across most of northern and central Europe making the recent drying trend of little threat to long term late season crop development. Drying in the northern and central parts of Europe was actually quite beneficial for small grain and other winter crop harvesting that had been delayed by too much rain earlier this month and in late July. Soil moisture in the Mediterranean countries, however, is quite limited and there is need for rain throughout the region and especially in the unirrigated summer crop areas.

Much of the Mediterranean region in Europe is normally dry at this time of year and the majority of summer crops are irrigated. However, that is not true in the interior southeastern part of the continent, including much of the Balkan region. Crop stress has become an issue for many dryland production areas in southeastern Europe where top and subsoil moisture is rated very short. Rain must fall immediately to bolster soil moisture for improved crop development and to stop the decline in production potential.

WEATHER OUTLOOK

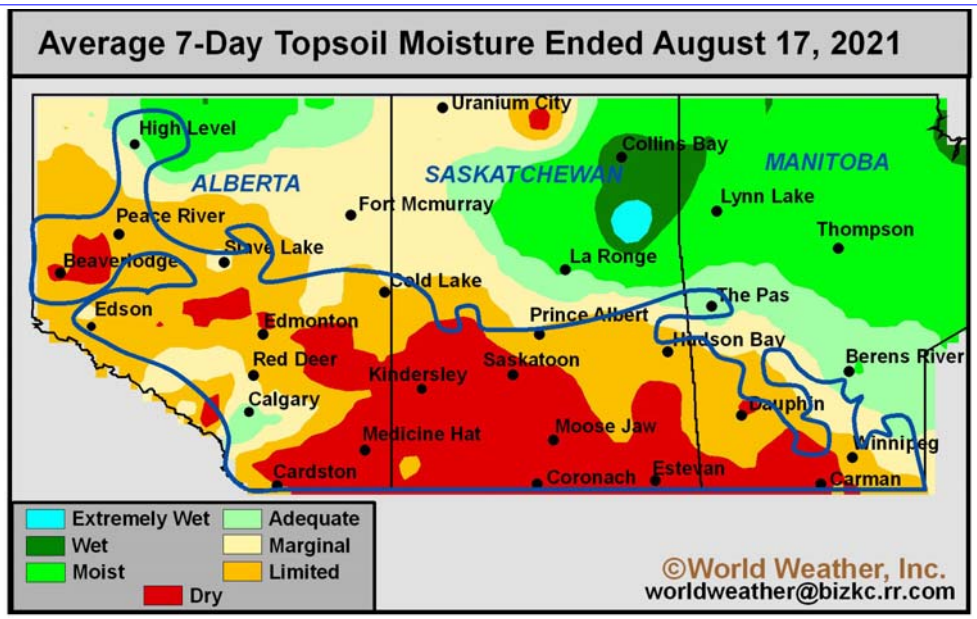
The Balkans, Ukraine and France will generally be drier and warmer than normal this week. Romania, portions of northern and eastern France and neighboring areas will have a few opportunities for rain that will total 0.50 to 1.50 inches by next Monday morning; however, most locations will not receive enough rain to counter evaporation. Dryness will expand and intensify in most of these locations, but subsoil moisture will carry on relatively normal crop development in France and parts of Ukraine. Immature and unirrigated crop conditions in eastern Ukraine and the Balkan Countries will further deteriorate possibly threatening production potentials additionally especially for the driest areas in southeastern Europe. Southern France will continue to dry out which may allow for some expansion of crop moisture stress into that region until significant rain resumes.

Germany, the Netherlands, Belgium, and portions of eastern Poland, western Belarus, and the Baltic States will see a mix of rain and sunshine this week. An upper-level disturbance will generate the first round of rain through Wednesday with periods of erratic rainfall continuing late this week and this weekend. Moisture totals by next Monday morning will range from 0.50 to 2.00 inches and locally greater amounts. The United Kingdom will also have opportunities for rain with totals ranging from 0.25 to 1.50 inches in most locations. Portions of southern England will receive more than 2.00 inches of rain as well. Rain will be beneficial for the crops that are not yet finished developing. Minor harvest delays will be possible, though quality impacts for the mature crops will be minimal.

Prairies Moisture Still Critically Low

Despite some rain along the front range of mountains in southwestern Alberta and some rain in southeastern Manitoba recently, not much of the Prairies has much soil moisture. Rain did fall during the day of this writing in southern Alberta with amounts of 5 to 20 millimeters and local totals to 35mm that should have lifted topsoil moisture a little more. However, that still leaves 85% of the Prairies very short of moisture.

Waves of rain expected through Monday will help to improve topsoil moisture in Manitoba and southwestern Alberta while little change occurs elsewhere.



Cold Potential Remains For Late Aug., Early Sep.

Needless to say, the air across Canada's Prairies is quite dry and that raises a concern over the potential for early season frost and freezes.

Severe drought usually occurs with very low humidity. Without moisture in the air temperatures can and do rise and fall much more dramatically than they would if the air was full of moisture. Earlier this year when the growing season was just beginning the Prairies encountered a number of impressive hot and cold periods that threatened some of the early season crop development. It has been a while since the region has been plagued by such a wide range in temperatures, but as seasonal cooling occurs late this month and in September the Prairies will see this phenomenon again.

Temperatures slipped to a few middle and upper single digit Celsius readings late last week in portions of the eastern Prairies and the upper U.S. Midwest and an extreme of +2 in west-central Manitoba and +3 in parts of eastern Saskatchewan and the northern U.S. Plains. Similar conditions occurred August 7-9 in Alberta and it was also reported around July 23 in the same area.

As dry as the Prairies are today, the potential for early season frost and freezes will be greater than usual at least until significant rain falls.

There has been a 45-day cycle in temperatures this summer with periods of heat and dryness occurring within the cycle. The next bout of notable cooling is due into the Prairies during the latter part of August and very early in September. Frost and a few freezes could evolve at that time, but there is no guarantee that the airmass that comes during that period will be potent enough to support such an incident.

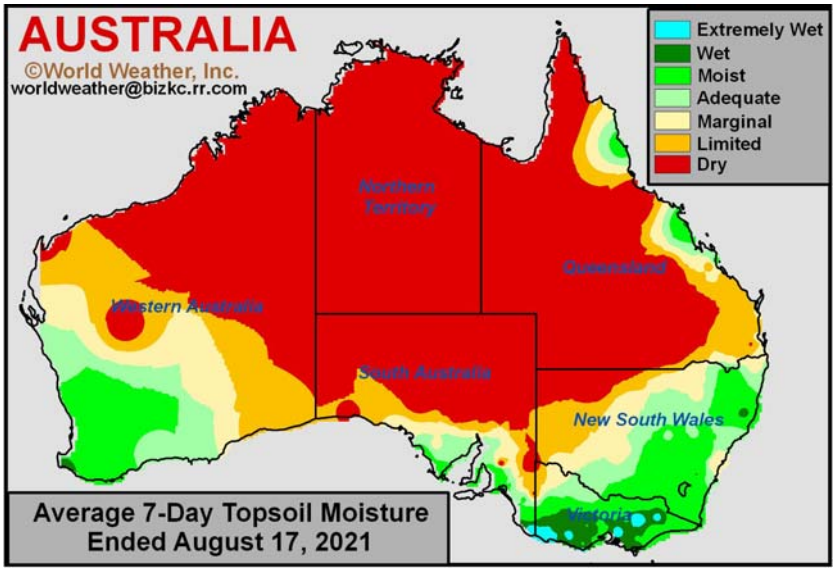
The latest computer weather forecast model data has suggested that chilly air will be present in the western Prairies from the latter part of this week through the first half of next week. Afternoon highs in the teens are expected, but cloudiness and frequent bouts of light rain are expected which may hold nighttime temperatures up.

However, at the end of this bout of unsettled weather (early next week) there will another brief bout of strong surface high pressure that will settle over the Prairies raising the potential for patches of soft frost once again. Early indications do not suggest any freezes, but readings of +1 to +5 will occur beginning in northern Alberta early next week and shifting through Saskatchewan and eventually to Manitoba during mid-week.

Immediately following the bout of cool weather next week there will be a new period of ridge building and warm weather that "might" be followed by another short term bout of cooling in the first week of September.

Queensland, Australia Needs Rain For Reproduction

Timely precipitation has continued to promote a good outlook for winter wheat, barley and canola throughout southern Australia. Another large crop is expected barring any seriously negative weather during the spring. The only concern is for ongoing dryness in Queensland where unirrigated winter wheat and barley may not be as well established as it should be. Queensland is not a major producer of winter crops, though yields may be impacted if dryness persists into the beginning of September as reproduction begins. Queensland and northern New South Wales will be mostly dry during the coming week. The ground will firm and concern over dryness will persist in much of Queensland. Western Australia, Victoria, southern New South Wales, and South Australia will otherwise see a mix of light rain and sunshine that will maintain mostly favorable crop conditions.



Soil moisture is rated adequately in much of Western Australia, South Australia, Victoria, and New South Wales. However, western fringes of crop country in New South Wales have a shortage of moisture in the topsoil. Queensland is driest with unirrigated areas still running very short on top and subsoil moisture.

Winter wheat, barley, and canola prospects are generally favorable for Australia this season. Western Australia, South Australia, Victoria, and New South Wales have received rain on a frequent enough basis to support aggressive growth. Yields are expected to be high this year with the potential for another bumper crop possible after a record crop was harvested in the 2020-2021 season. These areas will still need to see timely rain in coming weeks before crops start reproducing later in September into October. Western Australia, South Australia and New South Wales produce 86% of the wheat and 77% of the barley with Victoria producing another 20% of the barley.

Wheat and barley normally begin reproducing early in September in Queensland with crops in both northern Western Australia and northern New South Wales beginning the process in mid-September. These areas will need timely rainfall soon to ensure the best crop production potentials. Crops farther to the south will not reproduce until later in the spring.

Queensland and much of northern and central New South Wales will be dry during the coming week. A few light showers will be possible late this week into early next week, though resulting rainfall will be lost to evaporation. Queensland will continue to dry down and will remain too dry for favorable winter wheat and barley conditions. Concern for production impacts may increase, but the impact on nationwide production may be low especially if high yields come from the rest of the nation. The main production areas in New South Wales will still have favorable moisture for the winter wheat, barley and canola development, despite a short term bout of drying.

Some of the crops in southern Australia are semi-dormant right now and will not have a high demand for moisture until early spring. Crop conditions are unlikely to change much until then since new plant development will be sluggish until it warms up.

Western Australia and South Australia into Victoria and southern New South Wales will see a mix of erratic rain and sunshine during the coming week. Some of the most widespread rain for South Australia, Victoria, and southern New South Wales will evolve over the weekend as a frontal boundary tracks over the region. Most production areas will receive 0.10 to 0.75 inch of rain by next Tuesday morning. However, several areas in Victoria and pockets in southeastern New South Wales and extreme southwestern Western Australia will receive 0.75 to 1.50 inches of moisture. Soil moisture will remain near current levels in most locations by early next week. The outlook for the winter wheat, barley, and canola will remain favorable.