TO SUBSCRIBE CALL 913-383-1161 OR WRITE TO WORLDWEATHER@BIZKC.RR.COM

The Canadian Agriculture Weather Prognosticator

Volume X, Issue XI | http://www.worldweather.cc | September 6, 2018

WORLD WEATHER ISSUES

Earliest Saskatchewan Freezes Since 2008

This week's cold weather was impressive and, once again, a byproduct of the very dry air over Saskatchewan.

Too much cloudiness and high relative humidity contributed to the lack of threatening cold in Alberta's green crop country earlier this week. A strong surface high pressure center was expected to settle over northern Alberta Tuesday morning slowed its southward progression just enough to keep Alberta in the clouds and wind which kept temperatures notably warmer than expected, but the next morning (Wednesday) the high pressure strengthened and performed as expected.

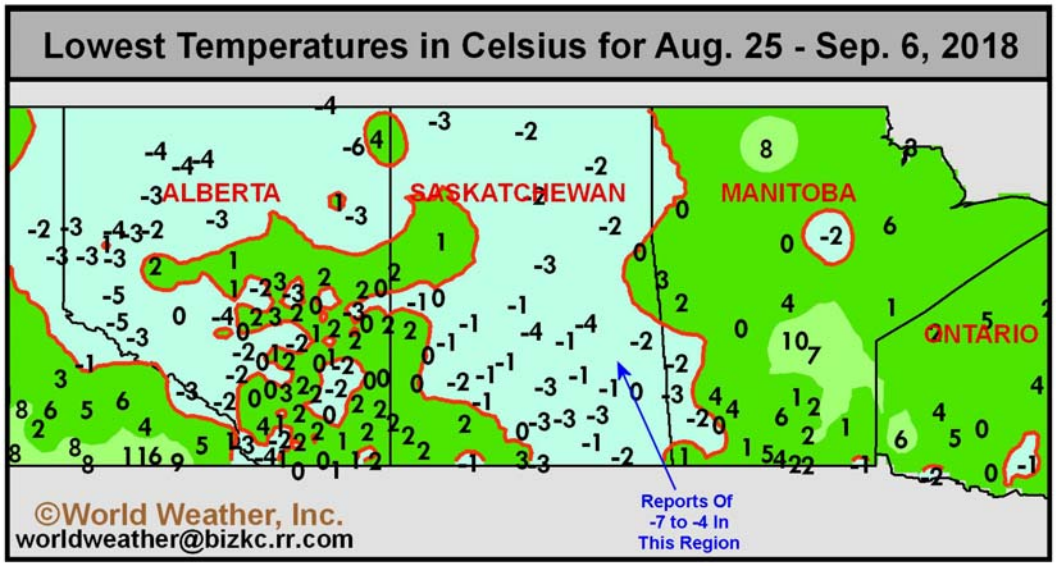
Wednesday morning temperatures fell hard as the surface high pressure center strengthened significantly. Extremes in the range of –7 to –4 were unofficially reported in the Kuroki through the Lintlaw region to Carragana and Reserve areas of east-central and interior northeastern Saskatchewan crop country. Some crops in the area were not completely mature and damage was reported.

Temperatures at official Environment Canada weather reporting sites never fell lower than –4, but damage was still noted in those areas.

As of this morning, (Sept. 6) the lowest temperatures have ended the growing season in much of Saskatchewan, although areas in the extreme west along with many areas in eastern Alberta and central and eastern Manitoba have managed to escape damaging freezes so far.

The biggest worry for Canadian producers over possible production losses by freezes would occur in central and northern crop areas of Alberta where many fields were still green and the potential lost production would be significant if a damaging freeze came right away.

The best news is that a break from the cold is under way, but the odds are still good for Alberta to be threatened with yet another bout of cold perhaps in another week.



Rain Prospects In Prairies Drought Region Improve

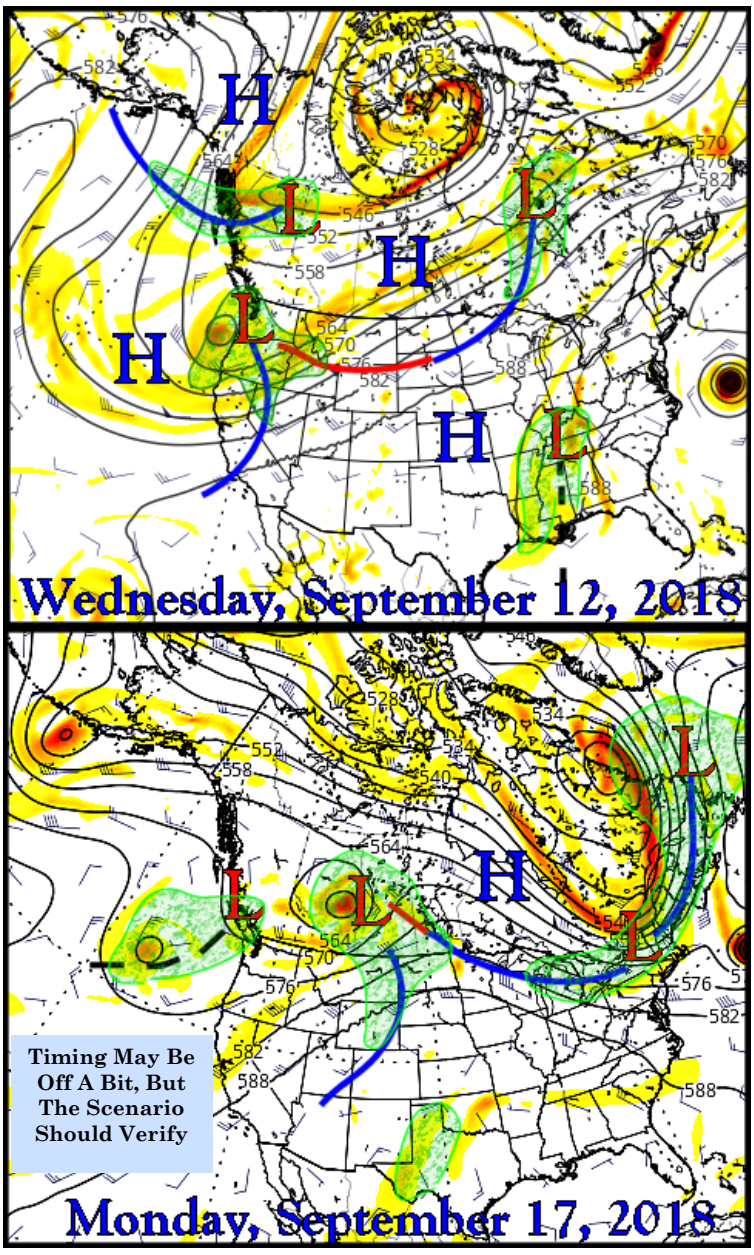
Well into our second year of drought, there is much worry over drought continuing into spring 2019 for southeastern Alberta, central and southern Saskatchewan and a few areas to the east in Manitoba.

Very few areas in the world have such a tenuous situation as the Prairies have at the end of every drought year. That tenuous situation is all about getting moisture into the ground before the soil freezes hard preventing any moisture from soaking into the subsoil for use in the following growing season.

With so much of the drought stricken region already harvested and aggressive fieldwork still under way, the environment is changing so that the desire for rain outweighs the want for continued dry harvest conditions. The next several weeks, as you know, are going to be critical for getting at least some moisture into the soil so that 2019 does not begin like this year or worse with dryness in place.

The good news is that weather patterns are beginning to move into another one of those seasonal transition periods. During these times of transition there is usually enough contrast in airmass characteristics that every storm systems has potential to bring moisture into the region. We experienced this phenomenon briefly in the late spring and early summer this year when many areas in the Prairies experienced frequent bouts of light rain. Sufficient moisture occurred for planting to take place and for moisture to carry crops into summer better than would have otherwise occurred.

The same kind of environment is trying to evolve. The number one biggest challenge is getting moisture into the area. Dryness is not just and central and southern Prairies phenomenon, but it extends southwest through the northwestern U.S. Plains the U.S. Pacific Northwest and Great Basin. That entire region has very low humidity and there has not been a meaningful storm passing in parts of the region in many weeks.



The change in seasons will raise the potential for a cool airmass to slip through British Columbia and into the U.S. Pacific Northwest while a high pressure ridge shifts from the eastern United States into the Great Plains. This process—which is expected over the next week to ten days–will allow Pacific Ocean moisture to flow inland to help raise relative humidity. The scenario will also attempt to bring Gulf of Mexico moisture into the western high Plains in the U.S. These two moisture feeds should help to moisten the Prairies atmosphere—at least a little bit.

The cool air expected over British Colombia and the U.S. Pacific Northwest states will contrast with warm and humid air over the U.S. Plains. A couple of weak storm systems are expected to develop in this environment and they should form in the northern U.S. Rocky Mountains and move east northeast bringing "some" rain to the drought stricken region.

The reason for the storm systems being small is the very dry initial conditions that are present over the Prairies and northwestern U.S. Plains. The first storm or two that attempts to form will run into the dry air at some point weakening the storm and reducing rainfall potentials. However, with each storm system attempting to bring rain to the region there will be some increase in atmospheric moisture setting the stage for a greater rain event in time.

Rain Prospects In Drought Region Improve (continued from Page 2)

Changing ocean temperature anomalies in in the northern Pacific ocean will eventually change the upper air wind flow once again. For the next few weeks a west to southwesterly flow of air aloft will prevail, but later this autumn a northwesterly flow will resume and that will bring drier and cooler air back to the region shutting down the potential for meaningful moisture once again.

That still leaves the Prairies with a few weeks of potential improved precipitation, although do not expect it to be abundantly wet because the odds are not in favor of that, but perhaps a couple of storms could bring some needed moisture to the region. Remember the precipitation in the drought areas will start erratically and slowly, but if the upper air weather pattern can prevail long enough we just might get a break long enough to put some moisture in the ground.

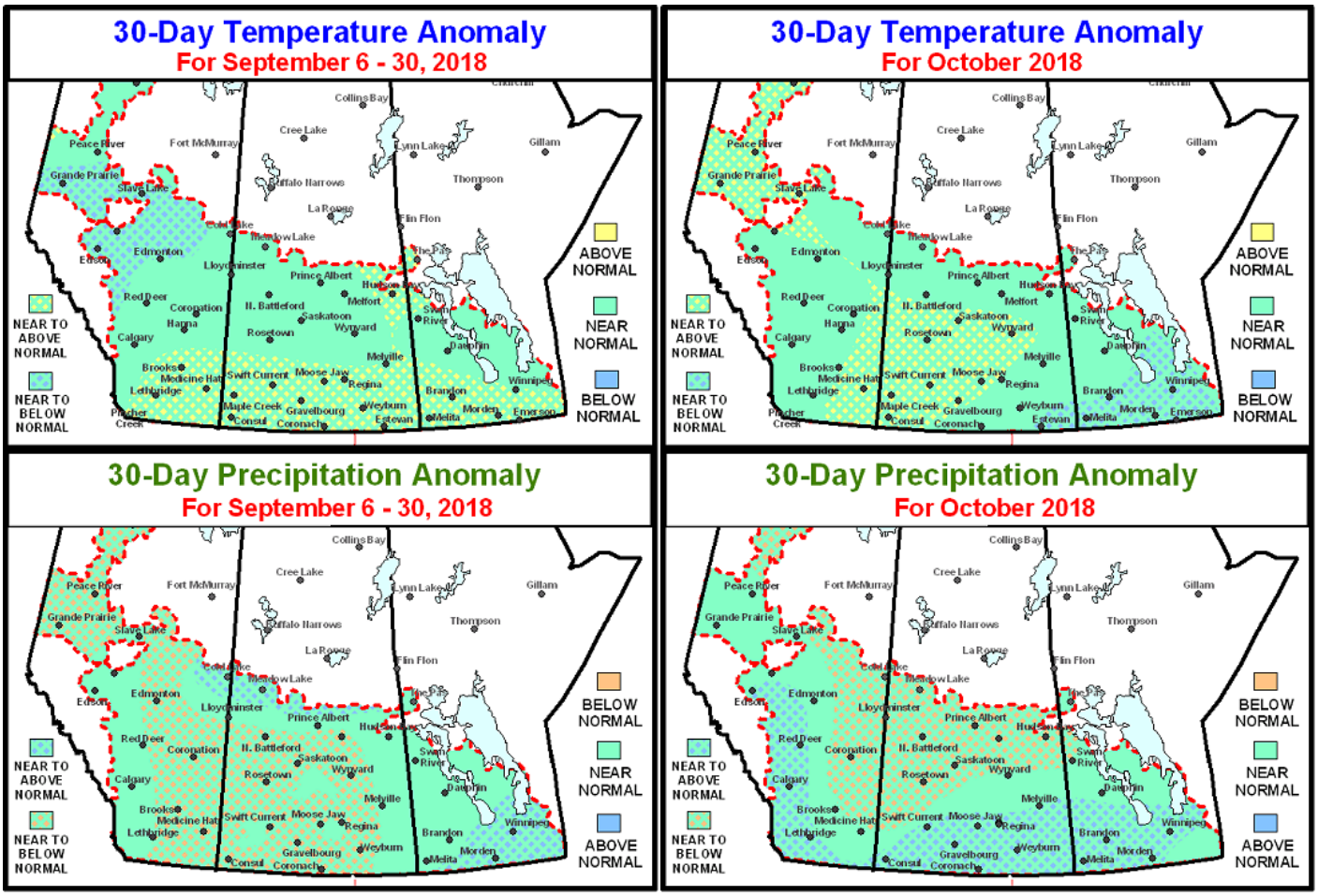
There is very little potential for a full recharge of soil moisture this autumn. In fact there is not much chance that the topsoil would get saturated outside of a few pockets and duration of the wetter biased conditions will be short.

So, do not look for drought busting rainfall, but look for some improvement. Our September rainfall outlook is purposely left with a drier bias because of concern about low relative humidity and a limited time frame for rain to fall. However, we will be first to admit that there is a fair chance that rain will be a little better in some parts of the region.

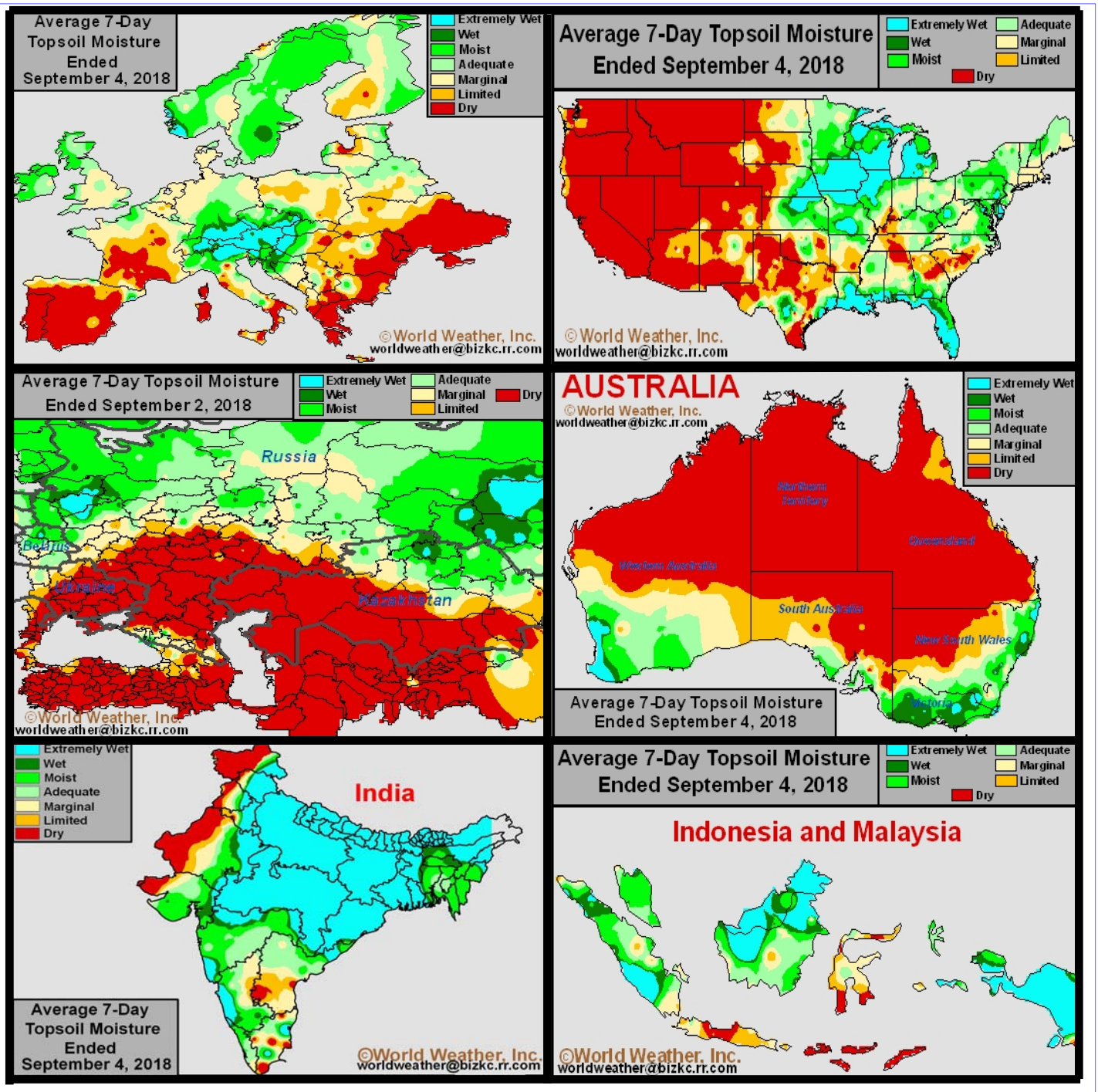
October precipitation potentials are also favorable—at least early in the month before the northwesterly flow pattern aloft evolves. Once the northwest flow evolves our chances for getting significant moisture will decrease with the possible exception of the southeastern Prairies which may benefit from a subtropical moisture feed coming into the western United States during that month bringing some weather events across the U.S. Plains and into the upper Midwest possibly adding a little more moisture to Manitoba's soil.

Another bout of notable cold air may move across the Prairies next week and then after that temperatures will return to a more seasonable range with a slight warmer bias until the last days of September when there may be a warmer bias in the western Prairies and a cooler one in the southeast.

October temperatures will likely be mixed with some coolness in the southeast and near to above average readings in many other areas.



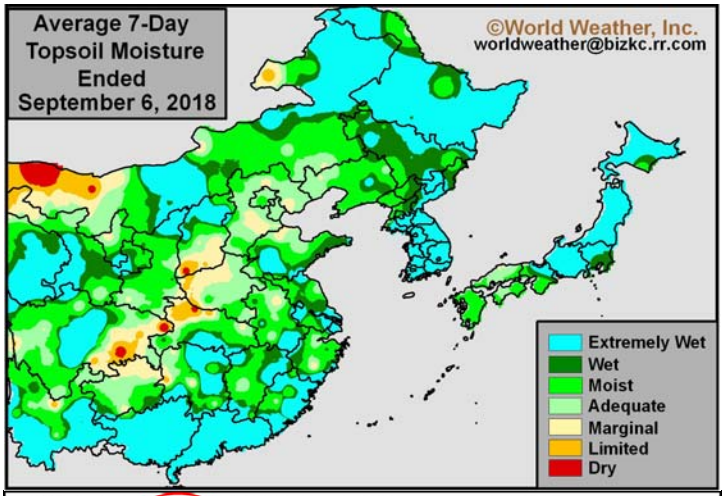
Selected Weather Images From Around The World

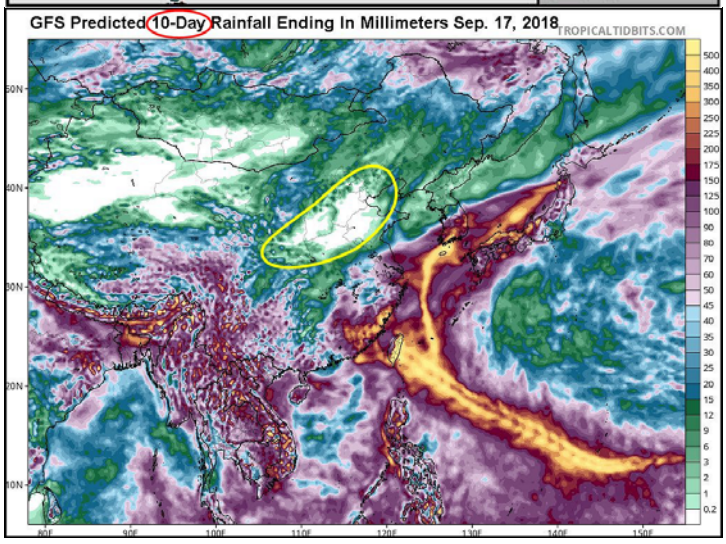


Serious dryness has expanded and deepened across southern Russia and remains in Ukraine, but showers and thunderstorms in central and southern Ukraine over the next several days will ease dryness . For the rest of Ukraine and southern Russia drought will continue for another ten days raising grave concern for wheat and rye planting and establishment. Eastern Australia has seen some relief to extreme dryness, but the region is a long way from busting out of its two year drought of severity. Cattle herds are still being reduced and winter crop production has been reduced. Western Australia is drying down now and in about ten days—just in time for reproduction—it, too, will be trending too dry. Interior southern India has received 46% less than usual rainfall so far this monsoon season, but the rest of the nation has done well. Northwestern India seems to be drying out and the monsoon may be over for that region. U.S. excessive rain has soaked the Midwest, but drying will occur ahead of the harvest. SE Asia and Europe have both seen some easement in their dryness, but more moisture is still needed to restore soil moisture to normal.

China's Yellow River Basin Trending Too Dry

Portions of east-central China have experienced a drier than usual month of weather with areas from Hubei into southern Shanxi reporting the poorest rainfall during August. Southern parts of this dry region have seen some relieving rainfall recently while the drying bias seems to be focusing more on the Yellow River Basin where little to no rain is expected for tem days.





Soil moisture in eastern Sichuan, southern Shanxi, northwest Hubei and western Henan is rated short to very short. Late summer crop development has been strained in the past week and rain is needed to not only support the late maturing crops like soybeans, sorghum and cotton, but also to improve soil moisture for the planting and establishment of winter wheat in October.

There is still plenty of time for improved rainfall in east-central China to restore soil moisture for crop needs and fieldwork. However, weather patterns are shifting around so that areas in the Yellow River Basin are least likely to get significant rain for a while. That will likely lead to more drying and for parts of southern Shanxi, northwestern Henan and a few areas to the east into Shandong and Hebei that may eventually raise some concern about winter wheat planting. The drier bias for summer crops may help to speed along crop maturation so that harvesting can occur quickly and efficiently.

Growing conditions earlier in the summer were generally favorable from eastern Sichuan through Henan, northwest Hubei, and the central Yellow River Valley. Periods of dryness occurred, but there was nearly always timely rain that limited dryness and helped promote aggressive growth. Crop development was likely slowed in the past week to ten days as the ground firmed and a little crop stress was suspected.

Drier biased conditions will continue for most areas from eastern Sichuan and northwest Hubei through Henan and the central Yellow River Valley to Hebei and Shandong during the next week to ten days. Brief periods of light rain will be possible, though resulting rainfall will be too light to counter evaporation. Temperatures will also remain warmer biased with highs often climbing into the 80s and 90s Fahrenheit. Dryness will spread and intensify for most of the described region over the next month resulting in stress for unirrigated immature crops. The environment may lead to some quality changes, but it is too late in the growing season for a serious decline in production because of dryness.

Summer crop maturation will be accelerated by the ongoing dry and warm bias that is expected in the middle and lower Yellow River Basin through the balance of this month. The most anomalously dry conditions are likely in the next couple of weeks since late September and October are normally drier biased. That makes the past few weeks and those coming up through mid-month the most anomalous for this time of year and then the dry season will set in as it normally does. Moisture deficits during the winter may be greater than usual in parts of the North China Plain and Yellow River Basin because of recent drying and that which is expected for the next couple of weeks. The odds of getting relief in late September and October will be low.

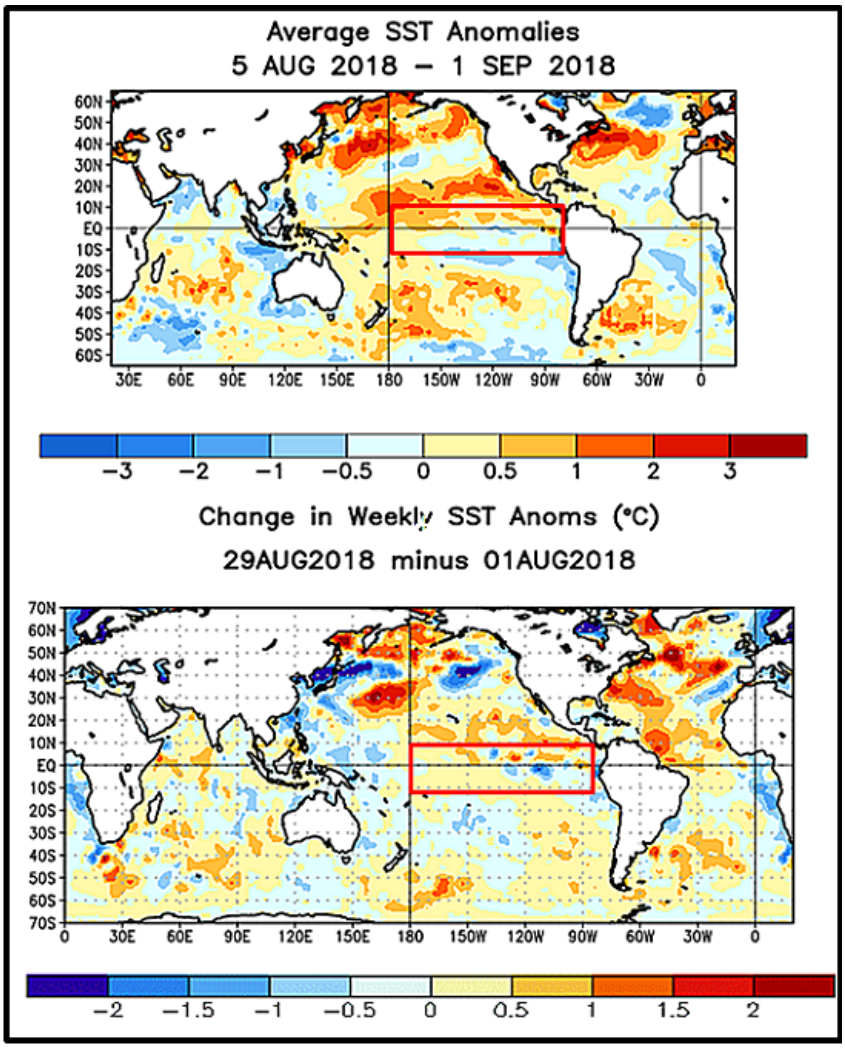
Winter wheat is largely irrigated in eastern China, but there is a portion of the crop that is not irrigated and delays in the planting, emergence and establishment of that crop if the forecast verifies.

In the meantime, weather elsewhere in China has been favorable and will continue that way for the next few weeks, although there will be some potential earlier than usual frost and freezes in the far northeast this weekend. Some areas will experience freezing temperatures two to three weeks earlier than usual and some soybeans are not mature enough to escape damage.

El Nino Evolution Not Likely In September

The strong association with solar minimums and El Nino events will see to it that El Nino develops soon, but the solar minimum has not yet officially been reached and there is also little evidence that El Nino will evolve in the month of September. That does not mean El Nino is not coming, but the lack of development this month will buy Southeast Asia, Australia and possibly southern India a little more time for improved rainfall before the drier bias of El Nino begins to influence the regions.

The latest data on ocean surface data in the eastern equatorial Pacific shows no anomalously warm water that would qualify as El Nino-like. The environment has been stable for the past few weeks. A Kelvin Wave was moving through the region in the last days of August and early September was supposed to induce a new warming trend, but that trend did not show up significantly in this week's data. There is a chance that warming will appear in next week's data, but it will still not be aggressive enough to suggest El Nino will evolve in the month of September.



Subsurface ocean temperature anomalies always offer a first clue of potential future changes in ocean surface temperature changes. Recent changes in surface and subsurface ocean temperature anomalies in the latest data suggest no significant trend. Parts of the ocean surface water have recently cooled and other areas have noted a bit of warming. None of the changes are great enough to suggest any fundamental change to the largely neutral ENSO conditions that have been prevailing in recent weeks and months.

A pool of cooler than usual ocean subsurface temperatures off the South America coast in recent weeks will begin diminishing in the next two weeks and a new area of warming along the coast of South America should accelerate in the same two week period. In the meantime, the large pool of warm subsurface ocean water in the central Pacific is showing a very slow drift to the east. This slow eastward drift of warm water and weak upwelling off the coast of South America adds more reason for our statement that El Nino will not begin evolving in the month of September.

Even though on a monthly basis sunspot numbers bottomed in February and again in July we have still not reached the official solar minimum. It is close, but not quite here and that may be one of the reasons for the slow development of El Nino relative to some forecasts from NOAA and Australia's Bureau of Meteorology. Once the smoothed monthly sunspot number curve shown in blue on the above chart reaches a minimum near zero we will likely have El Nino conditions beginning to evolve. We are certainly close to that point and given the above ocean temperature anomaly data it is just a matter of time before the El Nino event evolves. Most likely this will take place in the next month or two.

NASA had predicted earlier this year that the solar minimum would occur in 2019-2020. That was a concern because if the official minimum is still several months away it could delay this El Nino event and that could still have a big impact on world weather in the next few months. The ocean temperature data shown above certainly does not strike this meteorologist as being very aggressive in the possible evolution of El Nino. We would like to see a faster west to east advancement of the warm ocean water and a more significant upwelling, but both of these features seem very

Continued On Page 8

Alberta Freezes Possible Late Next Week

The next cold airmass to impact the Prairies is already being advertised by most computer forecast models to arrive in the northwestern Prairies late next week. Always a word of caution is necessary when we are looking at an event that is a week or more away, but at the time of this writing all of the computer forecast models were suggesting a notably cold airmass moving into northern and central Alberta crop areas at the end of next week. The cold airmass is likely to change in character by the time we get to the end of next week, but this event fits very well with our 1982 analog year that accurately predicted the freeze event in Saskatchewan this week.

The models will likely change, but the cold air is preceded by some cold rain and wet snow. Temperatures in the cold airmass are advertised to be cold enough to freeze the remaining crop in the wetter-biased and green-biased areas in the province. Be sure to watch your daily forecasts next week for confirmation of the coming cold. A clearer picture of its impact will likely be in place by Tuesday, September 11.

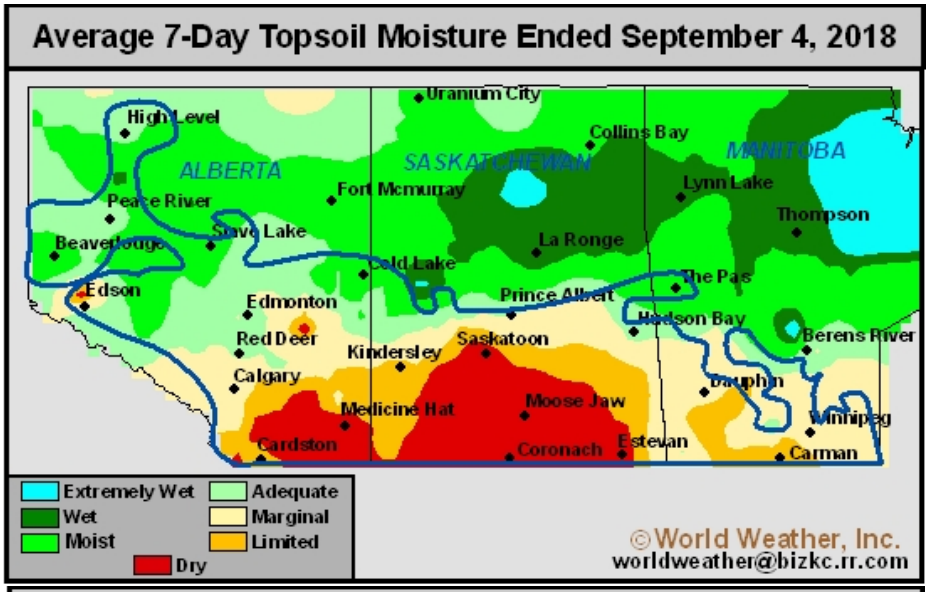
The cold will move through the eastern Prairies in the following weekend and eventually bring frost and freezes to the Great Lakes region and "possibly" southeastern Canada.

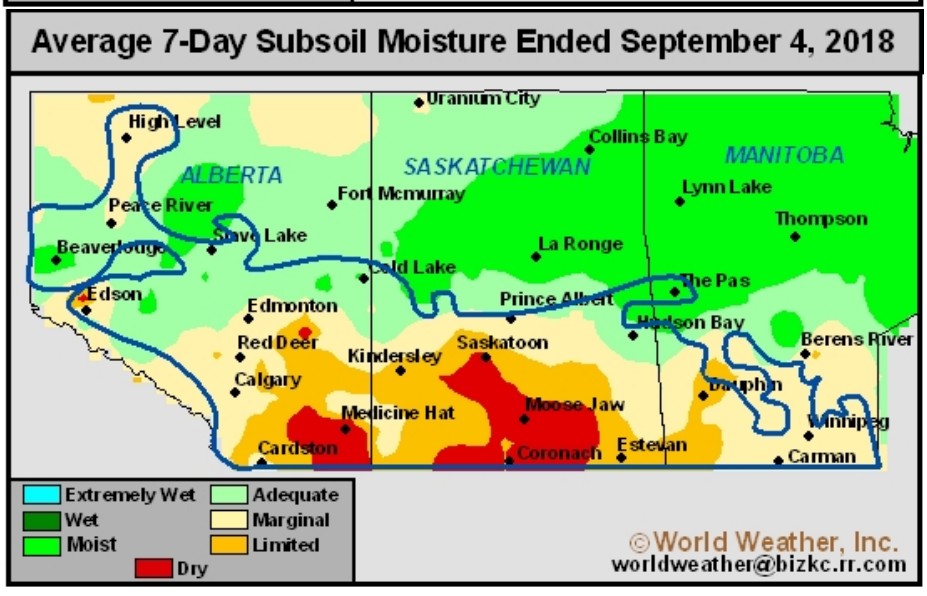
East Ukraine, Southern Russia Dry Down

Rain has still not impacted the Prairies in a significant manner. The latest soil assessment shows virtually no change in drought status and with the forecast looking as it does there will not likely be much change until after the cold surge noted above passes out of the Prairies.

It is when warm and moist air flows back into a cold airmass that the best potential for rain evolves and, as mentioned in our lead article, there will be a moisture boost pending from the northwestern United States and Great Plains while the temperature contrast is in place and that may give us our best chance for meaningful rain seen in weeks, at least for parts of the Prairies.

In the meantime, be sure to note that western and northern Alberta have not dried down very well and the same is true for northwestern crop areas in Saskatchewan and perhaps near and north of Hudson Bay, Saskatchewan. Each of these areas need a prolonged period of dry and warm weather to get immature crops to fully mature and be safe from frost. The largest area that has not froze yet this year that has the most to lose from a freeze is in central and northern Alberta and frequent showers until the end of next week will only prolong the green situation leaving crops vulnerable to the late week freeze.

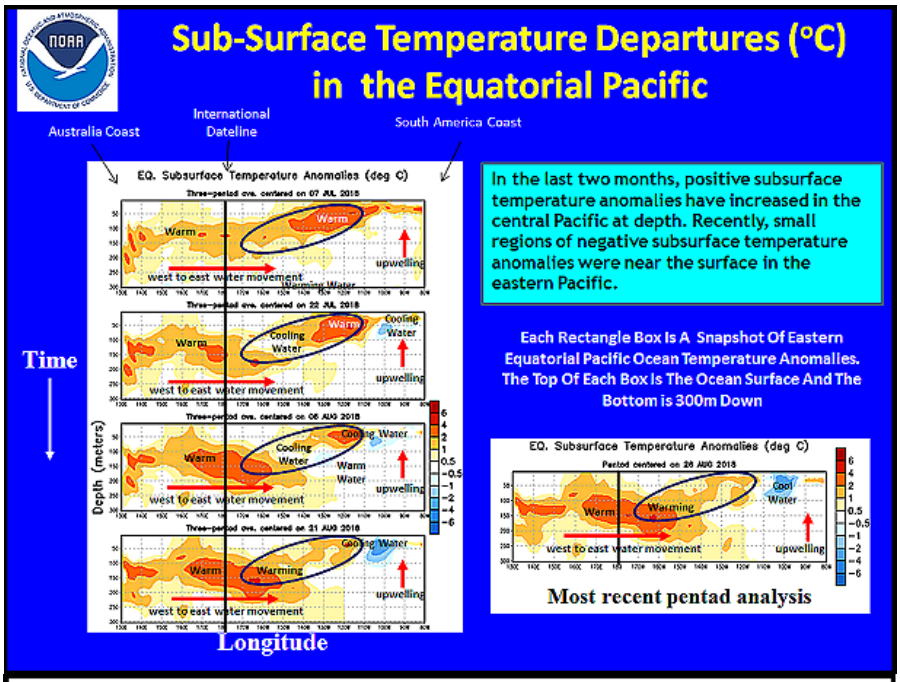


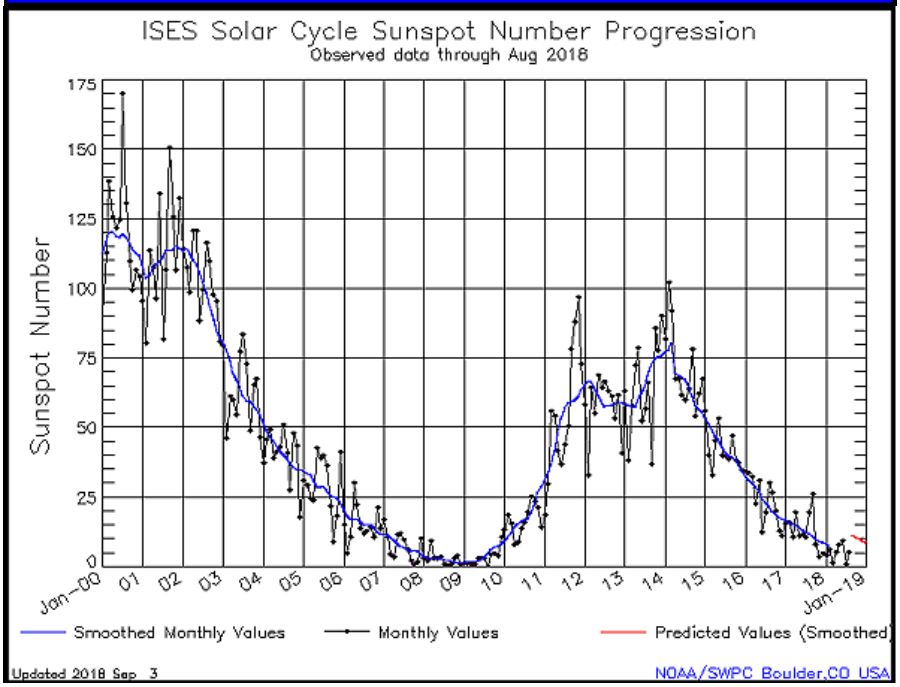


El Nino Evolution Unlikely In September (continued from page 6)

lackluster right now and even though the trend for warming ocean water is likely to get started in the next couple of months it is still debatable how significant the El Nino event may actually be.

Some space scientists still believe we are moving into a very prolonged solar minimum and if that is the case there may be some game-changing events in the warming and cooling of the atmosphere and ocean water that could make predictions of El Nino and La Nina events more challenging. Certainly, the situation today merits a close watch, especially with El Nino holding the key to successful 2019 grain, oilseed and soft agricultural commodity production. If El Nino evolves as predicted rainfall in eastern Australia will likely diminish and drought will continue severe well into 2019 and dryness will also evolve in Malaysia, Indonesia and the Philippines.





Weather in Brazil and Argentina should be favorable during their spring and summer season if El Nino evolves as suggested by NOAA and the Australian Bureau of Meteorology, but if it (El Nino) does not evolve there may be more room for changes in the outlook that might not be as favorable for summer crop production. Similarly, if El Nino fails to evolve as predicted drought would not be as likely in Australia, Indonesia, Malaysia and the Philippines and their production of coffee, cocoa, sugarcane, rice, corn, tea, rubber and other crops might not be at risk for a while as currently feared.

More importantly in the near term, the slow start to El Nino evolution means the current monsoon season in Africa, India, Southeast Asia and both Mexico and Central America may have a better chance of finishing out more normally. Most of these monsoon seasons only need a month or two of "normal" weather without the influence of El Nino to generate less threatening dryness for the balance of the current crop season. World Weather, Inc. believes the odds of this happening are increasing until a more aggressive movement toward El Nino evolves.