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The Canadian Agriculture Weather Prognosticator

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World Weather At A Glance

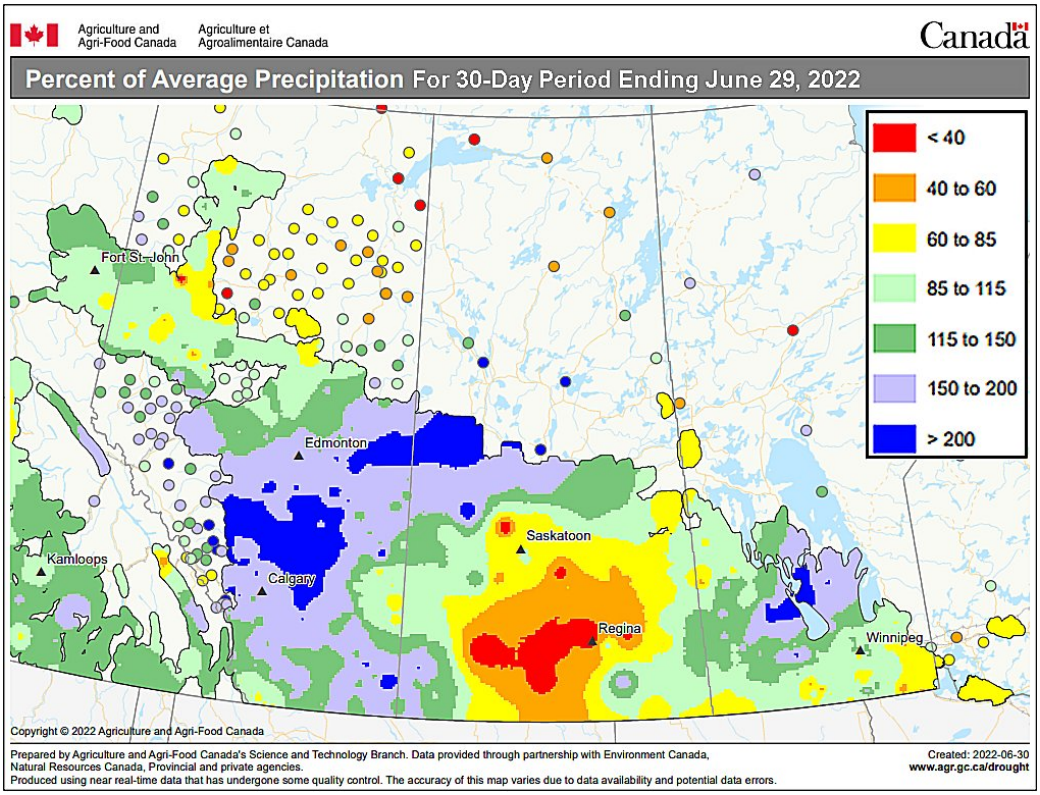
- Argentina continues too dry for winter wheat emergence and establishment—especially in the west
- Russia's Southern Region and neighboring areas of eastern Ukraine are drying out and need rain
- Portions of Europe have been drier than usual this spring and a boost in rainfall is needed in the southeast, but the west has recently received rain.
- Excessive rain has occurred in parts of southern China for a third year in a row
- Dryness in the North China Plain was recently eased
- India's rainfall in June was a little light, but it is expected to perform better in July
- Some U.S. Midwestern crop areas became too dry in June, but wetter conditions are expected
- Australia wheat, barley can canola planting is going well

Central Saskatchewan To Get Needed Rain

For months World Weather, Inc. talked about a change in weather that would come to the Prairies in June this year. A change certainly came, but it was not exactly what was anticipated. Relief did come from drought in Alberta and western Saskatchewan, but the rain in Alberta was much greater than expected in some areas while rainfall in the heart of Saskatchewan fell well below average. The changes in June included less rain in eastern Saskatchewan and Manitoba that had been too wet earlier in the spring.

Overall, the changes were welcome, but they brought on some new worries. Field conditions in southwestern Alberta near the mountains became saturated during the month and fieldwork was limited at times. Soil conditions at the end of the month were too wet for farming activity in quite a few areas. The wettest region was concentrated on the area from the Highway Two corridor from Calgary to Edmonton west ward to Grande Prairie and Grande Cache. Most of the region and many crop areas in northeastern Alberta were saturated with moisture when June came to an end and some farmers were concerned about too much moisture rather than not enough.

Southern Alberta, though, received sufficient rain during the month to greatly ease long term dry-

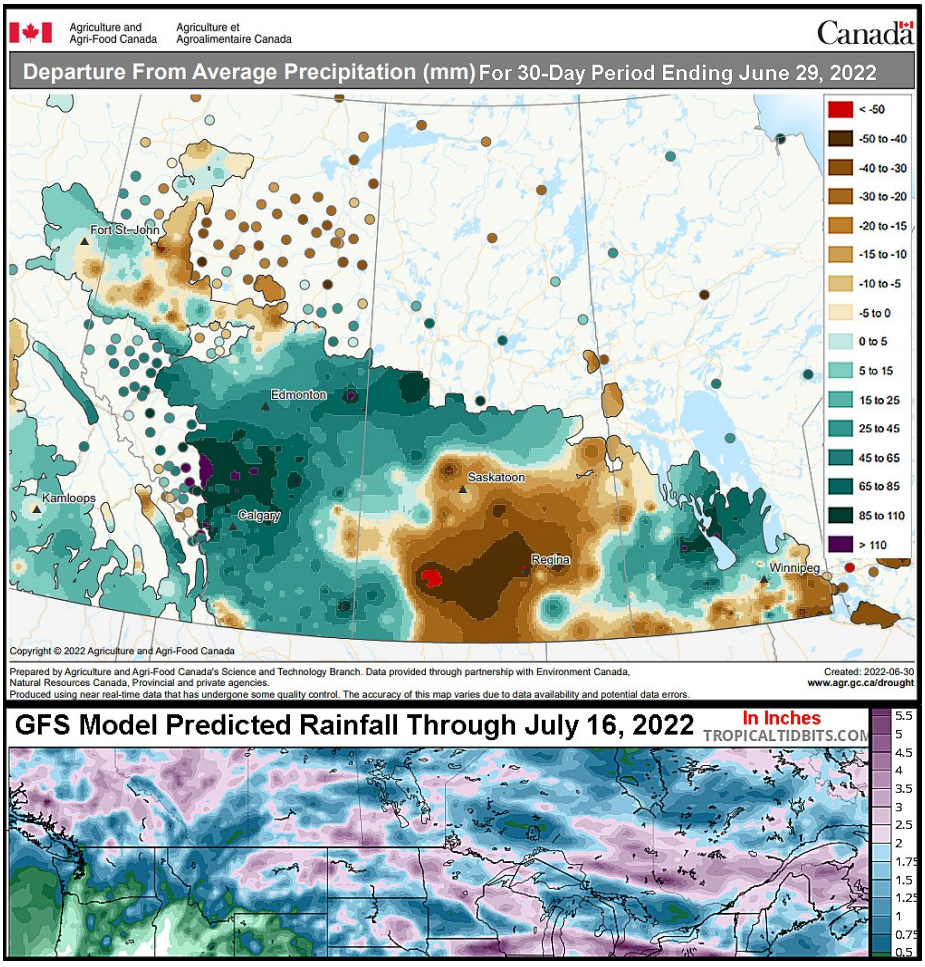


Central Saskatchewan To Get Needed Rain (continued from page 1)

ness and improve late season planting, germination and emergence conditions. Early planted and emerged crops that were on the verge of withering and dying early in the month were revived in time to induce almost perfect conditions at the end of June.

Temperatures in June were well mixed and sufficient to stimulate new crop development without becoming too hot for any great length of time.

Less rain in east-central Saskatchewan and Manitoba brought some improvement to areas that were water-logged during much of spring. The improvement in these areas came a little late and some abandonment resulted because field conditions never dried down enough to induce ideal planting conditions. Lost acreage in the east may be partially made up by good yielding crops elsewhere in the Prairies as long as summer rainfall is favorably mixed and there is no damaging early season frost or freeze event.



A new area of concern developed in June. Some would say it was not a new concern, but the return of an old problem. Well below normal precipitation occurred in the heart of Saskatchewan leading to the firming of soil and some new concern over long term crop development. Some areas from Regina to Lake Diefenbaker reported less than 40% of normal rain in June while a larger part of central Saskatchewan reported 40-60% of normal moisture.

The reduction in field moisture during June was returning some fears of dryness when the month was drawing to a close. However, crops benefited from some early season rainfall. Follow up rain is needed now and the good news is that a boost in rainfall was being advertised for the first half of July. Most of the moisture deficits that have evolved in central Saskatchewan are no more than 50 millimeters with much of the deviation from normal varying from 20 to 50mm. Most of the moisture deficit that accumulated in June should be easily fixed by a single moderate storm or by two weak events. The odds are relatively good that such a rain event or two will develop during the month of July.

Confidence in getting some of the needed relief in Saskatchewan is moderately high, but the precipitation distribution will be determined by the North America Ridge of high pressure—its position and intensity. Both the GFS (American) and ECMWF (European) computer forecast model runs recently have advertised waves of rain across all of the Prairies over the next two weeks. Amounts will vary widely with some areas getting light rainfall while others get moderate to locally heavy rain. Confidence is high that rain will fall, but not necessarily high over the exact amounts of rain that should result. That will make the next couple of weeks very important to monitor.

World Weather, Inc. research earlier this year and in late 2021 suggested there would not be two months in a row of the same weather anomalies in the Prairies this growing season. That statement still looks valid and that should translate into a good opportunity for the drier areas in Saskatchewan to get rain and in amounts sufficient to support crops in a favorable manner. Moisture deficits might not go away, but enough rain will occur to support crop development.

In the meantime, additional rain in Alberta will maintain wet conditions in the central and southwest. The intensity of rain should be reduced. Crop and field conditions in most other areas will be sufficiently mixed to support crop development.

Prairies Summer Weather Looks To Be Well Mixed

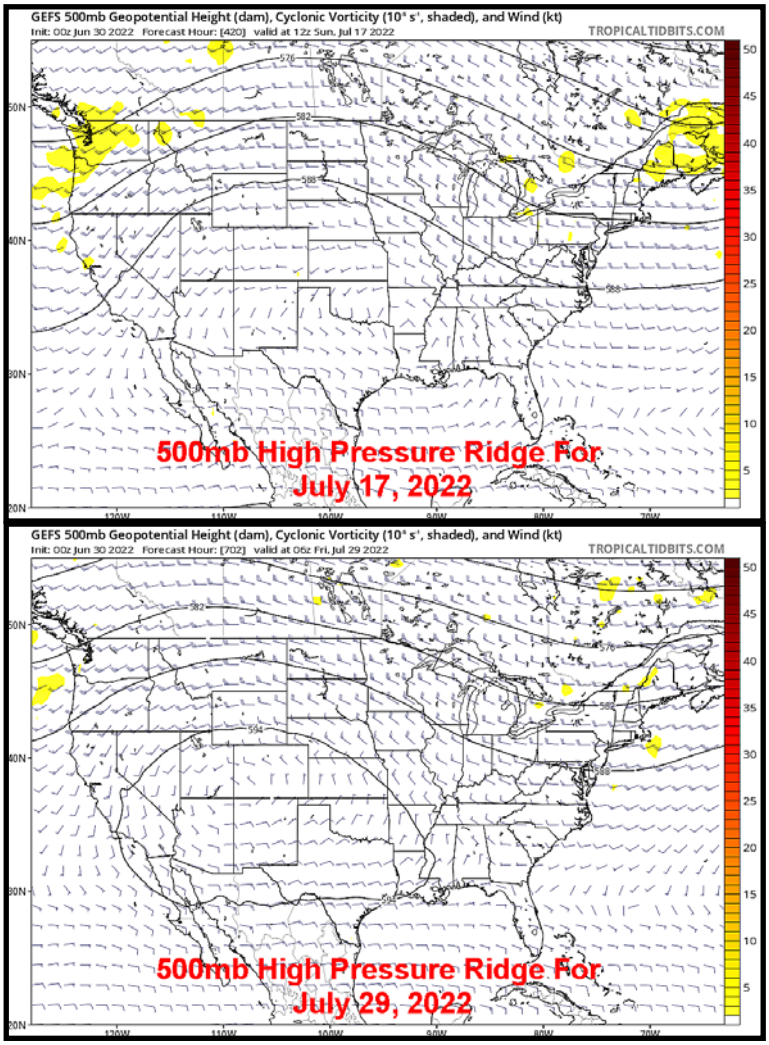
Summer weather in the Prairies will be dictated by the position and intensity of the a high pressure ridge that will be over the interior western parts of North America during much of the summer. The ridge is expected to frequently strengthen and weaken, expand and contract and move around between the Rocky Mountains and the Mississippi River.

The frequent change advertised for the ridge of high pressure should allow weather systems to evolve and pass through the Prairies periodically. The precipitation may not be evenly distributed, but sufficient amounts should occur at timely intervals to support crop development. Some pockets of dryness will evolve at times and locally strong thunderstorms are possible as well. Overall, no region is expected to be singled out for persistent wet or dry conditions—at least not through the entire summer.

The mean ridge position looks like it will be a little farther to the west than World Weather, Inc. had expected earlier this year. That positioning could translate into a lower volume of rain and some reduction in rain intensity for parts of the Prairies. However, there will be a few periods of aggressive rainfall and strong thunderstorms possible. We are still confident that the growing season will be many times better than that of 2021, although not ideal.

Three very important computer weather forecast models (the GEFS, EPS and CFS) continue to advertise a good mix of weather for weeks 3, 4 and 5. Confidence in these models has never been very high because forecasting the coming week does not always verify let alone an outlook that is 4-6 weeks out in time. However, this year's models are of greater interest because of their strong agreement. Each of these forecast models are advertising alternating periods of rain and sunshine for the Prairies, northern U.S. Plains and Midwest. If that verifies there should be no shortage of precipitation during the bulk of the growing season. World Weather, Inc. believes some of the advertised rainfall is now overdone in these models and a close watch on their verification is warranted.

Our summer outlook for the prairies is not just based on these longer range forecast models. We have allowed the 18-year cycle maps to have a big influence on summer Prairie weather this year and a considerable amount of influence has also come from other years, like this one, that occurred 2 years after the solar minimum while in a multi-year La Nina event and with the negative phase of Pacific Decadal Oscillation (PDO) in place.

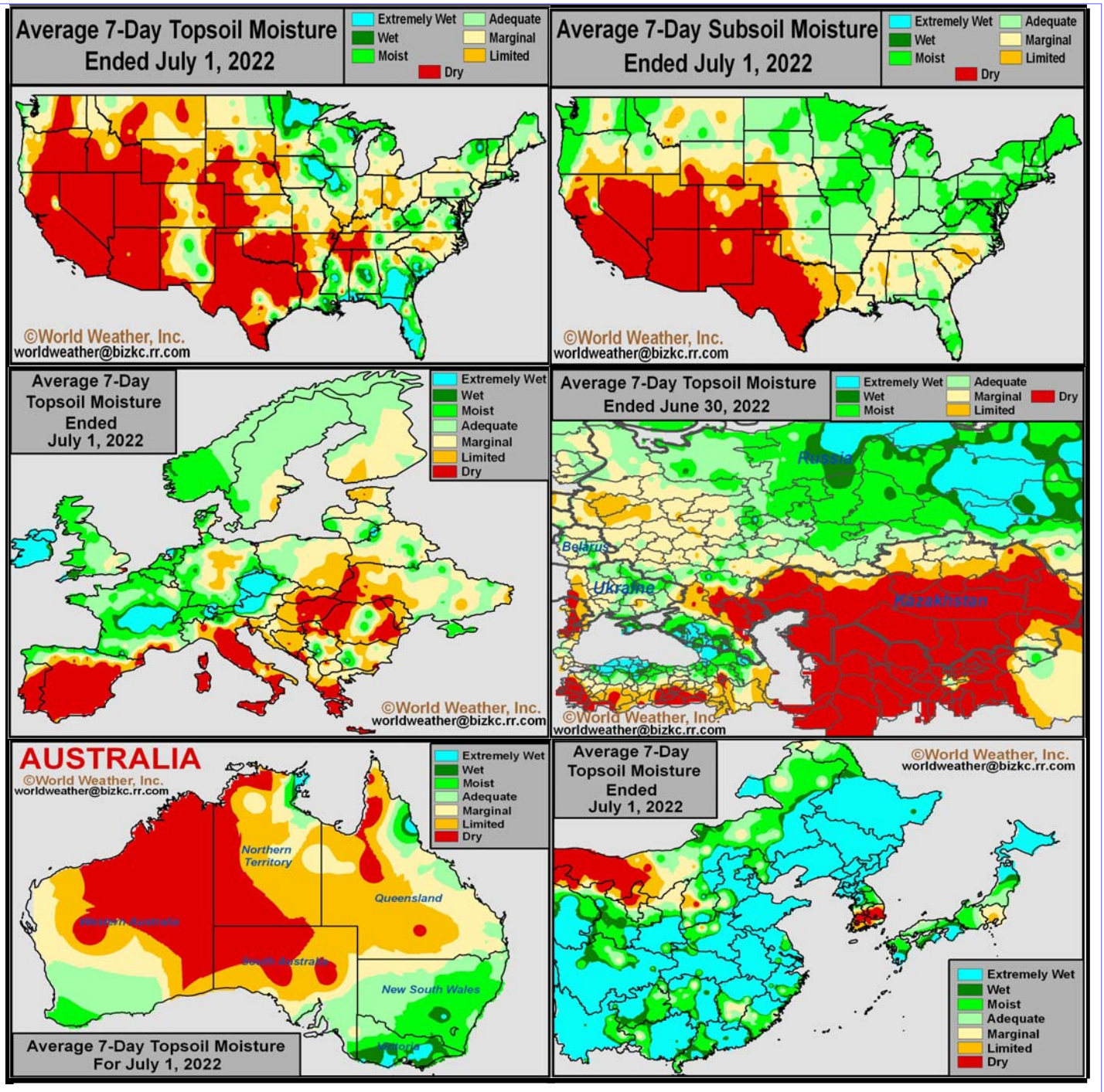


We looked at three 18-year cycle years (1968, 1986 and 2004) as well as three years in which the 22-year solar cycle coincided with multi-year La Nina events that were simultaneously occurring with a strongly negative PDO. The results from all 6 years we looked at was nearly the same ensuring a mix of rain and sunshine during much of the growing season.

If the outlook maps that we have considered for this summer are all correct confidence is moderately strong for a favorable production year. Abandonment in Manitoba and eastern Saskatchewan and delayed seasonal rainfall in some of the east-central and southern Alberta locations and similar conditions in west-central Saskatchewan will cut some yield off of production potential. However, the losses will be minimal compared to those of last year.

Any strengthening in the high pressure ridge expected over central North America or any tendency toward a more stagnant position in this feature could cut more deeply into production, but the potential for such conditions appears to be rather low. Temperatures are also expected to be in a seasonal to slight warmer bias.

Selected Weather Images From Around The World



U.S. soil moisture declined significantly during the past couple of weeks, but a change in weather seems to be poised for the coming ten days that offers timely rain at just the right time. Reproduction of corn is getting under way and as long as timely rain falls while pollination is under way kernel setting will be successful. In Europe, France has recently turned wetter after being too dry; however, France will now enter about ten days of dry weather again along with other areas in western Europe. Russia's topsoil began drying down this past week along with much of eastern Europe this resulted from hot and dry conditions with high temperatures in the 30s Celsius. Cooling is expected and "some" rain is forthcoming, but some areas in eastern Europe may remain dry biased. Russia's Southern Region is also a little too dry and needs rain. In contrast, China is much too wet and needs to dry out to support the best summer crop development. Australia's wheat, barley and canola planting is advancing well with good establishment.

Summer Outlook Shifts High Pressure Ridge To The West

July weather has been adjusted somewhat relative to previous months of forecasting. Rain is still expected to occur relatively often, but the greatest amounts have been shifted a little to the west and north reflecting the more westerly position of the North America high pressure ridge during the month.

Rainfall will be a little lighter than usual in southwestern Saskatchewan and southeastern Alberta, but this is not the beginning of another drought period. Instead it is just a response in the atmosphere of the high pressure ridge being a little farther to the west.

Temperatures in July are also expected to be a little warmer biased over a larger part of the Prairies. None of the expected heat will be anything like that of last year, although there may be a few days of very warm weather followed by a few other days of milder conditions. The most consistent cool biased weather is expected from the Highway Two Corridor in Alberta to the west up against the mountains. This cooler biased area will also continue to be wetter than usual as it was in June.

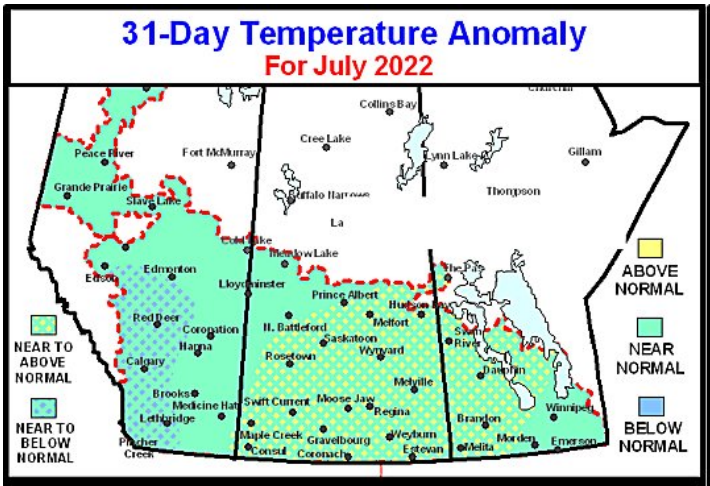
A more favorable mix of rain and sunshine is expected in the southeastern Prairies during July.

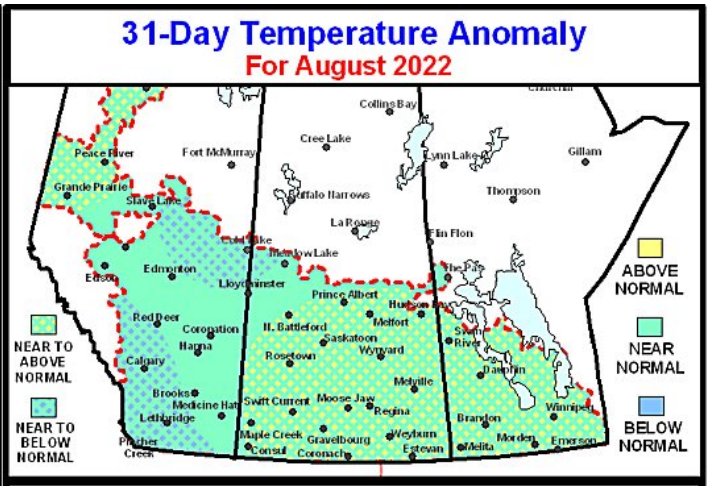
August weather is expected to still be mixed with periods of rain and sunshine. Near to below average precipitation is expected in western and southern Manitoba and southeastern and east-central Saskatchewan, but sufficient amounts of rain should occur to suffice crop needs.

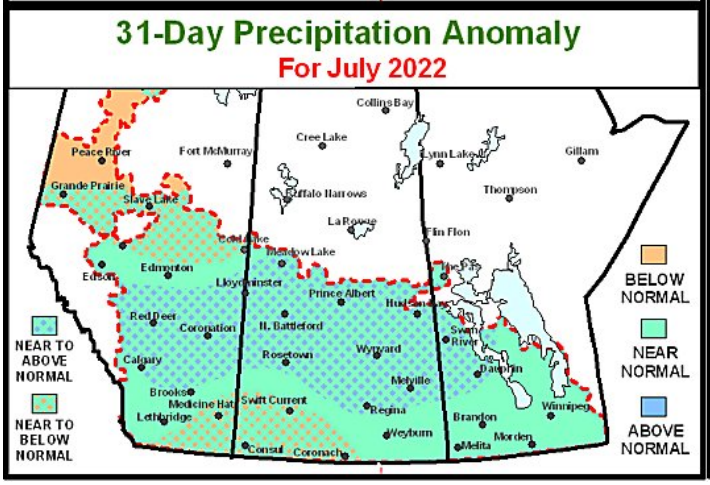
The wettest bias in August is expected to be in central and eastern Alberta and west-central through northwestern Saskatchewan. This, too, represents a westward shift in the previous forecast for rain and is the result of relocating the high pressure ridge for the summer.

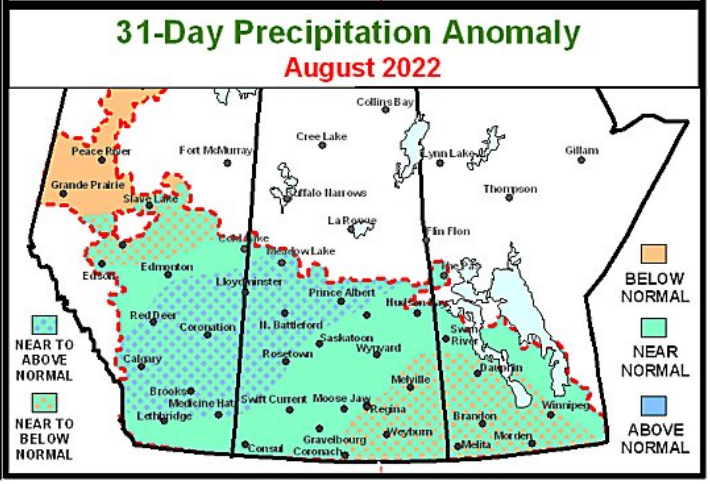
Originally, the forecast for summer had the mean ridge position in North America running from Texas to western Manitoba and eastern Saskatchewan, but this forecast has been shifted to the west for July and early August. There is still some potential for a more easterly relocation of the high pressure ridge in late August and September. If the ridge does shift eastward in late August and September the wettest bias will be in southern and eastern Alberta and western Saskatchewan.

In the meantime, the Peace River Region is expected to see a drier weather bias as summer moves along. Temperatures may be a little warmer than usual during August.









1956, 1968 Present Best Analog Year For 2022

Canada's Prairies weather is being influenced by several weather features and each one has a similar signature that supports favorable crop weather across the region. We have mentioned the negative phase of PDO, La Nina, the 22-year solar cycle and the 18-year cycle multiple times in previous prognosticators. The simultaneous occurrence of these particular weather elements has only occurred a few times in recorded weather history—admittedly our history is limited.

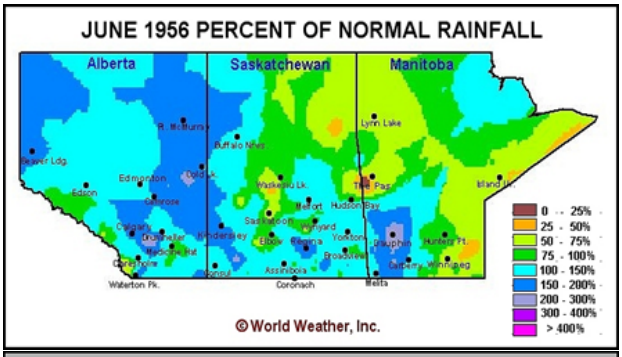
1956, 2000 and 1975 are all years in which these same factors came together to influence weather across North America. Out of these three years 1956 stands out as the one that is most like this year. This analog year fits well with both the United States and Canada because it was so significantly influenced by the multi-year La Nina event and strongly negative PDO.

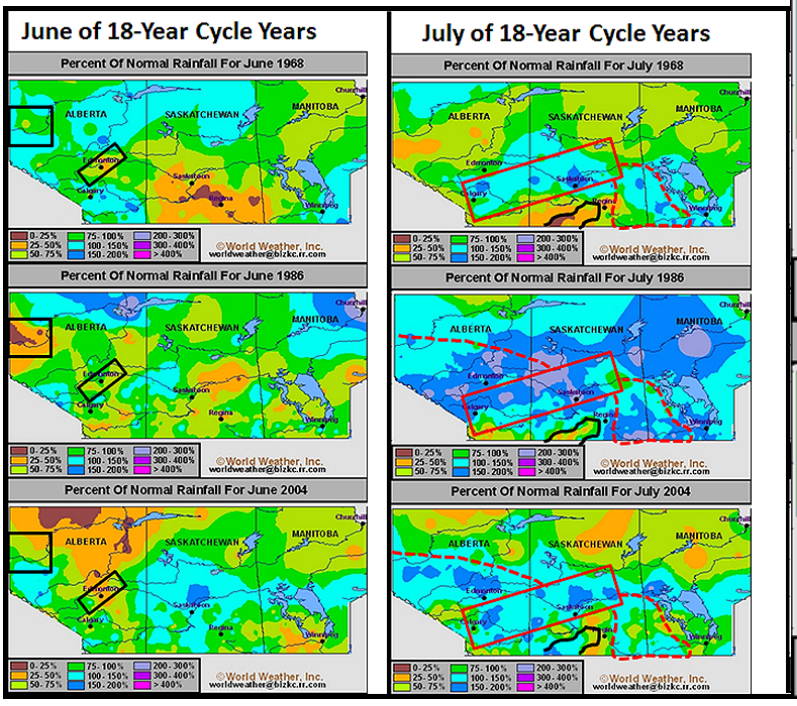
The summer weather maps from 1956 are very interesting to look at because most of the Prairies had sufficient varying weather during the growing season that crop yields were mostly good. In fact, Larry Weber of Weber Commodities did a quick analysis of spring wheat yields in the Prairies during the 1950s and showed that 1956 had the second highest wheat yield of the decade which reinforces the rainfall maps shown here suggesting a good distribution of rainfall during the growing season. Temperatures were also mostly favorable for the crop.

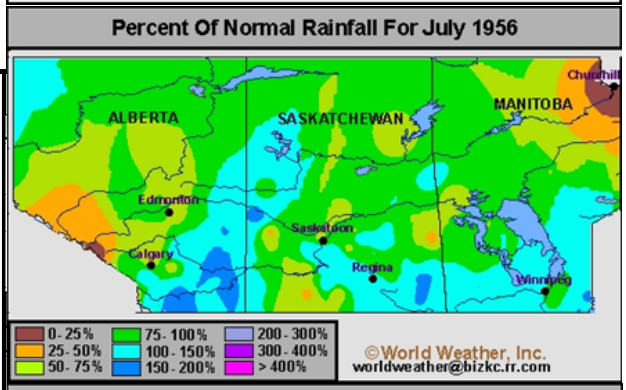
Also shown here are the rain maps for June and July of the 18-year cycle years 1968, 1986 and 2004. These 18-year cycle maps are also of great interest especially 1968. Notice that in 1968 there was a drier bias in Saskatchewan during June while other areas in the Prairies received greater rainfall. Then notice what happened in July of 1968. July 1968 was still drier than usual in south-central and south-western parts of Saskatchewan while rainfall was abundant in other parts of the Prairies. This trend could be repeated in 2022.

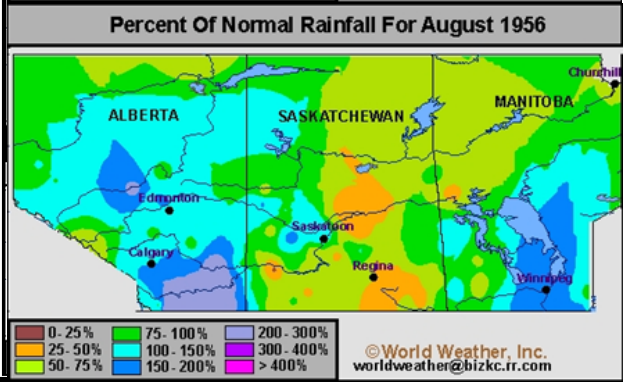
The July and August rainfall in 1956 was a little lighter biased in the heart of the heart of the Prairies and the same kind of data was presented on the August 1968 maps (not shown here).

World Weather, Inc. believes, 1956 and 1968 will likely provide the best forecast of weather still yet to come in this growing season. The below average precipitation bias showing up in the south-central parts of Saskatchewan in July 1968 could repeat this year, but the drier bias should be mellowed out by the influence of at lease some periodic rain like that which occurred in 1956. The bottom line suggests not perfect weather, but a sufficient trend supporting good crop yields.



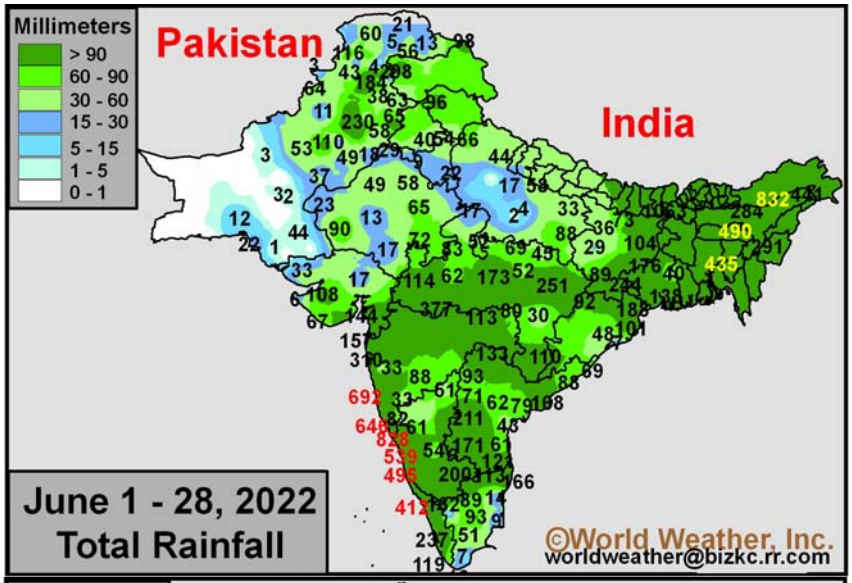


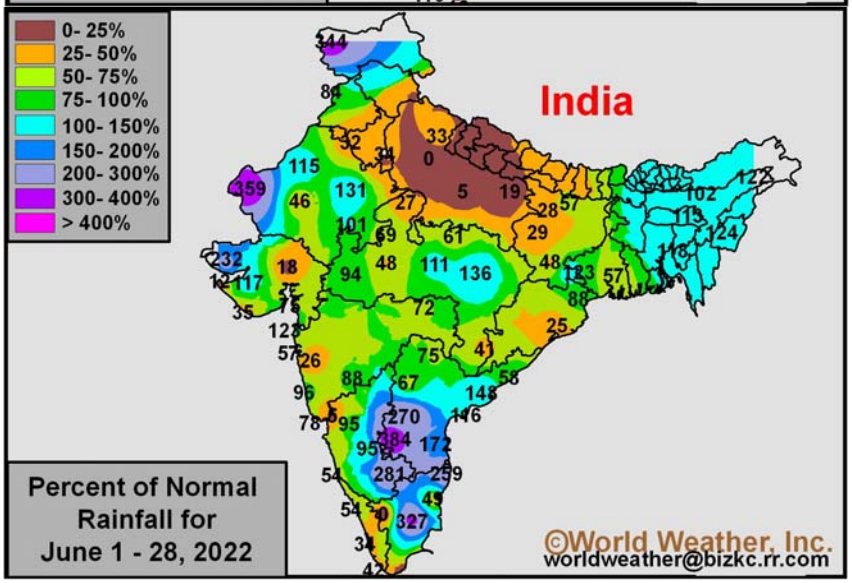




India Monsoon To Perform Better; Latest Week A Bit Dry

The first month of the June through September southwest monsoon season in India is about over and its performance has not been very impressive. Despite some parts of the nation seeing decisively light amounts of rain the nation's total rainfall through today is only down 10% of normal. The next few weeks will be of much greater importance to summer crop production and a more scrutinizing eye will be upon the monsoon performance from this point forward. Most computer weather forecast models have suggested greater rain is forthcoming, but not all areas will benefit to the same level of significance.





Rainfall during the most recent week was lighter than that of the previous week and a bit disappointing for some producers who were looking forward to a continuation of increased rainfall. Much of the nation reported well below average precipitation during the week. Amounts were not great enough to counter evaporation in many cases and that led to net drying. The exception was along the central west coast where 9.00 to more than 15.00 inches fell. Most of that rain was not impacting key crop areas. The most significant cropland rainfall occurred in Maharashtra and western Madhya Pradesh where 2.00 to more than 4.00 inches resulted. Some significant rain also fell in northeastern Andhra Pradesh, southern Chhattisgarh and from southern Jharkhand and West Bengal into a few of the far Eastern States.

The lack of rain during the past week allowed fieldwork to advance relatively well especially since the previous week of rain was a little more significant. Advertised increases in rainfall suggested for the next two weeks will be extremely important for maintaining a favorable outlook for the growing season.

Despite the poor performance of rain in India during this latest week, precipitation earlier this month was great enough to moisten the soil and support planting which may have advanced aggressively in this past week. There has also been a considerable amount of attention on northwestern India where seasonal rainfall has not been very great, but this region often has highly varying early season monsoon performance. Last year Gujarat, northern Maharashtra, western Madhya Pradesh and parts of southwestern Rajasthan had some impressive early season rainfall that induce flooding long before the normal monsoon season started. This year's monsoonal rainfall has been more limited in some of these areas, but that is not necessary a sign of failing monsoonal performance.

Rain normally reaches northwestern India between June 15 and June 30. The monsoonal flow has arrived, but rainfall has not been very great, but there is plenty of

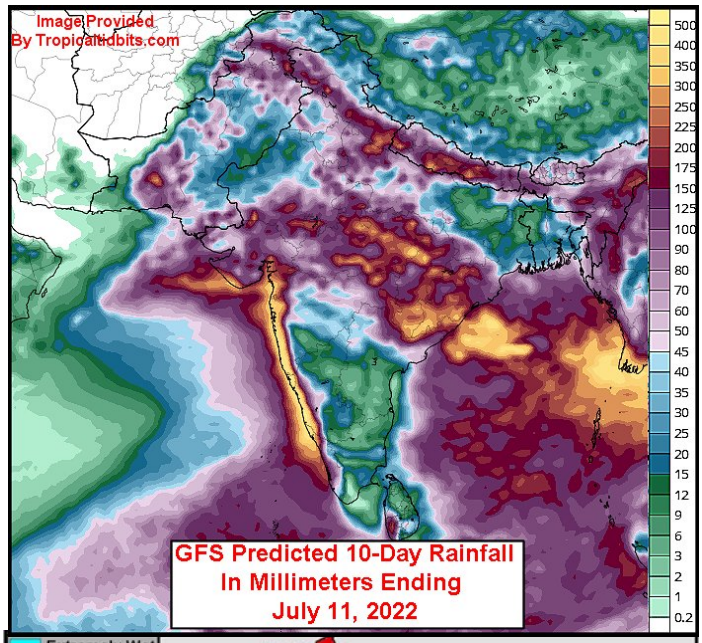
India Monsoon To Perform Better (continued from page 7)

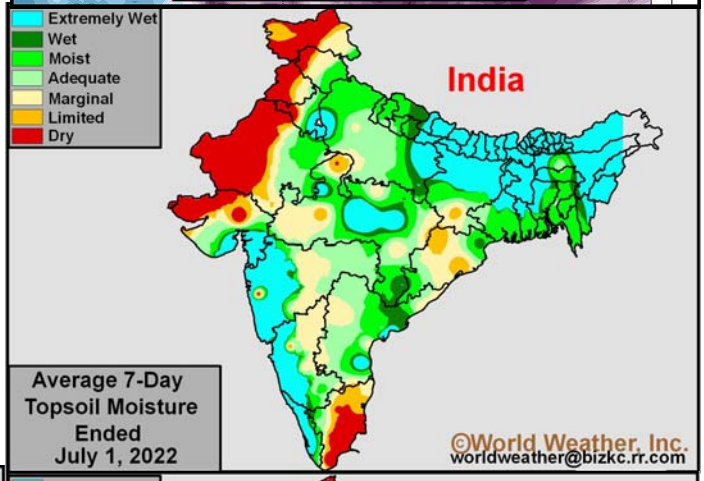
time for improvement. The next few weeks will be of much greater importance for farming needs in much of the nation, but especially in the northwest and west-central crop areas.

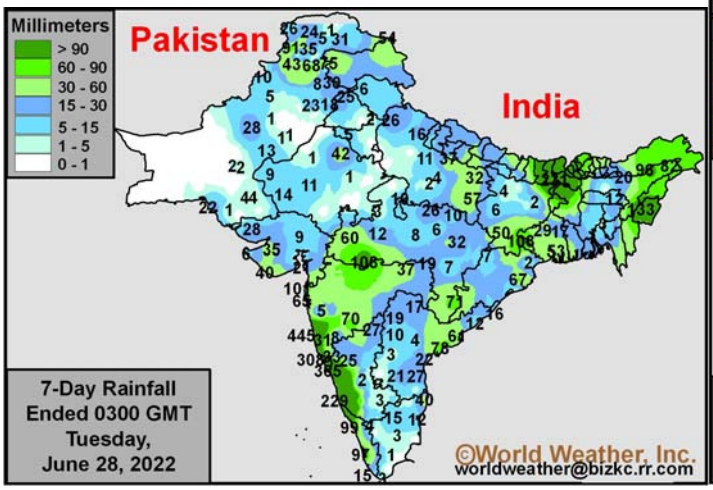
Soil moisture decreased in many areas during the past week because of the lighter rainfall, but the situation is far from a crisis because of the previous week of good rain and the expectation of increasing rainfall during this coming week. Dryness in the northwest is not of much concern right now, but if it remains dry through the first half of July there might be more reason to be concerned. Some rain will impact these areas over the coming week to ten days.

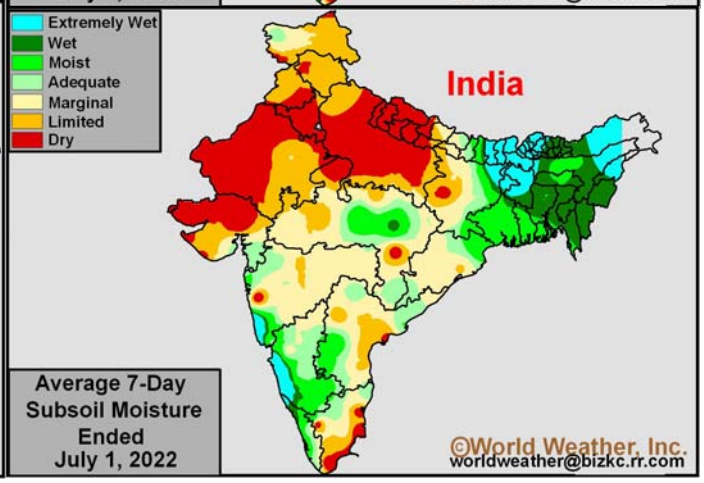
The greatest rainfall expected over the next ten days will be central parts of the nation; including Madhya Pradesh Uttar Pradesh, southeastern Rajasthan, northeastern Maharashtra and portions of both Telangana and Chhattisgarh while rainfall is a little light in the interior western parts of Maharashtra and Karnataka.

Rain predicted in this next ten days will not be ideal in fixing moisture deficits in some areas, but enough will fall in many areas in the central and north to bolster soil moisture for better planting, emergence and establishment conditions. The precipitation will be most important and welcome to the groundnut and cotton production areas of Gujarat, western Madhya Pradesh and far northern Maharashtra along with eastern and southern Rajasthan. Most of the advertised rain will be sufficient to improve crop and field conditions, but some ongoing dryness will remain in parts of Pakistan, northwestern Rajasthan and some western Maharashtra locations.







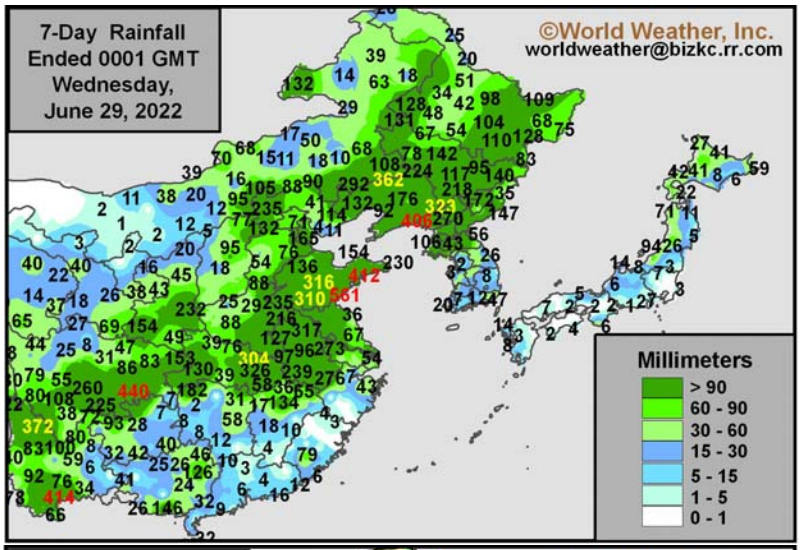


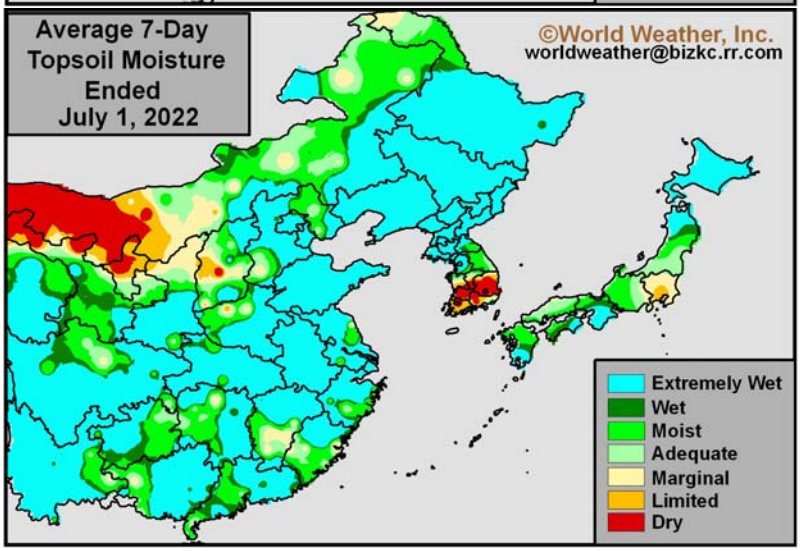
North China Plain Dryness Eased; Many Areas Wet

Persistent dryness in the North China Plain during late May and much of June was finally eased during this past week. However, for parts of east-central China the environment went from too dry to too wet in a very short period of time. Flooding resulted. Flood conditions have also evolved in a part of northeastern China while the nation's most serious flooding in the south was receding after a week of drier weather. Unfortunately, there is more rain coming for nearly all of China and some of it will perpetuate saturated soil and flood conditions.

One week ago soil conditions in portions of the North China Plain were much too dry. Some relief to dryness had already occurred at that time in Shandong and some areas southward into Jiangsu and Anhui, but the rain reported over this past week was extremely heavy and came from just two events resulting in some flooding.

Rain totals for the seven days ending dawn Wednesday varied from 11.00 to more than 22.00 inches in central and southeastern Shandong. The soil was already saturated a week ago and the additional torrents of rain likely resulted in some flooding that may have damaged crops and personal property. Some of the heavy rain extended northeast through Liaoning to parts of Jilin. These latter two provinces have been dealing with frequent bouts of heavy rainfall in recent weeks and the latest round of excess moisture should have induced some new flooding and some possible damage to agriculture and personal property.





This is the third year in a row in which at least a portion of eastern China has been inundated by extreme amounts of rain. Earlier this month rain totals in southern China varied from 20.00 to 42.00 inches with one location in Guangdong reporting more than 77.00 inches since the beginning of this month. Flooding in southern China damaged rice, sugarcane and minor corn and groundnut production areas as well as a huge amount of personal property. Southern China's flooding has begun to recede and this past week's rainfall was the lightest seen in quite some time. Additional drying was still needed to give the region a chance to start cleaning up from the recent floods.

Unfortunately, Tropical Storm Chaba has formed in the South China Sea and will move to western Guangdong Saturday and then on to central portions of eastern China early next week resulting in some new flooding. There is also a big need for drying in northeastern and east-central China.

The wet biased conditions will not bode well for some of the nation's summer crops and a close watch on the situation is warranted. Wet weather disease, slower than usual crop development and some flood damage is expected, although conditions will not be nearly as extreme as those of the past few weeks. Drier and warmer weather is needed to improve crop conditions in most of the nation east of Tibet.