

LATE SUNDAY US GRAIN WEATHER

6/11/17 OVERVIEW

QUESTIONS FROM LAST FRIDAY -- They were:

1 The **amount of Heat** developing this weekend into early next week over the Dakotas Nebraska and Iowa... and the **duration of the heat**. The Model data was showing 4-5 days of heat starting on Saturday JUNE 10.

2 The model uncertainty with regard to the 6 to 10 day RAINFALL forecast from last Friday valid JUNE 14-18. The GFS was persistently wetter than the European model but at times even the European model also showed significant rains over portions of the Midwest.

3 **The development of the deep trough over the Great Lakes and the Midwest after June 15 which would set up the pattern for the last two weeks of the month**. The development of this deep trough is critically important because if the trough develops over the Appalachian Mts and the East Coast this this would bring in a cool pattern to the Midwest and the eastern Plains but it also ensure a dry pattern. If on the other hand the mean trough position is stalled over the Midwest and Mississippi Valleyit would indicate above normal rainfall chances for the third week of JUNE over much

of the Midwest and the Delta region.

4. **The CFS climate model from last week showed some dry conditions developing over various portions of the Midwest for July.** The European weekly models from last Thursday night Friday morning show the development of a substantial ridge across the Deep South which could force the jet stream further to the north. This would allow for hotter and drier pattern over the central Plains and portions of the Midwest and increased rainfall over the Canadian prairies and the Dakotas during the first half of JULY

ANSWERS:

1. **All the weather models Sunday afternoon evening are showing less heat over South Dakota Central Nebraska and the heat is not last as long over these areas are compared what the data showing last Thursday and Friday.** Remember that much the data last Friday was showing temperatures well above 100° in these areas but the Sunday Data simply does not support temperatures that hot.

2 **Even though there are going to be significant heavy rains and thunderstorms over the next 3 days across the eastern portions of Minnesota and Wisconsin most of the Midwest and the central Plains will be dry into Thursday.** By Thursday however the strong cold front coming in from the Rockies will break the heat over the central plains and the WCB. Most of the model data does NOT show significant rains over the southern half of the WCB or the central Plains with the cold front passage but the rains are more significant over the ECB the Tennessee Valley into West Virginia

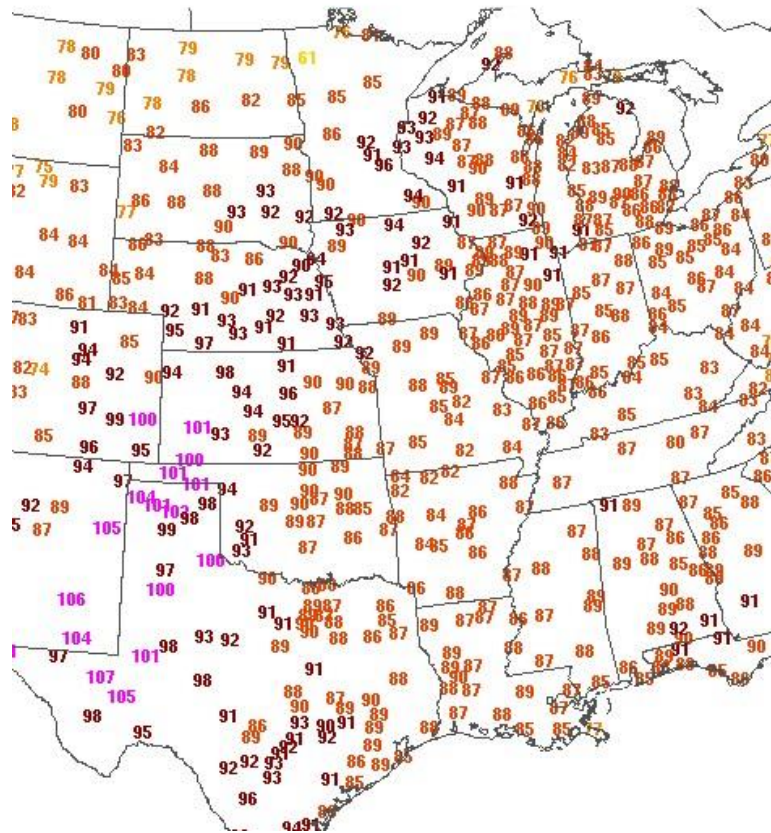
3. **The Sunday models are in pretty good agreement that the deep trough is going to move through the Midwest and then towards the East Coast by June 20.** If this is correct it means that the overall pattern will be one featuring a jet stream

coming out of the northwest which is a dry and cool pattern for much of the Midwest and the upper Plains... but that could be clusters of storms roaming across the regions from time to time

4 the monthly CFS model continues to show below normal rainfall over the ECB but above normal rainfall over the Delta the WCB into the Dakotas the South Central Canada

MAX TEMPS SATURDAY 10 JUNE

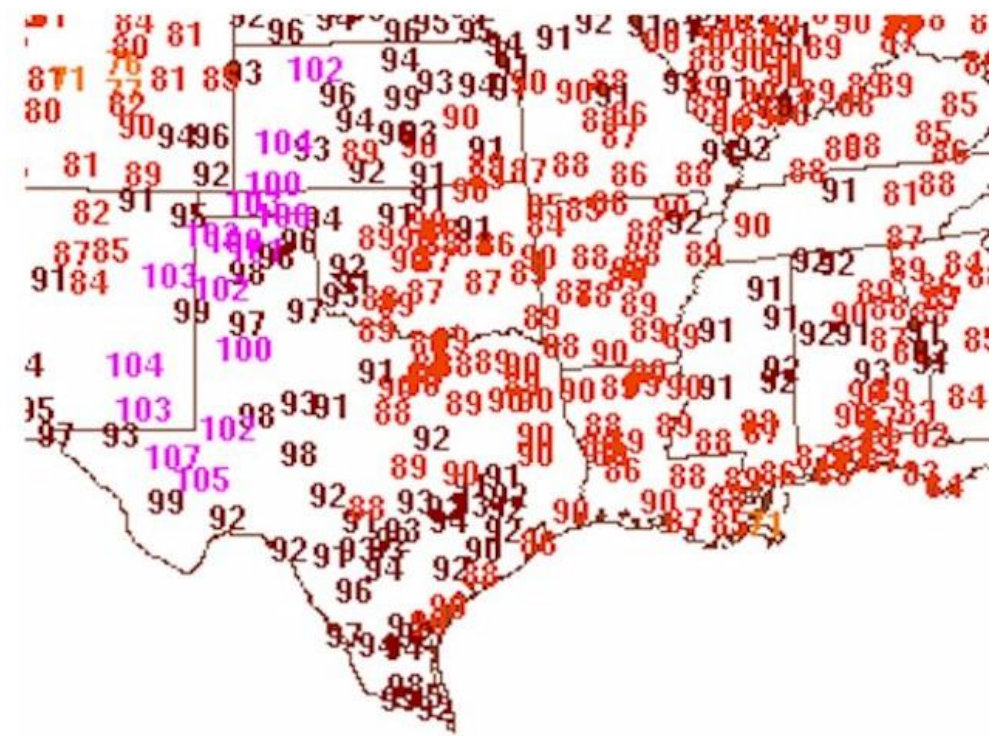
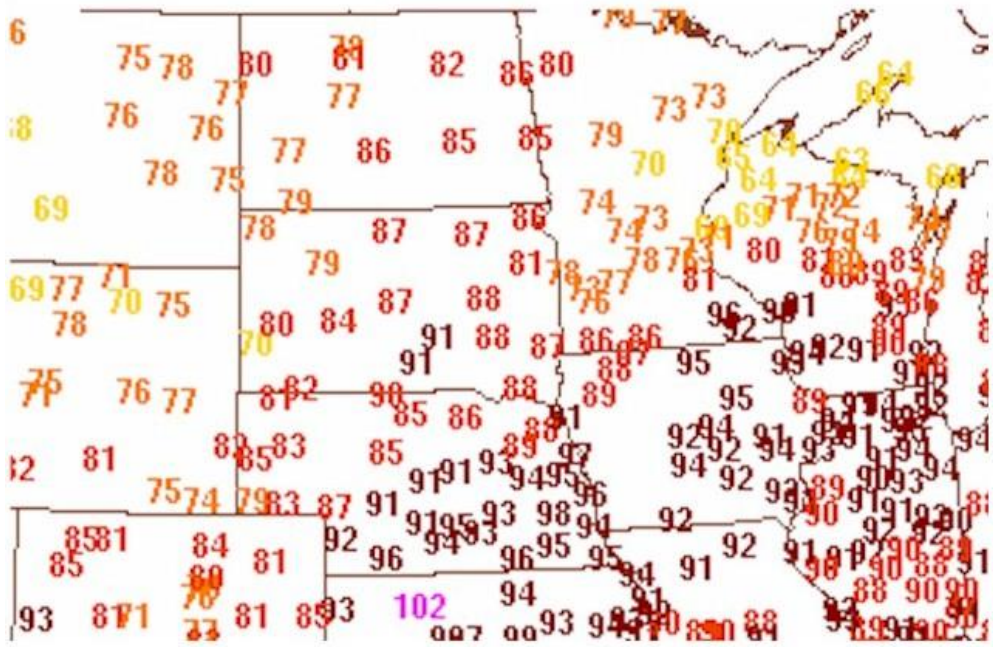
OBSERVED MAX TEMP (F) FOR SATURDAY 20170610



80s over all of OH IND ILL KY TN MS AL GA LA ARK MO WI ...
se KS east OK east TX... over ND SD eastern WY eastern MT...
90s over south MN se MN eastern NEB west KS southeast COL
western OK and Tx Panhandles... 100+ Tx & OK Panhandles
southwest KS

MAX TEMPS SUNDAY 11 JUNE

Notice that max temps in SD central NEB and northwest IA did NOT reach 95-105f/ 35-40c



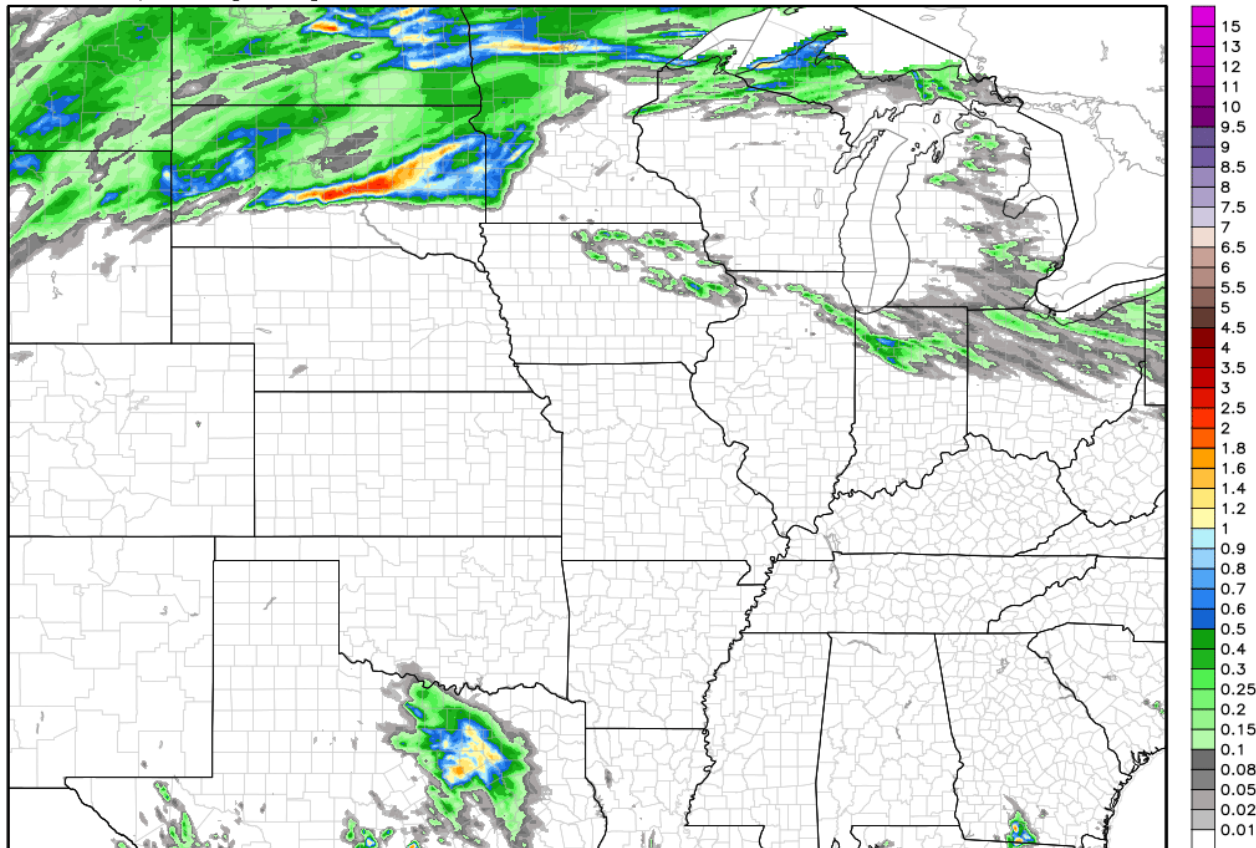
6-HR MAX ENDING 0000 UTC 20170612

RAINFALL OVER THE LAST 48 hrs - 0700 CDT 9 JUNE - 0700 CDT 11 JUNE

0.25 -1.0"/6-25mm 50-60% coverage over North Dakotas into the northern half of SD & western MN ... with a small core 1 -2"/25-50mm over central SD

NWS Precipitation Analysis 4-km HRAP Grid -- 2-day Total Accumulation
Total Precipitation [inches] between 12Z09JUN2017 -- 12Z11JUN2017

Domain Max: 2.7 in.

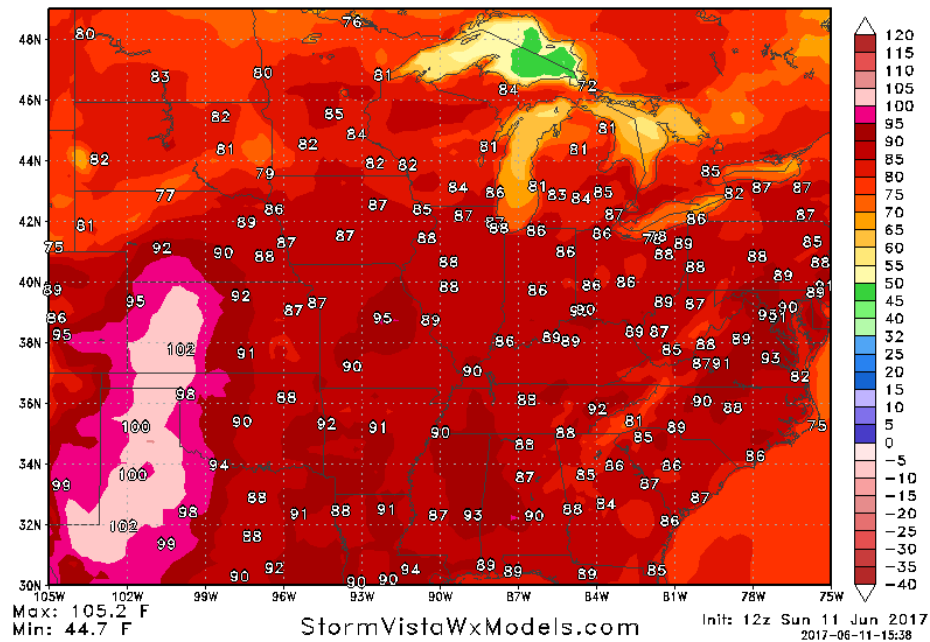


4 km HRAP grid | End of hydrological day at 1200 UTC | <http://water.weather.gov/precip>

NEXT 5 DAYS

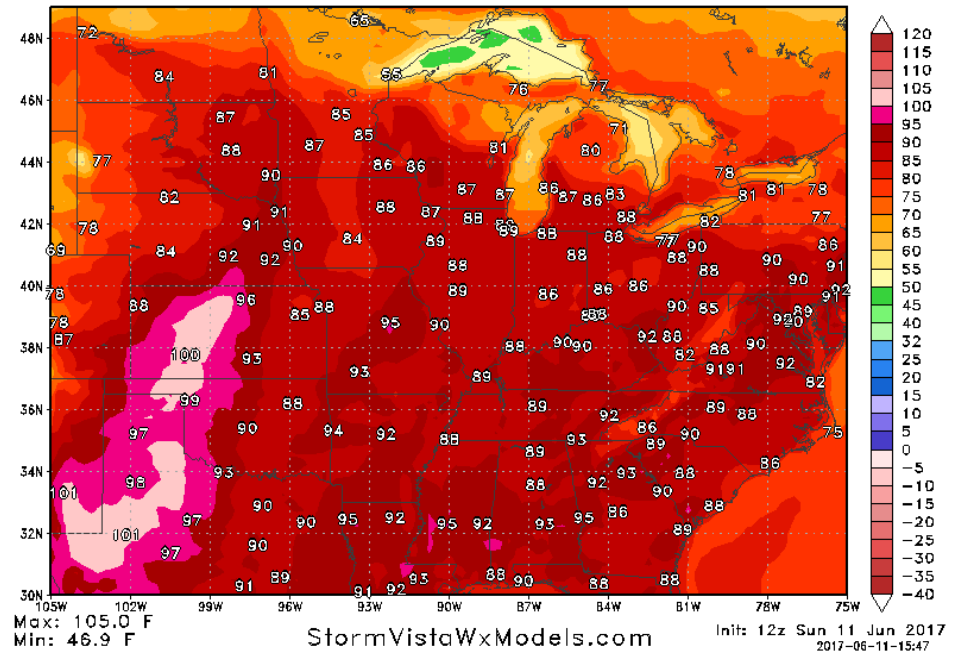
since Friday evening the various weather models have been flip flopping back and fourth with regard to the amount of rain which is going to fall over the Midwest this week. One thing that the weather models do agree upon is that the extreme heat which was showing up on the weather models last week for much of Nebraska and South Dakota... has weakened significantly. Max temperatures on Monday Tuesday will still reach above 95°/35c but those temps are now restricted to the far southeast corner of SD & the eastern third of the NEB. That being said the heat still gets into portions of the WCB and central /lower Plains over the next 4 days.

2 m Max Temperature (F)
Valid: 00z Tue 13 Jun 2017



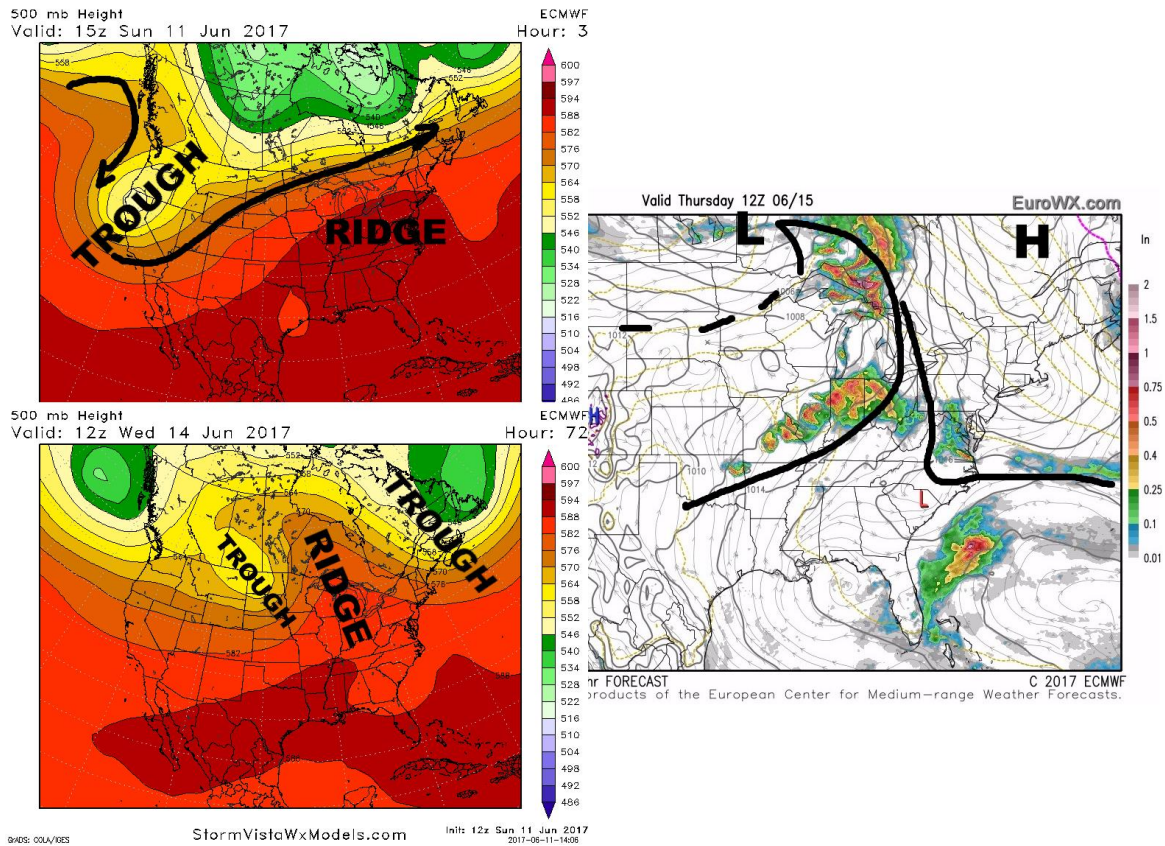
GFS-MAXRES
Hour: 36

2 m Max Temperature (F)
Valid: 00z Wed 14 Jun 2017



GFS-MAXRES
Hour: 60

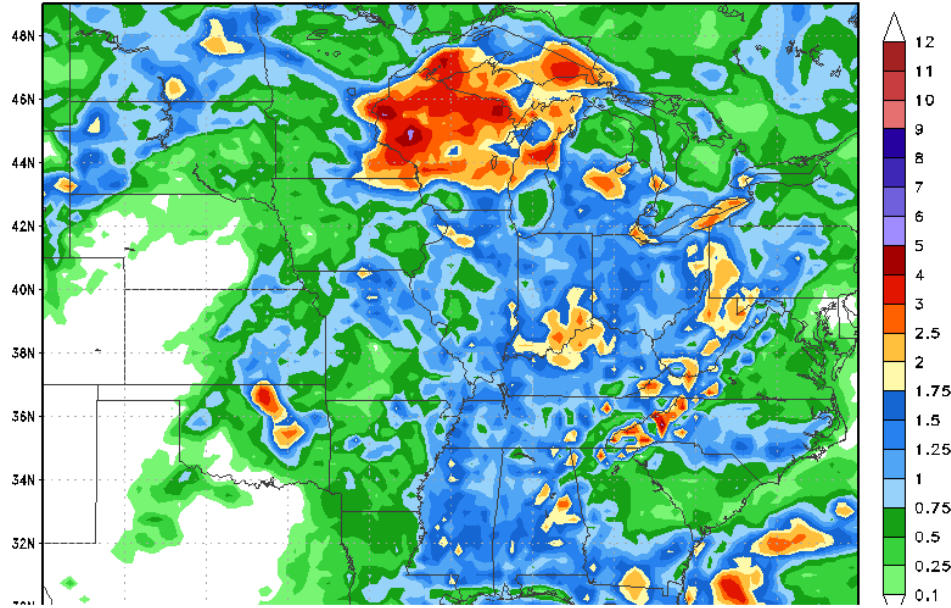
The overall pattern remains unchanged what the weather models are showing last Thursday and Friday. We have a deep trough centered over the West Coast with a large upper low imbedded within the upper trough itself over Washington State and Oregon. In response to this the atmosphere has developed a strong ridge over the eastern third of the country. And it is this ridge which is bringing about the heat to portions of the Plains and the WCB. As the upper trough Moves east it will begin to wear down the ridge over the eastern third of the country. At the surface this will drive a strong cold front into the upper Plains and eventually into all of the Midwest by the end of the week



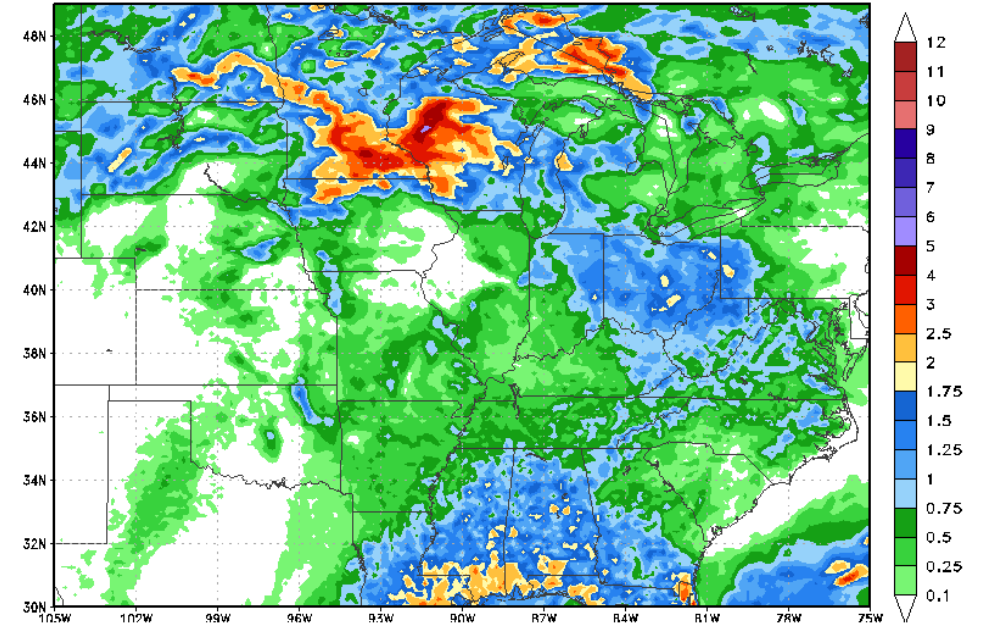
The GFS model on Saturday turned significantly drier but this model again turned wetter here on Sunday afternoon. This sort of inconsistency does not lead to a lot of confidence in the forecast. The SUNDAY afternoon GFS over the next 5D shows a widespread 0.5-1.5"/ 12-38mm over 70% of TN KY OH IND & ILL.... with 40% coverage over ARK MO & IA. In addition the weather models continue to show strong to heavy thunderstorms dropping significant rain over the far eastern portions of MN into the central & north portions of WI. Rainfall amounts here range from 2-6"/ 50-150mm. The GFS model also has areas of moderate rain over 40% of SD & ND over the next 5 days.

The European model is significantly drier. This model also shows heavy rains & storms covering 60-70% of MN & WI with rainfall amounts of 1-4"/ 25-100mm. However the GFS is substantially drier over east KS MP ARK ILL IA IND KY & TN. The European has 1-2"/ 25-50mm rains over 75% OH & WVA and along the Gulf coast. This model also has 1 to 2 inch rains over 50% of the Dakotas.

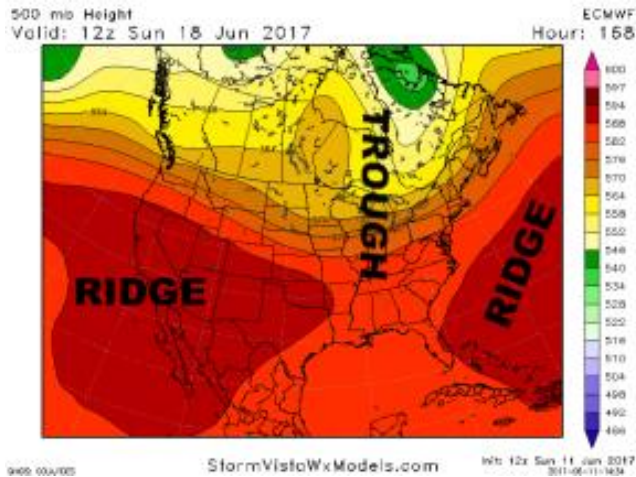
120 Hour Total Precipitation (in)
Valid: 18z Sun 11 Jun 2017 - 18z Fri 16 Jun 2017
GFS-MAXRES
Hour: 0 - 120



120 Hour Total Precipitation (in)
Valid: 12z Sun 11 Jun 2017 - 12z Fri 16 Jun 2017
ECMWF-MAXRES
Hour: 0 - 120



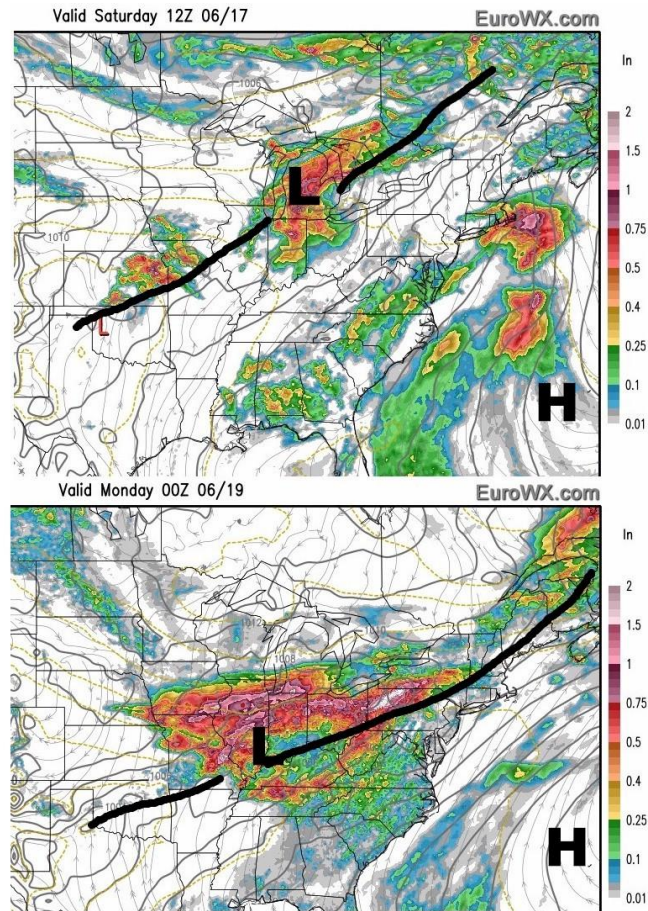
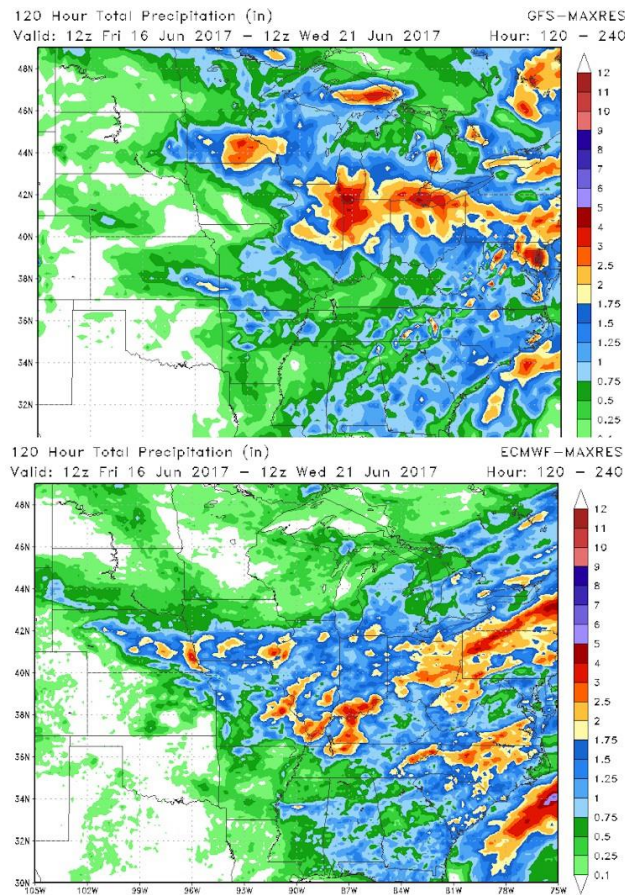
6-10 DAY



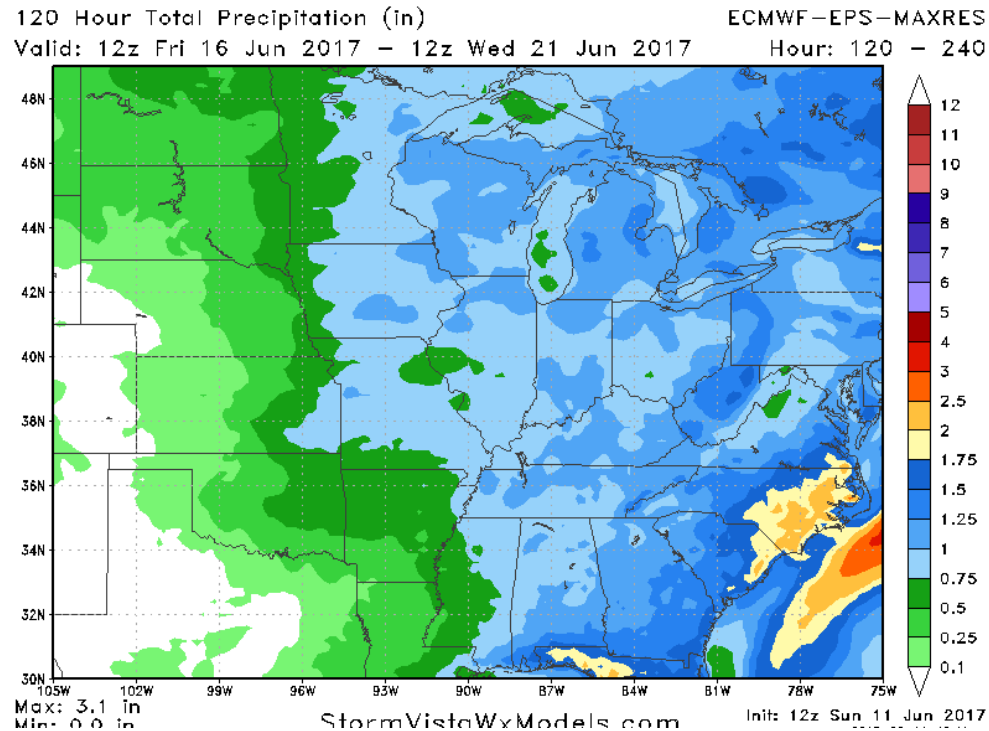
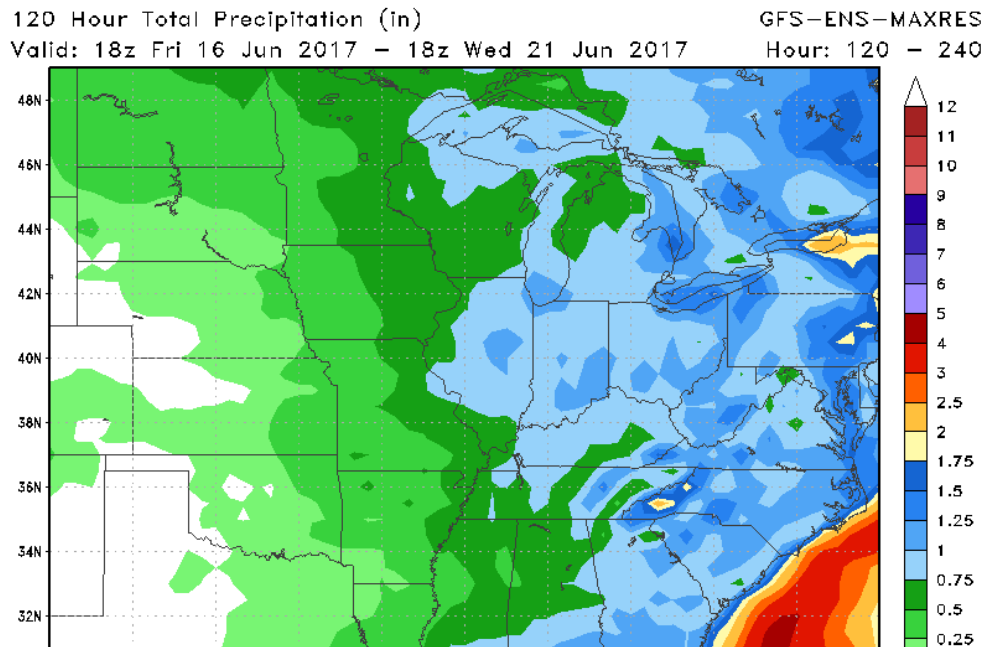
The deep trough moves into the Midwest in this timeframe which at the surface should produce a fairly strong cold front. However it appears according to most of the model data that the significant rains will fall over the ECB as Wells the Tennessee Valley and then eventually into the East Coast. This leaves the WCB and the plains and drier pattern even though temperatures are much cooler.

The heat in the WCB comes to an end as a fairly strong cold front presses southward from the was Canada border June 15-16. The operational GFS shows significant rains of 1-4"/ 25-100mm across 75% of OH ... south MI IND ILL WI & southern half of MN. This leaves most of WI KY TN NEB SD fairly dry. The GFS has a secondary area of rain up to 1.5"/ 38mm over 50% of MO.

The European model is somewhat similar but the rain shield is a bit more uniform without as much gaps. The model shows a large area of 1-2"/ 25-50mm rains with a few small areas of 3"/ 75mm rains covering 75% of the entire ECB into KY & 70% of the southern half of IA the northern half of MO & east central NEB.



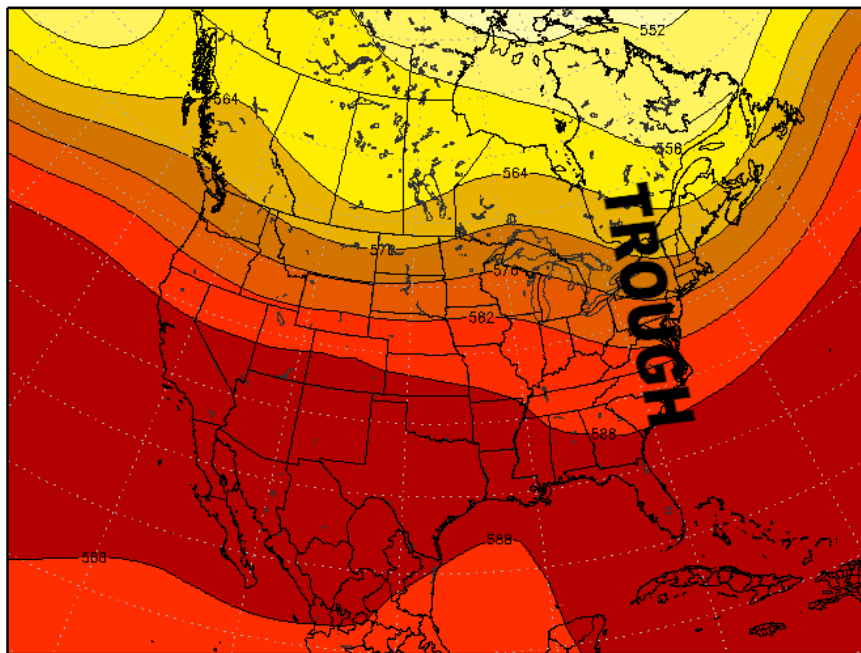
The 6-10 day ensembles are in good agreement. Both show moderate rains the ECB into the Tenn Valley and the east coast. The Euro has more rain over the WCB than the GFS



11-15 DAY ENSEMBLE

That same cold front sweeps through the Midwest and the Ohio Valley & reaches the East Coast June 20. This will shift most of the rains to the Appalachian Mts ...the Southeastern states ... the Middle Atlantic & New England region. The deep trough in the jet stream which is the feature driving this cold front will dominate the eastern half of the country for the third week of JUNE With a new ridge building all in a across the Rockies... temperatures over the Plains states will warm up significantly and these regions will also turn significantly drier. Temperatures will warm across the WCB and the delta region in the 11 to 15 day.

500 mb Height
Valid: 00z Thu 22 Jun 2017

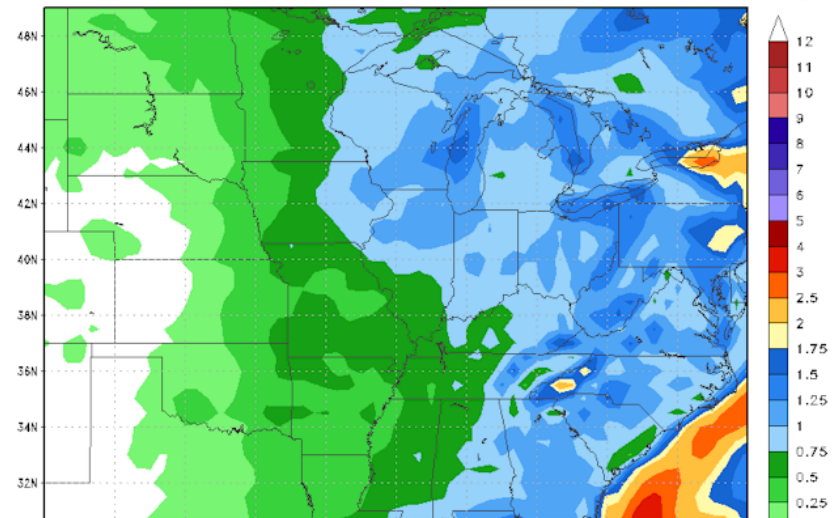


GrADS: COCLA/IGES

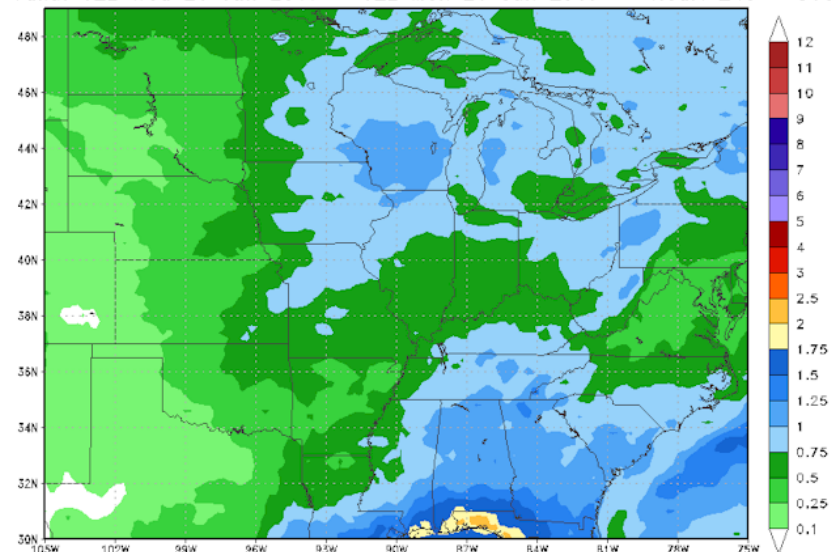
StormVistaWxModels.com

Init: 12z Sun 11 Jun 2017
2017-06-11-15:42

120 Hour Total Precipitation (in) GFS-ENS-MAXRES
Valid: 12z Fri 16 Jun 2017 - 12z Wed 21 Jun 2017 Hour: 120 - 240



120 Hour Total Precipitation (in) ECMWF-EPS-MAXRES
Valid: 12z Wed 21 Jun 2017 - 12z Mon 26 Jun 2017 Hour: 240 - 360



Max: 2.3 in
Min: 0.1 in

StormVistaWxModels.com

Init: 12z Sun 11 Jun 2017
2017-06-11-15:42

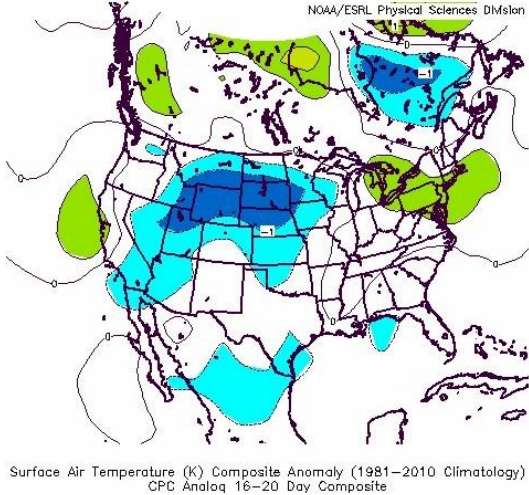
Week 3 and week 4

First we will take a look of the rollover analog model. This method of forecasting is based the assumption that the computer models forecasting the 11 to 15 day pattern at the jet stream level will be accurate. From that assumption we now look for the top 10 best analogs to that 11 to 15 day pattern and continue that pattern into the 16 to 20 day.

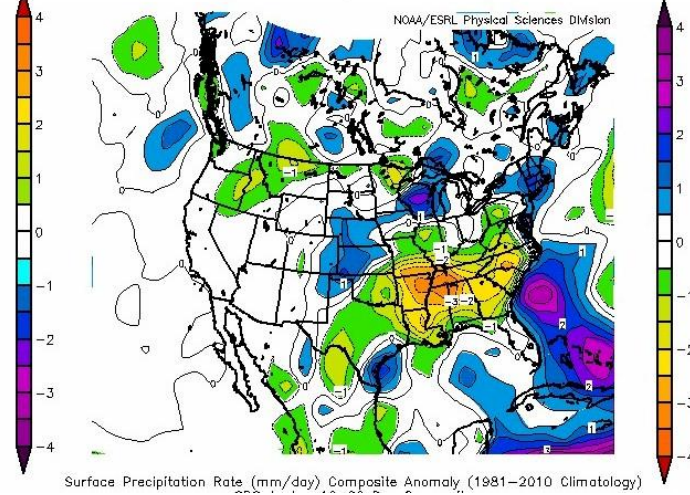
As you can see the temperatures look to be generally either normal or below normal over most the Midwest and the central and upper plains. Rainfall appears to be below normal across all the deep south but a stripe of above normal rainfall over the central plains into portions of the WCB.

16-20 DAY ANALOG "ROLLOVER" MODEL

TEMPS



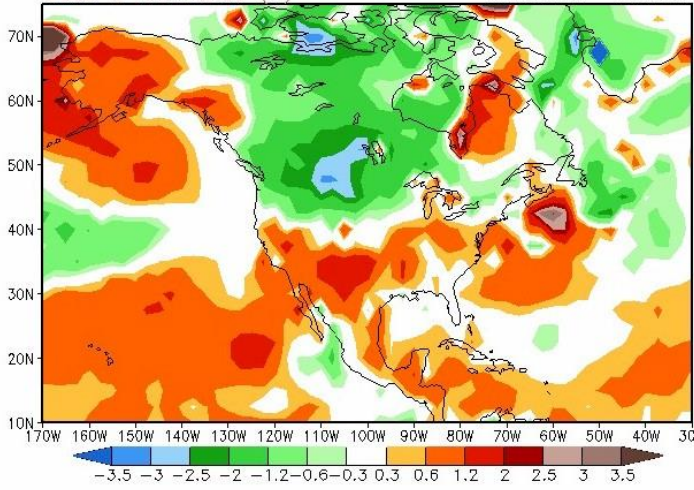
PRECIP



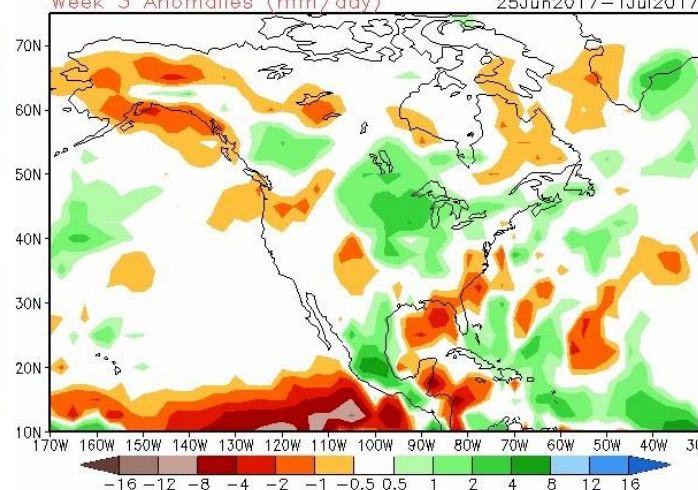
In week 3 the CFS model forecasts a large area of Below and much below normal temperatures over all of the northern Rockies the Dakotas and most of the Canadian prairies. Temperatures are actually somewhat above normal over the ECB and the Delta regions. With respect to rainfall the pattern continues to look quite wet for the last week of JUNE over the heart of the Midwest.

The overall pattern continues in a week 4 with the CFS model continuing the forecast a large area of below normal temperatures over all of South Central Canada ...the central upper Plains and a good portion of the Midwest. With respect to rainfall there are patches of above normal rainfall over the WCB and the upper Plains into South Central Canada but below normal over the Delta and the ECB.

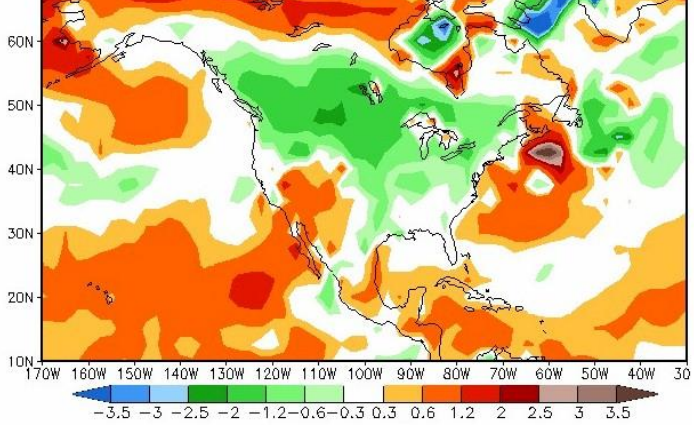
CFSv2 Extended Range Temperature
16 Member Ensemble Mean Forecast from 10Jun2017
Week 3 Anomalies (K) 25Jun2017-1Jul2017



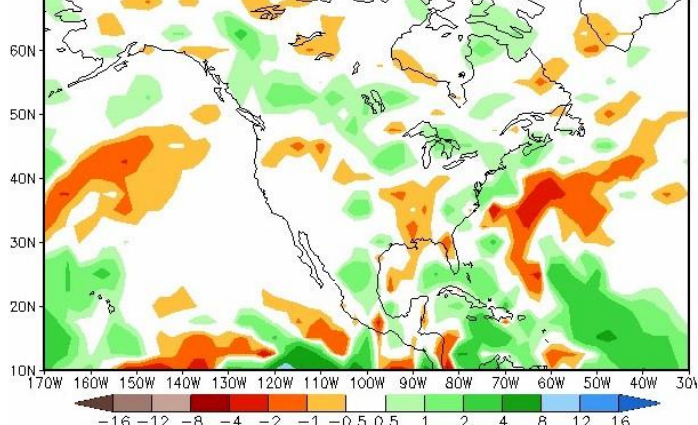
CFSv2 Weeks 3 & 4 Precipitation
16 Member Ensemble Mean Forecast from 10Jun2017
Week 3 Anomalies (mm/day) 25Jun2017-1Jul2017



Week 4 Anomalies (K) 2Jul2017-8Jul2017



Week 4 Anomalies (mm/day) 2Jul2017-8Jul2017



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