

# US GRAIN WEATHER SUMMARY / part 1

**as of FRIDAY**  
**13 APRIL 2018**



LOCATED in Richmond VA

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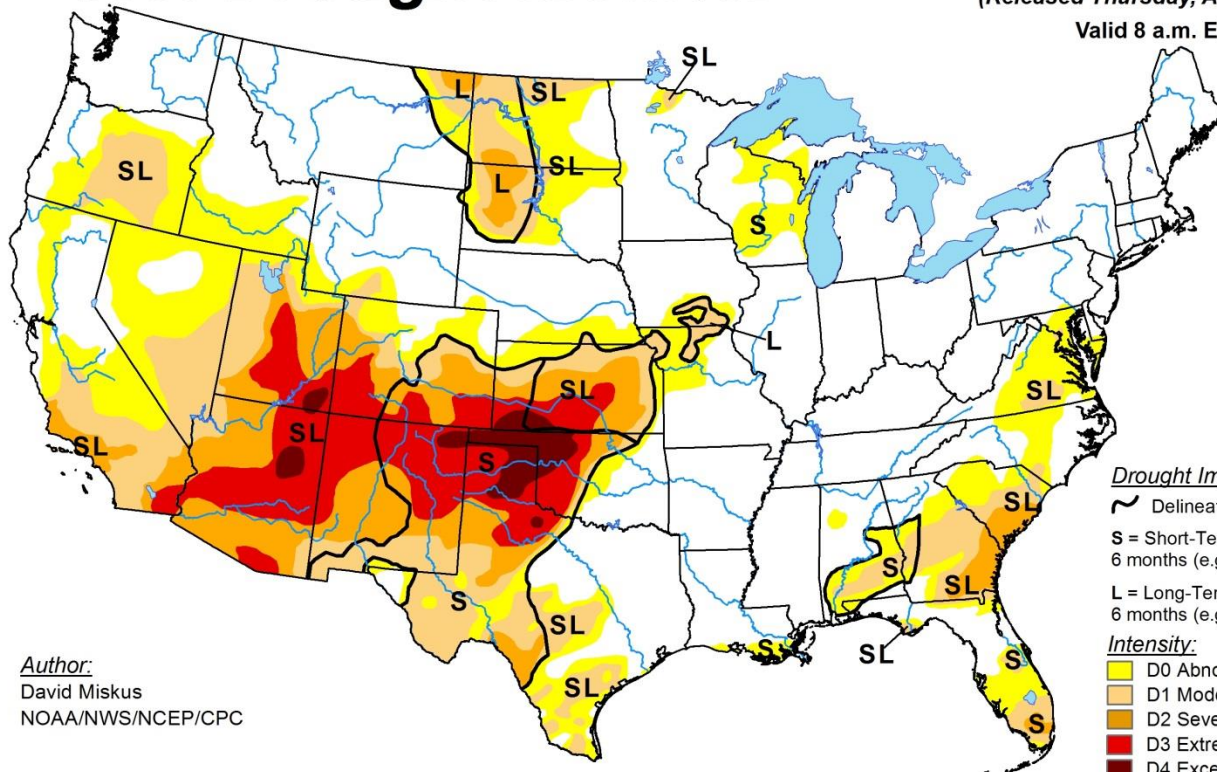
# Drought conditions have worsened over HRWW with D4 - EXCEPTIONAL DROUGHT area showing major increases

## U.S. Drought Monitor

April 10, 2018

(Released Thursday, Apr. 12, 2018)

Valid 8 a.m. EDT



Author:  
David Miskus  
NOAA/NWS/NCEP/CPC

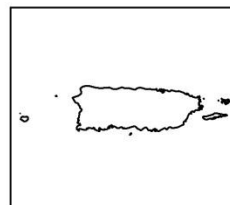
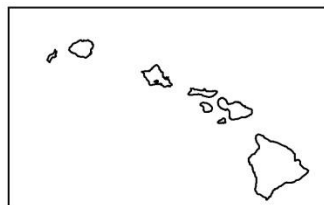
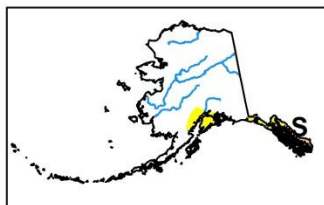
### Drought Impact Types:

- ~ Delineates dominant impacts
- S = Short-Term, typically less than 6 months (e.g. agriculture, grasslands)
- L = Long-Term, typically greater than 6 months (e.g. hydrology, ecology)

### Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

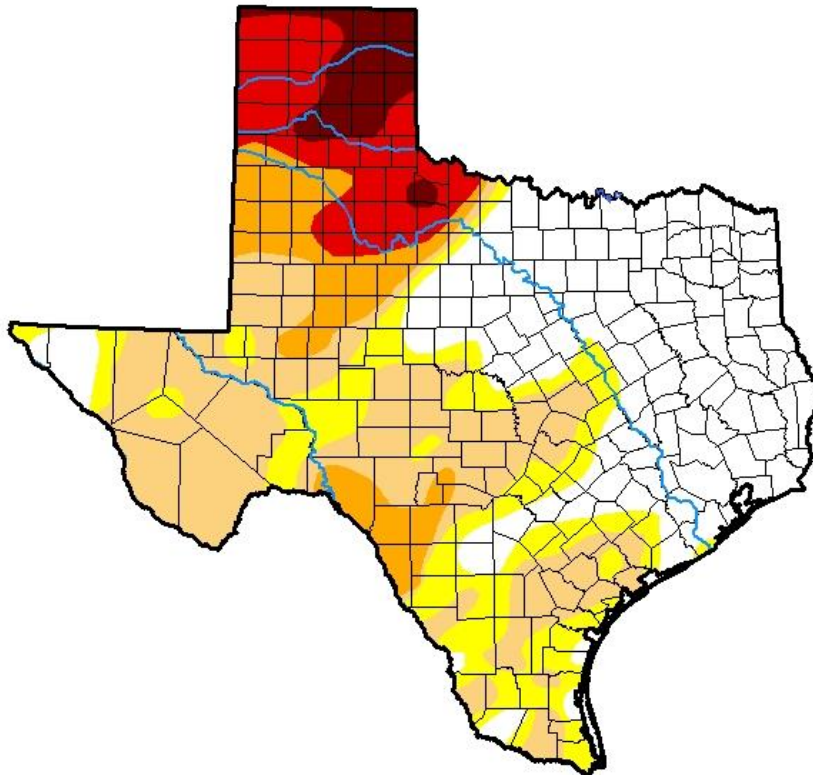


<http://droughtmonitor.unl.edu/>

# D4 - EXCEPTIONAL DROUGHT NOW UP TO 13.2% ... D0 to D4 65% of the entire state.. 75% of western half of TX

## U.S. Drought Monitor Texas

**April 10, 2018**  
(Released Thursday, Apr. 12, 2018)  
Valid 8 a.m. EDT



Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	34.90	65.10	49.01	22.20	13.21	4.27
<b>Last Week</b> 04-03-2018	33.29	66.71	49.43	21.57	13.21	1.47
<b>3 Months Ago</b> 01-09-2018	27.08	72.92	36.93	10.75	0.39	0.00
<b>Start of Calendar Year</b> 01-02-2018	33.37	66.63	33.56	5.94	0.11	0.00
<b>Start of Water Year</b> 09-26-2017	70.54	29.46	4.17	0.04	0.00	0.00
<b>One Year Ago</b> 04-11-2017	84.74	15.26	1.71	0.01	0.00	0.00

Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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# D4 - EXCEPTIONAL DROUGHT NOW UP TO 27% ... D0 to D4 97% of the entire state..

## U.S. Drought Monitor Kansas

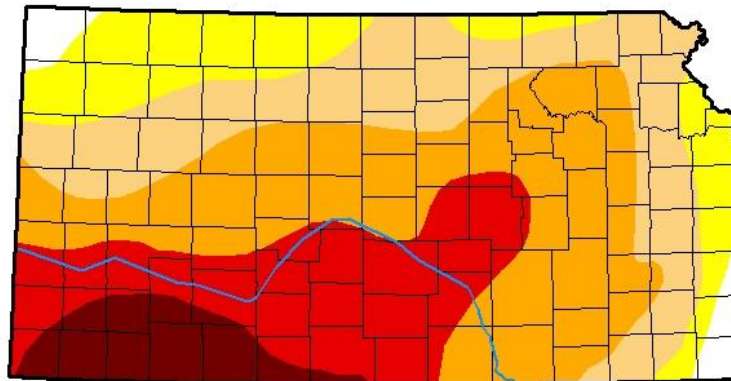
**April 10, 2018**

(Released Thursday, Apr. 12, 2018)

Valid 8 a.m. EDT

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	2.64	97.36	83.37	59.47	27.06	7.09
<b>Last Week</b> <small>04-03-2018</small>	2.64	97.36	81.66	56.19	25.59	4.32
<b>3 Months Ago</b> <small>01-09-2018</small>	0.00	100.00	52.43	17.23	1.50	0.00
<b>Start of Calendar Year</b> <small>01-02-2018</small>	0.00	100.00	32.70	8.75	0.00	0.00
<b>Start of Water Year</b> <small>09-26-2017</small>	59.89	40.11	10.08	1.35	0.00	0.00
<b>One Year Ago</b> <small>04-11-2017</small>	49.35	50.65	8.55	0.00	0.00	0.00



*Intensity:*

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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<http://droughtmonitor.unl.edu/>

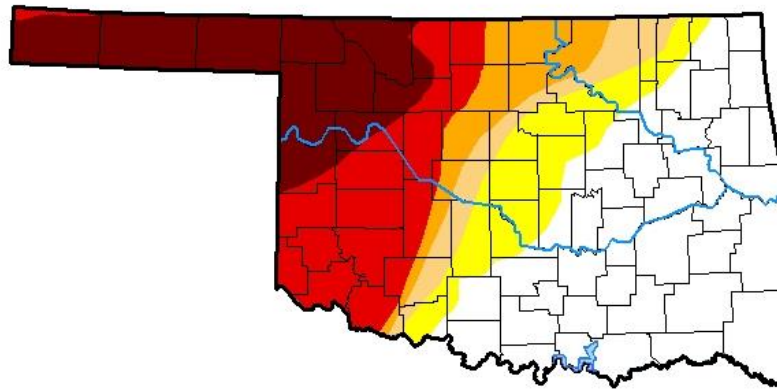
# D4 - EXCEPTIONAL DROUGHT NOW UP TO 35% ... D0 to D4 75% of western half of OK

## U.S. Drought Monitor Oklahoma

**April 10, 2018**  
(Released Thursday, Apr. 12, 2018)  
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	41.72	58.28	47.44	42.07	34.85	18.35
<b>Last Week</b> <i>04-03-2018</i>	41.72	58.28	47.44	42.07	34.85	15.11
<b>3 Months Ago</b> <i>01-09-2018</i>	0.00	100.00	82.65	42.11	7.03	0.00
<b>Start of Calendar Year</b> <i>01-02-2018</i>	0.00	100.00	77.15	38.76	0.00	0.00
<b>Start of Water Year</b> <i>09-26-2017</i>	64.46	35.54	0.77	0.00	0.00	0.00
<b>One Year Ago</b> <i>04-11-2017</i>	23.65	76.35	50.92	13.65	0.00	0.00



Intensity:

- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

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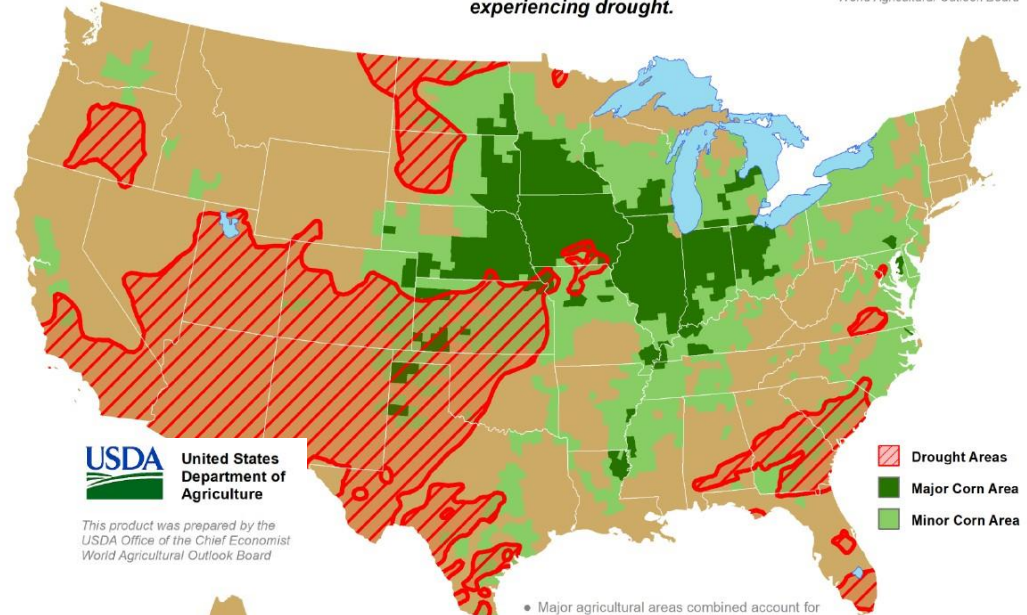
# CORN & SOYBEANS SO FAR NOT IMPACTED BY SEVERE DROUGHT IN LOWER PLAINS

## U.S. Corn Areas Experiencing Drought

Reflects April 10, 2018 U.S. Drought Monitor data

Approximately 8% of corn production is within an area experiencing drought.

This product was prepared by the USDA Office of the Chief Economist World Agricultural Outlook Board



This product was prepared by the USDA Office of the Chief Economist World Agricultural Outlook Board

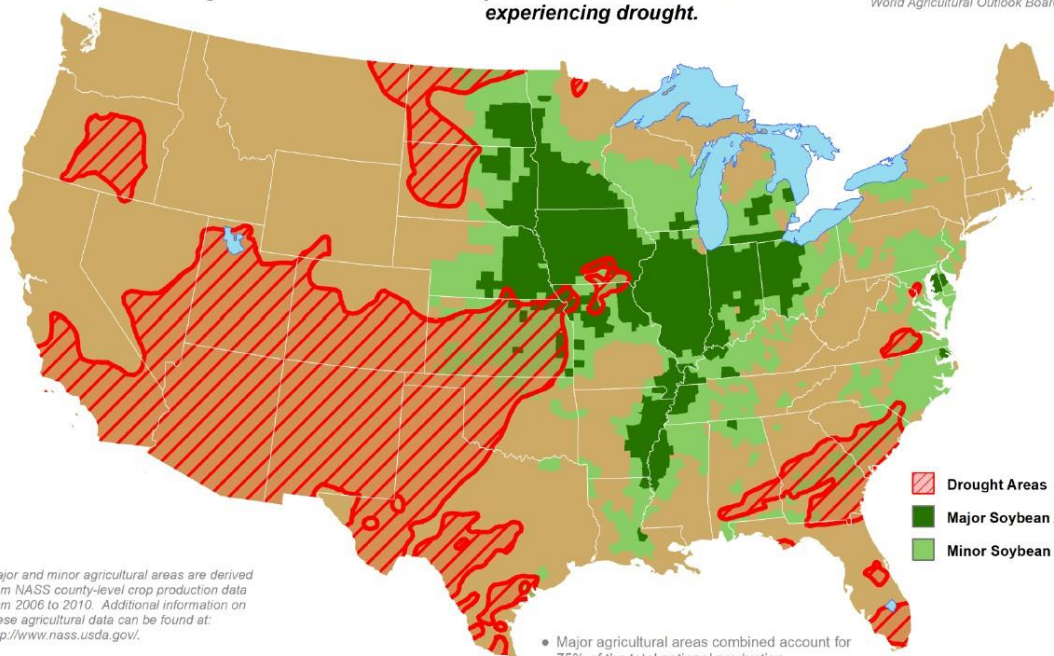
- Drought Areas
- Major Corn Area
- Minor Corn Area

- Major agricultural areas combined account for 75% of the total national production.
- Major and minor agricultural areas combined account for 99% of the total national production.

## U.S. Soybean Areas Experiencing Drought

Reflects April 10, 2018 U.S. Drought Monitor data

Approximately 6% of soybean production is within an area experiencing drought.



- Drought Areas
- Major Soybean Area
- Minor Soybean Area

- Major agricultural areas combined account for 75% of the total national production.
- Major and minor agricultural areas combined account for 99% of the total national production.

Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: <http://www.nass.usda.gov/>.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

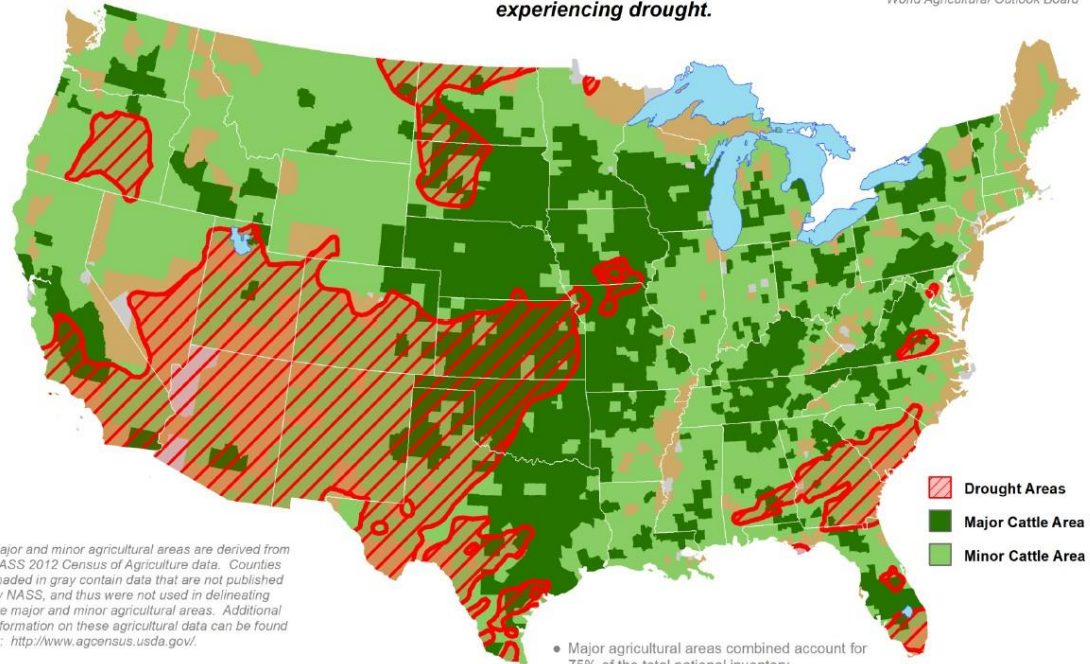


# CATTLE IS BEING IMPACTED BY SEVERE DROUGHT IN LOWER PLAINS... Especially NM TX OK KS

## U.S. Cattle Areas Experiencing Drought

Reflects April 10, 2018  
U.S. Drought Monitor data

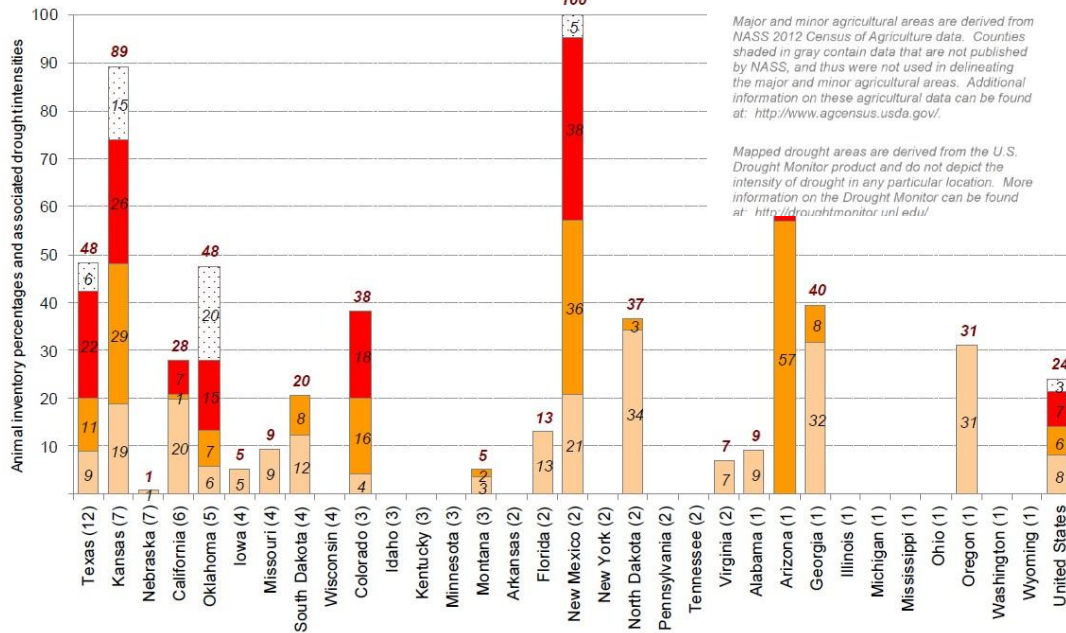
Approximately 24% of cattle inventory is within an area experiencing drought.



Drought Areas  
 Major Cattle Area  
 Minor Cattle Area

- Major agricultural areas combined account for 75% of the total national inventory.
- Major and minor agricultural areas combined account for 99% of the total national inventory.

Approximate Percentage of Cattle Located in April 10, 2018



Major and minor agricultural areas are derived from NASS 2012 Census of Agriculture data. Counties shaded in gray contain data that are not published by NASS, and thus were not used in delineating the major and minor agricultural areas. Additional information on these agricultural data can be found at: <http://www.agcensus.usda.gov/>.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>

\* Drought percentages were calculated from U.S. Drought Monitor (USDM) data for the above date. More information on the USDM is available at <http://droughtmonitor.unl.edu/>.

Percent in Moderate Drought (D1) Percent in Severe Drought (D2)  
 Percent in Extreme Drought (D3) Percent in Exceptional Drought (D4)

State contributions to the total national inventory (percentages in parentheses) are based upon National Agricultural Statistics Service (NASS) 2012 Census of Agriculture data. More information on NASS data can be found at <http://www.nass.usda.gov/>.



# 38% OF HRWW BEING IMPACTED ... Not a surprise

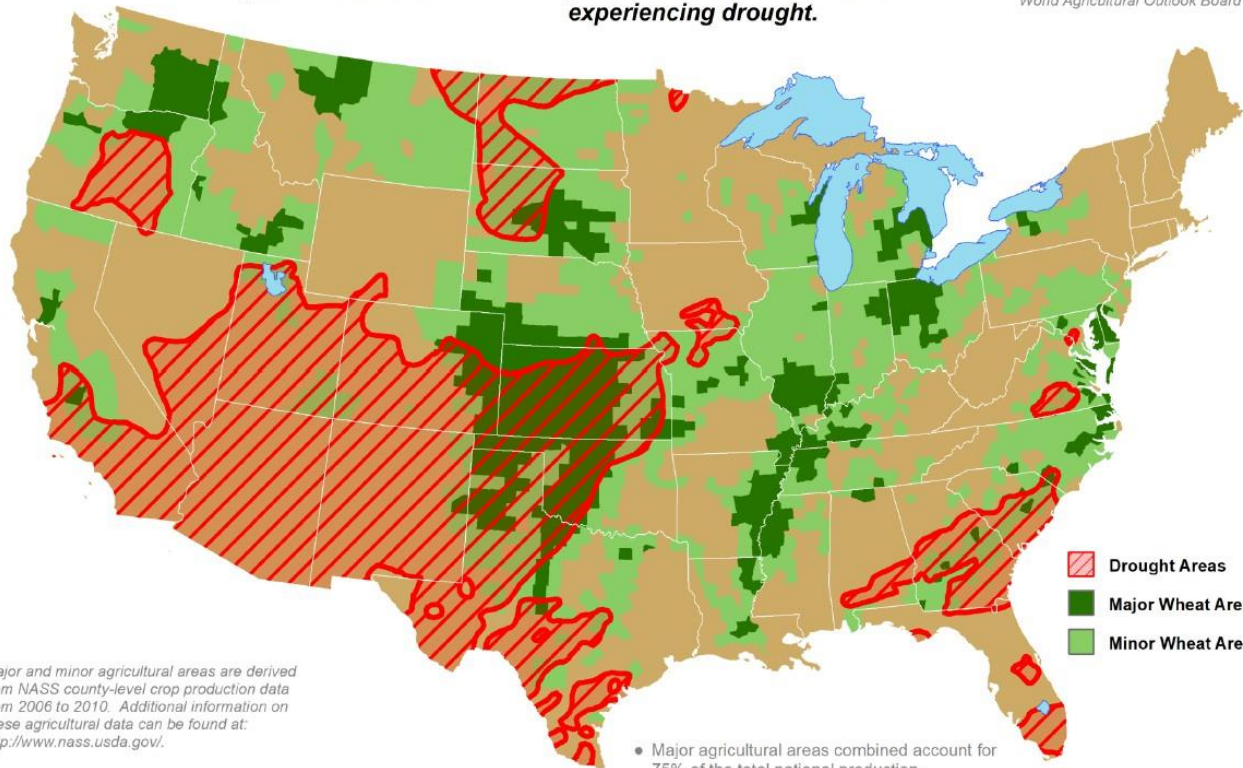
## U.S. Winter Wheat Areas Experiencing Drought

Reflects April 10, 2018  
U.S. Drought Monitor data

Approximately 38% of winter wheat  
production is within an area  
experiencing drought.



This product was prepared by the  
USDA Office of the Chief Economist  
World Agricultural Outlook Board



- Drought Areas
- Major Wheat Area
- Minor Wheat Area

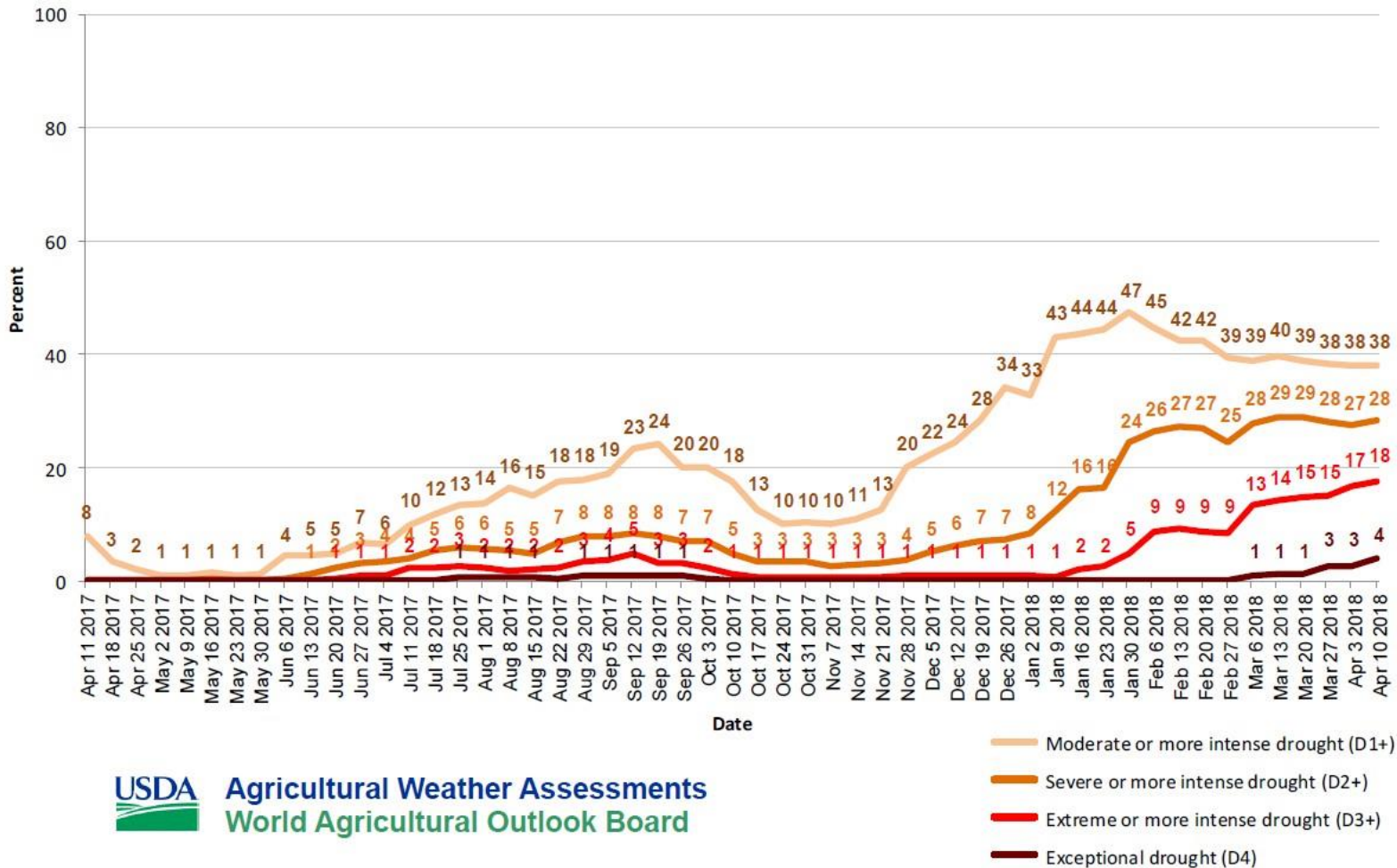
Major and minor agricultural areas are derived from NASS county-level crop production data from 2006 to 2010. Additional information on these agricultural data can be found at: <http://www.nass.usda.gov/>.

Mapped drought areas are derived from the U.S. Drought Monitor product and do not depict the intensity of drought in any particular location. More information on the Drought Monitor can be found at: <http://droughtmonitor.unl.edu/>.

- Major agricultural areas combined account for 75% of the total national production.
- Major and minor agricultural areas combined account for 99% of the total national production.

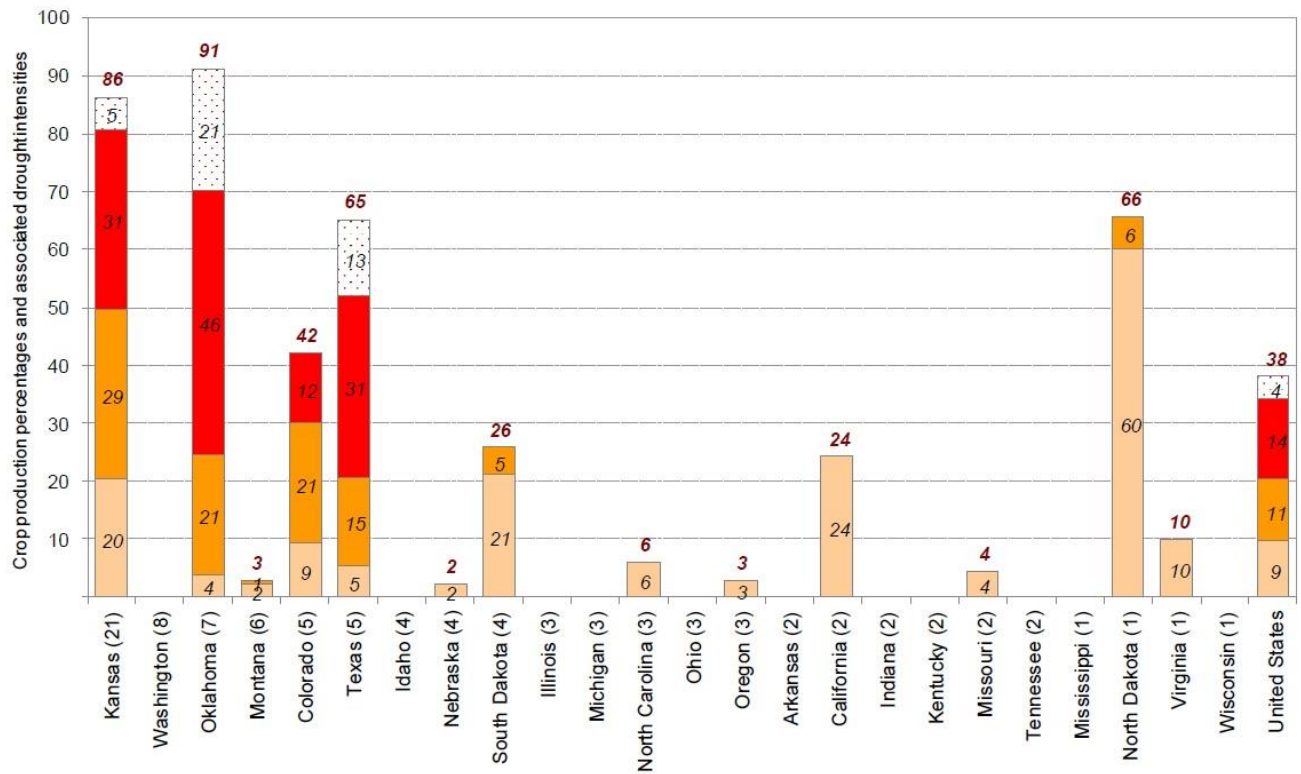
# A great graph from USDA that says a lot ...

## United States Winter Wheat Areas Located in Drought



# HRWW IN KS OK COL TX SEEING BIGGEST IMPACTS FOR THE DROUGHT

Approximate Percentage of Winter Wheat Located in Drought \*  
April 10, 2018



\* Drought percentages were calculated from U.S. Drought Monitor (USDM) data for the above date. More information on the USDM is available at <http://droughtmonitor.unl.edu/>.

- Percent in Moderate Drought (D1)
- Percent in Severe Drought (D2)
- Percent in Extreme Drought (D3)
- Percent in Exceptional Drought (D4)

State contributions to national production (percentages in parentheses) are based upon National Agricultural Statistics Service (NASS) 5-year averages from 2006-2010. More information on NASS data can be found at <http://www.nass.usda.gov/>.



# SPRING WHEAT AREAS SEEING SOME IMPACT BUT ITS DECLINING WITH INCREASING SNOW AND RAIN ...and MORE IN THE WAY

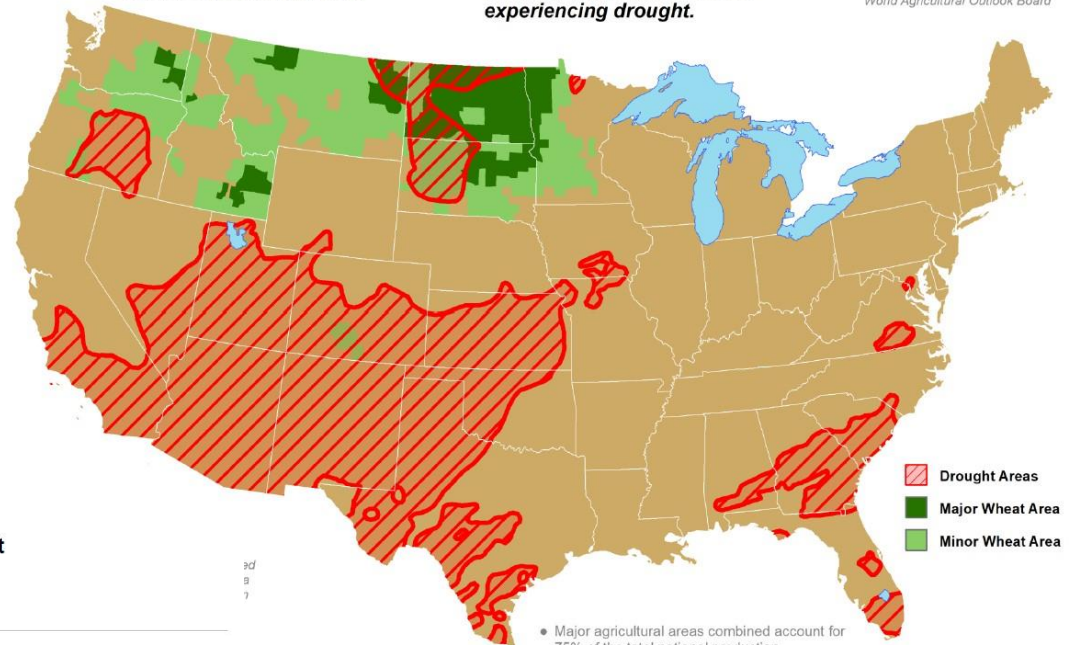
## U.S. Spring Wheat Areas Experiencing Drought

Reflects April 10, 2018  
U.S. Drought Monitor data

Approximately 27% of spring wheat production is within an area experiencing drought.



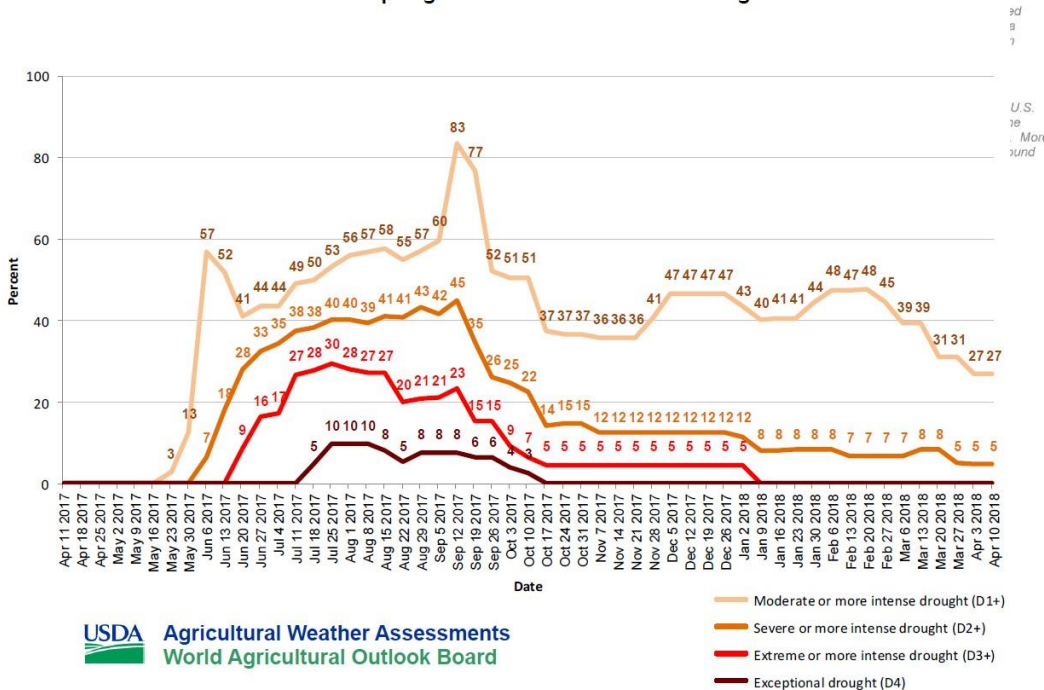
This product was prepared by the USDA Office of the Chief Economist World Agricultural Outlook Board



- ▨ Drought Areas
- Major Wheat Area
- Minor Wheat Area

- Major agricultural areas combined account for 75% of the total national production.
- Major and minor agricultural areas combined account for 99% of the total national production.

United States Spring Wheat Areas Located in Drought

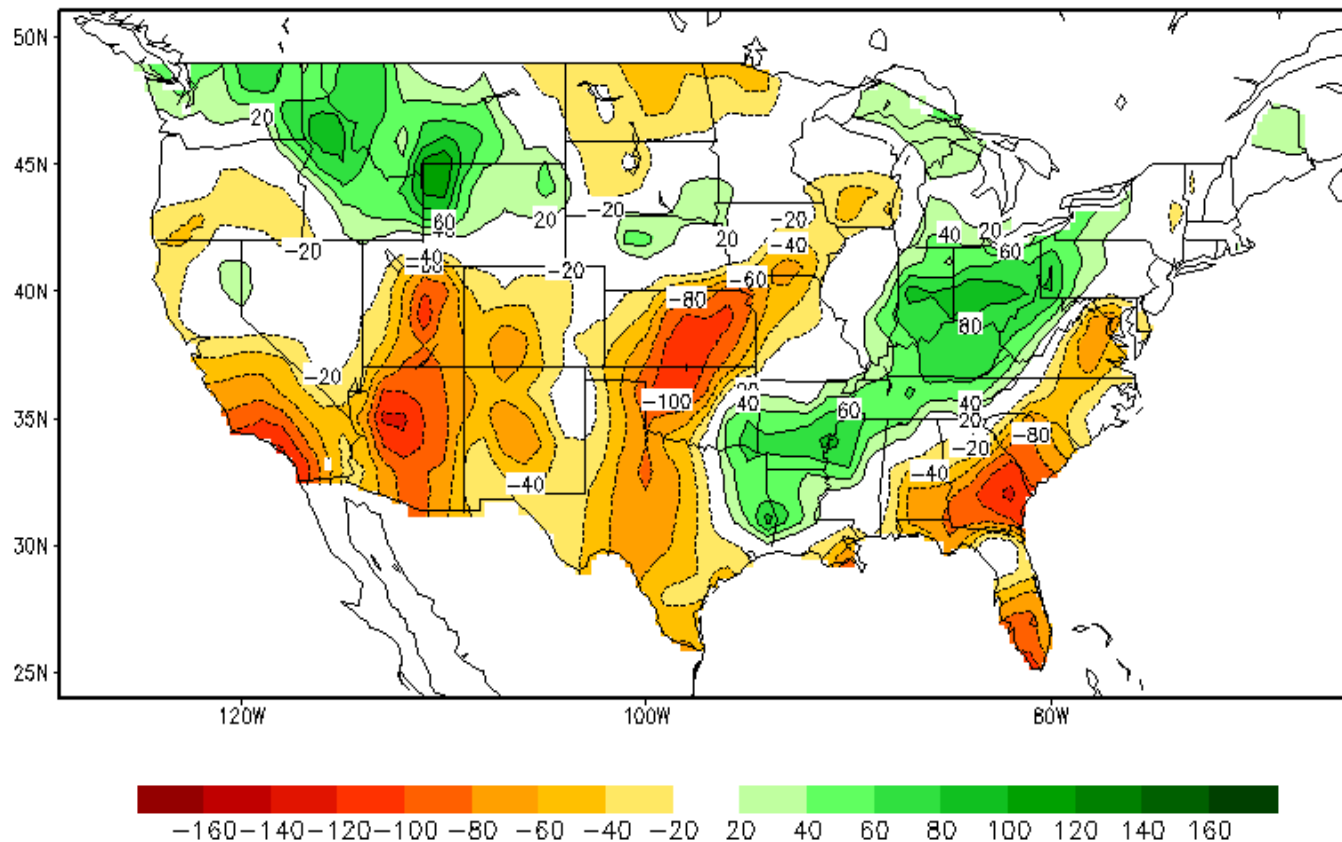


U.S. Drought Monitor



# SOUTHWEST USA INTO LOWER PLAINS DRY/ DROUGHT .. DELTA/ ECB = WET / SATURDATED

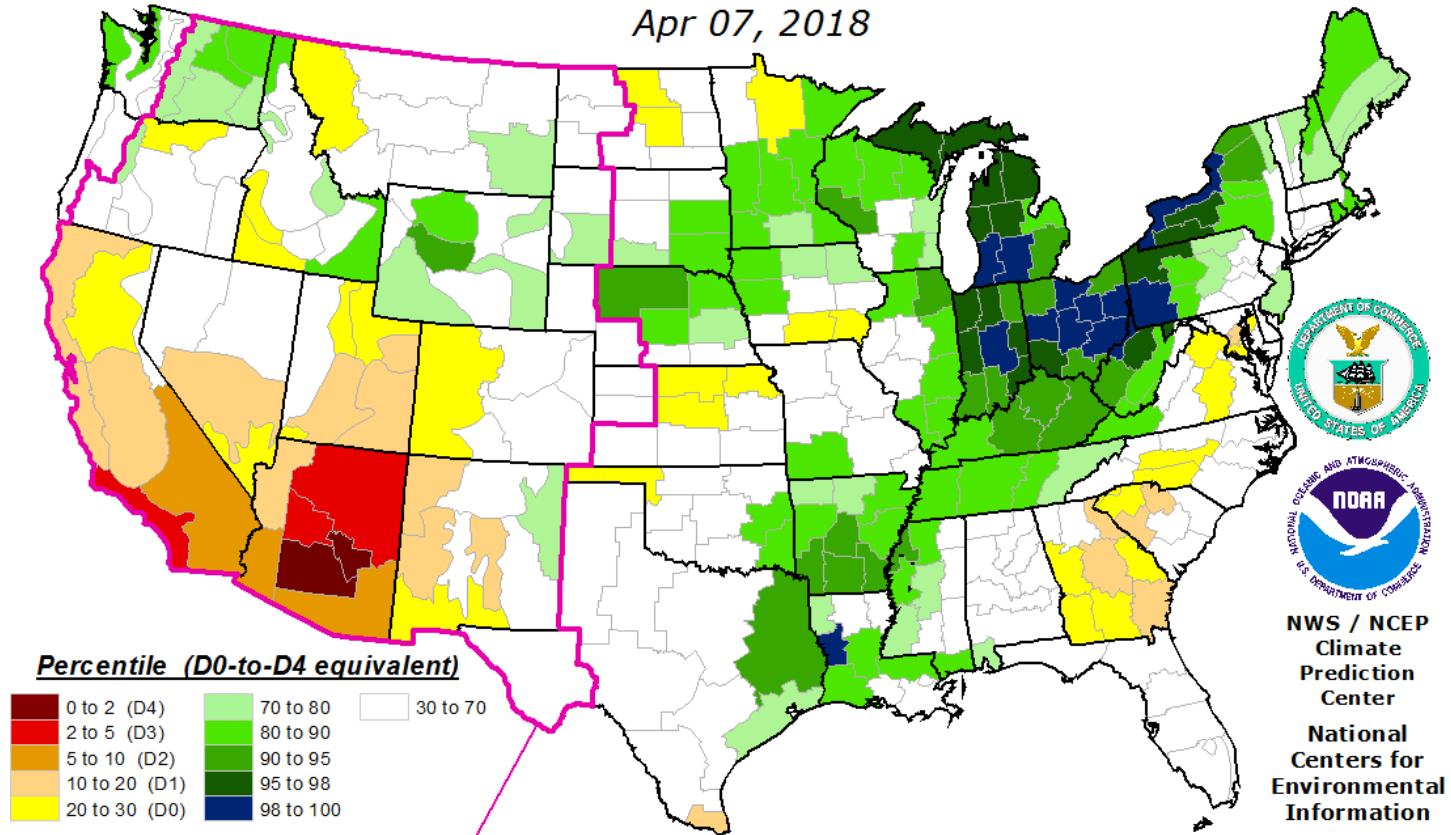
Calculated Soil Moisture Anomaly (mm)  
APR 11, 2018



**LONG TERM DROUGHT / MOISTURE = ECB & DELTA quite wet may have implications for the Summer if this trend continues.. DROUGHT over lower Plains is a relatively RECENT development so it does not show up on this image**

**Objective Long-Term Drought Indicator Blend Percentiles**

Apr 07, 2018



**Percentile (D0-to-D4 equivalent)**

0 to 2 (D4)	70 to 80	30 to 70
2 to 5 (D3)	80 to 90	
5 to 10 (D2)	90 to 95	
10 to 20 (D1)	95 to 98	
20 to 30 (D0)	98 to 100	

**Inputs (as percentiles):**

- 25% Palmer Hydrologic Index
- 20% 24-Month Precipitation
- 20% 12-Month Precipitation
- 15% 6-Month Precipitation
- 10% 60-Month Precipitation
- 10% CPC Soil Moisture Model

**Western Formulation Inputs (as percentiles):**

- 30% Palmer Hydrologic Index
- 30% 60-Month Average Z-Index
- 10% 60-Month Precipitation
- 10% 24-Month Precipitation
- 10% 12-Month Precipitation
- 10% CPC Soil Moisture Model

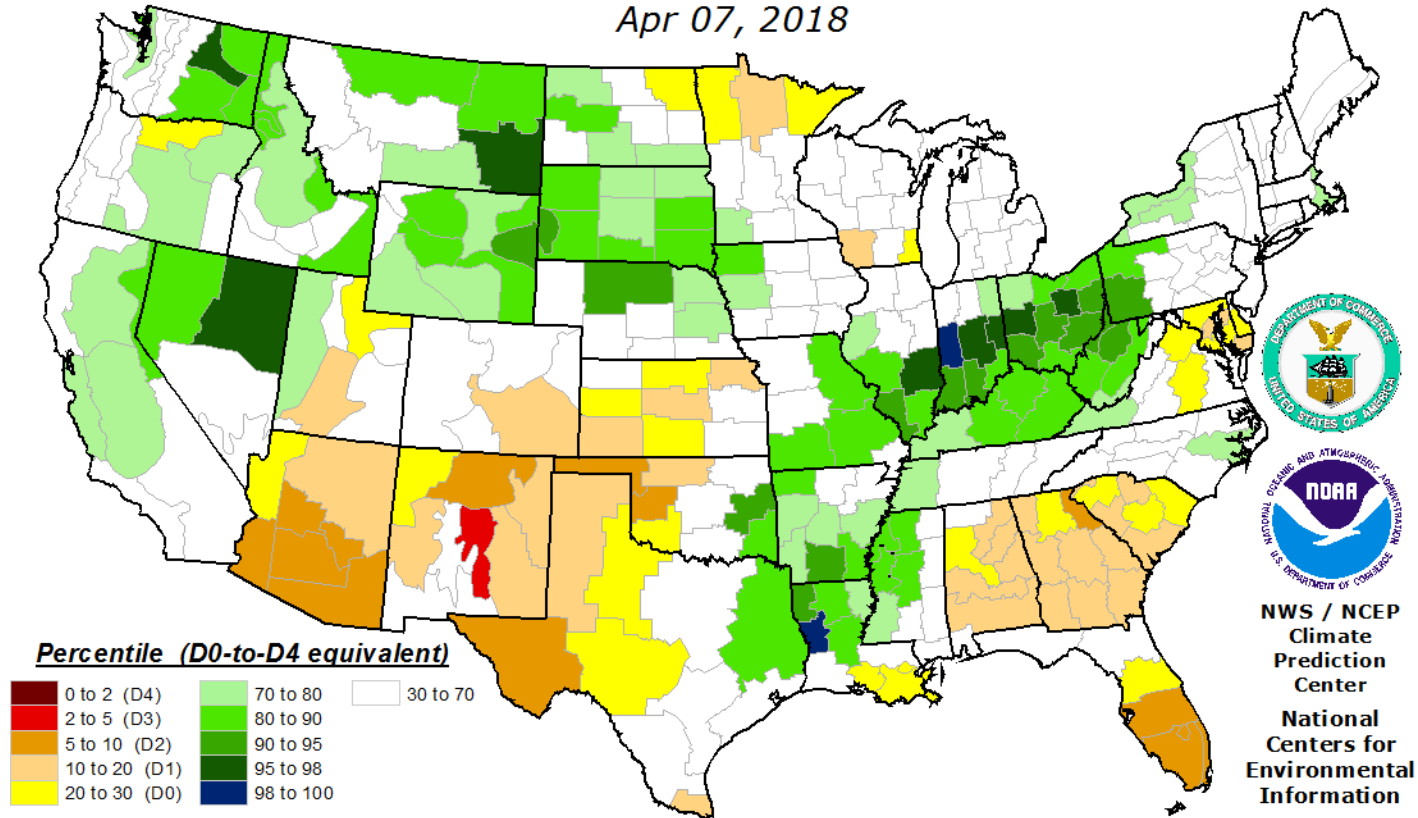
This map approximates impacts responding to precipitation over the course of several months to a few years, such as reservoir content, groundwater, and lake levels. **HOWEVER, THE RELATIONSHIP BETWEEN INDICATORS AND WATER SUPPLIES CAN VARY MARKEDLY WITH LOCATION, SEASON, SOURCE, AND MANAGEMENT PRACTICE. Do not interpret this map too literally.**

This map is based on preliminary climate division data. Local conditions and/or final data may differ. See the detailed product suite description for more details.

**SHORT TERM DROUGHT / MOISTURE = note here the DROUGHT does show up over Plains ... BUT still the ECB & DELTA continues to see above normal moisture. ALSO note the Greens over the Upper Plains that reflect the recent big rains and snow these areas have seen**

***Objective Short-Term Drought Indicator Blend Percentiles***

*Apr 07, 2018*



**Inputs (as percentiles):**

- 35% Palmer Z-Index
- 25% 3-Month Precipitation
- 20% 1-Month Precipitation
- 13% CPC Soil Moisture Model
- 7% Palmer Drought Index

This map approximates impacts that respond to precipitation over several days to a few months, such as agriculture, topsoil moisture, unregulated streamflows, and most aspects of wildfire danger. The relationship between indicators and impacts can vary significantly with location and season. Do not interpret this map too literally.

This map is based on preliminary climate division data. Local conditions and/or final data may differ. See the detailed product suite description for more details.



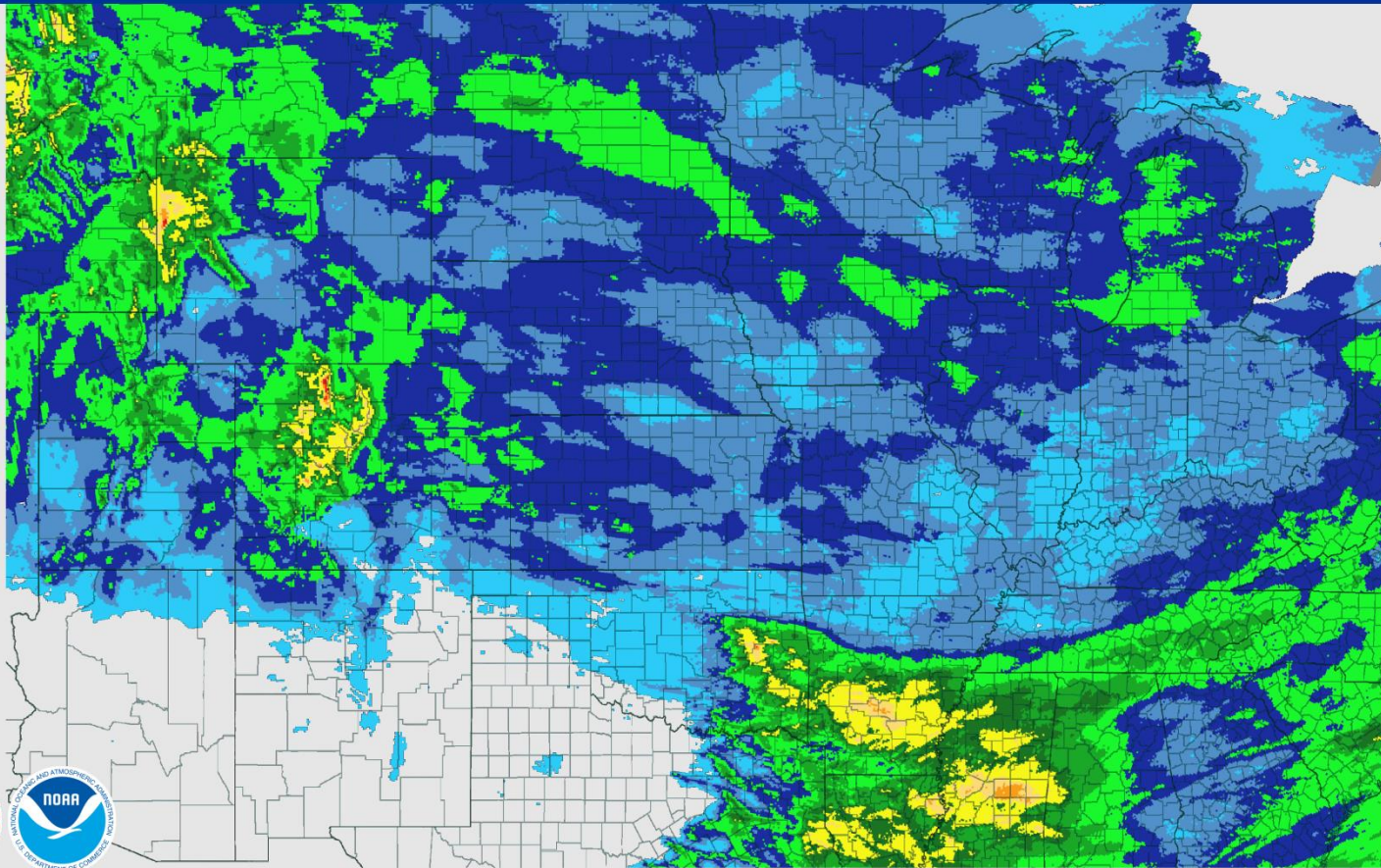
# PRECIP AMOUNTS PAST 7 DAYS

—Minor precip in KS NEB eastern COL 0.25-1.0"/6-25mm and over eastern SD northwest / central IA .... 0.50-3.0"/ 12-100mm over far se OK southern ARK LA all of MS west AL se TN

April 12, 2018 7-Day Observed Precipitation

Created on: April 13, 2018 - 11:35 UTC

Valid on: April 12, 2018 12:00 UTC



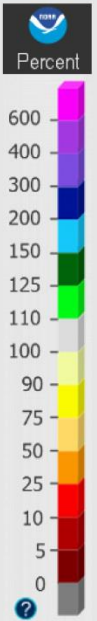
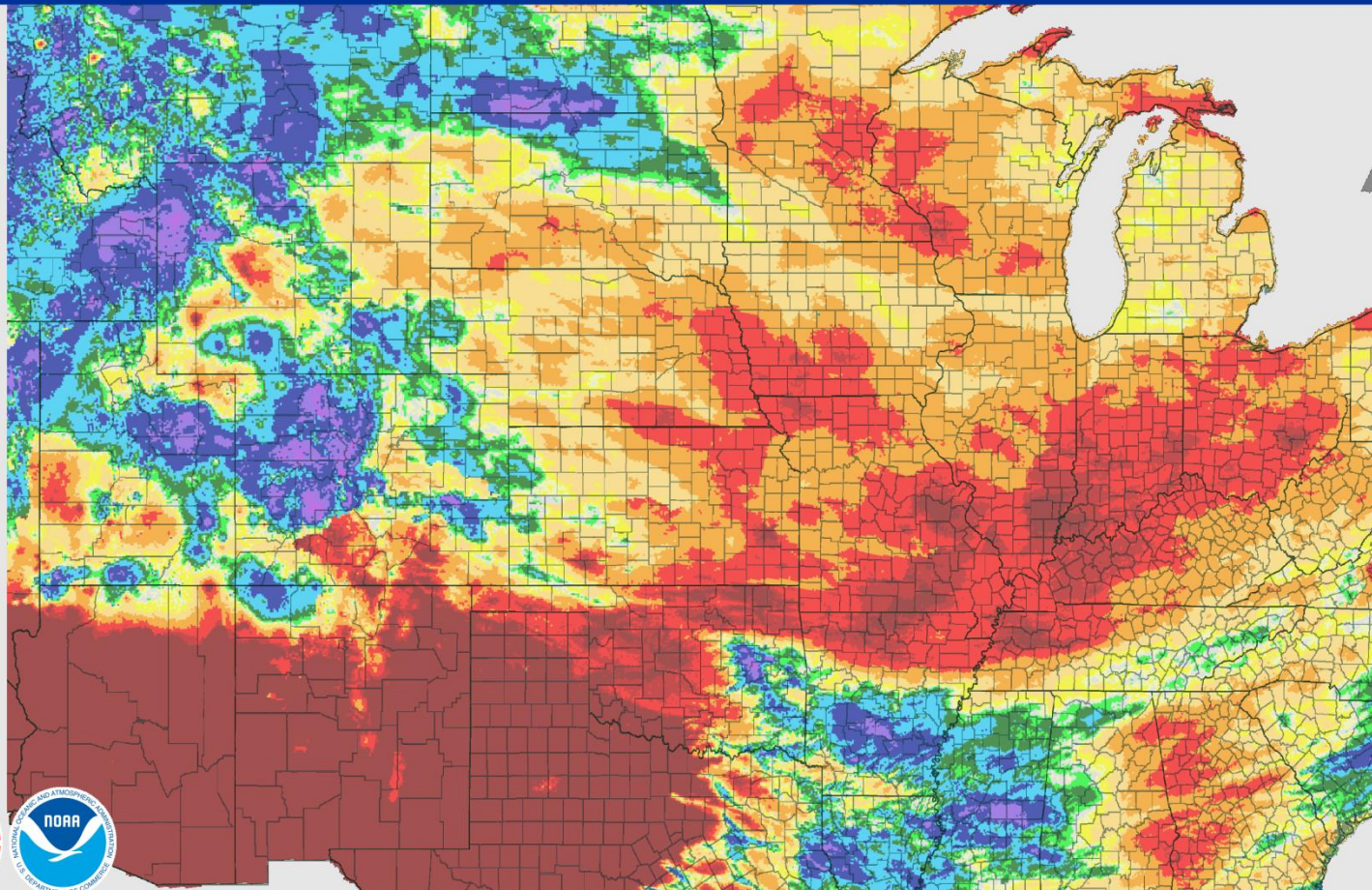


# PRECIP ANOMALIES PAST 7D – no rains Over TX Panhandle/ western half of TX western OK...western KS 50-100% but east KS 5-25% of Normal which extended into MO south ILL IND OH KY... 25-75% over NEB SD WCB

April 12, 2018 7-Day Percent Precipitation

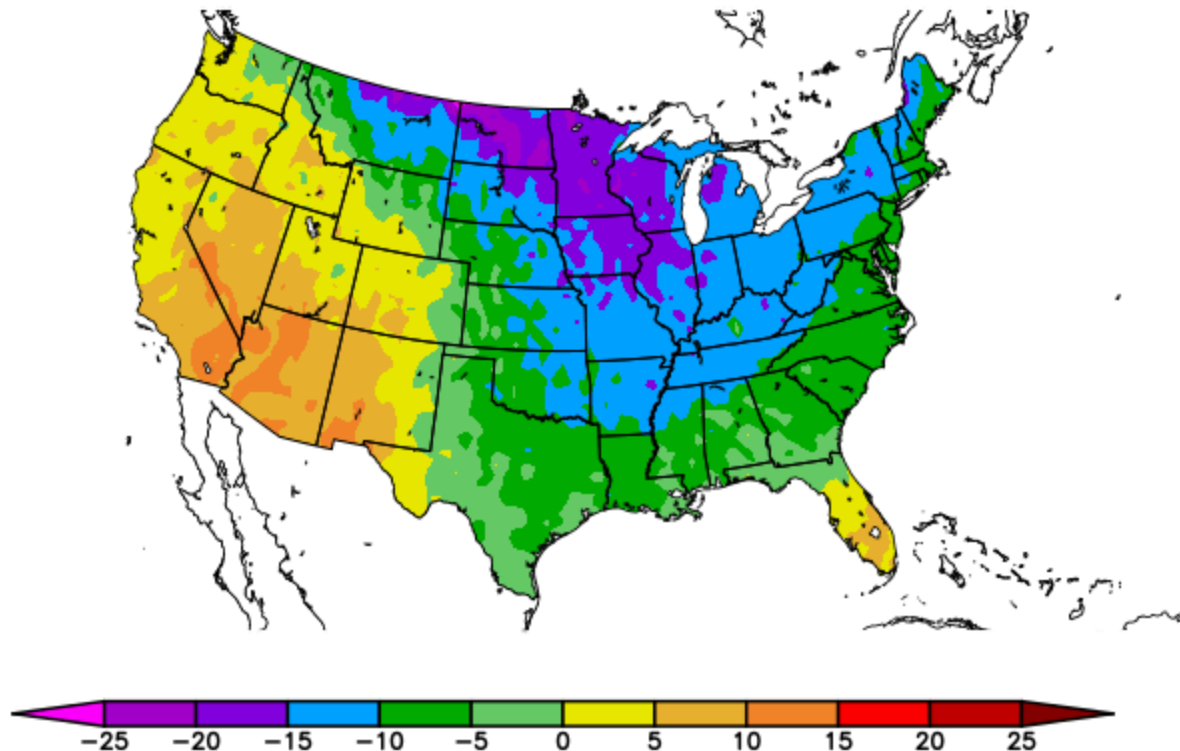
Created on: April 13, 2018 - 11:36 UTC

Valid on: April 12, 2018 12:00 UTC



# TEMP ANOMALIES PAST 7 DAYS - for APRIL this is brutal

Departure from Normal Temperature (F)  
4/5/2018 - 4/11/2018



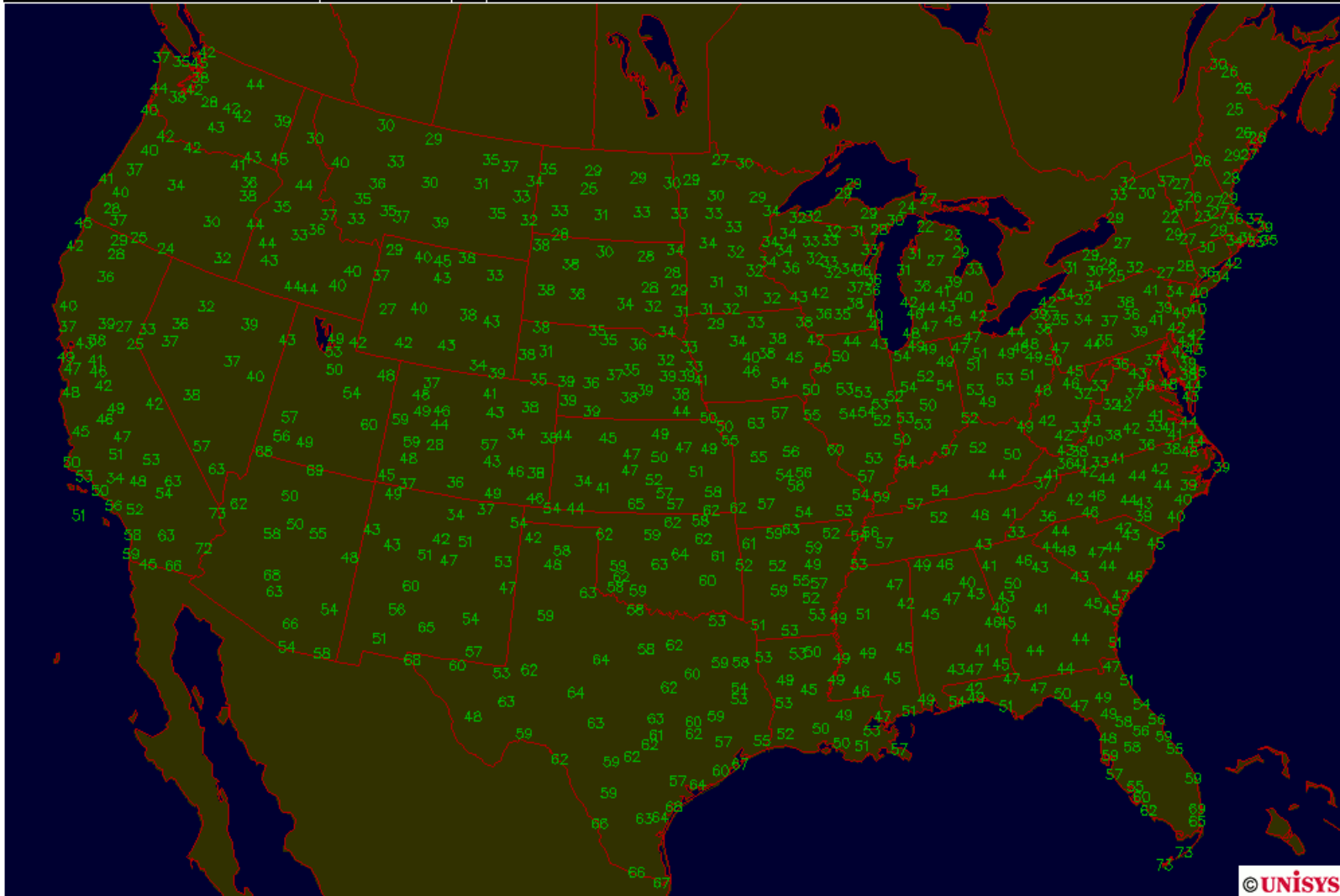
Generated 4/12/2018 at HPRCC using provisional data.

NOAA Regional Climate Centers

# NOT nearly as cold... Temps stayed above 45 in most of ECB DELTA Lower Plains

Surface Minimum temperature [F]

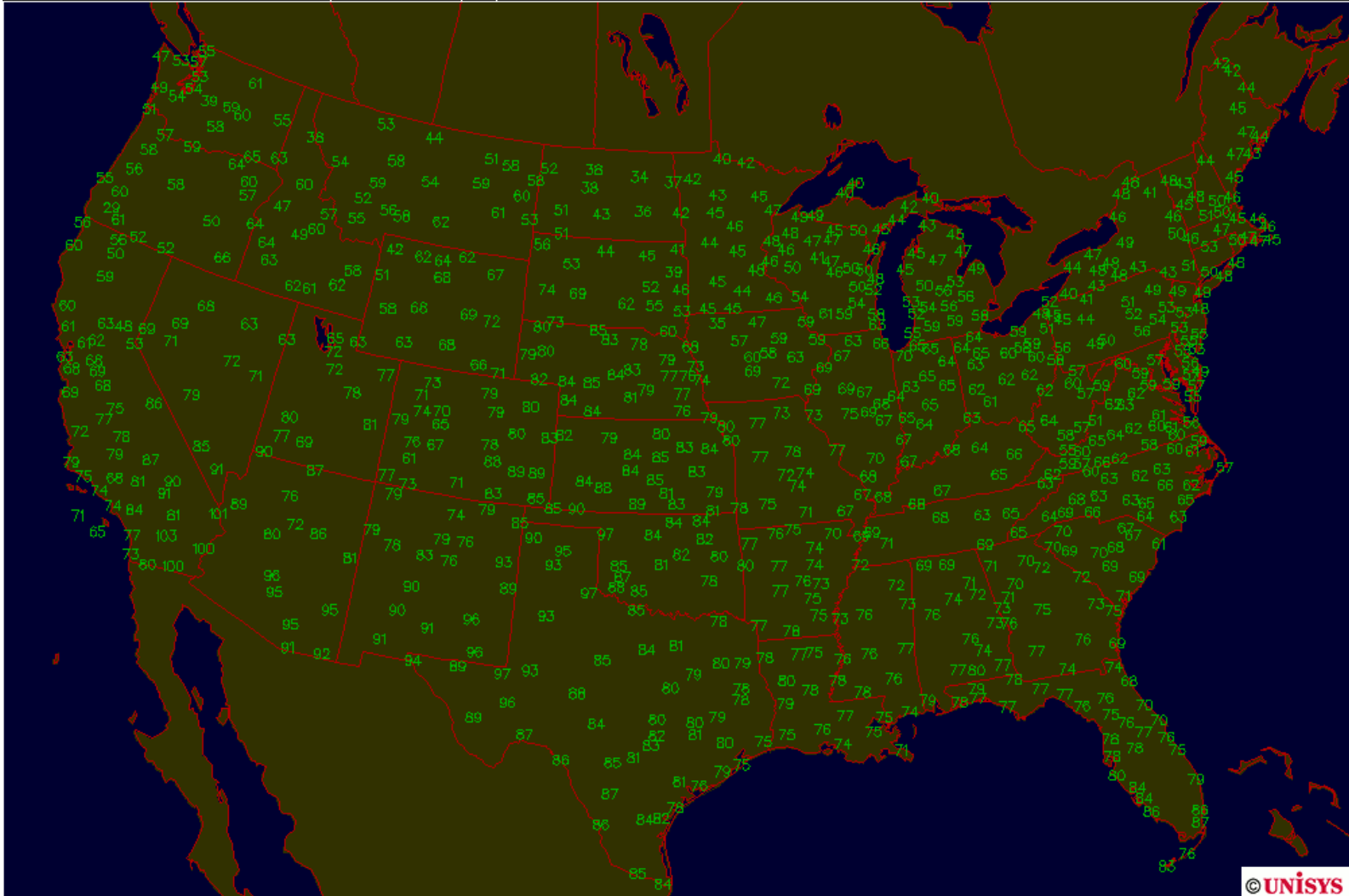
Data for 12Z 12 APR 18



# ACTUALLY hot in lower Plains and warm in the Midwest

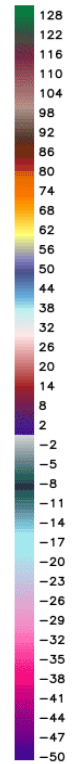
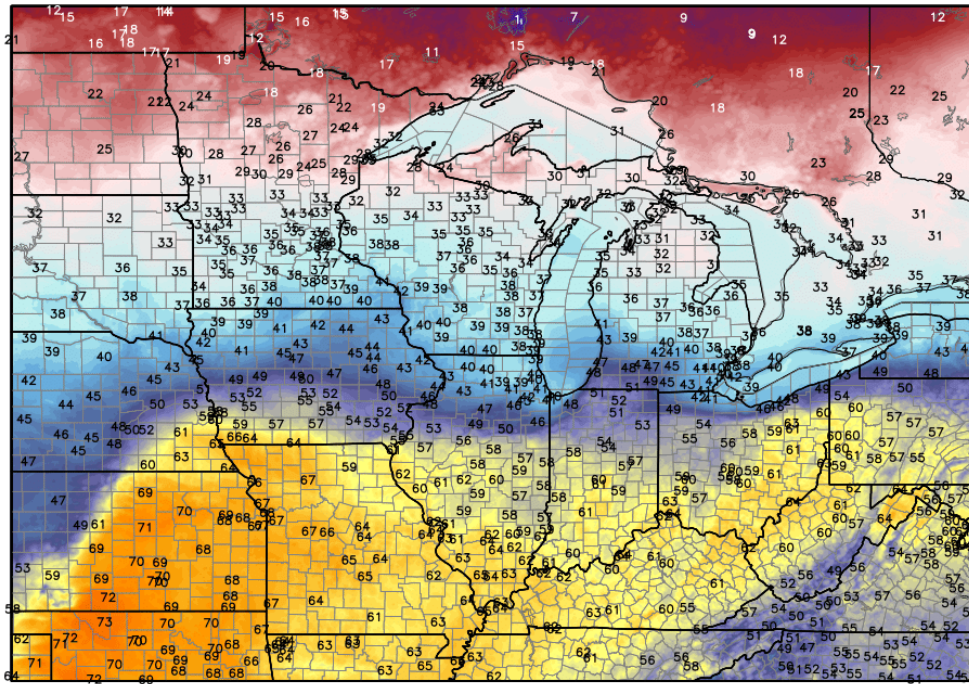
Surface Maximum temperature [F]

Data for 00Z 12 APR 18



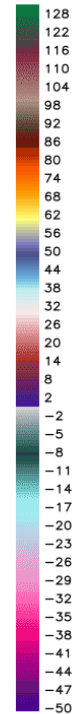
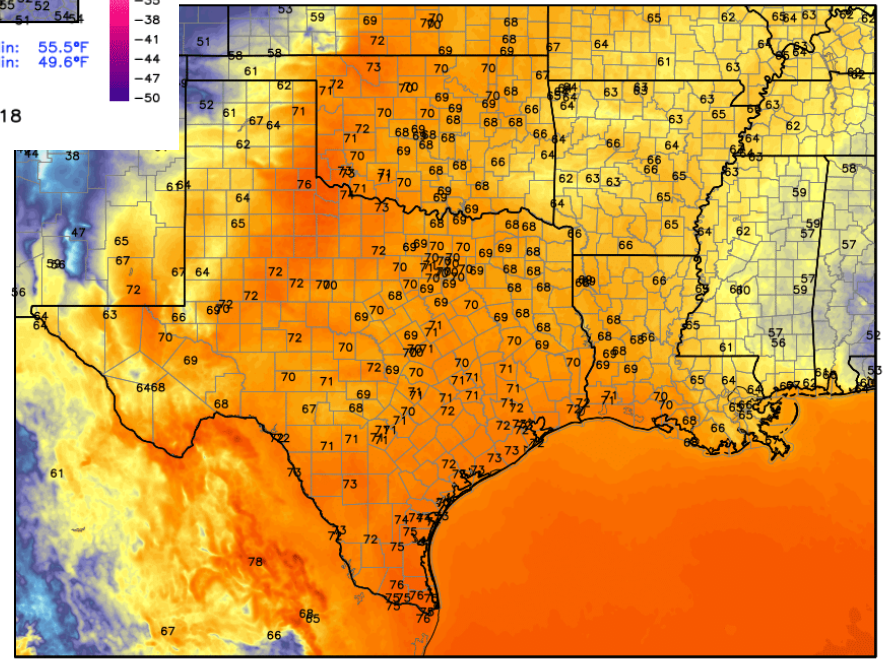


# FRIAY MIN TEMPS -- huge contrast over WCB



Iowa: Max: 67.3°F Avg: 48.2°F Min: 36.3°F  
 Ohio: Max: 66.0°F Avg: 57.1°F Min: 39.5°F  
 Indiana: Max: 64.5°F Avg: 56.7°F Min: 38.8°F  
 Minnesota: Max: 44.0°F Avg: 29.4°F Min: 10.8°F  
 Wisconsin: Max: 44.5°F Avg: 35.5°F Min: 19.4°F  
 Illinois: Max: 65.9°F Avg: 54.9°F Min: 37.8°F  
 Michigan: Max: 52.7°F Avg: 35.2°F Min: 20.9°F

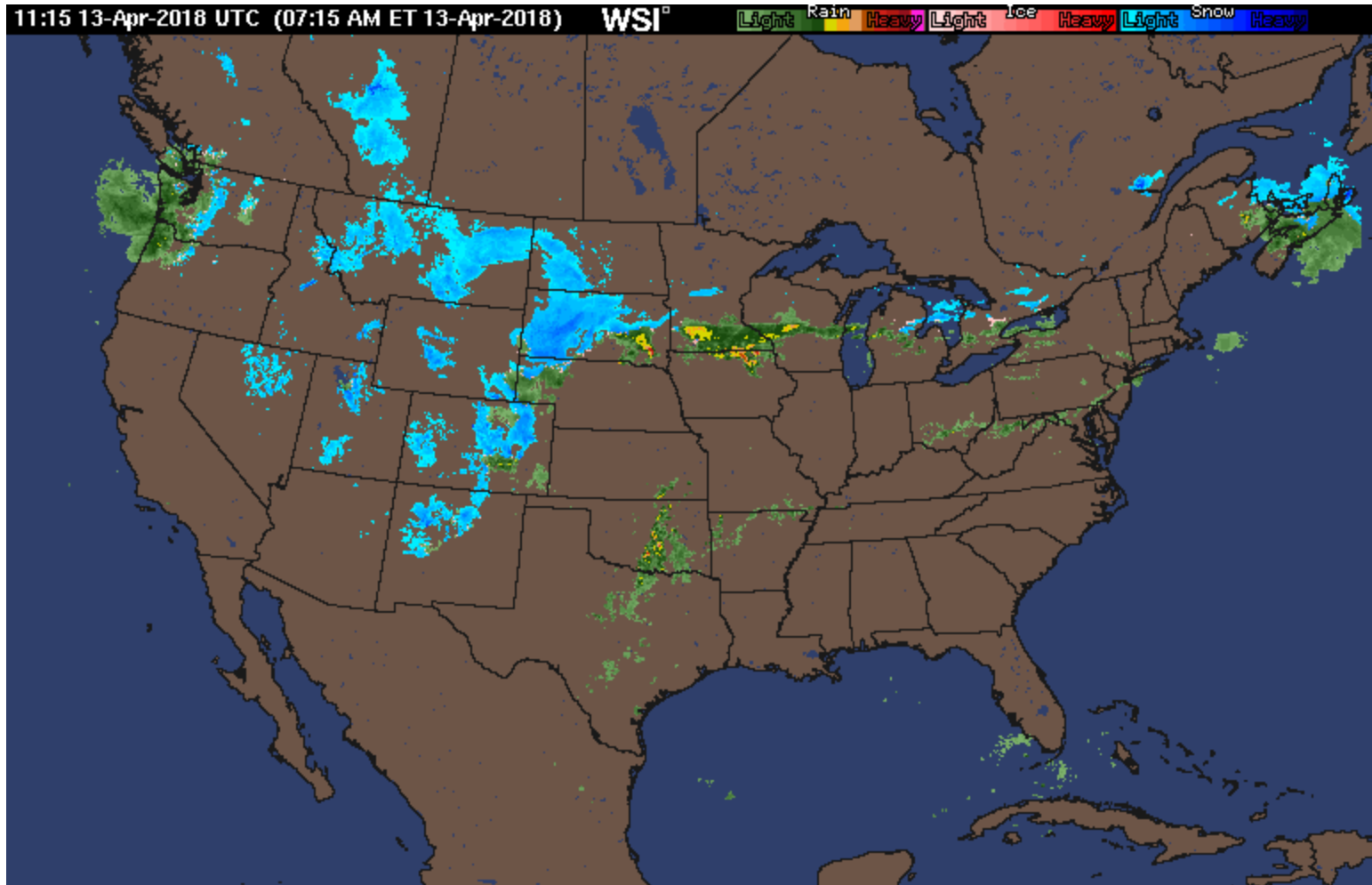
Missouri: Max: 69.1°F Avg: 64.1°F Min: 55.5°F  
 Kentucky: Max: 66.6°F Avg: 61.2°F Min: 49.6°F  
 NCEP RTMA (2.5km)  
 2-meter Temp [°F] 10Z13APR2018  
 WeatherBELL Models



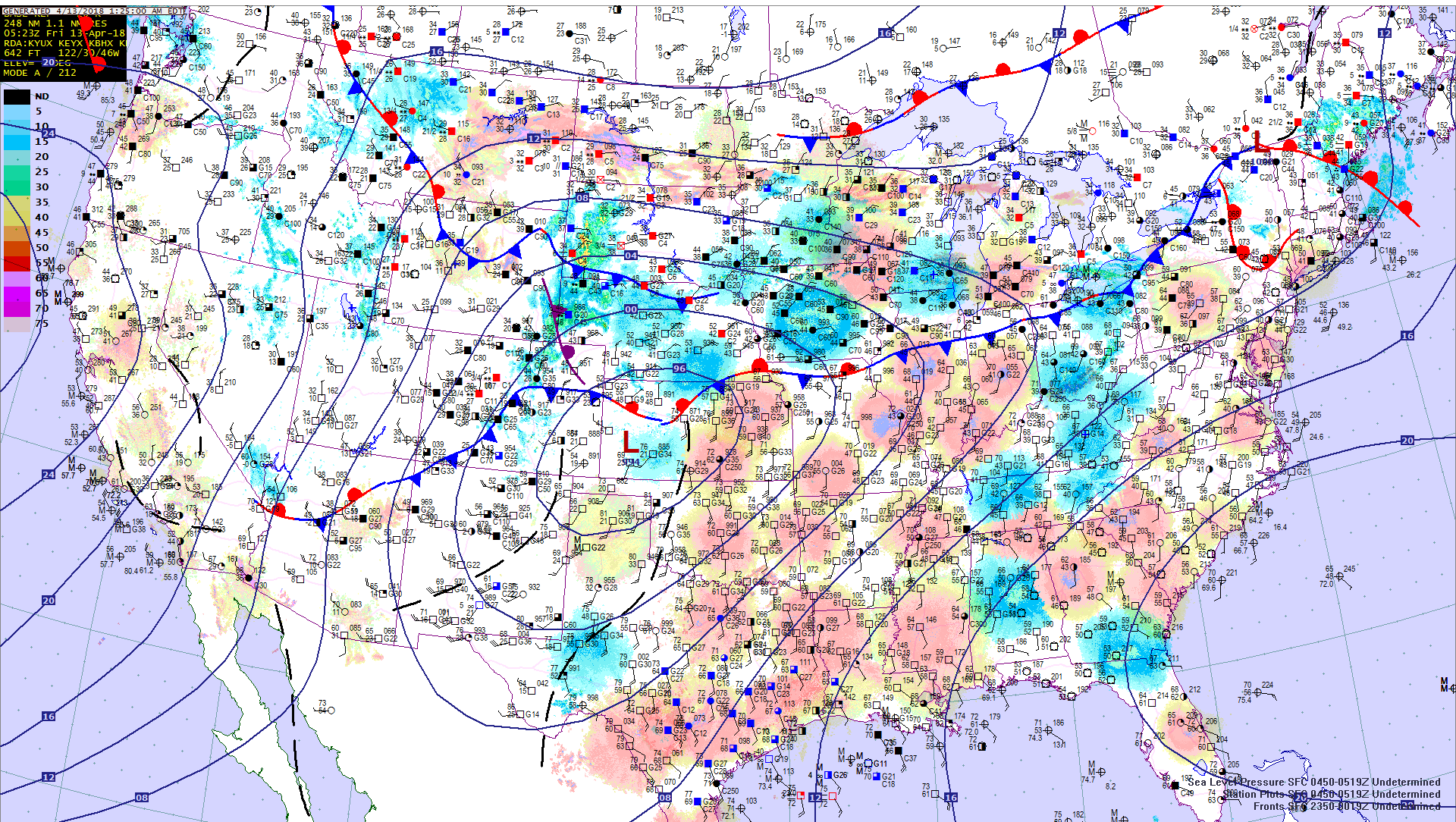
Arkansas: Min: 58.7°F Max: 67.6°F Avg: 64.3°F  
 Louisiana: Min: 59.4°F Max: 73.9°F Avg: 67.3°F  
 Oklahoma: Min: 44.6°F Max: 76.6°F Avg: 68.1°F  
 Texas: Min: 43.8°F Max: 78.5°F Avg: 69.2°F

NCEP RTMA (2.5km)  
 2-meter Temp [°F] 10Z13APR2018  
 WeatherBELL Models

# RADAR FRIDAY 8AM EDT

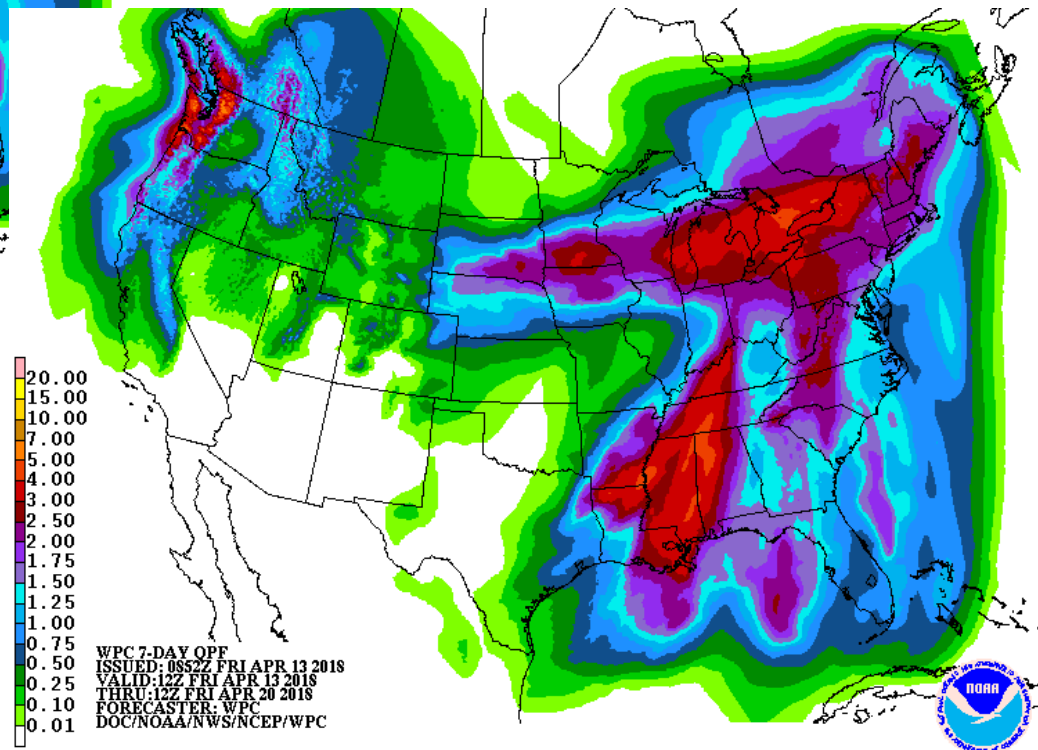
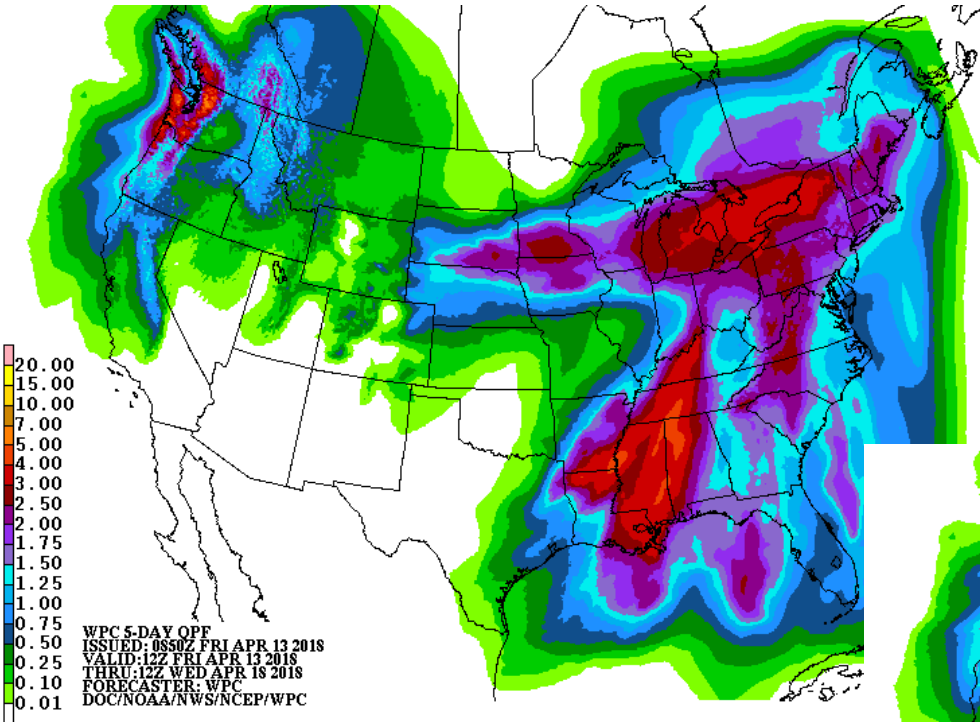


# FRIDAY AM SURFACE MAP 1<sup>st</sup> OF SERIES OF MODERATE TO MASSIVE SURFACE LOW PRESSURE AREAS TO AFFECT PLAINS/MIDWEST DELTA OVER NEXT 17 DAYS





# NWS OFFICIAL RAINFALL NEXT 5 DAYS – and next 7 days - nothing for HRWW areas while excessive rains for Delta and ECB continue



**PATTERN REMAINS ACTIVE / STORMY FOR  
NEXT 3 WEEKS AT LEAST ...**

**AT LEAST 4 MODERATE/ MAJOR SURFACE LOW  
PRESSURE AREAS AND SOME RISK OF  
SIGNIFICANT RAIN OVER HRWW AREAS**

**APRIL 13-14**

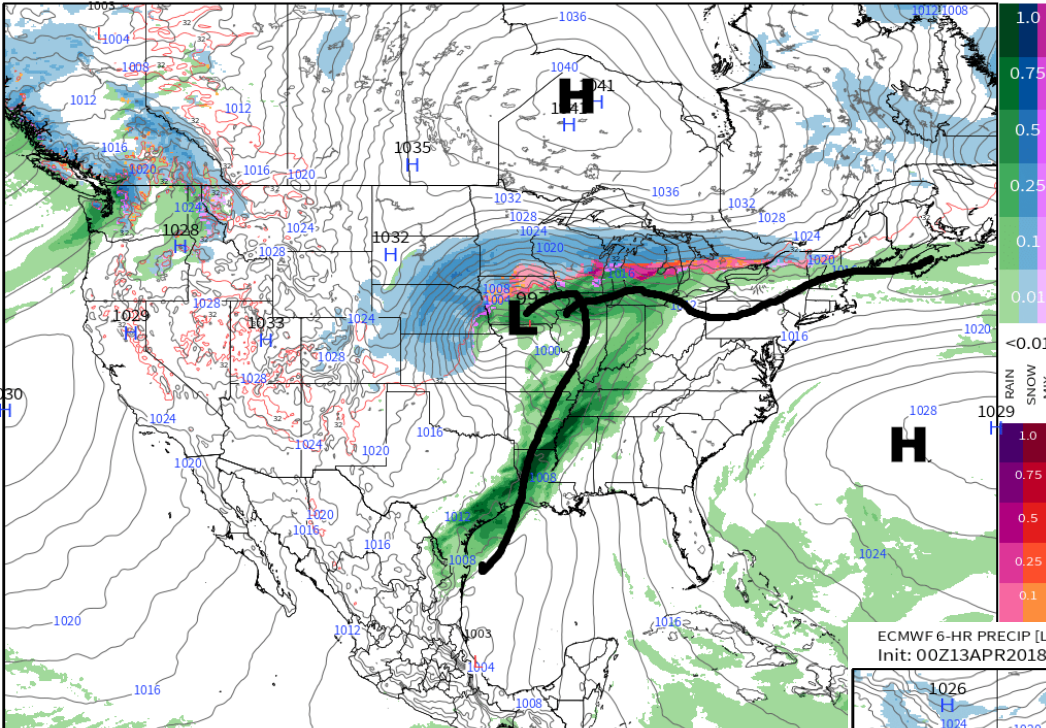
**APRIL 17-18**

**APRIL 21-23**

**APRIL 25-27**

Init: 00Z13APR2018 -- [36] hr --> Valid Sat 12Z14APR2018

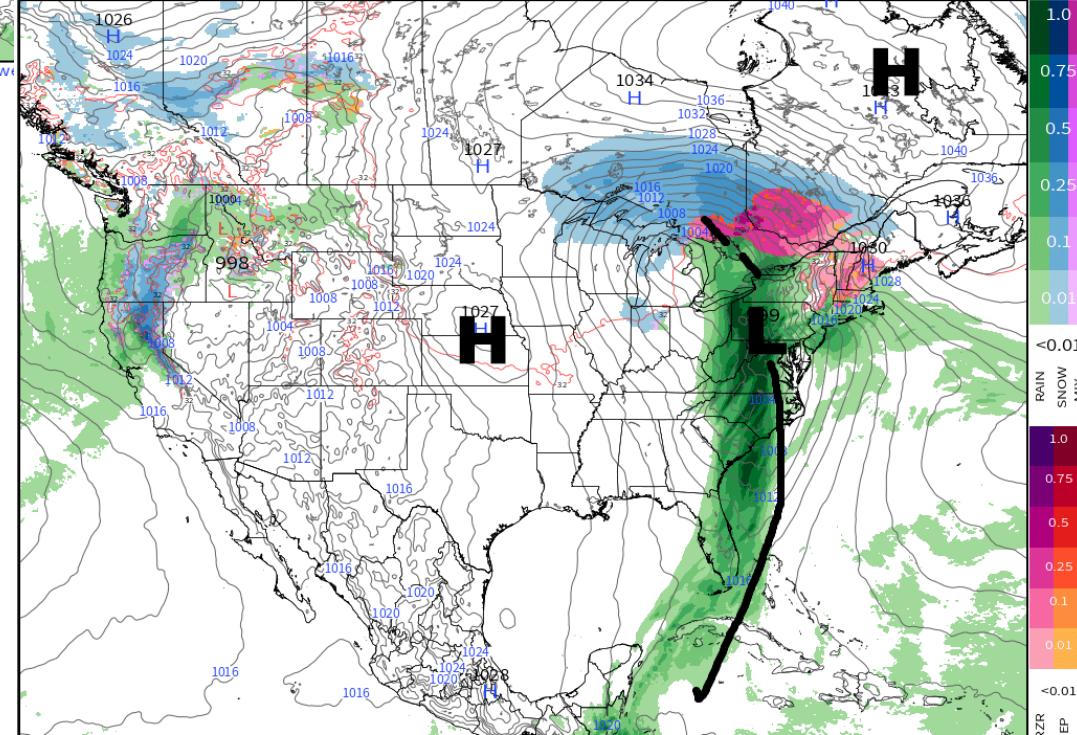
MIN|MAX 997.1 | 1040.9 hPa



# SYSTEM #1

This service is based on data and products of the European Centre for Medium-range Weather Forecasts (ECMWF)

ECMWF 6-HR PRECIP [Liquid Equiv | inch] & Dominant TYPE between 00Z16APR2018 -- 06Z16APR2018 + MSLP [hPa]  
 Init: 00Z13APR2018 -- [78] hr --> Valid Mon 06Z16APR2018



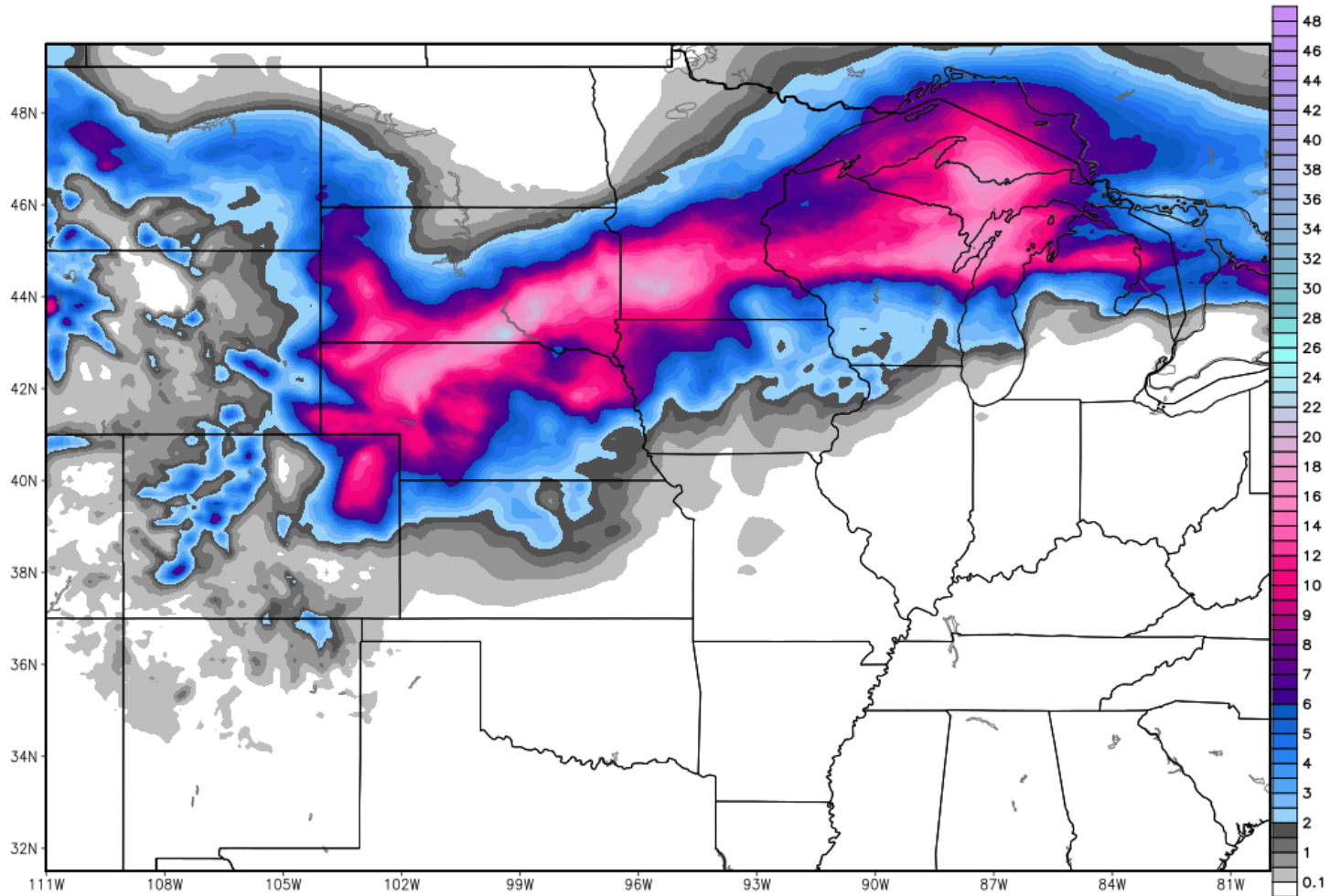
## THE SPRING BLIZZARD THIS WEEKEND – and SEVERE WX FOR DELTA & ECB



# WOW -- huge area of 6- 16" of snow

ECMWF 72hr Snowfall [inch] from 00Z13APR2018 to Mon 00Z16APR2018  
Model Init: 00Z13APR2018

Max 23.23 inch

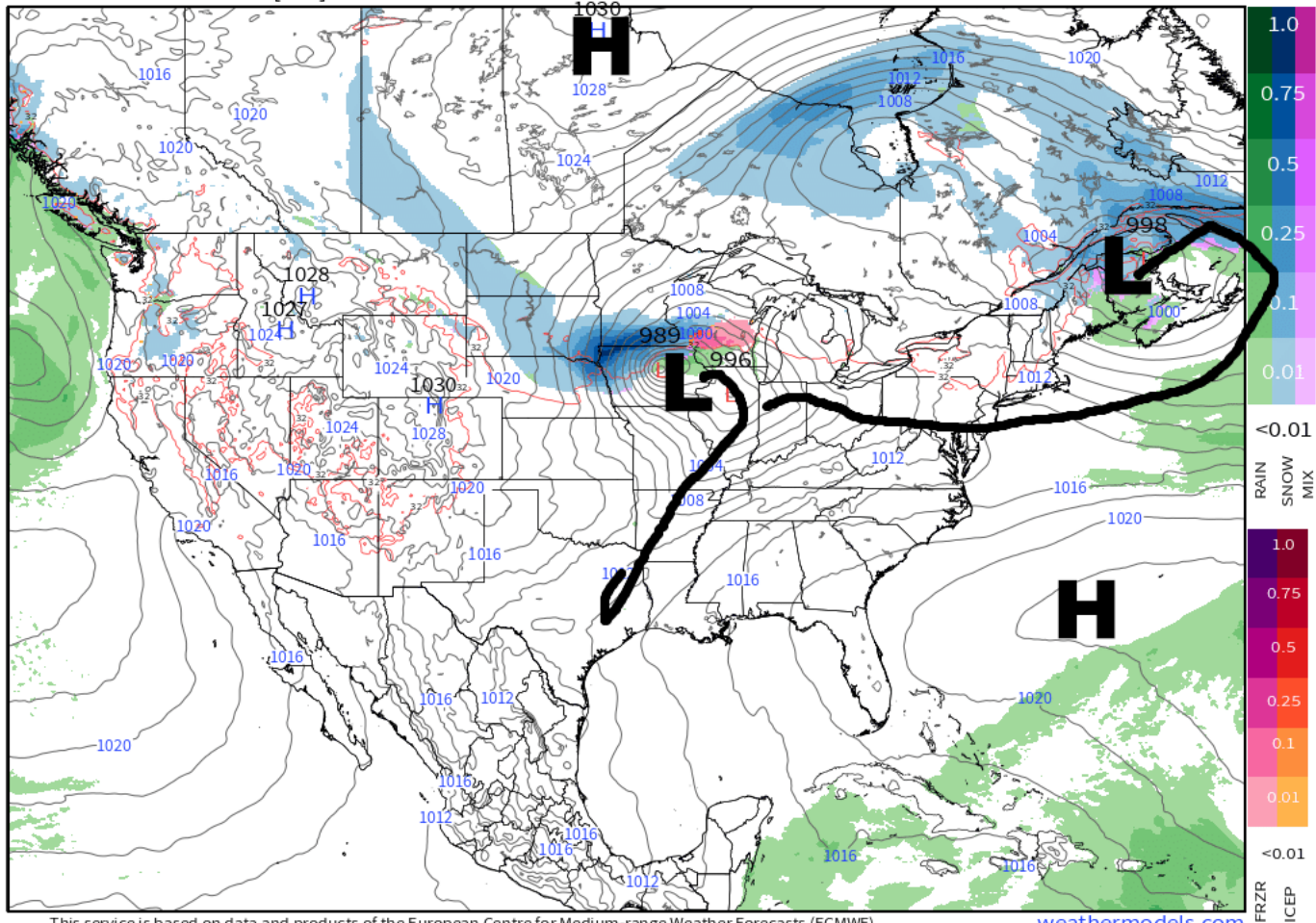


# SYSTEM #2

NOT AS MASSIVE AS THIS WEEKEND LOW.. But still Decent and will bring SNOW to nw IA ne NEB & southern MN

ECMWF 6-HR PRECIP [Liquid Equiv | inch] & Dominant TYPE between 06Z18APR2018 -- 12Z18APR2018 + MSLP [hPa]  
Init: 00Z13APR2018 -- [132] hr --> Valid Wed 12Z18APR2018

MIN|MAX 989.2 | 1030.8 hPa

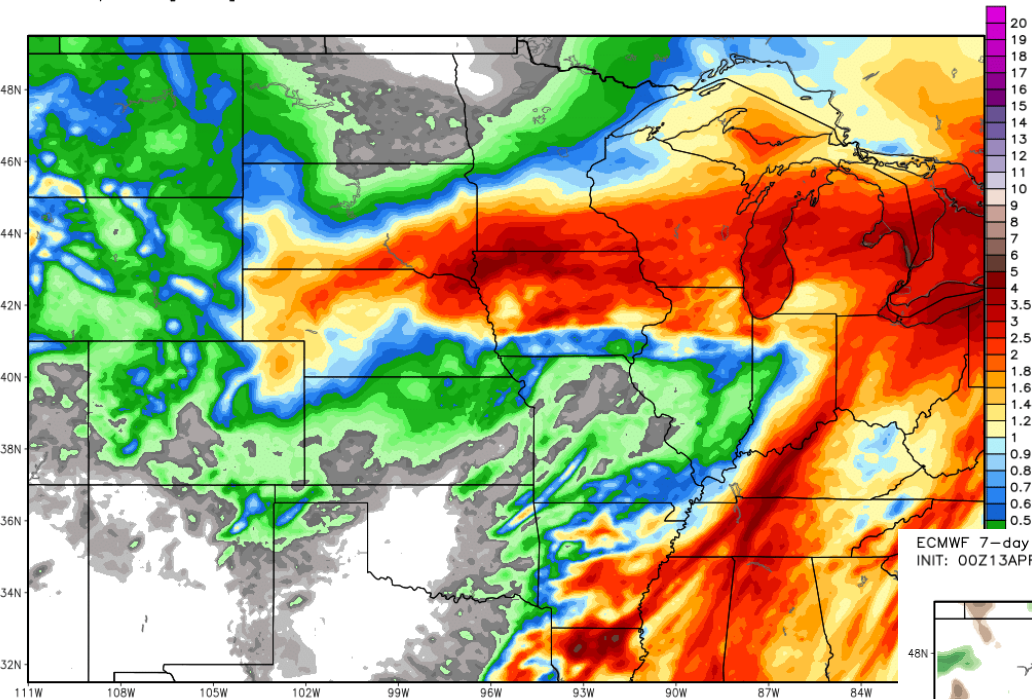


This service is based on data and products of the European Centre for Medium-range Weather Forecasts (ECMWF)

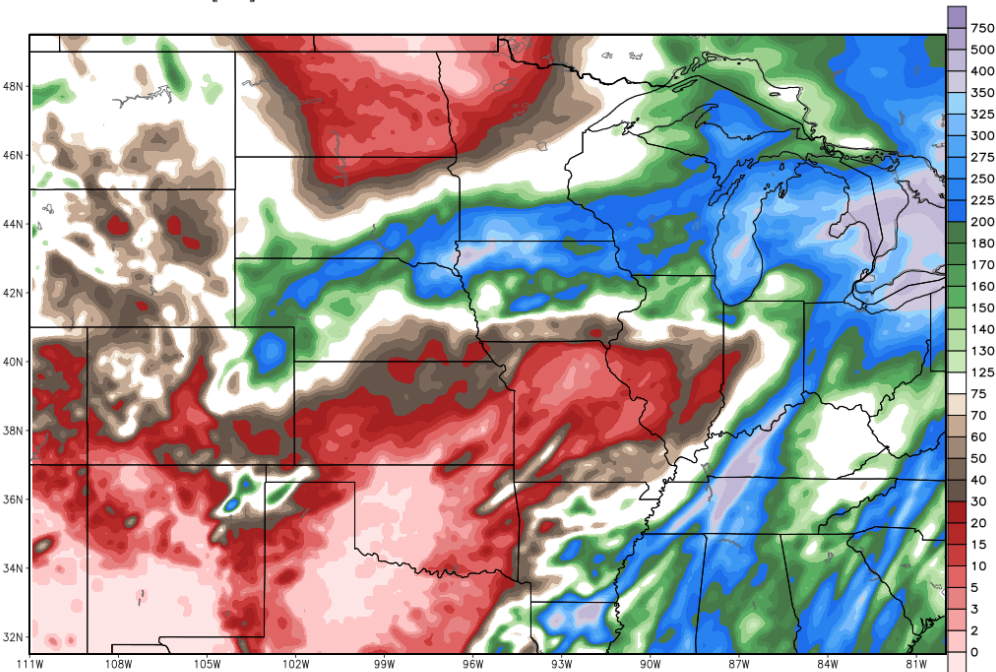
weathermodels.com

# TOTAL RAINFALL & ANOMALIES NEXT 7 DAYS-

ECMWF 7-day Precipitation [inch] INIT: 00Z13APR2018 fx: [174] hr --> Fri 06Z20APR2018  
Total Precipitation [inches] between 06Z13APR2018 -- 06Z20APR2018



ECMWF 7-day Precip Anomaly [% of normal] between 06Z13APR2018 -- 06Z20APR2018  
INIT: 00Z13APR2018 fx: [174] hr --> Fri 06Z20APR2018

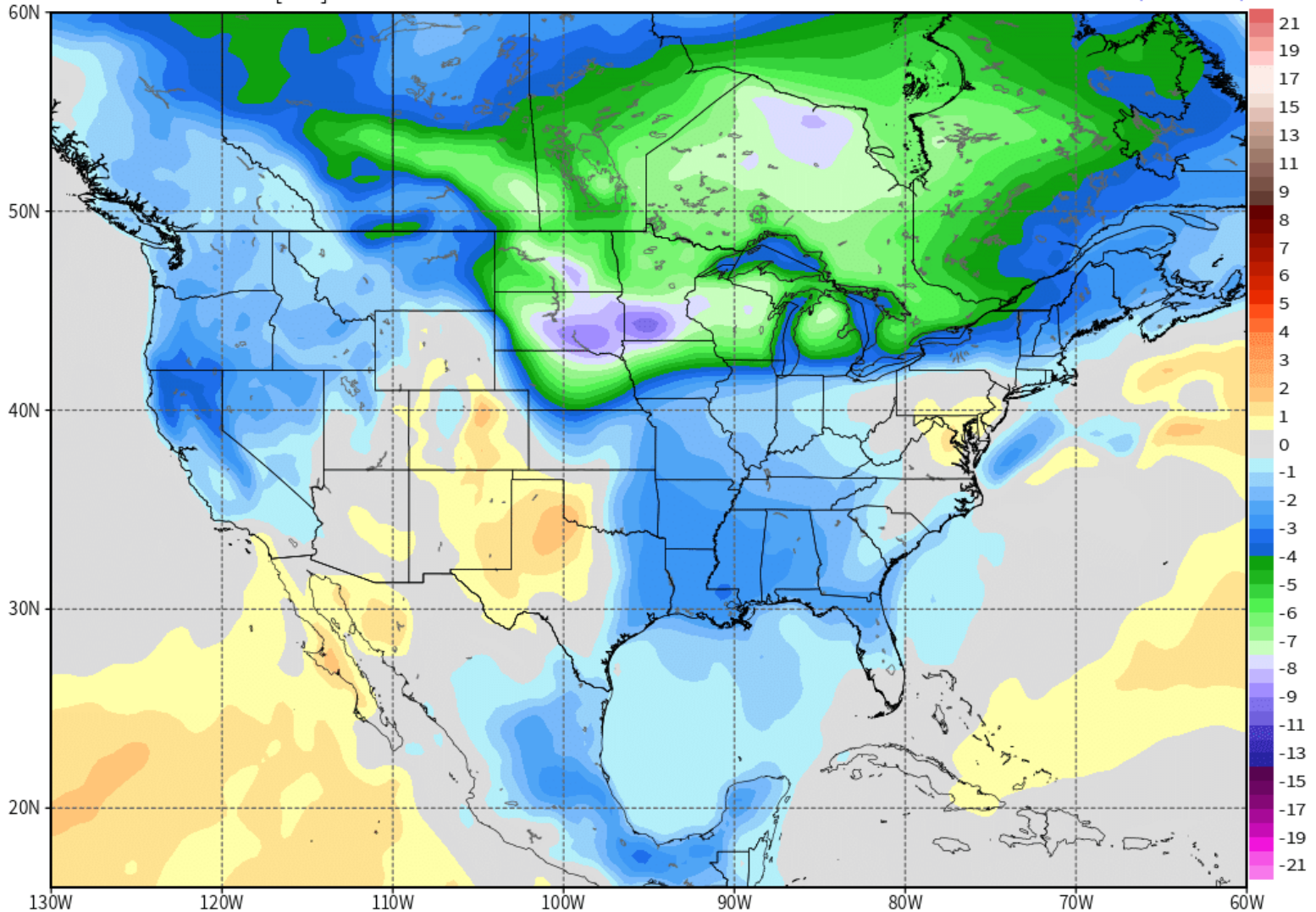




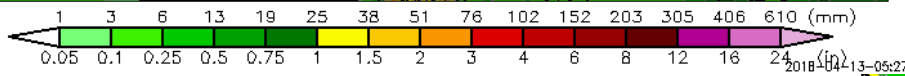
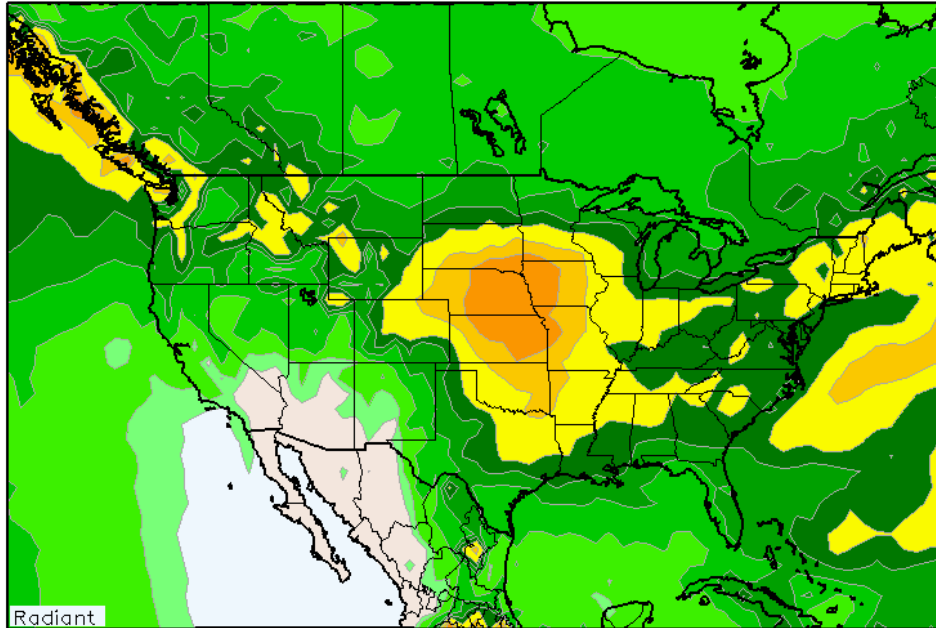
# TEMPS ANOMALIES OVER NEXT 7 DAYS- **DARN COLD** **FOR Upper Plains / Midwest/ with heart of the cold air just** **entering Upper Plains**

ECMWF M-EPS 2-meter Temperature Anomaly [°C] | 7-day Ensemble Mean 00Z12APR2018 & 00Z19APR2018  
Init: 00Z12APR2018 -- [168] hr --> Valid Thu 00Z19APR2018

Day 0 - Day 7  
MIN|MAX: -9.5° | 2.4°C



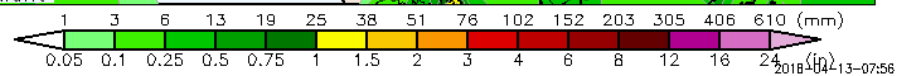
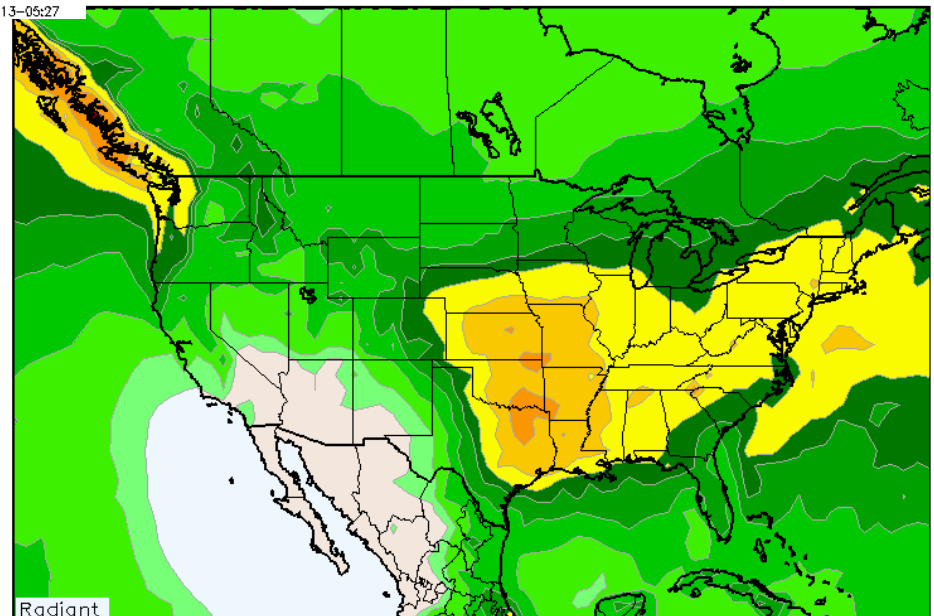
00Z GFS Cumulative 8-14 Day Prcp - Apr 20-27



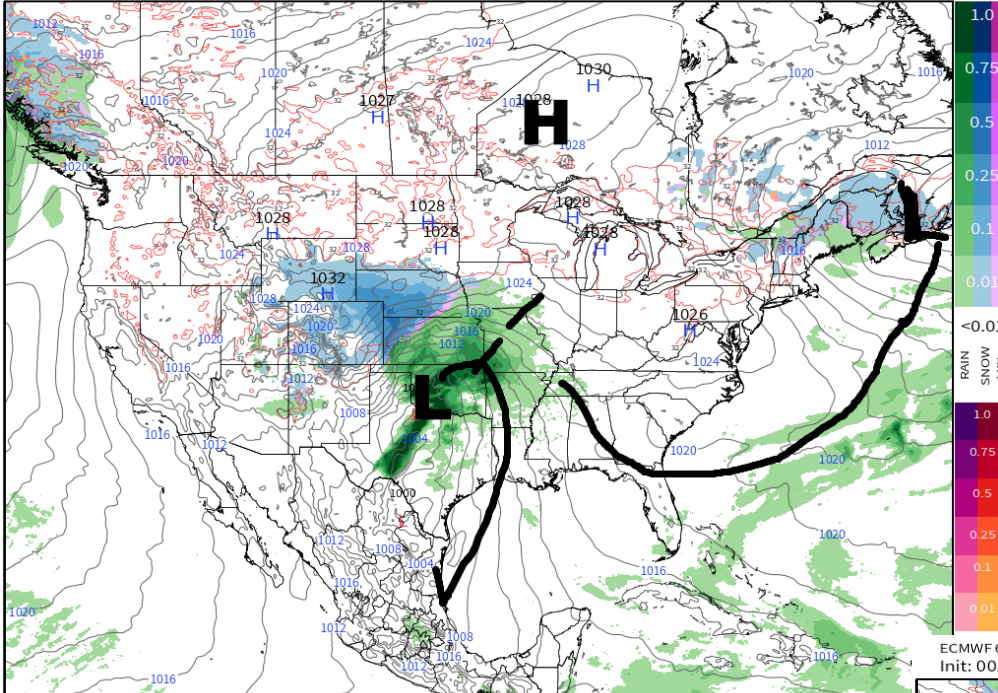
**GFS ensemble has 2-3"/50-75mm over central Plains into west side of WCB - EURO ensemble has 2-3"/50-75mm rains far east OK/ TX/ Delta**

# WEEK 2 RAINS

00Z ECM Cumulative 8-14 Day Prcp - Apr 20-27



ECMWF 6-HR PRECIP [Liquid Equiv | inch] & Dominant TYPE between 00Z21APR2018 -- 06Z21APR2018 + MSLP [hPa]  
 Init: 00Z13APR2018 -- [198] hr --> Valid Sat 06Z21APR2018  
 MIN|MAX 999.3 | 1032.6 hPa



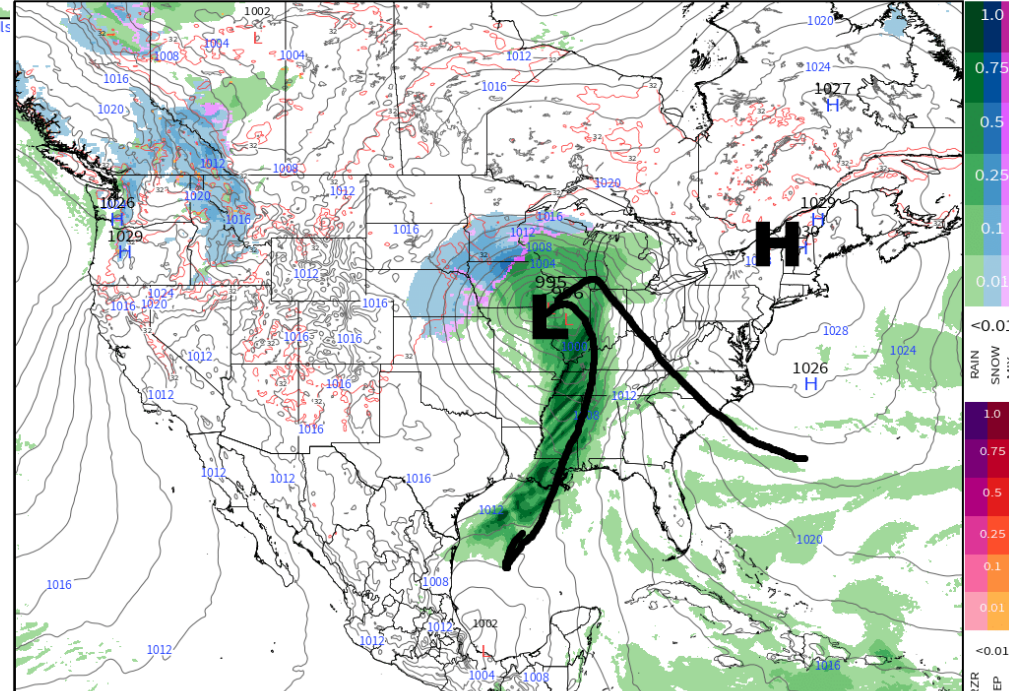
This service is based on data and products of the European Centre for Medium-range Weather Forecasts (ECMWF)

weathermodels.com

# SYSTEM #3

## April 20-22

ECMWF 6-HR PRECIP [Liquid Equiv | inch] & Dominant TYPE between 06Z22APR2018 -- 12Z22APR2018 + MSLP [hPa]  
 Init: 00Z13APR2018 -- [228] hr --> Valid Sun 12Z22APR2018  
 MIN|MAX 995.2 | 1030.5 hPa



This service is based on data and products of the European Centre for Medium-range Weather Forecasts (ECMWF)

weathermodels.com



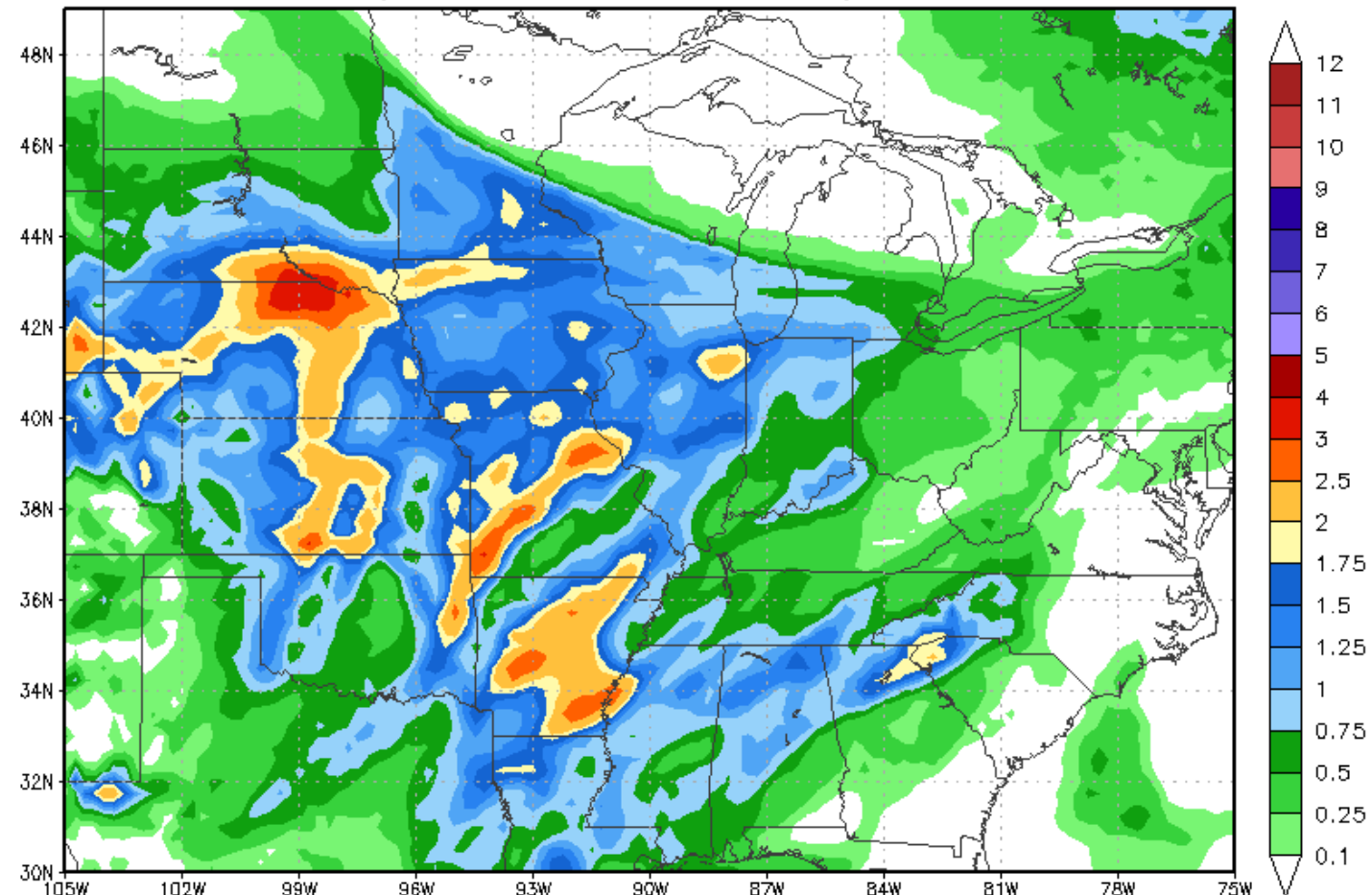
**0Z FRI GFS RAINFALL FORECAST FOR SYSTEM  
NUMBER 2 APRIL 20-22... 1-2.5"/25-60mm over 75%+ KS  
NEB IA MO ARL ILL... 1-2"/25-50mm 60% south SD/ MN ...  
TX LOOKS DRIER..**

120 Hour Total Precipitation (in)

GFS-MAXRES

Valid: 00z Wed 18 Apr 2018 - 00z Mon 23 Apr 2018

Hour: 120 - 240



Max: 3.6 in  
Min: 0.0 in

StormVistaWxModels.com

Init: 00z Fri 13 Apr 2018  
2018-04-13-04:39

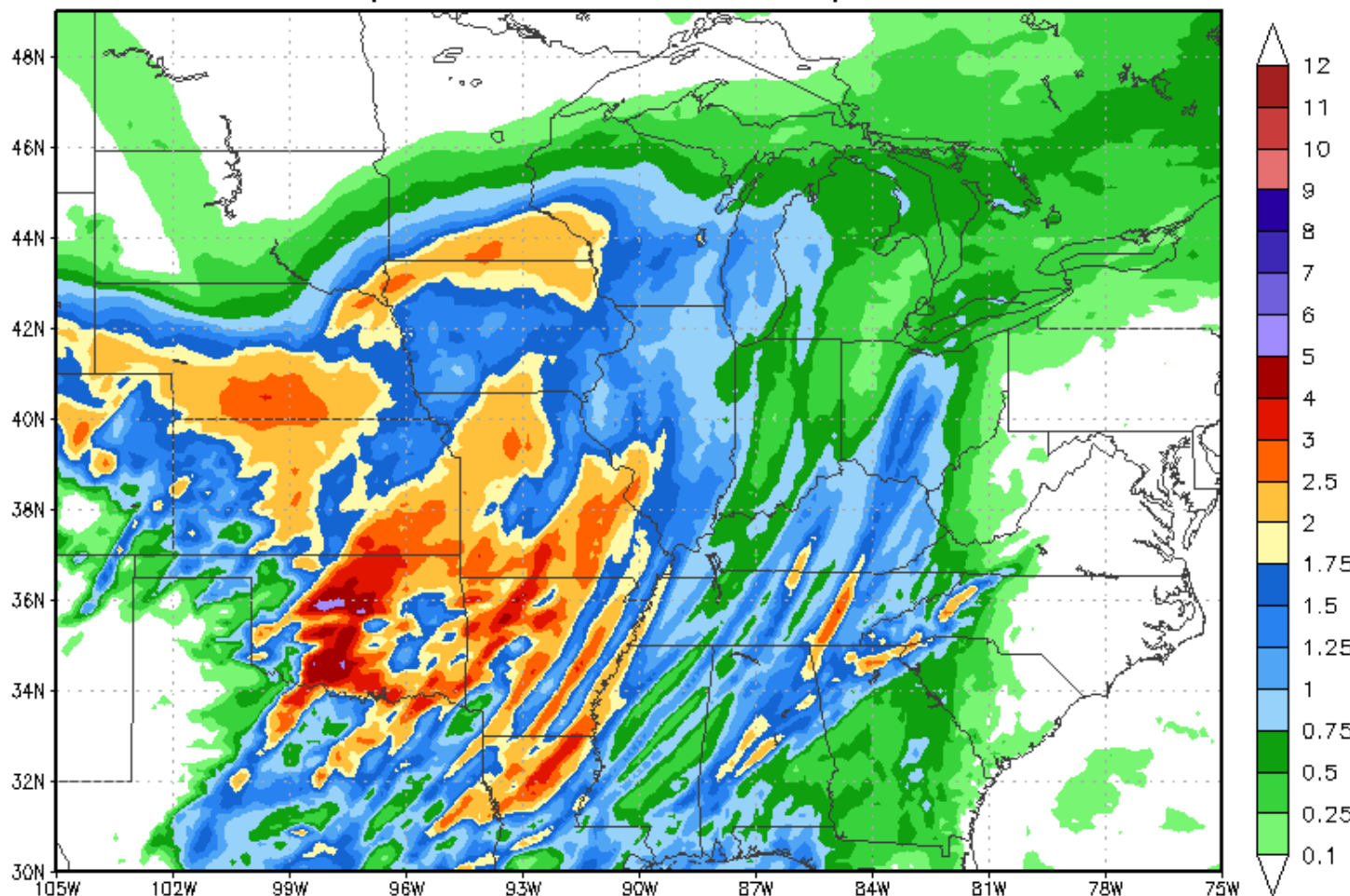
**0Z FRI EURO RAINFALL FORECAST FOR SYSTEM NUMBER 2 APRIL 20-22... 1-3"/25-75mm over 75+ KS NEB IA MO ARK... 2-5"/50-125mm 70% OK ...1-3"/ 25-75mm over 60% of east half TX LA...1-2"/25-50mm 50% coverage WI MS AL TN KY.. West TX LOOKS DRIER..**

120 Hour Total Precipitation (in)

ECMWF-MAXRES

Valid: 00z Wed 18 Apr 2018 - 00z Mon 23 Apr 2018

Hour: 120 - 240



Max: 5.8 in  
Min: 0.0 in

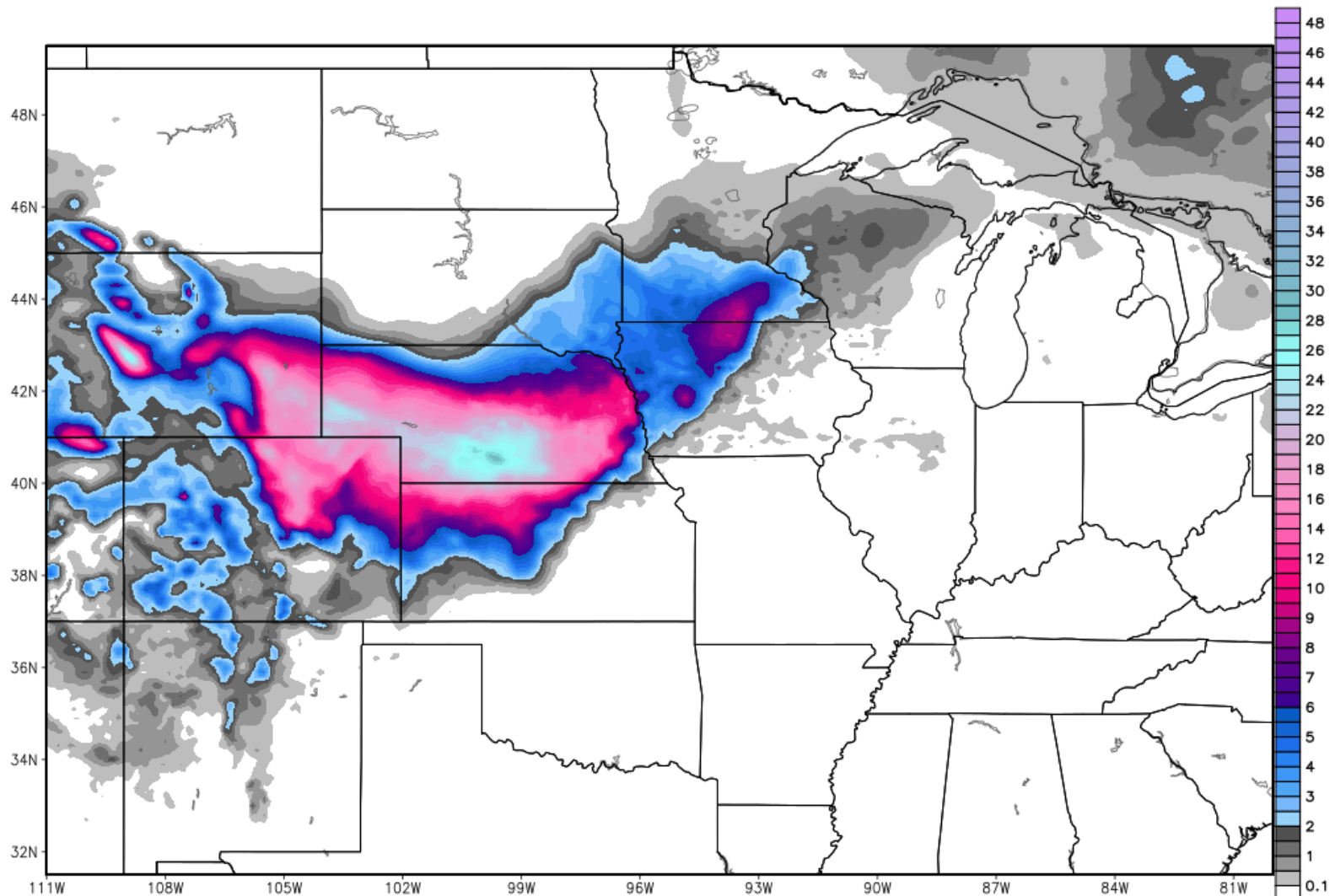
StormVistaWxModels.com

Init: 00z Fri 13 Apr 2018  
2018-04-13-06:55

# WOW -- this is probably over done... South central NEB 20-24" OF SNOW?

ECMWF 72hr Snowfall [inch] from 18Z19APR2018 to Sun 18Z22APR2018  
Model Init: 00Z13APR2018

Max 28.50 inch





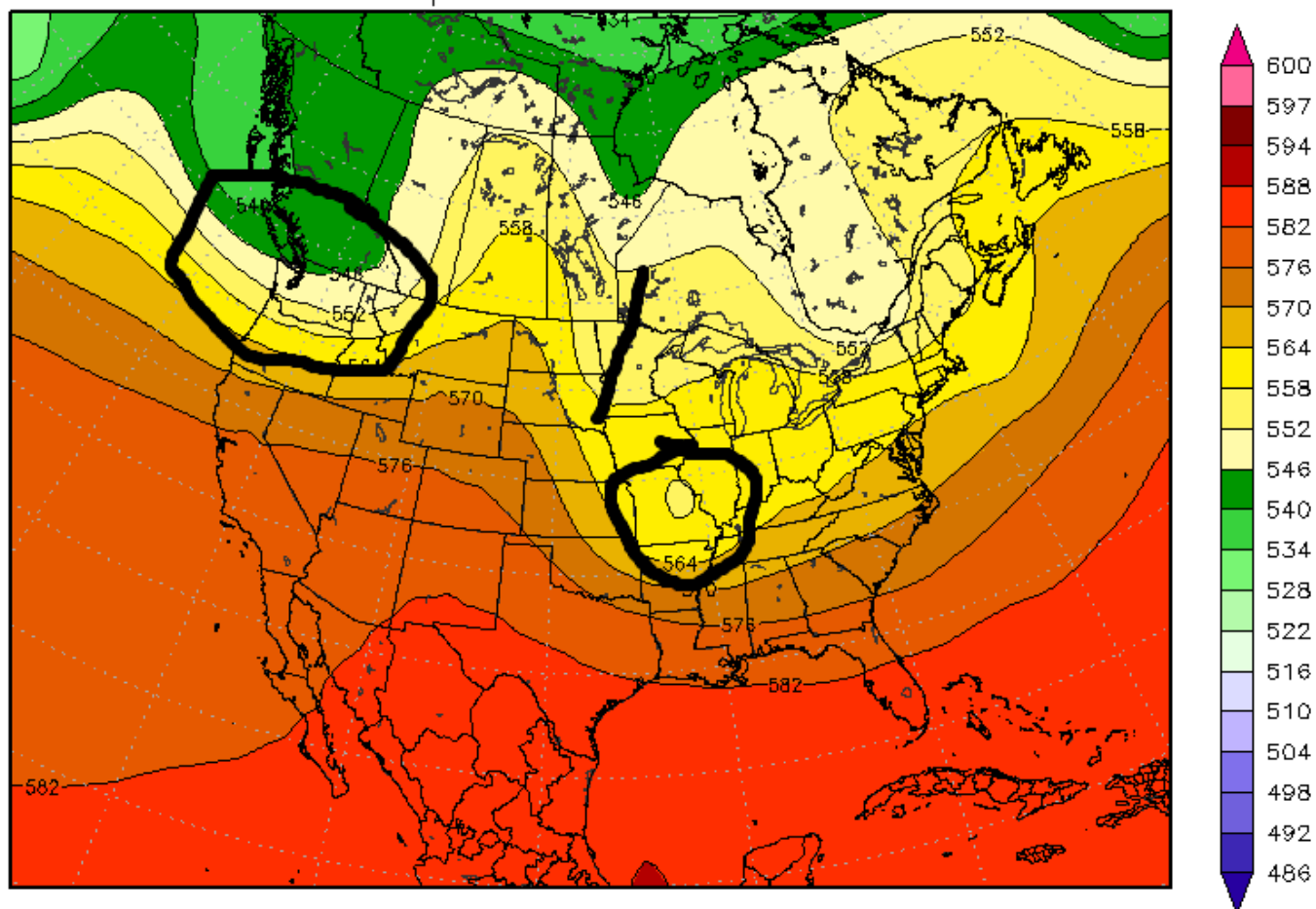
# SYSTEM #3 April 24-25

Op GFS very bullish on the development of this system... If correct this would a massive system

500 mb Height

Valid: 12z Wed 25 Apr 2018

GFS  
Hour: 300



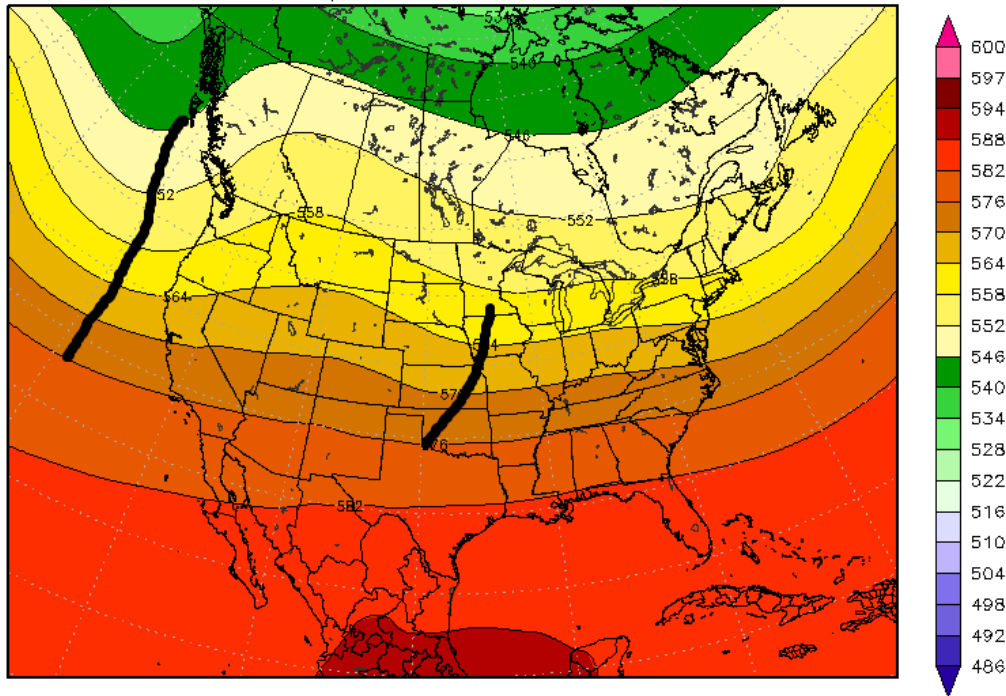
# EURO ensemble has SOMETHING over central Plains& Midwest APRIL 23-25 but not as impressive as 0z OP GFS

500 mb Height

Valid: 00z Wed 25 Apr 2018

ECMWF-EP

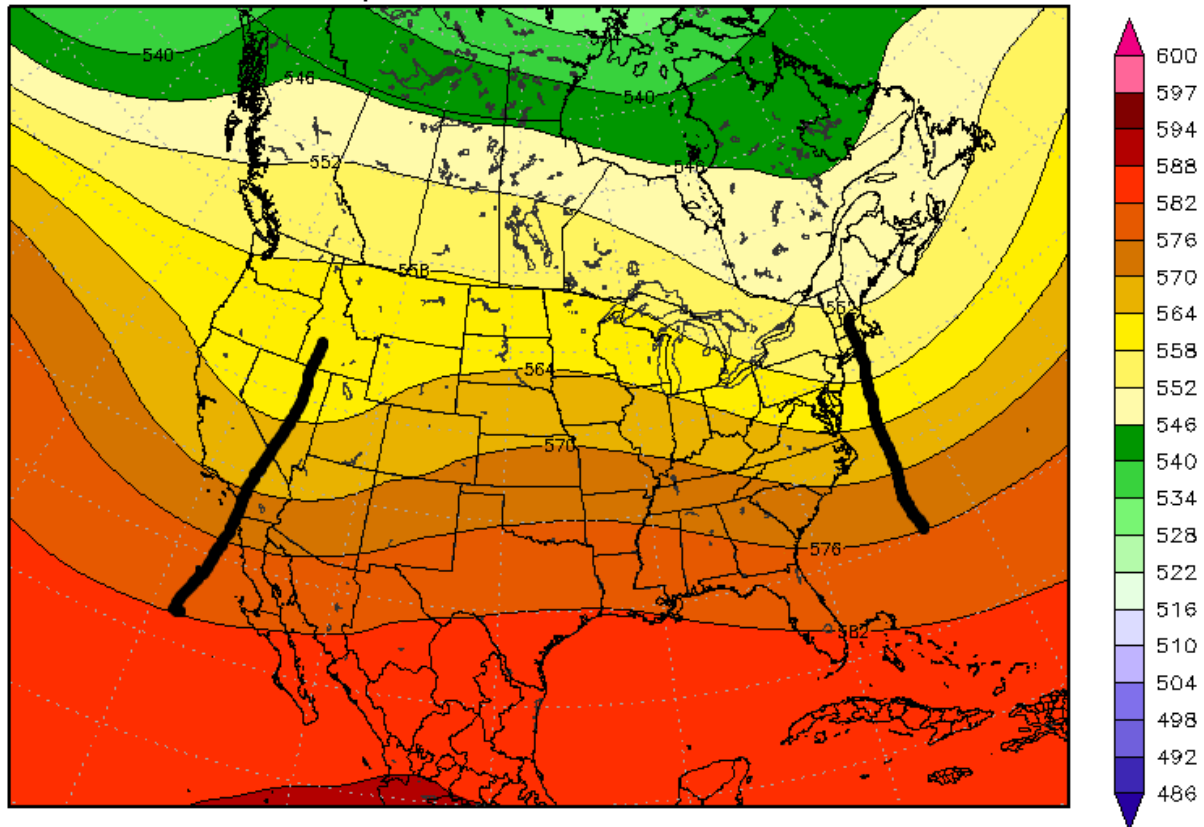
Hour: 288



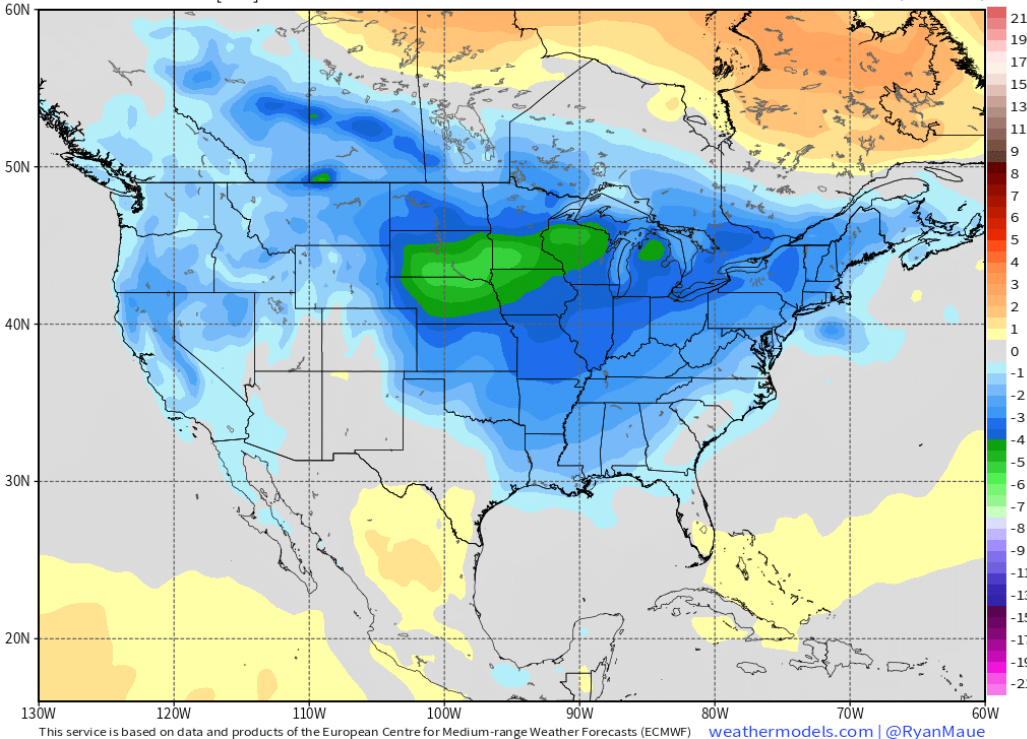
# SYSTEM #5 - APRIL 28-29?

500 mb Height  
Valid: 06z Fri 27 Apr 2018

ECMWF-EP  
Hour: 342

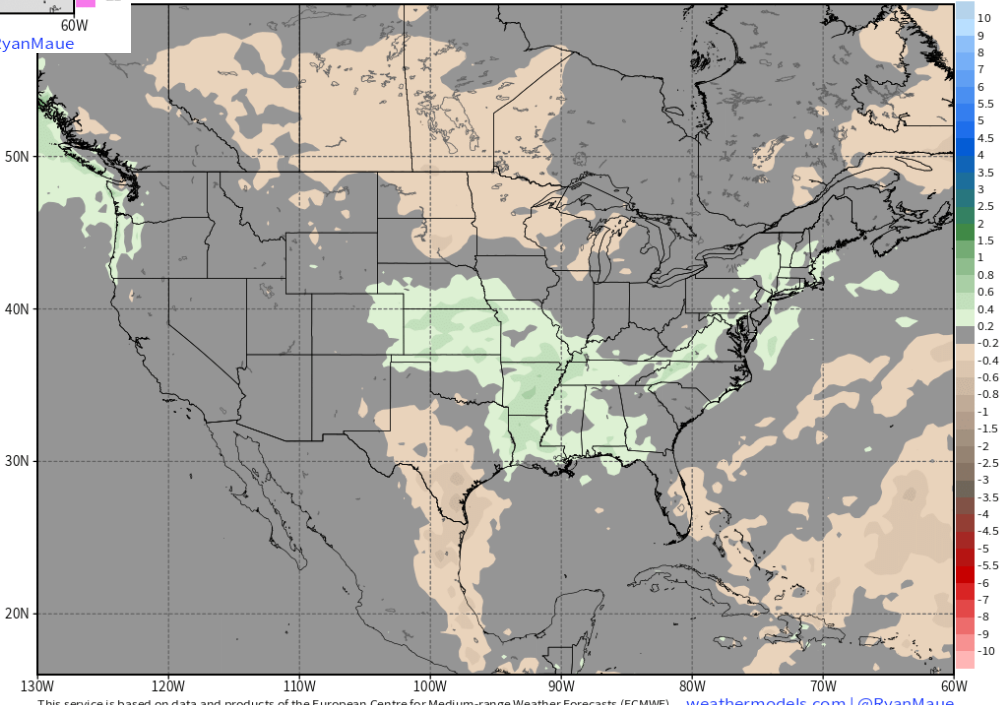






Precipitation Anomaly [inch] | 7-day Ensemble Mean 00Z19APR2018 & 00Z26APR2018  
R2018 -- [336] hr --> Valid Thu 00Z26APR2018

Day 7 - Day 14  
MIN|MAX: -0.69 | 1.27 INCH



**VERY COLD** but **EURO**  
**weeklies DO** show above  
normal rains over **KS NEB**  
**MO ARK ...** Dry over south  
central Canada and **Upper**  
**Plains**