UNDERSTANDING THE U.S. DROUGHT MONITOR

MONTANA GOVERNOR'S DROUGHT &

WATER SUPPLY ADVISORY COMMITTEE MEETING

NOVEMBER 2, 2017

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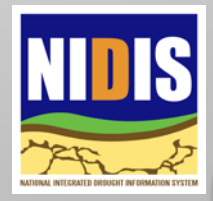
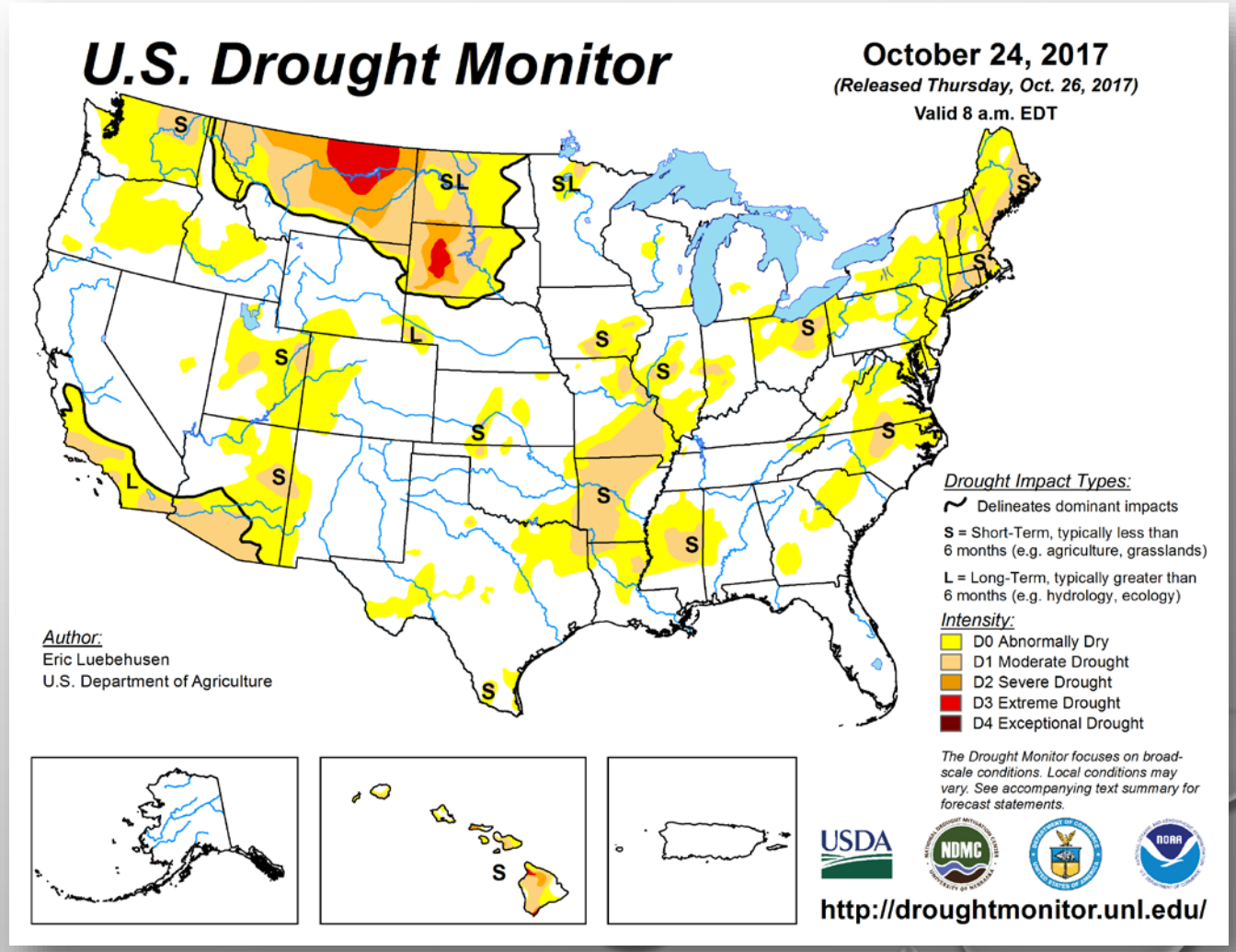


PRESENTATION OUTLINE

- WHAT IS THE U.S. DROUGHT MONITOR?
- MONTANA DROUGHT OF 2017 – A BRIEF LOOK BACK
- ADDRESS QUESTIONS SUBMITTED BY THE MONTANA DWSAC
- CLOSING THOUGHTS & RECOMMENDATIONS

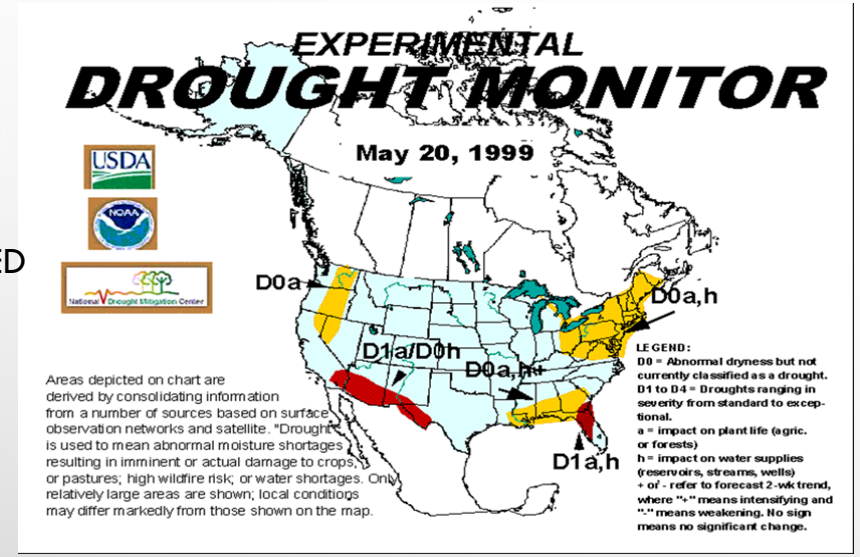
WHAT IS THE USDM?

- WEEKLY COMPOSITE DROUGHT STARTED IN 1999
- MAP IS DERIVED FROM ANALYSIS OF CLIMATIC, HYDROLOGIC, AND SOIL MOISTURE DATA AS WELL AS REPORTED IMPACTS
- JOINTLY PRODUCED BY NATIONAL DROUGHT MITIGATION CENTER (UNIV. OF NEBRASKA-LINCOLN), NOAA CPC, NOAA NCEI, WESTERN REGIONAL CLIMATE CENTER, & USDA OCE
- PART OF A DROUGHT EARLY WARNING SYSTEM (NOAA NIDIS)

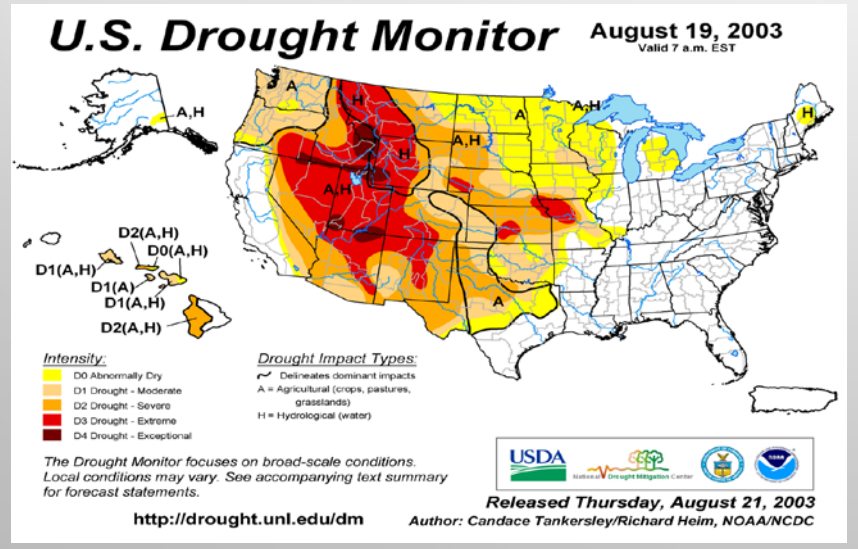


EVOLUTION OF THE USDM

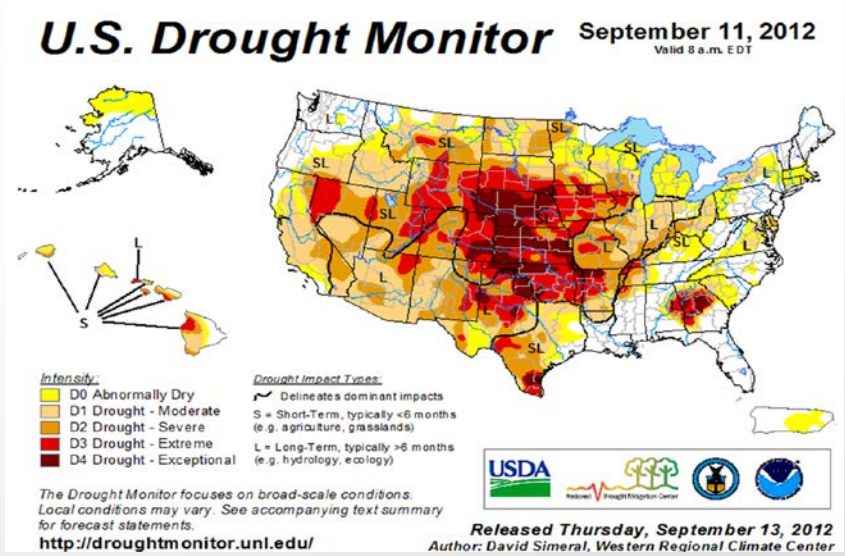
THE VERY FIRST U.S. DROUGHT MONITOR! THE MAP WAS CREATED IN COREL DRAW (BASIC DRAWING SOFTWARE)



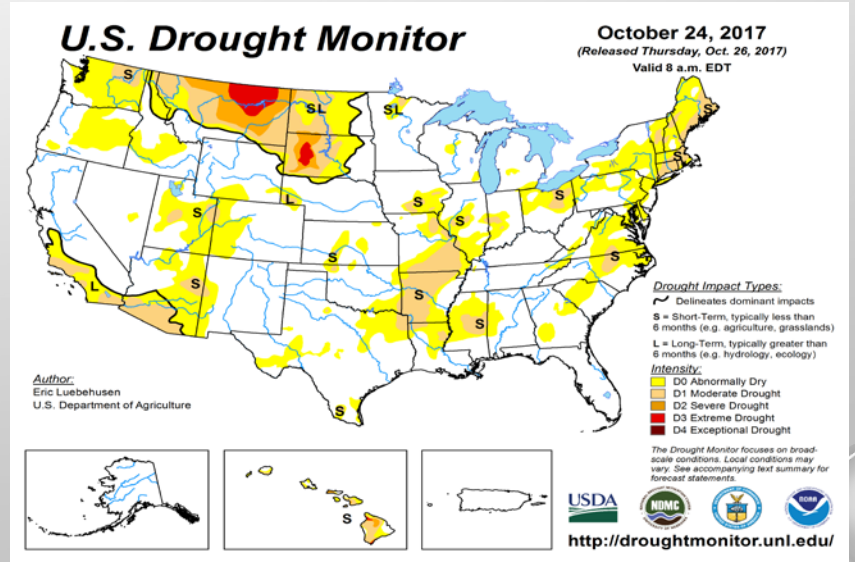
AUTHORS SWITCH FROM COREL DRAW TO GIS (GEOGRAPHIC INFORMATION SYSTEM) TO CREATE THE MAP



MY FIRST SHIFT. "INITIATION BY FIRE"

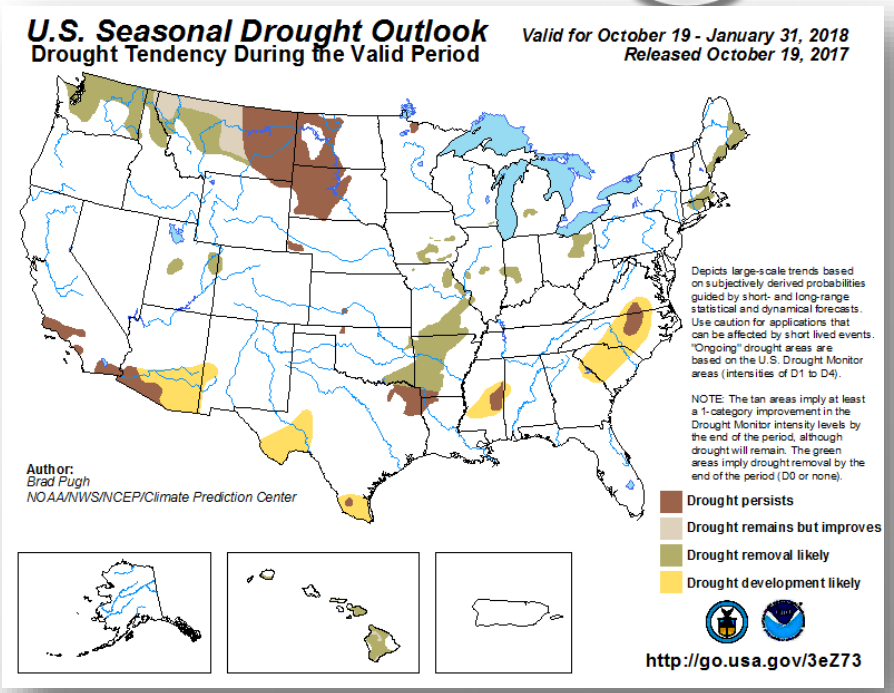


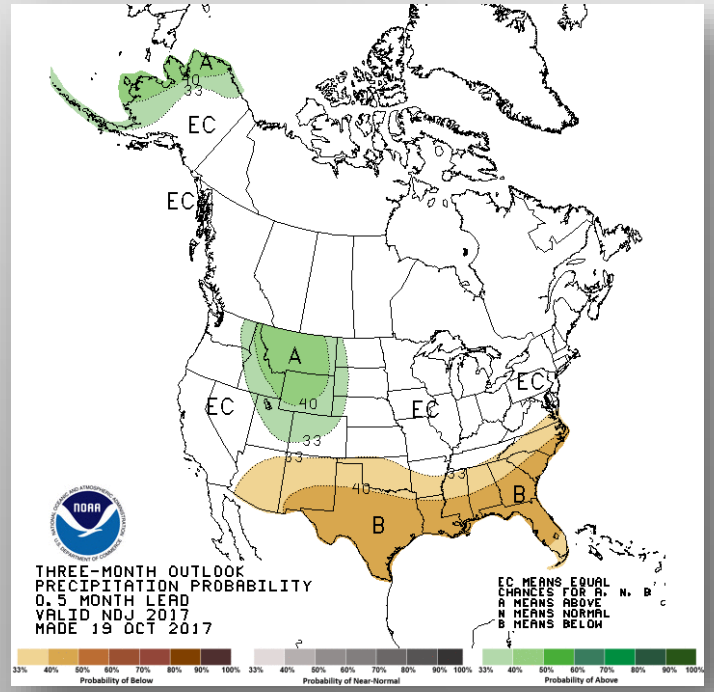
CURRENT MAP CONFIGURATION – SOON TO INCLUDE USVI

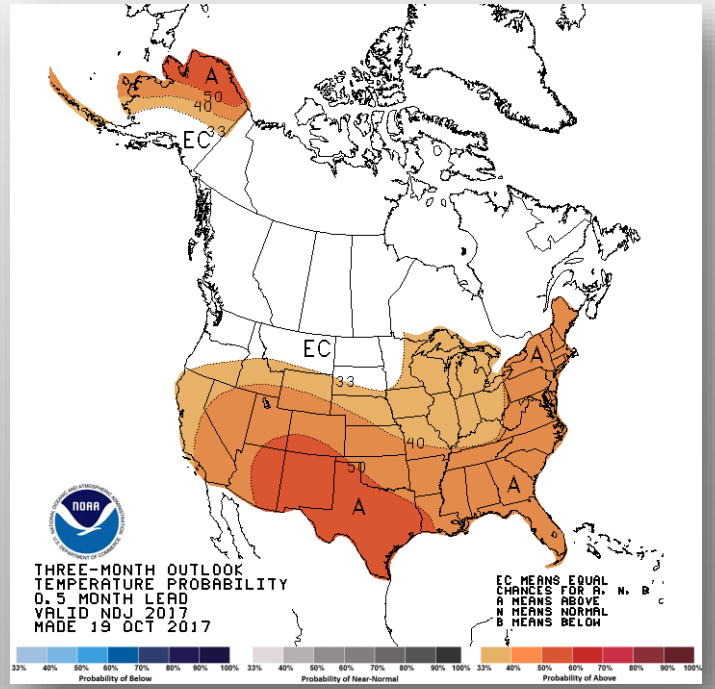


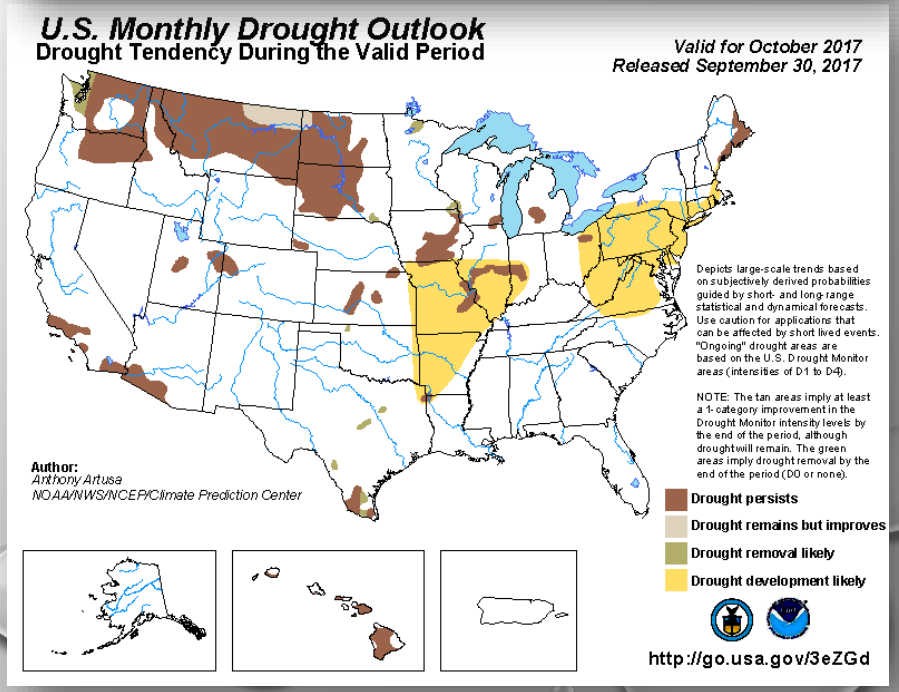
USDM IS NOT:

- A MODEL
- A FORECAST PRODUCT
- A DROUGHT DECLARATION









ASSESSMENT TOOLS

QUANTITATIVE DATA

- METEOROLOGICAL/CLIMATE
- SOIL MOISTURE
- STREAMFLOW
- GROUNDWATER
- RESERVOIR LEVELS
- SNOWPACK
- VEGETATION HEALTH/STRESS & FIRE DANGER
- EVAPORATIVE DEMAND

QUALITATIVE DATA

- IMPACTS INFORMATION ON THE GROUND
- PHOTOS
- NEWSPAPER ARTICLES
- NASS REPORTS

DROUGHT CLASSIFICATION

DROUGHT INTENSITY BASED UPON:

- KEY INDICATORS (PDSI, SOIL MOISTURE, STREAMFLOW, SPI, OBJECTIVE BLENDS)
- DROUGHT IMPACTS
- LOCAL REPORTS

NOTEWORTHY:

- DROUGHT CATEGORIZATION IS NOT ANECDOTAL OR SUBJECTIVE "IT'S REALLY, REALLY DRY" OR "IT HASN'T RAINED IN 3 MONTHS, SO IT HAS TO BE D4"
- USDM FOCUSES ON BROAD-SCALE CONDITIONS
- S = SHORT-TERM (< 6 MONTHS – AG, RANGELANDS)
- L = LONG-TERM (> 6 MONTHS – HYDROLOGY, ECOLOGICAL)

Percentiles and the U.S. Drought Monitor

- Advantages of percentiles:
  - Can be applied to any parameter
  - Can be used for any length of data record
  - Puts drought in historical perspective

- D4, Exceptional Drought: once per 50 to 100 years
- D3, Extreme Drought: once per 20 to 50 years
- D2, Severe Drought: once per 10 to 20 years
- D1, Moderate Drought: once per 5 to 10 years
- D0, Abnormally Dry: once per 3 to 5 years

USDA

Drought Severity Classification

			Ranges				
Category	Description	Possible Impacts	Palmer Drought Severity Index (PDSI)	CPC Soil Moisture Model (Percentiles)	USGS Weekly Streamflow (Percentiles)	Standardized Precipitation Index (SPI)	Objective Drought Indicator Blends (Percentiles)
D0	Abnormally Dry	Going into drought: • short-term dryness slowing planting, growth of crops or pastures Coming out of drought: • some lingering water deficits • pastures or crops not fully recovered	-1.0 to -1.9	21 to 30	21 to 30	-0.5 to -0.7	21 to 30
D1	Moderate Drought	• Some damage to crops, pastures • Streams, reservoirs, or wells low, some water shortages developing or imminent • Voluntary water-use restrictions requested	-2.0 to -2.9	11 to 20	11 to 20	-0.8 to -1.2	11 to 20
D2	Severe Drought	• Crop or pasture losses likely • Water shortages common • Water restrictions imposed	-3.0 to -3.9	6 to 10	6 to 10	-1.3 to -1.5	6 to 10
D3	Extreme Drought	• Major crop/pasture losses • Widespread water shortages or restrictions	-4.0 to -4.9	3 to 5	3 to 5	-1.6 to -1.9	3 to 5
D4	Exceptional Drought	• Exceptional and widespread crop/pasture losses • Shortages of water in reservoirs, streams, and wells creating water emergencies	-5.0 or less	0 to 2	0 to 2	-2.0 or less	0 to 2

Short-term drought indicator blends focus on 1-3 month precipitation. Long-term blends focus on 6-60 months. Additional indices used, mainly during the growing season, include the USDA/NASS Topsoil Moisture, Keetch-Byram Drought Index (KBDI), and NOAA/NESDIS satellite Vegetation Health Indices. Indices used primarily during the snow season and in the West include snow water content, river basin precipitation, and the Surface Water Supply Index (SWSI). Other indicators include groundwater levels, reservoir storage, and pasture/range conditions.

WHO CREATES THE WEEKLY MAP?

- 11 NATIONAL AUTHORS
- AUTHORS WORK AT GOVERNMENT AGENCIES, REGIONAL OR NATIONAL CENTERS
- AUTHORS WORK ROTATING SHIFTS - TYPICALLY TWO OR THREE 2-WEEK SHIFTS ANNUALLY

U.S. Drought Monitor Authors

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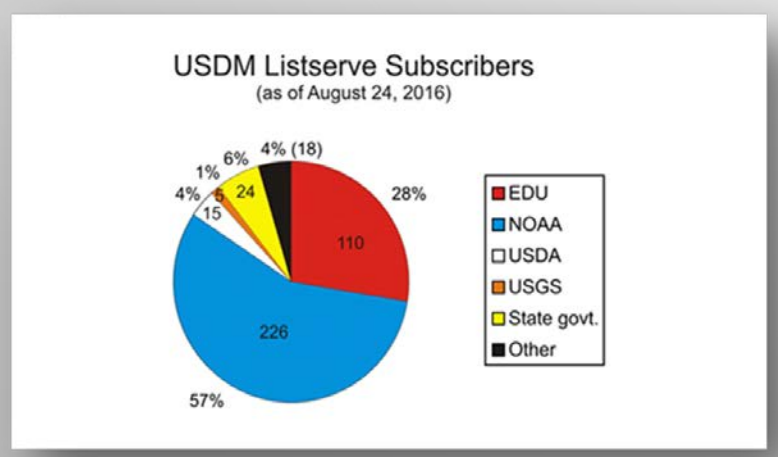
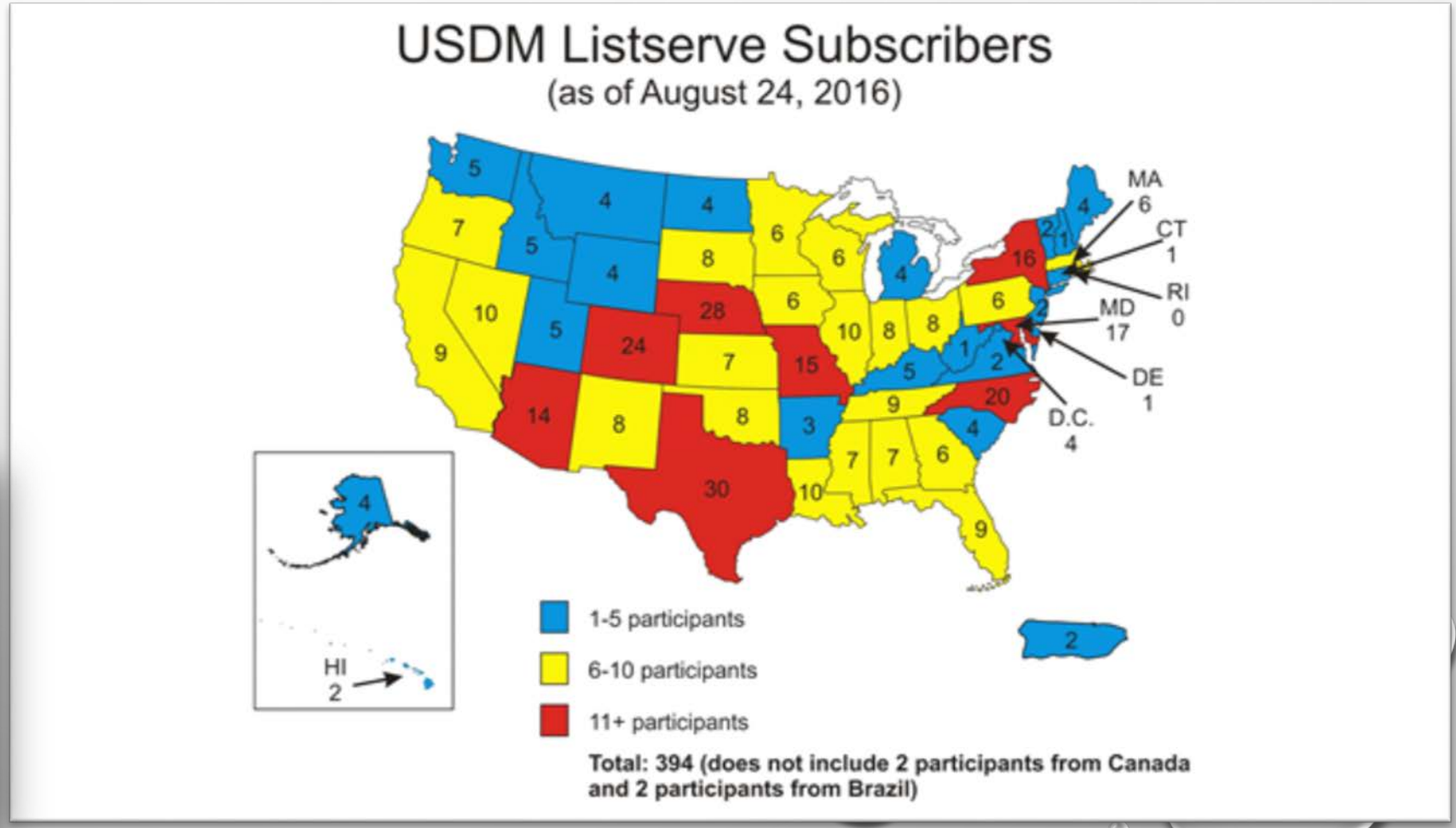
USDA Agricultural Weather Assessments
World Agricultural Outlook Board

OUR CONTRIBUTORS

- BACKBONE OF THE USDM
- ~400 CONTRIBUTORS
- CONFIGURATION VARIES
  - STATE COORDINATION TEAMS
  - REGIONAL OR BASIN TEAMS (UPPER COLORADO BASIN, CA-NV)





INPUT & RECOMMENDATIONS

- DURING A SHIFT, EMAIL TRAFFIC CAN BE OVERWHELMING WITH 100'S OF EMAILS DAILY IN ADDITION TO MULTIPLE COORDINATION CALLS
- CONTRIBUTOR INPUTS COME IN MANY FORMS
- CONCISE RECOMMENDATIONS (W/AN ACCOMPANYING MAP) IS <u>VERY</u> HELPFUL

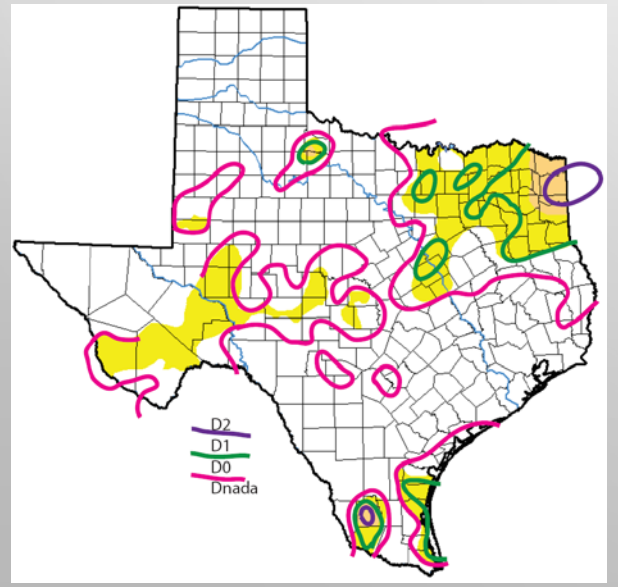
Eric:

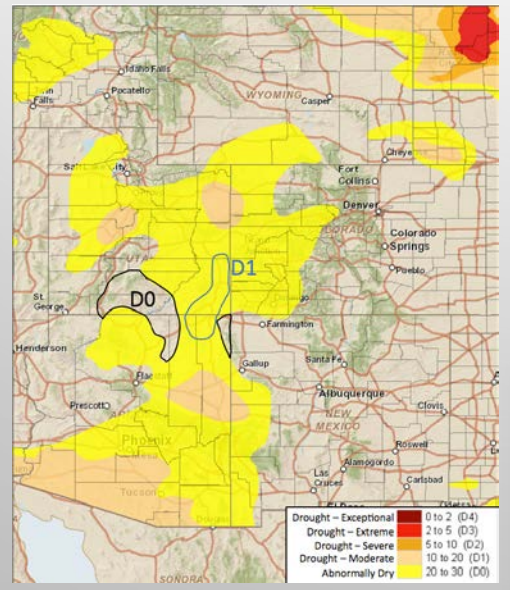
Was in Newman Grove (30 miles SW of Norfolk) on Saturday. Grass growth in pastures and ditches are just now starting to shoot the first green leaves of the season. Essentially, no significant water use has occurred in this young season. In fact, the only areas of the state that are exhibiting grass growth of any magnitude are south central and southwest Nebraska. I know everyone fixates on SPI values, but what everyone is missing is the impacts of the December, late January, and early February moisture events. December's was in the form of rain, as was most of the late January storm. The early February storm fell as snow on unfrozen ground (southern half of the state). Out of these storms we gained an average of 2 inches of soil moisture statewide, with west central Nebraska pushing 3 inches. In a normal winter there is very little change in soil moisture from December 1 to February 28. These moisture events helped to offset the dry period from mid-October through mid-December. The brunt of the dryness currently depicted on the DM is the result of the poor moisture conditions since the early part of February.

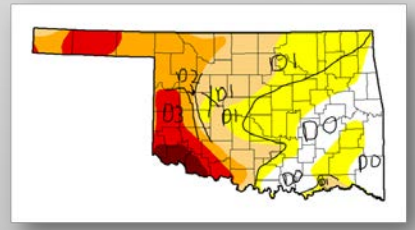
I just looked at all soil moisture sites (over grass vegetation) across the state and I would like to acknowledge a couple of observations. First, even in the worst areas of the state (SW and SC), average soil moisture values are a full 2 inches above this time last year. Second, soil moisture values haven't decreased more than 0.5 inches across SW and SC Nebraska since green up began. It is hard for me to digest that drought conditions have/are being felt much further north of I-80. Unless substantial soil moisture deficits have accumulated that could impact grass growth, I am hesitant about putting a D1 label for areas that are just showing early signs of dormancy break (north central and northeast Nebraska).

You currently have Imperial on the western fringe of D1. Soil moisture values for Imperial are running 1.5 inches above historical trend for this time of year. North Platte and Gothenburg are normal. However, Dickens and Curtis (20-30 miles south of this area) have deficits of 1.5 to 2.5 inches. Therefore, I propose to take your D1 line and shift it south so that the northern fringe covers the southern 10 miles of Lincoln county. At the eastern edge of Lincoln county, bend your line northeast to pass half way between Gothenburg and Cozad. Cozad has a soil moisture value 2.0 inches below normal. Then move your line northeast to the southeast corner of Rock county. All stations to the northwest of this line have surplus moisture balances of 0.50 to 1.50 inches. This will essentially shave off a thin sliver of the west edge depiction of the D1.

Now to the more difficult D1 depiction Pull the D1 eastward in central Nebraska such that Hastings and Grand Island are in D1. Minden, Grand Island, and Shelton have 1.5 to 3.0 inch moisture deficits. Take the D1 line up the Platte river to half way between Central City(northern Hamilton county) and Monroe (SW Platte county). Central City is down 1.5 inches, while Monroe is right at it seasonal average. Then take the D1 line and bend it toward the northwest to 20 miles east of O'Neill. Elgin, Norfolk, and Concord (Dixon, UNL research center) all have surplus moisture values ranging from 1.0 to 2.5 inches above seasonal normals. From O'Neill, draw the D1 line

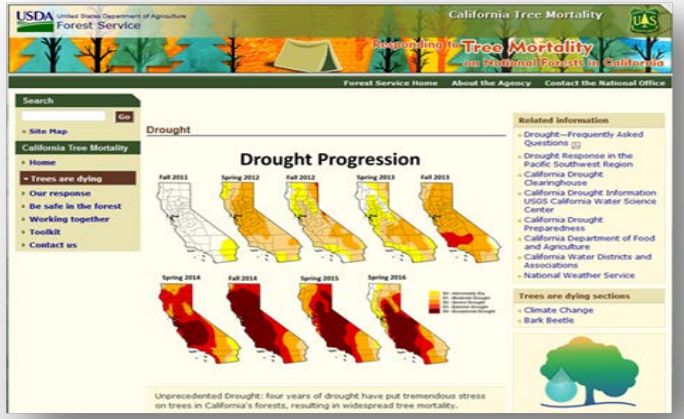






WHO USES THE USDM?

- USDA - DROUGHT DISASTER DECLARATIONS
- FSA – LIVESTOCK FORAGE PROGRAM
- IRS – TAX DEFERRALS ON FORCED LIVESTOCK SALES DUE TO DROUGHT
- NWS – DROUGHT INFORMATION STATEMENTS
- STATE, LOCAL, TRIBAL, AND BASIN-LEVEL DECISION MAKERS – TRIGGER DROUGHT RESPONSES
- MEDIA & GENERAL PUBLIC

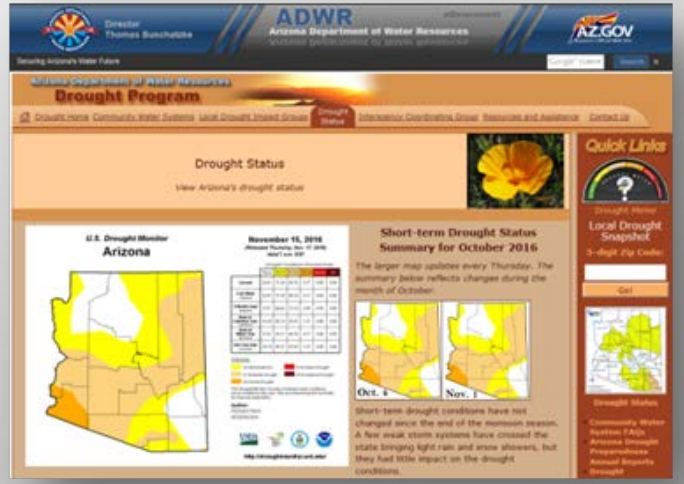


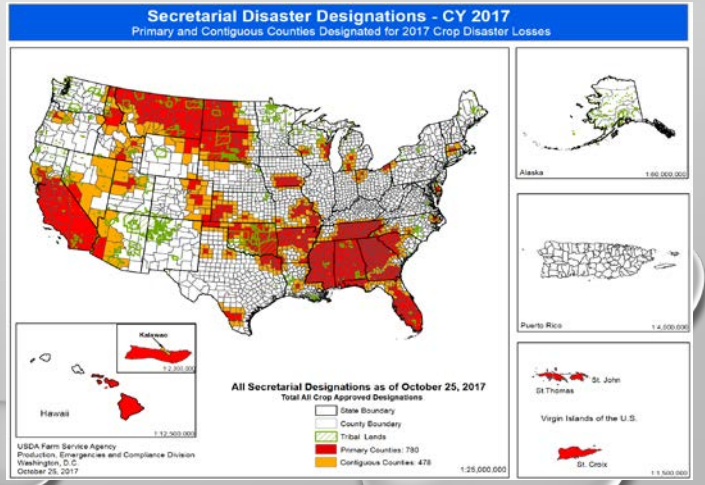
DROUGHT INFORMATION STATEMENT
NATIONAL WEATHER SERVICE SACRAMENTO CA
1230 PM PDT FRI OCT 21 2016

...DROUGHT STATE OF EMERGENCY CONTINUES FOR CALIFORNIA...

SYNOPSIS...
GOVERNOR BROWN DECLARED A DROUGHT STATE OF EMERGENCY FOR CALIFORNIA ON JANUARY 17, 2014. ON APRIL 25, 2014 GOVERNOR BROWN ISSUED A PROCLAMATION ON THE CONTINUATION OF THE DROUGHT EMERGENCY. THIS EXECUTIVE ORDER STRENGTHENED THE STATE`S ABILITY TO MANAGE WATER AND HABITAT EFFECTIVELY IN DROUGHT CONDITIONS. GOVERNOR BROWN STATED THAT CALIFORNIANS STEPPED UP DURING THIS DROUGHT AND SAVED MORE WATER THAN EVER BEFORE...BUT NOW WE KNOW DROUGHT IS BECOMING A REGULAR OCCURRENCE AND WATER CONSERVATION MUST BE A PART OF OUR EVERYDAY LIFE.

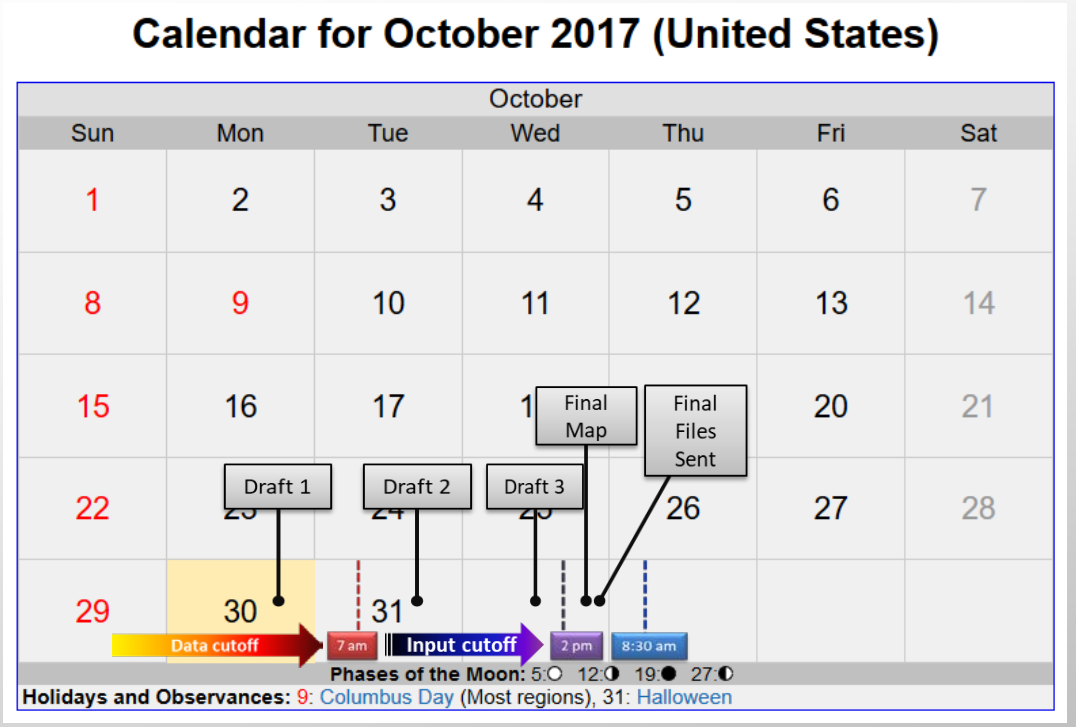
ACCORDING TO THE U.S. DROUGHT MONITOR, AREAS OF INLAND CALIFORNIA NORTH OF HIGHWAY 50 WERE IN D1 TO D2 MODERATE/SEVERE DROUGHT...WITH AREAS SOUTH OF HIGHWAY 50 D3/D4 EXTREME/EXCEPTIONAL. THE DROUGHT CLASSIFICATIONS ARE DUE IN LARGE PART TO THE LONG TERM PRECIPITATION DEFICIT, DRYING WELLS AND LOCAL IMPACTS.



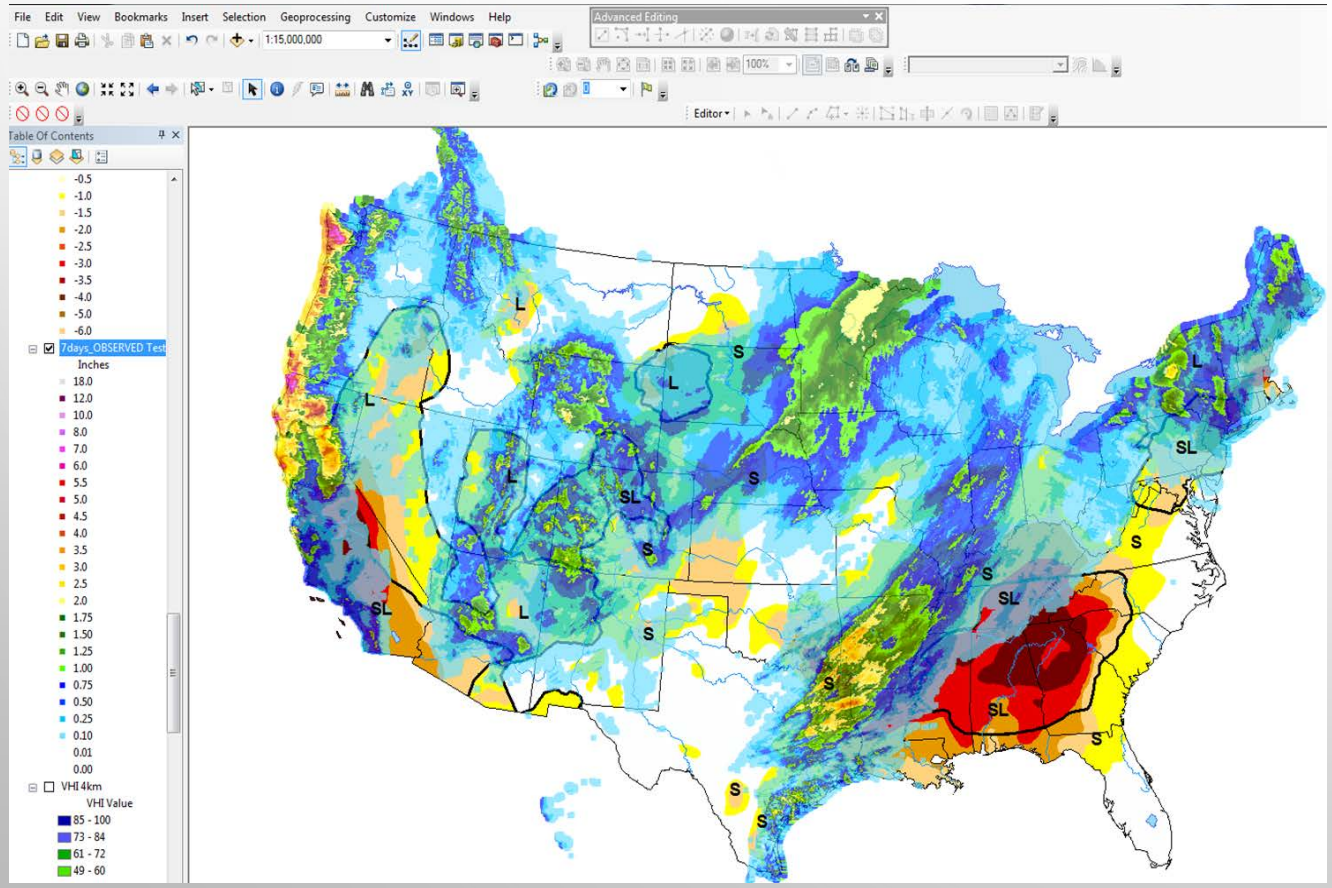


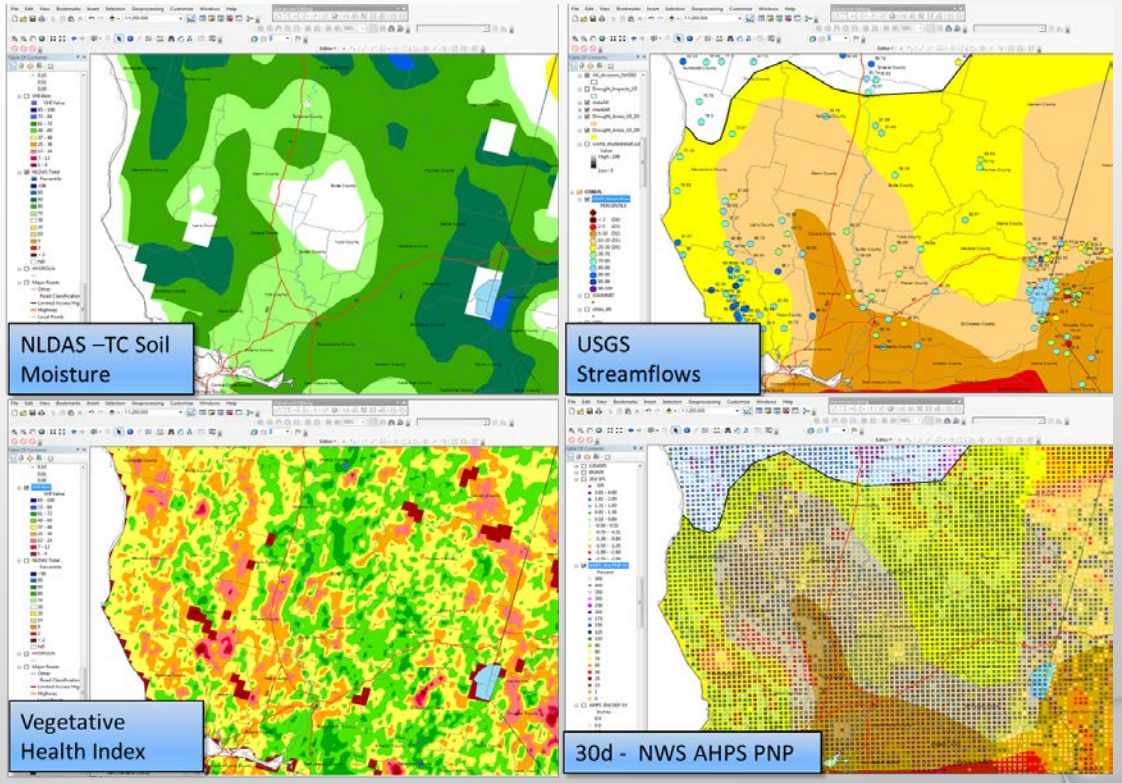
USDM TIMELINE

- **THURSDAY, FRIDAY, AND OVER THE WEEKEND** – RAMP UP LOOKING AT INDICATORS, OBTAIN DX SHAPEFILES, LOOK AT 5-DAY FORECAST, REVIEW TRANSITION EMAIL & ADDRESS LINGERING ISSUES
- **MONDAY** – DRAFT 1 GOES OUT, VARIOUS COORDINATION CALLS
- **TUESDAY** – RESPOND TO EMAILS FROM CONTRIBUTORS, MORE CONFERENCE CALLS, & VERIFYING INPUT. DATA CUTOFF IS 8 A.M. DRAFT 2 GOES OUT
- **WEDNESDAY** – AUTHOR RESPONDS TO FINAL COMMENTS. AUTHOR WRITES NARRATIVE FOR EACH REGION. FINAL MAP GOES OUT TO THE LISTSERV. FINAL FILES SENT OUT TO NDMC AND CPC
- **THURSDAY -** FINAL MAP AND NARRATIVE ARE RELEASED **AT 8:30 A.M. (ET)**



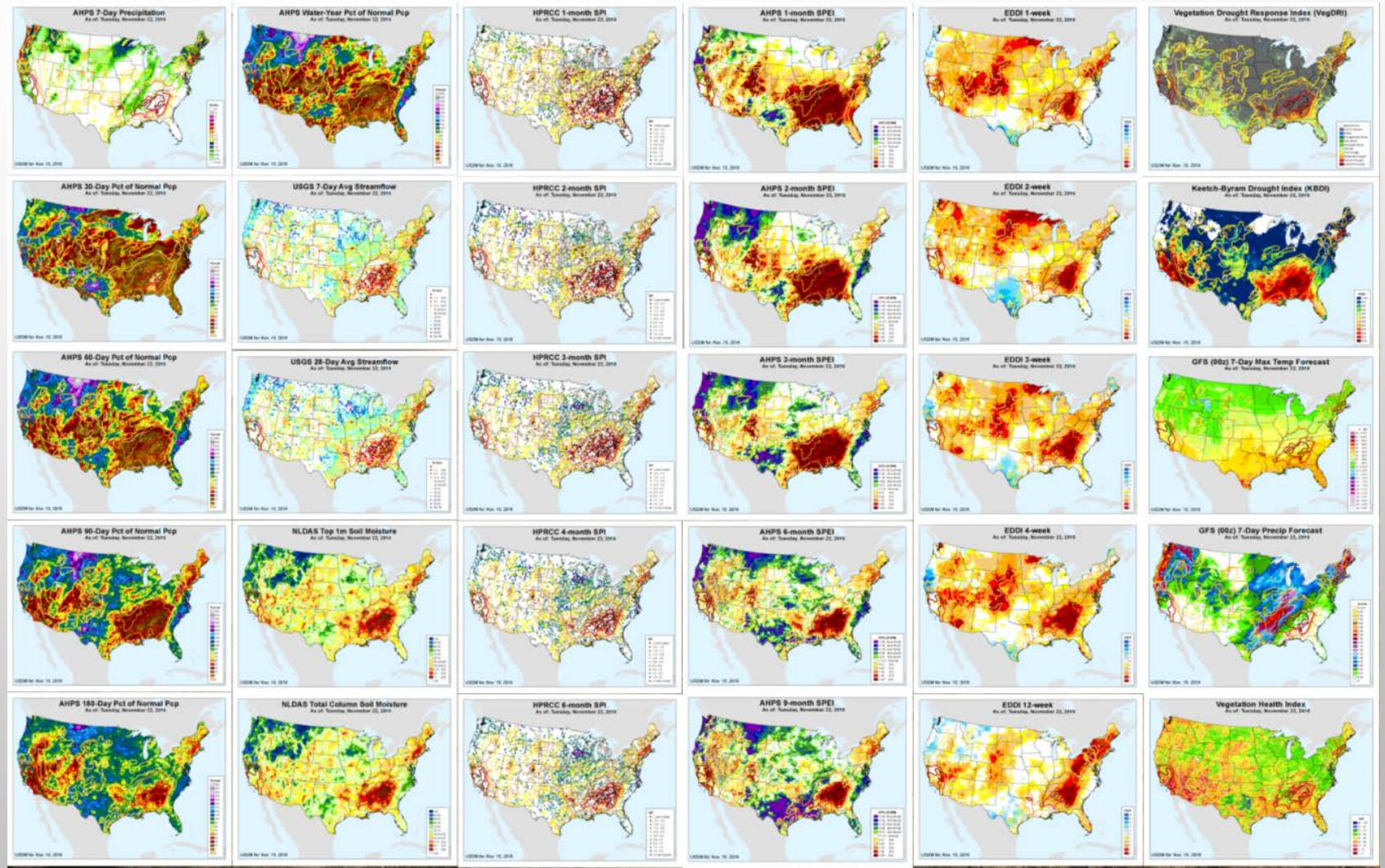
DATA ANALYSIS & MAP CREATION



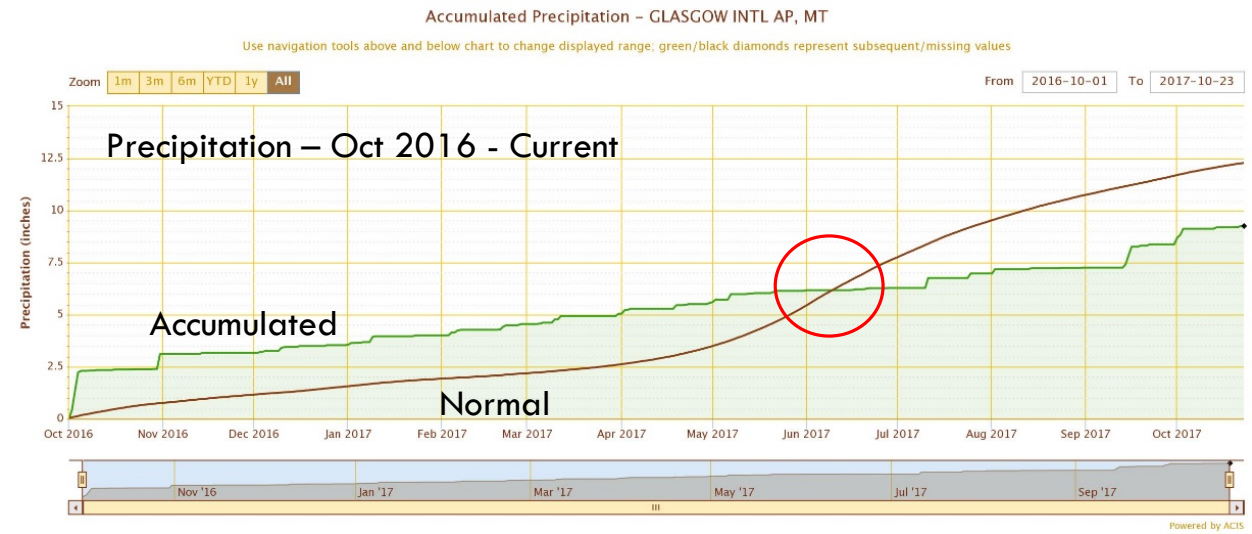


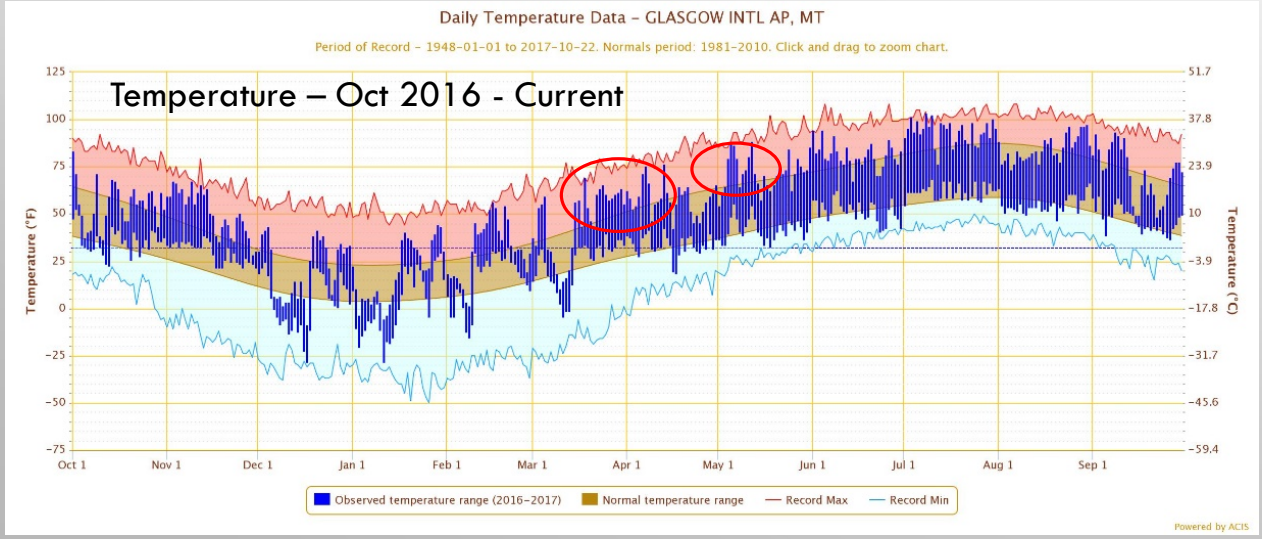
CONVERGENCE OF EVIDENCE APPROACH

- MOST DROUGHTS DO NOT HAVE ALL THE INDICATORS IN AGREEMENT
- LOOK AT WHERE MOST OF THE INDICATORS ARE POINTING
- REPORTED IMPACTS HELP TO PAINT A CLEARER PICTURE

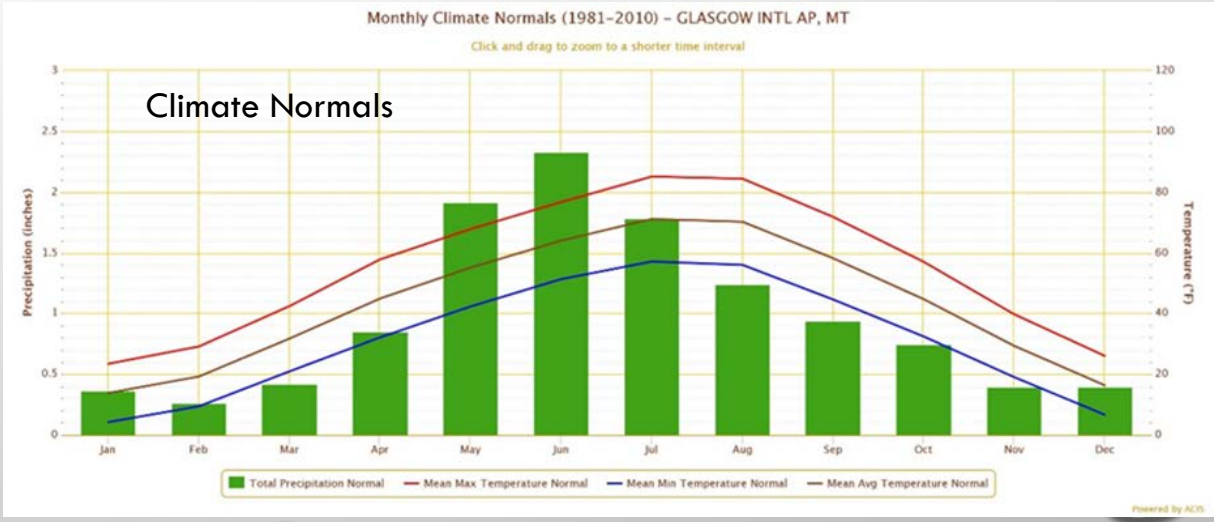


MONTANA DROUGHT - 2017

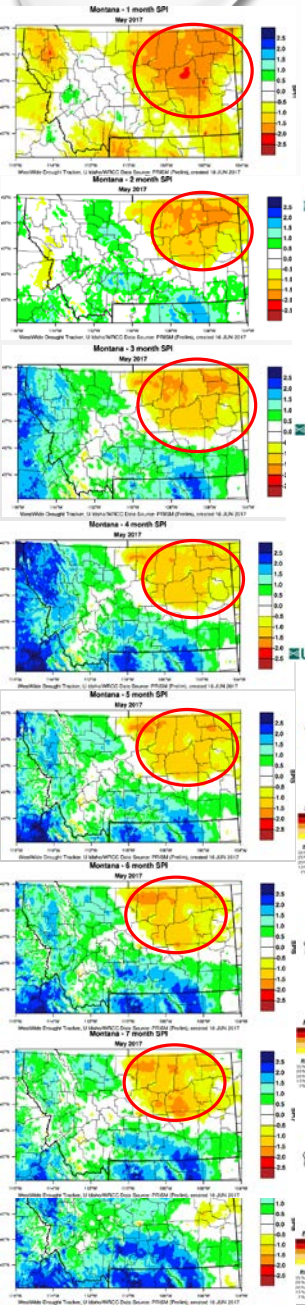




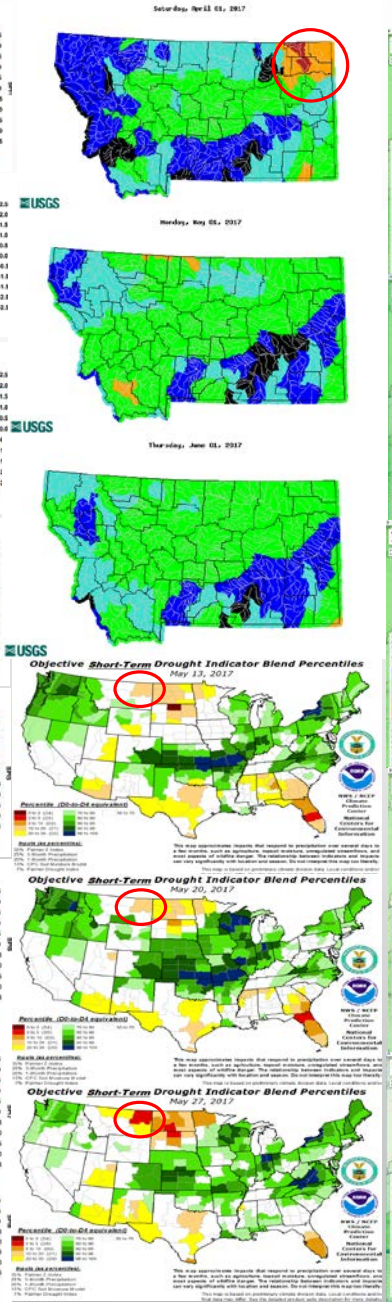
- GLASGOW, MT
  - WETTEST MONTHS - MAY, JUNE, & JULY ACCOUNTING FOR ~52% OF ANNUAL PCPN



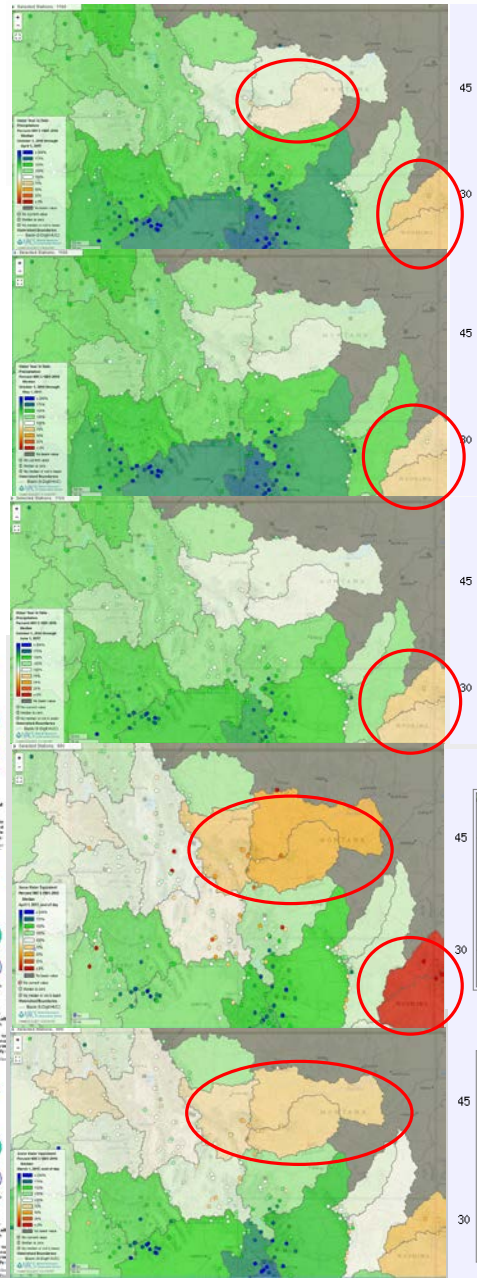
SPI (1-8M)



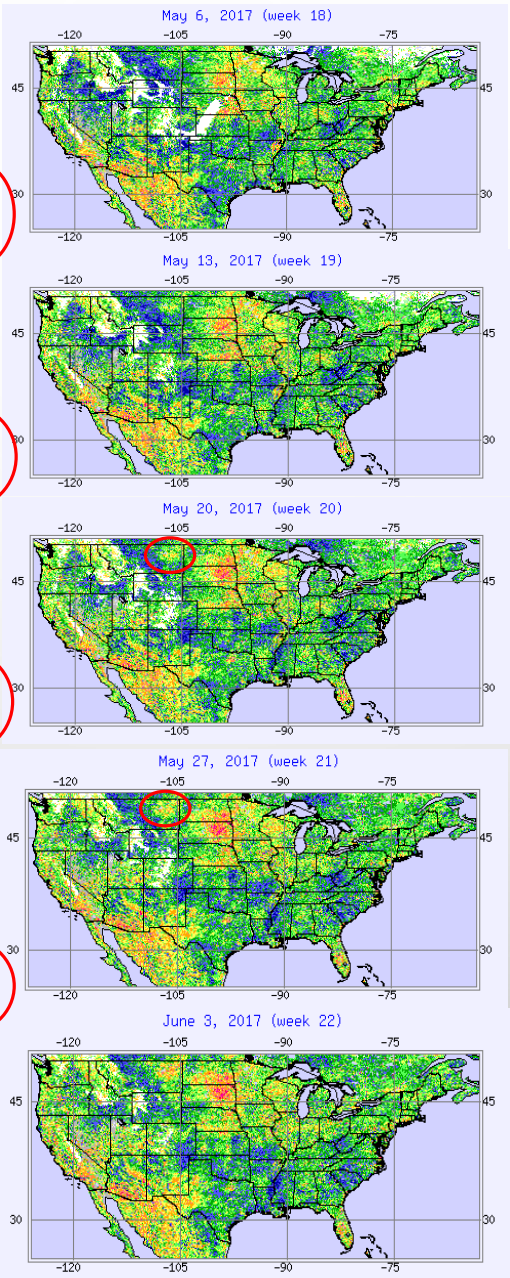
STREAMFLOW/ BLENDS



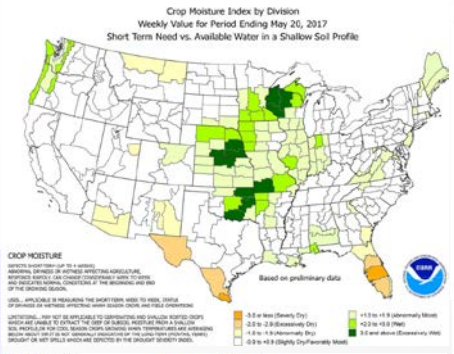
SNOTEL – PNP/SWE

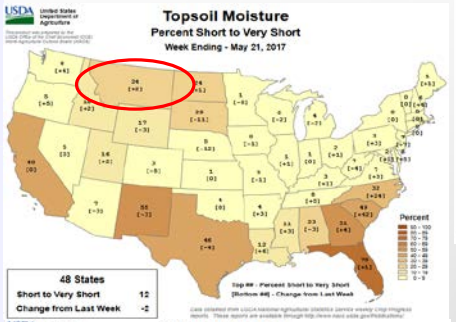


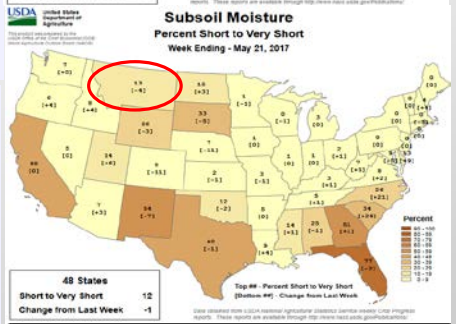
VHI



USDA - AG



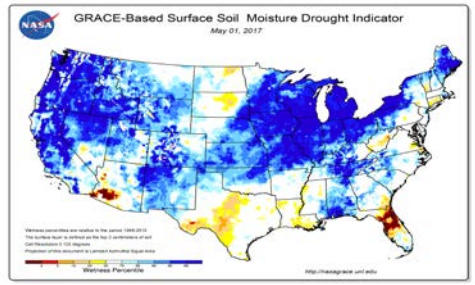


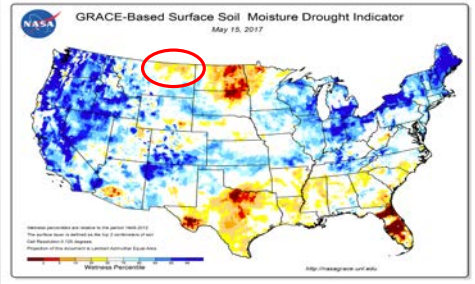


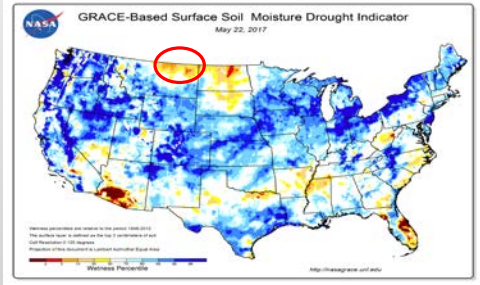
Winter Wheat Condition by Percent

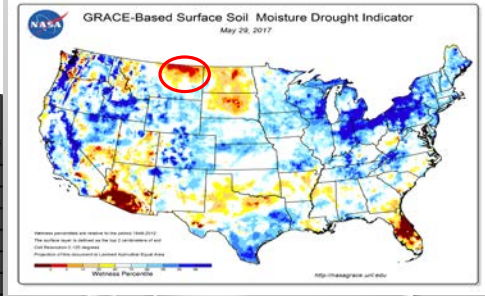
	VP	P	F	G	EX
AR	2	4	23	60	11
CA	0	0	0	80	20
CO	7	13	38	37	5
ID	1	4	24	51	20
IL	11	16	29	37	7
IN	1	4	29	51	15
KS	8	16	29	40	7
MI	2	8	18	60	12
MO	1	8	30	54	7
MT	1	3	44	38	14

GRACE – SOIL MOISURE

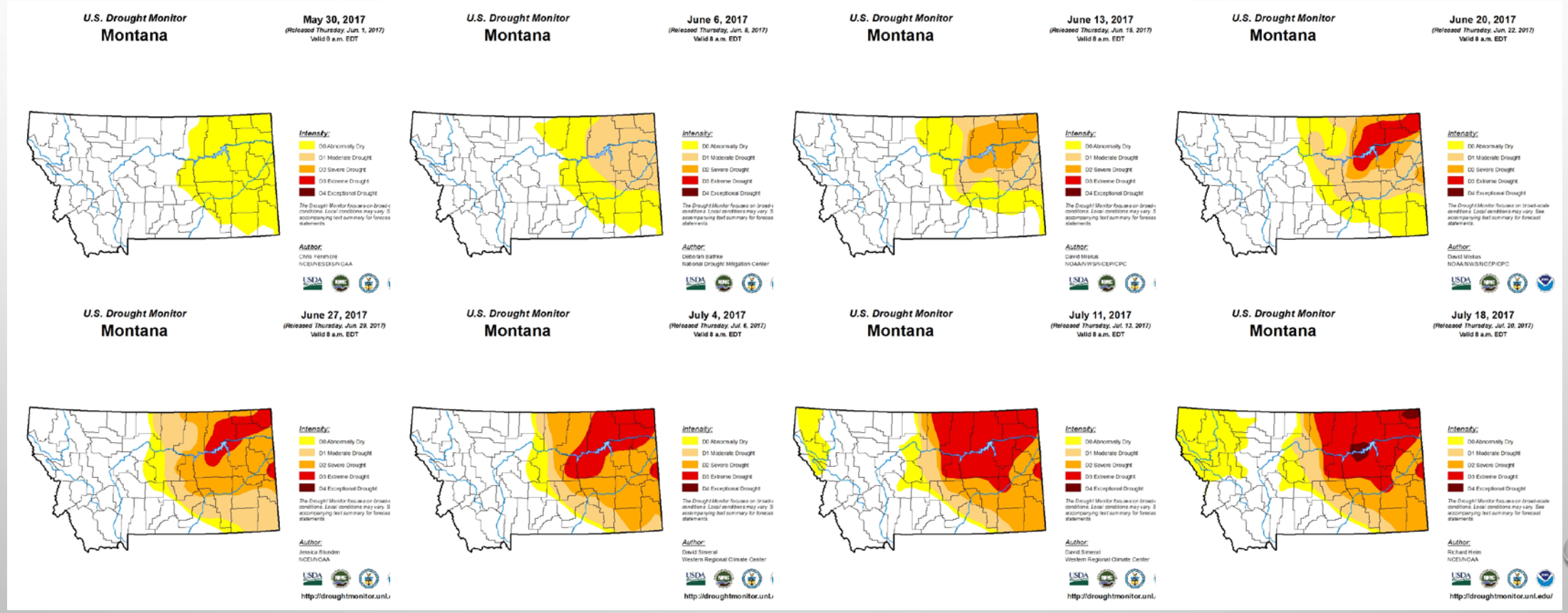








USDM RESPONSE

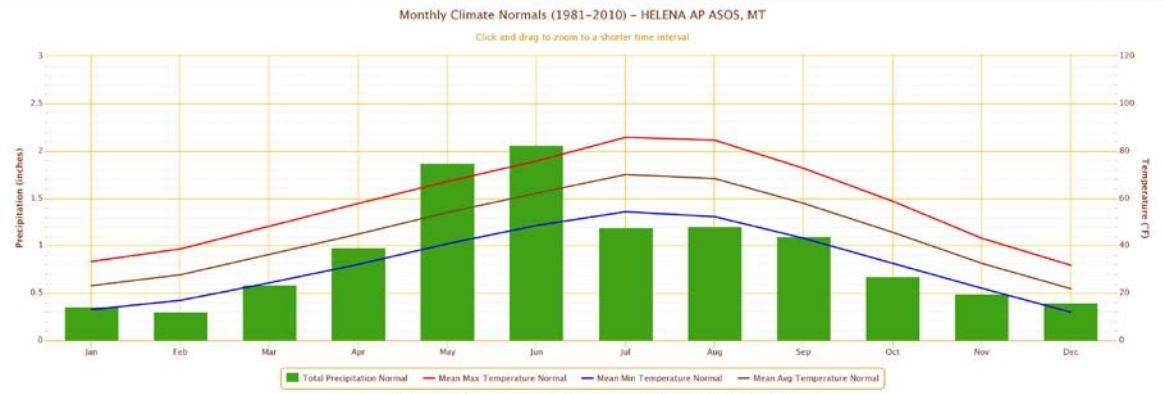


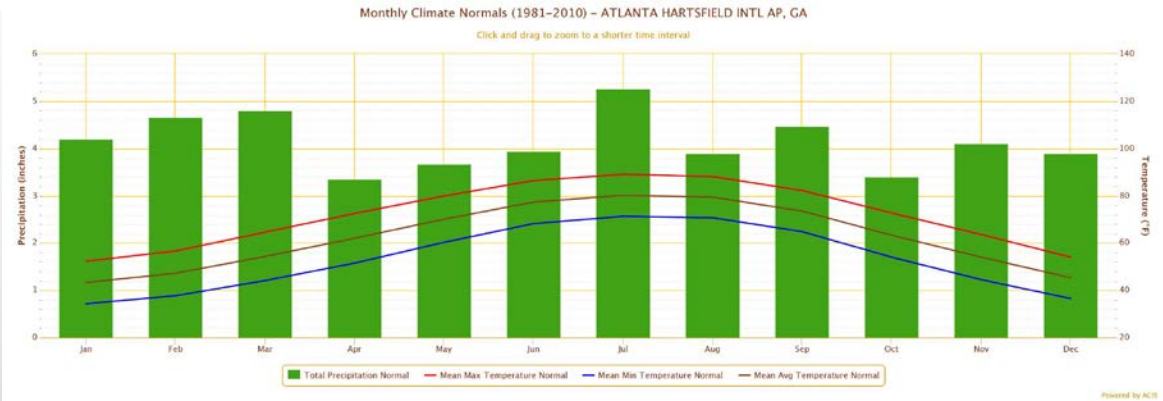
CHALLENGES: RATE AT WHICH DETERIORATION OCCURRED, LACK OF QUANTITATIVE INFO ON AG IMPACTS, NOT KNOWING THE SEVERITY OF IMPACTS, MIXED REPORTS FROM THE FIELD ON CONDITIONS, CONCERTED EFFORTS TO LOBBY FOR D3+ TO RECEIVE LFP RELIEF FUNDS

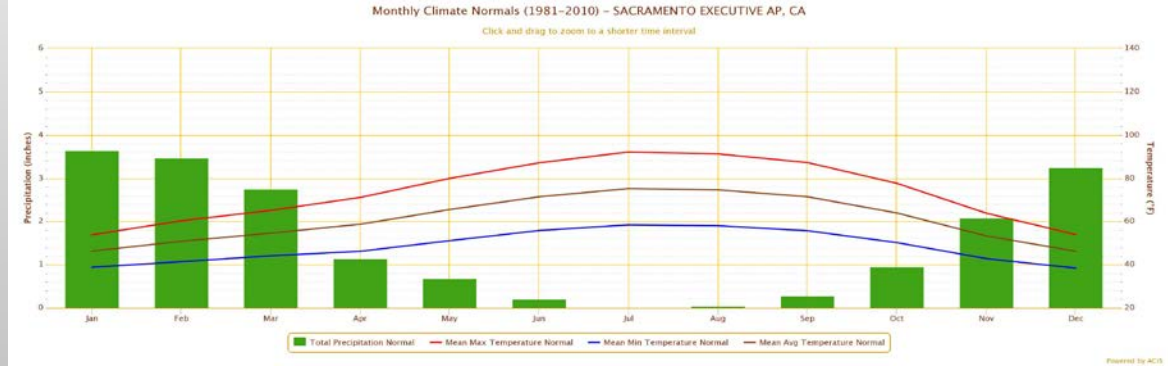
QUESTIONS

HOW DOES THE DROUGHT MONITOR WEIGHT ACCUMULATED PRECIPITATION AS COMPARED WITH MONTHLY PRECIPITATION?

- PRECIPITATION IS A VERY IMPORTANT INDICATOR, ESPECIALLY WHEN THERE ARE LARGE SEASONAL DIFFERENCES IN NORMAL PRECIPITATION
- THERE IS NO OBJECTIVE WEIGHTING FACTOR UTILIZED, RATHER IT'S A SUBJECTIVE PROCESS TAKING INTO CONSIDERATION THE LOCAL CLIMATOLOGY, ECOLOGICAL FACTORS, HYDROLOGY, SOILS, ET, ETC…







QUESTIONS – CONT.

WHAT ARE THE TOP 2 OR 3 PRODUCTS THAT MOST INFLUENCE THE USDM MAP?

- NO SINGLE INDICATOR OR GROUP OF INDICATORS DRIVE THE MAP EACH WEEK
- IMPORTANT PRODUCTS: SPI/SPEI, PNP, HYDRO (RESERVOIRS, STREAMFLOW, SNOWPACK), SOIL MOISTURE, VEGETATION HEALTH
- IMPACTS (PROVIDED BY LOCAL, STATE, OR REGIONAL COORDINATION TEAMS)

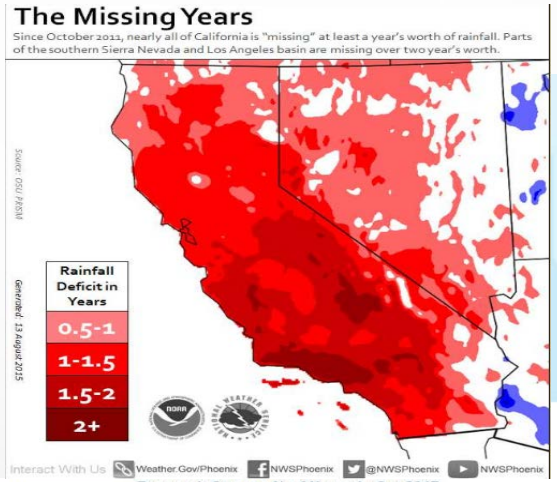
IN REGARDS TO PRECIPITATION, WHAT TIME SCALES HAVE THE MOST INFLUENCE?

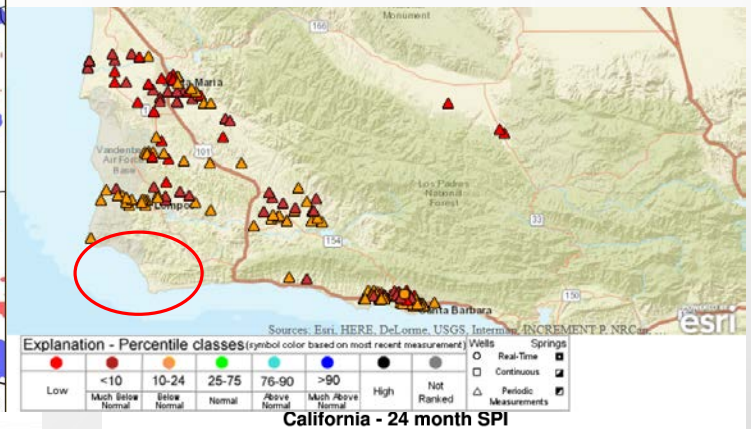
- DEPENDING UPON LOCATION AND SEASON, DIFFERENT INDICATORS MAY BE WEIGHTED DIFFERENTLY (I.E., SWE OUT WEST [OCT-APR] OR AG-SPECIFIC INDICATORS DURING GROWING SEASON)
- WHEN AVAILABLE IN A PRODUCT, WE LOOK AT TIMESCALES FROM THE LAST WEEK TO SEVERAL YEARS OUT IF NECESSARY (USUALLY IN A LONGER-TERM DROUGHT SCENARIO)

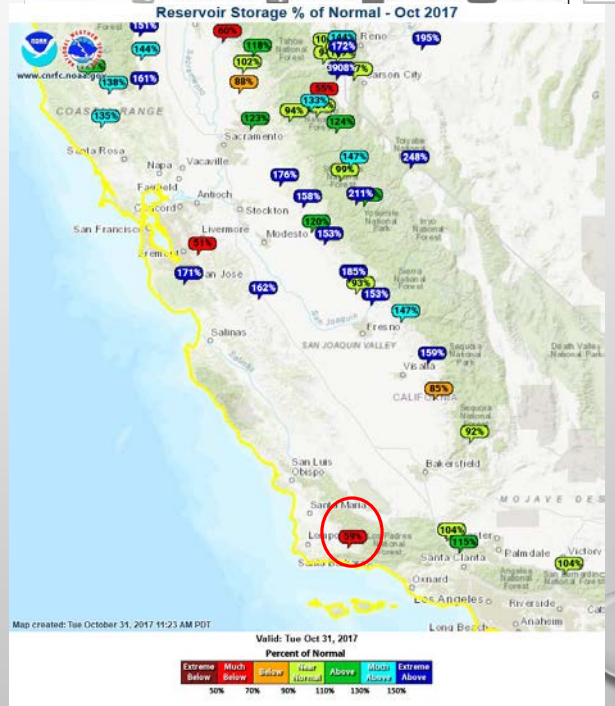
QUESTIONS – CONT.

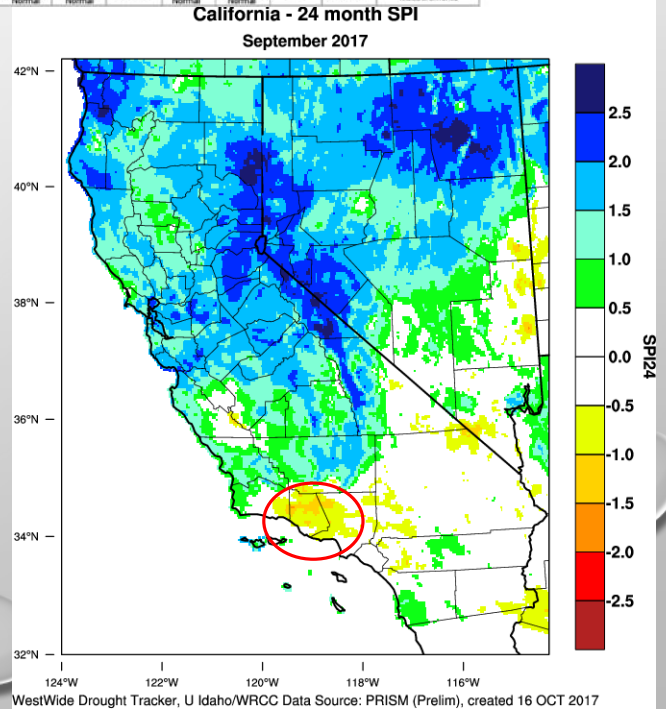
ARE THE SAME SET OF PRODUCTS, THRESHOLDS, AND TIME PERIODS LOOKED AT HEADING INTO AND OUT OF DROUGHT?

- IN GENERAL, IT DEPENDS ON THE LOCATION AND IMPACTS. FOR EXAMPLE, IN THE CASE OF THE CALIFORNIA DROUGHT WE BACKED OFF SLOWLY WITH AN EMPHASIS PLACED ON SNOWPACK, RESERVOIR LEVELS, STREAMFLOW LEVELS, MONITORING THE FORM OF PCPN THROUGHOUT THE WINTER (SNOW DROUGHT?), AND LONG-TERM PRECIPITATION DEFICITS.
- WE LOOK AT THE CLIMATOLOGY WHEN CONSIDERING TAKING A LOCATION OUT OF DROUGHT. ARE THEY MOVING INTO A DRY SEASON (SUMMER) WHEN PRECIPITATION IS LESS LIKELY AND ET RATES HIGHER?
- EXTREME PRECIPITATION EVENTS MAY LEAD TO MORE RAPID IMPROVEMENT DEPENDING UPON TIMING AND INTENSITY.





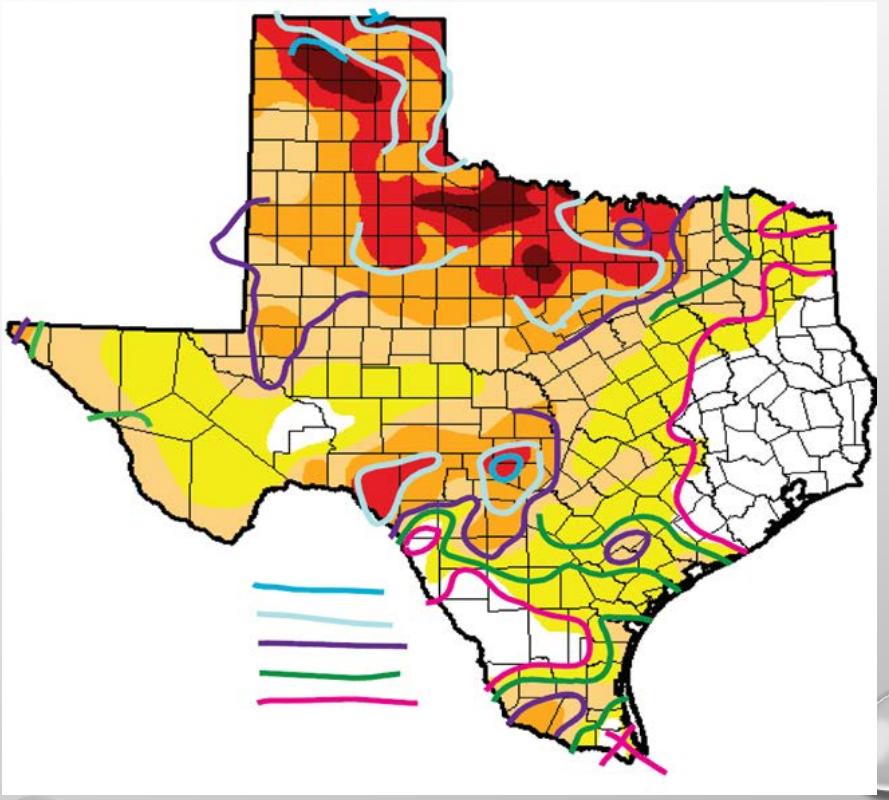




QUESTIONS – CONT.

MONTANA SUBCOMMITTEE HAS CONCERNS THAT USDM RESPONDS, AT TIMES, TOO QUICKLY WEEK-TO-WEEK

- AS AUTHORS, WE GET ACCUSED OF RESPONDING TOO QUICK AND TOO SLOW
- IMO, USDM AUTHORS TAKE A SOMEWHAT CONSERVATIVE APPROACH TOWARDS CHANGES ON THE MAP
- SOME STATE DROUGHT COORDINATION TEAMS RECOMMEND NUMEROUS CHANGES WEEK-TO-WEEK
- IN GENERAL, THE RATE AT WHICH THE RESPONSE OCCURS DEPENDS ON THE REGION, DROUGHT IMPACTS, SEASON, SOILS, ETC… EXAMPLE – DROUGHT IN SOUTHEASTERN U.S. IN 2016 AND RAPID ONSET DUE TO SHORT-TERM PCPN DEFICITS, AG IMPACTS, RAPID DECLINE IN VEGETATIVE HEALTH & STREAMFLOWS
- CALIFORNIA DROUGHT – COMING INTO THE DROUGHT THE AUTHORS WERE QUICKER TO INTRODUCE DROUGHT THAN THE COORDINATION TEAM WANTED AND WERE SLOWER DURING THE RECOVERY PERIOD BECAUSE OF LINGERING LONG-TERM HYDROLOGICAL IMPACTS & RELIEF PROGRAMS IN PLACE. MANY POLITICAL INFLUENCES DRIVING RECOMMENDATIONS.



QUESTIONS – CONT.

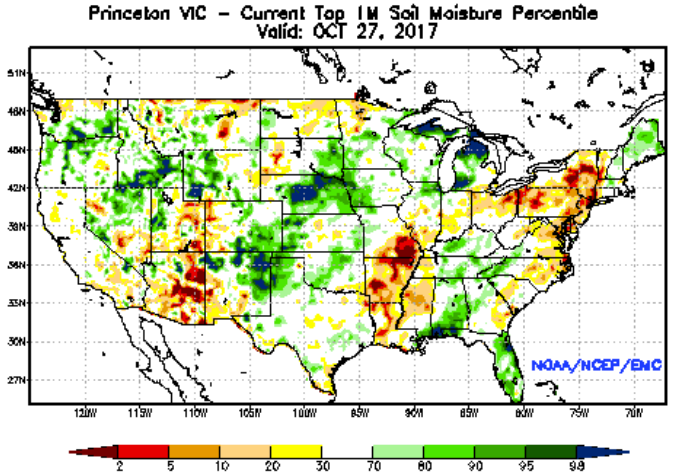
WHEN THERE'S DISAGREEMENT BETWEEN THE USDM ANALYSIS & LOCAL ANALYSIS, WHAT WOULD YOU LIKE TO HAVE IN TERMS OF JUSTIFICATION WITH RESPECT TO DATA OR IS THERE ANOTHER PROCESS TO RESOLVE DIFFERENCES?

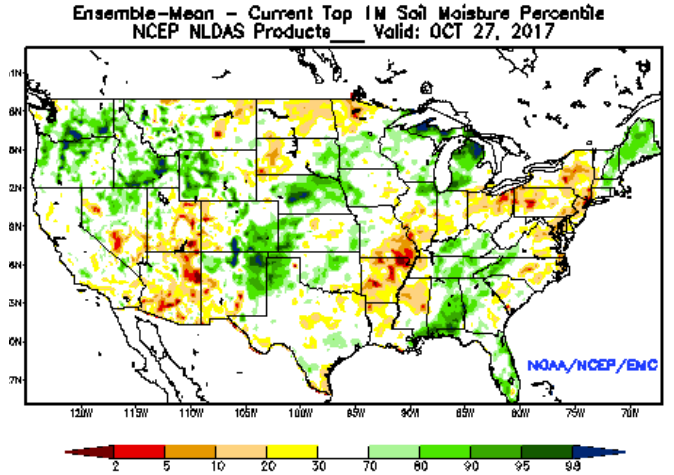
- CLEAR COMMUNICATIONS DIRECTLY WITH THE AUTHOR
- SUBMITTING RECOMMENDATIONS BY TUESDAY MORNING HELPS TO ALLOW SUFFICIENT TIME FOR DATA VERIFICATION & DISCUSSION
- USE MULTIPLE LINES OF DATA PRODUCTS TO MAKE YOUR CASE. USE OF PNP IS NOT GENERALLY SUFFICIENT
- THERE WILL BE OCCASIONS WHERE THERE MAY BE SOME DIFFERENCES BETWEEN THE AUTHORS AND COORDINATION TEAMS
- IN THE END, THE AUTHOR'S NAME GOES ON THE MAP AND WE HAVE TO BE ABLE TO JUSTIFY DX CHANGES (WITH DATA). WE'RE OFTEN WORKING UNDER A MICROSCOPE AND HAVE TO ANSWER TO MEMBERS OF CONGRESS, GOVERNORS, ETC…

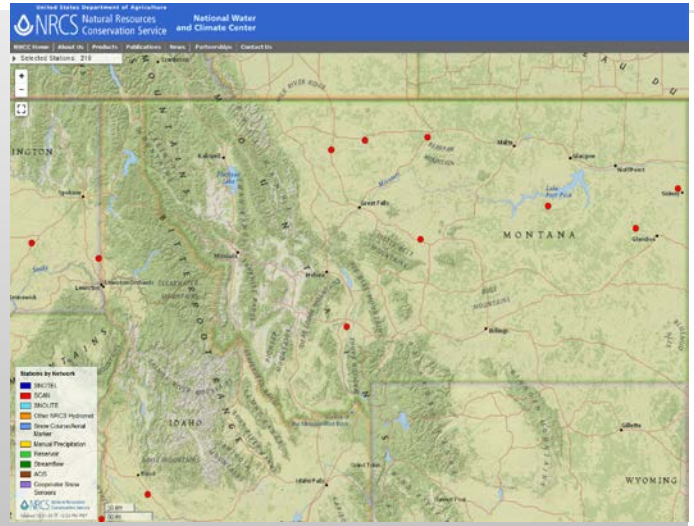
QUESTIONS – CONT.

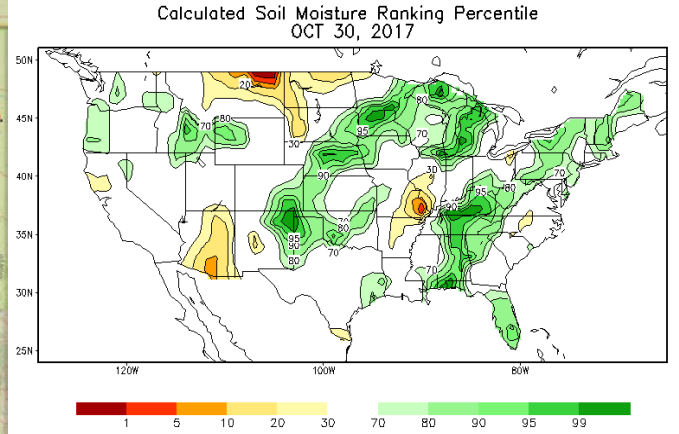
ARE MODELS USED TO EVALUATE DROUGHT ADJUSTED FOR ARID CLIMATES AND SOIL TYPES?

- SOIL MOISTURE MODELS (VIC MODEL, NLDAS) **DO** TAKE INTO ACCOUNT CLIMATIC FACTORS AND SOIL CHARACTERISTICS
- VIC MODEL ELEMENTS – LOCATION, ELEVATION, LAND COVER, SUB-DAILY MET DATA (PRECIP, AIR TEMP, WIND SPEED), LAND-ATMOSPHERIC FLUXES, WATER & ENERGY BALANCES AT THE LAND SURFACE
- WE LOOK AT ALL THE MODELS AVAILABLE AND SEEK CONSENSUS
- USE IN-SITU DATA (WHEN AVAILABLE) TO GROUND TRUTH MODELS. IN-SITU DATA DOESN'T ALWAYS HELP TO PAINT THE BROADER PICTURE IN COMPLEX TERRAIN BECAUSE SO MANY OTHER VARIABLES MAY BE INFLUENCING CONDITIONS (SLOPE ANGLE, SLOPE ASPECT, SOIL TYPE, VEGETATIVE COVER, SURFACE CONDITION (SNOW COVERED VS DRY SURFACE)









QUESTIONS – CONT.

HOW DO USDM AUTHORS SETTLE UPON A SOLUTION GIVEN SUCH A WIDE VARIETY OF EXPECTATIONS & EVIDENCE?

- CONVERGENCE OF EVIDENCE APPROACH HELPS TO DEFINE THE "STORY" THE INDICATORS ARE TELLING
- IMPACTS PROVIDE VALIDATION TO DATA PRODUCTS
- MAKING MULTIPLE MAPS WOULD BE HELPFUL IN SOME INSTANCES
- WE CANNOT ADDRESS ALL TYPES OF DROUGHT IN ONE MAP AS WELL AS ALL POTENTIAL APPLICATIONS OF THE MAP

ARE THE AUTHORS THEMSELVES CONSISTENT IN THEIR OWN INTERPRETATIONS?

- INTERNALLY, THE AUTHORS DISCUSS THE IMPORTANCE OF CONSISTENCY OFTEN
- AUTHORS COMMUNICATE AMONGST EACH OTHER REGULARLY
- ALL AUTHORS UTILIZE THE SAME DATASETS
- CONSISTENCY CAN BE CHALLENGING WHEN GROUPS HAVE DIFFERING APPROACHES & METHODOLOGIES
- TRANSITION EMAILS BETWEEN THE AUTHORS HELP MAINTAIN CONTINUITY FROM WEEK TO WEEK

CLOSING THOUGHTS/RECOMMENDATIONS

- MAINTAIN AN ON-GOING DIALOGUE OF CLIMATE/DROUGHT-RELATED CONDITIONS THROUGHOUT THE YEAR.
- CLOSELY MONITOR KEY INDICATORS COMING INTO THE SPRING/SUMMER MONTHS.
- IF FEASIBLE, COULD THE MONTANA STATE CLIMATE OFFICE PLAY A MORE CENTRAL ROLE IN COORDINATION ACTIVITIES?
- IF FEASIBLE, ESTABLISH A WEEKLY OR BI-WEEKLY DROUGHT COORDINATION CALL (PREFERABLY ON A MONDAY) AND ALLOW THE USDM AUTHORS TO JOIN.
- RESULT OF THE COORDINATION CALL – A CONSENSUS, CONCISE RECOMMENDATION TO THE USDM WITH AN ACCOMPANYING MAP