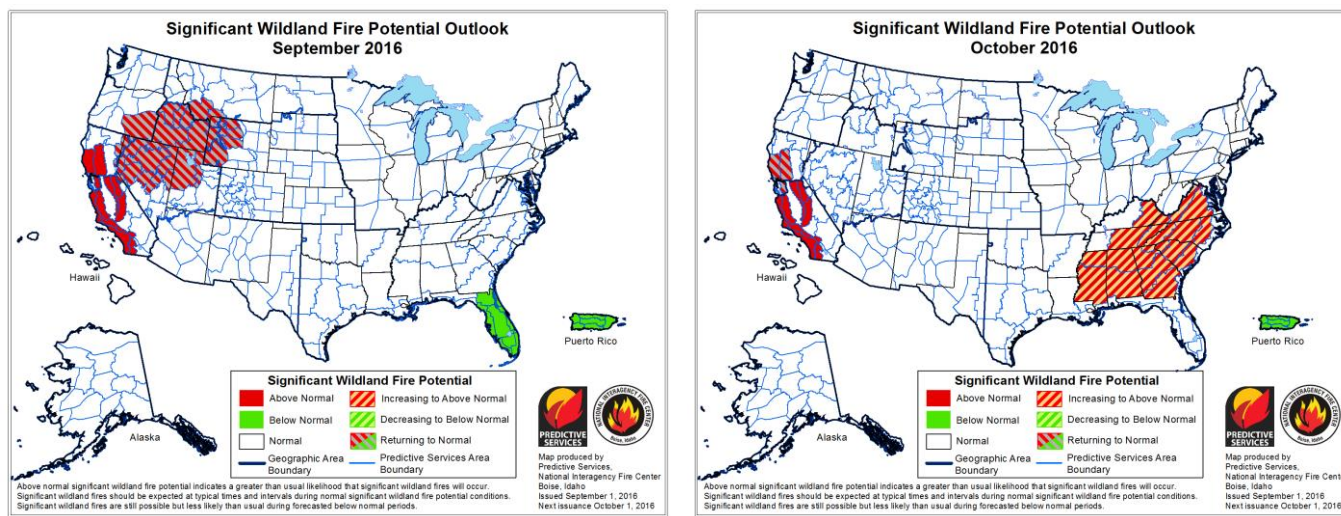


TETON INTERAGENCY FIRE

SEPTEMBER 2016 WILDLAND FIRE OUTLOOK

September 4, 2016



Significant Wildland Fire Potential for September and October, 2016 (issued September 1, 2016).
<http://www.predictiveservices.nifc.gov/outlooks/outlooks.htm>

SUMMARY

Blocking high pressure and a prolonged neutral state of a transition from strong El Niño/Southern Oscillation (ENSO) conditions into La Niña conditions may have led to a drier than normal summer. This pattern featured:

- Six of the last seven months with below normal precipitation, and April through August precipitation of 53% of normal (at Moose WY weather station).
- While moisture is near normal for the water year-to-date (October through July), the last three months of precipitation at Moose are at 59% of normal. For July, Moose received 41% of average moisture and for August only 12% of average.
- In sagebrush flats and drier sites, fuels in grasses and sagebrush are at or near critical fire conditions and are available to rapid fire spread if heat, low humidity and wind align with a fire ignition. In conifer fuels, all measured fuel types -- 1000 hour dead fuels, live herbaceous, and live woody -- are at the 90th percentile.
- Transition into shorter burn periods will mitigate fire activity, though the potential of dry cold fronts on remaining fires may support short runs.

Key Points for August

- **LIVE FUELS** > Live fuels will continue to cure with seasonal drying trends and are curing and/or succumbing to frost kill.
- **DEAD FUELS** > In conifer fuels, fine dead fuels and 1000-hour fuels are at or near the 90th percentile at sampled sites in Grand Teton NP, a trend observed in sampled sites on the Bridger-Teton NF.
- **WEATHER** > At Moose weather station, the last three months received 34% of normal precipitation, a pattern reflected throughout the dispatch area, with the exception that scattered thunderstorms has dropped significant but typically isolated moisture across the region.
- **LOCAL SUMMARY** > Active fires in the area have exhibited fire growth typical dry summer conditions, with significant daily runs on the Cliff Fire (BTNF) and the Berry Fire (GTNP and BTNF). Fire danger has increased to Very High and is likely to remain at this level or higher until moisture flow moves into the region. Late-season dry lightning ignited numerous fires on September 4.
- **REGIONAL OUTLOOK** > A weak, inconsistent monsoon may continue through August. Dry conditions are expected to continue and temperatures are expected to be near normal for August.
- **FIRE SEASON** > Local and regional outlooks call for a return-to-normal conditions for September as cooler/longer nights overcome continuing dry conditions into September. Of note, though: during comparable dry seasons (1988, 1994, 2000, 2012), three of those four years received only one-third average moisture during September.

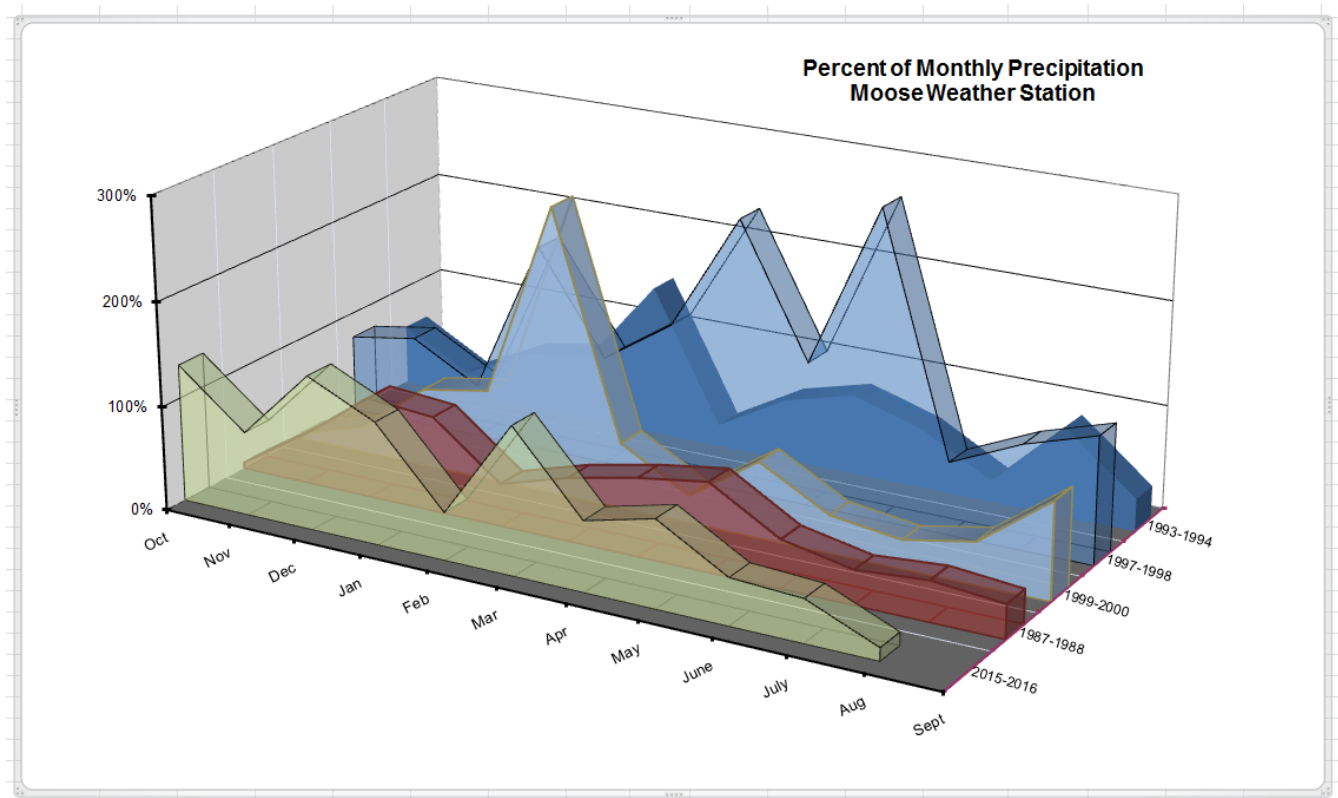
CLIMATE AND FUELS OUTLOOK

(1) Year-to-Date Precipitation for Area Weather Stations

The summer moisture deficit that supported an active fire season is reflected in summer moisture trends, which is nearly one-third of normal precipitation at the Moose weather station (automated station, link for [August 2016](#)), which is representative for lower elevation sites in Grand Teton National Park and some North Zone sites. The Moose station is at 89% of normal for water year-to-date, and the prior 3 months of moisture (June-July-August) is comparable to active fire years, such as 1988, 1994, 2000, and 2012. (Of note, regarding moisture trends for those fire years, 3 of the 4 received one-third of average precipitation for September, with September 2000 receiving 94% of average moisture.) Area-wide moisture tracking (Figure 1) captures the variety of moisture impacts for the entire Teton Interagency zone, with cumulative moisture ranging from 10-90 percent of normal.

Table 1 and Graph: Precipitation at Moose Weather Station (Grand Teton National Park).

		May	June	July	Aug	Last 3 months	YTD total
Monthly Precipitation (inches)	1987-88	1.61	.75	0.43	0.5	1.68	12.47
	1997-98	2.6	4.77	0.9	1.3	6.97	27.76
	1999-00	1.38	.59	0.36	0.53	1.48	14.38
	2014-15	3.83	1.03	2.72	1.56	5.31	17.56
	Normal	1.62	1.61	1.29	1.29	4.19	21.84
	2015-16	1.57	0.72	0.53	0.16	2.82	17.4
Percent of NORMAL	1987-88	84%	47%	33%	39%	40%	61%
	1997-98	138%	296%	70%	101%	166%	136%
	1999-00	72%	37%	28%	41%	35%	71%
	2014-15	204%	64%	211%	121%	127%	107%
	2015-16	84%	45%	41%	12%	34%	89%



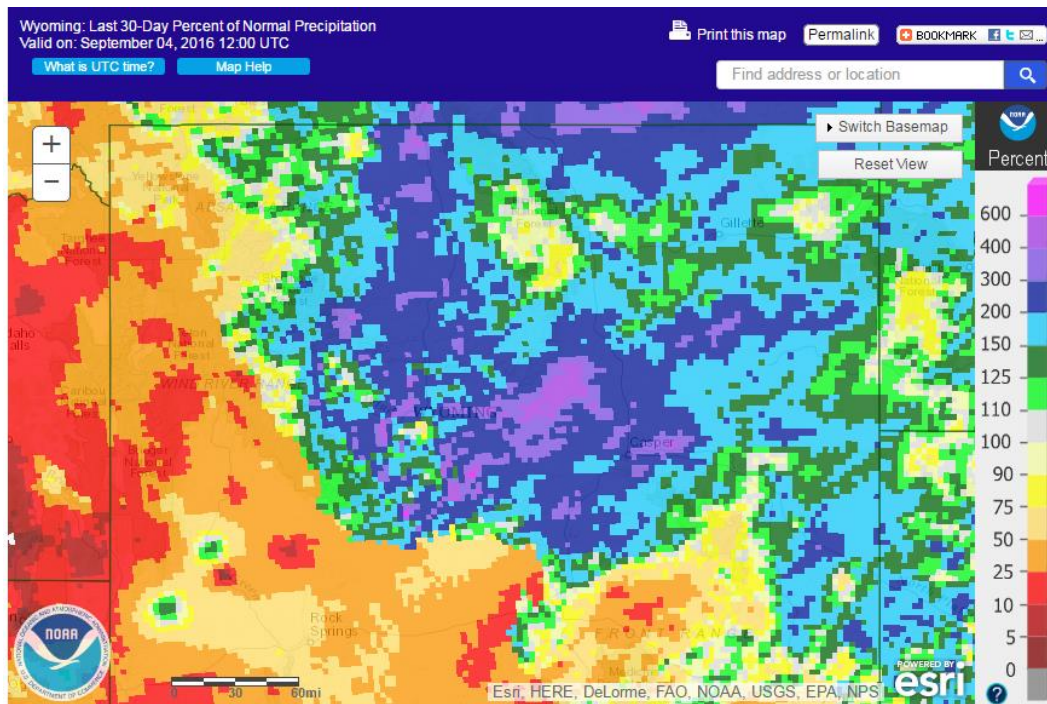


Figure 1. Wyoming, Current Precipitation – Percent of Normal Precipitation for Wyoming. For the past 30 days (ending September 4, 2016), western and southwest Wyoming exhibits a range of below-normal rainfall, from 10-75 percent of normal with smaller zones with above normal moisture due to intense but isolated thunderstorm activity.
<http://water.weather.gov/precip/>. ([Permalink to current data.](#))

(2) Drought Monitor

The current drought map for the U.S. West shows 75% of the West in some stage of abnormally dry to drought conditions. In Wyoming, 56% of the state is in some stage of abnormally dry to drought conditions, compared to 19% at this date last year. Dry conditions in Wyoming track across the northern and eastern tiers of the state, with “Abnormally Dry” impacts in the majority of the Teton Dispatch area.

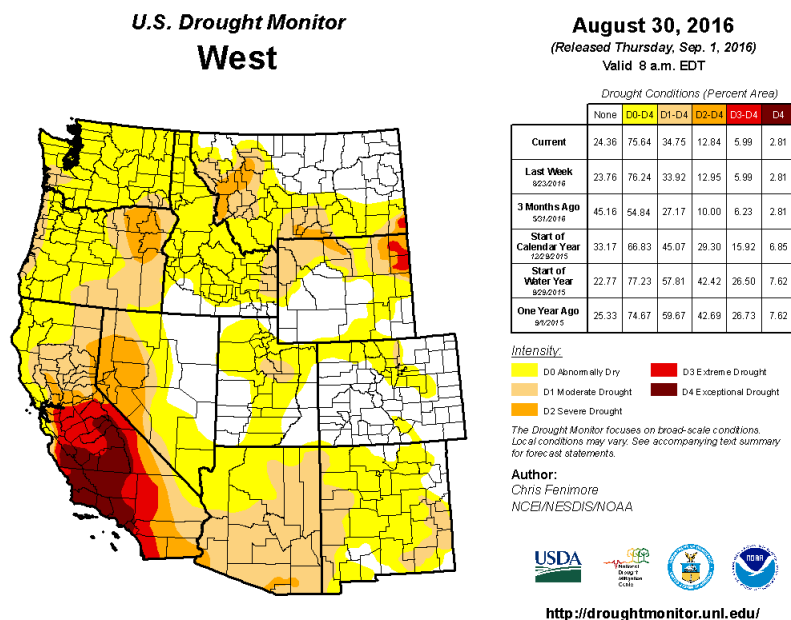
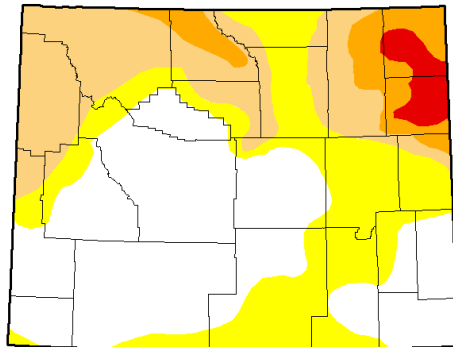


Figure 2a. U.S. Drought Monitor – West.
<http://droughtmonitor.unl.edu/Home/RegionalDroughtMonitor.aspx?west>

U.S. Drought Monitor Wyoming

August 30, 2016
(Released Thursday, Sep. 1, 2016)
Valid 8 a.m. EDT



	Drought Conditions (Percent Area)					
	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	43.63	56.37	29.95	9.06	2.63	0.00
Last Week 9/25/2016	42.67	57.33	19.68	9.06	2.63	0.00
3 Months Ago 5/31/2016	80.72	19.28	4.77	0.00	0.00	0.00
Start of Calendar Year 1/1/2016	38.46	61.54	4.25	0.00	0.00	0.00
Start of Water Year 9/30/2015	60.61	39.19	0.48	0.00	0.00	0.00
One Year Ago 8/30/2015	81.30	18.70	0.04	0.00	0.00	0.00

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

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

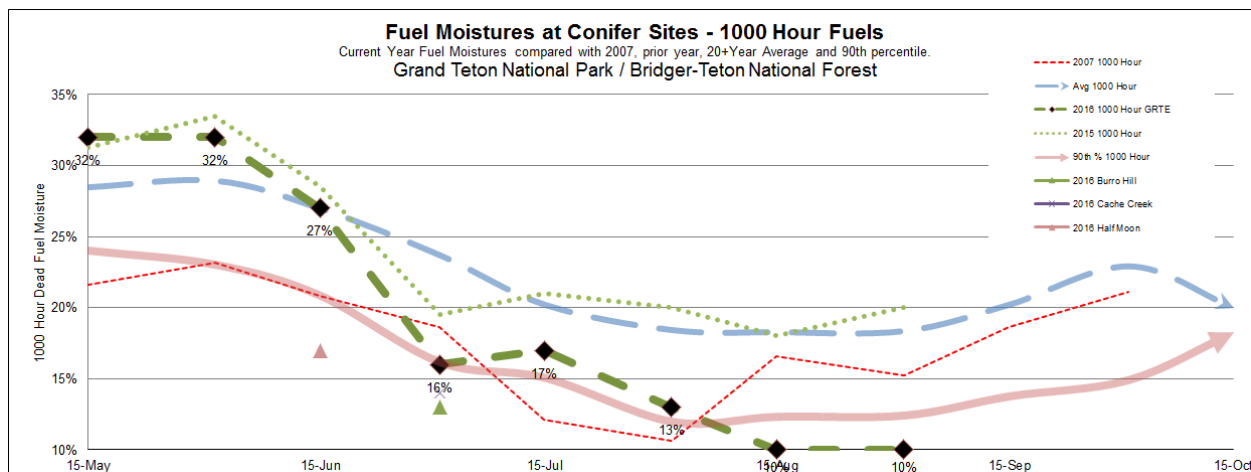
Author:
Chris Fenimore
NCE/NESDIS/NOAA

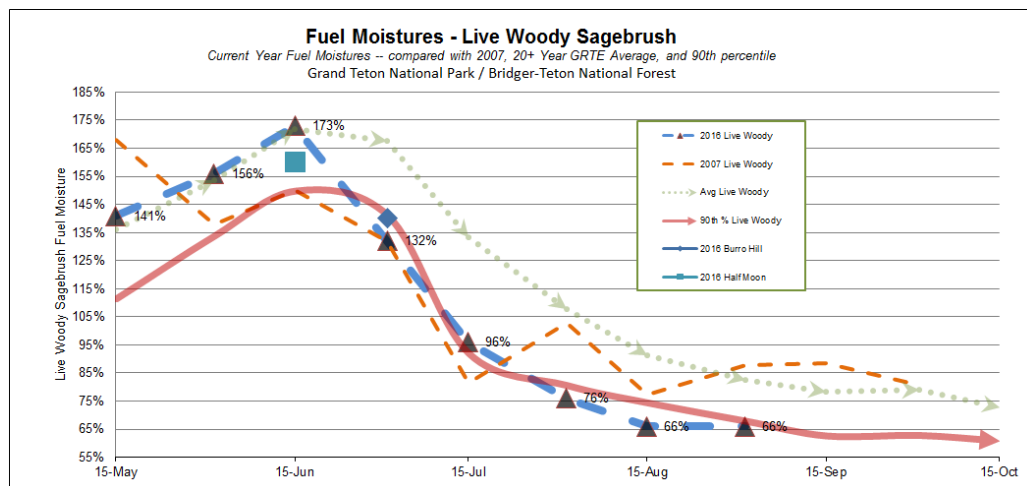
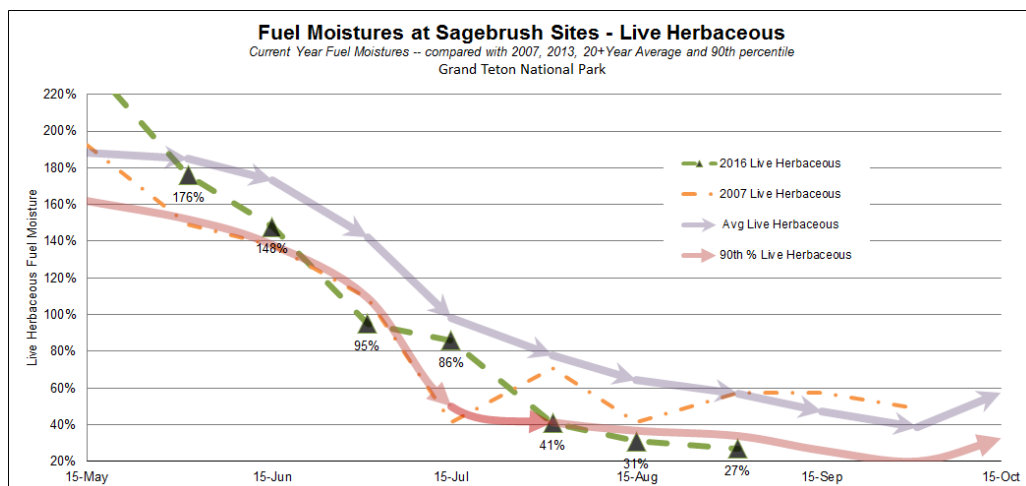
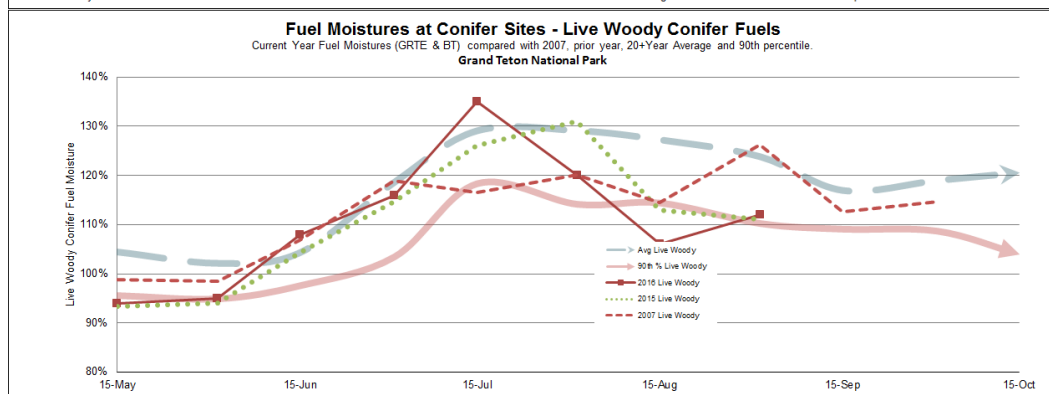
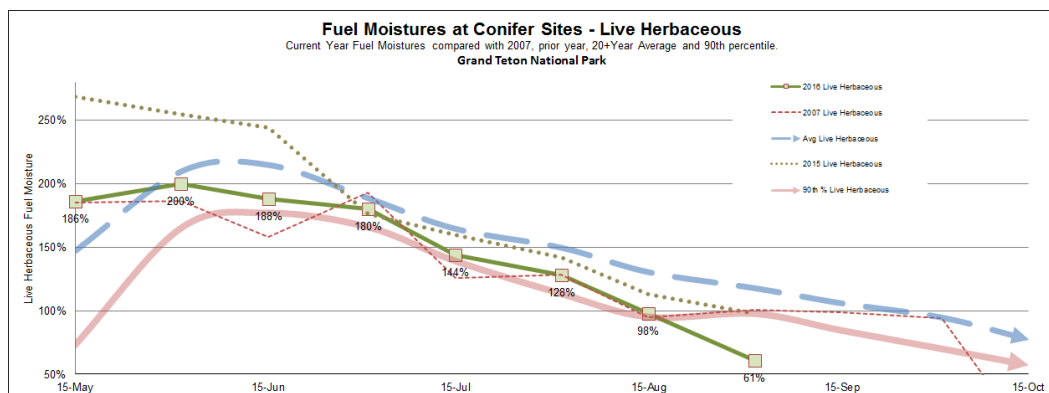
USDA NCE/NESDIS/NOAA <http://droughtmonitor.unl.edu/>

Figure 2b. U.S. Drought Monitor – Wyoming.
<http://droughtmonitor.unl.edu/Home/StateDroughtMonitor.aspx?WY>

(3) Fuel Moisture

Fuel moisture sampling of live and dead fuels at long-term sampling sites in Grand Teton National Park indicate the continued drying trend in sagebrush fuels and in conifer fuels. In sagebrush, both live herbaceous and live woody are tracking at the 90th percentile (the driest 10%) compared to average moisture for September 1. In conifer fuels, 1000 hour fuels (dead/downed logs) and live herbaceous are below the 90th percentile (driest 10%) and live woody is trending slightly wetter but still at the 90th percentile. For current fuel moistures and additional tracking of park and forest fuels, see the National Fuel Moisture Database for Wyoming <http://www.wfas.net/index.php/national-fuel-moisture-database-moisture-drought-103>.





(4) Long-term Temperature and Precipitation Outlook

Outlooks from the Climate Prediction Center reflect a transition from El Niño to La Niña conditions as we move from summer into fall, with potential impacts on the US West. The 30- and 90-day outlooks for - September-October-November indicate normal weather patterns for September and above-normal temperature for the next 3 months.

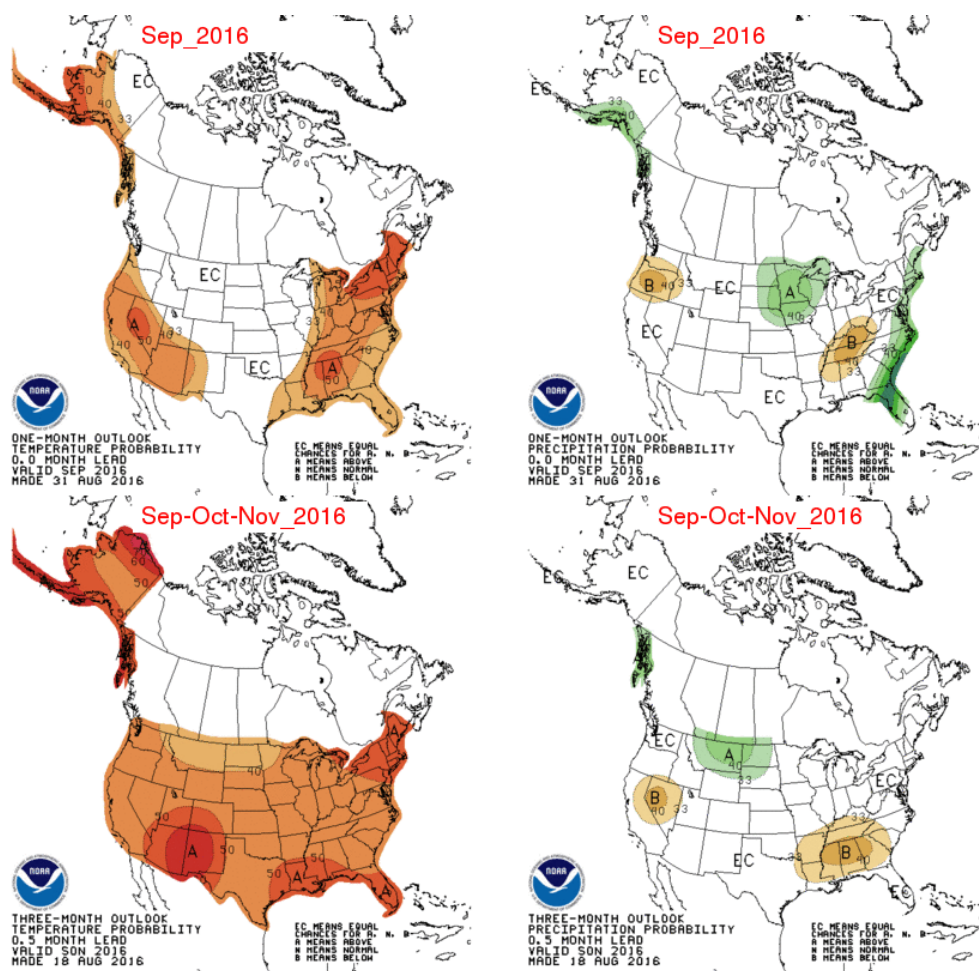


Figure 4: Temperature and Precipitation Outlook for next 30 days and for next 3 months.

(http://www.cpc.ncep.noaa.gov/products/predictions/multi_season/13_seasonal_outlooks/color/page2.gif)

GEOGRAPHIC AREA OUTLOOKS

The Teton Area fire zone is within the Great Basin Geographic Area. Fire seasons in our zone also track with similar conditions in adjacent areas within the Rocky Mountain and Northern Rockies geographic areas, which converge within the Greater Yellowstone Area (GYA) and share common trends of fire activity.

The season outlooks excerpted below support an outlook for a return to normal fire activity in the Teton Interagency Dispatch zone and neighboring units, with potential for above-normal fire activity in northern and western areas of the Great Basin geographic area through September, with October returning to normal. Weak La Niña conditions are expected to continue through fall and into winter, and these conditions in September/early October coupled with the potential for dry cold fronts may support fire season extending later than normal (into early October).

Excerpts of National and Regional Outlooks from “National Wildland Significant Fire Potential Outlook” (July 1, 2016, NIFC Predictive Services). http://www.nifc.gov/nicc/predictive/outlooks/monthly_seasonal_outlook.pdf.

National > Season Trend (excerpts)

- The West remained extremely dry in August with less than 25 percent of normal rainfall over most of the region. Arizona and New Mexico received above normal precipitation as did the most of the Rockies. Texas to the Great Lakes was very wet with over 200 percent of normal rainfall causing extensive flooding. Much of the Midwest and the High Plains were also wetter-than-normal. The East Coast and the southern Appalachians remained mostly below normal.
- Severe to exceptional drought conditions continued across southern and central California, northeastern Oregon, parts of western Montana, and in pockets over the Wyoming-South Dakota border, the southern Appalachians and parts of New England..

Weather and Climate Outlooks

- El Niño-Southern Oscillation (ENSO) is near the weak La Niña category. Latest model forecasts indicate conditions remaining near this level through the winter.
- The Pacific Northwest will also remain dry early then tend toward wetter-than-normal in November and December. The dry trend continues and expands for much of the Southeast for the remainder of fall and early winter. Below normal precipitation is also expected in the Great Basin and the Southwest.

Fuel Conditions and Fire Season Timing

- Throughout the Northwest, Northern Rockies, Great Basin and Rocky Mountain areas early September conditions will remain at normal to above normal fire potential. As the month progresses, nights become substantially longer and cooler. Shorter daylight periods greatly reduce solar radiation on the fuels, meaning less heating and drying by the sun to make them significantly available to burn until late in the day. Large fire growth will still occur associated with strong, dry wind events that occur periodically throughout the early fall. By October these areas have largely seen their potential for significant fire activity come to an end.

Great Basin

- Significant wildland fire potential is expected to return to normal from above normal for the northern portions of the Great Basin, including northern Utah, northern Nevada and Idaho in September and remain normal through the Outlook period.
- Several unseasonably strong troughs have impacted the Great Basin over the past month resulting in periods of widespread gusty winds, particularly across the northern two-thirds of the area. In between these trough passages, the southwestern monsoon periodically surged northward bringing lightning to much of the area. The greatest impact from the monsoon a period of dry lightning events the northern half of the Basin. With the exception of southeastern Utah, the Arizona strip, and isolated portions of Nevada, the Great Basin was much drier than average over the past month. The majority of Nevada and Idaho received less than a half inch of rain in the past 30 days. Southeastern Utah and the Arizona strip were the exceptions as the monsoonal moisture led to marginally critical fuels. Over the northern half of the Great Basin, ERCs climbed to levels not seen in the past few years with many areas above the 97th percentile. In addition, these same areas reached new record highs for ERC over the last 10 years at times from late July through August.
- Above normal fire potential is expected to continue into at least mid-September across the northern portion of the Area. Normal fire potential is expected across the remainder of the Great Basin. Above normal areas will trend toward normal by the end of the month as longer nights improve relative humidity recovery. However, weather outlooks point to the possibility of a warmer and drier-than-normal September across portions of northern and western Idaho and Nevada. If this comes to fruition, there is the potential that fire season will continue later into September. Fire season will gradually come to an end by October due to cooler nights and shorter days along with increasing moisture later in the fall.

CURRENT FIRE ACTIVITY

Fire Activity: Teton Interagency Dispatch Center

Active fire spread was observed in a number of area fires from mid-July until early September, when a cool and wet system moderated fire activity. Fire activity is above normal for the year. During a normal season, Bridger-Teton National Forest will have 67 fires for 3290 acres and Grand Teton National Park will have 12 fires for 789 acres.

Table 2: Year-to-Date Fire Activity for Dispatch Center response zones, through September 3, 2016.
(http://gacc.nifc.gov/gbcc/dispatch/wy-tdc/documents/predictive-services/intelligence/BTF_GRTE_Fire_Numbers_2016.xlsx)

Teton Interagency Fire Management Area Totals	Human Fires	Human Acres	Natural Fires	Natural Acres	RX Fires	RX Acres	Abandoned Non-escape Campfires
	19	2.23	31	44729	114	208	134

For further information, contact: **Ron Steffens**

Long Term Fire Analyst, Grand Teton National Park | 307 739 3675 | ron_steffens@nps.gov

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Selected Sources

- Precipitation Tracking: <http://water.weather.gov/precip/>
- Snow / Snotel Tracking: <http://www.wcc.nrcs.usda.gov/snotel/Wyoming/wyoming.html>
- Climate Prediction Center, Three-Month Outlooks:
<http://www.cpc.ncep.noaa.gov/products/predictions/90day/>
- Regional outlooks from “National Wildland Significant Fire Potential Outlook” (June 1, 2016, NIFC Predictive Services):
http://www.nifc.gov/nicc/predictive/outlooks/monthly_seasonal_outlook.pdf.
- Great Basin Predictive Services/Outlooks: <http://gacc.nifc.gov/gbcc/outlooks.php>.
- Teton Interagency Fire and Dispatch Center: <http://www.tetonfires.com>.