Northern Rockies Geographical Area

Summer Fire Season Outlook
03 July, 2022

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Robertson Draw Burn Area, PSA 12 05 May 2022  M. Richmond
**FACTORS THAT INFLUENCE NRGA WILDLAND FIRE POTENTIAL**

**Spring Factor**

*Snowpack melting rates are much more important than snow pack accrual!*

**Winter Snowpack**

Near to Above Average SWE on 01 May, 96-119 Percent

**Fall /Winter Precip:**
- Dry Eastern areas
- Built a good snowpack early.

**July Temperatures and Precipitation**
- Warmer/Drier?

**Monsoon - Lightning Ignitions**

**Ocean/Atmosphere Circulations (ENSO/PDO/etc.)**

Weak La Nina of the ENSO Cycle Forecast to Continue Through Summer

**Start - Fall**
- Number of Thunderstorm Days/Year (NOAA)
- Live/Dead Fuel Moisture
- Drought

**Fall /Winter Precip:**
- Dry Eastern areas
- Built a good snowpack early.
As the plot below depicts, since 1994 (when records are most accurate), peak seasons over 750,000 acres have become larger, and more frequent. Correlating generally with warmer overall fire season average temperatures, and slightly decreased average summer precipitation. Note that there were two peak seasons in a row, 2006/2007, so it is possible.
WESTERN NORTH AMERICA SUMMER UPPER RIDGING ANOMALIES ARE GETTING STRONGER AND LARGER, DRIVING OUR EXTREME SEASONS (1988/2000/2012/2015 SLIGHTLY DIFFERENT, WEAKER ANOMALIES BUT LONGER WITH DIFFERENT TIMING) This brings longer multi-day and week periods of warmth/very low RHs with poor RH recoveries on slopes/ridges. RAPID AND SUSTAINED FUELS DRYING, Drought Stress.

Are the tropics expanding Northward due to the overall global Oceanic/Atmospheric warming? Stronger summer ridging in favored mid-latitude areas?

Is diminishing Arctic Sea Ice coverage and thickness playing a role? Is the summer mid-latitude jet long-wave progression slowing and weakening?

http://science.sciencemag.org/content/348/6232/324.full
https://www.nature.com/articles/srep45242
WHAT STRONGER UPPER RIDGING PRODUCES:
WARMER, DRIER CONDITIONS AT INCREASINGLY HIGHER ELEVATIONS
COMPARISON OF CONDITIONS BETWEEN AN EXTREME SEASON, AND LESS
ACTIVE ONE ON 8000’ RIDGETOP LOCATION

JULY 2017 vs. 2016 PT 6 RAWS just north of Missoula

2017 Monthly Summary:
Tx/Tn: 69/54   Precip: 0.15
RH: Monthly Mean 36%
Minimum: 10%
Only one day with mean RH > 50%

2016 Monthly Summary:
Tx/Tn: 59/44   Precip: 2.25
RH: Monthly Mean 60%
Minimum: 21%
Only eight days with mean RH < 50%
Outlook - Where We Stand?

May/June Precip: Well above-average North ID, YNP, Eastern MT and most of North Dakota. Near to slightly below average portions of Western/Central MT.

May/June Mean Temperatures: Very cool North ID, Western MT and YNP. Slowed snowpack melting, which contributed to flooding YNP and northern fringe. Near to slightly below average Eastern MT/ND.
Previous Six Months

Precip: Near to slightly below average portions North ID, YNP, Central MT, most of Western MT. Above average S-Central MT, Eastern MT, and North Dakota.

Previous Six Months Mean Temperatures: Cooler than Average all areas.
Where We Stand: Snowpacks

May 01 Basin-average SWE Percents of Normal: Near to above average all areas. 96-119%. Similar to the PNW (except southern OR) and southern Idaho.
Where We Stand: Snowpacks

How Much is Left on 01 June?

Much larger areal extent with greater SWEs this year than last year at same time. Contributed to the 13 June Flooding northern GYE and adjacent areas.
North Idaho, NW Montana, and North Dakota all **drought-free**. Portions of Western/Central MT Montana Abnormally Dry. **Moderate to Extreme Drought** (and small area Exceptional) in N-Central and NE Montana.

**Significant improvement during June SW MT/YNP, S-Central and SE MT** due to heavy rain/snow Memorial Day weekend. And “atmospheric river” event 10-12 June. Both of which contributed to the 13 June GYE flooding, as well as from frequent convection.
PSA-NR06 N Central Idaho and Bitterroot/Sapphire Mountains
PSA-NR10 Northern Front Range
PSA-NR12 South Central Montana and Yellowstone NP
Outlook: What is Expected

Summary

ENSO Alert System Status: La Niña Advisory

La Niña is present.*

Equatorial sea surface temperatures (SSTs) are below average across most of the Pacific Ocean.

The tropical Pacific atmosphere is consistent with La Niña.

Though La Niña is favored to continue through the end of the year, the odds for La Niña decrease into the Northern Hemisphere late summer (52% chance in July-September 2022) before slightly increasing through the Northern Hemisphere fall and early winter 2022 (58-59% chance).*

* Note: These statements are updated once a month (2nd Thursday of each month) in association with the ENSO Diagnostics Discussion, which can be found by clicking here.
Outlook: What is Expected

U.S. Monthly Drought Outlook
Drought Tendency During the Valid Period

Valid for July 2022
Released June 30, 2022

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short-lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

NOTE: The tan areas imply at least a 1-category improvement in the Drought Monitor intensity levels by the end of the period, although drought will remain. The green areas imply drought removal by the end of the period (D0 or none).

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http://go.usa.gov/3eZGd
Outlook: What is Expected

U.S. Seasonal Drought Outlook
Drought Tendency During the Valid Period

Valid for July 1 - September 30, 2022
Released June 30, 2022

Consistency adjustment based on Monthly Drought Outlook for July 2022

Depicts large-scale trends based on subjectively derived probabilities guided by short- and long-range statistical and dynamical forecasts. Use caution for applications that can be affected by short lived events. "Ongoing" drought areas are based on the U.S. Drought Monitor areas (intensities of D1 to D4).

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http://go.usa.gov/3eZ73
Near-average temperatures and precipitation favored for JULY, western PSAs. Above-average temps. with near-average precip. favored for eastern PSAs.

Near to above average temps. but below average precip. favored all areas July through September, implying warmer and drier Aug/Sept.
Outlooks: Monthly Fire Potential

Normal all NR PSAs in July

August and September: Above Normal NR PSAs
11/13/14.
Normal PSAs 01-10, 12, and 15-18.
Returning to Normal all PSAs for October.
THANK YOU

QUESTIONS?

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