

NORTHERN ROCKIES 2019 WILDFIRE SEASON SUMMARY:

A Very Quiet One

The 2019 Northern Rockies Geographical Area (NRGA) fire season will certainly be remembered as a quiet one. **There were about 25 percent fewer fires recorded (2140) than the 10-year mean value (2833).** Most of which did not become large, and as figure 1) shows, those that did were clustered mainly from the Rocky Mountain Front west into North Idaho. A small cluster also occurred further east around the Missouri River Breaks south to just west of Miles City, Montana. The 72,306 acre seasonal total was well-below the 1994-2019 mean and median values of 427,030, and 200,382 acres, respectively. **2019 was the only fire season in the 2000-2019 period where Preparedness Level 3 (PL 3) was not reached in the NRGA.**

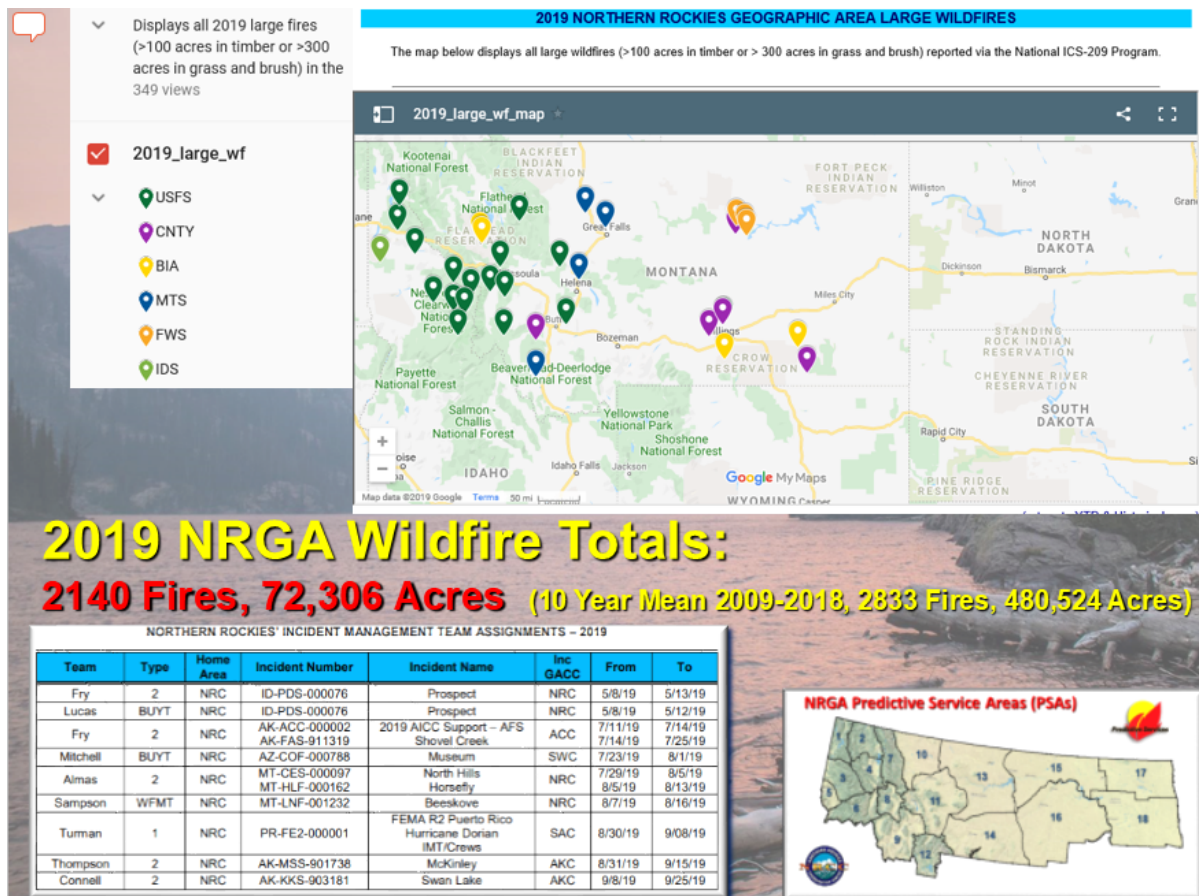


Figure 1. NRTA large fire map for 2019, showing all timber fires >100 acres and all grass and shrubland fires >300 acres.

A perfect storm, if you will, of beneficent weather features came together to produce this quiet season. In the bigger picture, fire season temperatures (July-August-September) were near-average across the NRGA, while the only areas that were drier than average were in North Idaho and Southwest Montana, but even in these, values were 70-90 percent. Meanwhile, in the eastern third of Montana, and over most of North Dakota, fire season precipitation values were 150-300 percent of average, which also occurred for the 2019 water-year. (See Figure 2 for daily mean temperature and total precipitation anomalies across the country.) More specifically, four different factors defined and drove the 2019 season:

1. **A delayed onset of very warm to hot temperatures, and an absence of multi-day extreme fuels-drying heat.** Most areas in North Idaho and Montana experienced their first 90F or greater temperatures 2-3 weeks later than typical. Most never reached 100F, and those that reached 95-100F only did on a few occasions.
2. **Only a short period in late July to early August occurred of very warm, dry conditions, when fuels dryness reached levels capable of supporting large fire growth.** This was then followed by several upper trough passages that brought cooling, higher relative humidity and wetting rainfall in the form of showers and wet thunderstorms.

This is reflected in the seasonal ERC and 1000 hour fuel moisture plots from PSAs in North Idaho east to Central Montana. The drying, and increasing ERC trends stopped and began reversing after the first week in August.

3. **The first and second factors were caused by anomalous upper ridging offshore in the Pacific which extended north into Alaska. This gave them record-setting heat (all-time in many cases), dryness, and a very active fire season. Downstream from this, over the Pacific Northwest and the NRGAs, upper-toughing was favored.** Which also suppressed the 4-corners upper high over the Southwest US, limiting extreme heat and dry thunderstorm outbreaks in the NRGAs. This is a very unusual pattern, the closest analog was during the year 1993.
4. **An early (by 1-3 weeks for most of the PSAs) season-ending event from stronger upper trough passages on the 7th-10th of September brought widespread cooling, higher humidity, and wetting rainfall.** Most areas during this time received .50 to 3.00 inches of rainfall.

The quiet nature of the 2019 wildfire season in the NRGAs offered increased opportunities for prescribed burning, in contrast to busier seasons.

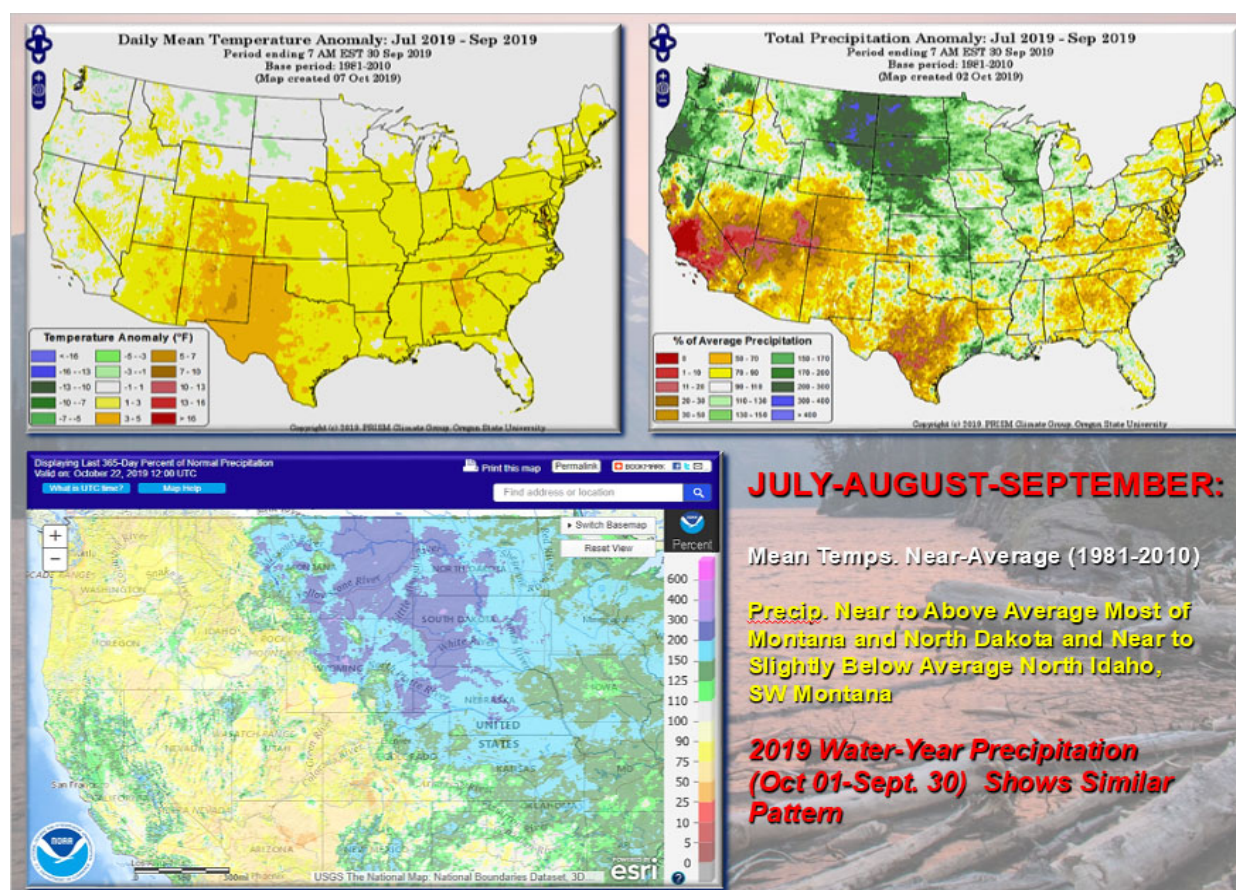


Figure 2. July-August-September 2019 Precipitation Percent of Average/Mean Temperature Anomalies (F) and 2019 Water-Year Precipitation Percent of Average (October 1 to September 30).

Coleen Haskell, Michael Richmond

Predictive Services, Northern Rockies Coordination Center

