

# FIRE BEHAVIOR FORECAST

<b>FORECAST NUMBER:</b> 059	<b>TYPE OF FIRE:</b> Initial Attack
<b>FIRE NAME:</b> MNICS Statewide Forecast	<b>OPERATIONAL PERIOD:</b> 8/17/2018 – 8/20/2018
<b>DATE ISSUED:</b> 8/17/2018	<b>TIME ISSUED:</b> 8:56 AM
<b>UNIT:</b> MN-MNCC	<b>SIGNED:</b> <i>William J. Glesener</i>
	<b>Typed/printed:</b> William J. Glesener, LTAN

## INPUTS

**WEATHER SUMMARY:** \*\*Air quality alert issued for the N. half of MN from Thurs., Aug. 16 into Sun., August 19.\*\*

**NORTHWEST:** Dry and hot temperatures are expected through Saturday, with light winds through tonight. On Saturday winds may increase from the south ahead of an approaching cold front with occasional gusts over 20 mph. Lowest daytime RH values should remain 30 to 40 percent, and critical fire weather conditions are not anticipated at this time. The cold front pushes through the region Saturday night, bringing the next chance for shower or thunderstorms Saturday night into Sunday. Cooler temperatures are then expected Sunday.

**NORTHEAST:** Dry, sunny, and warm today and Saturday, increasing clouds Sunday, then a wetting rain expected Sunday night into Monday. Skies will be mainly sunny today and tomorrow, but areas of smoke from western fires could lead visibility reductions and reduced air quality. Highs in the upper 70s to mid 80s each day with relative humidity values falling to 35 to 45 percent both days. Haines index will be 6 - high - on Saturday in northern Minnesota. Winds out of the north today around 5 mph, slightly strong in the Twin Ports and along the south shore due to influence from Lake Superior. Southerly winds 5 to 10 mph on Saturday in northern MN, but near Lake Superior and over northwest Wisconsin winds will be weaker with a lake breeze moving inland during the afternoon. Fog expected tonight, lingering into Saturday morning. Increasing clouds Sunday then a widespread chance for a wetting rain Sunday night into Monday as showers and a few storms move across the region from west to east. Cooler temperatures early next week behind the cold front.

**CENTRAL & SOUTH:** Warm and dry conditions expected Friday and Saturday, with widespread showers and thunderstorms expected Sunday into Monday. Most areas are expected to see around half an inch of rain. Cooler and drier midweek with another chance of precipitation coming late Thursday into the weekend.

**Haines Index:** 4 (Low) South / 6 (High) North      **LAL:** 1 (No T-Storms)

## OUTPUTS

### FIRE BEHAVIOR GENERAL:

Very smoky for the next few days due to western fires. This will keep fuels shaded during the day with good humidity recoveries overnight. Extreme drying with droughty conditions in the Northwest and North-central will allow for any fires that can sustain themselves to become fuels driven, even under cloudy/smoky conditions. Any forested areas, with ladder fuels present, have the potential to become crown fires. Spotting of up to 1/10<sup>th</sup> mile is possible. Grass fires in fuels with deep thatch will be persistent and peat ignition is possible in areas with drought codes over 250.

5-day averages for energy release component (ERC-q) are high with the buildup index (BUI) at extreme. Daily values are generally very high to extreme for both indices. 1000-hr fuels are dry to exceptionally dry statewide. Live herbaceous fuels are beginning to cure out in areas under drought or abnormally dry conditions.

**Fine Dead Fuel Moisture:** 5% / 8% (Unshaded / Shaded) = North      8% / 11% (Unshaded / Shaded) = South

**Prob. of Ignition:** 70% / 40% (Unshaded / Shaded)      44% / 25% (Unshaded / Shaded) = South

### SPECIFIC:

Forecast	TEMP	Min RH	WIND	Precip	Note: Values in the south ½ of the state will be half those listed below.			
	80-90	30-40% (N) 45-55% (S)	N 6 - 8 g 8	None				
Fuel Model	ROS (ch/hr)			Flame Length	Fire Type			Size in 60 min
	Head	Backing	Flanking		Head	Flank	Back	
<i>C2, C4 - B. Spr./Young JP</i>	36 - 49	10	17	21 - 28	C-Crowning	I-Torching	I-Torching	99.63 Acres
<i>C3, C6, M4 - Mat. JP/ Cnfr Plnt. Mixwood 50% Dead Fir</i>	12 - 17	1	5	12 - 16	I-Torching	S-Surface	S-Surface	7.451 Acres
<i>C5 - Red and white p</i>	4 - 6	0	2	7 - 9	S-Surface	S-Surface	S-Surface	1.108 Acres
<i>D2 - Green aspen</i>	1 - 2	0	1	3 - 3	S-Surface	S-Surface	S-Surface	0.119 Acres
<i>M2 - Boreal MW-green</i>	10 - 13	3	5	8 - 10	S-Surface	S-Surface	S-Surface	7.672 Acres
<i>S2 - WS_BF Slash</i>	18 - 24	4	8	25 - 34	S-Surface	S-Surface	S-Surface	24.212 Acres

Note: This is a general fire behavior forecast for the state of Minnesota. It is designed to provide wildland fire managers with an overall geographic area view of fire behavior potential and to help wildland firefighters with the fire order "initiate all actions based on current and expected fire behavior". Firefighters must use onsite observations and spot weather forecasts to calculate site-specific fire behavior for individual wildland fires. Fire behavior spread rates describe only surface fire conditions and do not factor crowning or spotting.

**Outlook:** Similar or slightly more extreme fire behavior will be possible tomorrow, with some potential for precipitation late Sunday into Monday and much of the state should see some relief. The far northwestern part of the state could get missed and continue into this persistent dry pattern.

#### AIR OPERATIONS:

Scattered areas of light to moderate turbulence today. Sunset times are: Ely at 8:16 PM; Princeton at 8:18 PM; Hibbing at 8:19 PM; Brainerd at 8:22 PM; Bemidji at 8:27 PM; Warroad at 8:32 PM.

### SAFETY



## EXTREME FIRE BEHAVIOR 2

*Weather / Fire Behavior Category*

Mild, moderate and EXTREME fire behavior has always been present in cases of shelter deployment. It is critical for firefighters to maintain situational awareness of live and dead fuel moisture conditions as well as predicted and current weather conditions. As fire behavior changes, it is critical to respond correctly to the changing situation.

- Discuss how the following factors can contribute or lead to extreme fire behavior:
  - Frost Kill: Has there been a late or unusually extensive freeze? Is the loading of frost-killed fuels high?
  - Drought Conditions: Live Fuel Moistures Index, KBDI, Soil Moisture Index, low humidity, high temperatures
  - Slope: Increases fire spread uphill, preheats fuels by convection, may channel winds

Sea Breeze/Foehn: Wind direction may vary throughout the day, humidity changes may occur; strong wind velocities may drive fire behavior to extremes.

- To aid situational awareness, track NFDRS live and dead fuel moisture outputs.
- Take hourly weather observations and track the hourly changes. By tracking fuel moisture and weather observations and using Fire Severity Related to Fuel Moisture Chart, firefighters can be alerted to those conditions that can lead to situations where there is a high potential for extreme fire behavior.

References:  
Incident Response Pocket Guide