

FIRE ENVIRONMENT FORECAST

FORECAST NUMBER: 52

TYPE OF FIRE: Initial Attack

FIRE NAME: MNICS Statewide Forecast

OPERATIONAL PERIOD: 11/4 – 11/8

DATE ISSUED: 11/4/22

TIME ISSUED: 0900

UNIT: MN-MNCC

SIGNED: Travis Verdegan

Typed/printed: Travis Verdegan

INPUTS

WEATHER SUMMARY:

Precip received yesterday and overnight came in light with near a tenth the average while some areas in the NW saw none.

Clear skies are forecast for the first half of the weekend then some increased cloud cover is likely across the state. Some light chances for precip favor the east.

Temps have swung dramatically lower than they were and should top out in the 30s and 40s over the weekend.

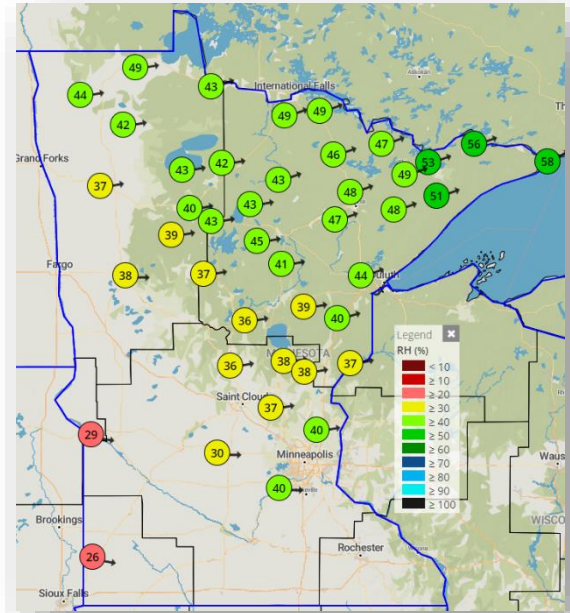
Winds are forecast to be in the high single digits to low teens today and tomorrow out of the north, but Sunday they jump up and switch to the west with high teens to 20s forecast and gusts near 40.

RH's look to be in the 30s to 50s this weekend and some 20s may show up as well.

The next best chance for significant precip may be coming early next week.

Haines Index: 5

Figure 1 - Forecasted 1500 RH 11/06/22



OUTPUTS

FIRE ENVIRONMENT

GENERAL:

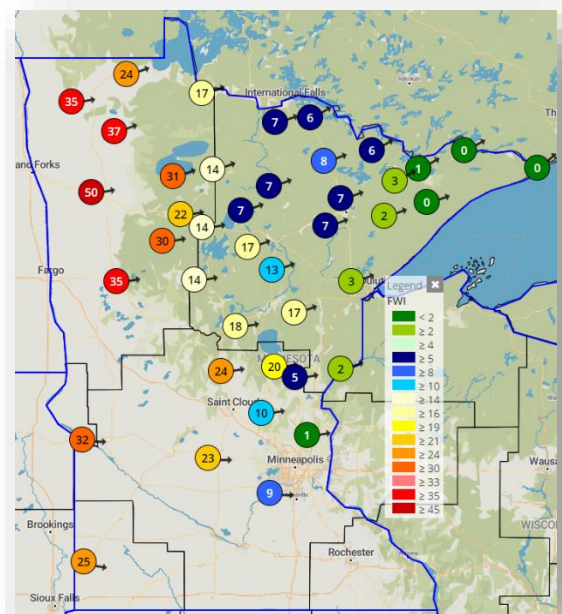
The precip we just received and what is forecast for this weekend that heavily favors the eastern side of the state has a set up a sharp contrast between the east and west this weekend. Cooler temps should help keep things somewhat in check across the whole state, but there is a lot of potential showing in the indices for Sunday. Winds may be stronger than we just saw last Wednesday.

Reported fire activity from last Wednesday reached a peak we have not seen in late fall since 2011. Thanks to all that kept the reports coming in a timely fashion, both on that day and leading up to it. That intel goes a long ways and will be continue to be put to good use in future analysis.

Fire behavior below is most representative of conditions across the western half of the state on Sunday.

Fine Dead Fuel Moisture: 6% Unshaded – 9% Shaded
Prob. of Ignition: 50% Unshaded – 30% Shaded

Figure 2 - Forecasted Daily FFMC 11/02/22



SPECIFIC FIRE BEHAVIOR:

MN FFMC: 86 BUI: 60 WS: 22 Effective ISI:14.4

	Flame Length	Rate of Spread (ft/min ≈ ch/hr)	Fire Type	60 Minute Spread Size (acres)
Grass (80% cured – 3 tons/acre)	14 – 15	90 – 95	Surface	87
Lowland Grass (90% cured – 5 tons/acre)	20 – 21	120 – 125	Surface	228
Young Jack Pine 110% FMC & Boreal Spruce	23 – 24	60 – 65	Crowning	54
Pine Plntn. & Mat. JP	16 – 17	30 – 35	Torching	11
Mixdwood Green (25% Fir) & Red & White Pine Timber	11 – 12	20 – 25	Torching	4
Hardwood/Aspen	7 – 8	12 – 14	Surface	2

Outlook:

With the light precip received this week we still have a some ground to cover in terms of shutting things down for the year. That may be coming early next week as chances for precip increase and remain consistent through the latter half of the week. If we get anything near what is forecast we should be in good shape for the rest of the year as long as sticking snow is not too far behind.

The CPC 6 – 10 and 8 – 14 day are indicating better chances for a cooler and wetter patter over the state.

The latest drought monitor saw some modest increases with 80% of the state in drought of some kind and extreme drought covering 8%.

Figure 3 - Weekly Summary Forecast for Northwestern MN Issued by NWS Grand Forks

Goodridge, MN Weekly Summary		Fri Nov 4	Sat Nov 5	Sun Nov 6	Mon Nov 7	Tue Nov 8	Wed Nov 9	Thu Nov 10	Fri Nov 11
Max Temp, °F		39	42	38	36	45	46	39	30
Min Temp, °F		22	21	25	17	29	34	26	17
Max RH, %		92	92	66	87	100	100	100	99
Min RH, %		42	43	40	48	68	78	67	70
Max Wind, mph		8	16	30	20	18	16	15	17
Min Wind, mph		2	7	16	7	9	9	10	12
Max Wind Gust, time/dir.		12 PM ↗	11 PM ↗	1 PM ↗	12 AM ↗	4 AM ↗	12 PM ↗	12 PM ↗	11 AM ↗
Max Wind Gust, mph		13	23	45	28	28	23	22	32
Min Wind Gust, mph		5	10	23	12	16	15	16	22
Max Cloud Cover, %		69	83	67	92	91	89	87	86
Min Cloud Cover, %		3	1	11	8	84	80	77	76
Max Prob. of Precip., %		0	7	7	20	50	42	44	39

Figure 4 - Weekly Summary Forecast for Northeastern MN Issued by the NWS Duluth

Nett Lake, MN Weekly Summary		Fri Nov 4	Sat Nov 5	Sun Nov 6	Mon Nov 7	Tue Nov 8	Wed Nov 9	Thu Nov 10	Fri Nov 11
Max Temp, °F		39	41	42	38	43	52	44	34
Min Temp, °F		26	21	21	21	28	36	35	19
Max RH, %		88	84	81	77	93	100	89	92
Min RH, %		50	50	42	46	69	74	62	63
Max Wind, mph		9	6	17	8	12	7	8	9
Min Wind, mph		1	1	6	2	6	3	5	5
Max Wind Gust, time/dir.		6 AM ↖	10 AM ↖	2 PM ↖	12 AM ↖	7 AM ↖	12 AM ↖	1 PM ↖	5 PM ↖
Max Wind Gust, mph		16	13	31	24	23	18	21	26
Min Wind Gust, mph		2	3	12	5	13	12	16	21
Max Cloud Cover, %		92	70	72	89	91	92	88	88
Min Cloud Cover, %		0	2	14	9	87	82	76	77
Max Prob. of Precip., %		10	12	19	5	69	65	48	46

Figure 5 - Weekly Summary Forecast for Southern MN Issued by NWS Chanhassen

St. Martin, MN Weekly Summary		Fri Nov 4	Sat Nov 5	Sun Nov 6	Mon Nov 7	Tue Nov 8	Wed Nov 9	Thu Nov 10	Fri Nov 11
Max Temp, °F		42	45	46	39	51	55	46	33
Min Temp, °F		31	27	33	24	33	41	33	25
Max RH, %		75	88	79	68	100	100	93	89
Min RH, %		39	45	35	46	64	83	73	75
Max Wind, mph		10	8	20	10	15	12	12	14
Min Wind, mph		3	3	7	2	10	7	8	9
Max Wind Gust, time/dir.		6 AM ↘	9 AM ↘	1 PM ↘	11 PM ↘	7 AM ↘	9 AM ↘	9 AM ↘	9 AM ↘
Max Wind Gust, mph		16	14	37	18	24	23	23	32
Min Wind Gust, mph		5	6	13	8	18	17	17	18
Max Cloud Cover, %		98	65	76	77	95	91	83	80
Min Cloud Cover, %		23	34	5	7	70	73	75	60
Max Prob. of Precip., %		4	15	26	6	66	56	45	41

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.

AIR OPERATIONS: https://www.aviationweather.gov/data/products/turbulence/F12_gtg_max_total-lgt.gif

Safety: <https://www.nwcg.gov/committees/6-Minutes-for-safety>

References

1. NWS: Lightning Activity Level. Available at: HYPERLINK "<https://graphical.weather.gov/definitions/defineLAL.html>"
<https://graphical.weather.gov/definitions/defineLAL.html>
2. National Wildfire Coordinating Group: PMS 437, Dead Fuel Moisture Content. Available at: HYPERLINK "<https://www.nwcg.gov/publications/pms437/fuel-moisture/dead-fuel-moisture-content>"
<https://www.nwcg.gov/publications/pms437/fuel-moisture/dead-fuel-moisture-content>
3. National Wildfire Coordinating Group: PMS 437, Probability of Ignition. Available at: HYPERLINK "<https://www.nwcg.gov/publications/pms437/fuel-moisture/probability-of-ignition>"
<https://www.nwcg.gov/publications/pms437/fuel-moisture/probability-of-ignition>
4. Mesowest, Great Lakes Fire & Fuels: Fire Behavior Prediction Calculator. Available at: HYPERLINK "<https://glff.mesowest.org/tools/>" <https://glff.mesowest.org/tools/>
5. Aviation Weather Center (NWS): GTG - Max combined Intensity (1000 ft. MSL to FL500) [Light]. Available at: HYPERLINK "https://www.aviationweather.gov/data/products/turbulence/F12_gtg_max_total-lgt.gif"
https://www.aviationweather.gov/data/products/turbulence/F12_gtg_max_total-lgt.gif
6. USNO, Astronomical Applications Dept.: Application Programming Interface. Available at: HYPERLINK "<https://aa.usno.navy.mil/data/docs/api.php>" <https://aa.usno.navy.mil/data/docs/api.php>
7. NWS, Twin Cities: Routine Fire Wx Fcst. Available at: HYPERLINK "<https://forecast.weather.gov/product.php?site=mpx&product=FWF&issuedby=mpx>"
<https://forecast.weather.gov/product.php?site=mpx&product=FWF&issuedby=mpx>
8. NWS, Duluth: Routine Fire Wx Fcst. Available at: HYPERLINK "<https://forecast.weather.gov/product.php?site=dlh&product=FWF&issuedby=dlh>"
<https://forecast.weather.gov/product.php?site=dlh&product=FWF&issuedby=dlh>
9. NWS, Grand Forks: Routine Fire Wx Fcst. Available at: HYPERLINK "<https://forecast.weather.gov/product.php?site=fgf&product=FWF&issuedby=fgf>"
<https://forecast.weather.gov/product.php?site=fgf&product=FWF&issuedby=fgf>
10. MPCA In: Current air quality. Available at: HYPERLINK "<https://www.pca.state.mn.us/air/current-air-quality>"
<https://www.pca.state.mn.us/air/current-air-quality>
11. NWS, Climate Prediction Center: Outlook Maps, Graphs and Tables. Available at: HYPERLINK "<https://www.cpc.ncep.noaa.gov/products/forecasts/>" <https://www.cpc.ncep.noaa.gov/products/forecasts/>
12. National Wildland Coordinating Group: Six Minutes for Safety. Available at: HYPERLINK "<https://www.nwcg.gov/committees/6-Minutes-for-safety>" <https://www.nwcg.gov/committees/6-Minutes-for-safety>
13. MN DNR, Forestry In: Wildfire Information Center. Available at: HYPERLINK "https://mndnr.gov/forestry/fire/wildfirereports_tools.html" | "indexes"
https://mndnr.gov/forestry/fire/wildfirereports_tools.html#indexes