

Red Flag Event Summary – National Weather Service Duluth

October 18th, 2017

Bill Leatham, Fire Weather Program Leader



Synopsis:

In coordination with the Minnesota Department of Natural Resources, the National Weather Service (NWS) office in Duluth, MN issued a Fire Weather Watch (Figure 1) for two zones in north-central Minnesota the afternoon of October 17th. In addition, a Special Weather Statement was issued for four zones in northeast Minnesota, which highlighted near critical fire weather conditions. The watch area was upgraded to a Red Flag Warning (Figure 1) on the morning of Wednesday October 18th, and expanded further south and east in the afternoon per the request of the Minnesota Department of Natural Resources. The warning was issued due to the combination of critically low relative humidity, and gusty westerly winds.

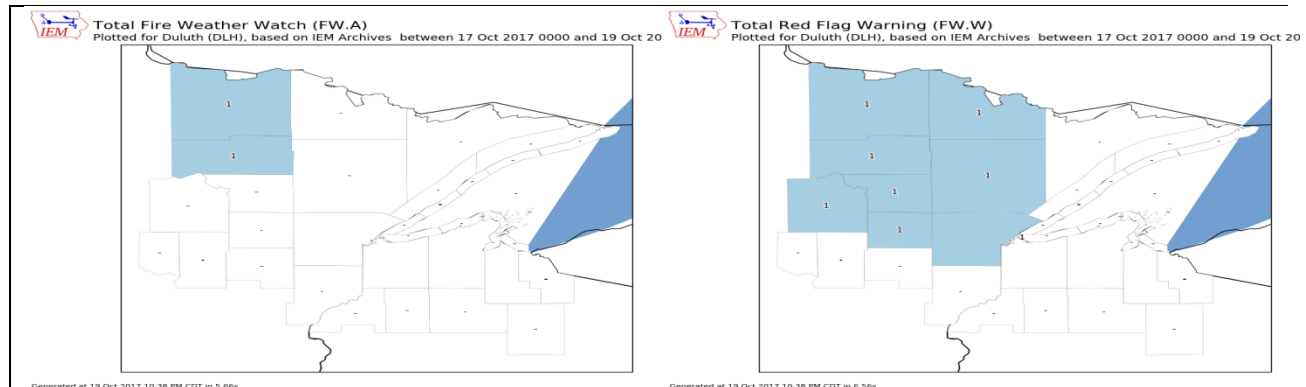


Figure 1: NWS Duluth Fire Weather Watch (left), and Red Flag Warning (right) count per zone on October 18, 2017. (Source: Iowa Environmental Mesonet)

The Drought Monitor (Figure 2) updated on October 17th, shows that portions of north-central Minnesota are under the abnormally dry status, with much of the western half of Koochiching County under the Moderate drought status.

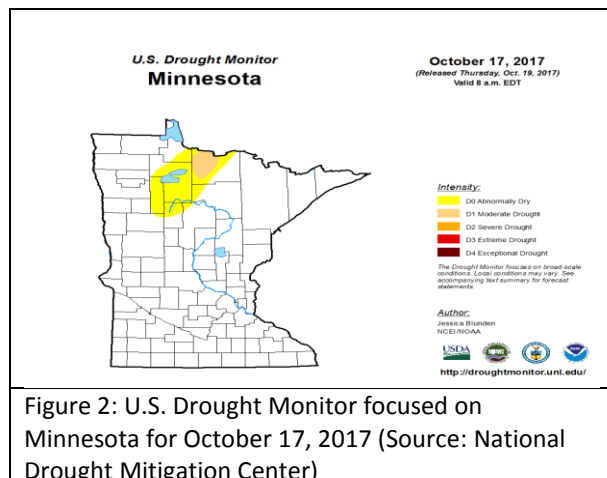
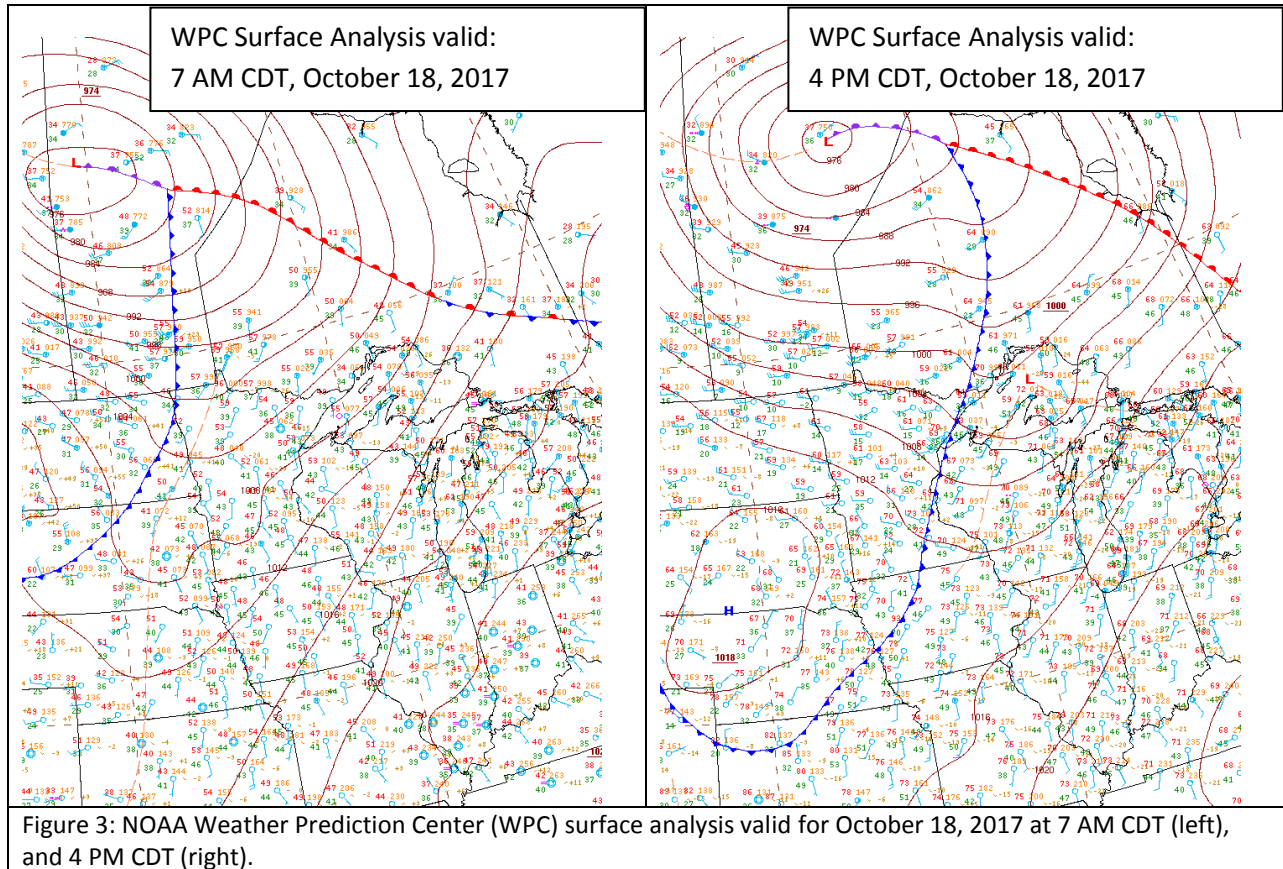


Figure 2: U.S. Drought Monitor focused on Minnesota for October 17, 2017 (Source: National Drought Mitigation Center)

Weather:

On October 18th, the region was situated ahead of a dry cold front (Figure 3) located in eastern North Dakota. The front moved through much of Minnesota (Figure 3) by mid-afternoon. Behind the front, winds were gusty out of the west with sustained winds of 15 to 20 mph with gusts of 30 to 35 mph. Relative humidity values dropped into the mid-teens to around 20%, with maximum temperatures in the low- to mid-60s.



The observed evening sounding (Figure 4) at International Falls, MN shows that the mixed layer height reached near 10,000 ft (approximately 700 hPa). This promoted a very dry and gusty near-surface mixed layer.

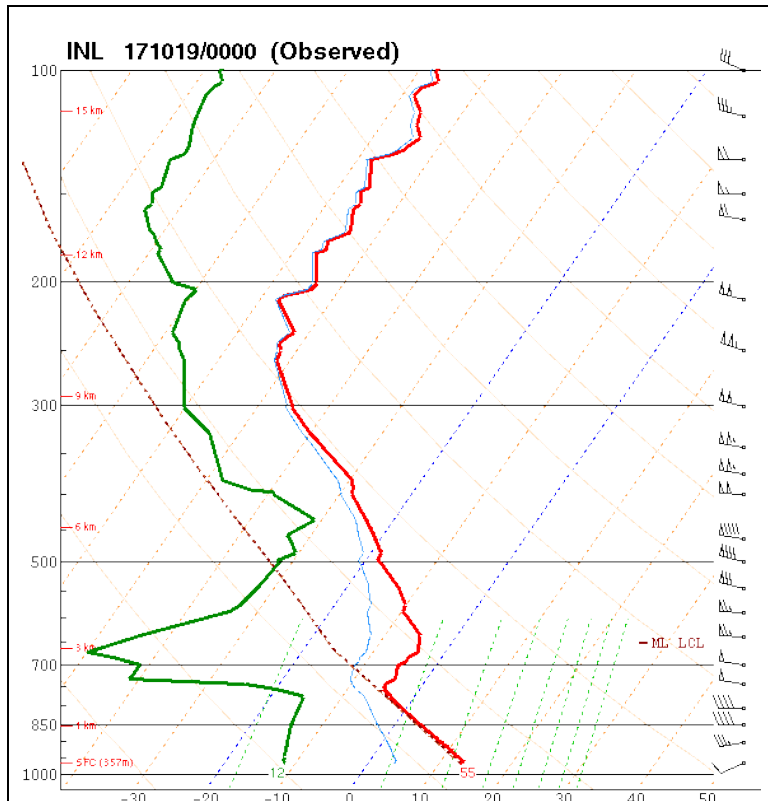


Figure 4: International Falls, MN sounding valid for October 18, 2017 at 7 PM CDT.

NWS Services:

- Critical Fire Weather conditions were highlighted in the Hazardous Weather Outlook, Fire Weather Planning Forecast, and on Social Media.
- Part of the Duluth County Warning Area was in the elevated category of the morning issuance of the SPC Day 1 Fire Weather Outlook.

Fires:

The Minnesota Department of Natural Resources reported 25 wildfires in the state since the previous MNICS call on October 17th.

Red Flag Warning, Weather Verification:

October 18th, 2017	
# of Warnings Issued:	8
# of Warning Verified:	2
# of Misses (Yellow):	5
POD:	29%
FAR:	33%
Ave Lead Time:	9 hrs

October 18th	10/17 1502	10	10/18 0417	10	1300-1900	1308	8:51	LITM5	16%	63	14 G 31	64	16%	15	31
		11	10/18 1527	11	1527-1900	1231	0:00	KNMMS	22%	65	9 G 26	65	15%	10	35
		19	10/18 1527	19	1527-1900	1504	0:00	ELOM5	23%	64	17 G 31	66	14%	20	38
	10/17 1502	18	10/18 0417	18	1300-1900	1407	9:50	EFFM5	14%	62	19 G 34	63	14%	19	35
		26	10/18 1527	26	1527-1900										
		25	10/18 1527	25	1527-1900	1255	0:00	KY49	21%	60	14 G 28	62	15%	24	35
		35	10/18 1527	35	1527-1900	1307	0:00	HCYM5	24%	65	14 G 28	66	13%	14	28
		37	10/18 1527	37	1527-1900	1508	0:00	SNWM5	18%	66	14 G 29	69	15%	14	32