

Flint Hills Prescribed Fire Update

April 10, 2020

The following information on the Flint Hills prescribed fires will be sent weekly to keep stakeholders up to date on fires and related smoke.



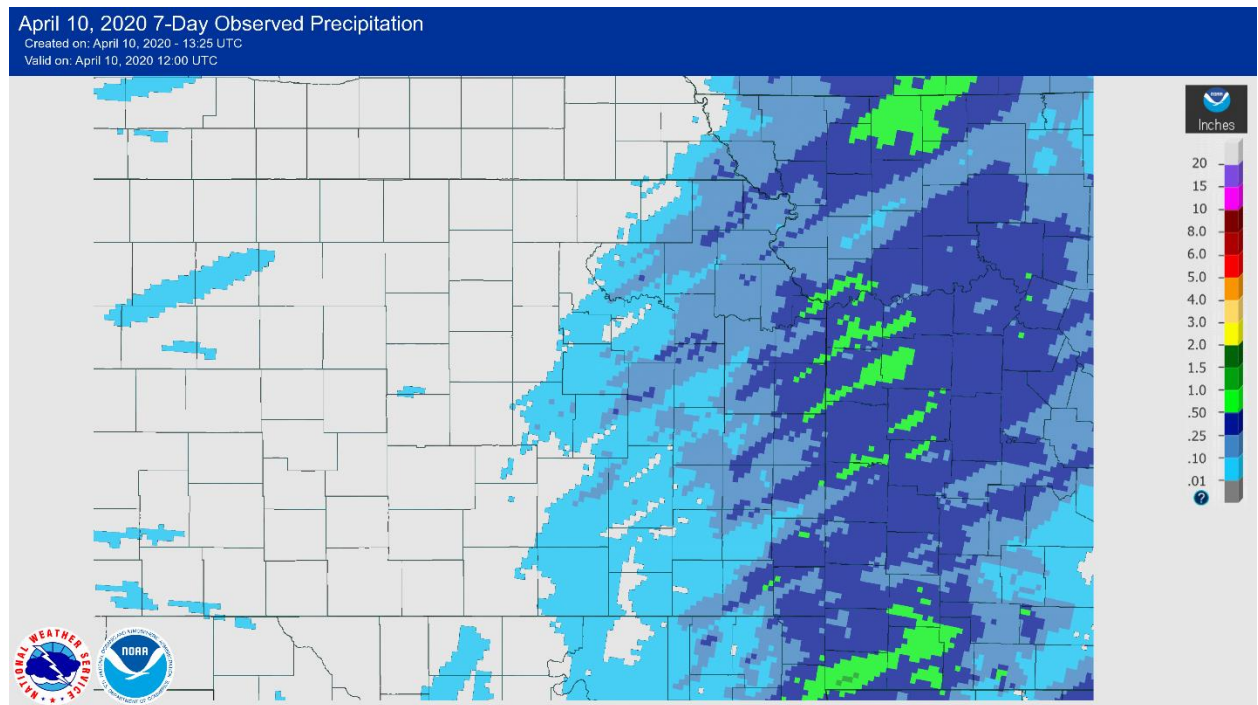


Meteorology

Precipitation over the prior week in the Flint Hills was confined to last Friday (April 3) and Saturday (April 4) with rain showers and a few rumbles of thunder. Amounts were light, with only a few locations even seeing a wetting (0.10 inches or more) rain across the Flint Hills. Temperatures were on the cool side last weekend with highs struggling in the 40s for Friday and Saturday for most. The warm-up began on Sunday (April 5) with highs into the 60s, then Monday-Wednesday (April 6-8) saw well above normal temperatures with highs in the 70s and 80s, even a few 90s. Another cold front moved through and dropped temperatures dramatically for Thursday (April 9) where highs only managed the 60s for most under a bit of a brisk wind.

Winds were breezy for much of the week but remained steady for long periods. A northerly wind on Friday into Saturday slowly shifted to the south by Saturday evening. This south wind remained across the area until Wednesday when the cold front approached and past which sent winds back to a northerly direction by later Wednesday and continued on Thursday. Wind speeds were generally 5-20 mph most days with gusts near 30 mph. The gustier winds were seen on Monday with south gusts near 35 mph, then the northerly winds on Wednesday and Thursday also had gusts near 35 mph.

Precipitation



NOAA/NWS Observed Total Precipitation for April 3-9, 2020.



Air Quality Data

Air quality data for the period of April 3-9, 2020:

Ozone: Preliminary data indicates one (1) exceedance of the NAAQS daily 8-hour average maximum of 70 ppb.

Topeka, KS air quality monitor recorded an 8-hour daily average maximum of 93 ppb on Tuesday, April 7, 2020.

PM_{2.5}: Preliminary data indicates five (5) exceedances of the NAAQS daily 24-hour average maximum of 35 µg/m³.

Wichita, KS air quality monitor recorded a PM_{2.5} 24-hour average of 40.5 µg/m³ for Saturday, April 4, 2020.

Topeka, KS air quality monitor recorded a PM_{2.5} 24-hour average of 51.9 µg/m³ for Tuesday, April 7, 2020.

Topeka, KS air quality monitor recorded a PM_{2.5} 24-hour average of 72.7 µg/m³ for Wednesday, April 8, 2020.

Kansas City, KS air quality monitor recorded a PM_{2.5} 24-hour average of 38.1 µg/m³ for Wednesday, April 8, 2020.

Chanute, KS air quality monitor recorded a PM_{2.5} 24-hour average of 36.0 µg/m³ for Wednesday, April 8, 2020.

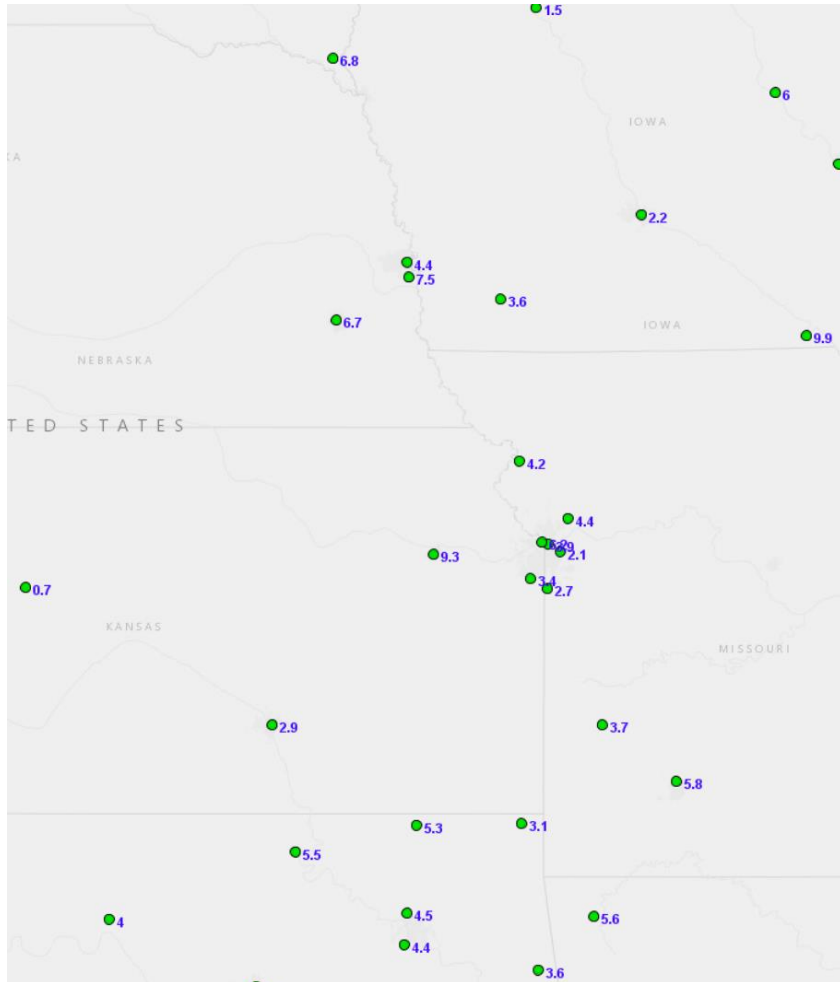
Air quality images on the following pages for each day show preliminary data, courtesy Air Now Tech.

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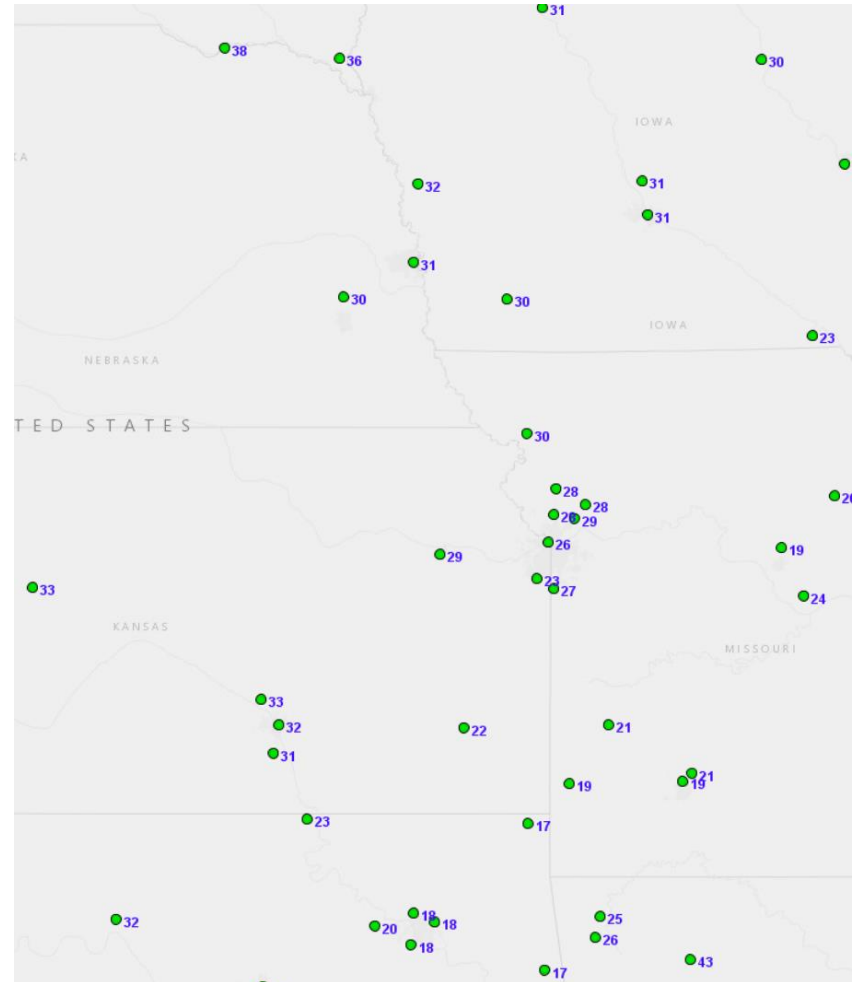


Friday, April 3, 2020

PM2.5 (24-hour average)



Ozone (8-hour average maximum)



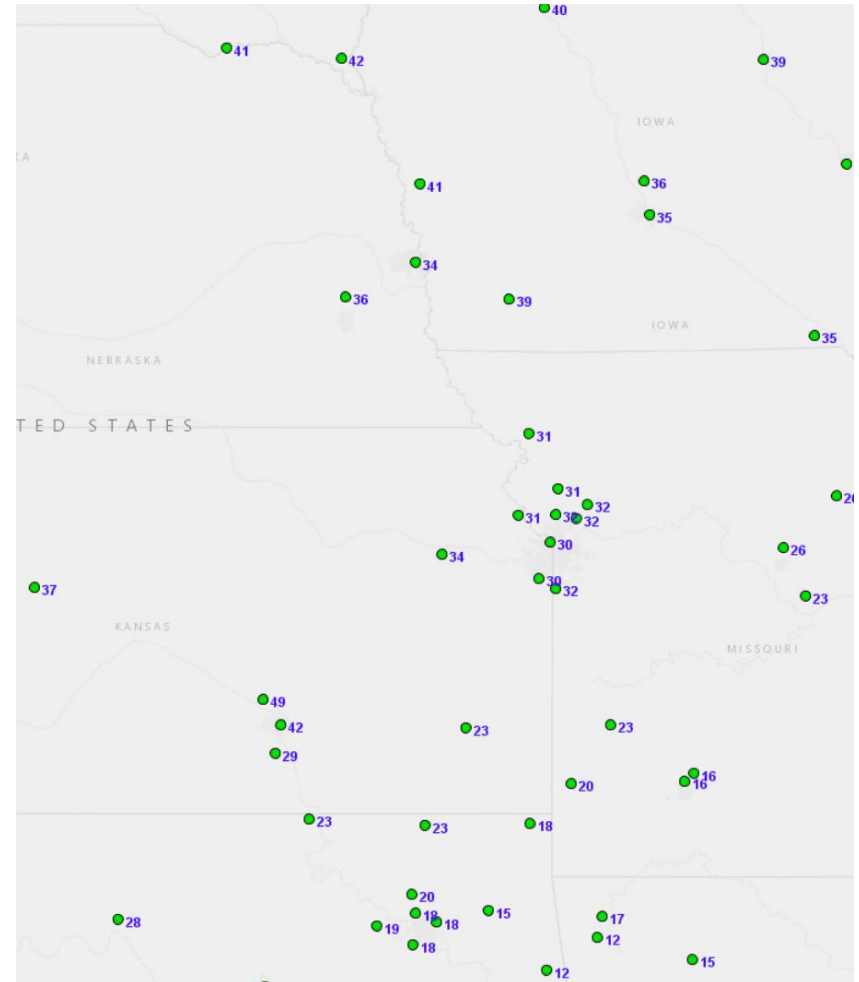
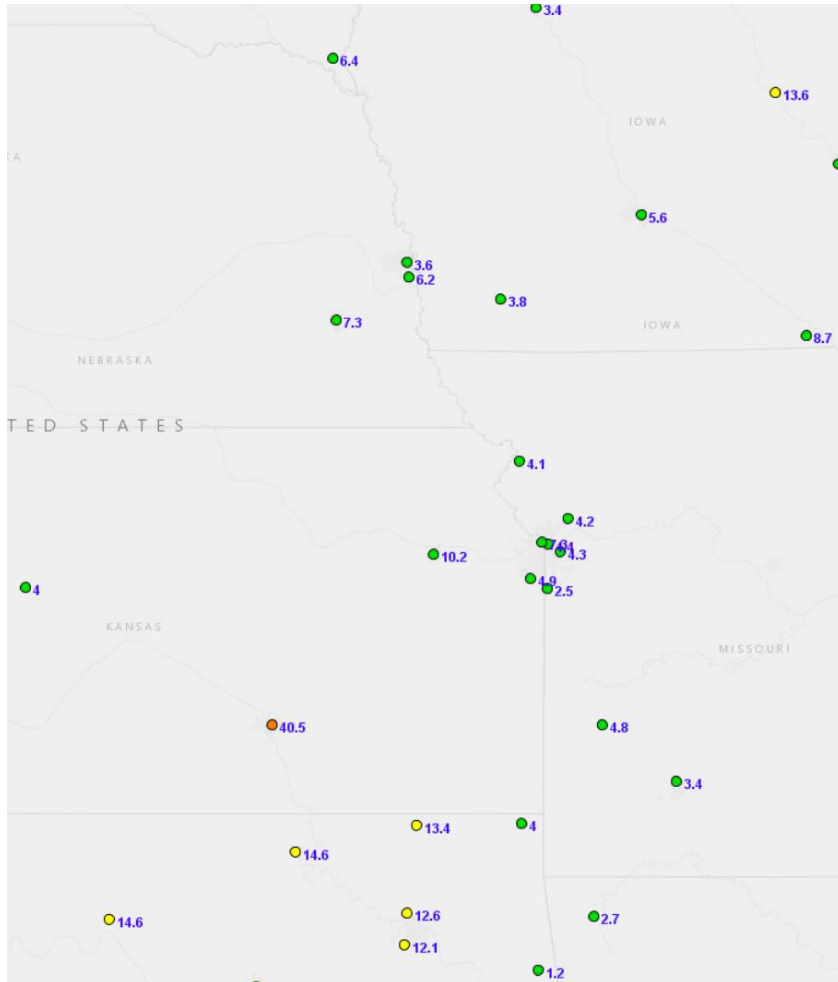
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Saturday, April 4, 2020

PM2.5 (24-hour average)

Ozone (8-hour average maximum)

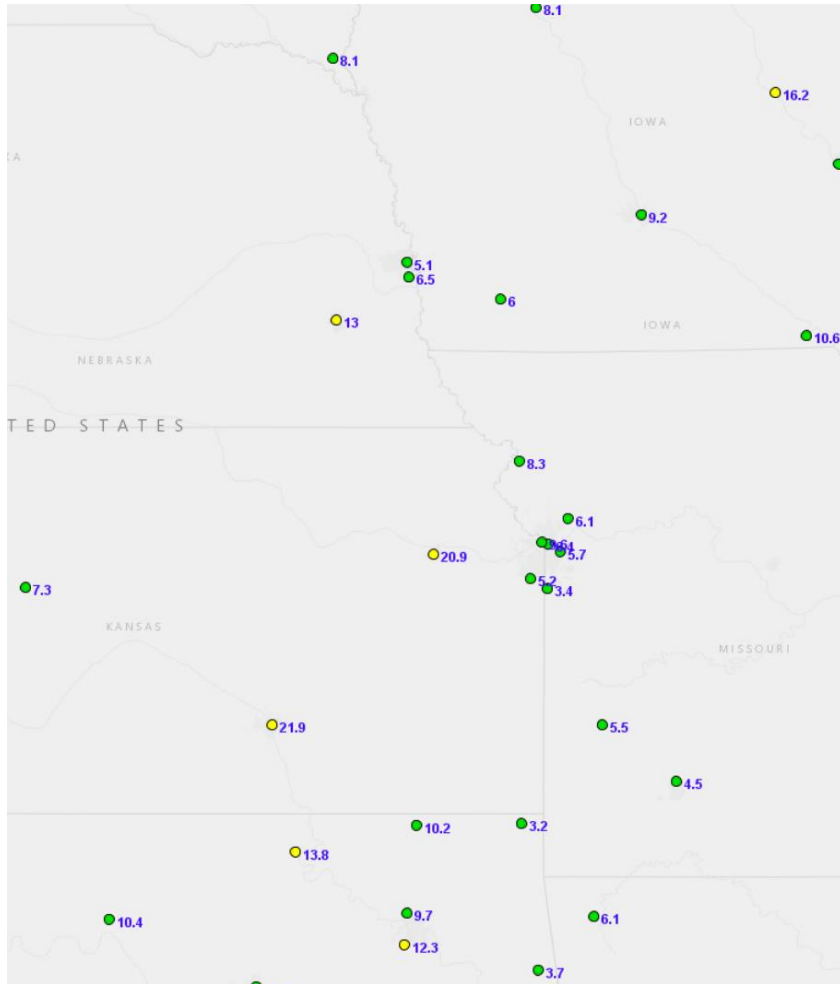


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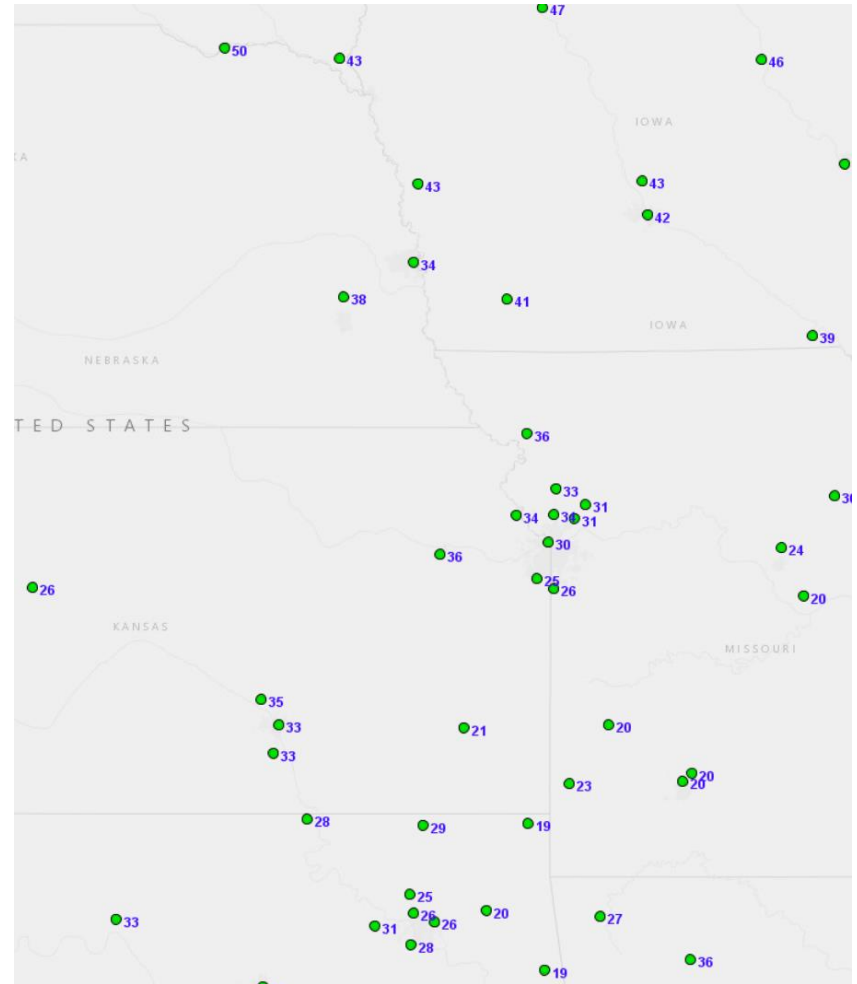


Sunday, April 5, 2020

PM2.5 (24-hour average)



Ozone (8-hour average maximum)



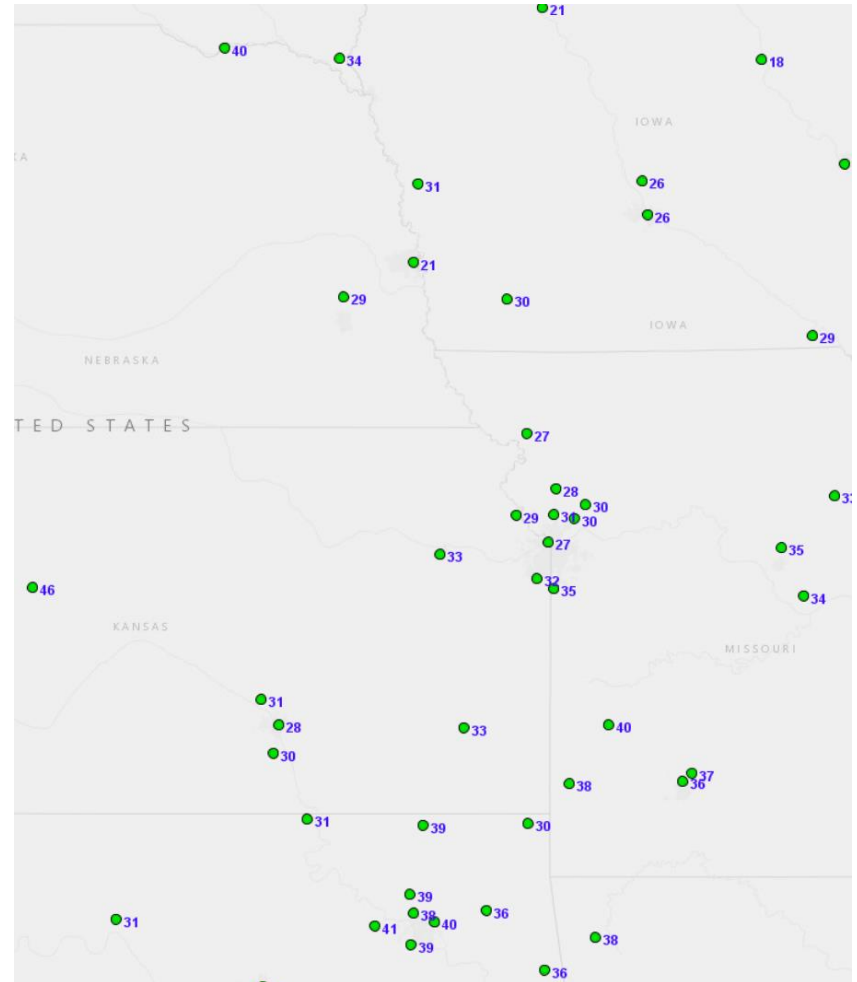
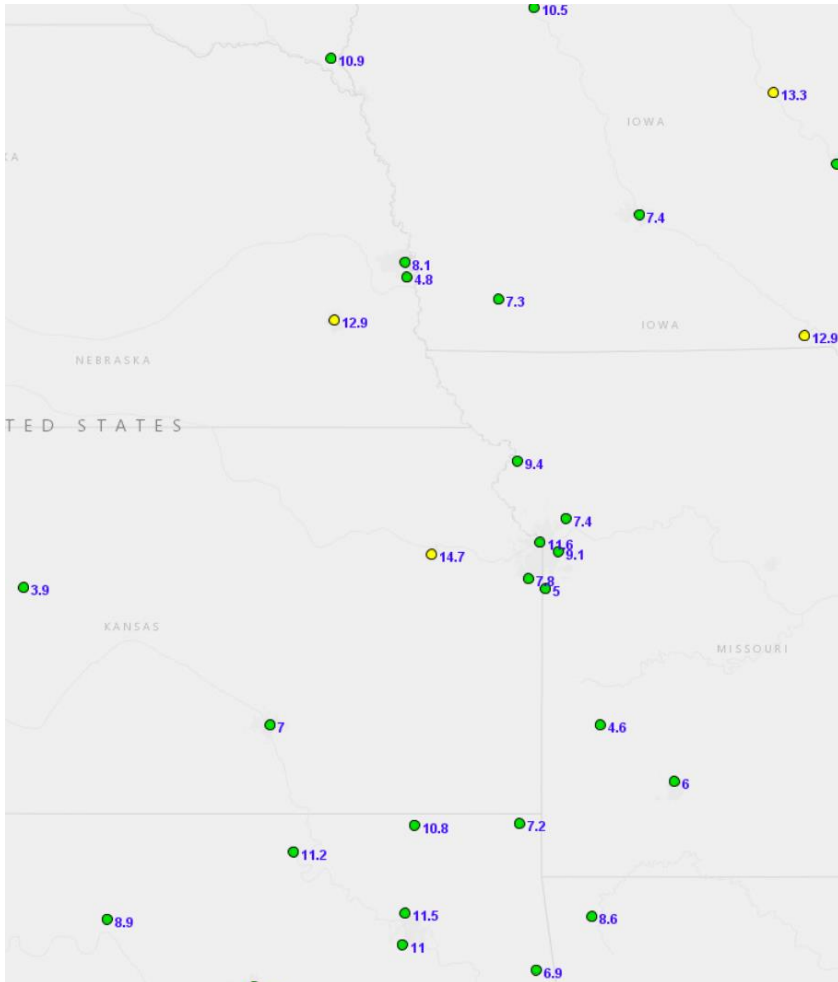
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Monday, April 6, 2020

PM2.5 (24-hour average)

Ozone (8-hour average maximum)



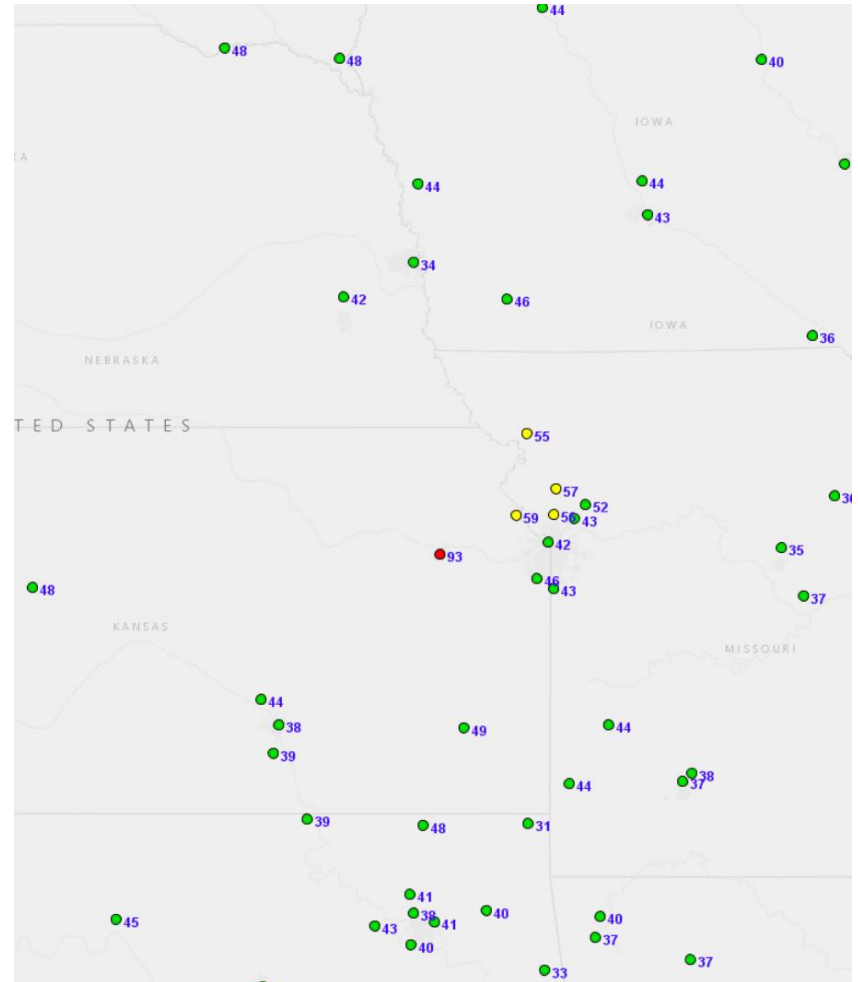
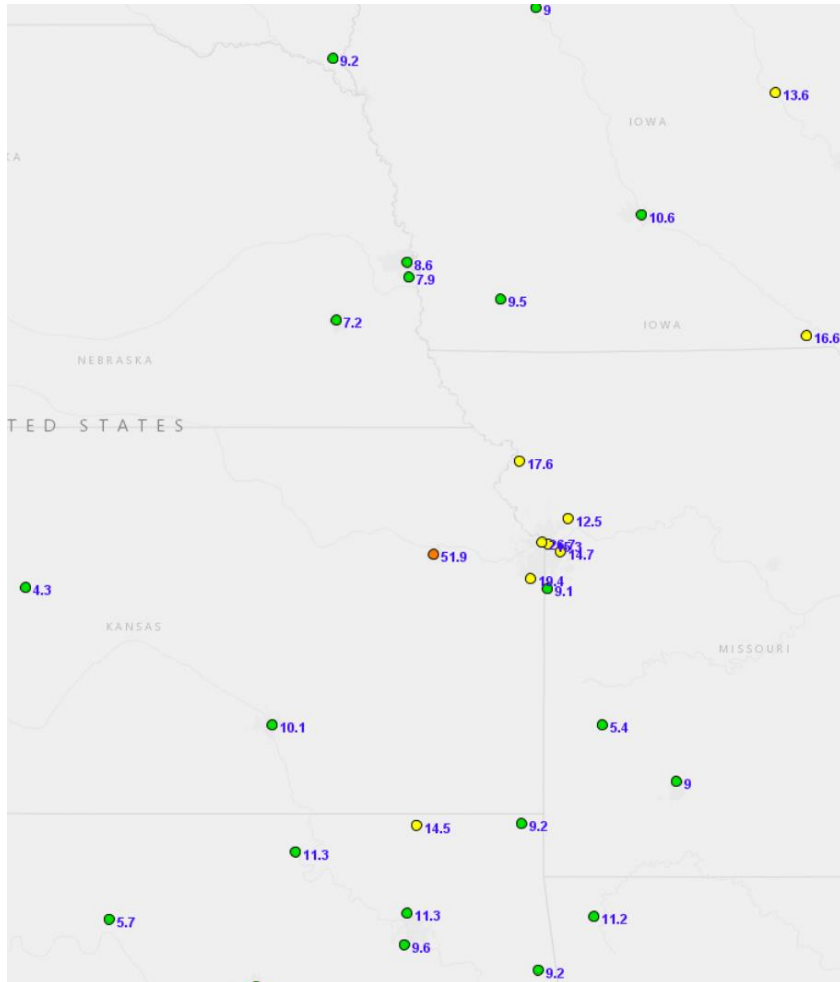
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Tuesday, April 7, 2020

PM2.5 (24-hour average)

Ozone (8-hour average maximum)

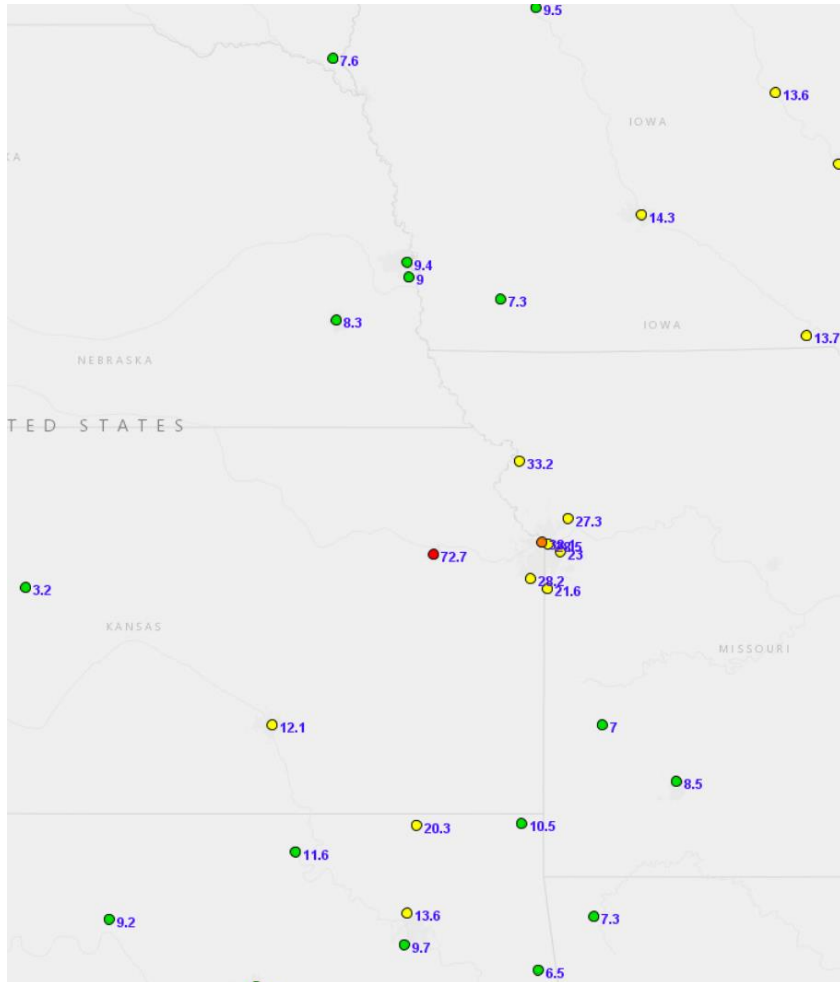


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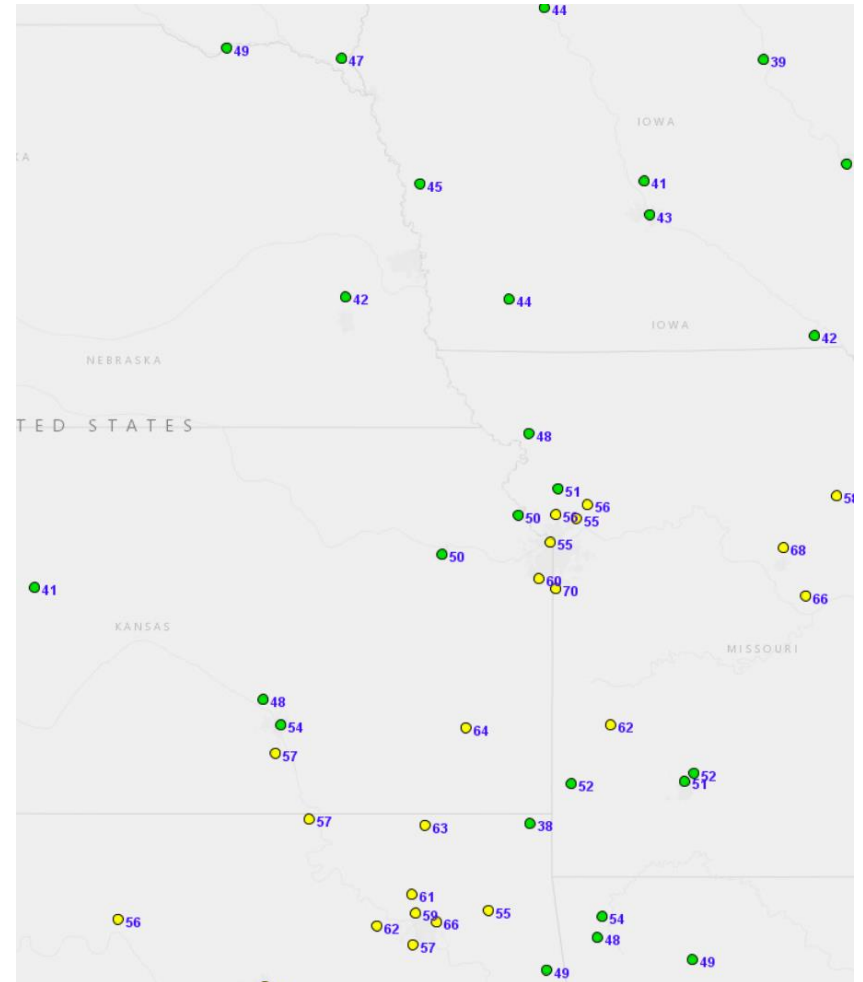


Wednesday, April 8, 2020

PM2.5 (24-hour average)



Ozone (8-hour average maximum)

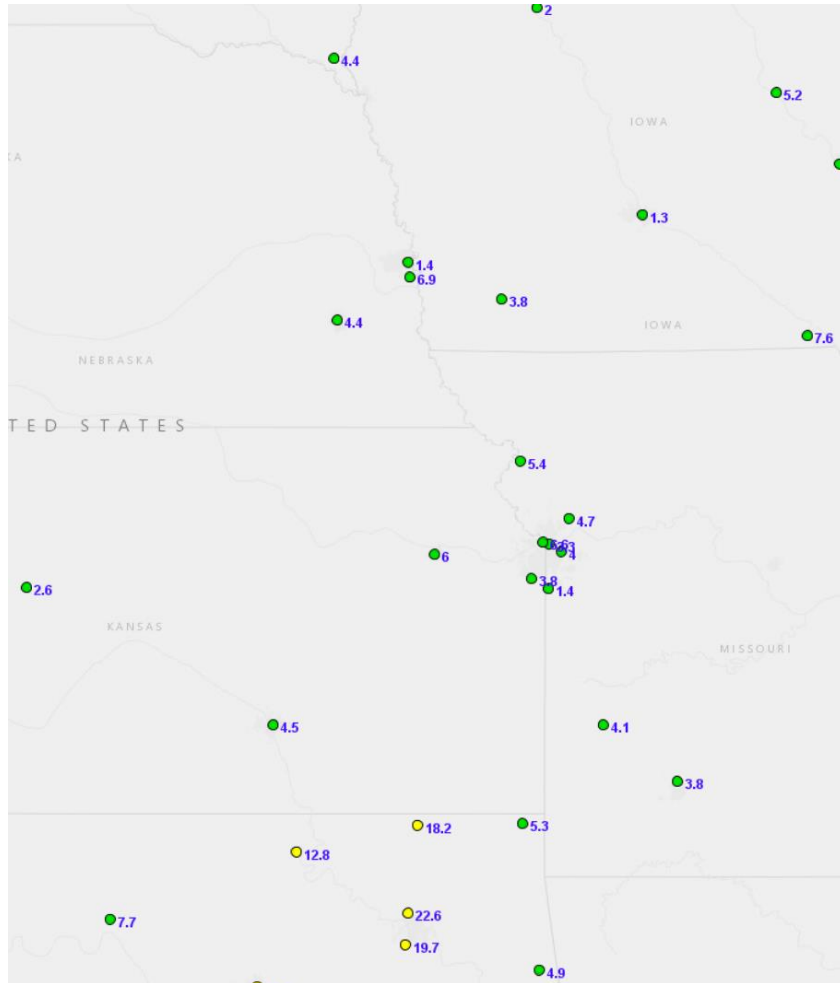


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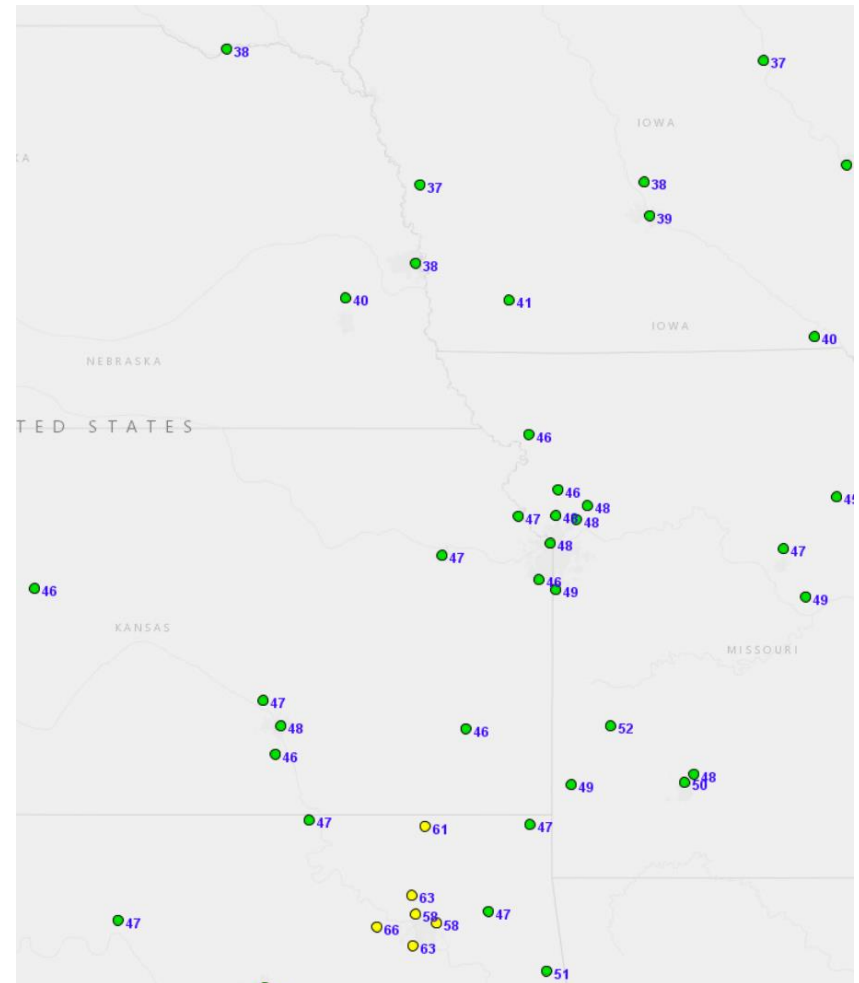


Thursday, April 9, 2020

PM2.5 (24-hour average)



Ozone (8-hour average maximum)





Fires and Smoke

Only a handful of prescribed fires were seen on Friday (April 3) as cooler temperatures, cloudy skies, brisk winds, and threat of rain kept burning limited. As skies cleared and temperatures warmed there was an increase in fire activity for the northern Flint Hills on Saturday (April 4) with smoke generally being transported west. Low mixing heights and weak dispersion allowed much of the smoke from Saturday to stay trapped near the surface and led to an exceedance in Wichita due to very high evening particulate matter values. Prescribed fire activity was seen throughout the Flint Hills on Sunday (April 5) under light south winds, and while smoke dispersion was initially limited as winds became gusty late Sunday into Monday the smoke was able to be pushed northward and dispersed. Those gusty winds on Monday (April 6) limited prescribed burning in the Flint Hills.

Significant prescribed fire activity returned to the Flint Hills on Tuesday (April 7) under light south winds and warm temperatures. Mixing was limited and an inversion was quick to set in during the evening which set the stage for air quality exceedances in Topeka. This smoke remained trapped near the surface as it was transported to the north and east into Wednesday (April 8) which led to an additional air quality exceedance in Kansas City alongside another in Topeka due to very high morning values. Additional prescribed fire activity on Wednesday was primarily in the southern Flint Hills where winds remained lighter. The combination of remnant smoke from Tuesday and new smoke from Wednesday led to air quality impacts across southern Kansas and Oklahoma.

Stronger north winds on Thursday (April 9) limited burning in the northern Flint Hills once again, but much of the central and southern Flint Hills saw fire activity. The stronger winds led to sufficient mixing and smoke transport to preclude any air quality exceedances, but impacts were seen across eastern Oklahoma.

Note: Due to limited resources during the COVID-19 response the burned acreage map is not able to be updated at this time. Updates will resume as soon as possible.

KSFIRE.ORG

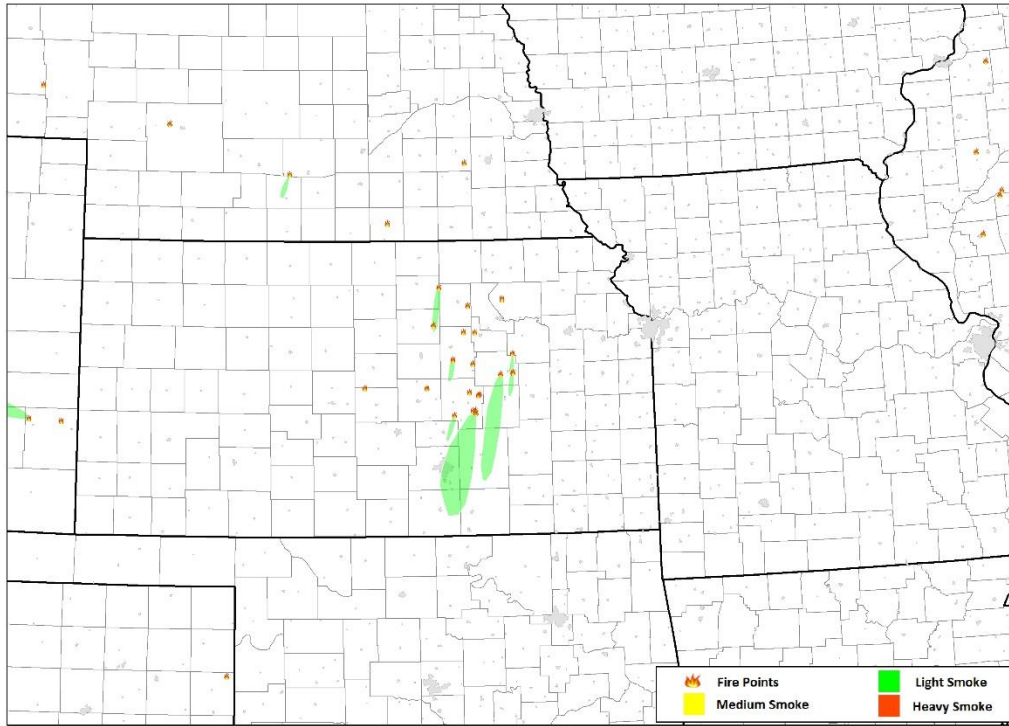


This website was developed as part of the development of the Kansas Flint Hills Smoke Management Plan. Kansas State University hosts the webpage and it includes important information for ranchers and others who might be interested in the Flint Hills. It provides training, regulations, policies, publications, a modeling tool and other links to guide people looking for information on smoke management. The development of the Flint Hills Smoke Management Plan is an attempt to balance the need for prescribed fire in the Flint Hills with the need for clean air in downwind areas.

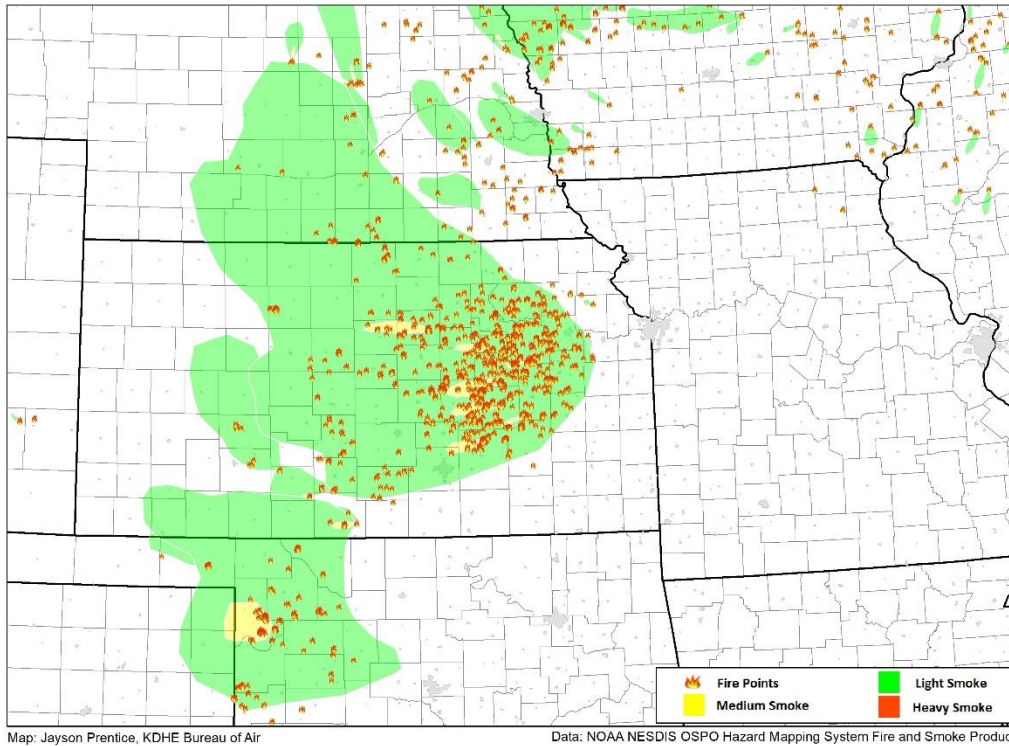
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HMS Fire & Smoke Analysis April 3, 2020



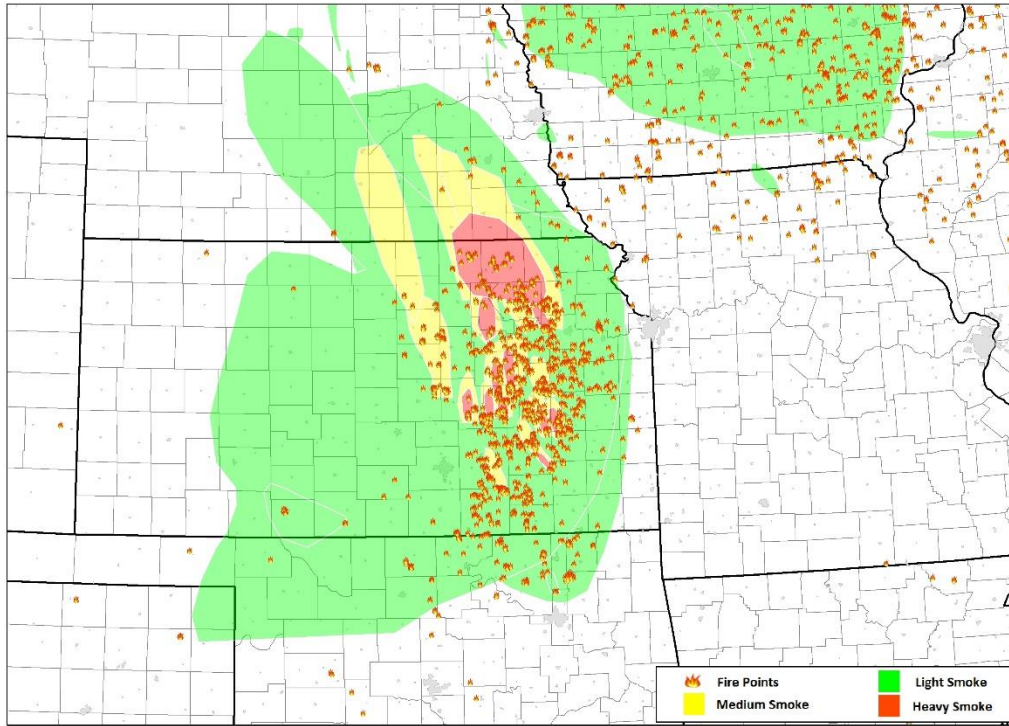
HMS Fire & Smoke Analysis April 04, 2020



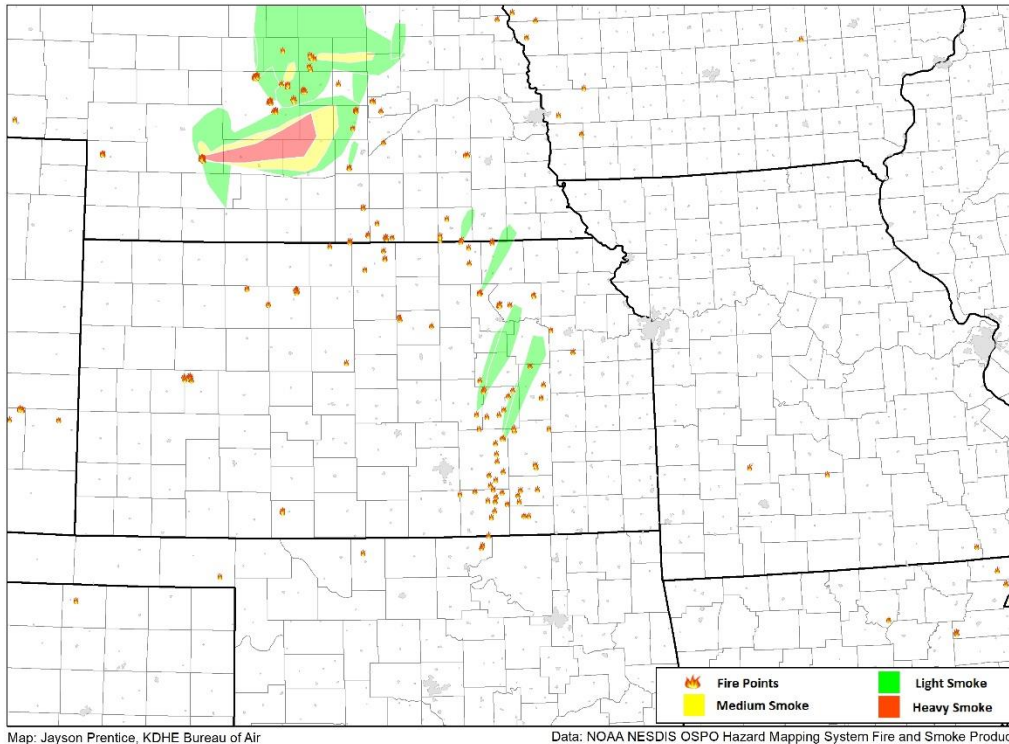
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HMS Fire & Smoke Analysis April 05, 2020



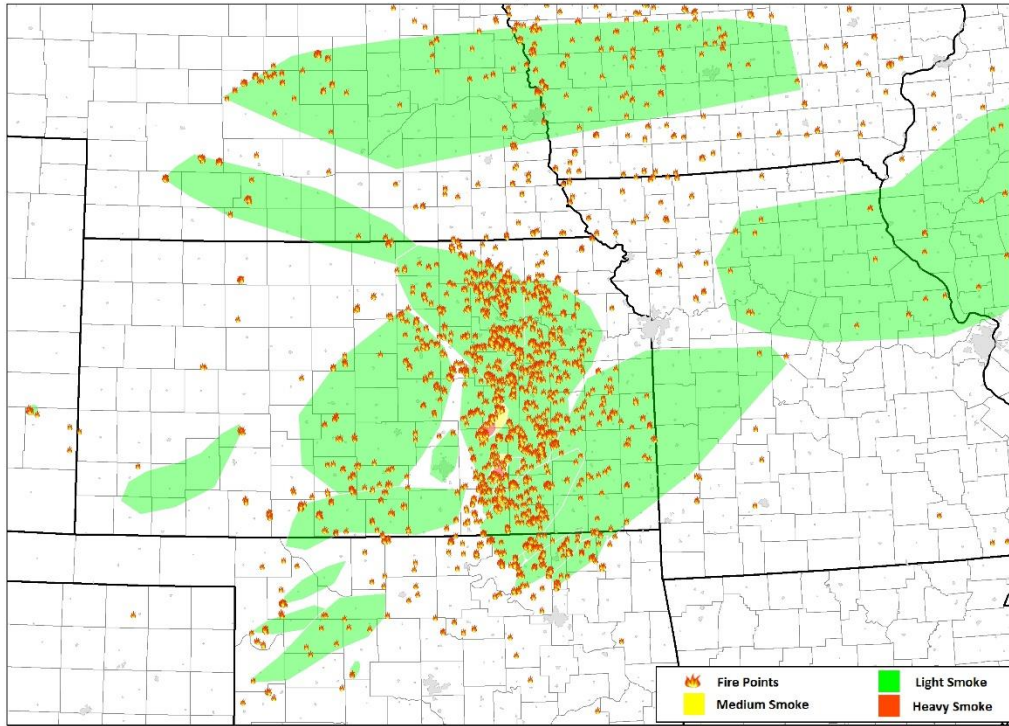
HMS Fire & Smoke Analysis April 06, 2020



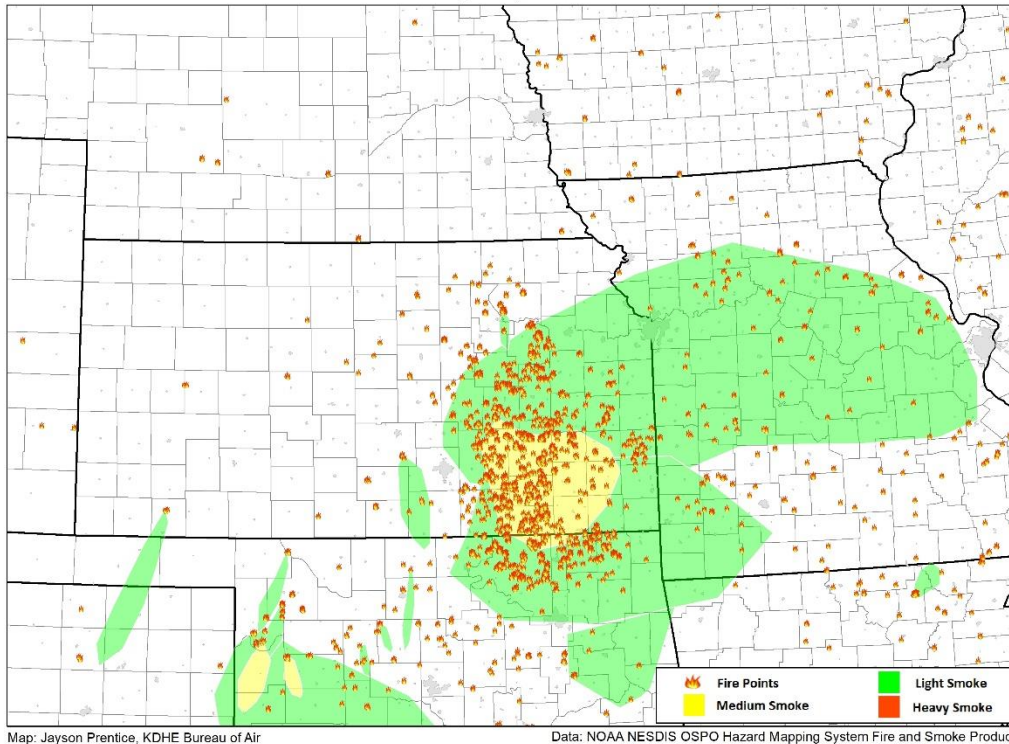
Flint Hills Prescribed Fire Update



HMS Fire & Smoke Analysis April 07, 2020



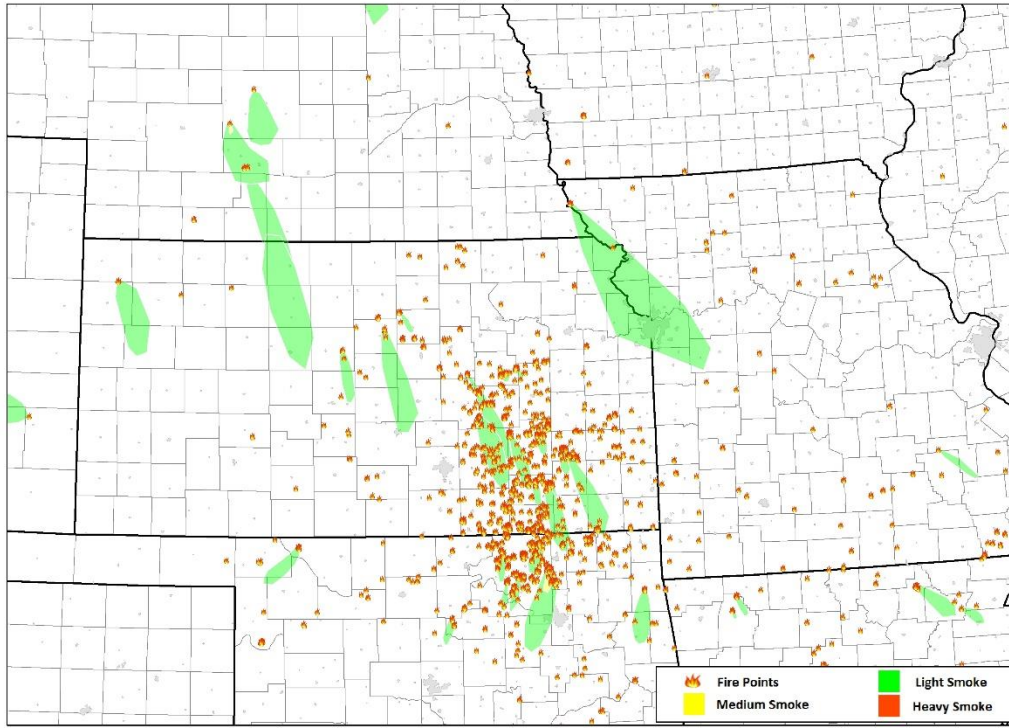
HMS Fire & Smoke Analysis April 08, 2020



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HMS Fire & Smoke Analysis April 09, 2020

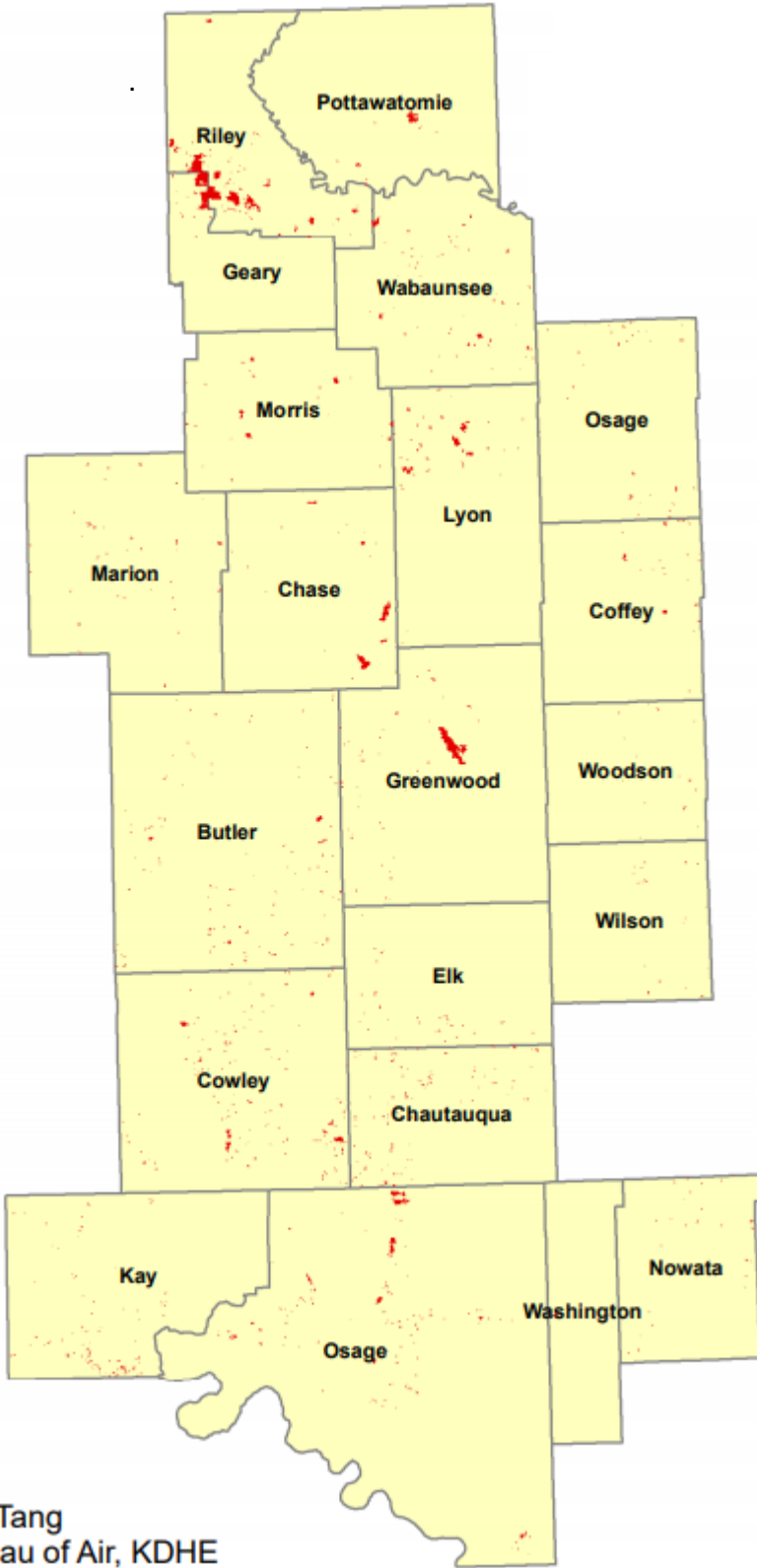


Map: Jayson Prentice, KDHE Bureau of Air

Data: NOAA NESDIS OSPO Hazard Mapping System Fire and Smoke Product



Flint Hills Acreage Burned (February 2 – March 6, 2020)



<u>Counties</u>	<u>Acres Burned</u>
Butler	2,873
Chase	3,382
Chautauqua	2,286
Coffey	973
Cowley	4,680
Elk	710
Geary	3,985
Greenwood	5,637
Lyon	2,949
Marion	1,282
Morris	1,699
Osage (KS)	973
Pottawatomie	1,405
Riley	10,703
Wabaunsee	2,224
Wilson	432
Woodson	340
Nowata (OK)	556
Osage (OK)	5,653
Washington (OK)	247
Kay (OK)	2,023
Total	55,012
* Denotes county was partly or completely covered by clouds during latest analysis.	

Yao Tang
Bureau of Air, KDHE



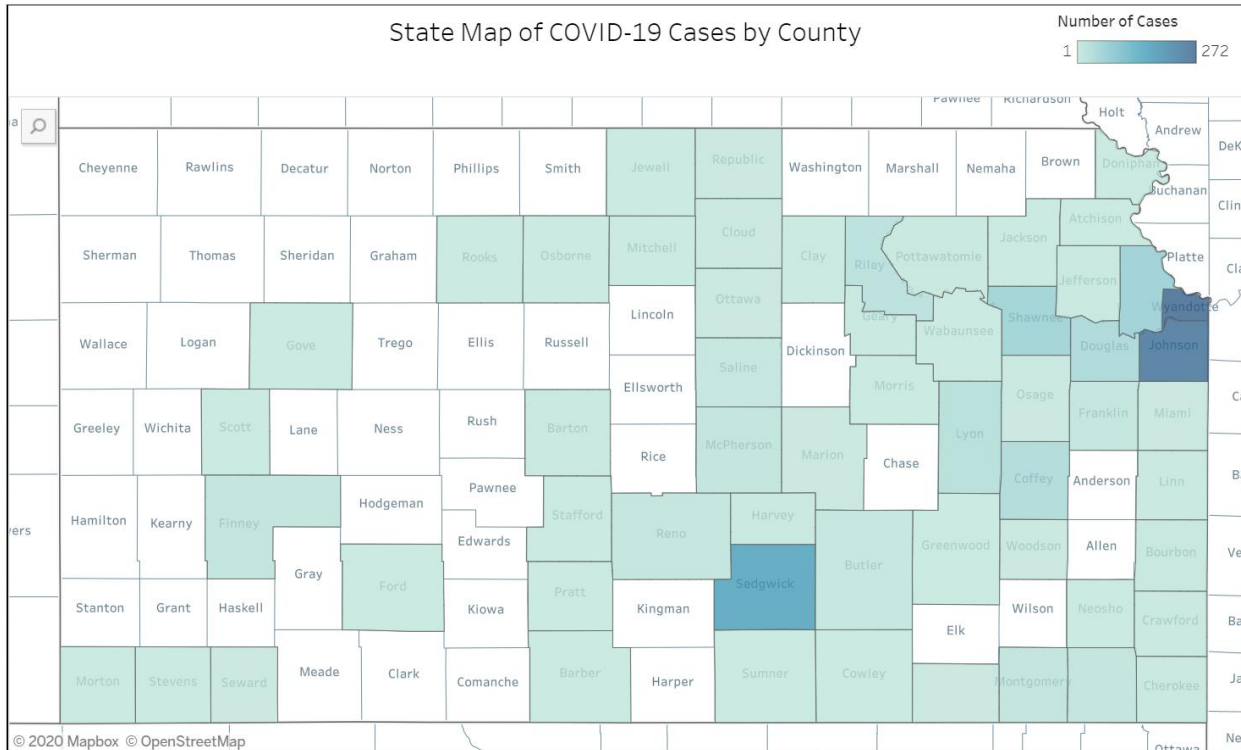
Kansas Coronavirus Disease 2019 (COVID-19)

On March 28, 2020 the Kansas Department of Health and Environment alongside Kansas Department of Agriculture released a statement encouraging all land owners and managers voluntarily reduce the number of acres that they intend to burn this spring. With resources of the county emergency response staff already being taxed with COVID-19 response, it is important to minimize responses that would come with prescribed fire activity. The full release is available [here](#).

As of April 9, 2020 at 11am the following information was available from the Kansas Department of Health and Environment regarding COVID-19 cases in Kansas. For most information and the most up to date data please see the [KDHE Coronavirus Updates](#).

Cases*	Hospitalizations	Statewide Deaths	Negative Tests
1,106	263	42	9,669

*A case is defined as a person who tested positive for the novel coronavirus (SARS-CoV-2), which causes Coronavirus Disease 2019 (COVID-19).
Case counts are preliminary and subject to verification.



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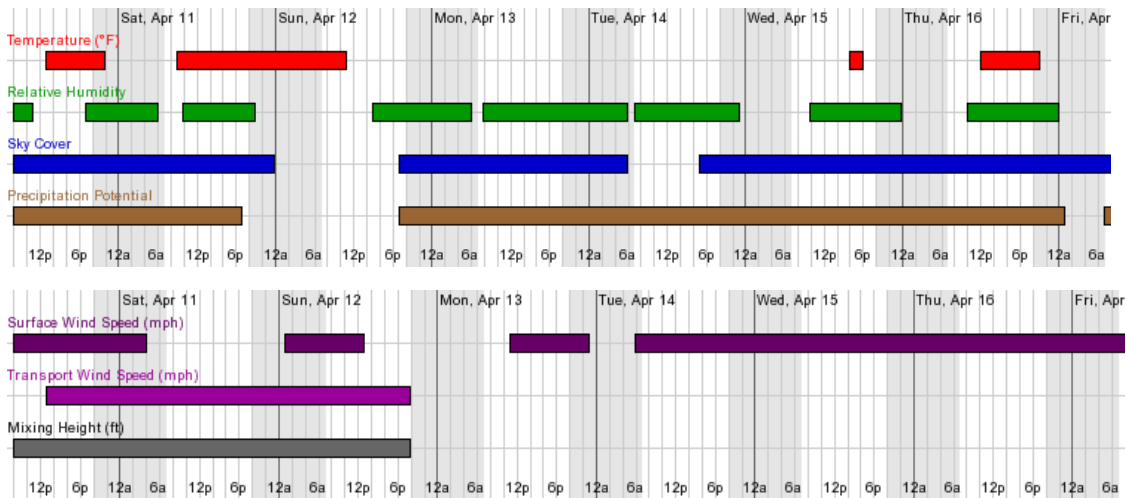


Upcoming Look at Fires and Smoke

A cold start to the morning today with temperatures near or below freezing for much of the Flint Hills will give way to sunny skies and seasonable high temperatures in the 60s. Relative humidity values to dip below 30% this afternoon which means despite light winds any fires will likely consume vegetation quite effectively. Strong south winds are expected on Saturday ahead of widespread showers and thunderstorms for Saturday night into Sunday.

Well below normal temperatures are forecast for Monday through Wednesday with highs in the 40s for many. Conditions slowly warm as we approach the end of the week however another chance of precipitation appears possible by Thursday/Friday. Prescribed fires are certainly plausible for next week, however will have to fend off cooler temperatures and higher relative humidity.

Ideal Weather Conditions for Prescribed Burning



Current National Weather Service forecast for the approximate center of the Flint Hills showing when conditions may be most favorable for wildland burning as described at KSFire.org. Conditions are most favorable when each parameter has a colored boxplot displayed.

Note: Forecast for mixing height and transport winds are only out to 2 days.

Forecast valid: 8am April 10, 2020.

For more information, contact:

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