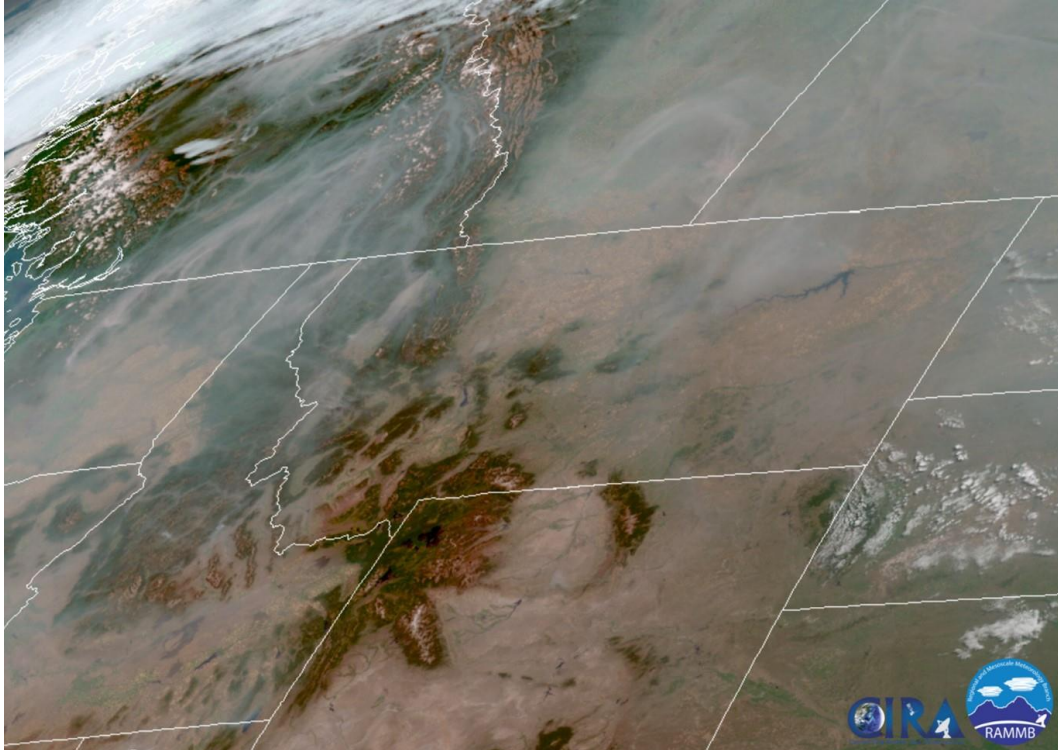


PM_{2.5} 2018 Exceptional Events in Libby due to Wildfires



[Source: CIRA and NOAA. These data are preliminary and not operational.](#)

Prepared by:
Montana DEQ
October 2019



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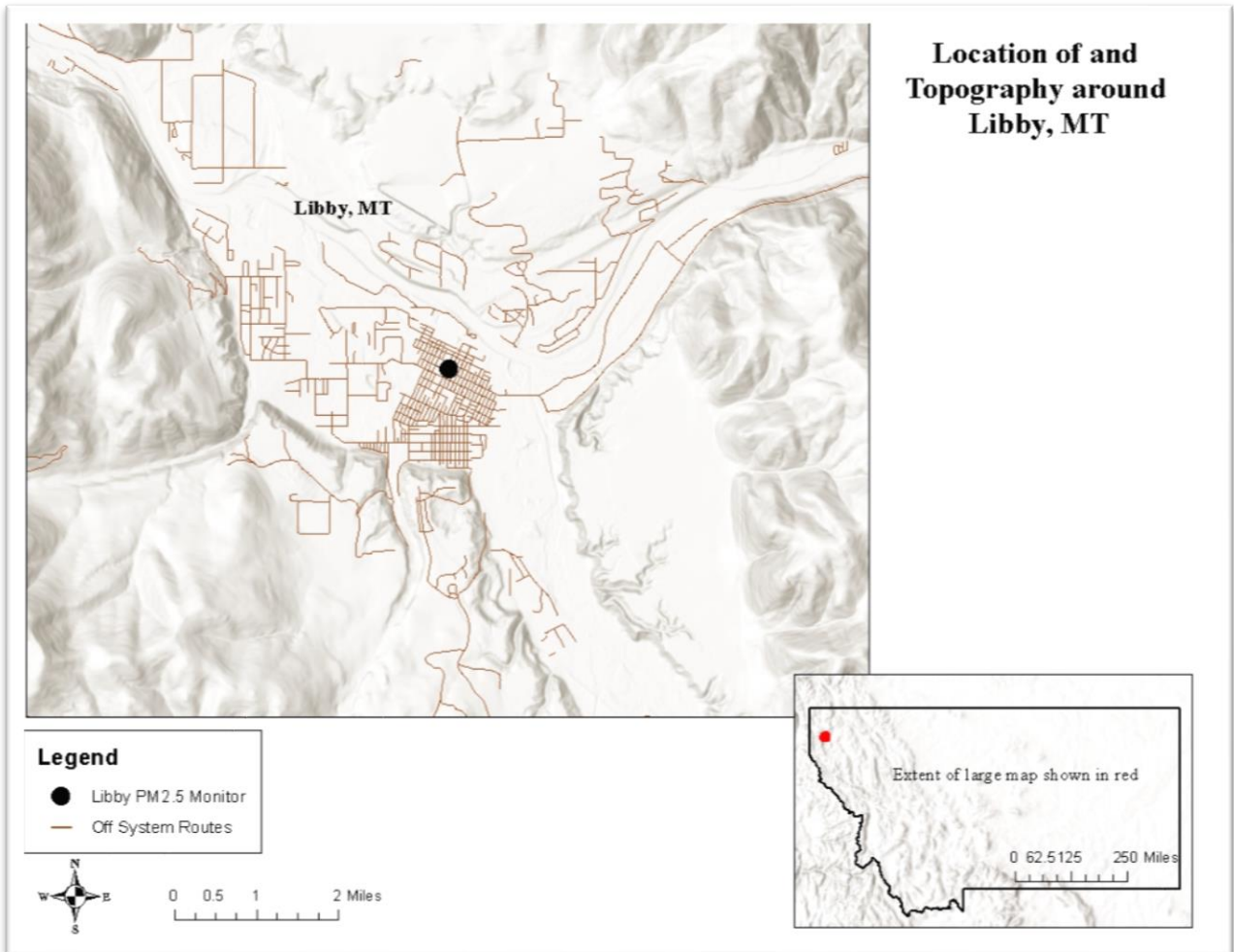
1. Summary

Montana’s Department of Environmental Quality (DEQ) is requesting the following wildfire exceptional events in Libby be concurred. This request is due to an effort to redesignate the Libby PM_{2.5} nonattainment area. Wildfire impacts leading to 24-hour values above 35.4 µg/m³ are included in this package. Table 1 summarizes the PM_{2.5} data that DEQ would like EPA to evaluate for the exclusion from design value calculations in the Libby PM_{2.5} nonattainment area for the purposes of redesignation. Removing these data, and acting on previous years exceptional event demonstrations, will allow Libby to qualify for a limited maintenance plan after applying a regional motor vehicle growth analysis. Without concurrence on these dates, Libby will not qualify for a limited maintenance plan.

Table 1. 2018 PM_{2.5} Summary of Libby Data to be Evaluated.

Date	Site	AQS #	24-hour PM_{2.5} (µg/m³)
8/8/2018	Libby	30-053-0018	37.2
8/9/2018	Libby	30-053-0018	36.9
8/10/2018	Libby	30-053-0018	41.2
8/11/2018	Libby	30-053-0018	37.5
8/12/2018	Libby	30-053-0018	40.3
8/13/2018	Libby	30-053-0018	70.5
8/14/2018	Libby	30-053-0018	86.2
8/15/2018	Libby	30-053-0018	69.7
8/16/2018	Libby	30-053-0018	63.2
8/17/2018	Libby	30-053-0018	64.7
8/18/2018	Libby	30-053-0018	69.2
8/19/2018	Libby	30-053-0018	105.6
8/20/2018	Libby	30-053-0018	65.5
8/22/2018	Libby	30-053-0018	53.4
8/23/2018	Libby	30-053-0018	83.0
8/24/2018	Libby	30-053-0018	81.2
8/25/2018	Libby	30-053-0018	67.8
8/26/2018	Libby	30-053-0018	55.8

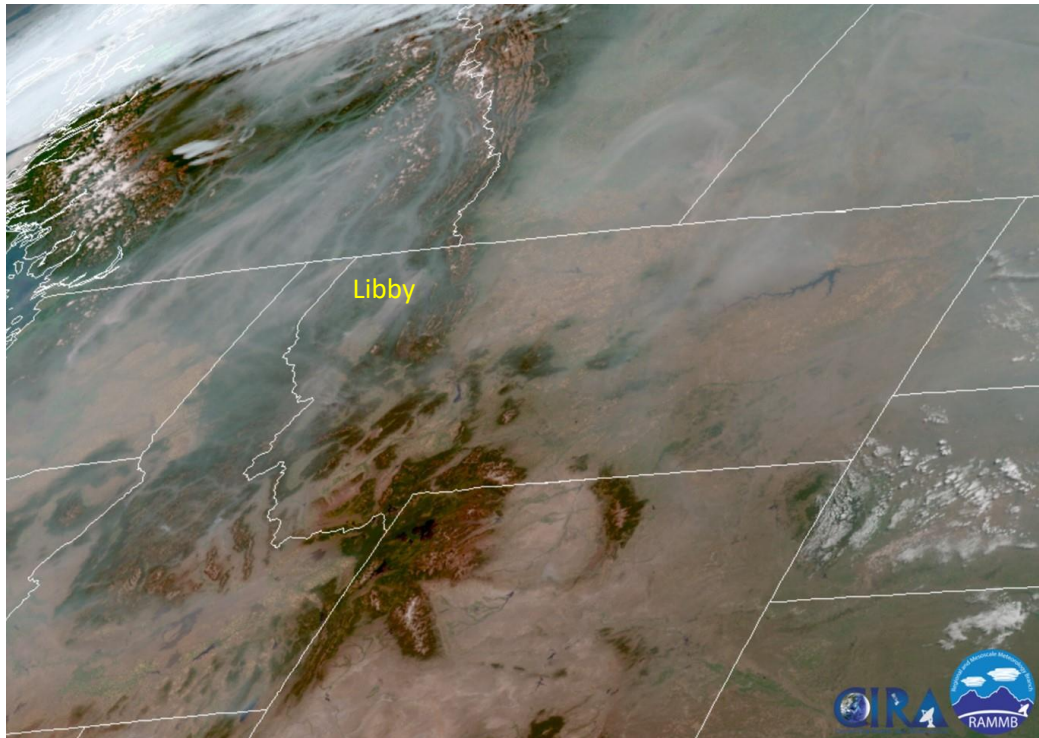
Libby sits in a small valley surrounded by mountains in the northwest corner of the state. The elevation in Libby is 2,100 feet above sea level. The surrounding mountains extend up to 7,000 ft. over a short distance. Winds are historically light, with the high mountains inhibiting mixing down to the valley surface. Inversions are common in Libby, especially in the fall and winter months.



The 2018 wildfire season was defined by numerous fires in northwest Montana and a relatively quiet year elsewhere in Montana. Libby experienced significant wildfire smoke from fires in British Columbia, Canada, throughout the month of August. On numerous occasions in 2018, smoke from these Canadian fires significantly impacted Washington, Idaho and the far northwest corner of Montana, leaving the rest of Montana relatively smoke free. In addition to the smoke transported from Canada, numerous fires in northwest Montana caused localized impacts to Libby.

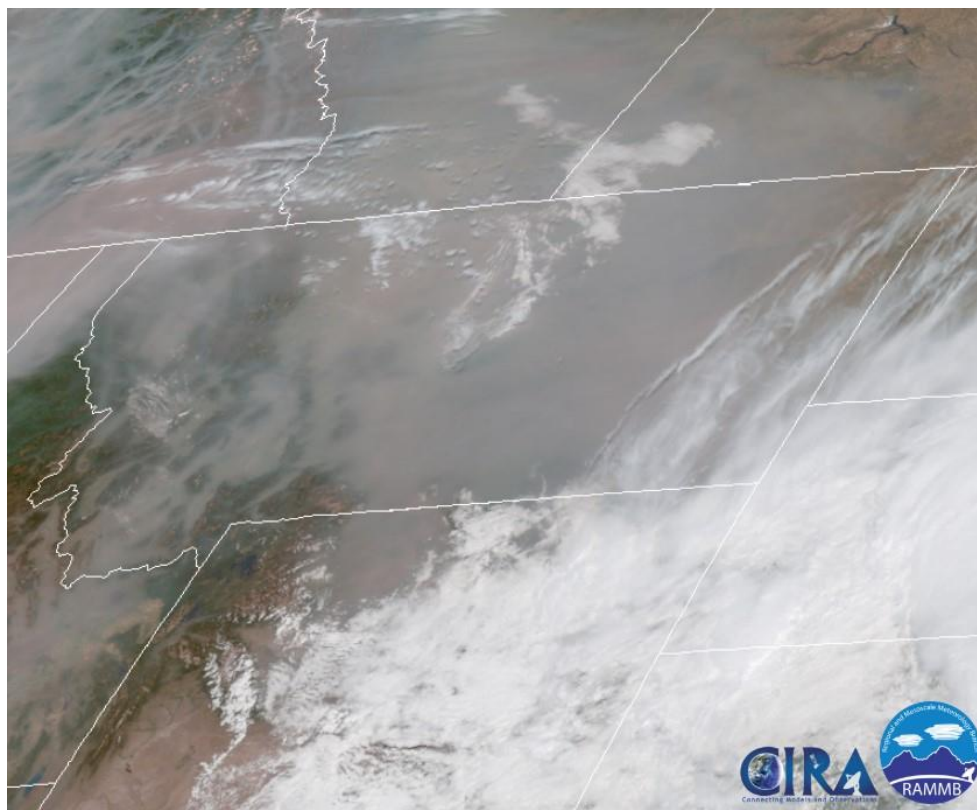
Figure 1 shows smoke from Canada and northwest Montana impacting Libby in August 2018.

Figure 1. Smoke over Montana on August 9, 2018.



Below shows the satellite on the smokiest day of the year, August 19, 2018, when smoke from Canada descended into Montana.

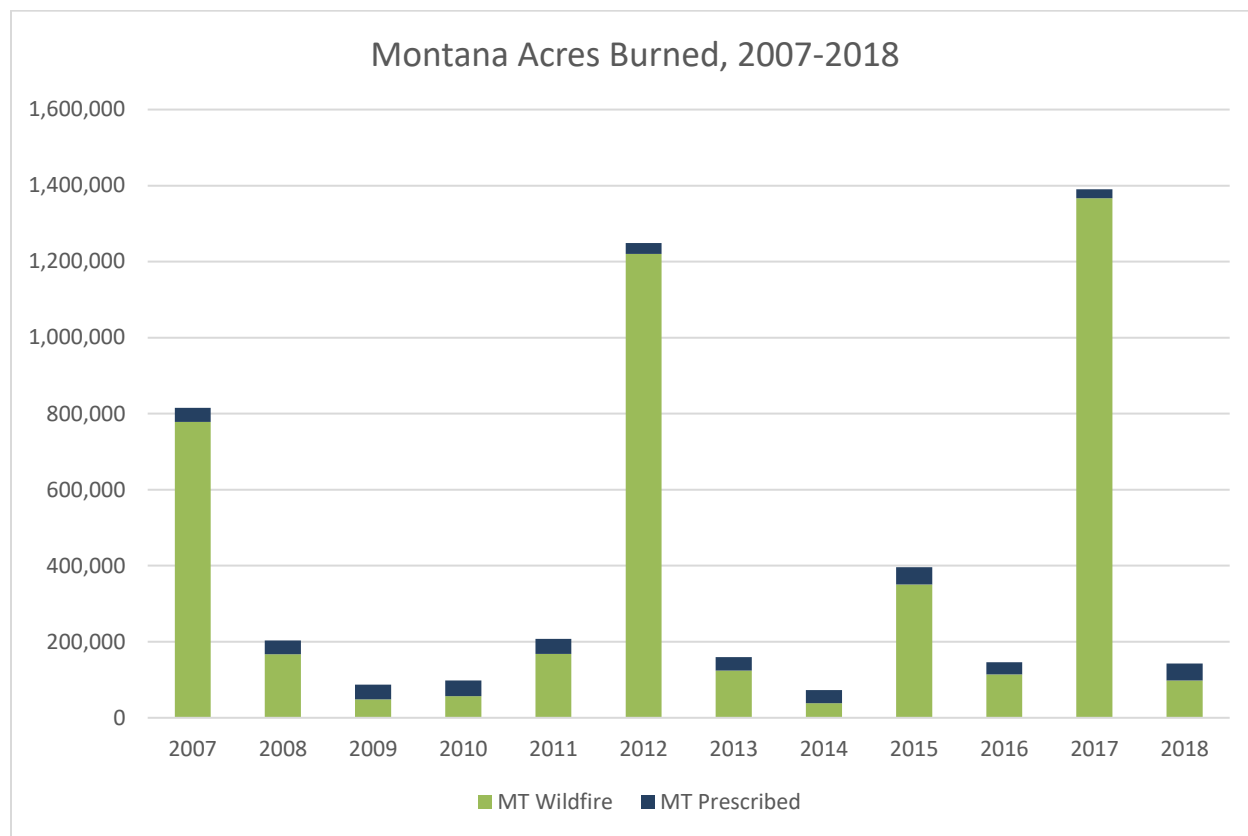
Figure 2. Smoke from Canada impacting Montana on August 19, 2018.



2. Conceptual Model

Without the influence of wildfires, $PM_{2.5}$ values in western Montana would be highest in the winter due to temperature inversions. In the spring, summer, and fall, $PM_{2.5}$ values are generally low due to good dispersion from strong solar heating. Unfortunately, summer months can be significantly impacted by wildfires. The graphs included in the following section show the average concentration over the past five years without wildfire impacts, as well as the average daily value, super imposed on this data are the 2018 flagged days. Figure 3 summarizes wildfire acres burned in Montana over the past 12 years. While 2018 shows a low number of acres burned compared to historic years like 2012 and 2017, many of the 2018 wildfires were near Libby, as will be demonstrated in the following sections.

Figure 3. Acres Burned in Montana, 2008-2018.



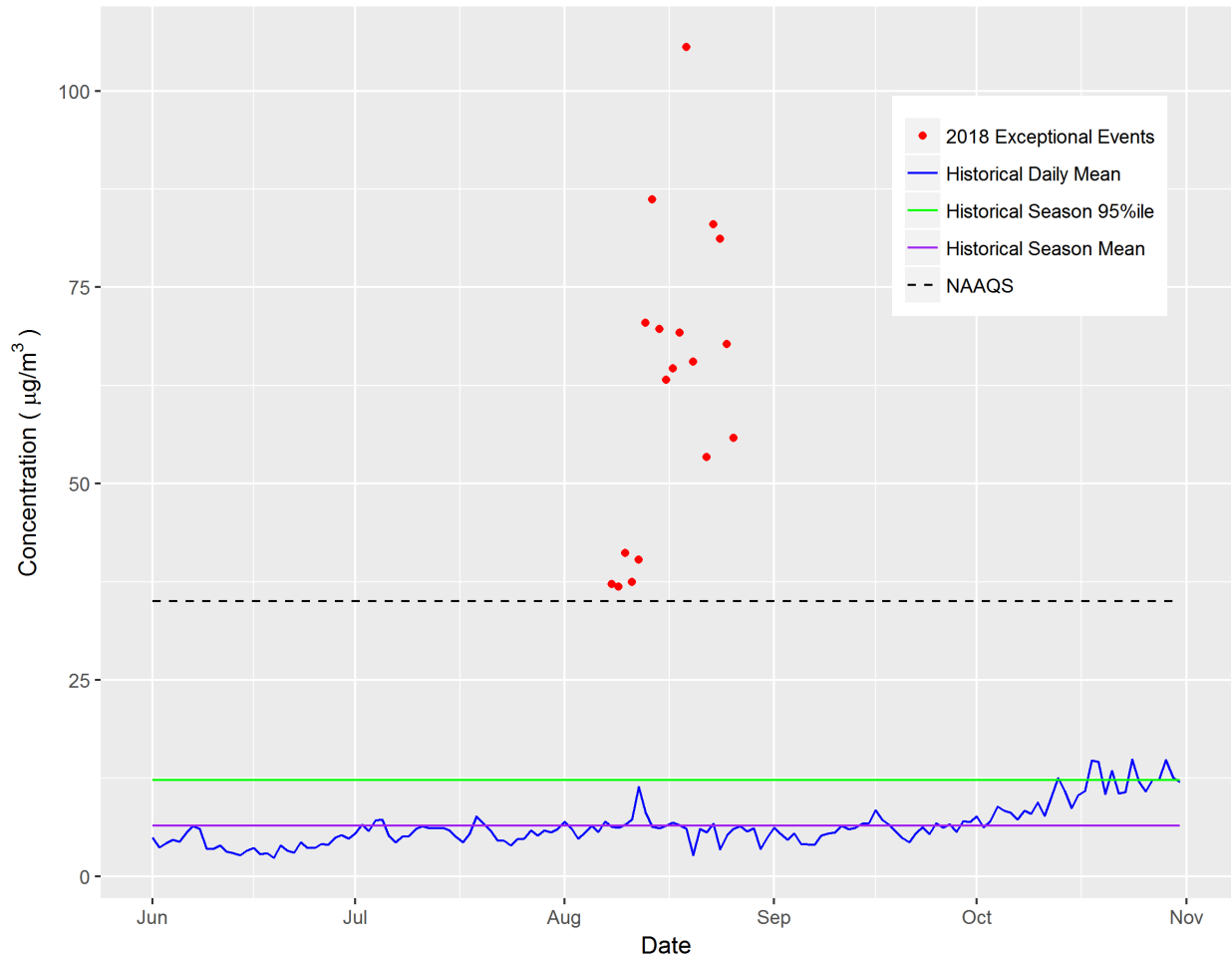
The Montana fires of 2018 impacted air quality values from July through September, including days in August when PM_{2.5} data exceeded the NAAQS in Libby. The conceptual model presented in this demonstration relies on three key areas of evidence. First, a comparison to historical data indicating PM_{2.5} values less than 35.4 µg/m³ when wildfire smoke is not present. Second, the evidence of smoke over monitoring locations on satellite imagery on the flagged days. Third, a discussion of the meteorological and fire conditions on each day noting the causes of smoke throughout western Montana. The state of Montana believes this information shows that data from each site would have been well below 35 µg/m³ had the smoke not been present. The remaining sections will provide evidence for this conceptual model.

3. Comparison to Historical Data

The historical data comparisons for Libby are provided below. These graphs show the average and 95th percentile between 2012-2018, along with the daily average for unflagged PM_{2.5} data. This year's PM_{2.5} flagged days are super imposed in red to show the historical significance of the flagged days.

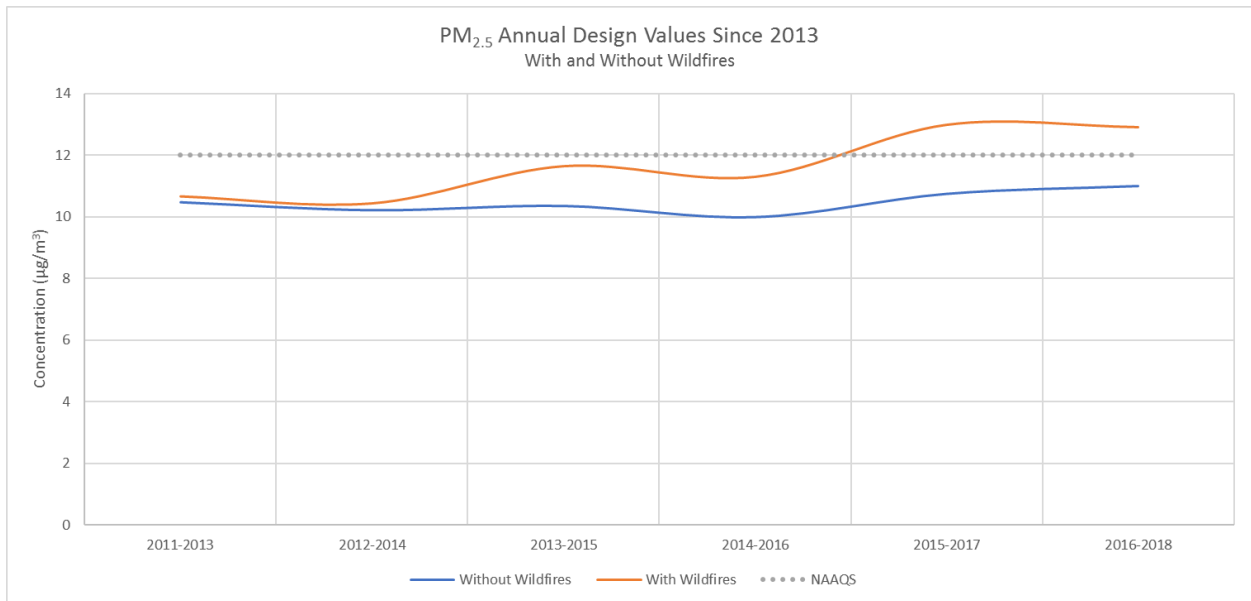
Figure 4. Historical PM_{2.5} Data Comparison for Libby.

Historical PM2.5 Data for Libby Compared to 2018 Exceptional Events



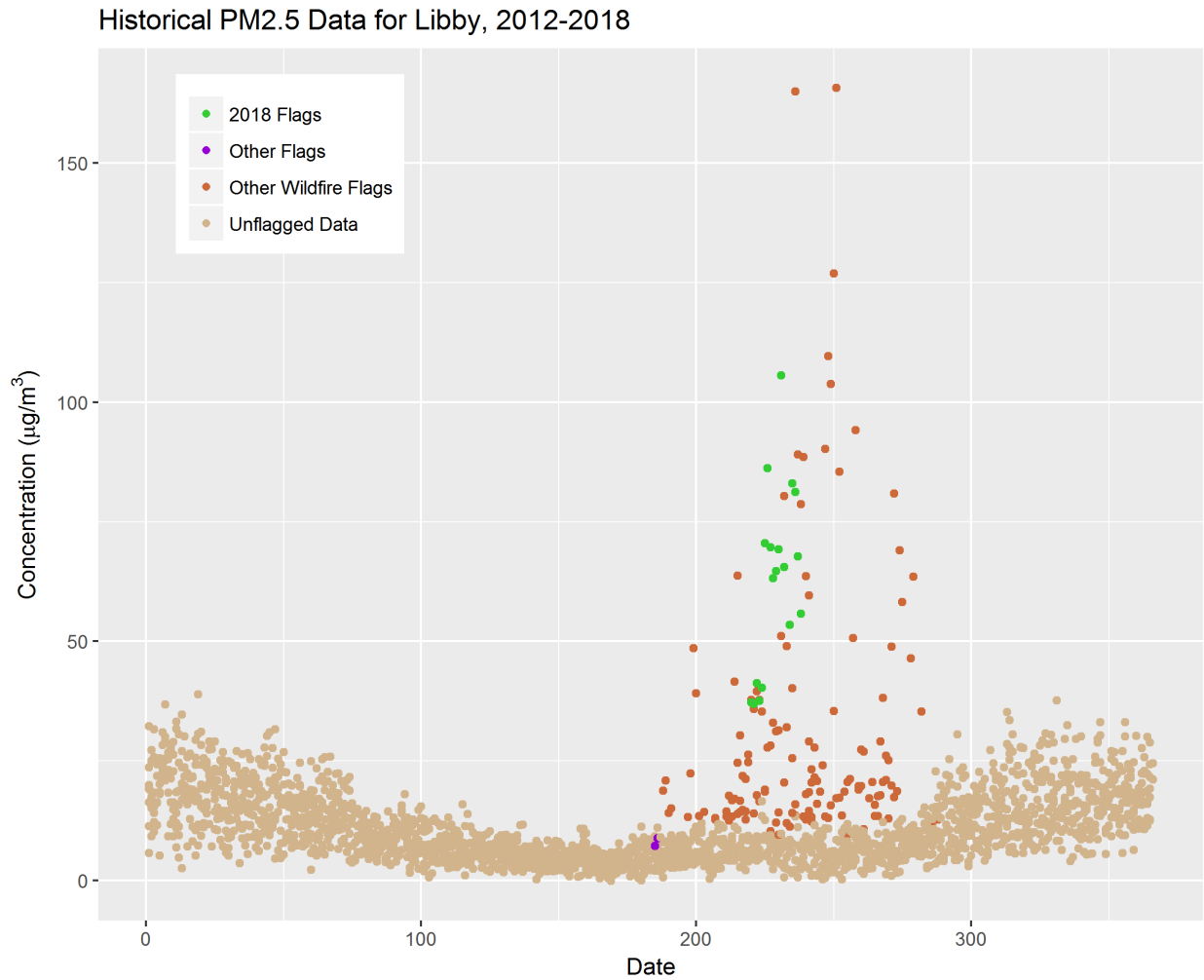
The graph below shows the differences in annual design value calculations with and without wildfire impacts. When wildfire impacts are included, the design values have been steadily increasing over the past 5 years. With wildfire impacts removed, the design values have remained steady at around 10.5 µg/m³.

Figure 5. Libby Annual Design Values Over Time, With and Without Wildfire Impacts



The 2018 flagged data are compared to 2012-2018 (seven years) in the figure below for Libby. Generally, PM_{2.5} peaks in the winter due to inversions and summer due to wildfire. The highest values are associated with wildfire activity in the summer. In the figures below, the green dots represent the 2018 wildfire flags and the brown dots represent data flagged with wildfire activity, either from previous years, or below the 35 µg/m³ threshold in 2018. The purple dots represent other flags such as fireworks, prescribed fires, or structure fires. The tan dots are all unflagged data.

Figure 6. Libby Historical PM_{2.5} Data, 2012-2018



Summary statistics for 2012-2018 data are shown below. Statistics for the high flagged days in 2018 compared to this period are shown in Table 2. These tables are for the entire year, not just the wildfire season.

Table 2. Summary Statistics for Libby PM_{2.5}, 2012-2018

Site	Count	Maximum (µg/m ³)	Mean (µg/m ³)	Standard Deviation (µg/m ³)	95 th Percentile (µg/m ³)
Libby, All Data	2532	165.7	12.1	11.5	27.0
Libby, No Flagged Data	2375	38.9	10.6	7.0	24.6

Table 3. Statistics Characterizing Libby 2018 Flagged Data Greater than 35.4 $\mu\text{g}/\text{m}^3$

Date	Site	PM_{2.5} Conc. ($\mu\text{g}/\text{m}^3$)	Rank, 2012-2018	Percentile, 2012-2018
8/8/2018	Libby	37.2	51	98.03%
8/9/2018	Libby	36.9	52	97.99%
8/10/2018	Libby	41.2	40	98.46%
8/11/2018	Libby	37.5	50	98.06%
8/12/2018	Libby	40.3	41	98.42%
8/13/2018	Libby	70.5	18	99.33%
8/14/2018	Libby	86.2	11	99.61%
8/15/2018	Libby	69.7	19	99.29%
8/16/2018	Libby	63.2	28	98.93%
8/17/2018	Libby	64.7	24	99.09%
8/18/2018	Libby	69.2	20	99.25%
8/19/2018	Libby	105.6	5	99.84%
8/20/2018	Libby	65.5	23	99.13%
8/22/2018	Libby	53.4	32	98.78%
8/23/2018	Libby	83	13	99.53%
8/24/2018	Libby	81.2	14	99.49%
8/25/2018	Libby	67.8	22	99.17%
8/26/2018	Libby	55.8	31	98.82%

In conclusion, the comparison to historical data shows that the flagged values in 2018 were at or above the 97th percentile between 2012-2018. The concentrations seen during wildfire season are among the highest values recorded over the seven years evaluated.

4. Clear Causal Relationship

The comparison to historical data shows that the flagged data in the summer of 2018 are unseasonably high and among the highest values over a seven-year period. Values that high would have been extremely unusual in the absence of wildfire smoke. For each flagged day, an assessment of the meteorology and upwind smoke sources showing that the elevated levels were the result of transported wildfire smoke. Each day is addressed below in turn. All of the daily assessments are available online here:

<http://svc.mt.gov/deq/todaysair/smokereport/SmokeList.aspx?smokeYear=2018>

Wednesday, August 8, 2018

Haze and visible smoke is over northwest Montana and pushing east today, causing widespread MODERATE impacts at the ground for many monitoring locations. Most locations in the state are showing MODERATE or near-MODERATE impacts, with UNHEALTHY FOR SENSITIVE GROUPS seen earlier this morning at Seeley Lake and Libby.

The high pressure ridge continues to build today through Friday, with very hot and dry conditions expected to persist. The National Weather Service has issued Heat Advisories all across northern Montana today, and Excessive Heat Warnings across Washington, which will not help an already active wildfire situation. The ridge will continue to transport smoke from the fires in California, Oregon, and Washington up north and fanned out towards the east, which can be seen on current satellite imagery. A mostly dry cold front is expected by Saturday, bringing relief from the hot temperatures, and will bring breezy conditions that will help clear smoke. Unfortunately, coupled with low relative humidity and dry vegetation, this could also increase fire activity and increase the likelihood of new starts.

Fire activity has been steady/active since yesterday, giving rise to more smoke, especially seen in northwest MT. Below is a quick overview of a few fires in and around the area that are partially contributing to the smoke and haze this week.

In Montana:

Near Ronan, the Garden Creek grew substantially over the last 24 hours, is now reported at 1,842 acres and 5% contained. The latest report shows the Tenmile fire in the Kootenai National Forest is displaying moderate fire behavior and grew to 568 acres, 18% contained. The Davis fire in the very northwest part of the state is 375 acres and 20% contained. The Brownstone fire, spotted in the Bob Marshall Wilderness on August 2, is 366 acres in size. The Medicine Lake 2 fire detected near Philipsburg is currently 45 acres. The Bacon Rind fire, near Yellowstone National Park, is 500 acres and 14% contained.

In Idaho:

Just over the border in Idaho, the Copper Mountain fire is 155 acres with moderate fire behavior. The Cougar Fire, near East Hope, ID grew to 800 acres. The Rabbit Foot fire grew to 2,611 acres with active fire behavior yesterday. The Kiwah fire is also active and is reported at 6,350 acres. The Sharps fire in central Idaho is 64,646 acres and 60% contained.

In Washington:

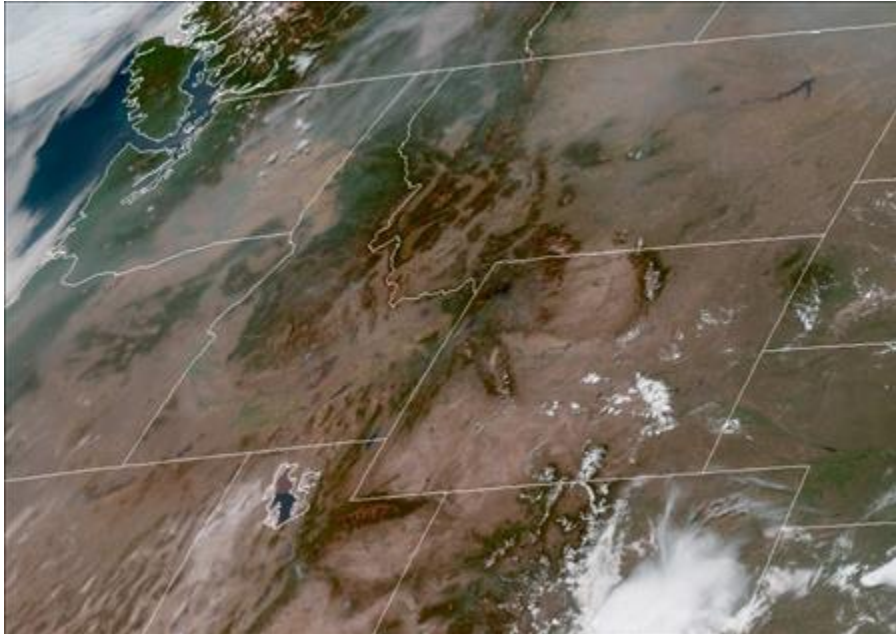
The Sheep Creek fire is 458 acres and 40% contained. The Angel Springs fire, which is burning primarily grass and brush, is 5,043 acres and 15% contained. More to the west, the Cougar Creek fire is 9,178 acres and showing active fire behavior, and the Crescent Mountain fire is also active at 7,671 acres. This morning's satellite imagery shows smoke from Canada causing hazy skies into central Montana.

Summary

Smoke persists and generally spread over much of the state due to fires in northwest Montana, Idaho, Washington, Oregon, and Northern California. The high pressure ridge continues to build through the week, which will maintain the hot and dry conditions, and increase haze as smoke is transported from the fires to our southwest. Widespread MODERATE impacts are seen and

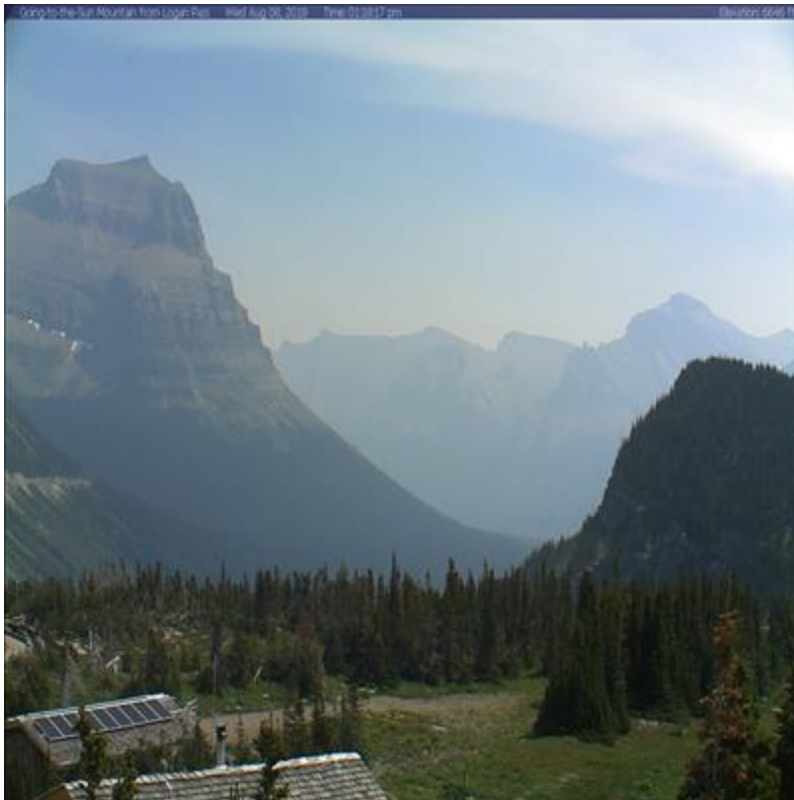
expected to maintain, with UNHEALTHY FOR SENSITIVE GROUPS more likely in northwest Montana near active fires, and also overnight when the air is more settled. The ridge is expected to be pushed ahead by a low pressure system on Saturday, which will increase winds and cool temperatures. This could help clear existing smoke but is also likely favorable for fire activity.

Smoke can be seen over the region, in addition to some from within the state.



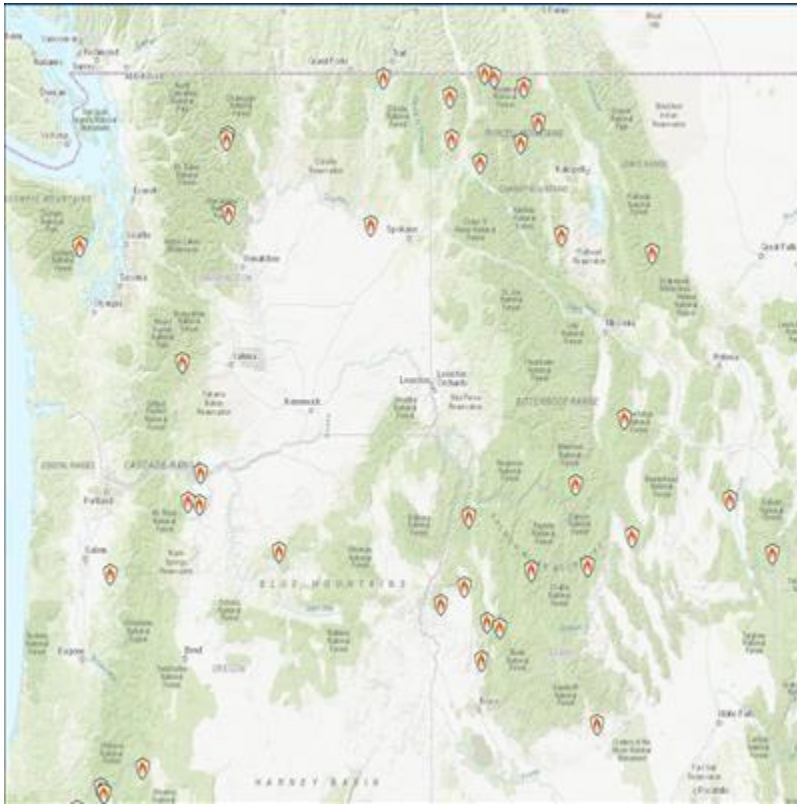
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

A little hazy in Glacier again.



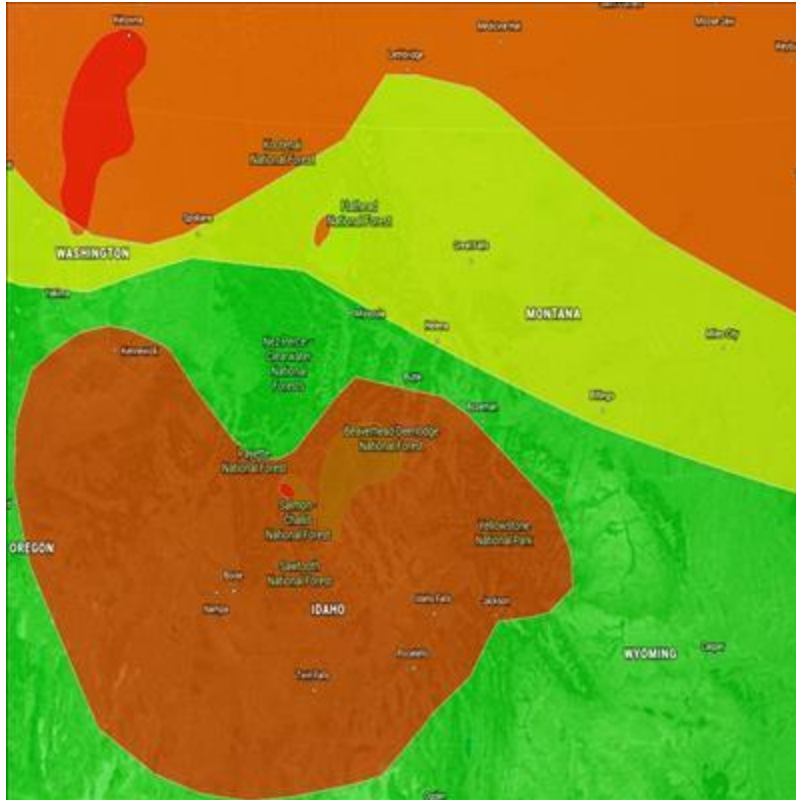
Source: [NPS](#)

Active fire continues in the region.



Source: [InciWeb](#)

Most recent smoke analysis shows light to moderate smoke over Montana.



Source: [NOAA](#)

NOAA Text Description:

Wednesday, August 8, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 0300Z August 9, 2018.

SMOKE:

Much of Canada and the Western and Central US...

Major wildfire activity across portions of the Western US and up into Western Canada was responsible for an enormous mass of varying density smoke covering virtually all of the southern half of Canada along with the Western and Central US. Over the US, the thickest smoke was noted over a good portion of California, Oregon, Washington, Idaho, and Montana as well as the eastern half of Utah, Colorado, and the northern half of Arizona and New Mexico. Moderately dense to locally thicker smoke also stretched across North Dakota and northern Minnesota to the Great Lakes Region. Over Canada, a tremendous wildfire outbreak especially affecting portions of British Columbia resulted in the thickest smoke spreading across British Columbia, Alberta, and Saskatchewan with a bit more narrow swath of moderately dense to locally thicker smoke extending eastward over Manitoba, Ontario, and a portion of Quebec.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H090326.html>

Thursday, August 9, 2018

We have widespread smoke over Montana this morning. Fortunately, most of this smoke is remaining above ground level, with widespread MODERATE impacts being reported in most of Montana. We are seeing the smoke settle down to the surface in a few areas. In northwest Montana, where there is a cluster of fires, air quality is UNHEALTHY FOR SENSITIVE GROUPS in Columbia Falls and ranging from MODERATE to UNHEALTHY FOR SENSITIVE GROUPS in Libby. Over in Eastern Montana, air quality is UNHEALTHY FOR SENSITIVE GROUPS in Broadus and Sidney. Southwest Montana is faring the best this morning. Air quality in Butte, Dillon, Bozeman, and West Yellowstone is generally GOOD.

The cause of this smoke is a combination of very active fires along the west coast, a cluster of fires in northwest Montana and the Idaho Panhandle, and a large, strong ridge of high pressure that is trapping the smoke over the region. As this week has progressed, hazy skies and smoke impacts have become more widespread. This pattern is expected to continue through Saturday afternoon as the ridge remains firmly in place. Expect air quality levels reaching UNHEALTHY FOR SENSITIVE GROUPS to become more widespread by Friday, especially in NW Montana, with UNHEALTHY levels possible near the Garden Creek fire in the southern Flathead Valley.

On Saturday afternoon, a dry cold front is expected to swing through the state. This will cause increasing winds and the potential for dry thunderstorms. On the one hand, this should help clear out the built-up haze over the region. On the other hand, this will cause an increase in fire danger, with increased activity expected on the fires in NW Montana, Idaho, and Washington. An increase in activity on these fires will send smoke into Montana along westerly winds. By Sunday, I would expect improved air quality in southern Montana, with continued smoke impacts in northern Montana, especially in NW Montana near active fires. Of course, new fires could cause conditions to deteriorate rapidly.

Here is an update on the active fires in the region:

In Montana:

- Near Ronan, the Garden Creek is still being reported at 1,842 acres and 5% contained, although hot spot analysis shows continued activity on that fire.
- Near Eureka, the Tenmile fire is 638 acres and 15% contained.
- Near Yaak, the Davis fire remained at 375 acres and 20% contained.
- In the Bob Marshall Wilderness, the Brownstone fire remains at 366 acres.
- Near Yellowstone, the Bacon Rind fire, near Yellowstone National Park remains at 500 acres.
- Near Ashland, the newly reported Coal fire is 150 acres and 0% contained with active fire behavior.

In Idaho:

- Just over the border from Yaak in Idaho, the Copper Mountain fire is 170 acres with moderate fire behavior.
- Also in the Idaho Panhandle, the Cougar Fire, grew to 900 acres.

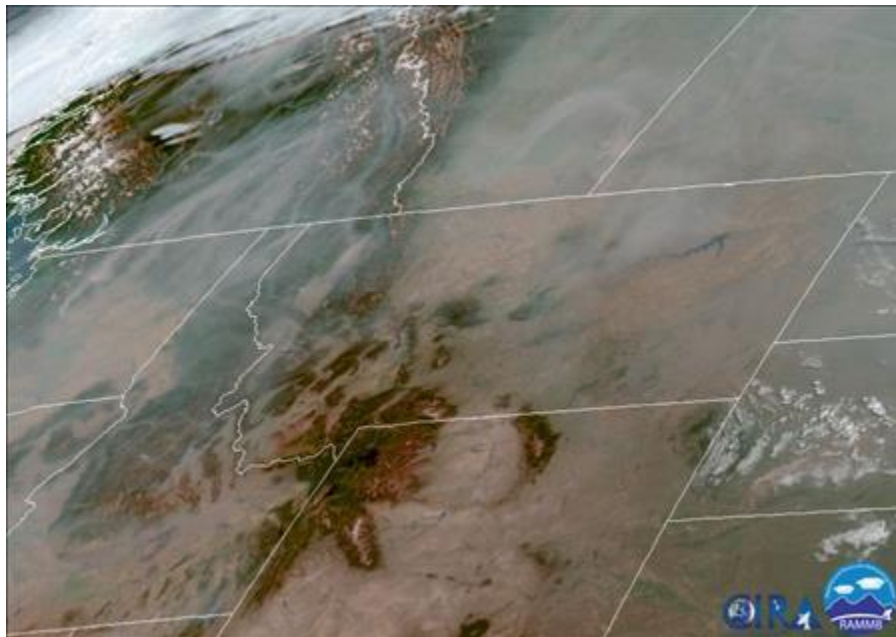
- Near Salmon, ID, the Rabbit Foot fire grew to 4,338 acres yesterday.
 - The Kiwah fire is also active and is reported at 7,693 acres.
 - On the ID/MT border in the southern Bitterroot Mountains, the Goldstone fire is 125 acres.
- In Washington:

The Cougar Creek fire remains at 9,178 acres and showing active fire behavior, and the Crescent Mountain fire grew to 11,251 acres. These two fires have been the big smoke producers in the region the last few days.

Summary

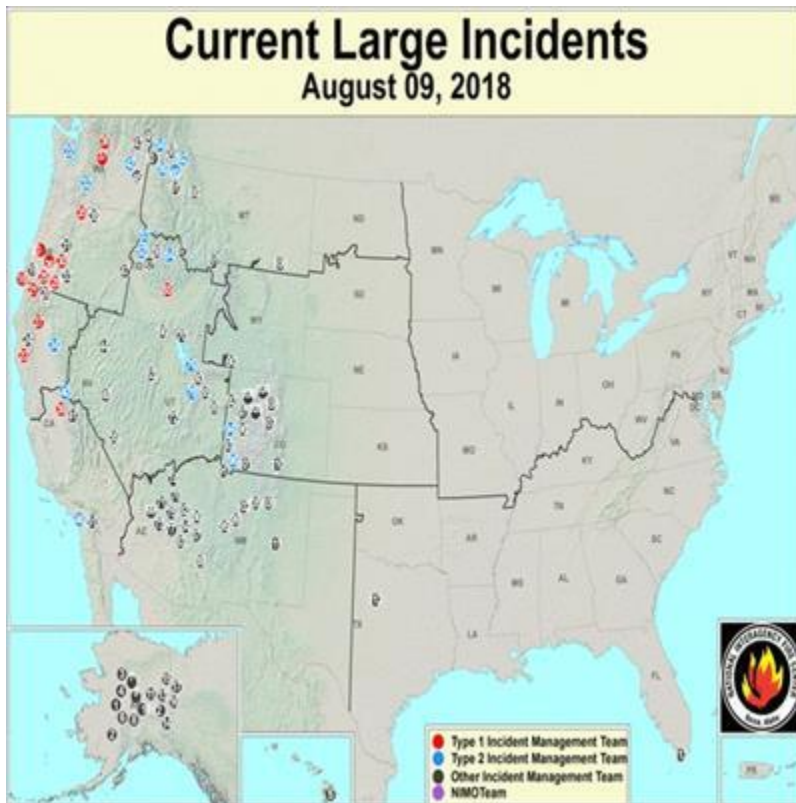
Smoke is present over much of the state this morning. Most areas are seeing MODERATE air quality, although there are some areas experience UNHEALTHY FOR SENSITIVE GROUPS. Southwest Montana is the exception, where skies are clear and air quality is currently GOOD . The smoke and haze will persist through Saturday afternoon as fires in Montana and along the west coast remain active and the smoke remains trapped under a large area of high pressure. A cold front on Saturday afternoon should help push the built-up smoke out of the region, but increased winds and dry condition will keep downwind fires active. Northwest Montana will likely see the worse air quality impacts throughout this period due to the proximity to active fires.

Satellite imagery this morning shows widespread smoke over Montana.



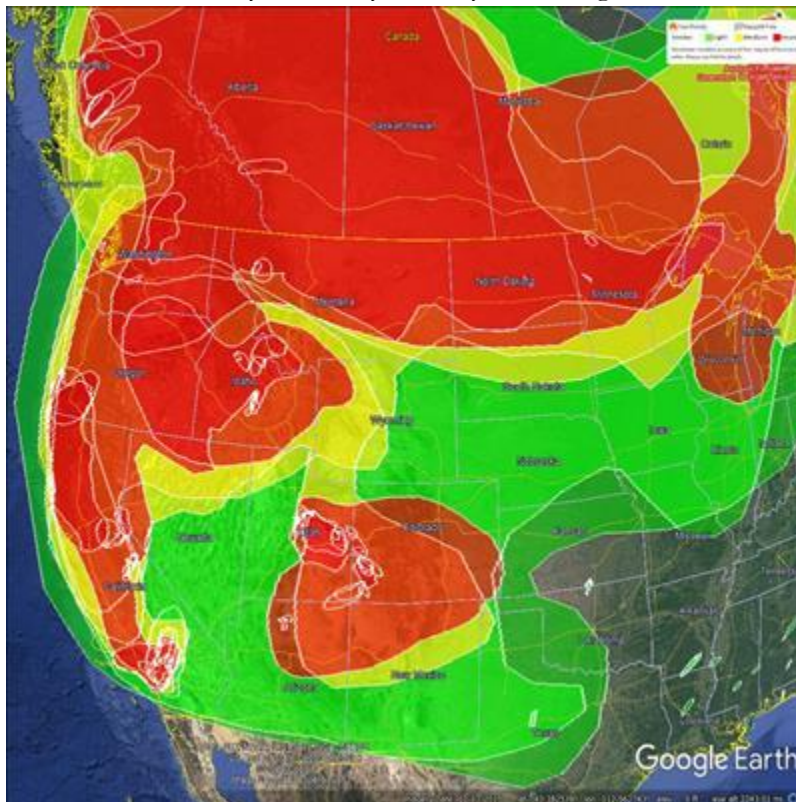
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

Active fire locations are shown below.



Source: [USFS](https://www.usfs.gov/)

Satellite smoke analysis from yesterday shows significant smoke over Montana.



Source: [NOAA](#)

Hazy conditions are present in Polson, near the Garden Creek fire.



Source: [KTVQ](#)

NOAA Text Description:

Thursday, August 9, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 1700Z August 9, 2018.

SMOKE:

Much of Canada and the US with the possible exception of the Southeastern US...

The ongoing significant amount of wildfire activity scattered across portions of the Western US and Western Canada continued to emit large quantities of smoke with an enormous area of varying density smoke blanketing much of the southern half of Canada though portions of northern Ontario and northern Quebec and Hudson Bay may be mainly free of smoke. The smoke also covered a good portion of the US with the possible exception of the Southeastern US from eastern Texas and eastern Oklahoma to the Carolinas, Georgia, and Florida. In greater detail, an area of thicker smoke from wildfires in Utah and western Colorado was visible spreading southward over southern Utah, southwestern Colorado, northwestern New Mexico, and northern Arizona. Thick smoke from wildfires in California, southwestern Oregon, portions of Washington state and Idaho was noted roughly across the northern half of California, much of Oregon and Washington, and up over

northern Idaho and into western Montana. A large area of moderately dense to thick smoke attributed to both wildfire activity in the Western US and over Western Canada could be seen over much of British Columbia, Alberta, Saskatchewan, and far southern Ontario in Canada and stretching from Montana eastward over the Dakotas and the Great Lakes Region to northern New York in the northern US. Thinner density smoke was visible over portions of the Central and South Central US as well as the Ohio Valley Region, the Middle Atlantic Region, and the Northeast. <https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H091735.html>

Friday, August 10, 2018

The hazy skies and air quality impacts have worsened overnight. We now have air quality reaching UNHEALTHY FOR SENSITIVE GROUPS in Libby, Columbia Falls, Frenchtown, Missoula and Broadus. Elsewhere, air quality is MODERATE across the state, with a pocket of clearer air over Butte, Bozeman and Yellowstone, where air quality is currently GOOD.

The ridge of high pressure that has been bringing more and more smoke over the region this week will continue to dominate our weather today. The center of that ridge will move directly over Montana today, causing potentially record setting temperatures across the state. The widespread smoke will likely inhibit temperatures from reaching their full potential today, but we can still expect thermometers to reach the upper 90s and low 100s in most areas.

Fires remain active across the region, especially along the west coast. These fires continue to add smoke to the atmosphere, which is getting trapped under this large and strong ridge. In Northwest Montana, smoke impacts are more significant due to a cluster of fires in northwest Montana and the Idaho Panhandle. See below for a rundown of active fires.

Today's Smoke Forecast

Most areas, especially east of the Divide, will likely see the hazy skies and MODERATE air quality continue. In northwest Montana, some of the overhead smoke may come down to the surface starting around noon today when those high temperatures create some vertical mixing of the atmosphere. In Libby, the Flathead Valley, and potentially as far south as the Missoula area, expect air quality to range from UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY at times today.

Weekend Smoke Forecast

We are in for a change tomorrow when a low pressure area, currently sitting off the Oregon Coast, makes its way to the northeast. A dry cold front will lead the way, increasing winds and fire danger beginning to our west before arriving in-state. The increased winds should help clear out the built up haze over the region, but there is a lot of smoke to our west and southwest that will be coming over Montana in the next 24 hours. This means that smoke conditions may deteriorate briefly on Saturday morning in many locations, with widespread UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY air quality possible Saturday morning. The increased winds have also prompted red flag warnings across the region, increasing the likelihood of new fires and more intense activity on existing fires. Once the front passes through, we will still be dealing with smoke from many sources. Fire activity on the fires in northwest Montana, the Idaho Panhandle, Washington, and British Columbia will continue to cause smoke impacts in northwest Montana. Air quality ranging from MODERATE to UNHEALTHY is expected to continue in that region. Southwest Montana may see smoke from California move over them, although most of this smoke should remain above ground level, causing hazy skies but only MODERATE air quality. Depending on fire activity, smoke may spread over eastern Montana as well.

Active Fires

In Montana:

- Near Ronan, the Garden Creek is currently 2,042 acres and 10% contained.
- Near Eureka, the Tenmile fire is 677 acres and 22% contained.
- Near Yaak, the Davis fire remained at 380 acres and 25% contained.
- In the Bob Marshall Wilderness, the Brownstone is now 1,086 acres.
- Near Yellowstone, the Bacon Rind fire, near Yellowstone National Park is currently 551 acres.
- Near Ashland, the newly reported Coal fire is 188 acres and 38% contained with active fire behavior.

In Idaho:

- Just over the border from Yaak in Idaho, the Copper Mountain fire is 170 acres with moderate fire behavior.
- Also in the Idaho Panhandle, the Cougar Fire, grew to 1,000 acres.
- Near Salmon, ID, the Rabbit Foot fire grew to 6,357 acres yesterday.
- The Kiwah fire is also active and is reported at 8,141 acres.
- On the ID/MT border in the southern Bitterroot Mountains, the Goldstone fire is 440 acres.

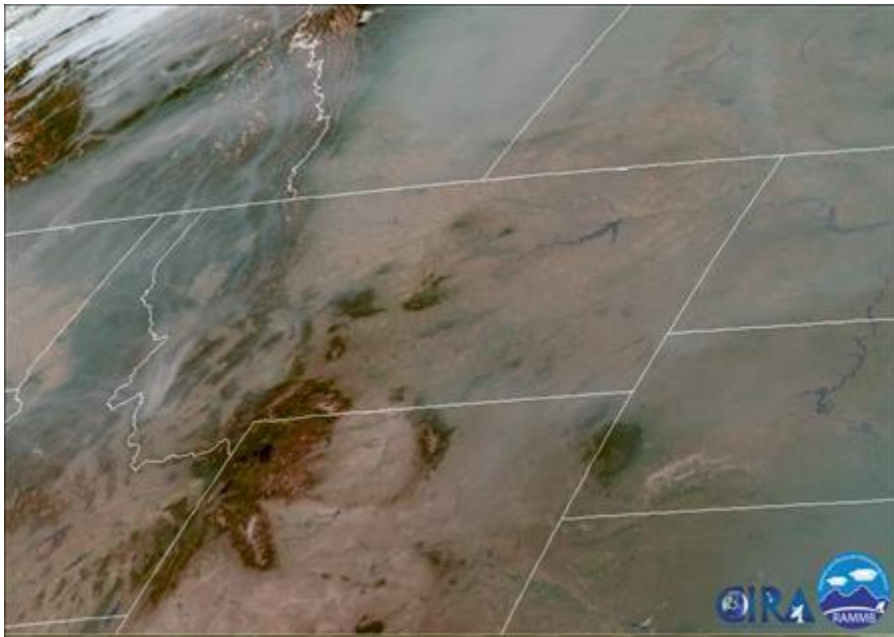
In Washington:

The Cougar Creek fire is currently 12,314 acres and showing active fire behavior, and the Crescent Mountain fire grew to 14,593 acres.

Summary

Smoke is widespread across the state today. Northwest Montana, including Libby, Columbia Falls, Frenchtown, and Missoula are all reporting UNHEALTHY FOR SENSITIVE GROUPS air quality. Elsewhere, air quality is generally MODERATE with hazy skies. In southeast Montana, air quality impacts in Broadus has been increasing this morning and are currently UNHEALTHY FOR SENSITIVE GROUPS. Very hot temperatures and widespread smoke impacts are expected today as the ridge of high pressure moves over Montana. Air quality is expected to range from MODERATE to UNHEALTHY, with the most significant impacts likely in NW Montana. A cold front tomorrow should help clear out some of the built-up haze as the ridge breaks down. Unfortunately, increased winds and dry conditions have prompted red flag warnings across the state through tomorrow evening. We will likely have to contend with continued smoke impacts through the weekend due to anticipated active fire activity. Northwest Montana will likely continue to see the worst of it.

Satellite this morning shows widespread smoke over the state.



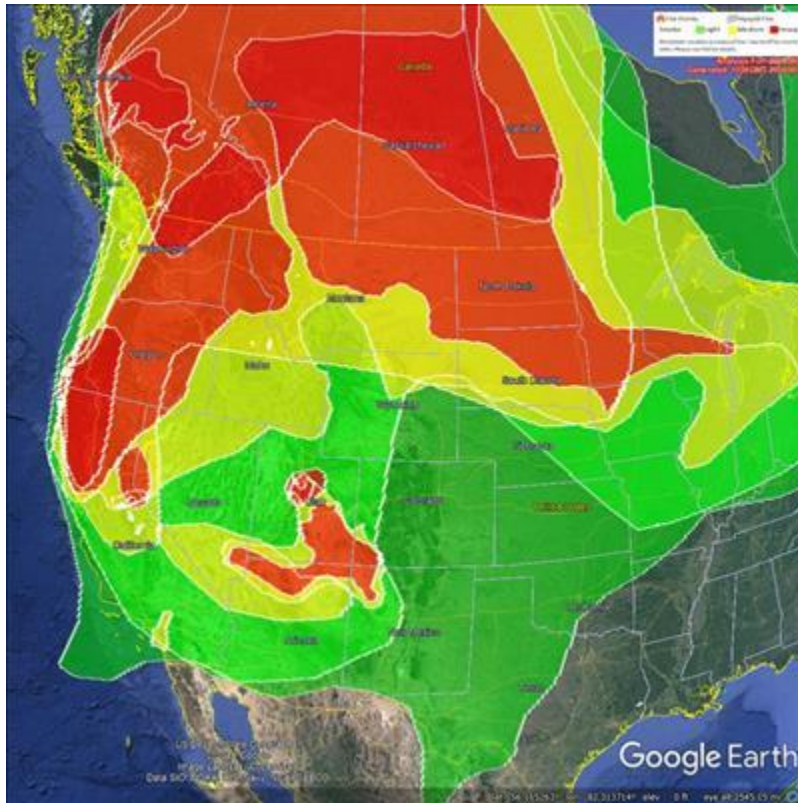
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

Current fire activity is shown below.



Source: [USFS](#)

Smoke analysis from yesterday shows widespread smoke over the state.



Source: [NOAA](#)

Hazy skies are visible in Whitefish today.



Source: [Ski Whitefish](#)

NOAA Text Description:

Friday, August 10, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1800Z August 10, 2018.

SMOKE:

Canada/North-Central US...

Smoke from numerous wildfires across Washington, Idaho, and British Columbia continues to contribute to a large area of light to moderate smoke extending across the Canadian provinces into northern Ontario and moving generally eastward, as well as extending southward into the Great Plains from the Dakotas and Minnesota down to eastern Colorado, Kansas, and northern Missouri and moving southeastward. Locally, several of the fires in British Columbia are producing plumes of thick smoke which extend north and northeastward from their parent fires.

Western US...

Wildfires in northern California, southwestern Oregon, and Utah continue to produce plumes of thick smoke, with fires in Montana, Colorado, and Arizona producing plumes of moderate smoke, in addition to other fires throughout the region producing at least light smoke. These all are contributing to a large area of remnant smoke in a roughly annular shape moving around an upper-level ridge.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H101857.html>

Saturday, August 11, 2018

There is a lot of smoke overhead across Montana this morning. Fortunately, at the ground level, conditions are MODERATE

across the state. Air quality in Libby was UNHEALTHY FOR SENSITIVE GROUPS until 10am, when it improved to MODERATE. There are even a few pockets of GOOD air quality, particularly in the Bozeman area.

The good news

We will finally see relief from the high temperatures and widespread haze later today. A cold front will move through the area, bringing strong winds and pushing the smoke out of the region from west to east. Expect conditions to improve starting around noon today in western Montana. As smoke moves through the state, conditions may briefly deteriorate in eastern Montana as smoke sweeps through the area. By Sunday morning, expect generally GOOD to MODERATE air quality in most locations.

The bad news

With the gusty winds and dry thunderstorms moving through today, red flag warnings have been issued across Montana, Idaho, and Washington. Existing fires are expected to be very active today, sending dense plumes out to the east. The large fires burning in central Washington will likely cause the biggest impact to Montana. Northwest Montana will likely see smoke move in from Washington later this evening. The increasing winds will also increase fire activity in northwest Montana and the Idaho Panhandle, further adding to the smoke that area will deal with. Northwest Montana can expect smoke impacts ranging from MODERATE to UNHEALTHY FOR SENSITIVE GROUPS, with periods of improvement later this afternoon. Tomorrow morning, air quality in some valleys of northwest Montana may reach UNHEALTHY levels as smoke settles in overnight.

Extended Forecast

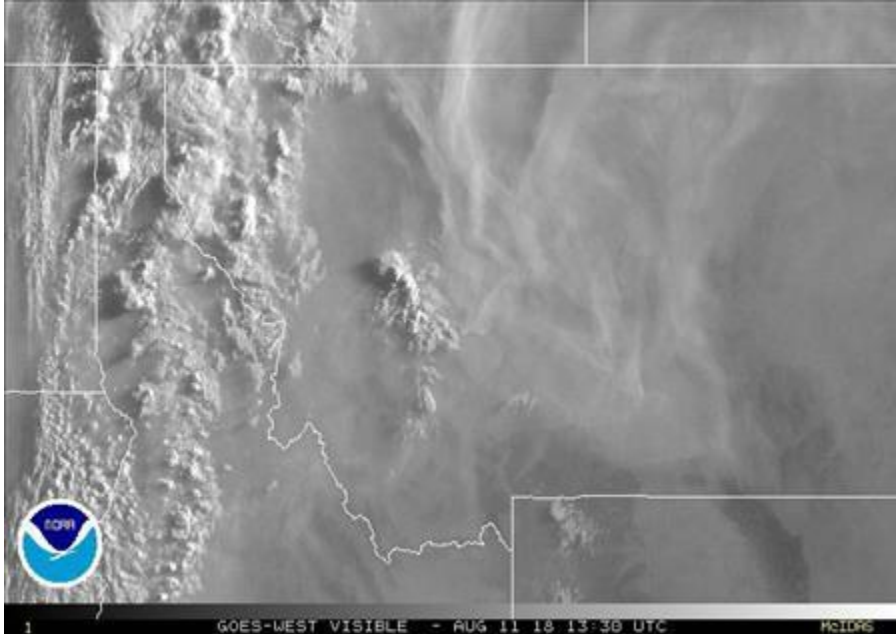
After the passage of the front, winds aloft will generally be from the west for most of next week. This will keep NW Montana downwind of the significant fire activity in Washington and British Columbia, in addition to the smoke being produced on fires in close proximity to the area. Expect continued air quality impacts ranging from MODERATE to UNHEALTHY in the NW part of the state. Elsewhere, more air movement will mean smoke will not build up like it did this past week. Smoke will continue to be transported in from regional fires, but impacts will likely be more episodic, with periods of improvement throughout the week.

Summary

We will finally see some relief to the persistent haze and hot temperatures as a cold front sweeps through the area this afternoon. Expect most areas to see GOOD to MODERATE air quality by Sunday morning, with less haze in the sky. Northwest Montana is the exception, where nearby fires, and transported smoke from Washington and British Columbia, will likely keep air quality levels elevated throughout the weekend, with occasional periods of improvement. Next week will bring

less haze due to improved ventilation but transported smoke will likely continue to impact the state, especially in the NW.

Satellite imagery this morning shows clouds moving in to NW Montana, and widespread smoke over the state.



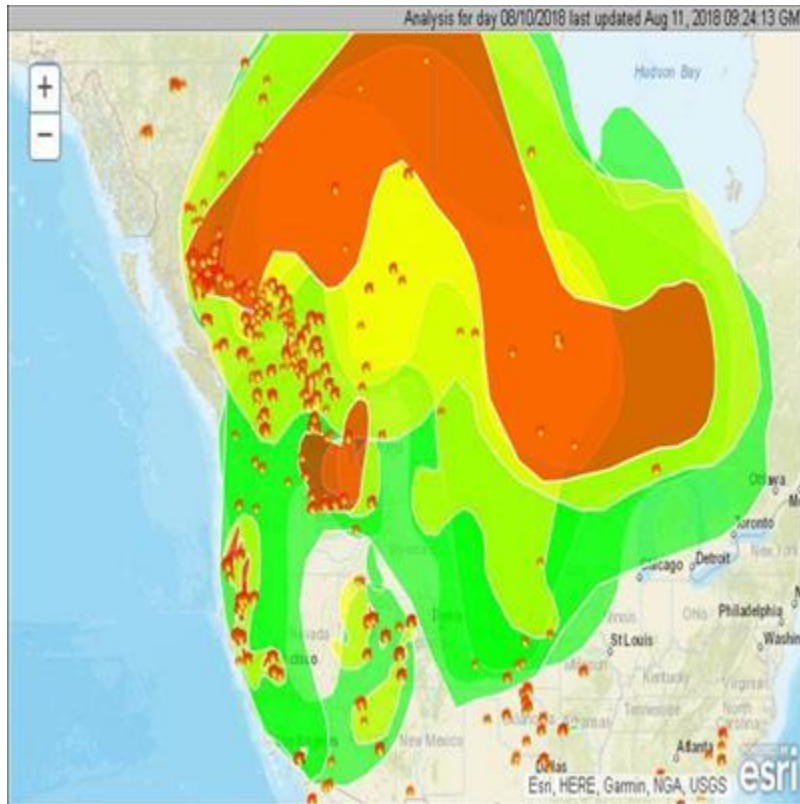
Source: [NOAA](#)

Active fire locations are shown below.



Source: [USFS](#)

Satellite smoke analysis from this morning is shown below.



Source: [NOAA](#)

Hazy skies and moderate air quality are present across much of the state. Below shows Gates of the Mountains.



Source: [NPS](#)

NOAA Text Description:

Saturday, August 11, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 0300Z August 12, 2018.

SMOKE:

Southern Half of Canada/Much of the US with the exception of the Southern, Southeastern, and far Eastern portions of the nation...

The ongoing major wildfire activity affecting portions of the Western US and especially Western Canada continues to produce copious amounts of smoke with an enormous area of varying density smoke blanketing virtually all of the southern half of Canada and much of the US with the exception of the region from a portion of Texas and New Mexico eastward to the Southeast US Coast and northward from there to Maine. Within this large mass of smoke, thicker density smoke extends from central and northern California and southern Oregon northeastward to Idaho and Montana. Much of this smoke was believed to be from the large wildfires burning in California, southwestern Oregon, as well as a few over central Idaho and southwestern Montana. Another patch of thicker smoke was present over western Colorado and eastern and central Utah which was mostly from wildfires in those regions. Strong winds appeared to fan wildfires burning in Washington state, northern Idaho, northwestern Montana, and the southern part of British Columbia resulting in a massive amount of thick density smoke which spread quickly to the north and northeast. The

thicker smoke from these fires covered much of southern Canada from British Columbia eastward to southern Hudson Bay and Ontario. A swath of relatively thicker smoke was then transported southward across the western Great Lakes Region and particularly from Minnesota southward to just north of Kansas City. The low pressure system off the Pacific Northwest Coast which was responsible for the stronger winds inland also was causing some of the smoke from British Columbia to wrap back to the west and south offshore around the low circulation with a stripe of relatively thicker smoke then spreading to the east and northeast and back inland over western Washington including Seattle. Additional wildfires widely scattered over a broad region from northern British Columbia eastward to Manitoba and western Ontario were also contributing some to the huge area of smoke over Canada.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H120337.html>

Sunday, August 12, 2018

New fires and increased activity on existing fires are the big story today. With increased winds and lightning yesterday afternoon, fire activity across the region has been high the past 24 hours. The front that moved through yesterday did not clear out the smoke as much as hoped, with widespread hazy skies and MODERATE air quality still present. Over the past 24 hours, air quality levels have been varying hourly, with some areas seeing brief periods of UNHEALTHY air quality yesterday. It looks like conditions have settle down this morning, with UNHEALTHY FOR SENSITIVE GROUPS still being reported in Great Falls, Lewistown, and West Yellowstone.

The conditions in West Yellowstone are due to the new Monument fire, which is currently 2,000 acres and located to the west of the park near Ennis. The Bacon Rind fire, in Yellowstone, almost doubled in size yesterday, and is currently 973 acres. Further west on the Idaho border, the Goldstone fire grew to 515 acres. Up in Northwest Montana and the Idaho Panhandle, fires were very active (see graphic below). The Davis fire grew to 1,700 acres, the new Surprise Creek fire is 865 acres, and the Cougar fire grew to 1,700 acres. Across the border in Canada, significant fire activity was also reported. These are just the big fires, there are numerous reports of small fires across the state. A full run down of new and growing fires will be in tomorrow's update.

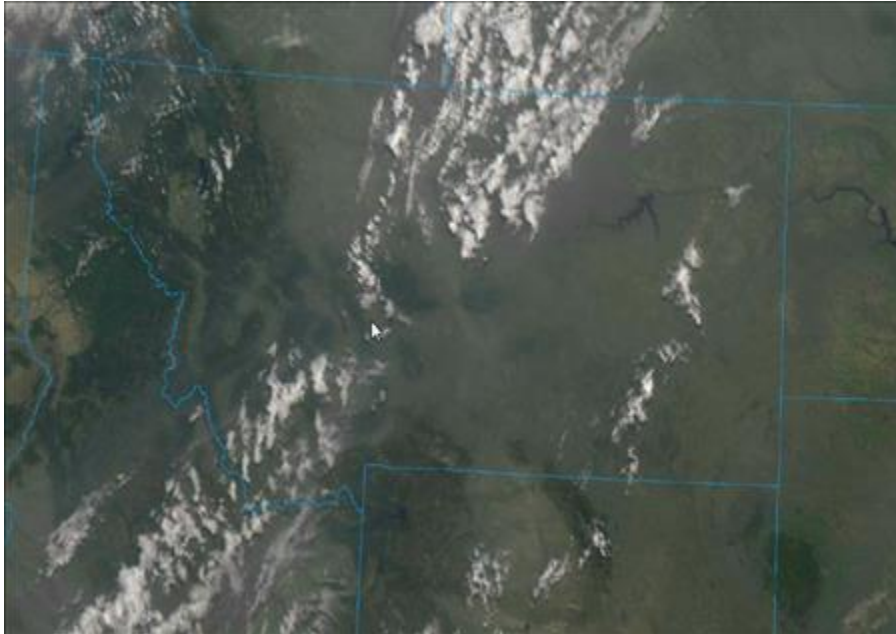
The good news is that another front will be moving through later today, bringing noticeably cooler temperatures to the region by tomorrow. This front should do a better job of pushing out the smoke that has settled over the state. By Monday morning, skies should be less hazy and GOOD air quality should be more widespread.

That isn't to say that we won't be dealing with smoke. With all the increased fire activity, air quality will continue to be impacted, especially near active fires. Northwest Montana will also continue to see smoke move in from Washington, Idaho, and British Columbia. Expect air quality to range from GOOD to UNHEALTHY FOR SENSITIVE GROUPS in that area. Yellowstone National Park and Madison County will see continued air quality impacts ranging from MODERATE to UNHEALTHY from the fire activity in that region. Elsewhere, expect air quality to range from MODERATE to UNHEALTHY FOR SENSITIVE GROUPS today, improving to GOOD to MODERATE by tomorrow morning

Summary

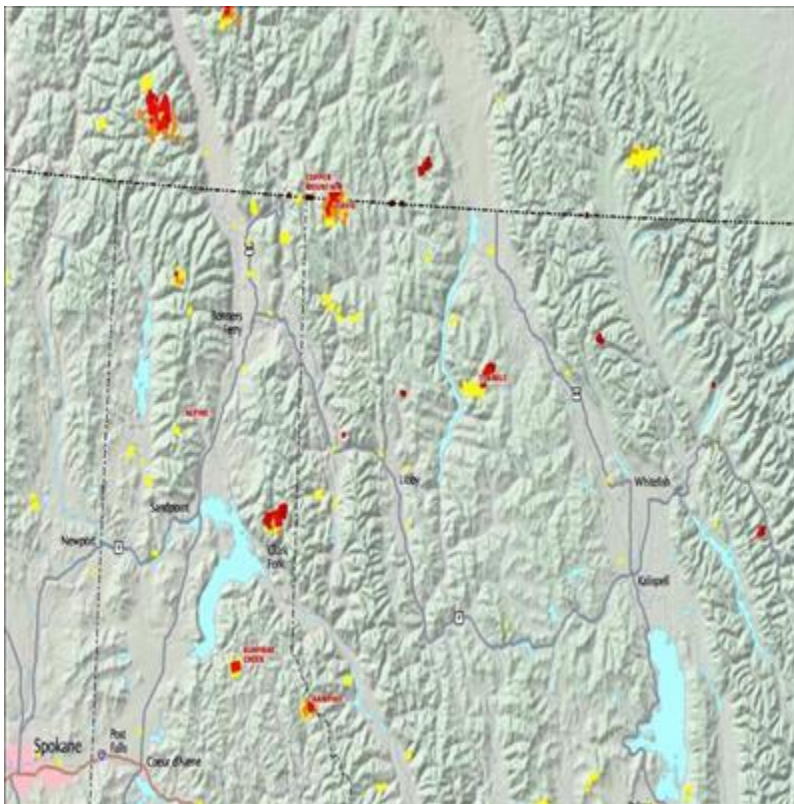
Lots of smoke remains over the state today as the yesterday's increased winds and storms pushed more smoke into the region, and caused increased activity and new fire starts across the area. Conditions near active fires are ranging from MODERATE to UNHEALTHY FOR SENSITIVE GROUPS, with widespread haze and MODERATE air quality elsewhere. Conditions should improve by tomorrow morning for most of the state with a surge of colder air from Canada finally pushing the built-up haze out of the state. Unfortunately, northwest Montana will still have to deal with smoke from nearby fires and increased activity in British Columbia. Near Yellowstone, air quality impacts are expected to continue. The full effects of the storms may not be known for a little while, so new fires may cause a rapid deterioration of air quality downwind.

Satellite imagery this morning continues to show widespread smoke over the state.



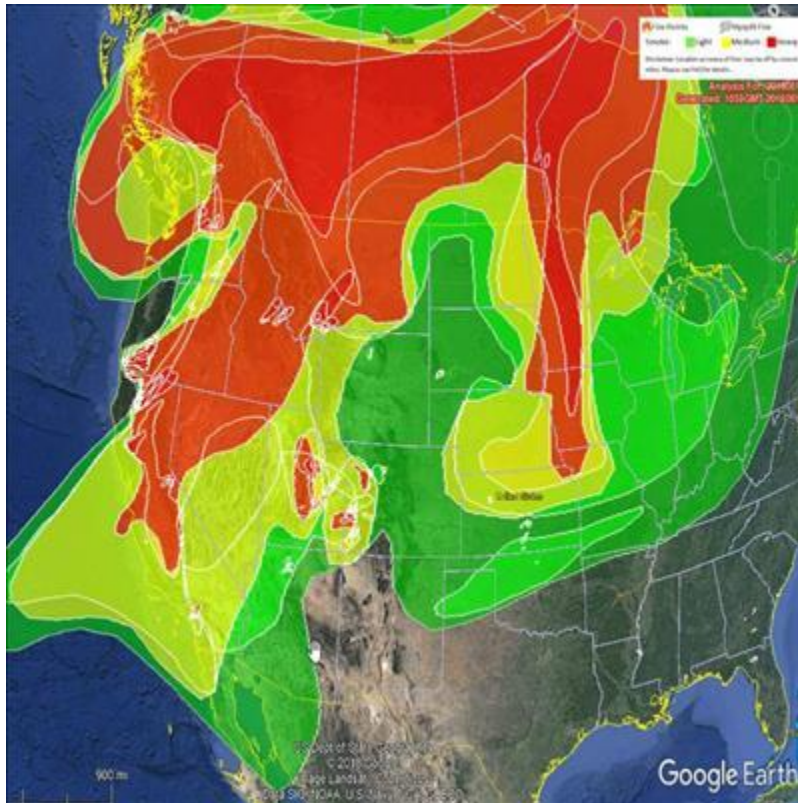
Source: [COD](#)

Active fire locations in NW Montana are shown below.



Source: [USFS](#)

Satellite smoke analysis from this morning is shown below.



Source: [NOAA](#)

Hazy skies and unhealthy for sensitive groups air quality is present in Great Falls this morning.



Source: [KTVO](#)

NOAA Text Description:

Sunday, August 12, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY
THROUGH 1647Z August 12, 2018.

SMOKE:

Southern Canada/Much of the US with the exception of the Southern, Southeastern, and far Eastern portions of the nation...

The ongoing major wildfire activity affecting portions of the western US and western Canada continues to produce tremendous amounts of smoke with an enormous area of varying density smoke blanketing virtually all of the southern half of Canada and much of the US with the exception of the region from a portion of Texas eastward to the Southeast US Coast and northward from there to Maine. The highest density smoke covered central Quebec west through central and northern Ontario, southern Manitoba and southern Saskatchewan. The highest density smoke also extended south into the central United States and northern Rockies.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H121653.html>

Monday, August 13, 2018

It's been a highly variable 24 hours in terms of smoke moving through the state. Satellite shows a notable strip of clear air over the central part of the state, with a significant amount of smoke moving down from Canada behind it. We've seen periods of GOOD air quality, especially for the middle of the state, all the way from the Idaho border and up to Great Falls. As of 8am, air quality is ranging from GOOD to MODERATE in Thompson Falls, Frenchtown Missoula, Seeley Lake, Hamilton, Butte, Helena, Great Falls, Lewistown, Bozeman, West Yellowstone, and Sidney. The northwest portion of the state, where fires remain active and smoke continues to be transported in from Idaho, Washington, and British Columbia, air quality is UNHEALTHY FOR SENSITIVE GROUPS in Libby and Columbia Falls, and likely throughout the Flathead Valley. In Libby, air quality was UNHEALTHY overnight before improving slightly this morning. The southeast portion of the state is getting clipped by smoke from California. Smoke is visible on satellite moving to the northeast, and air quality is UNHEALTHY FOR SENSITIVE GROUPS in Billings, Birney, and Broadus.

Fires in the region

In Montana, a cluster of fires remain in the northwest part of the state:

The Davis fire, near Yaak, is currently 5,218 acres and 5% contained.

The Tenmile fire is 679 acres and 30% contained.

The Sterling Complex, near Eureka, is 544 acres and 0% contained.

The Garden Creek fire is 2,052 acres and 20% contained.

The Brownstone fire, in the Bob Marshall wilderness, is 1,620 acres.

The Cougar fire, over the border in Idaho, is 3,500 acres and 20% contained.

The Surprise Creek fire, also in the Idaho Panhandle, is 1,500 acres.

In Glacier National Park, the Howe Ridge fire is showing active fire behavior this morning. Its current size is not available.

In the rest of the state:

The Shellrock fire, near Helena, is 125 acres and 0% contained with active fire behavior.

The Wigman fire, near Ennis is 3,500 acres and 0% contained. The nearby Monument fire is still being reported at 2,000 acres.

The Goldstone fire, on the border with Idaho near Jackson, MT, is 3,391 acres.

The Virgelle fire, near Chouteau, is currently 2,000 acres and is 25% contained with minimal fire behavior.

Along the west coast, the fires in Washington, Oregon, and California continue to show significant growth each day, sending smoke up into Montana and contributing to our hazy skies. In Washington, the Cougar Creek fire grew another 6,329 acres yesterday, and is now 25,219 acres.

This is just a rundown of the large fires. There are a number of smaller fires causing localized impacts across the state.

Forecast

The smoke forecast over the next few days is complicated, with merging air masses pushing a large amount of smoke currently in the atmosphere in many directions. First, we are dealing with a surge of upper level smoke from Canada moving down across northwest Montana this morning. Skies will become hazier across the Bitterroot Valley, Butte, and Helena today. Next, surface winds will be from the northeast in eastern Montana, pushing the smoke that is sitting over eastern Montana up against the mountains later today. This may cause areas like Great Falls and Helena to see surface level smoke deteriorate later today. West of the Divide looks to be the center point for all this smoke to converge and swirl through tomorrow.

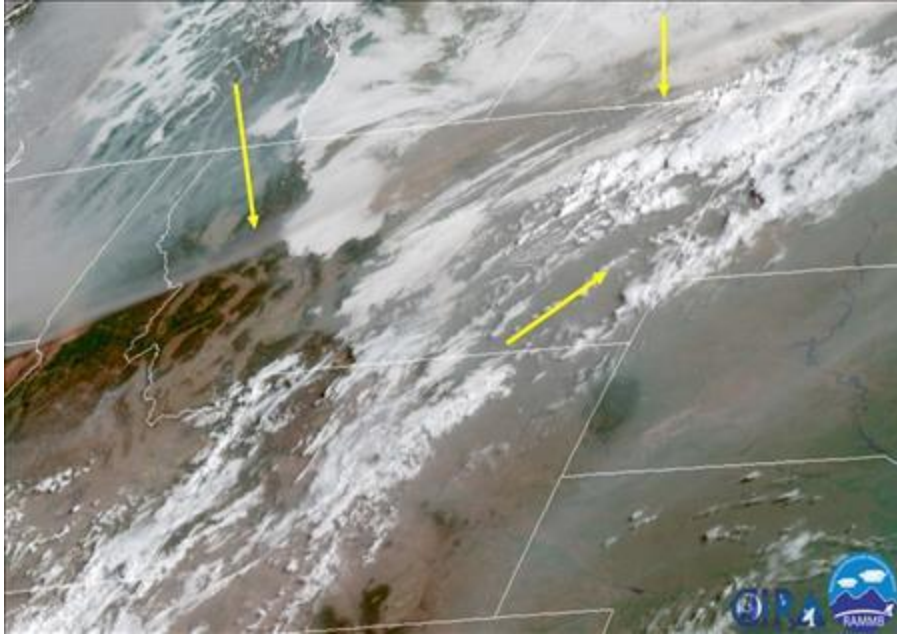
What does all this mean for air quality?

Smoke will be coming and going across the region for the next couple days. Most areas will see times of increasing haze and worsening air quality, followed by periods of improvement. Air quality at the surface will likely range from GOOD to UNHEALTHY FOR SENSITIVE GROUPS east of the Divide. Skies are expected to be more persistently hazy west of the Divide, and especially in northwest Montana, where air quality impacts from local fires will be more consistent. Expect air quality to range from MODERATE to UNHEALTHY in this part of the state.

Summary

Smoke is impacting the state today from many directions, including local impacts from nearby fires, especially in northwest Montana. We are also seeing a large amount of smoke move down from Canada, causing hazy skies also in the northwest part of the state. Southeast Montana is seeing smoke travel up from California, while much clearer air is present in between. Expect smoke to swirl around the state today, causing air quality to deteriorate and improve over short periods of time. Over the long run, northwest Montana will likely see the most persistent smoke impacts, followed by the rest of western Montana, with eastern Montana seeing the most improvement.

Air masses are moving smoke around the state in different direction today. Eventually alot of the smoke may converge on western Montana.



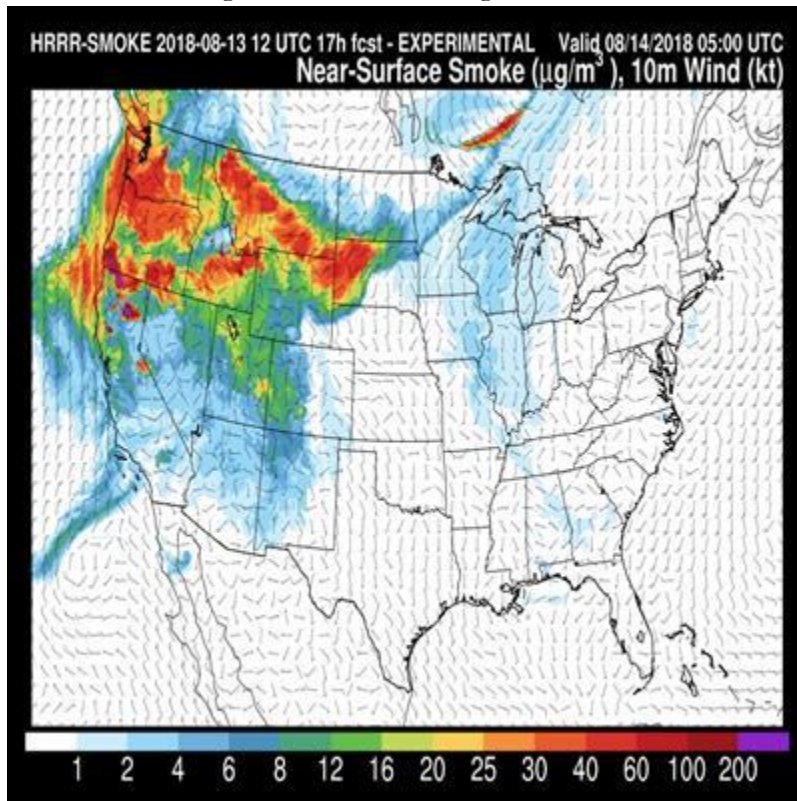
Source: [CIRA and NOAA](#)/ These data are preliminary and not operational.

Current active fire locations are shown below.



Source: [USFS](#)

Smoke forecasting shows smoke sitting over western Montana tonight.



Source: [NOAA](#)

A fire in Glacier National Park is causing poor air quality around Lake McDonald this morning.



Source: [NPS](#)

NOAA Text Description:

Sunday, August 13, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1630Z August 13, 2018.

SMOKE:

Southern half of Canada/Much of the US with the exception of the Southern, Southeastern, and far Eastern portions of the nation...

The major wildfire outbreak across portions of the Western US and Western Canada continued to produce massive amounts of smoke with an extremely large area of varying density smoke which basically covered all of the southern half of Canada and a good portion of the US with the exception of perhaps southern Arizona, southern New Mexico and the area from Oklahoma and Texas eastward to the Southeast US and northward from there along the eastern seaboard. The leading edge of the thinner density smoke appeared to be moving east and well offshore passing by southern Greenland out over the open Atlantic. Thicker regions of smoke within this larger shield extended from British Columbia, Washington state, and northwestern Oregon eastward across northern Idaho, northern Montana, and virtually all of southern Canada to as far east as Quebec. Another swath of thicker smoke stretched from southwestern Oregon, northern and central California to the east and northeast across the northern half of Nevada, southern Idaho, northern Utah, western and central Wyoming, and southern and eastern Montana. At this point, the 2 areas of thicker smoke merged over the North Central US and south Central Canada. In

addition, some of the relatively thicker smoke spread to the south and even to the west over portions of the Central US from the western Great Lakes Region and Middle Mississippi Valley westward to the Northern and Central Plains. The primary sources for all of this smoke were significant wildfires occurring over western Colorado, north central Utah, southwestern and northwestern Montana, central and northern Idaho, north central Washington, southwestern Oregon, and northern and central California in the US, and mainly British Columbia in western Canada though there were other more widely scattered wildfires farther east in central and south central Canada which were contributing as well.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H131825.html>

Tuesday, August 14, 2018

Northwest Montana is seeing the most significant air quality impacts today due to a combination of nearby fires and a large amount of smoke transported in from Idaho, Washington, and British Columbia. An air quality alert has been issued for Flathead, Lincoln, and Sanders counties due to the smoke. Air quality in Libby and Thompson Falls is currently UNHEALTHY while air quality in Columbia Falls and Kalispell is currently UNHEALTHY FOR SENSITIVE GROUPS. Elsewhere, skies are hazy but most of the smoke is remaining above ground level, resulting in widespread MODERATE impacts. The cause of the widespread smoke is the significant fire activity along the west coast and British Columbia. A cluster of fires in northwest Montana and the Idaho Panhandle are contributing to ground level smoke, making conditions worse in that area than the rest of the state. Hamilton, Butte, and Sidney are the bright spots this morning, with all reporting GOOD air quality.

Forecast

It doesn't look like we will see much improvement this week, with another ridge of high pressure expected to build into the region later today that will remain in place through the end of the week. This ridge will not be as strong as the ridge that brought the oppressive heat last week. However, it will still act to trap smoke over the region, especially in northwest Montana. Fires are expected to remain active throughout this period, with smoke settling into northwest Montana valleys each night due to the stable conditions. We may see a dry thunderstorm roll through on Thursday, increasing fire danger. More widespread showers and thunderstorms are possible beginning Friday and lasting through the weekend. There is a chance we may see a substantial rain event this weekend. If that is the case, we may see a break from the smoke for at least a little while.

Overall, expect widespread haze and MODERATE air quality across the state this week, possibly becoming UNHEALTHY FOR SENSITIVE GROUPS toward the end of the week. In Northwest Montana, expect the more significant impacts, ranging from UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY, to continue. Expect the worst levels to occur overnight and early in the morning, with improvement each afternoon as the inversions lift.

Fires

Northwest Montana:

The Davis fire, near Yaak, is currently 5,479 acres and 5% contained.

The Tenmile fire is 680 acres and 70% contained and the nearby Sterling Complex, near Eureka, is 761 acres and 0% contained.

The Garden Creek fire is 2,573 acres and 20% contained.

The Brownstone fire, in the Bob Marshall wilderness, is 1,084 acres.

The Cougar fire, over the border in Idaho, is 3,600 acres and 23% contained.

The Surprise Creek fire, also in the Idaho Panhandle, is 1,600 acres.

In Glacier National Park, the Howe Ridge fire is currently 1,500 acres.

The Rampike fire, also in the Idaho Panhandle, is 1,100 acres.

In the rest of the state:

The Shellrock fire, near Helena, is 300 acres and 0% contained with active fire behavior.

The Wigwan fire, near Ennis is 1,970 acres and 0% contained. The nearby Monument fire is 4,218 acres.

The Goldstone fire, on the border with Idaho near Jackson, MT, is 3,769 acres.

The Cabin fire, near Hardin, is currently 200 acres and 0% contained.

Along the west coast, the fires in Washington, Oregon, and California continue to show significant growth each day, sending smoke up into Montana and adding to our smoke. In Washington, the Cougar Creek fire grew another 4,504 acres yesterday, and is now 29,723 acres. The Rabbit Foot fire in central Idaho is 23,008 acres.

Air Quality Alert

The Montana Department of Environmental Quality has issued an air quality alert for Flathead, Lincoln, and Sanders counties in effect until 8AM on 8/16/2018 due to smoke from wildfires in northwest Montana, Idaho, Washington, and British Columbia.

An Air Quality Alert means that particulates have been trending upwards and that an exceedence of the 24 hour National Ambient Air Quality Standard (NAAQS) has occurred or may occur in the near future.

Particulate levels are ranging between Unhealthy and Unhealthy for Sensitive Groups in northwest Montana.

When air quality is UNHEALTHY... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion.

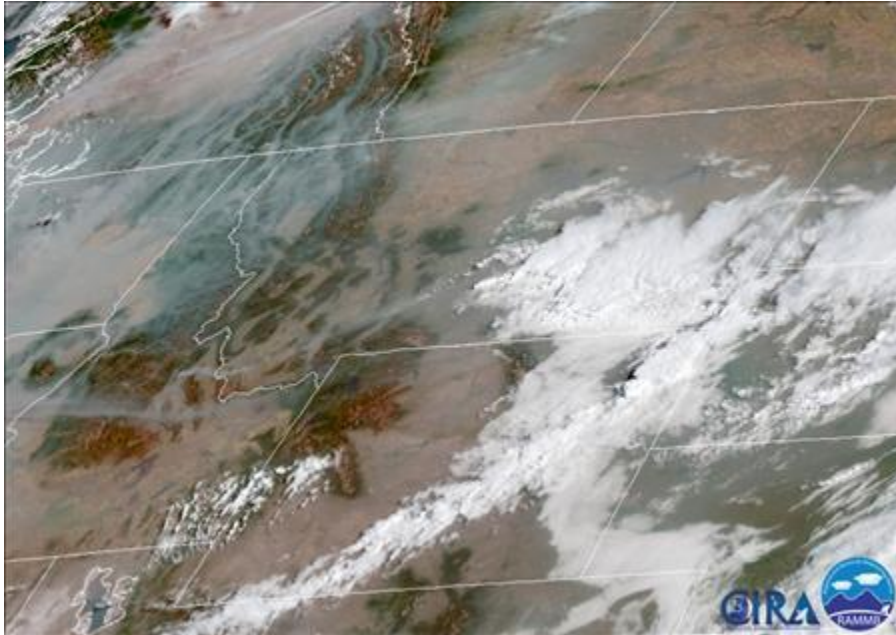
When air quality is UNHEALTHY FOR SENSITIVE GROUPS... State and local health officials recommend that people with respiratory or heart disease, the elderly and children should limit prolonged exertion.

Summary

Smoke from regional fires is causing widespread hazy skies but only MODERATE air quality in most of Montana today as the smoke stays above ground level. A cluster of fires in Northwest Montana and the Idaho Panhandle are causing more significant impacts in northwest Montana. Air quality is currently ranging from UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY, prompting an air quality alert in that region. Conditions are not expected to improve much for the rest of the week, with an area of high pressure building in, trapping smoke over our area through

Friday morning. There is potential for improvement over the weekend, when we may see more widespread showers decrease fire activity and improve air quality.

Northwest Montana is getting hit the hardest by smoke today, due to nearby fires.



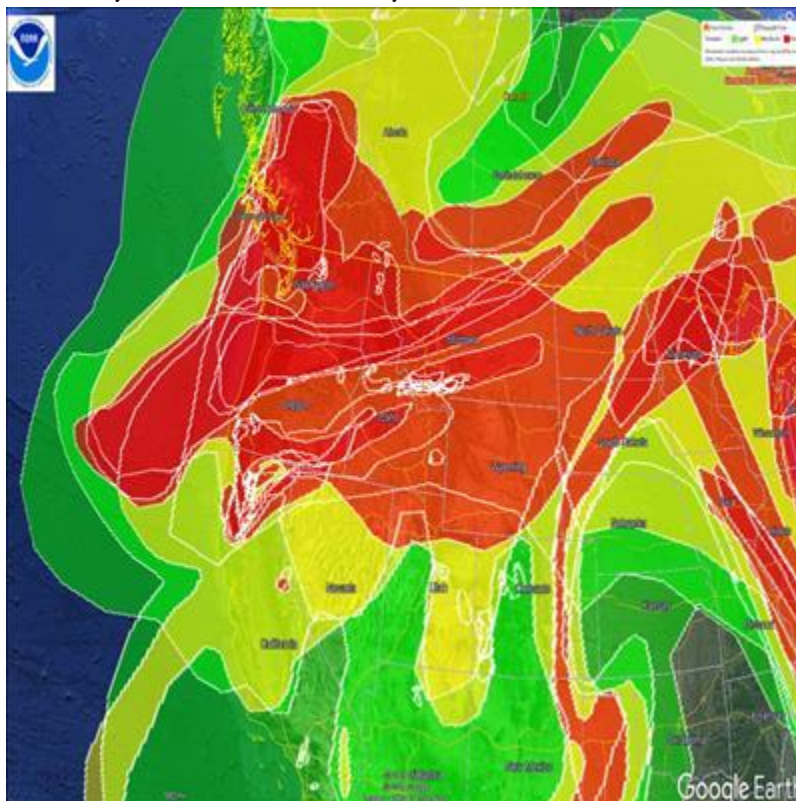
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

Current active fire locations are shown below.



Source: [USFS](https://www.usfs.gov/)

Yesterday's satellite smoke analysis shows smoke over all of Montana.



Source: [NOAA](#)

Visibility is reduced in Eureka today due to nearby fires.



Source: [Weather Underground](#)

NOAA Text Description:

Tuesday, August 14, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY

THROUGH 1812Z August 14, 2018.

SMOKE:

Southern Canada and much of the United States...

The ongoing wildfire activity affecting portions of the western United States and western Canada continues to produce tremendous amounts of smoke with an enormous area of varying density smoke blanketing much of the southern portions of Canada and most of the United States except for portions of northern New England, the Central Plains extending south to the central Gulf Coast and portions of the Southwest. The highest density smoke extended from the North Atlantic west to New Foundland and also from central Alberta extending into central British Columbia.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H141822.html>

Wednesday, August 15, 2018

The next full update will be posted tomorrow, Thursday, August 16, 2018.

Please see yesterday's update for a forecast for this week. The forecast posted yesterday still stands with the following exceptions:

- Impacts in West Yellowstone are currently ranging between UNHEALTHY FOR SENSITIVE GROUPS and UNHEALTHY. Satellite imagery suggests very localized impacts from a cluster of fires in southern Madison County.
- Northwest Montana continues to see air quality ranging from between UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY due to nearby fire activity. An air quality alert remains in effect in northwest Montana through at least tomorrow morning.
- We are starting to see a dense area of smoke move into northern Montana from Canada. This may impact the far northern part of the state as it moves east.
- Otherwise, we continue to see widespread MODERATE air quality and hazy skies across the state.
- Impacts are expected to continue through Friday afternoon as a ridge of high pressure remains over the state, trapping smoke over Montana.
- Beginning Friday afternoon, we may see improvement with an increased risk of showers and thunderstorms for the weekend. Unfortunately, increased winds may also increase fire activity during this time. The amount of improvement we see will depend on if and where precipitation falls.

Please check back tomorrow for a full rundown of fire activity and an updated forecast.

Air Quality Alert

The Montana Department of Environmental Quality has issued an air quality alert for Flathead, Lincoln, and Sanders counties in effect until 8AM on 8/16/2018 due to smoke from wildfires in northwest Montana, Idaho, Washington, and British Columbia.

An Air Quality Alert means that particulates have been trending upwards and that an exceedence of the 24 hour National Ambient Air Quality Standard (NAAQS) has occurred or may occur in the near future.

Particulate levels are ranging between Unhealthy and Unhealthy for Sensitive Groups in northwest Montana.

When air quality is Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion.

When air quality is Unhealthy for Sensitive Groups... State and local health officials recommend that people with respiratory or heart disease, the elderly and children should limit prolonged exertion.

Satellite this morning is similar to yesterday, with smoke in northwest Montana.



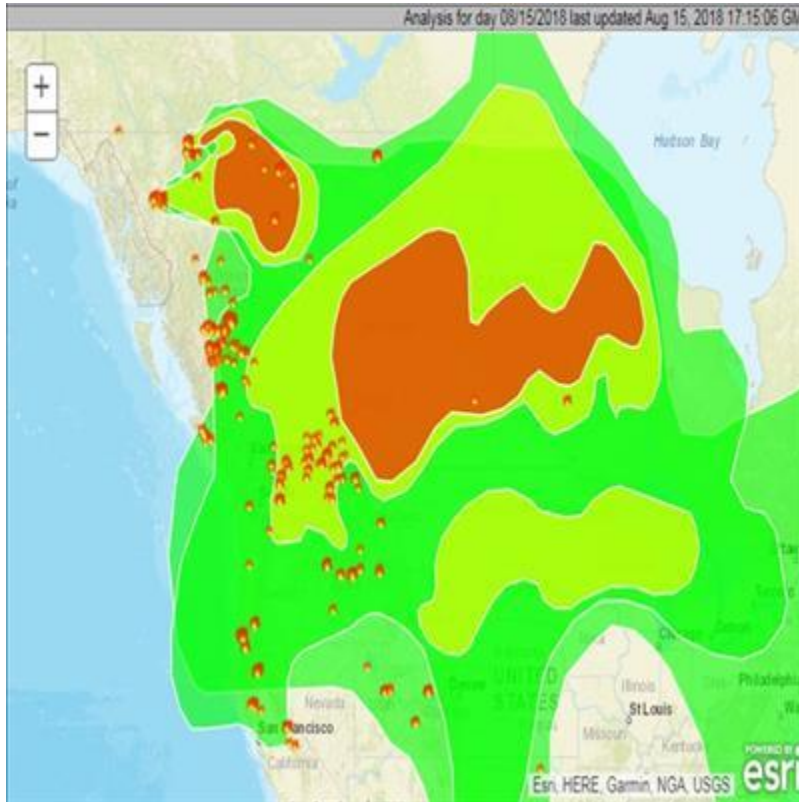
Source: [CIRA and NOAA](#)

Active fire locations are shown below.



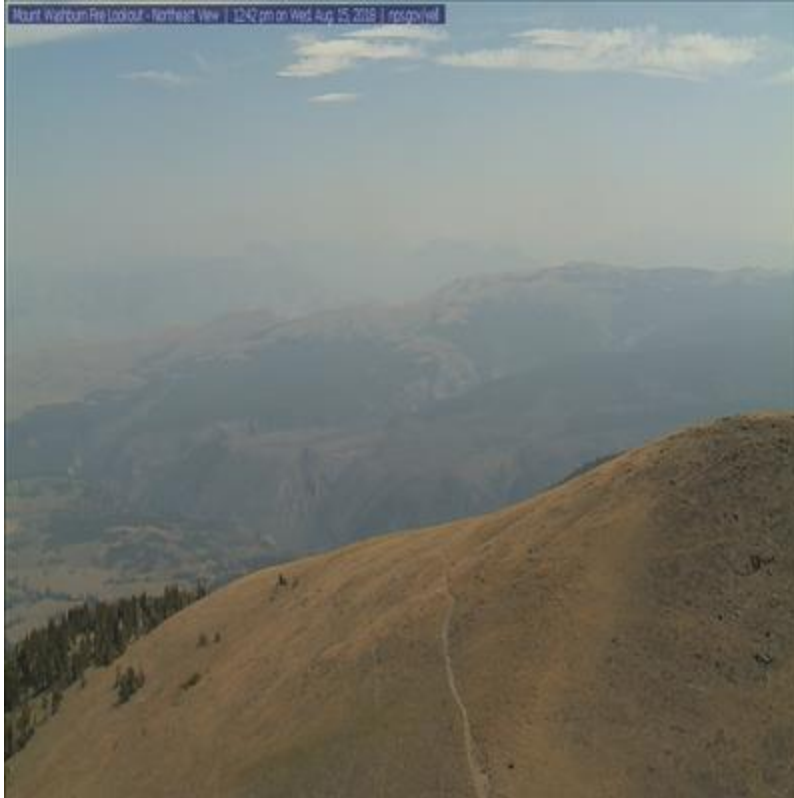
Source: [USFS](#)

A dense area of smoke over Canada may impact far northern Montana today.



Source: [NOAA](#)

Conditions are hazy in West Yellowstone due to nearby fires



Source: [NPS](#)

NOAA Text Description:

Wednesday, August 15, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY
THROUGH 1727Z August 15, 2018.

SMOKE:

Southern Canada and much of the United States...

The ongoing wildfire activity affecting portions of the western United States and western Canada continues to produce tremendous amounts of smoke with an enormous area of varying density smoke extending over much of Canada and the United States except for portions of the Midwest, Gulf Coast and Southwest. The densest smoke within this area was over the North Atlantic, extending from western Ontario west to Alberta and northern British Columbia.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H151735.html>

Thursday, August 16, 2018

Despite widespread haze across the state today, air quality remains MODERATE in most locations this morning. Northwest Montana remains the exception, with air quality remaining firmly in the UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY categories. These levels have prompted the Air Quality Alert to remain in effect over northwest Montana through at least tomorrow. The AQA has been extended to include the counties east of Glacier National Park. Webcams and visibility indicate air quality in that area is also ranging between UNHEALTHY FOR SENSITIVE GROUPS and UNHEALTHY. In far eastern Montana, a large area of dense smoke running from north to south is visible on satellite. Ground level concentrations are still MODERATE in that area.

Here is a quick recap of areas that exceeded moderate levels yesterday:

- Thompson Falls and Columbia Falls had generally UNHEALTHY FOR SENSITIVE GROUPS air quality throughout the day while air quality in Libby remained persistently UNHEALTHY.
- Air quality in West Yellowstone was the most variable yesterday, reaching UNHEALTHY levels in the late morning before improving to MODERATE again in the afternoon, then deteriorating to UNHEALTHY again in the evening. Currently air quality is ranging between MODERATE and UNHEALTHY.
- A blast of smoke from Canada moved through eastern Montana yesterday. Most of this smoke remained above ground level, but air quality in Malta reached UNHEALTHY FOR SENSITIVE GROUPS for a period yesterday afternoon. Great Falls also saw levels briefly reach UNHEALTHY FOR SENSITIVE GROUPS last night. Both areas are back to MODERATE this morning.

At the risk of sounding like a broken record, the cause of the widespread haze and moderate air quality is transported smoke from fires around the West Coast and British Columbia. A ridge of high pressure is trapping smoke over a large area of the U.S. In northwest Montana, nearby fires are causing more significant ground level impacts.

Forecast

We may see a stray shower or thunderstorms through northwest Montana today, but I don't expect any significant improvement to the air quality in that region. The ridge of high pressure will remain in place through tomorrow afternoon. For everywhere but northwest Montana, expect the haze and MODERATE air quality to continue, with air quality occasionally reaching UNHEALTHY FOR SENSITIVE GROUPS levels. More significant impacts are possible near individual fires, especially in southwest Montana. Across southern Beaverhead and Madison counties, smoke from the Goldstone fire may cause air quality to deteriorate later this afternoon. In Northwest Montana, and directly east of Glacier National Park, expect the UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY air quality to continue through at least tomorrow morning.

Changes are on the way for Friday afternoon and into Saturday. A disturbance will move through the region, breaking down the ridge of high pressure, bringing an increased risk of showers and thunderstorms, and hopefully clearing the haze out of many locations. This system looks to bring a better chance of precipitation than most summertime disturbances of late. Right now, most of this activity looks centered over southwest Montana. This may help decrease fire activity in that region if the showers fall on active fires. However, if precipitation doesn't fall on the fires, the increased winds and lightning could prompt heightened activity on existing fires or ignite new fires. Northwest Montana will see more isolated showers with less chance of meaningful precipitation, so fire activity is not expected to change much in that area. Cooler temperatures are expected for the weekend, with light precipitation expected across southern Montana.

What does this mean for smoke?

We will likely see an improvement to the widespread haze and moderate air quality, especially in the southern half of the state beginning Friday afternoon and continuing through the weekend. Expect some periods of GOOD air quality and clear skies at least some of the time. In northwest Montana, expect air quality impacts ranging from UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY, to continue, although they may become more localized in nature, meaning very close to active fires as we move into the weekend.

The Montana Department of Environmental Quality has issued an air quality alert for Flathead, Glacier, Liberty, Lincoln, Pondera, Sanders, and Toole counties in effect until conditions improve. The Air Quality Alert is due to smoke from wildfires in northwest Montana, Idaho, Washington, and British Columbia. This alert will be updated again at 8AM on 8/17/2018.

Particulate levels are ranging between Unhealthy and Unhealthy for Sensitive Groups in northwest Montana and extending to the east of Glacier National Park.

Summary

Air quality impacts have been stable at the ground level over the last 48 hours despite a lot of smoke moving overhead from Canada. Air quality in northwest Montana remains between UNHEALTHY FOR SENSITIVE GROUPS and UNHEALTHY. These impacts have expanded a little to include areas east of Glacier National Park. Elsewhere, air quality is MODERATE and skies are hazy. Conditions are expected to remain the same today. Beginning tomorrow afternoon, we should start to see improvement in southern Montana, as the ridge breaks down and a disturbance moves through. Northwest Montana will struggle to see as much improvement due to the large number of fires in that area and a lower chance of precipitation.

Rundown of fires

Northwest Montana:

The Coal Ridge fire, located north of Whitefish, is 350 acres and 0% contained.

The Gold Hill fire, north of Libby, is 114 acres and 0% contained.

The Paola Ridge fire, near Essex, MT is 400 acres and 0% contained.

The Davis fire, near Yaak, is currently 5,565 acres and 35% contained.

The Tenmile fire is 681 acres and 91% contained and the nearby Sterling Complex, near Eureka, is 907 acres and 27% contained.

The Garden Creek fire is 2,573 acres and 35% contained.

The Brownstone fire, in the Bob Marshall wilderness, is 1,084 acres.

The Cougar fire, over the border in Idaho, is 3,900 acres and 25% contained.

The Surprise Creek fire, also in the Idaho Panhandle, is 2,100 acres.

In Glacier National Park, the Howe Ridge fire, also in the Idaho Panhandle, is 1,100 acres.

In southwest Montana:

The Wigwan fire, near Ennis is 4,190 acres and 0% contained. The nearby Monument fire is 5,400 acres.

The Goldstone fire, on the border with Idaho near Jackson, MT, is 5,700 acres.

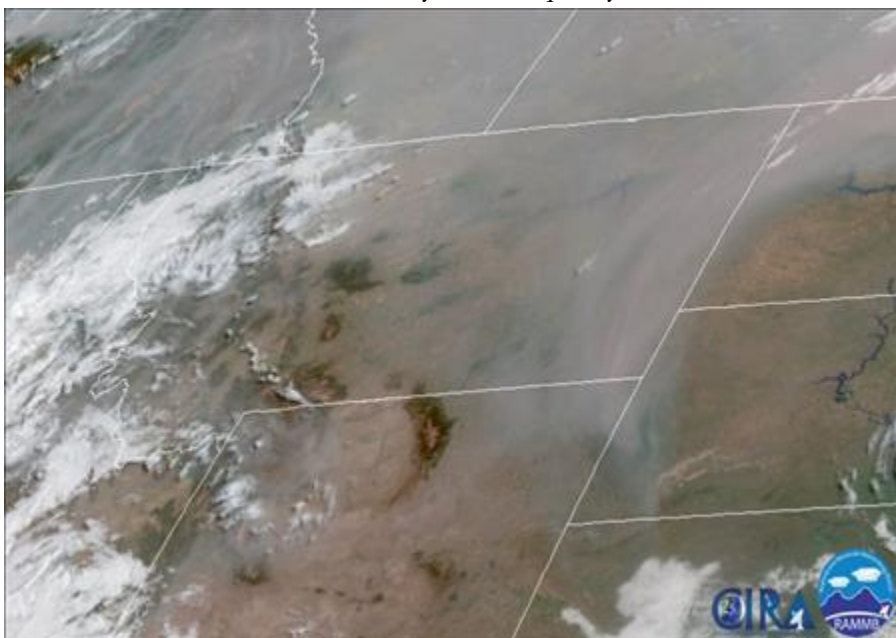
The Beaver Creek fire, near Anaconda, is currently 1,000 acres and 10% contained.

In the rest of the state:

The Shellrock fire, near Helena, is 350 acres and 15% contained with active fire behavior.

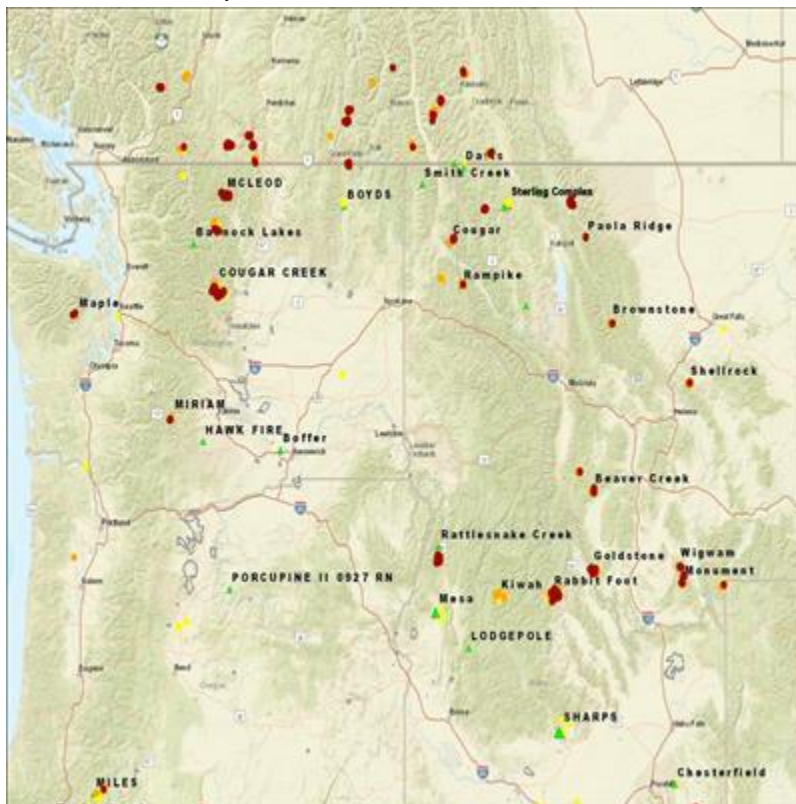
Along the west coast, the fires in Southern Idaho, Washington, Oregon, and California continue to show significant growth each day, sending smoke up into Montana. In Washington, the Cougar Creek is now 31,608 acres. The Rabbit Foot fire in central Idaho is 26,294 acres. Fires in British Columbia have caused significant smoke over Canada lately, with that smoke contributing to the haze in Montana.

Lots of smoke over the state today, but air quality in most areas remains moderate.



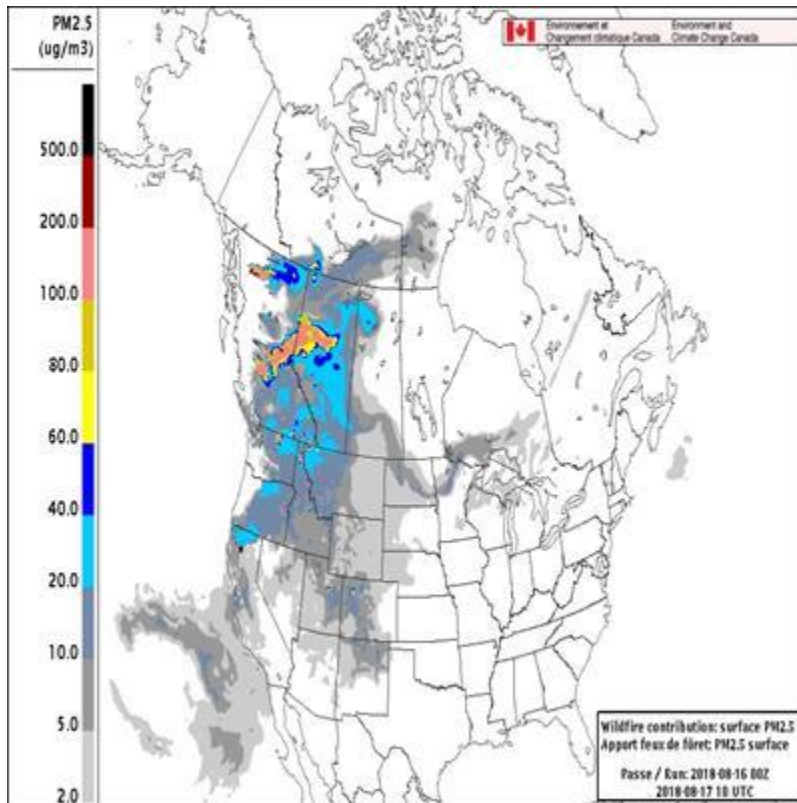
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

Recent fire activity is shown in red below.



Source: [NWCG](#)

Smoke forecasts show northwest Montana will continue to see elevated smoke today.



Source: [Government of Canada](#)

Visibility is impaired in Cut Bank today as smoke moves east of the Park.



Source: [Alert Pilots](#)

NOAA Text Description:

Thursday, August 16, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY
THROUGH 1742Z August 16, 2018.

SMOKE:

Much of Canada and the United States....

The ongoing wildfire activity affecting portions of the western United States and western Canada continues to produce tremendous amounts of smoke with an enormous area of varying density smoke extending over much of Canada and the United States except for portions of the Southeast extending along the Gulf Coast to the Southwest. The area of densest smoke was over the North Atlantic Ocean and also with a very dense area of smoke extending from northern Ontario extending to southern Alberta.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H161751.html>

Friday, August 17, 2018

Current Conditions

There is a lot of smoke over Montana this morning. Many areas east of the Divide are still experiencing MODERATE air quality but we are seeing smoke make its way down to the ground level with more widespread UNHEALTHY FOR SENSITIVE GROUPS levels being reported. The Missoula Valley, including Frenchtown and Missoula, saw concentrations reach UNHEALTHY FOR SENSITIVE GROUPS last night and have remained there this morning. Great Falls has seen air quality impacts hover between MODERATE and UNHEALTHY FOR SENSITIVE GROUPS levels since yesterday afternoon. Helena has been on the borderline between MODERATE and UNHEALTHY FOR SENSITIVE GROUPS throughout the night. Northwest Montana continues to be hit the hardest. Libby has seen UNHEALTHY air quality since Monday afternoon. While the Flathead Valley and Thompson Falls has seen air quality range from UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY throughout this period.

Today's Forecast

Today is the last day of a high pressure ridge that has trapped all this smoke over Montana this week. We should continue to see hazy skies and air quality impacts through this afternoon. Conditions may deteriorate, causing more widespread UNHEALTHY FOR SENSITIVE GROUPS or UNHEALTHY levels briefly this afternoon as smoke from overhead mixes down to the surface ahead of the approaching weather system. The approaching disturbance will cause increased winds, and potentially widespread showers and thunderstorms. Most of the precipitation is expected to fall in southwest Montana this afternoon. There are two considerations that will impact air quality today. First, areas that see rain should see a dramatic improvement in air quality levels, with GOOD air quality expected, at least briefly. Second, the increased winds could cause fire activity to pick up and lightning could spark new fires. This second consideration has prompted a red flag warning for southwest Montana, extending all the way to Great Falls. The good news is the increased winds will help clear out the haze that has been sitting over Montana this week.

The end result should be an overall improvement in air quality for everywhere but Northwest Montana by tomorrow morning. Northwest Montana is not expected to see much precipitation with this system. I expect some of the haze to clear out but the significant fire activity in the region will likely keep air quality impacts in the UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY range through tomorrow.

Extended Forecast

An area of low pressure sitting off the west coast will keep cooler air and a chance of showers in the forecast throughout the weekend. This should help keep air quality GOOD to MODERATE in southern Montana through Monday. Northwest Montana is more complicated. The cooler temperatures and increased humidity should decrease fire behavior so we should see some overall improvement by Saturday afternoon, but areas in close proximity to active fires may see smoke settle in close to the ground floor, causing localized, but significant impacts.

The other major consideration is the significant fire activity in Canada. The fires in British Columbia have been pumping out a tremendous amount of smoke over the past few days, causing the conditions in Montana to deteriorate as the smoke moves south. The precipitation that we are expecting will not impact those fires, so we can expect continued smoke to sit over Canada and move back over Montana, likely soon after the smoke clears out. We could see another push of dense smoke on Saturday evening and Sunday morning into northern Montana.

Fires

Northwest Montana:

In Glacier National Park, the Howe Ridge fire is currently 3,500 acres.

The Paola Ridge fire, near Essex, MT is 450 acres and 0% contained.

The Coal Ridge fire, located north of Whitefish, is 266 acres and 1% contained.

The Gold Hill fire, north of Libby, is 114 acres and 0% contained.

The Davis fire, near Yaak, is currently 5,724 acres and 5% contained.

The Tenmile fire is 681 acres and 91% contained and the nearby Sterling Complex, near Eureka, is 1,095 acres and 23% contained.

The Garden Creek fire is 2,573 acres and 35% contained.

The Brownstone fire, in the Bob Marshall wilderness, is 1,920 acres.

The Cougar fire, over the border in Idaho, is 5,000 acres and 25% contained.

The Surprise Creek fire, also in the Idaho Panhandle, is 2,100 acres.

The Rampike fire, also in the Idaho Panhandle, is 1,800 acres.

In southwest Montana:

The Wigwan fire, near Ennis is 4,190 acres and 0% contained. The nearby Monument fire is 5,733 acres.

The Goldstone fire, on the border with Idaho near Jackson, MT, is 7,060 acres.

The Beaver Creek fire, near Anaconda, is currently 1,989 acres and 10% contained.

In the rest of the state:

The Shellrock fire, near Helena, is 375 acres and 20% contained with active fire behavior.

Along the west coast, the fires in Southern Idaho, Washington, Oregon, and California continue to show significant growth each day, sending smoke up into Montana. In Washington, the Cougar Creek is now 34,482 acres. The Rabbit Foot fire in central Idaho is 29,075 acres. Fires in British Columbia have caused significant smoke over Canada lately, with that smoke contributing to the haze in Montana.

Air Quality Alert

The Montana Department of Environmental Quality has issued an air quality alert for Flathead, Glacier, Liberty, Lincoln, Pondera, Sanders, and Toole counties in effect until conditions improve. The Air Quality Alert is due to smoke from wildfires in northwest Montana, Idaho, Washington, and British Columbia. This alert will be updated again at 8AM on 8/17/2018.

An Air Quality Alert means that particulates have been trending upwards and that an exceedence of the 24 hour National Ambient Air Quality Standard (NAAQS) has occurred or may occur in the near future.

Particulate levels are ranging between Unhealthy and Unhealthy for Sensitive Groups in northwest Montana and extending to the east of Glacier National Park.

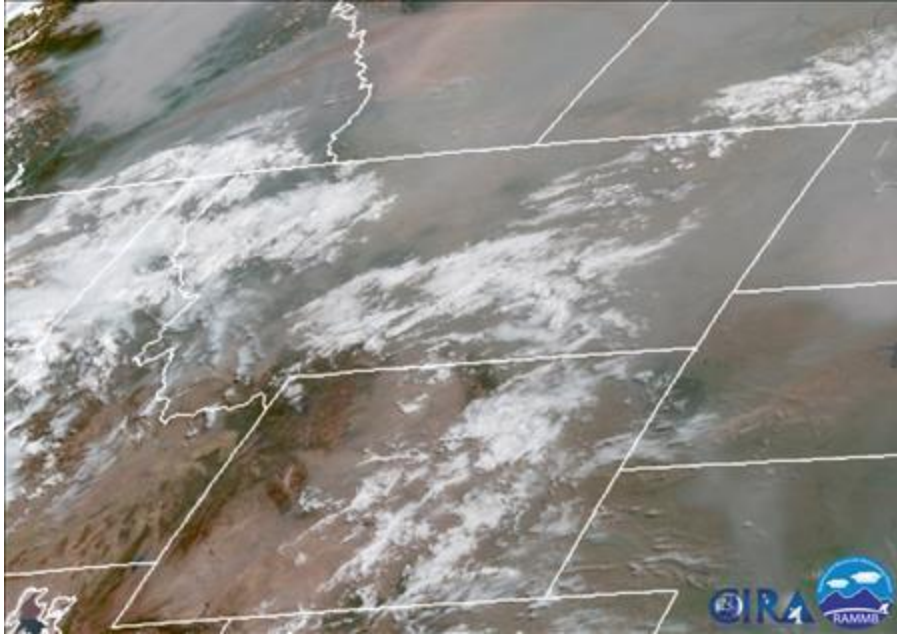
When air quality is Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion.

When air quality is Unhealthy for Sensitive Groups... State and local health officials recommend that people with respiratory or heart disease, the elderly and children should limit prolonged exertion.

Summary

Air quality impacts are becoming more significant in Montana as the smoke that has been sitting above us is mixing to the surface ahead of the approaching weather disturbance. Air quality is MODERATE to UNHEALTHY FOR SENSITIVE GROUPS across Montana today, with the worst impacts, reaching UNHEALTHY levels, remaining in northwest Montana. Conditions should improve today starting in southwest Montana as the ridge of high pressure breaks down and the chance of showers and thunderstorms moves in. Increased winds have prompted a red flag warning, but widespread precipitation could help clear the smoke out of the air. Expect improvement in most locations by Saturday morning. Northwest Montana may continue to struggle due to nearby fires and a lack of precipitation in that area.

Satellite shows a large amount of smoke over the state today, with worsening ground level impacts.



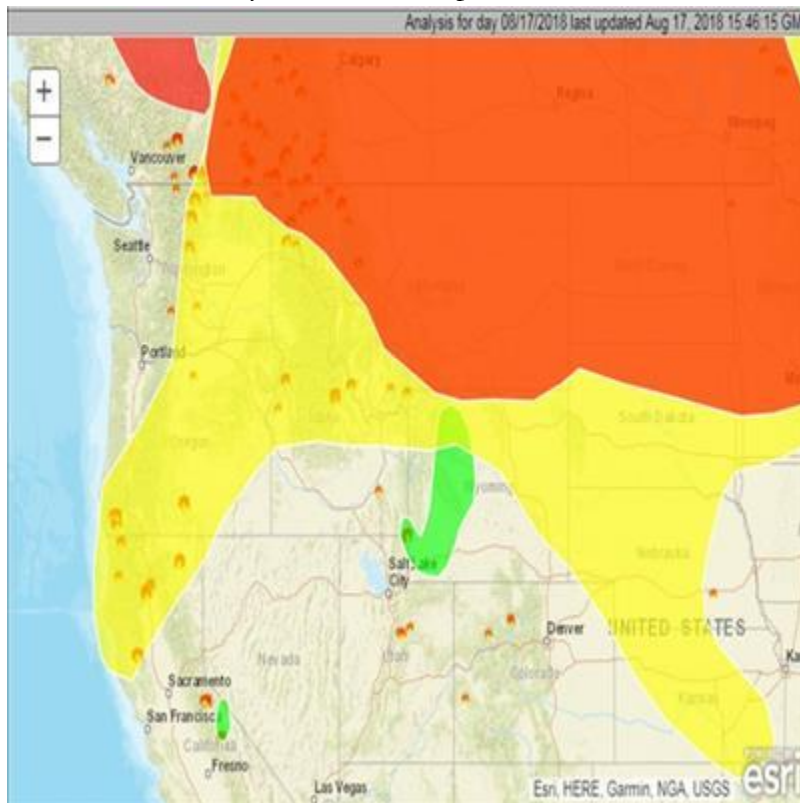
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

Large active fire locations are shown below.



Source: [USFS](#)

Satellite smoke analysis shows widespread dense smoke over Montana.



Source: [NOAA](#)

Air Quality impacts have worsened in many location this morning, including Helena.



Source: [MT DEQ](#)

NOAA Text Description:

Friday, August 17, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1730Z August 17, 2018.

SMOKE:

Much of Canada and the Northern United States....

The ongoing wildfire activity affecting portions of the western United States and western Canada continues to produce enormous amounts of smoke which stretches from coast to coast primarily across the Canadian provinces and most of the northern U.S. Dense smoke stretches from the fires in British Columbia and Washington eastward to northern Ontario and over the U.S. border states as far east as the U.P. of Michigan. Moderate smoke extends from southern Nunavut and Northwest Territories and in a relatively narrow stretch south over the U.S. central Plains, and eastward to New England and beyond over the Atlantic Ocean. In addition, the wildfires in northern California are emitting locally dense smoke which extends as moderate smoke over the Pacific Ocean and northeastward into the aforementioned border smoke.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H171820.html>

Saturday, August 18, 2018

There was generally improvement in air quality beginning yesterday evening with the disturbance that moved through the region. Cooler temperatures, gusty winds, and precipitation helped clear out and suppress some of the wildfire smoke that has been blanketing the region all week. Some fire reports mentioned less active behavior, but there generally wasn't enough precipitation to significantly suppress the wildfires in the region. Many locations have improved to MODERATE, while Libby improved to UNHEALTHY FOR SENSITIVE GROUPS, and the northeastern sites, Malta and Sidney, have worsened to UNHEALTHY ahead of the disturbance. Southwestern Montana sites are currently GOOD to MODERATE, which is the current location of the main disturbance moving across the state. The northern and northeastern locations are seeing smoke being pushed down from the Canadian fires.

Today's Forecast

A fast moving cold front is pushing down from the north, lowering temperatures and causing gusty winds. As the front moves through, expect hazy conditions to continue in north-central and northeastern Montana and conditions to deteriorate again mainly due to the wildfire smoke from Canadian fires. Expect UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY conditions to persist, especially given the forecasted precipitation is low in this area. The trough is expected to move across central Montana and south, with more precipitation likely in central and southeast Montana, so air quality should remain MODERATE to GOOD, given no new fires arise from any lightning associated with the disturbance.

Northwest Montana, although experiencing a break, will continue to be smoky due to all the fire activity in that region, coupled with the smoke from British Columbia. Expect UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY conditions to persist, with settling smoke likely overnight.

Extended Forecast

Another disturbance is behind the one moving through the state today, likely causing some improvements again. Precipitation on Sunday, mostly expected near the Continental Divide should be favorable for fire activity and particulate matter in the air. Another ridge of high pressure is expected by Wednesday, bringing back hot, dry, and likely hazy conditions.

Fires

Northwest Montana:

In Glacier National Park, the Howe Ridge fire is currently 3,500 acres.

The Paola Ridge fire, near Essex, MT is 400 acres and 0% contained.

The Coal Ridge fire, located north of Whitefish, is 390 acres and 2% contained.

The Gold Hill fire, north of Libby, is 460 acres and 0% contained.

The Davis fire, near Yaak, is currently 5,724 acres and 5% contained.

The Tenmile fire is 681 acres and 91% contained and the nearby Sterling Complex, near Eureka, is 1,095 acres and 23% contained.

The Garden Creek fire is 2,052 acres and 50% contained.

The Brownstone fire, in the Bob Marshall wilderness, is 2,056 acres.

The Cougar fire, over the border in Idaho, is 5,150 acres and 30% contained.

The Surprise Creek fire, also in the Idaho Panhandle, is 2,557 acres.

The Rampike fire, also in the Idaho Panhandle, is 1,800 acres.

In southwest Montana:

The Wigwan fire, near Ennis is 4,190 acres and 10% contained. The nearby Monument fire is 5,733 acres and 15% contained.

The Goldstone fire, on the border with Idaho near Jackson, MT, is 7,158 acres.

The Beaver Creek fire, near Anaconda, is currently 1,989 acres and 8% contained.

In the rest of the state:

The Shellrock fire, near Helena, is 375 acres and 20% contained with active fire behavior.

Along the west coast, the fires in Southern Idaho, Washington, Oregon, and California continue to show significant growth each day, sending smoke up into Montana. In Washington, the Cougar Creek is now 34,482 acres. The Rabbit Foot fire in central Idaho is 29,075 acres. Fires in British Columbia have caused significant smoke over Canada lately, with that smoke contributing to the haze in Montana.

Air Quality Alert

The Montana Department of Environmental Quality has issued an air quality alert for Blaine, Daniels, Flathead, Glacier, Hill, Liberty, Lincoln, Phillips, Pondera, Roosevelt, Sheridan, Toole, and Valley counties in effect until conditions improve. The air quality alert is due to smoke from wildfires in northwest Montana, Idaho, Washington, and British Columbia. This alert will be updated again at 8AM on 8/20/2018.

An Air Quality Alert means that particulates have been trending upwards and that an exceedance of the 24 hour National Ambient Air Quality Standard (NAAQS) has occurred or may occur in the near future.

Particulate levels are ranging between Unhealthy and Unhealthy for Sensitive Groups across northern Montana.

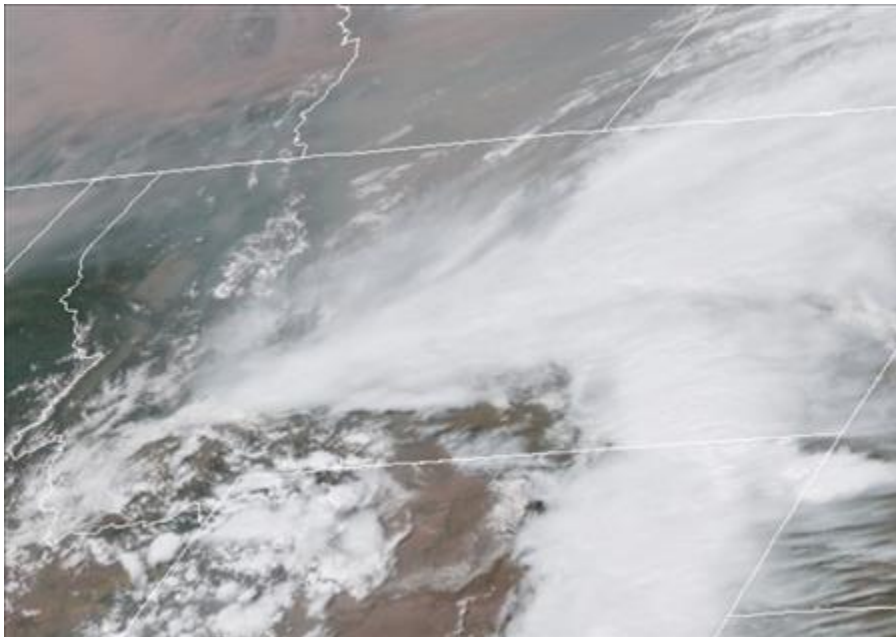
When air quality is Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion.

When air quality is Unhealthy for Sensitive Groups... State and local health officials recommend that people with respiratory or heart disease, the elderly and children should limit prolonged exertion.

Summary

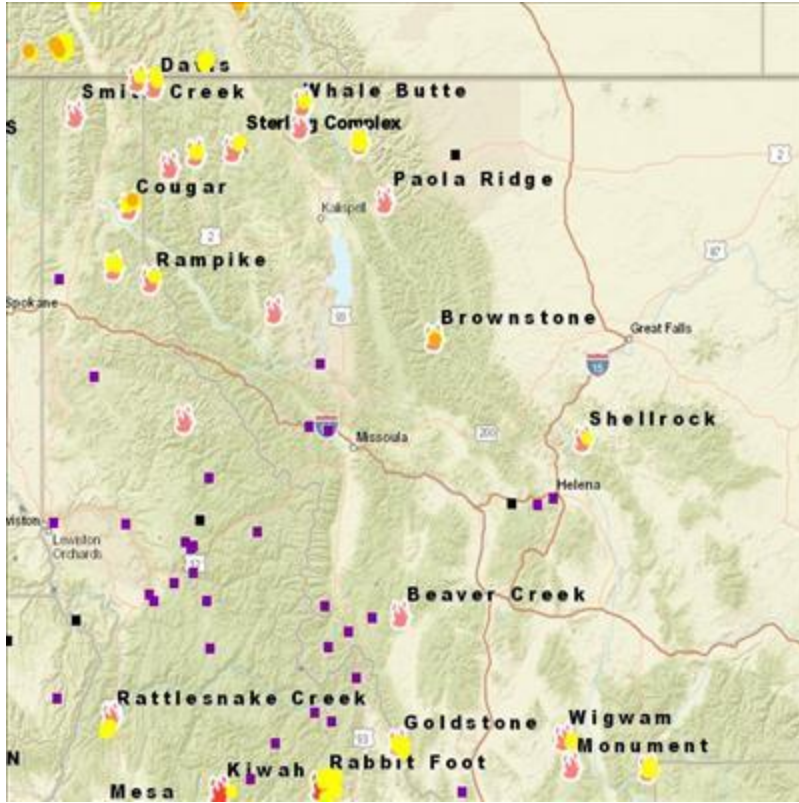
Air quality impacts have improved with the arrival of a disturbance yesterday evening, pushing through southwest and central Montana. This disturbance brought with it gusty winds and precipitation in areas, which has both cleared and captured smoke built up over the week. Southwest, central, and southeast Montana is generally GOOD to MODERATE. Northwest Montana is currently MODERATE to UNHEALTHY FOR SENSITIVE GROUPS, with active fires closer and perhaps less affected by the current system. North-central and northeast Montana is experiencing UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY due to a cold front pushing smoke down from the north. Expect similar conditions to persist today, with more improvements in the wake of the disturbance exiting the state towards the southeast. Northwest Montana is expected to stay UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY due to the wildfires in the Northwestern US and Canada. North-central Montana is expected to stay UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY, due to smoke gliding down from the north.

Satellite shows smoke in northwestern Montana.



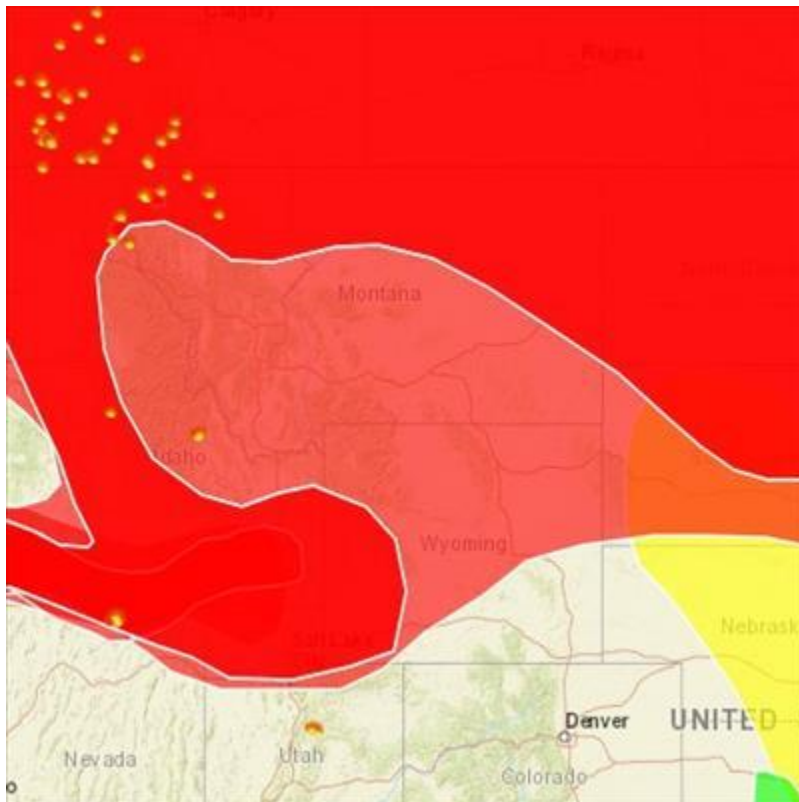
Source: [CIRA and NOAA. These data are preliminary and not operational.](#)

Large active fires around the region.



Source: [National Interagency Fire Center](http://www.nifc.gov).

Satellite smoke analysis shows widespread smoke, with perhaps some relief to the lower part of the state.



Source: [NOAA](#)

Still very hazy in Glacier today.



Source: [NPS](#)

NOAA Text Description:

Saturday, August 18, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1730Z August 18, 2018.

SMOKE:

Much of Canada and the Northern United States....

The ongoing wildfire activity affecting portions of the western United States and western Canada continues to produce enormous amounts of smoke that covers most of Canada and the northern portion of the United States. The areas of densest smoke extend from western and southern British Columbia across Alberta, Saskatchewan, Manitoba, Ontario, and southern Quebec in Canada and northern California, southern Oregon, all of the northern border states from Washington to Michigan, Wisconsin, Iowa, Illinois, and Missouri in the United States. Lighter-density smoke extends over the U.S. southern Plains, northern Alberta and British Columbia, northern Quebec, and over the northern Atlantic Ocean.

An additional area of light smoke extends from Alaska across the Yukon and Northwest Territories, possibly from wildfire activity in Asia.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H181811.html>

Sunday, August 19, 2018

Current Conditions

It looks like the mass of cool air from Canada dominated the fate of the smoke impacts across the state. Unfortunately, the disturbance that swept through did not suppress the smoke as much as anticipated. Smoke has pushed its way down from the north and settled in late last night, showing widespread impacts over the state, prompting Air Quality Alerts issued for every county, which will be updated Monday morning. Significant contributions from fires to our west have also contributed to the elevated concentrations in northwest Montana. Currently, most of the state is UNHEALTHY, and MODERATE for southwest and Thompson Falls. Satellite imagery portrays a thick blanket of smoke over all of Montana today.

We recommend referring to the Outdoor Activity Guide when planning your outdoor activities.

Today's Forecast

Widespread impacts are expected to continue today, as there doesn't appear to be signs of significant relief in the very near future. Isolated storms are possible later today and into tonight, many of which concentrated over the mountains in north and central Montana. Other isolated storms are possible in the mountains of southeastern Montana. These may cause relief in these areas, but expect widespread UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY impacts through the day.

Extended Forecast

A weak disturbance will be present in the area through Wednesday, continuing isolated storms and increased gusty winds at times, which could again relieve areas of heavy smoke. This disturbance is expected to mainly affect central and southern Montana. Another potentially favorable factor is the general shift from a north to a northeast wind by tonight, which could alleviate some impacts due to upwind fires. This might be more noticeable in eastern Montana. However, with the quantity of smoke already in, and continuing to move into the region, significant relief may only be spatially and temporally isolated. A high pressure ridge builds into the region again by Wednesday.

Air Quality Alert

The Montana Department of Environmental Quality has issued an air quality alert for Beaverhead, Big Horn, Blaine, Broadwater, Carbon, Carter, Cascade, Chouteau, Custer, Daniels, Dawson, Deer Lodge, Fallon, Fergus, Flathead, Gallatin, Garfield, Glacier, Golden Valley, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Madison, McCone, Meagher, Mineral, Missoula, Musselshell, Park, Petroleum, Phillips, Pondera, Powder River, Powell, Prairie, Ravalli, Richland, Roosevelt, Rosebud, Sanders, Sheridan, Silver Bow, Stillwater, Sweet Grass, Teton, Toole, Treasure, Valley, Wheatland, Wibaux, and Yellowstone counties in effect until conditions improve. The air quality alert is due to smoke from wildfires in northwest Montana, Idaho, Washington, and British Columbia causing widespread unhealthy air quality. This alert will be updated again at 8AM on 8/20/2018.

An Air Quality Alert means that particulates have been trending upwards and that an exceedence of the 24 hour National Ambient Air Quality Standard (NAAQS) has occurred or may occur in the near future.

Particulate levels are ranging between Unhealthy for Sensitive Groups and Very Unhealthy across Montana.

When air quality is Very Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid any outdoor activity; everyone else should avoid prolonged exertion.

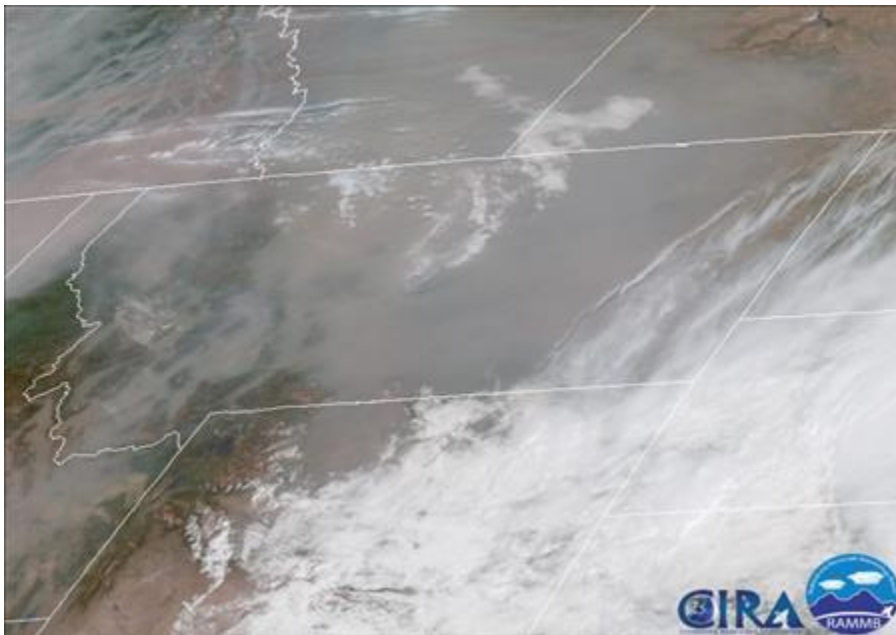
When air quality is Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion.

When air quality is Unhealthy for Sensitive Groups... State and local health officials recommend that people with respiratory or heart disease, the elderly and children should limit prolonged exertion.

Summary

Smoke is affecting the entire state today, prompting Air Quality Alerts in every county. Large amounts of smoke has pushed in, following the cold front from the north, coupled with the wildfire smoke from western Montana and northwestern US. This has caused very widespread UNHEALTHY conditions. Isolated storms and shifting winds later today and into tomorrow may offer relief to some areas.

Satellite shows thick smoke blanketing much of the region.



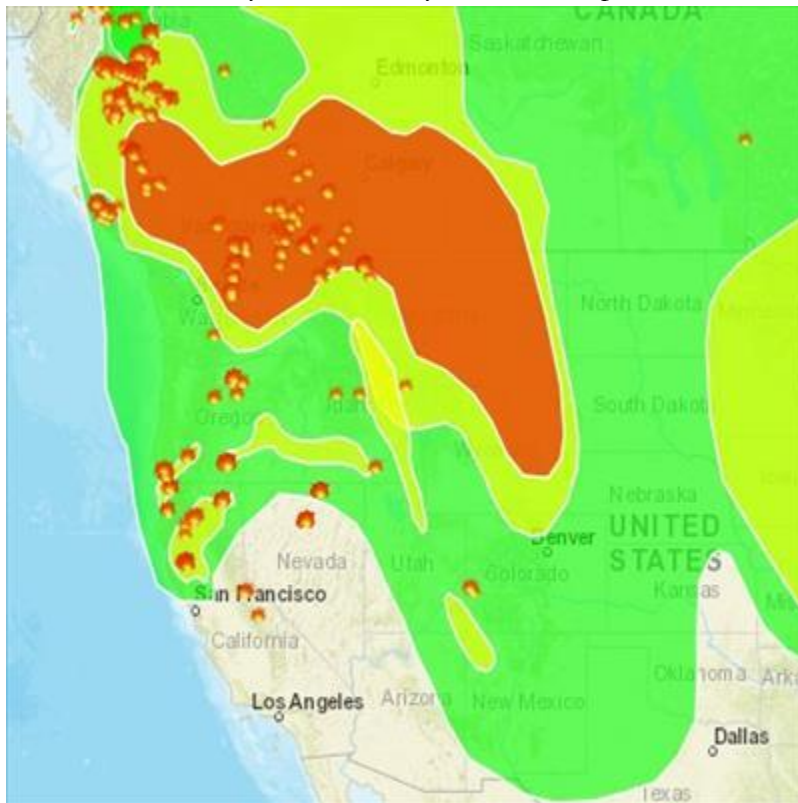
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

Current active fires in the U.S.



Source: [USFS](#)

Satellite smoke analysis from today shows widespread smoke.



Source: [NOAA](#)

Hazy conditions are widespread today.



Source: [Whitefish Mountain Resort](#)

NOAA Text Description:

Sunday, August 19, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1912Z August 19, 2018.

SMOKE:

Much of Canada and the United States....

The ongoing wildfire activity affecting portions of the western United States and western Canada continues to produce enormous amounts of smoke of varying density that covers most of Canada and the United States with the exception of the Mid Atlantic coast, Southeast and Gulf Coast extending to the Southwest. The densest smoke within this area extended from the northern Rockies into portions of the Pacific Northwest and southern British Columbia.

An additional area of light smoke, from wildfire activity over Asia, extends from the Northwest Territories, the Yukon, northern Alberta and northern British Columbia extending west into Alaska.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H191925.html>

Monday, August 20, 2018

Current Conditions

We are still dealing with a tremendous amount of smoke over Montana this Monday morning but there are some signs of improvement, especially in eastern Montana. Air quality is MODERATE in Sidney, Malta, Lewistown, Great Falls, and Broadus this morning. Unfortunately, western Montana is still struggling with air quality ranging from UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY from Libby down to Bozeman. Conditions in Southern Montana, including Billings have been improving throughout the morning.

The large amount of smoke that settled over Montana on Saturday originated from fires in British Columbia, Washington, Idaho, and Northwest Montana. See below for a summary of fire activity as of this morning.

Forecast

The good news is that a disturbance moving through the area, bringing northeasterly winds and showers should bring some much-needed relief from the smoke for many areas of Montana. This improvement will continue to move west today, with areas east of the Divide seeing conditions improve throughout the morning. In west-central and southwest Montana, including the areas around Missoula, Dillon, and Butte, it will take a little longer to see improvement but once it clears there is a decent chance that smoke will stay away for a little while. Unfortunately, in northwest Montana, fires will remain active under high winds with smoke impacts likely continuing for the foreseeable future.

The northeast to easterly winds over the area will persist until Wednesday. During this time smoke from fires to our west and northwest (Washington and British Columbia) will stay out of Montana. Without the steady stream of smoke moving in, we should see generally MODERATE air quality in eastern Montana through Wednesday, although we may see levels reach UNHEALTHY FOR SENSITIVE GROUPS at times. Southwest Montana will likely also benefit from the change in wind direction and the relatively small number of fires in the area. Northwest Montana will unfortunately likely have to deal with smoke from area fires throughout the week. Air quality in northwest Montana and on the west side of Glacier National Park will likely range from UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY with only brief periods of improvement this week.

Air Quality Alert

The Montana Department of Environmental Quality has issued an air quality alert for Beaverhead, Broadwater, Deer Lodge, Flathead, Gallatin, Glacier, Granite, Jefferson, Lake, Lewis and Clark, Lincoln, Madison, Meagher, Mineral, Missoula, Powell, Ravalli, Sanders, and Silver Bow counties in effect until conditions improve. The air quality alert is due to smoke from wildfires in northwest Montana and throughout the Pacific Northwest and British Columbia. Conditions may improve briefly this afternoon as showers and thunderstorms move through the area and northeasterly winds

redirect smoke. This alert will be updated again at 8AM on 8/21/2018 if conditions have not improved before that.

An Air Quality Alert means that particulates have been trending upwards and that an exceedance of the 24 hour National Ambient Air Quality Standard (NAAQS) has occurred or may occur in the near future.

Air quality is ranging between Unhealthy for Sensitive Groups and Unhealthy in the affected counties.

When air quality is Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion.

When air quality is Unhealthy for Sensitive Groups... State and local health officials recommend that people with respiratory or heart disease, the elderly and children should limit prolonged exertion.

Summary

Air quality is improving in eastern Montana as showers and thunderstorms move in and northeasterly to easterly winds push smoke to the west. Air quality is improving to MODERATE levels in many parts eastern Montana. The improvement should continue to push to the west throughout the day. The change in wind direction should help keep transported smoke out of Montana for the first part of this week. Unfortunately, fire activity, and consequently smoke impacts ranging from UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY, will likely continue in northwest Montana through this period.

Beginning Wednesday, winds will shift back to the more traditional westerly winds, which will likely bring more smoke back to the state.

Fires

Northwest Montana:

In Glacier National Park, the Howe Ridge fire is currently 7,835 acres. Also in or near the park, the Whale Butte fire is 251 acres, the Paola Ridge fire is 364 acres, and the Coal Ridge fire is 280 acres.

The Gold Hill fire, north of Libby, is 930 acres and 0% contained.

The Davis fire, near Yaak, is currently 6,032 acres and 7% contained.

The Sterling Complex, near Eureka, is 1,216 acres and 23% contained.

The Garden Creek fire is 2,052 acres and 60% contained.

The Brownstone fire, in the Bob Marshall wilderness, is 2,214 acres.

The Cougar fire, over the border in Idaho, is 5,524 acres and 31% contained.

The Surprise Creek fire, also in the Idaho Panhandle, is 2,555 acres.

The Rampike fire, also in the Idaho Panhandle, is 2,000 acres.

Southwest Montana:

The Wigwan fire, near Ennis, is 4,191 acres and 35% contained. The nearby Monument fire is 6,613 acres and 13% contained.

The Goldstone fire, on the border with Idaho near Jackson, MT, is 9,191 acres and 7% contained.

The Beaver Creek fire, near Anaconda, is currently 2,067 acres and 8% contained.

The Rattlesnake Creek fire, near Riggins, ID, is 7,997 acres and 28% contained.

The rest of the state:

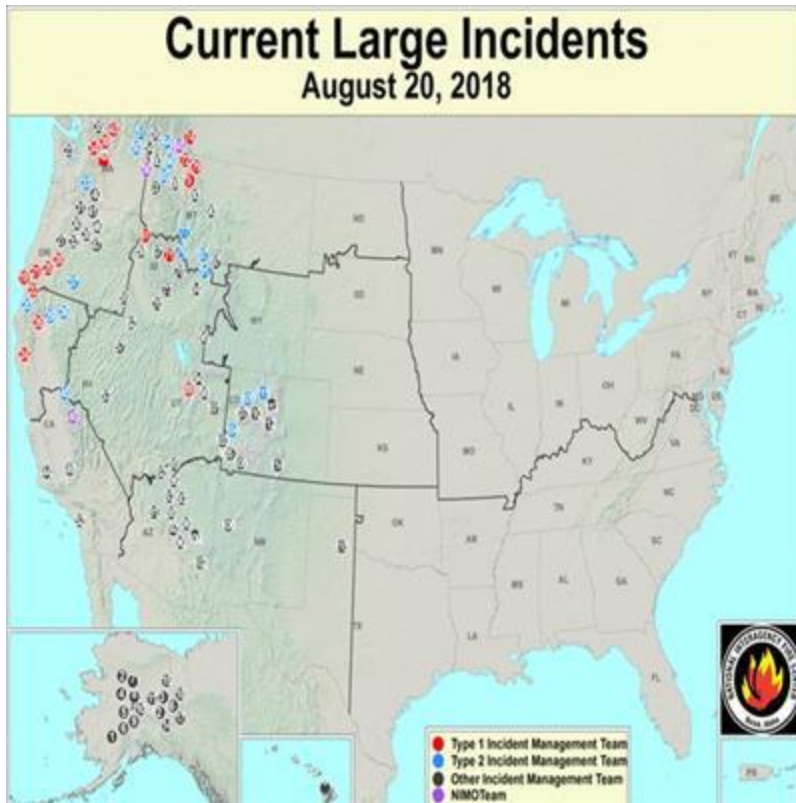
The Shellrock fire, near Helena, is 500 acres and 50% contained.

A disturbance is bringing rain and helping to clear out the smoke in many areas this morning, although lots of smoke can still be seen in between the clouds.



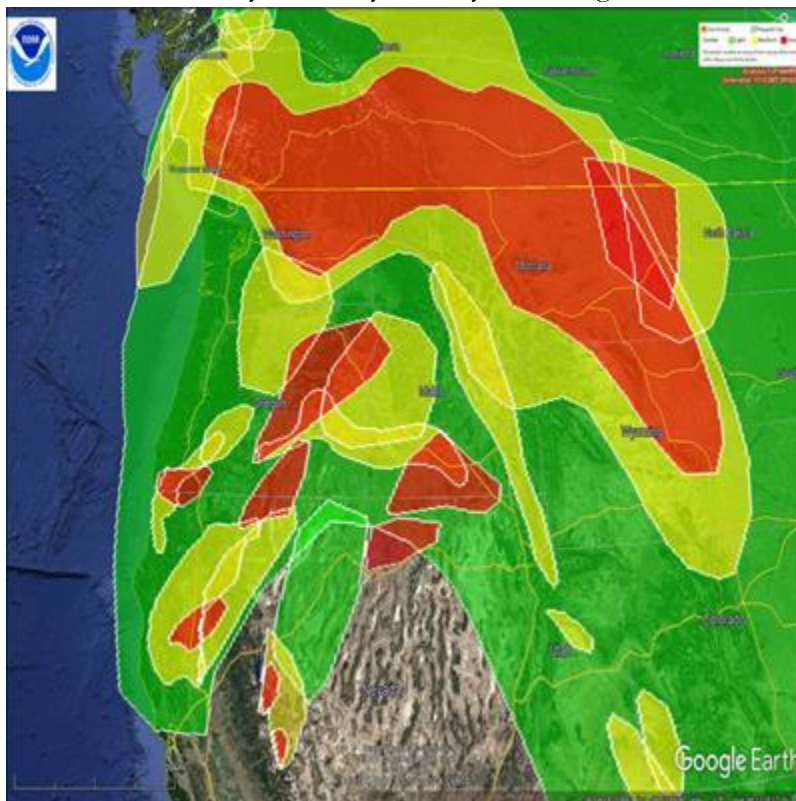
Source: [CIRA and NOAA. These data are preliminary and not operational.](#)

Fire activity remains mainly in northwestern Montana.



Source: [USFS](#)

Satellite smoke analysis from yesterday shows significant smoke impacting Montana.



Source: [NOAA](#)

Visibility is low and air quality is unhealthy in Missoula this morning.



Source: [KTVQ](#)

NOAA Text Description:

Monday, August 20, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE
IMAGERY
THROUGH 1907Z August 20, 2018.

SMOKE:

Canada and the U.S.....

The ongoing wildfire activity in the the western U.S. and western Canada continues to produce enormous amounts of smoke of varying density that covers most of southern Canada and the northern United States. The densest smoke within this area extended from the Texas Panhandle north to eastern Montana and also extending offshore the Pacific Northwest to western British Columbia.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H201918.html>

Wednesday, August 22, 2018

Air quality is GOOD to MODERATE in all reporting locations today. We are still seeing localized impacts near active fires in Northwest Montana. Glacier National Park is seeing significant smoke impacts near Lake McDonald and smoke is visible on satellite in many valleys in far northwest Montana. We are continuing to benefit from a favorable wind direction that is keeping smoke from British Columbia and Washington away from Montana. We are seeing a little haze move in from the southwest this morning, causing the MODERATE air quality in southern Montana. Little growth was reported on Montana fires yesterday due to the cold temperatures and recent rains.

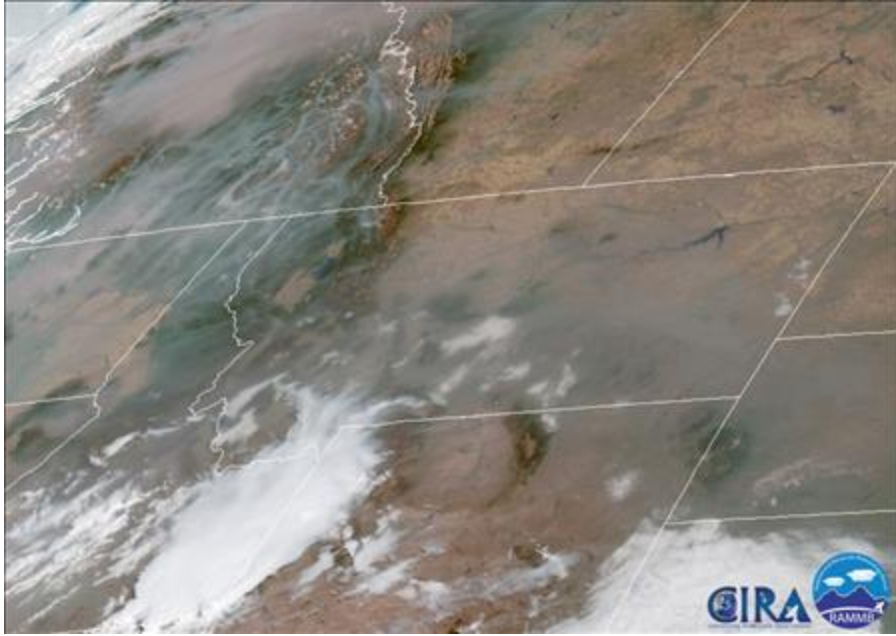
The favorable winds will continue today, keeping air quality GOOD to MODERATE across most of Montana. In northwest Montana, localized impacts near active fires may reach UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY at times, especially overnight.

Winds will become more westerly again tonight, bringing smoke from Washington back over Montana throughout the day tomorrow. Skies will likely become hazier, starting in western Montana and moving east throughout the day. A ridge of high pressure will briefly build over the area, this will bring warmer temperatures as well as the increased haze. The next weather system moves through on Friday. This system should help clear up any built-up haze from Thursday, but could carry smoke from British Columbia and Washington into the state by Friday night. It is possible we could see another smoky Saturday. Fortunately, the impacts should be short lived. A wet and cold start to next week should help decrease fire behavior and improve air quality by Monday.

Summary

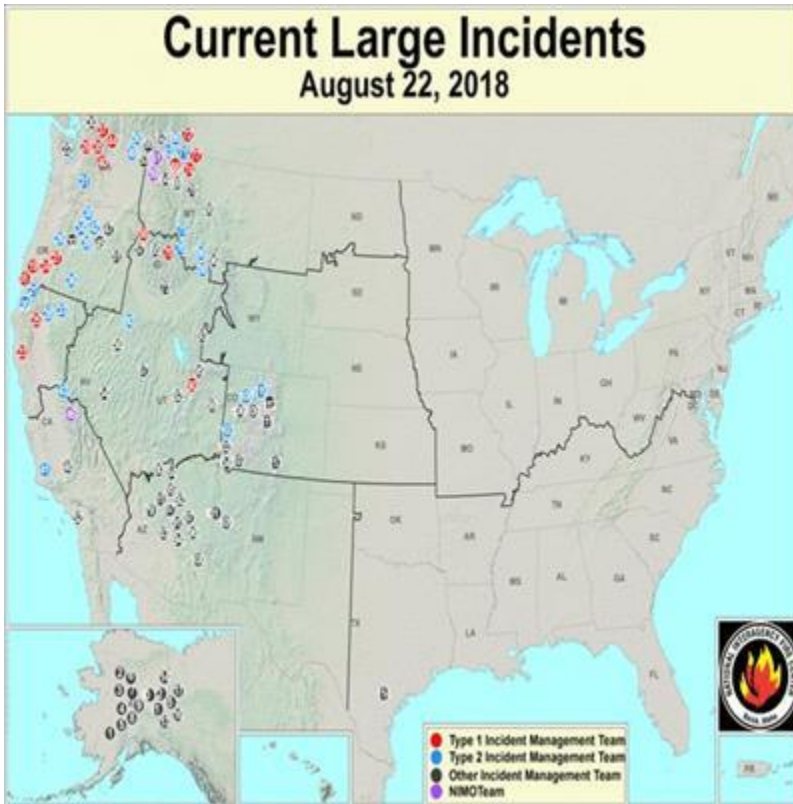
Air quality is GOOD to MODERATE at all reporting sites today due to a favorable wind direction keeping transported smoke out of Montana and decreased activity on local fires. Expect more of the same today before winds shift overnight and more smoke is carried into the state tomorrow. Increased winds will likely also increase fire behavior here in Montana, causing more air quality impacts for northwest Montana. We could see another rollercoaster of smoke impacts starting on Friday, with conditions improving, then deteriorating, then improving again by Monday due to a few weather systems moving through the Pacific Northwest.

Satellite imagery shows some light haze over southern Montana this morning.



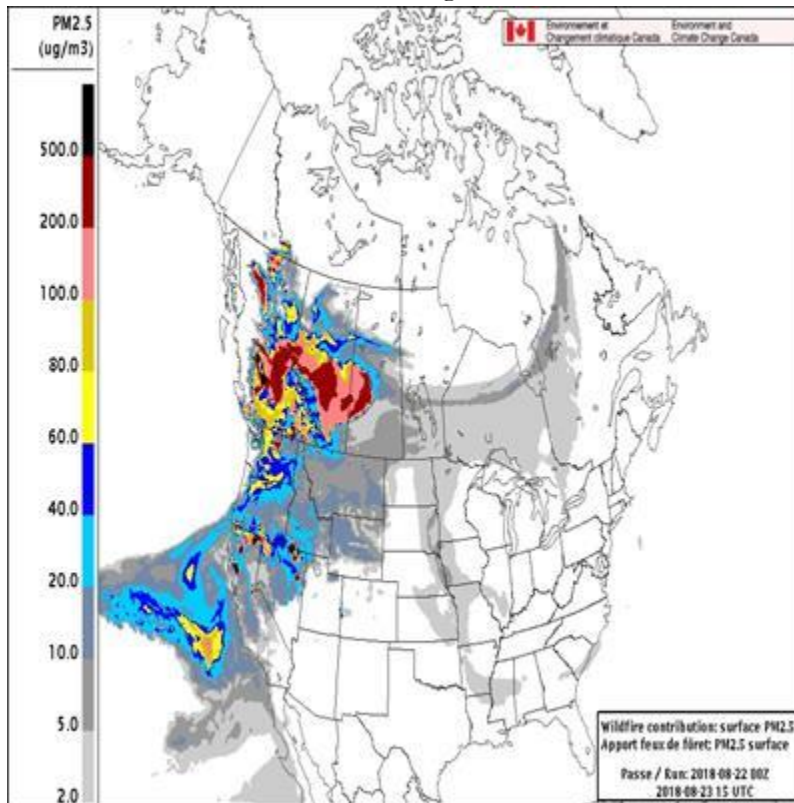
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

Current active fire locations are shown below.



Source: [USFS](#)

Smoke models show smoke heading back towards Montana tonight.



Source: [Environment Canada](https://www.ec.gc.ca/air/air-quality)

Some light haze in the state today, but generally good to moderate air quality.



Source: [USFS](#)

NOAA Text Description:

Tuesday, August 22, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1600Z August 22, 2018.

SMOKE:

Southern Half of Canada/Much of the US...

Significant wildfire activity scattered across the Western US from northern California and northern Nevada northward across portions of Idaho, western Montana, and the Pacific Northwest as well as a massive wildfire outbreak occurring in western Canada and primarily in British Columbia continued to be responsible for widespread coverage of smoke of varying density affecting most of the southern half of Canada as well as much of the U.S. Only the Southwestern U.S., southern Texas, and the far eastern U.S. as well as southeastern Canada were relatively smoke free at least as far as what was seen in visible satellite imagery. The most significant smoke of moderate to thick density affecting the US blanketed the northwestern portion of the US from western Montana, and western Wyoming westward to the portion of the West Coast from northern California to northwestern Washington. The smoke also extended offshore of California, Oregon, and Washington over a portion of the nearby eastern Pacific. Relatively narrow swaths of heavy density smoke extended eastward from Montana and Wyoming to the North and Central Plains and western Great Lakes Region and from the Southern Plains extending east into the southeast of the U.S. Over Canada, thicker smoke covered much of British Columbia, portions of northern and central Alberta,

northern and central Saskatchewan, and northern and central Manitoba.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H221718.html>

Thursday, August 23, 2018

The haze and air quality impacts returned to Montana last night. Northwest Montana continues to be hit the hardest, with UNHEALTHY air quality returning to Libby last night. East of Glacier National Park, in Cut Bank, air quality reached UNHEALTHY levels early this morning. Air quality in Flathead Valley and Thompson Falls recently reached UNHEALTHY FOR SENSITIVE GROUPS. Elsewhere, air quality is generally MODERATE with lots of smoke sitting above ground level, causing widespread hazy skies.

The cause of the increase in smoke impacts in northwest Montana is active behavior on area fires plus transported smoke from Washington and British Columbia. The Gold Hill fire, just north of Libby, showed active behavior throughout the night. The Howe Ridge fire in Glacier also was active throughout the evening.

Today and Tomorrow's Forecast

The winds have shifted and Montana is now downwind of the significant fire activity in the Pacific Northwest. There is currently a dense band of smoke moving into western Montana, visible on satellite imagery (below). Air quality in western Montana will likely deteriorate throughout the day from west to east, possibly reaching VERY UNHEALTHY levels in Libby and ranging from UNHEALTHY FOR SENSITIVE GROUPS to UNHEALTHY elsewhere. The smoky conditions are expected to persist through most of Friday with a weak ridge sitting over the area, keeping smoke trapped. Depending on how much of the smoke settles to the ground overnight, we could see another day of widespread UNHEALTHY air quality on Friday.

Weekend and Beyond Forecast

The weekend looks like it could be highly variable in terms of smoke impacts across the state. On Friday night, a cold front is expected to sweep through the state. This will likely cause brief improvement to the hazy conditions as increased winds help push built up smoke out of the region. Unfortunately, with the intense fire activity in Washington and British Columbia, we will likely see smoke pour back into the state on Saturday. Things may improve again on Monday if we see a widespread precipitation event, but there is a lot of uncertainty at this time regarding how much rain might fall. If we don't see a lot of rain, smoke from British Columbia will likely continue to impact Montana, especially the northern half of the state through much of next week.

Even more uncertain is the possibility of rain on the British Columbia fires at the end of next week. There are hints that we could see some widespread improvement in air quality by the end of next week, but it is too soon to tell if this scenario will materialize.

Fires

Northwest Montana:

In Glacier National Park, the Howe Ridge fire is currently 10,323 acres. Also in or near the park, the Whale Butte fire is 327 acres, the Paola Ridge fire is 578 acres, and the Coal Ridge fire is 280 acres.

The Gold Hill fire, north of Libby, is 1,398 acres and 1% contained.

The Davis fire, near Yaak, is currently 6,365 acres and 12% contained.

The Sterling Complex, near Eureka, is 1,265 acres and 34% contained.

The Brownstone fire, in the Bob Marshall wilderness, is 1,920 acres.

The Cougar fire, over the border in Idaho, is 6,626 acres and 24% contained.

The Surprise Creek fire, also in the Idaho Panhandle, is 2,631 acres.

The Rampike fire, also in the Idaho Panhandle, is 2,400 acres.

In southwest Montana:

The Wigwan fire, near Ennis, is 4,087 acres and 87% contained. The nearby Monument fire is 6,614 acres and 32% contained.

The Goldstone fire, on the border with Idaho near Jackson, MT, is 9,264 acres and 7% contained.

The Beaver Creek fire, near Anaconda, is currently 2,067 acres and 13% contained.

The Rattlesnake Creek fire, near Riggins, ID, is 8,136 acres and 28% contained.

Air Quality Alert

The Montana Department of Environmental Quality has issued an air quality alert for Flathead, Glacier, Lake, Lincoln, and Sanders counties in effect until conditions improve. The air quality alert is due to smoke from fires in the Pacific Northwest. This alert will be updated again at 9AM on 8/24/2018.

An Air Quality Alert means that particulates have been trending upwards and that an exceedence of the 24 hour National Ambient Air Quality Standard (NAAQS) has occurred or may occur in the near future.

Air quality is expected to range from Unhealthy for Sensitive Groups to Very Unhealthy in northwest Montana.

When air quality is Very Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid any outdoor activity; everyone else should avoid prolonged exertion.

When air quality is Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion.

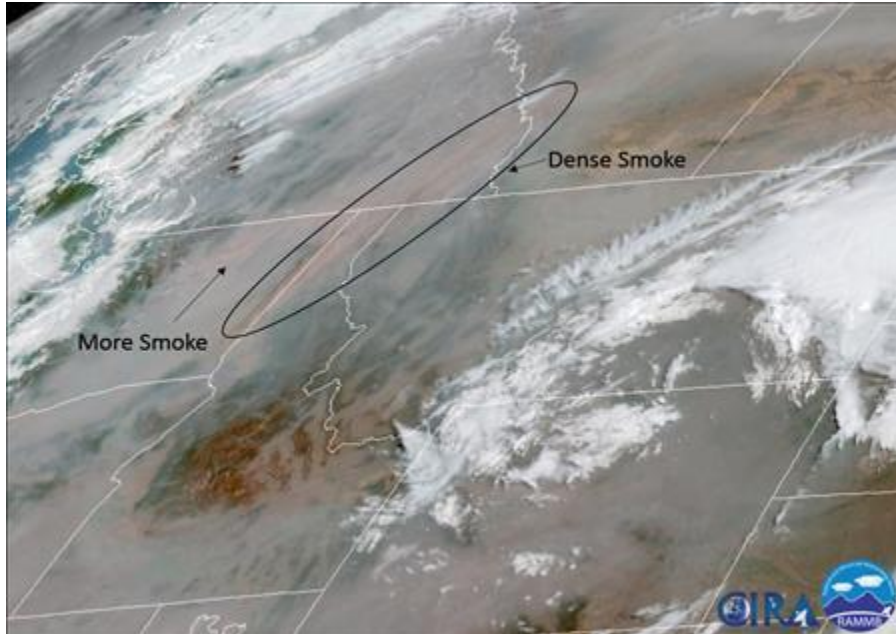
When air quality is Unhealthy for Sensitive Groups... State and local health officials recommend that people with respiratory or heart disease, the elderly and children should limit prolonged exertion.

Summary

Hazy skies and air quality impacts are returning to the state today as westerly winds have returned, bringing smoke in from the Pacific Northwest. Northwest Montana and east of Glacier National Park are seeing the worst impacts this morning. Smoke is expected to move into the state throughout the day, with a dense band of smoke moving into western Montana this morning.

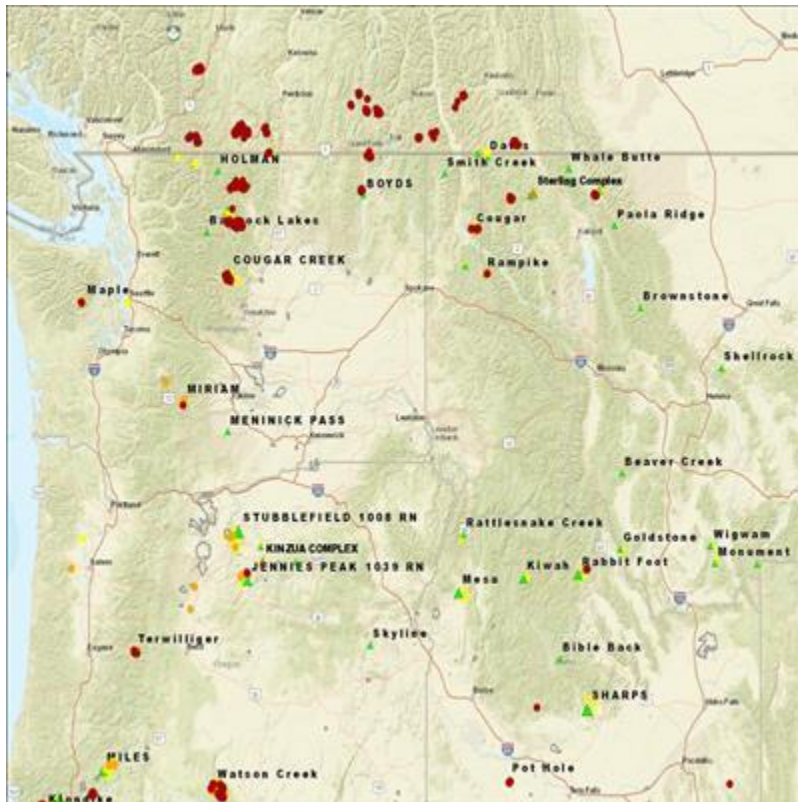
Widespread air quality impacts are expected by tomorrow morning and persisting throughout the day. We may see some brief improvement tomorrow night, but smoke will likely move back in on Saturday.

Smoke is moving into western Montana this morning along westerly winds.



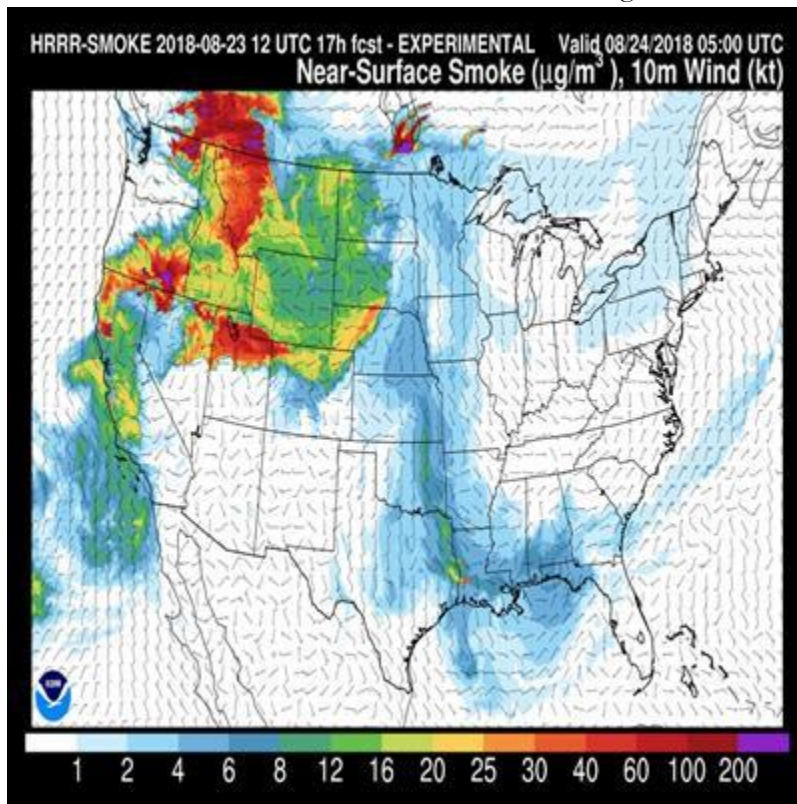
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

Recent fire activity is shown in red below.



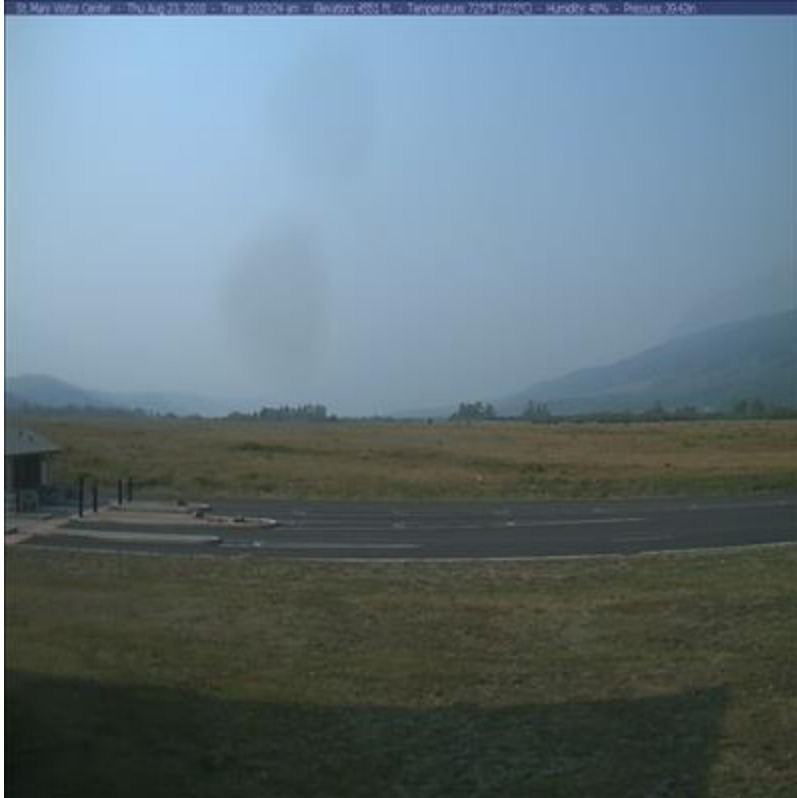
Source: [NWCG](#)

Smoke models show smoke from the west moving into Montana throughout the day.



Source: [NOAA](https://www.noaa.gov/)

Smoke is impacting Glacier National Park again today. Below, the view at St. Mary.



Source: [NPS](#)

NOAA Text Description:

Thursday, August 23, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1600Z August 23, 2018.

SMOKE:

Southern Half of Canada/Much of the US...

Significant wildfire activity scattered across the Western US from northern California and northern Nevada northward across portions of Idaho, western Montana, and the Pacific Northwest as well as a massive wildfire outbreak occurring in western Canada, primarily in British Columbia. Those wildfires continued to be responsible for widespread coverage of smoke of varying density affecting most of the southern half of Canada as well as much of the U.S., with the exception of Southwestern U.S., were relatively smoke free at least as far as what was seen in visible satellite imagery. The most significant smoke of moderate to thick density affecting the US blanketed the northwestern portion of the US from western Montana westward to the portion of the West Coast from northern California to northwestern Washington. The smoke also extended offshore of California, Oregon, and Washington over a portion of the nearby eastern Pacific. Swaths of heavy density smoke extended eastward from the Pacific Northwest to the North Plains then south through the Central Plains into the Southern Plains which extended east into the southeast of the U.S. That smoke reached the Atlantic Ocean. There was also a swath of moderate to heavy smoke that extended south in the Gulf of Mexico. Over Canada, thicker smoke covered much of British

Columbia, portions of northern and central Alberta, northern and central Saskatchewan, and northern and central Manitoba.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H231723.html>

Friday, August 24, 2018

We are seeing widespread smoke impacts this morning across Montana. Air quality is currently UNHEALTHY in the northwest corner of the state, including Libby, Columbia Falls, Great Falls, and Cut Bank. Further south, air quality is UNHEALTHY FOR SENSITIVE GROUPS in Thompson Falls, Frenchtown, Missoula, Hamilton, Butte, Helena, Havre, Lewistown, and Malta. In southern Montana, air quality is MODERATE in Dillon, Bozeman, West Yellowstone, Billings, Birney, Broadus, and Sidney.

The widespread smoke impacts are caused by transported smoke from Washington and British Columbia. Northwest Montana is seeing further impacts from nearby fires, causing the UNHEALTHY levels in that area.

Today's Forecast

We are seeing a small slot of clean air moving in to Northwest Montana this morning in between two large areas of smoke. As this patch of clearer air moves in, expect brief improvement in air quality. We are seeing that improvement to our west this morning, with generally GOOD to MODERATE air quality in eastern Washington and the Idaho Panhandle. This improvement is linked to a dry cold front that is making its way into the state. Unfortunately, any improvement in northwest Montana will likely be brief today. A large area of dense smoke over central Washington and British Columbia will quickly move back in this afternoon. Air quality could reach VERY UNHEALTHY levels by tomorrow morning in northwest Montana. Outside of Northwest Montana, the hazy skies and UNHEALTHY FOR SENSITIVE GROUPS air quality impacts will likely persist throughout the day. The patch of cleaner air will have a smaller and smaller impact as it moves east, with areas in eastern Montana unlikely to see a break today. In southwest Montana, smoke from Idaho fires may move into southern Beaverhead and Madison Counties, causing levels to reach UNHEALTHY FOR SENSITIVE GROUPS in that area later today.

Weekend and Beyond Forecast

Smoke impacts are expected to continue through most of the weekend. Northwest Montana will continue to see the worst air quality impacts, ranging from UNHEALTHY to VERY UNHEALTHY through Sunday. Elsewhere, expect air quality to range from MODERATE to UNHEALTHY FOR SENSITIVE GROUPS. There is good news beginning Sunday night. We are looking at a trough of low pressure moving in for the start of next week. This low pressure will likely bring widespread rain to the area. The only difference between this system and the one last week is that the transport winds will be from the northwest this time, as opposed to northeasterly. This means smoke from British Columbia will continue to want to push into the region. We should still see improvement across the area throughout the day on Monday, but we will likely continue to deal with smoke, especially in areas that don't see much rain.

There is good news for next week. It looks like we could see a number of weather disturbances bringing cooler and wetter weather to both Montana and the Pacific Northwest. I'm hopeful that by the end of next week we could see a significant reduction in smoke over the region.

Fires

Northwest Montana:

In Glacier National Park, the Howe Ridge fire is currently 10,802 acres. Also in or near the park, the Whale Butte fire is 351 acres, the Paola Ridge fire is 598 acres, and the Coal Ridge fire is 280 acres.

The Gold Hill fire, north of Libby, is 2,349 acres and 1% contained.

The Davis fire, near Yaak, is currently 6,452 acres and 13% contained.

The Sterling Complex, near Eureka, is 2,734 acres and 38% contained.

The Brownstone fire, in the Bob Marshall wilderness, is 2,342 acres.

The Cougar fire, over the border in Idaho, is 6,655 acres and 24% contained.

The Surprise Creek fire, also in the Idaho Panhandle, is 2,734 acres.

The Rampike fire, also in the Idaho Panhandle, is 2,500 acres.

In southwest Montana, none of the fires currently burning in the area reported growth yesterday.

Air Quality Alert

The Montana Department of Environmental Quality has issued an air quality alert for Blaine, Broadwater, Cascade, Chouteau, Deer Lodge, Fergus, Flathead, Glacier, Granite, Hill, Jefferson, Judith Basin, Lake, Lewis and Clark, Liberty, Lincoln, Meagher, Mineral, Missoula, Petroleum, Phillips, Pondera, Powell, Ravalli, Sanders, Silver Bow, Teton, and Toole counties in effect until conditions improve. The air quality alert is due to smoke from fires in northwest Montana and the Pacific Northwest. This alert will be updated again at 10AM on 8/27/2018 unless conditions improve and the alert is no longer needed.

An Air Quality Alert means that particulates have been trending upwards and that an exceedence of the 24 hour National Ambient Air Quality Standard (NAAQS) has occurred or may occur in the near future.

Air quality is expected to range from Unhealthy for Sensitive Groups to Very Unhealthy throughout the weekend. The worst impacts are expected in northwest Montana.

When air quality is Very Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid any outdoor activity; everyone else should avoid prolonged exertion.

When air quality is Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion.

When air quality is Unhealthy for Sensitive Groups... State and local health officials recommend that people with respiratory or heart disease, the elderly and children should limit prolonged exertion.

Summary

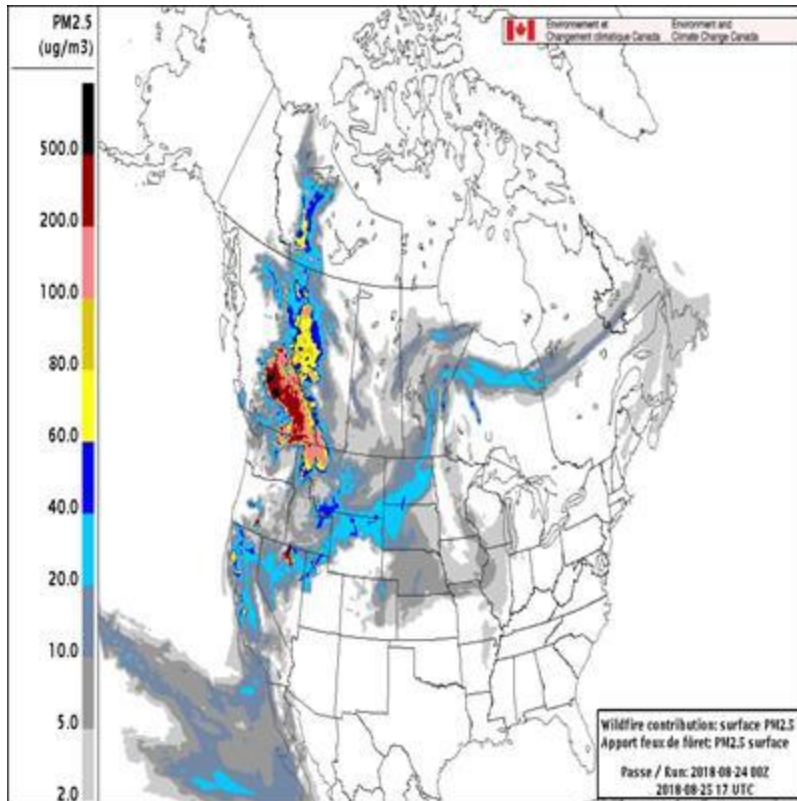
UNHEALTHY air quality is present in Northwest Montana this morning, although a small patch of clearer air is moving through the region this morning. Elsewhere, air quality is UNHEALTHY FOR SENSITIVE GROUPS from Missoula all the way to Malta, and everywhere in between. Further south, air quality is currently MODERATE. Behind the patch of clearer air is more smoke, which will move into northwest Montana this morning. Air quality in northwest Montana is expected to range from UNHEALTHY to VERY UNHEALTHY through Sunday morning. Elsewhere, air quality is expected to range from MODERATE to UNHEALTHY FOR SENSITIVE GROUPS throughout the weekend, possibly reaching UNHEALTHY levels at times. We should see improvement beginning Sunday night, with rain expected over the state on Monday.

A tiny slot of cleaner air will move through the state today, but any improvement will be brief, with more smoke moving in later today.



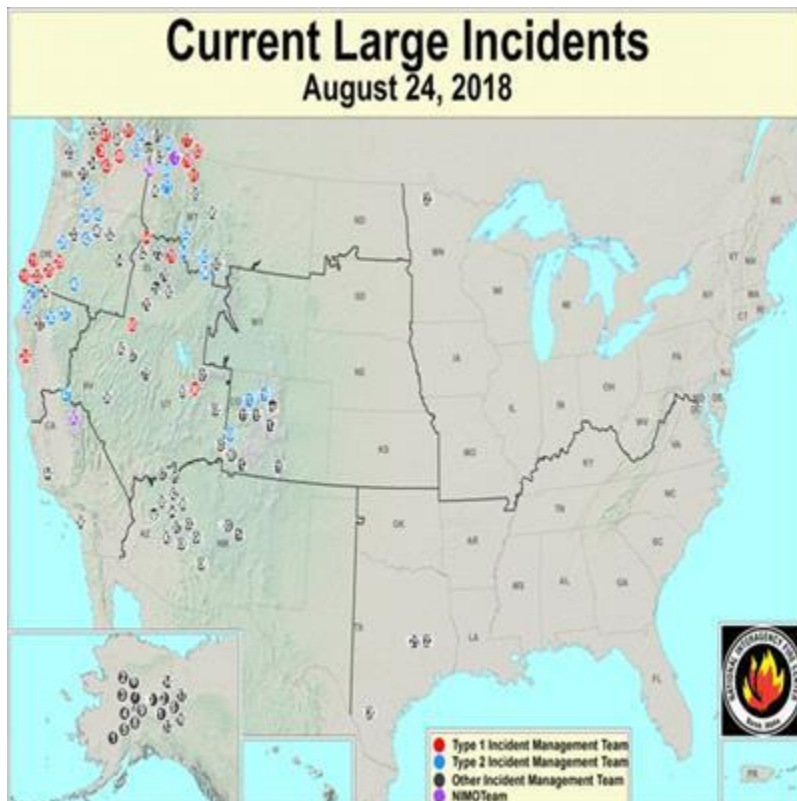
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

Smoke forecasts for tomorrow show significant smoke in NW Montana.



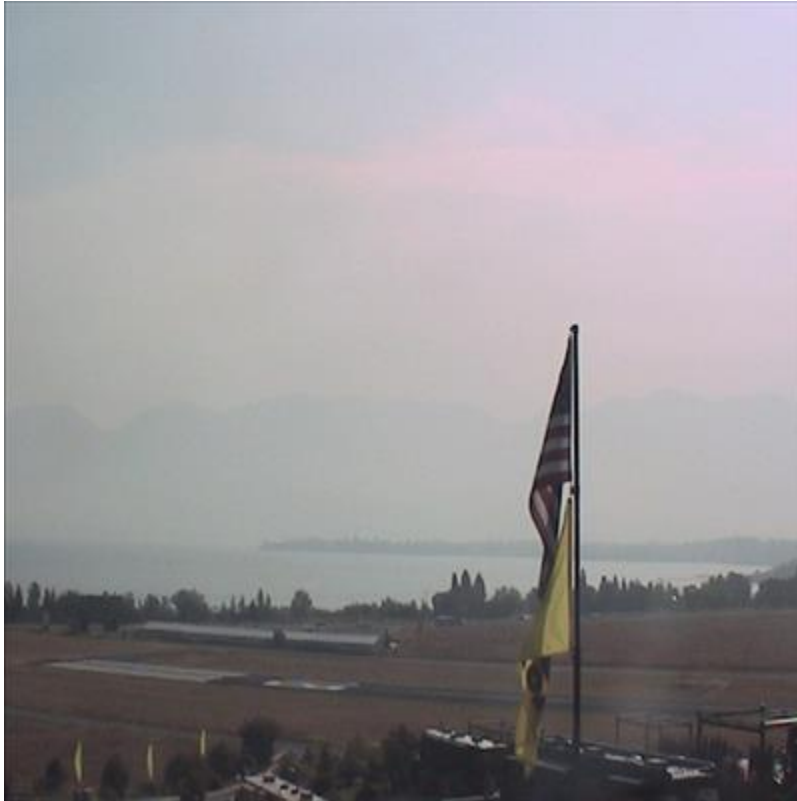
Source: [Environment Canada](http://www.ec.gc.ca)

Active fire locations are shown below.



Source: [USFS](#)

Hazy skies over Flathead lake this morning, where air quality has been ranging between unhealthy for sensitive groups and unhealthy.



Source: [Polson RV Resort](#)

NOAA Text Description:

Friday, August 24, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1800Z August 24, 2018.

SMOKE:

Southern Half of Canada / Northern Half of the US... Remnant smoke blankets much of the northern U.S. and southern Canadian provinces as a result of significant wildfire activity throughout the Pacific Northwest and British Columbia. Light density smoke stretches east from the source covering Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Newfoundland, and is visible approximately half way to Greenland. Light density smoke also stretches southeast from the source covering the Intermountain West, the Central Plains, Great Lakes, Ohio River Valley, the Appalachians and continues out into the Atlantic. Moderate to very heavy remnant smoke is confined mainly to the Canadian Provinces, portions of Montana, and most of New England.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H242003.html>

Saturday, August 25, 2018

The slot of clean air that was moving through the state yesterday has stalled over southwest Montana this morning, after bringing GOOD air quality to Missoula yesterday afternoon, Helena last night, and Butte this morning. While air quality levels have gone up again in Missoula and Helena, air quality in Butte and Hamilton are currently GOOD, with MODERATE to UNHEALTHY FOR SENSITIVE GROUPS levels elsewhere. Unfortunately, northwest Montana is dealing with impacts from both nearby fires and a significant amount of smoke moving in from the Pacific Northwest. Air quality is currently UNHEALTHY in Libby, Columbia Falls, and Cut Bank. Due to the improvement in west-central Montana, the air quality alert is being lifted for everywhere but northwest Montana.

Today's Forecast

Smoke from the Pacific Northwest will continue to impact the state today, as a weak disturbance moves through the area. This disturbance should help keep air quality impacts lower in most of the state. Expect air quality to range from MODERATE to UNHEALTHY FOR SENSITIVE GROUPS in most of the state, with periods of GOOD air quality in southwest Montana. The worst impacts will continue to be in Northwest Montana, where UNHEALTHY air quality is expected to persist throughout the day.

Sunday and Beyond Forecast

There is good news starting Sunday. First, a weak disturbance will swing through early in the day, further improving air quality in most of Montana. We may even see some improvement in NW Montana throughout the day on Sunday. By Monday, we can expect widespread rain over the state, including on fires in NW Montana. By Monday afternoon we should see GOOD to MODERATE air quality in most locations.

Montana will be downwind of the Pacific Northwest fires for much of next week, so we may see smoke roll back in around mid-week after the rain event on Monday and Tuesday ends. There is potential for the British Columbia fires to get rain at the end of next week. If that were to happen, we could see a significant reduction in transported smoke coming into Montana by the start of September.

Fires

Northwest Montana:

In Glacier National Park, the Howe Ridge fire is currently 11,519 acres. Also in or near the park, the Whale Butte fire is 251 acres, the Paola Ridge fire is 645 acres, and the Coal Ridge fire is 280 acres. A new fire is also being reported north of Whitefish. The Boundary fire is currently 1,500 acres.

The Gold Hill fire, north of Libby, is 2,831 acres and 1% contained.

The Davis fire, near Yaak, is currently 6,561 acres and 14% contained.

The Sterling Complex, near Eureka, is 1,382 acres and 49% contained.

The Brownstone fire, in the Bob Marshall wilderness, is 2,342 acres.

The Cougar fire, over the border in Idaho, is 7,436 acres and 24% contained.

The Surprise Creek fire, also in the Idaho Panhandle, is 2,930 acres.

The Rampike fire, also in the Idaho Panhandle, is 2,750 acres.

Air Quality Alert

The Montana Department of Environmental Quality has issued an air quality alert for Flathead, Glacier, Lake, Lincoln, and Sanders counties in effect until 10AM on 8/27/2018. The air quality alert is due to smoke from fires in northwest Montana and the Pacific Northwest. Conditions are expected to improve beginning Sunday evening. This alert will be updated again at 10AM on 8/27/2018.

Air Quality Alert

An Air Quality Alert means that particulates have been trending upwards and that an exceedence of the 24 hour National Ambient Air Quality Standard (NAAQS) has occurred or may occur in the near future.

Air quality in northwest Montana is expected to range from Unhealthy for Sensitive Groups to Unhealthy through Sunday night.

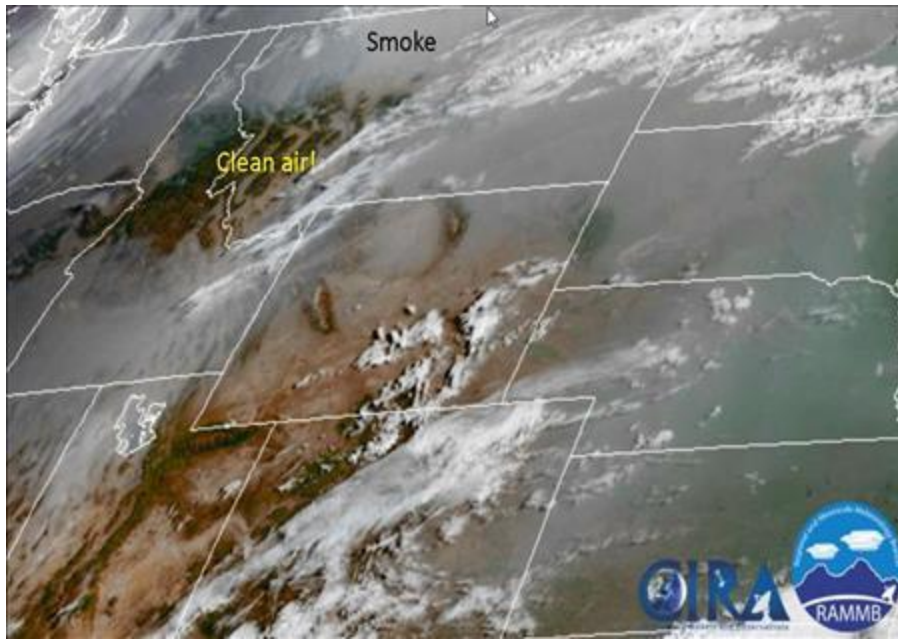
When air quality is Unhealthy... State and local health officials recommend that people with respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion.

When air quality is Unhealthy for Sensitive Groups... State and local health officials recommend that people with respiratory or heart disease, the elderly and children should limit prolonged exertion.

Summary

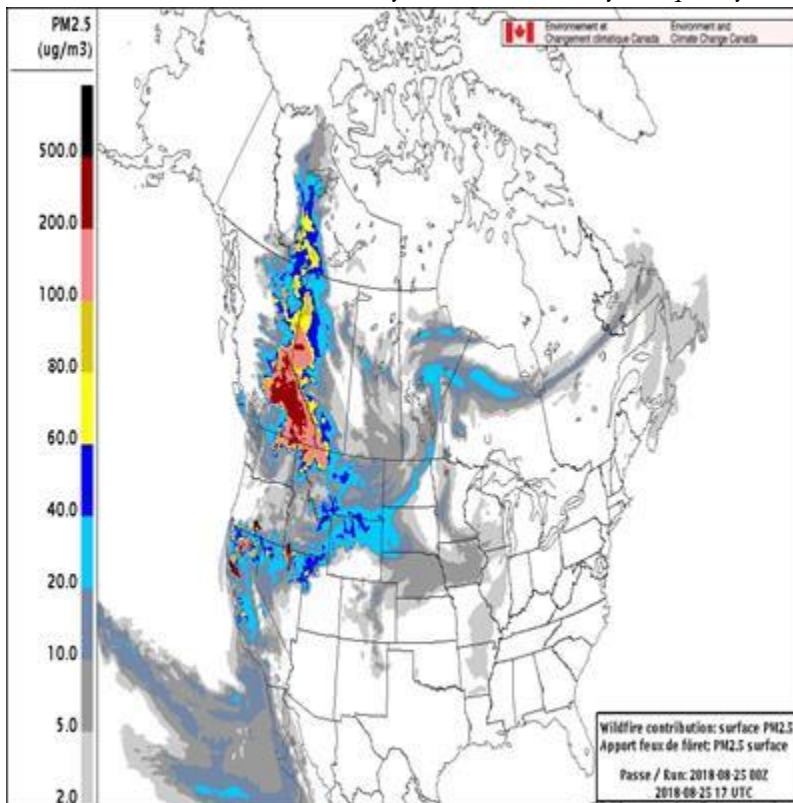
Air quality remains UNHEALTHY in northwest Montana due to a combination of local fires and transported smoke from the Pacific Northwest. Smoke impacts in the rest of the state are ranging from MODERATE to UNHEALTHY FOR SENSITIVE GROUPS after a slot of clean air moved through yesterday. In Butte and Hamilton, air quality remains GOOD as the cleaner air currently sits over southwest Montana. Smoke is expected to remain over the state today with northwest Montana continuing to see the worst of it. Air quality is expected to remain UNHEALTHY in northwest Montana through at least tomorrow morning. Elsewhere, air quality is expected to range from GOOD to UNHEALTHY FOR SENSITIVE GROUPS. Conditions should begin to improve tomorrow as a number of disturbances move through, culminating in a widespread rain event on Monday. By Monday afternoon we should see GOOD to MODERATE air quality in most locations, including northwest Montana

Satellite imagery shows the slot of clean air from yesterday is sitting over southwest Montana this morning, bringing GOOD air quality to Hamilton and Butte.



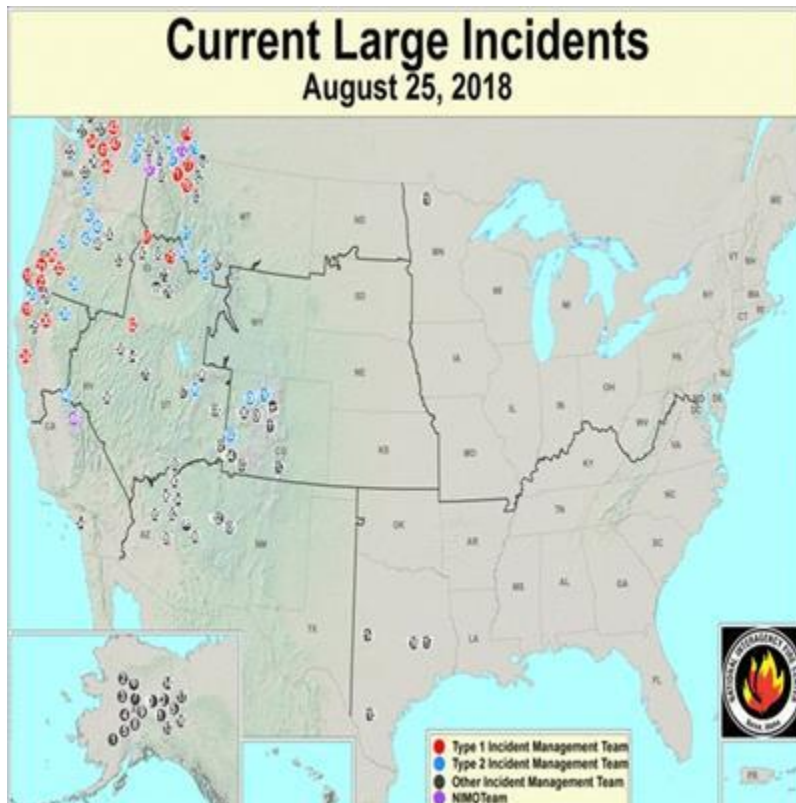
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

The forecast for 11am Saturday shows unhealthy air quality in northwest Montana.



Source: [Environment Canada](#)

Current active fire locations are shown below.



Source: [USFS](#)

Decreased visibility and significant air quality impacts are present in Eureka this morning.



Source: [Weather Underground](#)

NOAA Text Description:

Saturday, August 25, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1700Z August 25, 2018.

SMOKE:

Southern Half of Canada / Northern Half of the US...

Vast areas of remnant smoke continue to blanket much of the northern U.S. and southern Canadian provinces from coast to coast as a result of significant wildfire activity throughout the Pacific Northwest and British Columbia. Light density smoke stretches east from the source covering Alberta, Saskatchewan, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia, Newfoundland, and is visible nearly all the way to Greenland. Light density smoke also stretches southeast from the source covering the Intermountain West, the Central Plains, Great Lakes, Ohio River Valley, the Appalachians and continues out into the Atlantic. The full extent of the smoke is difficult to assess due to weather clouds. The heaviest smoke observed this morning appears to be over and east of Newfoundland.

<http://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H251928.html>

Sunday, August 26, 2018

Libby and parts of far northwest Montana continue to struggle with smoke this morning. Air quality is currently UNHEALTHY in Libby, and UNHEALTHY FOR SENSITIVE GROUPS in Columbia Falls and Cut Bank. This is due to a combination of nearby fires, especially in Libby, and transported smoke from the fire activity in Washington and British Columbia. Elsewhere, smoke is moving through eastern Montana. This is causing mainly MODERATE impacts, with levels occasionally reaching UNHEALTHY FOR SENSITIVE GROUPS. The best air quality is in southwest Montana, where a patch of cleaner air has led to GOOD air quality in Hamilton, Dillon, Missoula, Frenchtown, Seeley Lake, Butte, Helena, and Bozeman.

The forecast is looking good for a significant reduction in smoke impacts across the state starting this afternoon and continuing early this week. It looks like northwest Montana will start to see improvement in air quality later this afternoon. A series of disturbances will move through the state today, eventually bringing widespread rain tomorrow morning in western Montana and tomorrow afternoon in eastern Montana. Starting around 3pm today, air quality in northwest Montana should begin to improve, eventually reaching GOOD to MODERATE levels by tomorrow morning. Precipitation on area fires should help reduce fire activity and smoke impacts for northwest Montana. In eastern Montana, the smoke will slowly clear out as the rain moves in on Monday. Expect air quality to improve from east to west with widespread GOOD air quality by Tuesday morning.

When the smoke returns depends on fire activity in Washington and British Columbia. We will be downwind of those fires throughout the week, so we could see smoke fill back in once the rain ends. There is some indication this morning that fire activity in the Pacific Northwest may slow down this week. If that is that case, we could see GOOD to MODERATE air quality here in Montana. We will have to wait and see what those fires do over the next 48 hours.

Enjoy the rain!

Air Quality Alert

The Montana Department of Environmental Quality has issued an air quality alert for Flathead, Glacier, Lake, Lincoln, and Sanders counties in effect until 10AM on 8/27/2018. The air quality alert is due to smoke from fires in northwest Montana and the Pacific Northwest. Conditions are expected to improve beginning Sunday evening. This alert will be updated again at 10AM on 8/27/2018.

An Air Quality Alert means that particulates have been trending upwards and that an exceedence of the 24 hour National Ambient Air Quality Standard (NAAQS) has occurred or may occur in the near future.

Air quality in northwest Montana is expected to range from Unhealthy for Sensitive Groups to Unhealthy through Sunday night.

When air quality is Unhealthy... State and local health officials recommend that people with

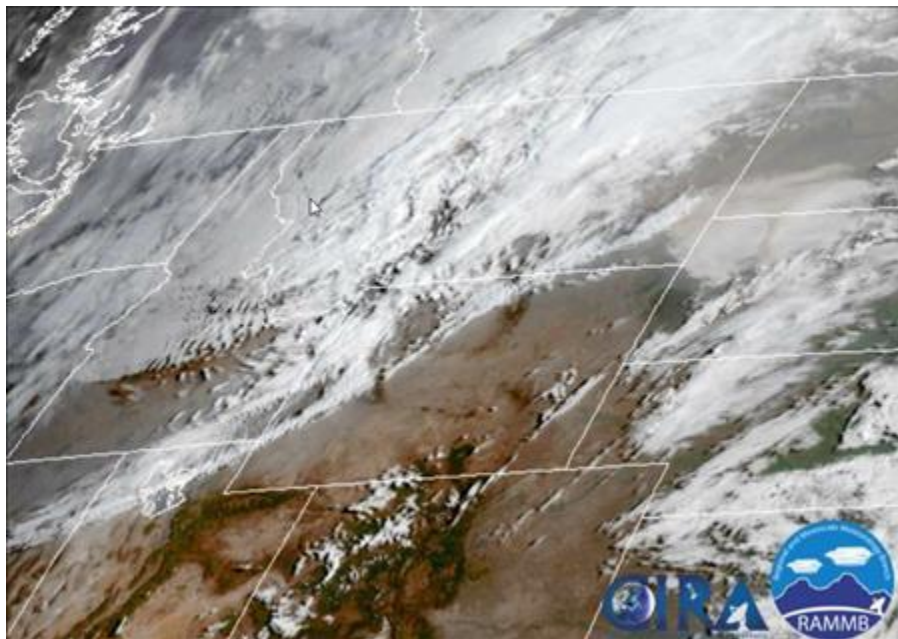
respiratory or heart disease, the elderly, and children should avoid prolonged exertion; everyone else should limit prolonged exertion.

When air quality is Unhealthy for Sensitive Groups... State and local health officials recommend that people with respiratory or heart disease, the elderly and children should limit prolonged exertion.

Summary

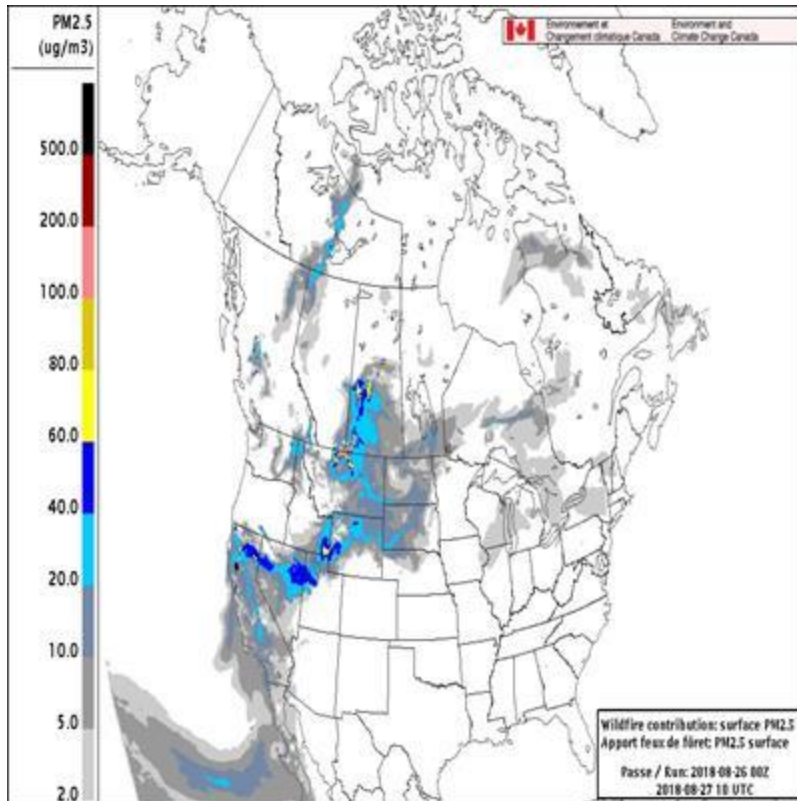
Air quality is UNHEALTHY in Libby and UNHEALTHY FOR SENSITIVE GROUPS in Columbia Falls and Cut Bank this morning due to continued impacts from area fires and smoke being transported in from Canada. Elsewhere, air quality is GOOD in southwest Montana and ranging between MODERATE and UNHEALTHY FOR SENSITIVE GROUPS in eastern Montana. Conditions should begin to improve in northwest Montana later this afternoon, by Monday morning conditions should reach GOOD to MODERATE levels in northwest Montana. In eastern Montana, conditions should improve throughout the day on Monday as smoke clears out of the state from west to east.

Satellite imagery shows clouds moving over the state. This is the start of an active few days that should clear out the smoke.



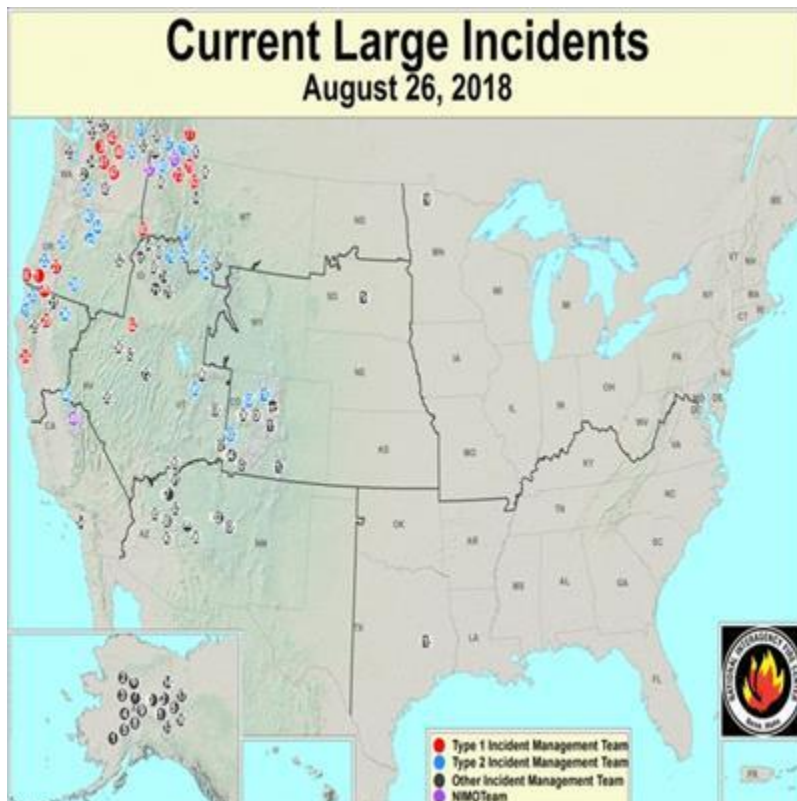
Source: [CIRA and NOAA](#). These data are preliminary and not operational.

By early tomorrow morning, most of the smoke should clear out of western Montana.



Source: [Environment Canada](http://www.ec.gc.ca)

Current active fire locations are shown below.



Source: [USFS](#)

Decreased visibility and significant air quality impacts are present in Glacier this morning.



Source: [Weather Underground](#)

NOAA Text Description:

Sunday, August 26, 2018

DESCRIPTIVE TEXT NARRATIVE FOR SMOKE/DUST OBSERVED IN SATELLITE IMAGERY THROUGH 1802Z August 26, 2018.

SMOKE:

North America...

Wildfires in northern California and southern Oregon continue to produce light to heavy density smoke this morning. This smoke was observed traveling eastward and before combining with remnant smoke from continued wildfires along Washington and British Columbia's border. The large wildfires in northwestern British Columbia continue to produce smoke that was also seen to travel eastward. A large area of light density smoke blankets much of the southern Canadian Provinces and the northern U.S.. An area of medium dense smoke covers the Canadian-U.S. border. Wildfires located in southeastern Manitoba and southwestern Ontario are also producing large amounts of smoke that add to the conglomerate. The large area of smoke predominantly originating from western North American coast continues to travel eastward across

New England before being carried out far over the Atlantic Ocean.

<https://www.ssd.noaa.gov/PS/FIRE/DATA/SMOKE/2018H261857.html>

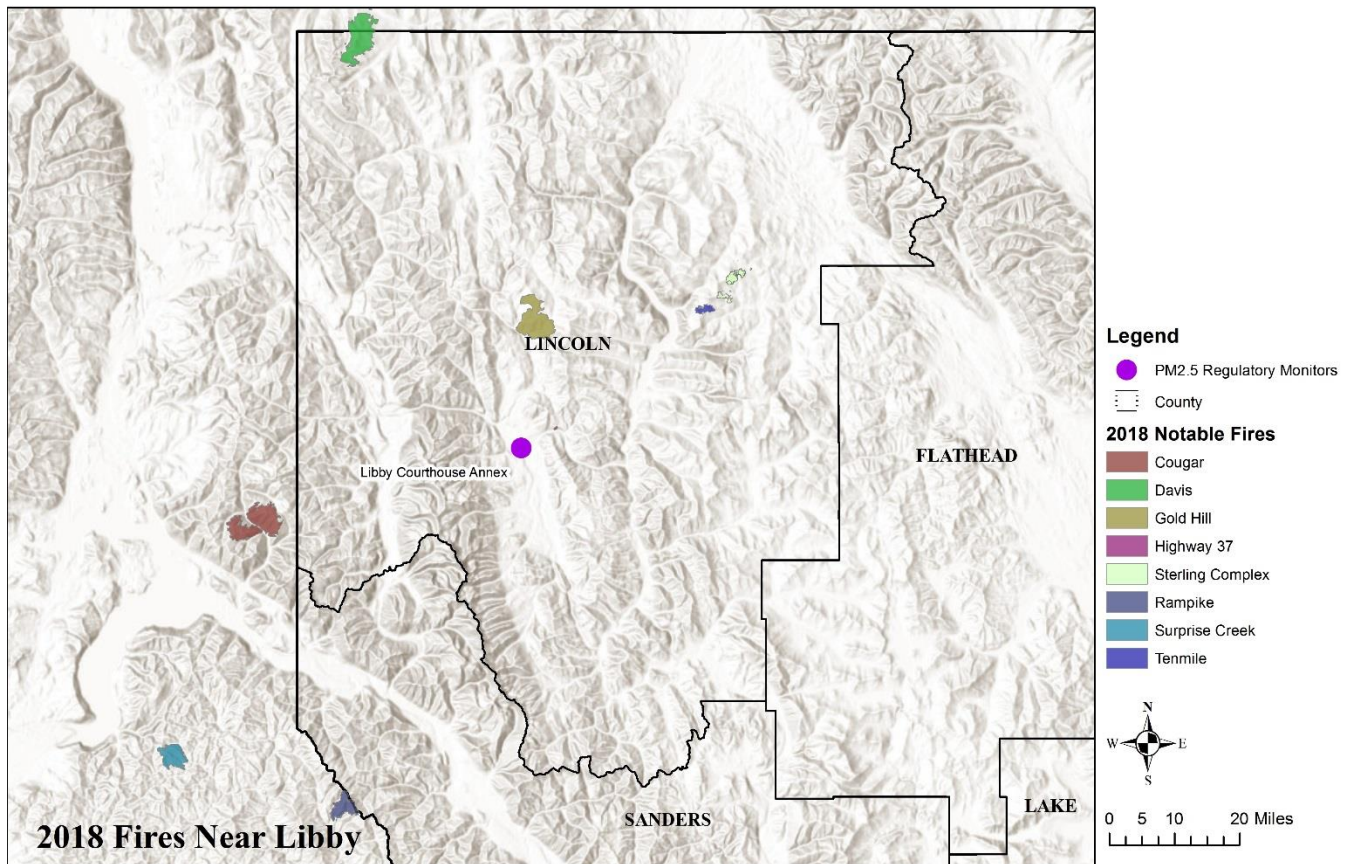
5. Not Reasonably Controllable or Preventable

40 CFR 50.14(b)(4), regarding wildfires, states:

The Administrator shall exclude data from use in determinations of exceedances and violations where a State demonstrates to the Administrator's satisfaction that emissions from wildfires caused a specific air pollution concentration in excess of one or more national ambient air quality standard at a particular air quality monitoring location and otherwise satisfies the requirements of this section. Provided the Administrator determines that there is no compelling evidence to the contrary in the record, the Administrator will determine every wildfire occurring predominantly on wildland to have met the requirements in paragraph (c)(3)(iv)(D) of this section regard in the not reasonably controllable or preventable criterion.

While fires from outside of Montana contributed to the exceptional events during the 2018 season, and fire activity in Montana played a substantial role too. The location of the notable fires in relation to the PM_{2.5} monitors is shown in the figure below. The table below outlines the location, size, start and end date, and cause of each of these fires, as well as a summary.

Figure 7. 2018 Notable Fires Near Libby, Montana.



Fire Name	Location	Total Acres	Start Date and Cause	Containment Date	Summary
Cougar	5 Miles east of East Hope ID	7,871	7/27/2019 Lightning	10/18/2018	

Fire Name	Location	Total Acres	Start Date and Cause	Containment Date	Summary
Davis	10 miles northwest of Yaak, Montana	6,614	7/29/2018 Lightning	10/9/2018	
Gold Hill	Noisy Creek drainage 13 miles north of Libby, Mt.	6,602	8/11/2018 Lightning	10/9/2018	
Highway 37	Libby, MT	70	7/19/2018 Human	8/16/2018	Small fire located in Libby, MT.
Rampike	5 Miles east of East Hope ID	7,871	7/27/2018 Lightning	10/9/2018	
Sterling Complex	19 miles southwest of Eureka, MT	1,405	8/12/2018 Lightning	10/7/2018	
Surprise Creek	South of Faset Peak in the Independence drainage	3,185	7/27/2018 Lightning	10/1/2018	
Ten Mile	19 Miles south of Eureka, MT	681	7/31/2018 Lightning	9/5/2018	

In the absence of compelling evidence to the contrary, wildfires on wildlands are considered not reasonably controllable or preventable for purposes of the Exceptional Events Rule. The available evidence indicates that the fires impacting the Libby PM_{2.5} monitors in 2018 were in fact wildfires on wildlands, with no evidence indicating that they could have been controlled or prevented. These recorded 24-hour PM_{2.5} wildfire impacted values are exceptional events because they are found to be not reasonably controllable or preventable.

6. Natural Event

40 CFR 50.1 defines a wildfire as "any fire started by an unplanned ignition caused by lightning; volcanoes; other acts of nature; unauthorized activity; or accidental, human-caused actions, or a prescribed fire that has developed into a wildfire. A wildfire that predominantly occurs on wildland is a natural event." Since the fires impacting the Libby PM_{2.5} monitor in 2018 were fires largely on wildlands with unplanned ignitions, the exceptional events are natural events.