Minnesota Now (MPR) | Minnesota Now Meteorologist Sven Sundgaard explains why it's so smoggy 01GPEFN69TAK6PF22Z4Y4NEF33

CATHY WURZER: It is gloomy out there today friends, right? Is it foggy or is it smoggy? Most of the state is still under that air quality alert, which means folks with lung disease, asthma, heart disease, children, older adults might be feeling some side effects. Just heard from a listener who said, I've had a horrible headache for two days. Maybe that's what's going on-- it's the weather.

Our meteorologist, Sven Sundgaard, is here to explain why we're stuck in the smog. Hey, Sven.

SVEN SUNDGAARD: Hi, Cathy. Yeah, it's both fog and smog for many areas. And all of those things have been extended too. We had the dense fog advisory that's still in effect for Western Minnesota was supposed to expire at noon, but the fog is hanging on. So that's been extended through 6 PM.

That includes places like Morris and Marshall, a quarter mile or less visibility in those areas. And occasionally, we've been seeing some freezing drizzle and even some flurries being squeezed out of that fog. Of course, earlier this morning, we had some of that up around Duluth and now right around Grand Marais-- a little freezing drizzle and some of that fog at the moment.

CATHY WURZER: So talk to us about the air quality out there.

SVEN SUNDGAARD: Yeah. It's bad. And it's kind of breaking some records here around the area. So that has been extended too. That was set to expire at noon, it's been extended through 6 PM tomorrow. So we've got a 36-hour span probably left of poor air quality.

And it's at some of its highest levels we've seen so far in the Twin Cities. You want it to be under 50-- that's how we measure the particulate matter in the air-- it's up to 160 in the Twin Cities, 133 in Detroit Lakes, and 109 in Rochester. So double or triple where we want it to be.

And the Minnesota Pollution Control Agency said this is the first air quality alert they had to issue in 18 months-- so back to summer 2021 when we had all that wildfire smoke. And it's the most prolonged winter stagnation pollution we've had since December 21, 2005-- so 17 years since we've had a winter smog like this.

CATHY WURZER: I'm sure our friends in Detroit Lakes are scratching their heads thinking, now, wait a minute--

SVEN SUNDGAARD: What did we do?

CATHY WURZER: We're in the middle of God's country. Yeah, what did we do? Why is this happening to us? Can you explain temperature inversion and the light winds that don't help?

SVEN SUNDGAARD: Yeah, absolutely. And this is similar to what actually happens in Los Angeles, California, believe it or not. They get a bad rap. Of course, they have a lot of cars there, but what happens is they get often stuck in this temperature inversion.

Now, out there, it's the cold Pacific air gets stuck between the Pacific Ocean and the mountains. Here, it's warmer air that's been moving in over the last few days. And, of course, warm air rises and it moves up and over the colder air. So our deep snowpack is helping to exacerbate this situation.

And it was at its peak yesterday when it was six degrees yesterday morning at the surface. But if you went up just 900 feet above the ground, it was 41 degrees. So it's that temperature contrast that keeps the air trapped because, of course, warm air wants to rise, cold air wants to sink, and then there's no wind.

So literally, everything that we're pumping in on a normal day, which is spread through the atmosphere-- and so it's at relatively healthy levels-- is now stuck. And when it happens day on end like this, it just keeps building.

So that's why it's worse now, because this is really about day four of this just stagnant pattern and that warm air aloft. And it's just trapping everything. It also has to do with some of the surface temperatures.

It's more optimal for nitrogen oxides to actually kind of cling to water vapor. And so it becomes just big enough to actually be inhaled and get into our bloodstream. And so that's why it's particularly dangerous for sensitive people.

But in the Twin Cities right now, it's at a level that it's really unhealthy for everybody. So you shouldn't be out breathing heavily for any extended period of time today at all.

CATHY WURZER: Yeah, forget the jogging. And of course, maybe that's why some folks, as they're sending us messages that they have headaches. So just stay inside if you can. So are we going to get any relief? Will this be scrubbed out of the air?

SVEN SUNDGAARD: Yeah, we've got a couple of things that are going to be working in our favor. The first thing is going to create kind of a wintry weather mess tonight-- so maybe not great news for driving early tomorrow, but it is going to help to kind of kick some of this stuff out of the air. We have a winter weather advisory, as you've been mentioning, along the North Shore, looking at a wintry mix there and some snow showers, but also across Central Minnesota, an area that includes the Twin Cities.

We're going to see probably a little freezing drizzle and a wintry mix develop turning to snow, I think, pretty quickly. This will be mainly an overnight thing between about 9, 10 PM and the wee hours of the morning just before that morning commute, it'll be wrapped up. But we're talking a coating to under an inch for places like Marshall, Mankato, Bemidji, up to Duluth. 1 to 2 inches Alexandria, Wilmer.

Twin Cities, we could see about an inch, maybe inch and a half. And the track of this, though, is really variable. The models are kind of all over the place. So it could be kind of a boom or bust scenario.

You might wake up to just a dusting or you might have a surprise two inches-- so anywhere, really, in the central third of Minnesota could see that. But that will help to kick out some moisture. But also behind this, some Colder air temporarily moving in will kick in a northwest wind.

It'll be pretty breezy Thursday, but that's going to flush all this out. No more fog, no more air pollution, at least for a couple of days. And we should see some sunshine Friday too. But temperatures are going to cooler, mostly 20s and teens here Thursday, Friday.

CATHY WURZER: And we're getting into the coldest two weeks of the year, right now, right?

SVEN SUNDGAARD: Yeah, we're in that winter halfway point. So statistically, the average high and low are their coldest these next two weeks. And then we turn it around Saturday. The 14th of January is the halfway point of meteorological winter. And it's been quite a winter so far.

CATHY WURZER: Yes, it has been. It has been. Sven, thank you. I hope you have a good day.

SVEN SUNDGAARD: You too, Cathy.

CATHY WURZER: That's Sven Sundgaard, one of our meteorologists.

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