

Civic Groups

Key Messages: Civic/Adult Presentation



- Breathing polluted air is unhealthy, but you can't always tell if the air is polluted by how it looks. The Air Quality Index, or AQI, can help.
- Two main air pollutants are ozone pollution and particle pollution. Ozone pollution is invisible and is formed when certain chemicals react in the presence of heat and sunlight. Ozone pollution may aggravate asthma and bronchitis, and cause premature aging of the lungs. Particle pollution (microscopic particles of dust, dirt, smoke, and liquid droplets) can aggravate asthma and cause bronchitis or even premature death due to heart or lung disease. Symptoms from breathing polluted air can include coughing, breathing difficulties, and asthma attacks.
- There are two types of ozone. The ozone we breathe at ground level is bad. But very high in the atmosphere is a natural layer of ozone that is good because it protects us from the sun's harmful ultraviolet rays.
- Some people are at greater risk from breathing ozone pollution or particle pollution. Sensitive groups for ozone pollution include active children and adults, and people with lung disease. Sensitive groups for particle pollution include people with heart or lung disease, older adults, and children.
- You can protect your health in three ways when the air is polluted:
 1. Find out the air quality each day and the forecast for the next day by checking the AQI (Air Quality Index), like you would the weather report. The AQI uses color-coding to represent air quality ranging from good (green) to very unhealthy (purple). You can find the AQI and related health messages on the Internet at: www.airnow.gov. Some newspapers and TV or radio weather reports also include the AQI.
 2. If you're outside when you *know* the air is polluted, protect your health by taking it easier. For example, walk instead of run, exercise for half your normal time, or exercise at another time or on another day when the air is cleaner. Exercise away from busy roadways.
 3. If you notice symptoms when you're outside, such as coughing, pain when taking a deep breath, chest tightness, or wheezing, stop what you're doing and switch to a less strenuous activity. This is especially important if you are a member of a sensitive group—for example, if you have asthma or lung disease. Check with your doctor if you have these symptoms. People with heart disease should check with their doctor before engaging in vigorous outdoor exertion when particle levels are high.
- People's activities (such as transportation, energy use, and materials production) and nature (such as forest fires or volcanic eruptions) can cause air pollution.
- You can help reduce pollution: Drive less—walk, bicycle, carpool, or use public transportation when possible. Turn off lights and appliances when you don't need them. Cut back on heating and cooling when you can. Insulate your home. Only run full loads in your washing machine and dishwasher. Purchase energy-efficient products (look for the "Energy Star" label).

Long version:
Civic Groups presentation

Notes Pages: Civic Groups Long version



- I'd like to talk about how weather relates to air pollution, and how air pollution affects health.
- Air pollution can have a number of health effects, some of which can be quite serious.
- The good news is that there now are several things you can do to protect your health when the air is polluted. The best way to protect your health is to find out when pollutant levels are high in your area, using the Air Quality Index, or AQI, and take simple precautions to minimize your exposure.
- I'm going to start by making some statements about weather and air pollution and ask whether you think they are fact or fiction. First I will ask everyone who thought the statement was true to yell out "fact." Then I'll ask everyone who thought it wasn't true to yell "fiction."
- *[Note: Depending on the "personality" of the group you are talking to, you can also get their votes by asking them to raise their hands rather than using a voice vote if this feels more comfortable.]*

Fact or Fiction?



- First fact or fiction statement: “When weathercasters give the weather forecast live on the evening news, they point to a blank screen, not a map, to show you what the weather is going to be.”
- If you think this statement is true, on the count of three, yell out “fact.” If you think this is false, yell out “fiction.”
- *[Elicit the “fact” and “fiction” responses from the audience.]*
- The statement is true. We weathercasters are always pointing to a blank screen when we give you the weather forecast. The maps you see are put into the image electronically. You get to see them, but we don’t.

Fact or Fiction?



- Here's another statement. Fact or fiction?
- *[Elicit the "fact" and "fiction" responses from the audience.]*



- True. Weather can affect air pollution in a number of ways.
- For example, the wind can move air pollution around, blowing it away from its source, and into areas hundreds of miles away - into other states and even other regions entirely, where it can have a significant impact on air pollution levels.
- One example of this is air pollution from power plants in Ohio, which often is transported to the New England and Mid-Atlantic states. This makes it a challenge for some New England and Mid-Atlantic cities to comply with air pollution regulations, because they can't control pollution from sources in other states.
- Weather can also affect air pollution in other ways. Sunlight and warm temperatures can contribute to the formation of certain types of air pollution.
- Also, during thunderstorms, the fast-moving air disperses pollutants, and the rain cleanses the air.
- High pressure and stagnant conditions can also affect air pollution. In a high pressure system, the air is stagnant, which keeps pollutants where they are.

Air pollution sources include:

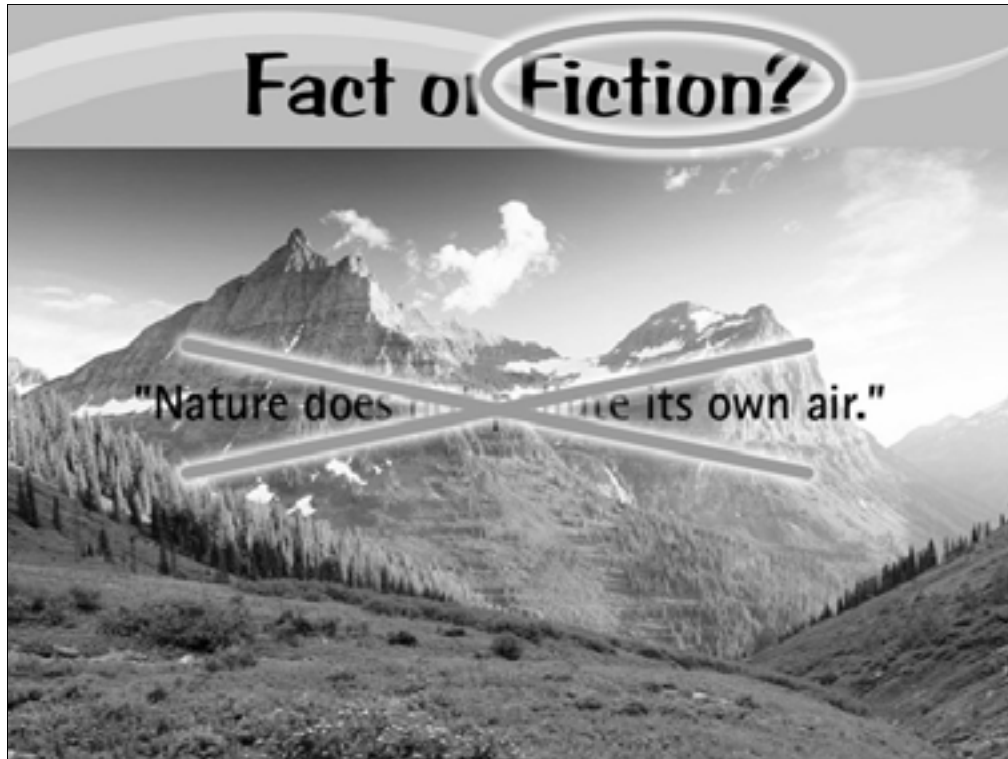


- Air pollution comes from a number of different sources.
- Vehicles, power plants, and chemical plants are some of the biggest pollution sources.

Fact or Fiction?



- Here's another statement - fact or fiction?
- *[Elicit the "fact" and "fiction" responses from the audience.]*



- Fiction.
- There are several natural sources of air pollution, including forest fires and volcanoes.

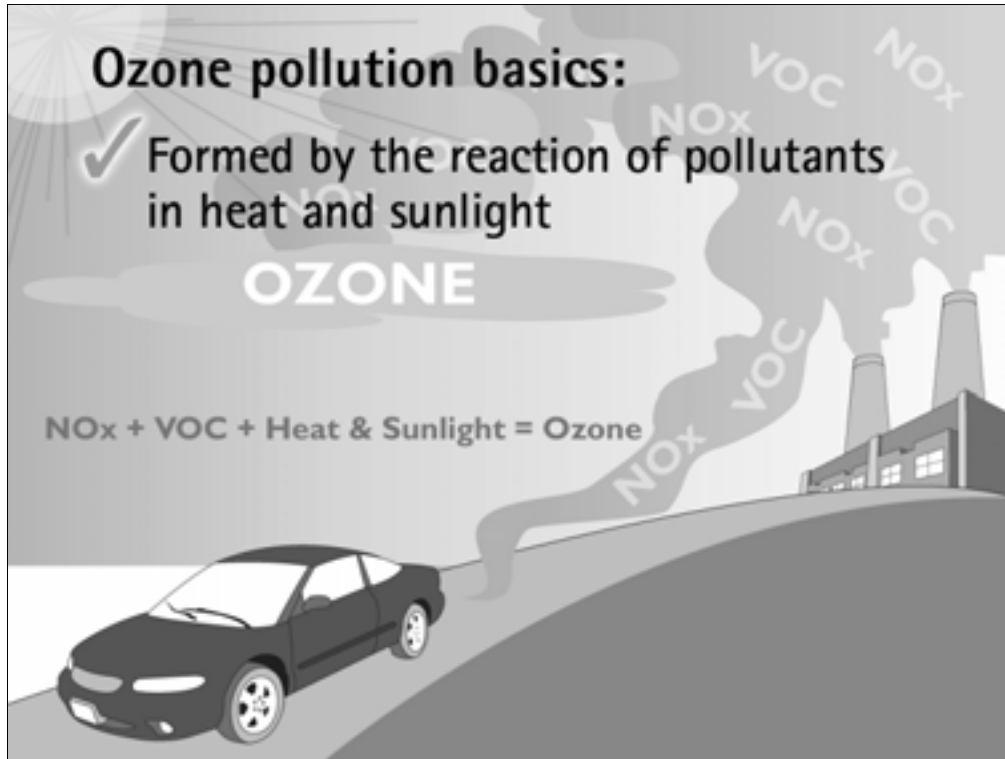
Ozone Pollution

Particle Pollution

The screenshot shows the EPA's AIRNOW website. At the top, there are two main navigation tabs: "Ozone Pollution" and "Particle Pollution". Below these is the AIRNOW logo and the slogan "Quality of Air Means Quality of Life". The website is organized into several sections:

- Left Sidebar:** Contains links for "About AIRNOW", "Air Quality Basics", "Air Quality Index", "Ozone", "Particle Pollution", "The AQI for...", "Health Protection", "Sick", "Partner agencies", "Teachers", "Weathercasters", "New Topics", "Your Health", "Smoke from Fires", "Resources", "Publications", "FAQ", "What You Can Do", "About the Data", and "Contact Us".
- Top Navigation:** Includes "Home", "National Forecast", "Local Forecasts & Conditions", and "Partners".
- Main Content Area:**
 - National Overview:** Features a "National Air Quality Outlook" map of the United States with a color-coded AQI scale. Text indicates "High pressure will cause stagnant conditions from the Inter-Mountain West to the California coast, leading to moderate to unhealthy for sensitive groups AQI levels across the region, with the highest levels occurring in city and valley locations." It also includes a "Today's Forecast" section with links for "Particles Now", "Ozone Now", "Cities With Action Days", "Archives", and "International Air Quality".
 - Local Forecast & Conditions:** Provides "Local forecasts and current air quality conditions, animations, visibility web cams and state, tribal and local Web sites." It includes a "Web cam" section showing "Current visibility at Acadia National Park, Maine".
 - Bottom Section:** Contains "New Particle Pollution Maps" for North Dakota, South Dakota, and Portland, OR; a news item about a "Norfolk Southern Graniteville Derailment" involving a chlorine gas release; and a "What You Can Do" section titled "Winter Wood Burning" with an image of a wood stove.

- I'm going to talk about two types of pollutants today: ozone pollution and particle pollution.
- The Air Quality Index, or AQI, provides daily, color-coded maps and health information about these pollutants.
- The AQI can be found on EPA's AIRNow website, which looks like this.
- The AQI can also often be found in newspapers in the weather section, and also on TV and radio news reports.



- Ozone pollution is formed when pollutants called nitrogen oxides and volatile organic compounds, or VOCs, react in the presence of heat and sunlight.
- Vehicle exhaust, industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of NO_x and VOCs

Fact or Fiction?

"Sometimes ozone in the air is a good thing."

- Here's another fact or fiction statement for you.
- *[Elicit the "fact" and "fiction" responses from the audience.]*



- Fact. Ozone in the air we breathe here at ground level is bad.
- But very high up in the atmosphere, there's a natural layer of ozone that protects us from getting too much of the sun's harmful ultraviolet radiation.

Ozone pollution basics:

- ✓ Occurs in warmer months
- ✓ Found in urban and rural areas
- ✓ Can cause health effects
- ✓ A key ingredient of smog

- Because heat and sunlight are needed to form ground-level ozone, ozone levels are a concern in warmer months.
- This is another way in which weather influences air pollution.
- In fact, the length of the ozone season varies depending on the weather. Southern and southwestern states may have an ozone season that lasts nearly the entire year. For more northern states, the ozone season generally is limited to summertime.
- Wind can transport ozone hundreds of miles from where it formed, so it can be found in both urban and rural environments.

Ozone can cause:

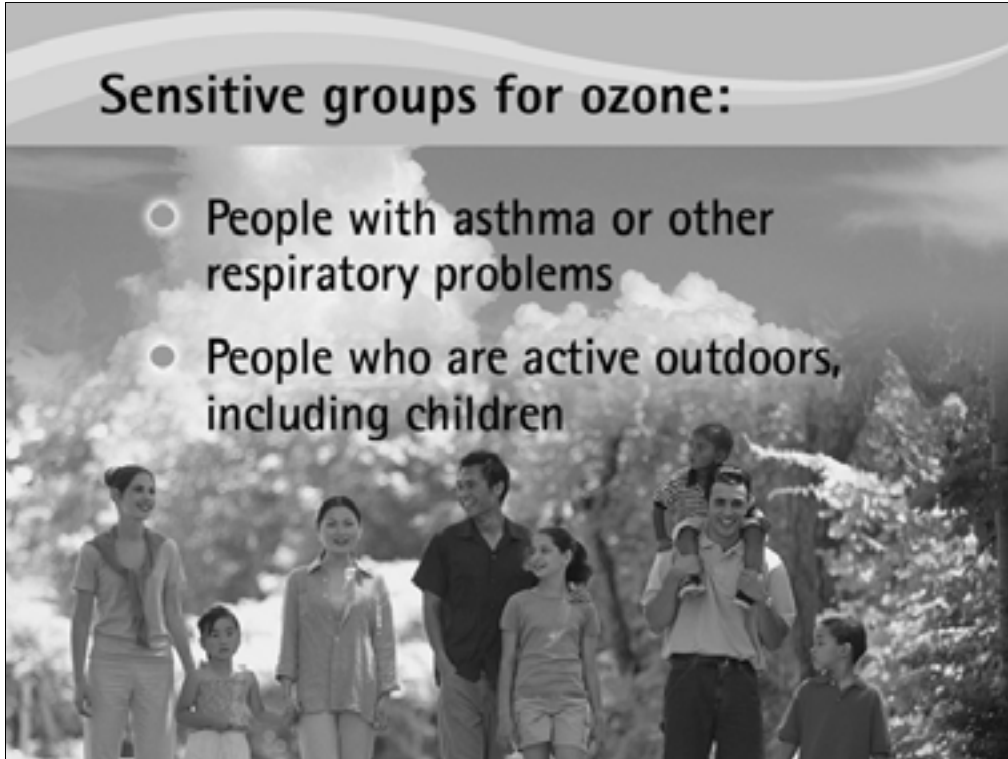
- Coughing
- Pain when taking a deep breath
- Breathing difficulties during outdoor activities
- Aggravated asthma
- Increased susceptibility
- Permanent lung damage



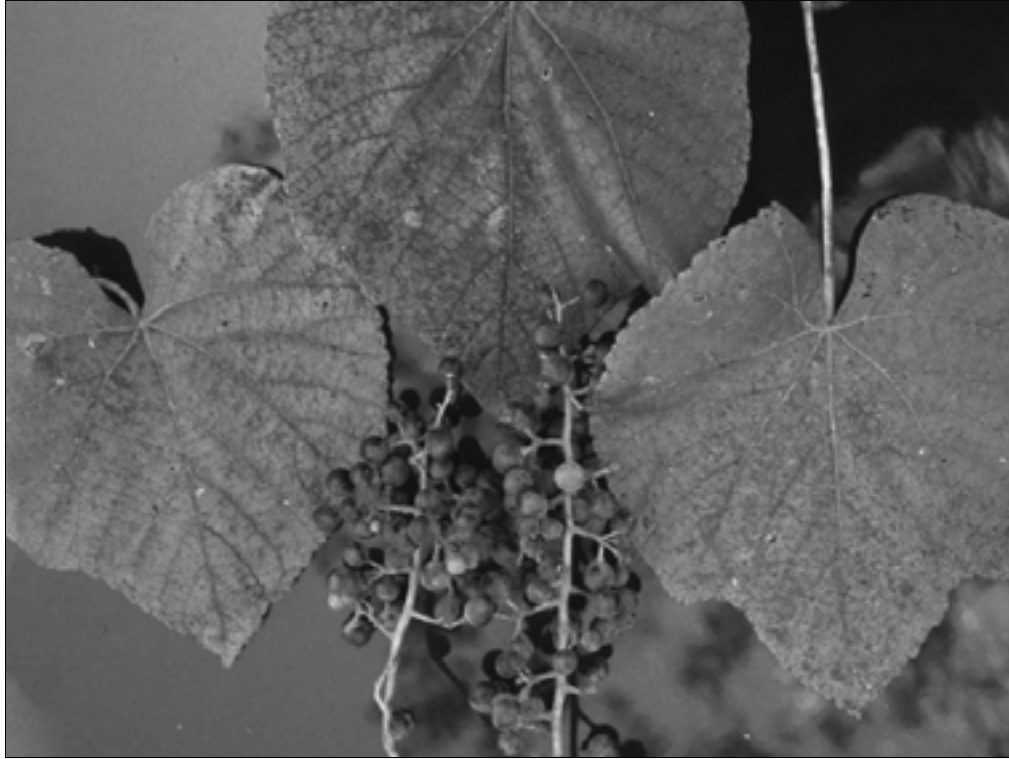
- Ozone can trigger a variety of health problems, including aggravated asthma and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.
- Symptoms to watch for when ozone is at unhealthy levels in the air include: coughing, pain when taking a deep breath, and breathing difficulties, especially when you are active or exercising outdoors.
- But health damage from ozone can also occur without any noticeable signs. Repeated exposures to ozone can change the structure of the lungs, leading to premature aging of the lungs.

Sensitive groups for ozone:

- People with asthma or other respiratory problems
- People who are active outdoors, including children



- Some people are more sensitive to ozone than others.
- Scientists estimate that about one in three people in the United States is at higher risk for experiencing ozone-related health effects.



- Ground-level ozone also is not good for the environment. It damages plants and trees and reduces crop and forest yields.
- So, ozone pollution often is not good for people and not good for our environment.

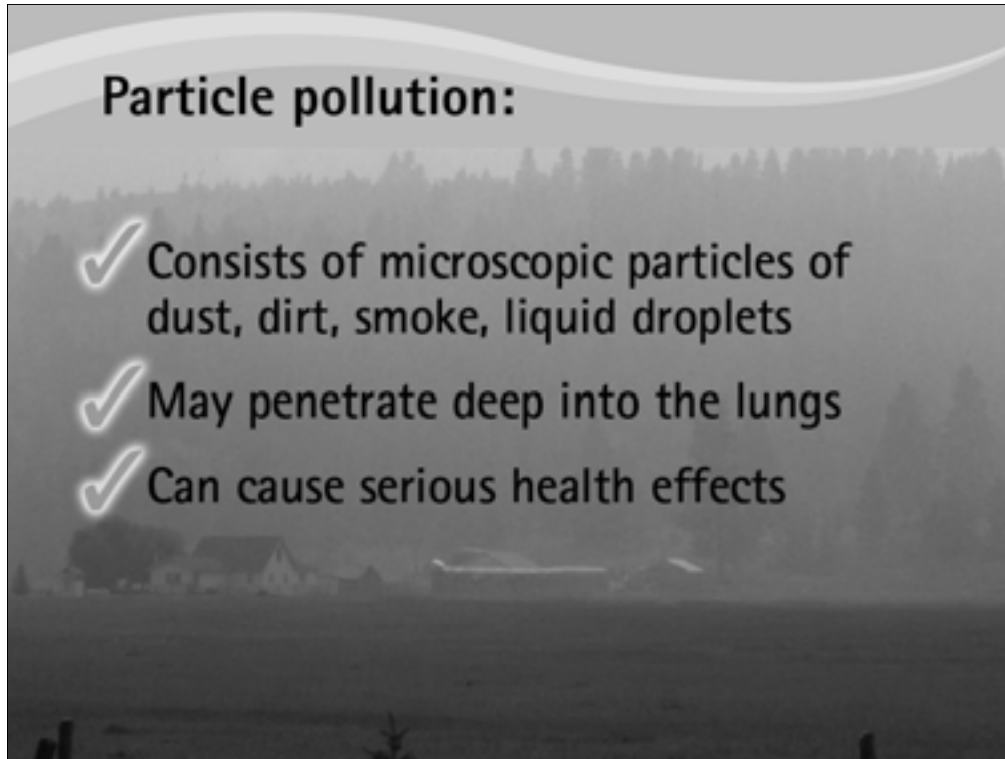
Basic facts about particle pollution:

- ✓ Caused by human and natural sources
- ✓ May be bad near busy roads and factories
- ✓ May occur at any time of year
- ✓ May be especially bad in winter
- ✓ May be elevated outdoors and indoors

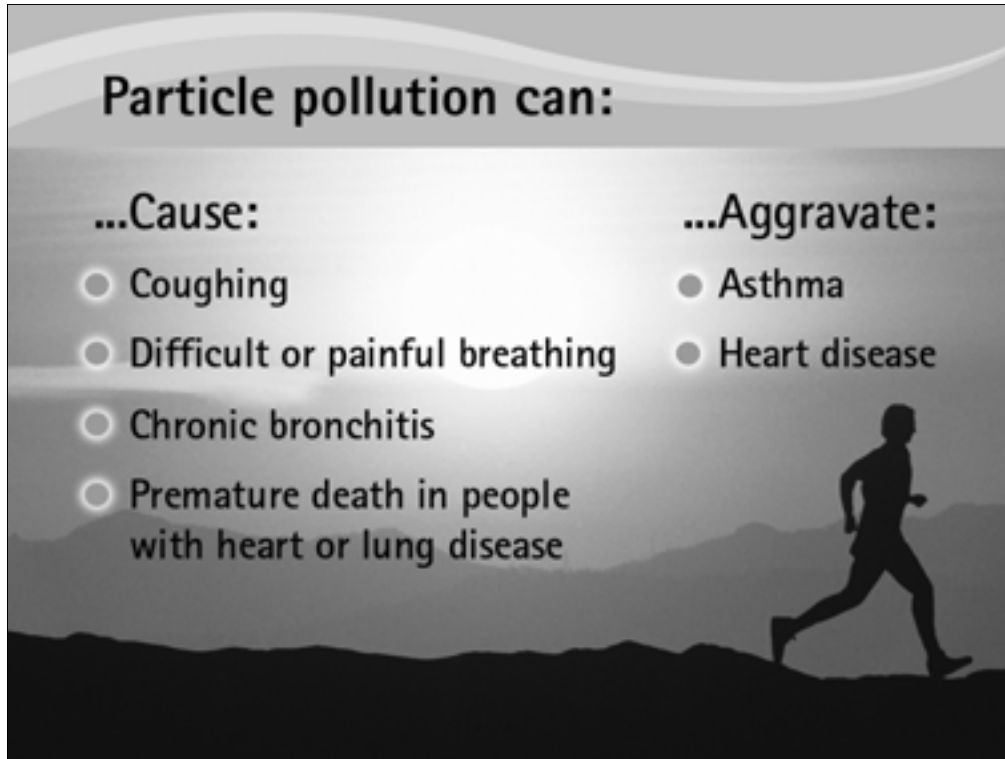
- Another key air pollutant that can affect people's health is called particle pollution.
- Particle pollution is caused by many human activities and by some natural sources.
- It's formed directly from sources such as vehicles, factories, power plants, and smoke from forest fires.
- Particle pollution can be higher near busy roads and factories.
- Particle pollution is also formed indirectly by weather-related conditions or events.
- Particle pollution can occur at any time of year, but it can be especially bad during winter, when the weather is calm, allowing particle pollution to build up.
- This phenomenon is called a temperature inversion.



- In a temperature inversion, cold air is trapped under warmer air above it.
- This is a reverse of normal conditions, in which temperature decreases as you go higher in the atmosphere.
- During an inversion, air pollution is also trapped under the warmer air.
- The photo on the left shows an inversion over the city of Boston.
- The photo on the right shows an inversion in a rural area.
- When particle pollution levels are high outside, as in these pictures, they are often high indoors as well.



- Particle pollution consists of tiny, microscopic particles of dust, dirt, smoke, and liquid droplets containing any number of chemicals.
- This photo shows particle pollution from Montana forest fires in the year 2000 in the Bitterroot Valley. This was actually a day of light smoke during the fires.
- The smaller particles are the greatest health concern because they can penetrate deep into your lungs and may even get into your bloodstream.



- You can see that particle pollution causes quite a range of health effects, from coughing and chronic bronchitis to aggravated asthma and heart disease, and even premature death in people with heart or lung disease.
- Many studies link particle pollution levels with increased hospital admissions and emergency room visits.

Sensitive groups for particle pollution:

- People with heart or lung diseases
- Older adults
- Children



- As with ozone pollution, some people are considered to be at greater risk from particles than others.
- People with heart or lung disease are at risk because particle pollution can aggravate these diseases.
- Many studies show that when particle levels are high, older adults are more likely to be hospitalized, and some may die of aggravated heart or lung disease.
- Children are at risk because their lungs are still developing, they breathe more air per pound of body weight, and they are usually very active.



- Particles also affect the environment. They are a big part of haze, which reduces visibility.
- You may have noticed haze when visiting national parks. We often don't get the views we expect at our treasured natural areas due to haze.
- The left side of this slide shows the Great Smoky Mountains National Park on a hazy day; the right slide shows the same area on a clear day.
- Particles also make rain and other forms of precipitation more acidic, which harms the environment in a number of ways.
- So, as with ozone pollution, high levels of particle pollution often are not good for people and not good for our environment.

Fact or Fiction?

"You can always tell when the air is polluted how it looks."

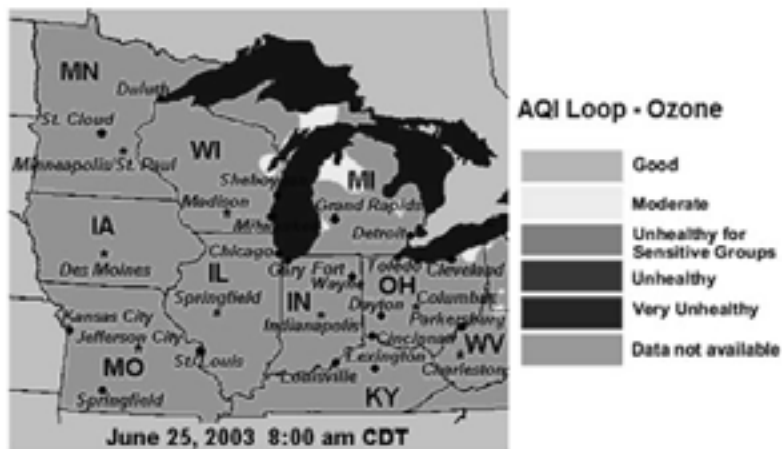


- Here's another fact or fiction statement for you.
- *[Elicit the "fact" and "fiction" responses from the audience.]*



- Fiction. Polluted air often does look dirty. But sometimes air that looks clean may be polluted.
- On EPA's AIRNow Web site, you can check whether the air is polluted and can get air quality forecasts for your area.

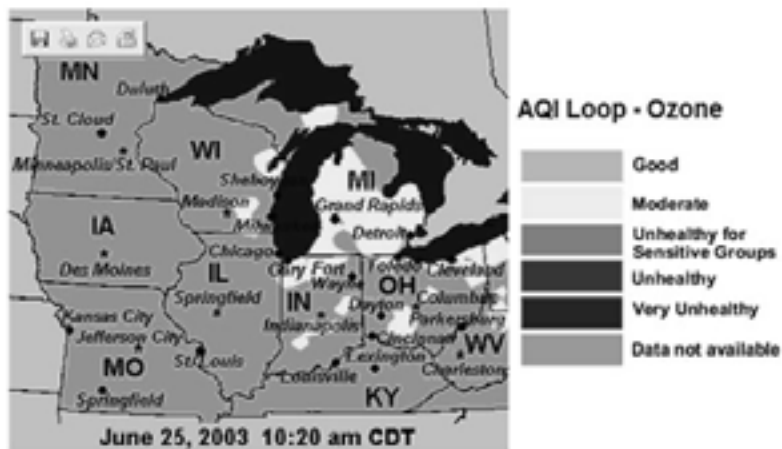
Midwest Ozone Maps for June 25, 2003



www.airnow.gov

- Here is an example of the type of maps and health messages you can get from the Air Quality Index on the AirNow Web site.
- Let's take a look at one of these maps and see what it tells us about ozone levels.
- This map shows the air quality in the Midwest at at 8:00 a.m. on June 25, 2003.
- The color scale to the right of the map is the Air Quality Index, or AQI, which is an index for reporting daily air quality.
- It tells us how clean or polluted the air is and whether there are any health concerns.
- What is this map telling us about the air quality in the Midwest on this day at 8:00 a.m.? [Wait for response.]
- The map is mostly green, so it's telling us that the air quality is mostly "good" all over this area of the Midwest.
- Let's go forward in time on that same day and see whether the air quality changed.

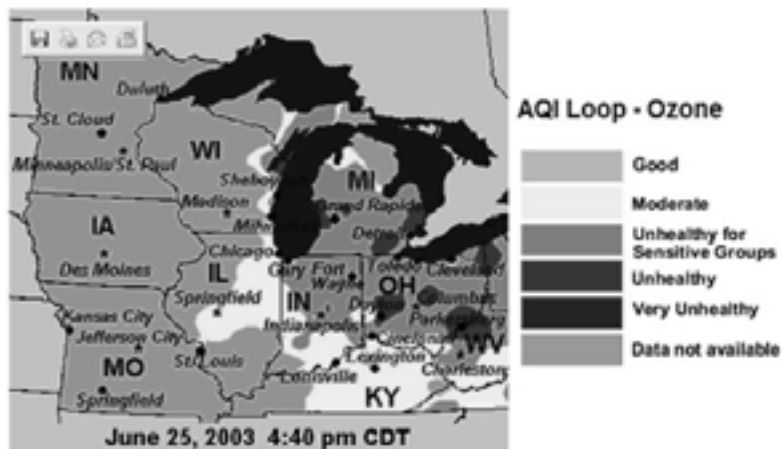
Midwest Ozone Maps for June 25, 2003



www.airnow.gov

- On this map, it's now 10:20 a.m. on the same day in the Midwest. What's happening to the air quality in this area? *[Point to yellow area] [Wait for a response]*
- It's getting worse. The color is yellow, so the AQI is telling us that the air quality is "moderate," which means just a little polluted—a level that only unusually sensitive people need to be concerned about.
- Let's look at the air quality a few hours later.

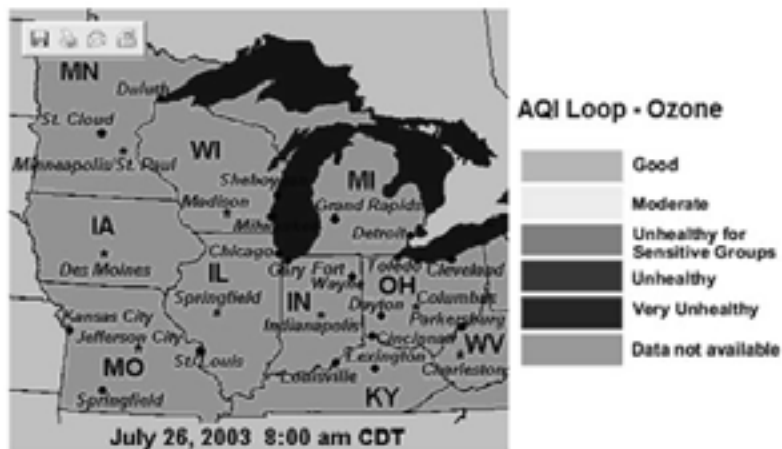
Midwest Ozone Maps for June 25, 2003



www.airnow.gov

- Now it's 4:40 p.m. on the same day. What is the air quality in these parts of the Midwest? *[Point to an orange area, then a red area.] [Wait for responses]*
- For orange, it's "unhealthy for sensitive groups" which, for ozone, are people with lung disease, and active adults and children. For red, it's "unhealthy" - everyone should limit prolonged or heavy outdoor exertion.
- Now let's look at the map the next morning.

Midwest Ozone Maps for July 26, 2003



www.airnow.gov

- The map is green again, showing us that the air quality is much better.
- Let's review what we saw about ozone levels on the Midwest maps: The air quality was good in the morning, it got worse in the afternoon and evening, and then it got better during the night.
- This is very typical for ozone pollution. Ozone is worse in warmer temperatures and often worse in the afternoon and early evening.
- This is because ozone needs warmth and sunlight to form.
- Also, increased traffic during the late afternoons and evenings can contribute to more ozone formation.



- If you have access to the Internet, you can visit the AIRNow website whenever you want to check the air quality and get air quality forecasts for your area, just like checking the weather.
- Or check your newspaper or listen to your local TV or radio station, which may include the AQI in their weather report.
- The AIRNow site also gives you specific health messages about how to protect your health when the air is polluted at the different AQI levels.
- *[Add local station information here, if applicable]*



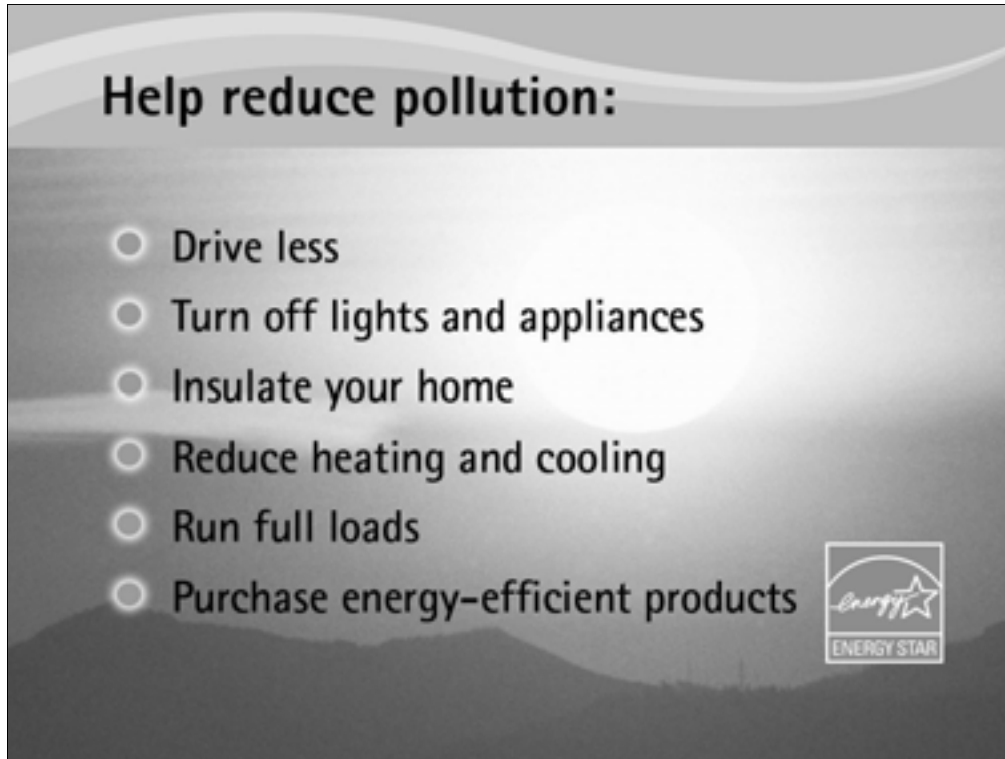
- If you find out that the air is polluted, here are some things you can do to protect your health.
- Exercise is important to staying healthy, so it's important not to use air pollution as an excuse to avoid exercise!
- But when the air is polluted, it's a good idea to take it easier when you're active outside.
- That might mean, for example, walking instead of jogging, or exercising for half your normal time.
- That's because when we're taking it easier, we don't breathe in as much polluted air.



- Here's another thing you can do.
- You can reduce your exposure to polluted air by changing when or where you exercise.
- For example, when ozone is at unhealthy levels in the air, you can plan outdoor activities when ozone levels are lower, usually in the morning or evening.
- When particle pollution is in the air, you can plan outdoor activities when particle levels are lower. This can vary from place to place, so check AIRNow.
- To reduce your exposure to particle pollution, try to exercise away from busy roadways.



- Here's a fourth thing: Pay attention to your body.
- If the air is polluted and you notice any symptoms like unusual coughing, pain when you take a deep breath, chest tightness, or wheezing, stop your activity and instead choose a less strenuous activity.
- This is especially important if you are a member of a sensitive group—for example, if you have asthma or lung disease.
- If you have lung disease and notice these symptoms when the air is polluted, check with your doctor about what to do.
- If you have heart disease, check with your doctor before engaging in vigorous outdoor activities when particle pollution levels are high.
- If you have heart disease and notice symptoms, follow your doctor's advice.



- In addition to protecting yourself from pollution, you can also take steps to help prevent pollution.
- These steps include:
 - < When possible, reduce how much you drive by walking, biking, carpooling, or taking public transportation.
 - < Turn off lights and other appliances when you don't need them.
 - < Cut back on heating and cooling when you can.
 - < Insulate your home and run full loads in your appliances (washing machine, dishwasher, etc.) so you're only using the energy you really need.
 - < And, when purchasing a product that uses energy, whether a vehicle or an appliance, look for one that uses energy efficiently. For instance, look for the EnergySTAR label.



- Thank you. I hope you found this information useful.
- Here is a handout with more information about the AQI, and about air quality and your health.
- *[Pass out handout]*

Short version:
Civic Groups presentation

Short Version: Civic Groups Presentation

This presentation is an abbreviated version of the longer presentation for Civic Groups provided earlier in this toolkit. A longer and more detailed presentation than those for school-aged children is appropriate for civic/adult groups; however if time is limited, you can use this shorter version. The long version contains 33 slides; this short version includes 15 slides. The *Key Messages*, *Handout*, and *Optional Activity* provided for Civic Groups are relevant for both the short and long versions.

Notes Pages: Civic Groups

Short version



- I'd like to talk about air pollution and your health, and how weather can affect air pollution. Breathing polluted air is unhealthy, but you can't always tell the air is polluted by how it looks, like you can in these pictures.
- Air pollution can have a number of health effects, some of which can be quite serious.

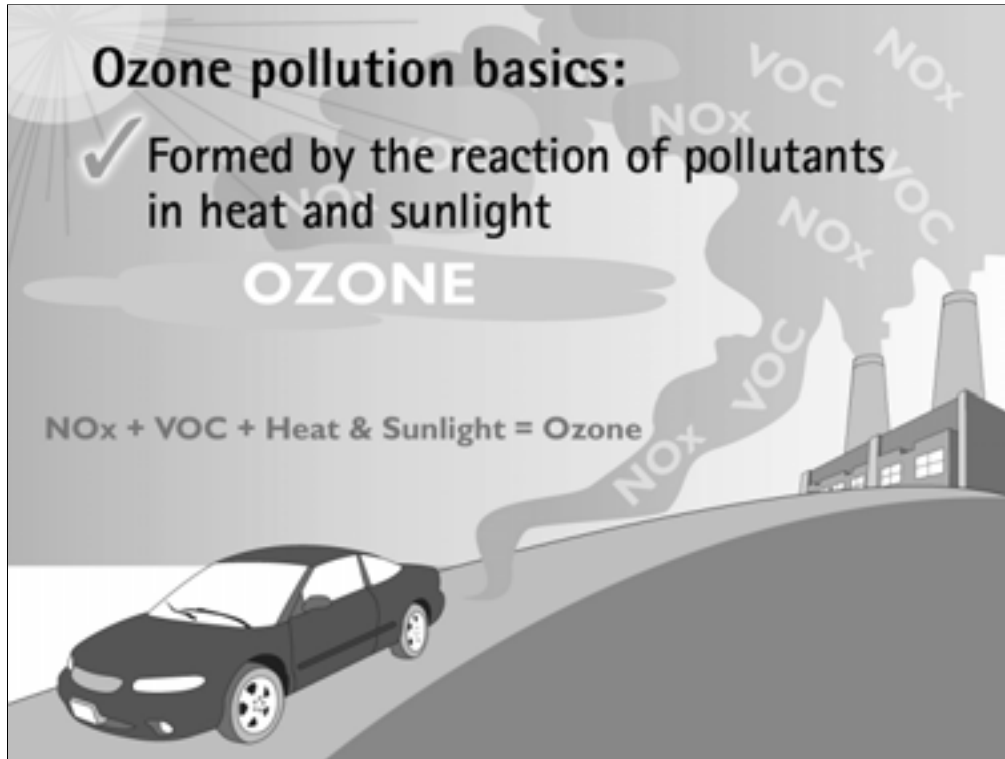


- The Air Quality Index, or AQI, can help you find out when pollution levels are high and could contribute to health problems. The AQI also provides related health messages.
- The AQI uses color-coding to represent air quality ranging from good (green) to purple (very unhealthy).
- You can find the AQI on the Internet at EPA's AIRNow website at: www.airnow.gov. Also, many local newspapers and TV and radio stations include the AQI as part of the weather report.

Air pollution sources include:



- Air pollution comes from a number of different sources.
- Vehicles, power plants, and chemical plants are some of the biggest pollution sources. Some things in nature, like forest fires or volcanoes, also can cause air pollution.



- I'm going to talk about two types of air pollutants today: ozone pollution and particle pollution.
- Ozone pollution is formed when pollutants called nitrogen oxides and volatile organic compounds, or VOCs, react in the presence of heat and sunlight. This is one way that weather affects air pollution.
- Vehicle exhaust, industrial emissions, gasoline vapors, and chemical solvents are some of the major sources of NOx and VOCs.
- Weather can also affect air pollution in other ways. For example, the wind can move air pollution around, blowing it away from its source, into areas hundreds of miles away, where it can have a significant impact on air pollution levels.



- Ozone in the air we breathe here at ground level is bad.
- But very high up in the atmosphere, there's a natural layer of ozone that protects us from getting too much of the sun's harmful ultraviolet radiation.

Ozone pollution basics:

- ✓ Occurs in warmer months
- ✓ Found in urban and rural areas
- ✓ Can cause health effects
- ✓ A key ingredient of smog

- Because heat and sunlight are needed to form ground-level ozone, ozone levels are a concern in warmer months.
- This is another way in which weather influences air pollution.
- In fact, the length of the ozone season varies depending on the weather. Southern and southwestern states may have an ozone season that lasts nearly the entire year. For more northern states, the ozone season generally is limited to summertime.

Ozone can cause:

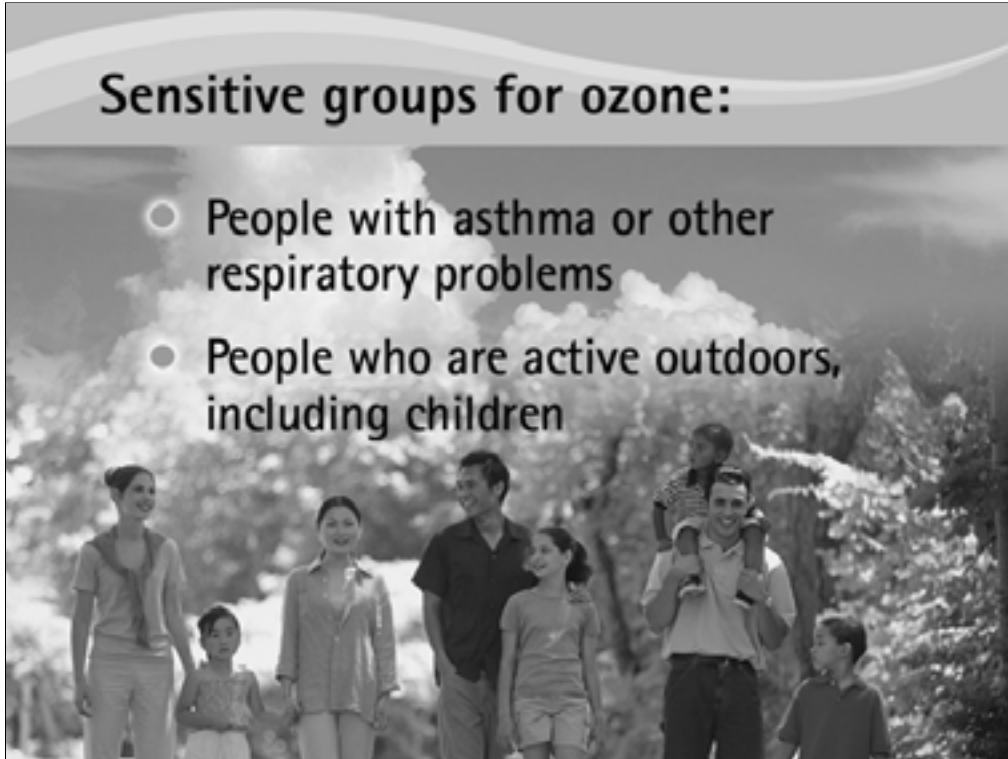
- Coughing
- Pain when taking a deep breath
- Breathing difficulties during outdoor activities
- Aggravated asthma
- Increased susceptibility
- Permanent lung damage



- Ozone can trigger a variety of health problems, including aggravated asthma and increased susceptibility to respiratory illnesses like pneumonia and bronchitis.
- Symptoms to watch for when ozone is at unhealthy levels in the air include: coughing, pain when taking a deep breath, and breathing difficulties, especially when you are active or exercising outdoors.
- But health damage from ozone can also occur without any noticeable signs. Repeated exposures to ozone can change the structure of the lungs, leading to premature aging of the lungs.

Sensitive groups for ozone:

- People with asthma or other respiratory problems
- People who are active outdoors, including children

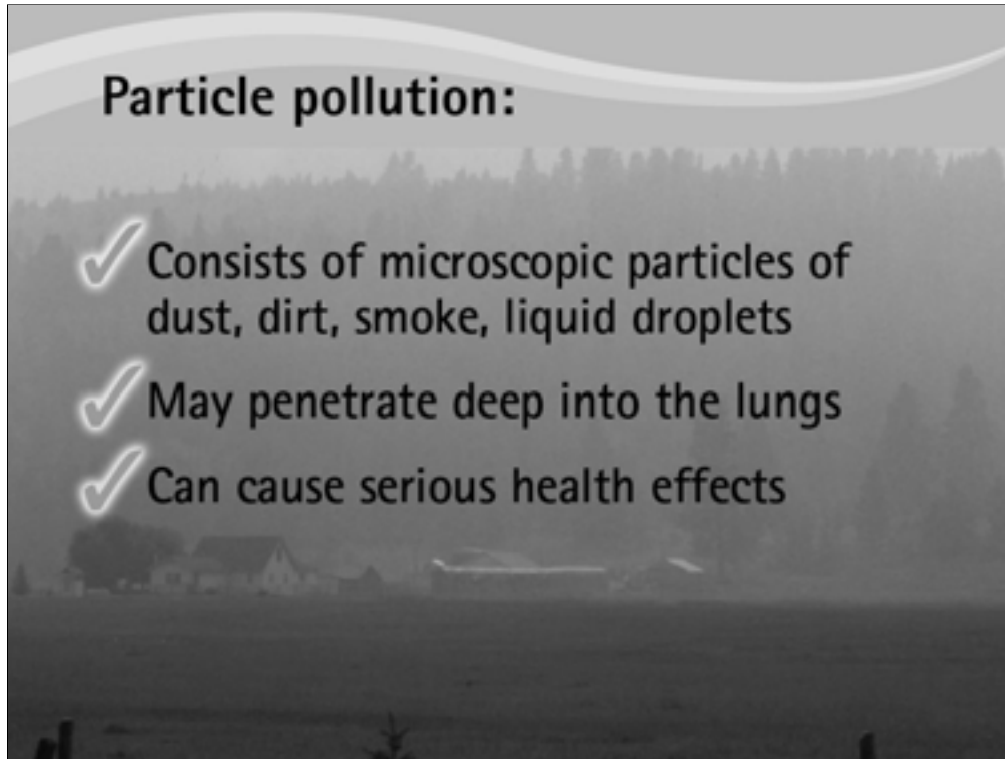


- Some people are more sensitive to ozone than others.
- Scientists estimate that about one in three people in the United States is at higher risk for experiencing ozone-related health effects.

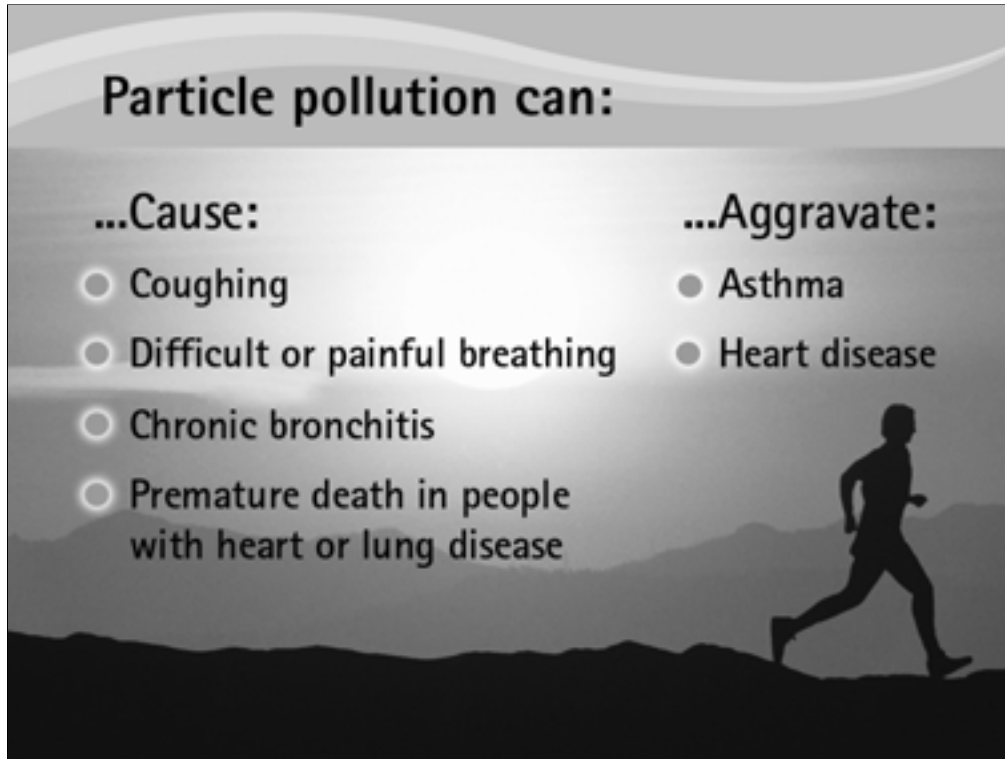
Basic facts about particle pollution:

- ✓ Caused by human and natural sources
- ✓ May be bad near busy roads and factories
- ✓ May occur at any time of year
- ✓ May be especially bad in winter
- ✓ May be elevated outdoors and indoors

- Another key air pollutant that can affect people's health is called particle pollution.
- Particle pollution is formed directly from sources such as vehicles, factories, power plants, and smoke from forest fires.
- Particle pollution can be higher near busy roads and factories.
- Particle pollution is also formed indirectly, for example, by weather-related conditions or events. Particle pollution can occur at any time of year, but it can be especially bad during winter, when the weather is calm, allowing particle pollution to build up often due to high pressure systems and stagnant conditions. In a high pressure system, the air is stagnant, which keeps pollutants where they are.
- Also during thunderstorms, the fast-moving air disperses particle pollution, and the rain cleanses the air.



- Particle pollution consists of tiny, microscopic particles of dust, dirt, smoke, and liquid droplets containing any number of chemicals.
- This photo shows particle pollution from Montana forest fires in the year 2000 in the Bitterroot Valley. This was actually a day of light smoke during the fires.
- The smaller particles are the greatest health concern because they can penetrate deep into your lungs and may even get into your bloodstream.



- You can see that particle pollution causes quite a range of health effects, from coughing and chronic bronchitis to aggravated asthma and heart disease, and even premature death in people with heart or lung disease.
- Many studies link particle pollution levels with increased hospital admissions and emergency room visits.

Sensitive groups for particle pollution:

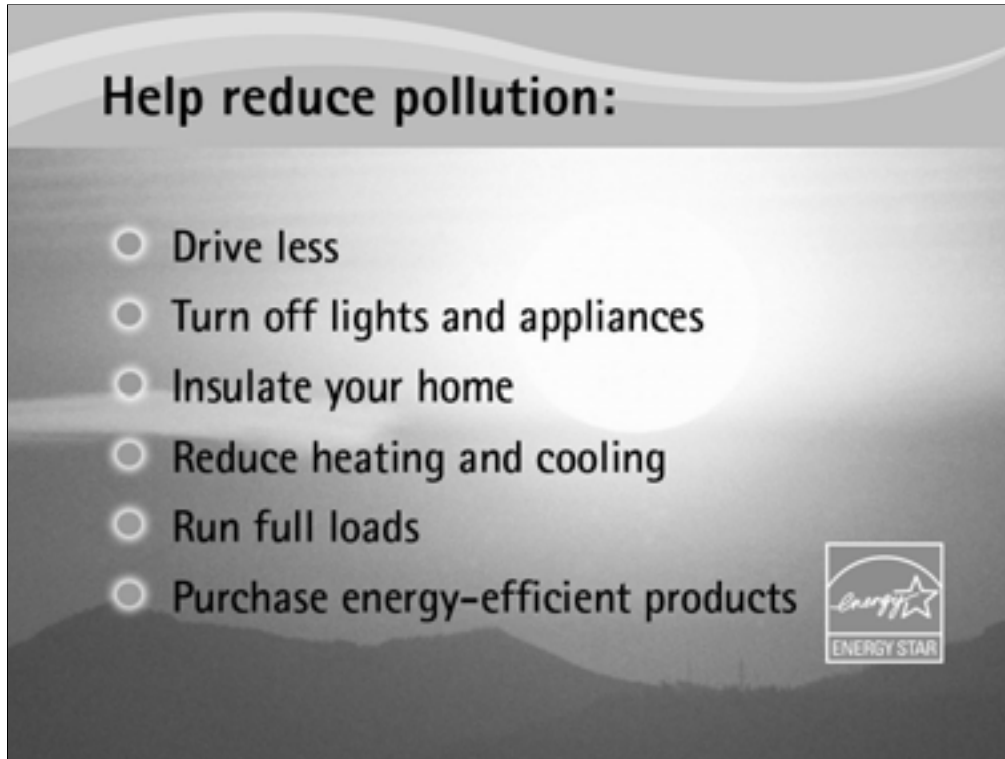
- People with heart or lung diseases
- Older adults
- Children



- As with ground-level ozone, some people are considered to be at greater risk from particles than others.
- People with heart or lung disease are at risk because particle pollution can aggravate these diseases.
- Many studies show that when particle levels are high, older adults are more likely to be hospitalized, and some may die of aggravated heart or lung disease.
- Children are at risk because their lungs are still developing, they breathe more air per pound of body weight, and they are usually very active.



- Visit the AIRNow website to check the air quality and get air quality forecasts for your area, just like checking the weather. Or check your newspaper or listen to your local TV or radio weather report, which may include the AQI. *[Add local station information here, if applicable.]*
- Exercise is important to staying healthy, so it's important not to use air pollution as an excuse to avoid exercise! But when the air is polluted, it's a good idea to take it easier when you're active outside. That might mean, for example, walking instead of jogging, or exercising for half your normal time.
- You can reduce your exposure to polluted air by changing when or where you exercise. For example, when ozone is at unhealthy levels in the air, plan outdoor activities for times when ozone levels are lower, usually in the morning or evening.
- When particle pollution is at high levels in the air, plan outdoor activities for times when particle levels are lower. This can vary from place to place, so check the Air Quality Index. To reduce your exposure to particle pollution, try to exercise away from busy roadways.
- Pay attention to your body. If the air is polluted and you notice symptoms like coughing, pain when you take a deep breath, chest tightness, or wheezing, stop what you're doing and find another, less intense activity. This is especially important if you are a member of a sensitive group—for example, if you have asthma or lung disease.
- If you have lung disease and notice these symptoms when the air is polluted, check with your doctor about what to do.
- If you have heart disease, check with your doctor before engaging in vigorous outdoor activities when particle pollution levels are high. If you have heart disease and notice symptoms, follow your doctor's advice.



- In addition to protecting yourself from pollution, you can also take steps to help prevent pollution.
- These steps include:
 - < When possible, reduce how much you drive by walking, biking, carpooling, or taking public transportation.
 - < Turn off lights and other appliances when you don't need them.
 - < Cut back on heating and cooling when you can.
 - < Insulate your home and run full loads in your appliances (washing machine, dishwasher, etc.) so you're only using the energy you really need.
 - < And, when purchasing a product that uses energy, whether a vehicle or an appliance, look for one that uses energy efficiently. For instance, look for the EnergySTAR label.

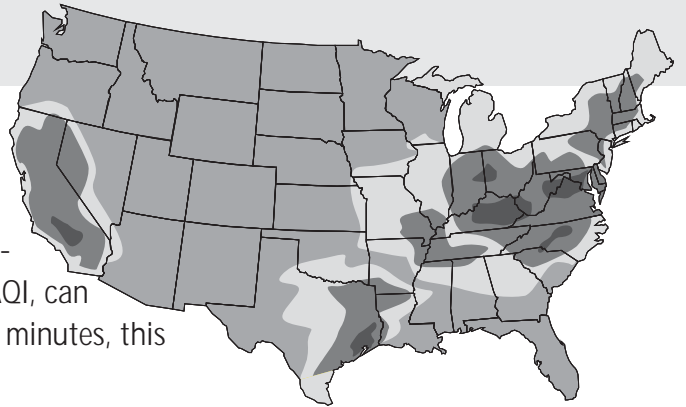


- Thank you. I hope you found this information useful.
- Here is a handout with more information about the AQI, and about air quality and your health.
- *[Pass out handout]*

Handout for Civic Groups/Adults

The AQI: Your Forecast to Breathe By

You probably check your local weather forecast every day, but there's another forecast out there you should be checking, too. This forecast, known as the Air Quality Index, or AQI, can help you plan your activities to protect your health. In just minutes, this important tool lets you know:



- What today's and tomorrow's air pollution levels are forecast to be in your community.
- Who's at risk from air pollution.
- Simple steps you can take to protect your health.

How can air pollution affect my health?

- About 160 million Americans—over half the U.S. population—are exposed to unhealthy levels of ground-level ozone or particle pollution every year.
- Breathing ground-level ozone and particle pollution can cause serious health effects. Ozone pollution can cause respiratory symptoms and premature aging of the lungs. Particle pollution can cause bronchitis, heart problems, and even premature death due to heart or lung disease. Both ozone and particle pollution can aggravate asthma.
- Some people are at greater risk from breathing ozone pollution or particle pollution. Sensitive groups for ozone pollution include active children and adults, and people with lung disease. Sensitive groups for particle pollution include people with heart or lung disease, older adults, and children.

What can I do to protect my health?

- You can reduce your exposure to air pollution by using AQI forecasts to plan your day. When the AQI predicts unhealthy air pollution levels, take it easier. By doing so, you will take less polluted air into your lungs. Choose a less vigorous activity (walk instead of jog, for example) or spend less time doing it. Or, reschedule your activities for times when air quality is expected to be better.



Where can I find air quality information for my community?

- You can find daily air quality information and forecasts for ozone and particle pollution on the Internet at the AIRNow web site (www.airnow.gov). This site also provides links to state and local air pollution agency web sites and air quality e-alerts.
- In many communities, you can also get air quality information on the television and radio, in your local newspaper, and on state and local telephone hotlines.

How does the Air Quality Index (AQI) work?

The AQI is a simple, color-coded scale that tells you how clean or polluted your air is and how you can protect your health. Air quality forecasts use these color codes to help you quickly identify how polluted the air is.

When the AQI is air quality conditions are:
Green	Good
Yellow	Moderate
Orange	Unhealthy for Sensitive Groups
Red	Unhealthy
Purple	Very Unhealthy

Where can I get more information?

Visit AIRNow (www.airnow.gov) for air quality information and forecasts for more than 300 cities across the U.S., links to state and local air quality web sites, and real-time air quality maps and visibility via webcams.

Visit www.airnow.gov (click on "Publications" on the left side of the web page) for free U.S. EPA publications:

- *Air Quality Index—A Guide to Air Quality and Your Health*
- *Air Quality Guide for Ozone*
- *Air Quality Guide for Particle Pollution*
- *Particle Pollution and Your Health*
- *Ozone and Your Health*
- *Smog—Who Does it Hurt?*
- *Summertime Safety: Keeping Kids Safe from Sun and Smog*

Optional Additional Activity for Civic Groups: *Jeopardy Game*

Jeopardy Game

(followup to slide presentation if time allows)

- Now let's play "Jeopardy" for a couple of minutes to review some of the key points about air quality. Following the typical Jeopardy format, I will give you the "answers." Raise your hand if you have a question that corresponds to that answer. The only rule is that the question has to have something to do with air quality or air pollution.

[Note: Examples of questions are given below. The actual wording of the responses from audience members will vary. If someone gives a wrong response, ask for another response until you have a correct response from an audience member.]

- Here's the first answer: "AIRNow." Who's got a question for it?
- *[Take response(s). Example response: What is the name of EPA's web site that provides daily air quality information and forecasts?]*
- Here's the second answer: "Sensitive groups." Who's got a question for it?
- *[Take response(s). Example responses: What are people with asthma, heart disease, or lung disease; children; and/or older adults called with respect to air pollution? What is the term for people who are more sensitive to air pollution?]*
- Here's the third answer: "Take it easier when you're active outside." Who's got a question for it?
- *[Take response(s). Example response: What is a good thing to do when air pollution levels are elevated?]*
- Here's the fourth answer: "Ozone." Let's see if we can come up with several questions for this one.
- *[Take several responses if possible. Example responses: What pollutant can't be seen in air? What pollutant can harm health even at low levels and even after exposure has ended? What pollutant is formed by the reaction of VOCs and nitrogen oxides in sunlight and heat? What pollutant is worse in warm months?]*
- And the final answer is "Green."
- *[Take response(s). Example response: What AQI color means the air is healthy?]*

Transparencias: Civic Groups

Long version



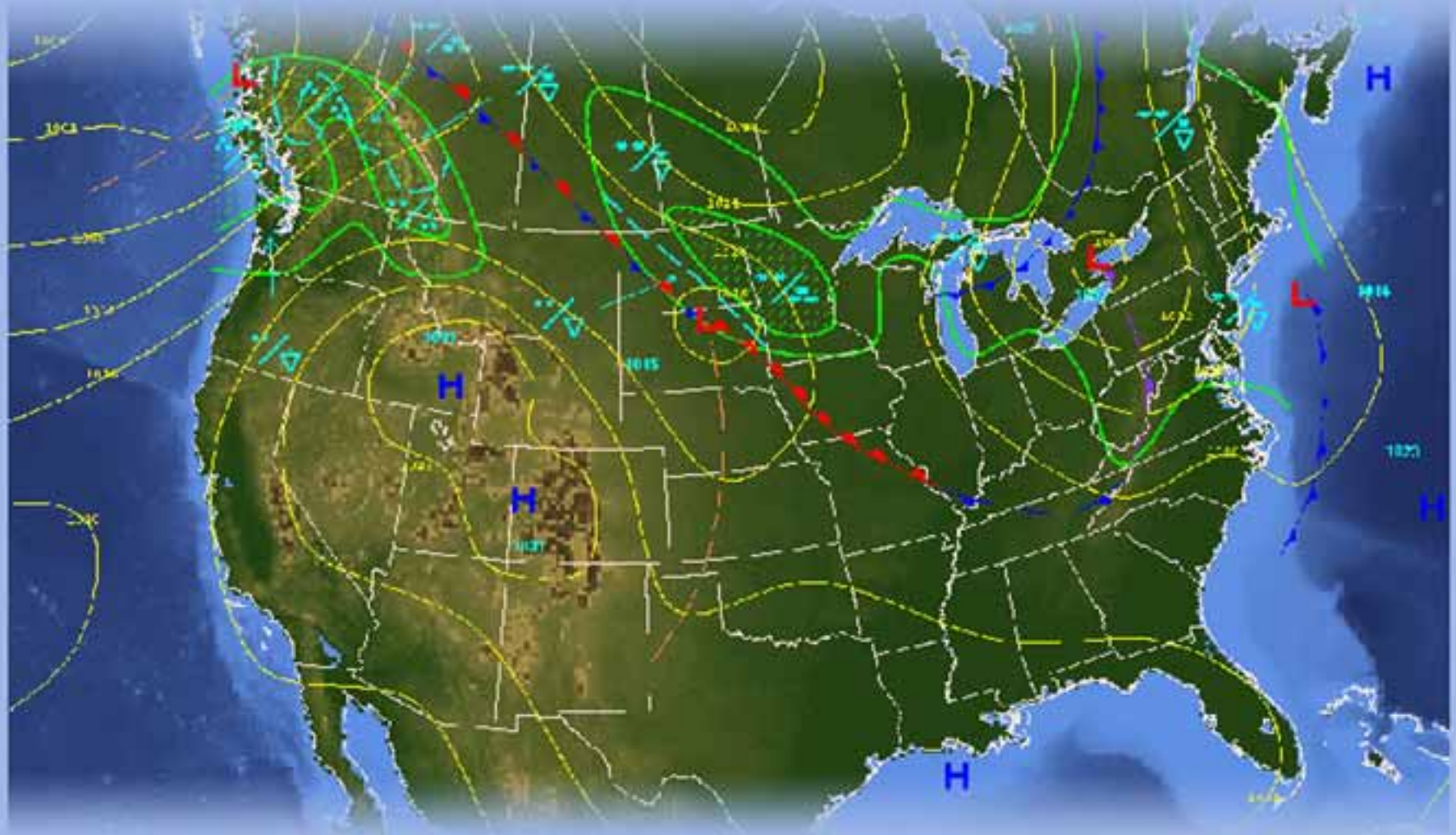
AIR QUALITY INDEX

www.airnow.gov

*Your forecast
to breathe by*

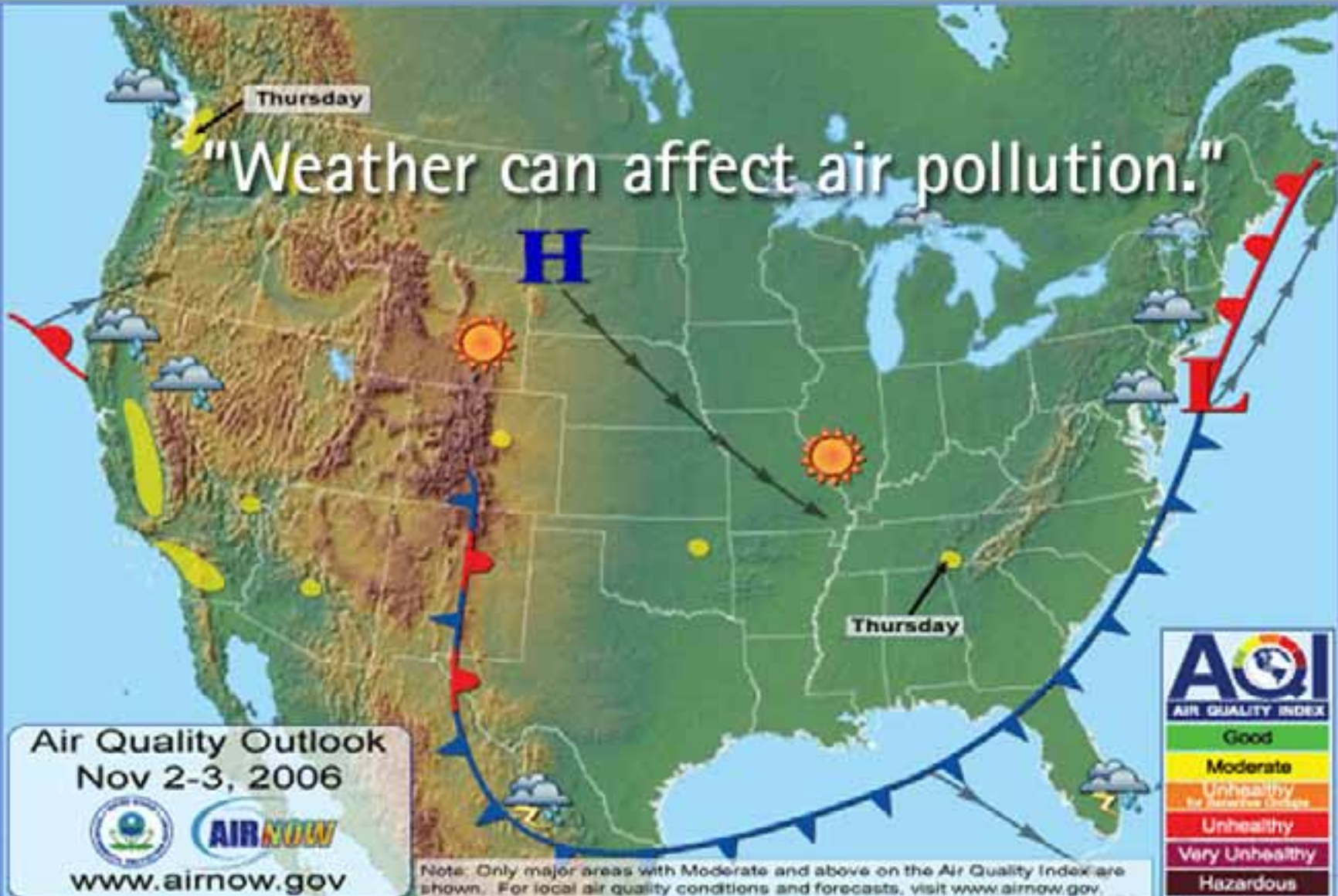


Fact or Fiction?



Fact or Fiction?

"Weather can affect air pollution."



Fact or Fiction?

Thursday

✓ "Weather can affect air pollution."

H

L

Thursday

Air Quality Outlook
Nov 2-3, 2006



AIR NOW

www.airnow.gov

Note: Only major areas with Moderate and above on the Air Quality Index are shown. For local air quality conditions and forecasts, visit www.airnow.gov.



Air pollution sources include:



Fact or Fiction?

"Nature does not pollute its own air."



Fact or Fiction?

~~"Nature does its own air."~~



Ozone Pollution

Particle Pollution

<http://www.airnow.gov>

A cross-agency U.S. Government Web site. See a complete [list of AIRNow partner agencies](#) Search:

GO



Quality of Air Means Quality of Life

[Home](#)

[National Forecast](#)

[Local Forecasts & Conditions](#)

[Partners](#)



About AIRNow

[Air Quality Basics](#)

[Air Quality Index](#)

[Ozone](#)

[Particle Pollution](#)

The AQI for...

[Health Providers](#)

[Kids](#)

[Partner Agencies](#)

[Teachers](#)

[Weathercasters](#)

Key Topics:

[Your Health](#)

[Smoke from Fires](#)

Resources

[Publications](#)

[Publicaciones](#)

[FAQ](#)

[What You Can Do](#)

[About the Data](#)

[Contact Us](#)



Good

Moderate

National Overview

[Today's Forecast](#) | [Ozone Now](#) | [Particles Now](#) | [Outlook](#)

National Air Quality Outlook - click for larger map



Air Quality Outlook
Jan 18-19, 2005

January 19th, 2005

National Outlook:

High pressure will cause stagnant conditions from the Inter-Mountain West to the California coast, leading to Moderate to Unhealthy for Sensitive Groups AQI levels across the region, with the highest levels occurring in city and valley locations.

[Today's Forecast](#)

[Particles Now](#)

[Ozone Now](#)

[Cities With Action Days](#)

[Archives](#)

[International Air Quality](#)

Local Forecast & Conditions:

Local forecasts and current air quality conditions, animations, visibility [web cams](#) and state, tribal and local Web sites.

[Current Ozone and Particle Maps](#)

Web cam



Current visibility at Acadia
National Park, Maine

[EXIT AIRNOW](#)

New Particle Pollution Maps. PM2.5 maps are now available for [North Dakota](#) / [South Dakota](#) and [Portland, OR](#).

Norfolk Southern Graniteville Derailment. A collision of two freight trains in Graniteville, SC January 6, resulted in a release of chlorine gas to the atmosphere. This release has led to a large number of injuries and fatalities, according to news reports. [-- more --](#)

[SC Department of Health and Environmental Control](#)

The 2005 National Air Quality Conference "Quality of Air Means Quality of

What You Can Do

Winter Wood Burning

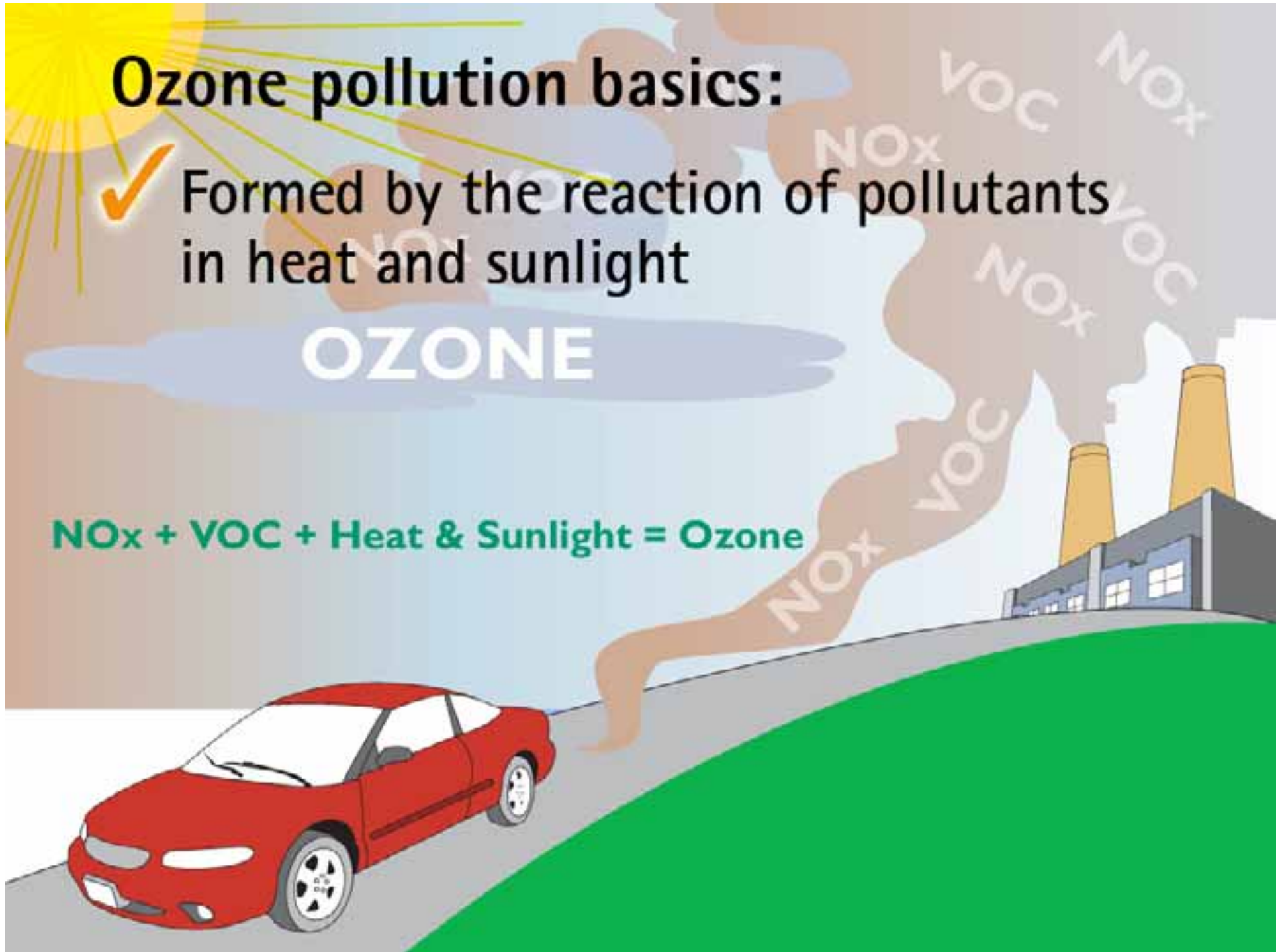


Ozone pollution basics:

- ✓ Formed by the reaction of pollutants in heat and sunlight


OZONE

NO_x + VOC + Heat & Sunlight = Ozone



Fact or Fiction?

"Sometimes ozone in the air is a good thing."



Fact or Fiction?

✓ "Sometimes ozone in the air is a good thing."

Ozone pollution basics:

- ✓ Occurs in warmer months
- ✓ Found in urban and rural areas
- ✓ Can cause health effects
- ✓ A key ingredient of smog

Ozone can cause:

- Coughing
- Pain when taking a deep breath
- Breathing difficulties during outdoor activities
- Aggravated asthma
- Increased susceptibility
- Permanent lung damage



Sensitive groups for ozone:

- People with asthma or other respiratory problems
- People who are active outdoors, including children





Basic facts about particle pollution:

- ✓ Caused by human and natural sources
- ✓ May be bad near busy roads and factories
- ✓ May occur at any time of year
- ✓ May be especially bad in winter
- ✓ May be elevated outdoors and indoors



Particle pollution:

- ✓ Consists of microscopic particles of dust, dirt, smoke, liquid droplets
- ✓ May penetrate deep into the lungs
- ✓ Can cause serious health effects

Particle pollution can:

...Cause:

- Coughing
- Difficult or painful breathing
- Chronic bronchitis
- Premature death in people with heart or lung disease

...Aggravate:

- Asthma
- Heart disease



Sensitive groups for particle pollution:

- People with heart or lung diseases
- Older adults
- Children





Fact or Fiction?

"You can always tell when the air is polluted by how it looks."

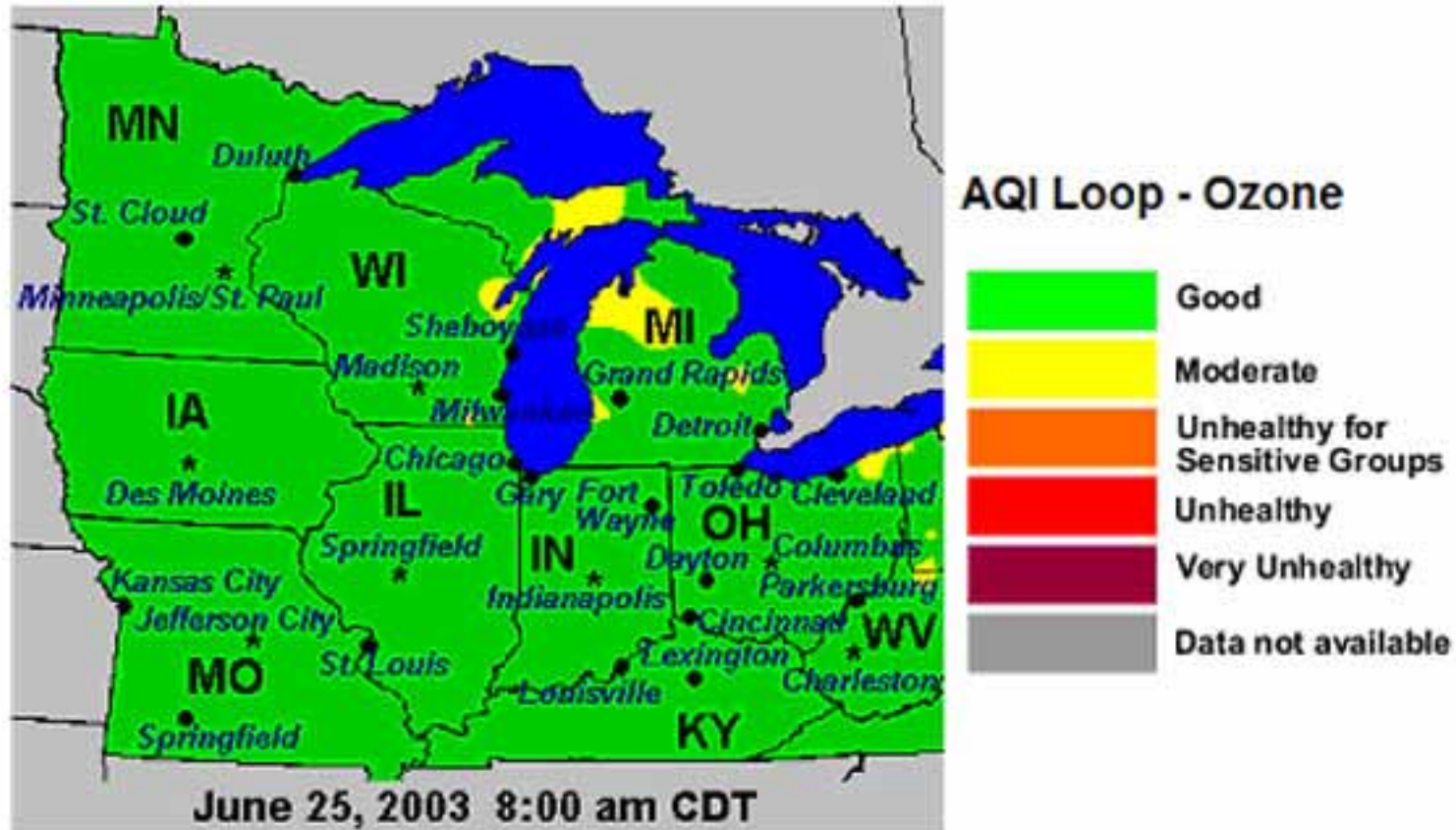


Fact or Fiction?

~~"You can always tell when the air is polluted by how it looks."~~

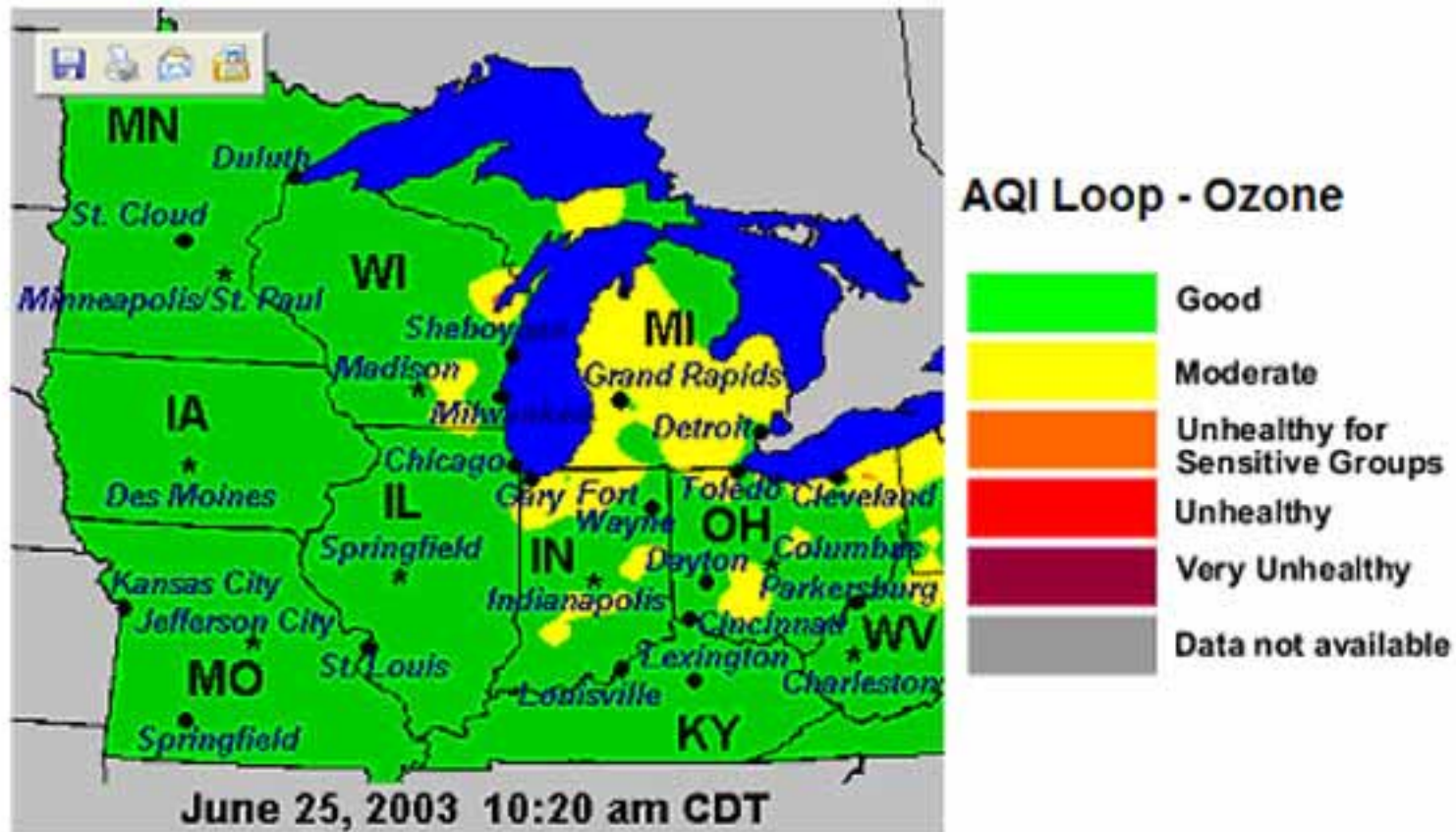


Midwest Ozone Maps for June 25, 2003



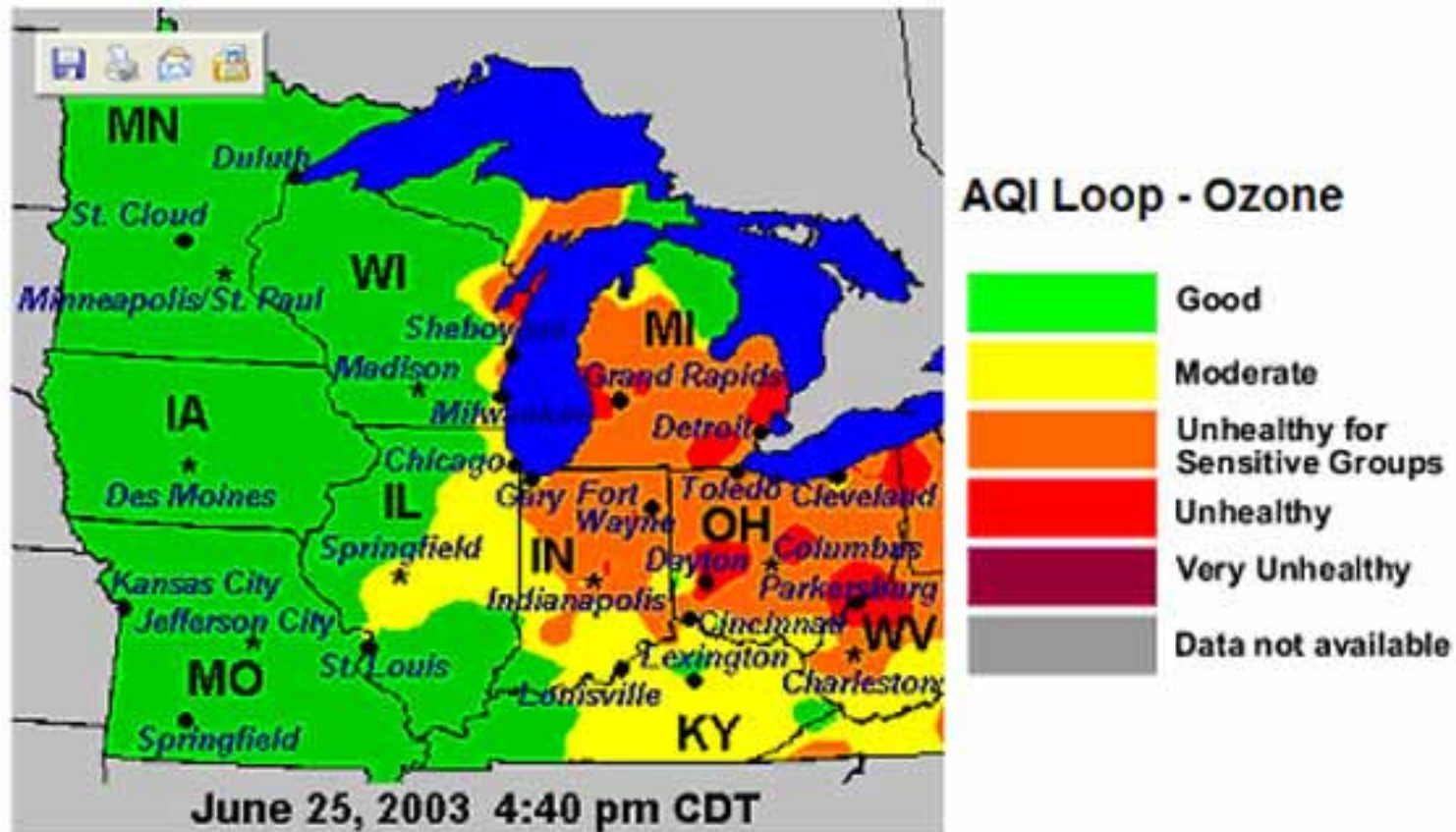
www.airnow.gov

Midwest Ozone Maps for June 25, 2003



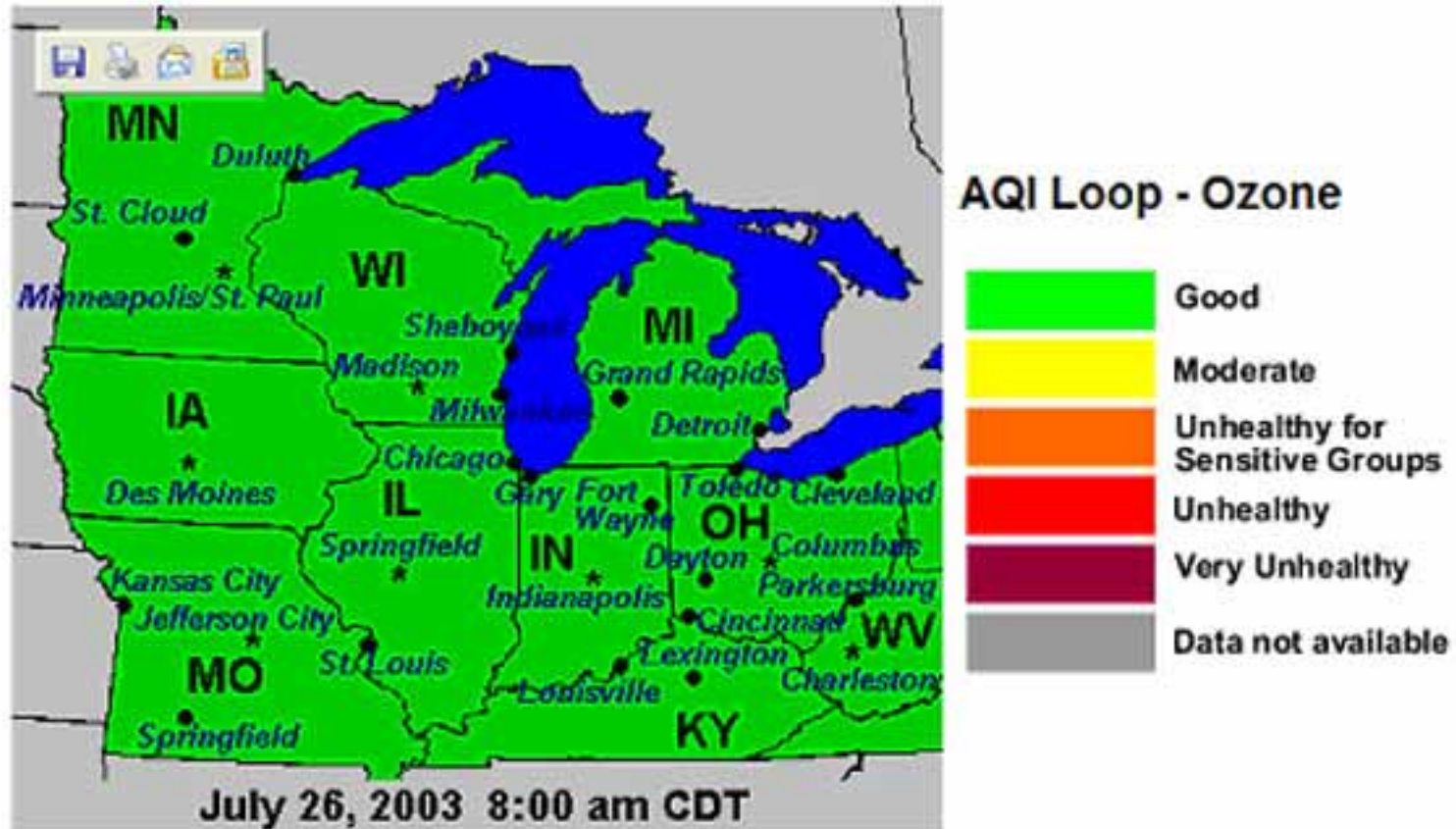
www.airnow.gov

Midwest Ozone Maps for June 25, 2003



www.airnow.gov

Midwest Ozone Maps for July 26, 2003



www.airnow.gov

Things You Can Do

1. Check the Air Quality Index.



Things You Can Do

1. Check the Air Quality Index.
2. Take it easier when you are active outside and the air is polluted.



Things You Can Do

1. Check the Air Quality Index.
2. Take it easier when you are active outside and the air is polluted.
3. Reduce your exposure to polluted air by changing when or where you exercise.



Things You Can Do

1. Check the Air Quality Index.
2. Take it easier when you are active outside and the air is polluted.
3. Reduce your exposure to polluted air by changing when or where you exercise.
4. Pay attention to your body.



Help reduce pollution:

- Drive less
- Turn off lights and appliances
- Insulate your home
- Reduce heating and cooling
- Run full loads
- Purchase energy-efficient products





AIR QUALITY INDEX

www.airnow.gov

*Your forecast
to breathe by*



Transparencies: Civic Groups

Short version





AIR QUALITY INDEX

www.airnow.gov

*Your forecast
to breathe by*



	Good
	Moderate
	Unhealthy for Sensitive Groups
	Unhealthy
	Very Unhealthy

Air pollution sources include:

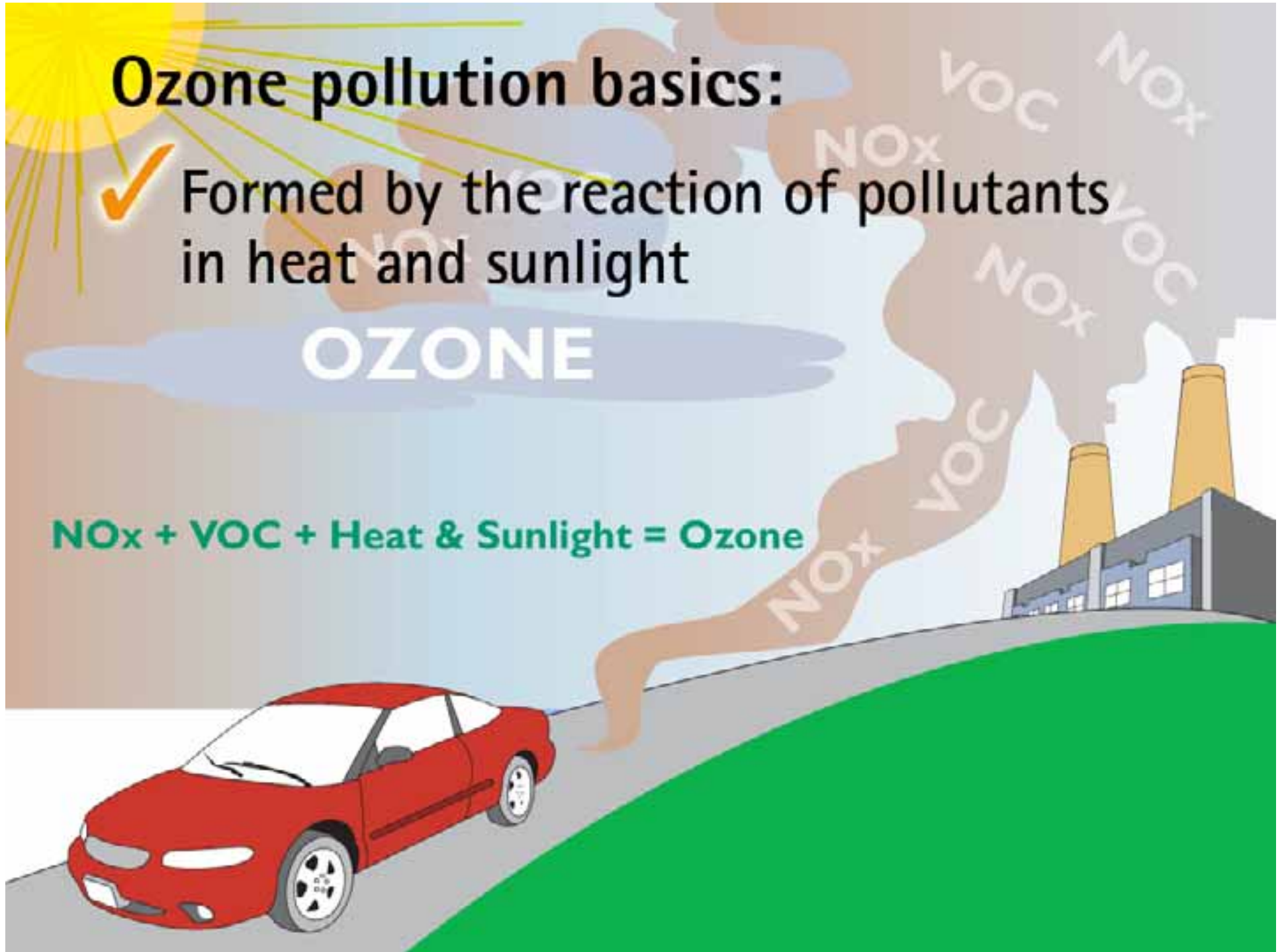



Ozone pollution basics:

- ✓ Formed by the reaction of pollutants in heat and sunlight

OZONE

NO_x + VOC + Heat & Sunlight = Ozone



A large, fluffy white cumulus cloud dominates the center of the frame, rising from a layer of lower, more dispersed clouds. The sky is a clear, vibrant blue. The lighting suggests a bright, sunny day.

"Sometimes ozone in the air is a good thing."

Ozone pollution basics:

- ✓ Occurs in warmer months
- ✓ Found in urban and rural areas
- ✓ Can cause health effects
- ✓ A key ingredient of smog

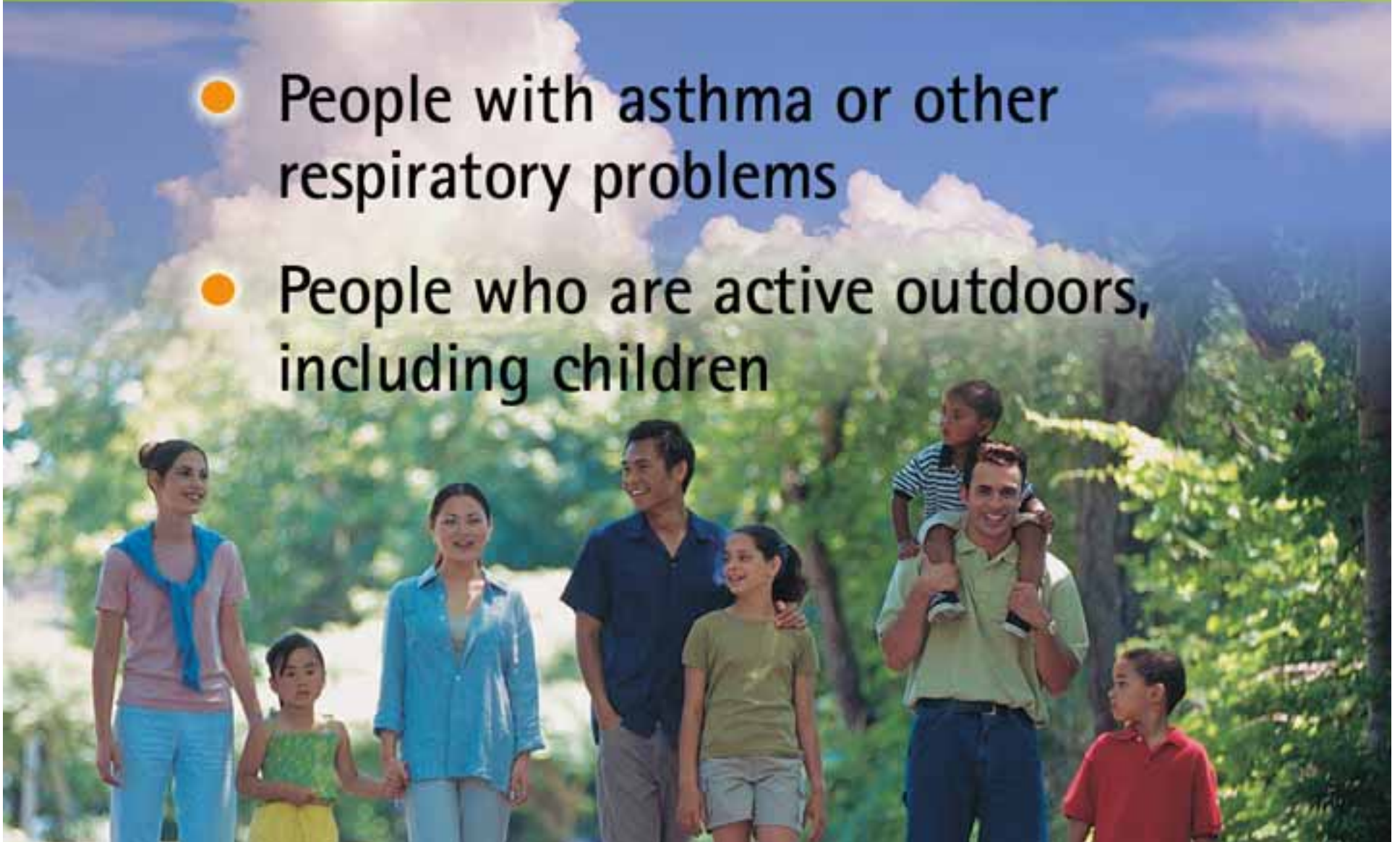
Ozone can cause:

- Coughing
- Pain when taking a deep breath
- Breathing difficulties during outdoor activities
- Aggravated asthma
- Increased susceptibility
- Permanent lung damage



Sensitive groups for ozone:

- People with asthma or other respiratory problems
- People who are active outdoors, including children



Basic facts about particle pollution:

- ✓ Caused by human and natural sources
- ✓ May be bad near busy roads and factories
- ✓ May occur at any time of year
- ✓ May be especially bad in winter
- ✓ May be elevated outdoors and indoors

Particle pollution:

- ✓ Consists of microscopic particles of dust, dirt, smoke, liquid droplets
- ✓ May penetrate deep into the lungs
- ✓ Can cause serious health effects

Particle pollution can:

...Cause:

- Coughing
- Difficult or painful breathing
- Chronic bronchitis
- Premature death in people with heart or lung disease

...Aggravate:

- Asthma
- Heart disease



Sensitive groups for particle pollution:

- People with heart or lung diseases
- Older adults
- Children



Things You Can Do

1. Check the Air Quality Index.
2. Take it easier when you are active outside and the air is polluted.
3. Reduce your exposure to polluted air by changing when or where you exercise.
4. Pay attention to your body.



Help reduce pollution:

- Drive less
- Turn off lights and appliances
- Insulate your home
- Reduce heating and cooling
- Run full loads
- Purchase energy-efficient products





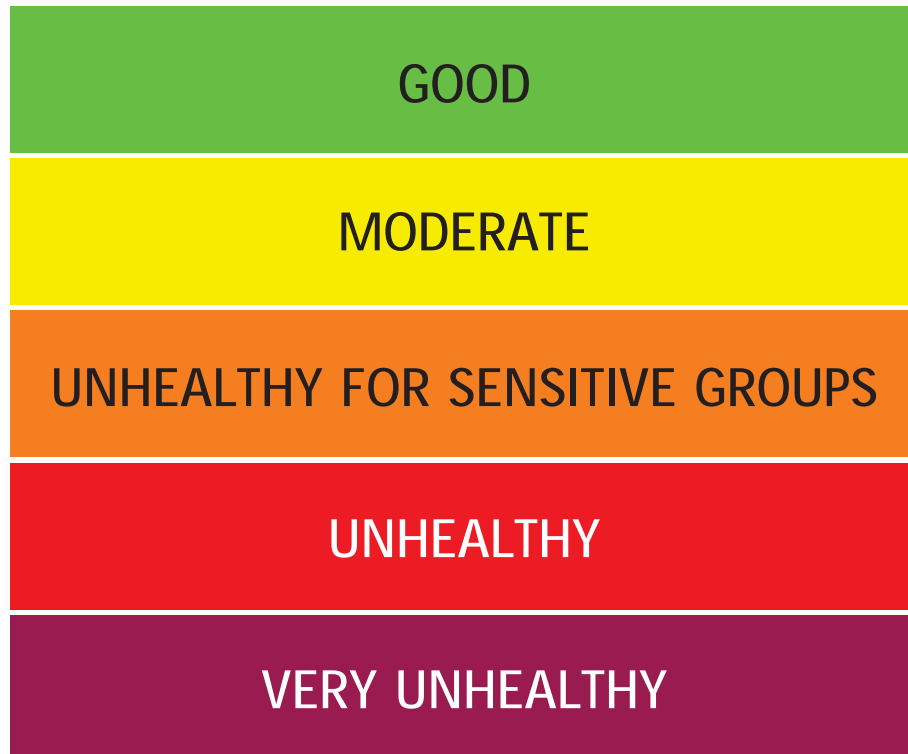
AIR QUALITY INDEX

www.airnow.gov

*Your forecast
to breathe by*



Additional Resources for Weathercasters



Air Pollution and Health:

Key Facts for Weathercasters

Like the weather, local air quality can affect people's daily lives. Millions of people live in areas where air pollution can cause serious health problems. Ground-level ozone and particle pollution are the two key air pollutants that pose health concerns in the United States.

Health effects of ozone. Ground-level ozone, a component of smog, can aggravate asthma and bronchitis and cause coughing, throat irritation, chest tightness, wheezing, shortness of breath, painful or difficult breathing, and premature aging of the lungs.

Health effects of particle pollution. Particle pollution, also a component of smog, can irritate the eyes, nose, and throat; cause chronic bronchitis, coughing, chest tightness, shortness of breath, and painful or difficult breathing; aggravate asthma; and even result in premature death in people with heart or lung disease. Particle pollution may be worse near busy roads or factories, and unhealthy levels may occur outdoors or indoors.

Some people are particularly at risk for health problems from air pollution. People with lung diseases, and children and adults who are active outdoors, are at greater risk from ground-level ozone. People with heart or lung disease, older adults, and children are at greater risk from particle pollution.

How people can protect their health from the effects of air pollution. To help protect their health from ozone and particle pollution, people can check the Air Quality Index daily, and take it easier when the air is polluted and they are active outside. They can also choose to exercise outdoors when ozone or particle pollution levels are lower, and exercise away from busy roadways to avoid particle pollution. If someone is having difficulty breathing or chest pain, he or she should stop strenuous activity and do something less active instead. People with asthma or lung disease should check with their doctors if they have any symptoms. People with heart disease should check with their doctor before engaging in vigorous outdoor exertion when particle levels are high.

Weather, air pollution, and health. Particle pollution may occur at any time of year, but may be worse in the winter. Ozone is of most concern in warmer months, since sunlight and warm temperatures increase ozone formation. Wind can move air pollution away from its source, making the air cleaner in that area, and blow the pollution hundreds of miles away. High pressure systems and temperature inversions can keep air pollution in one location.

Sources of ground-level ozone. Ozone is formed when certain pollutants (nitrogen oxides [NO_x] and volatile organic compounds [VOC]) react in the presence of heat and sunlight. Sources of NO_x and VOC include vehicle exhaust, industrial emissions, gasoline vapors, and chemical solvents.

Sources of particle pollution. Particle pollution consists of microscopic particles of dust, dirt, smoke, and liquid droplets. Particle pollution may be caused by human activities (such as emissions from vehicles, factories, or power plants) or natural sources (such as forest fires or volcanic eruptions).

Studies on the health effects of air pollution. Results of many scientific studies over several decades provide compelling and consistent evidence about how air pollution can affect people's health. For example:

- In a study on children's health, the California Air Resources Board tracked air pollution exposure and the health of approximately 5,500 children from twelve different communities in southern California for 10 years (1993 to 2003). The findings suggest that air pollution harms children's

lungs for life, and that air pollution may actually cause, not only aggravate, asthma (Peters, 2004).

- A study of 500,000 adults in over 100 American cities found that prolonged exposure to fine particle pollution significantly increases the risk of dying from lung cancer and cardiopulmonary causes (Pope et al., 2002).
- Policies to reduce car traffic during the Olympics also reduced peak ozone concentrations by 28 percent and hospitalizations for asthma by almost 20 percent (Friedman et al., 2001).
- A study of 5,000 people in the Netherlands from 1986 to 1994 found that people living near a main road and exposed to traffic-related particle pollution were almost twice as likely to die from heart or lung disease compared to people living further from traffic (Hoek et al., 2002).
- Increases in particle pollution have been associated with a rise in the incidence of asthma attacks among adults with asthma (Desquerox et al., 2002).
- A study in Erie County, New York (excluding the city of Buffalo) found that children living in neighborhoods with heavy truck or trailer traffic within 200 meters of their homes had increased risks of asthma hospitalization (Lin et al., 2002).
- During the year that a steel mill in Utah Valley was temporarily closed, particle pollution dropped by half, and children's hospital admissions for respiratory problems were two to three times lower than usual (Pope, 1989).

Reference information for the above studies and additional health studies is included in Supplementary Air Quality Resources in this Toolkit.

Tips for Weathercasters:

How to Introduce AQI Forecasts to Your Viewers

- Include AQI information in your forecast every day. You can refer to air quality or you can mention the pollutants—ozone and particles—to draw a distinction between the two.
- Use key messages along with a supporting health message (what actions people should take) in your on-air script.

Sample Script (Ozone forecast is code orange):

- “Tomorrow’s forecast is code orange—that means air quality is unhealthy for sensitive groups. The primary pollutant of concern is ozone.
- If you are in a sensitive group, including people with lung disease (such as asthma), or active adults and children, cut back your strenuous outside activities or reschedule them when air quality is better. You might want to go for a walk instead of a jog.”

Sample Script (Particle pollution forecast is code orange):

- “The air quality forecast for tomorrow is unhealthy (or code orange) for particle pollution, which means air quality is unhealthy for people with heart or lung disease (such as asthma), older adults, and children.
 - If you are in a sensitive group, including people with heart or lung disease (such as asthma), older adults, and children, cut back your strenuous activities or reschedule them when air quality is better. Coaches, it’s a good idea to rotate your players, especially if any have asthma.”
- Offer a link to the AIRNow web site on your station’s web site and mention it in your on-air script for people who would like more information on air quality issues.

For Example:

- For more real-time information on air quality, go to our web site at [Insert site] or EPA’s web site at: www.airnow.gov
- Use graphics to help relay your on-air message. Graphics that you can adapt or use “as is” can be downloaded from EPA’s web site at: www.airnow.gov (then search on “graphics”)

Air Quality Index: Fact Sheet for Weathercasters

Developed by the U.S. Environmental Protection Agency (EPA), the Air Quality Index, or AQI, provides a standard, uniform index for reporting daily air quality. The AQI helps make daily air quality information as easy to understand as weather forecasts. It is now used in local air quality reports and forecasts nationwide to tell the public how clean or polluted the air is, and how they can protect their health at different levels of pollution.

How the AQI Works

The AQI is essentially a yardstick that runs from 0 to 500. The higher the AQI value, the greater the level of air pollution and the greater the health concern. For example, an AQI value of 50 represents good air quality with little potential to affect public health, while an AQI value over 300 represents hazardous air quality.

An AQI value of 100 generally corresponds to the national air quality standard for the pollutant, which is the level EPA has set to protect public health. AQI values below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is considered to be unhealthy—at first for certain sensitive groups of people, then for everyone as AQI values get higher.

Understanding the AQI

To make it easier to understand, the AQI is divided into six categories:

Air Quality Index Values	Levels of Health Concern	Colors
When the AQI is in this range:	...air quality conditions are:	...as symbolized by this color:
0 to 50	Good	Green
51 to 100	Moderate	Yellow
101 to 150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

Each category corresponds to a different level of health concern:

- **“Good”** - The AQI value for a particular community is between 0 and 50. Air quality is considered satisfactory, and air pollution poses little or no risk.
- **“Moderate”** - The AQI for a community is between 51 and 100. Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people. For example, some people who are unusually sensitive to ozone may experience respiratory symptoms.
- **“Unhealthy for Sensitive Groups”** - When AQI values are between 101 and 150, members of sensitive groups may experience health effects. This means they are likely to be affected at lower levels than the general public. For example, people with lung disease are at greater risk from exposure to ozone, while people with either lung disease or heart disease are at greater risk from exposure to particle pollution. The general public is not likely to be affected when the AQI is in this range.

- **“Unhealthy”** - Everyone may begin to experience health effects when AQI values are between 151 and 200. Members of sensitive groups may experience more serious health effects.
- **“Very Unhealthy”** - AQI values between 201 and 300 trigger a health alert, meaning everyone may experience more serious health effects.
- **“Hazardous”** - AQI values over 300 trigger health warnings of emergency conditions. The entire population is more likely to be affected.

AQI Colors

EPA has assigned a specific color to each AQI category to make it easier for people to quickly understand whether air pollution is reaching unhealthy levels in their communities. For example, the color orange communicates that conditions are “unhealthy for sensitive groups,” while red means that conditions may be “unhealthy for everyone,” and so on. Over time, as local air quality reports become more available, the public is becoming increasingly familiar with the meaning of the AQI colors.

How a Community’s AQI is Calculated

Air quality is measured by monitors that record the concentrations of the major pollutants each day at more than a thousand locations across the country. These raw measurements are then converted into AQI values using standard formulas developed by EPA. An AQI value is calculated for each pollutant in an area (ground-level ozone, particle pollution, carbon monoxide, sulfur dioxide, and nitrogen dioxide). The highest AQI value for the individual pollutants is the AQI value for that day. For example, if on July 12 a certain area had AQI values of 90 for ozone and 88 for sulfur dioxide, the AQI value would be 90 for the pollutant ozone on that day in that area.

When and How the AQI is Reported to the Public

In large cities (more than 350,000 people), state and local agencies are required to report the AQI to the public daily. When the AQI is above 100, agencies must also report which groups, such as children or people with asthma or heart disease, may be sensitive to those pollutants. Many smaller communities also report the AQI as a public health service.

Many cities also provide forecasts for the next day’s AQI. These forecasts help local residents protect their health by alerting them when warranted to plan their vigorous activities for a time when air quality is better.

The AQI is a national index, so the value and colors used to show local air quality and the levels of health concern are the same everywhere in the United States. AQI reports for areas across the U.S. are always available on the Internet at EPA’s AIRNow web site: www.airnow.gov. The AQI is also frequently reported in local newspapers, on local television and radio stations, via e-alert systems, and on many state and local telephone hotlines.

Typical AQI Values in Most Communities

In many U.S. communities, AQI values are usually below 100, with values greater than 100 occurring just several times a year. Typically, larger cities have more severe air pollution problems, and the AQI in these areas may exceed 100 more often than in smaller cities. AQI values higher than 200 are infrequent, and AQI values above 300 are extremely rare.

AQI values can vary from one season to another. In winter, for example, carbon monoxide may be high in some areas because the cold weather makes it difficult for car emission control systems to

operate effectively. In summer, ozone may be a significant air pollutant because it forms in the presence of heat and sunlight. Particle pollution can be elevated at any time of the year.

AQI values also can vary depending on the time of day. For example, ozone levels often peak in the afternoon, while carbon monoxide is usually a problem during morning or evening rush hours. Particle pollution can be high at any time of day.

Introducing AQI Forecasts to Your Viewers

Increasingly, weathercasters are providing local air quality information and forecasts as part of their daily TV and radio weather reports. Because of the connection between air quality and weather, weathercasts provide a natural venue for communicating air quality information to the public. The AQI provides an important tool to help you do this efficiently and effectively. Including air quality information in a weather report takes just a few seconds and provides an important public health service.

You can find daily information on local air quality and forecasts to use in your weather reports on EPA's AIRNow web site at www.airnow.gov

Standard advisory statements for each AQI level are also available at: www.airnow.gov . Search for *Air Quality Guide for Particle Pollution* - click on the (usually first) entry entitled "AIRNow - TV Weather - *Air Quality Guide for Particle Pollution* - Air Quality Index (AQI) At-A-Glance Messages". This version of the Guide includes statements for particle pollution, ozone, and combined particle pollution and ozone.

Note that these advisory statements have been carefully crafted based on data from health studies and should not be altered. Also, note that the statements for ozone and particle pollution advise people to take it easier outside when the air is polluted, but do not advise them to remain indoors (with one exception: the advisory statement to sensitive groups when particle pollution is at hazardous levels, which are rarely reached in the U.S.).

Including daily AQI information in your forecast will allow the public to become familiar with the AQI and know that your forecast is a reliable source for local air quality information.

AIRNow Air Quality Mapping and Forecasting

Introduction

EPA's AIRNow program collects air quality data and smog observations and forecasts for over 300 metropolitan areas across the country. Gridded data maps are available free to weather service providers. These data provide four types of information:

- ***Air quality forecasts.*** Similar to maximum temperature forecasts, these air quality forecasts represent the maximum smog levels expected for the current day, next day, and beyond. The forecasts are issued by meteorologists in each state, collected by the AIRNow program, and distributed free of charge to weather providers.
- ***Current air quality conditions.*** Like current temperature, the current air quality values provide the highest Air Quality Index (AQI) reading observed in each city.
- ***Previous day's AQI maximum.*** This data value provides the peak AQI reached at any monitor in each city.
- ***Educational resources for broadcasters.*** The AIRNow web site includes air quality information specifically for radio/television broadcasters at: www.airnow.gov (click on "Weathercasters" on the left side of the web page; also from the main AIRNow web page, search on "media").

Forecast Frequency and Data Files

Air quality agencies throughout the United States typically issue their forecasts once or twice a day. Agencies usually submit the forecasts in the late morning to early afternoon (local time), with all forecasts completed by 1700 ET (2100 UTC) each day. Current observations are updated hourly. Data are stored in an ASCII file that contains the latest forecasts and observations for all cities.

The AIRNow Data Management Center's FTP Internet site includes two sets of data. One data set — "outgoing\forecasts" — typically contains forecasts for the current and next day; for some cities, the file contains forecasts for two to five days. Current observations for each city and the previous day's maximum AQI readings are also provided. The second data set — "outgoing\grids" — contains one hour's worth of gridded observations (or previous day's peak). Both of these data sets can be accessed through the Data Management Center's FTP Internet site at: [ftp.airnowdata.org](ftp://ftp.airnowdata.org). Additional information on file format specifications and forecast issuance is provided at: www.airnow.gov (click on "Weathercasters" on the left side of the web page and choose "AIRNow Fact Sheet").

Guidelines for Using AIRNow Data, Forecasts, and Advisories

- Air quality data, forecast values, and advisory statements should be disseminated as received and not altered in any way.
- All end-users who receive air quality, forecast, and advisory information should be provided with the most current data available when possible. Current updates are particularly important when advisories are issued by state/local air quality agencies. The AIRNow program updates all data hourly.
- State and local agencies are the authority for issuing air quality forecasts and advisories.
- Credit should be given to the appropriate source—either EPA AIRNow or the state/local air quality agency if known.

- AIRNow observational data are not fully verified or validated and should be considered preliminary. As such, they should not be used to formulate or support regulation, guidance, or any other government or public decision.
- Observed air quality and forecast values should be disseminated in accordance with the Air Quality Index and corresponding RGB colors as follows:

AQI Level	Color	R	G	B
Good	Green	0	228	0
Moderate	Yellow	255	255	0
Unhealthy for Sensitive Groups	Orange	255	126	0
Unhealthy	Red	255	0	0
Very Unhealthy	Purple	153	0	76
Hazardous	Maroon	76	0	38

Questions regarding AIRNow data, forecasts, and advisories should be directed to:
 AIRNowDMC@sonomatech.com and white.johne@epa.gov

Supplementary Air Quality Resources

The Air Quality Index

EPA's AIRNow Web site. The U.S. EPA's AIRNow web site provides the public with easy access to air quality information. The web site offers real-time air quality conditions and daily air quality forecasts for more than 300 cities across the U.S. It also provides links to more detailed state and local air quality web sites, and supplies real-time images of air quality and visibility via webcams in a number of locations. Available at: www.airnow.gov

The AIRNow web site also provides a chart to easily link the AQI colors with air quality and health risks. This chart and related information can be found by visiting the AIRNow web site homepage (www.airnow.gov) then clicking on "Air Quality Index" on the menu bar on the left; the chart is on the bottom of this page.

EPA's AIRNow web site also includes a children's section - see: www.airnow.gov (click on "Kids" on the menu bar on the left). This web site explains the Air Quality Index (AQI) to children. It uses games, targeted for K-1 and ages 7-10, to teach children about the AQI and how they can moderate their activity to play safely outside when air pollution is elevated.

EPA AQI Publications. Available in pdf and html formats (print versions can be requested free of charge) at: www.airnow.gov - click on "Publications" on the menu bar on the left for the following publications, among others:

- ***Air Quality Index - A Guide to Air Quality and Your Health.*** Explains EPA's Air Quality Index (AQI) and the health effects of major air pollutants.
- ***Air Quality Guide for Ozone.*** Provides information about ways to protect health when ozone levels reach the unhealthy range, and ways to help reduce ozone air pollution.
- ***Air Quality Guide for Particle Pollution.*** Provides information about ways to protect health when particle pollution levels reach the unhealthy range, and ways to help reduce particle air pollution.

Air Quality Mapping and Forecasting

EPA Publications. Available at www.airnow.gov - click on "Publications" on the menu bar on the left for the following publications:

- ***Guidelines for Developing an Air Quality (Ozone and PM2.5) Forecasting Program.*** Provides technical guidance to help air quality agencies develop, operate, and evaluate ozone and PM2.5 forecasting programs. Includes: 1) background information about ozone and PM2.5 and the weather's effect on these pollutants; 2) a list of how air quality forecasts are currently used; 3) a summary and evaluation of methods currently used to forecast ozone and PM2.5; 4) steps to develop and operate an air quality forecasting program; and 5) information on the level of effort needed to set up and operate a forecasting program.
- ***Ozone Monitoring, Mapping, and Public Outreach: Delivering Real-Time Ozone Information to Your Community.*** Provides step-by-step instructions about creating an ozone monitoring, mapping, and public outreach program at the local community level.

- **Guideline for Reporting of Daily Air Quality - Air Quality Index (AQI).** Provides guidance to aid local agencies for reporting air quality using the AQI, as required in Part 58.50 of 40 CFR and according to Part 58 of 40 CFR, Appendix G.

TV Weather Links and Reference Materials for Air Quality. Available at: www.airnow.gov - click "Weathercasters" on the menu bar on the left for the following materials, among others:

- **Talking Points for Meteorologists.** This document summarizes the health messages and recommended actions for ozone and particle pollution at each AQI level.
- **Myths and Facts for Meteorologists.** This page contains basic information about ozone and particle pollution and their health impacts.

Air Pollution and Health

Scientific Publications and Related Reports. Key reports on air pollution and health include:

- The American Lung Association. All of the ALA reports listed below are available at: www.lungusa.org/site/pp.asp?c=dvLUK900E&b=36864
 - The American Lung Association State of the Air: 2004***
 - Selected Key Studies on Ozone and Health (1997-2001)***
 - Selected Key Studies on Particulate Matter and Health (1997-2001)***
 - Annotated Bibliography of Recent Studies on the Health Effects of Air Pollution (2001-2002)***
- Balbus, J. and Y. Chee. 2004. ***Dangerous Days of Summer.*** Environmental Defense Fund. Ranks 50 major population centers in the U.S. where air pollution impacts the greatest number of children. Available at: www.environmentaldefense.org/dangerousdays.cfm.
- Desquereux et al., 2002. ***Short-Term Effects of Low-Level Air Pollution on Respiratory Health of Adults Suffering from Moderate to Severe Asthma.*** Environmental Research Vol. 98: 29-37. This study found that increases in particle pollution have been associated with a rise in the incidence of asthma attacks among adults with asthma.
- Friedman, M.S., K.E. Powell, L. Hutwagner, L.M. Graham, W.G. Teague. 2001. ***Impact of Changes in Transportation and Commuting Behaviors during the 1996 Summer Olympic Games in Atlanta on Air Quality and Childhood Asthma.*** J. Am. Med. Assoc. 285(7):897-905 (February). Policies to reduce car traffic during the Olympics also reduced peak ozone concentrations by 28 percent and hospitalizations for asthma by almost 20 percent.
- Gauderman, W.J. et al. 2004. ***The Effects of Air Pollution on Lung Development from 10 to 18 Years of Age.*** New England Journal of Medicine 351:1057-1067.
- Hoek, G., B. Brunekreef, S. Goldbohm, P. Fischer, P.A. van den Brandt. 2002. ***Association Between Mortality and Indicators of Traffic-Related Air Pollution in the Netherlands: A Cohort Study.*** The Lancet 19:1203-1209. A study of 5,000 people in the Netherlands from 1986 to 1994 found that people living near a main road and exposed to traffic-related particle pollution were almost twice as likely to die from heart or lung disease compared to people living further from traffic.
- Hricko, A., K. Preston, H. Witt, J. Peters. 1999. ***Air Pollution and Children's Health.*** Chapter excerpt from the 1999 Health Atlas of Southern California. Available at: http://hydra.usc.edu/scehsc/coep/coep_atlaschap.asp

- Kleinman, M. 2000. *The Health Effects of Air Pollution on Children*. Department of Community and Environmental Medicine University of California, Irvine. South Coast Air Quality Management District. Available at: www.aqmd.gov/forstudents/health_effects_on_children.pdf
- Lin, S., J.P. Munsie, S.-A. Hwang, E. Fitzgerald, M.R. Cayo. 2002. *Childhood Asthma Hospitalization and Residential Exposure to State Route Traffic*. Environmental Research Vol. 88: 73-81. A study in Erie County, New York (excluding the city of Buffalo) found that children living in neighborhoods with heavy truck or trailer traffic within 200 meters of their homes had increased risks of asthma hospitalization.
- Peters, J.M. 2004. *Epidemiologic Investigation to Identify Chronic Effects of Ambient Air Pollutants in Southern California*. University of Southern California, Los Angeles; California Air Resources Board. This prospective study of about 5,500 children living in Southern California found serious adverse impacts to children's lung function from exposure to air pollution. Study overview available at: www.arb.ca.gov/research/chs/over.htm . Abstract available at: www.arb.ca.gov/research/abstracts/94-331.htm
- Pope, C.A., R.T. Burnett, M.J. Thun, E.E. Calle, D. Krewski, K. Ito, G.D. Thurston. 2002. *Lung Cancer, Cardiopulmonary Mortality, and Long-term Exposure to Fine Particulate Air Pollution*. J. Am. Med. Assoc. 287(9). A study of 500,000 adults in over 100 American cities found that prolonged exposure to fine particle pollution significantly increases the risk of dying from lung cancer and cardiopulmonary causes.
- Pope, C.A. 1989. *Respiratory Disease Associated with Community Air Pollution and a Steel Mill, Utah Valley*. Am. J. Public Health 79(5):623-8. During the year that a steel mill in Utah Valley was temporarily closed, particulate pollution dropped by half, and children's hospital admissions for respiratory problems were two to three times lower than usual.

"Plain English" Publications

The following U.S. EPA publications are available in pdf and html formats at: www.airnow.gov - click on "Publications" on the menu bar on the left (print versions can be requested free of charge):

- **Particle Pollution and Your Health**. Describes who is at risk from exposure to particle pollution, what health effects may be caused by particles, and simple measures that can be taken to reduce health risk.
- **Ozone and Your Health**. Describes who is at risk from exposure to ozone, what health effects are caused by ozone, and simple measures to reduce health risk.
- **Smog - Who Does it Hurt?** This 8-page booklet provides more detailed information than "Ozone and Your Health" about ozone health effects and how to avoid them.
- **Summertime Safety: Keeping Kids Safe from Sun and Smog**. Discusses summer health hazards that pertain particularly to children and includes information about EPA's Air Quality Index and UV Index tools.
- **Ozone: Good Up High, Bad Nearby**. Provides basic information about ground-level and high-altitude ozone.

The following publication on smoke and air pollution was produced by the state of California:

- ***Wildfire Smoke: A Guide for Public Health Officials.*** This publication describes the health effects of smoke and provides detailed guidance on how to protect public health from wildfire smoke. Contact: www.arb.ca.gov

Links

- ***Southern California Environmental Health Sciences Center.*** Contains links to press releases, notices, and summaries of studies related to air pollution and health, as well as other environmental health research areas. Available at: <http://hydra.usc.edu/scehsc/press.asp>
- ***Air...ing the Truth About Indoor and Outdoor Air Pollution.*** American Lung Association web page providing basic facts about the numbers of people affected by air pollution. Available at: www.lungusa.org/site/pp.asp?c=dvLUK900E&b=107829