



FOG, SMOG, MIST AND CLOUDS FOUR POINTS ARE CONDENSED ATOMIZED AEROSOL WATER DROPLETS OF BELOW DEW POINT

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ABSTRACT

Fog, mist, smog and clouds are all the same meteorological phenomenon: visible masses of suspended water droplets or ice crystals. Their classification depends entirely on their density (visibility) and altitude (where they form). Clouds: High-altitude atmospheric suspensions. Fog: A low-lying cloud resting on the ground. Mist: A lighter, ground-level cloud with higher visibility. Smog:

Feature	Cloud	Fog	Mist	Smog
Altitude	High in the sky	Ground level	Ground level	Not in your way
Visibility	Varies	Less than 1 km	More than 1 km	Can drop to near-zero visibility
Density	Thick to wispy	Very dense	Light and translucent	Water droplets + smoke + pollutants
Health Impact	Harmless	Safe	Harmless	Respiratory and eye irritation

How They Form

Warm, moist air cools to its dew point.

Water vapor condenses into tiny liquid droplets.

Droplets cling to airborne dust particles.

Fog is practically a "surface cloud". Mist often forms near rivers or marshes. Clouds form higher up through expansion and cooling.

KEYWORDS: Dew point, mist, fog, cloud, water droplets, radiation fog, meteorology, radiation fog, advection fog, valley fog, upslope fog, steam fog, freezing fog, precipitation fog, ice fog, ground mist, advection mist, valley mist, mountain/upslope mist, freezing mist, scotch mist, high-level clouds, mid-level clouds, low-level clouds, clouds with vertical development, smog.

OVERVIEW

Fog is a visible, low-lying cloud composed of tiny water droplets or ice crystals suspended in the air. It occurs when the air's temperature drops to its dew point, causing invisible water vapor to condense. Fog typically reduces horizontal visibility to less than 1 kilometer. Fog is essentially a cloud on the ground. It is a visible weather phenomenon consisting of tiny water droplets or ice crystals suspended in the air near the Earth's surface. It forms when the air cools to its dew point, causing water vapor to condense. Meteorologically, fog occurs when the air becomes highly saturated (high relative humidity)

and reduces horizontal visibility to less than 1,000 meters (about 0.6 miles). If visibility is greater than 1,000 meters, it is generally classified as mist.

How Fog Forms

Fog requires moisture, clear skies (allowing heat to radiate away), and light winds. The way it forms determines its specific type:

1. Radiation Fog: Forms on clear, calm nights when the ground loses heat and cools the air above it. Forms overnight under clear skies as the ground cools, chilling

the air directly above it. Radiation fog is a weather phenomenon that forms overnight on clear, calm nights. It develops as the ground rapidly loses heat, cooling the moist air above it until it reaches its dew point. This fog

typically dissipates quickly as the sun rises. Radiation fog requires a very specific set of atmospheric conditions to develop.^[1]



Figure 1: Radiation Fog & Advection Fog.

- **Clear Skies:** Allows the Earth's surface to radiate heat upward into space without cloud cover acting as a blanket.
 - **Calm or Light Winds:** Keeps the cool air trapped near the surface. Strong winds will mix the air and prevent the cooling required for fog, while dead-calm winds produce heavy dew instead.
 - **High Humidity:** A moist layer of air near the ground ensures the temperature doesn't have to drop drastically to reach the dew point.
 - **Occurrence:** Locations: Most commonly forms over land, in valleys (where cold, dense air pools), and near calm bodies of water. It is frequently referred to as "ground fog" or "valley fog."
 - **Seasonality:** While it can occur year-round, it is most prevalent during fall and winter months when nights are longer, allowing for maximum surface cooling
- 2. Advection Fog:** Develops when warm, moist air moves over a colder surface (like cold ocean water). Occurs when warm, moist air moves over a colder surface (like cold ocean water or snow). Advection fog occurs when warm, moist air moves horizontally over a cooler surface (like cold ocean water or snow-covered land). Contact with the cold surface cools the air to its dew point, causing water vapor to condense into dense fog.



Figure 2: Fog, Mist & Cloud.

Persistence: Unlike radiation fog, which "burns off" quickly with sunlight, advection fog can be very persistent and cover massive areas.

Wind: It can form and persist even in moderate to strong winds.

Movement: It is named after advection (the horizontal transport of air by wind) and moves with the wind.

Coastal Fogs: Famous occurrences include the pervasive fog enveloping the San Francisco Bay area, where warm Pacific air meets the cold California Current.

Sea Fog: Sailors frequently encounter it when warm, moist maritime air drifts over cold ocean currents.^[2]

Table 1: Radiation Fog & Advection Fog difference.

Feature	Radiation Fog	Advection Fog
How It Forms	Ground radiates heat into the atmosphere; ground cools and chills the air above to its dew point.	Warm, moist air moves horizontally (advects) over a colder land or water surface.
Ideal Environment	Over land (especially valleys, plains, and marshy areas).	Coastal regions or areas where warm air travels over cold bodies of water.
Weather Conditions	Requires clear skies (to let heat escape) and calm winds (so air doesn't mix and warm).	Can form with cloudy skies and moderate to strong winds.
Time of Day	Forms late at night; thickest around early morning.	Can form at any time of day or night.
Duration	Typically short-lived; quickly "burns off" after sunrise as the ground heats up.	Highly persistent; can last for days if the wind continues to blow warm air over the cold surface.

Spring Fogs: It often occurs in regions like the North Atlantic and coastal northwest Europe when warm spring air moves over still-cold winter waters or land.

1. Advection fog typically clears out in two ways:
 - The wind shifts, blowing the warm air mass away from the colder surface.
 - Strong winds (typically >15 knots) mix the lower, foggy air with drier, warmer air higher up, lifting it into a low-hanging cloud layer.

Advection fog is a type of fog that forms when warm, moist air moves horizontally (advects) over a colder surface, such as cold ocean water or snow-covered ground. The colder surface cools the air down to its dew point, causing water vapor to condense into tiny droplets that hang just above the surface.

Wind-Driven: Unlike radiation fog (which forms on calm, clear nights), advection fog requires wind. The movement of air sustains it, meaning it can roll in quickly and persist even in moderate to strong winds.

Common Locations: It is highly prevalent in coastal regions and over oceans. A famous real-world example is the iconic fog that engulfs the Golden Gate Bridge in San Francisco, which forms when warm, moist Pacific air blows over the much colder California current. In India, it frequently occurs near coastal areas like the Odisha coast.

Deep Layer: Because it relies on mixing and wind-driven turbulence, advection fog can create a much deeper layer of fog than the typical overnight radiation fog.

Advection fog typically clears up when: The warm air mass moves over an even warmer surface. The wind shifts, blowing the warm, moist air away from the cold surface. Stronger winds cause the fog to lift and become a low-level stratus cloud.

Advection fog and radiation fog are both low-level clouds, but they form under completely different

conditions. Radiation fog develops when the ground cools overnight, chilling the still air above it. Advection fog forms when warm, moist air blows horizontally across a colder surface.

Radiation Fog is a localized phenomenon. It requires calm, clear nights. As the ground loses heat into space, the air immediately above it cools until it reaches the dew point, creating fog. Because it relies on the sun to reheat the ground, it usually dissipates quickly in the morning.

Advection Fog is a dynamic, moving event. It occurs when a moving weather system pushes warm, humid air over a naturally cold surface (such as a cold ocean current or snow-covered land). The cold surface cools the bottom layer of the air to the dew point. Because it is driven by wind, it can cover massive regions and last for day.

3. Valley Fog: Occurs when dense, cold air sinks into a valley and traps moisture near the ground. Valley fog is a type of radiation fog that forms when cold, dense air flows down mountain or hill slopes and settles in the valley floor. This trapped cold air cools to its dew point, causing water vapor to condense into a dense fog that is often confined by the surrounding topography. Forms where cold dense air settles into the lower parts of a valley, condensing and forming fog. It is often the result of a temperature inversion, with warmer air passing above the valley. Valley fog is confined by local topography and can last for several days in calm conditions during the winter.^[3]

Cold Air Drainage: Denser, cooler air sinks down hilltops and collects in low-lying valley areas.

Radiation Cooling: Clear skies allow the Earth's surface to rapidly lose heat overnight.

Temperature Inversion: Warm air passes over the valley, trapping the dense, cold, moist air below it.

Condensation: As the trapped air reaches saturation, moisture condenses into thick fog.



Figure 3: Valley Fog & Upslope Fog.

Density: Often much thicker and deeper than fog found on flat terrain.

Duration: Can persist for days in calm, winter conditions because weak sunlight cannot warm the cold, pooled air.

Diurnal Cycle: Typically begins to dissipate in the morning as solar heating warms the air and evaporates the water droplets.

Visibility Hazard: Severely reduces visibility, making travel in and out of mountainous valleys highly dangerous.

4. Upslope Fog: Created when moist winds push air up a mountain slope, causing it to cool and condense. Upslope fog is a weather phenomenon that forms when moist, stable air flows upward along elevated terrain, such as hills or mountains. As the air ascends, it undergoes adiabatic cooling, meaning its temperature drops. This cooling causes the air's temperature to reach its dew point, forcing moisture to condense into fog. This fog forms adiabatically. Adiabatically is the process that causes sinking air to warm and rising air to cool. As moist winds blow toward a mountain, it up glides and this causes the air to rise and cool. The cooling of the air from rising causes to meet up with the dew point temperature.

Terrain-driven: Relies entirely on rising, sloping ground to lift the air.

Wind dependent: Requires continuous wind to push air up the slope.

Altitude-based: Forms at higher elevations first and builds downward.

Observer dependent: Appears as a thick fog on the ground, but looks like a stratus cloud when viewed from above.

The formation of upslope fog is governed by a specific meteorological cycle:

Airflow: Moist air is pushed by winds toward elevated terrain.

Ascent: The topography forces the air upward along the slope.

Cooling: Rising pressure drops cause the air to cool adiabatically.

Saturation: Air reaches its dew point, causing water vapor to condense into fog.

5. Steam Fog: Forms when cold air passes over warm, moist water, causing vapor to rise and condense. Appears when cold air passes over warmer water, looking like wisps of smoke rising off a lake. Steam fog—often called "sea smoke" or "arctic sea smoke"—is a type of fog that forms when cold, dry air moves over a relatively warm body of water. As the warm water evaporates into the colder air, the moisture quickly condenses, creating the appearance of wispy smoke or steam rising off the water's surface.



Figure 4: Steam Fog & Freezing Fog.

Steam fog is a product of evaporation mixing. It requires two key elements

Relatively Warm Water: The water must be warmer than the air above it.

Cold Air: The air mass must be cold enough to absorb the evaporated water and cause it to reach its dew point, forcing condensation.

When the warmer, moist air immediately above the water mixes with the colder air above it, the moisture can no longer remain a gas. It turns into tiny liquid water droplets, which appear as rising fog or steam.

Steam Fog, also known as Steaming Fog, Evaporation Fog, Frost Smoke, Sea Smoke or Arctic Sea Smoke, occurs when evaporation takes place into cold air lying over warmer water. It is usually quite shallow. Steam Fog should not be confused with Advection Fog which is formed in warm moist air over a cold surface.

6. Freezing Fog: Composed of super cooled water droplets that remain liquid until they touch a surface. The droplets freeze instantly upon contact, coating roads and trees with a hazardous layer of ice. Freezing fog is a



Figure-5: Precipitation Fog & Ice Fog.

Super cooled droplets: Water remains liquid in the air despite sub-zero temperatures.

Instant freezing: Droplets solidify into ice the exact moment they touch a surface.

Reduced visibility: Like regular fog, it significantly limits how far drivers and pilots can see.

Moisture saturation: Air cools to its dew point, causing water vapor to condense into liquid droplets.

Sub-freezing temperatures: The surrounding air drops to 32° F (0° C) or lower.

Super cooling: Droplets stay liquid because they lack a "nucleation point" in the air.

Instant freezing: Droplets strike cold surfaces (roads, cars, trees) and freeze immediately.

hazardous winter weather phenomenon that occurs when a cloud of supercooled liquid water droplets forms near the ground at temperatures at or below freezing. Because these droplets remain liquid in the air, they freeze instantly upon contact with cold surfaces—such as roadways, bridges, vehicles, and power lines—creating a dangerous sheet of ice or rime ice. Freezing fog forms just like standard fog but under sub-freezing surface conditions. Moist, warm air near the ground is trapped by cold air above it. When the air cools to its dew point, moisture condenses into microscopic liquid droplets. These droplets "supercool" because they lack a nucleus (like dust or a rough surface) to initiate freezing while suspended in the air. It's important to differentiate freezing fog from ice fog. Ice fog resembles freezing fog, but it consists of tiny ice crystals and occurs in extremely cold conditions, usually well below 0°C (32°F). Freezing fog, on the other hand, contains liquid droplets and forms at temperatures around or just below freezing. Freezing fog is a dangerous winter weather hazard that occurs when fog forms in sub-freezing temperatures. It consists of tiny "supercooled" water droplets that remain liquid in the air but freeze instantly upon contact with solid objects, instantly creating hazardous sheets of ice.^[4]

7. Precipitation Fog: Forms as warm rain falls through a much colder, drier layer of air. The rain evaporates into the cooler air, saturating it to create a dense, persistent fog. Precipitation fog (or frontal fog) forms when rain falls through a layer of cool, dry air near the ground. The falling rain evaporates into the cooler air, raising the dew point until the air becomes fully saturated. This creates a dense, low-lying cloud that reduces surface visibility.

8. Ice Fog: Occurs in extremely cold, sub-freezing climates. Instead of water droplets, it consists of tiny ice crystals suspended directly in the air. Fog ice can refer to two very different things depending on your context: the theatrical low-lying smoke made with dry ice, or the literal meteorological phenomenon where fog freezes on contact with cold surface.

Dry ice fog is a mesmerizing, ground-hugging smoke created when solid carbon dioxide (dry ice) is dropped into hot water. Because dry ice is incredibly cold (-78.5°C or -109.3°F), it causes the invisible water vapour

in the air to instantly condense into a dense, thick, low-lying cloud of fog.

The dew point is the temperature at which air must be cooled to become completely saturated with water vapor. If the air cools further, the moisture condenses into liquid water to form dew, fog, or clouds. It is an absolute measure of the moisture in the air, unlike relative humidity, which fluctuates with temperature.

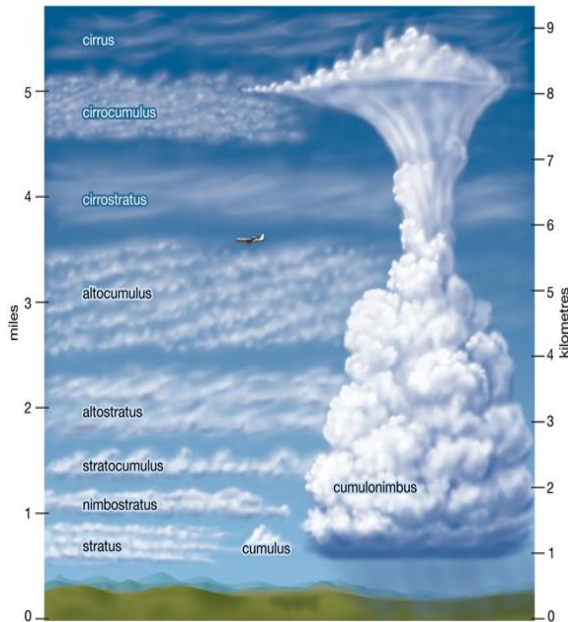


Figure 6: Clouds Classification.

Table 2: Dew Point Classification.

Dew Point	Comfort Level	Description
Below 50°F (10°C)	Very Dry	Crisp and Dry Air
50°F – 59°F (10°C – 15°C)	Comfortable	Pleasant and ideal
60°F – 64°F (15°C – 18°C)	Sticky	Noticeable humidity; air feels muggy
65°F – 74°F (18°C – 23°C)	Oppressive	Uncomfortable and heavy
75°F (24°C) and above	Extremely Tropical	Very thick, humid, and stifling

Transportation: Fog heavily impacts shipping, aviation, and driving by severely reducing visibility and requiring

reduced speeds or rerouting.



Figure 7: Mist & Smog.

Why Dew Point Matters

Direct Moisture Indicator: Higher dew points mean there is more water vapor in the air.

Weather Predictor: It is used to forecast fog, frost, and precipitation.

Feels-Like Temperature: High dew points make the air feel heavy and oppressive because it slows the evaporation of sweat.

Fog vs. Mist

While both refer to condensed water droplets near the ground, the difference lies in density and visibility:

1. Fog reduces horizontal visibility to less than 1,000 meters and feels damp.
2. Mist is less dense, allowing visibility to exceed 1,000 meters, and its droplets are significantly smaller.

Relative Humidity (RH): Tells you how close the air is to being saturated, expressed as a percentage. It changes as the air temperature changes throughout the day.

Dew Point: Tells you exactly how much water is physically in the air, and it stays constant regardless of the day's temperature fluctuation.

Dew Point Comfort Scale

The dew point provides a reliable baseline for how comfortable the air will feel when you step outside:

Ecosystems: Ecologists recognize fog as an active aquatic habitat that harbors living micro biomes and disperses bacteria. It is also a vital source of hydration for flora and fauna in coastal regions.

Fog is a visible aerosol consisting of tiny water droplets or ice crystals held in the air near the Earth's surface. Fog can be considered a type of low-lying cloud usually resembling stratus and is heavily influenced by nearby bodies of water, topography, and wind conditions. In turn, fog affects many human activities, such as shipping, travel, and warfare. Recent atmospheric research indicates that fog also functions as an active aquatic ecosystem. Fog droplets harbor micro biomes where bacteria actively grow, divide, and interact with atmospheric chemistry.

Mist is a light cloud of tiny water droplets suspended in the air. The primary difference between mist and fog is visibility; mist allows you to see for more than 1 kilometer, whereas fog reduces visibility below 1 kilometer.

Mist Types

Ground Mist: Forms near the ground as surface air cools and condenses; it frequently develops over fields or marshes during the evening or early morning.

Advection Mist: Occurs when humid air passes over a much cooler surface or body of water, causing it to condense rapidly. Fog appears when water vapor (water in its gaseous form) condenses. During condensation, molecules of water vapor combine to make tiny water droplets that hang in the air. Occurs when humid air passes over a much cooler surface or body of water, causing it to condense rapidly.

Valley Mist: Develops when cold, dense air sinks into enclosed valleys, trapping moisture and creating a hazy layer at the bottom.^[5]

Mountain/Upslope Mist: Created when moist, rising air travels up the slopes of a mountain and condenses as the air cools.

Freezing Mist: Similar to light mist, but consists of super cooled water droplets that freeze instantly upon contact with freezing surfaces.

Scotch Mist: A colloquial term describing a very fine, steady drizzle that looks like a heavy, floating mist.

Sea fog, which shows up near bodies of saline water, is formed as water vapor condenses on bits of salt. Fog is similar to, but less transparent than, mist. Fog and mist are both low-lying clouds made of suspended water droplets, but they differ primarily in density and visibility. By meteorological standards, fog reduces horizontal visibility to less than 1 kilometer, whereas mist is lighter and allows you to see further than 1 kilometer.

Both phenomena form through condensation—when invisible water vapor in the air cools down and turns into tiny liquid droplets.

How Fog Forms: Fog occurs when the air temperature drops to the dew point, causing a dense, heavy blanket of moisture to form near the ground (often over lakes, valleys, or coastal areas).

Table 3: Smog, Fog, Mist & Cloud Difference.

Feature	Smog	Fog	Mist	Cloud
Visibility	Can drop to near-zero visibility	Less than 1 km	Greater than 1 km	Not in your way
Density & Wetness	Water droplets + smoke + pollutants	Thick, dense, and feels damp/wet	Thin, transparent, and less moist	High in the atmosphere
Duration	Persists under high-pressure, stagnant air	Lasts longer; takes longer to dissipate	Dissipates quickly with slight wind or sun	Lasts for varying periods
Light Impact	Yellowish, brownish, or dark grey	Scatters light strongly, creating glare	Scatters light weakly; colors are clearer	Varies widely
Health Impact	Respiratory and eye irritation	Generally safe (damp)	Harmless	Harmless

How Mist Forms: Mist is essentially a very light fog. It usually forms when warm, moist air meets a cooler surface. Because the water droplets are smaller and more spread out, the air feels far less wet.

Cloud: Condensed water vapor that floats high in the sky, well above the ground. They form when air rises, expands, and cools in the sky. A cloud on the ground is simply fog.

Fog, mist, and clouds are all made of the exact same thing: tiny water droplets or ice crystals suspended in the air. The difference between them is purely based on where they are located and how far you can see through them.

Fog: A thick, low-lying cloud that touches the ground, reducing visibility to less than 1 kilometer. It contains higher moisture content and larger droplets than mist. It often causes severe travel and aviation disruptions.

Use Dewpoint, Not Relative Humidity for Summer Comfort		
Dewpoint	How it Feels	Emojification
50 – 60°F	Comfortable	😊
60 – 65°F	Getting Sticky	😓
65 – 70°F	Unpleasant	😞
70°F or more	Downright Gross	🤢

Figure 8: Dew Point Class.

Mist: A lighter, less dense cloud near the ground that allows you to see further than 1 kilometer. It forms when warm, moist air meets a cold surface (or vice versa), commonly found in mountainous areas. It is the same phenomenon you see when you "see your breath" on a cold day.

Clouds are categorized by their altitude and shape using Latin prefixes and suffixes, such as cirro (high/wispy), alto (mid-level), strato (layered), cumulo (puffy), and nimbo (rain-bearing). The 10 main types are divided into four main categories based on their height in the atmosphere.

High-Level Clouds (Above 6,000 m): Composed entirely of ice crystals, these clouds rarely produce precipitation but often signal changing weather.

Cirrus: Thin, wispy, and feathery strands.

Cirrocumulus: Small, white, patchy ripples resembling fish scales.

Cirrostratus: Thin, transparent veils that cover much of the sky and often create halos around the sun or moon.

Mid-Level Clouds (2,000 to 6,000 m): Usually a mixture of liquid water and ice crystals. The prefix alto identifies this group.

Alto cumulus: Gray or white rolling patches, sometimes described as having a "mackerel sky" appearance.

Altostratus: Gray or blue-gray layers that cover the sky, diffusing the sun and typically preceding steady, continuous rain or snow.

Low-Level Clouds (Below 2,000 m): Predominantly made of water droplets, these clouds often cover the sky in overcast, gloomy condition.

Stratus: Uniform, featureless gray layers often resembling fog that doesn't reach the ground.

Stratocumulus: Low, lumpy, and puffy gray or white patches with visible breaks in between.

Nimbostratus: Dark, thick, and featureless layers that block out the sun and bring continuous, moderate rain or snow.

Clouds with Vertical Development: These clouds grow upward rather than spreading horizontally across a specific altitude.^[6]

Cumulus: Fluffy, cotton-like clouds with flat bases and rounded tops; frequently known as "fair weather" clouds.

Cumulonimbus: Towering, massive storm clouds with dark bases and often an anvil-shaped top. These are the only clouds capable of producing severe thunderstorms, heavy downpours, lightning, and hail.

Smog is a type of severe air pollution, originally named as a portmanteau of "smoke" and "fog". It is a toxic mixture of airborne pollutants—such as nitrogen oxides, volatile organic compounds (VOCs), sulfur dioxide, and particulate matter—that form a visible, hazy blanket over cities and reduce visibility.

Types of Smog: Smog is generally classified into two main categories depending on its chemical makeup and the environment in which it forms. **Industrial Smog (Sulfurous Smog):** Historically known as "London-type smog," it forms in cold, damp conditions when smoke and sulfur dioxide from burning high-sulfur coal mix with natural fog. **Photochemical Smog:** Known as "LA-type smog," it forms in warm, sunny climates. Nitrogen oxides and hydrocarbons from vehicle exhaust and industrial sources react in the presence of strong sunlight to create harmful ground-level ozone. Smog is a dense, hazy form of air pollution created when smoke and exhaust gases mix with fog. The word itself is a blend of the words smoke and fog.

Causes of Smog

- Smog is driven by a combination of human activities and geographical weather patterns.
- Vehicle Exhaust: Cars and trucks are the largest contributors to photochemical smog precursors (nitrogen oxides and VOCs).
- Industrial Emissions: Power plants and manufacturing facilities burn fossil fuels like coal and oil, releasing large quantities of sulfur and soot.
- Temperature Inversions: Weather patterns where a layer of warm air traps a layer of cold, polluted air near the ground prevent smog from dispersing.
- Geography: Cities situated in valleys or basins surrounded by mountains (such as Los Angeles, Mexico City, or Beijing) are especially prone to trapping smog.

Health and Environmental Impacts

- Breathing in smog can cause serious harm to living organisms.
- Respiratory Issues: It irritates the eyes, nose, and throat, and triggers or worsens conditions like

asthma and emphysema. Ecosystem Damage: Ground-level ozone stunts plant growth, damages crops, and makes forests more vulnerable to disease.

- Check Air Quality: Track your local air quality using platforms like the US EPA AirNow tracker.
- Limit Exposure: Avoid heavy outdoor exercise on high-smog days, especially during peak afternoon sunlight when ozone levels are highest.
- Reduce Emissions: Use public transportation, carpool, or ride a bike to cut down on vehicular exhaust.
- Household Habits: Tightly seal household chemicals and paints to prevent VOC evaporation.

CONCLUSION

Fog, smog, mist and clouds are all visible masses of tiny water droplets or ice crystals suspended in the atmosphere. They are fundamentally the same phenomenon (condensation), classified strictly by where they form and how they restrict visibility.

- Fog: A low-lying cloud that touches the ground, reducing visibility to less than 1 kilometer.
- Mist: A lighter, thinner version of fog that usually hovers just above the ground and allows for visibility greater than 1 kilometer.
- Clouds: Condensed water vapor suspended high up in the troposphere, well above the Earth's surface.
- Formation: All three form when air cools to its dew point, forcing invisible water vapor to condense around microscopic particles in the air.
- Smog is driven by a combination of human activities and geographical weather patterns.
- Vehicle Exhaust: Cars and trucks are the largest contributors to photochemical smog precursors (nitrogen oxides and VOCs).

Common Types of Fog

- Radiation fog: Forms at night as the ground cools the air above it.
- Advection fog: Occurs when warm, moist air moves over a cool surface.
- Steam fog: Created when cold air moves over relatively warm water.

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