

A semi-truck is driving on a road through a thick fog. The scene is overlaid with a teal color. The truck is in the center of the frame, moving towards the viewer. The fog is very dense, obscuring the background. The road has a white line on the right side.

Do you have the foggiest notion about fog?

Virginia Enzor NC4VA
Central Carolina SKYWARN Emergency Coordinator
NC Deputy AUXCOMM Coordinator

What is fog?

NWS definition: "Fog is water droplets suspended in the air at the Earth's surface."

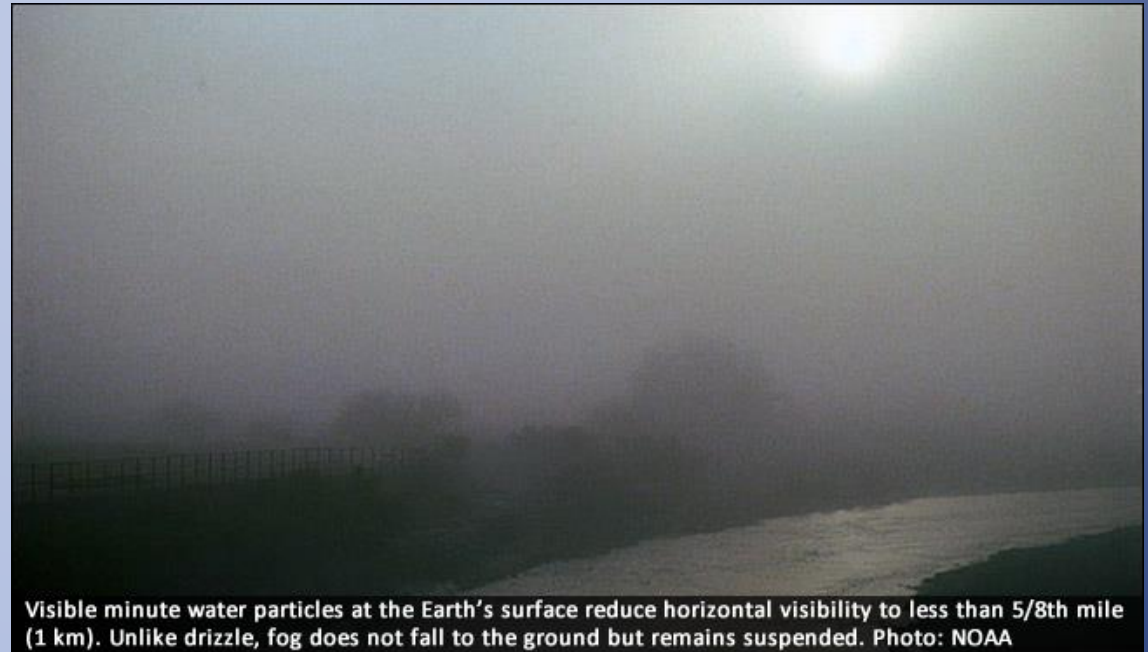
What's the difference between fog and clouds?

"Clouds and fog both form when water vapor condenses or freezes to form tiny droplets or crystals in the air, but clouds can form at many different altitudes while fog only forms near the ground."

<https://scijinks.gov/fog/>

What are some types of fog?

- Radiation Fog
- Advection Fog
- Steam Fog
- Mountain/Valley Fog
- Freezing Fog
- Hail Fog
- Super Fog



Visible minute water particles at the Earth's surface reduce horizontal visibility to less than 5/8th mile (1 km). Unlike drizzle, fog does not fall to the ground but remains suspended. Photo: NOAA

Radiation Fog



<https://www.weather.gov/safety/fog-radiation>

Common type of fog

Most prevalent in
fall & winter

Forms overnight as
the air near the
ground cools and
stabilizes. When
this cooling causes
the air to reach
saturation, fog will
form. ... As this air
cools, the fog will
extend upward.

Advection Fog



<https://www.weather.gov/safety/fog-advection>

Forms as warmer, moist air moves over a cold ground. The air is cooled to saturation by the cold from the ground below cooling the air above. Unlike radiation fog, advection fog may form under cloudy skies and with moderate to strong winds

May move across the landscape, pushed by low level winds.

Can last for several days.

Most common in the U.S. on the West Coast



Steam Fog

Common in Fall

In the Fall, water temperatures don't cool right away but air temperature does.

Formed when cold, stable air moves over a much warmer body of water. Evaporation from the warm body of water saturates the cold air above; water vapor condenses in the cold air producing "steam fog".

Usually shallow

Photo courtesy photographer Leslie Edgell Ward on Facebook; fishermen on Kerr Lake Reservoir.

Mountain/Valley Fog



“Overnight, the ground cools as the heat that was gathered from the sun’s rays during the day is released back into the air near the ground level. The denser, cooler air on mountain-tops sinks into valleys, and collects there.

Second, over the course of the night, the valley begins to fill from the bottom with cold layers of air. This phenomenon is known as “cold air drainage.” This cooler air lowers the surrounding air temperatures closer to the dew point and subsequently saturation. If there is sufficient moisture in the air, fog will begin to form in these valleys as the night progresses.”

<https://www.weather.gov/safety/fog-mountain-valley>

Freezing Fog



Photo: NOAA

“Tiny, supercooled liquid water droplets in fog can freeze instantly on exposed surfaces when surface temperatures are at or below freezing.”

Some surfaces that these droplets may freeze on include tree branches, stairs and rails, sidewalks, roads and vehicles.”



Hail Fog

Spring and summer months

Unusual type of fog that forms shortly after a heavy hailstorm.

Formation: Hailstones fall into warm, very moist air near the surface. As the hail accumulates on the ground, it cools the air just above the ground to the dew point, resulting in fog.

Usually quite patchy and shallow.

Photos by John Van Pelt K4JVP
Mother's Day Severe Weather Event, Central NC
May 14, 2006

Super Fog



Photo: Gary Curcio

"Super fog forms when a mixture of smoke and moisture released from damp smoldering organic material such as brush, leaves and trees, mixes with cooler, nearly saturated air. Visibility is lowered to less than 10 feet."

<https://www.weather.gov/safety/fog-super>



Scene at Fancy Gap pileup, March 31, 2013 (Photo: WXII-TV)

https://www.weather.gov/media/rnk/Newsletter/Spring_2013.pdf

NWS Blacksburg Virginia
Spring Newsletter 2013
“Dense Fog at Fancy Gap leads
to 96 car pileup on I-77: March
31, 2013”

- Heavy fog at the time
- 18 separate crashes involving 96 vehicles with a mile span
- 3 fatalities; at least 25 others suffered injuries

Safety Tips for Driving in Fog

1. Slow down; allow extra time to reach your destination
2. Roll down your window.
3. Use your low-beam headlights.
4. Leave plenty of distance between you and the vehicle in front of you to account for sudden stops or changes.
5. Use roadside reflectors as a guide.
6. Turn off cruise control.
7. Use windshield wipers and defrosters.
8. Be aware of animals on the road.
9. If visibility is near zero, the best course of action is to turn on your hazard lights, then pull into a safe location such as a parking lot of a local business and stop.



Sources

Driving in Fog

<https://www.statefarm.com/simple-insights/auto-and-vehicles/drive-safely-in-dense-fog>

Dense Fog at Fancy Gap leads to 96-car pileup on i-77: March 31, 2013

https://www.weather.gov/media/rnk/Newsletter/Spring_2013.pdf

What's the Difference Between Fog and Clouds

<https://scijinks.gov/fog/>

Early morning radiation fog

<https://photolib.noaa.gov/Collections/National-Weather-Service/Other/emodule/627/eitem/18740>

May 14, 2006 Severe Weather Event

https://projects.ncsu.edu/atmos_collaboration/nwsfo/storage/cases/20060514/

Fog Types

https://www.weather.gov/source/zhu/ZHU_Training_Page/fog_stuff/fog_definitions/Fog_definitions.html

Fog Resources

<https://www.weather.gov/safety/fog>

Questions?

Fog

BY CARL SANDBURG

The fog comes
on little cat feet.

It sits looking
over harbor and city
on silent haunches
and then moves on.