

FOG

The symbol for fog

Our language is full of weather words and fog is no exception. “I feel like I am lost in a fog.” “My memory is a little foggy.” “I haven’t got the foggiest idea.” We use fog in our horror/mystery movies and books for scarier effects and we can buy fog machines. The lighthouse stands as an icon of warning in the fog. The call of a foghorn emotes loneliness. We refer to fog as being as “thick as pea soup.” We say that fog rolls in and fog burns off. Philosophers have referred to fog: “Truth is the torch that gleams through the fog without dispelling it.” (Claude Adrien Helvetius, French Philosopher, 1715-1771).

Fog can be found in poetry such as Carl Sandburg’s (1878-1967) poem “Fog.”

And in folklore:

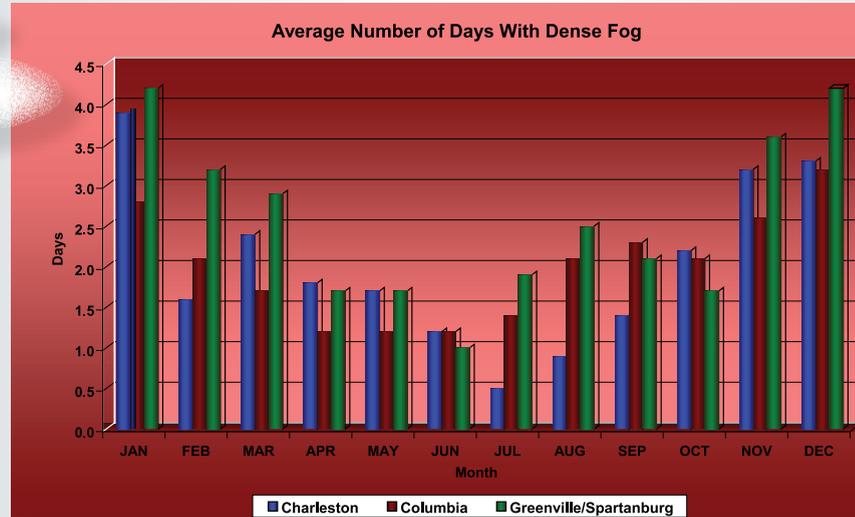
The origin of the word fog is a little hazy. One old definition of fog (about 1300) referred to tall grasses in a field as fog. Many grasses still have fog as part of their name such as Yorkshire fog grass.

Fog was also the Danish word for mist or spray in use about 1544. Perhaps the two definitions merged when mist was noted over a field of grass. The phrase “in a fog” was first recorded in 1602. (Online Etymology Dictionary at <http://www.etymonline.com/index.php?search=fog&searchmode=none>).

Fog can be beautiful but it can also be deadly. In the past 10 years (1995-2004) there were 155 vehicle fatalities due to fog in South Carolina according to the Fatality Analysis Reporting System (FARS) Web-Based Encyclopedia (NHTSA, 2005). Nationally, 13,720 people died as a result of fog-related accidents. Many more traffic collisions occurred with no fatalities.



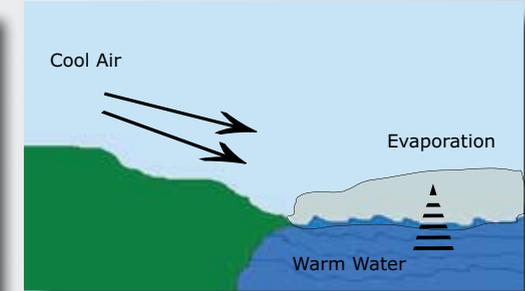
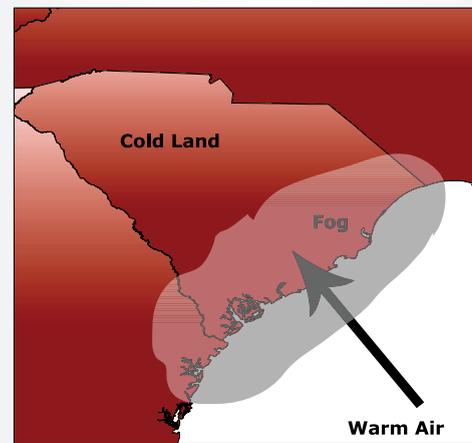
The fog comes
on little cat feet.
It sits looking
over harbor and city
on silent haunches



Fog is formed when water vapor condenses on condensation nuclei (or particles) in the air near the ground. When conditions are right these water particles continue to attract more water vapor and grow until the particles become visible. The National Weather Service (NWS) defines fog according to horizontal visibility, the greatest distance that can be seen; a horizontal visibility of 6 statute miles or less is regarded as fog and a horizontal visibility of less than ¼ statute mile is considered dense fog.

Fog can form in one of two ways. Radiation or ground fog is formed when air is cooled below saturation point (the point when the air cannot hold any more water vapor at the present temperature). Radiation fog most often occurs during nighttime cooling when skies are clear. It is most common in late fall and winter due to the longer nights. South Carolina advection fog, a type of radiation fog, is the result of warm moist air from the Gulf of Mexico flowing over the cold land. As the warm air meets the cooler air above the ground the amount of water vapor that the air can hold is reduced and results in bringing the air to the saturation point thus forming fog. Another type of radiation fog is called valley fog and this forms as cold air, which is denser or heavier than warm air, flows into a valley cooling the air to saturation point.

The second way that fog can form is called evaporation fog.



Water vapor is added to air through evaporation and mixes with the drier air until saturation is reached. This type of fog is also known as steam fog and can be seen over bodies of water when cold air travels over warm water that evaporates causing the air to become saturated. The warm water also warms the air above it; therefore an essential ingredient to steam fog is a slight breeze that allows the warm and cold air to mix. We

also see steam fog rising from the road after a rain as the sun comes out and heats the road causing evaporation to occur.

Now we can again look at our fog folklore and see if it is true. Fog forming in the summer may occur from a clear night when radiative cooling occurs. A cloudy night would keep the temperature from reaching the dew point, or saturation point. A clear night would seem to presage a “fair” summer day. In the winter, cold air moving over warm water produces fog due to evaporation. If the cold air moves over a very large body of water, such as one of the Great Lakes, it will acquire large amounts of moisture and become unstable. This could easily start out as fog and continue to grow until clouds form and rain or snow is produced. It may also refer to an approaching cold/warm front where fog is produced ahead of the front and rain follows.

Gloria Forthun — Southeast Regional Climate Center

Driving Safely in Fog

- ▶ Drive with lights on low beam. High beams will only be reflected back off the fog and actually impair visibility even more.
- ▶ Slow down...Slow down...Slow down.
- ▶ Listen for traffic you cannot see.
- ▶ Use wipers and defrosters as necessary for maximum visibility.
- ▶ Be patient. Do not pass lines of traffic.
- ▶ Do not stop on a freeway or heavily traveled road. If your car stalls or becomes disabled, move away from the vehicle to avoid personal injury.
- ▶ Consider postponing your trip until the fog clears. Usually by late morning or during the afternoon, visibilities improve.

NWS NOAA