

Types of Precipitation

Precipitation is water in a solid or liquid form that falls from clouds to the Earth's surface under the influence of gravity.

Rain is liquid water drops that fall mostly from nimbostratus and cumulonimbus clouds. **Drizzle** is somewhat smaller droplets that drift slowly toward the surface.

Fog restricts visibility to 1000 m or less. **Dense fog** restricts to 100 m or less. Fog consists of suspended tiny water droplets (could also be suspended ice crystals). Fog is a cloud on the ground. **Mist** restricts visibility less than fog.

Rain is the Most Common Type of Precipitation



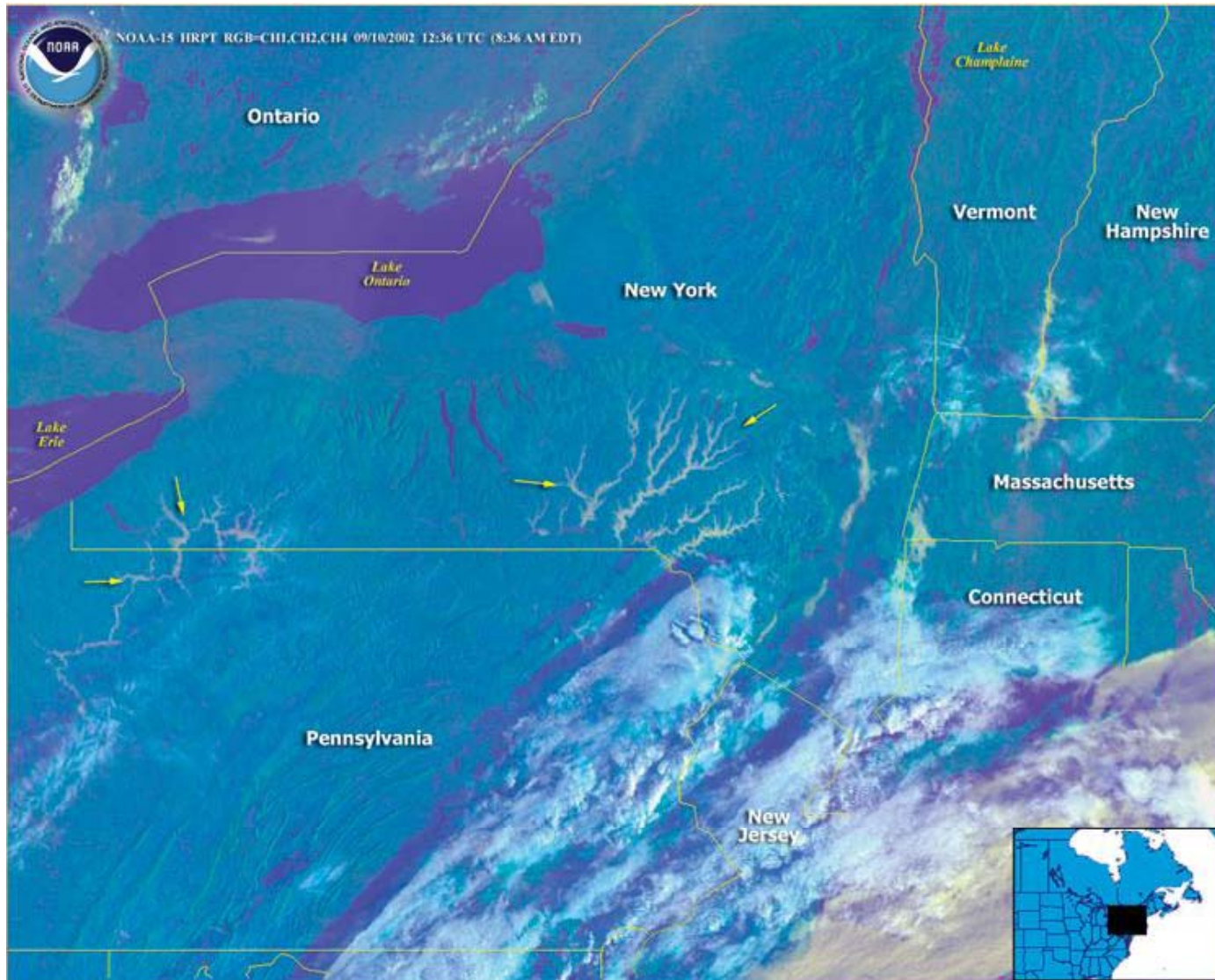
Edge of Hurricane Katrina



Radiation Fog Occurs on a Clear Night, with Light Winds and a Humid Air Mass near the Surface.

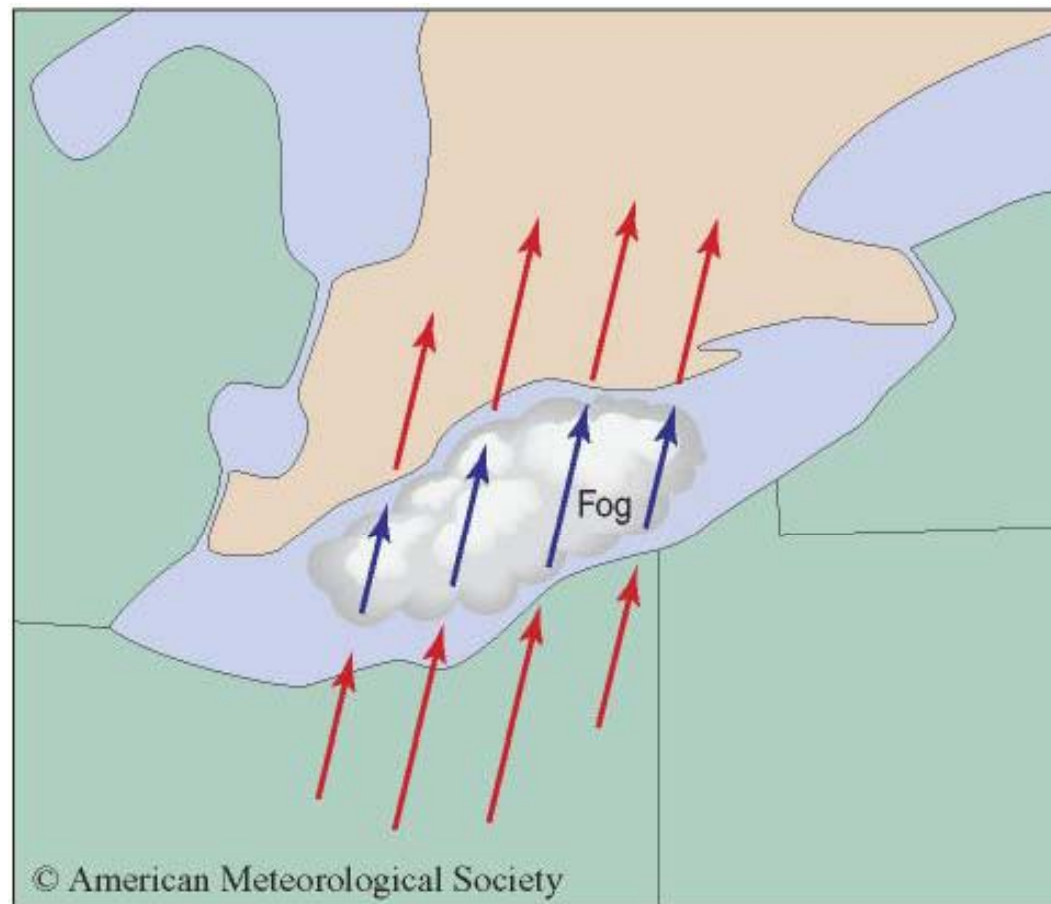


Radiation Fog is Very Common over Marshy or Moist Terrain Like these Valleys in NY.



Advection fog occurs when a relatively humid air mass moves over relatively cold ground and condensation occurs.

It can also form when a warm humid air mass encounters a somewhat colder lake or ocean like warm air over the cooler Great Lakes during the summer.



Steam Fog (Arctic Sea Smoke) Develops When Very Cold and Dry Air Flows over an Unfrozen Body of Water.

Because the Air Is Destabilized, Fog Appears as Rising Streamers that Resemble Smoke or Steam.



Steam fog over Lake Superior
Air temperature: 6 below zero

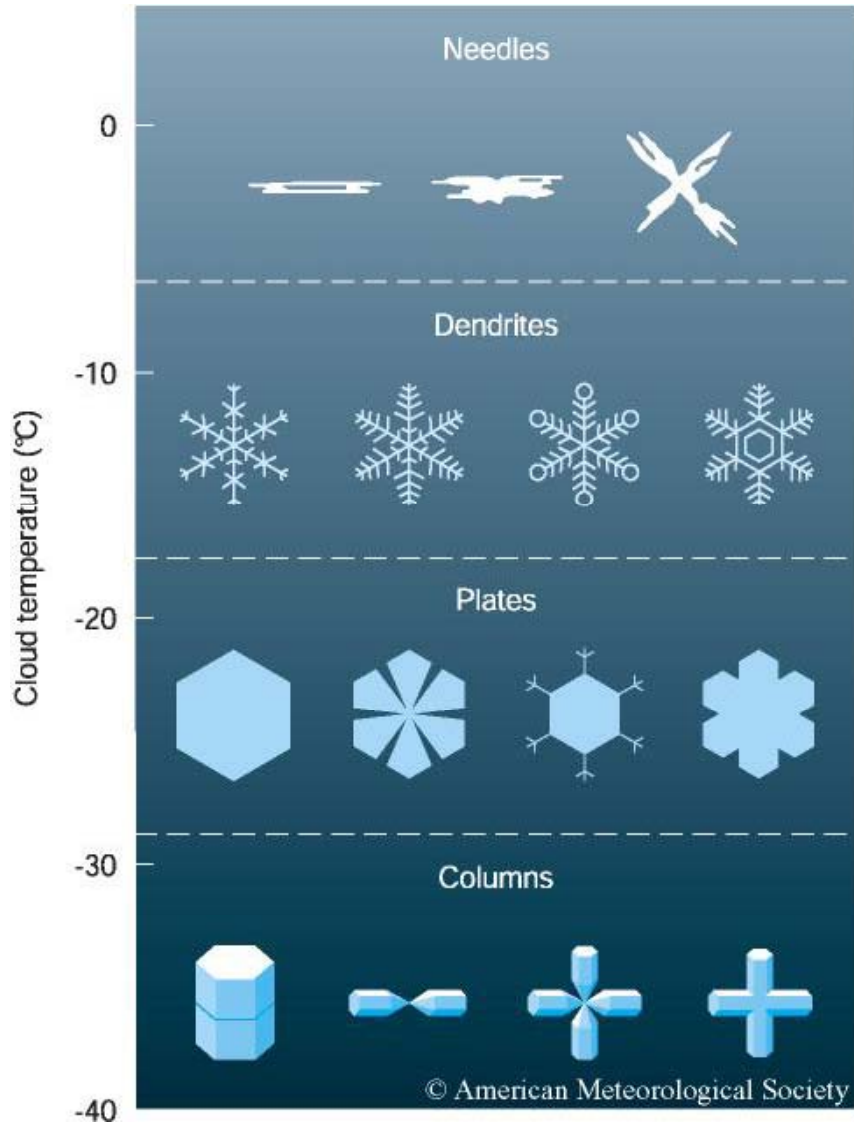
Upslope Fog Forms due to Orographic Lifting



Virga Is Rain that Falls from the Cloud But Evaporates before Hitting the Ground.



Snow Flakes vs. Freezing Rain



Snow is formed from solid water ice crystals that agglomerate together becoming flakes. Big ones form near freezing and small ones form at colder temperatures.

Snow pellets (called **soft hail or graupel**) are small spherical particles of ice that form when super cooled water droplets collide and freeze on an ice crystal.

Snow grains (also called **granular snow**) are smaller grains that originate in drizzle and freeze before they hit the ground.

Ice pellets (commonly called **sleet**) form when snowflakes partially or completely melt as they fall through above freezing air beneath the cloud base, then freeze again below.

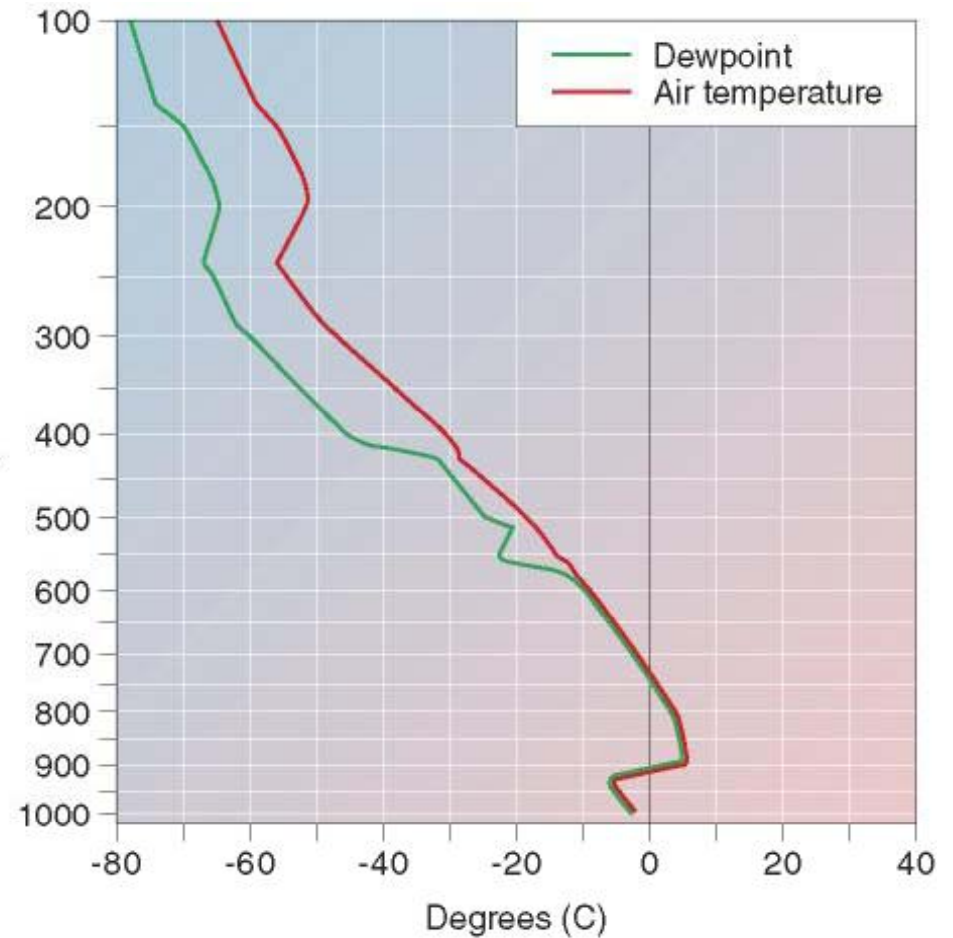
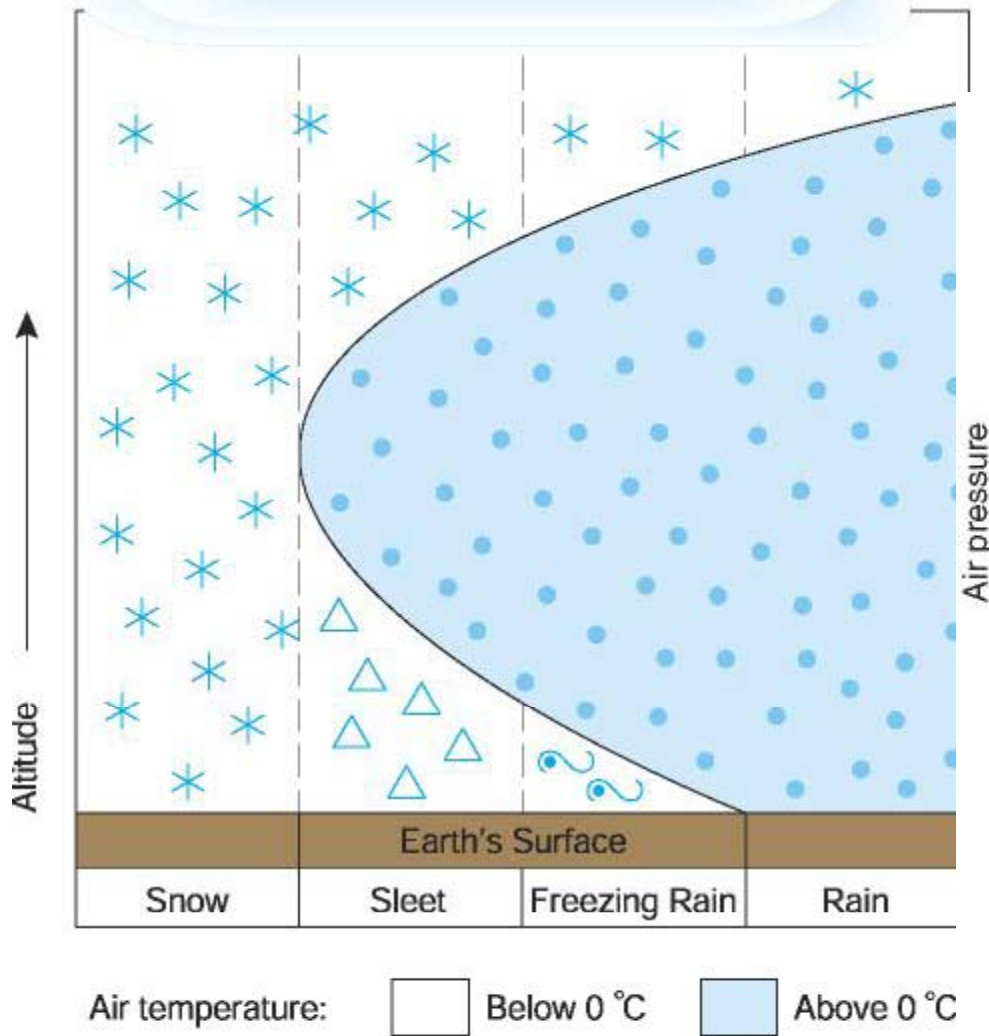
Graupel or Snow Pellets also Called Soft Hail



Ice Pellets (also Called Sleet) Are Formed from Snow Flakes the Partially Melt and the Freeze Again.



Conditions for Snow, Sleet, Freezing Rain and Rain Depend on the Vertical Temperature Profile of the Atmosphere.



Layered Appearance of a Hail Stone. Big Lumpy Hail Stone Weighed 1.67 Pounds.



Freezing Rain Falls to the Ground as Rain
Then Freezes with Contact with Cold Ground or Other
Surface below Freezing

