

Chapter 5 Review: Condensation: Dew, Fog, and Clouds

- What is the dew point temperature?
- What is a condensation nucleus?
- How common are condensation nuclei?
- What does it mean if a condensation nucleus is hygroscopic or hydrophobic?
- What common substance is hygroscopic?
- If hygroscopic condensation nuclei are present, how low can the relative humidity be for condensation?
- How does a dry haze look different from a wet haze?

Fog and Clouds

- What type of cloud is radiation fog? Advection fog? Advection-radiation fog?
- What is upslope fog? Where does it occur?
- What is steam fog?
- What is the basis for naming clouds?
- What are the types of low clouds? Middle clouds? High clouds?
- Which clouds extend through a significant vertical distance?
- Name the clouds in the following pictures. Say as much about them as you can.

Tall cloud, flat top. (Why is top flat?)
(Fig. 5.22, p. 125)



Usually cover only small part of sky
(fig. 5.13, p. 120)



Individual cloud "puffs" look like size of thumbnail when your arm is extended
(Fig. 21, p. 121)



Lens-shaped clouds downwind of mountains. Sometimes confused with flying saucers (like Fig. 5.24, p. 127)

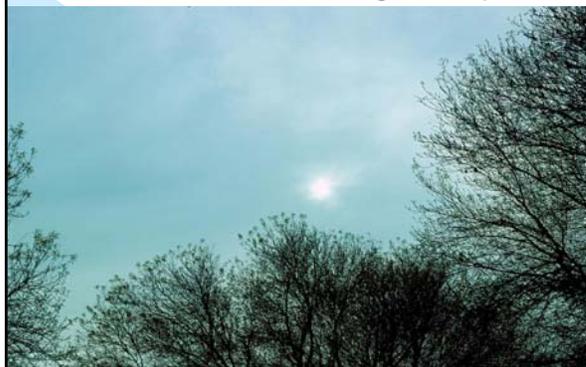


Wispy, no sharply defined edges



Fig. 5.12,
p. 119

Glow of sun (but no halo) visible thru featureless cloud deck (Fig. 5.16, p.121)



Featureless cloud blanket.
Sun not visible. (Fig. 5.19, p. 123)



Low, separated, puffy clouds
(Fig. 5.20, p. 124)



Featureless raining clouds, not the small clouds, i.e., Scud. (Fig. 5.17, p. 122.)



Thin sheet, often over whole sky.
Halo around sun or moon.
(Fig. 5.14, p. 120)



Clouds close together, each about size of fist at arm's length (Fig. 5.18, p. 122)



Large clouds with cauliflower tops (Fig. 5.21, p. 125)



What causes cloud above mountain (Fig. 5.25) or on top of other cloud? (Fig. 5.26)



Clouds bulge downward. Often seen on underside of cumulonimbus anvil (Fig. 5.27, p. 128)



Cloud ceiling, Geostationary orbits

- To what does "cloud ceiling" refer?
- Geostationary satellites
 - ◆ Roughly how far from the Earth's surface are they?
 - ◆ What is a geostationary orbit?
 - ◆ How much of the Earth can they see?
 - ◆ What parts of the Earth can they never see well?
 - ◆ Name two advantages of geostationary orbits over non-geostationary orbits.
 - ◆ What problem does this orbit create for designing satellite sensors?
 - ◆ How many such satellites does the US keep in operation? Where are they?

Polar Orbits, Radiometers

- Polar orbiting satellites
 - ◆ Roughly how far from the Earth's surface are they?
 - ◆ What is a polar orbit?
 - ◆ How much of the Earth can they see at any one instant? In one orbit? In a day?
 - ◆ Are there any parts of the Earth they can't see well?
 - ◆ Name two advantages of a polar orbit over a geostationary orbit.
- What is a radiometer?
- Infrared (IR) photographs
 - ◆ How does IR photography work?
 - ◆ What is an advantage of IR photography over using regular visible light?

Satellite Imaging and Vertical Profiling

- Clouds that appear bright in a “visible” satellite picture are thick clouds. Why?
- Clouds that appear bright in an infrared satellite picture are high clouds. Why?
- How is it possible for a satellite to sense what is going on at various levels of the atmosphere?