Cloud Types

Cloud: A visible mass of tiny liquid water droplets (~0.02 mm diameter) or tiny ice crystals (variable...0.01 mm to 0.25 mm length) suspended in the atmosphere.
- Often, if liquid, the droplets are “super-cooled”, or subfreezing liquid water.
- Super-cooling can occur if there is no solid “seed nucleus” on which for the water to freeze. This occurs until -40°C / -40°F.

Clouds form as a result of saturation of the air (RH = 100%, or w=w_s), either by:
- Cooling the air (lowering w_s)
- Moistening the air (increasing w)
- Lifting the air until saturation (lowering w_s)

Latin prefixes for cloud type:

Upward growth into heaps: Cumulo-
Layered sheets at any altitude: Strato-
High wisps (curls) of (most often) ice crystals: Cirro-
Cloud with deep enough vertical extent/velocity to produce precipitation: Nimbo-

Clouds shown in class:

High clouds
Cirrus
Cirrostratus (ice layer)
Cirrocumulus (cirrus-level “heap”---super-cooled liquid)

Mid-level clouds
Altostratus (mid-level layer)
Altocumulus (mid-level “heap”)

Low-level clouds
Stratus (Nimbostratus = rain-producing layer cloud)
Stratocumulus (layer of cumulus)
Cumulus
- Cumulus humilis (flat cumulus...very fair weather, not unstable)
- Cumulus congestus (deep vertical cumulus)
- Cumulonimbus (deep vertical precip-producing cumulus)

Other clouds discussed in class:
Lenticular clouds
Banner clouds
Pileus
Altocumulus castellanus
Anvil clouds
Mammatus
Shelf clouds
Undular bore clouds
Hole clouds / fallstreaks
Nacreous / Noctilucent clouds