Cloud Types ATM 211



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Cloud: A visible mass of tiny liquid droplets (sometimes super-cooled, i.e., subfreezing liquid water) or tiny ice crystals suspended in the atmosphere.

-Result of saturation of the air (RH = 100%, w=w_s) either by:
-Cooling the air (lowering w_s)
-Moistening the air (increasing w)

(Skew-T example)

Latin prefixes for type:

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

High Clouds



CIRRUS (ice only, cirrus = ringlet / curling)

High Clouds



CIRROSTRATUS (ice, stratus = layer)

High Clouds



CIRROCUMULUS (cumulo = heap) ... contains supercooled water, unlike cirrus

Mid-level Clouds



ALTOSTRATUS (alto=middle) (this also is asperatus)

Mid-level Clouds



ALTOCUMULUS

Low-level Clouds



STRATUS (nimbostratus) --- nimbo = rain

Low-level Clouds



STRATOCUMULUS



CUMULUS (humilis) - \rightarrow Forms through lifting parcels of air until LCL



Mont Tremblant, Quebec – October 6, 2017

CUMULUS (humilis) - \rightarrow Forms through lifting parcels of air until LCL



CUMULUS (congestus)



CUMULONIMBUS



LENTICULARIS



LENTICULARIS (August 8, 2019 in Voorheesvile, N.Y.)



LENTICULARIS (Lenticular clouds away from Catskills) Spring 2013, Guilderland



BANNER CLOUD



PILEUS (Latin for "cap") ... rapid ascent atop cumulus congestus



(cumulus) FRACTUS (or stratus fractus)



(cumulus) FRACTUS (or stratus fractus)



(altocumulus) CASTELLANUS



Cirrus "anvil cloud" (with cumulus congestus in foreground)



MAMMATUS



Shelf Cloud



Undular Bore Austin, TX, January 2013



Undular Bore



FALLSTREAK (plane moves through supercooled liquid cloud, transitions part of the cloud to ice, then graupel, due to sudden pressure drop as plane flies through it . . . Result is evaporation of water in close proximity



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FALLSTREAKS



NACREOUS CLOUDS (polar stratospheric clouds, contain H2Ov and other molecules, like nitric acid)



NOCTILUCENT CLOUDS (form in the mesosphere, and only visible in polar twilight (sun shines on them from below, when sun is low on the horizon) Some ways we can see the atmosphere as a fluid through clouds











Clouds can also appear as "undercast"



Clouds can also appear as "undercast"

Thacher Park, New York - D

Clouds can also appear as "undercast"

21.61

21.72

0.00

270.7

970.5

