

Types of Clouds

What's the Weather?

CLOUD



TYPES

© Original Artist
Reproduction rights obtainable from
www.CartoonStock.com



"Is this a cirrocumulus or what?"

Cirrus, Cirrocumulus and Cirrostratus

(high 5000-16,000 m)

- thin and often wispy
- composed of ice crystals that originate from the freezing of supercooled water droplets.
- Generally occur in fair weather and point in the direction of air movement at their elevation.



Cirrus



Cirrocumulus



Cirrostratus

Cirrus

- They are made of ice crystals and have long, thin, wispy streamers.
- Cirrus clouds are usually white and predict fair weather.



cirrus



cirrus



cirrus



cirrus



cirrus



cirrus



© H. W. Enge, Mtgl. HOW THE WEATHERWORKS

Cirrocumulus

- They are small rounded puffs that usually appear in long rows.
- Cirrocumulus are usually white, but sometimes appear gray.
- Cirrocumulus are usually seen in the winter time and mean that there will be fair, but cold weather.



Cirrostratus

- Sheetlike thin clouds that usually cover the entire sky.
- Cirrostratus clouds usually come 12-24 hours before a rain or snow storm.



Alto cumulus and Altostratus (middle 2,000 to 7,000 m)

- Middle clouds are made of ice crystals and water droplets.
- The base of a middle cloud above the surface can be anywhere from 2000-8000m in the tropics to 2000-4000m in the polar regions. An



Alto cumulus

- They are grayish-white with one part of the cloud darker than the other.
- Usually form in groups.
- If you see alto cumulus clouds on a warm sticky morning, then expect thunderstorms by late afternoon.



Altostratus

- An altostratus cloud usually covers the whole sky.
- The cloud looks gray or blue-gray.
- Usually forms ahead of storms that have a lot of rain or snow. Sometimes, rain will fall from an altostratus cloud.
- If the rain hits the ground, then the cloud is called a nimbostratus cloud.



Stratus, Nimbostratus and Stratocumulus (low surface to 2000 m)

- Low clouds are made up of water droplets. The base of a low cloud is from the ground to 2000m.



Stratus

- They are gray and can cover most or all of the sky (like a big blanket).
- Stratus clouds sometimes produce light mist or drizzle.



stratus



stratus



Stratocumulus

- Low, lumpy, and gray.
- Only light precipitation, usually drizzle, occurs with stratocumulus clouds.



statocumulus



Nimbostratus

- They are dark gray with a ragged base.
- Produce rain or snow.
- Sometimes they cover the whole sky and you can't see the edges of the cloud.



stratocumulus



stratocumulus



Clouds with Vertical Development

Cumulus and Cumulonimbus (surface to 13,000 m)

- The clouds develop by warm air rising from the surface. Cumulus and Cumulonimbus clouds provide the most interesting and severe weather to our planet.



Cumulus

- Puffy white or light gray clouds that look like floating cotton balls.
- Cumulus clouds have sharp outlines and a flat base.
- Seeing cumulus clouds in the sky can mean the weather will be good or bad.



Cumulonimbus

- Known as thunderstorm clouds.
- Can grow up to 10km high.
- High winds make the top of the cloud flat.
- Cumulonimbus clouds can produce heavy rain, hail, lightning, and tornadoes.



cumulonimbus



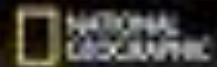
cumulonimbus



cumulonimbus



Roaring cumulonimbus clouds
Photograph by Curtis Frisvold, Collection/Getty



supercell

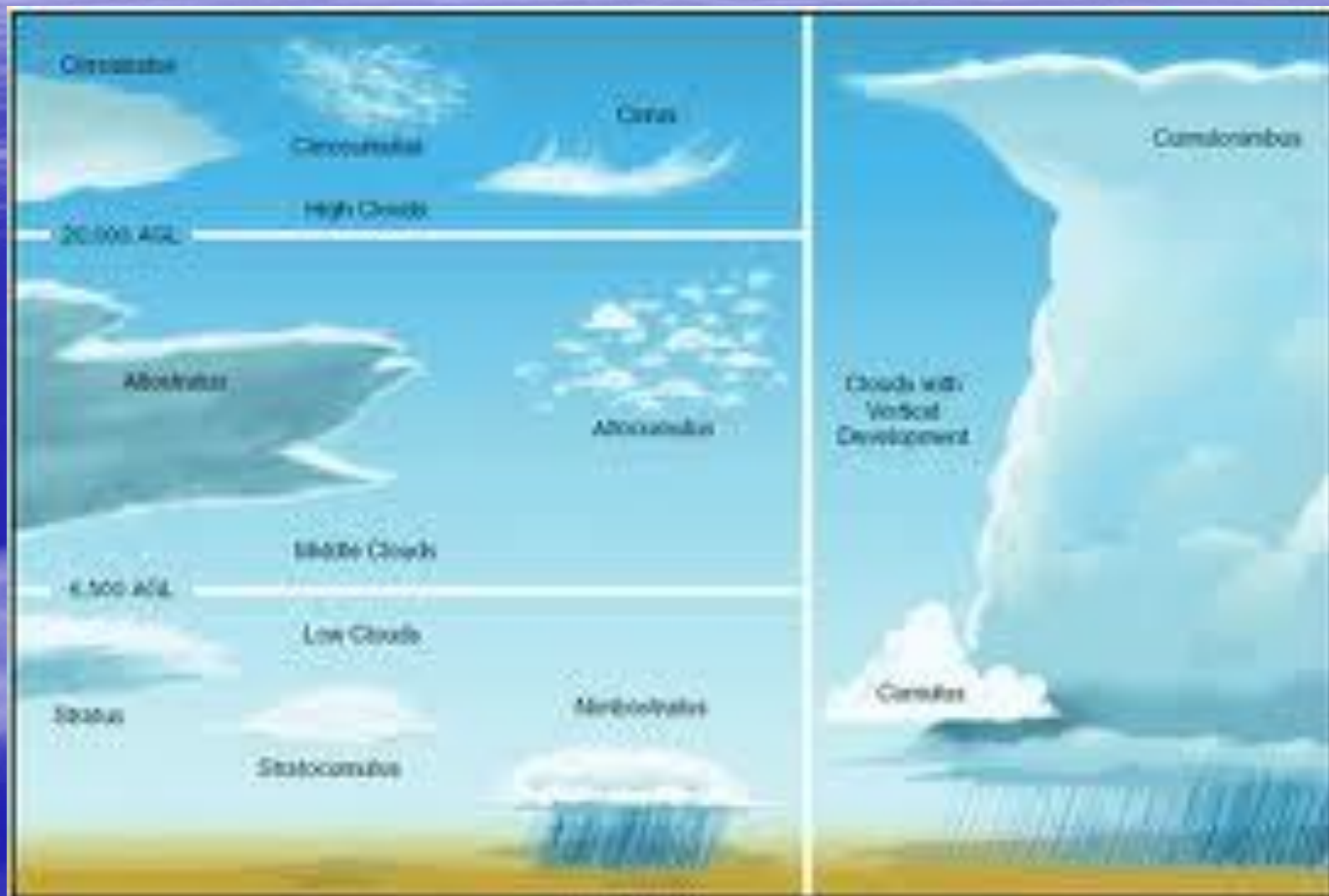


supercell

















Common types of clouds in the troposphere





Low 0-5,000 feet Middle 6,000-23,000 feet High 24,000-50,000 feet

Cumulus (heaps)	Stratus (layers)	(Layers and Heaps)		With Precipitation (Rain, Snow, Hail, Sleet)
 <p>Towering Cumulus</p>	 <p>Cirrus</p>	 <p>Cirrocumulus</p>	 <p>Altostratus</p>	 <p>Nimbostratus</p>
 <p>Fluffy Cumulus</p>	 <p>Altostratus</p>	 <p>Altostratus</p>	 <p>Altostratus</p>	
 <p>Fair Weather Cumulus</p>	 <p>Cirrus</p>	 <p>Stratocumulus</p>	 <p>Nimbostratus</p>	 <p>Cumulonimbus</p>

Clouds



Cirrostratus

Cirrus

10 km (6 mi)

Cirrocumulus

8 km (5 mi)

Cumulonimbus

Altostratus

6 km (4 mi)

Altostratus

Stratocumulus

Cumulus

4 km (2.5 mi)

Nimbostratus

Stratus

2 km (1.2 mi)



Cirrus

Cirrostratus

Altostratus

Cirrus

Cumulonimbus

Altostratus

Altostratus

Cumulus

Nimbostratus

Stratocumulus

Stratus

Fog

How do clouds form

- Adiabatic temperature change
- Orographic lift
- Frontal wedging
- Convergence
- Fog is a cloud (many types steam, upslope, evaporative, frontal, precipitation, and radiation).

Adiabatic temperature change

- As one travels up through the atmosphere temperature drops or cools and condensation occurs

Orographic lift

- When air comes into contact with elevated terrain, mountain slopes act like ramps lifting air causing cooling and condensation

Frontal wedging

- Occurs when cool or cold air acts like a barrier over which warmer less dense air rises

Convergence

- Whenever 2 air masses collide resulting in upward air movement