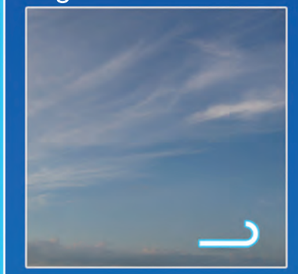
# SKY WATCHER CHART

## High Clouds: cloud bases 16,000 - 50,000ft (5-15km)

http://www.weather.gov/os/brochures/cloudchart.pdf

Typical Types: Cirrus (Ci), Cirrostratus (Cs), Cirrocumulus (Cc)

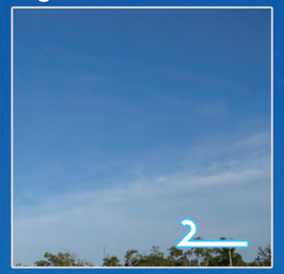


**H1: Cirrus**
In the form of filaments, strands, or hooks

**H2: Cirrus**
Dense, in patches or sheaves, not increasing, or with tufts

**H3: Cirrus**
Often anvil shaped remains of a cumulonimbus

**H4: Cirrus**
In hooks or filaments, increasing, becoming denser



**H5: Cirrostratus**
Cirrus bands, increasing, below 45° elevation

**H6: Cirrostratus**
Cirrus bands, increasing, veil above 45° elevation

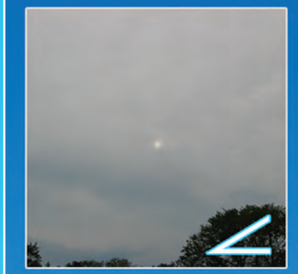
**H7: Cirrostratus**
Translucent, completely covering the sky

**H8: Cirrostratus**
Not increasing, not covering the whole sky

**H9: Cirrocumulus**
Alone or with some cirrus or cirrostratus

## Middle Clouds: cloud bases 6,500 - 23,000ft (2-7km)

Typical Types: Altostratus (As), Altocumulus (Ac), Nimbostratus (Ns)



**M1: Altostratus**
Mostly semi-transparent, sun or moon may be dimly visible

**M2: Altostratus or Nimbostratus**
Dense enough to hide the sun or moon

**M3: Altocumulus**
Semi-transparent, one level, cloud elements change slowly

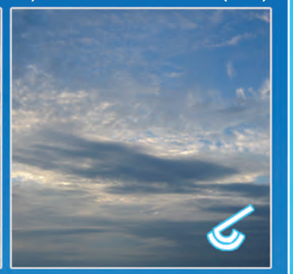
**M4: Altocumulus**
Lens-shaped, or continually changing shape and size

**M5: Altocumulus**
One or more bands or layers, expanding, thickening

**M6: Altocumulus**
From the spreading of cumulus or cumulonimbus

**M7: Altocumulus**
One or more opaque layers, w/ altostratus or nimbostratus

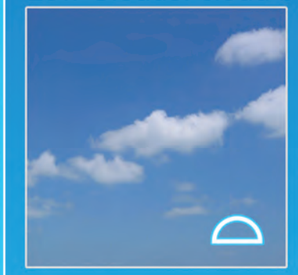
**M8: Altocumulus**
With cumulus-like tufts or turrets



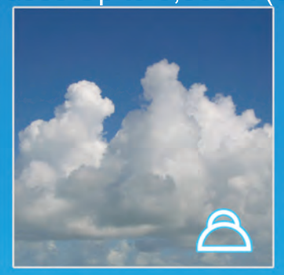
**M9: Altocumulus**
Chaotic sky, cloud bases at several levels

## Low Clouds: cloud bases Up to 6,500 ft (0-2km)

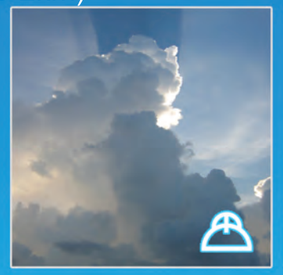
Typical Types: Stratus (St), Stratocumulus (Sc), Cumulus (Cu), Cumulonimbus (Cb)



**L1: Cumulus**
Cumulus of fair weather with flattened appearance



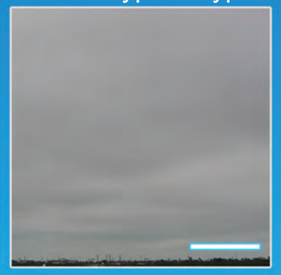
**L2:Cumulus**
Moderate/strong vertical extent, or towering cumulus



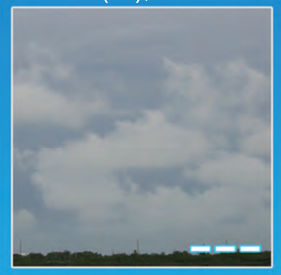
**L3: Cumulonimbus**
Tops not fibrous, outline not completely sharp, no anvil

**L4: Stratocumulus**
From the spreading and flattening of cumulus

**L5: Stratocumulus**
Not from the spreading and flattening of cumulus



**L6: Stratus**
In a continuous layer and/or ragged shreds



**L7: Stratus Fractus**
and/or Cumulus Fractus occurs with rain or snow

**L8: Cumulus & Stratocumulus**
Not spreading, bases at different levels

**L9: Cumulonimbus**
With fibrous top, often with an anvil

**Mammatus**
Drooping underside of heavy, rain-saturated clouds

**Tornado**
Rapidly rotating column under a cumulonimbus cloud that touches the ground

**Wall Cloud**
Lowering of the rain free base of a thunderstorm, often prior to tornado formation

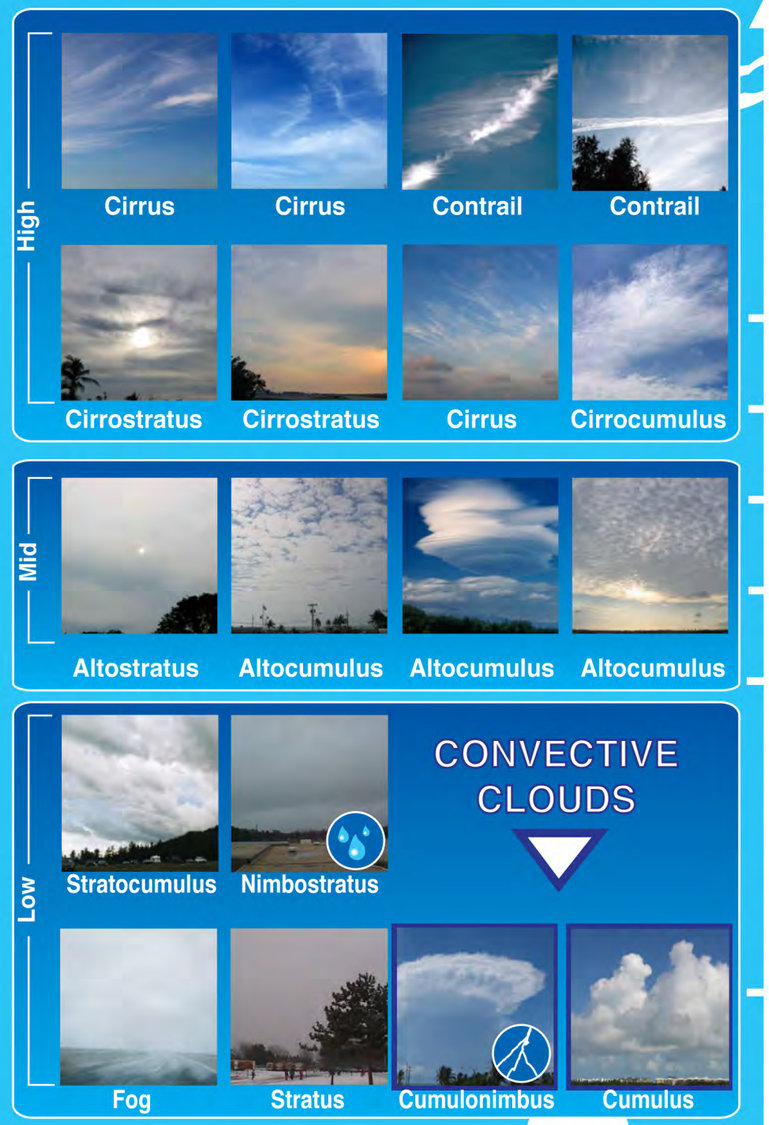
**Shelf Cloud**
Represents the leading edge of strong winds in advance of a thunderstorm

**Wave Cloud**
Formed by strong horizontal winds over uneven terrain

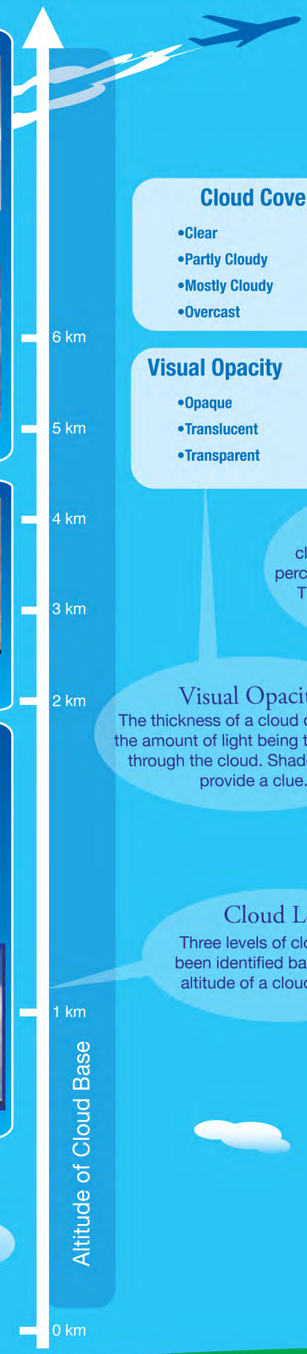
Special photo credit thanks to Jim W. Lee, Eric Kurth, Brian Klimowski, and Eric Helgeson

# Introduction to Clouds

http://science-edu.larc.nasa.gov/cloud_chart




Convective Clouds form because of large updrafts of warm, moist air moving up into cold air!




**Cloud Cover**

- Clear (0% - 5%)
- Partly Cloudy (5% - 50%)
- Mostly Cloudy (50% - 95%)
- Overcast (95% - 100%)

**Visual Opacity**

- Opaque
- Translucent
- Transparent

### Cloud Cover

Determination of the amount of cloud cover is done by estimating the percentage of the sky covered with clouds. This is one of several possible scales or categories for cloud cover.

### Visual Opacity

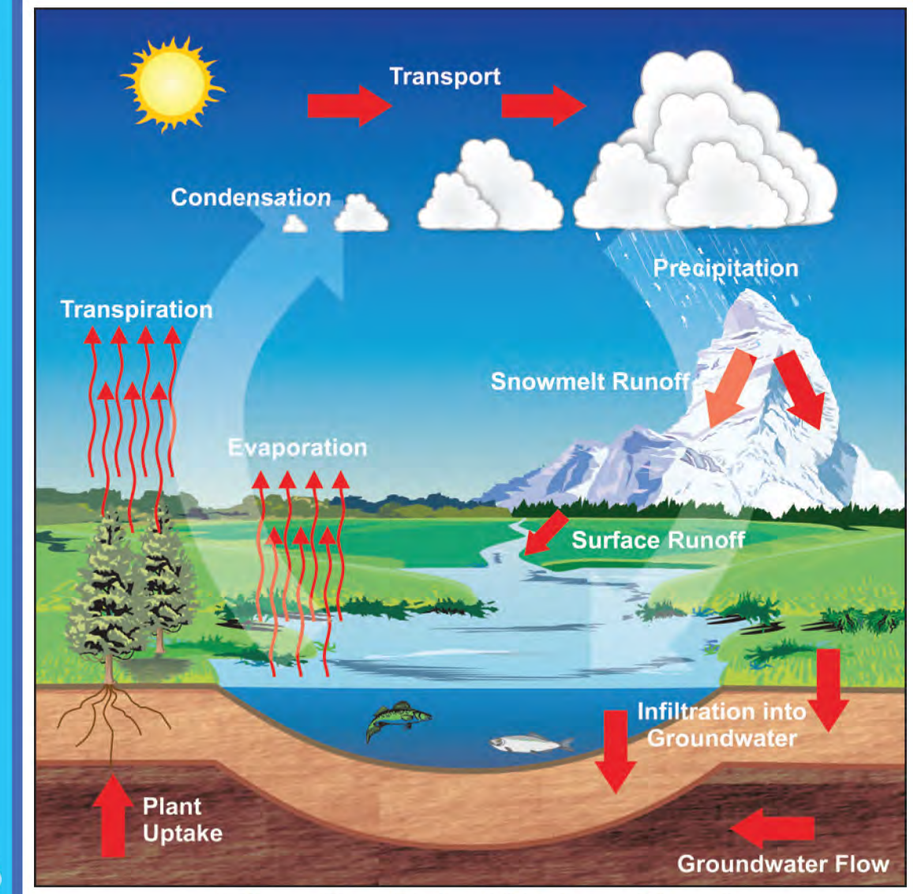
The thickness of a cloud determines the amount of light being transmitted through the cloud. Shadows often provide a clue.

### Cloud Level

Three levels of clouds have been identified based on the altitude of a cloud's base.

The water on Earth is always on the move, changing state from liquid to vapor back to liquid and snow and ice near the poles and mountains. The process used to describe the continuous movement of water between the Earth and atmosphere is known as the water cycle, and is often referred to as the hydrologic cycle. There is no beginning or end to the water cycle; it behaves much like a ferris wheel at an amusement park, moving around and around.

Ever wonder how clouds got their names? Well you may be surprised to find out!




The Earth's Water Cycle

In 1803 Luke Howard used Latin terms to classify four main cloud types.

- Cumulus means pile and describes heaped, lumpy clouds.
- Cirrus, meaning hair, describes high level clouds that look wispy, like locks of hair.
- Featureless clouds that form sheets are called Stratus, meaning layer.
- The term Nimbus, which means 'precipitating cloud', refers to low, grey rain clouds.
- Alto is used to describe mid level clouds.
- Finally, convective clouds have a vertical development extending through large portions of the atmosphere.


National Oceanic and Atmospheric Administration
http://www.noaa.gov
http://www.weather.gov
http://www.education.noaa.gov
http://www.srh.noaa.gov/jetstream YPA-200752

National Aeronautics and Space Administration
http://www.nasa.gov
http://education.nasa.gov
http://scool.larc.nasa.gov
NP 2007-99-99-LaRC