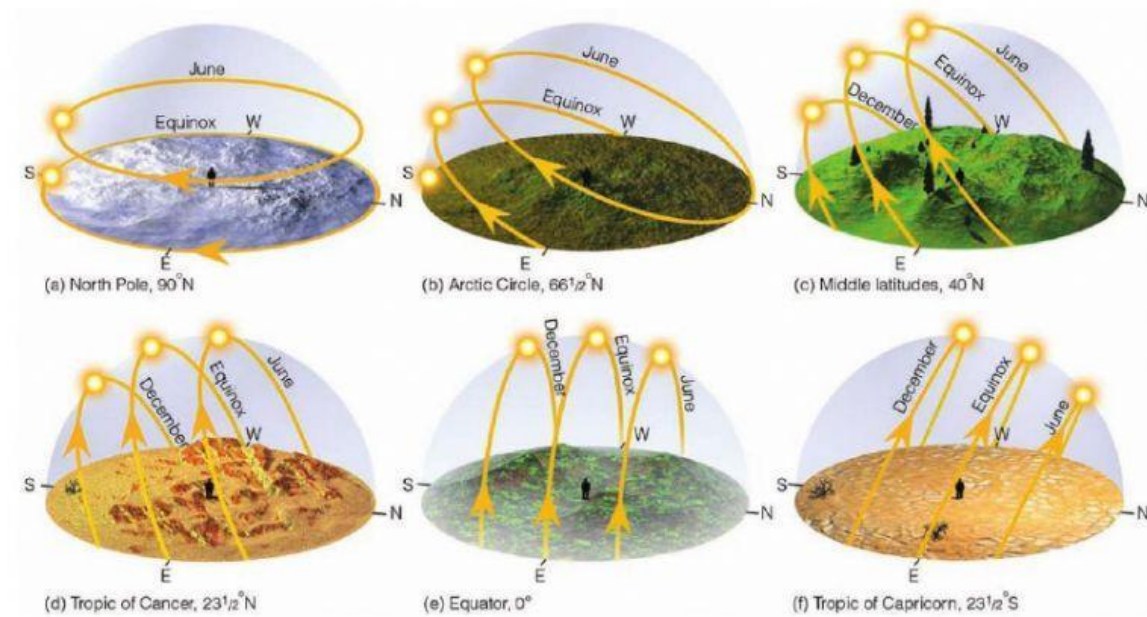
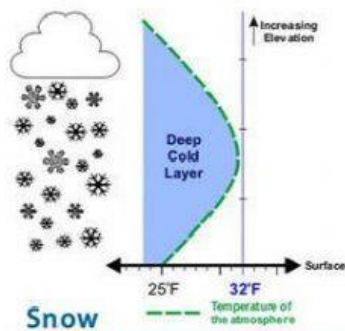


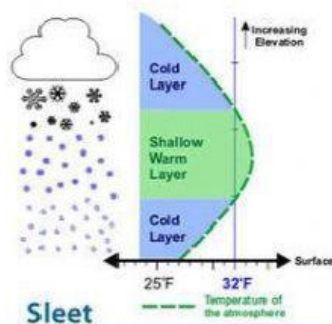
11.5 Precipitation



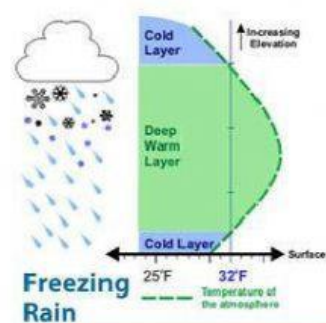
Types of Frozen Precipitation



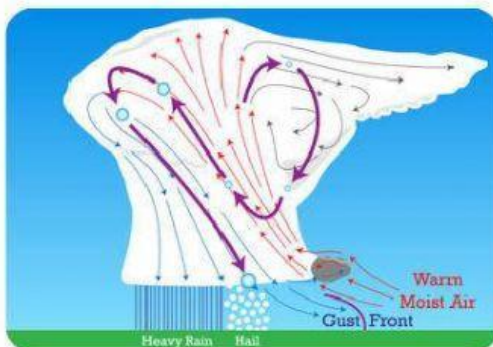
Snow falls when water vapor condenses as ice crystals. The air temperature is below freezing all the way to the ground, so the ice crystals remain frozen. They fall as flakes.



Sleet forms when snow melts as it falls through a layer of warm air and then refreezes. It turns into small, clear ice pellets as it passes through a cold layer near the ground.



Freezing rain falls as liquid water. It freezes on contact with cold surfaces near the ground. It may cover everything with a glaze of ice. If the ice is thick, its weight may break tree branches and pull down power lines.



Hail

Hail forms when strong updrafts carry rain high into the troposphere. The rain freezes into balls of ice called hailstones. This may happen over and over again until the hailstones are as big as baseballs. Hail forms only in cumulonimbus clouds.

6) What are Cirrus Clouds?

- Thin, feathery white clouds
- Found in high altitudes
- Form when the wind is strong
- May indicate approaching bad weather if they thicken and lower in altitude

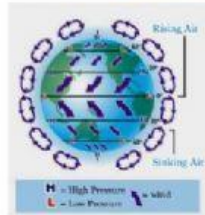


Temperature

- Heated air near a hot surface is less dense than the colder air above it.
- The heated air rises, forcing the colder air to move aside and sink toward the ground.
- Then this colder air is warmed by the surface, and it rises.
- Wind is created.

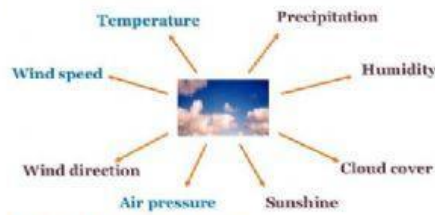


Convection cells



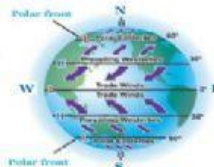
- The combination of global convection and Earth's rotation sets up a series of wind patterns called **convection cells**.

Introduction to Weather

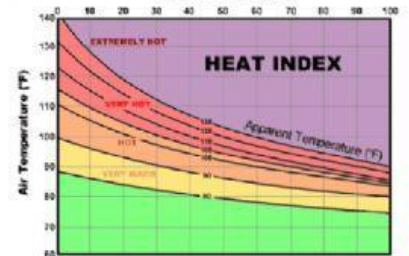


Air and water vapor

- Three important global wind patterns exist in each hemisphere:
 - Trade winds
 - Prevailing westerlies
 - Polar easterlies



Relative Humidity (%)

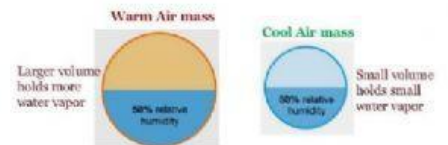


Precipitation

- Precipitation - any form of water that:
 - falls from clouds
 - reaches Earth's surface
- Types of Precipitation
 - Rain
 - Most common
 - Drops at least 0.5 mm in Diameter
 - Smaller drops are drizzle, even smaller are mist
 - Sleet
 - When raindrops fall through a layer of air below 0°C
 - Ice particles smaller than 5 mm

Relative Humidity

- **Relative humidity** is a measure of how much water vapor an air mass contains.



Moisture

- An air parcel with a large moisture content has the potential for that parcel to produce a great amount of precipitation.
- Air with a mixing ratio of 13 g/kg will likely rain a greater amount of water than air with a mixing ratio of 6 g/kg.

1. What is precipitation?

2. What is the most common form of precipitation?

3. What is hail?

4. What is sleet?

5. What is snow?