Precipitation

1) **How precipitation forms**
   a. Precip. from cold clouds
   b. Precip. from warm clouds
2) **5 types of precipitation**
3) **Measuring precipitation**

18.3 Cloud Types and Precipitation

How Precipitation Forms

- For precipitation to form, cloud droplets must grow in volume by roughly one million times.

18.3 Cloud Types and Precipitation

How Precipitation Forms

Cold Cloud Precipitation

- **Supercooled water** is the condition of water droplets that remain in the liquid state at temperatures well below 0°C.

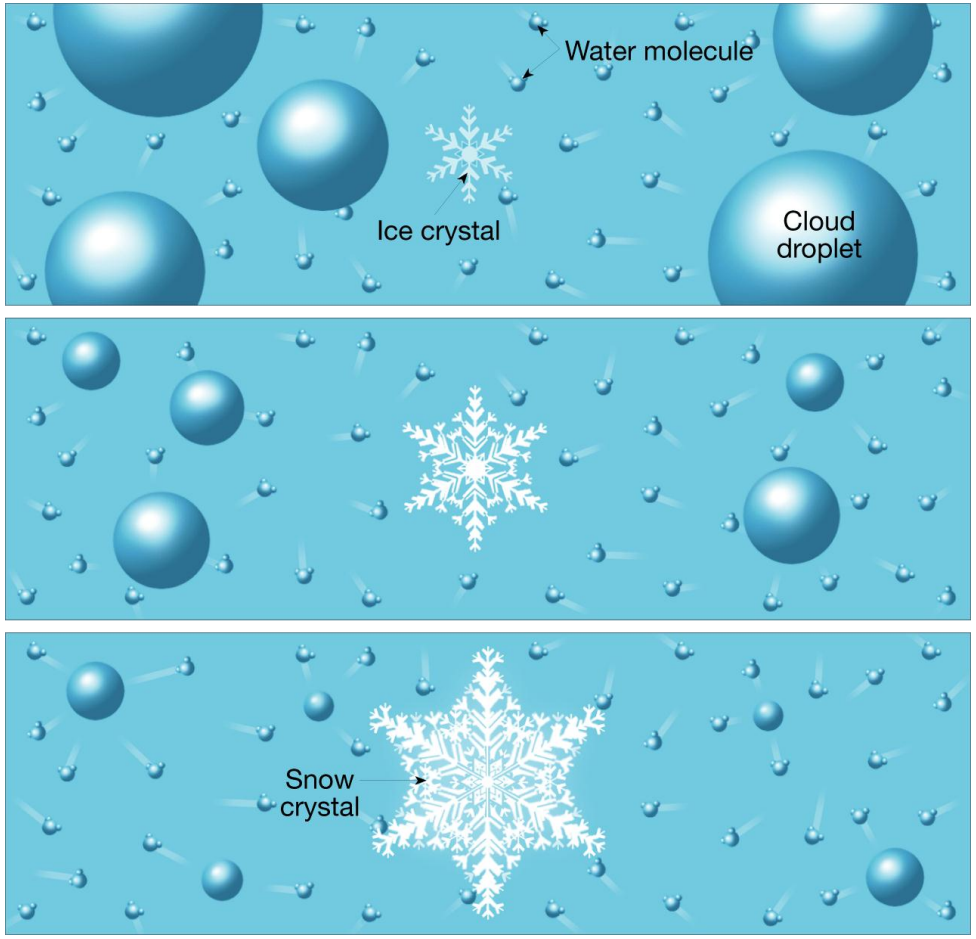
- **Supersaturated air** is the condition of air that is more concentrated than is normally possible under given temperature and pressure conditions.

18.3 Cloud Types and Precipitation

Cold Cloud Precipitation

- The **Bergeron process** is a theory that relates the formation of precipitation to supercooled clouds, freezing nuclei, and the different saturation levels of ice and liquid water.

The Bergeron Process



18.3 Cloud Types and Precipitation

How Precipitation Forms

Warm Cloud Precipitation

- The **collision-coalescence process** is a theory of raindrop formation in warm clouds (above $0^{o}C$) in which large cloud droplets collide and join together with smaller droplets to form a raindrop.

18.3 Cloud Types and Precipitation

Forms of Precipitation

- The type of precipitation that reaches Earth's surface depends on the temperature profile in the lower few kilometers of the atmosphere.

- Rain and Snow

1) **Rain-** In meteorology, the term *rain* means drops of water that fall from a cloud and have a diameter of at least 0.5 mm.

2) **Snow**- At very low temperatures (when the moisture content of air is low) light fluffy snow made up of individual six-sided ice crystals forms.

18.3 Cloud Types and Precipitation

Other types of precipitation

3) Drizzle: < 0.5 mm in diameter. Falls slowly & close together

4) Sleet is the fall of clear-to-translucent ice.

5) **Hail** is produced in cumulonimbus clouds.

- Hailstones begin as small ice pellets that grow by collecting supercooled water droplets as they fall through a cloud.