How do Clouds Form?

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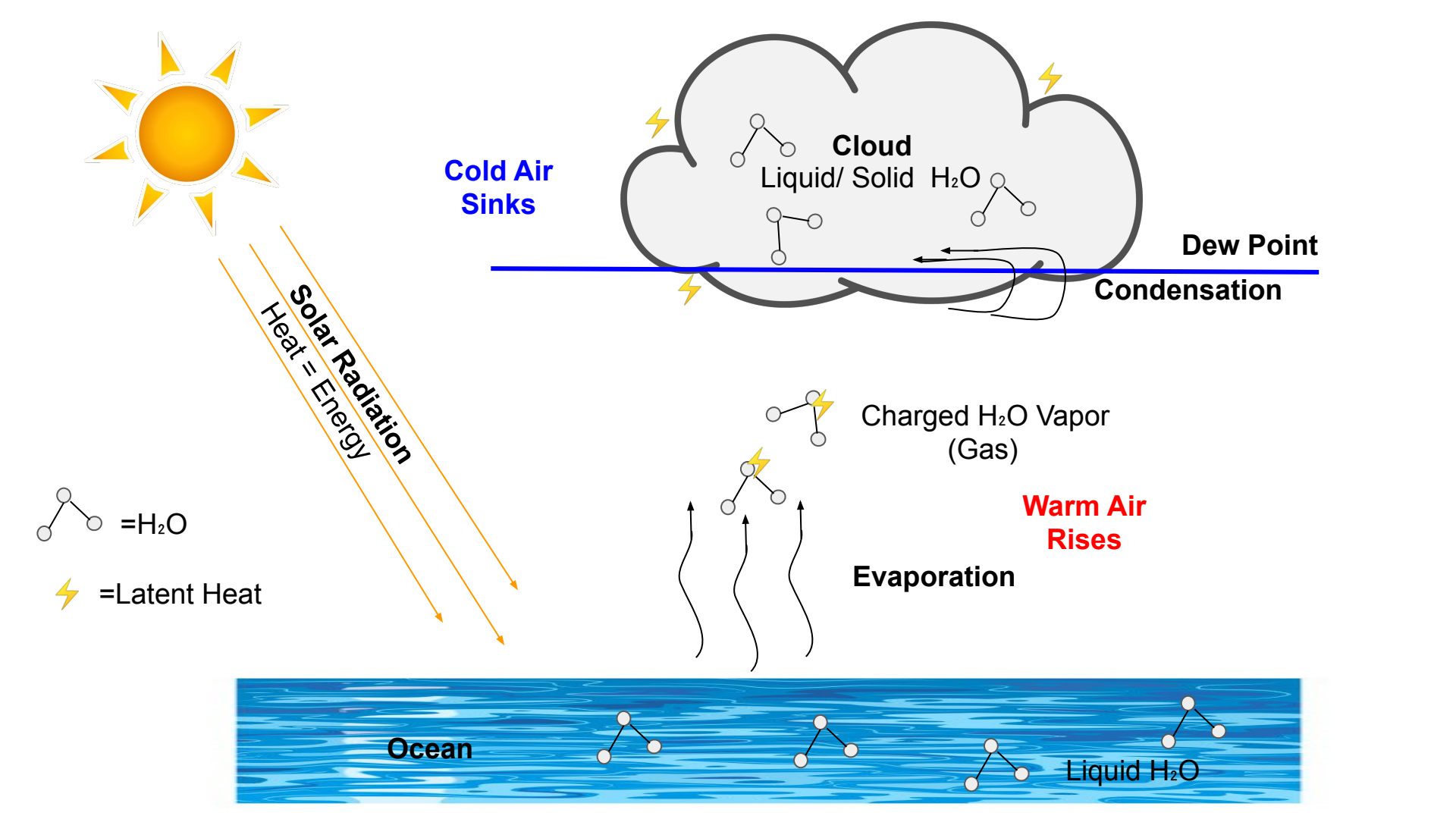
Solar radiation heats up a water source causing evaporation. Warm air with H_2O vapor & latent heat rises up into the atmosphere. This water vapor can be felt at times as humidity. When the water vapor reaches the dew point condensation can occur. As more and more water droplets coalesce, or collect around the condensation nuclei, a visible cloud forms. When saturation is reached, precipitation falls back down due to gravity.


Cold Air
Sinks
Cloud
Liquid/ Solid H₂O
Dew Point
Condensation
Solar Radiation
Heat = Energy
=H₂O
=Latent Heat
Charged H₂O Vapor
(Gas)
Warm Air
Rises
Evaporation
Ocean
Liquid H₂O

Latent Heat

The extra thermal energy contained in water vapor compared to liquid water (⚡)

Dew Point

The temperature to which air must be cooled at constant pressure to reach saturation

Condensation Nucleus

A small particle in the atmosphere around which water droplets can form

Coalescence

In meteorology, rain droplets are carried by the updrafts and downdrafts in a cloud, they collide and **coalesce** to form larger droplets eventually leading to precipitation

Saturation

Occurs when the amount of water vapor in a volume of air has reached the maximum amount

Humidity

The amount of water vapor in the atmosphere at a given location on Earth’s surface