Warm-up

1. **Temp° ranges in the S. Hemi. are generally smaller than those in the N. Hemi. Because _________.**
   a. Earth is closest to the sun during the Southern Hemisphere summer.
   b. Less area is covered by desert in the Southern Hemisphere.
   c. There more water in the Southern Hemisphere.
   d. There is more land in the Southern Hemisphere.

2. **Many clouds have a high albedo and therefore _____.**
   a. absorb sunlight  c. transmit sunlight
   b. reflect sunlight  d. radiate sunlight

3. **Land _________.**
   a. Heats less rapidly than water.
   b. Heats more rapidly than water.
   c. Reaches higher temperatures than water.
   d. Heats faster to higher temp° (Both B & C)
• Water Vapor is the source of all CONDENSATION and PRECIPITATION

• Water Vapor = Most Important Weather Gas!
3 States of Water

- Liquid = “Water”
- Gas = “Steam”
- Solid = “Ice”
### Changing States takes Energy!

<table>
<thead>
<tr>
<th>State Transformation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S → L</strong></td>
<td>Latent Heat</td>
</tr>
<tr>
<td></td>
<td>No temp° change</td>
</tr>
<tr>
<td></td>
<td>Latent = “Hidden”</td>
</tr>
<tr>
<td></td>
<td>Melting</td>
</tr>
<tr>
<td><strong>L → G</strong></td>
<td>Evaporation</td>
</tr>
<tr>
<td></td>
<td>Ex: Step out of shower… cold!</td>
</tr>
<tr>
<td><strong>G → L</strong></td>
<td>Condensation</td>
</tr>
<tr>
<td></td>
<td>Heat is released!</td>
</tr>
<tr>
<td><strong>S → G</strong></td>
<td>Sublimation</td>
</tr>
<tr>
<td></td>
<td>Ex: Dry Ice.</td>
</tr>
<tr>
<td><strong>G → S</strong></td>
<td>Deposition</td>
</tr>
<tr>
<td></td>
<td>Ex: Frost.</td>
</tr>
</tbody>
</table>
Amount of Water Vapor (gas) in Air.

Does it have to be hot to be humid?
Q: How can you make it rain without adding water vapor to the air?

Saturation

When no more water vapor can be stored in air.

- Warm air = ↑ water vapor possible
- Cold air = ↓ water vapor possible

Relative Humidity.

Ratio = \(\frac{\text{Water Vapor in Air (mL)}}{\text{Maximum Possible (mL)}}\)

When Relative Humidity = 1 … Rain!
Dew Point

• Temp° when air will reach saturation.

Dew! Fog! Clouds!...

↑ Dew Point = Moist Air
↓ Dew Point = Dry Air