

Name: \_\_\_\_\_

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Lanik: Earth Science

# Humidity and Condensation

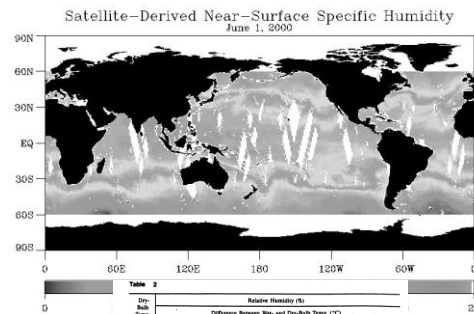
## Water Vapor –



## Condensation –

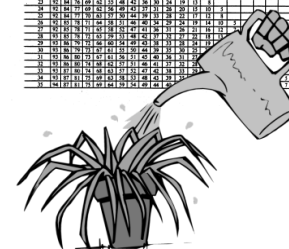


## Specific Humidity -



## Relative Humidity -

## Saturated -



## Dew Point –



# I - Phases of Water

Depending on its temperature, water can be either:

- (1)
- (2)
- (3)

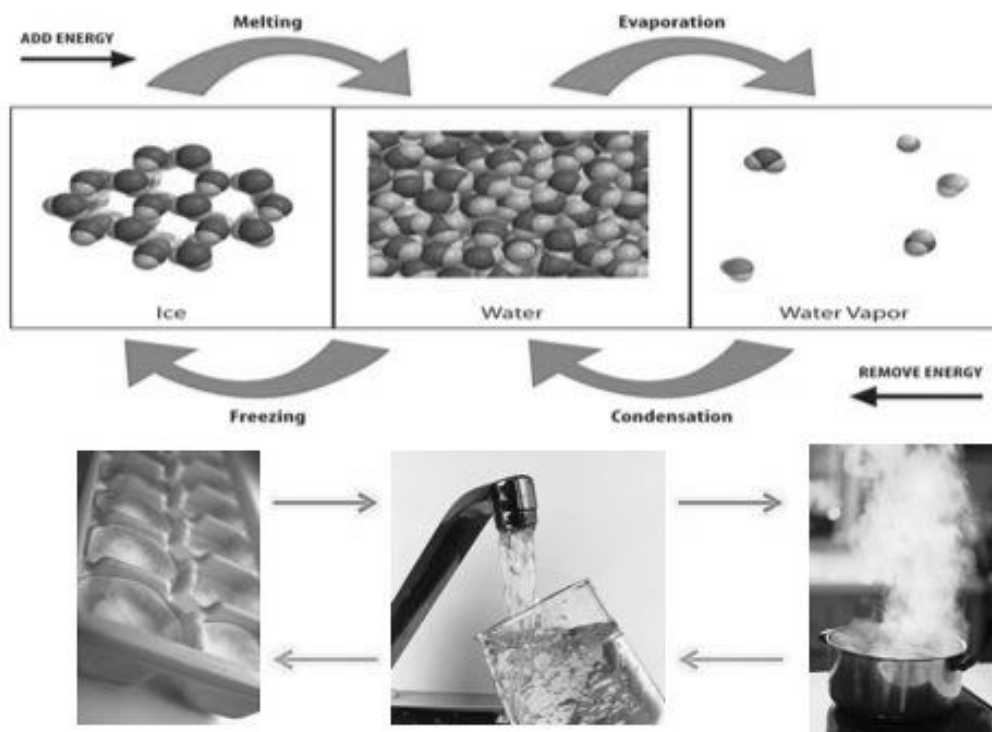
Although you cannot see water vapor, sometimes you can feel it. The more water vapor in the air, the more (4) \_\_\_\_\_ the air feels. Water often changes state in the atmosphere. When water changes from one state to another, energy is either:

- (5)
- (6).

The change from water vapor to liquid water is called (7) \_\_\_\_\_. Products of condensation include:

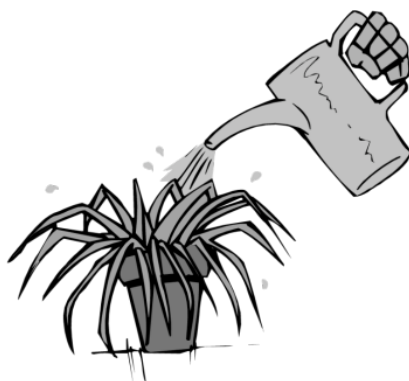
- (8)
- (9)
- (10)

The change from liquid water to water vapor is called (11) \_\_\_\_\_.



## II - Saturation

The actual amount of water vapor in the air at a given time and place is called (12) \_\_\_\_\_. It is expressed as the number of grams of water vapor per kilogram of air. There is a (13) \_\_\_\_\_ to the amount of water vapor that can be present in the air. When there is so much water vapor in the air that the rate of condensation equals the rate of evaporation, the air is (14) \_\_\_\_\_. If any additional water evaporates into saturated air, an (15) \_\_\_\_\_ amount will condense. The amount of water vapor present in saturated air depends on the (16) \_\_\_\_\_ of the air. The warmer the air, the more water vapor it can hold.

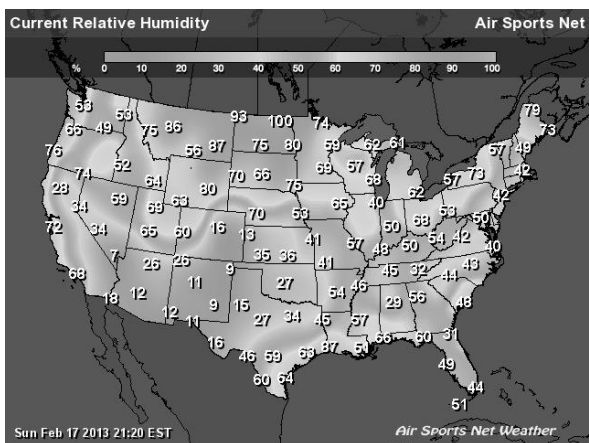


## III - Humidity

When meteorologists refer to the relative humidity, they are telling us how near the air is to its maximum capacity for holding water vapor. Relative humidity compares the (17) \_\_\_\_\_ amount of water vapor in the air with the maximum amount of water vapor that can be present in the air. Relative humidity is usually stated as a percentage. Saturated air has a relative humidity of (18) \_\_\_\_\_ percent. Air that contains no water vapor has a relative humidity of (19) \_\_\_\_\_ percent.

**Table 2**

Dry-Bulb Temp. (°C)	Relative Humidity (%)											
	10	12	14	16	18	20	22	24	26	28	30	32
0	10	12	14	16	18	20	22	24	26	28	30	32
1	10	12	14	16	18	20	22	24	26	28	30	32
2	10	12	14	16	18	20	22	24	26	28	30	32
3	10	12	14	16	18	20	22	24	26	28	30	32
4	10	12	14	16	18	20	22	24	26	28	30	32
5	10	12	14	16	18	20	22	24	26	28	30	32
6	10	12	14	16	18	20	22	24	26	28	30	32
7	10	12	14	16	18	20	22	24	26	28	30	32
8	10	12	14	16	18	20	22	24	26	28	30	32
9	10	12	14	16	18	20	22	24	26	28	30	32
10	10	12	14	16	18	20	22	24	26	28	30	32
11	10	12	14	16	18	20	22	24	26	28	30	32
12	10	12	14	16	18	20	22	24	26	28	30	32
13	10	12	14	16	18	20	22	24	26	28	30	32
14	10	12	14	16	18	20	22	24	26	28	30	32
15	10	12	14	16	18	20	22	24	26	28	30	32
16	10	12	14	16	18	20	22	24	26	28	30	32
17	10	12	14	16	18	20	22	24	26	28	30	32
18	10	12	14	16	18	20	22	24	26	28	30	32
19	10	12	14	16	18	20	22	24	26	28	30	32
20	10	12	14	16	18	20	22	24	26	28	30	32
21	10	12	14	16	18	20	22	24	26	28	30	32
22	10	12	14	16	18	20	22	24	26	28	30	32
23	10	12	14	16	18	20	22	24	26	28	30	32
24	10	12	14	16	18	20	22	24	26	28	30	32
25	10	12	14	16	18	20	22	24	26	28	30	32
26	10	12	14	16	18	20	22	24	26	28	30	32
27	10	12	14	16	18	20	22	24	26	28	30	32
28	10	12	14	16	18	20	22	24	26	28	30	32
29	10	12	14	16	18	20	22	24	26	28	30	32
30	10	12	14	16	18	20	22	24	26	28	30	32
31	10	12	14	16	18	20	22	24	26	28	30	32
32	10	12	14	16	18	20	22	24	26	28	30	32
33	10	12	14	16	18	20	22	24	26	28	30	32
34	10	12	14	16	18	20	22	24	26	28	30	32
35	10	12	14	16	18	20	22	24	26	28	30	32



## IV – Condensation of Water Vapor

Two conditions are necessary for water vapor to condense: there must be (20) \_\_\_\_\_ for water vapor to condense onto and air must cool to or below its dew point. When fog or clouds form, the water vapor is condensing on tiny particles called (21) \_\_\_\_\_. Even when air is cooled below its dew point, condensation to fog or clouds may not occur if there are no condensation nuclei available.

## V - Dew Point

The dew point is a measure of the amount of water vapor in the air. The more water vapor the air contains, the (22) \_\_\_\_\_ the air has to cool in order for condensation to start, so the higher the dew point. When air cools to its dew point through contact with a (23) \_\_\_\_\_, water vapor condenses directly on that surface. If the air temperature is above (24) \_\_\_\_\_ Celsius, dew forms. If the air temperature is below 0 degrees Celsius, the water vapor becomes (25) \_\_\_\_\_.



## VI – Fog



Chronicle / Frederic Larson

Fog forms when a cold surface cools the warmer moist air above it. As water vapor condenses in the air, (26) \_\_\_\_\_ fill the air and form fog. Each droplet is centered around a condensation nucleus. The droplets are so tiny that they fall slowly and the slightest air movement keeps them (27) \_\_\_\_\_ in the air.