NAME OF THE INSTRUMENT: DRY BULB AND WET BULB THERMOMETERS

➢ DRY BULB THERMOMETER:

➢ PURPOSE OF MEASUREMENT:

- Air temperature at the time of observation is measured by means of a mercury-in-glass thermometer called the dry bulb thermometer.

➢ UNIT OF DRY BULB TEMPERATURE:

- Degree Celsius (^{0}C)

➢ LEAST COUNT:

- The least count of thermometer is 0.5 ^{0}C, but reading is recorded up to ^{0}C.

➢ TIME OF OBSERVATION:

- 07:18 hrs and 14:18 hrs

➢ DETAILS OF EQUIPMENT:

- Dry Bulb thermometer is ordinary mercury-in-glass thermometer ranging from -35^{0}C to +55^{0}C.

- **DB** thermometer has a capillary stem of which one end is a bulb containing mercury and other end sealed after removing air from the same.
- The stem is graduated for reading the value of temperature.
- Mercury levels in the stem changes with the changes in air temperature.
- The dry bulb thermometer is kept vertical on the wooden bracket in the left side in Stevenson screen.

➢ WET BULB THERMOMETER:

➢ PURPOSE OF MEASUREMENT:

- A wet-bulb thermometer indicates a temperature close to the true (thermodynamic) wet-bulb temperature.
- The wet-bulb temperature is the lowest temperature that can be reached under current ambient conditions by the evaporation of water only.

➢ UNIT OF WET BULB TEMPERATURE:

- Degree Celsius (^{0}C)

➢ LEAST COUNT:

- The least count of thermometer is 0.5 ^{0}C, but reading is recorded up to ^{0}C.

➢ TIME OF OBSERVATION:

- 07:18 hrs and 14:18 hrs

➢ DETAILS OF EQUIPMENT:

- The temperature of cool air is measured with the help of a wet bulb thermometer, which is same as dry bulb thermometer, but in DB the bulb of the thermometer acts as evaporating surface.
- The bulb of DB thermometer is covered by a muslin cloth and is kept continuously wet by providing water by means of four strands of cotton thread dipped in to a small water container with distilled water.
- Under the saturated condition, both the dry and wet bulb thermometer readings would be same.
- But when the air becomes dry, the difference between them would increase. The difference is known as **wet bulb depression.**
- The dry and wet bulb temperatures are used for calculating the dew point, vapour pressure and humidity.

➢ PRINCIPLE:

- Evaporation causes cooling. When water evaporates from the wet bulb surface, the latent heat required is drawn from the bulb of the thermometer and so the mercury column comes down indicating a reduction of temperature.