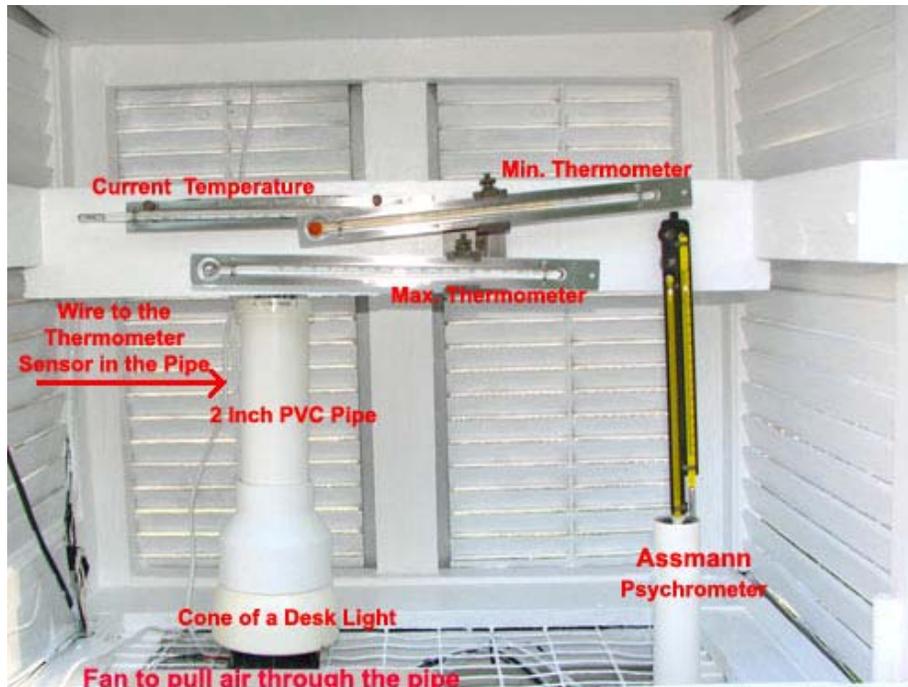


Thermometers Inside Weather Shelter



Looking at the picture of the interior of the weather shelter, you will see three thermometers mounted horizontally at 5 feet, two on the right by the maximum and minimum.

The minimum monitor is purposely tilted at about a 15° angle towards the bulb so the surface tension can pull the index down to record the day's low temperature.

The maximum thermometer is tilted away from the bulb so any mercury making it through the restriction near the bulb will not be drawn back into the bulb as the temperature cools and the mercury contracts in the bulb.

The thermometer on the left records a current air temperature. These are used to check record temperatures and can be used in times of power outages.

The smaller PVC pipe to the right is also connected to a fan to draw air through the pipe to evaporate water from the wick of the wet bulb thermometer to determine the relative humidity and the dew point temperature. This is called an Assmann Psychrometer



To obtain the best observations of temperature, I have placed the Davis instrument sensor inside of a 2 inch PVC pipe and use a fan to suck air through the pipe and blow it at the bottom of the station. This fan is a three volt fan taken from a discarded desktop computer. The top of the pipe opens just behind the mounted thermometers drawing in air that is exactly 5 feet above ground level. The air being drawn through the pipe over the course of a year caused an accumulation of dust and particles from the air. So the sensor has to be cleaned at least once a year so the pollutants do not to hold moisture on the sensor and alter the humidity or dew point. I installed a filter over the end of the pipe where the air was being drawn in. This filter is the same material used in lawn mower filters. A picture of the filter has been included so you can see how dirty the filter got in the course of one year. Yes, that black filter started out as the clean green filter shown above.