Standard Rain Gauge: Inner cylinder is 10 inches tall but measures 1.00 inch of rain due to 10-fold concentration of water from the outer funnel. Accurate to 0.01 inch. Overflow of more than one inch goes into outer cylinder where it can be measured separately using the inner tube. This gauge measures cumulative rainfall but cannot measure intensity.

TIPPING BUCKET GAUGE:

A small double bucket collects rain and tips back and forth. Each “tip” indicates a small increment of rainfall. Allows continuous unattended measurement, remote data transfer, and also measures intensity. It can be used in a completely non-electric version with a spring-driven clockwork chart and pen. (Data must be manually retrieved off the chart.)
PAN EVAPORATION:

Class A evaporation pan

In the United States, the National Weather Service has standardized its measurements on the Class A evaporation pan, a cylinder with a diameter of 47.5 in (120.7 cm) that has a depth of 10 in (25 cm). The pan rests on a carefully leveled, wooden base and is often enclosed by a chain link fence to prevent animals drinking from it. Evaporation is measured daily as the depth of water (in inches) evaporates from the pan. The measurement day begins with the pan filled to exactly two inches (5 cm) from the pan top. At the end of 24 hours, the amount of water to refill the pan to exactly two inches from its top is measured.
If precipitation occurs in the 24-hour period, it is taken into account in calculating the evaporation. Sometimes precipitation is greater than evaporation, and measured increments of water must be dipped from the pan. Evaporation cannot be measured in a Class A pan when the pan's water surface is frozen.

The Class A Evaporation Pan is of limited use on days with rainfall events of >30mm (203mm rain gauge) unless it is emptied more than once per 24hours. Analysis of the daily rainfall and evaporation readings in areas with regular heavy rainfall events shows that almost without fail, on days with rainfall in excess of 30mm (203mm Rain Gauge) the daily evaporation is spuriously higher than other days in the same month where conditions more receptive to evaporation prevailed.

The most common and obvious error is in daily rainfall events of >55mm (203mm rain gauge) where the Class A Evaporation pan will likely overflow.

The less obvious, and therefore more concerning, is the influence of heavy or intense rainfall causing spuriously high daily evaporation totals without obvious overflow.

**Sunken Colorado pan**

The sunken Colorado pan is square, 1 m (3 ft) on a side and 0.5 m (18 in.) deep and made of unpainted galvanized iron. As the name suggests, it is buried in the ground to within about 5 cm (2 in.) of its rim. Evaporation from a Sunken Colorado Pan can be compared with a Class A pan using conversion constants. The pan coefficient, on an annual basis, is about 0.8.