

PEMN Siting Requirements

Station Footprint:

The area needed for the tower, rain gauge, and soil properties measurements is approximately 20'x20'. The 2'x2'x2' concrete pad for the 10' tall tower is located in the center of the box. The 4'x4'x8" (deep) concrete pad for the rain gauge is located approximately 12' south of the tower base. The soil sensor requires a 2" diameter hole to be dug about 20" deep (0.5 m) with a hand auger. The location of the sensor is site dependent and installed between the tower base and the rain gauge. Wires from the rain gauge and soil sensor are buried in conduit several inches below the surface.

Station Location Guidelines:

The perfect observing site can be difficult to find in the hilly, wooded areas of Pennsylvania. Nonetheless, the ideal site for the PEMN station would be in the middle of a flat, open grassy area with no obstructions within 10 times of the height of the obstruction. For example, 30' tall trees should be at least 300' away from the tower. The height of the vegetation in the 30'x30' station plot should be kept 3' tall or shorter so as not to interfere with the rain gauge measurement (orifice height is about 40"). We prefer not to use a fence to encompass the site but it may be necessary at sites with livestock present.

Station Maintenance Requirements:

The main maintenance requirements for a PEMN site that we ask for help with are:

1. Keeping the grass/vegetation around the site cut down below 3' tall.
2. If power becomes an issue at the site (e.g., excessive snow), pushing the snow off the solar panel is appreciated.
3. Simple other maintenance requests as they occur such as power cycling a hung cell phone modem, sending a picture of a sensor to confirm a problem, etc.

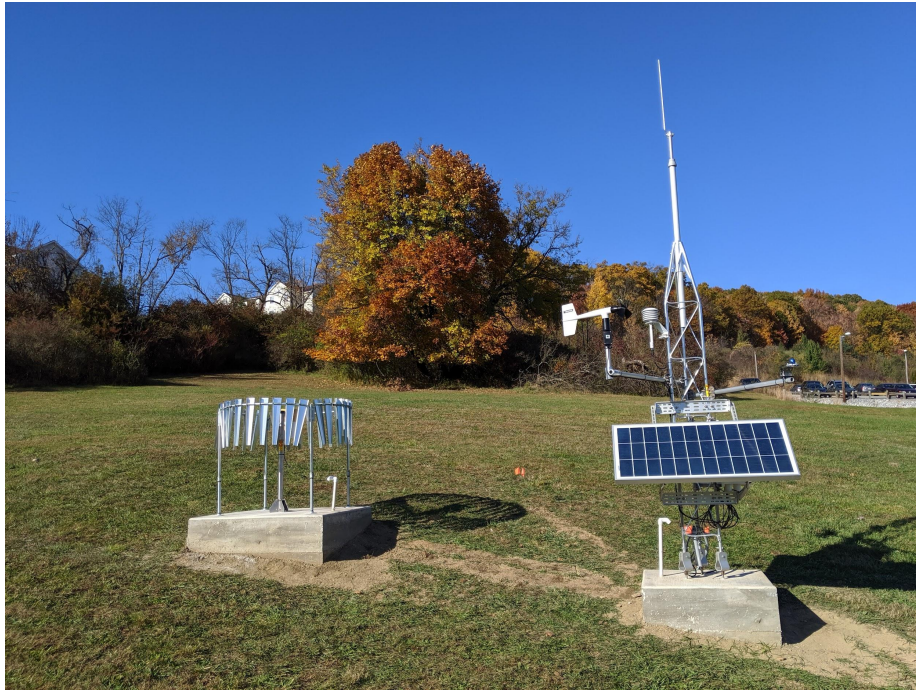
The PEMN stations are designed to be very low maintenance and have a lifetime in excess of 30 years (with intermittent upgrades of course).

The interested reader can find a good description of all aspects of a "Mesonet" at:

<https://www.campbellsci.com/mesonets>

As an example, the picture below (installed at the PSU Altoona campus) is a tower identical to what we propose to install at your location. This site is good but not ideal. The main issues with this site are:

1. Slope: The ground is sloped a little too much, although it is not excessive
2. Obstruction: The trees in the distance are not 10 times their height from the tower.
3. Rain gauge could be a little farther away from the station to limit any wind flow issues.



This site, located at the PSU Fayette campus, is just about ideal:

