7 WEATHER STATION INSTALLATION MISTAKES TO AVOID

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DON'T MESS UP YOUR WEATHER STATION INSTALLATION
NO ROOKIE MISTAKES!

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7 STEPS

1. Pre-field testing
2. Choosing the right site
3. High-quality installation
4. Field check
5. Troubleshooting
6. Metadata recording
7. Post-installation

Step 0. Choose your weather station

https://www.metergroup.com/environment/events/weather-monitoring-101-which-weather-station-is-right-for-you/
PRE-FIELD TESTING

Set up instrumentation and test it BEFORE you go to the field

- mounting hardware
- sensor function
- power supply & charging
- data acquisition
- logger program
- data delivery

Test everything to make sure install will be successful

Ensure you have all necessary equipment for the install

Make a list
CHOOSE THE RIGHT SITE

Minimal slope

Far from obstructions

- WMO calls for minimum 10X height of obstruction
- ASABE calls for 10X to 50X height of obstruction
- homogenous fetch of 100X height preferable
CHOOSE THE RIGHT SITE

No overhead obstructions for pyranometer and rain gauge

Consider “view factor” of pyranometer

Far from any object that might heat up in the sun and increase air temperature (buildings, pavement)

Far from water bodies
CHOOSE THE RIGHT SITE

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MICROCLIMATE

Not in local depression
Not on ridge top
Vegetation is important
Rooftop is generally poor

Might need to characterize microclimate
- pest management
- disease modeling
- animal enclosures
- human comfort in urban areas

220 m, 6°C temperature difference
INSTALLATION

Exclosure – keep out animals & people

Take more tools than you think you need

Tighten the mounting hardware

Guy wire if necessary

Orient your wind direction sensor
  • true N vs. magnetic N

Shield temperature sensor from radiation

https://www.metergroup.com/environment/events/stop-hiding-behind-shield/
INSTALLATION

Keep the birds off

Cable management & protection

Level your sensors
  • rain gauge
  • anemometer
INSTALLATION

Level your sensors – solar radiation
FIELD CHECK

Check every measurement. Are they plausible?
Confirm proper data acquisition
Confirm successful data transfer
Confirm system power supply & charging

ZENTRA Utility Mobile

ZENTRA Cloud Field
TROUBLESHOOTING

Have documentation available

• user manuals
• integrator’s guides
• technical sheets

Have contact information for instrument support departments
“The shortest pencil is longer than the longest memory.”

**METADATA**

- GPS location
- Site elevation
- Measurement heights & depths
- Site slope & aspect
- Vegetation
- Any obstructions or shading issues
- Any exposure to nearby buildings or pavements

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METADATA

Panoramic photos of site

Photos of instrumentation setup

WSU AgWeatherNet panoramic station metadata photos
METADATA

Instrumentation metadata

- sensor & logger types
- sensor & logger serial numbers
- sensor & logger firmware versions
- date of purchase or last calibration
POST-INSTALLATION

Check your data early and often
  • remote data access is a big help

Pay attention to system alerts

Monitor change level of battery powered systems
QUESTIONS?