METER

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

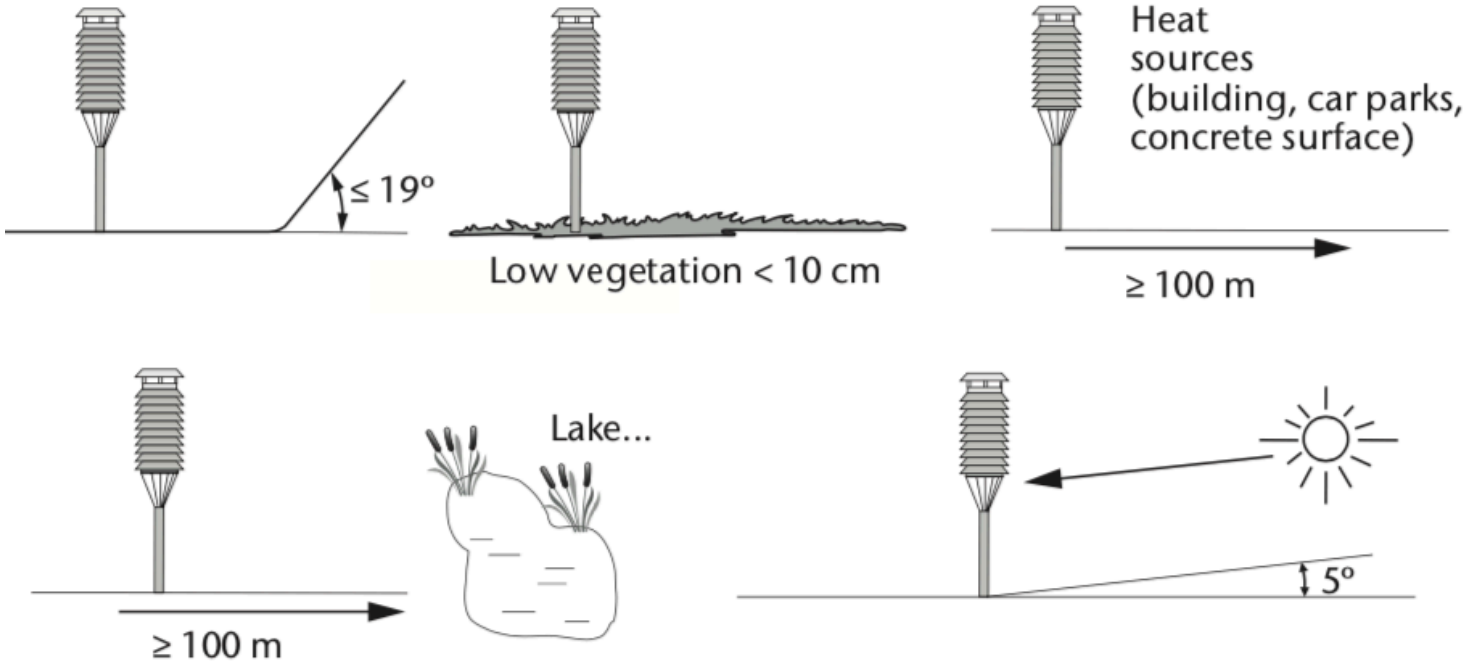
No overhead obstructions for pyranometer and rain gauge

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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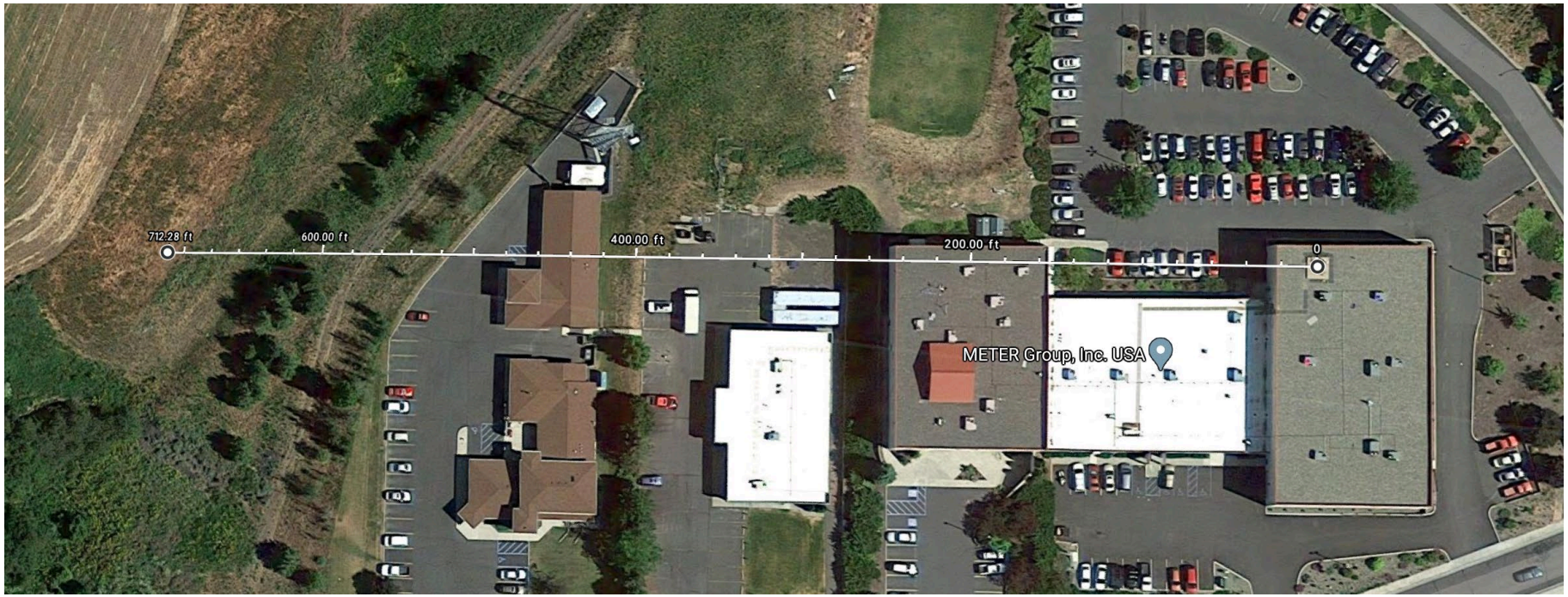
MICROCLIMATE

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/

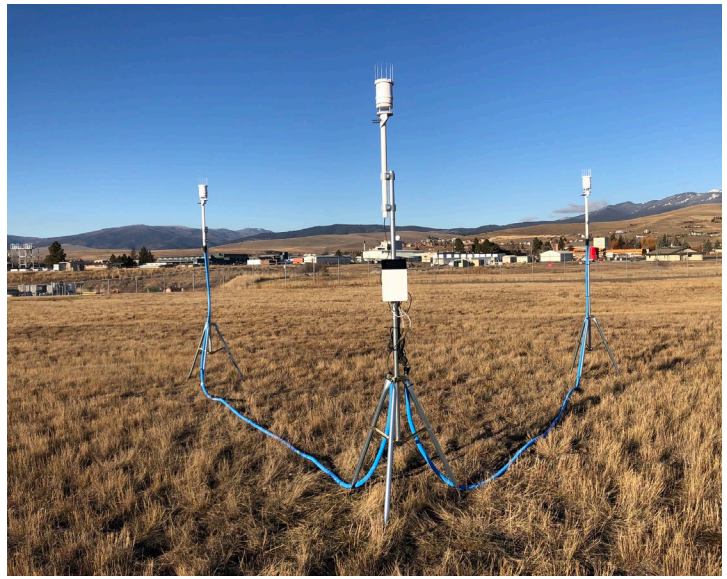
INSTALLATION

Keep the birds off

Cable management & protection

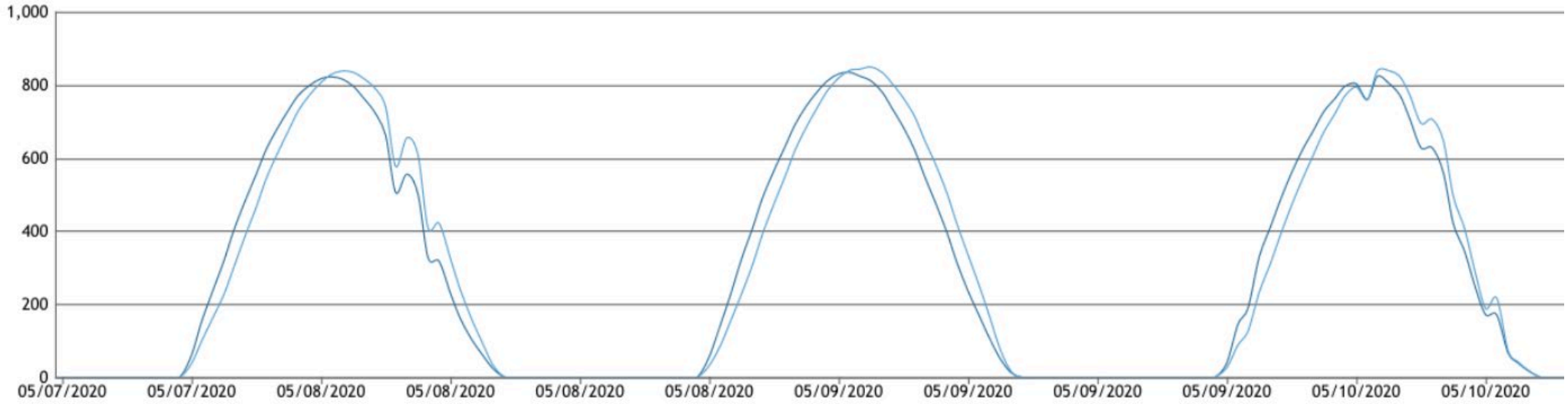
Level your sensors

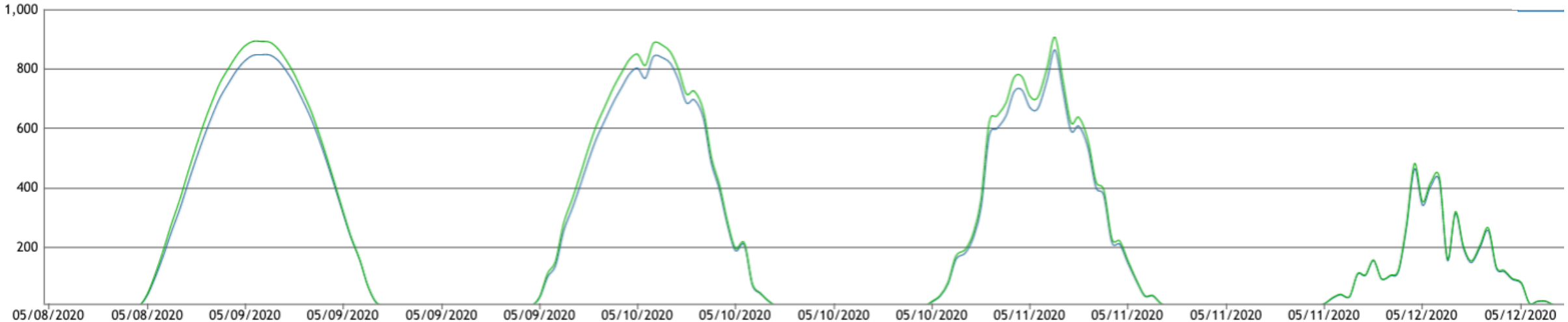
- rain gauge
- anemometer



INSTALLATION

Level your sensors – solar radiation





FIELD CHECK

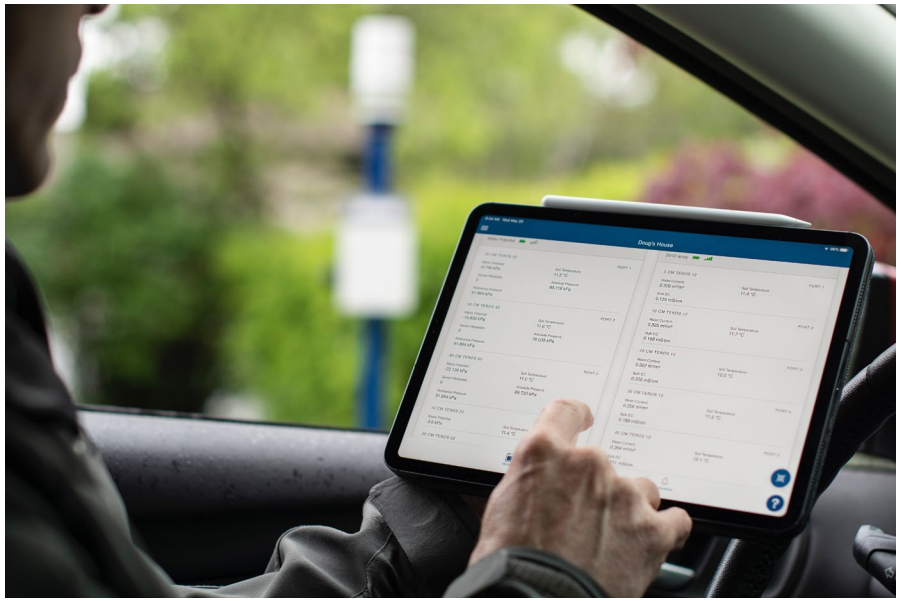
Check every measurement. Are they plausible?

Confirm proper data acquisition

Confirm successful data transfer

Confirm system power supply & charging

ZENTRA Utility Mobile



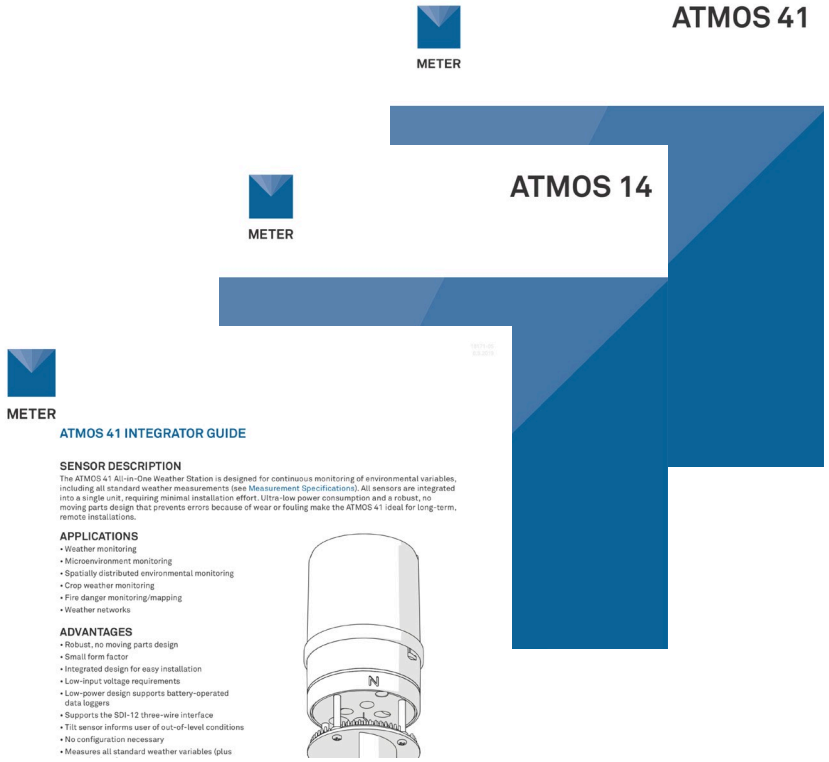
ZENTRA Cloud Field

TROUBLESHOOTING

Have documentation available

- user manuals
- integrator's guides
- technical sheets

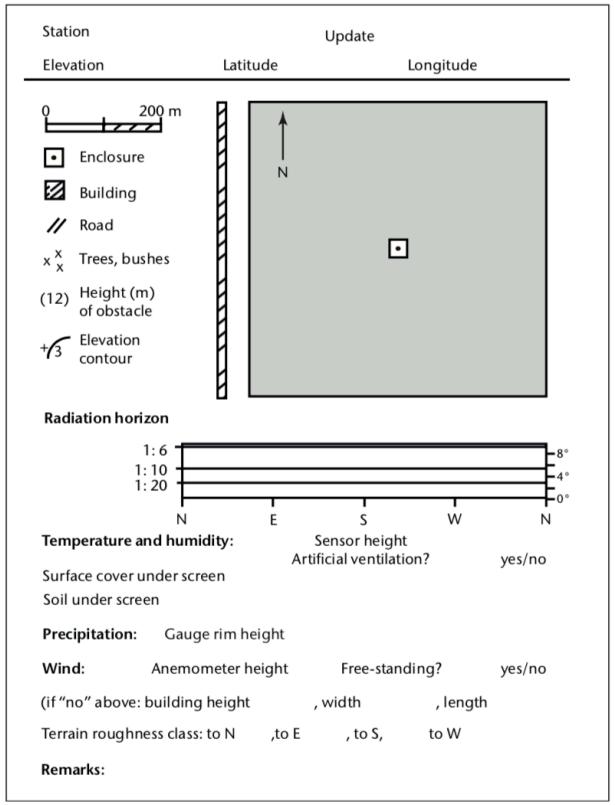
Have contact information for instrument support departments



METADATA

"The shortest pencil is longer than the longest memory."

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



General template for station exposure metadata

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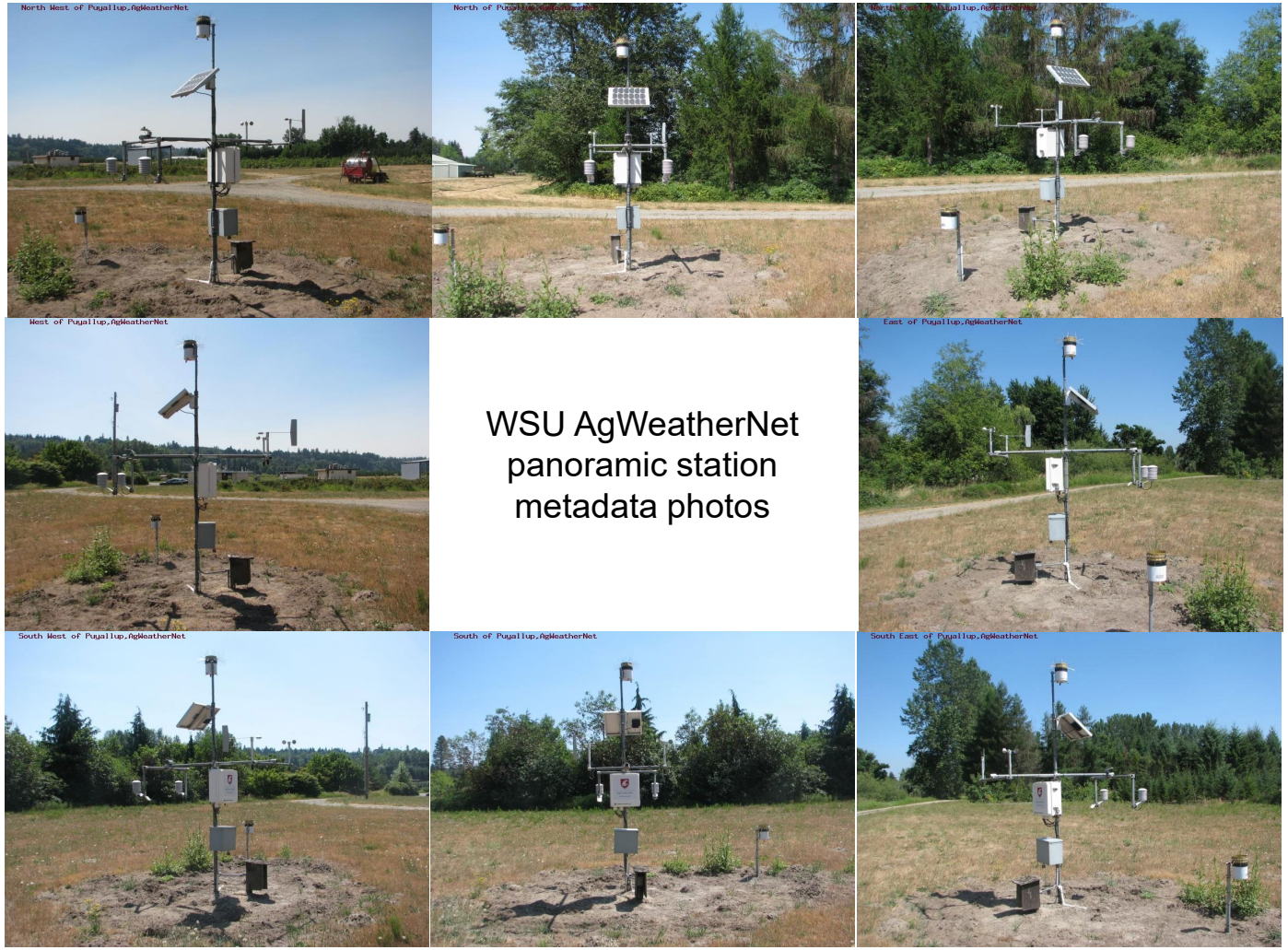
METADATA

Panoramic photos of site

Photos of instrumentation setup



METADATA

Instrumentation metadata

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

Excel File Edit View Insert Format Tools Data Wi

AutoSave OFF

Home Insert Draw Page Layout Formulas Data Review

Paste Calibri (Body) 11

C41

	A	B	C	D
1	**Configuration**	Device Name	Soil and Weather	
2		Site Name	Doug's House	
3		Serial Number	8	
4		Device Type	190	
5		Firmware Version	204	
6		Hardware Version	unknown	
7		Measurement Interval	600	
8				
9	**Software**	Software Version	1.0	
10				
11	**Location**	Latitude	46.7586097	
12		Longitude	-117.150382	
13		Logger Time	2020-05-17 02:30:19.016160-05:00	
14		Current Time Zone	UTC-7	
15		Satellite Vehicles	11	
16		GPS Fix Status	5	
17		Horizontal Accuracy	905	
18		Altitude	782478	
19				
20	**Cellular Hardware**	SIM Number	89302720396933926912	
21		Modem Firmware Ver	2341	
22		Modem Type	3	
23				
24	**Cellular Configuration**	Queue Data	1	
25		Allow All Upload Hour	1	
26		Unrestricted Measure	0	
27		Four Reports per Hour	0	
28		Four Reports per Nigh	0	
29				
30	**Radio**	Power		
31		Channel		
32		Firmware Version		
33				
34	**Sensors**	Port #	1	
35		Name	ATMOS 41 All-in-one Weather Station	
36		Serial Number	ATM-410003090	
37		Meta	1755	
38		Value	0	
39		Status	1	
40		Version	528	
41				
42				
43		Port #	2	

Configuration 1 Metadata +

ZENTRA system metadata

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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QUESTIONS?