

Oklahoma Mesonet/ARS Quality Assurance Report July 2021

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- Mesonet technicians completed scheduled rotations of 3 rain gauges (RAIN/TIP2), 2 batteries (BVAS/BATV), 2 barometers (PRES), 3 relative humidity sensors (RELH/TSLO), 3 pyranometers (SRAD), 4 PRT thermometers (TAIR/TA9M), 1 wind directions (WDIR), 3 wind monitor nose cones (WSPD), and 3 current excitation modules.
- Remote datalogger troubleshooting at the Tipton (TIPT) site resulted in a few missing observations. Since the previous report, the logger at the site has been replaced, and the old one has since been returned to the calibration lab.

Mesonet QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
TAIR				
RELH	Resolved	OKMU	44205	TSLO often reports much lower than TAIR for several hours during the afternoon. Recently, this has resulted in an errant RELH high bias. Symptoms in data may suggest insect nest on sensor. Removed insect nest, sensor cleaned.
	Resolved	VINI	44775	TSLO unexpectedly steps down during mid-day hours, resulting in errant spikes in RELH. Suspect insect nest on sensor. Removed insect nest, cleaned sensor.
	Current	REDR	44842	Unexpected step down and occasional low bias in TSLO. Suspect insect nest on sensor.
WSPD				
WDIR	Resolved	WEB3	44214	WDIR moved with tower. Please use transit to

				verify wind direction alignment. Verified WDIR alignment.
PRES	Current	BOIS	44807	Values sometimes report much higher and more erratically than expected. Suspect problem lies with warped or shrunken barometer tubing. Please replace barometer tubing.
	Current	BUTL	44809	Values sometimes report much higher and more erratically than expected. Suspect problem lies with warped or shrunken barometer tubing. Please replace barometer tubing.
	Current	COOK	44795	Values sometimes report much higher lower and more erratically than expected. Suspect problem lies with warped or shrunken barometer tubing. Please replace barometer tubing.
	Current	GOOD	44800	Values sometimes report much higher and more erratically than expected. Suspect problem lies with warped or shrunken barometer tubing. Please replace barometer tubing.
	Current	PUTN	44806	Values sometimes report much higher and more erratically than expected. Suspect problem lies with warped or shrunken barometer tubing. Please replace barometer tubing.
	Current	TIPT	44803	Values sometimes report much higher and more erratically than expected. Suspect problem lies with warped or shrunken barometer tubing. Please replace barometer tubing.
	Current	YUKO	44804	Values sometimes report much higher and more erratically than expected. Suspect problem lies with warped or shrunken barometer tubing. Please replace barometer tubing.

SRAD				
RAIN	Resolved	EUFA	44204	Please replace primary gauge cable. Replaced RAIN cable.
	Resolved	EUFA	44203	Secondary gauge sometimes misses tips at start of rain events. Please replace rain gauge cable. Replaced TIP2 cable.
TA9M	Resolved	NRMN	44090	TA9M shelter damaged by hail. Replaced TA9M shelter.
	Resolved	OKMU	44219	Sharp decreases in 9m air temperature during the day do not compare well to TAIR. Possible insect nest on sensor. Removed insect nest, sensor cleaned.
	Current	FORA	44840	Sensor sometimes unexpectedly and erratically steps down during daylight hours. Suspect insect nest on sensor.
	Current	TALA	44838	Sensor sometimes reports -7999 or otherwise errant values. Given symptoms in data, suspect the cable may be responsible. If no apparent problems with sensor or connection to datalogger, please replace sensor cable.
WS2M				
TB10				
TS05				
TS10				
TS25				
TS60				

TR05				
TRB10	Resolved	BRIS	44201	Suspect failed heater. Difference between starting and final temperatures is negligible. Soil temp unaffected. Please replace sensor. Replaced sensor and installed stainless steel cable shield.
	Resolved	WEAT	44333	Sensor reports errantly high values in both soil moisture and temperature when soil temperature approaches 30°C. Suspect thermal short. Please replace. Sensor replaced. Values appear normal.
	Current	CENT	44836	Suspect failed sensor. Heater failed on 07/27, followed by errant soil temperature values on 07/31. Please replace sensor.
TRS10	Resolved	CHER	44181	Starting and final temperature reporting errantly high values. Both soil moisture and temperature affected. Sensor installed May 2018, please check wires and cabling before replacing. Sensor completely unwired and rewired. Errant values persist. Sensor carefully removed and replaced. Values appear much more reasonable.
	Resolved	PUTN	44151	Soil temperature reports errant values for several observations then returns to normal. Check sensor wiring from ports to sensor. If nothing found, please replace. No action taken, problem resolved automatically
	Current	ANT2	44335	Both starting and final temperature report - 7999. Both soil temp and moisture affected. Please replace.
	Current	TALI	44781	Suspect failed heater. Difference between starting and final temperature negligible. Soil temperature unaffected. Please replace sensor.
TR25	Resolved	PORT	44093	Suspect failed heater. Difference between starting and final temperature is negligible. Soil

				temperature fine. Please check sensor wiring for potential problems before replacing. Replaced after rewiring to new current excitation module provided no changes in temperature after heating cycle.
	Current	PERK	44215	Suspect failed heater. Difference between starting and final temperature is negligible. Soil temperature fine. Original sensor. Please replace.
TR60	Current	ARD2	44798	Suspect failing heater. Difference between starting and final temperature smaller than expected and erratically changing. Soil temperature fine. Please replace sensor.

ARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05				
VW25				
VW45	Resolved	A121	44782	Voltages 1-3 reporting values near zero. This results in errant time series values. Please replace sensor. Replaced.
V05T				
V25T				
V45T				

FCARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05	Current	F103	44773	Raw voltages 1-3 reporting near zero, resulting in near constant soil moisture time series values. This follows period of very erratic values in April. Soil temperature appears unaffected.
VW25				
VW45				
V05T				
V25T				
V45T				

'Current' tickets are the unresolved tickets as of the last day of the month OR those tickets added based on the Monthly QA analysis.

'Resolved' tickets are the sensor problems that were fixed during the entire month.

Variable	Description
TAIR	Air temperature at 1.5 meters
RELH	Relative humidity at 1.5 meters
WDIR	Wind direction at 10 meters
WSPD	Wind speed at 10 meters
PRES	Air pressure
SRAD	Incident solar radiation
RAIN	Rainfall
TA9M	Air temperature at 9 meters
WS2M	Wind speed at 2 meters
TB10	Soil temperature at 10 cm under bare soil
TS05	Soil temperature at 5 cm under native sod
TS10	Soil temperature at 10 cm under native sod
TS25	Soil temperature at 25 cm under native sod
TS60	Soil temperature at 60 cm under native sod
TR05	Soil moisture: Calibrated DeltaT at 5 cm under native sod
TRB10	Soil moisture: Calibrated DeltaT at 10 cm under bare soil
TRS10	Soil moisture: Calibrated DeltaT at 10 cm under native sod
TR25	Soil moisture: Calibrated DeltaT at 25 cm under native sod
TR60	Soil moisture: Calibrated DeltaT at 60 cm under native sod
VW05	Soil moisture: Volumetric water content at 5 cm under native sod
VW25	Soil moisture: Volumetric water content at 25 cm under native sod
VW45	Soil moisture: Volumetric water content at 45 cm under native sod
V05T	Soil temperature at 5 cm under native sod
V25T	Soil temperature at 25 cm under native sod
V45T	Soil temperature at 45 cm under native sod