

Oklahoma Mesonet / ARS Quality Assurance Report

August 2021

Prepared by Ethan Becker and Cindy Luttrell
qamgr@mesonet.org

- Mesonet technicians completed scheduled rotations of 3 rain gauges, 3 batteries, 5 barometers, 8 relative humidity sensors, 2 pyranometers, 3 PRT thermometers, 1 wind direction, 3 wind sentries, 2 wind monitor nose cones, and 1 current excitation module.
- A problem with the CDM at the Wilburton site (WILB) resulted in multiple missing parameters after heavy rain. The affected equipment has been replaced.

Mesonet QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
TAIR	Current	ELRE	44961	TAIR has low bias compared to TSLO and neighbors. Bias increases a little bit each day. See problems with TB10 traced to similar time. Replace sensor if no obvious problems found.
RELH	Resolved	REDR	44842	Unexpected step down and occasional low bias in TSLO. Suspect insect nest on sensor. Resolved.
WSPD				
WDIR				
PRES	Resolved	COOK	44795	Values sometimes report much higher lower and more erratically than expected. Tubing replaced.
	Resolved	TIPT	44803	Values sometimes report much higher and more erratically than expected. Tubing replaced.
	Resolved	YUKO	44804	Values sometimes report much higher and more erratically than expected. Tubing replaced.
	Current	BOIS	44807	Values sometimes report much higher and more erratically than expected.

	Current	BUTL	44809	Values sometimes report much higher and more erratically than expected.
	Current	GOOD	44800	Values sometimes report much higher and more erratically than expected.
	Current	PUTN	44806	Values sometimes report much higher and more erratically than expected.
SRAD	Current	STIG	44964	SRAD significantly less than expected for 2 hours, then returned to normal. Replace sensor.
RAIN	Resolved	JAYX	44880	Primary gauge misses tips during rain events. Please replace rain gauge cables. If gauge fails drip test following cable replacement, replace gauge. Resolved.
	Resolved	JAYX	44882	Replace secondary gauge cables for consistency with primary gauge. Cables already replaced. No Action.
	Current	ELRE	44849	Primary rain gauge misses tips at the beginning of rainfall during recent rain events. Please replace gauge cables. If gauge fails drip test after cable replacement, replace gauge.
	Current	ELRE	44850	Please replace rain gauge cables for consistency.
	Current	WATO	44876	Primary gauge misses tips at start of rain events and often misses light rain events entirely. Please replace rain gauge cables. If gauge fails drip test following cable replacement, replace gauge.
	Current	WATO	44878	Please replace rain gauge cables for consistency with primary gauge.
TA9M	Resolved	FORA	44840	Sensor sometimes unexpectedly and erratically steps down during daylight hours. Suspect insect nest on sensor. Resolved.
	Resolved	TALA	44838	Sensor sometimes reports -7999 or otherwise errant values. Resolved.
WS2M	Current	ACME	44966	2m wind speed zero or near zero when 10m wind speed exceeds 5m/s. Replace sensor if no obvious problem found.

TB10	Resolved	OILT	44873	Continuity 10cm bare soil sensor reporting much less than expected. Resolved.
	Current	ELRE	44962	10cm bare sensor reports errant values.
	Current	HOBA	44870	Continuity 10cm bare sensor reporting errant values.
TS05				
TS10				
TS25				
TS60				
TR05	Current	ARNE	44852	Difference between starting and final temperature is negligible, resulting in errant soil moisture values.
TRB10	Resolved	CENT	44836	Suspect failed sensor. Resolved.
	Current	ADAX	44885	10cm under bare soil starting, final, and average soil temperature report errant values.
	Current	BYAR	44875	Starting temperature reporting extremely high, errant values. Final temperature reporting errant values.
	Current	CARL	44898	Sensor appears to be affected by recurring thermal short. Both temperature and moisture values report missing during warm conditions.
TRS10	Resolved	ANT2	44335	Both starting and final temperature report errant values. Resolved.
	Current	BREC	44969	After prolonged period of noisy data, 10cm sod final temperature reports errant data.
	Current	HOLL	44860	Sensor heating less than expected, causing bad soil moisture data.
TR25	Resolved	PERK	44215	Suspect failed heater. Difference between starting and final temperature is negligible. Resolved.
	Current	BLAC	44847	Difference between starting and final temperatures much

				smaller than expected.
	Current	EUFA	44967	Soil moisture values errantly spike downward during high humidity. Please replace sensor.
TR60	Resolved	ARD2	44798	Suspect failing heater. Resolved.
	Current	WASH	44868	Both soil temperature and moisture values reporting errant values. Please replace sensor.

ARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05				
VW25	Current	A131	44871	Voltages 1-3 reporting values near zero, resulting in errant soil moisture values. Please replace.
VW45	Resolved	A121	44782	Voltages 1-3 reporting values near zero. This results in errant time series values. Please replace sensor. Resolved.
V05T				
V25T				
V45T				

FCARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05	Resolved	F103	44773	Raw voltages 1-3 reporting near zero, resulting in near constant soil moisture time series values. Resolved.
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