

Oklahoma Mesonet/ARS Quality Assurance Report July 2022

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- Mesonet technicians completed scheduled rotations of 13 batteries (BATV/BVAS), 6 rain gauges (RAIN/TIP2), 1 datalogger (LOGG), 2 barometers (PRES), 5 relative humidity sensors (RELH/TSLO), 5 pyranometers (SRAD), 7 PRT thermometers (TAIR/TA9M), 6 wind directions (WDIR), 5 wind sentries (WS2M), 4 wind monitor nose cones (WSPD), 1 current excitation module, and 1 CDM.

Mesonet QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
TAIR				
RELH	Resolved	BROK	45820	RELH higher and TSLO lower than expected for short periods of time during the day. Suspect insect nest. Sensor rotated, issue resolved.
	Resolved	CLAY	45810	Errant decrease in TSLO and increase in RELH in evening and again next morning. Check sensor for mud dauber nest. Replaced, cleaned housing.
	Resolved	WEST	45812	RELH higher and TSLO lower than expected for short periods of time during the day. Suspect insect nest. Replaced, wasp nest confirmed. Will return sensor for cleaning.
WSPD				
WDIR				
PRES				

SRAD	Resolved	CHIC	45834	Solar radiation sometimes steps down to near zero or much less than expected for extended periods before returning to normal. Replace sensor if no obvious cause found. Sensor reading looks good at the time. Level. Nothing covering. Cabling good. Replaced sensor.
	Resolved	ELRE	46354	Following sensor rotation, data suggest sensor may be slightly unlevel to the southeast. Please check sensor levelness using torpedo level. Adjusted
	Resolved	TALA	46288	Solar radiation sometimes steps down to near zero or much less than expected for extended periods before returning to normal. Replace sensor if no obvious cause found. Loose jumper wire discovered, rewired sensor to CDM.
RAIN	Resolved	BURN	45738	Please replace gauge cables to be consistent with secondary gauge. Replaced both rain and tip2 cables. Ran new conduit. Drip tests looked good.
	Resolved	BURN	45736	Secondary gauge often reports less than primary gauge, sometimes by significant margins. Please replace rain gauge cable. Replaced both rain and tip2 cables. Ran new conduit. Drip tests looked good.
	Resolved	CHIC	45771	Secondary gauge reports close to zero tips while primary reports over an inch during light and heavy rain. Gauge was due for a rotation.. old gauge found mostly clogged.
	Current	FREE	46364	Primary gauge reports significantly less than secondary and sometimes misses light events entirely. Please check gauge for clog or other issue. If no discernable problem, replace gauge.
	Current	HOOK	45727	Primary rain gauge returned two consecutive post-cleaning -3 drip test results. Please replace primary gauge.
	Current	SALL	46361	Primary gauge misses rain tips at start of precipitation. Please replace RG cable.
	Current	SALL	46362	Replace TIP2 cable.

TA9M	Resolved	EUFA	45816	Increasingly long periods of missing values that roughly correspond with diurnal heating in the afternoon. Sensor behavior is off/on, reporting reasonable values when we do have data from the sensor. Sensor at site less than a month. Check cabling for damage and connection to CDM. If no problems identified, replace sensor. Loose wire located at port 5 (black) on sensor end of cable. Port tightened to secure connection.
	Current	EVAX	45809	9m air temperature sometimes has low bias for extended period following high humidity precipitation.
WS2M				
TB10				
TS05				
TS10				
TS25				
TS60				
TR05	Current	HOLL	46355	Starting and final temperature report -7999. Both soil moisture and temperature affected. Please replace sensor.
TRB10	Resolved	KIN2	45815	Failing heater. Gap between starting and final temperature continues to shrink. Soil temperature unaffected. Please replace. Replaced sensor.

	Resolved	SHAW	45814	Sensor reports missing or otherwise significantly errant values. Both soil temperature and moisture affected. Replaced sensor, installed stainless steel cable protector.
	Current	CHIC	46377	Starting and final temperature frequently report -7999 or otherwise errant value. Both soil moisture and temperature affected. Replace sensor.
	Current	MRSR	46376	Starting and final temperature the same, indicating a failed heater. Soil temp is unaffected. Replace sensor.
	Current	RING	46366	10cm bare soil sensor reports -7999 for starting, final, and average soil temperature.
TRS10	Resolved	PRYO	45822	Sensor appears to have a thermal short in the afternoon once soil temperature reaches about 27C. Both soil temp and moisture return missing values during problem periods. Replace sensor. Replaced sensor, installed stainless steel cable protector.
	Current	CHER	45831	Showing symptoms of a failing heater. Gap between starting and final temperature very erratic, resulting in errant soil moisture values. Sensor was replaced last July for an apparently different issue. Soil temperature fine. Please replace unless other problem found.
	Current	ERIC	46367	10cm sod sensor reports -7999 for starting, final, and average soil temperature.
TR25	Resolved	STUA	45699	Failed heater - starting and final temperature are the same. Soil temperature unaffected. Please replace sensor. Replaced sensor, added stainless steel cable protector.
TR60				

ARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05	Resolved	A253	45832	Voltages 1-3 report near zero, resulting in errant soil moisture values. Replace sensor. Replaced sensor and tested.
VW25	Resolved	A253	45591	Erratic 2nd voltage values result in errant and often much higher than expected soil moisture values. Please replace sensor. Replaced sensor
VW45				
V05T				
V25T				
V45T				

FCARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05	Resolved	F104	45818	Raw voltages 1-3 reporting near zero. Replace sensor. Replaced sensor
VW25				
VW45	Resolved	F106	45585	During scheduled battery rotation, 45 cm soil sensor began reporting -7999 values. Please check sensor wiring. Replaced sensor
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