

# Oklahoma Mesonet/ARS Quality Assurance Report April 2022

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- Mesonet technicians completed scheduled rotations of 4 batteries (BATV/BVAS), 5 barometers (PRES), 8 relative humidity sensors (RELH/TSLO), 8 pyranometers (SRAD), 4 PRT thermometers (TAIR/TA9M), 4 rain gauges (RAIN/TIP2), 5 wind directions (WDIR), 4 wind sentries (WS2M), 1 wind monitor nose cone (WSPD), 3 current excitation modules.
- Following an incidence of vandalism in the early hours of 04/23, a stolen battery prevented us from recording observations until the afternoon of 04/28, when the battery, voltage regulator, and solar panel were replaced. Since replacement, another ticket has been issued to address a continuing power problem, but observations are current.

## Mesonet QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
<b>TAIR</b>				
<b>RELH</b>				
<b>WSPD</b>	<b>Resolved</b>	<b>ELRE</b>	<b>45706</b>	<b>WSPD-WS2M often significantly higher than neighbors, especially on windy days. Replace WSPD propeller and install rubber nut to secure into place. Changed out propeller and nut.</b>
	<b>Resolved</b>	<b>GOOD</b>	<b>45704</b>	<b>WSPD-WS2M sometimes significantly higher than neighbors, especially on windy days. Replace WSPD propeller and install rubber nut to secure into place. Replaced loose and stripped wind propeller and nut.</b>
<b>WDIR</b>				

<b>PRES</b>	<b>Current</b>	<b>EUFA</b>	<b>45574</b>	<b>Please replace external barometer tubing.</b>
<b>SRAD</b>				
<b>RAIN</b>	<b>Resolved</b>	<b>LANE</b>	<b>45694</b>	<b>Gauge often misses first few tips of rain event and or records larger than expected low bias. Please replace gauge cables and conduct drip test. If drip test returns -3 or worse, replace gauge. Replaced cables. Retested at 33 after replacement.</b>
	<b>Resolved</b>	<b>LANE</b>	<b>45696</b>	<b>Please replace gauge cable for consistency with RAIN. Replaced.</b>
	<b>Current</b>	<b>BURN</b>	<b>45738</b>	<b>Please replace gauge cables to be consistent with secondary gauge.</b>
	<b>Current</b>	<b>BURN</b>	<b>45736</b>	<b>Secondary gauge often reports less than primary gauge, sometimes by significant margins. Please replace rain gauge cable.</b>
	<b>Current</b>	<b>HOOK</b>	<b>45727</b>	<b>Primary rain gauge returned two consecutive post-cleaning -3 drip test results. Please replace primary gauge.</b>
	<b>Current</b>	<b>PRYO</b>	<b>45676</b>	<b>Special photos from tech visit reveal a large region of peeled paint on the inner part of the secondary gauge funnel. Tracing to fire in early February. Please replace gauge top with stock located on counter in lab.</b>
<b>TA9M</b>				
<b>WS2M</b>				
<b>TB10</b>				
<b>TS05</b>				
<b>TS10</b>				

<b>TS25</b>	<b>Current</b>	<b>MANG</b>	<b>45573</b>	<b>25cm sensor reports -7999 for starting, final, and average soil temperature.</b>
<b>TS60</b>				
<b>TR05</b>				
<b>TRB10</b>	<b>Resolved</b>	<b>BUTL</b>	<b>45678</b>	<b>Sensor returns -7999 or otherwise errant values. Both soil temperature and moisture affected. Please replace sensor. Replaced sensor.</b>
	<b>Current</b>	<b>STIL</b>	<b>45679</b>	<b>Sensor returns -7999 or otherwise errant values. Both soil moisture and temperature affected. Please replace sensor.</b>
<b>TRS10</b>	<b>Current</b>	<b>SHAW</b>	<b>45700</b>	<b>Tech reports no resistance between heater leads following current_ex rotation, causing errant soil moisture values. Please replace sensor.</b>
<b>TR25</b>	<b>Current</b>	<b>BIXB</b>	<b>45745</b>	<b>25cm sensor not heating. Final temp same as starting temp.</b>
	<b>Current</b>	<b>ERIC</b>	<b>45743</b>	<b>25cm soil temperature reports errantly high values or -7999. Replace sensor.</b>
	<b>Current</b>	<b>STUA</b>	<b>45699</b>	<b>Failed heater - starting and final temperature are the same. Soil temperature unaffected. Please replace sensor.</b>
<b>TR60</b>	<b>Current</b>	<b>SHAW</b>	<b>45702</b>	<b>Tech reports no resistance between heater leads following current_ex rotation, causing errant soil moisture values. Please replace sensor.</b>

## ARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
<b>RAIN</b>				
<b>VW05</b>	<b>Resolved</b>	<b>A262</b>	<b>45581</b>	<b>Raw voltages 1-3 unexpectedly stepped up mid-January and have not returned to normal. Please replace sensor. Problem resolved automatically.</b>
	<b>Current</b>	<b>A154</b>	<b>45681</b>	<b>Errant 1st through 3rd voltages result in errant soil moisture values, soil temp unaffected. Please replace sensor.</b>
<b>VW25</b>	<b>Current</b>	<b>A152</b>	<b>45580</b>	<b>Raw voltages 1-3 report near 0. Please replace sensor.</b>
	<b>Current</b>	<b>A253</b>	<b>45591</b>	<b>Erratic 2nd voltage values result in errant and often much higher than expected soil moisture values. Please replace sensor.</b>
<b>VW45</b>	<b>Current</b>	<b>A159</b>	<b>45744</b>	<b>First voltage returns -7999, resulting in missing soil moisture values. Replace sensor.</b>
<b>V05T</b>				
<b>V25T</b>				
<b>V45T</b>				

## FCARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
<b>RAIN</b>				
<b>VW05</b>				
<b>VW25</b>	<b>Current</b>	<b>F101</b>	<b>45677</b>	<b>Voltages 1-4 report -7999, returning both missing soil temp and moisture. Please replace sensor.</b>
<b>VW45</b>	<b>Current</b>	<b>F106</b>	<b>45585</b>	<b>During scheduled battery rotation, 45 cm soil sensor began reporting -7999 values. Please check sensor wiring.</b>
	<b>Current</b>	<b>F213</b>	<b>45740</b>	<b>Sensor reporting -7999. Both soil temperature and soil moisture affected. Please replace sensor.</b>
<b>V05T</b>				
<b>V25T</b>				
<b>V45T</b>				

'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.

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