

# Oklahoma Mesonet/ARS Quality Assurance Report February 2022

Prepared by Trey Bell, Ethan Becker, and Christian Eden

Published on March 11, 2022

Contact: [gamgr@mesonet.org](mailto:gamgr@mesonet.org)

- Mesonet technicians completed scheduled rotations of 9 batteries (BATV/BVAS), 4 barometers (PRES), 6 relative humidity sensors (RELH/TSLO), 2 pyranometers (SRAD), 4 PRT thermometers (TAIR/TA9M), 2 rain gauges (RAIN/TIP2), 3 wind directions (WDIR), 2 wind sentries (WS2M), 3 wind monitor nose cones (WSPD), and 3 current excitation modules.

## Mesonet QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
TAIR	Current	PRYO	45656	Suspect aspirated shelter damaged by fire. Replace.
RELH				
WSPD				
WDIR				
PRES	Current	EUFA	45574	Please replace external barometer tubing.
SRAD	Resolved	FAIR	45609	Sensor reporting values about 25 wpsm higher than neighbors and right side of the curve when plotted is fatter than the left, indicating the sensor might be unlevel towards the SW. Problem traces to most recent tech visit. Please level sensor using independent level. Relevelled.
	Resolved	HOBA	45607	Sensor occasionally reports extremely low,

				unrepresentative values during full sun for several observations before returning to normal. Please replace sensor. Replaced.
RAIN	Resolved	CLAY	45547	Sensor often stops recording tips during on-going rain events. Please replace gauge cables, and ensure expected drip test results. Replaced cable.
	Resolved	CLAY	45548	Please replace secondary rain gauge cables for consistency. Replaced cable.
	Resolved	FAIR	45571	Gauge records 0 tips while secondary gauge records markedly more during recent snow melt events. Unexpected tip also recorded mid-December during wind gusts near 60 mph. Gauge cover blown off. Black drain nipple knocked off. Replaced.
TA9M				
WS2M	Resolved	ELRE	45646	WS2M reports lower than expected in nearly all conditions. Replace sensor. Replaced
	Resolved	WAL2	45545	Shows symptoms of a potential starting threshold problem. Starting mid-December, sensor commonly reports 0 m/s while WSPD reports near 5 m/s. Cups on sensor appear to spin unbalanced. Nothing heard from bearings. Replaced.
	Current	PRYO	45655	Suspect WS2M damaged by fire. Replace.
TB10				
TS05				
TS10				
TS25	Current	MANG	45573	25cm sensor reports -7999 for starting, final,

				and average soil temperature.
<b>TS60</b>				
<b>TR05</b>				
<b>TRB10</b>	<b>Current</b>	<b>ARD2</b>	<b>45647</b>	<b>Soil moisture data noisy and sometimes greatly exceeds expected moist end. Please replace sensor.</b>
<b>TRS10</b>				
<b>TR25</b>	<b>Resolved</b>	<b>PERK</b>	<b>45540</b>	<b>Failed heater, starting and final temperature are the same. Please replace. Replaced. Second one in 6 months. Also replaced current exciter.</b>
	<b>Resolved</b>	<b>WIST</b>	<b>45543</b>	<b>Originally reporting erratic, spikey values during rainfall, data have become overall quite noisy. Please replace sensor. Replaced.</b>
<b>TR60</b>				

## ARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
<b>RAIN</b>				
<b>VW05</b>	<b>Current</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.</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>V05T</b>				
<b>V25T</b>				
<b>V45T</b>				

## FCARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN	Resolved	F103	45447	2021 double mass analysis shows site consistently reported more than neighbors. Year total was 20 percent higher than all FCARS neighbors and WEAT. Suspect cover high bias. Replace entire gauge for scheduled rotation. Replaced per trouble ticket.
	Resolved	F111	45109	Rain gauge measures tips slowly and tips continue for an extended period after precipitation ends. Suspect gauge is clogged. Unclogged. 35 tips after cleaning
VW05				
VW25				
VW45	Current	F106	45585	During scheduled battery rotation, 45 cm soil sensor began reporting -7999 values. Please check sensor wiring.
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.*

<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>