

# Oklahoma Mesonet / ARS Quality Assurance Report

**September 2020**

Prepared by Ethan Becker and Trey Bell  
qamgr@mesonet.org

- Mesonet technicians completed scheduled rotations of 6 batteries, 2 aspirator fans, 1 barometer (PRES), 2 rain gauges (RAIN/TIP2), 3 relative humidity sensors (RELH/TSLO), 4 pyranometers (SRAD), 3 PRT thermometers (TAIR/TA9M), 3 wind monitor nose cones (WSPD), and 1 current excitation module.
- The aspirator fan at Idabel (IDAB) failed. TAIR data are currently flagged since a bias has developed.
- Missing soil moisture data at the Foraker site (FORA) has returned following current excitation module replacement.
- Vandalism at the A152 micronet site resulted in missing data. Stolen equipment has been replaced.
- Further issues with the Kenton (KENT) power system have resulted in a few skipped observations. Troubleshooting is ongoing.

## Mesonet QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
TAIR				
RELH				
WSPD				
WDIR				
PRES	Resolved	BREC	43105	Barometer tubing prone to water entrapment. Please install vented tube. Resolved.
	Resolved	WATO	43221	Barometer tubing prone to water entrapment. Please install vented tube. Resolved.
SRAD	Resolved	WEST	43174	Solar radiation sometimes reports bad data. Replaced.
	Current	MARE	43234	Suspect dirty SRAD sensor.
RAIN	Current	FORA	43288	Primary gauge drip tests lower than desired. Please replace

				gauge.
	Current	FORA	43285	Secondary gauge drip tests lower than desired. Please replace gauge.
TA9M	Resolved	TALI	43164	Sharp decreases in 9m-air temperature during the day do not agree with like instruments. Insect nest removed.
WS2M	Current	BOIS	43150	2m-wind speed often has a 2-3 m/s low bias.
	Current	TALA	43307	2m-wind sensor often has a 2-3 m/s low bias.
TB10				
TS05				
TS10	Current	OILT	43002	Continuity soil temperature at 10cm under sod suddenly reports bad values.
TS25				
TS60				
TR05	Resolved	ALV2	43114	Starting and final temperature report bad data. Replaced.
	Resolved	APAC	43108	Starting and final temperature report bad data. Replaced.
	Resolved	HUGO	43166	Sensor reports spike above allowed error. Replaced.
	Resolved	WYNO	43112	Heater no longer heating. Replaced.
TRB10	Resolved	ARNE	43119	Heater no longer heating as expected. Replaced.
	Resolved	LANE	43196	Final temperature reports bad data. Replaced.
	Current	MEDI	43316	Heater only heats 1 to 1.5 degrees per cycle, resulting in erratic soil moisture data.
	Current	OILT	43010	Standard soil temperature at 10cm under bare soil reporting bad data.
TRS10	Current	ACME	43311	Both soil temperature and soil moisture reporting bad values.

	Current	EUFA	43278	Sensor returns erratic, noisy moisture values.
	Current	OILT	43008	Standard soil temperature at 10cm under sod reporting bad data.
TR25	Resolved	YUKO	42304	Sensor no longer heating. Replaced.
TR60	Current	EVAX	43257	Both soil temperature and soil moisture frequently report errant values.
	Current	MIAM	43044	60cm soil moisture starting temperature reports errant values.
	Current	NEWK	42247	60-cm sensor does not heat.
	Current	OILT	43004	Soil temperature at 60cm reporting bad data.

### ARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05	Resolved	A249	43039	5cm sensor regularly reports values near 0 for voltages 1-3, resulting in bad soil moisture data. Replaced.
	Current	A250	43281	Sensor returns errant or otherwise noisy values. Replace sensor.
VW25	Resolved	A124	43159	Soil moisture at 25cm reporting errant values. Replaced.
VW45	Resolved	A152	43203	45cm soil sensor continuously reports values near zero for voltages 1-3. Replaced.
V05T				
V25T				
V45T				

## FCARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
<b>RAIN</b>				
<b>VW05</b>	<b>Current</b>	<b>F114</b>	<b>43191</b>	<b>5-cm soil sensor frequently reports bad values. Please replace sensor.</b>
<b>VW25</b>	<b>Current</b>	<b>F105</b>	<b>43275</b>	<b>25 cm sensor continues to report lower voltage readings than expected, especially for 1st voltage.</b>
<b>VW45</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>