

# Oklahoma Mesonet/ARS Quality Assurance Report January 2023

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- Mesonet technicians completed scheduled rotations of 4 batteries (BATV/BVAS), 1 relative humidity sensor (RELH/TSLO), 1 PRT thermometer (TAIR/TA9M), 1 rain gauge (RAIN/TIP2), 1 wind sentry (WS2M), 1 wind monitor nose cone (WSPD), and 1 current excitation module.

## Mesonet QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
TAIR				
RELH	Resolved	SPEN	47054	Relative humidity sometimes reports >106 percent. Current field max 109 percent. Cleaned RELH housing and replaced sensor.
WSPD	Resolved	ELKC	47148	Suspect 10m anemometer may be presenting a high bias. Check if WSPD nut is loose. If not, investigate other potential problem with sensor. If loose and WSPD nut is plastic, replace with a rubber one. If already rubber, ensure nut is tightly fastened. Locking grooves on propeller were broken and propeller was loose. Rotated sensor and installed new propeller. Old sensor N144482.
WDIR				
PRES				
SRAD				

<b>RAIN</b>				
<b>TA9M</b>				
<b>WS2M</b>	<b>Resolved</b>	<b>CAMA</b>	<b>47002</b>	<b>ROTATION: Equipment at Site: WINDSENTRY, 14014 Replaced WS2M. Bearing noise and observed old WS2M intermittently stop spinning before replacement with steady wind.</b>
	<b>Resolved</b>	<b>PRYO</b>	<b>47088</b>	<b>2m wind speed reports zero after 81mph wind gust and pressure drop. NWS Tulsa site survey confirmed tornado, but was unable to access site for damage pictures. Wind from storm event carried a plastic cord that became bound around the cup anemometer leaving it unable to rotate. Cord removed and sensor seems to be functioning as expected.</b>
	<b>Current</b>	<b>BOIS</b>	<b>47160</b>	<b>2m wind often reports significantly less than WSPD, even when 10m wind reports up to 10 mph. Suspect starting threshold problem along with recurring low bias. Replace wind sentry.</b>
<b>TB10</b>				
<b>TS05</b>				
<b>TS10</b>				
<b>TS25</b>				
<b>TS60</b>				
<b>TR05</b>				
<b>TRB10</b>	<b>Current</b>	<b>TALI</b>	<b>46584</b>	<b>10cm bare soil moisture sometimes does not</b>

				properly heat, causing soil moisture to exceed allowed wet range. Prior tech visit revealed that moving soil moisture to different CE port did not change output. Tech noted bad conduit for sensor. Please replace both sensor and conduit.
<b>TRS10</b>				
<b>TR25</b>	<b>Current</b>	<b>WEAT</b>	<b>47161</b>	25cm soil sensor reports -7999 for starting, final, and average temperature.
<b>TR60</b>				

## ARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05				
VW25	Resolved	A133	47086	First voltage begins to report -7999, resulting in missing soil moisture values. Soil temperature not affected. Problem resolved automatically.
VW45				
V05T				
V25T				
V45T				

## FCARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
<b>RAIN</b>	<b>Resolved</b>	<b>F104</b>	<b>47146</b>	<b>Gauge significantly under-reports during recent rain and snowmelt events. Found sand and other debris in top screens of rain gauge as well as inner funnel. Cleaned top funnel, inner funnel, screens, and tip buckets. Leveled sensor.</b>
<b>VW05</b>				
<b>VW25</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>