

# Oklahoma Mesonet/ARS Quality Assurance Report December 2021

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- Mesonet technicians completed scheduled rotations of 1 battery (BATV/BVAS), 1 barometer (PRES), 7 wind directions (WDIR), 1 wind monitor nose cone (WSPD).
- Unexpected logger behavior at our Pauls Valley (PAUL) site resulted in missed records late November. Subsequent logger troubleshooting produced additional missed records on 12/16. The faulty logger was replaced on that day and the issue has not re-appeared.

## Mesonet QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
TAIR	Resolved	NRMN	45019	Tech visit confirms damage to aspirated shelter. Photos reveal hailstone induced puncture in plastic on top of sensor enclosure. Please replace. Indeed cracked. Replaced.
	Current	HUGO	45538	Sensor reports values near -400F for several hours, roughly aligning with sunrise-sunset, before returning to normal. Rewiring sensors has been shown to resolve this issue in the past. If a more apparent cause cannot be determined, please rewire/reseat sensor connections, then check for realistic values.
RELH	Resolved	NRMN	45020	Tech visit this morning confirms damage to sensor housing. Hailstone induced puncture in topmost disc of radiation shield. Please replace radiation shield. Indeed cracked. Replaced.
WSPD	Current	ADAX	45534	Starting threshold problem can be traced back to sensor rotation on October 26. Frequency and intensity of starting threshold issues dramatically increased mid-December in the

				absence of winter precip.
<b>WDIR</b>	<b>Resolved</b>	<b>NRMN</b>	<b>45022</b>	<b>Please inspect windmonitor body for potential hail damage. If damaged, please replace. Currently no problems seen in data. No damage found.</b>
<b>PRES</b>				
<b>SRAD</b>				
<b>RAIN</b>	<b>Resolved</b>	<b>BUFF</b>	<b>45085</b>	<b>Primary gauge drip tested 3 tips low for two consecutive post-cleaning tests. Please replace gauge. Replaced sensor.</b>
	<b>Resolved</b>	<b>WATO</b>	<b>45042</b>	<b>Primary gauge misses events entirely while secondary gauge reports reasonable values. Cables already replaced just over a month ago. Performed troubleshooting of cables, sensor determined to be the problem. Sensor replaced. Leveled with height of TIP2.</b>
	<b>Resolved</b>	<b>BRIS</b>	<b>45101</b>	<b>Secondary rain gauge missed last 2 rain events. TIP2 tipping reservoirs both full of water not allowing either side to be tipped. Also, a large accumulation of very fine sand or silt possibly hindering good tips. Cleaned and verified to record tips.</b>
	<b>Resolved</b>	<b>SEIL</b>	<b>45057</b>	<b>Secondary gauge drip tested 3 tips low for two consecutive post-cleaning tests. Please replace gauge. Replaced sensor.</b>
<b>TA9M</b>	<b>Resolved</b>	<b>NRMN</b>	<b>45024</b>	<b>Please inspect radiation shield for potential hail damage. If damaged, replace radiation shield. No problems currently seen in data. No cracks found.</b>
<b>WS2M</b>	<b>Resolved</b>	<b>NRMN</b>	<b>45021</b>	<b>Tech visit confirms damage to WS2M sensor. Anemometer cup likely cracked by hailstone.</b>

				Please replace sensor. Indeed cracked cup found. Replaced.
TB10				
TS05				
TS10				
TS25				
TS60				
TR05	Resolved	FREE	45086	5cm sod sensor stopped heating. Starting and final temperatures are the same. Sensor cable cut by gopher. Replaced sensor and installed stainless steel cable guard.
TRB10				
TRS10	Resolved	BREC	44969	After prolonged period of noisy data, 10cm sod final temperature now same as starting temp or reports random bad value. Replaced sensor.
	Current	ELRE	45544	Began reporting exceedingly noisy data last summer that has worsened over time. Please replace sensor.
TR25	Current	PERK	45540	Failed heater, starting and final temperature are the same. Please replace.
	Current	WIST	45543	Originally reporting erratic, spikey values during rainfall, data have become overall quite noisy. Please replace sensor.
TR60				

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**ARS QA Report for Standard Variables**

Variable	Status	Site	Ticket	Remarks
<b>RAIN</b>				
<b>VW05</b>				
<b>VW25</b>				
<b>VW45</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>Current</b>	<b>F111</b>	<b>45109</b>	<b>Rain gauge measures tips slowly and tips continue for an extended period after precipitation ends. Suspect gauge is clogged.</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>