

Oklahoma Mesonet / ARS Quality Assurance Report

May 2020

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- Mesonet technicians completed scheduled rotations of 1 battery, 15 aspirator fans, 6 barometers (PRES), 6 rain gauges (RAIN/TIP2), 9 relative humidity sensors (RELH/TSLO), 9 pyranometers (SRAD), 4 PRT thermometers (TAIR/TA9M), 4 wind sentries (WS2M), 4 wind monitor nose cones (WSPD), and 3 current excitation modules.
- A power system issue at Kenton (KENT) resulted in a few missed observations. Ongoing troubleshooting with this site is occurring.
- Equipment failure at Talala (TALA) resulted in missing data for certain parameters. The affected equipment has been replaced.
- Ants caused equipment failure at Miami (MIAM), resulting in missing data for certain parameters. The affected equipment has been replaced.
- Lightning struck at the Broken Bow site (BROK). The datalogger survived and continued to record data, but some variables were flagged, including TAIR, PRES, and some soil moisture data.

Mesonet QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
TAIR				
RELH				
WSPD				
WDIR				
PRES	Resolved	BROK	42121	After nearby lightning strike, barometer reports errant values. Replaced.
SRAD	Resolved	BOIS	42073	Data slightly higher than expected, but within allowed error. Please check pyranometer level. Resolved.
	Resolved	KENT	42076	Data slightly higher than expected, but within allowed error. Please check pyranometer level. Resolved.

	Current	OKMU	42067	Solar radiation sometimes spikes down between 0 and expected value during clear conditions. Please replace sensor.
RAIN	Resolved	JAYX	42006	Primary gauge sometimes misses start of precipitation. Check cables before replacing gauge. Cables replaced.
	Resolved	VALL	42057	Secondary gauge misses tips during rainfall. Check cables before replacing gauge. Cables replaced.
TA9M	Resolved	HECT	41938	9-m air temperature sometimes reports values much less than expected for a couple hours, then returns to normal. Replaced sensor.
WS2M	Resolved	GOOD	41853	WS2M sometimes reports 0 when winds are > 3.5 m s. Suspect starting threshold problem. Replaced.
	Current	BUFF	42138	Technician reports sensor cup assembly is damaged. Please replace sensor.
TB10	Resolved	KENT	41715	More diurnal variation than neighbors. Suspect sensor too shallow. Replaced.
	Resolved	MEDI	41988	10cm bare soil temperature reports errantly high values during peak heating hours, suspect short is occurring. Replaced.
TS05	Current	WATO	42050	Sod temperature at 5 cm has very large diurnal variation. Suspect sensor is too shallow. Rebury sensor.
TS10				
TS25				
TS60				
TR05	Current	BROK	42131	5-cm sensor does not heat properly. Suspect sensor damaged by lightning strike.
	Current	HINT	42070	Soil moisture at 5 cm reports errant values during rainfall. Suspect exposed bare wire. Replace Sensor.
TRB10	Resolved	PRYO	41921	10 cm bare soil temperature and starting final soil moisture temperatures report errant values. Replaced.

	Current	BUTL	42100	Final temperature reports errant values.
TRS10				
TR25				
TR60				

ARS QA Report for Standard Variables

Nothing to Report

FCARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05	Resolved	F113	42054	Sensor reporting errant zero values. Sensor was rewired in Dec 2019 for similar issue. Replaced.
VW25	Current	F111	42095	Soil moisture at 25cm reports near zero for voltages between 1-3. Soil temperature values look fine.
VW45				
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.

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