Oklahoma Mesonet / ARS
Quality Assurance Report

August 2020

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- Mesonet technicians completed scheduled rotations of 2 rain gauges (RAIN/TIP2), 2 aspirator fans, 1 barometer (PRES), 4 relative humidity sensors (RELH/TSLO), 1 pyranometer (SRAD), 1 PRT thermometer (TAIR/TA9M), 1 wind sentry (WS2M), 2 wind monitor nose cones (WSPD/WDIR), and 3 current excitation modules.
- Power problems at Fittstown (FITT) resulting in missed observations resolved during technician visit on August 4th.
- All soil moisture sensors at the Foraker site (FORA) began reporting errant values on August 14th. Realtime data currently flagged.

Mesonet QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
TAIR	**Resolved**	**MANG**	**43056**	**Air Temperature at 1.5 meters reports higher than expected values. Spider web and egg sacks found within aspirator shelter. Technician removed this debris from the sensor housing.**
RELH				
WSPD				
WDIR				
PRES	**Current**	**BREC**	**43105**	**Barometer tubing prone to water entrapment. Please replace external tubing, and drill 2mm hole on bottom of external barometer tube 1/2 inch from enclosure.**

SRAD	**Resolved**	**GRA2**	**43062**	**Solar radiation sometimes reports values less than expected during sunny conditions. Please replace sensor. Sensor replaced.**
	Resolved	**SALL**	**43089**	**Solar radiation sensor sometimes reports missing or negative values during overnight and early morning hours. Please replace sensor. Sensor replaced.**
	Current	**WEST**	**43174**	**Solar radiation sometimes reports values less than expected during sunny conditions. Please replace sensor.**
RAIN	**Resolved**	**CENT**	**43082**	**Gauges record occasional errant rain tips. Please replace RG cables only. Gauge cables replaced.**
	Resolved	**CENT**	**43084**	**Gauges record occasional errant rain tips. Please replace RG cables only. Secondary gauge cables replaced.**
TA9M	**Current**	**TALI**	**43164**	**Sharp decreases in 9-meter air temperature during the day do not agree with TAIR. Possible insect nest on sensor.**
WS2M	**Resolved**	**EUFA**	**43070**	**2-meter wind speed sometimes reports zero when 10-meter wind is above 3m/s. Please replace sensor. Sensor replaced.**
	Current	**BOIS**	**43150**	**2-meter wind speed often has a 2-3 m/s low bias when compared to 10-meter wind and neighbors.**
TB10				
TS05				
TS10	**Current**	**OILT**	**43002**	**Continuity soil temperature at 10cm under sod suddenly reports values greater than 100C.**

				Lightning in vicinity at time of problem.
TS25				
TS60				
TR05	**Resolved**	**LAHO**	**43092**	**Sensor is slow to saturate following heavy rainfall events. Please replace sensor. Sensor replaced. Old sensor unrecoverable due to hard ground.**
	Current	**ALV2**	**43114**	**Starting and final temperature report -7999 or otherwise errant values. Soil temperature bad. Please replace sensor.**
	Current	**APAC**	**43108**	**Starting and final temperature reporting errant, erratic values. Soil temperature fine. Please check all wiring and values before replacing.**
	Current	**HUGO**	**43166**	**Sensor reports spike above allowed error followed by errant diurnal variation. Soil temperature fine. Please replace sensor.**
	Current	**WYNO**	**43112**	**Heater no longer heating. Soil temperature fine. Please check all wiring and values before replacing.**
TRB10	**Resolved**	**SALL**	**43109**	**Starting temperature reports near 600ºC and final temperature reports -7999. Soil temperature bad. Please replace sensor. Sensor replaced.**
	Current	**ARNE**	**43119**	**Heater no longer heating as expected. Soil temperature fine. Please check all wiring and values before replacing.**
	Current	**LANE**	**43196**	**Final temperature reports -7999, starting temperature reports negative or otherwise errant, erratic values. Please replace sensor.**
	Current	**OILT**	**43010**	**Standard soil temperature at 10cm under bare soil reporting -7999. Lightning in the vicinity of site when problem arose.**

TRS10	**Resolved**	**LAHO**	**43095**	**Starting and final temperature report -7999. Both soil moisture and temperature errant. Please replace sensor. Sensor replaced. Old sensor unrecoverable due to very hard ground.**
	Current	**OILT**	**43008**	**Standard soil temperature at 10cm under sod reporting -7999. Lightning in the vicinity of site when problem arose.**
TR25	**Current**	**YUKO**	**42304**	**Sensor no longer heating, resulting in errant soil moisture values. Soil temperature is fine.**
TR60	**Resolved**	**GRA2**	**43066**	**Heater no longer heating. Soil temperature fine. Check all wiring and values before replacing. Sensor replaced.**
	Current	**MIAM**	**43044**	**60cm soil moisture starting temperature reports around 500 C. Final temperature is -7999.**
	Current	**NEWK**	**42247**	**60-cm sensor doesn’t heat as expected, resulting in bad soil moisture data. Soil temperature is fine.**
	Current	**OILT**	**43004**	**Soil temperature at 60cm reporting -7999. Lightning in the vicinity of site when problem arose.**

ARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05	**Current**	**A249**	**43039**	**5cm sensor regularly reports values near 0 for voltages 1-3, resulting in bad soil moisture data. Soil temperature measurements are fine.**
VW25	**Current**	**A124**	**43159**	**Soil moisture at 25cm reporting erratic and otherwise errant values.**
VW45	**Current**	**A152**	**43203**	**45cm soil sensor continuously reports values near zero for voltages 1-3. Please replace sensor.**
V05T				
V25T				
V45T				

FCARS QA Report for Standard Variables

Variable	Status	Site	Ticket	Remarks
RAIN				
VW05	**Current**	**F114**	**43191**	**5-cm soil sensor frequently reports bad values. Please replace sensor.**
VW25	**Resolved**	**F105**	**43047**	**Sensor returning errant soil moisture value of zero. Rewire and check values before replacing. Soil temperature fine. Sensor rewired.**
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