

OKLAHOMA MESONETWORK QUALITY ASSURANCE REPORT
for the month of June 1996

Based upon observations taken at 1800 UTC each day

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Notes:

As I prepare this report, 43 stations within the Mesonet are reporting temperatures at or above 110 F! And might I add that all stations have performed superbly during this monster heat wave. As for the month of June, the data is looking mighty fine.

Before discussing the quirks discovered in analyzing this month's data, I would like to first extend thanks to Derek Arndt for greatly improving the manual QA process. Derek has written a program (which utilizes NCAR graphics routines) that gathers the data, performs the averaging, and then produces countoured fields on a base map of the state of Oklahoma with Mesonet site locations. Those familiar with the manual QA process will know that this eliminates a great deal of the "busy work" associated with producing the graphics for each parameter. Now more time can be spent actually perusing the data and keeping its quality at the top of the line.

Topping the list of interesting things in the data for June is a one day rainfall total of 10.66" at Cheyenne on the 15th. Comparing averages of the 06, 12, and 18 UTC observations also shows a remarkably distinct mountain/valley circulation at Wister. Boundary layer flow during the afternoon hours is uniform with surrounding sites, and in the absence of large scale forcing always becomes light and northerly at night.

And that's the interesting news. Now for the details of each parameter:

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TAIR (Air Temperature at 1.5 meters):

Looks good!
Current t-tkts: None.
Added: None.
Resolved: None.

TDEW/RELH (RH is measured at 1.5 meters):

A few sites (especially in the west) were a touch low on their max RH readings for the month, but nothing to warrant issuing new t-tkts for.
Current t-tkts: #790 ADAX Low urgency tkt still out. Max RH slightly high. In field ~46 mos.
#974 RING Low urgency. May QA showed RH max too low.
Added: None.
Resolved: #920 ALTU Replaced. Old sensor reading low.

#945 BUTL Replaced. Old sensor erratic.
#960 RETR Replaced. Lightning damage.
#973 NORM Replaced sensor. Was reading low.
#981 HUGO Replaced sensor. Was erratic.
#983 STIL Replaced. JD Carlson reported sensor
was reading low.

WDIR (Wind Direction at 10 meters):

No problems.
Current t-tkts: None.
Added: None.
Resolved: None.

WSPD (Wind Speed at 10 meters):

No problems.
Current t-tkts: None.
Added: None.
Resolved: None.

PRES/PALT (Sea level Pressure):

No new problems.
Current t-tkts: None.
Added: None.
Resolved: #957 DURA Replaced. Worm living in tube.
#959 RETR Replaced. Lightning damage.

SRAD (Incident Solar Radiation):

A few low-priority t-tkts exist for minimal biases. In
general, the field looks mostly good, however.
Current t-tkts: #804 MIAM Tech concerned about spliced wire.
#856 CLAR Long term QA suggests this site
receives ~25% low readings. Could
be due to close proximity of trees,
which also affects winds at site.
#930 OILT suggests ~7% low bias.
#985 RETR Likely lightning damage.
Added: #995 ELRE QA suggests reading ~10-15% low.
#996 HUGO QA suggests ~10% low bias.
Resolved: #972 SEIL No action taken. Field test showed
sensor w/in 1% of test pyra.
#994 ERIC Replaced. Lightning damage.

RAIN:

No new problems. Cheyenne takes the prize (see above).
Current t-tkts: None.
Added: None.
Resolved: #992 OILT Replaced. Bad switch found.
#984 CHEY Tested on site. Routine check
after extreme event at site.

TA9M (Air Temperature at 9 meters):

Looks good.
Current t-tkts: None.
Added: None.
Resolved: #958 KING Replaced. Broken wires.

WS2M (Wind Run at 2 meters):

A few slight problems have occurred with this field, due mostly to old bearings making the startup threshold high. Current t-tkts: #825 MARE Tech observed noisy bearings. Added: None. Resolved: #949 KING Replaced. Erratic w/field test. #955 MADI Installed fibrous disk bearings. #987 DURA Replaced disk bearings. #988 ANTL Replaced disk bearings. #989 HUGO Replaced disk bearings. #993 PUTN Fast w/ field test. Replaced disk bearings.

After looking at soil temperature climatologies and discussing the matter with technicians and others, it seems appropriate to relax the criteria for noting what is actually a problem with a soil temperature sensor. There is much evidence that soil temp at all levels makes quite noisy horizontal analyses. In short, QA biases of only a few degrees may be a reflection of coupling with the environment rather than a sensor problem. Hence added t-tkts at all depths as a result of manual QA will likely be reduced somewhat in the future (especially if the sites are not important to agricultural experiments). Please feel free (in fact I would appreciate it) to respond to me concerning this matter.

TS10 (Soil temperature at 10 cm under native sod):

Current t-tkts: #963 NORM QA shows ~2 deg warm bias. Added: #997 RETR QA shows ~6-7 deg cool bias. #998 PERK QA shows ~6-7 deg warm bias, suggesting sensor may be at improper depth (too shallow). Resolved: #927 APAC Replaced. Old sensor slightly cool. #962 PUTN No action taken. Field test showed 30 F difference with sod temp. #855 OKMU QA suggests 3-4 deg warm bias. #925 HASK QA suggests ~3 deg cool bias. #969 STIL QA shows ~2 deg cool bias. Added: None. Resolved: #929 ANTL No action taken. Tech notes QA cool bias likely due to high albedo "soil" at site (white sand). #961 CHER Replaced. Field test showed 1.24 C warm.

TS05 (Soil temperature at 5 cm under native sod):

Current t-tkts: #966 PERK QA shows ~3-4 deg warm bias. #967 NORM QA shows ~4 deg warm bias. Added: None. Resolved: #921 ALTU Reinstalled at 5 cm. Test w/in 0.3 C. #926 APAC Replaced. Old sensor reading cool. #968 FTCB No action. Field test within comp.

TB05 (Soil temperature at 5 cm under bare soil):

Current t-tkts: #923 BIXB QA shows ~3 deg warm. #924 HASK QA shows ~2 deg cool.

#970 CHIC QA shows ~2-3 deg warm bias.
Added: None.
Resolved: #922 BURN Resintalled at proper depth.
#971 GRAN Found buried at 2cm. Resintalled at 5cm.

TS30 (Soil temperature at 30 cm under native sod):

Current t-tkts: None.
Added: None.
Resolved: #964 FTCB No action. Field test within comp.
#982 PERK Replaced. Had been failing automated QA
range test.

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