

Daily summary, July 28

July 28, 20:30 CDT

Dan Rajewski (in Ames)

Summary: Stations 1-4 operational, no ISFS staff on site
mixture of clouds and sun with warm and humid conditions with very light winds, heavy rain around 8:00-10:00
winds switching from Easterly overnight to SW and eventual Westerly by early afternoon

Vdsm: 13.5-13.7 V during day, down to 12.4 at night
P: ok, pressure rising 5mb throughout the period

T.2m: night: stn 4 about 0.7-1.0 degree C cooler than stn 1 from 1:00-2:00, other sites in between 1 & 4; day: stns mostly in agreement

RH.2m: stn 4 highest during day and night, 5-7% RH higher than other sites ; some night periods with stns 1 & 3 a few% RH lower than stn 2
H2O.2m: stn 4 about 0.7-1.0 g/m³ more vapor than stns 1 & 3 during the night, stn 4 about 0.5 g/m³ more vapor than Sites 1-3 during the day

Wetness: slight dew event from 22:00 to 6:00, sensor dry by 7:00, before extra rain from 8:00-10:00, sensor mostly dry by 12:30, sprinkles throughout the afternoon

T.10m: ok, mostly in agreement except for few hours before midnight stn 4 about 0.7-1.0 degrees C warmer than other stns
RH.10m: ok, night: stn 4 5-7%RH lower than other sites before midnight (before cloud cover comes?), within a few%RH of other sites rest of night and daytime
H2O.10m: ok, night: stn 1 & 4 about 0.5 g/m³ less vapor than at stns 2 & 3; daytime stn 4 slightly lower vapor than at other sites

Spd.10m: ok, some separation of winds from 2:00-3:00 stn 2 & 3 about 0.7 m/s lower than stns 1 & 4
**max spd recorded during thunderstorm passage about 15m/s
Dir.10m: ok, mostly ENE to E during the night, after morning thunderstorm switching to SW and W by 13:00

T.10m - T.2m: stn 4 warmer by 0.5 degrees at 10 m than 2 m from 21:00-0:00, stn3 slightly warmer at 2m vs. 10 m also during this time
H2O.10m - H2O.2m: stn 4 most negative during night/day; difference of 1.0 g/m³ more vapor at 2 m vs. 10 m than at other sites (is this real or fan-related behavior?)

spd.4.5m: ok, see comments for Spd.10m
dir.4.5m: ok, see comments for Dir.10m
w.4.5m: ok, stns 1 & 2 more positive velocity and stns 3 & 4 more w<0 from 20:00-1:30, during ENE to E flow, but pattern is less seen from 2:00-before rainfall
tc.4.5m: ok, night: stn 4 is about 0.7-1.0 degrees C warmer than other sites from 21:00-0:30; day mostly in agreement few hrs after rain
**right after rain we see response of sonic wick 'drying out', stns 2-4 only drop 0.5 C by rain, onto recovery by 1hr later, stn 1 is cooled 3.5 C by rain and takes 2.5 hrs to reach temp similar to other sites
possible influence of turbine movement from SE to WSW during the 2-3 hour period of wick dry-off?

ldiag: several spikes at stn 4 during rain (800 samples missing), other sites mostly ok

kh2oV: stns 2 & 4 about 80-40 mV for night/day behavior, after rain fall recovering to near 100-120 mV
**check tomorrow morning to see if kryptions should be cleaned
kh2o: stn 2 & 4 about 2.0-2.5 g/m³ more moist than stns 1 & 3 during night, closer agreement (+/- 1.0 g/m³) in the daytime after the morning storm
h2o(licor): ok, stn 1 about 0.7-1.0 g/m³ drier than stn 3 for much of night and daytime
ldiag (licor): ok

TKE.4.5m: ok, mostly in agreement slightly more TKE at stn 4 from 23:00-0:00 and in stn 1 vs. other sites from 1:30-2:30
w'w': ok, similar to TKE.4.5m, also in u'u' and v'v'
**rain spike of 1.0 m²/s² in w'w' and in u'u' of 6.5 units, and 4.0 units for v'v'
u*: ok, similar to TKE.4.5m, (0.05 m/s higher u* at stn 4 23:00-0:00) also in v'w'

w'tc': ok, much of night before midnight 0.01 C m/s larger negative flux at stn4 than other sites, day peak positive flux slightly higher at stn3
tc'tc': ok, similar to w'tc', stn 4 with higher variance at night (by 0.05 C²), variance is poor after rain passage until 11:00

w'h2o': ok, other than during/after period of rain stns are in close agreement
h2o'h2o' (licor): ok, 1 nighttime spike at stn1, several spikes during morning thunderstorm passage
kh2o'kh2o': stn 2 & 4 close to 1 & 3 at night, high anomalous readings during and a few hrs after rainfall, recovery by 13:30
w'co2': ok, no clear differences among site during night or day, expected spikes during/few hrs after storm
co2'co2': ok, expected spike in variance during/after rainfall