Daily summary, July 17

July 17, [July 18 19:45 CDT]

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Summary: Stations 1-4 operational, no ISFS staff on site
clear to partly cloudy skies in the morning, few sprinkles over noon hour, hot and muggy with light winds from the S to SSW the rest of the day /evening

Vdsm: 13.5-13.8 V during day, down to 12.4 at night,

P: ok, pressure rising in morning up to 979 mb, drop down to 977 mb during/after noon-time sprinkles/light showers

T.2m: ok, before midnight stn4 about 0.3-0.5 degree cooler than other sites
stn 2 warmer by 0.5-0.7 degrees than other stns 1 & 3 most of daytime; stn 4 cooler than stns 1 & 3 by 0.5-0.7 degrees

RH.2m: 90-100% nighttime; dropping to 75-80% by afternoon
night: stn 4 3-5% RH higher than other stns 2 and about 7%RH higher than other stn 1 & 3
daytime stn 4 ~7-10%RH higher than stns 1&2, and ~5%RH higher than stn 3 [moisture effects due to mature corn with larger Potential evapotranspiration at Stn 4?]

H2O.2m: ok, nighttime from 27 to 19 g/m^3, up to 27-28 g/m^3 by mid afternoon
night: stn 1 about 1.0 g/m^3 drier than stn 4, few tenths drier than stns 2 & 3
day: stn 1 about 1.5-2.0 g/m^3 drier than stn 4, 0.5 g/m^3 more dry than stns 2 & 3

Wetness: dew formation from 0:30 to 7:00, sensor dry by 8:30 but wet again from thundershower at 11:30-12:00, wetness disappears by 13:45

T.10m: ok, range of 24.5 to 33 degrees Celsius
stn 1 about 0.3-0.5 degree warmer than other sites for late morning to afternoon (except for period of clouds and rain fall)

RH.10m: ok, before midnight stns 1 few%RH lower other sites; afternoon stn 1 few%RH lower than other sites

H2O.10m: ok, nighttime: stn 2 0.3-0.5 g/m^3 more moist than stn 4 (other sites in btwn 2 & 4)
morning and late afternoon stn 4 sometimes 0.3-0.5 g/m^3 less than stn 2 (other sites in between stn 2 & 4)

Spd.10m: ok, stn 1 about 1.0 m/s less than stn 2 & 4, and 0.7 m/s less than stn 3 much of overnight (influence of a turbines from 21:00 (July 16)-7:00
daytime: close agreement for all sites

Dir.10m: ok, SSE to S flow before midnight, SSW before clouds and rain shower (WSW) then back to S and SSW by evening

T.10m - T.2m: ok, night: stn 4 is about 0.3-0.5 degree warmer at 10 m vs. 2m than other sites at least from 20:00 (July 16) - 1:00, no difference btwn sites 3:00-7:00
day: stn2 0.7 to 1.0 degree warmer at 2m vs. 10m than for mid morning (before rainfall) and mid-late afternoon and evening
during rain event thermal gradient differences are negligible

H2O.10m - H2O.2m: ok, stn 4 slightly drier gradient (0.7-1.0 g/m^3 more moist at 2m v.s 10m) than site 1 & 3, 0.5 more moist at 2m than for stn 2
daytime stn 4 is 1.0 g/m^3 drier at 10m vs. 2m than other other sites (again earlier planted corn drawing out more water?)
stn 2 & 3 about 0.5 g/m^3 drier at 10m vs. 2m than for stn 1

spd.4.5m: ok, see comments of Spd.10m, difference of speed seems less (0.5-0.7 m/s)

dir.4.5m: ok, see comments of dir.10m

w.4.5m: ok, before midnight: stns 1 & 2 less descent (-0.02 m/s) than stns 3 & 4 (-0.06, -0.04 m/s)
after midnight-sunrise, stn 3 & 4 have w<0 of around -0.1 m/s
morning before rain stn 4 close to stns 1 & 2 (-0.05 m/s), stn 3 has w~-0.10 m/s
afternoon (after rain) stn 2 slightly positive , stns 1 & 4 ~ 0, stn 3 w~-0.12 m/s

tc.4.5m: ok, night: stn 4 about 0.5 degrees warmer than stn 1, other stn in between
day: before rain, stns in close agreement; late afternoon-evening stn 1 & 2 about 0.3-0.5 degrees cooler than stn 3 & 4

ldiag: ok

vh2ov: not ok, stn 2 mostly btwn 40-60 mV, down and up spike during rain (10 mv to ~100 mV)
stn 4 mostly at or above 40 mV, spike in overnight up to 150 mV; also down/up spike during rain event

kh2o: not ok, stns 2 & 4 are about 1-1.5 g/m^3 lower than stns 1 & 3
stn 4 has anomalous drop during 2:00-7:30 (dew/fog effects?)
daytime: stn 2 about 0.7-1.0 g/m^3 drier than stn 4; ~2g/m^3 drier than stns 1 & 3

h2o(licor): ok, btwn 18-24 g/m^3 for night to day behavior
stn 1 about 0.5 to 0.7 g/m^3 more vapor than stn 3 during much of night
daytime: close agreement or at most 0.3 g/m^3 drier at stn 3 vs. 1 for late afternoon/evening

lidiag (licor): ok, few samples missing during rain shower

TKE.4.5m: most of night stn 1 about 0.2 units less TKE than other sites, stns 2 & 4 slightly higher than stn 3,
mid morning inversion breakup period 9:00-11:00 shows slightly higher TKE at stns 1-2 vs. 3 & 4

w'w': ok, see comment for TKE.4.5m, also similar pattern in u'u' and somewhat in v'v'
u* : ok, similar to pattern in TKE.4.5m, also seen in v'w' stress

w'T' : ok, stn 2 & 4 about -0.02 C m/s more negative flux than stn 1 & 3 for overnight
day: mostly in agreement except during 9:00-11:00 stn 4 slightly less positive heat flux than stns 1 & 3, stn 2 in between those and 4

w'h2o': ok, no big difference in fluxes during nighttime
stn 1 & 3 about 0.04 g/m^2/s greater than stn 4, and 0.08 g/m^2/s greater than stn 2

h2o'h2o': stns 1 &3 in close agreement night and day, stn 1, 3-4 are about 0.05 to 0.1 (g/m^3)^2 more than variance at stn 2

kh2o'kh2o': not ok, spikes in nighttime variance, stn 2 0.5 g/m^2/s less than stn 4, stn 4 close to Sites 1 & 3
daytime: stn 2 seems to be reading low (compared to stn 4)

co2: ok,

w'co2': ok, night: most in in agreement
daytime: stn 3 a bit greater co2 uptake than stn 1 from 8:30-11:30 and 2:30-5:30

co2'co2': ok, similar pattern to w'co2', but slightly less noticeable of differences in morning/afternoon