

Daily summary, July 30

July 30, 14:05 CDT

Dan Rajewski (in Ames)

Summary: Stations 1-4 operational, no ISFS staff on site
overnight fog and dew; daytime partly cloudy warm and humid with light to moderate winds,
Few sensors with anomalous readings during very wet periods at night and early morning

Vdsm: 13.5-13.7 V during day, down to 12.4 at night

P: ok, pressure rising 3mb during the night, falling around 3mb during the afternoon

T.2m: night: stn 4 has some spikes during the overnight; otherwise stn 1 & 4 about 0.7-1.0 degree C cooler than stns 2 & 3 from 23:00-3:00; from 22:00-23:00 and 3:00-6:00 stn 2 & 3 about 0.5-0.7 C cooler than stns 1 & 4

RH.2m: stn 2 & 4 few% RH higher than other sites during the night, daytime after the fog breakup: stn 4 about 5% RH higher than other sites

H2O.2m: similar pattern at T.2m, during night 23:00-3:00 period stn 2 & 3 1.0 g/m³ more wet than stns 1 & 4, daytime: stn 4 about 0.7 g/m³ more moist than other sites

Wetness: heavy dew event from 20:00 to 7:00, sensor dry by 9:45

T.10m: all stns mostly within +/- 0.5 degrees C of each other

RH.10m: most of night and early morning: stn 2 about 10 %RH lower than the other sites

H2O.10m: night: stn 2 about 1.0 g/m³ drier than other sites; daytime during fog break up stn 2 about 0.7-1.5 g/m³ drier than other sites, stn 1 & 2 delayed agreement with other sites 10:00, stns 3 & 4 agree by 8:00

Spd.10m: ok, few periods with stn 2 about 0.7-1.0 m/s lower than other sites from 23:00 to 2:00

Dir.10m: ok, mostly SE to S wind at night, E wind around sunrise veering to S by 11:00

T.10m - T.2m: night all stns within a 0.5 degrees of other except during 0:30-3:00 stn 1 & 3 about 1.0 degree C warmer at 10 m vs. 2 m than for stn 2, early-mid morning stns 1-3 about 0.5 degrees C warmer at 10 m vs. 2m than site 4

H2O.10m - H2O.2m: from 23:00-9:00 stn 2 about 1.0 g/m³ more vapor at 2m than 10 m, other stns about 1.0 g/m³ more vapor at 10 m than 2m, day: stn 4 about 1.0 g/m³ less vapor at 10 m than 2m vs. other sites

spd.4.5m: ok, similar for Spd.10m, but not exactly the same pattern from 2:00-4:00

dir.4.5m: ok, see comments for Dir.10m, more E to SE wind during the night than at 10m

w.4.5m: ok, stns 1, 2 & 3 more positive velocity at night vs. stn 4 slightly negative, stn 2 has slight switch from positive to negative around 2:00-3:00 and back to w>0 after that

tc.4.5m: ok, night: several short periods where one stn is about 1.0 degrees C warmer than other sites

ldiag: ok, less than 100 samples missing at a few sites during the overnight

kh2oV: stns 2 & 4 above 100mV before fog/dew dropping to 50mV, recovering to above 120-150mV after the inversion breakup

kh2o: stn 2 & 4 about 2.0-2.5 g/m³ more moist than stns 1 & 3 during night, several spikes and high anomalous values during fog/dew; closer agreement at stn 2 in the daytime after the fog breakup, stn 4 about 3.0 g/m³ more vapor than stns 1 & 3

h2o(licor): ok, good nighttime agreement, few spikes caused by dew/fog, afternoon: stn 1 & stn 3 in good agreement

ldiag (licor): ok, few spikes corresponding to effect with dew/fog; no fictitious response in the afternoon

TKE.4.5m: ok, mostly in agreement few night periods where stn 2 is about 0.1 m²/s² more than other sites; similar values at all sites during and after the inversion breakup

w'w': ok, similar to TKE.4.5m, also in u'u' and somewhat in v'v'

u*: ok, similar to TKE4.5m, similar pattern also somewhat in u'w' and v'w'

w'tc': ok, higher TKE at stn 1 corresponds to somewhat more negative heat flux, close agreement in morning and afternoon, stn 3 peak flux a bit higher than other sites

tc'tc': ok, night: stn 1 has most periods with the least variance except for 4:00-5:00 period; good agreement among sites in daytime

w'h2o': ok, overnight: several spikes at all sites noted, negative flux at stns 2 & 4 seems anomalous behavior; afternoon less flux (~0.1 g/m²/s) at stns 2 & 4 vs. stns 1 & 3

h2o'h2o' (licor): ok, during night but otherwise stn 1 & 3 in close agreement at these sites

h2o'kh2o': stn 2 & 4 more anomalous high variances (in between 'spike' events) also these sites are 0.7 (g/m³)² lower than other stations in late morning /early afternoon

w'co2': ok, no real difference between sites

co2'co2': ok, several spikes in overnight, stns 1 & 3 mostly the same but few periods where stn 1 has 0.005 units more than at stn 3; good daytime agreement