Daily summary, July 27

July 27, 18:45 CDT

Dan Rajewski (in Ames)

Summary: Stations 1-4 operational, no ISFS staff on site,
possible LLJ occurrence before clouds from overnight storms in MN/SD/NE spread over the area
mixture of clouds and sun with hot and humid temperatures with light winds, slight shower around 17:30
north of a warm front; which is progged to push north overnight and give heavy rain

Vdsm: 13.5-13.8 V during day, down to 12.4 at night
P: ok, pressure generally falling 3mb throughout the period; stn 3 & 4 slightly lower pressure than at stns 1-2

T.2m: night: stn 4 0.7-1.0 degree C cooler than other sites from 20:00-22:30 [July 26], also stn 1 about 0.5-0.7 degrees C lower than other stns during 1:00-2:00, day: sites are in agreement

RH.2m: stn 4 highest during day and night, 5-7% RH higher than other sites ; some night periods with stn3 few%RH lower than stns 1-2
H2O.2m: stn 4 about 0.7-1.0 g/m^3 more vapor than other sites during the night, stn 4 about 0.5 g/m^3 more vapor during the daytime

Wetness: slight dew event from 2:00 to 6:30, sensor dry by 8:00; sprinkles detected around 17:30

T.10m: ok, see T.2m
RH.10m: ok, night: similar to T.10m, daytime: close agreement
H2O.10m: ok, night: stn 1 & 4 about 0.5 g/m^3 less vapor than at stns 2 & 3; daytime stn 4 slightly lower vapor than at other sites

Spd.10m: ok, stn 1 about 0.7-1.0 m/s lower than other sites from 1:00-2:00 and from 4:00-5:00 (presence of a jet?)

Dir.10m: ok, SE to S overnight, SW back to S much of morning and afternoon; ENE with occurrence of light rain in late afternoon

T.10m - T.2m: stn 4 warmer by 0.7 degrees at 10 m than 2 m from 22:00-3:00, stn3 slightly warmer at 2m vs. 10 m
H2O.10m - H2O.2m: stn 4 most negative during night/day; difference of 1.0 g/m^3 more vapor at 2 m vs. 10 m than at other sites

spd.4.5m: ok, see comments for Spd.10m
dir.4.5m: ok, see comments for Dir.10m
w.4.5m: ok,
tc.4.5m: ok, night: stns 1 & 2 are about 0.7-1.0 degrees C cooler than other sites from 1:30-3:00; day: all sites agree within +/- 0.5 degrees C, stn2 slightly lower
ldiag: several spikes at stn 2 in the overnight hours, about 300 samples missing for much of the period;

kh2oV: stns 2 & 4 about 100-80 mV for night/day behavior, mid-morning peak of about 140 mV
kh2o: stn 2 & 4 about 3.0-3.5 g/m^3 more moist than stns 1 & 3, closer agreement (+/- 1.0 g/m^3) in the daytime
h2o(licor): ok, stn 1 about 0.7-1.0 g/m^3 drier than stn 3 for much of night and daytime
lidiag (licor): ok

TKE.4.5m: ok, stn 1 about 0.15 units less TKE than stns 2 & 3 from 1:30-2:30, 4:00-5:00; stn 4 during this period about 0.1 units greater TKE than stns 2 & 3; other periods around and after sunrise with less TKE at stn 1 vs. other sites
w'w': ok, similar to TKE.4.5m, also in u'u' and v'v'
u*: ok, similar to TKE4.5m, also in v'w'

w'tc': ok, much of night larger flux <0 at stn3 and 4 than other sites, daytime peak positive flux largest at stn3
tc'tc': ok, similar to w'tc', stn 4 with highest variance at night and stn 3 higher during the day

w'h2o': ok, stns 1 & somewhat stn 3 slightly higher afternoon flux than Sites 2 & 4, max value difference of 0.04 g/m^2/s
h2o'h2o' (licor): ok, 1 nighttime spike at stn3, daytime variances are close together
kh2o'kh2o': stn 2 & 4 0.4-0.6 (g/m^3)^2 less than other sites for daytime
w'co2': ok, no clear differences among sites
co2'co2': ok, stn1 slightly higher variance during 1:00-4:30, close daytime agreement