Daily status, July 27

AHATS daily status 7/27/08

Staff: Semmer, Oncley, Nguyen, Tudor with ISS
Cohn visited yesterday.
Temps: 103F/66F yesterday

Again, a bi-daily report. Yesterday played with the pressure system some more. Also have had upwind crashes every night.

For more details, see the ahats logbook at https://wiki.ucar.edu/display/ahatslogbook

Good wind direction: The standard function reports 53 hours (23 unstable, 30 stable) in this configuration, all but 3 segments shorter than 2.5 hours. Note that our longest segment changed from 820 min to 650 min now that I've entered boom angles -- a big change for only a few degrees of reorientation! However we have had some sensors and data systems down so the actual numbers would be lower.

Local data storage: (we're getting ready to download these)
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upwind:/dev/sda1 57685532 8441508 49244024 15% /var/tmp/usbdisk
downwind1:/dev/sda1 57685532 11579060 46106472 20% /var/tmp/usbdisk
downwind2:/dev/sda1 57685532 13765456 43920076 24% /var/tmp/usbdisk
profile:/dev/sda1 57685532 7746824 49938708 13% /var/tmp/usbdisk
pressure1:/dev/sda1 3940812 2157556 1783256 55% /var/tmp/usbdisk
pressure2:/dev/sda1 3940812 2045904 1894908 52% /var/tmp/usbdisk

aster:/dev/sdb1 721075720 277274000 443801720 39% /media/isff2
isff:/dev/sdc1 1922890480 403213996 1421999280 23% /media/isff15

The isff3 backup disk should now be back in Colorado via Steve Cohn.

Pressure:

(+/- = ~1 std deviation among variables at the same height)

We've made lots of adjustments to the pressure system over the past few days to improve the spectra. We're now using a 25 liter reservoir that we built from ABS pipe and stuffed with steel wool. However, variation of the reference pressure (presumably due to tubing temperature changes) still is about 3 times the variation of the static pressure.
We sacrificed the sensor at 11b to have it measure the reference pressure so that we might be able to recover this signal.
p: ok, +/- 0.03 mb [still]
p'p': ok, +/- 0.001 mb^2
w'p': ok, +/- 0.002 m/s mb
t: 6b&6t are outliers by 3degC during day, others +/- 1.5 degC
Pref: ok -- has moved a lot during several changes

Profile: [,select.p]

T: ok
RH: sensor that is now at 5.5m is strange, but we're going to live with it.
P: okay

diag: ok
samples.sonic: ok
spd: ok?, 8m still lower than 7m sometimes. We'll change 8m out during the next configuration switch.
dir: ok
w: ok
tc: ok, 8m low by ~0.3 degC? (related to the speeds being low as well?)
w'w': ok
u*: ok, some imaginary values with light winds
sigma_w/u*: ok (1.3 at night)
w'tc': ok
h2o: normal, 2 g/m^3 offset from dat("Q"), except in afternoon.
w'h2o': ok, 0.03 m/s g/m^3 at midday
co2: ok, 15-20 mmol/m^3 (some nights have large values, some don't [last night]). Presumably related to shallow nocturnal boundary layers, but I haven't gone through the sodar data yet.
w'co2': ok, -0.01 m/s mmo/m^3 at midday

Upwind (hts=3.3): [,select.u]

Has crashed each of the last 5 nights at about 10pm. Last night stayed down due to a certain SE trying to help. We've replaced the Viper CPU board so hopefully it will work tonight.

diag: ok
samples.sonic: ?????ok
spd: ok, +/- 20 cm/s
dir: ok, angles much better now that they have been shot
w: ok, +/- 5 cm/s
tc: ok, +/- 0.2 deg, biases somewhat larger
w'w': ok, +/- 0.005 m^2/s^2 (30 min avg for second moments)
u*: ok, +/- 2 cm/s, again some imaginary values
sigma_w/u*: ok (1.3 at night)
w'tc': ok, +/- 0.01 m/s degC
tc'tc': ok, +/- 0.05 degC^2

Downwind Lower (hts=3.3): [,select.b]
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diag: ok
samples.sonic: ok
spd: ok, +/- 20 cm/s
dir: ok, +/- 3 deg
w: ok, +/- 15 cm/s [need to check tilt angles]. Most negative.
tc: ok, +/- 0.2 deg
w'w': ok, +/- 0.01 m^2/s^2 (30 min avg for second moments)
u*: ok, +/- 2 cm/s, some imaginary mid-day
sigma_w/u*: ok (1.3 at night)
w'tc': ok, +/- 0.01 m/s degC
tc'tc': ok, +/- 0.05 degC^2

Downwind Upper (hts=4.3): [,select.t]
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diag: ok
samples.sonic: ok
spd: ok, +/- 10 cm/s, 3t lower by 20cm/s
dir: ok, +/- 2 deg, better now with boom angles shot
w: ok, +/- 5 cm/s, 5t&6t outliers
tc: ok, +/- 0.2 degC, offsets up to 0.6 degC
w'w': ok, +/- 0.01 m^2/s^2 (30 min avg for second moments)
u*: ok, +/- 2 cm/s, again imaginaries
sigma_w/u*: ok (1.3 at night)
w'tc': ok, +/- 0.005 m/s degC
tc'tc': ok, +/- 0.05 degC^2
