

Daily status, July 25

AHATS daily status 7/25/08

Staff: Semmer, Oncley, Nguyen, Tudor with ISS
Temps: generally 99F/59F

I took a break in status reports since we have been working to figure out how to get good pressure measurements. Also, ADAMs upwind, profile, and now pressure2 have died (of course at night, in some cases after we've gone to bed). Solutions to these problems are still progressing.

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

Good wind direction: The standard function reports 36 hours (14 unstable, 22 stable) in this configuration, with small segments the last 2 days. However we have had some sensors and data systems down (and still don't know about pressure measurements) so the actual numbers would be lower.

Local data storage: (all still low)

upwind:/dev/sda1 57685532 6106140 51579392 11% /var/tmp/usbdisk
downwind1:/dev/sda1 57685532 8354176 49331356 14% /var/tmp/usbdisk
downwind2:/dev/sda1 57685532 9895484 47790048 17% /var/tmp/usbdisk
profile:/dev/sda1 57685532 5623556 52061976 10% /var/tmp/usbdisk
pressure1:/dev/sda1 3940812 1485784 2455028 38% /var/tmp/usbdisk
pressure2:/dev/sda1 3940812 1376288 2564524 35% /var/tmp/usbdisk

aster:/dev/sdb1 721075720 264374616 456701104 37% /media/isff2
isff:/dev/sdc1 1922890480 390811412 1434401864 22% /media/isff15

We now have a 2Tb drive for the backup! We'll send the old backup to Boulder soon -- we'll see if Steve-Cohn-courier-service is available.]

Pressure:

(+/- = ~1 std deviation among variables at the same height)
pressure2 ADAM died last night at ~0030 local. Also, lots of playing around with plumbing yesterday.

[redo, smaller time period]

It appears that most of the "signal" is variation of the reference pressure. We changed its character (for the better?) by changing from the nitrogen cylinder to the CHATS 1 liter reservoir yesterday, however there still is too much variation. We'll try building yet another reservoir today.
p: ok, +/- 0.03 mb
p'p': ok, +/- 0.002 mb^2
w'p': ok, +/- 0.001 m/s mb
t: 6b&6t are outliers by 3degC during day, others +/- 1.5 degC (may be orientation of sun shields?)
Pref: still steadily drifting low, though a bit of a diurnal cycle now. (might be cooling of the reservoir)
now 14mb below ambient.

Profile: [,select.p]

Serial boards crashed 3 nights ago at ~1AM and was restarted the next morning. Okay since then.

T: ok
RH: 4m looks different even after the sensor swap 3 days ago. We'll try exchanging sensors between levels next.
P: okay

diag: ok
samples.sonic: ok
spd: ok?, 8m still lower than 7m sometimes.
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, lots of imaginary values with light winds
sigma_w/u*: ok (1.3 at night)
w'tc': ok
h2o: ok?, 2 g/m³ offset from dat("Q"), except in afternoon.
w'h2o': ok, 0.03 m/s g/m³ at midday
co2: ok, 15-20 mmol/m³ (Large values at night except for the period 11-21 July. Does this indicate shallow stable boundary layers sometimes? We should check ISS data.)
w'co2': ok, -0.013 m/s mmol/m³ at midday

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

Has crashed each of the last 3 nights at about 10pm. Didn't fix it until the next morning on the first night. Have been able to get it running by midnight the last 2 nights.

diag: ok
samples.sonic: ok
spd: ok, +/- 10 cm/s
dir: ok, mean offsets of up to 13deg -- need to enter new Vazimuths??
w: ok, +/- 5 cm/s
tc: ok, +/- 0.2 deg,
w'w': ok, +/- 0.005 m²/s² (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 degC²

Downwind Lower (hts=3.3): [,select.b]

diag: ok
samples.sonic: ok
spd: ok, +/- 30 cm/s
dir: ok, +/- 3 deg
w: ok, +/- 15 cm/s [need to check tilt angles]
tc: ok, +/- 0.2 deg
w'w': ok, +/- 0.01 m²/s² (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 degC²

Downwind Upper (hts=4.3): [,select.t]

diag: ok
samples.sonic: ok
spd: ok, +/- 10 cm/s, 3t lower by 20cm/s
dir: ok, +/- 2 deg, 3t now outlier
w: ok, +/- 5 cm/s, 5t&6t outliers
tc: ok, +/- 0.2 degC, offsets up to 0.6 degC
w'w': ok, +/- 0.01 m²/s² (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 degC²
