

✓ 2 batteries in plastic box
(PUL-1080 model)

108 Amp-hour
wires + 60' 43' for batteries
grounding pole
GPI - 35.02866, -120.62772

5/10/15 - Roof Test

All anemometers at 25 164 cm
Trust data after 3/6/15 6:57 pm
prior to that, data may be
contaminated by instrument
adjustments

~~5/10/15 - Roof Test~~

C1 not working! checked wiring
and strips on both ends

5/11/15 9:45 AM -

replaced battery,
replaced source
cable

N

~~5/11/15 9:45 AM -~~

11:30 AM - 12:25 PM replacing
cards
5:25 PM - end of cup anemometer
at 7 PM - end of stage instruments

collection

To do

2 batteries in box

lofts for lower

hardware to fix guy wires
phone # for Mike Mills - access
(805) 680-7212
combo for gate
Osofro Rd. 4158
Inner 0320

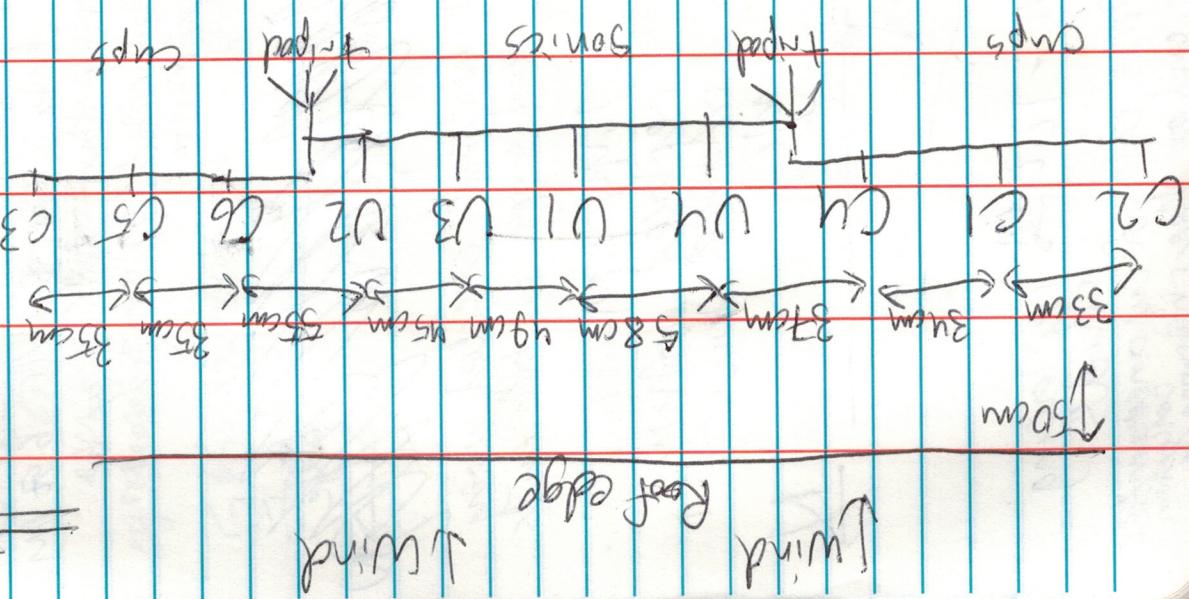
shutting boxes out

1 thing
guy wires + nuts

→
Wire/rope clip
1/2-patch per guy wire

2 turnbuckles (hot off ones)
1 turnbuckle (lost one)
Speaker wire
Spine Connectors
pick up stuff at Maint. yard

get SDM cable



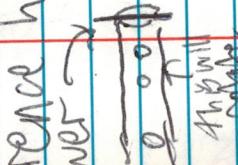
<u>(5/15/15)</u>		<u>Setup orientation</u> <u>= 290° (new)</u>
CSAT 9	2.50	Salient observation - day /
CSAT 5	5.45	Started with wet ground, but dry by ~12PM
CSAT 6	8.40	Height of CSAT relative to Wenglor tower = +60 cm
temp	1.84	Absolute = 64 cm
dust-CSAT 9	3.00	
dust-CSAT 5	5.90	
cups	+85 cm	
	*	
CSAT 2 = CSAT 1 + 52 cm		
absolute = 116 cm		

<u>5/12/15</u>	<u>2 (m)</u>	<u>1 cup</u>
CSAT 9	2.50	
CSAT 5	5.45	
CSAT 6	8.40	
temp	1.84	
dust-CSAT 9	3.00	
dust-CSAT 5	5.90	
cups	+85 cm	
	*	

Sensors all locations

C1 = J3311 = CSAT3 lower
C2 = J3301 = CSAT3 higher
C3 = J3306 = CSAT6 lower
C4 = J8607 = CSAT6 higher
dust3 = N9248 = CSAT3
dust2 = N9286 = CSAT4
dust1 = N9287 = CSAT3

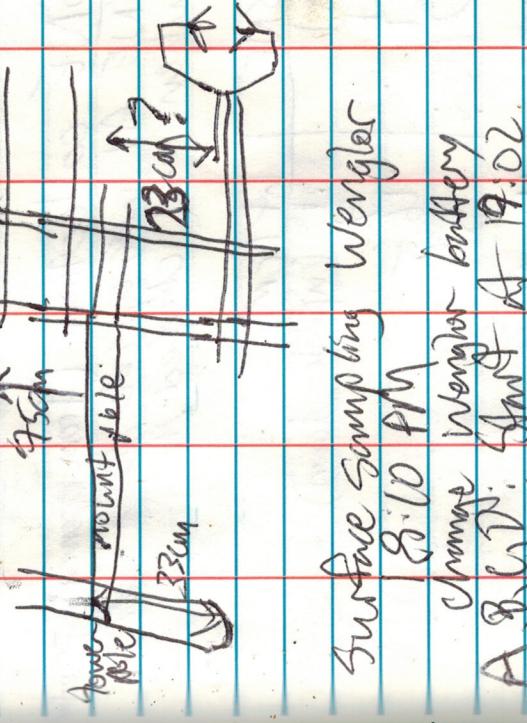
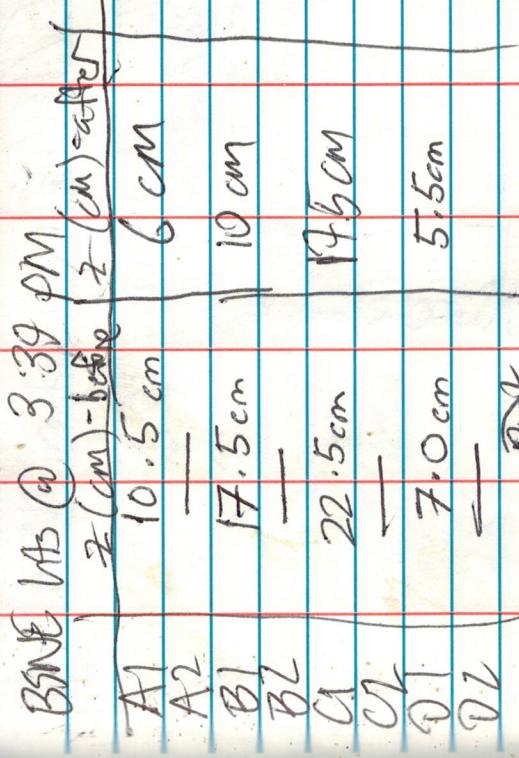
* reference ht is bottom of tower



BNE HPS

A1	10 cm	Official start time
A2	38 cm	
B1	15 cm	
B2	49 cm	
C1	22.5 cm	D1 = 6 cm (moderately full)
C2	68 cm	D2 = 29 cm (full)

Weng last on at ~ 11 AM
+ distance sensors \Rightarrow last in air after ~ 11:15 AM

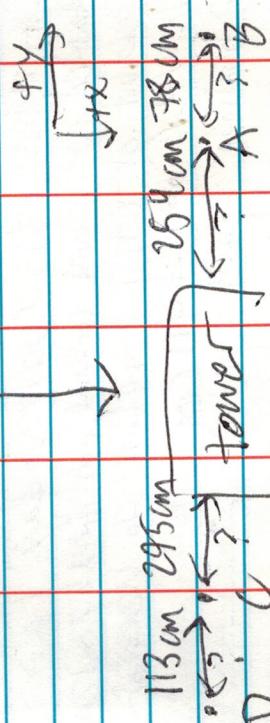


Chime
Wenger
A, B, C, D: Start At 19:02

Surface Sampling Wenger

8:10 PM

Chime
Wenger battery
A, B, C, D: Start At 19:02



B5NE trap times

A, B, C, D 11:45 - 1:45 PM
11:55 - 1:45 PM

A, B, C, D 1:59 PM - 3:24 PM

A, B, C, D 3:47 PM - 4:47 PM
4:56 PM - 4:59 PM - 4:59 PM
4:59 PM - 4:59 PM
• ground

Tower

guy wire
falling
down from
7.5 PM
(@ 0 cm
above
ground)

5/16/15

New BSNE config

Planned BSNE lfts

Mod: 5

A: 6.5

B: 8.5

C: 11

D: 14

E: 18

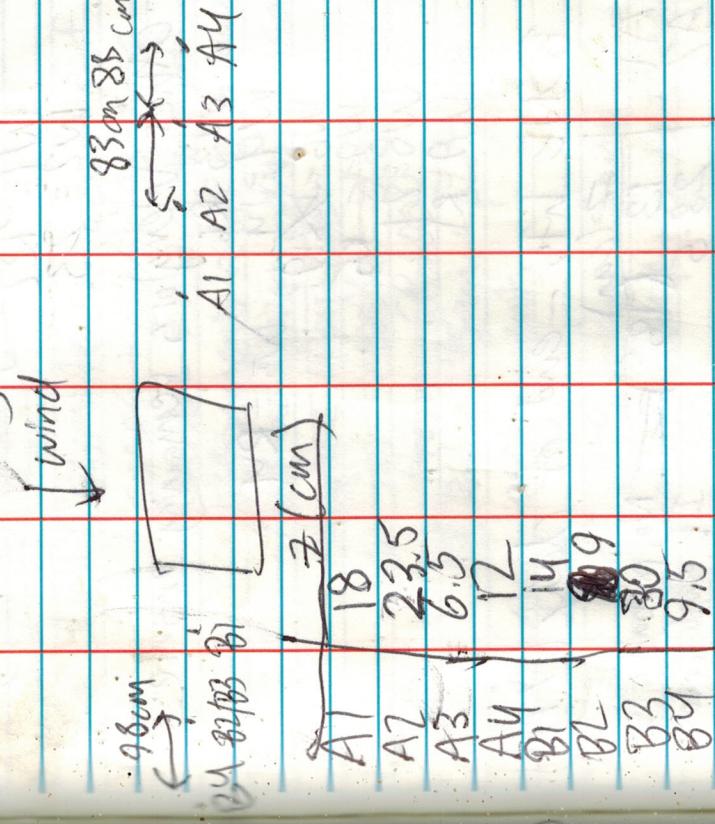
F: 23

G: 30

BSNE collection (from opening night below)
BSNE A1 was upside down
when we checked it

BSNE lft (cm)
A1 9 (inside down)
B1 9
C1 16.5
D1 5

10:37 - 10:48 AM
wenglor / sonic disturbance



start time 11:30 AM

Menglong
→ receive W1
(R2 for R10)

13:09 - 13:12

* A3 may have
A3 on sand
caught
BSNE
11:30 AM - 2 PM
2:15 PM - 5:45 PM

Removing Wengjors for cleaning

$$W1 = R2$$

$$W2 = 23$$

Other Wengjors remaining onsite

$$W3 = R6$$

$$W4 = 14$$

$$W5 = R4$$

$$W6 = \cancel{19}?$$

$$W7 = 05$$

$$W8 = 21$$

$$W9 = R1$$

8 SNE Ints - end of day (7 pm)

$$\int z(\text{cm})$$

$$A1 13$$

$$A2 28.5$$

$$A3 7.5$$

$$A4 13$$

$$B1 13$$

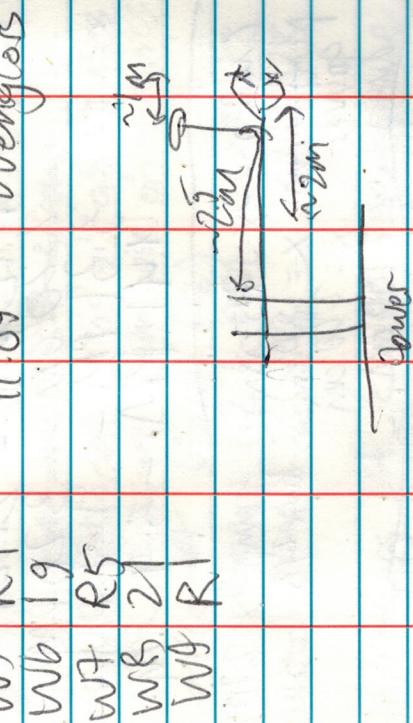
$$B2 6.5$$

$$B4 9$$

No, probably 13.
It sank into
sand during
course of day.

Wengjor assignments

W1	R7 (new)	Surface	Sand
W2	9 (new)	sampling	10:30 AM
W3	R6		
W4	14		
W5	R4		
W6	19		
W7	R5		
W8	21		
W9	R1		



Dunes

May 18, 2015

- To do: Estimate & locations of cups + dust sensors
- Measure & locations of instruments relative to power
- Add additional dust sensor
- Capture Wengjor
- Get weather data from CR1000
- TRH \rightarrow 145 cm + platform

1/19/2015

B3N E hrs @ 11 AM
5:45 PM

A1 = 18 cm
A2 = 23 cm
A3 = 6 cm

A4 = 12.5 cm
B1 = 10 cm
B2 = 6.5 cm

B3 = 29 cm
B4 = 85 cm

opened
B3N E
8 cm

Sonics @ 11:33 AM
only thrust wenglar firing after
fishing

Cups @ 11:58 AM

B3N E 11:33 AM - 1:00 PM
1:12 PM - 2:12 PM
2:20 PM - 3:20 PM
3:31 PM - 4:31 PM
4:41 PM - 5:41 PM

Cups X=75 cm
platform X=180 cm
power X=220 cm
dust X=180 cm
end sonics at 5:58 PM

Wenglers from 11:27 AM

	B3N E heights	
A1	17 cm	
A2	23.5 cm	
A3	6.0 cm	
A4	12.5 cm	
B1	10 cm	9.5 cm
B2	6.5 cm	6.5 cm
B3	28 cm	29.5 cm
B4	8 cm	8 cm

BSNE Start time	11:32 AM - 2 PM
Ts-de:	2:13 PM - 3:13 PM
Temp	3:25 PM - 4:25 PM
Sonics	4:36 PM - 5:35 PM
Sonics at 65 cm (2)	
Start time = 1:27 PM	4:37/1/12
Start time = 2 PM	4:37/1/13
Wenglers off / sonic interference	
off 6:53 PM - 6:58 PM	

~~1/1/16~~

RM Young Sonic config

UTS 02 59
UTS 03 03
BL 81 81
BL 82 82

To-do list

Check sonic battery
Check dust batteries
Plug dust to higher charge battery

~3:18 PM switched dust 3/dust 2
for test

Shopping list
Thick gauge wire
Electrical tape
Electrical clips
Fuses

MM MM

MM MM

MM MM

MM MM

MM MM

Missing times

13:20:00

(eg. 12:36:08:48)

* Most missing times in logger A < 1%

- Resend dust code
- Monitor dust logger place. (down if needed)
- Download drift at end of day
- Unplug dust when we leave
- Check writing assignments for RM Youngs (possibly reversed)
- Replace MM
- Reform all sonic cards and replace
- All first check to make sure all data are present
- Replace MM w/ longer (check that it needs replacing)

5/22/15

Campbell Sonic Interference
at ~10 AM.

Sonic H-T measurements at ~10 AM

lowest fan in operation; mean
~~57.5 cm~~ = 57.5 69.5 cm 63.5

V1 59 71

CSAT 1 56.5 66.5

V3 58.5 70.5

V4 59.5 71.5

64 65.5

currenty 30cm

Wenglers
replace W2
9/23

upwind of BSN

~10 cm upwind

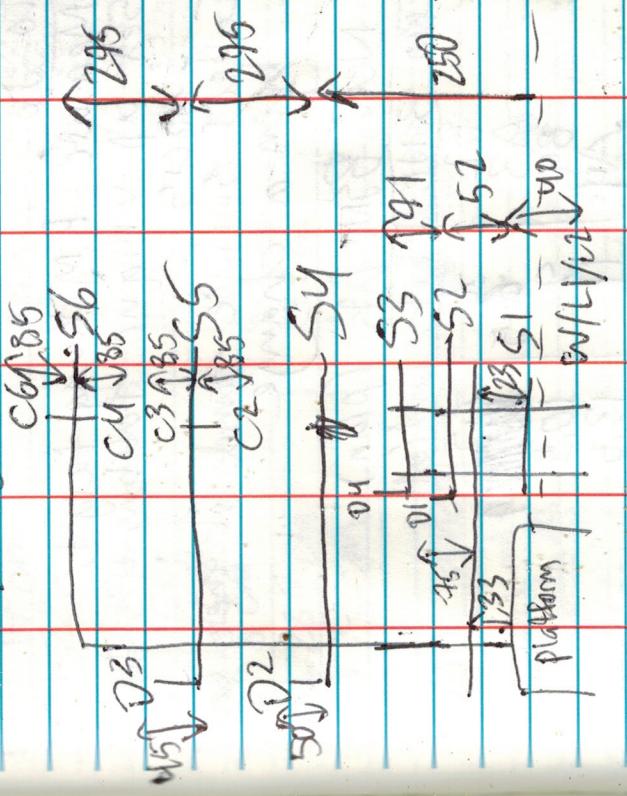
of Campbell

• Now moving forward
by 30 cm

Wenglers / Campbell start time 11AM

Unfortunately; no wind
and logs at finding issues
today.

Instrument config on tower



5/23/15

To-do
 Measure RM Young heights
 Set up unique parking #'s for
 loggers
 Collect surface sand if there has
 been a change

New BENE hts (plan)

	BENE	bot	mid/est	top
A3	8.5	7.5	9	
B4	9	10.5		
A4	11	13.5		
B1	13	16.5		
A1	17	19.5		
A2	22	24.5	* Nest pm	
B2	30	32.5	6	

~~Bottom heights (cm)~~

A1 - 17	B1 - 13
A2 - 22	B2 - 7
A3 - 6.5	B3 - 30
A4 - 11	B4 - 9

No surface samples today (morning)
 no change since yesterday's collection

Bights (Measured)

	15 AM	6:30 PM
A1	7 cm	18 cm
A2	22 cm	23 cm
A3	7 cm	4.5 cm
A4	11 cm	10.5 cm
B1	13 cm	13 cm
B2	6 cm	6.5 cm
B3	28.5 cm	29.5 cm
B4	9 cm	8.5 cm

Sonic anemometer positions

	U1	U2	U3	U4
X	15 cm (top)	21	27	36
X	9	14	21	29
X	8	13	20	28
X	7	12	19	27
X	6	11	18	26
X	5	10	17	25
X	4	9	16	24
X	3	8	15	23
X	2	7	14	22
X	1	6	13	21
X	0	5	12	19

Still having sync issues!

At 12:00 PM, reset times on
 all loggers from Raleigh's
 computer
 Will continue to check as day
 progresses

Estimated time sync errors

~~Master~~ (compared to laptop)
Negative ~~Master~~ is later than computer

Time offset (s)

Master -0.3

Af ~ 6:26 PM

Slave -1.2

Cups -1.2

A -1.2

B -1.2

C -1.2

D -1.2

E -1.2

Logger Assignments

Name	Serial	Port/Bins
A	15689	4
B	22180	5
C	63275	6
D	22179	7
E	34009	8
Master		2
Slave		3
Cups		1

85ms Start 12pm
(no frame)

85ms frames

12 - 1:30

1:40 - 2:40

2:49 - 3:49

3:58 - 4:58

5:06 - 6:06pm

5/24/2015

Swapped a memory card
between V2 & V3, V3 → V4
V2 → switched P10 for 23
new old
All times synced on loggers
(except D and dust)
at 11:24 AM

Connect wires for timing pulses

↳ Ch on logger A
to DI on all loggers
(including master + sub)

	B3NE	Sonic	height	(cm)
	11:40 AM	5 AM	10.5	10.5
B3NE A1			7.0	8.0
B3NE A3			63.0	63.5
Sonic V2			22.5	23.5
B3NE AZ				
Sonic V1	11:40 AM	63.0	63.0	
B3NE A1	18:5			18.0
B3NE S1	12.5			12.5
Sonic LM	64.0			64.0
B3NE S2	6.5			6.5
B3NE B3	29.0			29.0
Sonic V3	63.5			63.0
B3NE S4	8.0			9.0

B3NE / Sonic start @ 11:46 AM

Shut off dust at

12:37 (reserve power
until gathering
begins)

1:08 PM (Restart - sync battery

beginning; sync'd with
computer)

B5NE Times

1:16 AM - 2 PM
2:08 PM - 3:08 PM
3:16 PM - 9:46 PM

3:23 PM - restart dust sensors
with new battery

5/27/2015

All programs compiled and times
synced at 10:58 AM

Instrument heights ~~at 11:16 AM~~

11 AM 6 PM

10 10.5 cm

	11 AM	6 PM
A1	6.5	7.5cm
V1	207	2.02 m
A2	23.5	24cm
V1	203	2.02m
A1	18.5	20.0
V1	12.5	13
A2	6	6
V3	28.5	28.5
V4	203	203
	9	9.5

B5NE sonic start at 11:16 AM

Dust sensors

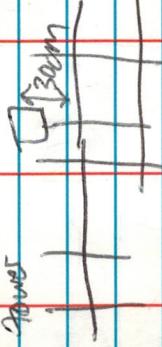
lowest

$$y = -20 \text{ cm}$$

$$x = 145 \text{ cm } (130?)$$

$$z = -30 \text{ cm relative to mount hole}$$

$$20\text{cm}$$



CSAT 1

On alt 12.0m PM (time synced)

Assignments

$$\text{Logger C} - 1.6 \text{ m} = 1$$

$$6.5 \text{ m} = 2$$

$$1.1 \text{ m} = 3$$

$$1.5 \text{ m} = 4$$

$$2.5 \text{ m} = 1$$

$$2.0 \text{ m} = 2$$

$$2.5 \text{ m} = 3$$

$$3.0 \text{ m} = 4$$

$$3.5 \text{ m} = 5$$

$$4.0 \text{ m} = 6$$

$$4.5 \text{ m} = 7$$

$$5.0 \text{ m} = 8$$

(5/28/2015)

- Replace HI and WB (but not WI or V3)

- To do

Rep assignments

$$\text{HI: } R_1 + R_2 \\ \text{WB: } 19 \rightarrow R_4$$

- Rep assignments
- All loggers except C sync at 11:30 AM and Wenglers ready

Instrument heights

11:30 AM 6:30 PM

A4 10 cm

A3 7.5 cm

V2. 202 cm

A2 23.5 cm

V1 203 cm

A1 19.5 cm

B1 13 cm

V4 203 cm

B2 6 cm

B3 28.5 cm

V3 20.3 cm

B4 9.5 cm

C sync

and

Wenglers

Wenglers off interference
(3) 6.0 PM

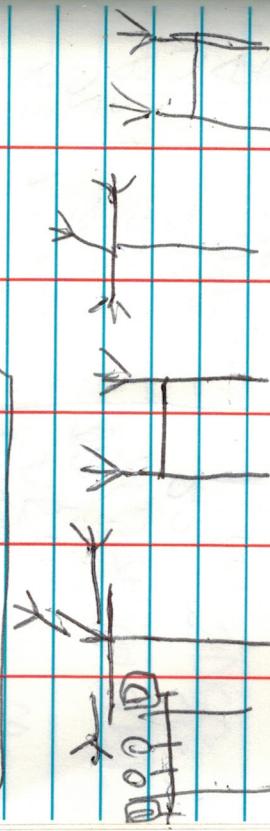
Wenglers off interference
(3) 6.0 PM

BNE Start at 11:19 AM
and sonic logger (Sync'd)
end at 12:12
Start dust sensors at
12:19 AM

Inventory of pipes

5'	x	6	(1")
5'	x	4	(3/4")
4'	x	3	(1")
8'	x	3	(1")
1'	x	6	(3/4")
short & 10 (1")			

{ Plan for calibration }



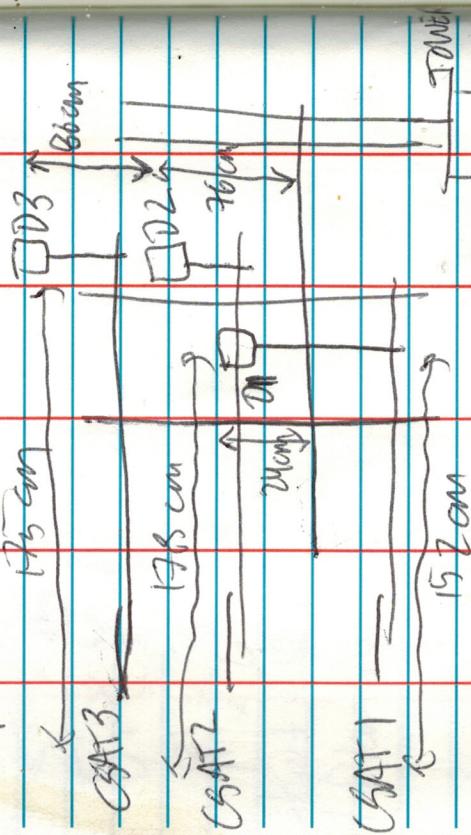
To-do → measure relative position
of 2.5 m dust sensor

5:32 PM - all loggers off

(May 29, 2015)

To do

- Measure relative position of 2.5m sensor
- Bring home bolts / allen wrench for building some split bridge structure
- Try to fix top sensor

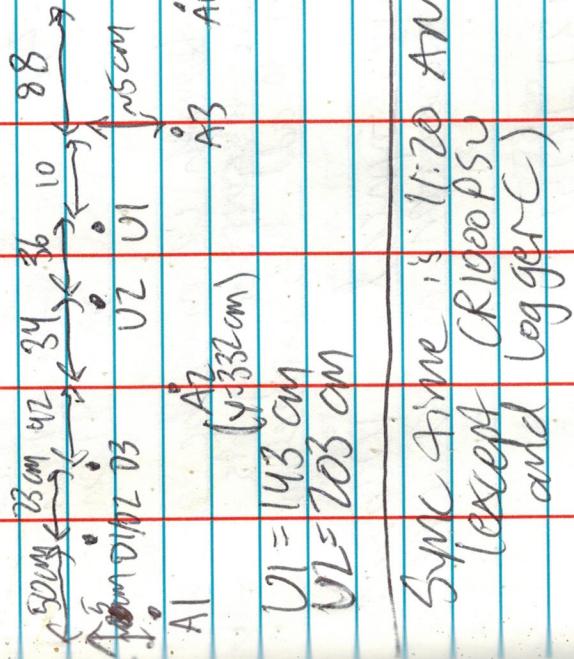


$$\begin{aligned} D1 &\sim y = 20 \text{ cm} \\ D2 &\sim y = 0 \\ D3 &\sim y = 0 \end{aligned}$$

Serial # 9290 D1 { up to this
Serial # 9281 D2
Serial # 9280 D3

New dust sensor heights

$$\begin{aligned} D1 &= 175 \text{ cm} \\ D2 &= 150 \text{ cm} \\ D3 &= 230 \text{ cm} \end{aligned}$$



Sync time is 11:20 AM
except CR1000PSU
and logger C)

Total

May 30, 2015

Remembering some stuff

C2 - S1 distance 3 + 41 cm
S1 - S2 2 + 51 cm
S2 - S3 2 + 41 cm

Scour beneath C2 may be 2m 2m
relative to surrounding h43 → may
want to add this collection.

All 4 times Synced at 10:10 AM
Just sensors on at 10:16 AM

(May 31, 2015)

Loggers off at 07:05 PM
(check logger time)

June 1

Check W3 Veng bor -
Should there be some debris
flying into lens?

W6 → replaced P8 for P9
(light was blinking
(before))

10:13 AM - all logger times
Synced

Instrument height

	10:30 AM	3:30 PM
A4	10.5 cm	10.5 cm
A3	7.5 cm	7.5 cm
V1	141.5 cm	143 cm
V2	201 cm	202 cm
A2	23.5 cm	23.5 cm
D3	230 cm	228 cm
D2	147 cm	148 cm
D1	74 cm	74 cm
A1	19 cm	19.5 cm
S1	12.5 cm	13 cm
S2	6 cm	6 cm
S3	28.5 cm	28.5 cm
S4	9.5 cm	9.5 cm
	10:33 AM - 83MS stand	

BNE times:

10:33 - 15:00
16:07 - X

Wind today is mostly from NW
There may be difference for
BNEs A2, A3, B2, B3

15:35 - all loggers off

Surface samples @ 10:10 + 15:30

Tune 2 to do:

Lower A1 to 16 cm
A2 to 21 cm

- Very humid morning
- Soil is wet just below surface
- Wetness not from shower because of moisture buildup behind glass protective covers (10:10 AM)
- All loggers (except CR1000s) synchronized by 10:41 AM
- Dust Sensors on by 10:47 AM
- Wind or surface sand (10:30 AM)
- BNE surface sand @ 10:45 AM

BNE / anemometer hrs

	11:20 AM	6:10 PM
A4	10.5 cm	10.5 cm
A3	7.5 cm	7 cm
B1	142 cm	121 cm
Y2	203 cm	192 cm
A2	21 cm	20.5 cm
D3.	230 cm	231 cm
D2	148 cm	149 cm
D1	74 cm	75 cm
A1	16 cm	15.5 cm

~~BSNE / anemometer bgs~~

BSNE	11:20 AM	6:10 PM
B1	13 cm	13.5 cm
U4	203 cm	203 cm
B2	6 cm	6 mm
B3	28.5 cm	28.5 cm
U3	202 cm	203 cm
B4	8.5 cm	9.5 cm

~~BSNE / ultrasonic start at 11:25 AM~~

Wenbor replaces
W1: 23 for R2
W2: 9 for R10

New BSNE start @ 11:54 AM

Wenbor working
W1, W2, W3, W4, W5

W4 working at 12:14 PM
W5 working at 12:22 PM

W3 sonic not working
performed diagnosis
start looking at U4 records from 12:32 PM
W5 working at 1:06 PM
W6 working at 1:08 PM

~~BSNE~~ 11:54 - 12:54

Instrument interference at 1:10 PM
(Wenbor / lower sonics)
Interference ends at 1:16 PM
Calibrated all Wong borg
BSNE 1:17 PM - 2:17 PM

Recalibrate Wenbor
interference: 2:24 - 2:28 PM

BSNE 2:28 PM - 3:28 PM
BSNE 3:37 PM - 4:30 PM
BSNE 4:13 PM - 4:43 PM
BSNE 4:49 PM - 5:19 PM

Dust sensor 4 off at 5:30 PM
3 off from 5:30 - 5:32 PM
(moved to other borg)

Dust 1, 2, 3 off at 6:14 PM
Other loggers off at 6:16 PM

12:32 PM

6/3/2015 - 9a - do

~~bring surface sample bags
bring all refurbished Wengler~~

June 3, 2015

Wengler assignments

W1	R8
W2	R4
W3	21
W4	19
W5	R4
W6	R5
W7	R6
W8	14
W9	R10

Loggers synced at 9:58 AM

All loggers completed at 10:19 AM
10:34 AM end of Wengler / sonic
interference.

10:40 AM - RSSN / ultrasonic start

11:57 AM - dust sensors on

12-12:10 PM - clearing of clouds,
wind picked up

18/3/91 Wenger/Sonic

Interference

18:30 - Dust date collection

6/4/13 do + do
replace W2 + W4 Wenglers

Instrument	height
A4	10:30 AM 6.20 pm
A4	12 cm 10 cm
A3	8.5 cm 7.5 cm
V1	14/cm 14.2 cm
V2	20/5 cm 20.2 cm
V3 A2	20 cm 19.5 cm
V3 D3	280cm 230cm
V2	14.9cm 14.8cm
D1	74 cm 75 cm
A1	16.5 cm 15 cm
B1	14 cm 13.5 cm
V4	203.5 cm 204 cm
B2	6.5 cm 8 cm
B3	29.5 cm 31.5 cm
V3	203 cm 202 cm
V4	10.5 cm 11.5 cm

851E 4 times

10:45 - 13:45

13:52 - 14:34

14:41 - 15:14

15:20 - 15:50

15:56 - 16:26

16:32 - 17:02

17:04 - 17:39

17:43 - 18:13

5/17/2015

BINS times

All loggers synced at 10:45 AM

10:50 AM surface samples

Wengler replace R9 with R2 for W
19 with K1 for W

Wengler/Sonic interference up to 11:07

Instrument heights 3:00PM

A4	12cm	12cm
A3	8.5cm	8.5cm
U1	141cm	142cm (rear)
U2	202cm	202cm
A2	19 cm	19cm
D3	231cm	230cm
D2	149cm	149cm
D1	45cm	45cm
A1	16.5cm	16cm
B1	142cm	14cm
U4	204cm	204cm
B2	7.5cm	7.5cm
B3	30.5cm	30.5cm
U3	202cm	202cm
U4	10.5cm	11cm

11:21 AM - 16:00

Dust sensors on at 11:24 AM

15:21 Wengler/Sonic interference

15:22 dust sensors off

Kenosure H9 from S1 to U12
2 + U1 cm (S1 above U1/U2)
Y = -5 cm (tuning U1/U2 as 0cm)

L1 Serial # 14020114
(rear)
L2 Serial # 13390344
(front)

6/15/2015

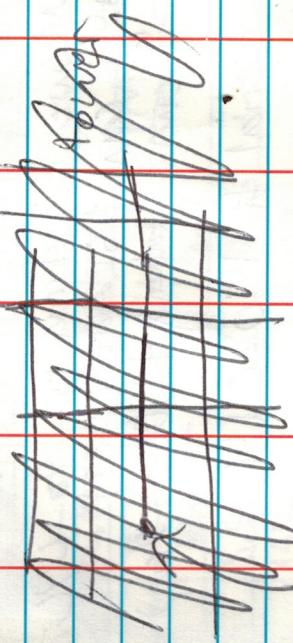
Tower is down!

Measuring some positions...

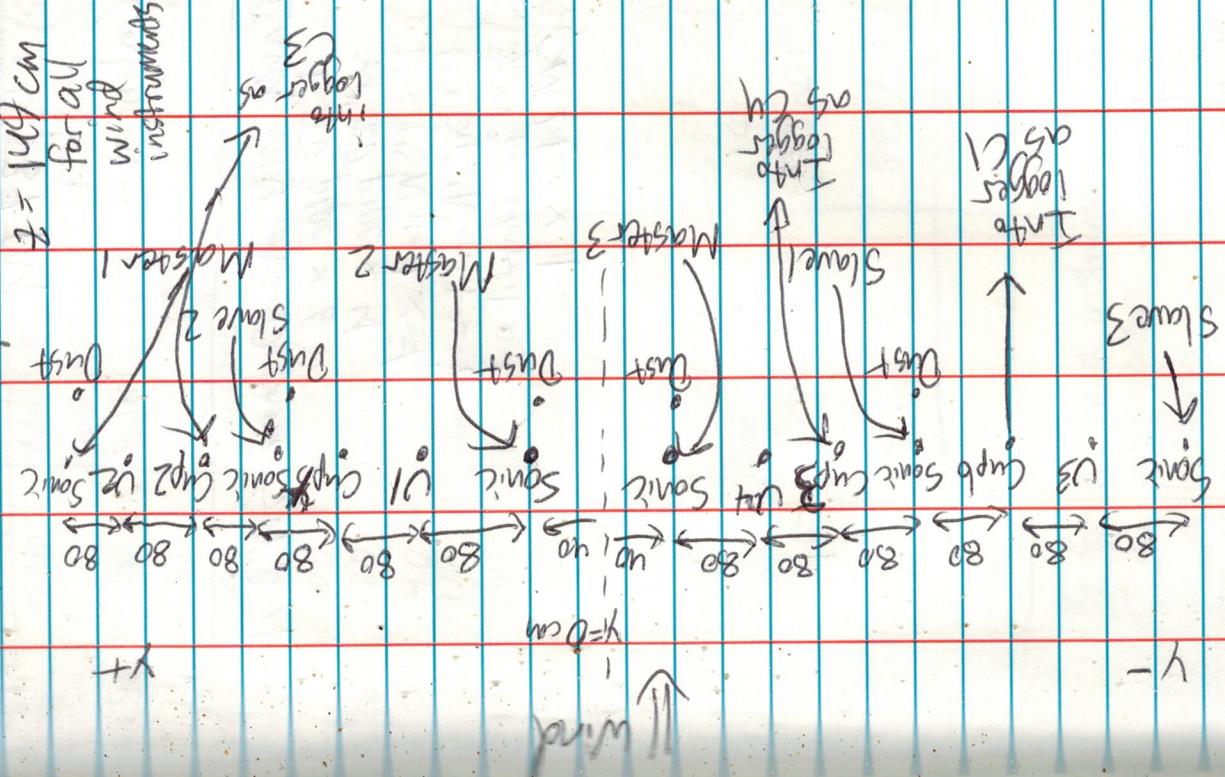
$$C2/C3 \quad X = 74 \text{ cm}$$

$$C4/C6 \quad X = 72 \text{ cm}$$

$$D4 \quad X = 793 \text{ cm} \quad (SN 9278)$$



Calibration Setup



Z of anemometers relative to platform

25 + platform

S1	253cm
C2	458cm
S5	540cm
C3	628cm
C4	628 + 125cm
C5	540 + 300cm
C6	628 + 295cm
Dust	540cm + 40cm
D4	

Sync time

11:37 AM

Calibration table valid as of 5:08 PM

Inventory of Oceanus SURA Items

1" ID pipe x 6
 3/4" ID pipe x 4
 1" x 1" Nipple x 7
 1" x 3/4" Nipple x 6
 3/4" x 3/4" Nipple x 5
 EN 210 x 1

Calibration Instruments		Logger Name	SV (Deployment Number)
Type	Pos (y.m)		
sonic	520	Master 1	0367-2 (S2)
Dust	520	Dust logger-dust 4	N9284 (D1)
Ultrasonic	440	V2	J3311 (C2)
Cup	360	C2 (0ff)	J3277-2 (S3)
Sonic	280	Slave 2	N9290 (D2)
Dust	280	Dust logger-dust 3	J3306 (C4)
Cup	200	C4	
Ultrasonic	120	V1	
Sonic	40	Master 2	1099-2 (S6)
Dust	40	Dust logger-dust 2	N9287 (D5)
Sonic	-40	Master 3	0369-2 (S4)
Dust	-40	Dust logger-dust 1	N9228 (D1)
Ultrasonic	-120	V1	
Cup	-200	C3	J3301 (C3)
Sonic	-280	Slave 1	0370-2 (S1)
Dust	-280	Cup (0ff) 1	N9281 (D3)
Cup	-360	C6	J8602 (C6)
Ultrasonic	-440	V3	
Sonic	-520	Slave 3	0247-2 (S5)
		Temp/RH ~60	

$Z = 140$ for all wind instruments + temp/hum
 $Z = 195$ for dust sensors
 $X = 0$ for all sonics
 $X = 350$ for dust
 $X = 350$ for edge of plume

6/7/2015

All loggers synced at Hill A
New instrument positions (Cwind)

-5.2m S6

-4.4m ~~S7~~ U

-3.6m C4

-2.8m S3

-2.0m C2 (using cable that was for C3)
-1.2m ~~T1~~ U2 put into C2 post on logger

-0.4m S2

0.4m S5

1.2m ~~S7~~ U3

2.0m C6

2.8m S1

3.6m ~~S7~~ U4

4.4m : U4

Using "deployment variables from
last page

Dust:

-2.8m D5

-0.4m D2

0.4m D1

2.8m D3

5.2m D4

12:07 PM - Instrument Start
Time