Coachella Valley Ag. Research Station (CVARS) Below Ground Data

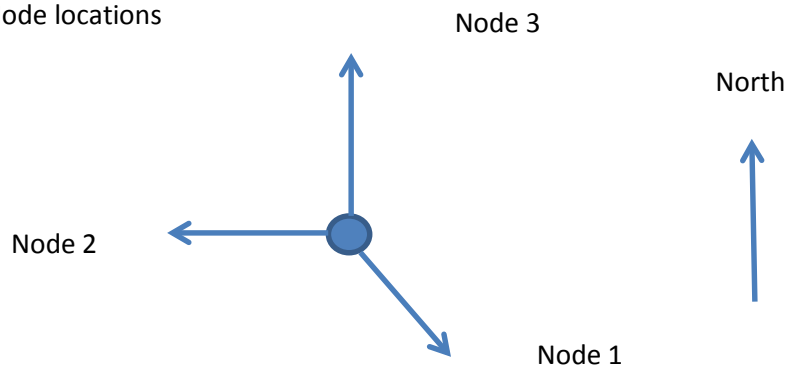
1. CVARS Site Description
   1.1. http://agops.ucr.edu/cvars/

2. Weather
   1.1. Oasis CIMIS (#136)

   http://wwwcimis.water.ca.gov/cimis/frontStationDetailData.do?stationId=136&urlPicDirection=W

3. Location
   3.1. Latitude: 33°31'8.37"N
   3.2. Longitude: 116° 9'0.64"W

4. Node locations



5. Sensor list

#	Items	Area	Manufacturer	Model #
1	Carbon Dioxide Sensors	Below Ground	Vaisala	GMM222G0A0A3A2G1B
2	Soil Temperature Probes	Below Ground	Campbell Scientific	108-35L
3	Soil Water Content Probes	Below Ground	Campbell Scientific	CS616-35L
4	Data Logger	Below Ground	Campbell Scientific	CR1000-XT-SW-NC
5	Multiplexer	Below Ground	Campbell Scientific	AM16/32B-XT-SW
6	Ethernet Connection	Below Ground	Campbell Scientific	NL120-XT
7	Enclosure	Below Ground	Campbell Scientific	ENC12/14-DC-MM
8	Shield	Below Ground	Campbell Scientific	41303-5A
9	Closed-Path Eddy-Covariance System	Eddy Flux Tower	Campbell Scientific	CPE200-D3-NL-3V-SS-NC-BB-NG-MM-MP
10	Tripod	Eddy Flux Tower	Campbell Scientific	CM110
11	Pyranometer	Eddy Flux Tower	Campbell Scientific	CS300-10L-PT
12	Pyranometer Level	Eddy Flux Tower	Campbell Scientific	18356
13	Pyranometer Mount	Eddy Flux Tower	Campbell Scientific	CM225
14	Temperature and Relative Humidity Probe	Eddy Flux Tower	Campbell Scientific	HMP60-10L
15	4-Component Net Radiometer	Eddy Flux Tower	Campbell Scientific	NR01-10L-PT

16	Self-Calibrating Soil Heat Flux Plate	Eddy Flux Tower	Campbell Scientific	HFP01SC-35L-PT

6. How to calculate soil CO_2 efflux.

   6.1. Download data from data logger at CAVARS and save it on laptop. Make sure that "record ID" is unchecked.
   6.2. Copy the data file to a new folder under "C:\Users\Kuni\Documents\My Data Space\CVARS\Sensor Raw Data" on the lab computer.
   6.3. Open MATLAB and run a script named "CVARSImportCalculateExport.m" under "C:\Users\Kuni\Documents\My Data Space\CVARS\MATLAB\Codes".
   6.4. Add the path to the newly created folder to the path by right clicking on the folder. If the folder is not highlighted, MATLAB does not recognize the path to the folder and you get an error when you run the script.
   6.5. Select the downloaded data when prompted.
   6.6. This will automatically export every 5 min data with calculated flux in text file and daily average data in Excel file. You can find exported files under "C:\Users\Kuni\Documents\My Data Space\CVARS\MATLAB\Export".

7. MATLAB data file column headings for “CVARS_Flux_yyyy-mm-dd.mat.”

Column ID	Heading	Unit
1	Date_Time	GMT-8Hr
2	AirT	deg C
3	RH	%
4	CM3Up	W m-2
5	CM3Dn	W m-2
6	CG3Up	W m-2
7	CG3Dn	W m-2
8	CNR1T	Deg C
9	CNR1TK	K
10	NetRs	W m-2
11	NetRl	W m-2
12	Albedo	W m-2
13	UpTot	W m-2
14	DnTot	W m-2
15	NetTot	W m-2
16	CG3UpCo	W m-2
17	CG3DnCo	W m-2
18	shf	W m-2
19	Node1_ST2	deg C
20	Node1_ST8	deg C
21	Node1_ST16	deg C
22	Node2_ST2	deg C

23	Node2_ST8	deg C
24	Node2_ST16	deg C
25	Node3_ST2	deg C
26	Node3_ST8	deg C
27	Node3_ST16	deg C
28	Node1_WC2	m3 m-3
29	Node1_WC8	m3 m-3
30	Node1_WC16	m3 m-3
31	Node2_WC2	m3 m-3
32	Node2_WC8	m3 m-3
33	Node2_WC16	m3 m-3
34	Node3_WC2	m3 m-3
35	Node3_WC8	m3 m-3
36	Node3_WC16	m3 m-3
37	Node1_CO2_2	ppm
38	Node1_CO2_8	ppm
39	Node1_CO2_16	ppm
40	Node2_CO2_2	ppm
41	Node2_CO2_8	ppm
42	Node2_CO2_16	ppm
43	Node3_CO2_2	ppm
44	Node3_CO2_8	ppm
45	Node3_CO2_16	ppm
46	Node1_Flux	micro mol m-2 s-1
47	Node2_Flux	micro mol m-2 s-1
48	Node3_Flux	micro mol m-2 s-1
49	Node1_Prod	micro mol m-3 s-1
50	Node2_Prod	micro mol m-3 s-1
51	Node3_Prod	micro mol m-3 s-1

8. Exported text data file column headings for “CVARS_Flux_yyyy-mm-dd.txt”.

Column ID	Heading	Unit
1	year	GMT-8Hr
2	month	GMT-8Hr
3	day	GMT-8Hr
4	hour	GMT-8Hr
5	minute	GMT-8Hr
6	AirT	deg C
7	RH	%
8	CM3Up	W m-2

9	CM3Dn	W m-2
10	CG3Up	W m-2
11	CG3Dn	W m-2
12	CNR1T	Deg C
13	CNR1TK	K
14	NetRs	W m-2
15	NetRl	W m-2
16	Albedo	W m-2
17	UpTot	W m-2
18	DnTot	W m-2
19	NetTot	W m-2
20	CG3UpCo	W m-2
21	CG3DnCo	W m-2
22	shf	W m-2
23	Node1_ST2	deg C
24	Node1_ST8	deg C
25	Node1_ST16	deg C
26	Node2_ST2	deg C
27	Node2_ST8	deg C
28	Node2_ST16	deg C
29	Node3_ST2	deg C
30	Node3_ST8	deg C
31	Node3_ST16	deg C
32	Node1_WC2	m3 m-3
33	Node1_WC8	m3 m-3
34	Node1_WC16	m3 m-3
35	Node2_WC2	m3 m-3
36	Node2_WC8	m3 m-3
37	Node2_WC16	m3 m-3
38	Node3_WC2	m3 m-3
39	Node3_WC8	m3 m-3
40	Node3_WC16	m3 m-3
41	Node1_CO2_2	ppm
42	Node1_CO2_8	ppm
43	Node1_CO2_16	ppm
44	Node2_CO2_2	ppm
45	Node2_CO2_8	ppm
46	Node2_CO2_16	ppm
47	Node3_CO2_2	ppm
48	Node3_CO2_8	ppm
49	Node3_CO2_16	ppm

50	Node1_Flux	micro mol m-2 s-1
51	Node2_Flux	micro mol m-2 s-1
52	Node3_Flux	micro mol m-2 s-1
53	Node1_Prod	micro mol m-3 s-1
54	Node2_Prod	micro mol m-3 s-1
55	Node3_Prod	micro mol m-3 s-1