COMPASS Synoptic CB: Tree Gas Well Greenhouse Gas (GHG) Sample Work Flow

Field Collection:

Link to Field Protocol:

Site	GCReW (GCW)	Moneystump (MSM)	Goodwin Islands (GWI)
Zones Replicates	Transition (TR, aka Shoreline) x 6 Upland (UP, aka TMP Control) x 6	Transition x 8 Upland x 8 Dead Standing (DS) x 3	Transition x 8 Upland x 8 Dead Standing (DS) x 3
Well Info	8mm I.D. wells	12.5mm I.D. wells	12.5mm I.D. wells
Sample Volume	2 mL sample collected and put in 12mL N2 flushed exetainer	12 mL sample collected and put in 12mL N2 flushed exetainer	12 mL sample collected and put in 12mL N2 flushed exetainer
Dilution Factor	7	2	2
Collection Frequency	Collected monthly in 2022 & 2023	Collected monthly in 2022 & 2023	Collected monthly in 2022 & 2023

GCReW Tree #'s:

Sap Flux Tree #'s

Synoptic	Tempest SF ID	Zone	Well?
1	C7	UP	Low
2	C9	UP	NA
3	C10	UP	NA
4	C11	UP	Low & High
5	C12	UP	NA
6	C19	UP	NA
1	L1	TR	1
2	L2	TR	1
3	L3	TR	1
4	L4	TR	1
5	L5	TR	1
6	L6	TR	1

Sample Analysis:

Varian GC – Biogoechem Lab

Sample Run Sheets are included with samples and samples are checked off prior to running them

Runs on the GC include the following standard curves and check standards (~3 per run)

Sample dilutions are recorded in the notes section f the sample run sheets and are then copied into the entered data file under "lab notes"

For example: The 2023 TGAS samples had 10mL of N2 added to them in the lab in order to dilute them a bit further and ensure they would be within our standard curve – this is reflected in the lab notes section

CH4 Stds:

Running Std. Target (ppm)	N2 in Exetainer from flushing (mL)	CH4 Std Added (ppm)	Volume of Std (mL)	Extra N2 Added (mL)
10	0 – evacuate	Tri Std: 10	24	-
5	12	Tri Std: 10	12	-
2.5	12	Tri Std: 10	6	6
1	12	Tri Std: 10	2	10
25	12	100	6	6
50	12	100	12	-
100	12	200	12	-
250	12	500	12	-
500	12	1000	12	-
2500	12	5000	12	-
5000	12	10000	12	

CO2 Stds:

Run Std. Target (ppm)	N2 in Exetainer from flushing (mL)	CO2 Std. Added (ppm)	Volume of Std (mL)	Extra N2 Added (mL)
125	12	250	12	-
500	12	1000	12	-
2500	12	5000	12	-
5000	12	10000	12	-
50000	12	10%	12	-

Sample Data:

Raw data files found via S: Drive → Biogeochemistry → COMPASS Synoptics → Samples & Data → GHG → Tree GHG → Data

Fill in template and save as: “COMPASS_CBSYN_TGW_YYYYMM.csv”

Template Example (ensure sample columns and formatting):

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Machine	User	Run_Date	Sample_Type	Type1	Sample_Year	Sample_Month	Sample_ID	Dilution_Factor	STD_Conc	CO2_Area	CH4_Area	Field Notes	Lab Notes
2	Varian GC	Wegner	20240228	Blank	Blank	2024	NA	Blank_0	1	0	14889	311		
3	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2024	NA	Blank_0_repeatforCH4	1	0	14889	311		
4	Varian GC	Wegner	20240228	STD_CO2	STD_CO2	2024	NA	Blank_0_repeat for CO2	1	0	14889	311		
5	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_2.5ppm_CH4	1	2.5	69708	1558		
6	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_1ppm_CH4	1	1	25322	580		
7	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_5ppm_CH4	1	5	140050	3194		
8	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_10ppm_CH4	1	10	279592	6314		
9	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_25ppm_CH4	1	25	635448	14629		
10	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_50ppm_CH4	1	50	1424812	32984		
11	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_100ppm_CH4	1	100	2577	68303		
12	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_250ppm_CH4	1	250	1325	168943		
13	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_500ppm_CH4	1	500	1506	340818		
14	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_2500ppm_CH4	1	2500	0	1676946		
15	Varian GC	Wegner	20240228	STD_CH4	STD_CH4	2023	May	STD_5000ppm_CH4	1	5000	3132	3275406		
16	Varian GC	Wegner	20240228	STD_CO2	STD_CO2	2023	May	STD_125ppm_CO2	1	125	22247	900		
17	Varian GC	Wegner	20240228	STD_CO2	STD_CO2	2023	May	STD_500ppm_CO2	1	500	81759	331		
18	Varian GC	Wegner	20240228	STD_CO2	STD_CO2	2023	May	STD_2500ppm_CO2	1	2500	386544	230		
19	Varian GC	Wegner	20240228	STD_CO2	STD_CO2	2023	May	STD_5000ppm_CO2	1	5000	794108	312		
20	Varian GC	Wegner	20240228	STD_CO2	STD_CO2	2024	NA	STD_50000ppm_CO2	1	50000	7702359	375		
21	Varian GC	Wegner	20240228	Blank	Blank	2024	NA	Blank_1	1	0	14175	0		
22	Varian GC	Wegner	20240228	Unknown	TGW	2023	May	GCW_TGW_TR_SF_1	12	NA	658482	312134		10mL N2 added in lab
23	Varian GC	Wegner	20240228	Unknown	TGW	2023	May	GCW_TGW_TR_SF_2	12	NA	777613	362443		10mL N2 added in lab
24	Varian GC	Wegner	20240228	Unknown	TGW	2023	May	GCW_TGW_TR_SF_3	12	NA	1066233	229897		10mL N2 added in lab
25	Varian GC	Wegner	20240228	Unknown	TGW	2023	May	GCW_TGW_TR_SF_4	12	NA	719637	250211		10mL N2 added in lab
26	Varian GC	Wegner	20240228	Unknown	TGW	2023	May	GCW_TGW_TR_SF_5	12	NA	913981	4090681		10mL N2 added in lab

Sample QA/QC & Other Info: