

LI-850 CO₂/H₂O Analyzer

Calibration Certificate

Serial Number HGA-5043

Date: 12 Apr 2018

Code:33931

Technician _____

Jerry F.

CO₂ Calibration Values<version info>

a1= 0.122637

XS = -0.0095

a2 = 1.69939

BB = 1.45

a3 = 0.517314

a4 = 18.2885

H₂O Calibration Values

Pressure Calibration*

a1 = 0.260503

a0 = 10.395

a2 = 2.45688

a1 = 111.11

a3 = -0.483464

* Ver 1.0.15 and above

Zero/Span set on 13 Apr 2018

CO2 Zero = 1.1537

CO2 Span = 0.9618, Span2 = 0.0464

H2O Zero = 1.5464

H2O Span = 0.9670, Span2 = 0.0000

CO2 Measurements

	Type	Time	CO2(ppm)	RAW1	RAW2	RAW3	RAW4	CO2Abs	CO2AbsSD	CO2Slp	H2OAbs	H2OAbsSD	TOven(C)	T(C)	Pa(kPa)	Press	Fs(l/m)
1	CO2/84	18:22:01	0	3772387	4350027	2171749	3363085	-0.00010	5.71E-5	-8.17E-6	0.00086	7.22E-5	43.90	51.63	95.56	95.74	0.697
2	CO2/84	18:23:09	86.4	3680606	4349554	2171708	3362777	0.02427	4.94E-5	-2.14E-5	0.00081	5.39E-5	44.00	51.63	95.56	95.73	0.570
3	CO2/84	18:24:20	198.7	3585905	4349857	2171936	3362814	0.04933	5.65E-5	-7.45E-5	0.00069	3.52E-5	44.00	51.63	95.56	95.73	0.570
4	CO2/84	18:25:23	296.7	3517414	4349352	2171652	3362341	0.06750	4.46E-5	-1.16E-5	0.00067	3.60E-5	44.20	51.63	95.55	95.71	0.558
5	CO2/84	18:26:41	406.9	3450603	4349975	2171913	3362834	0.08522	3.55E-5	7.79E-7	0.00057	5.07E-5	44.20	51.63	95.55	95.71	0.560
6	CO2/84	18:28:03	499.5	3401137	4349476	2172087	3362546	0.09841	5.26E-5	-4.52E-5	0.00049	4.08E-5	44.30	51.63	95.55	95.70	0.587
7	CO2/84	18:29:25	601.1	3350965	4349714	2172168	3362704	0.11160	5.43E-5	-7.97E-5	0.00046	4.08E-5	44.20	51.63	95.55	95.72	0.591
8	CO2/84	18:30:36	750.9	3285213	4348966	2171965	3362053	0.12906	4.32E-5	7.36E-5	0.00045	4.87E-5	44.40	51.63	95.55	95.71	0.565
9	CO2/84	18:31:53	997.1	3191962	4349535	2171924	3362404	0.15381	5.46E-5	2.76E-5	0.00044	4.85E-5	44.20	51.63	95.55	95.70	0.558
10	CO2/84	18:32:59	1511	3035510	4349452	2172076	3362421	0.19526	3.88E-5	8.36E-5	0.00047	3.66E-5	44.50	51.63	95.55	95.72	0.568
11	CO2/84	18:34:17	2013	2914243	4349426	2171922	3362261	0.22746	5.23E-5	1.35E-5	0.00044	4.25E-5	44.40	51.63	95.55	95.71	0.603
12	CO2/84	18:35:24	2500	2813959	4349262	2172141	3362522	0.25382	4.14E-5	-1.73E-6	0.00041	4.57E-5	44.40	51.63	95.55	95.73	0.602
13	CO2/84	18:36:36	3027	2721026	4348743	2171626	3361773	0.27852	4.55E-5	3.03E-7	0.00042	4.28E-5	44.40	51.63	95.55	95.71	0.605
14	CO2/84	18:38:22	4932	2466881	4348351	2170773	3361420	0.34587	5.02E-5	-3.83E-5	0.00064	4.24E-5	44.40	51.63	95.55	95.69	0.454
15	CO2/84	18:39:52	10040	2106263	4347738	2170826	3361156	0.44146	4.22E-5	-2.66E-5	0.00060	5.75E-5	44.50	51.63	95.55	95.69	0.473
16	CO2/84	18:41:16	19860	1817991	4346929	2170530	3361265	0.51776	3.39E-5	-2.55E-5	0.00064	4.10E-5	44.50	51.63	95.55	95.70	0.496
17	CO2/84	18:42:30	29560	1690982	4347179	2171319	3360978	0.55143	3.26E-5	5.46E-6	0.00044	4.08E-5	44.50	51.62	95.55	95.74	0.806
18	CO2/84	21:02:47	0	3772163	4349913	2172717	3362225	-0.00002	5.66E-5	-5.73E-5	0.00004	5.93E-5	31.90	51.64	95.50	95.67	0.693
19	CO2/84	21:03:52	86.4	3680532	4349100	2172559	3361744	0.02433	4.14E-5	-2.82E-6	0.00002	5.02E-5	32.00	51.64	95.50	95.66	0.570
20	CO2/84	21:05:06	198.7	3586047	4349893	2172982	3362121	0.04938	6.64E-5	2.93E-5	-0.00001	5.36E-5	31.90	51.63	95.49	95.66	0.570
21	CO2/84	21:06:17	296.7	3517313	4349774	2172615	3361944	0.06755	3.76E-5	-1.40E-5	-0.00001	3.27E-5	31.90	51.63	95.49	95.65	0.558
22	CO2/84	21:07:30	406.9	3450713	4349657	2172617	3361452	0.08526	4.91E-5	-2.72E-5	-0.00005	4.72E-5	32.00	51.64	95.49	95.66	0.559
23	CO2/84	21:08:49	499.5	3400928	4350136	2172899	3361550	0.09849	6.41E-5	-2.52E-5	0.00011	4.56E-5	31.90	51.63	95.49	95.68	0.586
24	CO2/84	21:10:09	601.1	3350801	4349562	2172773	3361529	0.11166	4.46E-5	-1.65E-5	-0.00014	3.25E-5	32.00	51.64	95.49	95.65	0.590
25	CO2/84	21:11:23	750.9	3285249	4349499	2172534	3361179	0.12906	4.62E-5	-3.31E-5	-0.00014	5.28E-5	31.90	51.64	95.49	95.65	0.568
26	CO2/84	21:12:35	997.1	3191914	4349568	2172732	3361319	0.15379	4.85E-5	-5.34E-5	-0.00015	3.75E-5	31.90	51.64	95.49	95.67	0.557
27	CO2/84	21:13:47	1511	3035440	4349368	2172497	3360936	0.19527	6.09E-5	3.94E-5	-0.00010	4.44E-5	32.00	51.64	95.50	95.66	0.568
28	CO2/84	21:15:02	2013	2913944	4349249	2172388	3361243	0.22745	5.06E-5	2.00E-5	-0.00011	5.15E-5	31.90	51.64	95.50	95.66	0.603
29	CO2/84	21:16:23	2500	2814472	4349752	2172520	3360940	0.25381	5.37E-5	-3.56E-6	-0.00012	4.50E-5	32.00	51.64	95.50	95.67	0.602
30	CO2/84	21:17:34	3027	2721285	4349285	2172292	3360798	0.27851	4.79E-5	-7.76E-6	-0.00011	5.37E-5	32.00	51.64	95.49	95.66	0.605
31	CO2/84	21:19:07	4932	2467129	4348331	2171532	3359736	0.34585	4.55E-5	-3.39E-5	0.00000	4.26E-5	32.00	51.64	95.49	95.64	0.453
32	CO2/84	21:20:20	10040	2106036	4348154	2171534	3360038	0.44144	4.05E-5	3.23E-5	0.00002	3.31E-5	32.00	51.63	95.49	95.66	0.472
33	CO2/84	21:21:34	19860	1818539	4347188	2171358	3359678	0.51774	4.58E-5	3.59E-5	0.00008	4.24E-5	31.90	51.64	95.49	95.64	0.494
34	CO2/84	21:22:46	29560	1690895	4346906	2171525	3359729	0.55140	3.50E-5	3.61E-5	-0.00001	4.38E-5	32.00	51.63	95.49	95.68	0.804
35	CO2/84	23:26:55	0	3772334	4350510	2173560	3362116	0.00014	6.42E-5	1.93E-5	-0.00035	5.52E-5	16.90	51.64	95.38	95.57	0.694
36	CO2/84	23:28:11	86.4	3680464	4349688	2173384	3361591	0.02445	4.41E-5	7.60E-6	-0.00035	4.07E-5	17.10	51.65	95.38	95.56	0.571
37	CO2/84	23:29:29	198.7	3586096	4350552	2173498	3361856	0.04948	5.98E-5	-5.92E-5	-0.00039	4.98E-5	17.00	51.65	95.39	95.56	0.572
38	CO2/84	23:30:39	296.7	3517617	4350107	2173342	3361538	0.06762	6.45E-5	-4.16E-5	-0.00038	4.88E-5	17.20	51.65	95.39	95.56	0.560
39	CO2/84	23:32:04	406.9	3450781	4350095	2173543	3361487	0.08532	6.23E-5	-2.77E-5	-0.00042	3.91E-5	17.00	51.64	95.39	95.57	0.562
40	CO2/84	23:33:11	499.5	3400972	4350736	2173335	3361207	0.09854	5.08E-5	-2.23E-5	-0.00046	4.51E-5	17.00	51.64	95.39	95.56	0.588
41	CO2/84	23:34:20	601.1	3351298	4350752	2173552	3361520	0.11171	5.98E-5	-1.38E-5	-0.00048	4.62E-5	17.10	51.64	95.39	95.57	0.592
42	CO2/84	23:35:35	750.9	3285461	4349556	2173395	3361217	0.12910	3.59E-5	-2.65E-5	-0.00050	3.89E-5	17.00	51.64	95.39	95.56	0.565
43	CO2/84	23:36:42	997.1	3192463	4350185	2173504	3361572	0.15383	4.64E-5	2.26E-5	-0.00049	4.84E-5	17.10	51.64	95.39	95.56	0.559
44	CO2/84	23:38:06	1511	3035509	4349627	2173017	3360874	0.19526	4.77E-5	-3.46E-5	-0.00046	4.91E-5	17.10	51.64	95.39	95.56	0.570
45	CO2/84	23:39:24	2013	2914226	4350274	2173014	3360974	0.22741	6.20E-5	-1.62E-5	-0.00045	4.92E-5	17.10	51.64	95.39	95.58	0.605
46	CO2/84	23:40:32	2500	2814707	4349547	2172649	3360463	0.25378	4.46E-5	2.15E-5	-0.00047	4.37E-5	17.10	51.65	95.39	95.56	0.603
47	CO2/84	23:41:46	3027	2721846	4349344	2172878	3360811	0.27844	4.12E-5	-8.51E-5	-0.00044	4.75E-5	17.10	51.64	95.39	95.56	0.606
48	CO2/84	23:43:28	4932	2467423	4349474	2172305	3359949	0.34579	5.99E-5	5.38E-6	0.00036	4.21E-5	17.10	51.65	95.39	95.55	0.455
49	CO2/84	23:44:49	10040	2106452	4347852	2172127	3359773	0.44138	4.63E-5	2.90E-5	-0.00035	4.73E-5	17.20	51.64	95.39	95.57	0.474
50	CO2/84	23:46:05	19860	1818381	4347822	2171803	3359239	0.51771	4.36E-5	8.97E-6	-0.00026	4.36E-5	17.20	51.64	95.39	95.56	0.494
51	CO2/84	23:47:08	29560	1690691	4346533	2171926	3359537	0.55140	3.91E-5	9.56E-6	-0.00032	5.33E-5	17.10	51.64	95.39	95.57	0.807
52	CO2/84	01:40:55	0	3772024	4351373	2174298	3361675	0.00029	5.74E-5	4.28E-5	-0.00071	4.73E-5	2.20	51.66	95.23	95.41	0.698
53	CO2/84	01:42:05	86.4	3680058	4350564	2174103	3361391	0.02456	4.24E-5	-3.10E-5	-0.00071	6.18E-5	2.10	51.67	95.23	95.40	0.573
54	CO2/84	01:43:18	198.7	3586442	4351000	2174132	3361463	0.04955	5.21E-5	-3.35E-8	-0.00074	5.84E-5	2.10	51.66	95.23	95.39	0.573
55	CO2/84	01:44:26	296.7	3517764	4350345	2173938	3361060	0.06767	4.81E-5	7.07E-6	-0.00073	3.98E-5	2.10	51.66	95.22	95.38	0.560
56	CO2/84	01:45:36	406.9	3451314	4351299	2173951	3361588	0.08534	5.36E-5	-2.29E-5	-0.00078	5.19E-5	2.10	51.66	95.22	95.38	0.562
57	CO2/84	01:46:56	499.5	3401478	4351316	2174207	3361518	0.09854	4.25E-5	-1.48E-5	-0.00080	4.13E-5	2.10	51.65	95.22	95.38	0.588
58	CO2/84	01:48:10	601.1	3352128	4351485	2174233	3361238	0.11171	3.19E-5	7.06E-5	-0.00083	4.96E-5	2.20	51.66	95.22	95.39	0.592
59	CO2/84	01:49:22	750.9	3285858	4350506	2173981	3361230	0.12907	5.07E-5	3.87E-5	-0.00082	5.02E-5	2.20	51.66	95.22	95.37	0.566
60	CO2/84	01:50:33	997.1	3193007	4350279	2173886	3360659	0.15374	5.94E-5	3.03E-5	-0.00082	4.71E-5	2.20	51.65	95.21	95.37	0.559
61	CO2/84	01:															

	Type	Time	CO2(ppm)	RAW1	RAW2	RAW3	RAW4	CO2Abs	CO2AbsSD	CO2Slp	H2OAbs	H2OAbsSD	TOven(C)	T(C)	Pa(kPa)	Press	Fs(l/m)
86	CO2/84	04:28:53	0	3772759	4353524	2175986	3362312	0.00085	4.44E-5	-9.46E-5	-0.00142	3.88E-5	-23.10	51.60	95.08	95.22	0.698
87	CO2/84	04:30:56	86.4	3681250	4353305	2175611	3362071	0.02495	6.29E-5	4.71E-5	-0.00139	5.42E-5	-23.10	51.63	95.08	95.22	0.577
88	CO2/84	04:32:18	198.7	3586776	4352639	2175299	3361409	0.04981	4.34E-5	-3.31E-5	-0.00138	4.77E-5	-23.00	51.64	95.08	95.23	0.580
89	CO2/84	04:33:52	296.7	3518553	4352778	2175079	3361288	0.06788	2.86E-5	7.98E-5	-0.00135	4.57E-5	-22.90	51.66	95.08	95.22	0.569
90	CO2/84	04:35:05	406.9	3452448	4353248	2175109	3360818	0.08546	5.58E-5	-7.52E-5	-0.00136	4.83E-5	-23.00	51.67	95.08	95.24	0.570
91	CO2/84	04:36:21	499.5	3401973	4352355	2174767	3360366	0.09862	4.89E-5	3.21E-5	-0.00138	4.22E-5	-23.00	51.67	95.08	95.22	0.595
92	CO2/84	04:37:27	601.1	3353018	4352751	2174776	3360411	0.11176	7.06E-5	1.00E-5	-0.00139	4.34E-5	-23.00	51.67	95.08	95.22	0.598
93	CO2/84	04:38:35	750.9	3287358	4352886	2174807	3360293	0.12910	4.25E-5	2.37E-5	-0.00138	5.48E-5	-22.90	51.67	95.08	95.23	0.571
94	CO2/84	04:39:53	997.1	3193844	4352682	2174499	3360391	0.15375	4.98E-5	-3.43E-6	-0.00138	6.31E-5	-23.00	51.67	95.08	95.22	0.564
95	CO2/84	04:41:09	1511	3037928	4352031	2174454	3359886	0.19509	4.42E-5	6.88E-5	-0.00133	3.83E-5	-23.00	51.67	95.08	95.22	0.575
96	CO2/84	04:42:17	2013	2916882	4352177	2174379	3359775	0.22718	3.91E-5	-1.85E-5	-0.00132	4.86E-5	-23.00	51.67	95.08	95.21	0.609
97	CO2/84	04:43:30	2500	2817450	4352031	2174359	3359941	0.25348	5.40E-5	-1.07E-5	-0.00133	5.37E-5	-23.00	51.67	95.08	95.23	0.608
98	CO2/84	04:44:37	3027	2724791	4352427	2174128	3359786	0.27811	4.50E-5	-5.93E-5	-0.00130	5.78E-5	-23.00	51.67	95.08	95.22	0.610
99	CO2/84	04:46:09	4932	2470249	4351648	2173685	3358993	0.34540	2.95E-5	2.84E-5	-0.00128	4.94E-5	-23.00	51.68	95.08	95.21	0.459
100	CO2/84	04:47:40	10040	2108732	4350453	2173184	3358200	0.44101	5.56E-5	6.14E-5	-0.00125	5.46E-5	-22.90	51.67	95.07	95.21	0.477
101	CO2/84	04:48:50	19860	1820308	4349748	2172802	3357963	0.51750	3.34E-5	9.12E-6	-0.00118	7.13E-5	-22.90	51.67	95.07	95.20	0.499
102	CO2/84	04:49:51	29560	1692465	4348804	2173276	3358810	0.55128	4.34E-5	-8.20E-7	-0.00116	5.15E-5	-22.90	51.66	95.07	95.22	0.813

CO2 Computations

Num	ppm	abs	ppm/K	Coeffs	Predicted	Error	%Error	Temp	Drift at 370 ppm	%/C
1	0.0	0E0	0.0000	1.22637E-1	0.0000	0.0000	0.000	43C	0.516	0.016
2	86.4	2.43676E-2	0.2660	1.69939E0	0.2703	0.0043	1.623	31C	0.464	
3	198.7	4.94251E-2	0.6118	5.17314E-1	0.6151	0.0033	0.540	16C	0.329	
4	296.7	6.75932E-2	0.9135	1.82885E1	0.9154	0.0019	0.205	2C	0.139	
5	406.9	8.53115E-2	1.2528		1.2549	0.0021	0.166	-10C	-0.260	
6	499.5	9.85001E-2	1.5380	Iter= 5	1.5405	0.0025	0.163	-23C	-0.470	
7	601.1	1.11689E-1	1.8508		1.8562	0.0054	0.290			
8	750.9	1.29147E-1	2.3120		2.3235	0.0115	0.497			
9	997.1	1.53895E-1	3.0701		3.0900	0.0199	0.649			
10	1511.0	1.9534E-1	4.6524		4.6785	0.0261	0.561			
11	2013.0	2.27537E-1	6.1980		6.2162	0.0181	0.293			
12	2500.0	2.53895E-1	7.6975		7.7096	0.0121	0.157			
13	3027.0	2.78592E-1	9.3202		9.3366	0.0164	0.176			
14	4932.0	3.45935E-1	15.1857		15.2906	0.1049	0.691			
15	10040.0	4.41516E-1	30.9132		30.9724	0.0592	0.191			
16	19860.0	5.17808E-1	61.1491		61.3241	0.1751	0.286			
17	29560.0	5.51475E-1	91.0183		91.4175	0.3992	0.439			
18	0.0	0E0	0.0000		0.0000	0.0000	0.000			
19	86.4	2.43495E-2	0.2660		0.2701	0.0041	1.543			
20	198.7	4.9399E-2	0.6118		0.6147	0.0029	0.475			
21	296.7	6.75686E-2	0.9135		0.9150	0.0014	0.157			
22	406.9	8.52783E-2	1.2528		1.2542	0.0014	0.114			
23	499.5	9.8508E-2	1.5380		1.5407	0.0027	0.175			
24	601.1	1.11678E-1	1.8507		1.8559	0.0052	0.278			
25	750.9	1.29077E-1	2.3120		2.3215	0.0096	0.415			
26	997.1	1.53807E-1	3.0700		3.0871	0.0171	0.557			
27	1511.0	1.95286E-1	4.6522		4.6761	0.0239	0.514			
28	2013.0	2.27465E-1	6.1979		6.2124	0.0146	0.235			
29	2500.0	2.53825E-1	7.6973		7.7054	0.0081	0.105			
30	3027.0	2.78524E-1	9.3199		9.3318	0.0119	0.128			
31	4932.0	3.45863E-1	15.1852		15.2827	0.0975	0.642			
32	10040.0	4.41451E-1	30.9132		30.9566	0.0434	0.140			
33	19860.0	5.1775E-1	61.1472		61.2863	0.1390	0.227			
34	29560.0	5.51409E-1	91.0155		91.3362	0.3207	0.352			
35	0.0	0E0	0.0000		0.0000	0.0000	0.000			
36	86.4	2.43134E-2	0.2660		0.2697	0.0037	1.379			
37	198.7	4.93469E-2	0.6118		0.6139	0.0021	0.351			
38	296.7	6.74894E-2	0.9135		0.9136	0.0001	0.008			
39	406.9	8.51919E-2	1.2528		1.2525	-0.0003	-0.027			
40	499.5	9.84138E-2	1.5379		1.5385	0.0006	0.038			
41	601.1	1.11586E-1	1.8507		1.8536	0.0028	0.153			
42	750.9	1.28978E-1	2.3120		2.3187	0.0068	0.292			
43	997.1	1.53712E-1	3.0700		3.0839	0.0139	0.452			
44	1511.0	1.95147E-1	4.6522		4.6701	0.0179	0.385			
45	2013.0	2.27302E-1	6.1979		6.2038	0.0060	0.097			
46	2500.0	2.53676E-1	7.6970		7.6962	-0.0008	-0.011			
47	3027.0	2.78339E-1	9.3199		9.3186	-0.0012	-0.013			
48	4932.0	3.45698E-1	15.1847		15.2646	0.0799	0.526			
49	10040.0	4.41302E-1	30.9123		30.9202	0.0079	0.025			
50	19860.0	5.17642E-1	61.1472		61.2170	0.0698	0.114			
51	29560.0	5.51337E-1	91.0127		91.2478	0.2351	0.258			
52	0.0	0E0	0.0000		0.0000	0.0000	0.000			
53	86.4	2.4277E-2	0.2660		0.2692	0.0032	1.217			
54	198.7	4.92743E-2	0.6117		0.6128	0.0011	0.172			
55	296.7	6.73995E-2	0.9135		0.9120	-0.0015	-0.164			
56	406.9	8.50747E-2	1.2527		1.2501	-0.0027	-0.213			
57	499.5	9.82785E-2	1.5379		1.5354	-0.0024	-0.159			
58	601.1	1.11452E-1	1.8506		1.8502	-0.0004	-0.021			
59	750.9	1.28817E-1	2.3118		2.3142	0.0023	0.101			
60	997.1	1.53495E-1	3.0699		3.0766	0.0067	0.218			
61	1511.0	1.94857E-1	4.6520		4.6575	0.0056	0.120			
62	2013.0	2.27016E-1	6.1975		6.1889	-0.0086	-0.138			

Num	ppm	abs	ppm/K	Coeffs	Predicted	Error	%Error	Temp	Drift at 370 ppm	%/C
63	2500.0	2.53333E-1	7.6968		7.6754	-0.0215	-0.279			
64	3027.0	2.78001E-1	9.3193		9.2947	-0.0246	-0.264			
65	4932.0	3.4532E-1	15.1843		15.2232	0.0390	0.257			
66	10040.0	4.40948E-1	30.9104		30.8341	-0.0763	-0.247			
67	19860.0	5.1741E-1	61.1434		61.0673	-0.0761	-0.125			
68	29560.0	5.5117E-1	91.0071		91.0423	0.0352	0.039			
69	0.0	0E0	0.0000		0.0000	0.0000	0.000			
70	86.4	2.41757E-2	0.2660		0.2680	0.0020	0.745			
71	198.7	4.90919E-2	0.6117		0.6100	-0.0017	-0.283			
72	296.7	6.71737E-2	0.9134		0.9079	-0.0055	-0.600			
73	406.9	8.48351E-2	1.2527		1.2452	-0.0075	-0.602			
74	499.5	9.80137E-2	1.5378		1.5294	-0.0084	-0.544			
75	601.1	1.11122E-1	1.8506		1.8420	-0.0086	-0.465			
76	750.9	1.28514E-1	2.3117		2.3055	-0.0062	-0.269			
77	997.1	1.5321E-1	3.0697		3.0671	-0.0026	-0.086			
78	1511.0	1.94606E-1	4.6520		4.6467	-0.0052	-0.112			
79	2013.0	2.26707E-1	6.1975		6.1728	-0.0247	-0.398			
80	2500.0	2.53014E-1	7.6968		7.6559	-0.0409	-0.531			
81	3027.0	2.7769E-1	9.3193		9.2728	-0.0465	-0.498			
82	4932.0	3.45034E-1	15.1838		15.1920	0.0082	0.054			
83	10040.0	4.40696E-1	30.9094		30.7731	-0.1364	-0.441			
84	19860.0	5.17216E-1	61.1416		60.9428	-0.1987	-0.325			
85	29560.0	5.50978E-1	91.0071		90.8077	-0.1993	-0.219			
86	0.0	0E0	0.0000		0.0000	0.0000	0.000			
87	86.4	2.41205E-2	0.2660		0.2673	0.0013	0.480			
88	198.7	4.90017E-2	0.6118		0.6086	-0.0031	-0.514			
89	296.7	6.7087E-2	0.9135		0.9064	-0.0070	-0.771			
90	406.9	8.4682E-2	1.2527		1.2420	-0.0107	-0.852			
91	499.5	9.78532E-2	1.5378		1.5258	-0.0120	-0.780			
92	601.1	1.11004E-1	1.8506		1.8390	-0.0116	-0.624			
93	750.9	1.28359E-1	2.3117		2.3012	-0.0106	-0.458			
94	997.1	1.5303E-1	3.0697		3.0611	-0.0086	-0.281			
95	1511.0	1.94405E-1	4.6518		4.6381	-0.0138	-0.296			
96	2013.0	2.26523E-1	6.1973		6.1632	-0.0341	-0.551			
97	2500.0	2.52845E-1	7.6966		7.6456	-0.0510	-0.662			
98	3027.0	2.77496E-1	9.3190		9.2591	-0.0599	-0.643			
99	4932.0	3.44843E-1	15.1833		15.1712	-0.0121	-0.080			
100	10040.0	4.40534E-1	30.9094		30.7339	-0.1756	-0.568			
101	19860.0	5.1709E-1	61.1416		60.8617	-0.2798	-0.458			
102	29560.0	5.50898E-1	91.0071		90.7103	-0.2967	-0.326			

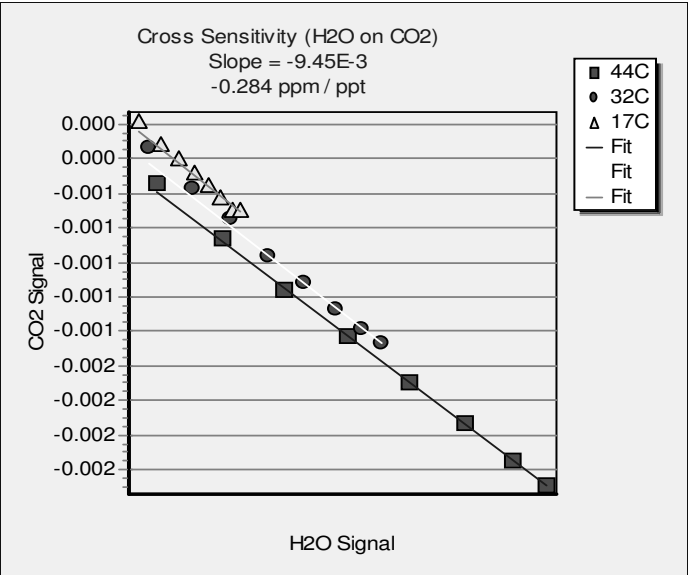
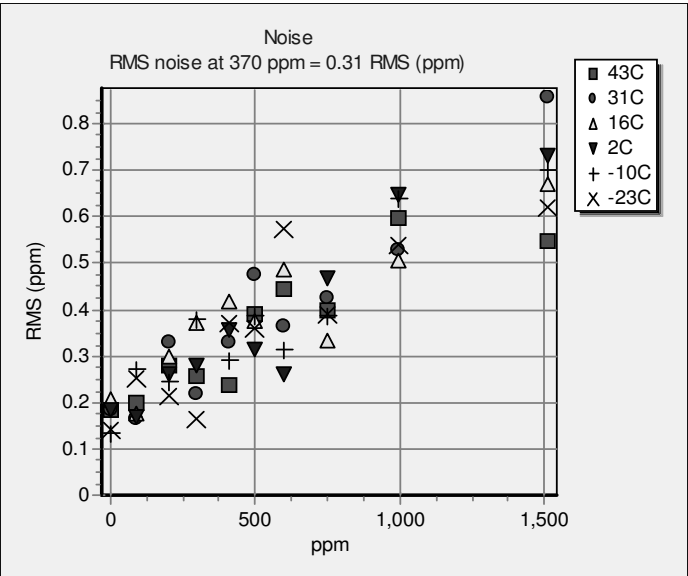
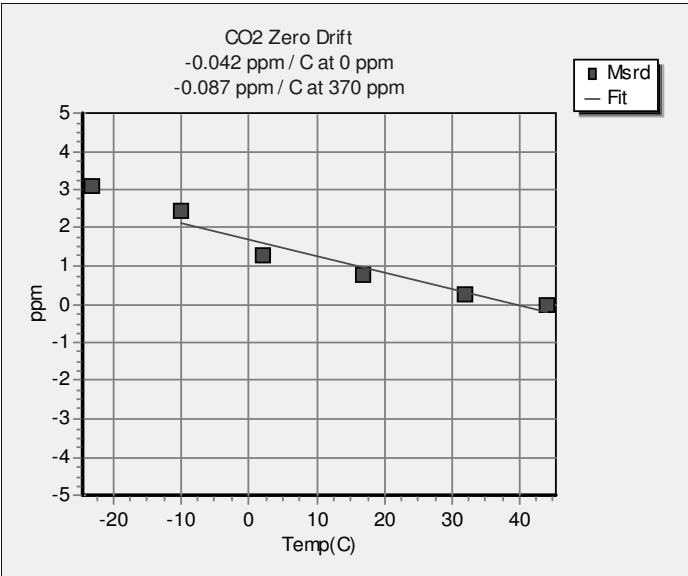
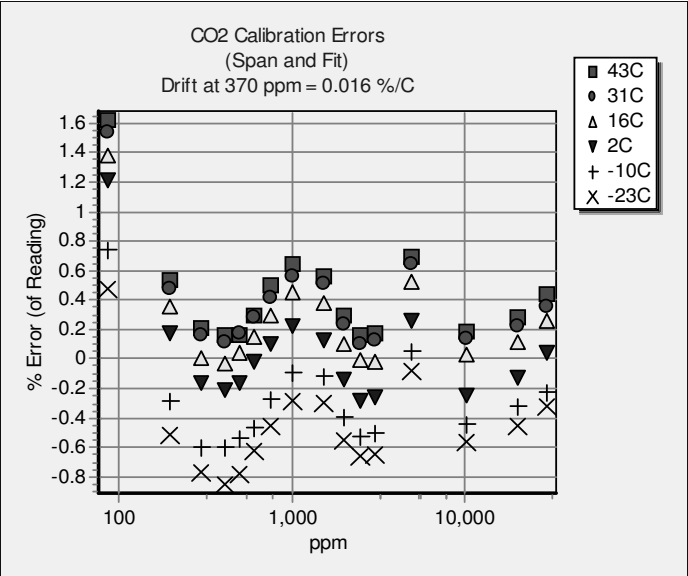
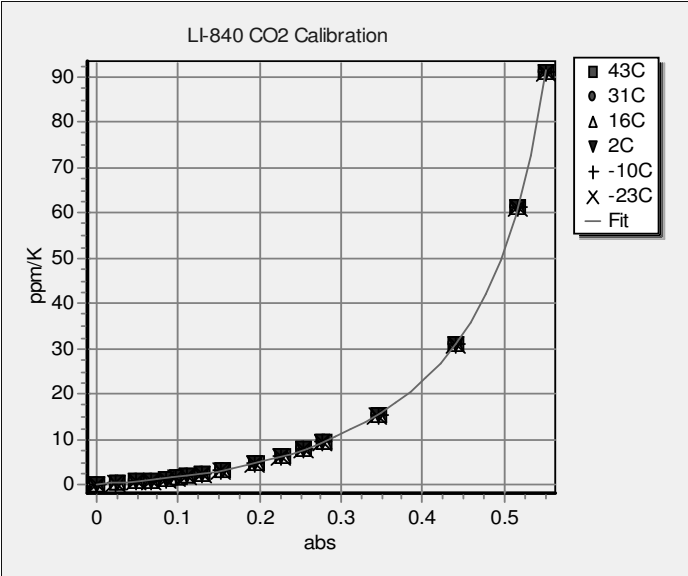
H2O Measurements

	Type	Time	H2O(C)	610kPa	610kPaSD	H2O(ppt)	RAW1	RAW2	RAW3	RAW4	CO2Abs	CO2AbsSD	H2OAbs	H2OAbsSD	H2OSlp	TOven(C)	T(C)	Pa(kPa)	Press	Fs(l/m)
1	H2O/84	18:54:02	-99.00	0.00	5.6E-4	0.00	3769836	4349442	2172570	3362955	0.00060	4.44E-5	0.00033	4.26E-5	-2.87E-5	44.80	51.63	95.57	95.72	0.501
2	H2O/84	19:17:11	4.47	18.96	4.1E-3	7.37	3768996	4343044	2048490	3361353	-0.00054	3.51E-5	0.05714	3.63E-5	-4.84E-5	44.80	51.63	95.55	95.71	0.239
3	H2O/84	19:21:03	13.43	19.12	4.0E-3	13.48	3767722	4340683	1980829	3361324	-0.00086	5.89E-5	0.08820	3.44E-5	-5.20E-5	44.70	51.63	95.57	95.72	0.239
4	H2O/84	19:25:51	20.11	19.46	5.7E-3	20.54	3766398	4337907	1917746	3361659	-0.00116	7.11E-5	0.11729	2.74E-5	-4.85E-5	44.80	51.63	95.58	95.73	0.239
5	H2O/84	19:30:24	25.92	19.84	4.1E-3	29.10	3764839	4334570	1852862	3361217	-0.00143	5.29E-5	0.14705	4.65E-5	-2.86E-5	44.80	51.64	95.57	95.73	0.239
6	H2O/84	19:34:51	30.90	20.24	6.0E-3	38.73	3762718	4331739	1789371	3360828	-0.00169	5.64E-5	0.17617	4.96E-5	1.13E-5	44.80	51.63	95.58	95.74	0.239
7	H2O/84	19:38:54	34.92	20.64	5.8E-3	48.40	3761578	4329394	1732531	3360636	-0.00193	3.97E-5	0.20229	3.17E-5	-7.44E-6	44.90	51.63	95.58	95.75	0.239
8	H2O/84	19:42:16	38.15	21.03	6.6E-3	57.54	3760452	4327516	1683094	3360497	-0.00215	4.23E-5	0.22498	3.51E-5	1.34E-5	44.80	51.63	95.58	95.76	0.239
9	H2O/84	19:45:18	40.32	21.32	4.3E-3	64.50	3759284	4324701	1647808	3359932	-0.00229	5.94E-5	0.24123	4.85E-5	-3.00E-5	44.90	51.63	95.58	95.75	0.239
10	H2O/84	21:35:49	-99.00	0.00	7.4E-4	0.00	3769759	4350124	2173083	3361723	0.00079	7.99E-5	-0.00019	4.88E-5	-1.01E-4	32.10	51.64	95.49	95.65	0.501
11	H2O/84	21:54:39	3.20	18.71	4.7E-3	6.76	3768859	4345134	2056531	3360935	-0.00033	4.33E-5	0.05321	4.75E-5	4.02E-5	32.10	51.64	95.49	95.65	0.239
12	H2O/84	21:58:04	9.62	18.81	3.5E-3	10.51	3768026	4342012	2012111	3360756	-0.00057	4.82E-5	0.07363	3.03E-5	-6.25E-6	32.00	51.63	95.49	95.65	0.239
13	H2O/84	22:01:20	14.40	18.97	4.5E-3	14.38	3767033	4340971	1972378	3360424	-0.00075	6.16E-5	0.09181	3.64E-5	-2.57E-5	32.10	51.63	95.49	95.65	0.239
14	H2O/84	22:04:46	18.62	19.17	4.7E-3	18.79	3766583	4338962	1932746	3360404	-0.00096	4.33E-5	0.11007	5.09E-5	-1.95E-5	32.00	51.63	95.48	95.65	0.239
15	H2O/84	22:07:56	22.06	19.36	4.3E-3	23.20	3765511	4336922	1896850	3360509	-0.00112	4.37E-5	0.12656	4.04E-5	-1.56E-5	32.10	51.63	95.48	95.64	0.239
16	H2O/84	22:11:17	25.04	19.56	4.6E-3	27.72	3765003	4335962	1863241	3360380	-0.00127	3.78E-5	0.14204	5.08E-5	-3.01E-5	32.00	51.63	95.47	95.63	0.239
17	H2O/84	22:14:20	27.19	19.71	4.2E-3	31.42	3764390	4334482	1837266	3360091	-0.00138	4.88E-5	0.15396	4.27E-5	2.93E-5	32.00	51.64	95.47	95.65	0.239
18	H2O/84	22:17:24	28.80	19.85	4.8E-3	34.47	3763745	4333524	1817114	3359987	-0.00147	5.44E-5	0.16329	3.92E-5	1.45E-5	32.10	51.63	95.46	95.64	0.239
19	H2O/84	23:58:40	-99.00	0.00	7.1E-4	0.00	3769900	4350274	2173388	3361048	0.00082	7.15E-5	-0.00054	6.15E-5	9.99E-7	17.20	51.65	95.37	95.55	0.500
20	H2O/84	00:14:58	1.71	18.32	5.5E-3	6.11	3768364	4344854	2065761	3360400	-0.00018	6.21E-5	0.04872	4.66E-5	-3.54E-5	17.20	51.64	95.35	95.49	0.239
21	H2O/84	00:18:01	5.15	18.39	4.4E-3	7.78	3768693	4343972	2044429	3360331	-0.00031	4.92E-5	0.05862	3.93E-5	-2.58E-5	17.30	51.65	95.34	95.50	0.239
22	H2O/84	00:21:08	7.79	18.44	4.9E-3	9.33	3768166	4343434	2026031	3360173	-0.00040	5.13E-5	0.06706	3.49E-5	-3.14E-5	17.20	51.65	95.33	95.49	0.239
23	H2O/84	00:24:17	9.98	18.49	4.1E-3	10.82	3768096	4343027	2009619	3360473	-0.00048	4.71E-5	0.07466	4.47E-5	-3.49E-6	17.20	51.65	95.32	95.47	0.239
24	H2O/84	00:27:24	11.87	18.55	4.5E-3	12.25	3767672	4341623	1994445	3360032	-0.00055	5.83E-5	0.08160	4.22E-5	2.42E-5	17.00	51.65	95.31	95.47	0.239
25	H2O/84	00:30:32	13.25	18.61	4.9E-3	13.41	3767164	4341811	1982590	3360151	-0.00062	4.58E-5	0.08698	4.70E-5	2.03E-5	17.30	51.64	95.31	95.47	0.239
26	H2O/84	00:33:40	14.69	18.69	4.7E-3	14.72	3767096	4340469	1969881	3360320	-0.00069	5.57E-5	0.09282	3.35E-5	8.61E-6	17.30	51.64	95.31	95.48	0.239
27	H2O/84	00:36:59	15.57	18.75	3.7E-3	15.57	3766977	4341124	1961865	3360254	-0.00070	6.43E-5	0.09650	3.64E-5	3.59E-5	17.20	51.65	95.31	95.48	0.239

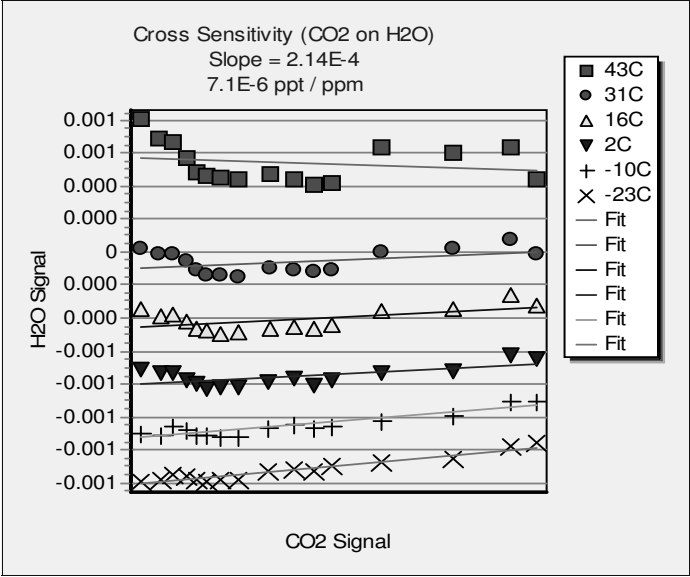
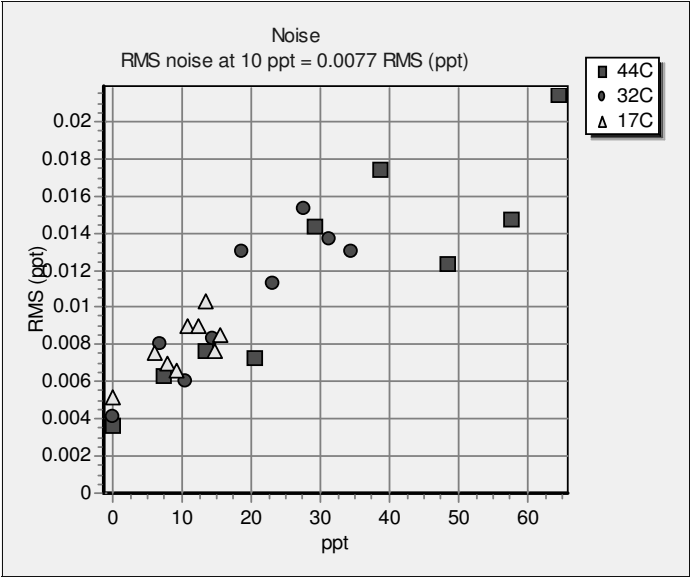
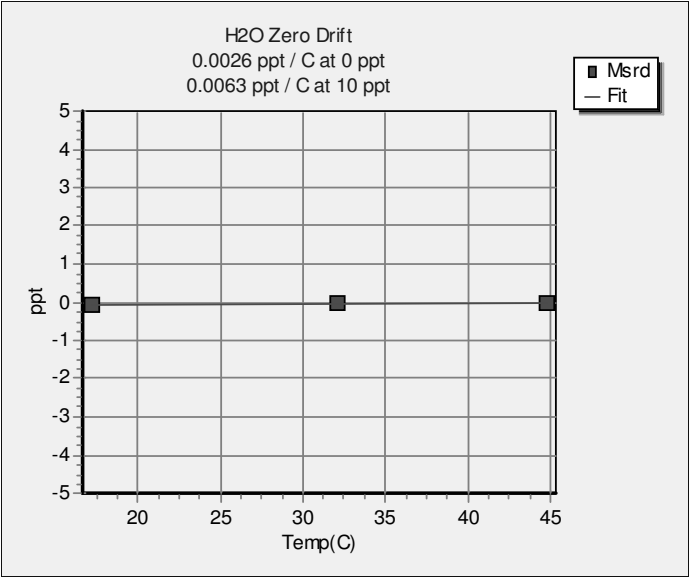
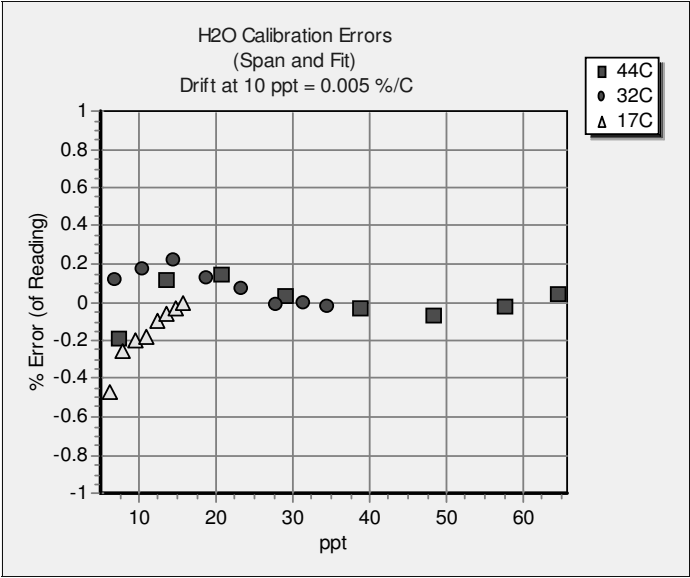
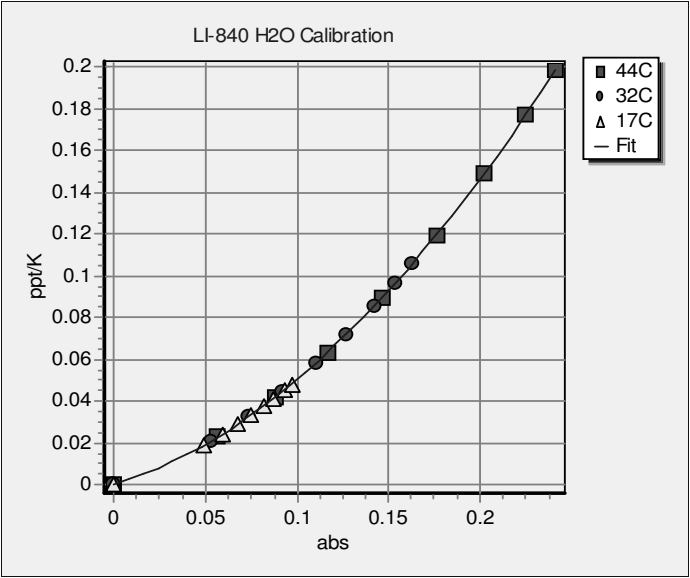
H2O Computations

Num	ppt	abs	ppt/K	Coeffs	Predicted	Error	%Error	Temp	Drift at 10 ppt	%/C
1	0.00	0E0	0.00000	0.260503	0.00000	0.00000	0.000	44C	-0.048	0.005
2	7.37	5.68288E-2	0.02269	2.45688	0.02265	-0.00004	-0.187	32C	0.180	
3	13.48	8.7899E-2	0.04151	-0.483464	0.04155	0.00005	0.113	17C	-0.170	
4	20.54	1.16999E-1	0.06324		0.06334	0.00009	0.147			
5	29.10	1.46768E-1	0.08960		0.08963	0.00003	0.036			
6	38.73	1.75898E-1	0.11925		0.11921	-0.00004	-0.036			
7	48.40	2.02027E-1	0.14902		0.14892	-0.00011	-0.070			
8	57.54	2.24724E-1	0.17717		0.17713	-0.00004	-0.021			
9	64.50	2.4098E-1	0.19860		0.19868	0.00009	0.044			
10	0.00	0E0	0.00000		0.00000	0.00000	0.000			
11	6.76	5.33899E-2	0.02081		0.02084	0.00002	0.118			
12	10.51	7.3806E-2	0.03236		0.03242	0.00006	0.171			
13	14.38	9.19825E-2	0.04428		0.04437	0.00010	0.218			
14	18.79	1.10239E-1	0.05785		0.05793	0.00007	0.126			
15	23.20	1.26726E-1	0.07143		0.07148	0.00005	0.072			
16	27.72	1.42203E-1	0.08535		0.08534	-0.00001	-0.016			
17	31.42	1.54121E-1	0.09674		0.09674	0.00000	-0.002			
18	34.47	1.63449E-1	0.10613		0.10610	-0.00003	-0.027			
19	0.00	0E0	0.00000		0.00000	0.00000	0.000			
20	6.11	4.92334E-2	0.01881		0.01872	-0.00009	-0.474			
21	7.78	5.91281E-2	0.02395		0.02389	-0.00006	-0.253			
22	9.33	6.75635E-2	0.02873		0.02867	-0.00006	-0.205			
23	10.82	7.51594E-2	0.03331		0.03325	-0.00006	-0.180			
24	12.25	8.20957E-2	0.03772		0.03768	-0.00004	-0.101			
25	13.41	8.74728E-2	0.04129		0.04126	-0.00003	-0.063			
26	14.72	9.33096E-2	0.04532		0.04531	-0.00002	-0.035			
27	15.57	9.69876E-2	0.04794		0.04794	0.00000	-0.004			

CO2 Calibration Plots

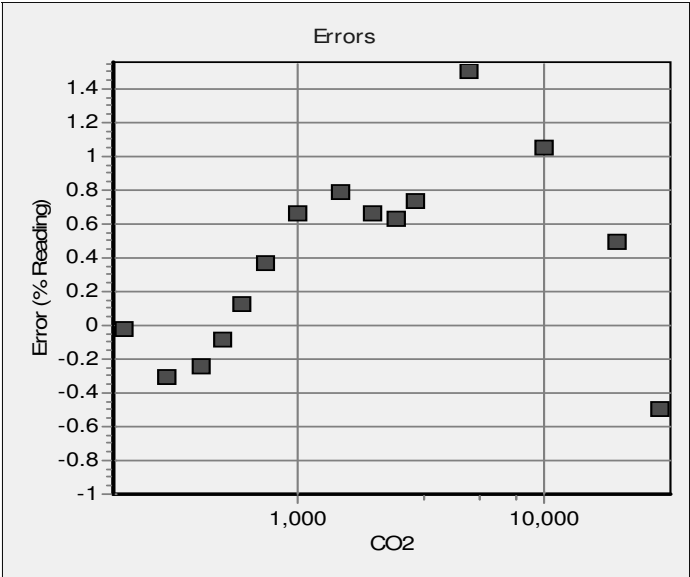
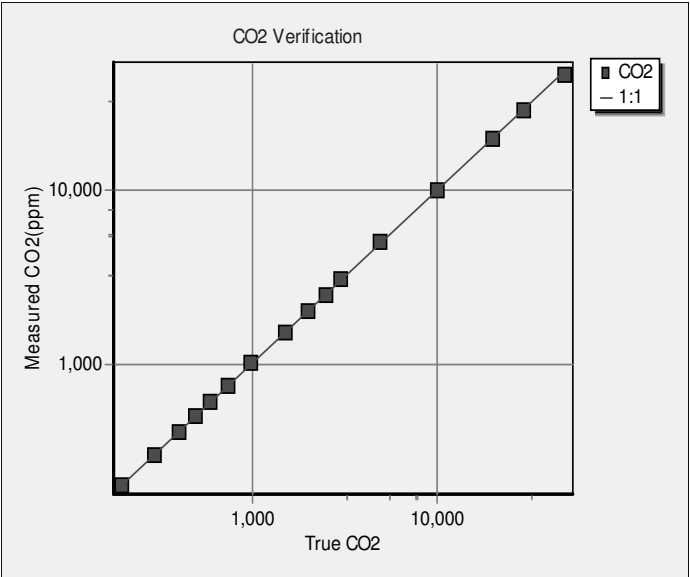


H2O Calibration Plots



CO2 Final Checkout. File = L:\MICHAEL\CALS\HGA\5043\20180413.fc

	Type	Time	CO2(ppm)	RAW1	RAW2	RAW3	RAW4	CO2Abs	CO2AbsSD	CO2Slp	CO2	CO2SD	H2OAbs	H2OAbsSD	H2O	H2OSD	TOven(C)	T(C)	Pa(kPa)	Press	Fs(l/m)
1	CO2/84	07:03:22	0	3772097	4351673	2174213	3361977	-0.00017	5.65E-5	-1.68E-5	-0.57	0.162	-0.00012	4.19E-5	-0.010	0.0035	23.60	51.64	95.08	95.24	0.711
2	CO2/84	07:05:21	198.7	3586940	4350389	2173501	3361539	0.04896	9.72E-5	1.19E-5	198.67	0.479	-0.00006	8.13E-5	-0.005	0.0069	23.00	51.64	95.08	95.23	0.589
3	CO2/84	07:07:52	296.7	3518620	4350195	2173401	3361268	0.06699	4.40E-5	7.96E-5	295.81	0.247	-0.00005	3.33E-5	-0.005	0.0029	22.50	51.64	95.09	95.23	0.581
4	CO2/84	07:09:37	406.9	3451936	4350399	2173566	3361270	0.08461	5.44E-5	2.52E-5	405.93	0.332	-0.00008	3.75E-5	-0.007	0.0023	22.10	51.64	95.09	95.24	0.588
5	CO2/84	07:11:19	499.5	3401718	4350397	2173061	3361138	0.09778	4.39E-5	8.96E-6	499.11	0.351	-0.00006	5.50E-5	-0.005	0.0031	21.80	51.64	95.10	95.23	0.419
6	CO2/84	07:13:14	601.1	3352535	4349937	2173130	3360619	0.11091	6.43E-5	1.46E-5	601.84	0.343	-0.00010	5.53E-5	-0.009	0.0037	21.40	51.64	95.10	95.23	0.425
7	CO2/84	07:15:29	750.9	3287008	4349732	2173185	3361083	0.12824	5.11E-5	-6.21E-5	753.66	0.469	-0.00008	5.79E-5	-0.007	0.0040	21.20	51.64	95.10	95.23	0.403
8	CO2/84	07:17:23	997.1	3193831	4349865	2172917	3360776	0.15290	5.22E-5	-1.46E-5	1003.70	0.459	-0.00009	3.67E-5	-0.008	0.0027	20.90	51.63	95.10	95.23	0.394
9	CO2/84	07:19:12	1511	3038468	4350283	2173034	3360722	0.19422	4.64E-5	-6.13E-5	1522.92	0.650	-0.00005	4.14E-5	-0.005	0.0028	20.70	51.64	95.10	95.23	0.398
10	CO2/84	07:20:57	2013	2917324	4350349	2172966	3360511	0.22633	4.31E-5	1.43E-5	2026.28	0.682	-0.00004	3.61E-5	-0.003	0.0030	20.60	51.64	95.10	95.23	0.435
11	CO2/84	07:22:47	2500	2817666	4349864	2172935	3360288	0.25263	6.02E-5	-3.25E-5	2515.79	0.761	-0.00007	4.13E-5	-0.006	0.0026	20.60	51.64	95.09	95.22	0.431
12	CO2/84	07:24:48	3027	2724752	4348979	2172544	3360295	0.27726	4.19E-5	-4.46E-5	3049.29	0.741	-0.00005	3.84E-5	-0.004	0.0031	20.60	51.65	95.09	95.22	0.444
13	CO2/84	07:26:31	4932	2470825	4349291	2172539	3359767	0.34460	3.59E-5	2.40E-5	5006.36	1.059	-0.00002	5.19E-5	-0.002	0.0037	20.50	51.64	95.09	95.22	0.420
14	CO2/84	07:28:03	10040	2110334	4349081	2172262	3359703	0.44026	3.14E-5	-2.57E-5	10146.18	2.199	-0.00001	4.67E-5	-0.001	0.0034	20.50	51.64	95.09	95.22	0.449
15	CO2/84	07:29:37	19860	1820851	4347766	2171762	3359377	0.51683	2.97E-5	2.08E-5	19958.89	5.176	0.00009	4.20E-5	0.008	0.0027	20.50	51.64	95.09	95.23	0.452
16	CO2/84	07:31:19	29560	1692915	4347125	2171999	3359654	0.55067	3.41E-5	-3.55E-5	29415.44	9.482	0.00008	3.99E-5	0.007	0.0030	20.50	51.64	95.10	95.26	0.762
17	CO2/84	07:32:55	48980	1576732	4346670	2171950	3360085	0.58153	3.90E-5	-8.36E-6	46896.95	31.162	0.00016	4.27E-5	0.014	0.0034	20.60	51.64	95.10	95.26	0.736



H2O Final Checkout. File = L:\MICHAEL\CALSHGA\5043\20180413.fc

	Type	Time	H2O(C)	610kPa	610kPaSD	H2O(ppt)	RAW1	RAW2	RAW3	RAW4	CO2Abs	CO2AbsSD	CO2	CO2SD	H2OAbs	H2OAbsSD	H2OSlp	H2O	H2OSD	TOvent(C)	T(C)	Pa(kPa)	Press	Fs(l/m)
1	H2O/84	07:39:48	-99.00	0.00	5.1E-4	0.00	3771326	4350436	2173611	3361097	-0.00011	6.19E-5	-0.34	0.167	-0.00002	4.03E-5	9.78E-6	-0.002	0.0039	20.70	51.64	95.11	95.24	0.501
2	H2O/84	07:58:14	11.99	16.95	2.4E-3	12.55	3767200	4342051	1991913	3360070	0.00001	4.52E-5	0.06	0.100	0.08335	4.16E-5	-7.23E-5	12.546	0.0080	20.90	51.64	95.14	95.27	0.226
3	H2O/84	08:03:03	19.99	17.35	4.5E-3	20.85	3765221	4338547	1916993	3359629	0.00005	5.47E-5	0.15	0.135	0.11777	5.80E-5	-7.77E-5	20.814	0.0117	20.90	51.64	95.13	95.27	0.226
4	H2O/84	08:08:03	14.99	17.29	1.1E-3	15.21	3766782	4341849	1965653	3360065	-0.00003	5.75E-5	-0.10	0.125	0.09539	3.20E-5	-9.79E-5	15.237	0.0072	20.80	51.64	95.14	95.27	0.226
5	H2O/84	08:12:31	9.98	17.17	2.1E-3	10.96	3767963	4343191	2008126	3359929	-0.00007	6.00E-5	-0.21	0.165	0.07585	5.21E-5	-1.23E-4	10.980	0.0079	20.90	51.64	95.13	95.27	0.226
6	H2O/84	08:17:05	5.00	17.08	1.3E-3	7.81	3768394	4344291	2044226	3360281	-0.00012	5.41E-5	-0.40	0.140	0.05925	4.40E-5	-3.50E-5	7.815	0.0058	20.90	51.65	95.12	95.26	0.226

