

## Transcription of Notebook Comments, CalNex 2nd Leg, BWB

**5/28/2010 ~22:00 UTC** - Begin CO2 flux data acquisition. G2000 set to CO2/H2O mode. G1301 measuring CO2 only with PermaPure nation dryer model PD-200T-24-mss. This dryer used for DMS flux on GASEX and VOCALS.

**Note: G2000 system clock is set to 7 hours behind UTC (PST).**

CO2 spike system solenoid valve replaced and set to run hourly at ~15 sec past the top of the hour. Valve sequencer software timing is not accurate. By trial and error determined that two step program with periods of 0.05 min (valve open) and 59.02 min (valve closed) is equal to 60 minutes GPS time +/- a second or so. Drift in timing seems minimal. The new valve does not seem to have a significant leak, but there's a slight tail after the spike for a couple minutes. Discarding first minute of each hour should be sufficient to eliminate residual effects from the spike.

**5/29/2010 16:20 UTC** - Adjusted equilibrator gas flow down from ~ 5000 sccm to ~4800 sccm.

**5/30/2010 16:15 UTC** - Gas regulator for CO2 spike system has failed. No outlet pressure. Borrow CO2 regulator from PMEL and restart spike system.

**21:30 UTC** - Change G2000 over to H2O/CH4 mode for Santa Barbara methane seep observations.

**5/31/2010 18:50 UTC** - Seeing a strange oscillation in the G2000 data. Stop and restart in H2O/CH4 mode.

**19:10 UTC** - Discover G2000 vacuum pump has been accidentally unplugged. Restart system. Data look fine now.

**6/1/2010 00:00 UTC** - Restart G2000 in CO2/H2O mode. Good conditions in MBL with stratocumulus deck above and moderate to strong winds from the NW. Not much pollution or evidence of emission plumes.

**17:30 UTC** - Seawater pCO2 system gas line has filled with seawater. Replaced filter again.

**22:00 UTC** - Entering Monterey Bay. Sea water very green in appearance. CO2 equilibrator foaming quite a bit.

**6/2/2010 00:35 UTC** - Water level in CO2 equilibrator has dropped (back pressure?). Water in the line again. Replace filter. Conclude the black tubing at the fitting on top of the equilibrator may extend too far down into the equilibrator and might be sucking up a bit of water or foam as it enters the chamber. Pulled the tube back a bit and retightened fittings.

**16:30 UTC** - Beginning transit from Monterey to SF. Stop both instruments and move the Nafion dryer from the G1301 to the G2000. Restart both systems in CO2/H2O mode.

**6/3/2010 00:15 UTC** - Entered SF bay. Stopped seawater flow to equilibrator, but leave system running. Flush equilibrator with DI water. Ship's clean seawater system now shut down.

**01:00 UTC** - Shut down both instruments and move Nafion dryer back to G1301 instrument.

**01:30 UTC** - Restart both systems. G2000 now running in CH4/CO2 mode for transit up bay and into Sacramento canal.

**22:00 UTC** - Cavity temperature of G2000 too high. Temp unlocked @ 27 deg C. Full sunlight and temps in the 80's. Bosun locker very warm due to sun on deck, so system is overheating a bit. Need to discard G2000 data for period when temperature is unlocked (21:30:08 to 23:54:15).

**6/4/2010 00:00 UTC** - Cooler temps with cloud cover. G2000 temperature locked. Data look OK.

**6/5/2010 15:00-16:00 UTC** - Install cell modem on G2000.

**23:38 UTC** - Restart G2000. Running in CO2 only mode.

**6/6/2010 10 03:26 UTC** - Shut down both instruments and inlet pump. Install Nafion air dryer on G2000. Both instruments now using PermaPure PD-200T-24-mss air dryers.

**03:48 UTC** - Restart both instruments in CO2 only mode.

**17:59 UTC** - Verizon cell modem software hung. Reboot and restart G2000 system.

**22:00 UTC** - Restart sea water flow to equilibrator. Will stop near the Farallon islands for a sea sweep, then continue to observation point near ship lane for overnight. Favorable conditions for CO2 test: background concentration levels without pollution of exhaust plumes, 5-10 m/s winds.

**6/7/2010 16:55 UTC** - Stop G3101 to configure file sharing and reboot.

15:58 - Extra CO2 spike when G1301 restarts.

**Timeline of G2000 operations: times are flux system file start times.**

5/14 (134) 16:00 UTC - 5/16 (136) 18:00 UTC	CO2/CH4
5/16 (136) 20:00 UTC - 5/17 (137) 02:00 UTC	CO2/H2O
5/17 (137) 04:00 UTC - 5/28 (148) 15:00 UTC	CO2/CH4
5/28 (148) 17:00 UTC - 5/30 (150) 20:00 UTC	CO2/H2O
5/30 (150) 22:00 UTC - 5/31 (151) 23:00 UTC	H2O/CH4
6/1 (152) 00:00 UTC - 6/2 (153) 16:00 UTC	CO2/H2O
6/2 (153) 17:00 UTC - 6/3 (154) 00:00 UTC	CO2/H2O with dryer
6/3 (154) 02:00 UTC - 6/3 (154) 20:00 UTC	CO2/CH4
6/4 (155) 00:00 UTC - 6/5 (156) 1700 UTC	CO2/CH4
6/5 (156) 19:00 UTC - 6/6 (157) 02:00 UTC	CO2 only
6/6 (157) 04:00 UTC - end	CO2 only with dryer