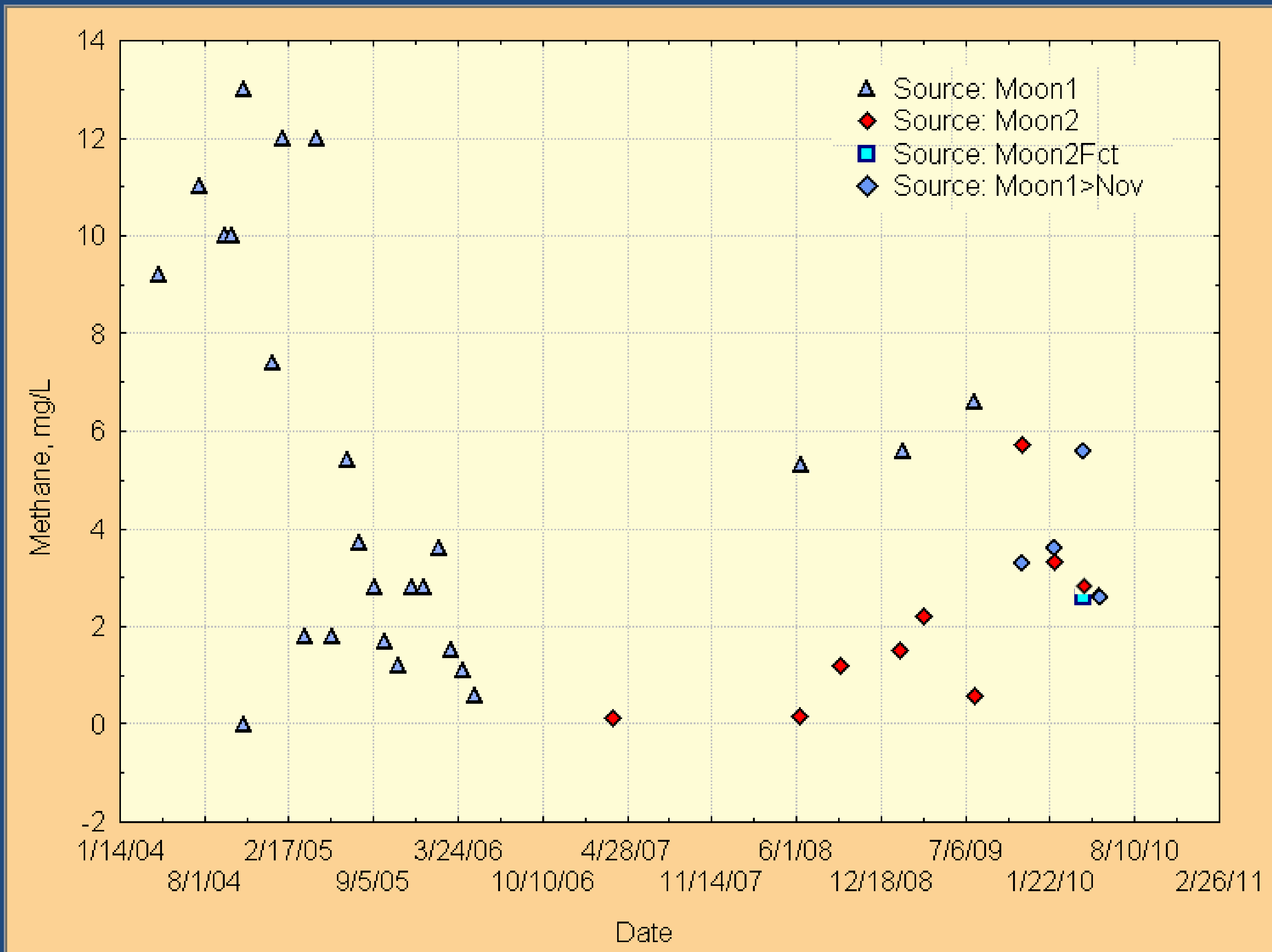
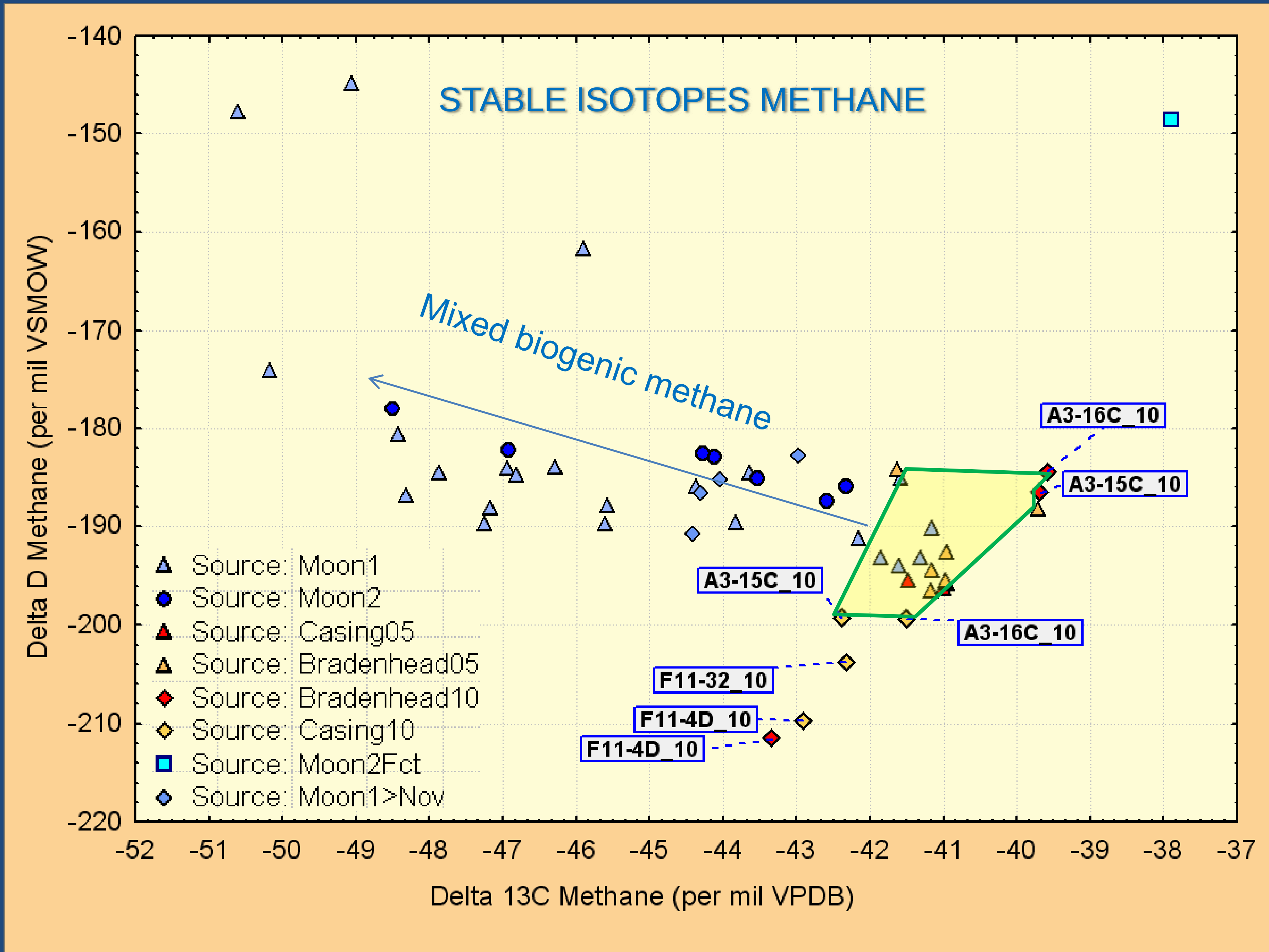
MOON & P3 PAD DATA: PRESENTATION TO COGCC

6/23/2010

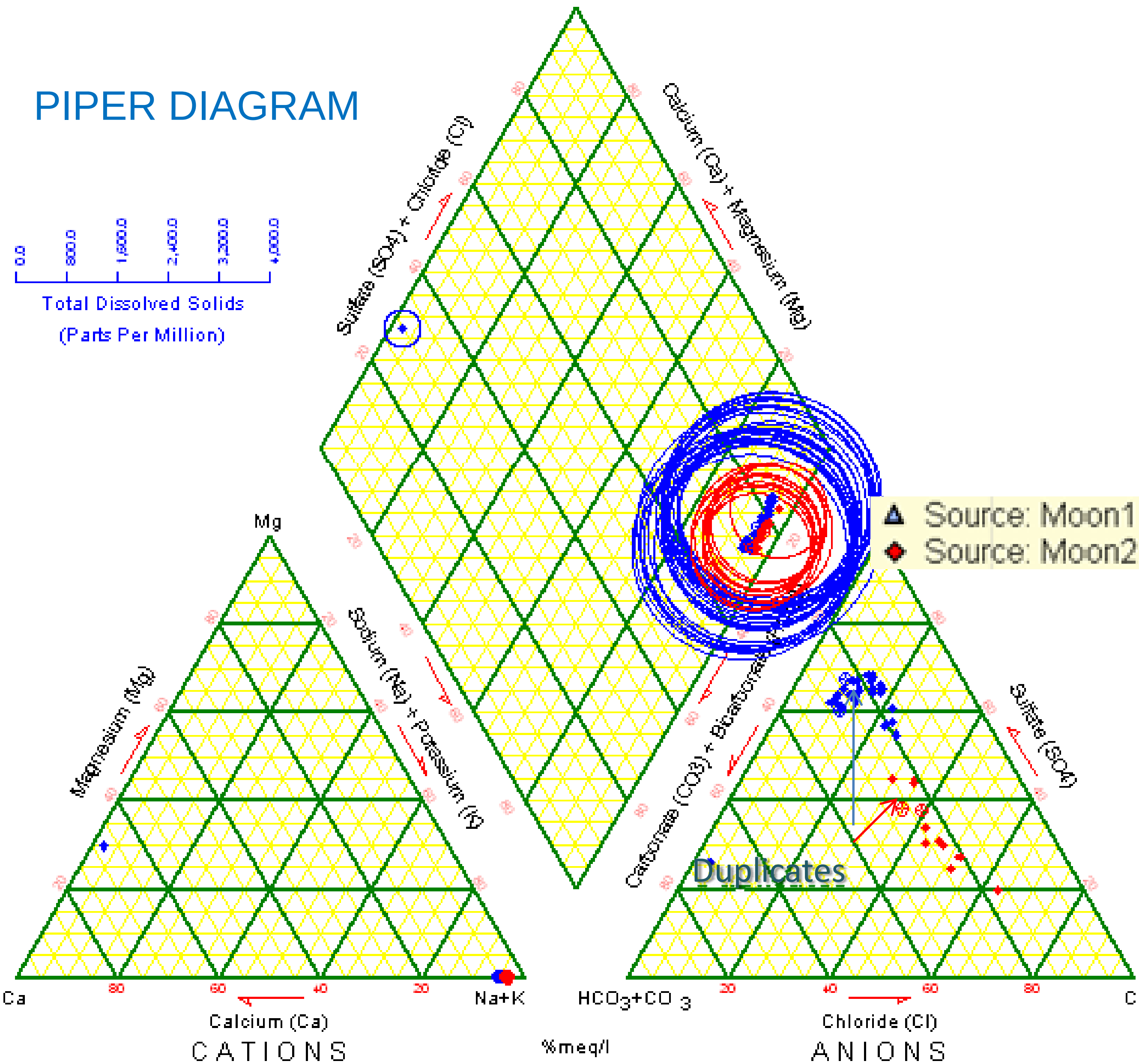
A. W. Gorody, Ph. D., P. G., C.P.G.

MOON 1 & 2 DISSOLVED METHANE HISTORY

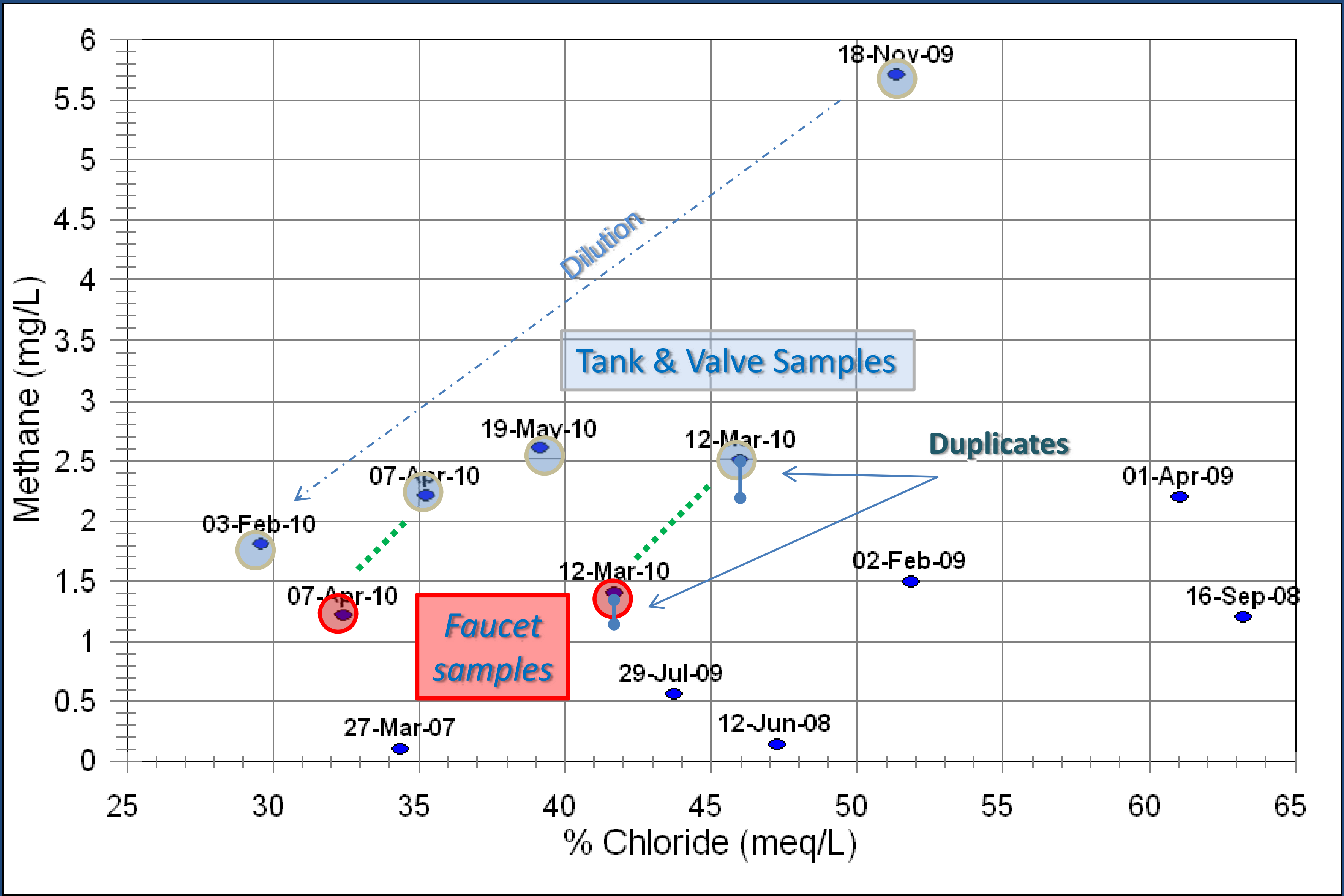


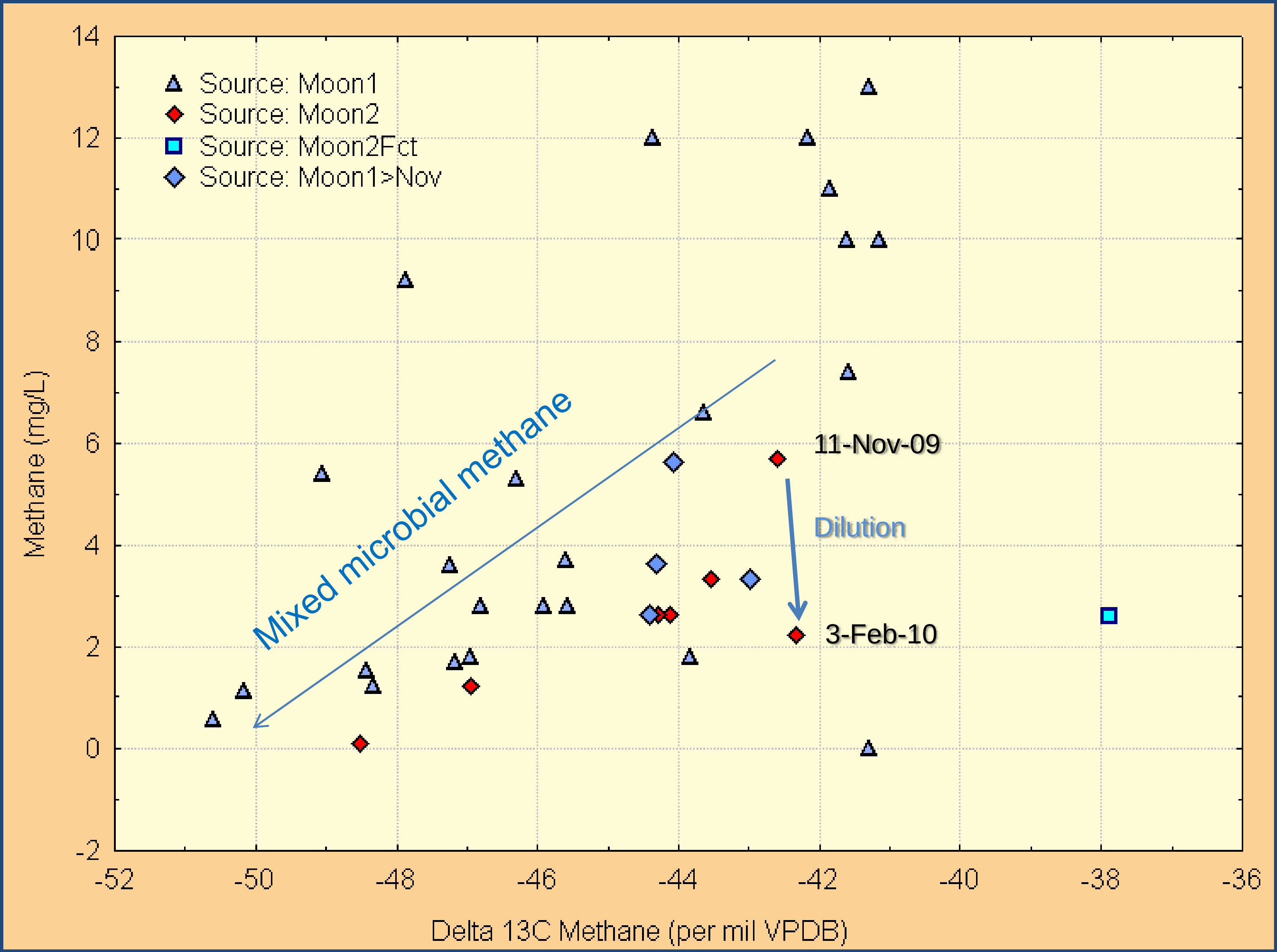

STABLE ISOTOPES METHANE
Mixed biogenic methane
A3-16C_10
A3-15C_10
A3-15C_10
A3-16C_10
F11-32_10
F11-4D_10
F11-4D_10
Source: Moon1
Source: Moon2
Source: Casing05
Source: Bradenhead05
Source: Bradenhead10
Source: Casing10
Source: Moon2Fct
Source: Moon1>Nov
Delta D Methane (per mil VSMOW)
Delta 13C Methane (per mil VPDB)
-140
-150
-160
-170
-180
-190
-200
-210
-220
-52
-51
-50
-49
-48
-47
-46
-45
-44
-43
-42
-41
-40
-39
-38
-37

PIPER DIAGRAM

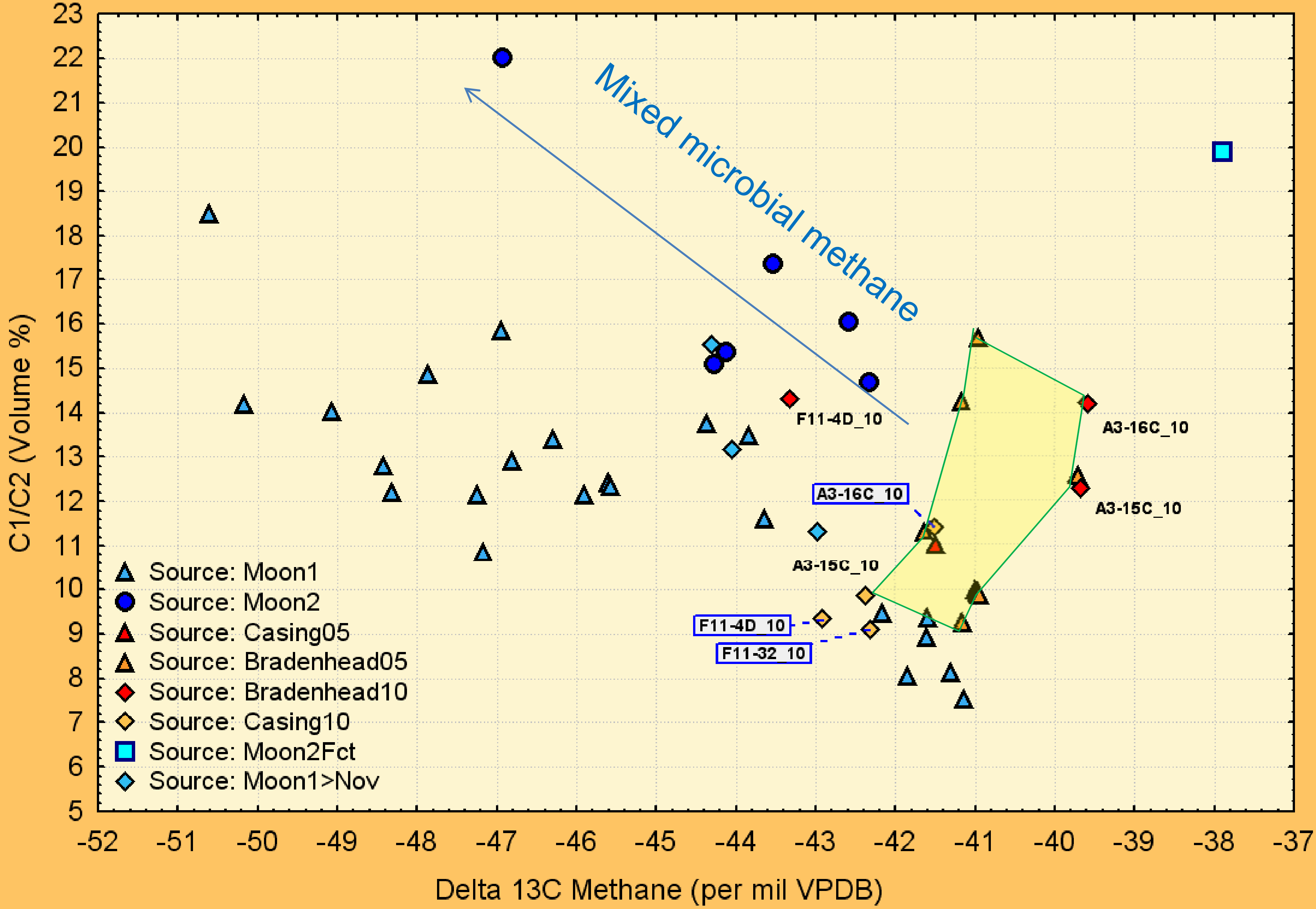


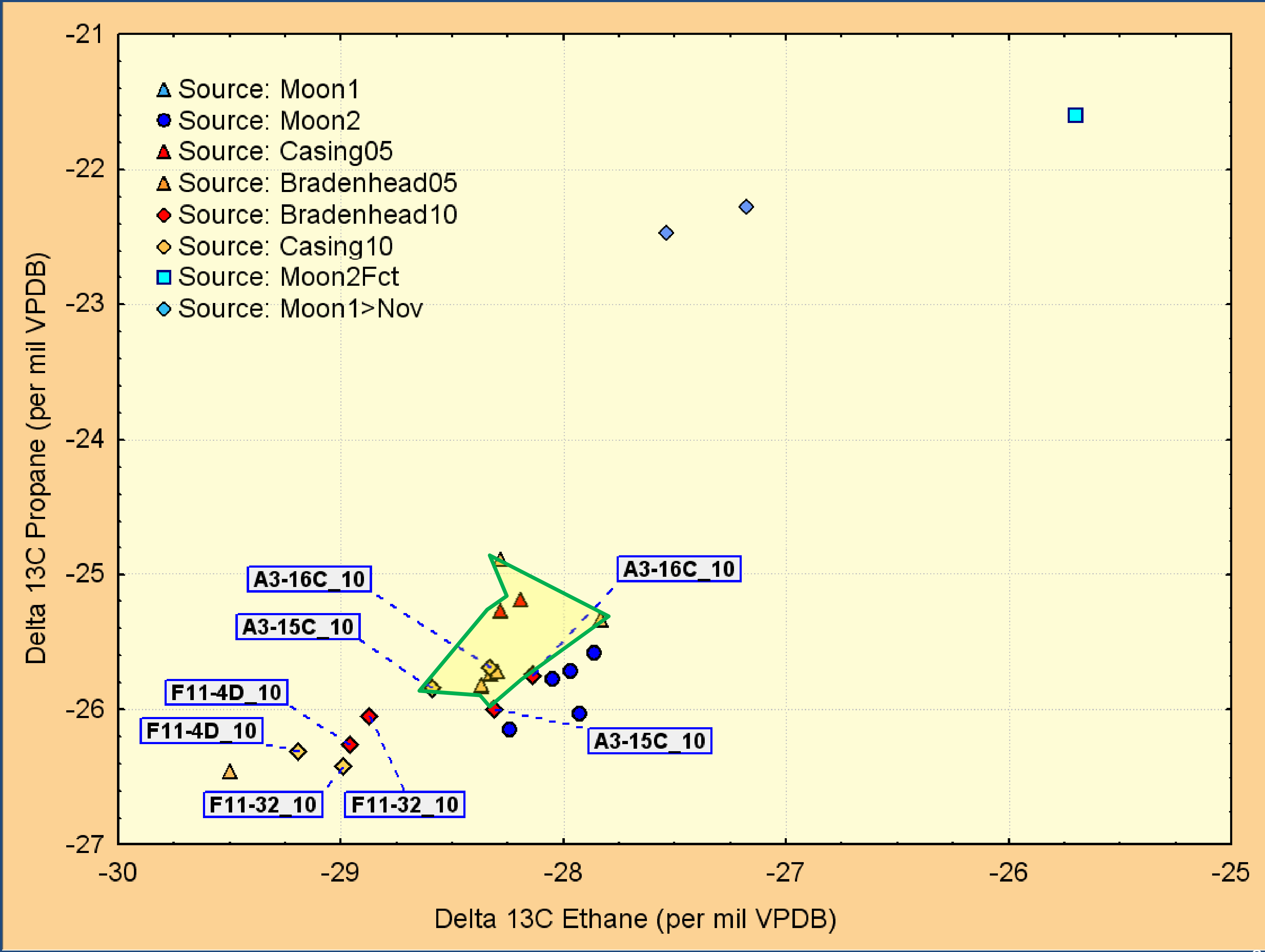
MOON 2 DISSOLVED METHANE



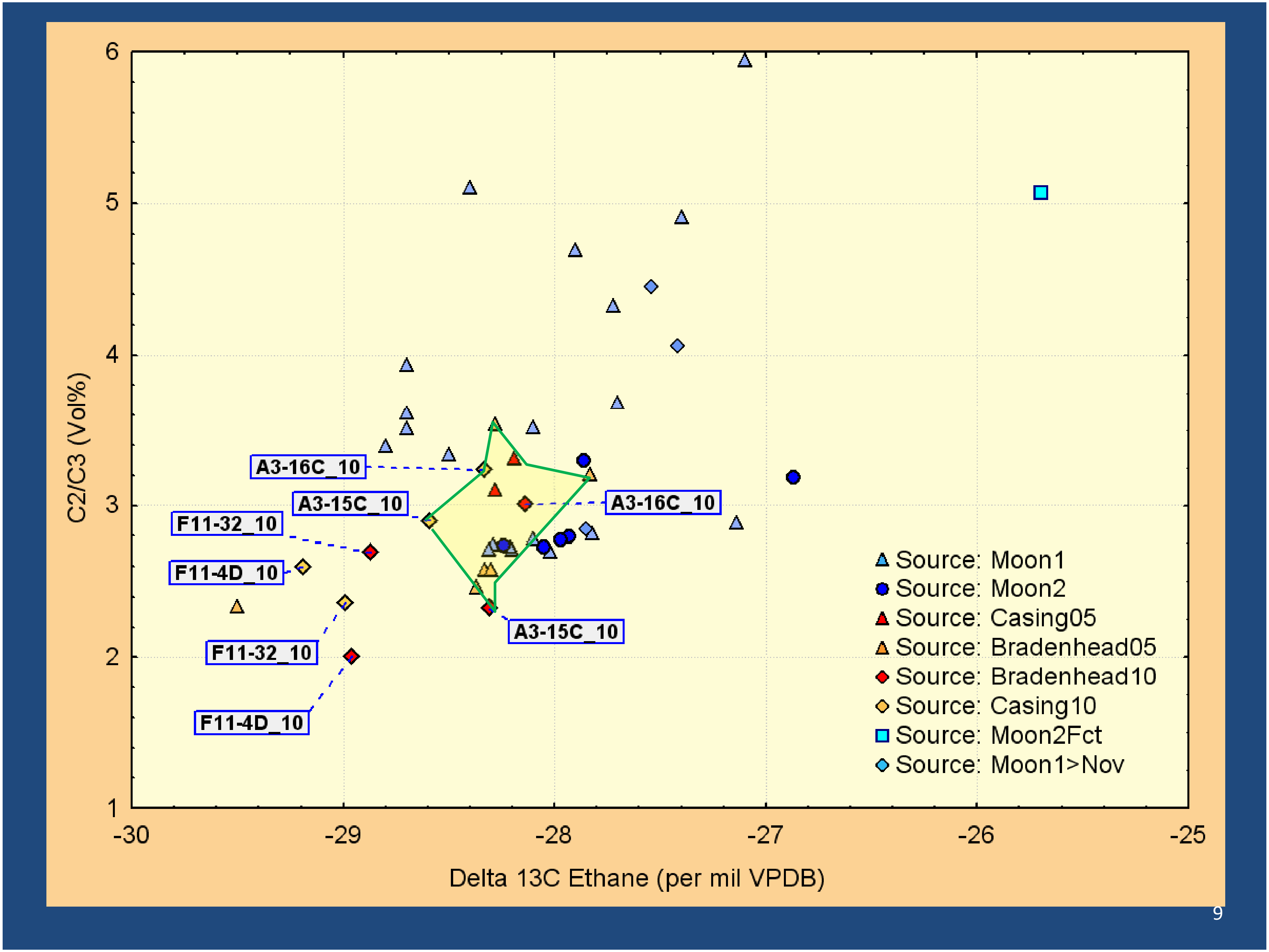


Source: Moon1
Source: Moon2
Source: Moon2Fct
Source: Moon1>Nov
Mixed microbial methane
11-Nov-09
Dilution
3-Feb-10
Methane (mg/L)
Delta 13C Methane (per mil VPDB)
14
12
10
8
6
4
2
0
-2
-52
-50
-48
-46
-44
-42
-40
-38
-36

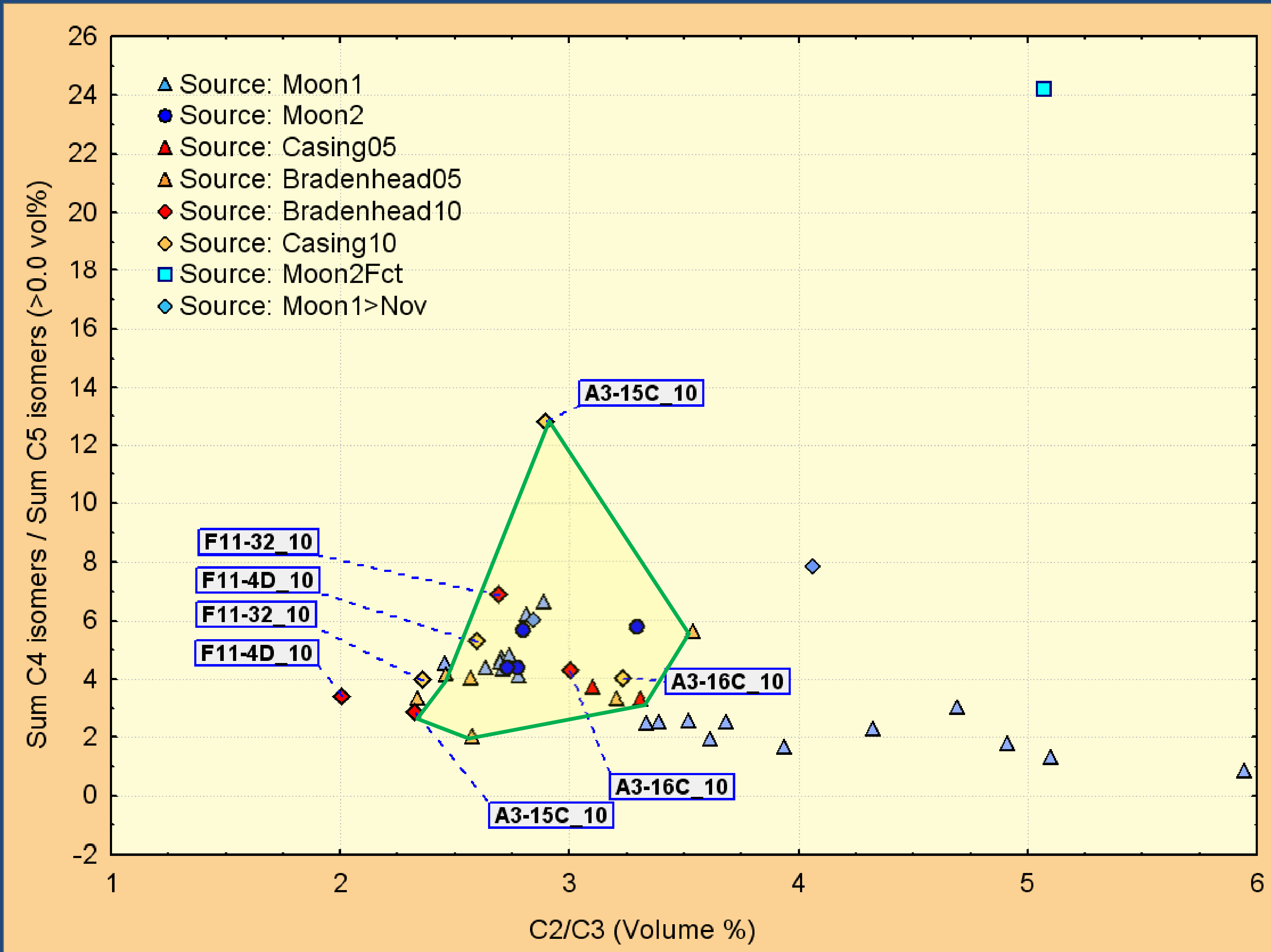

Mixed microbial methane
C1/C2 (Volume %)
Delta 13C Methane (per mil VPDB)
F11-4D_10
A3-16C_10
A3-15C_10
A3-16C_10
A3-15C_10
F11-4D_10
F11-32_10
Source: Moon1
Source: Moon2
Source: Casing05
Source: Bradenhead05
Source: Bradenhead10
Source: Casing10
Source: Moon2Fct
Source: Moon1>Nov



Source: Moon1
Source: Moon2
Source: Casing05
Source: Bradenhead05
Source: Bradenhead10
Source: Casing10
Source: Moon2Fct
Source: Moon1>Nov
A3-16C_10
A3-16C_10
A3-15C_10
A3-15C_10
F11-4D_10
F11-4D_10
F11-32_10
F11-32_10
-21
-22
-23
-24
-25
-26
-27
-30
-29
-28
-27
-26
-25
Delta 13C Propane (per mil VPDB)
Delta 13C Ethane (per mil VPDB)



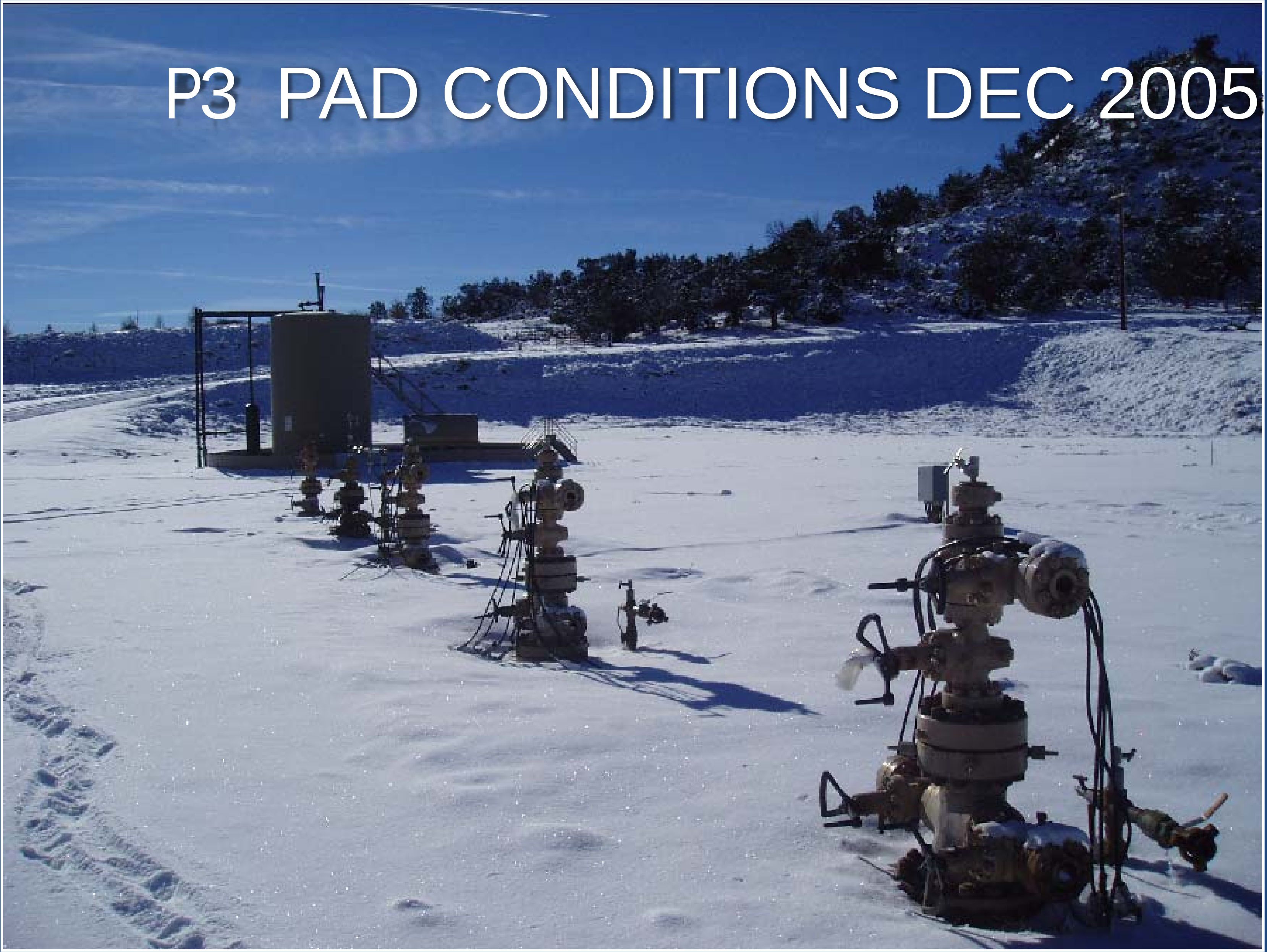
C2/C3 (Vol%)
Delta 13C Ethane (per mil VPDB)
6
5
4
3
2
1
-30
-29
-28
-27
-26
-25
A3-16C_10
A3-15C_10
F11-32_10
F11-4D_10
A3-16C_10
A3-15C_10
F11-32_10
F11-4D_10
Source: Moon1
Source: Moon2
Source: Casing05
Source: Bradenhead05
Source: Bradenhead10
Source: Casing10
Source: Moon2Fct
Source: Moon1>Nov



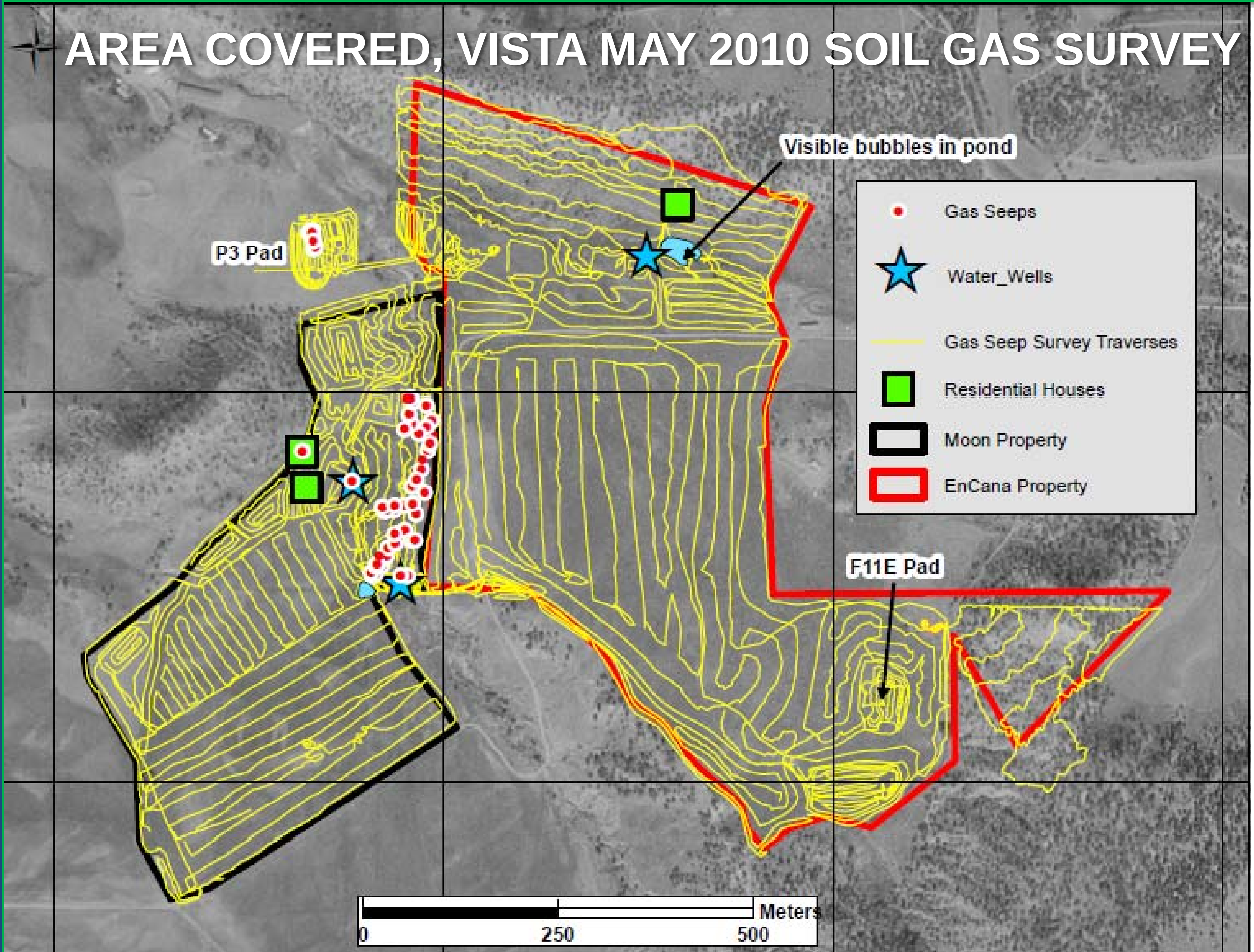
Source: Moon1
Source: Moon2
Source: Casing05
Source: Bradenhead05
Source: Bradenhead10
Source: Casing10
Source: Moon2Fct
Source: Moon1>Nov
A3-15C_10
F11-32_10
F11-4D_10
F11-32_10
F11-4D_10
A3-16C_10
A3-16C_10
A3-15C_10
Sum C4 isomers / Sum C5 isomers (>0.0 vol%)
C2/C3 (Volume %)
26
24
22
20
18
16
14
12
10
8
6
4
2
0
-2
1
2
3
4
5
6

SEQUENCE OF SEEP EVENTS

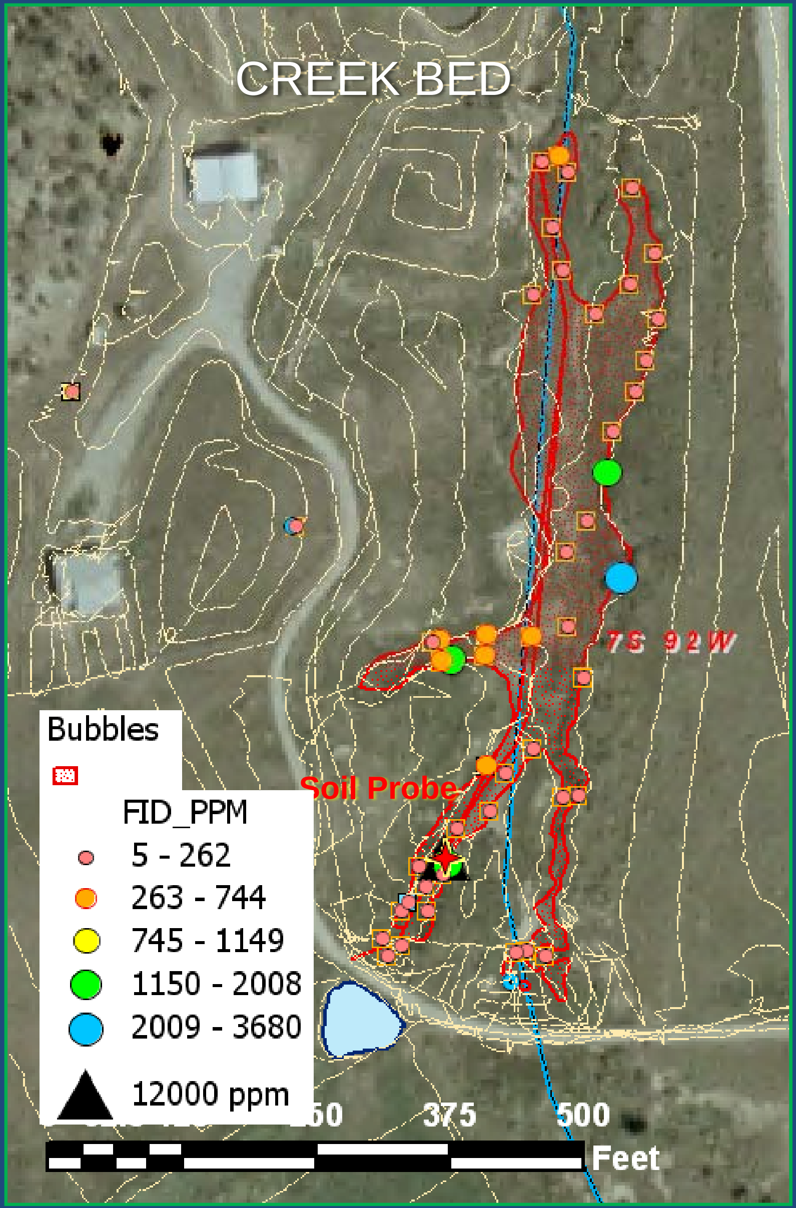
- 9/20/2004 Jamie Adkins observes bubbles at P3 Pad
- 10/1/2004 ESN soil gas survey around P3 pad and D. Well
  - 5 seeps detected Dietrich property along creek 37-175 pmm range
  - One soil probe with 100% hydrocarbon headspace in creek bed
  - 5 seeps found within P3 pad Max >50,000 ppm
- 10/29 Gorody report: gas sources from P3 pad, not Schwartz
- Fall-Winter 2004 Remedial cementing P3 Pad
- Jan-Feb 2005 Follow up soil gas survey
  - 5 prior seeps no longer evident, only 1 seep with 1 ppm
  - 3 residual gas seeps detected on P3 pad, Max 15,000 ppm
- 3/20/05 Gorody report: remediation successful
- Dec 2005 Third P3 pad Dietrich well survey
  - Dissolved hydrocarbons in water well to < 2 ppm
  - 1 creek soil probe with 900 ppm FID, 6 ppm PID
  - 1 soil probe P3 pad near Magic 10-1A 700,000 ppm

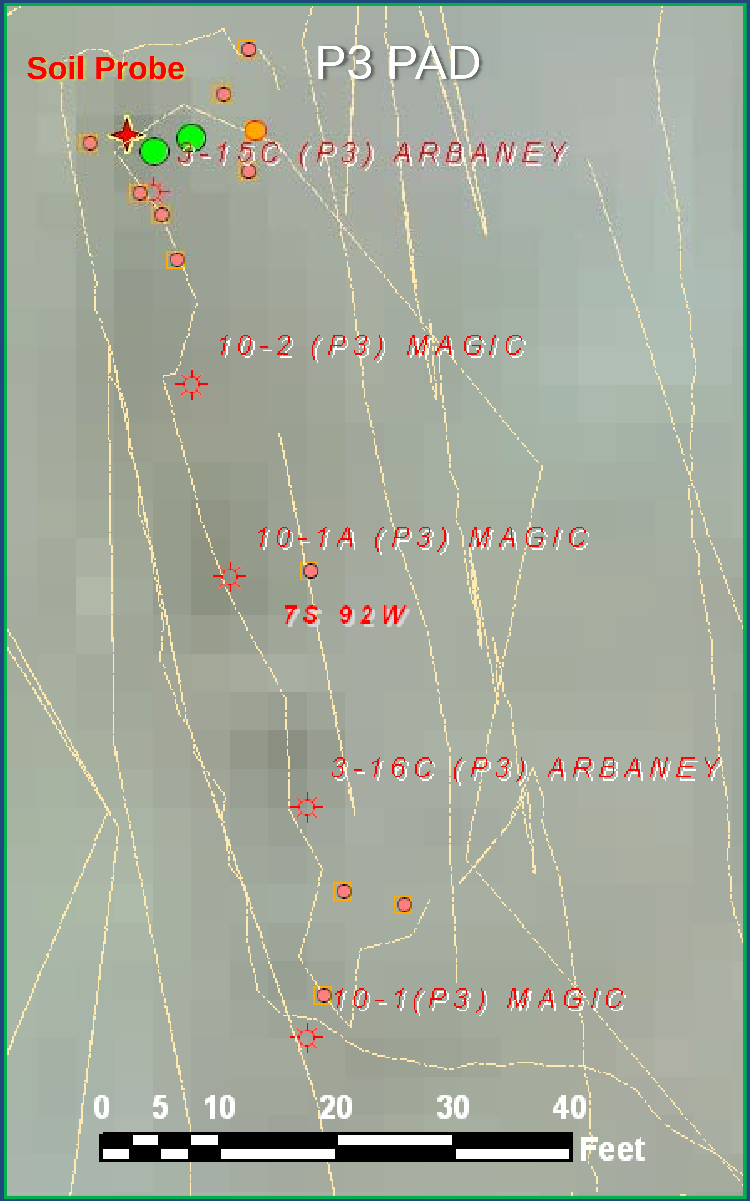

P3 PAD CONDITIONS DEC 2005

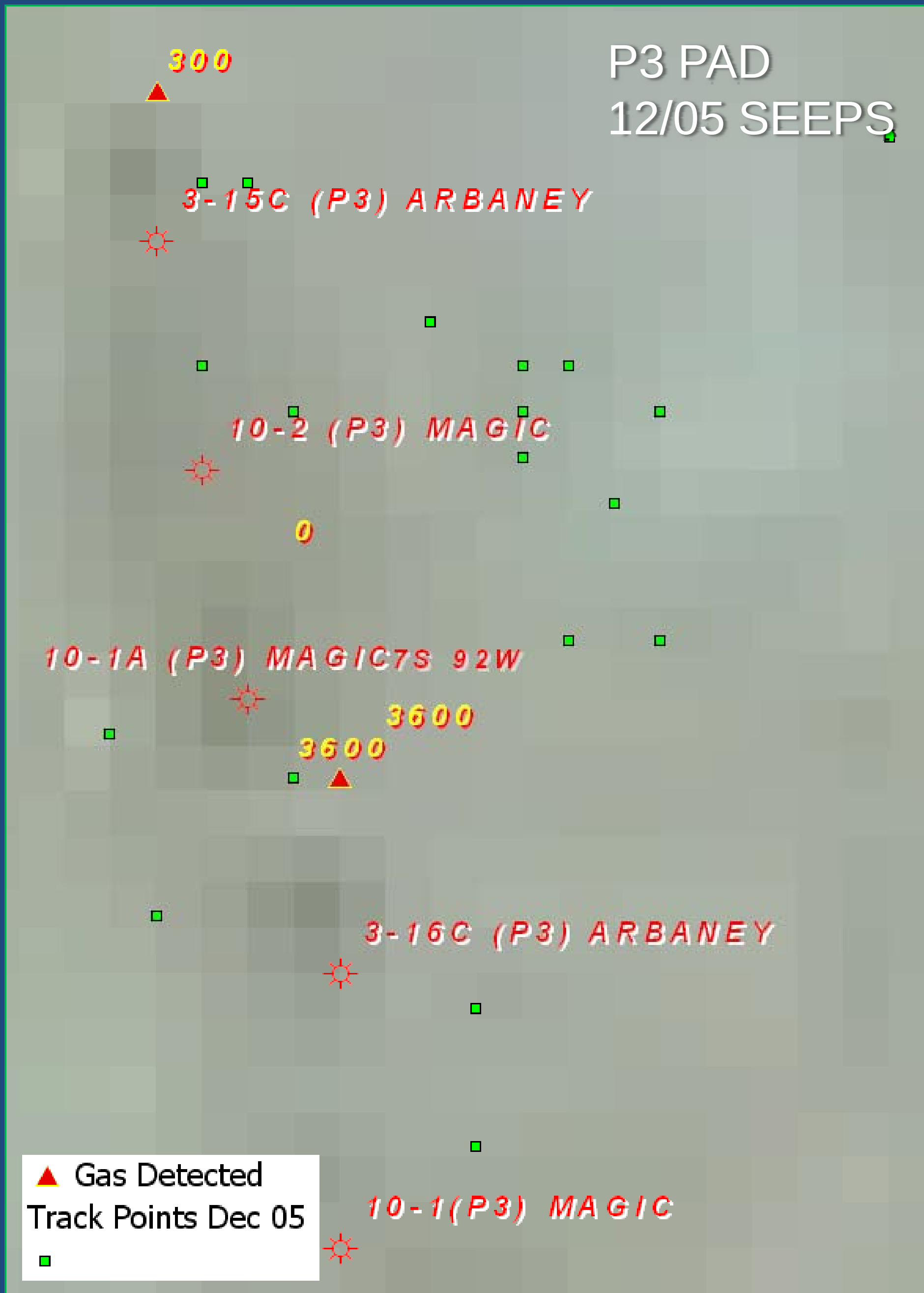
AREA COVERED, VISTA MAY 2010 SOIL GAS SURVEY

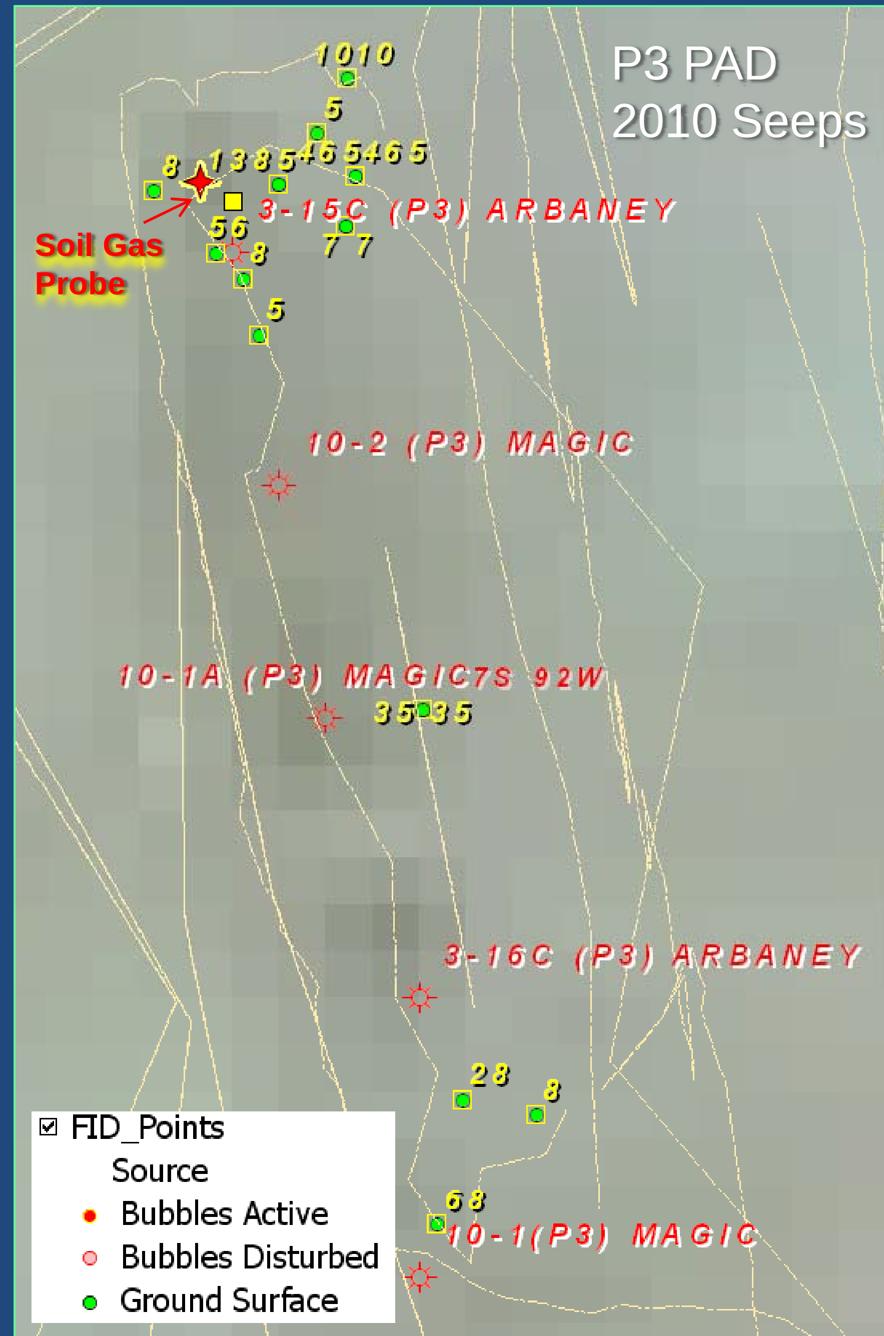


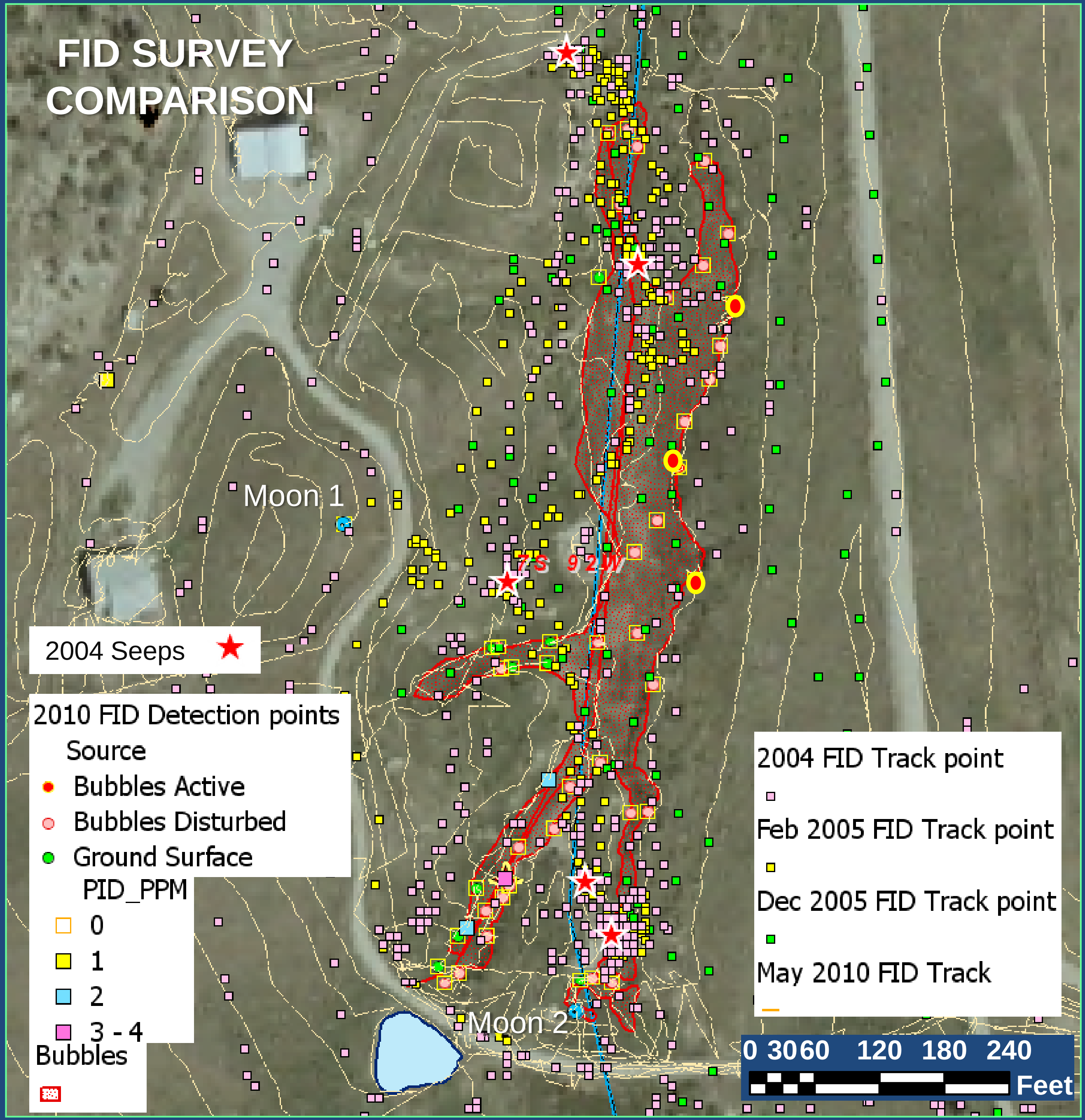
2010 SOIL GAS SURVEY SEEP INTENSITY (ppm)



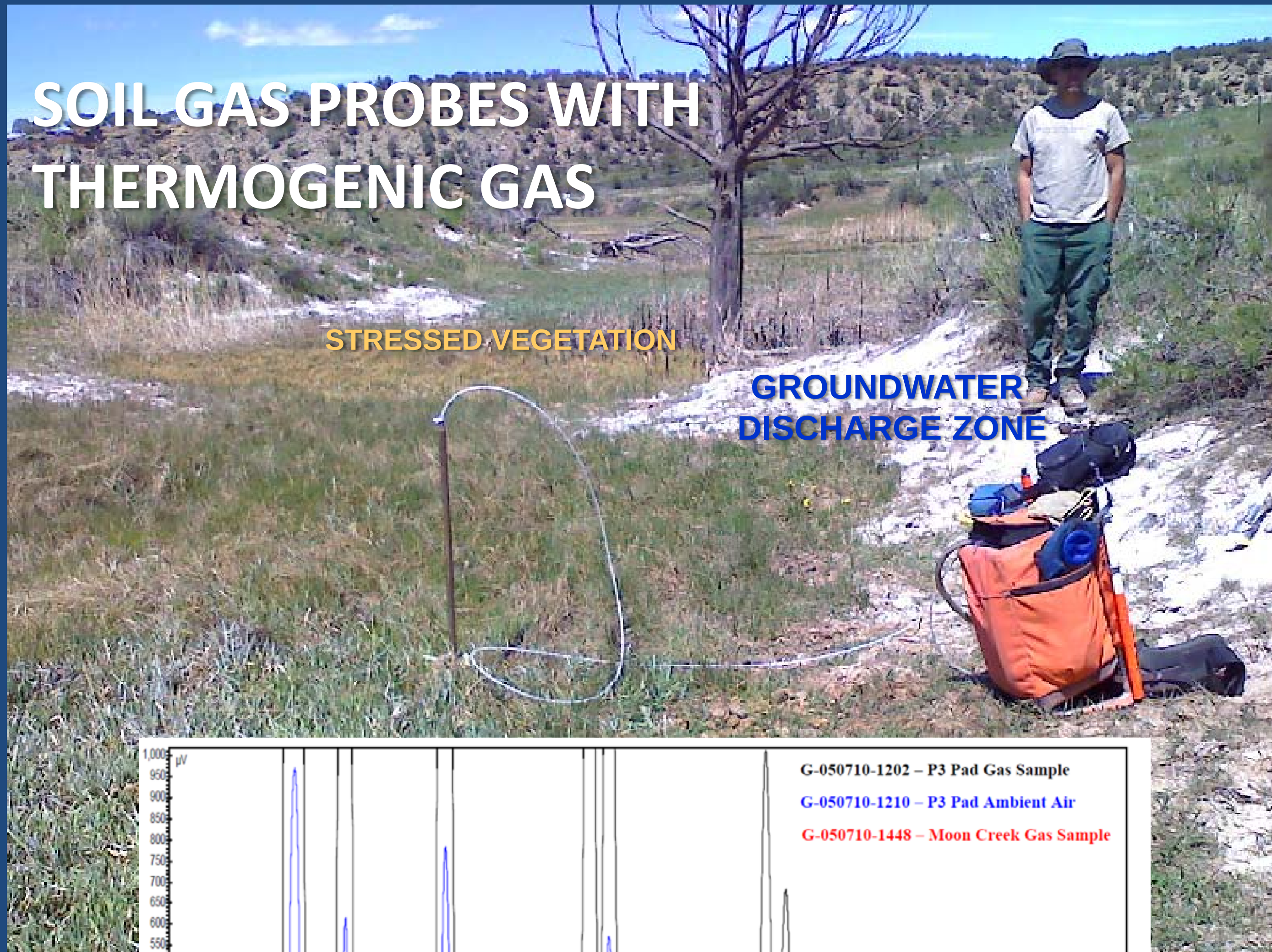


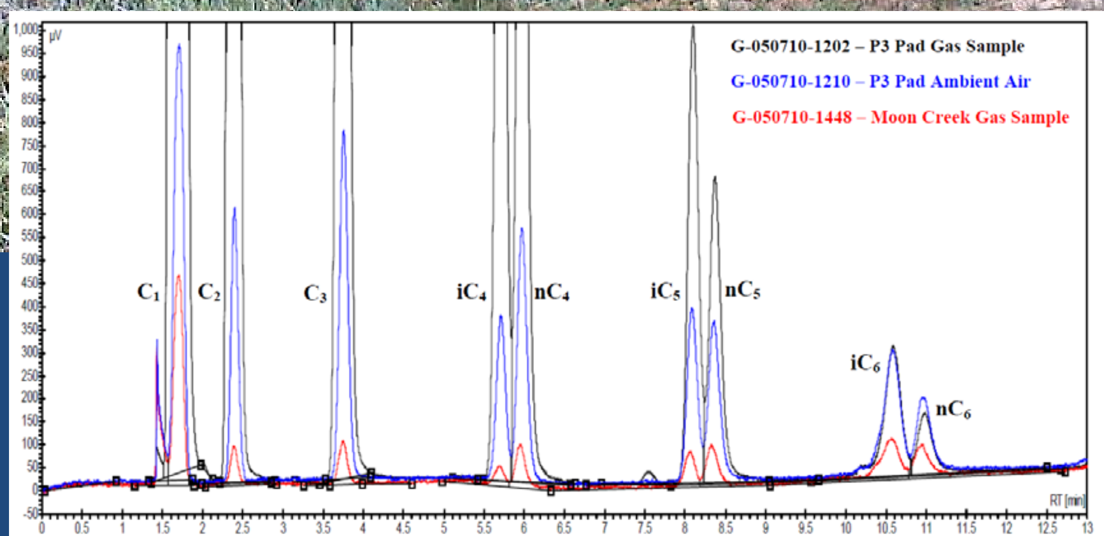

P3 PAD
12/05 SEEPS
300
3-15C (P3) ARBANEY
10-2 (P3) MAGIC
0
10-1A (P3) MAGIC7S 92W
3600
3600
3-16C (P3) ARBANEY
10-1(P3) MAGIC
Gas Detected
Track Points Dec 05


P3 PAD
2010 Seeps
1010
5
8
1 3 8 5
46 5
5 4 6 5
3-15C (P3) ARBANEY
5 6
8
7 7
Soil Gas
Probe
5
10-2 (P3) MAGIC
10-1A (P3) MAGIC7S 92W
3 5
3 5
3-16C (P3) ARBANEY
2 8
8
6 8
10-1(P3) MAGIC
FID_Points
Source
Bubbles Active
Bubbles Disturbed
Ground Surface


FID SURVEY COMPARISON
Moon 1
Moon 2
7S 92W
2004 Seeps
2010 FID Detection points
Source
Bubbles Active
Bubbles Disturbed
Ground Surface
PID_PPM
0
1
2
3 - 4
Bubbles
2004 FID Track point
Feb 2005 FID Track point
Dec 2005 FID Track point
May 2010 FID Track
0 30 60 120 180 240
Feet

SOIL GAS PROBES WITH THERMOGENIC GAS





VISTA GEOSCIENCE LABORATORY RESULTS

Comparison Soil Gas Seeps Within P3 PAD

MAP ID	Date	FID ppm	PID ppm	Date	FID ppm	PID ppm	DATE	FID ppm	PID ppm
P3 Magic 10-1	29-Sep-04	3900	1	01/27/05	64	4	08-Dec-05	0	0
P3 Arbany 3-16C	29-Sep-04	160	2	01/27/05	0	0	08-Dec-05	0	0
P3 Magic 10-1A	29-Sep-04	7800	4	01/27/05	0	0	08-Dec-05	3600	4
P3 Magic 10-2	29-Sep-04	>50000	>160	01/27/05	0	0	08-Dec-05	0	0
P3 Arbany 3-15C	29-Sep-04	21000	2	01/27/05	15000	5	08-Dec-05	300	0.09
Seep within pad				01/27/05	500	65		0	0

Soil Gas Probe Gas Concentration Within P3 PAD Dec 2005 (ppm)

Lab	Sample	Date	C1	C2	C2H4	C3	iC4	nC4	iC5	nC5	C6+
ESN	VP1(Arbaney 3-15C Soil Gas)	08-Dec-05	65.1	5.69	-999.9	2.35	0.66	0.68	0.91	1.07	1.41
ESN	VP1 Duplicate	08-Dec-05	12.6	0.72	-999.9	0.25	0.08	0.09	0.07	0.09	0.06
ESN	VP-2 (Magic 10-1A Soil Gas)	08-Dec-05	679000	55800	-999.9	21600	5050	4670	1720	1210	993
ESN	VP-2 Duplicate	08-Dec-05	709000	57900	-999.9	23200	5260	4970	1800	1340	1168

Soil Gas Probe Gas Concentration Creek (Dietrich) Dec 2005 (ppm)

Site	Methane	Ethane	Propane	iButane	nButane	iPentane	nPentane	iHexane	nHexane
VP3 (DS-1B)	10.3	0.440	0.170	0.200	0.610	0.0500	0.180	0.110	0.0500

Soil Gas Probe Gas Concentration & Isotopes Within P3 PAD Dec 2005 (Vol%)

Sample	Date	C1	C2	C2H4	C3	iC4	nC4	iC5	nC5	C6+	d13C1	dDC1	d13C2	d13C3
VP-1 (Arbaney 3-15C Soil Gas)	21-Dec-05	0.0068	0	0	0	0	0	0	0	0				
VP-2 (Magic 10-1A Soil Gas)	21-Dec-05	85.96	6.89	0	2.63	0.6	0.572	0.17	0.119	0.0807	-39.98	-182.5	-28.05	-25.53

Soil Gas Probe Gas Concentration & Isotopes 2010

Sample	Date	C1 ppm	C2 ppm	C3 ppm	IC4 ppm	NC4 ppm	iC5 ppm	NC5 ppm	C6+ ppm
G-050710-1202 (P3 -Pad - 4-foot deep soil gas)	10-May-10	55921	4337	1716	417	379	149	111	88
G-050710-1448 (4-foot deep creek sample)	10-May-10	3	0.24	0.19	0.08	0.16	0.12	0.15	0.38

Isotech	Sample	MS	d13C1	dDC1	d13C2	dDC2	d13C3
Lab No.	Name	date	‰	‰	‰	‰	‰
186648	G-050710-1202	05/26/10	-39.51	-185.5	-28.28	-147.5	-25.97