BC-NGA
Natural
Gas
Atlas

Biogeochemistry Facility
School of Earth & Ocean Sciences, UVic
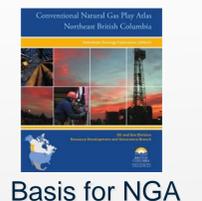
Geoscience BC

BC OGRIS
BC Oil and Gas Research and Innovation Society
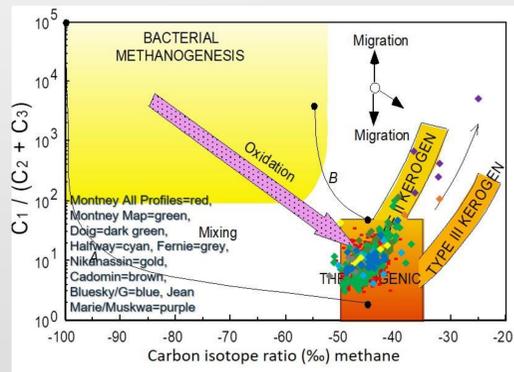
# Molecular Composition and Isotope Mapping of Natural Gas in NEBC
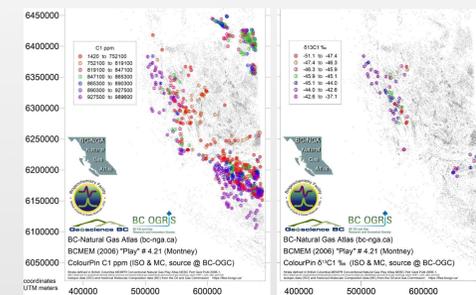## Geochemical Characterization - BC Natural Gas Atlas

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http://bcnga.com/BC-NGA_Home.html

Basis for NGA

Example Maps – Play 4.21 (Montney)

- BC-NGA captures the **molecular** and **stable isotope signatures** of natural gas to create maps and plots of geochemistry to:

- *Create a thorough, searchable, **open gas geochemical database** with **geochemical inventory** and **mapping** of natural gases in NEBC*
- *Characterize the **geochemical conditions** of BC's major ongoing and future regions of petroleum exploration and production*
- *Contribute to understanding the **geologic framework of natural gas deposits** at scales of fields to basin levels*
- *Make molecular and isotope **measurements** on new wells to fill in spatial and stratigraphic gaps – low cost analysis*
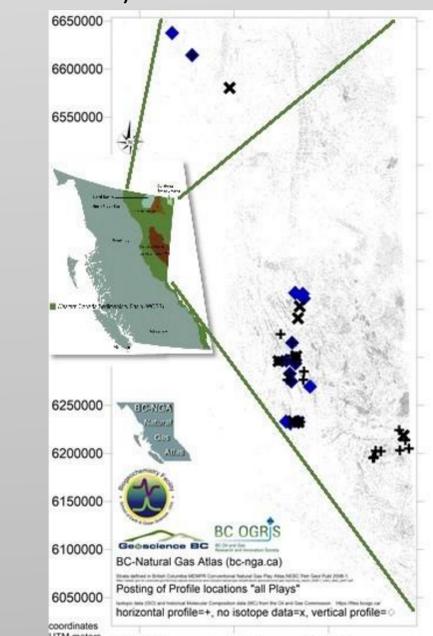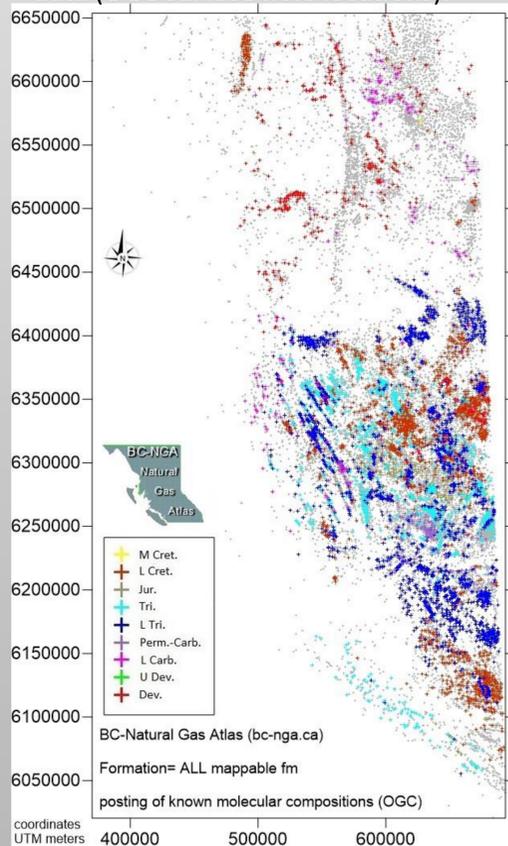
**Geochemistry diagrams (crossplots) for selected plays in NEBC – data is from the OGC public record.**
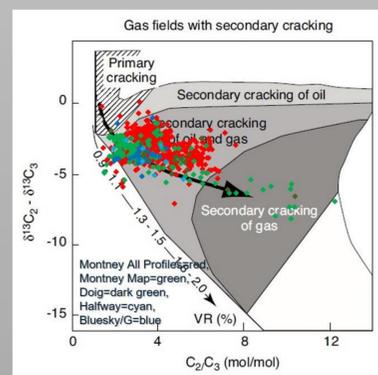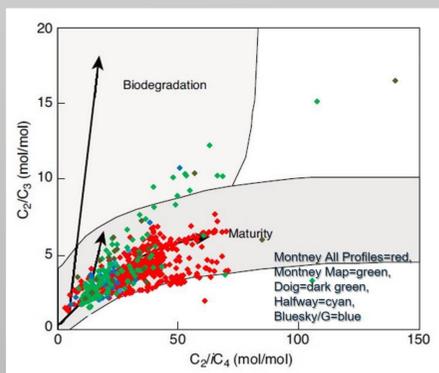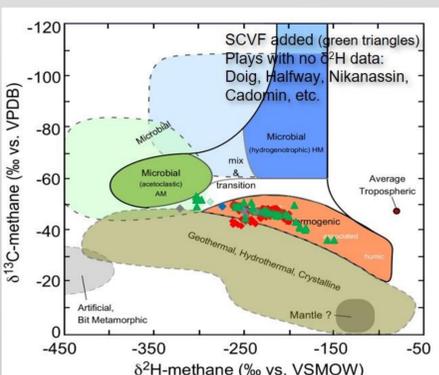
Bernard diagram for selected plays

**Location map** of NEBC composition data (OGC surface hole locations).
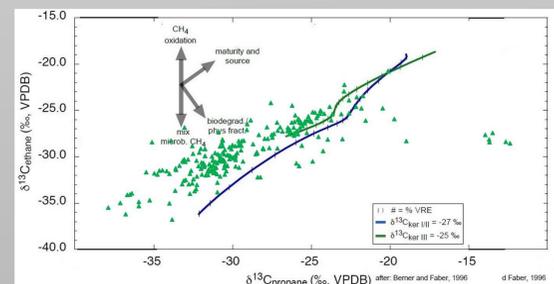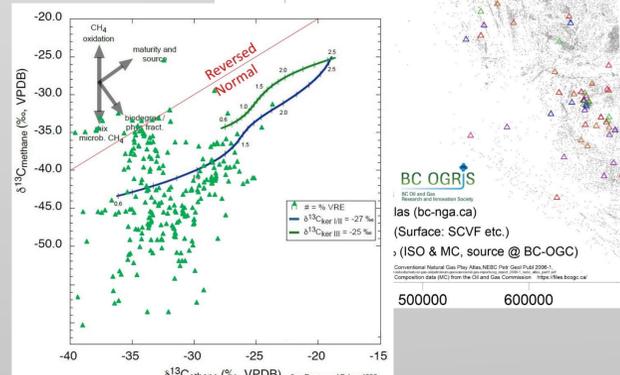
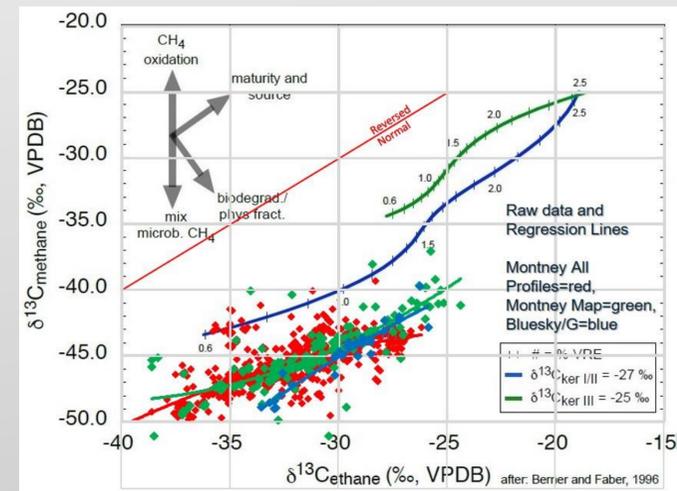**Location map** of NEBC isotopic data from well **profiles** (OGC surface hole locations).
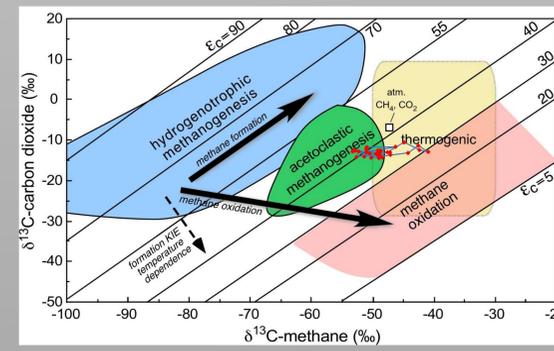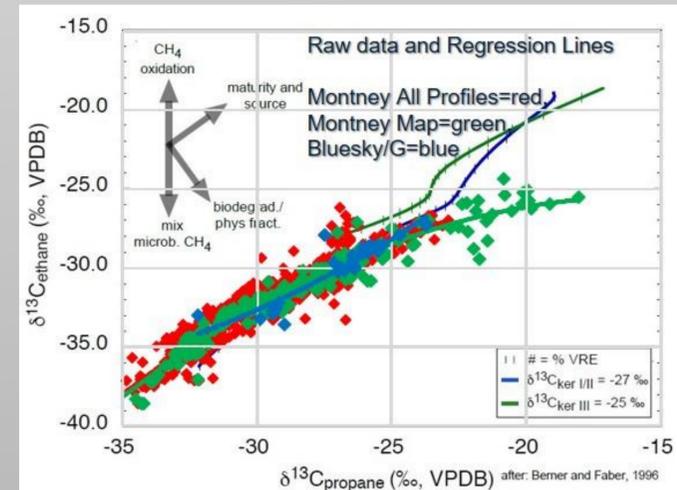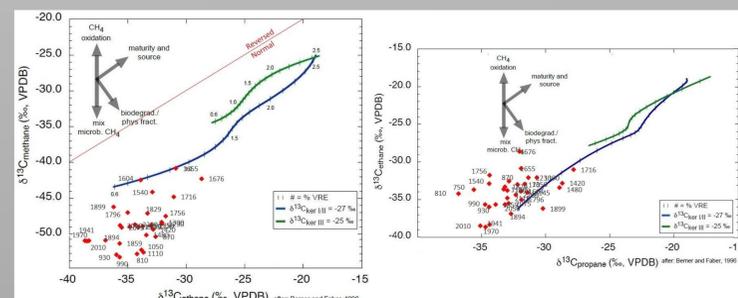
Posting map of 'play 4.00' data →
Interpretive diagram $\delta^{13}C_1$ vs $\delta^{13}C_2$ plot for 'play 4.00' ↓

Isotope $\delta13C1$ versus $\delta13C2$ crossplots for selected plays in NEBC – data is from the OGC public record.

CD diagram for selected plays

Isotope $\delta13C2$ versus $\delta13C3$ crossplots for selected plays in NEBC – data is from the OGC public record.

36 Horizontal (HZ) Montney
2 Horizontal (HZ) Besa River
17 vertical well profiles

example Horizontal (HZ) Montney profile

Prinzhofer diagram for selected plays

Vertical Profile3 WA# = 32152

Interpretive diagram $\delta^{13}C_2$ vs $\delta^{13}C_3$ plot for 'play 4.00'

Lorant diagram for selected plays

Plot $\delta^{13}CO_2$ vs $\delta^{13}C_1$ from Appendix B for 'play 4.00'

Interpretive diagrams $\delta^{13}C_1$ vs $\delta^{13}C_2$ and $\delta^{13}C_2$ vs $\delta^{13}C_3$ plots for single vertical profile WA#32990 with profile depths (mkb).