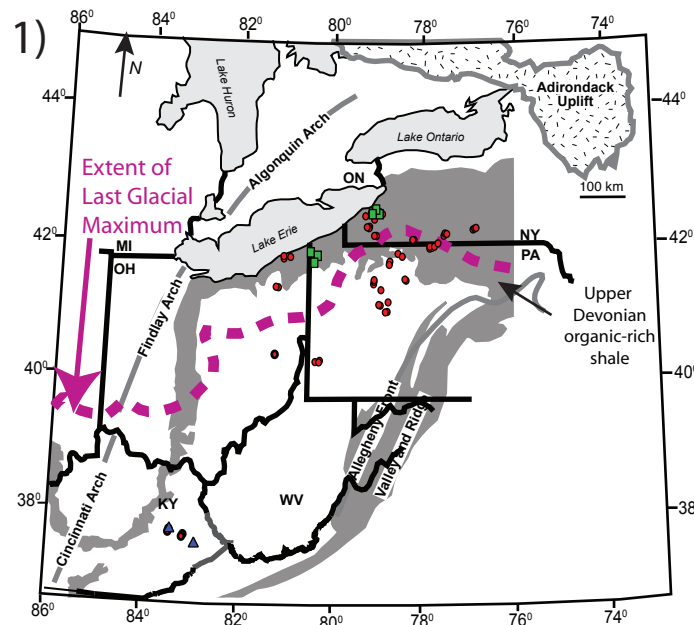


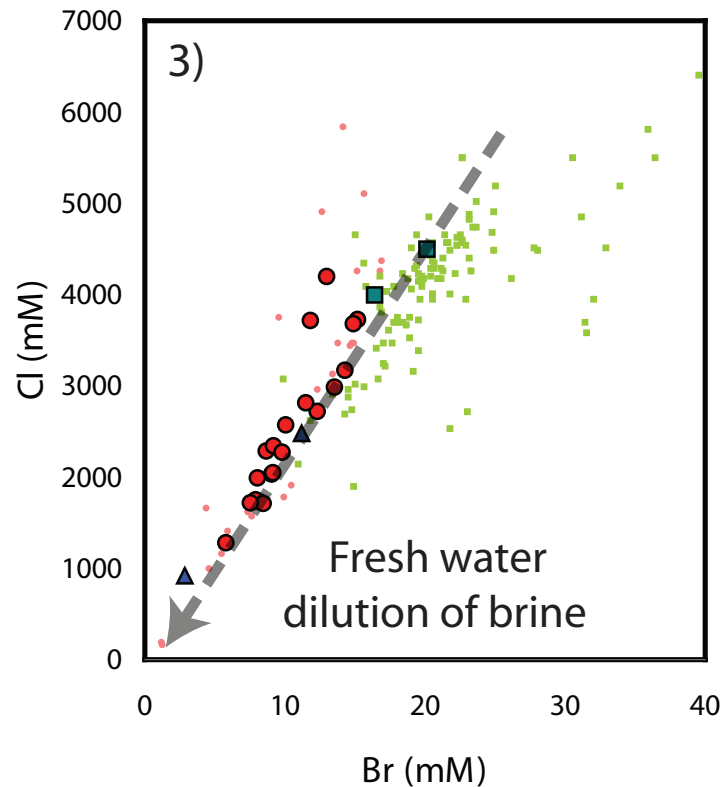
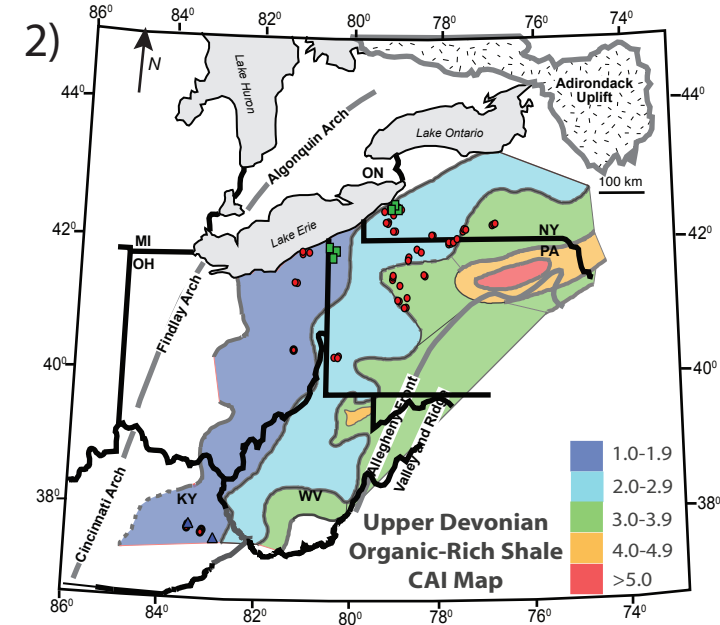
Hydrogeochemistry of shallow gas accumulations in fractured Devonian black shales

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Salinity and thermal maturity of organic-rich shales are strong controls on microbial methane generation across the northern margin of the Appalachian Basin.

Cl-Br relations and the stable isotope composition of shale formation waters indicate that saline brines were significantly diluted by freshwaters at the northwestern basin margin.



Carbon and hydrogen isotope values of CH_4 , and gas wetness ($\text{C}_1/\text{C}_2+\text{C}_3$) increase with increasing thermal maturity of source organic matter.

Sampled formations for gas and waters:

- ▲ Berea Sandstone (Mississippian)
- Sandstones and Shales (Devonian)
- Medina Sandstone (Silurian)

