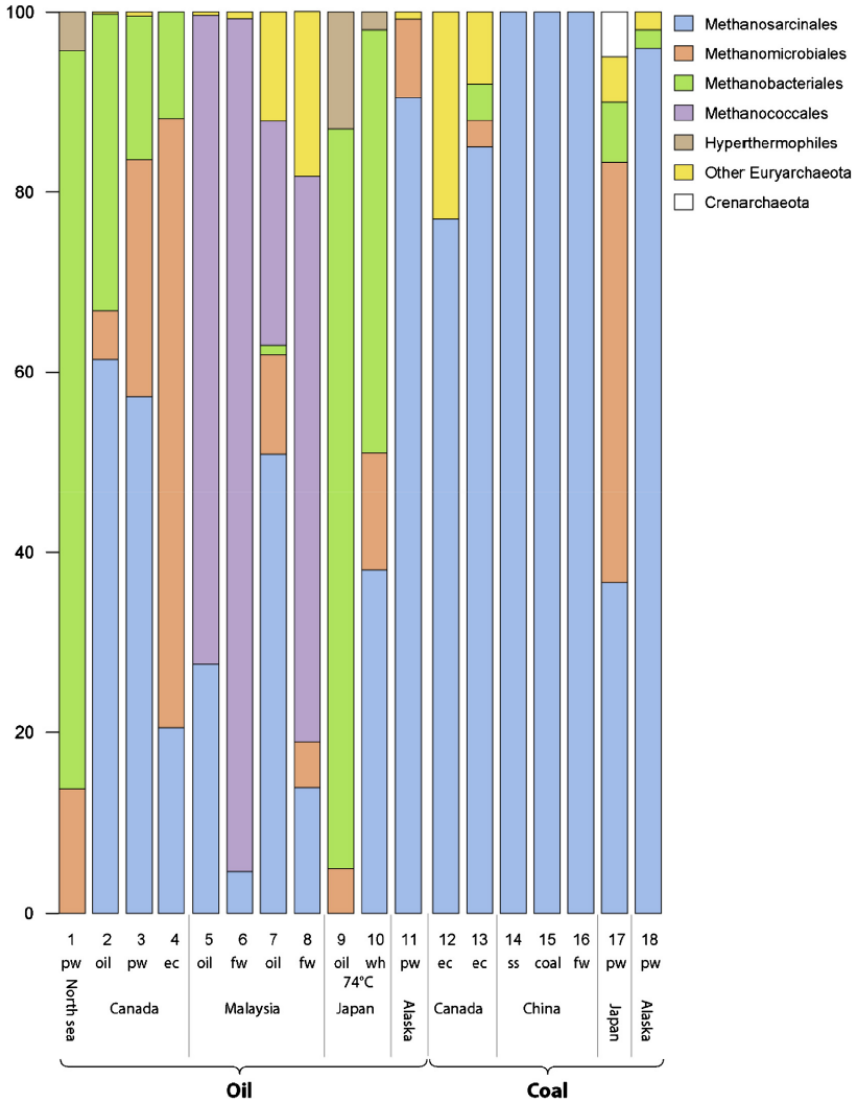
Microbial methanogenesis in subsurface oil and coal

Active methanogens are present in the deep subsurface. A review of microbial population structures and the biodegradation of organic compounds to methane within oil reservoirs and coal deposits demonstrate that widely diverging microbial populations show surprisingly similar metabolic capabilities

Archeal diversity is clearly dominated by methanogens from the orders Methanosarcinales, Methanomicrobiales, Methanobacteriales, and Methanococcales. The first three are present in either coal and oil settings, while Methanococcales are found exclusively in oil reservoirs. Archeal diversity in coal is largely dominated by Methanosarcinales, which represent over 75% of all Archea. Archeal diversity is higher in oil reservoirs, but is also largely dominated by Methanogens.

Meslé M., Dromart G., and Oger P. (2013) Microbial methanogenesis in subsurface oil and coal, *Research in Microbiology*, 164(9):959-72.



Compilation of archeal biodiversity data derived from 16S rRNA gene libraries