Microbial Biogeochemistry of Hydrothermal Plumes

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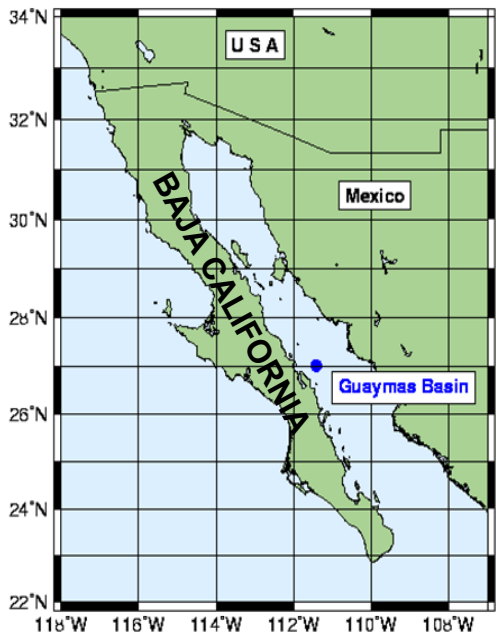
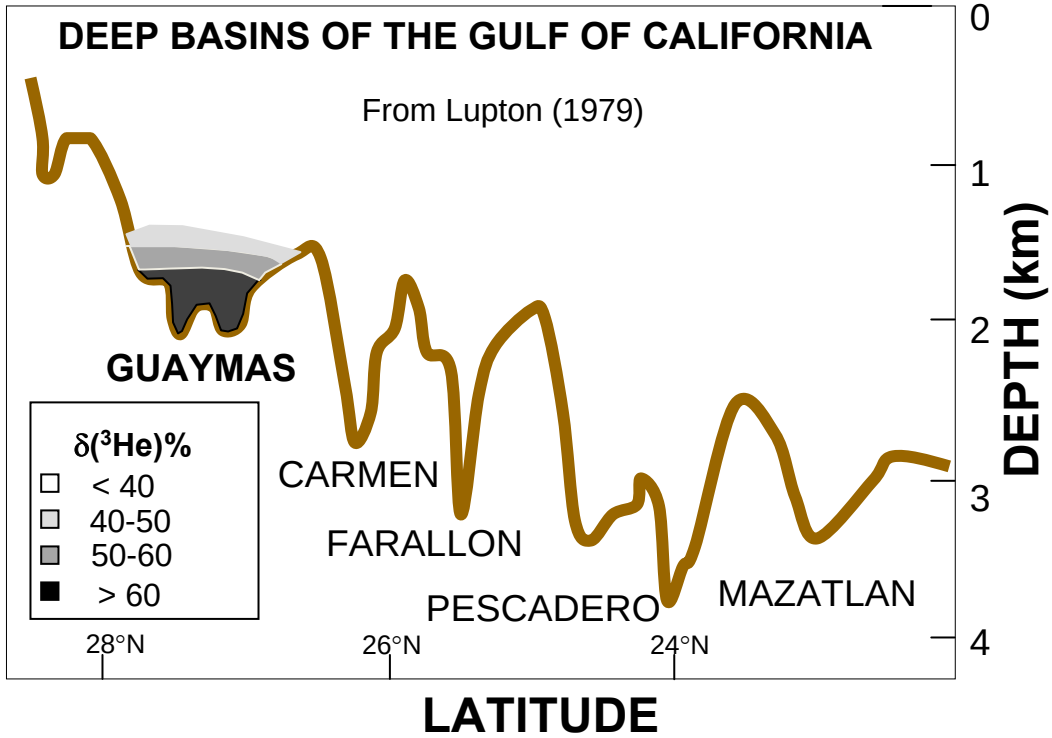
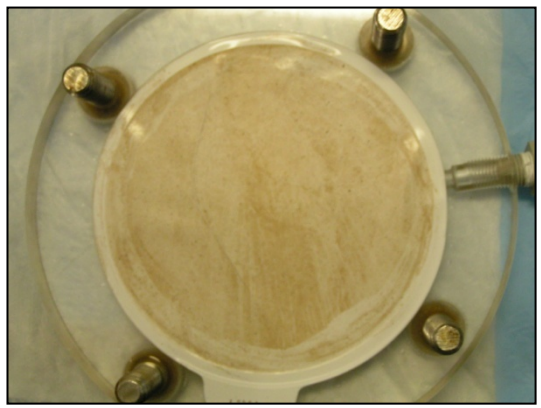
hydrothermal inputs ⟷ **deep-sea microbial communities**

Study Site: Guaymas Basin



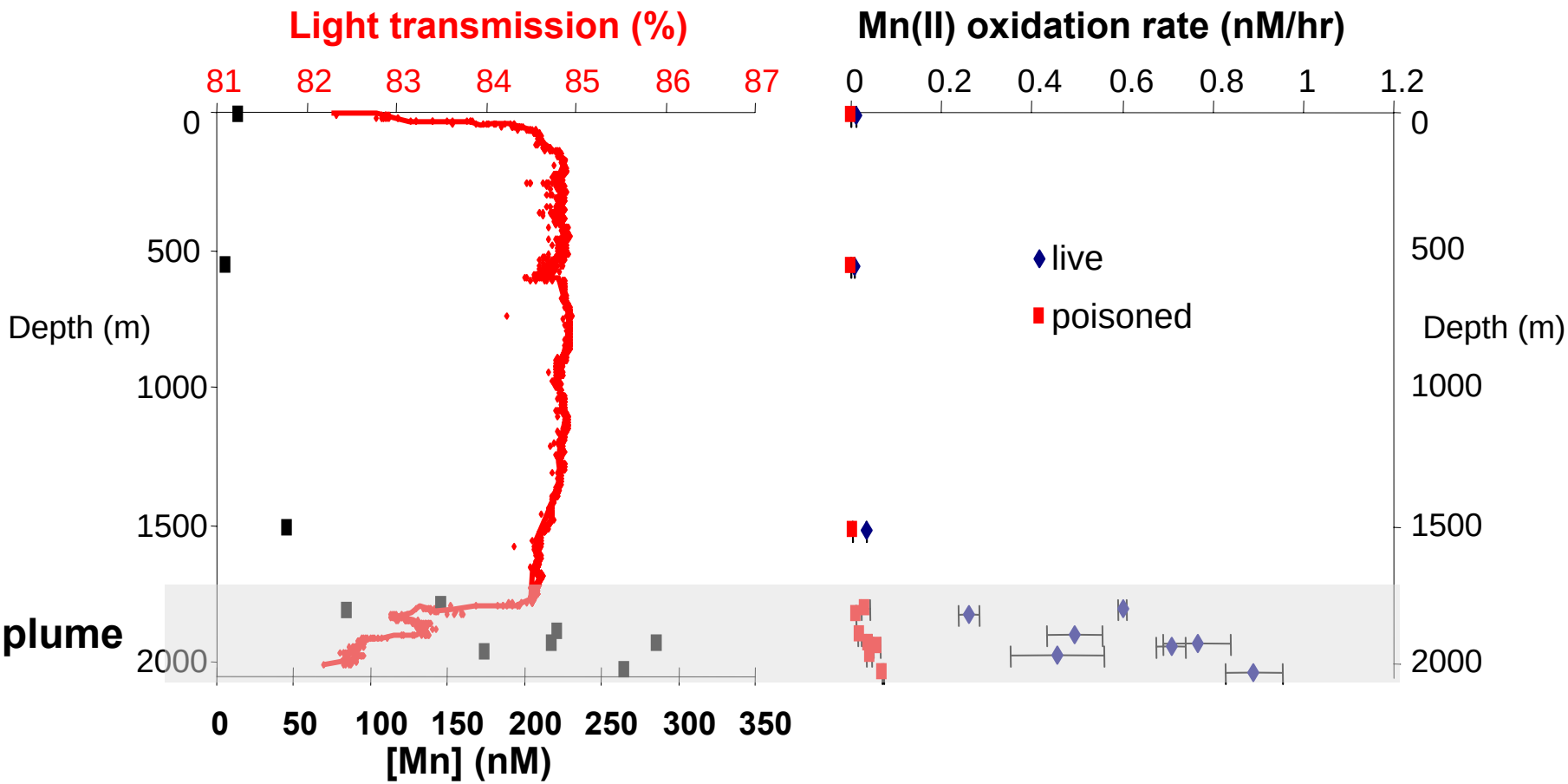


Hydrothermal clouds of Mn oxides sit in the basin (shown here on a filter)



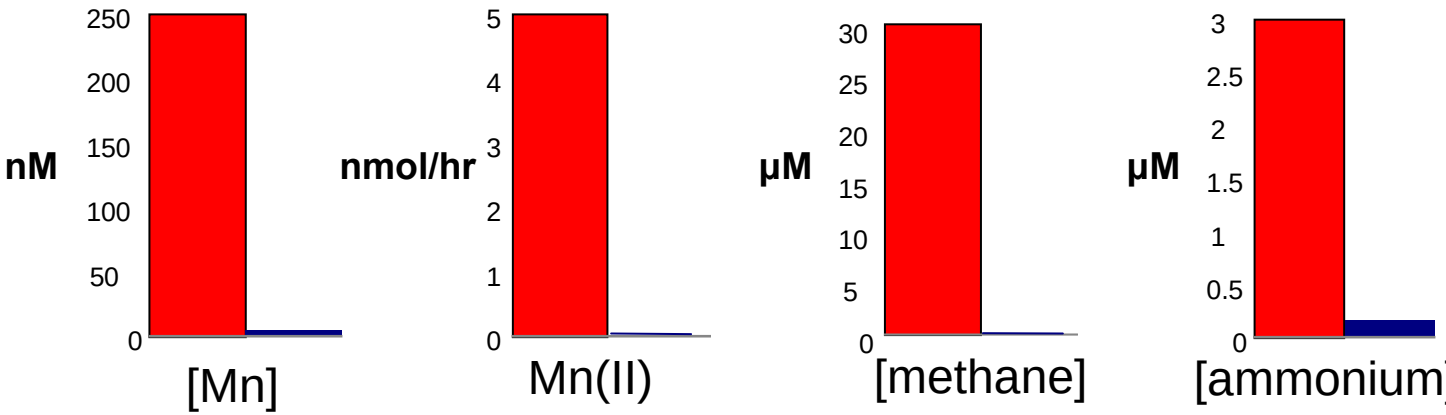
Biologically Driven Plume Geochemistry

Guaymas Basin, Gulf of California



Rapid Mn(II) oxidation rates are biologically driven, specific to the hydrothermal plume.

Plume Geochemistry

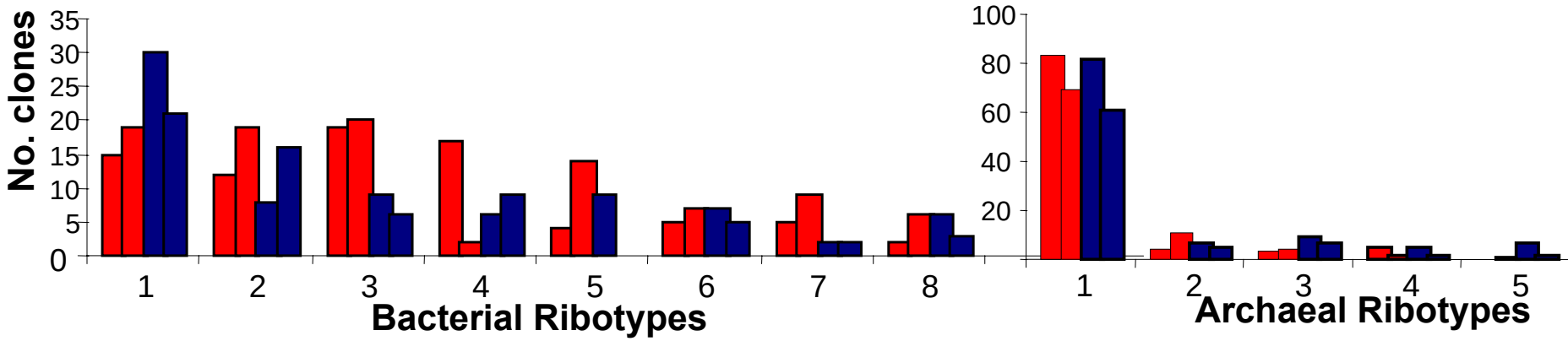


plume

background

Expect: distinct plume microbial community

Plume Microbial Diversity (16S rRNA)



Similar dominant ribotypes in areas of very different biogeochemical activities

1. More resolution of “who is there”
   - Marker genes vs. genomes (1000’s of genes)
2. What are they doing?
   - Activity & function-based approaches:
     gene expression & proteomics