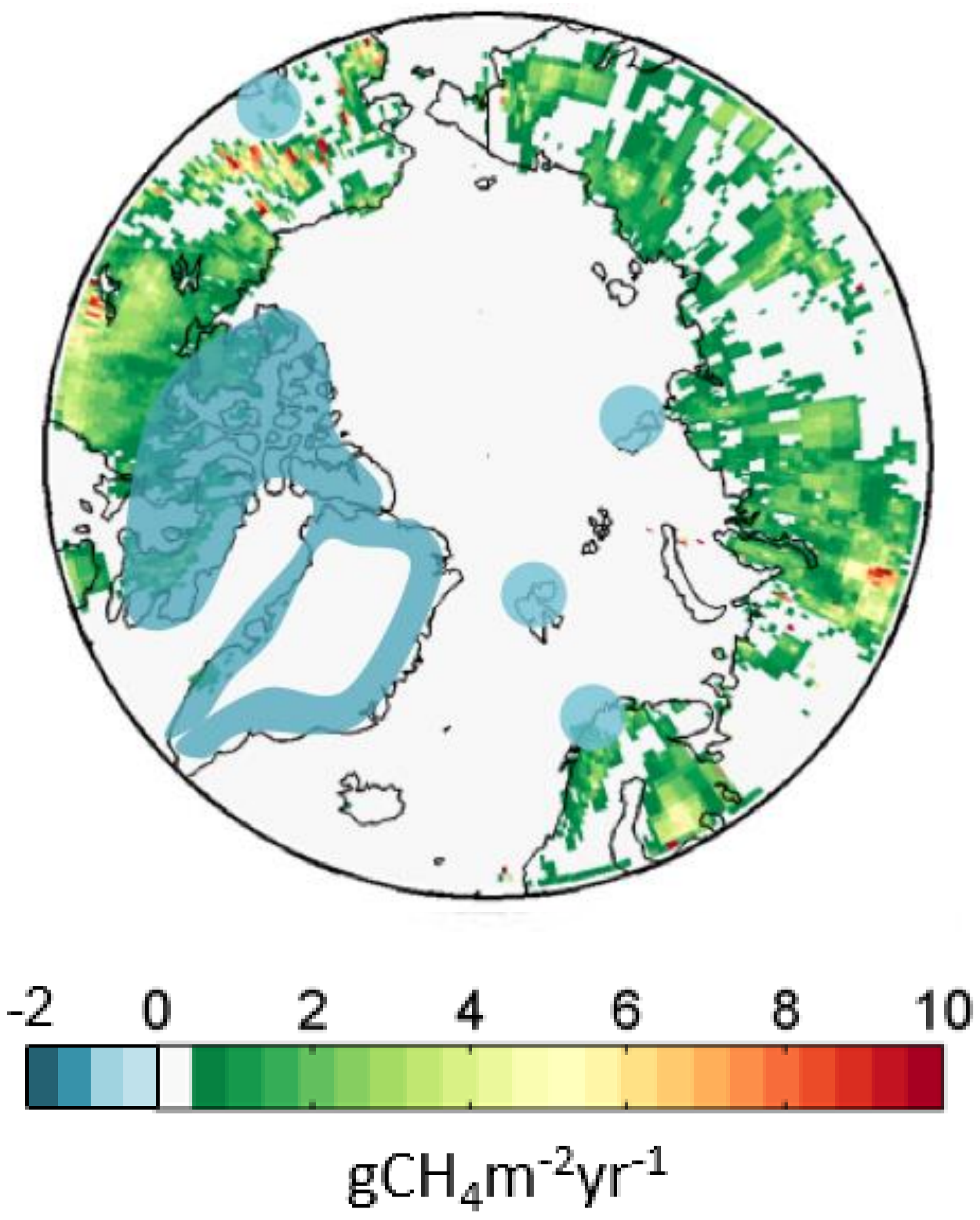
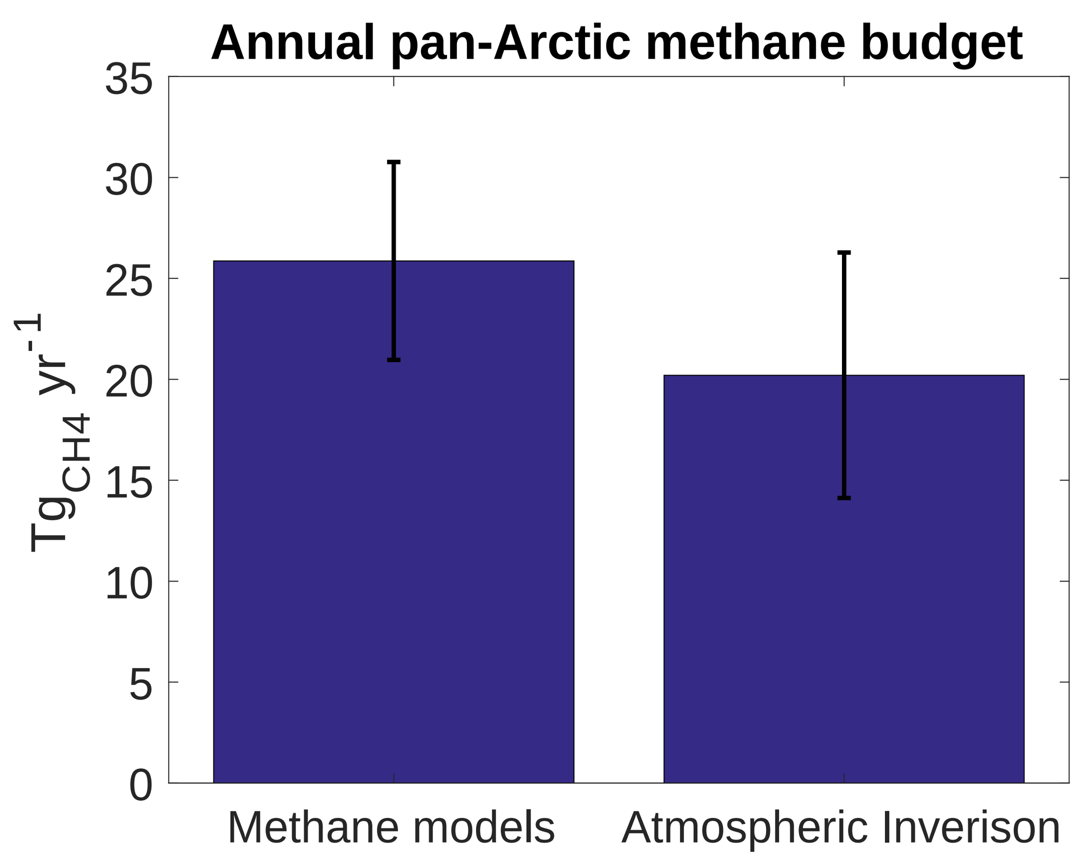
HAM is overlooked Arctic methane sink

(High Affinity Methanotroph)

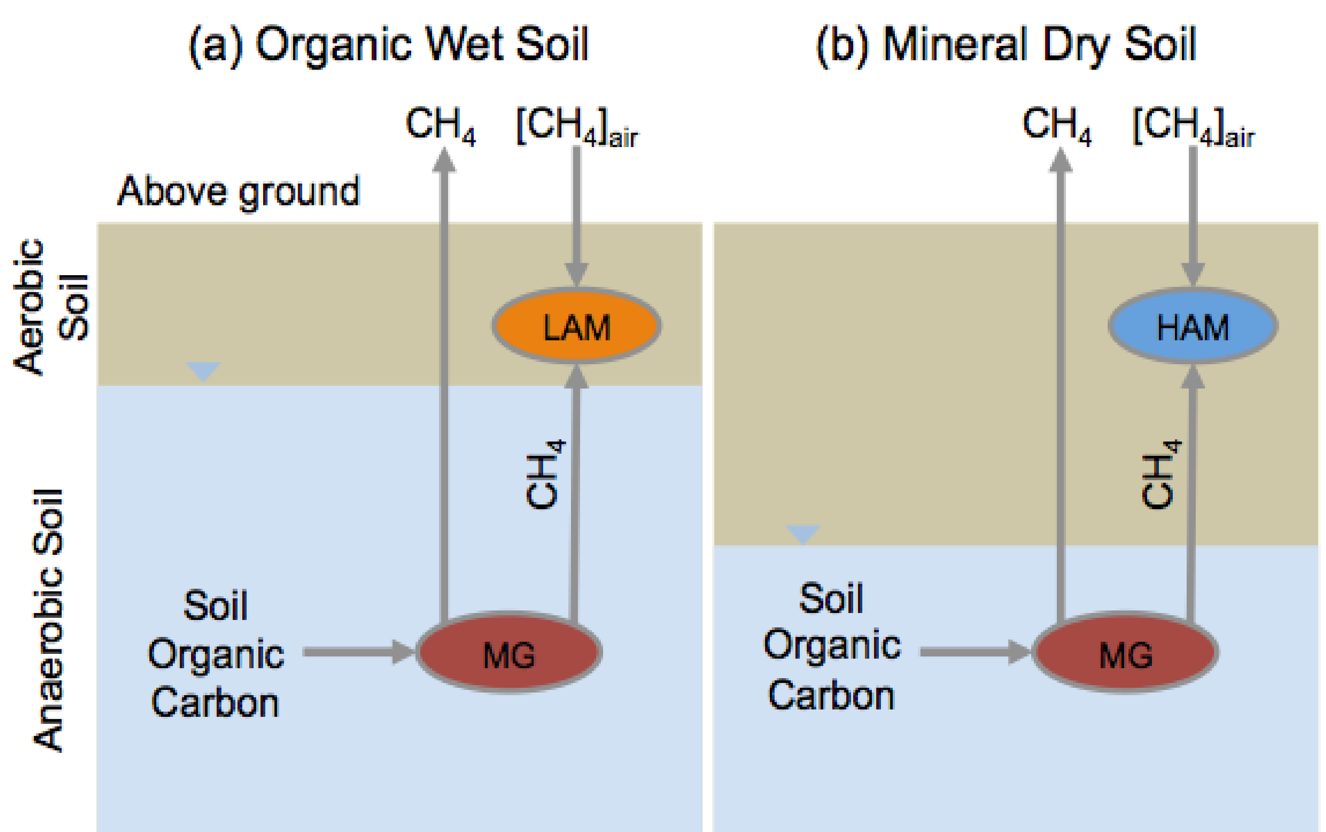


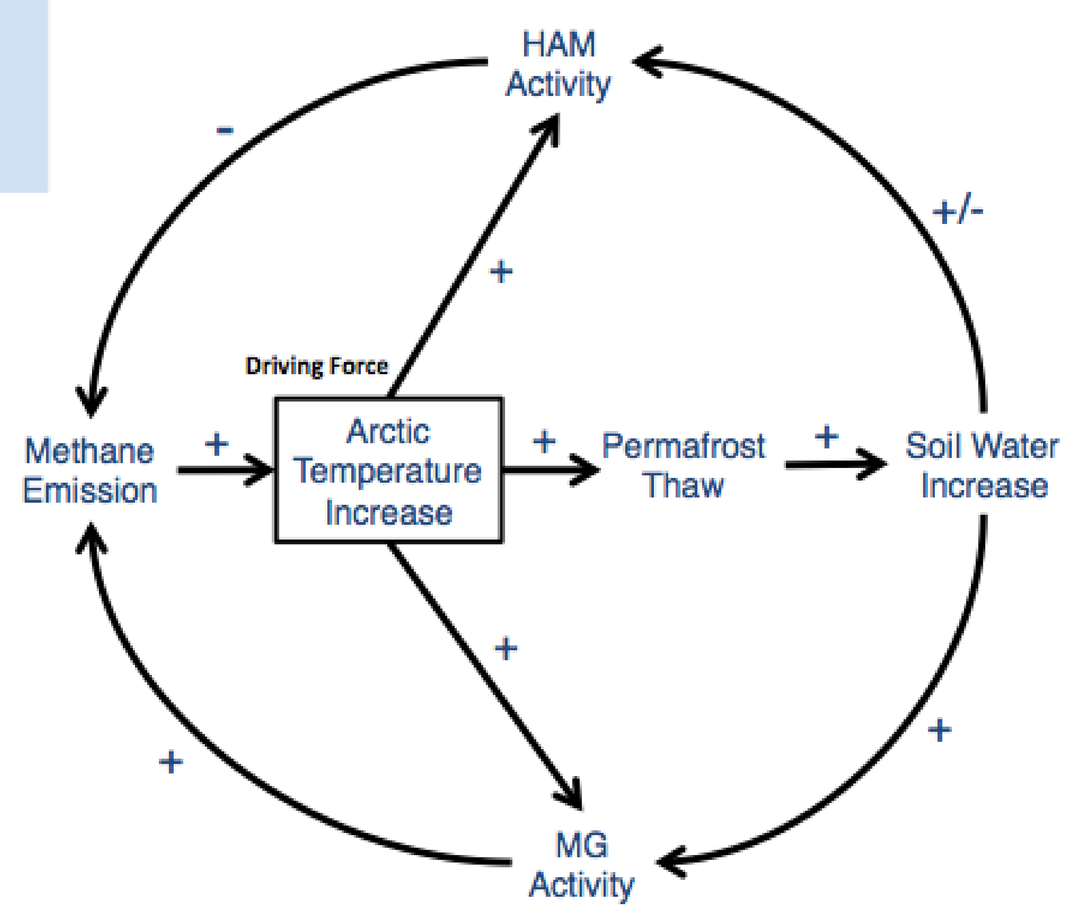


*(**Left**) Estimated net pan-Arctic methane fluxes using bottom-up methane models[1]. Blue area is where net methane sinks were observed[2]*
*(**Right**) Estimated pan-Arctic methane budget between bottom-up methane models and top-down atmospheric inversions[3]*

Many scientists think Arctic is only a net source of methane and will emit more methane in the future as permafrost thaws.

But you know what?
Recent field studies found a strong and consistent methane sink in Arctic mineral soils!
In these soils, a novel bacteria HAM can survive and actively eat atmospheric methane!
HAM may help us close the Arctic methane budget.





*(**Left**) Diagram of methane production by methanogen (MG) and oxidation by Low Affinity Methanotrophs (LAM) and High Affinity Methanotrophs (HAM)[4]*
*(**Right**) Arctic methane feedbacks[4]*

However, the physiology of HAM has not been considered in current methane models.

Thus, I want to incorporate the role of HAM into a methane model to quantify the net Arctic methane budget ☺

[1] ***Tan et al., ACP, 2015***
[2] ***Lau et al., ISME, 2015***
[3] ***Kirschke et al., Nature Geosciences, 2013***
[4] ***Oh et al., GRL, 2016***

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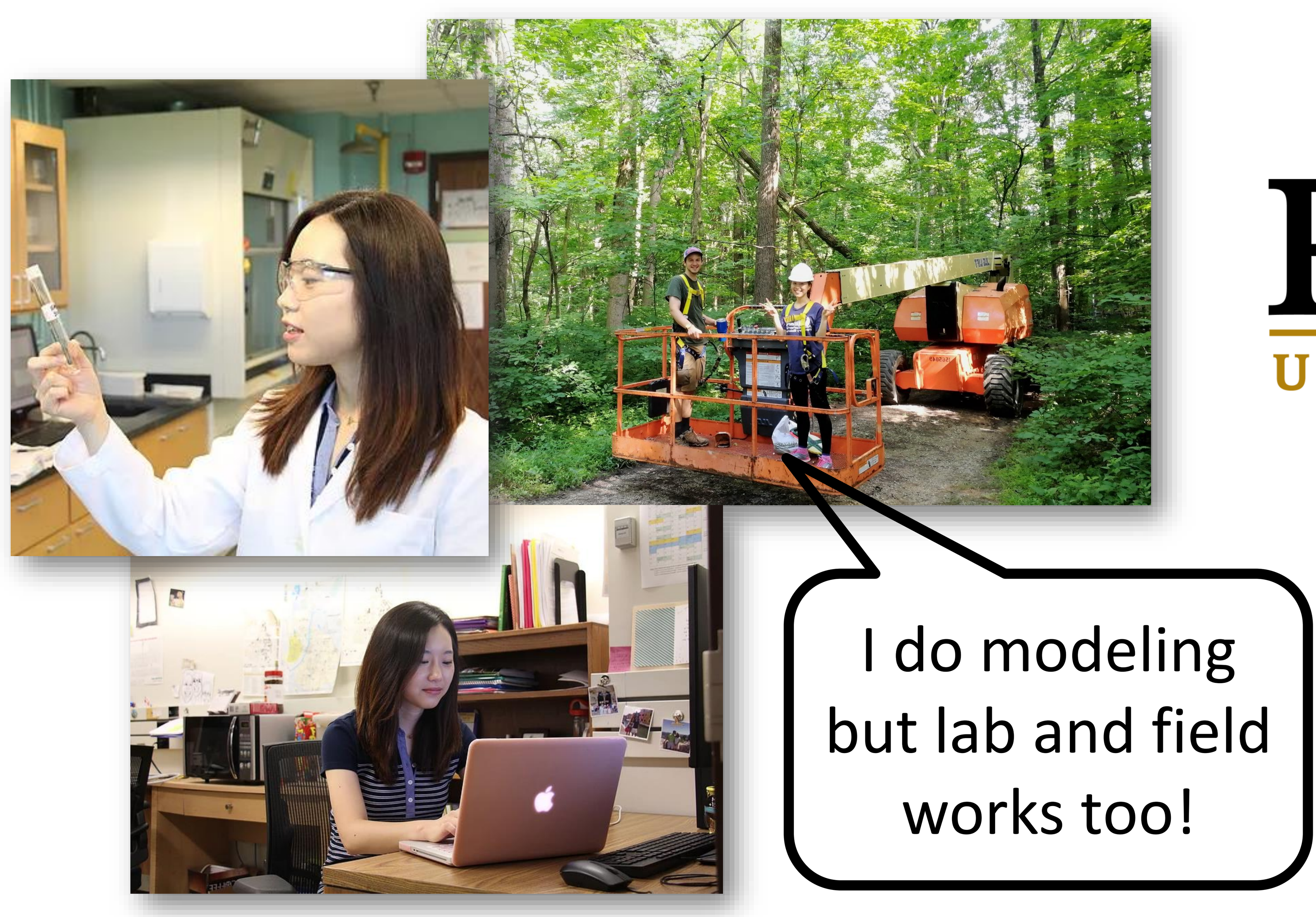

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