

# Coupled impacts of sea ice variability and North Pacific atmospheric circulation on Holocene hydroclimate in Arctic Alaska

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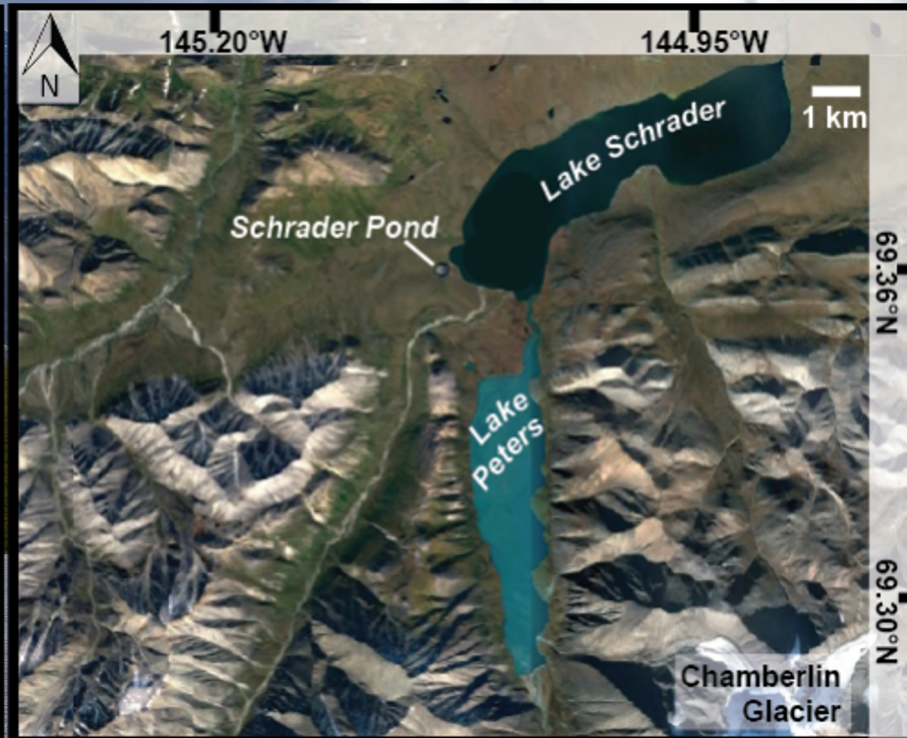
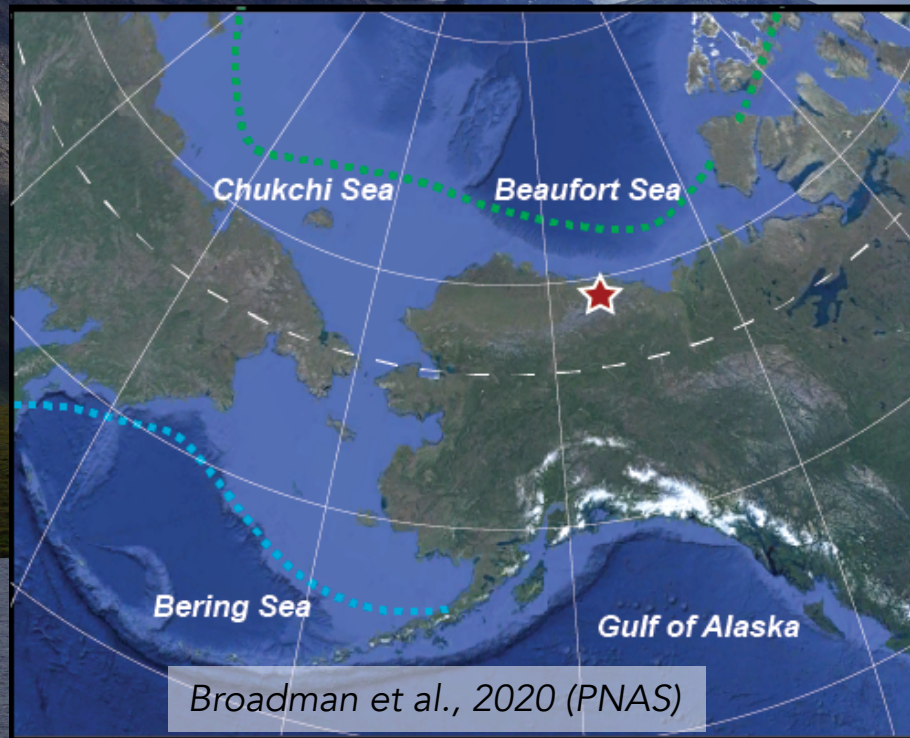




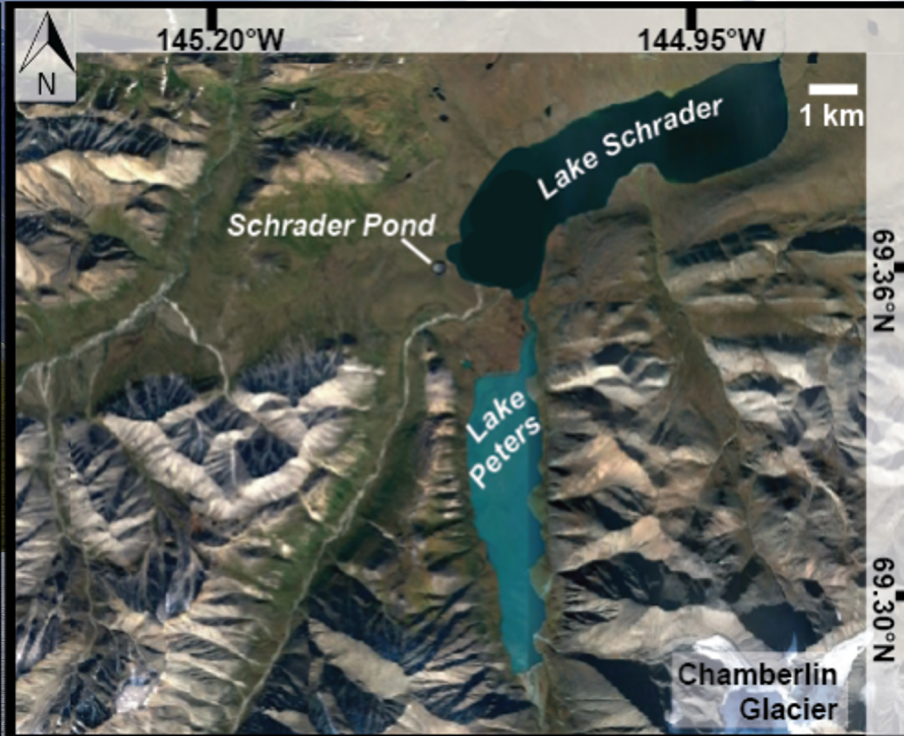
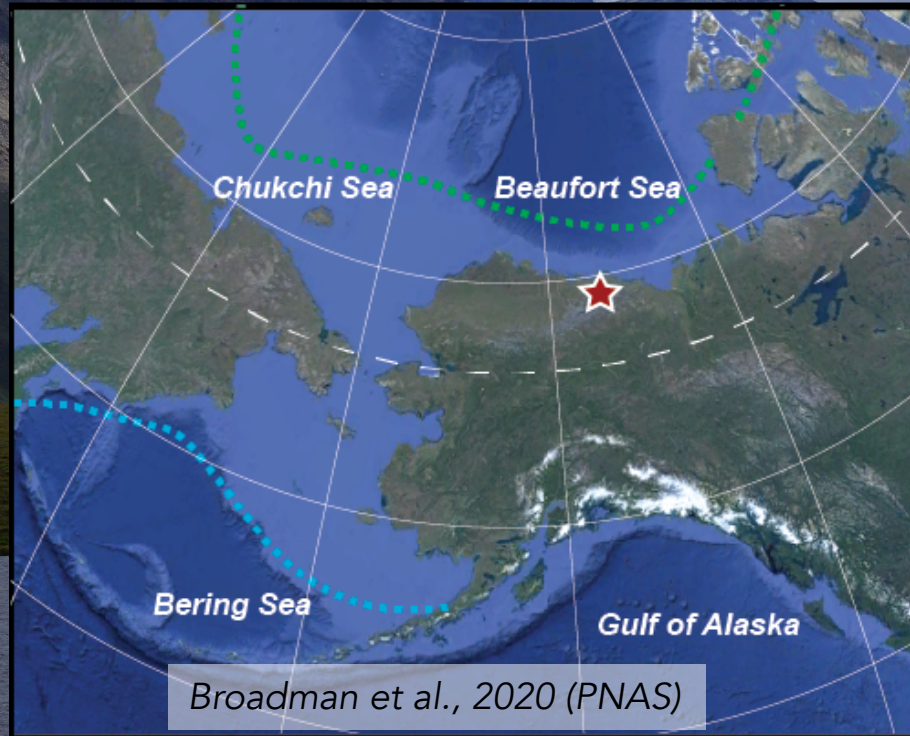










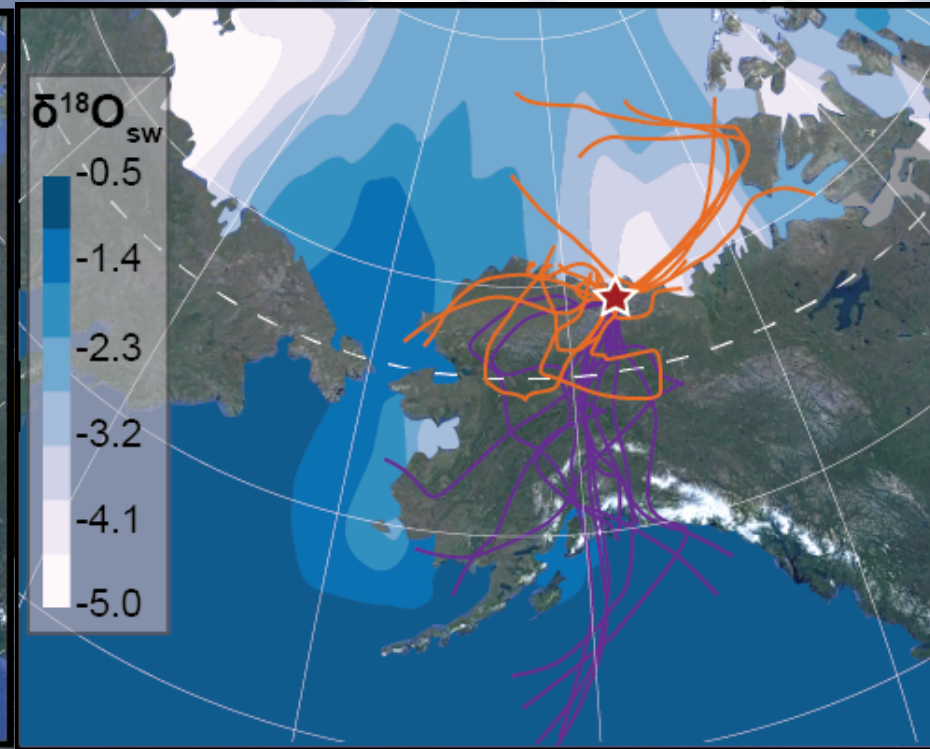
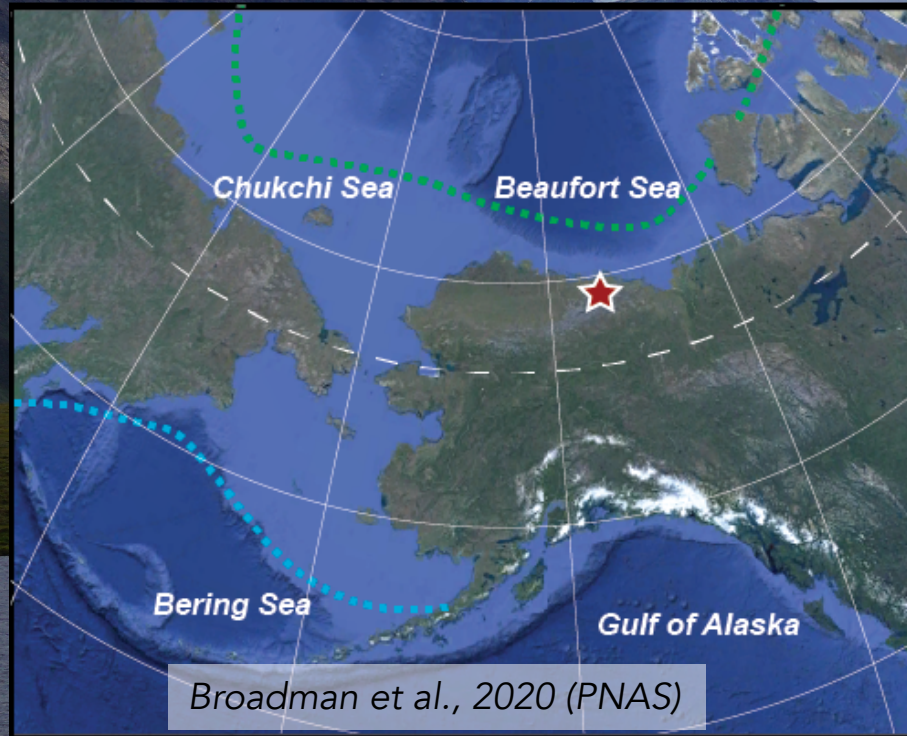


$\delta^{18}\text{O}$  of precipitation:  $-22\text{‰}$

$\delta^{18}\text{O}$  of Schrader Pond:  $-21\text{‰}$



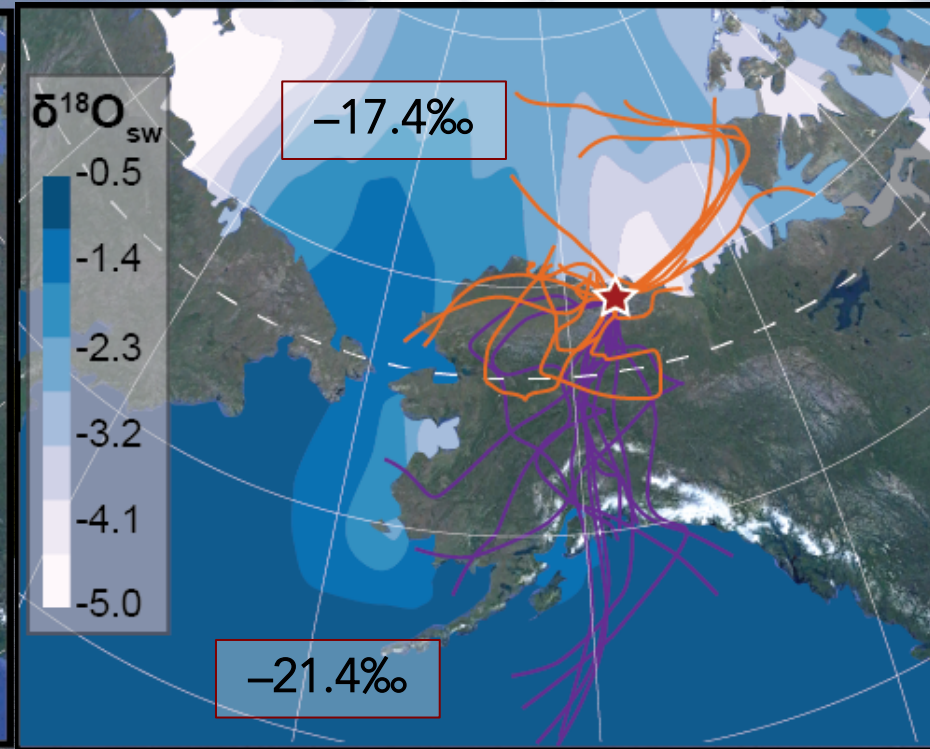
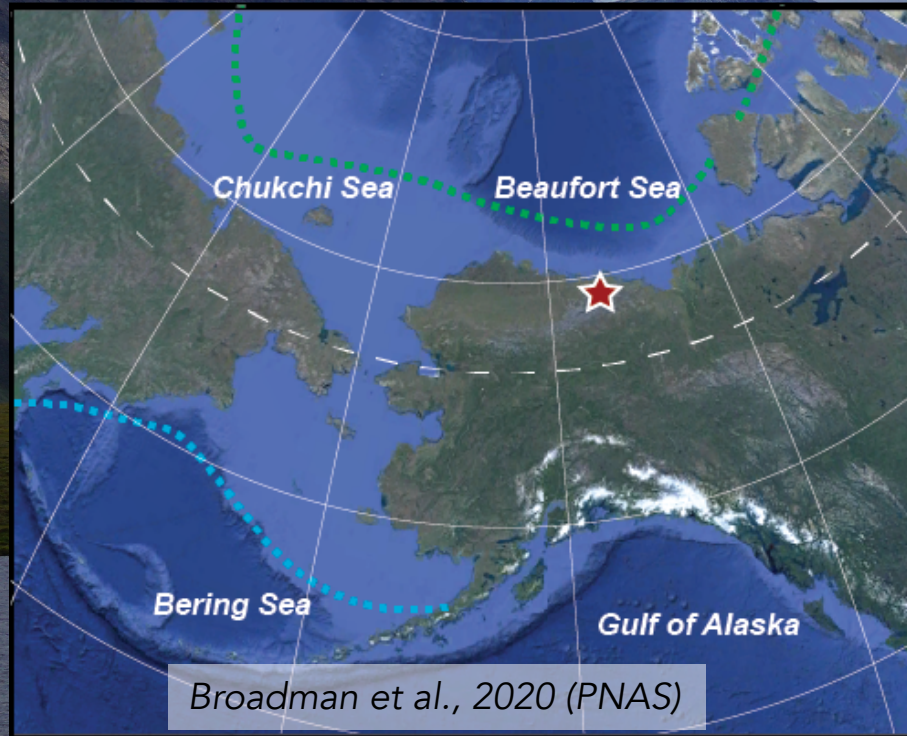
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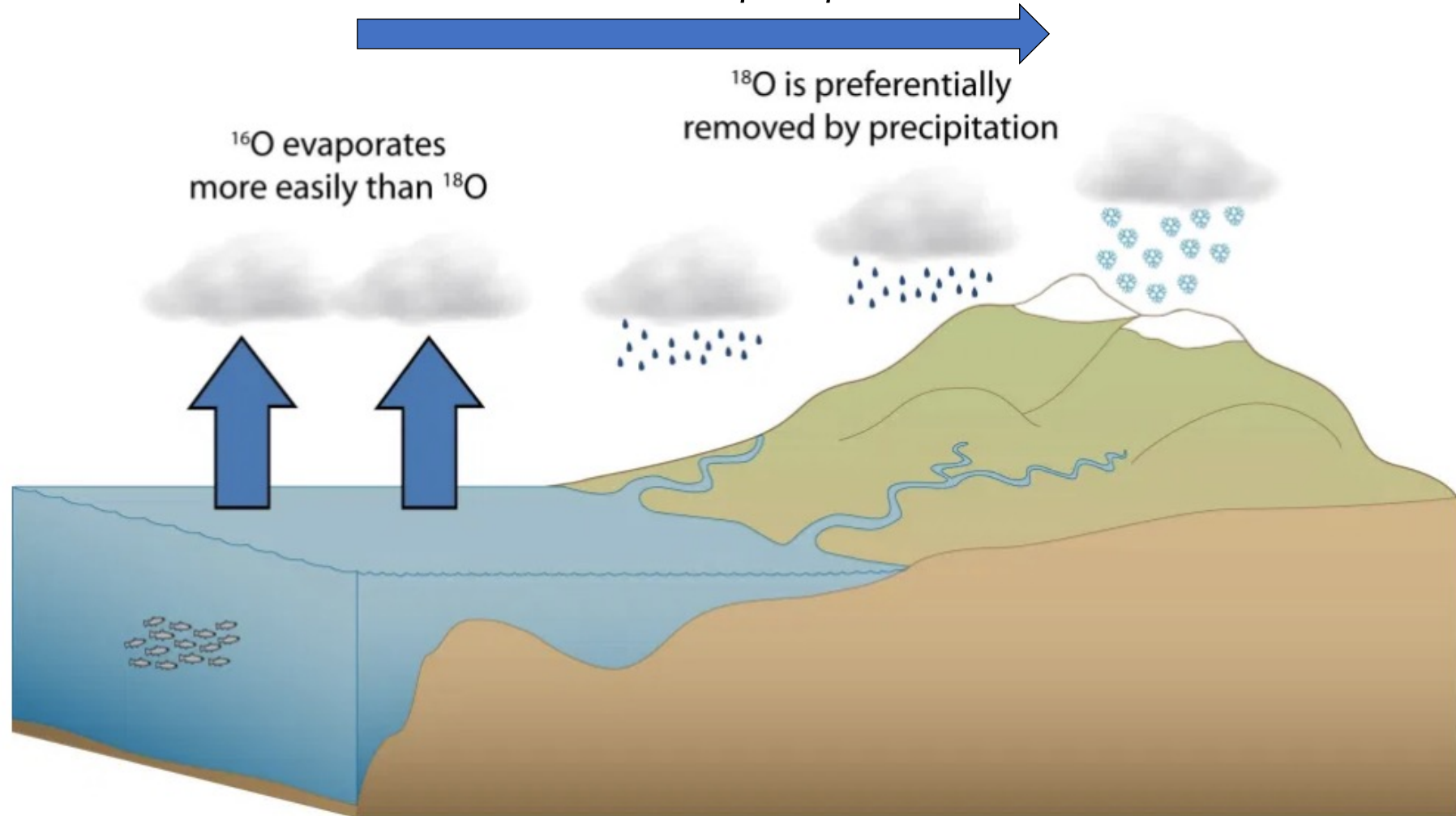
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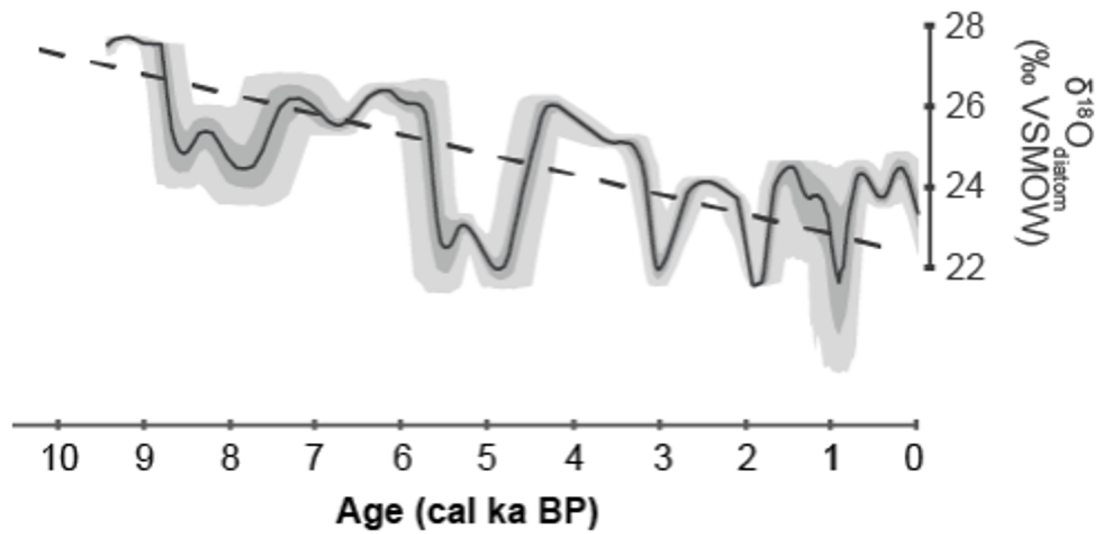
More rain-out of  $^{18}\text{O}$   $\rightarrow$  lower precipitation  $\delta^{18}\text{O}$  values



Modified from Emma Versteegh

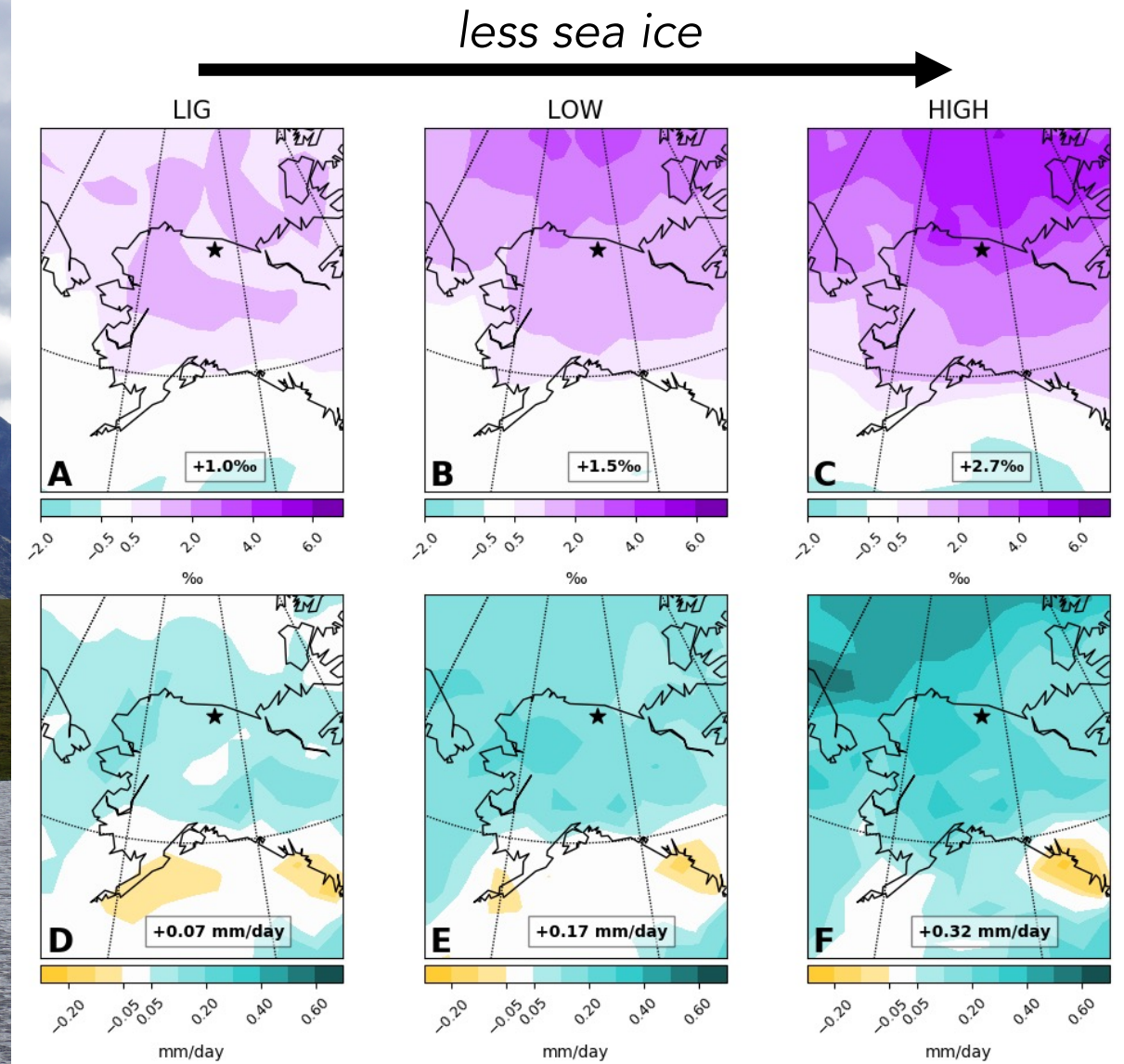
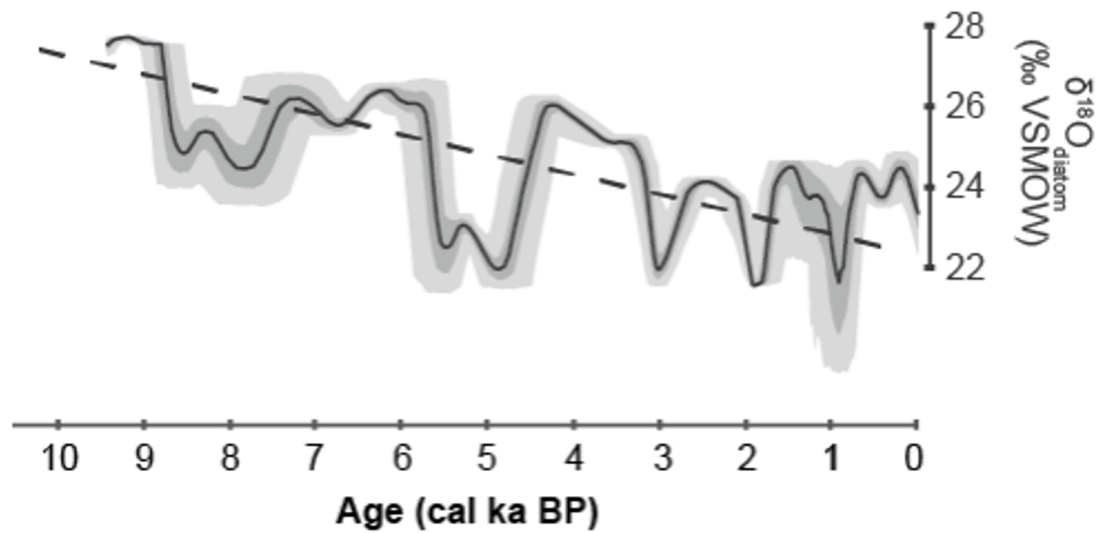


# Schrader Pond $\delta^{18}\text{O}_{\text{diatom}}$





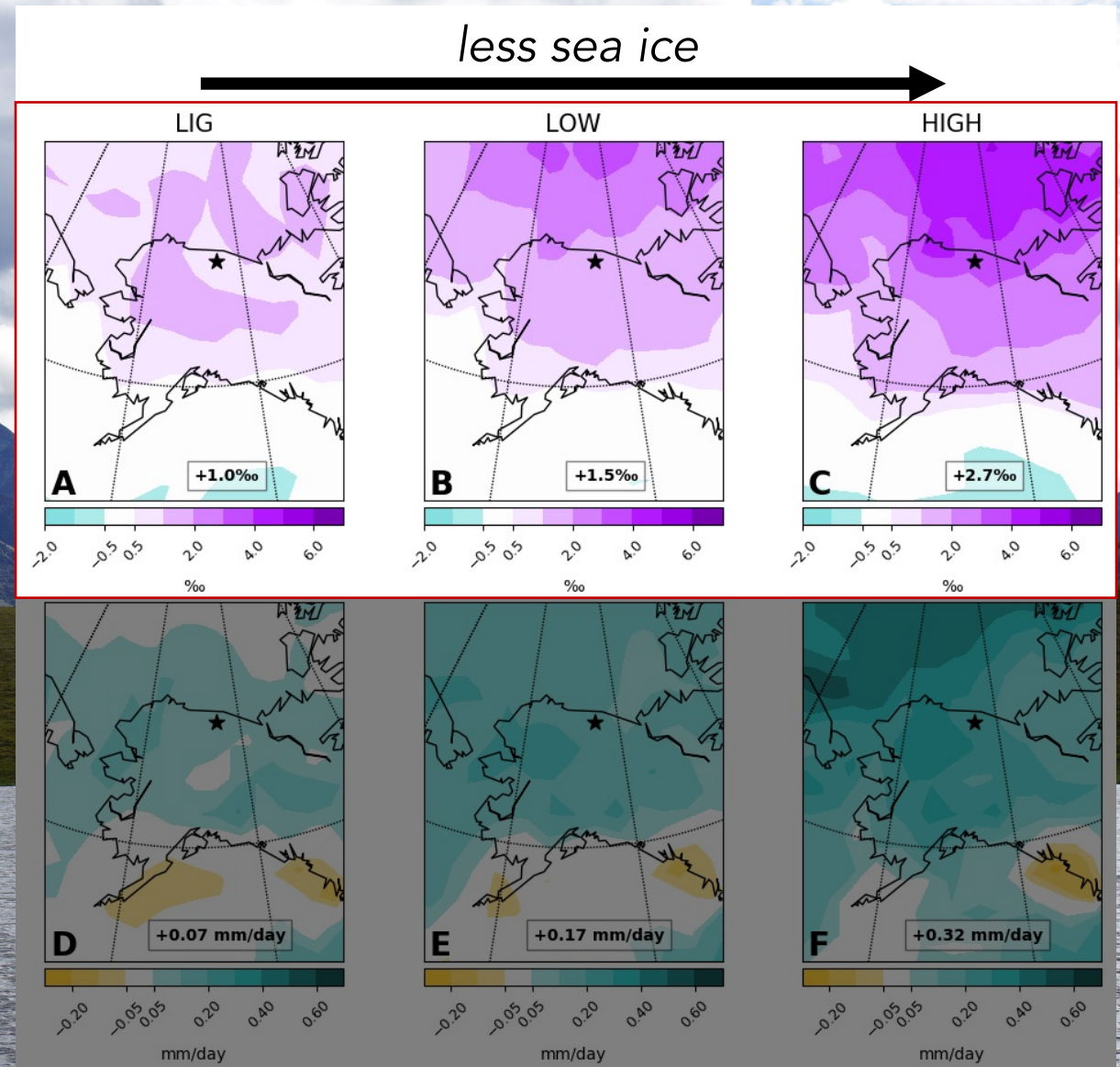
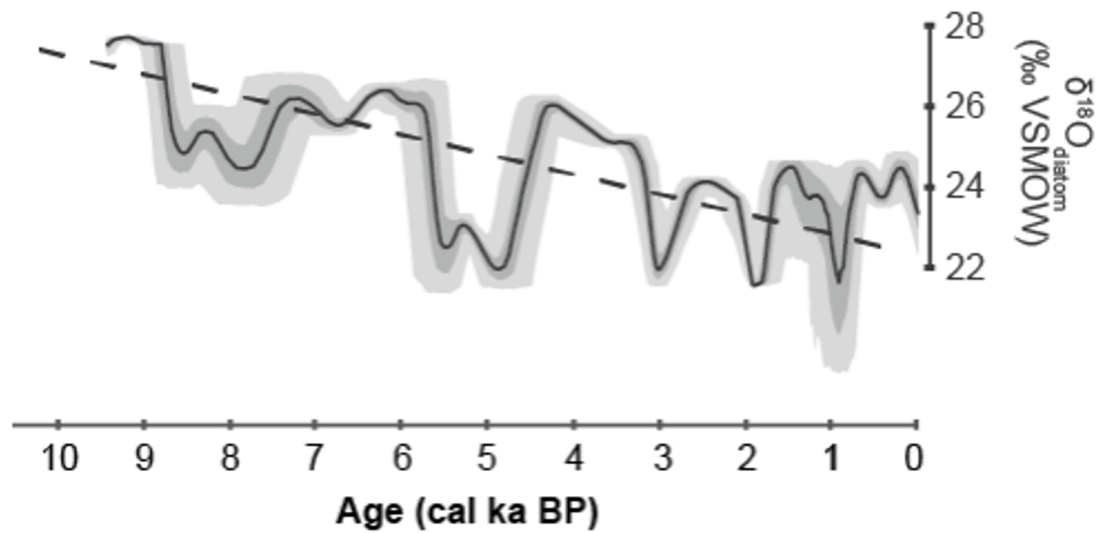
# Schrader Pond $\delta^{18}\text{O}_{\text{diatom}}$



Broadman et al., 2020 (PNAS)



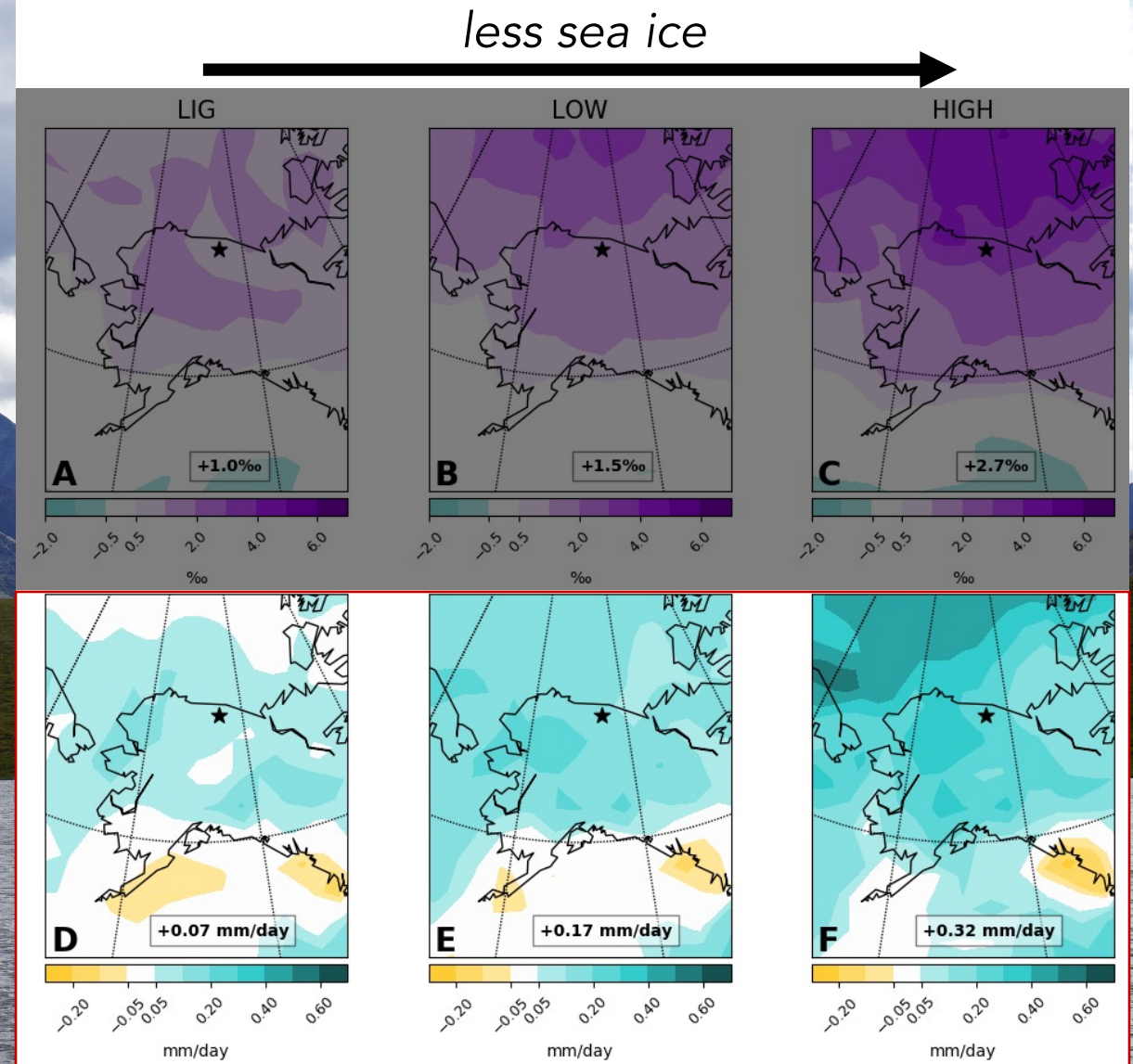
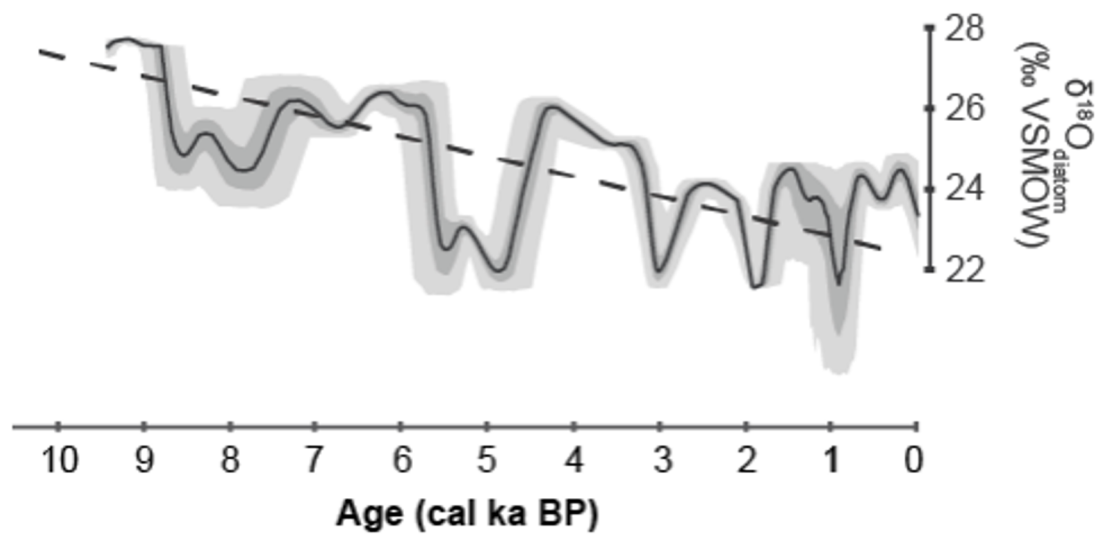
# Schrader Pond $\delta^{18}\text{O}_{\text{diatom}}$



Broadman et al., 2020 (PNAS)

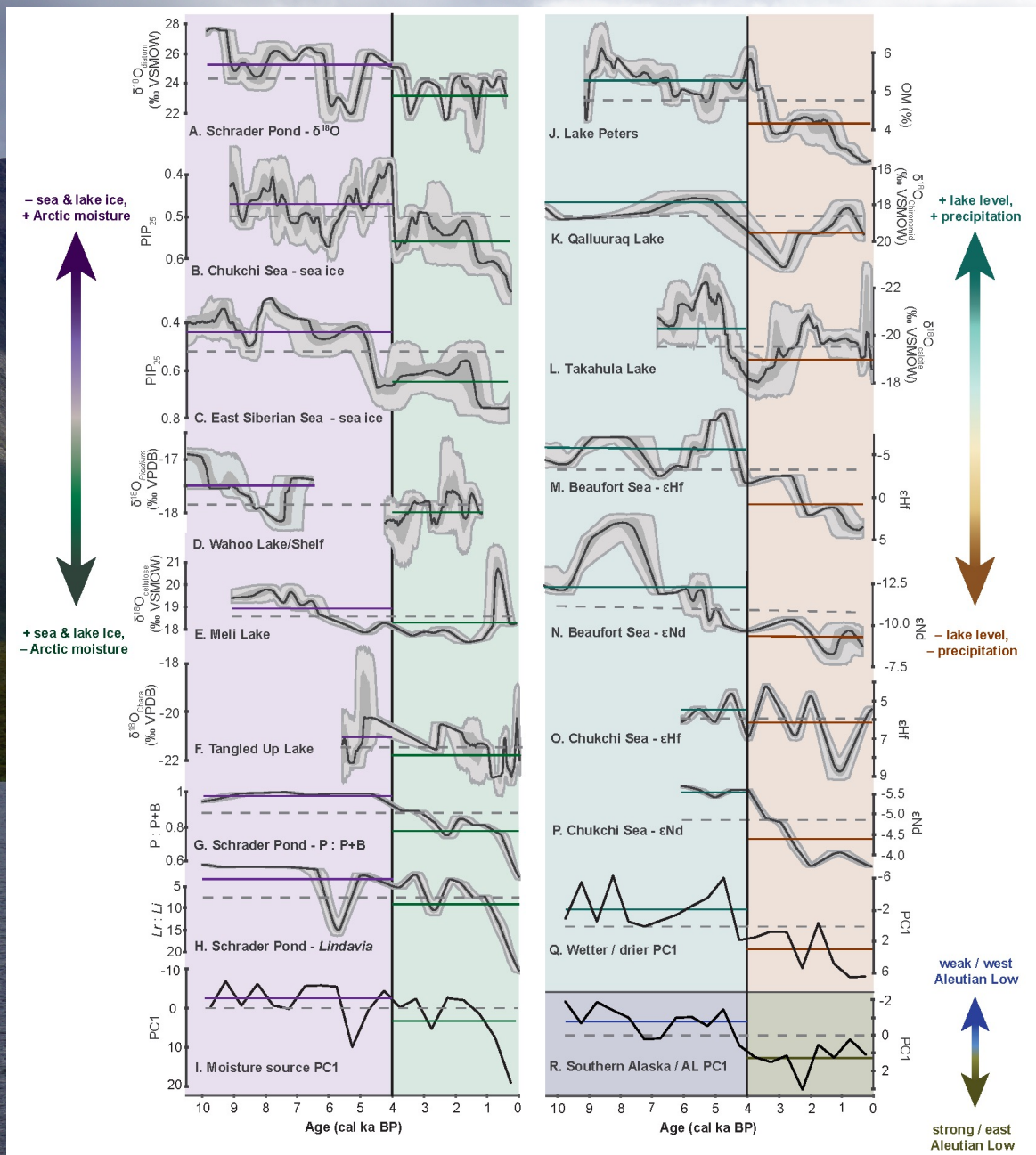


# Schrader Pond $\delta^{18}\text{O}_{\text{diatom}}$

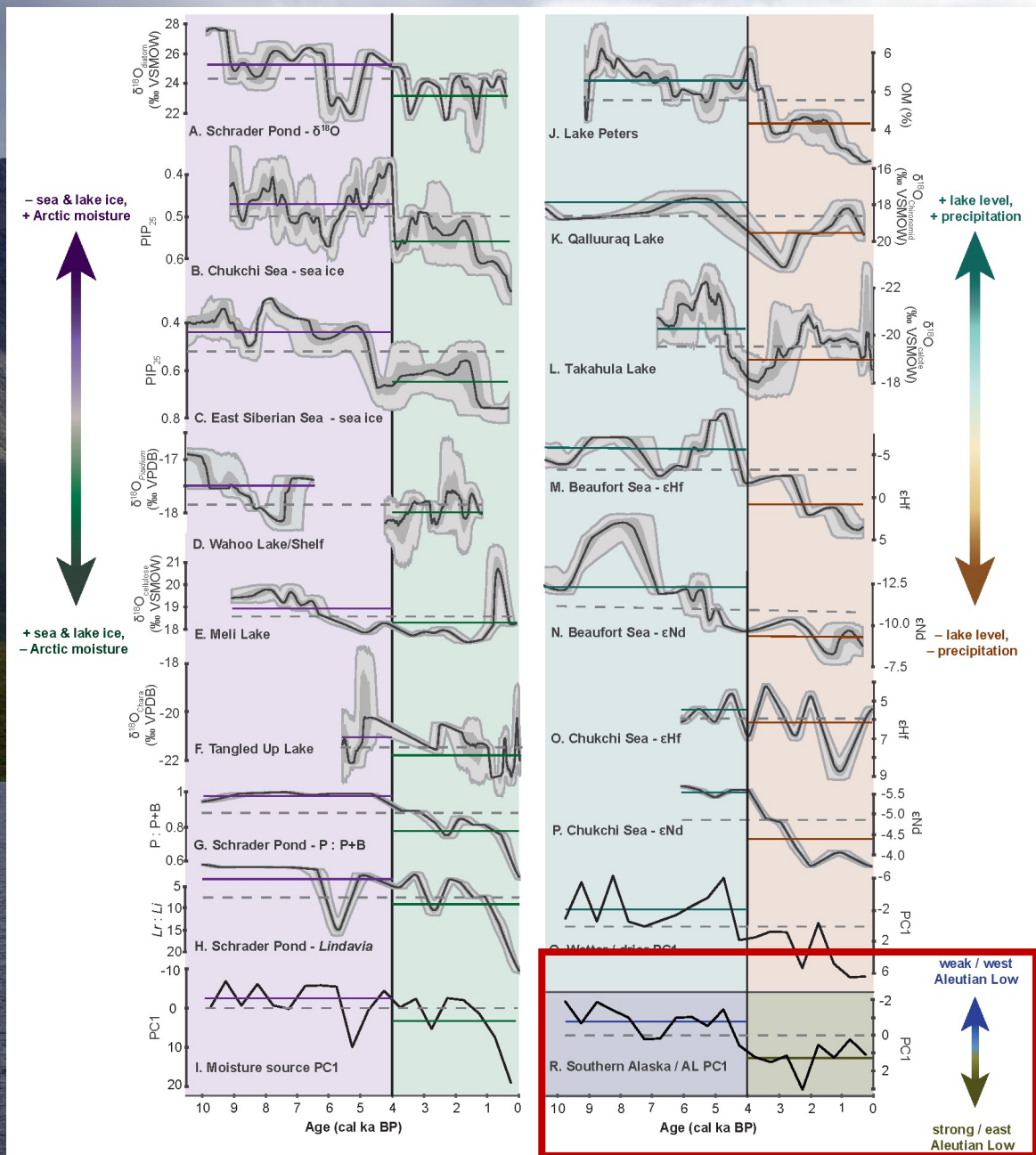


Broadman et al., 2020 (PNAS)

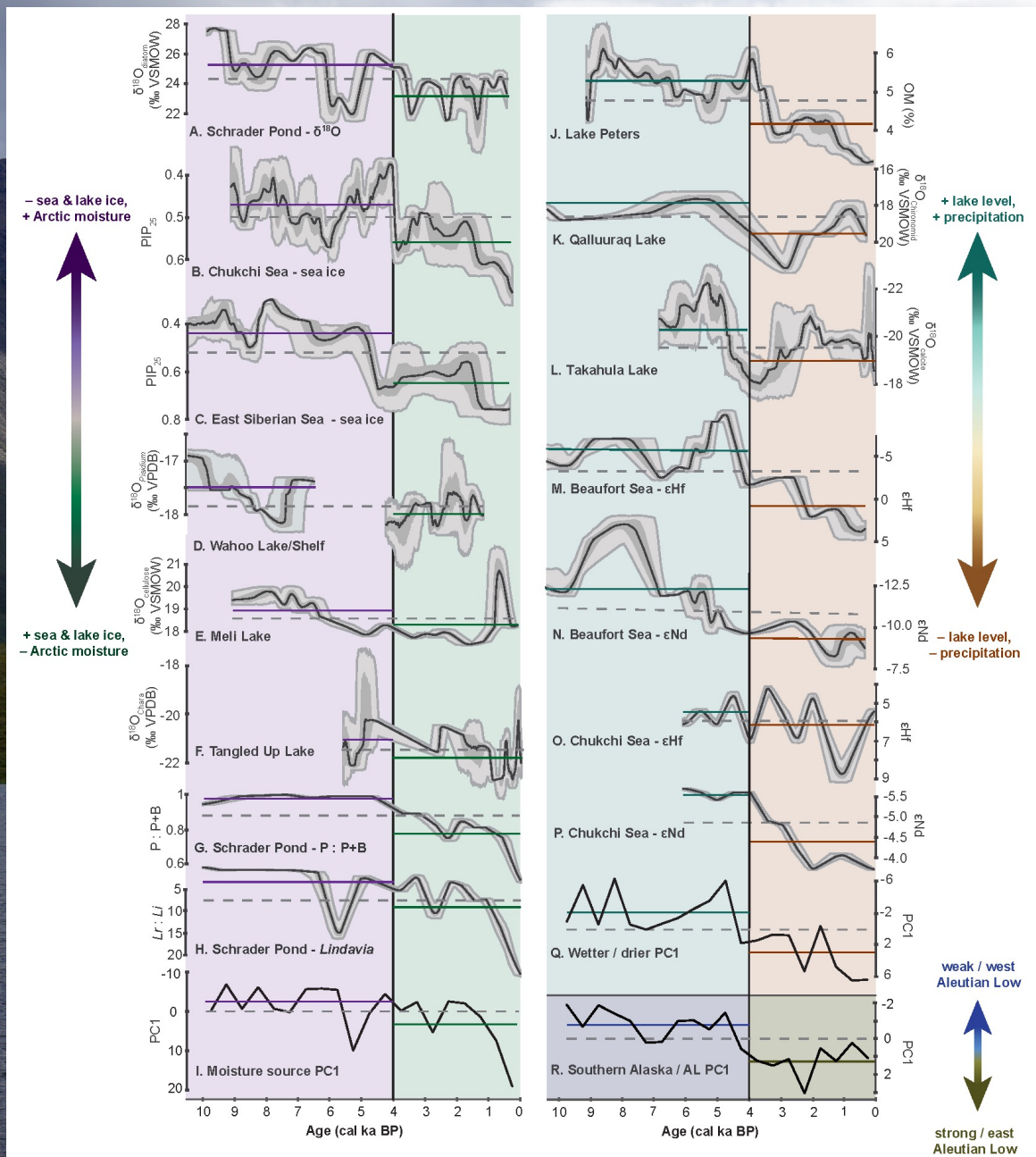












## Conclusions:

- Arctic Alaska was wetter, with more Arctic-derived moisture and less sea ice, in the middle and early Holocene, similar to conditions today and projected for the future
- There is evidence for Arctic – North Pacific teleconnections that drove a ~4 ka transition

Thank you for watching! Check out the paper:

Broadman et al. 2020, PNAS:

<https://doi.org/10.1073/pnas.2016544117>

Questions or Comments? Find me at:

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