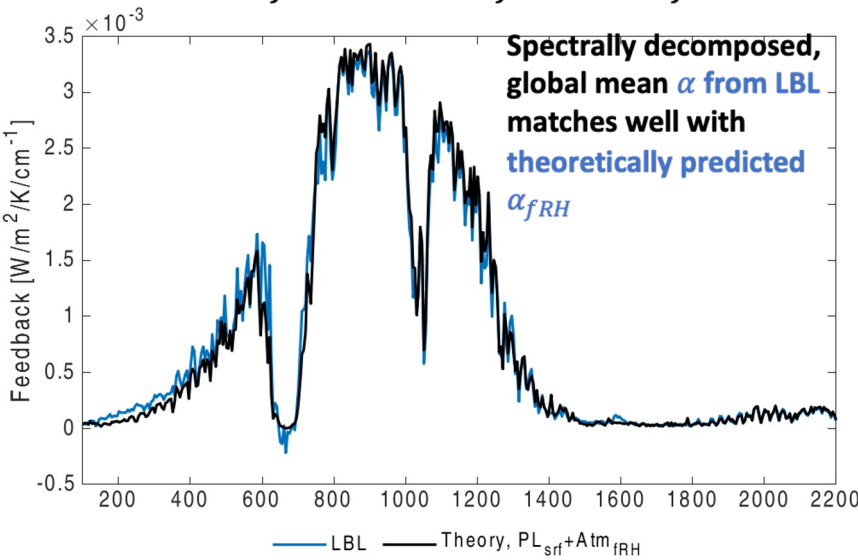


A spectral explanation of clear-sky longwave feedback over tropical ocean

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A conceptual model to explain clear-sky longwave feedback α

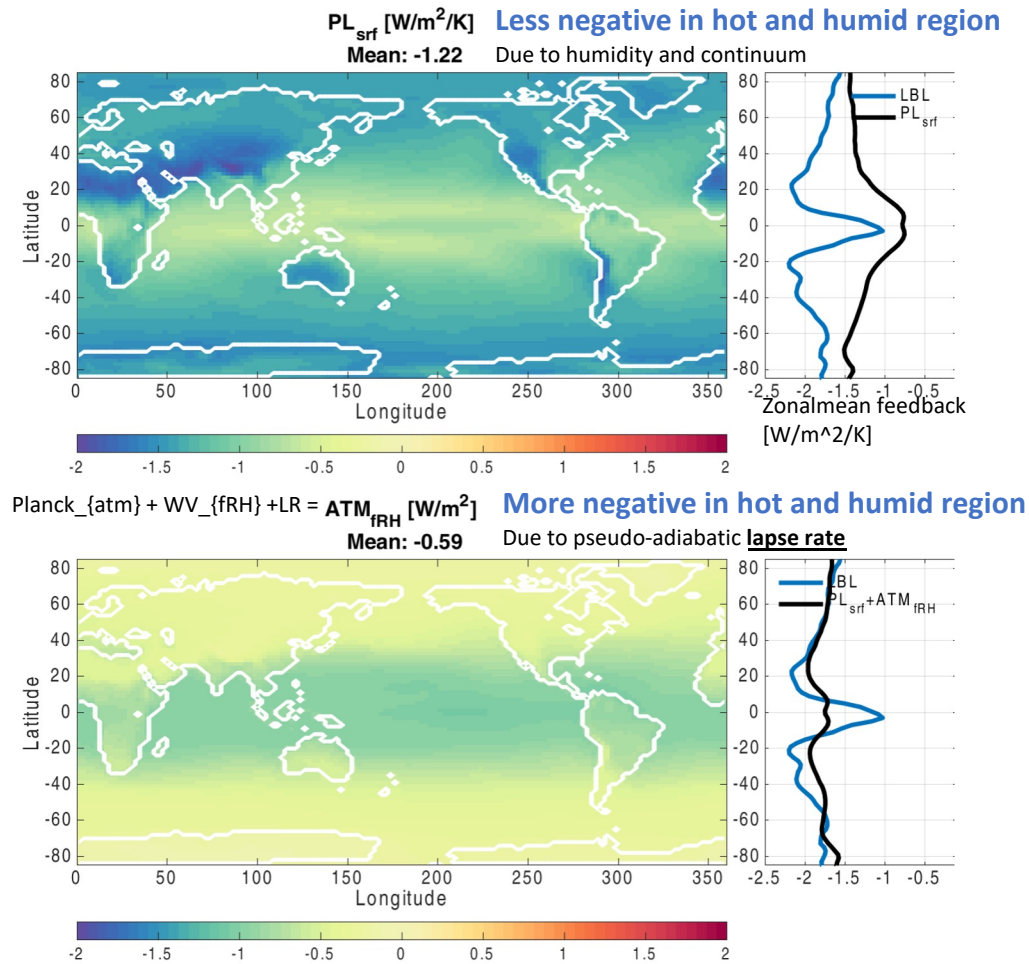
Fixed RH: $\alpha_{fRH} = PL_{srf} + ATM_{fRH}$



Compensation between the two terms

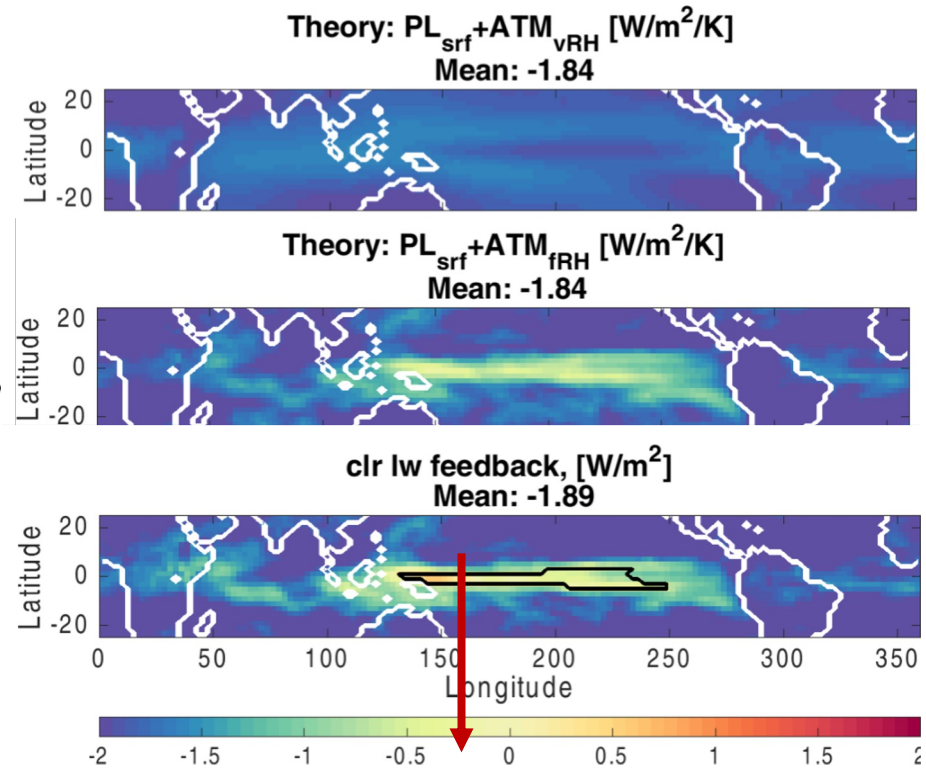
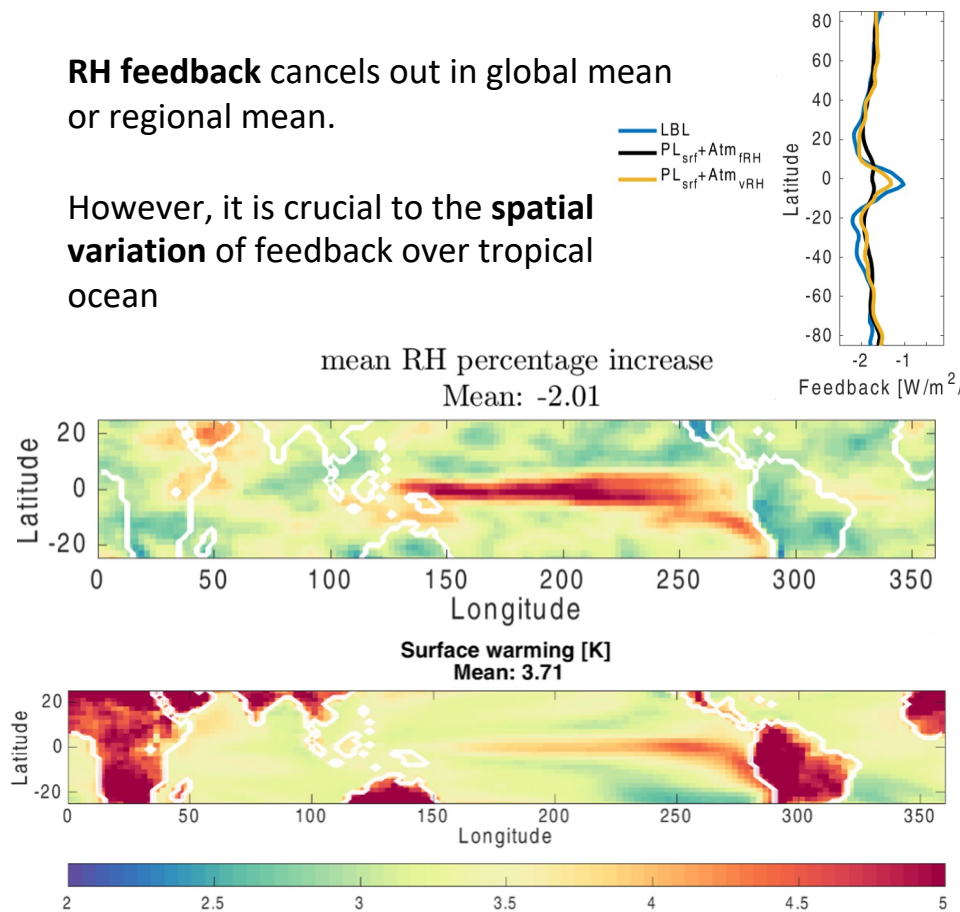
α_{fRH} not sensitive to surface temperature of the background climate state

[How a stable greenhouse effect on Earth is maintained under global warming, Feng et al., in preparation]



RH feedback cancels out in global mean or regional mean.

However, it is crucial to the spatial variation of feedback over tropical ocean



Critical log(RH) increase: $\frac{k g M}{R \Gamma_{pseudo}} \ln \frac{T_s + \Delta T}{T_s}$ for $ATM_{fRH} < 0$

~2.5% per 1K surface warming