Research Notes

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So after correcting (I think) N^2, it appears that we don't get gammas near 0.2 after all....
Trying now to summarize what i've done:

- Identify patches (overturns) in Chameleon profiles using potential temperature. `FindPatches_EQ14_Raw.`
- Compute N^2, T_z, χ, and ϵ for each patch. N^2 and T_z are computed with two different methods. `Compute_N2_dTdz_ChamProfiles_V2.m`
- 'line' method: fit line to T,density to get slope.
- 'bulk' method: From Smyth et al. N^2 is computed from the bulk T_z using a linear fit of density to temperature; $\sigma = \alpha\theta$, and then $N^2 = -\frac{g}{\rho_o}\alpha T_{z<bulk>}$ (Fig 1). `Fit_rho_vs_T.m`.
- Compute $\Gamma = \frac{N^2\chi}{2\epsilon T_z^2}$ from above values (Fig 2).

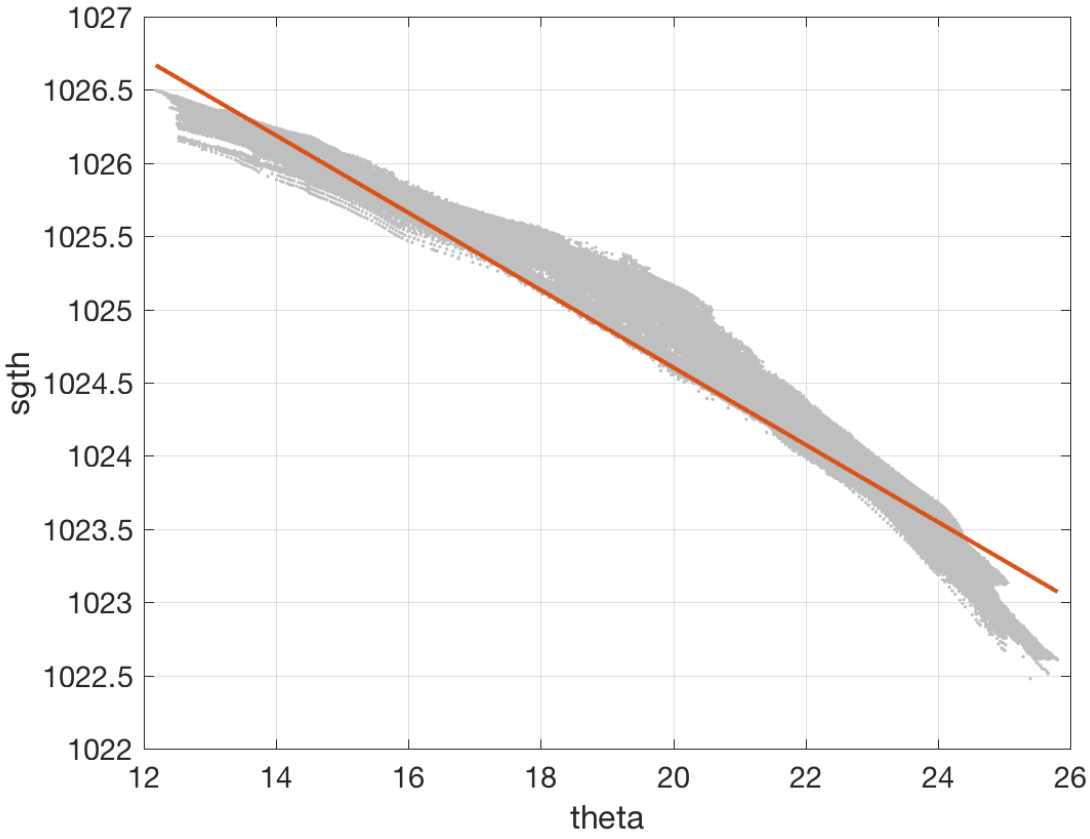

Figure 1: Fit of potential density to potential temperature for EQ14 chameleon profiles.

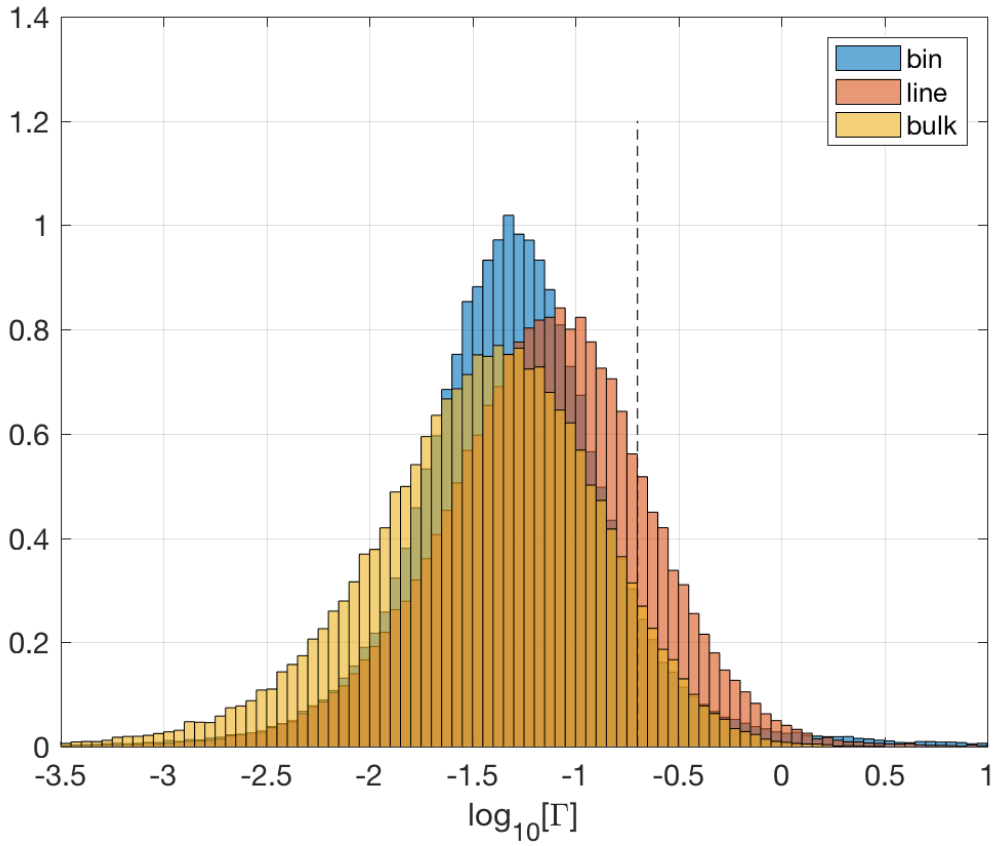

Figure 2: $log_{10}[\Gamma]$ for EQ14 patches. For (1) 1m binned data (2) 'bulk' N^2 and T_z (3) 'line' N^2 and T_z. Dashed line shows $\Gamma = 0.2$