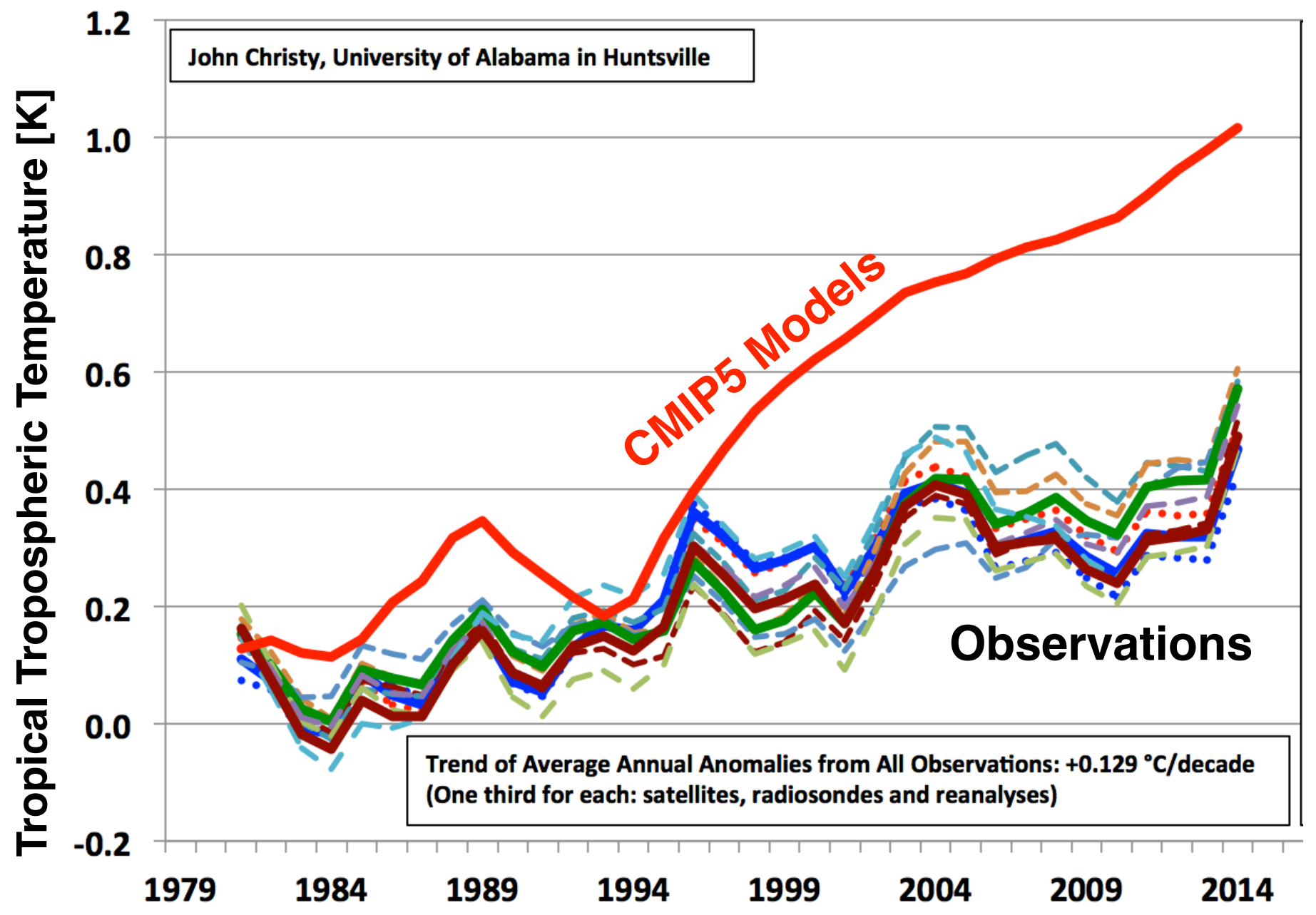


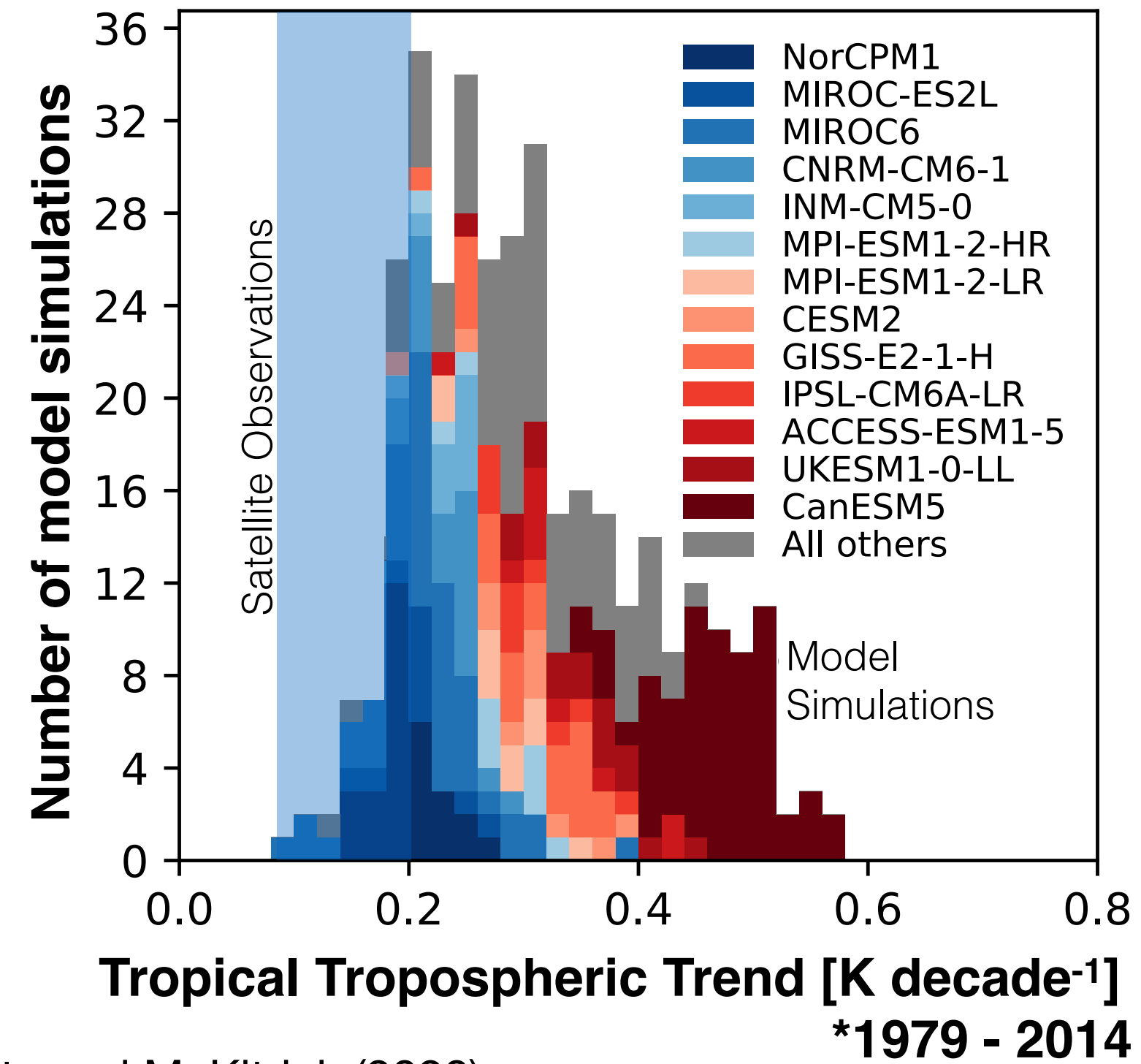
Natural variability can explain model-satellite differences in tropical tropospheric warming

Stephen Po-Chedley, Benjamin Santer, Stephan Fueglistaler, Mark Zelinka, Philip Cameron-Smith, Jeff Painter, Qiang Fu



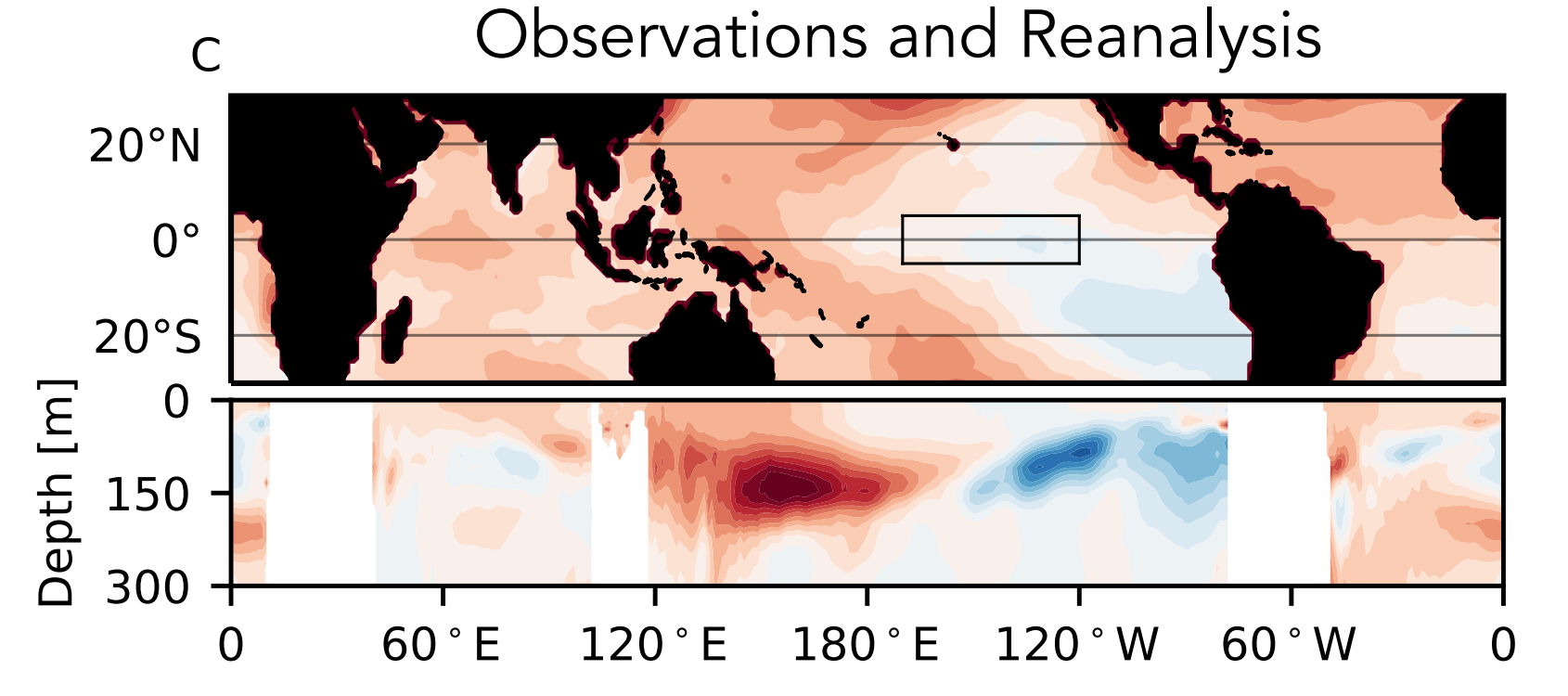
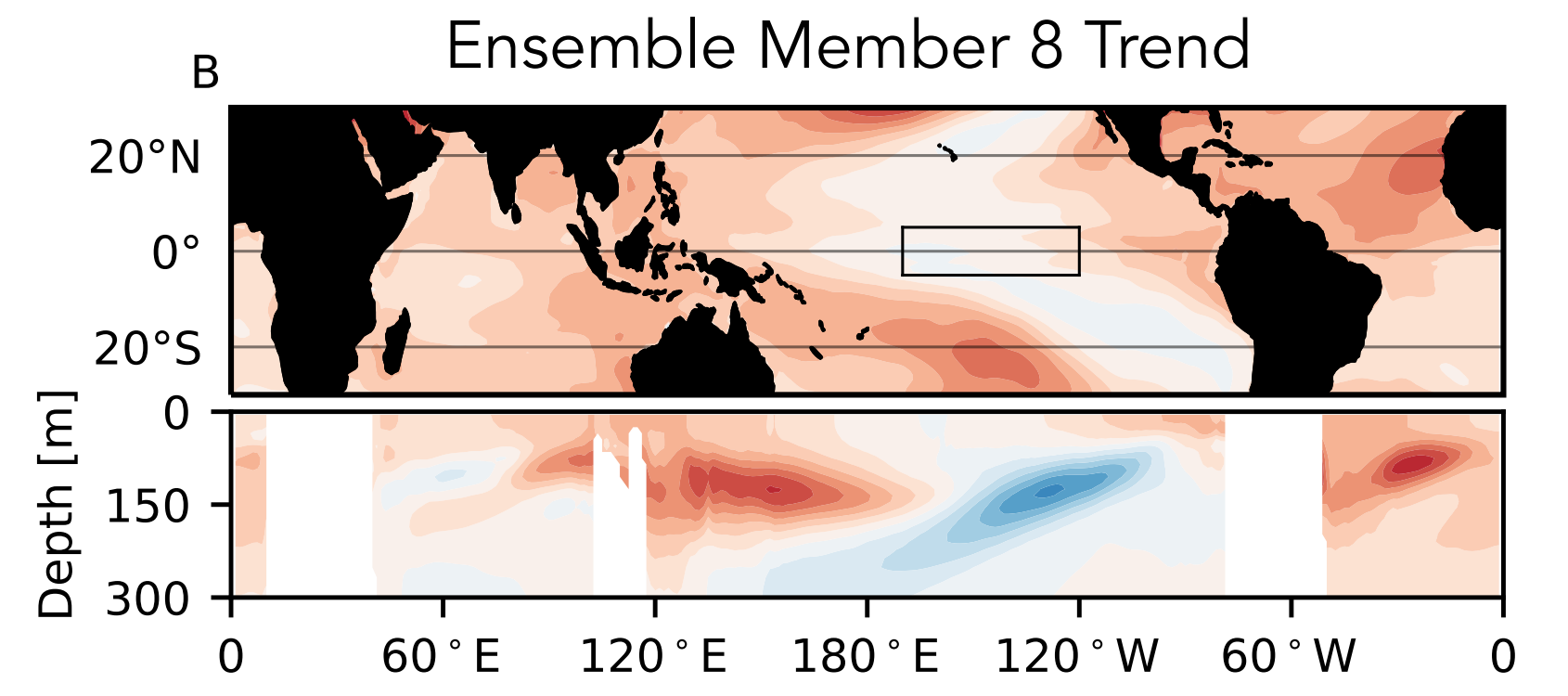
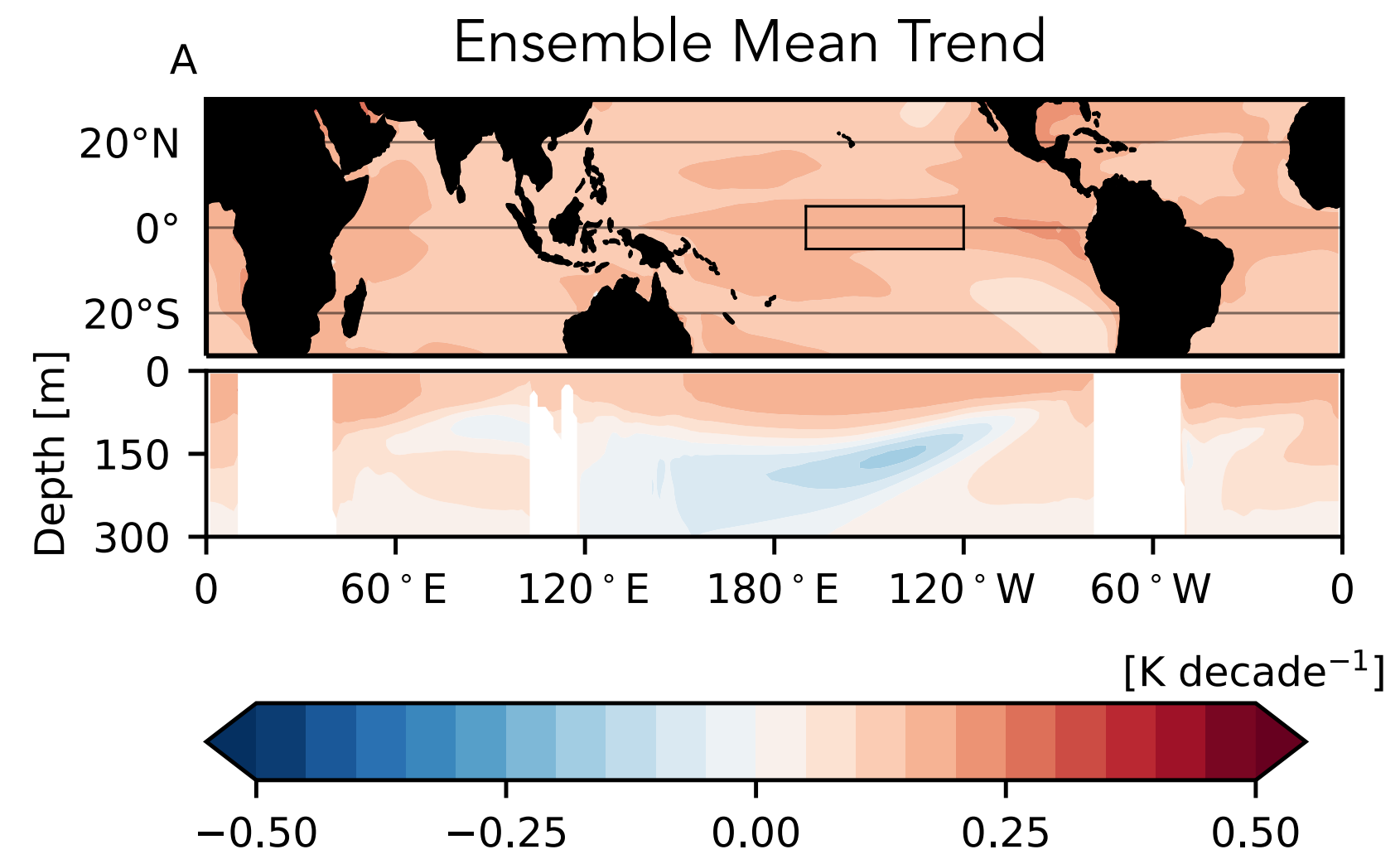
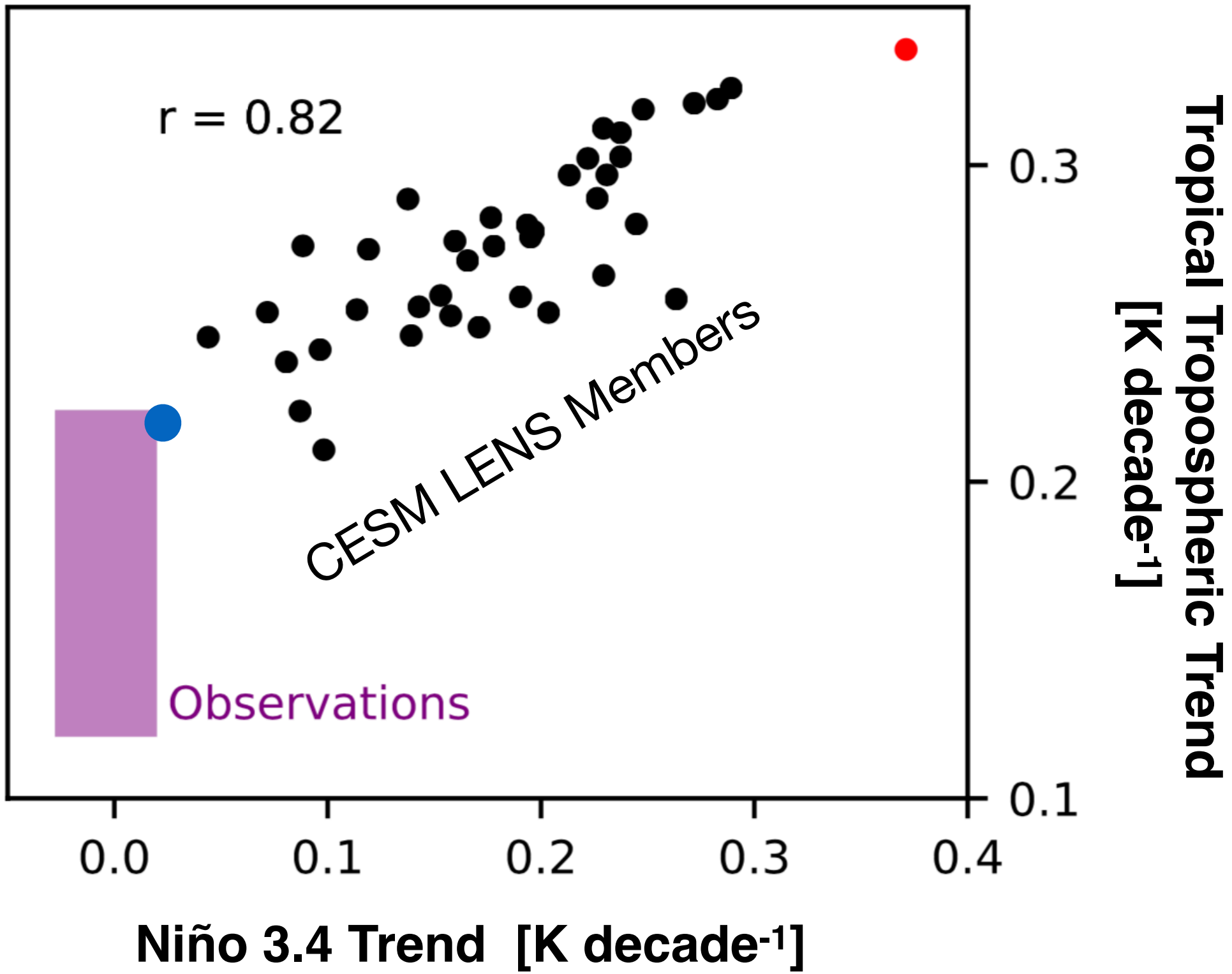
Current Challenge: Many models show too much warming over the satellite era

CMIP6 Models versus Satellite Observations



McKittrick et al. (2010); Christy et al. (2017); Santer et al. (2017); Christy and McKittrick (2020)

Imprint of multidecadal variability



A role for variability and climate sensitivity

- Tropical pacific variability is large (on multi-decadal timescales)
- Tropical tropospheric trends can thus vary widely
- High and low ECS models produce trends in accord with observations
- But high ECS models are less likely to agree with observations

Future Direction / Research Goal:

- Better isolate and quantify both the forced and unforced climate response in observations and models

