Earth System
Dynamics

Discussions

Open Access

ESDD

Interactive
comment

Interactive comment on "Climate change as a driver of future human migration" *by* Min Chen and Ken Caldeira

Jonathan Buzan

jbuzan@purdue.edu

Two comments on your article: 1) rather than presenting the results in terms of RCPs, present them in terms of per degree of global warming. This should simplify your results. GCMs have robust responses in precipitation and temperature (Fischer et al., 2014), and heat stress (Buzan and Huber, 2020, in press).

2) The covariance of temperature-humidity-radiation is overlooked in your analysis, and likely underestimates the impact of unmitigated heat stress—something that T alone cannot resolve. These moist heat stress conditions can vary over the tropics. For example, at 3C of global warming, South East Asia experiences larger reductions in labor capacity (40-60% total annual capacity) as compared to India (50-80% total

Printer-friendly version

Discussion paper

annual capacity). If you calculate this covariance, you will need sub daily variables, as monthly data creates errors larger than the climate change signal (Buzan and Huber, 2020, in press).

Buzan and Huber, 2020: Moist heat stress on a hotter Earth, Annual Review of Earth and Planetary Sciences, in press.

Fischer et al., 2014: Models agree on forced response pattern of precipitation and temperature extremes, GRL, https://doi.org/10.1002/2014GL062018.

Interactive comment on Earth Syst. Dynam. Discuss., https://doi.org/10.5194/esd-2019-79, 2020.

C2