

# ***Interactive comment on “Improving the representation of anthropogenic CO<sub>2</sub> emissions in climate models: a new parameterization for the Community Earth System Model (CESM)” by Andrés Navarro et al.***

## **Anonymous Referee #2**

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### General Comments:

This paper highlights the importance of grid point scale modeling of anthropogenic pollutants, especially CO<sub>2</sub>, and the integration of such modeling through a new module called “Population Parameterization for Earth Models” (POPEM). The module is integrated into a highly distributed climate model like Community Earth System Model (CESM). The authors present clearly and adequately the added value of their contribution (POPEM) to the model simulations and underline its impact to the climate predictions of both precipitation and temperature.

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Minor comments:

Figures 6B and 8B do not illustrate clearly any differences between GPCP – CONTROL, GPCP – POPEM and CRU – CONTROL, CRU – POPEM respectively. Maybe the authors should consider an alternative way to show the differences.

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