

Interactive comment on “Comment on “Radiative forcings for 28 potential Archean greenhouse gases” Clim. Past 10, 1779 (2014)” by R. V. Kochanov et al.

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Reviewer #3:

We thank the reviewer for comments regarding our paper

Reviewer: The comment is well justified and appropriate in its critical language. A reader could, however, end up with the impression that the Byrne and Goldblatt paper is all rubbish. This is not necessarily so; Byrne and Goldblatt made some mistakes and deserve criticism for these. If the authors are of the opinion that the general conclusions by Byrne and Goldblatt are erroneous they should state so. If they do not feel qualified to make such a statement, they should admit this.

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Our response: The use of incorrect spectroscopic parameters or (how it happens in the BG paper for NO₂ or CH₃Br) scaling of correct spectroscopic parameters to match the incorrect ones leads to calculation of incorrect radiative forcings. Nevertheless the reviewer's point is well taken. We now say following in conclusions. “ We believe that the endeavor of the BG authors to simulate the Archean atmosphere is a commendable one. We also think that their general approach to calculate radiative forcings is correct. Unfortunately, the conclusion of this comment is that for the gases discussed here, Fig. 1, Fig. 11 and discussions around them in the BG paper are incorrect. Consequently, the radiative forcings calculated there for the aforementioned molecules are in error. ”

Interactive comment on Clim. Past Discuss., 11, 1985, 2015.