IJC Round 2 Reviewer #2 Dr Radan Huth International Journal of Climatology huth@ufa.cas.cz

Reviewer: 2

Referee(s)' Comments to Author:

Comments to the Author

The author concludes that the uncertainty in projections from climate models is at least an order of magnitude larger than seen in standard climate models.

Central to the analysis is the simple model defined in equation 6. This, I believe, is a variant of the step-response model of Good et al. (2011), which is not cited (it is hard to follow the derivation).

Using this model, the forcing error term of magnitude 4 Wm-2 is assumed. This is where the fundamental error of the paper lies. Although there may be a model spread in estimates of the mean radiative balance of the atmosphere, this is irrelevant when estimating the incremental (year-to-year) potential error in forcing. This will be much less.

Based on IPCC AR5 Chapter 12 fig 12.4, the total error in forcing at the end of the 20th century is of the order of +/- 1 Wm-2. Assuming year-to-year errors to be uncorrelated in time, a simple calculation, dividing this number by 100 (years), yields a year-to-year error of +/- 0.01 Wm-2. This would lead to an uncertainty in projected temperature that is much less than is claimed here and much closer to that seen in the CMIP5 models. Even if this calculation is over simplified, it is hard to see how a year-to-year error in radiative forcing could be anything like 4 Wm-2.

In addition to this fundamental flaw, the paper is very poorly written, contains sections that seem irrelevant to the main conclusions and does not adopt the standard approach of working with anomalies. There may well be further fundamental flaws in the irrelevant sections.

Good et al., GRL VOL. 38, L01703, doi:10.1029/2010GL045208, 2011