

Interactive comment on “Only the instantaneous global warming potential is consistent with honest and responsible greenhouse gas accounting” by Peter Nightingale

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The paper is clearly intended to correct a widespread, misguided, and irresponsible use of the GWP. Is the previous statement a value judgement? Yes, it is but it also is shorthand for an experimentally verifiable statement. Just rephrase it as a conditional statement assuming a purpose shared by most of humanity.

Scientific journals and their editorial policy determine the direction of scientific development. Science ideally is objective; the direction in which it develops is not: a scientific journal with jellyfish as editors would put a very different spin on ocean acidification.

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"Instantaneous" in the title of the paper is appropriate. The paper discusses the GWP, and shows that only the instantaneous version can be used to produce useful greenhouse gas inventories in terms of carbon equivalents. I discussed this in detail in my previous referee comment. Nevertheless, that is what this tool is commonly used for. The experimental test of how detrimental that is for life on earth is being performed as we speak.

If one's purpose is to make the most accurate predictions, one should use the best possible models. However, if the purpose is to change misguided policies based on failed heuristic metrics, it seems to me to be better to use simple arguments. Although the mathematics may still be beyond the grasp of most policy makers, this is what the paper tries to do. In the process, as mentioned before, the paper shows that there is a serious time scale issue having to do with the virtually impossible to quantify crossing of climate tipping points.

All of the above is well-known, but obviously human behavior, an important determinant of climate dynamics, is not informed by those who know this well. It seems to me that it is the role of scientific journals to play a peer-reviewed role in this correcting this.

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