

# Review of: "The Anthropocene Borderline Problems"

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This is a well-written paper that draws on the interesting theme of the borderline problem of definition of the Anthropocene as an Epoch, an Event or an Episode and the associated societal implications of those terms. As emphasized by the author, the choice of terms has implications on positioning humans and human societies with respect to the narrative of change that shall be necessary to adapt politic, and socio-economic institutions to the challenges of re-balancing human activities within planetary boundaries.

As a general comment, I would encourage to anchor the paper in a more consistent analysis of the change at play as well as a more consistent analysis of the ICS terminology. I believe this would help to anchor the choice of the appropriate terminology more in science and history rather than based on philosophic and societal grounds. The outcome maybe similar but may bear more weight.

In section 2, I would encourage the author to add to the rigorous definition of those 3 terms (Epoch, Episode, Event) examples of how each of them has been used by the ICS. I'd encourage to compare that with examples of geological boundaries and associated processes at play. Some of them are more cataclysmic than others, because of the geological process/driver responsible for the change. For instance, the K/T boundary marked by a global iridium spike in the rock record marks a clear boundary in time, that is datable and attributable to a quasi-instantaneous process/event (i.e., asteroid impact). This may contrast with the Permo-Triassic boundary, seen as the consequence of the eruptions of the Siberian traps that triggered directly or indirectly a more gradual changed the composition of the Earth's atmosphere over thousands of years also leading to a mass extinction.

In parallel, another good addition to the paper could be a succinct reminder of the evidence that have led the ICS to validate the term Anthropocene. There is a change happening, what are the evidence we can already see (GHG concentration increase in the atmosphere, report of the erosion of faunal and floral biodiversity - i.e., mass extinction) and what is their magnitude? How does that compare with other geological boundaries.

The rigorous comparison of existing geological boundary and geological processes at play with the evidence of change recorded for the Anthropocene should anchor the discussion in historical evidence of how other geological boundaries have been defined and how the Anthropocene should be termed accordingly.

While I agree with the need to find and use the appropriate term to define the Anthropocene because of the implications on the societal narrative, I also believe that the appropriate term, if chosen in a consistent manner with respect to the evidence above will weigh more importance.

One last comment is about the scale of time which would deserve to be discussed. Indeed, one of the reasons making the choice of terminology even more difficult when it comes to the Anthropocene is that we are within it. We do not have the ability to take enough step back to know whether we are at the end of the Holocene, just at the beginning of the Anthropocene or within the geological boundary (Let alone questioning whether the Anthropocene is a new Epoch, a new Period or a new Era - but that is more a question for the ICS). This is related to the scale of observation. The observation available only goes back several decades for geological processes that have typically been recorded in the rock record at the scale of thousands to millions of years. So, because of the latency of the Earth system's response to change and the scale to which we are able to make those observation, some of the observables of the change are still missing and can't yet be observed (e.g., marine transgression, change in the sediment record). I think this should be discussed because at the moment we do not yet see all the observable evidence of the difference between the Holocene and the Anthropocene and the change at play – this should be considered when defining the terminology.