

## Peer Review Report

# Review Report on Crafting Attributes of a Geological Now

Original Research, Earth Sci. Syst. Soc.

Reviewer: Nigel Clark

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### EVALUATION

#### **Q 1** Please summarize the main findings of the study.

The paper introduces the Anthropocene hypothesis, reports on its context, sketches out its key claims and introduces the controversies that currently exist both around its formalization by the apposite geoscience authorities and wider intellectual circles. The argument hinges around the current split amongst geoscientists invested in the Anthropocene concept between those who favour a drawn-out, time-transgressive Anthropocene event (AVC) and those who favour an Anthropocene epoch (APC) with a relatively distinctive and relatively brief geosynchronous starting point (namely the post-World War 2 'Great Acceleration'). After mapping out the conflicting positions, the paper uses historian of science Jurgen Renn's ideas around economies of knowledge and borderline problems to negotiate between the two positions. It concludes by considering the possibility that there are ways through this current controversy, including the suggestion of an 'Anthropocene Modification Episode' and a formal distinction between a geological 'now' designated as outside the Geological Time Scale, and a geological past that is included within the GTS.

#### **Q 2** Please highlight the limitations and strengths.

The paper offers a timely introduction to the two sides of debate: the AVC and APC positions. Much of the setting up of these two positions is detailed and informative, and some of the implications are set out.

However, the paper does not address the strong rebuttal of the AVC position by APC advocates over their use of the geological term of the 'event' or the attention APC proponents have drawn to the way events currently feature in existing baselines in the Geological Time Scale (see esp Waters et al 2022). Although, or rather, because I am not an Earth scientist, these details seem vital for me to know – and they would appear relevant to the later point made in the paper about an 'Anthropocene Modification Episode'. It would also be useful somewhere in the paper to point out the diverse, but rather different very meanings of 'event' in the social sciences/humanities.

Overall I find the summary of the two positions rather unsystematic, and in particular I don't feel the socio-political implications of each position have been clearly laid out. For example, the paper claims: 'As the Great Acceleration in the mid twentieth century is chosen, affluent Western societies are indicated as hegemonic collective agents' (p 6). But that needs teasing out and backing up as some critical social thinkers (eg Chakrabarty 2021) have also stressed the role of the desire of newly independent former colonies for 'development' as a significant factor. The current paper itself seems to contradict this by arguing 'Both concepts (AVC and APC lump the human socio-political-economic agents into the (debatable) notion of an Anthropos (p 6)', which I return to below. And while the claim is made that "[political] ideas that developed under Holocene conditions' are no longer relevant, is suggestive, it needs proper development.

The use of Renn's work is relevant and potentially illuminating, as it explicitly addresses the Anthropocene. But I think it needs to be more systematically set to work if it is going to help arbitrate between the AVC and APC positions.

The question about whether or how the implication of human agents both causally and as observers of the Anthropocene should impinge upon the actual processes of formalizing the Anthropocene (and the GTS time scale more generally) is an intriguing one (p21) I fully agree with the point that 'the scientific-bureaucratic

process of the ICS/IUGS community, of which the AWG is a part, was not designed to debate scientific issues that have repercussions far beyond the participating disciplines'. But again this needs more systematic treatment, particularly around the implication of including other disciplines, or interest groups, or knowledge formation in the decision making process.

Finally, I found the consideration of the 'geological now' as distinct from the geological past very promising, and I assumed from the title it would be more central. But it comes very late in the paper, and feels insufficiently explored.

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**Q 3** Please comment on the methods, results and data interpretation. If there are any objective errors, or if the conclusions are not supported, you should detail your concerns.

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The paper relies upon a reading of key texts in the geoscience Anthropocene debate, supplemented by selected works from other disciplines. As indicated above, I have some issues with the interpretation of these texts.

Most seriously, the claim is made several times in the paper that the AVC position equates with 'business as usual'. This claim would require much more support/evidence, as it appears out of keeping with the level of concern with (certain) human activities that I take from the literature. For me the lack of justification for this claim undermines the points in the essay about the social implications - or the implications for interdisciplinary dialogue - of the AVC position.

There are other points I find too simplistic. Eg 'Both concepts (AVC and APC lump the human socio-political-economic agents into the (debatable) notion of an Anthropos (p 6)' This point has often been made by social scientist, and often quite lazily. We need to recall that Crutzen made it clear in the (cited) 2002 paper that the Anthropocene was caused by just 1/5 of humanity, and later AWG papers teased this out, partially in response to social science critics. So too have AVC proponents insisted on the differentiation of the Anthropos: this being a key rationale for their approach.

It is indeed intriguing how the advocates of both the AVC and the APC positions make claims for the socio-political implications of their approaches and make suggestions about what these might mean for interdisciplinary collaborations. But for me the current paper does not succeed in systematically laying out or weighing up these claims.

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**Q 4** Check List

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Is the English language of sufficient quality?

Yes.

Is the quality of the figures and tables satisfactory?

Not Applicable.

Does the reference list cover the relevant literature adequately and in an unbiased manner?

Yes.

Are the statistical methods valid and correctly applied? (e.g. sample size, choice of test)

Not Applicable.

If relevant, are the methods sufficiently documented to allow replication studies?

No answer given.

Are the data underlying the study available in either the article, supplement, or deposited in a repository? (Sequence/expression data, protein/molecule characterizations, annotations, and taxonomy data are required to be deposited in public repositories prior to publication)

Not Applicable.

Does the study adhere to ethical standards including ethics committee approval and consent procedure?  
Not Applicable.

If relevant, have standard biosecurity and institutional safety procedures been adhered to?  
Not Applicable.

**Q 5** Please provide your detailed review report to the editor and authors (including any comments on the Q4 Check List):

I am grateful to the author for the way he has opened up a range of issues, and sent me back to (and introduced me to new) key Anthropocene texts, especially those recent texts that are central to the AVC/APC debate. But returning to the paper having read or reread these texts, I found myself struggling to find the 'added value' of the paper in helping me to negotiate between the two approaches. This is partly about being unconvinced by some of the key claims, but it is also about how they are organised. The argument seems to go backwards and forwards a lot, and I don't get the sense of a strong narrative or systematic appraisal emerging. There are quite a few tensions between different points in the paper, and it is not always clear to me when the author is giving his own position and when he is summarising the respective approaches.

**QUALITY ASSESSMENT**

<b>Q 6</b> Originality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Q 7</b> Rigor	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Q 8</b> Significance to the field	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Q 9</b> Interest to a general audience	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Q 10</b> Quality of the writing	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Q 11</b> Overall quality of the study	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>