



Response to Waters et al. (2022) The Anthropocene is complex. Defining it is not

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ABSTRACT

In response to our definition of the Anthropocene as a geological event analogous to the Great Oxidation Event and other complex, transformative events in the geological record (Gibbard et al., 2022a, 2022b), Waters et al. (2022) offers a suite of detailed and novel terminology for the Anthropocene with little or no previous support in the geological literature. The term “event” is already widely used as a general term in geology. We maintain that the Anthropocene is best understood through this general definition as a complex, heterogenous and ongoing event composed of manifold identifiable events occurring within it.

The Anthropocene has long been generally defined as a time during which human activities play a significant part in the Earth system (Crutzen, 2002; Oxford English Dictionary, 2014). In response to efforts to define the Anthropocene more narrowly as a geological epoch starting precisely in the middle of the 20th century (Head et al., 2022), we proposed that the Anthropocene instead be defined more generally as a complex, transformative, and ongoing event analogous to the Great Oxidation Event and others in the geological record (Edwards et al., 2022; Gibbard et al., 2022a, 2022b).

Waters et al. (2022) have now responded to our Anthropocene event definition by proposing to define an “Anthropogenic Modification Episode (AME)” within which are nested “many geologically correlatable events, the most notable being those of the Great Acceleration Event Array (GAEA)”. As part of this new suite of definitions, they also

propose to distinguish between “events”, which they define as isochronous and abrupt, and “episodes,” which they define as diachronous and long (greater than approximately 1000–10,000 years).

There is little or no previous support for these novel distinctions in the geological literature. The primary sources cited in Waters et al. (2022) are Ager (1973) and the North American Commission on Stratigraphic Nomenclature (2005). Regarding the latter, Waters et al. (2022) acknowledge that their use of “episode” is not in the formal sense of this Code. Ager (1973) offers no geological definition of episode but applies the word “event” to happenings of both short and long duration. Significantly, neither source defines time limits to events; multiple examples are given of events that are larger and more complex in time and space, and that are composed of multiple smaller events.

Event is widely used in geology for many types of phenomena (mass

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extinction event, orogenic events) and for specific transformations of the Earth system (e.g., Great Ordovician Biodiversification Event). The Anthropocene is best understood as a complex, heterogeneous event composed of manifold identifiable events occurring within it (Gibbard et al., 2022a, 2022b).

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

No data was used for the research described in the article.

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