



# The Spectrum of the Anthropocene Debate: From the Natural Sciences to the Humanities

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**Abstract.** The objective of this article is to investigate the meaning of the Anthropocene by scrutinizing its origins, definitions, and implications in both natural sciences and humanities. The scientific community predominantly approaches the Anthropocene from the viewpoints of geology and environmental science to address environmental predicaments through scientific and technological advancements. In contrast, scholars in the humanities acknowledge the immense influence of human beings and aspire to dissolve the boundaries between natural sciences and humanities. They endeavor to reconceptualize the relationship between humans and nature from a non-anthropocentric perspective. The primary aim of this article is to elucidate the comprehension of the Anthropocene by examining the anthropocentric and non-anthropocentric interpretations surrounding it. Given the escalating environmental crisis, such as global warming, the present study offers a valuable contribution to the ongoing discourse surrounding the management of the intricate relationship between human beings and the natural world. The findings of this research have the potential to inspire a deep and meaningful reflection on the boundaries of human capacity and the extent of human agency in relation to the environment, thereby fostering a greater awareness and appreciation of the complex interplay between human beings and the natural world.

**Keywords:** Anthropocene · non-anthropocentrism · environmental crisis · extinction of species · T. Morton · E.C. Ellis

## 1 Introduction

In 2000, the Anthropocene was proposed as a geological epoch by Dutch scientist P. Crutzen at the International Geosphere-Biosphere Programme (IGBP) conference in Mexico. Since then, this concept has gradually gained prominence in both natural science and humanities fields [1]. The Anthropocene represents another geological epoch that follows the Holocene, indicating that human activities have become potent enough to alter the geological structure.

Nevertheless, the Anthropocene's significance goes beyond its geological implications. As a term that has emerged in the field of geology, the Anthropocene is not only a topic of study for natural scientists. It has also led to a philosophical reconsideration of the relationship between humans and nature, nature and history, and history and society by scholars in the humanities.

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## 2 From the Natural Sciences to the Humanities

The concept of the Anthropocene can be traced back to the late 19th century when Italian geologist A. Stoppani proposed the initial idea of the “Anthropozoic” in 1873. Stoppani recognized that *Homo sapiens* possessed significant power and could pose a threat to the artificial biosphere [2]. However, the term did not gain much attention until the 1980s when American biologist E.F. Stoermer employed the term Anthropocene to describe the alterations in the natural environment resulting from human activities [3].

Since Crutzen’s formal proposal of the term “Anthropocene”, it has garnered significant interest from scholars in various fields. The Anthropocene has frequently surfaced in academic conferences and journals that address environmental crises and has rapidly spread among scholars in different disciplines. The reason for this surge in attention is that the Anthropocene is altering our perspective on human history and the world. As E.C. Ellis notes, the Anthropocene requires a significant shift in our perspective [4]. Thus, the impact that the Anthropocene has on various fields of study cannot be underestimated.

Certain natural scientists maintain that through the use of advanced technology and comprehensive knowledge, humans can reinstate the functionality of ecosystems. Scholars such as Stoermer and Crutzen contend that human activities since the industrial revolution have inflicted significant harm on the planet, with excessive carbon dioxide emissions serving as a prime example. To address this issue, Crutzen suggests utilizing climate engineering to manage greenhouse gases and other technologies to facilitate rational resource management, thereby restoring the environment to its natural state [5, 6]. R.T. Corlett, a British biologist, similarly endorses implementing novel management actions based on an understanding of constantly changing ecosystem conditions, as detailed in “*New Approaches to Novel Ecosystem*” (2014). Nonetheless, the historical assumptions underpinning proposed new ecosystems remain contentious, underscoring the need for ongoing discourse and investigation of the Anthropocene [7].

Humanities scholars have taken a different approach to the Anthropocene compared to natural scientists. Many of them have been interested in exploring the philosophical implications of this concept. They argue that the Anthropocene has fundamentally altered the relationship between humans and the environment, and has even challenged the traditional classification of species.

According to J. Jensen, an American environmental philosopher, contemporary society exists in a boundaryless world. While defining boundaries can help individuals comprehend the intricacies of the world, it does not accurately portray the world's reality [8]. Katsumi OKUNO, a cultural anthropologist, underscores the significant influence that humans have on the environment, as well as their profound reliance on it. OKUNO further argues that the Anthropocene epoch has eradicated the distinction between humans and nature and between natural sciences and humanities [9]. Dipesh Chakrabarty, an Indian historian, maintains that the Anthropocene period fundamentally intertwines humanity and nature. In his work "*The Climate of History: Four Theses*" (2009), Chakrabarty employs the Anthropocene in both the natural sciences and humanities to examine historical and social studies. The crises arising from climate change and global warming prompt individuals to contemplate the past, present, and future, in which both history and nature play critical roles. As human beings become increasingly powerful and capable of modifying the climate, human history, and nature are inseparable [10]. Mayu IIDA, a humanities scholar, employs Donna Haraway's perspectives to examine the characteristics of the Anthropocene. IIDA believes that rather than monitoring the boundaries between nature and culture, Haraway concentrates on the interconnection between them [11]. Therefore, the discussion on the Anthropocene transcends cultural dimensions to include material or biological elements. IIDA posits that the Anthropocene is a narrative with a visible beginning and end, where the end of the Anthropocene denotes a world devoid of humans. However, despite anticipating such an end, it is challenging to comprehend such a world accurately. As such, IIDA believes that it is the role of the humanities to offer imaginative ideas (Ibid.: 119).

The above discussion reveals that humanities scholars prioritize reexamining conventional binary thinking and exploring the profound connection between humans and nature, in contrast to natural scientists who rely on human power to address environmental crises. Additionally, humanists aim to interpret the significance of the Anthropocene epoch from a non-anthropocentric perspective, diverging from technocentric approaches. In recent times, there has been a growing anticipation among scholars in the humanities regarding the advent of the Anthropocene epoch, which is expected to catalyze fostering of greater creativity and innovation in the humanities, particularly in the context of addressing urgent environmental concerns. The prospect of this new epoch has the potential to inspire fresh and imaginative ways of conceptualizing environmental issues, which in turn may lead to more effective strategies for addressing these challenges. As such, the emergence of the Anthropocene represents an exciting opportunity for the humanities to contribute meaningfully to the development of a more sustainable and equitable global society.

### 3 From Anthropocentrism to Non-anthropocentrism

T. Morton, a prominent humanist who contributed to the conception of the Anthropocene epoch, argues that the environmental crisis that defines this epoch has sparked innovation in epistemology and ontology, challenging the traditional anthropocentric worldview. The looming threat of the sixth mass extinction event caused by the Anthropocene is a cause of anxiety for humans, as their ability to defend themselves is diminishing, rendering them vulnerable to extinction [12]. For Morton, the Anthropocene does not imply anthropocentrism but instead signifies the precarious position of humans in the face of ecological degradation. Similarly, C.B. Jensen, a cultural anthropologist, advocates for a non-anthropocentric interpretation of the Anthropocene to counter the criticism that it implies anthropocentrism. According to Jensen, human agency is dwindling, necessitating a deeper understanding of the roles and energies of non-human entities in the Anthropocene [13]. This is why Morton affirms the Anthropocene.

As Ellis argues, the Anthropocene represents more than just a new narrative about the relationship between humans and nature; it also marks a significant scientific paradigm shift known as the “Second Copernican Revolution.” This paradigm shift has the potential to transform our understanding of what it means to be human (Ellis, 2018: 4). The term “Second Copernican Revolution” implies that the concept of the Anthropocene has not been without controversy. The Anthropocene’s emphasis on the interconnectedness of humans, animals, plants, pollutants, scientific technologies, and the universe has been supported by an abundance of evidence, making it difficult for opponents to refute. This has angered those who are resistant to change, as the Anthropocene challenges long-standing beliefs about human beings and their place in the world. As Ellis notes, the scientific revolution that challenged the notion of an all-powerful God was already disruptive to traditional beliefs, but the Anthropocene’s emphasis on human power is even more challenging (Ibid.: 6).

Morton and Ellis directed their attention towards Darwin’s theory of biological evolution, albeit with distinct objectives. Morton aimed to substantiate the idea that humans are not fundamentally dissimilar from other living beings. He posited that humans’ genetic resemblances to other creatures, coupled with their capacity for aesthetic contemplation, underscored their non-specificity as a species. This line of reasoning served to augment Morton’s non-anthropocentric stance. Darwin’s earlier writings suggested that humans had emerged through natural selection, rather than divine creation. As just another species, humans shared genetic similarities with chimpanzees and lacked any inherent specialness [14]. However, the emergence of the term “Anthropocene” has propelled humans back into the spotlight, imbuing them with a newfound sense of exceptionalism. Yet, this unique status does not connote any accolade; rather, it exposes humans as a “profoundly disruptive force” (Ellis, 2018: 12). The Anthropocene has fundamentally challenged Darwin’s discourse on species, thrusting humans, who were once viewed as no different from other animals, into a position of power. Consequently, the Anthropocene has garnered attention and stirred up debates, according to Ellis.

Despite Morton and Ellis having different objectives, they both acknowledged the considerable influence wielded by humans. Additionally, Ellis notes that certain environmentalists reject the Anthropocene because its premise of pollution affecting every corner of the planet undermines the goal of environmental conservation. Addressing such

severe environmental issues poses a significant challenge, and as such, the Anthropocene amplifies the extent of human power, which can lead to despair among environmentalists. Some still maintain the belief that “naturalness” exists on Earth, making environmental preservation challenging but also increasing its value (Ibid.: 129).

Consequently, an overemphasis on human power can undermine the confidence of environmentalists, which is not conducive to restoring the natural environment. Morton’s perspective highlights the importance of humans recognizing their limitations, even as they acknowledge their immense destructive power. This balanced view can foster a stronger awareness of environmental protection among humans and promote responsible action.

## 4 Conclusion

On one hand, natural scientists, influenced by technocentrism, advocate that humans bear responsibility for solving severe environmental problems by harnessing the knowledge and scientific technology. They exhibit an optimistic outlook toward human power. Conversely, humanities scholars emphasize recognizing the interdependence between humans and nature, as well as acknowledging the limitations of human power in the face of environmental crises. This concept aligns with the message conveyed by the Anthropocene.

The Anthropocene serves as a significant force in reassessing the connection between humans and nature. In light of various environmental crises, particularly the imminent prospect of the sixth mass extinction, it is essential to acknowledge that the intricate and expansive world cannot be comprehended through a binary separation of humans and non-human entities, such as nature. In the wake of the Anthropocene, which has been marked by the ascendancy of human influence on the environment, scholars across diverse disciplines have been taken aback by the extent of the devastation wrought by human activity. The severe environmental crisis caused by human actions has exposed the vulnerability of humanity, thereby disrupting conventional modes of thought and creating new avenues for investigating the intricate and complex relationship between humans and the natural world. This disruption has opened up exciting opportunities for scholars to explore and engage with environmental issues in novel and innovative ways, thereby contributing to the ongoing discourse on sustainability and human-environmental relations.

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