The Age of Man

A Conceptual History of the Anthropocene

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Abstract

This thesis studies the emergence of the concept of Anthropocene and its migration from geology to the other sciences, the public debate and beyond. It asks how this migration occurred and to what extent it was accompanied by a politicisation of the concept. Research into the Anthropocene commonly focuses on questions of periodisation from the perspective of specific disciplinary interests. As a result, the historicity of the concept itself, as questions of conceptual change and drift are neglected. This research aims to contribute to historiography of conceptual history and history of knowledge by scrutinising the concept of 'Anthropocene' as it appears in scientific and public discourse. Firstly, this thesis traces the history of the word and examines the geological debate on the concept. Secondly, digital analyses of the Anthropocene show how the academic debate developed between 2000 and 2020, and how the term was transformed in the process. Finally, the case study of Dutch newspapers reveals how scientific knowledge was increasingly politicised, giving insight into the way in which a scientific concept migrates to the public debate and ultimately into the political sphere.

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Introduction

In February 2000, Nobel Prize-winning Dutch meteorologist Paul Crutzen (1933-2021) declared at a convention in Cuernevaca: "[…] we are in the Anthropocene".[1] He asserted that the Holocene, by which geologists commonly refer to the current geological epoch, no longer applies to a period in which human influence has irreversibly impacted the earth's geology and ecosystems. The term 'Anthropocene', coined and informally used by limnologist (biologist) Eugene F. Stoermer in his study of inland aquatic ecosystems in the 1980s was formally introduced and popularised by Paul Crutzen, regularly referred to as 'Mr. Anthropocene'.[2] The theory of the Anthropocene is based on the assumption that, due to the effects of the ever-increasing world population and economic development on the global environment, human activity should be considered as the dominant influence on the ecology, environment and climate of the earth.[3] The term has gained popularity in recent years and has been widely used to describe anthropogenic global changes and their socio-political and philosophical implications.[4] As such, the concept itself has become a Grundbegriff in the discourse surrounding the climate crisis

Although the term originated as a scientific geological term to designate a new, contemporary, geological era Anthropocene has taken on a variety of meanings and associations in many other fields, such as in philosophy, sociology, politics, and even literature. The popularisation of the term and its transfer from geological science to other fields seems to have taken place approximately from 2012 onwards.[5] In the Humanities the concept has been approached in various ways. Timothy Clark, Professor of English at the University of Durham and specialist in environmental humanities, is amongst the pioneers in adopting the concept in a non-geological academic context. In his work on ecocritical theories he argues "[t]he proposed Anthropocene is an unavoidably hybrid concept, involving the geological, historical and political."[6]

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[1] John Carey, 'Core Concept: Are We in the "Anthropocene"?', *Proceedings of the National Academy of Sciences* 113, no. 15 (2016): 3908.
[2] Helmuth Trischler, 'The Anthropocene', *NTM Zeitschrift Für Geschichte Der Wissenschaften, Technik Und Medizin* 24, no. 3 (2016): 310.
[3] Simon L. Lewis and Mark A. Maslin, 'Defining the Anthropocene', *Nature* 519, no. 7542 (2015): 171.
[4] Paul Crutzen passed away recently January 28, 2021. Several obituaries were written about the scientist, citing his ideas including his advocacy of the term 'Anthropocene'. This event has thus given another impulse to the debate about the concept. Warna Oosterbaan, 'Hij Redde Ons van Het "gat" in de Ozonlaag', *NRC Handelsblad*, 30 January 2021; Martijn Calmthout, 'Paul Crutzen Bracht Het van Volksjongen Uit de Crisisjaren Dertig Tot Nobelprijswinnaar. En Redde Zo Nu En Dan de Wereld', *De Volkskrant*, 29 January 2021.
[5] Deborah Rose et al., 'Thinking Through the Environment, Unsettling the Humanities', *Environmental Humanities* 1 (2012): 1–5.
[6] Timothy Clark, ed., *The 'Anthropocene'? Nature and Complexity* (Cambridge: Cambridge University Press, 2019), 18.

In 2016 *The Guardian* published an article titled "Generation Anthropocene: How humans have altered the planet for ever" by the award-winning British writer Robert Macfarlane.[7] In it, Macfarlane asks: "We are living in the Anthropocene age, in which human influence on the planet is so profound – and terrifying – it will leave its legacy for millennia. Politicians and scientists have had their say, but how are writers and artists responding to the crisis?".[8] He argues that the Anthropocene has administered and will administer a massive impact to the imagination. Like Clark, Macfarlane approaches the concept from a philosophical angle and prospects, despite the adversity of the Anthropocene, future possibilities:

> Philosophically, it is a concept that does huge work both for us and on us. In its unsettlement of the entrenched binaries of modernity (nature and culture; object and subject), and its provocative alienation of familiar anthropocentric scales and times, it opens up rather than foreclosing progressive thought.[9]

In philosophy, this concept has become an expression of modernity in which several seemingly incompatible aspects come together.[10] In a political context, the concept is understood as a logical consequence to global capitalism or the resulting division between "climate health" and human well-being. The use of the term in different disciplines shows the diversity of ideas about the Anthropocene.

This thesis studies the emergence of the concept of 'Anthropocene' and its migration from geology to the other sciences, the public debate and beyond. It asks: how did this migration occur and to what extent was it accompanied by a politicisation of the concept?

The Anthropocene and its variously interpreted meanings play a big role in current discussions on climate change, so it is essential to know how this concept first emerged. Conceptual history deals with exactly such questions through studying concepts as indicators of societal change whilst simultaneously considering them as factors within these developments. The German historian Reinhart Koselleck (1923-2006), one of the most eminent pioneers of the German branch of conceptual history, 'Begriffsgeschichte'[11], reformulated the epistemology of history by acknowledging the importance of semantic and social change in

[7] Robert MacFarlane, 'Generation Anthropocene: How Humans Have Altered the Planet for Ever', *The Guardian*, 1 April 2016.
[8] MacFarlane.
[9] MacFarlane.
[10] Bruno Latour, 'Agency at the Time of the Anthropocene', *New Literary History* 45, no. 1 (2014): 1–18.
[11] The term "Begriffsgeschichte", "Begriff" being the German translation of Latin "conceptus", appears to have been first used by Hegel in his work "Vorlesungen über die Philosophie der Geschichte", but this seemed to remain singular and of no further consequence. As may be noted, conceptual history differs significantly from Hegel's approach to concepts.

historical space. His most important contributions to shaping conceptual history can be found in *Geschichtliche Grundbegriffe* in which he and others laid the cornerstone of conceptual history with an examination of the changing semantics and pragmatics of concepts in their social and political context.[12] In 1989 Koselleck argues in his article "Social History and Conceptual History" that, "The investigation of concepts and their linguistic transformation is so very much a minimal condition for cognizing a history as its definition of having to do with human society."[13] The study of concepts, more specifically time limited linguistic concepts, is, thus, essential in understanding history in a broader sense.

In addition to conceptual history, history of knowledge is relevant for this thesis, given that the concept originated from a scientific context within academia. This field of study is related to, but not the same as, history of science and focuses on the role of language and translation of knowledge. According to the German historian Simone Lässig history of knowledge is "a form of social and cultural history that takes 'knowledge' as a phenomenon that touches on almost every sphere of human life, and it uses knowledge as a lens to take a new look at familiar historical developments and sources."[14] As Lässig clarifies in 2016: "The history of knowledge can be seen as a history of translation: translation in the literal sense of transfer from one language to another and, in a more figurative sense, of transfer between cultures and (re)attribution of cultural importance."[15] Knowledge is not studied by replacing it with social or cultural history, but as a new way of reading history.

On the same note the German historian Christian Geulen claims in "Pläydoyer für eine Geschichte der Grundbegriffe des 20. Jahrhunders" that since we are not speechless in the world, terms or concepts also belong to the reality that interests us historically.[16] He sees terms as carriers of a dimension of meaning interwoven in this reality, indicative of the seminal role of the history of concepts, or "Begriffsgeschichte", within larger historical examinations. Geulen tried to make the twentieth century the subject of a systematic conceptual historical investigation by reflecting on its history of events and developments in the medium of its basic

[12] Otto Brunner, Werner Conze, and Reinhart Koselleck, *Geschichtliche Grundbegriffe Bände 1 - 8* (Klett-Cotta, 2004).
[13] Reinhart Koselleck, 'Social History and Conceptual History', *International Journal of Politics, Culture, and Society* 2, no. 3 (1989): 308. This view of the importance of concepts as part of a broader understanding of history is further explored and defined by Koselleck in The Practice of Conceptual History (2002) and Vergangene Zukunft (1979). Reinhart Koselleck, *Vergangene Zukunft: Zur Semantik geschichtl. Zeiten*, 1. Aufl (Frankfurt am Main: Suhrkamp, 1979); Reinhart Koselleck and Todd Samuel Presner, *The Practice of Conceptual History: Timing History, Spacing Concepts* (Stanford University Press, 2002).
[14] Lässig, 'The History of Knowledge and the Expansion of the Historical Research Agenda', 44.
[15] Lässig, 43.
[16] Geulen, Christian, 'Plädoyer für eine Geschichte der Grundbegriffe des 20. Jahrhunderts', *Zeithistorische Forschungen/Studies in Contemporary History*, 1, no. 7 (2010): 79–80.

concepts and their semantic change. He argues that the so called 'Verwissenschaftlichung' of concepts could be understood as a characteristic of the 20th century and that the transformations that led to modernity continued in a transformation of modernity.[17] Most importantly, he emphasises in the first place the semantic value of concepts.[18]

The Dutch digital historian Rens Bod, most renown from his acclaimed and ground-breaking book *A New History of the Humanities*[19] raised the following question in 2019 in his book *Een wereld vol patronen* (A World Full of Patterns): "where did our knowledge of the world today begin and how did it develop?".[20] He claims that the world can be understood through patterns and the principles that govern them is one of the most important human insights. Furthermore, he and other scholars published "The Flow of Cognitive Goods: A Historiographical Framework for the Study of Epistemic Transfer." This essay introduces the notion of "'cognitive goods', a tool of knowledge making that can be transferred across disciplinary boundaries".[21] Exemplary of these cognitive goods are methods, concepts and instruments. Bod and the other scholars propose to study historical interactions between disciplines as examples of the "flow" of cognitive goods. In this respect, this thesis will consider the concept of the Anthropocene as a cognitive good.

Since both conceptual history and the history of knowledge are relevant to this thesis, I will examine the context in which the term and concept originated. The first expressions of the term in geological debates are analysed, based on the theory of Koselleck. According to Koselleck, historians or philosophers supposedly have three main tasks: to identify the concepts that are either possible or necessary in characterising history, to locate those concepts within the context of the social and political discourses and conflicts of the period, and to critically evaluate several of these concepts for their usefulness in historical analysis.[22] These key tasks correspond with the layout of the thesis.

On the basis of this first part, it shows how the concept has developed and what semantic role the term played in scientific and public debates. The first chapter serves as an introduction of the identification of the origin and history of the concept. It should be noted here that the

[17] Willibald Steinmetz, 'Some Thoughts on a History of Twentieth-Century German Basic Concepts', *Contributions to the History of Concepts* 7, no. 2 (2012): 96.
[18] Geulen, Christian, 'Plädoyer für eine Geschichte der Grundbegriffe des 20. Jahrhunderts'.
[19] Rens Bod, *A New History of the Humanities: The Search for Principles and Patterns from Antiquity to the Present*, Reprint edition (Oxford: Oxford University Press, 2013).
[20] Rens Bod, *Een Wereld Vol Patronen: De Geschiedenis van Kennis* (Amsterdam: Prometheus, 2019), 15.
[21] Rens Bod et al., 'The Flow of Cognitive Goods: A Historiographical Framework for the Study of Epistemic Transfer', *Isis* 110, no. 3 (2019): 484.
[22] Koselleck and Presner, *The Practice of Conceptual History*.

technical geological definition of the era is not discussed in detail and that this thesis is limited to an analysis of the conceptual and semantic development of the geological term.

The second chapter is divided in two parts. In the first part, digital methods contribute to a more extensive research and a more comprehensive understanding of the development of the term within academia. Using digital methods, the word frequency of the term Anthropocene over time can be measured. This can say something about how often and when the term was used, and gives an indication of when the term was accepted as a new designation of an era. Other methods can measure the terms that often occur together with Anthropocene using Pointwise Mutual Information (PMI). In computational linguistics, PMI has been used for finding collocations and associations between words. Other digital methods allow us to analyse how the spread across disciplines took place. This is done by searching for articles with the term 'Anthropocene' and using the metadata of a dataset from JSTOR to see within which field the articles fall. In particular, the driving forces, such as scholars who determine the debate are examined. Bruno Latour is one of the so-called carriers in this respect, because of his influential and authoritative position within popular debates on modernity. As an anthropologist and sociologist, he functions internationally and operates with a wide reach in disclosing the public debate of climate discussion. Additionally, Timothy Clark is an influential actor in the, in his case literary, debate on the Anthropocene.

In the third chapter, the translation of the term to public debates will be examined on the basis of a case study. This case study focusses on the Dutch use of the term in public debate and serves as an illustration of the transfer of a concept. This analysis of the use of the term in the Dutch public debate is limited by the search terms – as the terms variate both words are indicators of the same concept – 'antropoceen' or 'anthropoceen'. These search terms will be entered in Nexis Uni, the successor to Lexis Nexis Academic. This system offers the full text of many articles from Dutch and international newspapers and newsmagazines. In this case the database only includes Dutch newspapers and -magazines, such as *De Trouw*, *De Volkskrant, Het NRC, De Groene Amsterdammer*. A critical analysis of the articles enables an investigation into how and by whom the term is used. Finally, this examination may contribute to our understanding of the Anthropocene and expose potential ways in which this concept, or concepts in general, may inform future relationships between humanity and the earth.

Chapter One: The geological origin of the Anthropocene

1.1. A proposed new geological epoch

In May 2000, Crutzen and Eugene F. Stoermer wrote in the newsletter of the International Geosphere-Biosphere Programme (IGBP) that given the growing impact of human activities on the earth and the atmosphere, it seems "more than appropriate" to emphasise and make room for the central role of mankind in geology and ecology, after he introduced the term at the conference in Mexico.[23] To be able to approach a new era in geological thinking, Crutzen and Stoermer accentuated the importance of adopting the term 'Anthropocene' in determining our current epoch. They argue that a specific dating of the era appears somewhat arbitrary but note that since the latter part of the eighteenth century, the global effects of human activities have become evident and unignorable. Crutzen, IGBP vice-chair at the time, and Stoermer discuss the depletion of fossil fuels dating back hundreds of millions of years, the emission of various "greenhouse gases"[24] such as CO2, CH4 and other toxic components, the tenfold increase in the world population in the last three centuries, the growing livestock, urbanisation, transformation of 30% to 50% of land and the extinction of species at an unprecedented rate. In demarking the epoch along these lines, the proposed Anthropocene coincides distinctly with James Watt's invention of the steam engine in 1784 and the economic and social consequences.[25] Crutzen and Stoermer named the current era, because "mankind will remain a major geological force for many millennia, maybe millions of years, to come.", stressing the indefinite continuation of the Anthropocene.[26]

The concepts and theories introduced in this article largely reflect the general objectives of the IGBP. The international research programme coordinated research from 1987 to 2015 on global- and regional-scale interactions between earth's biological, chemical and physical processes and their interactions with human systems.[27] Therefore, both human and nonhuman effects on the earth were studied. IGBP researchers were widely involved in various projects. At the meeting in Mexico Crutzen had used and defended the term in passing. Will Steffen, executive director at the time, noticed that Crutzen casually suggested this 'new' adoption of a

[23] Paul J. Crutzen and Eugene F. Stoermer, 'The "Anthropocene"', *IGBP Global Change Newsletter*, no. 41 (May 2000): 17.
[24] Paul J. Crutzen received in 1995 the Nobel Prize for his work on the hole in the ozone layer. He believes that political attempts to limit man-made greenhouse gases are so pitiful that a radical contingency plan is needed.
[25] Paul J. Crutzen and Eugene F. Stoermer, 'The "Anthropocene"'.
[26] Paul J. Crutzen and Eugene F. Stoermer, 18.
[27] 'About - IGBP', text, accessed 5 December 2020, http://www.igbp.net/about.4.6285fa5a12be4b403968000417.html.

geological concept and he said "wow, Paul, that is a great idea!".[28] Important to note here, is the initial indifference to the term from the majority of the attendees.

It took Crutzen a couple of years to officially publish his thoughts on the geological time period independently. In 2002, a related article was published in the journal *Nature*. Instead of merely touching on the term in a perfunctory manner, Crutzen now takes the time to elaborate on the use of the Anthropocene and its implications more expansively. He makes his call for the new concept in stronger terms: "For the past three centuries, the effects of humans on the global environment have escalated."[29] He now regards not using the term unthinkable, because of the significant human influence on the earth: "Unless there is a global catastrophe – a meteorite impact, a world war or a pandemic – mankind will remain a major environmental force for many millennia."[30]

However, many of the geologists continued to refer to the present day as the Holocene epoch, the geological period that began when the ice sheets started to retreat 11.700 years ago.[31] Although the IGBP and its researchers advocate for the use of the term 'Anthropocene', neither the International Commission on Stratigraphy (ICS) nor the International Union of Geological Sciences (IUGS) has officially adopted or approved the term as a recognised subdivision of geological time as of March 2020.[32] Nevertheless, steps have been taken in establishing the concept in the geological time scale. In 2008 Jan Zalasiewicz and his colleagues from the ICS of the Geological Society in London made a proposal in GSA-Today (Geological Society of America) to recognise the Anthropocene geologically as the youngest era instead of the Holocene. The International Commission on Stratigraphy (ICS) manages the nomenclature of epochs in geology. In practice, they indicate the boundary between the two periods, the Global Boundary Stratotype Section and Point (GSSP) by characterising a rock spot somewhere worldwide with a bronze plaque, in technical terms a Golden Spike. Since 2008, steps have been taken by various working groups to determine whether the Anthropocene as an era can be formally included in the geological time scale.[33]

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[28] '[BLOG] Episode #65: Back to Anthropocene Basics – Stories and Conversations about Planetary Change.', accessed 5 December 2020, https://www.genanthro.com/2013/08/04/blog-episode-65-back-to-anthropocene-basics/.
[29] Paul J. Crutzen, 'Geology of Mankind', *Nature* 415, no. 6867 (2002): 23–23.
[30] Crutzen.
[31] Carey, 'Core Concept', 3908.
[32] 'Ics-Chart', accessed 12 December 2020, https://stratigraphy.org/timescale/; IUGS, 'IUGS Annual Report. Fostering a Global Voice for the Geosciences', 2019, 42.
[33] Meera Subramanian, 'Anthropocene Now: Influential Panel Votes to Recognize Earth's New Epoch', *Nature*, 2019.

1.2. The history of a concept

Steffen pointed out a crucial aspect of Crutzen's suggestion, that at the base of what Crutzen proposes is the understanding of an anthropocentric epoch as an idea. It is important to note that this idea is not necessarily a new one. An etymological approach shows that the history of the word goes back far beyond Crutzen's use of it. The first written use of the term, although under different circumstances, appears to date back to 1873 in the work of Italian scientist Antonio Stoppani. As the American diplomat, philologist and by some considered to be America's first environmentalist George Perkins Marsh states in 1907 in his book "The earth as modified by human action: a last revision of 'Man and Nature'": "Stoppani, goes further than I had ventured to do, and treats the action of man as a new physical element altogether *sui generis*."[34] According to Stoppani, the existence of man constitutes a geological period which he designates as the *anthropozoic era*. "The creation of man", he says, "was the introduction of a new element into nature, of a force wholly unknown to earlier periods."[35]

Like Stoppani, other scientists also noted the growing role of humans on the earth's systems. In 1922 the Russian geologist Aleksey Petrovich Pavlov appears to have coined the term 'Anthropogene' based on the emergence of the genus Homo, which would be more or less equivalent to the present Quaternary period.[36] His idea refers to the extraordinary scale of human influence on the planet. According to contemporary scientist Vladimir Ivanovich Vernadsky "Proceeding from the notion of the geological role of man", Pavlov, "used to speak of the anthropogenic era, in which we live […]. He rightfully emphasised that man […] is becoming a mighty and ever-growing geological force […]".[37]

Similar to these ideas, Vernadsky, French geologist and philosopher Pierre Teilhard de Chardin and French philosopher Edouard Le Roy coined the philosophical concept and term "noosphere". The term and the notion of the noosphere arose during a meeting in Paris of the early 1920s, just after the First World War.[38] The three academics recognised the increasing power of mankind as part of the biosphere with the following citation "[…] the direction in which the processes of evolution must proceed, namely towards increasing consciousness and

[34] George Perkins Marsh, *The Earth as Modified by Human Action : A Last Revision of 'Man and Nature'* (New York : Charles Scribner's Sons, 1907), 609.
[35] Marsh, 609.
[36] Valentí Rull, 'The "Anthropocene": Neglects, Misconceptions, and Possible Futures', *EMBO Reports* 18, no. 7 (1 July 2017): 1056, https://doi.org/10.15252/embr.201744231.
[37] Chakrabarty thereby elaborates on Foster's article, in which Foster adopts Pavlov's theory. Foster, however, builds upon the reading of Vernadsky in attempting to explain Pavlov's theory. Dipesh Chakrabarty, 'Anthropocene Time', *History and Theory* 57, no. 1 (2018): 7.
[38] Will Steffen et al., 'The Anthropocene: Conceptual and Historical Perspectives', *Philosophical Transactions: Mathematical, Physical and Engineering Sciences* 369, no. 1938 (2011): 844.

thought, and forms having greater and greater influence on their surroundings".[39] With noosphere they marked the growing role played by mankind's brainpower and technological talents in shaping its own future and environment.[40] Steffen explains that at all of the academic meetings about the Anthropocene, references were made to the earlier concept "of a transformation of the biosphere into the noosphere, that is, the anthroposphere or the anthropogenic transformation of the Earth system."[41] Evident, therefore, is the variety in which different scientists refer to these developments, despite sharing a basic understanding of the anthropocentric influences of humanity on the earth.

A semasiological approach reveals similar ways in which the application of the concept of an Anthropocene may be of a varying, though fundamentally similar, nature and hereby the application of the concept may complicate clear meanings. Koselleck notes the importance of linguistics regarding studying history: "Investigating concepts and their linguistic history is as much a part of the minimal condition for recognising history as is the definition of history as having to do with human society."[42] But most importantly he repeats Epictetus' saying "[I]t is not deeds that shock humanity, but the words describing them".[43]

The nouns and adjectives, 'anthropozoic', 'anthropogene' and 'anthropocene' used to describe the concept are neologisms formed with the ancient Greek word *anthropos* (human) and the suffixes -cene, -gene and -zoic. In geology, -cene is the suffix for an epoch, whereas -zoic is the corresponding suffix for an era characterised by the presence (or absence) of the remains of living organisms, and -gene is the suffix derived from *genesis*, which stands for becoming, development or origination.[44] In this form, the concept can also be used adjectively, such as 'anthropogenic effects' or 'anthropozoic era'. Adjectives are characterised as expressions "that alter, clarify, or adjust the meaning contributions of nouns", in order to allow for the expression of "finer graduations of meaning" than are possible through the use of nouns alone.[45]

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[39] Paul J. Crutzen and Eugene F. Stoermer, 'The "Anthropocene"', 17.
[40] Paul J. Crutzen and Eugene F. Stoermer, 17.
[41] Steffen et al., 'The Anthropocene', 844.
[42] Koselleck and Presner, *The Practice of Conceptual History*, 20.
[43] Reinhart Koselleck, *Futures Past: On the Semantics of Historical Time*, trans. with an introduction by Keith Tribe (New York: Columbia University Press, 2004), 75.
[44] '-Cene, Comb. Form', in *OED Online* (Oxford University Press), accessed 24 December 2020, http://www.oed.com/view/Entry/235043; 'Gene, n.2', in *OED Online* (Oxford University Press), accessed 24 December 2020, http://www.oed.com/view/Entry/77473; '-Zoic, Comb. Form1', in *OED Online* (Oxford University Press), accessed 24 December 2020, http://www.oed.com/view/Entry/285846.
[45] Gillian Russell and Delia Graff Fara, *Routledge Companion to Philosophy of Language* (Routledge, 2013), 328.

A more specific semantic approach shows that adjectives gain this capability and that adjectives introduce properties. On the syntactic side, adjectives are able to function as modifiers, a word, phrase or clause that modifies or gives information about another word in the sentence. The American linguist Chris Kennedy points out that the result of the combination of a semantic and a syntactic side of an adjective is a "new property" which is:

> typically (though not always) true of a subset of the entities that the original properties are true of, thereby providing a "finer gradation of meaning" than is possible using the noun alone. This simple picture hides many important and interesting complexities, however, which provide insights on several topics of central interest to both linguists and philosophers, including: vagueness, contextualism, relativism, compositionality, and the semantic analysis of significant phenomena such as modality.[46]

This approach reveals how, dependent on the form in which the term appears, the Anthropocene may take on new meanings, of both an expansive as well as a complicating nature. The formalistic organisation of the concept into an adjective allows for the possibility to introduce, in this case anthropocentric properties, to subjects outside of its usual scope. As a result, the concept varies and expands along its realisations into language.

To conclude, the concept of the Anthropocene shows that it has an etymological origin in the nineteenth century.[47] This origin is attributed by several scientists to the growing influence of human activities on the earth and is associated with the beginning of the industrial revolution. Since then, humans have increasingly influenced the earth's system through actions that can be measured by climate change. Geologists recognise this human influence but have not yet officially adopted the concept through a discussion of periodisation. This shows that the concept of the Anthropocene originated from the assumption that man can be regarded as a separate geological force from the system of the earth. Debates on the concept of the Anthropocene within geology seem to be mainly about the technical definition of an era in which man plays an undeniable role, and the periodisation of this epoch. Whereas geology stays within the technical definition and periodisation, this seems to diverge in other disciplines. What does this look like and what can digital analysis contribute to the historical analysis of the concept as a cognitive good?

[46] Russell and Fara, 328.
[47] Marsh, *The Earth as Modified by Human Action : A Last Revision of 'Man and Nature'*, 609.

Chapter Two: The philosophical and historical evolution of 'Anthropocene'

2.1. A digital analysis of 'Anthropocene'

The concept of the Anthropocene has not gone unnoticed outside of the natural sciences. A search for "Anthropocene" in Google Scholar yields 177.000 results for November 2020 alone. Between the years 2000 and 2006, Google finds 4040 results. From 2007 onwards, around the time the concept entered the earth sciences, scholars of the humanities and social sciences were becoming increasingly interested in the Anthropocene. Geological semantics, therefore, are relevant to the Humanities, which draw from geological discussions to examine narratives and knowledge formations.

In practice, the debate on the concept of the Anthropocene can be measured by studying the frequency of word use over time. In (computational) linguistics, this is commonly done by looking at so-called "*n*-grams". An *n*-gram is a "sequence of *N* [token] words" and can serve as a "model that assigns probabilities to sentences and sequences of words".[48] The Google Ngram Viewer offers to a limited extent the material to analyse *n*-grams. The Google Ngram Viewer or Google Books Ngram Viewer is an online search engine that charts the frequencies of any set of search strings using a yearly count of *n*-grams found in sources printed between 1500 and 2019 in Google's text corpora.[49] When you enter phrases into the Google Ngram Viewer, it displays a graph showing how those phrases have occurred in a corpus of books over the selected years. When the words 'anthropocene', 'anthropogene' and 'anthropozoic' are typed in, the search engine yields the results of word occurrences between 1800 and 2019 in the following graph.

[48] Dan Jurafsky et al., *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition*, 1st edition (Upper Saddle River, N.J: Prentice Hall, 1999), 31.

[49] 'Google Books Ngram Viewer', accessed 16 December 2020, https://books.google.com/ngrams/graph?content=anthropozoic_ADJ%2Canthropocene_NOUN%2Canthropogene_NOUN&year_start=1800&year_end=2019&corpus=26&smoothing=3&direct_url=t1%3B%2Canthropozoic_ADJ%3B%2Cc0%3B.t1%3B%2Canthropocene_NOUN%3B%2Cc0%3B.t1%3B%2Canthropogene_NOUN%3B%2Cc0.

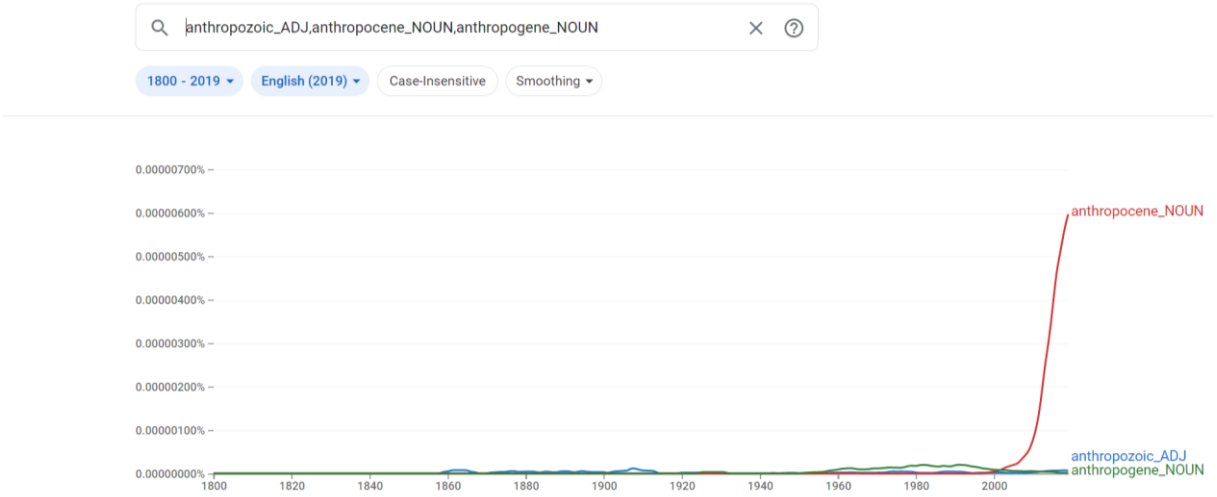

Figure 1. *N*-gram of "anthropozoic", "anthropocene" and "anthropogene".

The graph (Figure 1) shows that especially the occurrence of 'anthropozoic' resembles the years of written origin in the 1880s. Furthermore, it shows the exponential growth of the word frequency 'anthropocene' that transpired since the year 2000. Despite what this graph may suggest, it is unlikely that almost nobody talked about the Anthropocene before 2000. There were probably more scholars who discussed the human influence on the earth's system, but people did not write about it in this specific phrasing in books, an important limitation of Ngram searches.[50]

As part of the digital analysis of the conceptual history of the Anthropocene, a database from JSTOR, will be used.[51] The validity and representativeness of the database, however, must first be discussed. JSTOR was founded in 1995 in New York as part of ITHAKA, a non-for-profit organisation, and a highly selective digital library of academic content in many formats and disciplines. It provides access to more than 12 million academic journal articles, books and primary sources in 75 disciplines. In addition to the main site, JSTOR offers an open service

[50] Google Ngram Viewer is seemingly becoming more popular in scientific literature, but it also has some limitations that should not go unnoticed. Some issues include OCR errors, abundance of scientific literature, messy metadata, and inaccuracy in popularity measurements. Optical character recognition (OCR) is a way in which computers extract pixels from a scanned book and convert them into text. Errors can arise when computers decipher unclear texts or handwritings. An abundance of scientific literature can ensure that scientific terms in particular are more common and that the frequency of terms is skewed. Just like OCR, metadata such as publication date and author are automatically filled in by Google and are therefore error-prone. Finally, *n*-grams can misrepresent the popularity of people, ideas, or concepts because a book only appears once. No distinction is made in how often it is read or how often it is talked about. It shows not so much what people are talking about, but what people publish about. In short, this online tool is an effective way to measure word usage, provided it is properly applied and explained. Eitan Adam Pechenick, Christopher M. Danforth, and Peter Sheridan Dodds, 'Characterizing the Google Books Corpus: Strong Limits to Inferences of Socio-Cultural and Linguistic Evolution', *PLOS ONE* 10, no. 10 (2015).

[51] JSTOR Dataset, retrieved at 16 November 2020. I did the following preprocessing of the dataset: text to lowercase, removed punctuation, removed everything between < > and ( ) because of incidental HTML code in the text and the many references and finally split on spaces. This means making a list of words from a string by splitting it on " ".

that allows access to the contents of the archives for the purposes of corpus analysis at its *Data for Research* service. This service offers a search function with an indication of the article coverage of a search term. Users can create targeted sets of articles here and then request a dataset with words, n-gram frequencies and basic metadata, such as author and date.[52]

The size of this thesis only allows a digital analysis through distant reading of a dataset from JSTOR of 5483 written sources. Following Franco Moretti and his work "Graphs, Maps, Trees" distant reading in this respect is understood as an analysis of textual data and reading texts through counting, making graphs, maps or in other words, visualise data.[53]

The dataset consists of 2795 journal articles, 2591 book chapters and 97 research reports containing the English term 'Anthropocene'. Self-evidently, this corpus does not cover the complete debate on the Anthropocene. Nevertheless, these digital methods contribute to a more inclusive understanding of the debate, its formation and the mapping of related literature from a renowned database. Moreover, the combination of a close and distant reading of these sources will provide a clear outset in understanding the transfer of the concept from a geological to a humanities discourse and beyond. Thus, in order to locate the concept within the context of the social and political discourses and conflicts of the time period, and to describe and analyse the development of the concept, this database will serve as a crucial element in understanding its transfer.

The articles and books are divided into fifteen disciplines.[54] Disciplines such as history, philosophy, geology and environmental sciences are categorised separately, because these disciplines are especially important for the debate on the Anthropocene. The categories "(Other) Natural Sciences Terms" and "(Other) Humanities terms" show the most common keywords in those natural and humanities sciences, apart from philosophy, geological and environmental sciences. The table below shows that the chosen categorisation is logically distributed. As confirmation, the most common keywords per category show that these first ten words belong to the jargon of the discipline.[55]

Medicine terms	**Anthropology terms**	**Environmental Sciences terms**	**Earth Sciences terms**
health	anthropology	academy sciences	weather
medicine	cambridge	royal	december

[52] Datasets can be downloaded in either XML or CSV formats. This dataset obtained and used in this research was requested and delivered in November 2020 and so, the data presented extends only to that date.
[53] Greta Franzini et al., *On Close and Distant Reading in Digital Humanities: A Survey and Future Challenges. A State-of-the-Art (STAR) Report.*, 2015, 2.
[54] These fifteen disciplines have been carefully composed. I have manually classified 532 titles of books and magazines by discipline. The example in the appendix shows my working method for the first 20 titles.
[55] For a more representative representation of the most common keywords, a longer list of twenty keywords has been added in the appendix.

disease	political	academy	atmospheric
modern	cultural	springer	august
heat	culture	management	january
animals	university press	professor	conference
political	contemporary	address	program
humans	politics	sustainable	abstract
historical	practices	sustainability	initial

Geography terms	**Biology terms**	**Social Sciences terms**	**History terms**	**Political Sciences terms**
geography	conservation	political	historians	political
association	biodiversity	policy	book	politics
landscapes	biology	politics	historical	crisis
urban	diversity	economic	modern	security
landscape	plant	management	cultural	policy
geographical	habitat	geography	culture	capital
figure	biological	cultural	political	economic
chicago	evolution	governance	paul	idea
political	forest	conservation	john	public

(Other) Natural Sciences terms	**Geology terms**	**(Other) Humanities terms**	**Applied Sciences terms**
marine	mexico	literary	landscape
ocean	soil	culture	design
ecosystems	holocene	book	australia
ecosystem	soils	cultural	urban
results	sediment	fiction	dans
rates	sediments	sense	education
ecol	archaeological	political	city
carbon	record	reading	public
increase	lake	works	project

Law terms	**Philosophy terms**
supra note	phil
supra	ethics
legal	philosophy
rights	trans
policy	royal
governance	issue
note	political
federal	carbon
public	atmospheric

Figure 2. Most common keywords per category of the dataset.

Furthermore, the table (Figure 2) shows that the most common keywords in the (natural) sciences are technical keywords for describing earthly characteristics and the state of the earth,

such as “atmospheric”, “ecosystem”, “carbon” and “biodiversity”. Whereas the humanities and social sciences entail keywords such as “political”, “modern” and “culture”. Names, presumably of prominent scientists in the debate on the Anthropocene appear in almost every category.

The second step in studying the conceptual transfer of the Anthropocene is the distribution of the number of articles on the Anthropocene per discipline. The graph (Figure 3) shows that articles of the natural sciences predominate in the debate of the Anthropocene, but within books on the Anthropocene (Figure 4), the humanities are most prevalent.

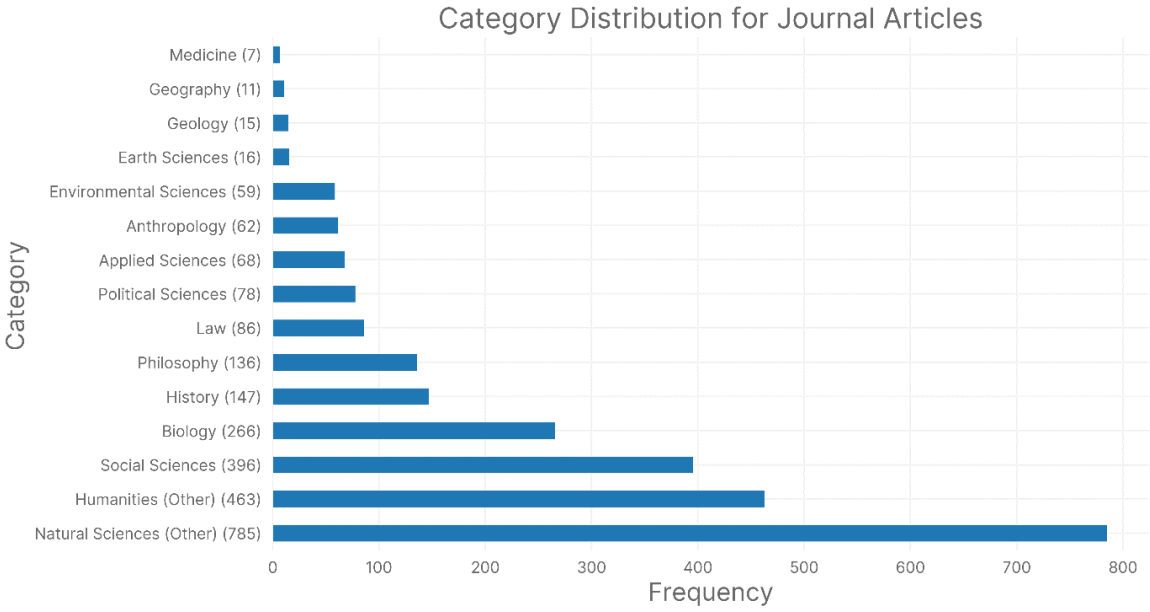

Figure 3. Category distribution for journal articles for the period 2000-2020.

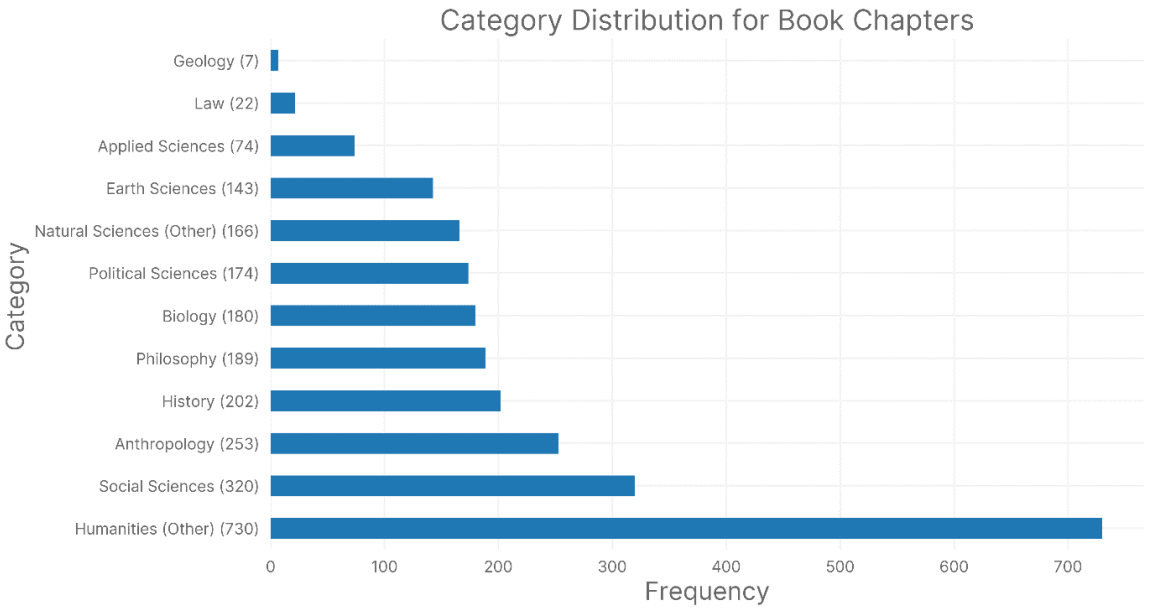

Figure 4. Category distribution for book chapters for the period 2000-2020.

A clearer picture of the distribution of articles on the Anthropocene can be seen in the graph below (Figure 5). Here the category distribution for journal articles is portrayed per year, revealing a noticeable increase in the years 2015-2016. The increase in the number of articles is apparent in each discipline. The debate became more widely known among scholars and the increased urgency of the state of the earth may have contributed to the growth of publications.

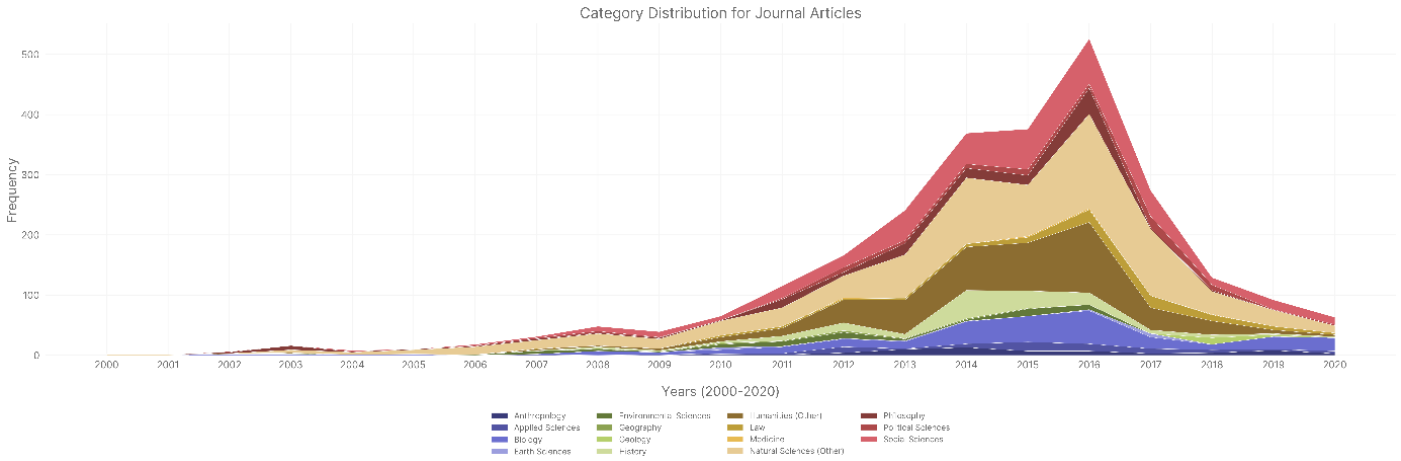

Figure 5. Category distribution for journal articles for the period 2000-2020.

With PMI, the most typical terms per period in the debate are listed (Figure 6). In the years 2013-2018, the period with the most articles on the Anthropocene, the names of scientists in particular are frequently mentioned, as well as general terminology to indicate the geological concept. There appear to be minor shifts in the ranking of most significant words.

2010-2015	2011-2016	2012-2017	2013-2018	2014-2019	2015-2020
anthropocene	anthropocene	anthropocene	anthropocene	anthropocene	anthropocene
crutzen	epoch	epoch	epoch	epoch	epoch
epoch	crutzen	crutzen	crutzen	crutzen	crutzen
geological	geological	geological	geological	geological	human
human	human	human	human	human	geological
steffen	earth	earth	earth	steffen	steffen
humans	humans	humans	steffen	nature	nature
earth	steffen	change	nature	earth	earth
change	change	nature	humans	change	change
stoermer	zalasiewicz	steffen	change	humans	humans
global	stoermer	global	global	environmental	science
zalasiewicz	nature	environmental	environmental	global	environmental
nature	global	stoermer	concept	science	global
climate	concept	zalasiewicz	science	concept	concept
world	time	concept	stoermer	zalasiewicz	review
mcneill	climate	world	zalasiewicz	review	zalasiewicz
time	environmental	science	history	stoermer	history
history	mcneill	climate	world	mcneill	mcneill
humanity	holocene	mcneill	mcneill	history	stoermer

Figure 6. Most typical terms per period of the dataset.

Besides the distribution of articles per year, it is essential to look at the way in which these articles on the Anthropocene are distributed between the disciplines (Figure 7). At the beginning of the debate, only the natural sciences wrote about the Anthropocene and that other disciplines from the year 2001 also used the term. The graph (Figure 7) shows low frequencies in 2000-2002, because little was published with "Anthropocene" in those years. Consequently, it seems as if the natural sciences were dominant. This is technically correct, but even in this discipline only a few articles were published. The graph reveals how, between the years 2000 and 2020, increasingly more disciplines wrote about the Anthropocene and how the distribution shifted.

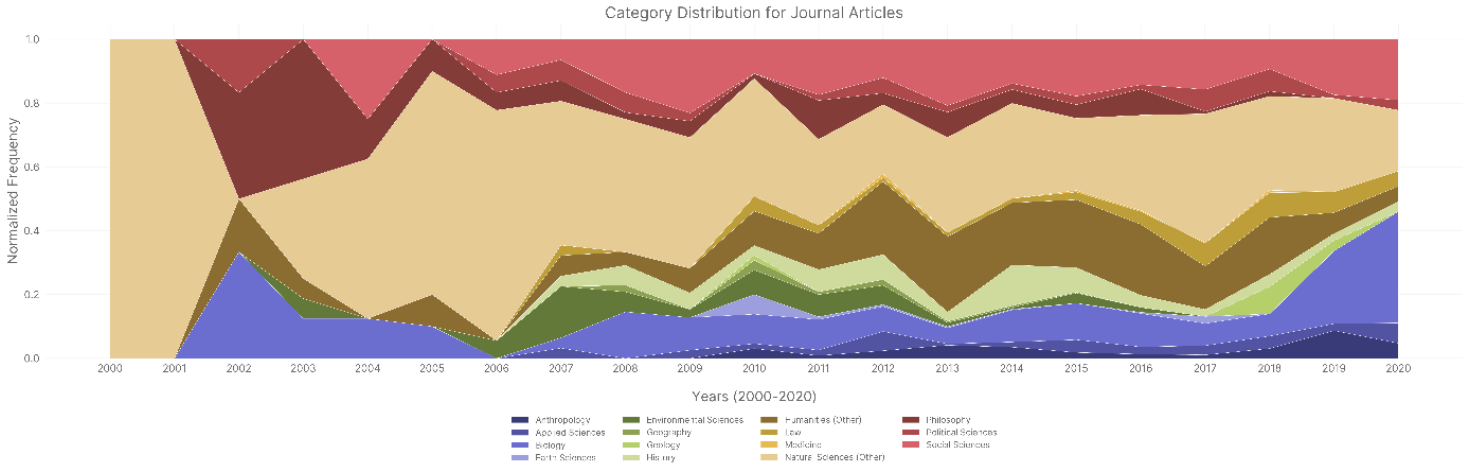

Figure 7. Category distribution for journal articles for the period 2000-2020.

As shown (Figure 6), scientists are frequently mentioned. A targeted measurement of the names "Chakrabarty", "Crutzen", "Clark" and "Latour", therefore, shows that these names are important during approximately 2008-2019 and that the frequency differs.

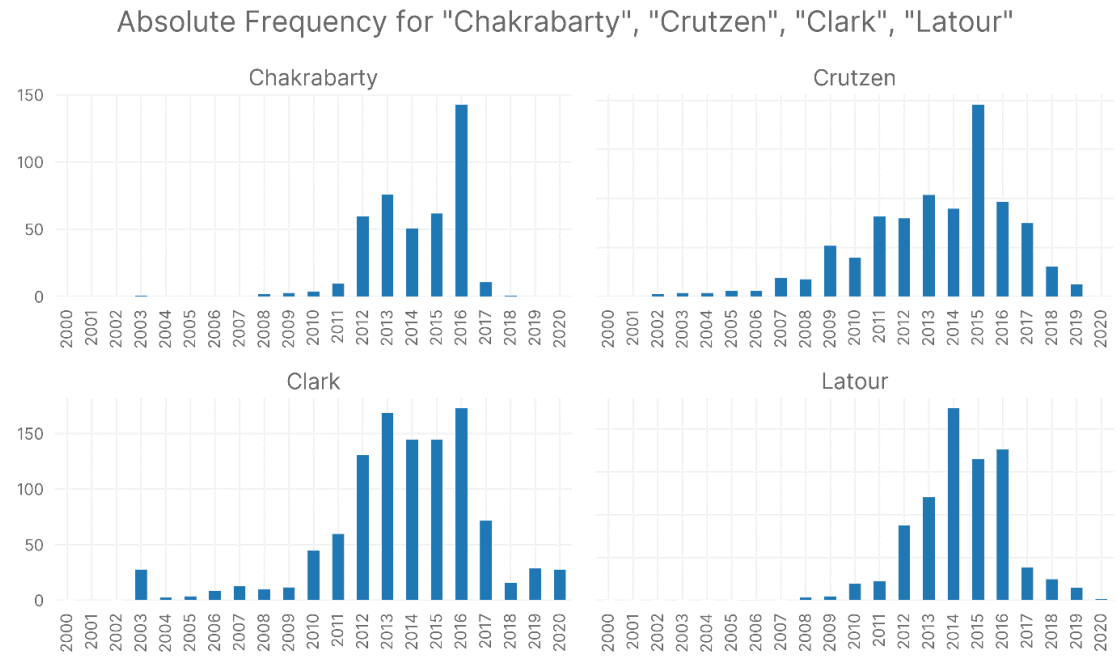

Figure 8. Absolute frequency for "Chakrabarty", "Crutzen", "Clark" and "Latour" for the period 2000-2020.

In the end, the most revealing aspect of these figures is that different disciplines introduced and started using the term at different times. Where the natural sciences may at first have led the debate, the humanities followed around 2012-2016, right around the years that Clark, Latour, Chakrabarty (and Crutzen) started using the term. Clearly, therefore, these thinkers impacted the frequency and range at which the Anthropocene became increasingly central to the sciences.

2.2. Humanities scholars using the concept

While the geosciences mainly focus on establishing a time frame of the Anthropocene in its academic debates, the humanities discourse around the concept seems to pay less attention to the periodisation and, logically, focusses more on the implications that the Anthropocene would entail for humanity. This debate extends from discussing and contesting the role of humanity as either a collective or a divided force, to considering the significance and potential of the concept for supposedly separated disciplines in the broadest sense. In any case, the concept of the Anthropocene seems to enable new forms of knowledge that transcend disciplinary boundaries in various ways. Like Crutzen's popularisation of the concept and his appeal within geology to raise awareness of the state of the earth in public consciousness, so the social relevance of the subject is also an important motive for shaping the Anthropocene debate in the humanities.

However, the concept has been criticised by several scholars and some suggested other terms as "Capitalocene", "Plantationocene" and "Chthulucene" for indicating anthropogenic effects on the earth. Advocates of the Capitalocene, historians Jason W. Moore and Andreas Malm, argue that this term is more historically appropriate, because the term signifies capitalism "as a way of organizing nature – as a multispecies, situated, capitalist world-ecology".[56] Moore shifts his focus from the idea that political economics is inherent in capitalism and sees the term Capitalocene as a more comprehensive concept.[57] Others suggest that the Anthropocene overlooks systematic inequalities, such as racism and imperialism, that have contributed to the environmental crises that would mark the epoch.[58] Some thinkers propose the term Plantationocene to address the role that plantation agriculture has played in the formation of the epoch. Furthermore, historian Donna Haraway proposes the term

[56] Elmar Altvater et al., *Anthropocene or Capitalocene?: Nature, History, and the Crisis of Capitalism* (PM Press, 2016), 6.
[57] Elmar Altvater et al., *Anthropocene or Capitalocene?: Nature, History, and the Crisis of Capitalism*, ed. Jason W. Moore, 1st edition (Oakland, CA: PM Press, 2016), 6.
[58] Heather Davis and Zoe Todd, 'On the Importance of a Date, or, Decolonizing the Anthropocene', *ACME: An International Journal for Critical Geographies* 16, no. 4 (2017): 761–80.

"Chthulucene" for addressing the "dynamic ongoing sym-chthonic forces and powers of which people are part, within which ongoingness is at stake" and formulates the term simply as "past, present, and to come".[59] These different terms and concepts focus on economic, political, ethical and spiritual influences. The criticisms of the Anthropocene can thus also be understood from completely different angles, but the common denominator in the debate are human influences beyond dualism.

To answer the sub-question of how and when the concept migrated from a geological to a humanities debate, a close reading and primary source analysis of intellectual products is necessary. This includes publications in magazines, collections and written speeches of various humanities scholars. The scholars and their intellectual sources discussed in this chapter are relevant because of their early contribution to, and guiding role in the debate on the Anthropocene. This chapter is therefore divided into these three categories that help to reveal the transition from geology to the humanities. Representative figures for these categories are Timothy Clark, Dipesh Chakrabarty and Bruno Latour. Based on their interpretations of the term 'Anthropocene', the following reasons may be deduced for its usage and relevance outside of geology: an exposure and an explanation of human action within humanities (1), a reassessment of politics (2) and a call for innovation (3), respectively.

2.2.1. The necessity and consequences of the Anthropocene for the humanities

In 2012, Clark wrote an editorial called "Deconstruction in the Anthropocene" for the *Oxford Literary Review*, founded in the 1970s and Britain's oldest journal of literary theory. In the past, the biennial journal published new work by Derrida, Barthes and Foucault. Clark is most renowned for his contributions to theories about the representation of climate change and environmental issues in literature and was one of the first literary scholars to describe the geological phenomena caused by humanity referred to by the concept within the humanities. He especially stressed the importance of investigating this concept. He wrote this editorial to introduce a diverse programme of articles on the Anthropocene. This multidisciplinary collection includes articles entitled "The End of the End of Nature: The Anthropocene and the Fate of the Human" and "Not Symbiosis, Not Now: Why Anthropogenic Change is Not Really Human". These scholars contribute jointly to form an interdisciplinary perspective on the

[59] Donna Haraway, 'Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin', *Environmental Humanities* 6, no. 1 (1 May 2015): 160.

Anthropocene.[60] Clark quotes and presents a definition of the Anthropocene as suggested by Crutzen in his editorial, but in fact uses a quote from a co-written journal article from Steffen, Crutzen and historian John R. McNeill. Clark then indicates the origin of the term and states that the term is "now rapidly becoming adopted in the humanities in a sense beyond the strictly geological".[61] Thereafter, he uses the proposed definition of the concept by Steffen, Crutzen and McNeill and expands on the definition in a literary scholarly view:

> It names the context encompassing all the new demands - cultural, ethical, aesthetic, philosophical, and political - of environmental issues which are truly planetary in scale, notably climate change, ocean acidification, effects of over- population and the general and accelerating degradation of ecosystems.[62]

Clark explains the condition of the Anthropocene as a result of human actions: "The actions of humanity considered en masse do not just appear irrational, but in some ways so staggeringly stupid as to constitute - among other things - a new philosophical problem."[63] Notably, Clark approaches the concept from a literary angle, but emphasises how the implications of anthropogenic thought extend interdisciplinary to such domains as the philosophical. Most importantly, he acknowledges the geological proposal by directly quoting from an article called "Humans Now Overwhelming the Great Forces of Nature?" and expands on the relevant context for the humanities. Moreover, he touches on the political connotation of the concept in strong, but few words:

> Knowledge that the planet risks entering a state catastrophic for humanity and the biosphere more generally has been accompanied by repeated government and social failures to do anything other than act in ways which intensify the danger.[64]

Even though he asserts the political deficiencies, he focusses most distinctly on the literary potential of the concept. He argues that the Anthropocene is deconstructive and emphasises the responsibility that philosophers and other humanities scholars carry in addressing the consequences of human, and political, failure. Deriving from Derrida, deconstruction in this sense means that in order to find the "real truth" you must return to the "holy voice of nature"

[60] The volume includes eight articles and two reviews, written by scholars from different backgrounds in sociology, literary studies, cultural theory and philosophy.
[61] Timothy Clark, 'Editorial', *Oxford Literary Review* 34, no. 2 (2012): v–vi.
[62] Clark, 'Editorial', v.
[63] Clark.
[64] Clark.

and to "the book of nature".[65] Deconstructive thinking, or thinking about the Anthropocene, also "incites fruitful, revisionist or critical rereadings".[66] As expressed, according to Clark, humanities scholars must evaluate and deconstruct this concept. Herewith, he exposes most forcefully how the Anthropocene must be acknowledged and interpreted within the boundaries of academia. Central to Clark's use of the term then, is the necessity of the concept for the humanities, in order to expose and explain human action, where existing cultural, aesthetic, philosophical and political modes of thinking and practices fail. The Anthropocene as a concept becomes a tool by which to explain and tackle problems of environmental crises within the humanities. For, self-destructive human action and environmental crises propose unique problems for our understanding of humanity and can be explained only by reconsidering what it means to be human within the framework of the Anthropocene.

2.2.2. A reassessment of politics

Besides Clark, one of the first humanities scholars to write about the Anthropocene was the Indian historian Dipesh Chakrabarty. In 2009, he wrote an article for the *Critical Inquiry* called "The Climate of History: Four Theses", in it he reveals his struggle to comprehend the new global situation despite his intensive research into postcolonial, subaltern and Marxist theories.[67] The complexity of the (new) worldly problem, he argues, arises from the irrational process in which humans are actively causing climate change and are thereby increasingly affected by its consequences. The first thesis is that scientific consensus on the anthropogenic causes of the climate crisis predict the disintegration of the age-old humanist division between natural history and human history. He argues that the collapse of human and natural history is distinctly recent in that, "[h]umans have become geological *agents* very recently in human history".[68] Furthermore, he argues that the idea of the Anthropocene "severely qualifies humanist histories of modernity or globalization".[69] As a consequence of these histories, the Anthropocene emerges unintendedly due to human choices, which, according to Chakrabarty, requires the Enlightenment and especially its rationality to fight the disasters of global warming.

Evidently, Chakrabarty's second proposition contains an appeal to raise awareness about climate change in contemporary thought. In appealing to a universal shift in thinking

[65] Bronislaw Szerszynski, 'The End of the End of Nature: The Anthropocene and the Fate of the Human', *Oxford Literary Review* 34, no. 2 (2012): 167. Derrida makes a distinction between *literal writing*, meaning "in the form of marks on surfaces made by people, and *metaphorical writing*, meaning "inscribed in the soul and in nature". Szerszynski, 167–68.
[66] Clark, 'Editorial'.
[67] Dipesh Chakrabarty, 'The Climate of History: Four Theses', *Critical Inquiry* 35, no. 2 (2009): 197–222.
[68] Chakrabarty, 206.
[69] Chakrabarty, 207.

more rationally about climate change, Chakrabarty questions the potential of global politics to instigate such thought, due partially to the propensity of politics the immediate future, and an overall inability to engage in problems on a global scale. He ends this proposition by quoting Mark Maslin's pessimistic recommendation: "we must prepare for the worst and adapt".[70] Chakrabarty questions political ideas with the concept of the Anthropocene. He wonders:

> […] has the period from 1750 to now been one of freedom or that of the Anthropocene? Is the Anthropocene a critique of the narratives of freedom? Is the geological agency of humans the price we pay for the pursuit of freedom?[71]

By asking these questions, Chakrabarty juxtaposes everything that is meant by the concept of the Anthropocene with the concept of freedom. This may seem contestable at first, because freedom and the Anthropocene are seemingly unrelated. But given the background of Chakrabarty as a post-colonial thinker, this comparison is understandable, because emancipation and its inherent connection with concepts of freedom emerge decisively from his work. He uses the climate crisis to indicate that the geological present of the Anthropocene has become entwined with contemporary human history and that man's freedom has consequently been affected in so far unprecedented ways and has been cornered as a result. Yet he does not mention binary entities by designating subaltern groups in the narratives of the concept of the Anthropocene and advocates for acknowledging a collective of human forces regarding the complex crises in the era of the Anthropocene.

Moreover, Chakrabarty advocates for establishing a dialogue with a "species history of humans".[72] Theories about globalisation and capitalism are insufficiently able to address the environmental crisis. For this realisation, it is essential to see man as a form of life and look at its history as part of the history of life on the planet. Chakrabarty refers to biologist Edward Wilson and historian Daniel Lord Smail as advocates of a "deep history" of man, which is a requirement for contemporary environmental crises.[73]

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[70] Chakrabarty, 212.
[71] Chakrabarty, 210.
[72] Chakrabarty, 212.
[73] Chakrabarty, 212. Historians of this branch of history argue for a definition of history that rests not upon the invention of written sources or writing, but upon the evolution of anatomically modern humans. This is not to be confused with "deep ecology", a term coined by Arne Naess and known as an environmental philosophy which advocates the inherent worth of all living beings regardless of their instrumental utility to human needs, plus the reorganisation of modern human societies in line with such ideas Arne Naess, 'The Basics of Deep Ecology', *The Trumpeter* 21, no. 1 (2005).

The fourth proposition states that this kind of history challenges the boundaries of our historical understanding. Following German philosopher and historian Wilhelm Dilthey, historical understanding is based on human experience. However, since we cannot experience ourselves as a species, according to Chakrabarty, a historical self-understanding as a species is impossible. As he states:

> Climate change is an unintended consequence of human actions and shows, only through scientific analysis, the effects of our actions as a species. Species may indeed be the name of a placeholder for an emergent, new universal history of humans that flashes up in the moment of the danger that is climate change.[74]

He focusses on the universal aspect of this problem and suggests a call for a "global approach to politics without the myth of a global identity".[75] "The Climate of History" has played a critical role in fuelling and guiding debates around the Anthropocene. His work is widely cited in the humanities and can be seen as a determining factor for academic debate concerning the Anthropocene and the environment.

Chakrabarty emphasises the importance of a global realisation that humanity does not come first, but also states that in the field of politics the climate problem needs a new understanding. For example, he argues that political specialists think in terms of years, decades or centuries at best, while politicians in democracies think in terms of their electoral cycles. However, more is needed to address global climate change, which transcends current political and social thinking.[76]

In short, it is evident that the concept of the Anthropocene extends interdisciplinary borders, namely from geology to the humanities, but also transcends borders of science and politics. Chakrabarty implemented the concept in his own thought and modified it and presented it as scientific knowledge with a political bias. Chakrabarty explains this in his work by arguing for a new realisation that applies to political and social life, but Bruno Latour takes this even further.

2.2.3. A call for innovation

In the humanities debate on the Anthropocene, the French philosopher, anthropologist and sociologist Bruno Latour is, alongside Chakrabarty, an influential figure. In 1999, he wrote

[74] Chakrabarty, 'The Climate of History: Four Theses', 221.
[75] Chakrabarty, 222.
[76] Chakrabarty, 211–12.

Politics of Nature: How to Bring the Sciences into Democracy before the development of the debate on global warming and before Crutzen popularised the concept in geological discourse.[77] In it, Latour calls, according to Chakrabarty, into question the entire tradition of organising the idea of politics around the assumption of a separate dimension of nature and points to the problems that this assumption poses for contemporary questions of democracy.[78] This extensive research shows his affinity with theories of what role nature plays in social and political discourses. In 2014, Latour elaborated on this topic and wrote the article "Agency at the time of the Anthropocene". Whereas Chakrabarty proposed to consider the earth as an agent of history, Latour complicates the nature and agency of the earth more extensively and calls it "our common geostory".[79] As in his publication "Nous n'avons jamais été modernes", he rejects modernist and dualistic relations of man and nature and emphasises and defines the role of agency.

Latour starts his article by citing Michel Serres' article "the Earth is moved". This French philosopher, theorist and writer is most renowned for attempting to draw philosophy away from its fixation on clear boundaries and definite separations. Herewith, he touched upon epistemological questions of the philosophy of science. In 1992, Serres wrote "Le contrat naturel" in which he argues that global climate change forces us to reconsider our relationship with nature.[80] A new "social contract" could provide a solution for bringing together all human activities or subjects. Latour, however, completely rejects this contract, because a lot has changed in twenty-five years and "things have become so urgent and violent that the somewhat pacific project of a contract among parties seems unreachable".[81] He accentuates that time has run out for an idealistic contract and in defining possible "agencies" Latour touches on ontological and semiotic questions about objectivity and subjectivity. In an effort to describe a relation with agency that focusses not on their characters, as humans or nonhumans, animated or deanimated, Latour underscores their common source. This source is recognised, both semiotically and ontologically, as a "metamorphic zone".[82] He then gives two reasons for his proposal about recognising a zone and why this helps in dealing with "Gaia".[83] According to

[77] Bruno Latour, *Politics of Nature: How to Bring the Sciences into Democracy*, trans. Catherine Porter (Cambridge, Mass: Harvard University Press, 2004).
[78] Chakrabarty, 'The Climate of History: Four Theses', 207.
[79] Latour, 'Agency at the Time of the Anthropocene', 3.
[80] Michel Serres, *The Natural Contract*, trans. Elizabeth MacArthur and William Paulson (Ann Arbor: University of Michigan Press, 1995).
[81] Latour, 'Agency at the Time of the Anthropocene', 6.
[82] Latour, 15.
[83] The Gaia Hypothesis, articulated by British atmospheric chemist James Lovelock, suggests that "Earth is a self-regulating, self-sustaining entity that continually adjusts its environment in order to support life.". Stephen

Latour, it is important to shift the focus from the domains of nature and society to the common source of freedom of choice. In this zone, the so-called actants can be detected before they become actors, in this sense metamorphosis is understood as a phenomenon that precedes all forms that will be given to agents and not as a metaphor where two connotations are connected.

The first reason for acknowledging this zone is, according to Latour, that the zone will allow us to put aside the "strange idea that those who speak of the Earth as a 'living organism' are leaning toward some backward type of animism".[84] This animism must be rejected to allow multiple types of agency:

> Geo-physiology as well as geo-morphology, geo-physics, geo-graphy, geo-politics should not eliminate any of the sources of agency — including those generated by former humans, those I call Earthbound — if they want to converge toward a common geostory.[85]

Latour argues here for a joint narrative to tackle thinking about the concept of the Anthropocene. While this reason applies mainly to academia and scientists, the second reason why it is so important to detect the metamorphic zone is distinctly political. According to Latour, politics has the task of granting its citizens a degree of speech, autonomy and degree of liberty. But it must also associate these citizens with their concerns and the different domains in which they find their existence. Politics often needs a common domain where this compositional process can take place, but this is made impossible if it is only divided into two domains "one that is inanimate and has no agency, and one which is animated and concentrates all the agencies".[86] According to Latour, this division between necessity and freedom has made politics impossible and allowed the opportunity for a free pass for the economy. This explains also the inability of humans to cope with the ecological threat: "either we agitate ourselves as traditional political agents longing for freedom — but such a liberty has no connection with a world of matter — or we decide to submit to the realm of material necessity […]".[87] The solution that Latour himself presents is that the modernist distinction between nature and society must be abolished, as well as all dialectical attempts to reconcile these two different domains. This reasoning is in line with the philosophy of science and technology studies (STS), because the socio-technical and natural/material coproduce each other.[88] Latour is unique in his

Bede Scharper, *Redeeming the Time: A Political Theology of the Environment* (Bloomsbury Publishing USA, 1998), 53. This theory is often criticised for teleological and against principals of natural selection.
[84] Latour, 'Agency at the Time of the Anthropocene', 13.
[85] Latour, 14.
[86] Latour, 14.
[87] Latour, 15–16.
[88] Fuller, *The Knowledge Book*, 155.

ideas for stating the problem and a definite solution in strong words. He goes beyond Chakrabarty's realisation and creates a new narrative to distribute and designate multiple agencies within the concept. He states: "The point of living in the epoch of the Anthropocene is that all agents share the same shape-changing destiny."[89] The political task is therefore not 'reconcile' or 'combine' nature and society, but to:

> distribute agency as far and in as differentiated a way as possible […] until, that is, we have thoroughly lost any relation between those two concepts of object and subject that are of no interest any more except in a patrimonial sense.[90]

Latour offers an exhaustive and all-encompassing way of thinking and talking about the Anthropocene, implicated both academia and politics. He elaborated on this political message in eight lectures on what he calls "New Climate Regime". Latour uses this term to summarise the present situation "in which the physical framework that the Moderns had taken for granted, the ground on which their history had always been played out, has become unstable".[91] This collection of lectures was called "Facing Gaia" by which he openly brings the climate change into discussion.

This chapter on the philosophical and historical evolution of the idea of the Anthropocene demonstrates that the concept is cited in different ways, implemented in different disciplines of the humanities, and adapted according to the context. Humanities scholars have various reasons for using the term, thereby placing the concept of the Anthropocene in humanities debate. With Chakrabarty, the concept is even forced into a politicising realisation and with Latour, there is a strong call for change or innovation. The Anthropocene is an interdisciplinary and academic transcending concept, both political and postmodern. As soon as you talk about the relationship between man and nature, or just use the term of the Anthropocene, it is almost impossible not to have a critical opinion and to be politically active. Latour shows that it is possible to reveal a new relationship with nature or Gaia within science and eventually even resolve the dividing line between man and nature by attributing it to agency and by creating a new narrative. In short, the concept creates new critical ways of thinking, is used as a tool, recognised as a cognitive good, and is a catalyst in already existing expressions about climate change. It is evident from this example that all these ways of thinking can lead to something political. But how does this happen in reality?

[89] Latour, 'Agency at the Time of the Anthropocene', 15.
[90] Latour, 15.
[91] Bruno Latour, *Facing Gaia: Eight Lectures on the New Climatic Regime* (John Wiley & Sons, 2017), 3.

Chapter Three: The role of the concept in Dutch contemporary public debates

Analysis of the transfer of the concept between different disciplines has so far been mainly theoretical, but the analysis of newspapers offers a more tangible approach of this migration. This chapter outlines the migration of the concept of the Anthropocene from the academic context to the public context.

Non-academic media has certainly adopted and variously used the Anthropocene. In 2011, *The Economist* welcomed its readers to the Anthropocene and defined it as "the age of man".[92] Many other prominent international media reported on the Anthropocene. *The New York Times* already headlined in 2008 "Earth is Us" and *The Guardian* reported on the Anthropocene in 2009 as: "A force of nature: our influential Anthropocene period".[93] Academics also reached the wider public through Ted Talks, podcasts, popular science books, art projects and museums. In this chapter, however, Dutch newspapers serve as the basis to explore the transfer of academic disciplines to public debates. In order to do so, it is crucial to outline the parameters of the debate in advance.

Using two Dutch terms by which the same concept is meant, "antropoceen" and "anthropoceen", the development of the concept in public sources is examined.[94] Despite the fact that the academic debate, with the JSTOR dataset, cannot be compared to this set of articles, the same time span has been chosen. These two debates differ in scope, types of publications and intended audiences. In order to be able to correlate the two debates to a certain extent, however, the same time period of publication dates of the sources is essential. These primary sources are a set of 396 articles of multiple Dutch newspapers extracted from the website LexisNexis. This is a corporation and an electronic database that provides computer-assisted legal and business research and provides accessibility to legal and, more importantly, journalistic documents. Via this website, it is possible to create a selective dataset on the basis of various advanced search functions. In this chapter, a dataset is used that has been found with the following search functions: timeline from 2001 (first published article) to 2020 as well as the dataset from chapter two, and Dutch language (since it concerns a Dutch case and term). The graph below shows which newspapers the corpus consists of and how the frequency of articles is distributed.

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[92] 'Welcome to the Anthropocene', *The Economist*, 26 May 2011.
[93] Simon Lewis, 'A Force of Nature Our Influential Anthropocene Period', *The Guardian*, 23 July 2009, sec. Opinion. Andrew C. Revkin, 'Earth Is Us', *The New York Times*, 2008.
[94] The Dutch spelling of "Anthropocene" is spelled both with and without the consonant 'h'. The spelling with 'h' is closely related to the English term.

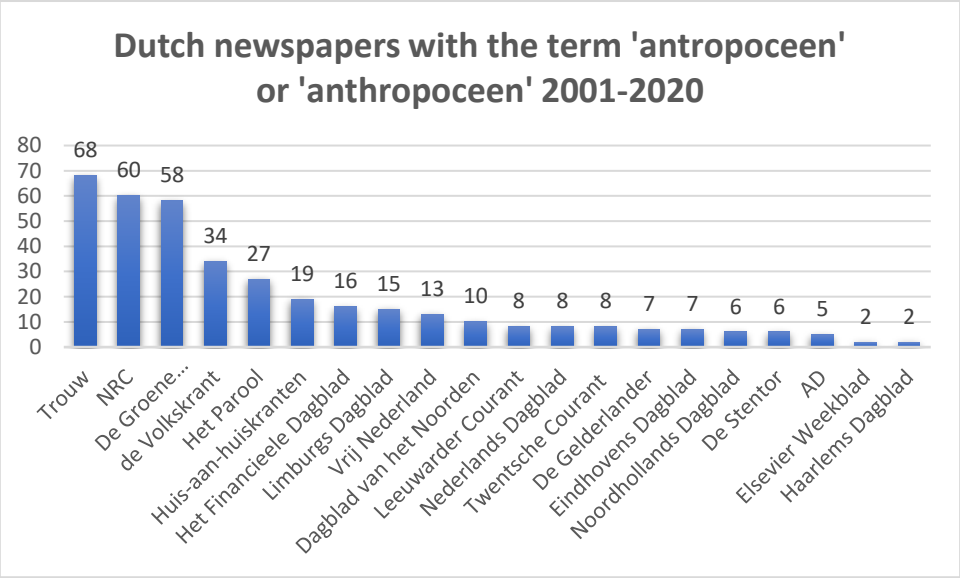

Figure 9. Dutch newspapers with the term "antropoceen" or "anthropoceen" between 2001 and 2020.

Title	**Type**	**Political profile**[95]	**Location**
Trouw	daily newspaper	protestant	Amsterdam
De Groene Amsterdammer	weekly newsmagazine	liberal, progressive	Amsterdam
NRC Handelsblad	daily newspaper	liberal	Amsterdam
nrc.next	daily newspaper	liberal	Amsterdam
De Stentor	(regional) daily newspaper	centre/neutral	Apeldoorn
de Volkskrant	daily newspaper	centre	Amsterdam
Dagblad van het Noorden	(regional) daily newspaper	centre/ neutral	Groningen
Huis-aan-huiskranten	(regional)	centre/neutral	For example: Gouda, Papendrecht, Utrecht
Het Parool	(regional) daily newspaper	centre/neutral	Amsterdam
Leeuwarder Courant	(regional) daily newspaper	centre/neutral	Leeuwarden

[95] Multiple newspapers, each with their own political profile, are used in this chapter. The newspapers each convey their own identity on their website and represent more than the terms here suggest. In order to be able to carry out the analysis on a corresponding level, I have chosen to use the terms "centre/neutral", "protestant", "liberal" and "progressive". These terms will assist in the classification of the articles and have been carefully chosen to ensure the original profile. The location represents the headquarters of the newspapers.

Dagblad de Limburger	(regional) daily newspaper	centre/neutral	Sittard
Trouw.nl	daily newspaper	protestant	Amsterdam
De Gelderlander	(regional) daily newspaper	centre/neutral	Nijmegen
Eindhovens Dagblad	(regional) daily newspaper	centre/neutral	Eindhoven
De Twentsche Courant	(regional) daily newspaper	centre/neutral	Enschede
BN/DeStem	(regional) daily newspaper	centre/neutral	Breda
FD.nl	daily newspaper	liberal	Amsterdam
Vrij Nederland	weekly newsmagazine	centre/neutral	Amsterdam
Het Financieele Dagblad	daily newspaper	liberal	Amsterdam
Het Parool.nl	(regional) daily newspaper	centre/neutral	Amsterdam

Figure 10. Newspapers that are used in this chapter.

This chapter is divided into three periods: 2001-2015, 2015-2017 and 2017-2020. At first glance, this division seems arbitrary, but in adopting this framework, this structure reveals apparent shifts in frequency.[96] These demarcations provide a structure, that enables an extensive analysis of the public debate. Each period is examined on the basis of three sub-questions: "How is knowledge about the concept presented?", "How were scholars introduced to public readership and how were their contributions framed?" and "How is the relevance of the concept for the public debate explained?".

3.1. 2001-2015

Evidently, not all 58 articles of this period define and use the concept of the Anthropocene in exactly the same formulations. The differences therefore exist in the details, such as writing style, tone and political message.

In answering the first question about the presentation of knowledge about the concept, the variousness of approaches and uses is immediately apparent. At first glance, the articles from the period 2001-2015 seem to share a consensus on the term. For example, in the first ten to twenty articles, the concept of the Anthropocene is cited to indicate the current state of the

[96] Other categorisations for this chapter, such as topics of debate and newspaper types, have been considered, but have proven less revealing and logical for the purposes of this research.

climate in neutral terms, ranging from such statements as "human influence on the earth has grown" to very broad suggestions of "climate issues".[97] However, these terms quickly turn into formulations that describe the state of the climate as unsustainable. The understanding that this condition is the cause of human influence is thereby linked to the knowledge of an anthropocentric geological concept. Consequently, the *Noordhollands Dagblad* defined the Anthropocene as "the age of man".[98] Furthermore, the concept is presented in light of a new era that succeeds the old era, the Holocene.[99] In accordance with the geological debate, newspapers consequently discuss the periodisation of the proposed new era.[100] It is noteworthy that some newspapers, such as *Trouw* in 2015, consider the three main trends within the geological debate on the beginning of the Anthropocene with a certain precision: "sixty thousand years ago, when the megafauna disappeared due to hunting, the industrial revolution around 1750 and the great acceleration after 1945, when humans detonated the first nuclear bomb and radioactivity was present on the planet."[101] Other newspapers however, focus primarily on the naming of the era. Representative of this reporting is *Het Parool* in 2013 when they proposed to speak of a "Herbocene".[102] On the contrary, the *Leeuwarder Courant* writes about how the Anthropocene has become visible for the public eye, namely "through the way we rearrange our landscape for the construction of metropolises and the development of large-scale agriculture.".[103] The examples above are indicative of the public discussion in which, on the one hand, newspapers cite the concept to explain geological debates and on the other, to refer to the concrete effects of climate change. In doing so, these newspapers refrain from any political implications that the term may suggest.

Regarding the second sub-question, climate experts are generally cited to explain certain developments in climate change and designate the era in which we live. In this regard, various proposals from climate scientists are discussed, but the vast majority of journalists speak of Crutzen as the "author" of the term and other scientists as Jan Zalasiewiecz, Mark Williams and Will Steffen as the scientists who amplified the concept. Many articles are based on interviews with 'Mr. Anthropocene' Crutzen in which he is given the opportunity to elaborate on his

[97] Hanneke Wit de, 'Er Moet Wat Gebeuren, Zegt Crutzen', *Het Parool*, 9 July 2001; Jeffrey D. Sachs, 'Toekomst Is Zaak van Menselijke Keuzen; Nieuw Groeipatroon Moet Wereld Redden', *Het Financieele Dagblad*, 2 February 2013.'
[98] 'Het Antropoceen', *Noordhollands Dagblad*, 23 June 2012.
[99] The Holocene and its terminology is explained on page nine of this thesis.
[100] Ben Raaij van, 'Nederland Verscheen in Het Holoceen; Te Kijk Nieuwe Paleografische Atlas', *De Volkskrant*, 14 May 2011, sec. Wetenschap.
[101] Wim Boevink, 'Niks Voor Somberaars', *Trouw*, 23 April 2015.
[102] 'Nieuw Tijdperk of Niet?', *Het Parool*, 5 January 2013.
[103] Bjinse Dankert, 'De Mens Als Natuurkracht', *Leeuwarder Courant*, 23 June 2012.

proposal and ideas.[104] Moreover, experts from different disciplines and professions are cited to elaborate on their vision of the climate, such as Dutch political scientist Frank Biermann, British author and journalist Mark Lynas, Dutch ecologist Marten Scheffer, journalist and filmmaker Andrew Backwell and Dutch author Peter Westbroek. *Vrij Nederland* described the "new" wave of scientists interested in and concerned with the climate as "the concerned scientists".[105] Generally, Crutzen is presented as the overall expert on climate relevant topics. The contributions of the scholars are framed as scientific knowledge, relevant for determining the current debate on climate change, but in framing their findings and arguments, these articles refrain from expanding towards political consequences or messages. In all cases, the scientists and their statements are restricted only to present a basis upon which climate change may scientifically be explained. It remains unclear whether these journalists assume a distinction between politics and science or a science free from political bias.

In respect to the relevance of the concept for the public debate, most articles justify using the concept of the Anthropocene by arguing that the climate discussion should be understood in encompassing terms, in order to make it more comprehensible. Using one term would make it easier to understand what is being talked about in the diverse debate about the condition of the earth. In 2012, *de Volkskrant* asks Paul Crutzen:

> Why do we have to determine aloud what geological era we are living in?
> 'Because geologists certainly tend to think that humans are not important, at least on geological dimensions and time scales. That leads me too easily to the idea that everything will go smoothly with what we do. But that is not the case. In a way, humans are stronger than the earth. We change the planet, permanently.'[106]

Crutzen here presents himself as a geologist by placing himself in the debate and argues that geologists should focus more on human forces in geological debates. He argues that scientific research into the era draws attention not merely to the geological consequences of the proposed term, but most importantly to the undeniable role of humanity in the process. Thereby, Crutzen draws the geological discussion outside of the purely scientific framework by which the Anthropocene is commonly presented and makes it acutely political.

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[104] Paul Luttikhuis, '"We Leven in Het Antropoceen"; Nobelprijswinnaar Paul Crutzen over Invloed van de Mens Op Klimaat', *NRC Handelsblad*, 7 December 2010.
[105] Tomas Vanheste, '"We Poken Het Beest Wakker"; Interview Ecoloog Marten Scheffer', *Vrij Nederland*, 26 September 2009.
[106] '"Na de Ozonlaag Dachten We Dat We Alles Aankonden, Maar Mooi Niet"; Interview Nobelprijswinnaar Paul Crutzen', *De Volkskrant*, 3 April 2010.

3.2. 2015-2017

Between 2015 and 2017, 134 Dutch articles on the Anthropocene appeared. In answering the first question about the presentation of knowledge about the concept, the range of more adamant approaches to adopting the term in public discourse materialises increasingly. The progression towards firmer statements on the extent to which the Anthropocene is a consequence of human influence becomes much more apparent from 2016 onwards. In this year, *de Volkskrant* defines the concept as "the era in which man dominates the earth" and other newspapers, like the *AD/Haagse Courant* and *De Groene Amsterdammer* soon followed suit in welcoming their readers to the Anthropocene.[107] Between 2015 and 2017, the newspapers seem to extend their coverage of the term beyond simply describing its emergence. More newspapers take a closer look at the condition of the climate and cite concrete examples of climate problems. For example, *de Volkskrant* lists some of the most pertinent effects of the Anthropocene: "the climate is changing, plant and animal species are rapidly becoming extinct, plastic is lying on the bottom of the seas, growing soil becomes sterile […]".[108] Other newspapers report on new documentaries, books and lectures held on the Anthropocene. Along these lines, *de Volkskrant*, *Trouw* and *De Twentsche Courant* report on a newly published book in 2017 of "Denker des Vaderlands" René ten Bos *Dwalen in het antropoceen*.[109] In this respect, the newspapers published in this period seem to report mainly on new initiatives and developments within the debate on climate change. The concept of the Anthropocene is presented as a multifaced concept in which knowledge about climate crises is transferred through multiple media, such as newspapers and books. Furthermore, in this second period there are also articles that mention the concept in passing, without explicit reflection on the term itself. This indicates how the term has been integrated into public climate debate.

The second sub-question appears to yield multiple answers once more. Journalists in this period seem to address experts from different disciplines rather than just geologists. In 2016, *De Groene Amsterdammer* discussed the relevance of the concept for the humanities. Erik de Jong, cultural historian, calls upon humanities scholars to start thinking more extensively about nature in relation to humanity, because humanity, the protagonist of the

[107] Gerben Hof van 't, 'Welkom in Het Antropoceen', *AD/Haagse Courant*, 31 August 2016; Jaap Tielbeke, 'Welkom in Het Antropoceen; De Planeet Gaat Ten Onder - Dankzij de Mens', *De Groene Amsterdammer*, 6 July 2016.
[108] Caspar Janssen, 'Is Het Dier Een Klok?', *De Volkskrant*, 7 February 2017.
[109] Wilma Rek de, 'Geen Oplossingen in Het Mensentijdperk', *De Volkskrant*, 4 March 2017; Theo Hakkert, 'Denker', *De Twentsche Courant*, 4 March 2017; Peter Henk Steenhuis, 'De Denker Wilde Vroeger Filosoof Worden', *Trouw*, 4 March 3017, sec. Letter en Geest.

Anthropocene, should no longer be examined solely from a scientific angle.[110] Furthermore, philosophers Peter Sloterdijk and Bernard Stiegler expound in 2017 in the *Trouw* on the role they see for humanity in the Anthropocene. Sloterdijk and Stiegler are presented as trustworthy and renown experts on the concept:

> […] the German Peter Sloterdijk, who with his literary style and grand perspectives is one of the renown and most controversial thinkers of Europe and the lesser known Frenchman Bernard Stiegler, who with his philosophy of man as a technical being exercises influence on the present climate debate[111]

Although most newspapers talk about the potential of the Anthropocene for humanity, there are also dissenting voices. Some geologists argue that the influence of man is less than suggested or that the period in which the earth is strongly influenced by man is still very small in relation to the scale of geological time.[112] Others argue that the Anthropocene is a "career springboard" for non-geologists, because it is mainly environmentalists who lobby for its recognition. Representative for these critics is Sven Egenhoff, he argues that the Anthropocene would characterise the academic tendency to use advertising slogans instead of valid scientific terms and sees no scientific basis for the extent to which the Anthropocene has come to take up scientific interest.[113] Therefore, scientific contributions in newspapers are not only framed as advocating the use of the term. Critical voices, such as Egenhoffs, devaluate the term so that it misses both academic and political purpose. These critiques seem to come mainly from newspapers such as *Elsevier*, *Trouw* and *NRC Handelsblad*. This may be ascribed to the fact that these newspapers are considered quality papers and include both advocates as opponents in discussions. Science journalists and humanities scholars play an essential role in the public debate, whereas the media functions as a bridge between science, society and politics.

With regard to the third sub-question most articles justify the use of the concept according to the inherent central role of humanity, suggested in the name itself. Exemplary of this trend, *De Telegraaf* mentions in 2016 the relevance of the concept as "man-made".[114] Sloterdijk and Stiegler propose that, because humans are the cause of the Anthropocene, the solution presents itself in changing human action accordingly: "[…] that we must protect the

[110] Sanne Bloemink, 'Mieren Staan Nooit in de File; De Bezielde Natuur - Antropologie Voorbij de Mens', *De Groene Amsterdammer*, 1 June 2016.
[111] Leonie Breebaart, 'Overleven in Het Antropoceen', *Trouw*, 27 June 2016, sec. Religie & Filosofie.
[112] Breebaart.
[113] Rypke Zeilmaker, 'Het Carrièretijdperk; Geologie / Academici Riepen Een Nieuw Geologisch Tijdvak Uit Om de Moderne Tijd Te Beschrijven: Het Antropoceen. Geologen Vinden Dat Onzinnig.', *Elsevier Weekblad*, 15 October 2016, sec. Kennis.
[114] Caspar Tongeren van, 'Anthropoceen Allernieuwste Tijdperk Aarde', *De Telegraaf*, 8 January 2016.

planet is a radically new idea. Nature used to be a robust presence for us, always stronger than ourselves. But if we live in the Anthropocene, the roles are reversed."[115] *De Groene Amsterdammer* sees the Anthropocene as an umbrella term, since museums organise exhibitions about the Anthropocene, there are Ted Talks about "love in the Anthropocene", "music for the Anthropocene" is being composed, and scientists from all disciplines, from philosophy to media studies, get to grips with the term. *De Groene Amsterdammer* argues that it seems "as if the concept is already fully established in our vocabulary."[116] The term does not seem to be an empty container term, because geological semantics, philosophical meanings and diverse cultural associations occur simultaneously. Like philosopher Clive Hamilton argues "[i]t describes a radically new phase in the relationship between man and planet. The Anthropocene should revolutionise our thinking."[117] The relevance in this phase has certainly expanded into modes of thinking and political messages. Newspapers share the consensus that humans are the cause of the current climate condition and that the Anthropocene is a loaded concept, sparking up far-reaching questions of human action and life in a disturbed environment. To use the term means to pass judgement, its meaning inherently makes all human life complicit.[118] Nevertheless, *De Groene Amsterdammer* and other newspapers of this period do not merely pass judgement, but propose possible solutions for the future:

> emphasising the dichotomy between man and nature, between man and animal, where man is the culprit and the animal or nature (literally) the direct object, is not constructive. It is important that we understand that the earth is not our backdrop, but part of ourselves. The change must come from people. By stopping talking, by starting to listen.[119]

The concept is thus politicised in various ways and used to support new initiatives, such as art projects and lectures.[120] In this respect, another article from *De Groene Amsterdammer* states that the global economy that underpins the Anthropocene is not a spontaneous development but a political creation. The presented solution also lies in this creation, namely man's ability to act and to influence the earth on a global scale. In this way, the Anthropocene is not only a threat, but also an opportunity to give new impetus to our discussions about economic globalization

[115] Breebaart, 'Overleven in Het Antropoceen'.
[116] Tielbeke, 'Welkom in Het Antropoceen; De Planeet Gaat Ten Onder - Dankzij de Mens'.
[117] Tielbeke.
[118] Tielbeke.
[119] Sanne Bloemink, '"Edelachtbare, Mijn Cliënt Voelt Zich Niet Fijn in de Legbatterij"; Bio-Emancipatie: Rechten Voor Dieren En Planten', *De Groene Amsterdammer*, 16 March 2016.
[120] Hakkert, 'Denker'.

and the environment.[121] A distinct difference from the previous phase is the politicised language in newspapers, newspapers frame a task for humanity and speak to people's sense of responsibility.

3.3. 2017-2020

Between 2017 and 2020, 212 articles reported the Anthropocene. In answering the first question about the presentation of knowledge about the concept, the growing urgency of the climate crisis becomes increasingly apparent in the discussion. In this regard, *de Volkskrant* defines the Anthropocene as "the era in which man exerts a profound, perhaps catastrophic influence on the natural environment".[122] The undeniable urgency of the situation is also recognised in *De Gelderlander*, which speaks of a mass extinction of biodiversity.[123] Characteristic of this earnest tone in newspapers is the article of the *De Groene Amsterdammer*. It captures the Anthropocene in alarmist terms: "colonisation and near-devastation of the earth by humans". The use of the term "colonisation" already implies a politicisation of the concept, at the same time as a broader interest in and putting the climate crisis on the agenda. Moreover, the article speaks of the "centuries-long disruption of various ecological balances can be understood as an invasion, an ever-increasing proximity to animals and other non-human nature."[124] The newspapers cite many examples of natural disasters and the consequences of climate change, culminating in many instances into a bleak outlook for humanity: "The planet will survive the Anthropocene, but humanity may not.".[125] Furthermore, the concept becomes increasingly embedded into articles and mentioned in passing, revealing its increasing status as public knowledge. Symptomatic of this tendency is the number of articles that have been written to announce or review books and films that have a link with the Anthropocene. The book by René ten Bos *Dwalen in het antropoceen* for instance has been mentioned in 38 articles since its publication in February 2017. It seems that the tendency in the public debate is to assign varying importance to the term. Nevertheless, the concept is presented to encompass and connect all of human history, which we usually think about in terms of decades or centuries with a great history involving periods of time of millions of years. Consequently, artists appear to try to bridge the gap in our understanding and imagination. This is also reflected in newspapers. The *NRC*

[121] Jasper Blom, 'Meer Plastic Dan Vis in de Zee; Essay - Politieke Actie in Het Antropoceen', *De Groene Amsterdammer*, 6 July 2016.
[122] Addie Schulte, 'Klimaatdebat Verdient Veel Meer Scepsis', *De Volkskrant*, 23 February 2019, sec. Opinie.
[123] Aafke Schipper, 'De Hoogste Tijd Voor Een Moderne Ark van Noach', *De Gelderlander*, 28 January 2019.
[124] Arjan Post, 'De Eenzaamheid van de Stervenden; Essay Het Nabijheidsvirus', *De Groene Amsterdammer*, 11 June 2020.
[125] Post.

Handelsblad and *Het Parool*, for example, report on dystopian works of art on climate change and mass migration or art that goes back to our common understanding of "the real nature" without the influences and corruption of man.[126]

Remarkable about the presentation of scholars is that most of the experts are philosophers who take an active political stance. Latour, British philosopher Timothy Morton, Dutch philosopher and journalist Florentijn van Rootselaar and Australian public philosopher and author Hamilton take on a leading role as the spokesmen for academic environmentalism in Dutch newspapers by being cited and interviewed. Regarding Latour's theses in the form of the book *Facing Gaia*, he explains that the new era "is crying out for a reconsideration of our disturbed relationship with the planet". In *De Groene Amsterdammer* in 2018, Latour is compared to Morton and both thinkers are labelled as academics who transcend the current debate about the Anthropocene through their inventive discoveries, stimulating associations and new conceptual framework. The newspaper praises their innovative ideas and instead of covering already well-established arguments of climate debate, such as CO2 concentrations, rising sea levels or melting ice caps, concepts such as "Kosmokolos", "terrestrialisation" (Latour) or "eco-communism" and "hyperobjects" (Morton) are presented as new ground for discussion. Despite the contributions of Latour and Morton's pessimistic message, *De Groene Amsterdammer* still ends on a positive note, because these "sparkling reflections" may "give hope that people have enough brains to realise that we don't need a Planet B".[127]

Like Morton, Florentijn van Rootselaar, too, has a cynical view of the future of the era of mankind, and if we are to change this course, ambitious environmentalist endeavours are required to take the place of antiquated enlightenment thought. This should give rise to a new development: "first we must listen to the earth, then a new ethics and a new human being will follow".[128] Van Rootselaar goes so far as to advocate thinking of a state of war, because it forces us to draw dividing lines between friend and foe. He also acknowledges that in this war it is not clear exactly who belongs to which group. Despite the fact that these parties are not elaborated by this philosopher, his wording shows that the situation has become extremely urgent.[129] He also exposes the difficulties for humans:

[126] Maarten Moll, 'Undermined', *Het Parool*, 13 June 2019; Sandra Smallenburg, 'Zwarte Klimaatscenario'sals Nieuwe Kunsttrend', *NRC Handelsblad*, 11 May 2019, sec. In het nieuws.
[127] Jaap Tielbeke, 'Filosofen van Het Antropoceen', *De Groene Amsterdammer*, 1 March 2018.
[128] Maurice Turnhout, 'Volgens Deze Denkers Breken Er Mythische Tijden Aan', *Trouw*, 21 March 2018, sec. Religie en Filosofie.
[129] Turnhout.

> We do not have a natural sensitivity to issues that are historically new, human civilizations developed in the Holocene, not the Anthropocene. To develop that sensitivity, we have to make an effort. Raising people's awareness, making them sensitive to the changes, you do that first of all through science. But that is not enough. Art is also needed, because this is not a reasonable matter, we can only understand the new climate regime thanks to our passions. If we only know the facts, we will not respond.[130]

Van Rootselaar argues that, for knowledge to be integrated completely it first need to go through a development in which the term passes through multiple different social cognitive dimensions. Hamilton also speaks boldly about the state of humanity in the Anthropocene. He claims in the *Trouw* in 2018 that we may not yet dare to speak of anthropocentrism as a scientific fact and universally accepted fact. Hamilton clearly disagrees with people who deny that humans play a unique role in this era. He also blames scientists who come up with alternative terms, suggestions such as "Capitalocene" and "Chutulucene", because, he argues, there is no time at all to engage in semantic games. For Hamilton, sociologists should not name geological eras.[131] What humanity can do in practice is not clear in these articles, but it is clear that a defeatist attitude is lurking among scholars, caused by the seriousness of the political messages that scientists assert. In this regard, scholars take on the role of politician by arguing that human action is needed to turn the tide in the climate debate, and despite being announced as academists, their contributions in newspapers can be classified as political through the apparent social and political implications and consequences that their contributions suggest and demand.

In answering the third question about the relevance of the concept for the public debate, it becomes apparent that the subject is no longer touched upon but fully incorporated in political messages in a similar way to the announcements of academic contributions. The role of man appears to be an active one in many articles. Journalists discuss the role of humanity in different ways, inspired by scholars such as Latour and Hamilton. The relation between man and nature is discussed and problematised, and the consensus is that earth and man will have to get along "as a married couple in a state of war, but cannot divorce".[132] The opposition between man and nature, which is and will remain binary if only in the minds of humanity, will continue to lead to difficulties and adversities. If the relationship is to be saved, it can only do so through a fundamentally new understanding of living, not as one, but mutually, side by side.

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[130] Marc Dijk van, 'We Zijn in Oorlog Met de Aarde', *Trouw*, 15 August 2018.
[131] Jaap Tielbeke, 'Op Een Menselijke Planeet', *De Groene Amsterdammer*, 6 December 2018, sec. Dichters en Denkers.
[132] Marc van Dijk, 'Voor Klimaatalarmist Hamilton Is de Mens de Supermacht Die Het Milieu Moet Herstellen', *Trouw*, 16 October 2018, sec. voorpagina.

It should further be noted that human responsibility is also discussed, and some people are presented to bear greater responsibility than others. Exemplary of the way in which the relevance of the Anthropocene is presented, *De Groene Amsterdammer* argues that it is more about man as a species than about man as an individual and that the term causes the image of man as a species to falter. Looking back at deep geological history, the influence of humans on natural processes is insignificant, but the rate at which humans can currently cause a transformation of the earth cannot be ignored.[133] The question of what humans should effectively do turns out to be complex, because humans as a species cannot perform unambiguous action. Despite this complex question, newspapers present concrete answers. Exemplary of these suggestions, the *Leidsch Dagblad* identifies the role of humanity and the stimulative effect of these crises on our thinking about the question of who we as humans think we are on this planet: "operators of the earth, stewards of nature or part of the great community of life".[134] The subject-object debate is discussed, and the newspaper suggests thinking like Latour, who argues that the democratic system should be expanded in order to give non-human beings a voice in it. Concrete examples of these voices are presented: the open platform "The Parliament of Things" was established in the Netherlands in 2015, in which a debate is held about the rights of nature. In this regard, "The Embassy of the North Sea" was established in 2018, which aims to give a political voice to the North Sea and its inhabitants. This trend can also be seen at an international level. With such initiatives as the status of legal entity given to the Whanjanui River in New Zealand in 2017.[135] These initiatives show that the concept of the Anthropocene also incites fruitful thinking and optimistic action. Newspapers report often in academic phrasing on the concept and cite experts on the debate, but journalists translate knowledge in susceptible, often political messages. The most important message in the public debate appears to be the undeniable seriousness of the situation, the fact that action is needed and, as the *Trouw* formulated in 2018, that scientific knowledge is only receptive to the public debate if people become sensitive to the subject through art and culture and, above all, are receptive to change.

[133] Sanne Bloemink, 'Groter Dan de Som Der Delen; Essay De Relatie Tussen Mens En Natuur', *De Groene Amsterdammer*, 2 June 2020.
[134] 'Van Wie Is de Natuur?', *Leidsch Dagblad*, 25 May 2019.
[135] 'Van Wie Is de Natuur?'

Conclusion

This thesis examined the emergence of the concept of the 'Anthropocene' and its migration from geology to the other sciences, the public debate and beyond. In doing so, it has shown how this migration occurred and to what extent it was accompanied by a politicisation of the concept.

When Paul Crutzen declared "[…] we are in the Anthropocene" in 2000, it marked a shift in geological thinking and shed light on what would soon dictate the sciences far beyond geology. Building on an etymological history dating from the nineteenth century, the emergence of the Anthropocene in geology called into question existing ideas on geological time and placed humanity firmly in the centre of a catastrophically changing world.

The term soon emerged outside of the geological sciences, which focused primarily on its periodisation and into the humanities, which complicated and expanded on its earlier meaning. Adopting Reinhard Koselleck's method of conceptual history and supported by a digital analysis of the dataset derived from JSTOR, the emergence of different definitions of the Anthropocene were revealed, depending on the scientific, social and political context in which the term appeared. The Anthropocene soon proved to implicate all of the humanities, revealed by the intellectual goods of Clark, Chakrabarty and Latour. All three agree on the inherent significance of the Anthropocene for the humanities, which must inevitably lead to a new narrative of humanity and the binary opposition between man and nature. Thereby, the Anthropocene took on a political dimension, resulting in a call for environmentalist action involving all of humanity.

As a consequence, a public discourse surrounding the Anthropocene soon emerged. Key figures of academic climate research like Crutzen and Latour were increasingly addressed in the media, due also to the increasing evidence of climate change and its destructive consequences. The humanities, its scholars and the research it delivers are understood as a common good and presented as such. As a consequence, the knowledge is presented according to the context and requirements of the user. In the case of the media, the presentation became increasingly political, and the term evolved into a tool through which to evoke and facilitate climate discussion. As a result, the Anthropocene exceeded scientific boundaries and received increasing public and cultural attention, such as in arts and the establishment of institutions dedicated to the environment.

The Anthropocene, therefore, first arose and was used as a cognitive good in different contexts due to its inherent interdisciplinary character and as such developed into an umbrella term, coming to stand for environmentalist thought in the broadest sense.

To conclude, the migration of the Anthropocene from geology to politics may finally be explained by the inherent implications for all of humanity that the concept entails. For, if the Anthropocene is to be understood entirely, it requires academia, politics and all of humanity to work together to create an age of the earth.

Further research may expand upon this thesis and take a more comparative look at different (trans)national public debates. Such studies may also build upon the digital analyses presented in this thesis and increase the scope of research by looking at other data sources, such as social media data or political debates.

Bibliography

Primary sources

Bloemink, Sanne. '"Edelachtbare, Mijn Cliënt Voelt Zich Niet Fijn in de Legbatterij"; Bio-Emancipatie: Rechten Voor Dieren En Planten'. *De Groene Amsterdammer*, 16 March 2016.

———. 'Groter Dan de Som Der Delen; Essay De Relatie Tussen Mens En Natuur'. *De Groene Amsterdammer*, 2 June 2020.

———. 'Mieren Staan Nooit in de File; De Bezielde Natuur - Antropologie Voorbij de Mens'. *De Groene Amsterdammer*, 1 June 2016.

Blom, Jasper. 'Meer Plastic Dan Vis in de Zee; Essay - Politieke Actie in Het Antropoceen'. *De Groene Amsterdammer*, 6 July 2016.

Boevink, Wim. 'Niks Voor Somberaars'. *Trouw*, 23 April 2015.

Breebaart, Leonie. 'Overleven in Het Antropoceen'. *Trouw*, 27 June 2016, sec. Religie & Filosofie.

Calmthout, Martijn. 'Paul Crutzen Bracht Het van Volksjongen Uit de Crisisjaren Dertig Tot Nobelprijswinnaar. En Redde Zo Nu En Dan de Wereld'. *De Volkskrant*, 29 January 2021.

Dankert, Bjinse. 'De Mens Als Natuurkracht'. *Leeuwarder Courant*, 23 June 2012.

Dijk, Marc van. 'Voor Klimaatalarmist Hamilton Is de Mens de Supermacht Die Het Milieu Moet Herstellen'. *Trouw*, 16 October 2018, sec. voorpagina.

Dijk van, Marc. 'We Zijn in Oorlog Met de Aarde'. *Trouw*, 15 August 2018.

Hakkert, Theo. 'Denker'. *De Twentsche Courant*, 4 March 2017.

'Het Antropoceen'. *Noordhollands Dagblad*, 23 June 2012.

Hof van 't, Gerben. 'Welkom in Het Antropoceen'. *AD/Haagse Courant*, 31 August 2016.

Janssen, Caspar. 'Is Het Dier Een Klok?' *De Volkskrant*, 7 February 2017.

Luttikhuis, Paul. '"We Leven in Het Antropoceen"; Nobelprijswinnaar Paul Crutzen over Invloed van de Mens Op Klimaat'. *NRC Handelsblad*, 7 December 2010.

Moll, Maarten. 'Undermined'. *Het Parool*, 13 June 2019.

'"Na de Ozonlaag Dachten We Dat We Alles Aankonden, Maar Mooi Niet"; Interview Nobelprijswinnaar Paul Crutzen'. *De Volkskrant*, 3 April 2010.

'Nieuw Tijdperk of Niet?' *Het Parool*, 5 January 2013.

Oosterbaan, Warna. 'Hij Redde Ons van Het "gat" in de Ozonlaag'. *NRC Handelsblad*, 30 January 2021.

Post, Arjan. ‘De Eenzaamheid van de Stervenden; Essay Het Nabijheidsvirus’. *De Groene Amsterdammer*, 11 June 2020.

Raaij van, Ben. ‘Nederland Verscheen in Het Holoceen; Te Kijk Nieuwe Paleografische Atlas’. *De Volkskrant*, 14 May 2011, sec. Wetenschap.

Rek de, Wilma. ‘Geen Oplossingen in Het Mensentijdperk’. *De Volkskrant*, 4 March 2017.

Sachs, Jeffrey D. ‘Toekomst Is Zaak van Menselijke Keuzen; Nieuw Groeipatroon Moet Wereld Redden’. *Het Financieele Dagblad*, 2 February 2013.

Schipper, Aafke. ‘De Hoogste Tijd Voor Een Moderne Ark van Noach’. *De Gelderlander*, 28 January 2019.

Schulte, Addie. ‘Klimaatdebat Verdient Veel Meer Scepsis’. *De Volkskrant*, 23 February 2019, sec. Opinie.

Smallenburg, Sandra. ‘Zwarte Klimaatscenario’sals Nieuwe Kunsttrend’. *NRC Handelsblad*, 11 May 2019, sec. In het nieuws.

Steenhuis, Peter Henk. ‘De Denker Wilde Vroeger Filosoof Worden’. *Trouw*, 4 March 3017, sec. Letter en Geest.

Tielbeke, Jaap. ‘Filosofen van Het Antropoceen’. *De Groene Amsterdammer*, 1 March 2018.

———. ‘Op Een Menselijke Planeet’. *De Groene Amsterdammer*, 6 December 2018, sec. Dichters en Denkers.

———. ‘Welkom in Het Antropoceen; De Planeet Gaat Ten Onder - Dankzij de Mens’. *De Groene Amsterdammer*, 6 July 2016.

Tongeren van, Caspar. ‘Anthropoceen Allernieuwste Tijdperk Aarde’. *De Telegraaf*, 8 January 2016.

Turnhout, Maurice. ‘Volgens Deze Denkers Breken Er Mythische Tijden Aan’. *Trouw*, 21 March 2018, sec. Religie en Filosofie.

‘Van Wie Is de Natuur?’ *Leidsch Dagblad*, 25 May 2019.

Vanheste, Tomas. ‘“We Poken Het Beest Wakker”; Interview Ecoloog Marten Scheffer’. *Vrij Nederland*, 26 September 2009.

Wit de, Hanneke. ‘Er Moet Wat Gebeuren, Zegt Crutzen’. *Het Parool*, 9 July 2001.

Zeilmaker, Rypke. ‘Het Carrièretijdperk; Geologie / Academici Riepen Een Nieuw Geologisch Tijdvak Uit Om de Moderne Tijd Te Beschrijven: Het Antropoceen. Geologen Vinden Dat Onzinnig.’ *Elsevier Weekblad*, 15 October 2016, sec. Kennis.

Literature

‘About - IGBP’. Text. Accessed 5 December 2020. http://www.igbp.net/about.4.6285fa5a12be4b403968000417.html.

Altvater, Elmar, Eileen C. Crist, Donna J. Haraway, Daniel Hartley, Christian Parenti, and Justin McBrien. *Anthropocene or Capitalocene?: Nature, History, and the Crisis of Capitalism*. PM Press, 2016.

———. *Anthropocene or Capitalocene?: Nature, History, and the Crisis of Capitalism*. Edited by Jason W. Moore. 1st edition. Oakland, CA: PM Press, 2016.

‘[BLOG] Episode #65: Back to Anthropocene Basics – Stories and Conversations about Planetary Change.’ Accessed 5 December 2020. https://www.genanthro.com/2013/08/04/blog-episode-65-back-to-anthropocene-basics/.

Bod, Rens. *A New History of the Humanities: The Search for Principles and Patterns from Antiquity to the Present*. Reprint edition. Oxford: Oxford University Press, 2013.

———. *Een Wereld Vol Patronen: De Geschiedenis van Kennis*. Amsterdam: Prometheus, 2019.

Bod, Rens, Jeroen van Dongen, Sjang L. ten Hagen, Bart Karstens, and Emma Mojet. ‘The Flow of Cognitive Goods: A Historiographical Framework for the Study of Epistemic Transfer’. *Isis* 110, no. 3 (2019): 483–96.

Brunner, Otto, Werner Conze, and Reinhart Koselleck. *Geschichtliche Grundbegriffe Bände 1 - 8*. Klett-Cotta, 2004.

Carey, John. ‘Core Concept: Are We in the “Anthropocene”?’ *Proceedings of the National Academy of Sciences* 113, no. 15 (2016): 3908–9.

‘-Cene, Comb. Form’. In *OED Online*. Oxford University Press. Accessed 24 December 2020. http://www.oed.com/view/Entry/235043.

Chakrabarty, Dipesh. ‘Anthropocene Time’. *History and Theory* 57, no. 1 (2018): 5–32.

———. ‘The Climate of History: Four Theses’. *Critical Inquiry* 35, no. 2 (2009): 197–222.

Clark, Timothy. ‘Editorial’. *Oxford Literary Review* 34, no. 2 (2012): v–vi.

———, ed. *The ‘Anthropocene’? Nature and Complexity*. Cambridge: Cambridge University Press, 2019.

Crutzen, Paul J. ‘Geology of Mankind’. *Nature* 415, no. 6867 (2002): 23–23.

Davis, Heather, and Zoe Todd. ‘On the Importance of a Date, or, Decolonizing the Anthropocene’. *ACME: An International Journal for Critical Geographies* 16, no. 4 (2017): 761–80.

Franzini, Greta, Stefan Jänicke, Gerik Scheuermann, and Muhammad Cheema. *On Close and Distant Reading in Digital Humanities: A Survey and Future Challenges. A State-of-the-Art (STAR) Report.*, 2015.

Fuller, Steve. *The Knowledge Book: Key Concepts in Philosophy, Science and Culture*. Routledge, 2014.

‘Gene, n.2’. In *OED Online*. Oxford University Press. Accessed 24 December 2020. http://www.oed.com/view/Entry/77473.

Geulen, Christian. ‘Plädoyer für eine Geschichte der Grundbegriffe des 20. Jahrhunderts’. *Zeithistorische Forschungen/Studies in Contemporary History*, 1, no. 7 (2010): 79–97.

‘Google Books Ngram Viewer’. Accessed 16 December 2020. https://books.google.com/ngrams/graph?content=anthropozoic_ADJ%2Canthropocene_NOUN%2Canthropogene_NOUN&year_start=1800&year_end=2019&corpus=26&smoothing=3&direct_url=t1%3B%2Canthropozoic_ADJ%3B%2Cc0%3B.t1%3B%2Canthropocene_NOUN%3B%2Cc0%3B.t1%3B%2Canthropogene_NOUN%3B%2Cc0.

Haraway, Donna. ‘Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin’. *Environmental Humanities* 6, no. 1 (1 May 2015): 159–65.

‘Ics-Chart’. Accessed 12 December 2020. https://stratigraphy.org/timescale/.

IUGS. ‘IUGS Annual Report. Fostering a Global Voice for the Geosciences’, 2019.

Jurafsky, Dan, James H. Martin, Andrew Kehler, Keith Vander Linden, and Nigel Ward. *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics and Speech Recognition*. 1st edition. Upper Saddle River, N.J: Prentice Hall, 1999.

Koselleck, Reinhart. *Futures Past: On the Semantics of Historical Time*. Translated by with an introduction by Keith Tribe. New York: Columbia University Press, 2004.

———. ‘Social History and Conceptual History’. *International Journal of Politics, Culture, and Society* 2, no. 3 (1989): 308–25.

———. *Vergangene Zukunft: Zur Semantik geschichtl. Zeiten*. 1. Aufl. Frankfurt am Main: Suhrkamp, 1979.

Koselleck, Reinhart, and Todd Samuel Presner. *The Practice of Conceptual History: Timing History, Spacing Concepts*. Stanford University Press, 2002.

Lässig, Simone. ‘The History of Knowledge and the Expansion of the Historical Research Agenda’. *Bulletin of the GHI Washington, Issue 59 (Fall 2016)*, 2016, 0029–0058.

Latour, Bruno. ‘Agency at the Time of the Anthropocene’. *New Literary History* 45, no. 1 (2014): 1–18.

———. *Facing Gaia: Eight Lectures on the New Climatic Regime*. John Wiley & Sons, 2017.

———. *Politics of Nature: How to Bring the Sciences into Democracy*. Translated by Catherine Porter. Cambridge, Mass: Harvard University Press, 2004.

Lewis, Simon. ‘A Force of Nature Our Influential Anthropocene Period’. *The Guardian*, 23 July 2009, sec. Opinion.

Lewis, Simon L., and Mark A. Maslin. ‘Defining the Anthropocene’. *Nature* 519, no. 7542 (2015): 171–80.

MacFarlane, Robert. ‘Generation Anthropocene: How Humans Have Altered the Planet for Ever’. *The Guardian*, 1 April 2016.

Marsh, George Perkins. *The Earth as Modified by Human Action : A Last Revision of ‘Man and Nature’*. New York : Charles Scribner’s Sons, 1907.

Naess, Arne. ‘The Basics of Deep Ecology’. *The Trumpeter* 21, no. 1 (2005).

Paul J. Crutzen and Eugene F. Stoermer. ‘The “Anthropocene”’. *IGBP Global Change Newsletter*, no. 41 (May 2000): 17–18.

Pechenick, Eitan Adam, Christopher M. Danforth, and Peter Sheridan Dodds. ‘Characterizing the Google Books Corpus: Strong Limits to Inferences of Socio-Cultural and Linguistic Evolution’. *PLOS ONE* 10, no. 10 (2015).

Revkin, Andrew C. ‘Earth Is Us’. *The New York Times*. 2008.

Rose, Deborah, Thom Dooren, Matthew Chrulew, Stuart Cooke, Matthew Kearnes, and Emily O’Gorman. ‘Thinking Through the Environment, Unsettling the Humanities’. *Environmental Humanities* 1 (2012): 1–5.

Rull, Valentí. ‘The “Anthropocene”: Neglects, Misconceptions, and Possible Futures’. *EMBO Reports* 18, no. 7 (1 July 2017): 1056–60. https://doi.org/10.15252/embr.201744231.

Russell, Gillian, and Delia Graff Fara. *Routledge Companion to Philosophy of Language*. Routledge, 2013.

Sachs, Jeffrey D. ‘Toekomst Is Zaak van Menselijke Keuzen; Nieuw Groeipatroon Moet Wereld Redden’. *Het Financieele Dagblad*, 2 February 2013.

Scharper, Stephen Bede. *Redeeming the Time: A Political Theology of the Environment*. Bloomsbury Publishing USA, 1998.

Serres, Michel. *The Natural Contract*. Translated by Elizabeth MacArthur and William Paulson. Ann Arbor: University of Michigan Press, 1995.

Steffen, Will, Jacques Grinevald, Paul Crutzen, and John McNeill. 'The Anthropocene: Conceptual and Historical Perspectives'. *Philosophical Transactions: Mathematical, Physical and Engineering Sciences* 369, no. 1938 (2011): 842–67.

Steinmetz, Willibald. 'Some Thoughts on a History of Twentieth-Century German Basic Concepts'. *Contributions to the History of Concepts* 7, no. 2 (2012): 87–100.

Subramanian, Meera. 'Anthropocene Now: Influential Panel Votes to Recognize Earth's New Epoch'. *Nature,* 2019.

Szerszynski, Bronislaw. 'The End of the End of Nature: The Anthropocene and the Fate of the Human'. *Oxford Literary Review* 34, no. 2 (2012): 165–84.

Trischler, Helmuth. 'The Anthropocene'. *NTM Zeitschrift Für Geschichte Der Wissenschaften, Technik Und Medizin* 24, no. 3 (2016): 309–35.

'Welcome to the Anthropocene'. *The Economist*, 26 May 2011.

'-Zoic, Comb. Form1'. In *OED Online*. Oxford University Press. Accessed 24 December 2020. http://www.oed.com/view/Entry/285846.

Appendix

Chapter two – Classification disciplines

I have manually classified 532 titles of books and magazines by discipline. The example below shows my working method for the first 20 titles.

journal_title	journal_discipline_manual
APT Bulletin: The Journal of Preservation Technology	History
AQ: Australian Quarterly	Political Sciences
Africa Development / Afrique et DÃ©veloppement	Social Sciences
Agricultural History	History
Alternatives Journal	Social Sciences
Alternatives: Global, Local, Political	Social Sciences
Ambio	Environmental Sciences
American Antiquity	(Other) Humanities
American Art	(Other) Humanities
American Journal of Botany	Biology
American Journal of International Law	Law
American Journal of Sociology	Social Sciences
American Journal of Theology and Philosophy	Philosophy
American Literary History	(Other) Humanities
American Scientist	Applied Sciences
Amerikastudien / American Studies	(Other) Humanities
Ancient Mesoamerica	(Other) Humanities
Annales Zoologici Fennici	Biology
Annales de GÃ©ographie	Geography

Chapter two – Extended version table most common keywords

Medicine terms	Anthropology terms	Environmental Sciences terms	Earth Sciences terms
health	anthropology	academy sciences	weather
medicine	cambridge	royal	december
disease	political	academy	atmospheric
modern	cultural	springer	august
heat	culture	management	january
animals	university press	professor	conference
political	contemporary	address	program
humans	politics	sustainable	abstract
historical	practices	sustainability	initial
chinese	living	ecosystem	meeting
population	book	ecosystems	scientific
scientific	relations	resilience	october
animal	london	policy	september

exchange	think	forest	june
theory	scholars	governance	july
david	humans	biodiversity	washington
public	chapter	agricultural	impacts
real	idea	email	events
bodies	power	resource	scientists

Geography terms	**Biology terms**	**Social Sciences terms**	**History terms**	**Political Sciences terms**
geography	conservation	political	historians	political
association	biodiversity	policy	book	politics
landscapes	biology	politics	historical	crisis
urban	diversity	economic	modern	security
landscape	plant	management	cultural	policy
geographical	habitat	geography	culture	capital
figure	biological	cultural	political	economic
chicago	evolution	governance	paul	idea
political	forest	conservation	john	public
southern	ecosystems	power	politics	governance
places	ecosystem	ecology society	humans	nations
soil	distribution	london	histories	global environmental
dans	results	sustainability	story	energy
forest	richness	university press	sense	power
oxford	distributions	practices	david	theory
geographic	extinction	public	william	university press
university press	evolutionary	practice	peter	industrial
ment	populations	issues	power	countries
california	patterns	urban	narrative	australian

(Other) Natural Sciences terms	**Geology terms**	**(Other) Humanities terms**	**Applied Sciences terms**
marine	mexico	literary	landscape
ocean	soil	culture	design
ecosystems	holocene	book	australia
ecosystem	soils	cultural	urban
results	sediment	fiction	dans
rates	sediments	sense	education
ecol	archaeological	political	city
carbon	record	reading	public
increase	lake	works	project
plant	precipitation	writing	australian
forest	organic	literature	projects
coastal	erosion	think	students
surface	climatic	contemporary	culture
temperature	ancient	things	park
conservation	vegetation	essay	pour
management	archaeology	poetry	cities
increased	region	thinking	planet

total		periods	theory	issue
impacts		agriculture	narrative	practice
Law terms	**Philosophy terms**			
supra note	phil			
supra	ethics			
legal	philosophy			
rights	trans			
policy	royal			
governance	issue			
note	political			
federal	carbon			
public	atmospheric			
political	values			
economic	moral			
government	cambridge			
justice	humans			
regulation	john			
protection	emissions			
action	figure			
issues	university press			
private	scientific			
power	london			

Chapter three – Dutch newspaper articles original citations

De Wit: Er Moet Wat Gebeuren, Zegt Crutzen

‘Deze periode zou zo moeten heten wegens de gevolgen van de menselijke activiteiten voor het milieu.’

Sachs: Toekomst is zaak van menselijke keuzen

Klimaatproblemen overstromingen, droogte, hittegolven, extreme stormen, grote bosbranden en meer hebben in 2012 ook andere delen van de wereld getroffen, zoals China, Australië, Zuidoost-Azië, het Caribisch gebied en de Sahelregio in Afrika.

Noordhollands Dagblad: Het Antropoceen

Verschillende aardwetenschappen stellen nu voor om aan deze geologische kalender een nieuwe toevoeging te maken, het Antropoceen. Letterlijk: het tijdperk van de mens.

Van Raaij: Nederland verscheen in het Holoceen

Het eerbiedwaardige Britse Geologische Genootschap hield deze week een opmerkelijke conferentie. Centrale vraag: leven wij in het Anthropoceen? Die term, geïntroduceerd door de

Nederlandse Nobelprijswinnaar Paul Crutzen, staat voor het nieuwe geologische tijdvak waarin de aarde zou zijn beland. Een tijdvak waarin de atmosfeer, het klimaat, de oceanen en allerlei ecosystemen ingrijpend en definitief zijn veranderd door de mens. Wetenschappers twisten over de vraag wanneer dit zover was: sinds de 18de eeuw, sinds 1945?

Boevink: Niks voor somberaars

Wanneer begon het, dat antropoceen? Drie scholen, zei Sijmons. De ene zegt: zestigduizend jaar geleden, toen de megafauna door de jachtdruk verdween. Op de wand achter hem een plaatje van het sabeltandjachtluipaard, dat gespecialiseerd was in mensachtigen als prooidier. “Dit was onze predator. We zijn nu een diersoort met vakantie op onze planeet.”

De ander zegt: bij de start van de industriële revolutie, in 1750, bij de stoommachine van James Watt. De derde zegt: bij de Grote Acceleratie van na 1945, toen de mens de eerste kernbom detoneerde en een laagje radioactiviteit over de planeet legde.

Het Parool: Nieuw tijdperk, of niet?

Eigenlijk leven we met 21 procent zuurstof in de atmosfeer in het tijdperk van de planten: het herboceen. Planten zijn de grootste chemiefabrieken op aarde. Staken planten hun chemische oorlogsvoering, dan is binnen vijfhonderd jaar alle zuurstof uit de atmosfeer verdwenen. Ook de ozonlaag verdwijnt zonder planten. Want ozon ontstaat doordat ultraviolette straling van de zon zuurstofmoleculen in tweeën splijt en ze opnieuw laat reageren. Tegelijk produceren planten echter ook stoffen die ozon afbreken.

Dankert: De mens als natuurkracht

,,Het Antropoceen is het beste zichtbaar geworden door de manier hoe wij ons landschap herschikken voor de bouw van miljoenensteden en de ontwikkeling van grootschalige landbouw.” Zalasiewicz noemt ook de afname in de biodiversiteit, het aantal planten en dieren op aarde dat terugloopt. ,,Die veranderingen zijn onomkeerbaar.”

Luttikhuis: We leven in het antropoceen

Paul Crutzen is geen man van relativeringen. Het holoceen is voorbij, zegt hij stellig, we zijn aangeland in het antropoceen, een geologisch tijdvak waarin de mensheid de planeet definitief heeft veranderd. ,,Waar je ook kijkt op aarde, in de atmosfeer, op zee, overal is de invloed van de mens zichtbaar. Er is niet aan te ontkomen.”

Vanheste: We poken het beest wakker
Bestaande klimaatmodellen hebben de gevoeligheid van het klimaat voor kooldioxide onderschat, schrijven de bezorgde wetenschappers.

de Volkskrant: Na de ozonlaag dachten we dat we alles aankonden
Waarom moeten we hardop vaststellen in welk geologisch tijdvak we leven?
'Omdat zeker geologen de neiging hebben te denken dat de mens niks voorstelt, op geologische dimensies en tijdschalen althans. Dat leidt mij te gemakkelijk tot het idee dat het allemaal wel losloopt met wat we aanrichten. Maar zo is het niet. In zekere zin is de mens sterker dan de aarde. Wij veranderen de planeet, blijvend.'

Janssen: Is het dier een klok?
Door menselijk handelen verandert het klimaat, sterven planten- en diersoorten in hoog tempo uit, ligt plastic op de bodem van de zeeën, wordt groeizame grond onvruchtbaar. En dat heeft weer gevolgen voor de mens.

Breebaart: Overleven in het Antropoceen
Wat dat precies betekent, daarover debatteren vanavond in Nijmegen twee filosofen: de Duitser Peter Sloterdijk, die met zijn literaire stijl en grootse vergezichten tot de bekendste én meest omstreden denkers van Europa behoort en de minder bekende Fransman Bernard Stiegler, die met zijn filosofie van de mens als technisch wezen invloed op het huidige milieu-debat uitoefent.

Tongeren, van: Anthropoceen allernieuwste tijdperk aarde
De invloed van de mens op de aarde is zo groot geworden dat geologen voorstellen om een nieuw tijdperk in het leven te roepen, het Anthropoceen, door de mens gemaakt.
Bloemink: 'Edelachtbare, mijn cliënt voelt zich niet fijn in de legbatterij'
Het is duidelijk dat de urgente klimaat¬problematiek ons noodzaakt radicaal anders te gaan denken over de wereld om ons heen. Maar hoe? We leven in het antropoceen, wordt gezegd, de eerste keer dat de mens de geologische toestand van de planeet daadwerkelijk beïnvloedt. Het is niet iets waar we trots op moeten zijn. Aan de andere kant is het benadrukken van de dichotomie tussen mens en natuur, tussen mens en dier, waarbij de mens de boosdoener is en de dier of de natuur (letterlijk) het lijdend voorwerp, niet constructief.

Schulte: klimaatdebat verdient veel meer scepsis

We leven in het antropoceen, het tijdperk waarin de mens een ingrijpende, misschien wel catastrofale invloed uitoefent op de natuurlijke omgeving.

Schipper: de hoogste tijd voor een moderne ark van noach

Het verdwijnen van biodiversiteit gaat dusdanig snel dat wel wordt gesproken van massa-extinctie: het op grote schaal verdwijnen van soorten in relatief korte tijd.

Post: de eenzaamheid van de stervenden

In alarmistische termen gevat is dit wat het ‘antropoceen’ behelst: de kolonisering en bijna-verruïnering van de aarde door mensen. De eeuwenlange verstoring van diverse ecologische evenwichten laat zich zo begrijpen als een invasie, een alsmaar toenemende nabijheid tot dieren en overige niet-menselijke natuur. Maar door het antropoceen op te vatten als een strikt onderscheiden geologisch tijdperk, wordt daarmee de onjuiste suggestie gewekt dat mensen in eerdere tijden nog 'in harmonie' met de natuur leefden. Bovendien lijkt dat noodlottige tijdperk los van mensen zelf te staan, alsof zij toevallig onder dat gesternte leven zonder er invloed op te hebben.

Dat mensen zelf dieren zijn, en zo deel uitmaken van diezelfde natuur, wordt in al zulke evangelische en veganistische projecties vergeten. De planeet zal het antropoceen wel overleven, de mensheid mogelijk niet.

Tielbeke: Filosofen van het Antropoceen

Dat is misschien nog wel de grootste verdienste van deze boeken: ze geven de ecologische discussie een broodnodige impuls. Want hoewel Latour stelt dat we het best alle hoop kunnen laten varen, zijn het juist dit soort sprankelende beschouwingen die hoopvol stemmen dat de mens genoeg hersens heeft om in te zien dat we geen Planeet B nodig hebben.

Turnhout: Volgens deze denkers breken er mythische tijden aan

Om het Antropoceen zonder kleerscheuren door te komen hebben we volgens Sloterdijk niets aan onze hoogmoed als 'rationele mensen'. Met de branie van het Verlichtingsdenken kunnen we de klimaatcrisis niet oplossen. Dan stellen we de verkeerde vragen en komen we geheid met de verkeerde oplossingen. Het is beter om de zaken om te draaien: eerst moeten we ons oor te luister leggen bij de aarde, daaruit volgt dan een nieuwe ethiek en een nieuwe mens.

Van Dijk: We zijn in oorlog met de aarde

Zoals Latour zelf zegt in het boek ‘Filosofisch veldwerk’ van Florentijn van Rootselaar: “We hebben niet van nature een gevoeligheid voor kwesties die historisch nieuw zijn, de menselijke civilisaties zijn ontwikkeld in het Holoceen, niet in het Antropoceen. Om die gevoeligheid te ontwikkelen, moeten we moeite doen. Mensen sensibiliseren, gevoelig maken voor de veranderingen, dat doe je allereerst via de wetenschap. Maar dat is niet genoeg. Ook kunst is nodig, omdat dit geen redelijke kwestie is, het nieuwe klimaatregime kunnen we alleen begrijpen dankzij onze passies. Als we slechts de feiten kennen, reageren we niet.”

Van Dijk: Voor klimaatalarmist Hamilton is de mens de supermacht die het milieu moet herstellen

De aarde en de mens zullen het met elkaar moeten doen, als een echtpaar dat in staat van oorlog verkeert, maar niet kan scheiden. “De mens kan niet buiten de aarde. Maar de aarde is volgens Hamilton ook afhankelijk van de mens. Sommige groene denkers worden enthousiast van het idee dat de mens zou uitsterven, want dan kunnen de aarde en de natuur eindelijk weer ongestoord hun gang gaan. Zo niet Hamilton, want volgens hem is het menselijke perspectief uniek en waardevol: het geeft betekenis aan de aarde.”