This PDF is auto-generated for reference only. As such, it may contain some conversion errors and/or missing information. For all formal use please refer to the official version on the website, as linked below.

Global Security in a Posthuman Age? IR and the Anthropocene Challenge

https://www.e-ir.info/2017/10/13/global-security-in-a-posthuman-age-ir-and-the-anthropocene-challenge/

DELF ROTHE, OCT 13 2017

This is an excerpt from *Reflections on the Posthuman in International Relations*. An E-IR Edited Collection. Available now on Amazon (UK, USA, Ca, Ger, Fra), in all good book stores, and via a free PDF download.

Find out more about E-IR's range of open access books here.

We have entered the age of the Anthropocene – a new geological epoch, which is defined by the human impact on planet Earth (Crutzen 2002; Steffen, Crutzen and McNeill and Steffen 2007; Zalasiewicz et al. 2011). This claim, initially made by geochemist and Nobel Prize laureate Paul Crutzen and popularised by several geologists and Earth scientists, is currently gaining traction in the critical literature in International Relations (IR). Drawing upon the reception of the Anthropocene concept by posthumanist or new materialist thinkers like Bruno Latour (2012; 2015) or Donna Haraway (2015), an increasing number of scholars are challenging established ontological concepts in IR, including geopolitics, security, or global governance (Dalby 2013a; Fagan 2016; Harrington 2016; Harrington and Shearing 2016; Mayer and Schouten 2012; Mitchell 2014). Others even go so far as to announce the end of IR as a discipline (Agathangelou 2016, 330), which would be '[…] undone by the reality of the planet' (Burke et al. 2016, 501).

The existing IR literature on the Anthropocene takes the fact that humanity has become a telluric force like volcanism or tectonic plate movements as proof of a fundamental ontological flaw in dominant IR theories and concepts, i.e. the 'bifurcation of nature' (Latour 2015). A flawed distinction between the natural and the social worlds would, according to this critique, characterise all major IR theories (see e.g. Harrington in this volume; McDonald in this volume). The Anthropocene would instead prove that a clear distinction between nature and culture, between subject and object cannot be drawn. In the Anthropocene, the planet is actively interfering in human affairs, while humans at the same time have begun to transform the planet (Yusoff 2013, 2806). Classical approaches of geopolitics that would take the Earth (geo) as the stable environment, in which global power politics unfolds, would become inappropriate (Dalby 2013b, 39-40). Mainstream approaches of security would be equally problematic in the Anthropocene epoch. The very idea of a state securing its own territory from external threats or protecting its population from the contingencies of life (such as natural disasters, or diseases, etc.) is predicated upon 'the separation of the human from an external nature' (Fagan 2016, 8). Yet, even the critical literature on environmental or human security is accused of being guilty of reproducing the artificial divide between the natural and social worlds (Fagan 2016, 14-16). Either 'the environment' would be constructed as a referent object endangered by human activity or human communities would vice versa be portrayed as threatened by some external nature. Opposing these established concepts and theories, the Anthropocene literature holds that 'modern assumptions of nature as separate from humanity have never been accurate. The biosphere is a hybrid of the artificial and the natural' (Dalby 2013b, 40). Drawing on these theoretical reflections, the IR Anthropocene literature calls for a fundamental rethinking of security in terms of a 'worldly approach to security' (Mitchell 2014), 'ecosystem resilience' (McDonald in this volume), or security as an 'ethos of care' (Harrington in this volume).

From a different angle, a redefinition of security in posthumanist terms has been less welcomed. By proving the nature/culture divide – which is at the heart of the liberal enlightenment project – wrong, the Anthropocene literature

would also do away with liberal aspirations of progress and promises of protection (Chandler 2013; Grove and Chandler 2016; Vrasti and Michelsen 2016). Instead, the Anthropocene concept would promote a mere politics of adaptation and resilience, a form of post-politics, in which humans stop seeking transformation of their living conditions and instead accept their embeddedness into fragile and crisis-prone socio-ecological systems (Evans and Reid 2014). In the age of the Anthropocene, it is argued, 'The classic quest after the "good life", once a starting point for both an art of living and the art of governing, is replaced by the more minimalist, almost realpolitik, striving for adaptive survival' (Vrasti and Michelsen 2016, 4).

In this contribution, I argue that both lines of argument – the affirmative and the critical literature on posthuman security in the Anthropocene – suffer from two related shortcomings. First, I hold that while the IR debate on the Anthropocene is strongly influenced by different strands of posthumanist and new materialist thought, the different theoretical traditions within this field and their implications for the understanding of the Anthropocene are seldom reflected. Posthumanism/new materialism has become a catchall term to denote any approach rejecting the nature/culture divide, including Actor-Network-Theory (ANT), Object-Oriented-Ontology (OOO), vital materialism, or critical posthumanism (see Kaltofen in this volume). This is problematic because, despite their common commitment to a post-Cartesian ontology, these approaches have quite distinct philosophical backgrounds and thus different ontological, epistemological and methodological implications (see also Cudworth and Hobden 2015). Second, in both the affirmative and the critical take on posthuman notions of security, the 'advent of the Anthropocene' (Hamilton et al., 5) and the assumption that it represents a fundamental rupture of our established anthropocentric theoretical concepts is simply taken for granted. In both literatures, there seems to be no doubt that we have entered a 'posthuman age' (Braidotti 2016, 33; Ferrando 2013, 32). Thereby, the literature gives the impression that we would exactly know what this 'new reality of the Anthropocene' (McDonald in this volume) is and presents it as a single truth (a post-anthropocentric/post-humanist age) with a single set of normative implications: 'The Anthropocene signals both the end of nature and the end of humanism' (Grove and Chandler 2016, 6).

In this contribution, I seek to sketch an alternative, sociological, account of security in the Anthropocene. This alternative approach starts from the assumption that the planetary crisis that we call the Anthropocene is inaccessible and withdrawn. Hence, an incredible amount of labour is required to render it visible and thinkable in the first place. My approach thus seeks to trace and map the assemblages or actor-networks, in which traces of the Anthropocene and resulting security risks become enacted through a multiplicity of practices and technologies (see also Rothe 2017). To develop this approach, the contribution starts by introducing and discussing two competing approaches that are often lumped together under the label of new materialism but in fact provide two almost oppositional perspectives on the question of how we can know the Anthropocene: ANT and OOO. In the third section, these two perspectives on the Anthropocene are related to the debate on Anthropocene security in IR. The fourth section sketches the contours of a sociological variant of Anthropocene security as alternative to the existing philosophical version that dominates the current debate in critical IR.

New Materialism between Object-Oriented-Ontology and Actor-Network-Theory

The accounts of new materialism and posthumanism in recent debates on security in International Relations are painted with a very broad brush stroke. Labels such as the 'new material turn' or the 'posthuman turn' are used to refer to a whole range of different theories from different disciplinary contexts and philosophical traditions, which sometimes even contradict each other. The only common ground of these heterogeneous approaches is the rejection of anthropocentrism and a Cartesian worldview (see also Cudworth and Hobden 2015, 141; Kaltofen in this volume). In the following, I want to illustrate this claim by discussing and comparing two prominent approaches that are often lumped together under the label of new materialism but draw upon almost oppositional theoretical assumptions: Object-Oriented-Ontology (OOO) and Actor-Network-Theory (ANT).

In the critical security literature, Object-Oriented-ontology (OOO) is quite often used synonymously to the broader label of 'new materialism.' In this perspective, OOO is equated with an approach of '[…] imagining the world from the view point of objects' (Kaltofen in this volume). However, this narrow understanding of OOO ignores the philosophical implications that come along with the approach. For, OOOs proposition is not merely that we 'need to stop trying to understand the world in terms of subject-object relations' (Kaltofen in this volume). Rather, its point is to

stop thinking of the world in relational ways in general: 'It is necessary to staunchly defend the autonomy of objects or substances, refusing any reduction of objects to their relations, whether these relations be relations to humans or other objects' (Bryant 2011, 26). For OOO, there is a virtual inner essence of things – an ontological surplus that is never completely actualised in an object's relations to other objects. In OOO's terms, this inner core can neither be perceived by human subjects nor by other objects with which they interact – objects are 'withdrawn' (Bryant 2011, 26-31; Harman 2005). Here, OOO resembles the structuralist psychoanalysis of Jacques Lacan and his notion of the subject as 'void' (Žižek 2016, 66-69). For Lacan, the subject is never fully actualised – it is marked by a fundamental lack of identity, which can never be closed. For OOO 'all objects are akin to Lacanian divided subjects' (Žižek 2016, 69): objects are divided between their actual qualities in networks and their virtual inner core that only exists as potentiality but is never fully actualised. Thus, contingency is not just an epistemological problem – as a human incapability to grasp a complex reality, which is fully constituted – but an essentially ontological feature of objects themselves.

OOO, with its 'deeply non-relational conception of the reality of things' (Bennett 2012, 226), needs to be distinguished from relational 'materialist' theories such as ANT (see also Žižek 2016). In the IR literature ANT has been widely received in critical security works on security technologies such as drones, border control technologies, or algorithmic surveillance (see Kaltofen in this volume). Understood as an empirical version of poststructuralism – or as 'material semiotics' (Law 2009, 145-146) – ANT transfers the semiotic idea of the relational constitution of meaning to the material world. Challenging the classical semiotic distinction between the signifier and the signified it holds that any sign has a material dimension and any thing in the world is itself a sign. Things in the world receive their identity and meaning through their associative relations to other elements in complex and fluid assemblages, or actor-networks (Latour 2005; Law 1999). Instead of viewing texts, images and other semiotic systems as representations of a pre-existing single reality, ANT shows how the interplay of expert practices, scientific discourses, technologies, and visuals constitute *multiple realities* (Hind and Lammes 2016, 81-82). According to ANT-scholar Annemarie Mol, ontology 'is not given in the order of things but […] ontologies are brought into being, sustained, or allowed to wither away in common, day-to-day, sociomaterial practices' (Mol 2002, 6). Agency, in this understanding, is not linked to notions of human will or intention but is distributed across the human and non-human elements of actor-networks. Agency thus rests in the capability of making-a-difference in the world (Latour 2005).

The crucial ontological differences between ANT and OOO are seldom acknowledged in the IR literature. OOO holds that objects are non-relational, withdrawn, and marked by their potentiality to be otherwise. For ANT, on the contrary, any thing in the world is real – and only real – insofar as it acts upon other things (Harman 2015). This is an ontology of pure immanence, in which things in the world are relationally constituted in situated practices.

The described theoretical differences have important methodological implications. From an OOO perspective, the virtual inner core of objects – a potentiality that is never fully actualized – is not observable through the researcher. This assumption adds practices of speculation, mythical storytelling, practices of imagination and art as important ingredients of our endeavours to make sense of a phenomenon like the Anthropocene (Bryant, Srnicek and Harman 2011; Morton 2013). For ANT, on the contrary, the power of things rests in their ability to establish associative relations between heretofore unrelated phenomena (Cudworth and Hobden 2015, 444). A new technology such as a microscope or a satellite might enable novel ways of seeing the world, or altering the space-time of actor-networks thereby creating new affective relations between heretofore unrelated phenomena – e.g. between researchers and microbes. The core methodological position of ANT thus is empiricism (see Koddenbrock 2015). Careful participant observation – or the study of archives and secondary literature – is required to trace and study the relations of humans, non-humans, technologies, and discourses in situated practices and show how they relationally afford each other with identity and meaning.

Security in the Anthropocene: Between Hyperobjects and Actor-networks

At the heart of the existing IR literature on security in the Anthropocene are two arguments: first, with the advent of the Anthropocene we are entering a new planetary reality, in which conditions of (human and non-human) life become radically altered and threatened (Burke et al. 2016, 506; Harrington 2016, 481-482). Second, this new reality finally proves the inappropriateness of our theoretical conceptions and political institutions that were built for the

Holocene and that drew upon a clear divide between the human and the natural world (Burke et al. 2016, 510; Fagan 2016, 13). This literature holds that the Anthropocene is more than a scientific (i.e. geological) concept. So, it is not simply a discursive or mental construction but has a material dimension and refers to a certain planetary reality (Harrington 2016, 482). I would agree. But what kind of thing (or object), then, is the Anthropocene exactly? How can we actually know it (and who is 'we')? What does it mean to be 'in' the Anthropocene? I would argue that these fundamental questions have been skipped in the unfolding IR literature on the Anthropocene.

I seek answers to these unasked questions from the perspective of the two theoretical approaches briefly described in the previous section. To address these questions from the perspective of OOO, it is helpful to take a closer look at Timothy Morton's recent work on hyperobjects (Morton 2013). Morton transfers the ideas of OOO to the realm of ecology and tries to answer the question of how to make sense of complex and unruly objects like climate change. He proposes the notion of hyperobjects to refer to these objects, which are so widely distributed in time and space that they are omnipresent – i.e. it is not possible to escape them – but at the same time absent and withdrawn – in the sense that they elude perception and cognition (Morton 2013, 1-3). According to Morton, hyperobjects, such as climate change, are interobjective, as they are constituted by the relations of several objects. Furthermore, they are nonlocal: while hyperobjects have concrete local impacts, their totality does never materialise locally (Morton 2013, 38). Thus, other objects (including humans) can experience hyperobjects only indirectly (for example, climate change can be experienced via local impacts or as rising ocean levels). Due to these characteristics, there will never be absolute scientific certainty about their existence. Thus, quite paradoxically, at a point of time when the impacts of climate change are being felt at more and more places in the world, also the amount of climate skepticism and denial is rising.

The Anthropocene, then, could be understood as an epoch, which is marked by the rise of hyperobjects – or even as a meta-hyperobject, which is itself constituted by the interrelation of several hyperobjects including climate change, nuclear power, etc. The Anthropocene is thus equally totalising and withdrawn: the Anthropocene is a new planetary real – a state-shift of the entire Earth System that cannot be known or sensed directly and can hence only be addressed indirectly. It is thus no surprise that a whole range of *art projects* are emerging that try to capture the spectral phenomenon of the Anthropocene in artefacts and artworks; and that the humanities are turning towards indigenous sources of spiritual and mythical knowledge to make sense of this new planetary real. If the Anthropocene is the age of hyperobjects that are unthinkable and withdrawn '[…] we need some other basis for making decisions about a future to which we have no real sense of connection' (Morton 2010). Such a perspective is very much in line with the dominant reception of the Anthropocene in IR/Critical Security Studies. Here, the Anthropocene takes the form of a new planetary real – a dislocative moment that crucially challenges our established concepts and world views. This literature identifies 'alternative' sources of knowledge, for example in spiritual, indigenous (i.e. premodern) conceptions of the world (see Mitchell in this volume).

What this perspective ignores, however, is the incredible amount of labour required to render the Anthropocene's traces visible and sizable in the first place (Wark 2015a). For, as Slavoj Zizek reminds us '[…] We do not only miss an appropriate language but also an approbative sensation-experience of this world' (Žižek 2016, 44) I am following here McKenzie Wark (2014), who points to the vast posthuman assemblage of satellites, weather stations, computer simulations, researchers, mechanisms of international cooperation, which renders hyperobjects like climate change visible, sizable or calculable in the first place (see Edwards 2010; Wark 2015b, 166-182). This is where we (re-)enter ANT turf: unlike for OOO, for Latour and other ANT scholars, Gaia does not exist until it becomes woven into our conception of the world (Harman 2015). To become 'matter-real' and 'matter-ing' (Moser 2008, 99) the Anthropocene needs to be enacted by complex actor-networks of planetary dimensions: scientific practices and technologies such as satellite earth observation or stratigraphic research render the material traces of the Anthropocene visible (van Munster and Sylvest 2016, 4-10). Discursive and aesthetic practices of scientists, writers, activists and artists weave these traces into broader meaningful narratives of the Earth — or 'geostories' (Bonneuil 2015, 17).

I would thus follow Sam Randalls (2015) who argues that 'the Anthropo(s)cene is thoroughly multiple.' This implies that competing versions of the Anthropocene exist, each accompanied with a different set of policy and ethical conclusions. This is my main point of critique of the existing IR literature on security in the Anthropocene: it takes the

Anthropocene as a fixed and given phenomenon, which is used to develop a single set of normative arguments about the redefinition of core concepts in IR like security or geopolitics.

Just as Wark (2015a) claims that OOO 'occludes the ways in which objects are known in the first place,' the IR literature on the Anthropocene occludes the ways in which the Anthropocene can be known. Wark holds that this 'mystification' is unfolding in three steps: firstly, knowledge of an object is produced by a whole range of human and non-human practices; secondly, these practices are generalised in the form of images and metaphors; thirdly, the original labour that was required to construct these metaphors is erased: 'the metaphor will then be claimed to be what precedes all those other steps when it is actually a later derivation' (Wark 2015a). In the IR literature on the Anthropocene, the same happens: the Anthropocene becomes an abstracted imagery, a massive metaphor, in which all the labour required to produce it in the first place becomes black-boxed. The image of the Anthropocene is then taken as evidence of the hubris of our discipline as well as previous human attempts to deal with the climate crisis. For example, Harrington (2016, 479) proposes to understand the Anthropocene as a new defining marker of IR. However, as the heated debate on the start date of the Anthropocene in Geology and the Earth Sciences reminds us, we might have been in the Anthropocene for several hundreds or even thousands of years – so, how can this epoch reasonably represent a temporal marker for IR? The deployment of the Anthropocene as a metaphor becomes apparent in the ambiguous ways, in which the term Anthropocene is deployed: The notions of 'the Anthropocene,' 'the Anthropocene concept' or the 'Anthropocene imaginary' are used alternatively – sometimes within one and the same article (Grove and Chandler 2016, 1-4). So, it becomes unclear what actually challenges our conceptions of the world: is it the Anthropocene itself (but how do we know this withdrawn thing?), or some of its more visible footprints and traces (but how are these becoming visible in the first place)? Or is it a certain discourse, concept or imaginary is challenging our human hubris?

Towards a Sociological Variant of Anthropocene Security

I want to use the remainder of this contribution to make a proposal for an alternative version of security in the Anthropocene. Firstly, rather than taking the Anthropocene and its security implications as a given starting point of a theoretical/philosophical discussion of security, this alternative version addresses the Anthropocene as an open question. It stresses the unknowability of the Anthropocene (and its security implications) and the incredible amount of labour and practice required to render it intelligible. Instead of discussing the question of how security in the Anthropocene should look like, such an approach asks how security practices in the Anthropocene actually look like. Identifying itself as a sociological version of Anthropocene security, the approach holds that neither do security risks in the Anthropocene simply exist out there, nor are they reducible to mere discursive constructions or mental concepts. Rather, they become 'matter-real' through a whole multiplicity of practices in socio-technological networks. These comprise remote sensors, computing power, simulation models, media, researchers, and many other things that together render traces of the Anthropocene and their security implications visible (Edwards 2010; McQuillan 2016; van Munster and Sylvest 2016). Such risks become 'matter-real' as computer models, risk maps, statistical probabilities, satellite images, future scenarios, or colourful data visualizations (Jasanoff 2004; Schneider and Nocke 2014). The approach thus holds that the technosphere – just like the geosphere, biosphere or the hydrosphere – is part of the Anthropocene and that forms of securing in the Anthropocene are inherently digital (HKW 2016). It seeks to trace and map the actor-networks that emerge through the increasing cooperation of security officials, environmental researchers, NGOs strategic think-tanks, technology and data start-ups around concepts such as complexity, resilience, or big data.

Secondly, I agree with Sam Randalls (2015, 330) that the Anthropocene is always multiple and thus '[…] should not be taken to inspire a singular scientific, political or ethical view.' Exactly this is happening in the existing literature on security in the Anthropocene, which holds that the Anthropocene forces us to rethink our core concepts and institutions of security. Here, it often appears as if the overcoming of the nature/culture divide would already be a political act. Accepting our embeddeddness within the Earth System would allow for the development of a new sensitivity for our non-human co-inhabitants on this planet (see Grove and Chandler 2016, 7). By turning a vitalist materialist or posthumanist ontology into a political project one, however, risks re-essentialising the carefully deconstructed nature/culture divide (Luke 2016, 7). The Anthropocene, then, risks becoming another version of 'green ideology' (Stavrakakis 1997), in which 'the environment' as a core nodal point is replaced with Gaia or the

Earth System. Similar to earlier forms of green ideology, posthuman conceptions of security in the IR literature carry the promise of a certain fullness-to-come once the human subject becomes fully embedded into and immersed within the socio-ecological Earth System (or local socio-ecological systems).

Starting from the notion of *multiple Anthropocenes*, on the contrary, I would propose a more empirical approach that describes the different security projects in the Anthropocene, each dealing with different security threats and governance problems, and unfolding within different social/ecological/technical assemblages. For example, a particularly prominent version of the Anthropocene understands it in (post-) apocalyptical terms (Bonneuil 2015, 27-28) as 'disaster to end all disasters' (Clark 2014, 21). Linking up with earlier forms of environmental eschatology, and organised around prominent boundary objects such as the 'planetary boundaries' concept (Steffen et al. 2015) such imaginaries help reinforce post-political forms of governance around the notion of resilience. In line with Lovelock's prediction of the 'revenge of Gaia' (Lovelock 2006), the planet here becomes enacted as a pathological Earth – a disequilibrium stage of the Earth System, posing non-linear and unpredictable risks for life on the planet (Grove and Chandler 2016, 7). As shocks, disasters or catastrophes can never be ruled-out, the lesson is that the socio-ecological systems at risk must become resilient themselves (Evans and Reid 2014). In other actor-networks Gaia becomes instead enacted as an enormous laboratory available for human experimentation and control. Post-environmentalists such as the members of the Californian Breakthrough Institute are dreaming of a future, in which humans self-consciously acknowledge their agency as a geological force and – 'as pilots of a hybrid techno-nature' (Bonneuil 2015, 25) – begin steering spaceship Earth into desired directions. Numerous research projects on different types of geoengineering all around the world are already exploring the options for intentional modifications of the Earth System (Yusoff, 2013). At the same time, businesses and government projects are increasingly trying to harness the power of technologies such as big data, artificial intelligence, smart devices and the internet of things for *ecological modernization* projects (Luke 2016, 10).

Thirdly, I want to make an argument against the aspiration to fully overcome the subject/object divide (Chagani 2014; see also Mitchell in this volume). The existing literature on security in the Anthropocene seems to imply that there is no alternative between the Cartesian ideal of a fully constituted, self-conscious human subject, on the one hand, and a completely flat ontology, in which no distinction between subject and object exists, on the other. Following David Howarth (2013) and Slavoj Žižek (2016) I want to argue that there is in fact the possibility of a 'third way' between these two extreme positions. This third way does not understand the subject as the fully constituted self-conscious human being that Descartes had described. Instead, subjectivity refers to a form of self-identity that is marked by a constitutive lack-of-fullness. The subject is a void in the signifying structure – a form of self-identity that is entirely relational depending on the symbolic structure into which it is thrown (Howarth 2013, 158; Žižek 2016, 58-59). Subjectivity, then, is not reserved to human individuals, but can as well refer to collective forms of identity that include both human and non-human elements. Following this interpretation, the Anthropocene could indeed become a crucial moment of dislocation that might be turned into radical forms of political agency and mobilised for a reconceptualization of our very concepts of security and politics. Yet, for this, we need to preserve the idea of political subjectivity. For, it can only be a political project that involves human actors, that could develop a vision of an alternative post-capitalist future around a set of core political demands and build a coalition of human and non-human members powerful enough to challenge the existing hegemony of global carboniferous capitalism and the discourses and practices of security that help sustain it.

References

Agathangelou, Anna M., 2016. "Bruno Latour and Ecology Politics: Poetics of Failure and Denial in IR." *Millennium* 44(3): 321-347.

Bennett, Jane. 2012. "Systems and Things: A Response to Graham Harman and Timothy Morton."*New Literary History* 43(2): 225-233.

Bonneuil, Christophe. 2015. "The Geological Turn: Narratives of the Anthropocene." In*The Anthropocene and The Global Environment Crisis: Rethinking Modernity in a New Epoch,* edited Hamilton, C., Gemenne, F. and Bonneuil, C. 17-83. Abingdon/New York: Routledge.

Braidotti, Rosi. 2016. "Jenseits des Menschen: Posthumanismus." *Aus Politik und Zeitgeschichte* 66: 33-38.

Bryant Levi, Nick Srnicek, and Graham Harman. 2010. "Towards a Speculative Philosophy." In *The Speculative Turn: Continental Materialism and Realism,* edited by Levi Bryant, Nick Srnicek, and Graham Harman, 1-19. Victoria, Australia: re.press.

Bryant, Levi. 2011. *The Democracy of Objects*. Chicago: Open Humanities Press.

Burke, Anthony, Stefanie Fishel, Audra Mitchell, Simon Dalby, and Daniel J. Levine. 2016. "Planet Politics: *A Manifesto from the End of IR*." *Millennium Journal of International Studies* 44(3): 499–523.

Chagani, Fayaz. 2014. "Critical Political Ecology and the Seductions of Posthumanism." *Journal of Political Ecology* 21: 424-436.

Chandler, David. 2013. "The World of Attachment? The Post-humanist Challenge to Freedom and Necessity". *Millennium* 41(3): 516-534.

Clark, Nigel. 2014. "Geo-Politics and the Disaster of the Anthropocene." *The Sociological Review* 62(S1):19-37.

Crutzen, Paul J., 2002. "Geology of Mankind". *Nature* 415 (6867): 23-23.

Cudworth, Erika, and Stephen Hobden. 2015. "Liberation for Straw Dogs? Old Materialism, New Materialism, and The Challenge of an Emancipatory Posthumanism." *Globalizations* 12(1): 134-148.

Dalby, Simon. 2013a. "Biopolitics and Climate Security in the Anthropocene." *Geoforum* 49:184-192.

Dalby, Simon. 2013b. "The Geopolitics of Climate Change." *Political Geography* 37: 38-47.

Edwards, Paul N., 2010. *A Vast Machine: Computer Models, Climate Data, and The Politics of Global Warming* . Cambridge, MA: MIT Press.

Evans, Brad, and Julian Reid. 2014. *Resilient life: The Art of Living Dangerously*. Boston: John Wiley and Sons.

Fagan, Madeleine. 2016. "Security in the Anthropocene: Environment, Ecology, Escape." *European Journal of International Relations*.

Ferrando, Francesca. 2013. "Posthumanism, Transhumanism, Antihumanism, Metahumanism, and New Materialisms." *Existenz* 8(2): 26-32.

Grove, Kevin and David Chandler. 2016. "Introduction: Resilience and the Anthropocene: The Stakes of 'Renaturalising' Politics. Resilience." *International Policies, Practices and Discourses*. 1-13.

Haraway, Donna. 2015. "Anthropocene, Capitalocene, Plantationocene, Chthulucene: Making Kin." *Environmental Humanities* 6 (1): 159-165.

Harman, Graham. 2005. *Guerrilla metaphysics: Phenomenology and The Carpentry of Things* . Chicago: Open Court Publishing.

Harman, Graham. 2011. "On the Undermining of Objects Grant, Bruno, and Radical Philosophy."*In The Speculative Turn: Continental Materialism and Realism*, 21-40. Victoria: re.press.

Harman, Graham. 2015. "Morton's Hyperobjects and the Anthropocene." Talk at 26 Samfundshuset Kirkenes, Kirkenes, Norway, 26 November 2015. Online video available at https://vimeo.com/153480982 (accessed 21

December 2016).

Harrington, Cameron. 2016. "The Ends of the World: International Relations and the Anthropocene." *Millennium* 44 (3): 478-498.

Harrington, Cameron, and Clifford Shearing. 2016. *Security in the Anthropocene: Reflections on Safety and Care.* Bielefeld: Transcript.

Hind, Sam, and Sybille Lammes. 2016. "Digital Mapping as Double-Tap: Cartographic Modes, Calculations and Failures." *Global Discourse* 6 (1-2): 79-97.

HKW Haus der Kulturen der Welt 2016. "Anthropocene Curriculum Campus: The Technosphere Issue." Report: Session 'Sensing the Insensible', Available at: https://www.hkw.de/en/app/mediathek/video/50658 (accessed 4 January 2017).

Howarth, David R., 2013. *Poststructuralism and After: Structure, Subjectivity and Power.* Basingstoke and New York: Palgrave Macmillan.

Jasanoff, Sheila. 2004. "Heaven and Earth: The Politics of Environmental Images." In *Earthly Politics, L*ocal *and Global in Environmental Governance*, edited by Jasanoff, S. and Martello, M.L., 31-52. Boston: MIT Press.

Koddenbrock, Kai Jonas. 2015. "Strategies of Critique in International Relations: From Foucault and Latour towards Marx." *European Journal of International Relations* 21(2): 243–266.

Latour, Bruno. 2005. *Reassembling the Social: An introduction to Actor-Network-Theory*. Oxford: Oxford University Press, USA.

The Breakthrough. 2012. "Love Your Monsters: Why We Must Care for Our Technologies As We Do Our Children." Accessed January 5, 2017. http://thebreakthrough.org/index.php/journal/past-issues/issue-2/love-your-monsters

Latour, Bruno. 2015. "Telling Friends from Foes at the Time of the Anthropocene." In *The Anthropocene and The Global Environmental Crisis: Rethinking Modernity in a New Epoch*, edited by Hamilton, C., Gemenne, F. and Bonneuil, C, 145-155. New York: Routledge.

Law, John. 1999. "After ANT: Complexity, Naming and Topology." *The Sociological Review* 47(S1): 1-14.

Law, John. 2009. "Actor Network Theory and Material Semiotics" In *The new Blackwell companion to social theory*. 141-158. Malden, MA and Oxford: Blackwell.

Lovelock, James. 2006. *The Revenge of Gaia: Earth's Climate Crisis and the Future of Humanity.* New York: Basic Books.

Luke, Timothy W., 2016. "Reconstructing Social Theory and the Anthropocene." *European Journal of Social Theory* 20(1):80-94.

Mayer, Maximilian, and Peer Schouten. 2012. "Energy Security and Climate Security Under Conditions of the Anthropocene." In *Energy Security in the Era of Climate Change: The Asia-Pacific Experience*, edited by Luca Anceschi, and Jonathan Symons, 13-35. London: Palgrave Macmillan UK.

McQuillan, Dan. 2016. "The Anthropocene, Resilience and Post-Colonial Computation." *Resilience: International Policies, Practices and Discourses* 1-18.

Mitchell, Audra. 2014. "Only human? A Worldly Approach to Security." *Security Dialogue* 45 (1): 5-21.

Mol, Annemarie. 2002. *The Body Multiple: Ontology in Medical Practice*. Durham: Duke University Press.

Morton, Timothy. 2010. "Hyperobjects and The End of Common Sense." *The Contemporary Condition*, March 18. http://contemporarycondition.blogspot.de/2010/03/hyperobjects-and-end-of-common-sense.html

Morton, Timothy. 2013. *Hyperobjects: Philosophy and Ecology after the End of the World* . Minneapolis: University of Minnesota Press.

Moser, Ingunn. 2008. "Making Alzheimer's Disease Matter. Enacting, Interfering and Doing Politics of Nature." *Geoforum* 39 (1): 98-110.

Randalls, Samuel. 2015. "Creating Positive Friction in the Anthropo(s)cenes." *Dialogues in Human Geography* 5 (3): 333-336.

Schneider, Birgit, and Thomas Nocke, eds. 2014. *Image Politics of Climate Change: Visualizations, Imaginations, Documentations*. Bielefeld: Transcript.

Stavrakakis, Yannis. 1997. "Green Ideology: A Discursive Reading." *Journal of Political Ideologies* 2(3): 259-279.

Steffen, Will, Paul J. Crutzen, and John R. McNeill. 2007. "The Anthropocene: Are Humans Now Overwhelming The Great Forces of Nature." *AMBIO: A Journal of the Human Environment* 36 (8): 614-621.

Steffen, Will et al. 2015. "Planetary Boundaries: Guiding Human Development on a Changing Planet." *Science* 347 (6223): 1259855.

van Munster, Rens, and Casper Sylvest. 2016. "Introduction." In *The Politics of Globality Since 1945: Assembling the Planet*, edited by Rens van Munster, and Casper Sylvest, 1-19. New York: Routledge.

Vrasti, Wanda, and Nicholas Michelsen. 2016. "Introduction: On Resilience and Solidarity. Resilience."*International Policies, Practices and Discourses* 5 (1):1-9.

Wark, McKenzie. 2015a. "From OOO to P(OO)." Object Oriented Ontology Conference at The New School, New York, 2011. Public Seminar, 5 December 2015.

http://www.publicseminar.org/2015/12/from-ooo-to-poo/#.WFvrwrGX-Rs (accessed 21 December 2016).

Wark, McKenzie. 2015b. *Molecular Red: Theory for the Anthropocene*. New York: Verso.

Yusoff, Kathryn. 2013. "The Geoengine: Geoengineering and The Geopolitics of Planetary Modification." *Environment and Planning A* 45 (12): 2799-2808.

Zalasiewicz, Jan, Mark Williams, Alan Haywood, and Michael Ellis. 2011. "The Anthropocene: A New Epoch of Geological Time? Philosophical Transactions of the Royal Society of London A." *Mathematical, Physical and Engineering Sciences* 369 (1938): 835-841.

Žižek, Slavoj. 2016. *Disparities.* London: Bloomsbury Publishing.

About the author:

Delf Rothe is a researcher and lecturer at the Institute for Peace Research and Security Policy in Hamburg,

Germany. He received his PhD from the department of International Relations at the University of Hamburg in October 2014. Rothe has published widely on issues such as climate change and security discourse, visual security, resilience or environmental migration. He is the author of *Securitising Global Warming: A Climate of Complexity* (Routledge 2016),