7 Climatic Globalities: Assembling the Problems of Global Climate Change

Samuel Randalls

Introduction

In 1989, Al Gore stated that 'we are witnessing an unprecedented and massive collision between our civilization and the Earth' (Gore, 1989). Not only is our way of life at risk from emerging environmental threats and the conflicts they might engender; these threats are themselves the result of anthropogenic planetary changes. This interwoven story of humans and the global environment is a classic example of what we might call a form of planetary thinking or a condition of globality. Indeed, much of the literature on climate change assumes that a global environmental threat needs to be matched by global political tools and policies.

The one-world quality of environmental reasoning re-asserts the attractiveness of globalization (as process) and appeals to thinking globally. Globalization is classically thought of in terms of the growing expansion of international governance, increasingly mobile economic networks and the development of technologies that enable time-space compression. Globality, however, is often defined as a condition, a way of thinking on a planetary scale that is beyond globalization. While often signified in a singular form, a planetary condition of interconnectedness between natural and social systems can be

deconstructed to reveal multiple political constitutions and contestations (van Munster and Sylvest, this volume). As Tsing (2000: 353) writes more broadly: 'globalisms themselves need to be interrogated as an interconnected, but not homogeneous, set of projects.' Globality is only possible within a particular historical conjunction of ideas that enable global spaces to emerge as objects of political concern (Bartelson, 2010).[1]

One notable absence in accounts of globality is that they often assume a human globality that neglects the centrality of the planet's physical, chemical and natural systems (van Munster and Sylvest, this volume). By contrast, debates about the Anthropocene have foregrounded attention to the human role in shaping the earth's environments as well as the vulnerability of humans to natural forces. Popularized from the work of Crutzen (2002), Steffen et al. (2007) and Ruddiman (2005), the Anthropocene has since become a shorthand for people discussing a new-found connection, an almost dialectical relationship, between humans and environmental processes that considers both the precarity of the planet as well as that of life on the planet (van Wyck and Hird, this volume; see also Clark, 2010; 2014; Hird, 2010). Yet this vision of radical interconnectedness, a new argument for globality, is predicated on a great deal of debate about what exactly this means in practice and whether Anthropocene thinking (or the Anthropocenic gaze, Wahlberg, 2014) is radically different from thinking globally, carefully or

resiliently, or indeed whether it simply invokes a reformed 'natural-scientific universalism' (Baucom, 2012).

The issue of climate change is a privileged analytical entry point for interrogating the connection between globality and the Anthropocene in more detail. While discourses of climate change have re-focused attention on human-environment interconnectedness, they do not simply embrace an Anthropocenic view. Rather, they have engendered many different types of global thinking of which 'Anthropocenic globality' is only one. Hence, this chapter argues that there is a multiplicity of global climate problems at stake, from concerns about rising anthropogenic emissions increases to claims for justice and equity; from protecting national security to calls for a new cultural renaissance with nature to live within the Anthropocene. Each of these problem-frames enacts 'global climate change' in a different way and calls for a wide array of interventions with diverse, sometimes overlapping and sometimes contradictory consequences.

From this I draw a simple conclusion: climate change is not a singular problem. Climate change is enacted as a problem through different assemblies of practices, sciences, interventions, policies and ideas. Even given the tight coupling of science and policy in many climate change debates, these are not all referring to the same ontological reality to be managed, but rather have different goals and new entities in sight.[2] To develop the multiple climatic globalities argument, I first

briefly review some of the ways we might discuss the assembling of the problems of climate change (Blok, 2014) and the conceptual tools that may be of value. I then go on to deploy two separate analytical cuts. First, I consider how in the post-war period energy efficiency has been put forward as a solution to both global cooling (1970s) and global warming (1990s). Interestingly, the solution comes to legitimize very different worldviews within its enactment of a global climate. Second, I consider different proposed solutions to global warming and show how these emerge from different climatic artefacts, policies, practices and performances. The chapter concludes by offering some reflections on how to politically engage multiple climatic globalities.

Assembling Climate Change

Hulme (2009) and Malone (2009) have done extensive and very productive work in exploring the different ways in which climate change is framed as an issue. Malone (2009) for instance shows that the majority of climate change framings coalesce around the broad idea that more modernization will help solve this environmental issue, even if this does not diminish the continued vitality in other networks of more ethical, political, justice, and even skeptical based discourses. It can be very tempting to relate these different discourses as merely different views of essentially the same problem. A brief look at the history of modern

environmentalism, however, suggests that we need to go beyond accounts of a singular global climate condition. Some scholars have pinned environmentalism to a counter-cultural movement, originating particularly in the 1960s with the popularity of tracts like Rachel Carson's *Silent Spring* and the revival of ecotheological discourse (Anker, 2013). Others instead argued that Cold War military politics and technologies have shaped the development of global environmental science (Hamblin, 2013; Masco, 2010).

Climate globalities can be both militarized and countercultural in origin exactly because they are not representative of a singular global climate condition. They express and engender multiple competing agendas, which are held together in a way that sometimes has greater friction and sometimes less so. Diverse assemblings of environmental concerns involve different practices, ways-of-living and have different political implications. Once we accept that global environmental issues, and climate change specifically, are multiply constituted through diverse scientific-political assemblages, the focus on trying to find the best solution (which view is the right one and how can we communicate it and act on it) shifts to asking a series of profound questions about how the assemblages are formed and partake in the politics of globality: In whose interests are globalities made? What kinds of practices are they enacted through/with? What kinds of materials, technologies,

ecologies, and philosophies do they draw on? And what are the frictions created between these different networks?

To study the assembling of environmental issues and to draw out the multiple politics of globality, I draw inspiration from two bodies of literature. The first comes from Annemarie Mol's (2002; 2008) work exploring the multiplicity of the body in practice. Here I draw from Mol's (2002) work on the body in medical practice, which suggests that the variety of practices regarding atherosclerosis re-makes the body and disease not as a singular entity neither as pluralist bodies. Mol (2002) rather suggests 'the body multiple' – more than one, less than many. She delinks the question of what to do from the question of what is real and argues that this 'politics-of-what' must 'assume that the end points of trials, the goals sought for, are political in character' (Mol 2002: 175). Politics opens up questions rather than solving them through facts or argument.

Lahsen's (2009) ethnographic engagement with scientists and policymakers in different ministries in Brazil shows how Mol's argument about 'the body multiple' can be used to understand how climate science is multiply constituted in these political environments in very different ways. For example, the Ministry of Science and Technology remained much more skeptical of the 'Western' science on the Amazon being a carbon sink that appeared to legitimate the emergence of financial mechanisms to avoid deforestation, while those close to the large scale

biosphere-atmospheric experiment in the Amazon – including the media, the IPCC and the United Nations Framework Convention on Climate Change (UNFCCC) negotiating teams, and the majority of the Brazilian government – supported the scientists' idea of the Amazon as a great carbon sink. While part of this is about the interplay of local and international politics, the interesting point is that the science of what the Amazon is (a carbon sink or not) is tied together with these political reasonings – to use Sheila Jasanoff's (2006) language one can say these are co-produced. Lahsen's (2009) conclusion can be extended more broadly to embrace many aspects of climate change science; witness the debates between paleoclimatologists and contemporary climate modelers, the different communities within the IPCC (Hulme and Mahony, 2010) or the recent friction about the uncertainties in the latest IPCC's assessment report (Maslin and Austin, 2012). Scientists, in other words, do not unite around a singular climatic or Anthropocenic globality.[3]

The second inspiration comes from Marieke de Goede's (2012) use of assemblage theory in her account of terrorist financing. Here, de Goede argues that terrorist finance is an interweaving of 'culture, material praxis and calculative technology', which come together to 'make government possible' (de Goede, 2012: 31). Applying her insights to studying climate change, we cannot simply separate out a real climate that is represented discursively in multiple ways. We need to

trace the connections over disparate times and spaces, materials and discourses – the 'circulating references' (Latour, 1987) – around which climate change assemblages are gathered and enacted. There is thus a certain constitutive or performative element of these assemblages in the diverse ways they materialize climate change. As I will argue, different ways of assembling climate change create their own definitions of the climate change that is imagined as being at risk or incomplete and in need of a solution.

Benson's (2012) exploration of the Argos satellite-based environmentally monitoring and surveillance system helps to illustrate this point. He shows that while the technological infrastructure provides a singular platform, it enables a multiplicity of visions, uses, and practices with the data. This is because Argos needs customers (scientific and government primarily) to grow the commercial value of its market. The prioritization of challenges to be dealt with in the system changes over time as it is shaped by interest groups representing the most valuable customers, in most recent years, actors interested in climate change. Thus within the space of this technology, there is no uniform user or policy that emerges from this. Indeed one can argue this more broadly about climate modeling, as the 'infrastructural globalism' involved in making global data and making data global are deployed in a wide diversity of ways by policymakers (Edwards, 2010). Fixations on climate targets are counterposed with fears that models can never

deliver *one* answer, not to mention the ways in which climate models have re-shaped and been re-shaped by changing expectations and modeling in weather forecasting too. Even if a global imagination of the Anthropocene is advanced, a singular politics does not emerge.

Multiple Climatic Globalities 1: Agreeing Solutions

If the Anthropocene is said to re-awaken attention to the historical importance of human-environment relations, it is useful to consider how solutions to the problems of human impacts are woven together in different time-periods to different concerns. This is an important way of getting at the question of the politics of globality and challenging the singularity that a global environmental ethic is often said to invoke. One oft-noted historical feature of climate change debates is the interest in and discussion of global cooling futures, particularly in the 1960s and 1970s. The popular fascination with the potential arrival of a new ice age was captured in popular books such as Calder's (1974) *The Weather Machine* and global cooling influenced attitudes to global atmospheric changes in important ways (see Figure 1).

Figure 1: Calder's Projection of a New Ice Age

REMOVED FOR COPYRIGHT

Climate change could reduce food availability, enhance floods or droughts or failures in monsoons, threatening everyday life and likely leading to large political unrest. This was sometimes tinged with a Cold War fear that perhaps the Soviets (or the Americans) might be deliberately engineering the environment. Climate became endowed with cultural power, an idea that would re-shape and re-formulate a wide array of other discourses (Ross, 1991).

Many responses to global cooling focused on the potential need to increase CO_2 emissions in the atmosphere, an argument that traces historically back to for example Svante Arrhenius in the late nineteenth century who suggested that the planet might need heating up to save humanity (Fleming, 1998). More industrial civilization could be just the answer to the climatic crisis. But as insecurity arose about the direction of future climate changes, cooling as well as warming rhetoric could be deployed to argue for the same kind of solutions. In other words, solutions could be multiply deployed to both warming and cooling.

A good example of this can be found in a 1977 book published under the auspices of The Impact Team and bound with two CIA reports as appendices. The underriding fear in *The Weather Conspiracy* (The Impact Team, 1977) was of the dawning of a new ice age which would be hastened if society did not rapidly move

to low carbon pathways. While the book tried to avoid radical views towards warming or cooling, it erred on the side of making policy changes precisely as a precautionary measure in the event of an oncoming ice age describing the climate of the 1940s to 1970s as unprecedented and abnormally good for civilization and likely to be swiftly followed by cooling.

Figure 2: Warmer or Colder?[4]

REMOVED FOR COPYRIGHT

The proposed solution for the report's authors was energy efficiency. To prevent future climatic changes, individuals should take simple solutions to reduce their energy consumption and thus reduce the future risks from environmental changes. Readers are advised to consider fuel-efficient cars and driving strategies, as well as car-pooling; at home, readers should install insulation, thermostat controls and

lower energy light bulbs, take showers rather than baths, and they should lead the way on recycling and reducing waste. As the report states 'Each of us can, and should, save energy in other ways every day' (The Impact Team, 1977: 139). All of this occurs in the name of protecting civilization from global climatic changes. Interestingly, the end of the report incorporated an open list of organizations to contact if the reader wished 'to become a crusader' (Impact Team, 1977: 141) for the cause. Fighting global climate change was a war against history, in this case the history of ice ages (and so prior the Anthropocene).

I could draw from a very extensive range of literature to equally show how the same energy efficiency and reduced consumption solutions equally go to support the 'fight' against global warming and that the idea of a crusade, war or fight against climate change is undiminished (Hulme, 2009). In the case of global warming, however, the same policies are wrapped up into a rather different vision of the climate at risk – one that is warmer on average rather than cooler, and one in which the next ice age is rather less a concern than the rapidly rising temperatures that may trigger extreme events. Interestingly, in the case of warming discourses, the normal climate is frequently judged to be pre-industrial temperature since that is what international climate policy is compared to (how many degrees of warming above pre-industrial temperature), while for cooling

discourses it was preventing normal weather (ice ages) in the interest of preserving our abnormally warm conditions.

Al Gore's 'An Inconvenient Truth' is representative of the concern with rising temperatures, as his presentation of solutions (energy efficient cars, renewable energy, energy efficiency, carbon capture and storage, cycling and public transportation solutions) is couched in the language of ecological modernization and green growth (Luke, 2008). Gore likewise sets this out as a moral challenge and it is consistent with his earlier 1989 warning that climate change would be dealt with internationally at a point when countries became concerned about their future security. Gore's climate warriors then adopt the same policies as the crusaders of The Impact Team, but for an entirely different climatic goal: the prevention of global warming in the Anthropocene.

Policies and science on climate change are not tied together so tightly that they cannot be unwoven and rewoven in various different ways. Reducing energy consumption works whether the goal is to prevent cooling or warming – there is a unity around the practice, even while the at-risk planetary status differs. The climatic goal is vastly different (prevent warming or cooling), although both share a desire to preserve a good climate for humanity to flourish.

Multiple Climatic Globalities 2: Disagreeing Solutions

Similar solutions can be attached to different end goals, hence the politics of globality is not singular, but multiple. If we turn the analysis now to proposed solutions to global warming, we will also see another set of multiple globalities at work. If global warming, as climate change, is the predominant problem today amidst a catalogue of human impacts on the environment, it is not a singular problem for which people simply propose different kinds of solutions. Rather, there are a number of different climate change assemblages or groups of practices of 'solutions' that enact particular problem-solution formations, that variously overlap or conflict with other formations. It is through these frictions that the multiple politics of globality become visible.

Blok (2014) argues that there are 'multiple climatic problems' and presents a series of problematizations; interdependent areas in which a problem becomes delineated and made potentially resolvable, but which do not encompass nor accrue to a form of totalizing climate change governance. This has important implications for how we think about the emergence of an idiom of global stewardship within an Anthropocenic imagination. Here I explore three sites in brief (individual behavioral change, market led actions and climate security) in relation to the good outcome envisioned in these assemblages.

Climate change has been highlighted as a global economic issue in reports that show the economic advantage of investing money now in carbon emissions

reduction to prevent future high costs from climate damages (Stern, 2007). This constructs a global economic entity that is vulnerable to climate change, but also a global climate vulnerable to the output of the economy. A simple cost-benefit equation, however, does not work in the economic interests of all countries involved in the climate policy negotiations. Some benefit and others lose from future climate change scenarios, with the increase in global temperature up to 2 degrees Celsius considered to be economically optimal or at least not detrimental to global GDP because of the opening up of large grain areas in Russia and North America. This poses a problem for those arguing that carbon dioxide emissions should be reduced to the lowest possible level as it is not in the global economic interest to do so (Randalls, 2011a). For global climatic governance, the national economy (as GDP) has to be reshaped into a global entity to then be managed efficiently with common parlance including terms like 'cost-effectiveness', 'internalizing externalities' and the 'market as the ideal information processor'.

Carbon markets have been the dominant solution to this economic problem. They assemble sets of calculations and models of carbon emissions within a financial trading environment (MacKenzie, 2009) where the ticker price for the credits becomes a source of profit as much as of concerted efforts to reduce emissions. Paterson and Stripple (2012) deploy the term 'virtuous carbon' to emphasize the ways in which virtuality and morality are entwined in carbon

markets such that the moral goodness of carbon trading to 'save the planet' outweighs specific critiques of market failures. But the reshaping of national economies goes beyond carbon markets, as climate change has become a hook to tie to a variety of economic interests. Janković and Bowman (2013) have argued that many businesses now require the continual proliferation of fears and concerns about climate change to continue stimulating and incentivizing the growth of the climate business sector. Indeed they suggest that 'it seems green investment is becoming not so much a solution but an end in itself' (Janković and Bowman 2013: 252). Likewise, Funk (2014) has traced a diverse set of ways in which businesses are trying to profit from the new interest in climate change solutions including insurance, adaptation technologies and flood defence.

Figure 3: The Carbon Market[5]

REMOVED FOR COPYRIGHT

In other words, assembling a business case around climate change requires a continual reminder of business performance and growth in environmental investment that relies less on an external referent – 'an environmental ontology of climate crisis' (Janković and Bowman, 2013: 252) – than its own internal, capitalistic logics. As such, this global assemblage draws legitimacy from climate science (as meta-discourse, rather than in specific pronouncements), but does not require the practices of green investment to simply be solutions to climate change. Rather they have their own logic too which is about growing the economic value and performance of environmental business (see Figure 3). So in these practices, climate change is cast as a climate that is stable for economic activity whether this is by a global optimal climate or an optimal business environment to profit from the environmental changes.

These practices actively shape an economic and environmental globality. To take a rather different example, for some commentators a global issue like climate change is a collective problem and therefore needs to be 'brought home' to encourage individual cultural and behavioral change. Responsibility for consumption and self-governance encourages multi-scalar thinking captured in the slogan 'think globally, act locally'. It also expands the scope of action to all humankind as drivers of consumption. As a Conservative Member of the U.K. Parliament put it: 'You can't blame dying forests on slick entrepreneurs and acid

rain on Yuppees. Industry exists to meet the demands of the community'.[6] Individualization takes many different forms, but there are some predominant commonalities. One common approach is towards encouraging people to change behaviors in non-didactic ways. This is perhaps best exemplified in the term 'nudge', which Thaler and Sunstein's (2009) use to describe 'libertarian paternalist' interventions. These change the choice architecture through intervening in practices or product displays that make it an easier decision to buy 'better' products. Labels on products to represent calculative or technical assessments of calories, carbon, ethical trading standards and so on have become a key intervention to shape the global responsible citizen. The combination of choice and calculation is at the heart of this. In personal carbon allowance proposals, for example, as Parag and Strickland (2009) point out, they use the word 'budgeting' to confirm similarities with financial budgetary management. Carbon can simply be organized and managed like finance, diet, alcohol units or other parts of people's everyday lives. There is also an affective engagement particularly in terms of what Isin (2004) discusses as the neurotic register. Citizens are to be concerned enough to worry about their personal footprints as well as act calculatively to manage the risks.

Another shared argument is that of household technological changes combined with behavioral changes. Common interventions would be choosing

more efficient transportation, insulation, turning down thermostats and choosing locally produced foods. These technologies and practices however are not just about reducing emissions. They have a more complex role in our lifestyles as they produce a climate-concerned subject that is to manage climate change (Hargreaves, 2014), not least to reduce feelings of planetary guilt. As Mol (2008: 58) writes: 'technologies do not subject themselves to what we wish them to do, but interfere with who we are'. A focus on individual behavioral change enacts practices that in purporting to govern climate change are equally as much about encouraging new ways of living (see Figure 4).

It is not just a neutral threat of climate change in which behavioral change is one of many options to resolve the problem, but rather that climate change is modeled and counted by establishing 'carbon equivalency' as the commodity that is to be managed to save the planet. Climate change is enacted as a problem of carbon management, legitimating interventions into better governing the use of carbon in people's lives. The desired outcome of this politics of globality is the rational, carbon consumer, who will enable the reduction of carbon-dioxide emissions to prevent climate change. In this image, a global citizenship is at stake, where the consumer is constituted as a responsible steward of the earth that carefully manages the accelerated human impacts on the environment in the Anthropocene. Taking care is shaped and re-presented as an ideal modality for

living safely in the Anthropocene, albeit it is frequently reduced to an individualized, behavioral signal that misses the kinds of ethical reconfigurations that others have associated with global citizenship.

Figure 4: The Making of Climate-Concerned Subjects[7]

REMOVED FOR COPYRIGHT

The final example concerns the enactment of climate change as a global security risk through an assembling of security officials, risk models and the legitimating power of rhetoric of threat and fear. For all this seeming authority, however, Oels (2014) suggests that there has been rather less in the way of dramatic interventions than might be expected from climate change as an exceptional state. That said, the security assembling of climate change is important, not least given the desire to intervene directly in terms of geo-engineering (Masco, this volume) or the desire to monitor or govern potentially 'dangerous' populations. Indeed these security practices precisely govern through an inter-connected globality in which risks appear from a globally induced cause and with global consequences. Governments are not only anticipating potential worst-case scenarios but also actively imagining a phantasmagoria that becomes real (de Goede and Randalls 2009) as displayed in images, films and discourses

about climate change. U.S. and German security reports have explored the kinds of risks that might be developing as a result of climate change (see Figure 5). Particular places and populations become risky: the North African and Middle Eastern water-deprived regions that might foster Islamic radicalism or the Bangladeshi migrants fleeing rising waters into neighboring India.

Figure 5: The Climate-Security Nexus[8]

REMOVED FOR COPYRIGHT

Climate threats are defined through scientific analysis and modeling, but these are not without political assumptions. For example in climate-health research, South East Asian countries, unlike European ones, are predicted to have significant deaths from malnutrition, primarily because of a modeled assumption that the European Union will supply food to all its member states whereas the South East Asian countries will be less co-operative with each other (Randalls 2011b).

These lists, model outputs and maps become performative, particularly as models are increasingly used to adjudicate the success of policy goals. Interventions to prevent the radicalization or migration of the climate vulnerable

are combined with invocations to enhance food and water security to prevent these outcomes and forestall deaths. Yamane (2009) highlights how subsistence farmers in Sri Lanka are defined through agro-ecological maps as particularly vulnerable to the risks of climate change and in need of developing export-led agriculture to reduce their vulnerability. This may work acceptably when the cash flows in, but acts to hinder the back-up subsistence economy that also had supported these farmers through previous years of poor weather. Ironically, interventions to target the security risks of climate change re-engender the same kinds of vulnerabilities that they are supposed to be protecting against.

The climate-security assemblages not only have an effect on lives, they enact new categories ('the climate migrant', 'the vulnerable', 'the potential climate-induced terrorist') that then re-define a whole set of lives in specific ways (Baldwin, 2013). At the same time, climate change becomes dangerous or threatening ontologically in a way that will affect Western lifestyles or national interests (Kurz et al., 2010). The 'good' outcome is a world secured from climate change (impacts), but that does not necessarily mean interventions to prevent climate change. An alternative can be compensation through insurance mechanisms (Stripple, 2012), while a securitized climatic globality prioritizes a particular way of exploring environmental risks and their human consequences with a focus on intervention (whether in the human or material environment) to

deal directly with risky populations and protect the rest of the world. People's ways of life are to be constrained by the interventions to secure the privileged individuals ability to continue the right to choose. In this context, the assemblage climate change enacts a highly divided and unequal form of globality.

Frictions and Alignments in Climatic Globalities

One objection that might be raised at this point is that surely these various approaches can and do align. In other words they are different *representations* of the same problem (that of global climate change). It is of course quite probable that different climate assemblages can work together, but in other cases they will come into conflict. Kurz et al. (2010) have shown that 'maintaining our lifestyles' is one of the most dominant discourses dominating the popular literature related to climate change, but it is doubtful whether everyone on the planet is or can be gathered around such an invocation.

Nevertheless, a good example of this politics of globality can be glanced from Funk's (2014) recent book *Windfall* exploring the ways in which financial profit and security discourse can align. Climate migration actions work both to securitize the risks of a dry Sahara for increasing attempts of people to cross to Europe, while at the same time governments invest money and expertise in trying to make the Sahara productive through forestry projects or by developing large solar energy

schemes. Perhaps the best instance of lifestyle management can be seen in the rapidly growing green land grabs where entrepreneurs from countries deemed vulnerable to climate change buy land elsewhere in the world to ensure the continuation of their food supply in a future climate-constrained world. China pursued land deals worldwide (indeed, its attempt to extract 3 million acres in Madagascar is considered a factor in the political coup there), Qatar sought land in Kenya; Kuwait in Cambodia – and so on (these are all detailed in Funk, 2014).

Making money aligns with an expropriation of land and a rather fragmented global geography of climate change winners and losers that traverses borders in a new globality of connections. On the one hand, a stable global economy, particularly for oil producing countries, depends on the securitized practices that enable the way of life for those in richer countries to continue as before. Yet this image of a climate globality seems rather disconnected from the 'think globally, act locally' slogans of classical environmentalists on the other. Likewise, the profit-security linkage is distinctly at odds with global policy-making focused on reducing CO_2 emissions. At a fundamental level, these futures being enacted are in a tense relationship with each other. They create 'friction' (Mol, 2002), which is in part how we know they are enacting very different climate globalities.

Second, it is not just that these different practices conflict as they re-shape geopolitical borders and economic activities. They also conflict in their

fundamental vision of what the ontological problem of climate change is about, as well as in their political attempt to secure a future given this ontology (some are more empowered than others). In other words, a stable economic climate might not be the same as a stable climate or a secure climate or a climate in which humans engage in a careful acceptance of precarity (Clark, 2010; Hird, 2010). Different problem-framings assemble a global imagination of climate risk through different expertise, models, imaginations, concerns and idealized solutions. These are partly related to power. For example, the vision of security prompts attention on particular risky areas regardless of whether that vulnerability is caused by human-induced or natural climatic changes (or climate at all), while for climate change adaptation financing, vulnerability to climate change is reworked into interventions to make populations economically productive in generating GDP as a strategy to resolve these new climate risks. Concurrently, the global economy (as the ontological entity at risk) is claimed to be vulnerable to the risks from global climate change, but at the same time environmentalist campaigners argue that the capitalist economy is the ultimate cause of climate change (the planet as ontological entity at risk).

For some, climate change cannot be solved without recourse to justice and equity, a claim that in turn lies rather unheeded in the argument that the planet does not care where CO_2 emissions are reduced as it is the global circulation of

chemicals that is what matters. Different global imaginaries assemble climate change in specific ways and envisage particular interventions to resolve what they perceive to be the core problem and ontological entity at risk with/through/from/of climate change, interventions that overlap and contradict in various ways with other imaginaries of the problem at stake. A just solution may not solve the risks of climate to the global capitalist economy, while an economically optimal solution may not reduce CO_2 emissions, and reducing CO_2 can be done without specific heed to justice or economic concerns.

Much also depends on the strength of the networks being built around these climate problems (Blok, 2014), as some have more allies than others. Thus the argument needs to take account of the importance of power, as certain types of ideas, technologies and practices coalesce into concrete enactments of climate change while others are excluded, not-enacted. What is fundamentally obscured in a 'one globality' argument is that each of these assemblages of practices makes claims about the nature of the outcome to be achieved, which in turn is irreducibly tied to ontological and political-philosophical commitments about the good life. Practices compete to define climate change in different ways such that no simple reductive resolution is possible.

Taking the Anthropocene as a given starting point may stand in the way of our need to carefully articulate what kinds of entities, things, people and ecologies

are at play in the various enactments of planetary concern, thinking globally or assembling climatic globalities. It is important to see these diverse practices as enacting and performing different climatic globalities and to see these as ontological, epistemological and political-philosophical claims. It is important to take seriously claims to engineer an optimal climate for production and consumption, as it is also important to take seriously claims that thinking globally might open up new ethical and political arrangements. These are not mere ideas that float detached from material implications or from powerful organizing bodies like neoliberal think tanks.

Conclusions

While it can be tempting to think of the interconnected natural and social systems invoked by the concept of the Anthropocene as enabling a closer interaction and recognition of human-environmental relations, I have argued that it would be unwise to simply view this as the emergence of a new, universal planetary globality. Even in the case of a purportedly global environmental risk like climate change, there are a wide variety of ways in which climate change is enacted or assembled through different practices, models, technologies and discourses. Through the examples of energy efficiency in global cooling and warming debates, and the different ways in which contemporary climate change is invoked as a

security, economic and individual behavioural issue, I have suggested that these different practices assemble rather different climatic globalities in practice. These globalities are neither completely separate, nor simply different representations of the same object. They have diverse political effects and constitute in different ways the 'goods' to be achieved and the 'bads' to be avoided. As Tsing (2000: 351) suggests, we need to 'reverse this [singular] globalist thinking to turn concerns about the global back into researchable questions' that incorporate 'critical distance' in our evaluations of global visions.

If the idea of a global climate change problem to be solved is so dominant (as Hulme, 2009, suggests), what might be gained from thinking about climatic globalities as multiple rather than as one totalizing globality? As Mol (2002: 184) puts it: 'Presenting the *body multiple* as the reality we live with is not a solution to a problem, but a way of changing a host of intellectual reflexes'. This is why a multiple politics of globality is crucial. Exploring the diverse assemblings of climatic and Anthropocenic globalities resists buying into singular claims about environmental change that can only be discussed on their own terms. For example, one common climate policy formulation simply states that from an agreement about a global mean temperature target and resultant emissions target, it is simply a case of putting into place policies designed to reduce emissions to meet that goal. This, however, ignores many important questions that one could ask about the

kind of lives to be lived and whether this policy ideal is actually embraced in many of the other climate change practices, such as those embedded in security or behavioural change frames.

In other words, a singular climate change global problem framing in which climate becomes a resolvable technical issue circumscribes the kinds of debates that are crucial for thinking through the planetary implications of a renewed focus on climate (Clark 2010; Hird 2010). Planetary thinking must necessarily be multiple, laying bare the ways in which globalities are assembled through different ideas, artefacts, images and practices. Rather than end up as an enthusiast or critic, as occurred with some of the globalization literature, the requirement to empirically analyse the multiple ways in which planetary globalities are assembled generates the political grounds to assess which of these assemblages to support or contest, engage with or resist.

References

Anker, Peder (2013) 'The call for a new ecotheology in Norway', *Journal for the Study of Religion, Nature and Culture*, 7(2), 187-207.

Baldwin, Andrew (2013) 'Racialisation and the figure of the climate change migrant', *Environment and Planning: A*, 45(6), 1474-1490.

Bartelson, Jens (2010) 'The social construction of globality', *International Political Sociology*, 4(3), 219-235.

Baucom, Ian (2012) 'The human shore: postcolonial studies in an age of natural science', *History of the Present*, 2(1), 1-23.

Benson, Etienne (2012) 'One infrastructure, many global visions: The commercialization and diversification of Argos, a satellite-based environmental surveillance system', *Social Studies of Science*, 42(6), 843-868.

Blok, Anders (2014) 'Experimenting on climate governmentality with actor-network theory', in: Johannes Stripple and Harriet Bulkeley (eds) *Governing the climate: New approaches to rationality, power and politics*. Cambridge: Cambridge University Press, 42-58.

Calder, Nigel (1974) *The weather machine and the threat of ice*. London: BBC.

Clark, Nigel (2010) 'Volatile worlds, vulnerable bodies: Confronting abrupt climate change', *Theory, Culture and Society*, 27(2-3), 31-53.

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

Clark, Nigel and Nick Stevenson (2003) 'Care in the time of catastrophe: citizenship, community and the ecological imagination', *Journal of Human Rights*, 2(2), 235-246.

Crutzen, Paul (2002) 'Geology of mankind', *Nature,* 415, 3rd January, 23.

Crutzen, Paul and Will Steffen (2003) 'How long have we been in the Anthropocene era?', *Climatic Change*, 61(3), 251-257.

Edwards, Paul (2010) *A vast machine: Computer models, climate data, and the politics of global warming*. Cambridge, MA: MIT Press.

Fleming, James Rodger (1998) *Historical perspectives on climate change*. New York: Oxford University Press.

Funk, McKenzie (2014) *Windfall: The booming business of global warming*. New York: Penguin.

de Goede, Marieke (2012) *Speculative security: The politics of pursuing terrorist monies*. Minneapolis: University of Minnesota Press.

de Goede, Marieke and Samuel Randalls(2009) 'Precaution, pre-emption: arts and technologies of the actionable future', *Environment and Planning: D*, 27(5), 859-878.

Gore, Al (1989) 'The global environment: a national security issue', in: Ruth DeFries and Thomas Malone (eds) *Global Change and Our Common Future*. Washington: National Academy Press, 177-186.

Hamblin, Jacob Darwin (2013) *Arming mother nature: The birth of catastrophic environmentalism*. New York: Oxford University Press.

Hargreaves, Tom (2014) Smart meters and the governance of energy use in the household, in: Johannes Stripple and Harriet Bulkeley (eds) *Governing the*

climate: New approaches to rationality, power and politics. Cambridge: Cambridge University Press, 127-143.

Hird, Myra (2010) 'Indifferent globality: Gaia, symbiosis and "other worldliness", *Theory, Culture and Society*, 27(2-3), 54-72.

Hulme, Mike (2009) *Why we disagree about climate change*. Cambridge: Cambridge University Press.

Hulme, Mike and Martin Mahony (2010) 'Climate change: What do we know about the IPCC?', *Progress in Physical Geography*, 34(5), 705-718.

Isin, Engin (2004) 'The neurotic citizen', *Citizenship Studies*, 8, 217-235.

Janković, Vladimir and Andrew Bowman (2013) 'After the green gold rush: the construction of climate change as a market transition', *Economy and Society*, 43(2), 233-259.

Jasanoff, Sheila (2004) 'Heaven and earth: the politics of environmental images', in: Sheila Jasanoff and Marybeth Long Martello (eds) *Earthly Politics: Local and Global in Environmental Governance*. Cambridge, MA: MIT Press, 31-52.

Jasanoff, Sheila (2006) 'The idiom of co-production', in: Sheila Jasanoff (ed) *States of Knowledge: The co-production of science and social order*. Abingdon: Routledge, 1-12.

Kurz, Tim, Martha Augoustinos and Shona Crabb (2010) 'Contesting the "national interest" and maintaining "our lifestyle": A discursive analysis of political

rhetoric around climate change', *British Journal of Social Psychology*, 49(3), 601-625.

Lahsen, Myanna (2009) 'A science-policy interface in the global south: the politics of carbon sinks and science in Brazil', *Climatic Change*, 97(3), 339-372.

Latour, Bruno (1987) *Science in action: How to follow scientists and engineers through society*. Cambridge, MA: Harvard University Press.

Luke, Timothy (2008) 'The politics of true convenience or inconvenient truth: struggles over how to sustain capitalism, democracy, and ecology in the 21st century', *Environment and Planning: A,* 40(8), 1811-1824.

MacKenzie, Donald (2009) 'Making things the same: Gases, emission rights and the politics of carbon markets', *Accounting, Organizations and Society,* 34(3-4), 440-455.

Malone, Elizabeth (2009) *Debating climate change: pathways through argument to agreement*. London: Earthscan.

Masco, Joseph (2010) 'Bad weather: On planetary crisis', *Social Studies of Science*, 40(1), 7-40.

Maslin, Mark and Patrick Austin (2012) 'Climate models at their limit?', *Nature*, 486, 14th June, 183-184.

Mol, Annemarie (2002) *The body multiple: ontology in medical practice*. Durham, NC: Duke University Press.

Mol, Annemarie (2008) *The logic of care: Health and the problem of patient choice*. Abingdon: Routledge.

Oels, Angela (2014) 'Climate security as governmentality: from mitigation to resilience', in: Johannes Stripple and Harriet Bulkeley (eds) *Governing the climate: New approaches to rationality, power and politics*. Cambridge: Cambridge University Press, 197-217.

Parag, Yael and Deborah Strickland (2009) 'Personal carbon budgeting: what people need to know, learn and have in order to manage and live within a carbon budget, and the policies that could support them?', *Working paper UKERC/WP/DR/2009/014*. UKERC.

Paterson, Matthew and Johannes Stripple, (2010) 'MySpace: governing individuals' carbon emissions', *Environment and Planning: D*, 28(2), 341-362.

Paterson, Matthew and Johannes Stripple (2012) 'Virtuous carbon', *Environmental Politics*, 21(4), 563-582.

Poole, Robert (2008) *Earthrise: How man first saw the earth*. New Haven: Yale University Press.

Randalls, Samuel (2011a) 'Optimal climate change: Economics and climate science policy histories (from heuristic to normative)', *Osiris*, 26, 224-242.

Randalls, Samuel (2011b) 'Climate change pathology', *Environment and Planning: A*, 43(6), 1242-1247.

Ross, Andrew (1991) *Strange weather: culture, science and technology in the age of limits*. London: Verso.

Ruddiman, William (2005) *Plows, plagues and petroleum: how humans took control of climate*. Princeton: Princeton University Press.

Steffen, Will, Paul Crutzen and John McNeill (2007) 'The Anthropocene: Are humans now overwhelming the great forces of nature', *Ambio*, 36(8), 614-621.

Stern, Nicholas (2007) *Stern Review on the Economics of Climate Change*. Cambridge: Cambridge University Press.

Stripple, Johannes (2012) 'The subject of security in a warming world', *Brown Journal of World Affairs*, 18(2), 181-194.

Thaler, Richard and Cass Sunstein (2009) *Nudge: improving decisions about health, wealth and happiness*. New York: Penguin.

The Impact Team (1977) *The weather conspiracy: The coming of the new ice age*. New York: Heron House Publishing.

Tsing, Anna (2000) 'The global situation', *Cultural Anthropology*, 15(3), 327-360.

Wahlberg, Ayo (2014) 'Human activity between nature and society: The negotiation of infertility in China', in: Kirsten Hastrup (ed) *Anthropology and Nature*. New York: Routledge, 184-195.

WBGU - German Advisory Council on Global Change (2007) *World in Transition: Climate Change as a Security Risk. Summary for Policy-Makers.* Berlin: WBGU

Yamane, Akiko (2009) 'Climate change and hazardscape of Sri Lanka', *Environment and Planning: A*, 41(10), 2396-2416.

Notes

[1] The emergence of planetary images from space, often held up as a key condition for the emergence of globality (Poole, 2008), are only relevant within a particular cultural and moral reasoning that hints at the value of such a global view (Jasanoff, 2004).

[2] I will use the term global warming at various points where I wish to emphasize that what I am talking about are global warming inspired climate change literatures as opposed to global cooling ones. In other places, I will simply use the term climate change to designate all types of climatic change.

[3] A similar multiplicity emerges in the dating of the Anthropocene. For Ruddiman (2005) the Anthropocene has emerged over thousands of years of human history, while Crutzen and Steffen (2003) date its emergence to the development of the steam engine in the late eighteenth century, but also suggest that the accelerated human impacts since 1950 are central to the Anthropocene.

[4] Impact Team Report (1977).

[5] This advert from the Climate Group is published in a 'Low-Carbon leaders' supplement to Environmental Finance in 2005.

[6] Speech by Conservative MP Peter Brooke in October 1988, short transcript; copy held by the author.

[7] The advert is from 'Confronting climate risk' supplement in Environmental Finance in 2007.

[8] Diagram from an Advisory Council report on climate security risks that was published through the German government (WBGU, 2007).