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Scoping endangered futures: rethinking the political aesthetics of climate change in world risk society

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Scoping endangered futures: rethinking the political aesthetics of climate change in world risk society

Anders Blok

Abstract

In this article, I engage a key claim of Ulrich Beck's theorizing of global risks, to the effect that socio-political collectivities are currently being re-imagined through the anticipation of endangered long-term futures. Such dynamics of temporal reordering are visible, the article shows, in the imaginative politics of climatic projections. To rethink the resultant political aesthetics of climate change, the article maps out the visual, experiential, and affective forms in which endangered climatic futures come to saturate public culture. Such encounters, the article suggests, constitute inter-media events, drawing on scientific, artistic, and mass media registers, and embodied in what Karin Knorr Cetina call scoping devices of information and visualization, involving particular 'fateful' time transactions. These conceptual suggestions are illustrated and elaborated by drawing on auto-ethnographic observations during a particular event of intense futurity, that of the international COP15 climate change conference held in Copenhagen during December of 2009.

Keywords*: climate change; endangered futures; world risk society; scoping devices; political aesthetics*

Introduction: climate change and long-term futurity

In and beyond their rewriting of everyday geographies, global environmental issues raise a number of dilemmas and conflicts, which reach to the core of current socio-cultural practices and politics of temporal ordering. Often, the hazards of acid rain, ozone depletion, genetic modification, species loss, and climate change remain invisible and elusive until they manifest as symptoms after indeterminate periods of latency, ignorance, and surprise. As has been argued from different theoretical perspectives, the temporal stretching out of horizons of social expectation and action implied by such environmental risks and latencies create serious disjunctures vis-à-vis standard practices of scientific knowledge validation (e.g. Beck, 1992); mass media reporting (e.g. Adam, 2003); environmental activism (e.g. Doyle, 2007); and political democracy itself (e.g. Lidskog and Elander, 2009). Such disjunctures revolve, importantly, around challenges of *long-term futurity*.

Against such a backdrop, this article explores a key question in the sociology, culture, and politics of one defining environmental issue of our times: in what ways, and through which imaginative forms, might the globalized risks of climate change currently be reconfiguring the public culture of temporality in late-modern Euro-American societies? Here, the notion of a public culture of temporality refers, in tentative fashion, to possible convergences in temporal frames, emphases, and sensibilities promoted via public forms of cultural representation and political argumentation (Guyer, 2007). While such temporal frames are clearly diverse and contested across different public spaces and societies, the article joins recent arguments by Ulrich Beck in suggesting that anticipations of cosmopolitized, long-term, and 'endangered' (Beck and Levy, 2013: 6) climatic futures play increasingly salient roles in redefining collectivity in world risk society. The question, however, is how best to understand, conceptualize, and research such emerging collective sensibilities and reflexivity towards interdependent climatic futures?

While temporal dimensions of Beck's world risk society theorizing has received some attention (e.g. Adam, 2003; Binkley, 2009), critics, I believe, have yet to follow up on Barbara Adam's invitation (2003: 61) to trace the new cultural expressions of reflexive modernization in "the current social relations and politics of time". This

is true as well, I suggest, for Beck himself, whose subsequent cosmopolitan work (e.g. 2006) – albeit insightful and inspiring – tend to generalize some rather abstract historical, cognitive, and institutional conditions underlying changes in temporal orderings. In this article, I seek to better ground Beck's claims about the endangered futures of global risk, and the way these come to be imagined and publicly staged, within the lived public realities of world risk society. Importantly, this means paying attention to the *aesthetic* qualities of climatic future imaginations, and how these in turn condition new shared political sensibilities of the world, in ways that challenge certain 'cognitivist' and science-centric biases in Beck's thinking on risk reflexivity (Lash, 1993; Gabrys and Yusoff, 2012).

Following from this, the main argument to be developed in the following will be that insufficient attention has so far been paid, in Beck's work and in socio-cultural analyses of climate change writ large, to the way new and hybrid temporal registers may be emerging, located in-between science and everyday public culture. I develop this argument in two main steps. First, and on the theoretical level, I invoke Karin Knorr Cetina's (2009) reworking of symbolic interactionism for a global world, in order to rethink, on micro-sociological footings, the shared socio-technical and temporal characteristics of public encounters with climate change. Knorr Cetina's notions of 'synthetic situations' and 'scoping devices', I suggest, help specify Beck's claims as to the centrality of risk staging, in terms of highlighting the instruments of information and visualization needed to sustain collective situational engagements in the fateful realities of global climatic risks. These conceptual suggestions will be fleshed out and illustrated in the main body of this article.

This discussion leads me, secondly, to engage what Kathryn Yusoff (2010), following French philosopher Jacques Rancière (2004; 2009), calls the 'political aesthetics' of climate change, in order to reach a more nuanced appreciation of how aesthetic forms condition the affective and experiential modalities of public-political encounters with endangered climatic futures. Such forms, I suggest, emerge primarily within new inter-disciplinary and –organizational spaces, drawing simultaneously on repertoires of scientific, artistic, and mass media representations, thereby hybridizing aesthetic and material potentials for creating new imaginative political openings and dislocations vis-à-vis the future (Gabrys and Yusoff, 2012). Understanding this hybrid imaginative space, I suggest, hinges on identifying the novel positions thereby afforded, to members of the public, for vicariously witnessing and experiencing a range of endangered climatic futures. Here, I argue, aesthetic inventions are key to reworking the power-politics of (in-)visibility in world risk society.

In empirical terms, I draw in this article on auto-ethnographic observations during a particularly 'intense situation' (Ellis et al., 2011: 3) of endangered futurity: that of the urban spaces of Copenhagen during the time of the city's hosting of the United Nations (UN) Conference of Parties (COP 15) in December 2009. This time-space locale, and the way it was augmented by ubiquitous inter-media climate change events, allows me to observe, in condensed form, a variety of scoping devices and aesthetic inventions shaping modalities of future-making circulating more widely in contemporary societies. Rather than take COP15 as 'representative' of an emerging public culture of temporality, then, my approach entails a self-mediated analytical engagement with the experiential, aesthetic, and temporal qualities of the different risky futures on display during this event. This represents an important first step, I suggest, in exploring current changes in temporal orderings, allowing me to utilize this 'extreme case' (Flyvbjerg, 2006) to foster new conceptual repertoires.

In the next section, I place – and defend – Beck's notion of endangered futures in relation to a broader spectrum of analytical positions from which to rethink the culture and politics of temporality in relation to climate change. I then turn to explore the scoping devices and political aesthetics of climate change, first conceptually and then empirically, by way of distinguishing different modalities of future-making and vicarious future-witnessing emerging in-between sci-

ence and public culture. In conclusion, I return to the question of current transformations in the public culture of temporality, asking to what extent the horizon of global risks may lead us into new and alternative political sensibilities of future-making.

Endangered cosmopolitized futures in world risk society

In broad strokes, Ulrich Beck's (1999) theory of world risk society is well known, including in terms of how the theory posits a range of global risks as key drivers in current social transformations. These transformations, Beck argues (2006), entail growing densities of border-crossing interconnectedness, or what he terms 'cosmopolitization', as socio-cultural flows and forces increasingly criss-cross nation-state territories from above and below. In the domain of environmental risk, notably, the conflictual politics of climate change, Beck suggests (2010; Beck et al., 2013), may be productive of new trans-local communities and forms of solidarity, based on shared imaginations and anticipations. Here, climate change is cast in the shape of collective, long-term, unwanted, and possibly even catastrophic futures. Risk, Beck stresses (2010: 258), does not mean catastrophe, but the *anticipation* of catastrophe: a dangerous future anticipated in the present, as a present future horizon.

In short, the epochal transformations posited by Beck – from 'first' or industrial to 'second' or reflexive modernity – carries significant implications for rethinking the culture and politics of dominant temporal frames. Together with Daniel Levy, Beck (2013) recently spelled out this contribution to what they see as a broader 'temporal turn' (ibid.: 6) in social theory. Put briefly, the argument by Beck and Levy is that, in the epoch of world risk society, a range of collectivities, including nation-states, are being re-imagined through the anticipation of (what they term) endangered futures. In this process, the linear and homogeneous temporality of nation-state 'progress', based on extending the present into past and future, is being overlaid and superseded by new uncertain, fragmented, and pluralistic temporalities, where horizons of future expectation dominate the sense of present and past. Such future-oriented temporalities are 'cosmopolitized', in turn, to the extent that they potentially weave together the collective fates of dispersed communities across and beyond national boundaries – while also opening up a pluralistic space of temporal politics across local and global scales, institutions, and publics.

This temporal politics, Beck stresses, depends on how ambivalences of (non-)knowledge and (in-)visibility play out in specific settings, since global risks like climate change depend for their social reality on being defined, inscribed, visualized, and mediatised – in short, on being socially and politically staged, vis-à-vis local and transnational publics. While acknowledging that climate politics remains a somewhat elite-centred discourse (Beck, 2010: 254f), Beck's recent writings thus amount to the claim that endangered climatic futures have come to saturate much of public-political culture. Even confining the discussion to Euro-American societies – and thus leaving aside the important question of how climate risks are mediated through places like Sub-Sahara Africa, China, Brazil, and India – this claim is far from uncontroversial.[1] Mike Hulme (2009: 202), for instance, sums up a presumably widespread view when arguing that the "time-delayed, ambiguous, remote and often abstract nature of the risks of climate change does not generally evoke strong visceral reactions in the lay public.". On closer inspection, however, what seems like a diagnostic discrepancy is perhaps better approached as necessitating greater precision as to what is and is not entailed by Beck's endangered futures.

[1] My focus in this article on Euro-American societies is a contingent one, meant to situate the argument in respect to global divergences in climate risk cultures. There are growing bodies of work on climate change imaginations and politics world-wide. Indeed, prior to his untimely death, Beck himself was deeply engaged in comparative endeavors across Europe and East Asia (Beck et al. 2013).

At one level, Hulme's key point was anticipated already in Beck's (1992: 53f) early work on the risk society[2], in terms of what he later (1999: 55) dubbed the 'expropriation of the senses': as a modern-day chemical devil, carbon dioxide cannot be touched, smelled, or seen without the intervention of techno-scientific, mass media, or other visualization devices. As such, it seems reasonable to suggest that the dangers it poses remain often intangible in the embodied rhythms of everyday life, except through the multiform devices of information and visualization that serve to render them privately and publicly present. Such, indeed, is the background against which a growing number of studies, adopting a range of theoretical perspectives, inquire into the way climate change is localized and brought 'home' in people's lives, either via municipal energy-saving campaigns (Slocum, 2004), new domestic carbon calculation devices (Marres, 2008), or through heightened sensitivities to local landscapes, weather patterns, and extreme weather events (Brace and Geoghegan, 2011).

While important, such work also tends, however, to implicitly (re-)create an unhelpful split between climate change as globalized and localized reality: after all, to make sense, everyday climate engagements must ultimately be seen as co-shaped, in cosmopolitized fashion, with the way abstract, scientific narratives travel and are mediated in specific public contexts. Hence, there seems little doubt that the most important vehicle or device for making the effects of carbon socially visible has so far been the natural sciences (Beck, 2010: 261). Importantly, data from so-called General Circulation Models (GCMs) feed into the future-projecting practices of the Intergovernmental Panel on Climate Change (IPCC), including the joint science-policy elaboration of official warming scenarios in a 100-year framework. Based on this, IPCC-endorsed graphs showing temperature rises in-between roughly 2 and 4 degrees Celsius by 2100 by now constitute a recognizable symbolic form in mass media and public culture (figure 1).[3] To paraphrase Paul Edwards (2010: xv), most of what we know about the world's climate, we know through computer models.

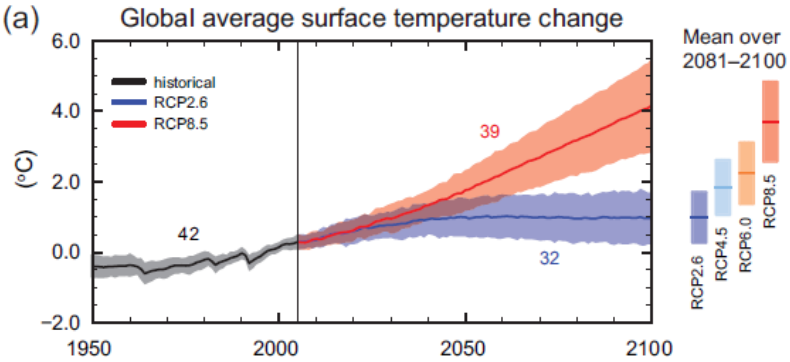

Figure 1: Model projections of global average surface temperature change, 2005-2100. Source: IPCC Summary for Policymakers 2013: 21.

Stated in terms of world risk society theory (Beck, 1999), science thus becomes simultaneously more central, *and* more inadequate, as a foundation for cultural and political action, in that it both enables and constraints meaningful public engagement with long-term endangered climatic futures. Such problematics are evinced, for instance, around the mass media-based knowledge controversies whereby so-called 'sceptics' cast doubt on the reality of model-derived future projections by playing on journalistic norms to receive attention disproportionate to their scientific reputation (Boykoff and Boykoff, 2007). While sceptics thus remain a visible force in many places, not least the United States, research also suggest that

[2] With this one exception, I refer to Beck's work throughout via the notion of *world* risk society. This is the shorthand he came to prefer to his original 1985 'risk society' (*Risikogesellschaft*) from the 1990s onwards, under the influence of debates around globalization and the environment.

[3] In the 2007 IPCC report, so-called 'best estimate' projections of global average surface temperature increases go from 1.8 to 4.0 degrees, with a 'likely' range from 1.1 to 6.4. With each IPCC report, these figures are adjusted; by 2013, best estimate figures were slightly lower (1.0 to 3.7).

the 'formal' facts of endangered futures produced by climate science nowadays cause strong concern among majority publics across Euro-American societies (Capstick et al., 2015). This does not imply, of course, that such scientific projections turn into 'practicing' facts of everyday life; here, acceptance, denial, resignation, and action rather co-exist as widespread personal and public responses (Brace and Geoghegan, 2011).

Analytically, however, due in part to academic specializations, questions pertaining to relations amongst science and everyday public culture in world risk society – particularly in terms of how temporal frames meet and hybridise – has so far received insufficient attention. Working in one direction, the field of science and technology studies (STS) has contributed significant insights as to the actual epistemic and political practices of climate modellers (Edwards, 2010). Studies have shown, for instance, how quantitative estimates of climatic sensitivity to carbon concentrations work as an 'anchoring device', serving to stabilize a set of dominant future scenarios amongst scientific and policy communities (van der Sluijs et al., 1998). This strand of STS work, however, seldom pursues the scientific models beyond their immediate elite milieus. Hence, it fails to inquire into the broader social life of such scientifically endorsed projections, including in terms of what *other* sources of imagining and engaging an unknown future the models are being run up against in various everyday and public discourses, practices, and settings.

Conversely, within cultural and media studies, attention has been paid in particular to the rise of a new 'apocalyptic imaginary' in Euro-American public culture, as symbols and metaphors of future catastrophe, doom, and planetary destructions have come to circulate via news reporting, science fiction movies, literature, and contemporary art (Lowe et al., 2006; Weingart et al., 2007; Gabrys & Yusoff, 2012). Here, empirical analyses provide important suggestions on how climate change comes to be imaginatively constructed, through processes and strategies that mix scientific rhetoric, mass media frames, policy story-lines, and aesthetic repertoires. For instance, disaster movies such as *The Day after Tomorrow* may serve to sensitize publics to the possibilities of tipping points and abrupt climatic changes, but may also create difficulties for people in distinguishing science facts from dramatized fiction (Lowe et al., 2006: 451f). Similarly, ambivalences of scientific legitimacy is one key factor in how large-scale environmental non-governmental organizations (NGOs), such as Greenpeace, has sought over the years to visually convey alarming images of climate change to local and transnational publics (Doyle, 2007). Such insights, however, are yet to be synthesized within an encompassing conceptual framework on the variable public mediations of climatic futures.

In sum, the argument advanced in the present article is that we need new conceptual and empirical approaches for researching the increasing saturation of public everyday life by a variety of long-term climatic futures, and to specify their different aesthetic-experiential qualities and political affordances. Doing so requires building on important but so far largely unrelated work manifested within and across science and technology studies (STS), cultural and media studies, and studies into the localized politics of public climate engagement. The work of Ulrich Beck on endangered and cosmopolitized futures in world risk society, I argue, provide important inspiration for such cross-readings – even as this work itself so far manifests as a collective research agenda rather than a fully convincing demonstration (Beck et al., 2013). Hence, I suggest, what is needed is an attempt to ground Beck's epochal claims in more situated inquiries into the way long-term climatic imaginations are currently transforming our public culture of temporality and futurity.

In what follows, I thus seek to unpack this agenda further, conceptually and empirically. First, invoking the work of Knorr Cetina (2009), I provide a more micro-sociological conceptual footing on which to base Beck's claims as to how climate risks come to be staged within situated public life. In a second step, I then mobilize this vocabulary – of synthetic situations and scoping devices – in

analysing, with more experiential detail, the political aesthetics of how various climatic futures were circulated for public engagement during the COP15 event in 2009.

Scoping devices: political aesthetics of climate change

As noted, like other analysts, Beck's (2010) sociological diagnosis acknowledges that the dominant discourse of climate politics remains so far expert and elitist, in that the voices and views of citizens and communities are often absent from public view. Indeed, the science-dependency of climate risks helps explain this situation, as does the fact that dominant institutions tend to frame everyday engagements with climate change along reductionist social-scientific and policy schemes of 'behavioural change' and 'instrumental attitudes' (Asdal and Marres, 2014). To some extent, however, deep-seated dualisms active also within the more interpretive social sciences – including those of local versus global, lay versus scientific knowledges, publics versus elites – may inadvertently stand in the way of more fruitful inquiry. In some cases, analysts are led to question whether it is "even possible to speak of climate change in relation to daily life" (Brace and Geoghegan, 2011: 296), given its seemingly incompatible temporal and spatial scales vis-à-vis climate science. What this argument overlooks, however, is the way disjunctive temporal frames and imaginative registers come to be entangled in specific localities.

To counter such dualist tendencies, I argue, we need to adopt a more symmetrical approach to the world- and future-building efforts and capacities of different social actors, engaging climate risks across a range of inter-media and multi-scalar public settings. In this context, one promising route ahead, I suggest, is to follow Karin Knorr Cetina (2009) in her attempt to reconstruct symbolic interactionism for a global world of 'synthetic situations', constituted around layered socio-technical infrastructures of information and visibility. Genuinely globalized social forms, Knorr Cetina argues (ibid.: 62), run on micro-social principles. Her own favourite example is electronic financial markets, which rely for their global working on extremely dense forms of face-to-screen micro-arrangements that absorbs almost all interactions in the system. In less pronounced form, however, this argument about globally extended interactional situations as constituted by 'on-screen' media projections seem valid and interesting in the climatic domain as well.

What Knorr Cetina's approach suggests, in brief, is to pay close attention to climatic 'scoping devices' – including the various electronic media that constitute worlds of Internet, television, cinema, science exhibitions, and installation art – as instruments for visualizing future climates. Scoping devices, as the etymology suggests, are instruments for seeing and observing (ibid.: 64). Sometimes, as with climate models, such devices may become part of entire scopic systems, as assemblages of hardware, software, and human inputs that together enable the collecting, augmenting, and continued projection of specific realities. As Knorr Cetina points out (ibid.: 69), when scopic systems are systematically used, they exert 'world-making' effects; this, I would argue, is what has been happening with scientific climate models and their attendant endangered futures. Conceptually opening up these models in terms of scoping devices, then, will enable us to place their effects, in more nuanced ways, into conversation with *other* means of staging climate risks across public realms.

It bears noting that framing the question of endangered futures in terms of scoping devices entail no downplaying of the importance of scientific models to the social realities of climate change. Rather, Knorr Cetina's concept allows us to avoid *separating* science from society, and to artificially cut off scientific climate models from their widely distributed and socio-technical life-support infrastructures. In other words, sensitized by STS debates, the cross-cutting notion of scoping devices neither underestimates the power of scientific models – as is easily the case when phenomenologists subordinate them to a 'pre-scientific' life-world (e.g. Ingold, 1993; Brace and Geoghegan, 2011) – nor overestimates their effects, as if positing

their smooth displacement through the social by virtue of an assumed universality, used to measure the extent of public 'ignorance' (Jasanoff, 2010).

According to Knorr Cetina (2009: 69ff), synthetic situations, that is, situations characterized by the dense presence of scoping devices, have certain shared interactional features. First, synthetic situations are densely *informational*: this kind of situation is a composite of information bits, carried by texts, numbers, pictures, figures or graphs, typically coming from many diverse contexts around the world. Second, such situations are *ontologically fluid*, in that they need continuous updating to remain 'live' and relevant; hence, they carry a time index, implying issues of acceleration and feedbacks. Third, globalized synthetic situations may constitute specific *objects* as new symbolic interaction partners for participants: just as 'the market' acquires an embodied reality to financial traders engaged in face-to-screen interaction, people may engage – by way of various scoping devices – 'the global climate' as a novel quasi-tangible entity conforming to its own principles.

One final aspect of Knorr Cetina's analysis particularly salient in this context is her suggestion that global synthetic situations imply some form of *time transaction*, in the sense of a continuous projection of the future (ibid.: 79ff). Time transactions are engagements in which a future outcome is situationally linked to a present commitment. As such, it reverses usual temporal orderings: rather than moving towards an open future, the present borrows intentions and concerns from a specified future coming towards it.[4] With time transactions, one is stuck in a time envelope, implying some kind of 'fatefulness': a sense of heightened significance, shared fate, and chancy consequences, tied to experiences of temporal dislocation.

[4] According to Bruno Latour (2015), this is exactly the future-oriented temporality implied by the notion of 'the Anthropocene'. Pursuing this issue is beyond the scope of the present article. Even more than Beck's, it seems to me, Latour's 'planet-centric' diagnosis stands in need of being situated within everyday public temporal frames and experiences.

Again, this kind of time transaction is easily recognizable from financial markets (and, indeed, from the casino gamblers studied by Goffman). But it seems analytically fruitful to think about time transactions and fatefulness also as ways of relating to climate change, including the long-term future time envelopes carried by this phenomenon.

Whereas Knorr Cetina deploys synthetic situations to rethink interactionist theory for a global world, I invoke the concept here primarily as a tool to rethink a globalized world of climatic risks on micro-sociological footings. What her conceptual refinements allow, I argue, is to simultaneously rethink the social reality of climate change – in terms of scoping devices, informational media, ontological fluidity, and time transactions – and, further, to suggest everyday interactional situations as salient entry points for inquiring into transformations of our public culture of temporality and futurity, due to denser and more ubiquitous climatic scoping devices. While Knorr Cetina (ibid.: 83) is right to suggest that global forms, like climate change, imply the presence of infrastructures in specific domains such as science and markets, her notion of the synthetic situation allows us also to think *across* such boundaries, by noting important inter-organizational entanglements of science, arts, and mass media in the climate change domain (cf. Gabrys and Yusoff, 2012).

In attending to this space in-between science and public culture, it is important to specify that we are not dealing with 'mere' surface appearances, distracting from the 'real' and underlying issues of climate risks. Instead, what is at stake in synthetic situations is the circumscription of a space of the political aesthetics of climate change. As Yusoff aptly summarizes (2010: 79), to Jacques Rancière, political aesthetics denotes "a delimitation of spaces and times, of the visible and the invisible, of speech and noise, that simultaneously determines the place and stakes of politics as a form of experience". On this view, political identification and conflict ultimately revolves around what is seen and what can be said about it, or in other words

around what Rancière (2004) dubs the 'distribution of the sensible'. Here, political power is shaped consequentially by a range of public-aesthetic practices, by collective ways of "configuring the sensible texture of the community" (Rancière 2009: 8).

By implication, in the climatic domain, aesthetic forms can be said to distribute and redistribute perception in ways that shape basic political sensibilities, antagonisms, and senses of imagined community, through various ways of doing and making climate risks publicly (in)visible. More specifically, following Rancière's reinterpretation of the notion of aesthetics (2009: 3), aesthetic experiences in the true sense always entail a certain perturbation, a dissonance or 'dissensus', between established modes of perception ('sense' as sensation) and modes of knowing ('sense' as sense-making). Aesthetics, then, refers here neither to 'the beautiful' nor to the sense-perceptible as such, but rather to the singularity of an experience of redistribution or re-figuration in forms of visibility and intelligibility (ibid.: 5). Thus specified, it becomes clear why attending to aesthetic forms and experiences may serve to delineate a space for possible imaginative and political openings, in terms of how publics engage with the endangered futures of global climatic risk.

Modalities of climate witnessing: empirical explorations

In what follows, I engage in a preliminary mapping exercise, in trying to identify key formats of climatic scoping devices currently circulating in public life, and to explore their affective, experiential, and political qualities. This exercise relies, as noted, on forms of auto-ethnographic observation in the urban spaces of Copenhagen during the 'intense situation' of the city's hosting of the UN COP15 climate change conference in December of 2009. During this two-week 'cosmopolitan event' (Beck, 2010: 260), tens of thousands of diplomats, politicians, scientists, and activists of climate change, visiting from all over the world, turned the city into a public laboratory for the staging and exploration of hopeful, risky, contested, and endangered futures. Across multiple locations in the city, public engagements with climate change was encouraged through ubiquitous inter-media events, spanning local-global interconnections and involving dense informational layers of 'live' text, screen, and model enactments that would project various kinds of short- and long-term futures.

In methodological terms, I seek to take advantage of the way my personal engagement with the COP15 event afforded a wide range of diverse experiences with climatic scoping devices and their in-situ public affordances. In this context, a formalized role as UN-approved 'academic observer' gave me legitimate access not only to official negotiation spaces (figure 2), but also to various non-governmental and alternative public events. This privileged role was conferred on me, upon application, via my status as researcher in a local university, forming part of UN outreach activities without entailing specific obligations on my part. At the same time, my everyday identity as concerned citizen meant that I participated intensely in street demonstrations, art exhibitions, and casual conversations with strangers on climate change throughout the period. If we consider the COP15 event as an amorphous socio-material world, circumstances thus permitted me forms of inclusive membership in this world, in ways conducive to those sustained and relational self-observations that form the backbone of auto-ethnographic studies (Anderson, 2006).

Figure 2: The author posing upon entering the official negotiation venue of COP15 for the first time (author's own photo).

Throughout, my object of analysis is not the COP15 event as such, in terms of its power-laden geography (see Maclin, 2010); nor do I attempt to elucidate public attitudes in any representative way. Rather, by textually weaving together locales and situations in ways that reflect my in-situ navigational practices, I follow auto-ethnographic convention (Ellis et al., 2011) in deploying my own personal experiences during the event as a privileged means to inquire into public encounters with endangered climatic futures. Given the publicly shared yet 'object-centered' (Knorr Cetina 1997) way in which I encounter these futures, via inter-media events, my own embodied experiences as researcher-cum-citizen arguably provides an indispensable vantage point into these synthetic situations. However, in the language of Leon Anderson (2006: 374), my auto-ethnographic approach seeks less an 'evocative' than an 'analytical' effect. In other words, my presence in the text is less a matter of conveying and eliciting subjective feelings, and more a matter of translating such first-person affective and embodied experiences into a conceptual exploration, by taking my own experiences as exemplary of important forms and variations in scoping devices and aesthetic registers currently in public circulation.

Pluripotent models: aesthetics of global loss

Moving through the media-augmented spaces of Copenhagen during COP15, one was immediately reminded of the importance of techno-scientific model projections as constituting *the* core of our current public culture and political aesthetics of climate futures. Far from a singular and unified reality, however, scientific models and their informational products were publicly enacted across Copenhagen settings in a number of ways, giving rise to a range of different inter-actional features and experiential affordances. Scientific climate models, it became clear to me during my auto-ethnography, are aesthetically and politically 'pluripotent' forms, in ways not fully conveyed in the literature. Like Michel Callon (2009: 543), I use the word pluripotent here in analogy to stem cell differentiation, to convey the sense in which climate models may take on various experiential shapes, depending on their circumstances and trajectories of specification. By paying attention to such diversity, together with the scoping devices that sustain public enactments, I believe I gained a more nuanced sense of the public culture of futurity at stake in climate politics.

If we imagine this along a continuum, one extreme was made up of those model enactments which, using a generic expression, we may call 'global standardization'. Visiting the National Oceanic and Atmospheric Administration's (NOAA) exhibition space in the publicly accessible part of the official negotiation venue, for instance, visitors like me were invited to play around with an interactive 'digi-

tal globe' (Yusoff, 2009: 1012ff), build around a few key variables of biophysical reality. By selecting a variable – temperature, wind currents, sea-level rise etc. – a series of animated future projections would run across the three-dimensional high-tech model globe (figure 3). The data sources as such, let alone the algorithms used for their deployment, would remain invisible to the user. In its basic features, then, this NOAA scoping device may be said to resemble the way General Circulation Models (GCMs) have been routinely, and often critically, portrayed in the sociology of techno-science: as enacting an abstract, homogenized, and standardized view of the world, with little attention to any kind of meaningful socio-cultural or political context. Still, as a public device, such enactments carry other noteworthy affordances.

Figure 3: Demonstration of NOAA's Science on a Sphere model globe during COP15. Photo: Annette Greenfort, Dansk InfoDesign.

First, as pointed out by Jasanoff (2010: 236) and others in STS, climate model enactments like that of NOAA give priority to, and serve to entrench, a *global* scale of visualization, perception, and identification. In such contexts, to the extent that humans enter the model at all, they show up only via statistical aggregates of population and economic growth rates. While critics may lament such 'reductions', to some extent at least, the resultant global view should be seen as being *enabled*, in the first place, by abstracting from any specific spherical view of the lived-in world (Ingold, 1993). Indeed, a planetary frame of reference was so deeply entrenched in the models, graphs, figures, tables, and installations on projected climatic futures circulating all over COP15 as to become almost unnoticeable to me. As such, the event became symptomatic of how forms of 'banal globalism' (Urry and Szerszynski, 2002) have long since become part of the symbolic repertoires of Euro-American public culture, inviting new ways of imagining oneself in global perspective.

Second, and crucial in this context, the NOAA model as well as the vast majority of scientific projections on display during the COP15 event tended also to enact and prescribe a particular view of temporality. Watching the animations projected on the three-dimensional NOAA screen, one was invited to experience the future in a long-term, linear, and gradualist manner: biophysical patterns would be easily discernible, as they played themselves out in quasi-orderly fashion. As pointed out by Szerszynski (2010: 19), amongst others, such enactments come at the expense of non-linear and more abrupt climatic futures, few of which were on display during COP15.[5] As such, ideas of techno-scientific prediction and control may be said to express themselves in model enactments, even as the futures on display are themselves risky. Moreover, linear and controllable futures were routinely deployed during COP15 alongside various cli-

[5] It is worth noting, in this context, that practices and enactments of 'tipping points' – which by now indeed more often trouble easy ideas of linear futures – was simply not very visible to me, in empirical terms, during the 2009 COP15 event. This suggests that their coming into public view is of later origin, tied perhaps also to the 'Anthropocene' notion. I leave this point for further inquiry.

mate techniques, from solar power to carbon sequestration, as means of 'closing the gap' between business-as-usual endangered futures and hopeful visions of a sustainable planet. As part of the side-events running alongside COP15 negotiations, for instance, one non-governmental projection would show how three percent of Sahara covered by solar energy panels would be enough to supply electricity to the nine billion inhabitants of planet Earth in 2050.

In many ways, these features of the modeled digital globe – of an entrenched, abstract, and linearly controllable global futurity – emerged during COP15 as the symbolic markers of a dominant elite political aesthetics of climate change, seemingly shared by scientists, policy-makers, and (most) professional environmental NGOs. However, as noted, moving across these spaces also sensitized me to quite different enactments, possibly more transgressive, stemming from models as climatic scoping devices. Hence, if global standardization marks one end of an experiential continuum, the other is one of the 'mathematical sublime' (cf. Yusoff, 2009: 1021). This latter form belongs to the realm of visual media, offering up an imagination of the warming planet that – by virtue of its sheer quantitative and physical magnitude – point to inadequacies in our ordinary sensibilities and thus possibly challenge and dislocate conventional categories of intelligibility.

During the days of the COP15 event, the publics of Copenhagen enjoyed ample opportunities for engaging in such potentially transformative experiences, manifested in various visions of excessive and irreversible loss. Such visions were made possible by inter-media events, at once scientific, digital, aesthetic and political, and most readily hosted, in my experience, by local institutions placed at the fringes of official UN activity. For instance, at science museum exhibitions open to the general public, and organized in collaboration with local universities, model digital globes not unlike that of NOAA would be put into dialogue with other visual media, offering up denser scopic situations that served to connect up future sea ice melting to images of disappearing islands, human displacements, droughts and coral reef loss. Similarly, the giant globe set up at Copenhagen town hall square – interactively translating expressed acts of citizen commitment to carbon reductions into visual displays of 'greening' the planet – would draw on related experiential registers, albeit here mobilized in the projection of more hopeful futures (figure 4).

Figure 4: The so-called Hopenhagen Globe, established on Town Hall Square during the COP15 event. Photo: Jens Dresling.

Overall, what is striking about such high-tech enactments is their sense of temporalization: compressed into minutes (or even seconds), they allow for the visualization of long-term processes of dramatic transformations at the planetary scale. The effect, it seemed to me, is something like a three-dimensional movie in fast-forward mode; except the movie would be a documentary coming from some far-away future. Implicitly, this serves to gesture towards a limit-point of shared fate: as Yusoff (2009: 1021f) reminds us, once catastrophic disaster hits, there will be no data and no models to run. Compared to inscriptions of global standardization and linearly

controllable futures, then, these mathematically sublime visions of loss and hope brought us into the time envelopes of fatefulness of which Knorr Cetina (2009) speaks.

By setting up the mathematical sublime as counter-point to global standardization, one may get the impression that I am simply redoing classic distinctions between the aesthetic and the scientific, art and science. The point of talking about a continuum, however, is exactly to avoid this misleading conclusion: what were put on display during COP15 were inter-media events, at once scientific, aesthetic and political, albeit in different mixtures. In short, what my experiences at this event made clear is that, considered as scoping devices, climate models hover in an as-yet only poorly identified and pluripotent socio-political terrain, falling in-between established institutional and stylistic boundaries. New genres of 'science faction' are emerging, part techno-science and part apocalyptic mythology (Gabrys and Yusoff, 2012), each distributing the visible and the invisible in specific ways. As such, climatic models have the capacity to exert a range of affective effects on political sensibilities, as they rework the culture and politics of temporality by way of engaging publics in various novel time transactions with endangered futures.

Embodying futurity, vicarious sensing

While the identification of scientific climate models as pluripotent scoping devices allows for a more grounded and more engaging sense of how models are currently reworking our public culture of temporality, they still share a certain ambiguity when it comes to the experiential positions thereby afforded. Put bluntly, beyond some sense of 'humanity' as a possibly parasitic collective presence on planet Earth, digital globes remain abstract in their reference to any socially meaningful worlds of identity and belonging. During COP15, this type of interactional translation, it seemed to me, was left mostly to the public audiences addressed by the models.

To express this in the language of Tim Ingold (1993): 'globes', such as model projections, are perceived from *outside in*; whereas the 'spheres' of social life are perceived from *within*, in the rhythms of inhabitation and dwelling. While I believe Ingold makes too much of this phenomenological split, hardening it into ontology, he is still right in pointing to a particular difficulty in public engagements with climate change: how, we should ask, are we ever going to attain anything resembling a spherical view of our *future* climatic predicament? When engaging with long-term futurity, are we not – by definition – in a position of externality, a position of looking from the outside in, locked as we are in the extension of the present?

My experiences during COP15 led me to believe that this is exactly where the collective 'shock' of climate change is currently spurring the greatest amount of social and aesthetic creativity, as multiple actors seek to overcome usual limitations in temporal embodiment through new forms of scoping devices. Through loosely coordinated interventions and events, activists, designers, film-makers, and artists would use COP15 as a space for experimenting with novel ways of *embodying* futurity, so to speak, by enabling forms of vicarious future-sensing. Depending on media and context, such scoping devices carry different experiential and interactional qualities, allowing for different social affects. What they share, however, is the attempt at staging a particular time envelope, within which the fatefulness of climate change can come to be viscerally experienced by a public.

While making no claim to exhaustiveness, my auto-ethnographic navigation through Copenhagen led me to identify three main devices of vicarious future-sensing – all more-or-less commonplace, although seldom discussed together. To underline the point about embodiment and visceral immersion, I invoke recent work on the 'affective turn' (McCormack, 2008) in order to associate each device with certain affective atmospheres with varying intensities of fatefulness. In my own experience, the examples I provide roughly move from extensity to intensity, although much will of course depend on the social situation at hand.

First, during COP15 the polar bear – this icon of global warming – became a ubiquitous invitation to vicarious future-sensing: this charismatic non-human messenger from the melting Arctic served to publicly index a sense of embodied future loss. When invoked by Greenpeace and other activists, for instance, images of polar bears drifting on broken sea ice effected a sense of nostalgia on the part of a familiar, wild, and spectacular Nature likely about to disappear. Much as some of us may be sceptical of such Euro-American nature romanticism, the fact remained that polar bears represent here an icon of 'significant otherness'. As part of archives of biodiversity, polar bears engage people into a time envelope where nostalgia is borrowed, so to speak, from the future – and where the animal figure as such works as a pledge towards that future. This is how we may read the fact that, during street demonstrations, many people would dress up in polar bear costumes or wear polar bear masks, thus engaging their own bodies into displays of fatefulness. The way public culture archives and processes future loss, through image devices such as polar bears, thus formed an important part of the COP15 political aesthetics.

Second, a new genre of visualization seems to emerge in the context of climate change – one that we may dub 'future eye-witnessing', a register widely encountered during COP15. For one thing, this is fast becoming familiar from globally circulating mass media images, such as those of Manhattan covered in catastrophic floods, with only the tip of the statue of liberty showing. Other instances of future eye-witnessing, however, carry more interesting temporal effects, where an imagined future disaster serves to project backwards, as it were, a sense of fateful choices in the present. One case in point here is the 'proto-documentary' movie *The Age of Stupid*, which premiered in 700 cities worldwide in September 2009, coordinated as part of the activist run-up to the Copenhagen summit. In the film we witness, through the eyes of a post-apocalypse archivist in the year 2055, how people back in 2007 were capable of shutting their eyes to the pending disaster. An imagined time envelope is thereby staged, opening up a space for critical (self-)reflection.

Third, within the domain of contemporary art as more narrowly conceived, artists are experimenting with novel forms of more full-bodily immersion into imagined climatic futures – through various ways of materializing future projections into present everyday reality (Gabrys and Yusoff, 2012: 11ff). Such types of inter-media events were intensely on display – or rather, 'on feel' – during COP15 days in Copenhagen, when city dwellers and wanderers were invited to experience their urban spaces through multiple simultaneous temporalities. One simple artwork (my own favourite) would show a clearly marked blue line on the ground, seemingly running chaotically and haphazardly through the urban jungle of Copenhagen pavements (figure 5). Upon closer inspection, the urban dweller would realize that this line marked a division between flooded and non-flooded areas in a projected 2050 city overcome by Greenlandic ice melt and sea level rises. The interplay here between visibility and invisibility, present and future, embodiment and disembodiment, indeed made for a potentially dislocating intervention in otherwise dominant political aesthetics.

Figure 5: Blue line running through the urban spaces of Copenhagen, as part of the public artwork Water knows no walls. Copyright: Haubitz + Zoche.

These time-space specific auto-ethnographic vignettes, in sum, are meant to sensitize us to, and to illustrate, what I suggest are potentially broader and more consequential transformations in the public culture of temporality and futurity, as manifested in the domain of globalized climatic risks. Such transformations involve the invention, via acts of social and aesthetic creativity, of various new registers of vicarious future-sensing, manifesting themselves in inter-media climatic scoping devices. In different ways, such devices enact forms of fateful time envelopes, in which present experiences and interactions borrow affective atmospheres – of loss, nostalgia, fear, surprise, hope – from the future. As such, they carry the potential for experiencing links between future climatic outcomes and present everyday commitments: in the synthetic situation, climatic predicaments may carry a sense of heightened significance, shared fate, and risky choices in the present.

While such forms of vicarious future-sensing are distinct from digital model globes, it is important to stress that the two domains are not altogether disconnected, either, as Ingold's analytics (1993) misleadingly suggests. Rather than setting up ontological divides, we can think of various mixtures and gradients of 'globe-spheres', enacting a simultaneity of (quasi-)bodily spherical immersion and senses of global attachment. One example here would be to imagine a comprehensive computer simulation, allowing its user, through the vicarious device of an avatar, to explore worlds under different future climatic scenarios. Alternately, we might imagine the full-scale material construction of 'second life' atmospheres – on the model, for instance, of the Biosphere 2 project in Arizona – allowing for visceral experiences of various simulated climates. To the best of my knowledge, none of these globe-spheres were on display during COP15 days, nor do they quite exist yet. However, it seems reasonable to predict that they will in a not-too-distant future.

Conclusion: towards alternative climatic futures?

In this article, I engage and largely affirm a key temporal claim found in Ulrich Beck's theorizing of world risk society, to the effect that a range of collectivities are presently being re-imagined through the anticipation of endangered futures. Taking the imaginative politics of climate change as a key site of such ongoing changes, I seek at the same time to overcome Beck's tendency to historical and institutional abstraction, by distinguishing more carefully among those affective-aesthetic registers which condition the way risky climatic futures come to be situationally staged in public-political life. Such a grounding entails theoretical moves. Here, I combine Karin Knorr Cetina's (2009) notion of scoping devices with attention to what Kathryn Yusoff (2010), following Jacques Rancière (2004), calls the political aesthetics of climate change. Inquiring into climatic scoping devices, I suggest, raises important questions as to how contemporary risk societies delimits a space, in-between science and public culture, for contesting dominant modes of (in-)visibility around long-term endangered futures and thus possibly redistributing political sensibilities.

In empirical terms, I draw on auto-ethnographic observations during the intensely 'climatized' situation of the COP15 summit in Copenhagen in 2009 in order to map out important climatic scoping devices circulating in public culture, and to specify their experiential, affective, and political affordances. Part of what this means, I suggest, is to relocate STS attention away from the socio-political construction of scientific future-making and onto the inter-media events in which scientific data and projections participate in variable ways with the wider socio-cultural and political world. While scientific models remain important climatic scoping devices, my empirical analysis pays equal attention to the devices and interventions currently instantiated in social worlds of activists, film-makers, artists, and concerned publics. Such an approach, I argue, allows us to distil how new registers of 'vicarious future-sensing' are currently emerging vis-à-vis climate change, in ways that foster novel forms of (qua-

si-)embodied experiences that link future climatic outcomes and present social commitments through affective atmospheres of loss, nostalgia, fear, surprise and hope. As inter-media events, such devices are at once scientific, aesthetic and political, partaking to a reconfiguration of imagined communities.

On this concluding note, then, I concur with Beck in suggesting that what we are presently witnessing, across situated public engagements with climate change, potentially adds up to a substantial transformation in the public culture and politics of temporality in Euro-American societies (and possibly beyond). However, in the face of persistent inadequacies in local and global climate politics, this conclusion must be tempered: cosmopolitization, as Beck also notes (Beck and Levy, 2013: 11f), entails new forms of competition and conflict amongst multiple future visions and horizons, none of which go unchallenged. Hence, one important issue for further inquiry will be to ask how, where, and when the endangered futures of climate change interfere with, reconfigure, or become subordinate to the kinds of long-term futures projected, notably, by macroeconomic notions of 'unlimited growth', or evaporate in the short-term deadlines of 'networked' capitalism (cf. Guyer, 2007)? To what extent, in short, will new future-oriented public climatic imaginations and sensibilities shape up into local and transnational political change (cf. Beck et al., 2013)?

Answering such questions about alternative climatic futures, I believe, is as yet premature; and the COP15 event itself, as we know, proved disappointing and ambivalent at best. A wide gap remains between climate change as a 'formal' and a 'practicing' future-laden fact; and at the level of everyday practices, responses of acceptance, denial, resignation, and action are likely to continue to intermingle for some time. Instead, what the preceding discussion does, I hope, is to help pose the relevant questions, in order to overcome some of the analytical and political blind-spots imposed by the current dominance of globally standardized climate models, and the way these enact abstract forms of controllable long-term futurity. Such a political aesthetics, I suggest, stand in the way of other, more public, more embodied, more affective, and more fateful ways of enacting climate change and endangered futures. As I have attempted to show, the sources of alternative visions and dislocations are already in public circulation; what needs to happen is for their creative and socially generative capacities to be recognized and furthered.

STS and the wider social sciences may play an important part in this process – but only under specific conditions. In line with Beck's 'cosmopolitan vision' (2006), analysts need to reorient their own knowledge-claims towards a risky and open-ended future, whose contours is already becoming a ubiquitous part of the present. In doing so, they should eschew the deterministic language of scenarios and probabilities; instead, social scientists may respond to an already foreseeable future in sensible, creative, and publicly embedded ways, oriented towards the articulation of alternative and cosmopolitized possibilities. After all, as Isabelle Stengers points out (2002: 245), "hope is the difference between *probability* and *possibility*".

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