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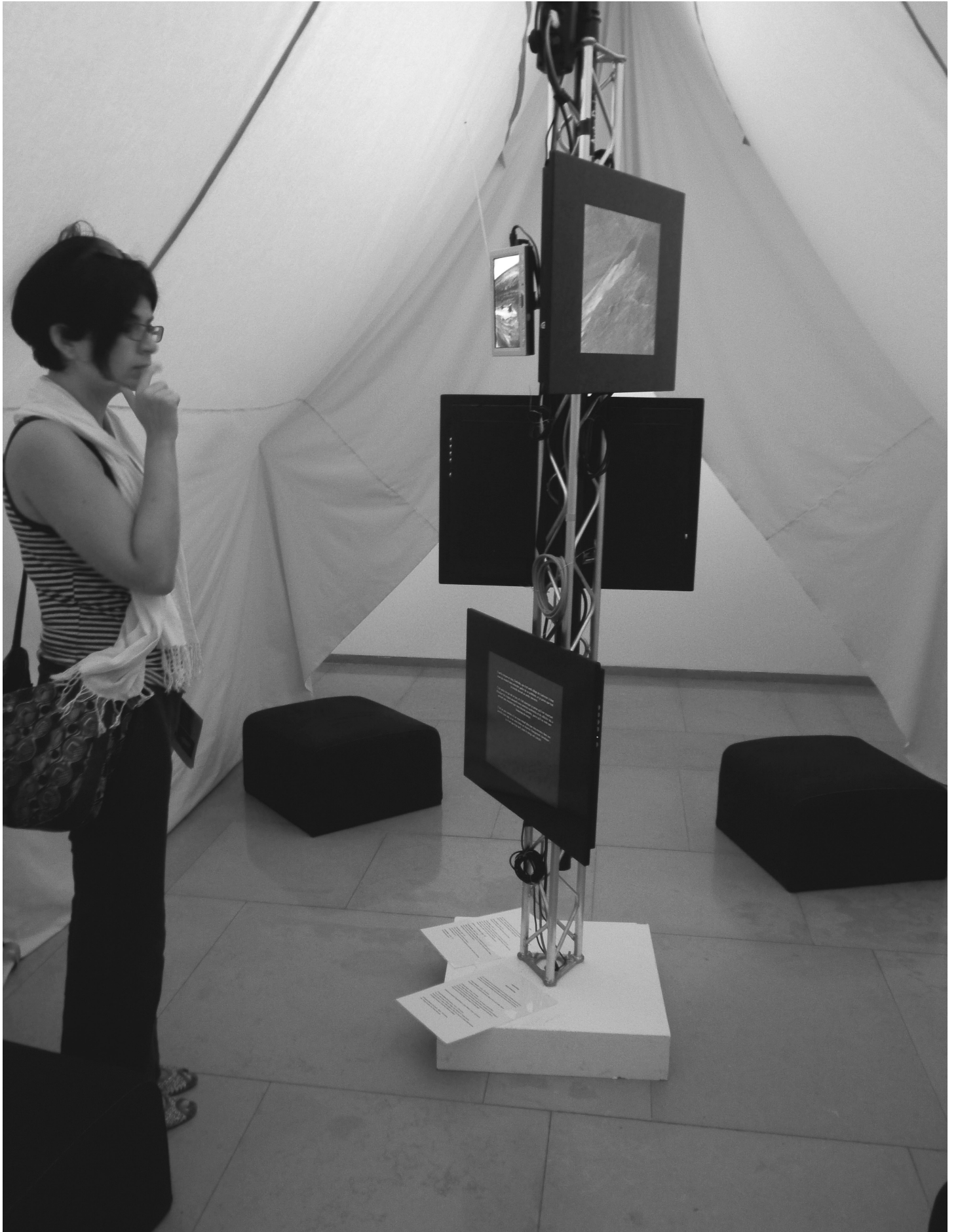


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# Representing, Performing and Mitigating Climate Change in Contemporary Art Practice

Gabriella Giannachi

It is important to begin this analysis of how artists have chosen to engage with climate change by gauging the complexity of some of the terms utilized here. I shall begin by revisiting the term *nature* itself. It has often been said that nature must be interpreted within the parameters of culture and that nature is part of culture [1]. It has also been said that nature is an “independent domain of intrinsic value, truth or authenticity” [2] and that it would be more useful to look at nature as process, leading to “co-produced nature-cultures” [3]. Elsewhere, Nigel Stewart and I have been claiming that nature “can only be appropriated by means of performance” [4] and that this encounter with nature needs to be studied in terms of performativity. Nature itself is, of course, a contested term, implying a “materiality” (as in “rock, ocean, biota” or “atmosphere”), a “process” (as with “causality, evolution or ‘life itself’”) and a signification (e.g. “Eden”) [5]. Anthropologist Tim Ingold captures well nature’s paradoxical position in a diagram showing nature twice: as part of culture (what he calls “culturally perceived” nature) and as part of nature (what he calls “really natural” nature), thus visualizing the notion that culture and nature “presuppose each other” [6]. In this article I refer to nature as both the environment in which we live and a complex cultural construction, including its data and genetically and technologically modified “natures” [7], and explore how, in a number of the artworks discussed, the two are, paradoxically, tied to one another.

While artists have dealt with the growing realization that our climate is changing in different ways, it is noticeable that, among the types of works analyzed in this article, artists have tended to adopt one or more of three strategies:

1. Representations—emphasizing visualization and communication
2. Performance environments—emphasizing immersion and experience
3. Interventions—emphasizing mitigation and behavioral change.

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**Article Frontispiece.** Andrea Polli, *Sonic Antarctica in (In) Habitable*, 2009, @rt Outsiders Festival at the Maison Européenne de la Photographie (Museum of Photography), Paris, France. (© Andrea Polli)

While, with a growing number of artworks and exhibitions in this field, a working taxonomy will always be partial, I propose here that each of these strategies has so far led to important and efficacious works and that each of them is of aesthetic, social and political value. I start by looking at two bodies of work that embrace all three of the listed strategies.

Cape Farewell, an organization aiming to communicate the realities of climate change within the artistic and educational contexts, tends to generate work belonging to the first category, although, as an organization, it also operates through the other two categories. Its primary objective is the communication of climate change through art (hence the title of their world-touring exhibition *Art and Climate Change [2006–]*), which they achieve by organizing expeditions (emphasizing experience) (Fig. 1) intended to encourage interdisciplinary debate on climate change and to affect artists so that they may create inspiring work on this topic (emphasizing behavioral change). The organization states as its mission “to develop the production of art founded in scientific research,” “by exposing artists to the world’s climate tipping points” and incorporating scientific collaboration into artistic practice [8]. The first expeditions, to the Spitzbergen archipelago north of Norway in the Arctic Ocean, included artists from different media, oceanographers, ecologists, teachers and environmentalists working with the brief to “come to the Arctic, engage with scientists and, we hope, be inspired to make art” [9]. As is characteristic of a number of projects in this field, the group produced publications, a film and an education packet, including a new school module called “Extreme Environments.”

Among the most interesting works generated through Cape Farewell was Antony Gormley’s *Marker 1* (2005), an imposing ice statue with human contours, which brought together in one image the causes and effects of climate change [10]. The statue, which stood on the frozen sea of the fjord until it melted the following spring, was finally reclaimed by the sea. This fragility, of discourse as well as of nature, also characterizes David Buckland’s video *Sinking Ice* (2004), showing the top of an iceberg hanging precariously over the ocean and finally sinking into it. The video, playing on the notion of the sublime, was watched, according to Julian Knebusch, for over 40 minutes by a number of visitors to the Cape Farewell touring exhibition, almost as if they were waiting for the accident—

## ABSTRACT

Over the last quarter-century, an increasing number of artists have been variously engaging the public in artworks addressing the anthropogenic phenomenon known as climate change. Focusing specifically on works developed in the fields of visual arts, performance and new media, and on a body of theory attempting to distinguish between terms such as *nature*, *landscape*, *weather*, *climate* and *environment*, this article aims to offer an exploration of how these works, by adopting, often concurrently, three strategies—representation, performance and mitigation—affect our understanding of our changing relationship to nature and climate.



Fig. 1. Dan Harvey sailing through sea ice on the Blossville Coast, Greenland. (Photo: Kathy Barber. © Cape Farewell.)

and the catharsis it offered to the tragedy of climate change—to happen (2008). Another significant work was Gormley's *Three Made Places* (2005) (Fig. 2), developed in collaboration with architect Peter Clegg, consisting of three spatial forms carved in ice, each representing different aspects of the human body's relationship to the world: material, conscious and communal. While all works brought together, at a representational level, dichotomous and controversial aspects of climate change communication, Gormley's collaboration with Clegg was particularly interesting because it attempted to visualize the problematics of human dwelling itself within the context of a changing climate, thus constituting a poignant reminder that a change in climate will directly affect not only *where* but also *who* or even *what* we are within nature.

Other examples of work engaging with climate change spanning all three of the above categories have been curated by the German art collective artcircolo. The group, consisting of artists, technologists, curators and scientists, has worked for a number of years specifically on the theme of water, developing transdisciplinary research, talks involving the general public, commercial products and artworks. Like Cape Farewell, artcircolo curator Serafine Lindemann organizes expeditions to immerse the team in environments affected by climate change (Fig. 3). As in the case of Cape Farewell, this aspect of the work is not open to the general public and comprises teams formed by artists, scientists and cura-

tors. Past expeditions have led artcircolo and its collaborators to Iceland, Turkey and the Alps (in Italy, Austria and Germany). The exhibitions included artists from Spain, the Netherlands, Thailand and Cuba and included work developed locally but also involved collaborations with curators from other countries. Unlike Cape Farewell, artcircolo adopted business methodologies to develop new

products that respond to climate change, such as Peter Trautwein's future-oriented water fountain, *Quellsystems*, which generates drinking water. Among its public engagement works are an environmental office (presented at Ars Electronica 2007) exhibiting works that discuss the consequences of climate change, and *Defroster* (Transmediale 2009), in which a transdisciplinary team formed by artists, technologists and scientists, including myself, discussed future-oriented artistic concepts and strategies aimed at sensitizing the public to the impact of paradigmatic changes in our environment and society. As can be seen by this breadth of work, artcircolo's aim is to operate both within discourse—affecting our cultural constructions of nature—and within the environment, by producing artwork and products that effect behavioral change.

Participants in events curated by artcircolo are often encouraged to consider their behavior and to imagine change. This was particularly noticeable in work developed as part of their collaboration with Dutch artist Wapke Feenstra, who often transforms spectators into participants by asking them to reflect about local histories in an attempt to tie particular environments to the socioeconomic conditions that generated them. Other works aimed at producing behavioral change include Cuban artist René Francisco's *Agua Benita* (2007) (Fig. 4), in

Fig. 2. Antony Gormley and Peter Clegg, *Three Made Places*, 2005. (© Cape Farewell)





Fig. 3. artcircolo expedition to Turkey, 2007. (Photo © Serafine Lindemann, artcircolo kunstprojekt)

which he rebuilt the roof of the house of Benita Rivera, an elderly woman living in Cuba. The project included the repair of the roof, the destruction of the old roof, the building of waterways around the ceiling leading water to cisterns, the installation of a pump drawing water from the cistern to the kitchen and the bathroom, the installation of a filter in the kitchen, and the installation of a washing machine and a drying line. Other examples of works curated by artcircolo are German sound artist Kalle Laar's *Calling the Glacier* (2007) (Fig. 5), an interactive installation that allowed people who dialed a given telephone number to listen live to the sound of a melting glacier, and Icelandic artist Rúri's gigantic video projections showing waterfalls in Iceland, such as *Tortími/Fall—Passage* (2009), in which a metal framework supports a very long photograph of a waterfall on a roll, the end of which continually disappears into a machine to symbolize how waterfalls are vanishing from the Icelandic landscape. As is typical for artists curated by artcircolo, both Laar and Rúri's works focus on water, and both attempt to sonify and visualize the unfolding of environmental catastrophe. Laar's work, which broadcasts a live phenomenon,

succeeds in bringing a remote occurrence close by, thus also dealing with one of the biggest difficulties in climate change communication: the rendering of something occurring over time, often in remote environments, to diverse and distributed audiences. Moreover, both works were developed in direct collaboration with technologists and scientists. Interestingly, Ludwig Brawn, glaciologist and scientific director of the Commission for Glaciology at Bavaria's Academy of Science and Humanities in Munich, who was involved in the work, noted that Rúri's moving images of animals displaced by a flooding river affected the way in which he subsequently thought of the consequences of climate change as a scientist [11].

Other examples of artworks belonging to the first category—art that facilitates communication on climate change—include dystopian works, often using shock, such as Petko Dourmana's *Post Global Warming Survival Kit* (2008), an interactive multimedia installation consisting of a two-channel projection showing infrared images of the North Sea as a post-apocalyptic landscape that the observer can only see using a night-vision device. Another work belonging to this

category is Chris Bodle's *The Watermarks Project* (2009), a public art project visualizing the effects of climate change on the British coastline through a series of large-scale "flood marks" showing potential future high-water levels projected onto the facades of buildings across Bristol. Likewise, Nuage Vert's *HeHe* (2008), which is based on the idea that public spaces could embody ecological projects, consisted of a city-scale light installation visualizing a major icon of industrial pollution—a cloud generated by a coal-burning power plant in Helsinki, Finland.

As can be seen from these examples, a number of works utilizing this strategy aim to raise awareness by drawing attention to the dystopian future that climate change is generating. To achieve this, they often utilize what have become known as icons of climate change, such as glaciers, polar bears and images of flooding and industrial pollution. While all these works variously engage the public in what climate change may mean to different communities around the globe, often utilizing icons of climate change in shocking ways, they tend to be grounded in representation and privilege visualization over a haptic, multi-sensory and performative experience.



Fig. 4. René Francisco, *Agua Benita*, 2007. (© Serafine Lindemann, artcircolo kunstprojekt)

Examples of work belonging to the second category—art facilitating the experience of climate change—are numerous and often adopt performance strategies, as we have seen with artcircolo and Cape Farewell, to generate immersive environments, so that climate change may be experienced directly as well as analyzed.

A work spanning the first and second categories, and thus including representational and performative elements, is Andrea Polli's powerful *Sonic Antarctica* project (2007–) (Article Frontispiece), a radio broadcast, live performance and sound and visual installation featuring recordings of the Antarctic soundscape made during Polli's 7-week National Science Foundation residency in Antarctica. The work features natural and industrial field recordings, geosonifications and audifications, interviews with weather and climate scientists and soundscape compositions. Crucially, Polli draws attention to one of the most important aspects of interdisciplinary work addressing climate change, namely, the *translational* work involved in presenting data to the public within an artistic context. Thus she notes that there is a variety of visualization tools with which to interpret data from meteorological models, but the data do not describe visual information, so “translating meteorological data to sound could emphasize aspects of the data not apparent in visualizations, allowing meteorologists to detect new patterns and structures, particularly those that unfold over time.” She states:

Through an effective sonification, data interpreted as sound can communicate emotional content or feeling, and I believe an emotional connection with data could serve as a memory aid and increase the human understanding of the forces at work behind the data.

Moreover, she remarks, whereas weather models are increasingly detailed, weather forecasting remains an “imprecise science” that does not reveal much about “how the weather feels to a person experiencing it, precisely the information the public wants” [12].

To address these translational concerns effectively, her storm sonification project *Atmospherics/Weather Works* (2001–) (Color Plate D No. 2) had three primary goals: the development of a software system for the sonification of storm data to be used in performances and installations; the production of live and recorded musical performances; and the generation of a web site for the presentation and distribution of the recordings, including an interactive interface for listening to the sonifications. Through these combined means, Polli has been able to generate evocative and compelling works that operate as representations—effectively communicating climate change by translating data—as well as events, since the sonifications are reconstituted as performances and installations that allow for an immersive, multi-sensory experience.

The third strategy entails works that encourage behavioral change. While all art may generate some level of change, these works operate by producing change in a particular community as part of the work. We have already seen how Francisco's *Agua Benita* generated a new environment for one individual. Another example of work directly effecting change in a local community is Gustaff H. Iskandar's *Babakan Asih Water Story* (Fig. 6). The work took place in the southern part of Bandung, Indonesia, in an area formerly known as Blok Tempe, a center noted for the production of tempeh. Iskandar reports that the area is strategically located near the center of economic activity in Bandung [13]. For 10 years, the area, which is prone to flooding, had been involved in an environmental preservation

Fig. 5. Kalle Laar, *Calling the Glacier*, 2007. (© Serafine Lindemann, artcircolo kunstprojekt)



program, which, after 2008, was further developed through a collaboration with the Common Room Networks Foundation (known as the Common Room).

This collaboration consisted of a discussion group that aimed to improve the ecological condition of Bandung (Fig. 7) and produced a project, Sustainable Bandung, which had as its goal to “utilise knowledge and technology in order to enhance creativity and innovation among civil society” [14]. The project was conceived of interdisciplinarily and included artists, designers, architects and urban planners as well as the local community, involving the Common Room, PT Urbane, F.A.B. and Otonomedia to address how climate change was affecting the area. Through the project, the local community developed GPS maps to identify the location and “geographical contour” of their neighborhood in order to design a well system that could prevent flooding in the area. This hybrid work entailed research, community work, the development of a new ecology and an artwork, operating ecologically, environmentally and aesthetically to effect change.

Another example of an artist working to effect behavioral change is that of architect Uzman Haque, whose team utilizes “interaction research, wearable computing, mobile connectivity, people-centred design, contextual awareness, RFID systems and ubiquitous computing” to “alter our understanding of space and change the way we relate to each other,” proposing an architecture that is liquid, dynamic, adaptive and responsive. Among their numerous important projects is *Natural Fuse* (2008–), which “harnesses the carbon-sinking capabilities of plants to create a city-wide network of electronically assisted plants that act both as energy providers and as shared ‘carbon sink.’” Another project by Haque in this area is *Siphonophora* (2008), developed in collaboration with Robert Davis of the Psychology Department at Goldsmiths College London. This work consists of a collection of small reactive devices that float on a lake, tracking light, temperature, audio and other aspects of the lake’s ecosystem. The team is researching how to enable the devices to evolve their behavior “organically in response to specific site conditions, including the local bird population, insects in and around the water and human interaction from visitors who come to see it from the existing bird hide” [15].

A number of technology-driven collaborations known as “citizen science” projects [16] have started to involve the



Fig. 6. Gustaff H. Iskandar, *Babakan Asih Water Story*, 2009. Local community development program at Babakan Asih neighborhood, Bandung, West Java, Indonesia. (© Gustaff H. Iskandar/Common Room Networks Foundation. Photo courtesy Common Room Archive 2009.)

public in collecting scientific measurements. For example, Common Sense was a collaboration between Intel Research, the City of Berkeley, the University of California at Berkeley and the City of San Francisco, among others, to put air-quality sensing systems on the municipal fleet of street sweepers to collect street-by-street air-quality readings. Interestingly, the team found that to make environmental sensing “useful for practical action,” more than data collection alone is necessary—information artifacts need to be presented that are “credible,” “appealing” and “personally relevant” [17]. Likewise, the citizen science project Participatory Urbanism explored a way of measuring, sharing and discussing air quality and other environmental data using mobile devices, in order to allow citizens “to act as agents of change” [18]. Another project that involved scientists, artists and the public was Futuresonic’s experiment *Climate Bubbles* (2009), developed for the 2009 Manchester Festival by Drew Hemment in collaboration with Carlo Buontempo, senior scientist at the Met Office Hadley Centre for Climate Prediction and Research (MOHC) as a test bed for a larger mass-participatory experiment within the framework of the Open Air Laboratories (OPAL) U.K. survey on climate [19]. The work encouraged participants to become involved in two types of measurements using bubbles (Fig. 8) to test air circula-

tion to get a snapshot of the urban heat island phenomenon, which makes cities warmer than their surrounding environments. The two activities were a Bubble Chase, measuring wind direction, and a Bubble Race, measuring wind speed. The project also had an interactive web site.

As noted by Bruno Latour, contemporary environmental problems are “hybrid” and involve both nature and culture [20]. Culture therefore is not only a means to represent, perform and understand nature but also a way of changing nature. Likewise, nature is a fundamental axis for cultural change. A change in nature is a change in culture. This is evident in the operations of a number of the artworks discussed above. To understand what this means more precisely, I return to Ingold and his definition of nature. For him nature is not opposed to landscape—although it is not the same either—and neither is it space, but rather “it is the world as it is known to those that dwell therein, who inhabit its places and journey along the paths connecting them” [21]. This is evident in Gormley’s evocative *Three Made Places*, in which the consequences of what occurs on the grounds we dwell on are visualized on the surface of the terrain, which is vanishing precisely because of our dwelling. Engaging audiences to think about the environment as a nature-culture hybrid encourages them to reflect about their own dwelling, about the interconnecting



Fig. 7. Gustaff H. Iskandar, *Babakan Asih Water Story*, 2009. Local community development program at Babakan Asih neighborhood, Bandung, West Java, Indonesia. (© Gustaff H. Iskandar/Common Room Networks Foundation. Photo courtesy Common Room Archive 2009.)

paths between *who* we are, *where* we are and *what* will become of us.

Ingold claims that tasks “are the constitutive acts of dwelling,” and “every task takes its meaning from its position within an ensemble of tasks, performed in series or in parallel, and usually by many people working together” [22]. A taskscape, for him, is constituted by the ensemble of tasks, seen in their “mutual interlocking,” defining both technical and social activity, a process not only of activity but of interactivity [23]. Thus, if a taskscape is the site wherein our dwelling is technically and socially constructed, and our dwelling manifests itself in the landscapes we construct, then the taskscape becomes an effective means to change our dwelling, our “nature.” The use of a taskscape as an artistic process, as is evident, for example, in Francisco’s *Agua Benita* and Iskandar’s *Babakan Asih Water Story*, which use performance as a task to effect environmental change, then becomes a direct engagement, or, to use Ingold’s words, a “mutual interlocking” between humans and their environment. Environment here is not only seen but is experienced as process and encountered in its performance—with the participants, in the case of *Babakan Asih Water Story*, generating societal change.

The choice of utilizing expeditions as a way to engage with climate change, particularly expeditions to the poles, such as those of Cape Farewell, or isolated

locations, such as those by *artcircolo*, is in itself significant. As shown by Lisa Bloom and Elena Glasberg, not only are the polar regions, once “constructed under the sign of the sublime, the heroic, or as the excess (or wastelands) of the global system” and “now crucial to the resurgence and eruption of territorial empire,” they are also “the site where catastrophic climate change is the most visible,” and artists such as Laar or Polli

are literally, as Bloom and Glasberg state with respect to a different group of artists who also worked in these regions, “creating evidence of climate change” [24]. It is important, in this respect, to pause to reflect on the word *climate* itself. Julian Knebusch introduced a framework for “climate” that situates it in terms of phenomenological research as part of landscape, feeling and atmosphere [25]. Knebusch cites Gernot Böhme, who introduces an analogy between weather and landscape [26], and Knebusch argues that, just as landscape expresses the human construction of nature, climate indicates a subject’s viewpoint, thus constituting a “multidimensional phenomenon in which are combined the contributions of nature, culture, history and geography, but also the imaginary and the symbolic” [27]. What is interesting here is that Knebusch discusses the distinction between landscape and climate, which, he claims, generate two similar but distinctive views of the same phenomenon. Whereas landscape (according to Ingold) expresses the world as it is known by those who dwell within it, climate expresses not so much its meteorological equivalent, the weather, which indicates the present condition of a given climate (e.g. temperature, precipitation and wind), but rather the conjunction of historical, cultural, physical and geographical factors, including temperature, humidity, atmospheric pressure, wind, rainfall and atmospheric particle count, among others. Thus, whereas weather is of the here and now, climate indicates an average weather and its

Fig. 8. FutureEverything, *Climate Bubbles*, 2009. (Photo © Jan Dixon and Emily Dixon | WeAreTAFE.com. Photo courtesy Drew Hemment.)





variations over a period of time. A number of the works cited above, such as, for example, artcircolo's environmental office, juxtapose scientific evidence of climate change generated over time, such as Braun's records of the Vernagtferner in the Ötztal Alps, for example, with an artwork, Laar's *Calling the Glacier*, capturing, for maximum impact, the event unfolding live.

We have seen how in order to address climate, and its encompassing of cultural and physical factors, some of the most interesting works in this area utilize interdisciplinary methodologies, usually drawing from art and science. This has often generated aesthetically hybrid works. A number of artworks focus on localized weather phenomena as a way to present a broader comment on our changing climate. This means that artists have often developed techniques for looking at a particular phenomenon both in the here and now and over time. Furthermore, a number of works have simultaneously offered insight into climate change as a "natural" phenomenon (occurring in nature) and a "cultural" one (generated by and modifiable through cultural behavior). This has frequently led to the simultaneous presentation of climate change in nature and in culture, which has required a repositioning of the viewer from spectator to participant, thinker, citizen scientist or even activist. Finally, a number of intertextual and intermedial forms are often utilized concurrently, pairing, for example, modernist uses of "shock" with romantic notions of the "sublime" and postmodernist discourses on trace and erasure. Some of the artists privilege representation, others generate performance environments and a few aim to effect behavioral change, at either an individual or a community level. A number of works utilize these strategies concurrently to provoke instinctive reactions and encourage analysis.

Reflecting on the work of The Climate Project (TCP), Buontempo noted that their strategies can be read in conjunction with those discussed by Nassim Nicholas Taleb in *The Black Swan* (2007), where he describes two systems: (1) "the experiential" and (2) "the cognitive," in which emotions fall within the former. System 1, for Taleb, is "effortless, automatic, fast, opaque (we don't know that we are using it)" and constitutes an "intuition." System 2, on the other hand, is what we call "thinking." It is "slow, logical, serial, progressive, and self-aware." Mistakes, Taleb notes, occur when we use System 1 when in fact we should

use System 2 [28]. Buontempo suggests that to make decisions on scales (both spatial and temporal) that we cannot grasp directly, as is necessary in climate analysis, we need to switch off our emotional reaction and relay to the cognitive system, bringing into play System 2. The best way to bridge the gap, for him, in order to then communicate findings to the public, is to identify a narrative that is understood by System 1 in an instinctive way but can also convey the results obtained by System 2 while offering the opportunity for further analysis and debate. This, he states, is what TCP, among others, aims to do in order to communicate climate change. This is also what some of the artworks described in this article are able to realize [29]. In light of Buontempo's reflections on Taleb's systems, I hypothesize that System 1 is useful in presenting nature as an experience, while System 2 allows us to think about it. By juxtaposing Systems 1 and 2 through the identified strategies, a number of the artworks described in this article are able to capture attention and produce strong instinctive reactions while also being informative and generating important and possibly impactful debates on one of the most controversial and yet pressing imperatives of our time.

#### Acknowledgments

I gratefully acknowledge the RCUK-funded Horizon Digital Economy Research Institute. I also thank Nick Kaye for feedback on this article and Carlo Buontempo for engaging me in ideas that heavily influenced its writing; and Serafine Lindemann, Vicky Long, Drew Hemment, Kalle Laar, Andrea Polli and Gustaff H. Iskandar for discussing their work with me.

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Manuscript received 21 June 2010.

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