Sensing the Anthropocene: the Permanent Ice in Contemporary Art

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In the time between the first Arctic ice recordings in the 1970s and today, forty percent of the Arctic's ice area has vanished.[1] Human greenhouse gas emissions explain this alarming trend.[2] The dire consequences of Arctic ice shrinkage are clear considering the important roles ice plays in different aspects of the Earth's ecosystem. Among its many roles, Arctic ice cools the climate by reflecting sunlight, forms a habitat for humans and animals, and stores the vast majority of the Earth's fresh water. The disappearance of this natural biome not only leads to what is commonly referred to as the "climate crisis," but also to social and political crisis.

Philosopher Bruno Latour criticizes the phrase "climate crisis" and argues that the word "crisis" misleadingly indicates that climate change is something humanity can endure and leave behind. Climate change, he writes, may once have been merely a crisis, but due to humanity's lack of response to it, this crisis has become an "alteration of our relation to the world."[3] For Latour, humanity must not merely tackle climate change, but more broadly change the way it perceives and behaves toward nature. Latour states that due to the assumption that there is a normative model of nature that can be consulted in times of crisis, discussion about climate change is dominated by facts. Facts deriving from natural laws, for Latour, convey the impression that we are looking at the problem from the outside as detached observers. Such detachment, he writes, does not

[1] Wadhams, *A Farewell to the Ice*, 1.
[2] *Id.*, 52.
[3] Latour, *Facing Gaia*, 8.

move humans toward action.[4] Latour therefore sees a need to raise awareness of environmental processes through something that "touches our hearts," thus making humans sensitive to and moved by the environment.[5]

Informed by Latour's assumption that affect must be added to the climate debate, this article will investigate the potential of artworks to engage people at this level. As a way of pointing to the grave ecological, social and political problems that result from the vanishing of permanent ice, environmental artists have turned to ice as an ephemeral medium capable of shifting in aggregation state. In this article, I will study four ice-based contemporary art responses to climate crisis, installations which function as intermediaries between the consequences of human agency and humans themselves. More than through scientific reports and media coverage, ice-based art allows for an immediate understanding of climate change through multisensory engagement.

The first work that I will analyze is *The Taste of Discovery* (2009) by Mathias Kessler. This immersive installation is experienced in part through sensation of temperature. The work partly consists of a room cooled to -20°C room containing pictures of Arctic icebergs photographed at night. In the second and third work that I will analyze, sound takes center stage. Katie Paterson's sound installations *Langjökull, Snæfellsjökull, Solheimajökull* (2007) and *Vatnajökull (the sound of)* (2007/08) primarily address the viewer's acoustic sense, transforming the materiality and sound of four different Icelandic glaciers into intimate sound artworks. Lastly, I will examine Olafur Eliasson's installation *Ice Watch*, which addresses the viewer's sense of touch. Eliasson places twelve blocks of arctic ice harvested in Greenland in three different city centers. Passers-by are allowed to touch the ice blocks, decreasing the distance between themselves and the polar environment. The four works I will discuss are particularly relevant to the question of the future of the permanent ice because they not only include features of ice that appeal to multiple human senses, but also touch

[4] *Id.*, 49.
[5] *Ibid.*

upon social problems that are connected to the disappearance of glacial ice.

To approach the multisensory qualities of these works, my analysis will make use of Arnold Berleant's theory of aesthetic perception and sensibility and Simon O'Sullivan's account of affect theory. Guided by the frameworks offered by Berleant and O'Sullivan, my objective is to show that by appealing to more than just the visual sense, ice installations have a great potential to influence people's understanding of the climate crisis and their relationship with nature. I aim to demonstrate that the sense-centered characteristics of ice installations can increase public understanding of the problem that led to climate change — namely, human agency — and can make its threat to our world more comprehensible. I am primarily interested how contemporary artists use and portray the materiality of permanent ice, as well as how its multi-sensory experience can create an aesthetic field that allows for discussions about climate change and, more generally, about humans' impact on nature.

Ice as a Medium

The rising temperatures and increased melting of permanent ice observed in recent decades is not a result of environmental events predating industrial times, but specifically a result of human pollution of the Earth's climate since the start of the Industrial Revolution.[6] Since the early nineteenth century, human actions like concrete construction have resulted in CO_2 emissions with measurable adverse effects on the Earth on topographical, biological and chemical levels.[7] This leads chemist Paul Crutzen to coin the term "Anthropocene," describing the geological epoch that discloses human activity as the primary force shaping the Earth's geology. The climatic and geological changes caused by human activity can be observed by the archival aspect of permanent ice, which shows a steady increase in carbon dioxide and methane emissions since the late eighteenth century.[8] Contemporary transformations of permanent ice are amongst these implications. Studying the positive

[6] Zalasiewicz et al., "The new world of the Anthropocene," 2229.
[7] *Ibid.*
[8] Crutzen, "Geology of mankind," 23.

feedback loop of rising temperatures, arctic scientist Peter Wadhams comes to the conclusion that anthropogenic climate change will not cause another ice age.[9] On the contrary, it would prevent a future ice age from happening if the Earth's orbit were to return to the position it occupied in the time before the Holocene glacial retreat.[10] Ice, therefore, plays an important role in assessing the extent of anthropogenic environmental damage because, on the one hand, in its ice layers it stores information about the concentration of chemicals in the atmosphere, and on the other, as a fragile ecosystem it is endangered itself. This dual function means that ice serves as an ideal medium for artistic response to the Anthropocene and its climate changing processes.

The material qualities of ice are intrinsically tied to the climate. Because of its bright white color, ice reflects sunlight and cools down the earth. Furthermore, ice possesses dynamic features, characteristics that demonstrate its agency. Ice moves and ice floats. Most importantly for the Earth's climate, ice, alternately freezing and melting, is constantly in flux. It acts upon and is acted upon by outside influences that provoke it to change phase. This entangled movement is what Latour calls "agency:"

> [W]e encounter, ... an agent which gains its name of "subject" because he or she might be subjected to the vagaries, bad humor, emotions, reactions, and even revenge of another agent, who also gains its quality of "subject" because it is also subjected to his or her action. ... To be a subject is not to act autonomously in front of an objective background, but to share agency with other subjects that have also lost their autonomy.[11]

Humans cannot call themselves the only subjects or agents because their agency influences the environment and provokes dynamic

[9] This bold assumption is supported by Andrew J. Weaver and Claude Hillaire-Marcel (2004) who argue that anthropogenic climate change will lead to a shut-down of Atlantic meridional overturning circulation that works as a cooling of the Earth by transporting warm water to the sea ice.
[10] Wadhams, *A Farewell to the Ice*, 44-45.
[11] Latour, "Agency in the Time of the Anthropocene," 5.

reaction. As human agency triggers changes in glacial ice and these changes in turn influence the human subject, it is necessary to acknowledge nature's agency.

Permanent ice should not only be seen as a material, the changing aggregation which visualizes the implications of climate change, but also as a medium that tells about the social and environmental context in which the ice is situated. Recognizing weather and atmosphere as media, Janine Randerson remarks, allows climatic conditions to be understood as central to and determinative of — rather than simply a background for — human life.[12] Understood as a form of media, ice again demonstrates its agency. In that the body always senses temperature, the coolness of ice connects humans to their environments and makes apparent their bodily dependency on the climate. According to Desiree Förster, it is possible to sensuously perceive the factors leading to the processual emergence of climate.[13] Ice lends itself well to such sensuous perception. One's being located in a glacial environment, for example, makes it possible to observe changes in ice and the influences of these changes on one's human body. These observations make comprehensible the circumstances that lead to the particular composition of one's environment — for example, the causal relation between rising temperatures and the vanishing of ice — and in this, the entanglement of humans and nature.

Permanent Ice in Contemporary Art

In contemporary art, the vulnerability of permanent ice in the Anthropocene is often approached through installations that call for multi-sensory perception. These approaches invite us to consider the link between sensory experience and aesthetics. According to Arnold Berleant, who has studied this link, the etymology of aesthetics shows its intrinsic relation to sensuous experience: the term "aesthetics" stems from the Greek words *aisthetikos* meaning "of or for perception by the senses" and *aisthanesthai* meaning "to perceive, to feel."[14] Berleant uses this definition to identify two ways of understanding a work of art: "As an art object it is the product of

[12] Randerson, *Weather as Medium, Toward a Meteorological Art*, xvii.
[13] Förster, *Aesthetic Experience of Metabolic Processes*, 81.
[14] Berleant, *Sensibility and Senses*, 20.

some activity; it is something made. As an aesthetic object, it is the object as it works in perception."[15] Aesthetic experience of a work of art is not defined by the constructed nature of the work, but can be understood as a directed perception of a situation capturing human attention.[16] To describe this attentive perception, Berleant uses the word "sensibility," which describes aesthetic experience as inherently conscious. That is to say, when humans perceive an object or a situation aesthetically, they do this with focused attention and high awareness of the object or situation they are looking at.[17]

According to Berleant, aesthetic perception is free of judgement, but not free of filters. As a result, any individual's aesthetic perception is shaped by cultural, political, and social influences.[18] Berleant remarks that these filters are what turn sensation into experience: While sensory perception is a neutral process in the human body, experience is mediated by pre-existing conceptions and makes meaning out of the perceived situation. Thus, he argues, meaningful experience must not be confused with physical sensation, which precedes it.[19] Berleant furthermore mentions the unique character of aesthetic experience in relation to other forms of experience such as the religious:

> [U]nlike the religious, it [the aesthetic] requires no myth or doctrine to explain and justify itself, nor does it lead us beyond to a different realm. The aesthetic is content to remain exactly what and where it is, and to elaborate skeins of memory, understanding, and especially of active and intense perceptual awareness on its own. In this sense, the aesthetic is self-sufficient and self-gratifying, and therefore, I believe, most authentic.[20]

[15] Berleant, "Aesthetic Sensibility," 6.
[16] Berleant, *Sensibility and Senses*, 22.
[17] Berleant, "Aesthetic Sensibility," 5.
[18] Berleant, *Sensibility and Senses*, 21-22.
[19] *Id.*, 27.
[20] *Id.*, 30.

Berleant makes clear that no beliefs or tools are requisite for aesthetic experience. This experience takes place without — but at the same time is always interpreted through — pre-existing knowledge and attitudes.

From this discussion of aesthetic experience arises the question how aesthetics relate to ethics. Emily Brady, engaging with the topic of aesthetic values, states that, "[t]he careful perceptual attention required and exercised in the experience of art may enable one to more carefully observe important features and detail in a complex moral problem."[21] She argues that through a practiced aesthetic perception that makes the perceiver attentive to the qualities of the object or situation, a better knowledge of the very object or situation can develop. From this knowledge can arise a ground for moral understanding, although there is no guaranteeing the direction in which such a moral understanding evolves, whether toward an object, situation, or environment.[22] If one's moral understanding evolves from cherishing a certain environment, Brady states, one will most likely make sure to care for the well-being of this environment.[23] Like Berleant, Brady accentuates the significance of multi-sensory engagement as a facilitator of aesthetic experience, mentioning the "penetrating" and memorable effect of aesthetic perception on its perceiver.[24]

Ice as Materiality

Because the aesthetic is a way of perceiving the world that goes beyond the apprehension of beauty, it can reconnect its perceivers with the environment that surrounds them, allowing them to relate to this environment not from the outside as neutral bystander, but as integral part of the ecosystem. The aesthetic does not take the form of graphs and numbers but of something perceivable by the senses. Simon O'Sullivan puts forward this understanding of the relationship between the human, the aesthetic, and the environment in his account of affect theory. Affect, according to O'Sullivan, is a

[21] Brady, "Aesthetics in Practice," 280.
[22] *Ibid.*
[23] Brady, "Aesthetics in Practice," 280.
[24] *Ibid.*

"reaction in/on the body at the level of matter,"[25] and therefore connects it primarily to humans' materiality. An affect is an impersonal reaction, as O'Sullivan describes it, because it is a way the human body responds to the materiality of its surrounding environment. In this, art does not represent a specific object, but rather initiates an effect on the human body that makes invisible entities sensible.[26] Melting ice materializes an ecosystem in transition. The artwork changes from being an object to being what Berleant calls an aesthetic field, a space that possesses its own agency.[27]

Thus, the first step for aesthetic perception of an environment has to be to attribute materiality to both the perceived environment and the perceiver. In the context of permanent ice, the materiality of the environment is as Petra Lange-Berndt phrases it: "materials are neither objects nor things."[28] Following Lange-Berndt, we can draw a distinction between ice as *object* and ice as *material*. Ice as object would be glacial ice as instrumentalized for political and economic purposes, ice that humans use for their own agenda. Ice as material, on the other hand, is pure ice itself: a nonhuman entity with its own agency.

To materialize permanent ice means to de-objectify it and acknowledge its material agency. As an agent, ice is not a mere carrier of information, but an inherent part of a changing environment. Monika Wagner states: "Material needs no longer to be understood as a detachable carrier for a form or an idea, but can be regarded as indissolubly interwoven with it."[29] In ice-based art installations, the visitor encounters ice as the natural material that it is: it is not a symbol, not a vehicle for meaning, and it cannot be *used* for any human ends.

[25] O'Sullivan, "The Aesthetics of Affect, " 126.
[26] *Id.*, 128-129.
[27] Berleant, *Sensibility and Senses*, 76.
[28] Lange-Berndt, "Introduction: How to be complicit with materials," 13.
[29] Wagner, "Material," 27.

Artist Mathias Kessler, for instance, departs from the ice as an object to contrast it with the ice as a material. The installation *The Taste of Discovery* (Fig. 1) originated from Kessler's expedition to the Arctic, where he took nocturnal pictures of icebergs. The installation is divided into two separate rooms. One is a cramped room in which visitors can experience the inside of an expedition cabin with all their senses. An electric generator produces a foul smell, deafening noise, suffocating warmth. This disagreeable space de-romanticizes the idea of an Arctic expedition. The second room of the installation is a freezing black box. The room has a temperature of approximately −20°C, which is maintained by the generator in the first room. In this room appears one of Kessler's iceberg photographs, separated from the viewer by a glass wall. On

Figure 1: Mathias Kessler, *The Taste of Discovery*, 2009, Photo © Mathias Kessler, 2009, installation view Kunsthalle Dornbirn

the floor behind the glass is water.[30] In Kessler's installation, permanent ice manifests itself materially not as photographed icebergs but as the water. By directly contrasting two states of aggregation through the photograph and the water, the vanishing aspect of permanent ice is accentuated. Kessler juxtaposes the Romantic sublime landscape with the reality of the vanishing material.

Kessler comments on Arctic expeditions that coincided with the era of Romanticism, a period when the British navy, in pursuit of new territories, sought a Northwest passage connecting the Atlantic and Pacific oceans.[31] Artworks of the time reflect the idea that it was heroic and patriotic to risk one's life for Arctic exploration. Alongside the landscape painting *The Sea of Ice* (1823-24) by Caspar David Friedrich, the "great painting" *The Icebergs* (1861) (Fig. 2) by Frederic Edwin Church is one of the most famous paintings from its time depicting the northern ice. Created from descriptions of the Arctic, the painting captures the magnitude and danger of the icebergs as well as the aesthetic and spiritual character of the scenery. The viewer is confronted with huge floating icebergs

Figure 2: Frederic Edwin Church, *The Icebergs*, 1861, oil on canvas, 163.83 cm x 285.75 cm, Dallas Museum of Art, gift of Norma and Lamar Hunt, 1979.28, Image Courtesy Dallas Museum of Art

[30] Kunstraum Dornbirn, "Mathias Kessler – The Taste of Discovery."
[31] Officer and Page, *A Fabulous Kingdom*, 63.

which hint at their even-greater underwater magnitude. The overwhelming character of their grandiosity is highlighted by the fading light of the afternoon sun and the mast in the foreground of the painting. An overturned ship points to the fate of many expeditioners that did not make their way back home, symbolizing man's powerlessness against the forces of the ice. This motif points to the risk explorers must take in order to achieve great things for their nations. It reflects the aesthetic concept of the "sublime," a typical motif in Romanticist paintings. Iain Boyd Whyte describes the sublime as an affect or experience: when confronted with a sublime landscape, the perceiver feels overwhelmed and threatened by the magnitude and force of nature.[32] Immanuel Kant states that the sublime leads the individual to feel superiority over the natural landscape, because even if the sublime thing threatens material life, the conscious soul is eternal.[33]

By the fact that he captured the iceberg photographs appearing in his installation while on his own Arctic expedition, Kessler refers to the sublime pursuit of the Arctic. He also refers to this pursuit through the form and content of the photographs themselves. They show pristine icebergs floating in dark water. Through this stark contrast, Kessler portrays the ice both as an aesthetic entity and a menacing imposition. With his installation Kessler does not attempt to replicate the Arctic sublime paintings of the nineteenth-century; rather, he is critical of Romantic depictions of nature, arguing that they are the source of our contemporary misguided understandings of nature:

> Think about Romantic landscape painting in the context of greenwashing. Think about mimesis and how artworks reproduced the world around us. ... Since then, I feel strongly that the idea of mimesis and abstraction have created a second world on the Internet, allowing us to slowly remove ourselves from the actual place in which we live.[34]

[32] Whyte, "The Sublime: An Introduction," 16.
[33] Kant, *Critique of the Power of Judgment,* 144.
[34] "A Conversation between David Ross and Mathias Kessler," 217.

Romanticized conceptions of nature, according to Kessler, make their way into the virtual realm where they create a world detached from its actual material conditions. In a way, Kessler's visual presentation of ice photographs in *The Taste of Discovery* refines Kant's notion of the sublime: instead of the eternal life of the conscious soul, it is virtual technology which represents human superiority over nature. In placing the iceberg photographs in close proximity to the cramped room containing an electric generator — the human world dominated by fossil fuels — Kessler reveals the environmental burden of the production of such pictures. This de-romanticizes the experience of Kessler's installation.

The two juxtaposed depictions of ice in the installation are based on the two different notions of ice. Firstly, in the photography, ice is displayed as a solid object that can be looked at from a distance. The ice is something to be marveled at by the human spectator, who takes a detached position. This is equivalent to the position people take when looking at catastrophic climate change scenarios as if they were not implicated, even though these scenarios are consequences of humanity's willful lack of response to the climate crisis. Secondly, in the installation's use of water, ice exhibits its materiality, its capacity to melt and otherwise change in response to outside influences. The transition from one aggregation state to another — solid to liquid — shows the material's agency. In portraying the different aggregation states of the ice in connection to human actions, *The Taste of Discovery* gives ice visual and material identities.

The human observer and the materiality of glacial ice are connected through the prevailing cold temperature in the room containing photographs of icebergs. The coldness of the room has an effect on the visitors' body. They start to experience ice not exclusively with their eyes but also partly with their bodies. Hairs begin to rise, muscles to contract and noses to run: the ice's immanent materiality influences the human body; thus, an aesthetic field develops wherein humans' experience of their own materiality fuses with their perception of an environment. This can be considered as an affect, as O'Sullivan describes it: an impersonal bodily reaction to the surrounding environment. Clearly, the affect arising from entering the cold room is based on an utterly

impersonal process: every human involuntarily responds to temperature with their matter. In stimulating a physiological response through the artwork, Kessler invokes affects that intertwine perception of the environment with the perception of one's own body. The artwork situates humans in an ecosystem — where Latour argues humanity must urgently see itself situated — and creates a bond between the two entities.

Acoustic and Visual Sensation

Unlike experiencing the physical materiality of ice, experiencing the sound of ice seems more difficult. While other natural phenomena like wind, fire, and water have a variety of specific and identifiable sounds, ice would seem limited in its noise-generating qualities. Ice makes a sound when it crushes under tension and makes some other sounds related to changes in its aggregation state, as when it melts into water or freezes from water. Other than that, ice is fairly quiet. In order to grasp sound, a special physical process is required. Sonic perception sets itself apart from the other senses in that, in addition to the perceiver and the perceived, it also includes the proximate environment into the interaction. Sound arises from the vibration of an entity which produces waves moving through space.[35] The characteristics of the milieu in which the sound is generated, therefore, have a great influence on the quality of the sound. But sound also connects humans and the environment in a non-auditory way, as Makis Solomos remarks. Due to the physical genesis of sound, humans are able to feel it.[36] Thus, sound is a trace of agency and constitutes agency's immersion in its environment. According to O'Sullivan's understanding of affect, to place one's corporeality into such a sound environment is to open up new worlds of reference.[37] Being affected by materialities allows for what O'Sullivan calls "resingularisation," the reconfiguring of our position in the world.[38] In other words, sensing ice on an auditory level helps to develop an understanding of the environment and to discern the place humans take up in the modification of the environment.

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[35] Solomos, "From Sound to Sound Space," 95-96.
[36] *Id.*, 99.
[37] O'Sullivan, The Aesthetics of Affect, 129-130.
[38] *Id.*, 129.

Katie Paterson's artwork *Langjökull, Snæfellsjökull, Solheimajökull* (Fig. 3) consists of three records that are made not out of vinyl but glacial ice water. During a residency in Iceland, Paterson recorded the sounds of three different glaciers melting and preserved their melted water. Subsequently, she froze the water again and pressed the resulting ice into three phonograph records, each with a track containing the recorded sound of their original melting. It takes the records an approximate duration of two hours to completely melt again. The artwork's short lifetime stresses the comparably fast progress with which permanent ice is now disappearing. Moreover, the unrepeatability of the record track reflects the uniqueness of its natural source; once the ice is gone, it is gone forever and only a digital testimony of its disappearance remains. The seeming assimilation of the artwork and the natural environment, however, also highlights their difference: the artwork can be played over and over again in the form of a video, but the source of the material and the sound — namely the arctic ice — cannot on the basis of current scientific knowledge be rehabilitated.

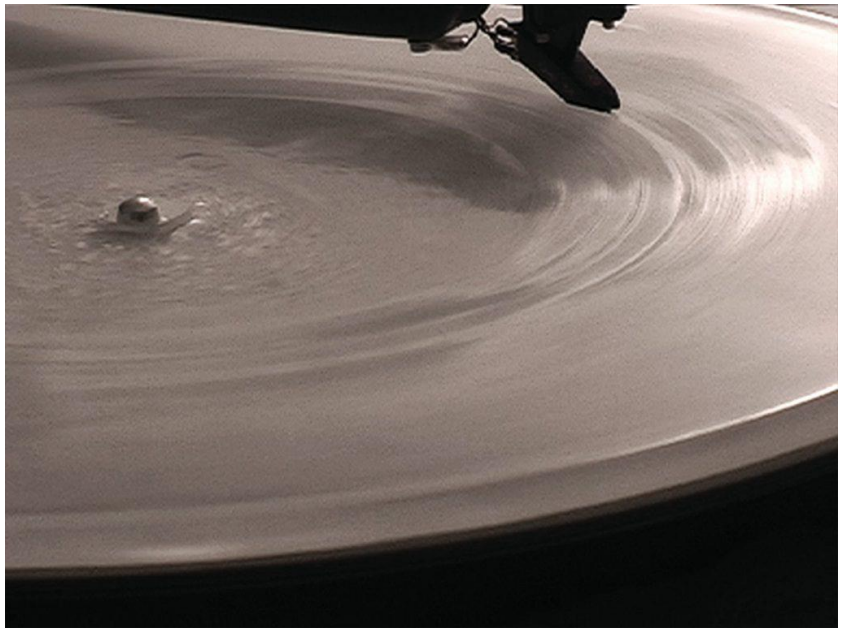

Figure 3: Katie Paterson, *Langjökull, Snæfellsjökull, Solheimajökul*l, 2007, Film Still

Paterson makes the many lives of permanent ice — ranging from its past materiality to its future negativity — accessible through the intimate medium of sound.

The sound installation aligns space with time as Paterson creates an aesthetic field in which space and materiality are experienced through time. This entanglement refers to the specific function of permanent ice as the Earth's archive. Every layer of the centuries-old ice provides information about climate conditions throughout history. The ice becomes a witness to human agency. As reports show, human agency can already be detected in the ice in the form of microplastics.[39] Paterson's records illustrate this inextricability of human time and Earth time, their spaces and their materiality, by recontextualizing vanishing ice within the human activity of listening to music on a phonograph record. As the artist explicates, her work is informed by an "understanding that we are not separate from the Universe, but are intrinsically linked."[40] As the time and space of the Arctic ice environment comes to an end, the time and space of humans will too, making the artwork an illustration of the Anthropocene and attempt at envisioning the direction in which Earth in the Anthropocene is headed.

In that sense, the artwork utilizes the absence of sound as a trigger of affect. The inevitable decay of the records ultimately results in silence. This draws attention to the silencing of the glacial environment brought about by climate change.[41] The silence Paterson's stages takes its gravity from the fact that it explicitly grows out of a sound. *Langjökull, Snæfellsjökull, Solheimajökull* not only visualizes and materializes the implications climate change has on permanent ice, but also gives it an acoustic form. Silence in Paterson's work, therefore, is not a meaningless void; it is the sequence of the art installation most pregnant with significance because it foreshadows the Earth's future.

[39] Kanhai et al., "Microplastics in sea ice and seawater," 1.
[40] Ball, "Artist of deep time," 457.
[41] McKinnon, "Dead Silence," 74.

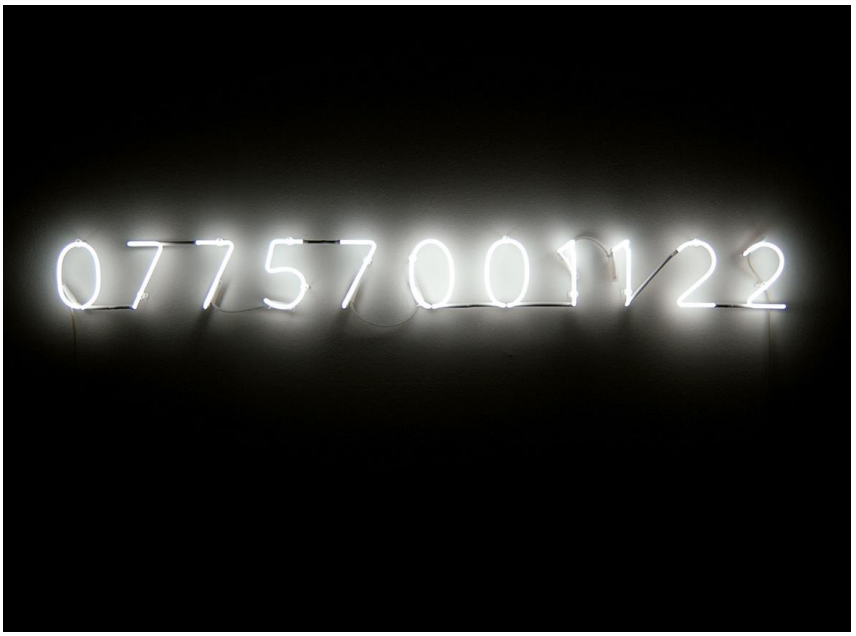

Figure 4: Katie Paterson, *Vatnajökull (the sound of)*, 2007/8, Photo © Katie Paterson, 2008, installation view, Modern Art Oxford

Paterson's sound installation establishes an intimate connection between humans and vanishing ice, yet the ice in this installation lacks agency and resists being known other than as an object to be observed. Paterson grants ice agency in her installation *Vatnajökull (the sound of)* (Fig. 4), which consists of a telephone number made out of neon lights on a wall. When calling this number, visitors were connected to a live phone line placed on the Icelandic glacier Vatnajökull. Though the telephone connection, the visitor could hear the glacier melt in real time. In this work, like *Langjökull, Snæfellsjökull, Solheimajökull*, the geological time of the glacier and human time are aligned.[42] The physical distance that lay between the human caller and the glacial environment is overcome, bringing close what is distant. The connecting phone line creates a space that for a moment of time is prepossessed by both parties of the call. The caller experiences sound in a familiar situation of intimate communication, a situation that brings with it particular expectations for conversational behavior. This makes it

[42] McKinnon, *Dead Silence*, 74.

possible to experience the ice as a dynamic entity on Earth equal to oneself. The caller hears the melting ice's dripping sound not as a melody to which they listen to, but as part of a conversation between two parties. The conversational situation of the phone call prompts a response. The glacier on the line not only elicits a literal response but also a metaphorical one: the environment calls on humans to respond to the climate crisis.

Multi-sensory interaction

Having demonstrated the potential of contemporary art to visualize the materiality and agency of ice, I will turn to an ice installation by the artist Olafur Eliasson. This work offers a further possibility for sensory experience of ice: engaging the viewer's sense of touch. In 2014, Eliasson worked with geologist Minik Rosing to develop the installation *Ice Watch* (Fig. 5). This installation was a response to the Intergovernmental Panel on Climate Change's publication of the *Fifth Assessment Report on Climate Change*. *Ice Watch* consist of twelve large ice blocks placed for exhibition not in museums or galleries but outdoor public spaces in Copenhagen, London, and Paris. Viewers freely approach and experience the ice blocks

Figure 5: Olafur Eliasson and Minik Rosing, *Ice Watch*, 2018, bankside, outside Tate Modern, London, Photo © Justin Sutcliffe, 2018

without a formal exhibition framing. Although the installation is conceived as an answer to the IPCC report, this is not made explicit on site. In this, Eliasson creates a space for aesthetic experience informed principally not by the artist's own interpretation of his own work, but the viewer's physical sensations and affects.

That said, Eliasson and Rosing construct the installation in a way as to intervene in the climate debate. In a prominent public location in the city of its installation, the twelve blocks of ice are arranged to form a circle, as if each one was a number on a clock face. The blocks, which were found freely floating in a fjord in Greenland, together weigh 80 tons, the same amount of ice that melts in the Arctic every millisecond.[43] Through the visual representation of a clock and artwork's ongoing melting process, Eliasson and Rosing imply that time is running out to prevent further environmental damage. Furthermore, the placement of the ice in the city shows that the atmosphere that humans create — whether it is climatic or political — is threatening the environment. The artwork becomes a call for action, predominantly one directed at people of power because of its temporal overlap with the publication of the IPCC report. In addition to a clock face, Eliasson calls the circular composition a "parliament,"[44] a name which indicates the importance of human political involvement in responding to the climate crisis and the ice's own agency that makes us aware of this crisis.

The work visualizes and materializes the ice' agency: its melting process. The visitors are encouraged to touch the work and thereby come into direct physical contact with the melting ice. Eliasson breaks with the habit of displaying art at a distance, where guards customarily supervise gallery and museum visitors and ensure that they keep a distance from the art and remain merely spectators rather than participants. Rather, Eliasson and Rosing's ice blocks immersively engage the humans who wander amongst them. As Hélène Frichot notes about Eliasson's works, "the atmospheric pressure of Eliasson's work is such that it demands the visitor's engagement beyond that of a mere onlooker; it is an interaction that

[43] Eliasson, "Ice Watch."
[44] *Ibid.*

encourages the mutual transformation of both the visitor and the work."[45] The performance of *Ice Watch* entails both the vanishing of the ice blocks and of the visitor's preconceived notions about bodily engagement with art. The bodily behavior that the work encourages is inherently different from the behavior that museum visitors must show when moving through a gallery space. As a video of the installation illustrates, people touch the ice and press their ears to it, listening for the sound of its melting, and children play on it.[46] Allowing unrestricted access to their work, Rosing and Eliasson want to underline the importance of discussing climate change in a way that is based on appreciation of sensory experience rather than assignment of guilt.[47]

With the viewer's simple experience of ice's coolness, the artwork creates an aesthetic field that engages the human body. Eliasson imagines that his atmospheric works of art might have transformative potential: "We learn to see ourselves in a different light."[48] Frichot, writing of this potential, argues that affect in Eliasson's work is not an evocation of an emotional state but the performance of a shift in emotional states, as for example from happy to sad.[49] The affect, rather than corresponding to specific emotions, is a play of intensities that enables the reordering of the human world. It supports the rethinking of preconceived concepts because it makes abstract information comprehensible. Although it is common knowledge that ice is cold, directly experiencing this coldness intensifies such knowledge. The direct experience of vanishing ice can lead to a similar intensification. A multitude of reports and statistics illustrate scientifically the accelerating melting process of glacial ice and attribute this clearly to human activity. But in directly perceiving the vanishing of ice, an affect is inscribed in the viewer's body which shifts the bodily state of the viewer from detached observer of the problem to active participant. The outcome of this shift — whether this leads the viewer to feel a sense of active participation in the process of destroying nature, or to the

[45] Frichot, "Olafur Eliasson and the Circulation of Affects and Percepts," 32.
[46] Youtube, "Arctic Ice Art displayed in Paris," Eliasson, "Ice Watch."
[47] Eliasson, "Ice Watch."
[48] Frichot, "Olafur Eliasson and the Circulation of Affects and Percepts," 34.
[49] *Ibid.*

viewer feeling a sense potential to respond to the crisis, is dependent on the cultural, social and political filters with which the viewer approaches the work.

Conclusion

Art installations that thematize the role of permanent ice in the climate crisis predominantly use the ice's melting process to illustrate the urgency of the global situation. All three artists whose works I have considered as case studies portray permanent ice as a vanishing ecosystem and each relates this ecosystem to the human realm: Kessler in disclosing Arctic exploration and fossil fuels as a reason for disappearing ice, Paterson in giving a voice to ice by playing the sound of its melting on a record player and by transmitting this sound through a telephone line, and Eliasson in placing ice blocks in an urban environment. In my analyses, Latour's concept of nonhuman agency played an important role in illustrating the drastic climatic transformations currently affecting the materiality of permanent ice. Unlike in the Arctic landscape paintings of Romanticism, the artists I have studied portray ice as the suffering entity in the human-nature relationship. Putting vanishing ice on center stage, these artists reverse the sublime motif: while in the nineteenth century ice is the threatening entity, in the twenty-first century ice turns into the threatened entity.

In order to make it possible for a viewer to experience the agency of permanent ice, the artists use different strategies to engage the senses, contributing to an expansion of ice-related phenomenological experience. Reaching viewers through modulations of temperature, sound, haptic feeling, and taste, these artists elicit affects having the potential to generate environmental awareness. Although it cannot be stated in what ways the affects elicited by the artworks discussed actually influence moral understanding, they at least establish a space for interaction that provokes a rethinking of the human-nature relationship.

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