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► **To cite this version:**

Bethan Kellough. Introduction to the Sound Installation “Beyond the Mortal Eye”, On Listening. Proceedings of the 4th International Congress on Ambiances, Alloaesthesia: Senses, Inventions, Worlds, Réseau International Ambiances, Dec 2020, e-conference, France. pp. 68-73, 10.48537/hal-03220246 . hal-03220246

HAL Id: hal-03220246

<https://hal.science/hal-03220246>

Submitted on 11 May 2021

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Introduction to the Sound Installation “Beyond the Mortal Eye”

On Listening to the Sonic Ambiances of Earth Systems

Bethan KELLOUGH¹

***Abstract.** Beyond the Mortal Eye is a sound-scape work that engages with the concept of deep time and our place within it. Using sounds of geological processes that are perceivable to the human ear, the installation voices a selection of slow, often invisible transformations that connect to and signify the passage of geological time. This installation is an initial practice-based experiment in ongoing research into the role of the sonic ambiances of Earth systems in communication about environmental change. It is designed to open up a space of enquiry and to fuel future research directions. This introduction to the work, by the artist, discusses the ideas behind the development of the installation.*

Keywords. *Sonic Atmospheres, Deep Time, Earth Systems*

Introduction

Many of the geological processes that are continuously shaping and re-shaping our planet are invisible, overlooked or imperceptible to the eye - some are too slow, happening at a pace that far exceeds the human lifespan; some are too small to witness with the naked eye; and others are happening underground or beneath a surface.

But we can hear them. The sound installation *Beyond the Mortal Eye*² explores the sounds of rocks expanding in the heat, wind buffeting and eroding boulders and lava flows, a singing sand dune, the rhythms of pebbles tumbling abrasively in the backwash on ocean shores, meltwater inside a glacier, and the booming and bubbling of hydrothermal vents above a deep hot water reservoir.

These are the sonic ambiances of Earth systems. Their dynamism draws attention to the impermanence of the landscapes we see, and highlights a vibrancy that, even as it emerges in the present moment, points towards the greater context of deep time - an unfolding of events in timescales that are far beyond our human experience.

Can listening to these sounds, then, bring forth an atmospheric experience that may situate us within this unfolding? What might we learn from such a perspective? What is lost and what is gained by ‘collecting’ these sounds and presenting them in another place and time, in a single sensory mode?

The installation was created to raise and engage with these questions, and to open a space of enquiry that is produced through listening to the sonic ambiances of Earth systems. Presented in ambisonic surround sound, the work is designed to situate the

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² *Beyond the Mortal Eye* can be heard at www.bethankellough.com/beyondthemortaley

listener in a dynamic field of geophony³, in doing so presenting an atmosphere of the unfolding of geologic time. This atmosphere, to follow Gernot Böhme's conceptualization of the term, does not have a particular character or an intended "tone of feeling" (Böhme, 1997, 114), rather the work revels in the fact that these generators of atmosphere intersect a complex array of emotional responses that will become a part of the experience, and are an important element of the human response to environmental change. The space of enquiry that the work creates is open-ended and invites further questioning, development and collaboration across disciplines.

Current Iteration of the Work, June 2020

The current iteration of the project, at June 2020, is a loopable, surround sound installation that may be installed using a multi-speaker system or listened to as a binaural render over headphones. It is accompanied by text that contextualizes the sounds of the installation, in order to guide the listeners in their understanding of the audio. Specifically, it provides knowledge of the sound sources that may be "thought-in" to the aesthetic experience (Hepburn, 1993, 79). The installation currently features recordings from the eight locations outlined below.

- *Kari Valley, Atacama Desert, Chile.*
The Atacama Desert is the driest nonpolar place on the planet, receiving almost no precipitation. The installation features two recordings from here: the sound of rocks making a cracking, ticking sound as they heat up in the sun; and the sound of the wind rising as the temperature drops, listening to its interaction between two parts of a rocky outcrop.
- *Eureka Dunes, Eureka Valley, California USA.*
The Eureka dunes are one of around 40 sand dunes around the world that 'sing' or emit a low resonant drone when activated by the wind under certain conditions. The recordings from these 700ft sand dunes feature the wind blowing the sand across the face of the dune, and the drone that follows.
- *Boiling Springs Lake, Lassen Volcanic Area, California USA.*
Boiling Springs Lake is a part of the Lassen volcanic system. The bright teal lake bubbles and steams in a fairly tranquil way, but in one corner of the lakeshore a number of dark vents emit low frequency rumbles and booms that speak, invisibly, of the greater hydrothermal system buried beneath the surface. The installation features three recordings from this area.
- *Rialto Beach, Washington, USA.*
The sound of the backwash on Rialto Beach on the Olympic Peninsula in Washington is quite remarkable. As Gordon Hempton describes, "the stones arrange themselves in tonal bands, the result of having been swept and stroked by countless fingers of winter's storm waves" and the rolling waves produce "a deep operatic breath, then a brief pause before roaring applause" (Hempton and Grossman, 2009, 29; 269). The recording in *Beyond the Mortal Eye* listens to the symphony of the pebbles both above and below the waves.
- *Mojave Desert, California USA.*
In many granite boulders in the Mojave, hollows and pits, called tafoni, appear in the surface, caused by various weathering and erosion processes, including acidic subsoil weathering followed by erosion of the soil layer to reveal

3. Geophony is defined by Bernie Krause (Krause, 2016, 2) as non-biological natural sounds, differentiated from biophony (non-human biological sounds) and anthropophony (human-made sounds).

the pitted surface (Trent and Hazlett, 2002, 42-43). When the wind whips through these features the sound resonates in these pits, sometimes with a discernible pitch, as well as with interesting textural qualities. Recordings made at two different structures are featured in the installation.

- Selatangar, Reykjanes Peninsular, Iceland.
The rough shapes of the black lava, and the design of the structures built from it in the abandoned village of Selatangar, provide a rich sounding board for the stormy winds that cut across the region. The recordings feature these winds buffeting the rocks, contributing to the ongoing reshaping of this active landscape.
- *Toftestallen, Toftøy, Norway.*
The disused wave power station in Toftestallen features two walls that channel waves through the narrow gap between them. It was damaged in 1991 and as the North Sea waves continue to crash into it, the structure is slowly being broken up by the power it was built to harness. The recording utilized in the installation foregrounds stones that have collected in the channel, tumbling back and forth with the rhythm of the waves.
- *Skaftafellsjökull, Iceland.*
Skaftafellsjökull is a glacier tongue connected to the largest ice cap in Iceland, Vatnajökull. The sound featured in the installation is meltwater and embedded stones dropping into a pool of ice-melt, recorded in a small space underneath a roof of ice.

Toward a Geological Consciousness

As Bjornerud (Bjornerud, 2018), Wood (Wood, 2019), and others have suggested, comprehending our place in geologic time is important in understanding the complex reach, far into the future, of the impact of today’s environmental policy and decision-making. We live within, and are part of, biogeochemical systems that have different speeds and rhythms of change often out of sync with the human life-span, but that are critical to our existence. A portion of humanity is already having an increasingly significant impact within these systems in a way that is unsustainable and damaging, and the extent of the damage already inflicted is something that will be revealed at different points in time, from immediate consequences to far into the deep future.

In exploring this polytemporal⁴ element of our existence, an atmospheric sense of geologic time can complement the scientific knowledge about the history and future of our planet, imbuing sometimes incomprehensible numbers and ideas with an affective quality, and therefore a sense of connection between lived experience and deep time. There have been a number of explorations of deep time across different artistic disciplines that have shown the possibility of these connections. The 2014 exhibition *Imagining Deep Time*, organized by the Cultural Programs of the National Academy of Sciences, collected a variety of these contributions together. These included Rachel Sussman’s *The Oldest Living Things in the World* - a photographic exploration of objects older than 2000 years - and sound duo Semiconductor’s *Subterranean (Seismic Blues)* (Talasek, 2014). The latter translates seismic ambiances into sound so we can “perceive subterranean movements that are normally beyond the realm of our experience”⁵. This work demonstrates the potential of sound in revealing Earth processes

4. Bjornerud (Bjornerud, 2018, 179) calls for a “polytemporal worldview” that takes into account these different rates of change and consequence.

5. See: <https://semiconductorfilms.com/art/glacial-seismic-data/>

and imbuing geological structures with a sense of movement and temporality. Other audio works that have engaged with the idea of geological transformation include Jez Riley French's *Dissolves*, which she listens to "the sound of mineral, ceramics and civil structures dissolving through the actions of acid rain, neglect and performative techniques"⁶; and Raviv Ganchrow's exploration of geological sources and shaping of infrasound (Ganchrow, 2015, 191).

These artworks point toward a "geological consciousness" - a concept positioned by Wood as the state of "bearing the significance of deep time" (Wood, 2019, 29). Bearing this significance - understanding how deeply entangled we are with the past and future dynamics of Earth systems - helps to frame the consequences of today's decisions and actions as irreversible, extending their impact beyond the next election cycle to many generations into the future. Furthermore, an environment of geological consciousness, in which time can be understood as extended, multilayered and non-linear, may house within it a variety of cultural understandings of time and temporality, opening possibilities for dialogue that may shift and de-center some of the narratives that surround these issues, and enable more informed and just approaches to human-led transformations in the face of environmental change.

As an artist, one of the driving forces behind my interest in field recording is encountering the layers of a landscape that sound and listening reveal. The experience in the Atacama Desert of listening to cracking sounds coming from a rock face that looked immobile, solid and permanent was profound, and the process of connecting this experience to other recordings in my collection, and to experiences I later had while listening and field recording, led ultimately to the production of this installation. The specific sound-world that *Beyond the Mortal Eye* explores is the portion of the sonic ambiances of Earth systems that we can aurally perceive in the world, unaided by technology, and with no direct (as opposed to indirect, consequential) human agency causing the sounds that are featured. This is important because it is intended that the atmospheric experience of the unfolding of deep time is not experienced solely through direct contact with the artwork, but is continued into interactions in the life-world. The sonic ambiances of Earth systems are audible all around the world, with no technology required to hear many of them, and each unique soundscape can help to tell a story. The installation is intended as an attunement, an experience that highlights or frames these sounds in a particular way that might impact how the listener hears such sounds in the future.

Research Trajectories and Future Directions

As an initial practice-based experiment, this work is intended as a contribution to a research project that takes the form of an iterative cyclic web, a research method proposed by Hazel Smith and Roger T. Dean (Smith and Dean, 2013, 19-25). This model encompasses and interweaves research-led practice and practice-led research, working with both artistic experimentation and theoretical developments, and valuing the application of each to the other.

This model underpins the proposal that this installation may open up an environment of enquiry that invites participation, comment, and further development outside of its current framework. Certainly, the current scope of the project is limited in a number of ways that prompt further investigation and development - a few of which are introduced below.

6. See: <https://jezrileyfrench.co.uk/dissolves.php>

Firstly, an evaluative and reflective engagement with the questions raised by the creation of this work, and outlined in the introduction to this paper, will provide both a contribution to discourse on the role of sound and art in communication about environmental change, and map avenues for further practical experimentation. I have written elsewhere (Parkes, 2012 and 2015) about presence in the virtual acoustic space, sonic atmospheres and intertwining aesthetic spaces, but the particular application of these ideas to the process of listening to the sonic ambiances of Earth systems is a rich site for investigation that is beyond the scope of this introduction to the work, and requires time for reflection and further experimentation.

Secondly, the biosphere, including human life, is an inseparable part of Earth systems. Sounds of the biosphere are not included in this installation (other than incidentally), as it focuses instead on highlighting the dynamism of non-life components of Earth systems that are less visibly vibrant within human timescales. However, a number of projects, including the activities of the Center for Global Soundscapes, Leah Barclay's *River Listening* project, and the work of Bernie Krause, have demonstrated that sounds of the biosphere are an important indicator of the broad impact of environmental change, and so the deliberate and careful integration of biophony - particularly focusing on where it intersects in crucial ways with other parts of Earth systems - is an important trajectory for this research to engage with in the future.

Finally, the environments heard in this installation are sourced and recorded from the artist's perspective. The project would benefit from the inclusion of other listening perspectives in order to hear a broad representation of these ambiances, and move towards a networked, contextualized, sonic witnessing of geological transformation. Developed in this way, the project might begin to ask: what does environmental change sound like listened to through the sonic ambiances of Earth systems?

Conclusion

This last question returns to the initial aim of the installation: situating the listener within the unfolding of geologic time, to witness the transformative dynamism of Earth systems that operate at various paces toward a complex and entangled future. So, to conclude this introduction, and look toward the future development of the work - the environment of *Beyond the Mortal Eye* is designed to invite and inspire collaboration and conversation, drawing upon the atmospheric experience of listening to the sonic ambiances of Earth systems to generate adaptive and evolving future iterations of the work, its outcomes, and related research.

Acknowledgements

Thanks to Trond Lossius, Chris Watson, Billy, Robert Kellough, and Thierry Cohen who have shared their knowledge of some of the featured recording locations with me.

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