

MORE-THAN-HUMAN DESIGN IN PRACTICE

Edited by

*Anton Poikolainen Rosén, Antti Salovaara,
Andrea Botero and Marie Louise Juul Søndergaard*

ISBN: 9781032741192 (hbk)

ISBN: 9781032741208 (pbk)

ISBN: 9781003467731 (ebk)

First published 2025

6

WEATHERING WITH STORMS AND GROUNDS AS A MORE-THAN-HUMAN DESIGN PRACTICE

Encountering Winds, Soils and Rocks

Delphine Rumo and Gloria Lauterbach

(CC BY-NC-ND 4.0)

DOI: 10.4324/9781003467731-8

The funder of the Open Access version of this chapter is NODUS, *Gaziulusoy*.

6

WEATHERING WITH STORMS AND GROUNDS AS A MORE-THAN-HUMAN DESIGN PRACTICE

Encountering Winds, Soils and Rocks

Delphine Rumo and Gloria Lauterbach

Introduction

Listen. Patiently. *Weathering with* is a process of alteration over time that focuses on the in-betweenness of human and more-than-human bodies. It is an invitation for changes and adaptations. This chapter encourages more-than-human design practice to meet and critically *weather with* current anthropo-influenced phenomena related to storms and grounds in urban environments, including uncontrollable wind occurrences and the irreversible depletion and degradation of soils and rocks. Storm and ground phenomena are interconnected through irrevocably destabilised carbon cycles: the anthropo-influenced equilibriums that contribute to accelerated climate change, extreme weather patterns, and biodiversity and geodiversity loss. We bring into dialogue and discuss two design practices challenged by encounters with these phenomena.

We explore a conceptual take on *weathering with* that can translate into opportunities to lean into post-anthropocentric worlds. Our dialogue contributes to a form of more-than-human design practice that takes guidance from a posthumanist political ecology. We use the term ‘more-than-human’ as a reminder that earthly phenomena can have causal powers and capacities on their own, influencing design processes (Clark, 2011; Laurien et al., 2022). A posthumanist political ecology approach allows us to emphasise the interdependencies and entanglements of humans and all earthly phenomena. In our encounters with storms and grounds, it is foremost listening that creates responses, broadening and altering our design practices. In doing so, we are simultaneously challenging established ideas related to storms and grounds and being challenged by our design perspectives.

We *weather with* not merely as a way to move beyond human-centred perspectives by including storm and ground phenomena in design (Tarcán et al., 2022). *Weathering with* also helps us to critically reflect on our practices, slowing down and recalibrating our senses to more-than-human worlds. As we *weather with*, we contribute to design practices that explore pluriversal methodologies and knowledge-making to re-imagine and enact futures toward post-anthropocentric design (Hermansen et al., 2023; Kambunga et al., 2023; Lauterbach, 2022; Oliveira Serpa, 2023; Rumo, 2023; Veselova, 2023). Our task is to probe ways of creating spaces where different worldviews can form while resisting solutionist design strategies.

This contributes to design research and practice that demand a critical redesign of ethical ontological assumptions within the field of design, rejecting human exceptionalism.

In this chapter, we understand *weathering with* as an exercise to explore the space in between us and the storms and grounds we work with. *Weathering*, terminologically, brings a variety of exciting conceptual imprints. Neimanis and Hamilton (2018), for instance, understand the concept of *weathering* as an awareness of how human bodies are interlinked with their environments in a world threatened by polycrises. With this conceptualization, the authors go beyond the understanding of the concept of *weathering* as a mere metaphor and engage with the idea as a situated practice (Neimanis and Hamilton, 2018). No one enters the process of *weathering* the same, no one *weathers* alike. As nothing *weathers* identically, to *weather* is a situated practice that encapsulates a sociopolitical dimension (Neimanis and Hamilton, 2018). We expand the concept of *weathering* to *weathering with* in the following to underline that the concept is always an entangled and reciprocal practice.

We understand the practice of *weathering with* as taking place in steps and with very small nuances. To us, it is a timeless exercise, forbearing and non-directional. It neither fits into a general mould nor does it follow a predefined script. The way we *weather with* our phenomena is inspired by the concept of ‘dialogue’ coined by the philosopher Martin Buber (2002) and the idea of inward explorations practised by science-fiction author Ursula Le Guin (2023). On the one hand, Buber’s humanist dialogical approach supports our *weathering with* practice, helping us to *weather with* because of the other and simultaneously, alongside the other, similar to posthumanist theories (Neimanis and Walker, 2014). In our design practices, we walk towards the other while focusing on the in-between of the weathering bodies (Buber, 2002). Le Guin’s practice, on the other hand, means for us *weathering with* through ceaseless introspective explorations of inward spiralling as we reflect on storm and ground phenomena and re-imagining our own situatedness and design activities. Together, Buber’s and LeGuin’s approaches visualise two different but complementing directions of acting, thinking and engaging that help us build a bridge between our (still too often anthropocentric) design approaches and posthumanist ecologies.

The chapter focuses on a particular challenge for more-than-human design practice: how to meet with the intricate web of large-scale, omnipresent and all-encompassing phenomena that permeate our surroundings. The first part is written in the first person, describing two individual design practices from two design researchers and practitioners. Our working definition of *weathering with* brings forth design processes that are backward, inward, circular and reciprocal. It is an invitation to slow down and lean into patient transformations while acknowledging power dynamics that influence design interventions. As we carefully attend to timescales exceeding human imagination and engage with forces beyond human control, we explore dialogical and introspective design practices of alterations. We explore a practice of *weathering with* storms and grounds that navigate the complex and nuanced interplays between broader ecosystems and individual engagements, slowly interweaving our work through the dependency of winds, soils and rocks. Considering the distinctness of the phenomena we engage with, we also individually *weather with*. We alter with storms and grounds, we explore potential forms of interaction, empathise with the phenomena, rehearse our limits, experience varying timescales, and depart from the design practices we are familiar with.

The chapter aims to answer two questions: How can *weathering with* grounds and storms inspire more-than-human design practices? How can *weathering with* help to lean into post-anthropocentric imaginaries, embodiments and engagements? In this chapter, we bring our practices into dialogue as we explore *weathering with* grounds and storms.

A Reading of Storms and Grounds

A Reading of Storms, Gloria's Meeting with Niklas

Back then, in 2015, it was in Zurich, Switzerland that I first encountered my more-than-human conversational partner¹ when a storm, known by the name of Niklas, ripped off a big chunk of copper from a local church roof (Figure 6.1). This roof piece, as it crashed into the street, resembled more of a statue monumentalizing weather phenomena than an emergency in need of an immediate response. It crashed there to be met: its colour, resulting from the oxidation process, revealed information about the air quality of the City of Zurich. The shapes pressed into the material carried insights about the force of the respective storm. The incident itself revealed challenges around building techniques in times of constantly increasing extreme weather phenomena. Mostly, to me, the monument allowed for a brief moment to imagine an entirely different worldview, one in which we live *with* the earthly phenomena we are part of.

After this occurrence in 2015, I started to reflect on the societal benefits of *weather monuments* compared to seeing a *roof debris* only as a disturbance or threat in need of immediate removal. From this moment onwards, to me, the way we deal as societies with more-than-human phenomena, such as the storm event in Zurich, reveals a mindset of looking at, of operating the world instead of being genuinely curious about more-than-humans and openly looking *for* them. In such a world, human safety, human needs and human infrastructures always have priority over guardianship, cohabitation and the urgently needed mediation between humans and more-than-humans. In a first step, this storm occurrence did help in laying bare the politics of power I am part of. In a second step, the alternative postures I accessed through the monument enabled me to imagine urban environments from a new point of view.

For the field of more-than-human design, my work can be seen as a blueprint for how to exchange single bricks of storylines to create new narrations. If we transform a storm debris into a weather monument and then observe where we stand, the following questions (and many others) arise: how does a world in more detail look like that monumentalises storms? What relevance does the weather has in that lifeworld? What is the relationship between humans and more-than-humans in such a worldview?²

It became my interest to work on keeping these imaginaries alive. Consequently, this meant building a rework of the storm monument as encountered in Zurich, Switzerland, and to plant it in Espoo, Finland. This rework, 'Kreuztstrasse', became the artistic output of my doctoral thesis through which I have been able to research also in practice how else cooperation between humans and more-than-humans may look like (Figure 6.1).

To read storms and to cooperate with them required me to expose myself to storms, to attend and observe them more carefully than I may have ever done before and to follow emerging, deepening leads. The making of storm recordings (video and sound) for instance as well as the process of learning how to build a roof myself – one way to understand what holds and keeps materials together that are constantly exposed to the weather – allowed me to plant the questions and imaginaries in the lifeworld I currently stand. Not surprisingly, 'Kreuztstrasse' also contributed to this process by revealing the capability of continuously generating new imaginaries and responses through the link that has been created between two locations (Zurich, CH and Espoo, FI) and their asynchronous weather patterns. Expressible hence as a *dialogical work* it stirs for me the question if a lush connection can be established between different occurrences, times, materials and realities.



FIGURE 6.1 Storm and ground phenomena in Zürich and Helsinki, including a roof piece ripped off a church by storm Niklas in 2015 in Zürich, the making of the rework of the storm monument in Otaniemi in 2018, a bedrock soon to be blasted by explosives, and piles of grounds on a construction site in Laajasalo, Helsinki, in 2023.

Source: Stadtpolizei Zürich.

For the field of more-than-human design, the work and working process allow me to ponder what *dialogical* could mean for the field and how a redefinition may contribute to creating spaces for more caring encounters. And, further, the discussed work can be understood as an exercise how we as design researchers can open up spaces where phenomena stay present and unfold on their own terms to be observed and attended.

A Reading of Grounds, Delphine Sitting on a Bedrock

I have been meeting grounds entangled with Finnish construction since 2021. These grounds include bedrocks, boulders, gravels, clayey soils, engineered soils and contaminated soils that are blasted, excavated and piled on sites of construction, waiting to be removed, reprocessed, reused, or landfilled. In the fall of 2023, I encountered a piece of ground threatened by

construction in Laajasalo, on the East side of Helsinki. The ancient landscape was part of the largest exposed Precambrian rocks in Europe (City of Helsinki, 2019). Aged over 3.5 billion years, more than millions of human lifetimes, the bedrock showcased areas of grey granite, resembling a washed-up whale (Figure 6.1). As I lingered and sat on an exposed tip of this ‘whale’, admiring the undulating grey and pink geological formations, I could hear the sounds of heavy machinery nearby and feel the rock beneath me shaking.

The plan for the Laajasalo area is to build new roads, followed by apartments and a tramline that will connect the island to the city centre (City of Helsinki, 2022).³ In the last decades, the City of Helsinki’s urban planning strategies have mainly focused on physical growth through construction to improve the city’s financial resources and investment profile (City of Helsinki, 2021). In this economic context, massive volumes of ground become entangled with the forces of urban expansion and industrialised construction, where current building techniques lead to the alternation and removal of soils and rocks. To ensure the city’s continued growth on solid foundations, the demand for urban land intensifies. In turn, urban expansion and infrastructural development put pressure on the local geology, causing shifts in the delicate balance of the underlying grounds. Soils are sealed and covered with concrete and stones, preventing exchanges of energy, water and gases and bedrocks are drilled and blasted, creating noise, gas, dust and ground vibration that disrupt local ecologies (European Environment Agency, 2021; Scalenghe and Marsan, 2009). Soon after my visit, the bedrock I was sitting on forever disappeared, blasted by explosives, and flattened for the construction project. A dominant drive for profit maximization through material growth resulted in the subjugation of the ancient rock.

While sitting on the bedrock, I paid attention to the nearby old-growth forest of Stansvik. Grounds around the bedrock had maintained the plant life of the forest, which could access nutrients, water and support for anchorage. In turn, the forest was interacting and influencing the large rocky landscape, slowly weathering the bedrock I was sitting on. Salty water and winds continuously abraded the surface of the rock, creating fine particles of sand and dust (Tuuling et al., 2011). The bedrock had worn away, slowly mineralizing younger and thinner layers of clay, silt and organic matter that contributed to the composition and fertility of the surrounding forest (Rajakaruna and Boyd, 2021). In addition, physical, chemical and biological weathering processes, including acidic rain, ice formation, the growth of plant roots and microorganisms and winds, broke down the rock into smaller particles over time, encouraging dynamic cycles of nutrients that could support life (Hack, 2020).

Walking around Laajasalo, I also noticed how the ancient bedrock was entangled with the fast-paced lives of earthwork contractors hired by the city to construct roads and residential buildings (Figure 6.1) (Rumo, 2023). In their world, construction was bathed in an illusion of measure and control over the rock. To complexify the situation, forest activists were resisting the city’s development plans, camping in the Stansvik’s forest (Kangasluoma, 2023). These entangled configurations: gatherings of industrialised activities, expansion of infrastructures, intensification of capital-seeking investment, discourses of economic growth, the disappearance of bedrock, depletion of soils, forest activists, contractors, heavy machinery, geological temporalities, soils and rocks, outlined a certain quality of mediation between human and more-than-human bodies. Walking around Laajasalo, I could experience slow geological processes, moments of unequal relations of domination, and acts of resistance.

I was *weathering with* ground phenomena as I followed soils and rocks across sites of construction, meeting people closely working with grounds, driving with people from site to site, sitting on bedrocks, taking pictures, recording videos of rocky landscapes, and practising

slowing down. As I was attending to fast-paced economies of construction and slow geological processes, my understanding of soils and rocks changed over time, generating spaces to engage with these phenomena otherwise. Other *weathering* processes happened through exploratory creative interventions that I describe further on page 86. Paying attention to the grounds entangled with construction helped me build ways to engage with different agencies of bodies that *know* differently: contractors, rocks, soils, machinery, design practitioners and researchers, and my gut microbiota, eroding each other over time. I found that *weathering with* grounds in that way was a process of slow exploration and negotiation.

Two More-Than-Human Design Practices

Gloria's Research Practice with Storms

Storms bring and take along, they stir, and alter materials and environments; storms enable earthly matter to be in flux (Ingold, 2007); they take place above ground, give voice to their environments as well as imprints of their strength; nothing remains silent, nothing in its present form. Storms inherently belong to the earth as they listen and react to anthropocentric practices.

In Helsinki, located on the shoreline of the Baltic Sea, winds are part of the everyday. Here, a warm, windy summer day is different from a warm, windless day. Also, the soundscape of a windy city such as Helsinki is different from a city without winds. Even though winds are invisible, they do alter their environments – and everyone part of those – quite drastically.

As “materially and temporally ambiguous”, pointedly characterised by Lisa Moffitt (2023), winds greatly impact all levels of their lifeworlds: winds create and change microclimates within seconds, transport microparticles over hundreds of kilometres, destabilise structural as well as temporal components of buildings, infrastructures and environments. Winds erode and intensify (Moffitt, 2023). Winds give energy to power infrastructures and create movement; they energise, challenge and harm. And they transform through the environments they pass by. All these factors give storms and winds both a material and conceptual quality which I explore in my research and practice as a more-than-human design researcher.

Considering the force and scale of wind phenomena, their unpredictability, invisibility and hard-to-control nature makes winds, from human point of view, uncooperative. However, with the risks of extreme weather events advancing, storms will increasingly consume our environment (European Environment Agency, 2021; Kahraman et al., 2021). This increase will give them more voice, visibility and power in the near future, and humans the possibility to learn how to recalibrate anthropogenic positioning. During my research with storms I learnt that to follow such vast and ungraspable phenomena meant that I had to step back from my own expectations, past learnings and rigid sense-making automatisms. Methods such as *weak action* by artistic researcher Tuija Kokkonen (2021) as well as *rehearsing* by scholars Sabeth Buchmann and Constanze Ruhm (2013) offered me counter-approaches that allowed me to focus on the in-between of a storm and myself as two *weathering* entities. In her work, Kokkonen (2011) tests the borders of societies as performative bodies. *Weak action* enabled me to actively step back and re-evaluate the setting I was part of, to give other/s room to unfold. Buchmann et al. (2016, p. 16) work with the notion of *rehearsal* as a “zone of transition”. In their work and research, a *rehearsal* is a marker of processes of renewal crossing through power structures of sociocultural settings. As an endless form of practice, and an endlessly transformative practice, to rehearse means, among others, to reflect, improvise, interrupt and make futures (Buchmann et al., 2016).

Through learning about the approaches by Kokkonen (2021) and Buchmann and Ruhm (2016) a cooperation with winds and storms seemed suddenly accessible. Together, weak action and rehearsal are methods that can help eroding our anthropocentric structures, rebalancing agency between humans and more-than-humans and, at the same time, enabling bridge-building to more-than-humans other/s. The more I practised cooperating with a storm rework, the more agents were to be included into the rehearsal and the more I had to re-adjust my own position and agency within. While working with very diverse more-than-human others such as wind, nesting birds, surrounding trees, the sea close by – all shaping the work – it was the notion of sound that started to foreground and so I gave it space to unfold. I started to work with the audio and sound recordings I had collected at the beginning of my research and explored them side-by-side with my own experiences with storms, the notes I collected in the form of a storm diary and a variety of readings about storms.

The pathway I followed led me to an attunement practice with a focus on my senses. The storm recordings captured wind sounds the moment they met their environments. The forms and shapes of these *singing environments* I have heard of many times before, be it winds blowing through construction sites or birch trees or wind stirring up water. Yet, totally failing to reproduce them made me experience a big distance from the environments I was part of. So I started to explore the idea of a ‘Storm-Sing-Along’ or ‘More-than-Human Karaoke’ to share my observations with a wider audience and to hear out others on how to build the meaningful bridges to the more-than-human world we are lacking.

The ‘More-than-human Karaoke’ is best described as a spatial installation that includes and merges the voices of the karaoke singers and the various environments shown in the video works (Figure 6.2). As a multi-dimensional experiment, it aims to probe a variety of perspectives and voices by exploring the lifeworld of more-than-human sounds. The karaoke format inspires collaboration and co-creation with other singers and the more-than-humans encountered in the video works. Through participatory engagement – shared sound making – the storm sceneries become easily accessible, voices of a few tend to come closer to the environments we see in front of us. This exercise is a rehearsal, it is a realization of the distance to nature we have grown accustomed to and that requires a rethink of anthropocentric practices.

‘More-than-Human Karaoke’ at Feral Festival (2023) and ECQI (2024).

Delphine’s Research Practice with Grounds

Grounds seemingly provide a sense of stability; solid earthly surfaces, undisturbable, and timeless that are witnessing the ebb and flow of the world around them over countless ages. They seem to act as platforms and social stabilisers for the construction of buildings, highways, bridges, subways, sewers and power lines (Toland et al., 2018). But ‘permanent’ grounds are formed of constantly moving geo-tectonic plates and intricate sedimented layers (Meulemans and Granjou, 2020; Clark, 2011). They can change wind patterns and ingest eroded rock debris, animals and plant materials, creating deposits of porous living layers (Povinelli, 2016; Latour and Weibel, 2020).

When I started to pay attention to the grounds entangled with construction, I was drawn to the massive piles of soils and rocks shuffled in corners of the sites I visited. I practised following these piles for a few seasons from one construction site to another, and from storage areas to landfill sites, hanging out with clayey soils in snowy landscapes, and sitting on bedrocks in the summertime (Rumo, 2023). To *follow* and *hang out* with grounds was inspired by ethnographic



FIGURE 6.2 This sketch shows how *weathering with* may take place through ‘More-Than-Human Karaoke’. Here, in this process, I am leaving open where practices lead to, whom they all include, invite, inspire and engage. Storm sounds teach us to imitate through more carefully listening to and perceiving the environments we are part of.

methods that included walking and driving interviews with contractors, engineers and city planners and participant observations where I gathered pictures and videos to help me narrate the life of soils and rocks (Geertz, 1998; Sodero, 2019). It was a snowballing process, one person referring to another, and one encounter with a certain ground opening questions that brought me to another site.

As I followed and hung out with grounds, my initial curiosity for metrics – the volumes of excavated and blasted soils and rocks, and their associated carbon emissions and biodiversity losses – became entangled with ethical considerations. I found that grounds were mainly understood as instrumental to profit maximization and urban expansion. Planners and engineers described soils and rocks as ‘good’ or ‘bad’, ‘profitable’ or not, and ‘useful’ or not. I observed how these words translated into values that shaped decision-making regarding grounds. To follow and hang out with soils and rocks helped me to erode extractive worldviews and their normative ‘sustainable’ solutions, which mainly focused on profit-making and material growth (Rumo, 2023).

I physically met more grounds, engaging with complex and messy entanglements of human-to-ground relations. I noticed how soils and rocks had existences that radically differed from human activities, having causal powers and capacities of their own (Clark, 2011; Rumo, 2023). Planners and engineers were well aware of the intricate relationships between grounds and urban development. However, the role of soils and rocks in re-orienting planning strategies and reconfiguring the city was often overlooked (Robertson, 2020; Rumo, 2023). Structurally recalcitrant soft and liquid clayey soils and surprisingly ungraspable rocky geologies resisted and challenged construction processes, influencing plans for urban expansion (Rumo, 2023). As I met more grounds, my perspective changed, altered by intricate stories of resistance and inner transformations intertwined with grief and joy (Rumo, 2023). The ungraspability of ground phenomena also inspired me to explore new types of designerly engagements, weaving encounters with the tangible world with introspective explorations.

I further attended to troubled geological landscapes by practising introspective acts of critical reflection. Drawing from Le Guin’s (2023) practice of exploring ways to go inward, and following my gut feeling, I linked my observations of systemic land degradation with people’s inner world. In the fall of 2023, I invited rocks, excavators, microbiota and gut feelings of urban dwellers to participate in the intervention ‘Rocking Guts’. The intervention was presented at the event ‘Feral Festival. Living-with Feral Ecologies. A Festival’ during Helsinki Design Week 2023. ‘Rocking Guts’ included video and sound following the life of soils, rocks, and people’s inner worlds, and the writing of postcards (Figure 6.3). A short film showing side-by-side activities of construction and alive human gut microbiota featured the sound of my own gut microbiotas’ environments captured with stethomicrophones. The intervention was an open invitation for people living in the Helsinki region to engage in conversations about large-scale construction alongside their personal gut experience. Participants were invited to explore acts of resistance against extractive economies of urban development. Once written on postcards, gut feelings were posted to decision-makers responsible for overseeing local construction projects (Figure 6.3).

The participatory intervention ‘Rocking Guts’ was an exercise to *weather with* grounds collectively. I wanted to animate stories of grounds with people’s embodied and participatory gut feelings (Figure 6.3). I weaved stories of ground extraction with people’s gut microbiota; the collective of microorganisms living in their digestive tracts that influence their emotions and cognitive functions (Appleton, 2018). The idea was to retreat to the darkness of people’s guts, to the wet and peaceful inner environments of human bodies, to seriously (re)consider the existence, agency and experiences of grounds. The intervention was an invitation to explore inward spiralling and to re-imagine ground phenomena beyond stories of extraction and destruction. Experiencing gut feelings was a way to recognise grief in the face of massive land extraction, and perhaps joy in resisting more destruction.



FIGURE 6.3 A still showing bedrock and gut microbiota from the short film ‘Rocking Guts’ presented at Feral Festival (2023). Participants writing postcards to decision-makers from the City of Helsinki during the interventions. Sketch showing how weathering with ground phenomena is an invitation to meet with extractive economies of urban development, gut microbiota, soils, rocks and people’s inner world.

Bringing Weathering Practices into Dialogue

In our design interventions, we articulated weathering with storms and grounds as a critical practice of continuous recalibration to more-than-human phenomena through dialogical and introspective encounters (Figure 6.4). First, we explored the use of *weathering with* as an invitation to reimagine language and worldviews. Second, we *weathered with* as an invitation to embody more-than-human phenomena through sounds and other senses. Finally, we *weathered with* to open spaces for participation, inviting people inside and outside of the design field to engage in further breaking down and abrading our design position.

Weathering through Language and Worldviews

As we met storm and ground phenomena, some entrenched ideas, mindsets and worldviews began to erode. While *weathering with* grounds, we encountered troubled geological landscapes: blasted, excavated, and extracted soils and rocks. Following and hanging out with these landscapes made us aware of different temporalities: fast-paced industrialised construction and slow geological processes (Rumo, 2023). We surrounded ourselves with the possibility of being with grounds otherwise than the forms of engagements that dominate current construction techniques, industrialised activities, and economies driven by material growth and profit maximization (Neimanis and Hamilton, 2018). Well-established ideas and conventional language wore down in light of the ancience of geological landscapes and their irrevocable disappearance

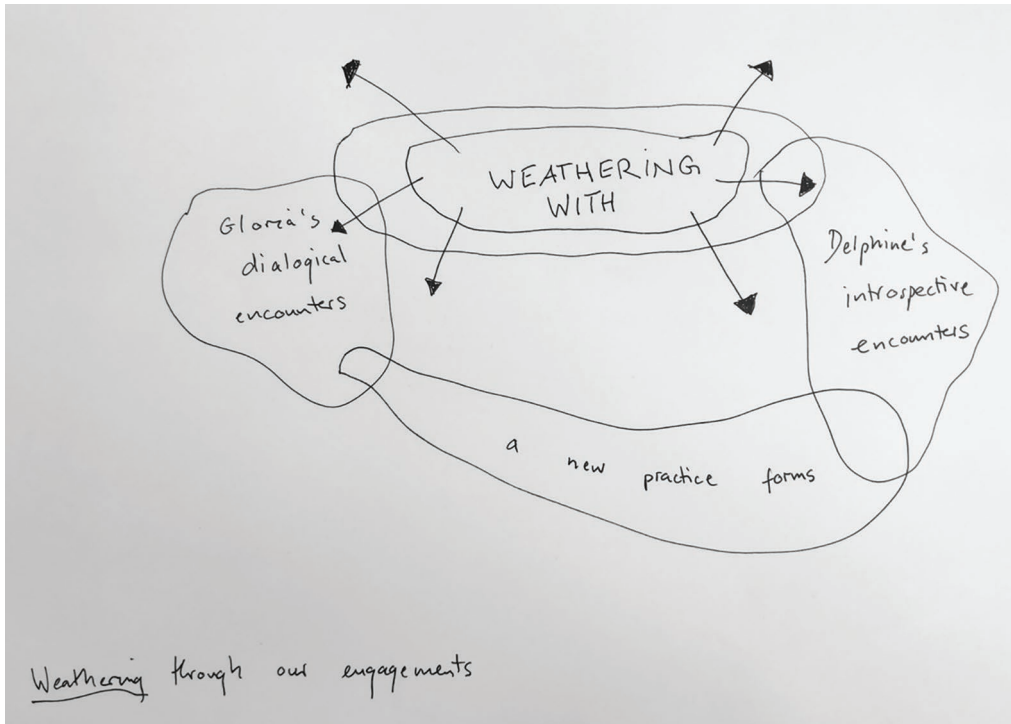


FIGURE 6.4 Our process of *weathering with* in dialogue

(Rumo, 2023). Similarly, *weathering with* storms eroded our ideas about wind patterns and their challenges for urban environments, such as the constant increase in extreme weather phenomena and the near-future limits of densification strategies.

Our *weathering with* processes enabled us to re-evaluate how to be and attend to the irreversible depletion and degradation of soils and rocks, and uncontrollable wind occurrences. To *weather with* earthly phenomena challenged our senses, memory and human presence, softening our design practices. We let ourselves be altered by grounds and storms which changed our perceptions of these phenomena and helped us lean into post-anthropocentric worlds. As we *weathered with* grounds and storms, we also engaged with new ideas of human-geologies-weather patterns interdependency and responsibility, moving beyond dichotomies such as large-small, inward-outward, life-death, biotic-abiotic, fast-slow, action-inaction, air-rocks and up-down. The practice of *weathering with* was a humbling experience, one that offered entry points into a deeper exploration of alternative languages and worldviews.

Weathering through Embodiments, Sounds and Other Senses

Weathering with also enabled us to enter into a dialogical work through embodiments, sounds and other senses. We were curious to *weather with* grounds and storms as a way to physically engage with the ungraspability and unknowingness of large-scale and omnipresent phenomena. To encounter storms dialogically (as opposed to monologically) meant that we never knew what our counterpart would ‘voice’ next (Lauterbach, 2022). For this type of genuine encounter to happen, we needed to give space to the other. As Buber (1983) highlights, we needed to

acknowledge that a dialogue is always reciprocal, very subtle, and rare but transformative. A dialogue is reciprocal and transformative because it only takes place because of the in-between of one and the other. This makes *weathering with* a process of constantly following and responding while leaving space between those who *weather*. Buber (1983, p. 13) himself calls this practice a “waiting towards and giving room”.⁴

A practice of “waiting towards and giving room” to grounds and storms could help us enter into conversations with more-than-human phenomena with as few preconceived ideas, expectations and answers as possible (Buber, 1983, p. 13). Further, in/through these encounters we got to meet the phenomena we worked with in different ways by attending, listening to, and observing more carefully the encounters themselves, with one’s main focus on the in-between. In the case of *weathering with* storms, grasping the process became possible through rehearsing it (Lauterbach, 2022). As we rehearsed designing with storms, looking for missing links, interconnections, and in-betweenness, we intuitively developed a tacit and embodied knowledge of the phenomena. The intervention ‘More-than-Human Karaoke’ enabled us to practice how to dub or sing winds and sounds of wildlife and nature. We listened to and recorded wind sounds, experienced a variety of winds and observed how winds themselves transformed with our built environments (for example, through sharp edges versus round edges of buildings). The exercise recalibrated ourselves bodily as our senses were challenged to observe, grasp and attune to an entirely different force, an other-than-human one.

Weathering through Participatory Engagements

Weathering with processes also opened spaces for participatory explorations and further discussions about storm and ground phenomena. We *weathered with* each other’s practices, discussing and discovering the interconnections between grounds and storms. We also brought our observations into conversations with other scholars and the broader public. The ‘Feral Festival’ was one example of an event where discussions about storms and grounds further opened up and almost continued their own lives. Through the intervention ‘Rocking Guts’, for instance, we *weathered with* people involved in decision making regarding the use of urban spaces. We engaged with the site of Lapinlahti, a building under threat of real estate development, and people involved in the initiative ‘Kaikkien Helsinki’⁵ who were dedicated to democratic participation in decisions regarding the city of Helsinki. As we shared ideas and exchanged contacts, we ran strings between projects related to urban grounds. Similarly, the intervention ‘More-than-Human Karaoke’ enabled us to practice *weathering with* together with various locations and people. In the installation, collaborative sound-making prompted ‘singers’ to develop an awareness of how they performed and attended environments both individually and collectively.

Through these discussions and participatory engagements, we facilitated interventions that opened spaces for further encounters between grounds, storms and people. Additionally, we let our design practices be altered by a broader range of people. This helped us carve more-than-human design practices that further engaged with a post-anthropocentric worlds that would interlink ground and storm phenomena with a wider range of people, sketching opportunities for change through design and non-design approaches alike.

In Conclusion, Weathering Beyond

Considering the current polycrises, and our position within an emerging field of more-than-human design, we found it important to lean into post-anthropocentric worlds. We used the

concept of *weathering with* as a way to focus on the situatedness and power dynamics at play when engaging with storm and ground phenomena. We brought the concept into practice by shedding light on the embodied and political aspects of uncontrollable wind occurrences and the depletion and degradation of soils and rocks. We *weathered with* storm and ground phenomena through dialogical and introspective interventions, offering a productive way of discussing the entanglements of our research practices with these phenomena. As we *weathered with*, we also expanded on the idea of *designing with* more-than-humans, exploring ways to change the power structures we were entangled with, including established languages and worldviews.

This chapter contributes to emerging research practices that explore encounters and engagements with large-scale phenomena. Examples of creative work related to grounds include storytelling, for instance, based on the relationship between contaminated grounds and designers (Latva-Somppi, 2020), representations of altered landscapes and historical strata of places through sculptural encapsulations (Brooks, 2017), and further exploration of human-decentring perspectives through thinking-with minerals using walking (Lilja, 2021), reading stones as collaborators using sounds (Madsen, 2020), or speculative participative engagements that consider grounds as not inanimate but living phenomena (Akama et al., 2020; Gatto and McCardle, 2019). Additionally, examples of interventions that engage with storms include new positionings where patience and loss of control become part of the practice and product (Devendorf, 2019), engagements that explore how to give air phenomena active roles in architectural designs and processes (Atmos lab, 2022) and investigations of wind as sound to prompt embodied interactions with earthly phenomena (Keenan, 2023).

Bringing storms and grounds closer to our design practices prompted us to engage with temporalities and scales beyond human experiences. We had to acknowledge our fleeting human existences and the limitations of individual and collective actions related to uncontrollable wind occurrences and the depletion and degradation of soils and rocks. Our practices were changed and complexified by diverse layers of discursive, embodied, and participatory entanglements, outlining the limitations of abstracting storms and grounds in more-than-human design. It became impossible to *design with* or *without* these phenomena. They could not be *designed with*, as in *included* in our design practices but only *weathered with*. As we sketched links between storms, monuments, sounds and voices, and between large-scale construction sites and individual gut feelings, *weathering with* outlined the need for more-than-human design practice to move beyond tendencies to reductionism and solutionism (Blythe et al., 2016). This acknowledgement meant altering our design practices and slowing down, exploring the unfolding of empathetic interventions. In this process, our practices became tools for more tender encounters, helping us narrate the in-betweenness, leaving spaces for humbling interactions, as we constantly got altered by grounds and storms, power structures, and troubled landscapes (Tokarczuk, 2019).

Our approaches to *weathering with* can strengthen design practices that explore counter-narratives of established worldviews and contribute to envisioning more inclusive, post-anthropocentric ones. We invite design practitioners and researchers to explore *weathering with* as a design approach that emphasises 1) an enquiry-driven, rather than solution-focused practice, interested in asking questions rather than seeking answers, 2) a sensitivity for bridge-building towards more-than-human phenomena through slowing down and non-linear practices, switching from monological to dialogical relationships, and 3) the situated, embodied, and political aspects of design. In other words, we invite practitioners and researchers to approach *weathering with* as an individual and collective design practice that can generate spaces for pauses and interruptions to explore the in-between, dynamic, and complex realms of *designing with*.

We want to conclude this chapter with a critical reflection on our practices, considering the urgency of the polycrises. We *weathered with* ground and storm phenomena that remained ungraspable, nevertheless deeply interwoven with human lives. This opened potential routes of exploration for more-than-human design practices that can engage with complex exigencies. Additionally, we kept questioning the strength of our design interventions: How can our more-than-human design practices more seriously and vigorously engage with the urgency of increasingly uncontrollable weather patterns and ground depletion and degradation? How can our practices keep up with fast-paced environmental and societal collapses? As we *weather with* further with omnipresent and all-encompassing more-than-human phenomena that permeate our close surroundings we look forward to exposing ourselves to the urgency of the polycrises and exploring ways to strengthen our design practices by sharing and discussing them with and through other/s.

Questions

- How can more-than-human design practices more seriously and vigorously engage with fast-paced environmental and societal collapses related to ground depletion and degradation and increasingly uncontrollable weather patterns?
- How can ‘weathering with’ help to lean into post-anthropocentric imaginaries, embodiments and engagements?

Notes

- 1 In the following, there will be terms and qualities used that might be confused with anthropomorphisation of more-than-humans. To use expressions in the text such as “conversational partner” or “storms...listen and react” means here instead, on the one hand, to show the limits of our languages and structures and, on the other hand, the need to exercise how to bridge to others through eroding anthropocentrism from within.
- 2 May questions be the engine of the field of more-than-human design? May questions help to envision a different form of cooperation with the world and more-than-humans? May asking as many questions as possible be the first step to re-learn how else to learn with others and to change from a monological to a dialogical relationship with more-than-humans?
- 3 The construction of the tramline that will connect Laajasalo to the city centre started in 2021 with an estimated completion in 2027.
- 4 In the German translation Buber (1983, p. 13) describes this ethos as “Gegenwartende” [a waiting towards] and “Gegenwährende” [giving room].
- 5 In English: ‘Helsinki for Everybody’.

References

- Appleton, J., (2018). The gut-brain axis: Influence of microbiota on mood and mental health. *Integrative Medicine: A Clinician's Journal*, 17(4), 28–32.
- Blythe, M., Andersen, K., Clarke, R., & Wright, P. (2016). Anti-solutionist strategies: Seriously silly design fiction. Presented at the 2016 CHI Conference, San Jose, 4978.
- Brooks, D. (2017). *Rock, Mosquito and Hummingbird: A Prehistory of Governors Island*.
- Buber, M. (1983). *Ich und Du* [I and Thou]. Reclam.
- Buber, M. (2002). *Meetings*. Autobiographical fragments. Routledge.
- Buchmann, S., & Ruhm, C. (2013). Subject put to the test. *Texte zur Kunst*, 90. www.textezurkunst.de/90/buchmann-ruhm-subjekt-auf-probe
- Buchmann, S., Lafer, I., & Ruhm, C., Eds (2016). Putting rehearsals to the test. *Publication Series of the Academy of Fine Arts Vienna*. Sternberg Press.

- Burnett, B., & Evans, D. (2016). *Designing Your Life: How to Build a Well-Lived, Joyful Life*, 1st edition. New York: Knopf.
- City of Helsinki (2019). Soil and bedrock [online]. *Helsingin kaupunki*. Available from: <https://www.helsinki.fi/helsinki/en/housing/plots-land-buildings/earth-bedrock/> [Accessed 7 March 2023].
- City of Helsinki (2021). *Helsinki City Strategy 2021–2025: A Place of Growth*. Helsinki.
- City of Helsinki (2022). Laajasalo. *City of Helsinki*. Available from: www.helsinki.fi/en/urban-environment-and-traffic/urban-planning-and-construction/urban-development/laajasalo [Accessed 15 January 2024].
- Clark, N. (2011). *Inhuman Nature: Sociable Life on a Dynamic Planet*. London: SAGE Publications Ltd.
- Devendorf, L. (2019). A machine for being frustrated. Available from: <http://artfordorks.com/a-machine-for-being-frustrated/> [Accessed 15 January 2024].
- European Environment Agency (2021). What will the future bring when it comes to climate hazards – Overview. *Briefing* [online]. Available from: www.eea.europa.eu/publications/europes-changing-climate-hazards-1/what-will-the-future-bring [Accessed 15 January 2024].
- Geertz, C. (1998). Deep hanging out. *The New York Review of Books*, 45(16): 69–72.
- Hack, H. (2020). Weathering, erosion, and susceptibility to weathering. In M. Kanji, M. He, L. Ribeira e Sousa, Eds, *Soft Rock Mechanics and Engineering*. Cham: Springer International Publishing, 291–333.
- Haraway, D. (2016). *Staying with the Trouble: Making Kin in the Chthulucene*. Durham: Duke University Press.
- Hermansen, M. T., Chilet, M., Ureta, C., & Marin, P., Eds (2023). *Design For More-Than-Human Futures: Towards Post-Anthropocentric Worlding*. London: Routledge.
- Ingold, T. (2007). Earth, sky, wind, and weather. *The Journal of the Royal Anthropological Institute*, 13, S19–S38. www.jstor.org/stable/4623118
- Kahraman, A., Kendon, E. J., Chan, S. C., & Fowler, H. J. (2021). Quasi-stationary intense rainstorms spread across Europe under climate change. *Geophysical Research Letters*, 48, e2020GL09236 <https://doi.org/10.1029/2020GL092361>
- Kambunga, A. P., Smith, R. C., Winschiers-Theophilus, H., & Otto, T. (2023). Decolonial design practices: Creating safe spaces for plural voices on contested pasts, presents, and futures. *Design Studies*, 86, 101170.
- Kangasluoma, E. (2023). Ympäristö | Mielenosoittajat leiriytyivät Helsingin Stansvikin kiistanalaiseen metsään [online]. *Helsingin Sanomat*. Available from: www.hs.fi/kaupunki/art-2000009911019.html [Accessed 20 November 2023].
- Keenan, F. (2023). The drum and silk: The experience of imitating wind as sound. *Venti Journal*, 2(3). Available from: www.venti-journal.com/fiona-keenan [Accessed 15 January 2024].
- Kokkonen, T. (2011). Non-humans and performance. *Journal for Artistic Research*, 0. <https://doi.org/10.22501/jar.7736>
- Kokkonen, T. (2021, August 13). *Performance by Non-Humans*. Tuija Kokkonen. <http://tuijakokkonen.fi>
- Latour, B., & Weibel, P. (2020). *Critical Zones: The Science and Politics of Landing on Earth*. MIT Press.
- Latva-Somppi, R. (2020). Traces from the Anthropocene: Working with soil. *RUUKKU - Studies in Artistic Research*, 14, 1–26.
- Laurien, T., Jönsson, L., Lilja, P., Lindström, K., Sandelin, E., & Ståhl, Å. (2022). An emerging posthumanist design landscape. In S. Herbrechter, I. Callus, M. Rossini, M. Grech, M. de Bruin-Molé, & C. John Müller, Eds, *Palgrave Handbook of Critical Posthumanism*. Cham: Springer International Publishing, 469–491.
- Lauterbach, G. F. (2022). *The Open Seam. On Becoming a Knot with a Storm-sculpted Roof, on Speaking-with from Within*. Helsinki: Aalto University.
- Le Guin, U. K. (2023). *Space Crone*. London: Silver Press.
- Lilja, P. (2021). Tracing matters of scale by walking with minerals. *Nordes Conference Series*.
- Madsen, T. M. K. (2020). *The Voices of Stones*, performance.
- Meulemans, G., & Granjou, C. (2020). Soils: A new frontier for environmental knowledge and policies. *Revue d'anthropologie des connaissances*, 14 (4).
- Miller, E. (2019). *Reimagining Livelihoods: Life beyond Economy, Society, and Environment*. University of Minnesota Press.
- Moffitt, L. (2023). Designing with wind: Architecture's model environments. *Venti Journal*, 2(3). Available from: www.venti-journal.com/lisa-moffitt [Accessed 15 January 2024].

- Neimanis, A., & Hamilton, J. M. (2018). Open space weathering. *Feminist Review*, 118 (1), 80–84.
- Oliveira Serpa, B. (2023). Militant design research: A proposal to politicize design knowledge-making. *Revista Disena*, 22, 1–15.
- Povinelli, E. A. (2016). *Geontologies: A Requiem to Late Liberalism*. Duke University Press.
- Rajakaruna, N., & Boyd, R. (2021). Geoecology. *Oxford Bibliographies*. Available from: www.oxfordbibliographies.com/display/document/obo-9780199830060/obo-9780199830060-0125.xml [Accessed 18 December 2023].
- Robertson, S. A. (2020). Re-placing soil and its mattering in more-than-human cities. *Australian Geographer*, 51(3), 307–324.
- Rumo, D. (2023). Grounded circularity: The livelihoods of surplus clay. *Journal of Cultural Economy*, 16 (4), 631–639.
- Scalenghe, R., & Marsan, F. A. (2009). The anthropogenic sealing of soils in urban areas. *Landscape and Urban Planning*, 90 (1), 1–10.
- Shapiro, J., & McNeish, J. A. (2021). *Our Extractive Age: Expressions of Violence and Resistance*.
- Sodero, S. (2019). Vital mobilities: Circulating blood via fictionalized vignettes. *Cultural Geographies* 26 (1): 109–125. <https://doi.org/10.1177/1474474018792656>.
- Tsing, A. L. (2015). *The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins*. Princeton: Princeton University Press.
- Sundberg, J. (2011). Diabolic caminos in the desert and cat fights on the Río: A posthumanist political ecology of boundary enforcement in the United States–Mexico borderlands. *Annals of the Association of American Geographers*, 101 (2), 318–336.
- Tarcan, B., Pettersen, I., & Edwards, F. (2022). Making-with the environment through more-than-human design. *DRS Biennial Conference Series*.
- Tokarczuk, O. (2019). The tender narrator. [Nobel Lecture in Literature]. The Nobel Foundation. Swedish Academy, Stockholm. www.nobelprize.org/uploads/2019/12/tokarczuk-lecture-english-2.pdf
- Toland, A., Noller, J. S., & Wessolek, G., Eds (2018). *Field to Palette: Dialogues on Soil and Art in the Anthropocene*, 1st edition. Boca Raton: CRC Press.
- Tsing, A., Swanson, H., Gan, E., & Bubandt, N. (2017). *Arts of Living on a Damaged Planet*. Minneapolis: University of Minnesota Press.
- Tuuling, I., Bauert, H., Willman, S., & Budd, G. (2011). *The Baltic Sea – Geology and Geotourism Highlights*. Tallinn: NGO Geoguide Baltoscandia.