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Performative Actions

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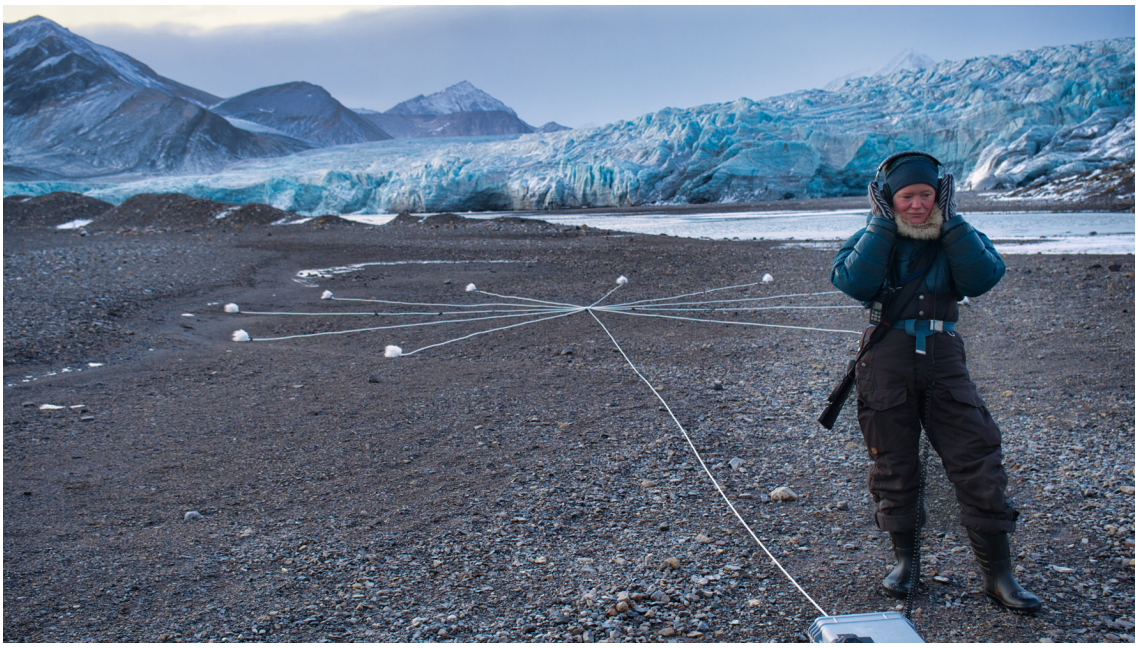
A multimodal collaboration between artists, writers, and scholars. This piece emerged from an expedition to the Arctic archipelago as part of the Arctic Circle Residency in Autumn 2022.

Macrophones

Brian House



Expedition leader Sarah Gerats listens to infrasound via House's Macrophone near Esmarkbreen (glacier), Svalbard. Photo.

Infrasound audio recording captured near Smeerenburgbreen (glacier), Svalbard. 1:80 ratio of recorded time to playback time; frequencies are heard ~6 1/3 octaves higher than originally sounded. 2023. Recording and production: Brian House.

The author declares they have no competing interests.

Body of Air: On Infrasound and Sensing Crisis

Brian House

The term "ground truth" first appears in poetry—Henry Ellison's "The Siberian Exile's Tale" from 1833. Today it's more often used in the context of remote sensing. That is, if much of what we know of the world at a distance is mediated by technological systems, ground truth is what we experience up close. I'm here in Svalbard ground-truthing; back home half a world away, with the help of machines, I heard something, and now I'm standing at the foot of a glacier that, perhaps, was the source. But for me, it's not only about a sound, but a question of the climate crisis and even one of love. I'll explain.

Waves

When I speak to you, the ebb and flow of air from my mouth makes a wave about ten feet across, interrupted at some point by your ear. That's a bigger wave than you might expect. Contemporary information theory suggests that communication consists of a transmission from point A to point B through some inert medium; I send the words, and you receive them. But the reality is that my voice envelopes you; it's an embrace of your whole body in a vibrating, lively atmosphere.

We're awash in a world of waves. It's just those that happen to fall within the personal physiological limits of our ears that register as audible; as an artist, I've recently been exploring those that do not. It turns out that there can be "sound"—if we can still call it that—with waves measuring miles across, frequencies so low that not only are they beneath any human's capacity to hear, but they're below our ability to feel, even as they flow through us every day. We call this "atmospheric infrasound," the anthropocentric "infra" denoting only that humans can't hear it.

But there's something even more special about infrasound. Due to a quirk of atmospherics, low-frequency waves aren't attenuated by the air in the same way that normal ones are. If I keep talking as I walk down the street, before long you'll no longer hear my voice. But infrasound *travels*—a hundred miles, a thousand miles, maybe even around the globe. This planet has one atmosphere, and infrasound bounces all around it, collapsing distant locations into one resonant whole.

Which begs the question: what could we listen to, if we could hear infrasound? What is the source of these inaudible waves within which we live our lives? I asked this question of the scientific literature, and among the answers I received are calving glaciers, power plants, wildfires, shifting ocean currents, superstorms, and even the most massive of

HVAC systems, such as those at data centers. Perhaps it should be no surprise that these are the sounds of the atmosphere in a time of climate crisis.

Movement

Knowing that, I can't bear the curiosity; I want to listen. If I could, I'd make myself big enough to hear these sounds, ballooning larger than a whale until my skin vibrates slowly enough to move with atmospheric waves. Instead, I make a machine. If a microphone captures small sounds and makes them bigger, what I call a "macrophone" can capture really big sounds and make them smaller. But the guides on this expedition call it my "spider"—a network of tubes capped with fuzzy windscreens that stretch across 80 feet of the Arctic landscape, sampling and averaging the air flow to isolate the infrasonic signal, speeding it up and raising its pitch into something audible.

The spiders don't actually live up here; they're better suited to the woods back in Western Massachusetts. Because infrasound travels thousands of miles, in theory I'm hearing some of these same Arctic sounds when I listen from home. But though I may suspect that a sound comprises the vast waves released by a glacier as it flows into the sea, I have an epistemological problem. Which is that even if I am hearing it, I don't know for certain that this is what glacial infrasound sounds like. So here I am, at the top of the world, attempting to listen to a moving glacier up close. Ground-truthing.

In some ways I'm ambivalent about the endeavor. There are colonial overtones to any "expedition," the Arctic Circle Residency included; let's be clear that travel to a distant locale in search of aesthetics signals privilege rather than sophistication. What is in front of me is everything and more of the polar imaginary in which I'm already subconsciously versed, and though I'm here for sound, I can't help but reach for my camera to recreate images like those I've seen of jagged peaks, impossible sculptures of ice, walrus comedies, and the undeniable romanticism of a masted ship cutting into a frozen bay.

Yet the actual shock of any wilderness burdened by Western dreams is that it is as concrete as anywhere else. It's made so by the prosaic efforts of the body—hungry, sanguine, seasick, bored—that bring us into contact with where we are, whether it's for a day or for the better part of a lifetime. Here, I know myself by the frozen ground penetrating my rubber boots, the pantomime of seals tracking our progress down the shore, the COVID-19 spreading among my shipmates. The body is ground truth, and it's never alone.

Breath

For all that, what do I hear of an Arctic glacier? Sped up by a factor of eighty, a minutes-long groan becomes an exclamation; what was so deep as to be an imperceptible part of the background becomes a melody. Bursts, pops, tones, and whistles—anything but silence. What's lost in majesty is gained in cautious familiarity; the wall of ice before me is rendered as an ice cube in my hand.

I'll play you this recording, and I think there is some poetry in it. True, it might be a document of a glacier melting before its time. If so, this is not new information, and I do not mean to aestheticize the dying; in a world out of balance, we don't need to dramatize a reality in which we're already immersed. But that, in fact, is what I take from these sounds. That even if I recorded them in Svalbard, I might have heard them in Massachusetts. That there is but one atmosphere, filled with infrasound from melting glaciers, breathed everywhere, and I now know it to be true.

On a distant and warmer shore, my son has a grip on my hand. Too small to swim, he runs in circles at the water's edge, pulling me along with toddler vitality until I'm stumbling for my breath. Glaciers and power plants embrace us both, unheard but not silent. Perhaps it's "air truth" I'm straining to hear; nothing so solid to stand on, but the shape of the world becoming.

The author declares they have no competing interests.