A COLD, HARD ACT

USING SENSORS IN THE ARCTIC, A PROFESSOR HOPED TO VISUALLY DEPICT THE ICE MELTING FOR AN AUDIENCE A CONTINENT AWAY–UNTIL CILMATE CHANGE ITSELF DISRUPTED HIS PLAN.

BY SALA LEVIN '10

PHOTO COURTESY OF CY KEENER

CY KEENER STEPPED OUT

onto the nearly monochromatic, frozen landscape surrounding the northernmost city in the U.S. The scene outside at Utqiagvik, Alaska—formerly known as Barrow—was breathtaking this April morning: Giant, fractured blocks of sea ice loomed over the assistant professor of art, and the stillness was at odds with the ocean that churned silently and invisibly beneath the surface.

Keener was at once awed and melancholic. He knew that this vast expanse of ice at the top of the world—the oldest sections of which have shrunk by 95% since 1980—could vanish within a few decades.


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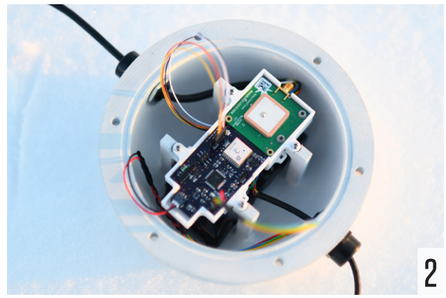
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1 Keener started with two sensors placed via drill into the ice, but one was destroyed within days by a polar bear. "That's fairly normal for the area," says Keener. The second went out to sea in June when the ice in which it was embedded broke off and melted.

2 A micro-controller within the sensor monitored data on air temperature and ice thickness and sent it to Keener.

3 A 1-meter-long drill bit attached to a battery-powered drill pierced the ice to allow for placement of the sensor.

PORTRAIT BY STEPHANIE S. CORDLE; DETAIL PHOTO COURTESY OF CY KEENER

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–CY KEENER

Some 3,400 miles away, in a street-facing window of the Rockville, Md., VisArts center, Keener planned to visually document this ice from May to September as it slowly thinned. Using sensors buried two meters into the ice, Keener and his collaborator, Justine Holzman of the University of Toronto, intended to track its thickness daily, transforming that information into "Sea Ice 71.348778° N, 156.690918° W," an art installation in which hanging strips of 6-foot-long, blue-green polyester film reflect the depth of the ice. Over the warm months, the lengths of the ever-growing number of strips—Keener added new ones every four days—would dramatically shorten.

But there was a snag. First, one of the two sensors a polar bear destroyed. (Standard job hazard.) Then, the piece of ice containing the second sensor detached from land and elevated out to sea in mid-June. The ice further broke up, and the buoy traveled into open water. Keener could no longer receive data about ice thickness—unprecedented warming had already melted the ice he was depending on.

"Of course, I was disappointed, but I also think it's indicative of what's going on in the sense that in past years that ice might not have broken off" until much later, says Keener.

Instead of hanging strips, Keener made a series of six 30" by 70" maps of Arctic sea ice extent for 2019 to compare with sea ice extent in 2007.

Trained as both an artist and architect, Keener has long been interested in how technology, art and the environment intersect. He's used sensors to track the movement of stones along a riverbed during flooding aznd buoys to monitor ocean currents. While working on a glacier project, Keener met a researcher from the National Ice Center, who linked Keener with a National Science Foundation-funded Arctic expedition.

"One of the struggles of art that tries to engage in issues like climate is that it gets cloistered away in a gallery setting ... where not that many people go," says Keener. "I liked the idea of the street being the audience, as opposed to whoever wandered into [a] gallery. It's a 3-D billboard for melting Arctic ice." **TERP**

PHOTO BY STEPHANIE S. CORDLE