

Quiet Climate Communication: Beauty and Poetry

Abstract

Societal understanding of climate change, sustaining ecosystems, and preventing decay of existing environmental balances are critical to maintaining a habitable global environment. Solutions to these pressing issues require collaboration between scientific and artistic communities. Motivating the implementation of solutions requires the humanities to join the science community to usher in trust of the science, understanding of our climate and engagement by society. Visual and literary communication methods have been used by civilizations as far back as we have documentation. These traditions speak both factually and emotionally via artistic voices embedded with an understanding of the science. The three such collaborations are presented here.

Keywords

Climate communication, art-science collaboration, data visualization, poetry, wildfire, Arctic field studies, Greenland's ice sheet

Introduction

Scientists have identified effects of anthropogenic climate change, including sea level rise and flooding, habitat loss, decreases in biodiversity, extinction and threats to food supplies [1]. Scientists have argued strongly for sustaining ecosystems and preventing further decay of environmental balances in order to maintain a habitable global environment [2].

However, Hulme, a climate scientist, noted that crafting increasingly consensual reports of the scientific knowledge, or leveraging more engineering and technology, will alone never open up pathways from the research to the public imagination or execution of policy. He makes the case for elevating storytelling alongside the fact-finding in order to help society understand and respond to climate change. Intellectual understanding as well as an

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emotional connection is required to motivate concrete action that includes lifestyle changes [18, 23]. This portfolio presents collaborations between Samsel and three poets.



Figure 1. The opening of *Let Them Not Say*, blending poetry and visualization about wildfire.

Defining Poetry

Painting is poetry which is seen and not heard.
Poetry is a painting which is heard and not seen.
Leonardo da Vinci

Poetry for Climate Communication

Combining poetry with visual imagery offers a powerful mode of climate communication that bridges empirical science and lived human experience in ways that data alone often cannot. Research in environmental communication and ecopoetics demonstrates that poetry's metaphorical precision and emotional resonance can personalize abstract climate processes and make scientific knowledge more accessible and meaningful [3]. Theoretical work on climate geopoetics

further argues that poetic language provides a critical framework for situating environmental data within cultural, ethical, and affective contexts [4]. When paired with visual elements such as scientific visualizations, interactive exhibits, or environmental imagery, poetry becomes a mediating lens through which audiences can simultaneously see and feel climate change, aligning cognition with emotion [5]. Empirical studies show that arts-based approaches, including poetry, are particularly effective in engaging underserved or non-expert audiences with environmental issues by fostering reflection, empathy, and dialogue rather than persuasion alone [3]. Together, poetry and visual imagery support a form of climate communication that connects facts to values, enhancing understanding of both the scientific realities of climate change and the human stakes of action or inaction.



Figure 2. Woven Gifts, a mural about the diverse cultures that have lived and worked in Yonkers New York, building it into the melting pot of cultures that it is today. Mural, 140' x 20'. By Francesca Samsel, 2007

Samsel, a mural painter before turning to visualization, has long incorporated poetry into her work, providing another inroad for viewers. In Woven Gifts, Figure 2, there are poems by Emily Dickenson, who lived in Yonkers, Maya Angelo, Francis Bacon and others.

About Jane Hirshfield

Jane Hirshfield is an internationally acclaimed poet and essayist whose work addresses climate change, extinction, and humanity's ethical relationship with the natural world. Her poetry and essays bring environmental urgency into intimate, reflective language that invites attention, empathy, and responsibility.

A founding voice of Poets for Science, Hirshfield has helped mobilize writers in public support of science and climate action, demonstrating how poetry can engage civic life and deepen environmental understanding. She has presented poetry and spoken on the role of art and responsibility at Nobel Prize-related events and other international forums, where her work highlights how imagination and beauty can shape meaningful responses to planetary crisis.

The original video of *Let Them Not Say* is available at <https://vimeo.com/1129924529>

Let Them Not Say, By Jane Hirshfield

Let them not say:
we did not see it.
We saw.

Figure 3. *Let Them Not Say*





Figure 4. Let Them Not Say

Let them not say:
we did not hear it:
We heard.

Let them not say:
they did not taste it.
We ate, we trembled.



Figure 5. Let Them Not Say



Figure 6. Let Them Not Say

Let them not say:
it was not spoken, not written:
We spoke,
we witnessed with voices and hands.



Figure 7. Let Them Not Say

Let them not say:
they did nothing:
We did not-enough.

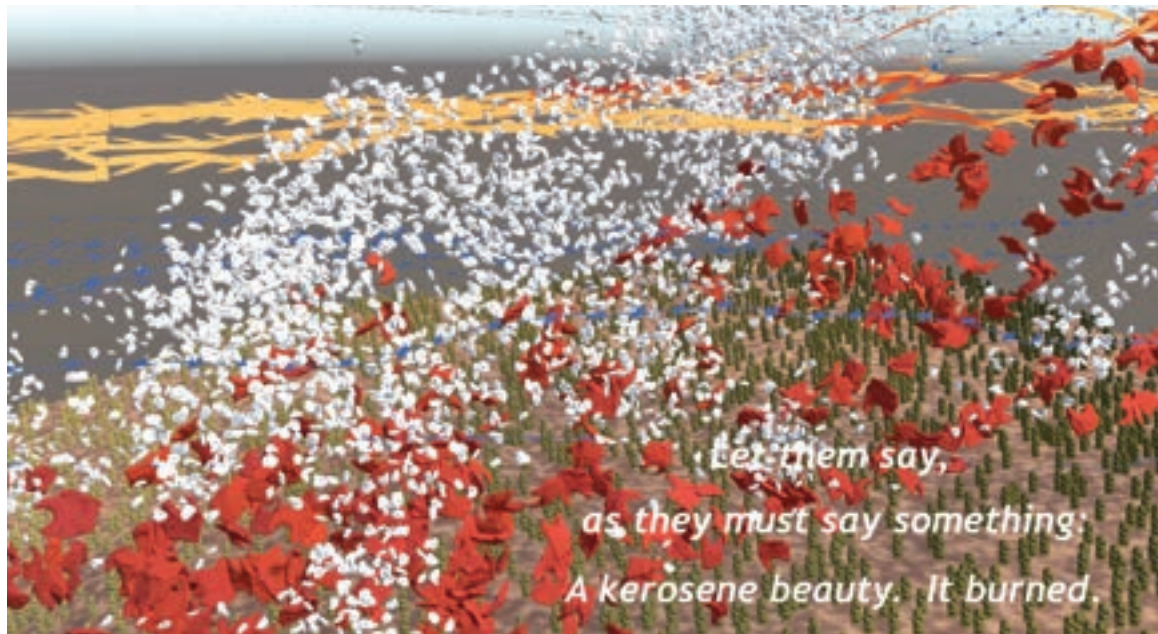


Figure 8. Let Them Not Say

Let them say,
as they must say something:
A kerosene beauty
It burned.

Figure 9. Let Them Not Say

Let them say we
warmed ourselves by it,
read by its light,
praised,
and it burned.

Jane Hirshfield



Wildfire Simulation Data

The visualizations in “Let Them Not Say” uses data from the Higrad/Firetec Wildfire Simulations, developed by Rod Linn [6].

Visualizations of the same data created in ParaView are shown in Figures 10 and 11. These visualizations are complicated because of the many factors involved in how wildfires develop. The simulations shown here are created by Samsel with the intent of providing scientists with the information they need to understand and predict wildfire behaviors.

Wildfire behavior is a result of complex nonlinear interactions between a variety of physical processes and chemical reactions. Understanding the coupling between these components and the ways in which their interactions are influenced by their surrounding environment (e.g. winds, fuels, and topography) is a challenging undertaking. This simulation examines vorticity-driven lateral spread (VLS) in wildfires of mountain and canyon topographies.

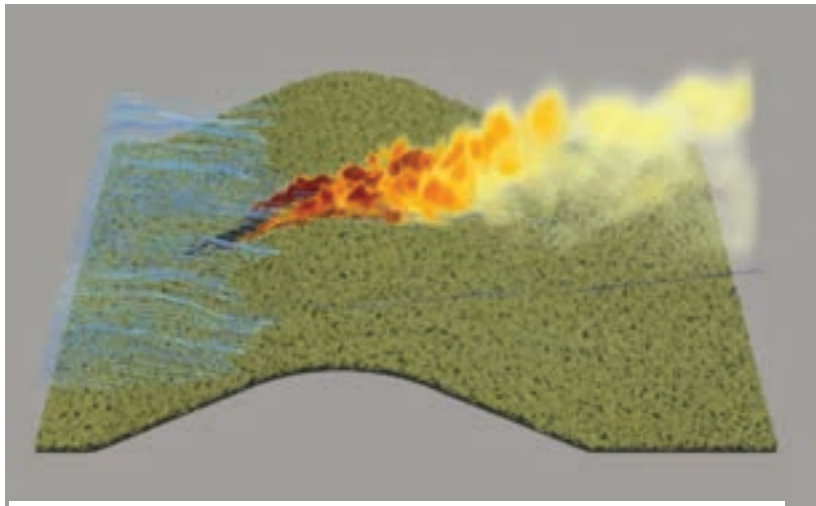


Figure 10. Wildfire simulation using the same data as the images accompanying Let Them Not Say.

These nonlinear interactions, and corresponding range of scales of processes influencing wildfires, contribute to surrounding environment (e.g. winds, fuels, and topography).

The visualizations made for Let Them Not Say present the same exact data, but in a language designed for its expressive capacity. The visualizations are built using Artifact-Based Rendering which enables artist-created glyphs, textures lines and colormaps to be applied to data [7].

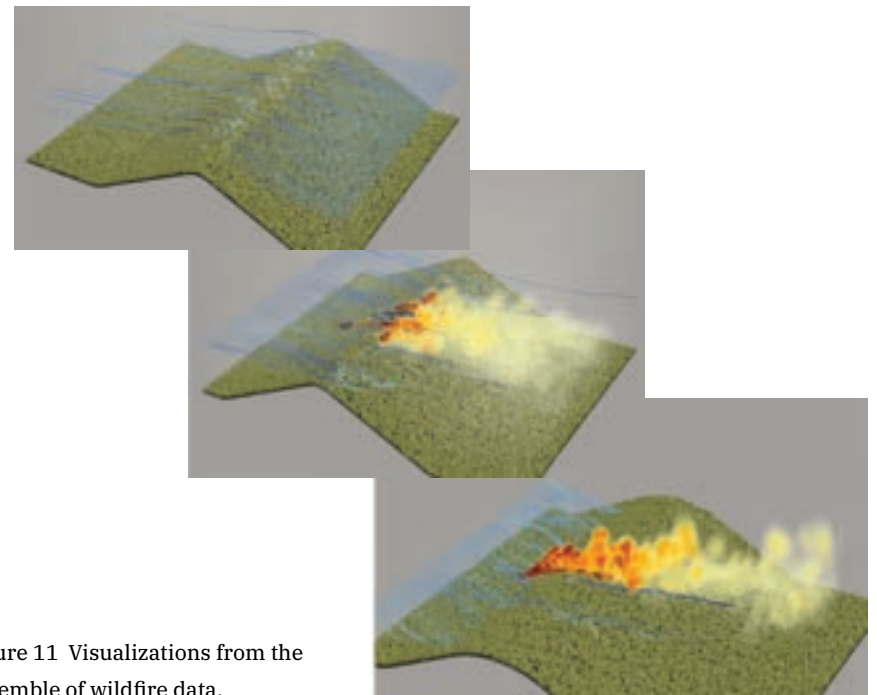


Figure 11 Visualizations from the ensemble of wildfire data.

Between Melt and Memory

Driving this collaboration between Samsel and Keisling is a concern for the accessibility of climate science. The processes by which knowledge is created—sampling, modeling, simulation—often remain opaque to the public, even as their implications shape the future of habitability. Between Melt and Memory melds scientific artifacts with artistic transformation to provide pathways into this complexity. It does not ask viewers to master the data. Instead, it offers entry through curiosity and wonder, acknowledging that not all facts must be present to begin contemplating responsibility and change.

At each of three sites, scientific analysis of ice, sediment and rock reveals the last time these ancient materials saw the sun – meaning the ice was smaller than today: at Prudhoe Dome, 7,430

years ago; and at the Summit, one million years ago. Closest to the coast at Prudhoe Dome, the relatively recent exposure of these materials tells us with a high degree of certainty that the ice sheet receded by ~10% in response to limited high-latitude warmth [8]. As we traverse deeper inland to the other sites, our knowledge becomes less certain—yet these sites tell of times when the ice sheet was much smaller or even absent. If warming continues, such states become plausible. That risk motivates continued scientific innovation and the application of high-performance computing to unravel the mysteries these ancient archives encode.



Figure 12 The research sites

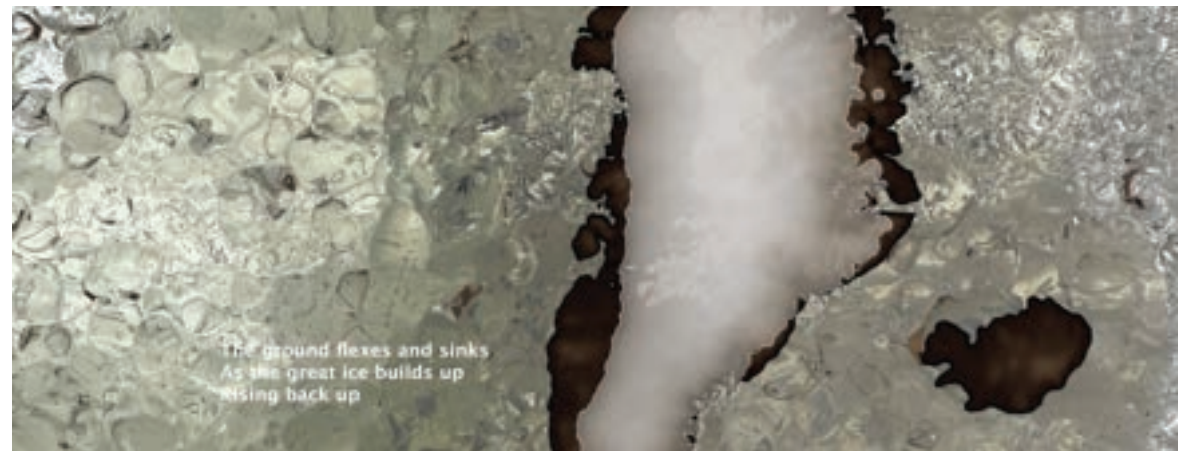


Figure 13 About the Bedrock

The ground Flexes and sinks
As the great ice builds up
Rising back up

Figure 14 On Prudhoe Dome

Rays of light accumulate
over 7,000 years
tracking time
Since the ice last returned.





Figure 15 Camp Century

Tiny fossils
Recall forests and streams
Landscapes that once thrived
Resting now under the weight of the ice.

Figure 16 GISP2/GRIP
Air above the ice sheet, dry, fresh and crisp
Bubbles entombed
Shifting downward over a million years,
Now an ancient breath resting
just above the bedrock.



Between Melt and Memory traces the spine of Greenland's ice sheet, from the thinning, melting margins near the ocean to its two-mile-thick summit some 700 kilometers inland. Scientific methods reveal that this immense body of ice has been far smaller in the past, responding to prolonged warmth over millennia. Subglacial matter becomes data, becomes model, becomes image, and finally becomes felt experience. The work translates isotopic records and computational simulations into visual and tactile languages that mediate between scientific models, display systems, and public perception.

Climate Prisms: The Arctic, Poetry by Michael G. Smith

Poetry provides a context linking cause and consequence, fact and feeling. Through the precision of language—and its capacity to both relax and stretch meaning—poetic metaphor becomes the exhibit's connective tissue, melding scientific knowledge with human values. In this work, poet Michael G. Smith interprets observations of climate change in the Arctic and the complex science underlying it, with particular attention to the short- and long-term repercussions of human inaction and the resulting environmental degradation.

The poetry pieces shown here are part of Climate Prisms: The Arctic, which is an interactive museum exhibit created by visualization artist Francesca Samsel in collaboration with Arctic researchers from Los Alamos National Laboratory. Commissioned by the Bradbury Science Museum, the exhibit integrates art, poetry, and scientific visualization to bridge empirical data and lived experience [9]. Smith collaborated with Samsel on a series of poems created specifically for Climate Prisms: The Arctic, a selection of which are presented here, inviting viewers to encounter climate science not only as information, but as

Thinking About the Data

There are those times when you must walk away from the laptop or white board scribbled with notes and equations and step past the door into the winter that seemingly goes on forever. You've stopped being in the world of hard numbers.

In that world, life has no meaning. But out here the snow is windblown, and each boot fall requires a firm push to break through the crust. And out here your lone footprints mark the passage of someone who imagined and dared.



Figure 17, Thinking About Data, connects us to the researchers themselves, via an internal voice, and highlights internal struggles recognizable to us all.

Feedback Loops

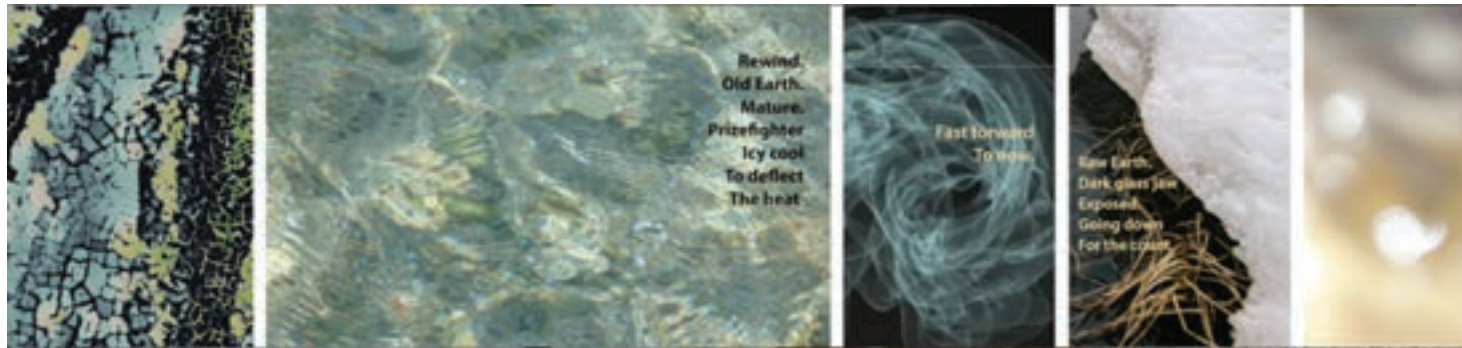


Figure 18 Feedback Loops speaks to the role of water in all facets of the climate. The center image is a visualization of water vapor forced into the stratosphere by an asteroid impacting the ocean. Watching the animated visualization of the water vapor is as mesmerizing as watching the patterns and powers of nature.

Rewind
Old Earth.
Mature.
Prizefighter
Icy cool
To deflect
The heat.
Fast forward
To now.
Raw Earth.
Dark glass jaw
Exposed.
Going down
For the count.

Feedback Loop connects the physical environment to its abstraction representation, a lidar visualization of the topography of the Arctic tundra, thus linking the abstract scientific recording to the physical environment represented. Visualizations, photographs, drawing, and poetry were all derived from interviews and documentation from the NGEE - Arctic team.

Tipping Point



Fig. 19 Tipping Point's images from left to right: researcher on the tundra; aerial view of colliding sea-ice; drained dry tundra; visualization of ocean.

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Figure 20. Visual poetry and science illustration. This “Combine” is an illustration of

