

## Hydrological Globalization

*Cymene Howe*

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"An ocean erases everything that is written in sand"

— Oral Traditions by William Nu'utupu Giles and Travis T.

What if we were to find ourselves entwined by water, bound together through a world ocean? For oceanographers, the seas of the planet are one body of water lying across the surface of the earth, never neatly captured in a name, like Pacific or Indian or Southern. But the world ocean does not just lie there inert. Its motion is constant in tides, currents and conveyors. Its movement is also skyward, rising up into the atmosphere evaporatively becoming clouds, and returning as rain and snow, sleet and storm. A hydrological cycle of watery interplay.

The world ocean erodes and carries, flows and sweeps. As [Hi'ilei Julia Hobart](#) reminds us, "Water's nature is diasporic. It transits and carries and adapts to environments whether engineered, neglected, or carefully preserved. Often, it misbehaves in such a way that reminds humans of the limits of their own power and control." Its disobedience may be its magic.

Bodies of water have a special place in our collective imaginaries—sometimes life *force* (sustaining biotic being), sometimes life *form* (as a non-human being). But bodies of water in these times of environmental distress become infused with new meanings and new potentials as they are changed by heat, in the air and on the land, thermally conducted into the world's waters.

Think of ice. At the southern pole of the world, the frozen continent of Antarctica has lost almost 6,500,000,000,000 tons of ice in the last 30 years. In the Arctic north, heat is

turning ice to water faster than anywhere else on earth. We know that these melting places are pouring vast quantities of water into the world ocean. Arctic glaciers, changed from solid to liquid, are now the source of more sea level rise than any other: more than the distending effects of oceanic thermal expansion and more than the largest mass of earthly ice melting at the southern end of our world.

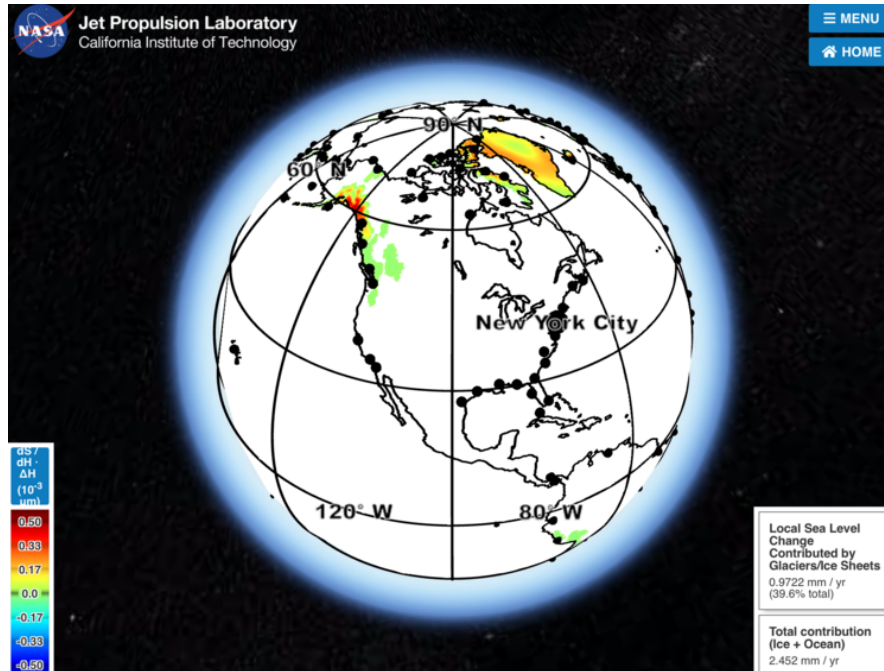
As our planet's ice is turned to ocean, we might think on how, whether or if, ice, now made water, is creating routes and passages of connectivity between otherwise distant places. Put another way, how might melting ice transformed into rising seas bind us together across continents through the world ocean?

### **From Ice to Ocean**

When we try to follow meltwater in its passage, to become sea level rise elsewhere, we learn that unlike the borders drawn on maps, the flow of planetary water does not conform to a linear path. In a sense, there is no path at all, but instead a contortion of earth's "liquid envelope." As meltwater conjoins with the world ocean, the planet's gravity, as well as its rotation, are shifted, creating different spatial patterns of sea level rise around the world. The shape of the ocean distorts and then reforms.

The relationship between a changing cryosphere—earth's ice—and its effect on sea levels along the world's coasts, has been very difficult to track. But recently, a group of physicists has created [a way to map](#) that connectivity. Pinpointing contributions from each major glacial basin on earth—from the Himalayas to Antarctica and from the Canadian Arctic to the Southern Andes—their model shows where specific sites of melting ice reappear as sea level rise in our coastal cities. It shows, for instance, that Cape Town, South Africa, is more affected by Icelandic melt than any other city in the world and that Greenlandic melt impacts sea level rise in Honolulu, Hawai'i more than any other city in the United States.

What might these watery connectivities show us? Not just about the physics of displaced water, as an anthropocene fugitive, but in their multiple (and multiplying) socionatural entwinements?



Screen shot from NASA's Jet Propulsion Laboratory (<https://vesl.jpl.nasa.gov/sea-level/slr-gfm/>)

## Hydrological Globalization

The concept “globalization” originated in the first turns of neoliberal capitalism as it was set loose on a planetary scale at the end of the Cold War. Since that time, globalization has been metaphorically operationalized in terms of circulation and flow. We have Appadurai’s scapes. Bauman’s liquid modernity. Commodity Chain analysis. But, the condition called globalization requires rethinking in the Anthropocene. This is not just because the world of commodities and subjectivities has changed, but because the natural world is changing under and around us. And yet, theories of globalization have largely ignored *physical* drivers, such as earth systems, in their analyses of *social* connectivity. Places, things, and people are altered by biospheres, atmospheres, cryospheres, lithospheres, and hydrospheres in flux. This requires new ways of thinking about globalization as a process that is not solely market-oriented or even explicitly human-focused, but instead, attentive to the socionatural connectivities brought about by changing earth systems.

As the world’s water becomes differently distributed under the impact of anthropogenic forces—through a collapsing cryosphere and sea level rise, extreme rain events and groundwater depletion—the concept of hydrological globalization traces the emergent connections between water in motion and responses to it. Hydrological globalization finds global connectivities not primarily through links of trade, migration, finance or media, but through physical relationships created as our hydrosphere is reshaped. Conceptually, it allows us to follow the impacts and uptakes of watery

rearrangements—connecting geographical sites, both materially and socially, by literally connecting them through their/our water.

There are moments of juxtaposition between the globalization of neoliberalism and a more anthropocenic globalization. Deterritorializations (Deleuze & Guattari 1983, 1987) continue to have theoretical influence among those interested in mining the possibilities of the rhizomatic. Intellectual debates have also seen the return of the “hyper.” Early globalization studies saw “hyper-spaces” exemplified by airports and global franchise restaurants that were detached from local referents; then, *detachment* was key. Now we have the “hyperobject” (Morton 2013)—exemplified in things like climate change and styrofoam—entities that greatly exceed all human scale in their temporal duration and spatial dispersion and yet, are “sticky” in the ways that they interconnect humans (and others) through space and time; with them, *attachment* is key. Even more importantly, feminist and indigenous theorists have demonstrated the value of *relations* and *entanglement* and *care* (Alaimo 2016; Barad 2007; Haraway 2008; Howe 2019; Whyte 2018) as critical forms of attachment.

In hydrological globalization, we balance between these thematics: (1) from deterritorialization (a land-based metaphor) to hydrological connectivity (a water-based physicality); (2) from detachment in hyperspaces to attachment through relations (of care and kin) and hyperobjects (like the world ocean); and, (3) from scapes and flows located in human movement, commerce and ideological exchange to the physical transformation of earth systems as they affect socionatural presents, and futures.

Global hydrological changes are affecting, and will continue to affect, every population on earth—as waters move and transform through storms and drought, melt and rise. What ties of hydrological connectivity might arise in this process? And what are the deep blue threads of natureculture that they may hold?

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**Cymene Howe** is Professor of Anthropology at Rice University. She is the author of *Intimate Activism* (Duke 2013) and *Ecologics: Wind and Power in the Anthropocene* (Duke 2019) and co-editor of *The Johns Hopkins Guide to Theory and the Anthropocene Unseen: A Lexicon* (Punctum 2020). Her research on cryohuman relations examines the changing dynamics between people and bodies of ice in the Arctic region and sea level rise in coastal cities around the world. In 2019, she initiated the [world's first memorial to a glacier fallen to climate change for Okjökull glacier in Iceland](#).

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