BIPOLAR
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TheArtsCatalyst

THE CORE

Kathryn Yusoff, *Core Histories: Visual Scanners*, U.S. National Ice Core Laboratory, Boulder, Colorado 2007


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CORE HISTORIES
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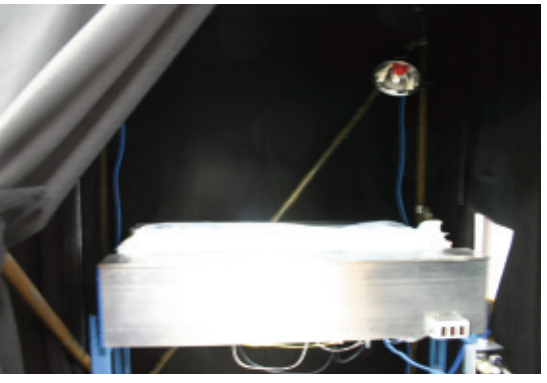
From the beginning, I had this image in my mind of putting an ice core next to the central core of books in the British Library. This image of two cores; one cultural and one biophysical, set a lot of questions in motion about the possibilities of these two types of environmental knowledges. And, how these two different archives suggested such different kinds of earth histories, as well as challenging us to think beyond human timescales.

The polar archives of ice cores from Greenland and Antarctica are among the most startling and important archives discovered in recent times. The science of ice coring has been able to correlate important data for future predictions of climate change. In the process of extracting the ice core and the information it contains, more conventional archives are created that add metadata to the core, drawing on scientific and humanistic techniques for curating information. Ice cores are by no means the oldest physical archive, yet they have been one of the most important scientific objects used to situated humans' as effecting *atmospheric phenomena* large enough to cause global biophysical shifts.

The **locations** of ice core geographies are multiple: field, drill site, freezer, ship, cold storage, laboratory, chemical analysis, GCM's, scientific papers, political briefings, policy documents, public spaces. Ice cores are spacio-temporal envelopes, archiving global atmospheres over one million years – atmospherically, As Heather Frazer comments, they are many places in one.



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But, ice cores have a complex relation to the ice sheets - they are extracted from different geographic locations and from different times (from the IGY onwards), with different regimes of scientific practice governing data extraction. There is a geopolitics to the **infrastructure**; in the field, this relates to who has access to the sites and the size of drilling infrastructures, and the inherent potential for drilling to be utilised for other geological applications. In the U.S., the ice core laboratory is located in a federal estate, with the Department of Homeland Security. The Cold Regions Research and Engineering Laboratory, U.S. Army Corps of Engineers uses ice cores and ocean-based sediments "research for modelling and predicting impacts of climate change on battle space environments" and "Future Combat Systems".

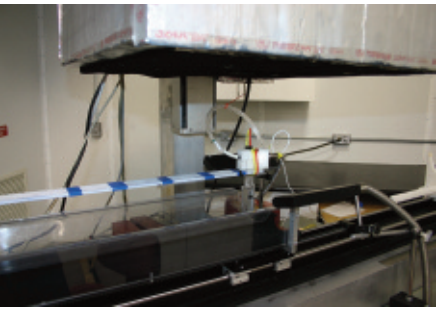
Yet, ice cores knowledges have been explicitly used to attempt to *force* political ends. The collapse of the Larsen B iceshelf in 2000, was a catalyst for some ice core scientists, and resulted in the emergence of heated policy debates, science blogs, and the engagement of publics in science. The *force* of Larsen B was a call to politics, co-produced through physical changes in the Polar Regions and ice core knowledges. This beginning of a disclosure of ice core knowledges to publics included popular books by ice core scientists that addressed social/cultural issues. Here is the introduction to Richard Alley's *The Two-mile Time machine; ice cores, abrupt climate change and our future*

> "We live with familiar weather – ski areas are snowy, deserts are parched, rain forests drip. But what if our climate jumped to something totally unexpected?" (Alley, 2000, 3)

> "To read the record of past climate shifts, we have to find the right history book. Humans hadn't yet mastered writing the last time the climate jumped, so we can't look up the answer in the library. Fortunately, there is a sort of "library" in ice sheets… (Alley, 2000, 11)

There is joy in the ice core, its dizzying, vertiginous history – a new iconic future orientated object –– but, what is its place and pace in human existence? How do the stories that we tell of ice cores make different histories of time materialise. For Alley, "Interpretation of ice cores, and of many other climate records, has recently revolutionized our view of the earth" (Alley, 2000, 13). So, how much do we know and understand about these "time machines" that whisk us into future scenarios and back through glacial events – our contemporary ice Tardis? Where scientists become both archivists and time travellers? Part of the seduction of ice cores is the appeal that is made to our basic understanding of history, because they initially seem to present a timeline, a ruler history of linear time and locatable events.

Ice core knowledges are certainly an axis, a fulcrum of looking both ways, past-future. The future that this science portends to, opens into a form of questioning, of desire for different kinds of futurity, scenarios, political effectiveness, communication with "publics" and other interdisciplinary excursions. The circuit of ice core knowledges burns deeply into the question of what science is and its place in the world. The value of ice, and of the Polar Regions more generally also passes through this black box; spaces formerly on



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the periphery become crucial to the possibilities of knowledge and the future. The ice is changed by the activities of this cold room knowledge practice – how we relate to the Polar Regions and how we pass by or take notice of ice sheets, shelves, glaciers and cold places. As such, ice core knowledges are concerned with temporal-spatial issues: the melting ice and the effect on sea level rises, and the consequences of this for future social transformation

I spoke earlier about the archive as a gesture and a technology of the future, and ice cores are exemplary of this. As ice core data forms the basis for climate prediction models that generate models of the future, we can see this prediction as a form of SF that has to contend with speculation and doubt to bring critical insight to future climate uncertainties.

Reflection on the ice core leads to questions about the archive and its curation, science, and the cultural contexts in which scientific knowledge is produced, and the relationship between the history of environments and contemporary society. What does the core tell us about climate change and how do we get this knowledge from the core? How is the core extracted, curated, interpreted into the discourses of climate change? What kinds of memory work do ice cores provoke and narrate? What are the technologies and practices through which we know these histories?

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