



Amongst the Living Cathedrals of Disko Bay
Digital drawing with photograph
Mary Walters
2024

art for climate change



Ilulissat
Ink on paper
Mary Walters
2024

Glacial Narratives

is a series of
3 exhibitions over
3 years by
3 artists inspired by
Arctic landscapes.

Icebergs – again?

It seems odd to hold a candle to the sun - as odd as if a curator in Ilulissat would decide to show works inspired by ice and icebergs. The city's name Ilulissat is the plural form of the Kalaallisut word iluliaq that means iceberg, mainly describing the part above the water line - itsineq is the part below the water surface. Both parts play a crucial role for the stability and movement of an iceberg; both parts decide about its beauty, danger and form, its surface structure, and colour. However, icebergs are just a materialized time line of compressed snow. Frozen sweet water.

The moment an iceberg is born, its disappearance starts even though it might take years and hundreds of miles to travel southwards. It is a journey of hundreds of visual transformations, of turning, swivelling, twisting, spinning movements. Even the biggest and strongest icebergs will split into parts, each one telling its own story of degradation.

When the sea ice builds, frozen salt water and frozen sweet water create an ever-moving seascape, an extension of the land, an endless white surface you once could walk and drive on. Icebergs are the mountains of that seascape.

We have icebergs all year round. They are part of our daily life and a visual proof of the glaciers' calving activities. They change the horizon and thereby the landline. With the tide, smaller fragments move towards the shore and are still a favoured source for drinking water for the locals.

Climate and icebergs always influenced the existence of settlements in our area. We see a direct connection between the temperature curve of the last 4000 years and the habitability of certain locations. Like icebergs, the indigenous inhabitants of Kalaallit Nunaat, also known as Greenland, lived in a nomadic way. While the increase of ice forced people in the past to give up certain places, nowadays humans force the ice to disappear. We seem to forget that the existence of ice depends on a tiny line on the thermometer.

Icebergs are the reason why so many tourists come to visit our place. Icebergs seem to be an endless source of inspiration for artists. While tourists mostly feel attracted by the size, form, and sublimity of icebergs, artists start to reflect on the meaning of icebergs in times of climate change. Even though they come from far away, it appears more dramatic for them to speak about melting icebergs instead of disappearing insects back home. It wouldn't work the other way around? However, artists can present new ways of seeing ice and icebergs. They can dig into the mythology of those fragile giants; they can give them a voice, regardless of whether the iceberg is interested in it. Artistic investigations help us to see the manifoldness of life - in this respect artists are like icebergs: they make it impossible to sail in a straight line.

*Andreas Hoffmann, Director
Ilulissat museums 2024*



Iceberg, Disko Bay, Ilulissat.
Mary Walters

Meeting the Ice

Invited essay by Christina Riley

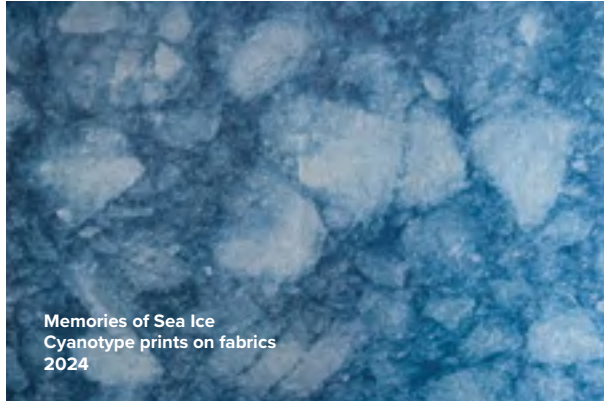
www.christinariley.co.uk

There's a Scots word, *groo* (or *grue*)¹, for the coating of half-liquid-half-ice formed on the surface of water. For water to be "groo'd up"², then, is for it to exist in a thickened state. An icy slush. Using art as a connecting material, these Glacial Narratives offer a congealing, or a healing, of earth's watery surface. Distanced from each other, the artists reach out defiantly to mend the melting chasms between their arctic landscapes. It might feel futile at times; ice is unfathomably vast and the causes of climate breakdown are not for one person, or one small group of people, to wield. But if there's any element which time and time again serves as a reminder of the power of one drop, and another, and another, it's water. Each icy narrative fills a gap caused by centuries of attention being pulled elsewhere until eventually, again, they touch.

It is undoubtedly difficult for any small, warm-blooded human to tell the story of ice in its true state; that is, not how we describe it, but how it is. Shaping and squeezing the earth like a snowball formed between cupped palms, I recall Nan Shepherd's feelings towards the power of water, "Like all profound mysteries, it is so simple that it frightens me."³ Ice does not command our attention as water does. It doesn't rush forward like a flood. It asks for a different kind of attention to time and even then, the distance, size, and fixed appearance of glaciers means that we're less likely to see the effects of their presence as we are to feel them. For Elizabeth Bourne, a glacial landscape is felt in the details. "Learning to trust your instincts, to read the snow ... I must be aware of the rattle of rocks, the crackling of ice, the whumpf of snow settling that might be an avalanche." Mary Walters mirrors Shepherd, humbled by a powerful and alive ice which shaped Scotland's land on which she stands. It "moves, emits sounds, appears and

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*Learning to trust your
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disappears, transports, carries, drops, changes, hides and exposes”. The glasslike air upon an ice floe catches Adam Sébire off guard, exposing with clarity the consequences of his own fossil-fuelled lifestyle. This, the global presence of the individual, is something that the writer Daisy Hildyard contemplates in *The Second Body* ⁴ Hildyard suggests that our bodies are constantly dissolving into earth’s ecosystems through physical deterioration and the choices made within it, shattering the idea of a body as an individual thing. And if the body is not one thing, if one *thing* — one human being, one rock, one iceberg — is constantly influencing something else, if pieces of us all are constantly floating off in an endless undoing and becoming, then the boundaries between all living things melt away. Ice begins to feel a little less distant.

Storytelling pulls the ice towards us, though the language of glacial landscapes tends to bend towards words like *hazardous*, *extreme* or *challenging*. I wonder who it’s extreme to? I can’t help but think that ice is, from earth’s point of view, a forgiving thing. Never quite solid, glaciers exist in a fluid state of melting and reshaping, their slow



pace offering time and space to move, to find where it fits, to trust the process. Taking things slow doesn’t come as naturally to humans; our actions and the speed at which they tumble over earth are rushing things which need more time. We exist synchronously, shaping ourselves and each other on earth as each day passes, but we’ve fallen out of synchronicity. Glacial thinking — not thinking as a glacier, but always, beneath the surface, thinking of them — might push the capacity of thinning attention beyond its contracting edges, restoring a rhythm between our small selves and the ice the way ants dance with the soil. Embracing deep time’s non-linear to-ing and fro-ing, Glacial Narratives offers crucial new perspectives on the rapidly shifting tale of ice on a warming planet, each one bound to the other by a sense of wonder for a landscape impossible for one person to fully comprehend, but we don’t need to understand a place in order to love and care for it. The artists of Glacial Narratives have listened to the ice attentively, building compassion and empathy into their collective foundation of wonder. The water turns to grue, the grue to ice.

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*Like all profound
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“

*Bourne describes blue as a
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Slow, steady but never passive, a glacial love is a love that moves mountains and courses through each narrative in the form of the colour blue. Bourne describes blue as a colour of joy — a touchstone of the Arctic. Crystalline cyan swirls through the core of icebergs and every shadow of snow is so vibrant it glows, the blue darkness emitting its own kind of light. Mary Walters felt the colour manifest in hues of ultramarine, prussian, azure, cyan, indigo, navy, sapphire, royal, teal, turquoise, cerulean, cobalt. Stunned by these almost impossible blues, Sébire describes glacial blue as “the blue of the divine”. The blue of water is surely one of the most untouchable blues — the blue ocean disappears in the palm of our hand, the ice melts at our touch — but he makes contact with the glistening glacial blues upon the ice floes with his blue mop, blue bucket, blue rubber cleaning gloves. The blues that made us meet

¹Amanda Thomson, *A Scots Dictionary of Nature*, 2017
²Grue n.2, v.2”. *Dictionary of the Scots Language*. 2004. Scottish Language Dictionaries Ltd. Accessed 22 Jun 2024 http://www.dsl.ac.uk/entry/snd/grue_n2_v2

the blues we’ve made, and the idea of the untouchable blue begins to dissipate like Hildyard’s bodies.

Hildyard’s second body meets her first when the river floods her home, and I think of once solid glaciers meeting Scotland’s shores as meltwater. The choices we make return to us as reflections of our repercussions, but to be reunited is not always, does by no means have to be, a destructive event. When the blue comes to meet us, could it be embraced? Arctic ice melts and flows from one coast to another. The glacial blue advances towards us, and the artists of Glacial Narratives invite us to meet it.

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come as naturally to humans;
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more time.*

³ Nan Shepherd, *The Living Mountain*, 1977
⁴ Daisy Hildyard, *The Second Body*, 2017

“the Arctic is screaming! – it is in freefall...”

These are the words of climate scientists modelling recent climate changes in the Arctic.

Unable to ignore the challenge of working with ice as an art material, I soon discovered a wealth of interesting avenues to explore: the surfaces of the ice, its mass, melt, sounds, and translucency. I realised that a study of ice, even with its inherent impermanence, offers a remarkably accessible view of our planet’s geological and paleoclimatological record. Using a fluid material that changes over short timescales allows me to work with the basic condition of change, creating a space for the audience to reflect on the transition between the micro (personal) and macro (global) scale and the complex, but inevitable relationship between the two. I came to believe that the very nature of the material - the ice itself - speaks its own language and engages a variety of onlookers in ways that cannot be anticipated.

While on Svalbard on a residency in Longyearbyen, I met fellow ice artists Elizabeth Bourne and Adam Sébire and I invited them to exhibit with me. Together with Edinburgh-based researcher, artist and creative technologist Martin Disley we produced Glacial Narratives: A Report from the Arctic for COP26 (2021-22)

The artworks developed into different materials and different relationships when we continued as a group to explore our ideas for Glacial Narratives: Cracks in the Ice for Edinburgh International Science Festival (2023)

We introduced workshops for young people through a new collaboration with Edinburgh community music project Tinderbox, and with video artist Mettje Hunneman. The young participants created a piece of music from recordings of ice, and built a cardboard

iceberg onto which to project images as environmental messages. Tinderbox was then successful in applying for and developing a relationship with a young people’s project in Uummannaq, Greenland – a relationship set to develop digitally into the future.

The third in our series of Glacial Narratives: The Greenlandic Chapter (2024 – 25) is a result of our experiences of Greenland – both the enormity and fragility of icebergs as they journey from glacier to sea, and the majesty of sea ice in all its various forms: pancake, brash, floe.

In my art I now search to portray the feelings of sitting in a silent boat amongst gigantic palaces and cathedrals of ice, experiencing the sadness, the beauty, the fear, and the wonder of this broken environment, and at the same time seeing the magnificence and power of the water run-off from the ice cap. It is almost impossible to express the overwhelming feeling that this experience delivers: the sublime presence of chapters of our planet’s history irrevocably dissolving in a slowly passing procession. Artists can make valuable and relevant contributions to the climate change issue we face in the 21st century. We cannot solve the climate crisis, but we can encourage an audience that may feel disempowered by the facts to explore the possibilities laid open by an emotional connection to the works, and perhaps to take the necessary and critical actions to create both personal and societal change. My works about ice have little or no relevance if there is no audience, and so I hand it over to the viewer to take up the challenge.

*Mary Walters
Artist and Glacial Narratives series producer
September 2024*



'Amongst the Living Cathedrals of Disko Bay'
Layered photograph
For 'the Greenlandic Chapter', Ilulissat Art Museum
Mary Walters 2024

Foundation of Life

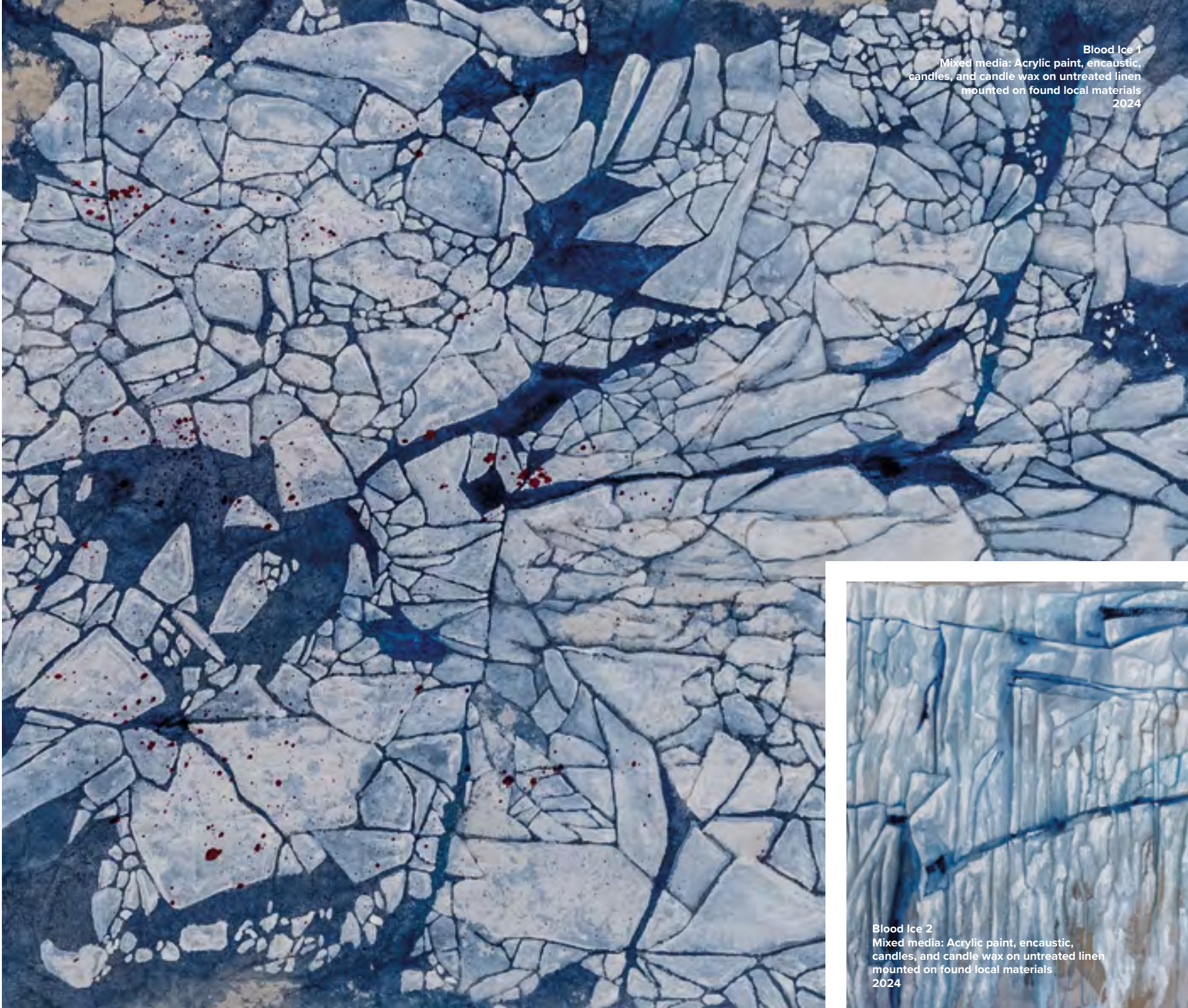
Ice is the foundation of life in the Arctic. Arctic birds, mammals, and sea life have adapted to this icy environment and thrived. I will not call it harsh, because to a fulmar or walrus or reindeer living in the Arctic is no more harsh than living in the temperate forests is to deer and rabbits. To those of us from warmer places the Arctic can appear cruel and unforgiving. Cold that can kill. Howling winds. Glaciers threaded with crevasses able to swallow you whole. It's dangerous. It's also full of an intense beauty unlike any-where else on Earth.

Ice is life. Not just for the Arctic, but for the planet. Ice maintains the delicate environmental balance in which we live. Ice is alive. The ice grows, changes, flows. Glacial ice, thousands of years old, can be harder than steel and a blue so pure that it doesn't look real. Sea water freezes at -1.8C (28F). The process is beautiful and can happen overnight, as many polar explorers learned. And then, in the winter the sea ice sings. It groans and whistles and cracks. On Svalbard, trappers claimed that they could

hear voices in the ice. The winter ice was haunted by the ghosts of their imagination.

I've lived seven years in the high Arctic documenting this place, but in particular recording images of ice in all its forms. Sea ice, glacier ice, icebergs, ice caves, permafrost, and the many strange and beautiful temporary forms that ice takes over the seasons. Needle ice, blister ice, ice whales, grease ice, pancake ice, ice mounds. It's extraordinary and mesmerizing. As an artist I'm inspired by its beauty and changing forms. As a human I know we are as dependent on the ice as any walrus. As we lose the Arctic ice our planet's climate is changing, not just in the Arctic but everywhere. You can see it in extraordinary storms, deadly heat waves, droughts, and wildfires. The list is long and daunting. Saving the Arctic ice is not just about saving polar bears, it is about saving ourselves.

Elizabeth Bourne, Artist
2024



Blood Ice 1
Mixed media: Acrylic paint, encaustic, candles, and candle wax on untreated linen mounted on found local materials
2024



Memories of Sea Ice
Cyanotype prints on fabrics
2024



Memories of Sea Ice
Cyanotype prints on fabrics
2024



Blood Ice 2
Mixed media: Acrylic paint, encaustic, candles, and candle wax on untreated linen mounted on found local materials
2024

Anthropocene Antihero?

I would not describe myself as a performance artist; more a video artist of too few means to hire actors, stunt coordinators, special effects designers and helicopter camera-crews. So my Arctic “anthropoScene” artworks are invariably exhausting solo creations; a series of logistical problems to be overcome hurriedly before batteries, cameras and fingers freeze.

As much as I dislike being my own actor, who better to stand in for the (by now rather pathetic) Anthropocene Antihero? Western white male, educated and ruggedly individualistic; the same characteristics as underwrote much polar exploration, colonisation, and extraction, and qualities underlying many a Romantic portrait painting of the era.

Oh, how the mighty have fallen! Now lines of scientific evidence link destruction of the ice caps to the same character’s vanity, rapaciousness, and inability to be what Roman Krznaric terms a “Good Ancestor”.

For the initial iteration of Glacial Narratives, my protagonist in anthropoScene IV: Adrift (Δ Asea-ice) measures the exact amount of Arctic sea ice that will disappear as a result of his flight, economy return from Sydney, Australia to Upernavik, Greenland to document the same.

In the subsequent edition, Escape Velocity shows him hubristically trying to cross the fractured and slippery Greenlandic inland ice, only to be brought back to Earth with a thud. The unconscious antihero dreams of

interplanetary transcendence beyond our wounded planet as snowdrifts gradually engulf his body.

The third iteration of Glacial Narratives aptly premieres in the Ilulissat Art Museum — its name the Kalaallisut word for icebergs. Here my character is forging another relationship altogether with dying glacial icebergs in AnthropoScene XII: a work-in-progress. The Anthropocene swagger is swapped for more symbiotic coexistence — however clumsily he carries it out. Environmental philosopher Glenn Albrecht proposes the Symbiocene as an alternative or even antidote to the Anthropocene. Can our adversarial and exploitative relationship contra the Earth System that sustains us be replaced with one of stewardship and care towards it?

Adam Sébire, Artist
2024



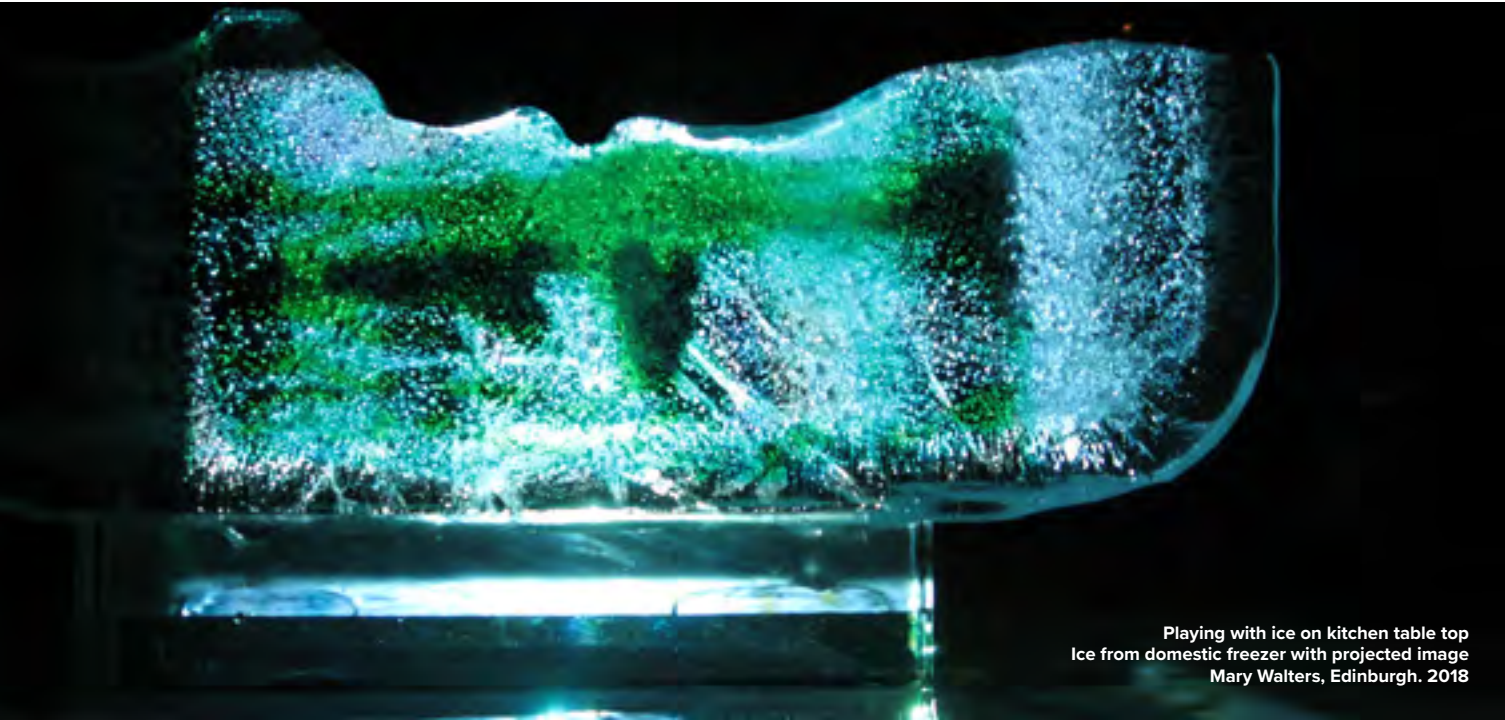
Still image from Adam Sébire's multi-channel video installation
anthropoScene XII : a work-in-progress (2024)

Development
of the
**Glacial
Narratives**
series

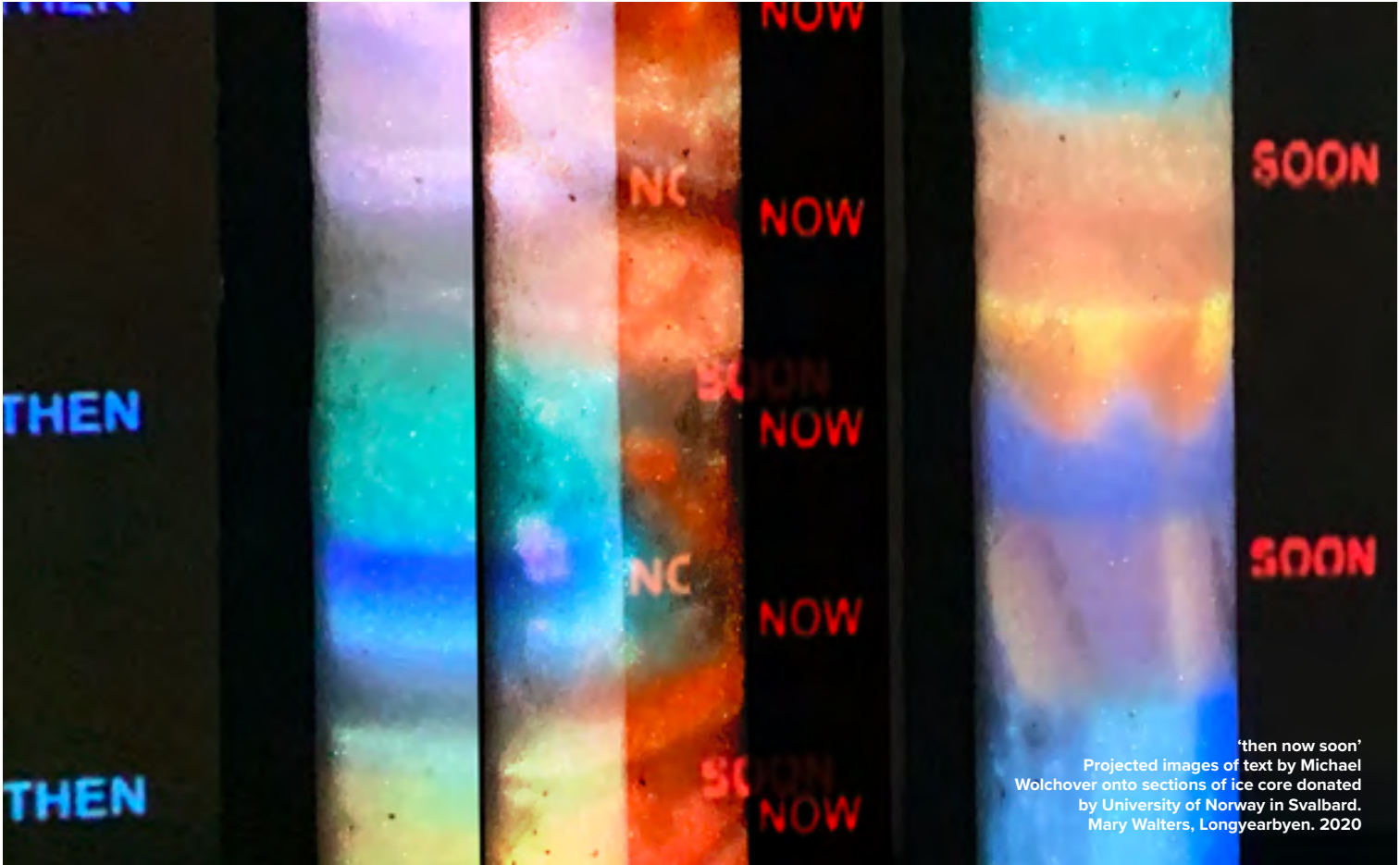
3 countries:
Greenland, Svalbard, Scotland



'Discounting the Future'
David Buckland/Amy Balkin.
An early inspiration for working with ice



Playing with ice on kitchen table top
Ice from domestic freezer with projected image
Mary Walters, Edinburgh. 2018



'then now soon'
Projected images of text by Michael
Wolchover onto sections of ice core donated
by University of Norway in Svalbard.
Mary Walters, Longyearbyen. 2020



Experimenting with laser - cutting and
engraving shapes of sea ice from Svalbard
Recycled acrylic sheet
Mary Walters, Edinburgh. 2020

Extracts from The Blue of Time (Kulusuk, Greenland) from UNDERLAND by Robert Macfarlane, reproduced by kind permission of the author. In Kalaallisut (Greenlandic), English, and Scots Gaelic.

Sermeq eqqaamasarpoq. Atoasiakkaanik, aamma eqqaamarluni ukiuni million-ilinni amerlanerusuniluunniit....
Sermip eqqaamasarpai orpippassuit ikuallanneri immallu gaffakkiartorneri. Sermip silaannaap akuisa suuneri eqgaomasarpai ukiut 110.000 matuma sionratigut sersersuagarnerata nalaaniik. Aamma eqqaamasarpai, ullut seqinnerfiusut ukiut 50.000 matuma siorna pisimasut

Eqqaamasarpai nuissat nillissusai nittoasimanera siusissukkut Holocan-imi. Tambora-miqaartitsisimanerit1815-imi eggaamasarpai, Laki-mi 1783-imi, Mount St Helens-imi 1482-imi aamma Kuwae 1453-imi. Aomma eggaamavaa ruumamiut aattoornersuat, gammalu agerlut toqunartullit annertussuaat eggaamallugu, sorsunnersuup aappaata kingorna ukiuni qulikkaani benzin-amut akorinegartut. Sermeq eqqaamasarpoq ogaluttuarsinnaallunilu-nunarsuarmi pilluaqqusaasumiinuusugut ogaluttuuppaatigut, allannqupallassinnaasumi utersaartitsisinnaasumilu. Sermip eqqaamasinnaassusaa tungujortumik qalipaateqarpoq, tungujortoq nunarsuarmi sumiluunniit asseqanngitsaq - piffissag tungujortumik galipaatilik.

“Ice has a memory. It remembers in details, and it remembers for a million years or more.....
Ice remembers forest fires and rising seas.
Ice remembers the chemical composition of the air around the beginning of the last Ice Age, 110,000 years ago.
It remembers how many days of sunshine fell upon it in a summer 50,000 years ago.

It remembers the temperature in the clouds at a moment of snowfall early in the Holocene. It remembers the explosions of Tambora in 1815, Laki in 1783, Mount St Helens in 1482, and Kuwae in 1453.

It remembers the smelting boom of the Romans, and it remembers the lethal quantities of lead that were present in petrol in the decades after the Second World War.
It remembers and it tells – tells us that we live on a fickle planet, capable of swift shifts and rapid reversals.

Ice has a memory and the colour of this memory is blue....., a blue unlike any other in the world – the blue of time.”

“Tha cuimhne aig deigh. Tha e a’ cuimhneachadh ann am mion-phuingean, agus tha e a’ cuimhneachadh airson millean bliadhna no a bharrachd ...

Tha cuimhne aig deigh air teintean coille agus cuantan ag èirigh.

Tha cuimhne aig deigh air co-dhèanamh ceimigeach an èadhair timcheall tòiseachadh Linn na Deighe mu dheireadh, 110,000 bliadhna air ais.

Tha cuimhne aice cia mheud latha grèine a dheàrrs air, samhradh 50,000 bliadhna air ais.

Tha cuimhne aice air an teòthachd sna sgòthan ann an tiotan de chur an t-sneachda, tràth san Holocene. Tha cuimhne aice air spreadhaidhean Tambora ann an 1815, Laki ann an 1783, Mount St Helens ann an 1482, agus Kuwae ann an 1453.

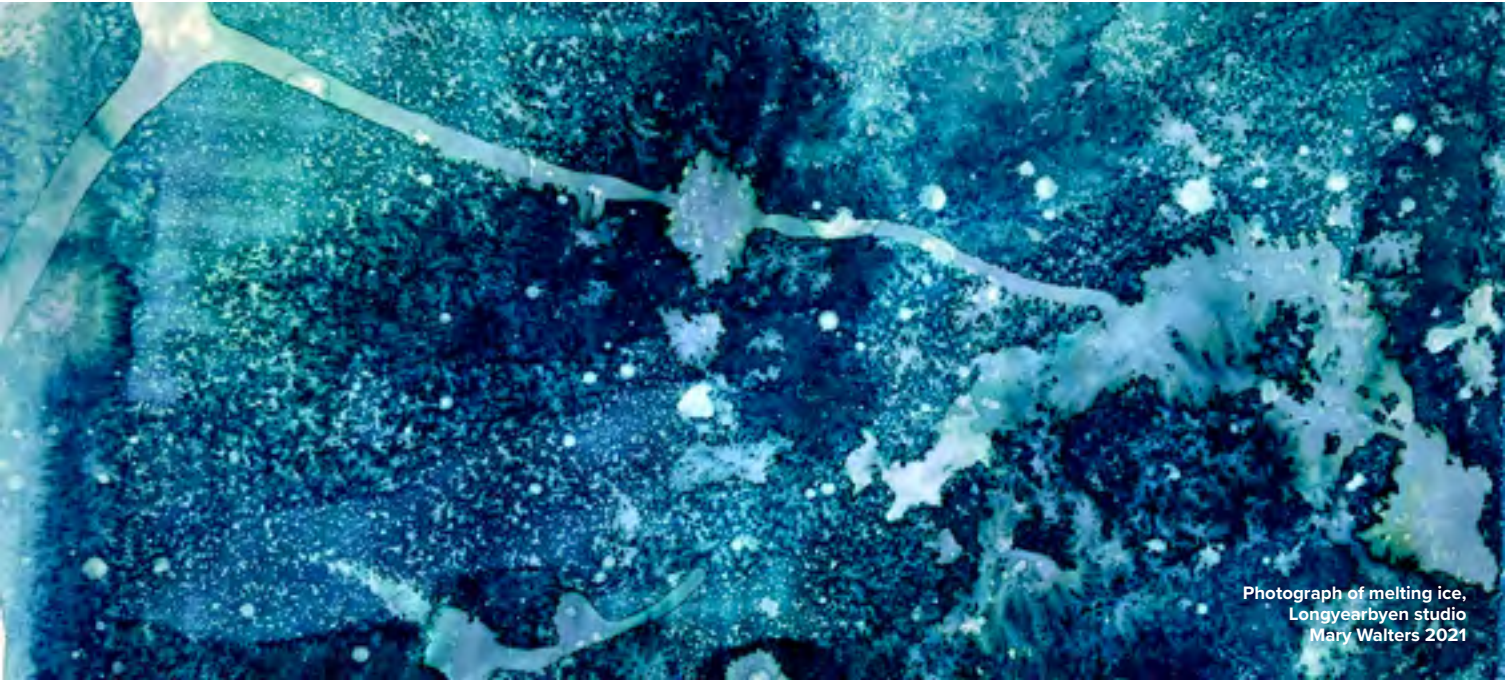
Tha cuimhne aice air fèill mhòr nan Ròmanach air leaghadh, agus tha cuimhne aice air an uiread bhàsmhor de luaidh a bh’ ann am peatral sna deicheadan an dèidh an Dàrna Chogaidh.

Tha cuimhne aice agus tha i ag innse - ag innse dhuinn gu bheil sinn beò air planaid chaochlaideach, a tha comasach air atharrachadh gu luath agus dol ais air gu grad.

Tha cuimhne aig deigh agus ’s e dath liath a th’ air a’ chuimhne seo ... liath cho eu-coltach ri gin eile san t-saoghal - liath na h-ùine.”



‘The Blue of Time’:
Section of ice core
Mary Walters and Adam Sébire,
Longyearbyen. 2021



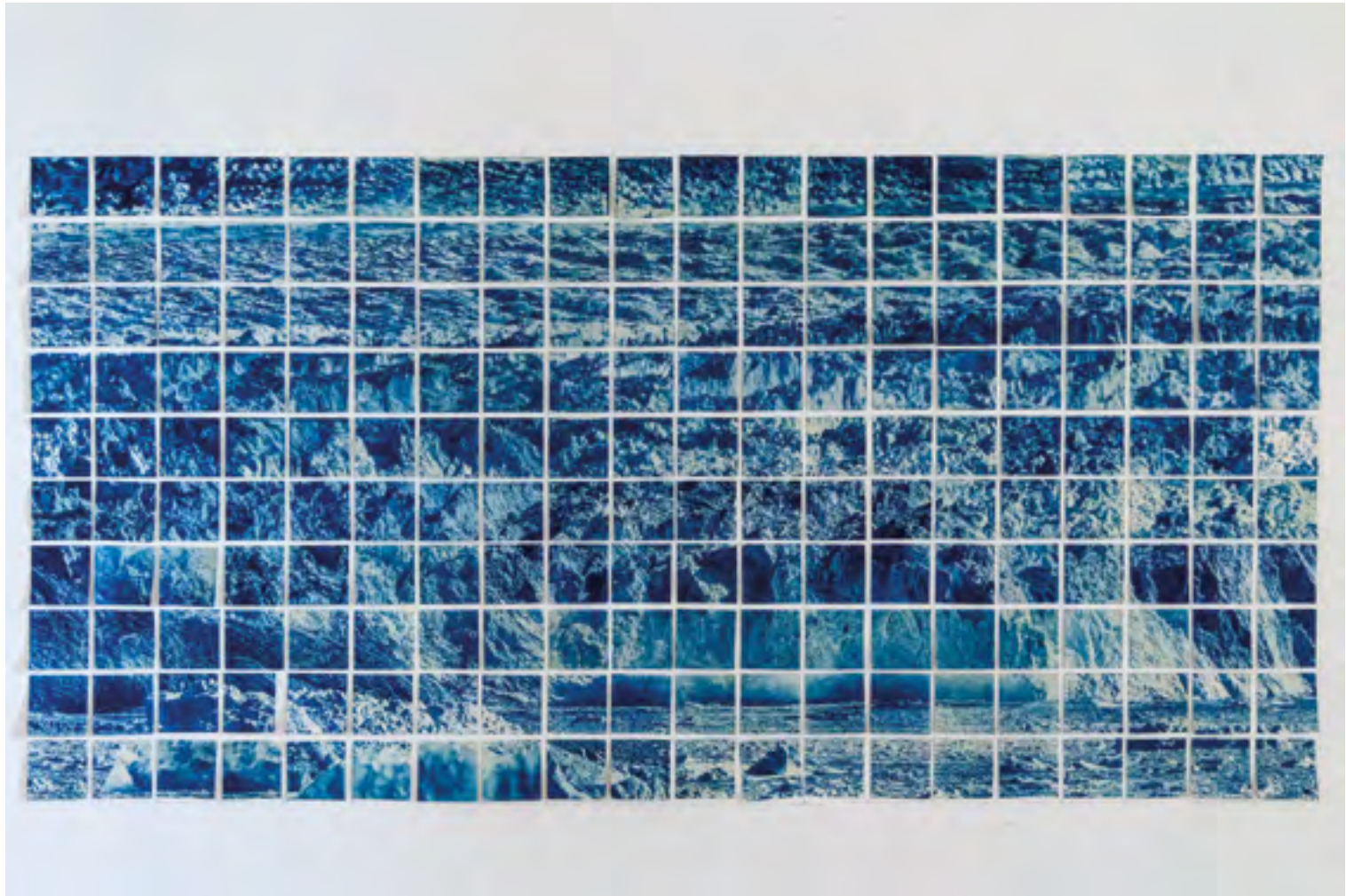
Photograph of melting ice,
Longyearbyen studio
Mary Walters 2021





'Cores'
 Recycled acrylic sheet/photographs for 'Cracks in the Ice', Edinburgh International Science Festival
 Mary Walters 2023

'Eqi Glacier'
 200 piece cyanotype
 for 'The Greenlandic Chapter', Ilulissat Art Museum, Ilulissat, Greenland
 Elizabeth Bourne 2024



Still image from Adam Sébire's multi-channel video installation
anthropoScene XII : a work-in-progress (2024)
installed at Ilulissat Art Museum for 'The Greenlandic Chapter'



'Requiem for Sea Ice 2nd movement Duet'
Cyanotypes with laser cut pattern papers/threads
For 'the Greenlandic Chapter', Ilulissat Art Museum, Ilulissat , Greenland
Elizabeth Bourne and Mary Walters 2024



'Requiem for Sea Ice: 1st movement Siku'
Korean paper/photographs/ laser cuts
For 'the Greenlandic Chapter', Ilulissat Art Museum, Ilulissat , Greenland
2024



A Message in a Bottle

Back in 2006, I found a message in a plastic Coca-Cola bottle on the beach here on North Uist. The message was from a hunter, Neils Berthelsen, from Upernavik on the northwest coast of Greenland. His message talked of the poor hunting due to rising in sea temperatures, lack of sea ice and changes to marine and land animal migration.

In 2019 I managed to travel to meet Neils and start to make a documentary film “Message From Upernavik” about the resilience of islanders on two continents in the face of extreme climate change. I was struck by how polar ice melt and rising sea levels were affecting communities here and there very differently.

In Uist, our arts and heritage venue, Taigh Chearsabhagh, is very close to the shore and already the lower floor area gets regularly flooded on spring tides. In 2019 we commissioned Finnish artists Timo Aho and Pekka Niittyvirta to make a tidally-activated LED light installation around the venue to raise awareness of the issue locally and globally.

We are keen to continue to develop our relationship with Arctic Culture Lab in Ilulissat and explore through the medium of contemporary art ways in which we can cooperate and collaborate to bring our communities closer together around issues of adaptation and sustainability.

*Andy Mackinnon, Taigh Chearsabhagh Arts
Curator and UistFilm Director
2024*



Lines (57° 59' N, 7° 16' W) Interactive site-specific light installation by
Pekka Niittyvirta & Timo Aho at Taigh Chearsabhagh Museum + Arts Centre
<https://www.taigh-chearsabhagh.org/events/lines-57-59-n-7-16w/>

A developing partnership

Imagine the power of a creative connection between young people from two very different cultures, and the extraordinary impact that can have. The Glacial Narratives project led to contact between youth in Edinburgh involved with Tinderbox collective, and young people in Uummannaq, Greenland through the Uummannaq Polar Institute. Scotland and Greenland, a cross-pollination that bore incredible fruit.

During the Edinburgh exhibition in 2022 young people from Tinderbox participated in workshops exploring sampled sounds from glaciers that were turned into samples of dance music, and also used projection mapping onto a model of an iceberg to share their thoughts and feelings about ice. The next step was a collaboration with Dynamic Earth in Edinburgh to produce an orchestra course where young people composed, filmed and recorded a piece of music for the ice exhibit in the Dynamic Earth tour.

At the end of the 2022 exhibition, Mary Walters introduced Tinderbox to the Uummannaq Polar Institute with a suggestion that we explore the idea of working together. It quickly became clear that UPI and Tinderbox share many of the same values around youth work, creativity, and education, and that a partnership would be a great idea.

Since then we have collaborated on a number of exciting projects including online workshops turning a graphic novel into a computer game, and sharing live music performances. The pinnacle of this partnership was when 14 young people from UPI visited Edinburgh to share their film, music, and traditional culture through performances in a variety of venues including schools and community centers in Scotland. A highlight was an improvised performance of one of their original songs performed with Tinderbox Orchestra.

This project is the beginning of a rich and creative partnership that we intend to continue. Our plans include youth with Tinderbox visiting their UPI friends in Uummannaq to continue creative collaborations, with a long term goal of a collaborative performance in Edinburgh.

*Jed Milroy
Tinderbox Collective
2024*



Cardboard Iceberg VJ workshop with Mettje Hunneman
Custom House Leith Edinburgh April 2023

Scientific Viewpoint

Addressing our changing climate and human induced global warming is one of the great challenges and crises of our age. Ever since the onset of the Industrial Revolution in the ~18th Century, burning of fossil fuels has been introducing ever increasing volumes of carbon dioxide into our atmosphere with dramatic consequences for our climate. The evidence for planetary warming is now unequivocal with 1.5° C of warming observed relative to the 1850-1900 average global temperature. And of course, if you are a lump of ice, such warming can be problematic for your survival; especially if you happen to be located in the Arctic which is warming two to three times faster than the rest of the planet through a process known as ‘Arctic amplification’.

This Arctic amplification is driven primarily by sea ice loss across the Arctic Ocean, and the long-term decline in this thin veneer of frozen water across the oceans to the north of and surrounding Greenland are graphically represented by the shocking “Arctic Sea Ice Death Spiral” (Fig. 1). The Greenland Ice Sheet is also losing mass year on year with more ice melting and draining

from the surface or calving in to the ocean as icebergs than is replenished by winter snowfall. As such, since 2002, Greenland has lost ~4500 gigatons of ice, equivalent to about 5000 km3 of ice, thereby raising mean global sea-levels by over 1cm (Fig. 2). Here in Ilulissat, the awesome Sermeq Kujalleq (or Jakobshavn Isbrae), responsible for giving birth to the stunning icebergs visible in the Icefjord is also changing dramatically. Its flow speed at the glacier terminus has more than doubled from ~6 km per year in 1995, while the terminus has retreated rapidly by over 12 km since 2001. This acceleration and terminus retreat results in more icebergs calving into the fjord and of course, an acceleration in ice loss from the glacier itself. (Fig. 3)

These dramatic increases in sea ice and ice sheet mass loss are well recognised by both scientists and residents of Greenland. However, many people across the planet remain unaware or unconvinced by the compelling scientific evidence of change. As such, I am always looking to help promote different ways of drawing attention to the tragic ongoing loss of ice around us and in

this case, through the wonderful medium of the visual arts. Academic glaciologists visiting a previous exhibition, “Glacial Narratives: Cracks in the Ice”, in Edinburgh in 2023 commented on how they “were mesmerised by the experience”, enjoyed how artists “capture the deep feelings triggered by the sight of a glacier” and how “the power of creative presentation had more of an impact than my dry explanations [of glacier loss and climate change] that also don’t have such nice visual aids”. The arts bring a different way of viewing the world and often attract a diverse audience; and for this reason, the ‘story’ of climate change can be told with just as much impact, and perhaps more so, than through the dry literature of academia.

Peter Nienow
Professor of Glaciology

Edinburgh University
Department of Earth Sciences.
2024

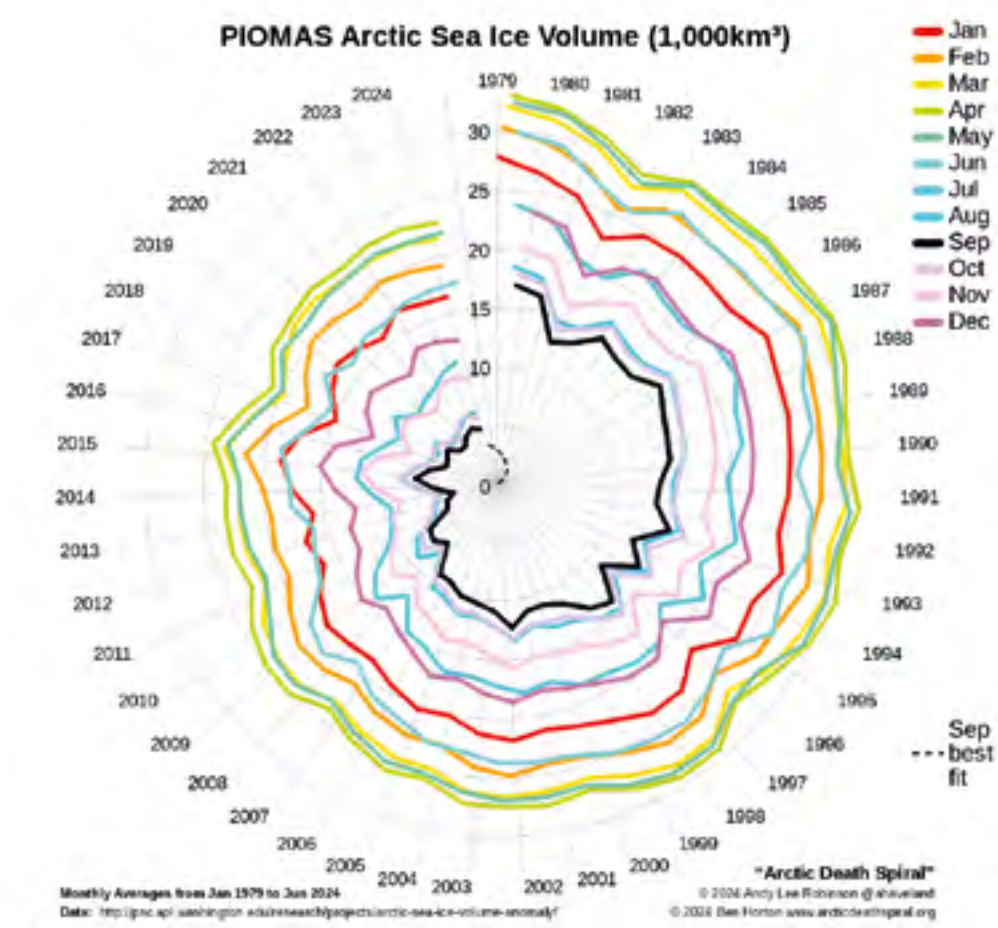


Fig. 1
“The Arctic Death Spiral, © 2024
Andy Lee Robinson @ahaveland and
©2024 Ben Horton
www.arcticdeathspiral.org. Data
derived from the Pan-Arctic Ice Ocean
Modeling and Assimilation System
(PIOMAS), <http://psc.apl.washington.edu/research/projects/arctic-sea-ice-volume-anomaly/>.”

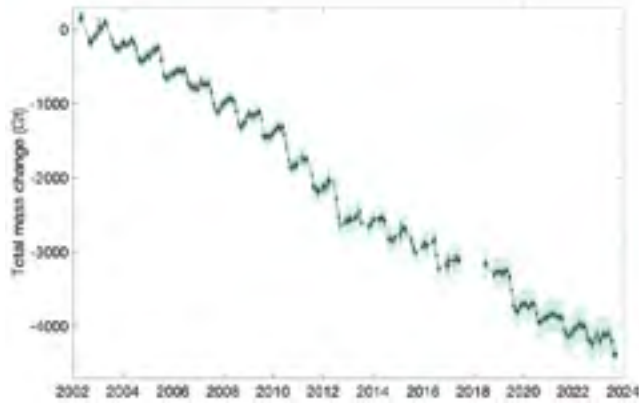


Fig. 2
GRACE-based mass balance. Total mass change, in gigatons (Gt), of the GrIS from April 2002 through September 2023 determined from the satellite gravimetry missions GRACE (2002-17) and GRACE-FO (2018-present) (Tapley et al. 2019). Black circles show monthly estimates, with 2-st. dev. uncertainties shown with (light green) and without (dark green) errors due to leakage of external signals (i.e., mass changes near Greenland but not associated with the GrIS). The time series has been scaled by 0.84 to remove the peripheral glaciers and ice caps from the GRACE-based estimates.

Poinar, K., K. Mankoff, R. Fausto, X. Fettweis, B. Loomis, A. Wehrlé, C. Jensen, M. Tedesco, J. Box, and T. Mote, 2023: Greenland Ice Sheet. Arctic Report Card 2023, R. L. Thoman, T. A. Moon, and M. L. Druckenmiller, Eds., <https://doi.org/10.25923/yetx-rs76>.



Fig. 3
Credit UNBOXED MEDIA / THE TIPPING POINTS / SCIENCE PHOTO LIBRARY

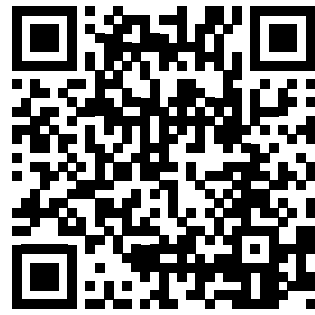
<https://www.sciencephoto.com/media/1302441/view/jakobshavn-glacier-retreat-1851-2010-animation>



Andra Black dance track

<https://tinderboxcollective.org/2024/10/07/glacial-narratives-youth-project/>

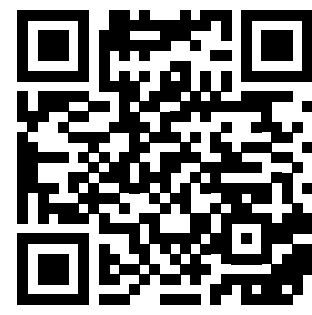
We acquired a set of sound files of ice from all over the planet, thanks to our scientific advisor, Peter Nienow. Led by Tinderbox tutor, Andra Black, a group of young people in Edinburgh created a dance track perhaps for use in an ice cave?



Tinderbox Sparks ICE composition

https://youtu.be/U-5rb4mvBUo?si=dE5upkvQ4xZggAP_

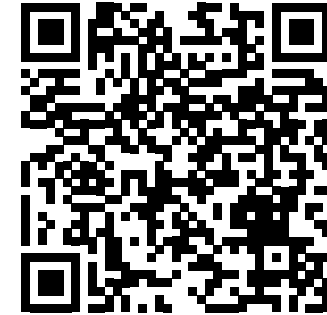
Dynamic Earth in Edinburgh is a science centre that tells the epic story of planet Earth. Young people from the Tinderbox project created this music in response to their ICE exhibit.



Uummannaq Polar Institute and Tinderbox Collective International collaboration

<https://tinderboxcollective.org/ice-games/>

In 2023, Tinderbox and the Uummannaq Polar Institute were awarded a grant from the Scottish government Arctic Connections Fund to work together through music and computer games. Here is the result of this extraordinary international collaboration!



Martin Disley audio track

<https://soundcloud.com/martindisley/a-resonant-husk-stereo-mix-excerpt-1>

The exhibition included sound design contributions from Martin Disley, an artist and PhD researcher at the University of Edinburgh's Institute for Design Informatics.

Martin reworked material from his multi-channel sound work, "A Resonant Husk," which was included in the first Glacial Narratives exhibition, into soundtrack elements for Adam Sébire's "AnthropoScene VII: Sikujumaataarpoq," as well as ambient material for the space. The work consists of manipulated and composed ice recordings from his own archive, as well as recordings gathered from the cryosphere research community.



Mary Walters

Mary Walters is a Scottish visual artist based in her home city of Edinburgh, and the producer of the series of exhibitions.

Her current work is inspired by her research periods spent in Svalbard and Greenland, where she has become fascinated by ice as a material. Its many qualities have inspired her work with installation, projected images, print making, and laser engraving.



Elizabeth Bourne

Elizabeth Bourne is an American painter and photographer currently living in Svalbard. The impact of her visits to Greenland are captured in her works in cyanotype, both large and small-scale, as well as in her paintings.



Adam Sébire

Adam Sébire is an Australian video artist currently living in northern Norway. On several occasions Adam's multi-screen video work has taken him to Uummannaq and Upernavik, where he has explored and experienced ice in its many forms.

Visual artist, experienced filmmaker, freelance cameraman, drone pilot, video editor, and stills photographer, Adam Sébire lives in the European Arctic (Norway) but works on films from Australia and the Pacific to Greenland, in between producing multi-screen video artworks.

His emphasis is on environmental themes, but with an artistic focus, specialising in creative approaches to documentary video production.



Glacial Narratives: the series

A Report from the Arctic for COP 26:

Taigh Chearsabhagh Museum and Art Gallery, Lochmaddy, North Uist, Scotland.
30 October 2021 – 8 January 2022

Cracks in the Ice:

Custom House Gallery, Leith. Edinburgh
(For Edinburgh International Science Festival)
April 1 – 16 2023.

The Greenlandic Chapter:

Ilulissat Art Museum, Ilulissat, Greenland:
September 10th – November 5th 2024

Taigh Chearsabhagh Museum and Art Gallery, Lochmaddy, North Uist, Scotland:
November 9th 2024 – 25th January 2025

Patriothall Gallery, Edinburgh, Scotland:
28th February – 10th March 2025

An Talla Solais, Ullapool, Scotland:
21st March – May 4th 2025

Drift Ice: Loss and Change
Acrylic on canvas
10 meters by 1.5 meters
Elizabeth Bourne 2020

