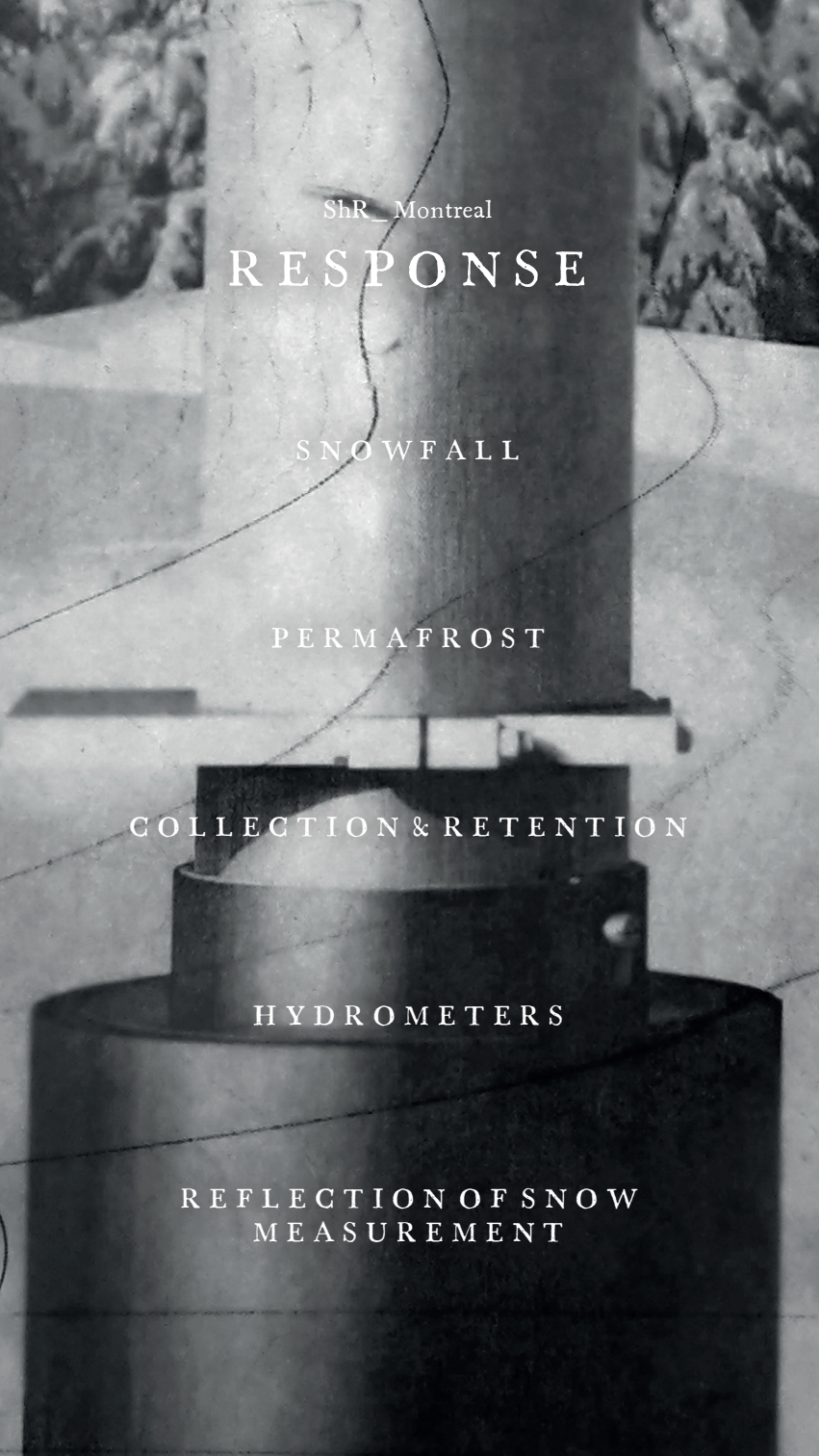


ShR_Montreal

RESPONSE

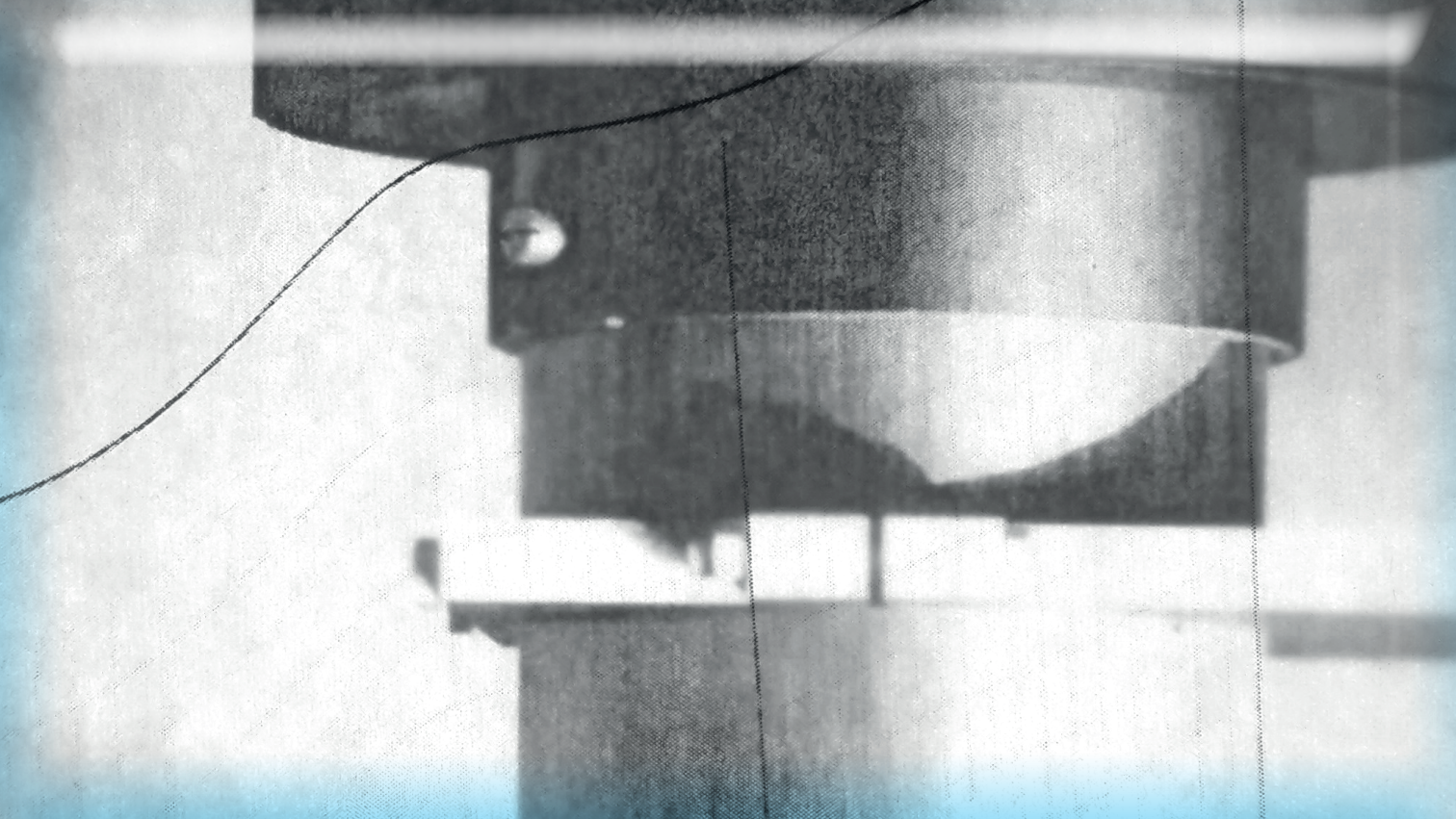
SNOWFALL

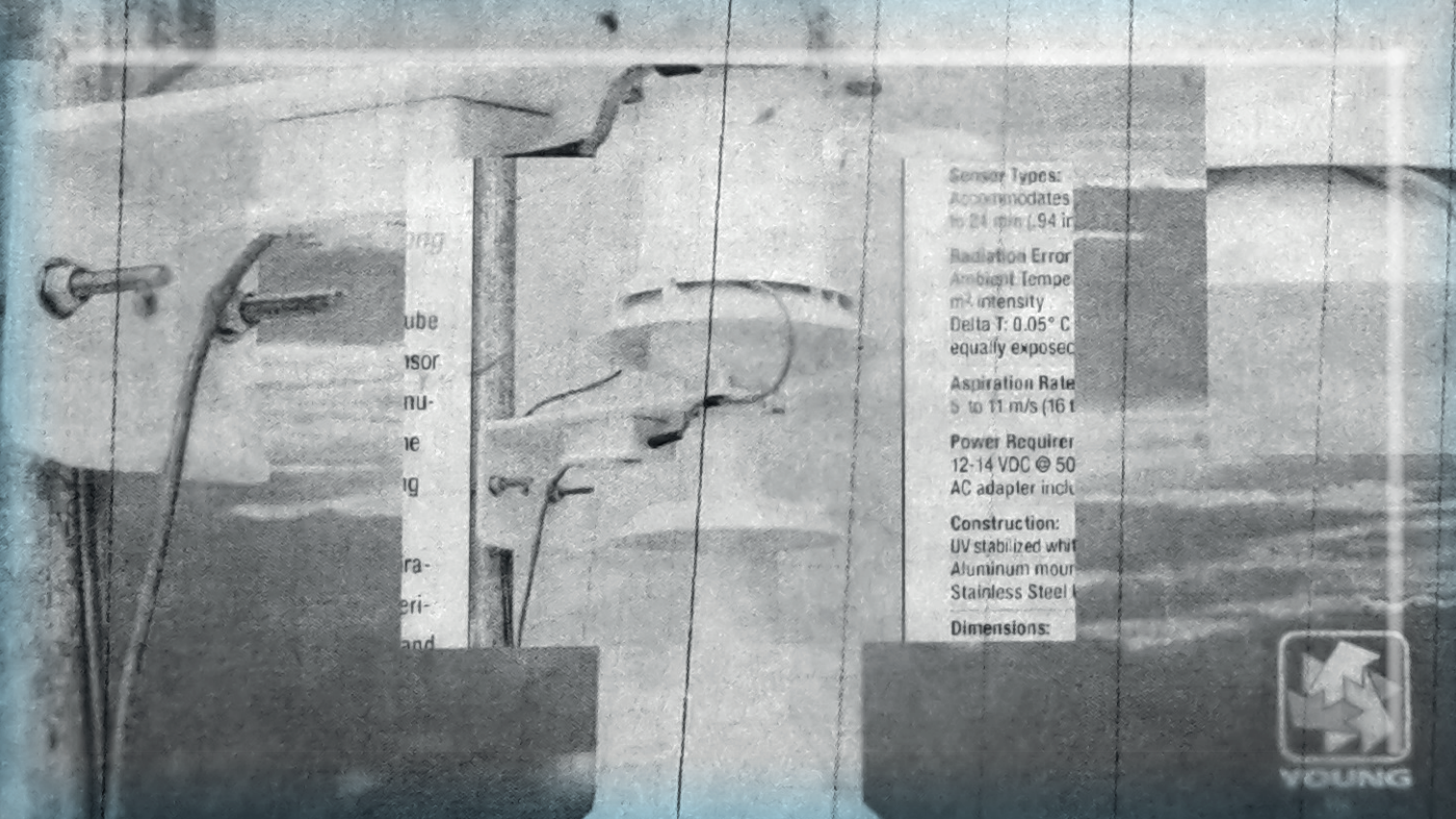
PERMAFROST

COLLECTION & RETENTION

HYDROMETERS

REFLECTION OF SNOW MEASUREMENT

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Delta T: 0.05° C
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Aspiration Rate
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Power Requirer
12-14 VDC @ 50
AC adapter incl
Construction:
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Aluminum mour
Stainless Steel
Dimensions:
YOUNG

COMPONENT

End-of-Life Product[a]

WHEN MEASUREMENTS MATTER

'SR MONTREAL_ NARRATIVE OF THE EVENT

On March 7th and 8th 2017, just as Winter was about to withdraw from the ports of the St. Lawrence seaway, a group of artist-researchers, environmental scientists, and other interlocutors gathered in Montreal. The group was in various ways loosely associated with the Speculative Life Lab and the Eastern Bloc electronic art space in Montreal, as well as the Critical Media Lab in Basel Switzerland and its Shift Register research project. Each and all were invited to experience and intervene on topics and environments related to the North, the snow, snow hydrology, and the wintery, cold expanses of the top of our planet as a primary site, or even a kind of presumption of method, for the development and sourcing of signals about and from Earth.

Set and developed in advance, the events in Montreal were an invitation to experience the local sites of measurement that develop images of a frozen, snowy top-of-the-world that is both increasingly and more frequently defrosted. Pre-emptory work for the workshop was completed during a Traill College research and teaching fellowship undertaken by Jamie Allen through February 2017, at Trent University in Peterborough, Ontario, Canada. During this Traill College fellowship, Allen lived at 1600 West Bank Drive in Peterborough. It is a building commemorating Catharine Parr Traill, a colonial settler of British extraction who, along with her younger sister Susanna Moodie, would come to define a particularly northern genre of mid-nineteenth century, survivalist, settler literature. Cannonical accounts of formative trials and tribulations of of "New Canadians" were set against the comparative luxury and complacency of the British. Both sisters found their authorial

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on-board chargin

WALL CHARGER:
board charging ci

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ACTIVE CURRENT
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Radio receive ~2
~36 mA (CR2
Radio transmit ~
CR216X)

AVERAGE CONTIN
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~36 mA (CR2
Radio in 1 s duty
CR211X), ~4
Radio in 8 s duty
CR211X), ~0.8

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CE COMPLIANT DA

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EMI AND ESD PR

IMMUNITY: Meets
ESD: per IEC 10
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RF: per IEC 100
EFT: per IEC 10
Surge: per IEC 1
Conducted: per IE

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able on request.

PHYSICAL

CASE DESCRIPTIO
terminals

DIMENSIONS (inclu
14.0 cm x 7.6 cm

WEIGHT:

SPECIFY TEMPERATURE SCALING:

-50 to +50° C	ADD SUFFIX C
-50 to +150° F	ADD SUFFIX F

CE Complies with applicable CE Directives

Available Outputs:

4-20 mA (10-28 VDC, 20 mA)	41382L
0-1 VDC (10-28 VDC, 8 mA)	41382V

R.M. YOUNG COMPANY
2801 Aero Park Drive
Traverse City, Michigan 49686 USA

voices in the pedagogic intention of preparing potential immigrants, particularly those from well-to-do families, from the old country to prepare themselves for the harsh life of a northern colonizer.

This particularly Canadian, and northern, relation to wilderness, wildness, nature and the North, is the product of an entire era of writing, and is wrought through a literary prism rife with classism and racism. Moodie and Parr Traill held court as slightly more southerly complements to the more Homeric and hyperbolic fantasies and tales of writers like Conan Doyle, and actual-arctic-explorer Captain William Parry. Amongst and between these composers of boreal prose, the sense of a long-lost ancient myth — that upward lay a kind of Nordic El Dorado — would merge with the Victorian and mid-Century European collective conscious and unconscious. It was an imaginary full of the preservation of great civilisations past and the potential of their return, and their containment within vast crystal palaces, diamond-strewn ice caverns, and glistening, puritanical, blue-white, clean rationalism. What did they hope to find there, atop the world, and in the Earth's very own cold storage locker?

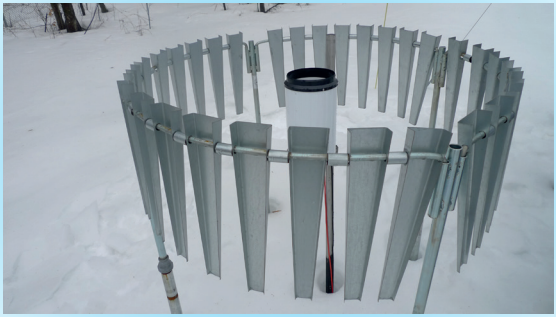
In a 1853 issue of Charles Dickens' popular weekly, Household Words, Henry Morley writes, "There are no tales of risk and enterprise in which we English, men, women, and children, old and young, rich and poor, become interested so completely, as in the tales that come from the North Pole." And Susanna Moodie noted in 1852 that "When we consider the progress..." also in same line 'accesses' better as 'access' ."

When we consider the progress of the Northern races of mankind, it cannot be denied, that while the struggles of the hardy races of the North with their severe climate, and their forests, have gradually endowed them with an unconquerable energy of character, which has enabled them to become the masters of the world," noted Susanna Moodie in 1852.

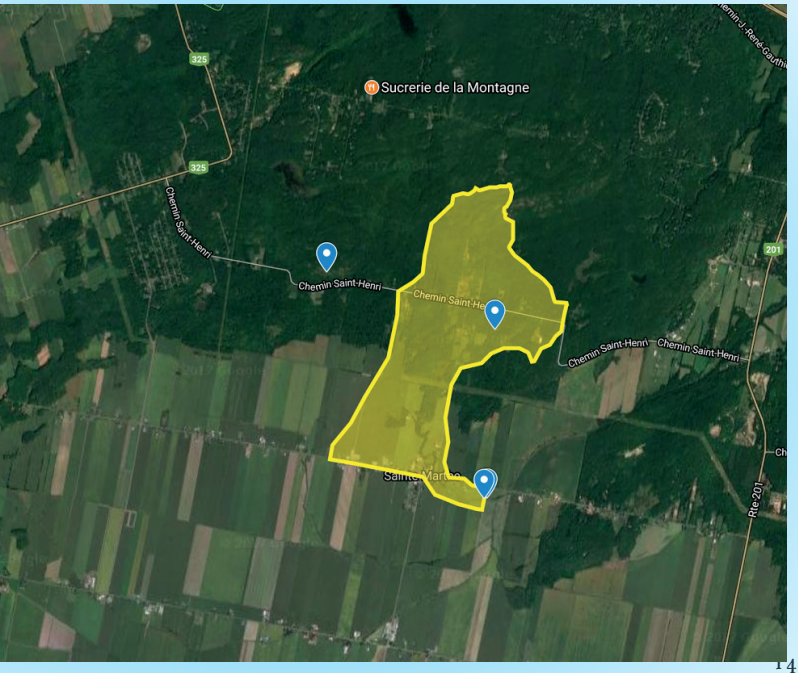
The Montreal workshop group departed the morning of March 7 from a downtown meeting point at Concordia University (the "EV" building) to a church yard at 564 rue principale, Sainte-Marthe, J0P 1W0. The group's general destination for the first day of the planned workshop was a hydro-meteorological station, a pilot watershed and snow hydrology measurement station in Ste-Marthe, a rural suburb of Montreal about one hour from the city center. The temperature that day in Montreal on that Tuesday was a about 6° Celcius, with a low of -4° in the evening, slightly warmer than the historical average (1°/-9°). Forecasts called for freezing rain in the morning and plain old rain in the afternoon. The site supervisor and researcher for the meteorological station, who made himself graciously available in the provision of directions, accesses and explication of this site in Ste-Marthe was professeur Michel Baraer (génie de la construction). Professeur Baraer is an environmental scientist who helped develop the "Bassin versant expérimental" (BVE) or "experimental watershed", run by the École de Technologie Supérieure (ETS), and his advice to the group in advance of the sessions was that all discussions would be out of doors as the instrumentation on site was mostly, and distantly, remotely operated and monitored. Michel asked, via email correspondence with the group, to make sure all participants would be ready to cope with bad conditions, that they wear boots and raincoats, as there are no dry places where the group could go once out at Sainte-Marthe.

Participants in the vans included Treva Pullen, Antonia Hernández, Orit Halpern, WhiteFeather Hunter, Tricia Toso, Cécile Martin, Annabelle Demy, Greg Bedell, Axel Jadotte, Jackson Ainsworth, Valérie Picard.

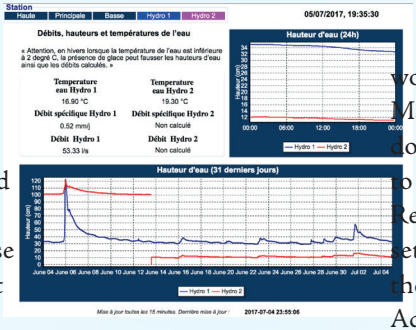

LEDUVER
2016-12-13



The BVE is a precious in-the-wild research infrastructure outfitted with a multitude of measurement instruments, giving real time information on the hydrological environment and snow retention dynamics of the region, under real conditions, outside the laboratory. The site provides data and metrics to snow melt, reflectivity (albedo) and climatological modelling research and models, and allows for practical planning of exploitation and management strategies for all activities that relate to snow and water in the area• agriculture, tourism, transport routes, etc. Our visit included two locales, the "Station Principale" where most of the snow height and volume monitoring equipment is installed, and "Hydro 1" where a flow meter and solar powered remote weather monitoring station tracks the outflow of water from the define watershed region.



Location of the Bassin versant expérimental" (BVE) or "experimental watershed", approximately 72,7 km Southwest of Montreal city centre.



Screengrab from http://142.137.244.38/Sainte-marthe/index.html, a website streaming data from the Ste-Marthe BVE site instrumentation.

Prior to the workshop session in March, a PDF "Reader" document was distributed to participants. This Reader included a diverse set of texts. Excerpts of "At the North Pole, or the Adventures of Captain Hatteras" were included, from Jules Verne's story of a team of adventurers, aboard a ship precociously titled "The Forward". The tale is characteristic of Arctic imaginaries that circulated during the mid 19th Century while the Arctic was actually in process of being mapped and (re)discovered. John Hatteras, captain of The Forward finishes the story in an insane asylum, driven crazy by the devastating sublimity of the landscapes he discovers up North. Early film pioneer Georges Méliès made a 1912 film adaptation of this story entitled "Conquête du pôle". Also in this reader were excerpts of "How Forests Think" by Eduardo Kohn and "A Vast Machine" and "Meteorology as Infrastructural Globalism" by Paul N. Edwards. Kohn's 2013 book is quickly becoming something of a reference text for "thinking anthropologically beyond the human", and so in terms of ethnographic and anthropological field work, and Paul Edwards gives a historical development of a "global", real-time weather data networks that "could be said to exist in the northern hemisphere between the Arctic Circle and the tropics". As a contrast to accounts of situated and observational knowledges discussed elsewhere, here the Western desire for totalisation and omnipresence, projection and modeling is writ very large as Richardson's "forecast-factory."

John Durham Peters' "Marvelous Clouds" was excerpted (Chapter 5 was included) as Peters here links the media history of clocks and bells to the prevalence of towers and weather monitoring ("Towers" on p. 233 links well to themes of northerness and nordicity). Chunglin Kwa's paper "Local Ecologies and Global Science", Social Studies of Science publication, gives an account of the tensions between global and local knowledge measurement, models, metaphors and systems. "Prometheus' Tools" by Paolo Brenni is a 2009 paper that links to the history of ecological science. Breeni's acount is a history of atmospheric instrumentation, with a particular emphasis on the way these technologies seem to resonate function as tools of knowledge, to tools of defence and tools of exploitation. The volume "Observational Ecology" also excerted in the reader, charts a history and constructs of a defense of practices like elder observation, anecdotal knowledge and non-instrumental, "direct" ways of knowing our earth.


EARTH OBSERVATORY ARRAY ACTIVATION WORKSHOP
EOAAW

ShR_ Northern Atmospheres

READER

Montreal ; B V E St. Marthe Pilot Watershed ; Speculative Life Lab, Milieux, Concordia, Eastern Bloc

March 7&8

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Readings

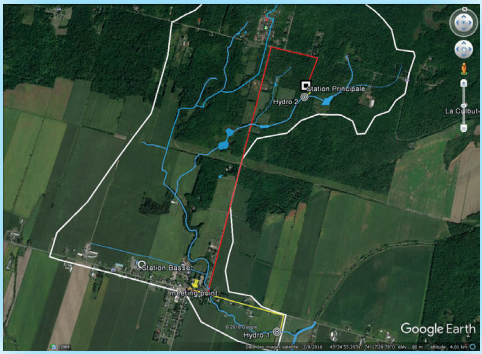
Shift Register Earth Observatory Array Activation Workshop (EOAAW) Reader

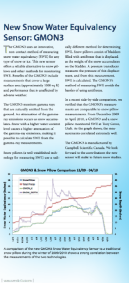
The visit to the BVE was a direct experience and witnessing of the kind of remote sensing, inference equipment and interpolative strategies that help to compose a picture of site, regional and local precipitative and atmospheric conditions. At the main station site, Michel Baraer walked the group around and spoke through a set of instrumentations which could be seen around a small encampment on the grounds of a municipal well and water quality monitoring station. These instruments included a "Snow Water Equivalency Sensor GMON3" and the Young Corporation's (out of Traverse City, Michigan) Model 52202 Tipping Bucket Rain Gauge, with built in snow-melting heater. Each instrument served to orient the workshop around the ways in which

composite models and images are composed of planetary, weather and climatological change, and how this composition originates with rather humble, almost DIY measurement techniques of field scientist. The remoteness of this instrumentation also further oriented such climate measurements away from any romanticised notions of 'the field', and towards the provision of automated and remote collection of data. The instruments, aloft, subterranean and seldom visited aside for maintenance and cleaning, or for the infrequent repairs needed when an animal (human or otherwise) wittingly or unwittingly vandalises something.

Siteplan of the Ste-Marthe "Bassin versant expérimental" (BVE) or "experimental watershed"

Meeting point at Église Sainte-Marthe, 564 Rue Principale, Sainte-Marthe, QC J0P 1W0.





Datasheet for the Snow Water Equivalency Sensor GMON3, by Campbell Scientific of Edmonton, Alberta, Canada.

Following this chilly day out at Ste-Marthe, the workshop group convened again on March 8th 2017, but this time at Eastern Bloc (https•//easternbloc.ca/) at 7240 Clark, Montreal, Quebec. Gracious hosts to an afternoon discussion and evening co-construction event, Eastern Bloc hosts electronic arts exhibitions and workshops, and provided Shift Register a space to discuss, devise, design, build and install an Earth Observatory Array Element (EOAE) on their premises. After a discussion on topics relating the fieldwork to readings in the reader, as well as stories and interludes on the Mackenzie Valley Pipeline, sun-synchronous polar orbit satellites, and Graeme Ferguson's Polar Life exhibition for Expo '67 (in Montreal), the group devised a kind of snow collection measurement monument, a cement-based, permanent device for the estimated quantification of local snow volume. During this workshop portion of the event, the group helped discuss this prospect, mix cement and drink wine. They also watched excerpts of Ice Age• Collision Course, a 2016 American 3D computer animated science fiction comedy adventure film produced by Blue Sky Studios.

Scrat, a recurring vignette character from "Ice Age", the franchise of American 3D computer animated science fiction comedy adventure films produced by Blue Sky Studios. Scrat's recurrent frustration is the planting or storing of a single acorn, in inhospitable planetary environments. In Ice Age: Collision Course, his repeat attempts to bury the oak nut in ice reveal an alien civilisation, technological infrastructure and spaceship buried beneath the ice.

Earth Observatory Array Element. Montreal site, preinstall, Eastern Bloc (back lot).

Earth Observatory Array Element, Montreal. Wednesday, March 8th, 14:22.

1980 1985 1990 1995 2000 2005

Sea Ice Extent Rank

Lowest Highest

Antarctic

PORTS (C1 AND C2)

When Configured as Input:
(low state) to >2.7 Vdc (high state)

When Configured as Output:
0 Vdc (low state), 5 Vdc (high state) (no load)

Logic Level: TTL

Drive Current: 1.5 mA @ 4.5 V

DI-12 sensors connect to C1

CPU AND STORAGE

FINAL STORAGE: 512 kB fla
format is 4 Bs per data poi

INTERMEDIATE STORAGE:

COMPILED PROGRAM STO
flash memory depending o
program

OPERATING SYSTEM: 106

FASTEST SCAN RATE: onc

SWITCHED BATTERY (SI

Treva Pullen, PhD Student, Communication Studies at Concordia University

NOTES

on Earth Array Actions

On March 8th 2017, a cold, rainy and dreary day in Montreal, myself along with a group of Concordia students and faculty visited a hydro-meteorological station in Sainte-Marthe. The scenery was beautiful, cold and nearly deserted. As we travelled to the station, passing small quaint houses covered in snow and ice I took pictures and enjoyed the idyllic notions of 'untouched' Sainte-Marthe nature in winter. Over the course of the two day workshop I began to question my understanding of such spaces.

As a group we worked to unpack notions of the North as a metaphor. What does the Canadian North connote, how are these spaces culturally coded as being untouched, untapped and unlivable when, in reality, much of Northern Canada is lively and populated. In thinking about the North as a perceived 'space of objectivity' how can we problematize the colonial implications of making the North neutral. We asked;

How do we think about extraction? And, how do we think about data?

Can we interpret anecdotal and subjective knowledge as science. We spoke of tales of disappearing ice rinks in small town Northern Ontario. Each year we note personal changes in our environment, for example an ice rink on a lake that forms later and later each winter. Can these anecdotes act as scientific proof, of the effects of global warming for example?

In my work I have been looking at feminist bioart labs as sites of pedagogical engagement that often break from traditional scientific practices and experimentation. In building a sculpture together that would self-destruct through change in the temperature and environment we worked to provoke culturally coded notions of the North and to try and imagine new ways of conveying 'scientific' or environmental data in ways that are experimental, artistic and subjective.

Like the artists/sci- entists working in hacker and fem- inist bioart laboratories (in which I am doing ethnographic/prac- tice/production based research) e similarly tried to disrupt the lienated or untapped spaces of he North' and question scientific objectivity.

WhiteFeather Hunter

EARTH OBSERVATORY ARRAY ACTIVATION

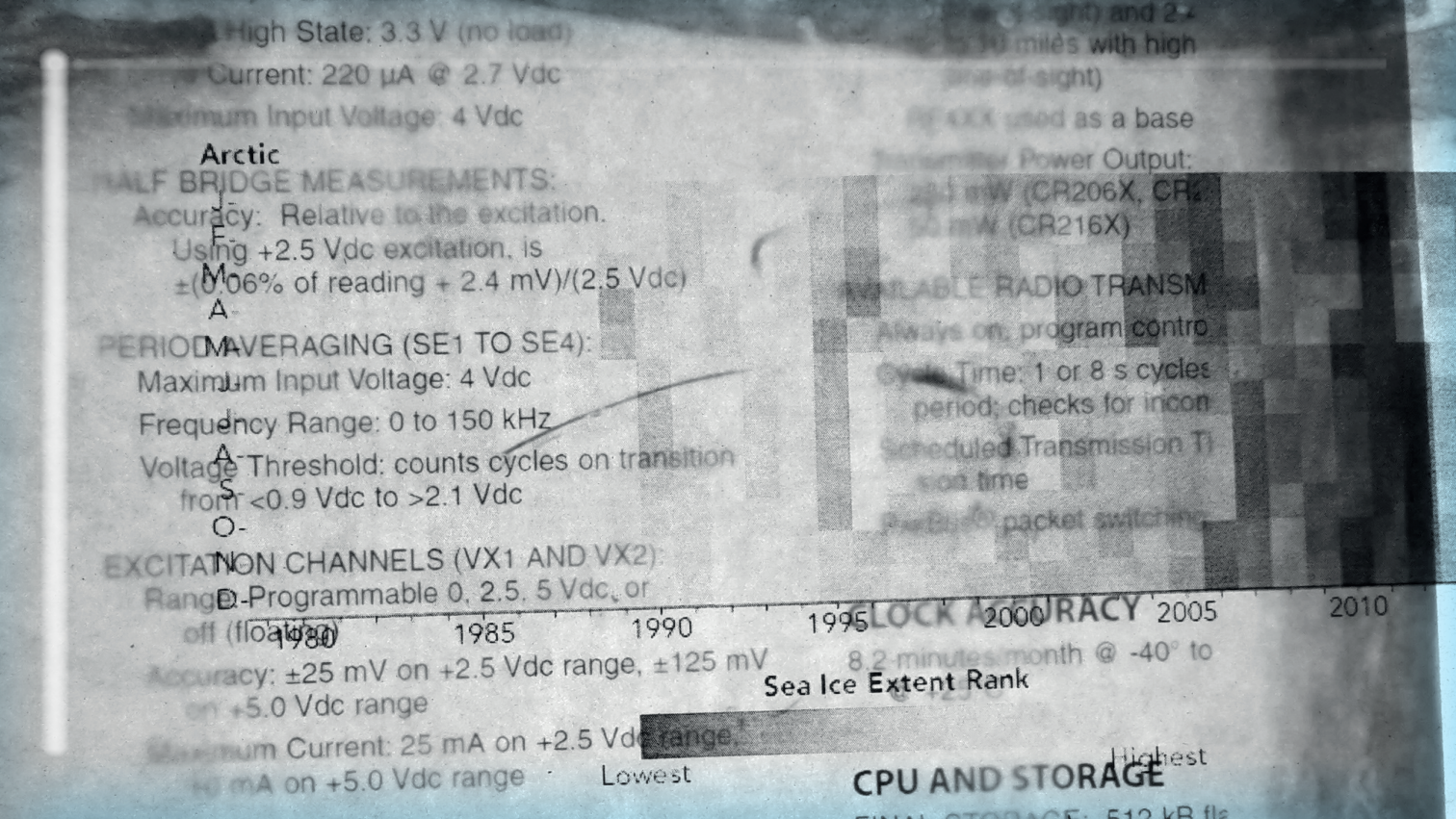
–

Shift Register (Montreal)

WhiteFeather recently participated in an intensive field research/ workshop/ creation project with Jamie Allen of Shift Register. "SHIFT REGISTER is a research project investigating how human media, technological and infrastructural activities have marked the earth… The earth has been transformed into a 'planetary laboratory' subject to further study, control and comprehension. Knowledge of these interactions render to experience global scale phenomena like climate change, dissolving modernist illusions such as the separation of 'nature' and 'society'. As such, it is critical that we engage in new means of composing more public understandings of this global experience. This project attempts to register the shifts between industrialised capitalism and the knowledge afforded by techno-science, between the global scale effects of such activities and the experience of individuals and communities, and between earth as an natural object and as an agent of culture. The project addresses the interdisciplinary problem of how to identify, catalogue and make publicly legible these shifts through methods related to natural science fieldwork, artistic research, and critically oriented translational practices of media and technology…"

"The intent of the Earth Observatory Array Activation Workshop (EOAAW) held in Montreal [was] to first undertake a visit to a site

that actively helps compose our 'picture' of the geosphere and its current climatological transitions, as well as to create, together, a physical element of the Earth Observatory Array… looking specifically at the hydrological measurement and analysis of snow and ice… which forms part of the "Earth Observatory Array", a global array of materialised forms being created as part of the Shift Register project (shiftregister.info). The Montreal Earth Observatory Array Element [was] collaboratively located, designed and activated by workshop participants…"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Sea Ice Extent Rank
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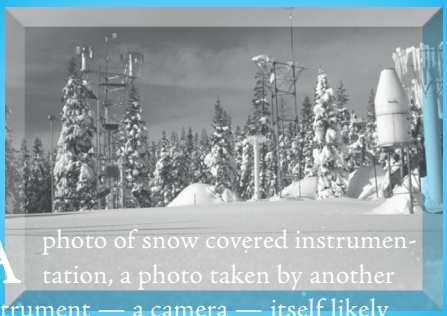


A photo of snow covered instrumentation, a photo taken by another instrument — a camera — itself likely operated, along with all else shown, from afar, remotely, via communications protocols, traveling via networks, arriving as data. There is little 'up here' that is what we classically constitute in our imaginations as "fieldwork" and yet it is a site of just that. A place where everything and nothing happens, a non-place where but a small piece of our knowledge of the globe takes place.

Radia

Spécifications

Plages de mesure :

CS475 : 50mm à 20m
CS476 : 50 mm à 30 m
CS477 : 400 mm à 70 m

Précisions :

CS475 (0.5 m - 20 m) : ±5 mm
CS476 (0.5 m - 30 m) : ±3 mm
CS477 (0.5 m - 70 m) : ±15 mm

Sensibilité : 1 mm

Protocole de sortie : SDI-12

Unité Radar

Fréquence : ~26 GHz

Compatibilité électromagnétique : Emission
Equipement électrique

Directive R & TTE : Conforme à la norme euro
I-ETS 300 400

Energie de l'impulsion : 1 mW maximum

Angle de rayon
CS475 : 10° (Cône de 76 mm de diamètre)
CS476, CS477 : 8° (Cône de 101 mm de di

ALIMENTATION:

Sensor Types: Accommodates to 24 mm (.94 ir
Radiation Error Ambient Tempe m^2 intensity Delta T: 0.05° C equally exposed
Aspiration Rate 5 to 11 m/s (16 t
Power Requirer 12-14 VDC @ 50 AC adapter inclu
Construction: UV stabilized whit Aluminum mour Stainless Steel
Dimensions:
de -40°to +80°

Résistance aux vibrations : Vibrations mécan

MECANIQUE

Evaluation : NEMA 4x / IP66

Matière: Aluminium, degré de protection IP66/

Diamètre de face : 16 mm

Longueur du cône
CS475 : 137 mm
CS476, CS477 : 430 mm

Cône : Inox 316L

s nous réservons le droit de modifier ces caractéristiques

We 'know' that there is nothing wonderful about the world, or about ourselves, (...) and still we produce wonder after wonder. Perhaps (...) what science is really about is not to explain wonders, but to create them.

Vilém Flusser

EARTH RECURSION AND NORDIC EXPECTATION

The interpolations, generalisations and globalisations of a current story of planetary climate change is a piecemeal, ambiguous affair, composed of sites local globalities and global localities. One such site is the "Bassin versant expérimental" (BVE) or "experimental watershed", run by the École de Technologie Supérieure (ETS), about an hour slightly South and mostly West of Montreal, Québec, Canada. The use of the data from this site is largely "purely" scientific, but it also resonates with purposes and propositions entirely, and rather obviously, industrial, commercial, or at the very least anthropocentric. The data there generated decides the flux and flow of commercial transport systems (mostly trucking across the Canadian shield to markets Westward to more densely populated regions of anglophone Canada, and Southward toward the markets of customary custom in the United States of America), tourism industries (local recreations such as cross-country and downhill skiing), and the provision of weather data (and prospective models) for a vast expanse of industrial farm land to the north, east, south and west of metropolitan Montreal. Here, we observe a particularly characteristic anthropocenic phenomenon, identified as "earth recursion", where the monitoring of climate, and weather, allows and predicts the potential for the energetic human activities which precipitate anthropogenic geological, climatological and ecological planetary-scale change.

INTER-OFFICE CORRESPONDENCE

DATE August 18,

TO W. Glass

REFERENCE

FROM R. W. Cohen

SUBJECT

I have looked over the draft of the EED reply to the request from O'Loughlin. The only real problem I have is with the second clause of the last sentence in the first paragraph: "but changes of a magnitude well short of catastrophic..." I think that this statement may be too reassuring. Whereas I can agree with the statement that our best guess is that observable effects in the year 2030 are likely to be "well short of catastrophic", it is distinctly possible that the CPD scenario will later produce effects which will indeed be catastrophic (at least for a substantial fraction of the earth's population). This is because the global ecosystem in 2030 might still be in a transient, headed for much more significant effects after time lags perhaps of the order of decades. If this indeed turns out to be case, it is very likely that we will unambiguously recognize the threat by the year 2000 because of advances in climate modeling and the beginning of real experimental confirmation of the CO_2 effect. The effects of such a recognition on subsequent fossil fuel combustion are unpredictable, but one can say that predictions based only on our knowledge of availability and economics become hazardous.

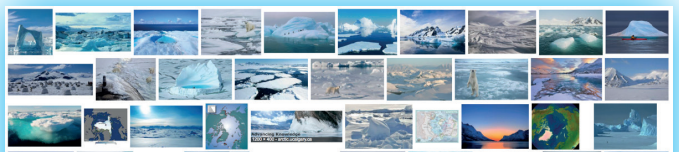
A further example of this kind

of planetary recursion, that recurs as well in its retelling in film (The Merchants of Doubt, a 2014 documentary feature) and textual accounts ("Smoke, Mirrors, and Hot Air", a report by the Union of Concerned Scientists from January 2007), involves the blue chip U.S.-based company ExxonMobil. As an oil producer, the world's seventh largest company by revenue and the largest of the supermajor oil companies, Exxon is responsible for a good deal of climate change and global warming carbon dioxide. Throughout the 1970's and 1980's, the company actively suppressed knowledge and news of human-activity derived climate change, using lobbying and marketing mechanisms and manufacturing genres of disbelief in scientific fact, techniques that can be traced through the industrial histories of tobacco, fire retardants, pesticides and other contested products that . The work of scientific exploration into climatological change and is, in such tellings, recursive in its use as epistemic colonialisation of sites of exploitation and extraction, while the difficulty of finding new places to drill, exploit and make-productive is greatly reduced. Knowledge of global temperature increases has allowed ExxonMobil to recurse a productive loop of "pure" climatological scientific discovery of how the planet's atmosphere, biosphere and geosphere is changing, public denial of the published data and models emerging from these discoveries and further exploitation where planetary change makes digging, drilling, fracking and sucking more feasible. The ice melts, and new watery territories ripe for the installation of oil rigs emerge, reframing everything as a problem that engineers can solve. Chief executive officer of Exxon Corporation, Rex Tillerson addresse climate change thusly. "We'll adapt to that. Its an engineering problem and it has engineering solution" **LONG 2013 47**

Most of the data that helps compose our image of human-induced planetary change seems to descend southward. As the

"top" of the globe, North is a position of observation, a real, imaginary and metaphorical space, and there are political, informational, scientific and modernist vector that seem problematically to to forever points from North to South. Strafing from top to bottom on a standard Mercator projection rains the troubling supposition a history of technological and industrial knowledge percolating from the North Pole to Antarctica. Fallacious, to be sure, this image of planetary, intellectual lopsidedness is pervasive and contemporary — witness the hierarchical stereotyping of northern-Germanic and southern-Mediterranean cultures and their current reiterations in dialogues on Europe and its "union". Perpetuations of "North" as a vast protectorate from which signals and warnings from the past and for the future perennially emerge are at best a failing and illusory cultural-geographic coincidence outlining the rather recent "successes" of capitalist exploitation and social democracies and are at worst a recapitulation of orientations once more explicitly given the term "nordicism". "And is not Nordicism a prevalent mode of thinking and feeling in America? Concerning the vast wealth and power of the United States there can be no question. It must be conceded, too, that America has been, and remains, a land plagued by racist and Nordic notions and discriminatory practices" writes Dante Puzzo in his tracing of "Racism and the Western Tradition" (Puzzo 1964). Nordicism invokes as its "traits" orientations toward innovation and conquering, adventurous spirit (in the sense of dominion and colonisation) and a tendency toward rationalism, industry, pragmatism, productivity, commercial enterprise, craft, and perseverance. Neoliberalism is a nordicist alignment, and it is highly productive of both market value and developmental.

What EXPECTATIONS pervade the world's top-most spaces? What changes in these expectations arrive as (NEW) INDUSTRIES of expansion, information, orientation, extraction and passage appear on the ice?



Eric Snodgrass, writing on the colorific orientations of our digital present, develops an interlude on the transformations of the colour "blue". Linked to the melancholy of the unattainable since antiquity, blue has been reinscribed as those "many synthetic blues of technology. Chroma key blue, signifier of a world predestined for post-production. The post-crash blue screen of death. The default "Bliss" wallpaper of Windows XP, one of the most widely embedded images of the digital age, with its pacifying blue-green pastoral… Tech logo blue. Facebook blue. Soothing, corporate IBM deep blue. The chirpy, social pastel of Twitter blue and the vaguely translucent gradients of iOS 7 blue. A showy blue LED. The engineer's metonymical accentuation, asserting a certain 'technology-ness of technology' (Shedroff and Noessel 43)" (Snodgrass 2014). The digital, like the north, is a space of similarly unattainable rationality, cleanliness and apocalyptic objectivity. This proclivity and desire is represented isometrically, sitting between green and violet on the colour wheel. Ours is a technoscientific future of cold, cobalt laboratories, arctic clean-rooms painted in sapphirine hues, frozen (seed) archives, adorned with cerulean, modernist sculputure, 'somewhere in Norway'.

Planetary change, and so the future of Earth, is wrought through northern exposures of our home planet. It is "up there" that we presumed it easier to see, to objectify the planet. The top of the earth is a place we can stand aloft, exposed in expanses of pristine, blue-white landscapes. Itis where show most readily marks and accumulations, a blank background for planetary modifications· toxic chemicals, physical wastes, space junk re-entry, and an increased solar permittivity that is not-so-slowly microwaving the globe.

The Svalbard Global Seed Vault in Svalbard Noway, a kind of 'global archive' that relies on the real isolation as well as the cultural imaginary of "the north" in order to function. "Perpetual Repercussion" by Norwegian artist Dyveke Sanne, highlights the importance and qualities of azure, Arctic light.

THE VIEW FROM UP THERE

In 1967, Polar Life, an 'immersive' film directed by Graeme Ferguson, was presented as part of the Montreal Exposition. The majority of film and media scholars who have developed elements of this work are interested in it as a precursor to the oh-so-Canada innovation story of the development of IMAX films. As an "experimental precursor" to the panoramic spatial complexity of IMAX, which Ferguson is co-inventor of, Polar Life presented large scale panoramic experiences in the round. But the other main novelty that Polar Life presented viewers was its theatre, with its audience seated on a rotating turntable in the center of eleven fixed screens. Viewers were presented with an intricate juxtaposition of screen images and narration, and the complex relationship created between moving spectators and multiple screens. The rotating audience experienced three screens at once, as they turned within the round theatre in a full rotation of 28 minutes.

A model made by David Clark at the NSCAD University (ex. Nova Scotia College of Art), that was made as part of a Polar Life exhibition for the 50th anniversary in 2017 of Expo 67. (A huge thanks to David for sending me these images and for exposing me to the history of the Polar Life project.)

The suggestion inferred, and the experience given, is one that orients the viewers of Expo '67 as sitting, spectatorial and ensconced in a kind of top-down global observatory — sittin' on top of world — an impossible point of observation that presupposed the kind of Canadian vantage point that also precipitated the installation of nordic observational infrastructures in that country throughout the Cold War. The DEW line project, to name but one, was a joint U.S./Canadian installation a tactical reconnaissance and defence outpost — likewise recasting the North as a site of imperial, geopolitical, scientific and technological strategies, energies and interest. Ferguson's Polar Life inaugurated the vision of a kind of "circumpolar globalism" that presupposed the importance and value of 40% of the landmass of Canada. The North becomes a place of inference and indication, a common global frontier that is both remote and inaccessible and a place from which we are all supposed to imagine cultivating a particularly (con) descending point of view.

Graeme Ferguson with map illustrating northern shooting locations for Polar Life from the book "Reimagining Cinema — Film at Expo 67", edited by Monika Kin Gagnon and Janine Marchessault (Gagnon & Marchessault 2014).

1956 Advertisement for Dew Line Construction (Image from https://www.flickr.com/photos/paulmalon/5321354093/in/faves-jim_windle/)

Zoe Todd writes, that as "Greenpeace reminds us daily, after all, that the Arctic is a [global] commons in need of saving from climate change". TODD 2016

GLENN GOULD, WITHDRAWING FROM THE WORLD

What is "the North"? Is it the azure crispness of northern light? Is it empty, undisturbed lines-of-sight? Is it cosmological intimacy (the aurora borealis, meteor observation density and star and satellite visibility)? These realities produce an imaginary of the top of our planet as evacuated and bare, and yet contemporary territories are being densely re- and over-populated. The natural ecologies of tundra landscapes are increasingly converted and speculated as transport, industrial and telecommunications infrastructures. We develop how the concept of "the North" are wrought as a practical source and sink for real and illusory salvation and deliverance• national, economic, ecological, telecommunicational, (a)social and psychological.

In 1967, pianist and broadcaster Glenn Gould produced "The Idea of North" as part of The Solitude Trilogy, a set of three-hour radio documentaries expressing a theme that Gould described as a "withdrawal from the world". Imaginings and mediations of the North in works like Gould's contribute to the cultural construction of these boreal regions as a continuous source for redemptive energies and infinite resources, a land of perpetual possibility and absolution. For Gould the North is an alchemically transformative and ascetic promise — the refinement of "man" in collusion with "his" clean, pristine horizons and environment. For Gould the radio documentaries he

Still from a television version of the 1967 radio documentary "The Idea of North". The TV version was produced by Canadian Broadcasting Corporation (CBC) and the U.S. Public Broadcasting Corporation and released on the 14th of December 1970.

made about the North were "as close to an autobiographical statement as [he intended] to get in radio".

Perhaps no figure examples this idea of the north as an infrastructure of individuation (that is, for a technological refinement of the self and Earth) than this modenist muse, Glenn Gould. Historian of technology Edward Jones-Imhotep writes of Glenn Gould's fascination with both technology and the north as conjoined ways of providing the necessary distance to become a modern subject, or an artist. Gould famously quit giving live concerts at the age of 32, only releasing music from the isolation of a recording studio. And he predominantly interacted with friends and family via technological means — after his late thirties he only used telephones and radio to connect to the outside world. He also practiced piano with the radio or vacuum cleaner on.

The 'removal from the world' that so attracted Gould, was likewise manifested by a fascination, or near obsession with the North, nothern lifestyles, as an alternative to the creativity-numbing lifestyle of urban civilization. The documentary we have been watching excerpts from today meditated on the subject, and one of his favourite un-intellectual hobbies was simply driving around alone in Northern Ontario in his Lincoln Continental.

Jones-Imhotep also points to the centrality of the notion of 'counterpoint' in Gould's philosophical writings and ways of being. Counterpoint in music describes precisely an interrelationship between voices that form a coherent harmonious whole, yet are composed by ruthlessly independent contours and melodies.

This is Gould's seemingly contradictory philosophy — of being 'connected but alone' or what cybernetic historian Fred Turner calls "alone togetherness". And it is, we could argue, a modern condition we all now inhabit to varying degrees… we, who are linked by the sinues of media structures like the internet, but who are also isolated geographically, societally

and personally through these very same instruments of connectivity.

Aligned with cybernetic modernism over the 20th century, this promise is manifested as a technological promise, one of mythic perfection and perfect transmission. "Man" and the North become conjoined frontiers — projects — untapped and under-utilitised potentials, singular signals that are vascular and interconnected.

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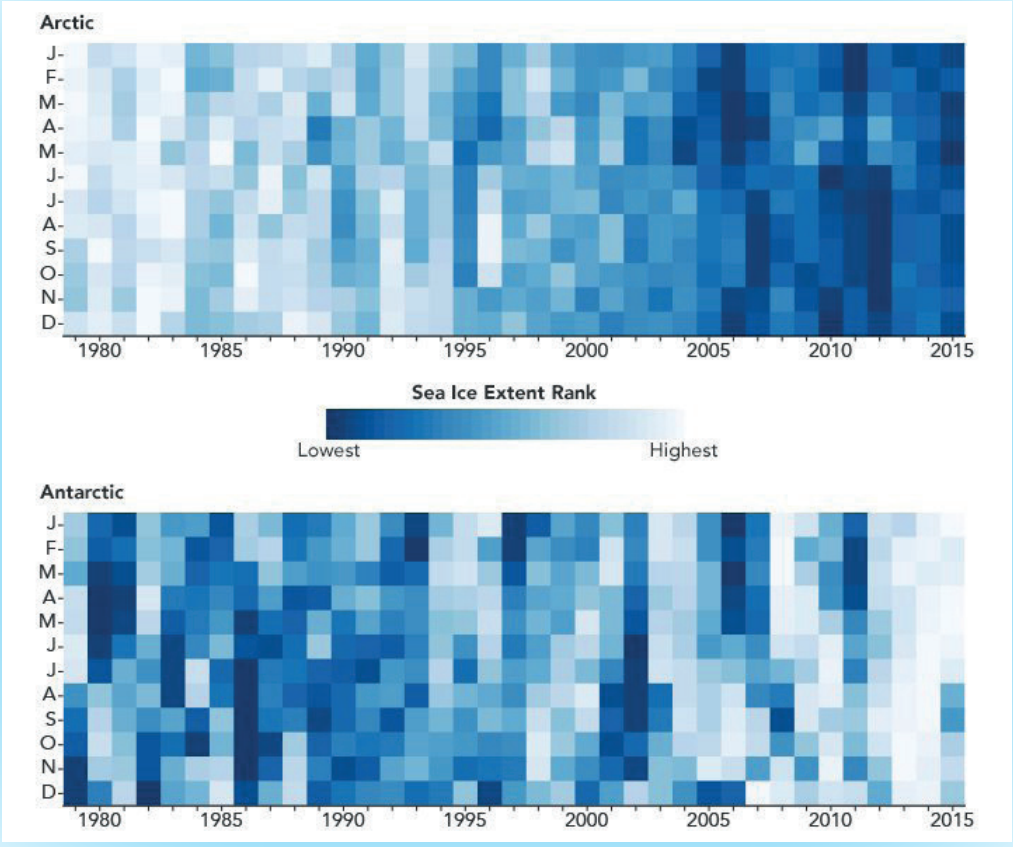
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NORTHERN ATMOSPHERES EOAAW is part of SHIFT REGISTER (http://shiftregister.info/), an artistic research project investigating how human media, technological and infrastructural activities have marked the earth by Martin Howse, Jonathan Kemp and Jamie Allen (Critical Media Lab Basel).

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