

FUTURE NORTH

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This paper discusses the intersection of climate forecasting, future prophecies, and science at the North Pole in one hundred years in the collaborative video work of artist Jane D. Marsching and architect Mitchell Joachim / Terreform 1, Future North.

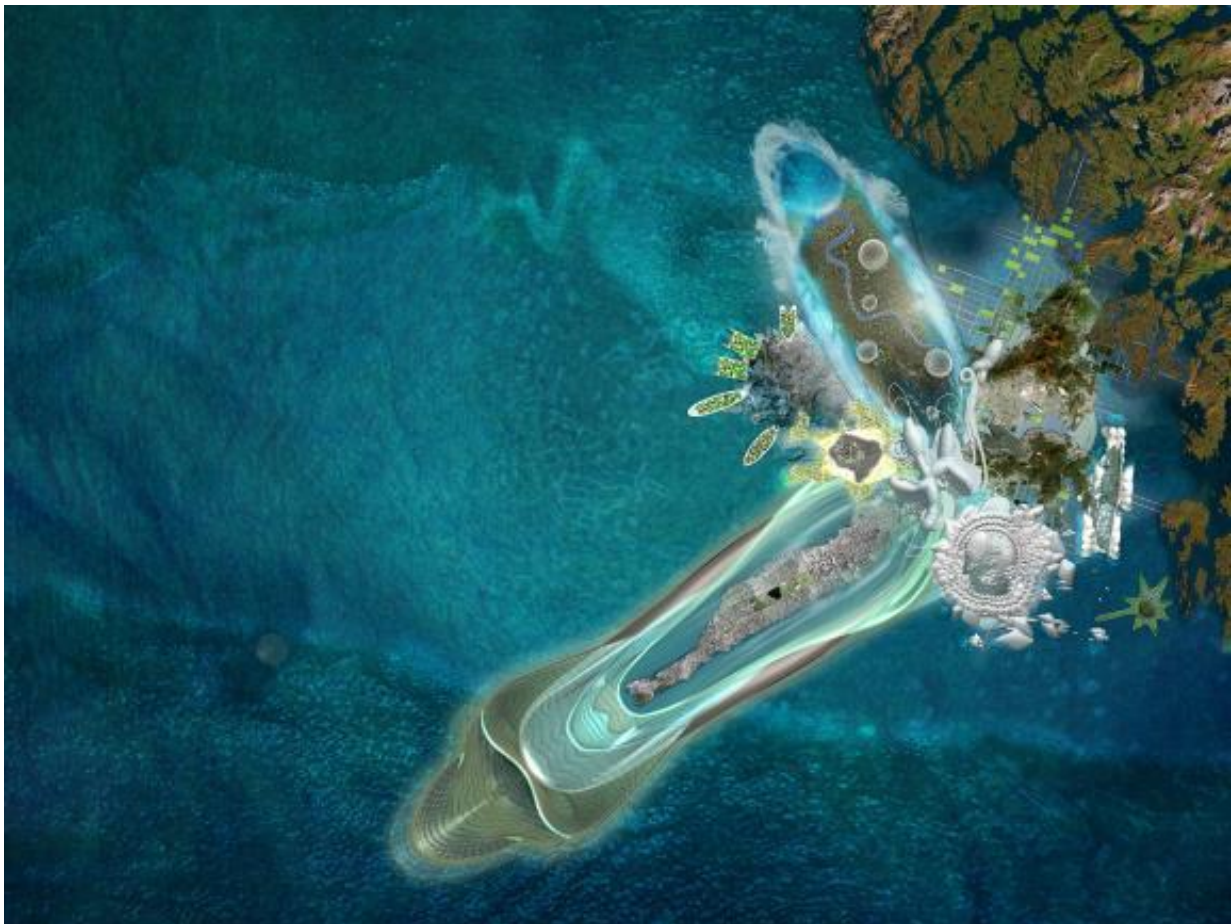


Fig 1. Jane D. Marsching and Mitchell Joachim / Terreform 1, Future North, 2008, still from 3 minute animation. This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivs 3.0 License.



Fig 2. Jane D. Marsching and Mitchell Joachim / *Terreform 1, Future North (San Francisco)*, 2008, still from 3 minute animation. This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivs 3.0 License.



Fig 3. Jane D. Marsching, *Rising North*, 2007, stills from 9 minute animation. This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivs 3.0 License.

Time takes on a different meaning in a landscape where the sun is up for half the year and it is dark for the other half, where there is no vegetation, no fixed land, no animal or biological rhythms. If the absence of visual cues can result in odd plays with our perception, including mirages, Ganzfelds, and other optical phenomena, it can also result in a destabilized notion of time. Further complicating this is the fact that the North Pole ice is disappearing, a quickening process outside of our historical images of the landscape. And finally, the North Pole climate is, as discussed earlier, the harbinger of climate change to come in more equatorial zones. Its sensitive and narrow climate parameters, more affected by tiny increments of change, show us in stark relief what we are barely able to distinguish in the landscapes around us. It shows us our future, in a way, and in so doing, is an early warning system.

At the North Pole the future is brought into the now. The endless streams of data, charts, graphs, and field images chart a landscape not dying, but transforming itself irrevocably away from the one that has enthralled us for so long. The sublime unchanging wilderness is becoming shabby around the edges and full of a nervous pathos. Whenever landscapes, cultures, technologies, etc., change quickly, our culture rushes to create new mythologies, new representations, to fill the gap. The rapid industrializations of the nineteenth century with the introduction of fast-moving trains, distance-bridging communications technologies, and labour-transforming factories, created cultures fascinated by simultaneity and fractured time and visual perception, among many responses. Futurism, Cubism and other movements were experiments on the forefront as the changes took place, tracking and testing new stories and new ways of seeing.

Today we are struggling to adapt to changes in our familiar images of the North Pole. The sad icons of dying polar bears and melting glaciers don't quite encompass the complexity of the disappearance of an entire terrain, an entire cultural phenomenon. Artists are grappling with this uncertain terrain, hoping to show us what is happening and what it means to the larger world. The same work is happening in the offices of scholars and workers many other disciplines: economists, climatologists, politicians, educators, and many others. What will the future bring at the North Pole? What is the significance of its disappearance? What will it become? What will we become in its absence? In this scenario, we can translate the age old adage "as above, so below" quite literally: "as far, so near."

The challenge is to take the abstractness of these graphs and charts, the overwhelming complexity of the data, and the sense of otherness in the landscape, and to translate it into terms we can grapple with in our prosaic lives. In climatology, studies of forecasting and predicting have to evaluate the risk factors and uncertainty of these models of future events whose actual outcomes have not been observed. Looking at the future of the climate of a specific biome requires complex forecasting not just of weather, but of economic, human, and technological parameters a century from now. This is so difficult that climate modellers have determined a "sweet spot" for climate predictability in a hundred-year parameter. Our culture demands this century marker, and policy texts have used it, including the IPCC reports, the Kyoto Protocol and others. The sweet spot, "maybe between 20 and 50 years out, is where the emissions scenarios don't matter too much and where the trends start to be discernable over the noise of year to year weather." [1] The point is to think about what we can know about one hundred years from now, particularly in a terrain so sensitive to climate triggers. Climate predictability can answer that question for 20 to 50 years hence, but falls into "total uncertainty" at a century out.

If science with its sensitive data and complex models cannot provide us with a satisfactory and entirely certain vision of a future North Pole, then who can? The social sciences, such as economics, use one set of data, futurologists, inherently interdisciplinary in nature, use many sets of data but profess that the future cannot be predicted. This absence of clear vision haunts us today. We have at our fingertips and

on our screens reams of data that attempt to outline this future, but the images are hazy, or too complex, or simply too uncertain. But as the future presses down upon us more and more, as ice melts quicker, as climate triggers become more apparent, as short-term predictions become reality sooner than expected, we long for future stories that can help to frame our predicament.

One such example is the very concrete phenomenon of sea-level rise and subsequent flooding. The Intergovernmental Panel on Climate Change's Fourth Assessment Report in 2007 gives six scenarios for sea-level rise over the next century. The lowest prediction is 7 inches and the highest is 23 inches. [2] A more drastic prediction has been made by Aslak Grinsted, a geophysicist at Copenhagen University, who estimates that the sea will rise by a metre over the next century. The finding was reported, among other places, UK Daily Mirror in an article entitled: "Sea will rise 'to levels of last Ice Age.'" [3] Jonathan Overpeck, director of the Institute for the Study of Planet Earth at the University of Arizona in Tucson, modelled a 6-meter sea-level rise submerging most of Florida. This data was discussed in the venerable National Geographic in a similarly spectacularly titled article: "Warming to Cause Catastrophic Rise in Sea Level?" [4] In Hollywood, Roland Emmerich's 2009 film 2012 shows the Statue of Liberty falling in the face of the enormous tsunami of sea-level rise. Today you can find numerous transparent blue overlays of sea-level rise in your home city as you search Google Earth. In one version you can look at what happens to your area if subjected to sea levels of 1 m to 14 m. The latter amount is the stuff of Emmerich's movie. It feeds off our fears and offers a satisfying narrative.

However, a 1-meter sea-level rise has been considered in many climate models. It doesn't depend on catastrophic events such as Greenland's ice sheet melting. On the other hand, a 3-meter sea-level rise is possible, though more likely it would take two or three centuries. This would flood most of Boston and other port cities. [5] It would be accompanied by major shifts in land use, significant migration, water scarcity, and myriad other climate-induced human affects. At the same time, the North Pole would be totally ice free for much of the year, an occurrence which we are on the verge of now. At that point, transportation routes would be established and geographic boundaries clear. The North Pole would be an accessible and open ocean, with a whole range of new stories of tourism, travel, marine life, etc.

This is the scenario among so many possible futures that we picked when I approached Mitchell Joachim, visionary architect and founder of Terreform1, with the question: if we had to live at the North Pole, what would our inhabited space look like? The end result is a 3-minute animation of port cities all over the world being flooded. As they flood, they are overlaid with ecotariums, a greenhouse-like structure that would maximize energy intake, include enough land and water to create habitable terrains, and be specific to each culture and landscape. These city-ecotariums then were detached from their larger landmasses and floated up towards an open north polar ocean, where they merge into one larger, nomadic, modular global city with shared resources.

The resulting animation is paired with another future prediction for the North Pole. A colour-field animation looks at the rise in temperature of 7 degrees Celsius over the next century. Degrees are coded with colours, just as cartographers use, with cooler temperatures being cooler colours, and warmer temperatures being warmer reds and oranges. As the temperature rises (under the control of randomizing software), the colours slowly warm. At the beginning of the piece, the colours of summer temperatures are in the pale yellow range, but after a hundred years of temperature rise, the summer colours are now warm orange verging on red. At the same time, an opera singer sings the headlines from Google News from 2007 when I searched for items associated with the term "North Pole". News headlines range from the first kiteboarder at the Pole, to oil company drilling, to climate science, to watercolour classes

in a small city in Alaska called North Pole. From the geopolitical to the mundane, from science to pastimes, the news headlines create a map of the North Pole as our culture imagines it today.

The pairing of these two videos – one a minimal evocation and one a lush narrative – with an operatic aria creates a complex space where data is offered in widely varying forms, which converge and diverge over time. The story of our future is given in versions that are based on our vision of the future now, on scientific data, and on future studies and interdisciplinary imaginings. Each one of these pictures is inherently full of risk and uncertainty, or, in the language of the IPCC, low confidence and high uncertainty. But they offer provocative and many-layered sensorial experiences that catalyze wonder, that offers a possible mythology, and that transforms the abstract and distant into a story.

Finally, different stories – the myth of the “first” explorer to reach the North Pole, the hole leading to a civilization at the centre of the Earth seen in flyovers and satellite images of the planet, webcams that offer both scientific data and an elegy to our image of the icy North Pole, a vision of a possible future nomadic urban cluster comprised of floating port cities from around the world – all circle the same centre. They are concerned with a terrain that is somehow at the heart of our culture’s imagination of a mythical and spiritual north. And yet this north is changing. The more it is charted, graphed, and pictured, the more our fears for our future in the face of catastrophic climate change cling to it like barnacles. Stories are needed to tell us about what is happening and what might happen. Science, with its cautious and specialized language and graphics, can give us information. But with only data, our imaginations are left to their own devices. The work of artists and writers is to weave the data with sensory experience, with perceptions in real time and space, with human emotions and memories, with cultural histories and predictions. In these stories, we linger over what is not known, over what might be, and over that which we hope for.

References and Notes:

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