Freezing time in a freezing space: Arctic cartography in the future tense

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Introduction

"Throughout history," according to Danny Dorling, "cartographers have sought to freeze time on paper" (1992: 215). And yet, as Denis Wood (2010) notes, time is never frozen out of the map. For Wood, every map has a *tense*, pointing toward the past, present, or future, as selective half-truths are employed to both reveal and obscure a place's inherent dynamism and indeterminacy. In the process, maps not only reflect histories and politics; they shape them.

Perhaps the temporality of the map is nowhere more clear than in the Arctic, where the map has played a crucial tool in linking the extension of state territory, the assessment of resource potential, the promotion of settlement opportunities, the understanding of indigenous uses of space, and the analysis of a changing and (from an outsiders' perspective, at least) hostile environment (Dodds, 2010; Dodds and Nuttall, 2016; Powell, 2008, 2010; Steinberg, 2010; Steinberg, Tasch, and Gerhardt, 2015; Steinberg, Kristoffersen, and Shake, 2019; Wormbs and Sörlin, 2017). Maps generate understandings of Arctic space through taking a complex world of interactions – between earth, ocean, and atmospheric forces; between human and non-human biota; between politics and geology -- and simplifying it into static spatial categories, projected onto a two-dimensional plane.

In previous work on the marginal ice zone (Kristoffersen and Wassmann, 2018; Steinberg and Kristoffersen, 2017; Steinberg, Kristoffersen, and Shake, 2019), we have explored how mapping the presence or absence of sea ice in the Arctic has been used by a range of actors to signify the Arctic as a space of state knowledge and, hence, authority. By implying a fixed, binary division between sea ice and open water, maps have obscured the significance of the marginal ice zone as a dynamic area of heightened biological productivity. Here, we take a different, if complementary angle. Building on Klaus Dodds' (2012, 2013) observation that the Arctic is a space of anticipatory futures, we explore how four Arctic maps shape perceptions of the Arctic as a space of potential resource riches and state power, mapping the Arctic in the *future tense*.

1. Anticipating economies

"The plaintiffs opened by showing a map, I'll do the same", began the Norwegian government's lawyer during the so-called climate trial in an Oslo courtroom on November 20th 2017.[3] The Norwegian Constitution had recently been updated, giving present and future generations the right to an environment where the reproductive capacity of nature is

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[3] Notes and quotes from the trial were written and transcribed by Berit Kristoffersen who was in the audience.

maintained.[4] Greenpeace and Friends of the Earth's youth chapter had seized the opportunity offered by this provision in the Constitution to challenge the extension of oil and gas exploration licenses in the Barents Sea.

Pointing to the map, the government lawyer took issue with the impression, which he claimed had been given by environmental organizations, that the Barents was a "virgin area" or a "new frontier". He noted that not only did Norway have 40 years experience mapping hydrocarbons in the Barents, but, as the map suggested, the Russians were actively engaging in hydrocarbon activities. In other words, the time was ripe for expanding Norwegian exploration into the areas on the eastern fringe of the Norwegian sector, which had been given over to Norway after the 2010 Norway-Russia delimitation agreement.

This was the reason why the map was important, so that all could see "…what has been found so far. Big discoveries on the Russian side, and on the Norwegian side". However, while signifying the oil frenzy that supposedly was occurring, the government lawyer was also laying the groundwork for an extractive future. As the map left the audience with the well-established impression that Russia was much more active than Norway in conducting hydrocarbon activities, it reaffirmed Norway's position that it needed to intensify its efforts to get a head start on Russia in the newly delimited area in the Barents Sea. Additionally, by using a map that distorted the latitude on the map – so that 75 degrees north on the Norwegian side was parallel to 70 degrees north on the Russian side – the Norwegian government was implying that Russia was active further north, adding to the impression that the Norwegian industry should proceed northward without hesitation, lest Russia take the lead in any oil or gas fields that cross the delimitation line. Not evident from that map is that, by 2016, Norway had drilled twice as many exploration wells as Russia (about 120 versus 60) or that Norway has two hydrocarbon projects on stream in the Barents Sea versus Russia's one.

2. Anticipating territories

In international law, the division of space in the Arctic is, officially, no different than in the rest of the world: land is divided into sovereign state territories while the ocean, even when it is frozen, is a global commons, although states are permitted to make certain claims based on adjacency to the coast. Nonetheless, states have long engaged in semi-official performances of what Dodds (2010) calls "flag planting and finger pointing" to suggest alternate futures based on different rules, and maps are frequently enrolled in these performances.

In the early twentieth century, a number of Canadian and Russian/Soviet jurists proposed that Arctic states should each control wedge-shaped sectors extending from the outermost points on land up to the North Pole, irrespective of whether the space within that sector was land or water/ice. Although both countries have officially abandoned this position and subscribed to normative principles of international law, both states continue to keep the sector principal alive. As international law scholar Eric Franckx (1993) has written with specific reference to Canada:

> [The sector] theory seems to exert a mystical attraction as a fall-back position whenever the Canadian sovereignty claim over its northern waters [has] to be buttressed….It is obvious that for Canada the notion of [the] sector theory still has not totally fallen into oblivion. (p. 90)

[4] Paragraph 112 in the Norwegian constitution is available at: https://lovdata.no/dokument/NL/lov/1814-05-17/KAPITTEL_6.

To this end, even as Canada defines its official boundaries according to international law, maps produced by the government, like this one from the *National Atlas of Canada*, portray sectoral lines and label them 'International Boundary'.

Canada's ambiguous attitude toward the sectoral lines is revealed in Steinberg, Tasch, and Gerhardt's (2015) recounting of an interview in the Transport Canada headquarters in Ottawa:

> Over the course of the interview, both the interviewers and the Transport Canada official began pointing at a…map that was tacked on the office wall…This led the official to interrupt himself mid-sentence...:
>
> *Respondent:* That map is inflammatory, by the way.
>
> *Interviewer:* Because of the Canadian lines?
>
> *Respondent:* Yea…We know that it's wrong. The map makers should have known better, and interestingly this map was made for our National Defence people.
>
> *Interviewer:* I've often wondered: Why doesn't Foreign Affairs complain about these maps? Unless everyone knows that they're unofficial.
>
> *Respondent:* Everyone doesn't know it; nobody knows it. (pp. 27-29)

3. Anticipating resources

Arctic oil and gas enthusiasts have bestowed an almost mythical status on a series of maps produced in 2008 by the United States Geological Survey (USGS) that illustrate the likelihood of oil and gas resources in the Arctic. Often, references to these maps are accompanied by a recitation of the USGS' 2000 prediction that 25 percent of the world's unproven oil reserves may be north of the Arctic Circle. The result has been a spate of news stories like this one from CNN that asserted:

> The sea under the polar cap is unlikely to remain largely untapped for long – governments and corporations are racing to carve up the Arctic oil pie. (Hargreaves, 2006)

The 2000 assessment was released during a time when there was heightened attention of the insecurity of future energy supply and worries about the decline of global oil stocks ('peak oil'), and its predictions cannot be separated from this context. Richard Powell (2008) has explored how the apparent findings in the report (USGS, 2000) travelled across media and policy-circles. In fact, according to Powell, it is "almost impossible" to find the original source of the claim that "twenty-five percent of the world's untapped reserves of oil are located in the Arctic" (2008: 829). Further complicating the story has been many commentators' slippage between 'oil reserves' and 'hydrocarbon reserves' (which includes gas as well as oil) and the distinction between proven and unproven reserves. Additionally, few news stories mention that the USGS no longer stands by its 2000 assessment: a later summary by USGS staff reduced the Arctic's percentage of the world's unproven oil reserves to 13 percent (Gautier et al., 2009).

Nonetheless, the mythical status of the USGS' predictive forecasts, presented as calculations and subsequently presented as mapped data, has lent an air of certainty to the reframing of the changing geography of the Arctic's land and seascape as one of boundless resource abundance (see Kristoffersen, 2015).

4. Anticipating conflict

The United Nations Convention on the Law of the Sea (UNCLOS) grants states rights to marine resources out to 200 nautical miles from their coasts. In this area, the Exclusive

Economic Zone, a state has *sovereign rights* (to specific resources), but not *sovereignty* (full territorial control). A state can claim additional rights to non-living seabed resources beyond 200 nautical miles if its continental shelf extends further, out to a maximum of 350 nautical miles from shore or 100 nautical miles beyond where the ocean reaches a depth of 2,500 meters, which ever is further. To make outer continental shelf claims, states engage in extensive research and then submit scientific findings to the Commission on the Limits of the Continental Shelf (CLCS). The CLCS is charged with assessing the scientific data, but with the understanding that many states' claims will likely legitimately overlap and that overlapping claims will then need to be settled through subsequent negotiations.

Although these claims are being made throughout the world, they have received particular attention in the Arctic, where they appear to confirm dominant narratives about a 'scramble' for Arctic resources. In 2008, Durham University's International Boundaries Research Unit (IBRU) produced a detailed map of potential CLCS claims in the Arctic, in an attempt to demonstrate that the rule of law prevailed there. The day after its release, the map was criticised by UNCLOS advocate Caitlyn Antrim. As IBRU (2015) wrote later, reflecting on the controversy:

> Antrim criticised the map as "designed [to highlight] the worst-case view of the status and prospects for Arctic claims and counter-claims." In part, Antrim faulted IBRU's decision to depict the two lines that show the outermost limits of potential claims…but not the continental slope and sedimentary depth data that would eventually reduce the extent of those limits....
>
> Antrim also critiqued the map's design for failing to depict the partial nature of the rights that coastal states would obtain within their delimited zones: "[The map] gives a sense that the Arctic states are making territorial claims over the entire Arctic Ocean rather than just the resources of the continental shelf. I am sure that the first reaction of many readers who are unfamiliar with the distinction between high seas navigational freedoms, exclusive economic zones and continental shelf resource control would be: 'What right do those five countries have to keep us out of the Arctic Ocean?'"…
>
> Antrim was prescient in perceiving how the map might be misinterpreted by the mass media. In countless interviews after its publication IBRU staff worked to disassociate the map from the prevailing narrative that coastal states were scheming to "carve up the Arctic." (p. 2)

Conclusion

As the above examples illustrate, Arctic maps anticipate a range of scenarios. The Norwegian Barents Sea map foresees a future of resource opportunities amidst international rivalry. The Canadian map asserts sovereignty, anticipating a time in which the norms of international law may be redrawn to grant a new legal status to icy northern waters. The USGS map presents an Arctic of potential abundance, reproducing a long-standing narrative of Arctic resource triumphalism. The IBRU map, although intended to suggest a future of law and orderly management, inadvertently lends support to a pre-existing ideal of the Arctic as a space of competition and conflict.

Viewed together, these examples reveal some of the intended and unintended consequences that emerge when the geological, scientific, political, and economic uncertainties of the region are stabilised in maps. These maps, in turn, shape the framings, policies and strategies embedded in Arctic political geographies. Anticipating the North as a

space of competition, resource riches, sovereignty claims, or orderly management, Arctic cartography continues to operate in Woods' (2010) 'future tense', suggesting a range of prospects for freezing time in a freezing space.

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Captions

Figure 1: Norwegian Petroleum Directorate, 'Norwegian and Russian Continental Shelf in the Barents Sea'. This map was redrawn for the authors by the Norwegian Petroleum Directorate in 2019, using data available online at http://www.npd.no/no/Om-OD/Tilgjengelige-data/. The original version appeared on page 19 in the Ministry of Petroleum and Energy's Report to Parliament (2012–13) 36: *New Possibilities for Northern Norway: The Opening of the Southeast Barents Sea for Petroleum Extraction*, available online at https://www.regjeringen.no/no/doku menter/meld-st-36-20122013/id725083/

Figure 2: Natural Resources Canada, 'The Territories' from *National Atlas of Canada*, available online at http://ftp.geogratis.gc.ca/pub/nrcan_rncan/raster/atlas_6_ed/reference/bilingual/territories.pdf. Contains information licenced under the Open Government Licence – Canada.

Figure 3: United States Geological Survey, 'Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Gas North of the Arctic Circle (USGS Fact Sheet 2008-3049)', available online at https://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf.

Figure 4: IBRU: Durham University's Centre for Borders Research, 'Map of Maritime Jurisdiction and Boundaries in the Arctic Region'. The colour version of this map, and accompanying briefing notes, are available online at https://www.dur.ac.uk/resources/ibru/resources/Arcticmap04-08-15.pdf. Reprinted with permission of Durham University, IBRU.