



Visions of the Arctic Future

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Earth's Future

RESEARCH ARTICLE

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Abstract: The future of Arctic social systems and natural environments is highly uncertain. Climate change will lead to unprecedented phenomena in the pan-Arctic region, such as regular ship traffic through the Arctic Ocean, urban growth, military activity, expanding agricultural frontiers, and transformed Indigenous societies. While intergovernmental and local organizations have produced numerous synthesis-based visions of the Arctic's future, these have been limited to broad, general statements. To address this gap, we employ a computational text analysis to generate unique thematic input for novel, story-based visions of the Arctic. Specifically, we develop a corpus of more than 2,000 articles in publicly accessible, English-language news media from 2010 to 2020 to identify emerging topics and associated keywords. From these topics and keywords, we design ten story-based scenarios employing the Mission mapping, science fiction prototyping, and other methods. Our results show that the story-based scenarios are distinct from one another and that they are consistent with one another. The output stories can be traced clearly back to the original topics and keywords. We discuss the findings in the context of the broader field of Arctic scenarios and show that the results of this computational text analysis provide a valuable addition to the existing literature. These story-based scenarios may help researchers and policy makers to provide vital context toward understanding the myriad possible Arctic futures.

Plain Language Summary: The Arctic will profoundly change in the 21st century. Climate changes and other increasing human pressures will transform many parts of the region beyond contemporary experience. This will lead to unprecedented phenomena in the pan-Arctic region, such as regular ship traffic through the Arctic Ocean, urban growth, military activity, expanding agricultural frontiers, and transformed Indigenous societies. While intergovernmental and local organizations have produced numerous synthesis-based visions of the Arctic's future, these have been limited to broad, general statements. To address this gap, we employ a computational text analysis to generate unique thematic input for novel, story-based visions of the Arctic. Specifically, we develop a corpus of more than 2,000 articles in publicly accessible, English-language news media from 2010 to 2020 to identify emerging topics and associated keywords. From these topics and keywords, we design ten story-based scenarios employing the Mission mapping, science fiction prototyping, and other methods. Our results show that the story-based scenarios are distinct from one another and that they are consistent with one another. The output stories can be traced clearly back to the original topics and keywords. We discuss the findings in the context of the broader field of Arctic scenarios and show that the results of this computational text analysis provide a valuable addition to the existing literature. These story-based scenarios may help researchers and policy makers to provide vital context toward understanding the myriad possible Arctic futures.

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1.1. A Rapidly Changing Arctic May Shape New Approaches

Underpinned by complex desires to increase political hegemony, resource control, and urban growth, the Arctic is often viewed as a place where

KEYS AND MEYER

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Overview

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Purpose

- Use new evidence base with story-based futures to write about the Future Arctic.
- Computational text analysis can cast a very wide net.
- Reveal *under-discussed* futures for the Arctic.

Approach

- New evidence base: LDA
- Develop new method to connect this to storytelling

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Creating an 'Arctic Future' news corpus

- Circumpolar news sources
- Google search-based effort
- English-language only
- N = 2,058 articles

NUNATSIAQ NEWS



ARCTICTODAY

The Arctic Sounder

CBC

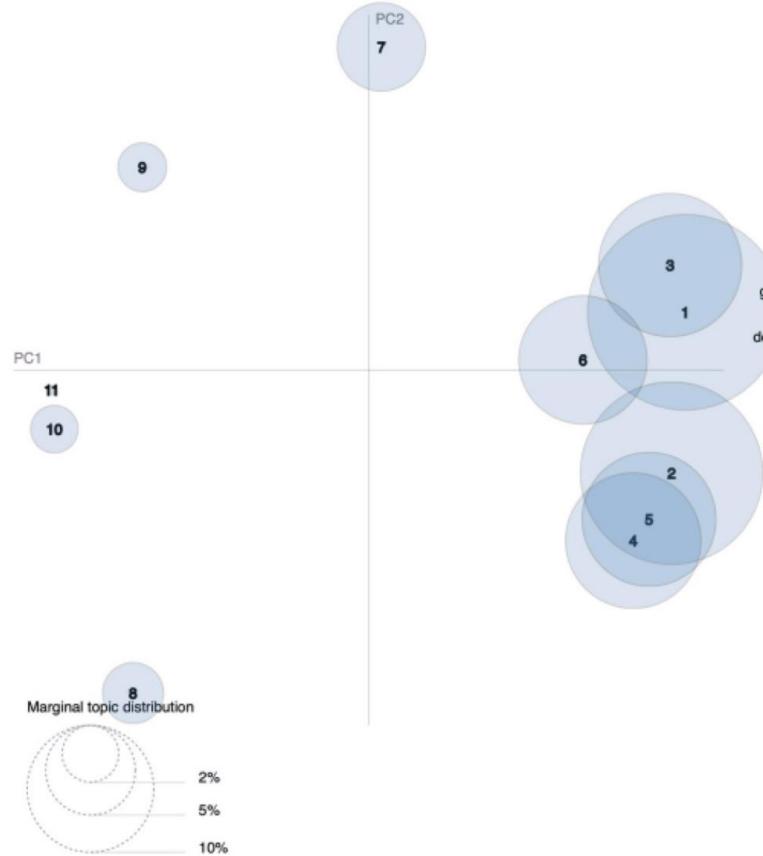
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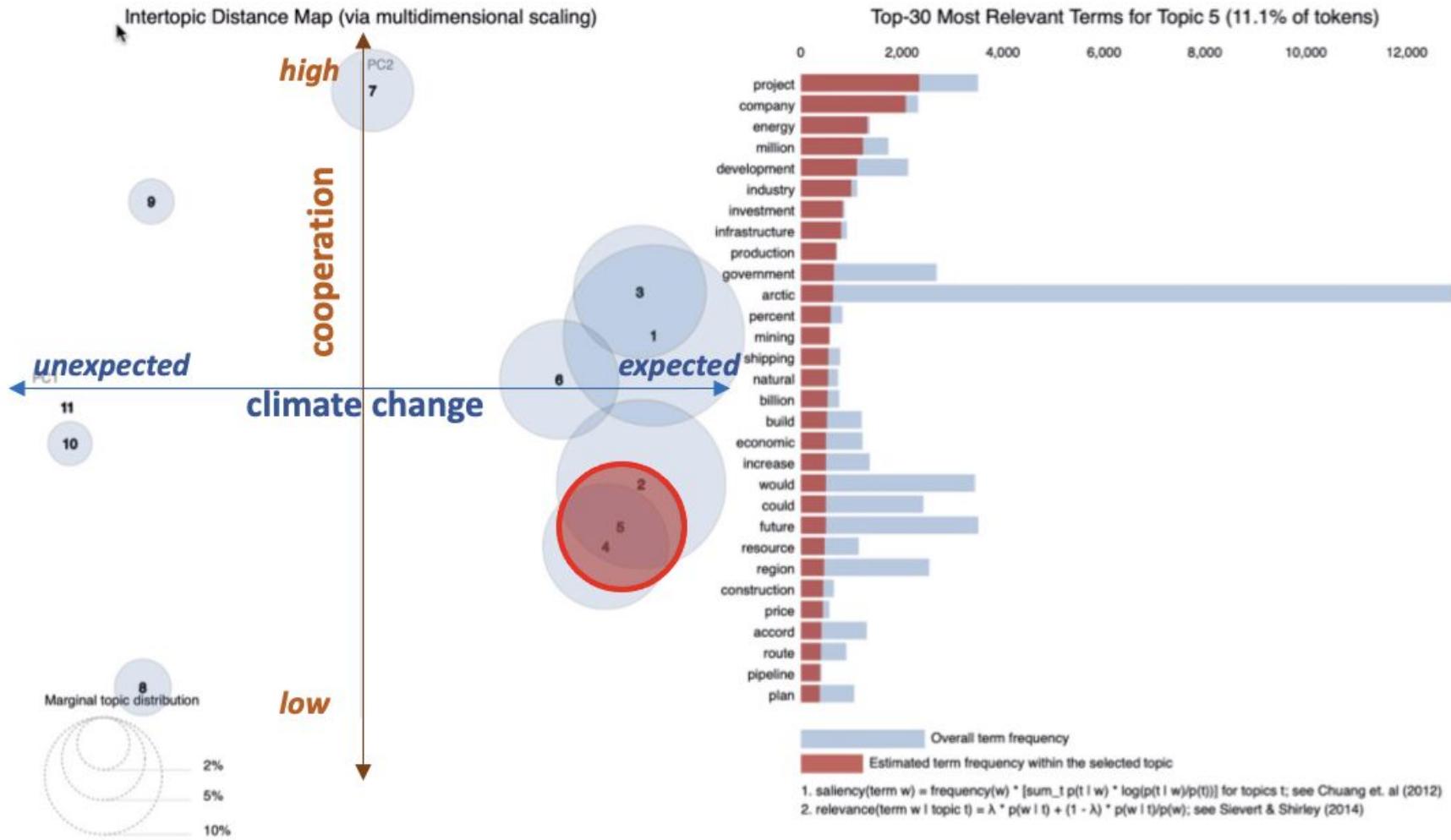
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INDEPENDENT NEWS FROM RUSSIA

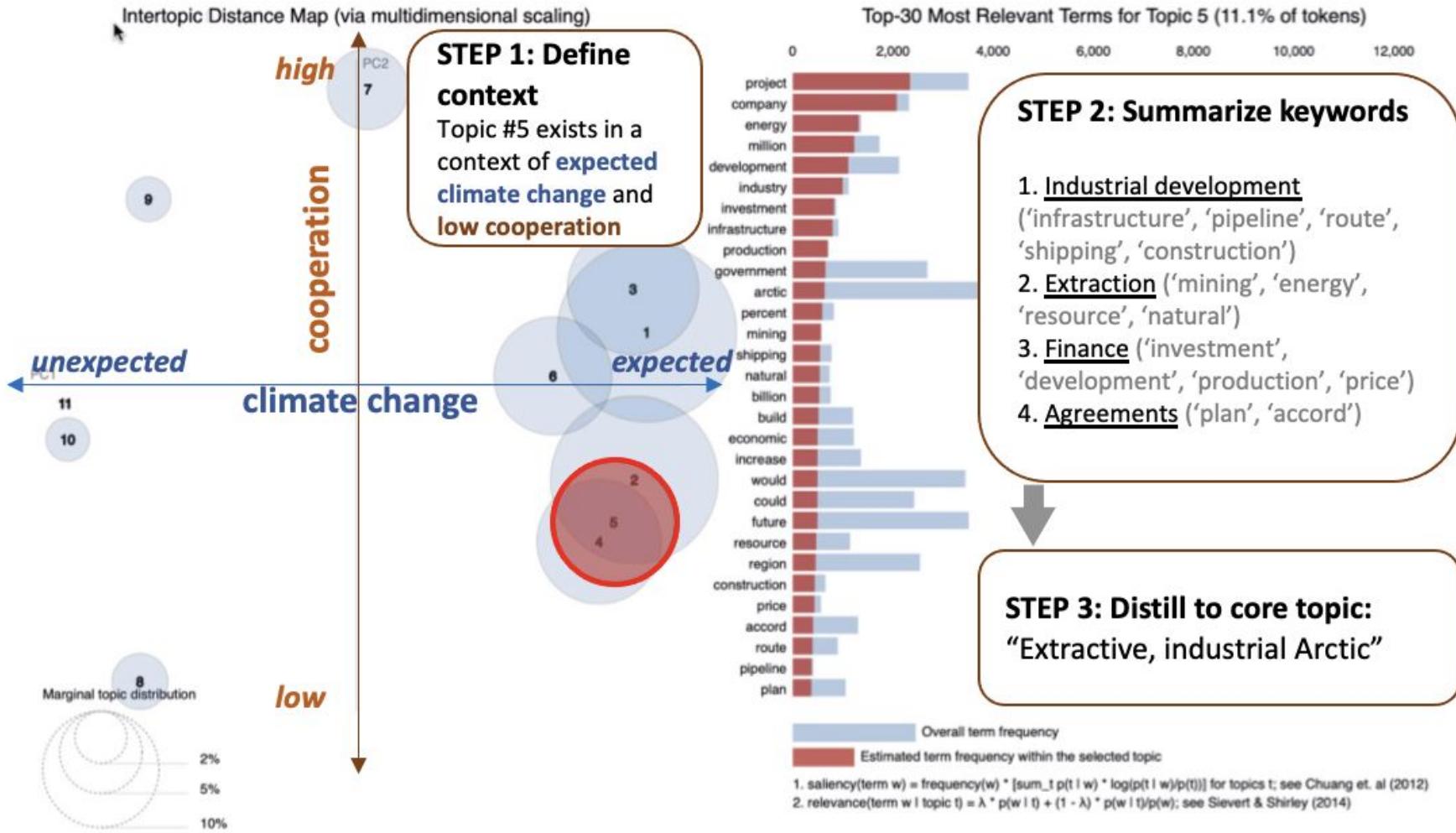


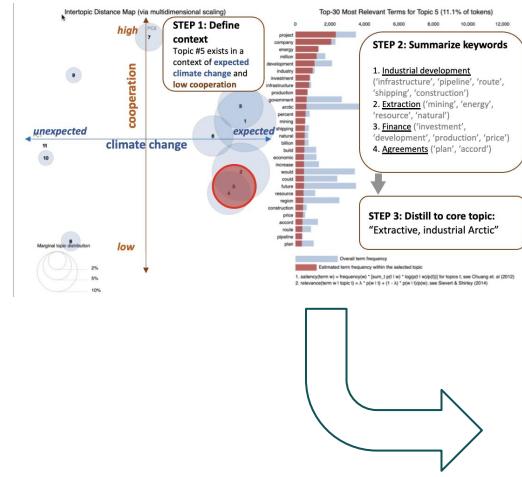
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Intertopic Distance Map (via multidimensional scaling)

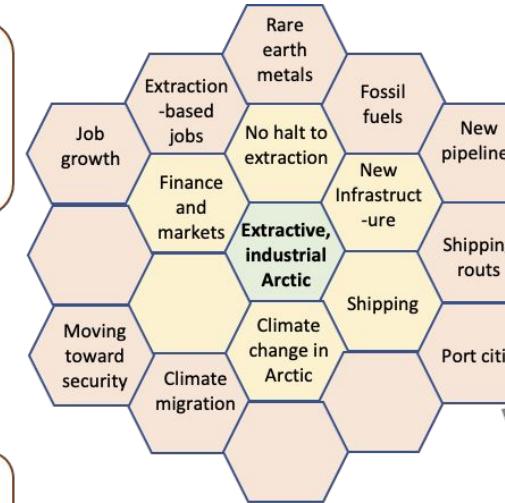




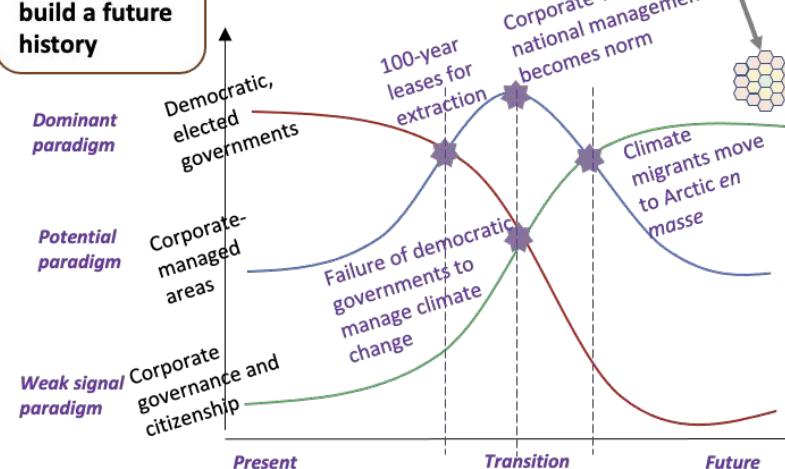




STEP 4: Explore future of this topic (based on keywords)



STEP 5: Use 3-horizons to build a future history



STEP 6: Probe reality

- Climate policies did not stop industrial extraction
- Society is going full tilt on extractive, industrial, Arctic development
- Little action on climate means profound migration and societal unrest
- Possible failure of governments



STEP 7: Push toward ridiculous

- Violent corporate take-overs are commonplace
- Corporate citizenship replaces democratic citizenship.
 - Extractive industrial "nations"
 - Rights are limited
- Indentured service for climate migrants as pathway to corporate citizenship



A Migrant Contract - Excerpts

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Misha smiled. This was their daily game. Walk 15 miles through the
wilderness of northern Canada, and speculate about their unknown
destination."

A Migrant Contract - Excerpts

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A Migrant Contract - Excerpts

“Misha snapped awake. Carefully watching her pockets, as she exited the packed Loop, and followed the crowd of gray clad workers down the platform. Nobody rushing to get to work, the slow, measured steps shuffling the same, well-trod path toward the Pits. A few drones floated together overhead, almost as though they were on a smoke break, seeking idle conversation.”

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A Migrant Contract - Excerpts

“They each took a seat, facing away from one another, and carefully placed their arms in the armrests. Misha began the activation sequence, and she could feel a part of her mind go elsewhere. She closed her own eyes, and heard the gentle, metallic snik as the swarms enclosed in her sleeves woke up and began seeking promising signatures in the rock. She remembered the explanation from her trainer that the swarm intelligence wasn't actually inside her head, it was just leveraging the raw power of the human brain to perform complex computations. But it still felt like the swarm was in her mind.”

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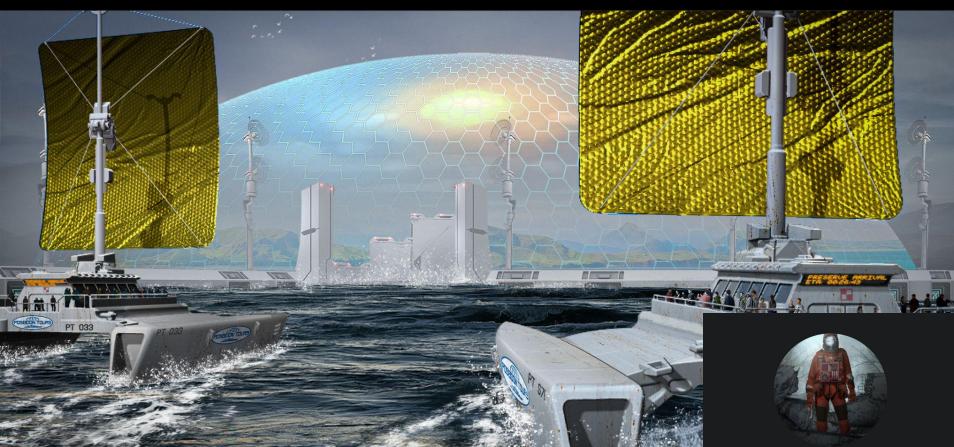
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Thanks



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