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## Academic Research on China's Arctic Interests in English, 2006-2021: Preliminary Quantitative Analysis

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### Introduction

Chinese strategic messaging with respect to the Arctic promotes an image of the People's Republic of China as a peaceful and friendly world power seeking "win-win" economic cooperation. This narrative is common to Chinese messaging around the world. Its purpose is to blunt foreign criticism while facilitating investment, scientific collaboration, and the entrenchment of Chinese facilities and programs in foreign states. This 'win-win' approach towards the Arctic is designed to facilitate access to shipping routes, Chinese direct foreign investment in energy and mining projects, "Polar Silk Road" (PSR) infrastructure projects, and (potentially dual-purpose) scientific research. The Arctic still holds the *promise* of resources and shipping routes that could one day be important as part of a global Belt and Road Initiative (BRI). For its part, the Western allies remain wary of the longer-term interests of China in the Arctic, especially due to China's policies over the past decade indenting to deepen economic and shipping links with Arctic actors and play an expanded role in Arctic governance.

Since 2006, academics have written extensively on China's interests and role in the Arctic. A steady increase in publications touch on the China-Arctic nexus, with a particular surge since 2018. Nonetheless, the number of scholars who focus on this topic area is relatively small, leading to a China-Arctic epistemic community of sorts. Most of these scholars are at key universities in Arctic states and publish in journal articles, books, think tank reports, and news media stories. Some academics focus on China's economic aspirations through its Polar Silk Road Initiative, Sino-Russian cooperation, energy security, or the activities of state-owned enterprises seeking to secure access to natural resources in the region. Other scholars focus on questions of security and great power competition, paying particular attention to the US-China-Russia strategic triangle. The findings of this research project, which focuses on English-language publications by the most active academic commentators

from 2006-2021, point to widespread promotion of a ‘win-win’ approach that does not seek to exclude China from Arctic affairs. Rather than fixating on negative aspects of China’s interests and aspiration in the region (an anti-China narrative), most scholars during this timeframe sought to reconcile or accommodate both Chinese and Arctic state interests (identified in this study as a pro-China narrative).

For the purposes of this study, please note that the general pro-China category does not connote an uncritical echoing of Beijing’s Arctic narratives. More nuanced analysis is required to assess the relative adherence of various academics to the messaging proffered by official Chinese narratives.

## Methodology

### Data Collection

This research began with the research question: From 2006-2021, what was being written on China and the Arctic within social science? The process of collecting data started with using a series of different databases such as Web of Science, JSTOR, ProQuest, and Google Scholar and using search terms including 1) “China” AND “Arctic”, 2) “Chinese” AND “Arctic”, 3) “China Arctic Policy”, 4) “Polar Silk Road”, 5) “China Greenland”, and 6) “Sino” AND “Arctic”.

The next stage of data collection moved onto exploring what grey literature from think tanks had to say about China and the Arctic. To ensure that the collection of think tanks selected was methodologically justifiable, we used the 2020 Global Go To Think Tank Index Report published by the University of Pennsylvania’s Lauder Institute.<sup>1</sup> This report was based on its own database of 11,175 think tanks to list the top 150 think tanks worldwide per year both inside the United States and internationally. For this research, we used their appendix with 1) the 2020 Top Think Tanks Worldwide (Non-US) Table, and 2) the 2020 Top Think Tanks Worldwide (US and non-US) Table. We searched the top 100 think tanks in each table, going on their website and using similar search terms as outlined above in the databases. Many think tanks did not have Arctic content or Chinese content.

Alongside using academic databases and the above grey literature search method, we looked specifically at Arctic think tanks, publications, and organizations such as the Arctic Institute, Polar Journal, the North American and Arctic Defence and Security Network (NAADSN), and the Polar Institute. After reaching 500 sources, we looked to see which authors seemed to be publishing most frequently and sought out their individual curricula vitae to both ensure we were capturing all their published works and to search out co-authors. Currently, the dataset contains 708 publications and 803 authors/editors. These results are what we found from English-language sources and leave out important work done by Chinese experts in non-English sources.<sup>2</sup> Further, as this data collection was based on publications, it left out reputational analysis.

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<sup>1</sup> [https://repository.upenn.edu/cgi/viewcontent.cgi?article=1019&context=think\\_tanks](https://repository.upenn.edu/cgi/viewcontent.cgi?article=1019&context=think_tanks)

<sup>2</sup> There were many Russian and Chinese language sources that were initially found but ultimately not coded due to the database’s restriction on English-language sources.

## Background Research

The most notable finding from this initial analysis of the dataset was the breakdown of how many authors published on Chinese Arctic issues. Only 66% of individuals publishing on China have produced one publication. Even more surprising was that only 6.85% of the dataset – 55 individuals - had produced more than five publications. This significant discrepancy indicates that most Chinese Arctic publications are not written by a small set of experts. Instead, they are likely written by individuals reacting to either topical news on China or on the Arctic. This finding has implications for the quality of information concerning Chinese Arctic topics as most of the information on this issue area is not coming from people who have significant publication experience. This also indicates that the China-Arctic epistemic community is relatively small.

Based on these initial results, we decided to conduct a detailed background analysis of these top 55 producers of content. One RA began with background research and once they finalized their research, a second RA checked that information, with a final check for accuracy. The background research portion of this project took place from August/September 2022 – May 2023. Using this information, we used Gephi software to delineate nodes (individuals and institutions) with edges (connections).

We gathered information on:

- Nationality
- Western or Chinese affiliation
- Current residency
- Years active
- Policy, academia, or government
- Eight most recent employments
  - o position, employer, employment time
- Four most recent educational affiliations
  - o education institution, subject, type (BA, MA, etc.), time
- Eight most recent/recorded affiliations & time

## *Coding of Documents*

The publications of the top 55 producers of content from 2016-2021 were also pulled out in a separate analysis to see how these authors or editors were characterizing China in the Arctic, what analytical framework they were using, and what types of issues they noted.

Publications were coded using a series of codes represented in the table below. Codes in the first three rows were ‘content-codes’ and correspond with main themes in the text. Codes in the last two rows corresponded with a theoretical framework (if there was one) and the type of analysis including the object of study and the type of publication. Codes were applied to individual documents by one RA, checked for intercoder reliability by a second RA, and then double-checked to make sure there was consistency and a shared understanding of each document.

Conflict	Great Power Competition	Hard Security	China Energy Politics	Anti-China	China-Russia	China-US
Cooperation	Economic Development	Soft Security	Indigenous Issues	Pro-China	Climate Change	Shipping
Influence	Arctic Security	International Law	Polar Silk Road	Norway	Iceland	Greenland
Think tank	Academic Journal	Dissertation	Book	Conference	State-Based Analysis	Sub-State Based Analysis
Critical	Realist	Liberal	Marxist	Constructivist	Social Science	Natural Science

**Table 1:** Codes for Documents

In total, there are 340 publications that are associated with the top 55 producers.

## Findings

### *Producers*

Authors	Number	Percentage
Total Number	803	100%
10+ citations	20	2.49%
5+ citations	55	6.85%
5 to 8 citations	33	4.11%
4 to 5 citations	31	3.86%
2 to 3 citations	161	20.05%
1 citation	537	66.87%
<b>12+ citations</b>		
12+ citations	15	1.87%
11 citations	2	0.25%
10 citations	3	0.37%
9 citations	2	0.25%
8 citations	4	0.50%
7 citations	8	1.00%
6 citations	6	0.75%
5 citations	15	1.87%
4 citations	16	1.99%
3 citations	47	5.85%
2 citations	114	14.20%
1 citation	537	66.87%

**Table 2:** Author distribution across dataset

As mentioned above, our first finding was the distribution of publications on China-Arctic expertise. The majority of publications were only written or edited by a producer that discussed the topic once or twice across 2006-2015, indicating that the majority of producers are not ‘experts’ on the topic. Only 6.85% of producers – 55 in total - wrote or edited more than five publications across the dataset.

### *Social Network Analysis*

At the center of the network analysis are a few interesting points of analysis. First, it is important to note that the network is dense. The center of it is quite overlaid with many different individuals and institutions having many connections with one another. The most prominent are the Arctic Yearbook, the University of Tromsø, The University of Oslo, NAADSN, Harvard University, and the University of Lapland. This indicates that these institutions were the most often cited as related to producers of content.

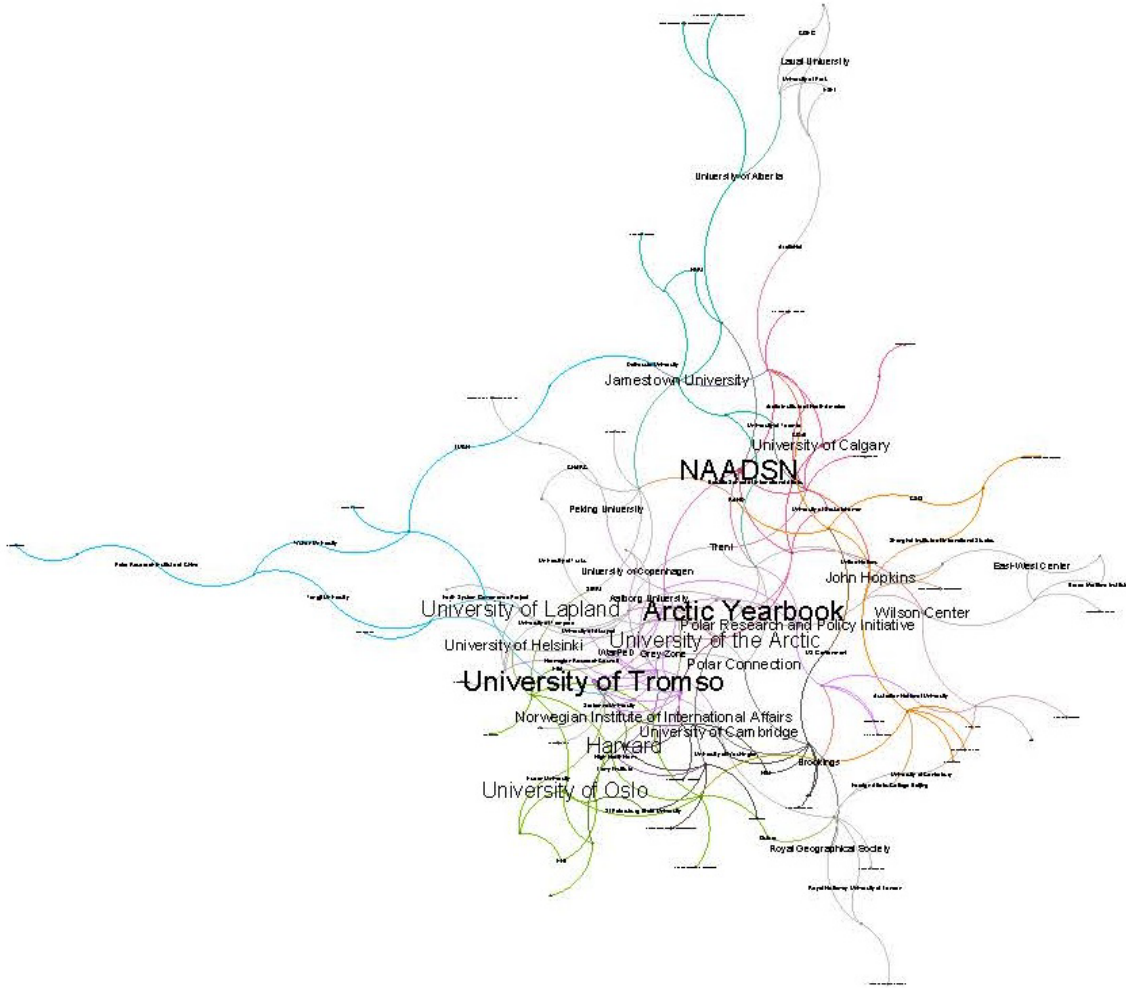
NAADSN	Sergey Sukhankin, Whitney Lackenbauer, Heather Exner-Pirot, Justin Barnes, Marc Lanteigne, Frédéric Lasserre, Adam Lajeunesse
Arctic Yearbook	Yang Jian, Justin Barnes, Li Xing, Lassi Heininen, Heather Exner-Pirot
University of Tromsø	Rasmus Bertelsen, Oran Young, Mariia Kobzeva, Sanna Kopra, Marc Lanteigne,
University of Lapland	Matti Nojonen, Lassi Heininen, Sanna Kopra, Timo Koivurova, Adam Stepien
University of Oslo	Arlid Moe, Øystein Tunsjø, Iselin Stensdal, Bjørnar Sverdrup-Thygeson,
Harvard University	Rasmus Bertelsen, Oran Young, Øystein Tunsjø, Nadezhda Filimonova,

**Table 3:** Most cited institutions

Second, a select number of universities are connected to key individuals, creating strong connections that were often country-specific. The University of Lapland, the University of Helsinki, and the University of Tampere, for example, have very strong connections to Finnish individuals – Lassi Heininen, Timo Koivurova, and Sanna Kopra – who were educated and work there. The most crowded area of the network is an interesting mix of individuals and institutions with people such as Rasmus Bertelsen, and institutions such as the Norwegian Institute of International Affairs and the University of the Arctic. Many of the Asia-Pacific scholars are grouped together, as are many of the Canadian scholars. Nonetheless, there are significant overlaps with institutions in North America and Europe. The densest area of the network mostly has Nordic institutions such as the University of the Arctic, the Grey Zone project, the University of Tromsø, and the Norwegian Institute of International Affairs.

Most Chinese nationals in the SNA are not in the center of the network with the exception of Li Xing and Jian Yang. Other individuals, while included in the graph, tend to be on the outskirts with one or two links that draw them into the network. What is also particularly interesting is that there are some connections that do not fall in line with the main network all together. For example, Zinan Chen’s connection to China-US Focus, Vasili Erokin and Gao Tianming’s connection with Harbin Engineering University and Stavropol State Agrarian University, and Martin Kossa and Houming Fan’s connection with Dalian Maritime University and Jilian University are completely separate from the main graph.





**Figure 1:** Social Network Analysis of China-Arctic Epistemic Community

### *Coding of Documents*

For the top 55 producers of China-Arctic content, there were 341 documents including books, chapters, journal articles, dissertations, popular media sources, and think tank pieces. For the purpose of this initial analysis, we analyzed 306 of the above documents as they represented documents where one of the top 55 producers was an author rather than an editor. This meant that some individuals who originally had more citations ended up having fewer. Two individuals, Justin Barnes and Heather Exner-Pirot, had no citations as their connection the China-Arctic nexus came through their editorship of the *Arctic Yearbook*.

The majority of producers factored prominently in the dataset. Below is a list of the codes used and how many times they were used when coding. Some codes were used many times, such as social science and state-based

analysis, whereas others were not used at all such as a critical or Marxist theoretical framework. The final numbers of codes will add up to more than 100% as codes were used simultaneously and more than once.

Think tank	112	26%
Journal	107	25%
Dissertation	1	0%
Book	156	36%
Conference	50	12%

**Table 4:** Type of Publication

Realist	101	24%
Critical	0	0%
Liberal	43	10%
Marxist	0	0%
Constructivist	59	14%
Political Economy	59	14%
Social Science	420	98%
Natural Science	0	0%

**Table 5:** Theoretical Framework

An initial takeaway is that the majority of the top 55 producers do not ascribe to a conflict reading of the Arctic. Only five individuals – Adam Lajeunesse, Anne-Marie Brady, Long Zhao, David Curtis Wright, and Chen Zinan – used a conflict framing in more than 20% of their publications, and only 14 out of 55 of the producers this framing at any point from 2006-2021. By contrast, 31 have taken a cooperative approach (see Figure 2). As it stands, some authors have neither used a cooperative or conflictual reading of the Arctic and they are not included (10 in total). Thus, the majority of authors use a cooperative lens, yet many (25 in total) still highlight and emphasize the role of great power competition, although only five authors do so in more than 50% of their publications. This suggests that the majority of authors tended towards a cooperative reading of China in the Arctic.

Interestingly, 48 authors discussed economic development in some way – indicating that, for the majority of these producers, it is key to explaining the China-Arctic nexus. 29 authors mention climate change as central to their piece, with five doing so more than 50% of the time. On China-specific issues, 39 authors bring attention to the question of the Polar Silk Road (four do so in more than 50% of their publications), and 24 to the question of how Chinese energy politics influences Arctic affairs (four do so more in more than 50% of their publications). 35 authors discuss the Chinese-Russia relationship and 41 authors reference shipping. The emphasis on particular issues such as economic development and climate change as well as energy politics may help explain why a “conflictual” reading is not as prevalent.

When moving the question to thinking about security, 30 authors referenced or discussed the topic in their pieces. Out of 30, 18 authors tended to learn towards discussing harder securities in contrast to the nine authors who referenced softer securities more often. Three authors referenced both hard and soft security an

equal number of times. 28 authors were explicit in discussing ‘Arctic’ security in some way that made the region distinct.

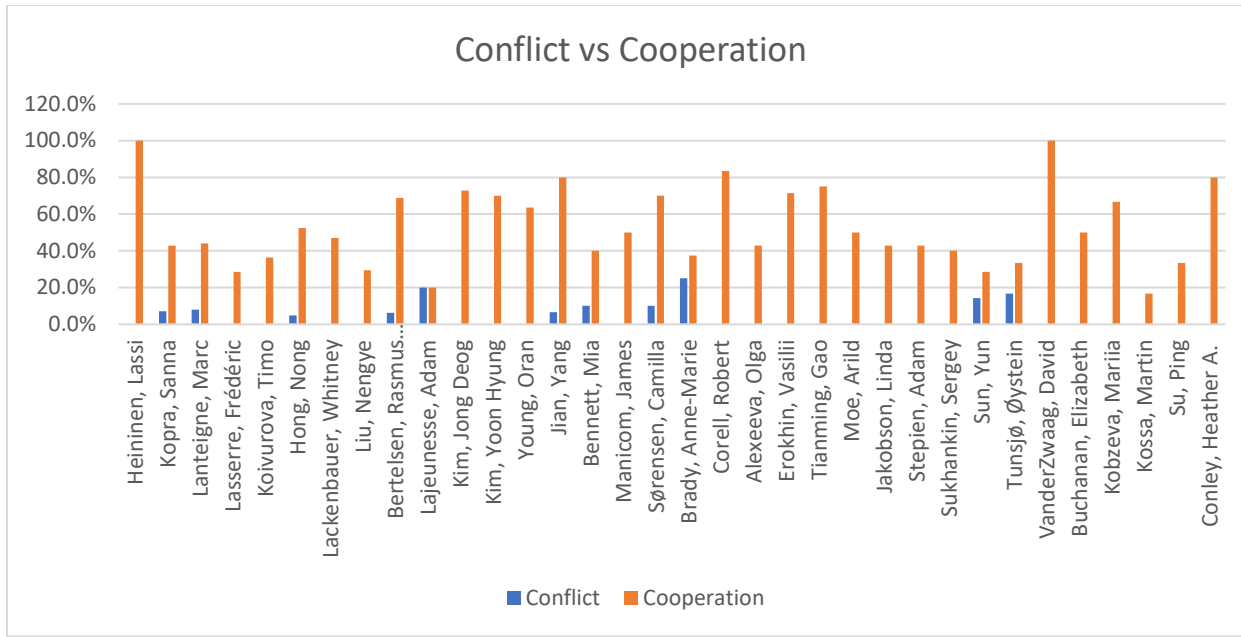


Figure 2: Conflict vs. Cooperation, see Table 7 in Appendix for full percentages

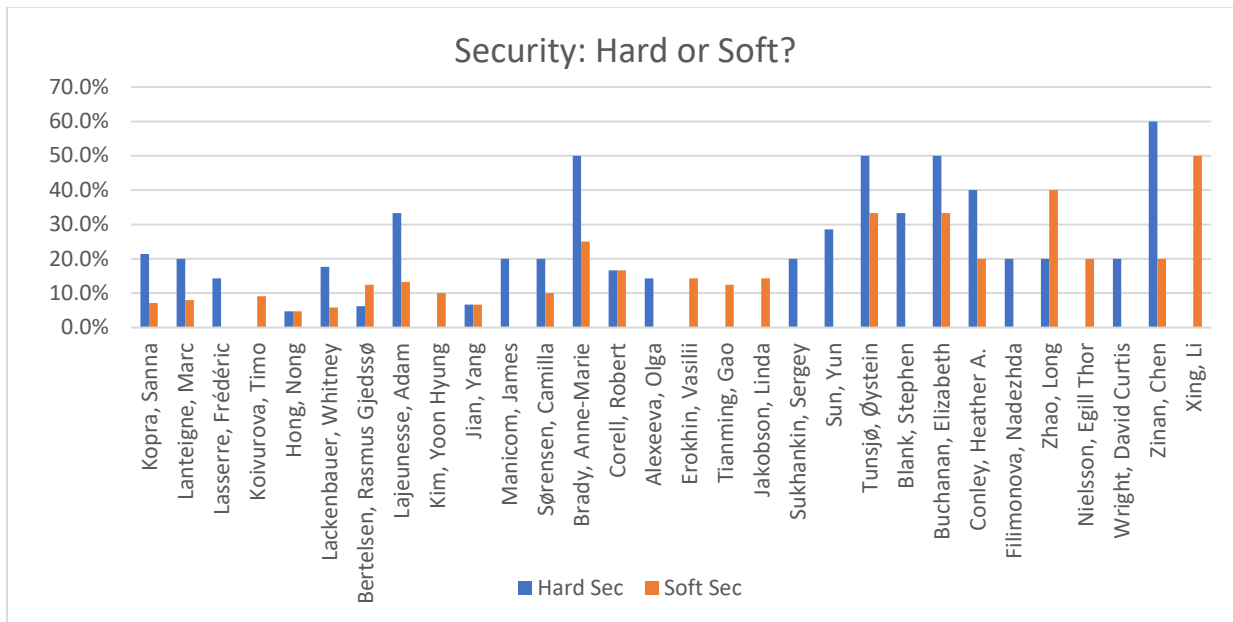
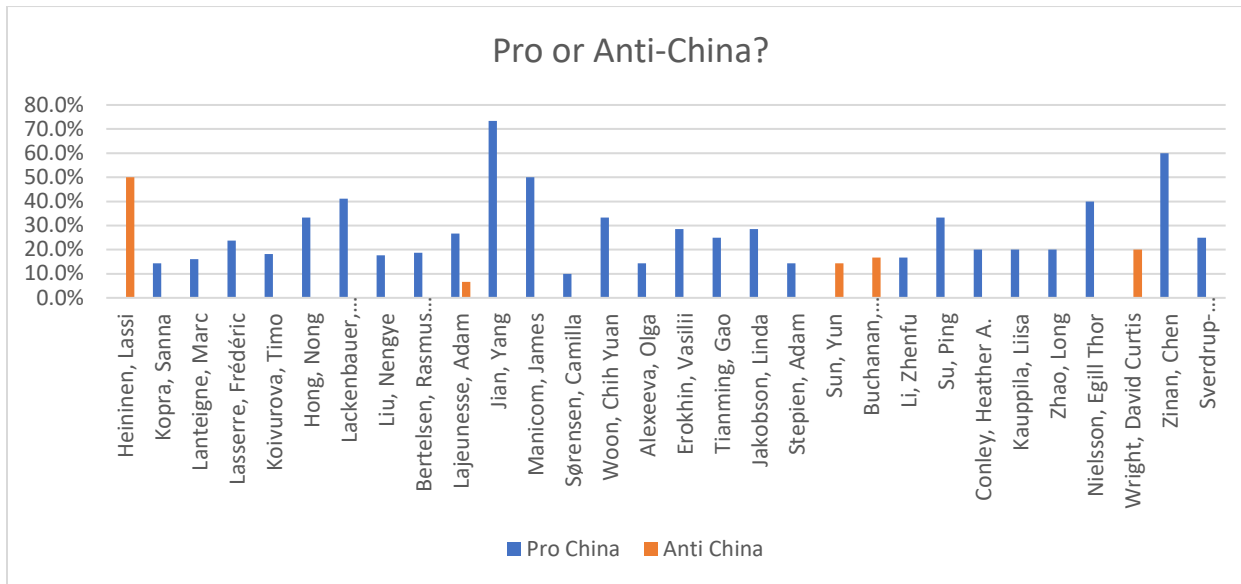


Figure 3: Security: Hard or Soft, see Table 8 in Appendix for full percentages



Setting security aside and being oblique about whether a piece was pro or anti-China, it was notable that there were very few directly anti-China pieces (only 5 in total). Twenty-five authors leaned toward a pro-China reading in their pieces but the majority of pieces in this dataset were neither pro-China nor anti-China.



**Figure 4:** Pro or Anti-China, see Table 9 in Appendix for full percentages

In total, 429 publications were counted (although technically only 306 publications were coded, many had multiple authors). Out of those publications, the majority conducted a state-based analysis (81%). The second most used code was that of ‘influence’ – indicating the centrality of conceptualizing China’s interest in the Arctic as ‘influence,’ with 50 out of 55 authors using the code in some fashion (and 25 using it in more than 50% of their work). Similarly high numbers of authors discussed Arctic governance and shipping. 38 authors talked about Arctic governance, 11 doing so in more than 50% of their pieces; and 41 authors emphasized the importance of shipping, with 9 doing so in more than 50% of their work.

Additional codes that referenced content but were not employed often were International Law (used by 29 authors), the China-US Relationship (used by 22 authors), Iceland (used by 20 authors), Greenland (used by 17 authors), Indigenous (used by 17 authors), and Norway (used by 12 authors).

State-Based Analysis	347	81%
Influence	201	47%
Cooperation	196	46%
Conflict	160	37%
Arctic Governance	132	31%
Shipping	123	29%
China-Russia Relationship	91	21%
Polar Silk Road	87	20%

Great Power Competition	57	18%
Pro-China	75	17%
Arctic Security	71	17%
China Energy Politics	67	16%
Climate Change	68	16%
Sub-State Analysis	59	14%
International Law	56	13%
Hard Security	51	12%
China-US Relationship	47	11%
Indigenous	34	8%
Greenland	36	8%
Soft Security	29	7%
Iceland	30	7%
Norway	25	6%
Anti-China	5	1%

**Table 6:** All codes

## Implications

This analysis of the period from 2006-2021 shows the China-Arctic academic network writing in English to be small, quite dense, and stable over time. While individual academics are situated across European and North American Arctic (as well as other places), the primary institutions with scholars active on the topic are located in the European Arctic. There is some degree of country-based sub-networks (e.g. in Canada and in the Asia-Pacific).

For this period, we note that most academic authors writing in English encouraged a cooperative reading of China's involvement in the Arctic. In promoting this narrative, most authors referenced soft security issues more frequently than hard security ones. We note very few anti-China codes appearing in the 2000s and 2010s. Accordingly, further research is warranted to determine why this was the case. Did scholars self-censor to not produce anti-China pieces? Did this represent the general zeitgeist of this era?

## Appendices

*Table 7: Conflict vs Cooperation*

<b>Authors</b>	<b>Conflict</b>	<b>Cooperation</b>
Heininen, Lassi	0.0%	100.0%
Kopra, Sanna	7.1%	42.9%
Lanteigne, Marc	8.0%	44.0%
Lasserre, Frédéric	0.0%	28.6%
Koivurova, Timo	0.0%	36.4%
Hong, Nong	4.8%	52.4%
Lackenbauer, Whitney	0.0%	47.1%
Liu, Nengye	0.0%	29.4%
Bertelsen, Rasmus Gjedssø	6.3%	68.8%
Lajeunesse, Adam	20.0%	20.0%
Kim, Jong Deog	0.0%	72.7%
Kim, Yoon Hyung	0.0%	70.0%
Young, Oran	0.0%	63.6%
Jian, Yang	6.7%	80.0%
Bennett, Mia	10.0%	40.0%
Manicom, James	0.0%	50.0%
Sørensen, Camilla	10.0%	70.0%
Brady, Anne-Marie	25.0%	37.5%
Corell, Robert	0.0%	83.3%
Alexeeva, Olga	0.0%	42.9%
Erokhin, Vasilii	0.0%	71.4%
Tianming, Gao	0.0%	75.0%
Moe, Arild	0.0%	50.0%
Jakobson, Linda	0.0%	42.9%
Stepien, Adam	0.0%	42.9%
Sukhankin, Sergey	0.0%	40.0%
Sun, Yun	14.3%	28.6%
Tunnsjø, Øystein	16.7%	33.3%
VanderZwaag, David	0.0%	100.0%
Buchanan, Elizabeth	0.0%	50.0%
Kobzeva, Mariia	0.0%	66.7%
Kossa, Martin	0.0%	16.7%
Su, Ping	0.0%	33.3%
Conley, Heather A.	0.0%	80.0%
Filimonova, Nadezhda	0.0%	100.0%
Huang, Linyan	0.0%	20.0%
Kauppila, Liisa	0.0%	40.0%

# POLICY PRIMER



Zhao, Long	20.0%	100.0%
Nielsson, Egill Thor	0.0%	60.0%
Nojonen, Matti	0.0%	20.0%
Wright, David Curtis	20.0%	20.0%
Zeuthen, Jesper	0.0%	20.0%
Zinan, Chen	20.0%	20.0%
Sverdrup-Thygeson, Bjørnar	0.0%	75.0%

*Table 8: Hard Security and Soft Security*

Authors	Hard Sec	Soft Sec
Kopra, Sanna	21.4%	7.1%
Lanteigne, Marc	20.0%	8.0%
Lasserre, Frédéric	14.3%	0.0%
Koivurova, Timo	0.0%	9.1%
Hong, Nong	4.8%	4.8%
Lackenbauer, Whitney	17.6%	5.9%
Bertelsen, Rasmus Gjedssø	6.3%	12.5%
Lajeunesse, Adam	33.3%	13.3%
Kim, Yoon Hyung	0.0%	10.0%
Jian, Yang	6.7%	6.7%
Manicom, James	20.0%	0.0%
Sørensen, Camilla	20.0%	10.0%
Brady, Anne-Marie	50.0%	25.0%
Corell, Robert	16.7%	16.7%
Alexeeva, Olga	14.3%	0.0%
Erokhin, Vasili	0.0%	14.3%
Tianming, Gao	0.0%	12.5%
Jakobson, Linda	0.0%	14.3%
Sukhankin, Sergey	20.0%	0.0%
Sun, Yun	28.6%	0.0%
Tunsgj, Øystein	50.0%	33.3%
Blank, Stephen	33.3%	0.0%
Buchanan, Elizabeth	50.0%	33.3%
Conley, Heather A.	40.0%	20.0%
Filimonova, Nadezhda	20.0%	0.0%
Zhao, Long	20.0%	40.0%
Nielsson, Egill Thor	0.0%	20.0%
Wright, David Curtis	20.0%	0.0%
Zinan, Chen	60.0%	20.0%
Xing, Li	0.0%	50.0%

Table 9: Pro- or Anti-China

Authors	Pro China	Anti China
Heininen, Lassi	0.0%	50.0%
Kopra, Sanna	14.3%	0.0%
Lanteigne, Marc	16.0%	0.0%
Lasserre, Frédéric	23.8%	0.0%
Koivurova, Timo	18.2%	0.0%
Hong, Nong	33.3%	0.0%
Lackenbauer, Whitney	41.2%	0.0%
Liu, Nengye	17.6%	0.0%
Bertelsen, Rasmus Gjedssø	18.8%	0.0%
Lajeunesse, Adam	26.7%	6.7%
Jian, Yang	73.3%	0.0%
Manicom, James	50.0%	0.0%
Sørensen, Camilla	10.0%	0.0%
Woon, Chih Yuan	33.3%	0.0%
Alexeeva, Olga	14.3%	0.0%
Erokhin, Vasilii	28.6%	0.0%
Tianming, Gao	25.0%	0.0%
Jakobson, Linda	28.6%	0.0%
Stepien, Adam	14.3%	0.0%
Sun, Yun	0.0%	14.3%
Buchanan, Elizabeth	0.0%	16.7%
Li, Zhenfu	16.7%	0.0%
Su, Ping	33.3%	0.0%
Conley, Heather A.	20.0%	0.0%
Kauppila, Liisa	20.0%	0.0%
Zhao, Long	20.0%	0.0%
Nielsson, Egill Thor	40.0%	0.0%
Wright, David Curtis	0.0%	20.0%
Zinan, Chen	60.0%	0.0%
Sverdrup-Thygeson, Bjørnar	25.0%	0.0%