Discussion Article

Arctic research infrastructures between normative ideals and geopolitical objectives

Aleksis Oreschnikoff, Doctoral Researcher, University of Helsinki; Research Fellow, North American and Arctic Defence and Security Network (NAADSN)

Abstract

This discussion article explores how both scientific and security considerations are embedded in Arctic research infrastructures. It suggests that both normative ideals and geopolitical objectives can be identified in the discourses and practices surrounding the physical constructions, objects and technologies used for environmental or climate related knowledge-building in the Arctic. This has implications for developing appropriate policies that comprehensively acknowledge the science-security nexus without undue securitisation or bias. In drawing attention to the interface between Arctic science and security, and how such concerns are materially embedded, this discussion article argues that new assemblamatic approaches could allow for more relevant Arctic scientific and security related policymaking. New perspectives are needed to move beyond binary dichotomies that view Arctic politics through either normative or geopolitical frameworks. The article calls experts and academics to further address questions on the configuration of the Arctic science-security nexus, as well as on the extent to which Arctic science and security policies are mutually entangled rather than mutually exclusive.

Keywords

Arctic security, assemblage theory, infrastructure, knowledge

Introduction

Observations, monitoring practices and data management are crucial for polar research. In the Arctic, the interplay between security and climate change is particularly explicit. The region is warming four times faster than the global average and is considered a natural laboratory for environmental history. At the same time, the region is being increasingly viewed as an arena for power politics and geopolitical competition. A warming Arctic has spurred debates on opportunities and challenges arising from melting sea ice that opens up shipping lanes and new fishing areas or allows extractive industrial activity.

Arctic politics today is shadowed by Russia's war of aggression in Ukraine, carrying consequences on regional cooperation and governance. Research cooperation and political exchange between the Western Arctic countries and Russia were formally suspended shortly after Russia's full-scale invasion of Ukraine in February 2022 bringing the Arctic Council, the primary cooperative forum in the region, to a standstill. Since early 2024, however, some working group level engagement within the Council has resumed. This has invited analysts' attention to discussing associated risks in reestablishing cooperative frameworks with Russia (e.g. Paukkunen and Black, 2024).

In attempts to strengthen its political position, Russia has pushed for a new research station in Svalbard that would allow scientific and educational cooperation with non-Western and non-Arctic countries, such as Brazil, India and China. However, many non-Arctic countries – states without territory beyond the polar circle – such as India and China already have operational research stations in Ny-Ålesund, a designated area for research activities and 'company town' operated by Kings Bay AS, a Norwegian government enterprise.[1] It therefore remains unclear what added scientific value the Russian initiative would bring to such partners. As Svalbard is under Norwegian sovereignty, Russia's ambitions and increased international attention can carry security implications (Østhagen, 2024; Nilsen, 2023).

Simultaneously, tensions between the United States (US) and China are increasingly reflected in Arctic politics, as the former is updating its strategic approach to counter the growing presence of the latter in the region's affairs. Recent incidents with unidentified Chinese objects in the North American Arctic – the 'spy balloon' and 'spy buoy' incidents – have raised particular concerns on how science and security are materially intertwined, adding infrastructural and technological dimensions to a challenging science diplomatic environment.

This discussion article argues that new approaches are needed to account for the nonbinary and materially mediated configuration of the Arctic science-security nexus. The article suggests that scientific and security policies might not be mutually exclusive when research infrastructures and technologies are simultaneously mechanisms of geopolitical presence and agency. In terms of policymaking, this translates into a need to understand how science policy relates to security policy, and vice versa. The article proceeds to explore the contemporary Arctic science-security nexus in terms of infrastructure and associated concerns. It then introduces Assemblage Theory (AT) as a lens to examining the nexus, and discusses its relevance. The article concludes by calling experts and academics to further address the configuration and architecture of the Arctic science-security nexus.

1 Kings Bay AS manages operational matters in or regarding Ny-Ålesund, such as access to or management of scientific facilities.

Materiality of the Arctic science-security nexus

Arctic scientists and the infrastructure and instruments they use are often components in security related considerations. Dual-use technologies and military-civil fusion projects (Fritz, 2021; Hoja, Zang and Yatsuzuka, 2023), such as those resulting in Chinese atmospheric balloons, or clandestine intelligence operations, as highlighted by the Russian spy case at the University of Tromsø, can be veiled behind the pursuit of a global public good – building environmental and climate knowledge – eventually casting doubts on science diplomacy or shared research activities.

Polar scientists depend on research infrastructures to build relevant knowledge used in various political decisions and policy processes ranging from local economic development to environmental conservation, but such infrastructures are also key for state actors to pursue strategic objectives or exercise geopolitically motivated presence (Vold Hansen, 2024; Vold Hansen and Moe, 2024; Andreeva and Hønneland, 2023; Pedersen, 2021). Arctic research infrastructures have therefore become objects of contention between normative ideals, such as upholding capabilities for knowledge generation and exchange, and geopolitical objectives, such as stronger security political engagement or claims to territory.

The contemporary Arctic information environment is also insecure. Russia has been actively using information operations for years to influence Norwegian policymaking (Spansvoll, 2023) or to discredit NATO and allied Arctic engagement (Eggen, 2024; Landriault and Renaud, 2024). For China, strategic communications are central to its Arctic policymaking and regional presence (Lackenbauer and Lajeunesse, 2023). The 'spy balloon' and 'spy buoy' incidents underlined the fragility of Arctic information security by highlighting potential grey zones susceptible to targeted operations or hybrid influence. When four Chinese objects used for high-altitude atmospheric monitoring drifted into the North American security space, it caused major debate on US–Canadian cooperation for appropriate policy measures (Rigby, 2023). The objects were shot down by US military aircraft in US and Canadian airspace and were quickly denounced as malign surveillance technology. China responded by stating the technology was used for civilian weather monitoring and only drifted off from its assigned course (BBC News, 2023).

Similarly, Chinese maritime technology with both civilian and military research capabilities has been found in Canadian territorial waters. These 'spy buoys' spurred debate on the limits of scientific cooperation with China or the security of scientific activity in maritime areas (Fraser, 2023). Such material objects, regardless of how or for what purposes they are used, highlight a policy-relevant relationship between science and security that calls for attention to its social, material and territorial dimensions.

Security considerations have also been historically tied to scientific activity and research practices in the Arctic where early European expeditions, often led or funded by navies, served cartographic and ethnographic objectives. Military funding and support have also been central to scientific progress more broadly, as exhibited in the development of oceanography (Oreskes, 2023) or in the management biological weapons programs (Guillemin, 2006).

Security considerations are also present in governing research activities. Export control measures or initiatives to strengthen knowledge security carry significant implications for research communities as they might curtail academic exchange or knowledge diffusion (Stalenhoef, Kanetake and van der Wende, 2022). New insight and innovation resulting from research open avenues for development, but can also be seen as spaces for malign activities and emerging security threats (Brummer, 2022). For applied innovation where new knowledge is used for technological, material or digital

Oreschnikoff (2025) Arctic research infrastructures between normative ideals and geopolitical objectives. *Nordic Review of International Studies 4*, 36–44.

development across different sectors, be it civilian or military related, knowledge becomes a commodity with associated value and risk.

Discussing interlinkages between science and security also directs to a more nuanced debate on the philosophy of science; how to define science, knowledge, research and associated concepts? What does it mean to conduct research or to be scientific, and how do these meanings relate to political objectives, such as achieving security? Established interdisciplinary scholarship in Science and Technology Studies (STS), Sociology and Political Science has long dealt with technopolitics (Jasanoff and Kim, 2009; Kurban, Peña-López and Haberer, 2017), agency of non-human objects (Latour, 2005), technoscience (Haraway, 1997) and socio-material relations (Star, 1999) related to knowledge-production.

In Arctic-related contexts, technopolitics has been used to examine China's maritime politics at the International Maritime Organization (Eiterjord, 2020), and ice has been examined as a non-human actor in climate change debates (Bjørst, 2010). Science has been shown to carry implications on socio-political region-building (Väätänen, 2022), and technoscience, in line with Haraway's critical application, has been used to discuss the (geo-)politics of extractive economic activity (Avango, Hacquebord and Wråkberg, 2014). Sociomateriality, where the material and social interact, is central to the Arctic and allows for empirical investigation into the materially embedded or 'nested' (Parmiggiani and Monteiro, 2015) discourses and practices around scientific and political activity.

Arctic assemblages

Assemblage theory (AT) could further contribute to existing scholarship by bringing an ontological and epistemological position that recognizes Arctic science and security as interwoven sociomaterial processes in dynamic territorial settings. Originally developed in the work of Gilles Deleuze and Félix Guattari (1987) and later detailed by Manuel DeLanda (2006, 2016), AT provides a philosophical framework to examine dynamic relational concepts and beings, such as organisations, networks, cities or nations. AT therefore allows a relational definition for science and security bound to their respective processes of sociomaterial and spatial ordering. In the Arctic, social practices such as environmental monitoring or security discourse, material objects such as infrastructures or technologies, and territory such as geographic space and place, can be identified as components of assemblamatic ordering.

Both Arctic science and Arctic security can be understood as assemblages. Assemblages can also emerge within and among other assemblages, calling attention to the different levels (micro, macro, meso and meta) and scales (local, regional, global) of assembling or assemblamatic ordering. The geographical Arctic, territories north of the Arctic Circle at around 66°34' N, can be divided into distinct subregions where security interests might differ even between allies (Gricius, 2024) or where accessibility, both physical and digital, differs due to varying levels of infrastructural or technological diffusion (Tingstad, 2024). It is critical to acknowledge such differences as they contribute to a heterogeneity of governance demands, opportunities and trajectories (Tingstad, Van Abel, Bennett et al., 2024), and as such, carry implications for assemblamatic ordering. Identifying and analysing Arctic assemblages will require conceptual clarity on the levels and scales of ordering; the spatial and contextual dimensions according to which such ordering takes place. AT should nonetheless be seen as a particularly fitting lens, as the Arctic regions experience various anthropogenic and ecological influences that impact social and material development in particular geographical environments.

Security assemblages have been researched in the context of security privatisation and private sector involvement (Abrahamsen and Williams, 2011), security governance beyond state-centricity (Schouten, 2014) or more recently, in terms of security expertise and the production of security knowledge (Lopez-Lucia and de Almagro, 2023). In an Arctic context, Goes (2019) has examined security in the Murmansk region, analysing material, social and territorial aspects transcending state boundaries, and Depledge (2013) has looked at the various actors assembling a British Arctic. Tuitjer (2020) has applied an assemblage theoretical approach to ethnographic literature to examine the human and non-human dimensions of climate change caused displacement in the Arctic. However, detailed assemblamatic examinations of "Arctic security" – not least from a science- or knowledge-oriented perspective – are still lacking.

Some literature is available on scientific assemblages or conceptualising science as an assemblage, although Deleuze and Guattari as well as DeLanda have already discussed the assemblamatic characteristics of scientific practice in considerable detail. The role of mountaineers in building biology-related knowledge has been examined by Dentant et al. (2021), while Sellar (2009) has shown that new insight on agency and action can be reviewed when occupational science is approached through assemblage theory. Bruno Latour has been concerned with knowledge-building and the construction of truth in science and in doing so contributed to the development of a sociology of science (Luckhurst, 2006). Some researchers have treated actor-network and assemblage theories as mutually complementing approaches to empirical study, although differences persist (Müller, 2015).

In a useful critique of AT, Buchanan (2015) has argued that rather than a methodologically sound framework, AT only offers a descriptive lens into discussing the qualities of the studied object. To date, however, it seems that only a limited number of social research has applied or examined AT in ways that would further contribute to its conceptual and methodological development. Attempts at clarifying the concept of assemblage has been made (see e.g. Nail, 2017), but methodological review remains limited (see e.g. Yu, 2013).

Considering that actor-network theory (and ANT-inspired research) has been used extensively in studying Arctic and climate processes (e.g. Avango, Nilsson and Roberts, 2013; Blok, 2013; Kürner et al., 2015; Väätänen and Zimmerbauer, 2019), exploring the Arctic science-security nexus through relevant assemblamatic approaches could provide new theoretical and methodological insight in relevant empirical contexts. Applying AT to Arctic studies will also allow for broader theoretical and conceptual debate in International Relations scholarship as the Arctic today represents many of transboundary and multidimensional challenges widespread across the globe; climate change, technological competition and geopolitical concerns.

Recognising that the spatial configuration of the Arctic can be divided into oceanic, terrestrial and atmospheric, it becomes essential to identify the empirical contexts or sites in which social, material and territorial components can be examined. Geographically, the Arctic is an ocean surrounded by airspace and territories of sovereign states north of the Arctic Circle. Furthermore, an additional cryospheric dimension needs to be accounted for. The social, political and economic fabric – including both scientific and security activities – of the Arctic is largely defined by the existence and contemporary disappearance of ice.

Oreschnikoff (2025) Arctic research infrastructures between normative ideals and geopolitical objectives. *Nordic Review of International Studies 4*, 36–44.

AT, as a process-oriented heuristic, is relevant particularly in the Arctic (and other polar regions) due to the dynamism of the region's assembling components, such as ice. Empirically, the framework can be applied to investigate a variety of cases: ships and operational presence in the maritime space, ground-based infrastructures, airborne technologies in the atmospheric space, or cryospheric equipment. As such empirical sites are present elsewhere as well, developing AT will likely enable further research in other geographical and spatial contexts, such as the deep sea, geological sites or outer space.

Conclusions

Established scholarship in between STS, Political Science and Sociology has discussed human and non-human elements, geography and sociomateriality through various conceptual and methodological frameworks. The intersection of these fields remains particularly relevant in the Arctic where material, human and natural elements intersect and need to be appropriately considered in policymaking. This discussion article has highlighted the importance of examining scientific and security concerns in the Arctic as mutually entangled rather than opposing or mutually exclusive issues. As such, it suggests that developing relevant scientific or security policies might not be an either-or question, where policy actors would be required to assign preference to one over the other. Rather both science and security should be understood as partly complementary and partly contradictory components of assemblage.

Introducing an assemblamatic perspective to the Arctic science-security nexus will allow the development of new conceptual and practical tools for policymaking. As contemporary Arctic politics is marked by Russia's war in Ukraine and the increasingly contentious relations between the US and China, infrastructure-related incidents have ignited debate on dual-use capabilities and cast shadows on research cooperation. Examining the science-security nexus as an entangled assemblage will allow experts, academics and policy professionals to better understand the interplay between normative ideals and geopolitical objectives ingrained in Arctic politics and embedded in the region's knowledge-building infrastructure.

References

Abrahamsen, R. and Williams, M.C. (2011) 'Security privatization and global security assemblages', *The Brown Journal of World Affairs*, 18(1), pp. 171–180. Available at: http://www.jstor.org/stable/24590788

Andreeva, S. and Hønneland, G. (2023) 'Arctic research and its actors – A pre-study mapping of research strategies and priorities', *The Fridtjof Nansen Institute* [Online]. Available at: https://www.fni.no/getfile.php/1317848-1696327774/Filer/Publikasjoner/FNI%20Report%206%202023%281%29.pdf

Avango, D., Nilsson, A.E. and Roberts, P. (2013) 'Assessing Arctic futures: Voices, resources and governance', *The Polar Journal*, 3(2), pp. 431–446. DOI: 10.1080/2154896X.2013.790197

Avango, D., Hacquebord, L. and Wråkberg, U. (2014) 'Industrial extraction of Arctic natural resources since the sixteenth century: Technoscience and geo-economics in the history of northern whaling and mining', *Journal of Historical Geography*, 44, pp. 15–30. DOI: 10.1016/j.jhg.2014.01.001

BBC News (2023) 'Chinese spy balloon over US is weather device, says Beijing', *BBC News,* 3 February. Available at: https://www.bbc.com/news/world-us-canada-64515033 [Accessed 18 Jan 2025]

Bjørst, L.R. (2010) 'The tip of the iceberg: Ice as a non-human actor in the climate change debate', *Études/Inuit/Studies 34*(1), pp. 133–150. DOI: 10.7202/045408AR

Blok, A. (2013) 'Experimenting on climate governmentality with actor-network theory' in Stripple, J. and Bulkeley, H. (eds.) *Governing the Climate: New Approaches to Rationality, Power and Politics. Cambridge: Cambridge University Press, pp. 42–58. DOI:* 10.1017/CBO9781107110069

Buchanan, I. (2015) 'Assemblage theory and its discontents', *Deleuze Studies*, 9(3), pp. 382–392. Available at: http://www.jstor.org/stable/45331821

Brummer, M. (2022) 'Innovation and threats', *Defence and Peace Economics*, 33(5), pp. 563–584. Available at: https://doi.org/10.1080/10242694.2020.1853984.

DeLanda, M. (2006) *A new philosophy of society: Assemblage theory and social complexity*. London: Bloomsbury.

DeLanda, M. (2016) *Assemblage theory*. Edinburgh: Edinburgh University Press. DOI: 10.1515/9781474413640

Deleuze, G. and Guattari, F. (1987) *A thousand plateaus: Capitalism and schizophrenia*. London: Athlone Press.

Depledge, D. (2013) 'Assembling a (British) Arctic', *The Polar Journal*, 3(1), pp. 163–177. DOI: 10.1080/2154896X.2013.783273

Dentant, C., Mao, P., Lavergne, S. and Bourdeau, P. (2021) 'Alpinists and the terrestrial limits of living beings: An atypical contribution to scientific knowledge', *Revue de Géographie Alpine / Journal of Alpine Research*, 109(2). DOI: 10.4000/rga.9150

Eggen, K.A. (2024) 'Designing around NATO's deterrence: Russia's Nordic information confrontation strategy', *Journal of Strategic Studies*, 47(3), pp. 410–434. DOI: 10.1080/01402390.2024.2332328

Eiterjord, T. (2020) 'Arctic technopolitics and China's reception of the Polar Code', *The Arctic Institute - Center for Circumpolar Security Studies* [Online]. Available at: https://www.thearcticinstitute.org/arctic-technopolitics-china-reception-polar-code/ [Accessed 19 Jan. 2025]

Fraser, D. (2023) 'Canadian military says it has tracked, stopped China surveillance in Arctic waters', *CBC News,* 22 February. Available at: https://www.cbc.ca/news/politics/dnd-china-surveillance-operations-airspace-waters-1.6756548

Fritz, H. (2021) 'At the nexus of military-civil fusion and technological innovation in China', *The Diplomat,* 14 July. Available at: https://thediplomat.com/2021/07/at-the-nexus-of-military-civil-fusion-and-technological-innovation-in-china/

Goes, M. (2019) 'Between territory and space: Assembling the Murmansk region from a security perspective', *East European Politics*, 35(2), pp. 201–219. DOI: 10.1080/21599165.2019.1603107

Gricius, G. (2024) 'NATO in the Arctic', *Policy Primer*, North American and Arctic Defence and Security Network [Online]. Available at: https://www.naadsn.ca/wp-content/uploads/2024/09/24_Jun_Gricius_Policy-Primer-NATO-Arctic.pdf

Guillemin, J. (2006) 'Scientists and the history of biological weapons: A brief historical overview of the development of biological weapons in the twentieth century', *EMBO Reports*, 7(Spec No), pp. S45–S49. DOI: 10.1038/sj.embor.7400689

Haraway, D. (1997) *Modest witness - second millennium: Femaleman meets oncomouse; feminism and technoscience*. New York: Routledge.

Hoja, T., Zhang, A. and Yatsuzuka, M. (2023) 'China's militarisation of meteorological balloons', *The Strategist,* 20 February. Available at: https://www.aspistrategist.org.au/chinas-militarisation-of-meteorological-balloons/

Jasanoff, S. and Kim, S.-H. (2009) 'Containing the atom: Sociotechnical imaginaries and nuclear power in the United States and South Korea', *Minerva*, 47(2), pp. 119–146. DOI: 10.1007/s11024-009-9124-4

Kürner, F., Kramer, C., Klüver, H. and Norra, S. (2015) 'Combining actor-network theory and the concept of ecosystem services to assess the development of Arctic shipping routes', *International Journal of Actor-Network Theory and Technological Innovation*, 7(2), pp. 1–18. DOI: 10.4018/ijantti.2015040101

Kurban, C., Peña-López, I. and Haberer, M. (2017) 'What is technopolitics? A conceptual schema for understanding politics in the digital age', *IDP. Revista de Internet, Derecho y Política*, 24, pp. 3–20. Available at: https://www.redalyc.org/pdf/788/78850913002.pdf

Lajeunesse, A. and Lackenbauer, W. (2024) 'Selling the "Near-Arctic" state: China's information and influence operations in the Arctic', *Wilson Center* [Online]. Available at: https://www.wilsoncenter.org/publication/selling-near-arctic-state [Accessed 18 Jan 2025]

Landriault, M. and Renaud, J. (2024) 'Russian information campaigns and NATO in the Arctic', *Nordic Review of International Studies*, 3, pp. 88–96. Available at: https://nris.journal.fi/article/view/145438

Latour, B. (2005) *Reassembling the social: An introduction to actor-network-theory*. Oxford: Oxford University Press. Available at: https://pedropeixotoferreira.wordpress.com/wp-content/uploads/2011/01/latour_2005_reassembling-the-social-an-introduction-to-actor-network-theory_book.pdf

Lopez-Lucia, E. and Martín de Almagro, M. (2023) 'Introduction: Transnational assemblages and the production of security knowledges', *Territory, Politics, Governance*, 12(4), pp. 465–483. DOI: 10.1080/21622671.2023.2271524

Luckhurst, R. (2006) 'Bruno Latour's Scientifiction: Networks, Assemblages, and Tangled Objects', *Science Fiction Studies*, 33(1), pp. 4–17. Available at: http://www.jstor.org/stable/4241405

Müller, M. (2015) 'Assemblages and actor-networks: Rethinking socio-material power, politics and space', *Geography Compass*, 9, pp. 27–41. DOI: 10.1111/gec3.12192

Nail, T. (2017) 'What is an assemblage?', *Substance*, 46(1), pp. 21–37.

Nilsen, T. (2023) 'Isolated Russia invites faraway countries to upcoming Svalbard Science Center in Pyramiden', *The Barents Observer,* 30 October. Available at: https://www.thebarentsobserver.com/arctic/isolated-russia-invites-faraway-countries-to-upcoming-svalbard-science-center-in-pyramiden/118862 [Accessed 18 Jan 2025]

Oreskes, N. (2022) *Science on a mission: How military funding shaped what we do and don't know about the Ocean*. Chicago: The University of Chicago Press. DOI: 10.7208/9780226732411

Pedersen, T. (2021) 'The politics of research presence in Svalbard', *The Polar Journal*, 11(2), pp. 413–426. DOI: 10.1080/2154896X.2021.1883900

Paukkunen, S. and Black, J. (2024) 'Arctic cooperation with Russia: at what price?', *International Affairs*, 100(6), pp. 2637–2648. DOI: 10.1093/ia/iiae226

Parmiggiani, E. and Monteiro, E. (2015) 'The nested materiality of environmental monitoring', *Scandinavian Journal of Information Systems*, 27(1), Article 2. Available at: https://aisel.aisnet.org/sjis/vol27/iss1/2

Rigby, V. (2023) 'Up in the air: The spy balloon and what it means for Canada', *Center for Strategic & International Studies* [Online]. Available at: https://www.csis.org/analysis/air-spy-balloon-and-what-it-means-canada [Accessed 18 Jan 2025]

Schouten, P. (2014) 'Security as controversy: Reassembling security at Amsterdam Airport', *Security Dialogue*, 45(1), pp. 23–42. DOI: 10.1177/0967010613515014

Sellar, B. (2009) 'Assemblage theory, occupational science, and the complexity of human agency', *Journal of Occupational Science*, 16(2), pp. 67–74. DOI: 10.1080/14427591.2009.9686645

Spansvoll, R. (2023) 'Studying Moscow's coercive campaign against Norway: The bear is awake', *The RUSI Journal*, 168(3), pp. 74–85. DOI: 10.1080/03071847.2023.2220756

Star, S.L. (1999) 'The ethnography of infrastructure', *American Behavioral Scientist*, 43(3), pp. 377–391. DOI: 10.1177/00027649921955326

Stalenhoef, C., Kanetake, M. and van der Wende, M. (2022) 'The implications of the EU's dual-use export control regulation 2021/821 for universities and academics', *Utrecht University School of Law Research Paper*. DOI: 10.2139/ssrn.4248860

Tingstad, A. (2024) 'AISD Forum | "Polar Geopolitics is Heating Up – What is the Role of Technology?"', YouTube [Online], 13 November. Available at: https://www.youtube.com/watch?v=iuAjQ_ZqPfg [Accessed 19 Jan 2025]

Tingstad, A., Van Abel, K., Bennett, M.M., Winston, I., Lawson B. W., Stephenson, S. R., Wilcox M. and Pezard, S. (2025) 'Divergent trajectories of Arctic change: Implications for future socio-economic patterns', *Ambio*, 54, pp. 239–255. DOI: 10.1007/s13280-024-02080-x

Tuitjer, L. (2020) 'Assembling climate change-related displacement' in Adey, P., Bowstead J.C., Brickell, K., Desai, V., Dolton, M., Pinkerton, A,. and Siddiqi, A. *The Handbook of Displacement*. Palgrave Macmillan, pp. 89–97. DOI: 10.1007/978-3-030-47178-1_6

Vold Hansen, T. and Moe, A. (2024) 'Norway's research policy for Svalbard: intentions and perceptions', *Polar Geography*, *47*(3), pp. 202–218. DOI: 10.1080/1088937X.2024.2372264

Vold Hansen, T. (2024) 'Geopolitics, diplomacy, or idealistic research? Framing the research community in Ny-Ålesund', *The Polar Journal*, *14*(1), pp. 212–228. DOI: 10.1080/2154896X.2024.2342110

Väätänen, V. (2022) 'The construction, solidification and political implications of geographical scientific facts: A perspective on the 'changing' Arctic region', *Geoforum*, 128, pp. 21–32. DOI: 10.1016/j.geoforum.2021.11.019

Väätänen, V. and Zimmerbauer, K. (2019) 'Territory–network interplay in the co-constitution of the Arctic and 'to-be' Arctic states', *Territory, Politics, Governance*. DOI: 10.1080/21622671.2018.1559759

Yu, J.E. (2013) 'The use of Deleuze's theory of assemblage for process-oriented methodology', *Historical Social Research*, 38(2), pp. 196–217. DOI: 10.12759/hsr.38.2013.2.196-217

Østhagen, A. (2024) 'The myths of Svalbard geopolitics: An Arctic case study', *Marine Policy*, 167. DOI: 10.1016/j.marpol.2024.106183