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Research note

Arctic science and tourism in Svalbard - two sides of the same coin?

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ABSTRACT

How independent is science from tourism? How come that they are often found alongside each other in many parts of the world, and what does this mean? We look at this in High Arctic Svalbard, a clear hotspot for science and tourism. We find that what drives both enterprises to the archipelago is the desire for exploration and experience. By presenting how science and tourism co-evolve throughout time, and how large-scale factors keep them together, we argue that science and tourism are deeply intertwined and can potentially be seen as two sides of the same coin. We therefore call for recognition of their interdependence when working towards sustainable Arctic futures.

Introduction

Many remote and exotic places that are sought-after tourist destinations are also highly attractive sites for scientific research. This leads to science-and-tourism hotspots, in the Amazon, Antarctica or elsewhere. Here, both enterprises are viewed, valued and treated as fundamentally different and unconnected worlds. Based on interviews and long-term engagement with both science and tourism in one such hotspot, the High Arctic archipelago of Svalbard, we find deep entanglement, with consequences for their respective operations and prioritisation.

Science and tourism as exploration

Throughout human history, explorers have been drawn to new territories for adventure or discovery. Over time, these sites of exploration, often perceived as remote and empty, become places of extraction by industries, enterprises and individuals keen to capitalise on the next big thing. In many such spaces we find science and tourism alongside each other.

The Arctic is a paradigmatic region regarding the flocking together of scientists and tourists (Demiroglu & Hall, 2020). Thousands of scientists each year venture to this biome on account of its centrality to climate and associated environmental change (Berkman et al., 2017), while several million tourists arrive for activities such as snowmobiling, dogsledding, wildlife tours and Northern Lights excursions. These numbers will keep increasing given the media attention to climate change and disappearing sea ice, which enables cruise ships and research vessels to sail further north.

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One such science-and-tourism hotspot is Svalbard, located halfway between the North Pole and the tip of the Norwegian mainland. Before the so-called Svalbard Treaty conferred jurisdiction to Norway in 1920, the archipelago was no-man's land. Today, it is a frontier showcase for both scientific research and leisure pursuits. Intricately linked to one another from their earliest days, science and tourism in Svalbard each generate knowledge and experiences for latter-day explorers (Avango et al., 2014). Yet, just how they rub shoulders remains poorly understood (Slocum et al., 2015). Given the urgency of devising sustainable solutions for human activity in sensitive ecosystems, the interconnections of these two distinct and seemingly oppositional groups of actors need mapping and working with.

Svalbard's science and tourism co-evolve through time

In a place like Svalbard, neither science nor tourism seem to need 'the other'. Each has its own system and culture for e.g. logistics and communication. Arctic tourism creates commercial packages built on safe operations to create sublime experiences. Arctic science enables funded operations that pursue knowledge of the natural world through systematic observation and experimentation. Yet, both tourism and science have emerged from a shared historical context, namely that of exploration. Science created its own niche–-knowledge production–from early-18th-century cartography to mid-19th-century geophysics, to early-20th-century resource geology, to today's multi-disciplinary environmental science. Such exploration also stimulated tourism, as imaginaries (and travelogues) generated by expeditions such as those of Nansen and Andreé, ultimately giving rise to an industry centred on adventure and obtaining 'experiences'. Tourism also led to science, with some expeditions financed by tourists (Viken, 2011).

Permanent settlements allowed science and tourism to further co-evolve. Central to this was the heightened interest in mining, particularly for coal. During 1890–1920, Svalbard saw over 100 land claims from private actors (Drivenes & Jølle, 2006). The most economically successful endeavour led to an US-American industrialist founding the eponymous town Longyearbyen, today Svalbard's main settlement. Slightly further north, Norwegians established Ny-Ålesund, enabling half-a-century of coal mining and thereafter the archipelago's largest research base, hosting hundreds of international scientists annually. These settlements, together with infra-structural investments that made Svalbard the most accessible part of the High Arctic, enabled coal mining, science and tourism for many decades. With coal extraction ceased, science and tourism are the archipelago's socio-economic, co-evolving pillars (Hovelsrud et al., 2020).

Large-scale factors keep science and tourism together

Several large-scale factors generate conditions that keep science and tourism closely connected. Discourses and imaginaries around climate change and biodiversity, mutually shaped by media, policies and research, identify Svalbard as a climate change hotspot in which charismatic animals dwell. This puts Svalbard firmly on the map–of places attractive to both environmental science and tourism.

Geopolitics underpin the strong presence of Norwegian science (through e.g. Norwegian Polar Institute and The University Centre in Svalbard), ensuring Svalbard is undeniably and evermore politically Norwegian. While the Svalbard Treaty has been crucial in maintaining peaceful coexistence among the archipelago's inhabitants, non-Norwegian countries have increasingly sought to increase their presence. Several national research stations in Ny Ålesund are means of soft power (Pedersen, 2021), arguably interacting with the geopolitical imaginary of Svalbard as a 'gateway' to the northern seas (Berg & Dodds, 2023). In this context, activities such as tourism excursions and scientific expeditions of certain states (e.g. China, Norway, Russia) are seen partly as geopolitical strategies to reinforce or expand influence in the region (Bystrowska & Dawson, 2017).

The Norwegian State needs both science and tourism as alternative industries to coal mining, in part to ensure a critical mass of Norwegian nationals inhabiting Longyearbyen. While tourism and science are international endeavours, a range of formal and informal instruments and practices ensures a high (as possible) percentage of Norwegian workers and inhabitants, in particular for higher salaried managerial positions. This also gives rise to personal relationships across science and tourism, bringing the two closer together than otherwise would be the case.

Recent changes to the environmental regulations on Svalbard tighten access to protected areas, wildlife protection and field safety, constraining field-based activities of both science and tourism (Hansen, 2024). The tourism sector is influenced to a greater extent (e.g. a landing regulation for tourist–not research–activities). This differential treatment is a result of negotiation by scientific actors to prevent similar curtailment, which tells us how close they are.

Exploring continues to interconnect science and tourism

The above-mentioned factors, namely geopolitics, national economics and environmental regulations, keeping science and tourism side-by-side, allow for the development of cross-sectoral interactions between several key, recurring actors who share a continued interest in 'exploring'. Technicians and tour guides play a particular role here, as holders of rich local and operational knowledge. Although specialised towards their respective sector, they share certain skills and inhabit the same in-between space designed to provide logistics and enable scientists and tourists, respectively, to explore. From this, interpersonal relations emerge, leading to the exchange of knowledge and experience, but also equipment and services.

Logistics interconnect science and tourism, but so does scientific knowledge, due to the high value put on facts and figures by tourists about the region's history, ecology and climate. In search of scientific knowledge, tour guides connect to scientists through posting questions on social media and meeting up directly. This way, tour guides develop their own guiding practice and through sharing that of their colleagues. Motivations to connect to scientists also include producing knowledge. For instance, tour guides

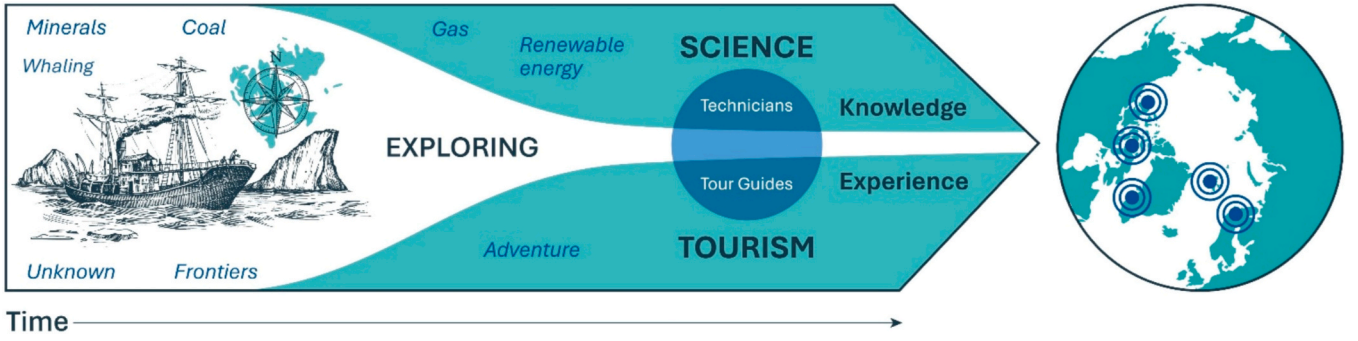

Fig. 1. Example of Svalbard, showing how Arctic science and tourism developed over time as distinct but interconnected entities, creating a science-and-tourism hotspot (other such Arctic hotspots are Northern Fennoscandia, West Greenland, Hudson Bay and North Alaska (Demiroglu & Hall, 2020)).

approach scientists to share insights, observations or offers to gather information from places where little or no science is carried out, or about phenomena perceived as unusual and worthy of sharing with Svalbard's professional knowledge producers. This desire to contribute seems based on a perception of earlier-day science and leads to a re-enacting of science and tourism's ancestral relationship centred on exploring.

In addition, scientists are actively recruited by tourism companies as one-off guest lecturers or seasonal guides to enrich tourists' exploring. This concerns both 'veteran' scientists and young researchers, welcoming such temporary employment to build experience and continue to make ends meet on Svalbard. When Arctic scientists are not available, it's their instructions that are sought. The heightened visibility of citizen science leads tour guides to ask scientists to hand them 'concrete tasks' they can undertake with tourists, to instil a greater sense of Arctic exploring, enhance tourists' connection to Svalbard's environment and build tourism companies through diversifying activities for customers (Lamers et al., 2024). The growth of science-based tourism calls for greater input from scientists working in Svalbard, but also for citizen science initiatives organised away from Svalbard (Bergmann et al., 2017). Certain vessels involved in these endeavours are endowed with cutting-edge equipment such that they are platforms for professional scientific exploring—against payment—stitching science and tourism further together.

Unsurprisingly, there are calls from the tourist industry for better structures to meet and interact. Scientists' responses to tourism's interest in them and their work are mixed. We observe that for some researchers, engaging with the tourist industry is little more than a distraction. Their perception appears influenced by sense of being different, i.e. not tourists, but also by concerns over lay insights or data validity, assuming low quality, specificity and granularity. Others, however, see primarily exploring-related opportunities, including to be endorsed as an Arctic expert, whether for payment or free travel; communicate their science more broadly, and turn tourists into ambassadors for environmental change in the process; hitchhike or transport scientific equipment; acquire new data or samples; and learn from others about their experiences of environmental change. In some cases, close relationships develop between scientists and tour guides, or seasoned explorers, based on shared passion and respect for each other's knowledge and experience.

Although direct interactions between tourists and scientists grant benefits to both groups, an asymmetry persists: tourism arguably has more to gain from science than vice versa. Existing structures and services important for scientists, such as (person and goods) transport, accommodation, and shopping facilities, are viable because of tourism. Therefore science benefits much more from tourism than it appears.

Conclusion: a shared voyage

We show that Arctic science and tourism have emerged from the same context–exploring–and still embrace this, with science pursuing knowledge and tourism seeking experiences (Fig. 1). Large-scale factors such geopolitics, national economics and environmental regulations keep them together, enabling numerous on-the-ground interrelations. The centrality of seeking and using knowledge and experience makes science and tourism deeply intertwined; and as far as exploring goes, could be seen as two sides of the same coin. This does not mean to provoke an image of them being equal or the same. Rather, as remote and exotic places become science-tourism-hotspots, the interdependence of the two needs to be worked with when considering a more sustainable Arctic future. For example, strongly curtailing tourism would lead to changes in tourism-dependent structures and future development channels, and in turn influence the conditions of scientists visiting, living and working in Svalbard.

CRediT authorship contribution statement

Jundan Jasmine Zhang: Writing – review & editing, Writing – original draft, Validation, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Roger Norum:** Writing – review & editing, Writing – original draft, Visualization, Validation, Formal analysis. **René van der Wal:** Writing – review & editing, Writing – original draft, Visualization, Validation, Supervision, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Conceptualization.

Declaration of Generative AI and AI-assisted technologies in the writing process

We have not used AI in the writing of the manuscript.

Declaration of competing interest

We declare here that we have no conflicts of interest.

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Data availability

The data that has been used is confidential.

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