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Geopolitics of the Arctic: Emerging Opportunities and Conflicts

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Abstract

This document explores the evolving geopolitical landscape of the Arctic region, characterized by a unique convergence of opportunities and conflicts. As climate change accelerates the melting of polar ice, new shipping routes and resource extraction possibilities are emerging, raising strategic military interests. The interaction between the national interests of Arctic and non-Arctic states is examined, including territorial disputes and environmental considerations. The role of international governance frameworks in addressing emerging tensions and facilitating cooperation is highlighted, particularly in the context of the Arctic Council and relevant international treaties. By analyzing recent developments, this document aims to contribute to the understanding of the Arctic's geopolitical significance in the 21st century.

Keywords: Arctic Region; geopolitical landscape; climate change; strategic military interests

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1. Introduction

The Arctic Region, defined as the area north of the Arctic Circle (66° AN), has traditionally been sparsely populated and only of interest to scientists and researchers. However, it has recently entered the global eye of political attention. Since 2007, at least five countries bordering the Arctic, including Canada, Denmark (Greenland), Russia, Norway, and the US, have sent vessels and submarines beneath the ice of the North Pole. This has sparked a race to control the Arctic, as the world's sixth largest ocean holds an estimate of 90 billion barrels of oil, enough to fuel the world for 3.2 years (Janicki, 2012). Such estimates might not only include oil, but also gold, diamonds, copper, zinc, and other seals, whales and fish. They also contain not only economic importance but also geopolitical and military importance. The Arctic thawing represents an important test for the legal principles of the Law of Sea Convention adopted on December, 1982 (Gregory Morgan Trujillo, 2019).

The political situation of the Arctic still remains unstable. In the past decade, specific regulations of the Convention on the Law of the Sea (UNCLOS) and the phenomenon of Arctic ice-cover shrinkage have produced a significant increase in political activity (Luque et al., 2023). The regime's legal status causes many disputes over the boundaries of national zone of economic interest. The Convention on the Law of the Sea, adopted in 1982, is an important document legalizing the use of the seas and the ocean. The rights

to exploration and exploitation of natural resources were carried out on the continental shelf and the rules on the delimitation of the continental shelf boundary were also defined. The UNCLOS specifies that the continental shelf can extend to a distance of up to 200 nautical miles, calculated from the baseline. If a state wishes to claim a shelf exceeding 200 nautical miles, it has to present exhaustive geological and geophysical arguments to the Commission on the Limits of the Continental Shelf (CLCS) to testify that the shelf is a natural prolongation of the land territory of the coast.

2. Historical Context

The Arctic has always been of interest to a number of countries for a variety of reasons, from its vast natural resources to opportunities for shipping routes and access to mineral resources at the North Pole. Thus, in the wake of the Cold War, many opportunities and possible conflicts have arisen in the region as outside interest has turned towards researching the feasibility and viability of developing the region. However, historical contextualization of the region is important to understand how current international order was reached and what is necessary to avoid dangerous militarization and confrontations around them.

The modern Arctic geopolitical interests emerged after the Second World War when the rapid mobilization of technological developments during the war produced weapons of mass destruction with the understanding that countries had the capability but not the system yet to deliver them (B. Elliot-Meisel, 2011). Countries began to design and seek valuable intelligence trajectories and capacities as they became aware of their rivals' operational infrastructures. As exemplified over the issue of the Dew Line Radar Monitoring Station, tracking Soviet missile launch sites and emergency routes over the North, and the entry into and adaptation of the Arctic by the North American credibility were issues of rapid action (Herd, 2011).

Although it was believed that geopolitical interests imposed by these socio-political environments brought arms to the Arctic and thus transformed it into another geopolitical stage where superpowers confront, many hypotheses on establishing peaceful cooperation were put forward with the slogan Arctic has never been a theatre of war. After the World War II, the Arctic went through a remittance process under the influence of changing target actors due to diminishing influence of real nations on large Arctic territories and emergence of capitalist states seeking expansionist policy. But such informal approaches were too broad in time, space, or both, as claimed by the systemic-realism approach. Stressing on the chance of the dominance of cooperative elements, they argued that in case of there be conflict, it will be a minimum one within a certain framework.

3. Geographical Significance of the Arctic

The Arctic region has long remained overshadowed by ice and snow but has been put into international spotlight due to rising temperatures. Formerly considered the "frozen ocean" and "sea of peace," it has come to be viewed as the potential "highway of the 21st century" and the "center of geopolitical conflict" in this century. Forming an approximate rectangle of 21 million square kilometers, from 82 degrees north and south, the Arctic includes generally five parts: the land territory; land and ice formation; continental shelf; water area; and atmospheric area. Territorial sovereignty surrounding the North Pole remains disputed with classical maritime disputes being transformed into unheard challenges as a result of an unprecedentedly melting sea-ice cap (Martino, 2024b; Mazurier et al., 2019)).

By 2015, the Arctic routes were reshaping and economic opportunities gradually kicking in were in full swing because of climate change. The sides of said chances already viewed with discontent today remain actively hatching plans for their future. Russia is establishing the "national fleet," EU has reached the "Arctic Action Plan," and for China, the "Polar Silk Road" has grown to be a distinct concept of foreign strategy. Mysteriously and yet much expansively, this region with all its riches appears to stir contradictory emotions ranging from profound fear and concerns over climate change consequences to high hopes and childish anticipation of the wealth it holds. It is an ocean of supreme importance. This body of water is referred to as the Arctic Ocean with differing opinions on how to label its neighboring seas. This ocean possesses a nut-like shape. Its distance expands to 4.4 thousand kilometers in the north-south direction while to as much as 8 thousand kilometers in the west-east. It completely contains the North Pole that is

instantly linked to national interests and, therefore, sensed as increasingly significant. The ingoing debate over the right to its control means a jurisdiction dispute over a gigantic undersea area that is more than one and half of the entire Russia's land territory (Gorodentsev, 2019).

4. Climate Change and Its Impact

The climate of the Arctic (north of about 66°N) has changed rapidly over the last decades. Due to pronounced warming, and especially during the last two decades, the Arctic is experiencing a trend toward a more seasonal climate characterized by diminishing sea ice extent, earlier snow melt on the land, wildfires, and rapid warming in the Arctic seas (Shvidenko et al., 2011). The Barrow region is one of the two locations used for a case study. This region is identified by the oil and gas fields with a great development potential as well as vulnerability to changing climate conditions. The Barrow region is experiencing a rapid warming and currently has a lot of observed impacts attributed to climate change (Mazurier et al, 2020). The summer sea ice extent in the Arctic Ocean demonstrates a shrinking trend and is expected to almost disappear in September by the end of this century. While observed changes in the Arctic seas are mainly attributed to climate change due to increasing greenhouse gas (GHG) concentrations, in recent years, a linear trend attributed to large-scale variations in climatic conditions became important (Mazurier et al, 2020).

Future changes in climate in the Arctic are expected primarily due to increased GHG concentrations. Siberia is expected to experience intensified warming there, with very large changes in temperature and precipitation during the twentieth century. The Arctic Ocean is expected to experience a warming, but sea ice cover is predicted to increase due to increased precipitation and river runoff, intensified thermohaline circulation, and salinity changes, particularly in the North Atlantic. More rainfall will contribute to changing hydrological cycle in the Arctic, thereby influencing dryland extent, lake changes, wetlands, and permafrost distribution. While tundra is expected to expand at the expense of the boreal forests in Siberia and North America, temperature-induced permafrost thawing is expected to affect huge areas in the Northern Eurasia on the whole and the Lena basin in particular. Considerably complex changes in vegetation, climate and hydrology are expected in the Taimyr region as well as in the Russian Arctic as a whole.

5. Natural Resources in the Arctic

At present, the extent of the Arctic continental shelf claimed by such states remains largely obscure. Pursuant to the Convention on the Law of the Sea, the States bordering the Arctic Ocean must submit the documentation concerning the extent of the continental shelf claim by 2013. However, basic geological conditions on the Arctic intercontinental seabed are not favourable to, for instance, the production of oil and gas deposits. What can be observed at present is the gradual abandonment of giant fields on the Russian and Canadian continental shelves. These are being exploited thanks to the application of the most advanced technologies available to humanity. The Arctic Ocean is located in an area where a number of larger hydrocarbon basins converge. These basins stretch out from the shallow areas sloping towards the sea to the depths between continents. They are of a tectonic origin (Janicki, 2012). Hydrocarbon imports from SSE are many times more costly that gas supplied by other means. They also endanger a country's energy security by exposing it to possible disruptions of gas supply flows. This is why the Arctic gained political prominence along with expectations regarding its deposits in connection with a gas crisis in the EEU. Russian and Western experts, geologists and financiers flocked to the north. It was believed then, first of all, that the arctic seas would free from the pack ice which covered them for the greater part of the year. Eventually, they would become a new transportation corridor of global importance. Calcareous climate changers are said to occur rapidly if in the 1980s the chaotic transpolar drift made an incredible amount of multi-year ice floes flow to the northern shore of Hudson Bay, the Greenland Sea and the Barents Sea (Mazurier et al, 2020).

5.1. Oil and Gas Reserves

The Arctic is rife with conflict over natural resources and economic future. A semantic "Cold War" is taking place over the rights to sub-sea oil and gas resources in this sparsely inhabited area. At stake for the states

with claims to the Arctic Circle is access to undeveloped oil and gas reserves estimated to be worth a combined USD 1 trillion. The linear extent of these claims, which can be imposed by all states bordering the Arctic, is determined by the length of those states' continental shelf, either through direct measurement or geophysical interpretation. A total of 608 claims have already been processed under this procedure. However, these resources are placed below the moraine-till of bodies of water that have scoured the continental shelf. Thus, there is subsurface contention over control of some of these reserves. This arms build-up in arctic regions is crucial for two reasons. Firstly, in terms of climate change, there are grave risks in the projected changes to the Arctic biome (Mazurier et al, 2020). Secondly, also trajectory changes in the relationships between those states are deliberated due to the phenomenal sums of money that could emerge or be lost through this dispute (Janicki, 2012).

The area north of the Arctic Circle is likely to contain approximately 90 billion barrels of crude oil and as much as 47 trillion m3 of natural gas, as well as diamonds, nickel, lead, and other resources. Should these estimates prove accurate, the economic value of the Arctic would be tremendous; by way of comparison, the tentative deposits of Arctic natural gas constitute 27% of all fully confirmed previously undiscovered hydrocarbon resources, and would therefore present a tempting resource for expansionist states struggling with energy security. The seabed surrounding the Arctic is expected to yield as much as 25% of the world's remaining hydrocarbon reserves, adding pertinently to the collision of interests due to pending severe short-term budget deficits.

The prospect of the extraction of resources beneath the Arctic Ocean seabed increases in direct correlation to each year of rising 'peak warming' taken under model predictions of climate changes due to global warming. These ameliorations in sea ice conditions are expected to maximize since the first global albedo feedback loop is expected to amplify during summer 2012 and first permanent coastal openings form by the end of this decade, allowing local temporary marine directly to surface temperature and moisture demise falls. The advantages in terms of international commerce, trade, and mineral extraction have been identified stunningly. Nevertheless, the polar habitat presents itself dissimilar to the tropical biomed and attains so low priority in the West where organized efforts towards observing and compensating for devastation of biodiversity index are thought necessary. A number of misinformation, taboos, cognitive biases, and altered mentalities must be conquered before it is socially acknowledged that the seizure of the sub-sea resources was not wildly a heroic act in Arctic governance but also a negative one against planetary stewardship (Payá & Delgado, 2025; Mazurier et al, 2020).

5.2. Mineral Resources

In the Arctic Circle, given the average temperature rise of 3-4 oC in winter and 2-3 oC in summer between 1949 and 2010, and forecasted to increase further by 1.1-2.5 oC and 3.2-5.8 oC, respectively, by the end of this century, there is less sea ice in summer. This change promises an easier trade route and lower costs for shipping and resource gathering. Simultaneously, it can intensify military disputes over basin rights, given that the North Pole is in an ocean with no surrounding lands that can play the traditional part of appropriation (Janicki, 2012). As the sea ice melts, large resources –currently becoming economically accessible– promise great profits. In contrast, with Arctic waters bordering on developed nations, disputes among them for possession rights are expected to grow.

Running alongside the race for trading routes is the prospect of riches to be found under lower levels of the Arctic Ocean. Hydrocarbons, types of metal, diamonds, etc. are estimated to present profits of over 100 trillion US$, depending on conjecture parameters such as oil prices and recoverability. Ongoing geological studies clarify the most valuable deposits locating reserves, which, together with knowledge of the area, could facilitate a solid claim on exclusive rights to these resources. The values foreseen are likely subjects of disproportionate consideration in states' policies. The prospects of greater flexibility afforded by climate change reveal natural riches that a number of developed nations feel entitled to mere because they border the Arctic Ocean (Mazurier et al, 2020).

5.3. Fisheries

The Arctic's fisheries are undergoing a transformation due to climate change, which is opening new fishing areas and consequently raising interest in acquiring new fishing rights. In the Russian Arctic, oil and gas production is rapidly expanding amid US sanctions, leading to an expected increase in illegal fishing. The economic feasibility of industrial fishing in the ice-free Arctic during the summer months is being evaluated, and technological developments may soon spur rapid industrial fishing expansion across the Arctic. Intensive productive efforts would likely have significant global impacts, including the emergence of new fishing nations and increases in both bycatch and IUU fishing levels. To mitigate risks, a temporary moratorium on high seas fisheries development is proposed, including a negative fishing authorization system, which could create space for management and appropriate discussions (Mazurier et al, 2020).

Climate change and the melting of Arctic sea ice have radically transformed the environment in the region, which has begun to raise fisher interest, due to ocean conditions becoming more favorable for marine production (Mazurier et al, 2020). The practical impossibility of fishing in this region is changing, and it is suggested that production under the ice-free conditions during the ice-free months is possible already. Technological developments, including autonomous vessels and independent detection of fish stocks and authorized fishing vessels, have the potential to establish industrial fishery operations in the Arctic Ocean. Industrial fishing might be expanded to the areas north of the Arctic Circle, where ice-free conditions previously restricted intensive fishing efforts. In addition to IUU fishing and policy issues, predictions indicate that fisheries in newly ice-free Arctic waters are expected to significantly affect productivity, the emergence of new fishing nations, and increased bycatch.

Fishing takes place in adjacent Arctic ocean areas, where changes in sea temperature and ice melting have caused large changes in the environment favoring fishery recruitment (Epstein, 2011). Moreover, vessel manning robots may soon develop rapidly, as detected fish schools would be automatically followed further despite the vessel positions and fishing targets being automatically adjusted. Nonetheless, these developments have the potential to rapidly industrialize Arctic Ocean fisheries. To mitigate risks before industrial fishing is allowed, a temporary moratorium on development of high seas fisheries is suggested. This would become effective through an adoption of the moratorium at the Parliamentary Assembly of the Council of Europe (PACE), by its 47 member states, counting with a total population of about 850 millions, of whom about 90% are living in the member states of the EU. In addition to the moratorium, a climate change induced temporary ban for five years on all high seas fisheries development worldwide, and a temporary ban of eutrophication are desirable (Mazurier et al, 2020).

6. Shipping Routes and Trade

With global warming accelerating, the melting of the Arctic ice pack is expected to open up new commercial navigation routes. This could shorten the journey between Europe and Asia by several days. Additionally, the Arctic may be the only area in the world not yet exploited by the oil industry, as it is likely to contain vast reserves of both oil and gas. Finally, a vast area remains unexplored and unmapped geopolitically up north. In this context, states' interests in the High North are mainly determined by its possible exploitation for economic reasons. New maritime routes are economic, political, and military stakes (Lasserre & Cyr, 2022).

For a very long time, seas around the North Pole were left out of the world's trading routes. The Arctic was a crucial barrier separating Russian Siberia and North America from the European Continent and Asia. Still, with a few lighthouses in Iceland and Franz Josef Land, the main parts of the Arctic were unabated wilderness. Bordered north by icy deserts and barren rocks, 23 million km2 of land, mainly submerged, were cold and frozen (except for some territories in northern Canada and Alaska). States bordering over this area were far away on the globe so as to make any naval activity almost impossible.

The emergence of the polar nations – the US, Canada, Russia, Norway, and Denmark – was very slow. Western Arctic nations included lands and islands that had previously been held by Russia or Denmark or that had better resources for navigation and commercial exchanges. However, due to complex legal

arrangements following their emergence, the trade route side of the Arctic lands was neglected. But with the thawing of Arctic ice, these lands began to be thought of as potential commercial navigation routes.

6.1. Northern Sea Route

The Northern Sea Route passes through the Russian Arctic, from the Kara Sea to the Chukchi Sea. It was long a forgotten shipping route, destined for limited operations, mainly by Russian companies calling in local ports. The rise of LNG and new transport cost benchmarks has put the NSR back in the spotlight, particularly in the last decade. An increasing number of regional and sectoral stakeholders are promoting its development by 2030. In 2022, the Russian Federation also placed the NSR at the forefront of its strategic plan for Arctic shipping development. Geopolitical stakes have therefore suddenly grown significantly.

The potential development of Arctic shipping routes gives rise to new geopolitical stakes. Most studies insist on the ecological threats such a development would pose and/or the need for regional cooperation to address those threats. However, this view misses the fact that shipping access to the Arctic offers opportunities for users, which in turn leads to rivalries and tensions among and within potential coastal states and user states. Commercial transit shipping in the Arctic is not a question of "if" and "how much" anymore. There will be significant commercial transport undertaken by non-Russian operators in the Arctic in the not-too-distant future. The balance of maritime power governing Arctic transit by spot charters and on-time arrival in port has changed dramatically over the last decade. Therefore, several states have sought to articulate their geographical definitions of marine (including maritime) areas through claims and counter-claims.

A geopolitical dimension is thus emerging from the development of the NSR. Geopolitical rivalries already characterize it in some aspects. This is nothing unusual, of course, as commercial shipping routes routinely develop in an interplay of potential rivalries, and geopolitics is never absent in maritime affairs. Nevertheless, in this particular situation, because of the complexity and diversity of the emerging stakes, and because of the speed at which this process is unfolding, it is worth taking a closer look to draw out some potentially less understood implications (Lasserre & Cyr, 2022).

6.2. Northwest Passage

The status of the Northwest Passage (NWP) has long been disputed between Canada and the United States. While Canada views the NWP as intra-continental straits under Article 234 of the UN Convention on the Law of the Sea (UNCLOS), the US considers it as straits used for international navigation and laxer regulations that must be notified to the IMO. Over several decades, new shipping routes have been opened up in the Arctic (and the Northwest Passage) that are up to 40% shorter than equivalent routes in the Suez and Panama canals. The 2007-2015 period was considered a golden age for Arctic shipping, and a dominant geopolitical issue at global conferences was the declaration of the NWP as an internal maritime route; Canada could impose an exclusive economic zone (EEZ) and environmental regulations over it that do not apply to international straits. This status quo has outlasted the COO for the NWP and yielded ever-greater resource development: shipping traffic in the NWP has increased over 500% in the seven years from 2015 to mid-2022. In this case, Canada's political will has been sufficient to deny cost-benefit ratios to advocates for longer routes. The most important vessels in the NWP have been Russian, or non-State owned, with most shipping traffic from Russia to the US through Canada (Lasserre & Cyr, 2022).

Over several decades, rivalries regarding transit Arctic shipping and their potential exceedence by a combination of geopolitical tension and a new race for Arctic resources have continued to demonstrate a number of significant twists and turns. Washington decided not to inflame the dispute with either Ottawa or Moscow given the moderate strategic stakes at a time of student expectation of major international shipper roundtables. As historic precedents abounded and multilateral forums were murky, the Obama administration never laid down anchored plans of action or intentions. As confronted, Canada turned back to the status quo of the unlimited NWP; it could only impose local and soft Arctic regulations and blue levels. As maritime traffic dived down, this geopolitical tempest drifted into still waters and settled down in the

conflict over the sea-balance of northern maritime corridors and in the question of sea access for polar ship services.

6.3. Implications for Global Trade

The ramifications of events occurring in the High North extend far beyond the Arctic Circle. As the region undergoes transformative changes, including increased access to previously untapped natural resources and the opening of new trade routes, the potential for conflict rises as well. With rival choices for exploiting resources and routes, conflicts in the Arctic will increasingly affect high-power players around the world. An examination of the interaction of Arctic strategies implemented by various actors, as well as the potential for military conflicts to be exacerbated by the geopolitical situation in general, is provided here (Lasserre & Cyr, 2022).

In recent decades, the geopolitical situation has been changing; economic and military weight has been shifting to the East. China has reached over 14 trillion GDP and has transformed itself from an insulated country to one of the leading global nations, establishing the BRI to boost its international influence. Russia, in the post-Soviet collapse decade, lost huge world power status and was in the category of a spoiled state with an unstable domestic situation and a fragile economy. However, the situation has changed, and starting from the mid-2000s, Russia has been fighting back (and to some extent successfully) to recover the lost position of being a global player and a regional hegemon.

The geopolitical environment of the North changed adversely to major Arctic powers, in particular, the escalating tensions between Russia and the West, which were aggravated by the Ukraine crisis. In the Arctic, the tension has manifested in the NATO and Russia military buildups. It is impossible to avoid such increasingly confrontational and militarized situations, which might only temporarily calm down via different conflict management tools.

7. Sovereignty Claims and Territorial Disputes

The Arctic is melting and intensifying competition over an icy, treacherous sea, its lucrative shipping routes and vast natural resources. Five Arctic nations stake conflicting claims to overlapping territory. The fragility of geopolitics is highlighted by the tension between Russia and the West. Four Arctic nations are attempting to solidify their territorial claims under the framework of the UN Convention on the Law of the Sea, a treaty ratified by Canada, Russia, Norway and Denmark. The Convention governs most international waters, regulating nations' rights to ocean activities such as fishing, dredging, and pipelines. However, the United States is not a party, compromising its influence over Arctic governance. As tensions escalate, it’s critical to create a comprehensive treaty that includes the United States and other Arctic entities and takes into account the region’s unique ecosystems. A treaty is preferable to amend existing UN treaties because it incorporates the diverse interests of states, addresses additional issues, and is likely to preserve international interests in the region.

The Arctic is at once a region for which there is no international treaty, and a region threatened by a radically changing climate. This change is moving in many ways: unpredictable weather events rage through the U.S. Northwest at the same time as the summers glide below the Arctic Circle. Smiling polar bears march toward mass extinction, while others eye their homeland for access to huge mineral, oil and gas reserves once trapped behind persistent ice. The Arctic sea is still very much a lawless “wild west,” with many nations claiming rights or aspirations to the North Pole and the vast territory and resources it encompasses. States with legitimate interests in the region include the five coastal Arctic nations - the U.S., Canada, Norway, Russia and Denmark. Each state's self-imposed jurisdictional claims, however, conflict with one another, creating a political minefield that is ungoverned within the clear framework of existing international law, international treatment, and cooperative organizations.

However, the U.S. is not a party to the Convention. Congress has thus far failed to ratify the Convention, for reasons that many argue are obsolete. Largely due to this exclusion, the U.S. presently has little influence within the Arctic Council and could be undermined in its attempts to solidify its Arctic territorial claims. It is not as though there are no international laws, treaties, or agreements governing international

interactions regarding the Arctic. Many UN treaties include provisions with Arctic implications. Yet none of these existing treaties adequately address the uniqueness and sensitive nature of the Arctic territory and vastly unclear territories - and also the relevant subject matters that these treaties attempt to govern.

7.1. United Nations Convention on the Law of the Sea

Immediately after the conclusion of the Cold War in 1991, the major Arctic powers, led by the United States and Russia, seized the opportunity to convene a forum for their cooperation with a common agenda focused on environmental protection in this frost-bound and vulnerable region. In 1996, at a meeting in the northern city of Ottawa, Canada, the eight Circumpolar States agreed on the establishment of the Arctic Council, a loosely structured "high level" forum for intergovernmental multilateral cooperation. This "soft law" institution boasted no secretariat, no permanent staff, and no power to regulate activities or take legally binding decisions. Each Arctic power assumed the cyclical chairmanship of the Council for a two-year term, and governance of the Council switched from one Chair to the next in grand festivities. During the first decade of its existence, the Council enjoyed the esteem of the world as a successful multilateral cooperation body.

"Climate Change and the Arctic" were added as an agenda item of the Arctic Council in the late 1990s. It was only in 2007, however, that this issue burst into the global spotlight when an administration-led exploration team unearthed a piece of fabulously rich site of continental shelf off the Siberian coast. In the following months and years, the race for resource and territorial claims in the Arctic Ocean added the apprehension of conflict in competition over natural resources to the Council's agenda, along with Climate Change in the Arctic and the frailty of the circumpolar environment (Angélique de La Fayette, 2008). Yet, even after the most contrary and alarming forecasts and predictions, this far-off region has continued to be at peace, and there have been no reported skirmishes or confrontational episodes whatever. It seems no good reason to believe, let alone predict, that Arctic Affairs – unless, of course, deliberately engineered by miscalculation – will become a major causes of misunderstanding and distrust between the powers in the Arctic region leading to confrontation or hawkishness.

This scepticism over the foreboding existential challenges to geopolitics and regional peace and stability is shared by a wider community of scholars and analysts who have been watching, studying, investigating and researching these issues for an extended period of time. New research methodology and paradigm such as neo-institutionalism, critical geopolitics, post-colonialism and others have been employed, and new concepts such as post-past histories and archive fever suggested, to examine, explicate and elucidate the evolution and dynamics of this under-studied, less-known and unexplored field of knowledge.

7.2. Claims by Arctic States

The melting ice and emerging shipping routes have prompted renewed interest in the Arctic region and, at the same time, have stimulated existing disputes among territorial claims of the Arctic States. This situation raises the question of how existing international law can accommodate these emerging interests.

The Arctic States are asserting their territorial rights, in accordance with the current International Legal System. The Ilulissat Declaration (DE LUCA, 2013) affirms the adherence of these five states to the UNCLOS. These states assert that the Arctic contributes to humanity as a whole and that the five coastal States of the Arctic Ocean have special rights and obligations.

Arctic territorial claims date back as far as the 1860s. They have different bases and ways of scientific substantiation, and some states have maintained their claims with practical activities, while others have followed a more passive way. In 2007, Russia claimed the North Pole through an expedition in a mini-submarine, claiming it as an extension of the continental shelf. In 2008, Canada announced plans to build new highways across the Arctic Islands, strengthen its military presence, and reduce dependence on the United States. Norway's 2009 agreement with Russia to share the Barents Sea and its seabed resources settled one of the longest standing Arctic territorial disputes. In 2008, the US's policy changed from aggressive to cooperation (Watson, 2016).

The land territories of the Arctic States were all mostly demarcated along statute lines according to treaties concluded in the 19th and 20th centuries; some were disputed but all were settled through international negotiations and agreements, except for the dispute between Canada and Denmark over Hans Island. The situation, however, is quite different with respect to the maritime areas. Most Arctic maritime territory is claimed based on customary law regarding the exclusive economic zone (EEZ) 200 nautical miles off the low water line of the land territory.

The Arctic is divided by the Mid-Atlantic Ridge and the Nansen-Gakkel Ridge into the Eurasian and the North American Oceanic Basins. Within the Basins, there are lengthy linear ridges which are about 4000m deep and are surrounded by deep basins which are about 4000-5000m deep. The basins are the standing ground for territorial disputes over the continental shelf which involves rights with respect to seabed resources. Under the continental shelf provision in the UNCLOS, the Arctic States are entitled to extend their rights to the area beyond 200 nautical miles limit where the continental shelf of the coastal state substantially extends into the sea.

7.3. International Reactions

The Arctic has long been viewed as an uninhabited and desolate region with little influence over the international realm. However, with climate change, new opportunities and threats are emerging that could threaten the long-stable balance in Arctic geopolitics. Numerous nations are taking interest in the Arctic as a route to global dominance, which could lead to new Cold War tensions with regional and global implications for years to come. Realism and a historical view of Arctic tensions can offer insights into the evolving geopolitical situation as tensions and conflicts form with Arctic nations rooting themselves more deeply around claims to territory. A rise in Chinese influence in the Arctic is part of a wider global initiative for China to destabilize pre-existing world orders in an attempt to become a superpower. Arctic nations are angry that their fears of new geopolitical tensions could soon come to fruition. As President Biden outlines his administration's Arctic strategy, it is crucial to consider the views of numerous geopolitical actors in the Arctic, stressing that President Biden's view of the Arctic as a "holy grail" of climate change does not reflect the views of the Chinese government (Mazurier et al, 2020). Russia's stance on the Arctic and controlling the Northern Sea Route has had numerous implications for Russia's relationships with Arctic nations. The rise of the Northern Sea Route has placed pressure on existing maritime governance in the Arctic, leading to rejoinders from Russia claiming rights to the Northern Sea Route as its national waters. Russia's actions coincide with growing Chinese interests in the Arctic that threaten pre-existing norms and institutions, leading to a possible return to Cold War geopolitical tensions. After analysis through the jurisprudential, domestic, and international lens, Russia's vision of the Arctic and the route in being transformed into secure national waters is an unachievable goal that could lead to short-term violence with the US and its allies. Canada acts within the shadow of the US in Arctic geopolitics, limiting but not eliminating the autonomy in rhetoric and actions with nation versus regional implications (Mohammed, 2018).

8. Military Presence and Security Concerns

As the Arctic melts, military tensions in the Far North increase. Countries around the Arctic circle are working to extend their sphere of influence, and they begin to take an aggressive stance towards competing nations. A showdown between the United States and Russia is a possibility as the two claim overlapping polar seabed territory, and similarities to the Cold War are beginning to emerge. Joint military exercises conducted in the Bering Sea and Arctic Ocean over the last decade point to Russia's mass militarization of the Far North. Most seriously, this will give a significant advantage to Russia in the fight for Arctic oil, the vast quantities currently estimated to be worth 30 trillion dollars (Bernard Mackowiak, 2017). However, there is an opportunity for the U.S. to counter Russian aggression and bolster its national security by setting an example as a global power in the fight for Arctic governance.

The general sense of the law of the sea is reflected in the Convention on the Law of the Sea (UNCLOS), enforced by the International Tribunal for the Law of the Sea (ITLOS). This rules that each nation has rights and jurisdiction over the continental shelf up to a distance of 200 nautical miles from baseline points, as well as additional rights extending beyond this limit if scientifically justified. In the Arctic, this means that

nations are limited to a total of 346 square kilometers of territory around the North Pole. Under these guidelines, Canada, Denmark, and Russia have very different expansive territorial claims on their polar seabeds, all of which overlap with areas claimed by the United States. Due to systemic imbalances in enforcement and commitment, regime managers struggle to act effectively to settle disputes in accordance with treaties.

The UN Convention on the Law of the Sea recognizes Russia's extension of its EEZ into the Arctic Seabed indisputably above the Arctic Circle. Modifications to bordering EEZ's are prohibited without agreement, and all signers of UNCLOS III have already faced penalties. Under normal, established maritime boundaries of the UN Law of the Sea, states bordering the Arctic Sea don't have access to significant portions of oil reserves. As a result, the U.S. is not a party to UNCLOS III, while other states bordering the Arctic have all ratified it. Hence softer states face a preeminent challenge with the enforcement of maritime boundaries with shifting rules and earlier credibly costly commitments.

8.1. Military Strategies of Arctic Nations

Geopolitically, the Arctic is a special case scenario with unique features. Its geostrategic role came to attention in the late 1940s with the opening Soviet Arctic submarine bases. The major Arctic nations started negotiating bilateral maritime borders and deconflicting their policies in the Arctic. The Arctic turned into a peaceful region of cooperation, but this peace was shaken with the break-up of the Soviet Union. NATO began viewing the Arctic as a war zone in the mid-1990s, followed by the development of the "Northern Fleet" (NF), capable of nuclear deterrence and strategic self-sufficiency. The Arctic became the highest military priority in Russian military strategy, leading to military escalation, missile placement, and counter-measures by the remaining Arctic nations (Pedersen, 2019). A coeval military build-up began in North America and North Europe, primarily by Canada, Denmark, Norway, and the United States. Meanwhile, cooperation continued in scientific research, search and rescue, and oil spill response in the Arctic Council.

Since the beginning of the 2000s, the Arctic's strategic significance gained new power, transitioning from a quiet military build-up to a hard and dynamic race. This development raised the stakes from regional security to global issues, involving China and Europe. After the deteriorating security climate in the Arctic, global challenges became the priority in turn and Arctic Council cooperation was assessed in the geopolitical context; it commenced with the "Arctic Strategy", setting out opportunities and conflicts in Arctic water transport, resources, biodiversity protection, and search, rescue, and response. The gravity of military development and cooperation in self-defense was also taken into account (Bernard Mackowiak, 2017). Maritime and transcontinental options to respond to climate change-induced regional changes were discussed. The option to wait 20 years and live with Russia's aggressive strategy was discarded as the US would lessen its Arctic position.

8.2. NATO and Arctic Security

Although the Arctic is not a major theater of military confrontation, it is nonetheless increasingly a region of acute security interest. The Arctic has re-emerged into international affairs since the mid-2000s due to global climate change. Its security ramifications have drawn the attention of both Arctic and non-Arctic states, which have presented vastly divergent perceptions of Arctic security (Mazurier et al, 2020). The United States' Arctic Region Strategy reflects an increased focus on China's influence and presence in the region. In early 2022, NATO Secretary-General warned that Russia's militarization of the Arctic was posing risks to NATO members in the region. Despite the hope that governance mechanisms fostered since the late-2000s could resolve initial disputes, concerns have arisen that the military aspects of the Arctic could be thrown into reverse (Liz, 2019).

Three points stand out in the ongoing discussions about Arctic security. First, Arctic security is being reconstructed as a belatedly 'strategic' space, especially since 2021. This reconstruction has benefitted regional NGOs overtly favorable to governance mechanisms and hostile to military posturing, especially from outside of the Arctic. Given this trend, the possible implications of this 'governance discourse' for the future of Arctic security must be examined. Second, while the operations of the Northern Fleet in the Arctic

are routinely misconstrued as 'militarization', it is essential to recognize that any long-range consideration of Russia's military power in the region must take into account its evolving perceptions of the United States' and NATO's roles. The third point concerns whether Arctic security should be reframed as being about human security. This reframing should be situated within the framework of international relations, which distinguishes between ontological and physical threats.

In regard to the first point, the recent discursive shift towards a 'strategic' framing of Arctic security is so pronounced as to convince many observers that 2020 has become a more 'normal' year in Arctic history. Just as the 1950 agreement between the US and the Soviet Union did not end military competition, the far-eastern aggression of Russia did not remove the possibility of civil cooperation on the Arctic Council. However, it is also true that since the advent of the 'strategic' discourse, the management of Arctic security has increasingly become a process involving non-state actors that are so obviously hostile to a great power status of the Arctic. Such gravity from the Arctic non-state actors must be noted and should also be paid more attention to.

9. Indigenous Peoples and Their Rights

Indigenous peoples of the Arctic should be consulted in decisions affecting their societies and environment, both on the national and the international level. Responsible authorities should understand indigenous peoples' needs, wishes, views, and concerns. There have been recent good developments; the Sami Parliament in Norway has established extensive systems for engagement with natural resource companies and government authorities, and the importance of both indigenous peoples, perspectives and the early involvement of all stakeholders has begun to be understood in the oil and gas industry in Norway. The key question is whether these good developments are adequate given the enormous amount of oil and gas that the players in the Arctic region are vying to explore (Johansen, 2007). An indigenous peoples' perspective thus covers both political and humanitarian elements. The vast majority of Arctic indigenous peoples express a wish to keep their culture and way of life. Safeguarding legitimately recognized land rights is essential to ensure their ability to do so.

There is a perception of substantial oil and gas reserves in the Arctic and a wish to explore them. Indigenous peoples have legitimate reasons for being deeply concerned about planned oil and gas explorations in their territories as developers' interests normally prevail wherever and whenever indigenous peoples' interests and rights clash with development projects. In turn, indigenous peoples' societal circumstances, rights, and the respect the States in the region are shown towards these rights vary greatly (Szpak, 2017). Persons or groups with native rights in the context of colonization often have a tough time after their respective nations have adventurously sought control over their territories. Today a number of AoA indigenous peoples, in first world countries, euphemistically referred to as "high-income countries," have state- and human security threats concerning adequacy in both context and execution regarding mechanisms for the safety of their legitimately recognized rights.

9.1. Cultural Heritage

Monitoring of archaeological sites has experienced a remarkable increase in recent years thanks to the rapid expansion and proliferation of micro-drones and UAS technology that allows researchers and heritage professionals to survey larger portions of ancient and historical sites and landscapes much more effectively. Following the examples set by the military sector, a growing number of researchers consider the application of drones as major scientific instruments giving rise to a new medium in remote sensing beyond commercial satellites. In the wake of this "drone craze," archaeological sites have become subjects of surveys on an unprecedented temporal and spatial scale. New multi-copters and fixed-wing UAVs now incorporate advanced sensors including active LiDAR for 3D range mapping and multispectral and hyperspectral imaging which can further allow users to bridge the archeological invisible or even radio as well as temporal scales owing to their green-light reflection in photosynthesis. The Svalbard Global Seed Vault located on the island of Spitsbergen is the largest and most sophisticated gene bank uniquely storing seeds from around the globe suggesting great resilience and reliability against climate change. It is also a UNESCO World Heritage Site related to the Arctic Coast as one of the last frontiers that have been preserved

in its original state with pristine and unexplored topography and landscape. At the same time, however, the deluge of increasing interest and attention from various stakeholders has also given rise to increased threats and challenges to uphold its scientific and historic value (Mazurier et al, 2020).

The Arctic Coast as a precious cultural heritage is also poorly understood. This region involves a wide range of promising research topics and interdisciplinary collaboration in the domains of human geography, earth and social science including, for example: Geomorphological processes of retrogressive thaw slumps along the perilous permafrost coastline in relation to local climate; Impacts of warming melt-drainage systems of the Kongsfjorden both on nature and local life; Management and sustainable use of spring-water flooding in relation to ecosystems, architecture, heritage conservation and site memory; Proliferation and modification of built and contemporary heritage due to increased interaction and access; Cultural, architectural, geological and biological spillover due to the melting icebergs and rising sea level in relation to ice-thrift design and sustainability; and Feminization and gendering processes of community based development in relation to artwork and culture.

9.2. Economic Opportunities

For some time now, the Arctic Circle has inspired scientists, explorers and travelers. The question of Arctic rights has gained notoriety in the increasing number of documents pertaining to the right each country has to the region, starting with treaties signed at the time of European colonization. At the present stage, the Arctic Sea can be expected to be partitioned by nations, notwithstanding claims made by other countries and international organizations. Of the various ways of dividing the Arctic Sea, it is the seabed that will be assigned to one or the other countries. Each of the states laying claim to the region justifies its intentions by invoking a set of provisions enshrined in the 1982 Law of the Sea Convention. It is governed by special provisions (Article 76) that afford coastal states 10% of the entire globe's surface area a sovereign right to respective parts of the seabed. According to these provisions, it is possible to assign resources of the seabed without altering ownership of the surface of the sea. The predominantly spatial composition of mineral resources is the most advantageous from a political-economical perspective.

Here, with such hopes scorned and the global financial crisis not assuaging social tensions, the exploitation of the Arctic Basin has stifled aspirations for a new order, security, collective effort and even moral guarantees. The stakes are high and compassion is low. The resulting declaration not only throws cold water on the hopes for collaboration but also gives hope for an end in sight to the debate on the future political division of the Arctic patently different from their incomes. To this is added a caveat to these states to bear in mind the creeping take-over of their economic sector by foreign players, which further complicates the geopolitical map. One source states that 'given the strong competition over access to natural resources, the use of military force as a means of resolving problems cannot be discounted'. It is friendly geophysical and allegally oriented co-operation topics that are stressed at these meetings, which are very successful and politically pre-emptive. Resource potency is one of the deciding factors in claiming economic and political success in the world. Only over the last five years have the United Nations noted under its Resolution 61/222 in the sea that 'States may, through science, evidence civil techniques, meet the mandatory 2009 deadline for submission of information on the outer limits of their continental shelves. In addition, those States yet to accede to UNCLOS should do so as a matter of priority' (Janicki, 2012).

9.3. Political Representation

Indigenous peoples have been involved with Arctic governance for many decades, yet their visibility within international contexts is quite recent. Since the establishment of the Arctic Council, Indigenous organisations have participated at the international level and been members of the Arctic Council Working Groups. Representation at these levels has been effective, though challenges remain. Representation is primarily through the Arctic Council. Greenland and the Sami have United Nations observer status and often attend meetings of the United Nations concerning climate change (Mazurier et al, 2020). However, Indigenous representation is an issue; the difference in populations and land areas occupied in relation to the Committee on the Protection of the Rights of All Migrant Workers and Members of their Families (CRMW) (Liz & Delgado, 2019). To add to the complexity, each Indigenous group has its own

representations and organisations that cover different governance levels. The Arctic Council has established two Indigenous Permanent Participant seats for permanent members: the Arctic Athabaskan Council (AAC) and the Gwich'in Council International (GCI). In addition to these seats occupied by representation from the United States, there are several others that have struggled to be accepted internationally. The social construct of "inuit" and "inupiat" peoples as a singularness in at least four different languages that each covers many sub-tribes is an inexcusable impediment. Furthermore, no agreements are ever signed with Indigenous groups on any other governance mechanisms than the Arctic Council. Hence, an opportunity exists to improve the representation of Indigenous groups (Mohammed, 2018).

10. Environmental Challenges

According to six European and five North American states' main Arctic confrontations, environmental challenges are the cause of the deterioration of the security situation in this fragile region. Perceived as a secondary consequence of global warming, the melting of Arctic ice is expected by them to provoke harsh conflicts, especially of a military nature. It is also presumed that this would entail an exit of economic activity from existing co-management areas (up to and over 800 km) deep into the Arctic polar desert region, which states naturally governed for around 30 million years. Moreover, they should abandon the developed continental shelf to the seabed and continue to engage with the fishing sector, where a series of agreements have been reached since 2006. Most importantly, a deep questioning of the reliability and sufficiency of existing Arctic governance was predicted and it was expected that Arctic governance should be driven away from classical international administration, intergovernmental organizations and treaties to military interventionism by states, including outside security areas (Janicki, 2012). Contrary to this, however, no military confrontation occurred in this respect before and even after 2020, although recently some new actors joined the Arctic discussion. An emerging "politicization of the Arctic" which Canadas former Foreign Minister described as the over-advertised highway to unimaginable riches with escalating claims, unrecognized boundaries creeping towards the North Pole was confined at the federal level by the intervention of caution experts and states' moderation. No proper surveillance has been imposed by Polar States on newly opened Arctic waters before 2022, although still no military action has occurred in their exclusive economic zones for over 10 years. Most importantly, with the emergence of a new political situation in which more military budget allocations by Polar States are expected this decade, there has been a routine maintenance and strengthening of existing instruments for co-operation at both international and local levels.

10.1. Ecosystem Changes

Beyond the direct effects to physical environment and biodiversity, climate change is affecting the Arctic peoples and cultures directly, through the emergence of new opportunities and social conflict—that are themselves often induced or exacerbated by climate change (Angélique de La Fayette, 2008). Climate change undermines continuous cultural use of traditional knowledge bases, resource management practices, resource allocation systems, and territory-related norms and rules (Mazurier et al, 2020). It threatens not only the survivability of many species, but also the modes of salience and the non-competitive ethics of use and access that have historically underpinned human-nature relationships. Polar bears in upriver areas are more numerous now, putting pressure on peoples engaging in traditional hunting there. This presents challenges to those hoping to maintain co-existence. Largescale external change introduces ad hoc rules and 'shorter' cultural timeframes. Questions of inclusiveness in the inter-local exchange of opportunities create political tension among communities. Inter-group tensions over resource use and cultural perceptions of other peoples also complicate relations within evolving transboundary spaces. These challenges are matters of political and social contention between families and groups of peoples, between neighbouring communities, and between political units such as municipalities or neighbouring countries. The salience of such issues has grown prominently in the past decade with the rapid pace of climate- and industrial development-induced change.

Such challenges are made particularly difficult by accompanying alterations in environmentally salient timeframes, knowledge bases, and language. The recent transition from a prospectively stable and energetically predictable environment to one of relatively sudden and radical changes and an uncertain future has both social and psychological ramifications (Payá et al, 2025). Indigenous hunter-gatherer groups have historically coped well with ecological changes, learning new cultural practices and knowledge systems over long periods as circumstances change. However, with increasing external industrial activity and gross transboundary changes in the environment, questions arise as to whether such relatively stable experiential, customary, and prescriptive knowledge can cope with realities of shorter change timeframes and increasingly unstable systems. Moreover, worries over knowledge loss are exacerbated by rapid shifts away from traditional subsistence practices and their accompanying narratives in youth lifestyles, priorities, and relations to knowledge and belonging.

10.2. Pollution and Contamination

Pollution from Contamination on Land: A Serious Problem for the Arctic Possibilities are increasing for shipping goods to Europe and Asia through an opening Arctic Ocean and for developing mineral, oil, and gas resources on the land. Environmental consequences are already apparent, but coastal countries are also facing challenges from pollution resulting from the land, often from the past rather than from new activities. There is increasing concern in the Southern Hemisphere, Europe and North America about land-based sources, particularly about contaminants entering the Arctic Ocean from coastal areas. This issue is of concern to coastal countries and need to be addressed in the context of the AMAP and the Arctic Council.

Geography of the Arctic Ocean About 80% of the drainage basin for the Arctic Ocean is on land (Canada et al., 2009). Seven river systems discharge the majority of fresh water (5,000 km3) to the ocean, the largest by far being the Arctic River. Estimated loads of river-borne materials entering the Arctic Ocean per year are 200 million tons of dissolved organic matter, 55 million tons of total suspended solids, and 30 million tons of total dissolved solids. Sediments and nutrients upstream are altered in passage downstream. In addition, there are coastal discharges from identified sources, such as the Kola Peninsula on the Barents Sea and cities along the East Siberian Sea. These nearshore areas are often regarded as having a unique environment, but their climates, geography, and phytoplanktons are similar to those of many unpolluted coastal areas in the Southern Hemisphere.

Land-based Pollution in the Arctic Ocean: A Serious Problem for the Arctic Most population growth and economic development are occurring in coastal areas of the Arctic Ocean, leading to increasing pressures on infrastructures, services, and facilities. Significantly greater loads of contaminants (including nutrients, suspended solids, toxic metals, and pathogens) from the land are entering the Arctic Ocean than are being measured. The surrounding marine environment is already being altered. Rapid disappearances of habitats are obvious and the potential impacts on folk and ecosystem health and diversity could be serious. There is international action, but also need for action in the Arctic region, since without it the marine environment will become increasingly polluted and heterogeneous. Local communities may not be able to understand the significance of the changes nor respond adaptively (Mazurier et al, 2020).

11. International Cooperation and Governance

Governance in the Arctic region is relatively underdeveloped compared to more mature systems, and it is particularly complicated and complex due to the confluence of factors that influence the Arctic. Currently, key elements of governance exist to ensure that major issues are addressed, but a limited number of parties are involved in broad governance. In the wake of an increase in the number of actors in the region and an increase in the stakes, the existing structures are being strained. As such, it is important to identify and understand the ongoing and emerging changes to governance in the Arctic, and the capacity of that governance framework to deal with the change caused by the increasing stakes in the Arctic, and new parties becoming involved in them (Mohammed, 2018).

Two forces are particularly relevant in the context of governance and the urgency of the changes. Firstly, the geopolitical factors and another are the forces of modernization and industrialization that make the

region a much sought after space for economic, scientific, and military development. Both of these forces are largely external factors acting on the Arctic that act to both create opportunities and likely result in increased conflict over the contested resources and transport routes of the Arctic (Mazurier et al, 2020). These powers claim wide swathes of the Arctic Ocean and surrounding continental shelves where the exploitable mineral wealth is thought to lie. This contest also has military implications with a recent ramping up of military presence and activities around the Arctic by all the Arctic states which is being matched by further interest and involvement from non-Arctic countries (Mazurier et al, 2020).

In terms of the demand side, other powers or groups that are increasingly looking towards the Arctic region for resources, which also happen to be claimed by other powers. The Arctic is thought to have huge reserves of lucrative resources such as fossil fuels and minerals. Non-Arctic countries are also beginning to characterize the Arctic region as spaces for both scientific and economic capital development (Mazurier et al, 2020).

11.1. Arctic Council

The Arctic Council is the primary intergovernmental forum for the promotion of cooperation, coordination, and interaction among the Arctic States, with the involvement of the Arctic indigenous communities and other Arctic inhabitants. The Arctic Council was formally established by the Ottawa Declaration signed in September 1996. The objective of the Council is to provide a mechanism for multinational cooperation in the Arctic environment, sustainable development, and protection of the natural resources of the Arctic region, focusing on human health and well-being with an emphasis on the roles of indigenous peoples and other Arctic inhabitants in shaping actions by the Council.

The Arctic Council is an intergovernmental organization established as a venue for multilateral cooperation to promote "the sustainable, environmentally friendly development of the Arctic as a region of peace and cooperation." In terms of its focus, the Arctic Council is devoted exclusively to non-military issues, which has contributed significantly to maintaining peace and stability in the region. Furthermore, as the Council consists of eight states bordering the Arctic, the interests of the non-Arctic states are articulated by the observer states of the Council.

However, some of the non-Arctic states, such as China, have made their intentions very clear regarding their desire to acquire an advanced consultative status at the Council (Liz, 2021; Delgado et al., 2023). This suggests that there is a risk of the current situation becoming a need for oversupply in terms of international organizations charged with Arctic governance. Indeed, while numerous international venues exist to address Arctic issues, the majority are ill-equipped to handle more wide-range Arctic governance issues. Specifically, they lack the required geographic remit or a sufficient number of relevant parties to be able to act effectively on the issues at stake. (Mohammed, 2018)

11.2. Bilateral Agreements

Examining the National Framework for Scientific Research and Establishing an Arctic Strategy

Most of Arctic's natural resources are in continental shelves that are the subject of disputes between States, and future caretakers of the Arctic region may include, in addition to littoral Arctic States, the European Union, China, and so on (Delgado et al., 2023). The reconnaissance methods used in effort have provided local resource estimates; geological maps and seismic data have been collected, and biochemical and oil-well samples have been gathered and analyzed. The Arctic is home to 595 Billion barrels (330 Billion barrels of oil equivalent, BOE) and with risked resources of 41 Billion barrels (22 Billion Boh); 1.2 Trillion tonnes of CO2, commercial gas production is 120 MMcm/d, with estimates of gas supply of 8 – 2,700 Billion tonnes, with uncertainties of 40%. Adverse Recovery of National Resources in the Region leads to Economic Development of New Energy Resources. Since the 1800s, both sides have sent explorers to the Arctic.

Many bilateral agreements remain to be finalized, including a standalone treaty to regulate navigation in the central Arctic Ocean and fishing in its international and unregulated high seas. Coordination and division of labor between the Arctic Nations and between different treaties arc essential, especially with

regard to scientific research. On the defense side, treaties restricting conventional armaments in Europe and Northern zones have worked extremely well and would likely assist the Arctic if signed. Finally, the Polar Code on Shipping Safety adopted and ongoing in the International Maritime Organization is a significant step forward in international cooperation in Arctic environmental protection. A focal point for continued bilateral negotiations on logistics and operations is the Arctic Coast Guard Forum, an organization that is getting better and better at sharing intelligence and resources. Very few signed treaties and documents on Arctic Geopolitics (Sanz et al., 2014).

Legal complexity and novelty of international law in the Arctic region over the legal issues in the Arctic are significant obstacles in negotiating resolutions for maritime boundary disputes in areas beyond 200 miles from shore under the 1982 United Nations Law of the Sea treaty. Nevertheless, nine countries bordering the Arctic Ocean signed an agreement limiting search and rescue operations for commercial shipping and obligating parties to share resources and intelligence (Cinelli, 2011). Environmental protection of the high seas in the Arctic has even deeper roots in customary international law and could likely precede more complicated treaties on other interests such as fisheries or shipping (Watson, 2016).

12. Future Scenarios for the Arctic

In order to gain a better understanding of what may take place in the Arctic in the coming decades, a consideration of multiple futures is necessary. It is important to recognize the limits of any foresight, and to assert that many potential futures are too numerous or uncertain to consider exhaustively here. Nevertheless, certain scenarios seem to embody sometimes likely, sometimes uncertain futures for the Arctic (Payá et al, 2025). Four scenarios are envisaged, which can be summarized generally as a set of likely questions to help delineate the scenarios more fully: How fast will the ice retreat? How will states react to the disappearance of ice? How will state investment in the region evolve? Will military cooperation continue, or will militarization escalate? The value of utilizing scenarios to consider the future of the Arctic is that they do not require foresight of the future, but instead work within uncertainty to create a map of futures that embodies a variety of options (Payá et al, 2025). Given the stakes involved in how decisions about the Arctic are made, it is hoped that a consideration of these scenarios will influence states' choices.

For the purposes of analyzing the Arctic, two key drivers have been chosen: the ice cover and the reaction of states. While there are certainly other criteria to consider and other factors that will influence the outcomes in the Arctic, considered together these two drivers have a potential more than any other to differentiate Arctic futures into contrasting scenarios. The ice cover will vary across a nebulous range, from an Arctic with minimal summer ice to one in which ice persists through the summer. The state reaction to the disappearance of ice also holds considerable variation. The most extreme reaction would be for states to militarize the North in a rush for resources, while a second possibility would be a continuation of the present level of cooperation, with states essentially conceding an Arctic wilderness inhabitable only by indigenous peoples and devoted to conservation and protection.

The exploration of these scenarios gives an overarching rationality to the text. It is hoped that the framework of social futures ranks will encourage others to consider Arctic futures, and that the imagined futures transferable to the Arctic will help clarify the state of the region now and in the future (Gregory Morgan Trujillo, 2019). A brief presentation of the methods behind the scenarios and rankings signifies the point at which they in particular should cease to be considered as predictions, but instead as imaginative spaces for thinking about the future that can foster predictions. The writing of this section has been an iterative and organic process, as reliability and fitness-of-purpose have continually dictated improvements to a section that does not lend itself to strict formatting.

12.1. Optimistic Perspectives

The emergence of a conflict scenario in the Arctic Basin has mainly been used as a rhetorical device by a sector of analysts in favour of a more aggressive foreign policy from Washington and/or NATO, alerting of a possible "new Cold War". Arguments put forward in favour of this view were that drastic climate change was bringing military actors back on the scene, and that for this reason states militarization in the region

was taking a turn in polar opposite direction: from optimism to pessimism. Forecasts sustaining a more optimistic scenario were that while Arctic geopolitics had a parcel of controversy, their core would remain deeply cooperative as there remained common interests in most diverse fields. This was a first-best option distance (Mazurier et al, 2020).

However at least three factors suited lending more credence to a middle-grounding possibility between both previous expectations. On one side, a radical disagreement with respect to the status of the North-East Passage (NEP) had been on the table for more than a decade, confronting Moscow and several Western states. In principle, this was the classical polarization of contenders and the contested. On another side, expectations on the state of climate change, as well as on the technology of the use of the NEP, were widely varied and suspiciously imaginative. By the first, climate change was expected to have its first vital effects with a raising competition for resources, and for the use of a NEP. For this purpose, a sudden proliferation of technological options to safely sail the NEP was considered possible (Mazurier et al, 2020).

So, the possibility of a resurgence of peak oil, and a radically different change in the expectations on technological developments for the NEP's use were the first side bets put on the foresight of drastic Arctic conflicts in a near future. But, on the other side, especially in the forecast of a radically increasing geostrategic relevance of the Arctic, first, no new polities or clashes would emerge (Mazurier et al, 2020). There were already enough of both in it, the point was just a question of geo-temporal scales for them all to converge. Second, much less dramatic realities than such a view had imprinted the whole history of International relations in the Arctic basin, and states' industrious projections were on the whole a feeble ground for claims on the emergence of a "Great Game" (Lasserre & Cyr, 2022).

12.2. Pessimistic Perspectives

The rise in militarization in the Arctic is starting to reflect worries regarding other forthcoming economic ventures and sovereignty claims in the region. A fiasco that ends poorly for one party would ignite counteraction from other parties, leading to increasing conflict and hostilities. Serious tensions already exist, with NATO and Russia facing off directly in the European north. Non-Arctic states would become increasingly concerned with sea traffic levels, international crime (Rodríguez et al., 2023), and environmental pollution, while Arctic states will prepare to ensure their sovereignty and fish for loopholes in the international law governing the polar regions in order to gain an advantage. Public debates and alarm will continue and grow, exemplified by increasing tensions in the southern oceans regarding fishing grounds and territory claims. If an ice-free Arctic comes to fruition, it will resemble the world's oceans much more than it resembles the polar wasteland of the early 2000s, spurring fierce tensions, close observers of shipping around the world would wonder why this change seemed to come on so suddenly (Mazurier et al, 2020). But it will not have been sudden at all. Instead, it will be a centuries-long process that states prepare for decades and navigate through a cycle of public debate, alarm, and counteraction, the outcome of which is uncertain (Lasserre & Cyr, 2022); (Gregory Morgan Trujillo, 2019).

Let it be stated no ambiguities remain: there is potential for fierce conflict in Arctic shipping development, oriented primarily around dispute on sovereignty over Arctic waters. However, at the same time, this kind of dispute seems unlikely to either dominate policymakers' agendas in the Arctic, as everything else imaginable will occur and preoccupy them or to occur quickly. Therefore, drawing too pessimistic perspectives might easily misread observers. Regarding the Arctic contingencies outlined in the previous analysis, the main factor contributing to the cautious outlook on national security and conflict is the possibility, or rather, probability, of continued cooperation. This will manifest itself in a number of means: the Arctic states making deliberate choices alarm-bell free; the use of legally binding agreements; surfacing economic incentives.

13. Case Studies

In the last two years, the fragility of Arctic geopolitics has become increasingly evident. The disappearance of summer ice in the Arctic Ocean and its conceivable opening in the near future to shipping has become not only an environmental concern but also a geopolitical concern. While new shipping lanes and access to

resources are expected in the Arctic, there are fears that competition among the countries of the region may increase. There are concerns that the Arctic will become a new zone of territorial conflict, rising tensions, and military build-up as the South China Sea has been in recent years (Janicki, 2012). Most recently, Russia's aggression against Ukraine has caused ripple effects in other parts of the European continent. Predictions about "disinviting" Russia from the Arctic in 2022, which seemed reasonable at the time, have so far failed to materialize. The case of the Arctic-where Russia has legitimate sovereignty over Arctic territories and where no territorial disputes are observed – poses questions about how countries other than the Arctic five (United States, Russia, Canada, Norway, Denmark) can respond to Russia's disruption of the Arctic regime. Moreover, even the Arctic Five, previously united in addressing "uninvited" issues, are now diverging in approach due to multilateral costs and the order and stability preservation role of UNCLOS.

Two hypothetical cases are examined regarding the current security situation and the eventual future conflict in the Arctic. The source of potential conflict is discovered to be the opening of the Northwest Passage and increased shipping traffic in the Arctic Ocean, causing various issues that will emerge as shipping lanes open in the future. A direction for discussion is suggested by stressing the importance of acknowledgment not only of the existence of a shipping route but also of the probable socio-cultural changes arising from the shipping route. It is reiterated that peace should be preserved in the Arctic and that a cooperative rule and employment implementation for stress points is crucial for peace (Mazurier et al, 2020).

13.1. Russia's Arctic Strategy

Although the U.S. is a non-Arctic state, its interests in the polar regions are still lively and paramount. The Arctic is becoming one of the most important geopolitical territories of the 21st century. Due to climate warming, the Arctic is becoming more accessible and human-friendly, unlocking a treasure trove of resources, military capabilities, and communications links. In 2007, with a famed dive to the seabed of the North Pole, the Russian polar explorer Artur Chilingarov triggered a new race for Arctic dominance. Since then, the Arctic has played host to an unprecedented torrent of diplomatic activity, with rival countries conventionally polarizing into two parties, the Arctic Five, i.e. the U.S. (to be led by Alaska), Canada, Russia, Denmark, and Norway, and the Arctic Six (to be included the five Fives along with the European Union). At the Arctic Council, neither China nor the EU enjoys the right to participate in any decision-making concerning territorial issues (Liz, 2021). However, given the shrinking of the Cold War-era Russian response capability, the pre-eminent role of Russia in Arctic governance, and the leading position of the U.S. in polar geopolitical affairs, the two non-Arctic powers have increased their interests in the polar regions (Larsen Nonboe, 2011). Most signs indicate that it is reasonable to predict a substantive rise in risks and opportunities for cooperation over territorial disputes over time. Thus, should the Arctic Ocean (or the Central Arctic Ocean, CAO) wishes to remain a region for "peace, cooperation, and sustainable development," stricter codification of the outer limits for the continental shelves beyond 200 nautical miles is urgently warranted. There are two diametrically opposite extremes with regard to the evolution of the power balance over the Arctic Ocean, Russia-U.S. rivalry on the one side and global cooperation on the other (Bernard Mackowiak, 2017). If the current pattern is preserved, namely, the Arctic and Antarctic regimes are independently institutionalized, the Arctic Ocean may witness a greater substantive polarization into the Russia-U.S. rivalry and greater instability over time. However, if the territorial dispute mechanisms in the Arctic Ocean are externally strengthened to parallel efforts over the SCS, the current geopolitical situation in the Arctic Ocean may witness a more stable geographical equilibrium and a convergence into a Russia-U.S. cooperation.

13.2. Canada's Northern Policy

Canadian territories are currently positioned as nations, personal territories, and subregional units in the territorial discourse of the Arctic, apparently shaded differently from the global perspective on the Arctic in accordance with the zoning of the North. The trend can be generally traced back to the document published in July 2009 by the Canadian government composed of the Conservative Party and Prime

Minister Harper. It was noted that "As Canada embraces its role as a northern nation in the era of climate change and globalization, the new global reality makes an equally compelling case for the reassertion of Canada's northern identity as core to the future identity of all Canadians." The Northern Strategy, a constitutional framework tailored to the Arctic, has increasingly drawn attention from political actors and the public since then on what the Arctic means to Canada's national interest (Payá et al., 2018). The Northern Strategy is generally perceived to consist of four components: the assertion of sovereignty, the protection of the North's environmental heritage, the development of the North's economy, and the improvement of Northern governance (Martino, 2024a). It aims to ensure the development of the Arctic in an environmentally and socially sustainable manner (Mazurier et al, 2020).

The Northern Strategy and its components were reaffirmed in the follow-up report in late 2010 along an additional fifth action plan regarding engagement with Northern peoples. The original four priorities of the Northern Strategy were reiterated by a new Conservative government led by Prime Minister Stephen Harper in early 2011, who had been re-elected in May 2011 with a parliamentary majority for the first time, and followed by a meeting with territorial and provincial leaders in Iqaluit, Nunavut. After the event, on Canada Day of 2011 (July 1), Prime Minister Harper stated in an address that Canada was the "largest Arctic nation" and would continue to increase its sovereignty and security along a new frontier forged by global warming and melting ice. Canada sees its sovereignty and security stronger than ever before over the Arctic Ocean, the Northwest Passage, and the land mass north of 60 degrees North latitude. The "blessings of bounty" of the northern territory are needed for sustaining economic prosperity in Canada as a whole.

13.3. U.S. Interests in the Arctic

As a consequence of its extensive possessions and adjacent seas in the Arctic region, the United States is actively engaged militarily and has very real national security concerns. The Arctic in particular is a true maritime theater for the conduct of strategy, but the natural Arctic approaches to America are also a strategic area. In light of current political and climatological developments, America’s best national security interests in the Arctic region are apprehensive and in need of a serious rethink (Delgado et al., 2019).

First, the American position in the Arctic region is far stronger than Russia’s. America properly sees the harsh and forbidding Arctic as essentially a peaceful region, and fails to perceive the real underlying political concerns. In contrast, Russia profoundly fears a one hundred fifty mile stretch of ocean from the North Pole down to the Karas Sea opposite Norway, and regards North America as a peacetime threat more dangerous than a shooting war. This calculation leads Russia to see a vigorous diplomacy paired with a robust defense modernization effort as critical steps to address that threat. In short, the United States enjoys a far stronger strategic and military position than Russia in this region. Ideally, America would articulate more appropriate goals in regard to the Arctic region, but even absent that rhetoric, America’s objectives are strong and could be effectively achieved.

Second, America does not possess a military program that allows demonstrably credibly the denial of Russia’s critical, ongoing efforts to improve and construct military bases on its North American flank. Ironically, as the region’s natural defenses melt away, America’s own air and naval forces deployed closest to the continent remain both the oldest and least capable in the entire world. A rapidly rising Russian Arctic Navy, in direct contrast, has been unleashed excitingly, joining the largest land army on earth to target North America. The past decade’s deprecations and civilian damage to the U.S. military must be reversed.

Third, climate change has accelerated the long mission to overrule the Arctic Treaty and establish large scale underwater human activity in the region, making its waters critically choke points for nuclear deterrence and strike . Russia is racing to assert Moscow’s hegemony over this strategic area, and is demonstrably well along that trajectory. America’s perspective is crucially important to the world, as misperceptions on either side could lead to conflict (Mazurier et al, 2020).

14. Media Representation of Arctic Geopolitics

In recent years, the Geopolitics of the Arctic have gained growing attention in various forms of media, including newspapers and online news platforms, documentaries, television broadcasts, and talk shows.

Along with scientific articles and analysis, the media play an influential role in inspiring interest in certain events and matters of public concern (De Luca, 2013). At the same time, media are also instrumental in creating and maintaining stereotypes, prejudice, and broader discourses about certain topics, places, or people, such as “security threats, refugee waves, and war in the Western Balkans/ Middle East”.

The recent increased attention to Arctic events and discourses in the media is regarded as a spillover from the increased international concern and attention that Arctic affairs have received over the last decade, which in general have attracted concerns ranging from increased international tension to claims of a “new Arctic cold war”. The Arctic has received increasing attention and interest in various forms of media, and in particular, international events and discourses about the Arctic in the West have found wide media coverage in the West. Timelines around notable events, newspaper clippings from various platforms, and significant recent documentaries suggested that the underlying reasons for the renewed attention to Arctic affairs can be understood as a combination of geopolitics and environmentalism.

Questions about the international acceptance of claims advanced by riparian countries and the impact of heightened tensions on scientific cooperation are inferred from geopolitical arguments. The earlier cited Arctic Climate Impact Assessment and other scientific reports articulating the fate of the Arctic Ocean appearing in increasing media attention in the late 2000s and that draw attention to environmental changes and the livelihood of the indigenous peoples. It is also argued that this environmentalist concern was not initially viewed with great regard, and attention was mainly directed to geographical regions outside the Arctic, such as Southeast Asia and Africa.

15. Public Perception and Awareness

Much of the academic literature refers to the “Arctic” as if it were distinct land or seacape while, in reality, it is a human construct (Payá et al., 2025). Scientific disciplines divide civil and natural systems, creating gaps in the public perception of the contiguousness of land and sea. This is compounded by inadequate science communication, as enormous resources devoted to acquisition and dissemination of scientific knowledge still insufficiently connect with understanding and opinion-leading polar societies. Little is known about Arctic inhabitants' view of public perception regarding criticality of the Arctic region and issues concerning it. From a practical point of view, most basic parameters regarding this question are completely unknown. More generally, Arctic residents’ views of the Arctic region's role in geopolitical affairs and of their respective countries and the larger societies’ obligations regarding its sustainable development, preservation of its ecosystems, and mitigation of environment and safety threats are largely terra incognita.

Over the last decade, the relatively high frequency of Arctic crises indicates the urgent necessity to enhance public perception of the Arctic in region, especially in mainland states in deep latitudes. The minimum temperature of the Arctic, losses of ice cover, the evocative fate of Arctic animals, and the increased geopolitical interest in the Arctic are a few excellent starting points to enhance population awareness of the processes taking place at these latitudes and their influence on deep latitude regions. As ever-increasing open access to data, scientific reports, and the professional community promoting the results of Arctic research are available comprehensively, a huge reservoir for a deep understanding of the Arctic Region is available to all.

While the scientific sources hold unrivaled academic power, simple public perceptions of this exotic land, its people, animals, and livelihoods might be equally strong. Such sources are pamphlets, books, films, documentaries, and various forms of popularized science overall and social media in particular. There is now a unique opportunity to open channels to transmit transparent and, in many cases, straightforward visions of the Arctic, its fauna, flora, environment, livelihood, research, etc. Societal interest is vital for both academic and personal creativity as well as for sustainable development of this region piloted in a way to benefit all (H. Norchi, 2017).

16. Conclusion

The Arctic denotes all areas north of 66° 34′ North and defined by the Arctic Circle. A salt-water basin of about 15 million km2 encroaching the Arctic in north-east Europe, Asia, and North America divides the Arctic into the Greenland Sea, Kara Sea, Laptev Sea, East Siberian Sea, Chukchi Sea, and Beaufort Sea. Permanently frozen areas include the perennial ice pack, perennial snow, ice-covered seas, and permafrost. The Arctic is home to a population of around 4 million people encompassing indigenous and migrant European, Asian, and North American ethnic groups. Most Arctic people are non-indigenous, having settled in the region during the last three centuries, predominantly since the 1860s. Arctic indigenous people, on the other hand, have long inhabited the region. Their circumpolar presence has been traced to over 9000 years ago in some areas. Their lives have centered on sustainable subsistence lifestyles such as reindeer herding, hunting, fishing, and gathering. Today, however, these lifestyles have been negatively impacted by challenges including climate change and industrial development (Mazurier et al, 2020). Debate over ownership of Arctic maritime territories, which should be settled legally by the United Nations Commission on the Limits of the Continental Shelf established in November 1997, has moreover contributed to insecurity in the region. The Arctic regions are imagined de facto and de jure frontiers. This space and its resources are considered the last unexplored and unbroken elements of the terrestrial global system, necessitating environmental stewardship and assumption of a trust responsibility by a guardian protecting it for mankind (Janicki, 2012). Though the Arctic is defined legally as above 66º 34' North, the nature of Arctic security is multifaceted. Such security can be understood, for example, as "homeland" security, which is concerned with the dangers resulting from the intrusion of alien elements into the territory and human safety of the state; or as political security concerned with the protection of the political order and the institutions of the state (Gregory Morgan Trujillo, 2019). Other influential ideas of Arctic security are also available, such as those focusing on environmental, human, or economic aspects of it. Conflicts in the Arctic are increasingly directed toward "common-pool resources" (CPRs) such as fishing grounds for cod and salmon in the North Atlantic and Bering Sea, also called atmospheres for pollution of the Arctic Ocean and beyond, and moreover oceans and seas for shipping and transport routes, the latter being favored by transnational and unilateral actions alike.

References:

1. Canada, Indian. (2009). Land-Based Pollution in the Arctic Ocean: Canadian Actions in a Regional and Global Context. *ARCTIC. 61*. https://doi.org/10.14430/arctic106.
2. Cinelli, C. (2011). The Law of the Sea and the Arctic Ocean. *Arctic Review on Law and Politics*, 2(1). https://doi.org/10.23865/arctic.v2.18
3. De Luca, Stefano. (2013). The Cartographic Reasoning in the Arctic. Modern Territorial Representations of the State in the Arctic Strategies of Norway, Russia and Finland. Master's Thesis- https://trepo.tuni.fi/bitstream/handle/10024/85063/gradu07096.pdf?sequence=1
4. Delgado Moran, J. J.; Mazurier, P.A. & Paya Santos, C. A. (2019). The race to securitize the arctic in a post-cold War scenario. *Revista de Pensamiento Estratégico y Seguridad CISDE*, 4(1), 59-64. http://hdl.handle.net/10272/17180
5. Delgado-Morán, JJ., Payá-Santos, CA., Sanz-Gonzalez, R. (2023). China's Borderless Expansionism. Could Be a Threat to International Security?. In: Cayón Peña, J., Ramírez, J.M. (eds) Threats to Peace and International Security: Asia versus West. Advanced Sciences and Technologies for Security Applications. Springer, Cham. https://doi.org/10.1007/978-3-031-28336-9_5D
6. Elliot-Meisel, E. B. (1999). Arctic Focus: The Royal Canadian Navy in Arctic Waters, 1946- 1949. The Northern Mariner Le Marin Du Nord, 9(2), 23–39. https://doi.org/10.25071/2561-5467.633
7. Epstein, Andrew (2011) "A New Approach to an Old Problem: Managing Fish Resources in the Beaufort Sea," *Chicago Journal of International Law:* Vol. 11: No. 2, Article 27. https://chicagounbound.uchicago.edu/cjil/vol11/iss2/27
8. Fayette, Louise. (2008). Oceans Governance in the Arctic. The International Journal of Marine and Coastal Law. 23. 531-566. https://doi.org/10.1163/092735208X331908.

9. Gorodentsev, A. (2019). The Not-So Frozen Conflict: Russia's Ambitions in the Arctic and their Implications for NATO in the Far North. UVM Patrick Leahy Honors College Senior Theses. 305. https://scholarworks.uvm.edu/hcoltheses/305
10. Herd, A. (2011). A Practicable Project: Canada, the United States, and the Construction of the DEW Line. Centre for Military and Strategic Studies. Occasional Paper Number 4. http://cmss.ucalgary.ca/
11. Janicki, Wojciech. (2012). Why Do They Need the Arctic? The First Partition of the Sea. *ARCTIC. 65*. https://doi.org/10.14430/arctic4168.
12. Johansen, T. (2007). Challenges and opportunities for the oil and gas sector in the Arctic - an indigenous people perspective. Master thesis. http://hdl.handle.net/11250/140889
13. Lasserre, Frédéric & Cyr, Alexandra. (2022). Geopolitics and Shipping Development in the Arctic. Ocean Yearbook Online. 416-439. https://doi.org/10.7146/politik.v20i3.97153.
14. Larsen Nonboe, M. (2011). Is Russia an Arctic Status Quo Power?. Tidsskriftet Politik, 14(1), s. 25-32. (8 sider)
15. Liz Rivas, L. (2021). Geopolítica hidro-hegemónica china en la cuenca del río Mekong. *URVIO. Revista Latinoamericana De Estudios De Seguridad*, (30), 108–120. https://doi.org/10.17141/urvio.30.2021.4770
16. Liz-Rivas, L, & Delgado-Morán, J.J. (2019). Women´s Media Narratives in Migration, en: "Los nuevos escenarios en las relaciones internacionales: retos, amenazas y oportunidades", Thomson Reuters/Aranzadi, pp. 283-297. https://doi.org/10.5281/zenodo.14559630
17. Lukin, A.. (2025). Russian Arctic: logic of foreign policy multi-vectorality and national interests of Russia. Diplomaticheskaja sluzhba (Diplomatic Service). 16-21. 10.33920/vne-01-2501-02.
18. Luque Juárez, J. M., Payá Santos , C. A., & Arenas Morales, F. (2023). Contexto de las políticas de seguridad ciudadana. *Cuadernos de RES PUBLICA en derecho y criminología*, (2), 69–82. https://doi.org/10.46661/respublica.8293
19. Mackowiak, Matthew Bernard, (2017). Arctic Flashpoint: The Russo-American Rivalry" Honors Theses. 111.https://ecommons.udayton.edu/uhp_theses/111
20. Martino, L. (2024a). Cybersecurity in Italy. Governance, Policies and Ecosystem. Springer Nature. https://doi.org/10.1007/978-3-031-64396-5
21. Martino, L. (2024b). International Law, State Sovereignty and Competition in the Digital Age. *Rivista di filosofia del diritto internazionale e della politica globale*, Vol. 21, Nº. 2, 2024. https://dialnet.unirioja.es/descarga/articulo/10098952.pdf
22. Mazurier, P, A., Delgado Morán, J, J, & Paya Santos, C, A. (2019). Gobernanza constructivista de la internet. *Teoría y Praxis*, 17(34), 107-130. https://doi.org/10.5377/typ.v1i34.14823
23. Mazurier, P. A., Delgado Morán, J. J., Payá-Santos, C. A. (2020). The meta-tragedy of the Commons. Climate change and the securitization of the Arctic region. En J. Ramírez & J. Biziewski (Eds.), Security and Defence in Europe. *Advanced sciences and technologies for security applications.* (pp. 63-74). Springer. https://doi.org/10.1007/978-3-030-12293-5_5
24. Mohammed, I. (2018). Examining the implications of international interests on Arctic governance structures in the wake of rapid change. Masters thesis, Memorial University of Newfoundland. http://research.library.mun.ca/id/eprint/13473
25. Molly Watson, (2009). An Arctic Treaty: A Solution To The International Dispute Over The Polar Region, *14 Ocean & Coastal* L.J. https://digitalcommons.mainelaw.maine.edu/oclj/vol14/iss2/8
26. Norchi, Charles H., (2017). The Arctic in the Public Order of the World Community, 22 *Ocean & Coastal L.J.* 5. https://digitalcommons.mainelaw.maine.edu/oclj/vol22/iss1/3
27. Payá Santos, C, A, Delgado Morán, J, J, Martino, L, García Segura, L, A, Diz Casal, J, & Fernández Rodríguez, J, C. (2023). Fuzzy Logic analysis for managing Uncertain Situations. *Review of Contemporary Philosophy*. Vol 22 (1), 2023 pp. 6780-6797. https://doi.org/10.52783/rcp.1132

28. Payá Santos, C, A, Delgado Morán J. J, & Mazurier P. A. (2018). Individual terrorism as a response to the distorted phenomenon of cultural identity. En J. Ramírez & G. Abad-Quintanal (Eds.), Cross-cultural dialogue as a conflict management strategy. *Advanced sciences and technologies for security applications.* (pp. 34-45). Springer. https://doi.org/10.1007/978-3-319-77231-8_4
29. Pedersen, T. (2019). Polar research and the secrets of the Arctic. *Arctic Review on Law and Politics*, 10, 103-129. https://doi.org/10.23865/arctic.v10.1501
30. Rodríguez González, V., Payá, Santos., C, A., & Peña Herrera. B. (2023). Estudio criminológico del ciberdelincuente y sus víctimas. *Cuadernos de RES PUBLICA en Derecho y criminología,* (1) 95-107. https://doi.org/10.46661/respublica.8072.
31. Sanz González, R, Luque Juárez, J, M.ª, Martino, L, Liz Rivas, L, Delgado Morán, J J, & Payá Santos, C, A. (2024) Artificial Intelligence Applications for Criminology and Police Sciences. *International Journal of Humanities and Social Science.* Vol. 14, No. 2, pp. 139-148. https://doi.org/10.15640/jehd.v14n2a14
32. Shvidenko, A., Klimont, Z., Kupiainen, K., Rao, S., Schepaschenko, D., Karklin, V., Yulin, A., & Strakhov, V. (2011). The effects of climate change and abatement policies on the value of natural resources in Northern Europe and in the Arctic Sea area. Prime MInister's Office , Helsinki, Finland. https://pure.iiasa.ac.at/id/eprint/9774/
33. Szpak, Agnieszka. (2017). Human Security of the Indigenous Peoples in the Arctic. The Sami Case. International Studies. Interdisciplinary Political and Cultural Journal. 20. 10.1515/ipcj-2017-0018.
34. Trujillo, Michael Gregory Morgan, "Arctic Security: the Race for the Arctic through the Prism of International Relations Theory" (2019). Dissertations and Theses. Paper 4823. https://doi.org/10.15760/etd.6699