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WHO OWNS ANTARCTICA: GOVERNING THE SOUTHERNMOST CONTINENT AT THE END OF TREATY SYSTEM

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ABSTRACT

The evolution of global security, accompanied by the desire of international actors to dominate globally, has effectuated changes to international territory and sovereignty. Applying these changes to a crucial inhabitable territory like Antarctica has increased the level of competition and power disparity amongst the active international actors in the region. This thesis argues that the current Antarctic Treaty is not strong enough to control future development in the region. Although the Treaty has been successful to date as there has been no sign of a prospective war in Antarctica, however the quest for domination by international actors can outgrow the rules and regulations of the current agreement, which ends in 28 years. This research determines and then analyses a range of key factors (namely, global security and political economy) in the context of a process that leads towards another Treaty on Antarctica. With necessity, these factors are to influence the future governance of the region. In a significant addition, a number of direct threats to the Antarctic Treaty-bound framework were discussed in the paper, presenting some recommendations to avoid an Antarctica-focused international conflict

Keywords: global security, political economy, governance, territory, the Antarctic Treaty.

LIST OF ABBREVIATIONS

CCAMLR	Convention on the Conservation of Antarctic Marine Living Resources
IAATO	International Association of Antarctic Tour Operation
IGY	International Geophysical Year
IPCC	Intergovernmental Panel on Climate Change
SCAR	Scientific Committee for Antarctic Research
UN	United Nations
WWII	World War II

INTRODUCTION

Being the only continent on the planet that is inhabitable, there is no original ownership of the Antarctica territory, but it has importance to humans. The territory has essential value as an untouched wilderness that provides an environment for unique species. In the context of global debate on climate change, it is also of immense significance as a thermostat for Earth's climate, not to mention about Antarctica's importance as a tourism centre, reservoir of mineral resources, and a research area for scientists (McLean 2015, 1).

Territory is a crucial notion in the field of International Relations (and, for that matter, diplomacy). Historically, world actors are inclined to harness territories around the globe to effectively involve themselves in the politics of the world, either by having allies or directly engaging in open conflicts to acquire the sovereignty of another state. Although claims of territory disappearance have emerged due to globalization and integration, it is clear that borders, territories, and territoriality still matter as backgrounds for understanding societal and political changes and conflicts (Paasi 2009, 218), especially when the discussed territory is unique and influences global security.

Between the 1940s and 1950s, the situation involving political provision in Antarctica became a matter of international interest. The three-dimensional territorial argument in the Antarctic Peninsula, the memorable non-concession of the United States to any claim over Antarctica, concerns to contain perceived Soviet interests, and in the context of the weighty shifts in international relations during the cold war, Antarctica undoubtedly gained attention and world leaders immediately attended to it, it was the beginning of the conventional security issues identified that developed into something more aggravating, not only in relation to Antarctica, but for the fear that in a new international situation, a problem in even marginal areas might set unfortunate precedents to cause general havoc (Hemmings *et al.* 2013, 4), the sense of consciousness and the fear of cost war gave birth to the Antarctic Treaty.

The area of Antarctica is governed by the Antarctic Treaty signed on 1 December 1959 in Washington, DC, and the document became effective on 23 June 1961 (Blackie 2016) with Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, South Africa, the United Kingdom, USSR and the United States as the founding signatories of the Treaty. The main purpose of the document was to regulate international relations concerning Antarctica by banning any military activities and ensuring that the region is free for scientific research. Article 4 of the Treaty states that "no acts or activities taking place while the present Treaty is in force shall constitute a basis for asserting, supporting or denying a claim to territorial sovereignty in Antarctica or create any right of Sovereignty in Antarctica" ('Treaty of Antarctica,' 1959, 3).

However, some signatories to the Treaty have taken what appears to be assertive steps. Argentina and Chile announced their claim to part of the continent by publishing an official map that includes their claim. Chile relocated some families to its Antarctic stations to make them residences and engage them in other commercial activities, which is an evidence of effectively occupying a territory, including the birth of a child (Pike 2017). Similarly, an Argentinian child Emilio Marcos was the first baby born in Antarctica at Argentina's Esperanza Station, and populating the territory with native-born citizens would be a preferred method used by a government to indicate its commitment and affirm authority over the territory (Kovalchik 2010).

The Antarctic Treaty has marked a fundamental milestone in the handling of Antarctica because it contains some mechanisms that have been effective in protecting the Antarctic territory (Lamus 2013). However, the effectiveness of these mechanisms is only applicable to the states that form part of the Antarctic Treaty. Since the number of signatories to the document has expanded as well as the number of sovereign countries in the world, interests in Antarctica are commonly understood as the interest of those signatories' states who are actively engaged in the region, however, these states are not the only states that have genuine security interest in Antarctica. Universal interests are grasped within the non-traditional catchments like human-security and environmental security (Hemmings *et al.* 2013, 8).

These recent developments mentioned above indicate how important it is for international cooperation with regards to Antarctica as well as the evident desire of the world's major powers to dominate and claim the territory. This thesis will set out to explore the factors that will impact the process of generating a new Treaty, while hypothesizing that global security mechanisms and political economy are to be determined as the dominating ones. This study will also offer

recommendations on how to prevent unforeseeable discord in the territory. To do this and defore discussing the findings, this research attempts to answer the following questions: 1. “What were the factors that influenced the creation of the Antarctic Treaty System?”, and 2. “What is the current *status quo* on Antarctica?”

In terms of methodology, both global security and political economy will be the two ‘providers’ of terminology for this research. To tackle the paper’s main claim, there is a need to investigate this claim by using the qualitative research method to capture and evaluate data from previous researches. A qualitative research method, according to (Khan 2014), is used to explore potential precursory and the factors that have not investigated. It was further explained by (Boodhoo and Purmessur 2009) as a method that indicates and investigates a phenomenon that involves the acquisition, analysis, and explanation of data. To be more precise, the type of qualitative research methods that will be used in this thesis are historiography, normative discourse analysis and process tracing. Historiography, according to (Kipgen 2017) is the method of writing history. Britannica encyclopedia further explained it as “the writing of history, especially the writing of history based on the critical examination of sources, the selection of particular details from the authentic materials in those sources, and the synthesis of those details into a narrative that stands the test of critical examination” (Vann 2019). Process tracing, according to (Collier 2011, 823) is an essential instrument of qualitative analysis. It is characterized as the deliberate assessment of evidences selected and examined considering research questions and speculations presented by the examiner. Process tracing can contribute definitively both to depicting political and social marvels and to assessing causal cases.

The aim of this thesis is to determine a range of future steps in regards of revising the Antarctic Treaty, and in order to effectively do that, it is ideal to comparing the past and the present state of the treaty to determine if the factors that influenced the creation of the treaty will be similar to the factors that will influence the future of the treaty. The acquired data would be analyzed and explained by observing past and present occurrences in Antarctica and how global security and political economy will be the two dominant factors that will define the governance in Antarctica in the nearest future.

Antarctica is a delicate study in international relations. Many studies were dedicated to understanding the existence and importance of this territory, and the majority of these studies focused on the environmental importance of Antarctica. However, the most important thing to territories in international relations is a stable government. Without a stable government, the territory itself will be less valued. This study is, in a way, futuristic and will focus on forecasting the future governance of this territory. This study will identify some threats to the Antarctic Treaty that have helped governed this territory peacefully to date. Also, this study would propose achievable solutions to continue maintaining peace in the territory.

1. HISTORICAL PRE-CONDITIONS OF THE ANTARCTIC TREATY

This part of the research will be divided into four sub-chapters for this thesis argument to maintain its clarity, and these four sub-chapter will cover the history of Antarctica from the aspect of normative, geography, political, and economy of the continent.

1.1. The International geophysical year

This sub-chapter will focus on the international geophysical year. It was the events from this period that served as the foundation on which the Antarctic Treaty was created. To understand the origination of the Antarctic Treaty. It is important to discuss the international geophysical year. In the mid-century, the polar landmass was still substantially unknown and without mapping. The first sets of researchers that graced the continent kept their discoveries secret (Belanger 2004, 483). During the profundities of the Cold war, countries and characters from around the world figured how to interface their self-interests, contentions, doubts, and fears to a noble common purpose to the agreeable quest for physical knowledge of earth (Belanger 2010, 1), which led to International Geophysical Year (IGY). Scully, (2011, 1) further explained that the IGY affirmed the remarkable opportunities for scientific research of the comprehensive importance offered by Antarctica and the importance of global collaboration to make the most of those opportunities.

This new-found cooperation catalyzed creating an international council for governing international sciences in Antarctica. According to Gascoigne and Collett (1987, 88), eleven nations (Argentina, Australia, Belgium, Chile, France, England, Japan, New Zealand, Norway, the USA, and the USSR) set aside their disparities and consented to cooperate intently on research programs in Antarctica. An exceptional committee was created to co-ordinate the exploration programs. This committee later became the Scientific Committee for Antarctic Research (SCAR), despite everything it continued its job of planning and collaboration.

The IGY, an 18-month event that ran from 1 July 1957 through to 31 December 1958, was a strong, composed international exertion to understand the earth and its environment. It was reported that 66 nations participated and the two extraordinary questions of the earth around then, one was Antarctica, and the other was space (Belanger 2004, 483). At that time, Antarctica was not something new anymore. However, researchers and the role of the IGY had usually gone with early Antarctic investigative exploration. Their perceptions and examinations, however, were weak at large, although the information base was extremely maximized. However, so much stayed obscure: What amount of ice was there? How immense, how profound? How did Antarctic cold impact worldwide climate trends? How did solar and climate development inter-change with the southern magnetic and geomagnetic poles? (Belanger 2010, 1).

In the quest to find answers to these questions, the countries put their differences aside to achieve this goal. The United States and the Soviet Union assumed significant responsibilities during the IGY, despite their political differences. The United States assembled McMurdo station and built the Scott-Amundsen Base at the South Post. While the Soviet Union built an enormous station, Mirny, close to where Mawson's western gathering of 1911 was situated, from there, they set up a much smaller base, Vostok, at the south Geomagnetic pole, around 900 kilometers from the coast (Gascoigne and Collett 1987). The creation of these stations would make the Antarctica territory more accessible, with fast changes in innovation and coordination, stimulated to some degree by the Second World War (WWII), opened previously restricted chances to seek geophysical and different sciences in the extraordinary circumstance of Antarctica (Scully 2011, 1).

According to Belanger (2010, 1), by the 1950s, cutting edge innovations expanded researchers' scope: radar-tracked and rocket-propelled weather balloons; new and improved aurora-revealing spectroscopes, ionosphere sounders, and cosmic ray recorders; and electronic computers. Researchers craved to apply these apparatuses to unravel the hidden secrets of the ice. At no other time had the researchers of the world shared their data and ideas so openly. The McMurdo base was an example of effective international collaboration. Meteorologists from Argentina, Australia, France, New Zealand, South Africa, and the Soviet Union utilized the offices there. John Mayston Béchervaise (1987), an Australian writer, commented that he was welcomed at the Soviet Union, Australian, New Zealand, French, and American bases and was urged to inspect their scientific work.

In conclusion, it was obvious that the initial framework for the Antarctic Treaty was derived from events before and after the IGY. Before IGY, there was no international cooperation because of the wars, and the information regarding Antarctica was limited because discoveries were kept secret. After the wars and during the IGY, global cooperation emerged as countries put their differences aside to explore and fully understand how valuable the Antarctica continent was.

1.2. The historical geography of Antarctica

This sub-chapter will focus on the geography of Antarctica. It will help in understanding the historical, geographical situation of the continent. Seventy-five percent of the Earth and the immeasurable environment of Space where Earth is located isn't possessed: they are nobody's property. Un-claimed spaces make up a greater amount of the Earth's surface than the possessed ones. This statement might appear defective because the general assumption is that the whole of the earth has been distributed to state territory (Collis 2017).

According to a geographic source (‘Antarctic environment’ 2003), the land area of Antarctica is covered by ice that is up to 4km thick. The highest point is roughly 4 kilometers above the ocean level. There are minimal uncovered rocks and, although years back, and there was overwhelming vegetation. Today, the main plants that develop are little mosses and lichens. Antarctica is the most elevated, driest, windiest and coldest landmass on the planet. The lowest temperature recorded at any point on earth was −89.2°C at Vostok, in the Australian Antarctic Territory, in 1983. Antarctica is the Earth’s southernmost continent, containing the geographic South Pole situated at Coordinates 80°S 90°E. The Antarctic is situated at Coordinates 82.8628° S, 135.0000° E, and it has an absolute territory of 14,000,000 square kilometers (5,400,000 square miles), which makes Antarctica the fifth-biggest continent in landmass after Asia, Africa, North America, and South America separately (Abubakar 2016, 2). The continent also stores about 90% of the world’s freshwater enough to raise the worldwide ocean level by 60 meters, if all the ice is liquefied. Ice covers for mostly everything, and life on a couple of dispersed patches of uncovered land is ruined. Just crude types of vegetation can endure lichen, mosses, liverworts, and green growth (Dingwall 1998).

From the moment the first researchers set foot on Antarctica more than 100 years ago, the disclosures made there have propelled our scientific awareness on the Antarctica, the world, and the universe, however, there is still considerably more to learn (National Research Council 2011). A material issued by the National Research Council (2011) explained that organizing a scientific expenditure in Antarctica is significantly testing due to its unfavorable weather conditions. Enormous assets are required to set up and maintain the facilities that are expected to give heat, light, transportation, and drinking water, while simultaneously limiting contamination of the earth and guaranteeing the security of scientists. In conclusion, there was limited information regarding the geography of Antarctica until scientists around the world agreed to work together to discover how vital and useful the Antarctic cloud be.

1.3. The historical battle for power in Antarctica

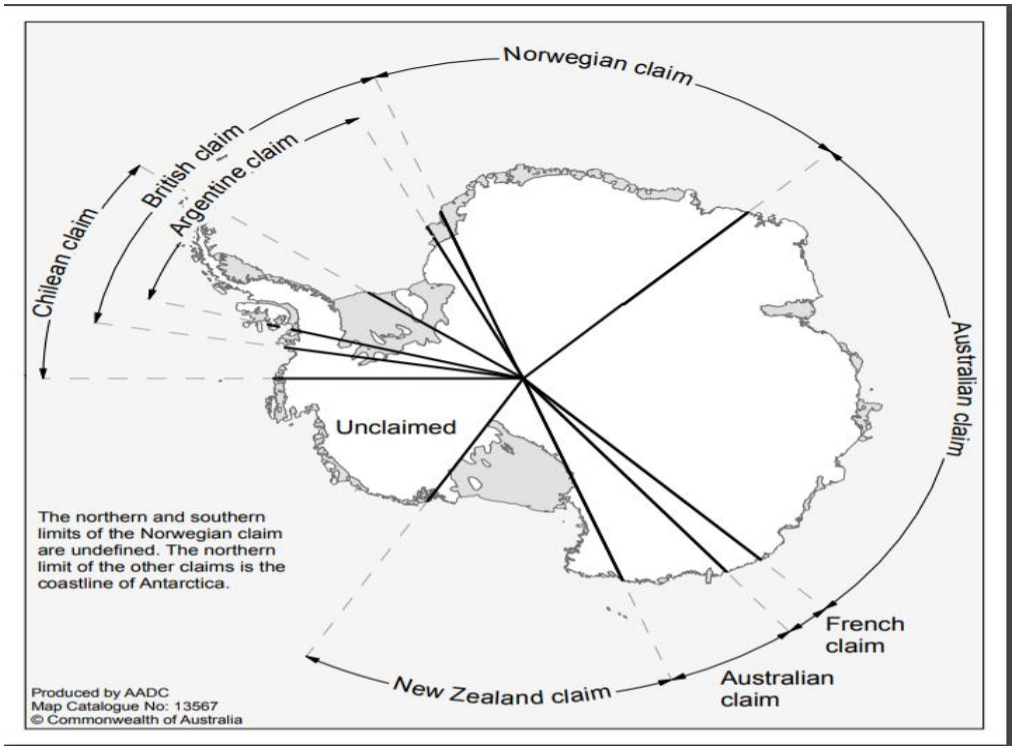

Figure 1. Map illustrating the claim over Antarctica.

Source: Australian Government (Department of the Environment and Energy) 2018.

This sub-chapter will focus on the historical political situation before the Antarctic Treaty existed. The map above, the general assumption will be that only these seven countries (Chile, Britain, Argentina, Norway, Australia, France, and New Zealand) should be involved in the governance of

Antarctica since they are countries with territorial claims in the continent. However, other prominent countries like the USA and the former USSR did not admit these declarations, maintaining their view that the whole Antarctica is a non-sovereign territory. Regardless of the universal territorial law of effective occupation, which states that a claimed land cannot be totally occupied until colonized before 1950, Antarctica stayed vacant (Collis and Stevens 2004).

The factors that influenced the USA's interest in Antarctica were military, diplomacy, and science; all were politically savvy. They cleverly turned the non-political agenda of the IGY to their interests. Eventually, they served the interests of humanity along with its national interests, and these three factors added few south-polar experiences to the IGY (Belanger 2004, 483). Joyner, (2011) further explained that the United States' policy on Antarctica historically and recently has entertained some primary national interest preferences which have secondary interests.

The bureaucratic stand of the United States is that ice-capped area within Antarctic sector claims do not involve lawfully-owned sovereign area by their claimant governments; hence, they do not qualify as a legit right of sovereignty or state ownership. This outcome is found in the belief that the claimant government cannot effectively exhibit the requirements to occupy the territory, which is the essential criterion for determining sovereign ownership (Joyner 2011, 21-22). This United States ideology for Antarctica created disagreement to an extent with the USSR.

In retaliation to the United States 1948 proposal that Antarctica should be governed by the group of its territorial claimants and the United States, the USSR declared their refusal to acknowledge any Antarctica government that did not include USSR and described the United States policy as camouflage for United States imperialists aim to own Antarctica. Acting according to what the United States did, USSR did not claim any part of Antarctica but indicated that they have the right to do so in the future while rejecting all present territorial claims in Antarctica. The "Cold War" inspired USSR involvement in Antarctica. USSR build research stations for political, military, and scientific endeavors in Antarctica throughout 1950s (Collis and Stevens 2004).

However, For IGY exercises to continue in Antarctica, its organizers needed to manage the political matters of Antarctica in the mid-twentieth century, categorically the potential for global war. This potential war emerged from disagreements regarding regional power in Antarctica and second from the ideological and military rivalry between the United States and its allies and the Soviet Union and its allies, which arose from the cold war (Scully 2011,30). To further explain this,

Belanger (2010, 226) indicated that there were two profound outcomes of WWII that influenced the unfolding of IGY. The first was the quick postwar plunge into a strained and alarming cold war: for instance, there was a split in Europe caused by the Iron Curtain, the widespread of communism in Asia and particularly, the nuclear weapon competition. The second outcome was that scientists became prominent with regards to politics due to the role they played with their invention of nuclear weapons during the war. However, this war increased the need for the Antarctic Treaty to be created. Objectively, the agreement aimed at establishing peace among the nations involved in developing the continent, while promoting a kind of international unity (Blay 1992). In conclusion, the historical rivalry between the USSR and the United States propelled the creation of the Antarctic Treaty, and this treaty help maintains peace in Antarctica to date.

1.4. The historical economic condition of Antarctica

This sub-chapter will focus on the historic economic condition of Antarctica. Antarctica, as a territory, does not support commercial activities, which can translate to economic profit. Hence, it will be difficult to quantify the economic value of Antarctica historically. However, human endeavors are dependent on the environment. Common human needs like medicines, clothing, light, food, heat require raw materials from the environment (Giddings et al. 2002).

The discovery of the hole in the ozone layer proved how scientific research in Antarctica is economically important. An article by Joseph Farman, Brian Gardiner, and Jon Shanklin in 1985 shook the stratospheric science world. The material announced the 30% drop in the level of the ozone layer over Antarctica. This reduction was astonishing and unthinkable with regard to the geographic region and seasonality. The reduction happened yearly, and during spring, it happened in the lower stratosphere of Antarctica, it was reported that the level of the depleted ozone was as large as entire North America and it was immediately named the ozone hole after its discovery (Douglass, Newman and Solomon 2014).

According to Cawley (2015), environmental issues in politics were not taken seriously until 1985 when a hole was discovered in the ozone layer. After this discovery, the environmental issue became a regular topic in politics. It led to the creation of the Montreal Protocol, which was a treaty created to protect the ozone layer from harmful substances. Forty-six countries signed the treaty in 1987, and it became the first United Nations (UN) treaty to attain universal ratification.

The countries that signed the treaty had reduced the consumption of all harmful chemicals highlighted in the treaty by 98% in 2010. Some signatories to this treaty also offered environmental donations, including supporting organic farms, planting trees, and investing in zero-emission vehicles in a bid to maintain the achieved result (Cawley 2015).

In conclusion, the economic benefit of Antarctica was enormous in the past because it helped discovered the hole in the ozone layer. The early detection of this hole helped prevent a natural disaster from happening. The economic benefit of the scientific research in Antarctica is intangible, but when converted to physical-economic resources, the cost of not exploring Antarctica will be an unpayable debt. When the exploration of Antarctica started, there was limited information about the territory. However, with time and continuous research, powerful countries in the world increased their interest in Antarctica, and the only way to keep the territory peaceful was to create the Antarctic Treaty. This process was influenced by these factors, the security of the world, and the comfort of humans.

2. WHAT IS THE CURRENT STATE OF THE ANTARCTIC TREATY

This part of the thesis will be divided into four sub-chapters, like the previous chapter described the current state of Antarctica from the perspective of normative, geography, political, and economy of the continent. However, this chapter will take a different approach by analyzing other researches regarding Antarctica. By doing this, it will be easy to compare the past and the present state of the treaty when analyzing the data in the next chapter.

2.1. The Antarctica discussion in the United Nations

This sub-chapter will focus on the recent discussion in the UN regarding Antarctica. Since the inception of the UN, there was a constant request for the UN to involve itself in Antarctica. Simply because there was no universal agreement to this question, who owns Antarctica, and it was causing attention amongst the claimants of the territory as well as between the United States and the Soviet Union (Beck 2017). The Antarctica question was mentioned at the general assembly of the UN on 29 September 1982 by Mahathir Bin Mohamad, the Malaysian Prime Minister. During his speech, he stated that the UN should focus on Antarctica because it is the property of the international community (Hayashi 1986).

The following year 1983, members of the Treaty of Antarctica were preparing to examine the potentiality of mining in Antarctica. The Malaysian Prime Minister again mentioned the Antarctica question, but this time he suggested that Antarctica should remain untouched and conserved as a natural legacy of humanity. His proposal was not accepted, and it was met with negative criticism by members of the Antarctic Treaty because Malaysia was not a signatory (Jayaseelan 2019).

Fast forward to 2005, during the UN 60th anniversary, the organisation revisited the Antarctica question which is a topic raised by Malaysia in 1983 with the aim of providing an effective solutions to the issues in Antarctica, hence creating the foundation for Antarctica discussion in subsequent UN assembly (Beck 2006). It can be noted that this report came as a result of Malaysia's consistent complain over the years from 1982 to 2002. The complaints were centered around many topics but to mention the main topic: The supremacy of the claimant parties in the Treaty system, the process of making a decision in Antarctica through the treaty is not transparent, democratic, and not accountable, Antarctica environment must be conserved indefinitely, prevent Antarctica from resource exploitation under the excuse of research and UN should take responsibility for Antarctica administration (Hamzah 2010).

2.1.1. Issues raised in the Antarctica debate

The United Nation debate on the question of Antarctica raised some issues which were divided into three categories: Adequacy of the treaty regime, territorial claims of sovereignty, and proposed management of Antarctica. Territorial claims on the continent, for example, an area claimed by Chile, the United Kingdom, and Argentina, partly overlap. Claimant countries have appealed occupation, discovery, and have even started exercising administrative power as an establishment of claims in international law (Vicuna 1994). During a recent debate, several developed nations denied the cogency of the claims in the sense of decolonization. Taking into consideration the territorial claim, Pakistan said that this claim was like a reminder of the colonial era. The Philippines and Pakistan suggested the law of sea under the UN, and they said that the jurisdiction of the International Seabed Authority should cover the sea area concerned (Hayashi 1986).

Adequacy of the treaty-bound regime includes the Question of South African participation in the research in Antarctica. Preservation of the environment, Antarctica environment needs to be well taken care of or preserved since it is extremely fragile. The secret of sharing of information discussed in meetings, especially if it is about the mineral resource. Lastly, it is the "exclusivity of the treaty" (Simma B. 1986). The third is the proposed international management of Antarctica. Some parties proposed the UN or just any other international body to take management of the continent (Hayashi 1986).

These debates of Antarctica in UN resulted in emotional and political arguments. Most criticisms, mainly during the early stages of the debates was as a result of lack of enough information and misunderstanding concerning the Antarctic Treaty system and Antarctica. The study of the Secretary-General helped to clarify these issues when the second debate was held. These UN debates created an opportunity for scholars to understand and learn more about the Antarctic Treaty (Triggs 1985). The discussion regarding the question of Antarctica will continue in the UN with the constant change happening around the world.

2.2. Climate change in Antarctica

This sub-chapter will focus on the climate change in Antarctica. A reputable source stated that the climate has changed impressively naturally. However, in the last 50-100 years, these changes caused by global warming, have been greater and happened quicker than any changes in human history. The article further explained that the Intergovernmental Panel on Climate Change (IPCC) finds that it is very likely that human activities been the prevailing reason for the quick warming seen during this time and that environmental change presents critical difficulties for our lifestyle on Earth (‘Climate change’ 2001).

A climate report by IPCC (2019), indicated that the pace at which the sea level rise has increased in recent decades, and this is because the water deposit from ice sheets in Greenland and Antarctica increased in addition to the input of melting water from glaciers and the enlargement of warmer seawater. The report further stated that the new appraisal has likewise modified the anticipated contribution of the Antarctic ice sheet to ocean level ascent by 2100 on account of high outflows of greenhouse gases. The wide scope of ocean level projections for 2100 and beyond is identified with how ice sheets will respond to warming, particularly in Antarctica, with significant vulnerabilities remaining.

When this increase reaches the tipping point, stopping the sea level from rising will be impossible because the rate of the raise will be higher than formerly predicted, scientists from Georgia Institute of Technology, Nasa Jet Propulsion Laboratory, and the University of Washington stated after utilizing computer models to determine the impact of the ice sheet’s vulnerability on the pace ice it sheds (Cockburn 2019). Waleed Abdalati, a scientist at the University of Colorado, stated that with evidence that huge change can occur in a short time indicated that the planet earth is capable

of change rapidly and significantly (Rahim 2019). Identifying the modification that will occur in the Antarctic environment over the next century has consequences for policymakers, and It will create more scientific problems. The climate models that are currently used for surveying the future climate change are complex because they are stimulators, which means they as realistic as it practical, and this procedure is important in impacting climate change (Turner *et al*. 2014).

The 28th consultative convention for the Treaty of Antarctica took place in Stockholm in June 2005, the negotiation was intensive, and it births the Annex VI to the Madrid Protocol (Environmental protection to the Antarctic Treaty). The main purpose of this annex is to make the regimes in Antarctica take preventive measures to reduce the probabilities of environmental emergencies. In case there is a need for an environmental emergency, the regime whose action is responsible for the emergency must take effective, responsive action (Johnson 2006).

2.3. The rise of China

This sub-chapter will focus on the current political situation in Antarctica with regard to China's interest in the continent. China became a member of the Antarctic Treaty System after signing in 1983 and achieving consultative status with the right to vote, and it was formalized at the 1985 Antarctic Treaty consultative meeting. It is a requirement under international law that China backs the treaty of Antarctica, but China cannot claim any part of Antarctica (Liu 2019). China's crucial integration to the treaty system earned different feedback, particularly from New Zealand and Australia, who thinks the Chinese expansion is a threat to them (Hunter 2019).

Since the Chinese economy is the second-largest economy, it is normal for China to be attracted to every section of the earth, either Ocean, Space, Antarctica, or the Arctic. China's interest with the combination of Science, shipping, bioprospecting tourism, and national ego influenced their actions in Antarctica, which is constructed to ensure China's continuous involvement in Antarctica. By doing this, they will not miss out on any future opportunity that Antarctica offers (Liu 2019). Anne-Marie Brady, a New Zealand researcher, stated that the Chinese government should communicate their aim and critical interests in Antarctica like the rest of the claimant countries did in the past (Hunter 2019). An example that indicated China's interest to be a polar superpower was the adventure of the Chinese ice-breaker Haibing 722 in early 2017. In addition

to that, China has built four research stations, which made them the fastest country to have multiple research stations amongst the 53 countries in the Antarctic Treaty System (*ibid*).

The world is anxious about China's emergence, especially countries that have been leaders of the polar policies, they fear that China's emergence might cost their roles in the international decision-making process and they are not comfortable with that (Noi 2018). According to Liu (2017), it was evident that China will not disregard the Antarctic Treaty System in the nearest future. China might not have announced its policy for Antarctica. However, they have publicly reaffirmed that the balance of the Antarctic Treaty system is their main priority, and it is stated in the white paper that they published. Nevertheless, the Antarctic Treaty system must be strict and evolve in the Anthropocene generation because China has a massive role in the process of changing the Antarctic Treaty system to benefit its national interests.

China has supported the Antarctic Treaty system thus far. However, both New Zealand and Australia are not comfortable with China's military actions in Antarctica because they might destabilize the historic peaceful state in Antarctica and the Asia Pacific. Also, they fear that China's insistent crave for resources will make China go extreme in exploring Antarctica. Australia and New Zealand, as American allies, will defend Antarctica from China, the emerging global superpower, and Russia, a country that is hungry for more. The competition amongst allies appears to have begun inside the scenery of a future global conflict. Which country will eventually be the polar superpower? It is a question without a precise answer (Hunter 2019).

2.4. The present economy of Antarctica

This sub-chapter will focus on the economic benefit of Antarctica. Exploration of Antarctica in the XIX century was economically motivated directly or indirectly. The abuse of natural resources has focused on the coast of the Antarctic oceans, and none has yet to happen on Antarctica mainland (Ford, 2019). Fishing on the coast of Antarctica and tourism, industries that are based abroad, contains economic activities that are limited on Antarctica, while scientists at a couple of dispersed offices make up Antarctica's little transitory populace ('The Economic Activity of Antarctica' 2019).

2.4.1. Tourism

Antarctic Tourism started in 1957. The majority of tourism was a small exploration that was under the supervision of the Antarctic Treaty and Environmental Protocol. It is self-managed by the International Association of Antarctic Tour Operation (IAATO) ('The Economic Activity of Antarctica' 2019). IAATO, an institution that records the visits to Antarctica, and the collaboration of 100 travel institutions, run it. They stated that the number of tourists in Antarctica between 2016 to 2017 is 44,376, a number that has continuously increased since 2011. When compared to the early 1990s stats of 5,000 each year, it is clear that tourism in Antarctica is now a lucrative business (Abedi 2018).

Table 1: Visitors to Antarctica in 2016-2017 based on their nationalities.

Country	Number of Visitors
United States	14,566
China	5,286
Australia	4,451
German	4,151
United Kingdom	3,836
Canada	1,925
France	1,806
Switzerland	1,034
Netherlands	838
Rest of the world	6,474

Source: Global News, (Abedi 2018)

The majority of the tourist's activities while in Antarctica are an excursion to functioning research stations and wildlife sites, camping, and hiking. Tourists are always guided by professionals that include historians, geologists, ornithologists, biologists. An Antarctica trip costs between 3000 to 40000 USD, depending on the quality of transportation, housing, and the activities that the tourist wants. The expensive package includes air transport and visiting the South Pole (Zhou 2018).

Inconclusion, the advantage of controlled tourism is that visitors will have good knowledge and appreciate Antarctica. The wildlife, mountains, beautiful landscapes, and the cold weather of Antarctica makes it a desirable destination for tourist regardless of its location on earth ('Tourism Overview' n.d.).

2.4.2. Fishing

The guideline of Antarctic fisheries is the responsibility of the Convention on the Conservation of Antarctic Marine Living Resources CCAMLR. A feature of the Antarctic Treaty System established in 1982 (Ward n.d.). There are specific species of fish called krill, and it the most popular in the Antarctic fishing business. Krill fishery started in Antarctica around the 1970s, and it was off the chat in the late 1980s with a yield of 500,000 tons per year, and these were catches made by the USSR and Japanese vessels. However, there was a decrease in the number of krill fish catches to 100,000 tons per year in the mid-1990s. The interest in krill fishery has reemerged due to the increased demand for fishmeal. Two hundred ninety thousand tons of krill were caught in 2014 on the South Atlantic Ocean. Also, the number of the vessels for Krill fishery in Antarctica increased to 12, and Chile, Norway, Korea, China had the highest percentage of the krill fish that was caught (‘Fisheries in the Antarctic region’ n.d.).

The regulation of the fishery business is different in Antarctica. The fish are strictly protected, and it is different when compared to other parts of the world, not only are the fish species considered, but the harmful effects of continually fishing that species are also taking into consideration. All fishing boats must report their harvest so that the stock taken can be inspected (ward n.d.). In conclusion, the economic situation in the Antarctica has changed over the years. Tourism and fishing in Antarctica are the catalysts for the economic growth out of the continent.

3. DISCUSSING THE PROSPECTS FOR ANTARCTIC TREATY

The discussion part will focus on comparing past and present events in Antarctica and show how the factors that will impact the process of generating a new Antarctic Treaty, direct threats to the process and how unforeseeable discord can be avoided in the region in the future. The discussion part will focus on the comparing the past and present through the four areas of normative, geographical, political and economy to show what factors influenced the creation of the Antarctic Treaty, what the current state of the treaty is today, and seek to show what that might imply for the process of generating a new Treaty on Antarctica. It will also seek to show if global security and political economy are the main factors in impacting the process of generating a new Antarctic Treaty.

3.1. Normative

When it comes to the past for the normative part of the discussion, events that happened in the period of the IGY laid foundations for the creation of the Antarctic Treaty. The International Geophysical Year came about as countries and characters from around the world came together to interface their self-interests, contentions, doubts to form a noble common purpose to the agreeable quest for physical knowledge (Scully 2011, 1). The International Geophysical Year affirmed the existence of remarkable opportunities for scientific research and the comprehensive importance of Antarctica, and the need for global collaboration to make those opportunities happen. It is this cooperation that led to the creation of council for governing sciences in Antarctica with eleven members at the start and an exceptional committee to coordinate the exploration programs which later became the Scientific Committee for Antarctica Research (SCAR). During the International Geophysical Year which took place for eighteen months, the United States and the former Soviet Union assumed significant responsibilities, despite their political differences by building stations and bases on Antarctica. These bases provided space for scientists from different nations to come together and collaborate on different scientific projects. Hence, from the past, we can see that the

International Geophysical Year provided a framework for international cooperation on issues to do with the territory of Antarctica which led to the creation of the Treaty of Antarctica.

When it comes to the present for the normative part of the discussion, Antarctica has been one of the issues of contention at the UN as there is no universal agreement established on who owns Antarctica. Malaysia brought the issue in 1980s arguing that Antarctica should remain untouched and conserved as a natural legacy for humanity. However, his proposal was met with negative criticism from the members of the Antarctic Treaty (Jayaseelan 2019). This showed that the process of generating a new Antarctic Treaty in the future would be no easy goal. The UN in 2005 revisited the Antarctica question raised by Malaysia in the 1980s and a couple of issues were raised that sought to challenge the adequacy of the treaty regime, territorial claims of sovereignty, and the proposed management of Antarctica. Despite the political and emotional arguments that the debates created, they also created an opportunity for scholars to learn and understand more about the Antarctic Treaty, and this can be a good influence on the process of generating a new Antarctic Treaty in the future.

3.2. Geography

When it comes to the past for the geographical part of the discussion, Antarctica is the Earth's southernmost continent, containing the geographic South Pole and it is the fifth-biggest continent in landmass after Asia, Africa, North America, and South America separately (Abubakar 2016, 2). It stores about 90% of the world’s fresh water and it is of great significance and value to our world. However, there was limited information regarding the geography of Antarctica until scientists agreed to work together during the International Geophysical Year. This has meant that few countries have been able to make a proper claim on Antarctica in the past, but with the growing number of countries, it will be a key territorial ground in the future when the current Antarctic Treaty expires. Its location, and importance will be one of the factors that will influence the process of generating a new Antarctic Treaty in the future.

When it comes to the present for the geography part of the discussion, the focus is on climate change and the role the Antarctica plays in that. Since Antarctica is mainly covered by ice, and global warming is on the rise in our world today, there are worries about the amount of ice that Antarctica will be shedding in the future and how that will impact on sea levels. After the 28th

consultative convention for the Treaty of Antarctica that took place in Stockholm in 2005, negotiations led to the birth of the Annex VI to Environmental protection to the Antarctic Treaty (Johnson 2006). This addition ensures that all regimes in Antarctica at present take preventive measures to reduce the probabilities of environmental emergencies (*ibid*). This shows that because of Antarctica's geographical location, and the amount of ice that it holds at the moment, its geography will be one of the factors that influences the process of generating a new Antarctic Treaty in the future. This is because it plays an important role when it comes to issues of climate change.

3.3. Political

When it comes to the past for the political part of the discussion, the focus is on the battle for political power in Antarctica. According to Collis and Stevens, seven countries (Chile, Britain, Argentina, Norway, Australia, France and New Zealand) are the countries with territorial claims on Antarctica and should be involved in its governance (Collis and Stevens 2004). However, the major powers at the time (United States and the USSR) do not accept these territorial claims and view Antarctica as a non-sovereign territory. The United States' interests in Antarctica were military, diplomacy, and science, and it transformed the nonpolitical agenda of the International Geophysical Year to meet its interests. The USSR also built research stations for its political, military and scientific endeavors throughout the 1950s. Both the United States and the USSR had disagreements on how to define ownership of Antarctica, and this led to political tension between the two which culminated in the creation of the Antarctic Treaty that helped maintain peace in Antarctica and prevent any unforeseen discord there.

When it comes to the present for the political part of the discussion, the focus is on the emergence of a new global power in China and how that influences the process of generating a new Antarctic Treaty. China became a member of the Antarctic Treaty system in 1983, achieving consultative status with the right to vote, finally formalized in the 1985 Antarctic Treaty consultative meeting. According to Liu, China is obliged under international law to back the Antarctic Treaty but not claim any part of Antarctica's territory (Liu 2019). China announced its Arctic Policy in 2018 by publishing white paper to show its commitments to honor the sovereignty of the Arctic countries (Hunter 2019). However, this did not go down well with some Arctic countries particularly New Zealand and Australia who view China's expansion as a threat to them (*ibid*). This view of China as a threat due to its growing economic and military influence shows that global security will play

a very important role when it comes to influencing the process of generating a new Antarctic Treaty, as most countries will seek to have solution that's only fair, but also enhances their security from the larger nations that are stronger militarily. The political situation also presents threats for a way incase nations fail to agree amicably on how to proceed in terms of sovereignty and ownership of Antarctica. This can be solved by bringing parties with various interests in the region, through the UN and forging a path together forward that benefits all parties for example, as was the case during the International Geophysical Year.

3.4. Economy

When it comes to past for the economy part of the discussion, the focus is on the historic economic condition of Antarctica. Antarctica does not support commercial activities that can translate into economic profit, hence, making it a challenge to quantify its economic value historically. However, humanity thrives on the environment, and things like medicine, clothing, light, food, and heat require raw materials from the environment. This makes it essential for the efficient exploitation of resources in Antarctica in a way that protects nature and doesn't lead to creation of new natural disasters. The discovery of a hole in the ozone layer proved that scientific research in Antarctica is economically important, as it lays the foundations for the future ways of protecting our world. The discovery of the hole in the Ozone layer also brought about serious consideration of environmental issues in the political world which have an intangible economic benefit to our world (Cawley 2015). More scientific research on Antarctica in the future will bring about more benefits that are beneficial to an economy that is sustainable in our world, hence, this is one of the factors that will impact the process of generating a new treaty as some countries will love to lead the way.

When it comes to the present for the economy part of the discussion, the focus is on the benefits that exploration of the region will bring to the world and how that will impact on the process of generating a new Antarctic Treaty. This paper has shown that tourism and fishing will be the major industries as the region becomes more accessible to the rest of the world. Since these activities bring in vast amounts of incomes, nations will want to control of the activities, so that they can collect the revenue that comes through them. Hence, this will be a major factor in influencing the process of generating a new Antarctic Treaty in the future.

CONCLUSION

In conclusion, this paper has shown that through the four areas of normative, geography, political and economic how the process of generating a new Antarctic Treaty will be shaped by comparing the past and present events in relation to Antarctica. Through this, the paper has shown that global security and political economy play a very important role in shaping interests for the region, and hence, they play a very important role in the process of generating a new Antarctic Treaty in the future. With the rise of China both economically and militarily, new challenges and threats arise, and a future without unforeseeable discord can be created by having the UN play a significant role in mediating talks towards the creation of a new treaty. Climate change, the fishing and tourism potentials of Antarctica also present issues that will significantly impact the future creation of a new Antarctic Treaty.

Applying historiography and process tracing in this research was essential to understanding the correlation between the present and the history of the Antarctic Treaty. Historiography was used to understand the preexisting conditions of the Antarctic Treaty while processing tracing was used to analyze it links to the present state of the Treaty by thoroughly examining the research questions. Historically, Antarctica was a new subject to the world and the desire to understand it birth international cooperation. However, with knowledge comes great responsibilities, knowing the value of Antarctica has created a huge responsibility for global actors in terms of maintaining peace in Antarctica and these responsibilities have been fulfilled to a greater extent by having the Antarctic Treaty. With the Treaty close to its expiration, there is a need to find and implement a new agreeable updated version of the Treaty to prevent future discord in Antarctica.

In the process of conducting this research, it was discovered that most of the research that was done on Antarctica was mainly on environmental issues on the continent. In contrast to that, this paper is very important in understanding the governance of Antarctica by proving the importance of political economy and global security to the bureaucracy in the region. This research should help to enlighten scholars who are interested in the subject of Antarctica and encourage them to view the region beyond its environmental debates. This research has also successfully incorporated the environmental issues in Antarctica has one of the factors in the context of global security. The environmental issues mainly climate change was examined to identify its historical impact in governing Antarctica and its important role in generating a new Antarctic Treaty in the future. This paper also highlighted the UN's lackadaisical attitude towards Antarctica issues and the need for the UN to priorities it. With this paper more people will understand how the Antarctic Treaty was created, the need for maintaining peace in Antarctica and why the UN should be rising to the challenges of the Antarctic Treaty.

Finally, further research can explore how this new treaty will deal with the issues of sovereignty, and how to divide Antarctica in a way that is equitable to all nations of the world. In addition to that, these studies should also focus on how UN can act as neutral mediator by taking the Antarctic Treaty as one of its main priorities.

LIST OF REFERENCES

Abedi, M. (2018). Antarctica keeps attracting visitors — and it may be 'last-chance tourism'. Retrieved 23 December 2019, from https://globalnews.ca/news/4072700/antarctica-tourism-climate-change/

Abubakar, B. (2016) Arctic and Antarctica Regions: Position, Environment & Challenges.

Antarctic and subantarctic maps. (2018). Retrieved 23 November 2019, from http://www.antarctica.gov.au/about-antarctica/environment/geography/maps

Antarctic environment. (2003). Retrieved 23 November 2019, from http://www.antarctica.gov.au/about-antarctica/environment

Beck, P. J. (2006). The United Nations and Antarctica, 2005: the end of the 'Question of Antarctica'?. *Polar Record*, *42*(3), 217-227.

Beck, P. J. (2017). Antarctica and the United Nations. In *Handbook on the Politics of Antarctica*. Edward Elgar Publishing.

Belanger, D. O. (2004). The international geophysical year in Antarctica: Uncommon collaborations, unprecedented results. Journal of Government Information, 30(4), 482-489.

Belanger, D. O. (2010). The International Geophysical Year in Antarctica: A Triumph of "Apolitical" Science, Politics, and Peace. In Globalizing Polar Science (pp. 265-278). Palgrave Macmillan, New York.

Blackie, A. (2016). Sovereignty on Ice: The Status of Antarctica in International Law. *UNSWLJ Student Series*, (16-08).

Blay, S. K. (1992). New trends in the protection of the Antarctic environment: the 1991 Madrid Protocol. *American Journal of International Law*, *86*(2), 377-399.

Boodhoo, R., Purmessur, R. D. (2009). Justification for Qualitative Research in Organisation: a Step Forward. The Journal of Online Education. http://www.nyu.edu/classes/keefer/waoe/deeprosh2.pdf (20.04.2017).

Cawley, L. (2015). How the ozone hole changed our lives. Retrieved 23 November 2019, from https://www.bbc.com/news/uk-england-cambridgeshire-31602871

Climate change. (2001). *Synthesis report*. Retrieved 23 November 2019 http://www.keneamazon.net/Documents/Publications/Virtual-Library/Impacto/9.pdf

Choices made now are critical for the future of our ocean and cryosphere. (2019). IPCC Retrieved 23 November 2019, from https://www.ipcc.ch/2019/09/25/srocc-press-release/

Cockburn, H. (2019). Enormous Antarctic glacier on brink of collapse could raise sea levels by half a metre alone, scientists warn. Retrieved 24 November 2019, from https://www.independent.co.uk/environment/antarctic-ice-melting-sea-level-rise-thwaites-glacier-study-nasa-a8996596.html

Collier, D. (2011). Understanding process tracing. *PS: Political Science & Politics*, *44*(4), 823-830.

Collis, C. (2017). Territories beyond possession? Antarctica and outer space. *The Polar Journal*, *7*(2), 287-302.

Collis, C. & Stevens, Q. (2004). Modern Colonialism in Antactica: the coldest battle of the Cold War.

Dingwall, P. R. (1998). Antarctica in the environmental era. Department of Conservation.

Douglass, A. R., Newman, P. A., & Solomon, S. (2014). The Antarctic ozone hole: An update.

Elliot, L. (1994). *International environmental politics: protecting the Antarctic*. Springer.

Fisheries in the Antarctic region — AWR. Retrieved 23 November 2019, from http://www.antarcticfund.org/fisheries

Ford, A. (2019). Antarctica - Economic resources. Retrieved 23 November 2019, from https://www.britannica.com/place/Antarctica/Economic-resources

Gascoigne, T., & Collett, P. (1987). Antarctica: Discovery & Exploration.

Giddings, B., Hopwood, B., & O'brien, G. (2002). Environment, economy, and society: fitting them together into sustainable development. *Sustainable development*, *10*(4), 187-196.

Hamzah, B. A. (2010). Malaysia and the Southern Ocean: revisiting the question of Antarctica. *Ocean Development & International Law*, *41*(2), 186-195.

Hayashi, M. (1986). The Antarctica Question in the United Nations. *Cornell Int'l LJ*, *19*, 275.

Hemmings, A. D., Rothwell, D. R., & Scott, K. N. (2013). Antarctic security in a global context. *Antarctic security in the twenty-first century: legal and policy perspectives. London and New York, NY: Routledge*, 328-336.

Hunter, S. (2019). Who Will Be Crowned the Polar Superpower?, Retrieved 24 November 2019, from https://www.fairobserver.com/region/asia_pacific/antarctica-arctic-arms-race-polar-superpower-russia-china-news-10191/

Jayaseelan, S. (2019). Development of Malaysia's position in Antarctica: 1983 to 2017. *The Polar Journal*, *9*(1), 214-235.

Johnson, M. (2006). Liability for Environmental Damage in Antarctica: The Adoption of Annex VI to the Antarctic Environmental Protocol. *Geo. Int'l Envtl. L. Rev.*, *19*, 33.

Joyner, C. C. (2011). United States foreign policy interests in the Antarctic. *The Polar Journal*, *1*(1), 17-35.

Khan, S. N. (2014). Qualitative research method: Grounded theory. *International Journal of Business and Management*, *9*(11), 224-233.

Kipgen, P. (2017). Historiography, definitions, nature, and scope of history. Academia. edu., available at: www. academia. edu/31041228/Historiography_Definitions_Nature_and_Scope_of_History (accessed January 19, 2019). [Google Scholar].

Kovalchik, K. (2010). *Not-So-Famous Firsts: Infant Edition*. Mentalfloss.com. Available at: http://mentalfloss.com/article/25676/not-so-famous-firsts-infant-edition#targetText=First%20Baby%20Born%20in%20Antarctica,Peninsula%20on%20January%207%2C%201978. [Accessed 30 Sep. 2019].

Lamus, F. V. (2013). Antarctic Treaty and Antarctic territory protection mechanisms. *Revista Chilena de Derecho*, *40*, 461.

Liu, N. (2017). Demystifying China in Antarctica. Retrieved 24 November 2019, from https://thediplomat.com/2017/06/demystifying-china-in-antarctica/

Liu, N. (2019). What Are China's Intentions in Antarctica?. Retrieved 24 November 2019, from https://thediplomat.com/2019/06/what-are-chinas-intentions-in-antarctica/

McLean, L. R. W. (2015). *The importance of Antarctica: Understanding values for science communication* (Doctoral dissertation, University of Otago).

National Research Council, (2011). Future science opportunities in Antarctica and the Southern Ocean. National Academies Press.

Noi, G. (2018). China's polar ambitions cause anxiety. Retrieved 23 November 2019, from https://www.straitstimes.com/asia/east-asia/chinas-polar-ambitions-cause-anxiety

Paasi, A. (2009). Bounded spaces in a 'borderless world': border studies, power, and the anatomy of territory. *Journal of Power*, *2*(2), 213-234.

Pike, J. (2017). *Antarctica - International Relations*. Globalsecurity.org. Available at: https://www.globalsecurity.org/military/world/antarctica/forrel.htm [Accessed 30 Sep. 2019].

Rahim, Z. (2019). Antarctica's floating ice level plummets to record low, alarming Nasa study reveals. Retrieved 25 November 2019, from https://www.independent.co.uk/environment/antarctica-floating-ice-levels-global-warming-climate-change-crisis-a8983621.html

Scully, T. (2011). The development of the Antarctic Treaty system. Science Diplomacy: Antarctica, Science, and the Governance of International Spaces.

Simma, B. (1986). The Antarctic Treaty as a treaty providing for an objective regime. *Cornell Int'l LJ*, *19*, 189.

Sullivan, W. (1957). Antarctica in a two-power world. *Foreign Aff.*, *36*, 154.

Summerhayes, C. P. (2008). International collaboration in Antarctica: The international polar years, the international geophysical year, and the scientific committee on Antarctic research. Polar Record, 44(4), 321-334.

The Economic Activity of Antarctica. (2019). Retrieved 23 November 2019, from https://www.studycountry.com/guide/AQ-economy.htm

Tourism Overview. Retrieved 23 November 2019, from https://iaato.org/tourism-overview#top

Treaty of Antarctica. (1959). Retrieved 30 September 2019, from https://www.ats.aq/e/antarctictreaty.html

Triggs, G. (1985). The Antarctic Treaty regime: a workable compromise or a purgatory of ambiguity. *Case W. Res. J. Int'l L.*, *17*, 195.

Turner, J., Barrand, N. E., Bracegirdle, T. J., Convey, P., Hodgson, D. A., Jarvis, M., ... & Shanklin, J. (2014). Antarctic climate change and the environment: an update. *Polar Record*, *50*(3), 237-259.

Vann, R. (2019). Historiography. [online] Encyclopedia Britannica. Available at: https://www.britannica.com/topic/historiography [Accessed 27 Nov. 2019].

Vicuna, F. O. (1994). The protocol on environmental Protection to the Antarctic Treaty: Questions of effectiveness. *Geo. Int'l Envtl. L. Rev.*, *7*, 1.

Ward, P. Fisheries - Human Impacts on Antarctica and Threats to the Environment, the effect of fishing. Retrieved 23 November 2019, from https://www.coolantarctica.com/Antarctica%20fact%20file/science/threats_fishing.php

Zhou, P. (2018). Tourism in Antarctica. Retrieved 23 November 2019, from https://www.thoughtco.com/tourism-in-antarctica-1434567

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