



Impact of security dilemma on Antarctic militarization

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Abstract: In addition to establishing an exclusive governance system in a vast area of the earth, The Antarctic Treaty is of great importance also in terms of aiming to keep a region away from military activities. In order to carry Antarctica's dedication to peace and science to future generations, it is necessary to avoid the militarization of the Continent. However, factors such as the ever-growing need for the Continent's resources, increasing human activities in the Continent due to global warming, and the advancing use of dual-use scientific/military equipment due to technological developments pose a danger as the militarization of the Continent and the Southern Ocean. In this study, the risk of the recent activities of the parties to create a security dilemma and the potential of the security dilemma to increase the Continent's militarization are analyzed.

Keywords: Antarctic governance, Antarctic Treaty System, military activity, Antarctic security.

Introduction

The Antarctic Continent, which was discovered recently in the 19th century in parallel with the developments in maritime, is surprisingly claimed to have taken its place in the 1513 World map of the famous Turkish sailor and geographer Piri Reis. Piri Reis states that he drew this map by making use of a map used by Christopher Columbus, together with various information gathered from different sources (Akçura 2012). Cartographic historian Gregory C. McIntosh argues that Charles Hapgood's claim that the map also includes the Antarctic is unproven (Coşkun 2013). The current status of the Continent, which is the



subject of these claims, is determined by the Antarctic Treaty signed in 1959. Along with determining the status of the cold, distant, desolate, ice-covered Continent with no indigenous people, the Antarctic Treaty also gave it another unique feature as the only continent free of weapons and soldiers in the world. Article 1 of the Antarctic Treaty provides the exception to this by allowing the use of military personnel or equipment for scientific research other peaceful purposes. In the process leading up to the 1959 Treaty, the tense environment created by the claims of sovereignty over the Continent (Australia, New Zealand, Argentina, Chile, France, UK, and Norway had claims on the Continent) was somewhat calmed by the International Geophysical Year (IGY) held in 1957–1958. Subsequently, the negotiations under the USA's leadership and with the participation of the Soviet Union resulted in the Antarctic Treaty, which dedicated the Continent to peace and science. In the negotiations that started in 1958 and lasted for 18 months, it was seen that especially the USA, the USSR and the United Kingdom tried to prevent their opponents from gaining superiority over the Continent. These parties tried to accomplish this by methods that would not cause new tensions in the already tense environment created by the Cold War (Dodds 2008).

All claims of the states regarding territorial sovereignty in Antarctica were explicitly protected in Article 4, this article also prevented new claims from being asserted while the Treaty is in force. The treaty was signed in Washington on December 1, 1959, by twelve countries participating in the IGY events and invited to the conference by the host country, the United States. These countries included Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, Union of South Africa, USSR, United Kingdom of Great Britain and Northern Ireland.

When the Treaty, which was signed in a bipolar international system, came into effect in 1961, it gave great hope to the efforts for peace, as it put forth a unique system. Hopes for cooperation and a peaceful world increased after the Treaty, and comments were made that the Treaty could set an example for future relations. Polar scientist and explorer Laurence McKinley Gould's assessment of "a document unique in history that may take its place alongside the Magna Carta and other great symbols of man's quest for enlightenment and order" (Berkman 2009, p. 412) during the ratification of the Treaty by the United States conveyed the optimistic mood.

With The Antarctic Treaty being the main element, together with additional and complementary conventions, protocols, measures, and recommendations the system of international treaties on the continent's governance is called the Antarctic Treaty System (ATS). As of today, the Antarctic Treaty has been signed by 54 parties. The Antarctic Treaty Consultative Meeting (ATCM) is the decision-making process of the ATS. It was held once every two years until 1994 and then annually. In these meetings, the consultative parties have the right to vote, whose number increased to 29.

With the governance system formed with ATS, one of the problems faced by the Continent, which struggles with various risks such as destruction of natural life, inability to protect living species, global warming, pollution, and deterioration, is the problem of the militarization of the Continent. According to the Antarctic Treaty, the parties cannot openly take steps in this direction; however, the treaty is far from imposing clear sanctions. It is considered that some of the parties engage in the militarization of the Continent by carrying out covert military activities (McGee *et al.* 2021). These activities are caused by global warming and technology making it easier to access the Continent, the increasing need for underground and biological resources, and technological developments enabling dual-use scientific/military equipment. There are some studies on the militarization problem of Antarctica (Almond 1985; Batemen 2013; McGee *et al.* 2021). This study aims to eliminate the lack of analysis of the militarization problem of the Continent in the context of the security dilemma. In the study, the activities related to the militarization of the Continent (also the Southern Ocean), especially in the last period, were analyzed with the qualitative scanning method, and the risks that the Continent bears in this respect were evaluated together with the effects of the security dilemma in order to contribute to the literature in this sense.

Measures against the militarization of Antarctica

Along with presenting a unique governance system, one of the most significant features of the Antarctic Treaty is that it is a crucial arms control treaty that has been in effect for a long time in a large part of the world. The Antarctic Treaty adopts the principle of “Recognizing that it is in the interest of all mankind that Antarctica shall continue forever to be used exclusively for peaceful purposes and shall not become the scene or object of international discord” (Antarctic Treaty 1959). For this purpose, the first paragraph of Article 1 of the Treaty is devoted to this subject; “Antarctica shall be used for peaceful purposes only. There shall be prohibited, *inter alia*, any measures of a military nature, such as the establishment of military bases and fortifications, the carrying out of military maneuvers, as well as the testing of any type of weapons”. In the same period, the concept of “peaceful use or peaceful purposes” is encountered in international regulations related to space, which is a field of international politics. Peaceful use was referred to in the resolution titled “Question of the Peaceful Use of Outer Space”, which was the first international norm accepted by the UN in 1958. This was an effect of the studies on the exploration of space which began in the 1950s (General Assembly 13th session, RES 1348 (XIII)). The principle of using space for peaceful purposes was also adopted in the text of “Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies”, which was opened for signature in 1967 and entered into force in the same year.

Measures taken against military activities in the very first articles of the Antarctic Treaty suggest that the most worrying threat is the use of the Continent for these purposes by any party. Immediately afterward, the exception regarding military personnel and equipment that the parties can use in the Continent is determined in Article 1 of the Treaty as “The present Treaty shall not prevent the use of military personnel or equipment for scientific research or for any other peaceful purpose”. It would be appropriate to specify this qualification clause of the Treaty as the most fundamental element underlying the risk of militarization of the Continent. Hemmings (2020), correctly describes this situation in the Treaty as a functional gap.

The 5th Article of the Treaty, on the other hand, made the Antarctic Treaty the first international treaty to ban nuclear weapons, albeit regionally (Musto 2019). Article 5 prohibits “Any nuclear explosions in Antarctica and the disposal thereof radioactive waste material”. Again, in the same Article, international agreements concerning the use of nuclear energy, including nuclear explosions and the disposal of radioactive waste material to which the Treaty’s consultative countries are parties are accepted as valid in Antarctica.

With Article 7 of the Treaty, which includes the provision “In order to promote the objectives and ensure the observance of the provisions of the present Treaty, each Contracting Party whose representatives are entitled to participate in the meetings referred to in Article IX of the Treaty shall have the right to designate observers to carry out any inspection provided for by the present Article”, it was made possible to audit the activities of the parties in the Continent. It would be accurate to say that this Article explicitly addresses the prohibition on the use of military personnel and equipment brought by Article 1 of the Treaty. Observers assigned in this context have total freedom to enter all areas of Antarctica at any time, and Consultative Parties also have the opportunity to conduct air surveillance over all or certain areas of the Continent. In addition to the aforementioned active control procedures, a passive measure has been introduced with paragraph 5 of Article 7, the principle of prior notice. This principle is about the military personnel and equipment intended to be sent to Antarctica within the conditions defined in the second paragraph of Article 1 of the Treaty.

It is seen that countries avoided the militarization of territories that did not belong to anyone, such as space and Antarctica, due to the emphasis on peaceful purposes at the time the Treaty was signed. Although an inspection infrastructure has been established for Antarctica with the possibility of observation, there are no concrete sanctions set in the Treaty. There is however, the very real possibility of international criticism about those who do not comply with these rules. The procedure to be followed in the event of a dispute arising between the parties of the treaty is put in place by Article 11, which suggests peaceful means and, with consent of all parties of the dispute, referral to the International Court of Justice. While sanctions may be imposed as a result of resolving disputes through

negotiation, inquiry, mediation, conciliation, arbitration, judicial settlement or referral to the International Court of Justice, the applicability of these methods are debatable when the dispute is about militarization. Of course, in the event of a violation in any such territory, the first thing that comes to mind is the response of the other parties by acting in the same way (Almond 1985, p. 232).

The continent's militarization risk

Conceptual dimension. — Although what is meant by militarization and what behavior patterns or equipment will be included in this definition seem simple, this definition often confuses people. It should be noted that activities related to the definition of militarization do not necessarily have to be performed by military personnel (Batemen 2013). With the developing equipment, techniques, and tactics, the definition of military power evolves; it changes depending on the perception of enemy and the tools and methods used by the parties to break each other's will to fight. Non military personnel can also take part in these activities. The concept of militarization can be expressed differently in relation to regional, national, or international security concepts, depending on the context and activity in question. It is synonymous with assuming a military character, equipping with military power or equipment, or making something fit for military use. According to the field of activity, it is possible to observe this concept in the militarization of management, education, industry, and artificial intelligence (Sisson 2020). According to the environment in which it takes place, it can be the militarization of a region, space, cyber world, seas, or a social sector. It can also mean the militarization of a social group, as in the militarization of youth, workers, and students. In other words, militarization; is the positioning, structuring, and equipping of the state and social organizational structures to support the elements of military power. This can be done against a possible danger of war/use of force or to protect interests, obtain benefits, or the desired environment. This concept can be briefly defined as the emergence of military purposes in an environment or activity and keeping these purposes in the foreground, giving them importance. In this study, this concept is not analyzed in its ideological dimension (militarism), but factually in the context of the militarization of a region (Antarctica). As well as the direct use of Antarctica to support land, sea and air military operations, the placement of some supporting infrastructural systems on the Continent can be considered within the scope of the Continent's militarization. These infrastructural systems can have many uses like the Global Navigation Satellite Systems providing remote sensing, early warning/notification, communication/data transfer, command and control, location detection, and navigation/monitoring. However, to avoid conceptual confusion on the subject, it should be noted that the concept of armament is accepted as a method of militarization discussed in the study.

Factors that lead to militarization. — A fairly large piece of land on our planet has so far not been suitable for human habitation due to natural conditions. On the other hand, it is becoming more and more obvious that Antarctica has great economic value because of its biological and underground resources, as well as its increasing tourism potential (Jabour 2015, p. 40, 45). The existence of underground resources like precious metals such as gold and silver and minerals such as copper, lead, zinc, and coal (U.S. Congress, Office of Technology Assessment 1989, p. 93–124), which have been revealed by various studies, together with claims of sovereignty in a part of the Continent is one of the developments that may cause the militarization of the Continent. Article 7 of the Madrid Protocol, which was signed on 4 October 1991, in Madrid and entered into force in 1998, prohibits exploration and operation activities related to mineral resources in Antarctica, except for scientific research. However, the absence of a clear definition of which activities are related to the exploration of underground resources and which activities are scientific provides the opportunity to carry out dual-purpose activities. Adding to this the absence of a clear provision on the prohibition of exploration/exploitation in the ocean up to 60 degrees south latitude results in an ambiguous situation. A similar ambiguity exists regarding the use of ice floes on the Continent as a source of freshwater for ice mining. The expectation that the Madrid Protocol, which is the biggest obstacle to the operation of these resources, can be changed after the year 2048 has recently increased the concerns about the Continent's militarization. The Madrid Protocol can be amended at any time with the consensus of the Antarctic Treaty consultative meeting according to the Antarctic Treaty, or it may be revised after 2048 at the request of one of the Consultative Parties.

Global warming has begun to affect human life negatively today. It is evaluated that global warming, which has effects such as rising sea levels, excessive precipitation, increasing forest fires, and drought, will result in climate change and melting of glaciers in Antarctica. NASA has determined that an average of 151 billion tons of ice per year is lost in Antarctica (NASA 2021; Singh B. R. and Bahadur A. 2016). It is also considered that this may lead to the creation of a more favorable environment for both human life on the Continent and the exploitation of the Continent's resources. In such a situation, it is considered that competition over the use of these resources may trigger militarization. However, in the face of this problem, which is attracting increasing global attention, there are also optimistic expectations that nations can come together and eventually, global warming can cause global unification (Gardiner *et al.* 2021). A global impact in this sense would not only prevent the militarization of Antarctica but also ensure the stability of the ATS.

Every year, Antarctica emerges as a destination that attracts more tourists and tourism businesses around the world. While 56 168 visitors participated in the Antarctic tour in the 2018–2019 period, this number was determined as 73 991

between October 2019 and April 2020, when the effects of the global pandemic had started to show. The increase in the interest in Antarctic tourism in recent years can be seen in more detail in Fig. 1.

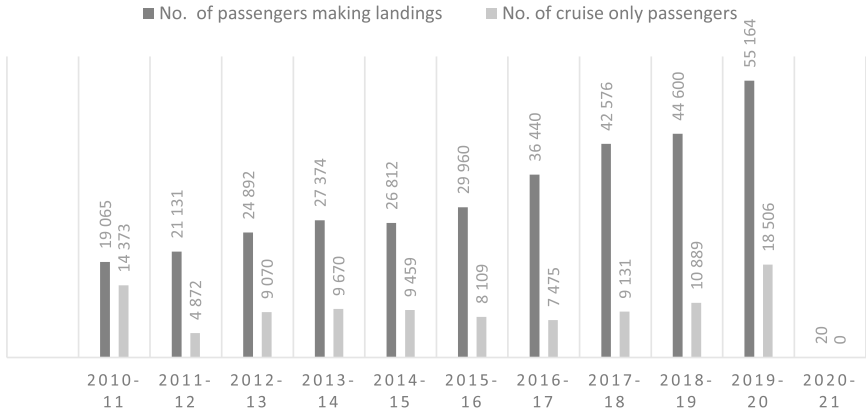


Fig. 1. Overview of Antarctic tourism: A historical review of growth between 2010 and Present (IAATO 2021).

Although most of the tourists visiting the continent are US citizens, it is noteworthy that the increase in the number of tourists from China, which ranks second, cannot be compared with other countries. It is seen that China is moving towards being more active in the tourism market by increasing its current capacity (Fig. 2).

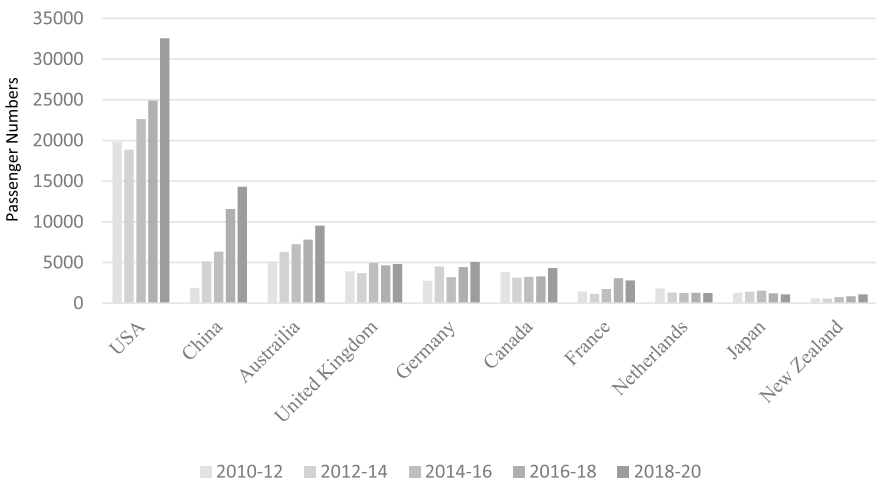


Fig. 2. Top 10 passenger nationalities travelling with IAATO operators between 2010 and 2020 (IAATO 2021).

The coasts of Antarctica and the Southern Ocean, with their unique species, have long attracted the attention of commercial fisheries, and an increasing number of countries have operated there over time. The seals were hunted so much that they faced extinction in the 1820s. In 1964, the first measure in this regard was taken with “The 1964 Agreed Measures for the Protection of Antarctic Flora and Fauna”, and then in 1972, “Convention for the Conservation of Antarctic Seals - CCAS” was signed. Whales were taken under protection outside of the ATS by International Whaling Convention with the prohibition of whale hunting within the “South Pacific Ocean Protected Areas” created on the Antarctic coasts in 1994 (Hoyt 2005, p. 16). The fishing procedure for other species is carried out under the provisions of “The Convention on the Conservation of Antarctic Marine Living Resources - CCAMLR” which was signed in 1980 and entered into force in 1982. The krill, which is abundant in the Southern Ocean and is an important food source for other sea creatures, is hunted by Chile, China, Korea, Norway, and Ukraine today (Jabour 2015, p. 40, 45). The Chinese-based Shanghai Chonghe Marine Industry plans to have the world’s largest krill fishing vessel built by 2023. While China’s krill catch in 2014 was worth around \$10 million, it is expected to be more than \$400 million by 2025. The Chinese government provides subsidies to small companies to process krill products (Feiger and Wilson 2020). There have been international problems at various times regarding the hunting of sea creatures as an economic value (Croxall and Nicol 2004).

It is possible to say that ‘Antarctic nationalism’ (Hemmings *et al.* 2015), which developed as a result of the protectionist perspective, also developed practices that led to militarization. Motives of sovereignty claims, benefiting from economic resources, gaining superiority by settling in a strategic region, and protecting the Continent and all its resources from other parties are among the factors that feed Antarctic nationalism.

In conclusion, the increase in access to the Continent due to global warming and technology, the desire to benefit from underground and biological resources, and the fact that technology makes it possible to use dual-use (scientific/military) equipment are among the reasons that cause the militarization of the Continent. In addition, the covert military activities that some of the parties may undertake in the Continent to claim sovereignty or strengthen existing sovereignty claims in case of revision of the ATS increase the risk of militarization. Also, as a result of Antarctic Nationalism, it is evaluated that the policies implemented with the motive of protecting the Continent from others trigger militarization by creating a security dilemma.

The security dilemma and the militarization of Antarctica

Each of the reasons mentioned above has effects that can trigger/increase the militarization of the Continent. Nevertheless, as of today, although there are risks, it is not possible to talk about the *de facto* and open militarization of the

Continent. However, it is possible to use dual-use civil/military systems for military purposes at any time. Although it is unclear which systems provide dual-use due to the secrecy of these systems, satellite ground stations and communication systems are considered within this scope. In addition, transportation facilities such as airstrips/airports and ice-breaking ships will also be able to provide dual-use when necessary. The two-sided practices that draw the most attention in regard to the militarization of the Continent are those that are not directly against the Treaty, are unclear, difficult to detect, but possible to deny. In this sense, it is possible to define these practices as 'non-uniformed military practices'. These kinds of practices are usually preferred to increase regional or global efficiency in cases where the conventional use of force is not deemed appropriate yet due to political situation, cost, and lack of necessary conditions.

When it comes to the militarization of Antarctica, it should not be thought of only in terms of attack systems. Meaning, in addition to the support systems that can be used to ensure that a cruise missile reaches its target correctly, defense systems that can provide support to detect or neutralize a cruise missile should also be included in this concept. Therefore, the inspections to be carried out in the context of the Antarctic Treaty should provide sufficient effectiveness to this extent.

Considering the total number of inspections carried out at the stations within the scope of the Antarctic Treaty, it is seen that a low number of inspections were made in general. For example, although some of them are temporarily closed for the time being, no inspections have been made at 22 stations. Bellingshausen of the Russian Federation was inspected 15 times, Artigas of Uruguay 12 times, Great Wall of China 12 times, Henryk Arctowski of Poland 11 times, and Comandante Ferraz of Brazil 10 times. These stations are the most frequently inspected stations in the Continent. Other stations have been inspected 1-8 times since the Antarctic Treaty was signed (Secretariat of the Antarctic Treaty n.d.). In addition, no inspection has been carried out in the last two years due to the effect of the pandemic.

Australia has the largest claim to sovereignty on the Continent, and Australian inspection teams have conducted 10 inspections since 1963. Australia recently conducted inspections in 2020, 2016, 2011, and 2010. The inspection team reported that the station and activities observed were, in the view of the inspection team, consistent with the fundamental obligations of the Treaty concerning peaceful use and non militarization, and with the provisions of the Environmental Protocol (Australian Government 2020, p. 5). Of course, this does not lead to the conclusion that the inspections are sufficient, the adequacy of the inspections carried out by a party like Australia, with reasoned concerns about the militarization of the Continent, is a matter of debate. Likewise, due to the increasing number of research bases, the fact that many research bases have not

been inspected for a long time or that the inspections have been carried out by personnel with insufficient expertise raises concerns.

Within the scope of the above-mentioned activities, especially with the increasing interest levels of China and Russia, the concerns about the militarization of the Continent have begun to be analysed more. China, which became party to the Antarctic Treaty in 1983, showed its interest in the Continent by establishing its first permanent research base after 2 years and gained the status of a Consultative Party. It is known that China sends the highest number of tourists to the Continent after the USA and is interested in Southern Ocean fishing. In addition, researchers from the Polar Research Institute of China (PRIC) believe that Antarctica and the Southern Ocean will become a global resource treasure when all the world's resources are exhausted (Jiangang *et al.* 2005, p. 19). China has rapidly implemented its investments and currently has five research bases in Antarctica, one of which is under construction. China's most important activity evaluated within the scope of militarization is the satellite earth stations. This is a type of radio equipment used to communicate with a space station from the Earth's surface, which can have dual-use. It is claimed that the ground stations established since 2010 increase the efficiency of the Chinese BEIDOU global positioning system and are intended for dual-use (Brady 2017a).

China strives to strengthen its fleet of icebreakers to support both Arctic and Antarctic expeditions and increase their effectiveness. China plans to have a nuclear icebreaker in addition to the 2 existing classic icebreakers (Humpert, 2019). Another noteworthy activity of China is the plan announced in 2018 to build its first permanent airfield which is expected to be ice runway, located along the ice sheet, about 17 miles away from the Zhongshan Antarctic Station. In addition to the small ice runways, it is claimed that with the new airfield that is planned to be permanent, China will have a say in the management of the Antarctic airspace (Antarctica Journal 2021). China has installed a high-frequency radar capable of detecting ships and aircraft at the coastal Zhongshan station. It is claimed that this radar can detect aircraft hundreds of miles away, as well as suppress US radars and long-range communications (Brady 2017b, p. 14). While it is normal for radars to operate to monitor the safe transportation of marine vehicles, some radars may also have dual-use, like tracking opponents and suppressing the other parties' systems.

As an active party in the Arctic, Russia has shown interest in Antarctica since the Antarctic Treaty was signed, with research stations in ten different locations on the Continent. Since 2009, Russia has been establishing Global Navigation Satellite System ground stations in Antarctica. Rosgeologia, the state's geological research institution, explained the purpose of the seismic study conducted in the Riiser-Larsen Sea in 2020 as evaluating the offshore oil and gas potential of the region using the latest technology. According to Rosgeologia, there are 513 billion barrels of oil resources in the region (Perkins and Griffin 2020).

Russia has not informed the Antarctic Treaty Secretariat about the results of this seismic survey. A large (1400 m²) Russian flag was unfurled by 10 citizens of the Russian Federation who visited Antarctica in November 2019 (Russkiy Mir Foundation 2019). Considering that a similar action was carried out in Crimea and on the seabed in the Arctic region in 2007, it was perceived as provocative even though the perpetrators were not acting on behalf of Russia. Although such actions are not considered within the scope of the militarization of the Continent, Arctic countries, as well as other States with economic interests in the region, followed this event carefully (Spohr *et al.* 2013).

China or Russia's increasing interest in Antarctica is perceived as having hidden agendas and, in this context, trying to increase their power to accomplish them (Hong 2021). In this case, balancing out this power increase is seen as an essential option for the other parties. Balancing can be defined as the attempt to increase the capacity of one side at least to the capacity of the others, or the formation of counter-powers or alliances in order to support the weaker side in the face of policies aimed at establishing hegemony (For further detail about balancing see: Waltz 1979, p. 126; Morgenthau and Thompson 1950, p. 103; Jervis 2015, p. 1040). It is seen that this balancing policy is valid for some actors in Antarctica. However, it is also seen that a "security dilemma" has emerged as a result of the actors' tendency to increase their activities on the Continent in order to maintain the systemic balance. Herz, who was the first to pronounce the concept of the security dilemma, argues, "Groups and individuals living side by side without organizing as a higher unity (...) should fear for their safety from being attacked, subordinated, dominated, or destroyed by other groups and individuals. As they struggle to protect themselves from such attacks, they are driven to gain more and more power to escape the effects of the power of others. This makes others more insecure and forces them to prepare for the worst. Since no state can feel completely secure in such a world of competing units, power competition ensues and a vicious circle of security and power accumulation begins" (Herz 1951, p. 157). The situation regarding the risk of militarization of Antarctica largely fits Herz's description. Again, Herz argues that it is one of the tragic consequences of the security dilemma that mutual fear of something that may never have existed in the first place can later produce exactly what is feared most (Herz 1961, p. 241). Although the possibility of Herz's idea coming true in Antarctica seems remote for now, it has the potential to be a significant threat to international relations, given the rapidly changing conditions. A similar situation has been experienced in the Arctic, which has been away from human life and the tension of international politics for centuries. As a result of the factors that have occurred in the Arctic in recent years, security policies and the security dilemma have become a prominent factor (Åtland 2014).

Parallel to the increasing number of countries interested in Antarctica, the increase in the number of research bases in the Continent confirms this potential. Currently, there are 43 stations operating year-round and 25 stations operating

seasonally on the Continent. In addition, 21 seasonal stations are in temporarily closed status. Only 2 of these stations are jointly operated by the parties (Concordia and Robert Guillard Stations; France, Italy) (Secretariat of the Antarctic Treaty n.d.). Considering the operational difficulties of and high financial budget required for the bases that are established and operated by only one country, it is considered that these bases are expected to serve political purposes as well. However, it is thought that countries with research bases at more than one spot in the Continent are engaged in activities other than doing research in the region. These activities are suspected to be that they act towards possible sovereignty claims, settle in different locations to place military equipment, increase their air transportation opportunities by spreading their activities over more areas, and try to gain more control with the runways/airports they operate. There are ice runways in the continent that many countries, especially the USA and Russia, use for air transportation. Apart from the existing ice runways, the first concrete runway (Department of Environment and Energy 2019) on the Continent that Australia plans to build is seen as a result of the security dilemma. Some oppose the construction of the 2700-meter runway, which is planned to be built near Australia's Davis Station and will be operational 12 months of the year, with the concern that it will harm the environment and natural life (Brooks and Jabour 2020). Of course, political considerations such as the enhancement of Australia's leadership and long-term interests in the region and establishing deeper bonds with the Australian Antarctic Territory come to the fore with the construction of the runway. In addition, it is feared that the project will affect the political conditions in the Continent in the long run. Australia having a solid infrastructure in accessing the Continent may also lead states such as Russia and China, which have increased their activities in the Continent, to make similar investments. This would not only increase the environmental damage but also put the Continent's militarization to a more advanced stage (Wyeth 2021). The Australian government decided not to proceed with the project at the end of 2021, due to the anticipated high costs, potential environmental impacts and complexity of the lengthy construction process, and focus on alternative options (Australian Antarctic Division 2021). However, we should point out that; establishing more research stations to gain power or aiming to gain superiority by increasing access to the continent creates a competitive environment and revives perceptions that will ultimately lead to a security dilemma.

It is normal, especially for countries that are close to Antarctica, to see the militarization of the Continent as a security threat to their own territory at the same time. With 42% of the Continent, Australia is the party with the most significant claim on the area, among the seven countries claiming sovereignty in Antarctica. Australia considers it the basis of its policy on the Continent to adhere to the strength, effectiveness, and environmental protection principles of the Treaty and to prevent any form of militarization that could threaten its claimed

sovereignty rights over Antarctica. This approach is envisioned to preserve Antarctica as a region dedicated to peace and science, thereby addressing security concerns by reducing the potential for strategic competition in the south of Australia. Australia considers it essential to maintain an indefinite ban on mining and oil exploration since it is clear that a step in this regard may cause instability in its own south.

Despite the official strategy (Commonwealth of Australia 2016) announced, a senior Australian defense official made a presentation (Gothe-Snape 2019) in June 2019, sharing that Australia sees a number of valuable opportunities to improve military capacity by applying certain technologies in Antarctica. This view was based on the grounds that countries such as China, Russia, and the United States have satellite navigation capabilities that could potentially be used for military purposes in times of conflict in Antarctica and that the Antarctic Treaty does not strictly prohibit such dual technologies for civilian and military uses. The presentation document expressed a positive view of the use of dual-use capabilities where possible, stating that “Australia and other like-minded states need to maintain a common influence on the ATS in order to avoid its gradual weakening”. Another thing mentioned is the creation of a common influence against the countries that have recently increased their effectiveness in the Continent; this idea presents concepts like power increase for balancing purposes and, therefore, security dilemma.

Australian Government’s 2017 Foreign Policy White Paper shows that the government has set aside an additional \$2.2 billion to protect Australia’s Antarctic interests (Australian Government 2017, p. 85). Although this amount seems quite large, it is clear that a possible instability or conflict in Antarctica will cost Australia more. It is planned to build a new research and icebreaker ship, develop new ground transport capabilities and aviation access. In this scope, the icebreaker ship RSV Nuyina, built in the Netherlands, has set off to reach Hobart at the end of August 2021 (Ainsworth 2021). Described as a “game-changer”, Nuyina will increase Australia’s capacity for scientific research, access to the continent and thus monitor other countries’ activities. In order to increase air transport capabilities, Australian Defence Force plans to use military C-17A aircraft (Australian Antarctic Division 2016, p. 22). Australia aims to maintain Tasmania’s status as a leading logistics base for other countries’ scientific operations in East Antarctica and keep its position strong by being indispensable in this regard with new capabilities and infrastructure opportunities.

Australia assesses that the Australian Antarctic Territory does not face a credible risk of being challenged in a way that will require significant military action for at least several decades to come. However, even this assessment alone indicates that this challenge is seen as likely in the future. Likewise, the increasing interest of China and Russia in recent years has been evaluated as a threat to Australia’s Antarctic policy in some studies (Giri 2012). In this direction, Australia sees it in the country’s interest to work with like-minded

countries to prevent the militarization of Antarctica, which may threaten the country's sovereignty over the Australian Antarctic Territory and its sovereign rights over the high seas (Australian Government Department of Defense 2016, p. 9, 54). The signing of a bilateral Memorandum of Understanding on Antarctic cooperation with China during Chinese President Xi Jinping's visit to Hobart in November 2014 is considered to be done to keep China within the ATS and control its activities.

After the UK, USA and Australia announced that they have formed a pact against China in the Indo-Pacific with the AUKUS, trilateral security partnership in September 2021 (Tewari 2021), the developments regarding the militarization of Antarctica may become more meaningful. It has been announced that the deal, which includes the construction of a nuclear submarine by Australia with the support of the USA and the UK, also includes providing intelligence to Australia and selling cruise missiles. Although still very new, the AUKUS deal marks a paradigm shift in strategy and policy across the region. The alliance formed with the said deal is seen as the most important security arrangement in the region after the Five Eyes alliance. It is possible that AUKUS, which appears to be based on US-Chinese rivalry, may have an impact on Antarctica by straining Australia-China relations. China is Australia's major foreign trade partner, with exports of AUD 173 billion (35% of its total exports) and imports of AUD 87 billion (Cole 2021). The possible effects of Australia's tense relations with China on Antarctica will be seen in the future.

The policy of Argentina, which is one of the countries closest to Antarctica by distance, should also be considered in the context of the continent's militarization. Argentine Defence Minister Agustin Rossi made a statement after the completion of the 117th Antarctic Expedition, which lasted for five months, with the participation of 400 personnel (~2000 under normal summer conditions) under pandemic conditions. Indicating the South Atlantic as a geopolitical, military, and strategic target for Argentina; Rossi also mentioned that Antarctica has a crucial role (Kubny 2021). During the expedition, six permanent bases belonging to Argentina were studied within the framework of the 2020-2024 plan. Within the scope of the study, it is noteworthy that the bases are integrated into the defence satellite system (Argentina Ministry of Foreign Affairs, International Trade and Worship 2020). Argentina, whose Cabinet of Ministers includes the Minister for Antarctica and the South Atlantic, maintains permanent military personnel at its existing research bases. Maintaining its presence on the Continent uninterruptedly since 1904, Argentina supports its scientific expeditions with the logistic support of its army and the icebreaker *Almirante Irizar*. The government encouraged the birth of 8 babies between 1978-1983, at the *Esperanza* base where families from the Argentine were residing, in order to support the claim of sovereignty. The Argentine Government, firmly committed to its sovereignty claim, issued a note of protest against the designation of a part of the Argentine Antarctic sector as Queen Elizabeth Land

by British Foreign Secretary William Hague (BBC 2012). In 2020, Interior Minister Eduardo de Pedro, Ministry of Foreign Affairs Malvinas, and Secretary of Antarctica and South Atlantic Daniel Filmus announced that the National Identity Document (DNI) would feature a new bi-continental and insular map. Interior Minister De Pedro's words were, "Today is a very important day, because we are paying a debt with our own history and our own identity", underlining the recognition of sovereignty encompassing part of Antarctica and more (Clarín digital 2020). In 2018, Argentina established the Antarctic Joint Command, which would operate under the Ministry of Defence and be responsible for conducting permanent operations in Antarctica (The Santiago Times 2018).

Over the past decade, China has built and financed rail and solar, wind, and nuclear power projects in Argentina, providing \$19 billion in swaps to help counter the financial crisis (Espach 2021). Argentina, whose trade relations with China are increasing day by day, refused to provide port services to the USCGC Stone, the coast guard boat sent by the USA to the South Atlantic in January–March 2021. The U.S. Coast Guard deployed one of its newest cutters, the USCGC Stone, with the mission to strengthen maritime security relations and help prevent illegal fishing, done mainly by the Chinese. It is considered that Argentina's Antarctic policy based on its claim to sovereignty includes practices that may cause the militarization of the Continent; these practices aim to balance the activities of the USA and UK, therefore, creating a security dilemma.

USA's effectiveness in Antarctica is undisputed as the depositor state of the Antarctic Treaty. It is possible to say that the effectiveness of the USA in both poles has weakened in the face of the progress of its rivals. There is an icebreaker called Polar Star, which the USA still uses for Antarctica, and the Healy, which operates mainly in the North Pole. Airports suitable for landing large cargo planes and three existing permanent US bases are logistically supported. Approximately 3000 Americans participate annually in studies and support activities under the US Antarctic Program (NSF n.d.). The fact that Antarctica was added to the responsibility area of the United States Pacific Command (USPACOM) in 2002 draws attention in regard to the continent's militarization (U.S. Indo-Pacific Command n.d.). Former Pacific Air Forces Commander General Charles Q. Brown Jr., who became the Air Force Chief of Staff in 2020, claimed that Antarctic rivalry would soon resemble the US rivalry with China and Russia in the Arctic. This claim emphasized the need to have more icebreakers than competitors (Pawlyk 2019). President Trump has signed a memorandum in line with this idea in 2020. With this memorandum, the necessity of a usable icebreaker fleet by the 2029 fiscal year has been outlined to help protect the nation's interests in the Arctic and Antarctic regions (Presidential Memoranda 2020). However, the USA sees significant military mobility as a threat to ATS, except for the use of Air Force aircraft and Navy ships as part of the logistics needs of its permanent bases in the Continent, and satellite ground stations. For this reason, the USA avoided such activities on the grounds that in

the event of the collapse of the ATS, its relations with its allies who claim sovereignty in the continent, would deteriorate (Micallef 2020).

The recent activities of Chile, which has a claim of sovereignty over the Continent and is one of the 12 original signatories of the Antarctic Treaty, draw attention in the context of the militarization of the Continent. In 2013, Chilean President Sebastian Pinera, together with Defence Minister Rodrigo Hinzpeter and Foreign Minister Alfredo Moreno, planted the Chilean flag on the area where the fifth Chilean base will be established on King George Island, Antarctica (Defense News 2013). It is planned that the research station in question will be operated by the Chilean Air Force and used by other military personnel also. It is noteworthy that the President of Uruguay, Jose Mujica, accompanied Pinera on this trip that highlights Chile's claim on a region that overlaps with UK and Argentina.

The risk of the militarization of Antarctica is a subject worth examining, it would be an objective approach to develop analysis based on facts in this direction, for all parties concerned. While holding parties such as Russia and China, which implement similar practices in the Continent, responsible for the militarization of the Continent, keeping other countries separate from it increases the risk of militarization. For example, after a long-limited presence, South Korea has invested in Antarctic capabilities over the past decade; It invested heavily in building a new icebreaker in 2009 and a second research station in Terra Nova Bay in 2014. The tenfold increase in the Korean Polar Research Institute (KOPRI) budget from 2004 to 2018 reveals the remarkable increase in South Korean interest (Flamm 2021). Korea cooperates with New Zealand, which sees it as a duty to protect its sovereignty in the Ross region of Antarctica in many aspects of its activities. While Brady is skeptical of China's interest, he argues that South Korea's Antarctic interests are scientific and economic (Brady and Seungryeol 2012). It should be noted that as a result of the inspections carried out by Australia at six research bases, including 1 Korean, 1 Russian, and 2 Chinese bases, in 2020, a report was prepared that the bases are consistent with the Treaty's basic obligations regarding peaceful use and no militarization.

Although an exclusive governance system has emerged in Antarctica with the Antarctic Treaty, it should be remembered that the UN also has powers in cases that threaten international security. Likewise, the UNSC has the power to make recommendations or binding decisions regarding the region (south of 600 South Parallel) where the Antarctic Treaty is valid (Ergüven 2017, p. 56). During the Falklands / Malvinas War between Argentina and UK in 1982, although not directly related to South Georgia and the Sandwich Islands, which are located south of 600 parallel, it was seen that the UNSC took a decision (The Security Council 1982: Resolution 502, 505). Although this authority is related to the threat to peace or an act of aggression, it is considered that the increasing level of possible militarization of the Continent contrary to the ATS can also be evaluated

in this context. However, it should be taken into account that the permanent members of the UNSC are the countries that seem to stand out regarding the risk of militarization of the Continent.

Conclusion

Although some factors may trigger the militarization of Antarctica, such as global warming, increasing need for economic resources, and the use of dual-use equipment due to technological developments, it is clear that policies arising from the security dilemma can cause the same result. For this reason, balancing policies carry risks as well as policies targeting power increase for the Continent. In order to carry on the Continent's status devoted to science and peace to future generations, it is considered essential to increase the effectiveness of the inspections rather than the balancing or power-increasing policies.

Although the dynamics of international relations are changing very rapidly today, it is thought that there has not been a dangerous development towards the militarization of Antarctica, and its demilitarized status will not change in the near future. However, the most crucial factor supporting this consensus is geographical and climatic conditions. Increasing needs or reducing obstacles may lead to the deterioration of intellectual unity. Depending on technological developments, just as more and more countries have an increasing number of military satellites in space, the number of research bases in Antarctica is increasing. A significant part of the countries that are party to the treaty get involved in the system to not be deprived of possible rights or to have a say in the event of a future change in the ATS. On the other hand, it is considered that the increase in the number of parties has an effect on weakening the possibility of making unfavorable changes in the current governance system. In this respect, it is seen as an appropriate approach to make efforts for more countries to become a party to the Antarctic Treaty and gain the status of consultant country.

It is considered that not all of the military personnel in the Continent are present to support scientific activities, and a significant part of them are there for political purposes. This reality shows us that many parties are aware of and even take part in the militarization of the Continent and accept it at the current level. Satellite earth stations and other electronic systems deployed to the Continent attract particular attention due to their dual-use abilities. Taking precautions so that the equipment in question, which can also be for military purposes, does not negatively impact the Continent's demilitarized structure and does not wear out the ATS, is among the priority issues. The development of technology on artificial intelligence and unmanned vehicles also increases the risk of Antarctica's militarization. Furthermore, it is likely that autonomous systems that can operate in the sea, on land, or in the air for a long time in the climatic conditions of the Continent could pose dual-use opportunities by functioning in

intelligence, command and control, and the guiding of weapons. For this reason, it will be possible to see autonomous uncrewed systems in various areas of the Continent in the future under the guise of scientific research. It is essential to redefine militarization by considering the current developments, especially the confusion arising from the military / scientific dual-use of some equipment and facilities, and regularly inspect the parties' facilities and activities within the framework of these criteria.

Although the behavior of some parties regarding the militarization of the Continent draws attention, the idea of changing the ATS, even to prevent these behaviors, may bring about changes that will open the way for the Continent's militarization. For this reason, it is seen as a more effective solution to make additional strengthening arrangements instead of opening the Antarctic Treaty for discussion since the Treaty has proven its success in the goal of protecting the Continent since 1959. In this context, although it is a fact that global warming, making it easier to access to and operate in the continent, has the risk of increasing militarization, it is also possible that it may have an effect to bring nations together in the face of increasing problems, thus creating an atmosphere of cooperation in the Continent like in the 1957–1958 period. In this respect, it would be appropriate to disseminate the views that will emphasize international cooperation in the Continent against global warming rather than militarization concerns.

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