Ministero degli Affari Esteri
e della Cooperazione Internazionale

MINISTERO
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Italy
Arctic Policy

Italy and the Arctic:
the values of cooperation
in a rapidly changing region

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The Arctic today

Front of the Kronebreen Glacier flowing into Kongsfjorden, Svalbard Islands (photo by Mauro Mazzola, credits CNR)

A land of myths and exploration, a fascinating and feared frontier of the world, the Arctic has always exerted a magnetic pull and now stands at the crossroads of a web of international challenges.

As a key region for understanding climate dynamics, the Arctic is experiencing the effects of global warming more than any other part of our planet. Dramatic and evident manifestations of these effects include the progressive and accelerated reduction of sea ice, the weakening of the permafrost layer – the frozen ground characteristic of Arctic and sub-Arctic regions – and the melting of the Greenland ice sheet, which scientists believe may have reached a point of no return. Moreover, the rise in sea level and temperature, as well as changes in the hydrological cycle and in atmospheric and marine currents, together with an increase in the frequency and severity of boreal wildfires and pollution, are also significant, with serious repercussions on the ecosystem. The combined effects of these phenomena make Arctic coastal areas increasingly vulnerable and exposed to severe erosion driven by sea storms, having serious consequences for infrastructure and human settlements.

As a contrasting outcome of Arctic warming, the region now offers growing potential for economic activities that were once impossible, prohibitively costly, or operationally risky. This represents an opportunity for development, which, however, must be pursued through tailored policies and practices that respect the environmental and social particularities of the region. Another major consequence of the ongoing melting of the ice is the increasing accessibility of the Arctic Ocean and the seasonal opening – for many months each year – of maritime routes once blocked by ice, in particular the Northern Sea Route along the Russian coast. By shortening transit times between the Pacific and the Atlantic and allowing navigation by vessels other than icebreakers, a rebalancing of global maritime trade flows is expected in the coming decades.

The widespread awareness of the delicate balance that must be maintained in the Arctic has, in the past, made the region a model of cooperation and, after the end of the Cold War, kept it sheltered from international tensions during the era of "Arctic exceptionalism."

While remaining a value to be preserved, this framework has faced new geopolitical challenges and more conflictual international relations in recent years, transforming the Arctic into a place of growing competition. The Arctic Council's crisis following Russia's invasion of Ukraine, the militarisation of the region, the closer partnership between the Russian Federation and China – also within the Arctic context – the end of Sweden and Finland's neutrality after their accession to NATO, and the U.S. stance on Greenland are among the main drivers of change. These developments also require Italy to pay closer attention to the security dimension of the Arctic.

> **"The Arctic is now at the center of a web of international challenges"**

The well-known saying "what happens in the Arctic does not stay in the Arctic" is certainly true, making the region much closer to us than geography alone would suggest and explaining the growing international interest it attracts. Yet, it must be integrated with the understanding that much of what happens in the Arctic is primarily the result of the choices and behaviours of the rest of the world. The Arctic is therefore both global and local, to use another well-known expression, and must be considered in this dual dimension. In recent decades,

Eastern Greenland
(photo by Gianluca Frinchillucci)

the Arctic has experienced a temperature rise at least three times higher, in some areas even four times higher, than the global average. Therefore, the environmental vulnerabilities described above should be constantly measured, monitored, analysed, and better understood, particularly in terms of their effects on the region and the planet as a whole. Thus, scientific research in the Arctic, together with related international collaboration, remains a priority not only for the Arctic States but for the entire international community, in a common effort to safeguard the planet through sustainable development policies and practices.

The fate of the Arctic also directly concerns the approximately four million people – including 500,000 indigenous peoples – who inhabit the region. The complex balance between economic development and environmental conservation must be firmly grounded in the aspirations of the Arctic inhabitants, whose traditional ways of life are being threatened by ongoing transformations. A prosperous and sustainable future for the Arctic requires the involvement of various national and international actors, both public and private, to ensure the effective management of the region's expanding economic activities, primarily for the benefit of local and indigenous populations.

> **The Arctic is therefore both *global and local*, and must be considered in this dual dimension**

Drawing on its history in the Arctic and its dynamic role within the international community, Italy actively contributes to reflection and dialogue on the region and intends to do so in an increasingly involved manner. Indeed, within the limits and prerogatives of a non-Arctic state – yet one geographically and politically close to the region – Italy wishes to support the actors, primarily the European Arctic countries, responsible

> **Drawing on its history in the Arctic, Italy actively contributes to discussions on the region and intends to do that in an increasingly involved manner**

for the governance of the area. This document sets out the guidelines for Italy's action in the Arctic, providing elements and reference points for an updated overview of the main activities, and establishing principles and objectives for the near future. The text represents an update of the 2015 document entitled "Towards an Italian Strategy for the Arctic – National Guidelines" ("Verso una strategia italiana per l'Artico – linee guida nazionali"), which is no longer adequate to the current situation, as also acknowledged by the Foreign Affairs Committee of the Italian Chamber of Deputies, which in 2025 launched a fact-finding investigation into the geopolitical dynamics in the Arctic region. Italy, in light of the many developments and the increasingly rapid changes that have occurred in the Arctic in recent years, as well as of its own new initiatives, has drafted a new document to provide its international partners – and all national stakeholders interested in the Arctic – with a concise and accessible reference for understanding its approach to this vital region of the world.

History of Italian Arctic Engagement

> **Interest in the Arctic took shape through the famous expeditions of the Duke of the Abruzzi in 1899 and Commander Umberto Nobile in 1926 and 1928**

Plaque of Nicolò and Antonio Zeno, view from the Ponte dei Gesuiti, Venice.

The thirst for adventure and knowledge, combined with their skill as navigators and traders, led some Italians to reach the Far North as early as the dawn of the modern age. Among the accounts of travellers departing from the Most Serene Republic of Venice, there is mention – though not entirely well defined – of the brothers Nicolò and Antonio Zeno, who in the fourteenth century are said to have reached Iceland and Greenland and ventured even further.

Pietro Querini

A more detailed account is that of Pietro Querini, who, in fifteenth-century Venice, set sail for Flanders on a trading voyage but, driven off course by a storm, arrived in the Lofoten archipelago, where he and the few survivors were warmly received and assisted with incredible generosity.

Upon his adventurous return journey, Querini chose to leave a vivid and captivating record of his ordeals and of the hospitality of the local northern inhabitants. In the sixteenth century, Giovanni and Sebastiano Caboto must be remembered for their dramatic naval expeditions, undertaken in the service of the English Crown in search of the Northwest and Northeast Passages.

Plaque of Sebastiano and Giovanni Caboto, Venice

"Viaggio Settentrionale", Francesco Negri

In 1663, the priest Francesco Negri from Ravenna, driven by a passion for knowledge, set out alone on a long journey to the North Cape. He left an account of this expedition in a book entitled "Il viaggio settentrionale" ("The Northern Journey"), published posthumously in Padua in 1700.

Duke of the Abruzzi
(photo by Vittorio Sella)

Interest in the Arctic – still framed in an adventurous spirit but already guided by emerging government policies – has equally deep and centuries-old roots. After the unification of Italy, it took shape through the famous expeditions of the Duke of the Abruzzi in 1899 and of Commander Umberto Nobile in 1926 and 1928, in which the Royal Italian Navy played a prominent role. Setting sail from Arkhangelsk aboard the ship Stella Polare, the Duke of the Abruzzi aimed to reach the North Pole by dog sled. Although he did not succeed, the expedition nonetheless reached latitudes never before attained.

Polar Museum "Silvio Zavatti," Fermo
(photo by Gianluca Frinchillucci)

Umberto Nobile and Titina, 1926

Dirigibile Italia

The great expeditions led by Umberto Nobile – the first in 1926, together with the Norwegian explorer Roald Amundsen, and the second in 1928, which ended tragically – can be regarded as the first Italian scientific missions in the Arctic, as they also aimed to gather data on oceanography, meteorology, geography, and geophysics. The rescue operations organised after the accident that struck the 1928 expedition can be considered the first example of international cooperation in *search and rescue.*

From the same period dates the activity of the Royal Navy ship Città di Milano, dispatched to support Nobile's 1928 expedition. Led by Commander Giuseppe Romagna Mannoia, the Città di Milano collected the first hydrographic data from Kongsfjorden (Bay of the King), which led to the production of nautical charts, including the anchorages of Ny-Ålesund and Kongsfjorden, which remained in the Navy's Hydrographic Institute catalogue until the mid-1960s.
In the 1960s, five expeditions to the Arctic were organised by Silvio Zavatti, an explorer and anthropologist who dedicated his life to studying the peoples of the Far North. Also notable are the expeditions of Milanese entrepreneur Guido Monzino, who in 1971 reached the North Pole on a dog sled.

Silvio Zavatti,
Polar Museum "Silvio Zavatti," Fermo
(photo by Gianluca Frinchillucci)

Building on this rich history, and with the decisive impetus provided by the formation of a polar scientific community around the Italian National Antarctic Research Program (Programma Nazionale di Ricerche in Antartide, PNRA), the 1990s marked the beginning of the current phase of Italy's Arctic engagement – characterized by a continuous presence alongside individual research expeditions. In 1990, Sapienza University of Rome, in collaboration with ENEA, launched a research project at the Arctic Atmospheric Observatory in Thule, Greenland. The Italian National Institute of Geophysics and Volcanology (Istituto Nazionale di Geofisica e Vulcanologia, INGV) later joined the project. In 1997, the National Research Council (Consiglio Nazionale delle Ricerche, CNR) established the Dirigibile Italia research station in the scientific village of Ny-Ålesund on the Svalbard Islands. Alongside these ongoing activities, the CNR and other Italian research institutes and universities have conducted extensive fieldwork across the Arctic region, thereby consolidating their role of high scientific standing. Notably, the Italian National Agency for New Technologies, Energy and Sustainable Economic Development (ENEA), the INGV, and the National Institute of Oceanography and Experimental Geophysics (Istituto Nazionale di Oceanografia e di Geofisica Sperimentale, OGS) have conducted numerous scientific expeditions using the ship OGS Explora and, more recently, the Laura Bassi.

Laura Bassi

*Research vessel *Alliance* sailing through the Arctic Ocean ice during data acquisition operations, Oceanographic Campaign "High North 2024," Svalbard Islands (photo by Marco Villa, credits Hydrographic Institute of the Italian Navy)*

In 2016, the Italian Navy, through its Hydrographic Institute, initiated its engagement in the Arctic by conducting an initial study titled "Dynamics of Arctic Ice Cover and Shipping Routes" ("Dinamiche della copertura glaciale artica e rotte di navigazione".) The following year, the Italian Navy launched the High North Arctic research programme, which contributed to the country's national Arctic strategy. Operated by the Navy with scientific coordination from the Hydrographic Institute, the programme has supported both national and international scientific communities in conducting research in the Arctic marine sector. In 2017, the Hydrographic Institute of the Italian Navy joined the Arctic Regional Hydrographic Commission (ARHC) of the International Hydrographic Organization (IHO) as an Associate member, becoming the only non-Arctic country among its eight members. The Hydrographic Institute plays a pivotal role in the exploration and mapping of the seabed, contributing to the GEBCO-IBCAO initiative and to the global ocean mapping project SEABED 2030, overseen by the IHO, the IOC-UNESCO, and the Nippon Foundation.

Italy's growing contribution to Arctic research laid the groundwork for its successful application for observer status at the Arctic Council, which was granted in 2013. Around the same time, the Arctic Roundtable was established at the Italian Ministry of Foreign Affairs and International Cooperation as a coordination forum that brings together ministries, research institutions, and businesses. The body continues to meet regularly. The Arctic Roundtable also inspired the drafting of the earlier policy document, entitled "Towards an Italian Strategy for the Arctic – National Guidelines," from which this document evolved. From 2016 to 2017, the Foreign Affairs Committee of the Chamber of Deputies conducted a fact-finding investigation into Italy's Arctic strategy. During this investigation, hearings with representatives of Italian institutions, Arctic states, the European Union, as well as the scientific and business communities were held. A similar initiative, entitled "New fact-finding inquiry into the geopolitical dynamics in the Arctic region", was launched in 2025 by the Foreign Affairs Committee of the Chamber of Deputies, which, in light of the growing strategic relevance of the Arctic to national interests, subsequently established a Standing Committee on foreign policy for the Arctic.

A History of Exploration

14th century
Brothers Nicolò and Antonio Zeno

15th century
Pietro Querini

16th century
Giovanni and Sebastiano Caboto

17th century
Francesco Negri

After the Unification of Italy
- 1899 Duke of the Abruzzi
- 1926 and 1928 Umberto Nobile and Roald Amundsen

20th century

1960s
Silvio Zavatti and Guido Monzino

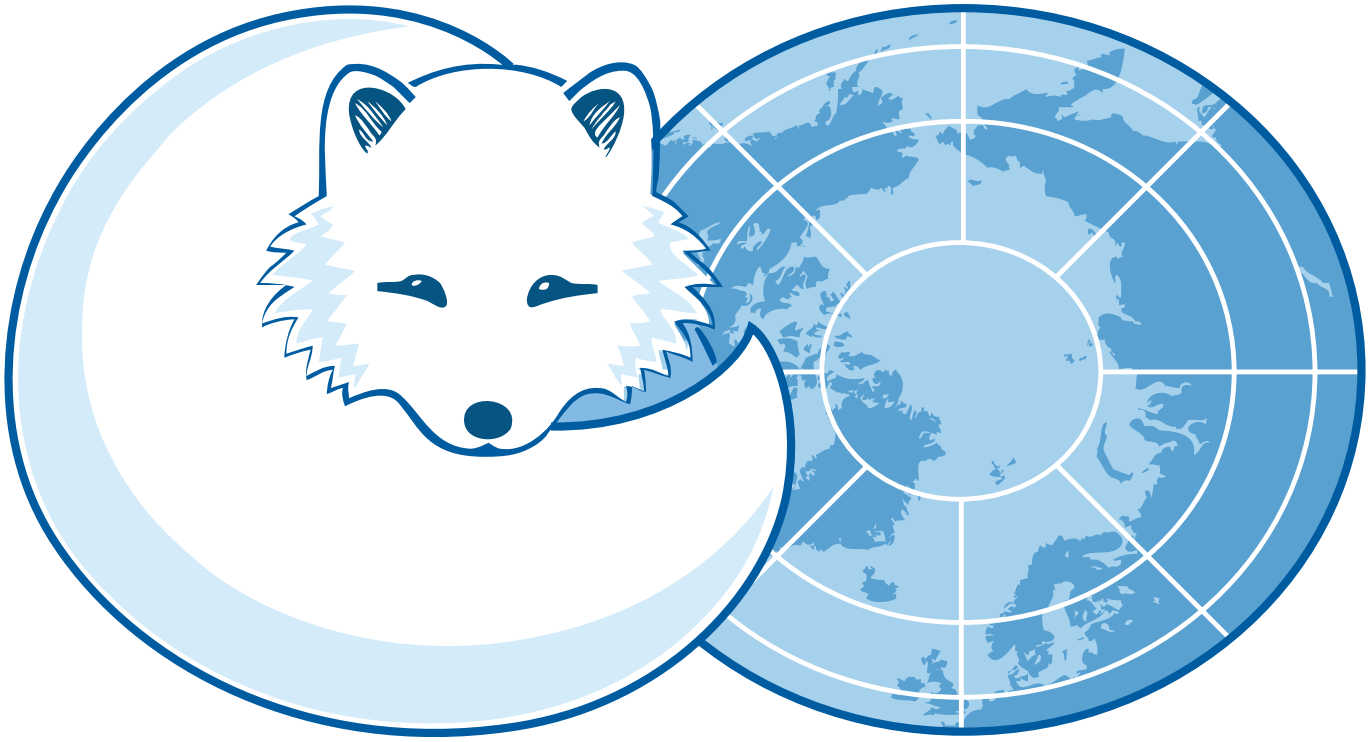
1990s
The structure of Italian scientific research in the Arctic takes shape:
- 1990 Beginning of research activities at the Thule High Arctic Atmospheric Observatory (THAAO) in Greenland
- 1997 The CNR opens the Dirigibile Italia Arctic Station in Ny-Ålesund, Svalbard Islands

21st century
- 2013 Italy becomes an Observer Country of the Arctic Council
- 2013 Establishment of the Arctic Roundtable at the Ministry of Foreign Affairs (Farnesina)
- 2017 Launch of the "High North" Oceanographic Research Program by the Italian Navy Hydrographic Institute (IIM)
- 2018 The Budget Law establishes the Scientific Coordination Committee for the Arctic (CSA) and the Arctic Research Program (PRA)

The effects of climate change and the accelerating pace of global warming, which have been underway for the last decade, have intensified in recent years, characterized by the "great game" in the Arctic between major international powers, with growing implications for security.

The first parliamentary inquiry played a very significant driving role, noting that "in the effort to strengthen the resources allocated to research, it appears urgent that our country recognise the distinct nature of Arctic research by establishing dedicated institutional and financial instruments necessary to strengthen channels of international scientific cooperation and enhance Italian excellence in the sector." As a result, the 2018 Italian Budget Law established the Scientific Committee for the Arctic (Comitato Scientifico per l'Artico, CSA) and the Arctic Research Programme (Programma di Ricerche in Artico, PRA), with an initial budget for the three-year period 2018-2020 that has remained stable to the current three-year period 2024-2026.

Guiding Political Principles



ARCTIC COUNCIL

The fundamental principles guiding Italy's action on Arctic issues are closely tied to its participation in the Arctic Council as an Observer State. Italy regards the Arctic Council as the primary forum for international cooperation in the region and actively contributes to its work within the scope of its remit. The Council's role is seen as essential in maintaining the Arctic as a region characterized by low tension and a high degree of cooperation. Italy intends to continue contributing towards a future of peace and balanced development in the area. Italy is aware that the rising geopolitical tensions of recent years are increasingly affecting the Arctic, and therefore considers the Arctic Council an indispensable instrument for moderating differences among actors and for promoting a shared agenda on issues of common interest.

Italy respects the sovereignty of the Arctic States and upholds international law – particularly the law of the sea – as a solid foundation for the governance of the Arctic marine environment. It also respects the values, interests, culture, and traditions of local and Indigenous peoples, promotes bilateral and multilateral cooperation with Arctic States and with non-Arctic States interested in the region – particularly with regard to scientific research – and is committed to contributing to a better understanding of the Arctic and its specific features within the many international forums relevant to the region.

> **"Italy regards the Arctic Council as the primary forum for international cooperation in the Arctic and actively participates in its work within its remit. Italy considers the Council's role essential in maintaining the Arctic as a region characterized by low levels of tension and a high degree of cooperation"**

Within the framework of the Arctic Council, Italy has appointed representatives for each of the six Working Groups, as well as for several expert groups, in order to provide a concrete contribution to advancing Arctic knowledge and identifying best practices for managing the sensitive issues under discussion. Italy also maintains close contact with the other Observer States, including through the Warsaw Format Meeting, to identify the most effective ways to ensure an increasingly active and constructive contribution from non-Arctic States to the Council's work. Italy is also a party to the 1920 Svalbard Treaty.

To facilitate closer internal coordination and more effective international engagement, the Ministry of Foreign Affairs and International Cooperation established the position of Special Envoy for the Arctic in 2018.

Italy fully adheres to the principles of international maritime law and recognises the central role of the 1982 United Nations Convention on the Law of the Sea (UNCLOS) as a legal framework not only for the delimitation of maritime boundaries but also for navigation, marine environmental protection, biodiversity conservation, scientific research, and the regulation of economic activities, including in areas beyond national jurisdiction. In particular, regarding the protection of biodiversity in areas beyond

national jurisdiction, Italy is a signatory (together with the European Union and all its Member States) of the BBNJ Agreement ("the Agreement under the United Nations Convention on the Law of the Sea on the conservation and sustainable use of marine biological diversity of areas beyond national jurisdiction"), the third implementing agreement of UNCLOS adopted in 2023 and set to enter into force in January 2026.

Furthermore, Italy participates in numerous multilateral instruments which, although not Arctic-specific, are relevant to the safety of the environment and the promotion of sustainable development in the region. These include the Convention on Biological Diversity (CBD), the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78), and the International Convention for the Safety of Life at Sea (SOLAS). Italy is also an original signatory

> **"Italy fully adheres to the principles of international maritime law and recognizes the central role of the 1982 United Nations Convention on the Law of the Sea (UNCLOS)"**

Senior Arctic Officials, Permanent Participant Heads of Delegation, and Arctic Council Secretariat Director with SAO Chair Aleksi Härkönen. (Photo: Kaisa Sirén / Finland's Ministry of Foreign Affairs)

Enzo Barracco, Arctic Circle, 2025

Enzo Barracco is an Emmy-nominated photographer and the author, among various artistic projects, of "The Skin of Rock: Galapagos," "The Blue on Fire: Hawaii," and "The Noise of Ice: Antarctica" (with a preface by Sir Ranulph Fiennes). He is currently working on new imagery from Alaska.

Enzo Barracco, Arctic Circle, 2025

His goal is to create works that document and visualize climate change and the transformation our planet is currently undergoing — a transformation in which we are deeply involved and that is already shaping both our present and our future.

to the Svalbard Treaty, which regulates access to and activities in the archipelago in accordance with Norwegian sovereignty. Italy is therefore committed to promoting a multilateral and inclusive approach to Arctic governance, based on international law and placing particular attention on full compliance with UNCLOS.

Environmental and scientific research issues play a central role in Italy's engagement in the Arctic and in broader international fora relevant to the region, such as the UNFCCC (United Nations Framework Convention on Climate Change), the IMO (International Maritime Organization), and the IHO (International Hydrographic Organization). Priority issues include the study and consequences of climate change, pollution analysis and prevention, marine environment protection, biodiversity conservation, and risk management related to mining activities, navigation safety, and maritime transport. Italy has also participated in the first three Arctic Science Ministerial (ASM) meetings, with the goal of fostering greater international synergy in Arctic scientific research. The experience gained in these fields in the Mediterranean also constitutes a valuable resource for contributing to the further development of work on the Arctic.

The goal of balancing the imperative need for environmental protection with legitimate aspirations for economic development can be more effectively achieved by strengthening scientific knowledge and Italian companies operating in the Arctic. Key sectors of growing potential interest include infrastructure development, energy, the defence industry, space and satellites, critical raw materials, the blue economy, and merchant shipping.

> **"Italy supports the role played by the European Union in the Arctic"**

Several leading companies operating in the region are actively involved in national coordination activities and regularly participate in the Arctic Roundtable. Italian companies operate in the Arctic using the most modern technologies while respecting the delicate environmental context and the local and indigenous communities.

Italy supports the role played by the European Union in the Arctic and the potential impact of its commitment in the region, together with its Member States. The EU has three Arctic States and six Observer States in the Arctic Council and, thanks to its close ties with two other Arctic States – Iceland and Norway, which are members of the European Economic Area – maintains a substantial presence in the Arctic and possesses the resources to make a significant contribution. Italy is committed to strengthening the EU's role in the Arctic by participating in European-level projects and collaborating in relevant areas of action. In this regard, Italy supports the European Union's commitment to a peaceful, sustainable, and prosperous Arctic, sharing the principles and objectives set out in the EU Arctic policy (see European Commission's 2021 Joint Communication, "A stronger EU engagement for a peaceful, sustainable and prosperous Arctic"), which could be strengthened taking into account recent geostrategic and geo-economic changes. The Arctic also receives particular attention in the European Commission's 2025 Ocean Pact Communication, aimed at fostering a strategic and integrated approach to EU maritime policies, particularly with regard to the environment, blue economy, research, and security, while ensuring effective collaboration with regional partners.

Enzo Barracco, Arctic Circle, 2025

Enzo Barracco, Arctic Circle, 2025

Security and International Challenges

The gradual transformation of the international geopolitical context has given the Arctic increasing relevance also from a security perspective. The combination of rapid climate change, greater regional accessibility, the growth of economic activities, and the deterioration of relations among major powers has progressively eroded the framework of stability that had characterized the Arctic in the period following the end of the Cold War.

In this context, Italy acknowledges that the Arctic no longer represents exclusively a space for scientific and environmental cooperation, but today constitutes a strategic dimension interconnected with Euro-Atlantic security and global balances. This calls for a conscious and proportionate approach, consistent with Italy's role as a non-Arctic state, a reliable NATO ally, member of the European Union and Observer State in the Arctic Council, strongly committed to respecting international law and to the promotion of stability.

The strategic context

The geographical position of the Arctic, an area of convergence between Europe, North America, and Eurasia, makes it a potential space for strategic competition among major powers. Already during the Cold War, the region played a central role in nuclear deterrence doctrines; however, today's competition unfolds within a more dynamic framework, characterized by a plurality of domains (land, maritime, air, space, cyber) and by growing interdependencies among security, economy, and the environment.

Russia's invasion of Ukraine in 2022 marked a profound rupture, with direct repercussions also on Arctic governance. The de facto suspension of the Arctic Council's political activities, the increasing militarization of Russia's Arctic zone, and the strengthening of the strategic partnership between the Russian Federation and China have contributed to heightened uncertainty and competition in the region. At the same time, Finland's and Sweden's accession to NATO has redefined the strategic landscape of Northern Europe, reinforcing the Euro-Atlantic dimension of Arctic security.

> **"The Arctic is the theater of competition and possible confrontation among great powers"**

In response to these developments, the Atlantic Alliance and the European Union have progressively intensified their focus on the Arctic and sub-Arctic regions, recognizing their relevance for deterrence and collective defence, the protection of critical infrastructure, the security of communication lines, and access to strategic resources.

Italy's Positioning

Italy addresses the security dimension of the Arctic within the framework of its international commitments and its vision of cooperative security. Participation in the Atlantic Alliance and the European Union constitutes the primary reference for Italian action, which is oriented toward strengthening regional stability and collective security, avoiding escalation dynamics, and preserving, as far as possible, spaces for cooperation.

As a non-Arctic State, Italy does not pursue an autonomous or permanent military presence in the region. Instead, it intends to contribute credibly and responsibly to multilateral deterrence, defence, and crisis prevention initiatives, leveraging its distinctive expertise and an integrated approach encompassing security, scientific research, and advanced technologies.

The Italian action is based on full respect for international law, particularly the United Nations Convention on the Law of the Sea (UNCLOS), and the recognition of the sovereign prerogatives of Arctic States. Italy considers Arctic security to be an international public good, closely linked to European and global stability.

Strategic Lines of Action

Within the framework outlined above, Italy articulates its Arctic guidelines as follows:

- Contribution to deterrence and collective defence: Operating within the NATO and EU context, consistent with commitments and a 360-degree security vision that accounts for the interconnection among the Alliance's Northern, Eastern, and Southern flanks.
- Strengthening situational awareness: Integrating national capabilities across land, maritime, air, space, and cyber domains, with particular focus on monitoring human activities, environmental conditions, and protecting critical infrastructure, including subsea and space assets.
- Security of national civil and scientific activities: Ensuring adequate protection for Italian personnel, infrastructure, and missions in the region, in close coordination with host countries and international partners.
- Development of expertise and capabilities in extreme environments: Promoting the growth of expertise, doctrine, and training for operations in Arctic and

Personnel of the Carabinieri Corps also train within Italy to remain constantly ready for operations in extreme environments. In the photo: divers from the Carabinieri Underwater Unit engaged in search and rescue activities in a frozen lake near Colle della Maddalena (Cuneo), at an altitude of about 2,000 meters. (Photo credits: Danilo Ninotto)

During the NATO exercise Nordic Response 2024, the Italian Army tested its combat capability in Arctic and sub-Arctic environments with a contingent based on the Alpine Brigade "Taurinense." The Army also takes part in research activities aimed at developing materials suitable for use in extreme climatic conditions. (Photo credits: Italian Army)

sub-Arctic contexts, including a dual-use perspective and support for civil authorities.

- Enhancing the space domain and emerging technologies: Acting as a strategic multiplier for Arctic security, resilience, and governance by fostering synergies among Defence, scientific research, and national industry.

National Coordination and Integrated Approach

The growing strategic relevance of the Arctic necessitates a unified, inter-agency approach. Italy promotes reinforced coordination among competent administrations, the Armed Forces, the research community, and the industrial sector to ensure the consistency, effectiveness, and sustainability of national action.

Defence initiatives in the land, maritime, air, and space domains are part of this integrated vision. In the short and medium term, these prioritize support roles for other State authorities and contribute to national interests through proportionate tools compatible with overall operational priorities.

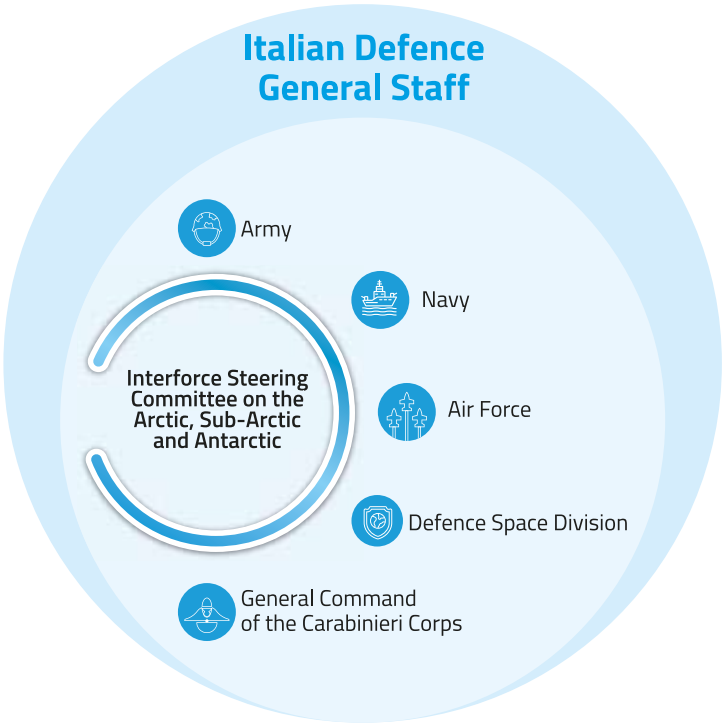
Security Objectives

In the medium-to-long term, Italy pursues the following security objectives in the Arctic:

- Contributing to the Arctic as an area of stability by preventing escalation and supporting multilateral dialogue and cooperation mechanisms;
- Enhancing Euro-Atlantic security consistent with NATO and EU commitments and an integrated vision of different strategic theaters;
- Boosting the capacity for analysis, monitoring, and forecasting of Arctic dynamics to increase situational awareness and resilience;
- Safeguarding the security of Italian scientific, economic, and infrastructural activities in the region;
- Developing expertise, capabilities, and technologies suitable for Arctic and sub-Arctic environments;
- Leveraging the Italian contribution to the definition of standards, best practices, and international initiatives regarding security, navigation, environmental protection, and emergency management;

Italian Defence Initiatives in Arctic and sub-Arctic Environments

The Italian Defence commitment is part of the obligations assumed within NATO and the EU, responding to the need to contribute to collective security, operational skills in extreme environments, and support for national civil and scientific activities.



To this end, the Defence General Staff established an Inter-force Steering Committee on the Arctic, Sub-Arctic, and Antarctica, operating on an inter-agency basis to ensure strategic coordination, under the responsibility of the Deputy Secretary of State for Defence delegate, with the task of implementing the instructions of the Minister of Defence.

Italian Army

The Army contributes to the development of national capacities in the Arctic and sub-Arctic environment through:

- Participation in NATO training and exercises beyond the 70th parallel;
- Development of doctrine, procedures, and combat capabilities in cold climates;
- Establishment of specific Arctic working groups for the Arctic environment;
- Support for polar scientific activities, particularly through Military Alpine Guides from the Aosta Military Alpine School for the National Antarctic Research Program (PNRA) contribution;

The research vessel Alliance, a NATO multi-purpose research unit equipped and operated by the Italian Navy, supports scientific activities such as deep-water and seabed sediment sampling in the Arctic Ocean. In collaboration with the Italian Space Agency, these studies aim to understand the limits of life in extreme terrestrial environments, which are analogous to the icy moons of Jupiter and Saturn. (Photo credits: Italian Navy)

The Italian Air Force conducts training activities in Norway to enhance its ability to operate in extreme climatic and environmental conditions, ensuring logistical support for national and international missions in the Arctic region. (Photo credits: Italian Air Force)

Italian Navy

The Navy plays a central role in the maritime and scientific dimensions through:

- The "High North" multi-year research program (since 2017), with annual campaigns conducted in collaboration with the national and international scientific community;
- Activities by the Navy Hydrographic Institute for the Arctic, engaged in the mapping of the Arctic seabed and in the production of hydrographic data to support navigation safety;
- Training cooperation with Allied and partner Navies to increase navigation capacities in Arctic waters;
- Support for PNRA Antarctic scientific activities with specialist personnel, including divers;

Italian Air Force

The Air Force contributes to polar activities through:

- Logistic and operational support to the PNRA using C-130 aircraft to transport material and personnel;
- Participation in NATO Air Policing missions (NATINAMDS), including sub-Arctic regions;
- Developing operational skills for extreme weather conditions;

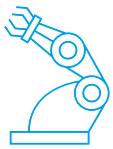
> **"The Atlantic Alliance and the change in the European Union's strategic approach have led, at the national level, to a stronger focus on the Arctic region, also with respect to possible security measures"**

Space Domain

The Space sector is a fundamental strategic multiplier for Arctic activities. In this context, Italy participates in:

- Satellite communication programs (SATCOM) in low orbit within NATO (NORTHLINK) and EU (IRIS²);
- Positioning, Navigation, and Timing (PNT) programs, specifically Galileo;
- Space Situational Awareness initiatives within the EUSST partnership.

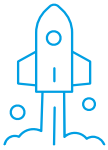
Furthermore, in the field of Earth Observation (EO), the contribution of national capabilities that are already operational or under development is of fundamental importance, such as the Italian COSMO-SkyMed constellation, which already provides high-resolution radar imagery (also of strategic relevance for monitoring Arctic regions under difficult weather and lighting conditions typical of these latitudes). In this context, for both SATCOM and EO capabilities, technical-operational assessments and studies are currently underway for the acquisition of a national low Earth orbit telecommunications constellation with low latency and high throughput, as well as for the development of an Earth Observation constellation with a low revisit time, complementary to existing high-resolution strategic capabilities.
The combination of Defence commitments, characterized by different orders of priority, suggests that, in the short to medium term, for security scenarios related to the Arctic, Sub-Arctic, and Antarctica, priority should be given to support roles for other State authorities in pursuing national interests. This entails continuing the approach already undertaken by Defence with regard to:



The development of the scientific research sector, including through unmanned or robotic systems

Cooperation, with particular emphasis on NATO/EU frameworks and with Arctic and sub-Arctic States

The security of national actors deployed in the Arctic region



The development, within NATO and EU initiatives, of space programs

The protection of national economic and industrial interests

The enhancement of situational awareness. In this context, the contribution of the space sector, both national and international, plays a decisive role also in the continuous monitoring of environmental conditions, the surveillance of human activities, and the protection of critical infrastructure in the Arctic and adjacent areas

The development of expertise and new competencies related to the evolution of concepts, doctrines, procedures, and capabilities (both tactical and operational) associated with the potential employment of troops in harsh and snow-covered climates

Scientific research

Italian scientific research in the Arctic aligns with international priorities and actively integrates with institutions from both Arctic and non-Arctic countries operating in the region. Within this collaborative framework, key political bodies include the Arctic Council and its Working Groups, as well as the Arctic Science Ministerial (ASM). On the scientific level, reference organisations include the International Arctic Science Committee (IASC), the European Polar Board (EPB), the Sustaining Arctic Observation Network (SAON), and the Arctic Science Funders Forum (ASFF).

> **"Since 1997, the Dirigibile Italia research station in Ny-Ålesund serves as a strategic platform for long-term observation"**

Optical characterization of the snow cover in the surroundings of Ny-Ålesund, Svalbard Islands (photo by Mauro Mazzola, credits CNR)

Strategic pillars and methodologies

Italy fully shares the core pillars of Arctic research identified internationally within the ASM framework, around which activities are developed in an integrated way: observe, understand, respond, strengthen. Observation and measurement in the Arctic are crucial for understanding how relevant processes operate and for determining how the system evolves in relation to its forcing factors. These observations are complex because of feedback processes involving various components of the system, as well as the region's peculiar environmental conditions and associated operational costs. International collaboration is essential for data sharing and for the adoption of FAIR standards (Findable, Accessible, Interoperable, Reusable) for polar data. It is also necessary to strengthen understanding and predictive capacity by integrating observations with appropriate modelling approaches, connecting environmental and socio-economic dimensions, and promoting multidisciplinary and interdisciplinary research. Particular emphasis is placed on transregional impacts and cascading effects (teleconnections) on the climate and ecosystems of the Mediterranean and Italy, including the intensification of extreme weather events, alterations in ocean currents, impacts on biodiversity and marine living resources, and, more broadly, on ecosystem functioning. The objective is also to seek a balance between development and protection in the Arctic, promoting sustainability and raising awareness among the public and younger generations. In all the areas of activity mentioned above, the full involvement of local and Indigenous communities is paramount, not only as sources of traditional knowledge and environmental stewardship but also as active partners in the co-design and co-production of scientific research.

“Italy fully shares the core pillars of Arctic research identified internationally within the ASM framework”

Italian research in the Arctic

Internationally, Italy has established itself as an influential and dynamic actor in Arctic scientific research, thanks to a solid framework of initiatives and projects that actively involve institutions and universities. The Arctic Research Programme (PRA) is at the core of this commitment, setting guidelines and funding for three-year activities that address the most urgent polar themes.

Among the projects funded by the PRA are EcoClimate by Sapienza University of Rome, which combines ecological research and technological innovation, and CHANGE, led by CNR-IAS, which—together with Norwegian, Danish, and Finnish universities and research institutes—explores marine biodiversity and ecosystem functioning in little-studied areas of northeastern Greenland. CNR-ISP is responsible for the CHARCOT oceanographic project, which studies environmental changes along a route crossing the North Pole, and takes part in FreshHorn, a project exploring biodiversity and antibiotic resistance in the lakes of the Hornsund area, as well as in LOGS,

> **Internationally, Italy stands out as an influential and dynamic actor in Arctic scientific research**

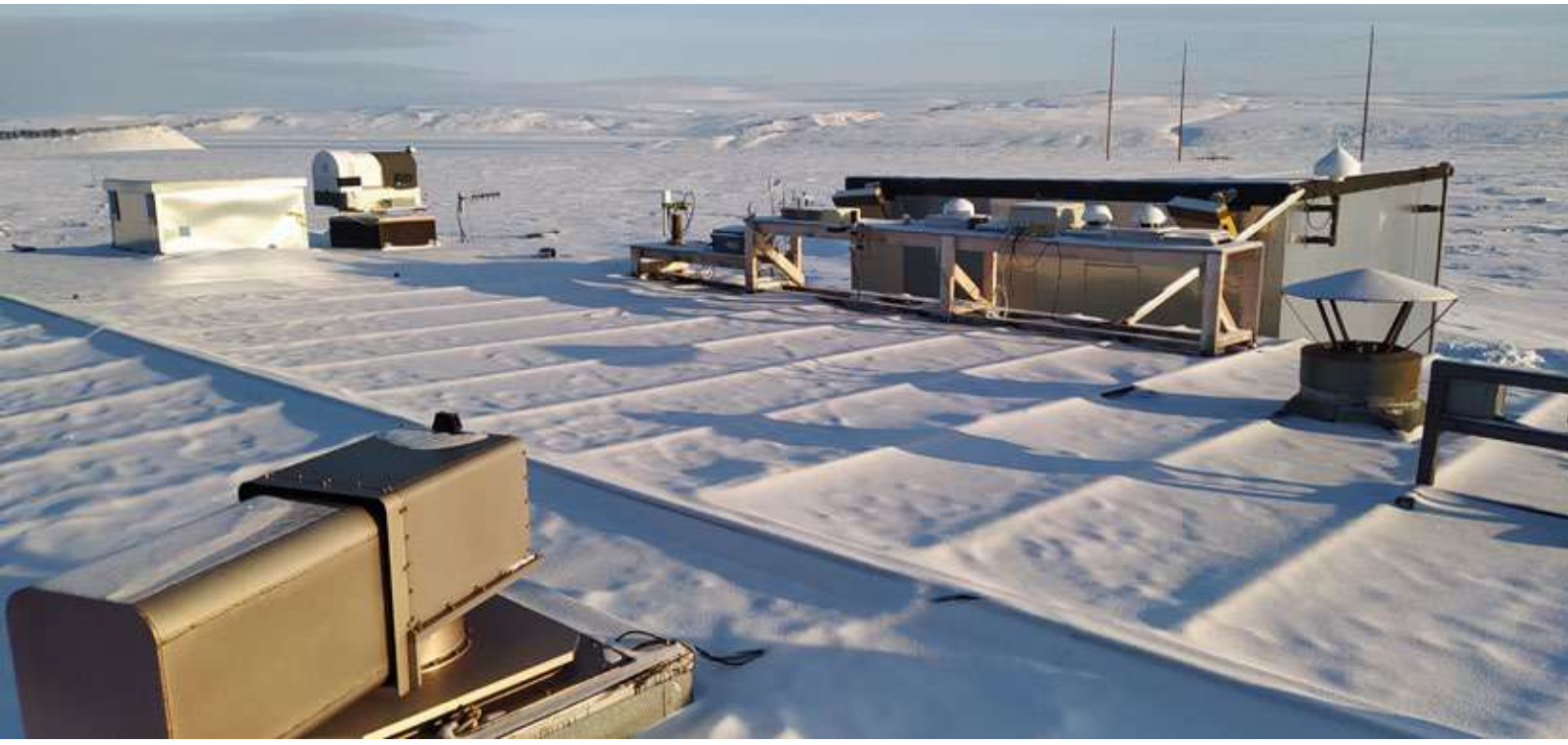
focused on monitoring local glaciers in Greenland, funded by the Greenland Research Council. At the European level, the LIQUIDICE project, funded by the European Commission, examines the effects of climate change on snow, glaciers, ice sheets, and permafrost, developing advanced assessment tools and analyzing the impacts on water resources, hydroelectric power, and local communities. In this context, CNR-ISP plays a central role, assuming numerous scientific and coordination responsibilities. CNR-IGG researches carbon fluxes and winter geo-biological processes in tundra environments (PRA Winter-CZ) and hydrological dynamics linked to interactions between meltwater and groundwater (PRA ICEtoFLUX). It has also long studied hydrothermal fluids on the ocean floor, collaborating with Norwegian universities on hydrothermal circulation and metalliferous deposits along the Arctic Knipovich Ridge. Since 2014, CNR-IAS has undertaken international projects (CalvingSeis and Kuam) in collaboration with partners including the University of Oslo and the Norwegian Polar Institute, to study marine biodiversity and the impact of climate change and human

The CNR Arctic Station Dirigibile Italia, located in the research village of Ny-Ålesund, Svalbard Islands (photo by Simonetta Montaguti, credits CNR)

activities using two passive acoustic monitoring sites in Kongsfjorden. In addition, the SEDNA project, funded by MUR-PRIN 2022, assesses changes in the migratory and feeding behaviour of fin whales as a consequence of environmental variations in the same area.

The primary infrastructure for Italian research in the Arctic is the Dirigibile Italia station in Ny-Ålesund, Svalbard Islands. Managed by the National Research Council (CNR) and operational since 1997, the station is fully functional thanks to the CNR-ISP, which oversees technical and logistical operations and coordinates scientific activities in close collaboration with partners in the Ny-Ålesund research village. Dirigibile Italia hosts numerous research projects and scientific campaigns every year, regularly welcoming Italian and international colleagues. It serves as a strategic platform for long-term observation and the development of interdisciplinary projects, with a particular focus on climate change, the Arctic atmosphere, carbon and hydrological cycles, biodiversity, and interactions among the ocean, ice, and biosphere. In Svalbard Islands, the CNR collected ice cores for the renowned international project ICE MEMORY, which aims to preserve glacial

THAAO Observatory (Thule High Arctic Atmospheric Observatory) dedicated to the study of the Arctic climate, with some of its components, Greenland (credits INGV and ENEA)



THAAO Observatory (Thule High Arctic Atmospheric Observatory), panoramic view of the roof with various sensors for measuring atmospheric properties (radiation, optical properties, and vertical profiles of the atmosphere, particulate sampling), Greenland (credits INGV and ENEA)

Seismic and tide-gauge station along the Wolstenholme Fjord, north of Pituffik, Greenland (credits INGV and ENEA)

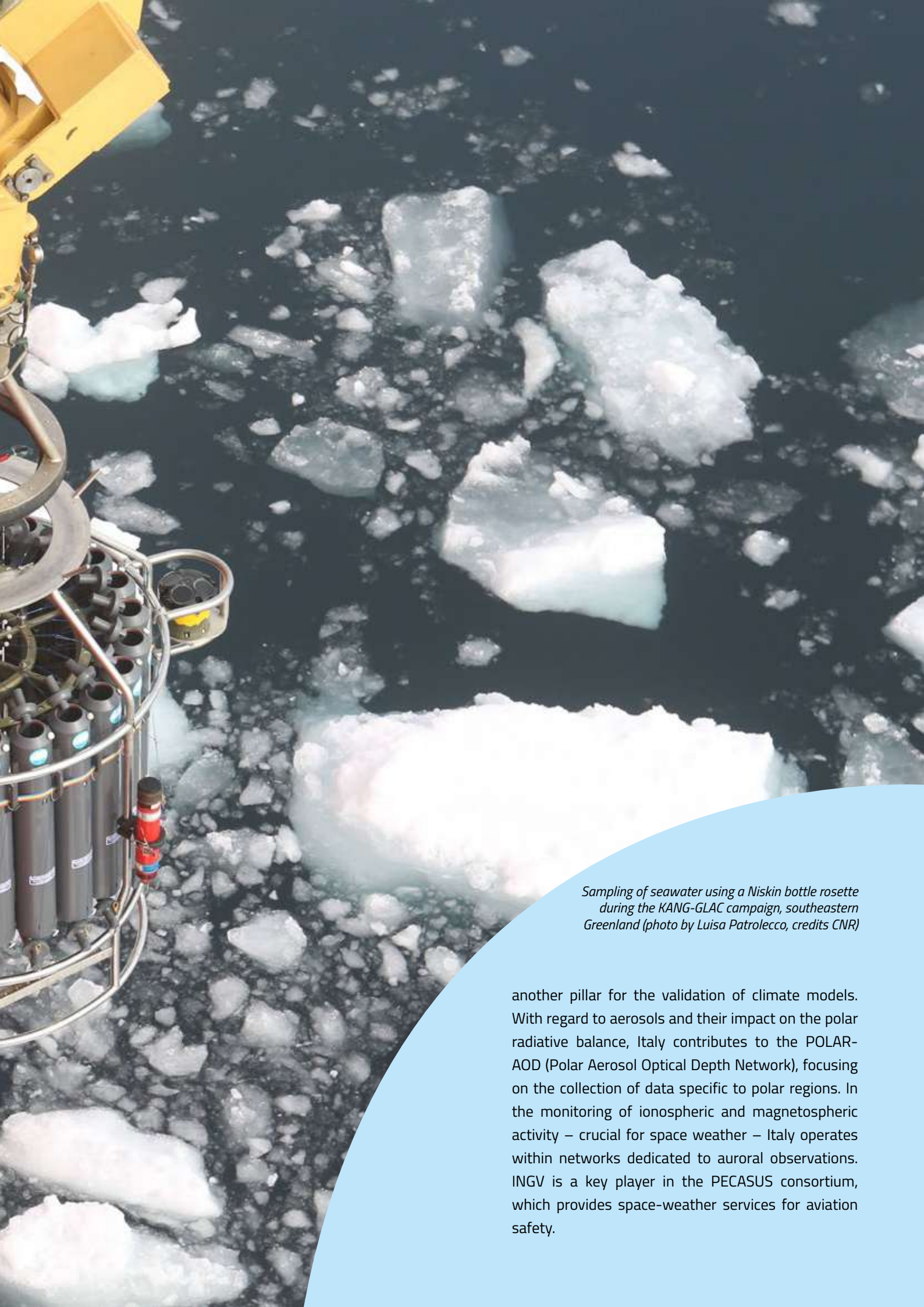
archives of past climate and atmospheric conditions at the Antarctic Ice Memory Sanctuary, for the benefit of future generations of researchers. A significant volume of activity – particularly by Sapienza University, ENEA, and INGV – is also carried out at the Thule-Pituffik High Arctic Atmospheric Observatory (THAAO), which has been operating in Greenland since 1990. These fixed observational platforms were joined in 2019 by the PC-5 Polar Class research vessel Laura Bassi, managed by OGS, which undertook its first Arctic expedition in summer 2021, hosting three PRA-funded projects. The Italian research fleet also comprises the vessel Gaia Blu managed by CNR and, from 2027, the Hydro-Oceanographic

Rendering of the ship Quirinale, the new major hydro-oceanographic vessel of the Italian Navy. The boat, soon to be delivered to the Navy, will have an ICE-7 ice class and an additional notation of Winterization -16 °C, enabling it to operate in polar environments. (credits Hydrographic Institute of the Italian Navy)

Major Vessel Quirinale, whose advanced technology and notable size will make it a key asset of the Italian Navy for scientific activities, including in polar regions. The vessel will be one of the world's most advanced research units, offering unique capabilities for polar exploration.

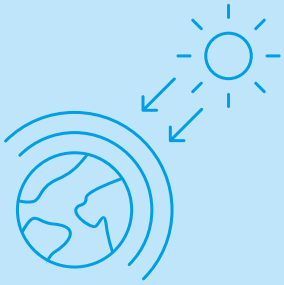
A further pillar is the multi-year High North Arctic research programme of the Italian Navy. Launched in 2017 and now in its third three-year phase, the programme conducts annual campaigns in the Arctic, involving the leading Italian research bodies – CNR, ENEA, INGV, and OGS – within the framework of international collaborations with NATO CMRE and the EU JRC. In the field of Earth observation, a relevant initiative is the ARNACOSKY (ARctic NAvigation with COsmo SKYmed) project, developed and conducted with e-GEOS, a Telespazio subsidiary, specialising in navigation safety and environmental monitoring. Italy's international commitment in the maritime domain is particularly significant, with a major contribution to hydrographic activities in the Arctic, to mapping unexplored seabed, and to improving navigation safety. Its engagement is realised through the participation of the Italian Hydrographic Institute in the General Bathymetric Chart of the Oceans (GEBCO) and in the Arctic Regional Hydrographic Commission (ARHC), and of OGS in the International Bathymetric Chart of the Arctic Ocean (IBCAO) Committee, operating under the auspices of UNESCO's Intergovernmental Oceanographic Commission (IOC) and the International Hydrographic Organization (IHO). Italy is also actively involved in the Seabed 2030 project, which aims to complete the global mapping of the ocean floor.

Italy extends its scientific commitment in the Arctic far beyond individual expeditions, actively participating in several regional and global observing networks. This participation is crucial for the systematic and long-term collection of data in various domains, which is essential for understanding the rapid changes affecting the polar region. Italy also participates in the BSRN (Baseline Surface Radiation Network), whose precise measurements of solar and thermal radiation fluxes are



Sampling of seawater using a Niskin bottle rosette during the KANG-GLAC campaign, southeastern Greenland (photo by Luisa Patrolecco, credits CNR)

another pillar for the validation of climate models. With regard to aerosols and their impact on the polar radiative balance, Italy contributes to the POLAR-AOD (Polar Aerosol Optical Depth Network), focusing on the collection of data specific to polar regions. In the monitoring of ionospheric and magnetospheric activity – crucial for space weather – Italy operates within networks dedicated to auroral observations. INGV is a key player in the PECASUS consortium, which provides space-weather services for aviation safety.



In the field of marine sciences, Italy is an integral member of Arctic-ROOS (Arctic Regional Ocean Observing System), a network operating within the broader GOOS (Global Ocean Observing System) to coordinate and improve Arctic oceanographic observations, from temperature and salinity to sea ice. OGS and CNR contribute crucial data from their oceanographic moorings, which are positioned off Svalbard.

The contributions of CNR and other Italian research institutions to atmospheric, cryospheric, and oceanic observations in the Arctic, within new satellite missions of the European Space Agency (ESA) and EUMETSAT, should also be acknowledged.

Italy likewise places great emphasis on the management and dissemination of scientific data, recognising that the knowledge generated through research must be accessible and reusable. To this end, the Italian Arctic Data Centre (IADC) plays a crucial role. Consistently supported by the Arctic Research Programme (PRA) and managed by CNR-ISP, the IADC serves as a central hub for archiving, organising, and distributing the valuable datasets collected during Italian Arctic campaigns, in line with the FAIR (Findable, Accessible, Interoperable, Reusable) principles. This digital infrastructure is indispensable not only for Italian research but also for contributing to major international databases and global climate models, strengthening transparency and scientific collaboration worldwide.

Moreover, as a Member State of the European Union, Italy attaches great importance to, and participates actively in, EU coordination initiatives for the Arctic, such as the POLAR CLUSTER and the European Polar Coordination Office (EPCO), as well as in projects funded under Horizon 2020, Horizon Europe, and by the European Research Council (ERC). Among these, the Horizon LIQUIDICE project stands out for its broad international scope, bringing together 18 research institutions in Europe and India to study the impacts of climate change on snow, ice, and permafrost in vulnerable regions.

From an infrastructure perspective, Italy's role – through the CNR – in the Svalbard Integrated Arctic Earth Observing System (SIOS) and in the International Network for Terrestrial Research and Monitoring in the Arctic (INTERACT), is particularly noteworthy within the European research-station network. Activities have focused on the study of ecosystems, geosciences, and Arctic biodiversity, including within the POLARIN project, which aims to consolidate an international network of polar research infrastructures spanning the Arctic and Antarctic. Italy also contributes to, and benefits from, participation in networks such as ARICE (Arctic Research Icebreaker Consortium), which facilitates access to crucial infrastructures, including icebreakers, and EUROFLEETS, which coordinates European research vessels. Italian ships such as Laura Bassi and Gaia Blu actively contribute to this effort. Italy also adheres to NDACC (Network for the Detection of Atmospheric Composition Change), a global network of stations monitoring atmospheric composition – from greenhouse gases to ozone – for climate observations, with instrumentation hosted at the Italian Dirigibile Italia base in Ny-Ålesund.

Scientific objectives

Italy's scientific objectives in the Arctic aim to consolidate and expand its role in polar research, actively contributing to the understanding and sustainable management of this rapidly changing region. In particular, Italy is committed to:

- fostering continued and active participation in international and European coordination bodies and actions, providing tangible support and strengthening its role as a reliable and proactive partner in Arctic scientific and governance agendas.
- joining major international projects and the collective effort to improve and harmonise observing systems, contributing to the development of a robust, integrated and long-term Arctic observation network.

> **"A significant volume of activity is also carried out at the Thule-Pituffik High Arctic Atmospheric Observatory (THAAO), which has been active in Greenland since 1990"**

- contributing to the growth of research infrastructures and networks in the Arctic, promoting access to and optimal use of existing facilities and the creation of new observing platforms, including through the development of emerging technologies (autonomous sensors, drones, and artificial intelligence for data analysis).
- promoting the multidisciplinary study of Arctic environmental evolution and of interactions among atmosphere, ocean, soil, bedrock, groundwater, and sea and land ice (also through ship-of-opportunity activities and international agreements to optimize the use of research vessels), including biotic interactions with flora and fauna, the study of the microbiome, and marine biological resources.
- providing a concrete contribution to the themes promoted by the ASM, with particular attention to capacity building, education, networking, and resilience, encouraging the training of new generations of polar scientists, the transfer of skills, and the development of a global network of researchers and stakeholders.
- contributing to scientific research on "Responsible Arctic Climate Intervention", providing evidence-based information, and exploring the ethical, environmental, and socio-economic implications of potential large-scale climate interventions in the Arctic.

- strengthening interaction and collaboration with local and Indigenous communities, promoting their active involvement in widespread information and data collection, in setting research priorities, and in disseminating results, to ensure that science is relevant to communities and supports the preservation of traditional knowledge.
- developing and implementing strategies for the open and interoperable management and dissemination of polar scientific data, in line with the FAIR (Findable, Accessible, Interoperable, Reusable) principles, including through the reinforcement of the Italian Arctic Data Centre (IADC) and integration with international data platforms.
- exploring and anticipating new challenges and opportunities related to Arctic change, including impacts on human health (pathogens in permafrost, emerging contaminants, antibiotic resistance,

harmful algal blooms), on infrastructure safety, and on resources (sustainable fisheries, maritime traffic management, water, energy, and mineral resources), providing scientific bases for environmental protection, sustainable development, and biodiversity conservation policies that enhance ecosystem resilience.

- promoting technological innovation and the transfer of knowledge from the research sector to the industrial and public sectors, fostering the development of solutions and services that can benefit both research and Arctic and global communities
- actively contributing to initiatives related to the 5th International Polar Year (IPY-5 2032/33) by participating in the planning, implementation, and dissemination of the results of polar campaigns, fostering global collaboration and scientific coordination to enhance the understanding of polar processes on a planetary scale.

Snow trench for the chemical-physical characterization of annual snow precipitation on the Lovénbreen glacier, near Ny-Ålesund, Svalbard Islands (photo by Marianna D'Amico, credits CNR)

The economic dimension

Global warming is having increasingly disruptive effects, and the Arctic is the region experiencing these changes with the greatest intensity. The term "Arctic Amplification" is being used with growing frequency to emphasize the fact that warming in the Arctic is occurring at a significantly faster pace than in the rest of the planet.

These changes primarily affect Arctic ecosystems, influencing the distribution and survival of both plant and animal species. They also have environmental impacts on the well-being, health, and safety of Arctic populations, as well as on the preservation of Indigenous traditional cultures. The Arctic region is home to approximately four million people, as well as numerous indigenous groups, including the Inuit, Yupik, Aleut, Yakut, Komi, Nenets, Tungus, and Sámi. Many of these groups have been rooted in their territories for centuries and live across several Arctic countries.

Staffan Widstrand / WWF

Indigenous populations primarily rely on hunting, fishing, and herding, but they face constant challenges arising from climate change, which is increasingly affecting their traditional way of life. Italy recognises the importance of including Indigenous peoples in both regional and international contexts, promoting development that respects this highly fragile environment. These communities possess a profound understanding of the region's land and waters, and are most capable of devising effective measures and actions to address the current situation.

Once the sources and impacts of Arctic environmental stressors and pollutants are identified, it will be necessary to promote approaches and measures that can reduce their effects. The combination of the Arctic ecosystem's unique sensitivity and the legitimate interests of local populations in harnessing the region's potential makes the Arctic one of the most significant areas for the concrete application of the principles of sustainable development. There is therefore a strong need to operate there with the highest technological standards – an area in which Italian enterprises excel across many sectors.

Major Italian companies are already active in various fields. They are fully involved in the work of the Arctic Roundtable, fostering synergies among Italy's institutional, scientific, and industrial stakeholders. In their respective activities, they bring national technological excellence and strong environmental expertise, and they are fully aware of the importance of involving local and Indigenous populations in their initiatives, recognizing them as holders of traditional ecological knowledge essential to the sustainable management of the region.

> **"Italy recognizes the importance of including Indigenous peoples in both regional and international contexts, promoting development that respects this highly fragile environment"**

In the energy sector, ENI has gained extensive experience in highly complex environments such as the Arctic, demonstrating a strong awareness of climate change impacts and commitment to ecosystem preservation. Within a broader collaboration with the Italian National Research Council (CNR), ENI has conducted in-depth research on environmental transformations in the Arctic through the establishment and development of the Aldo Pontremoli Research Center.

In the space and satellite observation sector – highly relevant in the Arctic due to its security implications, maritime monitoring, pollution control, sea ice movement observation, meteorological applications, and emergency response – e-GEOS, a joint venture between the Italian Space Agency and Telespazio, operates actively, managing and extracting valuable information from the COSMO-SkyMed satellite system. The synergy between applied research and the high scientific quality of Italy's industrial sector has enabled the continuous development of advanced technological capacities in the field of satellite observation. Furthermore, constant operational dialogue between Space Agencies, reinforced by specific agreements, has facilitated institutional collaboration and financial commitment in a sector experiencing rapid global expansion.

The development of Arctic maritime routes, which present unique conditions requiring specific navigation rules and the construction of Polar Code-compliant and icebreaking vessels, offers significant opportunities in shipbuilding. This is particularly true for Italy, which boasts a long-standing maritime tradition that ensures its competitiveness – as demonstrated by Fincantieri's activities in Norway, through its subsidiary Vard, where the company has achieved world leadership in the

> **"The Arctic is one of the most significant areas for the concrete application of the principles of sustainable development"**

naturepl.com / Steven Kazlowski / WWF

design and construction of vessels dedicated to Arctic operations, including research, work, and infrastructure protection ships.

Fincantieri has also invested in the underwater sector, which is experiencing significant growth in the Arctic Ocean and attracting the interest of several other Italian companies, particularly with regard to subsea operations, diving systems, and digital connectivity for the production of high-capacity submarine cables and the construction of resilient infrastructure along emerging Arctic routes.

In the defence sector, Leonardo has been actively involved in the region since 2019, participating in the Arctic Security and Emergency Preparedness Network (ARCSAR), an initiative bringing together security forces, civil authorities, research centres, and industrial actors from Arctic and Atlantic countries to respond to emergencies, natural disasters, and risks associated with the increasing maritime activity in the Arctic.

Several studies indicate that the Arctic region hosts significant and largely unexplored energy and mineral resources, including critical metals essential for the green transition and decarbonisation. The progressive thinning of the ice cover will increase access to these resources, whose exploitation in challenging environmental conditions will require substantial investments and extensive use of cutting-edge technologies.

The pursuit of the energy transition will also foster the development of technologies aimed at increasing renewable energy and energy efficiency. Italian industrial expertise can be directly applied to the Arctic to support the development of clean energy solutions at a local level but with broader impacts, looking in particular at collaborations for harnessing wind and marine energy while respecting the Arctic ecosystem. Italy was the first country in the world, in the early 20th century, to use geothermal heat for commercial electricity production,

and currently represents the leading geothermal power producer in Europe, followed by Iceland. In the field of geothermal energy, Italy aims to develop synergies with Arctic countries for the application of technologies that contribute to reducing greenhouse gas emissions. A notable example of this commitment is the Italy-Iceland Memorandum of Understanding on geothermal energy cooperation, signed in 2024.

ENEL Green Power, which manages geothermal plants in Italy and is active on various international projects, plays a leading role in the Italian geothermal sector.

Within the context of the energy transition and global supply chains, an increasingly important role will be played by Greenland, whose mineral resources in many cases still need to be verified through field exploration rather than relying solely on geological estimates. Investments in the extractive sector in Greenland will initially develop slowly, due to high costs and environmental considerations, but are expected to grow in the medium term due to the substantial existing and yet-to-be-discovered resources.

Well-being in the Arctic region also depends on the development of dedicated infrastructure. Telecommunications, increasingly strategic for connecting people in such remote areas, and transport networks are essential to improving mobility and connectivity. Significant opportunities are also expected to emerge in ultra-energy-efficient construction, eco-design, and the recovery of waste materials within a circular economy framework. These sectors also offer avenues for Italian excellence.

Overall, the Arctic represents a steadily growing economic opportunity for Italian enterprises, encompassing sectors such as infrastructure development, renewable energy, the defence industry, minerals and rare earths, biotechnology, and the entire blue economy, founded on the principles of circularity and sustainability.

Italy's capacity to take on pioneering challenges and combine applied research, advanced technology, and a balanced commitment to cultural and environmental protection represents the added value of its contribution to the sustainable development and economic growth of the Arctic region.

Public Diplomacy

An increasingly important dimension is the dissemination of Arctic-related themes, aimed at raising public awareness, particularly among younger generations. As illustrated in the previous chapters, the Arctic is no longer a geographically distant place but a crossroads of global challenges that will shape the future of our planet – both a significant resource and a potential source of crisis.

Arctic Connections 2023, Rome, SIOI

Therefore, scientific and public diplomacy actions are required to present global challenges more effectively, and to highlight Italy's commitment to playing a more active and diversified role in the Arctic.

In this regard, the decision of the Italian Government – taken on the initiative of the Ministry of Universities and Research, with the support of the Ministry of Foreign Affairs and International Cooperation – to host the Arctic Circle Forum Polar Dialogue in Rome on 3–4 March 2026, at the CNR headquarters, represents a milestone in Italy's Arctic engagement.

> **The 2026 Arctic Circle Forum Polar Dialogue in Rome**

The initiative to organize a major international Arctic event follows a long-standing commitment by Italian institutions, reflected in their regular participation in the main Arctic fora, starting with the Arctic Circle Assembly in Reykjavik, where Italy has hosted dedicated sessions to present its Arctic engagement, bringing together all research institutions and companies active in the region. International and national conferences, as well as exhibitions such as the CNR's "Arctic – An Interactive Journey to the North Pole", which has been regularly updated and presented across Italy for over two decades, have contributed to raising public and youth awareness from an early age. The Italian Navy Hydrographic Institute's exhibition "The Italian Navy at the North Pole" ("La Marina Italiana al Polo Nord") has also served this purpose.

A growing impetus for Arctic awareness and outreach has also emerged from the think tank community, where the contribution of the Italian Society for International Organization (SIOI) has been particularly distinguished. Since 2016, SIOI has offered a Master's programme in "Environmental and Economic Sustainability Policies: from the Arctic Region to the Global Dimension" and, since 2018, has organized the international symposium "Arctic Connections" in collaboration with the University of Bodø in Norway. By recognizing the strategic and global significance of the Arctic early on, SIOI played a pioneering role at a time when the issue had not yet entered the international agenda. In recent years, new organisations have also emerged, such as the Osservatorio Artico, an Italian news and research organization focused on the Arctic, founded in Genoa. Since 2021, it has organized the "Italia Chiama Artico" Festival and continuously monitors developments in the region. Another is the Osservatorio Intelligence Artico, which focuses more on Arctic security issues. The latter has organized public events linked to the publication of specialist volumes, also highlighting new concerns such as the risk of international organised crime infiltration in Arctic regions.

Universities have also made a significant contribution, helping to disseminate Arctic knowledge within broader contexts such as climate change, renewable energy, biodiversity, and international maritime law.

Polar Museum "Silvio Zavatti," Fermo (photo by Gianluca Frinchillucci)

Major Italian companies, such as ENI, have complemented their economic activities with Arctic research efforts and publications addressing global current affairs.

A flagship initiative in higher education and a strategic step in training the next generation of polar scientists is the International PhD Programme in Polar Sciences, coordinated by Ca' Foscari University of Venice. This programme of excellence is actively supported by leading national research bodies, including the National Research Council (CNR), the National Institute of Geophysics and Volcanology (INGV), and the National Institute of Oceanography and Applied Geophysics (OGS). It aims to train highly qualified and multidisciplinary researchers, providing advanced scientific expertise in the various domains of polar sciences – from oceanography and the atmosphere to the cryosphere and ecosystems – while fostering an international and collaborative mindset essential for addressing Arctic challenges and ensuring the renewal of expertise across generations.

Within the inter-university framework, ICLOS (Italian Centre for the Law of the Sea) also operates — an initiative of excellence launched by six Italian universities (Rome Tor Vergata, Genoa, Macerata, Messina, Naples "L'Orientale," and Milan-Bicocca). It promotes research, training, and knowledge in the fields of the law of the sea, maritime spatial planning, and the blue economy, with a particular focus on the Arctic.

Another remarkable initiative for its role in disseminating and promoting Arctic values is the Polar Museum in Fermo, established within the Silvio Zavatti Polar Geographic Institute and based on the rich intellectual and material legacy of the renowned explorer and scholar of Arctic Indigenous peoples. The Institute also publishes the quarterly journal Il Polo, serving the same mission. Finally, a small museum in Lauro, Umberto Nobile's hometown in the province of Avellino, commemorates the pioneering Arctic explorer and builder of the airship to which the CNR scientific station in the Svalbard Islands is dedicated.

General objectives

Consolidate Italy's role as a non-Arctic country engaged in Arctic matters across all relevant international fora and symposia

Contribute to the upholding of international law, particularly the United Nations Convention on the Law of the Sea (UNCLOS), with regard to the Arctic, the protection of its unique environment, and the regulation of human activities therein

Support the Arctic Council – the leading regional forum that fosters cooperation for the preservation of a region crucial to the planet's stability – by maintaining an active and continuous dialogue with Member States, Permanent Participants, and other Observers

Contribute to security and deterrence in the Arctic through Italy's engagement in NATO, while keeping a balanced perspective on the evolving geopolitical environment and the risks of growing tension

Support the European Union's growing engagement on Arctic issues, recognising the Arctic as a European region and promoting stronger North–South links from the Arctic to the Mediterranean as a means to reinforce continental cohesion. A more active EU role is also needed as European Arctic States are increasingly affected by the growing geopolitical competition among major powers in the region

Strengthen relations with the European Arctic countries (Denmark/Faroe Islands/Greenland, Finland, Iceland, Norway, and Sweden), including at the bilateral level, taking into account current international security challenges

Develop stronger Arctic cooperation with the North American Arctic countries (Canada and the United States), acknowledging the diversity and vast geographical scope of the Arctic region

Reinforce Italy's scientific research in the Arctic through increased support for the Arctic Research Program (PRA), aligning its resources with the growing strategic and scientific relevance that the Arctic will assume in the coming decades

Promote Arctic coordination among the various national administrations, primarily the Ministry of Universities and Research, the National Research Council, and the Ministry of Defence, as well as other ministries concerned with Arctic issues, including the Ministry of the Environment and Energy Security, the Ministry of Enterprises and Made in Italy, and the Ministry for Civil Protection and Maritime Policies

Eastern Greenland
(photo by Gianluca Frinchillucci)

Seize emerging economic opportunities in the Arctic across multiple sectors for the benefit of Italian enterprises, while consistently taking into account the region's environmental sustainability challenges and the rights of the Indigenous peoples of the Arctic

Promote awareness and understanding of Arctic issues through continuous dialogue with universities, research centres, think tanks, and civil society organisations, encouraging public debate on Arctic affairs

Conclusions

The Arctic is a region undergoing rapid transformation, marked by interconnected challenges and growing complexity that require a balanced and forward-looking approach.

This updated strategic document – issued ten years after a period when Arctic affairs were viewed through a more static yet cooperative lens – seeks to reaffirm Italy's role and commitment in the region, while setting out clear objectives to further consolidate its presence.

The Arctic, once a distant neighbour for Italy, is now moving closer. A significant part of Arctic territory lies within Europe, and the continent's integration must also include the strengthening of the North–South axis from the Arctic to the Mediterranean – two regions both deeply affected by climate change.

The awareness that developments in the Arctic will directly affect the lives of future generations is no longer a mere projection, but a tangible reality, increasingly visible to all.

In this context, the new strategy promotes a broader and more integrated national approach – one that goes beyond scientific observation, which remains essential, to encompass broader engagement on geopolitical, geo-economic, and security matters. These dynamics, originating in the Arctic – a region comparable in size to Africa and whose anthropogenic activity is set to increase – will inevitably reverberate well beyond the region, influencing both neighbouring and distant areas.

The values of international cooperation in the Arctic remain central to Italy's vision. As reaffirmed in the subtitle of this document, they extend across all dimensions, guided by the conviction that effective responses to complex challenges can only arise through dialogue among States and a strong role for multilateral fora. At the same time, Italy is committed to strengthening the knowledge and analytical capacity needed to manage Arctic transformations effectively.

There are no easy solutions. Climate change, the loss of biodiversity, the pursuit of low-carbon and renewable energy resources, the opening of new maritime routes, and the policies and investments linked to military deterrence are all global challenges that converge in the Arctic, having a profound impact that extends well beyond it. It is therefore essential to address these issues through a systemic and integrated approach, capable of setting medium and long-term priorities consistent with Italy's key national interests.

> **"The continent's integration must also include the strengthening of the North–South link from the Arctic to the Mediterranean"**

All the objectives in this document are of paramount importance. Stronger political engagement – both bilateral and multilateral – with Arctic States and with all partners interested in the region should aim to expand and diversify Italy's presence, reaffirming its role as a solid and reliable partner within the Arctic Council. The security dimension – in all its aspects, not only military and deterrence-related but also human, infrastructural, and environmental – should evolve into a policy framework of continuous risk assessment and monitoring in support of national interests, grounded in prevention, preparedness, and resilience.

> **The values of international cooperation in the Arctic remain central, guided by the conviction that effective responses to complex challenges can only arise through dialogue among States and a strong role for multilateral fora**

International scientific cooperation in the Arctic and the wider polar regions remains the foundation on which Italy has built a solid and credible reputation. In this framework, strengthening the Arctic Research Program (PRA) is a key priority that will remain central to Italy's Arctic policy. Promoting a spirit of cooperation and the transparent sharing of scientific data, for the benefit of the international community, fully reflects Italy's enduring commitment to Arctic collaboration.

The geo-economic dimension and the development of the Arctic, which is set to see increasing human activity driven by increasing access to maritime routes and natural resources, as well as the growing mobility and connectivity of local and Indigenous communities will also require Italy's continued engagement and attention. Italy's well-established technological capabilities, combined with its strong focus on sustainability, represent a valuable contribution to development that respects the Arctic's fragile environment.

A wider understanding of polar challenges, and their global implications for the planet's future, must no longer be confined to a small circle of experts but should become part of society's shared awareness. In this regard, the growing number of outreach and media initiatives devoted to Arctic issues is a positive development that Italy intends to continue encouraging within the framework of its Arctic policy.

In the ongoing search for a balance between cooperation and competition – the recurring rhythm of human history – the Arctic today leans towards growing competition, after having long been a stage for joint endeavours such as Umberto Nobile's pioneering airship expedition, made possible only through the combined efforts of several nations. Even today, the Arctic Circle remains a harsh and partly unexplored environment that demands partnerships, information exchange, and coordinated international responses.

In this context, the Arctic emerges as a frontier of Europe that should be safeguarded and as a region essential to the continent's unity. Europe is defined not by its size but by its diversity – a quality clearly reflected in the Arctic, which today stands among its most valuable regions to preserve.

Rooted in a centuries-old tradition of exploration, science, and geographical discovery, Italy's engagement in the Arctic is guided by openness and cooperation, contributing to the well-being of a region that connects three continents and is fundamental to the health of our planet.

Ministero degli Affari Esteri
e della Cooperazione Internazionale

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