

## Cover sheet

Full name of state or organization:

Italian Republic

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Observer's website, if appropriate:

[www.esteri.it/en/politica-estera-e-cooperazione-allo-sviluppo/aree\\_geografiche/europa/artico/](http://www.esteri.it/en/politica-estera-e-cooperazione-allo-sviluppo/aree_geografiche/europa/artico/)

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Is your state or organization still interested in continuing  
as an Observer of the Arctic Council?

Yes  No

## Observer Report

Please describe in no more than two pages your state's or organization's contributions to the work of the Arctic Council's Working Groups, Task Forces, and/or Expert Groups since the time of your most recent report, or in the previous two years. Please highlight contributions to specific projects, such as through proposals, concept development, in-kind and financial support, and hosting of meetings. Please detail any collaboration with Permanent Participants, such as project proposal endorsement and support.

### INTRODUCTION

Italy considers the Arctic Council the cornerstone of international cooperation on Arctic issues and is determined to continue to contribute actively to its works, mindful of the prerogatives of the Observer States. With this in mind, Italy recognizes the sovereignty of the Arctic States, respects the values, cultures and traditions of local and indigenous peoples, promotes bilateral and multilateral cooperation and is committed to keep the Arctic as an area of low tensions and a high level of cooperation. A document entitled "Towards an Italian Strategy for the Arctic – national guidelines", currently under review, defines the main features of our presence in the Arctic. A senior diplomat has been appointed as Special Envoy for the Arctic: he attends the Ministerial and SAO meetings and, at a national level, chairs the Arctic Scientific Committee and the Arctic Table, a coordination forum of national stakeholders. The Italian commitment on the issue of climate change has also been highlighted during the 2021 Italian Presidency of the G20 and co-hosting of UNFCCC COP 26.

Italy boasts a long history of engagement in the Arctic, led by a prominent scientific research, whose main point of reference is the "Dirigibile Italia" station, established by CNR at Ny-Ålesund, Svalbard Islands, in 1997. Extensive scientific activities, mainly by ENEA, INGV and University of Rome, have also been carried out in Greenland, at the Thule High Arctic Atmospheric Observatory (THAAO), since 1990. In this framework, Italy gives a high priority to its contribution to the works of the Arctic Council and identified representatives for the six permanent working groups, as well as for some expert groups. The Italian delegates come from different institutions: the Ministry of Ecological Transition (MITE), the Hydrographic Institute of the Italian Navy (IIM), the Italian Guard Coast (ITGC), the Italian Institute for Environmental Protection and Research (ISPRA), Universities and the primary research institutions (National Research Council - CNR; National Agency for New Technologies, Energy and Sustainable Economic Development - ENEA; National Institute of Geophysics and Volcanology -INGV; National Institute of Oceanography and Applied Geophysics - OGS), in a collective effort to support the Arctic Council works with our best expertise.

Moreover, Italy esteems of paramount relevance the field of education and training in Arctic-related issues. The International PhD course in Polar Sciences (activated in 2019) at the Ca' Foscari University in Venice, in cooperation with CNR, INGV, the Bicocca University of Milan, the University of Pisa and the Insubria University, is the most relevant initiative. Around 30 Ph.D. grants have been awarded in the first three years. In addition, Ca' Foscari organizes, with the Euro-Mediterranean Center on Climate Changes (CMCC) and OGS, a Master and a PhD course in Science and Management of Climate Changes. SIOI (Italian Society for International Organization) is a member of UArctic since 2018 and organizes, since 2016, a Master Course in Sustainable Development, Geopolitics of Resources and Arctic Studies, which includes specific lessons on the Arctic Council. SIOI also organizes annually, since 2018, an international symposium, "Arctic Connections", in cooperation with the University of Bodo and the Norwegian Embassy in Rome. Furthermore, the Polar Geographical Institute "Silvio Zavatti" manages a Polar Museum in Fermo and publishes, in Italian, a quarterly, "Il Polo", largely devoted to subjects related to indigenous peoples.

Finally, Italy considers of utmost importance the engagement of companies operating in the Arctic in the crucial challenge of balancing economic development and environmental conservation. In this respect, technological expertise of the Italian industry is a significant asset, offering comprehensive and innovative solutions to minimize the effects on habitat and biodiversity and enhance the wellbeing of indigenous people.

## ITALIAN PARTICIPATION IN THE ARCTIC COUNCIL WORKING GROUPS

**ACAP.** Dr. Warren Raymond Lee Cairns (CNR-ISP) has continued to attend the ACAP meetings, mainly remotely, also providing a bridge between the ACAP and AMAP POPs and Mercury Expert groups.

**AMAP.** Italy boasts a longstanding, active and continuous participation in AMAP, through the work of Dr. Vito Vitale (CNR-ISP), Dr. Angelo Viola (CNR-ISP) and Dr. Michele Rebesco (OGS).

Italian experts participate in five AMAP Expert Groups: Persistent Organic Pollutants and EG on Mercury - Dr. Nicoletta Ademollo and Dr. Warren Raymond Lee Cairns (CNR-ISP); Short-Lived Climate Forces (SLCFs) - Dr. Vito Vitale (CNR-ISP); Climate - Dr. Vito Vitale (CNR-ISP) and Dr. Florence Colleoni (OGS); Marine Litter and Micro-plastics - Dr. Stefano Aliani (CNR-ISMAR).

They provided concrete contributions in several assessments and reports, such as: POPs and chemicals of emerging arctic concern: influence of climate change, written by the POPs Expert Group; “2021 AMAP Mercury Assessment” and “Summary for Policy-makers”, prepared by the corresponding Expert Group; Arctic Climate Change Update 2021: Key Trends and Impacts, elaborated by the Climate Expert Group; AMAP Litter and Microplastics Monitoring Plan, published by the litter and microplastics expert group; Arctic climate, air quality, and health impacts from short-lived climate forcers (SLCFs), written by the Short-lived Climate Pollutants expert group. In some cases, results have been/will be distributed also through peer review journals.

**CAFF.** Dr. Antonello Provenzale (CNR-IGG) and Dr. Luigi Paolo D'Acqui (CNR-IRET) have regularly attended the CAFF meetings and assured their active contribution.

Dr. Maurizio Azzaro (CNR-ISP) and Dr. Isabella Buttino (ISPRA) participate in the CAFF-PAME Expert Group on “Marine Invasive Alien Species in Arctic Waters”.

**EPPR.** Since 2016, representatives of the Italian Hydrographic Institute (IIM) assured active participation in EPPR, currently Cdr. Maurizio Demarte and Prof. Roberta Ivaldi. They also attend, respectively, the Search and Rescue and the Marine Environmental Response Expert Groups.

In the framework of IT-Navy High North Program, IIM and e-Geos, the leading Italian company in Earth observation and geospatial data, are continuing to implement the ARNACOSKY (Arctic Navigation with COSMOSkyMed) project, based on the COSMO-SkyMed radar satellites, for support activity in search and rescue, environmental emergencies, monitoring shipping routes, oil spills and sea ice dynamics. The system has been developed and tested during “High North” oceanographic campaigns and the results have been illustrated by IIM during EPPR meetings.

Dr. Vito Vitale (CNR-ISP) and Dr. Stefania Amici (INGV) are participating in the EPPR Circumpolar Wildfire project and contributed, in November 2021, to the AC wildland fire sharing circle initiative, presenting activities for a pilot service under development within the frame of the EU Arctic Passion project.

**PAME.** Dr. Luca Fiorani (ENEA) and Dr. Stefano Aliani (CNR) since many years regularly attend PAME meetings and actively contribute to several activities.

In particular, Dr. Aliani has actively participated in the Expert Group on Marine Litter, continuing the contribution started in 2018-19 for the Desktop study on this subject. Dr. Aliani also provides a bridge between PAME and the AMAP Expert Group on litter and microplastics.

Cdr. Antonino Scarpato (Italian Coast Guard) and Dr. Salvatore Mauro (CNR) actively participate in the Shipping Expert Group, including the Polar Code Expert project. Italy shared the national Polar Code implementation requirements, through the dedicated PAME information website.

**SDWG.** The Ministry of Ecological Transition follows the SDWG works. Dr. Vittorio Pasquali (University of Rome “La Sapienza”) actively participated in the meetings of the Expert Group on Arctic Human Health.

**EGBCM.** Dr. Stefania Gilardoni (CNR-ISP) regularly and actively attends the EGBCM meetings. In March 2019, she submitted the national report on black carbon and methane emission data and emission reduction strategies, for the EGBCM summary released in 2021. Dr. Gilardoni continues to follow the discussions for the preparation of the next summary report.

**TFICA.** Dr. Ingrid Hunstadt (INGV) participated in the meetings of this task force and of the previous one, TFTA. Italy is interested to continue to contribute to possible further works on connectivity.

If applicable, please describe in no more than one page your state's or organization's future plans for contributing to the work of the Arctic Council's Working Groups, Task Forces, and/or Expert Groups. Please highlight intentions to contribute to specific projects and to collaborate with Permanent Participants.

Many Italian initiatives provide useful tools to strengthen our engagement in the Arctic Council works.

The Italian Arctic Research Program (PRA) was established in 2018 with the explicit aim to support Italian engagement as an Observer State to the Arctic Council. All PRA topics are relevant for the Arctic Council activities: monitoring Arctic ecosystem changes; quantitative understanding of the causes of Arctic amplification; paleoclimate reconstructions; assessment of the changes of Arctic seas atmospheric and water column; analysis of the effects of climate change on the wellbeing of Arctic inhabitants and preservation of indigenous cultures. Through the first two calls, 15 research projects have been financed. The third call has been devoted to upgrading Italian scientific infrastructures and allowed to finance 6 initiatives. In addition, PRA contributed to the already mentioned International PhD course in Polar Sciences of the Ca' Foscari University and an Italian Arctic Data Center (IADC), totally financed by PRA, is being implemented. IADC is an infrastructure to collect, publish and make accessible scientific data that are produced by Italian research activities in the Arctic. Also thanks to PRA, it is our intention to explore any available mean to increase our contribution to the Arctic Council works, for instance with AMAP (CNR already hosted in 2018 in Bologna a meeting of SLCFs expert group) or in the framework of the EPPR Circumpolar Wildfire project, with special emphasis on the awareness of Indigenous communities and their involvement in terms of co-design and co-development of concrete solutions.

Among the projects financed by PRA, three were implemented during the 2021 Arctic campaign of the new OGS Polar vessel, Laura Bassi, recently acquired in substitution of the previous OGS Explora. Laura Bassi is an 80 m long research vessel, with a size of 4028 tons, and can host up to 50 scientific personnel with an endurance of up to 60 days, and has been fully equipped with scientific instruments for different disciplines including geophysics, geology, physical oceanography, marine biology, and atmospheric observations. She is perfectly apt for the current conditions of the Arctic sea ice and is meant to operate in both Arctic and Antarctic. The Laura Bassi cruise was also used to support the maintenance of the Indian mooring in Ny-Ålesund fjord (as part of international collaborations) and to maintain the Italian oceanographic mooring southwest of Svalbard.

Furthermore, the already mentioned IT-NAVY HIGH NORTH Program, launched in 2017 by IIM, in 2022 completed the second three years term with annual oceanographic campaigns, with an enhanced overview to the 3D mapping from satellite to seabed. The program is the result of a long-lasting national and international synergy between the main Italian research institutions, NATO-CMRE, JRC-UE, IAEA and the Italian Navy. In January 2021, the Program received the endorsement from UNESCO as a program action of the UN Decade of Ocean Science for Sustainable Development 2021-2030. IT-NAVY HIGH NORTH program and IIM, as member of GEBCO - SEABED 2030 project, contribute to the project "Mapping the Arctic: Filling Gaps in the Arctic Geospatial Foundation to Support Research and Sustainability". IIM and OGS are members of the Regional Mapping Committee of the SEABED 2030 project, under whose auspices the fifth version of the International Bathymetric Chart of the Arctic Ocean (IBCAO) is being prepared (including new data collected by IIM and OGS). Italy, through the IIM, is also a member of the International Hydrographic Organization (IHO) and, since 2017, Associate Member in the ARHC (Arctic Regional Hydrographic Commission). The Italian Navy approved the extension of the IT-NAVY HIGH NORTH Program for another three-year period (2023-2025).

Finally, in a good example of public-private partnership, CNR and ENI established a research center on Arctic climate change in Lecce. Current activities are focused on the causes and consequences of permafrost thaw and the results can contribute to the Arctic Council works.

If applicable, please describe in no more than one page your state's or organization's contributions to other aspects of the Arctic Council and its goals not covered by the previous sections since the time of your most recent report, or in the previous two years.

Italy is engaged in the most relevant international contexts on Arctic research, mainly the International Arctic Science Committee (IASC) and the Arctic Science Ministerial Meeting (ASM), including, through CNR, the Arctic Funding Forum. Italy has also actively participated in Sustaining Arctic Observing Networks (SAON) since its beginning and, through CNR, supports financially its Secretariat. In addition, Italy intends to contribute to the ROADS process aimed at developing a pan-arctic observing system and identify Shared Arctic Variables (SAV). In the framework of IASC, Italy is leading the project "ACZON: towards an Arctic Critical Zone Observing Network".

Italian scientific institutions are also strongly involved in EU coordination initiatives, like EU-Polarnet and ARICE, contribute to develop research infrastructures as SIOS and participate in coordination organisms like EPB and FARO. Italy is continuing the participation as partner in the "International Network for Terrestrial Research and Monitoring in the Arctic" – INTERACT II (2016-2021) and INTERACT III (2021-2024) - for promoting activities of research, monitoring and assessment all over the Arctic. Within this project, Italian Station "Dirigibile Italia" is involved in the Transnational, Remote and Virtual Access Programme. In the framework of the EU H2020 Project EOTIST, Italy is working with Polish researchers to study Arctic wildfires.

The Italian scientific community is actively engaged in the process of harmonising the marine infrastructure operating on Svalbard and contributed to the second workshop on SIOS Marine Infrastructure of December 2021. OGS and CNR are putting a strong effort to maintain the marine observatories in the open sea area west of Svalbard and in NyAlesund fjord. A proposal led by OGS and the University of Tromsø for the scientific drilling on the eastern side of the Fram Strait) has been approved by the International Ocean Discovery Program (IODP) and will be accomplished within the Expedition 403 in June-August 2024. This expedition, co-led by R. G. Lucchi (OGS). Is aimed at reconstructing Northern Hemisphere climatic evolution and ocean circulation. Numerical modelling of Northern Hemisphere ice sheets is being implemented by OGS in collaboration with the rest of the Italian scientific community, to simulate past conditions and predict future scenarios. Moreover, INGV published on Scientific Report (Nature) the ionospheric climatology over Ny Alesund, based on the longest historical data series collected over the Poles.

INRiM (the Italian national metrology institute) launched and manages the "Arctic Metrology Laboratory", a common facility based in Ny-Ålesund for the calibration of temperature and pressure instruments, the characterization of sensors dynamics, analysis and evaluation of mutual influences among the quantities and evaluation of instrumental uncertainties. Together with ISP, INRiM is also contributing to instrumental and field installations for the WMO intercomparison of thermometers and shield in the Arctic, which is ongoing in the period 2021-2023, funded by the "COAT Project" of the European Metrology Programme. Since 2015, INRiM is also promoting and organizing a series of Arctic Metrology Workshops, being the last held in June 2022 in Longyearbyen. Dr. Andrea Merlone (INRiM) is chair of the WMO expert team on measurement uncertainties and co-chair of the Global Cryosphere Watch Permafrost best practice group. During a secondment at the University of Svalbard, he contributed to select surface stations as candidates to join the pilot phase of the Global Climate OS Surface Reference Network.

ENEA and INGV further expanded their climate research activities at THAAO by installing a network of stations by the Wolstenholme fjord to monitor the glacial meltwater discharge from the Greenland Ice Sheet. This adds to the Italian long-term operation at THAAO of a network of more than 15 instruments dedicated to study the Arctic atmosphere, whose relevance was recently confirmed by an international study on the Arctic surface energy budget that has been recently published in Nature Communications. INGV is also involved in national and international collaborations within the upper atmosphere and space weather topic for monitoring and modelling the ionosphere and mitigate its impact on GNSS based system.

e-GEOS, a joint venture between the Italian Space Agency (ASI) and Telespazio, distributor of the Italian COSMO-SkyMed and COSMO Second Generation radar satellites, is partner of EU H2020 project ARCSAR (Arctic and North Security and Emergency Preparedness Network) and prime contractor of EU H2020 project ARCOS (Arctic Observatory for Copernicus Sea Service) in cooperation with the EU SatCen. Since more than 10 years, it supports the EU Copernicus SAR SEA ICE CORE service, by providing COSMO data for the continuous regional sea ice monitoring.