



WP

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Agenda Item: 2.1.1

Person Responsible: Representative from Colombia

**XXXIV SCAR Delegates Meeting
Kuala Lumpur, Malaysia, 29-30 August 2016**

Application of Colombia for Associate Membership

Executive Summary

Title: Application of Colombia for Associate Membership

Authors: Colombian authorities

Important Issues or Factors: From the SCAR Rules of Procedure:

Applications for Associate Membership:

- 1.3.1 *are usually expected to precede application for full membership; and*
- 1.3.2 *shall be accompanied by a statement of what the applicant hopes to contribute to and/or gain from the Charity.*

Recommendations/Actions and Justification: Delegates are requested to consider the Colombian application for Associate Membership of SCAR.

Budget Implications: \$5,000 annual membership fee for Associate Membership.

No. 899 - VP-CCO-SECCO-ASINT -305.1

Bogotá D.C. 28 DIC 2015

Professor
JERÓNIMO LÓPEZ MARTÍNEZ
President
Scientific Committee on Antarctic Research (SCAR)

Subject: Association - Scientific Committee on Antarctic Research

With all attention I turn to the president of the Scientific Committee on Antarctic Research, in order to express the will of Colombia to be a member of SCAR, through the Colombian Ocean Commission.

The Colombian Ocean Commission (CCO) through the National Technical committee for the Antarctic issues (CTN AA), leads the development of the country's activities in the White Continent, following the guidelines established in the Antarctic Colombian Program.

The Antarctic Colombian Program is the waybill that guides the actions that the country must take on the White Continent, for the purpose of research, protect, preserve and maintain peace in this area, exchange scientific information and ensure the transfer of technical knowledge.

Sincerely yours,



Rear Admiral JUAN MANUEL SOLTAU OSPINA
Executive Secretary Colombian Ocean Commission

Annex: Colombian Activities in Antarctic, seven (7) pages.

MAIN ANTARCTIC ACTIVITIES PERFORMED BY COLOMBIA

Since the early 80's Colombia showed its interest in the White Continent specially by the participation of nationals in various expeditions to Antarctica, thanks to international cooperation, managed to embark on journeys undertaken by countries such as Chile, China, Ecuador, United States, France, India and Peru.

Since 1989, when it entered into force the Antarctic Treaty to Colombia, the country began to have participation (voice) in the Antarctic System, assisting to the Antarctic Treaty Consultative Meetings - ATCM and meeting Scientific Committee on Antarctic Research - SCAR; Colombia participated for two years as an Associate Member.

Subsequently, by Decree 1690 of 1990, Colombia ratified its intention to conduct scientific cooperation and protect the Antarctic ecosystem. Under this framework and until the early twentieth century, the country oriented Antarctica's activities towards international cooperation. This was evident in the continued participation in international meetings concerning the Antarctic System and the development of scientific research with the cooperation of other countries.

Later in 2012, within the National Technical Committee for Antarctic issues- CTN AA of Colombian Ocean Commission - CCO, the White Continent issues took a new direction in the country. Since that time, the Commission accepted the challenge of coordinating and advising national institutions concerned with Antarctic matters.

In this regard, in 2013 was built the "Antarctic Scientific Agenda of Colombia 2014 - 2035", document that conveys strategies for the development of science, technology, research and innovation in Antarctica.

In the same year, and in the framework of the XXXVI ATCM held in Belgium, Brussels, the country presented the "IP 104", expressing the intention to make the first scientific expedition to Antarctica. This materialized in the austral summer 2014 - 2015 with the development of the "1st Scientific Colombia Expedition to Antarctica - Almirante Caldas". Furthermore, in this austral summer 2015 - 2016 it is being performed the "2nd Scientific Colombia Expedition to Antarctica - Almirante Lemaitre" with the help of international cooperation.

ANTARCTIC SCIENTIFIC AGENDA OF COLOMBIA 2014 - 2035

During 2013 and 2014, within the framework of the activities of CTNAA, the CCO as responsible for planning programs and projects in the Antarctic (precisely according to Decree 1690 of 1990, issued by the Colombian State) structured the Antarctic Scientific Agenda of Colombia 2014-2035. This agenda established the guidelines in Antarctic issues and the international framework for scientific cooperation, as well as the guidelines to participate in the Scientific Committee on Antarctic Research -SCAR.

Vision

Antarctic Scientific Agenda of Colombia is the main document for the strategic direction of scientific and technological activities in the country, in order to assist with the global scientific research projects in the White Continent

General Purpose

To implement the necessary guidelines addressed to institutions and universities, for allowing them to execute continuous research in Antarctica. The research will be conducted in own platforms or bases/platforms of other countries. The purpose is to contribute in the solution of current and future problems, and promote the Antarctic Treaty System.

Strategic Priorities

- Promote the development of scientific research by Colombia in Antarctica, focusing the work on the priorities and needs of the country in the field of science and technological innovation.
- Conduct efforts to achieve the objectives that Colombia has over Antarctica, implementing continuously and relevant research, in order to become a consultative country in terms of the Antarctic Treaty.
- Prepare highly qualified human resources, to be recognized nationally and internationally, in order to lead the Colombian scientific research and its technological innovation in Antarctica.
- Represent the country in different stages and advice the Government on Antarctic issues; particularly in the consolidation of scientific matters as a strategic element in the foreign policy of Colombia.
- Establish agreements, alliances and other forms of technical, logistical and scientific cooperation, create networks of national and international work, to promote the transfer and acquisition of knowledge and technology.
- Contribute to preserve peace and security in Antarctica, through scientific research and technological innovation.

Goals

Colombia has established, as short, medium and long term goals, the following:

- **2014:** Carry out the First Scientific Expedition, with own vessel in the Antarctic continent, implementing research projects on the lines of Climatology and Meteorology, Physical and Biological Oceanography, Marine Engineering and Human Physiology.
- **In 2025:** Colombia expects to have a seasonal research station, and be a consultative member of the Antarctic Treaty System.
- **2035:** Colombia expects to have a permanent station in order to perform throughout scientific research the year, investigation that will be fundamental base

for scientific research projects and technological innovation, to develop in Antarctica.

This instrument will be updated every four years.

Components of the Agenda

The proposed topics are the result of the agreement between the entities belonging to the CTNAA.

The thematic areas that were determined correspond to those established at the Latin America level, and also attends to the national interests within Antarctica. During the validity of these guidelines is possible that it raises new things, necessities, and technologies for research in Antarctica; that is the reason why this document will be updated for reflecting those changing priorities.

The thematic areas of the Colombian Antarctic Science Agenda are:

- Maritime transportation and Naval industry.
- Basic Knowledge: Geography, Hydrography, Oceanography and Cartography.
- Maritime safety.
- Relations between South America and Antarctica.
- Biodiversity of Antarctic Organisms.
- Marine, Coastal and Continental Ecosystems: Environmental Change and Conservation.
- Climate Change and Climate evolution.
- Adaptation to the Antarctic Environment. Valuation and use of its bio-resources.
- Environment and other Initiatives.

Action Plan

The Action Plan is based on the Antarctic Scientific Agenda of Colombia, and will constitute a planning tool for monitoring the objectives, strategic priorities and goals. Therefore, it proposes a way to achieve the strategic goals and set priorities herein, prioritizing the most important initiatives in the short, medium and long term.

The Action Plan must be settled for programs, projects, time and responsible, establishing a duty to be examined each year by the CTNAA, without prejudice to the different action plans of the entities that conform the Committee.

FIRST COLOMBIAN SCIENTIFIC EXPEDITION TO ANTARCTICA 2014/2015

Several national organizations have been working for the last few years in the logistic, technical and scientific planning of the Antarctic expedition, as well as in the development of a Colombian Antarctic Program and an Antarctic Scientific Agenda led by the CCO.

Colombian Navy's ship "ARC 20 DE JULIO" was adapted to serve as a research platform by building and installing an on-board oceanographic laboratory, installing a bathymetric echo sounder and building and installing a platform for scientific equipment setting operations.

The planning stage for the Colombian scientific expedition was supported by other countries' Antarctic programs, such as Ecuador, Peru, Argentina, Brazil and particularly Chile, who's Navy provided operational support by facilitating Navy officials and providing training in Antarctic navigation. Furthermore, Colombia and Chile signed a Memorandum of Understanding for the Cooperation in Antarctic Affairs in 2011. The United Kingdom also offered its support by providing bathymetric data on the Gerlache Strait, along with nautical charts.

Expedition Global Purpose

To carry out a research trip during the summer of 2014/2015 in the area surrounding the Gerlache Strait, studying physical, chemical, biological and geological oceanographic components, along with its marine biology, human physiological functions and nautical engineering aspects, for the collection of data and information required for research projects.

Specific Purposes

- To obtain physicochemical profiles in 20 oceanographic stations.
- To follow up icebergs (course and speed) and take its dimensions.
- To collect water samples at depths of 0, 5, 50, 100 and 200 m to determine environmental status in the Gerlache Strait.
- To collect sediment samples for its subsequent analysis.
- To install two tide gauges and a current meter at northern and southern ends of the Gerlache Strait.
- To conduct a bathymetric survey of 1,000 nautical miles.
- To carry out oceanographic measurements in 5 bays in the Gerlache Strait as an international cooperation action supporting a research project led by Andrés Bello University of Chile.
- To record sightings of whales and collect skin samples.
- To collect plankton samples in 26 oceanographic stations.
- To monitor vibrations by the propulsion system of Offshore Patrol Vessel (OPV) units, study case - Ship ARC 20 DE JULIO.
- To measure meteorological parameters.
- To monitor heart rate, heart rate variability, blood pressure, respiratory rate, oxygen uptake, and oximetry in various human subjects under study.

Research Projects

The Research projects selected for the expedition are embraced by the lines of research included in Colombia's Antarctic Scientific Agenda. These projects involved 15 national bodies and 6 international ones:

- Marine scientific research for maritime safety in Antarctica / ICEMAN 2014 - 2018.
- Study on the link between superficial temperatures in the tropical Pacific Ocean and changes in temperatures in the Antarctic Peninsula.
- Link between El Niño, Southern Oscillation and climate change in Antarctica.
- Hydrodynamics and water masses in the South American Pacific and its link with Antarctic waters during the southern summer.
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- Describing zooplankton, particularly ichthyoplankton, to provide insight into the biodiversity of South American waters and the Gerlache Strait/Antarctic Peninsula.
- Antarctic marine mammals, particularly cetaceans migrating to Colombian waters
- Determining cardiopulmonary physiological changes, and changes in body composition and their correlation to environmental factors.
- Determining cardiopulmonary physiological changes, and changes in body composition and their correlation to environmental factors.
- Applying composite materials in axes and propellers, study case OPV 80- "ARC 20 DE JULIO".

SECOND COLOMBIAN SCIENTIFIC EXPEDITION TO ANTARCTICA 2015/2016

The 2nd Scientific Expedition to Antarctica will take place in 2015/2016 austral summer; this time it plans to send a group of national researchers who develop research projects in different Antarctic research stations as well as vessels that will travel to Antarctica through international cooperation.

Several national organizations have been working in the planning and development of cooperation's with Argentina, Ecuador, Peru, Chile and Italia to perform the Colombian expedition. These relations show the importance of share global scientific goals and articulate logistic and operational efforts.

During the expedition our delegation going to develop the following areas of the Scientific Agenda: Climate, cryosphere, atmosphere and lithosphere, Ocean Engineering, Naval and Oceanography Engineering, Antarctic Marine Ecosystems and Oceanography, Human Physiology, Telecommunications, Biology, Biotechnology, Species migratory, History, bathymetry and navigation.

Expedition Global Purpose

Development seventeen scientific and operational projects follow the Antarctic Scientific Agenda of Colombia, to advance in the knowledge of different environmental issues and promote the positioning of the country in The Antarctic Treaty.

Specific Purposes

- To obtain physicochemical profiles in 12 oceanographic stations.
- To collect sediment samples for its subsequent analysis.
- To conduct a bathymetric survey of 1,000 nautical miles.
- To record sightings of whales and collect skin samples.
- To collect invertebrates like annelids and mollusc to advance in their ecological aspects.
- To collect plankton samples in 12 oceanographic stations.
- To collect microorganism to advance in taxonomic knowledge
- To measure meteorological parameters.
- To monitor heart rate, heart rate variability, blood pressure, respiratory rate, oxygen uptake, and oximetry in various human subjects under study.
- To characterize properties of metallic materials in cold weathers.
- To advance in the cultural and social appropriation of Antarctic in Colombia.

Research Projects

The Research projects selected for the second expedition are embraced by the lines of research included in Colombia's Antarctic Scientific Agenda. These projects involved 14 national bodies and 4 international ones. Two projects are continuation of the first Colombian expedition:

- Limit evaluation primary and secondary production and its exchange rate by altering the physicochemical parameters.
- Research Antarctic Marine Mammal Program.

Fifteen projects were approved to the second expedition and they will develop they objectives in different international bases and vessels according their previously defined necessities.

- Tardigrada of the Antarctica.
- Effects of climate change on the depth distribution of Invertebrates Comparing the tropics and Antarctica.
- Characterization of functional groups of psychrophilic microorganisms in frozen sediments of the Antarctic Peninsula.
- Microorganisms of extreme environments of Antarctica as a potential source of compounds with application in manufacturing and / or pharmacological
- The historical analysis of the present time as a strategy of appropriation and distribution of Antarctic Colombian Program.
- Census and characterization of resident Pinniped colonies on King George Island and South Shetland Islands, Antarctic Peninsula , in the framework of the Second Colombian Scientific Expedition to Antarctica.

- Preliminary approach to Colombian temporal base.
- Use of solar energy for heating a research base in Antarctica from Colombia.
- Protocols to Antarctic dive by Colombian personal.
- Setting of vessels to navigation in Antarctic waters.
- Comparative study: Change body composition and cardiorespiratory aerial tripulation C - 130 Hercules aircraft in Antarctica.
- Implementation of Wind Turbine in Antarctica.
- Radiometric and atmospheric study of the Antarctic area characteristics for aviation.
- Protocols to terrestrial Antarctic operations by Colombian personal.
- Characterization of the mechanical properties of metallic materials in Treasury Naval Use of Navigation and Stay thermal conditions in the Southern Ocean.