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| Buenos Aires 2011 |
| Antarctic Navigation Course |
| Objectives, Information and Registration |
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| ***Antarctic Navigation Course***  ***Objectives:***  Share the Argentine experience in the Antarctic region and condense all the available information gathered in order to:  Understand the importance of survival on land and water, first aid and the prevention of spills and pollution in the region.  Apply knowledge acquired as a useful tool to ensure the appropriate performance amidst Antarctic maritime operations.  Implement the resources in the Antarctic region with regard to the environment, patience and steering skills in both good and harsh weather conditions.   Valuethe Argentine activities in the Antarctic region.  Relatethe experience to the constant knowledge updates and to the thorough preparation during training and the thereupon successful performance in Antarctic latitudes.  Appreciate the complex, harsh, unpredictable and severe Antarctic environment, as well as the impending need to protect it under strict codes of conduct of greater demand than those imposed in any other area in the globe.  ***Information about the course:***   |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  | | --- | | ***Venue:***  ESCUELA NACIONAL DE NAUTICA 1535 Av. Antártida Argentina C1104ACC Ciudad Autónoma de Buenos Aires. Argentina.  ***Date:***  This course is held on an annual basis between the last week of August and the first week of September.  ***Class hours:***  09:00 to 12:30 and 14:00 to 17:30  ***Language:***  Spanish with simultaneous Spanish-to-English interpretation.  ***Bibliography:***  Reading material and class revision sheets are handed out in Spanish, except certain limited issues which come in English. |   ***Registration:***   |  |  | | --- | --- | | 1. | Fill out the pre-registration form (http://www.navantar.escm.edu.ar/Inscripcion.asp) | | 2. | Must be a graduate of a tertiary naval institute; with either military or civil training. | | 3. | The course is completely free of cost. | | 4. | The course does not provide facilities or expenses as regards lodging, transportation and meals. Neither does it include reception at airport and transfer to and from the city. | | |   **21st Course in Antarctic Navigation 2010**   |  | | --- | | The School of Maritime Sciences, answerable to the Naval Education Bureau, Naval developed the twenty-first course in Antarctic Navigation NAVANTAR between 23 August and 03 September 2010, with Spanish to English simultaneous interpretation, held in “MANUEL BELGRANO” public naval school, with the assistance of civil and military professionals from the maritime sector. |  |  | | --- | | http://www.escm.edu.ar/Images/Noticias/N2010/Alumnos.jpg | | *Alumni* |   Participants:   |  | | --- | | * 11 foreign Army chiefs and officers from Bolivia, Chile, Ecuador, Spain, India, Italy, Paraguay, South Africa and Uruguay. * 5 Argentine Merchant Mariners. * 29 chiefs and officers of the Argentine Army. * 5 Listeners. |  |  | | --- | | The programme comprises different disciplines to be used in the Antarctic, grouped into 7 extensive modules, namely: Antarctic Environment, Ecology, Marine Pollution, Foreign Affairs and Antarctic Legislation, Navigation and Maritime Security, Recent Nautical and Commanding Experience, Survival. Helpful collaboration has been offered by specialists from the Ministry of Foreign Affairs, International Trade and Cult, Public Antarctic Bureau, Argentine Antarctic Institute, the Antarctic Commando unit, the Overseas Captains’ Center, the Public Naval School, the Armed Forces Operational Commando unit, the Operations Bureau, Policies and Planning, the Bureau of Health and Social Work, the Atlantic Naval Commando unit, the Naval Hydrography Service, the Under-secretariat of Maritime Affairs, Hull Management, Electricity and Naval Machinery, the Head Office of the P.R. department which reports to the Naval General Secretariat, the Bureau of the Naval War School, the 2nd Air-sea based Commando unit, the Environmental Security Service, the Army’s General Inspectorate, the ARA Robinson corvette Commando unit, the Naval Education Bureau, the ARA “PARKER” corvette Commando unit, the Joined Transportation Commando unit and the Head Office of Mar del Plata’s Naval Base. |  |  |  | | --- | --- | | Once again this year we have received the expert collaboration of the Officer in Chief of the Chilean Army, who gave us a thorough account on “Operating an auxiliary ship in the Antarctic Peninsula”. | http://www.escm.edu.ar/Images/Noticias/N2010/CIndia.jpg *Some words from the Indian Army Officer* |  |  |  | | --- | --- | | http://www.escm.edu.ar/Images/Noticias/N2010/Espania148.jpg *Some words from the Spanish Army officer* | Another main target of the course is to offer a clear insight into complexity, harshness and unpredictability of the Antarctic environmental conditions and the impending need to protect it by means of complying with the strictest codes of conduct in the world. |   Special focus was placed upon the following:   |  | | --- | | * Foreign affaire, international law, Antarctic Treaty and Annexed Protocol (MARPOL). Response to spills in the Antarctic region. * Geology, oceanography, terrestrial glaciology, sea ice and floes, meteorology and Antarctic climatology. * Navigation and maritime security: Operating conventional ships. Classifying icebreakers. Set-up and preparation of icebreakers. Navigation aids. Strengths and weaknesses of radars used in the Antarctic. Operating in soft and hard glacial regions. GPS, the electronic chart and its general facts and uses in high latitudes. Hydrographic survey and mapping in the Antarctic. Icebreakers main features. Operating icebreakers. Operating helicopters from ships in the Antarctic. * Nautical and commanding experiences: operating auxiliary and research ships. Set-up, planning and advanced management of Antarctic campaign. * Antarctic survival in land and cold water. Immersion and drift. Hypothermia. First aid in the Antarctic. * Fauna, environmental protection and preservation of living resources. |  |  | | --- | | Throughout the 10 days, all activities were aimed at setting the stage for an international professional exchange, within scope of the spirit raised by the Antarctic Treaty, to comprise and share all the available knowledge on the Antarctic. Also, to pass on the Argentine experience in the region, in such a way that the assisting seamen understand how operations and nautical security work, and get acquainted with all the tasks concerning regional environment, survival on land and sea, and the prevention of spills and pollution of southernmost areas. |  |  |  | | --- | --- | | http://www.escm.edu.ar/Images/Noticias/N2010/Clausura2010.jpg | *Authorities present at the Closure Ceremony of the 21st NAVANTAR* |   **Delivery of Certificates:**   |  |  |  |  | | --- | --- | --- | --- | | All along, efforts have been placed on increasing and consolidating the community of maritime professionals concerned with operations in this region and mindful of the environment, strengthening fellowship amongst military and civilian mariners. Hence, this mutual acquaintance and comradeship of crews has deepened throughout the last 19 instalments of NAVANTAR, constituted by 748 mariners from Germany, Australia, Belgium, Bolivia, Brazil, Guatemala, Holland, India, Italy, Mexico, Norway, New Zealand, Paraguay, Peru, South Africa, Spain, the UK, Uruguay, Venezuela and Argentina. | | | | | http://www.escm.edu.ar/Images/Noticias/N2010/CEcuador.jpg | http://www.escm.edu.ar/Images/Noticias/N2010/CItalia.jpg | | *Certificate awarded to Ecuatorian Army Officer* | *Certificate awarded Italian Army Officer* |  |  |  | | --- | --- | | http://www.escm.edu.ar/Images/Noticias/N2010/MMercante.jpg | http://www.escm.edu.ar/Images/Noticias/N2010/Ara.jpg | | *Certificate awarded to Merchant Navy Officer* | *Certificate awarded to Naval Officer* |  |  |  | | --- | --- | | http://www.escm.edu.ar/Images/Noticias/N2010/Docente.jpg |  |   *Certificate awarded to Teacher*   |  | | --- | | Finally, it may be assured that the course has lived up to its motto: *Knowledge, training, experience and skills together,r are the driving force towards success in managing maritime risk in the Antarctic*; and whose corollary still is: *To protect the Antarctic environment, its fauna and living resources.* |   **ANTARCTIC NAVIGATION COURSE (NAVANTAR)**  **OVERVIEW OF ITS CREATION AND EVOLUTION**  **CREATION**.- It started out as an endeavour of the Argentine Representative before the Sea Ice Working Group of the Commission for Marine Meteorology of the WMO, back in 1990, proposing specific activities for the members to acquire in their country of origin, a wider knowledge of sea ice.  **PROGRAMME**.- It started with 5 class days: focused principally on Ice and Meteorology.  Since 1994 it has been extended to 2 weeks, from 9 am to 5:35 pm. adding in 37 different classes to the syllabus, some of which may be changed along the way, and which are grouped into seven topic fields: *Antarctic Environment, Ecology, Marine Pollution, Foreign Affairs and Antarctic Legislation, Navigation ans Maritime Security, Recent Nautical and Commanding Experience, Survival.*  The programmes have varied from year to year due to the evolution of activities in the area, the changes in legislation and fresh knowledge of the Antarctic.  In 2007 two presentations were included: "Antarctic Tourism" and "Operations with Tour Ships" as a response to the increasing wave of Antarctic Tourism. (Regulated by IAATO).  **PRESENTERS**.- Around 30 pro bono. From: The Argentine Foreign Office, DNA, IAA, the Antarctic Commando unit of the Argentine Army; from de ARCH, the ARA and random military and merchant students (Australia, New Zealand, USA and the Royal Navy of the United Kingdom).  **COURSE OBJECTIVES**.- Presented in an educational language in accordance with the Antarctic Treaty and National Policies.  **Implement** the means in the Antarctic regions as regards environment, patience and steering skills in both good and rough weather conditions.  **Value** the Argentine activities in the Antarctic region.  **Relate** the experience to the constant knowledge updates and to the thorough preparation during training and the thereupon successful performance in Antarctic latitudes.  **Appreciate** the complex, harsh, unpredictable and severe Antarctic climate, as well as the impending need to protect it under strict codes of conduct of greater demand than those imposed in any other area of the globe.  **FOREIGN ASSITANTS**.- Germany, Australia, Belgium, Bolivia, Brazil, Chile, Korea, Ecuador, Spain, USA, Guatemala, India, Italy, Mexico, Norway, New Zealand, Paraguay, Peru, UK, South Africa, Uruguay, Venezuela and Argentina.  **NUMBER OF STUDENTS**.- including 2010   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | Foreigners | | Subtotal | Argentinean | | Subtotal | Listeners | Total | | Merchants | Military | Mercantes | Militares | | 18 | 162 | **180** | 120 | 376 | **496** | 14 | **690** |   **ACADEMIC PERFORMANCE.-**  It embraces numerous Argentine professionals specialized in Antarctic matters.  Every subject features contents that conveniently outline the Argentine Antarctic potential but need further improvement and consolidation (guidelines pertaining to bridge officers and bibliography translated into English)  **Programme of the Course of Antarctic Navigation**  **NAVANTAR**  ***1. ANTARCTIC ENVIRONMENT***  **1.1. *Introduction to natural environment***  1.1.1. General knowledge of the Antarctic and its natural surroundings.  1.1.2. Distinctive geographic factors and physical phenomena present in the continent, in the isles and in the adjacent seas, and their relation with the operations.  **1.2. *Meteorology and Climatology***  1.2.1. Climates in the regions of South America, the Antarctic peninsula and Bellinghausen and Weddell seas.  1.2.2. Oceanographic factors and their interaction with the atmosphere.  1.2.3. General Circulation  1.2.4. Mean trajectories of depressions, cyclogenetic zones, migrating anticyclones and climatology of blockade situations.  1.2.5. Circulation disturbances, katabatic effects, local circulation.  1.2.6. Meteors and local phenomena.  1.2.7. Meteorological aspects as regards navigation through Drake Passage andBellinghausen and Weddell seas.  1.2.8. Special phenomena acting upon operations.  1.2.9. Basis for the interpretation of satellite images and weather systems.  **1.3. *Sea ice and ice floes***  1.3.1. Identifying sea ice and floes.  1.3.2. Stages of evolution, shapes, deformation processes, cracks in the ice, topography and fusion stages.  1.3.3. Sea ice physical composition, its most significant characteristics and some regional peculiarities.  1.3.4. Ice floe drifts in the Southern Atlantic and Weddell and Bellinghausen seas.  1.3.5. Terms and Symbols for sea ice.  1.3.6. Visual observations from coast, ship and helicopter.  **1.4. *Terrestrial Glaciology***  1.4.1. General facts about dynamics, morphology and the influence of continental ice upon the Antarctic ecosystem.  1.4.2. Ice barriers and glaciers.  1.4.3. Ice barriers. Larsen, Filchner - Ronnie.  1.4.4. Influence upon the balance of the oceanic system - atmosphere. Global changes and variation index.  **1.5. *Antarctic Geology***  1.5.1. Geologic constitution of mainland and islands.  1.5.2. Continental platform.  1.5.3. Seismic data.  1.5.4. Potential resources in the Antarctic.  **1.6. *Oceanography***  1.6.1. Physical aspects of the Antarctic waters  1.6.2. Tides and tide currents.  1.6.3. Circulation and water masses, currents and waves.  1.6.4. Antarctic Polar Front zone.  **1.7. *Fauna***  1.7.1. Antarctic maritime ecosystem.  1.7.2. Environmental factors  1.7.3. Phytoplankton and zooplankton.  1.7.4. Vertebrate and invertebrate fauna.  **2. FOREIGN AFFAIRS AND LEGISLATION**  **2.1. *Foreign Affairs***  **2.2. *International Law***  2.2.1. Normative aspects of navigation within area outlined by Antarctic Treaty.  2.2.2. Necessary knowledge and information for politically correct proceeding, in light of the current international status.  2.2.3. The ice considered as an object of international juridical regulation.  2.2.3.1. The ice as a natural resource.  2.2.3.2. The ice and environmental protection.  2.2.3.3. Navigating ice-covered waters.  2.2.3.4. Reference to ice as regards the implementation of juridical.  **2.3. *Antarctic Treaty***  2.3.1. General description.  2.3.2. Regulations.  2.3.3. MARPOL agreement - Antarctic Treaty Protocol of environmental protection. Law n°24216  2.3.3.1. Knowledge of laws and current regulations necessary for the avoidance of ship pollution.  2.3.3.2. Basic understanding of contingency plans to be enforced in the case of incidents leading to Antarctic pollution.  **2.4. *IAATO***  ***3. ECOLOGY***  **3.1. *Preservation of living resources***  3.1.1. Historical record. Commissions and conventions to regulate exploitation.  3.1.2. Convention for the preservation of Antarctic marine living resources (CCRVMA)  3.1.3. Concepts and regulations of CCRVMA.  **3.2. *Environmental protection and preservation in the Antarctic.***  3.2.1. Scientific and political records pertaining to the environmental protection in the Antarctic.  3.2.2. Antarctic Treaty protocol pertaining to environmental protection. Plus annexes.  3.2.3. Main characteristics of the Antarctic environment.  3.2.4. Tourism and environmental protection in the Antarctic.  ***4. MARINE POLLUTION***  **4.1. *MARPOL. Response to spills in Antarctic region.***  4.1.1. The changes to society.  4.1.2. The pollution.  4.1.3. Ship pollution.  4.1.4. National laws.  4.1.5. International agreements.  4.1.6. Contingency planning.  **4.2. *Real experience in containment and clean-up actions in the Antarctic***  4.2.1. Starting situation.  4.2.2. Pertinent actions  4.2.3. Recommendations for the improvement of similar tasks.  4.2.4. Conclusions  ***5. NAVIGATION AND MARITIME SECURITY***  **5.1. *General features of ships suitable for Antarctic waters.***  5.1.1. Types of ships.  5.1.2. Hull designs.  5.1.3. Propulsion systems.  5.1.4. Auxiliary elements  5.1.5. Steering skills.  **5.2 *Classifying ice-breakers***  5.2.1. Introduction.  5.2.2. Requirements for ice-proof reinforcement.  5.2.3. Requirements for ice-breaker reinforcement.  5.2.4. FINNISH-SWEDISH ICE RULES  **5.3. *Ship preparation and set-up***  5.3.1. The influence of the external weather conditions upon material and personnel.  5.3.2. General repairs. Specific items.  5.3.3. Extra equipment to be considered.  5.3.4. Material preparation before setting sail and during transfer.  5.3.5. Personnel preparation and equipment.  **5.4. *Operating in soft glacial waters***  5.4.1. Nautical characteristics of the area. Navigation aids.  5.4.2. General facts about locations, manoeuvre and harbourage.  5.4.3. Use of smaller vessels  **5.5. *Operating in hard glacial waters***  5.5.1. Approach, entrance and cruising through ice fields  5.5.2. Steering within ice fields.  5.5.3. Vessels detained and trapped by the ice. Pertinent manoeuvres and general considerations.  **5.6. *Operating with conventional ships.***  5.6.1. Specific precautions pertaining to the area  5.6.2. Local characteristics of navigation and steering.  5.6.3. Actions to improve security.  5.6.4. Functioning in the presence of sea ice.  **5.7. *Icebreaker main features.***  5.7.1. The hull.  5.7.2. The propulsion.  5.7.3. Auxiliary systems.  5.7.4. General facts about manoeuvre.  **5.8. *Operating with icebreakers***  5.8.1. Independent functions  5.8.2. Assistance operations  5.8.3. General information about convoying.  **5.9. *Helicopter operations from ship***  5.9.1. Main features of helicopters suitable for operating in the Antarctic area.  5.9.2. Vertrep (vertical replenishment)  5.9.3. Search and rescue at sea.  5.9.4. Glaciological and reconnaissance flight  5.9.5. Common factors influencing upon helicopter operations.  **5.10. *Navigation aids***  5.10.1 Hydrographic surveying.  5.10.2. Mapping of Antarctica.  5.10.3. Antarctic toponymy.  5.10.4. The electronic charts.  5.10.5. G.P.S.  5.10.6. Radar use in the Antarctic region.  5.10.6.1. General information.  5.10.6.2. Strengths and weaknesses of modern devices.  5.10.6.3. The A.R.P.A. radar.  ***6. RECENT NAUTICAL AND COMMANDING EXPERIENCE***  **6.1. *Set-up, planning and advanced leading of a campaign in the Antarctic.***  6.1.1. Plan.  6.1.2. Assigning tasks, purposes and scenarios.  6.1.3. Writing.  6.1.4. Monitoring.  6.1.5. Recommendations.  **6.2. *Operations with an auxiliary ship.***  **6.3. *Operations with an auxiliary research ship.***  **6.4. *Last campaign to the Antarctic.***  **6.5. *Other experiences in the Antarctic.***  **6.6. *Operations with small crafts.***  **6.7. *Operations with tour ships.***  ***7. SURVIVAL IN THE ANTARCTIC***  **7.1. *Survival on earth.***  7.1.1. Procedures to be met during an emergency.  7.1.2. Shelter.  7.1.3. Cohabitation rules.  7.1.4. Ice cracking zone.  7.1.5. Necessary items.  7.1.6. Signs.  **7.2. *First Aid***  7.2.1. Preventive guidelines against frost.  7.2.2. Bone fractures  7.2.3. Skin burns.  7.2.4. Colds and frostbite.  **7.3. *Survival at sea***  7.3.1. Being adrift in cold waters  7.3.1.1. Possible evacuation scenarios.  7.3.1.2. Equipment and proceedings for evacuation of ships.  7.3.1.3. Floating survival.  7.3.1.4. Food and water.  7.1.3.5. Means of communication.  7.3.2. Immersion in cold waters.  7.3.2.1. Loss of heat during immersion.  7.3.2.2. Hypothermia.  7.3.2.3. Polar and ice diving.  7.3.2.4. Equipment for such purpose in the Antarctic.  ***8. GENERAL DISCUSSION***  **8.1. *Any exchange of knowledge and experience between professors and assistants is highly welcome insofar as it reasserts the purpose of the course.***  **NOTA: *This course addresses professional navy officers, both civilian and military, Argentinean and foreigners, bearing degrees and credentials in accordance to the Antarctic Treaty and its annexes. On the one hand, it satisfies the compelling need to share knowledge, experience and procedures, with captains and bridge officers currently involved in Antarctic navigation under harsh geographic settings and strict regulations.***  ***On the other hand, it serves as an answer to the importance of raising awareness and knowledge of the Antarctic environment, its preservation and that of its living resources, survival techniques, risk management and the improvement of maritime security. The aforementioned strict regulations stem from international treaties and agreements, the accomplishment of which both governments and operators are responsible for.***  **Argentine mapping and beaconing of the Antarctic Region**  Since 1904, Argentina has been pursuing efforts to develop, maintain, update and extend the beacon network and mapping out the charts of the Antarctic region as a service for the national and international marine vector. As a proof of this effort, there are 3 lighthouses -one of which is the first radio beacon which has stood in the Antarctic Melchior archipielago since 1942- and 107 beacons and enfilades installed in the Antarctic territory. Argentina has also taken part in designing the nautical cartography made up of 27 charts, 9 of which pertain to the Antarctic Chart Plan designed by the International Hydrographic Organization (OHI), for which Argentina must carry out the hydrographic survey, gathering of information and composition of the international nautical charts. |