



DAN ANTÁRTICO 02

CHILE

**DIRECCION GENERAL
DE AERONAUTICA CIVIL**

**ENVIRONMENTAL CARE AND
STAFF SECURITY IN THE
ANTARCTIC TERRITORY**

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**GENERAL DIRECTORATE OF CIVIL AVIATION
PLANNING DEPARTMENT**



DAN ANTÁRTICO 02 “Personal Security and Care of
Environment in the Antarctic Territory”
Resolution No. 0627 of August 06, 2018

I.- PURPOSE

To establish the rules to carry out the coordination that allow to ensure the care of the environment and the safety of the people who visit the Antarctic territory.

II.- BACKGROUND

- a) Law No. 16,752, of 1968, of the Ministry of National Defense, which establishes Organization and Functions and establishes General Provisions to the General Directorate of Civil Aviation and its subsequent modifications.
- b) Law 18,916, of 1990, of the Ministry of Justice and Human Rights, which approves the Aeronautical Code and its subsequent modifications.
- c) Supreme Decree No. 812, of December 28, 1982, of the Ministry of National Defense, which approves the Regulations for Air Traffic Services, DAR 11 and its subsequent amendments.
- d) Supreme Decree No. 128 of December 11, 2006, of the Ministry of National Defense, which approves the Rules of Flight and General Operation Rules, DAR 91 and its subsequent modifications.
- e) Supreme Decree No. 52 of 2002 of the Ministry of National Defense, which approves the Aircraft Operation Regulation, DAR 06 and its subsequent modifications.
- f) Supreme Decree No. 754 of August 29, 2000, of the Ministry of National Defense, which approves the Meteorological Service Regulations for Air Navigation, DAR 03 and its subsequent modifications.

g) Exempt Resolution No. 0336 of July 6, 2016, of the General Directorate of Civil Aviation, which approves the Eighth Edition of the Air Traffic Services Procedures, DAP 11.

h) Exempt Resolution No. 01504 of October 29, 2010, of the General Directorate of Civil Aeronautics, which approves the First Amendment to the Third Edition of the Regulatory Structure Procedure of the DGAC, PRO ADM 02.

III.- MATTER

CHAPTER 1

DEFINITIONS AND ACRONYMS

AERODROME

It is any delimited, terrestrial or aquatic area enabled by the aeronautical authority and intended for the arrival, departure and maneuver of aircraft on the surface.

AERONAUTICAL AUTHORITY

The General Directorate of Civil Aeronautics (DGAC).

COMPETENT AUTHORITY

a) As for flights over non-jurisdictional waters, the appropriate authority of the State of registration.

b) Regarding flights over jurisdictional waters and lands, the appropriate authority of the State that has jurisdiction over the overflight territory.

POLLUTION

The presence in the environment of substances, elements, energy or combination of them, in concentrations or concentrations and permanence higher or lower, as appropriate, to those established in current legislation.

WILDLIFE

Any wild animal, including mammals, birds, reptiles, amphibians and fish, also domestic animals that are beyond the control of their owners.

ENVIRONMENT

The global system consisting of natural and artificial elements of a physical, chemical or biological nature, sociocultural and their interactions, in permanent modification by human or natural action and that governs and conditions the existence and development of life in its multiple manifestations

AERONAUTICAL STAFF

One who performs on board aircraft or on the ground, the technical functions of aeronautics, such as the driving, direction, operation and care of aircraft; its clearance, stowage, inspection and repair, air traffic control and the operation of aeronautical stations.

ZOOCENOSIS

Set of animals that coexist in a defined space.

ACRONYMS

ACC	Area Control Center
AFIM	Antarctic Flight Information Manual
AGL	Above Ground Level
ASMA	Specially Managed Antarctic Zone
ASPA	Specially Protected Antarctic Zone
ATC	Air Traffic Control
ATCM	Antarctic Treaty Consultative Meeting
COMNAP	Council of National Antarctic Programs Administrators
EIA	Environmental Impact Assessment
ETD	Estimated take-off time
FIR	Flight Information Region
HLS	Helicopter Landing Site
HSM	Historic site and monument
ICAO	International Civil Aviation Organization
RCC	Rescue Coordinating Center
SAR	Search and rescue service
SCALOP	Standing Committee on Antarctic Logistics Operations
SCAR	Scientific Committee of Antarctic Research
SCRM	Aerodrome Teniente Rodolfo Marsh M.
STA	Antarctic Treaty System
TWR	Control Tower
ASPA	Specially protected Antarctic zone
ASMA	Specially managed Antarctic zone

CHAPTER 2

PERSONAL SECURITY AND ENVIRONMENTAL CARE

I. OF THE PEOPLE

- a) The basic rule in such extreme and complex environments as Antarctica, is not to go out especially in adverse weather conditions (blizzards, solid rainfall, storms, etc.). In the event that they must imperatively carry out activities outside the Teniente Marsh Aerodrome, the superior of the organization on which the person depends must be informed and previously coordinate the authorization with the Head of the Aerodrome, if possible carry an operational communications equipment and with the appropriate clothing.
- b) As a second relevant rule, it is to try to be the minimum possible time exposed to extreme environmental conditions, to avoid suffering some kind of cold stress.
- c) One of the general rules to survive in an environment of extreme cold, is to stay isolated from the environment, through layers of insulation and remove layer by layer as the insulation is no longer necessary.

Exposure to cold environments, such as the activities that must be carried out outside the Antarctic, has a high temperature and air speed, which can generate the types of cold stress indicated, both being likely to manifest at the same time:

- 1. Cooling of the whole body.
- 2. Local cooling, which can be limb cooling, cutaneous convection cooling (wind cooling), conductive skin cooling (contact cooling) and respiratory tract cooling.

It is of special relevance to take into account the combination of wind and a low ambient temperature, elements to observe for the organization of outdoor activities, the protection of the place where they will be developed and the correct selection of clothing.

- d) Activities outside the premises require proper hydration, head and neck protection, use of UV-filtered lenses, etc., in the presence of a sensation of entanglement, seek refuge if it is not possible to build one and perform activity Physics to get warm.

The appropriate protective clothing is one whose thermal resistance is such that it allows the individual to keep his body temperature constant, without decreasing below 37 ° C. It basically depends on the temperature and speed of the air and generation of metabolic heat of the task performed (Chilean Standard NCh2767 to determine the required insulation index of the clothing).

In terms of thermal insulation, the clothing is considered composed of three layers:

1. Inner layer: it is in contact with the skin and should be soft, flexible, non-allergic and, a main aspect, not retain moisture, but transmit it to the next layer. For this purpose, cotton is not appropriate because it gets wet and dries very slowly.

2. Middle Layer: its function is to trap the cold air that comes from outside and not allow it to reach the skin. It must maintain the flow of moisture outward and retain heat from the body. Synthetic fiber garments are recommended because they dry quickly, are lighter and allow freedom of movement.

3. Outer layer: covers and protects the other layers. It must be waterproof, breathable, windproof (if there are air currents or when working outside) and resistant to mechanical stress and wear that the type of activity performed requires.

- e) Be prepared for an intense and changing climate. Make sure your equipment and clothing meet Antarctic standards. Remember that the Antarctic environment is inhospitable, unpredictable and potentially dangerous.
- f) Users should be aware that their presence in the Antarctic area may result in negative environmental impacts. The activities carried out in the environment of Ad. Lieutenant Marsh and / or in the Antarctic area, in terms of equipment and people, must obey limited and structured displacements. All of them should be aimed at minimizing the impact that human presence causes on the environment.
- g) In adverse weather conditions (blizzards, high winds, snowfall, etc.), people who must imperatively carry out activities outside the Ad. Lieutenant Marsh, you must first coordinate the authorization, with the head of the airfield.
- h) Outside the airport, to travel both on foot and by vehicle, a predetermined and demarcated route must be used in each of them, always maintaining the same movement guide.
- i) Displacement to other places outside the base, requires prior coordination and media. Avoid doing them alone and prefer to travel in a group. The movement of people or any type of vehicles must be carried out on the roads authorized for this purpose. Within the airport grounds and in cases of force majeure, routes other than those mentioned above may be used. Said movement must be informed as soon as possible to the head of the aerodrome.
- j) Precautions to be taken in the Antarctic territory in harmony with the prevailing ecosystem:
 - 1. If you are close to places where wildlife exists, walk slowly and carefully, with a minimum noise level.

2. Always maintain an adequate distance from wildlife. It is generally recommended not to approach within 5 m. away
3. The behavior of some animals can be unpredictable and dangerous. Always keep a safe distance. If you observe a change in wildlife behavior, do not move until the situation returns to its normal status or, move away quickly from the sector.
4. In those periods of reproduction, where wildlife is particularly sensitive to alterations (including the nesting period), or in the molting phase, it should be kept as far away as possible from any colony, observing from a distance.
5. Check in advance the locations and boundaries of the ASPA or ASMA. Refer to the provisions established in the Management Plans and comply with all restrictions related to conduct during activities in or near the areas.
6. Do not get in the way of animals, allowing their free movement.
7. Do not feed wildlife or leave food or debris in the environment.
8. Do not litter on land or in the sea. Cooperate with the cleaning of the environment, and deposit it in the receptacles enabled for this purpose.
9. It is forbidden to use weapons and explosives, or chemical elements that could damage the ecosystem.
10. It is prohibited to introduce plants or animals into the Antarctic territory.
11. On the outside, always fix the elements. Do not leave anything in the surrounding area susceptible to wind action.
12. When traveling on foot, stay as far as possible within established paths in order to minimize alterations or damage to soil and plant surfaces. Where there is no path, take the most direct route and avoid vegetation, fragile terrain, steep slopes and wildlife.
13. When it is necessary to move along a route that has not been established, it must be chosen taking into account personal safety first and, secondly, minimizing the impact it may cause. That is, avoid passing near nests, concentrations of animals and especially on areas of lichen and moss.
14. Verify that your equipment and clothing are clean before moving to Antarctica or from one place to another within it. It is of current concern, the involuntary transfer of species and diseases.

- k) To enter an ASPA (Specially Protected Antarctic Zone), you must carry the corresponding authorization and abide by the provisions stipulated in the respective Management Plans, ensuring at all times their environmental, scientific, historical, aesthetic or life values wild.
- l) When visiting sites, historical monuments or other structures, do not interfere with your surroundings and do not allow acts of vandalism to be committed. Before finding any element that could be historical, do not remove it and notify the national authorities as soon as possible.
- m) Do not interfere with scientific equipment and any marker used, avoiding altering the environment where they are located.

II. WILD LIFE

- a) As stipulated by the Antarctic Treaty System (STA), it is prohibited to disturb and / or destroy the biotic community. Any action required in this environment must be authorized by the relevant authority.

Note: The human presence and what derives from its actions alter the animal and plant ecosystem of Antarctica. Wildlife and plants can be very sensitive to disturbances caused by humans. In Antarctica, the development (management and growth) of plants takes considerably longer than normal. Whenever phytocenosis is intervened by the human being, in any of its forms, its recovery may take several years or never return to its initial state.

- b) The collection or alteration of Antarctic wildlife and flora is prohibited except in accordance with a permit issued by a competent authority.
- c) Vegetation of any kind is fragile and difficult to grow. When traveling through the Antarctic territory, you should exercise caution when walking, driving or embarking or disembarking, avoiding damaging the biotic community (mosses, lichens, etc.), as well as protecting the environmental conditions of the territory to allow the survival of the wild life.
- d) You should not collect as a souvenir, biological or geological specimens, including feathers, eggs, vegetation, rocks, fossils, meteorites, etc.

III. WASTE AND FUEL MANAGEMENT

- a) **Non-Hazardous Waste Management:** Most of the activities carried out in the Antarctic produce waste of some kind. These wastes must be disposed of properly, since many contain harmful elements for their environment. Therefore, you must know and follow the waste management plan, arranged for this purpose in the Unit, always using the special containers classified for storage, allowing to sort and remove the waste generated outside the base and the area protected by the Treaty Antarctic. Its correct application will allow a successful operation of the system.

You should not leave any material uncovered that can be dragged by the wind or the waves. The climatic conditions of the base change frequently and abruptly, being able to give very strong wind conditions. Also, the tides can have a considerable amplitude exposing to the waves materials that we thought we had left safe on the shore. Each user must be responsible for their own personal waste (cigarette butts, tissues and paper napkins, etc.) both inside and outside the base.

The non-hazardous waste generated must be deposited in containers suitable for the type of waste (organic material, paper, cardboard, glass, scrap, wood, etc.) which will depend on the amount of their generation. The containers must be stored inside a closed place, and protected from weather conditions until they are removed for final disposal.

- b) Hazardous Waste Management: Hazardous waste generated during the operation of State and civil aircraft, national and foreign, to and from the Lieutenant Rodolfo Marsh M. Aerodrome (SCRM), and any other activity of the Aerodrome, shall comply at all times with the provisions of PRO-SGAAP 01: Procedure "Management of Airport Hazardous Waste", approved by Exempt Resolution of the General Directorate of Civil Aviation No. 01822 dated 01-12-2009.
- c) Fuels: Fuel handling, being a very delicate aspect, is very frequent in the activities of the base. The tasks of fueling both the engine tanks and heaters and vehicles must always be carried out by technical personnel who observe at all times, the prevention and safety regulations according to the respective plans.

If working with fuel, its derivatives or any type of flammable liquids, all measures must be taken to avoid spills, leaks and spills into the environment, quickly applying the following measures to any occurrence:

1. Identify the spilled liquid: The contaminant must be identified, in order to identify its hazard characteristic (contained in the corresponding Safety Data Sheet (corresponding HDS)) to define the appropriate action against the event.
2. Give notice to the person in charge of the Area where the spill occurs, which must establish the measures to be taken, for example: eliminate all sources of ignition, indicate if it is necessary to perform a perimeter closure of the area, in order to warn of danger, etc.
3. Control the progress of the spill by making a dike with absorbent material and / or sand, the complete absorption of the liquid should be expected to begin the treatment process.
4. Identify the level of contamination: An inspection of the affected area must be carried out, in order to estimate the level of contamination generated by the event.
5. Remedy: Collect the contaminated soil (or the absorbent material with which the spill was controlled) and place it in a hazardous waste container, close it

and identify it clearly for later transfer to a temporary storage place and then to a site of final provision authorized by the Health Authority, prepare a record of the management of these contaminated soils, which should consider at least the following aspects:

- i. Area where the Contaminated Soil originated,
- ii. Type of Hydrocarbon, Oil, Lubricant or Spilled Hazardous Substance,
- iii. Approximate spilled volume,
- iv. Date of receipt of Contaminated Soils at the final disposal site,
- v. In-situ soil treatment, if possible.

All waste generated in the event of spills, spills or leaks to the environment, of fuels, their derivatives or flammable liquids, must be handled as a Hazardous Waste and must comply with everything indicated in the paragraph on Hazardous Waste Management.

- d) Sewage: Given the special characteristics of the sewage treatment system of the base, special attention should be paid to the recommendations not to eliminate by this route, paper or other similar texture.

IV.- VALIDITY

This Aeronautical Standard will enter into force as of the date of the Approving Resolution.

ANNEX "A"

LINKS OF RELATED ORGANISMS

- a) **Ministry of Foreign Affairs, Directorate of Antarctica**
Address: Teatinos 180, 5th floor, Santiago
Telephones: (56) 228274378 / (56) 228274663
(<http://www.minrel.gob.cl/minrel/site/edic/base/port/antartica.html>)
- b) **Regional Ministry of Environment**, XII Region de Magallanes y la Antártica Chilena, Punta Arenas headquarters.
Operational Committee for the Evaluation of the Environmental Impact on the Antarctic Environment.
(<http://eaa.mma.gob.cl/comite-operativo/>)
(<http://eaa.mma.gob.cl/proyectos-ambiental>)
- c) **Chilean Air Force, General Staff** (Operations Division, Antarctic Division):
Email: (division.antartica@fach.mil.cl)
Address: Avenida Pedro Aguirre Cerda No. 5500, Comodoro Arturo Merino Benítez Building, Los Cerrillos, Santiago.
Telephones: (56) 229765226/229765260
- d) **General Directorate of Civil Aeronautics, Arrivals and Overflights**, Antarctic Operation
(<https://www.dgac.gob.cl/form-de-autorizacion-overflight-and-landing-clearance/>)
- e) **Operations Office (ARO), of the Arturo Merino Benítez Airport**
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