

BRAZILIAN PRESENCE IN ANTARCTICA



Photo: Edson Vandeira



ROV Imaging - Photo: Edson Vandeira

Since its creation in 2009, the National Institute of Antarctic Science and Technology of Environmental Research - Antarctic INCT- has been contributing to the development of Brazilian Antarctic research through long-term studies on the Antarctic biocomplexity. These studies have focused on acquiring knowledge about processes in atmospheric, terrestrial and marine systems, and their relationship to climate change and human presence on this continent. These studies show the essential role that Antarctica plays in the thermal balance of the planet, and in particular to South America, where the climate is especially controlled by air masses coming from the icy continent.

Currently, the INCT-APA is staffed with 70 PhD researchers distributed over 21 institutions of Education and Research, working in four lines of research that converge on the following objectives:

- Study the Antarctic atmosphere and its impacts on the South American continent;
- Study the impacts of global change on the Antarctic terrestrial environment;
- Study the impacts of natural and human activity on the marine environment;
- Promote environmental management.

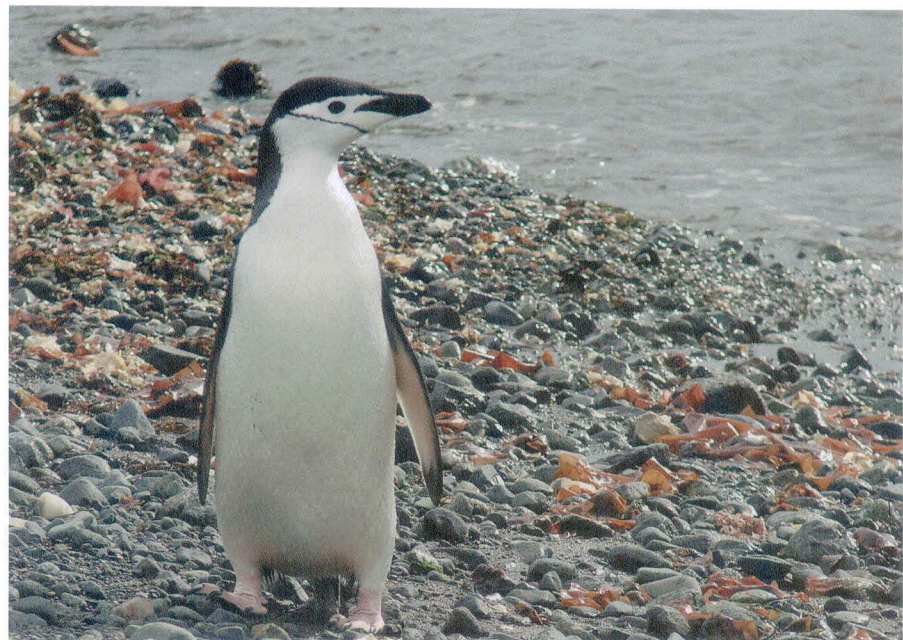


Photo: Rafael B. Moura

INCT-APA DEVELOPS RESEARCH ON CLIMATE CHANGE

Main results obtained by the INCT-APA research

- Improvement of climate forecasts in the national territory, improvement of national climate models and meteorological forecasts, as well as its results showing that solar radiation can change the physicochemical properties of the atmosphere and influence the winds and the amount of UV radiation that reaches the earth's surface, as well as cloud cover and rain.

- Studies on the characterization of the effects of the Sun-Earth Relations in the upper atmosphere of the Antarctic region and South America are showing their engagement with the other layers of the atmosphere to have strong effects associated with weather processes. In the same context, characterization studies are being conducted of ionized layer of the atmosphere in the Magnetic Anomaly region located in south/ southeastern Brazil.

- Studies of the ozone layer showed a decrease of this layer over the South Pole and with extreme events in South America. The researchers of the INCT-APA continuously perform studies on the ozone layer in the Antarctic region and its effects on South America. One of the consequences is an increase in UV radiation, which is confirmed by extreme events over Antarctica and South America, including the south of Brazil, where in 2010 it was possible to see a 25% reduction of ozone concentration, affecting human health in ways such as: skin cancer and glaucoma. In addition, it exerted serious effects on agriculture.

- Expansion and integration of knowledge about the diversity and abundance and distribution of marine and terrestrial life of the Antarctic environment (knowledge on living resources) as well as studies on adaptive processes of Antarctic organisms to environmental conditions (potential pharmaceutical effects, health and bioproducts development).

- Development of prospective studies on potential impacts of climate change in Antarctica (global warming, natural disasters, melting ice, preventive and corrective actions that impact nature).

- Production of knowledge and critical mass to support decisions and policy recommendations on Biological Diversity.

- Performing actions aimed at education and the dissemination of science for public awareness from the Brazilian research in Antarctica and the importance of this continent for the planet.

Moreover, among the most important contributions that the INCT-APA performs to advance the Brazilian state-of-the-art Antarctic research is the establishment of a database that aims to be a tool to gather and strengthen the generated data set within the Institute and, above all, to preserve the memory of the Brazilian Antarctic Program, and serve as a basis for future studies of processes and models for Antarctica.

More information about the INCT-APA can be obtained on the website of INCT-APA (www.biologia.ufrj.br/inct-antartico), where the results of INCT-APA surveys are available through the volumes of the Annual Activity Report of the INCT-APA (ISSN 2177-918X).

Source: INCT-APA – Coordinator: Prof. Dr. Yocie Yoneshigue Valentin (IB/UFRJ) / Vice-coordinator: Prof. Dr. Rosalinda Carmela Montone (IO/USP)