

Letter to the Editor

CROSSING THE DRAKE PASSAGE: FROM BRAZIL TO ANTARCTICA WITH THE ASSOCIATION OF POLAR EARLY CAREER SCIENTISTS (APECS-BRAZIL)

Juliana A. Ivar do Sul^{*1}, *Erli S. Costa*^{*,**2}, *Rodrigo Kerr*^{*3}, *Alexandre S. Alencar*^{*4}, *Miriam H. Almeida*^{*5}, *Elaine A. Santos*^{*4}, *Juliana Costi*^{*6}, *Rosemary Vieira*^{*7} & *Thièrs Wilberger*^{*8}

* APECS-Brazil Council Members. ** APECS International Council Member.

¹ Universidade Federal de Pernambuco (UFPE), Departamento de Oceanografia, Laboratório de Ecologia e Gerenciamento de Ecossistemas Costeiros e Estuarinos, Av. Arquitetura s/n, Cidade Universitária, Recife, PE. Brasil. CEP: 50740-550.

² Universidade Federal do Rio de Janeiro (UFRJ), Programa de Pós-Graduação em Ecologia, Caixa Postal: 68.020. Ilha do Fundão, Rio de Janeiro, RJ, Brasil. CEP: 21941-540. Laboratório de Radioisótopos Eduardo Penna Franca (UFRJ). Universidade do Estado do Rio de Janeiro (UERJ), Laboratório de Ecologia de Aves. Projeto Pinguins & Skuas.

³ Universidade Federal do Rio Grande (FURG), Instituto de Oceanografia, Laboratório de Estudos dos Oceanos e Clima. Av. Itália km 8, Rio Grande, RS. Brasil. CEP: 96201-900.

⁴ Universidade do Estado do Rio de Janeiro (UERJ), Instituto de Biologia Roberto Alcântara Gomes, Laboratório de Radioecologia e Mudanças Globais (IBRAG). Rua São Francisco Xavier, 524 - PHL, subsolo, Maracanã, Rio de Janeiro, RJ, Brasil. CEP: 20550-900.

⁵ Universidade Federal do Rio de Janeiro (UFRJ), Laboratório de Radioisótopos Eduardo Penna Franca. Instituto de Biofísica Carlos Chagas Filho. Av. Carlos Chagas Filho, 373, CCS-BL.G, sala 0-61ss. Rio de Janeiro, RJ, Brasil. CEP: 21941-540. Projeto Pinguins & Skuas. International Polar Year International Education, Outreach and Communication Committee.

⁶ Universidade Federal do Rio Grande do Sul (UFRGS), Centro Polar e Climático, Instituto de Geociências. Av. Bento Gonçalves, 9500, salas 207 e 210. Porto Alegre, RS. Brasil. CEP: 91501-970.

⁷ Universidade Federal Fluminense (UFF), Campus de Campos de Goytacazes. Rua José do Patrocínio, 71, Campos de Goytacazes, Rio de Janeiro, RJ, Brasil. CEP: 28010-385.

⁸ Museu de História Geológica do Rio Grande do Sul, Laboratório de História da Vida e da Terra (LaViGæa). Av. Unisinos, 950, Cristo Rei, São Leopoldo, RS, Brasil. CEP: 93022-000.

E-mails: julianasul@gmail.com; rodrigokerr@furg.br; erli_costa@yahoo.com.br; alencar@uerj.br; prof_miriamrc@hotmail.com; eals21@ig.com.br; ju.costi@gmail.com; rosemary.vieira@ufrgs.br; thiers_w@hotmail.com.

The Association of Polar Early Career Scientists (APECS) is an international and interdisciplinary organization for undergraduate and graduate students, postdoctoral researchers, early faculty members, educators, and others with interests in Polar Regions (Antarctic and Arctic environments) and the wider cryosphere. APECS aims to motivate young polar scientists to study several aspects related to the polar environments, to promote international networks, and to develop polar research, education and outreach activities (for further information visit www.apecs.is).

APECS is an initiative of young and innovative polar researchers which started in the context of the 4th International Polar Year (IPY 2007-2008; www.ipy.org). During IPY, both scientific and public interests in Polar Regions increased mainly with the focus on global climate changes and their impacts in the near future. APECS members intend to promote the development of research networks, stimulate educational activities and public literacy campaigns.

Although Antarctic and Arctic environments fascinate graduate students in several environmental and human related issues, few professionals are developing their careers on international and interdisciplinary polar sciences. In order to promote cooperation studies and development of Antarctic and Arctic sciences as a whole, APECS has motivated the next generation of polar researchers.

The Antarctic Treaty was signed in 1959, and with the objective to recognize the importance of the Antarctic environment, it was agreed amongst signatories that the continent and its surroundings (i.e. South of 60°S) should be used exclusively for peaceful purposes and scientific investigations (see Hughes & Convey 2010 for recent discussion). Brazil signed the Treaty in 1975 (Decree 86.830/1982) taking into account strategic, economic, geopolitical and scientific rationales. Brazilians started their scientific expeditions to Antarctica in 1982 through the Brazilian Antarctic Program (PROANTAR), a consortium between different ministries led by the

Interministerial Secretariat for the Sea Resources based at the Navy (Jesus & Souza 2007). Two years later, in the austral summer of 1984, the Brazilian Navy (associated with other Ministries and Organizations) implemented the Brazilian Antarctic Research Station “Comandante Ferraz” at King George Island, South Shetlands Islands, Antarctic Peninsula region (Jesus & Souza 2007).

Until today, the PROANTAR organizes scientific expeditions to Antarctica throughout the year. Two Brazilian Navy ships (the NApOC “Ary Rongel” and, recently, the Polar Ship “Almirante Maximiano”) raise PROANTAR’s logistical and technological capacity. These vessels support oceanographic and meteorological research during expeditions from Brazil to Antarctica. All logistical procedures are coordinated by the Brazilian Navy and supported by the Ministry of Science and Technology (MCT, acronym in Portuguese), the National Council for Scientific and Technological Development (CNPq, acronym in Portuguese), and the Ministry of the Environment (MMA, acronym in Portuguese). During the spring 2011, when this Special Issue of *Oecologia Australis* is going to be published, PROANTAR will be carrying out the XXIXth Antarctic scientific expedition in which during the summer has supported more than 14 projects around the Antarctic Peninsula environment!

The importance of Brazilian research in Antarctica has been recognized worldwide, as Brazil has been represented in several national and international research programs related to the White Continent. Some examples are the South American Consortium for the *Census of Antarctic Marine Life* (LA - CAML), the South American Network on Antarctic Marine Biodiversity (BioMantar), the Continental Margins Ecosystems on a worldwide scale (COMARGE), and the Brazilian involvement in various committees, working groups and scientific programmes of the Scientific Committee on Antarctic Research (SCAR).

Recently (2008), two National Science and Technology Institutes (INCT, acronym in Portuguese) were created by the Ministry of Science and Technology, aiming at the development of Brazilian scientific activities in Antarctica: the National Science and Technology Institute for Cryospheric and Technology (INCT Cryosphere, <http://www.ufrgs.br/antartica/>) and the National Science and

Technology Institute on Antarctic Environmental Research (INCT APA, acronym in Portuguese, <http://www.inct-antartico.com.br>). These Institutes started in the context of the Brazilian Government Action Plan (2007-2010) within the Program of Science, Technology and Innovation for Antarctica, financially supported by CNPq and other Research Support Foundations.

The INCT Cryosphere integrates Brazilian cryosphere scientists (more than 130 researchers) from different institutions in order to work for a better understanding of cryosphere processes in the Antarctic environment. The INCT APA is implementing a monitoring network, including more than 200 researchers focused on different aspects of atmospheric, terrestrial and oceanic processes with effect in the Antarctic region, but that could be affected by external factors including human activities. Also, these institutes have promoted polar education and outreach activities related to the Antarctic environment.

The publication of the journal *Brazilian Antarctic Research* (of the Brazilian Academy of Science) and the Special Issue of *Oecologia Brasiliensis* (nowadays *Oecologia Australis*) in 2007 (www.oecologiaaustralis.org) are clear evidences of the relevance of polar research for Brazilian Science. The latter gathered 14 papers related to different aspects of Brazilian research activities in Antarctica, adding to the baselines for future research.

APECS-Brazil (apecs-brasil.blogspot.com), as well as APECS (<http://www.apecs.is>), is a recently (2008) founded Association. It follows the same objectives of the international organization, besides other particular purposes. Dr. Lucia Campos (LA - CAML coordinator) and Dr. José Xavier (APECS Vice-President) were responsible for the first actions in Brazil. Encouraged by them, MSc. Erli S. Costa and Dr. Roseane Palavizini started the APECS-Brazil activities, promoting the Association within the Brazilian scientific community. In 2009, a Council formed by six polar early career scientists and educators was established in Brazil. APECS-Brazil was represented by five different research areas at that time. Their members have also represented Brazil internationally: Ecology/Biology (Erli S. Costa); Education/Outreach (Miriam H. Almeida and Roseane Palavizini); Geography (Rosemary Vieira);

Physical/Biological Oceanography (Rodrigo Kerr) and Paleontology (Thièrs Wilberger). In 2010, new members joined the APECS-Brazil Council, coming from distinct scientific research areas: Climate Changes (Alexandre S. Alencar), Atmospheric Chemistry (Elaine A. Santos), Scientific Divulcation (Tainá M. Luccas), Cryosphere (Juliana Costi) and Marine Pollution and Invasive Species (Juliana A. Ivar do Sul). Concomitantly, APECS-Brazil obtained a position in the APECS International Council represented by Erli S. Costa. After the establishment of the Association general rules, the 2010-2012 APECS-Brazil Council is now composed by Erli S. Costa, Miriam H. Almeida, Rodrigo Kerr, Thièrs Wilberger, Alexandre S. Alencar, Elaine A. Santos, Juliana Costi and Juliana A. Ivar do Sul.

APECS-Brazil promoted the “International Polar Week” from 05-09 October 2009. Several education and outreach activities were developed in Primary and Secondary Schools, as well as Universities from different Brazilian States and cities (i.e., in the State of Rio Grande do Sul: Porto Alegre, Rio Grande, São Leopoldo and Erval Grande; in the State of São Paulo: Rio Claro and Araraquara; and in the State of Rio de Janeiro: Rio de Janeiro). All activities were supported by experienced polar researchers from APECS-Brazil, who facilitated the communication between scientists and the general public, promoting excellent discussions about Polar Regions.

One of the most important events that stimulated the establishment of APECS-Brazil was the ‘Antarctic ~ South American Interaction in the Marine Environment Symposium (ASAI)’. This event took place at the Federal University of Rio de

Janeiro (UFRJ), Rio de Janeiro, Brazil, in November 2009. The ASAI Symposium was an initiative of the LA - CAML, BioMantar, COMARGE, UFRJ and *Oecologia Australis*. One of the scientific products from the ASAI is this Special Issue of the *Oecologia Australis* including scientific manuscripts presented and discussed during the Symposium.

Later, APECS-Brazil was represented at the International Polar Year Oslo Science Conference, in Oslo, Norway, and at the SCAR Conference in Buenos Aires, Argentina. At the IPY Oslo Conference, the Brazilian Council presented an informative poster with the historical advances of APECS in Brazil (Costa *et al.* 2010), and Miriam H. Almeida was co-convenor of an oral presentation session, as well as member of the Polar Teachers Conference committee.

More than 30 Brazilian researches (including senior and early career scientists) contributed to the APECS panel organized by APECS International during the SCAR Conference in Buenos Aires, Argentina, in 2010. Additionally, young Brazilian researchers (Rodrigo Kerr, Marcos Tonelli, Juliana Marini Marson and Manuela Basso) organized and conducted several oral presentation sessions as conveners and co-conveners.

The participation of some Brazilian APECS members in all those scientific meetings was possible because they were supported financially by SCAR and APECS.

More recently (October 2010), the APECS-Brazil organized the ‘1st APECS-Brazil Workshop: Perspectives and Opportunities’ at the Rio de Janeiro State University (UERJ), Brazil (Figure 1).



Figure 1. Researchers, students and educators at Rio de Janeiro State University (UERJ) during the ‘1st APECS-Brazil Workshop: Perspectives and Opportunities’.

This event involved several institutions highlighting UERJ, Federal University of Rio de Janeiro (UFRJ), Federal University of Rio Grande (FURG), Vale dos Sinos University (UNISINOS) and Federal University of Rio Grande do Sul (UFRGS). The main goals of this meeting were to (1) present APECS-Brazil to the scientific community, government representatives, general public and new potential APECS participants; (2) establish partnerships among early career polar scientists aiming at future cooperation and interdisciplinary studies; (3) exchange scientific knowledge, field experiences, advancements and difficulties of polar research between early and senior scientists studying this environment; and (4) encourage the development of Polar Education & Outreach Activities.

In the Workshop, secondary (35) and undergraduate (80) students, graduate and postgraduate researchers (30) and scientists (15) from six different Brazilian States (i.e. Rio de Janeiro, São Paulo, Minas Gerais, Rio Grande do Sul, Pernambuco, Sergipe, and the Brazilian Federal District Brasília) discussed the development and growth of polar research in Brazil, as well as means of promoting Brazilian polar activities in the country, and worldwide. Opportunities and expectations from young researchers working in different areas of polar studies (oceanography, geology, biology, ecology, education, and others) were presented during the event. Two authorities on polar research and activities were celebrated during the workshop, both involved in the Brazilian Antarctic Program since its establishment: Dr. Antônio Carlos Rocha Campos, one of the most expressive polar researchers in Brazil; and Mr. Armando Hadano, photographer and technician from the Brazilian National Space Institute, who spent most of his career at the Brazilian Research Station at King George Island coming back to Brazil only in the summers for over 25 years. The Brazilian Ministry of Science and Technology was represented by Dr. Maria Córdélia S. Machado, who currently acts as the Director of the Sea and Antarctic Coordination within the ministry.

During the '1st APECS-Brazil Workshop', 22 talks and 27 scientific posters were presented. The best three posters were awarded Honorable Mentions "Professor Rocha-Campos", who evaluated posters himself. The best ten pictures were also awarded Honorable Mentions "Armando Hadano".

The '**1st APECS-Brazil Workshop: Perspectives and Opportunities**' was extremely successful! The main objectives were completely fulfilled and the APECS-Brazil members would like to thank authorities, researchers, and listeners who attended the meeting. APECS-Brazil plans to organize such an event biannually, and we hope to see all of you during the IInd Workshop in 2012! We would like to highlight some of the innumerable products of the '1st Workshop': three important Brazilian Antarctic researchers were invited to be included as APECS Mentors in the APECS International web-site (<http://apecs.is/mentors>): Dr. Tania Lindner Dutra, Dr. Carlos Alberto Eiras Garcia and Dr. João Paulo Machado Torres. In APECS, they will kindly share their scientific knowledge and insights with early career researchers, presenting their work in workshops and conferences.

The Brazilian participation in the Virtual Poster Session (VPS) in the APECS International web-site (apecs.is/virtual-poster-session) has increased after our first workshop, as the authors of posters shown during the workshop in Brazil were encouraged to publish their work on the webpage. The VPS was created to "focus on bringing the concept of the poster presentation beyond the four walls of the conference hall and creates an online database of polar research poster publications". At the same way, the membership numbers registered at the national and international APECS web-sites increased almost twice after our workshop in Brazil. APECS members (registers are free-of-charge) have access to many opportunities through the web-sites (see, for example at: <http://apecs.is/jobs>).

APECS-Brazil intends to organize and promote the "Brazilian Polar Month", to be held in August, promoting polar research through educational activities, photography competitions, lectures and other activities. The Brazilian Polar Month will be extended for the following years, thus becoming an annual event. The idea is to reach all the society, bringing the Polar Regions, especially Antarctica, into Brazilians daily lives. Focusing on the scientific community, APECS-Brazil council members are organizing an online newsletter with issues published twice a year (January-June and July-December). The first issue was published online in January 2011, coordinated by Rodrigo Kerr. Thereby, the

Association represents an important support to early polar researchers, stimulating cooperation and interdisciplinary studies, taking into account that these students and young scientists will be leading professionals in the near future. Specifically in Brazil, these young scientists today might be representing the country in the international scientific community. We hope you have enjoyed reading our letter. We would like to see you soon as a member of our association!

Become a member and help us to continue the history of APECS-Brazil:

International web-site:

<http://apecs.is/join/registers>

National web-site:

<http://apecs-brasil.blogspot.com>

Contact us by e-mail:

apecsbrasil@gmail.com

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