MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR
ACADEMIA DAS CIÊNCIAS DE LISBOA

Prof. Colin Summerhayes
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Subject: Portugal's Application to become Associate Member of SCAR
Lisbon, 21 Dezembro 2005

Dear Prof. Colin Summerhayes,

The Academy of Sciences of Lisbon, the Portuguese representative at the International Council of Scientific Unions (ICSU), on behalf of the Portuguese scientific community formally applies to become an Associate Member of SCAR.

Despite a rich Portuguese history of science, discovery and exploration, which touched the boundaries of the Antarctic continent, Portugal has not been formally engaged in the efforts that led to the current international effort in Antarctica as a continent for peace, science and the protection of the environment. However, Portuguese individual scientists have established strong ties and engage in Antarctic research, either by the establishment of collaborative projects with international Polar research centres, or by carrying out doctoral degrees and post-doctoral research in those centres.

Those same active scientists established as an objective to have Portugal actively participating in the forthcoming International Polar Year and to become a member of SCAR. The Academy of Sciences fully endorses this objective and nominates the Centre of Marine Sciences (CCMAR; University of Algarve, Faro) to become the Portuguese Associate Member of SCAR.

With 60 scientific staff and approximately 100 postgraduate students, CCMAR is one of the largest and best known research centres dedicated to marine science in Portugal and has consistently received the highest marks in international reviews promoted by the Ministry and Science. CCMAR is also partnership of CIMAR (University of Porto) in an Associated Laboratory, which translates in a 10-year contract and 30 government sponsored scientific officer positions. CCMAR's main mission is "to carry out scientific research and dissemination activities in relation to processes in the aquatic environment with emphasis on the interactions with and between organisms and the sustainable use of resources".
CCMAR will take a central role 1) in the promotion of Antarctic research and SCAR initiatives in Portugal, and 2) as the vehicle of Portuguese initiatives to SCAR, ensuring that the aims in different scientific fields, such as those in the biological, atmospheric and earth sciences, are met.

Portuguese scientists have carried out research in the Antarctic mostly in the last 10 years, always as part of a collaborative programme with member nations of SCAR, particularly the United Kingdom (UK) and Spain (SP). As a result of the opportunities given to young Portuguese scientists by SCAR members, there are a number of Portuguese scientists with Antarctic experience, which, together with others interested in initiating research in Antarctica, allows a more ambitious participation in Antarctic collaborative activities, as a country rather than just as individuals. In addition, Portugal is one of the countries in which science and education is growing fastest, and it is expected to continue to grow for at least the next decade. As new generations of scientists are being trained, some will find in the Antarctic their natural laboratory, thus ensuring a continued and vibrant Portuguese Antarctic research enterprise.

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ACADEMIA DAS CIÊNCIAS DE LISBOA

Portugal is committed to undertake, with other countries of the SCAR and under its directives, professional, high-quality collaborative scientific research of inter- and multi-disciplinary nature, in the Antarctic. Furthermore, Portugal, although a country with no Antarctic research tradition, will play a role in the involvement of scientific research related to the Antarctic in the International Polar Year (IPY), with direct involvement in several already approved core projects. Steps in this direction have started to be taken with the creation of a National Committee for the IPY. SCAR associate membership will strongly benefit the national endeavours, and provide the solid basis needed for Portugal to build essential links with Antarctic research.

As conscientious and a responsible member of SCAR, The Academy of Sciences of Lisbon and the Centre of Marine Sciences agree to comply with the principles of protection of the environment recommended by SCAR.

The multidisciplinary nature of Antarctic Science and the special status of the last continent in people's imagination make it an ideal theme for the promotion of scientific education, especially among school children. In Portugal the extremely successful Ciência Viva programme and the network of Science Museums will be privileged partners for education and outreach activities related to the Antarctic and the IPY.

As a first step in preparation for the IPY, a workshop has been organized (18 Nov 2005), "Portugal and the Antarctica: Science and scientific opportunities for the IPY 2007-08", which gathered more than 100 scientists, academics, students and representatives of teachers associations. Portugal is already a member of the Education & Outreach (E&O) Committee for the IPY, whose objectives are to attract and develop the next generation of polar scientists, engineers, and leaders, and to capture the interest of the public and decision-makers. Young Portuguese scientists are members of the Youth Steering Committee (YSC) for the IPY, which has the objective to ensure that the next generation of polar scientists is informed and involved in the upcoming Polar Year. A goal is to encourage college and university professors incorporate polar research into their lectures, and provide information to all student community (from pre-secondary school students to University post-graduates).

In summary, there is a strong commitment by CCMAR and other Antarctic scientists from Portugal to contribute to science, education and outreach activities within the international collaborative framework established by SCAR.

We are available to any clarifications that may be required and look forward to a positive reply to our request to become an Associate Member of SCAR

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Annex: small description of Portuguese laboratories involved in Antarctic research

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ACADEMIA DAS CIÊNCIAS DE LISBOA

Annex

The following are Portuguese institutions carrying out research in the Antarctic:

a) Centre of Marine Sciences, University of the Algarve
Research focus on predator-prey interactions in the Southern Ocean and the physiology of nototheniid fishes. The work on predator-prey interactions has focused on interactions in relation to large scale oceanographic phenomenon's, such as El Niño – Southern Oscillation (ENSO), the use of new technologies (Geographical Information Systems - GIS) applied to the distribution of Antarctic cephalopods, conservation of endangered species (including albatrosses, seals and penguins) and marine resources, and address important hypotheses regarding vertical distribution of nekton (krill, fish and squid) to higher predators (e.g. Xavier *et al.*, 1999; Pilling *et al.*, 2001; Xavier *et al.*, 2002; Xavier *et al.*, 2003, Xavier *et al.*, 2004; Xavier *et al.*, 2005). This work was conducted in collaboration with several academic and research institutions, including the British Antarctic Survey (UK), University of Cambridge (UK), University Austral of Chile, University of Miami (USA), Australian Antarctic Division (AUS) and Imperial College London.
The investigations on the physiology of the nototheniids has been initiated in early 2005 in collaboration with the British Antarctic Survey (UK) and focus on the physiological adaptation (osmoregulation, stress response) to changing temperature.

b) Centre for Geographical Studies, University of Lisbon
Research focus on Antarctic Permafrost and climate change and on the dynamics of periglacial environments (e.g. Vieira *et al.*, 2000; Ramos & Vieira, 2003; Ramos *et al.* 2005; Vieira & Ramos, 2003). The group is very active in the framework of the International Permafrost Association, and integrates the WG on Antarctic Permafrost. It participates in two IPY approved projects: ANTPAS – Antarctic Permafrost and Soils (ID nr. 33), a project from SCAR and IPA (G. Vieira is member of the Steering Committee); and TSP - Permafrost Observatory Project: A Contribution to the Thermal State of Permafrost, an IPA project (ID nr. 50). At the international level the group collaborates with the Department of Physics at the University of Alcalá de Henares and Department of Geography of the University of Zurich. At the national level the Antarctic research has links to the Centre of Geophysics at the University of Lisbon and to the National Institute of Meteorology.

c) Centre of Geophysics, University of Évora
Since 1996 a UV-VIS spectrometric instrument is installed at the Italian Antarctic station of Terra Nova Bay for the measurements of the total column of Ozone and Nitrogen Dioxide. The spectrometer (GASCOD - Gas Analyzer Spectrometer Correlating Optical Differences) was developed and built at the ISAC-CNR in Bologna – Italy. This instrument was upgraded by a Ph.D student and member of CGE, and the SPATRAM (Spectrometer for Atmospheric TRAcers Measurement) instrument was developed and a Ph.D thesis was produced recently at the University of Évora. In 2006-2007 the GASCOD Spectrometer will be replaced with the new Equipment derived from SPATRAM, developed at Évora Geophysics Centre (CGE-UE) in close collaboration with ISAC-CNRR. In the same period, another SPATRAM type instrument will be installed at the Italian-French Station of Dome/Concordia.

d) Department of Oceanography and Fisheries, University of Açores
Research focuses focuses on subantarctic/Antarctic seabird behavioural ecology (site choice and fidelity, mating strategies) and conservation. Work is being conducted by Joel Bried, that did field work in the French subantarctic islands (Kerguelen, Crozet) between 1992 and 2001. The research is a collaboration with the Centre National de la Recherche Scientifique (France) and Université Claude Bernard-Lyon 1 (France).

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ACADEMIA DAS CIÊNCIAS DE LISBOA

e) Unidade de Investigação em Eco-Etologia ("Behavioural Ecology Unit"), Instituto Superior de Psicologia Aplicada, Lisbon.
Main focus of research has been on the behavioural ecology of Southern Ocean seabirds, particularly albatrosses, including studies of population dynamics, foraging ecology, habitat selection and brooding behaviour (Catry et al, Phillips et al). Current research is being carried out in partnership with British Antarctic Survey. Part of the research in the Falklands is funded by the British Foreign and Commonwealth Office, trough the Overseas Territories Environment Program.

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