Agenda Item: 2.1

Person Responsible: Monaco representative

XXXI SCAR Delegates Meeting

Buenos Aires, Argentina, 9-11 August 2010

Application for Monaco for Associate Membership of SCAR

Executive Summary

Title: Application for Monaco for Associate Membership

Authors: Monaco

Relevant URLs or references to other reports: SCAR circular letter 783

Introduction/ Background: The papers for this application were distributed with *SCAR Circular Letter* 783. The Observer from Monaco will present the application for Associate Membership of SCAR.

Recommendations/Actions and Justification: Delegates to read supporting material from Monaco and to decide if Monaco should be invited to become an Associate Member of SCAR

Expected Benefits/Outcomes: Having Monaco, a country that has shown a keen interest in Antarctic activities, as a member of SCAT

Budget Implications: Associate Membership fees from Monaco (currently $5000/year)

Principauté de Monaco

Département des
Relations Extérieures

L'Ambassadeur,

Monaco, le 25 janvier 2010

Prof. Malhon C. KENNICUTT II
Président du Comité Scientifique pour les Recherches Antarctiques (S.C.A.R.)

Réf. : PVK/ n° 2010-00830
Objet : Lettre d'intention - adhésion de Monaco au SCAR -

Monsieur le Président,

J'ai l'honneur de me référer à votre récent entretien avec S.A.S. le Prince Souverain concernant l'éventuelle adhésion de Monaco au Comité Scientifique pour les Recherches Antarctique (S.C.A.R.), qui s'est tenu le mardi 1er décembre 2009 à l'occasion du 50ème anniversaire du Système du Traité sur l'Antarctique, à Washington.

Lors de cette audition, vous avez souligné le rôle important du SCAR, agissant, entre autre, comme un organe indépendant consultatif des Parties au Traité sur l'Antarctique, Traité auquel Monaco est Partie.

Vous avez bien voulu me transmettre, en date du 9 décembre, un courrier comprenant des informations complémentaires relatives aux formalités et procédures d'adhésion audit Comité, ce dont je vous remercie.

.../...

Délégation Permanente auprès des Organismes internationaux
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J'ai l'honneur de vous confirmer que la Principauté de Monaco a l'intention rejoindre le S.C.A.R., et de vous transmettre l'argumentation présentant le programme de travail du Centre Scientifique de Monaco (CSM), établissement public chargé de la recherche scientifique à Monaco et membre de l'Union Internationale des Sciences de l'Univers (ICSU).

Je vous prie, Monsieur le Président, de bien vouloir agréer l'assurance de ma haute considération.

L'Ambassadeur,

Patrick VAN KLAVEREN

P.J.: 1

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CENTRE SCIENTIFIQUE DE MONACO

Dir. : *Prof. Denis Allemand*

Main objectives in Polar Research of the *Centre Scientifique de Monaco*

Using Antarctic sea birds as biological indicators of global change

Considering the impact of climate change on biodiversity, one of the largest scientific issues today, it is now recognized that both coral reefs and polar environments are among the most threatened ecosystems. The "*Centre Scientifique de Monaco*" (CSM, Monaco Scientific Centre) is very active in research on corals and is one of the world leaders in this field. It is therefore not surprising that, in accordance with the Monaco Government focus on environmental issues, there is a new scientific goal on polar research.

In agreement with the ICSU and SCAR concerns for the development of international collaboration in Antarctic Science, the CSM has already started a joint project with the *Institut Pluridisciplinaire Hubert Curien* (IPHC) of Strasbourg within the framework of the research programs supported by the French Polar Institute Paul-Emile Victor (IPEV). This includes the participation of a scientist from the CSM at the Dumont D'Urville Station in Antarctica on a field project on Adélie and emperor penguins. This project, which also involves collaborations with Japanese, Australian and Norwegian scientists, includes an investigation of the effects of climate change on Antarctic and sub-Antarctic penguins as a way to better understand the impacts of climate on Southern Ocean ecosystems. This project is moreover multidisciplinary, since not only biologists, but also statisticians, electronic engineers, and physical and biogeochemical oceanographers, are participating.

The Southern Ocean plays a key role in the climate of our planet, as it is connected with several other major oceans. It is also one of the most productive ecosystems, as it accounts for 15% of marine primary production. Its location has ensured that its resources are still essentially preserved from overexploitation, which has enabled the development of a remarkable biodiversity. The most important seabird communities on earth live there, but the populations are being dramatically reduced in association with a drop in marine production. Yet, the impact of climate on Southern ocean ecosystems is still poorly understood, largely due to the immensity of this Ocean, its inaccessibility and rough sea conditions. In this context, there has been a growing interest in using sea birds as biological indicators to complement classic oceanographic campaigns. Southern Ocean food chains are very short and the effect of climate forces on marine primary production is quickly integrated into the upper levels of the food chains, i.e. at the level of top predators such as sea birds, of which penguins are the most accessible in large numbers.

In order to develop an international research program, the CSM is establishing a joint Research Unit with CNRS and other international institutions in the framework of a "Laboratoire Européen Associé" (LEA) on the topic "*Biodiversité et milieux sensibles au changement climatique*" (Biosensib; "Biodiversity and Climate change-sensitive ecosystems"). Within this LEA, we are planning to develop a small team at the CSM dedicated to a research program focused on the use of sea birds as biological indicators in order to further establish our long-term involvement in polar research.

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CENTRE SCIENTIFIQUE DE MONACO

In the engagement of the CSM in polar research, there is a major concern with minimizing the impact of scientific activities on wild fauna. This explains our collaboration with CNRS French teams to investigate the impact of climate on the breeding success and survival of Adélie penguins as a reflection of climate-induced changes on krill abundance and localization within the sea ice environment. French CNRS teams are leading the way in the development of new methods, such as those based on electronic identification, in order to monitor penguins without the negative impacts of classic methods, such as flipper banding. Indeed, the first participation of one of our scientists to an Antarctic expedition has been aimed to join the effort in developing such alternative methods. A joint presentation is scheduled at the coming Oslo meeting devoted to the first important scientific achievements resulting from the International Polar Year and the first paper coming from the CSM involvement in polar research will soon be submitted. Thanks to these start-of-the-art technologies, our objective is thus to investigate the evolutionary and functional mechanisms underlying population changes in the context of global climate change. By understanding how and by which mechanisms physical constraints (climate on ocean features) influence upper-trophic-level predators through modification of food web processes, and by modeling these effects of the climate fluctuations, we will be able to propose potential population trajectories under the warming scenarios forecast by the last Intergovernmental Panel of Climate Change (IPCC-2007). This information will offer us the possibility to explore the borderlines and thresholds of the adaptive abilities beyond which populations would collapse.

Monaco, le 26 janvier 2010

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