COORDINATION OF KING GEORGE ISLAND SCIENCE

SUMMARY

Recommendations for improving the coordination of science between national operators on KGI have been made over a number of years, to little effect. There is now a broad view of the breadth of science carried out, and the main topic headings. However, we still lack the detailed information on who is doing what, and where, which is required as the basis for improving coordination, and we still lack any mechanism for improving coordination.

To address these shortcomings, a workshop on the coordination of King George Island (KGI) science will be held as part of XXX SCAR in St Petersburg. It will take place in Room B on the 10th floor of the Pribaltiskaya Hotel, for a maximum of 20 people, from 0900-1300 on July 6th. Delegations will be asked to nominate attendees.

The main business will be:

- **(i) To agree on how to complete the inventory of KGI scientific activities and contact points;**
- **(ii) To explore ways in which scientific coordination between national operations on KGI can be improved so as (a) to benefit all national operators, (b) to avoid duplication of effort, and (c) to benefit all SCAR programmes through more coherent and integrated inputs of data from KGI activities to SCAR activities;**
- **(iii) To consider the benefits of holding a workshop on KGI to explore the practicalities of different models for improved scientific coordination (such as a management coordination mechanism and a regular scientific workshop programme).**
- **(iv) To consider the benefits of making a senior level SCAR visit to KGI in the coming southern summer season to explore these various possibilities with operators on the ground;**
- **(v) To devise a report through SSG-PS to the Delegates with recommendations on the above topics.**

The report will help Delegates to decide on the most appropriate way forward for the coordination of KGI science insofar as it affects the interests of SCAR programmes.

COORDINATION OF KING GEORGE ISLAND SCIENCE

BACKGROUND

King George Island (isla 25 de Mayo in Argentine toponimy) is located at 62ºS in the South Shetland Islands just north of the tip of the Antarctic Peninsula. It is host to the research stations of 11 SCAR Members (one of them, the Argentine Jubany Station, has a laboratory shared between Argentina and Germany) (Table 1). There has long been an interest within SCAR to help these Members and other visiting national expeditions to improve the coordination of scientific activities on the island, so as to ensure a maximum scientific return for the investments made by Members, to share data so as to reduce or eliminate duplication, and to make a more significant contribution from those activities to SCAR's science programmes.

Recommendations from SCAR XXVII (Shanghai, 2002)

Delegates agreed that while appreciating that national programmes should maintain their own priorities, there was a need to rationalize scientific activities on King George Island, among other things so as to free resources for new scientific projects. They recommended (SCAR XXVII-6) that the relevant National Committees should make efforts to integrate their scientific objectives and to collaborate with other nations.

Noting that a King George Island Geographic Information System (KGIS) had been created under the umbrella of SCAR's Working group on Geographic Information, they also recommended (SCAR XXVII-7) that countries with programme activities on King George Island should make use of this integrated system for science activity, environmental planning and logistic operations; and that National Committees, through their National Programmes, should continue providing spatially referenced data to the Geographic Information System for the mutual benefit of all National Programmes with activities on the island.

Recommendations from SCAR XXVIII (Bremerhaven, 2004)

At this meeting, Delegates further recommended (SCAR XXVIII–6) that National Committees with activities on King George Island, through their National Programmes, should use the KGIS for coordinating science activity, environmental planning and logistic operations; and should continue to provide spatially referenced data to the GIS for the mutual benefit of relevant National Programmes.

In addition, the SSG-PS made an internal recommendation (SCAR XXVIII – 2) that SCAR should form a multidisciplinary cross-SSG Action Group on King George Island science, with the Terms of Reference being:-
- to make an inventory of the science that is taking place on the island, and
- to suggest means by which coordination could be improved to make better use of the available resources.

It was envisaged that the group could carry out much of its work by email, but that it would be useful to have a workshop of King George Island science at SCAR XXIX (Hobart, 2006).

The SCAR Strategic Plan for 2004-2010, approved at XXVIII SCAR, noted that the overall purpose of the AG was to encourage different national groups on King George Island to share information about their research plans, so as to avoid unnecessary duplication of costly activities.

Dr Vicor Lagun (AARI, St Petersburg) volunteered to organize the group and set up a KGI Action Group web site at the Russian Arctic and Antarctic Research Institute (AARI)(http://south.aari.nw.ru).

According to SSG-PS it was intended that the steering committee for this group will include Stefan Vogt, Lucia Campos, Victor Lagun and probably a representative of Korea or another Brazilian. However, it seems that to date the activity has involved only Dr Lagun.

Recommendations from SCAR Executive Committee (June 2005)

EXCOM asked the Secretariat to draw up a plan for EXCOM and Chief Officers to consider, suggesting how to proceed on KGI coordination.

Recommendations from SCAR XXIX (Hobart, July 2006)

SSG-PS report noted that the main activities of the AG-KGI had been concerned with meteorology and other physical sciences, but that over the next 2 years it was intended to have greater involvement of the biological community, so that by SCAR XXX we would have a complete inventory of KGI science and a series of recommendations regarding cooperation and coordination.

It was intended that Dr. Lagun's activities (like those in any other SCAR Group) should be reported to the Chief Officer of the Physical Sciences Standing Scientific Group (SSG-PS), for consideration at SSG-PS meetings.

SCAR Delegates requested Chief Officers of SSGs to develop a joint recommendation on the coordination of scientific activities on King George Island, for consideration at XXX SCAR (2008).

Recommendations from SCAR Cross-Linkages Workshop (Rome, November 2006)

For this meeting of Chief Officers and SRP Leaders, Dr Lagun reported (through John Turner, the former Chief Officer of SSG-PS) that he had visited all KGI stations, except the Brazil base, during January-February, 2006, while attending an International Workshop on "*Possibilities for Environmental Management of Fildes Peninsula and Ardley Island*"_ at Bellingshausen Station, January 30 - February 04, 2006. By that time he had established direct (and indirect) contact with all KGI stations. The Cross-Linkages

participants noted that the KGI web site is more like an encyclopaedia entry on KGI science than like an inventory of scientific activities.

To achieve the Terms of Reference of the Group, the Rome meeting recommended:

- that a membership list should be established for the members of the AG, comprising representatives of each Member active on KGI and representatives of the three SSGs;
- that the members of the AG be invited to nominate a chair person from among themselves;
- that the Secretariat be invited to take on the task of establishing the inventory (see below); and
- that a workshop on KGI science be organised in conjunction with SCAR 2008 in St Petersburg, to review progress.

The Rome meeting suggested that coordination could be improved by adopting a community approach, for instance through a science coordination committee of the kind that has been developed at Ny Alesund, on Svalbard and which has produced the Ny Alesund management plan (produced by NYSMAC, the Ny Alesund Science Management Action Committee). Such a committee might then also organise an annual conference where results could be displayed, which would lead to further collaborative work and associated advances.

Bearing these various points in mind it was recommended that to complete the inventory and explore the coordination question the Secretariat, in consultation with Chief Officers and Victor Lagun, should:

- (i) get the KGI station list from COMNAP (http://www.comnap.aq/facilities, accessible from
- the home page through the 'Antarctic Facilities' tab);
- (ii) check what SCAR national reports say about KGI activities;
- (iii) find out what the SC-AGI GIS shows for KGI;
- (iv) distribute a questionnaire to each of the operators in the island to discover what research is taking place there;
- (v) develop contact points for each country and station active on KGI; (vi) develop an inventory of activities showing current research and who is doing what (e.g. like Table 1, below);
- (vii) relate it to SCAR activities;
- (viii) cross check the Ny Alesund coordination mechanism;
- (ix) produce a report setting out KGI science and making recommendations for the future regarding coordination;
- (x) circulate information about SCAR programmes to KGI bases, with a view to encouraging them to integrate their research with SCAR programmes;
- (xi) encourage coordination between KGI and SCAR programmes;
- (xii) plan a half day workshop for XXX SCAR on KGI scientific research.

Table 1. Example for inventory of KGI activities

Stations	Operator	Contact Point	Op. Met	Scientist	GCOS Stn	Biology	Upper Atmos	etc
Great Wall	China	das	Y		N			
Bellings-hausen	Russia	sff	Y		Y			
Artigas	Uruguay	sdf	Y					
Frei	Chile	ert						
INACH	Chile	tyu						
King Sejong	Korea	yui						
Jubany	Argentina	hjk	Y			Y		
Artktowsky	Poland	ert						
Ferraz	Brazil	wer						
Matchu Pichu	Peru	qwe						
Copacabana	USA	yui						
A hut	Ecuador	ert						

Ideally what we require in addition is information on observing stations, such as - operating nation - lat/long - surface met programme - upper air meteorological programme - biological research - geological research etc.

It would also be useful to have a report on the 2006 visit, and on subsequent activities by the group.

In addition a connection is needed between the AG-KGI and other SCAR science activities. There is a need not simply to improve coordination at the field level on the island, but also to integrate KGI research with SCAR programmes to the extent possible.

As an example of what might be achieved, the Rome meeting suggested that the KGI community could band together to support a radiosonde programme that might utilise the radiosonde launch facilities of the Russian station. Radiosonde data are in short supply, and this would provide a key addition to the database. These data are important for assessing the mid-tropospheric warming at 5 km, which is larger than any recorded elsewhere on the planet. Korean and Chilean station s are said to be interested.

Recommendations from EXCOM (Washington DC, July 2007)

EXCOM asked S. Marenssi and the Secretariat to develop (new) terms of reference (and membership) for the King George Island Science Coordination Action Group, to assist coordination among Members with activities on King George Island to improve scientific investigations (recognising that any action by SCAR in this regard must be sensitive to national interests and independence). One way forward might be to identify critical scientific activities not currently conducted on KGI, and to encourage national programmes to expand science activities in these directions. EXCOM decided that the KGI Action Group should be expanded to include representatives of countries who have stations on KGI, and should serviced by the SCAR Secretariat. A KGI workshop should be planned for XXX SCAR.

A Success Story: the KGI Geographical Information System (KGIS)

While efforts to coordinate KGI science remain frustrated for the time being, SCAR has been successful in encouraging the development of a GIS approach to mapping.

The need for coordination of geographic information management on King George Island was recognised at the beginning of the nineties. The applicability of GIS techniques was demonstrated with some examples, and it was proposed that a geographic information centre be set up on KGI.

In the years to follow many countries active on the island launched projects on geographic data management based on Geographical Information Systems (GIS). One of the earliest large-scale data sets published in digital form was provided by China as ancillary data to the Antarctic Digital Database Version 1.0. In a Chilean project a GIS for the Fildes Peninsula and Ardley Island was established that is used mainly for administrative purposes. A project to establish a GIS for the Admiralty Bay ASMA was launched by Brazil. Unfortunately there was only marginal co-ordination between most of these projects. Different standards had been adopted and there was a lot of double production of data sets covering the same areas.

In its 1998-2000 Geographic Information Programme, the SCAR Working Group on Geographical Information established the KGI Geographical Information System (KGI) project. Under the co-ordination of Poland the project started with a scoping study on available geodetic and map data. Under the 2000-2002 Geographic Information Programme further key activities were developed and co-ordination was transferred to Germany. The list of contributing nations was extended to include Argentina, Brazil, China, Chile, Korea, Russia, Poland and Uruguay. The project is open to all interested institutions and contribution of spatial data sets is very welcome (for more details see http://www.kgis.scar.org/)

Since 2002 the database has continuously been expanded and many tools have been developed to access and make use of the data. KGIS data is accessible in the data download area of the web site or through the interactive map-viewer that allows users to create customized maps. Current activities include collecting and integrating new data sets, development of OGC compliant web services, and promotion of the project.

The KGIS programme is now managed as a service activity under the Standing Committee on Antarctic Geographical Information (SC-AGI).