Report of the SCAR/COMNAP Joint Committee on Antarctic Data Management (JCADM)

July 2005 – May 2006

Executive Summary

Populating the Antarctic Master Directory.
The Antarctic Master Directory (AMD) is the world's largest on-line directory of Antarctic data set descriptions. The number of data set descriptions grew from 3503 in July 2005 to 3848 in May 2006. The number of nations contributing their data set descriptions grew from 19 nations in July 2005 to 23 nations in May 2006. The statistics show that the AMD is increasingly being used. The number of downloads (of data set descriptions) grew from about 100 per month in July 2003 to about 500 per month in the first quarter of 2006.

Recruitment of New NADCs
JCADM has welcomed representatives from Bulgaria, Malaysia, South Africa and Uruguay. JCADM has now membership from the following 30 nations: Argentina, Australia, Belgium, Bulgaria, Canada, Chile, China, Estonia, Finland, France, Germany, India, Italy, Japan, Korea, Malaysia, Netherlands, New Zealand, Norway, Peru, Poland, Russia, Spain, South Africa, Sweden, Switzerland, Ukraine, United Kingdom, United States, Uruguay.

Capacity Building and the JCADM-9 Meeting
JCADM organized an international capacity building workshop during the two days prior to the successful JCADM-9 meeting in Buenos Aires, September 12-16, 2005. The report of these meetings, including a list of action items, can be found in Annex 1.

Liaison with SCAR Groups and Projects
JCADM appointed three of its members as liaisons with the three SCAR SSGs, and nominated members to advice and assist the Steering Committees of the 5 SCAR Scientific Research Programmes on data management issues. JCADM is also actively involved in the SCAR-MarBIN project as well as in the Southern Ocean database project.

JCADM and the International Polar Year 2007-2008 (IPY)
The JCADM Chief Officer, after being nominated by SCAR, was elected as one of the two co-chairs of the IPY Subcommittee on Data Policy and Management. JCADM as a data infrastructure will become part of the IPY Data and Information Service (IPYDIS)

Major challenge
It is a matter of great concern to JCADM that, even though the number of nations involved in JCADM has doubled over the past few years, most if not all of these new NADCs are under-resourced, under-staffed and under-funded. ATCM XXII Resolution 4.1 calls nations to establish National Antarctic Data Centres. With good reason, since data are the long-lasting legacy of current scientific research, and are of great value to future research. Achieving this legacy and value can only be realized if the data are professionally managed by NADCs and national discipline-based data centers. Yet in many countries, the newly established NADC is in fact just

one person, part-time, with no additional funding. This became very apparent at the Buenos Aires meeting where many JCADM members were not able to participate due to lack of national funding.

To improve on this state of affairs, JCADM calls on SCAR and COMNAP to endorse the following Resolution, which urges SCAR and COMNAP delegates to address the issue of enabling and funding of Antarctic data management at the national level.

Draft Resolution on NADCs:

Recognising:-

(i) that scientific data are the long lasting legacy of current scientific research, and are therefore of great value to future scientific research;

(ii) that Article III-1c of the Antarctic Treaty states that *"Scientific observations and results from Antarctica shall be exchanged and made freely available"*, so as to increase the value of scientific data by making them available to all;

(iii) that ATCM XXII Resolution 4.1 called upon Treaty Parties to establish National Antarctic Data Centres (NADCs) as a first step in capturing the data needed for national purposes and as the basis for international exchange;

(iv) that through the efforts of the Joint SCAR/COMNAP Committee on Antarctic Data Management (JCADM), nations have been persuaded to double the number of NADCs (to 30) over the past three years, which has led to a substantial increase in the data available to all through the Antarctic Master Directory;

(v) that the full benefit of NADCs to scientists both nationally and internationally will come from the allocation of appropriate levels of manpower and equipment at the national level;

(vi) that great benefits in training, communication, the exchange of ideas, and learning about best practice in the national management and international exchange of data will come from the participation of NADC managers in the annual JCADM meeting;

SCAR and COMNAP urge national managers to ensure that NADCs are staffed and equipped to appropriate levels, and that NADC managers have sufficient resources to participate in annual JCADM meetings.

Report of the SCAR/COMNAP Joint Committee on Antarctic Data Management (JCADM)

July 2005 – May 2006

Introduction
Scientific data are very valuable. In the first place they have intrinsic value for scientific research: without data no science. But there is also an economic value to data: it's extremely expensive to collect data. This is especially true for Antarctic data. For a maximum return on this investment, every effort should be made to use and re-use the data to the maximum extent possible. To maximize the value of data and to preserve them for future (re)use, data need to be carefully managed in a professional manner. Data management includes all activities to archive data, to make data accessible, and to exchange data. To make archived data accessible the existence and availability of the data must be made known. This includes building (metadata) directories and catalogs, defining exchange formats, and developing web techniques for data exchange over the Internet.

Antarctic data
For Antarctic data the Antarctic Treaty (Article III – 1c) requires that
"Scientific observations and results from Antarctica shall be exchanged and made freely available". To facilitate preservation and exchange of Antarctic data, nations are called upon to establish National Antarctic Data Centres (ATCM XXII Resolution 4.1).

To coordinate Antarctic data management and to help SCAR and COMNAP to fulfill the Antarctic Treaty obligations as described above, SCAR and COMNAP established the SCAR/COMNAP Joint Committee on Antarctic Data Management (JCADM) in 1997.

JCADM Terms of Reference
The JCADM Terms of Reference are:

JCADM is responsible for the Antarctic Data Directory System (ADDS) which comprises the Antarctic Master Directory (AMD) and the National Antarctic Data Centres (NADCs). This includes:
· 	The promotion of data management within the Antarctic Scientific Community
· 	Providing guidance to the AMD host
· 	The assistance in establishing Antarctic data management policies and priorities
· 	The recruitment of NADCs; these NADCs then catalogue datasets and provide information on data sets to the scientists and others with an interest in Antarctic Science
· 	The encouragement of scientists to submit metadata to the Antarctic Data Management System
· 	The reporting to SCAR and COMNAP (hence Treaty) on Antarctic data management issues

Members of JCADM are the managers of the National Antarctic Data Centers, or a relevant national contact if a NADC has not yet been established.

JCADM meets annually, with every second meeting in conjunction with SCAR and COMNAP.

JCADM Activities in the Period July 2005 – May 2006

JCADM Meetings
JCADM had a very successful annual meeting in Buenos Aires (JCADM-9), September 12-16, 2005. The full meeting report can be found on the JCADM web site (www.jcadm.scar.org) and in Annex 1 of this document. The next, JCADM-10 meeting will be held in Hobart, Australia, July 8-11, 2006. JCADM also seized the opportunity to organize an ad-hoc JCADM meeting in Cambridge, March 5, 2006, as several JCADM members, including the JCADM Executive, were present at the First IPY Data Workshop. During this meeting, progress made since the JCADM-9 meeting was discussed.

Recruitment of New NADCs
Following increased recruitment activities before and during the COMNAP meeting in July 2005, JCADM has welcomed representatives from Bulgaria, Malaysia, South Africa and Uruguay. JCADM now has membership from the following 30 nations: Argentina, Australia, Belgium, Bulgaria, Canada, Chile, China, Estonia, Finland, France, Germany, India, Italy, Japan, Korea, Malaysia, Netherlands, New Zealand, Norway, Peru, Poland, Russia, Spain, South Africa, Sweden, Switzerland, Ukraine, United Kingdom, United States, Uruguay.

It is a matter of great concern to JCADM that, even though the number of nations involved in JCADM has doubled over the past few years, most if not all of these new NADCs are under-resourced, under-staffed and under-funded. ATCM XXII Resolution 4.1 calls nations to establish National Antarctic Data Centres. With good reason, since data are the long-lasting legacy of current scientific research, and are of great value to future research. Achieving this legacy and value can only be realized if the data are professionally managed by NADCs and national discipline based data centers. Yet in many countries, the newly established NADC is in fact just one person, part-time, with no additional funding. This became very apparent at the Buenos Aires meeting where many JCADM members were not able to participate due to lack of funding enabling them to attend the annual JCADM meeting.

Capacity Building
JCADM has put much effort into capacity building in the past, and continues to do so.
The JCADM web site is the main vehicle for capacity building. It was completely redesigned in 2005/2006 and the roll-out of the new JCADM website is expected to be during the SCAR meeting in Hobart.
As part of in its series of regional capacity building workshops, JCADM organized a capacity building workshop during the first two days of the JCADM-9 meeting in Buenos Aires.
The programme of this 2nd Latin American Capacity Building Workshop was:

1. Antarctic data management and JCADM – history and current status (Taco de Bruin)
2. COMNAP and JCADM (Taco de Bruin, the Netherlands)
3. The DIF standard (Mélanie Meaux, GCMD)
4. A hands-on demonstration of entering a DIF (Mélanie Meaux, GCMD)
5. Setting up a NADC – Data policies (Helen Campbell, UK)
6. GCMD Tools, Portals, MD9, SERFs, etc. (Mélanie Meaux, GCMD)
7. The JCADM web site as a tool for capacity building (Taco de Bruin, NL)

8. Other tools, best practices, new techniques - web services, GIS, e-learning, etc (Peter Pulsifer, Canada, remote presentation via Internet)
9. The role of the Secretariat in the Antarctic Treaty System, with an emphasis on data management functions. (Jan Huber, ATS Executive Secretary)
10. The organization of Antarctic data management in Australia: a model for all (Kim Finney, Australia)
11. Oceanographic data management in the Southern Ocean: Experiences of the (former) IODE Responsible National Oceanographic Data Centre for the Southern Ocean (Ariel Troisi, Argentina)

Populating the Antarctic Master Directory.
The Antarctic Master Directory (AMD) is the internationally accessible, web-based, searchable record of Antarctic data set descriptions. The Antarctic Master Directory is a resource for scientists to advertise the data they have collected and to search for data they may need. The AMD is hosted by the Global Change Master Directory (GCMD). The dataset descriptions are in the Directory Interchange Format (DIF) and commonly referred to as 'DIFs'. The DIFs are provided by the NADCs. The number of DIFs grew from 3503 in July 2005 to 3848 in May 2006. The number of nations contributing their data set descriptions grew from 19 in July 2005 to 23 in May 2006.

The AMD continues to be increasingly used. About 100 DIFs per month were retrieved in July 2003. This grew to about 500 retrievals per month in the first quarter of 2006. A 'retrieval' is an actual download of a data set description (DIF). The information is then used to decide whether or not to retrieve the data from the data owner or data center.

Liaison with SCAR Groups and Projects
JCADM appointed three of its members as liaisons with the three SCAR SSGs. The JCADM Chief Officer participated, on behalf of JCADM, in the SCAR Cross Linkages Workshop, Amsterdam, November 2005. JCADM nominated members to advise and assist the Steering Committees of the SCAR Scientific Research Programmes on data management issues. JCADM is also actively involved in the SCAR-MarBIN project a well as in the Southern Ocean database project. The next JCADM meeting in Hobart is organized in a way to allow JCADM members to attend and interact with the SSG meetings. To further improve the linkage between science and data, JCADM members will give presentations to all SSGs.

Contacts with Other Relevant Data Management Organizations
JCADM is developing its cooperation with the International Oceanographic Data and Information Exchange Committee (IODE) of the Intergovernmental Oceanographic Commission (IOC). Two meetings to that effect with the Chair and Executive Secretary of IODE, were held in Liverpool in March and April 2006.
The Global Change Master Directory (GCMD) (host of the Antarctic Master Directory (AMD)) and the British Oceanographic Data Centre (BODC) are collaborating to expand the AMD to include results from similar existing oceanographic metadata directories (EDMED and MEDI), pertaining to Southern Ocean data sets. The emphasis of the current activities is on (the major task of) harmonizing the keyword lists and valids.

JCADM and the International Polar Year 2007-2008 (IPY)

The JCADM Chief Officer, after being nominated by SCAR, was elected as one of the two co-chairs of the IPY Subcommittee on Data Policy and Management. JCADM as a data infrastructure will become part of the IPY Data and Information Service (IPYDIS)

Data Access
JCADM recognizes the need to move from only providing access to metadata towards providing access to data as well. However, this requires a considerable increase in resources for NADCs. See also the remark made under paragraph 'Recruitment of New NADCs'.

JCADM Review and Recommendations
JCADM was, in the words of the SCAR Executive Director, "reviewed very favorably" by an international Review Team in April 2005. At the JCADM-10 meeting in September, JCADM discussed the outcomes of the review and the recommendations made by the Review Team. This resulted in a series of action items, as shown in the JCADM report (Annex 1).
The progress made concerning these recommendations and action items will be presented and discussed at the next JCADM meeting in Hobart.

ANNEX 1.

Report of the Ninth Joint Committee on Antarctic Data Management Meeting (JCADM-9)
Buenos Aires, September 12 – 16, 2005

Attendance
JCADM Executive:
1. Taco de Bruin,   Chief Officer   (The Netherlands)
2. Stein Tronstad,   Deputy Chief Officer (Norway)

National Antarctic Data Centre (NADC) representatives:
3. Argentina (Celia Izquierdo & Diego Izquierdo)   4. Australia (Kim Finney)
5. Chile (Patricia Vicuña)   6. France (Thierry Lemaire)
7. Germany (Manfred Reinke)   8. Italy (Claudio Rafanelli)
9. Japan (Toru Hirawake)   10. Korea (Hosung Chung)
11. Malaysia (Talha Al Hadi)   12. Spain (Oscar Benavidez)
13. UK (Helen Campbell)   14. USA (Greg Scharfen & Rob Bauer)

There were also representatives from associated groups:
Jan Huber   Antarctic Treaty Secrtetariat
Mélanie Meaux   NASA's Global Change Master Directory (GCMD)
Ariel Troisi   National Oceanographic Data Centre, Argentina

Apologies
Maaike Vancauwenberghe   Belgium
Peter Pulsifer (Deputy CO)   Canada
Zhu Jiangang   China
                                Ecuador
Arto Vitikka   Finland
Anna Howard   New Zealand
                                Peru
Victoria Ressia   Uruguay
Byren Archery   South Africa
Marc Rolli   Switzerland

JCADM's Mandate and associated outcomes:
The Joint Committee on Antarctic Data Management's mandate is to

   1. Recruit National Antarctic Data Centres (NADCs) within SCAR countries.

   Over the past year the JCADM have continued to pursue recruitment of the remaining
   countries within SCAR. In addition to the long standing members Argentina and Chile, a
   number of South American countries have shown interest in JCADM, and some have
   appointed NADC coordinators. There are also new NADCs in Malaysia, South Africa and

Bulgaria.
14 country representatives attended the meeting in Buenos Aires. There are now a total of 30
countries involved in JCADM.

2. To empower those NADCs to collect dataset descriptions of Antarctic scientific data for
    the Antarctic Master Directory (AMD).

The total number of Directory Interchange Format files (DIFs) in the AMD has increased
from 2966 (June 2004) to 3503 (July 2005), an 18 % growth in the AMD. The growth can be
attributed to the continued work by existing NADCs and the implementation of new NADCs.
The GCMD continues to support the creation of NADC portals to the AMD. These portals
are hosted by the GCMD and provide a national view of metadata in the AMD and a national
DIF creation facility. The data management capacity of existing NADCs has also been
supported by JCADM itself with the capacity building workshop in Buenos Aires 12-13
September 2005, and by valuable nation-to-nation support from the Australian Antarctic Data
Centre.

3. Support NADCs to act as a repository for Antarctic science data.

NADCs vary greatly in the resources available for storing and disseminating Antarctic
science data. NADCs submit data to relevant World Data Centres. In addition, NADCs have
also made data freely available on the Internet as data files, as databases and using Web
Services to international science portals such as the Global Biodiversity Information Facility
and the Ocean Biogeographic Information System. Currently, over 30 million data records
have been placed online by NADCs. Initiatives have been taken to promote the use of the
JCADM/AMD infrastructure for data management during the upcoming International Polar
Year.

The Meeting
JCADM is very grateful to the Centro de Datos Antarcticos Argentina for hosting the meeting
and providing an inspiring and lovely venue at the Palacio San Martin in central Buenos Aires.
The 9th JCADM meeting was officially opened on Monday, September 12th, by Dr. Mariano
Memolli, Direccion Nacional del Antártico, Dr. Sergio Marenssi, director of the Instituto
Antártico Argentino, Celia Izquierdo of the host institute, and the JCADM Chief Officer, Taco
de Bruin. The meeting was split into a two day capacity building workshop (Monday-Tuesday)
and a three day regular meeting.

Capacity building workshop
The titles of the talks given in this two-day session were:

12. Antarctic data management and JCADM – history and current status (Taco de Bruin)
13. COMNAP and JCADM (Taco de Bruin, the Netherlands)
14. The DIF standard (Mélanie Meaux, GCMD)
15. A hands-on demonstration of entering a DIF (Mélanie Meaux, GCMD)
16. Setting up a NADC – Data policies (Helen Campbell, UK)
17. GCMD Tools, Portals, MD9, SERFs, etc. (Mélanie Meaux, GCMD)

18. The JCADM web site as a tool for capacity building (Taco de Bruin, NL)
19. Other tools, best practices, new techniques - web services, GIS, e-learning, etc (Peter Pulsifer, Canada, remote presentation via Internet)
20. The role of the Secretariat in the Antarctic Treaty System, with an emphasis on data management functions. (Jan Huber, ATS Executive Secretary)
21. The organization of Antarctic data management in Australia: a model for all (Kim Finney, Australia)
22. Oceanographic data management in the Southern Ocean: Experiences of the (former) IODE Responsible National Oceanographic Data Centre for the Southern Ocean (Ariel Troisi, Argentina)

The presentations are available on a CD from the meeting, and will also be posted on the JCADM website, www.jcadm.scar.org. The presentations 3 – 7 and 10 constitute a concise guide to the essential administrative and technical elements of setting up and running an NADC, while the others point out relevant strategic and policy issues.

With respect to data policies, the following points were raised for discussion:
– *How much consistency should be aimed for between NADCs regarding data policies*
– *Should there be a common JCADM structure for data management plans, and guidelines for data management?*
– *What are the best mechanisms for enforcing data policies?*
– *How much of this information should be posted on the JCADM website?*
– *How much of the JCADM focus should be on integrating data access with metadata?*

Key elements of the regular meeting and associated outcomes were:
• The Chief Officer **welcomed the 14 country representatives and guests** to the JCADM meeting, and cited apologies from 10 countries.

• **Reports by the JCADM Chief Officer** were given for the achievements of JCADM over the past year (2004/05), and from the contacts with the SCAR and COMNAP executives. The highlights of the previous year's accomplishments were discussed as well as major focus points for the meeting.
   o The key item of the report was the JCADM review that was completed by an international review team in June 2005. The review gives a generally very positive evaluation of JCADM, and concludes with a list of 28 recommendations to JCADM, SCAR and COMNAP. Discussion and follow-up of the review recommendations formed an important part of the later agenda for JCADM-9.
   o Presentations on JCADM and the AMD have been given by the Chief Officer to the SCAR Executive, to STADM, to the Joint SCAR/COMNAP Executive and to various scientific programmes and working groups with interests in data management. COMNAP's requests for input on possible ways to support the AMD was noted, and all JCADM members were urged to provide their national COMNAP representatives with information.
   o Possibilities of European funding for JCADM have been investigated with representatives of the European Union.

- o JCADM has provided a draft data management plan to the IPY for inclusion in the IPY framework document. The JCADM Chief Officer has been nominated by SCAR to be one of the co-chairs of the IPY Sub-committee on Data Policy and Management.
- o The action items relating to each NADC, JCADM and the AMD were discussed and two new action lists (one for JCADM and one for the NADCs, see appendices) were created by updating the existing action lists with new items from the JCADM-9 meeting.

- **The JCADM review and recommendations** were presented for discussion by Taco de Bruin.
    - o The relevant recommendations were implemented in the JCADM action list.
    - o A working group was established to compare data policies within JCADM in order to find common denominators, and to form guidelines, recommendations and/or suggestions ("picklists") for data policies for international programmes and NADCs.
    - o All NADCs having or operating under a formal data policy were asked to submit this to the working group, along with any presentations on the matter.

- **National status reports** were presented by all participating countries. In addition, Canada (Peter Pulsifer) gave a remote presentation, and China and Ukraina had submitted reports to be presented by Taco de Bruin. The majority of the presentations are included in the JCADM-9 CD, and will be posted on the JCADM web site (www.jcadm.scar.org).

- A session was dedicated to discussions on the **JCADM terms of reference.**
    - o It was noted that the new terms of reference should put more emphasis on facilitating access to scientific data, and that they should refer to the relevant Antarctic Treaty obligations. Facilitating multidisciplinary research, supporting scientific programmes in data management, and data "maintenance" were also mentioned, as was the importance of underlining the benefits in proper, long-term management of scientific data
    - o A proposal for new terms of reference will be drafted by a working group consisting of Taco de Bruin (lead), Claudio Rafanelli, Helen Campbell and Robert Bauer (see JCADM action list).

- **The JCADM website** is being redeveloped by the Australian Antarctic Data Centre, and Kim Finney presented a preliminary version of the new website.
    - o A subgroup was appointed to audit the prototype website, and to report back to the JCADM executive and the AADC.
    - o A mini working group should be formed to take care of future content development when the new website is published and set up for distributed editing. The working group should connect with GCMD to see how GCMD quarterly reports, statistics and other AMD information can be posted in a timely and efficient manner.

- Mélanie Meaux presented a **progress report on the AMD**.

- o The AMD has grown from 1828 in January 2002 to 3503 in July 2005.
- o The contribution per country is shown below.
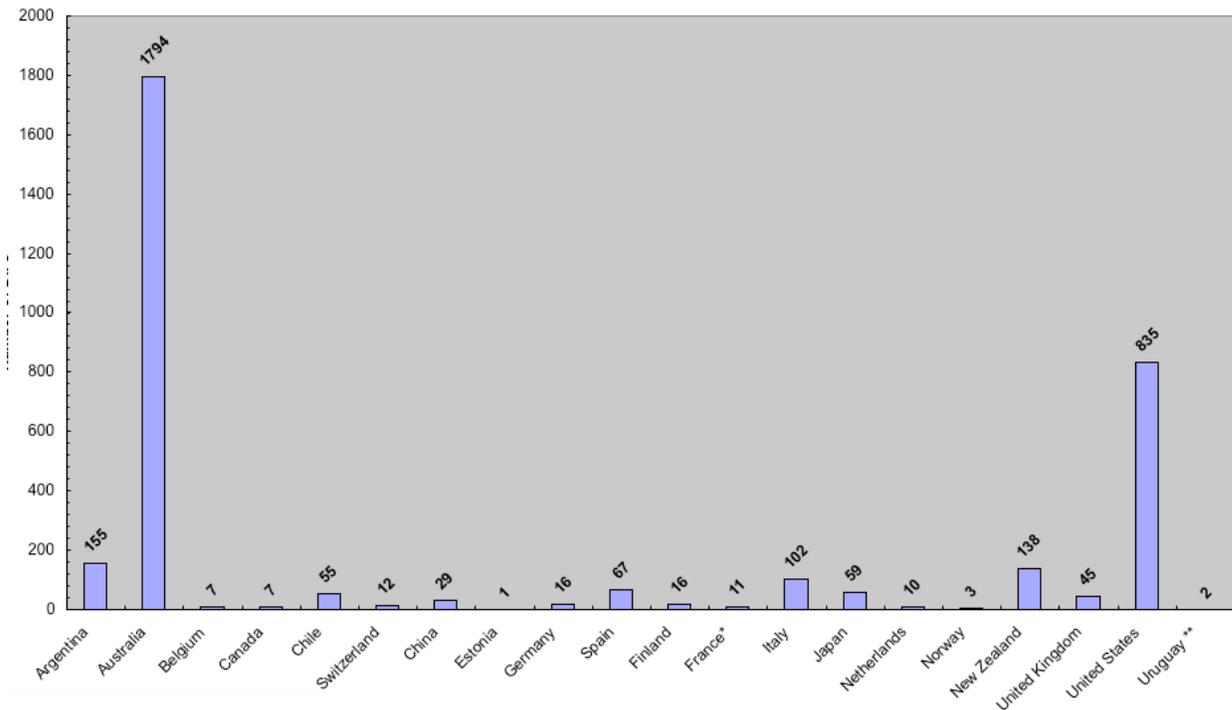
- o It was suggested that the AMD should have additional IDN nodes for international entities, such as AMD_INT for international organisations like ESA and AMD_SRP for SCAR scientific programmes, and also that global datasets should be searchable through the AMD. All DIFs associated with Antarctica and/or the Southern Ocean originating from a country should appear in that country's portal.
- o GCMD will alert the NADC concerned if a DIF from that country is added or changed by other than the NADC.
- o A working group was named to investigate the needs and options for harmonizing custom metadata management systems with the GCMD/AMD.

- Helen Campbell and Taco de Bruin introduced discussions on the **links between JCADM, SCAR groups and research programmes, the ATS, and other international programmes** relating to Antarctica and the Southern Ocean.
    - o JCADM should maintain links to the SCAR SSGs and Research Programmes, SCAR MarBIN, and to programmes like the Global Biodiversity Information Facility (GBIF), the Ocean Biogeographic Information System (OBIS), the International Oceanographic Data and Information Exchange (IODE), and the Climate and Cryosphere Project (CliC).
    - o JCADM members to the steering groups for the SCAR Scientific Research Programmes were appointed: Antarctic Climate Evolution (ACE, Robert Bauer), Antarctica and the Global Climate System (AGCS, Helen Campbell), Evolution and Biodiversity in Antarctica (EBA, Kim Finney), Subglacial Antarctic Lake

Environments (SALE, to be decided), Interhemispheral Conjugacy Effects in Solar-Terrestrial and Aeronomy Research (ICESTAR, Claudio Rafanelli).

- o The AADC and BAS will investigate how an Antarctic node could be provided for GBIF, and set up a joint portal to GBIF data, which can be used as a template for others.
- o Discussions will be continued with the Antarctic Treaty Secretariat on potential input or support to the ATS, CCAMLR, and CEP including the State of the Antarctic Environment Reporting System.

- Rob Bauer outlined the status and role of **JCADM in the International Polar Year (IPY)** on behalf of Mark Parsons (Co-Chair IPY Subcommittee on Data Policy and Management.
    - o A data management plan is included in the IPY framework document.
    - o The IPY Data Policy and Management Sub-Committee will be co-chaired by Mark Parsons and Taco de Bruin.
    - o The IPY roles for JCADM should be to review and comment on the IPY data policy, to nominate further members of the data committee, to assist in the development of Arctic "affinity centers", and to provide expertise on international organization based on the AMD experience.

- A plenary discussion outlined plans for next year's JCADM meeting in conjunction with the SCAR and COMNAP meetings, and **agreed upon action items for JCADM (Appendix 1) and for each NADC present (Appendix 2).**

Appendix 1: List of JCADM action items from JCADM-9

Remarks: O = Old or ongoing task, R = Task originating from JCADM review recommendation, N = New task

Section 1: Supporting the AMD

Item	Remarks		Who / Due
All NADCs will contribute new DIFs to the AMD	Continuing process	O R	All NADC
Review and check existing AMD entries periodically	Continuing process	R	All NADC
Creation of project DIFs for all SCAR projects	Remains to be done	O	Helen Campbell - Physical Sciences SSG, Taco de Bruin - Life Sciences SSG, Peter Pulsifer – Geo Sciences SSG
Creation of project DIFs for all national and international non-SCAR projects.	Continuing process. When new projects are discovered, information should be e-mailed to the GCMD, the relevant NADCs, and the project PI(s)	O	All NADC
Ensure that international Antarctic region data collection activities are included in AMD	JCADM representatives from the countries of the Chief Scientists of international programmes should take the responsibility for entering DIFs for the related data collection activities. (To be appended to the data policy document.)	R	All NADC (A way of identifying such programmes is through the future Antarctic activity reporting system of the ATS or through CEP)
Create a new IDN node for international projects	"AMD_INT" "AMD_SRP"		GCMD
Provide ("Facilitate the provision of"?) links to data through the DIFs	1. Link to data in the DIFs 2. Urge funding agencies to provide additional funding for online access to datasets.	R	1. Individual NADCs 2. All NADCs, with the COMNAP delegates
Harvest external Antarctic datasets to the AMD	1) Pangaea, 2) EDMED, 3) MEDI	O	GCMD Manfred Reinke
Update JCADM website with quarterly statistics on AMD	To be posted quarterly on the website by GCMD as soon as the new CMS is running.	O	GCMD, when informed about the procedure by the AADC

Identify other directories of interest (online, global metadata directories with an Antarctic component), to enable harvesting by the GCMD.	Identify the directories within own fields of interest and submit to the JCADM CO.	R	All *(A task best handled by harvesting technology?)*
Identify online, global, indexed datasets with an Antarctic component that should be referred to as a DIF in the AMD (e.g. SeaSED).	?	R	
Make a list of global *in situ* data collection programs with an Antarctic component.	1. Send the list to GCMD 2. Check which programs that are already in the GCMD 3. "Flag" those relevant to Antarctica in the AMD	R	1. JCADM 2. GCMD 3. GCMD
Evaluate satellite data entries in the GCMD that relate to the Antarctic region, and satellite data that should be added (and flagged in the AMD part of the GCMD)	1. Provide an overview of what is already in the GCMD 2. Assess the situation with respect to global satellite datasets with an Antarctic component	R	1. GCMD 2. Stein Tronstad
Investigate the addition of astronomy categories and keywords.	1. Distribute current list to the JCADM members, for them to consult with national astronomy groups. 2. Give input to the GCMD in this ongoing process	R	1. GCMD 2. All NADC
Add additional key words where appropriate (e.g. sea surface temperature)	1. Provide more information on how to add/modify keywords 2. Append this to the docBuilder guidelines	R	1. GCMD 2. Robert Bauer, Gregory Scharfen

Section 2: Supporting the NADCs

Item	Remarks		Who / Due
Outline options for harmonizing custom metadata systems with the GCMD	E-mail with options to JCADM within November 1st.	N	Mélanie Meaux
Inventory of datasets on old media, and of reading capabilities. Map relevant "data rescue efforts" in other scientific communities.	Information exchange on the website?	N	All NADC submit information to Taco de Bruin
All NADCs will have national portals to the AMD	All NADCs not having portals are encouraged to contact	O	All NADC, and GCMD

	GCMD (Send logo, header and background image)		
Establish contact with each National Oceanographic Data Centre (NODC) to make sure that datasets from the Southern Ocean are represented in the AMD.	1. Establish contact 2. Get an overview of the situation in each country with respect to S.O. data (what data, which directory are metadata sent to?)	O	All NADC
Map other discipline-based data centers that may hold data from Antarctica.	Including WMO	N	All NADC WMO: Manfred Reinke
Review JCADM website, in particular the Guidelines section	1. Done. 2. Comments to be forwarded to Kim	O	Helen Campbell / Kim Finney
Audit of the new (prototype) website, report back to the JCADM executive and AADC.	Within November 1st		Thierry Lemaire, Rob Bauer, Mélanie Meaux, Miroslav Zanev.
Form a working group to develop a road map for future contents development on the JCADM website	When the CMS is implemented and set up for distributed editing.	N	Kim Finney (lead)
Edit the contents of the new JCADM website (including new listserver)	Following the above task	N	
Create a tutorial section of docBuilder on JCADM website	Done, but has to be updated (exists on NSIDC website) - Continuing activity	O	Gregory Scharfen and Robert Bauer
Compare data policies within JCADM, identify common denominators, and develop recommendations.	November 1st		**Kim Finney** (lead), Manfred Reinke, Helen Campbell, Gregory Scharfen
Develop a section on data policy on the JCADM website	1. "Picklist" for data policies 2. Post current data policy documents	N	1. Postsessional WG above 2. NADCs that have a data policy not posted

Section 3: Supporting the JCADM

Item	Remarks		Who / Due
Update JCADM on GIG activities	Continuing activity	O	Peter Pulsifer
Report to the SCAR and COMNAP Executive Committees (one year) and the Delegates (intervening year).	1. Report as required 2. Post reports on the JCADM website	O R	1. Taco de Bruin 2. Taco de Bruin
Liaise with GBIF to inform JCADM on GBIF	1. Continuing activity 2. Investigate an Antarctic	O	Helen Campbell and Kim Finney

developments	node for GBIF, and set up a joint AADC/BAS webpage / portal to GBIF data, which can be used as a template.		
Establish communications and collaboration with EGGI	1. Ongoing task 2. Check that Steffen Vogt (contract expired?) is on the list server	O	1. Peter Pulsifer 2. Taco de Bruin
Make the scientific communities more aware of opportunities offered by and benefits of the ADDS	1. Poster template to the website (pp) 2. Flyer to the website (pdf) 3. Use the material 4. Write article from JCADM 9 to the ATS news bulletin	R	1. Taco de Bruin 2. Robert Bauer 3. All 4. Taco de Bruin

Section 4: Supporting the IPY

Item	Remarks		Who / Due
Review and comment IPY data policy, nominate further members of the data committee, and provide expertise on international organization based on the AMD experience	Through the IPY Data Policy and Management Sub-Committee	N	Taco de Bruin
Establish contact with Arctic counterparts.	1. Send list of counterparts to all JCADM members 2. Complete the list 3. Contact IASC through SCAR, to make sure that data management is adequately covered in the upcoming MoU	O	1. Taco de Bruin 2. All 3. Taco de Bruin

Section 5: Supporting SCAR and COMNAP

Item	Remarks		Who / Due
Appoint members to the steering groups of the 5 SRPs	Done. Names must be communicated to SCAR.	R	Taco de Bruin
Liaise with the Chief Officers of the Standing Scientific Groups		R	Taco de Bruin
An annual written report should be made available for the Executive Committees by the end of May		R	Taco de Bruin
Produce a quantified plan of	1. Review performance	R	

what will be done over the year, e.g. estimate of likely additions to AMD.	indicators		
Draft new terms of reference for JCADM	Draft within the group by October 15th, to JCADM within November 1st.	R	Working group: **Taco de Bruin** (lead), Claudio Raffanelli, Helen Campbell, Robert Bauer
"*All national programs to forward to the secretariat by early October any comments or ideas thay may have about possible enforcement mechanisms for COMNAP and National Programs to support population of the AMD and the long-term availability of datasets described in the AMD*"	Provide input to the national COMNAP representatives.	N	All NADC representatives.

Section 6: Supporting the ATS

Item	Remarks		Who / Due
Contact ATS secretary to offer input to the future development of an electronic documents and activity reporting system		N	Taco De Bruin
Collect and circulate information to JCADM on the status of the work on the (CEP) SAER reporting system, maintain contact with the ICG.		N	JCADM executive

Appendix 2: List of NADC action items from JCADM 9

All:
1. Describe data center in DIF/SERF (under discussion)
2. Brief the COMNAP national reps on JCADMs position on data management before October 2005

Argentina
1. Establish a data policy
2. Establish contact with other Argentinean institutions about Antarctic research
3. Establish contact with other South American nations about Antarctic research
4. Continue adding DIFs to AMD (30 more by July 2006)
5. Update old DIFs

Australia
1. Making the new JCADM website operational
2. Continue to develop Antarctic Biodiversity database in accordance with emerging GBIF standards collaborating with Claude de Broyer
3. Continue to submit project DIFs to the AMD (80 more by July 2006)
4. Improve data/metadata ratio
5. Create SERFs covering AADC services
6. Create an Australian AMD portal
7. Send the GCMD Australias metadata statistics

France
1. Create a French polar metadatabase
2. Add new DIFs   (130 more by July 2006)
3. Establish a data policy

Germany
1. Antarctic contents from PANGAEA into the AMD (see separate action item on GCMD harvesting the Pangaea)
2. Create DIFs/SERFs documenting active projects

Italy
1. Add new DIFs (70 more by July 2006)
2. Open an online viewer for the national data center
3. Start a review of old DIFs
4. Make the data policy philosophy generally known

Japan
1. Continue work on new metadatabase
2. Encourage scientists to submit (more) DIFs (10 more by July 2006)
3. Create totorial for DIF entry in Japanese

    4. Discuss development of a data policy

Korea
1. Establish data policy
2. Database update and forwarding DIFs to AMD   (10 more by July 2006)
3. Establish Korean AMD portal
4. Tutorial seminar for domestic scientists

Netherlands
1. 10 new DIFs
2. Redesign web site
3. AMD portal
4. Data policy / reorganize national Antarctic data structure

Malaysia
1. Establish a national data policy
2. Add a web link to the GCMD website
3. Create DIFs in the AMD   (10 more by July 2006)
4. Create a Malaysian AMD portal

Norway
1. 20 new DIFs into AMD
2. 1 dataset online
3. Set up NADC website
4. Create an AMD portal for Norway
5. Raise awareness within Antarctic scientific community about AMD

Spain
1. Establish a data policy
2. Add new DIFs   (50 more by July 2006)
3. Redesign website and add English version

UK
1. Publish the data policy
2. Link the metadata system to the AMD
3. Improve links with Ocean, Atmosphere, and the Arctic
4. Identify new DIFs   (25 more by July 2006)
5. Update existing DIFs
6. Improve biodiversity data access

US
1. Continue DIF collection and outreach (60 more by July 2006)
2. Continue project DIFs/SERFs
3. Coordinate with new Antarctic Biological Sciences Programme Manager
4. Expand the advertisement of the AMD at new venues
5. Reinstate the reminder project to contact scientists regularly

GCMD:
1. Assist NADCs in creating portals
2. Evaluate the content of the AMD and create an "AMD International" node
3. Put the AMD statistics on the JCADM website quarterly
4. Emailing Antarctic data centers
5. ISO compliance