

## ELECTRONIC ACCESS TO ANTARCTIC INFORMATION: PROJECTS AND EFFORTS OF THE NATIONAL SCIENCE FOUNDATION

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**ABSTRACT:** The National Science Foundation (NSF) is initiating two projects of significant interest to the polar library community.

One project concerns the reporting obligations of signatories to the Antarctic Treaty. Although these reports have traditionally been submitted in hard copy, a proposal has been agreed upon at the 22nd Antarctic Treaty consultative meeting in Tromsø, Norway, to make future reports available in electronic format. The National Science Foundation was asked to develop a specific plan for implementation before the next treaty meeting in 1999. It is expected that polar librarians around the world will be instrumental in providing access to these reports.

Additionally, the NSF Office of Polar Programs since 1963 has supported the Library of Congress production of the Antarctic Bibliography - a list with abstracts of books, reports, and articles appearing in the scientific literature about the Antarctic, accompanied by full text of these documents on microfiche.

Although the bibliographic citations and abstracts are made available by the Library of Congress and in commercial databases, the microfiche of the full texts is available in only six sets. NSF would like to expand the availability of these full text documents to make them accessible to a wider audience of researchers, and to make distribution and use of the documents easier and more efficient.

Modern library technology and distribution networks now make it possible to store documents in a digitized format and to distribute them, on demand, electronically to any location with an Internet connection. This means that scientists who may not be working near one of the core microfiche collections would have access to these documents at any time, without waiting weeks for access to critical information. Not only would this benefit scientists working through the auspices of the National Science Foundation, but it would open up the availability of this invaluable collection to scientists and students all over the world.

While the library and publishing worlds appear headed toward broad-scale solutions, based on the Internet, for future publications and collections, the valuable retrospective collection of the Antarctic Bibliography project dating back to 1951 merits special attention.

The National Science Foundation is currently in the planning stages of these projects, and seeks the advice and information of librarians around the world who have an interest in this document collection and these reports in order to work toward suitable formats and technologies, and possibilities for cooperation in implementing the project.

At the same time, the continuance of the Antarctic Bibliography is in danger due to changes in funding and programming. The National Science Foundation is looking toward the ideas and expertise of the polar library community to develop a cooperative program, at least partially funded by NSF, to ensure the continuance of this valuable resource.

**KEYWORDS:** NATIONAL SCIENCE FOUNDATION (U.S.), ANTARCTIC BIBLIOGRAPHY, ELECTRONIC PUBLISHING, DOCUMENT DELIVERY, ANTARCTIC TREATY SYSTEM, INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS. SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH.

The National Science Foundation (NSF) is an agency of the United States government whose mission is to promote research in the U.S. in all fields of the sciences, mathematics, engineering, and the social sciences, and to promote education in these fields. This mission is carried out primarily by the distribution of research grants to public and private institutions. The Office of Polar Programs (OPP) of the National Science Foundation is additionally charged with running the U.S. research program in Antarctica. Toward the fulfillment of both of these missions, OPP is currently involved with two projects that potentially will make a significant impact on the future of polar libraries worldwide. These projects are: 1.) making Antarctic Treaty obligation reports available on the World Wide Web (WWW) in full text, and 2.) digitizing and distributing a special collection of documents on Antarctica. An additional issue of importance to the polar library community is the future of the Antarctic Bibliography.

#### I: The Antarctic Treaty Obligation Reports

At the 22<sup>nd</sup> Antarctic Treaty Consultative Meeting in Tromsø, Norway, 25 May - 5 June 1998, the United States submitted an information paper, initiated by Guy Guthridge of OPP, proposing that annual reporting obligations of signatories to the Antarctic Treaty should be submitted in electronic format. These reports have traditionally been printed in

a limited number of copies by each of the 27 consultative countries and distributed to each of the other signatories.

Each of these reports contains a wealth of important information. They describe, in detail, exactly what each country is doing in Antarctica during a current year, and their planned activities for the next year. This information includes detailed research plans, logistical information, sites, personnel, equipment, impact on the environment—virtually everything that occurs on or near the continent. Since these reports have up to now only been available in very limited editions, this information has not been widely accessible. By putting full text of these reports on the WWW, they will not only become essentially universally available, but the reports and the information that they contain will also be easy to locate. It is envisioned that eventually each signatory country will make its report available on its own web site, and that they will also be accessible either as files or as links from a number of other web sites such as that of the Scientific Committee on Antarctic Research (SCAR) <http://www.scar.org/>. It is expected that polar librarians around the world will be instrumental in promoting this project in their own country and in providing access to these reports.

At the Tromsø meeting, the National Science Foundation was asked to develop a specific plan for implementation before the next treaty meeting in 1999. Since the U.S. normally makes its annual report available in November, this seemed a natural date for the NSF to unveil a prototype for this project, although it meant moving forward quickly. The NSF is working with a private consulting company, the Andrulis Corporation, to develop a format that could be implemented by the other signatory countries.

Several factors were considered critical in developing this prototype:

1. The format must be technologically easy and relatively inexpensive to implement.
2. The format must be compatible with display on the World Wide Web (WWW).
3. The format must lend itself to display of both graphics and text.
4. The format must be sufficiently standard so that it can be an archival product.
5. The format must allow for easy and direct access to any specific part of the individual document or to specific informational elements within the document.
6. The format must be amenable to electronic access in a way that also satisfies the annual reporting needs of SCAR, which uses much of the same information as is found in the treaty reports. Thus instead of making two reporting documents each year, signatory countries will only need to make one.

The first format considered for the prototype was Adobe System's PDF format. Although this is a proprietary format, the software that allows a user to read PDF documents is provided free. Documents in PDF are platform and operating system independent and available without software costs to the reader. It is fast and inexpensive to produce. It is also widely used, so that if it becomes obsolete a variety of translation options to newer formats are likely to be developed quickly. Since PDF is an imaging product, both text and graphics are supported in a high-quality display, limited only by the hardware

capabilities, desired file size, etc. Files are easily transmitted electronically. PDF, therefore, fulfills the first four critical factors listed above.

The disadvantage of the PDF format principally lies in the fact that standard WAIS search engines are not able to penetrate documents in this format. This, again, is due to PDF's being an imaging, rather than a text-based, product. To overcome this a document would have to include a "mini-web site" to accompany the PDF images. The web site would contain all the pertinent indexing information. Since these "gateway" web pages would be in HTML, they would be searchable and allow for relatively easy location within the PDF files of specific sections or informational elements of the report.

<b>Antarctic Treaty report topics (from rec. VIII-6, 1975)</b>	<b>Corresponding SCAR report topics (from SCAR Circular 669, 1995)</b>
I. Ships, aircraft, vehicles	
II. Dates of expeditions	
III. Station locations and dates	2. Wintering stations, lat., long. 3. Summer stations
IV. Names and functions of personnel	1. Addresses of SCAR committee, operating agency
V. Armaments	
VI. Program of work and science, and where	4. Automatic observatories, stations 5. Project descriptions 6. Planned new programs
VII. Scientific equipment	
VIII. Transportation and communication	
IX. Facilities for rendering assistance	
X. Nongovernment expeditions	
XI. Unoccupied refuges	
XII. Numbers of species killed	
XIII. Radioisotopes used	
XIV. Research rockets used	
XV. Oceanic research	
XVI. NGA station visits	

To design such a mini-web site would require a number of judgment calls, however. The designer would be called upon to decide exactly how large a section of the document would produce a file that would be optimum for both production of the PDF document and for allowing sufficient specificity for ease of searching. The table of contents and other introductory materials would have to be designed very carefully to be sure to include all the bits of information for which any possible interested party might be searching—and since so many different disciplines have an interest in this information it would be difficult to be sure of including all possible “gateways” to the information for people as diverse in outlook as political scientists and marine biologists.

In the end, it was decided that the optimum format for the obligation reports would be a document presented basically in HTML but with some parts presented in PDF format. Additionally, the entire report will be available in PDF format for downloading and printing.

Since electronic text is easily rendered into basic HTML by any of a variety of HTML converter software programs, and since some very good converter programs are available even as freeware, it is envisioned that this hybrid format will be both technologically easy and relatively inexpensive to produce. The HTML sections will encompass the straight text portions of the document. The text will thus be completely searchable by WAIS search engines, so that all the informational elements contained in the document will be easily accessible. HTML also allows for the elegant display of both text and graphics, and allows great flexibility for design, display, searching, correction, and modification.

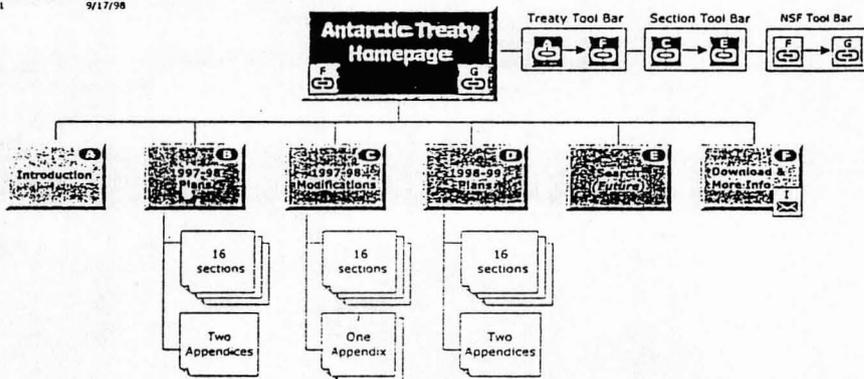
However, although the conversion of text into HTML is very simple, the attractive and accurate display of some graphics, such as tables and charts, can be very complex. For this reason, the National Science Foundation prototype will display these informational elements in a PDF format. Using PDF for these selected graphics frees the producer from needing extensive HTML expertise to ensure accurate display of graphical elements. However, the textual accompaniments to graphical displays are general sufficiently detailed to allow the researcher using the document to find any specific informational elements that are contained in the graphics.

The inclusion of these graphical displays as PDF-formatted documents rather than in HTML format would be purely a matter of choice for the document producer as a way to keep effort and costs at a minimum while still providing a document that is both elegant and useful. Any entity that preferred to provide the entire document in HTML would, of course, be encouraged to do so.

This hybrid format fulfills all of the criteria listed above. It provides what the NSF feels to be the optimum format at this time for the wider dissemination of the Treaty obligation reports and the information they contain. There will also be a copy of the complete document available entirely in PDF format for ease of downloading and producing a print copy, if needed.

The publication of this report as a web document instead of a limited-distribution printed document opens many exciting possibilities. The wealth of information contained in this document will now be widely available. In addition, the fact that the text will now be searchable will mean that the information will be readily usable in ways not formerly envisioned. Particularly if the reports of all the signatory countries become available in searchable web-based formats, trends and comparisons across years and across countries will be readily extractable. Discrete informational elements will also, of course, become easily locatable within each document. As these documents become available as WWW documents, a HARVEST-type search engine could be used for cross-document searching. For instance, should a researcher need to know which scientists are currently working on, or planning, research projects on, for example, penguins, the information would be immediately available, and research efforts could be coordinated easily between researchers with similar interests but who are from different institutions or countries. Similarly, if a researcher needed to have access to a research vessel, it would be a simple matter to determine which vessels from which countries might be available at the requisite time and location. This opens up exciting possibilities for international coordination of Antarctic research, as well as for historical studies of trends in research efforts, etc.

Because I am a librarian and, like many of you here, am in a library that is becoming more "electronic" with every passing day, I know this project will be inherently interesting to you. But there are two other reasons NSF and I value the opportunity to talk about this initiative with the polar libraries colloquy. First, the project will fully succeed internationally only if all the Antarctic nations adopt the idea of electronic access, preferably in compatible formats. Second, the project seems destined to kill two birds with one stone, automating the treaty information exchanges in a way that the national representatives to the Scientific Committee on International Research or SCAR, can adapt to the required annual SCAR exchanges. The overlap between these two reports is almost total, as the accompanying table shows. This table is from the U.S. paper presented to the Antarctic Treaty meeting in Tromsø as I noted earlier. So we as information professionals have a chance to make annual exchange of Antarctic information more efficient and more timely, for both producers and researchers. I believe those of you representing or having access to Antarctic programs in your countries are vital to technical and management decisions that need to be made. The National Science Foundation has decided to make electronic information the primary means of communicating with its customers, and we want to share this opportunity with others as we can. We believe these reports have audiences who willingly can tolerate abandoning printed copies altogether—starting this year—and the United States treaty obligation report for this year will not be distributed as a printed report except by specific request!



ON-SITE LINKS	OFF-SITE LINKS	E-MAIL LINKS
A - Introduction B - Plans for 1997-98 C - Mods for 1997-98 D - Plans for 1998-99 E - Keyword Search F - Download & More Info	G - NSF Home H - OPP Home	I - opp@nsf.gov

Antarctic Treaty Document - Sample Layout - Netscape

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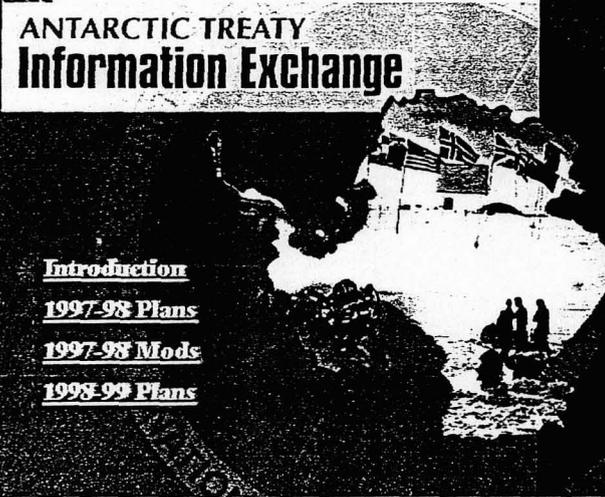
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# ANTARCTIC TREATY Information Exchange



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Contained in this web site is the Information Exchange Under Articles III and VII of the Antarctic Treaty.

Prepared by  
Office of Polar Programs

NATIONAL SCIENCE FOUNDATION  
Arlington, Virginia  
November 30, 1993

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## 1997-98 Plans

PDF DOCUMENT FORMAT

- 1997-98 PLANS
- 1997-98 MODIFICATIONS
- 1998-99 PLANS



I. Ships and Aircraft	X. Tourism
II. Expedition Dates	XI. Refuges
III. Station Openings	XII. Species Killed, Captured
IV. Personnel	XIII. Radioactive Materials
V. Armaments	XIV. Research Rockets
VI. Project Descriptions	XV. Oceanography - Government
VII. Scientific Equipment	XVI. Visiting Expeditions
VIII. Transportation and Communications	XVII. Appendices (Project Descriptions 1997-98) (Environmental Assessment Documents)
IX. Assistance Facilities	

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## 1997-98 Modifications

<ul style="list-style-type: none"> <li>I. Ships and Aircraft</li> <li>II. Expedition Dates</li> <li>III. Station Openings</li> <li>IV. Personnel</li> <li>V. Amaments</li> <li>VI. Project Descriptions</li> <li>VII. Scientific Equipment</li> <li>VIII. Transportation and Communications</li> <li>IX. Assistance Facilities</li> </ul>	<ul style="list-style-type: none"> <li>X. Tourism</li> <li>XI. Refuges</li> <li>XII. Species Killed, Captured</li> <li>XIII. Radioactive Materials</li> <li>XIV. Research Rockets</li> <li>XV. Oceanography - Government</li> <li>XVI. Visiting Expeditions</li> <li>XVII. Appendix (1997-98 Names of Personnel)</li> </ul>	<ul style="list-style-type: none"> <li>1997-98 PLANS</li> <li>1997-98 MODIFICATIONS</li> <li>1998-99 PLANS</li> </ul>
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## 1998-99 Plans

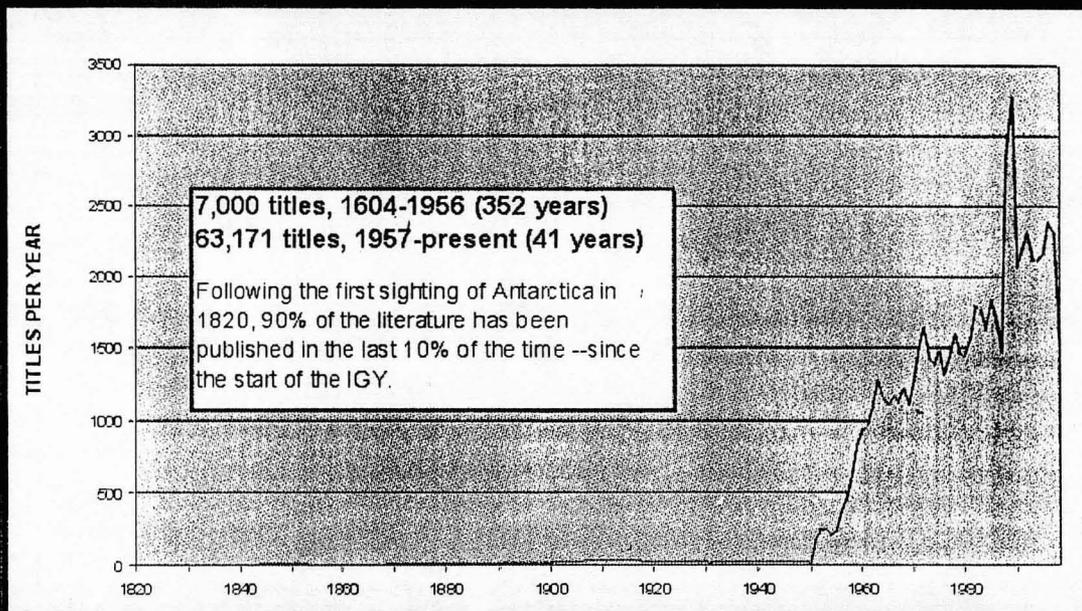
- 1997-98 PLANS
- 1997-98 MODIFICATIONS
- 1998-99 PLANS



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| I. Ships and Aircraft                   | X. Tourism   |
| II. Expedition Dates                    | XI. Refuges  |
| III. Station Openings                   | XII. Species Killed, Captured  |
| IV. Personnel                           | XIII. Radioactive Materials  |
| V. Armaments                            | XIV. Research Rockets  |
| VI. Project Descriptions                | XV. Oceanography - Government  |
| VII. Scientific Equipment               | XVI. Visiting Expeditions  |
| VIII. Transportation and Communications | XVII. Appendices<br>(Project Descriptions 1998-99)<br>(Environmental Assessment Documents) |
| IX. Assistance Facilities               |  |

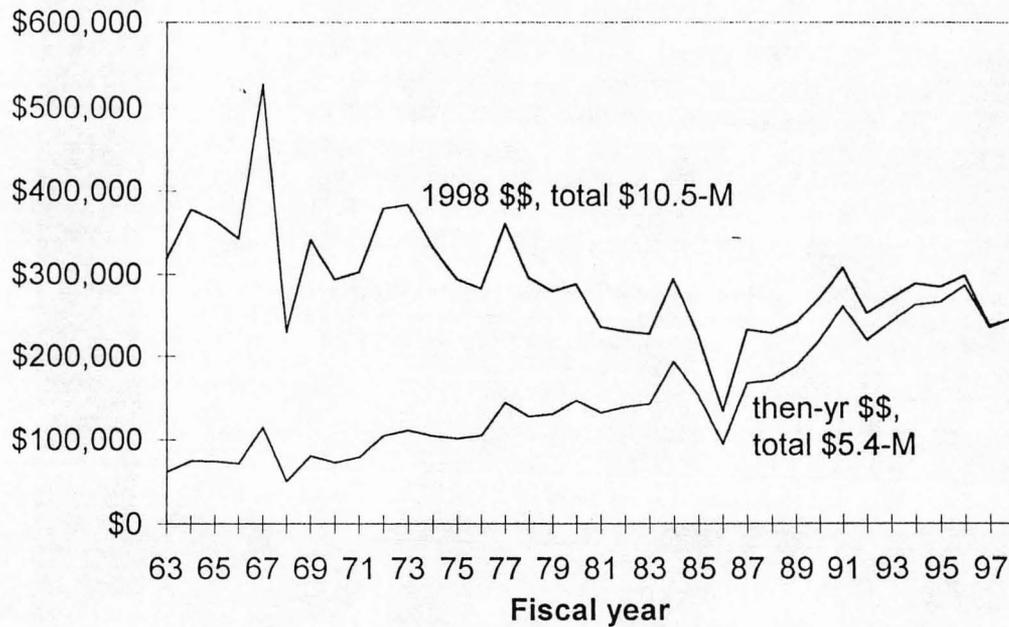


## World's antarctic research literature



*Biddlers workshop  
15-16 September 1998*

**LIBRARY OF CONGRESS ANTARCTIC BIBLIOGRAPHY,  
1963-1998. NSF SUPPORT.**



## II. The Antarctic Document Collection

Since 1963, the Office of Polar Programs at the National Science Foundation (NSF) has supported the production of the *Antarctic Bibliography* by the Library of Congress—a list with abstracts of books, reports, journal articles and other documents about the Antarctic appearing in the world scientific literature. The *Antarctic Bibliography* is widely distributed among the research community. The bibliographic citations and abstracts are made available through the Library of Congress as part of the Cold Regions Bibliography Project at <http://lcweb.loc.gov/tr/scitech/coldregions/welcome.html>. New additions to the database are available monthly as the searchable *Current Antarctic Literature* at <http://www.crrel.usace.army.mil/library/aware/antar31.htm>, and in commercial databases such as *Arctic and Antarctic Regions*, vended by the National Informational Services Company (NISC). It is important to note here that although the *Antarctic Bibliography* is associated with the *Bibliography on Cold Regions Science and Technology*, it is not part of it, but is a separate entity produced by the NSF, not by the Cold Regions Research and Engineering Laboratory (CRREL), and with different procedures, specifications, and funding sources.

Accompanying the Antarctic Bibliography is a set of microfiche containing the full text of most of the documents indexed in the Bibliography—some 70,000 documents of all types and lengths. This microfiche collection is available in only six sets, located at NSF, the Library of Congress, an NSF center in New Zealand, and three NSF-funded research stations in Antarctica.

This is a truly unique collection of documents. The Library of Congress has been instrumental in helping the National Science Foundation to gather virtually all the documents that could be located by the joint efforts of both institutions. The collection policy has been to obtain by gift, purchase or loan any documents of any type that deal with any aspect of scientific information on Antarctica, either wholly or in significant part. Serial journals provide the bulk of the input, followed by monographs, technical reports and conference proceedings. A substantial amount of material is provided by other polar libraries, much in the form of “gray” literature. Commercial online services are also used to search for new material. In 1995 the Scott Polar Research Institute (SPRI) of the University of Cambridge began to contribute Antarctic materials for inclusion in the Cold Regions Bibliography Project (CRBP) database. Many of these documents are readily available in various library collections worldwide, many are less readily available, and in some cases the original document no longer exists in any collection or any format except for this collection of full text microfiche. These documents have been carefully indexed by a team of subject specialists at the Library of Congress, including the provision of existing author-abstracts or, when these were unavailable or insufficient, creating abstracts or enhancing existing abstracts. Approximately 2,000 new documents have been added to the collection each year.

NSF would like to expand the accessibility of these full text documents to make them available to a wider audience of researchers, and to make distribution and use of the

documents easier and more efficient. We are very excited about this project. If looked at in terms of 1998 dollars, the NSF, through the years, has already invested \$10.5 million in creating this bibliography and collection. What a tremendous resource for the world if all polar libraries, and all researchers, could have ready access to this unique collection!

Currently use of the documents requires storage of a bulky collection of microfiche and use of slow and inconvenient microfiche reader/printers. If a scientist does not have immediate access to one of the microfiche collections, a request must be made to obtain it through standard interlibrary loan options, or to purchase a copy of the desired document through the Photoduplication Service at the Library of Congress, which typically takes some weeks to fulfill the request in fiche or paper form. The Photoduplication Service is a cost-recovery based service of the United States government and the charges for production of a large document can be prohibitive. Since the documents are in microfiche format which is not searchable, a researcher requiring only limited information from a large document must purchase the entire document.

Additionally, copyright considerations make it impossible for NSF to distribute this microfiche collection outside of our agency.

Modern library technology and distribution networks now make it possible to store documents in a digitized format and to distribute them, on demand, electronically to any location with an Internet connection. This means that scientists who may not be working near one of the core microfiche locations, even those who may be at a field site or on a ship, could have access to the collection of documents at any time, without waiting weeks for access to critical information. Not only would this benefit scientists working through the auspices of the National Science Foundation, but it would open up the availability of this invaluable collection to scientists and students all over the world.

Additionally, documents in electronic format can be manipulated through various software programs to make searching for specific information, reformatting information, and personalized information storage possible. The use of these techniques greatly aids scientists in streamlining their research. These enhancements are not possible with microfiche.

The National Science Foundation envisions the transformation of this unique collection into a digital format. Ideally, this digital collection would be made available to any individual or institution with an Internet connection, and at a minimal cost. There are many important technical, legal, and practical considerations to such a project, however, besides the considerable hurdle of the initiation costs. The National Science Foundation itself does not have either the staff or the equipment to perform this digitization in-house, so we expect that this function will be done off-site under what we call a cooperative agreement with a corporation or other institution, using NSF funding. We hope to take advantage of innovative ideas of the private sector to maximize the format and access to this important collection of documents.

## 1. Technical Considerations

The first technical consideration is the electronic format into which the documents should be digitized. The Antarctic Documents Collection is not only quite large, it is also extremely varied in nature. Since the documents represented in the fiche collection consist of books, journal articles, technical reports, and a host of other publication types, virtually every combination of text and graphics is represented within the collection. For this reason, it is unfortunately impractical to consider either OCR or HTML as a process for digitization of this particular collection. Although both of these formats offer attractive features, particularly in searchability, the costs of either would be prohibitive. NSF has therefore decided the collection would best be digitized into either a simple TIFF format or a PDF format. Although the TIFF format has the advantage of being a universal, non-proprietary format, not all versions of Internet browsers currently support display of this format. The Adobe Acrobat Reader, for display of the PDF format, is free and readily available by download from the Internet, and, as discussed above, PDF is a very widely used display format with many attractive features. Both TIFF and PDF are readily convertible from microfiche images. The final selection of format has not yet been made. All of the above considerations will be taken into account.

The second technical consideration is the storage mechanism of the digitized documents. Since this collection already exists in microfiche format, we do not face the problem of archiving this retrospective collection. Although not totally stable, microfiche at this time is known to have a very long lifetime without degradation if stored properly, and since several sets are extant, there is sufficient duplication in the case of accidental loss. At this time, the preference for storage of the digitized product is through optical disks (CDs). Most optical disks at this time have a minimum life expectancy of about 10 years, multiple sets can be made inexpensively for distribution or insurance against loss or destruction, and, although technology may change, all likelihood is that the data on the disks will be readily convertible to new formats as future needs dictate.

A related technical issue is how the resulting database of digitized documents (or images) will be designed and constructed, and how it will be used. The options here are too varied to address in this paper, and will be determined by a combination of factors in which cost will surely be a major factor. Additionally, we hope that the polar library community, as primary potential consumers for these documents, will provide us with the information we need to assure that this product will match the technical and distribution needs and limitations that they face. However, the expectation at this time is that no matter what form the database takes, the documents will be keyed against the existing *Antarctic Bibliography* for retrieval purposes, assuring that there will be a wide variety of high quality access points to the documents and the information they contain.

## 2. Legal Considerations

The major legal consideration is, of course, copyright. The majority of documents in the collection are from copyrighted sources—journal articles, monographs, and many

conference proceedings. These documents can not be reproduced or distributed without abiding by current fair use guidelines and copyright laws. Since the collection goes back to 1951 and comes from such varied sources, it is not possible to enter into agreements with each of the publishers or copyright holders for distribution rights by the NSF. This is a complex question with many ramifications on the methods NSF selects for distribution of these documents, and will probably mean there will be significant restrictions on our ability to deliver these portions of the collection to the user community. Fortunately, these are also the documents that are probably most easily obtainable by traditional interlibrary loan and document delivery options.

Other legal considerations are concerned with United States government policies and procedures and are not of general interest to the Polar library community.

### 3. Practical Considerations

The major practical consideration is the determination of the best distribution mechanism to make this collection available to the various libraries and researchers around the world. In order to make this proposed system work, NSF *needs* a great deal of input from the Polar library community. We must decide on a pricing structure which would be both acceptable to the user community and which would allow a minimum of maintenance costs to the National Science Foundation. In order to do that, we must know both the acceptable cost parameters of the user community and the expected volume of use of the system. In order to decide on the optimum technical configuration of the system, we need to know both the technical capabilities and the technical expectations of the user community.

As mentioned above, the *Antarctic Bibliography* is already available by free access on the WWW. In the best of all possible worlds, the NSF would make the entire document collection freely available full text on the WWW as well, but due to costs and copyright considerations this is not possible. The current vision for the full-text document collection is to have a web-based request form which would allow anyone needing a document to e-mail their request to a document delivery center. The document delivery center would be a non-profit, cost-recovery-based operation. If the requested document is not subject to copyright limitations, the document delivery center will provide an electronic copy of the document to the requester, either as a return e-mail attachment, by fax, by Ariel, or by posting in a web-based "mailbox". Depending on several factors, document delivery might be immediate or might be completed within 24 hours of receiving the request. For copyrighted materials, the user would be instructed to obtain the documents through normal interlibrary loan channels.

### III. Is there a future for the *Antarctic Bibliography*?

As noted above, the National Science Foundation has been supporting the creation of the *Antarctic Bibliography* through the Library of Congress for over a quarter of a century. However, circumstances and funding are subject to change, and 1998 will be the last year

for this program in its present form, and in fact the program may end entirely. The *Antarctic Bibliography* and *Current Antarctic Literature* could go the way of the *Arctic Bibliography*—forever invaluable, but no longer produced or updated after this year. Needless to say, this would be a tragic loss to the polar research community.

The NSF has a long-standing and continuing commitment to the support and distribution of these important research sources. The NSF is currently funding a project with the American Geological Institute to digitize and distribute the 16 volumes of the *Arctic Bibliography*. These volumes were produced between 1947 and 1975, are of continuing importance to the research community, and have never been reprinted. The copyright on these volumes is held by the Arctic Institute of North America, which has agreed to make this important work available at a nominal cost. The project is expected to be completed in 1999.

In addition, the Office of Polar Programs and the National Science Foundation Library have jointly sent me, as a librarian, to this conference to represent to you these programs and possibilities, to gather your ideas and input, and to work with you to establish a new cooperative partnership to preserve, disseminate, and, if possible, continue the organization and exchange of Antarctic information.

It would be a tragedy if we could not find a way to continue the *Antarctic Bibliography*. NSF is currently looking into continuing some form of the project as part of the larger effort of digitizing the existing Antarctic document collection. This possibility depends on a number of factors that are beyond the scope of this paper. However, one hurdle that we face is loss of the expertise and prestige leant by the Library of Congress towards procuring copies of the documents to be indexed in the bibliography. Traditionally, about 30% of the documents have come from the NSF itself, but a substantial and important number of documents have come through the efforts of the Library of Congress and of the Scott Polar Research Institute. SPRI has indicated their willingness to continue their cooperation with NSF in this effort.

We will also be losing the services of the team of experts the Library of Congress has provided which have constantly searched databases and other sources for new documents, indexed the documents, and either written abstracts or enhanced existing abstracts when necessary. The National Science Foundation does not have the staff to take over this function, but we believe we can commit to some large section of the funds that formerly went to the Library of Congress and make them available to a follow-on performer. We are also consulting with CRREL to coordinate with them on any future plans they may have for continuing the Cold Regions Bibliography Project.

We are currently looking into ways to make the current project more cost effective. We view this as an opportunity to rejuvenate and modernize document services that can be provided by this project to Antarctic researchers everywhere. We are considering the following possibilities:

1. Providing to the polar library community full text of all non-copyrighted items listed in the Antarctic Bibliography, through means discussed above.
2. Replacing microfiche of full-text with an electronic format.
3. Being selective of items chosen for full-text inclusion. For instance, eliminating full-text (while retaining the abstracts and indexing) of easily obtainable items such as articles from mainstream scientific journals.
4. Simplifying or eliminating the indexing and relying on key-word searching of abstracts and titles.
5. Building liaisons with other institutions for shared acquisition and processing of items of interest.
6. Using Internet and traditional tools to attract direct input of citations and texts from authors.
7. Setting up a Users Advisory Group of polar scientists and librarians.

The National Science Foundation is looking at this as an opportunity to rethink the project, to determine how it can be carried forward more efficiently, more cost-effectively, and in a way that invites participation of and distribution to the entire polar library community. We are hoping to be able to set up some kind of program whereby the entire polar library community can participate in the continuing production of this valuable bibliography by helping to provide appropriate documents and by lending your subject expertise and library skills as needed. By focusing the full-text document collection in future on the sources that are most difficult to obtain and making them available through a distribution medium, we could cut the costs of the program while providing a higher level of service to the polar research community. The *Antarctic Bibliography* itself would still continue to contain indexing and abstracts of all significant sources of relevant literature, although some compromises might have to be made on the level of abstracting and indexing provided. We hope that any of these compromises would be compensated for by the increased flexibility provided by electronic access and modern search software.

At this point we are in the earliest planning phases and frankly cannot make any promises, but we remain deeply committed to maintaining the *Antarctic Bibliography* at its present level of quality and an extended level of service if at all possible. Please join with us in this effort to continue this seminal resource.

We have already received from several institutions encouraging expressions of interest in working with the NSF to continue the Antarctic Bibliography. What we most need from the polar library community to make this effort a success is to work out a shared program for identifying and providing the relevant documents to be included in the bibliography and the digitized document collection, shared responsibility for maintaining enhanced abstracting and indexing that may require subject expertise, and your input on the best formats and methods to give both the bibliography and the document collection maximum distribution and usefulness.

One possibility is to create a web-based system for shared input of document information, based loosely on the model of the OCLC shared cataloging system in use in the United States and elsewhere. Using such a system, both libraries and individual scientists could share the responsibility of ensuring the completeness of the bibliography. Quality control would be maintained by systematic review of input before it is finally incorporated into the bibliography. Is such a system feasible?

We welcome your ideas and letters of support. We need your help. Please contact me at [sbianchi@nsf.gov](mailto:sbianchi@nsf.gov) or Mr. Guy Guthridge of the NSF Office of Polar Programs at [gguthrid@nsf.gov](mailto:gguthrid@nsf.gov).

While the library and publishing worlds appear headed toward broad-scale solutions, based on the Internet, for future publications and collections, the valuable retrospective and continuing collection of the Antarctic Bibliography project dating back to 1951 merits special attention and all of our cooperative efforts to preserve and disseminate the existing resources and to continue to provide them into the future.

Name \_\_\_\_\_

Organization \_\_\_\_\_

Address \_\_\_\_\_

E-mail \_\_\_\_\_

1. Does your library/organization maintain a webpage available to the public?

Library  Parent Organization

If yes, please give the URL \_\_\_\_\_

2. Does your library currently provide access to the public to the Antarctic Treaty obligation reports and/or the SCAR reports

published by your own country?

published by other countries?

3. Do your patrons have access to the Internet

At their desktops?  Through the library only?

Through other sources  No access or limited access to Internet

4. What versions of web browsers do most of your patrons use?

Most current version of Netscape

Older versions of Netscape

Most current version of Microsoft Explorer

Older versions of Microsoft Explorer

Other browsers (please list):

5. Do you currently provide document delivery to your patrons in an electronic format?  
Yes \_\_\_ No \_\_\_

Is/would electronic format be acceptable to your patrons? Yes \_\_\_ No \_\_\_

6. If you currently receive documents in electronic format, do you prefer:

\_\_\_ as ASCII \_\_\_ as MSWord file \_\_\_ Other (please specify): \_\_\_\_\_

7. How many times, on average, do you request documents listed in the Antarctic Bibliography: (circle either month or year)

From the Library of Congress Photoduplication Service? \_\_\_ per month/year

Through Interlibrary Loan? \_\_\_ per month/year

Through other document delivery services? \_\_\_ per month/year

Please list other services used:

8. Do you regularly use any of the following services for interlibrary loan/document delivery:

\_\_\_ OCLC \_\_\_ Ariel \_\_\_ WorldCat

9. Does your library currently pay fees for interlibrary loan and/or document delivery?  
\_\_\_ Sometimes \_\_\_ Frequently \_\_\_ Never

10. If you currently pay fees, what is the average cost per document you currently pay?  
(Please indicate currency) \_\_\_\_\_

11. Which fee structure do you prefer:

\_\_\_ Per page charge

\_\_\_ Per document charge

\_\_\_ Basic per document charge with added per page charge for documents over 25 pages.

12. Would you prefer to receive documents

\_\_\_ By fax

\_\_\_ By delivery to a temporary Internet mailbox

\_\_\_ By Ariel

\_\_\_ As an e-mail attachment

13. Would you prefer to send requests (if you have more than one choice, please prioritize)
- As an e-mail
  - Through a Web-based form
  - By fax
  - By standard mail
  - As an OCLC request
14. Can your library/organization provide copies of documents to be included in the Antarctic Bibliography and the document collection?
- By donation     Through loan only     Both
15. Can your library/organization provide indexing/translating/bibliographical expertise to the Antarctic Bibliography?    Yes     No
- If yes, please estimate man-hours per month that might be available \_\_\_\_\_.
16. Please indicate languages for which you could provide translations of abstracts and/or bibliographical information: \_\_\_\_\_
17. How important to you are the following:  
(On a scale of 1-5, with 1=extremely important and 5=not important)
- Continuing production of the Antarctic Bibliography.
  - Having records for monographic items from the Antarctic Bibliography input to OCLC/WorldCat.
  - Having immediate access to full text of documents from the Antarctic Bibliography, as opposed to 24-hour access.
  - Maintaining the current standard of 15 indexing terms per record in the Antarctic Bibliography, as opposed to relaxing the standards to 3-5 indexing terms per record.
  - Maintaining the current indexing standard as opposed to eliminating indexing while maintaining search capability of title, abstract, and bibliographical fields.
18. Would you be willing to serve on a PLC committee to help work out the details of continuing the production of the Antarctic Bibliography and setting up the full-text delivery mechanism?     Yes     No     Maybe—contact me later.
19. Do you have any specific ideas or comments on anything contained in this survey or not covered by this survey? Please write them on the back, or contact [Sbianchi@nsf.gov](mailto:Sbianchi@nsf.gov)