GEOSCIENCE INFORMATION SOCIETY

newsletter

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CONTENTS

Departments

President's Column 1
Vice-President's Column 3
Mid-Year Report: Treasurer 4
Representative Report: CUAC 7
Committee Reports 19
Literature Reviews, by Carol J. LaRussa 19
Job Announcements 20
GIS Publications List 22

PRESIDENT'S COLUMN

by Michael M. Noga

For a change, I've decided to use this column to give you some observations from my work as collection manager in a science library.

-- In negotiating licenses for online journal packages and databases, there may be "a failure to communicate" as expressed in the classic movie "Cool Hand Luke."This seems to occur when suppliers have not worked with libraries before or do not have advisory groups.

-- Users may be more interested in getting access to backfiles of the journals they like than a wider range of journals that don't interest them. Electronic accessibility to all the core literature may be more important to some disciplines than recent availability to the core and peripheral literature. I've seen this effect in one field. I don't think the geosciences literature has been online long enough to say what the effect is there.

-- Electronic access to everyday computer manuals and laboratory protocols may be more popular than most databases. My library recently acquired electronic access to a set of computer books, and there has been tremendous use.

-- A citation that has just a small error can be a big setback to a user. A broken Web link can have the same result. Incomplete or confused citations and Web links that don't lead to full-text articles seem to cause the most concern from our reference service users.

-- The conference events that sound the most promising may have the least impact. An event chosen at the spur of the moment may be the most rewarding. I recently went to a national conference which had several interesting programs. In almost every case, my first choice was not as satisfying as another program which didn't sound as relevant to my work. Serendipity works.

-- Shake up the users once in a while to find out what's on their minds. My library had to move its entrance this summer during a major construction project. We moved the reference desk to the opposite end of the room near the temporary entrance. Users come in to the library and are confused about their location. We seem to be getting more questions, more contact, and more ideas on needed improvements.

-- Shaking up the collection may yield new insights. My library's map collection was moved this summer to provide space for core public service functions. The collection had been taken for granted in its old location. The new location's lack of visibility created an opportunity to evaluate the collection and make it more usable to a wider community.

-- There is some competition in journal publishing. Researchers from one of our academic departments have moved their paper submissions to new society journals that compete with older commercially published journals. In fact, the two major societies in this field seem to be publishing the largest number of new titles that this user group requests.

-- There seems to be some price elasticity in monograph publishing. One of the publishers that produces mathematics books formerly priced its books in the $135 - $150 range. I saw comments on listservers that some librarians would just not buy these books. Lately I have noticed that the average price of these books is below $100. I have also noticed reduced prices for volumes from a significant inter-national conference series. Perhaps our selection behavior has an effect after all.

-- Some users still want print. Even though we have full electronic access to some science journals, there is still a lot of photocopying of print volumes. Some users wanted to see the print even though it was the bindery and the online version was available.

-- The electronic journal is still a work in a progress. I learned at a recent conference to what extent errata are linked or not linked to the articles that they correct. There is quite a variation by publisher. Also, I have noticed that some supplementary articles are not posted in the online journal.

-- The quality of illustrations in electronic journal articles may be a reason why some users still want print.

(continued, p. 3)

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GIS members are encouraged to contribute materials for publication. Material for the October, 2002 issue should be received no later than September 20, 2002. If possible, please send materials by e-mail.

(continued from p. 1)
I recently compared posters and foldouts from the print and electronic versions of one of our important journals. Some of the illustrations were not in the electronic version. Some were presented in a different format. The information was there; but the display was different. The rest were fairly illegible in the electronic version, either on the screen or in the pdf printout. This example is a reminder about being careful with disposing print copies in lieu of the electronic version.

That's all folks. We live in interesting times.

VICE PRESIDENT'S COLUMN

by Lisa Dunn

It's blazing hot in Denver, and I'm sure many of you have seen the wildfire coverage on the news. Despite this, we are not in fact going up in flames. In any event, October will be cooler (if not actually snowing) and the Denver convention center remodeling is advancing.

Information and updates on the upcoming conference, including schedule changes, will be posted on the GIS website at www.geoinfo.org/.

GIS Technical Session "New Heights in Geoscience Information: Access and Technology." As I write this the submitted abstracts are being reviewed and the sessions scheduled. I will post accepted abstracts to the GIS website as soon as possible.

GIS Receptions. There are two receptions organized—The GIS Reception in Denver and a reception at the Colorado School of Mines Library in nearby Golden. We are proud to have Elsevier Science sponsor our GIS Reception this year. Plan to drop by and network with your colleagues—we will be making a special effort to include producers of geoscience information as well as GIS members. The Mines Library is hosting the second reception; come and relax for the evening and tour our library.

Field Trip. The front runner for this year's field trip is a drive down the Front Range to Colorado Springs' Garden of the Gods. (For those of you who've seen Dinosaur Ridge and Boulder's Flatirons on previous trips, this will give you the big picture.) Garden of the Gods has spectacular rock formations. I'm planning a quick bus tour through the park itself, a short walking tour for those interested, and of course a visit to the nature center/gift shop. The trip south itself gives you an idea of how the region's geology has shaped the topography. Because of the distance, this is a day trip so if you're interested please make your travel plans accordingly. Estimated costs run ~$40, including lunch. Field trip registration information will be sent out on Geonet-L and posted on the GIS website.

Please contact me if you have any questions or comments about the upcoming Meeting. See you in Denver!

GEOSCIENCE INFORMATION SOCIETY

Annual Meeting Preliminary Schedule *[As of 7/25/2002]*

GIS Committees: Meet separately as arranged by committee chairs

Sunday, Oct. 27	
8:30-11:30 am	GIS Board Meeting [tentative]
1:30-3:30 pm	GeoRef Discussion Group
4:00-6:00 pm	GSA Welcome Party & Exhibits Open
Monday, Oct. 28	
8:00-12:00	Topical Session 44: New Heights in Geoscience Information
12:00-1:30 pm	GIS Luncheon
1:30-4:30 pm	GIS Business Meeting
7:00-9:30 pm	GIS Reception
Tuesday, Oct. 29	
8:30-11:30 am	Digital Forum
1:30-3:30 pm	Collection Development Issues Forum
1:30-5:30 pm	Geoscience Information Poster Session
6:00-8:00 pm	Reception, Colorado School of Mines
Wednesday, Oct. 30	
8:30-10:30	Preservation Forum [tentative]
1:30-3:30	Professional Issues Forum & Meeting Wrap-up [tentative]
Thursday, Oct. 31	
8:30 am-4:00 pm	GIS Field Trip

MIDYEAR REPORT -- Treasurer

GEOSCIENCE INFORMATION SOCIETY - MidYear Budget Report for 2002

	Income Budgeted	Income Actual	Expense Budgeted	Expense Actual
EXECUTIVE BOARD				
President			$150.00	
Vice-President			$100.00	
Past-President			$25.00	
Secretary			$450.00	
Treasurer			$100.00	$70.75
Teleconferences			$200.00	
Subtotal			**$1,025.00**	**$70.75**
MEETINGS				
2002 Meeting			$800.00	$625.00
2002 Meeting: exhibits	$800.00		$500.00	
2002 Meeting: fieldtrip			$800.00	
2001 Meeting			$3,700.00	$3,409.58
2001 Meeting: exhibits			$100.00	
2001 Meeting fieldtrip		$50.00		
Subtotal	**$800.00**	**$50.00**	**$5,900.00**	**$4,034.58**
DUES				
Institutional	$2,000.00	$1,800.23		
Personal	$6,000.00	$5,120.00		
Sustaining	$600.00	$500.00		
Retired	$200.00	$225.00		
Student	$60.00	$105.00		
Named Sponsorship	$80.00	$70.00		
Pooled Sponsorship	$300.00	$175.00		
Subtotal	**$9,240.00**	**$7,995.23**		
PUBLICATIONS				
Publications Manager			$800.00	
Directory of Geoscience Libraries	$105.00	$35.00		
Mailing labels	$200.00			
Membership directory			$1,050.00	
Newsletter: printing			$2,400.00	$1,280.49
Newsletter: mailing			$1,000.00	$289.07
Newsletter: subscriptions	$600.00	$120.00		
Newsletter: back issues				
Proceedings, v.32 (2001)			$1,650.00	
Proceedings, v.31 (2000)	$1,400.00			
Proceedings, v.30 (1999)	$225.00	$135.00		
Proceedings, v.29 (1998)	$90.00	$45.00		

Proceedings, prior volumes	$90.00	$45.00		
Index	$15.00			
GEOINFO V Proceedings	$90.00			
GEOINFO VI Proceedings	$100.00	$75.00		
Reprints				
Royalties				
Subtotal	**$2,915.00**	**$455.00**	**$6,900.00**	**$1,569.56**
REPRESENTATIVES/APPOINTEES				
AGI Member Council rep			$25.00	
AGI Gov't Affairs Program rep			$25.00	
CUAC (2 reps @ $200 each)			$400.00	
Publicity Officer			$50.00	
Auditor			$25.00	
Subtotal			**$525.00**	
COMMITTEES				
Archives			$50.00	
Best Paper			$25.00	
Best Reference Work			$25.00	
Best Guidebook			$25.00	
Collection Development			$25.00	
Digital Data			$25.00	
GeoRef Users Group			$25.00	
Guidebook Standards			$50.00	
International Initiatives			$100.00	
Membership			$100.00	
Membership brochure				
Nominating			$200.00	
Preservation			$100.00	
Public Affairs			$25.00	
Union List of Field Trip Guidebooks			$25.00	
Website Advisory			$50.00	
Subtotal			**$850.00**	**$0.00**
MISCELLANEOUS				
AGI member society dues			$425.00	$400.00
GAP contribution			$400.00	
GIS International Fellow	$6,000.00		$6,000.00	
Ansari Award			$500.00	
EBSCO sample issue program				
Gifts (unrestricted)	$250.00	$151.00		
Gifts- Professional Develop Fund		$170.00		
Bank charges			$150.00	
Interest	$200.00	$62.26		
Souvenirs				

Refunds				
Rock Detective (Bristol Fund conversion)				$825.00
Subtotal	**$6,450.00**	**$383.26**	**$7,475.00**	**$1,225.00**
TOTAL	**$19,405.00**	**$8,883.49**	**$22,675.00**	**$6,899.89**

Opening checking balance (1/1/02)		**Closing checking balance (6/30/02)**	
Union Bank of California	$4,715.70	Union Bank of California	$7,465.96
Opening savings balances (1/1/02)		**Closing savings balances (6/30/02)**	
Union Bank of California	$13,566.27	Union Bank of California	$2,585.89
Bank of America: Ansari CD	$3,019.87	National City Bank: Ansari CD	$2,500.00
		National City Bank: Ansari CD	$4,053.51
Bank of America: Ansari Savings	$4,774.67	Bank of	$1,282.89
Bank of America: Bristol Fund	$828.14	Bank of America: Bristol Fund	$0.00
		National City Bank: CD	$3,000.00
		Natioanl City Bank: CD	$8,000.00
Total balance (1/1/02)	**$26,904.65**	**Total balance (6/30/02)**	**$28,888.25**

REPRESENTATIVE REPORT:
Cartographic Users Advisory Council (CUAC)
2002 Meeting Minutes, May 3, 2002

CUAC representatives:
Janet Collins, Western Washington University (WAML)
Mike Furlough, University of Virginia (MAGERT)
Donna Koepp, University of Kansas (GODORT)
Clara P. McLeod, Washington University (GIS)
Bruce Obenhasu, Virginia Tech (SLA G&M)
Daniel T. Seldin, Indiana University (NACIS)
Paul Stout, Ball State University (NACIS)
Christopher J. J. Thiry, Colorado School of Mines (WAML)
Mark Thomas, Duke University (MAGERT)
Linda Zellmer, Indiana University (GIS)

Presenters:
Betsy Banas (NFS)
Dan Cavanaugh (USGS)
Howard Danley (NOAA)
John Hebert (LC)
Betty Jones (GPO)
Jim Lusby (NIMA)
John Moeller (FGDC)
Richard H. Smith (NARA)
Timothy Trainor (Census)
Doug Vandegraft (F&WS)

Attendees:
Susan J. DeLost (NFS)
Wil Danielson (GPO)
Mark Flood (NFS)
Robin Haun-Mohamad (GPO)
Vi Moorhouse (LC Cataloging)

Agenda
8:30-8:40 Welcome and introductions
8:40-9:30 CUAC Presentation: Preservation and Archiving Issues Roundtable Discussion, led by Donna Koepp, University of Kansas, Government Documents and Map Library
9:30-10:00 Library of Congress, John Hebert
10:00-10:20 Break
10:20-10:50 National Archives and Records Administration, Richard Smith
10:50-11:20 US Government Printing Office, Betty Jones
11:20-11:50 Federal Geographic Data Committee, John Moeller
11:50-1:00 Lunch
1:00-1:30 Forest Service, Betsy Banas
1:30-2:00 Census, Tim Trainor
2:00-2:30 US Geological Survey, Dan Cavanaugh
2:30-2:45 Break
2:45-3:15 NIMA, Jim Lusby
3:15-3:45 NOAA National Ocean Service, Howard Danley
3:45-4:15 Fish and Wildlife Service, Doug Vandegraft
4:15-4:30 Wrap-up and Closing Remarks

PRESERVATION AND ARCHIVING ISSUES ROUNDTABLE DISCUSSION, facilitated by Donna Koepp, University of Kansas, Government Documents and Map Library

Introduction (Donna Koepp, CUAC). Our biggest concern is the preservation of cartographic and spatial data, especially what is born digital and we never see in paper. We are concerned about having snapshots in time for data that is constantly being updated, so that we have historical records. Libraries are not set up to preserve that data mainly because of file size. Are the agencies preserving snapshots of their data? If not, is there some role that libraries can play, similar to what we do with paper documents? GPO does some preservation of text documents, but is not preserving maps–GPO is referring users to USGS and other agencies because the files are so large. Libraries have some capacity to work with government agencies to do this in partnership to preserve these datasets.

John Moeller (FGDC) encouraged our participation and representation in FGDC. A specific opportunity is with the Historical Data Working Group of FGDC chaired by Bruce Ambacher from the National Archives and Records Administration (NARA). They developed the policy and guideline statement "Managing Historical Geospatial Data Records: Guide for Federal Agencies" in 1997. Tools in place that can be used include the metadata standard for documentation, a final draft of an international metadata standard should be approved by the end of this calendar year, and the spatial data transfer standard.

Donna Koepp (CUAC) asked if John knew of any agency that was preserving all of its cartographic data.

John Moeller (FGDC) replied that he did not know of any. He knows that the Earth Resources Observation System (EROS) data center has an extensive archive of imagery and Bureau of Land Management (BLM) has a policy for preserving all information including digital information.

Donna Koepp (CUAC) mentioned the special problems with BLM's decentralization. State and local offices are not necessarily following the same rules.

Chris Thiry (CUAC) pointed out users often want historical data. People are doing historical studies, examples include the history of land management and growth areas, and this is why we are so interested in having snapshots of the data. We may lose this history and end up with a period of time where we don't have the documentation.

Richard Smith (NARA) hopes it is a comfort to know

that federal statutes require records maintenance, control and disposition schedules, for materials of enduring or permanent value, regardless of format. Sometimes there is a snapshot provision. The Electronic Records Archive of NARA is charged with preserving many different electronic records formats including maps and cartographic data sets independent of software and hardware. Currently in a pilot project, the Electronic Records Archives is supposed to be up and running by 2004. The Archives has a plan for collecting and preserving digital datasets.

Donna Koepp (CUAC) mentioned the NARA definition of records management and found it comforting that their definition of records includes maps.

Bruce Obenhaus (CUAC) brought up issues of when do we take snapshots and how much change is worth identifying? What is of enduring value? These are hard questions that might not have answers currently.

Richard Smith (NARA) added that the National Archives has appraisal archivists that are familiar with electronic records. They are hammering out agreements with agencies on the maintenance, use and final disposition of these files. That's the law and nearly the practice. Archives has schedules for USGS electronic records, as an example. Archives will likely preserve only a small (2-3% of paper is now preserved and we presume electronic data will be similar) percentage of the data actually collected. This is a shared responsibility between NARA and the originating agencies.

Donna Koepp (CUAC) asked what is included in NARA? Is it similar to Federal Depository Library Program (FDLP)? NARA keeps records of the agency, FDLP keeps the publications of the agencies. These are different types of material.

Richard Smith (NARA) The National Archives collects record sets from agencies. Archives has what he presumes FDLP libraries have and a lot of manuscripts to back up the publications.

Mark Thomas (CUAC) Now there is a blurring of published materials and electronic materials. With digital spatial data, maps are made on the fly, there is no permanent published version because the user makes maps for a specific purpose. The problem lies with saving the original data.

Richard Smith (NARA) Maps or records created by an agency may not have a permanent value to the agency and would not be preserved. When records are still important to an agency the agency keeps them until the use of the record dies down, at this point it will be transferred to NARA. Some records are deemed so important that the agencies keep them for many decades.

Donna Koepp (CUAC) There still are concerns with items that are not getting into the GPO distribution system, including the very special projects that may be sitting on agency shelves and we don't know exist because they have never been cataloged. This is also a problem with electronic items that never get into the system. It's a matter of getting information out there and sharing it. It's a matter of discovery.

Mike Furlough (CUAC) questioned to what extent NARA has already worked with cartographic data in electronic format? Currently statistical data is the bulk of the electronic data that NARA has archived.

Richard Smith (NARA) Only 4 groups of spatial files including the TIGER files are currently in NARA electronic archives, possibly 5% or less of what is out there. NARA is setting up schedules for the transfer of files but most have not been transferred to NARA because of the high rate of activity on the file. NARA may wait until files are 15-20 years old before they are deposited.

Chris Thiry (CUAC) Asked Mark Flood (NFS)–do you have data that you can no longer access for any reason?

Mark Flood (NFS) There have been problems accessing data collected 5-10 years ago because of changes in hardware and sorfware. This is not as much a problem in maps yet because they have not been done electronically for a long period of time. This problem could be coming in the near future.

John Hebert (LC) Of concern to the Library of Congress is the ability to acquire increments of improvements in cartographic output. LC is much more global in acquisitions than NARA.

Linda Zellmer (CUAC) In asking federal agencies about archiving their data the answer was, "it is in the metadata". They are updating files but not including dates for updated fields in the metadata. Would like to see a temporal GIS, with dates when a field or feature was added.

Susan DeLost (NFS) National Forest Service is now developing feature level metadata. For each record there will be a metadata link attached to a particular record including a year when the field was added.

Tim Trainer (Census) From a producer and user perspective you will end up with more metadata than spatial data. That is something that we need to take another look at.

Donna Koepp (CUAC) thanked everyone for their participation and insights on the question of preserving and archiving cartographic data.

LIBRARY OF CONGRESS: John Hebert, Chief of the Geography and Map Division of the Library of Congress

John Hebert, Chief of the Geography and Map Division of the Library of Congress, presented the LC update again this year. His presentation focused on the areas of acquisitions, staffing, scanning projects, general projects, the Phillips Society and the special project this past summer.

Acquisitions

Of significance is the acquisition of the only known copy of a 1507 map, compiled by cartographer Martin Waldseemüller, to bear the name "America" and the first to depict a separate Western Hemisphere. Congress appropriated $5 million for the purchase of the map and fund raising

is still underway to secure an additional $5 million. They have some pretty good leads for this money. There are several other items in the packet that came from Prince Johannes Waldburg-Wolfegg in which the library is very interested. They received from Census 130,000 sheets of Census track materials for the 2000 Census. After September 11 there was a great deal of interest in holdings covering Southwest Asia. The Division put together a listing of what they hold and have tried to fill in gaps. LC continues to receive materials produced by the former USSR. They have completed most of the acquisitions of Soviet produced maps at 1:200,000 scale and are now acquiring the 1:100,000 scale series world wide. In addition they have sought nautical charts for the Arctic and Pacific coasts. LC has received what John believes will be the final acquisition of paper state road maps, about 20,000 sheets, and expects future receipts from state highway departments will be digital.

Staffing

The Geography and Map Division has a total of 55 employees. In the past year they have added 5 new technicians, and currently have a posting for two new catalogers. An assistant chief of the division and two new reference librarians will be advertised in the near future. They are adding one new person in the scanning and digital lab to replace one lost last year, bringing the staff back up to four. An additional digital specialist, a GIS person, is also being added. A new GIS initiative to create an "on demand" service for Congress is underway. Two geographer positions will be added for this initiative.

Scanning Program

The Library has over 6,000 maps scanned. Cataloging is slowing the progress with as many as one third requiring original cataloging. They hope to recover some of the cost of the scanning and cataloging from sales of printed copies of the maps. The Waldseemüller map was scanned last fall, front and back. After they complete payment on the map, the question will be what to do with the scanned copies. LC probably will look to recover some costs by selling prints from the scanned copies and John wants it to be available online. They are currently completing the Civil War project, about 2,500 maps, Revolutionary War period maps, another 2000 maps, and are working on about 3000 sheets of British produced maps from the Revolutionary War era. New projects include scanning an early 19th century map of Japan which is divided into 214 sheets. Each sheet is about 5 by 5 feet. LC holds 207 sheets, 160 of which are not found anywhere else in the world.

Projects

Professor Li from Beijing is coming to work at the Library this summer on the manuscript materials on China. Along with identifying and cataloging these materials they hope to scan many of them. Scanning could be problematic since many of them are scroll maps, some up to 60 feet long, that may take some creative work to complete. A continuing project is acquiring maps used in the field by soldiers and personal remembrances of those soldiers from World War II, Vietnam, and Korea. The hope is to produce an historical record of how maps are used in combat. Any help on locating veterans and maps would be appreciated. LC and the National Imagery and Mapping Agency (NIMA) are now in a cooperative cataloging project where NIMA is cataloging their set maps in Marc format to the sheet level. A Lewis and Clark exhibit, largely maps, is being planned with the kickoff to be in September 2003.

Philip Lee Phillips Society

The Phillips Society is the Friends of the Geography and Map Division organization. There are currently over 200 members. This year's meeting is a joint meeting with the Texas Map Society in Arlington, Texas in October. The Society publishes newsletters and occasional papers.

Special Project

Last year's summer project with five participants was a great success. They are not planning one this year. Instead, this summer the Library is hosting two librarians from tribal libraries in North Dakota and Minnesota. They expect to go back to the traditional summer project next year.

Sanborn Atlases

LC currently does not have a project to scan the Sanborn Atlases. Bell and Howell/Proquest developed a digital record of the black and white film but researchers are dissatisfied because it is black and white and because the film is not always a good copy. LC would like to scan the original color maps but lacks the resources to digitize all the maps and lacks permission from EDR Sanborn for those still under copyright.

LC is looking into the possibility of using some facilities at Fort Meade for remote storage.

NATIONAL ARCHIVES AND RECORDS ADMINISTRATION: Richard H. Smith, Senior Archivist, Cartographic Unit, Special Media Archives Services Division

Dr. Richard Smith began by recounting the history of the Cartographic and Architectural Records Branch of the National Archives (web site www.nara.gov). Acquisition of maps and charts began in the 1930's. In the 1960's aerial photographs were added to the collection and in the 1970's through 1990's architectural and engineering plans were also added. Currently, they have just under 2.5 million maps, just over 2.5 million architectural and engineering drawings and 16 million aerial photographs. Not all acquisitions are in paper copy; the Archives also have materials on film and aperture cards. The cartographic unit has a staff of 14 who accession, process, describe and make records available to the public in the Public Research Room. The

Research Room is open six days a week and three evenings a week in the Archives II building in College Park, Maryland. For more background on the Cartographic and Architectural Records Branch refer to General Information Leaflet No. 26 (http://www.nara.gov/publications/leaflets/gil26.html).

Records, as defined by federal statute include "all books, papers, maps, photographs, machine readable materials, or other documentary materials, regardless of physical form or characteristics, made or received by an agency of the United States Government under Federal law or in connection with the transaction of public business and preserved or appropriate for preservation by that agency or its legitimate successor as evidence of the organization, functions, policies, decisions, procedures, operations, or other activities of the Government or because of the informational value of data in them" *(44 U.S.C. Chapter 33 Section 3301).* Acquisitions are by records control schedules drawn up between the Archives and the originating agency. The Archives provides records lifecycle management guidance to all Federal agencies and conducts evaluations of Federal agency records management practices. Items come to the Archives after active use of the materials has diminished, the standard is about 30 years (after current administrative need for the materials is extinguished). Occasional offers of unique materials are made, but this is somewhat rare. Exceptions to the 30 year rule include receipt of a copy of most Federal agency maps at the time of printing. These records series are sometimes supplemented by annotated copies of maps and background files for published maps. Records are stored in record groups and kept in record series. The provenance of the materials is maintained. Appraisal and retention in the Archives is done on a series basis, not the individual piece. Cataloging is done at the collection, series and record group level. Rarely is any item-level cataloging done.

Maintenance and preservation of the collections are major priorities. To minimize handling Archives creates reference copies in photocopy, microfilm or photographic reproductions for especially valuable items, but generally original maps or drawings are brought to the Research Room. A recent example is the color 35mm film of the 1930 Census enumeration district maps now available to accompany the 1930 census schedules released in April. This is the first time Archives has filmed the enumeration district maps. Paper maps are stored flat in map cases in acid free folders with occasional items in Mylar sleeve application. A scanning project, done under contract with a private company, has processed about 300 maps and 100 aerial photographs so far. We should also be aware of the Center for Electronic Records and their programs and the related Electronic Records Archive (http://www.nara.gov/nara/electronic/).

Government Printing Office: Betty Jones, Chief of the Depository Administration Branch

Betty Jones, Chief of the Depository Administration Branch, presented for the Government Printing Office (GPO). She has been in the position for less than one year.

Staffing Changes

On Friday, March 29, 2002, President Bush nominated Bruce R. James to be the Public Printer. Current Public Printer, Michael F. DiMario has been in the position since 1993. The Public Printer is the head of the U.S. Government Printing Office.

In the past year GPO has hired a chief of serials cataloging and a chief of monograph and map cataloging. They have also hired two new catalogers and made offers to two other candidates for cataloging positions. There are currently 14 catalogers with 6 positions still to filled. In addition they have hired three program analysts and will hire an additional librarian in the Depository Administration Branch.

Budget: fiscal year 2002 appropriations

LPS received funding from Congress to modernize the automated library system. They are on the fast track to purchase a state of the art integrated library system (ILS). The current legacy systems made it through the Y2K transition. One persistent problem is the current systems do not allow for the easy transfer of information from one to the other. This is a major advantage of the ILS. GPO will be hiring a consultant to help with the transition. Any help or advice librarians outside GPO can provide would be greatly appreciated.

Recalls

October 12, 2001, Francis J. Buckley, Jr., Superintendent of Documents, issued the recall of USGS Open File Report 99-248: *Source-Area Characteristics of Large Public Surface-Water Supplies in the Conterminous United States: An Information Resource Source-Water Assessment.* Mr. Buckley explained the Policies and Procedures for Withdrawing Documents from the FDLP in the November 15 *Administrative Notes*, and again March 14 in a letter sent to all depository library directors and coordinators (the letter was reprinted in the April 15 *Administrative Notes*). Since FY 1995, the GPO has distributed 230,019 tangible product (print, microfiche, and CD-ROM) titles to depository libraries, and recalled just 20 (16 to be destroyed, 3 returned to the agency, 1 removed from shelves). GPO has not been asked to withdraw any electronic publication. Several agencies have taken electronic publications off their web sites.

Recommended Workstation Specifications

Betty presented copies of the 2002 Recommended Specifications for Public Access Workstations in Federal Depository Libraries and pointed out the "for cartographic data use" recommendations. This draft will be published in

Administrative Notes and will supercede the recommended specifications dated June 2001 and become requirements on October 1, 2003.

Collections

GPO provided cataloging for 4,200 maps and map products this past year from USGS, Census Bureau, Department of Agriculture, NIMA, NOAA, CIA, and other agencies in paper, CD, DVD, and online. GPO will continue to disseminate maps in a tangible format whenever possible. Census track maps for the 2000 census will not distributed in paper because of the prohibitive cost of production and distribution. They will be available on DVD. The Interagency Agreement with USGS expires this fiscal year. GPO does not foresee any major changes or any problems in renewing the Agreement.

FEDERAL GEOGRAPHIC DATA COMMITTEE (FGDC): John Moeller, Staff Director

John Moeller, Staff Director of the FGDC, presented at the meeting for the first time. He primarily discussed policy; what the FGDC is, what tasks have been assigned to it and then generally about the National Spatial Data Infrastructure (NSDI). The FGDC is an interagency and intersectional committee at the federal level. There are currently 17 cabinet and executive level agencies represented, and additional agencies/organizations are expected to become members, e.g., GPO and GSA. The FGDC has a Steering Committee, a Coordination Group, and a FGDC Secretariat staff. FGDC is under the leadership of the Department of the Interior. The Deputy Secretary of the Department of the Interior is the chair and the vice-chair is Mark Foreman, OMB Associate Director for Technology and Electronic Government. Within the Committee, there are 27 working groups or subcommittees that are organized on thematic categories, for example, the U.S. Forest Service for vegetation, the U.S. Fish and Wildlife Service for wetlands, and Census for cultural and demographic issues. Working groups deal with isues that cut across areas, such as a NARA lead working group for historical data and a recently established working group on homeland security with NIMA and USGS serving as co-chairs. FGDC's primary responsibility is determining among local participating agencies how activities for providing, collecting, and utilizing spatial information at the federal level can be better coordinated and to provide federal leadership for the National Spatial Data Infrastructure. A component of this goal is also to involve state, local and tribal governments, the academic community and the private sector.

John said that he directs the staff that supports the daily operations of the committees. The FGDC was organized in 1990 under OMB Circular A-16, which promotes "the coordinated use, sharing, and dissemination of geospatial data on a national basis". This establishes the federal information policies for the federal government. Regarding questions about the recent removal of some government information off the Web, he stated that the government's policy still is to have federal information made available at the least cost to the widest dissemination with the least amount of restrictions as possible. In spite of September 11th, that policy has not officially changed, although the limitations of it have changed and there were plans to reassess OMB Circular A-130. At this time, there will probably be three categories of information, one being classified, another being open public domain, and the third being restricted information based on some criteria and protected for perpetuity in some cases and in some cases open access after a certain amount of time. Studies have indicated about 80% of government data has a spatial component. When managing business processes and decision processes in the federal government, geography can be used to better understand the entire environment. More and more, the geospatial component to information is being perceived by people as fundamental and we need to take opportunities for building the global spatial data infrastructure. There are about 50 or more countries that are either beginning to build this infrastructure or are planning to do so and the commonalities are many. FGDC is supporting these initiatives. A new kind of infrastructure to improve the use of geospatial resources across the country is needed. Currently, this is operated at the federal level under an OMB Circular A-16 and Executive Order 12906.

The components of the spatial data infrastructure are:

Framework: 7 layers have been identified to provide a consistent base for spatial location. The layers include imagery, elevation, cadastral, transportation, government units, geodetic and hydrographic.

Metadata: An explanation or textual description of the data source. The FGDC has a metadata standard and federal agencies are required to use this. The expectation is that we will see greater implementation of the standard as more and more vendors begin to put it into their tools. In addition, there is the ISO standard that is being worked on by the ISO Geospatial Technical Committee 211. It should be in place by the end of the year. The federal government is committed to building a transition from the FGDC existing metadata standards to the ISO standards. There may just be one uniform standard for North America, including Canada, United States and Mexico.

Clearinghouse: A metadata catalog to ensure access to data that is already available to fit a user's needs. The catalogs are networked from county to country. For example, the United States, Canada and Australia have been networked. There are 26 or 27 countries that are now part of the global NSDI clearinghouse. The clearinghouse is expected to be at least 80-90% global in the future.

Standards: Data and Technology. 17 standards have been endorsed through the FGDC and another 20 or so are in some form of development by the subcommittees and workforce. The goal is to have interoperable data and specifications. They focus on data content and data classification.

NIMA has been a big promoter of these products. The Open GIS Consortium is the primary organization providing guidance for the interoperable geoprocessing technology specifications.

Geodata: Available geographic data needed for community decision-making. The hope is to use descriptors, the clearinghouse, the standards and the other tools to make all geographic data more accessible and useable. The results will be that we will have the opportunity of finding geodata, understanding what is in a dataset, using more and more consistent terminology and definitions of the data and having more tools available so that we can bring them together for decision making.

Partnership: Relationships for collaboration, sharing and policy deliberations. These are critical as 80% of the government data has a spatial component, cadastral data is only 1-2% at the federal level while 98% is at the local level, and only 5% of the biological spatial data is at the federal level. Thus the only way to build information relationships is through partnerships and collaborations.

John emphasized that the National Spatial Data Infrastructure (NSDI) is being developed for organizations to cooperatively produce and share geographic data. He cited several examples of geospatial data products where the use of standards has added to the understanding of the importance of interagency cooperation. A goal of the Infrastructure is to reduce duplication of effort among agencies and localities as well as to improve quality, increase availability and reduce costs related to producing and accessing geographic information.

John discussed the geospatial One-Stop E-Government initiative, which resulted from the government's desire to provide services to help other government entities, businesses and citizens to more effectively use electronic technology. A federal OMB task force was established to recommend profitable e-government initiatives and 24 initiatives were selected, one of which was the Geospatial Information One-Stop. This initiative was assigned to the Department of the Interior and the FGDC. Currently, FGDC is working with 11 federal partner agencies plus state, local and tribal governments. The vision of the Geospatial One-Stop is to spatially enable the delivery of government services and to provide a place where access to individual information and access to combined information will be possible. The future model should provide fast, low-cost, reliable access to geospatial data needed for government operations via a government-to-government portal for this information. This will also facilitate the effective alignment of roles, responsibilities and resources for government-to-government geospatial interactions needed for vertical missions such as homeland security. Another goal is to have multi-sector input for standards which will create consistency in order to promote interoperability and stimulate market development of tools. The focus of the Geospatial One-Stop is to accelerate development and implementation of NSDI technology, policies and standards that support "one-stop" access. The outcome of the initiative should be that the infrastructure is accelerated, achieving better, faster, less expensive access to reliable data for use by citizens, to improve the use of resources for data acquisitions, partnerships, and reduce duplications, and to have all E-Government initiatives spatially enabled through data and functional capability.

In summary, John stated that an important goal is to create a multi-purpose program of procedures and technology with federal, state, local, academia, private sector and tribal governments to provide access to an enhanced geospatial one-stop portal that is enabled by standards and technology interoperability tools and is not vendor specific. The data will be based on standards and will be commercially available and technology driven so that it can be used in a whole variety of applications enabling geographic information use across the nation and the world. We are encouraged to provide output and representation from our communities, to give input by reviewing the standards and to recommend candidates to work on team projects to help further the Geospatial One-Stop initiative.

NATIONAL FOREST SERVICE: Betsy Banas, Staff Cartographer, Geospatial Services Group

Betsy Banas, National Forest Service (NSF) gave us an overview of the Service's mapping history, mapping programs, and digital mapping committees.

History

Betsy began by noting the similarities between the mission statement of CUAC and that of the Forest Service. The Forest Service mission statement is "caring for the land and serving the people". Gifford Pinchot was the first Forest Service chief and the mission statement then was to "provide the greatest amount of good for the greatest amount of people in the long run". She noted the philosophical differences between Gifford Pinchot and John Muir in establishing "reserves" vs "preserves".

The Forest Service was created in 1905 to provide quality water and timber for the Nation's benefit. It originally had 60 forest reserves covering 56 million acres; now, it has 155 forests and grasslands covering 191 million acres. The Service is very decentralized, having 9 Regions, 1 through 10. Region 7 was absorbed into Regions 8 and 9 long ago. At the time that the Forest Service was organized, it was deliberately decentralized, as it was decided that decision makers needed to be right there, "on the ground" as they were most familiar with the public's needs at the local level.

The Forest Service is the largest forestry research organization in the world, having 20 research and experimental forests and other special areas. It also provides technical and financial assistance to state and private forestry.

Over the years, the public has expanded the list of what they want from national forests and grasslands. Congress

responded by directing the Forest Service to manage national forests for additional multiple uses and benefits as well as for the sustained yield of renewable resources such as water, forage, wildlife, wood, and recreation. Multiple use means managing resources under the best combination of uses to benefit the American people while ensuring the productivity of the land and protecting the quality of the environment.

The mapping and geospatial data programs have helped meet the Forest Service mission by aiding in fire management, forest planning, forest health protection, watershed restoration, ecosystem management and sustainability of our resources, and recreation. Initially mapping was done at the local level and it was a vital part of administering the land. The maps were made to the specifications and requirements of the particular forest. There was little standardization or consistency among Regions.

This changed during World War II. There was an effort to consolidate mapping for defense purposes. The Forest Service, at the time, had the equipment and expertise. During the War, NFS map programs worked out of Gettysburg, Pennsylvania, mapped areas of the U.S. along the Pacific Coast, and aided in making detailed maps of Japan.

Through the late 1960's regular Forest Service mapping business continued to be decentralized and non-standardized. But mapping technology began to change; new, costly equipment, computers, etc. required the centralizing of mapping operations. The Geospatial Service and Technology Center (GSTC) was founded in 1975 (then called Geometronics Service Center) and is located in Salt Lake City, Utah. Its intent was to bring together the skills and resources needed to build and maintain a standardized base mapping program. The Center's program has since expanded to include production of digital data.

The Remote Sensing Application Center (RSAC) is co-located with GSTC in Salt Lake City. It provides technical support in evaluating and developing remote sensing, image processing, and how it relates to geospatial technologies throughout the Forest Service. It also provides project support and assistance with using remote sensing technologies, and technology transfer and training.

The Geospatial Service and Technology Center is more than maps. It provides geospatial services, data, training and awareness. These services and products support core Forest Service business needs including forest planning, watershed restoration, resources inventory, and transportation management. While NFS has a national program and centralized geospatial service and tech center in Salt Lake City, many mapping activities continue in the Regions. The Forest Service is developing a clearinghouse, this will be a FGDC and NSDI node. This will eventually provide all Forest Service geospatial data, and FGDC compliant metadata. Hopefully by September of this year, that node will be active.

Forest Service Maps

The Primary Base Series (PBS) maps of NFS have a scale of 1:24,000. They are topographic maps, used as an administrative product. The Forest Service started production in 1992 of the Single Edition Quad maps when they entered into an agreement with USGS. The Primary Base maps are produced by the Forest Service to USGS standards. This agreement has eliminated duplicative efforts. The maps are revised sooner with partnerships than without partnerships, and show Forest Service data. USGS prints and distributes the maps for the Forest Service. The Forest Service is responsible for about 12,500 of the 55,000+ topographic sheets produced of the United States. They are mapping at a rate of 600 per year.

The Secondary Base Series is at a scale of ½ inch to the mile (1:126,720). The cartographic work is performed at GSTC. The base map is forwarded to Region/Forest where it is enhanced with photos, transportation guides and visitor information to become the standard Forest Visitor Map.

Forest Visitor Maps are being distributed by USGS through a relatively new agreement. Previously the maps were only available at Forest Visitor Centers. The new agreement provides for the sale of Forest Visitor Maps through a USGS vendor network, and provides customers with one stop shopping. The maps are available to vendors at volume discounts. This partnership has increased customer service. The maps are still also available at Forest Visitor Centers, Forest Supervisor and District Ranger Offices and can also be ordered from the various Forest Service websites–but only USGS provides the one stop shopping capability that vendors like because the receive a discount and can stock a variety of maps on their shelves.

Other Forest Service maps include: wilderness area maps, wild and scenic rivers maps, "Pocket Guides," "Guide to Your National Forest," and other specialty products. FSWEB site: http://fsweb.r5.fs.fed.us/unit/puf/geometronics/

Other collaborative efforts include www.recreation.gov. This interagency initiative provides web-served recreation information to public. It cuts across government boundaries. Outdoors America Map is a guide to recreation opportunities on Federal Lands; 11 Federal Agencies are involved. The Forest Service is represented as a voting member on the U.S. Board on Geographic Names. Forest Service is responsible for their areas in the updating and maintenance of the Geographic Names Information System. The Forest Service is adding information to the National Atlas of the United States. There are other exchanges with USGS including Digital Elevation Models (DEMs), Digital Orthophoto Quads (DOQs), and the National Map. The Forest Service is working in Lake Tahoe Basin Management Unit on a pilot of the National Map.

FGDC and Geospatial Advisory Committee (GAC) Activities

Forest Service is participating in FGDC (Federal Geographic Data Committee). FGDC is trying to create Geospatial One Stop and I-Teams (which have to do with data sharing at the local level). John Moeller (who also spoke at CUAC) is FGDC Secretariat Staff Director and Project manager for Geospatial OneStop. NFS has taken the lead of the FGDC Vegetation Subcommittee. Vegetation Subcommittee activity had languished–initially a lot of effort had been put into trying to develop a vegetation data standard. No consensus on the elements of the standard could ever be reached, within NFS or among agencies on the subcommittee, so it stalled out. Alison Hill is new chair, and the Committee is reinvigorated. NFS is the Co-Lead for Sustainable Forest Data Subcommittee, active on Homeland Security Working Group, and Imagery and Remote Sensing Task Force.

The Geospatial Advisory Committee (GAC) was formed in 1999 to address advancing of Forest Service Geospatial Data Technologies. The geospatial community recognized the need to direct and coordinate geospatial data activity. GAC promotes awareness of geospatial data throughout Forest Service, and advises the Geospatial Executive Board (GEB). Its roles and responsibilities are to identify, monitor, and address issues regarding the state of NFS geospatial programs and activities. It also develops and makes recommendations concerning geospatial program execution to the Geospatial Executive Board. GAC communicates progress to NFS geospatial community and others. GAC emphasis areas are 1) standardized GIS data, 2) natural resource applications coordination, 3) geospatial training and awareness, 4) coordinate and share standardized GIS data, 5) cartographic publishing, and 6) technology architecture coordination. GAC's goals are to ensure NFS geospatial policy, programs are compatible and integrated, and to ensure programs are responsive to NFS business needs.

Forest Service Contact Information and Forest Service Home Page–www.fs.fed.us

GSTC Home Page–www.fs.fed.us/gstc

BUREAU OF THE CENSUS: Tim Trainor, Chief, Cartographic Operations Branch

Tim Trainor began by discussing a couple of the Census Bureau's Geographic programs. The fifty State Data Centers (SDCs) participated in the Public Use Microdata Area (PUMA) Delineation Program. Tim spoke at some length about the Urbanized Area Delineation program, which culminated with a *Federal Register* notice on May 1, 2002 (71 FR 21961) listing the 466 areas defined as Urbanized Areas (UA) for Census 2000 (up from 405 in 1990). General criteria are that there must be a density of 500 people per square mile and a minimum population of 50,000. There is no grandfathering of urbanized areas: Cumberland, MD, was dropped from the UA list which qualified in 1990. The more important detail is that the category has been expanded to include "urban clusters", with urbanized areas and and urban clusters totaling 3,638 qualifying areas, so more areas will have data available. The smaller "Urban Cluster" (UC) is defined for areas of sufficient density from 2,500 to 50,000 inhabitants plus other characteristics. Detailed definitions and discussion of UA's and UC's may be found in a *Federal Register* announcement of March 15, 2002 (67 FR 11663). The concept of undevelopable areas adjacent to or within UAs (e.g., floodplains along a river) are now diplomatically being called "exempt" rather than "undevelopable." And of course, all of this information is available on the web.

Tim then reviewed several of the geographic products from Census. Some of these involve Zip Code Tabluation Areas (ZCTAs), in which each Census block is assigned a single Zip Code. This constructed geography will result in various special boundary files and tabulations. The TIGER 2002 files, which use 2000 geography, will be available soon on the web. Probably, at some point there will be maps but specifications have not yet been finalized.

2002 TIGER/Line files, based on Census 2000 Geography will be available to download by the end of this week. Based on Census 2000, many redistricting activities are underway in the states.

Pre-defined maps, mostly in pdf format, are available on the Internet. These are also available on DVD (CDs are used only if the files total less than 650 megabytes) and as on-demand plotted maps. Recommended specifications for plotters are on the web site. Tim has a national map showing locations of the State Data Centers, it is used internally, but possibly could be made available. It is constantly changing and has all of the different kinds of state data centers, in terms of their classifications. Census 2000 block maps for every community in the country have been produced. They include the 130,000 maps sheets John Hebert referred to as recently accessioned at LC Geography and Map Division. Census has produced an additional 280,000 sheets, that are block maps for geographic levels above census tracts, such as places and county subdivisions.

For legal governments, maps have been sent to the entity's highest elected official and currently are available on the web. Six DVDs will be manufactured shortly that include regions of states. Unlike the 1990 county block maps, users can access a town or city of choice without having to acquire all of the maps for a county. Census tract outlines maps are available on one DVD and American Indian/Alaskan Native Areas and Hawaiian home land block maps are available on one CD-ROM.

Generalized boundary files are available on the web for most levels of geography in several popular ESRI formats: Arc/Info exports (.e00), ArcView shapefile (.shp), and Arc/Info ASCII format. Census 2000 boundary files are available in both high resolution and low resolution versions.

They are re-doing the 1990 files so that nested geography share the same points.

As a result of user input, more printed reports than originally planned will be generated. County outline and subdivision outline maps will be produced. Page sized county maps by state, will be done by the end of summer. Metropolitan Areas will be redefined in 2003 based on new criteria.

The Bureau is still producing thematic maps. One recent map shows the center of population for each state. Another is the famous "nighttime" map, where white "light" on a dark background indicates population distribution, which recently had the biggest press run in Census history, of 1,500,000 sheets. Five copies were sent to every school in America. They are planning a 108th Congressional District Atlas for next year and have released a Census 2000 atlas based on the first seven questions of the census questionnaire.

This is the 100th anniversary of Census as an agency.

The Bureau realizes the acute need for modernization of its Master Address File (MAF) and the entire TIGER system. TIGER is old and technology has advanced significantly since being developed. (Most people don't know that Census still maintains the files in an internal format, not the ASCII format that it distributes.) Everyone knows that the positional accuracy of boundaries is inaccurate, and Census wants to move beyond relative accuracy and to true positional accuracy. One reason this will be imperative is that TIGER will form the transportation layer of The National Map. Updating can't wait: there are sixty-five committees already looking at Census 2010 planning, and to maintain the geographic standards of the ongoing American Community Survey, MAF and TIGER must stay updated and be improved. The goal is to get an enumerator to a housing unit 100% of the time.

There are many partnerships with other agencies and partners. Census maintains boundaries for most local governments on an annual basis.

The MAF/TIGER modernization is focusing on three important projects. One is to get existing files where they exist. Out of the 3,000 counties, about 1,000 of them have GIS files, of them a small number have really good GIS files. Census is evaluating that currently. A second strategy is to have contractors look at commercial sources that are available that can be used without restriction into the public domain. A third alternative is to use imagery where the previous two options are not possible as a means to improve and maintain the spatial data.

U.S. GEOLOGICAL SURVEY: Dan Cavanaugh, Chief, Branch of Program Development

Dan Cavanaugh, US Geological Survey (USGS) gave an update that focused on three themes: New Products, especially published maps, the National Atlas and the National Map.

New Products

USGS has released several maps that are different than they generally produce. They include a map of Lake Tahoe showing underground structure, and a *Tapestry of Time and Terrain* which depicts geology and physiography. There is also a new map of New England showing earthquakes between 1638 and 1998 (I-2737), which proved particularly timely given the recent earthquake there. Another recently published map, titled *Geographic Face of the Nation–Land Cover*, developed from the National Land Cover Data was jointly produced by USGS and the Environmental Protection Agency. A new relief map will be released similar to the Thelin & Pike map (late 70's, early 80's) titled *Geographic Face of the Nation–Elevation*. The new map will have fewer data artifacts than the previous edition.

USGS is continuing to forge partnerships, especially with the Forest Service. USGS Map Dealers (about 2000 of them) are now distributing Forest Service maps. Their goal is to distribute Forest Service maps for all 9 Forest Service regions. The map distributors are pleased about being able to obtain maps from one source (USGS), rather than having to deal with multiple agencies and regions. The USGS has also entered into partnerships with other agencies, such as the Library of Congress. This partnership has resulted in reproduction of an 1894 map of Colorado. It is available from USGS (see http://rockyweb.cr.usgs.gov/historicmaps/historicmapsfromlca.html for more information). USGS is working with the National Park Service to produce geologic maps of the National Parks. They also continue to distribute National Imagery and Mapping Agency (NIMA) products. About 90-95% of the NIMA products that were available before September 11 are still available.

Some of the most popular products at USGS continue to be the booklets, such as the General Interest Publications, which are available for free. Dan indicated that just prior to our meeting, the Director of the Survey announced that the USGS will be getting out of retail sales (at the ESIC) by FY2004. It is uncertain if that is the beginning or end of FY04. Over the counter retail sales may cease at other USGS locations as well, and is probably a year or two away. A question was asked if there are other ESIC offices to be closed. Dave indicated that the Washington DC ESIC in Main Interior had closed this year due to budget cuts, and that the Spokane ESIC was closed last year to budget cuts. Remaining ESIC offices include Reston, Menlo Park, Denver, Anchorage, Rolla, and Sioux Falls, SD.

Dan was asked about the recently published maps of Utah and Colorado that came through FDLP. They are not a "national program". These maps were produced from the National Elevation Dataset by the Rocky Mountain Mapping Center, and are similar to the one of Pennsylvania that was issued several years ago. They will not be issued for the entire United States unless funding is made available. Dan was also asked if there were plans to revise or update *Maps for America*. The response was no, due to lack of funding.

The National Atlas

The National Atlas continues to be one of the Geological Survey's most popular web sites. It is a cooperative venture between 21 partners and ESRI. There are presently 420 map layers available on the National Atlas web site. People can use it to make and print their own map. It also includes internal links to other web sites. For example, when a user clicks on a National Park, they are linked to sites with information on that park. The National Atlas web site receives 4.6 million hits per month, and links to 1900 other web sites. A new map is drawn every 1.5 seconds. Over 350,000 map layers have been downloaded from the site.

Through the National Atlas, the USGS has been able to produce hard copy products, such as the Federal and Indian Lands map, the elevation map of North America, the Forest Cover map, (produced with data from many Federal agencies), the Presidential Elections map, which includes insets showing the results of all Presidential elections since 1789, and the General Reference map, showing roads and county boundaries. This map will be revised to show Alaska at the same scale as the lower 48, in another words, one will be able to compare the land masses against each other and re-released. The National Atlas is viewed by some people as a small scale version of the more detailed National Map.

The National Map

The National Mapping Division is now the Geography Discipline. The National Map is everything that the National Mapping Division used to do. There used to be three organizations under the National Mapping Division. They were Map and Data Collection, Earth Science Information Management and Delivery, and Research. They are now known as Cooperative Topographic Mapping, Land Remote Sensing dealing with Landsat, and Geographic Analysis and Monitoring which equates to the research area.

The primary activity of the National Mapping Discipline is to compile the base data for the National Map. The vision of the National Map is to develop a current, continually revised, seamless, complete, consistent product that will reflect geographic reality, have positional and logical consistency, and have no cartographic offsets. It will be a temporal record, with metadata for both the data set and the features within it.

The National Map will address 5 needs, to Map, Monitor, Understand, Model and Predict. The 7.5 minute topographic map is probably the USGS' most famous product. It is the only U.S. cartographic product that is comprehensive, trans-jurisdictional and border-to-border and coast-to-coast. Compiling it was an immense engineering feat that would cost over $2,000,000,000 to replicate today. On average, the topographic map is 23 years old. USGS. is finding that they cannot keep up with currency. Base data, such as aerial photographs, often show features that topographic maps do not.

Because topographic information has a variety of uses (scientific studies, planning, decision making, land and resource management, delivery of government services, economic activities, natural disaster relief, homeland defense), it will be the base of the National Map. There is presently some duplication of effort among and between geographic information sectors (federal, state and local governments and the private sector). Cooperation between these sectors (Cooperative Topographic Mapping) will provide the base information needed for the National Map. Partnerships will be built to develop the base data, which will be accessible via the web 24 hours a day. Users will be able to specify the data and area of interest and print their map on demand. Cooperative Topographic Mapping will include activities such as acquiring, archiving, and disseminating base geographic data, maintaining and providing derivative products, including topographic maps, and conducting research to improve data collection, maintenance, access, and applications capabilities. The core data, which will include themes such as orthophotography, elevation, transportation, hydrography, structures, boundaries, geographic names and land cover, will be public domain, either collected by government agencies or made available through licensing agreements. Links to other data with higher resolution, enriched content and additional attributes will be available. These links may be to licensed data. This means that USGS' role will be changing from data producer to organizer responsible for awareness, availability, and utility. USGS will be the catalyst and collaborator for creating and stimulating data partnerships, a partner in standards development, and an integrator of data from other participants. When no other source of data exists, USGS will produce and own the data. There will be a temporal component or versioning, but the details have not been worked out yet. Data will be accessible 24 hours a day and will be in the public domain.

The National Atlas is an example of a small-scale implementation of the National Map. It has been developed through partnerships. USGS has integrated the content so that it is consistent nationwide. They have also developed the metadata and provided web access. USGS offers derivative products, such as the data layers and printed National Atlas maps.

There are currently 7 National Map pilot projects underway in the United States (see http://nationalmap.usgs.gov/nmpilots.html for more information). One in Delaware is currently the most complete and went live April 18 (URL: http://www.datamil.udel.edu/nationalmappilot). The events of September 11 illustrate the urgency for geospatial data and the National Map. September 11 has shown us that data must exist before, during and after an event, be readily accessible, and that partnerships among state, local, and federal agencies and the private sector are required. The events have illustrated that cartographic information is a national infrastructure, just like the Interstate Highway System. As a result of September 11, there is an emphasis to compile

information, including high-resolution color imagery, high accuracy elevation data and critical infrastructure, for 120 major metropolitan areas in the United States. NIMA and other Federal agencies are partnering in this effort. Links with state and local agencies and "first responders" are also being developed.

NATIONAL IMAGERY AND MAPPING AGENCY: Jim Lusby, NIMA Staff Officer, Disclosure and Release Division, Office of International & Policy

Jim Lusby, represented National Imagery and Mapping Agency (NIMA) and provided an overview of the policy of Limited Distribution Products (LIMDIS) and an update on the distribution of Shuttle Radar Topography Mission Data.

NIMA has authority under U.S. law, Title 10, to restrict distribution of cartographic data if it is required to do so under international agreements, if disclosure would reveal sensitive methods for obtaining the data, or if disclosure would interfere with military or intelligence operations. Officially Limited Distribution (LIMDIS) is a caveat, not a security classification, e.g., "Classified" or "Secret." It is still enforceable under law. Roughly 35% of NIMA's products fall under the LIMDIS category.

NIMA has 80,000 different line items, and of those, 30,000 are limited distribution. 20,000 are foreign produced and NIMA works in cooperation with the foreign governments.

Jim has worked to arrange exceptions to LIMDIS for academics and government agencies for an expressly noted purpose, e.g., to support disaster relief operations. Unauthorized re-distribution of LIMDIS data in such situations can result in agencies or contractors losing their ability to obtain future exemptions. Most requests for exemption require the agreement of a third party, such as the foreign agency responsible for supplying the data. NIMA evaluates all requests on a case by case basis, and tries to balance benefits and risks of exemptions.

NIMA also assists foreign countries with information in times of need. Jim mentioned NIMA and USGS efforts in assisting Honduras, Nicaragua, and El Salvador during "Hurricane Mitch". They are partnering with USGS, Census, Forest Service, and others.

Making NIMA products available to other government agencies can be a lengthy process. Criteria for approval of release is based on desired geographic location, the use, and justification for needing the material.

NIMA is working to make the process smoother by spelling out conditions of release during the initial data collection process with third parties, taking some internal steps to formalize LIMDIS policies and procedures, and by highlighting the issue to NIMA customers in forums such as CUAC. Is there a greater amount of risk to giving this product to someone to satisfy them? Are there other sources that will work? Is this is the only source and what kind of risk will have to be weighed? What is the derived product coming out of it?

There are many multinational projects underway. NIMA works with "disclosure" or "release" restrictions. Disclosure is where someone can look at it and walk away or release where they can actually give someone the map. NIMA is trying to obtain more "disclosure" than "release" situations in working together.

Limited distribution is a caveat that restricts anyone from using it unless NIMA gives approval. Official use only means that you need that product for planning and you will use it only for that purpose.

Some products will be more easily available, others will be less. NIMA will be working on updating their Memorandum of Understanding (MOU). They are trying to reduce the amount of LIMDIS information or make it classified and try to get out of the gray area.

Will Danielson from GPO asked Jim about maps received at GPO for FDLP cataloging that were marked with the LIMDIS caveat. Jim said that GPO/FDLP were indeed supposed to receive such items as they had been declassified. Jim explained that after printed materials are marked LIMDIS at the printer, a new press run can not be done to remove the LIMDIS caveat. Instead that marking is supposed to be removed or obliterated by the distributor.

Finally, Jim presented a revised schedule for release of the Shuttle Radar Topography Mission (SRTM) data products. This is the digital terrain data that librarians are hoping for. Alaska is not well represented. Having fallen behind after September 11 Jim cautioned that the schedule was subject to further change. Production of data for North and South America is expected to be complete by summer 2002, but distribution schedules and methods have not been determined. USGS through the EROS Data Center with a joint agreement will be the data holder for the public. Public release data will vary in resolution, depending upon geographic area. USA data will be level 2 (30 meter resolution), non-USA areas will be level 1 (roughly 90 meters).By 2004, everything should be completed, elevation data for the world, and all the products done. It will be much better than anything they have had in the past and they are using additional information from others. 1,000 meter is available now

NATIONAL OCEAN SERVICE - NOAA: Howard Danley, Deputy Chief of the Navigation Services Division

NOAA has 1037 paper charts for sale through the Distribution Division of the Federal Aviation Administration's National Aeronautical Charting Office. The National Aeronautical Charting Office also does the printing of the nautical charts. These are available through the FDLP. A private company, Maptech, sells raster images of the charts. On the web at maptech.com, thumbnails at 90 dots to the inch are available using MrSid compression.

There is great interest by graduate students in shoreline movement over the years, terrain, ports, and features. For the last four to five years, a selection of historical charts

from the late 1800s to about 10 years in the past has been available on the NOAA web page. In cleaning out the warehouse, they discovered historical charts and scanned them. They can be downloaded. MrSid made this possible. These include hydrographic surveys. One can use "mapfinder" on the website: http://mapfinder.nos.noaa.gov/ to find hydrographic surveys over time.

U.S. Coast Pilot is a supplement to the nautical charts. From the early to mid-1800s, this was a private publication. In the mid-1800s, the Coast Survey purchased the publication. NOAA has contracted with a company in Beltsville, MD to scan the Coast Pilots starting with the oldest, a 1776 publication by the British Admiralty. These images will be placed on the Web, linked through the NOAA library. These online Coast Pilots will be searchable by chapter with an index in the back. Some of the older Coast Pilots had foldouts that are causing problems with scanning because they do not want the binding affected. Funding has been provided for about one-half of the project. Additional funding will be sought next year for finishing the project.

NOAA will be continuing to place electronic nautical charts on the Web in a vector format. There are about 150 charts with a browser available. They can be downloaded. They will be different from the printed charts; the symbology and detail are different. Current coast pilots are available on the web and can be downloaded. Electronic charts and Coast Pilots are considered "provisional" because they are not updated for navigation. These images have increased sales. Distances between Ports will go up on the web too.

Post September 11, NOAA has taken airflows, ship schedules and names from its web site, but decided to leave nautical data as it can be obtained elsewhere.

Questions about potential web products included: the early edition nautical charts of Alaska that had been classified because of the Distant Early Warning (DEW) sites; and the historical T-sheets. The T-sheets (topographic) date back to the mid-1800's and contain a tremendous amount of information including land use, land ownership, and place names. National Archives holds the T-sheet photographic negatives and the originals.

Paper charts will be around for an indefinite time, especially for the recreation community. For large vessels, there will be a requirement for backup, in whatever form.

The print on demand program is still alive but going slowly. There are 876 charts of the 1,037 available through print on demand. The number of print on demand agents is now 40. 17,000 copies of charts were sold through print on demand last year.

U.S. FISH AND WILDLIFE SERVICE: Doug Vandegraft, Chief Cartographer

Doug Vandegraft is the chief cartographer at Fish and Wildlife. The Fish and Wildlife Service (F&WS) has seven regional offices and about 25 cartographers throughout the United States.

Over the last year, his office has worked on digitizing the boundaries of the 538 wildlife refuges. They are three-quarters completed. Doug noted that 85% of refuge acreage is located in the state of Alaska.

In addition, they are working on a digital land status layer indicating F&WS land ownership (to show what lands they own within the wildlife refuges). They are always trying to acquire land to protect species. Refuge boundaries are approved acquisition boundaries and within that boundary, they have decided that the habitat is worth saving.

Refuges date back to 1903, but the F&WS was not created until 1940. The Bureau of Biological Surveys was the first agency to manage wildlife refuges and in 1936, developed a template of what refuge maps should look like. They are still using the same format, but in 1980 ANILCA added 100 million acres in Alaska, and the format no longer worked well. The F&WS are experimenting new ways of depicting wildlife refuge land status using the digital raster graphics (DRG's) and digital orthophotoquads (DOQ's). F&WS has new refuges in the South Pacific and the agency is producing new maps of those areas. Doug indicated that they are currently working with the USGS on a new refuge map to commemorate their Centennial. Alaska will be at the same scale as the lower 48.

The Yukon Delta refuge includes 26 million acres. F&WS has scanned about 500 of the original land status maps dating back to the 1920's. Originals will go to National Archives. Refuge boundaries are available on the web and they can be downloaded. It is important to recognize that there may be private in-holdings within the refuge boundaries depicted.

Work continues on the Real Property Database. The database provides information on tracts of lands owned by F&WS including price paid, parcel size, name of former owner, and additional information. Some information is not available due to its sensitivity. They are currently working on linking refuge boundaries to this database, which will be displayed in a web-based map-server environment. Ideally, there will be a photograph for each refuge. Doug indicated that the most important component of geographic information systems is the query capability. He provided some demo examples of how F&WS is hoping to use GIS with the Real Property Database. Doug is working on securing funding to pursue this project.

COMMITTEE REPORTS

Best Guidebook Award

GIS Best Guidebook award labels will be available at our meeting in Denver. The Guidebook Standards Committee encourages you take some and to place them on the past award-winning volumes already in your collections. This will help publicize our society and our standards for guidebook publication. The list of award-winning volumes is posted on our web site. So pick up some labels when you come to Denver or contact me and I'll see that you get them.

Respectfully submitted,
Carol La Russa, Chair

Exhibits

The GIS Exhibits Committee will have a booth at the 2002 GSA Conference in Denver this year. Our theme will be "Information At The Highest Level," echoing the theme of the conference itself.

This year The Exhibit Booth will feature photos of earth science libraries and librarians "in action." We will also highlight the four winners for "Mary B. Ansari Best Geoscience Reference Book Award," "Best Paper Award," "Best Guidebook Award," and "Best Website Award" as part of our display.

Librarians are encouraged to send photos of their libraries, either 8x10 glossies, or graphics files (jpg of gif) via e-mail to April Love, P. O. Box 4899, Irvine, CA 92616-4899, amlove@uci.edu.

GIS members are also encouraged to join in the fun of the Exhibit Booth Committee! Please contact either April Love or Sally Scott, Co-Chairs of the Exhibit Booth Committee and share your ideas and creativity!

Respectfully submitted,
April Love and Sally Scott, CoChairs

LITERATURE REVIEWS

by
Carol J. La Russa

Marcia Bates of UCLA writes in the July 2002 issue of *First Monday* that the dot-coms of the 1990's ignored what established database providers and librarians have long known about organizing information when designing their Web sites. She criticizes their use of hierarchical classifications and their current craze for ontologies for classification and indexing. They fail to take advantage of existing specialized thesauri. They don't seem to know about the Bradford Distribution (that typically, 20% of a collection gets 80% of the use). Also dot-com websites fail to take into account the effects of database growth on the utility of indexing schemes. They also haven't provided indexing support systems for their human indexers. Finally, Web companies have ignored information specialists and have instead totally relied on programmers and content specialists. ("After the Dot-Bomb: Getting Web Information Retrieval Right This Time," http://firstmonday.org/issues7_7/bates/index.html).

Lee Van Orsdel and Kathleen Born report in the April 15, 2002 issue of *Library Journal* on trends in periodicals pricing. Online access as the main subscription and paper as the add cost on are becoming much more common. Although archival issues for online journals have not been resolved, many libraries seem willing to give up print copies. Online journals are quickly becoming the norm. Geology periodical titles cost 8.10% more than last year. ("Periodical Price Survey 2002: Doing the Digital Flop," v. 127, no. 7, p. 51-56).

Barbara J. Cockrell and Elaine Anderson Jayne describe a usability study of the library Web site at Western Michigan University. Faculty, graduate students, and undergraduates were asked to find the title of a magazine article on a particular topic, the title of a journal article on another topic, and a newspaper article on a third topic starting from the library web site. Participants were observed while they attempted to complete the tasks. The results were discouraging. Fewer than half of the participants successfully completed the first two tasks and about two-thirds the third task. Faculty did better than students. Many students tried to find articles in the OPAC. They were unable to distinguish research articles from popular articles. Some who successfully found a magazine article title were unable to see that finding a journal article title involved the same process. Participants did not read explanations or scroll down screens. They searched as if they were using a web search engine and were quick to give up. The results demonstrated the importance of placement of topics on web pages. Participants almost always chose the first item on a list of either indexes or citations. Typical library jargon confused them. The library made changes to the web site as a result of the study to make it easier to find journal articles. They also realized they need to educate users about the purpose of the OPAC and to publicize library assets more widely. ("How Do I Find an Article? Insights from a Web Usability Study," *Journal of Academic Librarianship*, v. 28, no. 3, 2002, p. 122-132).

Mary Lou Baker Jones, Mary Frances Lembo (GIS member), James E. Manasco, and John H. Sandy of the Student Relations Committee of the Sci-Tech Division of the Special Libraries Association write about their study of advertisements for entry-level sci-tech librarians. They

looked at 167 advertisements from library journals and listservs and after eliminating duplicates, health sciences positions, and non-entry level positions they analyzed the fifty remaining. The most common required qualifications for entry-level sci-tech positions were not sci-tech specific. They included MLS/MLIS, communications skills, and computer skills. Some asked for familiarity with sci-tech literature and reference and only five for a bachelor's degree in science. Preferred qualifications included a bachelor's degree in science (mentioned in seventeen ads) and teaching experience (asked for in ten ads). Employers seem resigned to often not being able to hire librarians with extensive science backgrounds into sci-tech positions. The committee also looked at the outcomes of six of the searches: half had a poor outcome. ("Recruiting Entry-Level Sci-Tech Librarians: An Analysis of Job Advertisements and Outcome of Searches," *Sci-Tech News*, v. 56, no. 2, 2002, p. 12-16).

Gloria Dinerman in *Information Outlook* offers suggestions for designing surveys for corporate and academic library environments. She offers suggestions for getting the information needed by asking precise questions. She includes sample questions for both corporate and academic settings. "If You Don't Know, Ask: The Art and Craft of Survey," v.6, no. 7, 2002, p. 6-10).

Nicole Waller shows how graphical mapping techniques could be used to make library resources more understandable. Using a product called Visual Net produced by Antarcti.ca together with the Library of Congress classification numbers from the OPAC a graphical map of holdings can be created. Users can drill deeper to narrow a search and also use key words (such as a geographical term) to filter what is shown. This enables users to get a picture of which library resources might be useful. ("You Are Here," *American Libraries*, v. 33, no. 6, 2002, p. 72-74).

Jill E. Grogg, Debra K. Andreadis, and Rachel A. Kirk looked at the links provided in the free PubSCIENCE database to see if the database provides effective access to full-text literature for those affiliated with a library with electronic journal access and also for those not so affiliated. They found that PubSCIENCE often failed to provide working links to licensed full-text that should have been available to affiliated users. Very little free full-text is available to unaffiliated users, although some of the articles not linked are available freely in the Web. They conclude that though PubSCIENCE is a useful database for nonaffiliated users who do not have access to licensed databases, it is not an effective way of linking to free full-text. ("Full-Text Linking: Affiliated Versus Nonaffiliated Access in a Free Database," *College & Research Libraries*, vol. 63, no.3, 2002, p. 228-237).

Barbara Fister writes in the June 14, 2002 issue of *The Chronicle of Higher Education* about why students are afraid to ask questions. The reason, as we all know, is that students are embarrassed to ask what they fear are "dumb" questions. She says that some professors have found that requiring students to have a librarian sign-off on a preliminary bibliography after a consultation lessens the shame factor. She also describes why students still need face-too-face reference in a digital world. ("Fear of Reference", p. B20).

JOB ANNOUNCEMENT

Head Librarian, Engineering & Science Libraries, Massachusettes Institute of Technology, Boston

The MIT Libraries seek a creative and visionary librarian to provide leadership in sustaining and enhancing a full range of user-centered services and collections on behalf of the MIT engineering and science community. A primary responsibility of the Head Librarian will be to promote visibility of the library and improve outreach to all MIT user groups requiring access to engineering and science information resources, with particular emphasis on users in the Schools of Engineering and Science and their related Divisions, Colleges, laboratories, and centers. He/she will lead a group of innovative and energetic staff in developing proactive library services and collections with an emphasis on the integration of emerging technologies for in-library and remote delivery of resources and services. The Engineering & Science Libraries promote a service-oriented philosophy that values measurement and assessment to maintain a deep understanding of user needs and expectations.

Reporting to the Associate Director for Public Services, the Head of the Engineering & Science Libraries oversees two divisional libraries, the Barker Engineering Library and the Science Library, and three branch libraries, Aeronautics and Astronautics, Lindgren (earth, atmospheric, and planetary sciences), and Schering-Plough (neurosciences and biomedical imaging). The Head Librarian will participate in developing the overall strategy for Public Services, and within that strategy will establish departmental goals and manage human, space, fiscal, and computer resources to achieve those goals. He/she will foster a working environment in which all Engineering & Science Libraries' staff are encouraged to develop their skills in order to effectively contribute to the provision of library services for a dynamic user community. He/she will also participate in the Libraries' reference and instruction programs. As a member of the public services management team, the incumbent will collaborate with other divisional librarians and department heads in prioritizing services and initiatives, planning for their implementation, and setting system-wide policies and practices. The Head Librarian will chair a committee that focuses on one of the MIT Libraries' key user groups and, as a member of the Libraries' administrative group, will participate in Libraries-wide governance activities.

Qualifications: Required - ALA-accredited MLS;

seven or more years management and supervisory experience in an academic or research library, including some in an engineering or science-oriented library; demonstrated ability to lead and collaborate; excellent interpersonal, communication, organizational, and analytical skills; the ability to understand and interpret the information needs of constituents; a record of successful interaction with faculty, students, staff, and administrators; a strong commitment to user outreach and customer service excellence; a high degree of computer literacy and vision for the role of technology in the provision of library services; ability to develop creative solutions; flexibility in accomplishing objectives; a broad overview of engineering and scientific disciplines and the interdisciplinary nature of research and teaching; thorough understanding of issues facing research libraries including the changing landscape of scholarly communication and the impact of technology on teaching, learning and research; a record of sustained professional contribution. Preferred - An academic background in engineering or science; experience in assessment and/or measurement of library services.

Hiring Salary: $70,000 minimum. Actual salary will depend on qualifications and experience.

Review of applications will begin September 9, 2002. Send cover letter, resume, and names and addresses of three current references to:

Search Committee for Head, Engineering & Science Libraries
The Libraries, Room 14S-324
Massachusetts Institute of Technology
77 Massachusetts Ave.
Cambridge, Massachusetts 02139-4307

(Applications may also be sent via fax to 617-253-0583 or via e-mail to rmdead@mit.edu.)

The MIT Libraries include five major subject libraries (architecture and planning; engineering; humanities; science; management and social sciences) and several branch libraries in more specialized subject areas. The Libraries hold more than 2.6 million printed volumes, and extensive collections of other physical formats. Over 200 digital databases and over 3000 electronic journals are licensed for access on the Institute's network. The Libraries recently implemented Ex Libris' Aleph system as its public Web-based catalog and as the support system for user service and processing functions. The Libraries' webpage (http://libraries.mit.edu/) presents information about library services, as well as access to information resources through the staff-designed Vera interface. MIT Libraries maintain membership in the Association of Research Libraries, the Boston Library Consortium, and OCLC through NELINET, as well as in EDUCAUSE and the Coalition of Networked Information.

The Engineering and Science Libraries, while physically separate, are jointly administered by a Head Librarian and two Associate Heads, one for Engineering and one for Science. The engineering and science collections contain over 1 million printed volumes, 8,000 current subscriptions, many microforms, and a growing number of electronic resources. The staff consists of 15 librarians, 3 supervisory staff, 15 support staff, and approximately 6 FTE student employees. Planning is underway for a physically combined Engineering and Science Library as part of MIT's current capital campaign.

MIT offers excellent benefits including a choice of health and retirement plans, a dental plan, tuition assistance and a relocation allowance. The MIT Libraries affords a flexible and collegial working environment and fosters professional growth of its staff with management training and travel funding for professional meetings.

MIT is strongly and actively committed to diversity within its community and particularly encourages applications from qualified women and ethnic minority candidates.

GIS PUBLICATIONS LIST

Proceedings of the Annual GIS Meetings (ISSN 0072- 1409) *$45.00 each; standing orders are $45.00/ year.* (Proceed-ings volumes 1through 25 are out of print and available from: Out-of-print Books on Demand, University Microfilms, Inc., 300 North Zeeb Road, Ann Arbor, MI 48106.)

--v. 31, 2000 *Electronic Information Summit: New Developments and their Impacts*, ed. by Sharon N. Tahirkheli. (ISBN 0-934485-33-X)

--v. 30, 2000, *Communication Divides: Perspectives on Supporting Information Bridges in the Geosciences*, ed. by Lois Heiser, (ISBN0-934485-32-1)

--v. 29, 1999 *Accreting the Continent's Collections*, ed. by C. R. M. Derksen and C. J. Manson, (ISBN 0-934485-31-3)

--v. 28, 1998 *The Costs and Values of Geoscience Information*, ed. by C. J. Manson. (ISBN 0-934485- 29-1)

--v.27, 1997 *Expanding Boundaries: Geoscience Information for Earth System Science*, ed. by B. J. DeFelice. (ISBN 0-934485- 23-2)

--v. 26, 1996 *Crossing the Bridge to the Future: Managing Geo-science Information in the Next Decade*, ed. by N. L. Blair. (ISBN 0-934485-26-7)

Proceedings of the International Geoscience Information Conferences

6th, 1998 *Science Editing and Information Management*,

Proceedings of the Second International AESE/CBE/ EASE Joint Meeting, Sixth International Conference on Geoscience Informa-tion, and Thirty-second Annual Meeting, Association of Earth Science Editors, ed. by Connie J. Manson. (ISBN 0-934485-30-5) $ 25.00

5th, 1994 *Geoinfo V, Proceedings of the 5th International Conference on Geoscience Information*, ed. by Jiri Hruska. (ISBN 0-934485-27-5) $ 45.00 (2 vols.)

Directory of Geoscience Libraries, North America. 5th Edition, 1997.(ISBN 0-934485-25-9) Paper. $ 35.00

GIS Newsletter (ISSN 0046-5801) published bimonthly; calendar year subscriptions only. United States and Canada $ 40.00; other countries (via airmail) $ 45.00

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