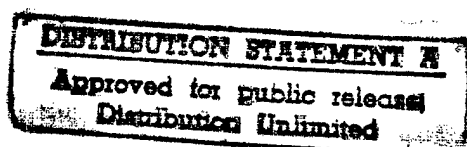


Logistics Management Institute

Navy Distributed Virtual Library Requirements Analysis

NA508MR1

Denise R. Duncan



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December 1995

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Navy Distributed Virtual Library Requirements Analysis

Executive Summary

The Navy's research, development, test, and evaluation and Fleet Support community consists of the four warfare centers and the Naval Research Laboratory. The lab and the centers (Naval Air Warfare Center; Naval Command, Control and Ocean Surveillance Center; Naval Surface Warfare Center; and Naval Undersea Warfare Center) perform activities ranging from basic scientific research to systems development to engineering support to the fleet. These activities incorporate scientific and technical information (STI) from numerous sources and often result in the creation of new knowledge and information.

The Navy Laboratory/Center Coordinating Group (NLCCG) Computing Committee and the Librarian of the Navy are determining that community's requirements for STI discovery and delivery. We recommend that the NLCCG pursue the development of the Navy Distributed Virtual Library using the Internet as a backbone, the World Wide Web as the application environment, and rapid prototyping as the development methodology. One of the challenges of providing STI for the community is the fact that the particular service a user might require is determined by a combination of factors: the discipline in which the user is working; the stage in the research, development, test, and evaluation process that is being supported; the timeliness required in response; the importance of a definitive answer; and the budget for the required piece of information. Another is the rate of growth in the cost of STI. With 15,000 to 20,000 people in the community in need of STI support, and given the unpredictable nature of the STI support required, a system is required that provides all types of service, regardless of user location, at a range of service levels and prices.

Currently, STI service is provided by site-specific STI systems, under data licenses, and through service contracts. An alternative system that consolidates the buying power of the community while allowing site-specific customization could provide the variety of STI needed while containing costs. The growing availability of software for, and ubiquity of, the Internet make the Internet a key component of such a system. With the ability to distribute information regardless of the user's geographic location, information services contracts can be negotiated for community-wide use, and a wider variety of information resources can be made available on demand. When the system is designed using a client-server architecture, site-specific or discipline-specific collections of information resources can be made available through software customization.

The World Wide Web software meets the requirements for the user interface and Internet compatibility, and the commercial off-the-shelf client software can be provided to all users at little or no cost. Further development is needed in the areas of user identification, security, and interfaces to remote databases. However, current trends in the on-line information industry favor such development. The next 6 to 12 months is an excellent time to negotiate wide-area user licenses with on-line database providers, since the industry has been taken by surprise by the surge in Internet popularity, and new pricing models have not yet stabilized.

The first-stage prototype should be deployed in six months with a sample of information resources while licensing negotiations with on-line information vendors proceed. The beta version of the Navy Distributed Virtual Library should be tested with users from every site and refined over a second six-month period, with full deployment accomplished by the end of calendar year 1997.

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CHAPTER 1

Introduction

BACKGROUND

In 1995, the Navy Laboratory/Center Coordinating Group (NLCCG) began a project to modernize the delivery of scientific and technical information (STI) to the NLCCG technical community. The NLCCG's Computing Committee and the Librarian of the Navy conducted Phase I of this project, assessing the technical community's needs for access to and use of STI and the potential solutions to those needs.

The NLCCG technical community includes over 22,000 scientists, engineers, managers, and other employees and contractors involved in research, development, testing, and evaluation activities at four warfare centers and the Naval Research Laboratory. These information users are served by Navy libraries offering traditional library services, with some electronic information services available on a few local area network (LAN) sites. Since much of the work conducted in this community is industrially funded and technology-driven, an effective and efficient STI system is critical to the competitiveness and long-term viability of the organizations.

The work conducted in the community covers many disciplines and all phases of the research and development cycle, from basic scientific research to test and evaluation of finished products. Thus a broad spectrum of information from diverse sources is required. Given the rising costs for much of this information (e.g., scientific and technical journals increased in price by about 13 *percent per year*, on average, from 1970 to 1990) and the explosion in the amount of information available, supplying the right mix of information to this audience in a time of shrinking budgets requires highly creative solutions.

This study is oriented toward applying computing and network technologies and library science to create an STI environment that delivers the most relevant information, on demand, to users in the many disciplines and locations involved, at the right cost. We envision the outcome of this study to be the Navy Distributed Virtual Library (NDVL), which will provide that environment.

ORGANIZATION OF REPORT

The most important data used in designing any system are the users' statements of their requirements. To collect the users' information requirements, we conducted 19 focus groups at nine sites (listed in Appendix A), interviewing

about 150 people. We then located potential sources of the most consistently requested types of information. Chapter 2 presents the results of these activities. With the needed information identified, along with potential sources, this report then maps the path to the information from the end users' desktops. The users' interface requirements, along with the issues to be resolved regarding information sources in a network-based information system, are discussed in Chapter 3. Chapter 4 lays out the requirements for such a system — staffing, hardware, software, and network capacity. Management issues, including needed policy and business practices and alternative models for digital libraries, are presented in Chapter 5. There is a glossary of acronyms, and, finally, a series of 10 appendices (B through K) illustrate the kinds of products that can be made available through the NDVL.

CHAPTER 2

Scientific and Technical Information Requirements

This chapter presents the methodology used to gather Navy users' STI requirements, the results of that activity, and potential sources of the required STI. Although there is a body of literature regarding the general patterns of use of scientific and technical literature, each community has differences based on its use of specific corporate information systems and on the particular work focus at each site. Each community should have its specific patterns of information use evaluated.

METHODOLOGY

In this study, we employed a focus group approach allowing an open-ended interview style so that the patterns of use unique to the community could become evident. We chose the focus group sites on the basis of several criteria, including representation of all phases of the research, development, test, and engineering life cycle; inclusion of disciplines representing at least 2 percent of this population; and total travel costs for the study team. We conducted 19 focus groups with about 150 participants, including electronic engineers, mechanical engineers, computer scientists, physicists, aerospace engineers, chemists, and managers.

We utilized an interview guide based on prior studies of STI use for the first four focus groups. By the time the fifth focus group was conducted, a pattern had emerged in the types of information services requested, and the interview guide was changed to include a table listing the most frequently requested services. Individuals in the subsequent 14 focus groups ranked those services according to their relative importance. A copy of the interview guide appears at the end of this chapter.

USER COMMUNITY DEMOGRAPHICS

We analyzed an extract of the personnel database giving the disciplines of 22,346 scientists, engineers, and related workers in the NLCCG community; see Table 2-1, which shows the distribution of the 17 most common series. Of interest is the fact that those 17 series account for four-fifths of the total population (one series, Electronics Engineering, represents 35 percent). The remaining fifth is scattered among 75 series, each with less than 1 percent of the population.

Table 2-1.

Distribution of the Most Common Disciplines Represented Within the NLCCG Technical Community

Series	Series title	Percentage of total population
301	Miscellaneous Administration and Program	1.1
334	Computer Specialist	3.1
343	Management and Program Analysis	1.8
346	Logistics Management	1.4
801	General Engineering	4.1
830	Mechanical Engineering	12.1
850	Electrical Engineering	1.5
854	Computer Engineering	1.3
855	Electronics Engineering	35.0
856	Electronics Technician	3.4
861	Aerospace Engineering	3.1
871	Naval Architecture	1.2
1102	Contracting	1.9
1310	Physics	2.4
1515	Operations Research	1.1
1520	Mathematics	1.5
1550	Computer Science	3.6
Total		79.6

◆ Finding:

- Four-fifths of the user population is concentrated in only 17 personnel series (roughly equivalent to academic discipline or work focus).

◆ Conclusion:

- The disciplines to be covered by the STI system are well represented in the on-line information industry. It will be possible to supply STI to this community using a combination of commercial and other information services.

CURRENT PATTERNS OF INFORMATION USE

Frequency of Information Search and Retrieval Activities

The first question for the focus groups concerned how often the participants searched for information. One variable affecting frequency of search and

retrieval activity is the purpose for which the information is sought. A common purpose is to stay current in one's field, usually referred to as "current awareness" research. For most users, this kind of search occurs fairly frequently, ranging from several times per day to once every two months. Another common purpose is to search for information for a particular project — to prepare a publication, write a research proposal, or explain an anomaly in an experiment. These "targeted searches" occur less frequently, ranging from once every two months to once or twice a year.

Another factor affecting frequency — one largely responsible for the wide range of responses both for current awareness and for targeted searches — is the convenience of the search environment. Users who stated that they retrieved information several times daily were usually searching from their desktop computers or else had offices in the same building as the site library. Users who retrieved information once a month or every two months for current awareness were usually going to the library from their offices elsewhere on site or waiting for journals to reach them on the routing circuit.

◆ Findings:

- ▶ The frequency with which users will search for and retrieve information, and thus the volume of transactions that the STI system must bear, is based on a number of variables and difficult to predict.
- ▶ If the STI system provides a network-based search and retrieval environment that can be used from the community's desktop computers, the frequency of use will increase.

◆ Conclusion:

- ▶ Given the frequency of search and retrieval activities reported by the focus groups (shown in Table 2-2) — close to half of the respondents searching at least once a week — and the second finding cited above, any network-based STI system must provide sufficient throughput to support weekly searching by the system's users.

Sources of STI Found Most Useful by Users

The next topic discussed in the focus groups concerned which sources of information participants found most useful. A number of sources appeared with regularity, and these were included in the table of services to be ranked in order of importance by later focus groups. The number of respondents citing Internet-accessed resources (33) was substantial. Table 2-3 shows the responses of the participants to this question.

Table 2-2.
Frequency of Search and Retrieval Activities

Frequency	Number of responses	Percentage of total
Daily	21	25
Twice a week	4	5
Once a week	14	16
Once every two weeks	3	4
Once a month	17	20
Once every two months	9	11
Once per quarter	10	12
Once every six months	7	8

Note: Percentages do not add up to 100 percent because of rounding.

In addition to the sources cited in Table 2-3, there were another 32 information sources that were cited only once each, for a total of 249 useful information sources cited by 155 interviewees. A few classified information sources were mentioned by two focus groups, but they were not cited by enough participants to justify their inclusion in an otherwise unclassified, open-source STI system.

◆ Findings:

- ▶ Journals of various types were the single largest source of information cited. If we include all sources that are journals, journal databases, etc., they account for roughly 37 percent of the sources cited.
- ▶ Internet-accessible resources (NASA's STI products, ASME net, the Defense Technical Information Center [DTIC], UnCover Corporation, etc.) constitute about 31 percent of the resources cited.
- ▶ One of the best sources of aerodynamic information is the NASA Scientific and Technical Information Program. Many of its information products are available via the Internet. AIAA provides excellent coverage of open-source literature and would be a good supplement to the NASA information products.

Table 2-3.*Useful Sources of STI Cited by Focus Group Participants*

Information source	Number of responses	Percentage of total
ACM journals	4	1.0
AIAA database/NASA RECON, Star, Scan	16	6.0
ASME net	2	0.8
Books and "seminal" texts	10	4.0
CBD and <i>Federal Register</i>	3	1.0
Conference proceedings	3	1.0
CPIA publications	5	2.0
Dialog OneSearch, EE/Comp	2	0.8
DTIC	15	6.0
FirstSearch (OCLC)	2	0.8
IEE (UK)	2	0.8
IEEE journals	17	7.0
IHS/Specs, Stds, and DoD Instructions	4	1.0
Information Analysis Centers (DTIC)	2	0.8
Inspec	2	0.8
Internet-based Listservers & Newsgroups	11	4.0
Internet-based World Wide Web pages	19	8.0
ISI Current Contents	14	6.0
Jane's	3	1.0
JASA	3	1.0
Journals — no specific title or cited only once	25	10.0
KnowledgeExpress	2	0.8
MatLab	2	0.8
MIL Stds	4	1.0
PennState	2	0.8
Physica A, D, and E	2	0.8
Physical review letters	5	2.0
Preprints	2	0.8
Science citation index	3	1.0
STN databases	7	3.0
Trade publications (<i>PCWeek</i> , etc.)	14	6.0
UnCover Corporation via Internet	3	1.0
Vendor catalogues	6	2.0

- ▶ DTIC provides a good entry point for a large collection of defense STI and related information. DTIC is very active in making much of the STI and related information available via the Internet.
 - ▶ Other government STI resources will increasingly be available electronically. CENDI, an organization with members from the STI-producing federal agencies, is committed to "work toward development of digital libraries: full text, data, and image . . . and . . . continue the development of navigational tools, including a virtual, distributed Federal STI locator."
 - ▶ Classified information represents a small percentage of the required STI. Users currently use separate systems for classified information.
- ◆ Conclusions:
- ▶ The Internet is the single best network path to needed information resources, but it is not suitable for classified information. Access can be secured to various sources at the "business-proprietary" level of protection.
 - ▶ Though many of these Internet-based resources will be free, journals and on-line databases will not. These types of resources were cited a total of 78 times as useful information sources .
 - ▶ A new licensing model is needed for large data brokers. Although STN and Dialog provide connection to their databases via the Internet, they still require individual accounts and levy a charge for access based on the time spent on their server. Providing individual accounts with charges based on connect time would be prohibitively expensive for the NLCCG user community.

Types and Formats of STI Used

Focus group participants were asked what types of information (e.g., text, graphics, or raw data) they retrieved from these STI sources. Their responses are shown in Table 2-4.

Table 2-4.
Types of STI Retrieved

Type of STI	Number of responses	Percentage of total
Text (articles, abstracts, etc.)	35	52
Images (graphics, photos, etc.)	15	22
Tables (database records, etc.)	12	18
Model geometries	1	1
Software code	1	1
Video teleconferencing	1	1
Remote execution of software	1	1
Formulas	1	1

Note: Percentages do not add up to 100 percent because of rounding.

- ◆ Finding:
 - ▶ The NDVL will be called upon to deliver complete documents, with tables, photographs, and layout intact.
- ◆ Conclusion:
 - ▶ The NDVL must be a multimedia-capable system. As it becomes easier to produce multimedia documents, more STI will be delivered in this manner. A good example is the Numerical Aerodynamic Simulation program (on the Internet at <http://www.nas.nasa.gov>), a multi-site program that communicates the results of its research, including video clips, via the Internet.

Current STI Search and Retrieval Environment

The next topic in the focus groups was the tools search and retrieval used to access these sources of information.

Of the 85 responses, 36 users (42 percent) currently go to the library to use the named information sources. Forty nine respondents (58 percent) are accessing information sources from their desktop computers — either Internet-based resources or library resources via a LAN — and contacting the librarian via E-mail.

Optimal STI Search and Retrieval Environment

The next question asked users to select or describe the preferred means of search and retrieval. Only 50 participants responded to this question. Of that

number, 30 (60 percent) preferred desktop access to information sources, 14 (28 percent) preferred to combine access to library personnel with direct access to information sources (all available via their desktop computers), and 6 (12 percent) preferred to go to the library and get help from library staff. One user's comment summed it up: "I'd use all of these, depending on the difficulty of the question."

◆ Finding:

- ▶ The vast majority of users (88 percent) prefer to use their office computers to reach the information resources they need, either by connecting directly to STI databases or by connecting to the library staff, who would then retrieve information for the users.

◆ Conclusion:

- ▶ Since 58 percent of respondents are already using on-line information sources, a network-based search and retrieval system should be well received by this audience, and training costs should be lower than initially anticipated.

System Performance Requirements

The next two questions addressed system performance, from the standpoint both of query response and of delivery of the items (articles, books, etc.) requested. Answers to queries are needed as indicated in Table 2-5, while requested items must be delivered as shown in Table 2-6.

Table 2-5.
Performance Required in Query Response

Interval	Number of responses	Percentage of total
Immediately to within 1/2 hour	25	47
Overnight	22	40
Within 2 or 3 days	4	7
Within 1 week	3	5

Note: Percentages do not add up to 100 percent because of rounding.

Table 2-6.
Performance Required in STI Delivery

Interval	Number of responses	Percentage of total
Immediately to within 1/2 hour	9	20
Overnight	5	11
Within 2 or 3 days	15	34
Within 1 week	15	34

Note: Percentages do not add up to 100 percent because of rounding.

◆ Findings:

- ▶ These responses are not clear cut. The same user sometimes needs immediate query response and information delivery (when a question on a "hot topic" is received) and sometimes needs overnight query response and delivery within a week. This variation is unpredictable, so to satisfy both conditions, maintaining immediate query response and delivery within a few minutes to a half-hour is needed. However, speed comes at a cost.
- ▶ Some delays in delivery of items beyond one week are due to unpredictable response to interlibrary loan requests. But the existing interlibrary loan networks will probably never meet the stated performance requirements for delivery.

◆ Conclusions:

- ▶ If on-line access to databases and library staff is provided, the query performance parameters can be met. Most on-line information sources provide immediate query results. Overnight query response may be the case when the user sends a query request to the library staff. Then, because of the need for coordination with the user (either a reference interview over the phone or via electronic mail), this performance parameter may not be met.
- ▶ Item delivery performance requirements can be met, but with easily identified, immediately visible costs. If documents are delivered by facsimile, almost all performance requirements can be met; most documents will be faxed to the user within 24 hours, and in some cases, within 1 hour. Costs of document delivery vary, but costs between \$15 per article and \$30 per article would be common. Participants in focus groups were often shocked by these costs.
- ▶ Once convenient access to databases and library staff is provided, use of STI resources will rise. Thus "STI system" (database access and document delivery) costs will rise, while the accompanying savings in

the research budgets may not be visible or immediate. If the NDVL is developed, its effectiveness and savings should be measured for at least two years.

Value of an Optimal STI Search and Retrieval System

The next question for the focus groups was the value of a search and retrieval session in an "optimal" environment — for most participants, one that incorporates STI search and retrieval and interaction with library staff in one on-line system, accessible from the desktop computer. This question proved to be very difficult for the focus groups — most respondents would not attempt to estimate this value. They gave responses such as "what is one idea worth?", "inestimable," and "savings are substantial when they prevent duplicative work." However, we did get quantifiable responses from 21 participants.

Some answers were given in terms of project size: "5 to 10 percent of project budget," and "at least 1 percent of program cost" (2 votes). Others were given in terms of labor saved: "4 to 5 hours per week," "one week per person per year," "2 to 4 of my weeks per year," "1 to 2 manweeks per manyear," "15 to 20 percent of a researcher's time," or "10 percent of a researcher's time."

Other answers were given in dollar terms, mostly related to labor savings: "\$5,000 per employee per year" (2 votes), "\$10,000 per year per user," "\$10,000 per manmonth," "\$140,000 per year saved in lost labor due to time spent searching now," "a few thousand per employee per year," "\$10,000 to \$30,000 per year," "\$700 per session," "\$50 per query" (2 votes), "\$100 per hour" (of system use?), and "\$5 per journal article."

The last response cited is a revealing one. As an example, the UnCover service charges a minimum of \$8.50 plus copyright fees per article for overnight document delivery; obviously NDVL users will pay higher prices for articles from the more obscure journals, extra for rush service for immediate fax delivery, etc. In general, the users of STI are ignorant of the costs and the changes in this market's pricing policies.

Another response was also revealing: "Supporting scientific and technical managers is difficult, and until they are satisfied, the STI budgets will continue to be reduced." It is true that providing the STI needed to stay abreast in technologically driven fields and simultaneously meeting the needs for management information is especially difficult. The library can supply information from outside sources and deliver it on demand in an integrated environment. The library cannot provide the internally generated management information in the same system; this is not within the library's purview. The best solution would be to use a standard interface for the STI system, to have a high probability of being compatible with the management information systems at a given site.

- ◆ Finding:
 - ▶ No hard estimates can be given of the value of the contemplated system. If we use the figure of \$150,000 per man-year, and conservatively estimate savings on the basis of responses related to labor or time saved (not as a percentage of program cost), we have the users estimating an average savings of \$10,000 per man-year.
- ◆ Conclusions:
 - ▶ Users of the system need to be made aware of the market price for STI and the cost of the various options the system provides.
 - ▶ The best estimate of operating costs and savings resulting from such a system can be made by testing it in a pilot mode, with users tracking savings achieved and the system tracking costs accrued.
 - ▶ The system must provide a mix of free and fee-based services and make the costs and trade-offs clear to the users so that they can decide how much to spend.

Users' Production and Dissemination of STI

The focus groups also discussed their production and dissemination of STI. Although technical reports and DTIC were understood to be the "default" dissemination channel, they were cited only 14 times. The Internet, World Wide Web pages, E-mail, and file transfer protocol (ftp) were cited as the dissemination mechanism a total of 15 times. Open literature was cited 12 times, professional society presentations 6 times, and internal dissemination (within the division or within the center) 3 times.

- ◆ Finding:
 - ▶ A surprising number of respondents (30 percent) are comfortable using Internet tools to communicate their research findings and to provide public awareness of their capabilities.
- ◆ Conclusion:
 - ▶ The STI system should incorporate Internet tools for peer-to-peer communication and be consistent with Internet initiatives (such as DTIC's STINET and other information systems) in the NLCCG technical community.

The NLCCG Technical Archives

The focus groups were asked about their awareness of and use of the NLCCG Technical Archives. Only one respondent had actually used the NLCCG Technical Archives, and only he and one other respondent were aware that they existed. When the scope and purpose of the archives were explained, most respondents were lukewarm in response; most would like to know more about their contents before stating whether they would use this resource.

- ◆ Finding:
 - ▶ The NLCCG Technical Archives may be of use to the managers in this community, but it is difficult for users to estimate how much they would use the resource, without the ability to browse their contents.
- ◆ Conclusion:
 - ▶ It would be possible to mount the Technical Archives in phases by first digitizing the Finding Guide and making it available to the user community and then, on the basis of user response, digitizing the rest of the archives as image files available via the STI system.

Availability of Books and Interlibrary Loan Satisfaction

The next question, on books and interlibrary loan, elicited inconsistent responses. Some responses were positive (e.g., "I generally find the books I need" — 21 responses) or at least mildly so (e.g., "Interlibrary loan is OK, given the constraints; of course, I'd like it to be faster" — 11 responses). Others were negative (e.g., "No, I can't get the books in any reasonable time; by the time they are received, the problem is solved" — 19 responses) or at least mildly so (e.g., "Interlibrary loan is not fast enough" — 16 responses). There were also a few off-topic responses, such as "The journal subscription budget at this Center has dropped by 50 percent over the last 10 years" and "Conference proceedings are the real problem; by the time they appear in book form, it's too late, and foreign conferences are too costly for the content."

- ◆ Finding:
 - ▶ In general, interlibrary loan does not meet the item delivery requirements specified (99 percent of respondents would like the items in one week or sooner). As the speedup in innovation increases, requests for STI will require quicker turnaround times, and this issue will become more urgent.
- ◆ Conclusion:
 - ▶ The STI system should incorporate mechanisms to provide faster delivery of requested items. A union catalog of the holdings in the NLCCG

community libraries, an automated request for interlibrary loan, and a courier service to transport items to the requesting library could be provided. Delivery speed should be tracked, so that progress toward the required speed can be measured.

Access to STI Produced Outside the United States

The last question discussed in the focus groups was the need for access to foreign STI and translation services. The answers were No (20); Seldom (10); Occasionally (3); and Yes, Japanese (7), Russian (6), German (6), and French (3).

- ◆ Finding:

- ▶ Given the inconsistent nature of these responses, access to foreign sources has a lower budget priority than providing an adequate book and journal budget.

- ◆ Conclusion:

- ▶ This problem is not urgent, and Globalink (a machine-translation vendor) software provides Internet-based translation services, currently priced at two cents per word. The inclusion of on-demand translation services in the pilot system would further refine the demand for, and characteristics required of, this service.

Relative Importance of Various Services in the NDVL

After the first four focus groups had been conducted, a set of common needs emerged:

- ◆ Browse journals — in most cases, this consists of reading the table of contents for a specific set of journal titles.
- ◆ Search the holdings of the local library — in most cases, this is the center library of primary importance because of the collection's focus and ease of delivery.
- ◆ Locate standards and specifications — both industry and MILSPECs.
- ◆ Order needed documents from the desktop — either via the library or directly from the publisher or document delivery service.
- ◆ Locate peers with similar interests and experience — either as part of research of prior work or to find partners for projects.

- ◆ Receive alerts of new publications — the user registers for certain areas of interest and then periodically receives listings of new publications in those areas; those publications can then be ordered directly.
- ◆ Receive notices of new titles acquired by the local library.
- ◆ Search the collection of documents produced locally — usually within the center.

In subsequent focus groups, participants were asked to rank these requirements in order of importance, including deleting services they did not need and adding in any service they required that was not on the list. About 90 participants provided useful responses to this question; Table 2-7 summarizes these responses.

Table 2-7.
Relative Order of Importance of NDVL Services

Rank	Journal ToC	Local library search	Standards and specifications	Desktop ordering	Locate peers	New publications	New library acquisition	Search local documents
1	28	33	11	5	8	3	1	3
2	16	27	9	8	12	5	3	8
3	15	11	6	17	10	9	10	12
4	11	7	8	12	12	10	11	12
5	3	3	4	18	9	13	13	11
6	2	3	8	5	8	7	21	13
7	2	1	7	5	10	19	10	10
8	3	2	25	7	5	9	5	4
Total	80	87	78	77	74	75	74	73

The following is a list of these services in order of importance:

1. Search the local library holdings
2. Browse journals' tables of contents
3. Order needed items from the desktop
4. Locate peers with similar interest/experience
5. Search among documents produced locally
6. Locate Military Standards and MILSPECs

7. Receive alerts of new publications in area of interest
8. Receive notices of new items acquired by the local library.

SOURCES OF REQUIRED STI

DTIC information resources (including information on industrial analysis centers such as the CPIA) are available via the Internet (see <http://www.dtic.dla.mil>). A copy of the directory of information products available at that address is shown in Appendix B.

Aerodynamic information is available from NASA via the Internet (at <http://www.sti.nasa.gov>). The directory of information products available there is included in Appendix C.

CENDI's directory of information available via the Internet is included in Appendix D and can be found on the Internet (at <http://www.dtic.dla.mil/cendi>).

The Institute of Electrical and Electronics Engineers (IEEE) maintains a presence on the World Wide Web that furnishes some of the information requested by the focus groups, although the journals themselves are not provided electronically. A similar service is offered by the Institution of Electrical Engineers (IEE), producers of the Inspec database, from a server in London. The directories of information products available from these societies are included in Appendix E.

Peer discussion groups are available through any server that provides a newsfeed, including the science/engineering (sci. and sci.engr.) hierarchy. List-servers are another form of discussion group and require only Internet-capable E-mail. Private discussion groups can be established for collaboration among project members regardless of location, as long as one site maintains either the news server or listserver for the group. Suggested newsgroups of value to the NLCCG technical audience are listed in Appendix F.

The World Wide Web pages mentioned in the focus groups are available to users who have full Internet connections from their desktop computers. Some of these web servers may be restricted to certain audiences (for example, web sites supporting a project that are restricted to project participants and sponsors). The client software needed to view the web pages in their entirety is free or low cost. Examples of useful web pages are included in Appendix G.

Books and other texts may be located through a searchable on-line public access catalog (OPAC).¹ Many library catalogs are available for searching via the Internet, usually through a web interface. However, discovering and locating

¹The best OPAC would contain the holdings of all the libraries in the NDVL community. A union catalog of these libraries' holdings should be developed.

the text solves only part of the requirement; these documents still need to be delivered to the requester. Several university and other libraries that could be useful interlibrary loan partners are listed in Appendix H.

The Early Bird and Navy News Service, as well as trade publications such as the *Electronic Engineering Times*, are available via the World Wide Web. The former are available from DTIC, the latter from <http://techweb.cmp.com/>. Samples of their web products are in Appendix I.

Electronic journals are a growing phenomenon. These attempt to mimic the print journals in quality (many are refereed), but with faster production and dissemination. A partial list of available journals is included in Appendix J.

The traditional sources of STI, such as STN — the Scientific and Technical Information Network — and ISI — the Institute for Scientific Information — allow connection to their data hosts via the Internet. After connection via telnet, users log in with their passwords and are charged according to the amount of time spent connected to their host. There is a good possibility that these data brokers will provide graphical browsers for their systems, accessible via the Internet or the web. A sample of the information available from these sources on the web is in Appendix K.

While all of these sources are useful for locating (or discovering) information published by various means, journal articles, technical reports, conference proceedings, etc., still must be delivered on paper for the most part. Some services combine information discovery and document delivery. For example, UnCover provides a database of the tables of contents for 17,000 magazines and journals. Searching the database is free, and users pay for article delivery only.

Table 2-8 gives examples of the various information delivery services and their fee structures.

Table 2-8.
Sources of On-Line STI Delivery

Service name and location	Contents and service points	Fee structure
UnCover http://www.carl.org/uncover	Index of the tables of contents (ToCs) of journals and magazines. Six million articles available for on-line ordering and fax delivery. Reveal service delivers ToCs for chosen journals via E-mail.	Database search is free; article delivery is \$8.50 plus copyright fee (varies). With UnCover password (\$900 per year), \$2 discount per article.
OCLC ContentsAlert http://www.oclc.org	Delivers ToCs; 10,000 serial titles available.	One-time fee to establish account: \$50. ToC of one serial for one year to one person: \$4. ToC of one serial for one year to a library for redistribution to any number of users: \$14.
OCLC Electronic Journals Online http://www.oclc.org	35 on-line journals; uses custom web browser.	Free
OCLC FirstSearch http://www.oclc.org	Searching in 50 databases, and in early 1996, delivery of some full-image articles.	Subscription pricing allows unlimited searching; cost based on databases included in subscription. Per-search pricing sold in blocks of 500 searches, good for two years.
UMI (University Microfilms Inc.) http://www.umi.com	ProQuest Direct (proprietary search software, but TCP/IP compliant) to search the UMI database. InfoStore for document delivery.	
TelTech http://us.teltech.com	TelTech provides research performed by specialists in a number of proprietary and other on-line databases, and consultant services. All are accessible to account holders via the Internet. TelTech Alerts (description of an advance, potential application, technology transfer possibilities, and contact information for the researchers who prepared the brief).	TelTech Alerts: \$3,900 per year for weekly electronic delivery. May be redistributed to multiple users. Each additional Alert category: \$1,700 per year. Single-user license: \$990 per year.

Interview Guide

Your Scientific and Technical Information (STI) Requirements

What is your focus or discipline?

Aeronautics
Agriculture
Astronomy / Astrophysics
Atmospheric Sciences
Behavioral / Social Sciences
Biological / Life Sciences
Chemistry
Civil Engineering
Command and Control
Communications
Computer Science
Countermeasures / Detection
Earth Sciences
Electronics
Electrical Engineering
Energy Conversion
Environmental Science
Geophysics
Guidance
Industrial Engineering
Marine Biology
Marine Engineering

Materials
Mathematical Sciences
Mechanical Engineering
Medical Sciences
Methods and Equipment
Meteorology
Military Sciences
Missile Technology
Navigation
Oceanography
Optics
Ordnance
Physics
Propulsion and Fuels
Reliability
Remote Sensing
Robotics
Safety
Simulation / Modeling
Space Technology
Test Engineering

Other: _____

Describe your 'work role'--researcher, program management, engineer, planning, etc.: (For example: 'I perform basic research in chemistry, designing new compounds; much of my work is in 6.1 programs, occasionally 6.2'...)

How often do you search for information? How often do you use the library? What libraries do you use (branch, Center, nearby university)?

What sources of scientific and technical information are most useful (these could be databases, journals, bulletin boards, trade publications, professional society membership, etc.)

For each useful source:

How do you use it?-- in the library, online from your desk or a library computer, email, in a newsgroup, in person?

How frequently?-- daily, weekly, etc.

What do you get from the source? text, graphics, raw data, models?

General STI environment:

What's your preferred STI search and retrieval environment? At the library? at the desktop? with the librarian? electronically connected to the library/librarian?

How quickly do you need answers to a query?--immediately, overnight?

How quickly do you need the item (article, book, data file)?

Can you 'guesstimate' the maximum value to you (\$\$. \$\$) of an STI search/retrieval session in an optimal environment?

STI generation/distribution:

Do you generate scientific/technical information? how do you disseminate/distribute?

If you are a manager, are you aware of the NLCCG Scientific/Technical Archives? How would you use them? How much?

Do you find the books you need? If you request an interlibrary loan, is it fast enough? Can you suggest improvements?

Do you need access to foreign STI and translation services? What sources or languages?

Computing Platform/Network: (now or within next 12 months)

What type of workstation/operating system do you use? (example 386 PC, Windows; SGI, Unix.....)

Internet/World Wide Web access do you have? (example: TCP/IP from desktop, Mosaic; dialup, Lynx)

The following table lists the types of services other STI users have described as part of the system they need. Edit this list (add/delete items) to reflect your needs. If you can, rank the items, with 1 being the most important, etc.

	Browse the Table of Contents of certain journals (journal titles vary)
	Search Center Library and other library catalogues
	Find Milspecs and other standards and specifications
	Order books and other items from the desktop
	Find one's peers either through their publications, resumes, or common-interest groups
	Get alerts of upcoming new publications
	Get lists of new titles acquired by Center library
	Search the collection of documents produced on-Center

Questions? feel free to send them to: dduncan@lmi.org

For the Librarian conducting focus groups or sending out questionnaires:

The purpose of this study is to deliver more and better Scientific and Technical Information to you, when and where you need it. The general vision is of a system that provides access to information via your desktop workstations. That doesn't mean the librarian is out of the loop. We'll be available electronically as well as in the ways you currently use our services. We also don't expect you to compose complex queries yourselves; we'll continue to provide that service.

In considering sources of STI, we want you to tell us about any source you use to get the information you need to do your job. Those sources can include other people, as in colleagues down the hall, or off-Center; it can include Internet newsgroups and listservers. Please tell us about those sources as well. Other STI sources could be software repositories and ftp sites, web pages, etc. If it is useful to you, please tell us about it.

There is an email address on the questionnaire--if you have any questions, please send them to me or that email address.

CHAPTER 3

Access and Delivery Options

USER INTERFACE

The requirements for the NDVL user interface are that it be easy to use, require little training, offer access to most of the relevant information available on line, and provide relevant information without “information overload.” The first requirement can be met with a graphical user interface (GUI). Exceptions would be made in the case of the visually handicapped — when a text display and a reader could be used — or the physically handicapped — when an interface with fewer navigation requirements, or simpler pointing devices, could be used.

GUIs are preferable to text- or menu-based interfaces for the NDVL, because users may use the system only infrequently. A GUI, with its visual cues, is easier to remember, provides only operation choices that are relevant given the current state of the system, and requires less training than other interfaces. One of the reasons why the World Wide Web has gained such rapid and enthusiastic acceptance is that it requires only that the user be able to “point and click.”

The NDVL is envisioned as a distributed system in which different system components reside on different hosts. Given the power of the computers on the users’ desktops, the best technical architecture for the NDVL is a client-server architecture. The World Wide Web is an example of a client-server type of system, in which the software controlling data input and display of output resides on the user’s machine (the client) and the core data manipulation and database extract activities occur on a remote host (the server.) Since the client software resides on the user’s desktop computer, different client software must be maintained for each platform — MS-DOS, MacOS, Windows95, various types of UNIX, etc. If the NDVL is built as a custom client-server application, it would be necessary to build and maintain the client software for all the user platforms in the NDVL audience — a costly exercise. However, if the web interface is used as the “front end” or user interface, it will no longer be necessary to write, develop, and maintain client software. It already exists, and it is available at little to no cost.

A web-based system can also support the handicapped users who have been mentioned. The NDVL web pages can be designed with a text reader in mind, providing text descriptions of any graphics used. Users with a nongraphical display can connect to a host running the Lynx interface (a free software package developed at the University of Kansas), and from that host, access the NDVL. From that point, all web pages will be presented in ASCII text. Navigation in

Lynx is restricted to only a few keys: the arrow keys, the tab key, and the return key.

All of the information described in Appendices B through K is available using a World Wide Web browser (the client software) and full Internet access at the user's desktop computer to connect to the various servers maintained by NASA, DTIC, IEEE, etc. Access to this information is free. However, much of the information required by NDVL users (journal contents and databases such as Inspec) is available only to holders of accounts with document delivery and database vendors such as UnCover or Dialog and STN. Once those accounts have been established, it is possible to access the databases and order documents via the Internet, usually with a telnet session.

As an example, UnCover Corporation (a for-profit document delivery service, spun off from the Colorado Alliance of Research Libraries, CARL) allows account holders to order documents via a telnet session with the UnCover host. Both Dialog and STN allow telnet access to their databases to account holders. Telnet clients are routinely installed as "helper applications" with web client software.

For access and delivery of books and texts, interlibrary loan is the lowest-cost alternative. It can be requested once the document has been located in a partner's library catalog. On-line public access catalogs (OPACs) are usually searchable through a web interface; many are based on the Z39.50 protocol, and web clients support Z39.50 transactions.

The most useful OPAC for this community would be a union catalog of the library holdings in the NDVL installations. Combined with access to the OPACs of universities and other research centers with interests in the same disciplines (see Appendix F), this "virtual collection" would have the highest probability of meeting the needs of the NDVL community. The NDVL union catalog does not presently exist but could be available in the next 24 months. The key factors in assembling an optimal set of partners are that the participating institutions support similar disciplines and that they agree to speedy procedures.

It would also be possible to connect users to publishers and bookstores to place orders over the web, but doing so requires use of a secure web client and a credit card for the purchase. If the user wishes to buy the book with a personal credit card, this option is available. However, use of any secure web client should be at the discretion of the user, with no guarantee of security made by the Navy.

Connecting end users to brokered databases is more complex. Often the search software provided on the vendor's system is proprietary and designed for the expert searcher. Some of the vendors provide end-user interfaces (such as STN's STN Express, client software loaded on the end-user's computer), but these are also proprietary and not available via the web. It is possible to build interfaces to these vendors' systems using the web (employing the Common

Gateway Interface, or CGI, scripting feature), but doing so adds a number of costs, not the least of which is maintenance.

Building an interface to heterogeneous remote databases has been done (in prior Logistics Management Institute studies for U.S. Army major systems commands and for NASA, this approach was taken), but it amounts to the design, programming, and maintenance of a "middleware" system. Such a system provides an appropriate query interface to the user to collect the query parameters and translates that input into a valid query in the appropriate syntax for the given remote system or systems.

Before such an approach is taken for the NDVL, it would be better to contact the vendors of the needed databases and inquire about plans for web-based query interfaces. Many of these vendors are already interested in building such interfaces (for example, Jane's Electronic Information System is demonstrated on the Internet with a web interface at <http://www.btg.com/janes/eisdemo.html>). The user interface for the NDVL must strike the right balance between ease of use and depth of interaction with the remote systems. (Generally, as interfaces to remote heterogeneous systems become easier to use, the amount of power the user has in manipulating the remote systems is reduced.) If it is possible to collaborate with database vendors on their web-based query interfaces to achieve that balance, it would be worth the effort.

MEDIATED SEARCH VERSUS NONMEDIATED SEARCH

The Navy's research, development, test, and evaluation (RDT&E) users sometimes need assistance in locating information, for a variety of reasons. It is not possible to predict with precision the number of queries those users will prefer to perform themselves as opposed to the number they request the librarians to perform. The choice between those options is based on personal preference, the degree of difficulty of the question, the timeliness and precision needed in the response, and other considerations. It is probable that every user will need a mixture of both direct access to on-line information (especially for queries that are routine or well understood) and library-assisted access. The NDVL should provide both.

The user should be able to choose to perform either type of query and be able to switch with no loss at any time. For example, a user could use the web to access the NDVL page for his/her interest area (e.g., chemistry), find useful resources, download them, find a database of interest, begin to query, realize that the database is better queried by a professional, and be able to forward the session history up to that point to the librarian for continuation.

Another type of mediated search is typical: the user discusses with the librarian the purpose of the search, the type of information looked for, the preferred types of sources, etc. This procedure is usually part of the reference interview conducted in person at the library. The most effective searching is done with the librarian accessing the data sources while the user watches and

gives feedback on the quality and types of information found along the way. The only drawback is that the user must go to the library, and doing so sometimes is such a barrier that the search never takes place. It would be optimal if both the reference interview and the joint search by the librarian and the user could be conducted while the user remains in his/her office.

It is technically possible to use either e-mail or Internet Relay Chat to conduct the reference interview. However, neither of these technologies allows the spontaneous exchange of ideas that spoken conversation permits. It would be best if the reference interview could be conducted over the phone or by videoteleconference. Videoconferencing software that runs on LANs is available now, but it has a high overall cost because of the need to put a camera on every participant's desktop computer. The telephone will probably suffice for conversations between users and librarians for the next few years.

The joint-search session can be conducted over the Internet; there is software that allows one user to control the display on another user's computer. Unique software (recently acquired by America Online, Inc.) provides the ability to conduct "tours" of the Internet this way. The librarian could conduct the search from a library PC, and the user on the telephone could comment on the intermediate search results being displayed on his/her office computer. Although such software represents currently emerging technology, with the rapid development of tools in the Internet environment there will probably be off-the-shelf, robust software available from multiple vendors within 12 to 18 months.

LICENSING

Database brokers, such as Dialog and STN, provide their more popular databases in two forms: on line, and on CD-ROM. The on-line version has the advantage of being current (updated nightly, weekly, or monthly) and is normally licensed by user account. Charges are usually based on how long the user account is in use at the database host, essentially a connect-time charge. CD-ROM versions, on the other hand, can be multiuser if they are mounted on a server on a LAN. This arrangement generally is more economical if the number of users of that particular database on that LAN justifies the cost of the multi user license. However, the data are less current than those in the on-line version; ordinarily CD-ROMs are updated quarterly.

The optimal type of license would allow NDVL users the currency and wide-area access of the on-line product while employing a licensing model like that of the CD-ROM. Since the NDVL offers a whole new model of interaction of end users, librarians, and database brokers, the volume of system utilization is impossible to predict. For example, the number of queries (and the charges under a traditional on-line pricing scheme) may go up, because it will be increasingly convenient for users to access brokered databases. However, if the center library is also available, users may opt to search local and other Navy resources more often. Given the potential for costs to escalate under traditional on-line licenses, a new licensing arrangement should be negotiated.

The surge in Internet use has created a whole new market for on-line database brokers; however, the availability of free information has eroded their "seller's market" for on-line information. For example, the U.S. Patent and Trademark Office has made the patent bibliographic database available on the web at no charge; this information was formerly available only through for-profit brokers. Until the on-line information marketplace stabilizes, there is a window of opportunity to negotiate new licensing arrangements with database brokers.

NLCCG TECHNICAL ARCHIVES

Regarding the NLCCG Technical Archives, it was difficult for the members of the focus groups we interviewed to predict their use of this resource, because so few were aware that it exists, and they did not know what type of information they might get from it. The Archives could be made available on the Internet; doing so would require that all of the items in them be converted to a form that can be displayed via the Internet. For the Finding Guide, that is a fairly simple conversion from its present word processing file to Hyper Text Markup Language, so that it can be browsed with the web. Paper documents would have to be scanned and saved as image files, since they contain varying typefaces and may have handwritten portions. It would be possible to save the images as Portable Document Format (PDF) files and provide the Acrobat Reader. (Adobe Systems Incorporated makes the Acrobat Reader freely available) for users to download and install. The scanning and storage would be a much larger effort than the effort required for the Finding Guide.

A good first step would be to mount the Finding Guide on the Internet, allow users to search and browse it, and provide an automated request form for fax or postal mail delivery of the needed documents from the Technical Archives. Once this arrangement has been in operation for six months to a year, with appropriate public awareness provided through the NDVL, the patterns and volumes of use should be assessed for possible mounting of the documents themselves.

CHAPTER 4

Navy Distributed Virtual Library System Requirements

HUMAN RESOURCES

Designing, developing, deploying, and maintaining the NDVL will require system designers, programmers, librarians, and Hyper Text Markup Language (HTML) authors. The deployment and maintenance phases will also require support from each site's network administrator and systems support staff.

Systems design will best be accomplished as a joint effort between users and librarians, facilitated by someone skilled in design of web interfaces and a programmer. This phase should incorporate rapid prototyping and prototype testing by a representative users group. Some of the users participating in the prototype test should be from the portions of the community not presently connected to the Internet (certain divisions at Naval Surface Warfare Center – Indian Head, Maryland, for example). Thus the entire concept, including providing connectivity to new users, can be tested.

Phase II — Design, Develop, and Test Prototype

Prototype design and development will take about six months. The task will require a system designer about 50 percent full-time equivalent (FTE), a programmer experienced in Internet applications at about 67 percent FTE, several librarians from different centers/labs at about 10 percent FTE each, and users for the alpha test at about 5 percent FTE each.

The prototype should be tested and improved in accordance with user feedback during another six-month period. This test period will require the same participants at about the same rate for another six months, plus the support of each site's network and systems support staff at about a 33 percent FTE.

During this phase, courses in Internet research skills for librarians and end users should be developed, and training in HTML authoring will be made available if enough librarians express an interest. Otherwise, additional web authoring can be performed by the junior programmers on the project's programming staff. These resources can be supplied remotely, as can system administration resources (i.e., the programming team need not be at the same sites as the NDVL servers).

Phase III — Deployment to All Sites

It will take about six months to complete deployment of the full-scale NDVL to all sites. It will require two library staff at each site for two months at about 25 percent FTE each. Also, network and systems support staff will be needed at each center at varying rates, depending on how many users need to have Internet connectivity and client software installed. The programming staff will remain available for assistance at about 15 percent FTE.

Training for end users will be conducted at two levels: for users experienced in using the web, an orientation to the NDVL resources can be given in a 90-minute class conducted by library staff or professional trainers. For users who have little prior exposure to the Internet and/or web, a three-hour course will suffice. This course should be taught by professional trainers.

Training for librarians in Internet research techniques will require a class lasting about three hours, and training in HTML authoring will require either a half day or a full day, depending on the level of complexity the librarians are willing to attempt in developing web pages for their communities.

HARDWARE AND SOFTWARE

Client Software and Hardware

For the users (both librarians and others), the client software will consist of a web browser with helper applications installed and configured for telnet, file transfer protocol (ftp), and display of tiff, gif, and jpeg images. Helper applications to play movies and sound files are optional. It is possible to get site licenses for Netscape and other vendors' browsers; the Mosaic browser is free to government users, and the Navy Internet Kit will not require any licensing. Client software, at little or no cost, is available for personal computers running MS-DOS, DOS/Windows, Windows95, or Linux; for Macintosh machines running the MacOS, and for workstations running UNIX and other operating systems.

Server Software

For the server or servers producing the NDVL web pages, software providing access control is needed. All web server software offers the capability to restrict access by the *client computer's network address* (IP/domain restriction). Because the NDVL will furnish access to services on the basis of employment status (some services are for certain employees only), access based on the *user's* characteristics (not on his/her computer's characteristics) is needed. IP restriction will not suffice, since it will not restrict access by on-site contractors, nor will it allow employees to use the NDVL from sites not at the Center. Thus, restriction based on a user's identification and password is necessary.

Since Internet traffic is passed as unencrypted packets, and software (so-called "sniffers") exists to copy or redirect selected packets from network traffic, a server that affords encryption for the user ID and password is needed. What is required is web server software that provides either secure http (shttp) or a secure socket layer implementation. Such software is available from a number of vendors (Netscape Communications Corporation, O'Reilly and Associates, Open Market, and others).

Given the geographic distribution of the warfare centers and the Naval Research Lab, and the possibility of high rates of traffic on the Internet, it may be necessary to make a "mirror" of the NDVL web server, so that both West and East Coast users have good performance. "Mirroring" is a technique used to create an identical copy of a given server, either for redundancy (to provide service in the case of disaster) or for performance reasons across large geographic areas. If the Internet becomes congested (a condition that will continue to occur sporadically), it is prudent to have available a mirror of a busy site on either side of the congested portion of the network. For example, servers furnishing popular software often establish mirror sites on either side of the Atlantic, or on both the East and West coasts of the United States. The software to mirror UNIX-based web servers is available in the public domain.

Server Hardware

The hardware platform for the NDVL web server and any mirror site theoretically could be any of a number of machines, from a personal computer or Macintosh to any workstation. In practical application, the most robust configuration is a mid-range workstation running UNIX or NT. At the time of this report, the UNIX option is the best choice, although NT may be the operating system of choice by the end of 1996.

Currently, more tools are available for the UNIX operating system, and this software is often in the public domain. However, the UNIX operating system presents many security risks, and a knowledgeable technical support staff is required to configure and maintain the system. Support staff with the requisite skills may be expensive. Although the NT operating system is easier to configure and offers the potential to be more secure than UNIX, NT is in its infancy, and its security provisions have yet to be proven.

Network Bandwidth Requirements

Without a prototype test period, we cannot predict the NDVL traffic with any precision. However, other organizations with a user population in the RDT&E field have had some experience in providing web-based access to STI. At NASA, the STI Program is providing access to STI resources via the World Wide Web, and the servers supporting this access are connected to the Internet at T1 speeds.

We can, however, estimate the worst-case traffic: In the focus groups, users spoke of daily search activity when they had desktop access. Assuming daily searching from all 15,000 STI users gives us 300,000 search sessions per month. If the average search session results in five connections to various information resources, there will be 1.5 million connections per month. These connections will result in text traffic for the most part; only a fraction of the on-line STI available contains audio or video material, which results in the largest file sizes. Text documents average (according to Lycos' statistics) less than 10 kilobytes. At 1.5 million connections per month, there would result 15 billion bytes (15 gigabytes) of traffic for the entire NDVL (all sites) over a 30-day period. Such traffic levels are easily supported with current technology. There are sites such as Lycos, Inc., with over 25 million connections per month, and InfoSeek, with over 90 million queries per month, that can provide more detailed information regarding bandwidth requirements.

CHAPTER 5

Management Issues

ACCEPTABLE USE POLICIES

Early in the history of the Internet, when the network backbone was subsidized by the National Science Foundation, a set of "acceptable use" policies was developed. Among other things, it restricted commercial use of the Internet. When an organization extends Internet connection and tools to its employees, it is wise to develop a set of policies regarding use of those services for their intended purpose. For example, users should be reminded that the services have been provided for business use.

Use of the Internet for recreational or personal purposes should be limited, and conducted solely on personal time. If users find the Internet resources (newsgroups, listservers, and web pages) personally useful, it is possible to set up an account with one of the many Internet service providers (ISPs) now available. Some organizations offer assistance to their employees in setting up personal Internet access, such as making available information on local service providers, selling surplus computers to employees, or allowing employees to buy computers at corporate discount rates. The NDVL could provide a link to a directory of ISPs, such as the one maintained by the Yahoo directory service. Users should understand that certain activities (such as using corporate Internet resources for personal gain by advertising one's private consulting services) are clearly prohibited.

In addition to using the Internet to retrieve useful information, users can contribute information to public listservers and newsgroups. Users should be reminded that news postings and E-mail sent from the work site will bear their organization's name in the "From:" heading. Any posting or response will reflect on the organization. Users should be reminded that they should not post anything (even "private" E-mail addressed to one individual) that they would not wish to see attributed to them in a newspaper.

As users become increasingly educated about the possibilities of using the Internet, they may wish to use it to disseminate information on a larger scale. It would be possible for NDVL users to find information and software to establish their own web server or servers and anonymous file transfer protocol (ftp) sites. Appropriately secured servers (outside any firewall, uploaded files routinely scanned for viruses, etc.) should be provided, and users should be prohibited from running these services from their personal computers. The server used by organizations for division or project web pages should be maintained by the site's computer support staff, and appropriate user accounts and permissions

should be given to the RDT&E employees who wish to avail themselves of the various Internet services.

Users should be reminded that telnet and rlogin sessions are insecure and that their account information on the remote host can be compromised. They should check with the remote system administrator before using those connection services across the Internet.

There are many more issues inherent in providing Internet services to a community of this type. In general, the computer and network support staff should write an acceptable use policy that adheres to Navy policy and guidance and adds information specific to the installation. A copy of NASA's "Acceptable Usage Policy for the NASA Science Internet (NSI)" is shown in Appendix C.

RECORDS MANAGEMENT

The NDVL, as an STI search, retrieval, and delivery mechanism, will present few issues in the area of records management, because few business records will result from its use. However, if the web and other Internet tools are used to manage projects or provide collaborative environments, records may be created that should be maintained for archival purposes. Records management issues should be borne in mind by users of Internet tools in the NLCCG community, so that business records are not lost. In general, electronic communications should be assumed to be as important for preservation as their written counterparts are.

PROACTIVITY IN THE LIBRARIES

For the foreseeable future, the NDVL will be a blend of traditional library resources and digitally accessed and delivered materials. Eventually, more materials will be available in the digital format, but at present, most of the material to be delivered is on paper. The NDVL architecture must accommodate a combination of the two, so that as the balance shifts toward more digital materials, the system will continue to operate seamlessly, without a major shift in look, feel, or operations.

The librarians, as custodians of the NDVL system, will need to stay at the forefront of their profession, and they will need support from computer systems and network support staff also at the leading edge of their profession. It is not reasonable to expect the librarians to be experts in both areas.

For the near term, the single largest gain to come from combining the library staff's skills with Internet access for all staff will be the library's organization of Internet-based information and knowledge into coherent sets of information resources. Library staff typically are cognizant of their patrons' interests. If they have the tools and the time to construct web-based directories of resources for

their patrons' interests, they can greatly increase both the effectiveness and the efficiency of RDT&E activities at their site.

Using an NDVL web page (with its attendant access logs) as the entry point into the scientific and technical information on the Internet can also augment the librarians' insight into the interests of their users. One of the key ingredients in a successful organization is a clear understanding of the organization's customer base. By analyzing the access statistics of the NDVL web pages, the library staffs will be informed of their users' interests, where they might concentrate their efforts, etc. Users can participate actively in library planning by subscribing to library listservers or to private newsgroups or by responding to (infrequent) electronic surveys.

The librarians can use listservers or a private newsgroup to circulate information on new information resources, new acquisitions, etc. They can also assemble web pages of special interest to certain communities (for example, those performing multidisciplinary work), combining Internet-accessible resources from various institutions. If the library staff perceive a swell of interest in a particular area, they might archive the queries and retrievals done in that area within a six-month period for search and review by users, so redundant queries are avoided. These tools can be used in many ways; the possibilities for proactivity are limited only by the users' priorities and the library staff's time.

CURRENT COSTS

Information access costs are generated by the libraries in this community and by the RDT&E staff. The libraries contract for access to DTIC/DROLS, DIALOG, STN and other major database brokers. These costs are visible.

On the other hand, the RDT&E staff sometimes contract directly with various data and document delivery services, and the value of their contracts is difficult to ascertain. In addition, RDT&E staff will sometimes contract for technical support, and the associated data access and document delivery costs are completely hidden, since those on-line accounts belong to the contractor. However, we can estimate with confidence that these RDT&E staff and contractor costs together total over \$2 million per year.

FUTURE COSTS

Given the fact that existing hardware will be used for both clients and servers, and that much of the needed software is available at little or no cost, a major proportion of the NDVL total cost will come from licenses with various information sources and from development and maintenance staff costs. The personnel costs for design, development, and deployment (described at the beginning of Chapter 4 under the "Human Resources" section) will be about \$500,000. Maintenance costs for the NDVL will be about \$125,000 per year.

We cannot estimate the cost for database licenses and document delivery with any accuracy at present. However, if licenses with terms similar to those of existing CD-ROM licenses can be negotiated, the NDVL can provide to the entire community greater amounts of data than are currently offered to any one site, for about the same cost. Only a prototype test period and some preliminary agreements with a few database brokers will allow accurate estimation of these costs.

OTHER MODELS FOR THE DIGITAL LIBRARY

Internet Public Library

Currently, there are no models of true digital libraries beyond the research stages. Several attempts are being made to provide library services enhanced by digital communications networks currently in operation. These systems typically provide database searching from the desktop, access to reference staff from the desktop, document delivery on demand (either through document delivery services or through digital transmission and local printing), and web pages developed by the library staff collecting references to resources for particular subject areas. The Internet Public Library (at <http://ipl.sils.umich.edu>) is an example of this approach.

The Digital Library Initiative

Research efforts in the development of digital libraries are focusing on large-scale, all-digital library environments. These system designs require significant technical development to achieve their goals. For example, the current set of tools, the most advanced of which is the web, is not sufficient for a global-scale development. Once the information space becomes larger than a few large independent institutions, automated cataloging of information resources must be used. The current level of "semantic depth" achieved in cataloging web resources (usually the URL, the title, or rarely an abstract of the web page itself) is insufficient for meaningful searching of any large information space.

The most comprehensive example of digital library research is the joint NSF/ARPA/NASA Digital Library Initiative, which has funded six pilot digital library projects, each lasting four years. The participating institutions are as follows:

- ◆ University of California, Berkeley, focused on environmental information.
- ◆ University of California, Santa Barbara, focused on image and spatially referenced information (maps, etc.).
- ◆ Carnegie Mellon University, focused on video libraries.

- ◆ University of Illinois at Champaign-Urbana, focused on digital libraries for the engineering community.
- ◆ University of Michigan, focused on earth and space sciences.
- ◆ Stanford University, focused on computer science and computing literature.

Of these six ongoing efforts, the most pertinent to the NDVL effort will be the University of Illinois effort; the work at the University of California, Santa Barbara; and that of Stanford University, with its collection of computer science technical reports.

LabLink

LabLink is an initiative sponsored by the Director of Defense Research and Engineering Office of Laboratory Management and Technology Transition. It provides a vehicle for interaction and coordination among the DoD labs and also serves to let outside organizations find out about the DoD labs. LabLink's goal is to leverage the World Wide Web as a communication tool with and among the defense laboratories and centers, academia, and industry to enhance collaboration, partnerships, technology transfer, resource utilization, and laboratory productivity, quality, and empowerment while minimizing the disruptive effects of ad hoc data collection. This initiative is critically important to NDVL development and long-term operations. We have been in contact with the LabLink management since December 1994 and will continue to coordinate NDVL efforts with them.

Glossary

ACM	= Association for Computing Machinery
AIAA	= American Institute of Aeronautics and Astronautics
ARPA	= Advanced Research Projects Agency
ASCII	= American Standard Code for Information Interchange
ASME	= American Society of Mechanical Engineers
CARL	= Colorado Alliance of Research Libraries
CBD	= Commerce Business Daily
CD-ROM	= Compact Disk Read-Only Memory
CENDI	= cooperative organization of STI managers from multiple agencies
CGI	= Common Gateway Interface
CPA	= Chemical Propulsion Information Agency
DIALOG	= online information provider
DOS	= disk operating system
DROLS	= Defense RDT & E Online System
DTIC	= Defense Technical Information Center
FTE	= full-time equivalent
gif	= graphic interchange format
GUI	= graphical user interface
HTML	= Hyper Text Markup Language
IEE	= Institution of Electrical Engineers
IEEE	= Institute of Electrical and Electronics Engineers

ID	=	identification
IHS	=	Information Handling Services
INSPEC	=	Information Service for Physics, Electronics and Computing
IP	=	Internet Protocol
IRC	=	Internet Relay Chat
ISI	=	Institute for Scientific Information
ISP	=	Internet service provider
JASA	=	Journal of the Acoustical Society of America
jpeg	=	joint photographic experts group
LAN	=	local area network
LMI	=	Logistics Management Institute
MILSPEC	=	Military Specification
NASA	=	National Aeronautics and Space Administration
NDVL	=	Navy Distributed Virtual Library
NLCCG	=	Navy Laboratory/Center Coordinating Group
NSF	=	National Science Foundation
NSI	=	NASA Science Internet
NSWC	=	Naval Surface Warfare Center
NT	=	New Technology (Microsoft network server operating system)
OCLC	=	Online Computer Library Center, Inc.
OPAC	=	on-line public access catalog
PC	=	personal computer
PDF	=	Portable Document Format

RDT&E	=	research, development, test, and evaluation
Sci and Sci.engr	=	science/engineering
shHp	=	secure hHp
STI	=	scientific and technical information
STINET	=	Scientific and Technical Information Network
STN	=	Scientific and Technical Information Network
telnet	=	a virtual terminal protocol used on the Internet
tiff	=	tagged image file format
ToC	=	Table of Contents
TCP/FP	=	Transmission Control Protocol/Internet Protocol
UMI	=	University Microfilms, Inc.
URL	=	Uniform Resource Locator

APPENDIX A

Focus Groups

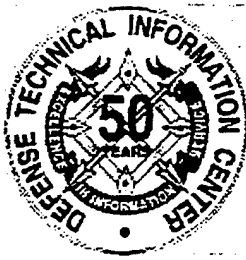
Focus Groups

LOCATIONS AND NUMBERS OF PARTICIPANTS:

- ◆ Carderock, MD
 - ▶ 2 groups, 17 participants
- ◆ China Lake, CA
 - ▶ 3 groups, 23 participants
- ◆ Dahlgren, VA
 - ▶ 1 group, 13 participants
- ◆ Indian Head, MD
 - ▶ 2 groups, 16 participants
- ◆ Newport, RI
 - ▶ 2 groups, 17 participants
- ◆ Naval Research Lab, Washington, DC
 - ▶ 3 groups, 21 participants
- ◆ Patuxent, MD
 - ▶ 2 groups, 10 participants
- ◆ San Diego, CA
 - ▶ 3 groups, 33 participants
- ◆ White Oak, MD
 - ▶ 1 group, 9 participants

APPENDIX B

Defense Technical Information Center Information Resources



Defense Technical Information Center (DTIC)

[About DTIC](#)

[What's New at DTIC](#)

[DTICW](#)

[Gopher](#)

[FTP to DTIC](#)

[DTIC Services](#)

Welcome to the Defense Technical Information Center (DTIC) Home Page.

This Home Page is under *continuous* review and revision.

Please use this form to let us know you've visited our pages and to provide us your comments, questions or suggestions.

This is a U.S. Government Computer System, read this warning.

The Defense Technical Information Center (DTIC) is a major component of the DoD Scientific and Technical Information Program (STIP) within the Office of the Under Secretary of Defense for Acquisition and Technology (OUSDA&T) and reports directly to the Director Defense Research and Engineering (DDR&E).

DTIC contributes to the management and conduct of Defense research, development and acquisition efforts. This is done by providing access to and transfer of scientific and technical information for DoD personnel, DoD contractors and potential contractors, and other U.S. Government agency personnel and their contractors. DTIC's Administrator is Kurt Molholm; DTIC's Deputy Administrator is R. Paul Ryan.

Organizations that register with DTIC are considered members of the DTIC Users Group. The DTIC Users Council is the governing body of the DTIC Users Group and represents those organizations registered with DTIC. It is empowered to act on behalf of the DTIC Users Group working with DTIC to address user concerns.

- Find out more about the DTIC Users Council.
- The following amended User Council By-Laws were adopted at DTIC's 1995 Annual Users Conference

Learn more about our products and services and the DTIC offices that produce them.

- Learn About DTIC (Find links to tools that can help you learn about us: DTIC Listservs, Briefings & Tours, Product "Demonstration Days," Conferences, and much more.)

- Where is DTIC? (Find out how to get to DTIC Headquarters (we've recently moved), security procedures for visiting us, and information about our Regional Office locations.)
- Who can register for DTIC service? (Find information about DTIC's general and online registration process, along with the necessary registration forms.)
- What products and services does DTIC offer? (Find product and service information along with the necessary forms to facilitate document identification and ordering.)
- How do I get Customer Assistance? (Get information about DTIC's Support Services, such as general user information, various user publications, DTIC's Help Desks, Training and Support Services.)
- What's New at DTIC? (Find the DIGEST (DTIC's Quarterly Newsletter) and the latest announcements about DTIC products and services, and other information of interest.)



DTIC Has Moved!

The DTIC Organization

(Basic information about the various DTIC organizations and what they do.)

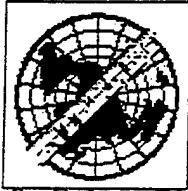
- User Services
 - Information Science and Technology
 - Operations
 - RD&A Information Support
 - Information Systems Support
 - DoD Scientific and Technical Information Policy Office
(*Coming Soon*)
 - Administration & Resource Management (*Coming Soon*)
-

Other DTIC Sites of Interest



Small Business

Innovation Research (Solicitation 96.1 Closes 5 Jan 96)



DefenseLINK, CIM, STINET, DTIW, MATRIS, IACs,
& Other Sites

Thank you for visiting our Pages.

*Please take the time to let us know you've been here. Sign-in at
our Visitors' Log Book*



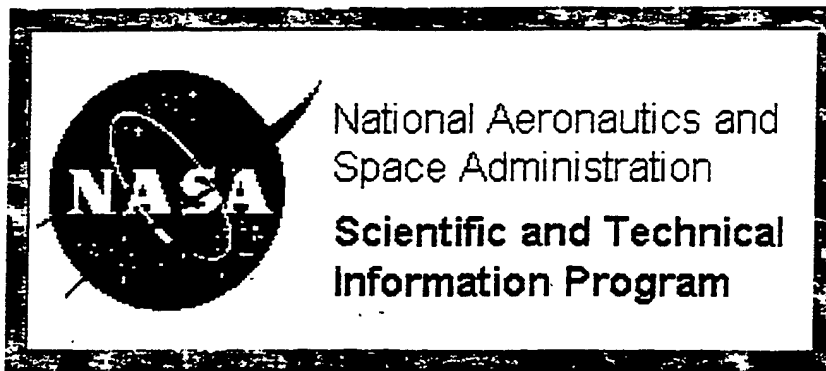
and let us know what you think.

pshepher@dtic.dla.mil
November 1995

APPENDIX C

NASA Internet Information

NASA Scientific and Technical Information Program



Welcome to the NASA Scientific and Technical Information program's Home Page. The NASA Scientific and Technical Information program provides ready access to over 3 million aerospace and related citations. Powerful search capabilities offer access to both the latest and most important historical information about aerospace, aeronautics and related topics.

This service is run by the NASA Center for AeroSpace Information (CASI). For information about NASA STI program services, products and policies contact our *NASA Access Help Desk* at help@sti.nasa.gov or 301-621-0390.

STI Products

CASI TRS (RECONselect)

The CASI Technical Reports Server (RECONselect) is a field searchable WAIS database which contains NASA produced technical reports and aerospace-related open literature from 1970 through current; selected from the NASA RECON databases. RECONselect without field search capability is available through the NASA STI Office Gopher interface.

Electronic Selected Current Aerospace Notices (E-SCAN)

Electronic version of SCAN. WAIS searchable.

NASA Thesaurus

An electronic version of the NASA Thesaurus.

STI Program Publications

Electronic versions of publications produced by the STI program.

About STI Program Translation Services

Find out about the translation services offered by the STI program.

Telnet to NASA RECON

Telnet to the NASA REsearch CONnection (requires an existing username and password)

Telnet to ARIN

Telnet to the NASA Aerospace Research Information Network (requires an existing username and password)

Technology Transfer

NASA Tech Briefs Indexes

Thousands of technical innovations have been produced as a result of NASA's research and development activities. The NASA Tech Briefs Indexes is a field searchable WAIS database which contains the results of these efforts considered transferable to private industry for commercialization purposes.

*Spinoff*NEW

The secondary use of NASA technology and its impact has been facilitated through NASA's Commercial Development and Technology Transfer Program. Wide distribution and outreach activities result in private industry's application of NASA-generated technology. This leads to the development of commercially available products and services (spinoffs).

Other NASA Resources

- NASA Technical Report Server (NTRS)
- NASA Homepage
- NASA Headquarters Homepage
- NASA and Other Space-Related WWW Information Servers

NASA Access Help Desk

E-mail: help@sti.nasa.gov

Phone: 301-621-0390 FAX: 301-621-0134

Curator: Stephen H. Mullen, NASA CASI

E-mail: smullen@sti.nasa.gov Phone: 301-621-0320

Responsible NASA official: Thomas Hanson, NASA STI program

E-mail: thanson@sti.nasa.gov Phone: 301-621-0262

NSI ACCEPTABLE USAGE POLICY

What is Acceptable Use of the NASA Science Internet?

The following "Acceptable Use Statement," along with official NASA policy on Automated Information Security and relevant U.S. federal laws, forms the basic tenets of the NSI Security Program:

Summary:

NSI supports all NASA science flight missions, discipline research programs, and collaborating scientists at NASA Centers and elsewhere.

NSI is not to be used for private gain or profit.

Specific:

- 1 Use of NSI must be in support of official NASA programs; all user requests for NSI connectivity must be validated and supported by cognizant NASA Science Discipline Chiefs.
- 2 Use of NSI to support coordination and administrative execution of NASA research grants is permissible.
- 3 Use of NSI to support NASA research, related training, and associated technical activities at non-profit institutions of research and education is acceptable.
- 4 Use of NSI for commercial or intellectual gain by for-profit organizations is not acceptable, unless those organizations are using NSI to satisfy specific NASA contract or grant requirements.
- 5 Use of NSI for research or education at for-profit institutions will be reviewed on a case-by-case basis to ensure consistency with NASA programs; lack of program approval will result in disconnection.
- 6 Use of NSI to gain unauthorized use of resources attached to NSI may result in disconnection and legal prosecution. NSI will make every attempt to implement precautions to safeguard against unauthorized use of NASA computers,

databases, and other attached federal resources.

- 7 Use of NSI for the introduction of worms, viruses, trojans, or other software which maliciously interferes with normal NSI operations is unlawful.
-



Back to the NSI Home Page

NSI SECURITY POLICY

What is the Security Policy of the NASA Science Internet?

NSI is fully interconnected with the Internet and other networks. In general, valid users enjoy unrestricted network access. However, access from Internet or other sites to or through NASA/NSI resources is only authorized when that access is in conjunction with valid work or project-related requirements.

The use of NSI is inappropriate when that use:

- Compromises the privacy of users and their personal data.
- Damages the integrity of a computer system, or the data or programs stored on a computer system.
- Disrupts the intended use of system or network resources.
- Wastes resources (people, network bandwidth, or CPU cycles).
- Uses or copies proprietary software when not authorized to do so.
- Uses a computer system as a conduit for unauthorized access attempts on other computer systems.
- Uses a government, corporation, or university-owned system for private purposes or for purposes not in the direct interest of the government, corporation, or university.
- Consists of unauthorized and excessive snooping, probing, or otherwise connecting to a node or nodes in a manner which is deemed not to be of an authorized nature.
- Results in the uploading, downloading, modification, or removal of files on a node in the network for which such action is not authorized.

Incidents of misuse and abuse of NSI by hackers or overly curious network users have necessitated certain limitations to be imposed in order to ensure the continued security and integrity of the network.

As long as a person's activity is related to and necessary for the completion of the work then that activity is generally considered an authorized use of the network and is allowed. In cases where a person's work might generate multiple or random network connections, it is advised that such activity be coordinated with the Network Operations Center or the remote system managers so as not to

inadvertently cause a security incident.

Use of NSI to gain unauthorized use of resources attached to NSI may result in disconnection and legal prosecution.



Back to the NSI Home Page

APPENDIX D

Cooperative Organization of STI
Managers from Multiple Agencies
Information Directory



C - Commerce Department

National Technical Information Service

E - Energy Department

Office of Science and Technical Information

N - National Aeronautics and Space Administration

Science and Technical Information Program

National Library of Medicine

D - Defense Department

Defense Technical Information Center

National Air Intelligence Center

I - Interior Department

National Biological Service

CENDI is an interagency cooperative organization composed of the scientific and technical information (STI) managers from the Departments of Commerce, Energy, Defense, Health and Human Services (National Library of Medicine), and the National Aeronautics and Space Administration (NASA).

CENDI's mission is to help improve the productivity of Federal science and technology programs through the development and management of

effective scientific and technical information support systems. In fulfilling its mission, CENDI member agencies play an important role in helping to strengthen US competitiveness and address other science- and technology-based national priorities.

CENDI is a group of senior STI managers who have agreed to cooperate by:

- Exchanging information and ideas
- Sharing resources
- Undertaking joint initiatives
- Exploring areas from policy to standards to operations

These managers have responsibility for STI at agencies representing more than 90 percent of the Federal R&D budget.

CENDI Announcements and News

More information about CENDI

- Mission and Goals
- Principals, Alternates, Member Agencies
- Characteristics
- History
- Operations
- Technology Interests and Projects
- Looks to the Future

The CENDI Home Page is a service of the Defense Technical Information Web (DTIW).

Please send questions or comments to Carl Randall at *crandall@dtic.dla.mil*.

APPENDIX E

Institute of Electrical and Electronics Engineers and Institution of Electrical Engineers Home Pages



Welcome to the IEEE Home Page

The Institute of Electrical and Electronics Engineers, Inc.

- About the IEEE
 - Search the IEEE Web Pages
 - Events and Newcomers
-



Member Services

Find out about joining the IEEE, our Financial Advantage Program, our Job List Service, the Standards (SPA) server, education services, and much more.



IEEE Bookstore

Where to go to browse our bookshelves, subscribe to a magazine, check out our t-shirts, get info about ordering, Standards and education materials, and more.



IEEE's Technical Societies

Get inside information on activities within 37 specialized fields of interest, including new technologies, active Society Web pages, our Technical Activities Guides, and more.



Student Activities

Visit the Student Activities Committee's home page and check out IEEE-related newsgroups, student membership info, how to register your branch Web server. There's an Institute-wide list of student pages, too.



Local Activities and IEEE Officer Information

Where members can go to find IEEE activities where they live and work, regional

home pages, a list of sections and chapters, and more.



IEEE Publications

Bringing together web sites of IEEE periodicals, including Spectrum Magazine, THE INSTITUTE (news supplement to Spectrum), the Transactions/Journals/Letters Preview of tables of contents, and the Electronic Products Home Page, plus Standards, author info, copyright and logo request list



United States Activities Home Page



Education Home Page



IEEE Standards Process Automation (SPA) System

And try these links...



IEEE quick guide to help



IEEE Gopher

IEEE Women in Engineering home page

IEEE Staff 'Whois' searchable index

IEEE Web Documentation

IEEE Mailer



Welcome to IEE Publishing and Information Services

Publishing and Information Services from the Institution of Electrical Engineers

Ⓢ The Institution of Electrical Engineers (IEE) publishes a wide range of books, periodicals, conference proceedings, colloquium digests and distance learning material in electrical and electronic engineering, physics, computing, control and software engineering and related subjects in information technology. In addition, the IEE produces the well-known INSPEC information services.

- Directory of IEE Publishing and Information Services information on this server
 - News from IEE Publishing and Information Services
-

Forthcoming Exhibitions

INSPEC at Online 95 5-7 December, London

Internet World Canada 96 January 9-12, 1996.



New - List server for INSPEC and IEE Publishing.

Ⓢ Full details of IEE publications and INSPEC information services are given on this server and in the printed *IEE Publications and Information Services Catalogue*. For further enquiries, please contact:

*Marketing Department, Institution of Electrical Engineers, Michael Faraday House
, Six Hills Way, Stevenage, Herts. SG1 2AY, UNITED KINGDOM*

Tel: +44 (0)1438 767297 - Fax: +44 (0)1438 742840 - E-mail: inspec@iee.org.uk



A few parts of this server are still under construction and point instead at the IEE gopher server. We welcome comments and suggestions, and in particular ideas any additional information you would like to see added. Please send these by e-mail to webmaster@iee.org.uk.



IEE Home

APPENDIX F

Newsgroups of Use to the Navy
Laboratory/Center Coordinating
Group Audience

Newsgroups of Use to the Navy Laboratory/Center Coordinating Group Audience

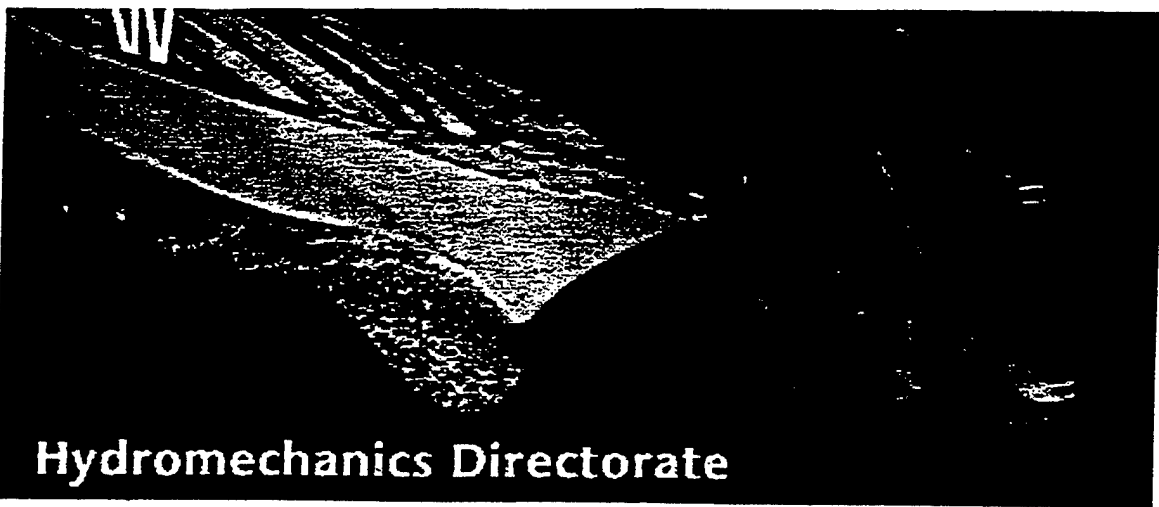
This is a partial list of the newsgroups of interest to the audience in this research, development, test, and evaluation community. There are over 10,000 newsgroups, most of general interest or recreational interest; however, the following groups have fairly focused discussions, with little off-topic traffic.

- ◆ comp.human-factors
- ◆ comp.parallel
- ◆ comp.realtime
- ◆ comp.robotics
- ◆ comp.robotics.research
- ◆ comp.simulation
- ◆ sci.aeronautics
- ◆ sci.aeronautics.simulation
- ◆ sci.chem.analytical
- ◆ sci.chem.electrochem
- ◆ sci.chem.labware
- ◆ sci.chem.organic
- ◆ sci.electronics.design
- ◆ sci.electronics
- ◆ sci.electronics.basics
- ◆ sci.electronics.cad
- ◆ sci.engr.chem
- ◆ sci.engr.civil

- ◆ sci.engr.control
- ◆ sci.engr.marine.hydrodynamics
- ◆ sci.engr.mech
- ◆ sci.engr.safety
- ◆ sci.environment
- ◆ sci.geo.oceanography
- ◆ sci.materials
- ◆ sci.materials.ceramics
- ◆ sci.math
- ◆ sci.math.num-analysis
- ◆ sci.mech.fluids
- ◆ sci.nanotech
- ◆ sci.optics
- ◆ sci.physics.computational.fluid-dynamics
- ◆ sci.physics.electromag
- ◆ sci.physics.fusion
- ◆ sci.physics.particle
- ◆ sci.physics.plasma
- ◆ sci.physics.research
- ◆ sci.polymers
- ◆ sci.space.tech
- ◆ sci.systems
- ◆ sci.techniques.mag.resonance
- ◆ sci.techniques.mass-spec
- ◆ sci.techniques.spectroscopy

APPENDIX G

Examples of Useful Web Pages



Hydromechanics Directorate

Please report any bugs or problems you encounter to the webmasters.

- Facilities Specifications and Capabilities
 - Multimedia Project Gallery
 - Technical Report Database
 - Phone Book (form and non-form versions available)
 - Organizational Structure
 - Selected WWW servers
-

More information about the World-Wide Web (WWW) including statistics for this server is also available. Information not directly related to Hydromechanics and/or the organization is located on the Code 521 Subserver.

This server is administered by Dan Cieslowski (*our fearless leader*), Gene Gotimer, Scott Percival, and Serena Lin. Please e-mail comments, suggestions, and/or (*gasp!*) errors by selecting the webmaster@www50.dt.navy.mil address at the bottom of any page.



Hydromechanics Webmaster Team / webmaster@www50.dt.navy.mil

This information resides on a DOD interest computer. Important conditions, restrictions, and disclaimers apply.

Last updated on Tuesday, 24-Oct-95 18:12:30 EDT.

All the documents on this server are routinely checked for  compliance. We use the HTML Check Toolkit for validation. We also check our documents with the htmlchek HTML syntax and style checker.

Postal mail should be addressed to:

*Commander
Carderock Division
Naval Surface Warfare Center
Bethesda, MD 20084-5000
USA
Attn: The party you wish to reach*

Table of Contents for the Hydromechanics WWW Server

The Hatch

Welcome page

- Facilities Specifications and Capabilities
 - Circulating Water Channel
 - Hydroballistics Facility
 - Large Cavitation Channel
 - Towing Basins
 - Shallow Water Basin
 - Deep Water Basin
 - High-Speed Basin
 - Towing Carriage 3
 - Towing Carriage 5
 - Towing Carriage 6
 - Maneuvering and Seakeeping Basin
 - Rotating Arm Facility
 - Anechoic Flow Facility
 - 140-Foot Basin
 - Variable Pressure Cavitation Tunnels
 - 36-Inch Variable Pressure Cavitation Tunnel
 - 24-Inch Variable Pressure Cavitation Tunnel
 - 12-Inch Variable Pressure Cavitation Tunnel
 - Data Sheets
 - 12-inch Variable Pressure Cavitation Tunnel
 - 24-inch Variable Pressure Cavitation Tunnel
 - 36-inch Variable Pressure Cavitation Tunnel
 - 140-foot Basin
 - Anechoic Flow Facility
 - Circulating Water Channel
 - Large Cavitation Channel
 - Maneuvering and Seakeeping Basin
 - Rotating Arm Basin
 - Towing Carriage No. 1
 - Towing Carriage No. 2
 - Towing Carriage No. 3

- Towing Carriage No. 5
- Towing Carriage No. 6
- Multimedia Project Gallery
 - Displacement Hulls
 - Nimitz Class Aircraft Carriers (1 photo)
 - Ticonderoga Class Guided Missile Cruisers (3 photos)
 - Arleigh Burke Class Guided Missile Destroyers (9 photos)
 - Oliver Hazard Perry Class Guided Missile Frigates (1 photo)
 - Wasp Class Amphibious Assault Ships (1 photo)
 - Cyclone Class Coastal Patrol Craft (1 photo)
 - SL-7 (1 movie)
 - Patrol Craft (1 photo)
 - Athena research vessel (3 photos)
 - Oil Tankers (1 movie, 2 photos)
 - Sailing Yachts (1 photo)
 - Submersibles
 - Ohio Class Strategic Missile Submarines (2 photos)
 - Los Angeles Class Attack Submarines (2 photos)
 - San Juan Improved Los Angeles Class Attack Submarines (1 photo)
 - Semi-Submersibles
 - Mobile Offshore Base (1 photo)
 - Victorious Class SWATH Ocean Surveillance Ships (4 photos)
 - Dynamic Lift Vehicles
 - Pegasus Class Patrol Combatants-Missile (Hydrofoil) (2 photos)
 - High Point PCH-1 Submarine Chaser (Hydrofoil) (2 photos)
 - Hydrofoil Small Waterplane Area Ship (1 photo)
 - DESTRIERO (Planing hull) (2 photos)
 - Air-Supported Vehicles
 - Landing Craft Air Cushion (4 photos)
 - High Length-to-Beam SES (2 photos)
 - Medium Length-to-Beam, High Speed SES (4 photos)
 - Propellers
 - LDV testing (1 photo)
 - Other
 - Carriage 1 (1 movie)
 - Marine Corps Amphibious Vehicle (2 photos)
 - LDV measuring ship bow flows (1 photo)
 - Bubble cavitation test (1 photo)
- Technical Report Database

- Viscous Drag Calculations for Ship Hull Geometry
- Chimera Composite Grid Scheme
- Development of a Bow for a Naval Surface Combatant which Combines a Hydrodynamic Bulb and a Sonar Dome
- Resistance and Propulsion Characteristics of the MarC Guardian Tanker Design
- Hydrodynamic Analysis of Oil Outflow from Double Hull Tankers
- Model Tests Of Accidental Oil Spill Due To Grounding
- Effect of Stern Flaps on Powering Performance of the FFG-7 Class
- NSWCCD Phone Book (form and non-form versions available)
 - Phone Book Instructions
 - Adding Photos to the Phone Book
- Organizational Structure
 - Hydromechanics Directorate, Code 50
 - Ship Powering Department, Code 52
 - Naval Hydromechanics Department, Code 54
 - Ship Dynamics Department, Code 56
 - Organization and Functional Statements of the Hydromechanics Directorate, Code 50 (the "Organization Manual")
- Selected WWW servers
 - Indexes and Search Engines
 - Navy WWW Servers
 - Maritime Servers
- WWW Information
 - Introduction to the World-Wide Web
 - WWW Servers
 - WWW Clients

Archived Welcome Page Announcements

www50 Server Statistics

www50 Table of Contents (*this page*)

www50 Server Feedback

Code 521 Subserver

Hydromechanics Directorate Lynx Login

DOD Security Banner



Hydromechanics Webmaster Team / webmaster@www50.dt.navy.mil

This information resides on a DOD interest computer. Important conditions, restrictions, and disclaimers apply.

Last updated on Thursday, 10-Aug-95 11:57:48 EDT.

technical report database



This page is still under construction. Please excuse any mess.

Warning: Some of these reports have embedded graphics. You may wish to turn off image auto-loading.

We are currently working to add a significant number of reports, some full-text, some with abstracts, and some with just "card catalog" information. This database will then be made searchable (through WAIS). Stay tuned.

- Viscous Drag Calculations for Ship Hull Geometry
- Chimera Composite Grid Scheme
- Development of a Bow for a Naval Surface Combatant which Combines a Hydrodynamic Bulb and a Sonar Dome
- Resistance and Propulsion Characteristics of the MarC Guardian Tanker Design
- Hydrodynamic Analysis of Oil Outflow from Double Hull Tankers
- Model Tests Of Accidental Oil Spill Due To Grounding
- Effect of Stern Flaps on Powering Performance of the FFG-7 Class



Hydromechanics Directorate



Hydromechanics Webmaster Team / webmaster@www50.dt.navy.mil

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Last updated on Wednesday, 28-Jun-95 18:56:20 EDT.



Welcome to ASME International

The American Society of Mechanical Engineers

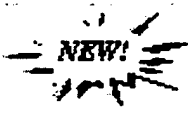
With 125,000 mechanical engineers as members,
ASME International:

- ◆ Offers quality programs and activities in mechanical engineering.
- ◆ Conducts conferences and expositions to keep mechanical engineers up to date on new technology. **Now Online:** The Advance Program for ASME's 1995 International Mechanical Engineering Congress & Exposition.
- ◆ Conducts one of the world's largest technical publishing programs
- ◆ Promotes mechanical engineering history and preservation of historically significant machines, systems, and devices through program activities. **Now Online:** Complete information about ASME's Mechanical Engineering Landmark program.
- ◆ Maintains and distributes 600 different codes and standards for design, manufacturing, and installation of mechanical devices
- ◆ Provides professional development through short courses to keep engineers current on new technology

- ◆ Advises federal and state government on technology-related public policies
- ◆ Manages ASMENET, the Society's electronic network for members
- ◆ Offers members an array of personal benefits
- ◆ Engages in fundraising activities that support or benefit the Society, as well as the and science of mechanical engineering.



Recent news from ASME International: Press Releases from ASME Public Information.



Plus, check out a selection of engineering news items compiled by the ASMENET staff.

▶ Along with a growing bank of information regarding ASME membership, service databases and products, this Website also offers links to ASME...

- Section, Region, Chapter sites
- Institute sites
- Technical Groups/Divisions sites
- as well as other engineering-related resources

We Want to Hear From You!



Write to ASME President Daniel Koenig .



Forward comments about this Website to ASME International's webmasters at feedback@asme.org



The WWW Virtual Library:

Naval Architecture & Ocean Engineering

This document is under continuous construction.

Contents

- **What's New**
 - **Universities and Laboratories**
 - **Companies and Organizations**
 - **Other Gateways to NA&OE and Related Information**
 - **NA&OE Mailing Lists**
 - **Maritime Related Sites**
 - **Return to WWWVL**
 - **Getting Listed in the WWWVL/NA&OE**
-

What's New

Monday, October 30, 1995.

- **Vokes Filtration Technology, Spain**

Sunday, October 15, 1995.

- **THE SEAPORTS INFOPAGES**

Wednesday, October 11, 1995.

- **Graphic Magic inc., USA**

Thursday, October 05, 1995

- **Wolfson Unit for Marine Technology & Industrial Aerodynamics, UK**

Tuesday, September 26, 1995

- **Department of Ship Science, University of Southampton, UK**

Monday, September 25, 1995

- **Ocean Systems Engineering Section, Research Institute for Applied**

Thursday, September 14, 1995

- **Ocean Engineering at the University of Oxford, UK**

Thursday, August 31, 1995

- **The Division of Marine and Environmental Systems (DMES), Florida Institute of Technology, Melbourne, USA**

Friday, August 25, 1995

- **Department of Naval Architecture and Offshore Engineering, University of California, Berkeley, USA**

Monday, August 21, 1995

- **Department of Ocean Engineering, Massachusetts Institute of Technology, USA**
- **John J. McMullen Associates, Inc., Naval Architects - Marine Engineers - Transportation Consultants, New York, USA**

Monday, August 14, 1995

- **Center for Applied Coastal Research, Ocean Engineering Laboratory, University of Delaware, Newark, USA**
- **Underwater Robotics & Application Laboratory, Institute of Industrial Science, The University of Tokyo, Japan**

Friday, August 11, 1995

- **JTEC/WTEC, Loyola College, Baltimore, USA**
- **The Hyundai Group (Ship Yard), Korea**
- **National Shipbuilding Network, USA**

Monday, August 07, 1995

- **PING - Projects on Instrumentation, Navigation and Guidance systems for AUVs, Denmark**

Universities and Laboratories

The following resources are sorted by country.

Department of Ocean Engineering, Technical University of Denmark

The Department of Ocean Engineering (DOE) is concerned with teaching and research in the fields of Naval Architecture and Ocean Engineering. Current research are in the fields of:

- Computer Aided Design/Engineering (CAD/E)
- Hydrodynamics.
- Ocean Engineering.
- Structural Engineering.
- Reliability Engineering.

A list of technical reports and publication from DOE is also available.

PING - Projects on Instrumentation, Navigation and Guidance systems for AUVs, Denmark

Contains information on the on-going Danish research activities within the area of AUVs (Autonomous Underwater Vehicles) and UUVs (Unmanned Untethered Vehicles). The research is co-ordinated through the PING co-operation (Projects on Instrumentation, Navigation and Guidance systems for AUVs). PING is a co-operation between research institutions in Denmark

Institute of Naval Architecture, Marine and Ocean Engineering, Technical University of Berlin, Germany

Information is currently available on the following subjects:

- Ocean Engineering.
- Ship Design.

Ocean Systems Engineering Section, Research Institute for Applied Mechanics, Kyushu University, Japan

Research Institute for Applied Mechanics has 15 Research Sections, one of which is Ocean Systems Engineering. This section has been studying on hydrodynamics related to ships and floating offshore structures, and is recognized as one of the leading institutes in marine hydrodynamics research. Current topics are:

- Hydrodynamic forces on high-speed ships,
- Hydroelasticity of large offshore structures,
- Time domain nonlinear computations,
- Dynamics of long flexible pipes, and etc.

Links are given to the home page of Research Institute for Applied Mechanics and other related servers.

**Department of Marine System Engineering, Osaka Prefectural University,
Japan**

The Department focuses its activity on ocean environment, human activity, and their integrated system as a principal part of the Earth System. On the basis of mechanics, computer science, and systems engineering, the Department offers the following programs:

- Marine System Planning.
- Marine Transportation.
- Marine Space Utilization.
- Marine Resource Development.
- Marine Environment.

**Department of Naval Architecture and Ocean Engineering, The University
of Tokyo, Japan**

The Department of Naval Architecture and Ocean Engineering has research activities in the following areas:

- Transportation System Design,
- Fluid Engineering,
- Structural Mechanics,
- Production Engineering,
- Design Methodology,
- Safety Assessment Engineering,
- Marine Hydrodynamics,
- Ocean Equipment Engineering,
- Ocean Space Planning, and
- Other related fields.

A list of faculty members, list of laboratories, and some nice pictures related to our research and education are also available.

**Underwater Robotics & Application Laboratory, Institute of Industrial
Science, The University of Tokyo, Japan**

Our Autonomous Underwater Vehicles (AUVs) are

- PTEROA150
- ALBAC
- TWIN-BURGER
- R1

**Department of Naval Architecture and Ocean Engineering, Yokohama
National University, Japan**

The Department is concerned with education and research about the

conventional shipbuilding technology and the broad fundamental and applied science in relation to mobile structures operated in an ocean or aerospace environment. Current research fields of the department are:

- Hydrodynamics and Propulsion,
- Dynamics and Control,
- Mechanics of Materials and Structures,
- Design Philosophies and Procedures, and
- Aerospace Engineering.

Faculty of Marine Technology, Norwegian Institute of Technology, Norway

The faculty is a part of the University of Trondheim, Norwegian Institute of Technology. The faculty offers courses for "Sivilingenior", Master of Science Dr. engineer degrees. Ship technology as well as offshore technology and fish systems are covered. The main topics of study and research are:

- Marine hydrodynamics,
- Marine structures,
- Ship technology,
- Fabrication of marine structures,
- Marine operations,
- Underwater technology,
- Marine machinery, and
- Technical operations of marine systems.

Ocean Engineering at the University of Oxford, UK

Information is available on

- Dynamics and Ocean Engineering, and
- Coastal Engineering.

Links are also given to the Department of Engineering Science, where this activity is based.

Department of Ship Science, University of Southampton, UK

The Department of Ship Science consists of eight academic members of staff whose research interests are able to cover a very wide spectrum of marine related activities. Full-time research staff are employed, with a typical compliment of twelve research fellows/assistants as well as eight or so full-time postgraduate research students, and 25 full-time M.Sc. with more than 100 undergraduate students. Allied to the Department is the Wolfson Unit for Marine Technology and Industrial Aerodynamics. This unit consists of six full-time engineers plus support staff, who offer consultancy services and develop software in marine related subjects.

JTEC/WTEC, Loyola College, Baltimore, USA

The Japanese Technology Evaluation Center (JTEC) and its companion World Technology Evaluation Center (WTEC) at Loyola College provide assessment of foreign research and development in selected technologies under a cooperative agreement with the National Science Foundation (NSF). They have produced this report on **Research Submersibles and Undersea Technologies in Russia, Ukraine, and Western Europe**.

Department of Naval Architecture and Offshore Engineering, University of California, Berkeley, USA

This academic unit of the University of California, Berkeley is the only program of its kind in the western United States, with a strong tradition of excellence and rigor. Admission is competitive. It offers an ocean engineering option in the B.S. program of the Mechanical Engineering Department. At the graduate level, degrees of NAOE are offered at the Masters (M.S. and M.Eng.) and doctoral levels (Ph.D. & D.Eng.). The program is essentially interdisciplinary in nature drawing upon the vast and diverse academic resources of this University. Core courses and research are offered in the following areas:

- marine fluid mechanics
- marine structural mechanics
- ship, underwater-vehicle, and ocean system design
- reliability and risk-based engineering
- nonlinear dynamical systems

The Home page contains contact address for information, course listings, faculty research and interests, student organization, and student profiles.

The Division of Marine and Environmental Systems (DMES), Florida Institute of Technology, Melbourne, USA

The Division of Marine and Environmental Systems (DMES) consists of three interrelated academic programs, the Oceanography Program, the Ocean Engineering Program, and the Environmental Sciences Program.

- DMES
 - Catalog Information
 - Overview of the Department
- Environmental Sciences Program
 - Program Information
 - Faculty Directory and Research Summaries
- Ocean Engineering Program
 - Program Information
 - Faculty Directory and Research Summaries

- Oceanography Program
 - Program Information
 - Faculty Directory and Research Summaries
- Marine Laboratory
 - Indian River Marine Science Research Center
 - Caribbean Marine Research Center

Department of Ocean Engineering, Massachusetts Institute of Technology, USA

The Department of Ocean Engineering at MIT, oldest of its kind in the country is one of the few in the United States to offer undergraduate and graduate degrees in naval architecture and marine engineering, and in ocean engineering. For more than a century, MIT has been a leading center of ship research and design, and is widely recognized for its contributions in such areas as:

- hydrodynamics
- ship structural mechanics and dynamics
- propeller design
- overall ship design
- acoustics

and is the home to established laboratories and recognized faculty and staff. A list of publications is also available.

MIT Sea Grant, Massachusetts Institute of Technology, USA

The MIT Sea Grant College Program is dedicated to the wise use and conservation of marine resources. We are one of 29 programs in the National Sea Grant Program, which is administered by the National Oceanic and Atmospheric Administration (NOAA), which in turn comes under the Department of Commerce. MIT Sea Grant's efforts have three components: research, education, and advisory services, which focus not only on concerns Massachusetts, but those of national and international significance as well. The research program taps capabilities beyond MIT, supporting projects at major public and private institutions in the Northeast. MIT Sea Grant is also the home of the Autonomous Underwater Vehicle Laboratory where small, unmanned robot submarines are designed, built and tested.

Department of Naval Architecture and Marine Engineering, University of Michigan, USA

Hydromechanics Directorate at Naval Surface Warfare Center - NSWC (formerly David Taylor Model Basin), US Navy, USA

**Center for Applied Coastal Research, Ocean Engineering Laboratory,
University of Delaware, Newark, USA**

The Center is a leading laboratory in the study of coastal processes, including wave dynamics (refraction/diffraction/nonlinearity), nearshore hydrodynamics and coastal sediment transport. It includes coastal engineers, geologists, and nearshore oceanographers, who utilize theory and physical and numerical models to understand the nearshore zone. M.S. and Ph.D. degrees are offered in the Department of Civil and Environmental Engineering. Center facilities include a 20m x 20m x 1.1m directional wave basin, three wave tanks, and two other basins. Equipment includes acoustic and laser doppler current meters, high-speed video, numerous wave gages, and 25 workstations. Some current research topics are:

- Nearshore Waves and Circulation Modelling,
- Low-frequency Wave Motions,
- Undertow and Rip Currents,
- Turbulence and Vorticity in Breaking Waves,
- Swash Motions,
- Waves in Channels,
- Wave/Current Interaction,
- Beach Profiles.

**Department of Naval Architecture and Marine Engineering, University of
New Orleans, USA**

Marine Systems Engineering Laboratory, Northeastern University, USA

The Marine Systems Engineering Laboratory at Northeastern University is a small, internationally-known research and development laboratory focusing on problems in ocean engineering. MSEL's primary focus is on autonomous underwater vehicles (AUVs), in particular the intelligent control of single AUV and multi-AUV systems. Our vehicles include two EAVE-III AUVs, an AUV patterned after a sea lamprey's means of locomotion, and a planned long-range full-ocean depth AUV (LRAUV). MSEL has also developed the EAVE software architecture for AUV control, and collaborates with the University of New Hampshire's Cooperative Distributed Problem Solving (CDPS) research group, which focuses on problems relating to intelligent control of multiple A and other intelligent agents.

Davidson Laboratory, Stevens Institute of Technology, USA

Founded in 1935, the Davidson Laboratory is one of the largest and most renowned hydrodynamics and ocean engineering research facilities in the nation.

Pioneering studies in both physical modeling and computer simulation of marine craft designs ranging from high speed planing boats to submarines have contributed to the Laboratory's international reputation in the fields of marine hydrodynamics and naval architecture. Contributions to the field of ocean engineering include the wave tank simulation of sea states through the reproduction of various types of wave spectra, the analysis of wave forces on structures, and the simulations of turbulent boundary layer phenomena. Below is a general list of what information is available:

- Description and pictures of our wave tanks
- Coastal Protection issues, which include the Coastal Protection Technical Assistance Service for New Jersey.
- C.P.T.A.S. Library
- Staff

Companies and Organizations

The following resources are sorted by country.

Hitachi Zosen Corporation (Ship Yard), Japan

The Hyundai Group (Ship Yard), Korea

Norwegian Marine Technology Research Institute (MARINTEK), Norway

Vokes Filtration Technology, Spain

Wolfson Unit for Marine Technology & Industrial Aerodynamics, UK

The Wolfson Unit for Marine Technology and Industrial Aerodynamics is part of the Department of Ship Science in the Faculty of Engineering and Applied Science at the University of Southampton, and has close ties with the Department of Aeronautics and Astronautics. It also operates in collaboration with the Department of Engineering and Naval Architecture at the Southampton Institute of Higher Education and its associated College of Maritime Studies, Warsash.

With its experienced staff of engineers, the Unit operates a consultancy service in marine technology and industrial aerodynamics in the following areas:

- Sailing Vessels
- Power Vessels
- Small scale tests
- Trials

- Materials
- Feasibility studies
- Industrial Aerodynamics
- Software
- Bureau service
- Programming

Graphic Magic inc., USA

Graphic Magic develops computer aided design software for marine hull design and construction. Its range of software includes 3D hull modelling using NURBS surface technology (Maxsurf), Hydrostatics and stability analysis (Hydromax), resistance and powering (Hullspeed) and construction detailing (Workshop).

John J. McMullen Associates, Inc., Naval Architects - Marine Engineers - Transportation Consultants, New York, USA

John J. McMullen Associates, Inc. (JJMA) has earned a reputation for excellence in naval architecture and marine engineering by consistently providing quality products and services to the U.S. and international maritime community. JJMA is a full service company which provides comprehensive ship and system design from mission analysis and feasibility trade-off studies through contract detail design, production supervision, testing and logistics support for the commercial and naval markets. The following is a selection of available information from our site:

- Products and Services
- Company Background
- Office Locations and Contacts
- A Maritime Gallery

Other Gateways to NA&OE and Related Information

- Poseidon - a Gateway to Marine Hydrodynamics
- National Shipbuilding Network, USA
- The WWW Virtual Library: Engineering
- The WWW Virtual Library: Oceanography

NA&OE Mailing Lists

Maritime Related Sites

- THE SEAPORTS INFOPAGES
 - International Marine Signal Flags
 - America's Cup On-Line
-

Return to:

- The WWW Virtual Library
 - The WWW Virtual Library: Engineering
-

Getting Listed in the WWWVL/NA&OE

Please submit listing requests in HTML.

It will help a lot if requests for listings in the WWWVL/NA&OE include the HTML the listing. This will also be good for you, as you can be sure of the exact wording and format of your listing. For examples, look at the HTML of the WWWVL/NA&OE section in which you would like to be listed. Please E-mail your request to me at the address below. Thanks!

Also, if you know of Internet-accessible information source(s) that should be included in the WWW Virtual Library:

- for subjects *other* than Engineering, E-mail to: **www-request@info.cern.ch**
 - for Engineering subjects, please notify one of the **Engineering Web Server Administrators**.
-

Administrator for the WWW Virtual Library on Naval Architecture & Ocean Engineering:

Lars Peter Nielsen

Department of Ocean Engineering

Technical University of Denmark

E-mail: lpn@ish.dtu.dk

Last updated Monday, October 30, 1995.

Material Safety Data Sheet Searches

Here are links to publicly accessible MSDS information, contained on gopher servers at Case Western Reserve University Department of Biochemistry and the University of Utah Department of Chemistry respectively. The first is key-word searchable and the second has the MSDS's divided alphabetically (the actual MSDS database is the same for both). Individual MSDS's can be printed or saved using the appropriate Web Browser commands.

- Searchable MSDS database
 - MSDS Sheets
 - Chemfinder Database Searching (a service of CambridgeSoft Corporation)
 - Enviro-Net MSDS Searches
-

Fisher Scientific's Web Server also contains many MSDS sheets for the chemicals and reagents they sell:

- The Fisher Scientific Internet Catalog

Other MSDS/Chemical Links

- On-line MSDS Project
 - Chemical Abstracts Service
-

Return to the Northwest Fisheries Science Center Home Page
Come visit us!

Research Submersibles And Undersea Technologies

Richard J. Seymour, Chair

D. Richard Blidberg

Claude P. Brancart

Larry L. Gentry

Algis N. Kalvaitis

Michael J. Lee

Brad Mooney

Don Walsh

June 1994

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Richard J. Seymour

- Scope of the Study

2. Sensors and Instrumentation

Algis N. Kalvaitis

- Introduction

- Data Collection Costs and Justification
- Sensor Systems and Vehicles/Platforms
- Manned Submersibles, Sensor Systems and Equipment
- Remotely Operated Vehicles
- Autonomous Underwater Vehicles
- Remote Sensing Systems
- Oceanographic Sensors and Instrumentation
- Miscellaneous Measurement Capability
- Summary and Conclusions
- References

3. Energy, Propulsion, and Hydrodynamics

Don Walsh

- Introduction
- Energy and Power Systems
- Hydrodynamics
- Propulsion Systems
- Summary and Conclusions

4. Manned Submersibles

Brad Mooney

- Introduction
- Design, Fabrication, and Operating Activities
- Summary and Conclusions

5. Unmanned Systems

Claude P. Brancart

- Introduction
- Great Britain and France
- Former Soviet Union

6. Applications of Acoustic Technology

Richard Blidberg

- Introduction
- Goals of the Assessment

- Matrix of Applications
- Summary of Institutions Undertaking Acoustic Activities
- A Summary of Systems and Applications
- Findings and Observations
- Summary and Conclusions

7. Systems Engineering and Integration

Larry L. Gentry

- Introduction
- Technology Evolution
- System Design and Development
- Factory Integration and Test
- Operational Demonstration and Test
- Summary and Findings

8. Navigation, Communication, Automation and Control

Michael J. Lee

- Introduction
- Navigation
- Communication
- Automation and Control
- Summary and Conclusions

APPENDICES

A. Professional Experience of Panel Members

B. Russian Site Reports

- Andreev Institute
- Bauman Institute
- Bureau of Oceanological Engineering
- Dubna (TECHNOPOLE)
- Energia
- Energia Space Firm
- General Physics Institute

- Institute of Applied Physics
- Intershelf (Moscow)
- Intershelf (J.P. Kenny Intershelf)
- Intershelf (St. Petersburg)
- Kharax Company Ltd.
- KOPRON
- Krylov Shipbuilding Research Institute
- RRC Kurchatov Institute
- Lazurit Central Design Bureau
- Malachite
- Oceanpribor
- P.P. Shirshov Institute of Oceanology (May 17, '93)
- P.P. Shirshov Institute of Oceanology (May 20, '93)
- Central Design Bureau for Marine Engineering (RUBIN)
- Scientific Research Institute of Computer Complexes (NIIVK)
- St. Petersburg State University of Ocean Technology

C. Ukrainian Site Reports

- E.O. Paton Electric Welding Institute
- Institute of Geological Sciences
- Institute of Hydromechanics
- Mariecoprom
- Marine Hydrophysical Institute

D. French Site Reports

- IFREMER
- INRIA
- LIFIA

E. United Kingdom Site Reports

- Institute of Oceanographic Sciences - Deacon Laboratory
- Marconi Underwater Systems
- Reson System (UK)
- Slingsby Engineering Ltd.
- Marine Technology Directorate (MTD)
- Camera Alive Ltd.
- Heriot-Watt University
- Mobil North Sea Ltd.

- Iritech International Ltd.
- Marconi UDI

F. Finnish Site Reports

- Rauma Oceanics Ltd.

G. Glossary

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WTEC Welcome Page

21 September, 1995; JTEC/WTEC Hyper-Librarian



••**DICTIONARY**••

• **Dictionnaire - Wörterbuch - Diccionario** •

Asia



- Department of Marine System Engineering - Osaka Prefectural University
Marine System Planning - Marine Transportation - Marine Space Utilization -
Marine Resource Development - Marine Environment
- Department of Naval Architecture and Ocean Engineering, - The University of
Tokyo
 - Faculty
 - Laboratories
 - Pictures
- Transportation System Design - Fluid Engineering - Structural Mechanics -
Production Engineering - Design Methodology - Safety Assessment Engineering
Marine Hydrodynamics - Ocean Equipment Engineering, - Ocean Space Planning
- Department of Naval Architecture and Ocean Engineering - Yokohama National
University
Hydrodynamics and Propulsion - Dynamics and Control - Mechanics of Material
and Structures - Design Philosophies and Procedures - Aerospace Engineering.

Europe



- Department of Ocean Engineering Technical University of Denmark
 - Courses
 - Reports and publication
 - Research in the fields of Naval Architecture and Ocean Engineering. Current
research are in the fields of: Computer Aided Design/Engineering (CAD/E) -
Hydrodynamics - Ocean Engineering - Structural Engineering. - Reliability
Engineering



- Institute of Naval Architecture, Marine and Ocean Engineering Technical University of Berlin
Ocean Engineering - Ship Design.
-



- Faculty of Marine Technology - Norwegian Institute of Technology
Marine hydrodynamics - Marine structures - Ship technology - Fabrication of marine structures - Marine operations - Underwater technology - Marine machinery - Technical operations of marine systems.
-

North America



- Marine Institute (Newfoundland)
-



- Engineering
 - Hydromechanics Directorate at NSWC - US Navy
 - Department of Naval Architecture and Marine Engineering, - University of Michigan
 - Marine Systems Engineering Laboratory - Northeastern University
Vehicles include two EAVE-III AUVs, an AUV patterned after a sea lamprey's means of locomotion, and a planned long-range, full-ocean depth AUV (LRAUV). EAVE software architecture for AUV control.
Cooperative Distributed Problem Solving (CDPS) research group, which focuses on problems relating to intelligent control of multiple AUVs and other intelligent agents.
 - MIT Sea Grant - Massachusetts Institute of Technology
-

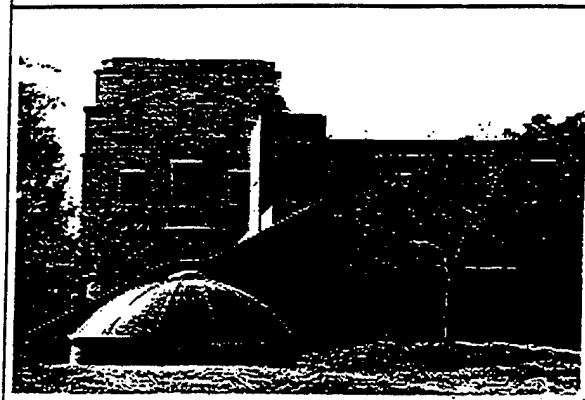


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pronet@Direct.CA.

APPENDIX H

Useful Interlibrary Loan Libraries



KRESGE ENGINEERING LIBRARY

HOME PAGE

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ABOUT THE KRESGE ENGINEERING LIBRARY Information about the library collections, opening hours; use policies; new acquisitions; course reserves; and photocopying services. We also have separate sections devoted to the library's technical reports and standards collections with links to related Internet sites. Here you may connect to the home pages for the UCB College of Engineering, its departments and selected research units.



HOW TO RESEARCH TOPICS IN ENGINEERING An introduction to the the research process and advice on how to make the most efficient use of the online catalogs and journal article indexes. Included is a list, which is still under development, of the "Best Resources for Engineering Research" for the major engineering disciplines.



ELECTRONIC JOURNALS AND REFERENCE TOOLS IN ENGINEERING Here are electronic journals and reference tools chosen by the Kresge Engineering Librarians. The reference tools include *Britannica Online*, *Periodic Table of the Elements*, and *Peterson's Guide to Graduate Schools*.

NEW: The Institute of Electrical and Electronic Engineers (IEEE) and the University

of California are working on a joint project to provide electronic access to IEEE publications to the UC community. This project is slated to begin in Experimental Mode on MELVYL at the end of September 1995. Click here to go directly to our section on the IEEE/UC Electronic Distribution Project.



ENGINEERING RESOURCES ON THE INTERNET A selection of Internet sources categorized by General Engineering Interest, Engineering Associations and Societies, Selected Engineering Libraries, and Publishers Catalogs.



INSTRUCTION AND ORIENTATION TOURS Learn about our instructional sessions and tours held at the beginning of each new semester and by prearrangement for UCB faculty, staff and students.



FREQUENTLY ASKED QUESTIONS A quick way to learn a lot about the Kresge Engineering Library.



STAFF Meet the library's public service staff so that you may know whom to contact for a particular library service or information question.



LIBRARY FLOOR PLAN A map to guide you in and around the Kresge Engineering Library.

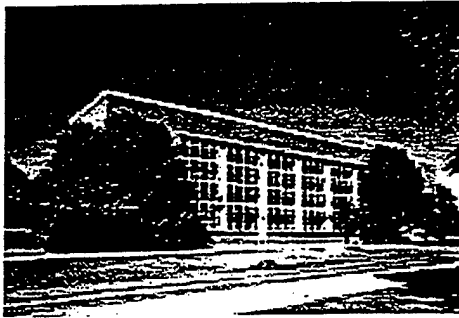
HELP/SEARCH	CATALOGS	COMMENTS	HOME
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Last update 10/2/95. Server manager:
webman@library.berkeley.edu

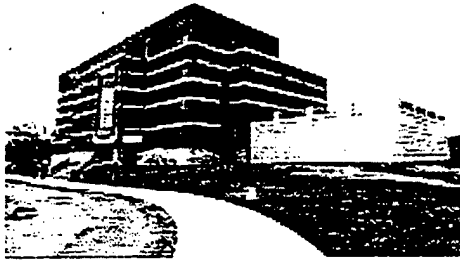
The Applied Research Lab at Penn State



Garfield Thomas Water Tunnel



Applied Sciences Building



New ARL Building

Welcome to the Applied Research Laboratory at Penn State home page for the World Wide Web.

The Applied Research Laboratory (ARL) at Penn State is a Navy-oriented research facility established in 1945 to advance the Navy's technology base through basic and applied research, and through exploratory and advanced development.

Located at University Park, the central campus of Penn State, ARL comprises a main laboratory and several satellite facilities. ARL occupies the Applied Science Building, the Garfield Thomas Water Tunnel Building, a yet to be named building (the "New Building"), and a portion of the Research Building West on the main campus; it devotes more than 200,000 sq. ft. to engineering and testing facilities. The Laboratory maintains several remote test sites adjacent to the campus. In addition, ARL has offices in Keyport, Washington, and Washington, D.C.

Who We Are and What We Do

- History and Mission of ARL
- Management Structure and Staff Information
- Areas of Technical Expertise
 - Acoustics and Vibration

- Turbomachinery Analysis and Design
 - Thermal Energy Sources and Power Transmission
 - Advanced Materials Processing and Characterization
 - Manufacturing Technology
 - Information Systems Technology
 - System Simulation and Integration
 - Signal and Image Processing
 - Environmental Compliance and Monitoring
- Recent Projects
 - Facilities and Capabilities
 - Contractual and Other Arrangements
 - Point of Contact
-

What's New

August 11 1995

ARL's Surface Engineering and Manufacturing Technology Center (SEMTC) has added information to the site. Current projects, faculty profiles and center facilities are now available.

September 29 1995

You may now search this entire WWW server's contents.

email@psu.edu Last Update: September 29 1995

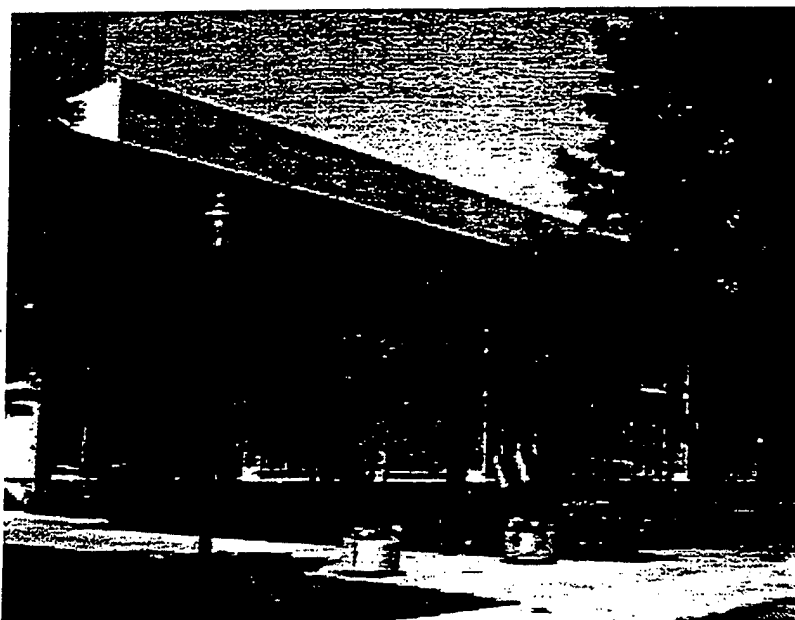
Welcome to Penn State Libraries WWW Site

This is our test WWW server. Please give us your comments or suggestions.

This page has been accessed **007987** times.



Dean Nancy M. Cline welcomes you to the Penn State Libraries



The Science Library provides information services and a comprehensive science collection to support education and research at MIT.

- Library Hours
- Services
- Library Guides
- Collections
- Library Catalog
- List of CD-ROMS
- Some Current Projects
 - TULIP, a joint experiment between MIT and Elsevier Science, makes available the full text of selected Elsevier materials science journals for the personal use of the MIT faculty, staff and students.
 - Library 2000 is a computer systems research project that is exploring the implications of large-scale on-line storage using the future electronic library as an example.
 - Engineering and Science Libraries IAP Programs

About the Science Library

The Science Library occupies the first floor of the south wing and part of the basement of the Hayden Memorial Library in Building 14 of the Massachusetts

Institute of Technology. Named for Charles Hayden, Class of 1890, the Hayden Building was opened in 1950. It is designed as a rectangle around an interior courtyard. The building's large glass and limestone facade faces the Charles River and the Boston skyline. The reading room and reference area of the Science Library is favored with light and a splendid river view.

Building 14 is also the home to the Humanities Library, the Music Library, the Institute Archives, Document Services, and the MIT Libraries administrative office.

The Circulation Desk at the entrance to the Hayden Memorial Library serves both the Science and the Humanities Libraries, as does the Reserve Book Room located across the hall on first floor of the north wing of Building 14. Inside the Science Library, the staff at the Information Desk provides assistance in using the online catalogs and databases and in locating needed library materials and information, wherever they are to be found. The Stein Club Map Room is also located near the entrance to the Library.

The Science Library and its branches, Lindgren and Schering-Plough, provide information to serve the teaching and research needs of the School of Science and all other instructional and research programs at the Institute that require materials in the scientific disciplines.

Ruth K. Seidman
Head, Engineering & Science Libraries
rks@mit.edu
(617)253-7741

Library Guides

- Biology
- Materials Science
- Physics
- Neurosciences
- Environment and Energy
- Patents

Special thanks to Eileen Moyer and John Saylor for production of these Web pages and to Shawn Becker for the photography.

MIT : MIT Libraries : Lindgren Library : Schering-Plough Library : Engineering Library

APPENDIX I

Navy News and Trade Publications Web Products

NAVY NEWS SERVICE - 15 NOV 95 - NAVNEWS 050/95

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Top News and Policy Stories

NNS747. Government shuts down, financial assistance available

WASHINGTON (NNS) -- Service members and civilian employees will receive their mid-November paychecks (Nov. 15 for military, Nov. 17 for civilians) as scheduled, even though a government shutdown took effect Nov. 14. However, future paychecks will not be processed until a continuing resolution or full-funding bills are passed.

While active-duty personnel and essential civilian employees have been directed to continue their duties, about 250,000 "non-essential" DOD civilian employees have been furloughed.

Military personnel and essential civilian employees will be paid for this period, but their checks may be delayed if the government shutdown lasts longer than several weeks. "For everybody who is working during the period of this shutdown -- all military personnel and all civilians who are exempted -- we will pay them for their services," said DOD Comptroller Dr. John Hamre. "We will have to get permission from the Congress to pay them, and we will have to get an appropriation, but we will pay people who will be working."

According to Hamre, Congress will have to grant permission to pay those personnel who have been furloughed, a practice which has been exercised in previous government shutdowns after a resolution was passed.

Several institutions are standing by to help Sailors, Marines and their families if the Nov. 30 payday is delayed.

The Navy/Marine Corps Relief Society will offer loans based on marital status and number of children (see NAVADMIN 268/95). These loans are available to families needing money for essentials.

The Navy Exchange Service will also offer temporary assistance to active-duty members and their families. If a payday is delayed, active-duty members or their family members may request that the Navy Exchange temporarily delay depositing their personal checks given in payment of purchases, deferred payments and cash. This program only applies to active-duty members and their families who do not have current bad debts, bad checks or suspended check cashing privileges at the Navy Exchange.

Eligible customers can request that their personal check be withheld from deposit. The Navy Exchange check cashing policy will remain in effect. This special assistance program can only be supported for a limited period of time and will terminate at the direction of the Commander, Navy Exchange Service Command, based on financial operation considerations. For addition information see NAVADMIN 275/95.

(This story appeared on Navy Wire Service as NWSA1256)

-USN-

NNS748. Navy plans good order and discipline standdown

WASHINGTON (NNS) -- Chief of Naval Operations ADM Mike Boorda has announced that all Navy commands will "standdown" routine operations for one day to review "Good Order and Discipline" within the Navy and examine how people in the Navy can participate fully in improving and helping others improve their performance and potential for success.

In calling for the standdown, ADM Boorda said, "We have a great Navy and are blessed with the best people in years. The vast majority are working hard, often making significant sacrifices as part of their service, and again, the vast majority are success oriented and succeeding." He noted, however, "I am seeing some signs that, as good as we are... and we are very good, it is time for us to do a little preventative work. We want our Navy to be as good as it can be and that means all of us must be involved in the solutions to the problems that face us as leaders and as members of the Navy family."

Each command will tailor their "standdown" program to meet their specific situation. Topics are to include a broad range of subjects that fall within the Navy's definition of leadership; including how commands define and measure individual and command success, how disciplinary actions detract from mission accomplishment and affect the lives and careers of individuals, and the impact alcohol and drug abuse has on good order and discipline.

In his message to the Navy's leadership, ADM Boorda noted, "What I want stressed here is responsibility... responsibility of the leader to set standards and assist others in achieving them... responsibilities of individuals to adhere to standards for good order and discipline... responsibilities of shipmates for each other to avoid and stop problems before they get out of hand."

Commands have until Dec. 8 to conduct their programs.
(This story appeared on Navy Wire Service as NWSA1254)

-USN-

Personnel Notes

NNS749. Government shutdown affects BUPERS ADP operations
by LT Pamela Kunze, BUPERS Public Affairs

WASHINGTON (NNS) -- As a result of the government shutdown, many of BUPERS' routine computerized administrative functions have ceased. The following summarizes some of the key processes affected:

Detailers and Placement Officers will not have the computer support needed to write orders, answer questions requiring access to personnel record data, or make changes to records. Additionally, the Job Advertising and Selection System (JASS) will be available for viewing, but cannot be updated.

All personnel actions normally processed through Source Data Systems and the Diary Message Reporting System will not be processed until all systems are back on line. Advancements, gains, extensions, and changes to pay data will not be processed, although discharges and reenlistments can be processed manually.

The DOD systems of DEERS and RAPIDS will not be affected by the shutdown. ID cards can continue to be issued and Pers-334 will continue to perform DEERS verifications and 60-day extensions of CHAMPUS and medical facility benefits.

The Total Force Manpower Management System (TFMMS) will be unavailable. No updates to the TFMMS database can be input from the field and no queries against the database can be made.

Additionally, organizations that regularly provide computer updates to BUPERS are requested to hold all data inputs until BUPERS' systems are back on line.

The Chief of Naval Personnel, VADM Skip Bowman, requested Sailors keep in touch with the appropriate BUPERS offices if situations arise that require BUPERS assistance. He said, "We will do our very best to answer your questions and ensure we help where we can."

Additional information is available in NAVADMIN 280/95.

-USN-

NNS750. Bonus programs affected by government shutdown
by LT Kelly Watson, BUPERS Public Affairs

WASHINGTON (NNS) -- Since no continuing resolution (CR) or

appropriations bill was passed in time to avoid a government shutdown, existing bonus programs and automated request processing procedures require temporary modification. The Bureau of Naval Personnel will assist in every possible way to minimize the impact.

The four special pay areas/procedures impacted by the temporary lack of funding are Selective Reenlistment Bonus (SRB), Special Duty Assignment Pay (SDAP), Enlistment Bonus (EB), and Automated Services. The following specific limitations will remain in effect until the government "reopens" with a signed CR or appropriations bill:

Selective Reenlistment Bonus

No new SRB reenlistment contracts are authorized during the government shutdown. Service members eligible for SRB who will reach their EAOS on or after Nov. 14 can extend on a month-to-month basis to retain SRB eligibility.

Sailors with approved SRB reenlistment dates from PERS-255 on or after Nov. 14 cannot reenlist for SRB. These members will also be authorized one month extensions. Once the government is back in operation, SRB reenlistment will be reauthorized on the date the Sailor chooses.

Sailors who must reenlist at EAOS to prevent passing through a zone which, by law, would result in the forfeiture of SRB, must reenlist without SRB, but can petition the Board of Corrections for Naval Records (BCNR) to receive SRB retroactively. We will help everyone who faces this problem by assisting with the necessary BCNR paperwork.

Sailors who must reenlist for orders or schools must sign a NAVPERS 1070/613 (Page 13) agreeing to reenlist within 30 days of passage of a CR or appropriations bill.

SRB-eligible Sailors who must reenlist prior to a pre-existing extension becoming operative in order to avoid losing SRB dollars will have to reenlist without SRB during the shutdown and can petition the BCNR to receive SRB retroactively. Again, we will help everyone who finds themselves in this situation to petition BCNR to receive the full amount of SRB he or she would have been entitled to without a loss during the period of extended service.

All SRB anniversary payments from previous fiscal year contracts will be paid once a CR or appropriations bill is passed. For example, if a Sailor reenlisted Nov. 17, 1994, and his or her first anniversary payment is due on Nov. 17, 1995, the anniversary payment will be paid retroactively after a spending bill is passed.

Special Duty Assignment Pay

SDAP will be affected the same as military pay. It will be paid retroactively for the period of the shutdown.

Enlistment Bonus

Enlistment contracts executed during the period of the shutdown cannot include EB guarantees. Unlike SRB and SDAP, EB is not paid retroactively once a Sailor has signed a contract. After a spending bill is passed, classifiers can augment existing contracts to encourage recruits to enter a specific specialty prior to the Sailor's first day of "A" School.

Automated Services

Automated request processing will be unavailable during the shutdown. Requests generally submitted via the automated DMRS/SDS systems (individual bonus account queries, SDAP error corrections, ENCORE reenlistment requests and fleet reserve/SER eligible retirement requests) must be submitted via message, letter or fax.

"We want to assist in every possible way, and will," said Chief of Naval Personnel VADM Skip Bowman. "The bottom line is that customer service will be provided, just at a slower rate."

As events warrant, BUPERS will continue to keep Sailors informed. More information about the effect of the shutdown on bonus programs and points of contact to address specific questions are contained in NAVADMIN 279/95. More information about the effect of the shutdown on routine BUPERS functions is contained in NAVADMIN 280/95.

-USN-

NNS751. 28 "A" schools offer quotas for immediate transfer by LT Kelly Watson, BUPERS Public Affairs

WASHINGTON (NNS) -- Attending "A" School offers an outstanding opportunity for non-designated Sailors to obtain technical training for a particular rating in the Navy through both classroom and hands-on courses of instruction.

"A" School also offers college credits through the Servicemembers Opportunity Colleges associate and baccalaureate degree program for the Navy (SOCNAV).

Qualified Sailors eligible for immediate transfer can attend one of the 28 "A" Schools which still have FY96 quotas available: ABE, AE, AECF (combined FC/DS/ET), AME, AMS, AT, AW, AZ, CTM, CTO, CTR, CTT, EN, ET(SS), EW, FT, GM, GSM, HT, IC, MM, MS, MT, OS, RM, STG, STS, and TMS. What's more, all of these ratings currently offer Sailors excellent advancement opportunity.

Sailors within 12 months of EAOS, who fully meet all school requirements listed in Chapter 7 of the Enlisted Transfer Manual, should submit an ENCORE request for available "A" School quotas. All other fully qualified Sailors requesting quotas must submit NAVPERS 1306/7. With a positive commanding officer endorsement, the "minimum 12 months on board" requirement will be waived.

For those Sailors who are not fully qualified for their desired "A" School, there are several programs designed to expand the list of ratings for which they may be eligible. The Job

Oriented Basic Skills (JOBS) Program allows Sailors to improve targeted academic skills, and Functional Skills training under Navy Campus is designed to improve ASVAB test scores.

The Bureau of Naval Personnel encourages commands to review service records of Sailors who entered the Navy during the summer surge months when "A" School availability is limited. Many of those individuals meet the requirements for highly technical ratings and are excellent candidates to attend "A" School during the first half of FY96. Filling the unused seats will ensure future fleet manning readiness and help Sailors realize their full potential for advancement and career development.

BUPERS will issue Permanent Change of Station orders for "A" Schools greater than 20 weeks. Subsequent assignment will be based on fleet requirements at the time of class completion, but every effort will be made to return the individual to the losing command if a billet requirement exists. For classes less than 20 weeks, commands will be notified of returnable quota availability by BUPERS. If a returnable quota is available, the parent command must fund the travel/TAD costs associated with the Sailor's return from "A" School.

BUPERS representatives are available to travel to major commands to make "A" School reservations for junior enlisted Sailors. To request this team, and for additional information, contact LT Robertson (PERS-4010S) at DSN 223-1326 or (703) 693-1326. More information is also available in NAVADMIN 278/95.

-USN-

NNS752. Mine warfare specialist-mineman rating expansion announced by LT Pamela Kunze, BUPERS Public Affairs

WASHINGTON (NNS) -- As part of the Navy's effort to establish a cadre of enlisted mine warfare professionals, the Mineman (MN) rating will expand and open up to Sailors in other ratings who have earned mine warfare NECs.

Personnel in the expanded MN rating will serve sea duty in surface and air mine countermeasures units and shore duty in mobile mine assembly groups (MOMAGS), as well as performing other functions related to mine warfare.

Opportunities to convert to the expanded rating will be open to enlisted mine warfare specialists in the BM, DS and STG ratings who hold specific mine warfare NECs. Eligible Sailors should submit a request for conversion by message to BUPERS (Pers-292). Selected individuals who have served at least a three-year tour of MCM/MSO/MHC duty can also apply. These applications will be screened by BUPERS in consultation with Mine Warfare Command.

Those personnel selected for conversion into the MN rating may be detailed at their current PRD to sea or shore duty.

The revised MN occupational standards, which reflect the

expanded rating, were issued in February 1995. The new MN Personnel Advancement Requirements bibliography, along with a study guide, will be available to the fleet by February 1996. Both will be included as part of the September 1996 MN rating advancement examination cycles.

Amplifying information is available in NAVADMIN 256/95, or from CDR Brown, the surface combat systems enlisted community manager, at DSN 224-6503 or (703) 614-6503; or by fax to DSN 224-6502 or (703) 614-6502.

-USN-

NNS753. After praise from Sailors, JASS expands by LT Kelly Watson, BUPERS Public Affairs

WASHINGTON (NNS) -- The Bureau of Naval Personnel's prototype Job Advertising and Selection System (JASS), which became available in a pilot program for the personnelman (PN) rating in August, will expand to aviation ratings and submarine junior officers in early 1996.

The system will allow Sailors to work with career counselors via computers to review billet vacancies and apply for available jobs. Detailers then process job applications according to the best match.

Due to the overwhelmingly positive feedback from PNs and career counselors, Chief of Naval Personnel VADM Skip Bowman has decided to expand this capability to the entire enlisted aviation community (22 ratings and 74,000 Sailors) sooner than originally planned. Also included in this expansion are submarine junior officers (O1-O3) in the 1120, 1125, 1170 and 1175 designators, and the PN-2612 NEC community. TAR personnel will be included at a later date.

JASS currently is accessible by command representatives who have requested, and been granted, a JASS user ID. Unlike the pilot program, this production version of JASS will also be accessible through the Internet. To obtain acceptable performance using JASS, a 386 (25 MHZ or faster) PC with 4MB RAM (or more) memory and 14,400 BAUD (or faster) internal modem are required.

Specific implementation procedures will be announced in a forthcoming NAVADMIN. Future issues of LINK and PERSPECTIVE magazines will address procedures for the enlisted aviation and submarine junior officer communities. Procedures also will be discussed during upcoming detailing trips and the information will be posted on community bulletin boards on BUPERS ACCESS and on the BUPERS Home Page.

A complete list of aviation ratings and NEC communities involved is available in NAVADMIN 276/95. Additional communities will be added incrementally and their effective dates announced once they are established.

The BUPERS point of contact for technical questions regarding hardware or software requirements is PERS-4GT at DSN 224-8314 or (703) 614-8314. For questions about detailing procedures, contact the respective detailer.

-USN-

NNS754. Summary of NAVADMINs

NAVADMIN 273/95 (DTG 081326Z NOV 95) -- U.S. service members awarded the U.N. Medal are now authorized to wear the suspension ribbon and accompanying service ribbon earned for the first U.N. operation in which they participate.

NAVADMIN 274/95 (DTG 091317Z NOV 95) -- Management and control of leather flight jackets.

NAVADMIN 275/95 (DTG 101921Z NOV 95) -- Navy Exchange assistance to active-duty members and their families if a government shutdown results in a future non-pay payday.

NAVADMIN 278/95 (DTG 131928Z NOV 95) -- FY96 "A" School opportunities.

NAVADMIN 279/95 (DTG 140155Z NOV 95) -- Bonuses, special incentive pays and automated requests to be affected by government shutdown.

NAVADMIN 280/95 (DTG 140156Z NOV 95) -- Many BUPERS administrative functions to cease due to government shutdown.

NAVADMIN 281/95 (DTG 142320Z NOV 95) -- Officer SER boards will convene later this month and in early December to select officers in the grades of CAPT, CDR, LDO LCDR and Chief Warrant Officer for retirement.

NAVADMIN 282/95 (DTG 142321Z NOV 95) -- Officers selected for transfer and/or redesignation.

-USN-

Around the Fleet

NNS755. Notable Quotable: "Good order and discipline is going to be discussed through the chain of command in a positive way so that people can feel good about what they do and do it even better. It will not include sensitivity training or outside speakers, or anything like that. We need to do some preventative maintenance for those who are getting in trouble. This is going to be the chain of command talking within the command about how we are going to do better with good order and discipline so that we don't have to punish people. To do otherwise would not be responsible." -- Chief of Naval Operations ADM Mike Boorda during a press briefing Nov. 9, in Washington, D.C.

-USN-

NNS756. Status of the Navy: Nov. 13, 1995

Personnel:	430,458 active duty; 100,700 reserves
Aircraft:	4,962
Ships:	368

At Sea: 181 ships (49%)
Deployed: 104 ships (28%)
Exercises: 13
Port Visits: 12
SSNs at Sea: 41 (49%)

Carriers/Air Wings at Sea:

USS Enterprise - local operations, Western Atlantic
USS Kennedy - local operations, Western Atlantic
USS America/CVW 1 - Exercise Bright Star, Mediterranean
USS Carl Vinson - local operations, Eastern Pacific
USS Independence/CVW 5 - Annuaalex, Western Pacific

LHAs/LHDs/LPHs at Sea:

USS Peleliu - en route Okinawa
USS Essex - Eastern Pacific
USS Wasp/26th MEU - Exercise Bright Star
USS New Orleans/11th MEU - en route out chop 5th Fleet
USS Belleau Wood - Western Pacific
USS Kearsarge - port visit, New York City

Establishment:

Airborne Early Warning Squadron 77, Nov. 18 at NAS Atlanta
-USN-

NNS757. This Week in Navy History: Nov. 14, 1910 -- Eugene Ely, a civilian contract pilot, flew a plane off a temporary 57-foot wooden deck built over the bow of the cruiser Birmingham -- the first takeoff from a ship.

-USN-

Short Splices

NNS758. Navy-Marine Corps News

The Nov. 17 edition of Navy-Marine Corps News -- a videotaped newscast generated for broadcast to Navy-Marine Corps fleet and shore units -- includes the following stories:

- CNO orders good order and discipline standdown
- CNN examines Navy's efforts to improve good order
- U.S. Navy Memorial a homeport for Sailors past and present
- Families return to Naval Base Guantanamo Bay, Cuba
- Navy body builder lifts school children's spirits
- Movie Call: "Get Shorty" long on laughs and action

We need your input on the show, so call our FEEDBACK LINE at (202) 433-6108 or DSN 288-6108 and leave a message or send us E-Mail at: nmcn@smtp.mediacen.navy.mil

If you have distribution questions contact Mr. John Morrissey at (202) 433-5844 or DSN 288-5844, or write him at the address mentioned below. All Navy/Marine Corps News tapes must be returned each week. Please use the enclosed return label.

If you have items that you think would be of interest to the Navy or Marine Corps worldwide, please submit your original video

contributions on Betacam, Hi-8, Super VHS, or 3/4 inch videotape to the nearest Navy Broadcasting Fleet Support Detachment or send by fastest means possible to our Field Producer at:

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(202) 433-6275, DSN 288-6275

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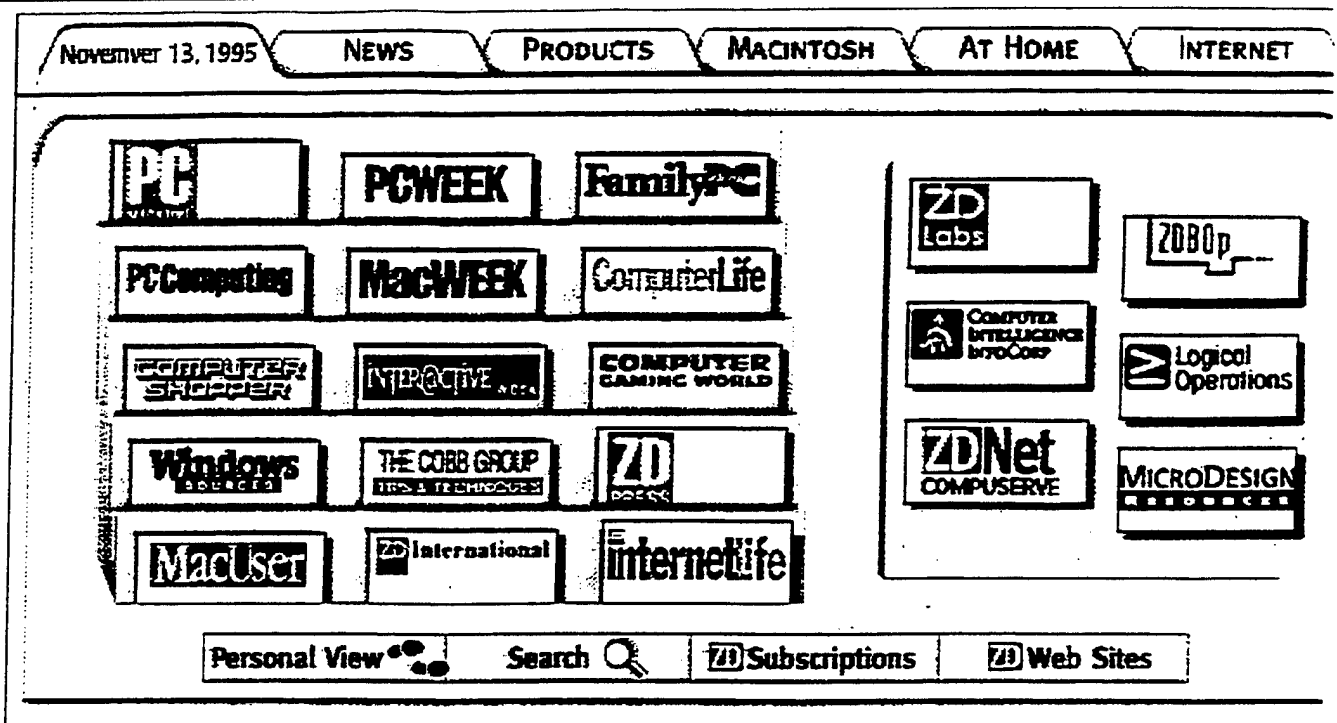
Computers and Communications



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- **BYTE** The multiplatform computing magazine
 - **Computing McGraw-Hill** Computer-oriented technical books
 - **Data Communications** The magazine for enterprise network integrators
 - **Datapro Information Services Group** Comprehensive information services for the global IT industry
 - **LAN Times** The information source for network computing
 - **National Software Testing Laboratories** Hardware and software testing and certification
 - **Northern Business Information** A subsidiary of Datapro that provides primary market research and competitive intelligence to the global telecom industry
 - **Open Computing** The magazine for managers of Information Services and Technology
 - **Osborne Books** Computer books, tutorials, references and user guides
 - **UnixWorld Online** Practical, hands-on technical articles, columns, and tutorial users, programmers, and system administrators of platforms running the UNIX operating system

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Electronic Buyers' News	Electronic Engineering TIMES	HOMEPC	INFORMATIQUES
INFORMATIONWEEK	InteractiveAge	max	NetGuide
NETWORK COMPUTING	OEM	VARBusiness	WINDOWS

CommunicationsWeek , CommunicationsWeek International , Computer Reseller News

Computer Reseller News Germany

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APPENDIX J

Electronic Journals

Electronic Journals

The following list of electronic journals contains, where available, a description of the publication, information on access or subscription, and contact information.

- ◆ Access On-line
 - ◆ NCSA's general interest magazine.
 - ◆ <http://www.ncsa.uiuc.edu/Pubs/access/accessDir.html>
 - ◆ Fran Bond fbond@ncsa.uiuc.edu
- ◆ Advances in Systems Science and Applications
 - ◆ All aspects of systems science from the International Institute for General Systems Studies (IIGSS), supported by the Southwest Texas State University. Electronic Engineering, Computer Science, Mathematical Systems, System Methodologies in Social Science and Medical Science
 - ◆ <ftp://anonymous.assa.math.swt.edu>; WWW at <http://assa.math.swt.edu>
 - ◆ [Yonghao Mama@assa.math.swt.edu](mailto:Yonghao.Mama@assa.math.swt.edu)
- ◆ American Mathematical Society Bulletin
 - ◆ The AMS mathematical journal is distributed to all members as a privilege of membership. A refereed paper journal with an Internet counterpart as of 1992.
 - ◆ All issues located on AMS gopher
- ◆ Applied Physics Letters On-line
 - ◆ On-line version of Applied Physics Letters (subscribers only) from American Institute of Physics. Full text articles with color figures, tables, complex equations, references, and hypertext links to bibliographic databases.
 - ◆ World Wide Web availability: <http://www.oclc.org> at the On-Ramp to OCLC Services.

- ♦ Tim Ingoldsby Director of New Product Development
aplonline@aip.org
- ♦ ASSOCIATES
 - ♦ The Electronic Library Support Staff Journal
 - ♦ SUBSCRIBE ASSOC-L <first name last name> to
listserv@ukanvm.bitnet or listserv@ukanvm.cc.ukans.edu. For
instructions in accessing backfiles, send a request to associat@
ukanvm.bitnet or associat@ukanvm.cc.ukans.edu
 - ♦ Kendall Simmons associat@ukanvm.cc.ukans.edu or
associat@ukanvm.bitnet
- ♦ Banks of the Boneyard
 - ♦ The Journal of the Association for Computing Machinery (ACM) at
the University of Illinois in Urbana-Champaign (student chapter
newsletter).
 - ♦ Gopher vixen.cso.uiuc.edu or by WWW
<http://sleepless.cs.uiuc.edu/banks>
- ♦ Beitr ge zur Algebra und Geometrie/Contributions to Algebra and Geome-
try
 - ♦ Publishes research articles in the areas of algebra, geometry, alge-
braic geometry and related fields, preferably in English language.
 - ♦ [http://www.zblmath.fiz-karlsruhe.de/e-journals/BAG/index.ht
ml](http://www.zblmath.fiz-karlsruhe.de/e-journals/BAG/index.html)
 - ♦ B. Wegner, wegner@math.tu-berlin.de-
- ♦ Chicago Journal of Theoretical Computer Science
 - ♦ Peer-reviewed scholarship on theoretical computer science, com-
plexity theory, algorithms, logics of programming, distributed and
parallel algorithms, database theory, and computational geometry.
 - ♦ Contact MIT Press Journals Circulation Department: 617-253-2889
(voice), 617-258-6779 (fax), or journals-orders@mit.edu, Janet
Fisher, Journals Manager MIT Press
- ♦ Complexity International
 - ♦ Hypermedia journal for complex systems research, peer reviewed;
covers the field of complex systems, the generation of complex

behaviour from the interaction of multiple parallel processes, artificial life, cellular automata, chaos theory, control theory, evolutionary programming, fractals, genetic algorithms, information systems, neural networks, nonlinear dynamics, and parallel computation.

- ♦ <http://www.csu.edu.au/ci/ci.html>
- ♦ Professor David Green ci-submissions@csu.edu.au
ci-editor@csu.edu.au or dgreen@csu.edu.au

♦ Computer Currents

- ♦ A monthly magazine of computer news and features.
- ♦ <http://www.onramp.net/~ccurrent/> or send mail to ccurrent@onramp.net

♦ Computer Sun Times

- ♦ Colorado-based monthly reviews, and releases the latest in computer software and hardware and listings of computer resources.
- ♦ <http://rainbow.rmii.com:80/cstimes/> or E-mail to thunder@rmii.com

♦ Computer-Mediated Communication Magazine

- ♦ Interdisciplinary mix of perspectives from communication, technology, journalism, and other disciplines. CMC Magazine publishes news, features, essays, and research reports about the phenomenon of human communication and information retrieval on global networks.
- ♦ <http://www.rpi.edu/~decemj/cmc/mag/current/toc.html>
<http://www.rpi.edu/~decemj/cmc/mag/archive.html>
- ♦ John December decemj@rpi.edu

♦ Digital Technical Journal

- ♦ Refereed journal published quarterly by the Digital Equipment Corporation.
- ♦ [ftp://ftp.digital.com](ftp://ftp.digital.com/pub/Digital/info/DTJ), in directory [/pub/Digital/info/DTJ](ftp://ftp.digital.com/pub/Digital/info/DTJ) or via WWW at <http://www.digital.com/info/DTJ>
- ♦ Russ Jones rjones@pa.dec.com

◆ Electronic Journal of Combinatorics

- ◆ A refereed journal of discrete mathematics, combinatorics, graph theory, discrete algorithms, etc.
- ◆ send E-mail to calkin@math.gatech.edu with your name and E-mail address, or via WWW at <http://ejc.math.gatech.edu:8080/Journal/journalhome.html> or gopher ejc.math.gatech.edu:8081 or ftp at [ftp.math.gatech.edu cd /pub/ejc/Journal](ftp://ftp.math.gatech.edu/pub/ejc/Journal)
- ◆ Neil Calkin calkin@math.gatech.edu

◆ Electronic Journal of Differential Equations

- ◆ Rapid dissemination of original, high-quality research in all aspects of differential and integral equations. Articles are submitted as TeX files, sent to referees electronically, and then circulated electronically following acceptance. Each article will be subject to as rigid a peer review process as is applied by the finest of today's printed journals message.
- ◆ subs@ejde.math.swt.edu, or telnet (login: ejde), or gopher, ftp (login: ftp; cd pub) at: ejde.math.swt.edu or ejde.math.unt.edu via web at <http://ejde.math.swt.edu>
- ◆ Alfonso Castro editor@ejde.math.unt.edu

◆ Electronic Journal of Strategic Information Systems

- ◆ Referred — each contribution is published individually, and sent out immediately after acceptance by the reviewers.
- ◆ Via listserver: send E-mail to mailbase@mailbase.ac.uk; leave subject blank; in the message body: join sisejournal your-first-name your-last-name; or gopher nisp.ncl.ac.uk/11/lists-p-t/sis-ejournal; or ftp [mailbase.ac.uk, dir: /pub/lists/sis-ejournal](ftp://mailbase.ac.uk/pub/lists/sis-ejournal); or via WWW at <http://www.shef.ac.uk/uni/projects/ejsis/volumes/sisej.html>
- ◆ Luis C.L. Zeredo Editor-in-Chief
sis-ejournal-request@mailbase.ac.uk or l.zeredo@shef.ac.uk

◆ Electronic Letters On-line

- ◆ Peer-reviewed articles that report on electronics, including electronic science and engineering, telecommunications, optoelectronics, and optical communication. Electronic Letters On-line corresponds to the printed journals Electronics Letters, published by IEE, from volume 29, issue 18 (September 2, 1993), including full

text articles with figures, tables, equations, references, etc. Requires subscription.

- ♦ IEE/INSPEC Department, IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, 908-562-5549
- ♦ Jim Ashling inspec@dm.rs.ch
- ♦ Electronic Transactions on Numerical Analysis
 - ♦ Numerical analysis and scientific computing., analysis of algorithms for the solution of continuous models and numerical linear algebra and implementation and performance of such algorithms.
 - ♦ Via web at <http://etna.mcs.kent.edu>, <gopher://etna.mcs.kent.edu> or anonymous ftp <etna.mcs.kent.edu>, E-mail: mailer@etna.mcs.kent.edu
 - ♦ Arden Ruttan ruttan@etna.mcs.kent.edu
- ♦ Energy Ideas
 - ♦ Use of energy-efficient and renewable energy technologies in public sector facilities. The articles explain the available technologies and present case studies that describe installations, including cost information and the successes and failures. The articles also include a contact person for each case study.
 - ♦ Subscribe to EcoNet and read the two conferences where it is posted; or contact ei@igc.apc.org to be placed on mailing list. All issues are still posted on climate.news (EcoNet).
 - ♦ Jonathan Kleinman Editor ei@igc.apc.org
- ♦ Intellectual Property
 - ♦ Quarterly; IP magazine features articles on the latest and most controversial developments in the laws governing technology and information from federal copyright law to the protection of trade secrets to antitrust enforcement.
 - ♦ <http://www.portal.com/~recorder/recorder.html>
 - ♦ Art George ageorg00@reach.com
- ♦ Interface\Alabama Supercomputer Authority Journal
 - ♦ Quarterly; information about hardware and software additions and upgrades, research developments, support staff, and new

member organizations of the Alabama Supercomputer Network (ASN). Nonacademic institutions, including federal agencies and industry, are encouraged to explore cooperative ventures with us.

- ♦ <http://www.asc.edu>
- ♦ Ms. Josie McCrary asajam01@asnmail.asc.edu
- ♦ Issues In Science and Technology Librarianship
 - ♦ Provides short substantial articles on timely and important topics in science and technology librarianship as well as conference and workshop reports and short correspondences.
 - ♦ Send a message to acrlsts@hal.unm.edu
 - ♦ Harry Lull Editor acrlsts@hal.unm.edu
- ♦ J.UCS
 - ♦ The Journal for Universal Computer Science is a new journal publication covering all areas of computer science.
 - ♦ <http://tick.ntp.springer.de>
 - ♦ em-helpdesk@springer.de
- ♦ Journal of Artificial Intelligence Research
 - ♦ The Journal of Artificial Intelligence Research (JAIR) is a refereed publication, covering all areas of artificial intelligence (AI).
 - ♦ Via WWW:<http://www.cs.washington.edu/research/jair/home.html> or via gopher: p.gp.cs.cmu.edu or ftp: p.gp.cs.cmu.edu, cd/usr/jair/pub message: jair@cs.cmu.edu; subject: AUTORESPOND; message: HELP
 - ♦ Steven Minton jair-ed@ptolemy.arc.nasa.gov
- ♦ Journal of Fluids Engineering
 - ♦ Focused on the re-use of data. Authors who believe that they have significant data, experimental or numerical, to share with the readership submit that data on a disk, together with their manuscript. Or editors invite authors who submit papers to supplement their publication with data. These data are reviewed together with the manuscripts and, if accepted, the data are included in the data bank of the Journal maintained electronically by the Scholarly Communications Project of Virginia Tech. The purpose is to better

document and disseminate high-quality scientific information of interest to the fluids engineering community.

- ♦ Via ftp borg.lib.vt.edu cd/pub/JFE or via web at <http://scholar.lib.vt.edu/ejournals/JFE/jfe.html>
- ♦ Gail McMillan, Director Scholarly Communications Project
gailmac@vt.edu
- ♦ Journal of Mathematical Systems, Estimation, and Control
 - ♦ JMSEC publishes mathematically sophisticated papers in the areas of systems, estimation, and control theory.
 - ♦ Gopher: //trick.ntp.springer.de/11/jmsec/
 - ♦ em-helpdesk@springer.de
- ♦ LIBRES
 - ♦ Library and Information Science Research Electronic Conference includes discussions of research in progress, reviews of research, queries and responses from participants, and conference announcements. All editors are volunteers on the LIBRES Project.
 - ♦ Subscribe to the listserver at listserv@kentvmd.bitnet or listserv@kentvm.kent.edu or use anonymous ftp at <ftp://cc.curtin.edu.au> login: anonymous password: guest cd LIBRESEARCH get filename (where filename = exact name of file in Table of Contents)
 - ♦ Dr. F.C.A. Exon Editor-In-Chief lexonfca@cc.curtin.edu.au
- ♦ MC Journal
 - ♦ Peer reviewed, electronic journal encompassing all aspects of academic audiovisual librarianship. Focus includes cataloging, reference, collection development, equipment, and administration. Mediagraphies, bibliographies, and articles related to media library education are also accepted. Columns include Inter-Media, a column on Internet resources for media professionals; Technology-Watch, on new technologies important to the media profession; and Media Works, focusing on an aspect of every day media center routines that have proven successful.
 - ♦ Send following E-mail message to:
LISTSERV@ubvm.cc.buffalo.edu SUBSCRIBE MCJRNL firstname lastname or <ftp://ubvm.cc.buffalo.edu>, cd /MCJRNL or gopher

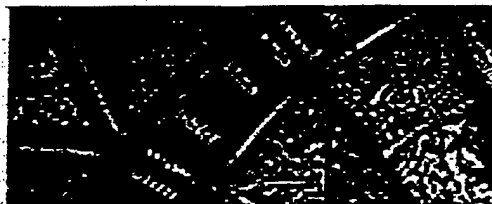
wings.buffalo.edu gopher://wings.buffalo.edu/hh/libraries/publications/mcjrn1

- Lori Widzinski— hsl1jw@ubvm.cc.buffalo.edu or hsl1jw@ubvm.bitnet

- ◆ The International Journal of Analytical and Experimental Modal Analysis
 - Free distribution of the abstracts of the papers, prior to their print publication. Abstracts are available periodically via the subscribers' listserv.
 - Send a message to listserv@borg.lib.vt.edu, Subscribe modal-l <your name> or use gopher at borg.lib.vt.edu gopher://borg.lib.vt.edu:00/modal or via web at http://borg.lib.vt.edu:80/ejournals/MODAL/modal.html
 - Contact Gail McMillan for hard copies Gail McMillan gailmac@vt.edu
- ◆ New York Journal of Mathematics
 - Refereed mathematics journal.
 - Via web at http://nyjm.albany.edu:8000/nyjm.html or by gopher nyjm 1070 or by ftp to nyjm.albany.edu, look in /pub/nyjm abstracts available on listserv lists nyjmath-a, nyjm-alg, nyjm-an, nyjm-top on listserv@albany.edu
 - Mark Steinberger Editor-in-Chief mark@sarah.albany.edu
- ◆ Notices of the AMS
 - A Journal of the American Mathematical Society.
 - http://e-math.ams.org/web/publications/notices/notices-home.html
- ◆ Numerische Mathematik
 - Electronic journal in mathematics. Significantly new and important developments in all areas of numerical analysis, with "Numerical Analysis" understood in its most general sense.
 - http://tick.ntp.springer.de/server/nmee1.html
 - em-helpdesk@springer.de
- ◆ The Olive Tree

- ♦ Open dissemination of concepts and ideas within the fields of library science and information resources. The journal is created and maintained at the University of Arizona School of Library Science, which is currently seeking a name change to the School of Information Resources.
- ♦ Via web at <http://timon.sir.arizona.edu/pubs/Olive.html>
- ♦ Shafer Ramsey Systems Editor
wonka@neuromancer.hacks.arizona.edu
- ♦ The Public-Access Computer Systems Review
 - ♦ Papers on topics such as campus-wide information systems, CD-ROM LANs, document delivery systems, electronic publishing, expert systems, hypermedia and multimedia systems, locally mounted databases, network-based information resources and tools (e.g., Gopher and World-Wide Web), and online catalogs. The journal is also published in print form by the American Library Association.
 - ♦ send a message to listserv@uhupvm1.uh.edu, SUBSCRIBE PACS-P <first name> <last name> or use gopher at info.lib.uh.edu [gopher://info.lib.uh.edu:70/11/articles/ejournals/uhlibrary/pacsreview](http://info.lib.uh.edu:70/11/articles/ejournals/uhlibrary/pacsreview)
 - ♦ Charles W. Bailey, Jr. Editor-in-Chief cbailey@uh.edu
- ♦ Radio Scientist On-Line
 - ♦ An on-line journal of research, review and tutorial in the fields of radio physics and engineering, for articles appropriate for multimedia presentation; published by the New Zealand National Committee for the International Union of Radio Science (NZNCURSI), a Committee of the Royal New Zealand Society for Science and Technology (RSNZ).
 - ♦ <http://newton.otago.ac.nz:808/trol/Rolhome.html>
 - ♦ R. L. Dowden ursi@physics.otago.ac.nz
- ♦ Satellite Journal International
 - ♦ A fortnightly satellite news journal for satellite professionals and enthusiasts. SJI provides readers with current news and information provided by a network of correspondents around the globe.
 - ♦ use [ftp itre.uncecs.edu](ftp://itre.uncecs.edu), [cd /pub/satellite/sj](cd:/pub/satellite/sj) or the web at <http://itre.uncecs.edu/misc/sj/sj.html>

- ♦ Gary Torrens Publisher 0006373898@mcimail.com
- ♦ Soldiers
 - ♦ The Official Army Magazine published monthly under supervision of the Army chief of Public Affairs to provide the Total Army with information on people, policies, operations, technical developments, trends, and ideas of and about the Department of the Army. The views and opinions expressed are not necessarily those of the Department of the Army.
 - ♦ <http://tdcems.tdc.redstone.army.mil/soldiers/home.html>
 - ♦ rdbrown@redstone-emh2.army.mil
- ♦ Technology Review Magazine
 - ♦ Published continuously since 1899, covers technology and its implications, and addresses the practical applications of science, as opposed to laboratory breakthroughs and theory.
 - ♦ trsubscriptions@mit.edu or 1-800-877-5230; or via the web at <http://web.mit.edu/afs/athena/org/t/techreview/www/tr.html>
 - ♦ Martha Connors mconnors@mit.edu.



ELECTRONIC JOURNAL TITLES

APPLIED PHYSICS LETTERS ONLINE

- Refereed: Yes
- Began: September 1994, complete for 1995-
- Frequency: Weekly
- Format: Html
- Publisher: American Institute of Physics/OCLC

Publishes new experimental and theoretical papers. PASSWORD REQUIRED: contact Information Services via REFNET on the Lehigh network server for assistance.

CAUSE & EFFECT

- Refereed: No
- Began: 1989
- Frequency: Quarterly
- Format: ASCII, Html
- Publisher: Cause

This journal discusses planning, managing and evaluating information resources at 1 Cause colleges and universities.

BODY ELECTRIC

- Refereed: Yes
- Began: March 1994
- Frequency: Quarterly
- Format: ASCII, Html
- Publisher: Louisiana State University, Department of English

Edited literary journal consisting of fiction, poetry, nonfiction and literary criticism.

COMPLEXITY INTERNATIONAL

- Refereed: Yes
- Frequency: Irregular
- Format: ASCII, Html
- Publisher: Australian National University, Research School of Physical Sciences Engineering
- ISSN: 1320-0682

Hypermedia journal of complex systems research. Topics include: artificial life, cell automata, chaos theory, control theory, evolutionary programming, information systems, neural networks, and parallel computation.

COMPUTER-MEDIATED COMMUNICATION MAGAZINE

- Refereed: No
- Began: May 1994
- Frequency: Monthly
- Format: ASCII, Html
- Publisher: Rensselaer Polytechnic Institute, CMC Studies
- ISSN: 1076-027X

Covers research on using networked telecommunications systems to communicate & gather information.

CORNELL LAW REVIEW

- Refereed: No
- Began: November 1994
- Frequency: 6 times a year
- Format: Html, Print
- Publisher: Cornell Law School

The review includes studies and analysis of contemporary legal issues. Also includes book reviews.

EARLY MODERN LITERARY STUDIES: A JOURNAL OF SIXTEENTH AND SEVENTEENTH-CENTURY LITERATURE

- Refereed: Yes
- Began: April 1995

- Frequency: Three times a year
- Format: ASCII, Html
- Publisher: University of British Columbia. Dept. of English
- ISSN: 1201-2459

Covers English literature, literary culture and language during the sixteenth and seventeenth centuries. Contains reviews.

EDUCATION POLICY ANALYSIS ARCHIVES

- Refereed: Yes
- Began: January 19, 1993
- Frequency: Irregular (est. 15 times/year)
- Format: ASCII
- Publisher: Arizona State University. College of Education
- ISSN: 1068-2341

Analysis of educational policy at all levels.

EDUCOM REVIEW

- Refereed: No
- Began: January/February 1989
- Frequency: Bimonthly
- Format: ASCII
- ISSN: 1045-9146

Covers information technology in higher education.

EDUPAGE

- Refereed: No
- Frequency: Bimonthly
- Format: ASCII
- Publisher: EDUCOM

A summary of information technology issues in higher education.

ELECTRONIC GREEN JOURNAL

- Refereed: Yes
- Began: June 1994

- Frequency: Irregular
- Format: ASCII, Html
- Publisher: University of Idaho
- ISSN: 1076-7975

Devoted to disseminating information concerning sources on international environmental topics such as assessment, conservation, disposal, hazards, education, etc.

ELECTRONIC JOURNAL OF ANALYTIC PHILOSOPHY

- Refereed: Yes
- Began: August 1993
- Frequency: Irregular
- Format: ASCII, Html
- Publisher: Indiana University, Department of Philosophy
- ISSN: 1071-5800

Covers the historical movement and the current research in the field of analytic philosophy.

ELECTRONIC JOURNAL OF COMBINATORICS

- Refereed: Yes
- Began: 1994
- Format: TeX, PostScript, Html
- Publisher: Georgia Institute of Technology, School of Mathematics
- ISSN: 1077-8926
- Indexed: Mathematical Reviews

Journal of discrete mathematics including graph theory, combinatorics, and discrete algorithms.

ELECTRONIC JOURNAL OF DIFFERENTIAL EQUATIONS

- Refereed: Yes
- Began: August 1993
- Frequency: Irregular
- Format: TeX, PostScript
- Publisher: Southwest Texas State University, Department of Mathematics
- ISSN: 1072-6691
- Indexed: Mathematical Reviews

ELECTRONIC TRANSACTION ON NUMERICAL ANALYSIS (ETNA)

- Refereed: Yes
- Began: September 1993
- Frequency: Irregular
- Format: ASCII, PostScript
- Publisher: Kent State University Library in conjunction with the Institute of Computational Mathematics at Kent State.
- ISSN: 1068-9613
- Indexed: Mathematical Reviews

Covers numerical analysis and scientific computing, analysis of algorithms and numerical linear algebra.

FEDERAL COMMUNICATIONS LAW JOURNAL

- Refereed: No
- Frequency: Three times a year
- Format: Html, Print
- Publisher: Indiana University School of Law-Bloomington; Federal Communications Bar Association

Contains articles and student notes on communications law and policy. Expresses needs and interests of communications bar.

NASDAQ FINANCIAL EXECUTIVE JOURNAL

- Began: Summer 1993
- Frequency: Quarterly
- Format: Html
- Publisher: Legal Information Institute at Cornell Law School and the Nasdaq (SM) Stock Exchange

Covers financial and investing information for CEOs and CFOs to provide a framework for decision making.

INDIANA JOURNAL OF GLOBAL LEGAL STUDIES

- Refereed: Yes
- Began: Fall 1993

- Format: Html
- Publisher: Indiana University School of Law-Bloomington

Interdisciplinary journal covering global and domestic legal regimes, market politic culture.

INTERPERSONAL COMPUTING AND TECHNOLOGY JOURNAL

- Refereed: Yes
- Began: January 1993
- Frequency: Quarterly
- Format: ASCII
- Publisher: Georgetown University, Center for Teaching and Technology, Academic Computing Center
- ISSN: 1064-4326
- Indexed: CIJE

Covers issues surrounding the publishing of electronic journals.

JOURNAL OF ARTIFICIAL INTELLIGENCE RESEARCH (JAIR)

- Refereed: Yes
- Began: August 1993
- Frequency: Irregular
- Format: PostScript, Html, Print
- Publisher: AI Access Foundation
- Indexed: Mathematical Reviews

Contains scientific papers covering all areas of artificial intelligence. Papers should describe work that has both practical and theoretical significance...JAIR will also publish research notes -- very brief papers that extend or evaluate previous work.

JOURNAL OF STATISTICS EDUCATION

- Refereed: Yes
- Began: July 1993
- Frequency: Irregular
- Format: ASCII
- Publisher: North Carolina State University, Department of Statistics
- ISSN: 1069-1898

Related to topics on the teaching of statistics in post secondary education.

JOURNAL OF TECHNOLOGY EDUCATION

- Refereed: Yes
- Began: Fall 1989
- Frequency: Two times a year -- Fall and Spring
- Format: ASCII, PostScript, Print
- Publisher: International Technology Education Association; Council on Technology Teacher Education
- ISSN: 1045-1064

Contains scholarly articles relating to the teaching of children *about* technology.

JOURNAL OF WORLD ANTHROPOLOGY

- Refereed: No
- Began: April 1994
- Frequency: Quarterly
- Format: ASCII
- Publisher: State University of New York at Buffalo, Department of Anthropology
- ISSN: 1075-2579

Covers all fields of anthropology.

MOTHER JONES

- Refereed: No
- Began: January/February 1993
- Frequency: Bimonthly
- Format: ASCII, Html
- Publisher: Foundation for National Progress

Covers articles dealing with social and political issues.

NEW YORK JOURNAL OF MATHEMATICS

- Refereed: Yes
- Began: 1994
- Frequency: Irregular
- Format: ASCII, TeX
- Publisher: State University of New York at Albany, Department of Mathematics
- Indexed: Mathematical Reviews

POST MODERN CULTURE

- Refereed: Yes
- Began: September 1990
- Frequency: Three times a year
- Format: ASCII, Html
- Publisher: Oxford University Press
- ISSN: 1053-1920
- Indexed: MLA

Interdisciplinary journal, with a cultural studies and literary focus, devoted to the discussion of critical and theoretical issues in the characterization and constitution of "postmodern" condition.

PSYCHE

- Refereed: Yes
- Began: Dec. 1993
- Frequency: Four times a year
- Format: ASCII, SGML, Html, Print
- Publisher: Royal Melbourne Institute of Technology, Australia, Dept. of Psychology
- ISSN: 1039-723X

Interdisciplinary journal dealing with the nature of consciousness and its relationship to the brain. Disciplines covered are: Cognitive Science, Philosophy, Psychology, Neuroscience, AI and Anthropology.

SLAVIC REVIEW

- Refereed: Yes
- Began: Fall 1994
- Frequency: Quarterly
- Format: ASCII, Html, Print
- Publisher: American Association for the Advancement of Slavic Studies
- Indexed: MLA, PAIS, Humanities Index

Covers Russian, Eurasian and East European studies.

WWW JOURNAL OF BIOLOGY

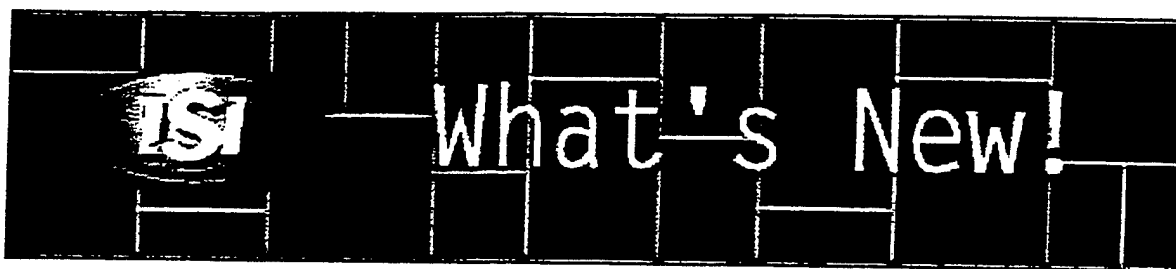
- Refereed: Yes
- Began: 1995
- Frequency: Monthly
- Format: Html
- Publisher: Electronic Press Inc.
- Back Issues: Also available on CD-ROM archived quarterly

Covers topics in the biological sciences.



APPENDIX K

Information Available from Scientific and Technical Information Network, Institute for Scientific Information, and Similar Sources



The Electronic Library Project

Internet Initiatives

Windows Platforms Products

News and Announcements

The Electronic Library Project

The Institute for Scientific Information® has initiated a special project -- ISI's Electronic Library. This project will offer access to the 1,350 scholarly journals indexed in Current Contents®/Life Sciences. Full bibliographic information, abstracts and the full images of these journals -- where publisher permission has been obtained -- will be available through this system.

ISI's Electronic Library Project Now Operational

ISI's Electronic Library Update

ISI Announces Cooperative Arrangement

ISI and Lexmark International Announce Cooperative Arrangement

ISI's Electronic Library Prototype Incorporates Lotus Notes

ISI Announces Electronic Library Pilot Participants

ISI and IBM Announce Joint Study Focused On The Development Of An Electronic Library System

Internet Initiatives

Watch this space for a special announcement later this month.

Windows Platforms

News and Announcements

Press Releases

ISI Adds Additional Coverage to SciSearch®

ISI and Cambridge Form Alliance for Document Delivery

ISI to Release Reaction Citation Index® Database

ISI to Release Journal Citation Reports™; on CD-ROM

Current Contents®/Social & Behavioral Sciences Offers Optional Abstracts/Expanded Coverage

News Release 1995

News Flash 1995



[ISI Home Page](#) | [What's Hot!](#) |
[Products Menu](#) | [How to Reach Us](#)

For more information, please contact webmaster@isinet.com
Copyright 1995 Institute for Scientific Information®

The DIALOG Information Retrieval Service, from Knight-Ridder Information, Inc. (formally: Dialog Information Services), has been serving users since 1972. With over 450 databases from a broad scope of disciplines, it is truly the one-stop service for all of your information needs.

Contained in the DIALOG information collection are millions of documents drawn from more sources than any other online service - from scientific and technical literature - from full-text trade journals, newspapers, and newswires. There's more too...details - millions of chemical substances, information on patents issued worldwide, demographic data, and company financial statistics. Compiled from the world's most respected and authoritative information sources, DIALOG databases can provide you instant answers from just one source.

This document provides a subject guide to the hundreds of databases on the DIALOG system. Each database has a hypertext link to a Bluesheet which contains the details of the database structure.

Bluesheet Indexes: [Database Name][File Number][Subject][OneSearch][Search Options]

Subjects:

- Business - Business & Industry
- Business - Business Statistics
- Business - International Directories & Company Financials
- Business - Product Information
- Business - U.S. Directories & Company Financials
- Dialog Files
- Law & Government

- Multidisciplinary - Books
- Multidisciplinary - General
- Multidisciplinary - Reference
- News - Newspaper Indexes
- News - U.S. Newspapers Fulltext
- News - Worldwide News
- Patents, Trademarks & Copyrights
- Science - Agriculture & Nutrition
- Science - Chemistry
- Science - Computer Technology
- Science - Energy & Environment
- Science - Medicine & Biosciences
- Science - Pharmaceuticals
- Science - Science & Technology
- Social Science & Humanities



CAS Online Products and Services

CAS offers documentation to utilize its online products and services, i.e., STN International and STN Express.

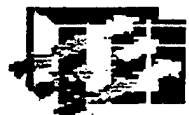
Several new files have been added in 1994, while four files have been removed from STN.



STN International

The following STN International user documentation and support material can help to better understand the content and features of the ~190 databases currently available.

- STN Database Catalog
- STN Database Summary Sheets
- CAS Standard Abbreviations
- STN Quick Reference Cards



STN Express

To make online searching easier, use STN Express!

STN Express, an integrated software package, enables you to save online costs and time by creating offline structure and reaction queries. It is available in both Microsoft Windows and Apple Macintosh versions, and accesses the STN online environment as well as other host systems.

Further Information

Contact the STN Customer Service center in your area for additional information concerning CAS online products and services.



[Go To CAS Home Page](#)

Updated September 14, 1995

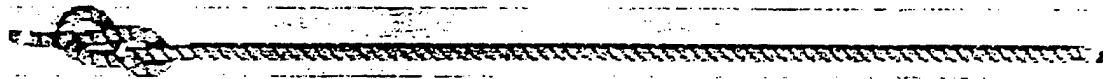


The Society of Naval Architects and Marine Engineers

SNAME is a non-profit, tax-exempt, professional association dedicated to advance the art, science, and practice of naval architecture and marine engineering by:

- providing facilities for the exchange of information and ideas,
- to disseminate the results of research, experience and information among the members,
- to encourage and sponsor research,
- to cooperate with educational institutions,
- and to promote the professional integrity and status of members.

SNAME is qualified under Internal Revenue Code Sections 170 and 501(c)(3) as an organization to which contributions are tax deductible.



Announcements

1995 Annual Meeting

featuring the theme *Technologies and Strategies for World Class Competitiveness in Ship Design, Ship Building and Ship Operations.*

October 4-7, 1995 at the Washington Hilton and Towers in Washington, DC



1996 Ship Production Symposium

14 to 16 February 1996, The Hyatt Regency, La Jolla, San Diego

featuring the theme *International Commercial Competitiveness in the Year 2000*

Welcome to the SNAME Website!

Opening just in time for the Annual Meeting, we are proud to announce our new website. Not all the exhibits are open yet, and we have a lot of plans for additional presentations. Over the next few months we will be filling in the holes, fixing some the presentations, and adding a lot of information. Please take some time to look it over, and be sure to send any comments you have to webmaster@www.sname.org. Your comments are crucial to making this website a useful resource for members and non-members alike.

More information about the Electronic Media Committee that created this website, about SNAME's move to the Internet, is presented in the Marine Technology article, "SNAME and the Internet."

This website is being hosted by the Hydromechanics Directorate of the Naval Surface Warfare Center, Carderock Division.

Departments



Local Section Information

including meeting schedules and
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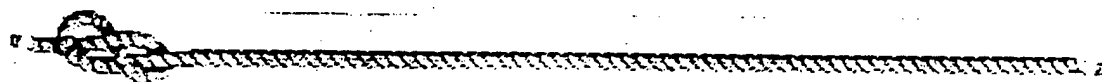
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13. ABSTRACT (Maximum 200 words) The Navy's four warfare centers and the Naval Research Laboratory need a modernized scientific and technical information (STI) discovery and delivery system. This study was directed toward applying computing and networking technologies and library science to create an STI environment delivering the most relevant information, on demand, to users in the various disciplines and locations involved, at the right cost. LMI conducted 19 focus groups with about 150 people at nine sites to determine the users' requirements and located potential sources of the most consistently requested types of STI. The report gives the findings and conclusions derived from these activities, weighs access and delivery options, investigates the system requirements (human resources, hardware, and software), and discusses management issues, including "acceptable use" policies, costs, and alternative digital library models. Appendices illustrate the kinds and formats of information available and highlight useful sources. The Navy Distributed Virtual Library (NDVL) is envisioned as a distributed system with a client-server architecture. The report recommends that development of the NDVL be pursued using the Internet as a backbone for "open source" information (keeping classified STI on a separate system), the World Wide Web as the application environment, and rapid prototyping as the development methodology.				
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