



Pointers

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National Park Service

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PARKNET



COMMUNICATIONS FILE SERVERS

One of the significant capabilities planned for NPS' ParkNet Communications Network is to place communications file-servers in each regional office to simplify park access to the various computing centers by giving the park the option to use one local telecommunications method to access any NPS computer system.

Several years ago ParkNet was just an idea. Since then it has taken the form of a virtual wide area network that uses FTS 2000's high powered switching capability as its backbone. In this way, connectivity to the network is available to the most remote users. This is an invaluable asset in the Park Service's distributed processing environment.

One of ParkNet's most sophisticated features is the communications file server. The design addressed communication deficiencies in several areas. In regional offices it can

provide connectivity between regional local area networks (LANs) and park users as well as ease communications with major processing centers. A communications file server can also take advantage of the regional LANs' installed base, as it resides on the LAN as an optional server. This is an economical means of expanding overall regional communications capacity to include not only the LAN but wide area network (WAN) capability.

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ITD CHIEF'S REPORT

In this issue of POINTERS I want to talk about electronic mail in the Park Service. The implementation of cc:Mail has been extremely successful; we now have about 10,000 mailboxes and its wide use is making major communication improvements all over the Service.

- Implementation and operation of cc:Mail has truly been a Servicewide effort. ITD staff has worked with some very dedicated people from the Regional Offices. Its continued operation depends on these people and other Hub coordinators to keep it running smoothly.
- We have been informed that Secretary Babbitt and his immediate office will be using cc:Mail. ITD staff and the Fish and Wildlife Service have established a NPS-FWS gateway that is now operational (see page 10). Several other bureaus, including the Solicitor's Office, have been working with ITD to link communications. We are currently exploring ways for the Service as a whole to use Internet to reach a large number of electronic mail users outside of NPS, in other government agencies and the private sector (see article on page 4).
- I want you to know that we have had recent conversations with the Budget Division in which they agreed that, for the major restructuring of the NPS budget they plan for next year, electronic mail funding will be in the budget as a recurring operational expense. The initial Servicewide license for cc:Mail was a six-figure cost funded out of the ParkNet budget in FY-92. In the future, having electronic mail with its own identity in the NPS budget will institutionalize this Servicewide function.

I am happy to highlight a very successful IRM activity in the Service, one of the major components of ParkNet, and one area in which we are far ahead of most government agencies. I again want to thank the people all over the Service who are responsible for making this happen, and who continue to make it work. This project truly meets our Division's goal statement, developed at a recent management retreat: empowering and uniting the National Park Service through information and communications technology.

- Don Thie, Chief, ITD

ParkNet from page 1

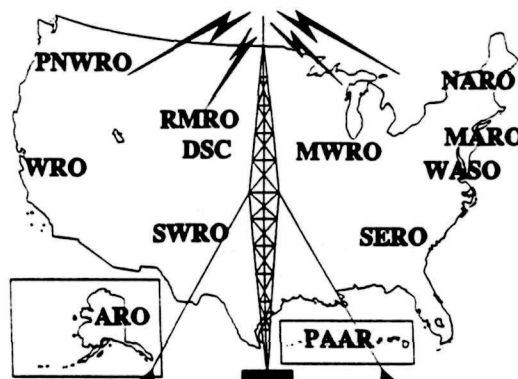
Once the file server is installed any regional or park user will have access to his regional communications server by dialing in using the FTS 2000 "800" service. Once a user accesses the menu he actually gains full control of the processor. The asynchronous link supports keyboard and screen transactions and high speed traffic remains confined to the processor. The user will then be able to select his regional LAN, another regional LAN, or any one of the processing centers (such as USGS, Department of Agriculture, etc.) via the X.25 or SNA gateway. Secondary entry is provided by the asynchronous gateway, which should only be used as a backup.

WASO/ITD developed specifications for a communications file server that currently meets the National Park Service communications needs. The selected system is the Chatterbox 6000 by J&L Information Systems. The infrastructure of the communications file server consists of several suites of three electronic modules which are a 386SX-16 MHZ CPU (MS-DOS), network interface, and any one of the three gateway modules, asynchronous, X.25, and SNA. Each gateway is hosted by a separate central processing unit (CPU), enabling simultaneous sessions, which provides a full multi-tasking system running all PC software properly with complete keyboard mapping and terminal emulation.

The prototype system was completed in July 1992, just prior to WASO's relocation to 800 North Capitol street and currently resides in the Washington office. Just recently, it was connected to the ITD LAN; it also interfaces with ITD's Data General minicomputer.

The original plan included three regional pilot systems in addition to the prototype unit. The Mid-Atlantic, Midwest, and Pacific Northwest regions were targeted to receive a pilot system. Due to budget constraints, to date the only pilot system in place is in the Mid Atlantic Region. It has been operational since November 1992. The WASO prototype and the MARO system have the same basic configuration but the MARO system required a few minor changes to adapt to the needs of the MARO environment. Regional needs are a major area of consideration during system development. Current plans call for implementing file servers in other regions during FY-94 as funding permits. WASO/ITD will be working with regional Information Management Coordinators to accomplish this. ITD has also established a help desk to assist users during and after development. The ParkNet Help Desk can be reached on (202) 343-HELP.

- Audrey S. White
Telecommunications Section, ITD
(202) 343-1270





**cc:Mail
U.S. Fish and
Wildlife Link**

There is now a National Park Service cc:Mail link to the U.S. Fish and Wildlife Service via the 9DE - MAIN post office.

You should use your normal cc:Mail access, choose ADDRESS TO PERSON, then point at 9DE - MAIN and hit "enter". At the TO WHOM: prompt, enter the USFWS employee's name as LAST NAME + FIRST INITIAL. For example, a user named JOE BLOWFISH would be addressed as:

BlowfishJ or BLOWFISHJ.

If you need to talk to your counterparts at USFWS, this is the way to do it! Since USFWS has not fully implemented electronic mail yet, you may wish to find out if your contact is "on" the system.

USFWS addresses NPS by saying, ADDRESS TO PERSON, then pointing at the NPS cc:Mail Gateway post office, NP-41. cc:Mail will ask, TO: . Enter the addressee's name, FIRSTNAME LASTNAME (i.e., Jonathan Lewis). Select END ADDRESSING and send or create a message. USFWS users need to know their gateway will be changed to NP-WASO in a few weeks. No big deal for NPS folks; it only affects USFWS people sending to us.

There will be no USFWS employees listed in the NPS Directory nor will USFWS show NPS employees in their network. If the

address you send to is unknown, your message will be returned to you with that indication. Mail is moved between the bureaus every two hours at most. It works!

*-Jonathan Lewis
WASO ITD Field Lab Channel Islands NP
(FTS/805 658-5763)*

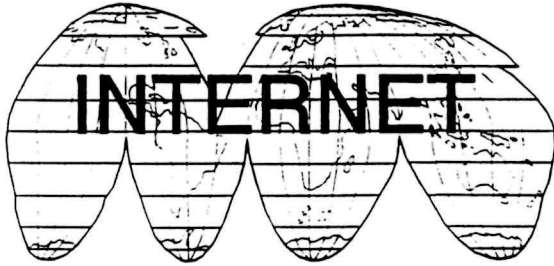
ITD's NEW DIGS

Since last summer, ITD and several NPS offices have been located at 800 N. Capitol Street, N.W. We still have the same mailing address and the same old phone numbers but we've moved eastwards towards the U.S. Capitol. We've survived football season at the boy's high school next door and the blizzard of '93. It seems to be Spring; the track team is doing broad jumps in the mud but the cherry blossoms won't be out until after the festival. We've found some good places (and some good value as well) to eat and look forward to showing them off.

We hope to publish POINTERS more frequently now that we're more or less settled. Please send me your ADP articles, cartoons and/or trivia. We want to entertain and share as well as inform. You can find me at 800 N.Cap.-Suite 420, on cc:Mail, or our fax number is (202) 343-4418.

*- Bonnie Podpaly, Editor
(202) 523-2977*

Everything You Always Wanted to Know About



(But Were Too Embarrassed to Ask)

INTERNET. Everyone's talking about it; everyone's asking you for your Internet address. But what IS it, exactly? Does the NPS have it? (Is it catching?) If you're confused about Internet, you're not alone. Consider that perhaps the most widely read handbook on Internet is not called a "user's manual", but Zen and the Art of Internet. In this article I will try to introduce some of what Internet is all about, but be warned that I, too, am a novice.

WHAT IS INTERNET?

Before diving into what's available on Internet, it's helpful to understand a little about how Internet operates, what it is and is not, and where it came from. Internet began in the early 1970s as an experimental wide area network called ARPANET, developed by the Department of Defense to connect government labs and large computers at universities. ARPANET proved effective and popular, and the Defense Department continued to link in

other networks and computers. In 1983 the rapidly expanding ARPANET was split, with the military portion separated out as MILNET, both administered under the Defense Data Network (DDN). The increasing popularity of the network with scientists nationwide led to the formation of NSFNET by the National Science Foundation in 1986, which became the backbone of Internet. ARPANET was phased out in the late 1980s, and MILNET is today a separate network from NSFNET/Internet, with gateways between the two. The DDN Network Information Center is still involved in some Internet administrative functions.

Physically, Internet is a packet switched communications network that links other networks, using a protocol called Transmission Control Protocol/Internet Protocol, or TCP/IP, and a common addressing scheme. There is no one network with the name of Internet; rather, the term refers to an interconnected network of independent regional mid-level networks, each separately named and run. The regional networks connect smaller area networks or local networks, who may connect with other networks or individuals. Generally universities form the bulk of the regional network members. The backbone network connecting the regional networks is the NSFNET, funded and maintained by the National Science Foundation, consisting of T1 and T3 lines (currently upgrading to all T3 lines). The mid-level networks use a variety of 56k and T1 lines. Overseas links are handled through contracts and grants with various universities and private companies. One fairly current estimate of the number of participants in Internet is 3.5 million

individuals, 500,000 computers, and 39,000 networks in 100 countries.¹

One of the most important but difficult things to comprehend about Internet is that there is no single organizational entity in charge, no official "Internet, Inc.", no rule book, no master directory of users or services, no central file server. This does not mean that Internet is disorganized, but it does have a number of important implications. First, it means what's available on Internet is somewhat communist in nature: to each according to need, from each according to ability. Information available over Internet is essentially donated: universities, individuals, government agencies make available data, software, and services at their own expense (sometimes subsidized by NSF or other grant money), and according to what they feel they have to offer. The lack of centralized directories gives Internet much of its zen character, meaning that the user is constantly exploring and discovering new services and sources of information. Second, it means that there are no official rules; instead, there is a self-enforced user etiquette of acceptable behavior, and published but relatively unenforceable "acceptable use policies" put out by NSFNET, the mid-level networks, and others. The closest thing Internet has for a bureaucracy is a system for licensing and registering networks that connect with Internet (although not individual users), and for administering the Internet naming/addressing scheme at high levels; these functions are done by the DDN Network Information Center.

A third zen-like quality that stems from the loose nature of Internet is that there is no single way to get access to Internet and there is no one single funding source or fee

structure for Internet. New users who want to connect can make arrangements with anyone else who is already on the Internet to do so—a regional network, a university, a government agency, or a private vendor. While NSF funds the NSFNET and, through grants, some of the mid-level network costs and university costs, each participating network has its own funding system and fee structure for its members.

A good analogy to keep in mind for much of how Internet works is that of roads. If you want to connect your town to the highway system, you can build your connecting road to any stretch of highway already on the system. You pay for your own road, and you may pay a user or access fee to the highway that you connect with. The owner of that stretch is paying the costs from there to other points on the system, perhaps with some assistance from NSF—just as Ohio pays the costs of the roads in Ohio, with some percentage paid with federal highway grant money. How much of Internet's services you can really use depends on how much highway you are willing to build and pay for. A six lane superhighway (or a T1) line will allow more traffic back and forth than a curving mountain two-lane road (or a dial-up phone line to a vendor). And finally, once you get on the highway system, you can go almost everywhere, and see almost everything the world has to offer.

WHAT DOES INTERNET OFFER?

Electronic mail

Electronic mail is one of the most popular applications of Internet. It generally requires that the sender know the Internet address of the recipient (remember, there are

no central white pages of Internet addresses). The basic addressing scheme on Internet is user@host. with the host portion of the address determined by the Internet Domain Name System. Typical addresses are fredsmith@uva.edu, j_smith@xerox.com, or ghk@caltrans.ca.gov. Note that the last portion of the address, the "top level domain", refers to the basic purpose of the organization, whether : educational (edu), commercial (com), government (gov), military (mil), and others. Overseas addresses (and some U.S. addresses) have a country code as the top domain.

File Transfer (FTP)

Transferring files from one computer to another is done using File Transfer Protocol, or FTP. Thousands of files are maintained on Internet hosts world-wide, including data, games, software, books, articles, lists—you name it. Publicly available files are generally accessed through "anonymous FTP", which allows anyone on Internet to login to the host as a guest and download files. The short list below demonstrates the variety of things available through anonymous FTP; access notes are included to give some flavor of how Internet works (can you guess where the file servers are from the address?):

List of Campus Wide Information Systems (access: *ftp.sura.net*; directory: *pub/nic*, file: *cwis.list*)

U.S. Supreme Court Opinions, Project Hermes: ASCII copies of recent opinions (access: *ftp.cwru.edu*, directory: *hermes*, file: *INFO* and *README.FIRST*)

Archive of Biology Software and Data (access: *ftp.bio.indiana.edu*)

General Accounting Office Reports Archive (full text of GAO reports)

(access: *cu.nih.gov*, directory: *GAO-REPORTS*)

Given Internet's lack of central anything, finding what's available through FTP, who has it, and how to access it, is a big job. One of the most comprehensive listings available is the "archie" system, developed at McGill University in Montreal. Archie tracks anonymous FTP archive sites automatically, and currently lists names and locations of 1.5 million files at 900 sites. There are now nine archie servers worldwide, accessible through TELNET, Email, and other programs.

Remote Login

Remotely logging in to distant computers is another common application using the TELNET protocol. Basically, TELNET allows an Internet user to login to a remote computer. Once logged in, the user can run programs, enter data, or do whatever else he or she would do if connected directly; keystrokes are sent directly to the remote computer. For many applications, remote login requires the user to arrange for an account on the remote computer in question. One of the original purposes of NSFNET was to allow researchers to connect to six (now 17) NSF supercomputer centers across the country, and this is still an important function. Of wider interest is the use of TELNET and Internet to search databases on remote computers, not to program on them, as described in the next section.

Database Searching Using TELNET

Thousands of databases are available for searching by the public using the TELNET protocol. Locations with on-line library catalogs available through Internet include

hundreds of U.S. universities, dozens of foreign universities, and increasingly, government and public libraries. There are thousands of other databases that are searchable on-line, from the British Online Yellow Pages (*telnet SUN.NSF.AC.UK*), to the CIA's World Factbook (*telnet hangout.rutgers.edu 98*), to the Weather Underground, (weather information for the U.S. and Canada) (*telnet downwind.sprl.umich.edu*) to "Shakespeare on the Internet", online text of 33 plays and all of Shakespeare's sonnets (*telnet lib.dartmouth.edu*). Numerous lists, and lists of lists, of what's available have been compiled for various subject areas.

Electronic Coffeeshouses: Mailing Lists and USENET Newsgroups

Discussion forums on special interest and general topics are popular on Internet. Mailing lists that issue messages to all members on the list are one type of Internet forum. Mailing lists may be either unmoderated, with free form discussion, or moderated, where a moderator reviews messages before posting them to others on the list. "Digests" gather messages into large files and posts the file as one message to list members. One listing of mailing lists currently describes more than 700 (*ftp.nisc.sri.com*, in *netinfo/interest-groups*).

News groups are the special province of USENET, also known as netnews. Essentially, USENET works similarly to Internet mailing lists, with newsgroups for various special interests. Within these newsgroups, news, articles, questions, answers, and opinions of all sorts are posted. USENET is a separate network that uses UUCP and NNTP protocols, developed for Unix computers; Internet is one of several

networks that carries USENET traffic. Many Internet service providers afford access to USENET, and provide software to run it on non-Unix machines. Most USENET sites are not publicly funded or subsidized, unlike many Internet sites, and USENET has even less central administrative structure than Internet. Newsgroups have a hierarchical structure: the seven major hierarchies of newsgroups are *comp* (computer-related topics), *sci* (science), *soc* (social issues, including world cultures), *rec* (hobbies and recreational activities), *news* (the news network itself), *talk* ("largely debate-oriented and tending to feature long discussions without resolution and without appreciable amounts of generally useful information"), and *misc* (miscellaneous). Alternate hierarchies include *alt* ("true anarchy; anything can and does appear"; groups include *alt.sex* and *alt.tv.simpsons*), and *biz* (business related groups).

If any one thing could be called the global information network, the ultimate talk show, the universal bulletin board, or the global village hangout, it appears that USENET is it (at least from the perspective of someone who has never signed onto USENET, only read about it). USENET is big, diverse, and worldwide. It has developed its own culture, etiquette, and even folklore (Steven Spielberg is rumored to contribute). Brendan Kehoe's discussion of USENET in *Zen and the Art of Internet*, quoted above, is fascinating as much for its strong feelings and discussion of USENET culture as for its description of what USENET is or provides. MIT has dedicated a machine to archiving and storage of some USENET postings; the Internet address is *pit-manager.mit.edu* (sic!) and postings are available through FTP in directory */pub/usenet*.

NPS AND INTERNET

The Internet connections currently planned and existing in the National Park Service run the full range from Email to large file transfer. The only Servicewide Internet connection anticipated for the foreseeable future is Email. A cc:Mail-Internet gateway will be available in 1993, sometime later this spring, as part of the X.400 gateway to all types of electronic mail.

At this time, a number of individual NPS employees at CPSUs have access through the computer systems at their universities. Several NPS libraries have set up limited access to Internet, generally Email and library catalog search capabilities, through commercial vendors. While electronic mail and library search capabilities can use small, slow connections, full file transfer capabilities require much larger and more expensive telecommunications capacities.

Full-scale access to Internet in the National Park Service will be set up locally, probably at the regional level, according to need and resources available at various locations. Work is currently underway on developing full Internet access that would serve the NPS offices in Lakewood, Colorado, including the Rocky Mountain Regional Office, the Denver Service Center, and the WASO divisions located there. The Air Quality Division already has a substantial Internet connection, established last summer and used heavily for transferring data files to the Environmental Protection Agency.

Although Internet connections are being made slowly on a location-by-location basis, the groundwork is being laid to ensure

that NPS Internet connectivity is coordinated and follows an overall plan to meet Servicewide needs. An Internet committee, made up of people from several regional and WASO offices, has developed a Servicewide Internet addressing scheme and licensing strategy to ensure that the National Park Service has a single Internet identity to the outside world. A long-term Internet requirements analysis will be done this year as part of the IRM planning process that will serve as the basis for planning for Servicewide Internet connectivity and integration with ParkNet.

The Library Program in NPS will rely on Internet as a crucial part of its overall strategy. FTP will enable NPS libraries to gain access to other library catalogs in agencies and institutions nationally and internationally. Researchers in NPS would be able to find literature essential to their work and obtain it through interlibrary loan, saving NPS months of expensive researcher effort. Literature and cataloging information is available using Internet FTP that cannot be accessed on other major library services (while OCLC provides a great deal of cataloging information to NPS regional libraries, there is still much literature that requires original cataloging). Using FTP, NPS libraries could also transfer information about databases and services available to park and regional administrators. For example, an index of services called Hytelnet lists libraries with catalogs on Internet, electronic books, bibliographies, library bulletin boards, Free-Net system, NASA databases and Network Information Servers. Internet will also be an essential vehicle for making information available electronically. Some documents are now published only in electronic format, until they are subject to peer review. The NPS could use Internet to

make its own publications and databases available to a wider audience and promote the sharing and exchange of valuable research.

For those that wish to sample an Internet connection, there is one free service that can be tried from anywhere with a modem and a phone line. The CARL system is a group of public and university libraries that provide access to their on-line catalogs. Once logged in to CARL, the user can move from one university library system to the other. There is no charge for this service; the user pays only the cost of the phone call. To access CARL through the University of Maryland, set your modem to N, 8, 1, and dial 301-403-4333. When the computer answers with the "annex:" prompt, type *telnet victor.umd.edu*. You will get a choice of EXIT or PAC: type *pac*. Choose VT100 as the terminal type for a standard DOS microcomputer, and you should be rewarded with a "Welcome to Victor" message (Victor is the University of Maryland name for their local system). The standard exit message throughout the CARL system is *//exit*. If you are closer to any of the other libraries or universities listed below, you may wish to call their reference librarian and ask how to access CARL locally.

Northeastern University, Boston
University of Hawaii
Arizona State University
Northern Arizona University
University of California
Boulder, CO Library System
Pike's Peak, CO Library System
INLAN Library System, Spokane, WA
Sno-Isle Library System, Marysville, WA
Colorado Alliance of Research Libraries,
Denver (303-758-3030)

And finally, you can send Email to President Clinton at 75300.3115@compuserve.com and clintonpz@aol.com and clintonhq@Campaign92.org.

¹Internet, Getting Started, published by SRI International, May 1992, p.7.

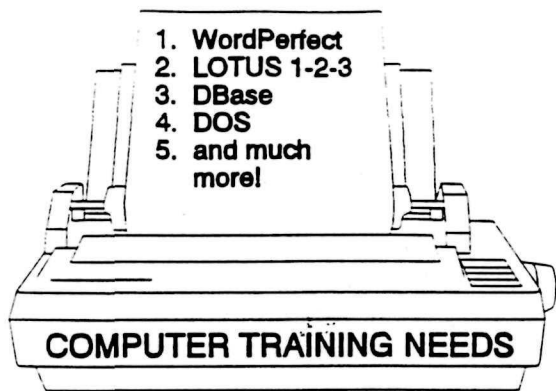
-Betsy Chittenden
Policy and Planning Staff, ITD
(202) 343-4449



**NSFNET BACKBONE
SERVICES
ACCEPTABLE USE POLICY**

General Principle:

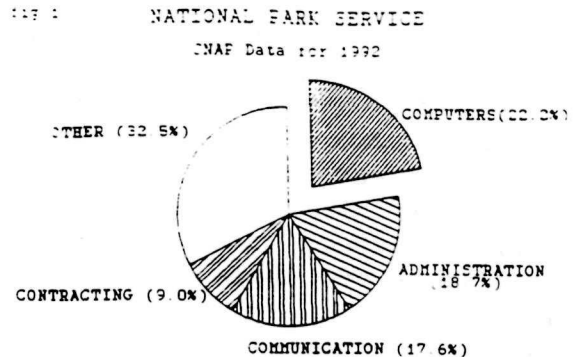
NSFNET backbone services are provided to support open research and education in and among US research and instructional institutions, plus research arms of for-profit firms when engaged in open scholarly communication and research. Use for other purposes is not acceptable.



How many National Park Service employees need computer training? What type and level of training do Service employees need? How has the need for computer training changed over the last three years? These and other questions are being answered with the SNAP/TRAC computer system developed by the Information and Telecommunications Division for the Employee Development Division in 1990. The acronym stands for Servicewide Needs Assessment Process and Training Accomplished. This article will discuss use of the SNAP system as it specifically relates to computer training.

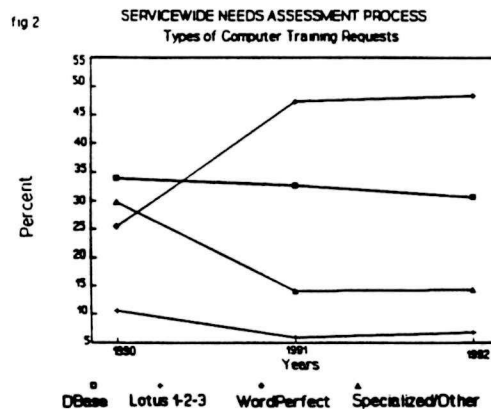
Over 14,500 requests for computer training have been made by Service personnel for calendar year 1992. This number represents an average of over two requests per respondent. The impact of this number of requests is best illustrated by referring to Figure 1.

The pie chart shows that over a fifth of all training requests by NPS employees is in computer subjects. The impact of this figure is compounded when considering that the other categories identified by the SNAP system combine several broad areas; i.e.,



Administration includes budget, finance, travel, audits and work-load analysis.

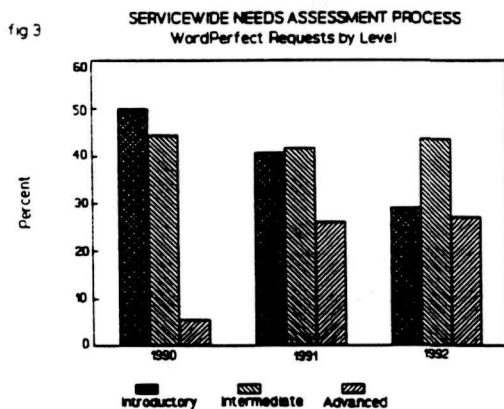
This large number of requests for computer training has also been consistent since the inception of the SNAP program. Every year since 1990 the percentage of computer training requests has ranged from 22% to 25%. Employees have primarily requested computer training in the NPS standardized applications of WordPerfect, Lotus 1-2-3 and DBase. Over 90% of all training requests are for one of these three software programs. Figure 2 illustrates the relative number of requests for each category of computer training.



While the relative number of training requests in WordPerfect has increased,

specialized and other types of computer training have decreased. Although this may seem puzzling when considering the large amount of wordprocessing training offered over the last several years, two primary answers are most likely. First, employees are now more aware of the increasingly sophisticated capabilities of WordPerfect and desire more advanced training. Second, the reduction in the number of specialized training requests may be a reflection on the Information and Telecommunication Division's successful effort to provide Servicewide software standards and to disseminate this information to all NPS employees.

While the number of requests for specialized computer training has decreased, the desire for more advanced levels of training in the standardized software programs has increased. WordPerfect is an example of this trend. Referring to Figure 3, you can see that since 1990 the number of requests for introductory WordPerfect training has decreased while the need for advanced courses has risen dramatically.



The Employee Development Division, in conjunction with the entire NPS employee development community, is adjusting its

training opportunities to address these changing needs. More advanced and technically based computer training has been incorporated into the Servicewide developmental curriculum. In addition, the Employee Development Division continues to procure computer equipment. The Albright Employee Development Center obtained ten 386 PC's to initiate its first computer lab. The Mather Employee Development Center continues to obtain upgraded PC's to enhance its computer training facility. Sam Fontaine, the new Employee Development Officer responsible for providing training to Washington Office employees, has reinstated in-house computer training. Regional and Service Center Employee Development Officers also continue to offer programs on both an in-house and contractual basis.

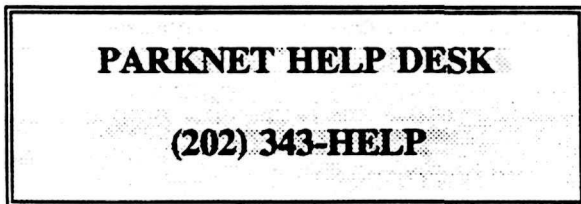
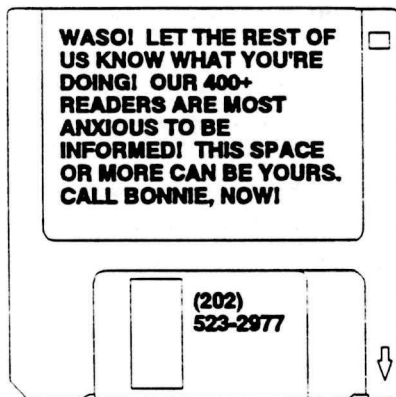
While the National Park Service expands the number of computer-based programs, it is recognized that computer training opportunities from private or other government vendors must also be emphasized. In concert with the NPS 1990 Computer Training Strategy, the preponderance of computer training received by NPS employees will continue to be obtained from outside sources to provide the trainee the valuable advantage of contacts with outside vendors in a dramatically changing technological environment, the most relevant course format, and frequently lower cost.

While the acquisition of computer hardware and software continues to grow in the NPS, the necessary training for its employees must also grow. Some outside consultants estimate that for each \$1,000 spent on hardware and software acquisition, a matching \$1,000 should be recognized as a cost associated

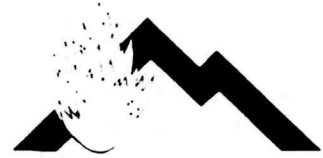
with the computer operator. Although this user cost includes such factors as lost productivity while the employee learns how to use the equipment or software, a significant portion of this cost must be dedicated to employee training. Ultimately, the short term costs of computer training will be rewarded with higher productivity and employee satisfaction.

The Servicewide Needs Assessment Process offers you the opportunity to determine training needs at the local, regional and national level. See your Employee Development Officer for further information and use the systems.

- Christopher Perry, Employee Development Specialist, WASO
(202) 523-5280



WILDLAND FIRE MANAGEMENT COMPUTER SYSTEM



The Branch of Fire and Aviation Management provides fire computer services for the Regions and parks with applications written in COBOL for fire usage, i.e., Fire Situation Reports, Fire Weather, Incident Qualifications, Fire Occurrence, Fire Programming/Budgeting, Fire Training, etc., on a MicroVAX 3800 minicomputer that has come to be known as the Wildland Fire Management Computer System (WFMCS). The program is managed at the Boise Interagency Fire Center, Boise, Idaho, under the supervision of the Computer Specialist, as part of the WASO Ranger Activities Division; some broad technical oversight is provided by the WASO Information and Telecommunications Division.

The WFMCS currently serves the fire management needs of 190 parks, 10 Regions, the Branch of Fire and Aviation Management and the Washington office for a total of 240 users. The National Park Service (NPS) and interagency personnel at all levels need accurate information about major NPS and other-agency fire occurrences and fire mobilizations on a real-time basis. Previously, pertinent information about major incidents was transmitted inconsistently, often with the result that regional and national staffs with a need for current information were without knowledge of significant events.

Development and field implementation of the NPS Wildland Fire Management Computer

system has been a gradual process. The system became operational in the Spring of 1985, and was used on a limited basis by Regional Offices and several test parks. Development of custom software to support new fire applications has continued over the past eight years, and the current information system consists of approximately 400 custom software programs containing approximately 430,000 lines of coding. Hardware is a Digital Equipment Corporation (DEC) MicroVAX 3800 minicomputer operating under VAX/VMS v5.3 and utilizing an Ethernet connection. These programs are accessible 24 hours-a-day from all levels of the fire management organization, which can dial-up the minicomputer via a remote area communications network.

The data storage and processing power of modern minicomputers has also made it possible to store large databases for fire occurrence, fire weather, and other aspects of park fire management and use this data to help quantify fire management needs for all National Park areas. The concept of developing national systems for tracking fire incident qualifications and quantifying Park, Region, and National fire program needs is now a reality.

Park fire management staffs access the Administrative and Forest Fire Information Retrieval and Management System (AFFIRMS), specifically designed for fire weather purposes. Over 100 parks use AFFIRMS to enter fire weather observations and obtain fire weather forecasts and fire danger rating indices. This information is used in planning daily fire staffing levels, aircraft use, wildfire suppression tactics and prescribed fire operations. Periodically these

databases of fire-related information are loaded onto WFMCS.

The Remote Automated Weather System (RAWS) is a fast-growing fire information system for gathering and transmitting fire weather data. The Branch of Fire and Aviation Management coordinates Servicewide use of RAWS stations.

The Branch established a Novell Network on an AST 486-33 EISA Tower File Server operating under Novell Network v3.11 during 1992 to better serve the needs of this office as well as Servicewide objectives in standardization and implementation of communications between all NPS offices. The Local Area Network provides Branch users with word processing, database management, graphics, intra and inter-agency communications and utilities. It also serves as a hub for Servicewide electronic messaging for all local and remote users through connections with other hubs throughout the United States.

Custom software development is currently provided via a five-year contract (July 1990-1994) with Scientech, Inc. This function is managed through the development of an annual work plan and individual task orders. The contract is administered by the WASO Contracting Officer, with the Branch Computer Specialist serving as the Contracting Officer's Technical Representative.

The Computer Specialist serves as the National Park Service representative on fire related interagency committees. One committee which has required a great deal of involvement is the InciNet Committee. The focus of this Committee has been to develop

software and purchase hardware to be used on a Type I Fire. The actual hardware procurement was the responsibility of the Computer Specialist as an interagency commitment and was completed in September 1992. The Committee is exploring smart cards and communication capabilities at the incident site. The Computer Specialist chairs a subcommittee that will be identifying these needs.

During FY92 the Branch of Fire and Aviation Management converted all fire applications, with the exception of Fire Occurrence, for use by the U.S. Fish and Wildlife Service on their VAX system in Denver, Colorado. The FWS has contracted with NPS to continue new development, enhancements and maintenance of their Fire Management Information System (FMIS).

The Branch also provides programming staff and maintenance, as well as operational support, to the Bureau of Indian Affairs (BIA). The MicroVAX II which serves as the host for the BIAs' version of WFMCS is connected to the NPS MicroVAX 3800 over an Ethernet connection and is physically located in our ADP site. The operational support encompasses daily operations, backups, reports, and troubleshooting. BIA now houses a different incident qualifications and budgeting system but will be adopting the updated and revised NPS qualifications system during FY93. This will leave major differences in the budgeting system and minor differences in other programs.

During FY93 the Branch of Fire and Aviation Management will provide the WASO Oil Spill Team with access to our Incident Qualifications Application. There will be screen changes to allow the different

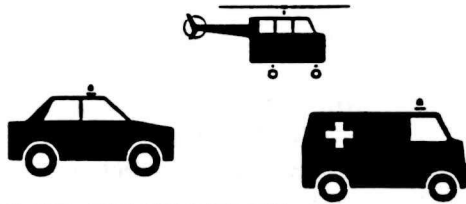
fields of information the Oil Spill Team must track as well as connection into our system.

The Branch will provide the Bureau of Land Management (BLM) with our Incident Qualifications Application which will reside on our MicroVAX system. During this first year, only BLM state offices will have access. As we upgrade our system they would like to bring on additional users, including the Alaska Fire System. There will be no changes to our system; we will provide a copy of our application and assist in the conversion of their data into our system. We will maintain the data and provide all operational support. BLM will be responsible for all data integrity and user support of the application.

The Branch of Fire and Aviation Management functions as an active agency within the National Interagency Fire Center (NIFC). At this time, communications with NIFC are accomplished through Forest Service DG CEO Connect, BLM IAMS System and CompuServe. The Branch is scheduled to move back on the NIFC base sometime in 1994. Through coordination with the other agencies the Branch will assist in the establishment of direct communication links.

An analysis of our system and five-year plan will be critical during FY93. A new system will be procured during FY93-94 and must meet all needs for at least three to five years with a standardized Department of Interior Incident Qualifications as the driving force.

*-Wendy Bristol, Computer Specialist
Branch of Fire and Aviation Management
WASO Ranger Activities Division
Boise Interagency Fire Center
(208) 334-1979*



CASE INCIDENT REPORTING SYSTEM

The WASO Ranger Activities Division and Information and Telecommunications Division have been working together to produce a Case Incident Reporting System which will meet park needs as well as provide information which will be passed up to Washington to fill FBI statistical requirements and other NPS and Departmental reporting obligations. In the spring of 1989, ITD conducted a park survey to determine the most pressing park-level software needs. Incident reporting was mentioned more than any other area. Coincidentally, Congress had passed the Uniform Crime Reporting Act of 1988 which required federal agencies to produce statistical information in a computerized format for use in the FBI's publication, Crime in the United States. This new law guided our budget request to develop a Case Incident Reporting System.

ITD diverted two FTE'S to develop a prototype using the FBI specifications and to work toward obtaining park, regional, and national NPS requirements. The prototype was developed and a field test was executed at Colonial, Shenandoah, Everglades, and Golden Gate. Data from these parks was sent to the FBI in 1990 to verify that the prototype met the FBI's editing standards. The prototype, however, did not address Park Service needs and was never intended

for use without the inclusion of features which would make it useful to the Parks.

The Ranger Activities Division (RAD) used lapse money in September 1989 to organize a user group meeting to identify park-level requirements for the system. Participants included employees of WASO, regional offices, parks, and the Denver Service Center with expertise in law enforcement, search and rescue, emergency medical services, safety, archeological resources protection act requirements, traffic accident reporting, park management, curatorial services, and information management. In order to minimize duplication of effort, requirements for sending data to the Servicewide Traffic Accident Reporting System (STARS) and the Safety Management Information System (SMIS) were integrated. STARS was under development by the Denver Service Center and provides information to justify Park Service receipt of Federal Highway Safety funds. SMIS was under development by DOI to automate capture of safety information. Because all of this information is incident-based, it made sense to collect it and enter it into a computer once.

Programming on the park-level requirements began in 1990, using ITD personnel, after the requirements from the user group meeting had been circulated for comments. The Ranger Activity budget request for 1991 included money for contract programmers, documentation development, a support FTE for each region, a WASO RAD support position, and a 80386 personal computer for each park expected to run the system. The approved budget was significantly smaller, but provided for some contract programmers, a technical writer, and funding for FTE's in three regions managing

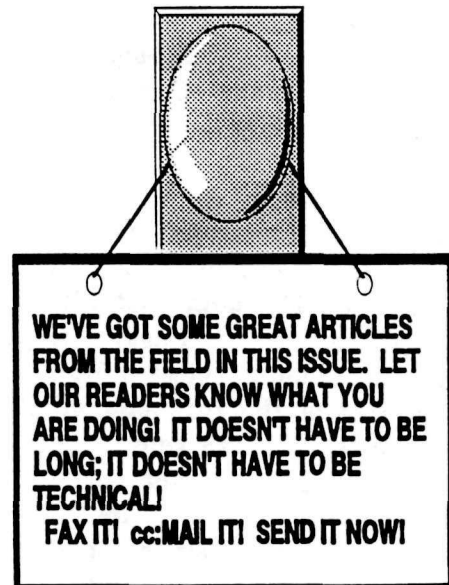
field test parks and one FTE for management in the WASO Ranger Activities Division. The funding for 1992 dropped to zero during Congressional review. The funding for 1993 is a quarter of the amount requested, but will support the original three regional FTE's, the WASO FTE, and two contract programmers. Implementation funds for park hardware have been cut from each of the last three budgets for the system. Because of the number of parks involved, the park hardware request has always been a large portion of the budget requests.

The park level program is close to completion. We are still working on a means to print a completed Criminal Incident form from data in the system and on a process for moving information from districts to headquarters. We also plan to improve the integration of STARS this year with Denver Service Center support. The number of field test parks has increased to twelve and park and regional personnel have generated a number of enhancements to be addressed when the original specifications are complete. Because of limited resources, development of a local area network version will also be deferred.

The Ranger Activities Division funded a gathering of regional law enforcement personnel in September 1992, from which we obtained requirements for a regional program. At the region, consolidation of annual law enforcement, search and rescue, emergency medical services, and Archeological Resources Protection Act reports from park data would be necessary. Regions would also have information which would allow them to monitor trends within their areas.

One benefit of the new system has been the improvement of standard codes used to define the nature of an incident. These new codes have been distributed to the field for use before implementation of the computerized system. An improved set of standard forms used to record incident information has also been developed. It is unfortunate that budget cutbacks have delayed Servicewide implementation of the Case Incidents System, but drafts of the revised forms are being tested with the software in the twelve test parks.

*-Helen Price
NPS Programs Section
(202) 343-1273*





COMPUTERS IN PARADISE

The Pacific Area Office in downtown Honolulu, Hawaii must seem like a very ideal location especially as the harsh winter winds are hitting the mainland states. As nice as the weather is in Honolulu it is hard to convince people that the job of providing professional support in administration, planning, design, construction, and cultural and natural resource management for ten national park areas throughout the Pacific requires a full time effort with the help of modern technology and tools.

Just communicating with the Northern Marianas Islands, including Guam and Saipan, can be difficult even without typhoon winds over 150 mph that hit the islands almost every year. Imagine if your park area was 20 hours ahead of Honolulu on the other side of the International Date Line. Your supervisor can contact you by phone only 4 days per week and only 4 hours each day. There are only 2 hours, 4 days per week to contact your regional office and absolutely no overlap to contact Washington during regular business hours.

Communication using computers has become a vital link in getting the job done. In

addition, many other innovations are currently being used, including Computer Aided Design (CAD), Geographic Information Systems (GIS), Global Positioning (GPS), Video capture, Total Station Surveying, Slide Imaging, Desktop Publishing, and Video Conference.

Computer Aided Design (CAD)

The entire drafting and map production functions are now handled with the computer. The difference in using CAD versus old methods of t-square and triangles is like night and day. After the initial learning curve, map and drawing production has increased considerably. More time can be spent on the actual design and the drawing production is automatic in the pen plotter. The plotter draws at a speed of 36 inches-per-second, obviously much faster than a person could draw.

Geographic Information Systems (GIS)

The geography of the Pacific is such that the need exists for a coordinated effort in spatial analysis of critical resource data. The approach that we are taking is to utilize the Autocad maps as much as possible and use GIS software that is Autocad compatible. We recently purchased Arccad from ESRI as our GIS software; many of the Autocad maps already created can be used as base maps in Arccad. This software is similar to the ARC/INFO software that runs on Unix based computers. GIS will become an important asset in resource management throughout the Pacific.

Global Positioning (GPS)

Global positioning refers to a high tech method used to determine a precise geographic location on earth. The system uses satellites and ground receiving stations

to mathematically derive the receiving station's position. Geographic positions are described in latitude/longitude, UTM, or other grid based projections. In the Pacific we are using hand-held GPS instruments for law enforcement, resource management, and cultural resource mapping. The position information from the GPS can be entered into the GIS or CAD system for precise mapping.

Video Capture

Video Capture incorporates the concepts of video imaging with still and standard video cameras and computers. A standard video signal from a VCR or video camera can be "captured" by a computer video board. These captured pictures can be transmitted via CC Mail or other computer electronic transfer. The image size in bytes can be compressed for smaller file sizes. The still capture digital camera stores images in a digital format on diskette. The camera can store 50 images on one diskette and the diskette can be erased for reuse. The camera is easy to operate and can be carried into the field. Video capture is used in the Pacific to record construction activity and transmit the pictures to the contracting officer or engineers in the regional office. The still video camera images can be connected to the video conference equipment and the images transmitted to the other locations directly. This method has been used to show storm related damage to roads following Hurricane Iniki's destruction in Hawaii.

Total Station Surveying

Surveying has changed dramatically with the introduction of total stations. These instruments incorporate electronic distance and angle measurement into one. Survey information can be fed into a data collector

in the field then downloaded into the computer for map preparation. Contour maps can be developed in a fraction of the time it used to take with tape, stadia rods, and manual note books. Map data can be transmitted via modems from remote locations and maps are quickly prepared using CAD systems. We are using a Nikon Top Gun total station with a HP 48SX data collector.

Slide Imaging

Slides are used for many activities in the National Park Service for communicating information. Using a computer based slide imaging system it is possible to produce high quality title slides and other images of computer graphics. What can be shown on the computer monitor can be turned into a slide. Many interpretive programs in the Pacific now use title slides generated by the computer. We are currently using the Polaroid Palette Plus image system which allows EGA quality graphics to be transferred to slides. Polaroid also has instant slide film which can be used to produce title slides within a short time. Many presentation software companies provide slide service via modem or mail. These services can be expensive for large quantities. Ektachrome film can be processed at most processing labs while Kodachrome film usually takes considerably longer to get processed. A typical roll of Ektachrome film could cost as little as \$10 for a roll of 36 slides if you have the slide image system.

Desktop Publishing

We have dedicated one work station to desktop publishing. This work station includes an image scanner for graphics and photographs, a high quality postscript laser printer, and a high resolution graphics

monitor. The software used for desktop publishing is Pagemaker, Photostyler, Drawperfect, and Wordperfect. Many documents are prepared first in Wordperfect then finalized in Pagemaker. We have produced documents from newsletters to professional archeological reports with high quality results. Camera ready publications are prepared with virtually no "cut and paste" outside the computer. Using a combination of Pagemaker and clarendon type fonts we have developed a method to create the NPS sign system on the computer. Signs can be created to scale for text and size review prior to ordering.

Video Conference

The Pacific Area Office, as well as Nome, Alaska, were included in the implementation of ParkNet Servicewide video teleconferencing, along with the regions, centers, and WASO. We have made good use of the system by conducting many long distance meetings via video. Recently we conducted a pre-construction conference between the contract office in San Francisco and the contractor for a roof contract in Hawaii. Quarterly Denver Service Center design meetings are held by video, saving thousands of dollars in travel costs each year. By incorporating the video image concept with video conference equipment it is possible to transmit still or moving video images long distance. The still video camera has been used in many conferences to show participants on the other end an image relative to the discussion. Construction projects can be documented and photos transmitted instantly over great distance.

*- Tom Fake, Landscape Architect
Pacific Area Office (PAAR)
(808) 541-2693*

NATIONAL PARK SERVICE LIBRARY, DENVER



Denver Service Center

The National Park Service Library, Denver, formerly administered by the Rocky Mountain Regional Office (RMRO), was transferred to the Denver Service Center (DSC) as of November 1, 1992. The space, all books, journals, and one staff member remain in the library under DSC management. This transfer was done to consolidate management of library services and to decrease regional costs. After various alternatives were considered, including abolishing the library, DSC agreed to assume the management of the library based on strong support from RMRO and DSC employees, Denver-based WASO managers, and our staff's commitment to the continuation and enhancement of information services.

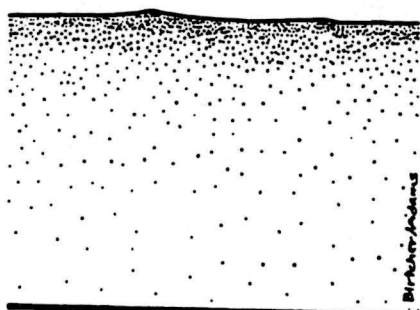
The primary purpose of the Library is to provide research materials for Denver-based Park Service employees. We must have current information for the diverse concerns of architects, designers, planners, engineers, historians, administrators, interpreters, scientists, and conservation specialists.

Denver Service Center will be changing the goals and objectives of the Library. A Library Committee is being formed to advise the Librarian of user needs, i.e., book or magazine purchases, as the current collection will be downsized to make room for more magazines and audiovisual materials. Fewer books will be accepted as

donations to the collection. The Library will investigate making the Automated Library Catalog and some commercial CD-ROM databases available on the network. We will route tables of contents from various journals to individual offices rather than the entire publication and will disseminate information on electronic journals and other services available on Internet.

Services that will continue include the Interlibrary Loan Service, circulation and maintenance of the current collection, telephone and walk-in reference services, and computerized literature search services. Further information about the role and function of the NPS Library, Denver, may be obtained from the Librarian.

- *Jannette Wesley, Librarian*
National Park Service Library, Denver
Denver Service Center
(303) 969-2716



Dewey Decimals before there was a system.

NEWS & NOTES



Gina Moriarty, Administrative Programs Section, departed ITD last summer for new challenges in the WASO Accounting Operations Division in Reston, Virginia. You can find her at 703-487-9149 and on cc:Mail.

In the Fall ITD acquired the services of Carol Nix who works with Valerie Brown on our support staff. Carol is new to the Federal Government but she's making tremendous progress in figuring us out! Welcome Carol!

Ted Dinkel, formerly Chief, Systems Development Branch, ITD, is adjusting to his new field assignment at Shenandoah National Park. He joins Jonathan Lewis, Channel Islands NS, as field staff reporting to WASO ITD, Technical Services Branch. Ted can be reached at FTS 703-999-3379 and on cc:Mail.

Carl Zaner, Telecommunications Section, left ITD recently for a position closer to home with the Department of Commerce, National Oceanic and Atmospheric Administration.

****MAILING LIST****

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Mid-Atlantic Regional Office

Patti Dienna FTS 215-597-6850

Midwest Regional Office

Frank Palombo FTS 402-221-3468

National Capital Regional Office

Mike Mulcare FTS 202-690-5199

North Atlantic Regional Office

Mike Regan FTS 617-223-5080

Pacific Northwest Regional Office

Kevin Killeen FTS 206-553-7503

Rocky Mountain Regional Office

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Kendall Bradford FTS 202-208-4577

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- *Bonnie Podpaly*,
POINTERS Editor
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