The Center Scene

Carol Nelson uses the SUN workstation to display a Thematic Mapper image of Washington, DC, that was transmitted from the VAX to the Sun via the HYPERbus. (Photo by Max Borchardt)

EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT THE NETWORK—BUT WERE AFRAID TO ASK

Jean Paulson

Have you been wondering what the EDC "network" is all about? Or have you heard folks talking about HYPERchannel, HYPERbus, ISO models, and NBS protocol and thought you might have warped into another universe? Well, here's our attempt to tell you everything you always wanted to know about the network but were afraid to ask!

First, a network is a group of computer systems that can talk to each other. By connecting computers with a very high speed communications link (we use HYPERchannel which operates at 50 million bits per second) they can cooperate to share information and resources. HYPERbus is a slower version of HYPERchannel (10 million bits per second) that lets you connect your terminal or workstation to one of the network systems much in the same way that you dial a phone.

Wouldn't it be better to buy just one large computer instead of trying to use such a hodgepodge of smaller systems? Actually, what we have is one large system, the network. There are several advantages to using a network instead of a large centralized system. One is cost. While a mainframe computer is roughly 10 times faster than a microprocessor, it costs about 1000 times more. Individual systems can be chosen to provide redundancy or specialized capabilities that are difficult to obtain with one large system. And the network can more easily grow to add new systems without disturbing the present configuration.

So much for the hardware; now, on to the software. Since the idea of talking to another computer system is not built into a basic computer operating system, special network communications software is required. We are using an implementation of the Federal Information Processing Standards for local area networks issued by the National Bureau of Standards. These protocol standards conform to the Organization for International Standardization's Reference Model for Open Systems Interconnection, which means that our network could eventually talk to other networks that also use this standard.

The communications protocol is a set of rules by which the two computers communicate. The rules are necessary to determine who talks, who listens, and to ensure that the entire message arrives error free. This is much more complicated than it sounds, because

(Cont. on page 2)

IMAGE MAPPING PRODUCTION ACTIVITIES

Phyllis Wiepking

This issue of **The Center Scene** carries excerpts from a comprehensive U.S. Geological Survey news release on the production of a Las Vegas, Nevada, area image map.

As a part of the Survey's National Mapping Division (NMD), the EROS Data Center is directly involved in the Division's newest production mapping concept—image mapping.

Image mapping combines the characteristics of a photograph—the visual portrayal of the landforms, vegetation, and cultural features such as cities, highways, and railroads, with the geographic attributes of a map—accurate latitude, longitude, scale, and related information.

The EDC production system, operated by Computer Services Branch and Data Production and Distribution Branch, has produced several excellent image maps, including the newly-released Las Vegas product, which have resulted in a demand for this type of product over a number of additional areas. However, since each original map was produced in an individual, special-order process, the challenge is to develop more efficient methods for production of image maps while continuing to produce high quality products, capabilities that will allow NMD to maintain leadership in image mapping.

An image mapping research and development plan was developed in November 1983 to identify the major areas requiring research, which is being carried out with some new technqiues already implemented and others still being studied. Meanwhile, EDC continues to produce high-quality image maps.

The USGS news story carries information about image maps currently available. Next year's program includes plans for MSS 1:250,000-scale maps over 24 mapping quadrangles in Virginia, Colorado, Nevada, California, Oregon, Arkansas, and Missouri, Utah, Washington, and Idaho; a TM 1:250,000-scale image map of Great Salt Lake and vicinity; and a TM 1:50,000-1:250,000-scale image map of

(Cont. on page 5)

UP FRONT

The future of the EROS Data Center continues to be on center stage getting attention from top Geological Survey management. As I have pointed out, the Landsat commercialization legislation calls for continued research and development in remote sensing applications and for continuation of a Federal archive of historical Landsat data. The Center will certainly continue to be involved in remote sensing R&D on a major scale, and EDC is the primary contender for the Federal Landsat archive.

The most encouraging development for Center growth and expansion is the substantial interest shown in the Data Center's future by top U.S. Geological Survey management, including the Director, Dallas Peck, the Deputy Director, Doyle Frederick, and Rupe Southard, Chief of the National Mapping Division, all of whom visited the Center in May of this year. At that time, discussions were held concerning new initiatives for the Data Center once the commercialization of Landsat is final.

Two promising concepts have emerged following the Director's visit. The first is that the Data Center could become the National focal point of remote sensing activities within the Interior Department. In such a role, the Data Center would be the lead Federal facility in the field of remote sensing applications research, development, and training. Center activity would increase with other Department of Interior agencies under this broad function.

The second concept under serious consideration is to have the Center serve as the lead Geological Survey facility for developing computerized geographic information systems. This function could also expand to a Department of Interior level. A large number of computerized land-data bases exist within the Geological Survey and the Interior Department. Since these data bases are in several different formats and include a wide range of different kinds of land data, from digital elevation and stream-flow measurements to Federal land-ownership information, a tremendous challenge faces any organization that takes on the job of making these data bases more accessible and compatible.

Whatever these specific initiatives evolve into, it appears that we are facing busy and productive times.

I'll keep you posted.

Allen H. Watkins

METZ COMPLETES TEMPORARY DUTY ASSIGNMENT

K.C. Wehde

As a temporary duty assignment, Gary Metz spent nine weeks at the National Mapping Division's Western Mapping Center in Menlo Park, California as Acting Chief of the Geometronics Branch. The Western Mapping Center, which is approximately the size of the EROS Data Center, carries out Division mapping programs for the states of Arizona, Nevada, Idaho, Washington, Oregon, California, Hawaii, and the trust territories. These programs include completing the 1:24,000-scale provisional map series, revising existing maps, producing digital cartographic data, and conducting geographic investigations and cartographic research and development.

The Geometronics Branch, which includes approximately one-half of the Western Mapping Center's cartographers and cartographic technicians, is responsible for technical planning for all Western Mapping Center programs, defining of requirements for and acquisition of aerial photography, conducting field surveys and verification, producing map manuscripts from aerial photography and geodetic control data, and generating Digital Elevation Model (DEM) and Digital Line Graph (DLG) data for the Digital Cartographic Data Base.

Gary viewed this assignment as a "great opportunity to learn more about the map-making process. This was also an opportunity to develop closer ties between the EROS Data Center and the Western Mapping Center." Like so many others, Gary found that being away from family and friends was difficult, but the job itself was challenging and gratifying. It was a good opportunity and time well spent.

(Cont. from page 1-The Network)

several messages are usually being sent at the same time between different systems. The network software is responsible for providing this communication service between computer systems much in the same way that the phone company manages the telephone system.

OK, you say, so what will this network do for the EDC users? Right now, each user, whether from Computer Services Branch or Technique Development Branch, can use the network communications software to transfer his/her files from one computer system to another. Currently, we have both VAX A and B, the SEL 32/87, and the B6900 connected to the network. Hardware and software problems have prevented us from including IDIMS, EDIPS, and the PDP 11/60. We have recently completed redesigning and rewriting the network software based on the experience gained from the prototype implementation completed in 1983. This version has several new features and improved throughput.

Well, if HYPERchannel is so fast, why does it still take so long to transfer a file? Even though HYPERchannel itself sends data at a rate of 50 million bits per second, the attached computer systems cannot send or receive the information that fast because they are limited by the speed at which they can transfer it between main memory and disk. The capacity of HYPERchannel is utilized by multiplexing many conversations onto the bus at one time. The network still transfers small files (up to one full MSS scene - all 4 bands) faster than using tape, even when the drive is immediately available. Larger files may take up to 50% longer than using tape, but we believe the convenience is worth the wait.

What's next for the network? This year we will be adding more SUN workstations which offer local computing capability as well as access to the network services. The network will be made more accessible to applications programs which use the Transportable Applications Executive by the addition of the Remote Communications Job Manager. This new TAE subsystem uses the basic network communications software to allow applications to automatically access data and execute tasks on a remote computer system. The RCJM prototype will be available next spring. This new TAE subsystem will extend the benefits of TAE to distributed network applications.

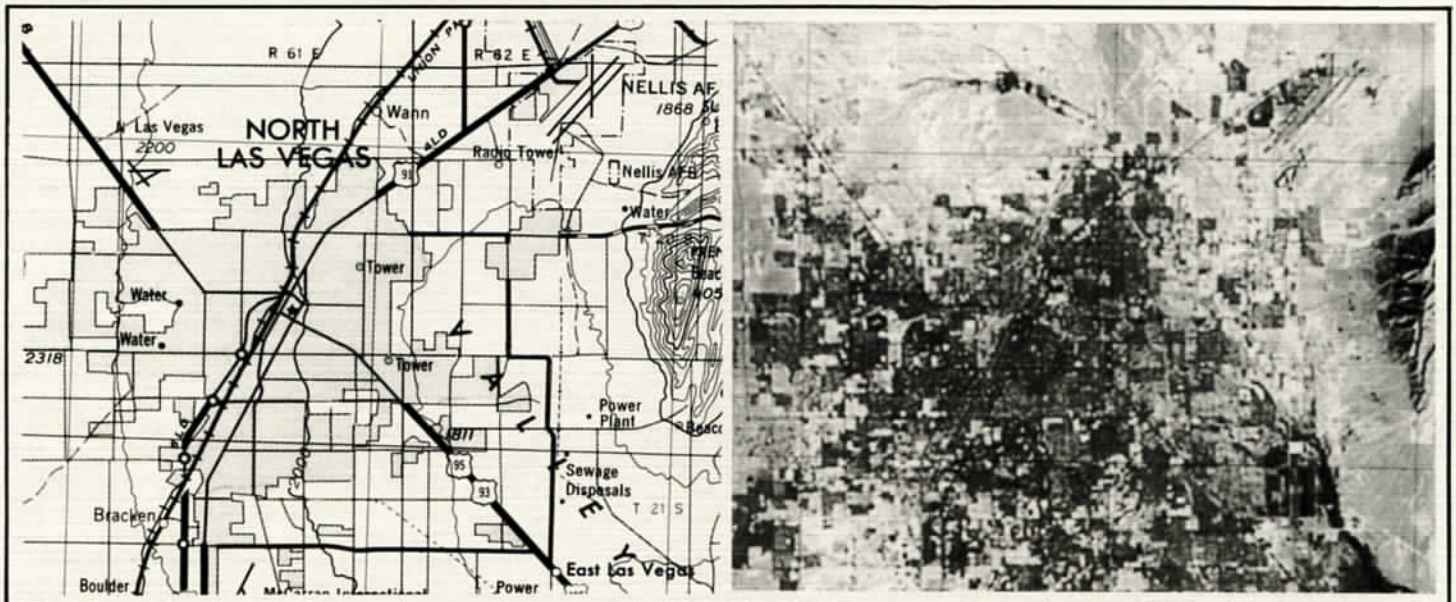
How can you, the user, learn to use the network? No problem; it's designed to be user-friendly, with both a TAE and a command interface. It's a self-serve, do-it-yourself system. You can pick up a copy of the documentation for the file transfer software from Software Development. Our system's staff is user-friendly too. Call them at extension 271 if you have questions and they will be glad to help.

Sorry, Kevin

The Center Scene failed to credit Kevin Kroeger for taking the pictures of the International Workshop Black Hills field trip that appeared in our last issue.

Volume 1 Number 4
October 1984

Editor: Phyllis Wiepking
Reporters: K.C. Wehde
David Hastings
Jean Paulson
Production: Nancy Holt
Jan Nelson



The outlines of the city of Las Vegas are drawn on the portion of the 1:250,000-scale USGS topographic map shown on the left, while the city is actually seen on the image map, right, which combines the visual characteristics of a photograph with the spatial accuracy of a map.

SURVEY ANNOUNCES IMAGE MAP PRODUCTS

The U.S. Geological Survey's Public Affairs Office in Denver recently released a news story on image mapping activities with particular emphasis on the Las Vegas, Nevada, image map that was produced at EDC. Excerpts from the news release by Pat Jorgenson follow.

A spectacular satellite image map of the Las Vegas, Nevada, area that shows how 7,680 square miles north, east and west of the city look from a height of some 570 miles above the Earth's surface, is one of a number of satellite image maps produced by the U.S. Geological Survey, Department of the Interior.

USGS cartographers said the Las Vegas image map, like most satellite image maps, is not a true color map. In the production of a color-infrared satellite image map, different wavelength bands are combined and are printed in different colors that can vary from map to map, depending on the bands of the spectrum that are selected and the colors used for printing. Because the bands and printed colors vary, the color of some features, such as vegetation or urbanized areas also vary on the finished map. Each of the USGS satellite image maps include a color key to aid the map user in discerning the different features.

USGS cartographers mosaicked four Landsat 3 multispectral scanner images, collected in October 1981, for the Las Vegas map. The multispectral scanners on board Landsats 1 through 4 produce images suitable for presentation at the 1:250,000-scale (1 inch on the map represents about 4 miles on the ground). The area shown on the color-infrared image map is the same area depicted on the USGS standard one-degree by two-degree quadrangle map printed on the reverse side. At the latitude of 36 degrees north, where Las Vegas is located, one degree of longitude (east-west) equals 56 miles.

Each scanner image is comprised of millions of picture elements (pixels), each representing the reflected brightness level of a small section of the Earth's surface—about 1.1 acres for a multispectral scanner pixel, used to produce the Las Vegas map.

Other image maps are currently available. Cartographers of the USGS National Mapping Program provided the following additional information on the techniques used to produce the different satellite image maps.

Washington, D.C.: The Washington image was acquired by the Thematic Mapper on Landsat 4, launched July 16, 1982. The Thematic Mapper produces data with a 30-meter resolution in contrast to the multispectral scanners that have resolutions of 79 meters. The Washington, D.C., image map is published at a scale of 1:100,000 (1 inch on the map represents over 1.5 miles on the ground). The original Thematic Mapper data were first processed into computer compatible form by NASA and then were geometrically fitted to ground control and converted from digital to image form by the USGS at the EROS Data Center. Seven wavelength bands are recorded by the Thematic Mapper. In producing the Washington, D.C., image map, USGS scientists chose bands 1, 3 and 5 printed in subtractive colors yellow, magenta and cyan, resulting in an image map that is predominantly blue and green. The selection of these bands was determined to be the best means of presenting the extensive urban features of the area.

Dyersburg, Tenn.: The Dyersburg map was also created using information obtained from the Thematic Mapper on Landsat 4. The two-sided map, which has a standard USGS line map on one side and the color-infrared Landsat 4 Thematic Mapper image on the reverse side, covers part of western Tennessee, southeastern Missouri and small segments of northeastern Arkansas and southwestern Kentucky. The color infrared 1:100,000-scale map is based on a single image obtained August 22, 1982. The Dyersburg image and a corresponding line map are printed back-to-back to permit comparison of both maps.

New Bedford, Mass.: Landsat 3 return beam vidicon data with approximately 30-meter resolution are suitable for scales as large as 1:100,000, the scale that was used for the New Bedford map. Four Landsat 3 images taken on August 19, 1978, of Cape Cod and environs were manually mosaicked for the black-and-white New Bedford image map. This single-sided image map complements existing large scale orthophotoquad maps of the region. The return beam vidicon (RBV) camera recorded television pictures of the Earth.

The experimental image maps and general map ordering information may be obtained as follows:

Available over-the-counter or by mail from Eastern Distribution Branch, USGS, 1200 South Eads St., Arlington, VA 22202:

"Washington, D.C., and vicinity, 1:100,000-scale Satellite Image Map," cost—$5.00.

(Cont. on page 6)

EMPLOYEE NEWS

WELCOME ABOARD

K.C. Wehde

Jan Howe comes to the secretarial staff of the Technique Development and Applications Branch with eight years experience as a secretary for Twin City Testing and Engineering Laboratory, Inc. in Sioux Falls. Jan is the mother of two daughters, Kim of Denver, and Kay of San Diego. She enjoys cards, crafts, reading, and the outdoors.

Jonathan Gering served as an Electronics Technician for Raven Industries and Business Resources, both of Sioux Falls, before joining the Electrical Maintenance Section. A graduate of the Mitchell Area Vocational Technical School, Jon enjoys cooking and photography.

Jon Merchant is a new Engineer for the Electronic Maintenance Section. He comes to the Center with 6½ years of field service experience with the Digital Equipment Corporation. Jon holds an Associate of Applied Science Degree in Computer Science from Indian Hills Community College, Ottumwa, Iowa (Of MASH fame). He is married and has two children.

Darla Larson, listed as a temporary employee in the last edition of **The Center Scene**, has since become a permanent employee of the Photographic Laboratory. She will continue her duties as a photo technician. Congratulations, Darla!

Kim Kreutzfeldt from Spencer, joins Computer Operations as an Automatic Data Processing Support Specialist. She holds an Associate of Arts degree in Data Processing from Dakota State College, Madison.

Joe Baglio joins the Technique Development and Applications Branch as an Applications Scientist in the Geo-information Sciences Section. Previously a consulting hydrologist with Stiller and Associates in Helena, Montana, Joe received his Bachelor of Science Degree in Geology from Radford University, Radford, Virginia, and his Masters in Hydrology from the University of Idaho, Moscow. Joe and his wife, Sandy, have two children—Christopher, 3, and Nicholette, 4 months. Joe's hobbies include photography, furniture building and refinishing, and racquetball to name a few.

Stan Moll, a Senior Applications Scientist in the Geo-information Sciences Section of the Technique Development and Applications Branch, has worked for the U.S. Bureau of Mines, Denver; the Department of Energy, Grand Junction, Colorado, and Century Geophysical Corporation, Moab, Utah. Stan has a Bachelor of Arts Degree in Geology from the University of California, Santa Barbara and a Masters in Geology from Colorado State University, Ft. Collins. He and his wife, Julia, a freelance journalist, enjoy skiing, hiking, camping, orienteering, and bicycling.

STUDENT PROGRAM

Robert Stansbury is a Computer Clerk in the Computer Services Branch as part of a one-year government internship program. He is a student at Sioux Falls College studying Public Accounting.

EMPLOYEE AWARDS

Dana Nelson, Quality Assurance Analyst, Engineering and Development, received a Special Achievement Award for her initiative and dedication during a very heavy workload period which necessitated a diligent, manual screening of Thematic Image Processing System products for placement in the Main Image File.

Bryan Bailey, **Gail Hanson**, **Arlys Johnson**, and **Char Johnson** have received Sustained Special Achievement Awards. These awards recognize USGS employees who have consistently exceeded performance standards. **Bryan** was cited for his extensive workload and excellent performance in coordinating EDC/People's Republic of China activities. **Gail's** effectiveness in analyzing and resolving discrepancies in monthly Branch of Financial Management reports and in assuming personnel duties during a 40-week vacancy were recognized. **Arlys'** award noted her assumption of many of the management specialist duties during a long vacancy while continuing to carry out a heavy workload in the Administrative Office. **Char's** outstanding leadership and guidance to Technique Development and Applications Branch contractor secretarial personnel at EDC and the Alaska Field Office, her efforts in procurement, installation, training communications, and maintenance of CPT word processing equipment in the Branch, and her special efforts and success in obtaining the most cost-effective airfares for Branch travelers were listed in her award.

Dave Greenlee, **Brent Lowell**, and **Gerald Moore** were honored with Nonrecurring Special Achievement Awards. These awards recognize specific accomplishments in addition to high-level performance standards. **Dave's** formulation and administration of an operational support program for a network of Remote Image Processing System (RIPS) analysis stations, his major responsibility in designing and conducting a RIPS workshop, and his part in technical information and guidance to RIPS users on a nation-wide scale were noted in his award. **Brent** was cited for his analysis and design effort to configure a state-of-the-art office automation program for the EROS Data Center, for monitoring installation of the systems, insuring continued maintenance of the units, and procuring additional units as new requirements evolved, and for his independent investigation of communication techniques for transmitting data between EDC and other facilities. **Gerry** was honored for the development of a digital hydrologic information system and for generating the "proof-of-concept" results to meet a critical Secretarial MBO deadline. The award recognized the application of Gerry's professional knowledge in digital data base techniques and the principles of hydrologic information, his initiative in designing the project approach, his personal dedication involving working long hours and weekends and his skill in organizing and documenting a comprehensive set of reuslts.

Ray Byrnes, Chief, Technical Information Office, received a Quality Increase Award for his outstanding performance ratings, including successful management of the logistics and timely publication of proceedings for the Pecora VIII Symposium, when the U.S. Geological Survey was a lead sponsor.

Don Lauer, Chief, Technique Development and Applications Branch, and **Wayne G. Rohde**, Chief, Spatial Data Technology Office, were honored for Superior Performance for the U.S. Geological Survey. **Don's** award noted that he made major contributions to the re-orientation and integration of EDC applications projects to the National Mapping Division. **Wayne** was honored for his outstanding performance in planning and managing the disbandment of the EROS Program Office in Reston and the transfer of EROS personnel into other Geological Survey Divisions and offices.

EDCEA REPORT

David Hastings

SOFTBALL: The 1984 EROS Softball league season ended with a bang on Monday, August 27th, with the Software II team defeating VESCO to become league champions for 1984, with VESCO taking second place in the hotly contested finals. The new softball trophy is on display on the trophy case near the guard desk.

BASKETBALL: Our new basketball hoop has been set up near the northwestern corner of the employees' parking lot. The basketball can be checked out from the guard desk by employees.

CORN & GARDEN CLUB: This year the opening of membership in the Corn Club resulted in a record membership of 60. The harvest, while not outstanding, has certainly been better than last year's drought-striken crop. Members had the opportunity to more than recover their investments.

In contrast to corn membership, only two employees developed garden plots. These plots seem to have done reasonably well.

EDC COMMUNITY TALENT : The strong reponse to the serenade by the EROS Caballeros on the occasion of the opening of the EDC photo show (and the reopening of the EDC Cafeteria under new management) last July brought on two suggestions: 1) Let's have more such entertainment at lunch time! This will, we hope, be done as soon as the summer vacation season fades away. However, such entertainment all depends on YOU. The entertainment does not have to be restricted to music; it can be comedy, mime, drama, whatever. The audience will respect the status of amateurs. That is, you don't necessarily need to have the golden vocal chords of a Rod Stewart or a Phyllis Diller to sing to us, or the thespian talents of Bo Derek or an early Clint Eastwood to act on our stage. Let Ben Raiche, Woody Yaroch, or Dave Hastings know if you have any ideas (about yourself or others); 2) Let's incorporate a talent show into the other activities of the Christmas Party this December 15th. To misquote a famous President of another organization, "Let us not ask what EDCEA can do for us this Christmas, but let us ask what we can all do for each other at this year's Christmas party." We are thinking of a way to reward these efforts. So get your acts together for the talent show, and let the aforementioned three gentlepersons or your EDCEA representative know of your plans.

LEE ACCEPTS POSITION IN SAUDI ARABIA

K.C. Wehde

Tom Lee, Facilities Manager for the EROS Data Center, has accepted a position as Field Operations Manager for the U.S. Geological Survey in Jeddah, Saudi Arabia. For a period of two years, Tom will be supervising 50 to 80 persons who provide logistical support for all U.S. Geological Survey field operations in the Kingdom of Saudi Arabia. This, in part, fulfills a contract between the USGS and the Ministry of Oil Resources to geologically map the Kingdom with an emphasis on mineral and water exploration as well as topographic mapping.

Tom, his wife, Sherry, and daughter, Michelle, departed from Sioux Falls on September 13. With an option to renew his stay in two years, Tom views the venture as a career challenge with vast opportunities for experience in management.

On a preliminary trip to Saudi Arabia, Tom was pleasantly surprised by what he saw there. "My first impression of Jeddah was that it is a large, ultramodern city that could be any major city in the U.S.A. There was lots of new construction of office buildings and high rises, and there was almost no sign of slum areas in the city." Though the airport itself was as thoroughly modern as any airport in the United States, it did have its differences including desert and camels not far from its runways. This image in itself accentuates the fact that Saudi Arabia is a curious blending of the old and the new. As the time approached for Tom's return to Saudi Arabia with his family, though a bit apprehensive, they found themselves looking forward to the travel and opportunities that awaited them.

Tom's EDC friends and associates send their very best wishes to him and his family as they embark upon this exciting new adventure.

(Cont. from page 1-Image Mapping)

a national park area.

Future projects may investigate the use of integrating National High Altitude Photography products, radar images, SPOT data, and Advanced Very High Resolution Radiometer data into image mapping production.

Currently, EDC is producing generic image map bases. It is possible that this program might evolve to the production of specialized or thematic image maps, such as geologic, or landuse and landcover, image maps.

The current concept of image mapping is exciting, like looking at a map of Washington, D.C. and actually seeing the city; the future holds more fascinating possibilities.

PECORA IX SYMPOSIUM TO BE HELD OCTOBER 2-4

"Spatial Information Technologies for Remote Sensing Today and Tomorrow," the Ninth William T. Pecora Memorial Remote Sensing Symposium, will be held October 2-4 at the Howard Johnson Convention Center. Sponsored by the IEEE Computer Society in cooperation with the National Aeronautics and Space Administration, the United States Geological Survey, and the American Society of Photogrammetry, it will focus on the wide variety of spatial information technologies germane to the remote sensing community.

The meeting's goal is to bring together managers, technologists, and scientists from leading private, government, and university sectors from around the world to display and present the latest research developments.

Program topics will include Hardware, Geographic Information Systems, Spatial Data Structures, Graphics, Natural Language, Advanced Techniques, NASA Information Systems, Artificial Intelligence, Spatial Navigation, Processing Remotely Sensed Data, Classification, and Processing Elevation Data.

EDC program participants include Jim Sturdevant, R.J. Thompson, Lyn Oleson, and Sue Jenson. Ray Byrnes is logistics chairman for the convention.

The Pecora Symposium was established in 1975 to foster the exchange of scientific and resource managment findings resulting from the use of remotely sensed data. It honors the memory of Dr. William T. Pecora, former Director of the Geological Survey and Undersecretary of the Department of the Interior. Dr. Pecora played a major role in the development and establishment of this country's satellite remote sensing systems. Under his direction, the Geological Survey assumed leadership of the Interior Department's Earth Resources Observation Systems (EROS) Program and implemented the establishment of the EROS Data Center.

KENYAN SCIENTIST AT EDC

Jacob H. Kirimi, Kenya, is spending five weeks at EDC working and studying in the Geoscience Section under the direction of Gerry Moore. Jacob recently received his master's degree in hydrology and remote sensing from Purdue University. When he leaves EDC he will spend one month with the Tennessee Valley Authority before going home to Kenya. We cordially welcome Jacob to EDC.

OLYMPIAD THEME FOR TENTH HACKERS OPEN

K.C. Wehde

The 1984 Olympic Games were the inspiration for the theme chosen by the Co-Chairmen of the Tenth Hackers Open Golf Tournament. The Technique Development and Applications Branch tournament, now in its fifth year, was designed by Larry Pettinger in 1980 as a recreational sporting event and awards banquet involving "hackers" (novice golfers and individuals with no golfing experience) along with experienced "swingers." The tournament was so successful that it became an annual and then a semi-annual event within the Branch.

The enthusiasm of this Fall's Hackers Open Olympiad was not dampened by the rain that beset the tournament from the first tee-off and continued through a portion of the evening. With approximately 11 countries represented, 34 individuals took part in 22 events on the 9-hole golf course. Some of those events included Team Gymnastics (low team net), boxing (most obstacles hit), weightlifting (most beer consumed), the 1,500-meter Free Style (most water shots), and a new event (Synchronized Putting). In synchronized putting, golfers are spaced a random distance from the hole on the putting surface. On the count of three, all golfers putt toward the hole in a "synchronized" motion while a panel of judges (who have had at least one glass of champagne) critically look on. One judge had the following to say concerning the competition: "The golfers sure had colorful balls." Other judges were not available for comment.

"Gold," "silver," and "bronze" medals were awarded in all events at the awards banquet immediately following the Tournament. As in the Los Angeles Games, the American Team walked away with first place capturing 11 medals (7 of which were gold). The Americans were followed by the Irish Team in Second Place, with the Welsh/Scottish Team taking Third Place over all. Previous Hackers Opens as well as the Tenth Hackers Open have held the true spirit of the Olympic Games—competition, friendship, and unity.

NCIC STAFFERS FILL DATA SERVICES OFFICE

Gerhard Krohn, a cartographer with NCIC Headquarters in Reston, Virginia, succeeds Dennis White in the temporary position as acting Data Services Officer for the Branch of Data Production and Distribution. An exercise instructor and an avid bicyclist, Gerhard, with his wife and three children (ages 7, 11, and 16) lives in Sterling, Virginia. He enjoys dealing with the public, and also plans on seeing the sights of Sioux Falls and the surrounding area on the bicycle he brought with him from Sterling, which is now residing in his hotel room.

Dennis White, Chief, Mid-Continent Mapping Center, National Cartographic Information Center, Rolla, Missouri, served a 60-day detail as Data Services Officer during July and August.

EMPLOYEE PHOTO CONTEST

Judy Norton

Great Turn Out! The Arts Committee wishes to thank all the participants for their efforts in this summer's Employee Photo Contest. We extend our apologies to those who did not have time enough to prepare. (Commercial labs in this area require two to six weeks for processing of enlargements.) This is an annual event, so begin thinking about next year's contest.

Fifteen black and white photographs were entered. Winners were **Judy Norton**, 1st; **Jim McCord**, 2nd; and **Kevin Kroeger**, 3rd. The color competition was very popular with 35 entries. Winners were **Tom Loveland**, 1st; **Bruce Molnia**, 2nd, and **Tom Loveland**, 3rd.

Employees reported that voting was tough because there were so many excellent photographs to consider.

EDCEA GOLF LEAGUE

Ron Risty

With summer passing, Fall upon us, and Old Man Winter on his way, the EDCEA Golf League would like to honor its Champions of this past year.

	Teams
1st Place	**Wayne Rohde** **Joe Pfliger** **Don Ohlen**
2nd Place	**Dick Nelson** **Ron Risty**
	Singles
1st Place	**Ron Risty** **Bob Christensen**
	Most Improved Golfer(s)
Women	**Char Johnson**
Men	**Bob VanDenOever**
	Sandbagger(s) of the Year
Team	**Dave Ochsner** **Bob VanDenOever**
Singles	**Bob VanDenOever**

From our Nancys and JoAnns, Jacks and Lees, have a good winter and we'll see you next spring.

KUDOS

Robin Hermanson, Viking Engineering Services Company, will receive a National Award for Energy Innovation from the Secretary of Energy, Donald Paul Hodel, in ceremonies in Washington, D.C., on October 1. The project which won Robin the national award, a Heat Recovery System at EDC, involves the merging of the computer room air conditioning system with the building heating, ventilation, and air conditioning system in such as way as to use the heat coming off the computers to help heat the building. The electrical energy cost went from $33,100 yearly to $4,750 after the heat recovery retrofit, resulting in a savings of $28,350 and 758,00 kilowatt hours. Robin entered the project in the South Dakota Energy Office's "Technology Transfer 80s" program which is designed to encourage the sharing of energy-saving projects, accomplishments and technologies. His entry was one of six that the State of South Dakota entered in the National Department of Energy competition.

Russ Pohl shares a letter he received from Mr. R.D. Swenson, State Conservationist, Soil Conservation Service. "Your staff member, **Jim McCord**, did an excellent job for us with the photography workshop. Thank you for sharing his expertise. During the session, the class is exposed to classroom instruction, two field exercises, and an evaluation of their work. Jim's knowledge and experience are most helpful." Jim received a certificate of appreciation for his part in the workshop.

Dave Qualseth, VESCO, was awarded the "Most Valuable Player" trophy at the Clem's Invitational Slow Pitch Tournament held in Sioux Falls. His team won the tournament and qualified for the Midwest Regionals.

(Cont. from page 3-Survey Announces)

"1:100,000 Satellite Image Map, Dyersburge, Tenn.-Mo.-Ky.-Ark.," cost—$5.50.

"1:100,000 Satellite Image Map, New Bedford, Mass.," cost—$2.80.

Available by mail from the Western Distribution Branch, USGS, P.O. Box 25286, Federal Center, Denver, Colo., 80225; or over-the-counter on the 1st Floor of Bldg. 41 at the Federal Center in Denver.

"Las Vegas Satellite Image Map, Experimental Edition," cost—$5.50.

Please note that a $1.00 postage and handling charge applies to mail orders less than $10.00. All orders must include a check or money order payable to the Department of the Interior-USGS and must specify the exact map title.