

# The Center Scene

## EROS PARTICIPATES IN COOPERATIVE PROJECTS

K.C. Wehde

The National Mapping Division's EROS Data Center plays an important role in a variety of applications projects done in cooperation with other Federal and State agencies. These projects are designed to provide information to the cooperating agencies for inventorying, assessing, and managing natural resources, as well as to act as vehicles to test, document, and disseminate research and development findings in the arena of spatial data analysis and computer technology. Cooperative projects designed to solve resource problems often lead to further development of new technologies (such as geographic information systems), and provide a mechanism to test these technologies. Once documented, these technologies may be disseminated to other agencies within and outside of the Department of the Interior (DOI).

Agencies that address natural resource management problems (minerals, land use, forests, rangelands, agriculture, soils, and water) are able to seek the assistance of the EROS Data Center through the formation of cooperative projects. Cooperators are encouraged to participate in all phases of the project including planning, data analysis, field data collection, and compilation of results. When possible, cooperators acquire the data used in the project and perform the functions necessary to obtain the desired result, while EDC provides specialized analysis equipment and multidisciplinary staff for consultation. But each cooperative project is different to a degree, and may be designed according to the requirements and the capabilities of the cooperating agency.

Cooperative projects are a vital part of EDC's research and development function. Cooperators receive training in the utilization of data and output products specifically designed to meet the needs of a particular resource problem. The Data Center is a leader in the use of remotely sensed data and in digital cartographic and geographic information systems technology, and EDC's expertise helps other DOI agencies to meet spatial data handling and analysis requirements. National Mapping and

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The runways of Joe Foss Field, the interstate highways, and the meandering Sioux River are prominent features on this portion of a new aerial photograph mosaic of Sioux Falls, created from six aerial photographs taken on April 1984.

## New Products Created at EDC

A new aerial photograph mosaic of the City of Sioux Falls was created by Chuck Larson from six individual photos taken April 18, 1984, from 40,000 feet above the city. The photographs were obtained from the National High Altitude Photography Program (NHAP), a multi-agency activity coordinated by the U.S. Geological Survey and developed to provide quality aerial photographic coverage over the entire United States in black and white and color infrared. The 1984 Sioux Falls mosaic can be ordered through User Services by requesting E-1480-99CT for the color infrared print and E-640-99BN for the black and white photo.

A unique presentation of Landsat MSS

data of Mount McKinley (Denali), Mount Foraker, and the Alaska Range was created using Digital Elevation Model (DEM) data from the National Geographic Information Center of the U.S. Geological Survey. The oblique view was generated by draping Landsat digital satellite MSS reflectance data over the digital elevation data to simulate viewing the terrain from a point 15,000 feet above the Tokositna River. Colors used are similar to the false color-infrared shades seen on Landsat color composites generated from three black and white spectral bands. Artificial blue sky was generated and added to the perspective image. Copies can be purchased by requesting Scene E-1481-99CT.

## UP FRONT

Commercialization of the Landsat system has been stalled in Washington during recent months while it continues to be evaluated at the highest levels. One thing that is becoming clearer, though, is that the Data Center's future will not "sink or swim" on the outcome of the commercialization issue. The Data Center will continue to play a significant role with Landsat commercialized or not!

The Center's future, in my estimation, will evolve around the concept of a national facility for advanced information systems and remote sensing applications development. Many Federal agencies collect and store Earth science and land management data for their own needs but these cartographic, geographic, and scientific data bases differ widely in format, resolution, structure, and content, — making their use by other organizations awkward and time consuming. Ideally, a single standard geographic information system would eliminate data-sharing problems, but that is clearly asking too much of system designers. What could come to pass is the emergence of a facility that develops information system data integration techniques to reduce duplication, enhance application, and save costs.

A similar situation exists in remote sensing applications development — many Federal agencies conduct research to develop more practical uses for satellite, aircraft, and other forms of remotely sensed data. Here, the U.S. Geological Survey and the EROS Data Center are already recognized as worldwide leaders in establishing beneficial applications of remotely sensed data. The USGS has well-established capabilities in working with other agencies involved in remote sensing, such as the National Aeronautics and Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA).

At a time when the Federal Government is anxious to increase efficiency and reduce spending, it seems appropriate that the development of national land data bases and efforts to solve national land-management problems via remote sensing applications be better coordinated and, when appropriate, combined.

We're working hard on management and budgetary initiatives to secure the role of the Division and the Center in these vital areas, and with your continued help and cooperation, I look forward to a bright and challenging future.

*Allen H. Watkins*

## EMPLOYEES CONTRIBUTE TO FRIENDSHIP PROJECT

The second annual EDCEA Friendship Tree Project confirmed the spirit of friendship and generosity of the people who work at EDC. In the weeks before Christmas, \$1,300 in cash and several boxes of toys, clothing, and food products were received for distribution to the less fortunate people of our community. Again this year, each \$10.00 contribution to the Friendship Tree added a large bow to the lobby Christmas tree. On Christmas Eve day, a check for \$1,000 was given to the Children's Inn. Toys, clothing, and \$300 were given to the Salvation Army and boxes of groceries were taken to the Food Service Center.

Dear EROS Data Center Employees,

On behalf of the Children's Inn, the Board of Directors and especially the children, women and families who benefit from the Inn's services, we thank you very much for your heartfelt and generous contribution of \$1,000 from your Christmas Friendship Tree. During 1984, the Inn has provided crisis shelter for 487 children and women and drop-in services for another 477 victims of domestic violence, child abuse and neglect.

Words can barely express the appreciation we feel for what you have done, as we know that you all gave out of the care and concern you have for others. We at Children's Inn feel most honored that you selected the Inn to be the recipient of your outreach to help others in our community.

One of the Inn's major needs is new mattresses and two trundle beds. The trundle beds are to make more efficient use of space of two very small bedrooms and all of our mattresses are at least 20 years old and very much in need of replacement. We hope you will feel, as we do, that this is a very worthy utilization of your contribution.

Again, thank you so much for selecting Children's Inn to be the recipient of your outreach to the Community. Your support is appreciated by so many in need.

Sincerely,

*Connie Kolbrek*  
Children's Inn - Director

When we returned to work on the day after Christmas, we were stunned by the site of the burned-out shell of what was the home of the Ollerich Family, located on the southeast corner of our access road. The family of nine had lost their home and all of their personal belongings to a devastating fire on Christmas Eve. Before the day was over, EDC employees responded. The

Friendship Tree continued as the symbol of care and concern. Gold stars were placed on the bows for each \$2.00 given for the Ollerich family. By the end of the week, \$360.00 had been donated to help relieve our neighbor's immediate financial burdens.

Kent Hegge, User Services, who also farms nearby, presented the check and a large, signed Friendship Card to Bob and Phyllis Ollerich. He reported that they were very grateful for the concern and generosity of EDC employees.

(Cont. from page 1 - Cooperative Projects) other Divisions with the U.S. Geological Survey benefit from the research and development achieved through cooperative projects since project results help set standards, clarify formats, define limitations, outline areas in need of improvement, and provide uses for various types of spatial data.

Staff at the EROS Data Center and at the EROS Alaska Field Office are involved in a variety of cooperative projects. Alaska Field Office staff participate in projects with Alaska resource agencies, and EROS Data Center personnel take an active part in these projects, as well, when required.

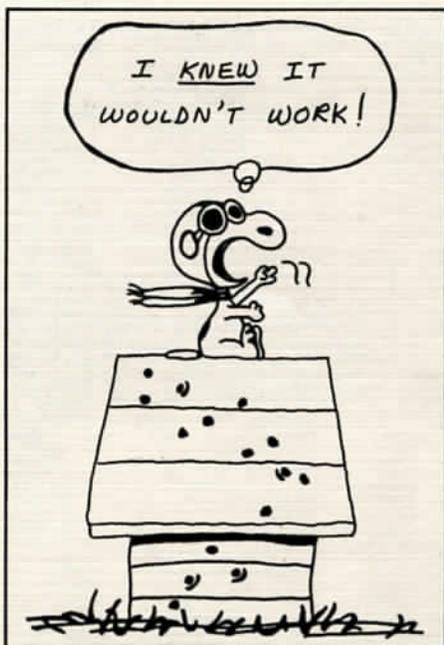
Digital data handling, manipulation, and information extraction are research priorities evident in all cooperative applications projects even though end products or project objectives may vary significantly. Whereas a Landsat classification technique was used to inventory the number of lakes in portions of Alaska for the Arctic Lake Automated Inventory project in cooperation with the U.S. Geological Survey's Water Resources Division, digital analysis of National Oceanic and Atmospheric Administration Advanced Very High Resolution Radiometer data was used in support of the Data Center's cooperative Fire Fuels Mapping Project with the Bureau of Land Management (BLM) for its national fire program. As a result of this cooperative effort, plans are in progress to map all 180 million acres of BLM-monitored land in the western United States using a method developed during this project. While the Bureau of Indian Affairs is evaluating the use of satellite data for monitoring grazing land on the Crow Creek Reservation, the U.S. Army Corps of Engineers is utilizing geographic information system applications in the development of an automated method to monitor coastal areas and other waterways. This method will replace the Corp's manual method used to monitor Alaskan lands under its jurisdiction for the issuance of permits to individuals and/or businesses considering construction sites.

Future issues of *The Center Scene* will carry articles on specific cooperative projects completed or in progress at the Data Center.

## Christmas Party a Gala Affair

The festive setting for the 1984 EDCEA Christmas party was the Starlight Room atop the Holiday Inn City Centre. More than 250 employees and guests enjoyed a choice of prime rib, stuffed chicken breast, broiled walleye amandine, or stuffed pork chop along with a generous assortment of salads and relishes from a beautifully arranged salad bar. Following the dinner many of the holiday celebrators danced to the music of the versatile group, Palladin. A variety of very attractive prizes, contributed by Technicolor Government Services, Viking Engineering Service Company, EDCEA, and several area merchants, were awarded throughout the evening. Congratulations and a very hearty vote of appreciation go to all who worked hard and planned one of the loveliest EDCEA Christmas parties that we've ever had. (Acknowledgements appear in the EDCEA News Column.) Santa Bankers, Santa Ochsner, and Santa's Elf, Darla Larsen, provided a merry addition to the holiday atmosphere. Even the foggy, misty weather added a soft, mellow essence to the view of the city from the windows that encircle the beautiful Starlight Room.





## PROTOTYPING WITH TAE

Jean Paulson

Alas! Snoopy has been shot down in a battle with the Red Baron. Evidently his doghouse wasn't designed to be bulletproof. Computer users sometimes find that the software they use isn't bulletproof either. Even the software packages developed "exactly to their specifications" often turn out to be full of holes. On the other side of this issue are the programmers who, when faced with the 99th set of revisions to their code, conclude that the user has no idea what he wants!

The problem here is partially one of communication, but more than that it involves the evolution of a program's design from a concept to a working model. In all fairness, the blame for poor software must be shared between the user who is positive he "knows what he wants" and the programmer who is equally sure he "knows what the user needs." Rarely is either one of them right. Trial and error is still an important part of the process of designing and developing major software systems, and it can be expensive.

Snoopy probably should have tested a prototype of his doghouse before he got into the dogfight. Some people believe that a prototype is a waste of time and effort because it doesn't really contribute to the final product. But a prototype can be a valuable tool. A prototype for a software package will allow the user to interact with the system exactly as he will when the software is complete. It gives him a preview that may point out potential problems that are much easier and less expensive to correct before the program is written.

EDC has a new tool for developing software prototypes. It is the Transportable Applications Executive (TAE)

which was created by the NASA/Goddard Space Flight Center to support the development of interactive applications systems. Although TAE is mainly intended to provide a consistent and friendly interface between the user and the computer program, it can also be used to develop prototypes. TAE reads text files that describe all of the input data for a program, so no programming is required to quickly and easily create a variety of interface styles for a user to try. Best of all, when the user selects one of the prototypes, the TAE files that support it can be incorporated directly into the final program.

Using TAE for prototyping should help to reduce the number of changes requested after the software development cycle is completed. While these changes may seem small to the user, they can account for major code revisions and possibly continuing maintenance problems if they significantly impact the design of a completed program. So whether you are a user or a programmer, the next time you begin a software development project give TAE a try. It's available on both VAX's, both SEL's, and the SUN workstation. For more information or help in using TAE, please contact the Software Development Section.

## EDCEA NOTES

The EDCEA Christmas Party, pictured elsewhere in this issue of *The Center Scene*, was a great success. Prizes awarded throughout the evening included a weekend package at the Holiday Inn, won by **Mardella Koerner**, **Larry Kasten's** date; a color television set won by **Denny Pearson**; an electric rotisserie broiler won by **JoAnn Engelbrecht**; a stereo portable radio won by **Woody Yaroch**; a telephone won by **Bryan Bailey**; Gallery 306's anniversary print won by **Arlyn Groen**, **Cathy's** husband; holiday centerpieces won by **Sue Jensen** and **Terry Johnson**, **Connie's** husband, and a number of gift certificates to area restaurants and other businesses. In a surprise drawing, **John LaVergne**, **Chuck Sundt**, **Pete Mumford**, and **Stan Moll** won the draws for positions of next year's EDCEA officers. (Unfortunately, this does not conform to the EDCEA Constitution so an election will be held in February; however, it appears that they will make a good slate of officers!) Among the EDCEA members who were involved in behind-the-scenes work were **Dave Hastings**, **Judy Norton**, **Connie Feyereisen**, **Juanita Roland**, **Judy Austad**, and **Tom Holm**. They, along with others, capably handled plans and footwork to make the Christmas party a very enjoyable affair. Tentative reservations have been made to hold the 1985 Christmas party in the Starlight Room on December 20.

## INTERNATIONAL AFFAIRS

EDC's staff photographic technologist, **Jim McCord**, recently returned from Beijing, China after spending approximately four weeks assisting the Research Institute of Petroleum Exploration and Development in establishing standards, procedures, and specifications for digitally processed images. Jim says, "The time spent with the technical and professional staff of the Institute was tremendously rewarding. Not only was the technology exchange successful but the strong bond of friendship between the scientific communities of the United States and China was more firmly established.

Recent international visitors to EDC included a Chinese agricultural remote sensing delegation accompanied by **Mr. Shusun Li**, University of California, Santa Barbara, and The Peoples Republic of China. The group discussed Shanxi Province applications of Landsat data.

**Mr. Naoji Ono** visited EDC to obtain assistance in selecting images for a program to be televised by NHK, Japan's public broadcasting network.

**Messrs. Torbjorn Norbech** and **Egil Asmyhr**, geographers from Norway, spent four days at the Center observing and discussing image mapping procedures.

Visitors from Hong Kong, Taiwan, Malaysia, Columbia, Sweden, Canada, and Japan have visited the Technical Reference Unit to select data during recent weeks.

## To The Center Scene Readers:

This issue of *The Center Scene* marks the beginning of the second year of production of your EDC newspaper. We appreciate the positive comments that we have received during the past year. However, in order to assure continued production of an interesting, worthwhile, informative publication we must have your cooperation. When an interesting program or project is under way in your branch or section, let us know about it. If you have always had a secret desire to be a reporter, write a story for us. We'll review it, edit it, and give you a by-line. If the idea of putting an article together turns you off, just tell us about it and one of our staff will write the item. Alaska! We're patiently waiting for news from the Field Office. Don't wait for production time — we keep a running file between editions. Send us your news so it can be shared through *The Center Scene*.

*Phyllis*

The Editor

# EMPLOYEE NEWS

## WELCOME ABOARD

**Blaine Ailts**, a graduate of Augustana College, joins the Data Management Section as a Data Technician. Blaine is married and his hobbies include wood-working, auto mechanics, photography, sports, and computers.

**Marietta Brandt**, a Secretary/Steno in the Computer Operations Section, was formerly a registered representative with IDS/American Express. Marietta, her husband, and three children are from Sioux Falls. She enjoys reading, collecting recipes, and oriental cooking.

**Alan Cable**, a former Quality Inspection Specialist and Data Specialist at EROS, returns to the Center as a Production Laboratory Technician with the Photographic Laboratory. A graduate of Hawkeye Institute of Technology in Waterloo, Iowa, Alan, with his wife Judy, and daughter Teresa, lives in Brandon. He enjoys photography, fishing, and water sports.

**Kathy Donahue** from Dell Rapids, returns to EROS as a Data Technician with the Data Management Section. Kathy comes from a family of 15 and her motto is to enjoy every day and be happy. In addition to being a numismatist, Kathy's hobbies include motorcycle riding and refinishing furniture. (A numismatist? That means that she collects old money.)

**Brian Huberty**, before joining the Data Management Section as a Data Specialist, was an Inventory Forester/Firefighter with the Minnesota Department of Natural Resources and a Research Assistant at the University of Freiburg in West Germany. Brian is from Willmar, Minnesota, and has a Bachelor of Science Degree in Forest Resources. His hobbies include photography, flying, cross-country skiing, canoeing, and bicycling.

**John Hunhoff**, a graduate of Southeast Area Vocational-Technical School in Sioux Falls with a Technical Degree in Computer Programming/Operations, joins the Data Management Section as a Data Technician. From Yankton, John enjoys pitching for fast-pitch softball, hunting, and sports.

**Barbara Larson** returns to EROS as a Center Services Technician in the Center Services Section. She, her husband Gale, and children Tom, Brian, and Beth, live on a farm just one mile east of EDC. Barb's hobbies include reading and crafts.

**James Lowe**, a Data Specialist in the Data Management Section, holds a Bachelor of Science Degree in Geography from South Dakota State University. Jim was an air photo interpreter for the SDSU Fish and Wildlife Department. Originally from Rock Rapids, Iowa, Jim enjoys golf, running, and weightlifting.

**Susan Lowell**, before joining the User Services Section in the Technical Reference Unit, was employed by the Water Resources Division, U.S. Geological Survey Library in Albany, New York, the library for the South Dakota School for the Deaf in Sioux Falls, and substituted in other libraries. Currently pursuing programming at Augustana College, Susan, with her husband, and their youngest son, Damon, lives in Brandon. Their oldest son, Kevin, is stationed with the Navy in Hawaii. Susan enjoys square dancing, genealogy, and is a rock hound.

**Robert Patterson**, joins the Data Management Section as a Data Specialist. Bob has a Bachelor of Science Degree in Geography with a Master's Degree in Geography in progress. He was a Research Assistant at the Remote Sensing Institute, South Dakota State University. Bob's wife, Julie, is a pharmacist.

**Deeana Pibal**, a Data Technician in the Data Management Section, attended the School for the Deaf in Sioux Falls. Deeana was previously employed by the First National Bank in Brookings and was a Data Entry Operator at Citibank, Sioux Falls. The mother of a nearly 2-year-old son, Christopher, Deeana enjoys photography, collecting antiques, reading, and swimming.

**Carol Schmidt** joins the Center Services Section as a Center Services Technician. From Dell Rapids, Carol attended South Dakota State University. The ninth of 12 children, Carol enjoys sports, reading, and being with people.

**Raymond Teske**, Contract Administrator for the Technicolor Government Services Business Office, comes to the Center from Payne Transportation, Inc., Huron. A graduate of Augustana College, with a Bachelor of Arts Degree in Accounting and Business Administration, Ray is married and has two children. His hobbies include hunting, fishing, tennis, and bowling.

## KUDOS

**David Hastings** was informed by Gilbert W. Ousley, Magsat Project Manager, that he was selected by NASA to receive the Magsat Scientific Investigation Team Group Achievement Award. The award reads, "In recognition of the very successful reduction, analysis, and utilization of Magsat data by the Magsat scientific investigator team. Your individual and collective contribution to mankind's knowledge of our earth's magnetic properties has been outstanding. NASA is proud of the outstanding contribution that you and your colleagues have made in the scientific interpretation of the Magsat data."

**Chuck Thorman**, Chief, Branch of Central Mineral Resources (CMR), U.S. Department of the Interior, Geological Survey, sent the following memorandum to **Wally Pratt**, **Kim-Marie Walker**, **Sue Jensen**, **Joe Francica**, **Dave Hastings**, and **Charlie Trautwein**: "Congratulations on being the authors of an Honorable Mention paper in CMR for 1984. The committee had a list of [several hundred] extremely fine reports that were published in 1982-83 to choose from. Your paper on the "Mineral-resource appraisal of the Rolla 1° x 2° quadrangle, Missouri" was selected as one of five in CMR as Honorable Mention contributions. The committee worked long and hard on this task before arriving at its final list. A most difficult task well done." One first-place and five honorable mentions were awarded.

**Robin Hermanson** was notified that Viking Engineering Service Company would receive a national award from the American Society of Heating, Refrigeration and Air-conditioning Engineers (ASHRAE) for the heat recovery system that he designed at EDC. The award was presented at ASHRAE's winter meeting in Chicago on January 28. The last issue of *The Center Scene* noted that Robin had received a national award for the design and implementation of the heat recovery system from the Department of Energy.

**Howard Warriner**, Production Program Manager for the Department of Commerce National Oceanic and Atmospheric Administration (NOAA) Landsat Program, and **Lawrence "Bud" Youngren**, Assistant Manager, received awards at a ceremony held at NOAA Landsat Operation Division Headquarters near Washington, D.C. The Commerce Unit Citations read, "In recognition of outstanding individual and collective contributions in furthering NOAA's mission." The Sioux Falls NOAA offices are at EDC.

## EMPLOYEE AWARDS

Jack Scott, Night Shift Supervisor, Computer Operations; Darla Werner, Supervisor, Automatic Data Processing (ADP) Support Unit; and Jere Lewis, Supervisor, Equipment Operations Unit, received awards for superior performance.

Jack's citation noted his successful management and operations of the Interactive Digital Image Manipulation (IDIMS) Systems, his forming and leading inclement weather contingency work forces, and his effectiveness in providing leadership to both ADP Support and Equipment Operations when those Unit Supervisors were on extended leave.

Jere was honored for being instrumental in the success of the communications equipment for INquiry, ORdering, ACcounting/Maps, Aerial Photography and Publication System, for motivating his staff to accept new duties and responsibilities while maintaining superior productivity, and for meeting computer operations support requirements of an around-the-clock operation.

Darla received her award for being instrumental in establishing an effective interface between Goddard Space Flight Center and EDC in regard to Landsat processing, in motivating her employees to take on additional tasks and workloads, including highly complex Large Area Mosaicking, and for competently meeting support requirements on an around-the-clock basis.

Ron Kanengieter and Loren Koepsell, Software Development, and K.C. Wehde, Technique Development and Applications Branch, received Special Achievement Awards. Ron and Loren were honored for their leadership and success in the Information and Data Services (I&DS) project.

Ron's award recognized his full responsibility for the analysis of the open file portion of I&DS, for writing program specs, coordinating the work of three programmers, implementing the software, training users, and working many extra hours to complete the project within deadline despite production site delays.

Loren's dynamic contribution to the subsequent success and completion of I&DS, his dedicated efforts in the Business System Group, the fine example he set for his peers, and the many additional hours he worked to meet development schedules were noted.

K.C.'s nomination emphasized her efforts and talent in designing, preparing,

documenting, and conducting a comprehensive formalized Branch orientation package for new TDAB Technician and USGS employees which has resulted in increased efficiency and time savings for Section Supervisors and has had a significant impact on the smoothness of overall Branch operations.

## LOVELAND AND MURPHY TO LEAVE EDC

Two long-time TDAB staffers will be greatly missed when they leave EDC to embark upon new career experiences. Tom Loveland, Senior Applications Scientist and Supervisor in the Bio-Science Section, will become Director, Resource Analysis Division, Arizona State Lands Department, Phoenix. Dennis Murphy, Principal Scientist, Technique Development Section, will be employed as an Inventory Systems Analyst for the Wood Products Division of Potlatch Corporation in Lewiston, Idaho. He will develop information system applications addressing forest management problems on 600,000 Potlatch acres in northern Idaho and train field personnel to use the system. We wish them both the best of everything in their new homes and new positions.

## MARY LOU EAST NEW EEO COUNSELOR

Mary Lou East has been named Equal Employment Opportunity (EEO) Counselor for EDC succeeding Walt Brandner who has served in that capacity for the past 10 years. Mary Lou will attend a training course in Denver, after which she will fulfill all responsibilities of the office in an official capacity.

The job of an EEO Counselor in the U.S. Geological Survey is to establish an open and sympathetic channel through which employees may raise questions, discuss grievances, get answers, and, on an informal basis, get resolutions of problems connected with equal employment opportunity. In particular situations when resolution of the problem is not accomplished on an informal basis, the EEO Counselor advises the employee of appropriate procedures for filing formal complaints.

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## TEN YEARS AGO

This year's mild and moderate winter makes it difficult for EDC newcomers to believe the story of the Great Blizzard of 1974!

Recent frigid temperatures and strong winds were a reminder of what could happen and what did happen when the cold and the wind were combined with a heavy snowfall.

On Friday, January 10, 1974, the first few drizzles of rain and snowflakes were hardly an omen of what, before the day was over, would become a killer blizzard and make EDC into a weekend "hotel" for 30 employees who were unable to leave the Center.

The storm came up with such speed and ferocity that by the time Center Management began to evacuate employees on a group-by-group orderly basis the driveways were blocked by stuck cars and visibility was zero. A thin glaze of ice under nine inches of snow with a wind velocity that brought the wind chill to minus 80 degrees made it impossible for the last 30 people to get out. Eight of the snowbound employees still work at EDC: Tom Earley, Betty Machmiller, Jim McCord, Bob VanDenOever, Don and Jeanne Schriever, Karla Sprenger, and Gordon Strom. Other employees got part way home but were stranded at neighborhood farms. It wasn't until 2 p.m. on Sunday, January 12, that a number of 4-wheel vehicles were able to get to EDC and take the 30 "weekenders" to their homes.

Two Augustana College students, returning to Sioux Falls from a visit to a dentist in a nearby Minnesota town, were found frozen to death a few feet from their automobile on Interstate 90.

### From: *EDC Health, Hygiene & Safety News*

Studies have reported that the cost imposed by lung cancer, coronary artery disease and chronic obstructive lung disease is \$3 for every pack of cigarettes smoked above the cost of the pack. For a male between 34 and 44 smoking two packs a day, the estimated lifetime cost of smoking is somewhere near \$59,000.

According to R.S. Foster, M.D., director of the Vermont Regional Cancer Center, women who examine their breasts find tumors at an earlier stage and are more likely to survive the disease. A survey of over 1,000 women with breast cancer showed that 90% who performed self-exams detected their own tumors and began treatment a critical six months sooner than those who didn't examine themselves. They had a 75% five-year survival rate compared to 57% for non-examiners.