The Center Scene

FALL 1986

Computer Services Branch

by Mary Jungling

(One of the objectives of ***The Center Scene*** *is to keep EDC employees informed of the work of their colleagues in different branches and sections. This article focuses on Computer Services Branch's Systems and Software Development.)*

The Computer Services Branch (CSB) at the Data Center has three sections, Computer Operations, Systems and Software Development, and Electronic Engineering, in its organizational structure.

Systems and Software Development has three units—Scientific Systems, Business Systems, and Operating Systems—that address software needs for the Center and for the United States Geological Survey (USGS) and associated agencies. The Operating Systems Unit provides support for both the Scientific and Business Systems Units and provides general support for computer operations at the Center. The Business Systems Unit staff develops and maintains software that manages the ordering, billing, and accounting of orders and products. The Scientific Systems Unit efforts center around developing software that processes images from raster data or from Digital Line Graph data. Within each of these units, project groups concentrate on specific projects.

A project's initial conception originates from a request for a specific requirement from some agency or division within the USGS, for example, the National Mapping Division. The initial request is routed through the Program Control Board (PCB) at the EROS Data Center. The PCB determines an action to be applied to the project and coordinates resources and personnel needs to reflect requirements, guidelines, and priorities. Before actual coding (writing of a software program) begins, various preliminary details must be considered:

- User requirements based on various data collection aspects that include surveying the user and the technical personnel.
- The feasibility of the development in terms of cost effectiveness of resources for development staff time, hardware considerations, maintenance, and various support efforts.
- The formulation and presentation of a preliminary design for review by USGS management and/or by any associated users.

In conjunction with these efforts, the development staff may have to familiarize themselves with a new programming language, the operating system of specific hardware related to the project, or a previously developed software package to be used in conjunction with the proposed development. For some software development projects, staff members may travel to other organizations or agencies to research related information or to coordinate the design of the project.

After preliminary analysis and preparations, the project group develops a detailed system design specification and presents it in a "walk through" to affirm its responsiveness to the user's original request. A walk-through is simply a thorough presentation of the software capabilities and an opportunity for the user to identify any necessary corrective measures.

At this point, coding begins, and the programmer writes documentation in conjunction with this. Concluding the development is system testing of the software and verification of the documentation. Upon completion of the software develop-

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IN MEMORIAM

Kenneth Johnson

All of us at EROS were shocked and saddened by the tragic death of Kenneth Johnson. Ken, who was 38, died on October 8 after suffering injuries in a martial arts demonstration at Brandon High School the previous Saturday.

Ken came to EDC as a summer intern in 1975 and stayed on as a full-time employee in Computer Services Branch. During his 11 years at EDC, his friends, associates, subordinates, and superiors had only words of praise for his quiet, unassuming, friendly personality; his bright, keen mathematical mind; and his dedicated, enthusiastic, and effective expertise on his job.

Ken's friends may best remember him for his devotion to his wife and children. He will be greatly missed by his family, his friends, his colleagues, and his community. We have lost a valued employee and a friend.

We at the EROS Data Center extend our very sincere sympathy to Ken's family.

Up Front

Good Management

Well, everybody's doing it, so why shouldn't I? If Lee can write a book on what's important to good management, then I certainly deserve a column in The Center Scene. On the other hand, I didn't singlehandedly save Chrysler (or anything else, for that matter). But, what the heck, here goes with what's worked for me for 25 years.

#1 on the list (by a large, large margin)... **Hire good people**...never compromise on the caliber (the education, experience, dedication, and loyalty) of subordinates and staff that you hire and surround yourself with.

#2...Put in a lot of time determining **the directions, goals, and objectives** for the organization **and** for yourself.

#3...Work diligently and persistently to **openly communicate** those directions, goals, and objectives to your staff and employees. (Creating understanding is the best way to assure acceptance of your goals.)

#4...Be "**action oriented.**" Concentrate your efforts on obtaining specific (and highest priority) results... don't try to solve all the world's problems every day...leave some for others to work on.

#5...**Motivate people** by transferring your enthusiasm through conversation, discussion, and any other way that works for you.

#6...And finally, **have some fun doing it!**

On a related subject, sometime ago I ran across a clipping on what traits characterize successful technical and scientific managers. If you do not agree with most of the following statements (paraphrased by me), management is probably not for you.

- Because success is based, to a large extent, on compatibility with your boss, you must understand and then tune yourself to what he or she expects.
- You realize that appearance and mannerisms have a great deal to do with advancement.
- Your performance will be judged more by your communication skills than by your technical skills.
- You are satisfied to spend less time with your family than you might like, forgoing a full family life.
- You are willing to delegate responsibility and take pride in your organizational achievements.
- Loyalty, team play, and playing the organizational game are absolute prerequisites for success.
- You accept organizational policies and are willing to conform to them, expecting to be an individual privately but a conformist publicly.

Frightening, isn't it!

Allen H. Watkins

A LOOK AT THE TECHNIQUE DEVELOPMENT AND APPLICATIONS BRANCH

(Second in a series)
by K.C. Wehde

Bioscience Applications and Geo-information Sciences Sections

The Bioscience Applications Section (BAS) and Geo-information Sciences Section (GSS) are comprised of scientists from many disciplines. These scientists are responsible for various stages of planning, research, and development of remote-sensing and spatial-data projects in their individual areas of expertise.

Members of the BAS and GSS staffs conduct applications research and development in such areas as geology, hydrology, land use, forestry, range, agriculture, and soil science. The results of the research and development are generally (1) demonstration of applications, (2) presentation and publication of results, and (3) training in the use of new technologies either through a workshop presented in coordination with the Training and Assistance Section or through day-to-day assistance.

Research and Development

The scientists identify specific areas of interest through close relationships with other scientists and resource managers in other Government agencies. After the staff identifies the information requirements and gains knowledge of the potential application, they may modify existing technologies or conduct original research in order to design new methodologies for use in specific applications.

Demonstration Projects

Demonstration projects are designed to familiarize or transfer the new methodologies to interested scientists and resource managers. Some of the projects include the Federal Land Information System project with the Bureau of Land Management and the Bureau of Mines; the Area Reduction Program with the U.S. Forest Service; the Dillon, Tonopah, and Butte projects of the Conterminous United States Mineral Appraisal Program with the United States Geological Survey's (USGS) Geologic Division; the Soils Landscape Analysis Project with the Soil Conservation Service; the James River Hydrography Project with the USGS Water Resources Division; and the Integrated Resource Information Project with the Bureau of Indian Affairs.

Dissemination of Information

Information dissemination is achieved through a variety of means: (1) correspondence, (2) presentations at scientific meetings, (3) publication of professional papers in journals and symposia proceedings, and (4) participation in task forces and working groups.

In Summary

These scientists are helping solve national and international resource problems and providing information for wise management decisions through the use of state-of-the-art remote sensing and geographic information systems technology. Methodologies are developed or modified, demonstrated, documented, and disseminated to resource managers and other users of the data. Thus, the applications scientist plays an important role in furthering the use of remote-sensing and spatial-data technology.

(Technique Development Section next in this series.)

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EDCEA ACTIVITIES: *Summer Fun and Holiday Plans*

by Steve Covington

(Photos by Dave Jackson)

If a picture is worth a thousand words, then no words are necessary to describe the EDCEA picnic. It was a great day, filled with fun, good food, and children's squeals of laughter.

The holiday season is fast approaching, which means that the EDCEA Christmas Party is just around the corner. Traditionally the highlight of the EDC social calendar, this year's party will be even bigger and better. It will be held in the Starlite Room at the Holiday Inn-City Centre, a beautiful setting for a holiday party, on a Saturday night, December 20.

As the seasons change and the outside (and even inside) temperatures begin to drop, EDCEA is starting to emphasize its warmer line of clothing. We still have logo T-shirts, and now boast a line of long-sleeved T-shirts, sweat shirts, hooded sweat shirts, fleece-lined jackets, quilt-lined jackets, and more. All items come with your choice of a large or small EDCEA logo and can be special ordered with embroidered names or initials. They'll spruce up your wardrobe and they'll make great gifts. Support your EDCEA and get an early start on your Christmas shopping.

Display Management Subsystem and Related Land Analysis System (LAS) Applications Development

by Mary Jungling

(This is one of several articles on various computer software activities at EDC. A story on Transportable Applications Executive was printed in the January 1985 issue of The Center Scene. Future articles are planned.)

The Display Management Subsystem (DMS) is one of the packages that is available with the Transportable Applications Executive (TAE). TAE is an applications executive program that brings together a system of application programs. The main thrust of DMS development efforts centers around display applications for manipulating raster images. DMS proper acts as a set of tools for an applications programmer to write portable display modules because it generalizes functions previously identified as specific to the device. For example, raster display devices range from simple, single-image refresh memories to sophisticated work stations, and DMS focuses on functional capabilities and capacities, not on a particular model or type of hardware. This key feature, called device independence, allows for greater accessibility for the user and facilitates development efforts for the applications programmer.

DMS development is an outgrowth of the TAE efforts that began in 1979. Initial efforts for DMS originated at the Goddard Space Flight Center (GSFC) in 1984 with the development of a prototype of underlying software and a subset of test applications. Using the DMS prototype developed by Goddard, EROS employees Steve Ryan and Cheryl Greenhagen developed this underlying software for the DeAnza display in the "C" programming language. Subsequently, EDC purchased four SUN workstations with Raster Technologies displays as an addition to the DeAnza. Ken Johnson and Cheryl Greenhagen prepared the underlying software to run on the RasterTech displays; Tony Butzer and Judd Reed provided other system-level support.

In conjunction with the development of the underlying software with DMS, Doug Gordon, Laurie Huewe, and Doug Hollaren began design and coding efforts for applications for raster imaging devices—a system of image display applications defined as the LAS Display Modules (LDM's). The LAS Display Modules allow a LAS user to display, interactively manipulate, and store image and image related information.

LDM development has progressed in three phases. The initial phase included applications that enable the allocating and deallocating of a device, the displaying of an image, and some basic manipulating of an image; Phase II included additional image manipulation capabilities. Image manipulating capabilities for these two phases include functions that provide for displaying, mapping, pseudo coloring, zooming, panning, and computing histograms for an image. Phase III, recently completed, provides for graphic overlays, which can be saved and recalled. The graphics capabilities involve functions that draw points, lines, polygons, and annotation and also that clear and color bit planes. With the recent completion and release of Phase III, DMS now provides the user with a comprehensive set of display applications for manipulating raster images.

PECORA XI PLANNING UNDER WAY

Preliminary planning for the Pecora XI symposium, "Remote Sensing: Current Programs and a Look to the Future," are well under way. William C. Draeger, U.S. Geological Survey (USGS) EDC, is general chairman for the symposium, which, will be held May 5-7, 1987, at the Holiday Inn City Centre. Don Orr, USGS EDC, Chairman of the Technical Program committee, has met with program committee members from the other sponsoring agencies to select session themes and to discuss invited papers and speakers.

Federal Women's Program

Rex Rolfing, Chairman of the National Life Underwriters Board, spoke at a September Lunch and Learn session on "Why Women Need Life Insurance."

Margo Hood-Rogers presented an overview of the Sioux Falls Volunteer and Information Center on October 8. Her topic, "Enabling Sioux Falls," focused on the many ways volunteers in the community provide essential services.

A presentation on Family Violence, given by Marlene Weires from the Children's Inn, a shelter for victims of family violence, was held for all EDC employees on October 27.

EDC CONTRACTING OFFICERS' WARRANTY AUTHORITY INCREASED

EDC Contracting Officers, Eunice Flanagan and Dan Wray, received increased warranty authority on September 22, 1986. This means that the contracting officers have procurement authority up to $10,000 per open market transaction and up to the maximum order limitation on mandatory sources of supply. Previously, they had procurement authority up to $5,000.

COMPUTER SERVICES BRANCH

(Continued from page 1)

ment, the developers conduct seminars and/or training sessions for the user.

This is a basic explanation of software development in any of the units. The Business and the Scientific Systems Units each have a full-time programming staff of 16 plus one part-time position, which is usually held by a student; the Operating Systems Unit has a staff of six. The business programmers usually have degrees in computer science or business; the systems programmers have computer science, engineering, and mathematics backgrounds; the scientific programmers have computer science and math degrees. A secretary provides general support for the section; a program librarian and two technical writers provide support in documentation and reports.

The article on Display Management Systems (DMS) on this page is an example of a recent project by one of the project groups of the scientific programming staff. The article on DMS is first in a series of articles that describe a typical software development project by each of the three Units in CSB.

The Director of the U.S. Geological Survey has determined that the publication of this periodical is necessary in the transaction of the public business required by law of this agency.

The Other Life—

Danielle Ehlen: International Gourmet

Danielle Ehlen

by K.C. Wehde

At one time or another many of us at the EROS Data Center have been privileged to enjoy the fruits of Danielle Ehlen's labors. Danielle's flair for international cooking includes making Baq-la'va (the Arab pronunciation and spelling) or Bak'la-va (the Greek version which Danielle prefers), which is a very delicate and sweet walnut-filled, multi-layered pastry. As a young child, Danielle disliked Baklava, "to put it mildly." Though Danielle's mother learned and prepared many Lebanese dishes, the difficult and time-consuming Baklava pastry was not one of them. So Danielle's elderly grandmother, who could no longer make the pastry, would order it from Chicago for the family. The Baklava would take approximately one month to arrive, and by then it was hard and not very tasty.

Danielle had watched an Arab aunt make Baklava since she was a child, and decided to "get back to her roots" about seven or eight years ago through learning many of her Lebanese father's favorite dishes. She says that Lebanese foods are very healthy. Many of the recipes call for cracked wheat and natural seasonings. She has studied the seasoning of the foods so that she may obtain an authentic flavor. She does make one compromise by using beef instead of lamb for her dishes. Finding choice pieces of lamb in area stores is not an easy task.

Danielle enjoys entertaining and has served her Lebanese fare to Arab members of one of the Data Center's many international courses. She was informed by them that her food was very authentic and that her Baklava was better than what they were served back home. She believes they were being honest, because "they also told me that they did not like one of our family's favorite Lebanese dishes." Danielle does not particularly like to eat sweets, so she has never acquired a taste for Baklava. She states, "I like Chinese food!"

It is probably just as well that Danielle prefers not to eat Baklava considering the amount of it she makes during the holidays. She starts preparing early by obtaining walnuts, which are a major ingredient in Baklava. She gets her walnuts from an 80-year-old couple whom she found quite by accident during a vacation trip to Utah last year. This year she will fly to Utah in October to procure the 40 pounds of quality walnuts needed to make her specialty.

Danielle, who does not like to write down recipes, keeps most of them in her head. So whether it be cornbread tortilla shells, zesty Italian spaghetti sauce, or a mild Mexican rice that even Chinese house guests enjoyed, you won't find Danielle's recipes in the Data Center cookbook. But still, it's lucky for us that Danielle enjoys learning about different cultures and preparing international dishes.

I for one am looking forward to the holidays and fresh Baklava!

DRAEGER NAMED DEPUTY CHIEF DATA PRODUCTION, DISTRIBUTION

Bill Draeger has begun his duties as Deputy Chief of the Data Production and Distribution Branch. A native of San Francisco, Bill received a Ph.D. in forestry/remote sensing from the University of California-Berkeley. He was employed in research and teaching at the University before coming to the Data Center in late 1974. Since that time, he has served as leader of the agricultural unit in Technique Development and Applications (TDAB), as a TGS supervisor of the Applications Section, and Chief of the Training and Assistance Office, with a year as Acting Chief of the Biosciences Office in TDAB.

LAUER RECEIVES INTERIOR AWARD

Donald T. Lauer, Chief, Technique Development and Applications Branch, received a citation for meritorious service from the Secretary of the Department of the Interior, Donald P. Hodel. The award was in recognition of Don's outstanding activities in the Geological Survey.

The citation noted, in part, that "As Chief of the Branch of Applications at the Earth Resources Observation Systems Data Center, Mr. Lauer has made many significant contributions toward establishing the Geological Survey as a world leader in the development of remote-sensing data applications and geographic information systems. Scientists and resource managers from all over the world seek his advice and assistance in the application of remote-sensing data to solve a wide variety of problems."

International Visitors at EDC

Visitors and staff at the EROS Data Center in recent weeks might have thought that they were at the United Nations, by the number of international guests that they encountered.

Three representatives of the National Geographic Information System Project in Portugal; an employee of the Geographical Survey Institute of Japan; the National Director for Higher Education and Scientific Research with the Ministry of Education, Republic of Mali; the Director of the Federal Ministry of Agriculture and Land Resources, Nigeria; four executives from the National Remote Sensing Center of the Republic of China; the Chairman of the Indonesia Aeronautics and Space Agency, and the Senior Soil Survey Officer of the All India Soil and Land-Use Survey visited EDC this fall.

Fourteen South and Central American students from the Midwest Institute for International Studies toured the Center.

Participants from Belgium, Burundi, Cameroon, Chile, Indonesia, Italy, Japan, Sudan, Tanzania, and Yugoslavia attended the 25th International Remote Sensing Workshop, held from September 2 through October 3.

EMPLOYEE NEWS

Welcome Aboard

by K.C. Wehde

National Oceanic and Atmospheric Administration

Kevin P. Gallo, of the Department of Commerce's NOAA/NESDIS Office of Research and Applications, has been permanently assigned to the EROS Data Center through his affiliation with the Cooperative Federal Land Remote Sensing Research Program at the Center. Kevin received his B.S. degree in meteorology/geography from Northern Illinois University and his M.S. and Ph.D. degrees in agricultural climatology and remote sensing from Purdue University. Kevin and his wife, Linda, live in Sioux Falls. His hobbies include running, biking, and golf.

TGS Technology, Inc.

Beverly Hunstad attended Pipestone Vocational Technical School where her field of study included courses in computers, accounting, and word processing. Beverly is a part-time secretary whose previous experience includes being secretary and interim director for the Pipestone County Museum. Beverly and her husband, Ray, farm outside of Jasper, Minnesota. They have two sons — Kevin of Jasper, Minnesota (Kevin and his wife, Kim, recently had a baby boy, Michael, Bev's first grandchild), and Ryan of Fort Lauderdale, Florida. Beverly enjoys gardening, needlework, refinishing furniture, and writing histories. Currently she is helping to write the history of Jasper for its centennial celebration in 1988.

Viking Engineering Services Company (VESCO)

Robert Hamann joins VESCO as a plumber and welder with 14 years of previous experience to his credit. From Inwood, Iowa, he and his wife, Connie, have two children, a boy, Kyle, who is 6, and a girl, Erin, who is 2. His hobbies include horseback riding, canoeing, and camping.

Visiting Research Scientist

Brian J. Button, a Senior Lecturer in Applied Science with the Canberra College of Advanced Education, Australia, joins the Technique Development and Applications Branch as a visiting research scientist for approximately one year. He is sponsored by his institution's Study Leave Program and also by a Fulbright Post-Doctoral Fellowship. Dr. Button holds a B.A. degree in geography from Sydney University and a Ph.D. degree in Earth sciences from Macquarie University, also in Sydney. His previous experience includes 15 years as a lecturer in various academic posts in Australia. Brian is well-traveled, having spent 6 months in Israel as a guest research scientist at the Ben Gurion University of the Negev. His work at the Data Center will concentrate on remote-sensing applications in hydrology, water management, and irrigated agriculture. Brian, his wife, Barbara, and daughters, Emma, 9, and Alicia, 6, enjoy family life, travel, and photography.

Awards

Genevieve D. Austin, Data Production and Distribution Branch (DPDB), received a special achievement award for an excellent record in her day-to-day work and in preparing special management reports, including the worldwide Landsat data sales report.

Walter A. Brandner, Financial Manager, was honored for special achievement and outstanding performance in connection with budgetary actions, repercussions of Landsat commercialization, new data bases, and additional financial responsibilities.

Gail L. Hanson, Office of Program Development and Control, received a special achievement award for excellent performance as a staff assistant in budget, finance, and payroll and for her work as Federal Women's Program Coordinator.

Brent H. Lowell, Computer Services Branch, and ***Bernard Raiche***, Administrative Office (AO), were recognized for outstanding accomplishments in the installation and implementation of the new telephone system at EDC, an extremely complex task that included extensive research, work, and training of users.

Thomas M. Holm and ***Ronald D. Meyer***, DPDB, and ***June M. Thormodsgard***, Technique Development and Applications Branch (TDAB), received special achievement awards for excellent performance while on special assignments as Acting Deputy Chief for DPDB.

Arlys Johnson, AO, received a quality increase award for outstanding performance as secretary to the Administrative Officer and for her diligence and accuracy in the entire Center's complicated PAYPERS system.

Charlene Johnson, TDAB, received a special achievement award for her excellent performance in automating several record-keeping and management functions and for her dedication to improving the operational efficiency of the Branch office.

Phyllis A. Spanton, who is detailed as secretary to the resident NOAA office at EDC, was recognized for her excellent work for the local office and for supporting Washington office requests efficiently and accurately.

James A. Sturdevant, TDAB, received a special achievement award for his decisive leadership ability and his consistently distinguished performance on the Federal Mineral Land Information System project.

Rita F. Tornow, DPDB, was honored for special achievement in her position as secretary to the Branch Chief, and for her initiative in planning and executing a substantial mailing effort for the NHAP Steering Committee.

Edwin Constant and ***James McCord***, who recently retired, and ***Bonnie Rave***, who resigned to work for private industry, also received special achievement awards for excellent performances. Jim's award specifically recognized his work while on assignment in the People's Republic of China.