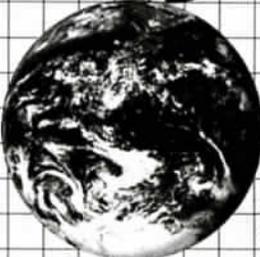


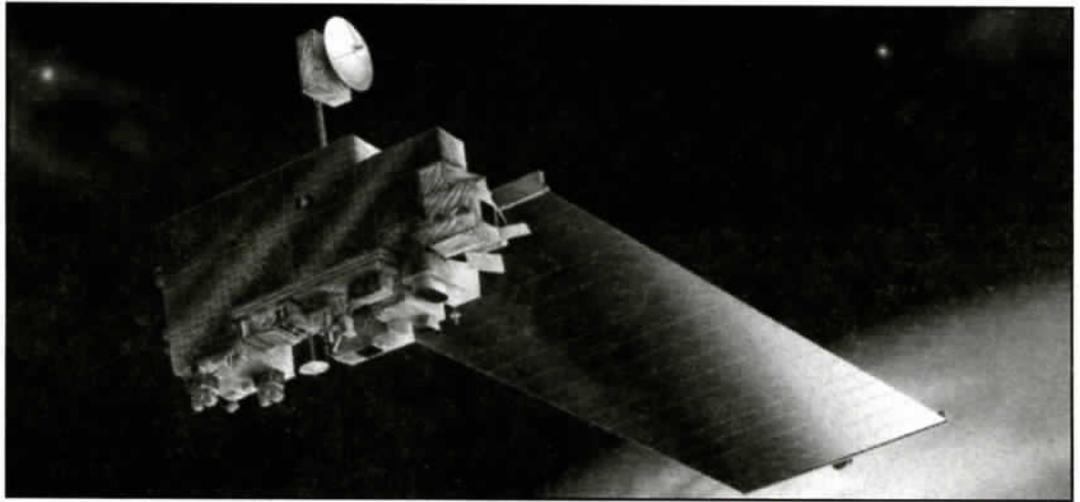
EROS DATA

EROS DATA CENTER, SIOUX FALLS, SD

U.S. GEOLOGICAL SURVEY, NATIONAL MAPPING DIVISION



Success of the EOS Support Program and the DAAC *by Ron Beck*



The Terra satellite uses five instruments to collect information about the Earth's land, oceans, air, ice, and life as a complete global system.

April 15, 1999 was an important milestone in the history of the EROS Data Center. When Landsat 7 was launched on that day, it marked the beginning of a new generation of satellite-based information. In many ways, the EROS Data Center is at the center of the growing collection of information about the Earth. In the immediate future our archive will expand because of the following:

- Landsat 7: Every indication is that Landsat 7 is operating successfully. Over 90,000 scenes have been acquired, at least one set of cloud-free images of virtually the entire land mass of the planet have been collected, ground stations around the world are operational (under coordination from EDC staff), and over \$2 million of data sales have been generated. The archive of Landsat 7 data will be of use to researchers for generations, complemented by the expanded archive of earlier Landsat data.

- SPOT: The French SPOT system has been an important tool for scientists for many years. The relatively high resolution SPOT data

complement Landsat data. Under an agreement recently signed, over 700,000 SPOT scenes of North America will be stored and distributed to federal agencies and cooperators from the EROS Data Center.

- TERRA: The Terra satellite, launched in December 18, 1999, expands the information collection to the Earth's land, oceans, air, ice, and life as a total global system. It carries five instruments:
Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER)
Clouds and the Earth's Radiant Energy System (CERES)
Multi-angle Imaging Spectroradiometer (MISR)
Moderate Resolution Spectroradiometer (MODIS), and Measurements of Pollution in the Troposphere (MOPITT). The EROS Data Center will be archiving and distributing data from two of the instruments, MODIS and ASTER. Other centers, across the country and abroad, will handle data from the other instruments.

- ASTER was developed by the Japanese Ministry of International Trade and Industry and a Japanese ground station will be responsible for initial processing of the data. The EDC is the primary archive for ASTER data and will process and distribute higher level products. ASTER provides high resolution

INSIDE

EarthExplorer	2
Future Plans for Lobby	2
Employee News	3
Travel Stories	4

continued on page 5

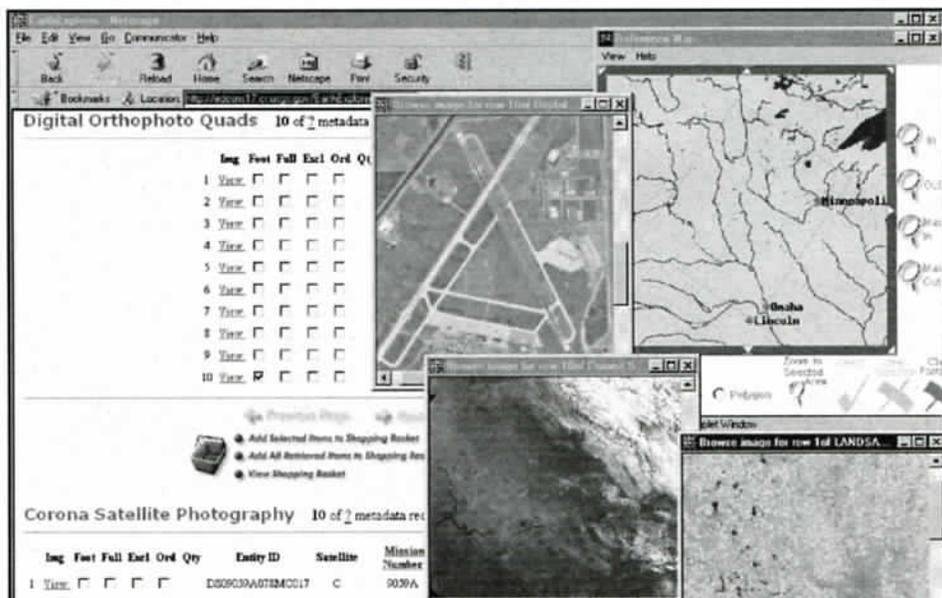
EDC Releases Earth Explorer Information System *by Tim Smith*

March came in like a lamb and went out marking the historic release of Earth Explorer to the general public. The Earth Explorer information system is the melding of commercial-off-the-shelf (COTS) software adapted to the EROS Data Center's ordering, product generation, distribution, and accounting systems (DORRAN, NLAPS, and PDS). Earth Explorer is the culmination of over 18 months of development effort shared between staff at the EROS Data Center and Compusult Limited of Newfoundland, Canada. Earth Explorer will ultimately replace the service currently provided by the Global Land Information System (GLIS) and provide additional services such as: Cross Inventory Searching, Multiple Browse Display Options, Full E-Commerce Support for Credit Card Transactions, Custom Client Services Catered to Unique Customers, and Standing Request Services.

Earth Explorer initially involves only the Landsat inventories - multispectral scanner (MSS), thematic mapper (TM), and Landsat 7 Enhanced Thematic Mapper-Plus (ETM+) - with other inventories to be

released later this spring and throughout the summer of 2000. An overlap of services between GLIS and Earth

Explorer will continue through the end of fiscal year 2000. You can test drive Earth Explorer at earthexplorer.usgs.gov



Screen from EarthExplorer, showing simultaneous search results from three collections. Images on the right show a reference map with coverage of each data set and browse images from digital orthophotoquad (DOQ), Corona, and Landsat 7, as shown from an actual web-based query session.

Future Plans for the EDC Lobby/Visitor Center *by Lee McManus*

In keeping with the desire of Center Management to have the EDC Lobby and Visitor Center be a dynamic and ever changing educational opportunity for EDC visitors, there are several plans for the immediate future, and several more "dreams" for down the road.

The most immediate changes EDC staff and visitors will see are new displays that Outreach staff are calling "sweeps." These are continuous displays that will extend from the front door across the front of the lobby to the hallways that lead to the old and new wings of the building.

The first of these sweeps will focus on general satellite information (types, orbits,

altitude, coverage frequency and area, etc.) and will be located to the left of the front door. The thought behind this display was that most of the general public sees EDC as "that satellite place," but in the past we have done very little to give visitors a basic introduction to satellite technology. This display will highlight Landsat 7, Terra, and several other satellites as contemporary examples of the satellites EDC staff work with.

The satellite sweep will also feature the Center's first touch-screen interactive. This initial step into the interactive arena will be modest, but an entertaining way for visitors to learn more about satellites and their operations. Eventually, this

interactive will allow visitors to get as deeply into various information levels as they choose...sort of a "something for everyone" scenario. Much of this satellite sweep display will be up in the next month or so.

Another area that will see change in the not-too-distant future will be the "bowed window" area of Computer Room II. Initial plans are for another "sweep" display that will follow the outside of the windows and tell the story of what goes on in that room. The plans for this display call for several touch screen interactive stations, along with a toggle-driven video camera that visitors can point at various areas in the room and get a description of what goes on in that specific area on the video screen. Also, a little further down the road, Outreach staff plan to do some display work inside the room, for special guests who have access to that area.

The second lobby "sweep," planned for later this year, will feature the EDC Archive. It, too, will include an interactive element. This "sweep" will explain what the Archive is, the amount of data it holds, what the data are used for, and how they benefit the world. Incorporated into this display will be several elements that highlight the work of EDC staff scientists.

Also, the talented staff of the Design and Fabrication Section (who are responsible for the construction of most of the high-quality physical display collateral staff and visitors see in the lobby) are in the process of constructing a half-size model of Landsat 7. This model will hang from the ceiling at the point where staff or visitors enter the atrium. The addition of this model will not only be an impressive visual, but will be a great aid in describing to our visitors the size of the craft that's orbiting the planet.

Other plans for the Visitors Center include: Wall displays featuring additional projects from the Science and Applications Branch, at least one kiosk addressing the business and contributions of other agencies cooperating with EDC in our mission (NASA, etc.), new sets of satellite images displayed on the lobby walls that focus on various themes such as comparisons of the largest cities in the world, natural disasters and their results, and so on, possibly more of the orbit path "streamers" that were recently added for atmosphere art, and set kiosks digitally, so it will be easier to cycle them and allow for those not in the lobby to be taken on the road for outreach uses with portable displays.

Down the Road

As to future "dreams," Outreach staff would really like to put some walk-around display cases in the lobby that focus on the history of the USGS and feature early surveying equipment and other tools.

The BIG dream, though, is to have an actual "History of Remote Sensing Museum" at the Center. Although this dream is pretty sketchy, at present, Outreach staff feel that it has tremendous potential, and are anxious to start laying out plans for it.

Another dream is to include the Center grounds (seasonally, of course) as part of the visitor experience. The EDC grounds are home to abundant wildlife and native

prairie vegetation. Tied to that, the Outreach Team envisions some sort of "planting" scenario on the grounds that could be picked up by satellite sensors and pointed out to our visitors during tours.

Lots of stuff to consider...but, the goals of the staff involved in the Visitor's Center remain: to keep it dynamic and have it of such quality that visitors will want to come back repeatedly to see what's new at EDC, and to have as its focus the tremendous accomplishments and hard work of EDC staff. ☺

Employee News

AWARDS & RECOGNITIONS:

Toastmasters International Award

Jon Merchant, Computer Services Branch, recently received the Distinguished Toastmaster Award for his excellence in public speaking. This award is the highest honor given by Toastmasters International and recognizes Jon's hard work throughout his 7 years of membership. Toastmasters International recognized Jon's completion of the Toastmasters' education and leadership programs. Jon's accomplishments include giving over 100 speeches and holding many local and national leadership titles. Congratulations, Jon!

SDSU "Friend of Geography" Award

South Dakota State University named the USGS EROS Data Center a "Friend of Geography." EROS was chosen for this award because of its lasting partnership with the University through supporting cooperative work, providing student internships, and supporting geography education in the state. SDSU faculty presented the award to EROS at the 31st Annual South Dakota State Geography Convention in Brookings in March.

South Dakota Safety Council Meritorious Achievement Award

Last October, EROS Data Center's Raytheon STX Corporation was recognized for its excellence in job-related safety through the Governor's

Workplace Safety Awards program. The purpose of the safety program was to raise awareness of the benefits of reduced absenteeism and to create a more motivated work force. The South Dakota Safety Council presented EROS with the Meritorious Achievement Award. This honor was given based on Raytheon's high safety standards. Raytheon's involvement in this program led to a low rate of incidences at EDC during 1996, 1997, and 1998, in which no workdays were lost. Congratulations to all Raytheon employees who are working together to make EDC a safe place to work!

Outreach Ambassador of the Year Award

Each year the EROS Data Center Outreach Team recognizes the dedication, passion, and effort of someone who helped communicate the EROS message to the general public, educators, and students. This year two people were recognized for their outstanding efforts, in serving as representatives on behalf of EDC. **Kris Machmiller**, Computer Services Branch, and **Judy Austad**, Data Services Branch, are this year's Outreach Ambassador of the Year Award recipients. Throughout the year, both women aided the Outreach Team in teaching the EROS message to people at special events around the country. Thank you, Kris and Judy for your invaluable service to the EROS Data Center!

EROS Data Center Activities Association Volunteer of the Year

Diane Woldt, an EDC Computer Services Branch secretary, is the recipient of the 1999 John Hunhoff Volunteer of the Year Award. Diane's leadership and organizational talents in several EDCAA activities, including EDC Christmas parties, Friendship Tree activities, and summer picnics have been a great asset to the EROS Data Center. Diane's continuing involvement in volunteer programs at the EROS Data Center helps to foster EROS Data Center's close-knit community spirit.

Communicator Video Award

The communications field recently recognized the USGS EROS Data Center for outstanding work. Through funding from the USGS Human Resources Initiative, EROS Data Center video

production staff produced a 9-minute program titled "The USGS: Integrated Science." The video won the Award of Distinction at a Communicator Award competition. "The USGS: Integrated Science" video placed in the top 18% of over 3,000 entries in the Government/Federal category. The film targets a general public audience and features four integrated science applications. The video is used as an external relations tool at USGS exhibits, visitor centers, and classrooms nationwide. Congratulations to **Don Becker, Lee McManus, Mark Barber, Rebecca Johnson, and Lisa Klein!**

YWCA Professional Leader Award

June Thormodsgard received a YWCA Professional Leader Award for her work as a local and international science leader. June has been Branch Chief of the Science and Applications Department for the past 5 years and is currently serving as the Acting Chief of the EROS Data Center. June's expertise in remote sensing combines with her dedication and management skills to make her one of the nation's finest science leaders. June's commitment to creating an energetic, productive environment makes her a worthy recipient of the YWCA Professional Leader Award.

NEW FACES

NEW RAYTHEON EMPLOYEES SINCE OCTOBER 1, 1999:

Science & Applications Branch

Lora Richards
Diego Pedreros
Melissa Wegner
Theresa Rhodes
Dawn Rethke
Eric Van Praag
John Walkey
Maribel Rodriguez
Brian Clement
Bobbie Burggraff
Chengquan Huang
Ryan Reker
Cullen Robbins

continued on page 6

The Joys of Business Travel



I do remember sleeping in the Minneapolis Airport one night on my way back from St. Louis during a blizzard. We sat for 3 hours on the runway in St. Louis waiting to be de-iced. Meanwhile my flight to Sioux Falls was long gone.

Or, how about the time we spent 8 hours on the tarmac in Amsterdam, while they waited for the storms to pass, fixed the brakes, swapped crews. It was the first time I had drinks, dinner, and a movie before leaving the ground.

Don't forget the overnight in Minneapolis. I thought we were going to kill the international terminal bus driver!

How about the time Loveland and I were practically strip searched in Paris, just because he had a visa and had been to the Sudan!

Once I took off from D.C. when D.C. was in the eye of a hurricane!

When I went with two Frenchmen to "inspect" AVHRR receiving stations in Africa, we landed in Addis Ababa, Ethiopia. We were expecting to be picked up at the airport by some government personnel. After 3 hours of waiting, wondering, and trying to contact them we finally found out that they were waiting in the parking lot because, only passengers could enter the terminal! It was on that same trip when I saw 21 soldiers armed with automatic weapons guarding my Air France plane before departing from Nairobi, and I could only see out one side.

-Jeff Eidenshink



On my first trip through Chicago O'Hare after their passenger underpass remodeling, I was advised to check out their interesting use of neon on the ceiling of the underpass.

Unfortunately, I had but a few minutes to make it to my next gate and had to literally run through this area carrying a portable computer weighing considerably more than today's laptops. My shoulder was bruised for days.

Arriving at Dulles at midnight in the rain, the rental car company had but one car left, a large Lincoln Continental. My excitement soon vanished as it took me over 5 minutes to find the light switches and the wipers.

Minneapolis to Anchorage. Scheduled to be one flight/plane. First plane canceled for no reason. Five hours later the next plane backed away from the gate four times and returned four times. Reasons included brakes, oil gauge, interior lights wouldn't shut off, and finally the need to refuel because we spent too much time on the ground. This plane never did get off the ground that night. After we returned to the gate for the fourth time, passengers were mutinying, unwilling to even get on another Northwest airplane. Well, at 1 AM we boarded the third plane and arrived uneventfully at 4:30 AM local time in Anchorage. I got 2 hours of sleep before conducting two training sessions. Survived through the use of intravenous cappuccinos.

A similar trip, involving John Boyd, was to end up with both of us attending Reston and Goddard meetings at 9 AM. Due to winter weather conditions, we arrived at Dulles at 4 AM. I got two hours of sleep. John had less than that as he had to drive to Maryland. Caffeine is a common strategy to survive such trips. The downside to this approach is the "afternoon shakes" syndrome.

"Blur Trips" – too many to recall that involve same day travel to a destination and returning the same day. Often leads to one forgetting the days of the week.

Here is a classic. Seven U.S. cities in five days involving seven different airlines. One of those days included three rentals cars in three different cities on the same day! Logistics miracle that Rita Tornow arranged.

Around the world trip in 2 weeks involved two 12 hour flights with three movies each. Same trip included leaving Tokyo at noon and arriving at Sioux Falls at 11:57 AM same day with a net gain of 3 minutes!

Arriving in Rio to masses of humanity during the Earth Summit/Global Forum of 1992. Making my own way from the airport to the hotel only to find out that the hotel had cancelled my reservation.

Jeff Eidenshink and I almost got ourselves and a Russian scientist landed in jail for bypassing a Rome subway ticket entrance. Jeff was the lead on this adventure as I recall.

Traveling alone on Japanese trains is something I would not wish on anyone. The Japanese people are very friendly and helpful, but English is not commonly spoken or used on any signs in the Tokyo train station that I visited. I was thrilled to experience a bullet train ride until I realized that it was the wrong bullet train. A Japanese grandfather, speaking very little English, helped me immensely. That was 2 years ago and we still communicate with each other.

Driving on England's "buttons," or roundabouts, is something that still makes me shiver.

I forgot to bring my passport along on a recent trip to Ottawa. Believing that it was not a big deal I showed my government ID card. Found out that that was useless. Was given a tongue-lashing and told next time I'd have to visit with the immigration folks.

The jet lag involved with international travel which crosses many longitudes has played havoc with my body. Melatonin aside, the disruption of our sleeping and eating schedules can have a major affect upon one's ability to function for days.

Averaging 40 e-mails a day while out of the office, it is painful to return to work after being out 5 or 10 work days.

Travel is all logistics. Plane gate numbers/terminal numbers/flight numbers/seat numbers, rental car pickup & drop-off nuances, and finally hotel checking in and out. If one is lucky, you get to reverse the order of all of this in 1

or 2 days following ones surviving it on the day out.

-John Faundeen



The routine delays in making the last leg on Northwest flights from Minneapolis to Sioux Falls have been a great way to stay in touch with my three brothers who live in the Twin City area. I've even had small family reunions at the airport terminal courtesy of predictable problems with Northwest.

Flying over Virginia 8 hours after Hurricane Floyd's debut was quite a site. The red clay run off that inundated the streams, rivers, and lakes was bloody in appearance. Was this the flight out of Egypt or what?

Flying for 4 hours in a twin engine prop heading to Denver against horrific head winds and turbulence. Calling the ride the "vomit comet" would have been more appropriate.

Sitting next to a 400 lb. person who prays the whole way to Washington, D.C. and I'm stuck in the window seat. Can you say "ex-squeeze me?"

Circling for 2 hours around Minneapolis because of thunder storms waiting to land and then being told once we land that 10 more minutes and the pilot would have to land in Sioux Falls if the weather hadn't cleared. Then get trapped again in the cities when thunder storms delayed the final leg of the trip only to find out that my luggage made it to Sioux Falls 2 hours ahead of me. How did that happen?

And one of my all time favorite adventures (that happens to me every year),

Flying into town with the annual pheasant hunters and being the only guy without a gun or a dog.

-Tim Smith

EOS Support and the DAAC

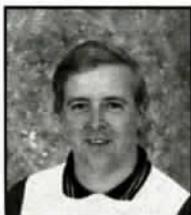
Continued from page 1

images of the land surface, water, ice, and clouds using three separate sensor subsystems that cover 14 multispectral bands, from visible to thermal infrared. Data volumes acquired at the Center will be similar to those of Landsat 7, about 140 gigabytes per day.

- MODIS data will be processed at the NASA Goddard Space Flight Center, with higher level processing and distribution of land products from EDC. MODIS measures biological and physical processes on land and in the ocean using an instrument that measures 36 spectral bands, from visible to thermal infrared. Data volume processed by the staff at the EDC will be about 77 gigabytes per day, roughly half the data volume collected by Landsat 7.

- Shuttle Radar Topography Mission (SRTM) - a special set of radar instruments were aboard a Space Shuttle mission this past February. Digital topographic data were collected for 80% of the Earth's land surface. The data will provide scientists with important elevation measurements and the capability to create simulated 3-D digital elevation models. The massive amount of data collected will take up to 2 years to process. As data sets are processed, they will be sent to the EDC for archiving and distribution. Many of the data sets will be used to supplement on-going USGS research projects.

Vertical views of the planet, measurements of surface conditions, and development of accurate terrain features, using data from the EDC archive will aid scientists in better understanding our planet. The EROS Data Center, with an excellent reputation, built over 28 years, will be the principle archive and distribution Center for these new satellites and sensors and many other primary systems yet to come. When scientists, planners, and educators want information related to Earth resources, the EDC will be a primary source. ☺



On my first trip to Niamey, I was standing in the hotel lobby looking at some souvenirs in a display cabinet when I realized that the glass doors of

the cabinet were falling on me. I got an arm up to protect my head, but the glass shattered when it hit me. I thought I was fine until I noticed that I was standing in a pool of blood; a shard of glass had punctured my right leg. We arrived at a French clinic where no English was spoken, and in my limited French I explained that I had been attacked by a window. The doctor asked me if I smoked, and I told him I had quit. He and the nurses were apparently looking for something, and he repeatedly asked if I smoked. I kept answering "NO", and finally discovered that he didn't care if I smoked at all, they were looking for matches to ignite the alcohol for sterilizing the instruments he needed to use to put in the stitches! So, we got the stitches in, I recovered, had the stitches removed a week later, and then went to talk to the hotel owner about paying the bills. I assumed that the least they would do is pay for the medical bills, my ruined clothes, and perhaps even wave or reduce my hotel bill since they were obviously at fault. The owner was most courteous, asked about my health, and was happy to hear that I was o.k. When I asked about paying the bill, he graciously informed me that I did not have to pay for the window.

One of the nicest people I ever met during my travels was a man from Niamey named n'Jai. Since he spoke no English, my conversations with him were limited because of my poor French, but always enjoyable. One day, I met n'Jai in the morning and asked him how he was doing. He told me he was not feeling well because something was wrong with his sight (he was using the French word voir, meaning 'to see'). I asked if his eyes were o.k., if he had been injured and n'Jai patiently kept repeating the same sentence; something about loss of sight. This went on for over 10 minutes, as I was concerned that he had some type of disease that was causing him to lose his sight, so I kept questioning him, and he kept repeating the same words. I finally realized that he wasn't using the French word voir; he

was using voix, which is pronounced the same way. Voix means 'voice'. He had a cold and was losing his voice. I made him talk for 10 minutes trying to tell me that.

Strange Coincidences

On a vacation (on a return trip from Africa), I was standing on a dock in Oslo, Norway waiting for a tour boat to arrive. Hearing English being spoken, I struck up a conversation with an American couple; the gentleman was a former JPL employee, who knew Jay Feuquay (EROS). On my first trip to West Africa, I flew to Brussels, Belgium for a connecting flight. As I was leaving the plane, I realized I had never been to Europe before, and wondered what the people would be like. The very first person I saw was Rod Beck (EROS), who was returning from Africa. Rod asked if I had any local African currency, and I did not, so he gave me a 10,000 CFA note from West Africa. Because of airline delays, I did not arrive in Niamey announced, so there was no one to meet me. Typical of airports, this one was filled with taxi drivers, souvenir salesmen, shoe-shine boys, etc. Unaware that a really good tip is about 50 to 100 CFA, I created quite a commotion showing up waving a 10,000 note. People were literally leaping over each other to get to me.

-John LaVergne ☺

New Faces continued from page 4

Janis Buchanan
Levi Bard

Computer Service Branch

Latana Boeder
Cody Hendrix
Kenneth Mayer
Stephen Zahn
Brad Gross
Jingwen Ming
Nichole Maher
Scott Gerlach

Satellite Systems Branch

Dawn Achen
Matthew Martens
Arthur Wesman

Data Services Branch

Jeremy Merry
William McClendon
Michael Coan

NEW USGS EMPLOYEES SINCE OCTOBER 1, 1999:

Science and Applications Branch

Zhiliang Zhu
Alisa Gallant

Data Services Branch

Russell Johnson ☺

EROSDATA is published biannually for EDC employees. The success of this publication depends on your input. EROSDATA coordinators welcome your comments and ideas for future issues.

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