

## Forecasters Stand Watch As Major Solar Storm Hits Earth

—By Barbara McGehan

It had been a busy April at NOAA's Space Environment Center in Boulder, Colo., as a large group of sunspots made its way across the face of the sun, launching waves of plasma and electrically charged particles toward Earth.

The solar storm had knocked out radio communications for an hour on a wide swath of the sunlit side of the Earth, distorted satellite orbits and produced the aurora borealis, or northern lights, as far south as Florida.

By mid-month, just as forecast, it appeared the solar storm had begun to wane. But space weather forecasters knew they couldn't relax their guard.

On this day in late April, forecaster Larry Combs arrives at the center early at 5:45 a.m.

"You have to be ready to think immediately as soon as you walk in the door," Combs says. "You start looking and investigating and doing your analysis of the situation. You have to look at the *continued on page 6*

## Travel Office Takes Some of the Pain Out of Transfers

—By Dane Konop

Psychologists say that moving one's home to a new location ranks right behind death and divorce as a top source of stress for today's families.

The NOAA Travel Office now offers a new program that can reduce some of the anxiety of moving by helping transferred NOAA employees sell their house and find and purchase a new one, all without having to submit a voucher for reimbursement.

The new program allows transferred employees to skip closings on their home sales altogether, thus avoiding the necessity to pay closing costs that would be reimbursed later by the government. This also frees up cash the employee can use for the down payment on a replacement home.

Since 1985, the government has offered some home sales assistance to employees.

Employees could receive mortgage counseling and help selling their home and finding a new home, but no help purchasing a new home.

According to Pat Oliver in the travel office, until NOAA received a waiver from the Department of Commerce, a transferred employee was required to list a home for direct sales for 90 days. If the transferee was unable to sell the home during that period, he or she *continued on page 2*

## NOAA Honors Environmental Heroes on Earth Day



A rehabilitated green sea turtle returns to the sea April 21 with the help of acting administrator Scott Gudes (center) and Richie Moretti (left). Moretti, director of the Turtle Hospital in the Florida Keys, is one of 27 environmental heroes honored nationwide by NOAA on Earth Day.

# Electronic Library Saves Time, Paper, \$\$\$

—By Evelyn Williman

**E**leven tons of project records in 771 boxes, a daunting mountain of paper, were created during the 13-year development and deployment of the Next Generation Weather Radar. And the mountain had to be climbed every day.

"Because the program was tri-agency (NOAA and the Defense and Transportation Departments), it was like an intricate dance to coordinate the money and payments on hundreds of different invoices carrying numerous separate accounting codes of the three separate agencies," said Gary Rice, contracting officer in NOAA's Systems Acquisition Office, which served as the acquisition agent for the \$1.4-billion program.

"Electronic access (to NEXRAD records) would speed things up as well as make the work easier," Rice said.

"While some would be stored at the National Archives and some could be destroyed," said logistics specialist Miguel Rosario-Felix, "the technical material would need to be available to people maintain-

ing and modernizing the radars over time. In addition, the most important documents of various kinds, such as invoices, needed to be readily accessible by all three NEXRAD user agencies," he said.

High-speed scanning was part of the solution. Electronic indexing was the crowning touch. But first the shelves of documents had to be sorted. A four person crew began the process in May 1998.

The most essential part of the 11 tons of paper is now scanned, indexed and stored on five CD-ROMs, which is required to maintain essential contract information throughout the life of the NEXRAD system.

There are also indices for the archival documents not scanned, providing an electronic road map to the location of all the documents.

A frequent user of the system, contracting officer Steve Thornton, is enthusiastic about the electronic library, which makes the most important documents instantly available.



*Dane Konop/NOAA*

*Document specialist Deborah Harrington shows two CD-ROMs that can hold a dumpster's worth of paper NEXRAD documents.*

"The fully indexed electronic material allowed me to meet with the contractor and access the material from my laptop," Thornton said.

Rosario-Felix said he would be happy to demonstrate the records system process for any office facing similar record challenges. ☺

## Transfers

*continued from page 1*

became eligible to receive a purchase offer based on an appraised value of the house from one of three relocation companies contracted by NOAA, Oliver said.

The relocation company would then pay the employee the equity in the house based on its appraised value and complete the home sales process.

Under the old program, which is still available, a transferred employee was also required to submit a voucher for reimbursable closing expenses from the sale, a lengthy process that created a tax liability

for employees because the Internal Revenue Service considers these reimbursements to be income.

The new pilot program can reduce the time needed to get an employee on the job at a new duty station because the home sales and purchase assistance can start as soon as the employee is notified of an impending transfer and contacts the regional relocation coordinator.

Through a contract with Cendant Mobility, a commercial relocation firm headquartered in Danbury, Conn., NOAA employees can receive advice in selecting a real estate agent and marketing their house for sale. For the first time, employees can now also get

help financing the purchase of a replacement house.

As soon as the employee has an offer on his or her house, beginning as early as day 1 of a 60-day listing process, Cendant Mobility will step in, buy the house at the agreed upon purchase price, then complete the closing process with the buyer, relieving the NOAA employee of having to go to settlement and of the need to submit a voucher for reimbursement of costs.

According to Carol Knight, Cendant Mobility's account manager for government relocation, employees selling their home "get their net proceeds directly from us *continued on page 8*



Jeff Key/NOAA

Meteorologist Elaine Prins.

## Employee of the Month: Elaine Prins

—By Patricia Viets

**E**laine Prins, a meteorologist with the National Environmental Satellite, Data, and Information Service's team at the University of Wisconsin, Madison, has been named NOAA's Employee of the Month for May.

Prins, the acting team leader of the advanced satellite products team for two years, developed the first automated technique for detecting fires using geostationary satellite data.

The technique has proven to be a valuable tool in the detection and monitoring of fire outbreaks in the Western Hemisphere.

Without any manual guidance, her algorithm corrects for atmospheric conditions, such as smoke or semi-transparent clouds, and indicates the locations of fires and their approximate size.

Prins has been recognized globally by her peers as a scientific leader in the field of fire detection. Her team reports that a NOAA satellite program manager recently

described important uses of NOAA's Geostationary Operational Environmental Satellite, traditionally used for weather monitoring, as "monitoring weather and fires."

This is due in part to the successful research program led by Prins on the automated detection of biomass burning with the GOES imagers.

She also recently gave an invited presentation of her work at the regional fire workshop hosted by the National Space Development Agency of Japan in Tokyo.

"Elaine Prins is a great team player," said Greg Withee, assistant administrator for satellite and information services. "She builds bridges not only within NESDIS, but also across agencies such as NOAA, NASA and the Department of Defense and with Brazil, Canada, Japan and several European countries."

Her skills as an organizer and leader are never more apparent than when responding to requests for information, her team said.

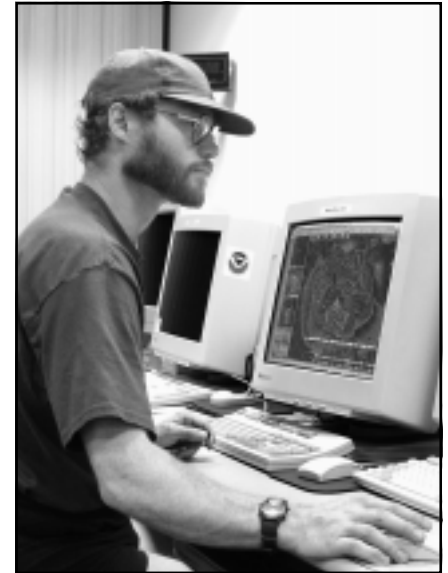
She recently pulled together a group of scientists from the advanced satellite products team and the Cooperative Institute for Meteorological Satellite Studies to fulfill an urgent request for simulations of the proposed GOES advanced baseline imager.

Prins helped to facilitate the simulations of the proposed GOES imager.

After two weeks of research, including multi-sensor data analysis and modeling, a robust presentation of imager characteristics for volcanic eruptions, fires and clouds was delivered.

Prins is responsive, capable and professional, her team members said. She approaches her administrative and scientific activities with enthusiasm, an enthusiasm that spreads like wildfire.

Prins lives in Stoughton, Wisc., with her husband Ken Bywaters. ☺



Wilfred von Dauster/NOAA

Computer programmer James Ramer.

## James Ramer Is Team Member of the Month

—By Barbara McGehan

**J**im Ramer, an unassuming guy clad in T-shirt and shorts, has been a familiar figure at NOAA's Forecast Systems Laboratory in Boulder, Colo., since he started working there in 1984.

A computer programmer with an M.A. in meteorology, Ramer exudes vitality and enthusiasm. He is being honored as the May Team Member of the Month for his "contributions to the mission of NOAA research, to the success of AWIPS and to the nation."

Ramer is a research associate with the Cooperative Institute for Research in the Atmosphere, one of NOAA's joint institutes, located at Colorado State University in Ft. Collins, Colo.

Ramer helped design and develop some of the most important and most heavily used components of the Advanced Weather Interactive Processing System, the heart of the National Weather Service modernization, installed in *continued on page 7*

# Focus On...



Dane Konop/NOAA

NOAA employees join forces with Morgan State University and Philadelphia University students and other local volunteers in a cleanup and restoration of the wetlands adjoining Fort McHenry. A replica of the "star spangled banner" flies over the fort in the background.



Dane Konop/NOAA

In advance of seeding the marsh with cord grass, NOAA Fisheries head William Hogarth (right) and others clear out common reed, an Asiatic species that had been imported to help stem erosion but which now is out-competing native species, creating a "monoculture."

## Fort McHenry Wetlands Cleanup

—By Dane Konop

A group of about 50 NOAA employees organized by the Fishery Service's Habitat Restoration Division got a chance to practice what they preach April 7, helping to restore the marsh adjoining historic Fort McHenry in Baltimore, Md.

Linked to Chesapeake Bay by the Patapsco River, the marsh was created fifteen years ago with sediment dredged during the construction of a nearby highway tunnel under Baltimore's harbor.

The restored marsh is now home to a variety of birds and fish. But the marsh also traps litter and debris that are carelessly discarded or are swept into the harbor during rainstorms.

The NOAA volunteers, joined by family and friends, helped clear out non-native vegetation, planted native trees and shrubs and picked up thousands of pounds of trash, including nearly 12,000 pieces of plastic and 240 pieces of glass.

Sponsored by the National Aquarium in Baltimore, the field day's aim is to clean up and restore the marsh while at the same time creating "environmental ambassadors" to spread the word about the importance of wetlands and the need to protect and conserve them as a natural resource.

"By having a simple day like this, we really get the word out about environmental stewardship and the opportunity to make a difference," said Glen Page, the National Aquarium's director of conservation programs.

*continued on page 5*



*Dane Konop/NOAA*  
NOAA employee Linda Brown and her husband Dwight help plant native vegetation on the low hillside that borders the marsh.



*Dane Konop/NOAA*  
Michelle Zetwo (left), a Fisheries employee visiting from San Diego, Calif., and Linda Taylor of the National Ocean Service in Silver Spring, Md., net debris in the marsh shallows.

*continued from page 4*

“Public awareness is the most important part of restoring Chesapeake Bay,” said congressman Benjamin L. Cardin, who joined aquarium officials in welcoming the volunteers.

“These types of projects are extremely important because 90

percent of fish are dependent on marshes and wetlands,” said NOAA Fisheries head William Hogarth. “Restoring wetlands helps our programs to rebuild fisheries.”

“I think it’s fantastic that NOAA

people can get out in the community and make a difference in ways that really impact everyone,” said NOAA employee Danielle Renart, who was volunteering at Fort McHenry for the first time. ☺



*Dane Konop/NOAA*  
Capt. Richard Behn digs in as he and other volunteers help plant a variety of native trees and shrubs.



*Dane Konop/NOAA*  
National Ocean Service staffer Peter Hill (center) and other volunteers find a mini mountain of trash in the riprap that protects the Fort McHenry marsh from erosion. National Aquarium rainforest exhibit curator Carey Rowsom (far right with clipboard) tallies trash collected.

## Solar Storm

*continued from page 1*

solar wind and all of the events that have happened since you were here yesterday.”

Combs says that in forecasting space weather, conditions change so rapidly you have to be mentally prepared. “You start looking at everything and start formulating it in your mind, because someone is going to ask you what’s going on and what’s happening, and when’s the storm going to start or stop.”

Today, Combs’ first call is from NASA. They’re planning an “EVA,” shorthand for “extra vehicular activity.” That’s when the astronauts put on their space suits and go outside the space station to do some work. That’s also when they’re most vulnerable to the effects of space weather.

“We give them briefings periodically when they plan to go outside,” Combs says. “The latest briefing we give them is an hour before they’re going out. Today, they were scheduled to go out at 7 a.m.”

How do you give NASA a briefing when you’ve only been on the job for 15 minutes?

Combs says, “The night person had everything ready and left me some notes. Then I checked to see whether that information was still current. There’s a four hour gap between the time when he leaves and I arrive. During that time, the solar technician staffs the desk. But the night forecaster had an

outline ready for me. I checked the data and we were ready to roll. We work as a team and we all get along pretty well.”

The center is the hub for space weather forecasting in the U.S. With its bank of computer screens, the center’s space weather operations room looks like an air traffic control center. The decor is government gray with maroon office chairs scattered around.

Several large screens display images of the sun from various observatories and from NASA’s SOHO satellite.



*Wilfred von Dauster/NOAA*  
Space weather forecaster NOAA Lt. Eric Ort (left) and solar technician Dan Real monitor conditions on the sun in the space weather operations room at the Space Environment Center.

One image is a green X-ray image. Another is a gray image of a flare as it explodes. A third image shows the familiar red-orange sun.

Next on the agenda is the daily weather briefing. Every morning at 8:10 a.m., the center director, the researchers, technicians, visitors and anyone else who’s interested show up for the daily report on the sun. The atmosphere is casual as the solar technician gives the report put together that morning by the forecaster.

Today, it’s Gayle Nelson’s turn. She’s been with the center since

1978. Nelson gives a rundown on the current space weather conditions covering radio blackouts, geomagnetic storms and other solar activity. She says activity on the sun will be moderate to high for the next 24 hours.

“This is an important briefing because we all have to be aware of what’s going on,” says Combs. This morning there has already been an “M7 flare.” While that’s not huge, it’s still considered a major flare.

After the briefing, everyone scatters to meetings, research and other activities, as the forecaster and solar technician settle in for their shift.

The Space Environment Center occupies a unique niche in the space weather arena. Because of its operational mission, it is one of the National Centers for Environmental Prediction. But it is also a research laboratory within NOAA’s Office of Oceanic and Atmospheric Research, conducting research in

solar-terrestrial physics.

The space weather operations room is always a busy place. Telephones are constantly ringing. The activity level is ramping up as forecasters begin working on an analysis of today’s solar flare.

At the same time, it’s “Bring A Child To Work Day,” and parents and children are gathering in the lobby of Boulder’s David Skaggs Research Center. Their first destination: space weather operations.

While children and parents gather outside the glass windows of

*continued on page 7*

## Solar Storm

*continued from page 6*

the forecast room to hear about solar storms, inside the intensity heightens.

Forecaster William Murtagh, an Air Force sergeant who just finished his shift at 2 a.m., is back with his daughter, Maggie, for the day's open house. Murtagh starts looking at the images.

"That's a sweet looking halo," he says, referring to the ring around the sun that occurs when there's a major flare.

The flare occurred at 7:12 a.m. local time. People walk in and out asking what's happening.

"We've got a flare with a full halo, center disk," Combs says. He's busy getting his forecast ready before he talks to the Air Force and NASA.

Someone asks, "What do the models say?"

"It's a good flare. It was a long duration event," Murtagh says. "I'd say it lasted three hours. There's a lot of energy there."

The flare came from the same region on the sun as a huge flare that occurred several weeks before. That flare erupted from the largest sunspot region to appear in over ten years. The sunspot area was 13 times Earth's diameter.

That sunspot area vanished for awhile as the sun rotated, but is now back, facing the Earth. Surprisingly, the region stayed together and is still flaring.

Besides preparing the forecast, there is a list of products that forecasters are required to get out to the center's customers: NASA, of course, and power companies, airlines such as United and Continental, satellite companies, navigation companies and many more.

"Gathering all the data, analyzing it and putting it all together is an all-day process," says Combs.

Forecasters must be vigilant for a

solar event, especially right now when the sun is in the midst of "solar max," a period of increased activity on the sun.

If there is a flare, a geomagnetic storm, a radiation storm or other solar event, the on-duty forecaster is swept up in a flurry of alerts, watches and warnings, while the "sol-tech" calls customers and alerts them to potential problems.

During a period like this, stress levels run high and activity is frenzied.

Combs says, "It's like being in a weather station when the weather is getting severe. The meteorologist's adrenaline is really pumping. We all do get excited."

When word gets out that the sun is showering the Earth with storms, the telephone starts to ring constantly. Customers, and especially the media, bombard the center with calls and emails.

It's now 4 o'clock. As Combs prepares to leave, Murtagh, the next forecaster, arrives. The day is still young, and Murtagh will be on duty in the operations room until 2 a.m.

The center coordinates data from warning centers from around the world. Murtagh stays alert through the night, busy analyzing data from many of these international observatories.

"Sometimes we don't realize how people rely on this information," Murtagh says. "There's a Web site and people can access information that way. We only realize it when we see the number of hits the Web site receives, and realize that every military base at locations all over the world has looked at our Web site. Then it hits you and you get more a sense of the significance of this information," Murtagh says.

"It's always fascinating, especially if you have a love for science," he says. "I say I haven't worked in the last 18 years. It's so unique, it doesn't seem like work." ☺

## Ramer

*continued from page 3*

every forecast office across the country. This includes the tools and techniques to display an unlimited combination of numerical model fields and the warning generation application, which has revolutionized and accelerated the way forecasters issue severe weather warnings to the public.

Carl Bullock, acting chief of the lab's Modernization Division, says, "I can't think of anyone more deserving of this award. He is the most self-effacing guy I know."

His fellow workers agree.

"If you had 20 Jim Ramers you could accomplish anything," says Darien Davis.

Ramer says sometimes it's easy to get bogged down and lose your focus, especially when people only contact you when they have a problem. "But during the May 3, 1999, tornado outbreak in Oklahoma City, meteorologist-in-charge Dennis McCarthy was very complimentary about AWIPS and said how much the system helped in getting the warnings out and saving lives and property. That makes you feel pretty good," Ramer says.

Born in St. Paul, Minn., Ramer is an avid sportsman who played club rugby until three or four years ago. Now, he's busy with the joys of being a homeowner and occupies himself with "projects around the house, getting a new furnace, landscaping et cetera," he says.

In the future, Ramer imagines himself in a new career. "After I retire, I'd like to go back to school and get a teaching certificate and teach junior high," he said. To get ready for that career change, Ramer volunteers at the Family Learning Center in Boulder, helping kids with their homework. "It's good for the kids, and gives me a chance to get my feet wet," he says. ☺

# Transfers

*continued from page 2*

in a check prior to closing, approximately five business days after they have submitted their paperwork to us. The employee is then out of the loop, not just for closing costs, but for real estate commissions and other related fees.”

If for some reason the NOAA employee cannot find a buyer in 60 days, the employee has the option of selling the house to Cendant Mobility's affiliated mortgage company, Cendant Mortgage, at an agreed upon appraisal price.

Cendant will then take over marketing the house, avoiding any further delays for the employee.

“If they think the appraisal is too low, they can cancel out of the program and continue their own marketing,” Knight said.

Michael J. Washington, a Weather Service meteorologist who transferred from the Charleston, W.Va., forecast office to the Office of Strategic Planning and Policy in Silver Spring, Md., in July 1999, used Cendant to both sale his house and purchase a replacement house.

Washington has mixed feelings about the program. He was very pleased with the process of buying a replacement home through Cendant, but expected to get more from the sale of his house. Washington concedes he “hamstrung” his sale in Charleston by renting out his house and agreeing to give his temporary tenants 24-hours notice before showing the house.

“I lost a lot of potential buyers because my real estate agent didn't get a chance to show the house as much as he could have,” Washington said.

When it did not sell in 60 days, Washington turned to Cendant Mobility to purchase the house from him. Unfortunately for him, all three appraisals, done by

appraisers chosen from a list supplied by Cendant, came in lower than he had anticipated. He eventually did sell to Cendant, but at a lower price than he had expected.

Larry Struble, a meteorologist who recently transferred from the Detroit-Pontiac, Mich., weather forecast office to the Meteorological Development Laboratory in Silver Spring, thought the voucherless home sale and purchase program was “a huge help.”

“The only problem was that I didn't know about it until two or three weeks after we started marketing the house,” he said.

“The advantage for me was that we ended up using the amended sales program. Essentially, I had gotten a buyer on my own through my real estate agent,” Struble said.

“About a week and a half ago, Cendant started the process of purchasing the house from me. That worked out real well because the buyers in Michigan weren't able to close until two weeks from now,” he said.

“Right now I've already got my equity from the house about two weeks before they close in Michigan. And I didn't have to do any voucher or be reimbursed. It did help me out a good bit,” he said.

Cendant Mobility will also assist a transferred employee in finding a new home. If the employee finances the purchase of a replacement house using Cendant Mortgage, Cendant will also pay those buyer closing costs that would have been reimbursable to the employee.

Since the Internal Revenue Service also considers buyer closing cost assistance to be income, the employee avoids this tax liability too.

“Sometimes those closing costs could be five or six thousand dollars, depending on the price of the house,” Knight said.

If they use Cendant Mortgage,

which offers the gamut of financing packages, “employees do not have to bring those funds to the closing table and at a later date be reimbursed through vouchers,” Knight said. “They have that extra money for a down payment and they don't have to wait for it to be reimbursed to them.”

Washington's replacement home purchase experience was much more positive than his experience selling his home. “The buying process was very beneficial,” he said. “I was able to put more money down on the house, given the fact that I didn't have to tie up my money in the closing,” he said.

Struble is also using Cendant Mortgage to finance the purchase of his replacement home in Bowie, Md. “They're direct billing, so I don't fill out a voucher for my closing here either. It was a huge help,” he said. “Otherwise we'd be still trying to find a house at this point. And I'm now ready to close next week.”

According to Oliver, NOAA has 300 to 400 transfers a year, many in the Weather Service, more than any other Commerce Department agency.

The program is “available to other agencies,” Knight said, “but NOAA is the first one to really implement it on a full scale.” ☺

The NOAA Report is a monthly publication for NOAA employees from the Office of Public and Constituent Affairs, Washington, D.C.

Address comments to:

**Editor, The NOAA Report**

**1315 East-West Highway**

**SSMC3, room 10853**

**Silver Spring, MD 20910**

301-713-9042 (voice)

301-713-9049 (fax)

E-mail: dane.konop@noaa.gov

**NOAA Report Online:** [http://](http://www.publicaffairs.noaa.gov/nr)

[www.publicaffairs.noaa.gov/nr](http://www.publicaffairs.noaa.gov/nr)

Scott Smullen, acting director, OPCA

Dane Konop, editor