

NOAA Tests New Fishing Vessel Monitoring Units

—By Gerry McMahon

An Inmarsat satellite high above the equator meticulously tracks a commercial fishing vessel moving along the Oregon coast. A radio transponder on the ship automatically transmits the ship's changing geographic coordinates to the satellite, which relays them to computer workstations in the NOAA Fisheries Office for Law Enforcement in Washington.

As the ship leaves Astoria, NOAA Fisheries special agent Steve Springer in Vancouver, Wash., and NOAA Vessel Monitoring System program manager Joe Albert in Seattle note that the vessel is nearing a special conservation area where fishing for protected ground-fish species is prohibited.

The special agents can now send a message to the ship advising caution as it nears the area. Or if it appears the vessel is actually fishing in the closed area, the special agents can take more serious action, including requesting the Coast Guard to conduct an overflight or boarding of the vessel.

This time it is just a test.

The Vessel Monitoring System was introduced in 1988 to reduce the impact of over 800 foreign commercial driftnet fishing vessels operating in U.S. territorial waters and on the high-seas by providing the location of these ships to authorities.

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Oscar Elton Sette Joins the NOAA Fleet



Michael May for NOAA

Rear Adm. Nicholas A. Prah, director of NOAA's Marine Operations Center, greets Hawaii Governor Linda Lingle at the commissioning of the NOAA Ship Oscar Elton Sette in Honolulu, while NOAA Administrator Conrad C. Lautenbacher, Jr., and Rear Adm. Evelyn J. Fields, Director of NOAA Marine and Aviation Operations, look on. See the full story on page 4.

New Radar Is Under Construction At NOAA's National Severe Storms Lab

—By Keli Tarp

Researchers at NOAA's National Severe Storms Laboratory in Norman, Okla., are getting increasingly excited as they watch the construction of the infrastructure of a new type of radar that may help forecasters provide significantly earlier warnings for tornadoes and other severe and hazardous weather.

Called "phased array radar" and currently used to support tactical operations aboard U.S. Navy ships, this state-of-the-art military technology will soon be adapted for a new civilian purpose—weather detection.

Construction of a National Weather Radar Testbed at the National Severe Storms Laboratory is expected to be completed this summer, providing the meteorological research community with the first surveillance phased-array radar facility available on a full-time basis.

A ribbon cutting for the facility is scheduled for April 25, with testing expected to begin in June.

The project—from research and development to technology transfer and deployment throughout the U.S.—is expected to take 10 to 15

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A Ship and a School Named David Starr Jordan Form an Alliance

—By Jeanne G. Kouhestani

A chance encounter involving a tee-shirt and a shared name recently brought together an inner city high school and a NOAA fisheries survey ship.

The father of Rick Hargis, second cook on the NOAA Ship *David Starr Jordan*, was wearing a tee-shirt bearing the ship's name in Nevada when he was approached by an alumnus of David Starr Jordan High School of Long Beach, Calif.

Following some initial confusion, the two men finally got it straightened out that there is both a ship and a school named after noted naturalist and educator David Starr Jordan (1851-1931), the first president of Stanford University, whose investigations of salmon helped save the species.

After a phone call from his father about the incident, Hargis, recognizing an opportunity to do some educational outreach, contacted the school's marine biology teacher, Brian Bradshaw, to tell him about NOAA and the ship.

"Brian said to me, 'What can I do for you?'" Hargis recalled. "I said, 'No. What can NOAA do for you?'"

As the school has limited resources, Bradshaw asked for marine specimens and an opportunity for his students to visit the ship. He got his wish, plus a whole lot more.

According to Bradshaw, "When I first talked to Rick, my impression was that he is a free-spirited guy who likes students and is one hundred percent locked into doing this. That commitment is what motivated me the most. When I



Jeanne G. Kouhestani/NOAA

David Starr Jordan senior biological technician John Wagner explains the operational procedures for the South West Fisheries Science Center's remotely operated vehicle, which is in the lower right portion of the photo, while students view video footage from the ship's white abalone restoration project on the ROV's control console.

had the opportunity to meet the rest of the crew and the scientists, that was the topper."

Since then, both Hargis and a former commanding officer of *Jordan*, Lt. Cmdr. Scott Hill, have visited Bradshaw's classroom to talk about NOAA and the work of the ship. The scientists aboard *Jordan* have donated sharks for dissection and five-gallon jars filled with marine specimens brought up in bongo nets. When the ship comes into port, Bradshaw drives down to pick up the specimens. His biggest problem, he said, has been finding a big enough freezer in which to store the sharks.

On Jan. 27, Bradshaw brought 37 of his students—many of whom had never been outside Long Beach or seen the ocean—to visit *David Starr Jordan* at its home port in San Diego. The kids toured the ship and learned about the jobs and equipment on board. They had a blast, and Hargis was in heaven.

"To me, this is what it's all about. I got to show the kids what I do. They wanted to be here. They

wanted to see the ship. They were happy, and they made me happy. I think the smiles on their faces said it all," Hargis said.

Since the school year began, the students have been e-mailing Hargis and others on the ship with questions about the ship's work, careers and other topics of interest. Hargis distributes the e-mails to the appropriate crew member or scientist for response, and has gotten the whole ship involved.

Indeed, making the field trip a full experience for the kids was a group effort. Several of the scientists brought exhibits and gave presentations on what they do, and officers and crew members were on hand to meet with the students and answer questions.

Dave Griffith, a NOAA Fisheries biologist who has collected some unusual specimens for the school, said, "This ship is unique. It has a close knit crew that's been together a long time. It's an interesting group of guys."

Bradshaw said that a number of

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Jerry Slaff/NOAA

Nancy Jackson.

Nancy Jackson Is the Employee of the Month

—By Dane Konop

Nancy Jackson, a secretary in the Office of the Deputy Under Secretary and the February Employee of the month, coordinated the physical consolidation of all ten NOAA staff offices in the Herbert C. Hoover Building in a sometimes wrenching process that spanned almost a year—and she's still smiling.

Office space in the Hoover Building in Washington, D.C., is much prized by Commerce Department agencies. The more staff offices you have and the closer they are to the Secretary's office and the Under Secretaries' offices—the seats of political power—the better. Office space is rarely vacant long, as bureaus jockey for those few spaces that only occasionally become available. Over the years, NOAA and the other Commerce agencies have placed staff wherever they could whenever a space opened up—resulting in a scattering of staff throughout Main Commerce

and intermittent attempts to consolidate. The process is fraught with turf politics.

A year ago, then new Administrator Lautenbacher announced a plan to consolidate the NOAA staff offices in the Hoover Building—the Offices of the Under Secretary, Assistant Secretary, Deputy Under Secretary, Legislative Affairs, International Affairs, Public Affairs, Sustainable Development and Intergovernmental Affairs, Finance and Administration, Strategic Planning and the Naval/Air Force Deputies.

Capt. Rich Behn, who was tasked with overseeing the consolidation, enlisted his secretary, Nancy Jackson, to coordinate.

Although new to government, she turned out to be exactly the right person for the job—poised, articulate, smart, confident and assertive, tempered with a willingness to please.

“Most of the staff offices had people on various floors [in the Hoover Building]. Sustainable Development and Intergovernmental Affairs had a group of people on six. They also had people on seven. Legislative Affairs had people on five and six,” Jackson said. “The admiral's whole game plan was to put people together and not have these offices broken up. It brings more continuity. Being together makes a difference. You have camaraderie. And that's what we were after.”

Jackson's job was to make sure that everyone who needed to be in the loop during the move stayed in the loop.

“I was a jack-of-all-trades kind of person—running around trying to make sure that first the office directors understood the move was coming, working out the floor plan, working with DOC Facilities to get those floor plans together and finalized, making sure that we

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William Carter/NOAA

Joe Neuenschwander.

Joe Neuenschwander Is the Team Member of the Month

—By Patricia Viets

Joe Neuenschwander, a senior project engineer with Aerospace Corporation, has been named the February Team Member of the Month. Neuenschwander works at NOAA's National Environmental Satellite, Data and Information Service in Suitland, Md., serving as a liaison between the Office of Satellite Operations and Aerospace's System Program Office in El Segundo, Calif.

Neuenschwander said that there are peaks and valleys in his daily schedule. During the peak periods, he does whatever needs to be done to keep satellites in the Defense Meteorological Satellite Program operating smoothly. During other periods, he has time and resources to let his technical expertise and creative talents go to work on developing software tools or performing analyses.

Neuenschwander attributes much of his success to a team of

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Focus On...

Oscar Elton Sette Joins the Fleet

—By Jeanne G. Kouhestani

Oscar Elton Sette has relieved *Townsend Cromwell*.

The NOAA Ship *Oscar Elton Sette*, the newest addition to the NOAA Fleet, was commissioned on Jan. 23 in Honolulu in a solemn ceremony that blended naval and Hawaiian traditions and included the top executives of NOAA and the state of Hawaii.

Though not a new ship, the converted Navy T-AGOS vessel is a welcome addition to the fisheries survey fleet, with far more capabilities and capacity and less than half the age of the 39-year-old decommissioned NOAA Ship *Townsend Cromwell* it has replaced.

Homeported in Honolulu in support of NOAA Fisheries' Honolulu Laboratory, *Sette* will continue the work of *Townsend Cromwell* in the central and western Pacific, assessing and protecting the region's fisheries and living marine resources. The ship will conduct fisheries assessment surveys, physical and chemical oceanography, coral reef research and marine mammal projects. The ship is acoustically quieted, making it particularly well suited for fisheries and marine mammal studies.

The NOAA Ship *Sette* is named after the first director of the Honolulu lab, the late Oscar Elton Sette, who is considered to be the father of fisheries oceanography.

NOAA Administrator Conrad C. Lautenbacher Jr., Vice Admiral, USN (Ret.) led a slate of distinguished speakers at the ceremony that included Hawaii Governor Linda Lingle, Congressman Neil Abercrombie of Hawaii, William Hogarth, NOAA Assistant, Administrator for Fisheries, Rear Adm.

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Jeanne G. Kouhestani/NOAA

The 224-foot fisheries survey ship *Oscar Elton Sette*, homeported in Honolulu, replaces the NOAA Ship *Townsend Cromwell*, which was decommissioned after 39 years of service.



Michael May for NOAA

The Reverend David Kaupu gives a traditional Hawaiian blessing of the NOAA Ship *Oscar Elton Sette* before cutting the lei that spanned the ship's gangway for good luck.

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Evelyn J. Fields, Director of Marine and Aviation Operations and the NOAA Corps, and Mrs. Josephine Bridges, daughter of the ship's namesake.

Lautenbacher said, "NOAA's mission is to understand and predict changes in Earth's environment, to conserve and manage coastal and marine resources, and to meet the nation's economic, social and environmental needs. Ships such as *Elton Sette* are at the very foundation of meeting this mission for the nation."

Following the speeches, the ship was placed in commission, the flags were raised, the commanding officer assumed command, the first watch was set and the first log entry was made.

Cdr. Ken Barton, *Sette's* commanding officer, said, "The ceremony today and celebration tonight are creating a bond between *Sette* and the people we support. That goes a long way toward doing good work and science in support of NOAA's mission."

The NOAA Ship *Sette* is a cost-



Michael May for NOAA

Guests at the NOAA Ship *Sette's* commissioning ceremony attend a reception at the pier alongside the ship.

efficient and highly capable replacement for *Townsend Cromwell*, with a much larger suite of scientific laboratories. In addition to the standard wet lab, *Sette* has a dry lab, a computer lab and a chemistry lab. It also has some new and upgraded electronics mission capabilities, and has a full stern trawl capability that *Townsend Cromwell* didn't have.

"It's like [being] a kid at Christmas with a new toy," said Mike Seki, a scientist at the Honolulu lab. "It gives the opportunity to think of new directions to take your research where you couldn't go before. The direction of work changes dramatically. There's greater flexibility. In all ways, this ship will be a vast improvement for what we do." ☺



Michael May for NOAA

NOAA Administrator Lautenbacher congratulates *Sette's* new commanding officer, Cdr. Kenneth W. Barton.



Michael May for NOAA

Ensign Keith A. Golden, one of a crew of five NOAA Corps officers, three engineers and 13 wage mariners aboard the NOAA Ship *Sette*, leads a tour following the ship's commissioning ceremony in Honolulu.

Vessel Monitoring

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Since then, NOAA Fisheries has expanded the system to monitor and track activities in other fisheries.

Regional fisheries management councils, which include NOAA personnel and stakeholders in the fishing community, have also incorporated the system in their plans to conserve and sustain fishing stocks.

The Office for Law Enforcement currently monitors over 1,000 U.S. fishing vessels, with plans to monitor as many as 2,400 vessels by the end of 2003.

Vessel Monitoring System units tap into the satellite-based Global Positioning System to determine a vessel's precise location. The more modern units support external equipment, such as laptop computers, message terminals and personal data assistants, making it easier for vessel operators to communicate with the Office for Law Enforcement, their office or home.

These commercially produced units are regularly being improved by their manufacturers. But before they can be used to track fishing vessels' compliance with fisheries regulations, they must be vigorously tested.

The Office for Law Enforcement, NOAA's Northwest Fisheries Science Center and NOAA Marine and Aviation Operations teamed up recently to test two new monitoring units for use in the system.

"The spirit of cooperation within the many offices of NOAA that worked together to make this a successful test was phenomenal," said Steve Springer, deputy special agent in charge of the Office for Law Enforcement's Northwest

Division.

For 21 days this past November, the NOAA Ship *Miller Freeman* sailed from Seattle to San Diego and back conducting oceanographic research with the monitoring system onboard.

"During the cruise, the Northwest Division of the Office of Law Enforcement tested two new types of mobile transceiver units to check their effectiveness transmitting position reports along the west coast," program manager Albert said.

This allowed Office for Law Enforcement officials to track the ship's movement up and down the Pacific coast as often as every 30 minutes.

"The spirit of cooperation within the many offices of NOAA that worked together to make this a successful test was phenomenal," said Steve Springer, deputy special agent in charge of the Office for Law Enforcement's northwest division.

The tests helped NOAA Fisheries evaluate the durability, effectiveness and reliability of private sector innovations in Vessel Monitoring System units that can provide fishermen with enhanced messaging capabilities, including expanded e-mail and telephone services. This improves fishermen's ability to contact buyers while at sea and locate the best price for their catch, while at the same time providing better coordination of search and rescue efforts and contact with authorities.

One new unit employs a "geo-fencing" capability that alerts officials to vessels moving into restricted areas, with an automatic increase in the reporting rate between the Vessel Monitoring System unit and NOAA officials. This increased reporting provides the Office for Law Enforcement a greater ability to monitor illegal

activity and warn vessel operators before violations occur.

Fishing vessels monitored under the NOAA program may be allowed to transit through protected areas, saving owners time and money. In some cases, fishermen could also benefit from being able to land their catch after seasonal closures, because the Vessel Monitoring System shows the vessel steaming to port and not fishing, earning them higher prices in the market.

Test results will be released this month.

"The results of these tests will enable NOAA to offer these technologies to many of our fisheries relying on special conservation areas for recovery of depleted marine resources," Springer said.

New participants in the system will likely include commercial vessels fishing for calico scallops and rock shrimp in the southeast, as well as vessels fishing for highly migratory species, such as swordfish, with pelagic long line gear in the Atlantic.

Increasing participation in the Vessel Monitoring System is also important to NOAA's strategy for contributing to homeland security. For instance, improved communications with commercial fishing vessels will allow fisherman the opportunity to report any disturbances, suspicious activity or emergencies.

"Continued advances in Vessel Monitoring System technologies enhance Office for Law Enforcement's effectiveness in carrying out its primary mission of protecting and conserving our nation's living marine resources," said Chief of Enforcement Dale Jones. ☺

David Starr Jordan

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students are now interested in marine careers. "This has opened up a whole new world for them," he said. "One wants to be a cook on a ship because of Allen Gary. Allen e-mailed him about his background and himself, and the boy realized that he could do this too."

When student Antoine King met Gary, the chief steward with whom he'd been corresponding, he was surprised by all he saw.

"It's a beautiful experience and a lovely ship," King said. "I didn't expect this. They've got everything here. All the technology, all the rooms and all the different staff. I've been writing to Allen Gary, and I finally had a chance to meet him. This is a different experience for me."

Student Tim McCullouch is also interested in becoming a crew member. "I think it's great that students can come aboard and see different aspects of this ship, learn what it would be like to be a scientist or engineer and see the different kinds of equipment on the ship. Ever since I started this class, and then the work with the ship, I've been interested," McCullouch said.

Student Eva Ramirez wants to be a zoologist, and is looking forward to dissecting a shark. "It's kind of fun to see what's in the body and see how it functions," she said.

Student Vladimir Acosta is interested in being a Navy SEAL or an oceanographer, and enjoyed the demonstration of the remotely operated vehicle given by NOAA Fisheries scientist John Wagner.

Student Tia Curtis was just delighted to be having fun, away from home.

According to Bradshaw, "There are lots of materials students would

never see—animals mostly. And they've given us used equipment so kids can see sonar sampling. They've given us posters and graphics and have communicated so well with kids by e-mailing back and forth. The kids are writing job descriptions of careers in marine biology. Now they know there are also other jobs out there for them. Some can be done right after high school, and that's kind of nice."

The students are giving back to the NOAA ship as well. Budding artists have promised Hargis to design a new ship tee-shirt. He's tapping the Spanish class to translate the ship flier to hand out during cruises to Central and South America. Students have promised to write an electronic newsletter while the ship is at sea to keep the crew up to date on sports news.

Hargis said the relationship with the school has really boosted the morale of everyone on the ship.

David Starr Jordan Commanding Officer Lt. Cmdr. Christopher Moore said, "I think we're laying good groundwork for developing a program that is going to be beneficial to the school," he said.

"The personalities of Brian Bradshaw and Rick Hargis are instrumental to the relationship. They're both dynamic and exciting people," Moore said.

For his initiative in reaching out to the school, Rick Hargis was recently awarded the first James Martin Memorial Award for Outreach, Education and Diversity that was established by NOAA Marine and Aviation Operations after the tragic death of James Martin, a NOAA employee and the first Washington, D.C.-area sniper victim this past year.

As he watched the high school students soak up experiences aboard the ship, Hargis said, "I hope Mr. Martin would have been proud of this." ☺

New Radar

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years, with an initial cost of approximately \$25 million for the Norman facility.

Phased array radar uses electronically controlled beams that reduce the scan time from five or six minutes for current technology to less than one minute. This produces quicker updates of data, thereby potentially increasing the lead time for tornado warnings. It can also very quickly re-scan areas of developing severe weather.

"Early tests of a phased array radar system for providing weather information have proved promising," said Doug Forsyth, chief of the laboratory's Radar Research and Development Division. "The National Weather Radar Testbed will allow NSSL and other meteorologists to determine if phased array radar will become the next significant technology advancement to improve our nation's weather services."

The project is being carried out in a unique federal, private, state and academic partnership that includes NOAA's National Weather Service, the U.S. Navy, Lockheed Martin, the University of Oklahoma, the Oklahoma State Regents for Higher Education, the Federal Aviation Administration and Basic Commerce and Industries, Inc.

Nearly 30 years ago, the National Severe Storms Laboratory helped develop the weather radar commonly known as NEXRAD. The 120 NEXRAD radars across the United States became a cornerstone of the modernization of the National Weather Service.

"We will soon begin doing something similar to what we did 30 years ago, taking military radar technology, adding parts we develop, and adapting it to civilian use for weather applications," Forsyth said. ☺

Neuenschwander

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people, both government employees and contractors, who support satellite operations. "Aerospace Corporation augments and supports the work of Lockheed Martin, Northrup Grumman, other contractors and government employees," Neuenschwander said. "We all work together to ensure that the nation's environmental satellites run smoothly and efficiently."

Neuenschwander came to NOAA with Aerospace Corporation about four years ago. He moved from Offutt Air Force Base in Omaha, Neb., where he had served as a power subsystem engineer with Lockheed Martin. As an early step in the convergence process of the nation's civil and military environmental satellites, satellite control authority for the existing satellites in the Defense Meteorological Satellite Program was transferred in May 1998 from the U.S. Air Force Space Command to NOAA.

The command, control and communications functions for these satellites were combined with the control for NOAA's polar-orbiting environmental satellites in Suitland, Md. Neuenschwander and other personnel from Offutt came to work with NOAA at Suitland with the transfer of these satellite operations.

Since coming to NOAA, Neuenschwander has continued working with the defense meteorological satellites. "His strong analytical skills led to two significant contributions that helped resolve several problems with F-15, one of the satellites in the Defense Meteorological Satellite Program fleet," said Gregory W. Withee, NOAA Assistant Administrator for Satellite and Information Services. "His efforts have helped to keep F-15 in operation."

When F-15 was experiencing

difficulties in keeping the correct attitude, Neuenschwander's analysis showed that a component on one of the three gyros was faulty. His analysis showed which gyro needed to be isolated and recommended the appropriate gyro configuration to maintain stable spacecraft orientation.

Neuenschwander also developed a software filter that, in the absence of one less gyro component, dampened the responsiveness of reaction wheels that are also used to meet pointing requirements.

The filter worked well and gave users confidence in the ability of the satellite to meet mission objectives. "The software gave users the option as to which spacecraft to replace when the next Defense Meteorological Satellite Program satellite is launched this spring," Neuenschwander said.

On active duty in the U.S. Air Force from 1982 until 1990, Neuenschwander served with Space Operations at Offutt Air Force Base after completing technical school in space systems at Lowry Air Force Base, Col.

He also has a bachelor's degree in computer information management from the College of St. Mary's in Omaha.

"The wonderful thing about working at NOAA is that I really enjoy my work," Neuenschwander said. "Everything I do here is interesting and fun." ☺

Jackson

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had systems furniture or stand-alone furniture, working with the IT people for computers, working with the telephone services people for phones, ordering drapes, getting things painted, whatever was necessary," she said.

She enjoyed being the "point person" for the move.

Jackson has had plenty of

previous office experience.

Before coming to NOAA about a year and half ago, Jackson had gotten a business degree from Eastern Michigan University, been a "military wife and mother" and held numerous office jobs, including as a telephone operator supervisor and most recently as the human resources director for Mitchell Systems, an information technology company in Washington, D.C.

Jackson said she liked the military life, and especially enjoyed the military camaraderie "that exists in that life that does not exist in civilian life. You learn to truly appreciate family and friends," she said.

Jackson said she is happy to find some of those same traits at NOAA, particularly working for a NOAA Corps officer.

"I like the variety of things [at NOAA]. I think this a family. It has that feel, a supportiveness that is evident. I like that. I like that [NOAA employees] work together for a cause," she said. "I like the people. I think they're good-hearted, giving, kind, concerned people. I think it's the real deal. You see people working for something, wanting to make a [positive] change, and pushing it and making it happen. I like that. I like being part of something like that." ☺

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

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