NOAA REPORT

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NOAA Leads Study of Intercontinental Airborne Pollution

—By Barbara McGehan

As NOAA's WD-P3 aircraft sat on the tarmack at the Monterey, Calif., Airport on April 25, a large contingent of scientists was examining their scientific instruments and computers, making sure all systems were ready to go for the first science flight of the Intercontinental Transport and Chemical Transformation Project.

The project is an international research program aimed at finding out how the movement of airborne chemicals from one continent influences the regional and global climate in other continents.

While the P-3 aircraft usually flies into hurricanes or storms, this time the flying laboratory was poised to fly along the U.S. west coast measuring a variety of chemicals, dust and pollutants that mostly blow in across the Pacific.

"We have twenty sets of instruments on board and hanging from the wings," said flight scientist Gerhard Hübler.

According to Hübler, most of the instruments are connected with a computer network that he can monitor and use to direct the flight of the plane into layers of air that might prove interesting. "Every 15 or 20 minutes, I walk through and check on the instruments that don't have operators to make sure they are working," he said.

Since aerosol particles and other

continued on page 2

Mahoney and Keeney Join NOAA's Leadership Team

—By Dane Konop

Two men with longstanding connections to NOAA and complementary backgrounds have joined the NOAA leadership team.

James R. Mahoney was sworn in as assistant secretary of commerce for oceans and atmosphere by Secretary of Commerce Don Evans April 2.

Timothy R. E. Keeney was sworn in as deputy assistant secretary of commerce in the White House liaison office April 8.

Mahoney, who holds a B.S. in physics from LeMoyne College and a Ph.D. in meteorology from M.I.T., is perhaps best known in NOAA circles as one of the founding partners of Environmental Research and Technology, Inc., and as the former director of the National Acid Precipitation Program.

He also has extensive experience in the international arena as a meteorological and environmental consultant to a number of foreign governments.

Keeney, who earned an undergraduate degree in economics from the Wharton School of Business and a law degree from the Univer-

continued on page 2

Dane Konop/NOAA

James R. Mahoney (left) is the new assistant secretary of commerce for oceans and atmosphere. Timothy R.E. Keeney is the new deputy assistant secretary of commerce.

Recycled Paper

New Leadership

continued from page 1

sity of Connecticut, most recently was director of environmental services for Northeast Utilities Service Company in Hartford, Conn.

He is well known to many at NOAA as a deputy general counsel, general counsel and director of the Office of Ocean and Coastal Resource Management at NOAA in the 1980s and early 1990s.

His extensive experience working with state and local government includes stints as the head of environmental programs for the states of Connecticut and Rhode Island.

In interviews in their offices in in the H.C. Hoover Building in Washington, D.C., in mid April, Mahoney and Keeney talked about their professional backgrounds and their plans as the newest members of the NOAA leadership team.

Mahoney's office is in the prestigious southwest corner of the H.C. Hoover Building overlooking the Washington Monument. His desk is busy with paperwork, but the book cases sit mostly empty. Except for photographs of President Bush, Vice President Cheney and Secretary Evans, the walls are sparsely decorated. One gets the sense the work is more important to him than the trappings of office.

Mahoney said the gist of his professional experience has been a mix of public health and the environment.

He's also been on both sides of the regulatory fence, having had a hand in developing environmental regulations and in advising businesses on how best to comply with regulations.

Mahoney said it's important for those involved with environmental policy to have sound scientific information to guide their decisions, particularly in tackling the problem of global climate change.

"It would be a failure if we put the scientific community in one room and the policy community in the other room and just pass an occasional piece of paper back and forth between them. The challenge for the climate work that NOAA and Commerce have taken the lead on in the research area is to keep the science very much on the science, to ask the scientific community to help frame the issues and frame the questions so that the government policy community will understand, can use the information. It's as simple as that," he said.

He is well familiar with the "real world" of science.

Mahoney started his professional career at Harvard University, where he was on the faculty of public health. While still at Harvard, in 1968 he and two other colleagues started Environmental Research and Technology. By the end of the 1970s, it had grown to become the nation's largest environmental consulting firm and Mahoney's full time job.

The company helped its industrial clients "with permitting terms and conditions," Mahoney said. "We did special environmental impact studies way back when the concept of environmental impact studies was new."

In addition to individual companies, Environmental Research and Technology also worked with industry groups and began developing an international clientele, Mahoney said. Generally, he helped foreign governments establish their own environmental and meteorological programs.

He said he now has over a million unused frequent flier miles.

"I left Harvard in 1974 because my private business with my partners had grown so big. I was walking down two roads, and I had to pick one," Mahoney said. He

continued on page 6

Airborne Pollution

continued from page 1

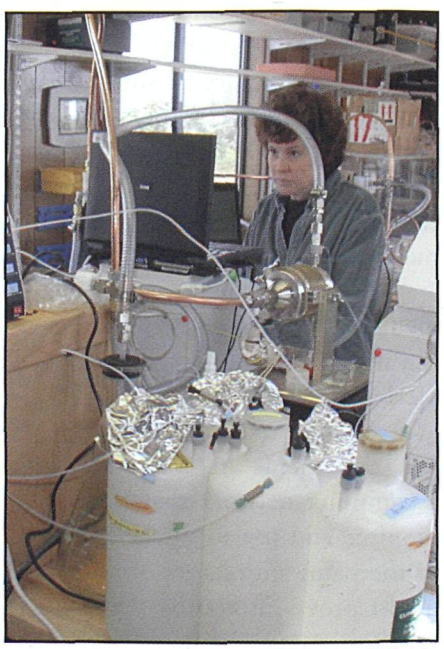
pollutants constantly stream around the globe, dust storms such as ones recently observed in Asia can provide very visible evidence of the atmosphere's connectedness.

The researchers, representing a broad range of government and university organizations from the U.S. and other countries, are taking measurements from the ground and from aircraft to get a better idea of the pollution's effects on climate and air quality.

"We've designed a major international research program to investigate how the atmosphere changes and is moved from continent to continent around the globe, because these processes have many ways of influencing Earth's climate," said Fred Fehsenfeld from NOAA's Aeronomy Laboratory in Boulder, Colo.

Scientists have increasing evidence that even short-lived substances such as ozone and fine

continued on page 7



Tim Bates/NOAA

Theresa Miller of NOAA's Pacific Marine Environmental Laboratory adjusts an instrument in one of two hilltop trailers that measures the water soluble inorganic component of aerosols in the atmosphere.

Brenda Peeples/NOAA

Sinh Nguyen.

Sinh Nguyen Is the Employee of the Month for May

—By Dane Konop

In many ways, Sinh Nguyen, the May Employee of the Month, embodies the American dream.

A little over 20 years ago, he was smuggled out of Vietnam with other refugee "boat people" opposed to the Communist regime, forced to leave his wife and young son behind.

Today, he's a big success—happily married, living with his wife, Nhung, in a nice neighborhood in Silver Spring, Md., with a young son, Thien, at home and his older son, Long, an honors student at the University of Maryland.

Nguyen is very good at his job as a computer specialist, respected and well liked by both his coworkers and NOAA clients.

His optimism and people skills were tempered in past adversities.

Nguyen grew up in South Vietnam during what Americans call the "Vietnamese War." When the U.S. pulled out the last of its troops in 1975 and the country fell under Communist rule, Nguyen was a student at the University of Science in Saigon. Before the fall of Saigon, Nguyen's aunt, who had close ties to the Americans, and his brother-in-law, who was in the South Vietnamese navy, immigrated to the U.S.

After receiving his degree in geophysics, Nguyen faced a difficult decision. He was about to be drafted into the army.

Nguyen was his family's only son, as his brother, a sailor in the South Vietnamese navy, had been killed by the Communists.

At the time, Vietnam was poised to invade Cambodia. Nguyen recalled his father said, "If you go into the army to protect the country, you do that. But if you join the army to invade some other country, you should not do that."

The family determined to smuggle Nguyen out of the country by boat to join his aunt in New Jersey. It was a desperate decision for the 26-year-old Nguyen, made even more difficult because he was leaving behind a wife and young son. "I had to look for freedom at that time," he said.

"It was too dangerous for them to escape like me. They had to stay with my parents," Nguyen said. "I escaped as (one of the) boat people."

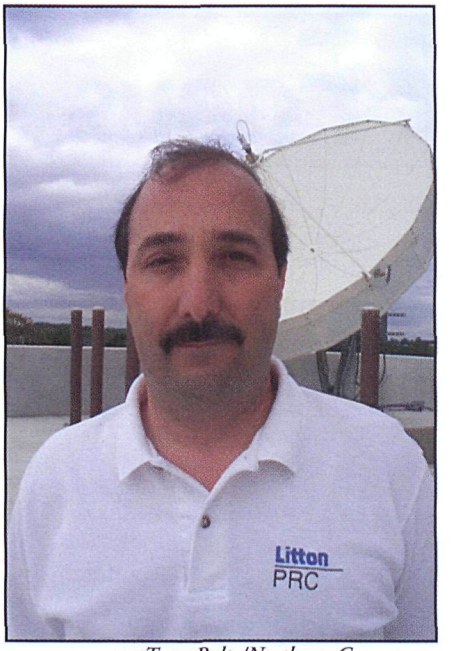
After he and his fellow refugees were rescued at sea, Nguyen was reunited with his aunt.

Nguyen learned English, went back to college and kept up a constant campaign to rescue his wife and son.

"When I was in school, I submitted the paperwork to sponsor them. It took ten years to be reunited. I left my son at the time he was 11 months. By the time he came to America, he was 12 years old," Nguyen said.

In the years he has been in the

continued on page 8



Tony Baltz/Northrop Grumman

Bruno Vercillo.

Bruno Vercillo Is the Team Member of the Month for May

—By Susan Weaver

Bruno Vercillo's responsibility as a program support manager for Northrop Grumman Information Technology, providing innovative solutions for the Advanced Weather Interactive Processing System for nearly nine years, makes him one of the key players in weather forecasting.

AWIPS is one of the cornerstones of the Weather Service's $4.5-billion, ten-year modernization program. It gives forecasters access to satellite imagery, Doppler radar data, automated weather observations and computer-generated numerical forecasts, all at one workstation, providing significant improvements in weather- and flood-related services.

For National Weather Service forecasters, scientists and system analysts at 159 sites across the U.S. and its territories, Vercillo's job is an essential one, so essential that he

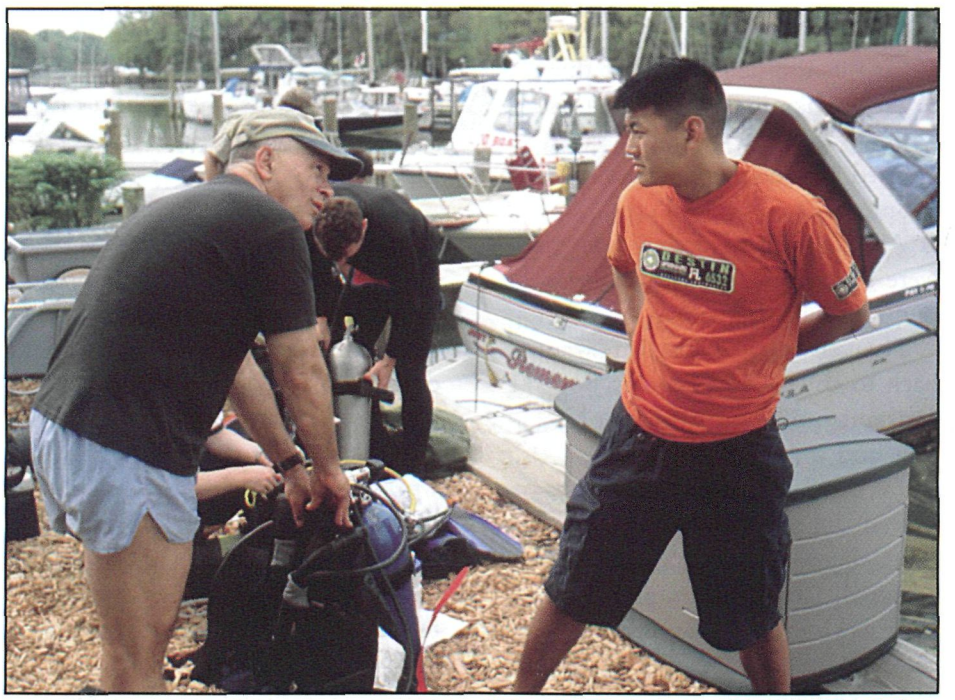
continued on page 7

Focus On...

Dark-Water Diving for Oysters

Robert Hendry/Anne Arundel Community College

Steven Gittings (second from left), national science coordinator for the National Marine Sanctuary Program, explains dive logistics to volunteers.



Robert Hendry/Anne Arundel Community College

Dan Basta (left), director of the National Marine Sanctuary Program, and midshipman Jeffrey Lee check their gear before boarding the dive boat.

—By Lauren Batte

Divers weren't expecting to find a bounty of oysters during a community-based oyster reef survey dive in the Magothy River near Annapolis, Md., April 20. Only four to six dozen oysters were counted in total.

The survey nonetheless proved successful as a chance for NOAA volunteers and midshipmen from the nearby U.S. Naval Academy to hone their dark-water diving skills while contributing to the baseline knowledge of oysters living in the Magothy River, a tributary of Chesapeake Bay.

The dive, an Earth Day event, was planned by the Magothy River Association, a volunteer environmental organization, with technical assistance from NOAA's National Marine Sanctuary Program.

Organizers from NOAA and the association explained critical details about the dive objectives, safety procedures and ecological importance of the dive before everyone boarded the boats to travel to the dive site.

Oysters are important to the health of the Magothy and Chesapeake Bay because they filter the water and provide habitat. Knowing how many are there gives an indication of the bay's health.

The Magothy River was designated an oyster sanctuary by the Maryland Department of Natural Resources in October 2001, which banned oyster harvesting for five years. The information collected during the survey dive helps the

continued on page 5

continued from page 4

Magothy River Association and Maryland judge the success of restoration efforts there.

Four NOAA volunteers, 13 members of the Naval Academy oceanography club and one Naval Academy professor donned scuba gear, then took a giant stride overboard into the Magothy's murky, brown water.

To collect the data, the divers submerged and navigated along predetermined 300-foot transect lines across the monitoring site. They counted live oysters and recorded the bottom type.

"It was sort of dark and I couldn't see, but I found [an oyster]," said one middie.

The visibility underwater was approximately two feet, forcing the divers to use their sense of touch. "When you first go down you can't see anything. But after a minute, your eyes adjust," said another.

The dive was part of an ongoing effort led by NOAA staff to train divers to sample oysters who can then be available to volunteer on an as needed basis. Since the dives began four years ago, over 30 people have been trained.

"NOAA personnel have unique skills that are not found in the public at large, thereby making the public efforts more valuable and useful," said Dan Basta, director of the National Marine Sanctuaries Program, who participated as a dive supervisor.

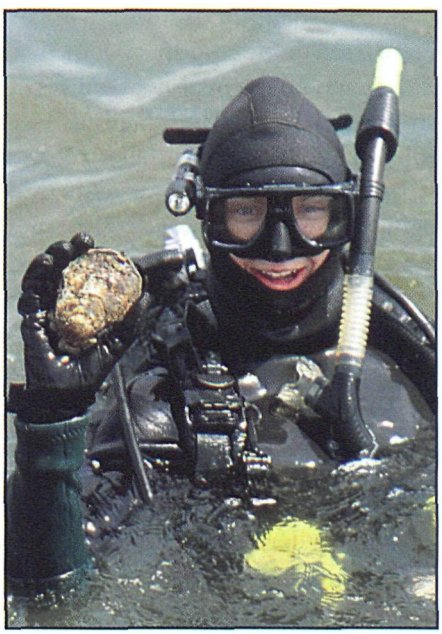
"It's the experts working with the citizens on a volunteer basis to protect local natural resources that makes it worth it," said Mitchell Tartt, a certified working NOAA diver who was responsible for designing and overseeing the field operations for the event.

Robert Hendry/Anne Arundel Community College

A diver re-boards a boat owned by Magothy River Association volunteer Dick Carey after surveying one of eight transects at the dive site.

Robert Hendry/Anne Arundel Community College

A diver enters the Magothy River after Mitchell Tartt (left), a contracting marine ecologist with the National Marine Sanctuary Program, confirms the diver has all of the proper gear.



Robert Hendry/Anne Arundel Community Col.

Midshipman Courtney Hurdt displays a Magothy River oyster he collected.

New Leadership

continued from page 2

and his partners spent another decade growing the company, before selling it to ComSat.

During the first term of the Reagan administration in 1981, Mahoney was offered an advisory position on the board of the National Acid Precipitation Program.

Mahoney later became its director, shepherding the program through the completion of its 10-year legislative mandate to assess the causes and effects of acid rain.

In 1984, Mahoney went to the Bechtel Corporation in San Francisco for a few years as director of Bechtel's environmental group.

Maloney's international expertise has already been put to work at NOAA.

One of his first assignments was a trip to China the last week of April as a member of an eight-member scientific oversight committee headed by presidential science advisor John Marburger. The group explored broad areas of cooperation, with a "renewed emphasis on energy and natural resources, ecosystems and environment," Mahoney said.

Keeney, his deputy, worked for a string of NOAA administrators—John Byrne, Anthony Calio, John Knauss and William Evans—before being recruited by Connecticut governor Lowell Weicker to be commissioner of the state's department of environmental protection in January 1991.

It was a homecoming of sorts for Keeney, a Connecticut native, as well as a reunion with Weicker, a former boss. Keeney's connection to Weicker has been intertwined in his career since meeting then Sen. Weicker in August 1972 when Keeney was a Navy SEAL and the assistant officer in charge of the Apollo 17 recovery team.

Hilary O'Shea/USMMA

The 102nd NOAA Corps Basic Officer Training Class graduated May 8 at the U.S. Merchant Marine Academy at Kings Point, N.Y. Front row (left to right): Ensigns Alison Melicharek, Jessica Daum, Nicole Rouse, Amanda Francisco, Katherine Peet, Amanda Bittinger and Jessica Futch. Back row: Ensigns Eric Johnson, Jasper Schaer, Michael Levine, Jeffrey Shoup, Earl Spencer, Hector Casanova and Bryan Wagonseller.

Because it was the last moon mission, a contingent of news media and V.I.P.s, including Sen. Weicker, was onboard the recovery ship. To each V.I.P. the ship's commanding officer assigned an officer and enlisted man to serve as escorts. Because he was a Connecticut native, Keeney drew Weicker.

Keeney was one of the divers who plucked the astronauts out of the sea when their space capsule splashed down in the Pacific Ocean upon their return to Earth from the moon.

After ending his active duty as the officer in charge of the Skylab recovery team in June 1973, Keeney headed home to law school at the University of Connecticut.

After his first year of law school in the summer of 1974, Keeney moved his family to Washington to work on Weicker's staff. He spent a second summer working on the minority staff of the Senate Commerce Committee, of which Weicker was a ranking member.

"After I graduated from law school, I had an opportunity to either work for a federal judge in Louisiana or go to work for Lowell Weicker in Washington," Keeney said. "I'd have had a whole different career if I'd gone down there. I chose Washington, D.C., and am thankful I did."

He worked a number of NOAA-related issues, including the Marine Mammal Protection Act and some international work on the new concept of "sensitive sea areas." The period was "very rewarding for me," Keeney said.

Keeney left the Hill for a NOAA job during the first term of the Reagan Administration in 1982.

"My first job was deputy general counsel, involved in NOS issues—coastal zone management, Pribiloff Islands," he said.

continued on page 8

Vercillo

continued from page 3
is virtually on call any hour of the day or night, 365 days a year.

Keeping such a sophisticated system operating in a variety of situations often takes ingenuity. When specialized needs occur, Vercillo is a master at overcoming limitations and devising creative solutions to meet those needs. He personally designed a way for forecast sites to safely add their locally developed software within AWIPS.

A native of Staten Island, N.Y., Vercillo spent 12 years in California before moving to the Washington, D.C., area in 1991.

He studied computer science at Purdue University, and has worked in computer engineering ever since.

He expressed a strong commitment to the mission of the National Weather Service to help protect lives and property. "With some systems, a delay or breakdown is just a nuisance," Vercillo said. "When you are talking about critical weather conditions, everything has to move smoothly, because lives are at stake."

Deirdre Jones, director of the Systems Engineering Center in the Office of Science and Technology, praised Vercillo for dedicated service. "Bruno is passionate about AWIPS and the success of the program," she said. "He seems to know intuitively where a problem lies, sometimes before the people working on the installation of AWIPS software upgrades."

She added that Vercillo is generous when it comes to offering his expertise, whether it be to the Office of Operational Systems site support team, individual weather forecast offices or the Systems Engineering Center. "Any place he can be helpful, he is there almost before called," she said.

continued on page 8

Airborne Pollution

continued from page 2
particles can be detected at great distances from their sources. The spring 2002 field mission and the other research will further the scientific understanding of the climate-related consequences of this global transport of pollution.

"We'll be looking at the aerosol particles, low-level ozone and other pollutants coming ashore on the west coast, ranging from Los Angeles to the Canadian border," said project scientist David Parrish, also from the Aeronomy Lab.

What comes ashore is affected not only by pollution from Asia, but also by recirculation from California and Mexico.

According to Parrish, in addition to the measurements of low-level ozone, dust and other airborne particles, researchers will be measuring the fossil fuel emissions from oceangoing vessels.

"A significant fraction of fossil fuels on the globe is burned on these large oceangoing vessels, something like 10 per cent," Parrish said. "So, we'll look at what happens with these ship plumes and try and understand more about the emissions and their effects."

At the same time that scientists were checking their instruments in Monterey, researchers were gathering in the small harbor town of Trinidad, Calif., to establish a ground measuring station.

According to Andrew Clark of NOAA's Climate Monitoring and Diagnostics Laboratory in Boulder, conditions were harsh while they were setting up in mid-April.

"We had a lot of wind, rain and cold temperatures," he said. That was while they were climbing up a precarious ladder to the 40-foot tower to set up their instruments on the tower. The tower is being used to take flask samples of carbon dioxide, methane and other greenhouse gases that will provide researchers with real-time data.

Two trailers filled with instruments also sit atop Trindad Head, which overlooks the town and sea.

According to Trish Quinn of the Pacific Marine Environmental Lab, "Once this experiment is over, we'll continue making measurements for the rest of the year."

Other ground measurements are being made by NOAA's Environmental Technology Laboratory, which has deployed several wind-profiling radars along the coast from San Francisco to northern Washington. These radars will diagnose whether the wind measured is local air or has been transported from across the ocean.

"We want to make sure we can detect if air measured along the coast came out from gaps in the coastal mountains, from the interior of the western U.S. Sometimes those things happen on such a small local scale that it's hard to detect without specialized instruments," said Marty Ralph of the Environmental Technology Lab.

"So if you're making chemistry measurements along the coast, you want to know if the chemicals you're measuring originated in Asia or if they came from the North American continent. The wind profilers help to fill that observational gap," Ralph said.

NOAA's Geophysical Fluid Dynamics Laboratory in Princeton, N.J., and the University of Iowa are running chemical transport models to produce chemical forecasts to aid in flight planning. They will also use these models in the post-mission analysis.

"We're trying to get as clear a picture as we can of what the pollutants are and to determine the chemical changes that occur as they move from one continent to another," Parrish said.

The Monterey-based field stage of the project ends May 22.

New Leadership

continued from page 6

Keeney moved up through the ranks, becoming general counsel by the end of the Reagan Administration's second term, then moving over to the Office of Ocean and Coastal Resource Management as director in the early days of the administration of George H. W. Bush before rejoining Weicker.

Keeney spent four years as head of Connecticut's environmental agency, then took a similar job in Rhode Island, where among other things he managed a cleanup of a spill of eight million gallons of oil from a barge that ran aground during a nor'easter storm.

Keeney said he believes he performs best "in an emergency."

He attributes this to his SEAL training after graduating from the University of Pennsylvania in 1970.

Keeney considers his SEAL training, which is the most demanding in the U.S. military, to be "the most important thing I've done in my career."

He has remained in the Navy reserves as a captain, currently serving as commander of the Naval Reserve SEAL Forces, Atlantic.

He said he's happy to be back at NOAA. "I'll probably be involved primarily in the wet side of the agency. Even though for the 11 years I was away I spent much of my time working with the Clean Air Act," he said.

Initially, Keeney said he expects to work on strategic planning, policy and program analysis and evaluation. "Every four or five years it's appropriate to sit back and look at where you're going and what your goals and strategies are," he said

He said he's also looking forward to working with Mahoney. "I think we make a great team. I think we can work with each other and play off each other's strengths."

Nguyen

continued from page 3

U.S., Nguyen got a bachelor's degree in computer science from the National-Louis University in Chicago, worked as a computer manager for a company in New Jersey, was finally reunited with his wife and son, and had his second son.

Since coming to NOAA nearly four years ago, Nguyen has provided computer support to the NOAA Grants Management Division, working on the transition to CAMS, which is NOAA's new financial record system. Division chief Michael Nelson credited Nguyen with identifying stumbling blocks, proposing solutions and helping the division keep on a path to meet its deadlines.

Nguyen is also leading the transition from a character-based grants reporting system to a graphics user interface system.

The system is "basically what the Grants Management Division uses to pump out their award document when a grant application comes to their office from a program office," said Lilian Barnes, chief of the Applications Branch at the NOAA Information Technology Center in Landover, Md., and Nguyen's supervisor.

"It's a big improvement," Barnes said. "With the old system, you had to use your keyboard for all the navigation. There was no point and click."

Barnes said Nguyen's technical skills are matched by strong interpersonal skills, which she said are especially important "when you're in a customer-type service where you have to interact with people. He spends at least one day a week, and many weeks more, in the Grants Management Division, providing hands on assistance to all the grants specialists."

Nguyen's approach to his job is simple and straightforward. "I just work very hard, talking with the end users, helping them do their job better and faster," he said.

Vercillo

continued from page 7

Vercillo acknowledged that there are special challenges in working on a weather system that must stay in operation 24 by 7. "The 3 a.m. calls can be a little disrupting," he joked, "but the important thing is to keep the program operating."

He also pointed out that having 159 separate sites, each with individual operations needs and resources, can be challenging. "Each system is customized differently, and when a glitch occurs, you have to determine whether it is the generic system or the customization," he said.

When not working on AWIPS, Bruno dedicates his time to coaching his daughter's hockey team, and coaching or cheering for his son during soccer and hockey games.

"I was surprised at being selected team member of the month," he said. "It's really a team effort, and I feel that other members of the team have worked just as hard on the same projects."

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