

Joint Institute Scientists Win Presidential Early Career Awards

—By Barbara McGehan

Two scientists from a NOAA-cooperative joint research institute in Boulder, Colo., Steven S. Brown and Thomas M. Hamill, have received Presidential Early Career Awards for Scientists and Engineers.

Both scientists are research associates with the Cooperative Institute for Research in Environmental Sciences, a joint institute of NOAA and the University of Colorado at Boulder.

The award is the highest honor given by the U.S. government to scientists and engineers at the beginning of their careers.

Brown and Hamill are among 60 young scientists nationwide to receive the Presidential award, which includes a monetary award of \$50,000 to be distributed over the next five years to further their research.

Brown was recognized for his scientific work both in laboratory investigations and in field studies of the Earth's atmosphere. He pioneered the use of an entirely new method for detecting trace atmospheric gases. Using the cavity ring-down spectrometer, he has measured previously inaccessible, short-lived and highly reactive chemicals in the atmosphere. Through subsequent innovations in
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John Schaefer

NOAA meteorologists (left to right) Thomas Niziol, Joel Cline, Randy Graham, James Campbell, Timothy Barker, Larry Dunn and David Schultz are joining forces with university and private sector colleagues to forecast the weather for the 2002 Winter Olympics.

NOAA Team Forecasts Olympic Weather

—By Andrew Freedman

Along with the thousands of athletes, spectators and media, a unique group of meteorologists will descend upon Salt Lake City, Utah, in February for the 2002 Winter Olympic Games.

Unlike previous Olympics where the host government was solely responsible for all the weather forecasting, this games' weather support group is made up of more than 50 people from both NOAA and the private sector, with over 700 years of combined experience.

Thanks to an unprecedented partnership between the National Weather Service, the University of Utah's Department of Meteorology and 13 private meteorologists under contract to KSL-TV, the local NBC affiliate in Salt Lake

City, the games will benefit from the best weather information available. Many years in the making, the partnership will help ensure that no one is caught off guard by the notoriously fickle mountain weather of the Wasatch Front region.

Based out of the weather operations center located at the Weather Service forecast office in Salt Lake City, each partner has its own unique role in supporting the Olympic Games.

The Weather Service will be responsible for preparing special transportation corridor forecasts and canyon avalanche forecasts that will be used to enhance public safety on the mountain roads leading to and from the venues, as
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National Weather Service Supports Homeland Security

—By Curtis D. Carey

For the NOAA meteorologists assigned to watch over the weather for New York City, their lives since Sept. 11 have been anything but commonplace.

Along with many others in NOAA, Weather Service forecasters in New York immediately responded to the Sept. 11 attacks as the country's attention was riveted to events on Manhattan, at the Pentagon and in Pennsylvania.

Meteorologist in charge Michael Wyllie faced the most intimidating mission of his career—provide weather support for an intensive recovery effort in downtown Manhattan.

Wyllie said the duty has been one of the most humbling experiences of his career. Drawing on his 14 years as a forecaster for New York City, he said the duties were

remarkably extraordinary.

“We are all professionals,” he said. “We do our jobs in a calculated scientific fashion. But no amount of training or experience can prepare you for what your heart is telling you when you look at the radar image and know a storm system is moving toward hallowed ground, a place where people are still risking their lives today in the recovery and clean up efforts. It's awe inspiring.”

Forecast offices around the country drill for emergencies like this and maintain strong working relationships with emergency managers.

“We face challenges every day as forecasters. But when you are charged with protecting recovery crews, it gives you new inspiration to go beyond what you thought you were capable of doing. I know the staff here is dedicated to do whatever it takes to meet this challenge,” Wyllie said. “We are most fortunate the weather has cooperated over New York City. *continued on page 8*

President Awards

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the instrument design, Brown improved the sensitivity of the technique by over two orders of magnitude. This opened the door to the measurement of chemicals that are present in the atmosphere in very trace amounts, including for example, the very first measurements of some key members of the nitrogen oxides family.

His research directly addresses important national issues such as regional air quality and global issues such as stratospheric ozone depletion and climate alterations.

Brown received his undergraduate degree from Dartmouth College and his Ph.D. from the University of Wisconsin.

Hamill, a meteorologist who works at the joint institute's Climate Diagnostics Center, was recognized for research in understanding what causes errors in weather forecasts.

With a doctorate in atmospheric science from Cornell University, Hamill studies ensemble weather forecasting. Previously, forecasters relied on their computers to produce one best guess at tomorrow's weather. Using ensemble forecasting, computers generate multiple forecasts of what tomorrow's weather may be. This technique is useful for estimating the uncertainty in the forecast.

Hamill's research focuses on new ways of making these parallel forecasts and how to use these groups of forecasts to make accurate probabilistic forecasts. Ensemble prediction is an important area of research because it offers the best hope to improve the accuracy of extended weather forecasts (seven to 14 days) and short-range climate forecasts (14 to 30 days).

The awards will be presented in Washington, D.C., at a date to be announced by the White House. ☺



NASA

NOAA Administrator Conrad C. Lautenbacher, Jr., (left) and NASA Administrator Sean O'Keefe admire a GOES image in the NASA Administrator's conference room after a recent meeting on interagency cooperation.



Paul Sperry/CIRES

Lynn Walloch.

Lynn Walloch Is the Team Member of the Month

—By Annette Varani

After nearly 29 years at the Cooperative Institute for Research in Environmental Sciences, NOAA liaison and assistant to the director Lynn Walloch is known to insiders as a one-stop academic contact for questions on joint institute administration issues.

Since the institute is the oldest of the NOAA joint institutes affiliated with NOAA's Office of Oceanic and Atmospheric Research, Walloch has served the longest and has the most experience of anyone in her position.

Her leadership, however, is not solely about longevity.

"Competence and dedication" are the superlatives that one hears most about Walloch's performance.

"Lynn's very knowledgeable and can speak to almost every subject," said her counterpart at the Joint Institute for Marine Observations, Pat Jordan. "When lawyers and other functionaries are involved, Lynn can relay the issues in a way that's efficient and productive, and

that doesn't trigger negativity," Jordan said.

Because she knows the system so well, Lynn has been instrumental in helping to change and build in flexibility in the cooperative agreements," Jordan said. For instance, joint institutes now have the ability to transfer funds internally within various budget categories without having to go through a lengthy NOAA review, something Walloch facilitated.

Walloch is also known for mentoring new participants in the joint institute system.

"I've seen her in action," says another colleague, Ingrid Quertermous, who serves the same function as Walloch at the Joint Institute for the Study of Atmosphere and Ocean. "She's always there to help and can think on her feet. Lynn wants things to work for everyone and because she has a deep and comprehensive view of both the big picture and the details, she knows what's possible."

"I have done a little of everything," Walloch said with a laugh, thinking over her long tenure at the joint institute. She started at the University of Colorado School of Education in 1972, working on contracts and grants for a teacher education program that was soon cut.

Having joined the Cooperative Institute for Research in Environmental Sciences front office in 1973, Walloch has seen the institute grow from some 36 to 550 employees.

Unofficially, Walloch is well known to be the institute's social director with a civic-minded approach. For instance, Walloch handles the Christmas party every year, organizing along the way a program of giving with the Boulder Social Services Family-to-Family Program (formerly Adopt a Family).

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Russ Wendt/NOAA

Lance Seman.

Lance Seman Is NOAA's Employee of the Month

—By Dane Konop

Lance Seman, the senior systems engineer at NOAA's satellite tracking station in Fairbanks, Alaska, is the February Employee of the Month.

His supervisor, James Budd, said Seman is the kind of employee who proposes solution to problems often before others even recognize there is a problem.

The Fairbanks station and another in Wallops, Va., command and control NOAA's two polar orbiting satellites that circle the Earth in a nearly north-south orbit, mapping the entire globe every 24 hours. The satellite pair provides scientists with a wide variety of data for research and monitoring purposes, including measurements of ozone and other greenhouse gasses in the upper atmosphere, sea surface temperatures and ice flow conditions.

But because of geography and language, the operators at the NESDIS Satellite Operations Center in Suitland, Md., had a

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Focus On...

The Rescue of a Stranded Orca

—By Robert Steelquist and Nancy O'Donnell

For five days in early January, staff from NOAA's Olympic Coast National Marine Sanctuary, along with other members of the Northwest Marine Mammal Stranding Network and marine mammalogists from the U.S. and Canada, struggled to save two beached orca whales within the shallow waters of Dungeness Bay near Sequim, Wash.



Mary Sue Brancato/OCNMS

Whale rescuers attach a tow harness to a stranded male orca in shallow waters off Dungeness National Wildlife Refuge along the Strait of Juan de Fuca in Washington state.



Mary Sue Brancato/OCNMS

An unidentified rescuer stabilizes the stranded male orca whale as it is slowly towed into deeper water. The whale was eventually freed.

Curious bystanders and the news media lined the shore along various rocky overlooks to follow the dramatic rescue efforts.

"It was really the who's who of the whale research and rescue world working tirelessly together," said Carol Bernthal, Olympic Coast sanctuary superintendent.

Although the bay is outside the sanctuary's boundaries, the Olympic Coast sanctuary is part of the marine mammal stranding network and routinely follows up on reports of dead or injured marine mammals in close cooperation with the National Marine Fisheries Service and state agencies.

The rescue began after the first "orca in distress" call was received Jan. 1, when two orcas were reported trapped in Dungeness Bay, unable or unwilling to find their way to the open ocean. By the next day, the Dungeness National Wildlife Refuge staff confirmed that a live male orca was stranded. A stranding network team, including sanctuary staff, mobilized immediately.

The rescuers faced a narrow window of opportunity in any attempt to re-float the live male during the high tide of late afternoon on Jan. 2. At the end of the day during the first rescue attempt, the male slipped out of his makeshift tow harness once in the deeper water of the bay. In the darkness, the team couldn't determine whether the whale had successfully made his way out the bay's narrow opening.

Later that night the male was discovered re-stranded in the bay, fortunately on the property of retired veterinarian and former sanctuary advisory council chairman, Dr. Pete Schroeder, who immediately notified the sanctuary of the new stranding.

Sanctuary staff members Mary Sue Brancato, Ed Bowlby, Liam
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Antrim, Andy Palmer and John Calambokidis of Cascadia Research gathered up buckets, sheets and towels and rushed to the scene to make sure the whale remained wet overnight.

“We stood by the animal in silence at first, allowing him to adjust to our presence before putting wet towels and sheets on him,” said Brancato. “Listening to him breathe and call in distress was heart-wrenching.”

In a different part of the bay on the same day, sanctuary staff had located the dead female orca and towed the remains to a location where a team of biologists and veterinarians gathered to perform a necropsy.

By Jan. 3, several attempts to tow the male into deeper water were made. However, with each effort the male slipped out of the tow harness and consistently took a westerly course that stranded him again along Dungeness Spit, still within the bay.

On the third evening of the orca rescue, a team of biologists again provided round-the-clock care of the stranded male.



Mary Sue Brancato/OCNMS

Whale researcher John Calambokidis (left) of Cascadia Research and Ed Bowlby, research coordinator at NOAA's Olympic Coast National Marine Sanctuary, prepare to load the body of a dead female orca onto a trailer as a curious kayaker looks on.

The next morning, sanctuary staff joined with the others in a final and successful rescue attempt. While sanctuary advisory council coordinator Andy Palmer skippered the vessel *Tatoosh*, Bowlby slipped into the water as one of the rescue team divers and helped attach a more secure towing sling to the stranded male. With the orca secured, Palmer towed him gently eastward out of Dungeness Bay. Alongside *Tatoosh*, three Washing-

ton Department of Fish and Wildlife boats provided escort.

Once the rescue flotilla was clear of the eastern end of Dungeness Spit, they turned westward into the Strait of Juan de Fuca, where the tow sling was removed and the orca freed. Four rescue boats followed the male for over an hour as he swam westward, to assure themselves that he was once again swimming and diving in a more typical orca fashion.

“When we first took him in tow he was very lethargic, but as we moved into deeper water he progressively got stronger and more active and we could feel him exerting a pull on the boat,” Palmer said. “At the same time, there was no sense of his fighting us.”

Successful rescues of stranded whales are relatively rare, particularly orcas, noted Bowlby, research coordinator for the sanctuary.

“Although it was a very exhausting time frame, it was most rewarding to be part of the rescue team,” said Bowlby. “Hopefully we have learned some lessons and will continue to gain more knowledge about these unfortunate orca strandings to help us in the future.” ☺



Mary Sue Brancato/OCNMS

Dyanna Lambourn, a biologist with the Washington State Department of Fish and Wildlife, and John Calambokidis of Cascadia Research prepare to take tissue samples from a female orca that died after becoming stranded.

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well as for putting out its standard suite of forecast products.

Buttressing the staff at the Weather Service forecast office will be five NOAA meteorologists from around the country with unique expertise in the northern Utah forecasting environment.

"Our team members have significant experience in dealing with mountain and winter weather," said weather support group member Tom Niziol, science and operations officer at the Buffalo, N.Y., forecast office.

"Our collective goal here is to keep those who are coming to the 2002 games weather wise and weather safe," Niziol said.

The Weather Service forecasters who are concentrating on the transportation corridors will be aided by the University of Utah, which is acting in the role of data provider. The university has placed meteorological sensors at each of the outdoor venues and has partnered with numerous cooperating agencies to administer about 250 weather stations in northern Utah, which are a component of the larger "meso west" network of more than 3,000 stations throughout the western United States.

These data go onto the Web and are made available to everyone involved in forecasting the weather during the games.

Meteorology faculty and students from the university are providing data to the forecasting teams. The university has also developed high resolution analysis and forecast models that will be used to help forecasters monitor the highly variable conditions throughout the Olympic venues.

The private sector component comprises 13 private meteorologists who will work under the leadership of Mark Eubank, chief meteorolo-

gist at KSL.

The private meteorologists will take the data gathered by the university and the Weather Service and make highly specific forecasts for each Olympic venue.

These meteorologists will operate remote "weather offices" at each of the five outdoor venues. They will also have personnel collocated with the Weather Service forecasters in the weather operations center.

"The venue forecasters and other team members will be greatly aided by FX-Net, a product of the NOAA Forecast Systems Laboratory in Boulder, Colo.," said Andy Edman, chief of the Weather Service's western region scientific services division. "FX-Net is a PC-based weather display system that will be used to link the venue forecasters with the forecasters in the operations center. It helps to ensure that all forecasters have access to the same weather information as they provide their forecasts for the games."

Mitt Romney, president of the Salt Lake Olympics organizing committee, credits the weather partnership with playing a crucial role in the Olympic Games. "It's critical to the games to be able to have accurate weather forecasts on basically a minute-by-minute basis. We need to know whether spectators should come up to a venue and to determine whether there's any risk of avalanche or any other kind of problem like that," he said. "We also need to make sure that the skiers and snowboarders and other participants know exactly what the conditions will be so we can determine whether to maintain an event or cancel it, postpone it, based upon weather considerations."

Western region deputy director James Campbell said that the key challenge from the beginning has been to ensure a consistent mes-

sage. "That's been one of the main focuses during the past three years. We've done quite a few things to make that happen," he said.

Campbell credits FX-Net with providing a way for all forecasters, both at the Weather Service forecast office and at the venues, to view the same weather data. "All the partners have been working very hard to make this work. We've just had a great relationship with everybody over a three-year period when we've been meeting almost once a week. I'm very confident that we've got a good system in place here that's going to do a great job for the Olympics."

Niziol, who helped forecast the epic lake effect snowstorm in Buffalo, N.Y., this past December, said the large degree of variability throughout the Olympic venues poses difficulties for forecasters.

"You're dealing with a tremendous change in weather just in traveling from the airport to the mountains where many of the venues are located," he said. "We'll be dealing with the potential for heavy snowfall and icy conditions along with other elements as well, such as canyon winds which can develop and produce very strong wind conditions in certain weather patterns," he said.

"Whether you're an athlete or a spectator, knowing what's happening with the weather is extremely important because those ever-changing winter weather conditions can make or break the Olympic Games," Niziol said. "We certainly take the responsibility of preparing the public very seriously. We'll be using cutting-edge technology as a result of a decade-long modernization program in the Weather Service. We've come a very long way, even from the '96 Olympic Games as far as the technology and the communications systems that will be available to forecasters as

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Seman

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polar orbiter problem.

Every 24 hours, two or three of the 14 passes made by the satellites could not be tracked from either the Virginia or Alaska centers. Instead, these passes had to be tracked from a ground station in Lannion, France, which then relayed the data to Suitland for processing and distribution to users.

But oftentimes the data were “noisy and intermittent,” Seman said, resulting in readings that could trigger false alarms that there was something wrong with the satellite.

Time zone differences and language problems exacerbated the problem.

Searching on the Internet, Seman found a research station in Barrow, Alaska, run by NOAA’s Climate Monitoring and Diagnostics Laboratory that he felt could serve as the site of a station to track the polar orbiter during the daily “blind passes.”

Last May, Budd and Seman were called to a meeting at the Satellite Operations Center on a totally different issue.

Before the two of them left Alaska, Budd said, “Lance brought up the idea of putting a station in Barrow. I said, ‘When we get to Suitland, let’s propose it.’ But before we had the opportunity, they announced they had a tracking problem. And we said, ‘Well, do we have a deal for you.’”

Budd says Seman was the ideal engineer for the job, with an extensive background in satellites.

Seman grew up in Chincoteague, Va., near Wallops, where his father is the station manager of the NOAA satellite tracking station.

While working as a contract technician for NASA at its satellite facility at Wallops, Seman earned a

B.S. in engineering at the University of Maryland. He also worked at NASA’s Goddard Space Flight Center in Greenbelt, Md., before coming to NOAA in 1998, this time as a federal employee.

The Barrow research station he had found on the Internet is a small building that houses atmospheric monitoring instruments operated by two technicians.

According to Budd, Seman got the NOAA laboratory’s enthusiastic support for establishing a tracking station at the research site, generated the systems specifications and initiated the procurement, which was awarded to Sea Space Corporation.

He then worked closely with Sea Space engineers to see the project through to completion.

Because construction equipment needed to add the three-meter antenna and ingest terminal at the Barrow site could only be moved into place when the surrounding permafrost was frozen, the work had to be done in the winter months.

“An installation in the middle of winter in Barrow, Alaska, is not an easy thing,” Seman said. “We needed front end loaders and a bunch of heavy equipment. We had electricians up there running power. We had a construction crew putting the foundation together. And I was working with the various contract teams to get all those things in place. A lot of things had to come off at the right time. That was one of the most difficult things—making sure that there were no hidden problems ahead of time, that we didn’t get to Barrow and suddenly find we couldn’t do it because of some reason.”

Only seven months after Seman suggested the solution, the installation was completed Dec. 14., allowing NOAA complete command and control of the polar orbiters around the clock. ☺

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well as spectators and athletes themselves,” he said.

Coordination of the diverse weather team will be accomplished through twice daily conference calls as well as FX-Net and other computer programs. The forecasters will work shifts and will each be responsible for forecasting for the different interested sectors.

Thomas Potter, the weather coordinator for the games, will oversee operations from the main Olympics operations center in downtown Salt Lake City. He said coordination calls among all the team members at 5 a.m. and 3 p.m. local time each day will ensure that everyone is together on the forecasts. “Weather affects each of the venues differently,” Potter said. “We’ll have the big weather picture coordinated well at least twice a day.”

David Toronto, Salt Lake City’s warning coordination meteorologist, has been working with the emergency management community, helping to prepare them for some of the weather possibilities. Toronto said that the massive security operation has its own weather needs, which will be met by both the Olympic weather partners as well as the forecasting team at nearby Hill Air Force Base. He said that the challenge will be to ensure that both the Air Force forecasters and the other meteorologists have access to the same diverse array of data.

Weather Service western region director Vickie Nadolski said the biggest reward of working on the Olympics weather will be the experience. “We’ve never done this before. This is going to be a model for maybe what’s to come with future Olympic Games. This is going to be a model for how it can be done,” she said. ☺

Homeland Security

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We've only dealt with minor rains and one weak winter storm. Someone has been looking out for us."

According to Weather Service director Jack Kelly, the entire weather forecast process helps support homeland security.

"Helping emergency officials respond to chemical, biological or radiological threats is as institutionalized as a tornado warning," he said.

Kelly sees the agency's role adapting to meet the new realities of homeland security. "From running dispersion models to forecasting the weather, we are a critical link in homeland security. We are also part of the first line of defense by providing direct warnings to the public through NOAA Weather Radio," Kelly said.

NOAA Weather Radio broadcasts critical life saving information 24 hours a day from over 650 transmitters nationwide, warning the public of natural hazards and civil emergencies ranging from severe weather to chemical releases.

During an emergency, Weather Service employees interrupt routine programming and send out a special tone that activates the radios in specific listening areas.

Weather Radio weather warnings are also heard over commercial and public television and radio stations through the Emergency Alert System, previously called the Emergency Broadcast System.

Some Weather Service offices are exploring automated methods to broadcast civil emergency messages. The Seattle forecast office is currently testing a way to connect the system directly to NOAA Weather Radio, allowing for faster warning of civil emergencies.

"NOAA Weather Radio broadcasting these civil emergency messages ensures that if the public

Walloch

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Her outstanding ability to garner donations resulted in recognition as the institute's outstanding community donor" in 1999.

"That year," Walloch recalls, "Social Services had arranged housing for a single mom and four kids who needed everything for the home." By the time Walloch was finished working on the cause, seven families were outfitted. "People gave everything from major items like beds down to the nitty gritty of pots and pans." Walloch says.

Walloch first collects wish lists from Social Services and then gathers pledges from institute members scattered across three campuses.

She goes to great extremes to match the wish lists item for item, negotiating with store managements when necessary to procure a child's dream. Walloch even makes sure that every cent pledged is spent on gifts, asking for donations of wrapping paper and other overhead costs.

Walloch's civic sense carries forward on weekends and after hours.

She serves on the Broomfield library's board and on the University of Colorado Credit Union Board of Directors as well. She also helps with activities for Broomfield Days," a community program for her hometown.

"When Lynn leaves, it will be a deep loss," Quertermous said. ☺

doesn't get the message through commercial broadcast stations they can get it through us," said Seattle warning coordination meteorologist Ted Buehner. "That could very well mean the difference between life or death," he said. ☺

AMS Honors Four NOAA Scientists

The American Meteorological Society presented awards to four NOAA scientists at its annual meeting Jan. 16.

Michael Foster, meteorologist in charge of the National Weather Service forecast office in Norman, Okla., received the society's Award for Exceptional Specific Prediction for "his decisive, life-saving actions during the March 28, 2000, tornado in Fort Worth, Tex."

Brian Soden, a physical scientist at NOAA's Geophysical Fluid Dynamics Laboratory in Princeton, N.J., received the 2002 Henry G. Houghton Award for "creative and thoughtful use of observations from multiple satellite sensors to better characterize the climate system's radiative and hydrological balances."

Christopher Landsea, a research meteorologist with NOAA's Atlantic Oceanographic and Meteorological Laboratory in Miami, Fla., and Thomas M. Hamill, a research meteorologist at the Climate Diagnostic Center at the NOAA Cooperative Institute for Research in Environmental Sciences in Boulder, Colo., received 2002 Editor's Awards. ☺

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