NOAA REPORT

Vol. VII, No. 8 www.publicaffairs.noaa.gov/nr August 1998

NOAA Plays Major Role In Balloonist's Rescue: The emergency signal from U.S. hot-air balloonist Steve Fossett's emergency beacon was first detected by the international Cospas-Sarsat search and rescue system on August 16. Fossett's balloon had fallen into the southern Pacific Ocean during a severe storm while he was attempting to go around the world.

NOAA represents the United States in this program, provides satellite platforms and ground equipment, and operates the U.S. Mission Control Center.

News Briefs

The key to his survival, Fossett said, was getting out of the balloon with the satellite EPIRB beacon and the small life raft so that he did not suffer from exposure.

China Uses NOAA Technology to Battle Floods : The recent floods along the Yangtze River in China have been devastating. Over the years, NOAA has assisted the Chinese government with technology to help that nation's meteorologists predict and help mitigate such events.

For example, NOAA's National Weather Service entered into an agreement with China's Ministry of Water Resources to implement the NWS River Forecast System for the Huai River. This system became operational in the summer of 1995. During the summer of 1996, the Huai River experienced major flooding similar to the floods currently being experienced on the Yangtze.

Incident meteorologist David Rittenberry assembles weather observing equipment in the Apalachicola National Forest in Florida last May, as wildfires plagued part of that state.

Wildfires Give Chance to Use New Forecast Technologies

Wildfires are deadly and devastating scenes. They are a combat zone with flames on the horizon and smoke in the air, sometimes near a major city, but more often deep in the forests.

Nearby, National Weather Service incident meteorologists are doing their job. But, behind the scenes, there are hundreds of other NOAA employees supporting the fire fighting community.

The recent outbreak of wildfires in Mexico, Guatemala, Florida and Texas provided an unprecedented opportunity for many NOAA offices to protect lives and property.

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RECYCLED PAPER

Garcia: Clean Water Plan a Major Priority

NOAA and other federal agencies are working to implement the Clean Water Action Plan, a sweeping effort to make the nation's waters swimmable, fishable, and drinkable, announced by President Clinton and Vice President Gore in February.

The plan identifies 111 key actions designed to strengthen existing programs and support an accelerated effort to attack the nation's remaining water quality problems. Organization of the plan is based on watersheds around the nation.

The Clean Water Action Plan unifies the efforts of NOAA employees, currently participating on Action Teams, directly responsible for completing tasks outlined by the plan. The NOAA Clean Water Committee has met twice to coordinate the efforts of the line offices in improving watershed health.

"The Clean Water Action Plan is a tremendous opportunity for the federal government to partner with states, local governments, tribes, and the public to make real improvements in the nation's water quality," said Terry Garcia, NOAA deputy administrator. "The people from NOAA and other agencies involved in the initial planning have set up an excellent framework for our future efforts. Soon many parts of NOAA will be involved in the 'action' of the Clean Water Action Plan."

Restoring & Protecting America's Waters

CLEAN WATER ACTION PLAN

Updates on the plan will appear in the NOAA Report including; more details on NOAA's key actions, an overview of state-developed Unified Watershed Assessments which identify water-

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Fund Established for DOC Victims of Kenya Bombing

The Commerce family was again stung by tragedy this month, when two Foreign Service Nationals were killed and four other Commerce employees were injured in the terrorist attack on our Embassy in Nairobi on August 7.

The Department has established a special fund to assist the families and victims of the attack, helping them provide for funeral expenses, children's educational expenses, hospitalization and rehabilitation expenses, and other needs related to the families' lost income.

Checks should be made payable to the Commerce Employees Fund and sent to the *Federal Employee Education and Assistance Fund, 8441 West Bowles Ave, Suite 200, Littleton, CO 80123.*

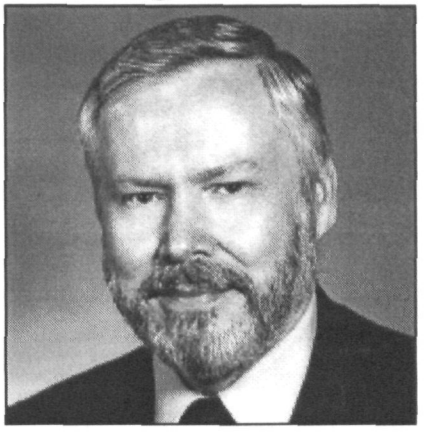
Donations are tax deductible and will be administered by the fund, which previously assisted the victims of the Oklahoma City bombing and the families of the Commerce employees who perished in the 1996 plane crash in Croatia.

Friday Leaves for Nat'l Academy Post

Elbert W. "Joe" Friday Jr., NOAA assistant administrator for oceanic and atmospheric research, retired from NOAA after 38 years of federal service in late June to accept a position as Director of the Board of Atmospheric Science and Climate at the National Academy of Science.

"I have been blessed in that I have enjoyed every assignment that I have had during my federal career, particularly the last year in OAR. This is a tremendous organization, contributing greatly to the Nation. It is truly with mixed emotions that I leave NOAA for new challenges and continued public service at the National Academy of Science," Friday said.

Friday had been the assistant administrator for oceanic and atmospheric research since July 1997, when he left



Elbert W. "Joe" Friday Jr.

his position as assistant administrator for weather services and director of the National Weather Service.

He joined NOAA in September 1981 as NWS deputy director, following a 20-year career in the U.S. Air Force.

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NMFS, Conn. School Work Together on Scallop Experiment

An unusual collaboration between NMFS scientists and Connecticut high school students has grown into a six-month bay scallop experiment aboard board the high school's 56-foot research vessel.

Working on *Catherine Moore*, the research team from the NMFS Milford, Conn., laboratory and students at Bridgeport Regional Vocational Aquaculture School measured and counted out 6,000 small scallops during a cruise to an aquaculture site in Long Island Sound. The students put different numbers of scallops in mesh bags that will hang in the water for six months to test the effect of population density on scallop growth and survival.

"The school has a permitted site for long-line aquaculture and students eager to do projects," explained James Widman, a NMFS research fisheries biologist at the Milford lab. "We have lots of scallops and some questions we'd like to ask about growth and survival."

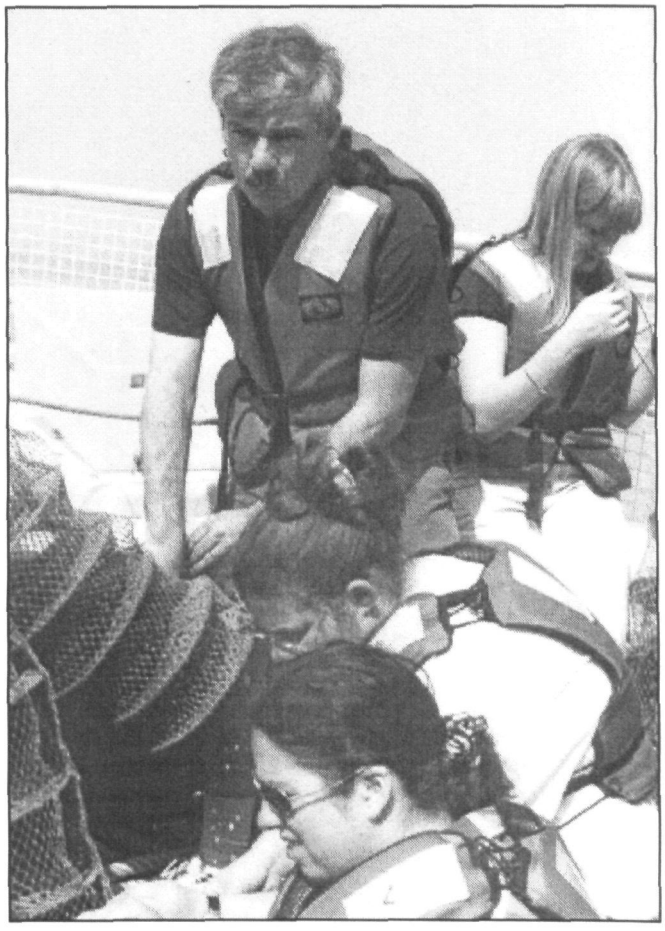
The students involved in the bay scallop project are juniors and seniors who have experience culturing marine and freshwater animals in the school's laboratories. In cooperation with a NOAA-sponsored Chinese scientist who demonstrated long-line culture techniques, the students spawned bay scallops in the lab and grew them out in the Sound two years ago.

"We have demonstrated that Long Island Sound can support bay scallops," said Sherry Lonergan, one of three teachers who run the aquaculture program at the four-year-old Bridgeport school. Now, in collaboration with the NMFS biologists, Lonergan's students are doing scientific tests to measure the efficiency of different culturing methods.

The real-world coursework is helping the students learn about science and simultaneously helping to develop methods that could be used to grow bay scallops commercially in Long Island Sound, where native scallop populations have all but disappeared.

Scientists at the Milford laboratory have an number of studies underway to develop efficient and ecologically sound methods for culturing bay scallops and tautog. They also study growth and survival of scallops, tautog and winter flounder in different habitat types along the Atlantic Coast. Widman's Milford colleagues on the bay scallop density study are Dr. Anthony Calabrese, director of the Milford laboratory, Dr. Sheila Stiles, Joseph Choromanski and Chris Cooper.

—*George Liles*



James Widman, a NOAA reserch fisheries biologist, is putting scallops in a lanternnet with the help of students from the Bridgeport Regional Vocational Aquaculture School. Standing behind Widman sewing up a net is Jen Augustine, a senior at Shelton High School. Foreground sewing a net shut is Julia Garavel, a Fairfield High School senior. Behind her is Nicole Hessberger, a Jonathan Law High School (Milford) junior.

Clean Water Plan Updates Online

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sheds needing remedial efforts, and a report on the health of our nation's watersheds.

You can view the plan and find overall, interagency implementation updates on the Internet at http://www.epa.gov/cleanwater.

—*Dan Dewell*

Focus On...

Florida Wildfires

continuedfrompage1

Whenwildfiresstruckthisyear,staff fromNWS,NESDIS,andOAR's AirResourcesLaboratoryteamedup topreparedailyinformationthat oftenmeantthelifesavingdifference tofirefighters.

UsingNOAAgeostationaryand polarorbitingsatelliteimages, meteorologicalandairquality forecastmodels,andDoppler weatherradarimagery,NOAA'steam providedinformationinpersonand online.NOAAwascreditedwith identifyingthelocationofactivefire hotspots,smokeplumes,smoke trajectories,andoverallwindand weatherforecasts.

Weatherisoneofthekeyingredients inhowafirewillbehave.Accurate forecastsofwinddirectionandspeed stronglyinfluencefirestrategyand helpincidentcommandersmakethe bestdecisionstosafelyandefficiently controlwildfires.Drycoldfrontscan changethedirectionandspeedof thewind,anddrythunderstorms causedownbursts,erraticwind conditionsanddangerouslightning. Marine-relatedweatheraffectsthe winds,humidityandtemperature nearthefireincoastalareas.

FourNWSincidentmeteorologists weresenttotheweatherservice's NationalCentersforEnvironmental PredictionHydrometeorological PredictionCenterinCampSprings, Md.earlythisspring.Theysupplied directweathersupporttotheU.S. fireadvisorsinMexicoandGuatemalaandbriefedstafffromtheU.S. NationalSecurityCouncilonthe fires'status.Whilethere,themeteorologistsalsoeducatedotherforecastersintheuniquerequirementsfor fireweather.

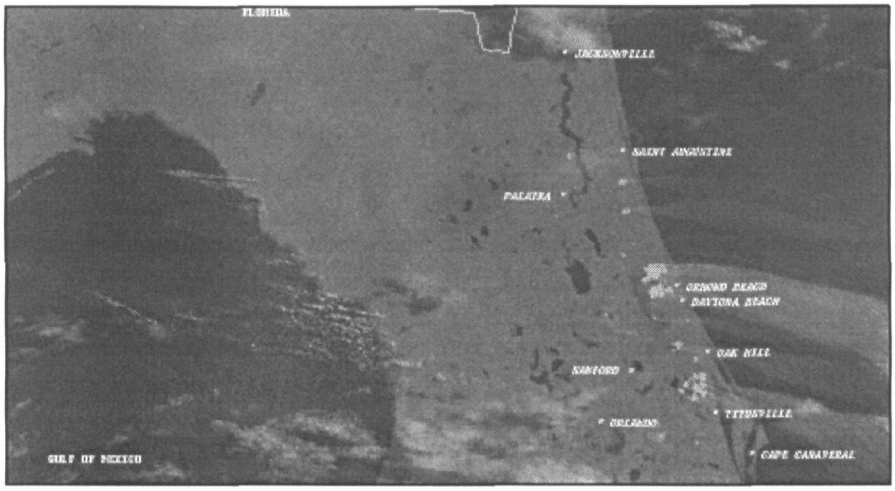
BETTERFEDERALCOORDINATION

"Thenationalcentersprovided forecastguidancethataidedinbetter coordinationbetweenthevarious participatingFederalagencies,the WhiteHouseandlocalNWSfield offices,"saidDaveReynolds,HPC branchchief.

InthemiddleofJune,thefiresin Floridawerespreading.NESDIS meteorologistswerecalledinto servicetoprovideauniqueviewof thefires--onefromthousandsof milesinspace.

ExperiencewithfiresinMexico, Brazil,Indonesiaandelsewherehad shownhowusefulNOAA'sgeostationaryandpolarorbitingsatellites wereindetectingthenumberand extentoffiresandsmokeinremote

IncidentmeteorologistJamesMerrelldownloadsweatherobservationsinthefieldatthe ApalachicolaNationalForestinFloridalastMay.



ThisimagefromtheheightoftheFloridafiresonJuly2,showslargeclustersoffiresnear OrmondandDaytonabeaches,alargecomplexbetweenOakHillandTitusville,and severalsmallfiresnorthofOrmondBeach.Smokecanbeseenstreamingeastwardoffthe coastfromeachclusteroffires.TheimagewastakenbytheNOAA-12satellite.

areas.NESDIS'NationalGeophysical DataCenterinBoulder,Colo.and theOfficeofResearchandApplicationsinCampSprings,Md.detected "hotspots"causedbythefiresand thenseparatedthesespotsfrom smokecausedbythosesamefires.

WhenthecallcamefromtheFlorida DivisionofForestrytotheOfficeof SatelliteDataProcessingandDistributiononJune22,NESDISmeteorologistswerealreadyproducinghot spotandsmokeimageryonacounty bycountybasis.Foreasiestdistribution,theseproductswerepostedto theInternet.

HelenWood,OSDPDdirector,and herstaffprovidedadailyproductionof experimentalhotspotimageryand analyses.Informationfromthese satellite-basedproductswasalsousedin smokedispersionmodelsrunbyOAR.

Duetothissuccessfulteameffort, NESDISmanagementrecently endorsedthedevelopmentofan operationalfireproduct,insupportof NWSandotheragencyrequirements.

Developingforecastproductsthat trackthedispersionofaccidental releasesofpollutantsintothe atmospheresuchasradionuclides, volcanicashorchemicalsisthe responsibilityoftheAirResource Laboratories.Forexample,ARLhas beenprovidingsmokeforecastsfor SoutheastAsia,throughitslinkages withtheWorldMeteorological Organization.

DuringtheMexicanfires,several agenciesmaderegularuseofthe ARLnumericaldispersionmodelsto providedailyparticulateconcentrationsasaresultofsmokeparticles emittedintotheair.

"Thismodelprovidesimportant informationabouttheairquality.As aresult,Texasagenciesissuedregular advisoriesalertingthepublicto potentialhealthdangers,"saidJeff McQueen,ARLmeteorologistin SilverSpring,Md.

"ForFlorida,weagainworkedwith stateandregionalorganizationsto showtheprojectedsmokeplume movementsforthenexttwodays. Thishelpedstateagenciesandthe EnvironmentalProtectionAgency issuehealthalerts,"saidMcQueen.

NWSSouthernRegionHeadquartersinFt.Worth,Texasopeneda24-hourFireWeatherSupportCenterto servicetheneedsofthefieldpersonnelinvolvedwiththeFloridafire effort.Theyalsocreatedspeciallinks andaddedspecificforecastproducts totheirregionalhomepage.

NWScontiguousregionalandfield officestaffsalsoprovidesupport. Theyassurethedeployedforecasters havesatellitedishes,laptopcomputers,cellphonesandotherlogistical supplies.Regionalrepresentatives, incidentmeteorologistsandcentral coordinationofficialsparticipatein dailyteleconferencesduringthefires. NWSforecastofficesprovideroutine

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Internet Communications Lets NWS Spread Fire Weather Information Quickly

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fire weather and site-specific forecasts, and support the meteorologists and fire behavior analysts at wildfires.

"The National Weather Service plays a major role in wildland fire management," said Paul Stokols, NWS National Fire Weather Program leader. "We have a long history, dating back to as early as 1914, of providing direct support to firefighting agencies. During the past few years, as the NWS modernization and restructuring have progressed, we've standardized and improved many services to wildland fire operations," added Stokols.

"By maximizing our forecast capabilities and the Internet, the NWS provided a series of very critical products and services that we know made a difference to those making many critical decisions. An ancillary benefit was that many others were also able to track the fires via the satellite imagery or our forecast products on the Net. The news media and other agencies were promoting and linking to the various NOAA sites everyday," said Stokols.

—*Marilu Trainor*

NWS Incident Meteorologist David Rittenberry improves a sunshield for his laptop computer on site in Apalachicola National Forest in Florida last May.

Watches and Warnings Are Different, Weather Service Reminds

With the U.S. suffering more thunderstorms, tornadoes, flashfloods and other severe weather than any other nation, everyone should pay close attention to the *outlooks, watches*, and *warnings* issued by the National Weather Service and take appropriate action to protect lives and property.

Outlooks: Every morning, the Storm Prediction Center in Norman, Okla. issues outlooks for convective weather (tornadoes and severe thunderstorms). For flashfloods, morning outlooks are issued by the Hydrometeorological Prediction Branch in Camp Spring, Md. Both offices are part of the Weather Service's National Centers for Environmental Prediction.

Watches: The Storm Prediction Center issues watches when conditions are favorable for the development of tornadoes and severe thunderstorms. Local NWS offices have the responsibility for issuing watches for floods and flashfloods.

Warnings: NWS forecast offices issue weather warnings when tornadoes and severe thunderstorms are imminent or are already occurring.

Other Watches and Warnings: The local offices also issue watches and warnings for winter weather and non-precipitation events such as excessive heat, wind chill, dense fog, and high winds.

—*Bob Chartuk*

Got a Story?

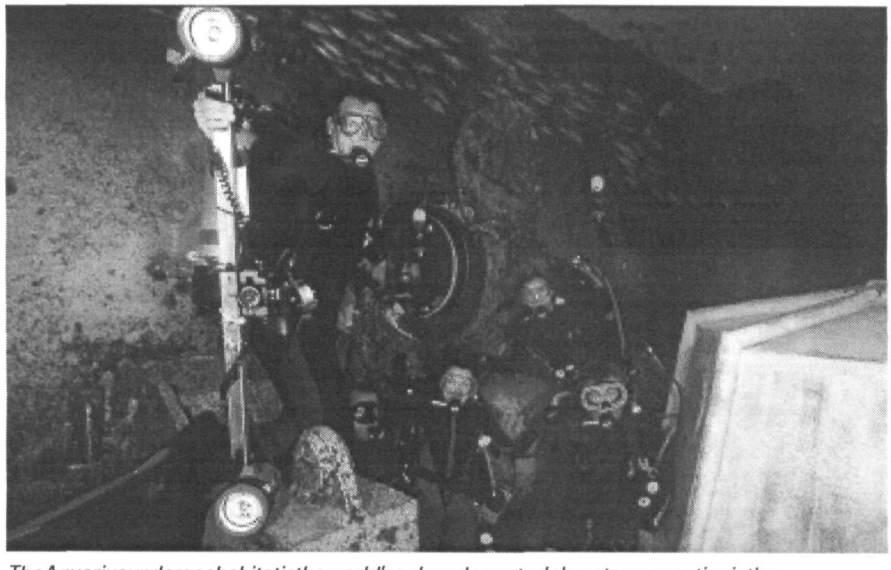
If there's a story about your NOAA office you'd like to tell, contact us by phone at 202-482-6090, fax at 202-482-3154, or by e-mail at *jerry.slaff@noaa.gov* (Internet) or *jerrys@pa@noaa* (Banyan).

Aquanauts Spend Six Days Under the Sea Exploring Keys Sanctuary in Aquarius

Six underwater explorers lived on the ocean floor for six days last month, where they studied the condition of reefs in the deeper waters of NOAA's Florida Keys National Marine Sanctuary. Living much like space shuttle astronauts, these "aquanauts" will work and live in Aquarius—the world's only underwater habitat—located five miles off Key Largo at a depth of 50 feet.

The aquanauts participating in this inaugural mission of the 1998 research season, which began Tuesday, August 5, included Dr. Steven Gittings, the science director of NOAA's National Marine Sanctuary program; Billy Causey, superintendent of NOAA's Florida Keys National Marine Sanctuary; Dr. Sylvia Earle, National Geographic Explorer-in-Residence and former NOAA Chief Scientist; and Dr. Ellen Prager of the U.S. Geological Survey.

"This first mission in the newly refurbished Aquarius will provide information about the condition of U.S. coral reefs in waters deeper than can be routinely reached using surface-based diving techniques," said Steven Miller, associated director of the University of North Carolina at Wilmington's National Undersea Research Program. "It is well known that significant declines have occurred in recent years in shallow coral reef environments in Florida and throughout the Caribbean. However, deeper coral reefs between 60 and 120 feet remain largely unexplored and their condition is not well documented," he said.



WOLCOTT HENRY

The Aquarius underseahabitat is the world's only underwater laboratory operating in the oceans, worldwide. Scientists live in and work from Aquarius surrounded by the equipment and comfort of a modern laboratory. The habitat rests in 60 feet of water in the Florida Keys National Marine Sanctuary.

"The timing of this mission is particularly important in this, the Year of the Ocean, which is focused on making marine resources a priority," said Causey. "This mission affords us the opportunity to better understand the impacts to this vital marine environment, how we affect it and it affects us. A better understanding of the health of this environment is critical to the long term protection of the Florida Keys Sanctuary."

"This Aquarius mission gives us a unique opportunity to learn about the coral reefs as an indicator of the health of the nation's waters," said Dr. Earle. "For the next week, we will become ocean residents, and explore and communicate the connection between the health of the

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WOLCOTT HENRY

Aquarius Aquanauts Billy Causey, Sylvia Earle, Steve Gittings, and Ellen Prager trade places, becoming the "goldfish in the bowl." Throughout their six-day mission, curious barracuda, tarpins, barjacks, and the occasional scuba diver peered into the habitat to see the pecularin haitants within.

Weather Displays a Hit at Aircraft Fair

Participating for the fifth consecutive year, the National Weather Service enjoyed unprecedented success at AirVenture '98, the annual convention of the Experimental Aircraft Association (EAA) in Oshkosh, Wisconsin.

Howard Diamond, NWS Headquarters Office of Systems Operations stafferwho hasled the NWS involvement with the association the past four years, said NOAA and NWS employees staffing the exhibit made more personal contacts and provided more information than in past years. Thanks to the interactive approach, he said, visitors were able to extract real value from the exhibit.

"In this world of The Weather Channel, TV news and the Internet, I think our message—or at least recognition of who delivers that message—sometimes gets lost." Diamond said. "It's at events like Oshkosh and other such gatherings that we can help in being heard and being known.

"At most shows, people pick up brochures and maybe some trinkets and go away maybe knowing who you are, but maybe not. When people stop by our display area and get hands-on demonstrations of the home pages of their local forecast offices and their travel routes, and learn all this is provided by the Weather Service and NOAA, I think it leaves them with a very positive impression of agencies that truly provide services they can use. They've also been impressed with the professionalism evidenced by our displays and operations."

The NOAA/NWS exhibit was part of the EAA's international Federal Pavilion that included 16 agencies from the United States and Canada. Visitor attendance at the pavilion was recorded by the National Park Service (a participating agency) at more than 102,000, an increase of almost 40,000 from the 1997 show. The EAA's convention of private, commercial, and military pilots is the largest gathering of private aircraft in the United States, consistently drawing more than 800,000 visitors and 12,000 aircraft to the town of 60,000. The 1998 convention drew a record attendance of 855,000.

Mostly old hands in aviation, visitors were intrigued by the technology deployed on the two NOAA aircraft on display—a snow survey AeroCommander from the NWS's National Operational Hydrologic Remote Sensing Center (NOHRSC) in Chanhassen, Minn., and a pollution-sensing LongE-Z from NOAA's Air Resources Laboratory (ARL) in Oak Ridge, Tenn.

—Patrick Slattery

Aquarius Aquanauts Explore Keys

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oceans and our own health."

Funded by NOAA, Aquarius is operated by the UNCW's National Undersea Research Center, one of six such centers jointly operated by NOAA and its partner universities. Aquarius was first deployed in the Florida Keys National Marine Sanctuary from September 1993 to May 1996. Since that time the Aquarius system has been completely refurbished in partnership with the Harris Corporation, Melbourne, Fla., and Harbor Branch Oceanographic Institution, Fort Pierce, Fla.

Aquarius makes it possible for aquanaut-scientists to live and work under water continuously during seven-to ten-day missions to study North America's largest living coral reef system. With eight science missions planned for this year, Aquarius is the focal point for NOAA's comprehensive environmental research program aimed at better understanding and preserving endangered coral reef ecosystems in U.S. waters.

Previously, operations were monitored 24 hours a day from a support barge moored above Aquarius. The new Aquarius 2000, however, operates using a stand-alone support buoy that uses telemetry to provide data, audio and video links from Aquarius to shore.

—Justin Kenney

Friday Goes to NAS

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Friday is a fellow of the American Meteorological Society, the recipient of the Presidential Rank Award of Meritorious Service, was named the 1993 Federal Executive of the Year by the Federal Executive Alumni Association and received the American Meteorological Society's 1998 Cleveland Abbe Award for Distinguished Service to Atmospheric Sciences by an Individual.

NOAA Report is a monthly publication for NOAA employees from the Office of Public Affairs, Washington.
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July 23, 2010