NOAA REPORT

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Heavy NOAA Impact at Rio

The oceans and atmosphere sections of Agenda 21, the resolution adopted at last month's Earth Summit in Rio de Janiero, Brazil, were heavily influenced by NOAA science and negotiators.

"We did lots of homework before Rio, and it paid off," said David Cottingham, director of the Office of Ecology and Conservation, part of the Office of the Chief Scientist, and a negotiator on the American delegation.

NOAA's involvement in the Agenda 21 negotiations began in August 1990. Agenda 21, a non-binding agreement signed at the summit, is "an action plan for nations and intergovernmental bodies, a roadmap showing where we have to go in the next ten to 15 years," Cottingham said.

Many NOAA priorities made it through the intricate negotiating process to the final document. "We were more aggressive on the oceans section than on any other," Cottingham said. Among NOAA successes were sections on coastal zone management, marine pollution, and the conservation of marine life. One section concerning

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NEWS BRIEFS

NOAA Moves to Protect Civil War Shipwreck: A June NOAA draft plan for managing the national marine sanctuary that protects the wreck of the Civil War ironclad U.S.S. *Monitor* holds out the possibility of recreational diving to the historic wreck.

The *Monitor*, which sank 16 miles off the coast of North Carolina during a gale in 1862, has been protected since 1975 when it was designated the country's first marine sanctuary. Since that time, only research diving has been permitted.

"There is a distinct possibility," said Trudy Coxe, head of the NOAA marine sanctuary program, "given proper safeguards to protect the wreck. . .that some form of non-research diving may be permitted at the site."

The wreck lies in 220 feet of water, close to the practical limit for scuba diving, even for experts.

Increase in Seafood Consumption in 1991: Americans ate more than 3.5 billion pounds of seafood in 1991, an increase of 6 million pounds from the 1990 figures, according to a NMFS study.

The per capita consumption of seafood, however, remained relatively stable last year at 14.9 pounds, a decrease of 0.1 pounds from 1990.

Plumes in Siberian Sea Believed to be Clouds, Not Methane: A NOAA investigation of massive atmospheric plumes, which appear periodically on satellite pictures as eruptions from the East Siberian Sea, has concluded the plumes are clouds, not streams of methane gas escaping from the seafloor as scientists previously believed.

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Doppler Radars Excel in Tests

The first two of the NOAA Weather Service's new Doppler radars have proved to have eight times the resolution, twice the range and 16 times more sensitivity than conventional weather radars now in use.

NWS forecasters using the new radars reported strong improvements over conventional radars in warning accuracies and greatly reduced false alarms on severe weather warnings.

The two test sites, in Norman, Ok. and Melbourne, Fl., have seen tornado warnings reach up to 20 minutes, as well as an unprecedented 40-minute warning of an approaching

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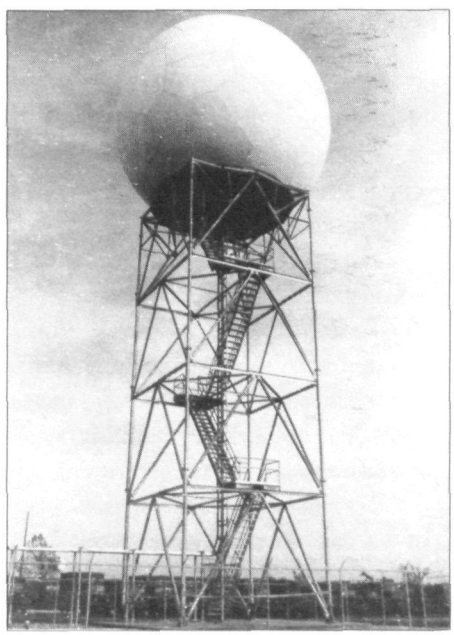


A Doppler radar installation

ADMIN CORNER

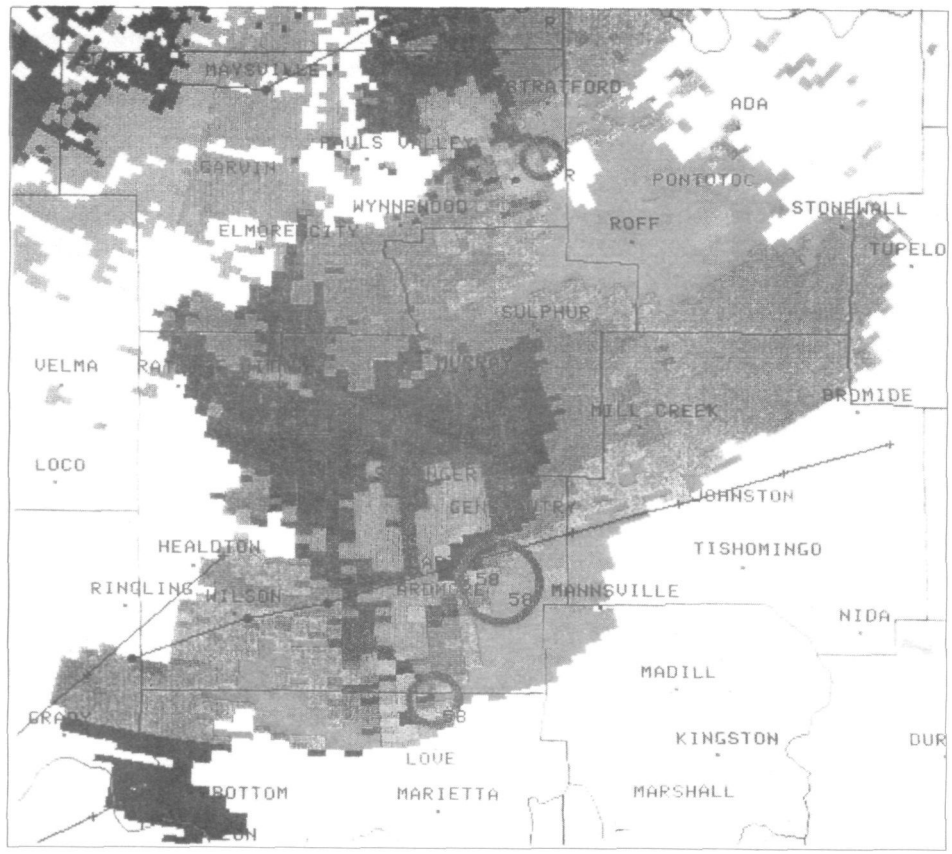
Admin Links You With Your Goals

Just about anything you do in your job requires at least one administrative step, a necessary part of Government business. Whether it's replacing a desk or designing and building a new facility, hiring a temporary employee or totally reorganizing your office, or processing a travel voucher or implementing a new accounting system, administrative processes are a necessary link between program goals and program accomplishment. NOAA's Office of Administration (OA) is a vital part of the agency, helping you to navigate the often intricate administrative system.

OA provides these and many other services to NOAA through two major divisions: its headquarters (Capital area) offices and the Administrative Support Centers (ASCs) located in Norfolk, Kansas City, Boulder, and Seattle.

We're involved in some exciting projects. For example, our facilities program is heavily involved in developing and designing a new building in Boulder, continuing the consolidation of capital area offices in Silver Spring, relocating NOAA Corps Aircraft Operations in Florida, considering alternatives for bringing existing scientific offices on the west coast to one place, and developing potential sites for a capital area science center.

In OA, our goal is to provide service and support to all of NOAA in an effective and professional manner. We like to think we are doing our jobs well, but we can always improve—and your thoughts can only aid in the pursuit of our goal. ❐



A Doppler image of the velocity of a tornado storm in central Oklahoma on March 21, 1991.

NWS Accepts First Two Doppler Systems

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severe thunderstorm.

"The performance of these radars is a major milestone in the modernization of the weather service," said Joe Friday, NOAA assistant administrator for weather services. "They have passed reliability and maintainability tests with flying colors."

The new radars, to be installed at 145 locations around the country in the next four years, were available 98.9 percent of the time during reliability testing, and minor faults averaged repair times of less than 30 minutes.

Early Storm Analysis

Unlike conventional radars, the Dopplers can measure speed and direction of winds—even inside forming storms. The radars gather data on the location, intensity and movement of severe weather and quickly process the information, permitting forecasters to detect and analyze storms at their earliest stages of development.

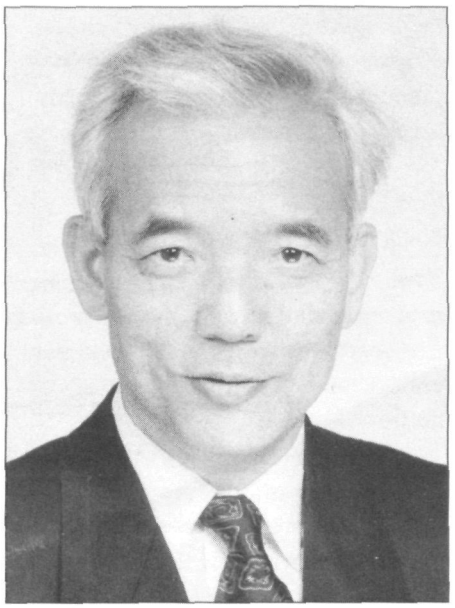
The report of the operational results comes as NOAA accepts the first two—at Sterling, Va., and Houston, Tx.—of 159 Doppler systems.

Still In Infancy

The new radar program, while still in its infancy, has already saved lives and is quickly becoming the most significant improvement to the weather service's ability to provide warnings of severe weather since the weather satellite.

For decades, the NOAA Weather Service has relied on World War II-era radar technology to issue warnings of severe weather. While these radars can detect precipitation, they can't identify tornados and severe storms as they develop. The Doppler radars, however, can detect severe storms and tornadoes even in their embryonic stages. ❐

Two NOAA Scientists Win Major Awards



Dr. Syukuro Manabe

Two NOAA scientists have recently won distinguished awards for their work. Here are profiles of Dr. Susan Solomon, Aeronomy Laboratory, Boulder, and Dr. Syukuro Manabe, Geophysical Fluid Dynamics Laboratory, Princeton.

Dr. Susan Solomon

Dr. Syukuro Manabe, head of the climate dynamics division at NOAA's Geophysical Fluid Dynamics Laboratory, was honored at the Earth Summit last month as the winner of the inaugural Blue Planet Prize. The 30-year NOAA/ESSA veteran was selected from a group of 60 international nominees, all authorities on worldwide environmental crises, for his pioneering research into global warming and future climatic change. The award, created by Japan's Asahi Glass Foundation, recognizes outstanding contributions to environmental awareness by an individual or institution.

Dr. Manabe began his work with forecasting and weather systems in 1958 as a research meteorologist at the U.S. Weather Bureau in Washington, D.C. A small group of researchers there were exploring the idea of modeling atmospheric airflow and, after seeing Manabe's publications on the topic, invited him to assist. What the group came up with several years later was the first working replica of the Earth's air circulation patterns—an eye into the complicated sphere of how shifting gases affect temperatures in our environment.

"The first model was only one-dimensional," said Manabe, "but it represented an extremely important breakthrough in climate modeling. We were later able to study the effects of greenhouse gases by expanding the model into three dimensions."

By the time the first model was finished in 1967, the Weather Bureau had been folded into the Environmental Science Services Administration. Manabe was promoted to Senior Research Meteorologist at ESSA's Geophysical Fluid Dynamics Laboratory and a year later moved with the lab to Princeton, New Jersey where he took on the dual role of Professor at the Atmospheric and Oceanic Science Program.

And there he stayed. When the Environmental Science Services Administration became NOAA in 1970, Dr. Manabe had already been honored with awards from both the American and Japanese Meteorological Societies as well as the Commerce Department's Gold Medal. In 1990, the National Academy of Sciences welcomed Manabe into their ranks for

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Dr. Susan Solomon, senior scientist in Aeronomy Laboratory in Boulder, has recently received two high honors. She was elected to the prestigious National Academy of Sciences, one of the highest honors that can be accorded a U.S. scientist or engineer. The Academy is a private organization of scientists and engineers dedicated to furthering science and its use.

She has also been named one of five recipients of the prestigious Common Wealth Award, for her work in linking man-made chlorofluorocarbons (CFCs) to ozone destruction over Antarctica. The award includes a $25,000 cash prize, a certificate of commendation and a sculptured metal trophy.

Other 1992 award winners are Cable News Network founder Ted Turner, novelist James A. Michener, retired Chief Justice Warren E. Burger, and playwright Arthur Miller.

Solomon, 36, was the first scientist to recognize the CFC-ozone link, leading to an international protocol to phase out the manufacture of the

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"While it appeared from satellite pictures the plumes were streaming directly out of the ice cover around Bennett Island [in the East Siberian Sea]," said Dr. Russell Schnell of NOAA's Climate Monitoring and Diagnostics Laboratory in Boulder, Colo., "on site there was no evidence of them until you were at about 10,000 feet altitude over the island."

Based on geological information, historical records, satellite analyses and knowledge of hydrocarbon reservoirs, scientists had speculated that Arctic warming may have caused methane hydrates, trapped in permafrost at the bottom of the sea, to melt and vaporize into plumes streaming up from the ocean floor.

But analysis of scores of air samples collected from inside and around the plume by Dr. Anthony Hansen of the University of California's Lawrence Berkeley Laboratory did not support the methane theory. Dr. Edward J. Dlugokencky, who did the analyses at the Boulder laboratory, said the methane concentrations—as well as carbon dioxide levels—in the samples were consistent with normal Arctic air.

It is likely, Schnell added, that the Bennett Island plume is an unusual cloud structure related to the topography of the island and the atmospheric conditions in the vicinity.

NEWS BRIEFS

Seattle Center Named Building of the Year: The Building Owners & Managers Association (BOMA) International has selected NOAA's Western Regional Center (WRC) as Building of the Year in the government buildings category in its international competition as the best maintained and operated government facility. The WRC was selected for leadership in preventive maintenance practices, energy conservation, recycling, innovation in electrical and air handling systems retrofits, and for noteworthy accomplishments in community and tenant relations. ❐

Two NOAA Scientists Win Awards

MANABE

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being "the first to bring the panoply of large-scale, computational tools to bear on the question of greenhouse gas warming and the first to analyze and describe many feedback mechanisms responsible for climate change."

The Blue Planet Prize represents yet another step up the ladder of prestigious awards for the scientist who figured out, to the best of scientific ability, the link between higher carbon dioxide levels and increased global temperatures. Asahi presented him with a certificate of merit and a cash award of $370,000 for his lifelong accomplishments.

"In collaboration with the scientists of new generations, I look forward to improving the prediction of future climate change in order to facilitate the development of an effective strategy for dealing with global change," Manabe said in his acceptance remarks.

-Khristine Bershers ❐

SOLOMON

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chemical. "Her work established major new research directions, helped protect the environment and guide regulatory policies worldwide," the award announcement said.

Solomon joined NOAA in 1981 studying interactions between atmospheric dynamics and chemistry, and has become an internationally recognized authority on stratospheric ozone destruction, receiving a number of coveted awards for her work.

—Bill Brennan ❐

Rio Accords Show NOAA Influence

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"selective fishing gear," he added, can be interpreted as mandating turtle excluder devices (TEDs) and similar equipment worldwide.

The atmosphere section was also heavily influenced by NOAA. "One of the keys to Agenda 21 is the idea of 'sustainable development,' especially for the Third World," Cottingham said. "That means better prediction of weather, more information about oceans and coasts, and better uses of natural resources—all areas where NOAA excels.

"While we can't directly provide the services the rest of the world needs—we can't predict weather in the Sudan when we're closing weather service offices here—we can help these countries to build capacity, training their people."

To do that, NOAA and other government agencies are working with the World Bank and the Agency for International Development to help Third World countries get the expertise and technology needed.

"This international effort confirms the idea that NOAA really is the Earth Systems Agency," he added. "These issues cut across national borders, and affect the entire world."

Many NOAA divisions aided in the negotiating effort by providing data. In fact, much of the science used in negotiating the agreements was based on NOAA models and NOAA data, he said. "NMFS did a great job for us, as did NOS on coastal zone management," Cottingham added. "It was a real cross-cutting, NOAA-wide effort that paid off." ❐

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