

**U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE AND TECHNOLOGY
SUBCOMMITTEE ON ENERGY AND ENVIRONMENT**

HEARING

**NOAA's FY 2009 Budget Proposal and GAO's Report on Aviation Weather Service
Tuesday, February 26, 2008
1:00 p.m. to 3:00 p.m.
2318 Rayburn House Office Building**

Purpose

On Tuesday, February 26, 2008 at 1:00 p.m. the House Committee on Science and Technology's Subcommittee on Energy and Environment will hold a hearing to examine the National Oceanic and Atmospheric Administration (NOAA) Fiscal Year 2009 (FY09) budget proposal and the Government Accountability Office (GAO) report on Aviation Weather Services.

Witnesses

Panel 1: NOAA FY09 Budget Proposal

Vice Admiral Conrad Lautenbacher, Jr., Undersecretary of Commerce for Oceans and Atmosphere and Administrator, National Oceanic and Atmospheric Administration

Panel 2: GAO's Report on Aviation Weather Service

Mr. John L. (Jack) Hayes, Assistant Administrator for National Weather Service, National Oceanic and Atmospheric Administration

Mr. Eugene D. Juba, Senior Vice President for Finance, Air Traffic Organization, Federal Aviation Administration

Mr. David Powner, Director, Information Technology Management Issues, Government Accountability Office

Background

The President's FY 2009 budget request for the National Oceanic and Atmospheric Administration (NOAA) is \$4.2 billion, 4.8 percent above the FY 2008 enacted funding.

NOAA's mission includes weather forecasting, climate prediction, management of fisheries and coastal and ocean resources. In addition, NOAA is responsible for mapping and charting our coastal areas and providing other navigation support services through programs of the National Ocean Service (NOS). NOAA conducts research in support of these missions including

atmospheric sciences, coastal and oceanic science, climate and air quality research, ecosystem research, and fisheries and marine mammal research. NOAA also operates a constellation of satellites that monitor and transmit data for weather forecasting, climate prediction, space weather forecasting, and earth and ocean science research through the National Environmental Satellite Data and Information Service (NESDIS). NESDIS also analyzes, processes, and distributes weather and climate data to government and non-government organizations and archives these data for future use.

The table below shows the six primary accounts of the agency’s budget. The line offices receiving increases in the FY 2009 request are the National Weather Service (NWS), the National Environmental Satellite, Data, and Information Service (NESDIS), and Program Support. The Administration’s budget proposal decreases funding for the Office of Oceanic and Atmospheric Research (OAR), the National Marine Fisheries Service (NMFS), and the National Ocean Service (NOS).

FIGURE 1: NOAA FY 2009 BUDGET REQUEST
(In millions of dollars)

NOAA Program	FY08 Enacted	President’s FY09 Request	FY09 Request vs. FY08 Enacted	% Change
National Weather Service	911.4	930.7	+ 19.3	+ 2.1%
Oceanic & Atmospheric Research	398.0	382.6	- 15.4	- 3.9%
National Environmental Satellite, Data, and Information Service	955.1	1157.9	+ 202.8	+ 21.2%
Program Support	445.7	519.1	+ 73.4	+ 16.5%
National Ocean Service*	536.1	488.2	- 47.9	- 8.9%
National Marine Fisheries Service**	829.1	782.3	- 46.8	- 5.6%
TOTAL Direct Obligations***	4075.5	4260.8	+ 340.4	+ 4.5%

* NOS programs are shared jurisdiction with the Resources Committee or not within the jurisdiction of the Committee on Science and Technology

** NMFS is solely within the jurisdiction of the Resources Committee

*** This figure includes appropriated funds plus transfers from fisheries funds

National Weather Service:

The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, adjacent waters, and ocean areas for the protection of life and property. NWS provides a national infrastructure to gather and process data worldwide from the land, sea, and air.

The NWS request is a 2 percent net increase (\$19 million) over the FY 2008 enacted budget. The Administration is requesting \$13.5 million for the Operations, Research and Facilities (ORF) accounts and \$5.7 million for the Procurement, Acquisitions and Construction (PAC) accounts above the enacted FY 2008 budget. While the Administration is requesting an overall increase for NWS, there are a number of reductions for specific line items in both the ORF and PAC accounts. The major proposed increases and decreases in these accounts are discussed below.

The Administration has requested increases of \$33.9 million in the ORF accounts. The majority of the increase (\$22.9 million) is within the Local Warning and Forecasts and includes \$3 million for operations and maintenance of the 15 hurricane detection buoys that were acquired and deployed in FY 2005 and FY 2006; \$2.9 million to upgrade NOAA weather radio; \$6.6 to upgrade the Advanced Weather Information Processing System; and \$4.8 million to convert the data transmission frequency for additional stations in the wind profiler network. The Administration is also requesting an additional \$4.3 million to improve hurricane forecast modeling.

The Advanced Weather Interactive Processing System (AWIPS) is the specialized software package deployed in each of the local forecasting offices that enables forecasters to prepare accurate, timely forecasts and warnings. There has been a demand for increase lead time and more precision in weather, flood, and hurricane forecasts.

The Wind Profiler data improves accuracy and lead times for tornado, severe thunderstorm, flash flood, and winter storm warnings. The increase will also provide technology upgrades to the twenty-year old equipment and assist NOAA in completing the transition of this network to a fully operational system.

The requested increases in the NWS ORF accounts are partially offset by decreases in funding. There are seventeen projects proposed for elimination (\$20.4 million in FY 2008 funding). These projects are designated by Congress for funding and are routinely eliminated by the Administration as "Congressional earmarks." A number of these programs have been funded for many years and support on-going forecasting services (e.g. Susquehanna River Basin Flood System). One of the projects eliminated is the US Weather Research Program's Hemispheric Observing System Research and Predictability Experiment (THORpex), a multi-year international field experiment to improve two to ten-day forecasts being done in cooperation with international partners and numerous US-based research organizations (\$5.8 million).

The requested increase is not sufficient to cover all current forecast and warning activities provided by NOAA in addition to the requested upgrades and operational and maintenance requirements for current weather forecasting equipment. The Agency must also comply with the

requirements of mandatory pay raises for federal employees. When additional funds are not provided to cover these costs, the funding must come at the expense of program funding or through deferred maintenance. This is especially important for the NWS whose forecast and warning operations require a high level of staffing through the network of offices throughout the country. The level of funding requested will not enable NWS to move new monitoring and forecasting equipment from research to fully operational mode.

National Environmental Satellite Data and Information Service (NESDIS):

The President's budget requests a net increase for the National Environmental Satellite Data and Information Service (NESDIS) budget of \$203 million (21 percent). The Administration's budget request for the NESDIS ORF account is \$13.9 million less than the FY 2008 enacted budget. The Administration requests an increase of \$216.7 over the FY 08 enacted budget for the PAC account.

The ORF account for NESDIS contains the programmatic funding for management, processing, analyzing, and archiving the data received from all of NOAA's weather monitoring equipment – both ground-based and space-based. This program account includes funds for data processing and analyses at data centers located in Kentucky, North Carolina, Maryland, and West Virginia. The FY 2009 request reduces funding for the four data centers by approximately 81 percent below the FY 2008 enacted funding. This account also supports a number of regional climate centers and centers that provide data and information services. The Administration's budget proposes to reduce these accounts by \$23.8 million below the FY 2008 enacted budget.

The Administration requests some increases to the ORF accounts for Satellite Observing Systems (\$9.7 million). The requested increases would support the routine replacement and upgrading of ground based equipment and software and to maintain the continuity of data on sea ice used to forecast sea ice changes to support navigation. The largest single requested increase within this ORF account is \$3 million for ocean vector wind studies. This funding would provide information to support the development of a replacement for the data provided by the QuikSCAT satellite used in hurricane forecasting.

The budget for NESDIS is dominated by the PAC account that provides funds for the acquisition of NOAA's weather satellite systems. NOAA operates two satellite systems that collect data for weather forecasting. The Polar-Orbiting Environmental Satellites (POES) orbit the earth and provide information for medium to long-range weather forecasts. The geostationary satellites (GOES) gather data above a fixed position on the earth's surface and provide information for short-range warnings and current weather conditions. Both of these satellite systems are developing a new series and the first of the new satellites must be launched around 2014 to maintain the continuity of weather forecasting data. Increases and decreases in the PAC account reflect the different phases of the design, build and launch of the satellites.

There is a planned decrease of \$49 million below the FY 2008 enacted budget for the last of the current series of polar satellites, NOAA N-Prime, which is scheduled for launch in February 2009. There is also a planned decrease for the National Polar-Orbiting Operational Satellite System (NPOESS), reflecting the post-Nunn-McCurdy funding profile for the NPOESS

program. The Administration is requesting \$288 million for NPOESS in FY 2009 (\$43.3 million less than FY 2008 funding). The funds are to contribute to the tri-agency NPOESS program and be used to continue the development of the NPOESS sensors for the NPP project (NPOESS Preparatory Project) and for the first NPOESS satellite scheduled for launch in 2013.

The budget request for the current series of Geostationary Operational Environmental Satellites (GOES-N, O and P) reflects a \$7 million decrease because GOES-O and GOES-P are in the final stages of development. GOES-N was launched last May. GOES-O is scheduled for launch later this year. The last satellite of this current series, GOES-P is in storage.

The FY 2009 request of \$477 million, a \$242 million increase for the new geostationary satellite series (GOES-R) to support the continued development and procurement of this new series. The GOES-R satellite series was originally scheduled for launch in 2014. However, the reduction in funds included in the FY 2008 enacted budget has created a likely delay in the launch date to 2015. In 2006, the estimate for the new GOES series of satellites – GOES-R – was projected to be \$5 billion higher than the original estimate. NOAA has restructured the program to achieve cost reductions and has obtained independent cost estimates for the program. The Administration now estimates the cost of the new GOES series at \$7.62 billion over a twenty-year period (through 2028). The cost savings are achieved by reducing the number of satellites in the series (from four to two) as well as reducing the capabilities of the satellites.

In addition to the procurements of these two satellite systems, the Administration is requesting an increase of \$74 million to restore high priority climate sensors that were de-manifested from the NPOESS program in 2006 as a result of the Nunn-McCurdy mandated restructuring of the program. These funds would support initial work on two sensors, the Clouds and the Earth's Radiant Energy System (CERES) sensor and the Total Solar Irradiance Sensor (TSIS).

Oceanic and Atmospheric Research:

The office of Oceanic and Atmospheric Research (OAR) is the primary research arm of NOAA that provides the scientific information and tools needed for better understanding of the oceans and atmosphere. OAR conducts the scientific research, environmental studies, and technology development needed to improve NOAA's operations. OAR consists of seven internal research laboratories and manages extramural research at 30 National Sea Grant colleges and universities. Therefore, OAR contains over half of the research programs at NOAA. The Administration proposes to reduce funding for OAR programs by nearly \$16 million below the FY08 enacted funding levels, approximately a 4 percent reduction.

The OAR ORF accounts would be reduced by \$15.7 million under the Administration's proposal with the majority of the reductions coming from programs in the Ocean, Coastal, and Great Lakes Research account (\$24.2 million). The proposed funding in FY 2009 for these programs is reduced from \$130 million to \$106 million, an 18 percent decrease for these programs. Sea Grant receives a cut of \$2 million. The Administration's request includes an \$8 million increase for Ocean Exploration and Research. However, the Administration proposed last year to merge the National Undersea Research Program (NURP) with the Ocean Exploration Program and this is again reflected in the budget. Therefore, the \$8 million increase is not an overall increase for

Ocean Exploration Programs, but reflects the transfer of funds for NURP activities to this line of the budget. The FY 2008 enacted budget for these two programs included \$19.5 million for Ocean Exploration and \$14.7 million for NURP for a total of \$34.2 million. The FY 2009 proposed funding for these two programs is \$6.4 million below the FY 2008 enacted funding level. The Administration's proposal also eliminates \$6.9 million in funding from the Aquatic Invasive Species program and the Marine Aquaculture Program (\$3.6 million and \$3.2 million, respectively). Another \$6.6 million dollars is also proposed for elimination from ten of the Partnership programs in this account.

Weather and Air Quality research accounts receive a net increase in the FY 2009 request (\$5.5 million dollars) in comparison to the FY 2008 enacted levels. This includes the Laboratories and Joint Institutes that would receive an increase (\$3 million) above FY 2008 enacted levels and an increase for the U.S. Weather Research program of \$5.5 million. These increases are offset by a cut of \$3 million for seven Partnership Programs funded in the FY 2008 budget by Congress.

The Climate Research programs receive a proposed net increase of \$2.7 million. The Administration proposes increases of \$4.6 million increase for competitive research programs including the National Integrated Drought Information (NIDIS) and an increase of \$8.3 million for Climate Data and Information programs. These proposed increases are offset by reductions in the Climate Observations and Services programs (\$8.1 million) and the elimination of two Partnership programs – the Abrupt Climate Change Research Program and a Drought Research Study (\$1.1 million) and a decrease in the climate research conducted under by Laboratory and Joint Institutions (\$1.9 million).

The OAR budget also contains funding for the High-Performance Computing and Communication (HPCC) program. NOAA relies upon sophisticated computer models to make major improvements in NOAA's ability to forecast the weather and climate and to model ecosystems and ocean processes. The FY 2009 budget request proposes \$13 million, about a \$369,000 increase for this program.

National Ocean Service:

The National Ocean Service (NOS) protects the National Marine Sanctuaries and is an advocate for coastal and ocean stewardship. It also introduced electronic nautical charts which they combine with Global Positioning Systems (GPS) to enhance the safety and efficiency of navigation of U.S. waterways. The President's FY 2009 request for NOS would reduce funding for NOS programs by 9 percent or \$48 million as compared to the FY 2008 enacted budget.

The NOS ORF account is reduced by \$18.7 million. Navigation Services has a proposed increase of \$7.5 million. The Ocean Resources, Conservation and Assessment account has a proposed net reduction as compared to the FY 2008 enacted budget of \$25.7 million. This includes a \$19.9 million reduction in the Ocean Assessment Program (OAP), \$2.8 million decrease in Response and Restoration, and \$2.9 million reduction in the National Centers for Coastal Ocean Science (NCCOS). The Ocean Assessment Program includes funding for the Integrated Ocean Observing System (IOOS) was \$26.4 million. The FY 2009 request would reduce funding for IOOS by \$5.3 million to \$21 million. The FY 2008 enacted budget for the

Ocean and Coastal Zone Management accounts would receive a slight reduction (approximately \$469,000). The NOS-PAC accounts are also reduced, by \$29.2 million. This includes cuts in both the Marine Sanctuaries Construction (\$8.3 million) and four congressionally mandated construction acquisition projects (a total of \$23.3 million).

Program Support:

The Program Support account funds corporate services and agency management. This includes the Under Secretary's office, the office of the Chief Financial Officer, and the Program, Planning and Integration Office. Overall, the Administration requests an increase in the Program Support account of \$73.4 million (a 16 percent increase) as compared to the FY 2008 enacted funding level. Most of this increase is due to continued construction of facilities under the PAC accounts (\$63.8 million), in particular the Pacific Regional Center in Honolulu (\$40.3 million).

The Program Support account also includes the NOAA Education Program. The proposed funding for NOAA education programs is again reduced significantly below its current funding level of \$34 million for FY 2008 to a proposed funding level of \$17 million for FY 2009. The Administration proposes to eliminate completely eleven education programs including the JASON education and outreach program. The Administration has proposed significant reductions for Competitive Education Grants; an 80 percent reduction below the FY 2008 enacted funding level.

GAO's Report on Aviation Weather Service

The National Weather Service (NWS) weather products are a vital component of the Federal Aviation Administration's (FAA) air traffic control system. NWS provides aviation weather products and services to FAA through the Aviation Weather Center and the weather forecast offices across the country. The Aviation Weather Center is located in Kansas City, Missouri and is staffed by 65 personnel. There are 122 weather forecast offices, which issue terminal area forecasts for approximately 625 locations every 6 hours and in real time as conditions change.

In addition, NWS provides direct contact with FAA staff through individual center weather service units (CWSUs). Under an interagency agreement, NWS provides CWSU meteorologists at each of the FAA's 21 en route centers in addition to providing products and services developed at the other NWS facilities. FAA's en route centers control air traffic over the national air space as planes are in transit and on the approach to some airports. The CWSU meteorologists provide air traffic managers with forecast and weather briefings on regional conditions including icing, turbulence, visibility, and freezing precipitation. Under the current terms of this interagency agreement, FAA reimburses NWS \$12 million annually for CWSU support.

NWS's meteorologists utilize various systems to collect and analyze data compiled from both the NWS and FAA weather sensors. Key systems used are FAA's Weather and Radar Processor, FAA's Integrated Terminal Weather System, and a remote display of NWS's Advanced Weather Interactive Processing System (AWIPS). Also, the NWS meteorologists provide key services

such as meteorological impact statements, center weather advisories, periodic briefings, weather information interpretations, and on-demand consultations.

A few years ago, FAA began to explore options to reduce costs associated with the aviation weather services provided by NWS at its en route centers. In 2005, FAA requested that NWS restructure its aviation weather services to consolidate offices, provide remote services, and reduce the annual cost of providing services by \$2 million. In response, NWS offered FAA a proposal to supply aviation weather services through the local forecast office closest to the en route centers. This proposal removed CWSU meteorologists from the en route centers and achieved the cost savings requested by FAA. FAA did not accept the proposal and instead initiated a review to more clearly define its requirements for weather forecasting at the en route centers.

In October 2006, FAA also explored the possibility of acquiring aviation weather services from an organization other than NWS. FAA developed and released a market survey to solicit initial information from the private sector and other government organizations to determine if they could provide remote weather services at a lower cost than NWS. Ten organizations, including private sector firms and government-funded laboratories, responded that they could provide the services that FAA wanted and at a reduced cost.

One year ago, five members of the Committee on Science and Technology asked the Government Accountability Office (GAO) to evaluate the efforts of FAA and NWS to restructure aviation weather technologies and services. The Committee wished to ensure that restructure of these services would not result in any degradation of services provided to guide air traffic management. Problems associated with weather conditions contribute to significant delay of air traffic. Also, accurate forecasting of weather conditions is essential to maintaining safety of aircraft.

The GAO completed its review in December and will report on its findings. Shortly after GAO completed its review, FAA released two documents: a Center Weather Service Unit Quality Assurance Surveillance Plan and a Requirements Document. FAA provided these documents to NWS on December 19 and asked NWS to provide their response to the documents within 120 days. The Director of NWS, Dr. Jack Hayes, and the Senior Vice President for Finance, Air Traffic Organization of the FAA will provide their responses to GAO's recommendations and an update on the current status of their joint efforts to restructure aviation weather services.