National Weather Service

Total Request: $727,607,000

ORF: $658,456,000
PAC: $ 69,151,000

The National Weather Service (NWS) provides weather, water, and climate forecasts and warnings for the United States, its territories, adjacent waters, and ocean areas for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community.

America's vulnerability to weather related hazards is rising as more of the population moves into weather threatened regions, and national and global economies become more complex. Approximately 40 percent of all Americans, some 100 million people, currently reside in areas of high risk to natural disasters, with the number climbing yearly. Today, 90 percent of all presidentially declared disasters are weather and flood related. Moreover, water resources are the lifeblood of the economy and our standard of living. During the next century, weather will continue to impact our lives and significantly impact the U.S. economy. In fact, the NWS was recognized last year as one of thirty-two high impact federal agencies. By working with our partners, especially the private sector and emergency management community, NWS is striving to ensure our products and services are responsive to the needs of the American public.

The FY 2002 President's Budget Request supports the funding and program requirements to enable the NWS to better use science to serve our citizens and fulfill its vision of becoming America's "no surprise" weather service. This vision states that the NWS will produce and deliver forecasts you can trust when you need them most, use cutting-edge technologies, provide services in a cost-effective manner, strive to eliminate weather related fatalities, and improve the economic value of weather information. In FY 2002, the NWS will continue its mission of providing weather and flood warnings and forecasts to the public and improve the overall warning lead times for tornadoes, severe thunderstorms, flash floods, as well as improve the accuracy of hurricane landfall predictions.

The NWS contributes to three of NOAA's Strategic Plan goals: Advance Short-Term Warning and Forecast Services, Implement Seasonal to Interannual Climate Forecasts, and Predict and Assess Decadal to Centennial Change. The NWS request also supports investments in the Natural Disaster Reduction Initiative (NDRI) as well as the NOAA Climate Services Initiative.

Overall, NOAA requests a total of $727.6 million for the National Weather Service, a net increase of $34.8 million above the FY 2001 Enacted level. This continued investment includes a total of $658.5 million for Operations, Research, and Facilities (ORF) and $69.1 million for Procurement, Acquisition, and Construction (PAC). In FY 2002, the budget priorities for NWS include sustaining current services, replacing obsolete technology, enhancing services to the public and its private partners, and infusing new technology.

Significant Adjustments-to-Base

NWS requests a net increase of $16.7 million to maintain current services and abate declining base resources from mandatory pay and inflation. Detailed estimates are as follows:

Mandatory Pay, Inflationary Costs, and Adjustment: **$24.3 million**

NOAA requests an increase of $24.3 million to fund Adjustments-to-Base (ATBs) for NWS base operations and system accounts. The increase will fund the FY 2002 federal pay raise of 3.6 percent and annualize the FY 2001 pay raise of 3.8 percent. The increase will also provide mandatory inflationary increases for non-labor activities, including service contracts, field office lease payments, and rent charges from the General Services Administration (GSA). The base was also adjusted to transfer the Office of the Federal Coordinator for Meteorology to Program Support.

Restoration of FY 2001 Rescission: $1.2 million

NOAA requests an increase of $1.2 million to restore the FY 2001 rescission. Restoration of these funds in FY 2002 is required to sustain NWS warning and forecast services to the Public. In FY 2002, NWS will restore funding to provide critical training for weather office staff, repair and maintenance of the NOAA Weather Radio network, and replacement of remote river and flood gage communication devices.

Terminations: -$8.8 million

The NWS requests a decrease of $3.3 million to reflect the completion of the following one-time activities or programs: the Cooperative Institute for Regional Prediction in support of the 2002 Winter Olympics in Salt Lake City, UT ($0.6 million); acquisition and installation of NOAA Weather Radio Transmitters at specified locations during FY 2001 ($1.9 million); Mt. Washington Observatory ($0.5 million); and the North Dakota Agricultural Weather Network ($0.3 million).

In the PAC account, a requested decrease of $5.5 million for the completion of the Evansville, Doppler Radar project. This decrease reflects the completion of one-time costs associated with the planned acquisition, deployment, and installation of a Doppler weather radar for the Evansville, IN during FY 2001.

Detailed Program Changes by Sub-Activity

Operations, Research, and Facilities

The total request of $658.5 million for operations and research represents an increase of $29.1 million over the FY 2001 Enacted level. This continued investment will allow NWS to maintain current services, begin modernization of the Cooperative Observer Network, and sustain operations at the National Centers for Environmental Prediction (NCEP). Specifically, the net increase of $29.0 million includes $24.3 million for Mandatory Pay Raises and Inflationary Costs, $1.2 million to restore the FY 2001 rescission, $1.9 million to sustain the Co-Operative Observer Network, $1.7 million to sustain operational forecast models at NCEP's Environmental Modeling Center, $3.0 million to increase the NWS investment in data assimilation development efforts at NCEP including the NOAA/NASA Joint Center for Satellite Data Assimilation, and $0.3 million for Weather Forecast Office (WFO) Maintenance. In addition, the NWS request includes a reduction of $3.3 million to reflect completion of one-time activities or programs. The specific details on each of these requests are outlined below:

Sustain Cooperative Observer Network: $2.3 million

NOAA requests a total of $2.3 million to sustain the Nation's cooperative observer network, an increase of $1.9 million over the FY 2001 Enacted level. This continued investment will maintain a nationwide network of over 11,000 volunteer operated weather observing sites used by NOAA to prepare climate forecasts and flood outlooks, monitor droughts, and issue local weather forecasts. In a recent report, the National Research Council recommended that NOAA take immediate steps to sustain and modernize this critical network. The instruments used to detect daily minimum and maximum temperatures as well as rain gage recording devices for measuring precipitation are obsolete and costly to maintain. In many instances, spare parts are no longer commercially available for these measuring devices. In FY 2002, NWS plans to replace 900 rain gauges and 200 temperature sensors. This rescue effort will proceed over three years with the replacement of 2700 rain gauges and 5000 temperature sensors.

Weather Forecast Office (WFO) Maintenance & Repair: $4.6 million

NWS requests a total of $4.6 million for WFO Maintenance, an increase of $0.3 million over the FY 2001 Enacted level. This continued investment will allow NWS to fund recurring maintenance contracts and address a backlog of over $7.0 million in deferred maintenance repair actions. WFOs provide forecasters with modernized facilities, supporting the advanced technology systems and the provision of weather service to the public. As the WFOs continue to age, the facilities require a significant investment in recurring and cyclic maintenance, including replacement of major facility support systems such as power backup and heating, ventilation, and air conditioning (HVAC). The request will allow NWS to protect the $250 million capital investment in modernized facilities in accordance with GSA and private industry standards.

NCEP Environmental Modeling Center - Sustain Current Operations: $1.7 million

NOAA requests $1.7 million to sustain operations at NCEP's Environmental Modeling Center (EMC). The EMC develops the computer models and other numerical forecast products which provide the basic guidance that forecasters use in making weather and climate forecasts. Today, the EMC is overly dependent on external sources of funding for its operations, degrading its ability to transfer proven weather forecasting science into NWS operations. The National Research Council in its report *From Research to Operations in Weather Satellites and Numerical Weather Prediction: Crossing the Valley of Death*, states "Almost all of the Nation's operational weather and climate guidance products come from EMC, which does not presently possess the necessary resources to transfer many of the U.S. advances in observations and modeling to operations." This investment will enable implementation of NWS plans to provide direct base support for its suite of operational forecast models, including the aviation, regional, hurricane, and global models.

NCEP Data Assimilation and Modeling: $3.0 million

NOAA requests a total of $3.0 million to improve data assimilation and modeling at NCEP. Data assimilation is the collection and processing of weather observations (satellite, aircraft, radar, data buoys, upper-air balloons) for use in operational numerical weather prediction models. These models are the foundation for all general weather forecasts (2 days and beyond) including aviation, marine, hurricane, rainfall, and severe weather. The objective of this critical funding request is to improve forecasts through the use of enhanced satellite data and other data-sets in the NCEP prediction models, leveraging the Nation's large capital investment in global observing systems. These activities will be implemented through the NOAA/NASA Joint Center for Satellite Data Assimilation which is funded in part through this initiative. Today, only 1/7th of the Nation's satellite data are utilized in operational weather forecasts models and too few resources are available for assimilating new satellite data. The National Research Council in its report *From Research to Operations in Weather Satellites and Numerical Weather Prediction: Crossing the Valley of Death*, states "In most cases, when new sensors are developed, insufficient budgetary resources are provide to develop algorithms necessary to introduce those sensors into the operational system. There is limited capability to address the special needs associated with assimilation of large volume of new satellite observations." The report also stated the slow pace of improving weather prediction models could place U.S. industry at a competitive disadvantage and potentially impact National Security. In FY 2002, NWS plans to provide critical funding support to the NOAA/NASA Joint Center, enhance efforts to develop a community weather prediction model, and improve and accelerate assimilation of new satellite data-sets into NCEP operational prediction models.

Advanced Hydrologic Prediction Service (AHPS): $1.0 million

NOAA will also continue implementation of AHPS in the Upper Mississippi and Ohio River Basin, focusing on high priority flood prone areas. The ORF request includes a total of $1.0 million for this critical service improvement program. AHPS is already improving both the lead time and accuracy of flood forecasts as well as water resource management by extending river flood stage forecasts from days to months in the future. The AHPS is also providing new probability forecasts for rivers, providing critical information which can be used by water resource and emergency managers for risk based decision making. The Service has been successfully tested on major river basins in North Dakota, Iowa, Georgia, West

Virginia, and Pennsylvania, Once deployed, AHPS will save lives and provide over $600 million in annual savings to the U.S. economy.

Systems Operation & Maintenance (O&M): $84.1 million

The total requests of $84.1 million in Systems Operation and Maintenance (O&M) represents an increase of $2.7 million from the FY 2001 Enacted level. This continued investment will provide the necessary resources to maintain these capital investments. The Systems O&M total also includes $40.0 million for NEXRAD O&M, $7.6 million for ASOS O&M, and $36.5 million for AWIPS O&M.

Procurement, Acquisition and Construction (PAC)

The total request of $69.1 million represents an increase of $5.7 million over the FY 2001 Enacted level. The specific requests are listed below:

Systems Acquisition: $57.2 million

Automated Surface Observing System (ASOS): $5.1 million

NOAA requests a total of $5.1 million for the ASOS PAC account, an increase of $1.3 million over the FY 2001 Enacted level. This continued investment will ensure planned completion of the new ASOS dewpoint sensor acquisition (the highest failure rate sensor in the ASOS suite), and ASOS processor unit acquisition (current processor over capacity), and begin acquisition of the all-weather precipitation gauge necessary for climate record continuity and aviation safety. Specifically, in FY 2002, the NWS will complete acquisition of 346 dewpoint sensors, and 346 processors; deploy 314 processors; and acquire 115 all-weather precipitation gauges.

Advanced Weather Interactive Processing System (AWIPS): $16.3 million

NOAA requests a total of $16.3 million for the AWIPS PAC Account. This continued investment will enable NWS to complete a three year effort to develop and deploy AWIPS build 5 software. NWS is deploying AWIPS build 5 in three major builds (5.0, 5.1, 5.2) over a 3 year period, beginning in October of FY 2000 and ending in October of FY 2003. In FY 2002, NWS will complete the distribution of build 5.1 and 5.2 after a rigorous test and evaluation process. AWIPS Build 5 technology will provide NWS field forecasters with critical warning decision support systems to monitor and prioritize severe weather systems, automated product generation to improve efficiency, and improved radar and satellite display imagery. Combined with NEXRAD Product Improvement, AWIPS build 5 will allow NWS forecasters to significantly improve tornado warning lead times and improve the accuracy of severe thunderstorms forecasts.

Central Computer Facility - NWS Weather and Climate Supercomputing: $15.1 million

NOAA requests a total of $15.1 million to continue the operation and maintenance of the NWS (Class VIII) Weather and Climate Supercomputer located in the Census Facility in Bowie, Maryland. The NWS supercomputer is the foundation for all NWS weather and climate forecasts. In FY 2002, NWS plans to improve weather forecasts by improving the resolution of the regional weather model (Eta) from 22 to 12 kilometers and the global weather model from 75 kilometers to 55 kilometers. The NWS also plans to improve and expand operational climate forecasts and implement a new regional climate model. NWS will continue to issue the Drought Monitor, Climate Threats Assessment, and the Extreme Heat Index. NWS will also utilize the supercomputer to improve forecasts for El Nino and La Nina events, and other climate oscillations.

Next Generation Weather Radar (NEXRAD): $8.3 million

NOAA requests a total of $8.3 million for the NEXRAD PAC account. The request will allow NWS to continue NEXRAD product improvement (NPI) activities by infusing new technology into the current radar network. The current system processor utilizes obsolete technology developed in the late 1980s. As a result, a number of new forecast and detection techniques, that are tested and ready for operational use, cannot run on the current system. Combined with AWIPS build 5.0 technology, NEXRAD NPI will allow NWS forecasters to improve the lead times for tornado warnings and the accuracy of severe thunderstorms forecasts. In FY 2002, NWS will complete critical hardware retrofits at a total of 126 NWS NEXRAD sites.

NWS Telecommunications Gateway Backup - Critical Infrastructure Protection: $7.5 million

NOAA requests a total of $7.5 million to provide critical infrastructure protection for the NWS Telecommunications Gateway (NWSTG). This investment will enable NWS to acquire the equipment and facility infrastructure necessary to ensure continuity of operations at the NWSTG. The NWSTG is the Nation's critical telecommunications hub for collecting, processing, and distributing weather data and information. The data processed by the NWSTG are used by hundreds of customers world-wide, affecting a wide-range of economic and emergency management decisions. These users include: the NWS WFOs and NCEP, the private meteorological industry, broadcast media, Foreign countries, and the U.S. Military. The current NWSTG facility, located in NWS headquarters in Silver Spring, MD has no operational backup and is therefore a single point of failure vulnerable to natural disasters, human error, computer viruses, hacker attacks, and terrorism. Today, if the NWSTG were to fail, 90 percent of weather observations required for weather prediction models would be lost; no national radar or prediction models would be sent to the field; no weather observations or products would be sent to commercial users/vendors;

no access or exchange of observations and products with other Federal agencies or Nations would be possible; and all NWS centrally provided Internet services would be halted. This investment will mitigate these risks and will enable the NWS to comply with Presidential Directives on critical infrastructure protection and continuity of government operations.

Radiosonde Replacement Network: $5.0 million

NOAA requests a total of $5.0 million to continue the replacement and modernization of the upper air radiosonde network. The radiosonde network provides critical upper air observations for NWS weather forecasters and serves as the principle data source for all weather forecast models. The current network is obsolete and nearing collapse, risking widespread loss of data within the next two to three years. In FY 2002, NWS plans to complete the third year of a multi-year modernization effort by replacing 35 (out of 102) ground tracking systems. NWS also plans to replace the remaining obsolete IBM XT microcomputers that are used to track and process data.

Construction

NWS Weather Forecast Office (WFO) Construction: $12.0 million

NOAA requests a total of $12 million to continue critical facility modernization efforts in the National Weather Service. The request represents an increase of $2.5 million over the FY 2001 Enacted level. In FY 2002, NWS plans to finalize construction of the new Weather Forecast Office in Caribou, Maine and complete the new Alaska Tsunami Warning Center in Palmer, Alaska. NWS also plans to complete modernization of the weather offices in Hilo, Hawaii and Kotzebue, Alaska.

Detailed information regarding adjustments to base, program reductions, and terminations are shown in Section 4: Supplementary Information.