



An outbreak of 343 tornadoes in central and southern states caused 321 deaths. Of those fatalities, 240 occurred in Alabama alone. The deadliest tornado of the outbreak, an EF-5, hit northern Alabama, killing 78 people. Several major metropolitan areas were directly impacted by strong tornadoes including Tuscaloosa, Birmingham, and Huntsville in Alabama and Chattanooga, Tennessee, causing the estimated damage costs to soar. The outbreak caused more than \$7.3 billion insured losses and total losses greater than \$10.2B.

NOAA tornado damage expert Jim LaDue and Dr. Jane Lubchenco survey tornado damage in Tuscaloosa, Alabama. The trees in the background—while green—are horizontal.

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NATIONAL WEATHER SERVICE



NATIONAL WEATHER SERVICE

The National Weather Service (NWS) is the Nation's first line of defense against severe weather. The NWS mission is to provide weather, water, and climate data, and issue forecasts and warnings for the protection of life and property and for the enhancement of the national economy.

With approximately 4,600 employees in 122 Weather Forecast Offices, 13 River Forecast Centers, 9 national prediction centers, and other support offices around the country, NWS provides the critical national infrastructure to gather and process data worldwide from the land, sea, and air.



*A Rescue Boat searches for stranded people in downtown Kingfisher, OK.
Photo by Marvin Nauman/FEMA*

This infrastructure enables data collection using technologies such as radars, satellites, data buoys, and surface observing systems. These data feed sophisticated environmental prediction models running on supercomputers. A highly trained and skilled workforce uses powerful workstations to analyze the information. A communications hub allows for the exchange of data and products between NOAA and its public and private partners and is used to develop forecasts and warnings that are rapidly distributed via a diverse dissemination infrastructure, including NOAA All-Hazards Weather Radio.

NWS has made tremendous strides in forecast and warning services over the past decades due to research advances from other parts of NOAA. For example, the development of hurricane forecast models by the Office of Ocean and Atmospheric Research (OAR) and the tide gauge network operated by the National Ocean Service (NOS) that contributes to the tsunami warning system, are part of a NOAA-wide operational system. Platforms for observations, such as National Environmental Satellite, Data, and Information Service (NESDIS) satellites and Office of Marine and Aviation Operations (OMAO) aircraft, routinely demonstrate how NOAA science and service work together and rely upon each other to save lives and for the stewardship of coastal and marine ecosystems and resources.

According to the American Meteorological Society, weather is directly linked to public safety, and a significant portion of the U.S. economy is weather-sensitive. A nationwide survey indicates that 96 percent of the U.S. public obtains, either actively or passively, 301 billion forecasts each year. Based on an average annual household value of \$286 placed on weather information,



the American public collectively receives \$31.5 billion in benefits from forecasts each year. In 2011 alone, tornadoes, hurricanes, flooding, and other severe weather caused an estimated \$55 billion in economic losses (\$25.8 billion in insured losses) in the United States (all values in 2011 dollars).¹ More and more sectors of the U.S. economy are recognizing the impacts of weather, water, and climate on their businesses and are looking for ways to increase their resilience and reduce the potential of severe societal and economic impacts.

To meet these needs, NOAA's Next Generation Strategic Plan envisions a Weather-Ready Nation - a society that is prepared for and responds to weather-related events. Readiness, responsiveness, and resiliency are the foundation for a Weather-Ready Nation. NWS strives to improve decision support services for weather, enhance water and climate services, improve user relevant information, reduce the impact of health and environmental hazards on communities and ecosystems, and sustain a highly-skilled, professional workforce to accomplish the NWS mission. NWS also supports NOAA's strategic goal of climate adaptation and mitigation - an informed society anticipating and responding to climate and its impacts. Research by NWS and OAR into the weather patterns associated with El Niño and La Niña has allowed significant leaps in our capability to forecast on a seasonal basis and associated improvements in numerical models. Advances in understanding these and other larger scale phenomena, and their relationships to high impact weather events, are key to NOAA's ability to give the Nation advance notice and time to prepare.

FY 2011 ACCOMPLISHMENTS

From extreme drought, heat waves, and floods to unprecedented tornado outbreaks, hurricanes, wildfires, tsunamis, and winter storms, record weather disasters occurred in 2011.

This year saw the most number of tornados in a single day (200) and the largest outbreak of tornados (343); cutting a swath of destruction across the Midwest and the South, tornados threatened citizens and property. NWS early tornado warnings provided the lead time to prevent widespread loss of life. During a five-day period in late April 2011, the Deep South experienced a historic tornado outbreak. NWS Weather Forecast Offices (WFOs) in the affected areas of Arkansas, Tennessee, Mississippi, Alabama, and Georgia began alerting the public, local emergency managers, and the media to the potential for a large tornado outbreak five days in advance and issued warnings with average lead-time exceeding 20 minutes. Despite advanced notification, there were still 321 fatalities, with April 27, 2011, ranked as the deadliest day for tornadoes since modern record keeping began in 1950. Also, the devastating tornado that struck Joplin, Missouri on May 22 ranks as the seventh deadliest and the most costly single tornado in U.S.

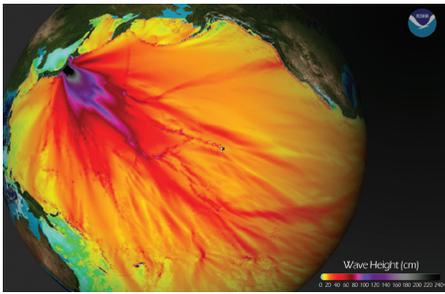
history. While the tornado resulted in over 150 fatalities and over 1,000 injuries, NOAA's NWS Storm Prediction Center and area WFOs provided early forecasts and warnings on the order of 24 minutes of lead time for the city of Joplin, saving countless more. Still, improvements in science and technology, as well as outreach and education about preparedness and response, are required in order to see further advances in warning lead times to further reduce such a toll.



Aerial views of tornado damage in Alabama, 2011

NWS provided tsunami warnings and radiological forecast support for the March 2011 undersea earthquake 45 miles east of Japan. Within nine minutes of the earthquake, NOAA's Pacific Tsunami Warning Center, located in Hawaii, issued a tsunami warning for the western Pacific. Within 12 minutes of the earthquake, NOAA's West Coast & Alaska Tsunami Warning Center issued a tsunami warning for the coastal

¹ AON Benfield, *United States April and May 2011 Severe Weather Outbreaks*. (Chicago, IL, June 22, 2011; http://www.aon.com/attachments/reinsurance/201106_us_april_may_severe_weather_outbreaks_recap.pdf) and <http://www.ncdc.noaa.gov/oa/reports/billionz.html>.



Model runs from the Center for Tsunami Research at the NOAA Pacific Marine Environmental Laboratory show the expected wave heights of the tsunami as it traveled across the Pacific basin.

areas of the eastern Pacific. Approximately 25 minutes after the earthquake, the tsunami was recorded by a NOAA Deep Ocean Assessment and Reporting of Tsunamis (DART) buoy off the east coast of Japan. The information from the DART went into NOAA's tsunami models to predict arrival times, wave heights, and inundation areas for specific U.S. locations. As a result of NOAA's tsunami warnings, coastal evacuations in Hawaii and along the U.S. West Coast were ordered. Damage to U.S. interests from the tsunami was isolated, with the most significant damage experienced at the Crescent City and Santa Cruz, California harbors. Local WFOs that serve the U.S. coastline issued localized tsunami impact statements. Subsequently, the NWS National Centers for Environmental Prediction (NCEP) provided 24/7 model guidance to track radiation particles on the ocean surface, and estimate dispersion and retention times of radionuclides by ocean currents relating to sustained damage of the Japanese Fukushima Daiichi nuclear power plant.

FY 2013 REQUEST

\$972,193,000

NOAA requests a total of \$972,193,000 and 4,548 FTEs to support the continued and enhanced operations of the National Weather Service. This total includes Operations, Research, and Facilities (ORF) and Procurement, Acquisition, and Construction (PAC) accounts. This is a decrease of \$19,681,000 and 101 FTEs from the FY 2012 estimate. This reduction includes a net decrease of \$29,776,000 in program changes and 101 FTEs plus an increase of \$10,095,000 and 0 FTEs for Adjustments to Base (ATB).

The FY 2013 President's Budget Request supports the highest priority core requirements necessary to address the NOAA strategic plan goals of a Weather-Ready Nation and a society prepared for Climate Adaption and Mitigation. The request allows the NWS to produce and deliver forecasts that can be trusted, provide services in a cost-effective manner, continue to reduce weather-related fatalities, and improve the economic value of weather, water, and climate information. NWS continues to take steps to evaluate budget priorities, find efficiencies, and leverage NOAA and other agency partnerships.

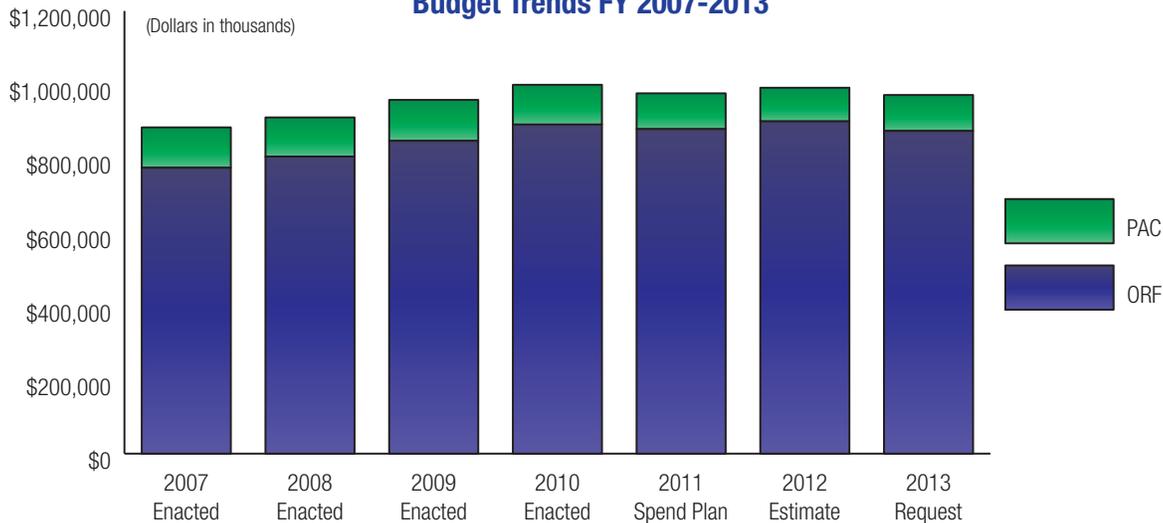
In FY 2013, NWS base funds will provide up-to-date and accurate weather information and warnings to the Nation through the support of the 122 WFOs. Base funds include the operation and maintenance of systems, such as Next Generation Radar (NEXRAD), the Automated Surface Observing System (ASOS) and others that collect the observations necessary to provide weather forecasts, warnings, and outlooks. In addition, core funding will cover acquisition of systems, including Advanced Weather Interactive Processing System (AWIPS) II, which will offer new and improved ways for forecasters to access and visualize meteorological data; and NWS' operational High Performance Computing (HPC) capability, which is used to run all of NOAA's operational weather models and some experimental hurricane models. Also, funding for construction includes upgrades and improvements to NOAA's Weather Forecast and Weather Service Offices (WSOs).



NATIONAL WEATHER SERVICE

(DOLLARS IN THOUSANDS)	FY 2011 SPEND PLAN	FY 2012 ESTIMATE	FY 2013 REQUEST	INCREASE (DECREASE)
NWS — ORF				
Operations and Research	\$777,478	\$799,260	\$772,378	(\$26,882)
Systems Operation & Maintenance (O&M)	102,104	101,504	102,376	872
Total, NWS - ORF	879,852	900,764	874,754	(26,010)
Total, NWS - PAC	96,899	91,110	97,439	6,329
GRAND TOTAL NWS (Direct Obligations)	\$976,481	\$991,874	\$972,193	(\$19,681)
Total FTE	4,649	4,649	4,548	(101)

NATIONAL WEATHER SERVICE Budget Trends FY 2007-2013



ORF: Operations, Research, and Facilities

PAC: Procurement, Acquisition, & Construction



FY 2013 ORF BUDGET SUMMARY

NOAA requests a total of \$874,754,000 and 4,522 FTEs to support the Operations, Facilities, and Research (ORF) of the National Weather Service. This is a decrease of \$26,010,000 and 96 FTEs from the FY 2012 estimate. This reduction includes a decrease of \$36,105,000 and 101 FTEs in net program changes plus an increase of \$10,095,000 and 5 FTEs for Adjustments to Base (ATB). Adjustments include the following transfers:

- NWS requests a technical adjustment to move 5 FTE from the NEXRAD Product Improvement (PI) program in PAC to the Local Warnings & Forecasts (LWF) program in ORF. This adjustment refocuses the FTE working on the NEXRAD PI program to other LWF activities, following the planned termination of the program.

NWS – ORF PROGRAM CHANGE HIGHLIGHTS FOR FY 2013:

Select program changes (generally above \$500,000) are highlighted below at the sub-activity level. A summary of funding by Program, Project and Activity (PPA) is located in Chapter 9, Appendices. Detailed descriptions of all program changes by PPA are located in the NOAA FY 2013 Congressional Justification.

OPERATIONS AND RESEARCH

\$772,378,000

NOAA requests a decrease of \$36,429,000 and 101 FTEs for a total of \$772,378,000 and 4,334 FTEs under the Operations and Research sub-activity.

Local Warnings and Forecasts: NOAA requests a decrease of \$36,058,000 and 101 FTEs. This is comprised of four increases, three of which are below \$500,000, eleven decreases, one of which is below \$500,000, and one termination of \$10,965,000 for activities not proposed to be continued in FY 2013:



PMEL Scientist Brian Powers monitors the TAO Buoy windbird

Local Warnings & Forecasts Base, Tropical Atmosphere Ocean (TAO) Array: NOAA requests an increase of \$2,400,000 and 0 FTEs to support the additional costs associated with the operations and maintenance (O&M), and technology refresh for the TAO Array. TAO network data directly contribute to the prediction of El Niño and La Niña climate events. These disruptions of normal ocean-atmosphere systems lead to extreme shifts in temperature, flooding and drought, etc. that can have devastating impacts on agriculture, fishing, and human health. Accurate prediction of the onset of El Niño and La Niña allows mitigation of impacts. Because of the distance and conditions that the TAO buoys operate in, the costs to operate and maintain the array at an acceptable level have escalated. Projections are that without additional resources, data availability will drop to 50 percent or less annually. Maintenance of the array is necessary to provide accurate observations and with this increase, data availability will increase to an optimal 80 percent annually. Refreshing obsolete technology and components is essential to ensure the continued performance of the TAO array. Technology refresh includes an upgrade to provide near real-time transmission of the entire TAO data set to ensure quality climate data and a more reliable network with improved climate prediction and understanding.

Local Warnings & Forecasts Base, Operational and Organizational Efficiencies in Information Technology (IT): NOAA requests a decrease of \$2,000,000 and 0 FTEs to reduce organizational costs through IT consolidations and related efficiencies. NWS will implement various cost savings initiatives through streamlining requirements,



elimination of redundant and duplicative requirements and use of proven, best practices from the IT community. This initiative will be accomplished through ongoing IT efforts including: the re-architecture of its Telecommunications Gateway; ground system preparation for new satellite systems; the Next Generation Air Transportation System (NextGen); the Advanced Weather Interactive Processing System (AWIPS); and the re-compete of the Weather and Climate Operational Supercomputing System (WCOS) contract. With these major IT efforts, NWS has the unique opportunity to address and implement a more effective and cost conscious, enterprise architecture which will lead to lower IT O&M cost.

Local Warnings & Forecasts Base, National Data Buoy Center (NDBC) Sustainment: NOAA requests a decrease of \$2,000,000 and 0 FTEs to reduce operations and maintenance for the Coastal Data Buoy sustainment program within NDBC.

NDBC provides critical observations from a network of 101 moored weather observation buoys and 48 Coastal-Marine Automated Network (C-MAN) stations to help meet the needs of forecasters for frequent, high-quality marine observations. NOAA is currently achieving approximately 70 percent availability of marine and coastal buoy generated data for nowcasts and model input. With funding provided in previous years and this decrease, NOAA anticipates a 73 percent availability of data by 2014. Reduced funding will delay routine operations and maintenance and failure response, and slow design and procurement of environmentally-safe moorings.



DART buoys being readied for deployment at the NOAA National Data Buoy Center at the Stennis Space Center, MS.

Local Warnings & Forecasts Base, Establishment of Regional Information Technology (IT) Collaboration Units: NOAA requests a decrease of \$9,741,000 and 98 FTEs to reflect the transition to a new IT service delivery model to the NWS Weather Forecast Offices.

With technological improvements, such as Advanced Weather Interactive Processing System (AWIPS), NWS has gained the ability to fulfill much of the Information Technology Officer (ITO) responsibilities remotely without impacts to its mission to protect lives and property. NWS will reduce the current 122 ITOs to a total of 24 across all NWS regions to form IT collaboration units. NWS will make every effort to reduce ITO staffing through attrition or work to find other NWS positions for eligible staff. In addition, NWS will explore opportunities for early retirement and voluntary separation incentives for interested individuals.

Air Quality Forecasting: NOAA requests a decrease of \$3,122,000 and 0 FTEs to discontinue the National Air Quality Forecasting Capability (NAQFC). The 2013 Budget terminates the NAQFC, which provides air quality forecasts of ozone and particulate matter, and redirects the funding to higher priorities in the National Weather Service. While the NWS is not subject to a legislative mandate to forecast ozone and particulate matter, it has provided air quality predictions in support of state and local air quality forecasting programs since 2004. The Environmental Protection Agency (EPA) and state and local agencies use the NOAA model guidance in conjunction with data and models generated at the local level to provide air quality health alerts to the public. Remaining funding of \$865,000 in the program will sustain the on-demand, operational dispersion forecasts of volcanic ash, transport of smoke, and forecast of emergency releases. Funding will also support operational maintenance of models used to generate these forecasts.



Sustain Cooperative Observer Network: NOAA requests a decrease of \$867,000 and 0 FTEs to Sustain the Cooperative Observer Network. The Cooperative Observer Network is a program of volunteers across the Nation that collects weather measurements used for supporting weather forecasts and warnings, and used as a record of long-term climate trends. In FY 2002, NWS began refurbishment of the Network with the replacement of rain gauges and temperature sensors to ensure sustainability and accuracy. This request provides required sustainment and modernization activities of instruments used by these volunteers, as recommended by the National Research Council. Rain gauge refurbishment is estimated to be complete by the end of 2013; however, with this reduction, the purchase of wireless thermometer systems, and air and water temperature sensors will be delayed to FY 2014. This funding decrease will also delay the conversion of Network data into a digital format for the National Climatic Data Center's archiving for climate data continuity studies.



Wind profilers are specifically designed to measure vertical profiles of horizontal wind speed and direction. Data from this network are distributed in real-time to government and university atmospheric researchers, private meteorologists, the National Centers for Environmental Prediction, the Storm Prediction Center, all National Weather Service (NWS) Forecast Offices, and foreign agencies responsible for weather prediction.

NOAA Profiler Network: NOAA requests a decrease of \$2,417,000 and 3 FTEs in its NOAA Profiler Network (NPN) Program to continue operations and maintenance support of three profilers located in Alaska. Given current plans to turn off wind profilers that will experience operating frequency interruptions once the European Galileo satellites are launched, less funding is needed for NPN O&M. Thus, NOAA proposes to significantly decrease its NPN O&M, using remaining funds to support three critical profilers located in Alaska that have been converted to new frequencies to avoid interference with the Galileo satellites. These profilers will allow NOAA to continue the production of specialized aviation weather warnings and warnings for volcanic ash. Volcanic ash can cause catastrophic engine failure for aircraft in flight. There are 100 volcanoes in Alaska; 40 of which are considered active. The Alaska NPN also provides vertical wind profile data that is utilized as a forecast tool to support public and aviation weather warnings.

Strengthen U.S. Tsunami Warning Network: NOAA requests a decrease of \$4,554,000 and 0 FTEs to terminate partner funding for education and awareness programs to the National Tsunami Hazard Mitigation Program (NTHMP) and to reduce operations and maintenance (O&M) to the Deep-ocean Assessment and Reporting Tsunamis (DART) buoys. NOAA will continue to educate the public about tsunamis through the TsunamiReady program. NOAA proposes to increase the time between scheduled buoy maintenance saving \$1.0 million in DART O&M. The increase in the interval between scheduled maintenance calls may reduce buoy data availability from a targeted performance from 80 percent to approximately 72 percent. The lower data availability of the DART network will not impact the issue of warnings; however, without these data, warnings may extend to a larger area than necessary and for a longer time. NOAA will continue tsunami work such as developing inundation models; operating the tsunami warning centers; promoting community outreach and education networks to ensure community tsunami readiness; promoting the adoption of tsunami warning and mitigation measures by Federal, State, tribal, and local governments and non-government entities; conducting tsunami research; and operating the U.S. Tsunami Forecasting and Warning Program.



A SH-60B helicopter assigned to the Chargers of Helicopter Antisubmarine Squadron (HS) 14 from Naval Air Facility Atsugi flies over the city of Sendai to deliver more than 1,500 pounds of food to survivors of an 8.9 magnitude earthquake and a tsunami. The citizens of Ebina City, Japan, donated the food, and HS-14 is supporting earthquake and tsunami relief operations in Japan as directed. (U.S. Navy photo/Released)

National Mesonet Network: NOAA requests a decrease of \$10,965,000 and 0 FTEs for the congressionally directed use of funds for the National Mesonet Network. Data provided by the local mesonets established with this funding provide supplemental model information for local forecasters to consider in issuing forecasts and warnings but is not a primary data for either the weather models or forecast issuance



and warnings. NWS will use FY 2012 appropriated funds to convene a peer-reviewed study to provide recommendations on a national mesonet program plan within NOAA and appropriate implementation. Results of that study may inform future decisions. Currently, the program NWS receives a portion of observations from private sector networks free of charge and incorporates these data into operational weather forecast models. NOAA will collaborate with the private sector to continue such agreements. NOAA will also maintain development of the Meteorological Assimilation Data Ingest System (MADIS) for validation and quality control of mesonet data, and ingestion of data from mobile observational systems.

Advanced Hydrologic Prediction Service: Flood Forecasts: NOAA requests a decrease of \$1,964,000 and 0 FTEs for the Advanced Hydrologic Prediction Service (AHPS) program. NWS will use FY 2012 appropriated funds to sustain the current rate of improvements to flood forecast models. The FY 2013 dual polarization advancements to the NEXRAD radar is expected to dramatically improve quantitative precipitation forecasts, which inform flood prediction. NOAA will continue to collaborate with river commissions to ensure that critical data is coordinated and incorporated in accurate and timely flood forecasts.

Weather Forecast Office Maintenance: NOAA requests a decrease of \$834,000 and 0 FTEs to the National Weather Service (NWS) Weather Forecast Office (WFO) Maintenance program. The reduction in WFO maintenance redirects funding to higher priorities in the NWS. The WFO Maintenance program allows NWS to protect the capital investment in its previously modernized facilities in accordance with NWS operational standards along with GSA and private industry standards. NWS will continue to prioritize routine maintenance but will extend the time between preventative maintenance actions.



Popo Agie River flooding, WY. AHPS is a web-based suite of accurate and information-rich hydrologic forecast products. AHPS displays the magnitude and uncertainty of occurrence of floods or droughts, from hours to days and months, in advance. These graphical depictions provide useful information and planning tools for many economic and emergency managers.

FY 2013 PAC BUDGET SUMMARY

NOAA requests a total of \$97,439,000 and 26 FTEs to support the Procurement, Acquisition, and Construction of the NWS. This is an increase of \$6,329,000 and a decrease of 5 FTEs from the FY 2012 estimate. This increase includes an increase of \$6,329,000 in net program changes and 0 FTEs plus a decrease of 5 FTEs for ATBs.

Adjustments include the following transfers:

- NWS requests a technical adjustment to move 5 FTE from the NEXRAD Product Improvement program in PAC to the Local Warnings & Forecasts program in ORF. This adjustment refocuses the FTE working on the NEXRAD Product Improvement (PI) program to other LWF activities, following the planned termination of that program.

NWS — PAC PROGRAM CHANGE HIGHLIGHTS FOR FY 2013:

Select program changes (generally above \$500,000) are highlighted below at the sub-activity level. A summary of funding by Program, Project and Activity (PPA) is located in Chapter 9, Appendices. Detailed descriptions of all program changes by PPA are located in the NOAA FY 2013 Congressional Justification.



SYSTEMS ACQUISITIONS

\$94,289,000

NOAA requests an increase of \$6,329,000 and 0 FTEs for a total of \$94,289,000 and 26 FTEs. This is comprised of two increases and four decreases:

(BUDGET AUTHORITY [BA] IN THOUSANDS)	FY 2013 REQUEST	FY 2014	FY 2015	FY 2016	FY 2017
AWIPS Tech Infusion	\$20,592	\$20,592	\$20,592	\$20,592	\$20,592



AWIPS Linux workstation consisting of single-screen text workstation and a triple-screen graphical workstation

Advanced Weather Interactive Processing System (AWIPS) Tech Infusion: NOAA requests a decrease of \$3,542,000 and 0 FTEs for AWIPS Tech Infusion. AWIPS is the interactive computer system that integrates all meteorological, hydrological, satellite, and radar data enabling forecasters to prepare and issue more accurate and timely forecasts and warnings. With this reduction, NOAA will slow the implementation of new tools and capabilities aimed at improved decision support services including improved data delivery, collaboration and visualization of meteorological information, and eliminate the Forecast Verification Development work currently being executed by the Office of Oceanic and Atmospheric Research /Global Systems Development (OAR/GSD). The remaining funding will support AWIPS II Extended, a multi-phase program to add new and improved functionalities and capabilities for NWS field forecasters, NOAA partners and the public. These capabilities include better access to data delivery; improved collaboration among NWS operational units and NOAA trusted partners; improved means to generate information supporting decision makers; and improved access and visualization of meteorological information.

(BA IN THOUSANDS)	FY 2013 REQUEST	FY 2014	FY 2015	FY 2016	FY 2017
NEXRAD Product Improvement	\$0	\$0	\$0	\$0	\$0

Next Generation Weather Radar, NEXRAD Product Improvement: NOAA requests a planned decrease of \$5,819,000 and 0 FTEs for the planned completion of the NEXRAD Product Improvement Program (NPI). NOAA proposes to close out this program, as all 122 NWS NEXRAD systems have been funded for the upgrade to the Dual Polarization capability, as well as 26 United States Air Force NEXRADs and 12 Federal Aviation Administration (FAA) systems under reimbursable agreements. When all NEXRADs are upgraded, the Dual Polarization modification will improve precipitation estimates and decrease hail false alarm rates. NWS anticipates full deployment of Dual Polarization to the NEXRAD array by the end of 2013.



New NEXRAD Doppler installation in Kirkland, WA



(BA IN THOUSANDS)	FY 2013 REQUEST	FY 2014	FY 2015	FY 2016	FY 2017
Telecommunications Gateway Legacy Replacement	\$8,185	\$16,215	\$21,215	\$10,245	\$3,195

NWS Telecommunications Gateway Legacy Replacement, NWS Telecommunications Gateway (TG) and Backup Telecommunications Gateway (BTG): NOAA requests an increase of \$6,990,000 and 0 FTEs to design and implement a re-architected Telecommunications Gateway (NWSTG) and its backup to ensure a modern, scalable, extensible, and reliable system using current best practices. The NWSTG is a hub for collection and transmission of data on millions of hydrometeorological observations and products each day for NOAA's internal use, as well as other user communities, including other Federal Agencies, international organizations, commercial partners, academia, and the public. As the number of satellite, climate, and other observations increases, NWS has been collaborating with National Environmental Satellite Data Information Service (NESDIS) to ensure relevant satellite requirements are incorporated into the functional and technical requirements for the NWSTG Re-Architecture initiative. The projected volumes of observational and weather forecast and warning information cannot be managed with the current system architecture. The aging infrastructure, along with the significant increase in processing requirements, require an upgrade to the infrastructure providing the availability, accuracy, and timeliness of critical products and services that emergency managers and the public rely on during severe weather.



The NWS system called the "Gateway" operates and ensures continuous acquisition and dissemination of NWS and other domestic and foreign hydrometeorological data and products.

(BA IN THOUSANDS)	FY 2013 REQUEST	FY 2014	FY 2015	FY 2016	FY 2017
Weather & Climate Supercomputing	\$38,169	\$30,169	\$30,169	\$30,169	\$30,169

Weather and Climate Supercomputing, NOAA High Performance Computing: NOAA requests a decrease of \$2,000,000 and 0 FTEs for Weather and Climate Supercomputing to utilize available supercomputing resources for prioritized research efforts. This decrease will reduce resources allocated to running research models of the Hurricane Forecast Improvement Project (HFIP) on the R&D supercomputer in Boulder, CO, and will have no impact on operational weather modeling. NWS will prioritize computing resources to accommodate the most promising HFIP models. The R&D supercomputer run the current development versions of the HFIP models in real-time and the results will be provided to National Hurricane Center (NHC) forecasters for official hurricane forecasts and warnings.



NWS supercomputer



(BA IN THOUSANDS)	FY 2013 REQUEST	FY 2014	FY 2015	FY 2016	FY 2017
NOAA Profiler Conversion	\$0	\$0	\$0	\$0	\$0

NOAA Profiler Conversion: NOAA requests a decrease of \$1,700,000 and 0 FTEs to terminate the NOAA Profiler Conversion Program (NPN). NOAA proposes to terminate the conversion and tech refresh of 32 profiler sites from an operational frequency of 404 to 449 MHz. Thirty-two of the existing 37 wind profilers use a transmitter frequency of 404 MHz issued by the National Telecommunications and Information Administration (NTIA). These 32 profilers will be required to cease transmitting on this frequency to avoid interference with the new European Union's Search and Rescue Satellite Tracking (SARSAT) transponders aboard the Galileo GPS satellite constellation. The three remaining profiler sites, located in Alaska, are already operating on the 449 MHz frequency. These profilers will allow NOAA to continue to provide volcanic forecast products to preserve a safe Alaska airspace.

(BA IN THOUSANDS)	FY 2013 REQUEST	FY 2014	FY 2015	FY 2016	FY 2017
Ground Readiness Project	\$12,400	\$15,446	\$18,707	\$15,399	\$15,399

Ground Readiness Project: NOAA requests an increase of \$12,400,000 and 0 FTEs to ensure utilization of the substantial increase in environmental satellite observations that will help to improve weather warnings and forecasts. NOAA must update its information technology (IT) infrastructure to ensure adequate processing and use of new environmental satellite data. In order to improve the accuracy of weather warnings and forecasts, NOAA has invested billions of dollars in new satellite sensing systems and data sets within NOAA's National Environmental Satellite, Data, and Information Service (NESDIS) that will come online over the course of FY 2013-2017. This investment will prepare NOAA for the three-fold increase in data volume expected from these new systems, which would far exceed the capacity of NWS's current IT infrastructure to process the data and provide to NWS forecast offices. New satellite data and processing capabilities will improve forecasts from the county/multi-town scale to the neighborhood scale, and in some cases, even street level. Refined forecasts will also assist the critical efforts of local, state, and federal first responders, emergency managers, and decision makers.

