National Weather Service
Employees Organization

The employees of the National Weather Service strongly oppose the Administration's proposed reductions of nearly $80 million in NWS Operations, Research and Facilities, and its proposal to reduce the NWS's operational workforce by an additional 107 or more employees. The Government Accountability Office recently reported that the number of vacant positions in operational units at the NWS has grown from 5% to 11% since 2010, and now totals 455 positions. According to the GAO, NWS employees are "unable at times to perform key tasks" because of the current staffing shortage, which will be exacerbated by further workforce reductions. As will be described below (and at times conceded in the NOAA Budget justification), the proposed budget reductions will place lives at risk.

Merger of the Tsunami Warning Centers and elimination of DART moorings, water level gauges and seismic sensors.

The NOAA budget justification concedes that the merger of the Alaska and Pacific Tsunami Warning Centers at some unspecified location, and the elimination of the DART moorings, water level gauges and seismic sensors on which the scientists at the warning centers rely, 'is anticipated to have a 20 percent or greater impact on the accuracy, certainty, and timeliness of NOAA's tsunami watches and warnings." (NWS-25). "Warnings will still be issued; however, timeliness and accuracy will be reduced." (NWS-36).

Large undersea earthquakes can cause tsunamis, and the United States operates two Tsunami Warning Centers (TWCs) to protect its coastlines from this threat: the National Tsunami Warning Center (NTWC) in Palmer, Alaska, and the Pacific Tsunami Warning Center (PTWC) in Honolulu, Hawaii. These earthquakes cannot be predicted, so the TWCs monitor the United States and the rest the world 24/7 for seismic events. When one does occur the TWCs rapidly determine its tsunami threat and within minutes inform emergency managers and the public of the hazard. They then continue to refine their assessment of the tsunami threat as it unfolds in real time. The U.S. tsunami warning program has made great progress towards improving its performance since the 2004 Indian Ocean tsunami with the installation of new instruments, adoption of new methods, performance of additional outreach, and expansion of TWC staff to facilitate two-person 24/7 monitoring at each TWC. The proposed budget would roll back those advances, reducing TWC performance to 2004 levels and causing delays in the warning of tsunamis generated along the coastlines of the United States and its territories.

Minutes matter: dangerous tsunami waves can strike a coastline in less than 20 minutes after being generated by a nearby earthquake.

The proposed merger of the two warning centers violates the express terms of the *Tsunami Warning, Education and Research Act of 2017,* which was signed into law in April as Title V of the *Weather Research and Forecasting Innovation Act.* Section 504 of the Act, codified at 33 U.S.C. § 3203(d)(1), requires NOAA to maintain ***two*** tsunami warning centers - one in Alaska (with primary responsibility for Alaska and the continental U.S.) and one in Hawaii (with primary responsibility for Hawaii, the Caribbean and other areas of the Pacific). Subsection 3203(d)(3), "*Fail-safe warning capability*," mandates that the two centers maintain the capability to "perform back-up duties for each other." These requirements cannot be met if the two centers are merged, and if 25 of the 40 scientists and technicians employed at these two centers are eliminated, as proposed.

Since the occurrence of earthquakes cannot be predicted the TWCs need to be operational 100% of the time. A single TWC has two complete systems within it for analysis, forecasting, and communications in case any one component should fail. The two existing TWCs also instantly back each other up in case one should go offline for any reason such as an earthquake, volcanic eruption, hurricane, fire, or terrorist attack. The large geographic separation of these two TWCs means that whatever impacts one TWC is not likely to impact the other TWC. The TWCs have in fact had to fail over to each other during communication outages and power failures. They have never missed an earthquake or tsunami thanks to the second TWC providing backup. Consolidating the TWCs into a single facility (p. NWS-36) introduces the risk that tsunami warning capability vanishes the moment that the single TWC goes offline.

Today the TWCs divide coverage of the United States and the world between them, with two people on duty 24/7 at each TWC (for four total) to handle both nearby and distant tsunami threats. The staff of each TWC also includes several technicians who maintain and repair TWC equipment, both the computers inside the TWCs and the instruments deployed in the field. This budget proposal reduces TWC staffing to less than half of current levels, and so the proposed single TWC could have at most only two people on duty 24/7 and only one person on staff to maintain and repair mission-critical systems. This reduced staffing also means that the single TWC can no longer perform its other functions such as applied research, system development, and community education and outreach.

To mitigate the threat of tsunamis generated within the U.S. the National Weather Service (NWS) installed new seismometers after 2004 in Alaska and Hawaii where earthquakes produced deadly tsunamis in 1964 and 1975, respectively. The proposed budget (p. NWS-25, p. NWS-36) eliminates funding for these instruments ("targeted seismic") within the United States, i.e., those installed and operated by the NWS. Without these instruments the TWCs will have to rely on more distant instruments operated by other agencies (who are facing their own

budget cuts) to make the same hazard determination, significantly increasing the time required to analyze the earthquake. When an earthquake generates a tsunami the nearest coastline may be impacted in a matter of minutes. Without these nearby sophisticated instruments the analysis will take much longer--so long as to not be useful for warning the populations within these states.

The proposed budget also eliminates funding for instruments that measure sea-level changes in real time (p. NWS-25, p. NWS-36). The NWS operates two types of these instruments, sea-level gauges on the coastlines of Alaska and Hawaii, and DART sensors (including their buoys) offshore. TWCs use coastal sea-level gauges to confirm the presence of a tsunami and measure its size in order to refine their warnings as the tsunami unfolds. These gauges also help the TWCs to determine when the hazard has passed. Without these sensors the TWCs will still issue warnings, but cancellations will take more time in these states, keeping people away from their homes, schools, and businesses far longer than necessary. The DART sensors, on the other hand, can help avoid unnecessary evacuations in the first place for any coastline. Repeated unnecessary evacuations erode confidence in the TWCs. Evacuations carry risks as well, such as traffic accidents. The TWCs use the DART sensors, located near known sources of large undersea earthquakes, to determine within an hour after such an earthquake if a tsunami was generated, how big it is, and where it is headed. Their data help the TWCs send warnings only to those locations that actually need it. Without the DART sensors the TWCs will still issue tsunami warnings, but to larger areas and more frequently than necessary so many more people will be displaced far more often.

The tsunami warning system has three components: the TWCs, emergency managers, and public outreach and education. This warning system will not work if emergency managers and the public are not prepared to act on TWC guidance. However, the budget proposal eliminates funding for the National Tsunami Hazard Mitigation Program, which helps prepare states and local communities for the day a tsunami will strike their coast (p. NWS-36). These preparations include evacuation maps, evacuation signage, sirens, training of emergency managers (including simulations and exercises), and school education programs. These efforts are crucial for coastal populations who will need to know exactly what to do when they feel an earthquake and a tsunami may arrive minutes later.

Reduction in funding and staff at the NWS's Climate Prediction Center and consolidation of remaining functions with the Weather Prediction Center.

In order to save just $1.2 million, the Administration has proposed to eliminate valuable international services provided by the Climate Prediction Center that support the efforts of the Agency for International Development and the Department of Defense. As the budget justification concedes, the NWS will eliminate "some of th[e] global climate predictions [that] provide information that can lead to understanding of international phenomena like flood and drought that could impact

food supplies. The termination of global weather summaries and briefings for temperature, precipitation and crop conditions will adversely affect crop planning and worldwide crop production. These global forecast products have supported national security planning and execution activities . . . including food security and disaster risk reduction, as well as pandemic health planning." (NWS-41). The International Weather and Climate Monitoring Project at the CPC provides climate forecasts that assist the USAID with famine relief in Africa, Southeast Asia, South and Latin America and Afghanistan including the USAID's "Famine Early Warning System Network." The CPC's Africa Desk works with the governments of over 30 countries in sub-Sahara Africa by providing climate monitoring and predictions. The CPC trains twelve meteorologists a year from Africa in climatology during a four-month residency program.

The NOAA/NWS/USDA Joint Agricultural Weather Facility (JAWF) is supported by CPC. The mission of JAWF is to keep the Nation's growers, exporters, USDA commodity analysts, as well as the Secretary of Agriculture informed of worldwide weather developments and their effects on crops and livestock. CPC meteorologists provide global weather data, products, and expertise in interpretation of forecast models. USDA agricultural meteorologists merge the CPC information with climatological analyses and global agronomic data to arrive at the weather impact on agricultural production.

The Budget Justification does not accurately report the number of FTEs in the Climate Prediction Center nor the number of FTEs who will be eliminated if this reduction is approved. According to the Justification, at NWS-41, there are 28 FTEs assigned to the CPC, whose salaries are funded out of the "Analyze, Forecast and Support" PPA. These 28 FTEs are assigned to one of two branches within the CPC- the Prediction Branch. There are, however, an additional 21 FTEs in the CPC who are funded from another PPA- "Science and Technology Integration," which comprises the "Monitoring Branch," for a total of 49 FTEs in the CPC. The work performed by the Prediction Branch fits the description of the services and products that will be retained following the CPC's proposed merger with the Weather Prediction Center. However, the international services and products which the justification says will be terminated and which are described in the paragraph immediately above, are the work of the 21 FTEs in the Monitoring Branch, not the 28 FTEs in the Prediction Branch identified in the Budget Justification. Thus, it appears that there will be an additional 21 FTEs in the CPC whose positions will be abolished, in addition to the 8 identified. There will also be savings from the "Science and Technology Integration" PPA which funds those positions, which has not be disclosed in the Justification, and which will apparently be diverted to other unidentified uses.

Information Technology Officers at the Weather Forecast Offices

As the Senate Appropriations Committee noted when rejecting an earlier proposal to eliminate the ITOs, the "IT staff have proven to be valuable parts of the local forecast office teams." SENATE REPORT NO. 112-158, at 31. Congress has rejected the proposed elimination of the forecast office ITOs for the past five years, and NOAA has still not offered an explanation of how a small number of ITOs located at a distance, can do the job of 122 ITOs presently located on site. Each year's budget justification contains a different rationale. In prior years, NOAA claimed that it needed to retain only 24 ITOs as members of it "Regional Enterprise Application Development and Integration" (or "READI") teams; this year NOAA proposes to staff the READI teams with 48 ITOs. This unexplained increase undermines the credibility of the concept. Under the Administration's proposal, the share of IT support to each forecast office would still be reduced from 40 hours to 16 hours a week.

In a report accompanying its FY 2017 budget request, NOAA promised to prototype the READI team concept in FY 2017, but it failed to do so. Last year, in its Report the Senate Appropriations Committee wrote that "any move to consolidate these positions at this time would be premature . . . before a comprehensive review of NWS operations has been completed." SENATE REPORT NO. 114-239 at 38. The "third-party review of [the NWS's] long-term operations and workforce needs" was prematurely terminated last year before a final report was completed, and it never reached any conclusions about the long-term roles and needs of the forecast offices, other than that they should "evolve" by providing more decision support services.

The Budget Justification once again misapprehends the responsibilities of the ITOs. The Budget Justification inaccurately portrays the role of the ITO as limited to installing and ensuring the operation of AWIPS II, the NWS's enterprise-wide forecasting software. Contrary to the Justification, the current iteration of the AWIPS software does not contain a "simplified software code" nor has it "reduced the need for on-site local maintenance." The software code in AWIPS II is more complex then previous versions, hundreds of software bugs were discovered after deployment, and it has proven to be less stable that AWIPS I.

But the key element omitted from the Justification's narrative is that the ITOs are primarily responsible not just for software maintenance, but for local application development that adapts AWIPS II and other software to local office and local user needs. The ITOs work side-by-side with the office's forecasters to find novel ways to use technology to innovate and increase operational efficiency. Hundreds of locally designed applications have been shared by one forecast office with others, after local adaptation by each forecast office's ITO. For example, the Grand Rapids Forecast Office has forecast and warning responsibility for portions of Lake Michigan. The ITO at that office developed a program to monitor wind and wave conditions for Lake Michigan. ITOs in Oklahoma and Texas developed and implemented a "Hot Spot Notification Tool," which provides forecasters an easier

interface to alert fire officials through text messages about potential wildfires. This tool has been credited with providing emergency managers with approximately 10 to 15 minutes of extra lead-time. Among the local applications developed by ITOs across the country is "Forecast Builder," developed by the ITO at the La Crosse, WI Forecast office. This application, since shared with other forecast offices, automatically loads the new "national blend of models" as the starting point and common basis for the forecast products issued on each shift. The nomenclature of "READI" teams – "Regional Enterprise *Application Development* and Integration" – recognizes the primacy of application development in the ITOs' job duties – but the Justification only discusses the agency's intent to regionalize software support. In fact, the NWS already operates a central help desk for AWIPS support, known as the Network Control Facility. The READI team simply duplicates that effort and does not provide for local application development.

The Budget Justification incorrectly states that the local ITOs are only available 40 hours a week, 9 to 5, Monday through Friday. Because they reside locally, like all members of the forecast office staff, they are on-call and report to work after hours whenever needed, and are often retained on station after their shift ends when severe weather is expected. In fact, a significant number of the ITOs are also trained and experienced meteorologists who can augment the forecasting staff during extreme weather. On May 24, 2017 the GAO issued Report 17-364 that found that there were over 450 vacancies in NWS operational units, and that as a result, staff of the forecast offices "were at times unable to complete key tasks and were experiencing stress and fatigue from their efforts to cover for vacancies." Removal of 122 more staff from the local forecast offices would further exacerbate these problems.

Attached is a copy of a "Recommendation for Recognition" that accompanied a performance award recently given to the ITO in Corpus Christi that well illustrates the variety of work performed by the ITOs overlooked by the Budget justification. The Meteorologist-in-Charge of the forecast office explained that the ITO was responsible for "developing and maintaining several applications to extend AWIPS capabilities and better serve our customers and partners" as well as other actions "to improve AWIPS and Windows performance" and that he "spent considerable time preparing and configuring the local AWIPS system to ingest and display new local model data." In addition to this and other IT duties, the supervisor noted that the ITO "accomplished all of this while still working a large number of forecast and public service shifts, maintaining forecast and upper air proficiencies."

The Budget Justification eliminates over 200 additional NWS positions without explanation.

The FY 18 Budget Justification contains a significant discrepancy in the number of positions and employees reported for the NWS, when compared to the FY 17 Budget Justification and other reliable sources. In short, it appears that NOAA

has eliminated nearly 5% of the NWS workforce, even before the additional personnel reductions specifically proposed in this year's President's budget.

The numbers of obligated FTEs and the total number of positions for which the NWS has budget authority reported in the FY 18 Justification cannot be reconciled with the FY 17 Justification. On page NWS-1 of the FY 17 Justification, NOAA indicated that it was requesting funding for 4,549 FTEs, after a reduction of 89 FTEs. That indicated a base of 4638 FTEs. As Congress rejected the elimination of the 89 Information Technology Officers in FY 17, the FY 17 base remained 4638. This base number of 4638 FTEs appears on both Exhibit 10-6 and Control Table-5 of the FY 17 Budget Justification. That exhibit and control table also report that the NWS has a total of 4874 total positions for which it had "BA" or budget authority. In its May 24 report on NWS vacancies, the GAO cited agency sources that claimed that the NWS "had budgetary resources in fiscal year 2016 to support 4638 fill-time equivalents." GAO-17-364 Report at 18, n. 35. While it is unclear whether the NWS believed it had funding sufficient to support 4874 or 4638 positions, *both numbers were arbitrarily and inexplicably reduced by 4.5% and 4.7% respectively in the FY 18 NOAA budget justification recently submitted to Congress.*

On page NWS-1 of the FY 18 Justification, NOAA requests funding for 4322 FTEs in the NWS, after a proposed reduction of 107 FTEs. This would indicate a base FTE number entering FY 18 of 4429. However, as that number was 4638 on the same page of the FY 17 Budget Justification, and no FTE reductions were approved by Congress for that fiscal year, the base number for FY 18 should once again be 4638, not 4429. That is a discrepancy of 209 positions. Similarly, the total number of FTEs list on Exhibit 10-6 and Control Table 5 of the FY 18 Justification were similar misreported and cannot be reconciled with the numbers that appear in the same place on the FY 17 (or prior year's) Justification.

Similarly, the total number of positions for which the NWS ostensibly has budget authority was reduced from 4874 on Exhibit 10-6 and Control Table 5 of the FY 17 Justification to 4645 – an unexplained loss of 229 positions, in addition to the 107 FTEs that the agency has specifically proposed to eliminate next fiscal year. It appears that the NWS may be attempting to make additional permanent reductions in its workforce without a corresponding reduction in funding. In light of the recently released GAO Report that documents the negative impact that the ever-growing number of vacancies in the NWS is having on the public as well as on NWS employees, this should not be permitted.

Other NOAA Line Offices

NWSEO represents employees in four other NOAA lines offices in addition to the National Weather Service, and offers these comments on other proposed reductions and increases that affect its members:

Reductions in NESDIS, Office of Satellite Products and Operations

NWSEO represents the technicians and other employees who track and command the nation's environmental satellites at the Satellite Control Facility in Suitland, Maryland and at the Wallops Island Command and Data Acquisition Station in Virginia, which comprise the Office of Satellite Products and Operations (OSPO). The Budget Justification (Control Table-6) indicates that NOAA seeks a reduction of 10 FTEs (from 228 to 218) in staffing in this office, but the Budget Justification does not identify which positions or program will be cut, nor does it justify the proposed reduction. In as much as employees in OSPO are designated "emergency essential" and provide operational services 24/7 that are crucial to the nation's security and welfare, this proposed reduction should be rejected in the absence of a justification.

Office of Marine and Aviation Operations, Aircraft Operations Center

NWSEO represents the civilian crews and ground support staff of the NOAA aviation fleet, based at NOAA's Aircraft Operations Center. This facility was recently forced to relocate from the MacDill AFB in Tampa to the Lakeland Regional Airport, and thus, for the first time, has been required to make lease payments. NWSEO strongly supports the Administration's request for an additional $2 million in order for AOC to meet its new lease commitment and for associated increased fuel costs. As explained in the Budget Justification (OMAO-11), absent additional funding, the NOAA aircraft fleet will be forced to substantially reduce its flying hours. Not only would this underutilization be a waste of physical and human assets, it would also endanger America's safety because it would reduce hurricane surveillance and reconnaissance, as well as research necessary to improve hurricane forecast models.

NOAA Mission Support: Workforce Management Office and Enterprise Services

As explained in the recent GAO report on NWS vacancies, NOAA's Office of Workforce Management has been insufficiently resourced to fulfill NWS's hiring requests at even a replacement rate, which the GAO attributed to the dramatic increase in vacancies in NWS operational units since 2010. The GAO Report (at 15, n. 31) found that as of February 2017, Congress has not appropriated funding to fully establish the DOC Enterprise Services, which is intended to relieve this processing backlog, and "the spending cap on administrative support functions at NOAA may continue to limit the amount of hiring actions that can be processed." Regardless of whether there are economies to be achieved in NOAA Mission Support, NWSEO requests that those elements that are necessary to process hiring and other personnel actions be fully resourced, and that NOAA be instructed to prioritize filling of vacant "emergency essential" positions in the NWS and elsewhere in NOAA before non-essential, non-operational positions.