Testimony of
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Setting New Courses for Polar Weather Satellites and Earth Observations
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Chairman Miller, Ranking Member Broun, Members of the Committee: I appreciate the opportunity to testify today at this important hearing. In what follows I will address the questions posed in the Chairman's letter of invitation regarding both the process and the findings that led to the decision to restructure the National Polar-orbiting Operational Environmental Satellite System (NPOESS) program, as well as the efforts within the Administration to improve capabilities for Earth observations to examine, monitor, and model our planet.

Brief History of NPOESS

The tri-agency [National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA), and the Department of Defense (DOD)] NPOESS program was created sixteen years ago by Presidential Decision Directive (PDD) to deliver operational weather satellites that would provide global weather coverage, storm tracking, and climate-monitoring requirements. All weather forecasts, including detection and forecasting of tropical storms in the Atlantic and Pacific oceans, depend on data from these observations. The program had been slated to operate from 2009 through 2020, but was extended to 2024 (and then again to 2026) due to delays. The tri-agency construct of NPOESS was intended to integrate the talent, technology, and resources of the agencies, thereby "…establishing a single, converged, operational system (that) can reduce duplication of efforts (and competition for resources) in meeting common requirements while satisfying the unique requirements of the civil and national security communities." DOD was responsible for major program acquisitions and contract administration (implemented through the Air Force); NOAA was responsible for satellite operations; and NASA was responsible for developing new technologies. To facilitate the convergence of civil and defense weather observational capabilities, DOD, NOAA, and NASA created an NPOESS Executive Committee (EXCOM), which included senior officials from the three agencies, in order to provide oversight for the joint

effort and to help ensure that the program as a whole met the needs of the three agencies. An NPOESS Integrated Program Office (IPO) was also established to manage hardware development and related activities.

In spite of this vision of coordination and efficiency, and in spite of multiple attempts to improve its execution, the program has consistently been behind schedule, over budget, and underperforming. The most serious of cost increases and scheduling delays occurred in late 2005, when projected cost overruns triggered a breach of the Nunn-McCurdy statute, requiring DOD to recertify the program (otherwise the program would have been terminated). As part of this process, DOD worked with NOAA and NASA to restructure NPOESS in order to decrease costs and reduce program risk**.** Concluded in June 2006, this effort assigned highest priority to preserving continuity of operational weather measurements, which ultimately led to a decision to remove several key climate and space weather capabilities from the NPOESS satellites. In addition, the number of planned satellites was reduced from a total of six satellites (flying in three orbits) to four satellites (in two orbits), while relying on European weather satellite systems for data in the third orbit. Despite this restructuring, development and acquisition costs (i.e., life cycle costs) for the program nonetheless rose from $7B (in 2002) to approximately $12B in 2006.

By 2009 the official cost estimate had risen to $13.9B. Faced with these additional cost increases and further delays, the three agencies requested that a high-level Independent Review Team (IRT) examine the program. The team was led by A. Thomas Young, former President and Chief Operating Officer of Martin Marietta, and included aerospace experts from industry, academia, and government. The IRT concluded that the NPOESS program "…as constructed had an extraordinarily low probability of success." (A. Thomas Young testimony to House Science and Technology Committee, June 17, 2009) In addition, the Government Accounting Office (GAO) has conducted eight reviews of the program, including one reported on today, all showing serious lapses in capabilities that, in turn, threaten the continuity of weather and climate data.

The EOP Analysis of the NPOESS Program and Findings

Supporting the Nation's weather-forecasting and climate-monitoring capabilities is of great importance to the Administration, and we recognize the critical role that NPOESS was intended to play in providing these vital capabilities. Because of the extensive difficulties that this program has experienced in recent years, Dr. John Holdren, Assistant to the President for Science and Technology and Director of the Office of Science and Technology Policy (OSTP), began to meet with the heads of agencies soon after his confirmation last year in order to assess what potential changes needed to be made.

At his request, I convened an Executive Office of the President (EOP) Task Force on this matter starting in August 2009, with participation from the Office of Management and Budget (OMB) and the National Security Council (NSC), as well as from the three lead agencies: NOAA, NASA and DOD. The goal of the Task Force was to determine suitable options for structuring the program for success in order to ensure continuity of the Nation's weather and climate observational needs. With close agency cooperation, the Task Force performed a thorough and careful analysis of a number of aspects of the program, including content, cost projection and budgeting, and acquisition issues. The Task Force also examined options for changing the management and governance, taking into account the recommendations of the IRT noted above, as well as the concerns raised by numerous Members of Congress.

The EOP Task Force met regularly over a period of two months and assembled working groups with senior staff from the lead agencies who met weekly to assess the current difficulties with the program and to provide guidance on options for structuring the program for the greatest benefit for the Nation. The goals of the Task Force were to resolve issues in the following areas:

1) Aligning Priorities and Requirements. The Task Force identified significant commonality among agency interests and priorities, but found important differences as well (e.g., in defining acceptable risk levels for data continuity and in determining whether program schedules could be slipped further to accommodate cost/budget constraints).
2) Determining the Available Options for Reducing Risk. The Task Force conducted analysis of options for mitigating program risks, improving the probability of success, and enhancing constellation robustness in terms of both program content and schedule).
3) Budget and Costing Methodologies. The Task Force analyzed the costing methodologies and budgeting philosophies of the agencies in an attempt to reach a common understanding of the financial state of the program, the projected costs of options under consideration, and the necessary funding reserves.
4) Program Management and Acquisition Issues. The Task Force looked at possible improvements in program oversight and governance, such as the functioning of the EXCOM, the alignment of the IPO with a space acquisition center, and contractual issues.

The details of the Task Force analysis, deliberations, and findings are discussed below.

Cost-estimates

The most apparent challenge of the program was the rising cost-estimates and astounding life-cycle cost growth. The Task Force found disagreement among the agencies on both cost-estimating methodology and levels of risk tolerance, which resulted in differing agency conclusions on costs of the program at any given point in time. In addition to developing an understanding of the assumptions and outputs of these costing methodologies, the Task Force analyzed cost-estimates for various changes in management options. These options included

possible continuation of the program under the current IPO structure, as well as alternatives such as moving the management function for the program to a single acquisition center—either the Air Force Space and Missile Systems Center (SMC) or the NASA Goddard Space Flight Center (GSFC).

During the analysis in the fall of 2009, the Task Force concluded that the life-cycle cost of the program would exceed the official 2009 estimate of $13.9B regardless of cost methodology or changes in management. Recent analyses conducted by external groups supported this finding – for example, in 2009, both the IRT and the GAO concurred with the agencies' assessment of cost growth and estimated that this figure would increase by at least $1B to $2B. The DOD estimates presented in October 2009 for the NPOESS program of record showed an increase of approximately $1B, and in November 2009, the IPO provided a revised cost-estimate showing an increase of approximately $2.5B over the official estimate. NASA had also previously performed various cost-estimates for the NPOESS program of record, but these estimates assumed that the program had been conducted within NASA from the beginning, and thus were not directly comparable to the official cost estimates.

The increasing cost estimates and the absence of consensus among the agencies on the appropriate estimate to use reflected a fundamental problem with the program – namely, that there were significantly divergent views among the agencies as to the overall requirements of the program. The inability of the agencies to compromise on this basic matter highlighted a further conclusion of the Task Force – that over time, the goals of the agencies associated with the program had drifted apart significantly. The risk of further escalating cost, on a program with approximately $5B invested through FY2009 (and which had a life cycle cost originally estimated as $7B in 2002), was notable and concerning.

Qualitative Analysis

The Task Force's examination of the management structure and challenges revealed that the current governance structure was the major impediment to program success. As described in the IRT report, and affirmed in other analyses (including that of the Task Force), the Tri-agency EXCOM had not proven effective for making timely decisions and resolving technical challenges on this extremely complicated and dynamic program. Despite attempts at improved management and oversight, such as more frequent EXCOM meetings, deputies-level commitments and meetings, and reviews with the IPO, the EOP leadership did not see adequate gains in effectiveness resulting from this governance arrangement, nor did it see any possible substantial gains from improvement of the IPO that would move the program toward success. In large part, this was a failure of governance architecture. When presented with decisions affecting rising costs, schedule delays due to failed tests, required redesigns or inconclusive failure analyses, the EXCOM principals provided perspectives for guidance that were not in alignment.

These differences in desires and expectations meant, in effect, that the Program Executive Officer (PEO), a NOAA employee, answered to three decision bodies—the EXCOM, NOAA management, and DOD - each with their own visions of program imperatives. Senior program leaders were presented with challenges, often developed exhaustively by their deputies and staff, reflecting different perspectives on how NPOESS progress was or was not satisfying agency-unique goals. The processes associated with making major decisions across three agencies were onerous and inadequate to provide timely resolution of curative measures, even after more than eight years of these agencies trying their level-best at compromise (and 16 years since the inception of the program). In addition, the IPO team, although dedicated to the mission, highly motivated, and led by a capable leadership team, was not structured with the right numbers of highly experienced acquisition and engineering personnel, despite some improvements following the 2005-2006 restructure.

Furthermore, the Task Force found chronic problems in the contract management structure with few obvious solutions. For example, the prime contractor had continuing difficulties managing individual sensor projects, especially the Visible/Infrared Imager/Radiometer Suite (VIIRS). These sensors are among the most exquisite in the field of remote sensing and are challenging to develop. Although the prime contractor's senior leadership applied seasoned manpower to better manage the activities, there was no probable path to building adequate and timely capacity within the contractor workforce of the magnitude needed to effectively manage the technical challenges of the program.

One fundamental qualitative question the Task Force addressed was whether merging civilian and defense weather observation requirements, while also adding requirements of continuity of certain climate data records, all onto one common platform, was the optimal or a sustainable approach for the long term. (Note that the original 1994 PDD did not specify converging to one common platform, just to one "system.") The IRT recognized that the major challenge of NPOESS was joint execution of the program by three agencies with different technical objectives, acquisition procedures, engineering and management philosophies, risk tolerance, and approaches to managing budget adjustments. Trying to find common ground on a single program (with a single common platform and a uniform set of instruments) proved to be an extraordinarily difficult task. The NPOESS program was initiated under the pretext that cost savings and efficiencies could be achieved through consolidation of military and civilian weather observation requirements; however, these cost savings and efficiencies have not been realized to date. The possibility of continued developmental challenges, escalating costs, and increasing risk, led the Task Force to conclude that the program would not be able to succeed as currently structured, and that it would be better to shift the NPOESS program away from the existing management paradigm sooner rather than later.

Thus, the decision to restructure the program to split the responsibility of procurement was rooted in a success-based, simplified management scheme that addressed the systemic problems identified by the IRT, and subsequently confirmed by the Task Force's own analysis. In addition, separate procurements allowed for the civilian and military entities (NOAA-NASA and DOD) to develop and fly satellites more ideally focused for their needs, while still reducing redundancy, and maintaining a converged "system" of satellite data through a shared ground and data system operated by NOAA, an area of proven success.

External Views in Support of the Task Force's Conclusions

The EOP Task Force's conclusion that significant changes needed to be made to the management structure matched the conclusions of external reviewers. The IRT report stated that "the NPOESS EXCOM process is ineffective and must be fixed," and that "the IPO [does] not have sufficient space systems acquisition expertise and process" necessary for a program of this size. The IRT report stated that the program "is being managed with cost as the most important parameter and not mission success." The IRT suggested that "an established space acquisition center, such as [SMC or GSFC]" would provide "the institutional knowledge, robust infrastructure support, and a cadre of seasoned space system acquisition experts" to ensure success of the program. The report recommended that the parties agree to a cost-estimating approach that is based on an 80% confidence level. (DOD currently estimates cost to a 50% level based on schedule that is more conservative than the IPO.) Finding the then-current ($13.9B) cost estimate of the program unrealistic, the IRT noted that while a significantly more conservative (e.g. 80% confidence) cost estimate would be judged by the DOD to be unaffordable, a program which would fit within the then-current budget would perform at such a reduced level that it would be unacceptable for NOAA and NASA. Believing that the EXCOM would be unable to resolve this difference, the IRT report stated that "this will require the White House to define the NPOESS program that is in the national interest."

These views were not just held by the IRT. The final conference report for the FY2010 Commerce Justice and Science (CJS) Appropriations bill (House Report 111-366, to accompany H.R. 3288 or Public Law 111-117) stated that "the budget request does not reflect the true need and the program's long-term projections for success remain in doubt. In fact, to date this experiment in combining disparate elements has been a horrendous and costly failure." Noting that "this situation has been developing for some time and is the result of a dysfunctional tri-agency management approach," the conferees went on to state that "nothing short of an immediate and out-of-the-box solution will do." The conferees stated that "the program needs a cooperative solution that will take advantage of the strengths of the three agencies involved, sustain the integrated operations of the various satellites, and should not be based on financial projections that have proven to be consistently and abysmally unreliable." The Task Force took

this and other direction of CJS appropriators into account when determining the best path forward.

Restructuring the NPOESS Program for Success

EOP leadership reviewed the Task Force's analysis and, in consultation with the agencies, decided to restructure the process through which the three agencies collaborate to implement the Nation's polar-orbiting environmental satellite program - specifically, by proceeding with separately managed acquisitions. The Task Force had reviewed the full range of ramifications and risk mitigation to ensure the decision was indeed prudent. The February 1, 2010 restructuring decision was made by the leaders of the relevant offices in the EOP, specifically by the OSTP Director, the OMB Director, and the National Security Advisor, after an intensive interagency process involving the EOP Task Force and top officials and supporting staff from NASA, NOAA, and DOD.

The agencies will rely upon the civil and defense establishments to construct, manage, and operate their respective tailored systems with proactive approaches to controlling cost, meeting schedule needs, and achieving performance goals. The key elements of the restructured program will retain the observational requirements of the NPOESS program; however, NOAA and DOD will be responsible for meeting these requirements through their assigned orbits:

- NOAA, with NASA acting as the acquisition agent, will be responsible for the afternoon orbit.
- DOD will be responsible for the early-morning orbit.
- The European Organization for the Exploitation of Meteorological Satellites (EUMETSAT) will continue to provide observations in the mid-morning orbit.
- The agencies will continue to partner in those areas that have been successful in the past, such as a shared ground system and operation of both the early-morning and afternoon orbit platforms by NOAA.

The NOAA portion of the restructured NPOESS program is called the Joint Polar Satellite System (JPSS). EUMETSAT retains the name Meteorological Operational satellite (MetOp) for its polar-orbiting assets in the mid-morning orbit. The DOD program development will flow from established processes. Remaining DOD Defense Meteorological Satellite Program (DMSP) satellite capabilities provide enough time for DOD to study priorities and alternatives for the early-morning orbit program. All three agencies are still closely collaborating on aspects of developing a next generation polar-orbiting environmental satellite system.

In summary, the restructure was driven largely by the Task Force's recognition of the inability of the current tri-agency governance structure to effectively manage the acquisition process, which contributed to cost growth and schedule delays. Maintaining this structure would likely have continued the history of schedule slips and cost increases, jeopardizing the availability of critical weather and climate data.

The program restructure, therefore, accomplishes the following goals:

(1) It reduces the risk of schedule slips and cost increases by clarifying acquisition authorities through splitting the procurements and making a single agency responsible for each orbit.

(2) It allows each agency to manage its program within its own agency culture and environment. The platforms for the respective orbits will be developed and procured so as to leverage the strengths of each agency, and also to best harness the experience each agency has in continuing and improving on legacy measurements.

(3) It provides clear accountability, responsibility, and authority for each orbit, and simplifies the complicated tri-agency decision processes that made management and oversight difficult and contributed to the prior poor performance of the program. The agencies will continue to partner in those areas that have been successful in the past, such as a shared ground system and operation of both early-morning and afternoon platforms by NOAA.

(4) It allows for greater government control over the development process. This will enable NOAA (with NASA as its acquisition agent) to have greater control over setting the pace of work that is required to develop the instruments and space and ground segments for the afternoon orbit.

(5) It retains strategic coordination across the civil and defense programs. The civil and defense weather and climate communities are critically dependent upon data from all the orbits.

(6) It aligns with proven acquisition centers. As noted by the IRT the program lacked timely access to technical expertise, broad mentoring and development opportunities for staff, and rigorous checks and balances of engineering and program processes. The Administration followed the recommendation of the IRT concerning alignment of the program with an established acquisition center - in this case, NASA's GSFC will be NOAA's acquisition agent for the afternoon orbit, and the Air Force SMC will be DOD's acquisition agent for the early morning orbit.

While the NPOESS program restructure has the potential for adding some near-term risk to NOAA and DOD associated with a transition, the improved management structure of the follow-on programs will enable the agencies to proceed in a more effective and efficient manner in the mid to long term. The ability to recover lost schedule and rebuild critical spares will not occur overnight, and it will take some time to recover the robustness of the past national polar satellite

missions. However, the ability to use different spacecraft as well as international and commercial platforms will provide more flexibility to achieve improved continuity of observation in the near term.

I want to be clear that we are not "cancelling" the program, but merely restructuring the procurements. We will be taking maximum advantage of the investments made to date, by maintaining almost all of the hardware that has been developed for use on future platforms. The Administration believes it was in the best interest of U.S. taxpayers to restructure the NPOESS program. The decision is supported by the long history of reviews called for by House and Senate authorizers and appropriators and completed by GAO, by other reviews completed by the Department of Commerce Inspector General as well as senior-level independent reviews of the program.

A Strategy for Improving Earth Observation Capabilities

With the NPOESS decision behind us, I believe it is essential to focus on the broader issue of the development of a comprehensive strategy for Earth observations, both from space and *in situ*. We live in an era of unprecedented stress on our planet. The combination of population growth, climate change, resource demand, and the continuing development of coastal and built areas creates unparalleled challenges for our health, economic, and natural resource management and maintaining our National security. A robust infrastructure of Earth observations about the Earth/ocean system and how it is changing over time will best support our Nation's need to inform decisions and policy. Additionally, in this ever-more global society, information and understanding derived from Earth observations are important in sustaining the U.S. role in global leadership.

The myriad of Earth observations from space taken today vary widely in purpose and scope and are appropriately distributed among numerous programs under the purview of Federal agencies and other institutions and individuals. To a large degree, these observations have been only loosely coupled, coordinated, and integrated. The critical leap forward can only be achieved with a synergy between remotely sensed and *in situ* observations supported by robust data systems. The Administration recognizes that a coordinated approach is needed to sustain and build on the current set of Earth observations.

<u>System of Systems Approach to Earth Observations</u>

Increasingly the promise of a coordinated approach to Earth observations is being realized, and seemingly disparate observations are being combined in new ways to produce benefits across multiple societal areas. The concept of an integrated Earth observing system is being articulated internationally by the Group on Earth Observations (GEO), with leadership from the United

States provided by the agencies through the U.S. Group on Earth Observations (USGEO), which is a standing subcommittee of the National Science and Technology Council (NSTC), and by the EOP through OSTP. In 2005, GEO initiated a 10-year plan to implement a Global Earth Observation System of Systems (GEOSS) to coordinate observations at the international level. Eighty-one countries, the European Commission and over 50 international organizations are currently engage in this effort. As U.S. co-chair of GEO, I chaired the Sixth Plenary Session of GEO hosted by the United States here in Washington last November. I continue to work with the other co-chairs from the European Commission, China, and South Africa and the GEO Secretariat to realize the vision of the "system of systems" approach to Earth observations.

The U.S. contribution to GEOSS is the Integrated Earth Observation System (IEOS). GEOSS and IEOS will facilitate the sharing and applied usage of global, regional, and local data from satellites, ocean buoys, weather stations, and other surface and airborne Earth observing instruments. The end result will be access to an unprecedented amount of environmental information, integrated into new data products benefiting societies and economies worldwide. USGEO is continuing to help ensure the coordination between our national assets and the emerging international architecture for Earth observations.

Status of Earth Observations in the United States

The state of the U.S. space-based observational system in 2009 was largely unchanged from that of 2005, when an interim report of the National Research Council's committee that produced the Earth Science and Applications from Space "Decadal Survey" Report described the national system of environmental satellites as "at risk of collapse." Later, in 2007, the Decadal Survey Report concluded the outlook had significantly worsened. The likelihood of a degradation in land imagery capability, affecting multiple societal needs (e.g., agriculture, biodiversity, climate, ecosystems, water, etc.), was almost a certainty. In addition, no plans had been developed to continue some of the valuable observations demonstrated by the NASA Earth Observing System (EOS) program that benefit the disaster preparedness, human health, climate, and water areas. Continuity of the weather observing system was also threatened by reductions and delays in the NPOESS program, and plans for climate measurements on NPOESS had been scaled back.

In an overall sense, deployments of new and replacement satellites were not keeping pace with the termination of older systems, even though many existing satellites are operating well past their nominal lifetimes. A number of satellites built as research missions were seen to have ongoing societal benefit, but there were no plans for continuity of many of these. Given the long development times associated with fielding new systems, particularly satellite systems a sustained commitment to sensor system development is necessary to avoid a loss of observing capability in the next decade.

In addition to global observations made from space, *in situ* measurements provide critical data at fine spatial and temporal scales and of parameters and in places not achievable from space. Our observational infrastructure for some in-situ measurements has been aging and investment in monitoring programs has declined despite growing demand. And, there still remains the grand challenge and promise of using geospatial information to link the broad coverage and context of our top-down remote-sensing view with the comprehensive and detailed measurements made *in situ* in order to best characterize and understand environmental resources.

These realities reinforce the need to address the challenges and recommendations in the NRC's Decadal Survey. The Administration has taken decisive steps to begin reversing the trend of declining observational capabilities. The longer term need is the development of an overall national strategy for Earth observations.

The initial step was to put the Nation's system of polar-orbiting operational environmental satellites on a path to success, as plans for continuity of a number of Earth observations from space had been tied to NPOESS at one point or another in the program's history. There was first a need to "bound" the capabilities of the polar-orbiting operational environmental satellites in order to avoid the problem of having large, monolithic platforms responsible for obtaining an overly broad set of measurements, which contributed to the fragility of the constellation of Earth observing satellites by having a "single string" failure mode. Once the "bounds" of the future platforms were determined, only then could the Administration focus on where the agencies needed "to fill in the gaps" in terms of continuity of key climate observations.

For the near-term, the Administration has recently made a significant step in regards to continuity of key climate data from space with the substantial increases in funding as part of the FY2011 budget for NASA's Earth Sciences program. NASA will be using this augmentation to address pressing scientific and national issues associated with climate change and the Nation's climate research and monitoring capabilities. As recommended by the NRC's Decadal Survey, this budget returns NASA Earth Science funding to the approximate level that it had in FY2000, an increase of more than 30% from recent levels. This funding allows for the acceleration and expansion of activities across the entire, coordinated Earth Science program—in the areas of flight missions, research, applications, and Earth Science mission technology development—thus advancing the balance and scope that have been hallmarks of NASA Earth System Science. In addition to building the Orbiting Carbon Observatory-2 mission for launch in 2013, NASA will: accelerate development of the four NRC Decadal Survey Tier 1 missions so that they are all launched by 2017; accelerate and expand the Venture-class line of competed, innovative small missions; initiate new space missions to address continuity of high-priority climate observations; and bring two Decadal Survey Tier 2 missions forward to allow launch by 2020. Complementing the flight portfolio expansion, NASA will advance climate research, multiply applications using the full set of available (NASA and non-NASA) satellite measurements for direct societal

benefit, and develop/mature technologies required for the next generation of Earth observing missions.

As part of the U.S. Global Change Research Program's (USGCRP) role in coordination of the federal climate change research portfolio across all the relevant agencies, the principal agency representatives to USGCRP reviewed NASA's draft plan for the FY2011 augmentation, and these reviews will be taken into account as NASA moves forward in implementing the plan. I anticipate that the details relating to NASA's implementation of the augmentation for FY2011 will be available in the coming weeks. We intend to utilize USGCRP in a similar manner in the future as a mechanism for ensuring broad federal coordination on climate observations.

Progress Toward a National Strategy

The Administration will be drawing on the analysis of USGEO to assist in the development of a comprehensive strategy for Earth observations, as called for in the recent GAO report *Environmental Satellites: Strategy Needed to Sustain Critical Climate and Space Weather Measurements*. OSTP is utilizing analysis from USGEO as input for reporting requirements to Congress (specifically the FY2010 CJS Appropriations Conference Report language) which directed OSTP to develop a strategy on Earth observations. This report will be a first (but very significant) step in developing a larger strategy for Earth observations.

Working toward a national strategy will be a priority for the Administration in the coming year, including the coordination of multi-agency initiatives and budget submissions from individual federal agencies. Other elements of that strategy are already in development, and they include articulating high-priority environmental policy priorities that can be directly advanced through improved Earth observations, identifying Earth observation-derived information requirements held in common across federal agencies, evaluating existing and imminent gaps, preserving the continuity of existing critical observing systems, and recommending new systems as appropriate.

Concluding Remarks

OSTP will continue to play an important role in coordinating interagency satellite observation policy. We must increase government oversight and improve the interagency partnerships central to the management of civilian satellite programs, which among other things are critical to the Nation's climate and weather forecasting. We need to proactively manage our programs to avert future cost and schedule overruns. Agencies must work together to manage the contractors building these satellites and demand cost and schedule accountability. Successfully restructuring the NPOESS program and ensuring continuity of weather and climate data has been a high priority for the Administration's leadership team. We will continue to meet regularly with

NOAA, NASA, and DOD to ensure a smooth transition of the program to meet the Nation's need for weather forecasting, storm-tracking, and climate monitoring.

As Associate Director for Environment for OSTP, I regard one of the primary functions and principle challenges of OSTP to be providing the leadership and needed coordination of Earth observations to ensure that our decision makers, our businesses, our farmers, our health care workers, and all our citizens have the information they need to take actions to improve human well-being and environmental management, particularly as the climate changes. Working in partnership with the OMB and the Congress, we aim to pull together the expertise across the government, drawing from each agency's distinctive capacity, to construct the relationships and interactions among the agencies that will result in a program for Earth observations that contributes to both our national prosperity and our national security.

The Administration obviously will need the support of the Congress in moving forward with a broader strategy for Earth observations. I look forward to working with the Committee in this effort. I will be pleased to try to answer any questions the Committee may have.