

STATEMENT OF
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NORTH AMERICAN AEROSPACE DEFENSE COMMAND
AND
UNITED STATES SPACE COMMAND
BEFORE THE UNITED STATES SENATE ARMED SERVICES COMMITTEE
STRATEGIC SUBCOMMITTEE
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Mr. Chairman and members of the Committee:

I welcome this great opportunity to appear before the Committee and represent the outstanding men and women of the North American Aerospace Defense Command (NORAD) and United States Space Command (USSPACECOM). Although new to the position, I am already impressed with the hard work and dedication of the professionals in these fine commands. Their commitment is the reason North America enjoys superior homeland defense and our Nation leads the world in military space operations.

As we move into the future the importance of space will continue to increase. This is not to say there will be a commensurate decrease in the importance of the other mediums. We will, however, rely more and more on space forces for robust communication, precise navigation, weather, and timely threat warning. The 1999 National Security Strategy reflects the growing importance of space as it states that "unimpeded access to and use of space is a vital national interest--essential for protecting U.S. national security, promoting our prosperity, and ensuring our well-being." The men and women of USSPACECOM understand the importance of their role in meeting the challenge of the future security environment.

We will continue to build on the great work that has been done over the last 42 years in NORAD. American and Canadian forces assigned to NORAD have been on alert watching for threats against this continent through much of the Cold War and now into the 21st century. The NORAD agreement has been and continues to be vital to ensuring the security of North America. The formal NORAD agreement has been renewed eight times and is due for renewal next year.

Complementing NORAD as another pillar of strength is USSPACECOM. Created in 1985, USSPACECOM ensures continuous superiority for the U.S. in the mission areas of space support, force enhancement, space control and most recently, computer network defense. With technological advances accelerating

and increasing national and Department of Defense reliance on space-based capabilities, our missions are "growth areas." We will continue to work hard to meet the challenges.

Today, I will convey our ability to conduct our assigned missions in support of the National Security Strategy through discussions about the people who make these commands so capable, their accomplishments over the last year and the readiness of the Nation's critical military space systems. Finally, I will close with our plans to ensure we maintain the warfighting edge in space-based capabilities.

People Make It Happen

Over 15,000 people are assigned to NORAD and USSPACECOM and their respective regions and components--dedicated professionals from the United States and Canada, stationed worldwide. And what a tremendous team it is of military members, civil servants, and over 800 reserve and guard personnel--a true total force. Whether an airman is sending commands to a Global Positioning Satellite from Colorado, a fighter pilot is standing alert in Alaska, a soldier is providing tactical ballistic missile warning in the Pacific theater or a sailor is ensuring satellite communications to surface ships in southwest Asia, the people of these commands provide aerospace defense to the people of North America and space support to our warfighting forces 24 hours a day, 7 days a week. We need to ensure our units are properly manned and equipped so our people work reasonable hours under favorable conditions. These critical professionals deserve the investments in quality-of-life initiatives associated with compensation, retirement, medical care and housing that improve recruiting and retention.

As you know, we face tough recruiting and retention challenges. Take for example our Air Force enlisted space operators. We train these men and women to operate and maintain sophisticated space systems. These same skills are in high demand in the civilian work force. The lure of higher paying

civilian jobs with exceptional benefits entices experienced space operators to leave the military. The result of lucrative civilian employment has had an adverse impact on our retention rate. The FY99 reenlistment statistics for our Air Force enlisted space operators tell the story:

Category	Reenlistment Rate (Actual/Goal)
First Term Airman (approximately 4 years service)	64%/55%
Second Term Airman (approximately 8 years service)	70%/75%
Career Airman (approximately 12 years service)	86%/95%

We need to find ways to retain sufficient numbers of second term and career airmen because they ensure the continuity and training we provide for our younger force.

We also keep a close watch on the development of space operators in the other Services. In 1998, the Army established an officer space operations specialty and in 1999 established their first Space Battalion at Army Space Command--a significant step forward to secure a future with "space-smart" military leaders. The Navy and the Marine Corps are also securing the future of space by enhancing their space operators' experience through education and space-related assignments. We must capitalize on these investments by encouraging these people to stay in the Service too.

Retention will be easier with the quality-of-life initiatives passed by Congress and signed by the President last year. We greatly appreciate both the support of Congress and the Senate Armed Services Committee for these important initiatives. The FY00 National Defense Authorization Act made great strides to enhance our future readiness. Approval of the Compensation Triad committed the Department to retirement reform, pay raises that are one-half percent above the increase in the Employment Cost Index, and pay table reform. These actions are a step forward, and we will continue to work with the Committee to find ways to improve quality of life even further.

We support the quality-of-life initiatives in the FY01 President's Budget such as funding improvements for the elimination of TRICARE co-payments for our military families and decreasing service members' out-of-pocket housing expenses. Your support for these initiatives will send a clear message to our military professionals that their Nation appreciates the sacrifices they make.

Another area that will affect our people is the Congressionally-mandated reduction in personnel from our Unified Headquarters staff. While we always look for more efficient ways to operate, the timing of this reduction should be reconsidered. Cutting the staffs by 15% will result in a loss of 65 billets from USSPACECOM headquarters at a time when this command has assumed the responsibility as the single point of contact for military space operational matters, and the new missions of computer network defense (CND) and computer network attack (CNA). A reduction of this size will adversely affect our ability to execute these new missions, as well as perform our existing missions. We need the Committee's help to readdress the issue of these mandated personnel reductions.

Our Accomplishments

Our people always bring a positive attitude and the professionalism required to meet the needs of the mission in spite of the many challenges. I am very proud of all our men and women in uniform, and especially proud to serve with the warriors from NORAD, USSPACECOM and our regional and component commands. Together over the last year, we have proven that space is an integral part of modern warfare. I would like to share with you some of USSPACECOM's accomplishments to illustrate the full extent of our military's use of space assets.

Space Support to Operation ALLIED FORCE. Space played a critical role during Operation ALLIED FORCE by providing many space support firsts to U.S. and allied warfighters. Support from space touched all aspects of the

campaign, including missile warning, precision munitions, timely weather, around-the-clock surveillance, dedicated secure communications and accurate battlespace characterization. Capabilities such as these are reducing the "fog" of war and providing the insights and tools our theater commanders need to increase their situational awareness. Victory without one combat-related casualty shows just how well we have integrated air and space into true aerospace operations.

A dramatic example of leveraging the ultimate high ground and the inherent flexibility of space forces during Operation ALLIED FORCE was our support to bomber operations. We installed the Multiple Source Tactical System and Track II Systems on our forward-based bombers. Using information from space-based assets, these systems provided exceptional situational awareness directly to the cockpit to include near real-time information on threats, position and status of other friendly platforms, mission rehearsal data and updated target parameters and imagery. All of these enhancements enabled flexible targeting of our airborne assets. As a result of this success, Air Force Chief of Staff, General Mike Ryan, approved a combat mission needs statement to acquire this enhanced capability for the bomber fleet.

We continue to find innovative ways to get the most out of the venerable Defense Support Program (DSP) constellation of strategic missile warning satellites. By integrating new data processing capabilities into deployed systems, our space operators provided near real-time reports on bomb and cruise missile impacts. This allowed planners to assess attack effectiveness and accurately build future strike packages.

The contributions of our space forces in Operation ALLIED FORCE were vital. Could we have fought and won without space-based forces in ALLIED FORCE? Yes, but we may have lost many lives, caused a great deal more collateral damage and fought a much longer conflict.

Another area that emerged during this operation was the importance and susceptibility of computer networks. While not an extensive strategy during this conflict, we identified vulnerabilities and opportunities for future military actions. USSPACECOM has taken on the responsibility to confront this emerging threat with the mission of computer network defense and soon the mission of computer network attack.

Computer Network Defense/Computer Network Attack. There is a real and growing threat to Department of Defense unclassified computer systems and networks. It is no secret that the U.S. military's operational capability depends on information superiority--our ability to make smarter, faster decisions. This is both a tremendous advantage and a potential vulnerability. The threat is broad-based, coming from a wide spectrum of actors. One has to look no further than the recent interruptions in service of commercial sites like Yahoo and Amazon to appreciate the vulnerability of computer networks. Deputy Secretary of Defense John Hamre reported in February 1999 that the Department of Defense is "detecting 80-100 (potential hacking) events daily." Examples of successful hacks last year include the Melissa Macro virus, as well as web page attacks against Department of Defense, government and private sector computers during the Kosovo crisis. However, hackers are by no means the only threat we face. Criminal groups, disgruntled insiders, and non-state actors pose serious challenges as well. Perhaps the most significant threat comes from several foreign nations believed to be developing information warfare doctrine, systems and forces to employ during peacetime, crisis or war. To combat such attacks within the Department of Defense, on 1 October 1999, the President assigned USCINCSpace the responsibility to lead the CND mission.

With the realignment of the Joint Task Force for Computer Network Defense (JTF-CND) and the Joint Information Operations Center (JIOC) under USSPACECOM we were able to launch our efforts to protect and defend information vital to our military forces and defense agencies. The Department of Defense is

increasing its information assurance capability and bolstering local CND of all networks operated as part of the Defense Information Infrastructure. Our scope on CND is global in nature, looking across all the Department of Defense's networks to ensure no malicious activity goes undetected. While this vital mission area is highly technical and embryonic, we are committed to success. USSPACECOM's top CND priorities include: obtain the resources necessary to successfully execute the mission; conduct real world operations and support; plan and conduct a major joint CND exercise; and address a wide range of policy, doctrine and requirements associated with global CND. Although we have garnered several successes recently, including the Y2K rollover, the mission does not permit us to rest on our laurels. We will continue to work hard to improve.

Within NORAD and USSPACECOM, our people ran one of the most comprehensive Y2K testing programs in the Department of Defense and certainly the most comprehensive operational evaluation program in the history of these commands. They left no rock unturned in checking systems in each mission area through sixteen large-scale Y2K operational evaluations. Our teams partnered with other CINC staffs, the Services, the Department of Defense and other government agencies to ensure all system interfaces operated properly. We identified some of the first Y2K bugs and continued testing through 1999 to eradicate each one. As with the rest of the Department of Defense, we did these tests during a time of high operations tempo; we also did them while assimilating CND into our operations. The results on 1 January 2000, and again last week for the Year 2000 leap-year date, speak volumes about the professionalism and dedication of our people.

Additionally, we are finalizing plans for our first major joint exercise--Apollo CND--to validate our operational methods to protect and defend our networks from attack. This CND exercise, in concert with U.S. Pacific Command and U.S. Transportation Command, will specifically examine our command and control structure and procedures. Our goal is to sharpen our

operational focus and increase our effectiveness in this area. We are also working closely with the other CINCs to integrate CND capabilities into future exercises and real-world operations.

We all recognize the essential need to defend our networks against attack. We are moving in the right direction; however, the Department of Defense cannot do it alone. That is why we requested an industry look at common interests in the CND arena. The National Defense Industry Association (NDIA) Space Committee, a national-level committee led by retired Vice Admiral David Frost with senior-level industry representatives conducted this study. The NDIA Study, "Computer Network Defense: An Industry Perspective," is still being finalized, but initial findings validate the current Department of Defense CND mission direction.

But we are not just working on CND. On 1 October 2000, USCINCSpace becomes the designated "Military Lead" for CNA. Assigned tasks include: advocating CNA requirements for all Unified CINCs; conducting CNA planning and operations; developing national-level CNA requirements; and supporting other CINCs for CNA. We are already preparing for this new mission and our efforts are outlined in a CNA Implementation Plan that we will submit to the Joint Staff in May 2000 for approval by the Secretary of Defense. We look forward to this new challenge.

Center for Y2K Strategic Stability. While some people in the command ensured our computers worked and our networks were secure during the Y2K rollover, others were charged to maintain strategic stability at the turn of the century. From 28 December 1999 through 15 January 2000, American and Russian military forces served side-by-side in the Center for Y2K Strategic Stability at Peterson Air Force Base in Colorado. The Center was established to enhance strategic stability through the Y2K rollover by employing bi-national monitoring of ballistic missile and spacelift launches. This historic event marked an unprecedented demonstration of cooperation between

our two countries and helped lay a foundation from which negotiators can build the Joint Warning Center in Moscow.

National Reconnaissance Office (NRO) and National Aeronautics and Space Administration (NASA) Partnerships. We continue to expand our strong partnering relationships with NASA and the NRO. With the outstanding support of Dan Goldin and Keith Hall, we are leveraging space systems and capabilities to realize the full potential of our Nation's space power.

Our partnership with NASA improved USSPACECOM's capabilities to perform our space surveillance mission in terms of collision avoidance in space. This allows us to provide NASA improved collision avoidance data for support of Space Shuttle missions as well as the International Space Station.

Through our partnership with the NRO, we have produced a greater coordination among our respective operations as illustrated by the electronic links at our control centers that provide the geographic CINCs a single, up-to-date source for information. But the true strength of our partnership with the NRO can best be measured through the employment of space support to the warfighter. The results discussed earlier relating to Operation ALLIED FORCE were in part due to this ever increasing cooperation.

The readiness of our space forces contributed to the success of these great partnerships and the other highlighted accomplishments. With Congress' continued support, we must maintain this readiness for the combatant CINCs who engage in conflict to protect our Nation's interests.

Readiness

Every military operation, from humanitarian relief to full-scale conflict, relies on space systems for success. As stated previously, victory in Operation ALLIED FORCE may have been more costly in terms of lives and time without support from the five military missions we have migrated to space: communications, weather, navigation, warning and intelligence. This dependence demands we pay close attention to the readiness of our space

forces. Moreover, significant sectors of the economy are largely dependent on support from space. In fact, Jim Oberg the author of Space Power Theory, claims that by 2010, cumulative American investment in space alone will reach \$500-600 billion or about as much as the value of present American investments in Europe. Both our military readiness and economic vitality are inextricably linked to the health of our existing military space systems.

Force Protection. It is our job to protect our people. Although NORAD and USSPACECOM forces do not face the same level of threat as those confronting the regional CINCs, we do deploy our personnel to every location U.S. forces operate--sometimes to critical sites that are not on large, protected military installations. The intelligence community continues to advise us of the international terrorism threat and the bombings of our embassies in Africa, the World Trade Center in New York and the federal building in Oklahoma certainly provide the proof. To address this threat we continue to educate our people, identify protection vulnerabilities, and take action to mitigate these vulnerabilities. We appreciate this Committee's support of our force protection efforts and I can assure you that we will continue to place a strong emphasis on protecting our people, facilities and capabilities to ensure our readiness.

Space Launch. Guaranteed, unfettered access to space is another key link to preserving our readiness in USSPACECOM. We must have the capability to place satellites safely into orbit in a timely and efficient manner. In the aftermath of the failed Milstar and DSP launches almost one year ago, both the government and industry studied space launch operations to help prevent future losses of valuable space assets.

Specifically, the White House led Interagency Working Group on Future Management and Use of U.S. Space Launch Bases and Ranges as well as the Air Force's Space Launch Broad Area Review drew astute conclusions. The Interagency Working Group's call for near-term reforms in launch range operations is laudable. For now, the Air Force is best prepared and

qualified to manage our Nation's launch ranges; however, a greater partnership between federal, state, and industrial agencies will help us realize the Interagency Working Group's proposed improvements.

With respect to the Space Launch Broad Area Review, retired General Larry Welch led an independent committee that found both government and industry were looking too far forward, focusing more on bringing the Evolved Expendable Launch Vehicle (EELV) on board in the coming years than on "flying out" the current launch vehicles. To guard against a recurrence of the 1999 launch failures and to ensure we do not jeopardize future space capabilities, the Broad Area Review recommended mission assurance be assigned to the acquiring command, Air Force Materiel Command. According to the Broad Area Review, this would establish clear accountability for mission accomplishment. The Broad Area Review recommendations will also facilitate a seamless transition from our current launch systems to the EELV.

Evolved Expendable Launch Vehicle. The next generation of space launch vehicles, known as EELV, is a critical element in the Department of Defense's strategy for affordable, assured access to space. EELV will use manufacturing and launch process improvements, technology upgrades, commercial market leverage and continuing competition to meet the Department of Defense's spacelift requirements at better than 25% savings over heritage systems.

Range Standardization and Automation (RSA). We must also continue to focus on the modernization efforts for our ranges that support our Nation's space launches. Our space launch ranges are busier than ever supporting the increased demand for access to space. To meet this demand, we must modernize our ranges or the U.S. may lose its share of the worldwide space launch market to foreign competitors. Our RSA efforts will standardize our Nation's space launch ranges, increase our capability to handle aggressive military, civil, and commercial launch rates and replace unsupportable and obsolescent technology--the same technology used to send former Senator John Glenn to

space the first and second times. Modernization of our ranges is essential for they are our gateway to space--a gateway we must preserve to improve our readiness in the space launch area.

Satellite Communications (SATCOM) Systems. Reliable communication systems are another area essential for maintaining a strong state of readiness. Our communications lifelines rely heavily on SATCOM for information needs. We continue to optimize an aging SATCOM fleet while fielding new, technologically advanced SATCOM systems. It will take the commitment of leadership from all parts of our government to ensure new, capable systems are available to meet the increasing information needs of our warfighters.

An area of specific concern over the past year involves our most protected communications system, Milstar. Milstar II is a critical Department of Defense system providing survivable communications at the strategic and tactical levels of command and control.

The loss of the first Milstar II satellite last year was a dramatic setback resulting in a 25% degradation in our projected near to mid-term global tactical satellite secure communications capacity. We have engaged with the other Unified CINCs, the Joint Staff, and the Services to identify ways to mitigate the loss of this critical asset. One possible option that is being explored for feasibility, is to accelerate the acquisition of the first Advanced EHF (AEHF) satellite. This satellite could provide Milstar II-like capabilities while testing new technology for the AEHF system. Meanwhile, we will continue to transition our protected communications requirements to the remaining (unlaunched) Milstar II and on-orbit Milstar I satellites.

We are also developing modernization plans to sustain the readiness of our other SATCOM systems. For example, we plan to use commercial systems to augment military systems whenever possible and economical, because commercial sources are important to us as shown during Operation ALLIED FORCE when 60%

of SATCOM originated from commercial assets. Currently, we are working with the other CINCS, Services, and Department of Defense Agencies to develop a commercial SATCOM strategy. This strategy would temporarily move communications from the fixed-unit locations of military SATCOM systems to commercial fiber or commercial satellite systems during contingencies thereby providing increased SATCOM capability and flexibility for our warfighters.

Success in modern warfare demands reliable, secure communication systems. That is why we expend a tremendous amount of effort to secure the future readiness of SATCOM systems through the modernization actions we take today. We believe we are headed in the right direction and will continue to meet the communication demands of our warfighting CINCs.

Electromagnetic Spectrum. Another key element to ensure unimpeded access to space and ultimately the availability and readiness of our space systems is the international frequency allocation of the electromagnetic spectrum used by the Department of Defense. With continued legislative assistance from Congress and the strong support from the Senate Armed Services Committee, we have secured radio spectrum frequency allocations for advanced satellite communications and surveillance mission systems. We are working very closely with the National Security Space Architect to define a future government space command and control network with improved government satellite management capabilities and reduced costs and infrastructure.

For the upcoming World Radiocommunication Conference this year, we are coordinating multilateral support with certain allied partners to achieve a global frequency protection plan that equally addresses public and private sector interests. We are also looking at another proposal that would limit satellite power thresholds, with the goal of reducing spurious radio emissions that cause interference among military and commercial systems. This is particularly important in the Global Positioning System (GPS) frequency band.

Successful action to secure the Department of Defense's use of the electromagnetic spectrum at home and abroad is critical for our national security. With your continued support, we will be able to protect the environment in which we operate our national defense space systems.

NORAD/USSPACECOM Warfighting Support System (N/UWSS). Preserving the readiness of our command and control systems is just as important as protecting our on-orbit assets. We are transforming the costly and aging NORAD and USSPACECOM Cheyenne Mountain command and control architecture into an architecture designed to meet the information superiority tenets of the 21st century. This new architecture will improve our Battle Management/Command and Control (BM/C2) capability, thereby enhancing our interoperability with other Department of Defense components and providing flexibility to support new missions.

This warfighting support system will link our BM/C2 nodes, including our mobile nodes, with terrestrial and space-based sensors, Joint and Service BM/C2 nodes, the National Command Authorities of Canada and the United States and our warfighters. These links will be a remarkable step forward in the planning and execution of operations at all levels of warfare.

Global Positioning System Modernization. Another asset that is essential for the warfighter is the GPS. GPS continues to be a worldwide good news story from both a commercial and military perspective. The commercial sector finds new and innovative ways every day to exploit this global utility. Whether it is tracking commercial shipments over our Nation's interstate and intra-continental railway systems, increasing throughput capacities of harbors and airports, guiding the business travelers to their final destination, or playing a critical time source role in our Nation's fiscal infrastructure, GPS directly contributes to our economic efficiency and well-being.

The military is no less dependent on this force enhancement capability. Operation ALLIED FORCE demonstrated how important GPS has become to our

precision engagement capability. When extensive cloud cover prevented delivery of precision weapons using infrared systems, the GPS-aided Joint Direct Attack Munition was used with considerable success.

Our national leaders recognize the importance of sustaining and modernizing GPS for both the military and civil communities. As announced by the Vice President last year, the Department of Defense plans to add two additional satellite signals for civil, scientific and commercial use. Additionally, the Department of Defense is reviewing the U.S. policy on discontinuing the use of Selective Availability (SA), a GPS feature that makes the civil signals less accurate than the military signal. With SA "off" and the two new signals, civil and commercial GPS users would enjoy essentially the same level of accuracy currently reserved for the military-- this is a change USSPACECOM strongly supports.

For military forces, new GPS modernization features will ensure GPS availability to U.S. and allied users, even in challenging jamming environments. Additionally, we are modernizing our ground segment with essential command, control, and backup capability to ensure sustained GPS operations. Further, we will upgrade features for monitoring compliance with existing and future international treaty obligations. This modernization program will be tightly coupled to our constellation sustainment program, as several Desert-Storm era satellites reach their end-of-life and require replacement.

GPS modernization is something we must pursue. The new civil signal features and new military capabilities will provide the robust GPS service our warfighting forces need, while simultaneously providing the worldwide civilian community the assurance of new signals and increased accuracy. We are committed to sustaining and modernizing this national resource, as well as preserving its position as the preeminent global position, navigation and timing utility.

Maintaining the readiness of our current space systems like GPS and the others discussed is necessary to protect the vital interests of our Nation. While we maintain the current systems we must also look to the future. Preparing for the threats of tomorrow through the evolution of space-based capabilities will serve to protect our Nation and our allies in the future.

The Future

The worldwide proliferation of space-based capabilities continues and will rapidly accelerate. Today, practically anyone with a credit card and an internet account can buy global SATCOM, precision navigation and one-meter resolution imagery. Further, missile technology is proliferating into the hands of rogue nations and terrorist organizations. As a nation we must research and develop options to combat these emerging threats. USSPACECOM recognizes the need and is working hard to develop tomorrow's space systems today so we will be ready to confront the challenges of the future.

Space Control. Some may consider space a peaceful medium or even an international sanctuary for generating revenue. However, the dependence of our national security on orbiting satellites makes space systems a tempting target for terrorism and adversarial military operations. As these threats continue to evolve, the mission area of Space Control becomes even more important. We are participating with the Services, OSD and other defense organizations in reviewing space control policy and programs. We are also supporting the White House to anticipate and respond to emerging threats to U.S. space systems and their operations, and develop systems that will preserve our unimpeded access to space. These systems will ensure space situational awareness and differentiate between hostile attacks and natural or accidental disruptions, employ a range of protection measures such as hardening and redundancy for on-orbit assets and, if required, deny the enemy the ability to exploit space for hostile purposes. We will continue our emphasis on this emerging technology because it will provide the strength

that preserves neutrality for our Nation and her allies in the space environment.

Space-Based Infrared System (SBIRS). One of our future on-orbit assets that will benefit from the protection of Space Control technology is the Space-Based Infrared System (SBIRS). SBIRS, USSPACECOM's number one priority, will replace our aging DSP constellation and provide missile warning, technical intelligence and refined battlespace characterization, as well as provide support for our national and theater missile defense systems.

SBIRS is a force enhancer. It will improve the prediction of impact points ten times better than today's capability, plus estimate launch points three times better than we do today. This means that SBIRS will allow us to warn a specific city, rather than a large geographical area in a shorter amount of time. Further, the refined estimate in the launch point will strengthen our ability to scramble immediate counter attacks to eliminate platforms such as mobile SCUD launchers. SBIRS will also serve a key role in the national and theater missile defense mission areas. Through its improved capabilities over DSP, SBIRS will more quickly and accurately track the flight paths of ballistic missiles. A missile defense system will use this continuously updated data as part of the equation that guides a vehicle to successfully intercept reentry vehicles threatening our resources.

The Department of Defense is committed to fielding SBIRS soon to replace our aging DSP constellation, enhance our early warning and space surveillance capabilities, and support future missile defense systems. Our current schedule projects the first SBIRS High launch in 2004 and the first SBIRS Low launch in 2006.

Theater Airborne Warning System. Another system that will provide a near-term means of augmenting DSP and SBIRS is the Theater Airborne Warning System (TAWS). We appreciate the Committee's support for the continued funding for this important program.

TAWS will work in conjunction with DSP and SBIRS to provide our theater warfighters enhanced protection from theater ballistic missile attacks. This system fuses space and airborne infrared sensor data to dramatically improve warning times and increase accuracy in determining launch and impact points in the enemy's theater.

With FY99 and FY00 funds, the Air Force executed this program and plans to field the first mission-capable aircraft in the very near future. To support this effort, we are working an initiative with the Aerospace Fusion Center, the Defense Information Systems Agency, and the Ballistic Missile Defense Organization to integrate this capability into the Global Command and Control System--the backbone for missile warning dissemination within the theater.

Space-Based Radar. While we continue to enhance our space-based missile warning systems, there is another program that will dramatically improve situational awareness for our combatant CINCs. The Space-Based Radar demonstration system known as Discoverer II is the number one technology investment priority at USSPACECOM. Clearly, an operational Space-Based Radar providing surveillance of fixed and moving targets offers an unprecedented, all-weather, day and night capability for constant situational awareness. This capability will also provide global coverage and presence in peace and crisis, while synergistically complementing airborne surveillance in major theater wars--a strong force multiplier designed to support battlespace dominance for our theater CINCs.

Space-Based Laser. Another advancement that will contribute to battlespace dominance and enhance a fielded missile defense system is the Space-Based Laser (SBL). We echo the strong support the Senate Armed Services Committee has expressed for SBL and appreciate the need to develop this technology to meet emerging threats. The Air Force and the Ballistic Missile Defense Organization are working together to produce an Integrated Flight Experiment for SBL in the 2012 timeframe. When fully developed, the

ability to provide effective boost phase intercept in support of national and theater missile defense systems will enhance security for our Nation and protection for our deployed forces.

National Missile Defense (NMD). As we approach the Deployment Readiness Review (DRR) for National Missile Defense this summer, we continue to work with the Army, the lead Service for the land-based NMD program, and the Ballistic Missile Defense Organization to ensure the system possesses the right capabilities at the right time to meet the needs of our Nation. Our operations experts work hand-in-hand with the Ballistic Missile Defense Organization's development team to ensure the fielded system will meet operational requirements and expectations.

With specific regard to the DRR and the ultimate recommendation to the President, it is paramount that the system provide an effective defense in negating a limited attack, able to counter the near-term rogue threat, and be able to evolve to counter more sophisticated future threats.

We see the NMD mission as a close fit with our current NORAD mission assignments, especially missile warning. The NMD system will leverage the command and control infrastructure of the Cheyenne Mountain Operations Center and will share ballistic missile warning sensors such as DSP and its replacement, SBIRS, as well as the Early Warning Ground Based Radars of the Integrated Tactical Warning and Attack Assessment system. We look forward to helping refine the NMD concept of operations if the decision is made to deploy the system.

Cruise Missile Defense. In addition to the emerging threat rogue nations pose with the proliferation of ballistic missile technology, we must also address the threat of a cruise missile attack against the North American continent. As aerospace defenders of North America, NORAD is actively engaged with both the Department of Defense and the Canadian Department of National Defense to identify solutions to the cruise missile defense

challenge. We recently submitted a Mission Needs Statement to both agencies identifying the need for Cruise Missile Defense of North America.

The scope of countering this threat must widen to include a coordinated effort among the Services, government agencies and the American and Canadian governments--anything less will dilute the effort expended. Given NORAD's mandate for continental aerospace defense, NORAD is the natural choice to continue the lead for this effort.

Long Range Plan. Our drive to maintain our strength in space through systems like SBIRS, TAWS, Space-Based Radar and SBL is guided through extensive planning efforts. The USSPACECOM Long Range Plan continues to drive our planning and requirements development to achieve our strategic vision. More important than the Plan itself is the process we use to implement the Plan--the Space Planning and Requirement System (SPRS). SPRS provides the foundation for the development of our annual Integrated Priority List and our wargaming activities. We have succeeded in making our Long Range Plan a dynamic document that focuses our efforts toward achieving our strategic vision.

Space Engagement Plan. Another planning effort we are advocating is the establishment of a Space Engagement Plan. This year we will submit a plan to the Joint Staff as the first step in advancing our goal to include space in the global library of theater engagement plans (TEPs). TEPs are strategic plans intended to help CINCs shape the strategic environment as directed by our national leadership. The Space Engagement Plan provides a mechanism that helps USCINCSpace coordinate and synchronize space-specific engagement strategies and activities (i.e., SBIRS notification, Laser Clearing House, and launch notification) with other CINCs. It will ensure important activities and resources are captured, and will serve as the command's strategic operational roadmap to help achieve U.S. goals and objectives. Finally, it provides clear direction for near-term activities, and introduces long-term activity objectives out to seven years. The Space Engagement Plan

will be an active, overarching plan to guide our interactions with other CINCs, as well as civil, commercial, and international agencies.

Conclusion

The forces of NORAD and USSPACECOM stand ready to support our theater CINCs and defend our homeland. To preserve that readiness, we need the continued support of Congress to ensure our military men and women are fairly compensated for their service and are equipped with systems that provide the decisive edge in achieving battlespace dominance.

The emerging threats that exist beyond the horizon send a strong signal that our military must retain the strength necessary to secure unimpeded access to space to protect our Nation's prosperity and well-being. With your help, we will overcome the challenges that lie ahead and continue to secure this vital area of interest for our Nation.

Once again, it is an honor and a privilege to appear before this prestigious Committee, and I look forward to your questions.