



2024 Space Symposium
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INTRODUCTION

Good morning and thanks for inviting me to join you here today.

It's great to be back at the Space Symposium, especially at a time when so much of our nation's attention has been on space. I appreciate the opportunity to talk with you about how the National Reconnaissance Office is using satellites and other space-based capabilities to secure and expand America's intelligence advantage... to keep our nation and our people safe.

RECRUITMENT

I started my presentation with a look at one of the recruiting videos that highlights the diverse careers and skill sets at the NRO. They're being broadcast on social media and streaming platforms. In just the first few months, they reached more than 16 million people and contributed to a 38-percent increase in applications to jobs at the NRO. Those aren't YouTube numbers, but they are pretty good for a government video.

These videos are just one way the NRO is investing in recruiting and retaining a dynamic team – one that represents the diversity of our country and has the skills necessary to meet mission needs.

Right now, the NRO has the world's best space-based ISR capabilities. In order to stay that way, we need all the talent the U.S. and our allies can offer.

We are recruiting from private industry, we're recruiting out of the military, we're recruiting straight out of college, and we're recruiting out of academia.

We also have a robust student internship program that provides a pipeline of talent. It's shown remarkable growth already, as well as tremendous promise for the future. Until 2020, the NRO didn't really have an intern program at all. Last summer, the NRO welcomed 73 interns selected from a pool of 1,100 applicants – more than double the number of applications from the year before. For this year's program, we received more than 3,300 applications, and we are already fielding applications for next summer. So far, we have hired about 35% of our former interns.

We also have multiple programs to send our current employees for advanced degrees, either full- or part-time.



We implemented STEM pay in 2023 to offer higher levels of compensation for in-demand, mission-critical technical skills. We know there's a competitive market for these skills, and talented people have a choice.

So why choose the NRO? We're doing challenging work, work where skilled individuals can make a difference, and work that is important for the country. Once people get in the door of the NRO, they tend not to leave. And those who do leave often come back.

We have an experienced team – people who have been doing this work for a long time – and they are the world's experts. And the new people joining our workforce are bringing an impressive level of knowledge and ingenuity.

GLOBAL THREAT ENVIRONMENT

Now more than ever, that caliber of talent is critical.

The NRO's job is collecting and delivering critical information that can only be obtained from the vantage point of space. Millions of people count on us every day.

Civilian customers depend on space collection to assess damage from natural disasters... predict climate change... and help relief agencies determine how and where to deliver humanitarian aid, to name just a few examples.

The Department of Defense and the Intelligence Community depend on NRO capabilities for national security. For example, we provide geolocations and real-time situational awareness for our warfighters, and high-resolution imagery helps analysts provide solid assessments so policymakers can make informed decisions.

NRO systems are often the only tools able to access hostile territory or rugged terrain, and we can collect critical information without risking human lives or infringing on other nations' territorial sovereignty. Space-based ISR has become "a" primary, if not "the" primary means of collection in denied areas.

Yet we are at a pivotal moment in history.

For the first time in decades, U.S. leadership in space and space technology is being challenged.

Our competitors are actively seeking ways to threaten our capabilities. They are posing unprecedented challenges and cutting into our lead. They are developing weapons to destroy or interfere with our satellites – either kinetically or through directed energy from locations on the ground and in space. This includes both denial and deception, as well as cyber intrusions and cyberattacks that will be a perennial threat to all of our systems.



And they're becoming more aggressive. As Director of National Intelligence Avril Haines noted during her Annual Threat Assessment released to Congress last month, China's commercial space sector is on pace to become a major global competitor by 2030.

To maintain our intelligence advantage, we need to increase our rate of change. We don't just need to innovate... we need to innovate faster than everyone else. Today I'll share with you a few ways the NRO is pushing the boundaries to ensure we stay on the leading edge of innovation.

PROLIFERATION OF ARCHITECTURE

Right now the NRO is developing a capable, diverse, and resilient overhead constellation.

Over the next decade, we will continue to increase the number of satellites operating across multiple orbits – not just large systems that are the traditional hallmark of the NRO, but also smaller, proliferated systems.

Expanding our overhead architecture will provide greater revisit rates, increased coverage, and more timely delivery of information. This will make our collection more agile, and eliminating single points of failure will make us more resilient.

Expanding our overhead architecture also allows us to collect an order of magnitude more data. This means ground operations must evolve as well. The NRO is developing tools and techniques to effectively manage and task the architecture so it can rapidly convert data to information. It's not the bits that matter, it's how the bits get organized into usable information that's important. Working with our Intelligence Community and DoD partners, we will deliver information that's more easily digested by humans. This will help ensure the right data is delivered to the right user at the right time, faster than ever before.

Later this morning, we are scheduled to launch NROL-70 from Cape Canaveral Space Force Station. I invite you to stop by the NRO booth #1456 in the exhibit hall to watch a livestream of the launch, scheduled for 10:53 Mountain Time. This launch is important for two reasons – it marks the end of the Delta IV era and 15 years of the rocket's service to the NRO. And the NROL-70 mission puts into orbit a national security payload that will deliver critical space-based information to our nation's warfighters, intelligence analysts, and decision makers.

Next month, the first phase of our proliferated architecture is currently scheduled to launch as NROL-146. We've already launched a number of demonstrations over the last few years to verify cost and performance, but this will be the first launch of an



operational system. These systems will increase timeliness of access, diversify communications pathways, and enhance our resilience. Approximately half a dozen of these launches are planned for 2024, with additional launches expected through 2028. You'll hear more details about launch locations, dates, and times as they approach.

KEY ADVANCES ENABLING NEW ARCHITECTURES

The new, proliferated architecture is enabled by a few key advances:

First, the cost of launch is coming down dramatically. We have seen the cost for the larger rockets well under \$100 million; and for the smaller, new entrant launch providers, it's less than \$10 million. And we know that continuing to make the cost of launch more affordable is a priority of the National Security Space Launch Phase 3 acquisition.

We have recently launched on previously flown boosters, which also cuts down on cost. We're taking advantage of different launch locations – Cape Canaveral in Florida and Vandenberg Space Force Base in California, and now Wallops Island in Virginia and even New Zealand. The more options that are available, the more the price comes down.

The significant decline in cost to entry for launch has not only opened the market for new commercial space companies, but it has made new architecture approaches affordable to the government – ones that were not affordable just a decade ago.

Second, the performance of current digital technology, driven by the commercial market, has fundamentally changed the design space. It opens the door for architectures and capabilities that did not previously exist. A decade ago, the technology wasn't ready for the types of applications we needed. That's changed. For example, we can now build an entire payload smaller than a power conditioning box from a decade ago.

Another example is a first-of-its-kind experimental research demonstration of new mirror technology called Replicated Composite Optics, or RCO, that the NRO recently put on orbit. Compared to the traditional mirror technology, RCO is lighter, less expensive, and faster to produce.

The demo's primary mission is to test the performance and stability of the RCO mirror on orbit. That's because the space environment can impact the wavefront error of a composite mirror over time. The ability to manufacture mirrors that are lighter in weight could help increase the aperture of NRO's future systems, providing more persistent, higher resolution imagery.



And third, to take advantage of the first two, our approach to acquisitions and risk management is changing. There is no one-size-fits-all strategy... and physics gets a vote. There is continual debate about going fast and taking more risk. And I'm definitely on the "go fast and take more risk" side of the debate, but the devil's in the details. In the end, when the NRO is given a requirement, we have to meet that requirement... period.

This has been interpreted as going slow and avoiding risk – not so. At a very simplistic level, if we are only building one satellite every couple years and it's pretty expensive, the satellite-to-satellite risk must be very low. However, if we are building multiple spacecraft per year and the cost per satellite is relatively low, we can take more satellite-to-satellite risk and still maintain a low system-level risk. The NRO is driving hard to do that in some programs today. Why not all problems? As I said before, physics gets a vote. And some physics... technology just can't defeat.

PARTNERSHIPS

Of course, we can't do this alone. We are combining efforts with other government agencies, other nations, academia, and the private sector to optimize our talents, tools, and effectiveness.

Chief among these is our relationship with other elements within the DoD and IC. As a Defense agency and IC element, the NRO operates under both Title 10 and Title 50 authorities. We work for, are staffed from, and are funded by both the DoD and IC. We collect and process data to satisfy both national and military intelligence missions.

The NRO has a long history of providing direct support to the warfighting community, in partnership with the DoD and IC, and our next-generation systems will be increasingly relevant to this customer base. For example, we have been working with our DoD partners, including the U.S. Space Force, on the transition from air- to space-based Moving Target Indication, or MTI, systems.

These will provide day, night, and all-weather detection and tracking of ground and maritime targets for the warfighter. We are developing and acquiring the space and ground systems, integrating MTI into the broader enterprise. Our focus is on delivering information to our customers around the world, when and where they need it.

Commercial partners can be our most cost-effective means of meeting customer requirements, so we are fusing commercial and government ingenuity throughout our entire system. We are always looking for mechanisms to award contracts faster and more efficiently.



For example, an innovative contractual vehicle called Broad Agency Announcements, or BAAs are designed to accelerate and streamline development of emerging capabilities in the private sector. It's a flexible approach to acquisition that will allow us to evaluate, leverage, and integrate new and emerging phenomenologies like radar, hyperspectral, and radio frequency sensing. We are releasing multiple focus areas a year in order to accelerate our technical progress. Our commercial program office, or CSPO, is leading these efforts and more, particularly with commercial imagery.

The NRO is actively working to create more opportunities to engage new industry partners. We are expanding our outreach to small businesses, start-ups, and socially and economically disadvantaged business owners. We know that innovation can come from anywhere. If there's a good idea that can add capability, capacity, or speed to our systems, we want it.

CLOSING

I started my remarks talking about the NRO's recruitment efforts. We know that attracting the brightest minds to our team will keep us on the leading edge of innovation – building on the legacy the NRO began when it was created more than 60 years ago. Our history and our future are built on the talents of people who are committed to national security... and passionate about technology.

We at the NRO often say "we're building the future now." That's not just about our architecture. We are also investing in the talent of tomorrow – whether that's someone with a long-term passion for national security or technology, or a kid marveling at yesterday's eclipse who is newly excited about space. It's their curiosity, their dedication, and their ability to think big that will ensure the NRO continues to succeed in our mission of expanding our intelligence advantage and keeping America safe.

I said earlier that we are in a pivotal moment in history. The world is evolving rapidly. The global threat environment is changing, the technology we use is changing. All of it is moving very fast. So we need to move even faster. We will continue to innovate – to use the best technology, the best tools, and the best talent to move the NRO forward.

Thanks for your time today, and enjoy the rest of the symposium.