**We have been warned that our enemies have been conducting Cyber warfare to disrupt /destroy our GPS satellites, which would be catastrophic to our Air Force and Navy ballistic missiles, as well as our Army's global communication systems.**

***Our Space Force Vice Commander assures us that we are aware of this extremely severe threat to our GPS satellites and working on plans and supplementary GPS systems to defend satellite operations***

**In** past issues of our Cathay Dispatch we have discussed the reality that today, star wars technology (Cyber warfare) will be used to disrupt and/or destroy long range missiles of all varieties and prevent ground forces, air forces and navies from communicating and conducting warfare, especially when the forces are away from home.

If we believe this is a reality, it is imperative that we have the capability to disrupt/destroy the long range communications of our enemies as quickly as possible. Destroying the enemy's satellite communications systems before he can destroy ours is of the highest priority.

We, the Russians, and the Chinese all use satellites to communicate with all branches of our militaries, and thus once war breaks out, each participating nation will immediately attack the satellite communications systems of the opposition. He who can strike first, might be able to prevent their enemy from delivering the first strike. This has never happened before, so we can expect the unexpected and some chaos.

It has been discussed that all participants will use laser weapons to attack their opponent's GPS satellites and we can assume that everyone will try to defend their GPS systems from being attacked. Whatever defenses are contemplated, the actual plans and systems being developed and tested, are very highly classified. We can only speculate.

We all need assurances that we are making maximum effort to protect our GPS systems.

Most recently, the Vice Commander, Space Command, General David Thompson has publicly advised the Senate Armed Services strategic forces subcommittee and our Pentagon generals that the Space Command of our Air Force is working on projects “to augment [GPS], to supplement it, to provide additional means of being able to navigate and position and conduct missions.” This is an admission that the importance of GPS is essential and we are planning to protect and supplement our GPS systems to insure that they are always available when needed.

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**SOURCES:**

**What happens if GPS Goes Dark? Space Force General says. "The Pentagon is Working on it."**

**May 12, 2022 | By**[**Greg Hadley**](https://www.airforcemag.com/person/greg-hadley/)**, *Air Force Magazine***

An F-35 is flying above the Indo-Pacific at 35,000 feet, when suddenly, the constellation of GPS satellites it relies upon for navigation goes dark. An adversary—either through a cyber or other anti-satellite attack—has taken down the system. What happens next?

That’s the question Sen. Angus King (I-Maine) asked of **Vice Chief of Space Operations Gen. David D. Thompson during a May 11 hearing** of the Senate Armed Services strategic forces subcommittee. And while [the](https://www.airforcemag.com/article/0496gps/)[issue](https://www.airforcemag.com/article/0496gps/)[has been raised for years now](https://www.airforcemag.com/article/0496gps/), it’s one the Pentagon is increasingly concerned with, Thompson told lawmakers.

As space has become more crowded and more contested, the Space Force has advocated for proliferated, resilient satellite architectures. At the moment, though**, the GPS constellation consists of**[**just 33 spacecraft**](https://www.airforcemag.com/weapons-platforms/gps/)**.**

**There’s no plan to replace GPS with a new program**—Thompson emphasized that he **expects the system to “remain the world standard for a long time**.”

But at the same time, “while **GPS is the world standard, it is perhaps fair to say that we’ve come to rely on it solely and exclusively and too heavily**,” Thompson said.

In the hypothetical scenario King presented, the F-35 pilot would likely be fine, Thompson said—the **Air Force**[**trains its pilots on how to respond**](https://www.popularmechanics.com/military/aviation/a15949440/air-force-no-gps-red-flag/)**in GPS-denied environments, so their ability to keep flying is “generally assured**,” Thompson noted, before adding, “**Obviously, there’s likely to be a mission impact.”**

To mitigate those impacts, the Department of the Air Force is working on projects “to augment [GPS], to supplement it, to provide additional means of being able to navigate and position and conduct missions,” Thompson said.

But it’s **not just the Department of the Air Force—indeed, the entire Pentagon has come to see the issue of navigation as important.**

**“​​Inside all of the services—especially the Army is probably leading right now; the Navy is not far behind; but the Air Force as well—they’re looking at a host of technologies and methodologies for positioning and navigation**,” Thompson said. “I would say probably inside the Department of Defense, I think we finally have enough people who have woken up to the fact that GPS is the world standard, will remain the world standard for a long time, but **we have to be prepared for those who wish to deny us GPS and … be able to fight through that and be effective.”**

Several years ago, the [Navy made headlines](https://www.npr.org/2016/02/22/467210492/u-s-navy-brings-back-navigation-by-the-stars-for-officers) when it brought back “[celestial navigation](https://www.latimes.com/nation/la-na-celestial-navigation-20151025-story.html)” at the U.S. Naval Academy—navigating by the stars.

But while [media coverage](https://www.popularmechanics.com/military/research/a36078957/celestial-navigation/) of that change mainly focused on the idea of returning to centuries-old navigation methods such as the sextant, Thompson indicated that new methods to complement GPS would still be high-tech.

“They’re **developing techniques for celestial navigation automatically without a navigator, a human navigator, required—**and frankly, to be able to do it in daylight, when the human eye can’t see stars. There’s technology in that regard,” Thompson said.

“Many years ago, onboard navigation, [inertial](https://www.vectornav.com/resources/inertial-navigation-articles/what-is-an-ins)[navigation](https://www.vectornav.com/resources/inertial-navigation-articles/what-is-an-ins)[systems,](https://www.vectornav.com/resources/inertial-navigation-articles/what-is-an-ins) were the way we conducted business in the ’50s and ’60s before GPS was rampant. It’s time to reinvest in those technologies and those capabilities, I think, to advance them. There’s even techniques that allow systems to measure the magnetic field of the Earth and based on the variations in the Earth’s magnetic field, figure out where you are, terrain mapping. There are a lot of ways to solve this problem.”

In 2020, the Army launched a new office and laboratory dedicated to the modernization of position, navigation, and timing. And in 2021, the [Air Force’s Strategic Development Planning and Experimentation Office](https://www.afmc.af.mil/News/Article-Display/Article/2674184/air-force-rethinks-position-navigation-and-timing/), alongside the Naval Surface Warfare Center, flight-tested new PNT technologies from open software architectures fused together.

Such moves, Thompson and King agreed, are necessary to build on moving forward.

“Somebody’s got to be thinking about this,” King said. “Because in a conflict, **if I’m the adversary, the first thing I’m going to do is try to knock out GPS in order to blind us.”**

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**Have Cyberweapons eliminated the power of nuclear weapons?**

***For more than 70 years, our nuclear Triad has been an effective deterrent to wars between major nuclear nations. That era may be over.***

For more than 70 years and more than a $11 trillion dollars, American nuclear weapons delivered from systems known as the Triad has deterred a war directly involving the three major nuclear powers - the U.S., China, and the Soviet Union, now called Russia.

**The New World of Strategic Warfare**

The United States, Russia and China have been involved with star wars in recent years. and the Cyber systems and anti-satellite technologies can theoretically disrupt/destroy strategic weapons systems that all depend on command and control of long range weapons that all need GPS technology to track and focus on targets. Longer range weapons, likely depend more on CPS as more command and control is needed the farther away a target is away from the launch point.

**Maybe Elon Musk has an answer.** He is planning to launch thousands of small, low orbit satellites so that it will be nearly impossible to destroy his communications network.

Reading military magazines like Air Force Times, several of our senior Air Force generals and senior staff with Space Command are brain storming ideas to protect our GPS and related command and control systems from enemy attack.

I believe that our Signals Intelligence forces are also brain storming this extremely high priority mission. They might be thinking about Elon Musk's idea, and expanding the space network to include more than a few thousand of low orbiting satellites to foil our enemies.

We will all have to wait awhile as this 22nd Century strategic warfare unfolds. It will be expensive, but not as expensive as our investment in the Triad.

If no nation can destroy the oppositions' GPS and related systems in Space, peace may be the dividend.

**Nuclear weapons of the United States -Wikipedia**

The United States was the first country to manufacture nuclear weapons and is the only country to have used them in combat, with the bombings of Hiroshima and Nagasaki in World War II. Before and during the Cold War, it conducted 1,054 nuclear tests, and tested many long-range nuclear weapons delivery systems.[Note 1]

**Between 1940 and 1996, the U.S. Federal Government spent at least US$10.1 trillion in present-day terms[5] on nuclear weapons, including platforms development (aircraft, rockets and facilities), command and control, maintenance, waste management and administrative costs**.[6] **It is estimated that the United States produced more than 70,000 nuclear warheads since 1945, more than all other nuclear weapon states combined.**[7] Until November 1962, the vast majority of U.S. nuclear tests were above ground. After the acceptance of the Partial Nuclear Test Ban Treaty, all testing was relegated underground, in order to prevent the dispersion of nuclear fallout.[8]

By 1998 at least US$759 million had been paid to the Marshall Islanders in compensation for their exposure to U.S. nuclear testing.[9][10] By March 2021 over US$2.5 billion in compensation had been paid to U.S. citizens exposed to nuclear hazards as a result of the U.S. nuclear weapons program.[11]

In 2019, the U.S. and Russia possessed a comparable number of nuclear warheads; together, these two nations possess more than 90% of the world's nuclear weapons stockpile.[12][13] As of 2020, the United States had a stockpile of 3,750 active and inactive nuclear warheads plus approximately 2,000 warheads retired and awaiting dismantlement.[14] Of the stockpiled warheads, the U.S. stated in its March 2019 New START declaration that 1,365 were deployed on 656 ICBMs, SLBMs, and strategic bombers.[15]

The United States first began developing nuclear weapons during World War II under the order of President Franklin Roosevelt in 1939, motivated by the fear that they were engaged in a race with Nazi Germany to develop such a weapon. After a slow start under the direction of the National Bureau of Standards, at the urging of British scientists and American administrators, the program was put under the Office of Scientific Research and Development, and in 1942 it was officially transferred under the auspices of the United States Army and became known as the Manhattan Project, an American, British and Canadian joint venture. Under the direction of General Leslie Groves, over thirty different sites were constructed for the research, production, and testing of components related to bomb-making. These included the Los Alamos National Laboratory at Los Alamos, New Mexico, under the direction of physicist Robert Oppenheimer, the Hanford plutonium production facility in Washington, and the Y-12 National Security Complex in Tennessee.

By investing heavily in breeding plutonium in early nuclear reactors and in the electromagnetic and gaseous diffusion enrichment processes for the production of uranium-235, the United States was able to develop three usable weapons by mid-1945. The Trinity test was a plutonium implosion-design weapon tested on 16 July 1945, with around a 20 kiloton yield.[16]

Faced with a planned invasion of the Japanese home islands scheduled to begin on 1 November 1945 and with Japan not surrendering, President Harry S. Truman ordered the atomic raids on Japan. On 6 August 1945, the U.S. detonated a uranium-gun design bomb, Little Boy, over the Japanese city of Hiroshima with an energy of about 15 kilotons of TNT, killing approximately 70,000 people, among them 20,000 Japanese combatants and 20,000 Korean slave laborers, and destroying nearly 50,000 buildings (including the 2nd General Army and Fifth Division headquarters). Three days later, on 9 August, the U.S. attacked Nagasaki using a plutonium implosion-design bomb, Fat Man, with the explosion equivalent to about 20 kilotons of TNT, destroying 60% of the city and killing approximately 35,000 people, among them 23,200–28,200 Japanese munitions workers, 2,000 Korean slave laborers, and 150 Japanese combatants.[17]

On 1 January 1947, the Atomic Energy Act of 1946 (known as the McMahon Act) took effect, and the Manhattan Project was officially turned over to the United States Atomic Energy Commission (AEC).[18]

On 15 August 1947, the Manhattan District was abolished.[19]

Protest in Bonn against the deployment of Pershing II missiles in West Germany, 1981

The American atomic stockpile was small and grew slowly in the immediate aftermath of World War II, and the size of that stockpile was a closely guarded secret.[20] However, there were forces that pushed the United States towards greatly increasing the size of the stockpile. Some of these were international in origin and focused on the increasing tensions of the Cold War, including the loss of China, the Soviet Union becoming an atomic power, and the onset of the Korean War.[21] And some of the forces were domestic – both the Truman administration and the Eisenhower administration wanted to reign in military spending and avoid budget deficits and inflation.[22] It was the perception that nuclear weapons gave more "bang for the buck" and thus were the most cost-efficient way to respond to the security threat the Soviet Union represented.[23]

As a result, beginning in 1950 the AEC embarked on a massive expansion of its production facilities, an effort that would eventually be one of the largest U.S. government construction projects ever to take place outside of wartime.[24] And this production would soon include the far more powerful hydrogen bomb, which the United States had decided to move forward with after an intense debate during 1949–50.[25] as well as much smaller tactical atomic weapons for battlefield use.[26]

By 1990, the United States had produced more than 70,000 nuclear warheads, in over 65 different varieties, ranging in yield from around .01 kilotons (such as the man-portable Davy Crockett shell) to the 25 megaton B41 bomb.[9] Between 1940 and 1996, the U.S. spent at least $10.1 trillion in present-day terms[5] on nuclear weapons development. Over half was spent on building delivery mechanisms for the weapon. $631 billion in present-day terms was spent on nuclear waste management and environmental remediation.[6]

Richland, Washington was the first city established to support plutonium production at the nearby Hanford nuclear site, to power the American nuclear weapons arsenals. It produced plutonium for use in cold war atomic bombs.[27]

Throughout the Cold War, the U.S. and USSR threatened with all-out nuclear attack in case of war, regardless of whether it was a conventional or a nuclear clash.[28] U.S. nuclear doctrine called for mutually assured destruction (MAD), which entailed a massive nuclear attack against strategic targets and major populations centers of the Soviet Union and its allies. The term "mutual assured destruction" was coined in 1962 by American strategist Donald Brennan.[29] MAD was implemented by deploying nuclear weapons simultaneously on three different types of weapons platforms.[30][31][32]

After the 1989 end of the Cold War and the 1991 dissolution of the Soviet Union, the U.S. nuclear program was heavily curtailed, halting its program of nuclear testing, ceasing its production of new nuclear weapons, and reducing its stockpile by half by the mid-1990s under President Bill Clinton. Many former nuclear facilities were shut down, and their sites became targets of extensive environmental remediation. Efforts were redirected from weapons production to stockpile stewardship, attempting to predict the behavior of aging weapons without using full-scale nuclear testing. Increased funding was also put into anti-nuclear proliferation programs, such as helping the states of the former Soviet Union to eliminate their former nuclear sites and to assist Russia in their efforts to inventory and secure their inherited nuclear stockpile. By February 2006, over $1.2 billion had been paid under the Radiation Exposure Compensation Act of 1990 to U.S. citizens exposed to nuclear hazards as a result of the U.S. nuclear weapons program, and by 1998 at least $759 million had been paid to the Marshall Islanders in compensation for their exposure to U.S. nuclear testing, and over $15 million was paid to the Japanese government following the exposure of its citizens and food supply to nuclear fallout from the 1954 "Bravo" test.[9][10] In 1998, the country spent an estimated total of $35.1 billion on its nuclear weapons and weapons-related programs.[9]

In the 2013 book Plutopia: Nuclear Families, Atomic Cities, and the Great Soviet and American Plutonium Disasters (Oxford), Kate Brown explores the health of affected citizens in the United States, and the "slow-motion disasters" that still threaten the environments where the plants are located. According to Brown, the plants at Hanford, over a period of four decades, released millions of curies of radioactive isotopes into the surrounding environment.[27] Brown says that most of this radioactive contamination over the years at Hanford were part of normal operations, but unforeseen accidents did occur and plant management kept this secret, as the pollution continued unabated. Even today, as pollution threats to health and the environment persist, the government keeps knowledge about the associated risks from the public.[27]

During the presidency of George W. Bush, and especially after the 11 September terrorist attacks of 2001, rumors circulated in major news sources that the U.S. was considering designing new nuclear weapons ("bunker-busting nukes") and resuming nuclear testing for reasons of stockpile stewardship. Republicans argued that small nuclear weapons appear more likely to be used than large nuclear weapons, and thus small nuclear weapons pose a more credible threat that has more of a deterrent effect against hostile behavior. Democrats counterargued that allowing the weapons could trigger an arms race.[33] In 2003, the Senate Armed Services Committee voted to repeal the 1993 Spratt-Furse ban on the development of small nuclear weapons. This change was part of the 2004 fiscal year defense authorization. The Bush administration wanted the repeal so that they could develop weapons to address the threat from North Korea. "Low-yield weapons" (those with one-third the force of the bomb that was dropped on Hiroshima in 1945) were permitted to be developed.[34]

Statements by the U.S. government in 2004 indicated that they planned to decrease the arsenal to around 5,500 total warheads by 2012.[35] Much of that reduction was already accomplished by January 2008.[36]

According to the Pentagon's June 2019 Doctrine for Joint Nuclear Operations,[37] "Integration of nuclear weapons employment with conventional and special operations forces is essential to the success of any mission or operation."[38]

Nuclear weapons testingEdit

The U.S. conducted hundreds of nuclear tests at the Nevada Test Site.

Members of Nevada Desert Experience hold a prayer vigil during the Easter period of 1982 at the entrance to the Nevada Test Site.

Between 16 July 1945 and 23 September 1992, the United States maintained a program of vigorous nuclear testing, with the exception of a moratorium between November 1958 and September 1961. By official count, a total of 1,054 nuclear tests and two nuclear attacks were conducted, with over 100 of them taking place at sites in the Pacific Ocean, over 900 of them at the Nevada Test Site, and ten on miscellaneous sites in the United States (Alaska, Colorado, Mississippi, and New Mexico).[4] Until November 1962, the vast majority of the U.S. tests were atmospheric (that is, above-ground); after the acceptance of the Partial Test Ban Treaty all testing was relegated underground, in order to prevent the dispersion of nuclear fallout.[39]

The U.S. program of atmospheric nuclear testing exposed a number of the population to the hazards of fallout. Estimating exact numbers, and the exact consequences, of people exposed has been medically very difficult, with the exception of the high exposures of Marshall Islanders and Japanese fishers in the case of the Castle Bravo incident in 1954. A number of groups of U.S. citizens—especially farmers and inhabitants of cities downwind of the Nevada Test Site and U.S. military workers at various tests—have sued for compensation and recognition of their exposure, many successfully. The passage of the Radiation Exposure Compensation Act of 1990 allowed for a systematic filing of compensation claims in relation to testing as well as those employed at nuclear weapons facilities. By June 2009 over $1.4 billion total has been given in compensation, with over $660 million going to "downwinders".[1

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