



## **USAF Center for Unconventional Weapons Studies (CUWS) Outreach Journal**

CUWS Outreach Journal 1238

21 October 2016

**Feature Item:** *"A Ready, Modern Force: Ready for Today, Prepared for Tomorrow."* Authored by Jerry Hendrix, Paul Scharre, and Elbridge Colby; Published by Center for a New American Security; October 2016.

[https://s3.amazonaws.com/files.cnas.org/documents/CNAS\\_CSBA-Exercise-2016\\_Brief.pdf](https://s3.amazonaws.com/files.cnas.org/documents/CNAS_CSBA-Exercise-2016_Brief.pdf)

Experts from the CNAS Defense Strategies and Assessments Program participated in a panel discussion on defense spending. Senior Fellows Jerry Hendrix, Paul Scharre, and Elbridge Colby focused on maintaining readiness for today's threats while modernizing the force for future challenges. The experts assumed a two percent increase in defense spending above PB17 levels – a realistic level given political dynamics. By investing in a diverse high-low mix of forces for the range of DoD missions, rather than attempting to field a one-size-fits-all "utility infielder" force, Hendrix, Scharre, and Colby modernized the force while maintaining capacity.

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## **USAF Center for Unconventional Weapons Studies (CUWS) Outreach Journal**

Great Falls Tribune – Great Falls, MT

### **Three Companies Compete for New ICBM**

By Jenn Rowell

October 14, 2016

Boeing, Lockheed Martin and Northrop Grumman Corp. have submitted proposals to the Air Force for the ground based strategic deterrent.

GBSD will replace the existing Minuteman III intercontinental ballistic missile weapon system now in place, including the 150 ICBMs operated and maintained by airmen at Malmstrom Air Force Base.

The Air Force could award up to two contracts for the technology-maturation and risk reduction phases by fall 2017. After then choosing a single bidder, the Air Force has said it expects to deploy the new missile system by the late 2020s.

All three companies have been involved in the development and upgrades to the Air Force's missile systems since the 1950s.

John Karas, Lockheed Martin vice president and GBSD program manager, said a team will be in Great Falls in November touring the base and meeting with local companies to start developing relationships should they be selected for the contract.

He said the Air Force wants to own the design and that Lockheed will make the designs and analysis available to the Air Force to help lower costs over the life cycle of the weapons system.

All three companies have said cyber security aspects will be designed into the new system from the beginning.

The current system is judged on its antiquated technology, but the older, hardwired systems have made the ICBM virtually unhackable.

Carol Erikson, the vice president and program manager for GBSD for Northrop Grumman, said cyber resiliency is a core capability of her company and they'll be bringing that expertise to the project if awarded the contract for the new weapons system.

Northrop recently completed a contract for modifications to the Minuteman system and is doing work on a maintenance contract that focuses on sustainment and upgrades to the ground and airborne launch systems and facilities, Erikson said.

In August, the Air Force approved Milestone A for the project, meaning an analysis of alternatives must be conducted, including cost estimates, concepts of operations, overall risks and comparative effectiveness, according to the Congressional Research Service.

The request for proposals for this phase was released in July.

The current ICBM launch systems, and command and control physical infrastructure in use today first became operational with the Minuteman I system in the 1960s.

Some components and subsystems have been upgraded since, including the transition to the Minuteman III configuration in the 1970s, most of the fundamental infrastructure is original and has supported more than 50 years of continuous operation, according to Air Force Nuclear Weapons Center.

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The flight systems in use now were fielded in the late 1990s and early 2000s with an intended 20-year lifespan. The Minuteman III system is expected to operate through 2030.

“The Air Force has been clear that this system needs to operate until 2075,” Erikson said. “We’re trying to design it from long-term sustainability from the start.”

Another option related to lowering costs over time is reducing the number of launch sites, though that’s up to the Air Force, Karas said.

The main driver is survivability in making any changes to the overall makeup of the system, which is currently 150 missile launch sites at each of the three missile bases and 15 launch control centers at each base. The LCC is an underground capsule where the missile launch officers sit to operate the missile system.

The analysis of risk, connectivity and survivability is complex, Karas said, and requires finding a balance between those needs and life cycle costs.

“More than likely with today’s technology, we could reduce LCCs but we have to balance against survivability and cyber security,” Karas said.

<http://www.greatfallsribune.com/story/news/local/2016/10/14/three-companies-compete-new-icbm/92095428/>

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Defense News – Springfield, VA

## **Updated B61 Nuclear Bomb to Cost \$8.25 Billion**

By Aaron Mehta

October 19, 2016

WASHINGTON – The life-extension program for the B61-12 atomic bomb will cost just over \$8.25 billion, according to a new estimate from the National Nuclear Security Agency (NNSA).

The new cost estimate was completed over the summer as the agency prepared to enter the production-engineering phase of the program. The baseline cost of the program is \$7.605 billion, with an additional \$648 million in “funds leveraged from other NNSA programs for technology and manufacturing readiness,” according to an agency statement – money that has common applications across multiple weapon systems.

That cost does not include the estimated \$1.3 billion that the Department of Defense plans to spend on developing and procuring tailkits for the weapons. With that included, the total cost for the program sits at roughly \$9.5 billion.

The NNSA is a semi-autonomous department within the Department of Energy. While the Defense Department manages the delivery systems of the nuclear force — ships, planes and missiles — NNSA has oversight over the development, maintenance and disposal of nuclear warheads.

The agency is perusing a modernization plan known as the “3+2 Strategy,” under which the NNSA is consolidating the American arsenal of warheads into five variants. The five ballistic-missile warheads now in service are being consolidated into three new interoperable warheads known as the IW-1, IW-2, and IW-3, while the five bomb and cruise-missile warhead types are being consolidated into two replacement warhead designs, the W80-4 and the B61-12.



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The B61-12 replaces the B61-3, -4, -7 and -10 variants, in a move that proponents say will both update aging parts of the weapons and drive down costs for upkeep.

“The B61-12 LEP is the most complex B61-12 activity the nuclear security enterprise has undertaken in more than 20 years,” the agency said in a statement. “This weapon plays a critical role in national security and directly supports President Obama’s directive to maintain a safe, secure, and effective nuclear deterrent, while reducing the size of the nuclear stockpile.”

Kingston Reif, with the Arms Control Association, said the fact that the cost estimate has stayed within a 2013 range suggests NNSA's leadership does not foresee major problems in executing the life extension going forward. That 2013 cost estimate ranged between \$7.3 and \$9.6 billion.

Reif also notes that the estimate is lower than a 2012 cost estimate from the Pentagon’s CAPE office, in part due to the fact that first production is slated for 2020 and not, as CAPE expected, 2022. He believes the program has cost NNSA about \$2 billion through fiscal year 2016.

The Pentagon is seeking a sweeping recapitalization of its nuclear systems. In addition to the 3+2 plan, the DoD will spend the 2020s bringing online a new nuclear submarine design, replacing the Minuteman III intercontinental ballistic missiles, and producing the B-21 Raider bomber.

During a cross-country trip in late September, Secretary of Defense Ash Carter made his case for the expensive and wide-ranging upgrades that are required to modernize the nuclear triad.

“If we don’t replace these systems, quite simply they will age even more, and become unsafe, unreliable, and ineffective. The fact is, most of our nuclear weapon delivery systems have already been extended decades beyond their original expected service lives,” Carter said Sept. 26. “So it’s not a choice between replacing these platforms or keeping them. ... It’s really a choice between replacing them or losing them. That would mean losing confidence in our ability to deter, which we can’t afford in today’s volatile security environment.”

The nonproliferation community has targeted the Long Range Stand-Off (LRSO) cruise missile replacement as one arm of the nuclear force that could be potentially cut, something that was given a big boost when audio emerged last month of presidential frontrunner Hillary Clinton expressing concerns about the program.

“The progress on the B61 mod 12 also reinforces the excessive redundancy associated with planning to buy a new fleet of nuclear air-launched cruise missiles and refurbish the warhead that will arm the missile fleet, an effort estimated to cost roughly \$20-\$25 billion,” Reif said.

<http://www.defensenews.com/articles/updated-b61-nuclear-bomb-to-cost-825-billion>

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National Defense Magazine – Arlington, VA

### **Budget Impasse Threatens Ohio-Replacement**

By Jon Harper

21 November 2016

An extended continuing resolution that funds Pentagon accounts at fiscal year 2016 levels could derail the Navy’s top acquisition effort.

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The Columbia-class ballistic missile submarine program — also known as the Ohio-class replacement — was expected to receive \$773 million in advance procurement funding in fiscal year 2017. But budget gridlock led Congress to pass a continuing resolution to fund federal agencies from Oct. 1 through Dec. 9.

Continuing resolutions use the previous fiscal year's funding levels to determine the amount of money that may be expended while the resolution is in effect. The 2016 defense budget included research, development, test and evaluation funding but no advanced procurement money for the Columbia-class.

Defense officials fear that lawmakers will end up passing more continuing resolutions if they are unable to reach an agreement on appropriations after the November elections.

"The Navy during that time might not have authority to execute any [advanced procurement] funding for the program," said naval affairs specialist Ronald O'Rourke in a recent Congressional Research Service report on the program.

"This could put pressure on the Navy's ability to meet its currently tight schedule for having the first boat ... enter service and complete testing in time to support its first scheduled deterrent patrol," he said. "The longer the Navy operates under a CR during FY 2017, the greater this impact on the program's schedule might be."

The service can mitigate the impact of a continuing resolution through the first quarter of the fiscal year with current funding authorities, the Navy said in an information paper provided to CRS.

However, advanced procurement funding would be considered a new start that could be prohibited under a continuing resolution scenario, according to the Navy.

"The program will not be able to transition from currently funded RDT&E ... preliminary design to [shipbuilding account]-funded detail design until Congress either passes a FY 2017 appropriations bill or grants a CR anomaly" giving the service an exemption, the Navy said.

Failure to do so by January 2017 "will directly result in an increased risk to on-time ship delivery," it added.

The service plans to award a detailed design contract by the end of calendar year 2016.

A "delay in contract award will cause disruptions to both the shipbuilding design-build workforce and the supply base that will not be able to continue subvendor design efforts," the Navy said.

The service hopes to have the lead boat on patrol in 2030. Vice Adm. Terry Benedict, director of Navy strategic systems programs, warned that the service would face a capability gap if the new submarines aren't ready when the Ohio-class begins to retire in the 2030s.

"Any delay to the Ohio-replacement ... would make it impossible to meet the strategic requirements," he said at a recent nuclear triad conference.

The Columbia-class program is estimated to cost \$122 billion. Meanwhile, there are doubts that the Defense Department will have enough money to carry out its wide-ranging nuclear and conventional modernization plans in the 2020s.

"There have been discussions with national leadership on unique ways to drive down cost" for the Columbia-class, Benedict said.



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“We are exploring every opportunity whether it’s in technology, whether it’s in acquisition, whether it’s in contracting, whether it’s in the way that we fund ... to try and find the right solution.”

<http://www.nationaldefensemagazine.org/archive/2016/november/Pages/BudgetImpasseThreatensOhioReplacement.aspx>

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The Korea Herald – Seoul, South Korea

### **Missile Defense Schedule Moved up Due to NK Threats**

By Yoon Min-sik

October 18, 2016

The South Korean government and the ruling party agreed to speed up the completion of its three-legged defense system from the initially planned mid-2020s to early-2020s, in light of the ever-evolving threats from North Korea.

The ruling Saenuri Party also strongly called for the procurement of nuclear-powered submarines here, a matter that the government said it will “carefully consider.”

“Considering the recent security threats like the North’s Sept. 9 nuclear test, we agreed that our defense capacities should be augmented by adding to the previously suggested (defense) budget,” a Defense Ministry official said, debriefing reporters on the government-party meeting held early Tuesday morning.

This means completing the so-called “3K” homegrown defense system against Pyongyang’s nuclear and missile threats earlier than initially planned, the official explained.

The meeting was attended by Defense Minister Han Min-koo, Defense Acquisition Program Administration Minister Chang Myoung-jin, Vice Finance Minister Song Eon-seog and Saenuri lawmakers and discussed the topic of South Korea’s countermeasures against North Korea.

The first part of the “3K” is the Kill Chain, bent on striking the missiles before they are fired. The Korea Air and Missile Defense system is about intercepting the missiles in mid-air, while the Korea Massive Punishment and Retaliation is about striking the North Korea leadership after attack.

The most recently-announced KMPR also includes the possibility of a preemptive attack, upon certain signs of imminent attack by the North.

While the military has been vague on exactly when the systems will be finished, it is believed to be around 2023.

“I would say it would be sped up by around two or three years,” the official said.

The extra budget needed per year is estimated to be around 200-300 billion won (\$176 million-\$264 million).

Augmentations for 2017 include bringing in two anti-ballistic missile radars instead of the previously planned one, increasing the number of Taurus air-to-ground missiles by 90 and deploying navy helicopters ahead of schedule. It would bring the total number of ballistic missile radars to four.

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It is yet unclear whether the Saenuri and the government's plan will receive consent from the opposition, who has not seen eye to eye with them on defense issues such as deployment of the US Terminal High Altitude Area Defense system.

The plans for the Navy helicopters have yet to be cleared at the government-civic defense acquisition program committee, chaired by the defense minister.

Military officials said they have started contacting opposition lawmakers to explain the plan.

They also vowed to mull alternative ways to acquire defense assets that the government is unable to develop in time, such as getting surveillance satellites on lease.

On the much-disputed nuclear submarine, the military has refrained from giving a clear answer.

The technical difficulties notwithstanding, Seoul and Washington have an agreement on peaceful nuclear cooperation. It was designed to ensure that the use of nuclear technology and materials is restricted to civilian use only.

It states that enrichment of up to 20 percent of fissile uranium-235 in South Korea requires US consent.

The prospect of the US agreeing to the idea remains bleak. Washington has been clear on their resolve to retain a non-nuclear South Korea, stressing that the extended deterrence of the US will suffice.

It is widely believed that Roh Moo-hyun administration's resolve to acquire nuclear-powered submarines in 2003 was scrapped due to pressure from the US.

Proponents of the nuclear submarine here have said that the use of nuclear fuel in a submarine could be interpreted as a "non-military use" because it is not used in a nuclear weapon.

But Seoul's government has yet to even discuss the matter with the US.

"We did not even open a conversation. We are not likely to talk about it during the Security Consultative Meeting," a government official said.

The 48th SCM, slated for Thursday, is expected to feature countermeasures on North Korea's nuclear and missile programs, upcoming transfer of wartime operational control from the US to South Korea, and the ongoing plans for THAAD deployment.

<http://www.koreaherald.com/view.php?ud=20161018000766>

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TASS Russian News Agency – Moscow, Russia

### **Russian Northern Fleet Sub Launches Cruise Missile at Target in Novaya Zemlya**

October 17, 2016

MOSCOW, October 17. /TASS/. The Smolensk nuclear-powered submarine of Russia's Northern Fleet has launched a cruise missile at a target in the Novaya Zemlya archipelago, in the Arctic, the Northern Fleet's spokesman Vadim Serga has said.

"The missile was launched on October 16 against a combined coastal target. The Granit cruise missile was fired from a surface position in high latitudes of the Barents Sea. For the first time ever the missile was used against a combination of targets deep inside the Severny (Northern) island of the Novaya Zemlya archipelago," he said.



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The missile launch was part of the final series of combat training exercises due in 2016, Serga said, adding that the crew displayed "professionalism and high level of training."

All in all Russia has built eleven submarines of project 949A Antey. At the moment eight are on active duty. The Antey's displacement is 24,000 tonnes. Each carries 24 launchers for Granit cruise missiles and six torpedo tubes.

[http://tass.com/defense/906870?\\_ga=1.39262183.553242643.1476754846](http://tass.com/defense/906870?_ga=1.39262183.553242643.1476754846)

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Russia & India Report – Moscow, Russia

### **Russia's State Duma Suspends Plutonium Agreement with US**

*On October 3, Vladimir Putin signed a decree suspending Russia's work under its agreement with the US on the joint disposal of weapons-grade plutonium.*

TASS Russian News Agency

19 October 2016

Russia's State Duma, the lower house of parliament, passed a law on Wednesday on suspending the Russian-US deal on the disposal of plutonium and the respected protocols.

The measure was approved almost unanimously: a total of 445 MPs voted in favor of suspending the agreement, and one abstained.

Russian President Vladimir Putin submitted the draft law on suspending the agreement between Russia and the United States on plutonium disposal to the State Duma on October 3 after signing the relevant decree.

Apart from the direct provisions on suspending the plutonium deal, the draft law lists the conditions for the possible resumption of the accords. Among them is Washington's cancellation of the Magnitsky Act, all anti-Russian sanctions, compensating for the damage sustained by Moscow and reducing US military infrastructure in NATO countries.

"Considering that the actions taken by the United States have caused a radical change of the circumstances that existed at the time the Agreement and the protocols to it were concluded, the Agreement's suspension is Russia's counter-measure and does not contradict the 1969 Vienna Convention on the Law of Treaties. At the same time, plutonium falling under the effect of the Agreement remains outside nuclear weapons-grade activity, which testifies to Russia's commitment to limit nuclear armaments," the explanatory note says.

The bill's developers also note that "the United States has been making attempts lately to revise the strategy of plutonium disposal prescribed in the protocol of April 13, 2010 and change the method of its disposal."

"At the same time, the US side plans to dispose of plutonium by way of its burial instead of its irradiation as is stipulated by the above protocol. Back at the stage of the agreement's preparation, Russian specialists objected to such an approach because the irreversibility of the disposal is not ensured in this case," the accompanying documents say.

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The agreement with the United States was signed on August 29, 2000. It envisaged ways of disposing of excessive weapons grade plutonium in Russia and the United States, including the production of mixed oxide fuel to be used in nuclear power reactors, conversion into non-weapons-grade form and also burial. It was expected that either side will start eliminating "declassified" amounts of plutonium in an amount of 34 tonnes. Russia converts weapons-grade plutonium into fuel for nuclear power plants.

<https://in.rbth.com/politics/2016/10/19/russias-state-duma-suspends-plutonium-agreement-with-us-640247>

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TASS Russian News Agency – Moscow, Russia

### **Lawmaker Says Russia Will Resume Plutonium Deal if US Lifts Sanctions against Moscow**

*A Russian lawmaker says Moscow will resume the agreement on disposal of plutonium if the United States starts implementing it conscientiously*

October 20, 2016

BERN, October 20. /TASS/. Russia will resume the agreement on disposal of plutonium if the United States starts implementing it conscientiously and lifts sanctions against Moscow, Federation Council Speaker Valentina Matviyenko said at the opening of the Russian Economic and Financial Forum in Switzerland.

Moscow was forced to put forward the initiative on suspending the deal as the US partners "did not implement and do not implement this agreement while Russia meets its commitments responsibly and point by point." "In this situation we cannot place ourselves in unequal conditions," Matviyenko said on Thursday.

"We said that the resumption of the agreement would be possible only on condition that the US starts conscientiously implementing this agreement like we do. No doubt, this will be after the cancellation of sanctions and other restrictions against Russia," she stressed.

This is how "a sovereign state should act if external players try to undermine its economy and the economy of its partners."

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[http://tass.com/politics/907613?\\_ga=1.61597935.298565691.1476993448](http://tass.com/politics/907613?_ga=1.61597935.298565691.1476993448)

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## **USAF Center for Unconventional Weapons Studies (CUWS) Outreach Journal**

Sputnik International – Russian Information Agency

### **Russia Welcomes US Offer to Hold Special INF Treaty Commission in November**

*Russia welcomes the United States' offer to convene a Special Verification Commission (SVC) of the Intermediate-Range Nuclear Forces (INF) Treaty next month, the Russian Foreign Ministry's head of Non-Proliferation and Arms Control Department said Friday.*

21 October 2016

MOSCOW (Sputnik) — Mikhail Ulyanov told RIA Novosti that the SVC is envisioned in the 1987 INF Treaty, with its functioning parameters outlined in a Soviet-US memorandum followed by a five-party memorandum with the participation of Kazakhstan, Ukraine and Belarus.

*In accordance with the rules, any party may convene the SVC meeting. The US took advantage of their right, we have responded positively, that is their right. They have now decided to use this platform to continue the conversation 13 years after the previous meeting, when the US curtailed the work of this commission," Ulyanov said.*

He added that Moscow plans to discuss three topics with the US at the SVC session in Geneva sometime in mid-November.

"The first two are combat drones and target drones. These questions have been 'stalled' since 2001, when we first voiced concerns to the US and are yet to receive a satisfactory response," Ulyanov said.

"The third question is about Mk-41 launchers, which arose in connection with the construction of missile defense components in Romania. It is relatively new at two-three years, but here we have not received convincing answers. The US reacts very superficially, and that creates problems," the official stressed.

The 1987 INF treaty prohibits the development, deployment or testing of ground-launched ballistic or cruise missiles with ranges between 300 and 3,400 miles.

In May, the United States activated its Aegis ashore ballistic missile defense system (BMDS) in Romania equipped with the Mk-41 launcher. The Russian Foreign Ministry called the deployment of Mk-41 Vertical Launching Systems (VLS) in Europe "a relatively new and rather serious violation of the INF Treaty." Moscow claims Mk-41 is capable of launching the Tomahawk long-range cruise missiles. Such a capability is prohibited by the INF Treaty.

Another Aegis ashore site is under construction in Poland. These sites are parts of the US-designated ballistic missile defense system in Europe, approved in 2010 during a NATO summit in Lisbon.

<https://sputniknews.com/military/201610211046581736-russia-us-inf-commission/>

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Sputnik International – Russian Information Agency

## **‘Stuxnet’ Case: Retired US Marines General Admits Lying to FBI Investigators**

18 October 2016

Gen. James Cartwright, who last served as vice chairman of the Joint Chiefs of Staff, pleaded guilty in federal court October 17 to making false statements to the FBI during an investigation into leaks of classified information.

Cartwright, a four-star general and formerly the second-ranking officer in the US military, pleaded guilty to misleading the FBI in 2012 when he told investigators that he was not the source of information, nor had confirmed information, for a book by a New York Times reporter about Stuxnet, a malicious government computer software program designed to interfere with Iran’s nuclear program.

Neither David Sanger, the reporter, nor the book, "Confront and Conceal," are mentioned in the court papers. But the book details a covert cyberattack on Iranian nuclear facilities called Operation Olympic Games, and the Stuxnet program, implemented to disable centrifuges Iran used to enrich uranium.

Cartwright issued a written statement after his plea in which he repeated that he was not the source of the information.

*"It was wrong for me to mislead the FBI on November 2, 2012, and I accept full responsibility for this," he said. "I knew I was not the source of the story and I didn't want to be blamed for the leak. My only goal in talking to the reporters was to protect American interests and lives; I love my country and continue to this day to do everything I can to defend it."*

Cartwright's attorney, Gregory Craig, said in a separate statement that Cartwright had spoken with reporters in the context of a "well-known and understood practice of attempting to save national secrets, not disclosing classified information," and that "his effort to prevent publication of information that might harm American lives or national security does not constitute a violation of any law." His client spoke in an effort to protect American interests and lives in a story that had already been written, Craig said, according to USA Today.

CBS News reports that the general pleaded guilty to a felony offense that carries a maximum sentence of five years and a \$250,000 fine. The New York Times reports that lawyers on both sides of the case agreed that an appropriate incarceration sentence would be six months or less, though the judge is not bound by those recommendations. Sentencing is set for January 17.

*The New York Times also issued a statement the day of the plea: "We are disappointed that the Justice Department has gone forward with the leak investigation that led to today's guilty plea by Gen. Cartwright. These investigations send a chilling message to all government employees that they should not speak to reporters. The inevitable result is that the American public is deprived of information that it needs to know."*

The Times reported that the case arose out of a political storm over the many books and articles about US national security that appeared in the summer of 2012, during Obama’s first term. Congressional Republicans accused the White House of deliberately leaking information, and US Attorney General Eric Holder tasked two attorneys to look into two specific leaks. It was later reported that one of these investigations focused on the secret Operation Olympic Games.

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Military Times reports that the charging documents also claim that Cartwright lied to prosecutors about confirming classified information shared with another journalist, Daniel Klaidman.

<https://sputniknews.com/military/201610181046434599-former-general-guilty-lying-fbi/>

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The Korea Herald – Seoul, South Korea

### **S. Korea, US Confirm Failed NK Ballistic Missile Launch**

By Yoon Min-sik

October 16, 2016

South Korea and the US have assessed that North Korea attempted what ultimately was a failed launch of its intermediate-range Musudan missile Saturday, the allies' joint military body said Sunday.

According to Seoul's Joint Chiefs of Staff, Pyongyang fired the missile at around 12:33 p.m. near the northwestern city of Kusong in North Pyongan Province. The city is adjacent to the North's Yongbyon nuclear facility and a missile launch site in Dongchang-ri.

"The missile failed immediately after launch. Our military has shared relevant information with the US and jointly assessed this morning that the projectile was Musudan," the JCS said. The missile reportedly exploded right after takeoff.

"North Korea's launch of a ballistic missile presents a clear violation of the UN Security Council resolution and we strongly condemn its illegal acts of provocations," it added, saying that the military is on full alert for any other threats from the communist country. The UNSC resolution bans the North from all ballistic missile or nuclear programs.

Earlier in the day, the US Strategic Command said that its systems detected the failed Musudan launch, and that the North American Aerospace Defense Command evaluated that it did not pose a threat to North America.

Cmdr. Gary Ross, a Pentagon spokesman, said in a statement that the US condemns the North's recent missile tests including the most recent one Saturday.

"This provocation only serves to increase the international community's resolve to counter the DPRK's (North Korea's) prohibited activities, including through implementing existing U.N. Security Council sanctions," he said.

Ross added that the US plans to raise the issue at the UN, and reiterated that the Seoul-Washington alliance remains "ironclad."

The missile launch came on the day the allies concluded the large-scale joint naval drill "Invincible Spirit" program against the North. The US deployed the nuclear-powered aircraft carrier USS Ronald Reagan to the Korean Peninsula for the drill.

The South Korean government had assessed that the North was likely to carry out a form of armed protest on its ruling party's foundation day of Oct. 10, although the speculation turned out to be inaccurate.



Military officials said that the North's most recent provocation may be a form of protest against the US, particularly its recent comment on Pyongyang's leader Kim Jong-un.

The US Assistant Secretary of State for East Asian and Pacific Affairs Daniel Russel said Wednesday that Kim could have a plan to "conduct a nuclear attack and then immediately die."

Pyongyang's official Korea Central News Agency on Saturday said the comment hurt the dignity of its leader and said the US will "have to pay a high price."

Saturday's launch marks the first time since June 22 that the hermit kingdom fired the Musudan, which has been deployed since 2007 but was never fired prior to April this year.

Musudan is believed to have a maximum range of 3,500 kilometers, which puts the US military base in Guam within its striking range.

After five consecutive failures, the June test launch had been assessed as a successful one. But another failure of the Musudan presents doubts about the reliability of the missile.

North Korea's ultimate goal has been to acquire nuclear strike capacity that can reach the US mainland. It conducted a ground test for a new rocket engine last month, which the military believes is a measure to complete its intercontinental ballistic missile program.

The defense and foreign ministers of South Korea and the US are slated to hold a meeting Wednesday, ahead of the Security Consultative Meeting between the two countries Thursday.

The top officials are expected to discuss mainly countermeasures against North Korean nuclear programs, and the upcoming transfer of wartime operational control, based on the US providing extended deterrence against the North's ever-growing threats.

Officials are also to hold a briefing on the ongoing plans to deploy the US Terminal High Altitude Area Defense system in Seoul, which has sparked off disputes within and outside the country.

They will reiterate that it is strictly for defending against Pyongyang's nuclear weapons and that it will not target any other country, which has been a key concern of US's biggest rival China.

<http://www.koreaherald.com/view.php?ud=20161016000223>

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The Korea Times – Seoul, South Korea

### 'N. Korea Missile Test Was to Attack South'

By Jun Ji-hy

October 17, 2016

North Korea might have intended to practice striking targets in South Korea in its latest launch of what is presumed to be a Musudan intermediate-range ballistic missile (IRBM), experts said Monday.

The North fired the missile, Saturday, according to the Joint Chiefs of Staff (JCS). However, the missile exploded soon after liftoff near an airbase in Kusong, North Pyongan Province at around 12:33 p.m.

Military officials and experts here are paying keen attention to the launch site used this time. This was the first time that North Korea launched a Musudan missile from an airbase located more than



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100 kilometers north of Pyongyang. It was the North's seventh launch of the Musudan — since April it has fired six Musudan missiles near the eastern port city of Wonsan toward the East Sea.

Experts say original targets of the IRBMs, believed to have a range of 3,000 to 4,000 kilometers, are U.S. naval and air bases in Guam, but the targets can be changed in accordance with the launch angle that adjusts the missile range. They say the North might have deliberately changed the launch site to a northern area this time to practice striking targets closer than those in Guam.

"If North Korea uses an acute high-arc trajectory, the Musudan can strike targets in South Korea," said Kim Jin-moo, a senior researcher at the Korea Institute for Defense Analyses (KIDA). "Okinawa and Guam as well as South Korea could be the targets of the Musudan depending on the launch angle."

After the isolated state fired the sixth Musudan on June 22, the North's Korean Central News Agency (KCNA) claimed that the launch was successful, noting that the missile reached a maximum altitude of 1,413.6 kilometers and fell precisely onto a designated target 400 kilometers away at sea.

The straight-line distance to the U.S. military bases in Pyeongtaek, Gyeonggi Province, from the North's airbase in Kusong is about 400 kilometers. Experts said it would be theoretically possible for the North to strike the U.S. military bases as well as South Korea's port city of Busan if an acute high-arc trajectory were used.

Kim Dong-yup, a professor at the Institute for Far Eastern Studies (IFES), a research arm of Kyungnam University, also said the North might have intended to use an acute high-arc trajectory this time to reduce the missile range in order for the missile, if the launch was successful, not to invade Japanese air space.

"North Korea probably wanted to test re-entry technology necessary to develop a nuclear-tipped intercontinental ballistic missile," he said. "There is a possibility that the North might have changed an engine for the missile this time as it would be necessary for the North to test a new rocket engine that underwent a ground test in April."

The re-entry technology is necessary to bring a nuclear-armed ballistic missile back into the Earth's atmosphere, cited as the toughest challenge in developing operational middle- and long-range ballistic missiles. As missiles re-enter the Earth's atmosphere at Mach 20, the missile's warhead needs to be capable of withstanding temperatures of around 6,000 to 7,000 degrees Celsius.

Kim added that Pyongyang is expected to fire more Musudans to complete the regime's nuclear and missile programs.

Other experts noted that the North changed the launch site this time to avoid surveillance by South Korea and the United States.

Regarding the change of the launch site, JCS spokesman Col. Jeon Ha-kyu said, "There could be a number of reasons, and we are currently carrying out an analysis."

Jeon added that the military is closely monitoring movements of North Korean soldiers in preparation for additional provocations.



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The Musudan, also known as the BM-25, is the North's indigenous variant of the Russian SS-N-6 submarine-launched ballistic missile, known in Moscow as the R-27.

[https://www.koreatimes.co.kr/www/news/nation/2016/10/116\\_216238.html](https://www.koreatimes.co.kr/www/news/nation/2016/10/116_216238.html)

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NBC News.com – New York, NY

## **North Korea Warns It Would Use Nuclear Weapons First If Threatened**

By BILL NEELY

October 17, 2016

PYONGYANG, North Korea — North Korea has warned that it may carry out further nuclear tests and says it is prepared to launch a preemptive strike on the United States if U.S. nuclear forces mobilize against it.

"The U.S. has nuclear weapons off our coast, targeting our country, our capital and our Dear Leader, Kim Jong Un," a top North Korean official, Lee Yong Pil, said in an exclusive interview with NBC News.

"We will not step back as long as there's a nuclear threat to us from the United States," added Lee, who is director of the Foreign Ministry's Institute for American Studies.

"A preemptive nuclear strike is not something the U.S. has a monopoly on," he said. "If we see that the U.S. would do it to us, we would do it first. ... We have the technology."

Such threats have been a staple of North Korean leader Kim Jong Un since he took power after his father's death in 2011. U.S. officials do not believe Pyongyang possesses weapons able to reach the continental United States.

Lee also warned that North Korea may carry out "a sixth, a seventh or an eighth" nuclear test.

Putting the world on notice of another nuclear test would anger the international community, most of which is already considering further sanctions against the reclusive nation for its activity so far.

Lee said neither sanctions from the United Nations nor U.S. pressure would stop North Korea's building its arsenal.

"We have to have nuclear weapons to protect our country, and it's our policy to go nuclear," he added.

Another North Korean official told NBC News that the reclusive nation already has the capability to reach the U.S. mainland with a rocket. Hwang Yongnam, who is authorized to speak about the country's missile program, said the Pentagon is lying when it says the North cannot yet reach the continental United States with a weapon.

But it's not just weapons the country's interested in, according to Ri Won Hyok, a senior official involved in North Korea's fledgling space program.

Ri said that Pyongyang is also launching rockets to carry satellites into space and that "in the future our goal is not just going to the moon, but to the other planets."

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He denied that the country's rocket program has had help from Russia or Iran, claiming "it's 100 percent our own."

U.S. scientists believe that none of North Korea's launches so far have included any fully functioning satellites.

<http://www.nbcnews.com/news/world/north-korea-warns-it-would-use-nuclear-weapons-first-if-n665791>

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The Korea Herald – Seoul, South Korea

### **NK Likely to Have 79 Bombs by 2020: Study**

By Shin Hyon-hee

October 18, 2016

North Korea may be able to increase nuclear arsenal to at least 79 fission bombs by 2020, a study said Tuesday, calling for Seoul and Washington to refine their long-term goals to thwart Pyongyang's ambition.

Lee Sang-hyun, a senior researcher at the Sejong Institute, introduced the interim findings of a comprehensive joint study involving more than 10 diplomatic and security specialists as well as nuclear scientists, economists and psychologists during a seminar hosted in Seoul by the Presidential Committee on Unification Preparation.

In the paper, the team estimated that the communist state held up to 50 kilograms of plutonium and around 300 kilograms of highly enriched uranium.

"North Korea is likely to be able to build four to eight small nuclear weapons every year, meaning that its stockpile could possibly grow to 79 or more by the end of 2020 while mastering means of their delivery," Lee said.

The projection paints a more advanced scenario of the Kim Jong-un regime's bomb production capabilities than other assessments, though some put estimate the North could make as many as 100 bombs over the same time frame.

Early last year, Joel Wit of the US-Korea Institute at the Johns Hopkins University in Washington said the North could have 10 to 16 weapons now, with six to eight of them made from plutonium and four to eight from uranium.

To prevent the forecast from becoming reality, South Korea and the US need to focus on sharpening their long-term strategies, along with their ongoing sanctions drive.

"Our short term outlook is gloomy, as Kim Jong-un would unlikely turn to denuclearization negotiations nor give up his nuclear program for now," Lee said.

"The issue may require a multilayered longer term setup aimed at making the regime choose a nuclear-free economy over its current parallel pursuit of nuclear and economic development, while in the short- and mid-term concentrating international strengths on applying effective sanctions and pressure."

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With Beijing's formidable sway as Pyongyang's lifeline, Washington should step up pressure on China to tighten the economic noose on its cash-strapped neighbor, he added, referring to the US' recent blacklisting of Dandong Hongxiang Industrial Development, an industry machinery wholesaler, for providing financial services and illicit supplies to the regime.

Despite Beijing's "lukewarm" attitude, Chung Chong-wook, a vice chairman of the unification panel and former ambassador to China, pinned hopes on future cooperation, saying the North's relentless provocations would deepen frustration among Beijing elites.

"While many Chinese opinion leaders see North Korea as a strategic asset, my assessment is that more people are regarding it as a strategic burden," Chung said in his welcoming remarks.

"Such a phenomenon is increasingly spreading among high ranking officials and it would only accelerate as North Korea spurs its nuclear development."

Choi Jong-kun, a professor in political science and international studies at Yonsei University in Seoul, stressed the importance of consistency in Seoul's North Korea policy that has long been subject to "ideological strife and political feuds."

Over the last 20 years, South Korea's approach has been widely oscillating in line with leadership changes, with earlier two liberal administrations pushing for reconciliation and the latter two conservative presidents taking hardline stances.

"In pursuing a long-term resolution of the issue, we need continuity in denuclearization policy," Choi said.

"A coolheaded, realistic approach and meticulously-crafted strategies are vital to effectively setting in motion any mid- and long-term roadmap on denuclearization. It would also prompt a chance for soul searching about populism and slogan-heavy policies."

<http://www.koreaherald.com/view.php?ud=20161018000800>

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Yonhap News Agency – Seoul, South Korea

### **Activity Continues at N.K. Rocket Site, but Launch Unlikely in Near Future: 38 North**

October 18, 2016

Activity continues at North Korea's long-range missile launch site, but it appears to be related more to maintenance and infrastructure improvements than to preparations for a launch in the near future, a U.S. website monitoring the North said Monday.

"Commercial satellite imagery from October 8 continues to show a low-level of activity at and around the launch pad and vertical engine test stand at the Sohae Satellite Launching Station," 38 North said in a report, referring to the Dongchang-ri launch site in the country's northwest.

"Given the absence of activities normally associated with an impending launch, such as the presence of cranes on the launch pad or activity at the VIP observation building, it seems unlikely that North Korea is planning a space launch in the near future," it said.

Instead, other activities around the facility suggest "a focus on maintenance and infrastructure improvements," the report said, adding that it remains unclear whether activity at the vertical engine test stand is related to an impending engine test or serves some other purpose.



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The Oct. 8 imagery shows a rail-mounted environmental shelter, which is used to conduct final preparations on an engine before it is loaded by a crane into the test stand, remains adjacent to the vertical engine test stand.

That could be part of preparations for a new engine test or maintenance work related to last month's engine test, it said. (Yonhap)

<http://english.yonhapnews.co.kr/news/2016/10/18/78/0200000000AEN20161018000600315F.html>

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South China Morning Post – Hong Kong, China

### **North Korea's Musudan Missile Could Become Operational Next Year, Expert Says**

Kyodo News Agency

Tuesday, 18 October 2016

North Korea's Musudan intermediate-range ballistic missile, capable of hitting the US territory of Guam in the Pacific, could become operational "sometime next year", a US missile expert said on Monday.

"If they continue at this rate, the Musudan intermediate-range ballistic missile could enter operational service sometime next year – much sooner than had previously been expected," said John Schilling, an aerospace engineer with expertise in Pyongyang's missile programmes.

Schilling was referring to last week's failed launch by North Korea of what appeared to be a Musudan, which, if confirmed, would have been the country's seventh test of the missile this year.

"They are continuing with an aggressive test schedule that involves, at least this time, demonstrating new operational capabilities," he wrote on 38 North, a website featuring analysis of North Korea.

"That increases the probability of individual tests failing, but it means they will learn more with each test even if it does result in failure."

Following a series of failures, North Korea announced in June it successfully test-fired the Musudan.

It flew about 400km and reached an altitude of over 1,000 km, showing that it can function as an intermediate-range ballistic missile.

The missile has a potential range of between 2,500km and 4,000km, which would cover not only any target in Japan and South Korea, but could also even reach US military bases on Guam.

On Monday, White House Press Secretary Josh Earnest condemned the North's latest missile test, saying it underscores why Washington and Seoul have decided to deploy the Terminal High Altitude Area Defence, an advanced missile defence system, in South Korea.



“That is why the United States has been in discussions with our South Korean allies about deploying a THAAD battery and anti-ballistic missile battery to South Korea to protect South Korea from the ballistic missile threat emanating from North Korea,” Earnest said at a press briefing.

<http://www.scmp.com/news/asia/east-asia/article/2029071/north-koreas-musudan-missile-could-become-operational-next-year>

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The National Interest – Washington, D.C.

## Is South Korea Getting Ready to Build Nuclear Submarines?

By Dave Majumdar

October 19, 2016

With North Korea developing a nuclear-armed ballistic missile submarine, South Korea is contemplating the development of a nuclear-powered attack submarine (SSN). However, the Republic of Korea faces a long, difficult and expensive path to acquiring such a capability should Seoul choose to embark on such a journey.

“The party stressed that securing a nuclear sub is an urgent task to overcome the North's asymmetric capabilities and strengthen self-defense,” Rep. Kim Gwang-lim, chief policymaker for the ruling Saenuri Party told reporters according to *Korea Times*. “The government vowed to seriously consider the suggestion.”

The South Korean government believes that it needs an SSN to counter Pyongyang's nascent ballistic missile submarine program. The reasoning in Seoul is that a conventional diesel-electric—or even one with Air Independent Propulsion—would not have the persistence to maintain continuous tracking of the North Korean boomers.

However, while South Koreans might want a nuclear attack submarine, such vessels are extremely expensive and technically challenging to develop and build. It is highly unlikely that the United States would sell a Virginia-class attack submarine to South Korea, nor is it likely that Seoul could afford to operate such vessels. Thus, the mostly likely option would be for South Korea to develop its own indigenous SSNs.

But to accomplish such a feat, Seoul would almost certainly require technical assistance from the United States, which might not be willing to transfer extremely sensitive submarine technology to South Korea. But even with American technical assistance, developing an SSN is extremely expensive and difficult in the best of times. Even Great Britain, which had previous nuclear submarine experience, required American help to develop the Astute-class SSN and the Successor-class SSBN.

A further challenge is that Washington effectively controls most uranium enrichment and nuclear fuel reprocessing for South Korea. The current agreement between Seoul and Washington does not allow for South Korea to use American-sources of uranium for military purposes. “The two countries have yet to review whether or not the revision would allow South Korea to secure uranium necessary for a nuclear submarine,” a Korean defense ministry official told the *Korea Times* on the condition of anonymity.

Another potential option for South Korea would be to approach France for help in developing a nuclear submarine. The French are generally more open in sharing their submarine technology. Indeed, France had offered to develop a conventionally-powered version of their Barracuda-class



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SSN for Australia. However, French SSNs are not quite up to par with American or British attack submarines. Meanwhile, neither Russia nor China are likely to offer their SSN technology to Seoul even if South Korea were so inclined.

Indeed, one of the potential complications arising from South Korean-owned nuclear attack submarines would be the reaction from China, Russia and, potentially, Japan. Moscow and especially Beijing are likely to react with fury over the prospect of Korean SSNs roaming in the Western Pacific.

<http://nationalinterest.org/blog/the-buzz/south-korea-getting-ready-build-nuclear-submarines-18100>

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Japan Today – Tokyo, Japan

### **U.S. Warns of 'Overwhelming' Response to Any N Korean Use of Nuclear Weapons**

By MATTHEW PENNINGTON, Associated Press (AP)

October 20, 2016

WASHINGTON — The United States warned Wednesday that any attack on American allies or use of nuclear weapons by North Korea would be met with an “overwhelming” U.S. response as it sought to reassure close ally South Korea that the U.S. has its back.

The statement by Defense Secretary Ash Carter came as top U.S. and South Korean diplomats and military officials met, weeks after North Korea’s most powerful nuclear test explosion to date, and days after its failed test launch of a ballistic missile - one of more than 20 such tests this year alone.

The flurry of activity has deepened concern over the North’s progress toward having a nuclear warhead it can mount on a long-range missile.

The two sides discussed steps to strengthen the so-called “extended deterrence” provided by U.S. nuclear forces in defending South Korea and agreed to begin a high-level dialogue about it. Seoul is looking to allay calls from conservatives at home who want South Korea to develop its own nuclear arsenal.

“The U.S. commitment to the defense of South Korea is unwavering. This includes our commitment to provide extended deterrence, guaranteed by the full spectrum of U.S. defense capabilities,” Carter said in opening remarks.

“Make no mistake, any attack on America or our allies will not only be defeated, but any use of nuclear weapons will be met with an overwhelming and effective response,” he said.

South Korean Foreign Minister Yun Byung-se said the threat posed by North Korea is “more grave than ever” and that the North is “nearing the final stage of nuclear weaponization.”

“North Korea’s threat is no longer confined to the Korean Peninsula and Northeast Asia. It’s now a direct threat to the mainland U.S.,” he said after the talks. “The next few years will be the tipping point.”



He said defense officials on Thursday would discuss the possibility of deploying U.S. “strategic assets” to the South - an apparent reference to permanently basing nuclear-capable planes or vessels there.

Secretary of State John Kerry reiterated the U.S. will deploy “as soon as possible” a Terminal High Altitude Area Defense, or THAAD, a missile defense system intended to protect South Korea and the nearly 30,000 U.S. forces based there.

The plans for THAAD have angered China and Russia, which see it as a threat to their own defense.

Kerry called for every country to rigorously enforce U.N. sanctions on North Korea, which are intended - but have failed - to prevent its development of weapons of mass destruction. He said the international community needs to cooperate so the North “pays a price for its dangerous actions.”

The U.S. and China, which is the North’s traditional ally and main trading partner, are currently negotiating at the U.N. Security Council on tightening sanctions in response to the Sept. 9 nuclear test. The U.S., South Korea and Japan are considering additional sanctions of their own.

Kerry said the U.S. wants to close a loophole in the current U.N. sanctions allowing coal exports from North Korea to support the livelihood of its people. Kerry said that provision was being abused and the “greatest amount” of coal and revenue has just passed between China and North Korea.

The U.S. hopes that tighter sanctions can force impoverished North Korea to return to long-stalled negotiations on providing aid in exchange for denuclearization, but there appears to be little prospect of their resumption because of Pyongyang’s determination to have nuclear weapons.

North Korea’s state-run Rodong Sinmun newspaper on Wednesday said the North would strengthen its nuclear capabilities in quantity and quality in response to the threat from its enemies.

“We have warned that South Korea will be engulfed in a sea of fire and the U.S. military units in the Pacific region and the mainland will be in chaos if the U.S. wages nuclear strikes against us,” the newspaper said. “Our warning is not an empty word.”

Kerry said claims from North Korean leader Kim Jong Un that he needs nuclear weapons to defend against the U.S. defy common sense.

“The United States has had the power to wipe out North Korea for years, for years. And if indeed that was our goal, we wouldn’t be sitting around waiting” while they get additional nuclear weapons, he said.

<https://www.japantoday.com/category/world/view/u-s-warns-of-overwhelming-response-to-any-n-korean-use-of-nuclear-weapons>

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The Korea Times – Seoul, South Korea

## **N. Korea's Missile Launch Fails again**

By Jun Ji-hye

October 20, 2016

North Korea launched what was presumed to be a Musudan intermediate-range ballistic missile (IRBM), Thursday, which exploded soon after liftoff, according to the Joint Chiefs of Staff (JCS).



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The launch took place at 7 a.m. near an airbase in Kusong, North Pyongan Province, soon after top defense and foreign affairs officials from South Korea and the United States wrapped up their high-level talks in Washington.

Experts say that the North was apparently attempting to show off its capability of striking U.S. military bases in Guam, though this failed, in response to the allies' agreement to strengthen the U.S. "extended deterrence" protection of South Korea.

"The latest launch was seen as the North's armed protest to show its willingness not to lose out to the allies' plan to enhance extended deterrence," said Kim Yong-hyun, a professor of North Korean Studies at Dongguk University.

Extended deterrence refers to Washington's stated commitment to defend its ally by mobilizing all military capabilities – nuclear and conventional – to cope with the North's aggression and provocations.

The Musudan, which can be fired from a mobile launcher, is believed to have a range of 3,000 to 4,000 kilometers and is in theory capable of reaching U.S. naval and air bases in Guam.

The U.S. Strategic Command also confirmed that it detected what it assessed was a failed North Korean missile launch, noting that the missile was presumed to be a Musudan.

It was the North's eighth launch of an IRBM – the seventh took place on Oct. 17 near the airbase as well, while six previous launches were conducted near the eastern port city of Wonsan.

Among them, only the sixth launch conducted on June 22 was considered successful. The Korean Central News Agency at the time claimed that the missile reached a maximum altitude of 1,413.6 kilometers and fell precisely onto a designated target 400 kilometers away at sea.

"We assess that the North pushed ahead with the additional provocation in a bid to recover from its failed launch on Oct. 15," a JCS official said on condition of anonymity.

The repressive state deployed the Musudan missiles in 2007 without testing them. The continuous failed launches have cast serious doubts over the quality of the missiles.

But observers note that the North's aggressive launch schedule despite repeated failures and further sanctions clearly shows its determination to achieve its stated goal of developing a nuclear-armed, long-range ballistic missile that could hit the U.S. mainland.

"The North is highly likely to launch more IRBMs as they are the only weapons the regime has at the moment that could threaten the U.S.," said the official.

Meanwhile, Pyongyang indicated it would test a long-range rocket in the not-too-distant future, saying Thursday that it will continue to launch satellites into space.

The North claims that the launching of satellites is part of a peaceful space program, but the international community views it as a cover to test technologies used in the development of intercontinental ballistic missiles, believed to have a range of more than 10,000 kilometers, which are capable of striking targets on the U.S. mainland.

On Feb. 7, the isolated state launched what it claimed was an Earth observation satellite, Kwangmyongsong-4, into orbit.

[http://www.koreatimes.co.kr/www/news/nation/2016/10/116\\_216489.html](http://www.koreatimes.co.kr/www/news/nation/2016/10/116_216489.html)

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The Korea Herald – Seoul, South Korea

## **NK's IRBM Launch Fails again**

By Yoon Min-sik

October 20, 2016

North Korea's test-firing of its Musudan missile Thursday failed, the South Korean and US militaries said, marking the second time in less than a week the communist state has botched the launch of the weapon that can supposedly strike a US base in Guam.

The intermediate-range ballistic missile was fired around 7 a.m. near the northwestern city of Kusong, North Pyongan Province. It was the same spot where Pyongyang conducted the Musudan's test last Saturday, which failed after a midair explosion.

"South Korea and the US jointly assessed that the failed missile looks to be a Musudan, and (North Korea) appears to have pushed ahead with the provocation to redeem its failure on Oct. 15," the Joint Chiefs of Staff said, confirming a statement by the US Strategic Command earlier in the day. "The military strongly condemns North Korea for continued illegal provocations, and is on full alert for further provocations."

The Ministry of Foreign Affairs called the launch a clear violation of the UN Security Council resolution that bans the North from any ballistic missile or nuclear programs.

"The continued provocations will only intensify economic hardship and isolation of North Korea in the international community, and will prompt new UNSC sanctions, unilateral sanctions of our allies, while strengthening the will of the international society for global pressure," it said in a statement.

Musudan is believed to have a maximum range of over 3,500 kilometers. It has been deployed in the field since 2007, but only one out of eight test-launches – that conducted in June -- has been successful to date.

Thursday's launch came hours after the South Korean ministers of defense and foreign affairs met their US counterparts in Washington. During the meeting, the allies agreed to establish a high-level consultation group for the US' extended deterrence. Extended deterrence refers to the threat of US nuclear retaliation in the event of an attack on its allies.

Countermeasures on growing threats from Pyongyang have been the focal point of Wednesday's talks, and are expected to dominate Thursday's Security Consultative Meeting of the allies' defense ministers.

Security experts have assessed that Thursday's missile launch is believed to be a show of protest against Seoul-Washington alliance's plans to enhance extended deterrence.

Japan, which falls under the theoretical range of Musudan, responded angrily by protesting to Pyongyang via the Japanese embassy in Beijing.

South Korea and the US on Wednesday agreed on the importance of even stronger economic sanctions on North Korea, particularly after Pyongyang's Sept. 9 nuclear test.

North Korea is already under international economic sanctions included in the UNSC Resolution 2270, intended as punitive action against its January nuclear test and February long-range rocket launch.

<http://www.koreaherald.com/view.php?ud=20161020000583>

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## **USAF Center for Unconventional Weapons Studies (CUWS) Outreach Journal**

Xinhua News – Beijing, China

### **DPRK Vows to Launch More Satellites**

Source: Xinhua

October 20, 2016

PYONGYANG, Oct. 20 (Xinhua) -- The Democratic People's Republic of Korea (DPRK) on Thursday said it will continue to send more satellites into space under its national blueprint for space development.

A spokesman for the DPRK National Aerospace Development stressed in a statement that a satellite launch by the DPRK and its right to use space for peaceful purposes was "legitimate."

The spokesman refuted claims by South Korea that the true intention behind Pyongyang's satellite program is not for peaceful purposes.

In the statement carried by the official news agency KCNA, the spokesman said the DPRK will launch more Juche satellites.

The statement came amid South Korea's strong denunciation of the DPRK over its test-launch of an intermediate-range ballistic missile on Thursday, which Seoul's military presumed to have failed.

Seoul's foreign ministry said in a statement that the missile launch violates the United Nations Security Council resolutions and poses a grave threat to peace and security on the Korean Peninsula.

The resolutions ban the DPRK from launching a rocket by use of any ballistic missile technologies because a long-range rocket and a ballistic missile have overlapping technologies.

The DPRK delegate attending the 71st session of UN General Assembly in New York denounced the resolutions as "a wanton violation of the legitimate right of a sovereign state" and "a product of a hostile U.S. policy toward the DPRK."

On Sept. 9, Pyongyang said it had successfully tested a nuclear warhead, which marked its fifth nuclear test, eight months after it conducted a purported hydrogen bomb test in January. It also launched a long-range rocket on Feb. 7.

In March, the UN Security Council unanimously adopted a resolution on tougher sanctions against the DPRK to curb the country's nuclear and missile programs. Security Council members also called for an early resumption of the six-party talks.

[http://news.xinhuanet.com/english/2016-10/20/c\\_135769863.htm](http://news.xinhuanet.com/english/2016-10/20/c_135769863.htm)

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The Hankyoreh – Seoul, South Korea

## **S. Korea and the US Don't Reach Deal on Permanent Deployment of Strategic US Weapons**

By Yi Yong-in, Washington correspondent

October 21, 2016

Permanent rotational deployment of high-powered weapons was sought by South Korean government after North Korea's nuclear and missile tests

A plan by the South Korean government for the permanent rotational deployment of strategic US weapons on the Korean Peninsula, intended to strengthen its deterrent against the North Korean nuclear and missile programs, has been shelved.

The South Korean Minister of National Defense and US Secretary of Defense discussed the plan at their 40th Security Consultative Meeting at the Pentagon in Washington on Oct. 20, but failed to reach an agreement.

At a joint press conference with US Secretary of Defense Ashton Carter after the meeting, Defense Minister Han Min-ko said only that additional measures "such as the deployment of strategic assets permanently on the Korean Peninsula on a rotational basis" would be examined at a later date.

In their joint statement the same day, the two ministers would only say they had agreed to examine additional measures to strengthen extended deterrence with the 2+2 (Foreign and Defense Ministers') Extended Deterrence Strategy and Consultation Group (EDSCG) framework to eliminate any doubts from Pyongyang on the alliance's resolve.

The South Korean Ministry of National Defense began discussing the idea of rotational deployment with the US after South Korean conservatives complained that US strategic assets were not being mobilized in a timely manner in response to North Korea's nuclear tests and missile launches. Both sides were reported as originally agreeing on the permanent deployment of strategic weapons on the peninsula on a rotational basis, which was to be reflected in their joint statement. "Strategic weapons" include long-range strategic bombers, nuclear-powered aircraft carriers, and nuclear-powered submarines, which are capable of carrying nuclear weapons and moving over long distances and possess extensive destructive force.

Han addressed the issue in a separate talk with foreign correspondents and reporters assigned to the ministry after the joint press conference.

"There is no doubt whatsoever about the US's ability and commitment to duties in terms of supporting and defending South Korea. I have stated several times the position that they are certain even now," he said.

"At the same time, in response to our request that this be fleshed out a bit more, the US settled on the position that we should try discussing it and examining it in more detail through the Foreign and Defense Ministry vice minister-level consultative group created this time and the South Korea-US Deterrence Strategy Committee (DSC) that we have been using," he continued.

Han's remarks suggest the US may have balked at South Korea's calls for permanent rotational deployment of strategic assets.

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But when asked repeatedly whether the US did send a message of delicate refusal, Han replied, “The US never made any euphemistic refusal, and it would be more appropriate to understand its message as being that it was not strategic to specify that it would or would not be doing a certain thing strategically.”

[http://english.hani.co.kr/arti/english\\_edition/e\\_northkorea/766752.html](http://english.hani.co.kr/arti/english_edition/e_northkorea/766752.html)

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The National Interest – Washington, D.C.

### **Introducing the Successor-Class: The Largest Submarines Ever Built for the Royal Navy**

By Dave Majumdar

October 14, 2016

The United Kingdom has started production on its new Successor-class ballistic missile submarines (SSBN).

The four new boats will be the largest submarines ever built for the Royal Navy—displacing 17,200 tons with a length of about 502ft—but they will only have 12 missile tubes rather than the 16 found onboard the current *Vanguard*-class. The new boomers will also share technology with their U.S. Navy counterparts—the *Columbia*-class Ohio Replacement Program SSBNs—using a common missile compartment (CMC) design. Once completed, the new boomers will enter service in the 2030s.

“Britain’s ballistic missile submarines are the ultimate guarantee of our nation’s safety – we use them every day to deter the most extreme threats,” said British defense secretary Michael Fallon. “We cannot know what new dangers we might face in the 2030s, 2040s and 2050s so we are acting now to replace them.”

At the start of this month, the British government approved an initial £1.3 billion—roughly \$1.6 billion—in funding for the new ballistic missile submarines. That initial outlay will cover long-lead items—as the CMCs—and preparing the shipyard at Barrow-in-Furness for the task of building the enormous new vessels.

“This additional financial investment by the MOD [Ministry of Defense] is an expression of confidence in our ability to build these sophisticated vessels,” said Tony Johns, managing director of BAE Systems Submarines. “We have been designing the new class of submarine for more than five years and thanks to the maturity of our design, we’re now in a position to start production on the date we set back in 2011. This is a terrific achievement and I pay tribute to all those who have made this possible.”

There is not much information available about the technical characteristics of the British *Successor*-class design. While the 17,200-ton boats will be larger than their 15,900-ton *Vanguard*-class predecessors, the new SSBNs will carry four fewer missiles. Part of the reason for the vessels’ larger size is likely due to the need for enhanced stealth—larger submarines are inherently quieter. But it is also possible that the British have adopted an all-electric permanent magnet motor to drive the boat—similar to what is planned for the *Columbia*-class—for their new SSBNs, which might also account for the increased displacement.



Indeed, the British submarines' PWR-3 pressurized water reactor plant is thought to draw heavily upon the technology used on the U.S. Navy's General Electric S9G reactor plant found onboard the *Virginia*-class attack submarines. However, the *Columbia*-class will have a newer 42-year life-of-the-boat reactor that is significantly more powerful than the S9G.

The *Successors* are already going to be sharing their CMC modules with their *Columbia*-class counterparts, thus such an arrangement might not be outside the realm of the possible. Indeed, according to General Dynamics Electric Boat's Will Lennon—the company's vice president of engineering and design programs, who spoke to *The National Interest* earlier this year—the CMCs will be built in modular units of four tubes—or Quad-Packs. While the *Columbia*-class will use four Quad-Packs for a total of 16 missiles, the smaller British *Successors* will use only three for a total of 12 tubes. The tubes are the same 87-inch diameter vessels as the current Trident II D5 launchers on the present day *Ohio*-class and *Vanguard*-class, but are a foot longer—leaving some margin for a future missile design.

Other innovations found onboard the new British boomers focus on crew comforts. The new submarines will have separate classrooms and study areas, a sickbay with a doctor, a gym as well as separate berthing for female crewmembers. Additionally, the submarine will have a new lighting system to better simulate nighttime and daytime. Thus, life onboard a *Successor* should be more pleasant than onboard a *Vanguard*.

<http://nationalinterest.org/blog/the-buzz/introducing-the-successor-class-the-largest-submarines-ever-18064>

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Russia & India Report – Moscow, Russia

### **Russia to Lease Second Nuclear Sub to India**

*An agreement was signed in Goa, after the India-Russia summit meeting between President Vladimir Putin and Prime Minister Narendra Modi, for a lease transfer of another nuclear powered submarine to the Indian Navy, as part of enhanced bilateral defence cooperation.*

By LENTA.RU

19 October 2016

A source in the Russian defence industry told the 'Vedomosti' newspaper that a transfer agreement had been signed to lease a second nuclear submarine of project 971, in the Indian state of Goa. The Indian Navy will get the submarine from those available with the Russian navy, after it undergoes repairs and a detailed upgrade.

The publication does not mention any specific submarine. However, according to "Lenta.ru", the submarine in question is one of the submarines awaiting repairs at the "Zvezdochka" plant in Severodvinsk. Earlier, the media discussed the possibility of transferring to India the nuclear submarine K-322 "Kashalot", which was being repaired in Komsomolsk-on-Amur.

The first boat of the Project 971 - K-152 "Nerpa", finished in Komsomolsk-on-Amur according to the upgraded project 971I, was transferred to the Indian Navy in 2012. In the Indian Navy, it was named "Chakra," in honour of the submarine project 670, which earlier had that name, and which India leased from the Soviet Union in 1988-1991.

The lease agreement for the second submarine was concluded on the margins of the meeting between Russian President Vladimir Putin and Indian Prime Minister Narendra Modi, as part of a



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large package of documents on military and technical cooperation. The package provides for the conclusion of contracts for the delivery to India of anti-aircraft missile S-400 systems, Project 11356 frigates and the establishment of production of Ka-226T helicopters. The lease transfer of the Russian nuclear-powered submarine was not widely publicized after the 17th India-Russia summit held in Goa, prior to the summit of the five BRICS countries.

Admiral Vyacheslav Popov, the former commander of the Northern Fleet, told the National News Service that the second Russian submarine will help India establish a naval reserve.

"India will become a fighting unit with high capacity. This is of direct benefit for the country's defence, as the two submarines have dual capacity," the Admiral said.

"This will allow them to have one submarine in the reserve taking into account the necessary repairs. That is, only one of them is undergoing repairs, the second one is in the line of duty," said the Admiral.

At the same time, Popov said, India would get direct benefits for the country's defence.

"India has acquired a fighting unit with high capacity. This is of direct benefit for the country's defence, as the two submarines will provide dual capacity," Admiral Popov said.

Reports in the Indian media suggested that the submarine would be available for service with the Indian Navy after the refit, by 2020.

*First published in Russian by Lenta.ru.*

<https://in.rbth.com/economics/defence/2016/10/19/russia-to-lease-second-nuclear-sub-to-india-640339>

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FARS News Agency – Tehran, Iran

Monday, October 17, 2016

### **Deputy FM Blasts Kerry for Tying Commitment to N. Deal with Iran's Regional Policies**

TEHRAN (FNA) - Iranian Deputy Foreign Minister for Legal and International Affairs Seyed Abbas Araqchi lashed out at US Secretary of State John Kerry for his "incorrect" comments on the last year nuclear deal with Tehran, stressing that Iran's regional policies are no way related to the Vienna agreement.

"We are surprised at the claims (raised by Kerry). We have made it fully clear to them during the negotiations that the Islamic Republic's security, defensive and missile issues and its regional policies as well as issues related to the Islamic Revolution's principles and values are not to negotiate or doubt, and they are no way related to the nuclear negotiations either," Araqchi said on Monday.

His remarks came after Kerry told the Foreign Affairs magazine that Iran should halt support for Syrian President Bashar al-Assad and Hezbollah resistance group and stop progress in its missile program to benefit from Washington's support for its banking relations with the European countries.

"Mr. Kerry's remarks are incorrect claims completely," Araqchi said.

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Noting that the US has taken up fulfilling undertakings other than those implemented so far, he said, "The US should guarantee and facilitate Iran's access to the financial, banking, technology and trade markets."

In relevant remarks on Sunday, Deputy Chief of Staff of Iran's Armed Forces Brigadier General Massoud Jazayeri blasted Kerry's remarks, and said Washington is not allowed to set conditions for complying with its undertakings under the last year nuclear deal with Tehran.

"No one in Iran allows the US to tie its non-commitment to the resistance front's defensive issues and interests," Jazayeri said.

He underscored that playing game over Iran's defense power doesn't settle the White House's problems, and said the only way for the US to get rid of the deadlock it has entangled in the region is acknowledging its strategic mistakes and accepting its responsibility for thousands of criminal acts in the region.

"The origin of all the regional problems in West Asia is the US hegemonic policies," Jazayeri stressed.

His comments came after Governor of the Central Bank of Iran (CBI) Valiollah Seif once again lashed out at Washington for not complying with its undertakings under the last year nuclear deal with Tehran.

"The status quo is not desirable compared with the expectations before the nuclear deal," Seif said on Saturday.

Noting that the European countries and their banks are interested in cooperation with Iran, he said "but the US has not completely implemented the undertakings that it has accepted under the nuclear deal" and the European banks are lagging in improving relations with their Iranian counterparts given the concerns they have about the US behavior in future.

Seif asked the US to give necessary assurances to the European banks to develop relations with their Iranian counterparts.

Also, earlier this month, Seif lambasted the US for troubling improvement of the relations between the Iranian and European banks in opposition to Washington's undertakings under the last year nuclear deal between Tehran and the world powers.

"Unfortunately, after 9 months of implementation of the nuclear deal, the western side has not taken any effective step to comply with its undertakings, and in certain cases, the large western banks have shown some doubts in the establishment of brokering ties with Iran. This is while it has always been announced that Iran has fulfilled all its undertakings," Seif said in a meeting with German Deputy Economy Minister Brigitte Zypries in Tehran.

He described the US as one of the most important impediments to the normalization of relations between the Iranian and European banks, and said, "I believe that ties between Iran and Europe are normalizing and returning to the past levels, but there still remains certain concerns which have been caused mostly by the US and place hurdles on the way of bilateral ties."

"We expect the European countries to pressure the US to comply with its undertakings," Seif said.

His remarks came after Iranian Foreign Minister Mohammad Javad Zarif underlined that his country will show proper reaction to the US violation of its undertakings under the last year nuclear deal with Tehran.

"We will resist against the US non-compliance and we don't tolerate it and we will confront the Americans' violation of the nuclear deal," Zarif said early October.

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Also, German Vice-Chancellor and Federal Minister of Economic Affairs and Energy Sigmar Gabriel called on Washington to settle its internal problems and differences to fully implement the nuclear deal signed last year with Iran.

"The US should manage its affairs so that the results of the nuclear agreement would be materialized for Iran and its people," Gabriel said in a joint trade meeting with Iranian officials at Iran's Chamber of Commerce in Tehran early this month.

He stressed the German companies' enthusiasm for developing their activities in Iran, and said, "Now, they consider Iran as their home."

<http://en.farsnews.com/newstext.aspx?nn=13950726000381>

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FARS News Agency – Tehran, Iran

Tuesday, October 18, 2016

### **Iraqi Source: ISIL Leader Abu Bakr Al-Baghdadi Dead**

TEHRAN (FNA)- Reports from western Iraq said Leader of the ISIL terrorist cult Abu Bakr Al-Baghdadi has succumbed to his last month's fatal injuries and died in a region along the border with Syria.

"Al-Baghdadi had been severely wounded in the Al-Anbar battle in Western Iraq last month, and his wounds were so lethal that he could not at all move freely," a local Iraqi source told the Arabic service of the Russian Sputnik news agency on Tuesday.

The source said despite long treatment in Mosul, the general health conditions of the ISIL leader deteriorated due to "a deep abdominal cut, damage to his liver and crippling wounds in his left limbs".

The source said Al-Baghdad lost his life in the town of Al-Be'aaj some 100km (60 miles) West of Mosul near the border with Syria, but his death is concealed to avoid the loss of morale among ISIL ranks who are faced with a tough war in Mosul and Syria these days.

There have been numerous reports on the fate or location of the ISIL leader in the last two years. As the war ravages over the self-proclaimed capital of the terrorist cult, Mosul, in Western Iraq, Arab media sources said yesterday al-Baghdadi had fled to Raqqa in Syria before the Iraqi army started its operations in Mosul, but his wife was taken.

According to Iraq's Sumeriya News, local sources in Nineveh quoted defected ISIL leaders as saying that al-Baghdadi has managed to escape from Mosul to Raqqa, but his wife has been arrested.

The defected militants stated that senior members of the terrorist group, called the ISIL police, have rebelled against al-Baghdadi and called on his supporters to surrender themselves.

The source did not mention who has arrested Baghdadi's wife, but his words implied that she has been captured during a mutiny and by those who rebelled against the terror leader.

Meantime, earlier this month, Sumeriya News cited a local source in the Northwestern Nineveh province as saying that "accurate information" showed Baghdadi's food had been poisoned by



unknown individuals and the food was given to him in Be'aaj district, Northwest of the Iraqi province of Nineveh, near the Syrian border.

The source added that al-Baghdadi and three of his aides have been transferred to an unknown location under strict measures.

Numerous reports had indicated in the last one month that al-Baghdadi and other top commanders of the terrorist cult have started evacuating Mosul in anticipation of the Iraqi army's massive attack to take back the city.

The exact location of al-Baghdadi has been a subject of speculation. However the account on sighting al-Baghdadi has intensified the speculations that the ISIL leader was in Mosul before the start of Iraqi forces' operations to retake the strategic city.

Also reports said in June that al-Baghdadi had been seriously wounded in an airstrike in Western Iraq.

Local sources in Iraq's Nineveh province confirmed that Baghdadi and other leaders in the ISIL were wounded in an air raid on one of the ISIL command headquarters close to the Syrian border.

Baghdadi was seriously wounded by an airstrike on March 18, 2015, that killed the three other men he was travelling with.

He was said to be receiving treatment for spinal injuries after being wounded in that strike.

In mid-May, Iraq's local sources disclosed that al-Baghdadi returned to Iraq from Syria and hid in Nineveh province.

"Al-Baghdadi and a group of ISIL commanders have stealthily returned to Iraq's Nineveh province," the Arabic-language Sumeriya News quoted an unnamed local Iraqi source as saying at the time.

Al-Baghdadi returned to Nineveh province through ISIL-controlled desert roads in Iraq and Syria, added the source.

The source noted that Al-Baghdadi hi in an unknown place in Nineveh province.

The ISIL Leader is running a secret life as his life is at stake more than anyone in the world now. Al-Baghdad's terrorist group is under massive airstrike by the Syrian, Russian and Iraqi Air Forces all throughout the Western Iraq and Eastern Syria.

While reports earlier this year said the ISIL leader was always on the move between Iraq's Mosul and Syria's Raqqa - the self-proclaimed capital of the terrorist group - tips and intel revealed in November that al-Baghdadi had moved from the Syrian city of Abu Kamal to the Iraqi city of Mosul in Nineveh province.

In early March, informed intelligence sources disclosed that the al-Baghdadi had moved from Turkey to Libya to escape the hunt operation of the Baghdad Intelligence Sharing Center after he was traced down and allegedly targeted a number of times in Iraq and the Syria.

"Abu Bakr al-Baghdadi who was injured in Syria was sent to Turkey for treatment and from there he was sent to Libya," the Arabic-language media outlets quoted former Egyptian intelligence officer Hesam Kheirullah as saying.

In December, sources in Libya said al-Baghdadi had arrived in Sirte, the hometown of the slain Libyan dictator Muammar Gaddafi, which is under the control of the Takfiri groups.

Then in October, Iraq's air force bombed his convoy as he was heading to al-Karable to attend a meeting with ISIL commanders. 25 other ISIL militants were killed in the special operation that was



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the product of the Baghdad Intelligence Sharing Center where the latest intel arrives from Iranian, Russian, Iraqi and Syrian spy agencies round the clock.

The notorious terrorist leader escaped the attempt on his life narrowly, but with fatal injuries. Few hours after the assault, the spokesman of Iraq's joint forces declared that Al-Baghdadi was injured in the Iraqi airstrike on his convoy and was taken away from the scene by his forces.

The terrorist leader was first transferred to Raqqa, where surgeons saved his life but failed to give him a thorough treatment due to a lack of specialized medical equipment.

Sources disclosed a few days later that the ISIL leader had been taken to Turkey for treatment through a series of coordination measures by the CIA.

"The CIA has done the coordination with the Turkish intelligence service (MIT) for transferring al-Baghdadi to Turkey," the Arabic-language al-Manar TV quoted unnamed sources as saying.

The source said that two companions of al-Baghdadi who were also injured in the attack on the ISIL leader's convoy and were captured by the Iraqi forces confirmed that al-Baghdadi had been injured in the attack.

After specialists said al-Baghdadi needed months of recovery, one of his aides was appointed to run the cult until the so-called caliph would return to duty.

Al-Baghdad has, thus far, escaped several attempts on his life, making him suspicious of his team of bodyguards.

"While everyone is looking for him in Iraq and Syria, no one expects him to be in Sirte," the Libyan source told FNA, adding, "If he is to be exposed to danger, Sirte would be the last place on Earth for his life to be endangered as it is the safest Takfiri stronghold in the world."

The Syrian army, the National Defense Forces (NDF), the Lebanese Hezbollah and the Syrian and Russian Air Forces, as well as the Iraqi army and popular forces, Al-Hashed Al-Shaabi, have been conducting large-scale operations in Syria and Iraq to end the ISIL control over swathes of lands in the two countries.

<http://en.farsnews.com/newstext.aspx?nn=13950727001125>

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Islamic Republic News Agency (IRNA) – Tehran, Iran

18 October 2016

### **Salehi: Design of Arak Reactor Worked Out**

Tehran, Oct 18, IRNA – Vice-President and head of the Atomic Energy Organization of Iran Ali Akbar Salehi said on Tuesday that major part of design of Arak nuclear reactor has been worked out and only the heart remained to be installed.

Speaking to reporters, he said based on the Joint Comprehensive Plan of Action (JCPOA), working committees comprising of experts from Iran, China and the US were formed to mull presentation of sampling model for Arak nuclear site.

'The major operation is conducted by the Iranian experts and we are ahead of schedule,' he said.

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The concept design has been given to the Chinese and American experts which is at the final stage and negotiations on planning are underway, Salehi said.

The Chinese experts have finished some 95 percent of their commercial contract on redesigning of Arak nuclear reactor, he said.

'We are now administering the affairs and act as contractor and in case these countries fail to carry out their duties for any reasons, we have made required predictions,' Salehi said.

The amount of plutonium in the newly designed reactor will be lower but its neutron charge is higher to augment efficiency, he said.

<http://www.irna.ir/en/News/82271807/>

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Press TV – Tehran, Iran

### **Leader Urges Authorities not to Back Down against US**

Wednesday, October 19, 2016

Leader of the Islamic Revolution Ayatollah Seyyed Ali Khamenei has called on Iranian authorities not to back down in the face of the United States' ever-increasing demands.

Ayatollah Khamenei made the remarks on Wednesday in a meeting with a group of top university students and members of Iran's National Elites Foundation.

*"We have, time and again, told [Iranian authorities] that if you surrender in the nuclear [case], they (Americans) will bring up the issue of the missiles. If you back down further, they will pick on the issue of [Iran's] support for resistance," Ayatollah Khamenei asserted.*

"If you keep backing down even further, they will bring up [the issue of] human rights. Then, if you accept their standards, they will go for eliminating the religious standards in [our] government," the Leader added.

The Leader was pointing to recent remarks by US Secretary of State John Kerry, who has said that the Islamic Republic's continued support for the resistance movement in the region made it "very difficult" to help Tehran improve its banking system and business practices.

Ayatollah Khamenei said that some American officials would cite his "pessimism towards the US" during their meetings with Iranian officials, asking, "How can one [ever] be optimistic towards you, given such remarks?"

The Leader further highlighted Iran's vast capacities for making progress as well as its human and natural resources, saying even the Westerners admit this issue.

The praise for Iran's potentials is not "mere rhetoric," Ayatollah Khamenei added, warning that hindering Iran's scientific progress is among the major goals of enemies.

<http://www.presstv.com/Detail/2016/10/19/489751/Iran-Leader>

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The Hill – Washington, D.C.

### **US General Suspects Iran in Yemen Missile Launches**

By Kristina Wong

October 19, 2016

The top U.S. commander in the Middle East said he suspects Iran is playing a role in recent missile launches by Houthi rebels in Yemen against U.S. ships in the Red Sea.

"I do think that Iran is playing a role in some of this. They have a relationship with the Houthis, so I do suspect there is a role in that," said U.S. Central Command leader Army Gen. Joseph Votel at the Center for American Progress.

It was the closest a U.S. official has come to directly attributing the missile attacks to Iran, which supports the Houthis in their civil war against the embattled regime.

Last week, U.S. ships were fired upon at least two times while in the Red Sea off the coast of Yemen, prompting a U.S. destroyer to destroy three radar sites that U.S. officials say they believe were used in the missile launches.

The Houthis are rebels in Yemen who ousted the Western-backed government from the capital of Sana'a in September 2014.

Officials only said the missile launches were from "Houthi-controlled territory" in Yemen and said they did not know who actually pulled the trigger, or who exactly was to blame.

Attributing fault to Iran for the missile launches would raise the question of what the U.S. would do in response, at a time when the Obama administration has been trying to smooth relations with Iran.

The missile launches at the USS Mason, USS Ponce and USS San Antonio came after a Saudi strike hit a Houthi funeral, killing 140 mourners, including a number of senior Houthi leaders.

The Houthis receive weapons and military support from Iran, while the ousted regime receives military support from a Saudi-led Arab coalition conducting airstrikes against the Houthis.

Votel said the former Yemeni regime, under President Ali Abdullah Saleh, who has also been backing the Houthi rebels, may have played a role as well.

The Pentagon said it is still trying to figure out whether there was an additional missile launch on Saturday, after the U.S. destroyed the radar sites.

"What we are trying to do is make sure we understand this as much as we can so we can properly attribute what is happening and understand how these attacks are taking place and, more importantly, how the decisions are being made to launch these attacks so we can take action against that," Votel said.

<https://origin-ny1.thehill.com/policy/defense/301801-us-general-suspects-iran-playing-a-role-in-missile-launches-against-us-ships>

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Tasnim News Agency – Tehran, Iran

## Iran Rejects “Imaginary Story” of Role in Attack on US Vessels

October 20, 2016

TEHRAN (Tasnim) – Iran’s Foreign Ministry dismissed allegations raised by a US general that Iran may have played a role in missile attacks from Yemen against US warships in the Red Sea, saying the fictional story reveals US confusion in supporting the brutal Saudi-led invasion of Yemen.

Foreign Ministry Spokesman Bahram Qassemi on Thursday rejected the recent comments by US General Joseph Votel as an imaginary, suspicious and baseless story, saying the paradoxical and vague remarks by American officials over the past days signify Washington’s bewilderment.

The reaction came after Votel, head of the US military's Central Command overseeing operations across the Middle East, told a Washington think tank on Wednesday that Iran may have played a role in a series of incidents this month that saw surface-to-surface missiles fired at the USS Mason in the Red Sea allegedly by Yemen's Houthi forces.

Elsewhere in his comments, the Iranian spokesman recommended that US government take care of the conduct of those mired in Yemen after a “brutal and imposed aggression” against the Arab country.

The US military, which has played an undeniable role in the crimes against Yemeni people by providing direct and indirect support for the Saudi-led military coalition, should prevent more bloodshed and halt the killing of Yemenis by its allies, he concluded.

Since March 2015, Saudi Arabia and some of its Arab allies have been launching airstrikes against the Houthi Ansarullah movement in an attempt to restore power to the fugitive former President Abd Rabbuh Mansour Hadi, a close ally of Riyadh.

According to UN estimates, over 10,000 Yemenis, including 4,000 women and children, have lost their lives in the military campaign.

On October 8 alone, Saudi-led warplanes killed over 140 people and injured more than 600 others by bombing a crowded funeral ceremony in Sana’a.

<http://www.tasnimnews.com/en/news/2016/10/20/1217186/iran-rejects-imaginary-story-of-role-in-attack-on-us-vessels>

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The Times of India- Mumbai, India

## India Set to Complete N-Triad with Arihant Commissioning

By Rajat Pandit, Tamil News Network (TNN)

October 18, 2016

NEW DELHI: India is finally close to operationalising its long-awaited nuclear weapons triad — the capability to launch nukes from land, air and sea.

Although the land-based Agni ballistic missiles+ as well as fighter bombers configured to deliver nuclear weapons have been available for a while, the triad's missing — and most potent — sea leg has been a big operational gap till now.

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Sources said on Monday that the country's first indigenously-constructed nuclear submarine INS Arihant+ (which means annihilator of enemies), propelled by an 83 MW pressurised light-water reactor at its core, was commissioned into service in August after extensive sea trials+ since December 2014.

INS Arihant's 750km and 3,500km missiles may be somewhat dwarfed by SLBMs (submarine-launched ballistic missiles) with ranges of well over 5,000km with the US, Russia and China, but the completion of the nuclear-triad is critical for a country like India, which has a clearly declared policy of "no first-use" of nuclear weapons. It makes its second-strike capability much more credible. A pre-emptive enemy strike can conceivably take out a rival's nuclear missiles and fighter bombers. That is why an SSBN, capable of lurking underwater for months without being detected, is considered the most effective and deadly platform for a retaliatory nuclear strike.

The 6,000-tonne Arihant is, however, "not yet fully ready" to be deployed for "deterrent patrols" with nuclear-tipped ballistic missiles in its four silos, said the sources. Both the defence ministry as well as the Navy refused to say anything on the matter, holding that it was "a strategic project" directly controlled by the PMO.

INS Arihant has undergone a whole host of surface and "dived" sorties during its trials to prove its sea-worthiness. But the full weapons integration with the "K" (named after former president APJ Abdul Kalam) series of SLBMs will take some more time. While the K-15 SLBM has a 750-km range, the K-4 can go up to 3,500-km.

INS Arihant is the first of three such SSBNs (nuclear-powered submarines with long-range nuclear ballistic missiles) being constructed under the secretive ATV (advanced technology vessel) programme launched decades ago. The construction of the second one, INS Aridhman, is also almost complete now, with its delivery slated for 2018.

Apart from both Pakistan and China having largely ambiguous nuclear weapons policies, the growing presence of Chinese nuclear submarines in the Indian Ocean region has become a major source of concern for the Indian security establishment over the last couple of years.

<http://timesofindia.indiatimes.com/india/India-set-to-complete-N-triad-with-Arihant-commissioning/articleshow/54907081.cms>

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The Wall Street Journal – New York, NY

OPINION/Essay

### **Can America Trust Its Aging Nuclear Arsenal?**

*The U.S. must reinvest in its nuclear-arms complex*

By STEVEN E. KOONIN

October 15, 2016

Much talk during this election cycle has focused, understandably, on the fitness of the presidential candidates to command the formidable nuclear arsenal of the United States. What has been lost in this heated debate is a more fundamental issue: the condition of our nuclear weapons and their reliability in the years ahead.

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To ensure future deterrence, the U.S. needs to have a well-maintained nuclear-weapons “complex,” as we in the field call it—that is, the array of laboratories and specialized industrial plants within the Department of Energy that keep our nuclear arsenal in working condition. That complex faces serious challenges today and could begin to break down within the next decade, with dire ramifications for the security of the U.S. and the world.

I started to learn about nuclear weapons in 1972 as a 20-year-old graduate student working at Los Alamos National Laboratory. What struck me most, upon first seeing a nuclear weapon up close, is how small it is. The basic physics of the device packs tremendous energy into a compact space: A conventional explosion compresses plutonium to a critical mass, a chain reaction amplifies the energy 100,000 times, and then there’s another 10- to 100-fold amplification as the X-rays produced cause additional nuclear reactions. It is a tightly linked chain of amplification, and if any one of the stages fails, the weapon fizzles.

Engineering plays an important role. Nuclear explosives must work in a range of extreme conditions, must not go off unintentionally and must be secure, making a weapon inoperable were it to fall into the wrong hands. The design of these devices is very sophisticated, and small modifications can make a big difference in the amplification chain.

But much has changed since my days as a graduate student. It has been 25 years since we last performed a nuclear test, the newest designs in our stockpile date from 40 years ago, and some of our key research and maintenance facilities are now more than 60 years old. The crucial question today is what it will take for us to continue to have confidence in these systems.

Since 1992, when the U.S. adopted a moratorium on nuclear testing, the challenge has been to assure that weapons in the stockpile can sit for decades—their metal parts corroding and plastic parts degrading—and still perform as expected. I have watched (and occasionally advised) as our nuclear-weapons complex has worked to establish confidence in our arsenal based on a detailed scientific understanding of how a weapon functions and ages rather than on nuclear testing. We have developed experimental facilities to study materials under extreme conditions, simulate a nuclear explosion with sophisticated computer hardware and software, and detect any significant changes in our aging stockpile.

There also have been innovations in the way that we assemble and disassemble weapons and replace or refurbish their parts, since many old manufacturing methods have been lost or are no longer environmentally permissible. New methods such as 3-D printing have helped.

So far, this science-based approach has allowed lab personnel, independent review panels and military leaders to continue to have confidence in our weapons. It has let us make our weapons safer (with less sensitive explosives) and more secure (with the superior safeguards made possible by modern electronics).

That success has not come without cost. Funding for weapons activities and infrastructure was \$9.2 billion in 2016, and the president has requested \$9.7 billion for 2017. The Department of Energy estimates that an additional \$1.3 billion per year will be needed over the next five years to meet established goals.

Even with that level of funding, however, many of us familiar with the country’s nuclear-weapons complex are concerned about its stability and continued success. One big worry is maintaining the small and largely closed community of scientists and engineers with specialized knowledge and experience in dealing with nuclear weapons. Difficult technical assessments and decisions demand robust debate among experts, but there are now fewer than 50 designers qualified to assess our weapons, and the number with nuclear-test experience is diminishing rapidly. Younger would-be



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stewards of our arsenal are constantly tempted away by more lucrative opportunities doing more conventional work.

Retaining specialized weapons expertise is necessary not just to ensure that our own weapons are safe and effective. The U.S. also needs to be able to understand developments in other nations' nuclear programs (think North Korea, Iran, India and Pakistan), to avoid being surprised by new technologies (such as a better way to enrich uranium or the invention of a new kind of weapon) and to deal with any nuclear device smuggled into our country.

Our weapons facilities need serious attention, too. Years of delays in replacing shuttered plants have left us without the ability to produce key weapons components. It will be at least a decade, for example, before plutonium parts can be fabricated at the rate required for future stockpile maintenance, and any visitor to Los Alamos or the Y-12 uranium facility in Tennessee can see the crumbling concrete and leaking roofs. These and other facilities are being refurbished, but it will take at least a decade to work through an estimated \$3.5 billion in deferred infrastructure costs. As our weapons age beyond their intended lifetimes, we must also continually update and improve the experimental and computational facilities used for assessing them.

Inconsistent management and funding are perhaps the most serious threat to the complex. It takes a decade or more to refurbish all of the weapons of a particular type and almost as long to train an expert in weapons physics and engineering. Unfortunately, these programs are often caught up in the vagaries of the budget and political cycle. It is expensive to stop and start a complex processing line for a weapon. Lawrence Livermore Laboratory, for example, recently recruited some one hundred staff to work on a new cruise missile as part of the Obama administration's commitment to modernizing our nuclear forces. But it is now unclear whether that program has the political support to proceed. Such unpredictability not only erodes workforce morale and retention; it also draws into question the commitment of our nation's leadership to maintaining a credible deterrent.

There is also plenty of work to do to reform the country's nuclear-weapons complex from within and to make it accountable for its important mission. Numerous studies in recent decades have identified problems in how these far-flung programs are managed and how they spend their budgeted funds. Congress has recognized that the Department of Energy needs to do more to integrate the various parts of the complex and to ensure that it takes a comprehensive view of weapons technology and maintenance. An oversight panel has begun monitoring these needed changes.

The goal should be a long-term strategic view of managing our nuclear-weapons complex and investing in it. Otherwise, the question of who can be entrusted with the nuclear "button" will eventually give way to concerns about whether, in that awful eventuality, the button is connected to anything that actually works.

*Dr. Koonin, a theoretical physicist, serves on the governing boards of the Los Alamos, Lawrence Livermore and Sandia National Laboratories. A former undersecretary for science at the U.S. Department of Energy, he currently directs the Center for Urban Science and Progress at New York University.*

<http://www.wsj.com/articles/can-america-trust-its-aging-nuclear-arsenal-1476464734>

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USAF Center for Unconventional Weapons Studies

CUWS Outreach Journal

Maxwell AFB, Alabama

The Dong-A Ilbo – Seoul, South Korea

OPINION/Editorial

## Is Military Support from the U.S. Always Reliable?

October 18, 2016

It is indisputable even among military experts that Pyongyang's ultimate goal is to secure nuclear capabilities to strike mainland U.S. Indeed, over the past 20 years, North Korea has been obsessed with miniaturization of nuclear warheads and development of ICBM-grade long-range missiles. Last month, North Korean leader Kim Jong Un observed in person the experiment of an ICBM rocket engine. "Kim Jong Un is considering the ICBM capable of striking mainland U.S. as "joker" of the nuclear game that the regime is playing against America," said an official from the South Korean military. In other words, such a capability is considered as the best hand the rogue nation is dealt in applying a diplomatic pressure against the U.S. in both strategic and tactical ways.

The North considers ICBMs-loaded with nuclear warheads as the key to establishing its status as a nuclear state. Possession of Inter-Continental Ballistic Missiles loaded with nuclear warheads can put any country in the state of a "nuclear state." In fact, only five nations in the world (U.S., Russia, China, U.K., and France) are in possession of nuclear weapons. It appears that the North is considering the possibility of being recognized as a "de facto" nuclear state like India or Pakistan once it has deployed ICBMs loaded with nuclear missiles for real battles, which will allow the international community very little room to maneuver.

"North Korea will likely to go down the path of maximizing diplomatic and economic benefits at the expense of nuclear disarmament negotiations with the U.S. after securing the recognition as a "de facto nuclear state," said an official from the South Korean Defense Ministry. Experts speculate that the North Korean regime will take this opportunity to solidify its legitimacy and gain the upper hand against the U.S. and South Korea in handling nuclear negotiations.

ICBMs loaded with nuclear warheads are also a strong means to deter the Extended Deterrence that the U.S. holds against the Korean Peninsula. The U.S. has made it clear that any nuclear attack from the North to the South will be deemed to be an attack against the U.S. mainland, and that it will take both retaliatory and punitive measures against such an attack by fully mobilizing its nuclear and conventional forces. Some experts point out, however, that it is doubtful if such a pledge of extended deterrence can be honored if the ICBMs from Pyongyang are aimed at Washington or New York. "Kim Jong Un must be bent on neutralizing the extended deterrence from the U.S. by annihilating U.S. cities with a nuclear fission bomb or hydrogen bomb on ICBMs," said a South Korean military official.

<http://english.donga.com/Home/3/all/26/762867/1>

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Bulletin of the Atomic Scientists – Chicago, IL

OPINION/ ROUNDTABLE: US NO-FIRST-USE: THE VIEW FROM ASIA

### **Time is Not Right for US No-First-Use**

Parris H. Chang

18 October 2016

Even if you favor a US nuclear no-first-use policy, you'll likely admit that such a policy could have negative security repercussions in Asia. So it is in this roundtable: My roundtable colleague Ta Minh Tuan, who hopes that Barack Obama will institute no-first-use, recognizes that such a shift could embolden Kim Jong-un to press ahead even harder with North Korea's nuclear arms program and to undertake additional provocative actions.

But what if no-first-use encouraged Kim, free from the fear of nuclear retaliation, to mount a conventional attack against South Korea? This is just the sort of scenario that causes some US security experts to hope that the Obama administration does not adopt a "sole purpose" policy for Washington's nuclear arsenal. The administration, with its 2010 Nuclear Posture Review, already moved closer to renouncing the use of nuclear weapons except in response to a nuclear attack by an adversary. Moving further in that direction would not be wise at this point.

Any indication that the United States might be retreating from its nuclear guarantees would compel Japan and South Korea to take countermeasures—which would likely extend beyond the deepening dependence on US protection that Ta discussed in Round One. Rather, Tokyo and Seoul might well go nuclear themselves. This would represent a worst-case scenario—two additional cases of the very nuclear proliferation that Washington works so hard to prevent.

Ta does admit that Japan and South Korea, "with an ambitious and nuclear-armed North Korea next door," would have valid reasons for concern about a US no-first-use policy. But then he asserts that Tokyo and Seoul would have "no legitimate reason... to develop their own nuclear weapons—as long as US extended deterrence remained in place." This is a bit cavalier. Ta may be a true believer in the notion that, overall, US no-first-use would benefit regional peace and security. But he underestimates the alarm with which Japan and South Korea might view no-first-use.

Ta also largely ignores a major Asian security problem that no-first-use could aggravate: China's claim of sovereignty over nearly all the South China Sea. Beijing's land reclamation projects, and its militarization of reefs and shoals in the Spratly and Paracel Islands, have strengthened China's military capacity in contested waters—and have also alarmed the United States, Japan, and most Southeast Asian nations, including the Philippines, Vietnam, and Singapore. The Permanent Court of Arbitration in The Hague issued a ruling in July that legally repudiated China's claim of sovereignty and its land reclamation projects, but Beijing has rejected the verdict. It is persisting in its plan to project power across the South China Sea by reclaiming (and building an air strip on) Scarborough Shoal, which is only 140 miles from Manila.

US Secretary of Defense Ashton Carter has explicitly warned Beijing of countermeasures if China goes ahead with such measures. In recent months the United States has taken muscular measures such as sending aircraft carrier battle groups—in defense of the principle of freedom of navigation—on close passes by China's artificial islands. China's ambitions and its increasingly aggressive behavior in the South and East China Seas have become a focus of rising tensions between China and the United States (as well as Washington's regional allies). In such a

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geostrategic context, no prudent US leader can afford the luxury of initiating a nuclear no-first-use policy.

*Parris H. Chang is professor emeritus of political science at Pennsylvania State University and president of the Taiwan Institute for Political, Economic, and Strategic Studies. He was a member of Taiwan's Legislative Yuan from 1993 to 2004, deputy secretary-general of Taiwan's National Security Council from 2004 until 2006, and Taiwan's representative to the Kingdom of Bahrain in 2008. His publications include Power and Policy in China and, as co-editor and contributing author, If China Crosses the Taiwan Strait: The International Response.*

<http://thebulletin.org/us-no-first-use-view-asia/time-not-right-us-no-first-use>

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The Cipher Brief.com – U.S.

OPINION/Newsletter

## **The Future of Hypersonic Weapons**

By DANIEL M. NORTON

October 20, 2016

Over the next few years, the Defense Advanced Research Projects Agency (DARPA) plans to demonstrate two air-launched hypersonic weapons (HSW) concepts; the Turbo Boost Glide and the Hypersonic Air-breathing Weapons Concept. These systems, though not weapons themselves, should generate a great deal of information on the operating conditions for weapon-sized air vehicles in hypersonic flight (Mach 5 to 10) at high altitudes, and, along with other government-funded research efforts, could pave the way for a weapons program in the next decade.

Other countries are also developing HSWs. Russia is developing the Zircon, a ship-launched hypersonic anti-ship cruise missile (ASCM) reportedly derived in part from the Brahmos, a supersonic ASCM developed by Russia and India. It is also developing a ballistic missile-launched system with a hypersonic glide vehicle.

Russia and China are developing ballistic missile launched HSWs. Russia recently launched a hypersonic glide vehicle on an SS-19 intercontinental ballistic missile. China has tested the DF-ZF (formerly the WU-14), a hypersonic glide vehicle that could be launched by ballistic missiles of various sizes, seven times since 2014.

The development of conventional hypersonic weapons offers opportunities and challenges for U.S. defense planners, particularly in potential major conflicts with adversaries possessing advanced air defenses. The introduction of air-launched HSWs could allow aircraft to target short-dwell mobile targets, such as surface-to-air missile (SAM) systems and ballistic and cruise missile launchers, from standoff range in ways that are ineffective with subsonic weapons due to their long time of flight. HSWs could also put at risk well-defended targets that are difficult to hit with subsonic weapons. The very high speed, high altitude flight profile, and maneuverability of HSWs could reduce threat engagement opportunities, increasing weapon survivability and effectiveness. Procuring HSWs could also force potential adversaries to develop new air defense systems or re-allocate existing ones to address this threat, possibly increasing the effectiveness of other air assets. Of course, other solutions are possible. Supersonic (Mach 1 to Mach 5) weapons could also be effective in attacking these targets and would also need to be considered.



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The case for ballistic missile-launched HSWs, particularly those launched from the U.S. with intercontinental range, is less clear. Procuring such a system would provide a means of attacking targets throughout the world within 30 minutes from U.S. territory. However, such a launch could be misinterpreted as a nuclear-armed ICBM launch and thus could have substantial escalation risks. Further, ISR systems are likely to be needed in the theater to find many targets of interest. If ISR systems are available, strike aircraft could be as well. Strike aircraft could offer a less expensive, more tailorable, and more robust way of striking the target. Thus, while these weapons may have some utility, it is not clear they are cost-effective or outweigh their risks.

Even air-launched HSWs have important limitations. Achieving very high speeds and altitudes requires a great deal of energy and advanced materials. As a result, HSWs are likely to be much larger, heavier, and more expensive than subsonic weapons of similar payload and range. As such, they will never be competitive with current systems in attacking targets that both can effectively reach.

Although at this point a U.S. decision to procure HSWs would be premature, flight demonstrations and technology maturation efforts could pave the way for the development of a new weapon system.

Regardless of whether the U.S. procures HSWs, it may be compelled to develop ways to defend against them. Defeating the Zircon system could require attacks on multiple steps in the adversary effects chain. This could include destroying or dazzling Russian intelligence, surveillance, and reconnaissance (ISR) systems to prevent them from finding Navy ships; jamming communications links between ISR systems and HSW-equipped surface ships; and attacking those ships. Efforts to deceive or blind the missile seeker and destroy the missile itself may also be necessary. The Navy has employed systems designed to defeat supersonic anti-ship missiles for decades. These kinds of systems would have to be extended to address the threat posed by Zircon.

The introduction of Russian and Chinese ballistic-missile launched HSWs could present a much broader set of challenges, since they could conceivably be used against multiple surface targets. Chinese HSWs will be more expensive than comparable subsonic cruise missiles and thus may be reserved for high-value, well-defended targets, such as ships and critical infrastructure.

Addressing this threat could also require attacks on multiple stages of the adversary's effects chain. The fact that these weapons could be launched from mobile ground systems, which have proven very difficult to find and attack in previous conflicts, only adds to the challenge. Upgrades to air defense systems, such as theater air and missile defense systems, may also be needed.

It may not be possible to intercept every missile. The attacker chooses the timing and number of missiles used to attack each target. The defender must allocate defenses prior to the attack and thus those defenses may be overwhelmed in specific locations. Mitigation steps, such as hardening some critical facilities and building backups for others, could make operations more robust in the face of attacks.

Although the United States, Russia, and China are all developing hypersonic systems, and Russia and China appear to be developing hypersonic weapons, it would be a mistake to view this as an arms race. The United States should make decisions on whether to develop and procure HSWs based on their potential contributions in future conflicts, regardless of the course of action taken by others. Similarly, defense planners will have to address the threat posed by Russian and Chinese HSWs if those systems become operational, independent of whether the United States decides to procure its own HSWs.



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<https://www.thecipherbrief.com/column/private-sector/future-hypersonic-weapons-1091>

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#### ABOUT THE USAF CUWS

The USAF Counterproliferation Center was established in 1998 at the direction of the Chief of Staff of the Air Force. Located at Maxwell AFB, this Center capitalizes on the resident expertise of Air University, while extending its reach far beyond - and influences a wide audience of leaders and policy makers. A memorandum of agreement between the Air Staff Director for Nuclear and Counterproliferation (then AF/XON), now AF/A5XP) and Air War College Commandant established the initial manpower and responsibilities of the Center. This included integrating counterproliferation awareness into the curriculum and ongoing research at the Air University; establishing an information repository to promote research on counterproliferation and nonproliferation issues; and directing research on the various topics associated with counterproliferation and nonproliferation.

The Secretary of Defense's Task Force on Nuclear Weapons Management released a report in 2008 that recommended "Air Force personnel connected to the nuclear mission be required to take a professional military education (PME) course on national, defense, and Air Force concepts for deterrence and defense." As a result, the Air Force Nuclear Weapons Center, in coordination with the AF/A10 and Air Force Global Strike Command, established a series of courses at Kirtland AFB to provide continuing education through the careers of those Air Force personnel working in or supporting the nuclear enterprise. This mission was transferred to the Counterproliferation Center in 2012, broadening its mandate to providing education and research to not just countering WMD but also nuclear deterrence.

In February 2014, the Center's name was changed to the Center for Unconventional Weapons Studies to reflect its broad coverage of unconventional weapons issues, both offensive and defensive, across the six joint operating concepts (deterrence operations, cooperative security, major combat operations, irregular warfare, stability operations, and homeland security). The term "unconventional weapons," currently defined as nuclear, biological, and chemical weapons, also includes the improvised use of chemical, biological, and radiological hazards.

The CUWS's military insignia displays the symbols of nuclear, biological, and chemical hazards. The arrows above the hazards represent the four aspects of counterproliferation - counterforce, active defense, passive defense, and consequence management.

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