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ADMINISTRATION/PROGRAM SPECIFICS

Air Force selects AFNWC major for nuclear operations award

Air Force Nuclear Weapons Center Public Affairs, 23 Apr 20 Leah Bryant

Air Force recently named an Air Force Nuclear Weapons Center major at Hill AFB, Utah, one of the winners of the its 2019 Nuclear and Missile Operations Awards.

Major Carlos Barrios is the Field Grade Officer of the Year for the awards. Barrios is the deputy chief for Minuteman III sustainment at AFNWC's ICBM Systems Directorate at Hill AFB.

The awards recognize the outstanding accomplishments of Airmen contributing to nuclear deterrence and missile operations, according to award officials. Winners are selected from among from the Air Force's major commands, unified combatant commands, and other agencies.

Barrios was recognized for his efforts in spearheading a working group to deactivate the current intercontinental ballistic missile (ICBM) system, the Minuteman III, and transferring the first Minuteman III launch facility to the new Ground Based Strategic Deterrent ICBM program.

“This is well-deserved recognition of Carl's efforts in the past year to improve sustainment of the Minuteman III, as well as smooth our transition to the future Ground Based Strategic Deterrent system,” said Maj. Gen. Shaun Morris, AFNWC commander and program executive officer for strategic systems. “It's great to see our best and brightest recognized at the Air Force level.”

In addition, Barrios optimized depot maintenance activities and improved availability and survivability 425 percent for over 450 locations spanning three missile wings and an area the size of the state of Delaware. He revolutionized risk assessment for about 300 ICBM weapon system parameters, ensuring the proper allocation of \$288 million in funding. He also planned the replacement of a launch control trainer and deployed a virtual training environment for the critical ICBM capability.

“This award is a recognition of the dedication and grit the entire sustainment team brings to the fight every day,” Barrios said. “The Minuteman III has stood as our nation's shield for 50 years and our mission of sustaining it will continue until GBSD is fully fielded.”

Barrios also augmented the 75th Air Base Wing's Security Forces at the base gates, helping to alleviate traffic safety concerns.

Headquartered at Kirtland AFB, AFNWC is responsible for synchronizing all aspects of nuclear materiel management on behalf of Air Force Materiel Command, in direct support of Air Force Global Strike Command. The center has more than 1,300 personnel assigned to 18 locations worldwide.

Planning for next Minuteman III test in August continues on schedule

InsideDefense.com, 21 Apr 20 Sara Sirota

Regular testing of the Minuteman III intercontinental ballistic missile system is continuing on schedule amid the COVID-19 national emergency, with the next launch of an unarmed ICBM planned for August.

Maj. Gen. Fred Stoss, commander of the 20th Air Force that oversees the service's ICBM mission, confirmed the timeframe of the upcoming test in an interview last week, adding that his team has already chosen and retrieved a missile for the launch.

Air Force spokeswoman Ieva Bytautaite told Inside Defense April 18 the ICBM was en route to Vandenberg Air Force Base, CA, where the next test will occur. She also noted selection of the missile -- at random to evaluate the overall system's reliability -- occurred according to a preexisting timeline and was not adjusted as a result of the pandemic.

When asked if the 20th Air Force has seen an uptick in threats to the Minuteman III system during the coronavirus outbreak, Stoss would not comment, saying the ICBM force is "exactly as ready as it always is."

He also said the program office managing Minuteman III's replacement -- the Ground Based Strategic Deterrent -- has not indicated any delays in the Air Force's plan to award a contract for the next stage of development. Pentagon acquisition executive Ellen Lord did note Monday, though, that all major programs will be delayed about three months because of the COVID-19 crisis.

The service is expected to make an award for engineering and manufacturing development -- presumably to Northrop Grumman -- in the fourth quarter of fiscal year 2020. The Air Force anticipates starting to field the new ICBMs toward the end of the decade.

Stoss said GBSD will mirror the legacy system by having a total of 450 ICBMs in its stockpile and 400 on alert to comply with restrictions under the New Strategic Arms Reduction Treaty. That 10-year agreement with Russia ends in February 2021 but can be prolonged for another five years.

When asked how the decision to not replace or extend New START when the treaty ends may impact planning for the GBSD era, Stoss said the next ICBM force will adjust to whatever U.S. policy dictates.

If such a nuclear arms control treaty is in place when GBSD comes online, the military will have to update procedures for Russian inspectors as a result of changes to the new system from Minuteman III, he noted, without specifying which changes.

The design for the next-generation capability alters several components of the current ICBMs. The Air Force, in partnership with the National Nuclear Security Administration, is making a new arming and fuzing assembly, reentry vehicle and warhead, to name a few.

The new fuze is intended to come online in the mid-2020s and replace the legacy detonator fielded on the Minuteman III's Mk21 reentry vehicle as well as the GBSD's Mk21A.

When asked why the 20th Air Force needs a new fuze for an ICBM system that will be just a few years away from retiring, Stoss said he wants to

ensure the components are "extremely effective" to guarantee the reentry vehicle's lethality on both the Minuteman III and GBSD. He wouldn't say whether the new assembly makes the ICBMs more lethal.

Microelectronics Bump Hypersonics as DOD's Top Tech Priority

April 22, 2020 | By John A. Tirpak

The Pentagon has shifted its top priority from hypersonics to microelectronics, because the latter technology is part of almost all weapon systems, Mark Lewis, the head of defense research and engineering modernization, said April 22.

Speaking in an AFA live-stream event conducted by AFA Mitchell Institute dean retired Lt. Gen. David Deptula, Lewis called microelectronics "our most important investment, right now." The U.S. is "in danger" of losing the edge in this critical field, he said.

Past attempts to create "trusted foundries," producing microchips that would be fully understood and not potentially compromised by hidden spy technology, "didn't work out very well," Lewis explained. There were a "variety of reasons" that was so, but "primarily, there isn't a good business case" for such a capability. The Pentagon just doesn't buy enough microelectronics, as a share of world consumption, to make it worthwhile, he said.

The Pentagon now wants to pursue "zero trust" components that, regardless of where they're made, perform "exactly the way" they are expected to, Lewis said. The technology is vital because such components go into virtually everything, he said.

Hypersonics have been bumped to No. 2, but only because efforts made over the last couple of years have put that initiative on a better trajectory, he said.

Air-breathing hypersonic missiles will likely arrive in the next few years, offering the Air Force a good option to arm aircraft in this decade, given their smaller size and larger loadout for certain missions, Lewis said.

Asked to explain what the Pentagon means when he and others talk about "affordable" hypersonics, Lewis declined to offer the unit costs the department has in mind, but said the calculus must also include a weapon's effectiveness. A weapon that costs twice as much but is five times more effective is a bargain, Lewis said. "We don't know what these things cost, yet," but a Pentagon hypersonics "war room" is laboring to ensure the industrial base is prepared to build hypersonic systems in quantity, with the requisite materials, "affordably ... making sure the cost equation is ... beneficial."

Leaders at Air Combat Command and Global Strike Command have told Air Force Magazine recently that they are pushing for the boost-glide ARRW, or Air-launched Rapid Response Weapon, to be integrated on bombers first and later on smaller aircraft, but have offered less interest in air-breathing hypersonic missiles.

"The only reason I can come up with" why that is "is money," Lewis said. Air-breathing technology in some ways is more advanced than boost-glide technology, and air-breathing hypersonic missiles can be made smaller and be carried in larger numbers on aircraft pylons and "in bomb bays," he

said. The fourth and last flight of the X-51 air-breathing hypersonic test vehicle was “boring,” Lewis said, in that it did everything it was supposed to do, “and it was designed 15 years ago,” Lewis noted.

“When it came time to pick a first tactical system, the one that was picked was the ARRW, for better or for worse,” Lewis said.

Pompeo says Iran military satellite launch might defy U.N. resolution

From Reuters News Wire // April 22, 2020 / 11:37 AM / a day ago

WASHINGTON (Reuters) - U.S. Secretary of State Mike Pompeo on Wednesday called for Iran to be held accountable for the launch of a military satellite, adding that he thinks the action defied a U.N. Security Council resolution.

Iran’s Revolutionary Guards Corps said on Wednesday it had successfully launched the country’s first military satellite into orbit, at a time of heightened tensions with the United States over Tehran’s nuclear and missile programs. The U.S. military says the same long-range ballistic technology used to put satellites into orbit could also allow Tehran to launch longer-range weapons, perhaps someday including nuclear warheads.

Tehran denies U.S. assertions that such activity is a cover for ballistic missile development and says it has never pursued the development of nuclear weapons. A 2015 U.N. resolution “called upon” Iran to refrain for up to eight years from work on ballistic missiles designed to deliver nuclear weapons following an agreement with six world powers to limit its nuclear program. Some states argue the language does not make it obligatory.

“Every nation has an obligation to go to the United Nations and evaluate whether this missile launch was consistent with that Security Council resolution,” Pompeo told reporters, referring to U.N. Security Council resolution 2231. “I don’t think it remotely is, and I think Iran needs to be held accountable for what they have done,” he added. Most U.N. sanctions imposed on Iran were lifted in January 2016 when the U.N. nuclear watchdog confirmed that Tehran fulfilled its commitments under the 2015 nuclear deal with Britain, France, Germany, China, Russia and the United States. But Iran is still subject to a U.N. arms embargo, which is due to expire in October, and other restrictions.

The U.N. sanctions and restrictions on Iran are contained in the 2015 resolution, which also enshrines the 2015 Iran nuclear accord. Tensions have flared between Washington and Tehran since U.S. President Donald Trump’s administration in 2018 withdrew from the accord and reimposed U.S. sanctions on Iran. Trump said the deal, designed to put curbs on Iran’s nuclear program in exchange for easing economic sanctions, did not include restrictions on Iran’s ballistic missile program and support for its proxies in the Middle East.

Reporting by Humeyra Pamuk, David Brunnstrom, Arshad Mohammed and Daphne Psaledakis; Additional reporting by Michelle Nichols; Editing by Paul Simao and Alistair Bell

NNSA hosting 'virtual' hearing on SRS draft pit production environmental review

By Colin Demarest cdemarest@aikenstandard.com // Apr 20, 2020 Updated 22 hrs ago

The U.S. Department of Energy's weapons-and-nonproliferation agency will at the end of the month host a public hearing concerning its pitched plans to produce plutonium pits at the Savannah River Site.

The National Nuclear Security Administration's virtual meeting, held online in light of the novel coronavirus crisis, will address the draft environmental impact statement that was prepared for the perpetual production of nuclear weapon cores south of Aiken and near New Ellenton. The April 30 hearing will run for three hours: 6 to 9 p.m. Those wanting to attend can call in – 408-418-9388, with conference No. 796495716 – or log on via a link available on the National Nuclear Security Administration's website, energy.gov/nnsa.

Those who dial in will be able to hear, but not see, the presentation. Those who log on with a computer or tablet or smartphone will be able to see and hear the presentation, according to a public notice. Federal law requires the production of 80 plutonium pits per year by 2030 – an aggressive schedule, officials say. To satisfy that demand, the NNSA and the U.S. Department of Defense in May 2018 recommended crafting the cores in two states: 50 per year at a renovated Mixed Oxide Fuel Fabrication Facility at the Savannah River Site and 30 per year at a beefed up Los Alamos National Laboratory in northern New Mexico.

Both the Savannah River Site and Los Alamos National Lab could produce 80 pits per year if need be, according to two separate – but very much related – National Nuclear Security Administration studies. The last place pits were produced en masse, the Rocky Flats Plant in Colorado, was raided by the FBI decades ago and was subsequently shuttered. A public comment period for the Savannah River Site plutonium pit production draft environmental impact statement is open through May 18. Comments can be emailed, the preferred method, to NEPA-SRS@srs.gov. Comments can also be mailed to Jennifer Nelson, NEPA Document Manager, National Nuclear Security Administration, Savannah River Field Office P.O. Box A, Aiken, S.C. 29802.

Pentagon bracing for three-month slowdown on major defense equipment

By: [Aaron Mehta](#) for Defense News // 1 day ago

WASHINGTON — The U.S. Defense Department expects to see a three-month delay across the majority of its Major Defense Acquisition Program portfolio as the result of workforce and supply chain issues caused by the coronavirus pandemic.

“We believe there will be a three-month impact that we can see right now. So we’re looking at schedule delays and inefficiencies and so forth. That isn’t a particular program, that’s MDAPs in general,” Ellen Lord, the Pentagon’s top acquisition official, told reporters Monday. “And we are just now looking at key milestones that might be impacted.” Lord declined to identify specific programs that are starting to struggle, but said: “Particularly, we see a slowdown in the shipyards, to an extent. Aviation is actually the most highly impacted sector we have right now.”

In addition to shipbuilding and aviation, Lord expressed concern over the small space launch sector. Delays are largely the result of closures, temporary or otherwise, up and down the supply chain, from small firms to defense giants. For example, Boeing recently shut down production lines for weeks at a time, while 106 prime contractors have closed since the start of the COVID-19 outbreak, with 68 having reopened.

For vendor-based companies, 427 have closed, with 147 having closed and then reopened, Lord said. The international supply chain is experiencing negative effects of the pandemic, particularly in Mexico where a number of U.S. aerospace companies have outsourced work in recent years, as well as India. Lord said she is writing to Mexican Foreign Secretary Marcelo Ebrard to look for help in reopening local factories.

Under the Coronavirus Aid, Relief and Economic Security Act, the Pentagon received \$1 billion. Of that, \$750 million is earmarked for procuring medical supplies, while \$250 million is earmarked for the department to use to help keep critical suppliers in business. Lord said that latter funding will go toward a number of priorities, including “machine tools and industrial controls, aircraft supply chain illumination, chem-bio, directed energy, radar, munitions and missiles, space, shipbuilding, soldier systems, and ground systems.”

Under Section 3610 of the coronavirus relief act, the Pentagon has the ability to reimburse industry for payments to employees, should they be prevented from working due to facility closures or other restrictions related to the COVID-19 pandemic. Lord said funding for that requirement will likely be in the second version of the act, currently being hashed out between the White House and Congress. Lord described those potential reimbursements as “billions” of dollars, but declined to put a more specific price tag on it.

Kim exit wouldn't change US goals: Pompeo

From: The AFP // April 23, 2020

Washington (AFP) - The United States will keep seeking North Korea's denuclearization no matter who is in charge in Pyongyang, Secretary of State Mike Pompeo said Wednesday, amid speculation about leader Kim Jong Un's health.

US officials including President Donald Trump have declined to discuss Kim's condition after a report, downplayed by South Korea, that the reclusive authoritarian was ailing. But asked in an interview, Pompeo said he had met Kim's powerful sister, Kim Yo Jong, whose recent elevation in the hierarchy raised pundits' view that she could be a successor. "I did have a chance to meet her a couple of times, but the challenge remains the same -- the goal remains unchanged -- whoever is leading North Korea," Pompeo told Fox News.

He renewed the US promise to bring the North Korean people "a brighter future" if the leadership gives up nuclear weapons. "They've got to denuclearize. We've got to do so in a way that we can verify. That's true no matter who is leading North Korea," he said. Pompeo flew to North Korea four times in 2018 as he arranged historic summits between Trump and Kim after more than a half century of enmity between the two countries.

But hopes for a breakthrough before US elections in November have dimmed, with North Korea firing off rockets and the United States refusing Pyongyang's demands for sanctions relief before full denuclearization. Daily NK, an online media outlet run mostly by North Korean defectors, said Kim had undergone a cardiovascular procedure earlier this month triggered by heavy smoking, obesity and fatigue. CNN also quoted a US official as saying Kim was in "grave danger" after surgery. But South Korea, which is technically still at war with the North, said it had detected no unusual movements in its neighbor.

Pentagon Pumps \$3 billion Into Industry As COVID-19 Delays Loom

Acquisition chief Ellen Lord says she'll likely ask Congress for billions more to help the defense industry

BreakingDefense.com, 20 Apr 20 Paul McLeary

PENTAGON -- The Pentagon's acquisition chief today said she expects major defense programs to be delayed by around three months due to COVID-19 closures and disruptions, while DoD rushes to pump \$3 billion into the defense industry to bolster programs at greatest risk.

Speaking to reporters here this morning, Lord said she expects to have to ask the White House and Congress for "billions" more to reimburse contractors affected by work delays and broken supply chains. "We believe it will cost us something," she said, declining to get any more specific than "billions" of dollars.

The months-long delays to programs will likely be spread throughout the defense industry as small parts suppliers shut down operations for days or weeks at a time. "We're looking at schedule delays and inefficiencies and so forth: this isn't about a particular program." Lord singled out "a slowdown in the shipyards, to an extent. Aviation is actually the most highly impacted sector we have right now."

It's unclear what programs are at highest risk, but the Navy has been bullish on speeding up its new frigate program to award contracts some time this summer. If work slowdowns continue, that could be pushed further down the road. The Army and Navy have also been moving ahead on their nascent hypersonic weapons program, with a series of critical tests planned this year.

Lord pointedly suggested that large defense companies need to start pushing more money into their supplier base to ensure small parts suppliers don't go out of business, further impacting new programs and ongoing maintenance efforts. She did praise Lockheed and Boeing for increasing cash flow to lower-tier suppliers, then not-so-subtly says, she is "hoping for similar public announcements from other major primes."

Last month, Lockheed said it would advance more than \$100 million to suppliers hurt by the slowdown, and this week Boeing said it was reopening the Philadelphia-area facility where it makes the Chinook, the V-22 Osprey and other helicopters.

The Pentagon is starting to award higher progress payment rates this week, pumping \$3 billion dollars in increased cash flow to industry. "We try to anticipate the problems and work with the companies to keep going to the greatest degree possible," Lord said.

As part of that effort, DoD's first priority is the modernization process of the nuclear triad, she said: "we look at the Missile Defense Agency, we look at the critical capabilities. We're looking where the greatest pain points are."

While she singled out Lockheed and Boeing, shipbuilder Huntington Ingalls is making a push to speed up contracts and get money into the hands of sub-tier suppliers early, in order to ensure companies way down the supply base food chain can continue chugging along.

In a recent interview, company representatives told me they've reached out to over 2,000 suppliers in 48 of the 50 US states. "We need their products today, but we also need them in 90 days, so we want to help them brave the storm," said Lucas Hicks, vice president of new construction aircraft carrier programs. "We've actually changed some payment terms on some of our supplier contracts to try to make sure that we can front them what they need to stay afloat. We're doing some creative stuff to try and help them be able to weather the storm."

The Department's efforts to backstop the defense industrial base while taking steps to protect its workforce and purchase critical protective clothing

like facemasks is still in its relative stages, despite the COVID-19 pandemic having been with us for months.

“We are just really beginning to pick up momentum,” Lord said.

Goldfein: USAF not expecting major delays to top programs, but three-month stall is possible

InsideDefense.com, 22 Apr 20 Courtney Albon

Air Force Chief of Staff Gen. David Goldfein told reporters today the service is not yet projecting significant delays to major acquisition programs as a result of the COVID-19 pandemic, but said a three-month slow-down isn't out of the realm of possibility.

Earlier this week, Pentagon acquisition chief Ellen Lord told reporters the Defense Department is eyeing a possible three-month schedule impact to major defense acquisition programs as a result of supply chain, production and other programmatic disruptions. Goldfein didn't identify specific program delays the service is tracking, but said today Lord's analysis lines up with what the service is seeing.

"Three months is not surprising at all given what industry is dealing with on trying to keep their lines open," Goldfein said today during a Defense Writers Group briefing. "The production facilities where workers have to gather in close proximity to be able to perform their roles are the ones that are having the most challenges. The production facilities where most people actually spread out to do their work are the ones that have been able to keep up and running without any significant delays."

The service is keeping a close eye on its top programs, including the F-35, B-21, KC-46 and T-7A trainer, Goldfein said, and working with companies to mitigate any potential schedule impact. In the case of the F-35, which has a number of international program partners who supply components for the jet, Goldfein said he has been in conversations with various international air force chiefs to determine how they can collaborate to make sure second- and third-tier suppliers remain healthy in the midst of the pandemic.

F-35 prime contractor Lockheed Martin announced during an earnings call this week it expects a production slowdown because of the crisis, highlighting social distancing requirements and shipping constraints as contributing factors impacting suppliers as they work to meet production targets.

Asked today whether the program has discussed moving production from international suppliers to the U.S. in order to mitigate shipping and supply chain concerns, Goldfein said there are no plans to make major shifts in the industrial base.

"We need them to ride through these rough times because we need a diverse and resilient industrial base on the back end," he said. "One of the worst things that could happen would be for us to lose a significant number of tier two and tier three [suppliers] and then have a much-weakened industrial base on the back end. This is a concern for all of us."

Goldfein added that he is also working toward a June 1 target to reset the Air Force to a "new abnormal" that assumes the service will be operating with some form of COVID-19 restrictions for at least the next year.

"All the projections I'm seeing are no vaccine for upwards of a year, so that means we've got to refine our ability to survive and operate and do the missions the nation requires," he said.

How the nuclear force dodged the coronavirus

POLITICO, 22 Apr 20 Bryan Bender

The nation's nuclear forces, which prepare for the worst even on good days, were among the earliest and most aggressive in planning for the coronavirus pandemic, according to interviews with military officials and an internal timeline of key actions.

And the efforts appear to have paid off.

While other parts of the military have been hard-hit by the virus — including hundreds of sailors assigned to the aircraft carrier USS Theodore Roosevelt and dozens of new Army recruits packed into barracks — bomber squadrons, ballistic missile submarines and intercontinental ballistic missile crews have been largely spared, despite their similarly close quarters.

Commanders attribute the success to their early response, which began with a directive in January to review "disease containment plans" at bases around the country and included staggering and extending deployment schedules, tracking the virus in surrounding communities, and deploying inspection teams on bases to ensure social distancing measures were being followed.

"It became clear that this was moving across the globe and we wanted to kind of get in front of it," Air Force Lt. Gen. Anthony Cotton, deputy commander of the Global Strike Command, said in an interview. "We just saw what was happening and hoped that it wasn't gonna come our way, but we wanted to prepare."

That included understanding "what happened, what could happen, and what steps would be necessary that we would have to take to protect our force and mission," he said.

The number of personnel assigned to the three legs of the nuclear triad that have tested positive for Covid-19 is not being publicly released for security reasons. But when asked whether an estimate that the number of cases were in the ballpark of "onesies and twosies" was on target, Cotton responded, "that's a fair assessment."

"I'm knocking on wood right now [but] so far our measures are working," he said. "We're still flying sorties, the ICBM forces are still on 24 hours, we're still doing training. You're not getting headlines that our community is all bed-ridden because it's just not happening. We were able to kind of get it after it from the beginning."

And the top brass wants to keep it that way. On Wednesday the Pentagon announced a new tiered approach to testing military personnel for the virus, giving top priority to the nation's nuclear forces.

Some of the preparations began weeks before the rest of the military, let alone civilian institutions.

On Jan. 22, a day after the first coronavirus case was reported in the U.S., the chief of aerospace medicine at the Air Force Global Strike Command issued a directive to its bases across the country: Review your "disease containment plans" in anticipation of a worldwide outbreak.

Days later, the Louisiana headquarters that oversees nuclear bombers and missiles was conducting daily virus briefings and tracking the health statistics of far-flung units. As February arrived, it put in place plans for remote operations and teleworking.

By the end of February, all of its bomber and missile wings were ordered to conduct tabletop exercises to game out how extensive a localized outbreak could be and identify procedures to keep bomber squadrons, intercontinental ballistic missile crews and nuclear-armed submarines on alert 24 hours a day without interruption.

For instance, one base that is home to dozens of bombers simulated a scenario in which an arriving aircraft carried passengers who were later confirmed to have Covid-19. Base inspectors war-gamed how to respond, including what roles security forces, fire personnel, maintenance units and aircrews would need to do to prevent the spread.

Some of the actions were taken well over a month before the military command responsible for the defense of North America decided to prepare for the worst by standing up a backup command center deep inside Cheyenne Mountain in Colorado on March 19.

A major contributor was the very structure and culture of the nuclear weapons community, which is designed to keep operating even in the aftermath a nuclear conflict or amid a biological weapons attack.

All three legs of the nuclear triad — bombers, submarines and ICBMs — train to maintain operations and remain in contact even when standard communications are cut off, transportation networks are destroyed and in worst-case, higher commands or the national leadership has been knocked out.

That includes a fleet of airborne command centers that can manage the nuclear force if their primary headquarters have gone dark.

"They are geared toward locking down and riding out the worst battle possible so they have these contingencies to do that," said Hans Kristensen, director of the Nuclear Information Project at the Federation of American Scientists. "They have been planning for decades for contingencies against biological attack so that is probably what comes closest to this.

"I think what they've done early on is probably sort of set in motion some of those protocols — isolating crews, extending isolation periods before they go to their post," he added.

For example, U.S. Strategic Command in Nebraska, which oversees all the nation's nuclear forces, was well prepared to take swifter action than most. "From our chain of command to the technology we use, we are redundant, resilient and reliable so we can continue operating no matter the crisis or circumstance," said Maj. Kate Atanasoff, a Strategic Command spokesperson. "In the midst of Covid-19, this is no different."

"We also have the unique ability to both sequester and disperse, mitigating the threat posed by Covid-19," she added.

Commanders altered the schedules of forces in missile fields in North Dakota, Montana and Wyoming — bases originally selected to station ICBMs in part due to their remote locations. That includes extending their tours of duty.

As the ICBM crews rotate, a "clean team" is standing by "that can take over if someone gets sick," said Linda Frost, a spokesperson for Global Strike Command. "They are also screened before heading out to the field."

Procedures were also put in place early to isolate crews of nuclear-armed ballistic missile submarines, including "14-day in port sequestration onboard ships prior to all ballistic missile submarine patrols," according to Atanasoff.

"Only after a comprehensive evaluation by the command, in consultation with medical authorities, are the submarine crews getting underway," she added. "We are ensuring that our deploying crews have a high confidence of being Covid-19 free prior to departing on their strategic deterrent patrol."

As for bombers, Atanasoff said, "flights are continuing as normal to maintain training and readiness, with personnel taking all recommended preventive measures including social distancing, hand-washing, and alerting medical professionals of symptoms."

Additional safeguards have also been put in place aboard the E-6B Airborne Command Post and E-4B National Airborne Operation Centers, the aircraft designed to operate around the clock in the event of a nuclear crisis.

Cotton said commanders are also closely watching states where nuclear forces are located that have been harder hit by the virus. But he said he confident the aggressive approach has been able to blunt the spread of the virus so far.

"There's been cases," he said. "We won't give details on the numbers. But one of the things we're seeing is our measures are preventing that from doing anything as far as seeing that spread within those forces."

News & Opinion

It's time for arms talks with China

In the future of the U.S.-China relationship, nuclear weapons will move to the foreground

Japan News Online (Japan), 23 Apr 20 Brad Glosserman

A new U.S. State Department report alleges that China may be cheating on its pledge to abstain from nuclear tests. The language of the report is nuanced, however, and the unclassified executive summary, all that mere mortals like you and I can read, points to Chinese activities that “raise concerns” about Beijing’s adherence to standards of the Comprehensive Nuclear Test Ban Treaty (CTBT).

This behavior assumes special significance as the United States deploys new nuclear weapons in the region, debates the deployment of new missiles in Asia and calls for China’s inclusion in new arms control measures.

Every year, the State Department releases a report on “Compliance with Arms Control, Nonproliferation, and Disarmament Agreements and Commitments.” Its content is often controversial. Not only does it offend governments it calls out for violations, but its conclusions are frequently disputed within the arms control and nonproliferation communities as well, with each alleging that politics, rather than facts, are determining its conclusions. Last year’s report was widely criticized for letting political considerations shape its analysis.

This year the report noted “a high level of activity” at China’s Lop Nur nuclear test site. Pointing to “possible preparation to operate its Lop Nur test site year-round, its use of explosive containment chambers, extensive excavation activities at Lop Nur and lack of transparency on its nuclear testing activities,” the analysis concludes that these “raise concerns regarding its adherence to the ‘zero yield’ standard” (a nuclear test that does not use an explosive chain reaction ignited by a warhead).

There are some issues with the accusation. First, the “zero yield” standard cited by the State Department is disputed, which the report sort of acknowledges by qualifying the word “standard” with the phrase “adhered to by the U.S., France and the United Kingdom.”

Second, the report notes that China blocked data transmissions from sensors operated by the CTBTO, the organization that verifies compliance with the CTBT. But a CTBTO spokesperson quoted in *The Wall Street Journal* said the interruption occurred between 2018 and August 2019 and there have been no problems since then.

Third, China is not a signatory to the CTBT (neither is the U.S. for that matter) and the treaty hasn’t entered into force, so as Rebecca Hersman, a nuclear expert at the Washington-based Center for Strategic and International Studies observed, “it’s difficult to consider these actions in a compliance context.” Finally, China says it is committed to the nuclear test moratorium and its Foreign Ministry dismissed the U.S. accusation as “entirely groundless, without foundation and not worth refuting.”

The accuracy of U.S. allegations of Chinese cheating is actually beside the point. There is no mistaking Beijing’s relentless military — and nuclear

— modernization efforts. The Chinese government hasn't been shy about showing off its capabilities, parading new nuclear missiles and its newest technologies, including a hypersonic glide vehicle with a range of 1,000 to 4,000 km, for all the world to see at national celebrations last year.

While U.S. officials insist the main and official reason that Washington withdrew from the Intermediate-Range Nuclear Forces (INF) Treaty was Russia's cheating, China weighed heavily on their thinking. Unrestrained by the limits imposed by the INF Treaty, Beijing has steadily expanded its missile inventory and now has one of the world's largest arsenals.

In 2017, when Harry Harris, now U.S. ambassador to South Korea, was head of the Pacific Command, he warned Congress that China “controls the largest and most diverse missile force in the world, with an inventory of more than 2,000 ballistic and cruise missiles,” and about “95 percent ... would violate the INF if China was a signatory.”

China's missile inventory is an indispensable tool in efforts to secure its interests in East Asia; those include reunifying with Taiwan and protecting its territorial claims in the East and South China seas. Those missiles will target U.S. assets at sea or on land — bases in Japan or Guam — to prevent those forces from intervening to frustrate Chinese plans.

The U.S. response has been twofold. First, the administration of President Donald Trump has called for trilateral — U.S., Russia, China — arms talks, both conventional and nuclear, theater and strategic. China dismisses that demand, insisting that its nuclear capabilities are a fraction of those of the U.S. and Russia.

Beijing says it is committed to denuclearization, but it will only do so in coordination with other nuclear powers. That means it will sit out arms talks until the two biggest nuclear powers reduce their nuclear arsenals to that of China's size.

Beijing has about 300 warheads, while U.S. and Russian deployed nuclear warheads have been cut about 85 percent from the Cold War peak to a maximum of 1,550, with authoritative estimates of their entire arsenals at 3,800 and 4,490 nuclear weapons, respectively. Earlier this year, China's Foreign Ministry repeated that Beijing has “no intention” of joining trilateral arms control negotiations.

China flatly rejected joining new INF talks. Describing its “unswerving” policies as “defensive in nature,” China's representative at the United Nations called withdrawal from the treaty “another act of unilateralism and escape from international obligations by the United States ... aimed at relieving restrictions and seeking absolute military advantage.”

The second U.S. response is to deploy new missiles to this region, as intermediate-range missiles can't reach Chinese targets from the U.S. homeland and China will be trying to keep U.S. naval platforms out of range. U.S. Defense Secretary Mark Esper announced days after the INF withdrawal that such missiles would be coming to Asia “sooner rather than later,” and earlier this year the U.S. deployed a new low-yield tactical nuclear weapon that can be fired from submarines.

Last month, the U.S. Indo-Pacific Command requested more than \$20 billion in additional money to “regain the advantage” in the region. This includes money for intermediate-range weapons such as Tomahawk cruise missiles. That will not be enough, however.

The U.S. and its allies must have sufficient quantities of munitions in the region to threaten Chinese missiles and other targets, while also possessing defensive capabilities to shield assets from Chinese attacks.

This requires close coordination and planning by the U.S. and Japan to develop what Japanese analyst Musashi Murano calls “a politically sustainable missile deployment plan,” or an approach that is as responsive to public concerns as those of the military. Murano notes that by “deploying a judiciously balanced mix of defensive and offensive systems, the Japan-U.S. alliance can ultimately deter the use of force by China and head off conflicts before they occur.”

Messaging to the Japanese public will be critical. China “firmly opposes” U.S. deployment of intermediate-range missiles in the Asia-Pacific region and warned that it “will not stand idly by and will be forced to take countermeasures” if the U.S. does so. Countermeasures will certainly include a disinformation campaign that blames the U.S. and the alliance with Japan for any tensions or instability.

To be clear, the U.S. has not yet asked Japan, nor any other regional ally, to accept new missiles. But that request will surely be coming, and it is likely to arrive as, if not before, Tokyo and Washington begin tough talks on host nation support for the U.S. military presence in Japan. In addition, the U.S. is only discussing with allies the deployment of conventional weapons.

But modernization of China’s military capabilities and the allegations in the State Department Compliance report could, says David Santoro, a nuclear policy analyst (and colleague) at the Pacific Forum, “serve as justifications that the U.S. needs to step up its game vis-a-vis China and, for instance, proceed with the missile deployments it has proposed. Washington could use these allegations to convince skeptics at home and doubtful allies that these deployments are the right course of action.”

That is especially worrisome, warns Santoro, because it could transform the U.S.-China relationship. “We’re heading toward a future in which nuclear weapons will move from the background to the foreground of the U.S.-China relationship. This is uncharted territory because the U.S.-China nuclear relationship has been relatively muted,” he argues, and because the two countries are not talking to each other about these issues “there is no foundation on which to build cooperative measures to reduce instability.”

In that world, noncompliance with unratified treaties may be the least of our concerns.

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America's Submarines Are Getting New W76-2 Tactical Nuclear Weapons

by [Sebastien Roblin](#) for The National Interest // April 22, 2020

Here's What You Need To Remember: Essentially, whether the W76-2 improves American security is much more about psychology than technology.

Would the presence of tactical-yield Trident missiles dissuade U.S. adversaries from employing their own tactical nukes against U.S. forces or their allies? It was a small, obscure-sounding item in the 2020 defense budget—a mere \$19.6 million to procure W76-2 warheads, a sum which could pay for just one quarter of a single F-35A stealth fighter. But it, along with a select few other items including plans for a Space Force and border wall funding, generated such controversy that Senate Republicans and House Democrats spent three additional months hashing out a compromise defense budget after striking an initial deal this summer.

Ultimately, the House conceded on most of its defense policy priorities—meaning funding will continue flowing to deploy the W76-2 nuclear warheads manufactured by the Pantex plant in Texas. The W76-2 is a less powerful variant of the W76-1 warhead deployed on 13.5-meter-tall Trident II ballistic missiles deployed on the U.S. Navy’s Ohio-class submarines. Whereas the four 90- or 100-kiloton independently reentering warheads carried on a standard Trident each explode with six times the force of the Little Boy uranium bomb that killed over 60,000 Japanese at Hiroshima, the 5 to 7 kiloton W76-2 has an explosive yield a third or half that of the Hiroshima blast.

The difference reflects that the W76 is a strategic weapon designed to obliterate hardened nuclear missile silos and annihilate large populated areas in an apocalyptic nuclear war—and more pointedly, to deter foes from initiating such a war—while the W76-2 is a tactical nuclear weapon designed to hit individual military bases and formations on the battlefield. The W76-2 has been championed by officials such as former Defense Secretary James Mattis as a means to give the U.S. military an additional tool with which to retaliate rapidly and proportionally to the tactical nuclear weapons possessed by Russia.

But opponents, including many former senior defense and foreign policy officials and a broad swathe of arms control experts fear that introducing such a capability simply increases the risk of devastating nuclear war.

Escalate to De-Escalate?

In the 1950s, it was initially assumed that small nuclear weapons would liberally—even routinely—be employed in future battlefields. However, when their use was simulated in NATO’s aptly-named Carte Blanche wargame in 1955, the results were horrifying. At best, the “small” nukes were used in such large numbers that Europe was left a devastated, irradiated wasteland. Worse, the fighting could cause both sides to escalate to large-scale strategic nukes.

Today, U.S. defense officials fear that Moscow may espouse an “escalate to deescalate” doctrine in which a tactical nuclear strike is employed to signal Moscow’s resolve. Such a limited strike or strikes might be employed after Russian conventional forces have secured a vulnerable target (ie. the Baltics) and before NATO has mustered a large-scale counterattack, in order to convince member states to back down from a conventional conflict Russia would likely lose.

Unlike strategic nukes, tactical nuclear weapon numbers are not regulated by treaty. Russia has around 2,000 tactical nuclear weapons which can be launched by tube artillery, cruise and ballistic missiles, and air-dropped munitions. As Russia’s odds of winning a conventional war against a fully mobilized NATO are slim, the thinking goes that intimidating adversaries into backing down by leveraging the threat of Russia’s nuclear arsenal may be Moscow’s only winning strategy.

Arms control advocates point out Russia's tactical arsenal actually has shrunk in the last decade, so that claims that the threat is growing are dubious. Furthermore, evidence as to whether Moscow genuinely plans on an “escalate to deescalate” strategy is mixed at best, and contradicted by official doctrine. However, defense hawks argue that new Russian hypersonic missiles may allow Russia's nukes to hit their targets faster, and with less chance of being intercepted, than before.

Thus, the Trump administration's 2018 Nuclear Posture Review argued the United States should expand its tactical nuclear strike capabilities so that it could proportionally retaliate against Russian tactical strikes. As with much nuclear strategy, the ultimate “victory” for such weapon is to deter enemies from necessitating their use in the first place. However, the United States already maintains an arsenal of around 500 air-dropped B61 tactical nuclear bombs with a yield that can be dialed from .3 to 400 kilotons.

150 B61s are forward deployed and shared with select NATO partners. These can be dropped by fourth-generation jet fighters (F-15, F-16 and German Tornados), long-range B-2 stealth bombers and soon F-35 stealth fighters. Advocates for the W76-2 argue that jets aren't good enough, as they take longer to deploy and reach their target than ballistic missiles and may suffer losses to Russian air defenses.

By comparison, a Trident missile can be launched within minutes of receiving a low-frequency signal from an E-6 Mercury “doomsday” plane, can hit a target thousands of miles away within a half hour traveling at up to twenty-four times the speed of sound, and doesn't put pilots at risk. However, critics point out that the submarine launching the Trident will be placed at increased risk afterwards as the launch exposes its general position, endangering the submarine's roughly 150 crew and the vital strategic missiles it carries.

They also argue that difference in response speed shouldn't matter that much for retaliating against a “signaling strike,” as the intention is less about hitting a specific military target in a short time window than conveying a political message. But there's a much scarier risk: Russia likely wouldn't be able to distinguish a Trident carrying a tactical warhead from a strategic one. And a Trident launched from the Atlantic at a tactical target in Eastern Europe may look very much like it could be headed to wipe out Russia's leadership in Moscow instead.

Thus, a tactical Trident strike could inadvertently trigger a strategic nuclear riposte—the kind that could result in some or all the major cities in the United States and/or Europe meeting the same fate as Hiroshima. In fact, when the United States tested its own “escalate to deescalate” doctrine in the 1983 “Proud Prophet” wargame, it decided to disavow the strategy after discovering it invited precisely such a disastrous consequence.

Weaker, more “useable” nuclear weapons may indeed also be perceived as having a lower threshold for use—particularly by civilian leaders who misjudge the implications—increasing the risk that the chain of escalation described above occurs. Thus, most arms control experts argue that deploying additional less-destructive nukes actually increases the odds of a civilization-shattering nuclear conflict.

Essentially, whether the W76-2 improves American security is much more about psychology than technology. Would the presence of tactical-yield Trident missiles dissuade U.S. adversaries from employing their own tactical nukes against U.S. forces or their allies? And even if that's the case, would that benefit outweigh the risk that the tactical Trident option makes use of nuclear weapons seemingly more usable and likely, and that such use could inadvertently escalate to a strategic nuclear conflict?

We can only hope such scenarios remain strictly theoretical. With the policy fight resolved in the weapon's favor in Congress, the new warheads should soon enter service on Ohio-class submarines if they have not already, giving them a new tactical nuclear capability along with their established strategic nuclear mission. Sébastien Roblin holds a master's degree in conflict resolution from Georgetown University and served as a university instructor for the Peace Corps in China. He has also worked in education, editing, and refugee resettlement in France and the United States.

Russian Modernization of Its ICBM Force

By Mark B. Schneider for Real Clear Defense // April 23, 2020

Since 1997, Russia has been modernizing its ICBMs by replacing legacy Soviet ICBMs with new (post-Cold War) systems. In December 2019, Colonel General Sergei Karakayev, commander of Russia's ICBM force (the Strategic Missile Force or RVSN) stated that 76%^[1] of Russia's ICBM force had been modernized and that 100% would be by 2024.^[2] (By comparison, U.S. ICBM modernization begins in FY2029 despite the fact the U.S. Minuteman ICBM is much older than any legacy Russian ICBM). The most important Russian Defense Ministry revelations in December 2019 was that the Avangard hypersonic boost glide vehicle was operational^[3] and that Russia was going to deploy 20 regiments of its new Sarmat heavy ICBM by 2027.^[4]

This would represent an enormous increase in the number of strategic nuclear warheads that can be delivered by Russia's ICBM force, the percentage of Russian strategic nuclear weapons deployed on its ICBMs, and in Russia's nuclear warfighting capability. Moreover, this increase is on top of a long planned strategic nuclear force with "no less than 2,000 warheads," according to Yuriy Solomonov, chief designer to the Russian SS-27 ICBM and the Bulava-30 SLBM.^[5]

The percentage of Russian strategic nuclear warheads deployed on its ICBMs was always high. In December 2019, the Russian Defense Ministry stated that two-thirds of Russia's strategic nuclear warheads were carried by Russia's ICBMs.^[6] Twenty regiments of Sarmat ICBMs would represent a radical departure from the Yeltsin nuclear modernization program, which placed substantial emphasis on survivability and reflects Putin's movement toward warfighting as the main objective. Current Russian policy also represents a complete rejection of the logic of the Reagan-era Scowcroft report, which urged de-MIRVing of all U.S. ICBMs and has resulted in this.^[7] According to the Defense Intelligence Agency, "...prior to 2010, no SRF [Strategic Rocket Force] road-mobile ICBMs carried MIRVs; by the early 2020s, all will do so."

The Current Russian ICBM Force

Almost no information provided by Russia on its strategic nuclear force in accordance with the New START Treaty is made public. This represents a vast reduction from what was publicly available under the original START Treaty. Our information mainly comes from the Russian Ministry of Defense, the Russian media, and to a limited degree from the U.S. Department of Defense and the American press. Official Russian information is designed to scare the West. However, even without exaggeration, the scope of the Russian program is scary.

In February 2020, Russian journalist Igor Rozin writing in Russian state media listed the current composition of the Russian ICBM force as:

- 46 R-36M2 (SS-18) heavy missiles

- 2 Avangard systems (UR-100NUTTKh, SS-19 Mod 4 missiles)
- 45 Topol (SS-25) road-mobile systems
- 60 Topol-M (SS-27) silo-based systems
- 18 Topol-M (SS-27) mobile systems
- 135 mobile and 14 silo-based systems with RS-24 Yars missiles [SS-27 Mod 2].[8]

While certainty is impossible, it is likely that the Rozin force is close to the ICBM force described by Russia in its New START Treaty data declarations (not made public). There is a significant similarity in the depiction of the Russian ICBM force in the now somewhat out of date 2017 DIA report on Russia Military Power. Using Rozin's numbers, the percentage of modern systems (the SS-27 variants and the Avangard) is over 70%. This is close enough to General Karakayev's 76% number to give Rozin's numbers some credibility.

Rozin's numbers are also close to those published in March 2020 by Hans Kristensen and Matt Korda to the Federation of American Scientists, who indicated, "Based on what we can observe via satellite images, combined with information published under New START by various U.S. government sources, Russia appears to have approximately 302 deployed ICBMs, which we estimate can carry approximately 1,136 warheads." [9] What the Russian ICBM force "does carry" and what it "can carry" are two different things. Russia's ICBMs certainly can carry a lot more than 1,136 warheads. (A single SS-18 ICBM, according to ITAR-TASS, can carry 36 warheads, a total of 1,656 assuming Rozin's number of 46 SS-18.) [10] Kristensen and Korda's assumption appears to be that the declared Russian number for its deployed ICBM warheads, SLBM warheads and accountable bomber weapons (which is made public) is accurate despite the long history of Soviet/Russian cheating on arms control agreements and the inability under the New START Treaty to verify it.

There are serious questions about Russia's honesty after early 2017 when Russia was facing the entry into force the New START deployed warhead limits forcing a cut of about 250 Russian warheads in a year if they were to comply. Russia's declared number of deployed strategic nuclear warheads on September 1, 2016, was 1,796. [11] If Kristensen and Korda mean that Russian ICBMs actually carry 1,136 warheads, which I believe they do, the implication of this is very important. If this number is accurate, it means that there has been virtually no reduction as a result of the New START Treaty limits coming into effect. The 2017 DIA report on Russia Military Power says, "Russia retains about 1,200 nuclear warheads for ICBMs." Russia, and its arms control enthusiast support base in the U.S., want us to believe that they actually reduced this number to 1,326 by March 1, 2020 [12], despite the fact that during this period, Russia deployed large numbers of heavily MIRVed SS-27 Mod 2 mobile ICBMs to replace the same number of Soviet-era single-warhead SS-25 ICBMs and a heavily MIRVed Borei ballistic missile submarine.

If Kristensen and Korda's 1,136 number is accurate, the total number of accountable warheads under the New START Treaty available for the Russian bomber force and the Russian sea-based ballistic missile force was only 190 on March 1, 2020. Kristensen and Korda estimate the number of Russian SLBM warheads as "possibly around 560." Add their 1,136 ICBM warheads, and the Russians have 1,696 warheads plus about 50 accountable bomber weapons, or 1,746. If 1,136 represents two thirds of Russia's strategic force, it would have to have about 1,700 warheads, not the 1,326 Russia claims it has. Moreover, in December 2017, state-run TASS quoted the Russian journalist Colonel (ret.) Viktor Litovkin as saying that Russia "...has five hundred strategic missiles carrying over 1,800 nuclear warheads," which is at least 239 more warheads and about seventy more

deployed missiles than Russia claimed it had in September 2017.[13] If Russia has more than 1,550 deployed warheads, it violates the New START Treaty.

This is not the only evidence of Russian cheating. In March 2011, state-run Ria Novosti reported that Russia had “over 400 ICBMs”.[14] On numerous occasions between 2013 and 2017. General Karakayev stated that the Strategic Missile Force had 400 ICBMs.[15] In December 2019, Russian state media again reported that, “Spread around the country in silos and on truck-mountable containers are about 400 ICBMs, each with multiple nuclear warheads as their payload.”[16] Rozin’s ICBM force numbers add up to just over 300. Russian émigré Pavel Podvig, who operates a blog on Russian strategic forces, estimated the Russian ICBM force at about 300 at the time of Karakayev’s statements.[17] An ICBM force of 400 deployed ICBMs does not fit into the repeated Russian declarations of just over 500 deployed delivery vehicles (ICBMs, SLBMs and heavy bombers) under the New START Treaty, which is one of three numbers provided by Russia that does get made public.

In particular, in 2014, General Karakayev explicitly stated that the Strategic Missile Force “...has around 400 missiles with warheads on combat duty.”[18] If there are 400 ICBMs “with warheads on combat duty”, they are clearly deployed ICBMs under the New START Treaty. If his 400 number is correct, this has to equate to a covertly deployed ICBM force of about 100 MIRVed ICBMs and a major New START Treaty violation. Since we have not monitored either the production or the elimination of Russian mobile ICBMs since the expiration of the original START Treaty in 2009, this is possible if Russia simply did not notify us of all the SS-27 Mod 2/Yars ICBMs it produced and set up a hidden force.

In December 2018, General Karakayev said that “...the nuclear potentials of the sides have [been] reduced more than 66% since the signing of START I.”[19] This is a major departure from the normal Russian position. At the United Nations in April 2018, First Deputy Permanent Representative of the Russian Federation to the U.N Dmitry Polyanskiy declared that "Russia cut its nuclear arsenal by over 85 percent as compared to its stockpiles at the height of the Cold War." [20] If one uses the late Soviet reported number of over 10,000 deployed strategic nuclear warheads for the calculation,[21] the difference between an 85% reduction and a 66% reduction is almost 2,000 strategic nuclear warheads above the supposed New START Treaty allowed level of 1,550. This is much higher than any recent open-source estimate of deployed Russian strategic nuclear warheads. For example, in 2018, Hans M. Kristensen and Robert S. Norris estimated that Russia had 2,522 deployed strategic nuclear warheads.[22]

If General Karakayev’s statement about the percentage of Russian strategic nuclear reductions is true, Russia has to have a covert ICBM force since the undercounting of bomber weapons alone under New START can’t entirely explain his statement. Indeed, it roughly correlates to General Karakayev’s declaration that he has “around 400 missiles with warheads on combat duty.” The only thing the hundred could be is mobile MIRVed ICBMs since we have not monitored Russian production of mobile MIRVed ICBMs since the expiration of the START Treaty in 2009.

The Beginning of Russian ICBM Modernization – the SS-27

The SS-27 was the first post-Cold War new Russian ICBM, and it will be the main Russian ICBM for many years to come. We know a lot about the SS-27 variants because the original missile (SS-27 Mod 1) was declared under the original START Treaty. This resulted in a substantial amount of technical data about the missile becoming public and Russian officials talk about them a lot. The Russians never declared the SS-27 Mod 2/RS-24 Yars under the START Treaty because it would have proven a Russian START Treaty violation since the missile was a MIRVed version of the original single warhead the SS-27 Mod 1.[23] Russia could not legally MIRV a single warhead missile under Article Five of the original START Treaty, then legally in effect. Colonel General (ret.) Viktor Yesin, former commander of the Strategic Missile Force, has stated that the throw-weight

of the RS-24 Yars was 1,400-kg, higher than the 1,200-kg declared throw-weight for the SS-27 Mod 1.[24] This also constituted a START Treaty violation since under New START, the SS-27 could not legally have more than 1,210-kg of throw-weight.

Very important in assessing the capabilities of the SS-27 Mod 2/Yars ICBM is the fact that the new Russian Bulava-30 SLBM was declared under the START Treaty as having a throw-weight of 1,150-kg and as carrying six warheads.[25] Russian data made public under the START Treaty provides evidence that Russia has, since the end of the Cold War, developed new lighter and advanced warheads for its new strategic weapons. START data shows that the amount of throw-weight for the six warhead Bulava-30 (RSM-56) is lower per warhead than any previous Soviet Cold War-era missile and at least comparable to the best U.S. Cold War design.[26] Then-Russian Defense Minister Colonel General Sergei Ivanov stated that the Bulava-30 and the Yars carried the same warhead.[27] Since the SS-27 throw-weight is higher than the Bulava-30, anything that it can carry can be carried by the SS-27. Russian press reports in the same time period usually characterized the yield of the Bulava-30 warhead as 100-kilotons (kt), and there were reports it also had a low sub-kiloton option.[28]

Starting in 2008, state-run Ria Novosti reported the Yars “can carry between 6 and 10 warheads with yields ranging from 150 kilotons to 300 kilotons.”[29] While 100-kt and 150-kt might be references to the same warhead, a yield of 300-kt[30] suggests a second warhead type. In 2013, state-run R.T. reported that Russia had tested the Yars, which “can deliver at least four thermonuclear warheads weighing [sic! yielding] 300 kilotons each...”[31] In 2017, TASS indicated three 300-kt warheads can be carried by the SS-27 Mod 2/Yars.[32] These reports are interesting because of the reported 350-kt “medium” warhead associated with the Sarmat heavy ICBM.[33] Russian state-media also says that the RS-26 Rubezh “ICBM” (really an intermediate-range missile), now reportedly on hold pending a production decision in 2027, also carries four 300-kt warheads.[34]

It is certainly possible that these reports may be about the same warhead or variants of it. A 300-kt warhead could be aimed at increasing the counterforce capability of the SS-27 Mod 2. Neither 300-kt nor 350-kt appears in the Russian press as a yield associated with a Soviet-era ICBM or SLBM. According to Colonel (ret.) Dr. Robert Hawkins, Senior Fellow at the Los Alamos National Laboratory, the nuclear warhead the Bullava-30 carries, is “newly designed and newly manufactured warheads.” During the Yeltsin era, the Russian National Security Council reportedly decided in April 1999 to approve a concept for developing and using of “...non-strategic low- and flexible-yield battlefield weapons,” and that the yield of these precision weapons would be tens or hundreds of tons of TNT.[35] “Flexible yield” is clearly what we call “variable yield” or “dial a yield.”

If the Russians have done the same with their new strategic warheads, they would have a massive advantage in low-yield strategic nuclear warfighting capability compared to the small U.S. program for the low-yield Trident warhead which is intended to deter not warfighting. The 2018 U.S. Nuclear Posture Review did not announce any program for a low-yield ICBM warhead. The implication of this was stated in 1999 by Colonel General Vladimir Muravyev, then-Deputy Commander of the Strategic Missile Force, who said that low-yield nuclear weapons “are capable of nullifying the combat qualities of all modern conventional systems.”[36]

The maximum number of warheads deployed on the SS-27 Mod 2/Yars is now apparently six and at least four of these warheads were to be deployed on each missile according to a commander of the Strategic Missile Force.[37] The number of warheads on some of the missiles may increase to ten according to many Russian press reports.[38] This would require a new smaller warhead for a variety of reasons. In 2006, a new “miniature” warhead was reportedly under development for the Bulava-30 and the “Topol M” (later called the RS-24/Yars).[39] In December 2019, Russian Defense Minister General of the Army Sergei Shoigu stated that “In 2020, the ministry will have several priorities: 22 launchers with Yars and Avangard

ballistic missiles are to be put on combat duty at the Strategic Missile Forces...”[40] (Emphasis in the original). This will likely increase ICBM force modernization to over 80%. Since according to Rozin, the Russians have only 45 SS-25 to replace with SS-27 Mod 2/Yars, they should finish this modernization in about two years if they sustain this rate.

In 2010, Yuri Solomonov stated that Russia would be introducing new warheads for the Yars ICBM in 2016.[41] In 2011, he talked about warheads that can maneuver without the normal large post-boost vehicle.[42] He linked these to penetration of missile defense systems saying they will “put a full stop on all discussions regarding our countermeasures towards non-existent antiballistic missile defense system of our potential enemy.”[43] (Emphasis in the original). Russia has reportedly been testing SS-27 warheads with "mini-buses" attached to them, allowing exo-atmospheric maneuvers.[44] It is possible that these could have been deployed without public announcement. Indeed, in recent years, Russia has talked about the deployment of the Yars-S or the Yars MGMS,[45] but give no details about them.

The Avangard

The Avangard nuclear-armed hypersonic boost-glide vehicle became operational in December 2019. Formerly called Project 4202, it uses the Soviet legacy SS-19/UR-100NUTTH ICBM, a large ballistic missile, to boost the large hypersonic glider.[46] The new Russian Sarmat heavy ICBM, now under development (not yet tested in a full launch), is also reported to carry the glider as one of its warhead options. The reported speed of the Avangard is 24,000-km per hour.[47] TASS states that the Avangard carries a two-megaton nuclear warhead.[48] This apparently will be a silver bullet force because the Russians reportedly plan to deploy only 12 of them[49], at least until the glider will be deployed on some of the new Sarmat heavy ICBMs. Its main function will likely be a surprise nuclear attack on critical U.S. time urgent strategic targets.

General John Hyten, then-commander of the U.S. Strategic Command, warned about the threat posed by Russian hypersonic weapons if the U.S. does not counter them. He said that hypersonic weapons would allow Russia to attack on a global basis with little or no warning.[50] General Hyten noted that a hypersonic missile “disappears and we don’t see it until the effect is delivered.”[51] While with a ballistic missile. General Hyten stated it would take 30 minutes to strike a U.S. target; with a hypersonic weapon, “it could be half of that.”[52] Hypersonic missiles have very good capabilities to penetrate strategic missile defenses, but the Russian senior military and political leadership are fully aware that Russia does not need it for that purpose. A great irony is that the Soviet-era SS-19 equipped with 4-6 powerful nuclear warheads and many missile defense countermeasures will get more nuclear warheads on target in the U.S. than the same number of boosters equipped with a single Avangard hypersonic glider.

The New Sarmat Heavy ICBM

The new RS-28 Sarmat heavy ICBM is probably the most important of Putin's new nuclear superweapons because it will become Russia's main counterforce weapon. Deputy Minister of Defense Yuri Borisov said it can deliver payloads of up to 10 metric tons of throw-weight (or payload).[53] Older press reports concerning its warhead delivery capability credited it with ten “heavy” and 15 “medium” warheads.[54] Russian state-media says the “heavy” warhead has a yield of 800-kt.[55] As noted above, the “medium” warhead is reported to have a yield of 350-kt. According to the Russian Ministry of Defense, the “...Sarmat will be able to carry up to 20 warheads of small, medium, high power classes.”[56] Based upon the stated throw-weight of the Sarmat missile, all of these reports may understate the ability of the missile to carry warheads.

According to noted military analyst James R. Howe, the Sarmat "could carry up to 50 90-kilogram W.H. [warheads] with a 75-100 kiloton-yield [a Bulava-30 class W.H.]." Russia will likely deploy a mix of the three warheads, but in light of the probable counterforce mission of the Sarmat, we are

likely to see a lot of the mediums deployed. Since the Sarmat is 30 years newer than the legacy Soviet SS-18 ICBM, there will obviously be a major improvement in accuracy. The Russians say that the Sarmat can attack the U.S. over the South Pole[57], apparently to exploit limitations in U.S. early warning radar coverage. There is no other apparent reason to shoot over the South Pole because a longer flight would normally degrade accuracy.

The Sarmat is also reportedly capable of carrying three to five of the large Avangard hypersonic boost-glide vehicles.[58] The Avangard glider reportedly weighs 2,000-kg.[59] A photograph of what is apparently the Avangard vehicle covered by an accent shroud[60] has appeared on the internet. It gives a clear indication of the size of the Avangard. By comparison, the small ballistic warheads deployed on the Bulava-30 SLBM and the SS-27 Mod 2/Yars ICBM reportedly weigh 90-kg or so.[61] There are a number of reports in the Russian press that Russia has developed a 100-kg warhead of 100-kt.[62] The presence of the Avangard on the Sarmat could render New START Treaty re-entry vehicle inspections completely ineffective.[63] Thus, a warhead inspection cover designed to cover the Avangard could clearly cover at least several Russian missile warheads.

A Massive Expansion of the Planned Sarmat Deployment

In December 2019, Russian President Vladimir Putin was told by a Defense Ministry official, "It is planned to rearm 20 missile regiments with the Sarmat and put them on combat duty from 2020 to 2027." [64] Since Russian heavy ICBM regiments contain either 6 or 10 deployed missiles[65], this translates into 120 to 200 deployed Sarmat ICBMs. This is an enormous increase from the previous program of 46 reported years ago.[66] Since the Russians plan to complete ICBM modernization by 2024[67], any planned Sarmat deployment after 2024 has to be force expansion. The claimed operational date for the Sarmat is unrealistic (the Russians would have to deploy it after a small number of successful tests). Yet, the Russians will deploy Sarmat in large numbers before we start modernizing our ICBM force. The decline in deployed Russian warhead numbers in its March 2020 data just released by the State Department may reflect taking a regiment of SS-18 offline for conversion to the Sarmat.[68]

If Russia deploys 20 regiments of Sarmats, its main function is likely nuclear warfighting rather than deterrence. Certainly, Russia will make every effort to make them a survivable as possible. In 2011, TASS reported that the new heavy ICBM that would later be called the Sarmat would be provided with "a fundamentally new level of fortification...camouflage, wide use of electronic jamming" and, "their active defense, as well through the deployment of long-range S-400 ABM systems and high-altitude S-500 systems capable of destroying on a par with space and air weapons the warheads of ICBMs and the enemy's precision weapons, including missiles and aircraft bombs and cruise missiles." [69] Even with all this, the Sarmat is probably the least effective way of achieving high levels of survivability and the most effective way to achieve high levels of pre-emptive nuclear strike capability against numerous hard military targets. This is very much the Soviet mentality continuing to dominate Russian defense policy.

Post-Sarmat Russian Modernization Programs

Obviously, not everything the Russians are developing is officially announced at any given time. Russia's state-media and non-state media sometimes, but not always, reports about these programs before they are announced. TASS has said that work is beginning on a new smaller, lighter, more maneuverable replacement for the Yars ICBM for deployment in the 2030s.[70] It is unclear how this missile differs from the RS-26 other than presumably greater range. Russia also has a program for a rail-mobile ICBM called the Barguzin, which reportedly uses a version of the SS-27 Mod 2/Yars.[71] TASS says it has been put on hold pending a 2027 decision on deployment.[72] In 2015, the development of a second type of liquid-fuel

ICBM characterized as an “advanced project” was reported.[73] It could be a successor to the legacy SS-19 ICBM. It reportedly would carry up to 12 warheads.[74] Russia will almost certainly improve the Sarmat after it is deployed.

Conclusion

Russian modernization of its ICBM force is nearing completion. Every element of it will probably have been replaced or upgraded within the next five years or so. While the Russians may not meet their claim of complete ICBM modernization by 2024, they are virtually certain to complete more than 90% of it by that year with complete modernization likely a year or two later. Russian ICBM modernization is almost certainly going to be never-ending. The Sarmat program is now more than modernization – it is force expansion. After Russia modernizes 100% of its ICBM force, they will likely be working on improved versions and follow-on systems that they have not yet announced. The systems they are developing and deploying make no sense if they plan to comply with the New START Treaty or any follow-on arms control treaty. The Russian leadership knows that it can cheat and almost all of the time get away with it without any significant consequences. Their violation of the INF Treaty is not an exception to the norm but rather the norm. Their programs dwarf the U.S. ICBM modernization program. They are primarily oriented toward nuclear warfighting and the mentality behind them is pure Soviet.

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Guest Editors Comment: While he does not note this in his March article, **Hans Kristensen's** Russian numbers add up to about 200 warheads above the New START limit.

Moscow Will Be Able To Sleep Soundly With Its Next-Gen Missile Shield: Here's Why

From Russia News – Sputnik // 14:30 GMT 20.04.2020(updated 14:40 GMT 20.04.2020) Get short URL

The Russian military has been extremely tight-lipped about the development of a successor to the A-135 Amur anti-ballistic missile system, which has guarded the skies of the Russian capital for the past 25 years now. Still, occasionally a bit of information gets through, enabling observers to piece together details about the system's capabilities.

The development of the A-235 Nudol missile defence system goes back to the late 1970s, when the highly secretive Vympel NPO design bureau was tasked with the creation of a missile defence system to succeed the A-135 Amur. The development of the A-135 began in 1971, and was successfully deployed in 1995. Moscow's work to create a missile defence system for the capital was allowed under the terms of the Antiballistic Missile Treaty, a 1972 agreement between the Soviet Union and the United States which placed limitations on the number of anti-ballistic complexes each country could produce to two, armed with up to 100 anti-ballistic missiles apiece.

Strategic Arms Limitation Talks (SALT 1) Leonid Brezhnev and Richard Nixon. Work on the A-235 was frozen in the 1990s due to lack of funds and warming relations between Moscow and Washington, but restarted in 2011 by Almaz-Antey, nine years after the Bush administration unilaterally terminated the ABM Treaty. In the years since, the A-235, codenamed the 'Nudol' (presumably after the Nudol River in Russia's Moscow region), has become one of the most closely-guarded secrets of the Russian defence industry.

Key facts about the system:

- The A-235's interceptor missiles will make use of the Don-2N radar—the same large, pillbox-shaped missile defence and early warning system radar network outside Moscow that provides guidance for the A-135, although upgrades are expected to be made to accommodate the new missiles.
- In addition to ballistic missiles, the A-235 is expected to be able to take on and defeat maneuverable manned and unmanned spacecraft in near space.
- The system will consist of several types of solid-fueled rockets, with a range of up to 1,500 km, and the ability to accelerate to speeds of up to Mach 10. Unlike its predecessor, the A-235 is expected to use kinetic force (i.e. smashing into its targets at high speed), not nuclear or high-explosive fragmentation, to accomplish its mission.

Don-2N radar system.

- Another important feature of the A-235 is mobility – with the interceptor warheads expected to be deployable aboard road-mobile transport vehicles.
- Testing of the Nudol is thought to have started in either 2014 or 2015 at the Plesetsk Cosmodrome in northwest Russia, with about ten tests believed to have been completed since then. The latest test reportedly took place as recently as last week, when US Space Command reported on a Russian test of a direct-ascent anti-satellite (DA-ASAT) missile. The launch reportedly took place from Plesetsk on April 15, and Popular Mechanics speculates the missile used may have been the A-235. The Russian military has yet to provide any information regarding the suspected test.

Amur No Slouch Either

Although the A-235 is expected to be a significant improvement over the A-135 Amur, the current system is no slouch when it comes to protecting the skies around Moscow. The A-135 features a fully automated target detection and tracking system, including the ability to distinguish between real and potential dummy warheads. The system has received multiple upgrades, taking particular advantage of the miniaturization of components made possible in the 2000s.

Commenting on the Nudol's expected capabilities, Viktor Murakhovsky, editor in chief of Arsenal of the Fatherland, a Russian military magazine, speculated that functionally, the A-235 will essentially be a deeply modernized version of the A-135, with the system's primary mission remaining the same: the defence of Moscow and the central Russian industrial region from ICBM attack.

Short-range missile silos at the multifunctional radar station (MRLS) "DON-2 H" in Sofrino

As for the Nudol's expected anti-satellite capabilities, the observer noted this would be a very welcome feature, "because the US's intention to deploy new weapons systems in space is very worrying. The Nudol effectively counters such threats." Plans to make the A-235 mobile are also important, according to Murakhovsky, given the Pentagon's 'Prompt Global Strike' initiative – the concept of a massed precision-guided conventional airstrike meant to decapitate an opponent's ability to retaliate to an attack without re

Deterrence, Norms, and the Uncomfortable Realities of a New Nuclear Age

By: Gerald C. Brown for War On The Rocks // April 20, 2020

One of the most important events of the last century was one that never took place — that is, thermonuclear war. Following the U.S. nuclear strikes against Japan in 1945, further use of nuclear weapons seemed inevitable. The United States and the Soviet Union amassed arsenals of unprecedented power, and competed for nuclear superiority in a contest that seemed certain to end in all-out nuclear conflict. But instead, neither utilized their arsenals, competition drove the Soviet Union bankrupt, and the Soviet empire collapsed. The United States and its allies dominated global politics after the Cold War, and democracy spread further across the world than at any other time in history. The Cold War ended without the use of a single nuclear weapon.

However, the non-use of nuclear weapons since 1945 can be misunderstood, and the wrong lessons can be learned. It is sometimes assumed that the absence of nuclear war since World War II proves that nuclear weapons are not relevant for national security, will never be used in conflict, or that a taboo against nuclear weapons will deter their use in the future. This thinking is dangerous, and may bring about the very event it assumes can never occur.

Nuclear weapons were never used during the Cold War because national leaders, even in situations like the Cuban Missile Crisis, judged that there was never any clear advantage in launching a nuclear strike. The risks never outweighed the perceived benefits, as a nuclear attack would clearly lead to nuclear retaliation. Deterrence worked during the Cold War, but only because Washington and Moscow worked hard to convince the other that using nuclear weapons would never be worth it. With the possibility of a new Nuclear Posture Review in 2021, it is important that policymakers study what will drive countries to use, or not use, nuclear weapons in the future.

The Nuclear Taboo Exists, But it Can Be Broken

It is sometimes argued that a normative basis of restraint, a "nuclear taboo," is responsible for the lack of inter-state nuclear conflict. While such a taboo almost certainly exists, it is unlikely to prevent states from using nuclear weapons on its own. The decision to use nuclear weapons, like the decision to engage in conflict in general, has had a lot less to do with morality and a lot more to do with assessments of the national interest and domestic political considerations.

The United States and the Soviet Union refrained from nuclear strikes during the Cuban Missile Crisis due to mutual vulnerabilities. The crisis only de-escalated when both sides gave each other strategic victories — the Soviets removed its nuclear missiles from Cuba, while the United States removed missiles from Turkey. U.S. government officials decided not to use nuclear weapons during the Vietnam War because the nature of the conflict made them impractical and not worth the cost. Military analysts calculated it would take around 3,000 nuclear weapons a year to accomplish their goals in Operation Rolling Thunder. Following the Korean War, policies were put in place to immediately respond with nuclear weapons if a

return to hostilities occurred. Nuclear weapons were used in Japan in World War II because of this same calculus. The U.S. government calculated it could save 500,000 allied lives and massive amounts of time and money by using them.

This is not to say the nuclear taboo has no effect on policy. The fear of the moral, reputational, and political costs associated with using nuclear weapons — specifically, using nuclear weapons first in a crisis — has certainly acted as a deterrent. The taboo, combined with the mindset that the weapons would not be necessary for victory, contributed to President Harry Truman's decision to not use nuclear weapons in the early days of the Korean War, and prevented Gen. Douglas MacArthur's original war plans — which included the use of up to fifty nuclear weapons and a belt of radioactive cobalt to prevent reinforcements — from being implemented. Even Secretary of Defense Robert McNamara is reported to have privately advised against waging nuclear war under any circumstances.

Arms control agreements, for their part, have reinforced the nuclear taboo by seeking to control potential escalation, provide transparency, and minimize the situations where it would be advantageous to use nuclear weapons. However, arms control agreements are not signed primarily for normative reasons. Countries — specifically Russia and the United States — have pursued arms control agreements as a means of furthering competition and offsetting an adversary's advantages in specific sectors.

These agreements were pursued when there was a disparity in capabilities to curb competition and abandoned when the strategic conditions for the agreements were no longer favorable. For example, the Anti-Ballistic Missile treaty limited both the Soviet Union and the United States to maintain comparable capabilities and avoid a costly arms race. But Washington withdrew from the treaty in 2001 when it had a clear advantage in developing missile defense technology. The Intermediate-Range Nuclear Forces treaty, signed in 1987, allowed both sides to reduce tensions in the European theater, while strategically allowing continued competition in the realm of air and sea-launched missiles where the United States had a clear advantage. Russia began violating the treaty decades later when the strategic calculus changed, in the face of a proliferating Chinese intermediate-range missile force.

Thinking Through Deterrence

Nuclear deterrence is often assumed to work automatically, but in practice, nuclear states are inherently difficult to deter. Deterrence is not a condition achieved from simply possessing nuclear weapons; it is based on the perception of military power in general. Nuclear weapons drastically enhance a state's strength by creating the capacity to cause catastrophic amounts of damage in a very short period of time, with strikes that are largely indefensible. Due to the unique characteristics of nuclear weapons, nuclear states become less likely to engage in conflict with each other. However, this makes it even harder to deter a nuclear state from campaigns against non-nuclear states.

The United States has extended its deterrence commitments to its allies in Asia and Europe. Unfortunately, this may be an empty promise. In the case of a crisis with a nuclear state like Russia or China, the potential for escalation to the nuclear level always exists. This begs the question: How far is Washington really willing to go to defend an ally, and how would the American people respond to risking nuclear war to defend an ally when there is no threat to the U.S. homeland?

If a nuclear power decided to use nuclear weapons against a state within the American nuclear umbrella (e.g., Australia, Japan, South Korea, and NATO allies, among others), the United States might refrain from responding with nuclear weapons, since doing so would risk its own survival. This

dynamic is one of the reasons that the United States maintains a strong military presence and forward-deployed nuclear weapons in the territory of its European allies: The United States is far more likely to respond to aggression if American citizens are killed. This vulnerability allows states to build “theories of victory” that involve the use of nuclear weapons at the tactical level to offset conventional inferiority and deter foreign involvement.

Theories of Nuclear Victory

Nuclear use may be more plausible than many would like to believe. America’s adversaries invest a lot of resources in nuclear weapons, and a considerable amount of time thinking about situations in which they would use nuclear weapons and how to fight the United States under nuclear conditions. For example, if China decided to militarily retake Taiwan — a primary goal of the People’s Liberation Army — it faces two considerable obstacles. While it is possible it could succeed in an amphibious landing and take Taipei, the costs would be immense. Additionally, an invasion risks U.S. intervention and the outbreak of a war between the United States and China over the sovereignty of Taiwan. One of the goals of Chinese war planning against Taiwan is to ensure a quick and decisive occupation that would deter the United States from getting involved in the first place.

Though China’s stated nuclear weapons posture claims a no first-use policy, this could be a situation where the cost-benefit ratio of using nuclear weapons is too good to easily overlook. The use of low-yield nuclear weapons against specific targets, such as Taiwanese military bases or coastal defenses, would have two effects. It would clear the way for a Chinese occupation with possibly fewer costs than a conventional approach, and would likely deter U.S. intervention. With no U.S. forces being harmed and China having demonstrated a willingness to escalate to the nuclear level, the United States is unlikely to find it worth the risk to intervene.

China would face economic and diplomatic costs from the international community, but it would face significant costs from annexing Taiwan anyway. Beijing could judge that using nuclear weapons would be worth it. Analysts have to honestly assess how much using nuclear weapons would improve Beijing’s chances of success, and weigh that against the repercussions of doing so. Russia, with its aggressive nuclear posture, massive arsenal, and recent expansionist actions in Ukraine is another alarming case. Moscow’s calculated use of escalation controls shows a willingness and ability to calculate the appropriate use of force.

If Russia can annex territory in Ukraine, it can conceivably do the same in the Baltics. A 2016 RAND study argued that Russian forces can rapidly move through and capture one or all of the Baltic states quicker than NATO would be able to effectively respond. Additionally, the Russian territory of Kaliningrad and its anti-access/area-denial capabilities provide an effective means of defending against NATO intervention. Countering such an offensive would almost certainly require strikes against Russian territory, which could trigger a nuclear response from Moscow. Russia is well practiced in utilizing the fear of further escalation and uncertainty to its advantage; limited nuclear strikes, or a nuclear demonstration in key areas, could be used to create uncertainty and fear of conflict escalating to a larger scale, deterring conflict at a lower level of escalation. If push came to shove, would NATO be willing to risk nuclear conflict for a small state in Russia’s backyard?

Of course, nuclear deterrence is most credible as a means to prevent foreign invasion. This has been the primary reason numerous states have sought nuclear weapons in the first place, including India, Pakistan, Israel, and even North Korea. A significant threat to the homeland of a nuclear state could lead to the use of nuclear weapons to make up for conventional inferiority, especially if the state is losing ground to advancing forces. The state may utilize a limited strike against an invader’s military bases, to cut off supply trains, or even against an adversary’s cities to coerce them into backing down. Furthermore, if the state feels its nuclear deterrent is being threatened, it may escalate by using its nuclear weapons under fear of a

“use it or lose it” situation. Theoretically, this dilemma prevents invasion from occurring in the first place. But, if an adversary truly believes in this normative restraint and invades despite this deterrent, is it really believable that the state will continue to refrain from using nuclear weapons when its survival is at stake?

In the Cold War, analysts learned that it was very difficult to credibly engage and win in strategic-level warfare against a nuclear state. But this same lesson does not apply to nuclear versus non-nuclear states. The United States and Russia are unlikely to target each other in nuclear conflict — it is too risky. But nuclear weapons can be used against a non-nuclear state — outside of a nuclear adversary’s homeland — without triggering a suicidal response. There is a major difference between striking a nuclear power’s cities and threatening their survival and using low-yield weapons against a state that cannot retaliate at the nuclear level.

A counterargument is that it would not be necessary to use nuclear weapons against a non-nuclear state. However, this assumption may not always hold true, and the fear of inter-state nuclear conflict may be the edge a nuclear state needs to deter against foreign interference. If an American adversary uses nuclear weapons — in a manner that does not threaten the United States — will America blink? Is the United States truly willing to respond with nuclear weapons when doing so could quickly turn a situation that did not originally threaten it into one of mutual suicide?

Nuclear Restraint Is Not Based on Morality

Nuclear weapons may have increased deterrence between nuclear-armed states, but it is increasingly difficult to deter them in other campaigns. There are situations when a state may be able to use nuclear weapons to their advantage, and detering against this requires hard work. Nuclear weapons have not been used in combat in 75 years. Considerations of nuclear warfare have become taboo, which has contributed, in part, to the non-use of nuclear weapons for so long. But the taboo does not guarantee that nuclear weapons will not be used in the future, and history shows us that taboos are often broken. Recent evidence suggests that the nuclear taboo may not be as robust as many assume. An increasing number of Americans have even declared they would support using nuclear weapons to save American lives — a sentiment unlikely to be unique to the United States.

In one study, 59 percent of respondents stated that they would support the use of nuclear weapons against Iran to save U.S. soldiers, and a different study showed that 77.2 percent would support a nuclear strike against al-Qaeda if nuclear weapons were deemed twice as effective as conventional weapons. Unfortunately, the use of nuclear weapons may be increasingly plausible in the years ahead. The Joint Comprehensive Plan of Action, or “Iran deal,” meant to slow the inevitable proliferation of nuclear weapons in the Middle East, but was undermined when the United States withdrew from it in 2018.

North Korean nuclear weapons and ballistic missiles have proven to be an effective means of deterring U.S. intervention and will not go away anytime soon, bringing fears of proliferation both in East Asia and to other dictatorships around the world. Bilateral arms control agreements are becoming less relevant as they weaken signatories against states outside of the agreement, and multilateral arms control agreements have become less likely to have meaningful content due to the wide variety of conflicting capabilities, arsenal sizes, and security concerns. The unfortunate reality is that the nuclear taboo is falling apart. If we wish to continue to see a world where nuclear weapons are not used, deterrent postures must be based on the assumption that states will use these weapons when it is in their interest to do so.

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Tehran Launches Military Satellite as Trump Tells Navy to ‘Shoot Down’ Iranian Boats

The president’s statement came a week after the Pentagon accused Iran of sending 11 fast boats to conduct “dangerous and harassing approaches” to six American warships in the Persian Gulf.

By David E. Sanger, Helene Cooper and Eric Schmitt for the NY Times // April 22, 2020

WASHINGTON — Iran successfully put into orbit what it called its first “military satellite” on Wednesday, after a string of previous failures, just hours before President Trump declared he had instructed the Navy to sink any Iranian fast boats that “harass our ships at sea.

” The order, if followed, could sharply escalate the confrontations between the two nations. While Iran was vague about the military capabilities of the satellite, the launch was notable in part because it originated from a mobile launch vehicle, similar to the kind the North Koreans are using to demonstrate they have the ability to roll out a missile and send it into space before the United States or its allies have time to respond.

Secretary of State Mike Pompeo immediately condemned the launch as a violation of a United Nations Security Council resolution and declared that Iran would be “held accountable,” but did not specify what that meant. As the C.I.A. director, Mr. Pompeo ordered an acceleration of a secret American program to sabotage Iranian launches. But after a string of major failures, the launch on Wednesday marked an unusual success, one Iranian television hailed with pictures of officers from the Islamic Revolutionary Guards Corps, many wearing masks, in a celebration in a control room.

The president’s abrupt tweet authorizing a far looser standard for the Navy to fire on Iranian fast boats seemed to take the Pentagon by surprise. Under the Navy’s rules of engagement, lethal force can be used only if American ships or personnel are put at risk — for example, by trying to ram a U.S. warship or place explosives near its hull. But blaring loudspeakers and weaving in the ship’s path, all part of the standard harassment techniques used by swarms of Iranian small boats, are not considered legally sufficient to open a salvo that could escalate into war.

Last week the Pentagon accused Iran of sending 11 fast boats to conduct “dangerous and harassing approaches” to six American warships in the Persian Gulf, and that appeared to be what led to the president’s warning “to shoot down and destroy any and all Iranian gunboats if they harass our ships at sea.” The statement came after Mr. Trump’s former national security adviser, John R. Bolton, tweeted last week that the United States had “been too lenient in responding” to Iranian provocations.

As a presidential candidate, Mr. Trump declared that when the Iranians “circle our beautiful destroyers with their little boats” they would be “shot out of the water.” Taken together, the satellite launch and the warning to Iran suggest the two countries are escalating their episodic confrontations, even as both nations are fighting the coronavirus. And they may both have reasons: At home, the Iranian government and Mr. Trump’s administration have been criticized for mismanaging the response to the virus, and leaders in both nations may calculate that there is an advantage to reigniting confrontations with old adversaries.

While the swarming of small boats is a striking visual sign of those confrontations, the missile launch may well prove the more significant action. Iran's civilian and military space programs — which American officials contend are closely related — have been plagued by mysterious explosions, failed launches and satellites that never deployed correctly. Roughly two-thirds of their orbital launches have failed, though it has never been clear how much of that has been a result of bad luck or technical incompetence, and how much has been caused by active American and Israeli sabotage programs.

Mr. Trump even tweeted out last summer a classified American satellite image of the burned remnants of a failed space launch, taunting the Iranians by declaring that “I wish Iran best wishes and good luck in determining what happened.” But on Wednesday, what happened appeared to be a rare Iranian success — one Tehran said was the inauguration of its equivalent of the Pentagon's new Space Force. That seemed a vast overstatement: It is unclear that the new satellite is transmitting images, or even how good they are compared with what is available on Google Earth and commercial satellite services.

Still, Mr. Pompeo confirmed the launch and noted that the government in Tehran had always claimed its satellite launches were only for commercial purposes and had no military use. That all reversed on Wednesday. “I think today's launch proves what we've been saying all along here in the United States,” Mr. Pompeo told reporters at the State Department. “I think Iran needs to be held accountable for what it's done.”

Because the lofting of a satellite into orbit mimics some of the flight path of a nuclear warhead, such launches have long been considered akin to practice runs. The United Nations resolution Mr. Pompeo referred to does not explicitly prohibit such launches; instead, watered-down language agreed to as part of the 2015 Iran nuclear deal says that Iran is “called upon” to refrain from work on ballistic missiles designed to deliver nuclear weapons, for up to eight years. Iran insists it is not working on a nuclear weapon, and thus none of its missiles are designed to be “nuclear capable.”

The appearance of the mobile launcher struck both American and Israeli officials as a major advance. Previously Iran has launched its satellites from fixed sites, which are easy to strike before a launch. But the photos and video of this launch showed a mobile launcher similar to what the North Koreans have increasingly used. The system reduces warning time, and thus makes it harder to pre-empt a launch.

For the Revolutionary Guards, the launch has other symbolic value. The force had overall responsibility for the Iranian nuclear program, and some elements of the group have pressed for Iran to completely withdraw from the agreement — as Mr. Trump has — and to speed the restoration of its program. But so far the Iranian government has been proceeding methodically, hoping to split the European nations, China and Russia from the United States.

A year ago the Trump administration designated the Revolutionary Guards as a foreign terrorist organization, the first time the United States named part of another nation's government as that type of official threat. In early January, American drones killed Maj. Gen. Qassim Suleimani, who headed the Quds Force, an elite unit of the Revolutionary Guards, drastically escalating tensions between Washington and Tehran.

Since then, however, tensions have de-escalated, and there was a theory that the coronavirus would distract Iran's attentions, and its budgets. But there is little evidence that is the case. Mr. Pompeo, speaking at the State Department, dismissed the importance of Mr. Trump's tweet about sinking

Iranian fast boats for harassing U.S. naval ships, noting that the president had previously given senior American officials authority to “take whatever action is necessary to make sure you can defend and keep our people safe.”

But a tweet does not constitute a military order, and a Defense Department official said the Navy had not received any formal policy directive from Mr. Trump ordering it to change its criteria for opening fire on Iranian gunboats. A U.S. military official said there had been no further incidents with the Iranians, fast boats or otherwise, since the one last week, when the Pentagon said Iranian boats “repeatedly crossed the bows and sterns” of Navy ships at high speeds, at one point coming within about 10 yards.

Speaking to reporters Wednesday, David L. Norquist, the deputy defense secretary, said Mr. Trump’s statement on Twitter was more of a warning to the Iranians than a change to the current rules of engagement. “The president issued an important warning to the Iranians. What he was emphasizing is that all of our ships retain the right of self-defense,” Mr. Norquist said. “The president is describing and responding to poor behavior of the Iranians.”

Standing alongside Mr. Norquist, Gen. John E. Hyten, the vice chairman of the Joint Chiefs of Staff, said he liked “that the president warned an adversary.” Mr. Trump has a history of Twitter announcements that seem at odds with traditional policy, including that involving the military and its rules and operations. Liberal critics of the president have suggested that, facing low approval ratings for his handling of the coronavirus response, Mr. Trump is searching for other ways to change the subject, demonstrate leadership and energize his conservative base.

American military units on the ground and at sea abide by strict rules on “escalation of force,” a ladder that includes audible warnings, flares and maneuvers before a shot is fired, often as a last measure. Mr. Trump’s directive, in many ways, discounts this entire process and could lead to injury and death on an already crowded, and often confusing, waterway such as the Persian Gulf. “Commanders are well aware and already have sufficient guidance to deal with these types of events,” said Vice Adm. John W. Miller, a retired commander of the Fifth Fleet, based in Bahrain.

The Trump administration has continued to impose its “maximum pressure” campaign of economic sanctions against Iran after the United States withdrew from the nuclear agreement. Tehran, for its part, has launched proxy attacks against American troops, interests and allies in the region. The Revolutionary Guards Corps, which commands the fast boats, is a paramilitary organization, separate from Iran’s conventional military. The organization carries out operations across the Middle East, trains Arab Shiite militias and oversees businesses in Iran. Reporting was contributed by Thomas Gibbons-Neff, Lara Jakes and Michael Crowley from Washington; Ronen Bergman from Tel Aviv; and Farnaz Fassihi from New York.

Kim Jong Un Has Put North Korea in Position to Outlast His Reign

By: Jihye Lee and Jon Herskovitz for Bloomberg News // April 23, 2020, 6:36 AM EDT

- Regime more secure, less isolated than when he took power
- Speculation about leader unlikely to shift dispute with U.S.

Whatever the state of Kim Jong Un’s health, he has already put North Korea in its strongest position to resist U.S. pressure in decades.

Eight years after Kim filled the power vacuum left by the death of his reclusive father, Kim Jong Il, North Korea is more secure and less isolated. The 36-year-old supreme leader has achieved two key marks of legitimacy long sought by his predecessors: a nuclear arsenal that can credibly deter an American attack and a personal relationship with the U.S. president, including three face-to-face meetings with Donald Trump.

While North Korea is still among the world's most impoverished nations, living standards are rising for the ruling elite in Pyongyang. Kim has shown he can endure crushing economic sanctions, illustrated by a United Nations report published Tuesday accusing the regime of widespread evasion. Moreover, the Kim dynasty holds a renewed pledge of strategic support from its ultimate guarantor, China.

“The country has pole-vaulted in their nuclear-destruction potential and missile-delivery capabilities compared to capabilities under grandfather or father Kim,” said Soo Kim, a Rand Corp. policy analyst who specializes in Korean peninsula issues. “The specter of a North Korean nuclear attack breeds enough unease in the international community to lean more towards accommodation than confrontation.”

That's why many longtime observers of North Korea say the current uncertainty surrounding Kim Jong Un is less consequential than past succession scares. Speculation has been swirling about Kim's health since he dropped out of state media last week, failing for the first time to attend events to celebrate the April 15 birthday of his late grandfather, Kim Il Sung. U.S. officials said they were told Kim was in critical condition after cardiovascular surgery, while South Korea said he was conducting “normal activities” in a rural part of the country.

No matter what, North Korea leaders have strong incentives to preserve the regime and Kim's strategy of seeking sanctions relief from the U.S. by building a more dangerous nuclear arsenal. Indeed, U.S. Secretary of State Michael Pompeo, who has traveled to Pyongyang four times, indicated that the dispute between the two countries would persist if a successor such as Kim's sister, Kim Yo Jong, took power. “The challenge remains the same, the goal remains unchanged,” Pompeo said Wednesday on Fox News.

“Whoever is leading North Korea, we want them to give up their nuclear program.” The U.S. retains control over trade restrictions that held North Korea's economic growth to 1.8% last year, according to the UN Conference on Trade and Development, following its biggest slump in decades in 2018. Although the regime has found ways around the restrictions, including cyber-heists and high-seas oil transfers, North Korea can't tolerate the embargo forever.

“People that say Kim doesn't have to worry about sanctions are likely viewing the situation too optimistically, because North Korea is now under sanctions like never before,” said Kim Keun-sik, a Far Eastern studies professor at Kyungnam University who has advised South Korea's foreign ministry. “The more it cries self-reliance or rehabilitation, the more trouble you know they're in.” Still, North Korea has given up little since Kim's unprecedented handshake with Trump almost two years ago in Singapore.

Besides halting launches of missiles that can reach the U.S. mainland and demolishing some testing facilities, Kim has signed only a vaguely worded pledge to “work toward complete denuclearization of the Korean Peninsula.” At the same time, the summits have raised North Korea's profile to a level once unimaginable for a country sometimes called the Hermit Kingdom. After staying in North Korea for his first six years in power, Kim went on nine overseas trips between March 2018 and July 2019, events that saw him speaking live on foreign television and interacting with Western reporters.

‘Strategic Apathy’

The trips have helped legitimize North Korea’s government, despite continued complaints about human rights abuses and sanctions violations. Chinese President Xi Jinping, who had put off a meeting with Kim for five years, quickly invited the North Korean leader to Beijing ahead of the Singapore summit. Russia’s Vladimir Putin similarly feted Kim last year after his talks with the U.S. president broke down.

China and Russia -- both veto-wielding members of the UN Security Council -- now regularly advocate for easing sanctions on North Korea amid their own disputes with the U.S. Trump himself continues to offer some of Washington’s most generous support for Kim, offering aid to help the country fight the coronavirus outbreak in a letter to the North Korean leader last month. Meanwhile, the U.S. president has shrugged off a record-breaking string of ballistic missile launches by Kim that have demonstrated increasing capabilities to strike all of South Korea, including U.S. bases there.

Ankit Panda, an adjunct senior fellow at the **Federation of American Scientists’s** Defense Posture Project, has described Trump’s policy as “strategic apathy,” a play on the Obama administration approach sometimes called “strategic patience.” “When Kim arrived at the helm, North Korea had demonstrated the beginnings of viability as a nuclear power. By 2018, Kim claimed to have ‘completed’ a deterrent,” Panda said. “Now, that cause continues, but with qualitative refinement and quantitative expansion.”

When Pakistan And India Fought In The Himalayas, It Proved That Nuclear Powers Can Fight Wars

Without destroying themselves.

by Sebastien Roblin for The National Interest // April 23, 2020

Here's What You Need To Remember: The Kargil War was far from the bloodiest ever fought—but it marked a frightening new chapter in the international system as for the first time states with nuclear weapons faced off on a (fortunately limited) battlefield.

For years, there was a conceit that no two states with nuclear weapons have ever directly fought each other. That conceit has at times been thin. For example, during the Korean War, Soviet air force regiments battled U.S. jet fighters in support of North Korea. But Washington as much as Moscow refrained from pointing out that thinly-veiled fact, lest it escalate tensions. But when thousands of Pakistani troops infiltrated across the Line of Control in 1999, separating the Indian and Pakistani-controlled territories, disguised as local insurgents, the pretense proved impossible to maintain before the prying eyes of global media.

Just a year earlier on May 28, 1998, Pakistan conducted a series of underground nuclear tests known as Chagai-I. Islamabad’s ascension as a nuclear power was met with jubilation in Pakistani streets and condemnations and sanctions across the globe. Though Pakistan’s rival India had conducted its Smiling Buddha nuclear test in 1974, Chagai came in response to a second India test held just two weeks earlier.

Still, in February 1999 both countries signed the Lahore Declaration expressing a desire to peacefully resolve the long-standing conflict over the mountainous region of Kashmir, which has a Muslim majority and Hindu minority. However, the Pakistani military’s Joint Staff Headquarters, under

General (and soon-to-be prime minister) Pervez Musharraf saw an opportunity to pick off salient Indian territory called the Siachen glacier. As the glacier lay 20,000 feet above sea level, Indian border outposts in the sector were sparsely manned or abandoned.

And positions near the town of Kargil could be used to interdict National Highway 1 connecting the Kashmiri capital of Srinagar to the Ladakh provincial capital of Leh. Thus, even as Islamabad and New Delhi celebrated their apparent peace accord, four battalions of Pakistan's Northern Light Infantry regiment (5th, 6th, 12th and 13th) and two of the Sind Regiment (24th and 27th), as well as commandos from the elite Special Services Group, were infiltrating into the abandoned outposts at the very peaks of the Himalayas, without initially being detected.

The subterfuge could not last forever. Local shepherds first reported seeing the Pakistani infiltrators on May 3. On May 15, a six-man Indian patrol under Lt. Saurabh Kalia sent to investigate the Ladakh mountains was ambushed, captured and apparently tortured before being shot dead. Within days, the Indian Army discovered that Pakistani forces had seized control of roughly 65 square miles of territory on the Indian side of the Line of Control, with troops dispersed over 132 strongpoints.

New Delhi mobilized 200,000 troops to evict the infiltrators, but the bulk of the fighting was undertaken by the 20,000 soldiers in the 8th Mountain and 3rd Infantry Divisions, supported by nineteen (battalion-sized) artillery regiments. They faced only 5,000 Pakistani soldiers—but these were dug into fortified hilltops between 8,000 and 18,000 feet above sea level, and armed with infantry support weapons including mortars, machine guns, bazooka-like recoilless rifles, and Stinger and Anza man-portable surface-to-air missiles.

Because the Line of Control limited the ability of Indian troops to maneuver around Pakistani positions, many of these positions had to be assaulted head-on. Exhaustion, cold, and high-altitude sickness also posed a formidable—and often lethal—obstacle to Indian infantry. The Indian Army deployed heavy Bofors FH77 155-millimeter field howitzers into mountain valleys. Designed for indirect fire support, the steep terrain allowed the heavy howitzers to level their gun barrels to deliver rapid direct fire with deadly results.

Meanwhile, Pakistani forward observers profited from mountain tops to spy on Indian forces moving along the NH1 Highway and call down accurate artillery from batteries across the Line of Control. Over six weeks, protracted battles raged at places like Tololing and Tiger Hill. The latter's summit lay 16,700 feet above sea level and could only be attained by scaling up on a climbing rope.

Posturing at Sea, War in the Air

Starting May 20, the Indian Navy also began massive redeployment, with ships, amphibious forces, and reconnaissance aircraft departing on patrols pressuring the Pakistani port of Karachi. In response, the Pakistani Navy disbursed from Karachi and began escorting valuable tanker convoys. Though neither navy saw combat, it was clear they were ready for a lethal struggle—and that India might impose a suffocating blockade if tensions escalated further.

Meanwhile, New Delhi initially remained reluctant to commit offensive airpower for fear of escalation. Instead, Indian Air Force aircraft based at Srinagar flew transport, reconnaissance and electronic warfare missions. This was not without its risks, as a heat-seeking missile struck photo-recon

Canberra on May 21, though the pilot managed to return to base. On May 25, New Delhi authorized limited airstrikes. But initially, attempts to provide air support with unguided bombs dropped by dated MiG-21 fighters and Jaguar and MiG-27 attack jets struggled to land effective strikes.

One MiG-27 crashed after an engine flameout; a MiG-21 was downed by a Stinger missile and its pilot apparently executed. Then a Mi-17 helicopter gunship was downed by a barrage of Stingers on May 28. The air campaign (codenamed Safed Sager) turned a corner on May 30 when India deployed No. 1 and No. 7 squadrons equipped with fourth-generation Mirage 2000 jets into the war.

These not only exhibited superior high-altitude performance but had been hastily modified to employ Paveway II laser-guided bomb imported from the United States and Lightning laser targeting pods acquired from Israel. Moreover, the Paveway IIs could be launched outside the effective range of portable anti-aircraft missiles. These were first precision-guided munitions to be used in combat by the Indian Air Force. Throughout June and early July, Mirages knocked out nine supply depots and command bunkers in a succession of deadly precision strikes, particularly targeting Tiger Hill. The Pakistani Air Force was never authorized to enter the conflict, but F-16 jets from No. 9 and No. 11 squadron did shadow Indian air operations from across the Line of Control in an effort to unnerve their counterparts.

Clinton's Diplomatic Overture

Washington had condemned and sanctioned both India and Pakistan's recent nuclear tests, and its policy was then in a state of flux. During the Cold War, India had maintained cordial relations with the Soviet Union, while the United States overtly supported Pakistan and eventually its close ally China. The end of the Cold War removed much of the rationale for these alignments. As early as May, Pakistan warned that it might resort to "any weapon" should the Kargil War continue to escalate. That warning assumed ominous dimensions when U.S. intelligence reported deployment of Pakistani nuclear weapons to prepare for a possible escalation of the war.

Globally, few believed Islamabad's denials that the heavily-armed troops in Kargil were merely local insurgents. President Bill Clinton first urged Prime Minister Nawaz Sharif to withdraw his forces in a phone conversation on June 15. As Pakistani positions near Kargil began to collapse, Sharif flew to Washington on July 4 and agreed to order withdrawal of Pakistani troops. This was largely accomplished, but some refused to return and continued fighting for three more weeks alongside local jihadists.

The Kargil conflict cost the lives of 527 Indian soldiers. After years of denial, Pakistan admitted its armed forces had suffered 453 dead in the border conflict. Clinton's negotiations also set the stage for a dramatic turnaround in U.S.-India relations, with New Delhi becoming an increasingly important international partner of Washington in the next two decades while relations suffered with Pakistan due to its involvement in the War in Afghanistan.

Certainly, the Kargil War was far from the bloodiest ever fought—but it marked a frightening new chapter in the international system as for the first time states with nuclear weapons faced off on a (fortunately limited) battlefield. India and Pakistan could easily have escalated into a wider conflict with cross-border attacks and more air and sea power in play; a scenario in which the risk of using nuclear weapons would have increased substantially.

Twenty years later in 2019, Pakistani and Indian forces again clashed on land and air. Tensions remain acute and both states deployed dozens more nuclear weapons than they did in 1999.

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Russia launched satellite-killing missile in terrifying message to Trump

RUSSIA fired a satellite-killing missile earlier this week, in a move that has increased tensions between it and the US. -- Russian Armed Forces carry out training exercises

By Ed Browne for the UK Express // PUBLISHED: 01:37, Sat, Apr 18, 2020 | UPDATED: 08:35, Sat, Apr 18, 2020

RUSSIA fired a satellite-killing missile earlier this week, in a move that has increased tensions between it and the US.

The missile launch, which was conducted on Wednesday, is considered proof that there are “real, serious and growing” threats to the US and the space systems of its allies. The US Space Force described the missile as a direct-ascent anti-satellite (DA-ASAT) missile, which is capable of destroying satellites which are in low Earth orbit. According to The Times the model is thought to be an A-235 PL-19 Nudol.

At the time, Space Force said it was tracking the test, though no further information has since been publicly announced. In a statement, Gen. John Raymond, US Space Force Chief of Space Operations, said: “The United States is ready and committed to deterring aggression and defending the nation, our allies and US interests from hostile acts in space. “This test is further proof of Russia’s hypocritical advocacy of outer space arms control proposals designed to restrict the capabilities of the United States while clearly having no intention of halting their counterspace weapons programs.

“The demands on space systems continue in this time of crisis where global logistics, transportation and communication are key to defeating the COVID-19 pandemic.” The launch comes just days after Russia said that it was ready to discuss hypersonic missiles, as well as other arms control issues, with the US. There has been a significant cooling of relations between the US and Russia over the past few years.

The US pulled out of the Intermediate-Range Nuclear Forces Treaty (INF) last year because they claimed Russia was not complying with it. Both countries are reported to be developing hypersonic missiles, which, as their name suggests, fly many times faster than the speed of sound. These missiles have caused concerns among experts of a new nuclear arms race.

Russia has flown some medical supplies to the US and Italy as the coronavirus epidemic continues.

The latest anti-satellite launch comes after Russia conducted “on-orbit testing” of two satellites – COSMOS 2542 and 2543 – in February. The Space Force said that the two satellites “exhibited characteristics of a space weapon” and conducted manoeuvres in close proximity to a US government satellite. Space.com understands that this particular incident marked the first time in history that the US publicly revealed a direct threat from another country to a US satellite.

But it isn't the first time that a country has launched an anti-satellite missile. India launched such a test in early 2019, which reportedly put hundreds of pieces of space debris in orbit, 60 of which were big enough to track. NASA administrator Jim Bridenstine said that 24 of these pieces rose higher than the orbit of the International Space Stations, suggesting that it posed an increased risk to the station and the astronauts who occupy it.

The US Space Force was established as recently as December 20, 2019. It is technically part of the US Air Force, which has overall responsibility of it. It states that its purpose is to “protect US and allied interests in space” as well as to develop military space systems.

Russia's Stealth Yasen-Class Submarines: The U.S. Navy Can't Track Them

That's no good.

by Caleb Larson for The National Interest // April 17, 2020

In 2018, the Russian Navy's most advanced submarine, the Severodvinsk, slipped into the Atlantic. For weeks the U.S. Navy couldn't find it. Here's why.

The Yasen-class is Russia's most advanced nuclear-powered cruise missile submarine. The first of the class, the Severodvinsk, was commissioned into the Russian Navy in 2013 or 2014. One of the U.S. Navy's top submarine officers was so impressed with the Severodvinsk that he had a model made for his office to remind him what the United States Navy is up against. Talking about naval threats from Russia, Rear Admiral Dave Johnson said “We'll be facing tough potential opponents. One only has to look at the Severodvinsk, Russia's version of a [nuclear-guided missile submarine] (SSGN). I am so impressed with this ship that I had Carderock build a model from unclassified data.”

The Whole Shebang

The Severodvinsk is incredibly advanced and leverages some technologies that the Soviet Union researched in the 1980s. It has a large spherical sonar array in the bow that is thought to be very sensitive. Because of the sonar's large size, the torpedo tubes were moved from the nose to a position amidships near the submarine's sail and are aimed at a forward angle. The Severodvinsk's torpedo tubes are a mix of standard 533 millimeter and 650-millimeter heavyweight torpedos.

The Severodvinsk's hull is made of non or low-magnetic steel, which either significantly reduces or eliminates the Severodvinsk's magnetic signature. Soviet (and now Russian) submarines have favored a double hull design in the past in which a hydrodynamic outer hull encapsulates a stronger inner pressure hull. The Severodvinsk uses a hybrid design, the outer hull only partially covers the inner hull.

There is a high degree of automation in the Severodvinsk, and the sub's crew complement is consequently small—just sixty-five sailors and officers. In addition to missiles, the Severodvinsk has twenty-four tubes aft of the sail that can carry the P-800 Onyx anti-ship missiles or nuclear-capable Granat missiles. The Severodvinsk will be armed with Zircon hypersonic anti-ship missiles, a first in submarine armament.

Silent as a Mouse

In an interview with 60 Minutes, a U.S. Navy Admiral said that Russia has a “very capable submarine force,” and that increased Russian submarine activity gives him pause. Talking about the Severodvinsk specifically, the Admiral said that the Severodvinsk is “a brand new class of submarine, and it’s very capable, and it’s very quiet, so that’s the most important thing I think, in submarine warfare.”

Although he would not comment on reports that the U.S. Navy lost the Severodvinsk, Pentagon officials said that the Severodvinsk went into the Atlantic Ocean in 2018—and managed to evade detection for weeks. During peacetime, losing a Russian submarine is a headache. During a conflict, losing track of a submarine is deadly.

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Iran shows off drones that can reach Israel, threat increases

It is a message to Israel, the US and allies: We can reach you.

By SETH J. FRANTZMAN for the JPost // APRIL 19, 2020 02:08

Iran’s Defense Ministry unveiled a mass of new drones over the weekend for the Islamic Republic’s army and air force. According to Tehran the drones have new capabilities, and can fly more than 1,000 km., which means they could reach Israel from Iran.

Iran has been producing drones since the 1980s and is an innovator in drone warfare. It used 25 drones and cruise missiles to attack Saudi Arabia last September, and has flown drones into Israeli airspace. Iran’s Defense Minister Brig.-Gen. Amir Hatami showed off the drones on Saturday. He said that one jet-powered UAV could fly at speeds of 900 km. per hour at an altitude of 12,000 meters. This would rival the best drones that the US and other countries are now using.

These drones have a range of up to 1,500 km., he said, and can fly for several hours. It is a message to Israel, the US and their allies: We can reach you. Iran says it has provided a “mass delivery” of the Ababil-3 and Karar drones to the air force. The country has a new drone unit that it established in recent years and its IRGC has been using drones to target various enemies, including ISIS. The Ababil-3, Hatami says, can fly 150 km., and the Karar is armed with various weapons that now give the drones “pinpoint” attack abilities.

The implication is that these drones have guided bombs and can operate like cruise missiles. The Ababil-3 is a redesign of earlier Iranian drones, with twin tails. It is likely based on a South African design which itself may have been borrowed from old Israeli designs, such as the Israeli Hunter or Mastiff. The Ababil-3 is supposed to be a medium-range reconnaissance drone, but Iran says it has “combat” potential and can carry other payloads as well.

It has an electro-optical add-on that enables it to collect footage. Iran used this capability in September 2018 to target Kurdish dissidents in Iraq, filming its missile attacks with a drone. Meanwhile, the Karar is designed to be a “strategic” drone that Iran says can be used as a kamikaze drone – basically like a cruise missile. Iran has successfully deployed these kinds of technologies to the Houthi rebels in Yemen, who have used them against Saudi Arabia in dozens of attacks.

The new drones allegedly have some sort of guided missile or smart bomb ordnance. It's not clear if Iran has perfected the technology and ranges it ascribes to its drones, but attacks in Iraq, Syria and Saudi Arabia are evidence that Iran's drone threat is increasing. Iranian drones have been sent to Syria's T-4 base. One of them flew into Israeli airspace in February 2018 and was shot down by a helicopter. Iranian-backed Hezbollah also deployed drones in the Golan in the fall of 2019.

Israel carried out an airstrike in August 2019 to neutralize the Hezbollah drone team. Iran has recently seen some of its shipments of drone parts stopped by the US Navy on the way to Yemen. These included gyroscopes and other technology that Tehran has used elsewhere in drone exports and drone warfare. THE REASON Iran is unveiling its drones now is linked to its annual army day. However, Iran also used army day to showcase efforts to fight the coronavirus.

Iran has more than 5,000 dead from COVID-19, and the drone unveiling is therefore a way to show that Iran continues its technological advances despite US sanctions and the pandemic. Iranian IRGC fast boats harassed the US Navy last week in the Persian Gulf – and in the past, Iranian drones have flown over a US aircraft carrier and provoked American ships. The USS Boxer downed an Iranian drone last year.

Iran's drones are its version of an air force. Since Iran does not have a very strong army, the drones are used to pose a strategic threat to enemies. Tehran uses the drones to threaten attacks on infrastructure in other states, and it exports them to what it calls the "axis of resistance," its proxies across the region. Its goal is to upgrade the abilities of groups such as Hezbollah and the Houthis, groups which don't have air forces and are ostensibly at the mercy of much more powerful adversaries when it comes to air power.

But the drone threat, in Iran's view, can be a game changer, by posing a threat that is difficult to detect or stop. That was illustrated in the attack on Saudi Arabia, when Iranian drones penetrated both radar defenses and air defenses. Since Iranian drones are generally not very fast moving and have no stealth abilities, they can be easily detected. Iran has attempted to get around that by using them like cruise missiles, or claiming it has new jet-powered advances.

Since the Islamic Republic already has an advanced rocketry program for ballistic missiles, there is no doubt that it has the ability to build different systems. Until they are used, however, it is unclear what their real capabilities are. In Saudi Arabia, Iranian-designed drones have flown hundreds of kilometers, penetrating deep into the country's interior. Iran has continued to threaten Israel through shipments of precision guided munitions to Hezbollah. Its drone arm is one of many technologies it uses in these continuing efforts

COVID-19 nothing compared to EMP, 295M dead

New warning by Dr. Peter Pry

by Paul Bedard for the Washington Examiner // | April 20, 2020 07:51 AM

As bad as the coronavirus and the COVID-19 sickness it causes are, warning cries are increasing over a much bigger threat with the potential to kill 90% of the U.S. population. And, unlike the virus, Washington has known of the threat for decades and done little to nothing.

“We have seen this movie before and are living through it now,” said **Peter Pry**, one of the nation’s leading experts on electromagnetic pulse, the electric grid killer that threatens naturally from the sun and from weapons held by China. “If we are not even prepared for the coronavirus, imagine the consequences if we get hit with a real existential threat, like EMP,” he said.

Advocates for protecting the nation’s electric grid and other vital systems, including military bases, from an EMP attack are seizing on the virus crisis to inject urgency into budgeting to protect electric transformers, transfer stations, and wires from disruption or meltdown.

“For the \$2 trillion that will be spent on the coronavirus, we could harden all critical infrastructures against EMP, deploy space-based missile defense Brilliant Pebbles before the end of a second Trump term, modernize the U.S. nuclear deterrent from top to bottom (delivery vehicles, weapons, scientific-industrial base), and have over \$1 trillion to spare,” said Pry, a key member of congressional EMP commissions and author of the new book The Power and the Light: The Congressional EMP Commission’s War to Save America 2001 - 2020.

Brian Sullivan, a government and military security analyst, said, “Can you imagine if our grid went down and we lost electricity for an extended period of time? As bad as our current situation is, it could always be a lot worse. We relied on our government leaders to prepare our country for a pandemic, and we see what that got us. We rely on that same leadership now to protect our electric grid.” While warnings of the current pandemic have been around for less than a year, reports have been written about EMP attacks for decades. The first congressional EMP panel, for example, warned of a yearlong blackout following an attack on the electric grid.

“The EMP Commission estimates a nationwide blackout of the United States lasting one year could kill 90% of Americans from starvation and societal collapse,” said Pry. That would be about 295 million people.

In the past, warnings have been met inside the government and energy industry with eye-rolling. But President Trump has taken the threat seriously, especially as China and other foes have developed EMP weapons, and signed an executive order to move toward protecting the grid. The military has also taken steps to protect its operations.

But Pry details in his new book the efforts inside the “deep state” federal bureaucracy and electric industry to “slow-roll and sabotage” Trump’s agenda while making it look like they're making progress.

“The strategy of pretending to do something but really doing nothing and then throwing money at the threat when it happens will get millions of Americans killed when there is an EMP,” he told Secrets.

Britain has 139 tons of plutonium. That’s a real problem.

By Christopher Fichtlscherer, Friederike Frieß, Moritz Kütt, for the UCS Bulletin // April 17, 2020

The United Kingdom’s last plutonium reprocessing plant, B205, located in Sellafield in northern England, will shut down by the end of 2020. It will bring an end to the era of plutonium separation in the country, which began 68 years ago. Because the United Kingdom never used any of the material it recouped from reprocessing except in nuclear weapons, today it has amassed a stockpile of almost 139 metric tons of separated plutonium.

This creates lasting problems: Plutonium stored in Sellafield is highly toxic and poses a permanent risk of proliferation. It is enough material to build tens of thousands of nuclear weapons. According to parliamentary estimates, storage will cost the British government about 73 million pounds a year

for the next century. But after decades of public and private consultation, there is still no accepted plan for its disposition. In the meantime, the Nuclear Decommissioning Authority is working on the consolidation of the stockpiles in Sellafield and developing the capability to retreat the packages to allow for long-term storage once the government makes a final decision on permanent disposal. The United Kingdom views the material as a resource and is pursuing options that involve burning the plutonium in reactors, even though multiple assessments have shown risks associated with such a choice, namely immature concepts and technology. A better alternative would be to treat it as waste and begin planning for its permanent immobilization and burial.

Where did it come from? In the beginning, the British plutonium separation program was justified by military needs. A few years later, nuclear euphoria led to an increasing number of civil nuclear power plants and to dreams of nuclear-powered cars and planes. It was predicted that uranium resources would not be able to fulfill the need. As a result, the idea of a “closed” fuel cycle was born: instead of using nuclear fuel once and throwing it away, the spent fuel is reprocessed and reused in (mostly fast) reactors. In theory, this would allow greater utilization of uranium. However, the concept has never been demonstrated on an industrial scale, and only a few countries still aim at closing the nuclear fuel cycle.

From 1956 until 2015 the United Kingdom operated 26 Magnox reactors for commercial use. Magnox reactors are fueled with natural uranium, moderated by graphite, cooled by carbon dioxide gas, and designed in a way for efficient plutonium production. A pilot reprocessing plant, B204, started operation in 1952 and was replaced in 1964 by the B205 reprocessing plant. Combined, the two plants have separated more than 85 metric tons of plutonium from spent fuel.

In 1976, the United Kingdom started operating a new reactor class, the Advanced Gas-cooled Reactor, and 15 such reactors still operate today. To reprocess spent fuel from these reactors as well as spent fuel from overseas, the United Kingdom opened the Thermal Oxide Reprocessing Plant in 1995. Its operation record is a disaster: It never reached planned throughputs, had a serious leakage of radioactive material in 2005, and was much more expensive than originally intended. Consequently, it was shut down in 2018 before reaching the end of its planned service life—and after separating only 23 metric tons of plutonium.

But what happened to the fast breeder reactors that were supposed to burn up reprocessed fuel and close the nuclear fuel cycle? There are several reasons why there are only two fast reactors commercially operating, the Russian-designed BN-600 and BN-800. First, nuclear energy did not expand as foreseen in the 1950s and 1960s, while at the same time new uranium resources were discovered, easing worries about a dwindling uranium supply. Second, multi-cycled use of spent fuel has proven to be far more difficult than expected, and there are some risks inherent only to fast reactors. Finally, there is the latent proliferation risk of the technology to separate plutonium and uranium from the spent fuel.

Where will it go? Today, the United Kingdom’s civilian stockpile contains 139 metric tons of plutonium, including 23 metric tons owned by other countries, mostly Japan. The Nuclear Decommissioning Authority has discussed two disposition options. First is the reuse of plutonium in reactors. Reuse is touted as a proliferation-resistant option because the spent fuel would be too radioactive to handle, at least at first. Second is immobilization. Here, the plutonium is mixed with other materials that reduce the risk of leaching and complicate extraction. Potentially, the radioactive waste in the mix could also serve as a toxic obstacle to proliferation. Both options would still ultimately require disposal in a deep geological repository.

The Nuclear Decommissioning Authority's preferred option still seems to be the reuse of the plutonium in mixed-oxide fuel for light water reactors. However, such an option depends on the availability and willingness of reactor operators to use such fuel. And not all operators are keen on the idea: EDF, the French-owned utility company that operates Hinkley Point C, the first nuclear power plant built in Britain in decades, denied the suggestion to consider the use of mixed-oxide fuel in 2013.

Alternatively, the plutonium might be used in reactors that, according to their vendors, are better suited to cope with the plutonium stockpile. These could be either a CANDU-EC6 heavy water reactor or the small, fast, sodium-cooled reactor concept PRISM. Using mixed-oxide fuel in CANDU reactors seems viable, but the Nuclear Decommissioning Authority assesses no potential benefit compared to using the same fuel in a light water reactor—at greater implementation risk. In March 2019, the authority officially removed the PRISM reactor from the list of viable options, though even as early as 2011 it was stated internally that the “technology maturity for the fuel, reactor, and recycling plant are considered to be low.” Nevertheless, the Nuclear Decommissioning Authority confirms that it will continue to monitor fast reactor programs.

Leaving aside the viability of fuel production, costs, and everything related to actual operation of the PRISM reactor, we conducted an analysis of GE Hitachi's claims that PRISM “could conceivably make the entire UK plutonium stockpile proliferation-resistant in 20 years” by irradiation. Our calculations show that the claim is highly optimistic. Using plutonium as a reactor fuel has two effects: Some plutonium is burned, and the remaining is left in highly radioactive spent fuel. The radioactivity creates a barrier for malicious actors intending to steal and separate the plutonium from that fuel—providing proliferation resistance. However, due to radioactive decay, this barrier continuously decreases, while treatment of other parts of the stockpile is underway. Even though our study's findings apply specifically to the PRISM reactor, we anticipate similar effects from other irradiation options. In the time it takes to treat the United Kingdom's massive stockpile in reactors, the already treated material will slowly lose its proliferation resistance.

Why should the public sector continue to pay money for “new” reactor concepts—sometimes under development for decades—when it is not even clear whether these concepts might solve the problem at hand? The United Kingdom has to find a solution for its plutonium stockpile, and quickly. The British government, the Nuclear Decommissioning Authority, and reactor operators in general should accept that separated plutonium is a burden, not a resource, and authority should again take a closer look at immobilization options. These do not have the sheen of new, high-tech solutions like burning the plutonium in specially-tailored reactor concepts. But given that action is urgently needed, established and working concepts should be the way forward.

How a Kim Jong Un demise could spark unrest

Instability may require US, South Korean military response

By: Howard Altman for The Military Times // 6 hours ago

A Kim Jong Un demise could destabilize the region, create a massive refugee flow and force the U.S., South Korea and possibly other regional allies to react to the upheaval.

That's how experts contacted by Military Times see a Kim-less future possibly unfolding in the nuclear-armed Hermit Kingdom. The questions about what would happen should Kim die or be incapacitated were sparked by a CNN report that the North Korean despot was in “grave danger” following

a surgery. However, the Yonhap News Agency, a South Korean-government funded organization, later tweeted out that there were “no unusual signs” of Kim’s health.

But even if he isn’t on his death bed, Kim does have health issues and his exit from the stage would create turmoil, experts say. Without a designated heir there will be “chaos, human suffering, instability,” retired South Korean Lt. Gen. Chun In-Bum, the former head of his nation’s special operations forces, told Military Times. “It’s bad news for everyone.” David Maxwell, a senior fellow at the Foundation for Defense of Democracies think tank who has two decades of military service in Asia said a U.S. and South Korean military reaction to that upheaval could require an effort that “will make Afghanistan and Iraq pale in comparison.”

Like Chun, Maxwell, a retired Special Forces colonel who served with him, said a lack of clear succession would set chaos into motion. Kim Il Sung designated his son successor in 1973 and the Kim Il-sung designated his son success in 2009 or 2010. “It is unknown whether Kim Jong-un has designated a successor,” said Maxwell. “We can speculate that perhaps his sister Kim Yo-jong has been designated as his successor based on her recent promotion and the fact she has begun making official statements in her name beginning last month.”

But it is unknown, said Maxwell, “whether a woman, despite being part of the Paektu bloodline could become the leader of the Kim family regime.” No clear successor could lead to a regime collapse, said Maxwell, with the Kim regime and the Workers Party of Korea unable to govern the north or maintain military cohesion and support. What happens then is a wild card, with a lot of bad possible outcomes that the South Korean/U.S. alliance must be prepared to handle, said Maxwell.

He added that military planners, including himself, have long briefed senior leaders on what could transpire. There is a “humanitarian disaster that will unfold in North Korea,” said Maxwell. It will be further complicated by the coronavirus. “South Korea, China, and Japan (via boat) are going to have to deal with potential large scale refugee flows,” he said. “Units of the North Korean People’s Army are going to compete for resources and survival. This will lead to internal conflict among units and could escalate to widespread civil war.”

But even such internal strife won’t hinder the North’s animus toward the outside or its willingness to fight if they feel it is warranted. “Since North Korea is a Guerrilla Dynasty built on the myth of anti-Japanese partisan warfare we can expect large numbers of the military (1.2 million active duty and 6 million reserves) to resist any and all outside foreign intervention to include from South Korea,” said Maxwell.

And then there are the North Korea weapons of mass destruction.

“Lastly the ROK/US alliance is going to have to be prepared to secure and render safe the entire WMD program, nuclear, chemical, biological weapons and stockpiles, manufacturing facilities, and human infrastructure (scientists and technicians),” said Maxwell. “This is a contingency operation that will make Afghanistan and Iraq pale in comparison.” The U.S./South Korean alliance “has contingency plans for this,” Maxwell said. “It will be a combined effort because neither South Korea nor the U.S. can execute this alone.”

Those plans, however, have been “too long-neglected,” said Maxwell, adding that the cancellation of many high-level training exercises hasn’t helped. In addition, the “friction of burden sharing as well as the move of U.S. forces out of Seoul to Camp Humphreys” means “the alliance is just

not as well trained, ready, and solid as it has been in the past.” Chun, the retired South Korean general, largely agreed with Maxwell about the refugees and potential civil war in the north, but does not see a U.S./South Korean military incursion past the 38th Parallel.

“What are we going to do? March in there?? Let the Chinese do it,” he said. “The DPRK is a sovereign country. Anyone going in there, including the Chinese, would be crazy. The ROK/US has a bad plan with bad assumptions. It will get us into a nuclear war.”

If Kim Jong Un Dies, His Younger Sister Is Primed to Take Over

LITTLE KIM -- She’s been the rising political star in a dynasty where other would-be heirs to the Kim dynasty wound up dead.

By: Donald Kirk for the Daily Beast // Updated Apr. 22, 2020 2:31PM ET / Published Apr. 22, 2020 12:09PM ET

SEOUL—The Winter Olympics of 2018 were Kim Yo Jong's international coming out party. The world’s press gushed about the younger sister of North Korean Supreme Leader Kim Jong Un. The debutante—slender, smiling, gracious—seemed to be so very different from her porcine brother. But now that his health is in question, and amid conflicting reports that he could be at death’s door, his little sister may well be first in line to carry on the family dynasty.

“While she may not be overly qualified to rule, she has this: she survived her brother’s bloody family purges.”

Sister and brother have been close for years. She has advised on key events in the North Korean capital of Pyongyang, encouraging construction of modern apartments, ski slopes, even an amusement park, but it was during those Olympics that she shone as a major figure before the world. It was then, at a luncheon meeting in the Blue House, the center of power in South Korea, that she gracefully handed the South’s President Moon Jae-in a handwritten note from her brother suggesting they get together for a summit.

As a Blue House spokesman described the encounter, Kim Yo Jong embellished the written verbiage with polite words of her own. Big brother hoped they could get together sooner rather than later, at the “earliest convenience,” she said. Moon, who had been looking for reconciliation with the North, was thrilled. “Let’s create the environment for that to happen,” was his all-too-eager response.

Meet Russia's Borei-Class Submarines: It Could Wipe Out Entire Nations in Minutes

You don't want to mess with these boats.

by Caleb Larson for The National Interest // April 21, 2020

The Borei-class of submarines is thought to be extremely quiet—and is the launch platform for Russia’s newest ballistic nuclear missile.

Borei-class

The Borei-class is a nuclear-powered ballistic missile submarine that is projected to replace the Typhoon- and Delta-classes. The Borei-class is significantly smaller than the two classes it is replacing, in both physical size and crew number, though there is some variation within the Borei-class itself. The naval expert H. I. Sutton explained that the first three Borei hulls were “constructed from unfinished hull sections from AKULA Class attack submarines and OSCAR Class cruise missile submarines. The Borei-A is however completely new-build.”

Despite the new build, “overall dimensions are not significantly altered and internal layout is probably very similar, although the new construction may have allowed some internal redesigns.” The Borei-A-class has either one or two towed sonar arrays stored in tubes inside the vertical rudders that retract inwards. There is also a noticeable bulge running alongside the hull for much of its length that is likely a “flank” sonar array, which would allow the Borei-class to “see” into the ocean with sonar in both the port and starboard directions.

Additionally, the submarine uses a new hydrodynamic design. The rudders, hydroplanes, and sail were all redesigned to increase maneuverability and to reduce noise. The sections of the sub that house the ballistic missile silos appear to be quite smooth, and would presumably be quieter than previous designs like the Typhoon, which had a prominent missile compartment. This probably compromised the submarine’s acoustic signature by making it louder. Though quieter, the reason the Borei-class is believed to be so deadly is its missiles.

Bulava Nuclear Missiles

Sutton explained the importance of the Borei-class to the Russian Navy, saying that the class would form the backbone of Russia’s nuclear deterrence at sea—thanks to the Bulava ballistic missile. In addition to six standard 533 millimeter torpedo tubes, the Borei-class is designed launch the RSM-56 Bulava missile, the submarine portion of Russia’s nuclear defense triad, and Russia’s most expensive weapons program. The Borei-A-class is probably equipped with 16 missile tubes, though it may have as many as 20.

It is likely that each missile carries 10 warheads, and has a maximum range of about 8,300 kilometers, or about 5,200 miles. The missile is highly maneuverable, and can be re-targeted during flight. Despite the impressive resume, the Bulava experienced some significant teething issues, which pushed back its naval entry. The delayed debut of the Bulava missile program also pushed back the debut of the Borei-class. Extensive issues were uncovered, including lax quality-control standards, poor component workmanship, and insufficient testing. Once the missile’s reliability was addressed, however, they were immediately deployed on the three Borei-class submarines that Russia currently operates.

Less Money, More Problems

Like many military projects in Russia, its final realization is highly dependent on the price of oil. If this month’s odd oil prices are any indication of what is to come, don’t expect to see many more Borei-class submarines—of any type—anytime soon.

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China must pay for the calamity it has unleashed on the world

By Joseph Bosco, contributor to THE HILL // 04/21/20 10:30 AM EDT

In a 1957 speech, China’s revolutionary leader Mao Zedong made an announcement that shocked the world: “I’m not afraid of nuclear war.

There are 2.7 billion people in the world; it doesn't matter if some are killed. China has a population of 600 million; even if half of them are killed, there are still 300 million people left." Three years earlier, he told India's prime minister: "If the worst came to the worst and half of mankind died, the other half would remain while imperialism would be razed to the ground and the whole world would become socialist."

Why is this startling bit of history relevant today? For starters, Mao remains a hero to many Chinese, especially to Xi Jinping who has called for a revival of Mao Thought. Second, today's Chinese Communist Party retains the same domestic and world outlook espoused by Mao and his successors during the Korean War, which killed a million Chinese soldiers; the invasions and occupations of Tibet and East Turkestan; the Cultural Revolution and Great Leap Forward that cost 50 million Chinese lives; "wars of national liberation" in Asia, Africa and Latin America; and Tiananmen Square where thousands of young Chinese were massacred under Deng Xiaoping.

Respect for human life and compassion for human suffering never have been hallmarks of international communism, whether of the Soviet or Chinese variety. Today's moral outrages include cultural genocide in Tibet and Xinjiang, Uighur concentration camps, industrial-scale organ harvesting, provocative militarization of the South China Sea; aggression in the East China Sea; and threats to destroy U.S. cities over Taiwan.

China scholars and national security experts now debate whether the current global pandemic is "merely" the result of an accidental release of the virus — from either a Wuhan exotic animal "wet market" or a Wuhan experimental biomedical laboratory. Even beyond the laboratory vs. animal transmission question, however, a more extreme concern has emerged: Was either the initial release of the virus or China's subsequent handling of the outbreak an intentional act of aggression against the United States and the West?

Did China deliberately allow the virus to spread within a controlled segment of its own population and then to the entire global community, under the Maoist view that the developed West would suffer infinitely greater damage than China? Or, only slightly less malevolently, was the Chinese government just egregiously negligent in the beginning, but then discovered there were geopolitical advantages to be had when the plague struck the West just as the worst ostensibly was over in China?

Whether purposely or accidentally, did Xi see the possibility of accomplishing with the virus what his ideological hero Mao only fantasized about through a nuclear exchange — bringing the West to its knees, and at the cost of only one Chinese city, rather than half of China's population? On the question of motive, there is certainly a plausible explanation for why Beijing would launch such a diabolical scheme.

The United States has been decisively winning the trade war President Trump declared on China last year. Its once-vaunted economy declined while Trump boasted of positive records in all economic areas. And, with the stronger economic hand, the president demanded for the next phase even more fundamental changes in China's economic system, which would have potentially momentous internal political implications.

Xi cannot have been a happy man under this unprecedented pressure from a U.S. administration that Beijing clearly underestimated. He had to have hoped for a way to upset the dynamic that was moving very unfavorably against the interests of China's communist regime (but potentially favorably for the Chinese people). By chance or by design, the pandemic has shaken the dynamic to its core and stopped the pro-U.S. momentum in its tracks.

Critics characterize such speculation on Chinese motivation as extremist, over-the-top, even paranoid. They demand evidence of Chinese intentionality in any of the tragic events that have befallen the world over the past several months. They need to consider a few ominous and incontrovertible facts: While the virus was spreading in Wuhan in January, Chinese authorities encouraged 100,000 residents and visitors to gather for a massive Lunar New Year banquet. Within two weeks, they were confronted with a veritable pathogenic inferno;

To contain it, they harshly sealed off the entire city of Wuhan, even welding doors shut to trap residents inside their houses; Air travel between Wuhan and the rest of China was abruptly terminated to contain the virus, but flights between Wuhan and the rest of the world were allowed to continue and spread the contagion abroad — as Beijing and the World Health Organization opposed Trump’s travel restrictions on China.

The harsh reality is that Beijing’s actions enabled the epidemic in Wuhan, mostly contained it there and in Hubei Province, but then facilitated its spread internationally. As a result, more than a 150,000 lives have been lost worldwide, Western economies have been devastated, governments paralyzed and militaries degraded. Meanwhile, Beijing points fingers elsewhere and claims the superiority of its system.

Chairman Mao would be proud of the virus’s fortuitous outcome for China, all without the use of atomic weapons. Xi, his ideological heir, may believe he has created for himself a get-out-of-jail-free card on potential non-compliance with the trade agreement and aggressive moves on Taiwan, Hong Kong and in the South and East China Seas. President Trump will have to disabuse Xi of that notion but it will not be easy, given his own propensity to conflate cordial leader-to-leader relations with America’s national security interests.

He needs to recall that he made more progress with China — and with North Korea — when he exerted maximum pressure. Now China has added to its earlier offenses the incalculable human and economic costs of the pandemic. The instruments of diplomacy and finance, as well as potential remedies under U.S. and international law, offer a range of options to hold China to account. The Chinese people, the primary victims of the regime’s incompetence or malevolence, can be enlisted in the effort effectively if they are armed with the instrument of truth from the West.

The painful circumstances the world faces present a unique strategic opportunity and a moral imperative to moderate China’s course and change it for the better. The president should seize the main chance. Reelected or not, he will have earned a heroic and honorable place in history, just as Ronald Reagan forever will be hailed for the peaceful demise of the Soviet Union.

Joseph Bosco served as China country director for the secretary of Defense from 2005 to 2006 and as Asia-Pacific director of humanitarian assistance and disaster relief from 2009 to 2010. He is a nonresident fellow at the Institute for Corean-American Studies and a member of the advisory board of the Global Taiwan Institute.

To attack or deter? The role of anti-satellite weapons

by Dwayne A. Day for The Space Review // Monday, April 20, 2020

Last week, Russia conducted another anti-satellite (ASAT) test, apparently one of a series they have been undertaking as part of what increasingly looks to be a broad-ranging ASAT program. This follows a recent statement by the commander of US Space Command, General John Raymond, who acknowledged something that amateur space trackers have noticed for a few months: a Russian satellite appears to be “stalking” USA 245, an American reconnaissance satellite, raising the possibility that the Russian satellite might have offensive capabilities. As Bart Hendrickx noted in a

2018 article in Jane's Intelligence Review, there was ample evidence that Russia was developing a co-orbital anti-satellite weapon designated "Burevestnik," although the satellite that may be following USA 245 is probably of a different but related type named "Nivelir."

China, Russia, and India are all reported to have anti-satellite capabilities. The Director of National Intelligence's annual report to Congress stated that the PRC and Russia have operational ASATs for targeting low Earth orbiting satellites, and the PRC is "probably" developing capabilities for geostationary orbit. Even the French, who were vehemently opposed to American ASATs in the 1980s and one of the loudest advocates of ASAT arms control, have now declared their intent to develop an anti-satellite weapon. The United States demonstrated the ability to knock low-flying satellites out of orbit over a decade ago and has made major classified expenditures on space systems in recent years, making it entirely possible that the US has an unacknowledged ASAT program of its own.

While all this ASAT, and potential ASAT, activity is underway, it is generating very little public discussion. It seems as if ASATs have become accepted weapons at the same time that space is becoming more crowded, and no effort is underway either to seek their negotiated elimination or to establish deterrent postures to limit or prevent their use. If any debate has happened in US government circles about ASATs and whether the United States needs them, it has only taken place in classified settings. This is unsurprising when one considers the historical context of American ASAT weapons.

Over the sixty-plus years of the space age, the United States has had an inconsistent—some might even say schizophrenic—attitude toward developing ASATs. In fact, for much of that time the United States has lacked an ASAT capability. Sometimes this was due to a policy decision to pursue arms control rather than space weaponization (see "Blunt arrows: the limited utility of ASATs", The Space Review, June 6, 2005.) Hovering over all of these decisions was the fact that ASATs have rather limited utility. They have rarely been viewed as magic bullets that can substantially achieve a strategic advantage for one side or another.

Declassified documents from the mid-1970s shed some light on the American pursuit of ASAT weapons. What the documents indicate is that in the last year of the Ford Administration, the United States government determined that Soviet satellite capabilities had changed sufficiently to justify the development of a limited American ASAT capability. The purpose for this new American ASAT was to destroy Soviet ocean surveillance satellites, including their nuclear-powered radar ocean surveillance satellites known as RORSATs, not to deter Soviet ASAT use.

The United States had possessed an ASAT capability from the mid-1960s until 1972. Known as Program 437, it used spacecraft carrying 1.4 megaton nuclear bombs and launched atop Thor intermediate range ballistic missiles from an island in the Pacific Ocean. Program 437 was an expensive and limited capability weapon with many disadvantages, and after a storm damaged the launch pad, the Air Force shut the program down. At the time this debate took place within the Ford Administration, the United States had been without an ASAT capability for several years. Meanwhile, the Soviet Union was actively testing their own system.

A little light on the ASAT debate

In 1976, the National Security Council (NSC) conducted a study on several issues related to the vulnerability of American satellites to attack and the need for a new US ASAT capability. The documents were released as part of the State Department series known as Foreign Relations of the United States (or FRUS for short). A FRUS volume produced in 2009 included a chapter on space.

Paul Stares first wrote about the NSC deliberations in his excellent 1985 book on ASAT history, *The Militarization of Outer Space*. Stares based his discussion of the NSC study on several interviews he conducted with anonymous former NSC staffers. The account in Stares' book differs slightly in tone with the declassified documents. Whereas Stares emphasized the international and arms control aspects of the NSC discussion, as well as the focus on American satellite vulnerability, the documents declassified two decades after he wrote his book (and four decades after they were produced) indicate that the NSC actually became concerned about a newly-emergent Soviet threat that required an American ASAT capability. Simply put, the discussion was not about deterring attacks on American satellites, but attacking Soviet ones.

During this time period the Soviet Union was conducting tests of its co-orbital ASAT, which launched into orbit, moved near its target, and then exploded a conventional fragmentation warhead in the direction of the target. The Soviets continued testing their ASAT despite the fact that in 1972 they had signed an arms control treaty with the United States agreeing to not interfere with "national technical means of verification"—i.e. American reconnaissance satellites.

One of the FRUS documents, from June 1973, was a memo from Kenneth Rush, Deputy Secretary of State, to the acting Secretary of Defense. Rush referred to a recent Defense Department study of United States responses to Soviet ASAT activities, which called for a study of US space system vulnerability and development of a plan for an anti-satellite technology program. Although the Program 437 ASAT had not been completely shut down at the time Rush wrote his memo, it was clearly non-operational and in the process of dismantling. Rush noted that any new American efforts to start an ASAT program would likely become public and that there would be possible negative consequences. In fact, a year earlier, when Rush had been Deputy Secretary of Defense, he had signed an order declaring ASAT research to be classified. Clearly, he did not think that it could stay secret. Now Rush recommended a high-level interagency review of the issues involved concerning ASAT research.

According to Stares, at least one classified study began looking into the issues of the vulnerability of American satellites to attack in the new Ford Administration. This was prompted by several incidents in late 1975 where American satellites were apparently blinded or interfered with by the Soviet Union. The United States government officially determined that these were natural events, not deliberate interference, but not everybody who knew about these incidents agreed with the official explanation.

Vulnerability and ASATs

A resumption of Soviet ASAT tests in February 1976 helped highlight the satellite vulnerability issue. In March 1976, national security advisor Brent Scowcroft informed President Gerald Ford that the National Security Council had initiated a study of three related issues: "1-near-term measures (3-5 years) which can be taken to decrease the vulnerability of our satellites; 2-projection of the military use of space over the next 15 years, including analysis of the problems of satellite survivability; and, 3-the most feasible options for development of a U.S. anti-satellite capability."

In April, Scowcroft sent another memo to the President after the Soviets conducted another ASAT test. His memo referred to the ongoing NSC study, and noted that "although the Soviet capability is limited, it is probably sufficient to completely deny U.S. satellite photo reconnaissance missions for periods up to years if the Soviets were willing to risk the serious repercussions such an attack in space entail. They could also selectively deny several other critical U.S. low altitude missions, including the Navy ocean surveillance satellites and the submarine navigation satellites." Scowcroft also added that development of a U.S. ASAT "will not contribute to the survivability of U.S. space assets."

In July, the National Security Council issued National Security Decision Memorandum 333, “Enhanced Survivability of Critical U.S. Military and Intelligence Space Systems.” NSDM 333 stated that the President had directed that the Secretary of Defense and the Director of Central Intelligence prepare an action plan to improve the survivability of American military and intelligence satellites to Soviet attack. Also in July, the NSC panel produced its interim report on the need for a US ASAT. Their primary conclusion was that such a capability was necessary and that “the need for such a U.S. anti-satellite capability is related to its military value and is not directly related to the Soviet anti-satellite program.” After receiving the interim report, Ford requested that the final report be completed as soon as possible. As a result, the panel decided to split its report into three parts and to deliver the ASAT report early, with the satellite vulnerability reports delivered later.

Smashing satellites

In early November 1976, the NSC panel produced its final report on the need for an American ASAT weapon. The panel concluded that Soviet space capabilities had changed from general intelligence collection to direct support of military forces, and that their new capabilities, particularly to use satellites to target American warships at sea, justified the development of an American ASAT. The panel stated that “there is an urgent need for the U.S. to have the capability to destroy a few militarily important Soviet space systems in crisis situations or in war.”

In particular, the Soviets had developed electronic ocean surveillance satellites (commonly referred to as EORSATs) and radar ocean surveillance satellites (RORSATs) that could provide the locations of American warships to Soviet surface ships and submarines. The Soviet vessels also had acquired long-range missiles and “this long-range missile threat to the U.S. surface Navy is of great concern and, if not countered, could bring the viability of the surface fleet into serious question.” There were few of these Soviet satellites and they were in low orbits, and if they were destroyed the Soviets would be forced to find American ships using submarines and aircraft, which were limited and could be countered by the Navy.

In addition to the Soviet ocean surveillance threat, the Soviets also operated low altitude communications satellites and photo-reconnaissance satellites that could also be targets for American ASATs. But these were lower priority than the EORSATs and RORSATs. The report noted that a previous Air Force Aerospace Defense Command requirement for US ASAT capability called for the ability to destroy 20 low altitude, 5 intermediate altitude, and 15 high altitude satellites within 24 hours. This requirement to wipe out 40 satellites in a range of orbits and a short period of time “would result in a long development program and a high cost operational system,” according to one official.

The NSC panel recommended much less demanding requirements. They suggested that the ASAT be capable of limited operations by the end of 1980, be directed at low altitude satellites, have a response time of about a day from Soviet launch until US intercept, and be capable of making 6–10 intercepts in a week. The panel’s final presentation was made to President Ford in December 1976, by which time it was clear that Jimmy Carter would replace Ford as president. According to Stares, Ford was apparently so alarmed by what he regarded as the Department of Defense’s lackadaisical attitude toward developing an ASAT that he directed that the US seek to develop an ASAT capability involving both a kinetic weapon and electronic interference, as recommended by the NSC. This resulted in National Security Decision Memorandum 345, signed on January 18, 1977. NSDM committed the nation to developing a new ASAT.

But two days later Ford was out of office and Carter was in and it was up to the new president to decide what to do. Carter pursued a two-track policy: negotiations with the Soviet Union over an ASAT ban, and development of a new ASAT. Eventually, ASAT arms control failed, and the

research program transitioned to a weapons system and was tested during the subsequent Reagan Administration. The system involved a “miniature homing vehicle” mounted atop a missile fired from an F-15 aircraft. After several tests, a contentious fight in Congress, and a massive increase in costs, the Reagan Administration shelved the system, although according to one retired US Air Force official involved in the program, the capability was secretly maintained for a year after the public cancellation.

Throughout the remainder of the 1980s and the 1990s, there was some discussion of re-acquiring American ASAT capability, although US policy was to seek methods of destroying satellites that did not produce debris in low Earth orbit, such as lasers, or preferably jamming or hacking enemy satellites. But it was not until 2008, when a US Navy cruiser shot down an errant American satellite in low orbit, that the United States demonstrated such a capability, albeit using a system that could produce substantial debris in low Earth orbit.

Is everything old new again?

The discussion four decades ago about ASATs provides a case study about how and why the United States might develop an ASAT capability now. Although the vulnerability of American satellites to Soviet attack was important, and punctuated each time the Soviet Union blasted one of their orbiting satellites with their new weapon, the 1970s NSC study was emphatic that the reason the United States needed an ASAT was not to trade it away in an arms control agreement, but to attack Soviet ocean surveillance satellites. Of course, there were also other methods for thwarting Soviet satellites, and it is possible that over time the US Navy came to view such satellites as less of a threat.

Perhaps a similar discussion has taken place in Washington in the past decade about whether the US needs ASATs to deter Chinese and Russian actions, or to destroy their satellites. Last year, former Secretary of the Air Force Heather Wilson said that the US may need to “demonstrate offensive space capabilities.” This rather serious statement has been largely overlooked amidst the debate about the Space Force. Similarly, General Raymond, now Chief of Space Operations of the newly-created Space Force, commander of US Space Command, and the official who warned about the “stalking” Russian satellite, has said that Space Command has an “offensive and defensive mission,” which implies a capability to attack satellites. The US Air Force had already developed a ground-based satellite-jamming system a number of years ago.

Now that the PRC is significantly more reliant on space systems for supporting their naval operations, particularly targeting American aircraft carriers with long-range missiles, their satellites may be targets for American ASATs, both kinetic (i.e. hitting them) and non-kinetic (jamming or hacking them). And of course, some US military officials may be arguing that a Russian satellite “stalking” an American one might itself be a good target. We may not know if such discussions have taken place for many decades to come. But as General Raymond recently told Washington Post columnist David Ignatius, deterring adversaries requires sending a message. “They have to know what you have,” Raymond said. Maybe we’ll know sooner rather than later just what the United States has.

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Now isn’t the time to push for nuclear modernization

Defense News, 21 Apr 20 William D. Hartung

If the new coronavirus pandemic has taught us one thing, it is that we need to rethink what we need to do to keep America safe. That’s why Secretary of Defense Mark Esper’s recent tweet calling modernization of U.S. nuclear forces a “top priority ... to protect the American people and our allies”

seemed so tone deaf.

COVID-19 has already killed more Americans than died in the 9/11 attacks and the Iraq and Afghan wars combined, with projections of many more to come. The pandemic underscores the need for a systematic, sustainable, long-term investment in public health resources, from protective equipment, to ventilators and hospital beds, to research and planning resources needed to deal with future outbreaks of disease.

As Kori Schake, the director of foreign and defense policy studies at the American Enterprise Institute, has noted: “We’re going to see enormous downward pressure on defense spending because of other urgent American national needs like health care.” And that’s as it should be, given the relative dangers posed by outbreaks of disease and climate change relative to traditional military challenges.

The U.S. nuclear arsenal is particularly ripe for a fresh look. Organizations such as the Arms Control Association and Global Zero have crafted plans that could save hundreds of billions of dollars over the next three decades while maintaining a robust nuclear deterrent. The Global Zero plan is particularly notable in that it calls for the elimination of the intercontinental ballistic missile leg of the nuclear triad, which former Secretary of Defense William Perry has described as “some of the most dangerous weapons in the world.”

ICBMs are dangerous because of the short decision time a president would have to decide whether to launch them in a crisis to avoid having them wiped out in a perceived first strike — a matter of minutes. This reality greatly increases the prospect of an accidental nuclear war based on a false warning of attack. This is a completely unnecessary risk given that the other two legs of the nuclear triad — ballistic missile submarines and nuclear-armed bombers — are more than sufficient to deter a nuclear attack, or to retaliate, should the unlikely scenario of a nuclear attack on the United States occur.

Restructuring the U.S. nuclear arsenal would open the way to invest substantial sums the Centers for Disease Control and Prevention, state and local public health agencies, and the World Health Organization, which will be on the front lines in preventing or mitigating any future mass outbreak of disease. In the long-term, over the next three decades, buying and maintaining new nuclear-armed missiles, submarines, bombers, and warheads could cost an astonishing \$1.5 to \$2 trillion. And President Donald Trump’s latest budget proposal, released earlier this year, called for an increase of nearly 20% in spending on nuclear weapons while cutting funds for the CDC, WHO, and other public health agencies.

Eliminating ICBMs and reducing the size of the U.S. arsenal will face strong opposition in Washington, both from strategists who maintain that the nuclear triad should be sacrosanct, and from special interests that benefit from excess spending on nuclear weapons. The Senate ICBM Coalition, composed of senators from states with ICBM bases or substantial ICBM development and maintenance work, has been particularly effective in fending any changes in ICBM policy, from reducing the size of the force to merely studying alternatives, whether those alternatives are implemented or not.

Meanwhile, Northrop Grumman — currently the sole bidder for the new ICBM program — has announced that it expects to have hundreds of subcontractors spread throughout the United States for its work on the new system, known formally as the Ground-Based Strategic Deterrent. The company also claims that the next phase of the work could create 10,000 jobs. That’s a tiny fraction of national employment but will pack a political punch among members of Congress whose states or districts benefit from ICBM-related employment.

Now is the time to reduce our bloated nuclear arsenal and invest in more urgent security priorities. Deterrence can be sustained at lower levels of spending, but a robust public health system needs considerably more resources. It's a trade-off that can and should be made.

--- *William D. Hartung is the director of the Arms and Security Project at the Center for International Policy.*

DoD Is Running the Wrong Way in the Hypersonics Race

RealClearDefense.com, 21 Apr 20 Bryan Clark

Hypersonic weapons are often heralded as the next game-changing military technology, promising to render air defenses obsolete and enable pinpoint strikes against high-value targets like enemy leadership bunkers and satellite control centers. Following last year's abrogation of the Intermediate Nuclear Forces treaty, think-tank studies, service leaders, Combatant Commanders, and Congressional leaders all advocate that the U.S. military quickly deploy hypersonic weapons in the Asia-Pacific and Europe to provide escalation options against great powers China and Russia or preempt North Korean attacks.

Advocates often cite Chinese and Russian development of first-generation hypersonic weapons and suggest the U.S. military is falling behind in the race for hypersonic superiority, not unlike the worry about a missile gap against the Soviet Union during the early Cold War. These fears are largely misplaced; however, due to the United States' different geopolitical situation and strategy compared to its great power competitors. Even worse, the headlong drive to quickly field hypersonic weapons is causing the Department of Defense (DoD) to throw money at parts of the hypersonic portfolio with the least value for the U.S. military. In what could be a very flat budget environment following the COVID-19 pandemic, DoD may not have the funding to develop the hypersonic capabilities that are most useful in deterring Chinese or Russian aggression.

Misplaced priorities

Capable of traveling at more than Mach 5, hypersonic weapons currently fall into one of two main categories. Boost-glide missiles are similar to long-range ballistic missiles, but their unpowered warheads fly a non-ballistic path after they are released above the atmosphere, using gravity to reach hypersonic speeds and maneuvering to avoid air defenses. Air-launched hypersonic weapons either act like boost-glide missiles by climbing high in the atmosphere to release a gliding warhead or act like traditional cruise missiles by using a combination of rocket and jet engines to reach and sustain hypersonic speeds.

Of the two variants, boost-glide missiles are the most technically mature and thus receive the lion's share of DoD hypersonic investment. They are the variants reportedly in service with Chinese and Russian militaries and the U.S. Army and Navy plan to deploy boost-glide weapons during the next few years. The Air Force's potentially more useful air-launched weapon is further behind but uses the boost-glide approach to reduce technical challenges.

Hypersonic weapons are not all hype. They could enable precise conventional attacks against important targets with a higher probability of success than today's subsonic or supersonic missiles. But they are not invincible. Red-hot warheads moving at hypersonic speeds through the atmosphere can be detected by infrared sensors. Maneuvering to avoid air defenses will reduce the warhead's speed, making it easier to track and hit with radars and

surface-to-air missiles. And defensive systems near the hypersonic missile's target may be able to destroy incoming warheads.

If air defenses improve, one response would be to overwhelm the defender with larger salvos or threaten more targets to dilute defenses. That won't be an option with the boost-glide weapons being fielded by DoD, which will cost more than \$50 million each, more than 20 times the price of a Tomahawk, 10 times that of a supersonic missile like the SM-6, and twice the cost of a ballistic missile interceptor like the SM-3. In its most recent budget, DoD proposed buying 39 SM-3s for national and regional missile defense. Because boost-glide weapons are considered part of the U.S. missile defense portfolio's offensive component, it is unlikely the U.S. military could buy more than a dozen or so per year unless defense budgets are substantially grown or restructured.

Regardless of how many boost-glide weapons DoD can buy, the number deployed will be limited by the availability of ballistic missile-size launchers. Conventional hypersonic weapons launched from U.S. ballistic missile submarines or ICBM fields could be misinterpreted as a nuclear attack. DoD will instead deploy ground-based U.S. boost-glide weapons on tractor-trailer launchers in American territories like Guam, although no U.S. allies have volunteered to host American hypersonic weapons aimed at their aggressive great-power neighbors. At sea, the Navy plans to load boost-glide weapons on Block V Virginia-class submarines carrying the Virginia Payload Module. With 8 submarines initially planned to carry the module, about two would likely be deployed on a given day.

The utility of DoD's small boost-glide weapon inventory will be further constrained by a narrow set of targets. Like ballistic missiles, the "throw-weight" of hypersonic weapons will be small compared to gravity bombs, with the U.S. hypersonic glide body expected to weigh only about 500 lbs. The kinetic energy of a hypersonic warhead can inflict more damage than an explosive, but the warhead must stay intact through impact. Without large explosive warheads, hypersonic missiles need much higher accuracy than today's ballistic missiles to penetrate hardened or deeply-buried facilities such as leadership bunkers, command and control centers, or missile silos.

Hypersonic warheads may be more effective if they disperse small submunitions. This approach, reportedly employed by the Chinese DF-21 anti-ship missile, could enable the missile to damage or destroy relatively soft targets like unhardened buildings, radars, warships, or aircraft on the ground. Unfortunately, military commanders may not want to expend costly and scarce boost-glide missiles on these relatively small enemy assets.

Prioritize affordable weapons and hypersonic defense

Boost-glide hypersonic missiles may be useful to "home team" militaries of China or Russia that can base launchers on their own territory and use missiles instead of warships or bombers to attack U.S. forces in their region. High cost, limited basing options, and a narrow range of targets make hypersonic weapons less valuable to an "away team" like the U.S. military. DoD should, therefore, buy a modest number of boost-glide missiles, mostly for INDOPACOM, and shift the bulk of its hypersonic efforts toward more useful elements of the hypersonic portfolio.

Despite their technological immaturity compared to boost-glide weapons, air-launched hypersonic weapons would be a better investment for DoD. Leveraging their launch platform's speed and altitude, air-launched weapons can be much smaller and cheaper than boost-glide missiles. They could be fielded in larger numbers and provide a more acceptable cost exchange against smaller targets like warships, missile launchers, or enemy troop formations that are likely to be used by Chinese or Russian aggressors.

The other part of the hypersonic portfolio DoD should prioritize is defense. As the away team in most conflicts, U.S. forces will likely receive more hypersonic attacks from China or Russia than deliver them. The key components of hypersonic defense are infrared and visual sensing satellites that can track hypersonic weapons from above, low-latency laser communications, and supersonic interceptors that can be located near likely targets or carried by aircraft in the vicinity.

DoD, however, lacks a clear plan for hypersonic defense, and the constituent activities and funding are scattered across multiple agencies and services. In its most recent proposed budget, DoD submerged the satellite program to track hypersonic missiles into the overall budget of the new Space Development Agency, reducing its funding in the process. The Missile Defense Agency and DARPA are independently pursuing interceptor programs, and multiple organizations are developing high-speed communications for hypersonic defense.

DoD leaders often characterize hypersonic weapon development as a “race.” Unfortunately, by reflexively mirroring our adversaries and failing to invest in the most important elements of hypersonic technology for the U.S. military, DoD is losing the race. DoD leaders need to start running in the right direction.

--Bryan Clark is a Senior Fellow at the Hudson Institute

The World's Bad Actors See Coronavirus as an Opportunity

Bloomberg, 20 Apr 20 Hal Brands

Geopolitics doesn't stop during a pandemic, even if life as we know it does.

Before coronavirus, the U.S. was fighting trouble on several fronts at once, from Eastern Europe to the Middle East to the waters off East Asia. Since the outbreak began, American energies have been diverted, but the challenges have hardly ceased. Coronavirus is reminding us that the U.S. can't do well in the world if it isn't doing well at home; it is also showing that the longer the U.S. is hobbled, the messier that world will get.

To compare domestic and foreign affairs today is to observe a remarkable disjuncture. Countries on every continent have deliberately brought their economies and societies to a standstill. The pace and frequency of normal interactions have slowed to a crawl. Yet in the realm of international politics, the normal patterns of competition haven't necessarily stopped or even abated.

China certainly hasn't taken a break from trying to dominate the Western Pacific. Over the weekend, it carried out mass arrests of pro-democracy leaders in Hong Kong, trampling on the “one-nation-two-systems” Basic Law. Its expansionism in the South China Sea has intensified, with encroachments on disputed features, the sinking of a Vietnamese fishing boat, and the creation of new administrative structures meant to solidify its control of contested holdings.

Chinese aircraft have menaced Taiwan with exercises meant to test its defenses. The aircraft carrier Liaoning and its escort vessels conducted a show of force by steaming past the island, having previously sailed through the strait separating the Japanese islands of Okinawa and Miyako.

In the Persian Gulf, Iranian boats have harassed U.S. Navy vessels, and Iranian-backed militias attacked American facilities in Iraq last month as part of an ongoing, tit-for-tat cycle of provocation and response. North Korea has set a new pace for missile tests, firing off eight or perhaps nine rockets in March. Rather than take a coronavirus respite, the Taliban mounted attacks in several provinces. And Russia is up to its usual tricks — preparing to dispatch additional mercenaries to Libya, testing an antisatellite missile, spreading conspiracy theories to play on tensions within Europe, and presumably preparing to meddle in U.S. elections once again.

It is hard to know whether these actors are deliberately exploiting a coronavirus-created window of opportunity, or simply doing what they normally do as the pandemic rages. What is apparent is that they are pressing as the U.S. is seriously distracted.

The diversion of the U.S. aircraft carrier Theodore Roosevelt to Guam was entirely justified given the severe health crisis onboard, yet it nonetheless pulled a carrier strike group out of the Western Pacific at a sensitive time. The other carrier in the region, the Ronald Reagan, is stuck in port because its crew is also afflicted by coronavirus. U.S. troops in South Korea and elsewhere have had training and readiness disrupted by health restrictions; the Pentagon has suspended most domestic and international travel.

And the devastation the pandemic has caused within the U.S. is monopolizing another scarce resource: the attention of the nation's leaders. The more time that top officials in the White House, Pentagon, State Department and National Security Council have to devote to dealing with the fallout from coronavirus, the less time they can spend on existing challenges.

We shouldn't assume that only the good guys are getting hurt, of course. Coronavirus has devastated Iran's population. Russia may also be absorbing serious damage, concealed by its comparative lack of transparency and testing. One suspects that the Chinese People's Liberation Army is suffering, as well.

The U.S., meanwhile, is trying to signal that it is hardly out of the game. The Air Force recently demonstrated its ability to sortie B-52 bombers in rapid succession from Andersen Air Force Base in Guam, as a warning to China and North Korea. The U.S. struck back at Iran's proxies after their rocket attacks on a U.S. base north of Baghdad.

Yet in part because the U.S. has so many commitments, it must balance them even under relatively normal conditions. And in part because America's traumas are on display in a way that the traumas of authoritarian regimes and militant movements are not, it is only natural to question how engaged and effective Washington can be right now. The normal rhythm of U.S. policy has been interrupted, even though what George Kennan called "the perpetual rhythm of struggle" in global affairs has continued.

The Chinese certainly seem to have noticed. The PLA's English-language website obliquely reported that the coronavirus "has significantly lowered the U.S. Navy's warship deployment capability in the Asia-Pacific region." Although it is hard, and perhaps wrong, to draw a straight line between that temporary retrenchment and Beijing's behavior, a perception that Washington is preoccupied or weakened will eventually influence friendly and hostile players alike.

The implications are twofold. First, the coronavirus confirms in a very dramatic way that if the U.S. is in disarray internally, it won't fare well as a

global power. Even if we assume a rapid recovery from the pandemic, there is the long-term cost to U.S. policy of consuming so much money that will eventually have to be repaid — in part by raiding the Pentagon’s budget.

If the U.S. struggles or stagnates over a longer period, there will be cascading effects on its involvement overseas. Domestic health and prosperity are the bedrocks of American statecraft; when they crumble, so will the system America leads.

That would be tragic, because a second takeaway is that a crippled or inwardly focused America will result in an extremely turbulent world. As the political scientist Hedley Bull wrote in his great book, “The Anarchical Society,” global affairs consist of a continuing competition between opposing forces. There will always be predatory actors looking to exploit weakness and disorder, even if that disorder affects them as well. If the guardians of order are absent, the balance will be broken, and the results will not be pretty.

We already knew that getting through the pandemic as quickly as possible is both a public-health and an economic imperative. It turns out to be a strategic necessity, too.

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Congress Should Hit Pause On The New Intercontinental Ballistic Missile

Forbes, 21 Apr 20 Matt Korda

Although the COVID-19 pandemic has caused daily life to grind to a halt, it has had little effect on the military-industrial complex—which, incredibly, appears to be speeding up.

Late last week, the Air Force revealed that it was considering awarding one of its most important contracts—the massive Engineering and Manufacturing Development contract for the next generation of intercontinental ballistic missiles—even earlier than expected, in an attempt to lock the program in as soon as possible.

This news comes only two months after the release of the President’s FY21 budget request, which also raised eyebrows given the dramatic increase to the nuclear weapons budget—and particularly, the tripling of the ICBM budget.

This budget bump for the ICBM program—formally known as the Ground-Based Strategic Deterrent—was always scheduled to begin this summer. However, those concerned about the ballooning nuclear budget had hoped that this phase of the GBSD program would be postponed—not sped up—for several critical reasons.

The primary factor is the ballooning cost of the program. Within just a few years, the estimated cost of GBSD skyrocketed from \$62 billion to \$85 billion to \$150 billion, and is now likely to be even higher. After Boeing BA abruptly walked away from the competition last year amid allegations

that the Air Force was playing favorites, Northrop Grumman NOC now remains the only bidder for the EMD contract. For a program of this size, a sole-source competition is unprecedented, and will almost certainly increase the cost of the eventual contract.

This dramatic cost increase will necessarily mean that more pressing priorities will need to be cut from present and future budgets. This year's budget request appears to have diverted approximately \$1.6 billion from the Navy to the National Nuclear Security Administration (NNSA)—forcing the Navy to scrap one of their Virginia-class submarines. The boost in NNSA funding is directly tied to the GBSD program, as the agency claims that it needs the money in order to produce the plutonium pits required to arm the new ICBM. During a fiery budget hearing in late February, Rep. Susan Davis (D-CA) asked the Chairman of the Joint Chiefs of Staff whether cutting a submarine to fulfill the NNSA's request is "good prioritization," and he responded, "No, it is not."

Given these concerns, it would be wise to not proceed too quickly with the GBSD program, especially given that senior military officials have recently argued that it is still possible to life-extend the current ICBM force for another 20 years. Doing so could save \$17.5 billion between now and 2046, according to the Congressional Budget Office, and would buy a future administration valuable time to re-evaluate its nuclear strategy and plan for the next century—without hastily and needlessly locking in this program.

Moreover, this budget decision is taking place in the context of a presidential election—one that could very seriously shake up the entirety of US nuclear policy. Although the outcome remains uncertain, it is probable that a Nuclear Posture Review written by a Biden administration will diverge significantly from the one that was released by the Trump administration in 2018. If there is a chance that the next administration might try to alter the GBSD program, then any money put towards the program today could be completely wasted in seven months.

The implications of any of these factors should be enough for both nuclear doves and hawks to call for a pause to the program, at the very least. Combined, they should absolutely cast doubt over the sustainability of the GBSD program writ large.

And, of course, there is still the question of whether intercontinental ballistic missiles are even relevant in a post-Cold War era.

Deterrence theorists would suggest that such a capability was stabilizing during the Cold War, when the United States and the Soviet Union alike feared a "bolt-from-the-blue" nuclear attack. This logic makes sense: if both countries had hundreds of missiles on hair-trigger alert, neither could launch without the other responding in kind. However, in today's multipolar nuclear environment, the possibility of a massive surprise attack like this is basically zero.

Because of this, US military planners often do not even include ICBMs in many of their nuclear exercises or war plans. Given the abundance of more flexible options in the US arsenal, US Strategic Command would certainly turn to nuclear bombers or submarines—not ICBMs—in the event of a low-level nuclear crisis.

What these missiles lack in flexibility they make up for in responsiveness. However, this is not as convenient as it sounds on paper. Because the ICBMs are so vulnerable, analysts often refer to them as "use 'em or lose 'em" weapons—meaning that, in the unlikely event of an adversarial first strike, the President would only have a few minutes to decide whether to launch a retaliatory ICBM strike before the weapons are destroyed. This is a

highly destabilizing situation—regardless of who is occupying the Oval Office.

As a result, it is difficult to justify spending hundreds of billions of dollars to retain this kind of prompt-response delivery system, especially when the United States has a plethora of other options that it can turn to. Analysts have demonstrated that the US Strategic Command could eliminate the entirety of the ICBM force and continue to meet its deterrence requirements in a more stabilizing manner than it does today.

And yet, the president’s budget suggests that the United States should retain its ICBM capability until 2080—nearly a century after it has lost its strategic relevance. Given the immediate and long-term concerns surrounding the program, Congress should not allow GBSD to be fast-tracked. Instead, it should hit pause, review the facts, and reconsider the “use ‘em or lose ‘em” nature of these weapons; if they are indeed outdated, then perhaps it’s time that we lose them altogether.

Six ways the US can maximize its strategic benefit from defense spending

Defense News, 24 Apr 20 Thomas G. Mahnken

The massive price tag associated with the response to the new coronavirus, COVID-19, coupled with the inevitable impact of the pandemic on the U.S. economy, threatens to blow a hole in the defense budget at a time when the challenges posed by China, Russia, Iran and North Korea show no signs of abating. Leaders in both the executive and legislative branches will need to make tough strategic choices to keep the United States strong in these challenging times.

Secretary of Defense Mark Esper, his predecessor Jim Mattis and the bipartisan National Defense Strategy Commission all agree that annual increases in the defense budget on the order of 3-5 percent are required to implement the 2018 National Defense Strategy. Even absent the pandemic, the chances of getting such resources seemed uncertain at best. The Trump administration’s own budget projections show the defense budget in the coming years as flat or declining. Now, a flat budget more and more appears to be the rosier scenario.

More worrisome, and increasingly likely, is the possibility of major cuts to the defense budget. Indeed, cuts on the order of 20-25 percent are not unthinkable. Merely pointing out that such a move would jeopardize U.S. security is unlikely to prevent it. Similarly, noting — correctly — that defense spending is one of the most stimulative forms of federal spending may prove insufficient to forestall cuts.

How can the United States realize the greatest economic and military benefit from the defense budget in the coming years? Below are a half-dozen guidelines to help the United States get the maximum strategic benefit from defense spending in this challenging time:

1. Keep production lines going.

Now is not the time to be cutting back on defense production. To the contrary, keeping existing weapons production lines active makes both military and economic sense. The U.S. military is in many ways still living off the Reagan-era defense buildup of the 1980s and is sorely in need of modernization.

Keeping defense production going also makes good economic sense. In a period of rising unemployment, employing as many Americans as possible will help the United States weather the economic storm brought on by COVID-19. The government should also be flexible in administering the cost and schedule of contracts, given the pandemic's impact on the defense-industrial base.

2. Stock up.

Now is also the time to increase orders of things we know that we need but have not purchased enough of, such as munitions. As the NDS Commission found in 2018, the United States has under-invested in precision munitions such as the Joint Air-to-Surface Standoff Missile-Extended Range and Long Range Anti-Ship Missile. Ramping up production of munitions and other expendables will not only boost employment but also help the United States better prepare for a future conflict where such munitions will be in high demand.

3. Be selective in divesting.

The United States should also divest itself of aging capabilities but be thoughtful in doing so. It makes sense to retire old ships and aircraft because the cost of maintaining those systems goes up considerably as they age. It makes much less sense to divest relatively new systems that have plenty of life left in them. For example, the Air Force has proposed shutting down production of the MQ-9 Reaper and retiring more than two-thirds of its RQ-4 Global Hawk fleet.

4. Get the most out of what we have.

Whereas economic conditions may have changed, the external threats that we face have not. As a result, there is an urgent need to develop new ways of war, particularly those that use more effective capabilities that we have. For example, as I have argued elsewhere, non-stealthy unmanned aerial systems such as the MQ-9 and RQ-4 offer a cost-effective way to deter opportunistic aggression by China in the Western Pacific or Russia in Eastern Europe.

5. Keep promoting innovation.

A downturn in the defense budget should not become an excuse for conservatism. To the contrary, it should spur innovation. For example, fiscal austerity provides an opportunity to reform the military health care system and downsize basing infrastructure. Now is also the time to explore ways to make military training more effective and cost-efficient through the adoption of approaches such as live, virtual, constructive training. There are also opportunities to realize savings through greater outsourcing of maintenance and logistics.

Whereas the defense primes employ the most workers, in a number of cases smaller companies have been the source of some of the most innovative approaches to defense in areas such as unmanned systems, expendable aircraft, space innovations, networked solutions and cyber. Supporting smaller, innovative companies should thus be a priority.

The Defense Department and Congress should also take an active role in supporting key segments of the defense-industrial base. Areas such as hypersonics, directed energy and unmanned systems that hold the key to effectiveness tomorrow will need support today.

6. Share costs.

Finally, the United States should take every opportunity to promote arms exports, which both create jobs and increase the security of our allies. Much more should be done to increase the speed and predictability of the arms export process. In addition, with few exceptions, U.S. weapons should be developed with export in mind. We should avoid a repetition of the case of the F-22 aircraft, which was designed from birth never to be exported.

We need to learn from the past in developing the next generation of weapons. For example, in recent months, Australian defense analysts have discussed the attractiveness of the B-21 Raider stealth bomber for Australia's defense needs. Export of the B-21 to a close ally such as Australia, should Canberra so desire, should be given serious consideration.

The current situation is challenging, with even more difficult times to come. If we are smart, however, we can both keep Americans at work and get what we need for national defense.

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Nuclear proliferation: How coronavirus crisis is opportunity

Christian Science Monitor Online, 23 Apr 20 Howard LaFranchi

With the world caught in the throes of the coronavirus pandemic, the global threat that much of the international community once worried about most – the proliferation of nuclear weapons and the risk of a cataclysmic nuclear winter – has largely vanished from public thought.

The issue has quite literally retreated from the international stage – the pandemic having forced the postponement of the every-five-years review conference of the half-century-old Treaty on the Non-Proliferation of Nuclear Weapons, or NPT.

The gathering of hundreds of diplomats and nuclear-issues officials from the NPT's 191 member states was to have been held at the United Nations in New York for a month beginning next week. U.N. officials have delayed the conference until 2021.

Yet while predictions of a rancorous and divisive NPT review conference were flying high earlier this year, the postponement is increasingly being viewed as an opportunity.

Among other reasons for the dour predictions: The world's nuclear weapons states, including the United States, Russia, and China, were in for a drubbing from non-nuclear states for undoing disarmament accords and modernizing and expanding nuclear arsenals, experts said.

For some experts in nuclear issues, the year ahead now opens the door to serious discussion of ways of fortifying the NPT, particularly by hardening the consequences of member states withdrawing from the treaty, as North Korea did in 2003.

With the leaders of Iran, Turkey, Saudi Arabia, and other countries musing at times about the treaty's unacceptable limits or even leaving the NPT, some say it's time to focus on barring the door to a future wave of nuclear-arms proliferation.

Opportunity for leadership

“If you have an extra year, it should be used to consider other ideas and priorities than what typically consumes the conversation, and new ways of interpreting the treaty to preserve its integrity,” says Henry Sokolski, executive director of the Nonproliferation Policy Education Center in Washington.

It would be smart to focus a bit more on nonproliferation, and maybe a bit less on disarmament, “which tends to consume everyone but doesn't get the traction people are looking for,” he says.

Some see a “silver lining” in the postponement, in that it offers an opportunity for global leadership.

“The pandemic has thrown everything up in the air [but] leaders will be looking for ways to show their leadership and put it in a good light,” says Rose Gottemoeller, a former undersecretary of state for arms control and international security, and until recently a deputy secretary general at NATO.

For example, she says President Donald Trump is likely to want a big foreign policy win to tout in his reelection campaign, and that could prompt the U.S. to take some disarmament action – such as extending the New START arms reduction treaty with Russia – before the November election.

More broadly, Ms. Gottemoeller says the context of a global pandemic can actually be a boon to the search for more cooperation on other issues.

“I continue to believe that the coronavirus pandemic is providing an opportunity for leaders to come together around international institutions and agreements and to restate commitments to international cooperation,” says Ms. Gottemoeller, now a distinguished lecturer at Stanford University's Center for International Security and Cooperation in Palo Alto, California.

“The NPT regime is no different,” she adds, “so I believe we'll see [treaty signatories] ... coming together around the position that ‘this is a good treaty, let's recommit to it and strengthen it going forward.’”

A pessimistic view

Yet despite his hopes for new thinking on nuclear issues in the months ahead, Mr. Sokolski says he worries that a remarkably successful 50-year-old treaty might not last another decade.

The NPT took effect in 1970 based on the basic bargain that the five nuclear-armed states of the U.N. Security Council (the U.S., Russia, China, France, and the United Kingdom) would move toward the elimination of all nuclear weapons, while the non-nuclear states committed to not seeking

or developing such weapons but would have access to peaceful nuclear energy uses. The NPT took effect in a world where many countries had nuclear weapons programs, but today only India, Pakistan, Israel, and North Korea stand outside the treaty.

Over the last half-century, the two largest nuclear-weapons powers, the U.S. and Russia, have indeed sharply reduced their stockpiles. But more recently those two powers have shifted to modernizing their arsenals, as China has moved to expand its arsenal. Moreover the U.S. and Russia have moved away from disarmament treaties, with the last major treaty between them, New START, set to expire in February 2021.

Increasingly non-weapons states see the nuclear powers as failing to hold up their end of the NPT bargain, a sentiment that has prompted some NPT members to pursue new initiatives without the major powers. In 2017, 81 countries signed on to the Treaty on the Prohibition of Nuclear Weapons, a document rejected by the nuclear weapons states.

Given the percolating ire of the non-nuclear states, some experts say they are not certain that the postponement of the NPT review conference will lead to greater global unity on disarmament and nonproliferation down the road.

“For sure the review conference” set for next week “was a train wreck waiting to happen, but nothing guarantees that we’ll find ourselves in nine months or a year in a better position,” says Waheguru Pal Sidhu, an expert on multilateral and U.N. issues at New York University’s Center for Global Affairs. “The opportunity is there, but there’s also a risk of even more disunity.”

Much will depend on how countries, and especially the major powers, choose to address the coronavirus pandemic, Mr. Sidhu says. Proceeding with a spirit of “we’re one world in this together” could in turn foster a greater sense of cooperation on other issues, including nuclear weapons and proliferation. But a “you’re on your own” approach could sour the atmosphere of a major international effort like the NPT review.

“People are talking about international solidarity for addressing COVID-19, but on the other hand we have the proliferation really of these nation-first approaches – America first, Brazil first, India first – that set a tone that does not encourage greater cooperation,” he says.

Less time for mischief?

Some experts worry that what Ms. Gottemoeller calls the “mischief-makers” in the nuclear arena – foremost among them North Korea and Iran – could use the months before the NPT conference to advance their nuclear programs and further weaken the global nuclear nonproliferation regime.

But even there, Ms. Gottemoeller says the pandemic has changed her thinking on how some states are likely to proceed on nuclear issues over the coming months.

“My view has shifted on this, I think the pandemic means they have less time and less incentive to make mischief, because they need the help of the international community,” she says.

She cites the example of Saudi Arabia, which has alarmed the nonproliferation community with talk of purchasing nuclear facilities that could leave

it in possession of the fuel and other building blocks for an eventual nuclear weapons program.

But other challenges are likely to put provocative moves like a nuclear program on the back burner, Ms. Gottemoeller says. “I don’t think they’ll be focused at this moment on buying nuclear reactors.”

CONGRESSIONAL

By Susan Cornwell

HASC

Apr 22, 2020

Wall Street Journal Weighs In On Thornberry Effort

WASHINGTON, DC - After being released last week, Rep. Mac Thornberry's bill to create an Indo-Pacific Deterrence Initiative focused on building partnerships and alliances to curb China's global aspirations is making news:

WSJ EDITORIAL BOARD: Here Comes the Asia Defense Buildup:

"Washington strategists have been talking about a "pivot to Asia" for the better part of a decade, but it may take the coronavirus to make it a reality. Last week Republican Rep. Mac Thornberry, ranking member on the House Armed Services Committee, introduced \$6 billion for a new initiative to deter Chinese expansion...Expect parts of Sen. Cotton and Rep. Thornberry's legislation to be included in next year's National Defense Authorization Act, if a stand-alone bill doesn't pass sooner...People's Liberation Army sees a window of opportunity amid the nationalist sentiment stirred up by President Xi Jinping. Against this backdrop it's more important than ever for the U.S. to signal that it considers the independence of Pacific states a vital interest and isn't retreating." Wall Street Journal 4/22/20

FDD's Brad Bowman & John Hardie: Aligning America's ends and means in the Indo-Pacific:

"The U.S. combatant command responsible for the Indo-Pacific region warned in a report last month that it lacks the resources and capabilities necessary to implement the National Defense Strategy...Last Thursday, Rep. Mac Thornberry, R-Texas, the ranking member of the House Armed Services Committee, released draft legislation that would require the secretary of defense to establish and resource an Indo-Pacific Deterrence Initiative, or IPDI...Like the European Deterrence Initiative...an IPDI would bring sustained focus on less glamorous but equally vital capabilities, especially infrastructure and logistics. An IPDI would also facilitate effective congressional oversight and demonstrate tangible American commitment that helps deter aggression. That's essential to the successful implementation of the 2018 NDS...As Rep. Thornberry has said: 'It is time to put our money where our mouth is.'...Our war fighters in the Indo-Pacific have sounded the alarm and requested the resources they need to do their job. Leaders in Congress and the Pentagon should answer the call by establishing and funding an Indo-Pacific Deterrence Initiative this year." Defense News 4/22/20

Pentagon Getting a Push to Shift Resources to Asia: "A push to shift U.S. military resources to Asia to counter Chinese influence is drawing new support in Congress, where a leading lawmaker wants to compel the Pentagon to invest at least \$6 billion per year in the U.S. Indo-Pacific Command... 'If it's really going to be the priority theater, we need to put our money where our mouth is on that,' Rep. Mac Thornberry (R., Texas), the sponsor of the new legislation, said. The legislation, ...would designate the funding for the region and the military command that oversees it." Wall Street Journal 4/16/20

Congress Seeks to Confront China With \$6 Billion in New Defense Spending: "Though the Trump and Obama administrations have emphasized a military focus on the Pacific, this fund would be the first of its kind for the region—and it comes amid deepening tensions between the rival

superpowers over the spread of the novel coronavirus, beyond festering disputes on Taiwan, trade, cybertheft, and geopolitical influence... ‘Every chairman of the Joint Chiefs says our greatest advantage is our partnerships, and we do nurture them,’ Thornberry said. ‘We have exercises and so forth, but taking the template that has worked so well in Europe, putting some money toward enhancing [Pacific] infrastructure, those partnerships, and those exercises, I think that’s a step up, and we need to do that.’” Foreign Policy 4/16/20

Thornberry To Congress: Indo-Pacific Theater Needs \$6B: “Creating an Indo-Pacific Deterrence Initiative with a \$6.09 billion investment in fiscal year 2021 would boost air and missile defense, fund rotational forces and prepositioned stocks, build and modernize joint training ranges across the region, and ramp up information and influence operations... Thornberry’s plan includes approximately \$1 billion to boost missile defense, intel and information operations, \$1.5 billion for prepositioning and logistics, \$2.1 on infrastructure with \$10 million for strategic construction planning and design; \$350 million for programs to strengthen capacity and engagement with allies and partners; and \$1 billion for training and exercises.” Breaking Defense 4/16/20

Thornberry wants \$6 billion this year to launch counter-China fund: “‘The Indo-Pacific has been called our highest priority theater and I believe that is true. It is time to put our money where our mouth is,” Thornberry told Defense News. “This effort consolidates and funds the policies, infrastructure, and platforms needed to reassure our allies and partners while we deter China. It also serves as a benchmark against which we can judge our efforts in the region. We may not be able to get this all done this year, but it is vital that we make a start.” Defense News 4/16/20

Smith Statement on DOD Inspector General’s JEDI Findings

April 17, 2020

WASHINGTON, D.C. – House Armed Services Committee Chairman Adam Smith (D-Wash.) today issued the following statement regarding the Inspector General’s completed review of the Department of Defense’s Joint Enterprise Defense Infrastructure (JEDI) program:

“Rigorous oversight is critical to the success of our government, including the Department of Defense. Given the allegations of improper interference in the acquisition process, I welcomed the Inspector General’s review of the JEDI contract process. The delivery of cloud computing capabilities is essential to the Department and our warfighters, so it is critical that the JEDI contract be awarded fairly.

“It is reassuring that the Inspector General found that the single-award contract was both appropriate and that the gate requirements for the contract were proper. The Inspector General’s report found two individuals involved in the acquisition process acted unethically, but those ethical transgressions did not materially impact the contract. While the White House’s refusal to participate in the investigation makes it impossible to know if the administration attempted to interfere at a high level, the report’s findings show that DOD personnel involved in the contract proposals and award selections were not pressured by any DOD leader nor the White House. That is good news.

“Unfortunately, the report’s findings are stained by the White House’s refusal to cooperate in this investigation by once again invoking broad claims of executive privilege. This administration’s complete disregard for independent oversight is further highlighted by the President’s recent firing of the Department’s acting Inspector General. I commend the Inspector General for completing a thorough inquiry under challenging circumstances and I look forward to the Department moving forward in development of critical cloud computing infrastructure.”

FCC and Ligado Are Undermining GPS - And With It, Our Economy and National Security

Wednesday, April 22, 2020

Right now, the coronavirus is rightly our country's most immediate concern. But the Federal Communications Commission has used the crisis, under the cover of darkness, to approve a long-stalled application by Ligado Networks — a proposal that threatens to undermine our global positioning system (GPS) capabilities, and with it, our national security.

The FCC granted Ligado (formerly known as LightSquared) permission to repurpose spectrum adjacent to GPS frequencies for a terrestrial cellular network — framing this proposal as essential to “winning the race to 5G.” But what Ligado has done is conflate two different and important spectrum issues: the sharing of mid-band 5G spectrum by the Department of Defense and commercial industry, and harmful interference of Ligado's signal with the low-band GPS signals used in nearly every aspect of daily life. The result: some members of Congress, members of the administration, and the public are now confused about the real and immediate impacts of Ligado's proposal.

So, we wanted to clarify things: domestic 5G development is critical to our economic competitiveness against China and for our national security. The Pentagon is committed working with government and industry to share mid-band spectrum where and when it makes sense to ensure rapid roll-out of 5G.

The problem here is that Ligado's planned usage is not in the prime mid-band spectrum being considered for 5G — and it will have a significant risk of interference with GPS reception, according to the National Telecommunications and Information Administration (NTIA). The signals interference Ligado's plan would create could cost taxpayers and consumers billions of dollars and require the replacement of current GPS equipment just as we are trying to get our economy back on its feet quickly — and the FCC has just allowed this to happen.

Think of all the ways Americans use GPS each and every day. GPS satellites provide free precise timing and navigation that powers thousands of functions: making financial transactions at our banks, keeping the lights on in our homes, traveling around the country — the list goes on and on. Studies show GPS satellites contribute at least \$1 billion to our economy every single day. GPS also forms the backbone of countless military operations and applications — to get supplies to our war fighters on the battlefield, guide unmanned aircraft and vehicles, target its precision weapons, and much more.

It would be practically impossible to identify and repair or replace all of the potentially adversely affected receivers. It would “needlessly imperil [Department of Defense] GPS-dependent national security capabilities,” per Secretary Esper, putting the war fighter, U.S. Space Force, military readiness, and even the defense of our homeland at risk. American families and businesses would lose coverage or be forced to use systems from our strategic competitors, China and Russia, jeopardizing our global leadership in precision timing.

We're not the only ones with serious concerns. Nine federal departments and agencies have completed extensive engineering tests and analyses on Ligado's proposal; and the results are clear: Ligado's plan would interfere with millions of GPS receivers across the nation. The Departments of Defense, Commerce, Interior, Justice, Homeland Security, Energy, and Transportation — as well as NASA, the National Science Foundation, the

Coast Guard and the Federal Aviation Administration — all strongly object to Ligado’s plan. What kind of precedent is the FCC setting by disregarding near unanimous opposition of federal agencies to this proposal?

It’s not just the government, either — industry leaders representing GPS, satellite communications services, automotive companies, commercial aviation, and weather data have also voiced concerns over Ligado’s proposal.

We would expect that the FCC listen not just to Ligado’s privately funded research, but also broad-based, in-depth research from experts in national security and other fields. This makes it all the more confusing — why is the FCC ignoring all the evidence, especially now, at the height of a global crisis?

The Ligado application highlights the need to use a technical, data-driven approach to balance the use of the spectrum between war fighter requirements and commercial needs, rather than strong-arming a proposal through the process like the FCC just did. We can expect this issue to be an ongoing national security challenge. If we want to strike a responsible balance moving forward, the U.S. government must modernize the infrastructure needed to manage and share spectrum efficiently, promote policy and technology innovation, and improve the ability of military systems to operate alongside commercial systems.

Considering the risks, it’s clear the FCC commissioners made the wrong decision regarding Ligado’s plan, which will set a disastrous precedent while impeding ongoing work on spectrum sharing. The vulnerabilities to our national and economic security are not worth the risk, particularly for a band of spectrum that isn’t necessary to secure a robust 5G network.

We encourage the FCC to withdraw its approval of Ligado’s application and take this opportunity to work with the NTIA and other federal agencies, including the Departments of Defense and Transportation, to find a solution that will both support commercial broadband expansion and protect national security assets. Moreover, we expect the FCC to resolve Department of Defense concerns before moving forward, as required by law. If they do not, and unless President Trump intervenes to stop this from moving forward, it will be up to Congress to clean up this mess. Senator Jim Inhofe, R-Okla., is the chairman of the Senate Armed Services Committee. Sen. Jack Reed, D-R.I., is the ranking member on the Senate Armed Services Committee. Rep. Adam Smith, D-Wash., is the chairman of the House Armed Services Committee. Rep. Mac Thornberry, R-Texas, is the ranking member of the House Armed Services Committee.

Apr 21, 2020 Press Release

WASHINGTON- Rep. Mike Turner (R-OH), ranking member of Strategic Forces Subcommittee, and Rep. Elise Stefanik (R-NY), ranking member of the Intelligence and Emerging Threats and Capabilities Subcommittee on the House Armed Services Committee, made the following joint statement after the Federal Communications Commission voted to approve Ligado company’s plans to take over spectrum for 5G development in a way that would damage GPS and U.S. national security:

“The FCC’s decision to approve Ligado’s controversial plan is alarming and jeopardizes America’s national and economic security. The GPS system is the backbone of so many technologies that Americans rely on every day, and our military depends on to protect our homeland. It is unprecedented for the FCC to take such brazen action in the face of near unanimous opposition across the federal government.

"We have been extremely vocal on the need for America to regain our authority as a global leader in 5G and offer a realistic alternative to China’s Huawei. However, Ligado’s plan does neither. America’s appetite for spectrum will only increase, and the FCC’s actions sets a dangerous precedent that may force Congress to revisit this issue. We firmly believe that we must increase our investment in 5G, but through the implementation of dynamic spectrum sharing technologies that allow our military and commercial sectors to co-exist. This alternative provides the only realistic path forward that protects our national security, recharges our domestic 5G industries, and presents a trusted, secure alternative to Huawei.”

AROUND THE WORLD



RUSSIA:

Top US and Russian diplomats discuss arms control

By: By VLADIMIR ISACHENKOV // Updated: April 17, 2020 - 3:08 PM

MOSCOW — (AP) — U.S. Secretary of State Mike Pompeo and Russian Foreign Minister Sergey Lavrov discussed arms control and other issues Friday as Moscow has signaled readiness to include some of its latest nuclear weapons in the last remaining arms control pact between the two countries if Washington accepts the Kremlin's offer to extend it.

The State Department said the two top diplomats discussed the next steps in the bilateral strategic security dialogue. Pompeo emphasized that any future arms control talks must be based on U.S. President Donald Trump's vision for a trilateral arms control agreement that includes China along with the U.S. and Russia, the State Department said. Russian President Vladimir Putin has offered to extend the New START arms control treaty, which expires in February 2021.

The Trump administration has pushed for a new pact that would include China as a signatory. Moscow has described that goal as unrealistic given Beijing's reluctance to discuss any deal that would reduce its much smaller nuclear arsenal. Separately, the State Department on Friday sent to Congress a report on Russian compliance with the treaty. The report said that although Moscow is abiding by its terms, the accord does not cover enough weapons systems and leaves China with a free hand.

It added, however, that the administration has not yet made a decision on whether to renew the treaty. "Whether continuing implementation of New START remains in the national security interests of the United States depends on a policy judgment taking into account a number of factors," the report said, listing several considerations including the impact that withdrawal would have on both the U.S. and Russian arsenals as well as the impact on American allies.

"The administration is seeking arms control that can deliver real security to the United States and its allies and partners and has not yet made a decision on whether and how extension of the New START Treaty will be an element of that effort," said the report, a copy of which was obtained by The Associated Press. During the call with Pompeo, Lavrov reiterated Moscow's offer to extend New START, saying that Russia is ready to discuss possible new agreements but considers it important to preserve the existing treaty as a "cornerstone of global security," the Russian Foreign Ministry said. It added that the top diplomats agreed to intensify the U.S.-Russian arms control dialogue.

Deputy Foreign Minister Sergei Ryabkov said Friday that Russia's new Sarmat heavy intercontinental ballistic missile and the Avangard hypersonic glide vehicle could be counted along with other Russian nuclear weapons under the treaty. The Sarmat is still under development, while the first missile unit armed with the Avangard became operational in December. The Russian military has said the Avangard is capable of flying 27 times faster than the speed of sound and could make sharp maneuvers on its way to a target to bypass missile defense systems.

It has been fitted to the existing Soviet-built intercontinental ballistic missiles instead of older type warheads, and in the future could be fitted to the more powerful Sarmat. The New START treaty, signed in 2010 by U.S. President Barack Obama and Russian President Dmitry Medvedev, limits each country to no more than 1,550 deployed nuclear warheads and 700 deployed missiles and bombers.

The treaty, which can be extended by another five years, envisages a comprehensive verification mechanism to check compliance, including on-site inspections of each side's nuclear bases. New START is the only U.S.-Russia arms control pact still in effect after both Moscow and Washington withdrew from the 1987 Intermediate-range Nuclear Forces Treaty last year. Arms control advocates have warned that its demise could trigger a new arms race and upset strategic stability.

Ryabkov said in an interview with the Mezhdunarodnaya Zhizn magazine that other prospective weapons announced by Putin in 2018 don't fall under the pact's provisions, but Russia is open for discussion on their possible inclusion as part of a wider dialogue about strategic stability. Those weapons include the Burevestnik nuclear-powered cruise missile and the atomic-powered and nuclear-armed Poseidon underwater drone, described as capable of creating a tsunami to slam an enemy coastline.

Russia has cast the development of Avangard, Burevestnik and Poseidon as a response to U.S. missile defense, which it has called a threat to its nuclear deterrent. It also has voiced concern about U.S. plans to deploy weapons in space. During Friday's call with Pompeo, Lavrov emphasized that the arms control dialogue should "include all factors that impact strategic stability," a reference to those Russian concerns.

Russian Foreign Ministry spokeswoman Maria Zakharova rejected a statement from Gen. John Raymond, commander of U.S. Space Command, who said earlier this week that Russia's test of an anti-satellite missile was an indication of a growing threat to the U.S. and allied space systems. Zakharova charged that Raymond's statement was intended to justify Washington's own plans to develop space weapons and invited the U.S. to discuss an agreement that would ban space-based weapons.

AP Diplomatic Writer Matthew Lee in Washington contributed to this report.



CHINA:

China denies US allegations it's testing nuclear weapons

From: The [Associated Press](#) // April 23, 2020

BEIJING (AP) — China on Thursday denied allegations in a U.S. State Department report that it was secretly testing nuclear weapons in violation of its international obligations.

Chinese Foreign Ministry spokesman Zhao Lijian told reporters at a daily briefing that the allegations about Chinese nuclear testing in the department's Nuclear Compliance Report were "totally unfounded countercharges that confuse right and wrong." "China has always performed its international obligations and commitments in a responsible manner, firmly upheld multilateralism, and actively carried out international cooperation," Zhao said.

"The U.S. accusation against China is made of thin air, which is totally unfounded and not worth refuting." The 2020 Compliance Report issued Wednesday accused China of failing to adhere to its non-proliferation commitments and suspend nuclear testing by maintaining a "high level of activity" last year at its Lop Nur test site in the far northwestern region of Xinjiang. China has pledged not to test nuclear weapons, but like the U.S. and several other nations has yet to ratify the Comprehensive Nuclear Test Ban Treaty.

China is an acknowledged nuclear power but claims it possesses only a fraction of the number of weapons maintained by the U.S. and Russia. Zhao on Thursday pointed to the U.S. withdrawal from the Intermediate-Range Nuclear Forces Treaty and other agreements as grounds for discounting Washington's accusations. China, in contrast, has "made important contributions to upholding the international arms control and non-proliferation regime, as well as safeguarding international peace and security," Zhao said.

He also said the U.S. had yet to destroy its stock of chemical weapons and was continuously bolstering its armed forces in a manner that "undermines the global strategic balance and stability and obstructed the process of international arms control and disarmament." "So, it is not qualified to be a judge or referee in this regard," Zhao said.

China-Russia alliance on horizon as nuclear arms treaties crumble

US riles its rivals with missile moves and calls for Beijing to join New START

By: DIMITRI SIMES, Contributing writer April 21, 2020 04:39 JST

MOSCOW -- The U.S. Navy's video had little drama to draw the world's attention away from the coronavirus pandemic. In a clip uploaded to YouTube, a small missile lifts off, orange flames glowing against the black of the Hawaii night. It's over in a mere five seconds.

The unremarkable March 19 footage, however, showed another step in a rapidly accelerating arms race. What looked like an ordinary missile was in fact a hypersonic glide vehicle, a newfangled weapon that flies five times the speed of sound and changes direction midflight to evade defenses. The successful American test came as all three powers rush to upgrade their nuclear and conventional arsenals, and as the post-Cold War arms control framework collapses.

The last vestige, the 2010 U.S.-Russia treaty known as New START, expires in February 2021, removing limits on the number of strategic nuclear weapons the countries can possess and deploy. The Donald Trump administration insists any extension should include China, which wants no part of the deal. Now some experts are warning that the end of New START, coupled with U.S. plans to place conventional intermediate-range missiles in Asia, could mark the beginning of a true China-Russia military alliance.

"The perception is that the United States is using this New START extension opportunity to impose pressure on China, and such a move is viewed as illegitimate from the Chinese perspective," said Tong Zhao, a fellow at the Carnegie-Tsinghua Center for Global Policy in Beijing. "China believes that because the United States clearly has a much more powerful capability than China, it simply does not make sense for China to be part of a trilateral arms framework."

It is true that China has a much smaller nuclear arsenal than either the U.S. or Russia -- fewer than 300 warheads versus around 6,000 for each of its peers, including reserved and retired units, according to the latest counts from the Bulletin of the Atomic Scientists. But it is also true that China has sought to expand and modernize that arsenal. Just last Wednesday, the U.S. Department of State suggested China may be conducting underground nuclear tests despite having signed -- but not ratified -- the Comprehensive Nuclear Test Ban Treaty.

The report cited China's "extensive" excavation activity at a testing site, "possible preparation" to use the site year-round, use of explosive containment chambers and a "lack of transparency on its nuclear testing activities." China has not been shy about flexing its nuclear muscle. On National Day last October, it paraded the DF-41, an intercontinental ballistic missile that can deliver 10 warheads to the continental U.S., and the DF-17, a hypersonic weapon.

No less significantly, China has assembled a formidable conventional missile force over several decades. While the U.S. and Russia were bound by their 1987 Intermediate-Range Nuclear Forces Treaty -- which prohibited them from fielding any ground-launched cruise or ballistic missiles with ranges between 500 km and 5,500 km, nuclear or conventional -- China had free rein to develop such weapons.

China's missile arsenal has grown to include "carrier killers" like the DF-21D and the DF-26, which can target not only aircraft carriers and other ships over 1,000 km away, but also U.S. bases as far away as Guam. Tong said China's conventional missile buildup has at least two broad objectives. One is to secure key national interests, such as reunification with Taiwan. Another is to assert territorial claims in the South China Sea and over the Japan-administered Senkaku Islands, which Beijing calls Diaoyu.

"The biggest threat to China securing these interests comes from the U.S. capability and intention to militarily intervene in these areas," Tong said. "Land-based intermediate range missiles constitute a very effective tool for China to secure a military advantage around the first island chain and deter American military intervention," he added, referring to the first line of major archipelagos off continental East Asia.

None of this sits well with Washington.

Adm. Harry Harris, then the head of the U.S. Pacific Command, told Congress in 2017 that China "controls the largest and most diverse missile force in the world," and that 95% of it "would violate the INF Treaty if China was a signatory." These concerns translated into action when the U.S. withdrew from the INF Treaty last August. While Washington blamed alleged violations by Moscow, the primary motive was to counter potential

threats from Beijing, according to Elbridge Colby, a former senior Pentagon official who helped author the Trump administration's National Defense Strategy.

"The Chinese aspect to this is far more important for the United States," Colby said. -- "Although it could be beneficial for the United States to have INF Treaty missiles in Europe, especially some shorter-range variants that cannot penetrate deep into Russia, it is far more important and necessary to have them in the Pacific because of the scale of China's military buildup and the geography of the region."

Colby explained that since most American assets in the western Pacific are concentrated on a few bases and ships, placing ground-launched conventional missiles in the region would significantly increase the number of targets China must account for. Just days after the U.S. withdrew from the INF Treaty, Defense Secretary Mark Esper announced that such missiles would be coming to Asia "sooner rather than later." The Chinese foreign ministry shot back that Beijing "will not stand idly by and will be forced to take countermeasures" if the U.S. deploys them.

Undeterred, the U.S. Indo-Pacific Command late last month submitted a budget to Congress that requests over \$20 billion in additional funding to "regain the advantage" in the region. This includes money for intermediate-range weapons such as the Navy's Tomahawk cruise missiles, which can be fired from land or sea. China would not be alone in pushing back if the U.S. installs INF Treaty missiles in Asia, said Evgeny Buzhinsky, a retired lieutenant general who served as the Russian military's top arms control negotiator.

He told the Nikkei Asian Review that Moscow may respond by deploying its own intermediate-range, land-based missiles in the Russian Far East. "If the Americans place these missiles in Guam or the Philippines, then fine, let them do so," Buzhinsky said. "But if they place them in Japan, then that will be a threat to Russia and we will place our missiles somewhere in Chukotka so that they could reach U.S. territory."

Some Russian experts go even further, predicting that a U.S. missile deployment in Asia would prompt Russia and China to abandon longstanding reservations about a formal military alliance. "If the Americans will commit the stupidity of deploying missiles in East Asia in a way that is threatening to both Russia and China, then our relationship [with China] will effectively cross a certain line and become a military alliance," said Alexey Arbatov, head of the Center for International Security at the Institute of World Economy and International Relations in Moscow.

U.S. moves have already nudged Russia and China closer together. In October, Russian President Vladimir Putin revealed Moscow was helping China to develop an early warning system for missile attacks. Only the U.S. and Russia possess such systems. Buzhinsky, who retired from the Russian Armed Forces in 2009, said assisting China with this would have been unthinkable a decade ago.

"I remember when I was in the Ministry of Defense, we made every possible effort to avoid this issue because it is a very sensitive area for cooperation," Buzhinsky said. "That we are now helping China develop this system is a huge step forward and it shows that any moves by the United States to deploy its missiles or missile defense systems [in Asia] will fuel ever-greater cooperation between Russia and China."

The looming demise of New START could lead to even more drastic steps by Moscow.

Arbatov warned that if the U.S. does not agree to renew the deal, Russia could go so far as to offer China strategic ballistic missiles and bombers. "Strategic" weapons are considered distinct from "tactical" ones, in that they are designed for mass destruction as part of a broad military strategy

rather than for use on a battlefield. The coronavirus has only further clouded the prospects for saving New START in the coming months. Russia's TASS state news agency reported that the pandemic has interrupted the regular bilateral inspections stipulated in the deal.

Moscow has also criticized Washington's call to rope China into the treaty. "It's an open provocation to insist on China's participation in the process, as a precondition, despite Beijing's clearly stated and many times repeated position on this," Russian Foreign Minister Sergei Lavrov declared at a nonproliferation conference in Moscow last November. Yet last Friday, U.S. Secretary of State Mike Pompeo spoke to Lavrov by phone and "emphasized that any future arms control talks must be based on President Trump's vision for a trilateral arms control agreement that includes both Russia and China," a State Department spokesman said.

If Cold War history is any guide, Buzhinsky argued, tensions in Asia are likely to get much worse before they get better. "The Cuban Missile Crisis was what brought about the modern era of arms control," he said. "It will probably take another crisis for everyone to realize that it is necessary to talk and reach a deal."



NORTH KOREA:

North Korea Silence on Kim Jong Un's Health Raises Succession Speculation

From: The Canadian Press for the Military News // 23 Apr 2020

SEOUL, South Korea — With North Korea saying nothing so far about outside media reports that leader [Kim Jong Un may be unwell](#), there's renewed worry about who's next in line to run a nuclear-armed country that's been ruled by the same family for seven decades.

Questions about Kim's health flared after he skipped an April 15 commemoration of the 108th birthday of his grandfather, North Korea founder Kim Il Sung. It's North Korea's most important event, and Kim, 36, hadn't missed it since inheriting power from his father in late 2011. North Korea's state media on Wednesday said Kim sent a message thanking Syria's president for conveying greetings on his grandfather's birthday, but didn't report any other activities, while rival South Korea repeated that no unusual developments had been detected in the North.

Kim has been out of the public eye for extended periods in the past, and North Korea's secretive nature allows few outsiders to assert confidently whether he might be unwell, let alone incapacitated. Still, questions about the North's political future are likely to grow if he fails to attend upcoming public events. Kim is the third generation of his family to rule North Korea, and a strong personality cult has been built around him, his father and grandfather.

The family's mythical "Paektu" bloodline, named after the highest peak on the Korean Peninsula, is said to give only direct family members the right to rule the nation. That makes Kim's younger sister, senior ruling party official Kim Yo Jong, the most likely candidate to step in if her brother is gravely ill, incapacitated or dies. But some experts say a collective leadership, which could end the family's dynastic rule, could also be possible.

"Among the North's power elite, Kim Yo Jong has the highest chance to inherit power, and I think that possibility is more than 90%," said analyst Cheong Seong-Chang at the private Sejong Institute in South Korea. "North Korea is like a dynasty, and we can view the Paektu descent as royal blood so it's unlikely for anyone to raise any issue over Kim Yo Jong taking power." Believed to be in her early 30s, Kim Yo Jong is in charge of North Korea's propaganda affairs, and earlier this month was made an alternate member of the powerful Politburo.

She has frequently appeared with her brother at public activities, standing out among elderly male officials. She accompanied Kim Jong Un on his high-stakes summits with President Donald Trump and other world leaders. Her proximity to him during those summits led many outsiders to believe she's essentially North Korea's No. 2 official. "I think the basic assumption would be that maybe it would be someone in the family" to replace Kim Jong Un, U.S. national security adviser Robert O'Brien told reporters Tuesday.

"But again, it's too early to talk about that because we just don't know, you know, what condition Chairman Kim is in and we'll have to see how it plays out." The fact that North Korea is an extremely patriarchal society has led some to wonder if Kim Yo Jong would only serve as a temporary figurehead and then be replaced by a collective leadership similar to ones established after the deaths of other Communist dictators.

"North Korean politics and the three hereditary power transfers have been male-centred. I wonder whether she can really overcome bloody socialist power struggles and exercise her power," said Nam Sung-wook, a professor at Korea University in South Korea. A collective leadership would likely be headed by Choe Ryong Hae, North Korea's ceremonial head of state who officially ranks No. 2 in the country's current power hierarchy, Nam said.

But Choe is still not a Kim family member, and that could raise questions about his legitimacy and put North Korea into deeper political chaos, according to other observers. Other Kim family members who might take over include Kim Pyong Il, the 65-year-old half-brother of Kim Jong Il who reportedly returned home in November after decades in Europe as a diplomat. Kim Pyong Il's age "could make him a reasonable front man for collective leadership by the State Affairs Commission and regent for the preferred next generation successor," said Leif-Eric Easley, a professor at Ewha University in Seoul. "However, elite power dynamics and danger of instability might make this an unlikely option."

North Korea's Kim Dynasty Has a Long History of Health Scares

By: Jon Herskovitz for [Bloomberg](#) // April 22, 2020

(Bloomberg) -- Two constant threads that have run through the history of North Korea: Rule by the Kim dynasty, and speculation about the health of its secretive leaders.

The latest incident took place this week when U.S. officials said Monday they were unsure of Kim Jong Un's health after they were told he was in critical condition after undergoing cardiovascular surgery. South Korea's presidential office subsequently said Kim was conducting normal activities in a rural part of the country. Trump Says 'We Don't Know' How Kim Jong Un Is Doing

Heavy smoking, bulging waistlines and mysterious ailments have passed from state founder Kim Il Sung to his son Kim Jong Il and then to his grandson, fueling countless speculative reports about their treatments and prognoses. Their actual health condition has been known only by a small circle of their most-trusted aides, with the outside world in the dark. Here is a rundown of some of their health scares:

Kim Il Sung, 1912-1994

One of the biggest health concerns for the man North Korea has enshrined as its eternal president was the almost tennis ball-sized growth on the back of his neck, which was caught in photographs on international trips over the years. His propaganda machine made sure it was never shown to his public. While Kim Il Sung passed away in 1994 at the age of 82, rumors that emerged about his death in the 1980s weren't about his health. Rather, messages blasted from North Korea through a loudspeaker at the heavily militarized border with South Korea said he was killed in an assassination, prompting reports of his death to travel the world. Two days later, state-run media showed him very much alive at Pyongyang airport to meet a delegation from Mongolia.

Kim Jong Il, 1942-2011

The man dubbed by state propaganda as the "Dear Leader" died in 2011 of a heart attack at the age of 70 after a life of hard drinking, heavy eating and decades of chain smoking. During his 17 years in power, he was once the world's largest purchaser of Hennessy Paradis cognac, and reports said he sent aides to Beijing to pick up McDonald's Big Macs. South Koreans who met him in 2000 at the first summit of the leaders on the divided peninsula said he had a penchant for rich and greasy food. Kim Jong Il's tendency to disappear for weeks combined with his poor habits led to years of speculation about an imminent demise. In 2007, he returned from a prolonged absence looking thinner around his waist and with less hair in his trademark bouffant, giving rise to speculation that he suffered a heart attack. Another prolonged absence in 2008 triggered rumors of a stroke.

Kim Jong Un, 1984-?

The 36-year-old leader was conspicuously absent from a major celebration on April 15 to celebrate the birthday of his grandfather, triggering the latest round of speculation. Kim Jong Un has ballooned in size since taking power in 2011, and has been seen puffing away on cigarettes in public appearances, as well as on the sidelines of summits with U.S. President Donald Trump. South Korea's spy agency believes he also suffers from high blood pressure and diabetes, the Yonhap News Agency reported. In 2014, Kim Jong Un went missing for six weeks and came back walking with a cane and a limp during a visit to a new residential block. In a rare bit of candor, North Korea's state media said during his absence said he was experiencing "discomfort" in his body. Outside of North Korea, media reports offered conjecture that he was suffering from gout due to a diet of rich food as he put on weight to more closely resemble his father and grandfather.



SOUTH KOREA:

NSTR



IRAN:

Iran hails military satellite launch as US tensions simmer

By: Ahmad Parhizi for Yahoo News // [AFP](#) // April 22, 2020

Tehran (AFP) - Iran's Revolutionary Guards announced they had successfully launched the country's first military satellite on Wednesday, at a time of renewed tensions with US forces in the Gulf.

The United States alleges Iran's satellite programme is a cover for its development of missiles. The Islamic republic has previously insisted its aerospace activities comply with its international obligations. Tensions between the arch foes escalated last week with the US accusing Iran of harassing its ships in the Gulf. The Islamic Revolutionary Guard Corps said the surprise satellite launch was a milestone for the country.

"The first satellite of the Islamic Republic of Iran has been successfully launched into orbit," said the Guards' Sepahnews website. The satellite dubbed the Nour -- meaning "light" in Persian -- had been launched from the Markazi desert, a vast expanse in Iran's central plateau. The satellite "orbited the earth at 425 kilometres (264 miles)" above sea level, said Sepahnews. "This action will be a great success and a new development in the field of space for Islamic Iran," it added. State television aired footage of what it said was the satellite mounted on a rocket for Wednesday's launch. The rocket bore the name Qassed, meaning "messenger", in what appears to be the first time Iran has used a launcher of this type.

- 'Great national achievement' -

Its fuselage also had a koranic inscription that read: "Glory be to God who made this available to us, otherwise we could not have done it." There was no way to independently verify the launch. It was hailed by Iran's Telecommunications Minister Mohammad Javad Azari Jahromi. "Sincere congratulations to the IRGC Air Force for this great national achievement," he tweeted, adding he had visited the launch site three weeks ago.

"They were great," he said of the satellite and what he described as a "three-stage solid fuel" launcher. Iran has repeatedly tried and failed to launch satellites in the past. The most recent was on February 9 when it said it launched but was unable to put into orbit the Zafar, whose name means "victory" in Persian. Arch enemies Iran and the United States have appeared to be on the brink of an all-out confrontation twice in the past year.

Their long-standing acrimony was exacerbated in 2018 when US President Donald Trump unilaterally withdrew from a deal that froze Iran's nuclear programme, before issuing demands that it curtail its development of ballistic missiles.

- High-seas encounter -

Tensions escalated again in January when the US killed Major General Qasem Soleimani, head of the Guards' foreign operations arm, the Quds Force, in a drone strike in Iraq. The US Department of Defence last week accused Iran of "dangerous and provocative" actions in the Gulf. It said 11 Guards boats "repeatedly crossed the bows and sterns" of US vessels in international waters.

Iran said the US gave a "Hollywood" account of the encounter and warned it that any "miscalculation will receive a decisive response". Washington has also raised concerns in the past about Tehran's satellite programme, saying the launch of a carrier rocket in January 2019 amounted to a violation of limits on its ballistic missiles. Iran maintains it has no intention of acquiring nuclear weapons, and says its aerospace activities are peaceful and comply with a UN Security Council resolution.

The Islamic republic, battling the world's deadliest novel coronavirus outbreak at the same time as dealing with crippling US sanctions, has accused Washington of "economic terrorism". Tehran says the punitive measures have denied it access to the medicines and medical equipment it needs to fight the virus. Iran says the disease has claimed the lives of nearly 5,300 people and infected almost 85,000 since the outbreak emerged on February 19.

The number of Iranians killed and sickened by the virus is widely thought to be much higher, however. Iran has requested a \$5 billion emergency loan from the International Monetary Fund to help it tackle the outbreak. But the US, which effectively holds a veto at the IMF, has signalled it has no intention of agreeing to such a line of credit.

Iran's Revolutionary Guard says it has higher-range anti-warship missiles

By: [Nasser Karimi, The Associated Press](#) to Defense News // 1 day ago

TEHRAN, Iran — Iran's paramilitary Revolutionary Guard announced Monday that it has significantly upgraded the range of its anti-warship missiles, the state-run news agency reported. The Guard says it now possesses surface-to-surface and subsurface anti-warship missiles with a range as high as 700 kilometers (430 miles), according to its top naval officer, Adm. Ali Reza Tangsiri. In September, Iranian officials said the country's most advanced anti-warship missiles had a range of about 300 kilometers, or about 180 miles.

Iran periodically announces major advances in its weapons capabilities that cannot be independently verified. Its armed forces are believed to have surface-to-surface missiles with a range of 2,000 kilometers, or 1,250 miles, that can reach Israel and U.S. bases in the Middle East. Tangsiri's remarks came a day after the Guard acknowledged its naval forces had a [tense encounter](#) with U.S. warships in the Arabian Gulf last week. Tensions between Iran and the U.S. remain high in the Gulf, following a year of escalating clashes between the two countries.



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Key Challenges in Japan's Defense Policy

From the Views from the Next Generation Series -- Policy briefs by Japanese security experts on Japan's core security issues, from emerging domains to enduring challenges

By [Pamela Kennedy](#) Editor · [Jason Li](#) Editing Support · [Taro Sato](#) Author · [Yoshimitsu Sato](#) Author · [Yuki Tatsumi](#) Editor

Japan is concentrating its efforts to reconceptualize its national defense to meet a modern, more uncertain security environment.

The release of the 2018 National Defense Program Guidelines emphasizes that preserving stability and maintaining a rules-based order within the Indo-Pacific region requires Japan to take a forward role in adapting to rapid challenges ahead. Still, questions linger around Japan's ability to work around constitutional constraints, an aging population, and alliance demands. Despite these concerns, Japan has avenues and opportunities to develop its defensive capabilities in close cooperation with the United States and other partners.

Key Challenges in Japan's Defense Policy presents fresh and insightful reports from Japanese experts on core security issues—from emerging domains like cyberspace and outer space to enduring challenges of strategic competition, deterrence, and demographic change—that it must undertake in the coming years. On January 19, 2020, the United States and Japan celebrated the 60th anniversary of the signing of the U.S.-Japan Mutual Security Treaty.

The foreign and defense ministries of the two countries recognized this occasion by issuing a Joint Statement on January 17, followed by celebratory messages from U.S. President Donald Trump and Japanese Prime Minister Shinzo Abe, commemorating the “peace, security, and prosperity” enabled by the “pillar immovable” that is the alliance.^[1] Through these statements, the two governments sent two significant messages:

- (1) the U.S.-Japan alliance is more critical than ever for the peace and prosperity of the Indo-Pacific region and beyond, and
- (2) the two governments are committed to continuing to strengthen the alliance.

From Tokyo’s perspective, one of the critical components of Japan’s own effort to reinforce the alliance is to continue to modernize its defense capability to better meet the security challenges of today and the future. In this context, Japan released two key defense policy-planning documents in December 2018: the National Defense Program Guidelines (NDPG), a policy document that guides Japan’s defense policy for the next five years, and the Mid-Term Defense Program, an acquisition planning document that supports the NDPG.

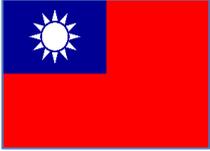
The 2018 NDPG put out “Multidomain Defense Force (tajigen tōgō bōei-ryoku)” as an organizing concept that Japan will strive towards. Explained as deepening the concept of a “Dynamic Joint Defense Force (dōteki bōei-ryoku)” that was laid out in the 2013 NDPG, this new concept is supposed to serve as a vision that guides the effort to better prepare Japan to effectively meet the security challenges that Japan will face over the next several years.[\[ii\]](#)

At the time of the release, the reference made in the NDPG to the possibility of acquiring long-range missile capability and the clear indication of Japan’s intention to acquire an aircraft carrier attracted intense media attention. However, the document highlighted other domains as the new priority for Japan’s defense-planners: space, cyberspace, and the electromagnetic spectrum. Some of these “new” domains identified are not new to the 2018 NDPG.

In fact, the 2013 NDPG already identified space and cyberspace as emerging battle domains that can potentially affect the operation of the Japan Self-Defense Forces (SDF) considerably. However, while these domains’ importance to the SDF’s future operational environment was mentioned, investment in these areas was not prioritized. What makes the 2018 NDPG’s emphasis on these areas, along with the electromagnetic spectrum, different from previous defense policy iterations is that they are identified as critical enablers for future SDF operations in cross-domain environments and acknowledged as high-priority areas of investment.

The 2018 NDPG also reiterates that the security environment in Japan’s immediate neighborhood continues to degrade, stressing the importance of continuing to strengthen Japan’s alliance with the United States. In addition, the NDPG discusses the need for Japan to continue to expand its security cooperation with other likeminded countries, particularly in the Indo-Pacific region. Indeed, the security environment that Japan—and the U.S.-Japan alliance broadly—faces is changing at an accelerated speed, its unpredictability quickly growing.

In addition to the threats that have consistently been present, such as North Korea’s nuclear and missile program and China’s growing aggressive behavior, and the impact of emerging technologies in the battlespace, Japan finds itself in a security environment that is becoming less and less safe, particularly given the perceived declining commitment of the U.S. in the region. Given such circumstances, analyses that carefully examine how Japan plans to meet these challenges are indeed appropriate. That is why Stimson’s Japan Program decided to “go back to the basics” and chose key challenges for Japan’s defense policy, as identified and highlighted in the 2018 NDPG, as the theme for this year’s edition of the Views from the Next Generation series.



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